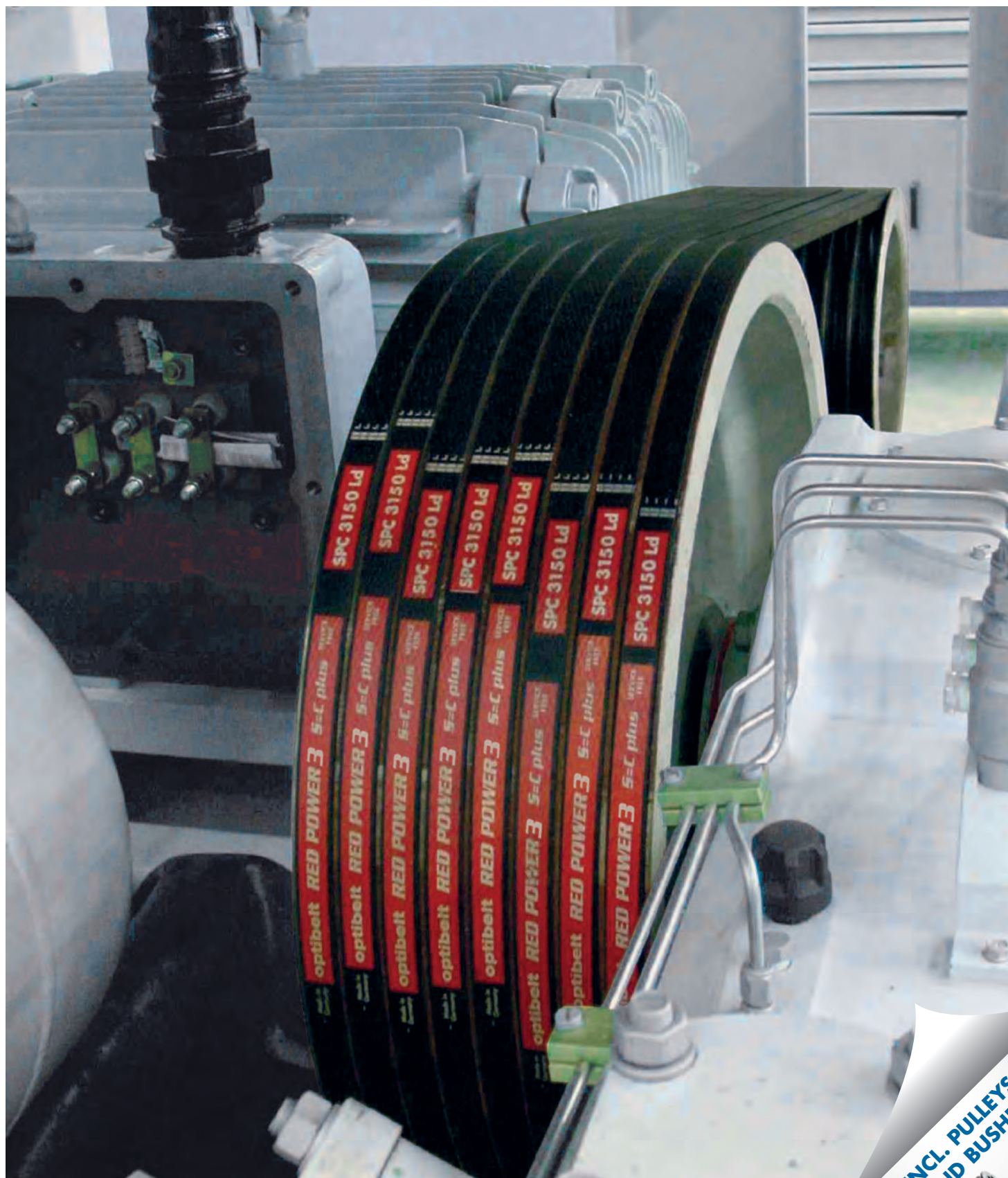




# OPTIBELT TECHNICAL MANUAL V-BELT DRIVES



INCL. PULLEYS  
AND BUSHES





This technical manual contains all important technical information and methods for the design and calculation of drives with Optibelt V-belts and V-grooved pulleys for industrial applications.

Our Application Technology experts offer you free support service regarding the application of our products and also help solve your drive problems.

Especially regarding large volumes you should make use of this service. We offer you the optimum solution using state-of-the-art programmes, the CAP drive calculation software.



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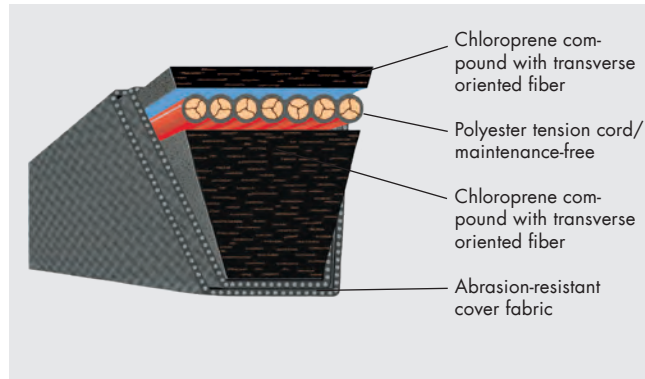
# PRODUCT DESCRIPTION

## optibelt RED POWER 3 HIGH PERFORMANCE WEDGE BELTS



### Structure

optibelt RED POWER 3 wedge belts:



The tension cord consists of a special polyester cord. Due to the special processing of the tension cord the optibelt RED POWER 3 wedge belt is very low-stretch and maintenance-free, so that re-tensioning is not necessary.

The transverse fibre mixture on top of and under the tension cord guarantees a high dynamic load of the belt and ensures great flexibility. The cover fabric is highly flexible and abrasion-proof.

### Properties

The optibelt RED POWER 3 is maintenance-free due to the high quality components and the special production method. The production processes are continuously monitored using state-of-the-art static and dynamic testing devices. The optibelt RED POWER 3 is suitable for the application in drives with idler pulleys due to its special construction.

The optibelt RED POWER 3 has the following properties:

- Maintenance-free
- Powerful
- Cost-effective
- S=C Plus usable in sets
- Environmentally friendly
- Electrically conductive according to ISO 1813
- Oil-resistant
- Heat-resistant
- Dust-protected as standard

On request with acceptance test certificate according to EN 1020 "3.1.B".

### V-belt tensioning

For the initial installation of optibelt RED POWER 3 V-belts, the same methods are used as for standard Optibelt V-belts. The tension values are to be calculated on the same basis or to be taken from the table on page 147. Once correctly tensioned optibelt RED POWER 3 V-belts need no re-tensioning.

### Application areas

optibelt RED POWER 3 wedge belts were especially developed for mechanical engineering. The application areas include compressors, pumps, presses, fans and other heavy duty drives.

### Standardisation/Dimensions

optibelt RED POWER 3 wedge belts in the profiles SPZ, SPA, SPB, SPC, 3V/9N, 5V/15N and 8V/25N are standardised according to DIN 7753 Part 1, ISO 4184 and ARPM/MPTA.

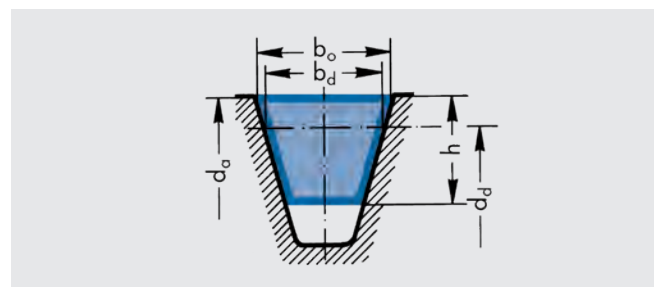


Table 1

| Profile                                   |                      | SPZ   | SPA   | SPB   | SPC   |
|-------------------------------------------|----------------------|-------|-------|-------|-------|
| Belt top width                            | $b_o \approx$        | 9.7   | 12.7  | 16.3  | 22    |
| Datum width                               | $b_d \approx$        | 8.5   | 11    | 14    | 19    |
| Belt height                               | $h \approx$          | 8     | 10    | 13    | 18    |
| Recommended minimum datum pulley diameter | $d_{d \min}$         | 63    | 90    | 140   | 224   |
| Weight per meter (kg/m)                   | $\approx$            | 0.074 | 0.123 | 0.195 | 0.377 |
| Flex rate ( $s^{-1}$ )                    | $f_{B \max} \approx$ | 100   |       |       |       |
| Belt speed (m/s)                          | $v_{\max} \approx$   | 55*   |       |       |       |

\* $v > 55$  m/s. Please consult our Application Engineering Department.

Table 2

| Profile                                     |                      | 3V/9N | 5V/15N | 8V/25N |
|---------------------------------------------|----------------------|-------|--------|--------|
| Datum width                                 | $b_o \approx$        | 9     | 15     | 25     |
| Belt height                                 | $h \approx$          | 8     | 13     | 23     |
| Recommended minimum outside pulley diameter | $d_{a \min}$         | 67    | 151    | 315    |
| Weight per meter (kg/m)                     | $\approx$            | 0.074 | 0.195  | 0.575  |
| Flex rate ( $s^{-1}$ )                      | $f_{B \max} \approx$ | 100   |        |        |
| Belt speed (m/s)                            | $v_{\max} \approx$   | 55*   |        |        |

\* $v > 55$  m/s. Please consult our Application Engineering Department.

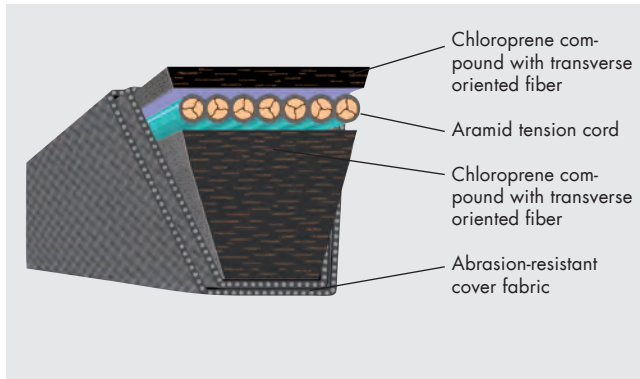
# PRODUCT DESCRIPTION

## optibelt BLUE POWER HIGH PERFORMANCE WEDGE BELTS



### Structure/Properties

optibelt BLUE POWER wedge belts:



The aramid tension cord has extremely low stretch compared to common materials such as polyester. The breaking strength is almost twice as high with the same cord diameter. Nevertheless, the fibre is extremely flexible. The high quality specially prepared aramid tension cord is embedded in a rubber compound. It is supported by the top and bottom structures. These consist of a polychloroprene rubber compound with transverse fibres. The abrasion-proof cover fabric is coated with a special rubber compound and covers the whole belt. The V-belt is electrically conductive according to ISO 1813

### Application areas

optibelt BLUE POWER belts are mainly used when

- highest power transmission levels are required
- there are limited design dimensions
- there is only little installation and tensioning space
- high temperature influences occur

This way, a much better performance is guaranteed e.g. with the same number of belts. Even the operation of once critical drives is now largely free of risk. Higher load limits are now safety zones. Thus optibelt BLUE POWER belts are mainly implemented in heavily loaded drives:

- in critical drives in mechanical engineering
- in special machines
- in agricultural machinery

### Application

Attention: When retro-fitting existing drives please let Optibelt check the tension. As part of this description not all criteria can be dealt with. Please consult our Application Engineering Department.

### Standardisation/Dimensions

optibelt BLUE POWER wedge belts in the profiles SPZ, SPA, SPB, SPC, 3V/9N, 5V/15N and 8V/25N are standardised according to DIN 7753 Part 1, ISO 4184 and ARPM/MPTA.

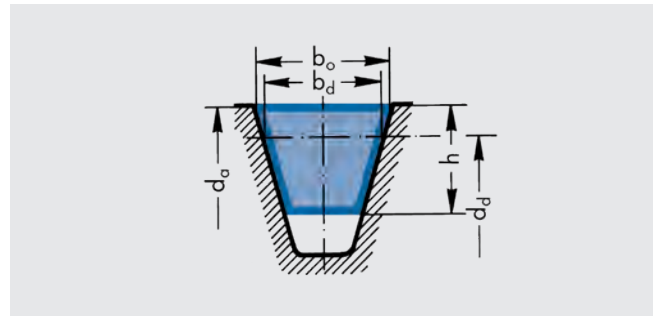


Table 3

| Profile                                   |                      | SPB   | SPC   |
|-------------------------------------------|----------------------|-------|-------|
| Belt top width                            | $b_o \approx$        | 16.3  | 22    |
| Datum width                               | $b_d \approx$        | 14    | 19    |
| Belt height                               | $h \approx$          | 13    | 18    |
| Distance                                  | $h_d \approx$        | 3.5   | 4.8   |
| Recommended minimum datum pulley diameter | $d_{d \min}$         | 180   | 280   |
| Weight per meter (kg/m)                   | $\approx$            | 0.206 | 0.389 |
| Flex rate ( $s^{-1}$ )                    | $f_{B \max} \approx$ | 100   |       |
| Belt speed (m/s)                          | $v_{\max} \approx$   | 50*   |       |

\* $v > 50$  m/s. Please consult our Application Engineering Department.

Table 4

| Profile                                     |                      | 5V/15N | 8V/25N |
|---------------------------------------------|----------------------|--------|--------|
| Datum width                                 | $b_o \approx$        | 15     | 25     |
| Belt height                                 | $h \approx$          | 13     | 23     |
| Recommended minimum outside pulley diameter | $d_{a \min}$         | 191    | 315    |
| Weight per meter (kg/m)                     | $\approx$            | 0.204  | 0.603  |
| Flex rate ( $s^{-1}$ )                      | $f_{B \max} \approx$ | 100    |        |
| Belt speed (m/s)                            | $v_{\max} \approx$   | 50*    |        |

\* $v > 50$  m/s. Please consult our Application Engineering Department.

# PRODUCT DESCRIPTION

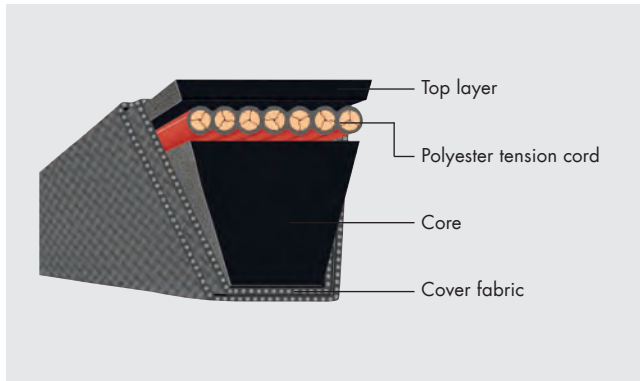
## optibelt **SK** HIGH PERFORMANCE WEDGE BELTS

### DIN 7753 PART 1 / ISO 4184



#### Structure

optibelt SK high performance wedge belts consist of:



The polyester tension cord is standard for all profiles and cross sections, with cord constructions matching the requirements of each profile. The cord is specially impregnated and then embedded in a special rubber compound homogeneously bonding with the top layer and the core.

Due to special processing, the optibelt SK wedge belt is extremely low-stretch. Thus we were able to reduce our recommendation values for minimum axial distance significantly – even dropping below the DIN/ISO requirements. The fabric cover is treated with a wear-resistant rubber compound. This makes the belt resistant to oil, hot and cold temperatures and to the effects of dust.

#### Properties

The use of the best materials and the most advanced production methods result in this high performance drive element, the optibelt SK wedge belt. The production processes are continuously monitored using state-of-the-art static and dynamic testing devices.

optibelt SK high power wedge belts exceed classic V-belts according to DIN 2215 thanks to the following characteristics:

- Substantially lower width compared to classic V-belt drives that have the same power rating (height to width ratio of approximately 1 : 1.2). Due to the available space gained by this, the costs for a complete drive with optibelt SK high performance wedge belts are lower than a design with DIN 2215 V-belts.
- Bigger friction surface lowers the centrifugal force and permits belt speeds of up to 42 m/sec.
- Much more elastic, therefore bigger flex rate allowed.
- Little deformation of the belt cross-section when running in grooves, therefore balanced pressure on the belt edges.

These characteristics allow for a significantly better performance than V-belts DIN 2212 with approximately the same top widths. Therefore, we recommend equipping all new drives with optibelt SK wedge belts.

#### Application areas

optibelt SK wedge belts in the profiles SPZ, SPA, SPB and SPC were specially developed for all industrial applications from lightly loaded drives, such as those for pumps, up to heavily loaded mills and even stone crusher drives.

#### Standardisation/Dimensions

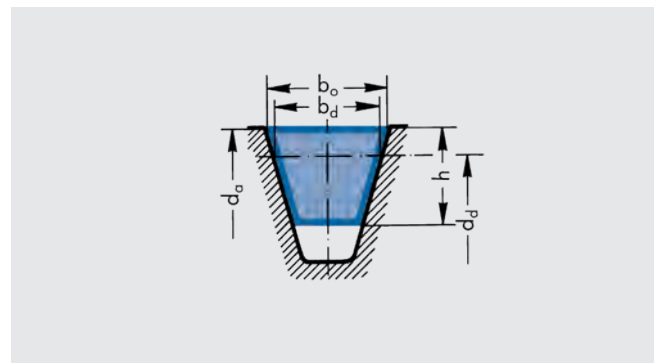
optibelt SK wedge belts SPZ, SPA, SPB and SPC comply with the standards of DIN 7753 and ISO 4184.

The ISO standards specify the datum width as a basis for the standardisation of V-belts and grooves.

The staggering of the datum lengths is implemented according to DIN 7753 Part 1 corresponding to the standard number sequence R 40. In exceptional cases also corresponding to standard number sequence R 20.

For many years, our product range has comprised serial production datum lengths of standard number sequence R 40 and beyond.

**Note:** Electrically conductive according to ISO 1813.



**Table 5**

| Profile                                   |                    | SPZ   | SPA   | SPB   | SPC   |
|-------------------------------------------|--------------------|-------|-------|-------|-------|
| Belt top width                            | $b_o \approx$      | 9.7   | 12.7  | 16.3  | 22    |
| Datum width                               | $b_d \approx$      | 8.5   | 11    | 14    | 19    |
| Belt height                               | $h \approx$        | 8     | 10    | 13    | 18    |
| Recommended minimum datum pulley diameter | $d_{dmin}$         | 63    | 90    | 140   | 224   |
| Weight per meter (kg/m)                   | $\approx$          | 0.074 | 0.123 | 0.195 | 0.377 |
| Flex rate ( $s^{-1}$ )                    | $f_{Bmax} \approx$ | 100   |       |       |       |
| Belt speed (m/s)                          | $v_{max} \approx$  | 42*   |       |       |       |

\* $v > 42$  m/s. Please consult our Application Engineering Department.

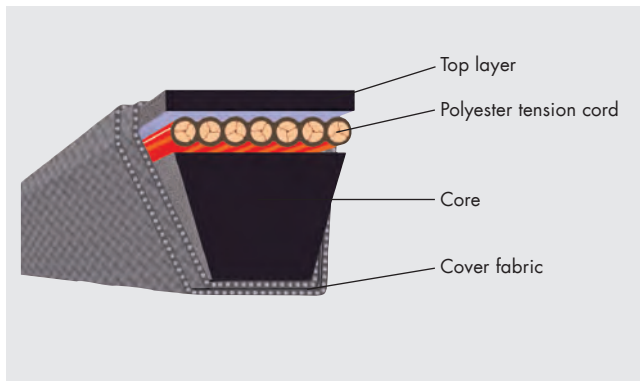
# PRODUCT DESCRIPTION

## optibelt SK HIGH PERFORMANCE WEDGE BELTS ARPM/MPTA



### Structure/Properties

optibelt SK high performance wedge belts according to ARPM/MPTA have the same structure and properties as wedge belts according to DIN 7753 Part 1.



### Standardisation/Dimensions

The three wedge belt profiles standardised in the USA are 3V/9N, 5V/15N and 8V/25N. The cross section dimensions of these belts and the according length only partially conform to the profiles and lengths of the wedge belts DIN 7753 Part 1.

The profile 3V/9N roughly corresponds to SPZ; and 5V/15N to profile SPB. There is no comparable DIN/ISO wedge belt profile for 8V/25N. It is possible to use belts in profile 3V/9N and 5V/15N in SPZ-Z/10 or SPB-B/17 pulleys, respectively; but the use of SPZ or SPB belts in ARPM/MPTA standard pulleys is not generally recommended. The top width of the American pulley grooves is smaller than that of the corresponding DIN/ISO pulleys. This can cause wear on the upper edges of SPZ and SPB belts and can lead to premature failure.

Due to its cross section, the optibelt SK wedge belt in SPB profile is also suitable for 5V/15N pulleys.

**Note:** Electrically conductive according to ISO 1813.

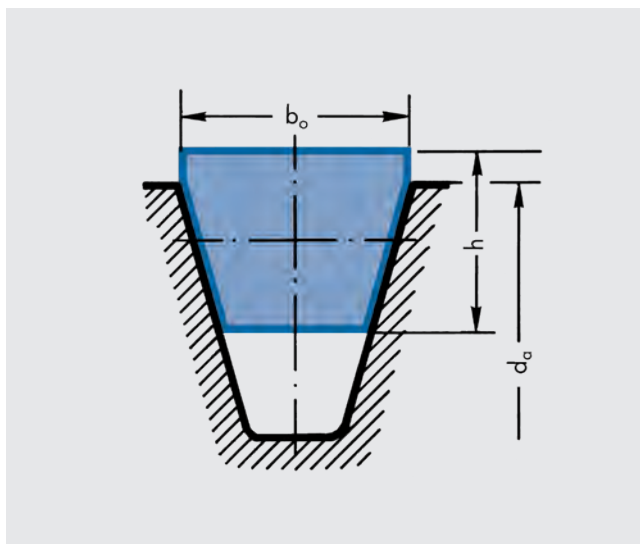


Table 6

| Profile                                     |                      | 3V/9N | 5V/15N | 8V/25N |
|---------------------------------------------|----------------------|-------|--------|--------|
| Belt top width                              | $b_o \approx$        | 9     | 15     | 25     |
| Belt height                                 | $h \approx$          | 8     | 13     | 23     |
| Recommended minimum pulley outside diameter | $d_{a \min}$         | 67    | 151    | 315    |
| Belt weight (kg/m)                          | $\approx$            | 0.074 | 0.195  | 0.575  |
| Flex rate ( $s^{-1}$ )                      | $f_{B \max} \approx$ | 100   |        |        |
| Belt speed (m/s)                            | $v_{\max} \approx$   | 55*   |        |        |

\* $v > 55$  m/s. Please contact our Application Engineering Department.

The belt length designation refers to the effective outside length.

Example:

| Inch designation                                      | Metric designation                |
|-------------------------------------------------------|-----------------------------------|
| 3V 750                                                | 9N 1905                           |
| 3V = profile 3/8" top width                           | 9 $\approx$ 9 mm top width        |
| 750 = outside length in inches: 10 (1 inch = 25.4 mm) | N = designation for single V-belt |
| Outside length in mm:                                 | 1905 = effective outside length   |
| $L_a = \frac{750 \cdot 25.4}{10}$                     |                                   |
| $L_a = 1905$ mm                                       |                                   |

### Application examples

The use of optibelt SK wedge belt drives in profiles 3V/9N and 5V/15N is recommended for machines exported to countries such as the USA and Canada where these belt profiles are standardised and predominantly used. Profile 8V/25N is primarily employed in very heavy duty drives such as mills or stone crushers. As these wedge belts transmit very high levels of power, they can sometimes form a more compact drive than the SPC profile. For this reason, the 8V/25N profile has continued to be used in Europe for such applications. A further advantage is the fact that single wedge belts can be replaced by kraft-bands, without changing the pulley geometry, in case unexpected belt vibration problems develop.

### Drive calculation

Drive calculations follow the procedures described in this manual. The power value of the SPZ applies for drives with the 3V/9N profile. The value of the SPB profile applies for 5V/15N. The datum diameters of the SPZ and SPB wedge belts have to be the same as the external diameters of the 3V/9N and 5V/15N. Slight mathematical differences in the rotational frequency and transmission have no practical influence. Slight differences in the theoretical drive speed and the speed ratio are not significant in practice.

# PRODUCT DESCRIPTION

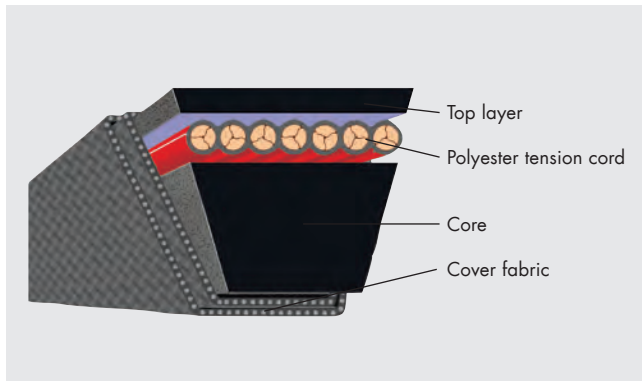
## optibelt VB CLASSIC V-BELTS

### DIN 2215 / ISO 4184



#### Structure/Properties

optibelt VB classic V-belts are manufactured using the same production processes as those for optibelt SK high performance wedge belts.



The components used are perfectly suited to the power ratings  $P_N$ . These values are far above those given by DIN 2218. Thus the operational safety in existing drives is increased and overloading is avoided.

- optibelt VB classic V-belts have a height-width ratio of 1:1.6.
- The maximum belt speed  $v_{\max} = 30 \text{ m/s}$  should not be exceeded.
- The allowed flexibility rate is far below that of wedge belts. It is  $f_{B \max} = 80 \text{ s}^{-1}$ .

#### Application areas

optibelt VB classic V-belts are mainly employed as replacement parts for industrial drives. For new drives, the use of high performance wedge belts is almost always recommended due to reasons of space and cost. However, special drives such as V-flat drives can often only be operated with classic V-belts. In special constructions, optibelt VB classic V-belts tackle difficult drives in the gardening sector and in agricultural machinery.

For these applications special belt constructions and calculation methods are required which are not included in this manual. In these cases we ask you to give us the according drive data.

#### Standardisation/Dimensions

optibelt VB classic V-belts in the profiles Y/6, Z/10, A/13, B/17, C/22, D/32 and E/40 are standardised according to DIN 2215 and ISO 4184.

Further, non-standardised ISO profiles 5, 8, 20 and 25 are available. These profiles should however not be used due to reasons of exchangeability and rationalisation.

**The ISO standard 4184 specifies the datum length for measuring the belt length. The former belt designation of the inside length  $L_i$  is replaced by the datum length  $L_d$ . For the conversion factors from pitch to inside length, please see page 167.**

**Note:** Electrically conductive according to ISO 1813.

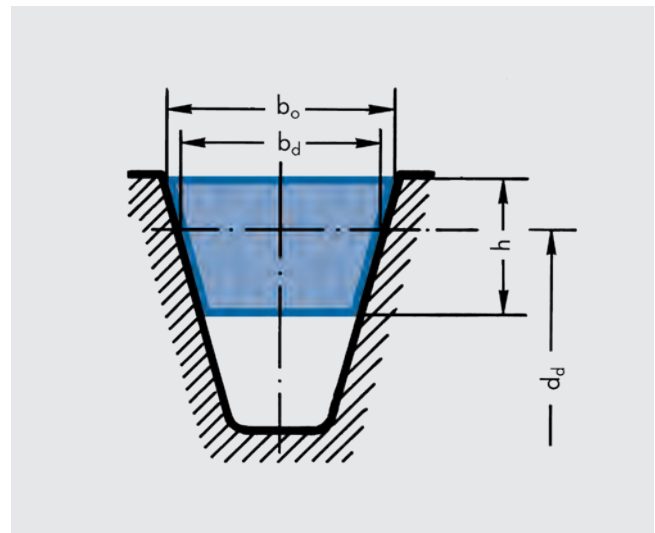


Table 7

| Profile                                   | DIN 2215             | (5)   | 6     | (8)   | 10    | 13    | 17    | (20)  | 22    | (25)  | 32    | 40    |
|-------------------------------------------|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                                           | ISO 4184             | –     | Y     | –     | Z     | A     | B     | –     | C     | –     | D     | E     |
| Belt top width                            | $b_o \approx$        | 5     | 6     | 8     | 10    | 13    | 17    | 20    | 22    | 25    | 32    | 40    |
| Datum width                               | $b_d$                | 4.2   | 5.3   | 6.7   | 8.5   | 11    | 14    | 17    | 19    | 21    | 27    | 32    |
| Belt height                               | $h \approx$          | 3     | 4     | 5     | 6     | 8     | 11    | 12.5  | 14    | 16    | 20    | 25    |
| Recommended minimum pulley datum diameter | $d_{d \min}$         | 20    | 28    | 40    | 50    | 71    | 112   | 160   | 200   | 250   | 355   | 500   |
| Belt weight (kg/m)                        | $\approx$            | 0.018 | 0.026 | 0.042 | 0.064 | 0.109 | 0.190 | 0.266 | 0.324 | 0.420 | 0.690 | 0.958 |
| Flex rate ( $\text{s}^{-1}$ )             | $f_{B \max} \approx$ | 80    |       |       |       |       |       |       |       |       |       |       |
| Belt speed (m/s)                          | $v_{\max} \approx$   | 30    |       |       |       |       |       |       |       |       |       |       |

# PRODUCT DESCRIPTION

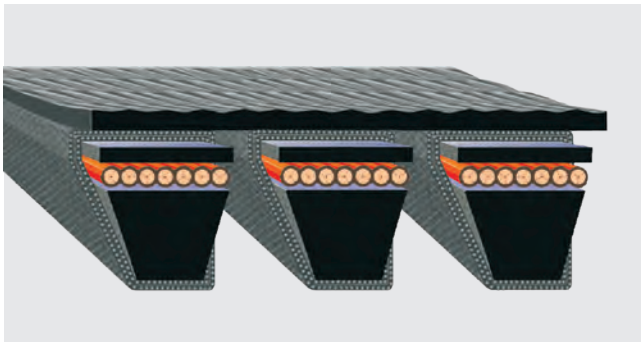
## optibelt KB KRAFTBANDS



### Product characteristics

optibelt KB kraftbands are characterised by the following properties:

- High level of uniform power transmission
- Favourable running behaviour especially regarding vibration
- Excellent flexibility
- High centre distances with small pulley datum diameters
- V-flat drives
- Vertical drives
- Clutched drives and conveyance drives



optibelt KB kraftbands consist of individual V-belts that are connected to one another via a top surface. Depending on the application the kraftbands will be fitted with two, three, four or five ribs.

On special request, kraftbands can also be delivered with more than five ribs.

When using multiple kraftbands per drive, combinations of sets are required.

### Order example

The drive is to be equipped with a 5V 1600/15J 4064 kraftband with 18 ribs.

Kraftbands: Installation combination with 5/4/4/5 ribs

### The order is as follows:

A KB set, consisting of:

2 pieces optibelt KB kraftbands 4-5V 1600/15J 4064 and

2 pieces optibelt KB kraftbands 5-5V 1600/15J 4064

4 or 5 = quantity of ribs

5V/15J = profile

1600 = belt number or 160 inch belt length

4064 = outside length in mm

### Standardisation/Dimensions

#### optibelt KB wedge belts

optibelt KB kraftbands with high power wedge belts are manufactured in SPZ, SPA, SPB, SPC profiles as well as in 3V/9J, 5V/15J, 8V/25J in compliance with international conventions.

SPZ, SPA, SPB and SPC kraftbands can be used with V-grooved pulleys according to DIN 2211 and ISO 4183.

3V/9J, 5V/15J, 8V/25J kraftbands can be used with V-grooved pulleys according to ISO 5290 and ARPM/MPTA IP 22.

#### optibelt KB classic V-belts

optibelt KB kraftbands with classic V-belts are manufactured in AJ/HA, BJ/HB, CJ/HC, DJ/HD profiles in compliance with international conventions.

The ISO 5291 standard and the ARPM/MPTA IP 20 standard are applied to kraftbands in machine construction. The ASAE S211. ... USA standard is applied to kraftbands used in agricultural machine construction.

**Note:** Electrically conductive according to ISO 1813.

# PRODUCT DESCRIPTION

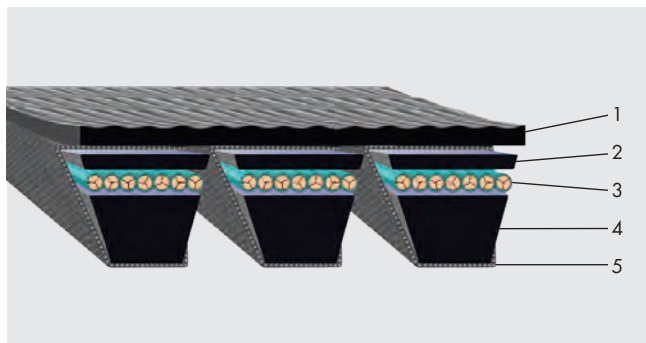
## optibelt KB KRAFTBANDS



### Product design

The optibelt KB kraftbands are used in the most varied constructions according to the technical requirements and applications.

### Wrapped kraftbands



- 1 Top surface
- 2 Top layer
- 3 Polyester tension cord
- 4 Core
- 5 Cover fabric

### Profiles

3V/9J; 5V/15J; 8V/25J;  
SPZ; SPA; SPB; SPC;  
A/HA; B/HB; C/HC; D/HD

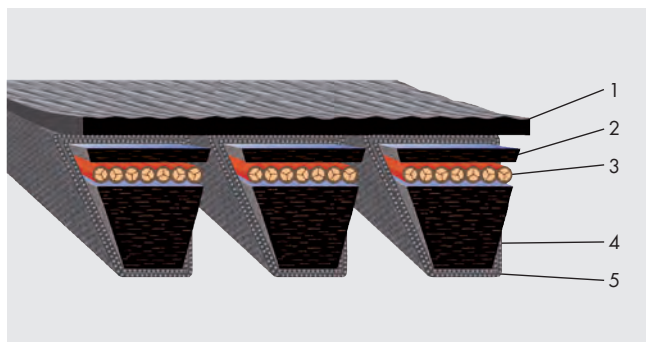
### Dimensions

1200 mm to 12.000 mm  
standard range

### Application areas

Optibelt wrapped KB kraftbands are primarily used in mechanical engineering and agricultural machines.

### optibelt RED POWER 3 high performance kraftbands – wrapped



- 1 Top surface
- 2 Chloroprene compound with transverse oriented fiber
- 3 Polyester tension cord. maintenance-free
- 4 Chloroprene compound with transverse oriented fiber
- 5 Abrasion-resistant cover fabric

### Profiles

3V/9J; 5V/15J; 8V/25J;  
SPB; SPC

### Dimensions

1270 mm to 12.000 mm  
standard range

### Application areas

This compact drive element is primarily used for special problem solutions in mechanical engineering and commercial vehicle construction.

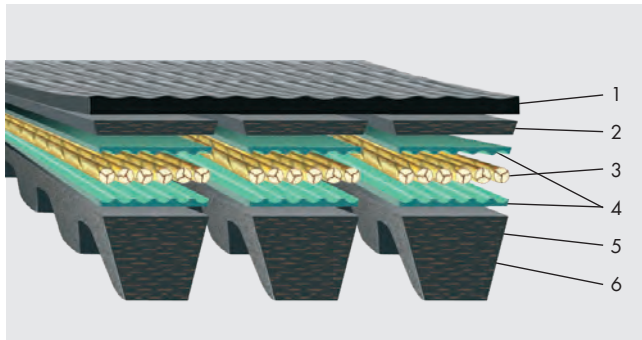
We recommend the use of optibelt KB RED POWER 3 for maintenance-free drives and for the use with back bend tension idlers.

# PRODUCT DESCRIPTION

## optibelt KB KRAFTBANDS



### High performance kraftbands – raw edge optibelt SUPER KBX-POWER



- 1 Top surface
- 2 Upper belt structure
- 3 Polyester tension cord, low maintenance
- 4 Embedding compound
- 5 Belt base
- 6 Moulded cogs

#### Profiles

3VX/9JX; 5VX/15JX;  
XPB  
XPZ; XPA on request

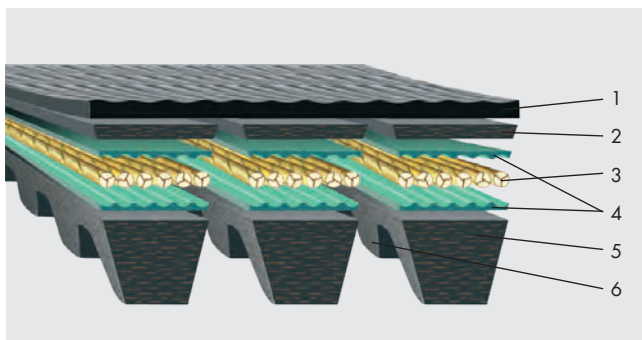
#### Dimensions

1270 mm to 3556 mm  
standard range

#### Application areas

The use of optibelt SUPER KBX-POWER kraftbands is recommended when dealing with compact drive solutions with high power requirements, small pulley datum diameters and for many more special applications in mechanical engineering and vehicle construction.

### Kraftbands with aramid cord – wrapped and raw edge



- 1 Top surface
- 2 Upper belt structure
- 3 Aramid tension cord, low maintenance
- 4 Embedding compound
- 5 Belt base
- 6 Moulded cogs

#### Profiles

3V/9J; 5V/15J; 8V/25J;  
SPB; SPC; 5VX/15JX;  
A/HA; B/HB; C/HC

#### Dimensions

1270 mm up to 12.000 mm wrapped kraftbands  
1270 mm up to 3556 mm raw edge kraftbands  
standard range

#### Application areas

The advantages of the optibelt KB kraftbands with aramid tension cords become obvious when dealing with heavy loaded drives in mechanical engineering and in the agricultural machine industry. These kraftbands provide the highest possible level of reliability wherever high temperature impacts and low adjustment ranges are present.

# PRODUCT DESCRIPTION

## optibelt KB KRAFTBANDS



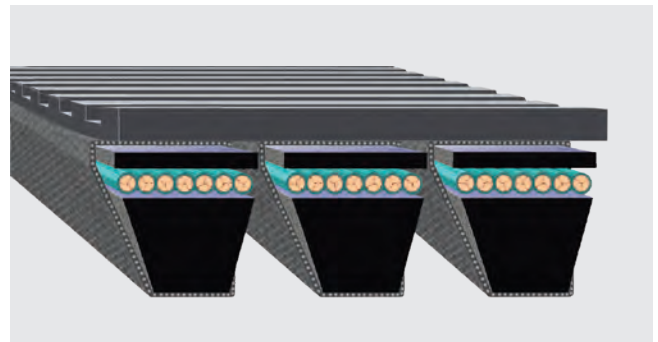
### Kraftbands with top coatings



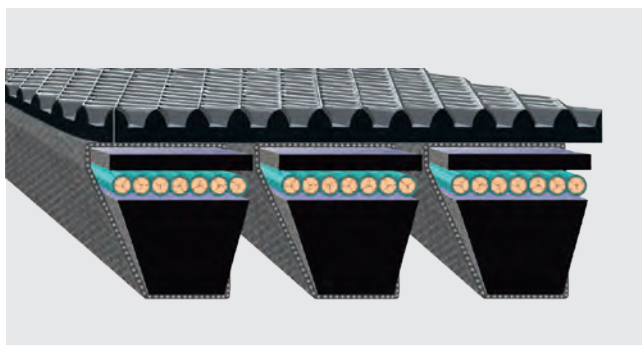
- 1 PKR top surface
- 2 Top layer
- 3 Polyester tension cord
- 4 Core
- 5 Cover fabric



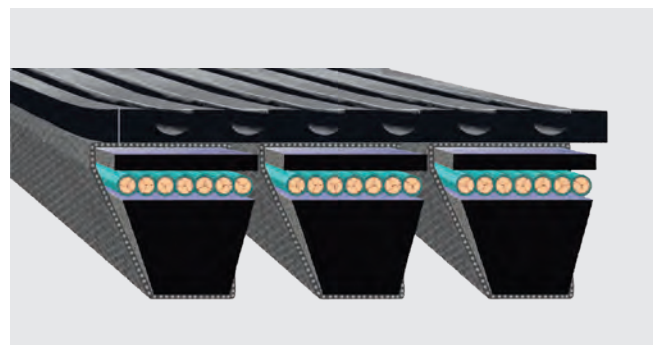
Kraftband  
with PKR 0 coating



Kraftband  
with PKR 1 coating



Kraftband  
with PKR 2 coating



Kraftband  
with PKR 3 coating

### Application areas

When dealing with conveyance applications, the optibelt KB kraftbands can be provided with an additional coating.

With patterned top surfaces, these kraftbands are suitable for the conveyance of containers, heavy cargo and for diverse transport and shipment equipment. Further details see chapter "Conveyor elements".

### Drive calculation

Drives with optibelt KB kraftbands in mechanical engineering have to be designed according to the stated drive calculation example found on pages 83 to 85 in this manual as well as according to the power values for the according products and profiles.

**Special power and tension values apply for Optibelt kraftbands with aramid constructions. Agricultural machine drives will be dimensioned according to special calculation methods. Therefore we request the submission of the technical data.**

# PRODUCT DESCRIPTION

## optibelt **SUPER X-POWER M=S**

### RAW EDGE, COGGED – DIN/ISO, ARPM/MPTA



#### Advantages

optibelt SUPER X-POWER M=S wedge belts are perfectly suited for applications with

- extremely small pulley diameters
- high rotational speeds
- high and low ambient temperatures

optibelt SUPER X-POWER M=S wedge belts offer

- high power transmission
- extremely low stretch
- improved maintenance intervals – low maintenance
- optimised running characteristics – smooth running
- excellent heat and oil resistance
- M=S, for set matching
- electrically conductive according to ISO 1813

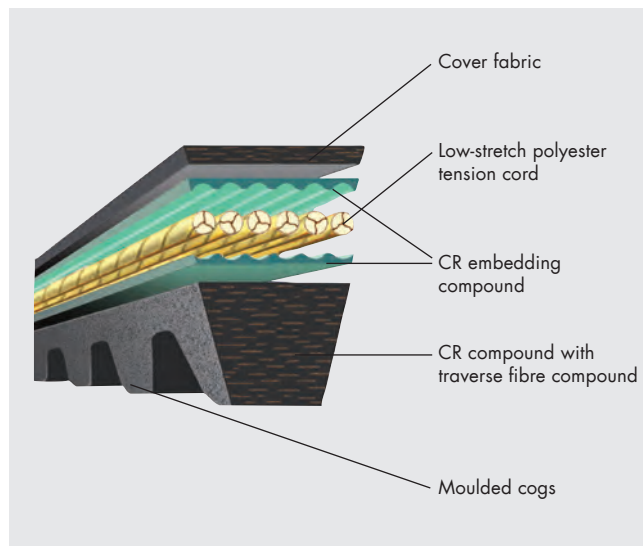
Drive ratios  $i = 1 : 12$  are possible with optibelt SUPER X-POWER.

Multi-stage drives can be eliminated.

optibelt SUPER X-POWER M=S wedge belts in profiles XPZ, XPA, XPB, XPC, 3VX/9NX and 5VX/15NX, offer the best technical and economic solutions due to their harmonised premium materials.

#### Structure/Properties

optibelt SUPER X-POWER M=S consist of:



1. The special polyester tension cord of optibelt SUPER X-POWER M=S is extremely low-stretch and allows for maintenance-free drives.

The number of re-tensioning processes is reduced and the drive becomes less expensive in the long term.

2. The structure of the cover fabric supports the tension cord and this is how the optibelt SUPER X-POWER M=S achieves its high level of flexibility.

3. The belt base structure consists of a high performance chloroprene compound, reinforced with a traverse fibre compound.

The special tension cord and the optimum tooth shape allow for higher dynamic power transmissions, improved bending stress and a higher temperature resistance.



As high power transmission is possible, even with small pulley diameters and high engine speed, weight and space can be reduced thus also substantially reducing costs.

#### Application areas Machines:

- compressors
- fans
- compactors
- pumps
- wood working machines
- high performance saws
- special machines

#### Machine tools:

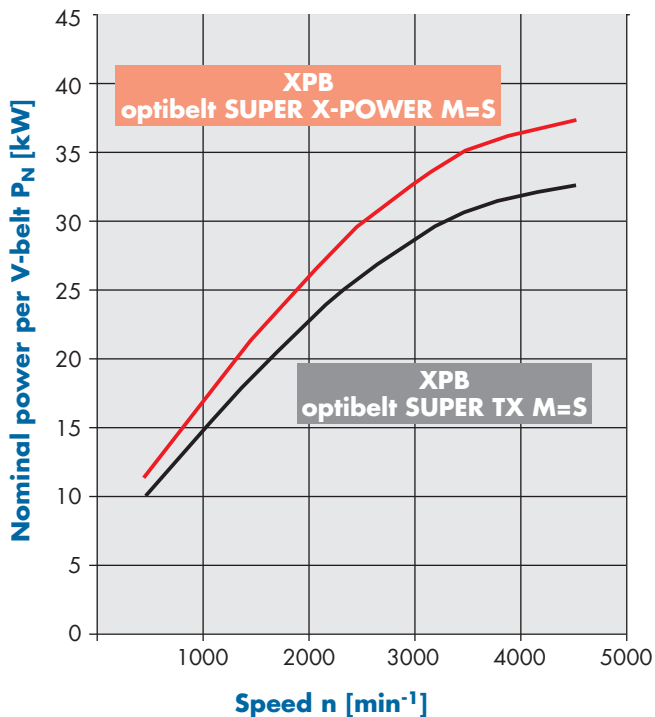
- lathes and drilling machines
- grinding machines

optibelt SUPER X-POWER M=S V-belts are recommended for mechanical engineering applications wherever wrapped V-belts are likely to reach their performance limits.

# PRODUCT DESCRIPTION

## optibelt **SUPER X-POWER M=S**

### RAW EDGE, COGGED – DIN/ISO, ARPM/MPTA



#### Belt tension / Static shaft load

Belt tension and static shaft load are calculated in the same way as for wrapped belts. When dealing with the same geometric ratios, the shaft load does not exceed that of wrapped belts although the quantity of the belts is often less. Therefore, only the individual V-belt requires higher tension than wrapped belts.

The precise edges of the optibelt SUPER X-POWER M=S V-belt ensure uniform seating in the pulley grooves, resulting in smoother running.

#### Drive calculation

Drive design using optibelt SUPER X-POWER M=S belts should be carried out according to the examples given on pages 83 to 85. The higher power ratings given in the relevant tables, apply. These are based on a theoretical laboratory running time of 25.000 hours.

#### Standardisation/Dimensions

The cross sections and dimensions of optibelt SUPER X-POWER M=S V-belts are in accordance with DIN 7753 Part 1, DIN 2215, ISO 4184 and ARPM/MPTA.

The basis for the length measurement is the datum length ( $L_d$ ) to DIN/ISO.

Table 8

| Profile         | Top belt width<br>$b_o \approx$ | Datum width<br>$b_d$ | Belt height<br>$h \approx$ | Meter weight<br>[kg/m] $\approx$ |
|-----------------|---------------------------------|----------------------|----------------------------|----------------------------------|
| <b>XPZ</b>      | 9.7                             | 8.5                  | 8                          | 0.065                            |
| <b>XPA</b>      | 12.7                            | 11.0                 | 10                         | 0.105                            |
| <b>XPB</b>      | 16.3                            | 14.0                 | 13                         | 0.183                            |
| <b>XPC</b>      | 22.0                            | 19.0                 | 18                         | 0.340                            |
| <b>3VX/9NX</b>  | 9.0                             | —                    | 8                          | 0.065                            |
| <b>5VX/15NX</b> | 15.0                            | —                    | 13                         | 0.183                            |

#### V-grooved pulleys

optibelt SUPER X-POWER M=S are used with pulleys according to DIN 2211, DIN 2217, ISO 4183 and ARPM/MPTA. Considerably smaller minimum pulley datum diameters are allowed.

Table 9

| Recommended minimum pulley diameter [mm]<br>wedge belt |                     |               |         |
|--------------------------------------------------------|---------------------|---------------|---------|
| Profile                                                | Raw edge.<br>cogged | Profile       | Wrapped |
| <b>XPZ</b>                                             | 56                  | <b>SPZ</b>    | 63      |
| <b>XPA</b>                                             | 71                  | <b>SPA</b>    | 90      |
| <b>XPB</b>                                             | 112                 | <b>SPB</b>    | 140     |
| <b>XPC</b>                                             | 180                 | <b>SPC</b>    | 224     |
| <b>3VX/9NX</b>                                         | 56                  | <b>3V/9N</b>  | 67      |
| <b>5VX/15NX</b>                                        | 112                 | <b>5V/15N</b> | 151     |

# PRODUCT DESCRIPTION

optibelt **SUPER XE-POWER PRO M=S**

**RAW EDGE, COGGED – DIN/ISO, ARPM/MPTA**

**EPDM**



## Advantages

The optibelt SUPER XE-POWER PRO M=S is used in demanding applications that require maximum load-bearing capacity under the most demanding conditions, such as

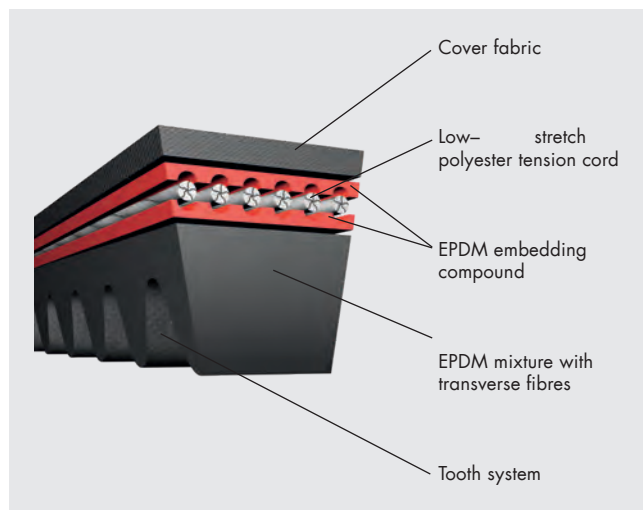
- Use of back bend idlers
- Extremely small pulley diameters
- High speeds
- High and low ambient temperatures

The optibelt SUPER XE-POWER PRO M=S V-belt stands for

- Capacity increase of 20% compared to optibelt SUPER X-POWER
- Maximum load-bearing capacity with extremely low elongation
- Exceptionally smooth running
- Compatible with back bend idlers
- Maintenance-free
- Extended temperature resistance from  $-40^{\circ}\text{C}$  to  $+120^{\circ}\text{C}$
- For use in sets without further measurement, M=S
- Electrically conductive to ISO 1813

## Structure/Properties

optibelt SUPER XE-POWER PRO M=S



1. The low-stretch polyester tension cord of the optibelt SUPER XE-POWER PRO M=S has a very low elongation and thus allows for maintenance-free drives.

2. The red embedding compound ensures optimum adhesion of the tension cord.

3. The belt base structure consists of a high performance EPDM compound, reinforced with transverse fibres.

This substructure in combination with a special tension cord as well as the optimised tooth shape allow for higher power transmission, low bending stress and higher temperature resistance.

## optibelt **SUPER XE-POWER PRO M=S**



The use of the optibelt SUPER XE-POWER PRO M=S allows for high power transmission, both with small pulley diameters and high engine speeds as well as with high torques. This saves space and weight when dimensioning drives and thus also reduces costs.

## Application areas Machines:

- ventilators
- fans
- pumps
- compressors
- wood working machines
- high performance saws
- compactors
- machine tools
- special machines

In mechanical engineering, wrapped V-belts often work at their performance limit and can wear out quickly. In order to permanently prevent downtimes, we recommend using optibelt SUPER XE-POWER PRO M=S.

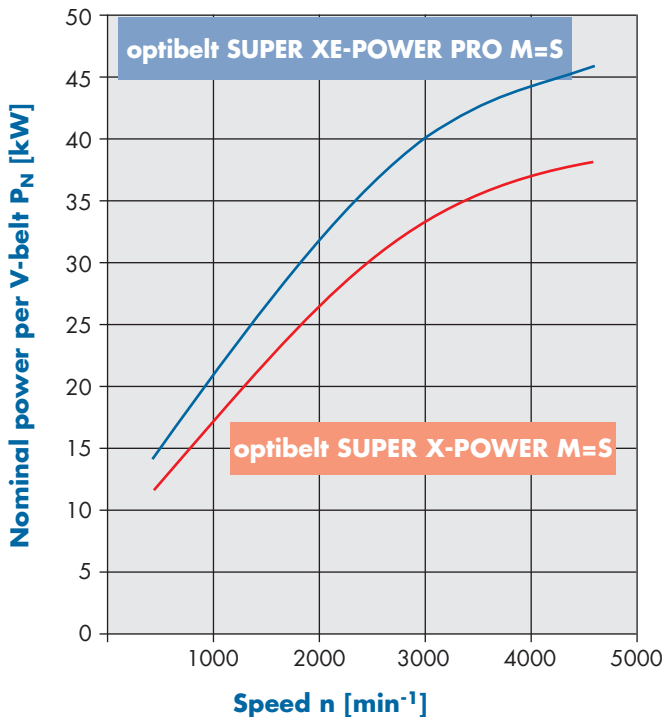
# PRODUCT DESCRIPTION

optibelt **SUPER XE-POWER PRO M=S**

**RAW EDGE, COGGED – DIN/ISO, ARPM/MPTA**



**Power diagram for profile XPB**



## Belt tension / Static shaft load

The belt tension and static axis force are designed according to the example (page 83f.). The optibelt SUPER XE-POWER PRO M=S must be brought to the required belt tension after the running-in process. This ensures maintenance-free operation of the belt.

Due to improved performance values, optibelt SUPER XE-POWER PRO M=S enables higher power transmission compared to standard V-belts. This allows a reduction in the number of belts that are required.

The low manufacturing tolerances of the optibelt SUPER XE-POWER PRO M=S ensure a uniform fit in the pulley grooves and improve the running characteristics of the belt.

## Drive calculation

Drive design using optibelt SUPER XE-POWER PRO M=S belts should be carried out according to Optibelt's drive calculations. The stated performance values are based on a theoretical laboratory running time of 25,000 hours.

## Standardisation/Dimensions

The cross sections and dimensions of optibelt SUPER XE-POWER PRO M=S are in accordance with DIN 7753 Part 1, DIN 2215, ISO 4148 and ARPM/MPTA. The basis for the length measurement is the datum length ( $L_d$ ) to DIN/ISO.

**Table 10**

| Profile  | Top belt width $b_o$ [mm] | Belt height $h$ [mm] | Metre weight [kg/m] |
|----------|---------------------------|----------------------|---------------------|
| XPZ      | ~9.7                      | ~8.5                 | ~0.058              |
| XPA      | ~12.7                     | ~9.0                 | ~0.089              |
| XPB      | ~16.3                     | ~13.0                | ~0.156              |
| XPC      | ~22.0                     | ~16.5                | ~0.274              |
| 3VX/9NX  | ~9.0                      | ~8.5                 | ~0.055              |
| 5VX/15NX | ~15.0                     | ~13.0                | ~0.152              |

## V-grooved pulleys

optibelt SUPER XE-POWER PRO M=S are used with pulleys to DIN 2211, DIN 2217, ISO 4183 and ARPM/MPTA. Considerably smaller minimum pulley datum diameters are allowed.

The outer roller must be dimensioned so that it does not fall below 1.35 times the minimum pulley diameter, depending on the profile (see table 11, p. 18).

**Table 11**

| Recommended minimum pulley diameter [mm]<br>wedge belt |                |         |         |
|--------------------------------------------------------|----------------|---------|---------|
| Profile                                                | Raw edge, cogg | Profile | Wrapped |
| XPZ                                                    | 56             | SPZ     | 63      |
| XPA                                                    | 71             | SPA     | 90      |
| XPB                                                    | 112            | SPB     | 140     |
| XPC                                                    | 180            | SPC     | 224     |
| 3VX/9NX                                                | 56             | 3V/9N   | 67      |
| 5VX/15NX                                               | 112            | 5V/15N  | 151     |

# PRODUCT DESCRIPTION

## optibelt **SUPER TX M=S** V-BELTS

### RAW EDGE, COGGED – DIN/ISO, ARPM/MPTA



The advantages of optibelt SUPER TX M=S V-belts can best be seen when dealing with

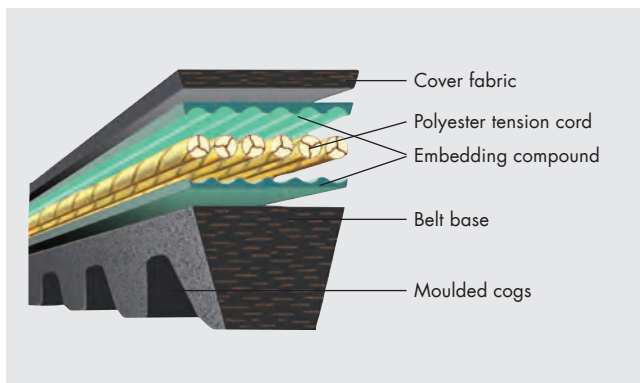
- extremely small pulley diameters
- high rotational speeds
- extremely high power requirements
- higher ambient temperatures

In these cases the use of wrapped V-belts is uneconomic and not recommended.

optibelt SUPER TX M=S V-belts in profiles ZX/X10, AX/X13, BX/X17 and CX/X22 offer the best technical and economic solutions under these conditions due to their high quality perfectly harmonised materials.

#### Structure/Properties

optibelt SUPER TX M=S consist of:



The belt base consists of a polychloroprene rubber compound with traverse fibres which support the tension cord.

This results in

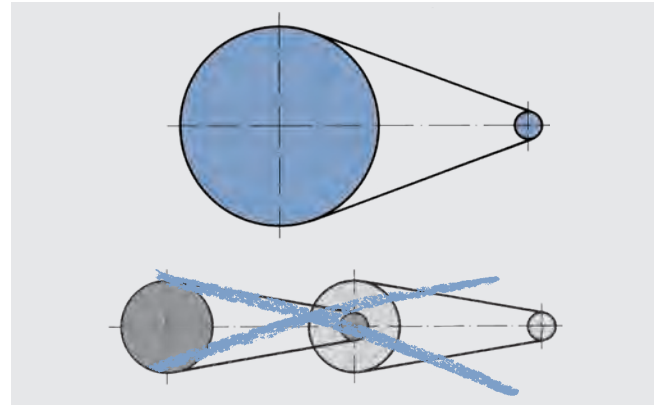
- significant flexing rate
- extreme traverse stability
- significantly improved wear resistance and slip resistance
- electrically conductive according to DIN 1813
- low stretch

The specially prepared tension cord is embedded in a special compound. Even with high dynamic loads a perfect adhesion between all components is assured.

The fabric layers of the upper structure support the tension cord. The fibre-reinforced substructure combined with the Optibelt tension cord and the moulded cogs allows for a higher dynamic power transmission.

The moulded cogs decrease the flexing resistance, resulting in an excellent flexing rate. Thus, much smaller pulleys can be used compared to common wrapped V-belts.

optibelt SUPER TX M=S allows for drive ratios  $i = 1:12$ . Multi-stage drives can be eliminated.



Due to the use of high quality polychloroprene rubber compounds, the optibelt SUPER TX M=S has a higher oil and heat-resistance than wrapped V-belts.

As high power transmission is possible, even with small pulley diameters and high engine speed, weight and space can be reduced thus also substantially reducing costs.

#### Drive calculation

Drive design using optibelt SUPER TX M=S belts should be carried out according to the examples given on pages 83 to 85. The higher power ratings given in the relevant tables, apply. These are based on a theoretical laboratory running time of 25.000 hours.

#### V-grooved pulleys

optibelt SUPER TX M=S are used with pulleys to DIN 2211, DIN 2217, ISO 4183 and ARPM/MPTA. Considerably smaller minimum pulley datum diameters are allowed.

**Table 12**

| Recommended minimum pulley diameter [mm]<br>V-belts |                     |             |         |
|-----------------------------------------------------|---------------------|-------------|---------|
| Profile                                             | Raw edge.<br>cogged | Profile     | Wrapped |
| <b>ZX/X10</b>                                       | 40                  | <b>Z/10</b> | 50      |
| <b>AX/X13</b>                                       | 63                  | <b>A/13</b> | 71      |
| <b>BX/X17</b>                                       | 90                  | <b>B/17</b> | 112     |
| <b>CX/X22</b>                                       | 140                 | <b>C/22</b> | 180     |

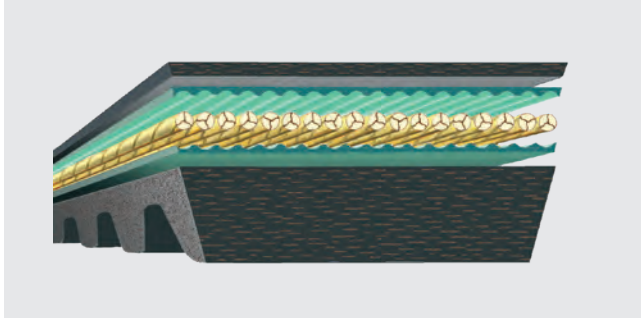
| Profile       | Top belt<br>width<br>$b_o \approx$ | Datum<br>width<br>$b_d$ | Belt<br>height<br>$h \approx$ | Meter<br>weight<br>[kg/m] $\approx$ |
|---------------|------------------------------------|-------------------------|-------------------------------|-------------------------------------|
| <b>ZX/X10</b> | 10                                 | 8.5                     | 6                             | 0.062                               |
| <b>AX/X13</b> | 13                                 | 11                      | 8                             | 0.099                               |
| <b>BX/X17</b> | 17                                 | 14                      | 11                            | 0.165                               |
| <b>CX/X22</b> | 22                                 | 19                      | 14                            | 0.276                               |

# PRODUCT DESCRIPTION

## optibelt **VARIO POWER** VARIABLE SPEED BELTS RAW EDGE, COGGED / DOUBLE-SIDED – DIN 7719 / ISO 1604



### optibelt **VARIO POWER** variable speed belts – raw edge, coggod



Increasing demands on variable speed belts due to the continuous increase of power transmission levels initiated the development of the raw edge, coggod variable speed belts.

The base compound consists of a polychloroprene rubber compound with traverse fibres. The high quality and extremely low-stretch polyester or aramid tension cord is embedded in a rubber compound. It is effectively supported by an upper and substructure. The special characteristics of the raw edge, coggod variable speed belt are:

- high power transmission
- excellent flexibility in running direction
- high traverse stability
- exceptionally smooth running
- wear and slip resistance
- long operational life
- electrically conductive according to ISO 1813

#### Profiles

Belt widths of up to 100 mm

Belt heights of 5-25 mm

#### Dimensions

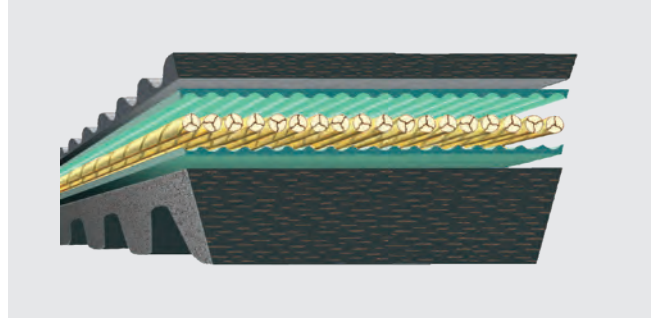
Lengths up to 5000 mm

Standardised dimensions to BS/DIN/ISO  
and ARPM/MPTA

#### Application areas

|                         |                               |
|-------------------------|-------------------------------|
| Industrial machinery:   | special drives                |
| Variable speed drives:  | compact units                 |
| Printing machinery:     | multi-colour offset drives    |
| Gearboxes:              | variable diameter pulley sets |
| Agricultural machinery: | thresher drum drives          |
| Textile machinery:      | winding machinery             |
| Machine tools:          | lathes                        |
| Automotive technology:  | snowmobile drives             |

### optibelt **VARIO POWER** variable speed belts – raw edge, Double-sided



Further increases in demand on the performance of drive elements and the trend towards designing ever smaller, space saving drive units, led to the development of the Double-sided, raw edge optibelt VARIO POWER variable speed belt.

Double-sided Optibelt variable speed belts allow for the smallest pulley diameters, even below standard recommendations. The Double-sided design improves heat emission, thereby significantly reducing the belt running temperature. The production methods and the structure of the belt have been derived from the raw edge optibelt VARIO POWER variable speed belt. Depending upon the application and application range, this belt can also be equipped with layers of special cross-cord material in the base compound. The belt is Double-sided, with the depth and spacing of the cogs matching with the specific belt profile. The polyester or aramid tension cord ensures ideal power transmission, increased service life, and extremely low-stretch characteristics. The features of the optibelt VARIO POWER variable speed belt can be summarised as follows:

- extremely high acceptance of axial loads
- high flexibility and flexing rate
- better heat emission
- use with small pulley diameters
- high running smoothness with high belt speeds
- long operational life
- electrically conductive according to ISO 1813

#### Profiles

Belt widths of 20-85 mm

Belt heights of 10-30 mm

#### Dimensions

Length ranges from 600-3500 mm

Profiles and dimensions following DIN/ISO  
and ARPM/MPTA

### optibelt **VS** variable speed belts – wrapped

The optibelt VS is the first generation of variable speed belts. Its structure complies with the standard constructions of wrapped, classic V-belts or wedge belts.

**Profiles and dimensions:** on request

# PRODUCT DESCRIPTION

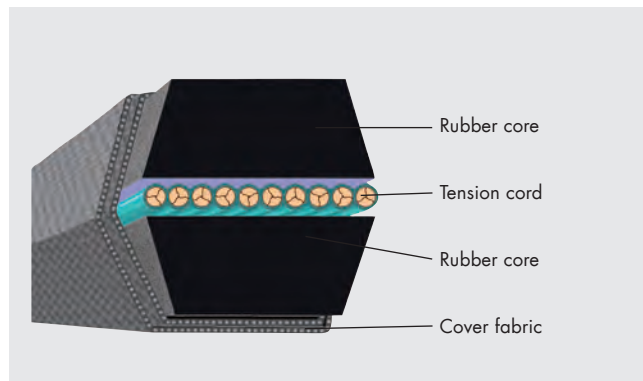
## optibelt DK DOUBLE-SIDED V-BELTS



### Structure

A cross section of the optibelt DK double-sided V-belt reveals a hexagon made up of two congruent trapeziums. The neutral axis containing the tension cord is exactly half way up the belt profile.

optibelt DK double-sided V-belts consist of:



### Properties/Application areas

The tension cord positioned at the centre of the belt gives the optibelt DK double-sided V-belts extreme flexibility and low-stretch properties. Thus, the belt is particularly suitable for flexing in different directions in the same plane. optibelt DK double-sided V-belts are used when several pulleys are arranged in one plane and the direction of one or more of the driven pulleys has to be changed without crossing the belts. Due to the position of the tension cord in the neutral axis and the special shape of the double-sided V-belt, the tension cord is not subjected to any force other than tension unlike standard V-belts bent around an outside idler. The optibelt DK double-sided V-belt comes up to typical serpentine arrangements. Special constructions with different top surfaces are possible. Mainly, double-sided V-belts are used in agricultural machinery but also in mechanical engineering.

### Standardisation

The cross dimensions of the optibelt DK double-sided V-belts comply with DIN 7722 and ISO 5289.

This applies to the profiles HAA, HBB, HCC and HDD, in accordance with the USA standard ASAE S 211. .... thereby ensuring an international interchange. The reference/nominal length of the optibelt DK double-sided V-belt is measured on the effective/outside diameter of the measuring pulley. This length equates to the middle length of the belt.

Conversion factors are as follows:

Profile AA/HAA reference length  $\approx$  centre length – 4 mm

Profile BB/HBB reference length  $\approx$  centre length – 8 mm

Profile CC/HCC reference length  $\approx$  centre length + 3 mm

Profile DD/HDD reference length = centre length!

Experience has shown that in practical use/ordering these conversion factors can be ignored.

**Note:** Electrically conductive according to ISO 1813.

### V-grooved pulleys

No special pulleys are required for optibelt DK double-sided V-belts. Pulleys conforming to ISO 4183. DIN 2211.

DIN 2217 and ASAE S 211. ... are suitable.

Profile AA/HAA in grooved pulleys for profile A/13-SPA

Profile BB/HBB in grooved pulleys for profile B/17-SPB

Profile CC/HCC in grooved pulleys for profile C/22-SPC

Profile DD/HDD in grooved pulleys for profile D/32

### Special profiles

For special applications. we also supply double-sided V-belts in profiles 22 x 22 and 25 x 22. These are not standardised.

### Drive calculation

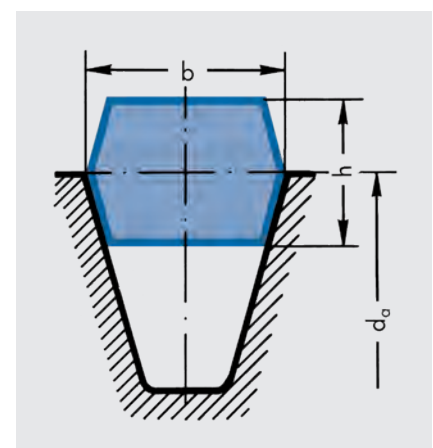
Drive calculations for optibelt DK double-sided V-belts differ from those given in this manual for two pulley drives. Multi pulley calculations are so complicated that they cannot be presented here.

Reference lengths. rotational speeds. transmission ratios and belt speeds are determined by the reference/outside pulley diameters.

Our Application Engineering Department will be pleased to assist you in the design of drives using optibelt DK double-sided V-belts.

Table 13

| Profile                             | DIN/ISO designation |           | HAA   | HBB   | HCC   | HDD   | —     | —     |
|-------------------------------------|---------------------|-----------|-------|-------|-------|-------|-------|-------|
|                                     | Designation         |           | AA    | BB    | CC    | DD    | 22x22 | 25x22 |
| Belt width                          | b                   | $\approx$ | 13    | 17    | 22    | 32    | 22    | 25    |
| Belt height                         | h                   | $\approx$ | 10    | 13    | 17    | 25    | 22    | 22    |
| Recommended minimum pulley diameter | $d_{a \min}$        |           | 80    | 125   | 224   | 355   | 280   | 280   |
| Belt weight [kg/m]                  |                     | $\approx$ | 0.150 | 0.250 | 0.440 | 0.935 | 0.511 | 0.625 |
| Belt speed [m/s]                    | $v_{\max}$          | $\approx$ | 30    |       |       |       |       |       |



**All Optibelt V-belts are manufactured using carefully selected basic materials and continuously updated technical procedures. Regular routine checks during production, extensive laboratory tests and careful testing of the raw materials used guarantee the consistently high level of quality that can be expected from every Optibelt drive element. Reliability and service life are considered the most important criteria.**

## Oil resistance

The limited oil resistance prevents the damaging effects of mineral oils and greases, as long as these substances are not in permanent contact with the timing belt and/or are not present in large quantities. Animal and vegetable fats as well as water-soluble cooling and cutting oils result in a reduction of the service life. For higher concentrations, we recommend the use of our optibelt RED POWER 3 V-belts or special version optibelt SUPER TX.

## Heat resistance

Standard V-belts allow ambient temperatures of up to +70 °C. Temperatures exceeding this range lead to premature ageing and hardening of V-belts. In such cases, we recommend the use of our special constructions optibelt RED POWER 3 or optibelt SUPER XE-POWER PRO M=S or optibelt SUPER TX M=S. For details see page 23.

## Dust protection

Dust enormously reduces the service life of V-belts. Wear-resistant fabric covers make Optibelt V-belts resistant to dust. This is demonstrated by their continuous application in cement factories, mills, in the stone processing industries, and in the mining industry.

## M=S "Matched Sets"

optibelt SUPER XE-POWER PRO M=S and optibelt SUPER TX M=S are raw edge, cogged V-belts that can be used in sets without measuring. DUE TO SPECIAL PRODUCTION PROCESSES the narrowest tolerances can be achieved so that V-belts of a given nominal length can be combined without further measurement. The precise edging of the belt results in smooth running. The even power transmission of all belts ensures a high efficiency and saves energy. Set code numbers are not necessary, there is no set bundling. As a consequence, storage and costs can be reduced.

## S=C Plus "SetConstant"

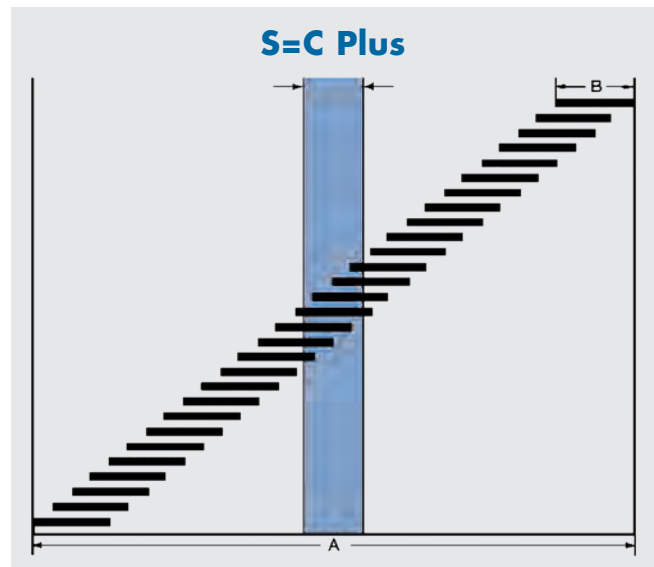
This stands for wrapped V-belts that can be used in a set without measuring.

The tight set tolerances are achieved by the Optibelt rotational vulcanisation process ORV. In this process, which is optimal for wrapped V-belts, the shaping and vulcanisation takes place in the curvature. This also results in a length stabilisation of the tension cords. During the final, separate length stabilisation, the tight S=C Plus tolerances are ensured.

### And here are the advantages:

- + saves energy, efficiency of up to 97 %
- + consistent power transmission
- + incorporates the world famous S=C Plus tolerances: always at nominal length
- + extremely low-stretch
- + longer service life
- + set code numbers are not required
- + reduces vibrations with resultant smooth running
- + requires only minimal adjustment space
- + reduces self-heating, thus ageing resistant
- + longer maintenance intervals
- + simple storage
- + significant cost reductions

Example of S=C Plus length tolerances in a high performance wedge belt with 5000 mm datum length:



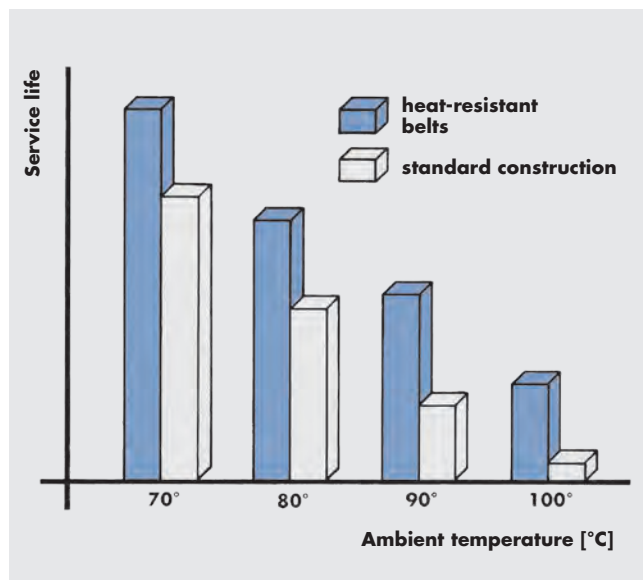
The dimension (A) is the tolerance allowed according to DIN of an individual V-belt with a length of 5000 mm. If you want to install sets for multi-groove drives, the individual elements in a set should not deviate more than 6 mm (B). optibelt S=C Plus V-belts meet considerably closer tolerances than those specified by the industry standard for sets. optibelt S=C Plus V-belts are always in the nominal length.

## Extra heat-resistant V-belts

The service life of standard Optibelt V-belts can be massively reduced due to the effects of temperature. In case of ambient temperatures that constantly vary between +70 °C and +90 °C we recommend optibelt RED POWER 3, optibelt SUPER XE-POWER PRO M=S or optibelt SUPER TX M=S belts. Special rubber compounds largely prevent premature ageing and brittleness. In borderline cases, trials are recommended, as individual drive parameters such as belt speed and pulley diameter may influence the operational life. The diagram below illustrates the great impact of ambient temperature on the operational life of belts. It also presents the optimised operational life of special constructions in high temperature ranges compared to standard constructions. However, you cannot expect the same service life as under normal conditions.

## Smooth-running selected V-belts

Drives that require smooth running – that is variations of shaft centre distances – such as lathes and grinders, and are supposed to guarantee vibration free operation, should be equipped with Optibelt V-belts with “smooth-running selected”. Fluctuations in the shaft centre distance are electronically measured on testing machines. The measurements comply with the Optibelt standards or the conditions agreed upon with our customers.



## Mining industry

optibelt SK wedge belts and optibelt VB classic V-belts can be used in underground mining as well as in areas above ground that are exposed to explosion and fire risks. For these areas, different national and international testing specifications and standards apply. Optibelt “Mining Belts” comply with all requirements of “DIN 22100-7”.

## Applications with other special constructions

For special applications e.g. in general mechanical engineering, agricultural machinery and horticulture, further special constructions are also available in intermediate sizes for

- special drives with tension, back bend and guide idlers
- clutching drives
- shock loads
- extreme operating conditions

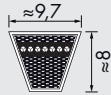
These Optibelt V-belts in special constructions have different tension cord types and structures with a variety of rubber compounds, different fabric qualities and a differing number of fabric covers and top surfaces.

All special constructions and intermediate lengths must be ordered in sets or in multiples thereof.

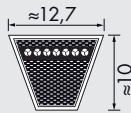
It is not possible to go into the entire range of criteria in this manual. For further information please contact our Applications Engineering Department.

# STANDARD RANGE

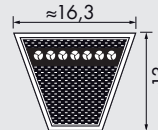
optibelt **RED POWER 3** HIGH PERFORMANCE WEDGE BELTS  
DIN 7753 PART 1 / ISO 4184



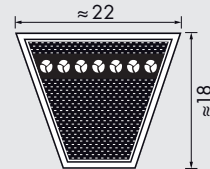
**SPZ**



**SPA**



**SPB**



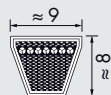
**SPC**

| Profile SPZ                                                               |      |      | Profile SPA                             |      |      |      | Profile SPB                             | Profile SPC                             |
|---------------------------------------------------------------------------|------|------|-----------------------------------------|------|------|------|-----------------------------------------|-----------------------------------------|
| Datum length ISO<br>[mm] L <sub>d</sub>                                   |      |      | Datum length ISO<br>[mm] L <sub>d</sub> |      |      |      | Datum length ISO<br>[mm] L <sub>d</sub> | Datum length ISO<br>[mm] L <sub>d</sub> |
| 1202                                                                      | 1587 | 2137 | 1207                                    | 1700 | 2282 | 3082 | 1250                                    | 2000                                    |
| 1212                                                                      | 1600 | 2187 | 1232                                    | 1707 | 2300 | 3150 | 1320                                    | 2120                                    |
| 1237                                                                      | 1612 | 2240 | 1250                                    | 1732 | 2307 | 3182 | 1400                                    | 2240                                    |
| 1250                                                                      | 1637 | 2287 | 1257                                    | 1757 | 2332 | 3282 | 1500                                    | 2360                                    |
| 1262                                                                      | 1662 | 2360 | 1282                                    | 1782 | 2360 | 3350 | 1600                                    | 2500                                    |
| 1287                                                                      | 1687 | 2500 | 1307                                    | 1800 | 2382 | 3382 | 1700                                    | 2650                                    |
| 1312                                                                      | 1700 | 2650 | 1320                                    | 1807 | 2432 | 3550 | 1800                                    | 2800                                    |
| 1320                                                                      | 1737 | 2800 | 1332                                    | 1832 | 2482 | 3750 | 1900                                    | 3000                                    |
| 1337                                                                      | 1762 | 3000 | 1357                                    | 1857 | 2500 | 4000 | 2000                                    | 3150                                    |
| 1362                                                                      | 1787 | 3150 | 1382                                    | 1882 | 2532 |      | 2120                                    | 3350                                    |
| 1387                                                                      | 1800 | 3350 | 1400                                    | 1900 | 2582 |      | 2240                                    | 3550                                    |
| 1400                                                                      | 1837 | 3550 | 1407                                    | 1907 | 2607 |      | 2360                                    | 3750                                    |
| 1412                                                                      | 1862 |      | 1432                                    | 1932 | 2632 |      | 2500                                    | 4000                                    |
| 1437                                                                      | 1887 |      | 1457                                    | 1957 | 2650 |      | 2650                                    | 4250                                    |
| 1462                                                                      | 1900 |      | 1482                                    | 1982 | 2682 |      | 2800                                    | 4500                                    |
| 1487                                                                      | 1937 |      | 1500                                    | 2000 | 2732 |      | 3000                                    | 4750                                    |
| 1500                                                                      | 1987 |      | 1507                                    | 2032 | 2782 |      | 3150                                    | 5000                                    |
| 1512                                                                      | 2000 |      | 1532                                    | 2057 | 2800 |      | 3350                                    | 5300                                    |
| 1537                                                                      | 2037 |      | 1557                                    | 2082 | 2832 |      | 3550                                    | 5600                                    |
| 1562                                                                      | 2120 |      | 1582                                    | 2120 | 2847 |      | 3750                                    | 6000                                    |
|                                                                           |      |      | 1600                                    | 2132 | 2882 |      | 4000                                    | 6300                                    |
|                                                                           |      |      | 1607                                    | 2182 | 2932 |      | 4250                                    | 6700                                    |
|                                                                           |      |      | 1632                                    | 2207 | 2982 |      | 4500                                    | 7100                                    |
|                                                                           |      |      | 1657                                    | 2232 | 3000 |      | 4750                                    | 7500                                    |
|                                                                           |      |      | 1682                                    | 2240 | 3032 |      | 5000                                    | 8000                                    |
|                                                                           |      |      |                                         |      |      |      | 5300                                    | 8500                                    |
|                                                                           |      |      |                                         |      |      |      | 5600                                    | 9000                                    |
|                                                                           |      |      |                                         |      |      |      | 6000                                    | 9500                                    |
|                                                                           |      |      |                                         |      |      |      | 6300                                    | 10000                                   |
|                                                                           |      |      |                                         |      |      |      | 6700                                    |                                         |
|                                                                           |      |      |                                         |      |      |      | 7100                                    |                                         |
|                                                                           |      |      |                                         |      |      |      | 7500                                    |                                         |
|                                                                           |      |      |                                         |      |      |      | 8000                                    |                                         |
| Maximum production length: 4000 mm                                        |      |      | Maximum production length: 4000 mm      |      |      |      | Maximum production length: 12 500 mm    | Maximum production length: 12 500 mm    |
| Non-standard length ranges on request                                     |      |      | Non-standard length ranges on request   |      |      |      | Non-standard length ranges on request   | Non-standard length ranges on request   |
| Weight: ≈ 0.074 kg/m                                                      |      |      | Weight: ≈ 0.123 kg/m                    |      |      |      | Weight: ≈ 0.195 kg/m                    | Weight: ≈ 0.377 kg/m                    |
| Datum length L <sub>d</sub> ≙ Pitch length L <sub>w</sub> /L <sub>p</sub> |      |      |                                         |      |      |      |                                         |                                         |

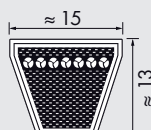
Lengths in **bold** type are in S=C Plus (SetConstant).

# STANDARD RANGE

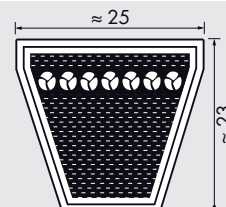
## optibelt **RED POWER 3** HIGH PERFORMANCE WEDGE BELTS ARPM/MPTA



**3V/9N**



**5V/15N**



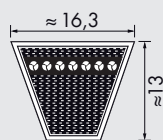
**8V/25N**

| Profile 3V/9N                                                                                                      |                                                    | Profile 5V/15N                                                                                                      |                                                    | Profile 8V/25N                                                                                                      |                                                    |
|--------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|
| Belt designation                                                                                                   |                                                    | Belt designation                                                                                                    |                                                    | Belt designation                                                                                                    |                                                    |
| Profile,<br>length code                                                                                            | Profile,<br>outside length,<br>L <sub>a</sub> [mm] | Profile,<br>length code                                                                                             | Profile,<br>outside length,<br>L <sub>a</sub> [mm] | Profile,<br>length code                                                                                             | Profile,<br>outside length,<br>L <sub>a</sub> [mm] |
| 3V 475                                                                                                             | 9N 1206                                            | 5V 530                                                                                                              | 15N 1346                                           | 8V 1000                                                                                                             | 25N 2540                                           |
| 3V 500                                                                                                             | 9N 1270                                            | 5V 560                                                                                                              | 15N 1422                                           | 8V 1120                                                                                                             | 25N 2845                                           |
| 3V 530                                                                                                             | 9N 1346                                            | 5V 600                                                                                                              | 15N 1524                                           | 8V 1180                                                                                                             | 25N 2997                                           |
| 3V 560                                                                                                             | 9N 1422                                            | 5V 630                                                                                                              | 15N 1600                                           | 8V 1250                                                                                                             | 25N 3175                                           |
| 3V 600                                                                                                             | 9N 1524                                            | 5V 670                                                                                                              | 15N 1702                                           | 8V 1320                                                                                                             | 25N 3353                                           |
| 3V 630                                                                                                             | 9N 1600                                            | 5V 710                                                                                                              | 15N 1803                                           | 8V 1400                                                                                                             | 25N 3556                                           |
| 3V 670                                                                                                             | 9N 1702                                            | 5V 750                                                                                                              | 15N 1905                                           | 8V 1500                                                                                                             | 25N 3810                                           |
| 3V 710                                                                                                             | 9N 1803                                            | 5V 800                                                                                                              | 15N 2032                                           | 8V 1600                                                                                                             | 25N 4064                                           |
| 3V 750                                                                                                             | 9N 1905                                            | 5V 850                                                                                                              | 15N 2159                                           | 8V 1700                                                                                                             | 25N 4318                                           |
| 3V 800                                                                                                             | 9N 2032                                            | 5V 900                                                                                                              | 15N 2286                                           | 8V 1800                                                                                                             | 25N 4572                                           |
| 3V 850                                                                                                             | 9N 2159                                            | 5V 950                                                                                                              | 15N 2413                                           | 8V 1900                                                                                                             | 25N 4826                                           |
| 3V 900                                                                                                             | 9N 2286                                            | 5V 1000                                                                                                             | 15N 2540                                           | 8V 2000                                                                                                             | 25N 5080                                           |
| 3V 950                                                                                                             | 9N 2413                                            | 5V 1060                                                                                                             | 15N 2692                                           | 8V 2120                                                                                                             | 25N 5385                                           |
| 3V 1000                                                                                                            | 9N 2540                                            | 5V 1120                                                                                                             | 15N 2845                                           | 8V 2240                                                                                                             | 25N 5690                                           |
| 3V 1060                                                                                                            | 9N 2692                                            | 5V 1180                                                                                                             | 15N 2997                                           | 8V 2360                                                                                                             | 25N 5994                                           |
| 3V 1120                                                                                                            | 9N 2845                                            | 5V 1250                                                                                                             | 15N 3175                                           | 8V 2500                                                                                                             | 25N 6350                                           |
| 3V 1180                                                                                                            | 9N 2997                                            | 5V 1320                                                                                                             | 15N 3353                                           | 8V 2650                                                                                                             | 25N 6731                                           |
| 3V 1250                                                                                                            | 9N 3175                                            | 5V 1400                                                                                                             | 15N 3556                                           | 8V 2800                                                                                                             | 25N 7112                                           |
| 3V 1320                                                                                                            | 9N 3353                                            | 5V 1500                                                                                                             | 15N 3810                                           | 8V 3000                                                                                                             | 25N 7620                                           |
| 3V 1400                                                                                                            | 9N 3556                                            | 5V 1600                                                                                                             | 15N 4064                                           | 8V 3150                                                                                                             | 25N 8001                                           |
|                                                                                                                    |                                                    | 5V 1700                                                                                                             | 15N 4318                                           | 8V 3350                                                                                                             | 25N 8509                                           |
|                                                                                                                    |                                                    | 5V 1800                                                                                                             | 15N 4572                                           | 8V 3550                                                                                                             | 25N 9017                                           |
|                                                                                                                    |                                                    | 5V 1900                                                                                                             | 15N 4826                                           | 8V 3750                                                                                                             | 25N 9525                                           |
|                                                                                                                    |                                                    | 5V 2000                                                                                                             | 15N 5080                                           | 8V 4000                                                                                                             | 25N 10160                                          |
|                                                                                                                    |                                                    | 5V 2120                                                                                                             | 15N 5385                                           | 8V 4250                                                                                                             | 25N 10795                                          |
|                                                                                                                    |                                                    | 5V 2240                                                                                                             | 15N 5690                                           | 8V 4500                                                                                                             | 25N 11430                                          |
|                                                                                                                    |                                                    | 5V 2360                                                                                                             | 15N 5994                                           | 8V 4750                                                                                                             | 25N 12065                                          |
|                                                                                                                    |                                                    | 5V 2500                                                                                                             | 15N 6350                                           |                                                                                                                     |                                                    |
|                                                                                                                    |                                                    | 5V 2650                                                                                                             | 15N 6731                                           |                                                                                                                     |                                                    |
|                                                                                                                    |                                                    | 5V 2800                                                                                                             | 15N 7112                                           |                                                                                                                     |                                                    |
|                                                                                                                    |                                                    | 5V 3000                                                                                                             | 15N 7620                                           |                                                                                                                     |                                                    |
|                                                                                                                    |                                                    | 5V 3150                                                                                                             | 15N 8001                                           |                                                                                                                     |                                                    |
| Maximum production length: 4000 mm L <sub>a</sub><br>Non-standard length ranges on request<br>Weight: ≈ 0.074 kg/m |                                                    | Maximum production length: 12500 mm L <sub>a</sub><br>Non-standard length ranges on request<br>Weight: ≈ 0.195 kg/m |                                                    | Maximum production length: 12500 mm L <sub>a</sub><br>Non-standard length ranges on request<br>Weight: ≈ 0.575 kg/m |                                                    |

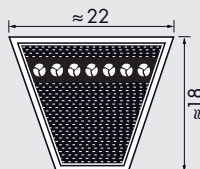
Lengths in **bold** type are in S=C Plus (SetConstant).

# STANDARD RANGE

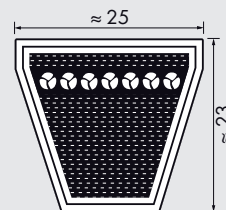
optibelt **BLUE POWER** HIGH PERFORMANCE WEDGE BELTS



**SPB**



**SPC**



**8V/25N**

DIN 7753 Part 1 / ISO 4184 / BS 3790

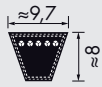
ARPM/MPTA

| Profile SPB                                                                                                                                                       |      | Profile SPC                                                                                                                       |      | Profile 8V/25N                                                                                                                                |                                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| Datum length ISO<br>$L_d$ [mm]                                                                                                                                    |      | Datum length ISO<br>$L_d$ [mm]                                                                                                    |      | Belt designation                                                                                                                              |                                           |
|                                                                                                                                                                   |      |                                                                                                                                   |      | Profile,<br>length code                                                                                                                       | Profile,<br>outside length,<br>$L_a$ [mm] |
| 1500                                                                                                                                                              | 4750 | 2000                                                                                                                              | 6300 | 8V 1600                                                                                                                                       | 25N 4064                                  |
| 1600                                                                                                                                                              | 5000 | 2120                                                                                                                              | 6700 | 8V 1700                                                                                                                                       | 25N 4318                                  |
| 1700                                                                                                                                                              | 5300 | 2240                                                                                                                              | 7100 | 8V 1800                                                                                                                                       | 25N 4572                                  |
| 1800                                                                                                                                                              | 5600 | 2360                                                                                                                              | 7500 | 8V 1900                                                                                                                                       | 25N 4826                                  |
| 1900                                                                                                                                                              | 6000 | 2500                                                                                                                              | 8000 | 8V 2000                                                                                                                                       | 25N 5080                                  |
| 2000                                                                                                                                                              | 6300 | 2650                                                                                                                              | 8500 | 8V 2120                                                                                                                                       | 25N 5385                                  |
| 2120                                                                                                                                                              | 6700 | 2800                                                                                                                              | 9000 | 8V 2240                                                                                                                                       | 25N 5690                                  |
| 2240                                                                                                                                                              | 7100 | 3000                                                                                                                              |      | 8V 2360                                                                                                                                       | 25N 5994                                  |
| 2360                                                                                                                                                              | 7500 | 3150                                                                                                                              |      | 8V 2500                                                                                                                                       | 25N 6350                                  |
| 2500                                                                                                                                                              | 8000 | 3350                                                                                                                              |      | 8V 2650                                                                                                                                       | 25N 6731                                  |
| 2650                                                                                                                                                              |      | 3550                                                                                                                              |      | 8V 2800                                                                                                                                       | 25N 7112                                  |
| 2800                                                                                                                                                              |      | 3750                                                                                                                              |      | 8V 3000                                                                                                                                       | 25N 7620                                  |
| 3000                                                                                                                                                              |      | 4000                                                                                                                              |      | 8V 3150                                                                                                                                       | 25N 8001                                  |
| 3150                                                                                                                                                              |      | 4250                                                                                                                              |      | 8V 3350                                                                                                                                       | 25N 8509                                  |
| 3350                                                                                                                                                              |      | 4500                                                                                                                              |      | 8V 3550                                                                                                                                       | 25N 9017                                  |
| 3550                                                                                                                                                              |      | 4750                                                                                                                              |      |                                                                                                                                               |                                           |
| 3750                                                                                                                                                              |      | 5000                                                                                                                              |      |                                                                                                                                               |                                           |
| 4000                                                                                                                                                              |      | 5300                                                                                                                              |      |                                                                                                                                               |                                           |
| 4250                                                                                                                                                              |      | 5600                                                                                                                              |      |                                                                                                                                               |                                           |
| 4500                                                                                                                                                              |      | 6000                                                                                                                              |      |                                                                                                                                               |                                           |
| Maximum production length: 18000 mm<br>Minimum order quantity:<br>1500 mm – 1800 mm =<br>25 pieces<br>Over 1800 mm =<br>23 pieces<br>Weight: $\approx 0.206$ kg/m |      | Maximum production length: 18000 mm<br>Minimum order quantity:<br>from 2000 mm =<br>16 pieces<br><br>Weight: $\approx 0.389$ kg/m |      | Maximum production length: 18000 mm $L_a$<br>Minimum order quantity:<br>from 4064 mm $L_a$ =<br>14 pieces<br><br>Weight: $\approx 0.603$ kg/m |                                           |

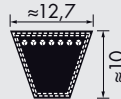
# STANDARD RANGE

optibelt **SK** HIGH PERFORMANCE WEDGE BELTS

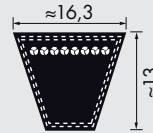
DIN 7753 PART 1 / ISO 4184



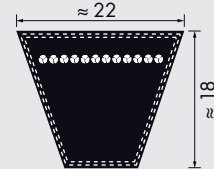
**SPZ**



**SPA**



**SPB**



**SPC**

| Profile SPZ                                                                                                                                                                                              |             |              | Profile SPA                                                                                                                                                                                              |             |             |             | Profile SPB                                                                                                                                                                                                  |              | Profile SPC                                                                                                                                                                                               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-------------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Datum length ISO<br>$L_d$ [mm]                                                                                                                                                                           |             |              | Datum length ISO<br>$L_d$ [mm]                                                                                                                                                                           |             |             |             | Datum length ISO<br>$L_d$ [mm]                                                                                                                                                                               |              | Datum length ISO<br>$L_d$ [mm]                                                                                                                                                                            |
| 487                                                                                                                                                                                                      | 1047        | <b>1662</b>  | 732                                                                                                                                                                                                      | <b>1382</b> | <b>2120</b> | <b>3350</b> | 1250                                                                                                                                                                                                         | <b>3650</b>  | <b>2000</b>                                                                                                                                                                                               |
| 512                                                                                                                                                                                                      | 1060        | <b>1687</b>  | 757                                                                                                                                                                                                      | <b>1400</b> | <b>2132</b> | <b>3382</b> | 1320                                                                                                                                                                                                         | <b>3750</b>  | <b>2120</b>                                                                                                                                                                                               |
| 562                                                                                                                                                                                                      | 1077        | <b>1700</b>  | 782                                                                                                                                                                                                      | <b>1407</b> | <b>2182</b> | <b>3550</b> | 1400                                                                                                                                                                                                         | <b>3800•</b> | <b>2240</b>                                                                                                                                                                                               |
| 587                                                                                                                                                                                                      | 1087        | <b>1737</b>  | 800                                                                                                                                                                                                      | <b>1432</b> | <b>2207</b> | <b>3750</b> | 1450                                                                                                                                                                                                         | <b>4000</b>  | <b>2360</b>                                                                                                                                                                                               |
| 612                                                                                                                                                                                                      | 1112        | <b>1762</b>  | 807                                                                                                                                                                                                      | <b>1457</b> | <b>2232</b> | <b>4000</b> | 1500                                                                                                                                                                                                         | <b>4050•</b> | <b>2500</b>                                                                                                                                                                                               |
| 630                                                                                                                                                                                                      | 1120        | <b>1787</b>  | 832                                                                                                                                                                                                      | <b>1482</b> | <b>2240</b> | <b>4250</b> | 1600                                                                                                                                                                                                         | <b>4250</b>  | <b>2650</b>                                                                                                                                                                                               |
| 637                                                                                                                                                                                                      | 1137        | <b>1800</b>  | 850                                                                                                                                                                                                      | <b>1500</b> | <b>2282</b> | <b>4500</b> | 1700                                                                                                                                                                                                         | <b>4300•</b> | <b>2800</b>                                                                                                                                                                                               |
| 662                                                                                                                                                                                                      | <b>1162</b> | <b>1812</b>  | 857                                                                                                                                                                                                      | <b>1507</b> | <b>2300</b> |             | 1750                                                                                                                                                                                                         | <b>4500</b>  | <b>3000</b>                                                                                                                                                                                               |
| 670                                                                                                                                                                                                      | <b>1180</b> | <b>1837</b>  | 882                                                                                                                                                                                                      | <b>1532</b> | <b>2307</b> |             | 1800                                                                                                                                                                                                         | <b>4560•</b> | <b>3150</b>                                                                                                                                                                                               |
| 687                                                                                                                                                                                                      | <b>1187</b> | <b>1850</b>  | 900                                                                                                                                                                                                      | <b>1557</b> | <b>2332</b> |             | 1850                                                                                                                                                                                                         | <b>4750</b>  | <b>3350</b>                                                                                                                                                                                               |
| 710                                                                                                                                                                                                      | <b>1202</b> | <b>1862</b>  | 907                                                                                                                                                                                                      | <b>1582</b> | <b>2360</b> |             | 1900                                                                                                                                                                                                         | <b>4820•</b> | <b>3550</b>                                                                                                                                                                                               |
| 722                                                                                                                                                                                                      | <b>1212</b> | <b>1887</b>  | 932                                                                                                                                                                                                      | <b>1600</b> | <b>2382</b> |             | 2000                                                                                                                                                                                                         | <b>5000</b>  | <b>3750</b>                                                                                                                                                                                               |
| 737                                                                                                                                                                                                      | <b>1237</b> | <b>1900</b>  | 950                                                                                                                                                                                                      | <b>1607</b> | <b>2432</b> |             | 2020•                                                                                                                                                                                                        | <b>5070•</b> | <b>4000</b>                                                                                                                                                                                               |
| 750                                                                                                                                                                                                      | <b>1250</b> | <b>1937</b>  | 957                                                                                                                                                                                                      | <b>1632</b> | <b>2482</b> |             | 2060                                                                                                                                                                                                         | <b>5300</b>  | <b>4250</b>                                                                                                                                                                                               |
| 762                                                                                                                                                                                                      | <b>1262</b> | <b>1987</b>  | 982                                                                                                                                                                                                      | <b>1657</b> | <b>2500</b> |             | 2120                                                                                                                                                                                                         | <b>5600</b>  | <b>4500</b>                                                                                                                                                                                               |
| 772                                                                                                                                                                                                      | <b>1287</b> | <b>2000</b>  | 1000                                                                                                                                                                                                     | <b>1682</b> | <b>2532</b> |             | 2150•                                                                                                                                                                                                        | <b>6000</b>  | <b>4750</b>                                                                                                                                                                                               |
| 787                                                                                                                                                                                                      | <b>1312</b> | <b>2037</b>  | 1007                                                                                                                                                                                                     | <b>1700</b> | <b>2582</b> |             | 2180                                                                                                                                                                                                         | <b>6300</b>  | <b>5000</b>                                                                                                                                                                                               |
| 800                                                                                                                                                                                                      | <b>1320</b> | <b>2120</b>  | 1032                                                                                                                                                                                                     | <b>1707</b> | <b>2607</b> |             | 2240                                                                                                                                                                                                         | <b>6700</b>  | <b>5300</b>                                                                                                                                                                                               |
| 812                                                                                                                                                                                                      | <b>1337</b> | <b>2137</b>  | 1060                                                                                                                                                                                                     | <b>1732</b> | <b>2632</b> |             | 2280•                                                                                                                                                                                                        | <b>7100</b>  | <b>5600</b>                                                                                                                                                                                               |
| 825                                                                                                                                                                                                      | <b>1347</b> | <b>2150•</b> | 1082                                                                                                                                                                                                     | <b>1757</b> | <b>2650</b> |             | 2360                                                                                                                                                                                                         | <b>7500</b>  | <b>6000</b>                                                                                                                                                                                               |
| 837                                                                                                                                                                                                      | <b>1362</b> | <b>2187</b>  | 1107                                                                                                                                                                                                     | <b>1782</b> | <b>2682</b> |             | 2391                                                                                                                                                                                                         | <b>8000</b>  | <b>6300</b>                                                                                                                                                                                               |
| 850                                                                                                                                                                                                      | <b>1387</b> | <b>2240</b>  | 1120                                                                                                                                                                                                     | <b>1800</b> | <b>2732</b> |             | 2400•                                                                                                                                                                                                        |              | <b>6700</b>                                                                                                                                                                                               |
| 862                                                                                                                                                                                                      | <b>1400</b> | <b>2287</b>  | 1132                                                                                                                                                                                                     | <b>1807</b> | <b>2782</b> |             | 2500                                                                                                                                                                                                         |              | <b>7100</b>                                                                                                                                                                                               |
| 875                                                                                                                                                                                                      | <b>1412</b> | <b>2360</b>  | 1157                                                                                                                                                                                                     | <b>1832</b> | <b>2800</b> |             | 2650                                                                                                                                                                                                         |              | <b>7500</b>                                                                                                                                                                                               |
| 887                                                                                                                                                                                                      | <b>1437</b> | <b>2500</b>  | 1180                                                                                                                                                                                                     | <b>1857</b> | <b>2832</b> |             | 2680•                                                                                                                                                                                                        |              | <b>8000</b>                                                                                                                                                                                               |
| 900                                                                                                                                                                                                      | <b>1462</b> | <b>2540•</b> | 1207                                                                                                                                                                                                     | <b>1882</b> | <b>2847</b> |             | 2800                                                                                                                                                                                                         |              | <b>8500</b>                                                                                                                                                                                               |
| 912                                                                                                                                                                                                      | <b>1487</b> | <b>2650</b>  | 1232                                                                                                                                                                                                     | <b>1900</b> | <b>2882</b> |             | 2840•                                                                                                                                                                                                        |              | <b>9000</b>                                                                                                                                                                                               |
| 925                                                                                                                                                                                                      | <b>1500</b> | <b>2690•</b> | 1250                                                                                                                                                                                                     | <b>1907</b> | <b>2932</b> |             | 2850                                                                                                                                                                                                         |              | <b>9500</b>                                                                                                                                                                                               |
| 937                                                                                                                                                                                                      | <b>1512</b> | <b>2800</b>  | 1257                                                                                                                                                                                                     | <b>1932</b> | <b>2982</b> |             | 2900                                                                                                                                                                                                         |              | <b>10000</b>                                                                                                                                                                                              |
| 950                                                                                                                                                                                                      | <b>1537</b> | <b>2840•</b> | 1272                                                                                                                                                                                                     | <b>1957</b> | <b>3000</b> |             | 3000                                                                                                                                                                                                         |              | <b>10600</b>                                                                                                                                                                                              |
| 962                                                                                                                                                                                                      | <b>1562</b> | <b>3000</b>  | 1282                                                                                                                                                                                                     | <b>1982</b> | <b>3032</b> |             | 3150                                                                                                                                                                                                         |              | <b>11200</b>                                                                                                                                                                                              |
| 987                                                                                                                                                                                                      | <b>1587</b> | <b>3150</b>  | 1307                                                                                                                                                                                                     | <b>2000</b> | <b>3082</b> |             | 3250                                                                                                                                                                                                         |              | <b>12500</b>                                                                                                                                                                                              |
| 1000                                                                                                                                                                                                     | <b>1600</b> | <b>3350</b>  | 1320                                                                                                                                                                                                     | <b>2032</b> | <b>3150</b> |             | 3350                                                                                                                                                                                                         |              |                                                                                                                                                                                                           |
| 1012                                                                                                                                                                                                     | <b>1612</b> | <b>3550</b>  | 1332                                                                                                                                                                                                     | <b>2057</b> | <b>3182</b> |             | 3450                                                                                                                                                                                                         |              |                                                                                                                                                                                                           |
| 1024                                                                                                                                                                                                     | <b>1637</b> |              | 1357                                                                                                                                                                                                     | <b>2082</b> | <b>3282</b> |             | 3550                                                                                                                                                                                                         |              |                                                                                                                                                                                                           |
| 1037                                                                                                                                                                                                     | <b>1650</b> |              |                                                                                                                                                                                                          |             |             |             |                                                                                                                                                                                                              |              |                                                                                                                                                                                                           |
| Maximum production length: 4500 mm $L_d$<br>Minimum order quantity:<br>Over 1800 mm =<br>20 pieces for non-standard length ranges<br>60 pieces for special constructions<br>Weight: $\approx 0.074$ kg/m |             |              | Maximum production length: 4500 mm $L_d$<br>Minimum order quantity:<br>Over 1800 mm =<br>31 pieces for non-standard length ranges<br>93 pieces for special constructions<br>Weight: $\approx 0.123$ kg/m |             |             |             | Maximum production length:<br>18000 mm $L_d$<br>Minimum order quantity:<br>Over 1800 mm =<br>25 pieces for non-standard length ranges<br>75 pieces for special constructions<br>Weight: $\approx 0.195$ kg/m |              | Maximum production length: 21000 mm $L_d$<br>Minimum order quantity:<br>Over 2000 mm =<br>16 pieces for non-standard length ranges<br>48 pieces for special constructions<br>Weight: $\approx 0.377$ kg/m |

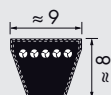
Datum length  $L_d \triangleq$  Pitch length  $L_w/L_p$

• Non stock items

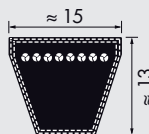
Lengths in **bold** type are in S=C Plus (SetConstant).

# STANDARD RANGE

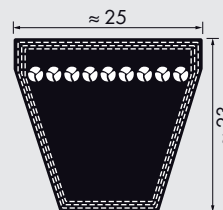
## optibelt **SK** HIGH PERFORMANCE WEDGE BELTS ARPM/MPTA



**3V/9N**



**5V/15N**



**8V/25N**

| Profile 3V/9N                                                                                                                                                                                                                |                                              | Profile 5V/15N                                                                                                                                                                                                                |                                              | Profile 8V/25N                                                                                                                                                                                                                                                             |                                              |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|
| Belt designation                                                                                                                                                                                                             |                                              | Belt designation                                                                                                                                                                                                              |                                              | Belt designation                                                                                                                                                                                                                                                           |                                              |
| Profile, length code                                                                                                                                                                                                         | Profile, outside length, L <sub>a</sub> [mm] | Profile, length code                                                                                                                                                                                                          | Profile, outside length, L <sub>a</sub> [mm] | Profile, length code                                                                                                                                                                                                                                                       | Profile, outside length, L <sub>a</sub> [mm] |
| 3V 250                                                                                                                                                                                                                       | 9N 635                                       | 5V 530                                                                                                                                                                                                                        | 15N 1346                                     | 8V 1000                                                                                                                                                                                                                                                                    | 25N 2540                                     |
| 3V 265                                                                                                                                                                                                                       | 9N 673                                       | 5V 560                                                                                                                                                                                                                        | 15N 1422                                     | 8V 1120                                                                                                                                                                                                                                                                    | 25N 2845                                     |
| 3V 280                                                                                                                                                                                                                       | 9N 711                                       | 5V 600                                                                                                                                                                                                                        | 15N 1524                                     | 8V 1180                                                                                                                                                                                                                                                                    | 25N 2997                                     |
| 3V 300                                                                                                                                                                                                                       | 9N 762                                       | 5V 630                                                                                                                                                                                                                        | 15N 1600                                     | 8V 1250                                                                                                                                                                                                                                                                    | 25N 3175                                     |
| 3V 315                                                                                                                                                                                                                       | 9N 800                                       | 5V 670                                                                                                                                                                                                                        | 15N 1702                                     | 8V 1320                                                                                                                                                                                                                                                                    | 25N 3353                                     |
| 3V 335                                                                                                                                                                                                                       | 9N 851                                       | 5V 710                                                                                                                                                                                                                        | 15N 1803                                     | 8V 1400                                                                                                                                                                                                                                                                    | 25N 3556                                     |
| 3V 355                                                                                                                                                                                                                       | 9N 902                                       | 5V 750                                                                                                                                                                                                                        | 15N 1905                                     | 8V 1500                                                                                                                                                                                                                                                                    | 25N 3810                                     |
| 3V 375                                                                                                                                                                                                                       | 9N 952                                       | 5V 800                                                                                                                                                                                                                        | 15N 2032                                     | 8V 1600                                                                                                                                                                                                                                                                    | 25N 4064                                     |
| 3V 400                                                                                                                                                                                                                       | 9N 1016                                      | 5V 850                                                                                                                                                                                                                        | 15N 2159                                     | 8V 1700                                                                                                                                                                                                                                                                    | 25N 4318                                     |
| 3V 425                                                                                                                                                                                                                       | 9N 1079                                      | 5V 900                                                                                                                                                                                                                        | 15N 2286                                     | 8V 1800                                                                                                                                                                                                                                                                    | 25N 4572                                     |
| 3V 450                                                                                                                                                                                                                       | 9N 1143                                      | 5V 950                                                                                                                                                                                                                        | 15N 2413                                     | 8V 1900                                                                                                                                                                                                                                                                    | 25N 4826                                     |
| 3V 475                                                                                                                                                                                                                       | 9N 1206                                      | 5V 1000                                                                                                                                                                                                                       | 15N 2540                                     | 8V 2000                                                                                                                                                                                                                                                                    | 25N 5080                                     |
| 3V 500                                                                                                                                                                                                                       | 9N 1270                                      | 5V 1060                                                                                                                                                                                                                       | 15N 2692                                     | 8V 2120                                                                                                                                                                                                                                                                    | 25N 5385                                     |
| 3V 530                                                                                                                                                                                                                       | 9N 1346                                      | 5V 1120                                                                                                                                                                                                                       | 15N 2845                                     | 8V 2240                                                                                                                                                                                                                                                                    | 25N 5690                                     |
| 3V 560                                                                                                                                                                                                                       | 9N 1422                                      | 5V 1180                                                                                                                                                                                                                       | 15N 2997                                     | 8V 2360                                                                                                                                                                                                                                                                    | 25N 5994                                     |
| 3V 600                                                                                                                                                                                                                       | 9N 1524                                      | 5V 1250                                                                                                                                                                                                                       | 15N 3175                                     | 8V 2500                                                                                                                                                                                                                                                                    | 25N 6350                                     |
| 3V 630                                                                                                                                                                                                                       | 9N 1600                                      | 5V 1320                                                                                                                                                                                                                       | 15N 3353                                     | 8V 2650                                                                                                                                                                                                                                                                    | 25N 6731                                     |
| 3V 670                                                                                                                                                                                                                       | 9N 1702                                      | 5V 1400                                                                                                                                                                                                                       | 15N 3556                                     | 8V 2800                                                                                                                                                                                                                                                                    | 25N 7112                                     |
| 3V 710                                                                                                                                                                                                                       | 9N 1803                                      | 5V 1500                                                                                                                                                                                                                       | 15N 3810                                     | 8V 3000                                                                                                                                                                                                                                                                    | 25N 7620                                     |
| 3V 750                                                                                                                                                                                                                       | 9N 1905                                      | 5V 1600                                                                                                                                                                                                                       | 15N 4064                                     | 8V 3150                                                                                                                                                                                                                                                                    | 25N 8001                                     |
| 3V 800                                                                                                                                                                                                                       | 9N 2032                                      | 5V 1700                                                                                                                                                                                                                       | 15N 4318                                     | 8V 3350                                                                                                                                                                                                                                                                    | 25N 8509                                     |
| 3V 850                                                                                                                                                                                                                       | 9N 2159                                      | 5V 1800                                                                                                                                                                                                                       | 15N 4572                                     | 8V 3550                                                                                                                                                                                                                                                                    | 25N 9017                                     |
| 3V 900                                                                                                                                                                                                                       | 9N 2286                                      | 5V 1900                                                                                                                                                                                                                       | 15N 4826                                     | 8V 3750                                                                                                                                                                                                                                                                    | 25N 9525                                     |
| 3V 950                                                                                                                                                                                                                       | 9N 2413                                      | 5V 2000                                                                                                                                                                                                                       | 15N 5080                                     | 8V 4000                                                                                                                                                                                                                                                                    | 25N 10160                                    |
| 3V 1000                                                                                                                                                                                                                      | 9N 2540                                      | 5V 2120                                                                                                                                                                                                                       | 15N 5385                                     | 8V 4250                                                                                                                                                                                                                                                                    | 25N 10795                                    |
| 3V 1060                                                                                                                                                                                                                      | 9N 2692                                      | 5V 2240                                                                                                                                                                                                                       | 15N 5690                                     | 8V 4500                                                                                                                                                                                                                                                                    | 25N 11430                                    |
| 3V 1120                                                                                                                                                                                                                      | 9N 2845                                      | 5V 2360                                                                                                                                                                                                                       | 15N 5994                                     | 8V 4750                                                                                                                                                                                                                                                                    | 25N 12065                                    |
| 3V 1180                                                                                                                                                                                                                      | 9N 2997                                      | 5V 2500                                                                                                                                                                                                                       | 15N 6350                                     | 8V 5000                                                                                                                                                                                                                                                                    | 25N 12700                                    |
| 3V 1250                                                                                                                                                                                                                      | 9N 3175                                      | 5V 2650                                                                                                                                                                                                                       | 15N 6731                                     |                                                                                                                                                                                                                                                                            |                                              |
| 3V 1320                                                                                                                                                                                                                      | 9N 3353                                      | 5V 2800                                                                                                                                                                                                                       | 15N 7112                                     |                                                                                                                                                                                                                                                                            |                                              |
| 3V 1400                                                                                                                                                                                                                      | 9N 3556                                      | 5V 3000                                                                                                                                                                                                                       | 15N 7620                                     |                                                                                                                                                                                                                                                                            |                                              |
|                                                                                                                                                                                                                              |                                              | 5V 3150                                                                                                                                                                                                                       | 15N 8001                                     |                                                                                                                                                                                                                                                                            |                                              |
|                                                                                                                                                                                                                              |                                              | 5V 3350                                                                                                                                                                                                                       | 15N 8509                                     |                                                                                                                                                                                                                                                                            |                                              |
|                                                                                                                                                                                                                              |                                              | 5V 3550                                                                                                                                                                                                                       | 15N 9017                                     |                                                                                                                                                                                                                                                                            |                                              |
| Maximum production length: 4500 mm L <sub>a</sub><br>Minimum order quantity:<br>Over 1800 mm L <sub>a</sub> =<br>20 pieces for non-standard length ranges<br>60 pieces for special constructions<br><br>Weight: ≈ 0.074 kg/m |                                              | Maximum production length: 18000 mm L <sub>a</sub><br>Minimum order quantity:<br>Over 1800 mm L <sub>a</sub> =<br>25 pieces for non-standard length ranges<br>75 pieces for special constructions<br><br>Weight: ≈ 0.195 kg/m |                                              | Maximum standard production length:<br>21000 mm L <sub>a</sub><br>Over 18000 to 21000 mm on request<br>Minimum order quantity:<br>Over 2540 mm L <sub>a</sub> =<br>11 pieces for non-standard length ranges<br>33 pieces for special constructions<br>Weight: ≈ 0.575 kg/m |                                              |

Lengths in **bold** type are in S=C Plus (SetConstant).

# STANDARD RANGE

## optibelt **VB** CLASSIC V-BELTS

### DIN 2215 / ISO 4184



5



Y/6



8



Z/10

| Profile 5*                                             |                                                        | Profile Y/6*                                           |                                                                                                                                                                                            | Profile 8                               |                                      | Profile Z/10 |                                         |                                      |             |                                         |                                      |              |                                         |                                      |
|--------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|--------------------------------------|--------------|-----------------------------------------|--------------------------------------|-------------|-----------------------------------------|--------------------------------------|--------------|-----------------------------------------|--------------------------------------|
| Datum length ISO<br>L <sub>d</sub> [mm]                | Inside length<br>L <sub>i</sub> [mm]                   | Datum length ISO<br>L <sub>d</sub> [mm]                | Inside length<br>L <sub>i</sub> [mm]                                                                                                                                                       | Datum length ISO<br>L <sub>d</sub> [mm] | Inside length<br>L <sub>i</sub> [mm] | Belt no.     | Datum length ISO<br>L <sub>d</sub> [mm] | Inside length<br>L <sub>i</sub> [mm] | Belt no.    | Datum length ISO<br>L <sub>d</sub> [mm] | Inside length<br>L <sub>i</sub> [mm] | Belt no.     | Datum length ISO<br>L <sub>d</sub> [mm] | Inside length<br>L <sub>i</sub> [mm] |
| 200                                                    | 190                                                    | 295                                                    | 280                                                                                                                                                                                        | 335*                                    | 315*                                 | Z 11         | 312*                                    | 290*                                 | Z 38½       | 997                                     | 975                                  | <b>Z 68</b>  | <b>1747</b>                             | <b>1725</b>                          |
| 239                                                    | 229                                                    | 315                                                    | 300                                                                                                                                                                                        | 375*                                    | 355*                                 | Z 12½        | 337*                                    | 315*                                 | Z 39        | 1022                                    | 1000                                 | <b>Z 69</b>  | <b>1772</b>                             | <b>1750</b>                          |
| 270                                                    | 260                                                    | 350                                                    | 335                                                                                                                                                                                        | 420*                                    | 400*                                 | Z 14         | 397*                                    | 375*                                 | Z 40        | 1038                                    | 1016                                 | <b>Z 70</b>  | <b>1797</b>                             | <b>1775</b>                          |
| 290                                                    | 280                                                    | 415                                                    | 400                                                                                                                                                                                        | 445*                                    | 425*                                 | Z 15         | 422*                                    | 400*                                 | Z 40½       | 1052                                    | 1030                                 | <b>Z 71</b>  | <b>1822</b>                             | <b>1800</b>                          |
| 310                                                    | 300                                                    | 440                                                    | 425                                                                                                                                                                                        | 470*                                    | 450*                                 | Z 16         | 447*                                    | 425*                                 | Z 41        | 1063                                    | 1041                                 | <b>Z 73</b>  | <b>1872</b>                             | <b>1850</b>                          |
| 325                                                    | 315                                                    | 465                                                    | 450                                                                                                                                                                                        | 495*                                    | 475*                                 | Z 17         | 472*                                    | 450*                                 | Z 41½       | 1072                                    | 1050                                 | <b>Z 75</b>  | <b>1922</b>                             | <b>1900</b>                          |
| 332                                                    | 322                                                    | 515                                                    | 500                                                                                                                                                                                        | 510*                                    | 490*                                 | Z 18         | 497*                                    | 475*                                 | Z 42        | 1082                                    | 1060                                 | <b>Z 78</b>  | <b>1997</b>                             | <b>1975</b>                          |
| 345                                                    | 335                                                    | 555                                                    | 540                                                                                                                                                                                        | 550*                                    | 530*                                 | Z 19         | 502*                                    | 480*                                 | Z 43        | 1102                                    | 1080                                 | <b>Z 79</b>  | <b>2022</b>                             | <b>2000</b>                          |
| 385                                                    | 375                                                    | 615                                                    | 600                                                                                                                                                                                        | 580*                                    | 560*                                 | Z 19¾        | 522*                                    | 500*                                 | Z 43¼       | 1122                                    | 1100                                 | <b>Z 83½</b> | <b>2142</b>                             | <b>2120</b>                          |
| 435                                                    | 425                                                    | 865                                                    | 850                                                                                                                                                                                        | 595*                                    | 575*                                 | Z 20         | 537*                                    | 515*                                 | Z 44        | 1142                                    | 1120                                 | <b>Z 88</b>  | <b>2262</b>                             | <b>2240</b>                          |
| 485                                                    | 475                                                    |                                                        |                                                                                                                                                                                            | 620*                                    | 600*                                 | Z 20½        | 547*                                    | 525*                                 | Z 45        | 1172                                    | 1150                                 | <b>Z 93</b>  | <b>2382</b>                             | <b>2360</b>                          |
| 510                                                    | 500                                                    |                                                        |                                                                                                                                                                                            | 650*                                    | 630*                                 | Z 21         | 552*                                    | 530*                                 | Z 46        | 1187                                    | 1165                                 | <b>Z 98</b>  | <b>2522</b>                             | <b>2500</b>                          |
| 540                                                    | 530                                                    |                                                        |                                                                                                                                                                                            | 690*                                    | 670*                                 | Z 21¼        | 562*                                    | 540*                                 | Z 46½       | 1202                                    | 1180                                 |              |                                         |                                      |
| 564                                                    | 554                                                    |                                                        |                                                                                                                                                                                            | 720*                                    | 700*                                 | Z 22         | 582*                                    | 560*                                 | Z 47        | 1216                                    | 1194                                 |              |                                         |                                      |
| 610                                                    | 600                                                    |                                                        |                                                                                                                                                                                            | 730*                                    | 710*                                 | Z 23         | 597                                     | 575                                  | Z 48        | 1237                                    | 1215                                 |              |                                         |                                      |
|                                                        |                                                        |                                                        |                                                                                                                                                                                            | 770*                                    | 750*                                 | Z 24         | 622                                     | 600                                  | Z 48½       | 1247                                    | 1225                                 |              |                                         |                                      |
|                                                        |                                                        |                                                        |                                                                                                                                                                                            | 795*                                    | 775*                                 | Z 25         | 652                                     | 630                                  | Z 49        | 1272                                    | 1250                                 |              |                                         |                                      |
|                                                        |                                                        |                                                        |                                                                                                                                                                                            | 820*                                    | 800*                                 | Z 26         | 672                                     | 650                                  | Z 50        | 1292                                    | 1270                                 |              |                                         |                                      |
|                                                        |                                                        |                                                        |                                                                                                                                                                                            | 845                                     | 825                                  | Z 27         | 692                                     | 670                                  | Z 51        | 1317                                    | 1295                                 |              |                                         |                                      |
|                                                        |                                                        |                                                        |                                                                                                                                                                                            | 870                                     | 850                                  | Z 27½        | 722                                     | 700                                  | Z 52        | 1342                                    | 1320                                 |              |                                         |                                      |
|                                                        |                                                        |                                                        |                                                                                                                                                                                            | 895                                     | 875                                  | Z 28         | 732                                     | 710                                  | Z 53        | 1368                                    | 1346                                 |              |                                         |                                      |
|                                                        |                                                        |                                                        |                                                                                                                                                                                            | 920                                     | 900                                  | Z 28½        | 747                                     | 725                                  | Z 54        | 1393                                    | 1371                                 |              |                                         |                                      |
|                                                        |                                                        |                                                        |                                                                                                                                                                                            | 970                                     | 950                                  | Z 29         | 752                                     | 730                                  | Z 55        | 1422                                    | 1400                                 |              |                                         |                                      |
|                                                        |                                                        |                                                        |                                                                                                                                                                                            | 1020                                    | 1000                                 | Z 29½        | 772                                     | 750                                  | Z 56        | 1444                                    | 1422                                 |              |                                         |                                      |
|                                                        |                                                        |                                                        |                                                                                                                                                                                            | 1040                                    | 1020                                 | Z 30         | 787                                     | 765                                  | Z 57        | 1472                                    | 1450                                 |              |                                         |                                      |
|                                                        |                                                        |                                                        |                                                                                                                                                                                            | 1070                                    | 1050                                 | Z 31         | 797                                     | 775                                  | Z 58        | 1497                                    | 1475                                 |              |                                         |                                      |
|                                                        |                                                        |                                                        |                                                                                                                                                                                            | 1095                                    | 1075                                 | Z 31½        | 822                                     | 800                                  | Z 59        | 1522                                    | 1500                                 |              |                                         |                                      |
|                                                        |                                                        |                                                        |                                                                                                                                                                                            | 1140                                    | 1120                                 | Z 32         | 842                                     | 820                                  | Z 60        | 1546                                    | 1524                                 |              |                                         |                                      |
|                                                        |                                                        |                                                        |                                                                                                                                                                                            | 1220                                    | 1200                                 | Z 33         | 847                                     | 825                                  | <b>Z 61</b> | <b>1572</b>                             | <b>1550</b>                          |              |                                         |                                      |
|                                                        |                                                        |                                                        |                                                                                                                                                                                            | 1270                                    | 1250                                 | Z 33½        | 872                                     | 850                                  | <b>Z 62</b> | <b>1597</b>                             | <b>1575</b>                          |              |                                         |                                      |
|                                                        |                                                        |                                                        |                                                                                                                                                                                            |                                         |                                      | Z 34         | 887                                     | 865                                  | <b>Z 63</b> | <b>1622</b>                             | <b>1600</b>                          |              |                                         |                                      |
|                                                        |                                                        |                                                        |                                                                                                                                                                                            |                                         |                                      | Z 35         | 897                                     | 875                                  | <b>Z 64</b> | <b>1648</b>                             | <b>1626</b>                          |              |                                         |                                      |
|                                                        |                                                        |                                                        |                                                                                                                                                                                            |                                         |                                      | Z 36         | 922                                     | 900                                  | <b>Z 65</b> | <b>1673</b>                             | <b>1651</b>                          |              |                                         |                                      |
|                                                        |                                                        |                                                        |                                                                                                                                                                                            |                                         |                                      | Z 37         | 947                                     | 925                                  | <b>Z 66</b> | <b>1697</b>                             | <b>1675</b>                          |              |                                         |                                      |
|                                                        |                                                        |                                                        |                                                                                                                                                                                            |                                         |                                      | Z 38         | 972                                     | 950                                  | <b>Z 67</b> | <b>1722</b>                             | <b>1700</b>                          |              |                                         |                                      |
| Further sizes<br>on request<br>Weight:<br>≈ 0.018 kg/m | Further sizes<br>on request<br>Weight:<br>≈ 0.026 kg/m | Further sizes<br>on request<br>Weight:<br>≈ 0.042 kg/m | Maximum production length: 4500 mm<br>Minimum order quantity:<br>Over 1800 mm =<br>20 pieces for non-standard length ranges<br>60 pieces for special constructions<br>Weight: ≈ 0.064 kg/m |                                         |                                      |              |                                         |                                      |             |                                         |                                      |              |                                         |                                      |

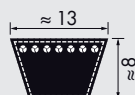
Datum length L<sub>d</sub> ± Pitch length L<sub>w</sub>/L<sub>p</sub> \* Raw edge, cogged V-belts Further sizes on request

Lengths in **bold** type are in S=C Plus (SetConstant).

# STANDARD RANGE

## optibelt **VB** CLASSIC V-BELTS

### DIN 2215 / ISO 4184



**A/13**

**Profile A/13**

| Belt no. | Datum length<br>ISO<br>$L_d$ [mm] | Inside<br>length<br>$L_i$ [mm] | Belt no.     | Datum length<br>ISO<br>$L_d$ [mm] | Inside<br>length<br>$L_i$ [mm] | Belt no.     | Datum length<br>ISO<br>$L_d$ [mm] | Inside<br>length<br>$L_i$ [mm] | Belt no.     | Datum length<br>ISO<br>$L_d$ [mm] | Inside<br>length<br>$L_i$ [mm] |
|----------|-----------------------------------|--------------------------------|--------------|-----------------------------------|--------------------------------|--------------|-----------------------------------|--------------------------------|--------------|-----------------------------------|--------------------------------|
| A 16     | 437                               | 407                            | A 41         | 1071                              | 1041                           | <b>A 69</b>  | <b>1780</b>                       | <b>1750</b>                    | <b>A 105</b> | <b>2697</b>                       | <b>2667</b>                    |
| A 18     | 487                               | 457                            | A 41½        | 1080                              | 1050                           | <b>A 70</b>  | <b>1805</b>                       | <b>1775</b>                    | <b>A 107</b> | <b>2755</b>                       | <b>2725</b>                    |
| A 19     | 510                               | 480                            | A 42         | 1090                              | 1060                           | <b>A 71</b>  | <b>1830</b>                       | <b>1800</b>                    | <b>A 108</b> | <b>2773</b>                       | <b>2743</b>                    |
| A 20     | 538                               | 508                            | A 42½        | 1105                              | 1075                           | <b>A 72</b>  | <b>1855</b>                       | <b>1825</b>                    | <b>A 110</b> | <b>2830</b>                       | <b>2800</b>                    |
| A 21     | 565                               | 535                            | A 43         | 1130                              | 1100                           | <b>A 73</b>  | <b>1884</b>                       | <b>1854</b>                    | <b>A 112</b> | <b>2875</b>                       | <b>2845</b>                    |
| A 22     | 590                               | 560                            | A 43½        | 1135                              | 1105                           | <b>A 74</b>  | <b>1910</b>                       | <b>1880</b>                    | <b>A 114</b> | <b>2926</b>                       | <b>2896</b>                    |
| A 23     | 605                               | 575                            | A 44         | 1150                              | 1120                           | <b>A 75</b>  | <b>1930</b>                       | <b>1900</b>                    | <b>A 116</b> | <b>2976</b>                       | <b>2946</b>                    |
| A 23½    | 630                               | 600                            | A 45         | 1173                              | 1143                           | <b>A 76</b>  | <b>1960</b>                       | <b>1930</b>                    | <b>A 118</b> | <b>3030</b>                       | <b>3000</b>                    |
| A 24     | 640                               | 610                            | A 45½        | 1180                              | 1150                           | <b>A 77</b>  | <b>1986</b>                       | <b>1956</b>                    | <b>A 120</b> | <b>3078</b>                       | <b>3048</b>                    |
| A 25     | 660                               | 630                            | <b>A 46</b>  | <b>1198</b>                       | <b>1168</b>                    | <b>A 78</b>  | <b>2010</b>                       | <b>1980</b>                    | <b>A 124</b> | <b>3180</b>                       | <b>3150</b>                    |
| A 26     | 680                               | 650                            | <b>A 46½</b> | <b>1210</b>                       | <b>1180</b>                    | <b>A 79</b>  | <b>2030</b>                       | <b>2000</b>                    | <b>A 128</b> | <b>3280</b>                       | <b>3250</b>                    |
| A 26½    | 700                               | 670                            | <b>A 47</b>  | <b>1230</b>                       | <b>1200</b>                    | <b>A 80</b>  | <b>2062</b>                       | <b>2032</b>                    | <b>A 132</b> | <b>3380</b>                       | <b>3350</b>                    |
| A 27     | 716                               | 686                            | <b>A 47½</b> | <b>1245</b>                       | <b>1215</b>                    | <b>A 81</b>  | <b>2090</b>                       | <b>2060</b>                    | <b>A 136</b> | <b>3484</b>                       | <b>3454</b>                    |
| A 27½    | 730                               | 700                            | <b>A 48</b>  | <b>1250</b>                       | <b>1220</b>                    | <b>A 82</b>  | <b>2113</b>                       | <b>2083</b>                    | <b>A 140</b> | <b>3580</b>                       | <b>3550</b>                    |
| A 28     | 740                               | 710                            | <b>A 48½</b> | <b>1255</b>                       | <b>1225</b>                    | <b>A 83</b>  | <b>2130</b>                       | <b>2100</b>                    | <b>A 144</b> | <b>3688</b>                       | <b>3658</b>                    |
| A 29     | 760                               | 730                            | <b>A 49</b>  | <b>1280</b>                       | <b>1250</b>                    | <b>A 83½</b> | <b>2150</b>                       | <b>2120</b>                    | <b>A 148</b> | <b>3780</b>                       | <b>3750</b>                    |
| A 29½    | 780                               | 750                            | <b>A 50</b>  | <b>1300</b>                       | <b>1270</b>                    | <b>A 84</b>  | <b>2164</b>                       | <b>2134</b>                    | <b>A 158</b> | <b>4030</b>                       | <b>4000</b>                    |
| A 30     | 797                               | 767                            | <b>A 51</b>  | <b>1330</b>                       | <b>1300</b>                    | <b>A 84½</b> | <b>2180</b>                       | <b>2150</b>                    | <b>A 167</b> | <b>4280</b>                       | <b>4250</b>                    |
| A 31     | 805                               | 775                            | <b>A 52</b>  | <b>1350</b>                       | <b>1320</b>                    | <b>A 85</b>  | <b>2190</b>                       | <b>2160</b>                    | <b>A 187</b> | <b>4780</b>                       | <b>4750</b>                    |
| A 31½    | 830                               | 800                            | <b>A 53</b>  | <b>1380</b>                       | <b>1350</b>                    | <b>A 86½</b> | <b>2230</b>                       | <b>2200</b>                    | <b>A 197</b> | <b>5030</b>                       | <b>5000</b>                    |
| A 32     | 843                               | 813                            | <b>A 54</b>  | <b>1405</b>                       | <b>1375</b>                    | <b>A 87</b>  | <b>2240</b>                       | <b>2210</b>                    |              |                                   |                                |
| A 32½    | 855                               | 825                            | <b>A 55</b>  | <b>1430</b>                       | <b>1400</b>                    | <b>A 88</b>  | <b>2270</b>                       | <b>2240</b>                    |              |                                   |                                |
| A 33     | 871                               | 841                            | <b>A 56</b>  | <b>1452</b>                       | <b>1422</b>                    | <b>A 89</b>  | <b>2291</b>                       | <b>2261</b>                    |              |                                   |                                |
| A 34     | 880                               | 850                            | <b>A 57</b>  | <b>1480</b>                       | <b>1450</b>                    | <b>A 90</b>  | <b>2316</b>                       | <b>2286</b>                    |              |                                   |                                |
| A 34½    | 905                               | 875                            | <b>A 58</b>  | <b>1505</b>                       | <b>1475</b>                    | <b>A 91</b>  | <b>2341</b>                       | <b>2311</b>                    |              |                                   |                                |
| A 35     | 919                               | 889                            | <b>A 59</b>  | <b>1530</b>                       | <b>1500</b>                    | <b>A 92</b>  | <b>2367</b>                       | <b>2337</b>                    |              |                                   |                                |
| A 35½    | 930                               | 900                            | <b>A 60</b>  | <b>1555</b>                       | <b>1525</b>                    | <b>A 93</b>  | <b>2390</b>                       | <b>2360</b>                    |              |                                   |                                |
| A 36     | 944                               | 914                            | <b>A 61</b>  | <b>1580</b>                       | <b>1550</b>                    | <b>A 94</b>  | <b>2418</b>                       | <b>2388</b>                    |              |                                   |                                |
| A 37     | 955                               | 925                            | <b>A 62</b>  | <b>1605</b>                       | <b>1575</b>                    | <b>A 95</b>  | <b>2443</b>                       | <b>2413</b>                    |              |                                   |                                |
| A 37½    | 980                               | 950                            | <b>A 63</b>  | <b>1630</b>                       | <b>1600</b>                    | <b>A 96</b>  | <b>2468</b>                       | <b>2438</b>                    |              |                                   |                                |
| A 38     | 995                               | 965                            | <b>A 64</b>  | <b>1655</b>                       | <b>1625</b>                    | <b>A 97</b>  | <b>2494</b>                       | <b>2464</b>                    |              |                                   |                                |
| A 38½    | 1005                              | 975                            | <b>A 65</b>  | <b>1680</b>                       | <b>1650</b>                    | <b>A 98</b>  | <b>2530</b>                       | <b>2500</b>                    |              |                                   |                                |
| A 39     | 1030                              | 1000                           | <b>A 66</b>  | <b>1706</b>                       | <b>1676</b>                    | <b>A 100</b> | <b>2570</b>                       | <b>2540</b>                    |              |                                   |                                |
| A 40     | 1046                              | 1016                           | <b>A 67</b>  | <b>1730</b>                       | <b>1700</b>                    | <b>A 102</b> | <b>2621</b>                       | <b>2591</b>                    |              |                                   |                                |
| A 40½    | 1060                              | 1030                           | <b>A 68</b>  | <b>1755</b>                       | <b>1725</b>                    | <b>A 104</b> | <b>2680</b>                       | <b>2650</b>                    |              |                                   |                                |

Maximum production length: 10000 mm  $L_i$   
 Minimum order quantity:  
 Over 1800 mm =  
 31 pieces for non-standard length ranges  
 93 pieces for special constructions  
 Weight:  $\approx 0.109$  kg/m

Datum length  $L_d \triangleq$  Pitch length  $L_w/L_p$  Further sizes on request

Lengths in **bold** type are in S=C Plus (SetConstant).

# STANDARD RANGE

## optibelt **VB** CLASSIC V-BELTS

### DIN 2215 / ISO 4184



**B/17**

**Profile B/17**

| Belt no. | Datum length<br>ISO<br>$L_d$ [mm] | Inside<br>length<br>$L_i$ [mm] | Belt no. | Datum length<br>ISO<br>$L_d$ [mm] | Inside<br>length<br>$L_i$ [mm] | Belt no. | Datum length<br>ISO<br>$L_d$ [mm] | Inside<br>length<br>$L_i$ [mm] | Belt no. | Datum length<br>ISO<br>$L_d$ [mm] | Inside<br>length<br>$L_i$ [mm] |
|----------|-----------------------------------|--------------------------------|----------|-----------------------------------|--------------------------------|----------|-----------------------------------|--------------------------------|----------|-----------------------------------|--------------------------------|
| B 23     | 610                               | 570                            | B 51     | 1340                              | 1300                           | B 87     | 2250                              | 2210                           | B 140    | 3590                              | 3550                           |
| B 24     | 655                               | 615                            | B 52     | 1360                              | 1320                           | B 88     | 2280                              | 2240                           | B 142    | 3640                              | 3600                           |
| B 25     | 670                               | 630                            | B 52½    | 1375                              | 1335                           | B 89     | 2301                              | 2261                           | B 144    | 3698                              | 3658                           |
| B 26     | 690                               | 650                            | B 53     | 1390                              | 1350                           | B 90     | 2326                              | 2286                           | B 146    | 3740                              | 3700                           |
| B 26½    | 710                               | 670                            | B 53½    | 1400                              | 1360                           | B 91     | 2340                              | 2300                           | B 148    | 3790                              | 3750                           |
| B 27     | 726                               | 686                            | B 54     | 1412                              | 1372                           | B 92     | 2377                              | 2337                           | B 150    | 3850                              | 3810                           |
| B 28     | 750                               | 710                            | B 55     | 1440                              | 1400                           | B 93     | 2400                              | 2360                           | B 151    | 3890                              | 3850                           |
| B 29     | 765                               | 725                            | B 56     | 1462                              | 1422                           | B 94     | 2428                              | 2388                           | B 152    | 3901                              | 3861                           |
| B 30     | 790                               | 750                            | B 57     | 1490                              | 1450                           | B 94½    | 2440                              | 2400                           | B 154    | 3952                              | 3912                           |
| B 31     | 815                               | 775                            | B 58     | 1513                              | 1473                           | B 95     | 2453                              | 2413                           | B 155    | 3990                              | 3950                           |
| B 32     | 840                               | 800                            | B 59     | 1540                              | 1500                           | B 96     | 2478                              | 2438                           | B 156    | 4002                              | 3962                           |
| B 32½    | 865                               | 825                            | B 60     | 1565                              | 1525                           | B 96½    | 2490                              | 2450                           | B 158    | 4040                              | 4000                           |
| B 33     | 876                               | 836                            | B 61     | 1590                              | 1550                           | B 97     | 2505                              | 2465                           | B 160    | 4104                              | 4064                           |
| B 34     | 890                               | 850                            | B 62     | 1615                              | 1575                           | B 98     | 2540                              | 2500                           | B 162    | 4155                              | 4115                           |
| B 34½    | 915                               | 875                            | B 63     | 1640                              | 1600                           | B 99     | 2555                              | 2515                           | B 165    | 4240                              | 4200                           |
| B 35     | 929                               | 889                            | B 64     | 1665                              | 1625                           | B 100    | 2580                              | 2540                           | B 167    | 4290                              | 4250                           |
| B 36     | 940                               | 900                            | B 65     | 1690                              | 1650                           | B 101    | 2605                              | 2565                           | B 173    | 4434                              | 4394                           |
| B 37     | 965                               | 925                            | B 66     | 1716                              | 1676                           | B 102    | 2640                              | 2600                           | B 175    | 4490                              | 4450                           |
| B 37½    | 990                               | 950                            | B 67     | 1740                              | 1700                           | B 103    | 2656                              | 2616                           | B 177    | 4540                              | 4500                           |
| B 38     | 1005                              | 965                            | B 68     | 1765                              | 1725                           | B 104    | 2690                              | 2650                           | B 180    | 4612                              | 4572                           |
| B 38½    | 1015                              | 975                            | B 69     | 1790                              | 1750                           | B 105    | 2707                              | 2667                           | B 187    | 4790                              | 4750                           |
| B 39     | 1040                              | 1000                           | B 69½    | 1801                              | 1761                           | B 106    | 2740                              | 2700                           | B 195    | 4993                              | 4953                           |
| B 40     | 1056                              | 1016                           | B 70     | 1815                              | 1775                           | B 107    | 2758                              | 2718                           | B 197    | 5040                              | 5000                           |
| B 40½    | 1070                              | 1030                           | B 71     | 1840                              | 1800                           | B 108    | 2790                              | 2750                           | B 208    | 5340                              | 5300                           |
| B 41     | 1080                              | 1040                           | B 72     | 1869                              | 1829                           | B 110    | 2840                              | 2800                           | B 210    | 5374                              | 5334                           |
| B 41½    | 1090                              | 1050                           | B 73     | 1890                              | 1850                           | B 112    | 2885                              | 2845                           | B 220    | 5640                              | 5600                           |
| B 42     | 1100                              | 1060                           | B 74     | 1920                              | 1880                           | B 114    | 2940                              | 2900                           | B 236    | 6040                              | 6000                           |
| B 42½    | 1115                              | 1075                           | B 75     | 1940                              | 1900                           | B 115    | 2961                              | 2921                           | B 240    | 6136                              | 6096                           |
| B 43     | 1130                              | 1090                           | B 76     | 1970                              | 1930                           | B 116    | 2990                              | 2950                           | B 248    | 6340                              | 6300                           |
| B 43¼    | 1140                              | 1100                           | B 77     | 1990                              | 1950                           | B 118    | 3040                              | 3000                           | B 264    | 6740                              | 6700                           |
| B 44     | 1160                              | 1120                           | B 78     | 2021                              | 1981                           | B 120    | 3088                              | 3048                           | B 276    | 7040                              | 7000                           |
| B 45     | 1190                              | 1150                           | B 79     | 2040                              | 2000                           | B 122    | 3139                              | 3099                           | B 280    | 7140                              | 7100                           |
| B 45½    | 1203                              | 1163                           | B 80     | 2072                              | 2032                           | B 124    | 3190                              | 3150                           |          |                                   |                                |
| B 46     | 1215                              | 1175                           | B 81     | 2100                              | 2060                           | B 126    | 3240                              | 3200                           |          |                                   |                                |
| B 46½    | 1220                              | 1180                           | B 82     | 2123                              | 2083                           | B 128    | 3290                              | 3250                           |          |                                   |                                |
| B 47     | 1240                              | 1200                           | B 83     | 2140                              | 2100                           | B 130    | 3342                              | 3302                           |          |                                   |                                |
| B 48     | 1255                              | 1215                           | B 83½    | 2160                              | 2120                           | B 132    | 3390                              | 3350                           |          |                                   |                                |
| B 48½    | 1265                              | 1225                           | B 84     | 2174                              | 2134                           | B 134    | 3444                              | 3404                           |          |                                   |                                |
| B 49     | 1290                              | 1250                           | B 85     | 2200                              | 2160                           | B 136    | 3490                              | 3450                           |          |                                   |                                |
| B 50     | 1315                              | 1275                           | B 86     | 2240                              | 2200                           | B 138    | 3545                              | 3505                           |          |                                   |                                |

Maximum production length: 21 000 mm  $L_i$   
 Minimum order quantity:  
 Over 1800 mm =  
 21 pieces for non-standard length ranges  
 63 pieces for special constructions  
 Weight:  $\approx 0.196$  kg/m

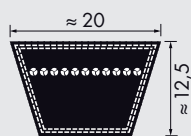
Datum length  $L_d \triangleq$  Pitch length  $L_w/L_p$  Further sizes on request

Lengths in **bold** type are in S=C Plus (SetConstant).

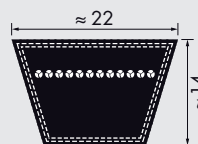
# STANDARD RANGE

## optibelt **VB** CLASSIC V-BELTS

### DIN 2215 / ISO 4184



**20**



**C/22**

| Profile 20                        |                             | Profile C/22       |                                   |                             |                    |                                   |                             |          |                                   |                             |
|-----------------------------------|-----------------------------|--------------------|-----------------------------------|-----------------------------|--------------------|-----------------------------------|-----------------------------|----------|-----------------------------------|-----------------------------|
| Datum length<br>ISO<br>$L_d$ [mm] | Inside length<br>$L_i$ [mm] | Belt no.           | Datum length<br>ISO<br>$L_d$ [mm] | Inside length<br>$L_i$ [mm] | Belt no.           | Datum length<br>ISO<br>$L_d$ [mm] | Inside length<br>$L_i$ [mm] | Belt no. | Datum length<br>ISO<br>$L_d$ [mm] | Inside length<br>$L_i$ [mm] |
| 950                               | 900                         | C 43               | 1148                              | 1090                        | C 84               | 2192                              | 2134                        | C 134    | 3462                              | 3404                        |
| 1050                              | 1000                        | C 47               | 1258                              | 1200                        | C 85               | 2217                              | 2159                        | C 136    | 3508                              | 3450                        |
| 1170                              | 1120                        | C 48               | 1273                              | 1215                        | C 86               | 2242                              | 2184                        | C 138    | 3563                              | 3505                        |
| 1230                              | 1180                        | C 49               | 1308                              | 1250                        | C 87               | 2268                              | 2210                        | C 140    | 3608                              | 3550                        |
| 1300                              | 1250                        | C 51               | 1353                              | 1295                        | C 88               | 2298                              | 2240                        | C 142    | 3665                              | 3607                        |
| 1370                              | 1320                        | C 52               | 1378                              | 1320                        | C 89               | 2319                              | 2261                        | C 144    | 3716                              | 3658                        |
| 1450                              | 1400                        | C 53               | 1408                              | 1350                        | C 90               | 2344                              | 2286                        | C 146    | 3758                              | 3700                        |
| 1550                              | 1500                        | C 54               | 1433                              | 1375                        | C 92               | 2395                              | 2337                        | C 148    | 3808                              | 3750                        |
| 1650                              | 1600                        | C 55               | 1458                              | 1400                        | C 93               | 2418                              | 2360                        | C 150    | 3868                              | 3810                        |
| 1750                              | 1700                        | C 56               | 1483                              | 1425                        | C 94               | 2446                              | 2388                        | C 158    | 4058                              | 4000                        |
| 1850                              | 1800                        | C 57               | 1508                              | 1450                        | C 95               | 2471                              | 2413                        | C 162    | 4158                              | 4100                        |
| 1950                              | 1900                        | C 58               | 1533                              | 1475                        | C 96               | 2496                              | 2438                        | C 166    | 4274                              | 4216                        |
| 2050                              | 2000                        | C 59               | 1558                              | 1500                        | C 96 $\frac{1}{2}$ | 2508                              | 2450                        | C 167    | 4308                              | 4250                        |
| 2170                              | 2120                        | C 60               | 1582                              | 1524                        | C 97               | 2522                              | 2464                        | C 168    | 4325                              | 4267                        |
| 2290                              | 2240                        | C 61               | 1608                              | 1550                        | C 98               | 2558                              | 2500                        | C 170    | 4376                              | 4318                        |
| 2410                              | 2360                        | C 62               | 1632                              | 1574                        | C 99               | 2583                              | 2525                        | C 173    | 4452                              | 4394                        |
| 2550                              | 2500                        | C 63               | 1658                              | 1600                        | C 100              | 2598                              | 2540                        | C 175    | 4503                              | 4445                        |
| 2700                              | 2650                        | C 65               | 1708                              | 1650                        | C 101              | 2618                              | 2560                        | C 177    | 4558                              | 4500                        |
| 2850                              | 2800                        | C 66               | 1734                              | 1676                        | C 102              | 2649                              | 2591                        | C 180    | 4630                              | 4572                        |
| 3050                              | 3000                        | C 67               | 1758                              | 1700                        | C 104              | 2700                              | 2642                        | C 187    | 4808                              | 4750                        |
| 3200                              | 3150                        | C 68               | 1785                              | 1727                        | C 105              | 2725                              | 2667                        | C 190    | 4884                              | 4826                        |
| 3400                              | 3350                        | C 69               | 1808                              | 1750                        | C 106              | 2750                              | 2692                        | C 195    | 5011                              | 4953                        |
| 3600                              | 3550                        | C 70               | 1836                              | 1778                        | C 108              | 2808                              | 2750                        | C 197    | 5058                              | 5000                        |
| 3800                              | 3750                        | C 71               | 1858                              | 1800                        | C 110              | 2858                              | 2800                        | C 208    | 5358                              | 5300                        |
| 4050                              | 4000                        | C 72               | 1887                              | 1829                        | C 112              | 2903                              | 2845                        | C 210    | 5392                              | 5334                        |
| 4550                              | 4500                        | C 73               | 1912                              | 1854                        | C 114              | 2954                              | 2896                        | C 220    | 5658                              | 5600                        |
| 5050                              | 5000                        | C 74               | 1938                              | 1880                        | C 115              | 2979                              | 2921                        | C 225    | 5773                              | 5715                        |
| 6050                              | 6000                        | C 75               | 1958                              | 1900                        | C 116              | 3008                              | 2950                        | C 236    | 6058                              | 6000                        |
|                                   |                             | C 76               | 1988                              | 1930                        | C 117              | 3023                              | 2965                        | C 240    | 6154                              | 6096                        |
|                                   |                             | C 77               | 2014                              | 1956                        | C 118              | 3058                              | 3000                        | C 248    | 6358                              | 6300                        |
|                                   |                             | C 78               | 2039                              | 1981                        | C 120              | 3106                              | 3048                        | C 264    | 6758                              | 6700                        |
|                                   |                             | C 79               | 2058                              | 2000                        | C 122              | 3157                              | 3099                        | C 270    | 6916                              | 6858                        |
|                                   |                             | C 80               | 2090                              | 2032                        | C 124              | 3208                              | 3150                        | C 280    | 7158                              | 7100                        |
|                                   |                             | C 81               | 2118                              | 2060                        | C 126              | 3258                              | 3200                        | C 295    | 7558                              | 7500                        |
|                                   |                             | C 82               | 2141                              | 2083                        | C 128              | 3308                              | 3250                        | C 300    | 7678                              | 7620                        |
|                                   |                             | C 83               | 2166                              | 2108                        | C 130              | 3360                              | 3302                        | C 315    | 8058                              | 8000                        |
|                                   |                             | C 83 $\frac{1}{2}$ | 2178                              | 2120                        | C 132              | 3408                              | 3350                        |          |                                   |                             |

Maximum production length:  
10000 mm  $L_i$   
Minimum order quantity:  
Over 1800 mm =  
18 pieces for non-standard  
length ranges  
54 pieces for special  
constructions  
Weight:  $\approx 0.266$  kg/m

Maximum standard production length: 21 000 mm  $L_i$   
Over 18 000 to 21 000 mm on request  
Minimum order quantity:  
Over 1800 mm =  
16 pieces for non-standard length ranges  
48 pieces for special constructions  
Weight:  $\approx 0.324$  kg/m

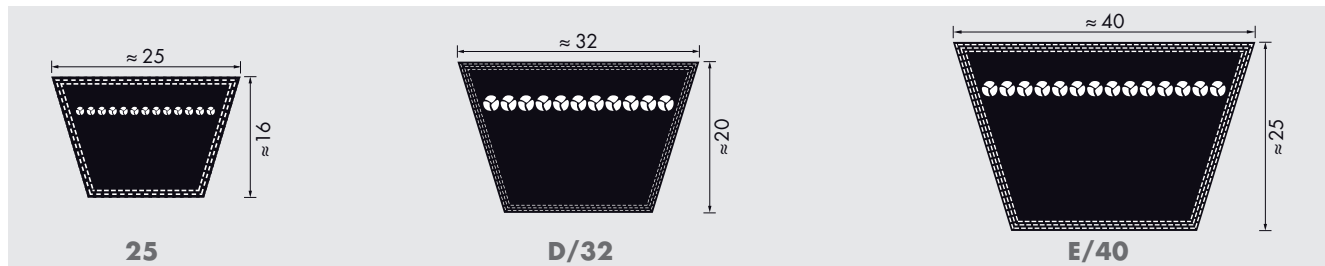
Datum length  $L_d \triangleq$  Pitch length  $L_w/L_p$  Further sizes on request

Lengths in **bold** type are in S=C Plus (SetConstant).

# STANDARD RANGE

## optibelt **VB** CLASSIC V-BELTS

### DIN 2215 / ISO 4184



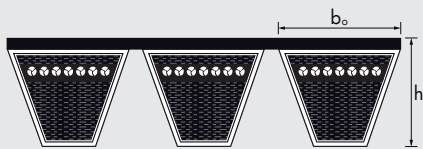
| Profile 25                                                                                                                                                                                                                                                             |                                      | Profile D/32                                                                                                                                                                                                                                                        |                                         |                                      | Profile E/40                                                                                                                                                                                                           |                                         |                                      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|--------------------------------------|
| Datum length ISO<br>L <sub>d</sub> [mm]                                                                                                                                                                                                                                | Inside length<br>L <sub>i</sub> [mm] | Belt no.                                                                                                                                                                                                                                                            | Datum length ISO<br>L <sub>d</sub> [mm] | Inside length<br>L <sub>i</sub> [mm] | Belt no.                                                                                                                                                                                                               | Datum length ISO<br>L <sub>d</sub> [mm] | Inside length<br>L <sub>i</sub> [mm] |
| 1460                                                                                                                                                                                                                                                                   | 1400                                 | D 79                                                                                                                                                                                                                                                                | 2075                                    | 2000                                 | E 118                                                                                                                                                                                                                  | 3080                                    | 3000                                 |
| 1560                                                                                                                                                                                                                                                                   | 1500                                 | D 98                                                                                                                                                                                                                                                                | 2575                                    | 2500                                 | E 158                                                                                                                                                                                                                  | 4080                                    | 4000                                 |
| 1660                                                                                                                                                                                                                                                                   | 1600                                 | D 104                                                                                                                                                                                                                                                               | 2725                                    | 2650                                 | E 197                                                                                                                                                                                                                  | 5080                                    | 5000                                 |
| 1760                                                                                                                                                                                                                                                                   | 1700                                 | D 110                                                                                                                                                                                                                                                               | 2875                                    | 2800                                 | E 220                                                                                                                                                                                                                  | 5680                                    | 5600                                 |
| 1860                                                                                                                                                                                                                                                                   | 1800                                 | D 118                                                                                                                                                                                                                                                               | 3075                                    | 3000                                 | E 236                                                                                                                                                                                                                  | 6080                                    | 6000                                 |
| 1960                                                                                                                                                                                                                                                                   | 1900                                 | D 120                                                                                                                                                                                                                                                               | 3123                                    | 3048                                 | E 248                                                                                                                                                                                                                  | 6380                                    | 6300                                 |
| 2060                                                                                                                                                                                                                                                                   | 2000                                 | D 124                                                                                                                                                                                                                                                               | 3225                                    | 3150                                 | E 280                                                                                                                                                                                                                  | 7180                                    | 7100                                 |
| 2180                                                                                                                                                                                                                                                                   | 2120                                 | D 128                                                                                                                                                                                                                                                               | 3326                                    | 3251                                 | E 295                                                                                                                                                                                                                  | 7580                                    | 7500                                 |
| 2300                                                                                                                                                                                                                                                                   | 2240                                 | D 132                                                                                                                                                                                                                                                               | 3425                                    | 3350                                 | E 315                                                                                                                                                                                                                  | 8080                                    | 8000                                 |
| 2420                                                                                                                                                                                                                                                                   | 2360                                 | D 135                                                                                                                                                                                                                                                               | 3500                                    | 3425                                 | E 354                                                                                                                                                                                                                  | 9080                                    | 9000                                 |
| 2560                                                                                                                                                                                                                                                                   | 2500                                 | D 136                                                                                                                                                                                                                                                               | 3529                                    | 3454                                 | E 394                                                                                                                                                                                                                  | 10080                                   | 10000                                |
| 2710                                                                                                                                                                                                                                                                   | 2650                                 | D 140                                                                                                                                                                                                                                                               | 3625                                    | 3550                                 | E 441                                                                                                                                                                                                                  | 11280                                   | 11200                                |
| 2760                                                                                                                                                                                                                                                                   | 2700                                 | D 144                                                                                                                                                                                                                                                               | 3733                                    | 3658                                 | E 492                                                                                                                                                                                                                  | 12580                                   | 12500                                |
| 2860                                                                                                                                                                                                                                                                   | 2800                                 | D 148                                                                                                                                                                                                                                                               | 3825                                    | 3750                                 |                                                                                                                                                                                                                        |                                         |                                      |
| 3060                                                                                                                                                                                                                                                                   | 3000                                 | D 154                                                                                                                                                                                                                                                               | 4000                                    | 3925                                 |                                                                                                                                                                                                                        |                                         |                                      |
| 3210                                                                                                                                                                                                                                                                   | 3150                                 | D 158                                                                                                                                                                                                                                                               | 4075                                    | 4000                                 |                                                                                                                                                                                                                        |                                         |                                      |
| 3410                                                                                                                                                                                                                                                                   | 3350                                 | D 162                                                                                                                                                                                                                                                               | 4190                                    | 4115                                 |                                                                                                                                                                                                                        |                                         |                                      |
| 3610                                                                                                                                                                                                                                                                   | 3550                                 | D 167                                                                                                                                                                                                                                                               | 4325                                    | 4250                                 |                                                                                                                                                                                                                        |                                         |                                      |
| 3810                                                                                                                                                                                                                                                                   | 3750                                 | D 173                                                                                                                                                                                                                                                               | 4469                                    | 4394                                 |                                                                                                                                                                                                                        |                                         |                                      |
| 4060                                                                                                                                                                                                                                                                   | 4000                                 | D 177                                                                                                                                                                                                                                                               | 4575                                    | 4500                                 |                                                                                                                                                                                                                        |                                         |                                      |
| 4310                                                                                                                                                                                                                                                                   | 4250                                 | D 180                                                                                                                                                                                                                                                               | 4647                                    | 4572                                 |                                                                                                                                                                                                                        |                                         |                                      |
| 4560                                                                                                                                                                                                                                                                   | 4500                                 | D 187                                                                                                                                                                                                                                                               | 4825                                    | 4750                                 |                                                                                                                                                                                                                        |                                         |                                      |
| 4810                                                                                                                                                                                                                                                                   | 4750                                 | D 195                                                                                                                                                                                                                                                               | 5028                                    | 4953                                 |                                                                                                                                                                                                                        |                                         |                                      |
| 5060                                                                                                                                                                                                                                                                   | 5000                                 | D 197                                                                                                                                                                                                                                                               | 5075                                    | 5000                                 |                                                                                                                                                                                                                        |                                         |                                      |
| 5360                                                                                                                                                                                                                                                                   | 5300                                 | D 208                                                                                                                                                                                                                                                               | 5375                                    | 5300                                 |                                                                                                                                                                                                                        |                                         |                                      |
| 5660                                                                                                                                                                                                                                                                   | 5600                                 | D 210                                                                                                                                                                                                                                                               | 5409                                    | 5334                                 |                                                                                                                                                                                                                        |                                         |                                      |
| 6060                                                                                                                                                                                                                                                                   | 6000                                 | D 220                                                                                                                                                                                                                                                               | 5675                                    | 5600                                 |                                                                                                                                                                                                                        |                                         |                                      |
| 6360                                                                                                                                                                                                                                                                   | 6300                                 | D 225                                                                                                                                                                                                                                                               | 5790                                    | 5715                                 |                                                                                                                                                                                                                        |                                         |                                      |
| 6760                                                                                                                                                                                                                                                                   | 6700                                 | D 236                                                                                                                                                                                                                                                               | 6075                                    | 6000                                 |                                                                                                                                                                                                                        |                                         |                                      |
| 7160                                                                                                                                                                                                                                                                   | 7100                                 | D 240                                                                                                                                                                                                                                                               | 6171                                    | 6096                                 |                                                                                                                                                                                                                        |                                         |                                      |
| 7560                                                                                                                                                                                                                                                                   | 7500                                 | D 248                                                                                                                                                                                                                                                               | 6375                                    | 6300                                 |                                                                                                                                                                                                                        |                                         |                                      |
| 8060                                                                                                                                                                                                                                                                   | 8000                                 | D 264                                                                                                                                                                                                                                                               | 6775                                    | 6700                                 |                                                                                                                                                                                                                        |                                         |                                      |
| 8560                                                                                                                                                                                                                                                                   | 8500                                 | D 270                                                                                                                                                                                                                                                               | 6933                                    | 6858                                 |                                                                                                                                                                                                                        |                                         |                                      |
| 9060                                                                                                                                                                                                                                                                   | 9000                                 | D 280                                                                                                                                                                                                                                                               | 7175                                    | 7100                                 |                                                                                                                                                                                                                        |                                         |                                      |
|                                                                                                                                                                                                                                                                        |                                      | D 295                                                                                                                                                                                                                                                               | 7575                                    | 7500                                 |                                                                                                                                                                                                                        |                                         |                                      |
|                                                                                                                                                                                                                                                                        |                                      | D 300                                                                                                                                                                                                                                                               | 7695                                    | 7620                                 |                                                                                                                                                                                                                        |                                         |                                      |
|                                                                                                                                                                                                                                                                        |                                      | D 315                                                                                                                                                                                                                                                               | 8075                                    | 8000                                 |                                                                                                                                                                                                                        |                                         |                                      |
|                                                                                                                                                                                                                                                                        |                                      | D 330                                                                                                                                                                                                                                                               | 8457                                    | 8382                                 |                                                                                                                                                                                                                        |                                         |                                      |
|                                                                                                                                                                                                                                                                        |                                      | D 335                                                                                                                                                                                                                                                               | 8575                                    | 8500                                 |                                                                                                                                                                                                                        |                                         |                                      |
|                                                                                                                                                                                                                                                                        |                                      | D 354                                                                                                                                                                                                                                                               | 9075                                    | 9000                                 |                                                                                                                                                                                                                        |                                         |                                      |
|                                                                                                                                                                                                                                                                        |                                      | D 374                                                                                                                                                                                                                                                               | 9575                                    | 9500                                 |                                                                                                                                                                                                                        |                                         |                                      |
|                                                                                                                                                                                                                                                                        |                                      | D 394                                                                                                                                                                                                                                                               | 10075                                   | 10000                                |                                                                                                                                                                                                                        |                                         |                                      |
|                                                                                                                                                                                                                                                                        |                                      | D 441                                                                                                                                                                                                                                                               | 11275                                   | 11200                                |                                                                                                                                                                                                                        |                                         |                                      |
| Maximum standard production length:<br>21 000 mm L <sub>i</sub><br>Over 18 000 to 21 000 mm on request<br>Minimum order quantity:<br>Over 1800 mm =<br>14 pieces for non-standard length ranges<br>42 pieces for certain special constructions<br>Weight: ≈ 0.420 kg/m |                                      | Maximum standard production length: 21 000 mm L <sub>i</sub><br>Over 18 000 to 21 000 mm on request<br>Minimum order quantity:<br>Over 2000 mm =<br>11 pieces for non-standard length ranges<br>33 pieces for certain special constructions<br>Weight: ≈ 0.668 kg/m |                                         |                                      | Maximum production length: 21 000 mm L <sub>i</sub><br>Minimum order quantity:<br>Over 3000 mm =<br>7 pieces for non-standard length ranges<br>21 pieces for certain special constructions<br><br>Weight: ≈ 0.958 kg/m |                                         |                                      |
| Datum length L <sub>d</sub> ≙ Pitch length L <sub>w</sub> /L <sub>p</sub>                                                                                                                                                                                              |                                      | Further sizes on request                                                                                                                                                                                                                                            |                                         |                                      |                                                                                                                                                                                                                        |                                         |                                      |

Lengths in **bold** type are in S=C Plus (SetConstant).

# STANDARD RANGE

optibelt **RED POWER 3** KRAFTBANDS

WITH HIGH PERFORMANCE WEDGE BELTS DIN/ISO



| Profile                   | SPB  | SPC  |
|---------------------------|------|------|
| $b_o \approx [\text{mm}]$ | 16.5 | 22.0 |
| $h \approx [\text{mm}]$   | 15.6 | 22.6 |

| Profile SPB                                                                                                                   | Profile SPC                                                                                                                   |
|-------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Datum length ISO<br>$L_d$ [mm]                                                                                                | Datum length ISO<br>$L_d$ [mm]                                                                                                |
| 2000                                                                                                                          | 3000                                                                                                                          |
| 2120                                                                                                                          | 3150                                                                                                                          |
| 2240                                                                                                                          | 3350                                                                                                                          |
| 2360                                                                                                                          | 3550                                                                                                                          |
| 2500                                                                                                                          | 3750                                                                                                                          |
| 2650                                                                                                                          | 4000                                                                                                                          |
| 2800                                                                                                                          | 4250                                                                                                                          |
| 3000                                                                                                                          | 4500                                                                                                                          |
| 3150                                                                                                                          | 4750                                                                                                                          |
| 3350                                                                                                                          | 5000                                                                                                                          |
| 3550                                                                                                                          | 5300                                                                                                                          |
| 3750                                                                                                                          | 5600                                                                                                                          |
| 4000                                                                                                                          | 6000                                                                                                                          |
| 4250                                                                                                                          | 6300                                                                                                                          |
| 4500                                                                                                                          | 6700                                                                                                                          |
| 4750                                                                                                                          | 7100                                                                                                                          |
| 5000                                                                                                                          | 7500                                                                                                                          |
| 5300                                                                                                                          | 8000                                                                                                                          |
| 5600                                                                                                                          | 8500                                                                                                                          |
| 6000                                                                                                                          | 9000                                                                                                                          |
| 6300                                                                                                                          | 9500                                                                                                                          |
| 6700                                                                                                                          | 10000                                                                                                                         |
| 7100                                                                                                                          |                                                                                                                               |
| 7500                                                                                                                          |                                                                                                                               |
| 8000                                                                                                                          |                                                                                                                               |
| Maximum production length: 10000 mm $L_d$<br>Non-standard length ranges on request<br>Weight:<br>per rib $\approx 0.261$ kg/m | Maximum production length: 10000 mm $L_d$<br>Non-standard length ranges on request<br>Weight:<br>per rib $\approx 0.555$ kg/m |

Datum length  $L_d \triangleq$  Pitch length  $L_w/L_p$  Further sizes on request

# STANDARD RANGE

optibelt **RED POWER 3** KRAFTBANDS

WITH HIGH PERFORMANCE WEDGE BELTS ARPM/MPTA



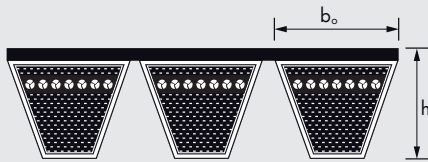
| Profile                   | 3V/9J | 5V/15J | 8V/25J |
|---------------------------|-------|--------|--------|
| $b_o \approx [\text{mm}]$ | 9.0   | 15.0   | 25.0   |
| $h \approx [\text{mm}]$   | 9.9   | 15.1   | 25.5   |

| Profile 3V/9J                                                                                                                        |                                     | Profile 5V/15J                                                                                                                        |                                     | Profile 8V/25J                                                                                                                        |                                     |
|--------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| Belt designation                                                                                                                     |                                     | Belt designation                                                                                                                      |                                     | Belt designation                                                                                                                      |                                     |
| Profile, length code                                                                                                                 | Profile, outside length, $L_o$ [mm] | Profile, length code                                                                                                                  | Profile, outside length, $L_o$ [mm] | Profile, length code                                                                                                                  | Profile, outside length, $L_o$ [mm] |
| 3V 500                                                                                                                               | 9J 1270                             | 5V 560                                                                                                                                | 15J 1422                            | 8V 1000                                                                                                                               | 25J 2540                            |
| 3V 530                                                                                                                               | 9J 1346                             | 5V 600                                                                                                                                | 15J 1524                            | 8V 1060                                                                                                                               | 25J 2692                            |
| 3V 560                                                                                                                               | 9J 1422                             | 5V 630                                                                                                                                | 15J 1600                            | 8V 1120                                                                                                                               | 25J 2845                            |
| 3V 600                                                                                                                               | 9J 1524                             | 5V 670                                                                                                                                | 15J 1702                            | 8V 1180                                                                                                                               | 25J 2997                            |
| 3V 630                                                                                                                               | 9J 1600                             | 5V 710                                                                                                                                | 15J 1803                            | 8V 1250                                                                                                                               | 25J 3175                            |
| 3V 670                                                                                                                               | 9J 1702                             | 5V 750                                                                                                                                | 15J 1905                            | 8V 1320                                                                                                                               | 25J 3353                            |
| 3V 710                                                                                                                               | 9J 1803                             | 5V 800                                                                                                                                | 15J 2032                            | 8V 1400                                                                                                                               | 25J 3556                            |
| 3V 750                                                                                                                               | 9J 1905                             | 5V 850                                                                                                                                | 15J 2159                            | 8V 1500                                                                                                                               | 25J 3810                            |
| 3V 800                                                                                                                               | 9J 2032                             | 5V 900                                                                                                                                | 15J 2286                            | 8V 1600                                                                                                                               | 25J 4064                            |
| 3V 850                                                                                                                               | 9J 2159                             | 5V 950                                                                                                                                | 15J 2413                            | 8V 1700                                                                                                                               | 25J 4318                            |
| 3V 900                                                                                                                               | 9J 2286                             | 5V 1000                                                                                                                               | 15J 2540                            | 8V 1800                                                                                                                               | 25J 4572                            |
| 3V 950                                                                                                                               | 9J 2413                             | 5V 1060                                                                                                                               | 15J 2692                            | 8V 1900                                                                                                                               | 25J 4826                            |
| 3V 1000                                                                                                                              | 9J 2540                             | 5V 1120                                                                                                                               | 15J 2845                            | 8V 2000                                                                                                                               | 25J 5080                            |
| 3V 1060                                                                                                                              | 9J 2692                             | 5V 1180                                                                                                                               | 15J 2997                            | 8V 2120                                                                                                                               | 25J 5385                            |
| 3V 1120                                                                                                                              | 9J 2845                             | 5V 1250                                                                                                                               | 15J 3175                            | 8V 2240                                                                                                                               | 25J 5690                            |
| 3V 1180                                                                                                                              | 9J 2997                             | 5V 1320                                                                                                                               | 15J 3353                            | 8V 2360                                                                                                                               | 25J 5994                            |
| 3V 1250                                                                                                                              | 9J 3175                             | 5V 1400                                                                                                                               | 15J 3556                            | 8V 2500                                                                                                                               | 25J 6350                            |
| 3V 1320                                                                                                                              | 9J 3353                             | 5V 1500                                                                                                                               | 15J 3810                            | 8V 2650                                                                                                                               | 25J 6731                            |
| 3V 1400                                                                                                                              | 9J 3556                             | 5V 1600                                                                                                                               | 15J 4064                            | 8V 2800                                                                                                                               | 25J 7112                            |
|                                                                                                                                      |                                     | 5V 1700                                                                                                                               | 15J 4318                            | 8V 3000                                                                                                                               | 25J 7620                            |
|                                                                                                                                      |                                     | 5V 1800                                                                                                                               | 15J 4572                            | 8V 3150                                                                                                                               | 25J 8001                            |
|                                                                                                                                      |                                     | 5V 1900                                                                                                                               | 15J 4826                            | 8V 3350                                                                                                                               | 25J 8509                            |
|                                                                                                                                      |                                     | 5V 2000                                                                                                                               | 15J 5080                            | 8V 3550                                                                                                                               | 25J 9017                            |
|                                                                                                                                      |                                     | 5V 2120                                                                                                                               | 15J 5385                            | 8V 3750                                                                                                                               | 25J 9525                            |
|                                                                                                                                      |                                     | 5V 2240                                                                                                                               | 15J 5690                            | 8V 4000                                                                                                                               | 25J 10160                           |
|                                                                                                                                      |                                     | 5V 2360                                                                                                                               | 15J 5994                            | 8V 4250                                                                                                                               | 25J 10795                           |
|                                                                                                                                      |                                     | 5V 2500                                                                                                                               | 15J 6350                            | 8V 4500                                                                                                                               | 25J 11430                           |
|                                                                                                                                      |                                     | 5V 2650                                                                                                                               | 15J 6731                            | 8V 4750                                                                                                                               | 25J 12065                           |
|                                                                                                                                      |                                     | 5V 2800                                                                                                                               | 15J 7112                            |                                                                                                                                       |                                     |
|                                                                                                                                      |                                     | 5V 3000                                                                                                                               | 15J 7620                            |                                                                                                                                       |                                     |
|                                                                                                                                      |                                     | 5V 3150                                                                                                                               | 15J 8001                            |                                                                                                                                       |                                     |
| Maximum production length: 4000 mm $L_o$<br>Non-standard length ranges on request<br>Weight:<br>per rib $\approx 0.122 \text{ kg/m}$ |                                     | Maximum production length: 10000 mm $L_o$<br>Non-standard length ranges on request<br>Weight:<br>per rib $\approx 0.252 \text{ kg/m}$ |                                     | Maximum production length: 18000 mm $L_o$<br>Non-standard length ranges on request<br>Weight:<br>per rib $\approx 0.693 \text{ kg/m}$ |                                     |

Further sizes on request

# STANDARD RANGE

optibelt **BLUE POWER** KRAFTBANDS  
WITH HIGH PERFORMANCE WEDGE BELTS  
DIN 7753 PART 1 / ISO 4184



| Profile                   | SPB  | SPC  |
|---------------------------|------|------|
| $b_o \approx [\text{mm}]$ | 16.5 | 22.0 |
| $h \approx [\text{mm}]$   | 15.6 | 22.6 |

| Profile SPB                                                                                                                                                                                                                                                                                                                    | Profile SPC                                                                                                                                                                                                                                                                                             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Datum length ISO<br>$L_d [\text{mm}]$                                                                                                                                                                                                                                                                                          | Datum length ISO<br>$L_d [\text{mm}]$                                                                                                                                                                                                                                                                   |
| 2000                                                                                                                                                                                                                                                                                                                           | 3000                                                                                                                                                                                                                                                                                                    |
| 2120                                                                                                                                                                                                                                                                                                                           | 3150                                                                                                                                                                                                                                                                                                    |
| 2240                                                                                                                                                                                                                                                                                                                           | 3350                                                                                                                                                                                                                                                                                                    |
| 2360                                                                                                                                                                                                                                                                                                                           | 3550                                                                                                                                                                                                                                                                                                    |
| 2500                                                                                                                                                                                                                                                                                                                           | 3750                                                                                                                                                                                                                                                                                                    |
| 2650                                                                                                                                                                                                                                                                                                                           | 4000                                                                                                                                                                                                                                                                                                    |
| 2800                                                                                                                                                                                                                                                                                                                           | 4250                                                                                                                                                                                                                                                                                                    |
| 3000                                                                                                                                                                                                                                                                                                                           | 4500                                                                                                                                                                                                                                                                                                    |
| 3150                                                                                                                                                                                                                                                                                                                           | 4750                                                                                                                                                                                                                                                                                                    |
| 3350                                                                                                                                                                                                                                                                                                                           | 5000                                                                                                                                                                                                                                                                                                    |
| 3550                                                                                                                                                                                                                                                                                                                           | 5300                                                                                                                                                                                                                                                                                                    |
| 3750                                                                                                                                                                                                                                                                                                                           | 5600                                                                                                                                                                                                                                                                                                    |
| 4000                                                                                                                                                                                                                                                                                                                           | 6000                                                                                                                                                                                                                                                                                                    |
| 4250                                                                                                                                                                                                                                                                                                                           | 6300                                                                                                                                                                                                                                                                                                    |
| 4500                                                                                                                                                                                                                                                                                                                           | 6700                                                                                                                                                                                                                                                                                                    |
| 4750                                                                                                                                                                                                                                                                                                                           | 7100                                                                                                                                                                                                                                                                                                    |
| 5000                                                                                                                                                                                                                                                                                                                           | 7500                                                                                                                                                                                                                                                                                                    |
| 5300                                                                                                                                                                                                                                                                                                                           | 8000                                                                                                                                                                                                                                                                                                    |
| 5600                                                                                                                                                                                                                                                                                                                           | 8500                                                                                                                                                                                                                                                                                                    |
| 6000                                                                                                                                                                                                                                                                                                                           | 9000                                                                                                                                                                                                                                                                                                    |
| 6300                                                                                                                                                                                                                                                                                                                           | 9500                                                                                                                                                                                                                                                                                                    |
| 6700                                                                                                                                                                                                                                                                                                                           | 10000                                                                                                                                                                                                                                                                                                   |
| 7100                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                         |
| 7500                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                         |
| 8000                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                         |
| Maximum production length: 10000 mm $L_d$<br>Non-standard length ranges from 2000 mm $L_d$<br>Minimum order quantity:<br>from 2000 mm $L_d$<br>4 pieces with 5 ribs or<br>5 pieces with 4 ribs or<br>7 pieces with 3 ribs or<br>11 pieces with 2 ribs<br>or a multiple thereof<br>Weight: per rib $\approx 0.283 \text{ kg/m}$ | Maximum production length: 10000 mm $L_d$<br>Non-standard length ranges from 3000 mm $L_d$<br>Minimum order quantity:<br>3 pieces with 5 ribs or<br>4 pieces with 4 ribs or<br>5 pieces with 3 ribs or<br>8 pieces with 2 ribs<br>or a multiple thereof<br>Weight: per rib $\approx 0.567 \text{ kg/m}$ |

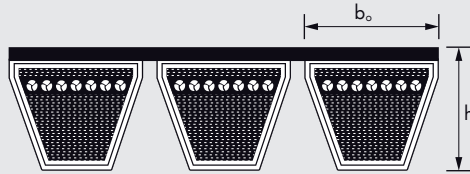
Datum length  $L_d \triangleq$  Pitch length  $L_w/L_p$  Further sizes on request

# STANDARD RANGE

optibelt **BLUE POWER** KRAFTBANDS

WITH HIGH PERFORMANCE WEDGE BELTS

ARPM/MPA



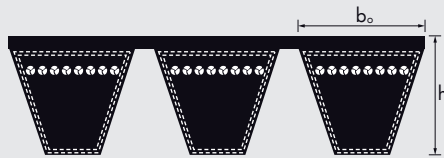
| Profile                   | 5V/15J | 8V/25J |
|---------------------------|--------|--------|
| $b_o \approx [\text{mm}]$ | 15.0   | 25.0   |
| $h \approx [\text{mm}]$   | 15.1   | 25.5   |

| Profile 5V/15J                                                                                                                                                                                                                                                                                                 |                                     | Profile 8V/25J                                                                                                                                                                                                                                                                                               |                                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| Belt designation                                                                                                                                                                                                                                                                                               |                                     | Belt designation                                                                                                                                                                                                                                                                                             |                                     |
| Profile, length code                                                                                                                                                                                                                                                                                           | Profile, outside length, $L_d$ [mm] | Profile, length code                                                                                                                                                                                                                                                                                         | Profile, outside length, $L_d$ [mm] |
| 5V 800                                                                                                                                                                                                                                                                                                         | 15J 2032                            | 8V 1000                                                                                                                                                                                                                                                                                                      | 25J 2540                            |
| 5V 850                                                                                                                                                                                                                                                                                                         | 15J 2159                            | 8V 1060                                                                                                                                                                                                                                                                                                      | 25J 2692                            |
| 5V 900                                                                                                                                                                                                                                                                                                         | 15J 2286                            | 8V 1120                                                                                                                                                                                                                                                                                                      | 25J 2845                            |
| 5V 950                                                                                                                                                                                                                                                                                                         | 15J 2413                            | 8V 1180                                                                                                                                                                                                                                                                                                      | 25J 2997                            |
| 5V 1000                                                                                                                                                                                                                                                                                                        | 15J 2540                            | 8V 1250                                                                                                                                                                                                                                                                                                      | 25J 3175                            |
| 5V 1060                                                                                                                                                                                                                                                                                                        | 15J 2692                            | 8V 1320                                                                                                                                                                                                                                                                                                      | 25J 3353                            |
| 5V 1120                                                                                                                                                                                                                                                                                                        | 15J 2845                            | 8V 1400                                                                                                                                                                                                                                                                                                      | 25J 3556                            |
| 5V 1180                                                                                                                                                                                                                                                                                                        | 15J 2997                            | 8V 1500                                                                                                                                                                                                                                                                                                      | 25J 3810                            |
| 5V 1250                                                                                                                                                                                                                                                                                                        | 15J 3175                            | 8V 1600                                                                                                                                                                                                                                                                                                      | 25J 4064                            |
| 5V 1320                                                                                                                                                                                                                                                                                                        | 15J 3353                            | 8V 1700                                                                                                                                                                                                                                                                                                      | 25J 4318                            |
| 5V 1400                                                                                                                                                                                                                                                                                                        | 15J 3556                            | 8V 1800                                                                                                                                                                                                                                                                                                      | 25J 4572                            |
| 5V 1500                                                                                                                                                                                                                                                                                                        | 15J 3810                            | 8V 1900                                                                                                                                                                                                                                                                                                      | 25J 4826                            |
| 5V 1600                                                                                                                                                                                                                                                                                                        | 15J 4064                            | 8V 2000                                                                                                                                                                                                                                                                                                      | 25J 5080                            |
| 5V 1700                                                                                                                                                                                                                                                                                                        | 15J 4318                            | 8V 2120                                                                                                                                                                                                                                                                                                      | 25J 5385                            |
| 5V 1800                                                                                                                                                                                                                                                                                                        | 15J 4572                            | 8V 2240                                                                                                                                                                                                                                                                                                      | 25J 5690                            |
| 5V 1900                                                                                                                                                                                                                                                                                                        | 15J 4826                            | 8V 2360                                                                                                                                                                                                                                                                                                      | 25J 5994                            |
| 5V 2000                                                                                                                                                                                                                                                                                                        | 15J 5080                            | 8V 2500                                                                                                                                                                                                                                                                                                      | 25J 6350                            |
| 5V 2120                                                                                                                                                                                                                                                                                                        | 15J 5385                            | 8V 2650                                                                                                                                                                                                                                                                                                      | 25J 6731                            |
| 5V 2240                                                                                                                                                                                                                                                                                                        | 15J 5690                            | 8V 2800                                                                                                                                                                                                                                                                                                      | 25J 7112                            |
| 5V 2360                                                                                                                                                                                                                                                                                                        | 15J 5994                            | 8V 3000                                                                                                                                                                                                                                                                                                      | 25J 7620                            |
| 5V 2500                                                                                                                                                                                                                                                                                                        | 15J 6350                            | 8V 3150                                                                                                                                                                                                                                                                                                      | 25J 8001                            |
| 5V 2650                                                                                                                                                                                                                                                                                                        | 15J 6731                            | 8V 3350                                                                                                                                                                                                                                                                                                      | 25J 8509                            |
| 5V 2800                                                                                                                                                                                                                                                                                                        | 15J 7112                            | 8V 3550                                                                                                                                                                                                                                                                                                      | 25J 9017                            |
| 5V 3000                                                                                                                                                                                                                                                                                                        | 15J 7620                            | 8V 3750                                                                                                                                                                                                                                                                                                      | 25J 9525                            |
| 5V 3150                                                                                                                                                                                                                                                                                                        | 15J 8001                            | 8V 4000                                                                                                                                                                                                                                                                                                      | 25J 10160                           |
|                                                                                                                                                                                                                                                                                                                |                                     | 8V 4250                                                                                                                                                                                                                                                                                                      | 25J 10795                           |
|                                                                                                                                                                                                                                                                                                                |                                     | 8V 4500                                                                                                                                                                                                                                                                                                      | 25J 11430                           |
|                                                                                                                                                                                                                                                                                                                |                                     | 8V 4750                                                                                                                                                                                                                                                                                                      | 25J 12065                           |
| Maximum production length: 18 000 mm $L_d$<br>Non-standard length ranges from 2032 mm $L_d$<br>Minimum order quantity:<br>6 pieces with 5 ribs or<br>7 pieces with 4 ribs or<br>10 pieces with 3 ribs or<br>15 pieces with 2 ribs<br>or a multiple thereof<br><br>Weight: per rib $\approx 0.253 \text{ kg/m}$ |                                     | Maximum production length: 18 000 mm $L_d$<br>Non-standard length ranges from 2540 mm $L_d$<br>Minimum order quantity:<br>3 pieces with 5 ribs or<br>3 pieces with 4 ribs or<br>5 pieces with 3 ribs or<br>7 pieces with 2 ribs<br>or a multiple thereof<br><br>Weight: per rib $\approx 0.738 \text{ kg/m}$ |                                     |

Further sizes on request

# STANDARD RANGE

optibelt **KB** KRAFTBANDS WITH WEDGE BELTS  
DIN/ISO



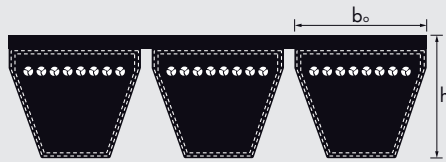
| Profile                   | SPZ  | SPA  | SPB  | SPC  |
|---------------------------|------|------|------|------|
| $b_o \approx [\text{mm}]$ | 9.7  | 12.7 | 16.5 | 22.0 |
| $h \approx [\text{mm}]$   | 10.5 | 12.5 | 15.6 | 22.6 |

| Profile SPZ                                                                                                                                                                                                                                                                                                                                                                                                   | Profile SPA                                                                                                                                                                                                                                                                                                                                                                                              | Profile SPB                                                                                                                                                                                                                                                                                                                                                                                                  | Profile SPC                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Datum length ISO<br>$L_d$ [mm]                                                                                                                                                                                                                                                                                                                                                                                | Datum length ISO<br>$L_d$ [mm]                                                                                                                                                                                                                                                                                                                                                                           | Datum length ISO<br>$L_d$ [mm]                                                                                                                                                                                                                                                                                                                                                                               | Datum length ISO<br>$L_d$ [mm]                                                                                                                                                                                                                                                                                                                                                                          |
| 1250                                                                                                                                                                                                                                                                                                                                                                                                          | 1250                                                                                                                                                                                                                                                                                                                                                                                                     | 2000                                                                                                                                                                                                                                                                                                                                                                                                         | 3000                                                                                                                                                                                                                                                                                                                                                                                                    |
| 1400                                                                                                                                                                                                                                                                                                                                                                                                          | 1400                                                                                                                                                                                                                                                                                                                                                                                                     | 2120                                                                                                                                                                                                                                                                                                                                                                                                         | 3150                                                                                                                                                                                                                                                                                                                                                                                                    |
| 1500                                                                                                                                                                                                                                                                                                                                                                                                          | 1500                                                                                                                                                                                                                                                                                                                                                                                                     | 2240                                                                                                                                                                                                                                                                                                                                                                                                         | 3350                                                                                                                                                                                                                                                                                                                                                                                                    |
| 1600                                                                                                                                                                                                                                                                                                                                                                                                          | 1600                                                                                                                                                                                                                                                                                                                                                                                                     | 2360                                                                                                                                                                                                                                                                                                                                                                                                         | 3550                                                                                                                                                                                                                                                                                                                                                                                                    |
| 1700                                                                                                                                                                                                                                                                                                                                                                                                          | 1700                                                                                                                                                                                                                                                                                                                                                                                                     | 2500                                                                                                                                                                                                                                                                                                                                                                                                         | 3750                                                                                                                                                                                                                                                                                                                                                                                                    |
| 1800                                                                                                                                                                                                                                                                                                                                                                                                          | 1800                                                                                                                                                                                                                                                                                                                                                                                                     | 2650                                                                                                                                                                                                                                                                                                                                                                                                         | 4000                                                                                                                                                                                                                                                                                                                                                                                                    |
| 1900                                                                                                                                                                                                                                                                                                                                                                                                          | 1900                                                                                                                                                                                                                                                                                                                                                                                                     | 2800                                                                                                                                                                                                                                                                                                                                                                                                         | 4250                                                                                                                                                                                                                                                                                                                                                                                                    |
| 2000                                                                                                                                                                                                                                                                                                                                                                                                          | 2000                                                                                                                                                                                                                                                                                                                                                                                                     | 3000                                                                                                                                                                                                                                                                                                                                                                                                         | 4500                                                                                                                                                                                                                                                                                                                                                                                                    |
| 2120                                                                                                                                                                                                                                                                                                                                                                                                          | 2120                                                                                                                                                                                                                                                                                                                                                                                                     | 3150                                                                                                                                                                                                                                                                                                                                                                                                         | 4750                                                                                                                                                                                                                                                                                                                                                                                                    |
| 2240                                                                                                                                                                                                                                                                                                                                                                                                          | 2240                                                                                                                                                                                                                                                                                                                                                                                                     | 3350                                                                                                                                                                                                                                                                                                                                                                                                         | 5000                                                                                                                                                                                                                                                                                                                                                                                                    |
| 2360                                                                                                                                                                                                                                                                                                                                                                                                          | 2360                                                                                                                                                                                                                                                                                                                                                                                                     | 3550                                                                                                                                                                                                                                                                                                                                                                                                         | 5300                                                                                                                                                                                                                                                                                                                                                                                                    |
| 2500                                                                                                                                                                                                                                                                                                                                                                                                          | 2500                                                                                                                                                                                                                                                                                                                                                                                                     | 3750                                                                                                                                                                                                                                                                                                                                                                                                         | 5600                                                                                                                                                                                                                                                                                                                                                                                                    |
| 2650                                                                                                                                                                                                                                                                                                                                                                                                          | 2650                                                                                                                                                                                                                                                                                                                                                                                                     | 4000                                                                                                                                                                                                                                                                                                                                                                                                         | 6000                                                                                                                                                                                                                                                                                                                                                                                                    |
| 2800                                                                                                                                                                                                                                                                                                                                                                                                          | 2800                                                                                                                                                                                                                                                                                                                                                                                                     | 4250                                                                                                                                                                                                                                                                                                                                                                                                         | 6300                                                                                                                                                                                                                                                                                                                                                                                                    |
| 3000                                                                                                                                                                                                                                                                                                                                                                                                          | 3000                                                                                                                                                                                                                                                                                                                                                                                                     | 4500                                                                                                                                                                                                                                                                                                                                                                                                         | 6700                                                                                                                                                                                                                                                                                                                                                                                                    |
| 3150                                                                                                                                                                                                                                                                                                                                                                                                          | 3150                                                                                                                                                                                                                                                                                                                                                                                                     | 4750                                                                                                                                                                                                                                                                                                                                                                                                         | 7100                                                                                                                                                                                                                                                                                                                                                                                                    |
| 3350                                                                                                                                                                                                                                                                                                                                                                                                          | 3350                                                                                                                                                                                                                                                                                                                                                                                                     | 5000                                                                                                                                                                                                                                                                                                                                                                                                         | 7500                                                                                                                                                                                                                                                                                                                                                                                                    |
| 3550                                                                                                                                                                                                                                                                                                                                                                                                          | 3550                                                                                                                                                                                                                                                                                                                                                                                                     | 5300                                                                                                                                                                                                                                                                                                                                                                                                         | 8000                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                                                                                                                                                                                                                                                                                                                                                                                               | 3750                                                                                                                                                                                                                                                                                                                                                                                                     | 5600                                                                                                                                                                                                                                                                                                                                                                                                         | 8500                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                                                                                                                                                                                                                                                                                                                                                                                               | 4000                                                                                                                                                                                                                                                                                                                                                                                                     | 6000                                                                                                                                                                                                                                                                                                                                                                                                         | 9000                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                                                                                                                                                                                                                                                                                                                                                                                               | 4250                                                                                                                                                                                                                                                                                                                                                                                                     | 6300                                                                                                                                                                                                                                                                                                                                                                                                         | 9500                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                                                                                                                                                                                                                                                                                                                                                                                               | 4500                                                                                                                                                                                                                                                                                                                                                                                                     | 6700                                                                                                                                                                                                                                                                                                                                                                                                         | 10000                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                          | 7100                                                                                                                                                                                                                                                                                                                                                                                                         | 10600                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                          | 7500                                                                                                                                                                                                                                                                                                                                                                                                         | 11200                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                          | 8000                                                                                                                                                                                                                                                                                                                                                                                                         | 11800                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                              | 12500                                                                                                                                                                                                                                                                                                                                                                                                   |
| Maximum production length:<br>4500 mm $L_d$<br>Non-standard length ranges from 1800 mm $L_d$<br>Minimum order quantity for<br>special length ranges:<br>8 pieces with 5 ribs or<br>10 pieces with 4 ribs or<br>14 pieces with 3 ribs or<br>21 pieces with 2 ribs<br>or a multiple thereof<br>Weight: per rib $\approx 0.120$ kg/m<br>Minimum order quantity for design with<br>aramid tension cord on request | Maximum production length:<br>4500 mm $L_d$<br>Non-standard length ranges from 1800 mm $L_d$<br>Minimum order quantity for<br>all length ranges:<br>6 pieces with 5 ribs or<br>8 pieces with 4 ribs or<br>11 pieces with 3 ribs or<br>16 pieces with 2 ribs<br>or a multiple thereof<br>Weight: per rib $\approx 0.166$ kg/m<br>Minimum order quantity for design with<br>aramid tension cord on request | Maximum production length:<br>10000 mm $L_d$<br>Non-standard length ranges from 2000 mm $L_d$<br>Minimum order quantity for<br>special length ranges:<br>4 pieces with 5 ribs or<br>5 pieces with 4 ribs or<br>7 pieces with 3 ribs or<br>11 pieces with 2 ribs<br>or a multiple thereof<br>Weight: per rib $\approx 0.261$ kg/m<br>Minimum order quantity for design with<br>aramid tension cord on request | Maximum production length:<br>12500 mm $L_d$<br>Non-standard length ranges from 3000 mm $L_d$<br>Minimum order quantity for<br>all length ranges:<br>3 pieces with 5 ribs or<br>4 pieces with 4 ribs or<br>5 pieces with 3 ribs or<br>8 pieces with 2 ribs<br>or a multiple thereof<br>Weight: per rib $\approx 0.555$ kg/m<br>Minimum order quantity for design with<br>aramid tension cord on request |

Datum length  $L_d \triangleq$  Pitch length  $L_w/L_p$  Further sizes on request

# STANDARD RANGE

## optibelt **KB** KRAFTBANDS WITH WEDGE BELTS ARPM/MPTA



| Profile                   | 3V/9J | 5V/15J | 8V/25J |
|---------------------------|-------|--------|--------|
| $b_o \approx [\text{mm}]$ | 9.0   | 15.0   | 25.0   |
| $h \approx [\text{mm}]$   | 9.9   | 15.1   | 25.5   |

| Profile 3V/9J                                                                                                                                                                                                                                                                                                                                                                                                |                                     | Profile 5V/15J                                                                                                                                                                                                                                                                                                                                                                                                |                                     | Profile 8V/25J                                                                                                                                                                                                                                                                                                                                                                                                       |                                     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| Belt designation                                                                                                                                                                                                                                                                                                                                                                                             |                                     | Belt designation                                                                                                                                                                                                                                                                                                                                                                                              |                                     | Belt designation                                                                                                                                                                                                                                                                                                                                                                                                     |                                     |
| Profile, length code                                                                                                                                                                                                                                                                                                                                                                                         | Profile, outside length, $L_o$ [mm] | Profile, length code                                                                                                                                                                                                                                                                                                                                                                                          | Profile, outside length, $L_o$ [mm] | Profile, length code                                                                                                                                                                                                                                                                                                                                                                                                 | Profile, outside length, $L_o$ [mm] |
| 3V 500                                                                                                                                                                                                                                                                                                                                                                                                       | 9J 1270                             | 5V 560                                                                                                                                                                                                                                                                                                                                                                                                        | 15J 1422                            | 8V 1000                                                                                                                                                                                                                                                                                                                                                                                                              | 25J 2540                            |
| 3V 530                                                                                                                                                                                                                                                                                                                                                                                                       | 9J 1346                             | 5V 600                                                                                                                                                                                                                                                                                                                                                                                                        | 15J 1524                            | 8V 1060                                                                                                                                                                                                                                                                                                                                                                                                              | 25J 2692                            |
| 3V 560                                                                                                                                                                                                                                                                                                                                                                                                       | 9J 1422                             | 5V 630                                                                                                                                                                                                                                                                                                                                                                                                        | 15J 1600                            | 8V 1120                                                                                                                                                                                                                                                                                                                                                                                                              | 25J 2845                            |
| 3V 600                                                                                                                                                                                                                                                                                                                                                                                                       | 9J 1524                             | 5V 670                                                                                                                                                                                                                                                                                                                                                                                                        | 15J 1702                            | 8V 1180                                                                                                                                                                                                                                                                                                                                                                                                              | 25J 2997                            |
| 3V 630                                                                                                                                                                                                                                                                                                                                                                                                       | 9J 1600                             | 5V 710                                                                                                                                                                                                                                                                                                                                                                                                        | 15J 1803                            | 8V 1250                                                                                                                                                                                                                                                                                                                                                                                                              | 25J 3175                            |
| 3V 670                                                                                                                                                                                                                                                                                                                                                                                                       | 9J 1702                             | 5V 750                                                                                                                                                                                                                                                                                                                                                                                                        | 15J 1905                            | 8V 1320                                                                                                                                                                                                                                                                                                                                                                                                              | 25J 3353                            |
| 3V 710                                                                                                                                                                                                                                                                                                                                                                                                       | 9J 1803                             | 5V 800                                                                                                                                                                                                                                                                                                                                                                                                        | 15J 2032                            | 8V 1400                                                                                                                                                                                                                                                                                                                                                                                                              | 25J 3556                            |
| 3V 750                                                                                                                                                                                                                                                                                                                                                                                                       | 9J 1905                             | 5V 850                                                                                                                                                                                                                                                                                                                                                                                                        | 15J 2159                            | 8V 1500                                                                                                                                                                                                                                                                                                                                                                                                              | 25J 3810                            |
| 3V 800                                                                                                                                                                                                                                                                                                                                                                                                       | 9J 2032                             | 5V 900                                                                                                                                                                                                                                                                                                                                                                                                        | 15J 2286                            | 8V 1600                                                                                                                                                                                                                                                                                                                                                                                                              | 25J 4064                            |
| 3V 850                                                                                                                                                                                                                                                                                                                                                                                                       | 9J 2159                             | 5V 950                                                                                                                                                                                                                                                                                                                                                                                                        | 15J 2413                            | 8V 1700                                                                                                                                                                                                                                                                                                                                                                                                              | 25J 4318                            |
| 3V 900                                                                                                                                                                                                                                                                                                                                                                                                       | 9J 2286                             | 5V 1000                                                                                                                                                                                                                                                                                                                                                                                                       | 15J 2540                            | 8V 1800                                                                                                                                                                                                                                                                                                                                                                                                              | 25J 4572                            |
| 3V 950                                                                                                                                                                                                                                                                                                                                                                                                       | 9J 2413                             | 5V 1060                                                                                                                                                                                                                                                                                                                                                                                                       | 15J 2692                            | 8V 1900                                                                                                                                                                                                                                                                                                                                                                                                              | 25J 4826                            |
| 3V 1000                                                                                                                                                                                                                                                                                                                                                                                                      | 9J 2540                             | 5V 1120                                                                                                                                                                                                                                                                                                                                                                                                       | 15J 2845                            | 8V 2000                                                                                                                                                                                                                                                                                                                                                                                                              | 25J 5080                            |
| 3V 1060                                                                                                                                                                                                                                                                                                                                                                                                      | 9J 2692                             | 5V 1180                                                                                                                                                                                                                                                                                                                                                                                                       | 15J 2997                            | 8V 2120                                                                                                                                                                                                                                                                                                                                                                                                              | 25J 5385                            |
| 3V 1120                                                                                                                                                                                                                                                                                                                                                                                                      | 9J 2845                             | 5V 1250                                                                                                                                                                                                                                                                                                                                                                                                       | 15J 3175                            | 8V 2240                                                                                                                                                                                                                                                                                                                                                                                                              | 25J 5690                            |
| 3V 1180                                                                                                                                                                                                                                                                                                                                                                                                      | 9J 2997                             | 5V 1320                                                                                                                                                                                                                                                                                                                                                                                                       | 15J 3353                            | 8V 2360                                                                                                                                                                                                                                                                                                                                                                                                              | 25J 5994                            |
| 3V 1250                                                                                                                                                                                                                                                                                                                                                                                                      | 9J 3175                             | 5V 1400                                                                                                                                                                                                                                                                                                                                                                                                       | 15J 3556                            | 8V 2500                                                                                                                                                                                                                                                                                                                                                                                                              | 25J 6350                            |
| 3V 1320                                                                                                                                                                                                                                                                                                                                                                                                      | 9J 3353                             | 5V 1500                                                                                                                                                                                                                                                                                                                                                                                                       | 15J 3810                            | 8V 2650                                                                                                                                                                                                                                                                                                                                                                                                              | 25J 6731                            |
| 3V 1400                                                                                                                                                                                                                                                                                                                                                                                                      | 9J 3556                             | 5V 1600                                                                                                                                                                                                                                                                                                                                                                                                       | 15J 4064                            | 8V 2800                                                                                                                                                                                                                                                                                                                                                                                                              | 25J 7112                            |
|                                                                                                                                                                                                                                                                                                                                                                                                              |                                     | 5V 1700                                                                                                                                                                                                                                                                                                                                                                                                       | 15J 4318                            | 8V 3000                                                                                                                                                                                                                                                                                                                                                                                                              | 25J 7620                            |
|                                                                                                                                                                                                                                                                                                                                                                                                              |                                     | 5V 1800                                                                                                                                                                                                                                                                                                                                                                                                       | 15J 4572                            | 8V 3150                                                                                                                                                                                                                                                                                                                                                                                                              | 25J 8001                            |
|                                                                                                                                                                                                                                                                                                                                                                                                              |                                     | 5V 1900                                                                                                                                                                                                                                                                                                                                                                                                       | 15J 4826                            | 8V 3350                                                                                                                                                                                                                                                                                                                                                                                                              | 25J 8509                            |
|                                                                                                                                                                                                                                                                                                                                                                                                              |                                     | 5V 2000                                                                                                                                                                                                                                                                                                                                                                                                       | 15J 5080                            | 8V 3550                                                                                                                                                                                                                                                                                                                                                                                                              | 25J 9017                            |
|                                                                                                                                                                                                                                                                                                                                                                                                              |                                     | 5V 2120                                                                                                                                                                                                                                                                                                                                                                                                       | 15J 5385                            | 8V 3750                                                                                                                                                                                                                                                                                                                                                                                                              | 25J 9525                            |
|                                                                                                                                                                                                                                                                                                                                                                                                              |                                     | 5V 2240                                                                                                                                                                                                                                                                                                                                                                                                       | 15J 5690                            | 8V 4000                                                                                                                                                                                                                                                                                                                                                                                                              | 25J 10160                           |
|                                                                                                                                                                                                                                                                                                                                                                                                              |                                     | 5V 2360                                                                                                                                                                                                                                                                                                                                                                                                       | 15J 5994                            | 8V 4250                                                                                                                                                                                                                                                                                                                                                                                                              | 25J 10795                           |
|                                                                                                                                                                                                                                                                                                                                                                                                              |                                     | 5V 2500                                                                                                                                                                                                                                                                                                                                                                                                       | 15J 6350                            | 8V 4500                                                                                                                                                                                                                                                                                                                                                                                                              | 25J 11430                           |
|                                                                                                                                                                                                                                                                                                                                                                                                              |                                     | 5V 2650                                                                                                                                                                                                                                                                                                                                                                                                       | 15J 6731                            | 8V 4750                                                                                                                                                                                                                                                                                                                                                                                                              | 25J 12065                           |
|                                                                                                                                                                                                                                                                                                                                                                                                              |                                     | 5V 2800                                                                                                                                                                                                                                                                                                                                                                                                       | 15J 7112                            |                                                                                                                                                                                                                                                                                                                                                                                                                      |                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                              |                                     | 5V 3000                                                                                                                                                                                                                                                                                                                                                                                                       | 15J 7620                            |                                                                                                                                                                                                                                                                                                                                                                                                                      |                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                              |                                     | 5V 3150                                                                                                                                                                                                                                                                                                                                                                                                       | 15J 8001                            |                                                                                                                                                                                                                                                                                                                                                                                                                      |                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                              |                                     | 5V 3350                                                                                                                                                                                                                                                                                                                                                                                                       | 15J 8509                            |                                                                                                                                                                                                                                                                                                                                                                                                                      |                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                              |                                     | 5V 3550                                                                                                                                                                                                                                                                                                                                                                                                       | 15J 9017                            |                                                                                                                                                                                                                                                                                                                                                                                                                      |                                     |
| Maximum production length: 4250 mm $L_o$<br>Non-standard length ranges from 1800 mm $L_o$<br>Minimum order quantity for special length ranges:<br>9 pieces with 5 ribs or<br>12 pieces with 4 ribs or<br>16 pieces with 3 ribs or<br>24 pieces with 2 ribs or<br>a multiple thereof<br>Weight: per rib $\approx 0.102 \text{ kg/m}$<br>Minimum order quantity for design with aramid tension cord on request |                                     | Maximum production length: 10 000 mm $L_o$<br>Non-standard length ranges from 1800 mm $L_o$<br>Minimum order quantity for special length ranges:<br>6 pieces with 5 ribs or<br>7 pieces with 4 ribs or<br>10 pieces with 3 ribs or<br>15 pieces with 2 ribs or<br>a multiple thereof<br>Weight: per rib $\approx 0.252 \text{ kg/m}$<br>Minimum order quantity for design with aramid tension cord on request |                                     | Maximum standard production length: 15 000 mm $L_o$<br>Over 15 000 to 18 000 mm on request<br>Non-standard length ranges from 2540 mm $L_o$<br>Minimum order quantity for all sizes:<br>2 pieces with 5 ribs or<br>2 pieces with 4 ribs or<br>3 pieces with 3 ribs or<br>a multiple thereof<br>Weight: per rib $\approx 0.693 \text{ kg/m}$<br>Minimum order quantity for design with aramid tension cord on request |                                     |

Further sizes on request

# STANDARD RANGE

optibelt **KB** KRAFTBANDS WITH CLASSIC V-BELTS  
DIN/ISO, ASAE



| Profile            | A/HA | B/HB | C/HC | D/HD | E*   |
|--------------------|------|------|------|------|------|
| $b_o \approx$ [mm] | 13.0 | 17.0 | 22.0 | 32.0 | 40.0 |
| $h \approx$ [mm]   | 9.9  | 13.0 | 16.2 | 22.4 | 25.0 |

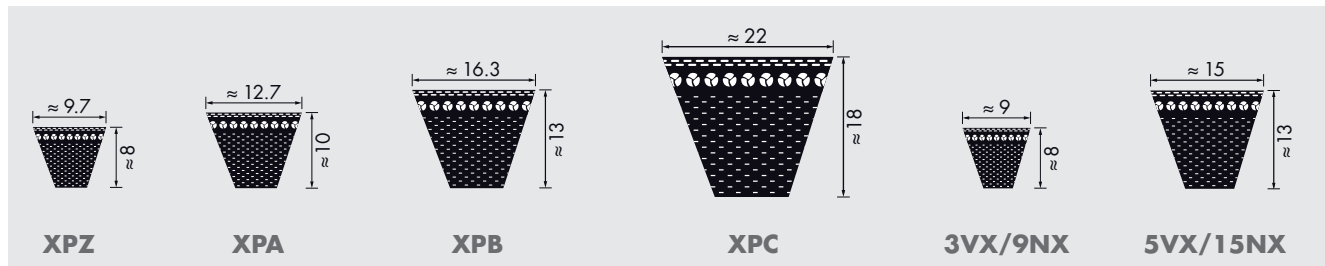
\* Available on request

| Profile A/HA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |            |                                              | Profile B/HB                                                                                                                                                                                                                                                                                                                                                                                                       |            |                                              |                              |            |                                              | Profile C/HC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |            |                                              | Profile D/HD                                                                                                                                                                                                                                                                                                                                                                                        |            |                                              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|----------------------------------------------|------------------------------|------------|----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|----------------------------------------------|
| (Profile A)<br>Inside length                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |            | (Profile HA)<br>Outside length<br>$L_o$ [mm] | (Profile B)<br>Inside length                                                                                                                                                                                                                                                                                                                                                                                       |            | (Profile HB)<br>Outside length<br>$L_o$ [mm] | (Profile B)<br>Inside length |            | (Profile HB)<br>Outside length<br>$L_o$ [mm] | (Profile C)<br>Inside length                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |            | (Profile HC)<br>Outside length<br>$L_o$ [mm] | (Profile D)<br>Inside length                                                                                                                                                                                                                                                                                                                                                                        |            | (Profile HD)<br>Outside length<br>$L_o$ [mm] |
| Belt no.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | $L_i$ [mm] |                                              | Belt no.                                                                                                                                                                                                                                                                                                                                                                                                           | $L_i$ [mm] |                                              | Belt no.                     | $L_i$ [mm] |                                              | Belt no.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | $L_i$ [mm] |                                              | Belt no.                                                                                                                                                                                                                                                                                                                                                                                            | $L_i$ [mm] |                                              |
| 47                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 1200       | 1236                                         | 47                                                                                                                                                                                                                                                                                                                                                                                                                 | 1200       | 1262                                         | 146                          | 3700       | 3762                                         | 90                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 2286       | 2361                                         | 98                                                                                                                                                                                                                                                                                                                                                                                                  | 2500       | 2611                                         |
| 51                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 1300       | 1336                                         | 51                                                                                                                                                                                                                                                                                                                                                                                                                 | 1300       | 1362                                         | 148                          | 3750       | 3812                                         | 98                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 2500       | 2575                                         | 110                                                                                                                                                                                                                                                                                                                                                                                                 | 2800       | 2911                                         |
| 56                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 1422       | 1458                                         | 55                                                                                                                                                                                                                                                                                                                                                                                                                 | 1400       | 1462                                         | 158                          | 4000       | 4062                                         | 108                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 2750       | 2825                                         | 120                                                                                                                                                                                                                                                                                                                                                                                                 | 3048       | 3159                                         |
| 57                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 1450       | 1486                                         | 59                                                                                                                                                                                                                                                                                                                                                                                                                 | 1500       | 1562                                         | 167                          | 4250       | 4312                                         | 120                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 3048       | 3123                                         | 128                                                                                                                                                                                                                                                                                                                                                                                                 | 3250       | 3361                                         |
| 59                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 1500       | 1536                                         | 61                                                                                                                                                                                                                                                                                                                                                                                                                 | 1550       | 1612                                         | 177                          | 4500       | 4562                                         | 128                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 3250       | 3325                                         | 144                                                                                                                                                                                                                                                                                                                                                                                                 | 3658       | 3769                                         |
| 64                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 1625       | 1661                                         | 63                                                                                                                                                                                                                                                                                                                                                                                                                 | 1600       | 1662                                         | 187                          | 4750       | 4812                                         | 140                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 3550       | 3625                                         | 158                                                                                                                                                                                                                                                                                                                                                                                                 | 4000       | 4111                                         |
| 67                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 1700       | 1736                                         | 64                                                                                                                                                                                                                                                                                                                                                                                                                 | 1625       | 1687                                         | 197                          | 5000       | 5062                                         | 146                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 3700       | 3775                                         | 162                                                                                                                                                                                                                                                                                                                                                                                                 | 4115       | 4226                                         |
| 71                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 1800       | 1836                                         | 67                                                                                                                                                                                                                                                                                                                                                                                                                 | 1700       | 1762                                         | 208                          | 5300       | 5362                                         | 151                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 3850       | 3925                                         | 173                                                                                                                                                                                                                                                                                                                                                                                                 | 4394       | 4505                                         |
| 75                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 1900       | 1936                                         | 71                                                                                                                                                                                                                                                                                                                                                                                                                 | 1800       | 1862                                         | 220                          | 5600       | 5662                                         | 167                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 4250       | 4325                                         | 180                                                                                                                                                                                                                                                                                                                                                                                                 | 4572       | 4683                                         |
| 79                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 2000       | 2036                                         | 73                                                                                                                                                                                                                                                                                                                                                                                                                 | 1850       | 1912                                         |                              |            |                                              | 177                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 4500       | 4575                                         | 195                                                                                                                                                                                                                                                                                                                                                                                                 | 4953       | 5064                                         |
| 88                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 2240       | 2276                                         | 75                                                                                                                                                                                                                                                                                                                                                                                                                 | 1900       | 1962                                         |                              |            |                                              | 187                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 4750       | 4825                                         | 210                                                                                                                                                                                                                                                                                                                                                                                                 | 5334       | 5445                                         |
| 98                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 2500       | 2536                                         | 79                                                                                                                                                                                                                                                                                                                                                                                                                 | 2000       | 2062                                         |                              |            |                                              | 197                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 5000       | 5075                                         | 225                                                                                                                                                                                                                                                                                                                                                                                                 | 5715       | 5826                                         |
| 100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 2540       | 2576                                         | 83                                                                                                                                                                                                                                                                                                                                                                                                                 | 2100       | 2162                                         |                              |            |                                              | 208                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 5300       | 5375                                         | 240                                                                                                                                                                                                                                                                                                                                                                                                 | 6096       | 6207                                         |
| 104                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 2650       | 2686                                         | 88                                                                                                                                                                                                                                                                                                                                                                                                                 | 2240       | 2302                                         |                              |            |                                              | 220                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 5600       | 5675                                         | 255                                                                                                                                                                                                                                                                                                                                                                                                 | 6477       | 6588                                         |
| 112                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 2845       | 2881                                         | 91                                                                                                                                                                                                                                                                                                                                                                                                                 | 2300       | 2362                                         |                              |            |                                              | 236                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 6000       | 6075                                         | 270                                                                                                                                                                                                                                                                                                                                                                                                 | 6858       | 6969                                         |
| 120                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 3048       | 3084                                         | 94 1/2                                                                                                                                                                                                                                                                                                                                                                                                             | 2400       | 2462                                         |                              |            |                                              | 248                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 6300       | 6375                                         | 285                                                                                                                                                                                                                                                                                                                                                                                                 | 7239       | 7350                                         |
| 128                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 3250       | 3286                                         | 98                                                                                                                                                                                                                                                                                                                                                                                                                 | 2500       | 2562                                         |                              |            |                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |                                              | 300                                                                                                                                                                                                                                                                                                                                                                                                 | 7620       | 7731                                         |
| 144                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 3658       | 3694                                         | 102                                                                                                                                                                                                                                                                                                                                                                                                                | 2600       | 2662                                         |                              |            |                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |                                              | 315                                                                                                                                                                                                                                                                                                                                                                                                 | 8000       | 8111                                         |
| 158                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 4000       | 4036                                         | 106                                                                                                                                                                                                                                                                                                                                                                                                                | 2700       | 2762                                         |                              |            |                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |                                              | 330                                                                                                                                                                                                                                                                                                                                                                                                 | 8382       | 8493                                         |
| 167                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 4250       | 4286                                         | 112                                                                                                                                                                                                                                                                                                                                                                                                                | 2845       | 2907                                         |                              |            |                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |                                              | 345                                                                                                                                                                                                                                                                                                                                                                                                 | 8763       | 8874                                         |
| 187                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 4750       | 4786                                         | 118                                                                                                                                                                                                                                                                                                                                                                                                                | 3000       | 3062                                         |                              |            |                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |                                              | 360                                                                                                                                                                                                                                                                                                                                                                                                 | 9144       | 9255                                         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |                                              | 120                                                                                                                                                                                                                                                                                                                                                                                                                | 3048       | 3110                                         |                              |            |                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |                                              | 390                                                                                                                                                                                                                                                                                                                                                                                                 | 9906       | 10017                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |                                              | 128                                                                                                                                                                                                                                                                                                                                                                                                                | 3250       | 3312                                         |                              |            |                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |                                              | 420                                                                                                                                                                                                                                                                                                                                                                                                 | 10668      | 10779                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |                                              | 132                                                                                                                                                                                                                                                                                                                                                                                                                | 3350       | 3412                                         |                              |            |                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |                                              | 450                                                                                                                                                                                                                                                                                                                                                                                                 | 11430      | 11541                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |                                              | 140                                                                                                                                                                                                                                                                                                                                                                                                                | 3550       | 3612                                         |                              |            |                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |                                              | 480                                                                                                                                                                                                                                                                                                                                                                                                 | 12200      | 12311                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |                                              |                                                                                                                                                                                                                                                                                                                                                                                                                    |            |                                              |                              |            |                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |                                              | 540                                                                                                                                                                                                                                                                                                                                                                                                 | 13716      | 13827                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |                                              |                                                                                                                                                                                                                                                                                                                                                                                                                    |            |                                              |                              |            |                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |                                              | 600                                                                                                                                                                                                                                                                                                                                                                                                 | 15240      | 15351                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |                                              |                                                                                                                                                                                                                                                                                                                                                                                                                    |            |                                              |                              |            |                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |                                              | 660                                                                                                                                                                                                                                                                                                                                                                                                 | 16764      | 16875                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |                                              |                                                                                                                                                                                                                                                                                                                                                                                                                    |            |                                              |                              |            |                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |                                              | 700                                                                                                                                                                                                                                                                                                                                                                                                 | 17780      | 17891                                        |
| Maximum production length:<br>10000 mm $L_i$<br>Non-standard length ranges<br>from 1800 mm<br>Minimum order quantity<br>for special length ranges from:<br>1200 to 2000 mm<br>6 pieces with 5 ribs or<br>8 pieces with 4 ribs or<br>10 pieces with 3 ribs or<br>16 pieces with 2 ribs<br>or a multiple thereof<br>2001 to 8000 mm<br>6 pieces with 5 ribs or<br>8 pieces with 4 ribs or<br>11 pieces with 3 ribs or<br>16 pieces with 2 ribs<br>or a multiple thereof<br>Weight: per rib $\approx$ 0.163 kg/m<br>Minimum order quantity for<br>design with aramid tension cord<br>on request |            |                                              | Maximum production length:<br>18000 mm $L_i$<br>Non-standard length ranges<br>from 1800 mm<br>Minimum order quantity<br>for special length ranges from:<br>5 pieces with 5 ribs or<br>6 pieces with 4 ribs or<br>9 pieces with 3 ribs or<br>13 pieces with 2 ribs<br>or a multiple thereof<br><br>Weight: per rib $\approx$ 0.266 kg/m<br>Minimum order quantity for design with<br>aramid tension cord on request |            |                                              |                              |            |                                              | Maximum production length:<br>18000 mm $L_i$<br>Non-standard length ranges<br>from 2286 mm<br>Minimum order quantity<br>for special length ranges from:<br>2286 to 10000 mm<br>4 pieces with 5 ribs or<br>5 pieces with 4 ribs or<br>6 pieces with 3 ribs or<br>10 pieces with 2 ribs<br>or a multiple thereof<br>10001 to 12000 mm<br>3 pieces with 5 ribs or<br>4 pieces with 4 ribs or<br>5 pieces with 3 ribs or<br>8 pieces with 2 ribs<br>or a multiple thereof<br>Weight: per rib $\approx$ 0.447 kg/m<br>Minimum order quantity for<br>design with aramid tension cord<br>on request |            |                                              | Maximum production length:<br>18000 mm $L_i$<br>Non-standard length ranges<br>from 2500 mm<br>Minimum order quantity<br>for all sizes:<br>2 pieces with 5 ribs or<br>2 pieces with 4 ribs or<br>3 pieces with 3 ribs or<br>5 pieces with 2 ribs<br>or a multiple thereof<br><br>Weight: per rib $\approx$ 0.798 kg/m<br>Minimum order quantity for<br>design with aramid tension cord<br>on request |            |                                              |

Further sizes on request

# STANDARD RANGE

optibelt **SUPER XE-POWER PRO M=S** WEDGE BELTS –  
RAW EDGE, COGGED  
DIN 7753 PART 1 / ISO 4184 AND ARPM/MPTA

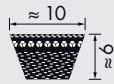


| Profile XPZ                    |      |      | Profile XPA                    |      | Profile XPB                    |      | Profile XPC                    | Profile 3VX/9NX         |                                           | Profile 5VX/15NX        |                                           |
|--------------------------------|------|------|--------------------------------|------|--------------------------------|------|--------------------------------|-------------------------|-------------------------------------------|-------------------------|-------------------------------------------|
| Datum length ISO<br>$L_d$ [mm] |      |      | Datum length ISO<br>$L_d$ [mm] |      | Datum length ISO<br>$L_d$ [mm] |      | Datum length ISO<br>$L_d$ [mm] | Belt designation        |                                           | Belt designation        |                                           |
|                                |      |      |                                |      |                                |      |                                | Profile,<br>length code | Profile,<br>outside length,<br>$L_o$ [mm] | Profile,<br>length code | Profile,<br>outside length,<br>$L_o$ [mm] |
| 587                            | 1112 | 1900 | 707                            | 1432 | 1250                           | 2000 |                                | <b>3VX 250</b>          | 9NX 635                                   | <b>5VX 500</b>          | 15NX 1270                                 |
| 612                            | 1120 | 1950 | 732                            | 1450 | 1320                           | 2120 |                                | <b>3VX 265</b>          | 9NX 673                                   | <b>5VX 530</b>          | 15NX 1346                                 |
| 630                            | 1137 | 2000 | 757                            | 1457 | 1400                           | 2240 |                                | <b>3VX 280</b>          | 9NX 711                                   | <b>5VX 560</b>          | 15NX 1422                                 |
| 637                            | 1162 | 2120 | 782                            | 1482 | 1500                           | 2360 |                                | <b>3VX 300</b>          | 9NX 762                                   | <b>5VX 600</b>          | 15NX 1524                                 |
| 662                            | 1180 | 2150 | 800                            | 1500 | 1600                           | 2500 |                                | <b>3VX 315</b>          | 9NX 800                                   | <b>5VX 630</b>          | 15NX 1600                                 |
| 670                            | 1187 | 2240 | 807                            | 1507 | 1700                           | 2650 |                                | <b>3VX 335</b>          | 9NX 851                                   | <b>5VX 670</b>          | 15NX 1702                                 |
| 687                            | 1202 | 2360 | 832                            | 1532 | 1750                           | 2800 |                                | <b>3VX 355</b>          | 9NX 902                                   | <b>5VX 710</b>          | 15NX 1803                                 |
| 710                            | 1212 | 2500 | 850                            | 1557 | 1800                           | 3000 |                                | <b>3VX 375</b>          | 9NX 952                                   | <b>5VX 750</b>          | 15NX 1905                                 |
| 730                            | 1237 | 2540 | 857                            | 1582 | 1850                           | 3150 |                                | <b>3VX 400</b>          | 9NX 1016                                  | <b>5VX 800</b>          | 15NX 2032                                 |
| 737                            | 1250 | 2650 | 882                            | 1600 | 1900                           | 3350 |                                | <b>3VX 425</b>          | 9NX 1079                                  | <b>5VX 850</b>          | 15NX 2159                                 |
| 750                            | 1262 | 2690 | 900                            | 1607 | 2000                           | 3550 |                                | <b>3VX 450</b>          | 9NX 1143                                  | <b>5VX 900</b>          | 15NX 2286                                 |
| 762                            | 1287 | 2800 | 907                            | 1632 | 2020                           |      |                                | <b>3VX 475</b>          | 9NX 1206                                  | <b>5VX 950</b>          | 15NX 2413                                 |
| 772                            | 1312 | 2840 | 932                            | 1650 | 2120                           |      |                                | <b>3VX 500</b>          | 9NX 1270                                  | <b>5VX 1000</b>         | 15NX 2540                                 |
| 787                            | 1320 | 3000 | 950                            | 1682 | 2150                           |      |                                | <b>3VX 530</b>          | 9NX 1346                                  | <b>5VX 1060</b>         | 15NX 2692                                 |
| 800                            | 1337 | 3150 | 957                            | 1700 | 2240                           |      |                                | <b>3VX 560</b>          | 9NX 1422                                  | <b>5VX 1120</b>         | 15NX 2845                                 |
| 812                            | 1362 | 3350 | 982                            | 1732 | 2280                           |      |                                | <b>3VX 600</b>          | 9NX 1524                                  | <b>5VX 1180</b>         | 15NX 2997                                 |
| 825                            | 1387 | 3550 | 1000                           | 1750 | 2360                           |      |                                | <b>3VX 630</b>          | 9NX 1600                                  | <b>5VX 1250</b>         | 15NX 3175                                 |
| 837                            | 1400 |      | 1007                           | 1757 | 2400                           |      |                                | <b>3VX 670</b>          | 9NX 1702                                  | <b>5VX 1320</b>         | 15NX 3353                                 |
| 850                            | 1412 |      | 1030                           | 1782 | 2500                           |      |                                | <b>3VX 710</b>          | 9NX 1803                                  | <b>5VX 1400</b>         | 15NX 3556                                 |
| 862                            | 1437 |      | 1060                           | 1800 | 2650                           |      |                                | <b>3VX 750</b>          | 9NX 1905                                  |                         |                                           |
| 875                            | 1462 |      | 1082                           | 1832 | 2680                           |      |                                | <b>3VX 800</b>          | 9NX 2032                                  |                         |                                           |
| 887                            | 1487 |      | 1107                           | 1850 | 2800                           |      |                                | <b>3VX 850</b>          | 9NX 2159                                  |                         |                                           |
| 900                            | 1500 |      | 1120                           | 1882 | 2840                           |      |                                | <b>3VX 900</b>          | 9NX 2286                                  |                         |                                           |
| 912                            | 1512 |      | 1132                           | 1900 | 3000                           |      |                                | <b>3VX 950</b>          | 9NX 2413                                  |                         |                                           |
| 925                            | 1537 |      | 1157                           | 1932 | 3150                           |      |                                | <b>3VX 1000</b>         | 9NX 2540                                  |                         |                                           |
| 937                            | 1562 |      | 1180                           | 1950 | 3350                           |      |                                | <b>3VX 1060</b>         | 9NX 2692                                  |                         |                                           |
| 950                            | 1587 |      | 1207                           | 1982 | 3550                           |      |                                | <b>3VX 1120</b>         | 9NX 2845                                  |                         |                                           |
| 962                            | 1600 |      | 1232                           | 2000 |                                |      |                                | <b>3VX 1180</b>         | 9NX 2997                                  |                         |                                           |
| 987                            | 1612 |      | 1250                           | 2120 |                                |      |                                | <b>3VX 1250</b>         | 9NX 3175                                  |                         |                                           |
| 1000                           | 1662 |      | 1257                           | 2240 |                                |      |                                | <b>3VX 1320</b>         | 9NX 3353                                  |                         |                                           |
| 1012                           | 1700 |      | 1272                           | 2360 |                                |      |                                | <b>3VX 1400</b>         | 9NX 3556                                  |                         |                                           |
| 1037                           | 1750 |      | 1282                           | 2500 |                                |      |                                |                         |                                           |                         |                                           |
| 1060                           | 1762 |      | 1307                           | 2650 |                                |      |                                |                         |                                           |                         |                                           |
| 1077                           | 1800 |      | 1320                           | 2800 |                                |      |                                |                         |                                           |                         |                                           |
| 1087                           | 1850 |      | 1332                           | 3000 |                                |      |                                |                         |                                           |                         |                                           |
|                                |      |      | 1357                           | 3150 |                                |      |                                |                         |                                           |                         |                                           |
|                                |      |      | 1382                           | 3350 |                                |      |                                |                         |                                           |                         |                                           |
|                                |      |      | 1400                           | 3550 |                                |      |                                |                         |                                           |                         |                                           |
| Weight:<br>≈ 0.058 kg/m        |      |      | Weight:<br>≈ 0.089 kg/m        |      | Weight:<br>≈ 0.156 kg/m        |      | Weight:<br>≈ 0.274 kg/m        | Weight:<br>≈ 0.055 kg/m |                                           | Weight:<br>≈ 0.152 kg/m |                                           |

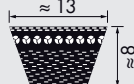
Datum length  $L_d \triangleq$  Pitch length  $L_w/L_p$  Further sizes on request

# STANDARD RANGE

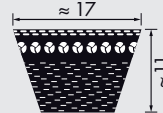
optibelt **SUPER TX M=S V-BELTS** –  
RAW EDGE, COGGED  
DIN 2215 / ISO 4184



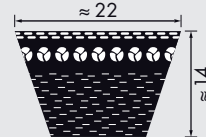
**ZX/X10**



**AX/X13**



**BX/X17**



**CX/X22**

| Profile ZX/X10                                                                                                          |                                         | Profile AX/X13       |                                         |          |                                         | Profile BX/X17       |                                         |          |                                         | Profile CX/X22       |                                         |
|-------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|----------------------|-----------------------------------------|----------|-----------------------------------------|----------------------|-----------------------------------------|----------|-----------------------------------------|----------------------|-----------------------------------------|
| Belt no.                                                                                                                | Datum length ISO<br>L <sub>d</sub> [mm] | Belt no.             | Datum length ISO<br>L <sub>d</sub> [mm] | Belt no. | Datum length ISO<br>L <sub>d</sub> [mm] | Belt no.             | Datum length ISO<br>L <sub>d</sub> [mm] | Belt no. | Datum length ISO<br>L <sub>d</sub> [mm] | Belt no.             | Datum length ISO<br>L <sub>d</sub> [mm] |
| ZX 23                                                                                                                   | 597                                     | AX 23                | 605                                     | AX 62    | 1605                                    | BX 23                | 610                                     | BX 67    | 1740                                    | CX 39                | 1058•                                   |
| ZX 24                                                                                                                   | 622                                     | AX 23½               | 630                                     | AX 63    | 1630                                    | BX 25                | 670                                     | BX 69    | 1790                                    | CX 43                | 1148•                                   |
| ZX 25                                                                                                                   | 652                                     | AX 24                | 640                                     | AX 67    | 1730                                    | BX 26                | 690                                     | BX 71    | 1840                                    | CX 49                | 1308•                                   |
| ZX 26                                                                                                                   | 672                                     | AX 25                | 660                                     | AX 70    | 1805                                    | BX 28                | 750                                     | BX 73    | 1890                                    | CX 52                | 1378•                                   |
| ZX 27                                                                                                                   | 692                                     | AX 26½               | 700                                     | AX 71    | 1830                                    | BX 29                | 765                                     | BX 75    | 1940                                    | CX 55                | 1458•                                   |
| ZX 28                                                                                                                   | 732                                     | AX 27                | 716                                     | AX 75    | 1930                                    | BX 30                | 790                                     | BX 79    | 2040                                    | CX 59                | 1558•                                   |
| ZX 29                                                                                                                   | 752                                     | AX 28                | 740                                     | AX 79    | 2030                                    | BX 31                | 815                                     | BX 88    | 2280                                    | CX 62                | 1632•                                   |
| ZX 29½                                                                                                                  | 772                                     | AX 29                | 760                                     | AX 88    | 2270                                    | BX 32                | 840                                     | BX 93    | 2400                                    | CX 67                | 1758•                                   |
| ZX 31½                                                                                                                  | 822                                     | AX 30                | 797                                     | AX 93    | 2390                                    | BX 33                | 876                                     | BX 98    | 2540                                    | CX 68                | 1785•                                   |
| ZX 32                                                                                                                   | 842                                     | AX 31                | 805                                     | AX 98    | 2530•                                   | BX 34                | 890                                     | BX 103   | 2656•                                   | CX 71                | 1858•                                   |
| ZX 33                                                                                                                   | 847                                     | AX 32                | 843                                     | AX 104   | 2680•                                   | BX 34½               | 915                                     | BX 104   | 2690•                                   | CX 75                | 1958•                                   |
| ZX 33½                                                                                                                  | 872                                     | AX 33                | 871                                     | AX 110   | 2830•                                   | BX 35                | 929                                     | BX 110   | 2840•                                   | CX 79                | 2058•                                   |
| ZX 35                                                                                                                   | 897                                     | AX 34                | 880                                     | AX 118   | 3030•                                   | BX 36                | 940                                     | BX 118   | 3040•                                   | CX 81                | 2118•                                   |
| ZX 36                                                                                                                   | 922                                     | AX 35                | 919                                     | AX 124   | 3180•                                   | BX 37                | 965                                     | BX 124   | 3190•                                   | CX 85                | 2217•                                   |
| ZX 37                                                                                                                   | 947                                     | AX 35½               | 930                                     | AX 132   | 3380•                                   | BX 38                | 1005                                    | BX 132   | 3390•                                   | CX 88                | 2298•                                   |
| ZX 38                                                                                                                   | 972                                     | AX 36                | 944                                     |          |                                         | BX 39                | 1040                                    |          |                                         | CX 90                | 2344•                                   |
| ZX 40                                                                                                                   | 1038•                                   | AX 37                | 955                                     |          |                                         | BX 40                | 1056                                    |          |                                         | CX 93                | 2418•                                   |
| ZX 42                                                                                                                   | 1082•                                   | AX 37½               | 980                                     |          |                                         | BX 41                | 1080                                    |          |                                         | CX 96                | 2496•                                   |
| ZX 46½                                                                                                                  | 1202•                                   | AX 38                | 995                                     |          |                                         | BX 42                | 1100                                    |          |                                         | CX 98                | 2558•                                   |
| ZX 52                                                                                                                   | 1342•                                   | AX 39                | 1030                                    |          |                                         | BX 43                | 1130                                    |          |                                         | CX 110               | 2858•                                   |
| ZX 55                                                                                                                   | 1422•                                   | AX 40                | 1046                                    |          |                                         | BX 44                | 1160                                    |          |                                         | CX 118               | 3058•                                   |
| ZX 59                                                                                                                   | 1522•                                   | AX 41½               | 1080                                    |          |                                         | BX 45                | 1190                                    |          |                                         | CX 124               | 3208•                                   |
|                                                                                                                         |                                         | AX 42                | 1090                                    |          |                                         | BX 45½               | 1203                                    |          |                                         | CX 132               | 3408•                                   |
|                                                                                                                         |                                         | AX 43                | 1130                                    |          |                                         | BX 46                | 1215                                    |          |                                         |                      |                                         |
|                                                                                                                         |                                         | AX 44                | 1150                                    |          |                                         | BX 46½               | 1220                                    |          |                                         |                      |                                         |
|                                                                                                                         |                                         | AX 45½               | 1180                                    |          |                                         | BX 47                | 1240                                    |          |                                         |                      |                                         |
|                                                                                                                         |                                         | AX 46                | 1198                                    |          |                                         | BX 48                | 1255                                    |          |                                         |                      |                                         |
|                                                                                                                         |                                         | AX 47                | 1230                                    |          |                                         | BX 49                | 1290                                    |          |                                         |                      |                                         |
|                                                                                                                         |                                         | AX 48                | 1250                                    |          |                                         | BX 50                | 1315                                    |          |                                         |                      |                                         |
|                                                                                                                         |                                         | AX 49                | 1280                                    |          |                                         | BX 51                | 1340                                    |          |                                         |                      |                                         |
|                                                                                                                         |                                         | AX 50                | 1300                                    |          |                                         | BX 52                | 1360                                    |          |                                         |                      |                                         |
|                                                                                                                         |                                         | AX 51                | 1330                                    |          |                                         | BX 53                | 1390                                    |          |                                         |                      |                                         |
|                                                                                                                         |                                         | AX 52                | 1350                                    |          |                                         | BX 54                | 1412                                    |          |                                         |                      |                                         |
|                                                                                                                         |                                         | AX 53                | 1380                                    |          |                                         | BX 55                | 1440                                    |          |                                         |                      |                                         |
|                                                                                                                         |                                         | AX 54                | 1405                                    |          |                                         | BX 57                | 1490                                    |          |                                         |                      |                                         |
|                                                                                                                         |                                         | AX 55                | 1430                                    |          |                                         | BX 58                | 1513                                    |          |                                         |                      |                                         |
|                                                                                                                         |                                         | AX 56                | 1452                                    |          |                                         | BX 59                | 1540                                    |          |                                         |                      |                                         |
|                                                                                                                         |                                         | AX 57                | 1480                                    |          |                                         | BX 61                | 1590                                    |          |                                         |                      |                                         |
|                                                                                                                         |                                         | AX 58                | 1505                                    |          |                                         | BX 62                | 1615                                    |          |                                         |                      |                                         |
|                                                                                                                         |                                         | AX 59                | 1530                                    |          |                                         | BX 63                | 1640                                    |          |                                         |                      |                                         |
| Weight: ≈ 0.062 kg/m                                                                                                    |                                         | Weight: ≈ 0.099 kg/m |                                         |          |                                         | Weight: ≈ 0.165 kg/m |                                         |          |                                         | Weight: ≈ 0.276 kg/m |                                         |
| Datum length L <sub>d</sub> ± Pitch length L <sub>w</sub> /L <sub>p</sub> Further sizes on request    • Non stock items |                                         |                      |                                         |          |                                         |                      |                                         |          |                                         |                      |                                         |

# STANDARD RANGE

optibelt **VARIO POWER** VARIABLE SPEED BELTS –  
RAW EDGE, COGGED  
DIN 7719 / ISO 1604



| Profile/<br>inside length<br>L <sub>i</sub> [mm] | ISO<br>designation<br>(datum length) L <sub>d</sub> | Profile/<br>inside length<br>L <sub>i</sub> [mm] | ISO<br>designation<br>(datum length) L <sub>d</sub> | Profile/<br>inside length<br>L <sub>i</sub> [mm] | ISO<br>designation<br>(datum length) L <sub>d</sub> | Profile/<br>inside length<br>L <sub>i</sub> [mm] | ISO<br>designation<br>(datum length) L <sub>d</sub> | Profile/<br>inside length<br>L <sub>i</sub> [mm] | ISO<br>designation<br>(datum length) L <sub>d</sub> |
|--------------------------------------------------|-----------------------------------------------------|--------------------------------------------------|-----------------------------------------------------|--------------------------------------------------|-----------------------------------------------------|--------------------------------------------------|-----------------------------------------------------|--------------------------------------------------|-----------------------------------------------------|
| <b>13 x 5</b>                                    |                                                     | <b>26 x 8</b>                                    |                                                     | <b>32 x 10</b>                                   |                                                     | <b>47 x 13</b>                                   |                                                     | <b>70 x 18</b>                                   |                                                     |
| 468                                              |                                                     | 655                                              | W 25 690                                            | 750                                              | W 31.5 800                                          | 1000                                             |                                                     | 1600                                             |                                                     |
| 500                                              |                                                     | 672                                              | W 25 710                                            | 790                                              | W 31.5 840                                          | 1060                                             |                                                     | 1700                                             |                                                     |
|                                                  |                                                     | 710                                              | W 25 750                                            | 820                                              | W 31.5 870                                          | 1120                                             |                                                     | 1800                                             |                                                     |
| <b>17 x 5</b>                                    |                                                     | 750                                              | W 25 790                                            | 850                                              | W 31.5 900                                          | 1180                                             |                                                     | 1900                                             |                                                     |
| 426                                              | W 16 450                                            | 762                                              | W 25 800                                            | 900                                              | W 31.5 950                                          | 1250                                             |                                                     | 2000                                             |                                                     |
| 476                                              | W 16 500                                            | 800                                              | W 25 840                                            | 950                                              | W 31.5 1000                                         | 1320                                             |                                                     | 2240                                             |                                                     |
| 536                                              | W 16 560                                            | 862                                              | W 25 900                                            | 1000                                             | W 31.5 1050                                         | 1400                                             |                                                     | 2500                                             |                                                     |
| 570                                              | W 16 600                                            | 962                                              | W 25 1000                                           | 1073                                             | W 31.5 1120                                         | 1500                                             |                                                     |                                                  |                                                     |
| 606                                              | W 16 630                                            | 1082                                             | W 25 1120                                           | 1120                                             | W 31.5 1170                                         | 1600                                             |                                                     |                                                  |                                                     |
| 776                                              | W 16 800                                            |                                                  |                                                     | 1180                                             | W 31.5 1230                                         | 1700                                             |                                                     |                                                  |                                                     |
|                                                  |                                                     | <b>28 x 8</b>                                    |                                                     | 1200                                             | W 31.5 1250                                         | 1800                                             |                                                     |                                                  |                                                     |
| <b>21 x 6</b>                                    |                                                     | 600                                              |                                                     | 1353                                             | W 31.5 1400                                         |                                                  |                                                     |                                                  |                                                     |
| 530                                              | W 20 560                                            | 650                                              |                                                     |                                                  |                                                     | <b>52 x 16</b>                                   |                                                     |                                                  |                                                     |
| 600                                              | W 20 630                                            | 700                                              |                                                     | <b>37 x 10</b>                                   |                                                     | 1180                                             | W 50 1250                                           |                                                  |                                                     |
| 610                                              | W 20 640                                            | 750                                              |                                                     | 660                                              |                                                     | 1250                                             | W 50 1320                                           |                                                  |                                                     |
| 675                                              | W 20 710                                            | 800                                              |                                                     | 800                                              |                                                     | 1325                                             | W 50 1400                                           |                                                  |                                                     |
| 770                                              | W 20 800                                            | 850                                              |                                                     | 850                                              |                                                     | 1400                                             | W 50 1480                                           |                                                  |                                                     |
| 870                                              | W 20 900                                            | 900                                              |                                                     | 900                                              |                                                     | 1525                                             | W 50 1600                                           |                                                  |                                                     |
| 970                                              | W 20 1000                                           | 950                                              |                                                     | 950                                              |                                                     | 1600                                             | W 50 1680                                           |                                                  |                                                     |
| 1220                                             | W 20 1250                                           | 1000                                             |                                                     | 1000                                             |                                                     | 1725                                             | W 50 1800                                           |                                                  |                                                     |
|                                                  |                                                     | 1060                                             |                                                     | 1020                                             |                                                     | 1925                                             | W 50 2000                                           |                                                  |                                                     |
| <b>22 x 8</b>                                    |                                                     | 1120                                             |                                                     | 1060                                             |                                                     | 2165                                             | W 50 2240                                           |                                                  |                                                     |
| 485                                              |                                                     | 1180                                             |                                                     | 1120                                             |                                                     | 2240                                             | W 50 2320                                           |                                                  |                                                     |
| 525                                              |                                                     | 1250                                             |                                                     | 1180                                             |                                                     |                                                  |                                                     |                                                  |                                                     |
| 565                                              |                                                     | 1320                                             |                                                     | 1250                                             |                                                     | <b>55 x 16</b>                                   |                                                     |                                                  |                                                     |
| 650                                              |                                                     | 1400                                             |                                                     | 1320                                             |                                                     | 1400                                             |                                                     |                                                  |                                                     |
| 700                                              |                                                     | 1500                                             |                                                     | 1400                                             |                                                     | 1500                                             |                                                     |                                                  |                                                     |
| 750                                              |                                                     |                                                  |                                                     | 1500                                             |                                                     | 1600                                             |                                                     |                                                  |                                                     |
| 800                                              |                                                     | <b>30 x 10</b>                                   |                                                     | 1600                                             |                                                     | 1700                                             |                                                     |                                                  |                                                     |
| 850                                              |                                                     | 650                                              |                                                     | 1700                                             |                                                     | 1800                                             |                                                     |                                                  |                                                     |
| 900                                              |                                                     | 665                                              |                                                     | 1800                                             |                                                     |                                                  |                                                     |                                                  |                                                     |
| 950                                              |                                                     | 700                                              |                                                     | <b>41 x 13</b>                                   |                                                     | <b>65 x 20</b>                                   |                                                     |                                                  |                                                     |
| 1000                                             |                                                     | 800                                              |                                                     | 925                                              | W 40 990                                            | 1706                                             | W 63 1800                                           |                                                  |                                                     |
| 1060                                             |                                                     | 850                                              |                                                     | 1000                                             | W 40 1060                                           | 1906                                             | W 63 2000                                           |                                                  |                                                     |
| 1185                                             |                                                     | 875                                              |                                                     | 1040                                             | W 40 1100                                           |                                                  |                                                     |                                                  |                                                     |
|                                                  |                                                     | 900                                              |                                                     | 1060                                             | W 40 1120                                           |                                                  |                                                     |                                                  |                                                     |
|                                                  |                                                     | 950                                              |                                                     | 1120                                             | W 40 1180                                           |                                                  |                                                     |                                                  |                                                     |
|                                                  |                                                     | 1000                                             |                                                     | 1180                                             | W 40 1240                                           |                                                  |                                                     |                                                  |                                                     |
|                                                  |                                                     | 1035                                             |                                                     | 1190                                             | W 40 1250                                           |                                                  |                                                     |                                                  |                                                     |
|                                                  |                                                     | 1120                                             |                                                     | 1250                                             | W 40 1310                                           |                                                  |                                                     |                                                  |                                                     |
|                                                  |                                                     | 1200                                             |                                                     | 1340                                             | W 40 1400                                           |                                                  |                                                     |                                                  |                                                     |
|                                                  |                                                     | 1340                                             |                                                     | 1440                                             | W 40 1500                                           |                                                  |                                                     |                                                  |                                                     |
|                                                  |                                                     | 1500                                             |                                                     | 1600                                             | W 40 1660                                           |                                                  |                                                     |                                                  |                                                     |
|                                                  |                                                     | 1600                                             |                                                     | 1740                                             | W 40 1800                                           |                                                  |                                                     |                                                  |                                                     |
|                                                  |                                                     |                                                  |                                                     | 1940                                             | W 40 2000                                           |                                                  |                                                     |                                                  |                                                     |

## Standard production data

Belt length up to 5000 mm L<sub>i</sub>

Belt top width up to 100 mm

Belt height 5 to 25 mm

24° angle for profile 13 x 5; 17 x 5

30° angle for profile 52 x 16; 55 x 16; 65 x 20 and 70 x 18

27° angle for all other profiles. Sizes according to ARPM/MPTA as well as variable speed belts with angles from 22° to 42° can be produced on request. Minimum order quantities are required.

Further sizes as well as Double-sided variable speed belts on request

## Tolerances

Length tolerance ± 1 % of the belt nominal length

Angle tolerance ± 1.5° of the nominal angle

Height tolerance ≤ 8 mm = ± 0.8 mm

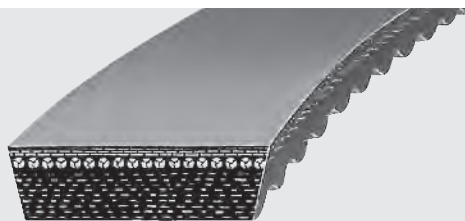
> 8 to 20 mm = ± 1.0 mm

> 20 mm = ± 1.5 mm

Width tolerance ± 0.75 mm

# STANDARD RANGE

optibelt **VARIO POWER** VARIABLE SPEED BELTS –  
RAW EDGE, COGGED  
ARPM/MPTA



| ARPM/MPTA designation | ARPM/MPTA designation | ARPM/MPTA designation | ARPM/MPTA designation |
|-----------------------|-----------------------|-----------------------|-----------------------|
| 1422 V 235•           | 1922 V 751•           | 2530 V 934•           | 3230 V 630•           |
| 1422 V 240•           | 1922 V 756•           | 2530 V 990•           | 3230 V 670•           |
| 1422 V 270•           |                       |                       | 3230 V 710•           |
| 1422 V 290•           | 1926 V 250•           | 2830 V 337•           | 3230 V 723•           |
| 1422 V 300•           | 1926 V 275•           | 2830 V 363•           | 3230 V 750•           |
|                       | 1926 V 290•           | 2830 V 366•           |                       |
| 1422 V 330•           | 1926 V 407•           | 2830 V 367•           | 3230 V 800•           |
| 1422 V 340•           | 1926 V 415•           | 2830 V 393•           | 3230 V 850•           |
| 1422 V 360•           |                       |                       |                       |
| 1422 V 400•           | 1926 V 427•           | 2830 V 396•           | 3432 V 450•           |
| 1422 V 420•           |                       | 2830 V 422•           | 3432 V 456•           |
|                       |                       |                       | 3432 V 480•           |
| 1422 V 440•           | 2230 V 266•           | 2926 V 471•           | 3432 V 528•           |
| 1422 V 460•           | 2230 V 273•           | 2926 V 486•           | 3432 V 534•           |
| 1422 V 470•           | 2230 V 275•           | 2926 V 521•           |                       |
| 1422 V 480•           | 2230 V 326•           | 2926 V 546•           | 4036 V 541•           |
| 1422 V 540•           | 2230 V 375•           | 2926 V 574•           | 4036 V 574•           |
|                       |                       |                       |                       |
| 1422 V 600•           | 2322 V 329•           | 2926 V 586•           | 4430 V 530•           |
| 1422 V 660•           | 2322 V 347•           | 2926 V 606•           | 4430 V 548•           |
|                       | 2322 V 364•           | 2926 V 616•           | 4430 V 555•           |
| 1430 V 215•           | 2322 V 396•           | 2926 V 636•           | 4430 V 560•           |
|                       | 2322 V 421•           | 2926 V 646•           | 4430 V 570•           |
| 1922 V 277•           | 2322 V 434•           | 2926 V 666•           | 4430 V 578•           |
| 1922 V 282•           | 2322 V 441•           | 2926 V 686•           | 4430 V 600•           |
| 1922 V 298•           | 2322 V 461•           | 2926 V 726•           | 4430 V 610•           |
| 1922 V 321•           | 2322 V 481•           | 2926 V 750•           | 4430 V 630•           |
| 1922 V 332•           | 2322 V 486•           | 2926 V 776•           | 4430 V 652•           |
|                       |                       | 2926 V 786•           | 4430 V 660•           |
| 1922 V 338•           | 2322 V 521•           |                       | 4430 V 670•           |
| 1922 V 363•           | 2322 V 541•           | 3226 V 392•           | 4430 V 690•           |
| 1922 V 381•           | 2322 V 601•           | 3226 V 400•           | 4430 V 700•           |
| 1922 V 386•           | 2322 V 661•           | 3226 V 433•           | 4430 V 710•           |
| 1922 V 403•           | 2322 V 681•           | 3226 V 450•           | 4430 V 730•           |
|                       |                       | 3226 V 505•           | 4430 V 750•           |
| 1922 V 426•           | 2322 V 701•           | 3226 V 545•           | 4430 V 790•           |
| 1922 V 443•           | 2322 V 801•           | 3226 V 585•           | 4430 V 800•           |
| 1922 V 454•           |                       | 3226 V 603•           | 4430 V 850•           |
| 1922 V 460•           | 2426 V 353•           | 3226 V 650•           |                       |
| 1922 V 484•           | 2426 V 363•           | 3226 V 663•           | 4436 V 525•           |
|                       |                       |                       | 4436 V 551•           |
| 1922 V 526•           |                       | 3226 V 723•           | 4436 V 561•           |
| 1922 V 544•           | 2530 V 500•           | 3226 V 783•           | 4436 V 576•           |
| 1922 V 604•           | 2530 V 530•           | 3226 V 843•           | 4436 V 646•           |
| 1922 V 630•           | 2530 V 560•           |                       |                       |
| 1922 V 646•           | 2530 V 600•           | 3230 V 419•           | 4436 V 750•           |
|                       | 2530 V 630•           | 3230 V 528•           |                       |
| 1922 V 666•           |                       | 3230 V 560•           |                       |
| 1922 V 686•           | 2530 V 670•           | 3230 V 585•           |                       |
| 1922 V 706•           | 2530 V 710•           | 3230 V 600•           |                       |
| 1922 V 721•           | 2530 V 750•           |                       |                       |
| 1922 V 726•           | 2530 V 790•           |                       |                       |
|                       | 2530 V 800•           |                       |                       |

Explanation (e.g. 1422 V 235)

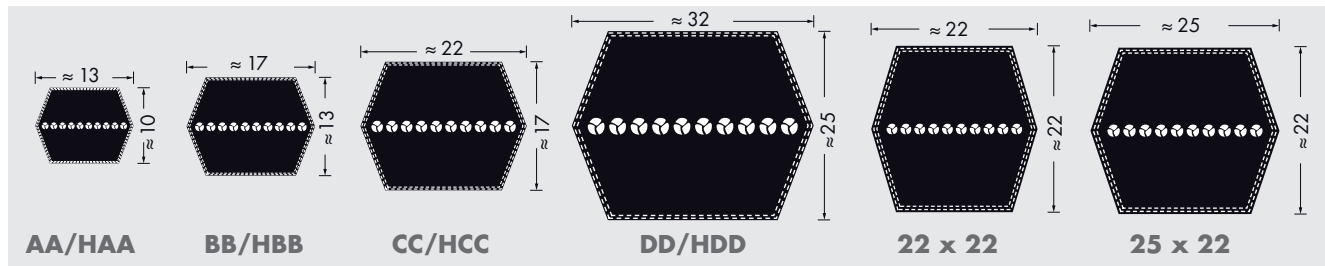
14 = top width 14/16"  
22 = angle  
V = variable speed  
235 = pitch length in 1/10"

• Non stock items – Minimum order quantity on request. Further sizes as well as Double-sided variable speed belts on request.

# STANDARD RANGE

## optibelt **DK** DOUBLE-SIDED V-BELTS

### DIN/ISO, ASAE



| Profile AA/HAA               |          | Profile BB/HBB               |          |                       |          | Profile CC/HCC               |          | Profile DD/HDD               |          |
|------------------------------|----------|------------------------------|----------|-----------------------|----------|------------------------------|----------|------------------------------|----------|
| Reference length [mm]        | Belt no. | Reference length [mm]        | Belt no. | Reference length [mm] | Belt no. | Reference length [mm]        | Belt no. | Reference length [mm]        | Belt no. |
| 2000                         | 77       | 1980                         | 75       | 4040                  | 156      | 2280                         | 86       | on request                   |          |
| 2032                         | 78       | 2180                         | 83       | 4200                  | 162      | 2500                         | 94       |                              |          |
| 2370                         | 91       | 2300                         | 88       | 4470                  | 173      | 2800                         | 106      |                              |          |
| 2500                         | 96       | 2370                         | 90       | 4500                  | 174      | 3200                         | 122      |                              |          |
| 2650                         | 102      | 2500                         | 95       | 4750                  | 184      | 3310                         | 126      | Weight: $\approx 0.935$ kg/m |          |
| 2667                         | 103      | 2540                         | 97       | 5000                  | 194      | 3765                         | 144      |                              |          |
| 2800                         | 108      | 2600                         | 99       | 5639                  | 221      | 4000                         | 153      | Profile 22 x 22              |          |
| 3300                         | 128      | 2650                         | 101      |                       |          | 4216                         | 162      |                              |          |
| 3920                         | 152      | 2740                         | 105      |                       |          | 4300                         | 165      | 5180<br>5220<br>5850<br>6270 |          |
|                              |          | 2800                         | 107      |                       |          | 4500                         | 173      |                              |          |
|                              |          | 2850                         | 109      |                       |          | 5000                         | 193      | Weight: $\approx 0.511$ kg/m |          |
|                              |          | 2920                         | 112      |                       |          | 5300                         | 204      |                              |          |
|                              |          | 3000                         | 115      |                       |          | 5340                         | 206      | Profile 25 x 22              |          |
|                              |          | 3030                         | 116      |                       |          | 5750                         | 224      |                              |          |
|                              |          | 3150                         | 121      |                       |          |                              |          | on request                   |          |
|                              |          | 3250                         | 125      |                       |          |                              |          |                              |          |
|                              |          | 3280                         | 126      |                       |          |                              |          | Weight: $\approx 0.625$ kg/m |          |
|                              |          | 3325                         | 128      |                       |          |                              |          |                              |          |
|                              |          | 3390                         | 131      |                       |          |                              |          | on request                   |          |
|                              |          | 3450                         | 133      |                       |          |                              |          |                              |          |
|                              |          | 3500                         | 135      |                       |          |                              |          | on request                   |          |
|                              |          | 3550                         | 137      |                       |          |                              |          |                              |          |
|                              |          | 3730                         | 144      |                       |          |                              |          | on request                   |          |
|                              |          | 3750                         | 145      |                       |          |                              |          |                              |          |
|                              |          | 4010                         | 155      |                       |          |                              |          | on request                   |          |
|                              |          |                              |          |                       |          |                              |          |                              |          |
| Weight: $\approx 0.150$ kg/m |          | Weight: $\approx 0.250$ kg/m |          |                       |          | Weight: $\approx 0.440$ kg/m |          | Weight: $\approx 0.625$ kg/m |          |

Non-standard length ranges and special constructions:

Profile AA/HAA 1350 to 6000 mm  
 Profile BB/HBB 1350 to 12700 mm  
 Profile CC/HCC 1600 to 19500 mm  
 Profile DD/HDD on request  
 Profile 22 x 22 on request  
 Profile 25 x 22 on request

**Minimum order quantity for special constructions on request**

Conversion factors from the belt number to the reference length:

**Profile AA/HAA** – Belt no.  $\times 25.4 = \text{mm} + 53$  mm

**Profile BB/HBB** – (up to belt no. 210)  
 Belt no.  $\times 25.4 = \text{mm} + 74$  mm  
 (over belt no. 210)  
 Belt no.  $\times 25.4 = \text{mm} + 36$  mm

**Profile CC/HCC** – (up to belt no. 210)  
 Belt no.  $\times 25.4 = \text{mm} + 107$  mm  
 (over belt no. 210)  
 Belt no.  $\times 25.4 = \text{mm} + 56$  mm

**Profile DD/HDD** – (up to belt no. 210)  
 Belt no.  $\times 25.4 = \text{mm} + 132$  mm  
 (over belt no. 210)  
 Belt no.  $\times 25.4 = \text{mm} + 69$  mm

## PRODUCT DESCRIPTION

optibelt **KS** V-GROOVED PULLEYS – optibelt **TB** TAPER-BUSHES



### **optibelt KS V-grooved pulleys**

optibelt KS V-grooved pulleys are available with pilot bore and for taper bushes in all common belt profiles.

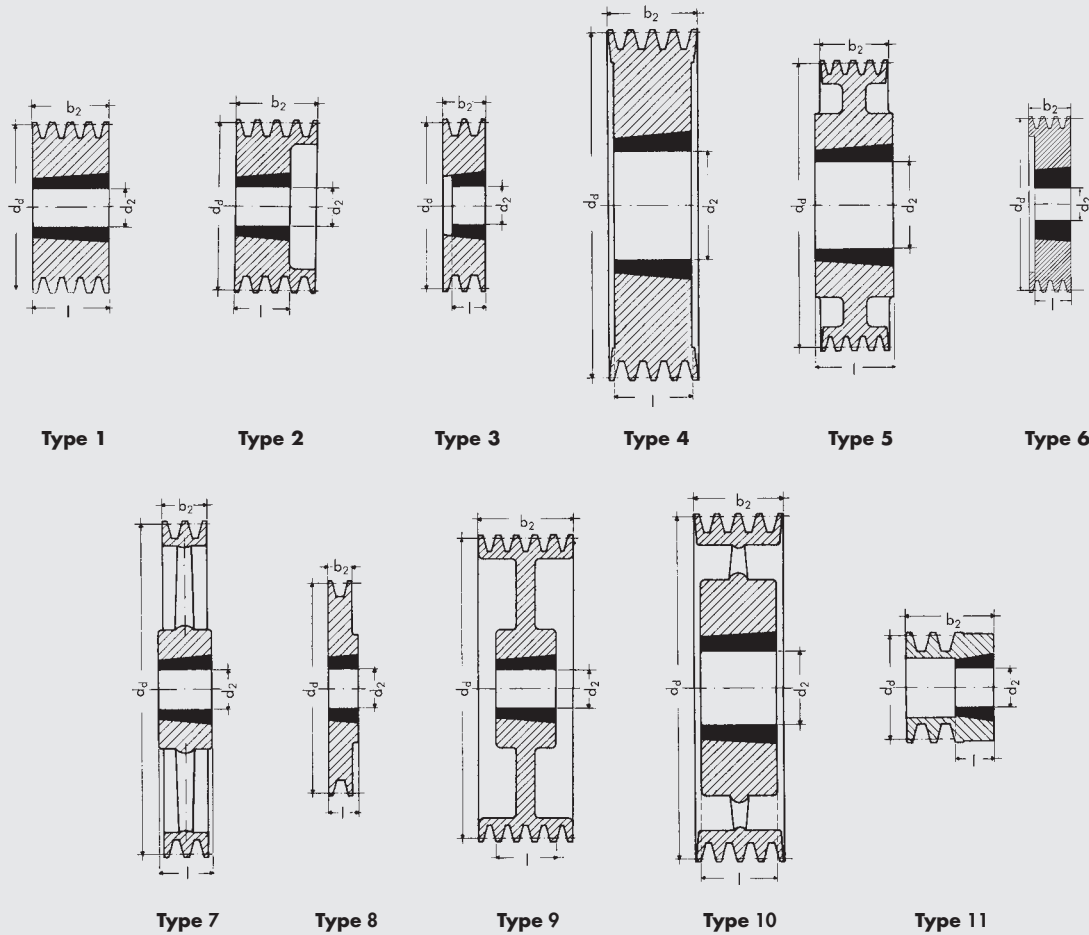


### **optibelt TB taper bushes**

optibelt TB taper bushes are used for easy installations of pulleys on shafts with or without keyway.

# PRODUCT DESCRIPTION

## optibelt **KS** V-GROOVED PULLEYS, TYPES



We reserve the right to technical modifications.

### Balancing

V-grooved pulleys are statically balanced in accordance with the guidelines in VDI 2060, as standard:  
Quality level G 16; for dia.  $d_d \leq 400$  mm at  $n = 1500$  rpm;  
for dia.  $d_d > 400$  mm at  $v = 30$  m/s.

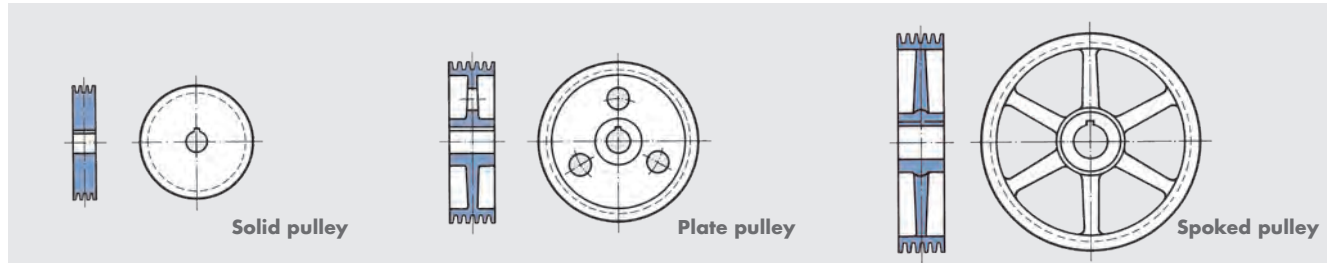
The pulleys are balanced without keys on smooth balancing spindles. Machines whose runners are balanced with a keyway in the shaft end should be ordered as follows:  
"Balanced with pilot bore and empty keyway on smooth balancing spindles without key".

Balancing in one plane to quality level G 6.3 on request.  
We recommend balancing in two planes according to quality level G 6.3, or finer when  $v > 30$  m/s or the ratio of datum diameter to face width  $d_d : b_2$  is  $< 4$  at  $v > 20$  m/s. In such cases, the operational speed of the pulley must be given.

Special pulleys and customised pulleys on request

# PRODUCT DESCRIPTION

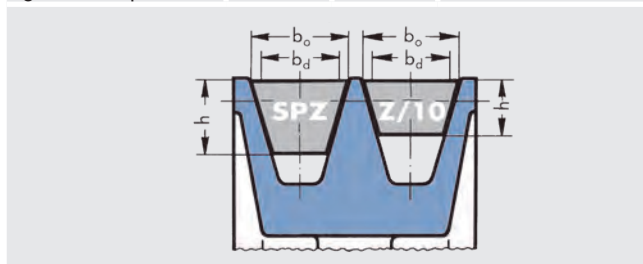
## optibelt **KS** V-GROOVED PULLEYS, STANDARDS – DESIGN CRITERIA – TYPES



An essential component in V-belt drive systems is the V-belt pulley, or in short V-pulley. They are primarily manufactured from cast iron EN-GJL-200-DIN EN 1561 and are available with a pilot hole, pre-fabricated hole or with a clamping bush system. The DIN standard as well as the most important national pulley standards of all industrial nations are based upon the ISO 4183 standard "Grooved Pulleys for Classic V-Belts and Wedge Belts". V-belt pulleys with grooves for wedge belts according to DIN 7753 Part 1 are also suitable for classic V-belts with the same datum width  $b_d$  according to DIN 2215. These are known as dual duty pulleys.

### Example

|                              | Belt              |                  | Grooved pulleys   |
|------------------------------|-------------------|------------------|-------------------|
| Profile                      | SPZ               | Z/10             | SPZ – Z/10        |
| Top width                    | $b_o \approx 9.7$ | $b_o \approx 10$ | $b_1 \approx 9.7$ |
| Datum width                  | $b_d = 8.5$       |                  | $b_d = 8.5$       |
| Belt height/<br>groove depth | $h \approx 8$     | $h \approx 6$    | $t_{min} = 11$    |



When selecting a pulley, the following criteria should be taken into account:

- Use standard pulley diameters.  
If design considerations make this impossible, a standard diameter should, as a minimum requirement, be selected for the largest pulley in the drive.
- Do not select a pulley smaller than the recommended size to ensure a longer operational life and overall drive efficiency.
- If manufacturing your own pulleys, the overall shape and processing must conform to the relevant standards.
- Grooved pulleys are generally balanced in one plane (statically) to quality level Q 16 as in VDI 2060.

- Balancing in two planes (dynamically), quality level Q 6.3 becomes necessary if:
  1.  $v > 30$  m/s or
  2. the ratio of datum diameter to pulley face width  $d_d : b_2 < 4$  at  $v > 20$  m/s.

**Note:** The timely replacement of pulleys damaged by corrosion or erosion prevents premature failure of the belts. Furthermore, it is important to prevent the belt basis from direct contact with the groove basis as this can quickly lead to damage and premature failure (exception: special drives such as V-flat drives).

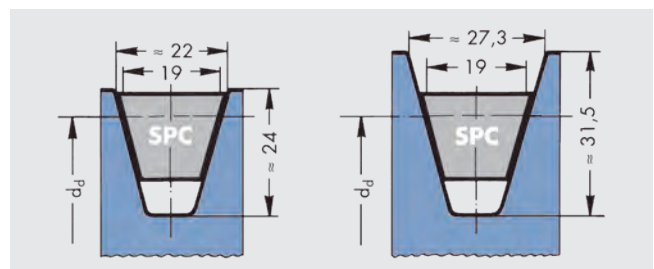
### Deep grooved pulleys

Deep grooved pulleys are employed for special drive situations such as

- The use of guide idlers.
- Twist drives or.
- Drives subject to severe vibration.

The increased groove top width " $b_1$ " and depth " $t$ " of deep grooved pulleys improves the running characteristics of the belt, particularly when entering the groove. Turning over and running out of the belt are prevented.

**Deep grooved pulleys are not suitable for the use with kraftbands.**

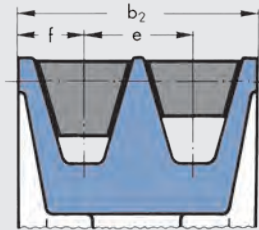
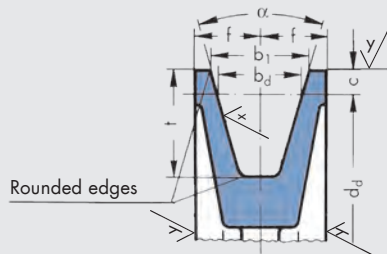


# OVERVIEW – GEOMETRY DATA

## optibelt **KS** V-GROOVED PULLEYS

### DIN 2211 SHEET 1 FOR WEDGE BELTS AND

### DIN 2217 SHEET 1 FOR CLASSIC V-BELTS



$$x/\sqrt{R_z} = \sqrt{25}$$

$$y/\sqrt{R_z} = \sqrt{100}$$

**Table 14**

| V-belt profile                                                           | ISO designation             | –                                       | Y*                                      | –                                       | Z*                                      | A*                                       | B*                                       | –                                        | C*                                       | –                                        | D                                    | E                                    |
|--------------------------------------------------------------------------|-----------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|------------------------------------------|------------------------------------------|------------------------------------------|------------------------------------------|------------------------------------------|--------------------------------------|--------------------------------------|
|                                                                          | DIN 2215                    | 5                                       | 6                                       | 8                                       | 10                                      | 13                                       | 17                                       | 20                                       | 22                                       | 25                                       | 32                                   | 40                                   |
| Wedge belt profile                                                       | DIN 7753 Part 1 and ISO     | –                                       | –                                       | –                                       | SPZ*                                    | SPA*                                     | SPB*                                     | –                                        | SPC*                                     | –                                        | –                                    | –                                    |
| $b_d$                                                                    |                             | 4.2                                     | 5.3                                     | 6.7                                     | 8.5                                     | 11.0                                     | 14.0                                     | 17.0                                     | 19.0                                     | 21.0                                     | 27.0                                 | 32.0                                 |
| $b_1 \approx$                                                            |                             | 5.0                                     | 6.3                                     | 8.0                                     | 9.7                                     | 12.7                                     | 16.3                                     | 20.0                                     | 22.0                                     | 25.0                                     | 32.0                                 | 40.0                                 |
| $c$                                                                      |                             | 1.3                                     | 1.6                                     | 2.0                                     | 2.0                                     | 2.8                                      | 3.5                                      | 5.1                                      | 4.8                                      | 6.3                                      | 8.1                                  | 12.0                                 |
| $e$                                                                      |                             | $6 \pm 0.3$                             | $8 \pm 0.3$                             | $10 \pm 0.3$                            | $12 \pm 0.3$                            | $15 \pm 0.3$                             | $19 \pm 0.4$                             | $23 \pm 0.4$                             | $25.5 \pm 0.5$                           | $29 \pm 0.5$                             | $37 \pm 0.6$                         | $44.5 \pm 0.7$                       |
| $f$                                                                      |                             | $5 \pm 0.5$                             | $6 \pm 0.5$                             | $7 \pm 0.6$                             | $8 \pm 0.6$                             | $10 \pm 0.6$                             | $12.5 \pm 0.8$                           | $15 \pm 0.8$                             | $17 \pm 1.0$                             | $19 \pm 1.0$                             | $24 \pm 2.0$                         | $29 \pm 2.0$                         |
| $t$                                                                      | Endless V-belts             | $6 + 0.6$                               | $7 + 0.6$                               | $9 + 0.6$                               | $11 + 0.6$                              | $14 + 0.6$                               | $18 + 0.6$                               | $18 + 0.6$                               | $24 + 0.6$                               | $22 + 0.6$                               | $28 + 0.6$                           | $33 + 0.6$                           |
|                                                                          | Open-ended V-belts DIN 2216 | 0                                       | 0                                       | 0                                       | 0                                       | 0                                        | 0                                        | 0                                        | 0                                        | 0                                        | 0                                    | 0                                    |
| $d_{d \min}$                                                             | V-belts                     | 20                                      | 28                                      | 40                                      | 50                                      | 71                                       | 112                                      | 160                                      | 180                                      | 250                                      | 355                                  | 500                                  |
|                                                                          | Wedge belts                 | –                                       | –                                       | –                                       | 63                                      | 90                                       | 140                                      | –                                        | 224                                      | –                                        | –                                    | –                                    |
| $\alpha$                                                                 |                             | $32^\circ \pm 1^\circ$<br>$d_d \leq 50$ | $32^\circ \pm 1^\circ$<br>$d_d \leq 63$ | $32^\circ \pm 1^\circ$<br>$d_d \leq 75$ | –                                       | –                                        | –                                        | –                                        | –                                        | –                                        | –                                    | –                                    |
|                                                                          |                             | –                                       | –                                       | –                                       | $34^\circ \pm 1^\circ$<br>$d_d \leq 80$ | $34^\circ \pm 1^\circ$<br>$d_d \leq 118$ | $34^\circ \pm 1^\circ$<br>$d_d \leq 190$ | $34^\circ \pm 1^\circ$<br>$d_d \leq 250$ | $34^\circ \pm 1^\circ$<br>$d_d \leq 315$ | $34^\circ \pm 1^\circ$<br>$d_d \leq 355$ | –                                    | –                                    |
|                                                                          |                             | $36^\circ \pm 1^\circ$<br>$d_d > 50$    | $36^\circ \pm 1^\circ$<br>$d_d > 63$    | $36^\circ \pm 1^\circ$<br>$d_d > 75$    | –                                       | –                                        | –                                        | –                                        | –                                        | –                                        | $36^\circ \pm 30'$<br>$d_d \leq 500$ | $36^\circ \pm 30'$<br>$d_d \leq 630$ |
|                                                                          |                             | –                                       | –                                       | –                                       | $38^\circ \pm 1^\circ$<br>$d_d > 80$    | $38^\circ \pm 1^\circ$<br>$d_d > 118$    | $38^\circ \pm 1^\circ$<br>$d_d > 190$    | $38^\circ \pm 1^\circ$<br>$d_d > 250$    | $38^\circ \pm 30'$<br>$d_d > 315$        | $38^\circ \pm 30'$<br>$d_d > 355$        | $38^\circ \pm 30'$<br>$d_d > 500$    | $38^\circ \pm 30'$<br>$d_d > 630$    |
| Face width $b_2$ for<br>number of grooves $z$<br>$b_2 = (z - 1) e + 2 f$ | 1                           | 10.0                                    | 12.0                                    | 14.0                                    | 16.0                                    | 20.0                                     | 25.0                                     | 30.0                                     | 34.0                                     | 38.0                                     | 48.0                                 | 58.0                                 |
|                                                                          | 2                           | 16.0                                    | 20.0                                    | 24.0                                    | 28.0                                    | 35.0                                     | 44.0                                     | 53.0                                     | 59.5                                     | 67.0                                     | 85.0                                 | 102.5                                |
|                                                                          | 3                           | 22.0                                    | 28.0                                    | 34.0                                    | 40.0                                    | 50.0                                     | 63.0                                     | 76.0                                     | 85.0                                     | 96.0                                     | 122.0                                | 147.0                                |
|                                                                          | 4                           | 28.0                                    | 36.0                                    | 44.0                                    | 52.0                                    | 65.0                                     | 82.0                                     | 99.0                                     | 110.5                                    | 125.0                                    | 159.0                                | 191.5                                |
|                                                                          | 5                           | 34.0                                    | 44.0                                    | 54.0                                    | 64.0                                    | 80.0                                     | 101.0                                    | 122.0                                    | 136.0                                    | 154.0                                    | 196.0                                | 236.0                                |
|                                                                          | 6                           | 40.0                                    | 52.0                                    | 64.0                                    | 76.0                                    | 95.0                                     | 120.0                                    | 145.0                                    | 161.5                                    | 183.0                                    | 233.0                                | 280.5                                |
|                                                                          | 7                           |                                         | 60.0                                    | 74.0                                    | 88.0                                    | 110.0                                    | 139.0                                    | 168.0                                    | 187.0                                    | 212.0                                    | 270.0                                | 325.0                                |
|                                                                          | 8                           |                                         |                                         | 84.0                                    | 100.0                                   | 125.0                                    | 158.0                                    | 191.0                                    | 212.5                                    | 241.0                                    | 307.0                                | 369.5                                |
|                                                                          | 9                           |                                         |                                         |                                         | 112.0                                   | 140.0                                    | 177.0                                    | 214.0                                    | 238.0                                    | 270.0                                    | 344.0                                | 414.0                                |
|                                                                          | 10                          |                                         |                                         |                                         |                                         | 155.0                                    | 196.0                                    | 237.0                                    | 263.5                                    | 299.0                                    | 381.0                                | 458.5                                |
|                                                                          | 11                          |                                         |                                         |                                         |                                         |                                          | 215.0                                    | 260.0                                    | 289.0                                    | 328.0                                    | 418.0                                | 503.0                                |
|                                                                          | 12                          |                                         |                                         |                                         |                                         |                                          |                                          | 283.0                                    | 314.5                                    | 357.0                                    | 455.0                                | 547.5                                |

\* These V-grooved pulleys are also suitable for optibelt SUPER TX M=S V-belts, optibelt SUPER XE-POWER PRO M=S and optibelt SUPER X-POWER M=S.

# OVERVIEW – GEOMETRY DATA

## optibelt **KS** V-GROOVED PULLEYS

### DIN 2211 SHEET 1 FOR WEDGE BELTS AND

### DIN 2217 SHEET 1 FOR CLASSIC V-BELTS



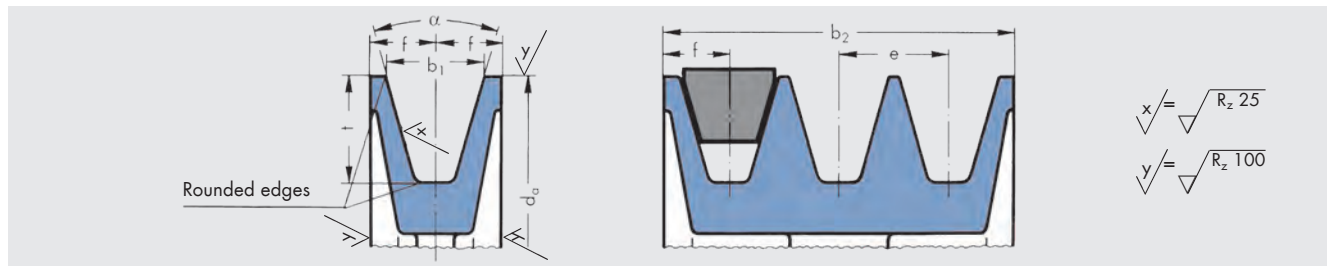
Table 15

| V-belt profile                                                                          | ISO designation                                      | —                             | Y                        | —                                              | Z                                              | A   | B                 | —                               | C   | —   | D   | E                                                  | Datum diameter d <sub>d</sub>                                  |                                                                | Radial and axial run-out tolerance |     |
|-----------------------------------------------------------------------------------------|------------------------------------------------------|-------------------------------|--------------------------|------------------------------------------------|------------------------------------------------|-----|-------------------|---------------------------------|-----|-----|-----|----------------------------------------------------|----------------------------------------------------------------|----------------------------------------------------------------|------------------------------------|-----|
|                                                                                         | DIN 2215                                             | 5                             | 6                        | 8                                              | 10                                             | 13  | 17                | 20                              | 22  | 25  | 32  | 40                                                 |                                                                |                                                                |                                    |     |
| Wedge belt profile                                                                      | DIN 7753 Part 1 and ISO 4184                         | —                             | —                        | —                                              | SPZ                                            | SPA | SPB               | —                               | SPC | —   | —   | —                                                  | min.                                                           | max.                                                           |                                    |     |
| Datum diameter d <sub>d</sub>                                                           | 20.0<br>22.0<br>25.0<br>28.0<br>31.5<br>35.5<br>40.0 | 28.0<br>31.5<br>35.5<br>40.0  | 40                       | 40                                             |                                                |     |                   |                                 |     |     |     |                                                    | 20.0<br>22.0<br>25.0<br>28.0<br>31.5<br>35.5<br>40.0           | 20.4<br>22.4<br>25.4<br>28.4<br>32.0<br>36.1<br>40.6           | 0.2                                |     |
|                                                                                         | 45.0<br>50.0<br>56.0<br>63.0                         | 45.0<br>50.0<br>56.0<br>63.0  | 45<br>50<br>56<br>63     | 45<br>50<br>56<br>63                           |                                                |     |                   |                                 |     |     |     |                                                    | 45.0<br>50.0<br>56.0<br>63.0<br>67.0                           | 45.7<br>50.8<br>56.9<br>64.0<br>68.0                           |                                    |     |
|                                                                                         | 71.0<br>80.0<br>90.0<br>100.0                        | 71.0<br>80.0<br>90.0<br>100.0 | 71<br>80<br>90<br>100    | 71<br>75<br>80<br>85<br>90<br>95<br>100<br>106 | 71<br>75<br>80<br>85<br>90<br>95<br>100<br>106 |     |                   |                                 |     |     |     |                                                    | 71.0<br>75.0<br>80.0<br>85.0<br>90.0<br>95.0<br>100.0<br>106.0 | 72.1<br>76.1<br>81.3<br>86.3<br>91.4<br>96.4<br>101.6<br>107.6 |                                    |     |
|                                                                                         |                                                      | 112.0<br>125.0                | 112<br>125<br>140<br>160 | 112<br>118<br>125<br>132<br>140<br>150<br>160  | 112<br>118<br>125<br>132<br>140<br>150<br>160  |     |                   |                                 |     |     |     |                                                    | 112.0<br>118.0<br>125.0<br>132.0<br>140.0<br>150.0<br>160.0    | 113.8<br>119.9<br>127.0<br>134.1<br>142.2<br>152.4<br>162.6    | 0.3                                |     |
|                                                                                         |                                                      |                               | 180<br>200               | 170<br>180<br>190<br>200<br>212<br>224         | 170<br>180<br>190<br>200<br>212<br>224         |     | 180<br>200<br>224 | 180<br>190<br>200<br>212<br>224 |     |     |     | 170.0<br>180.0<br>190.0<br>200.0<br>212.0<br>224.0 | 172.7<br>182.9<br>193.0<br>203.2<br>215.4<br>227.6             |                                                                |                                    |     |
|                                                                                         |                                                      |                               |                          | 250                                            | 250                                            |     | 250               | 250                             | 250 | 250 | 250 |                                                    |                                                                | 225.0<br>236.0<br>250.0<br>265.0                               | 228.6<br>239.8<br>254.0<br>269.0   | 0.4 |
|                                                                                         |                                                      |                               |                          |                                                |                                                |     |                   |                                 |     |     |     |                                                    |                                                                |                                                                |                                    |     |
|                                                                                         |                                                      |                               |                          |                                                |                                                |     |                   |                                 |     |     |     |                                                    |                                                                |                                                                |                                    |     |
|                                                                                         |                                                      |                               |                          |                                                |                                                |     |                   |                                 |     |     |     |                                                    |                                                                |                                                                |                                    | 0.5 |
|                                                                                         |                                                      |                               |                          |                                                |                                                |     |                   |                                 |     |     |     |                                                    |                                                                |                                                                |                                    |     |
|                                                                                         |                                                      |                               |                          |                                                |                                                |     |                   |                                 |     |     |     |                                                    |                                                                |                                                                |                                    |     |
|                                                                                         |                                                      |                               |                          |                                                |                                                |     |                   |                                 |     |     |     |                                                    |                                                                |                                                                |                                    | 0.6 |
|                                                                                         |                                                      |                               |                          |                                                |                                                |     |                   |                                 |     |     |     |                                                    |                                                                |                                                                |                                    |     |
|                                                                                         |                                                      |                               |                          |                                                |                                                |     |                   |                                 |     |     |     |                                                    |                                                                |                                                                |                                    |     |
|                                                                                         |                                                      |                               |                          |                                                |                                                |     |                   |                                 |     |     |     |                                                    |                                                                |                                                                | 0.8                                |     |
|                                                                                         |                                                      |                               |                          |                                                |                                                |     |                   |                                 |     |     |     |                                                    |                                                                |                                                                |                                    |     |
|                                                                                         |                                                      |                               |                          |                                                |                                                |     |                   |                                 |     |     |     |                                                    |                                                                |                                                                |                                    |     |
|                                                                                         |                                                      |                               |                          |                                                |                                                |     |                   |                                 |     |     |     |                                                    |                                                                |                                                                | 1.0                                |     |
|                                                                                         |                                                      |                               |                          |                                                |                                                |     |                   |                                 |     |     |     |                                                    |                                                                |                                                                |                                    |     |
|                                                                                         |                                                      |                               |                          |                                                |                                                |     |                   |                                 |     |     |     |                                                    |                                                                |                                                                |                                    |     |
|                                                                                         |                                                      |                               |                          |                                                |                                                |     |                   |                                 |     |     |     |                                                    |                                                                |                                                                | 1.2                                |     |
|                                                                                         |                                                      |                               |                          |                                                |                                                |     |                   |                                 |     |     |     |                                                    |                                                                |                                                                |                                    |     |
|                                                                                         |                                                      |                               |                          |                                                |                                                |     |                   |                                 |     |     |     |                                                    |                                                                |                                                                |                                    |     |
| Allowed deviation of the datum diameters of the grooves in relation to one another [mm] |                                                      | 0.3                           |                          |                                                | 0.4                                            |     |                   | 0.6                             |     |     |     |                                                    | —                                                              |                                                                |                                    |     |

For further details see standard DIN 2211 Part 1 and DIN 2217 Part 1. These V-grooved pulleys are also suitable for optibelt SUPER TX and optibelt SUPER X-POWER M=S V-belts. Preferred datum diameters in **bold type**. ■ Only for classic V-belts, raw edge • For optibelt SUPER X-POWER M=S wedge belts

# OVERVIEW – GEOMETRY DATA

## optibelt **KS** V-GROOVED PULLEYS ARPM/MPTA FOR WEDGE BELTS



**Table 16**

| Belt profile ARPM/MPTA                                                                    |    | 3V/9N                                    | 5V/15N                                    | 8V/25N                                    |
|-------------------------------------------------------------------------------------------|----|------------------------------------------|-------------------------------------------|-------------------------------------------|
| b <sub>1</sub>                                                                            |    | 8.89 ± 0.13                              | 15.24 ± 0.13                              | 25.40 ± 0.13                              |
| e                                                                                         |    | 10.30 ± 0.40                             | 17.50 ± 0.40                              | 28.60 ± 0.40                              |
| f                                                                                         |    | 9.00 <sup>+ 2.00</sup> <sub>– 1.00</sub> | 13.00 <sup>+ 3.00</sup> <sub>– 1.00</sub> | 19.00 <sup>+ 6.00</sup> <sub>– 2.00</sub> |
| t <sub>min</sub>                                                                          |    | 8.6                                      | 15.0                                      | 25.1                                      |
| d <sub>a min</sub>                                                                        |    | 67                                       | 151                                       | 315                                       |
| α                                                                                         |    | 36° ± 25′<br>d <sub>a</sub> 63 to 90     | —<br>—                                    | —<br>—                                    |
|                                                                                           |    | 38° ± 25′<br>d <sub>a</sub> > 90 to 150  | 38° ± 25′<br>d <sub>a</sub> 140 to 255    | 38° ± 25′<br>315 to 405                   |
|                                                                                           |    | 40° ± 25′<br>d <sub>a</sub> > 150 to 305 | 40° ± 25′<br>d <sub>a</sub> > 255 to 405  | 40° ± 25′<br>d <sub>a</sub> > 405 to 570  |
|                                                                                           |    | 42° ± 25′<br>d <sub>d</sub> > 305        | 42° ± 25′<br>d <sub>d</sub> > 405         | 42° ± 25′<br>d <sub>d</sub> > 570         |
| Face width b <sub>2</sub> for<br>number of grooves z:<br>b <sub>2</sub> = (z – 1) e + 2 f | 1  | 18.0                                     | 26.0                                      | 38.0                                      |
|                                                                                           | 2  | 28.3                                     | 43.5                                      | 66.6                                      |
|                                                                                           | 3  | 38.6                                     | 61.0                                      | 95.2                                      |
|                                                                                           | 4  | 48.9                                     | 78.5                                      | 123.8                                     |
|                                                                                           | 5  | 59.2                                     | 96.0                                      | 152.4                                     |
|                                                                                           | 6  | 69.5                                     | 113.5                                     | 181.0                                     |
|                                                                                           | 7  | 79.8                                     | 131.0                                     | 209.6                                     |
|                                                                                           | 8  | 90.1                                     | 148.5                                     | 238.2                                     |
|                                                                                           | 9  | 100.4                                    | 166.0                                     | 266.8                                     |
|                                                                                           | 10 | 110.7                                    | 183.5                                     | 295.4                                     |
|                                                                                           | 11 | 121.0                                    | 201.0                                     | 324.0                                     |
|                                                                                           | 12 | 131.3                                    | 218.5                                     | 352.6                                     |
| (values in mm)                                                                            |    |                                          |                                           |                                           |

(values in mm)

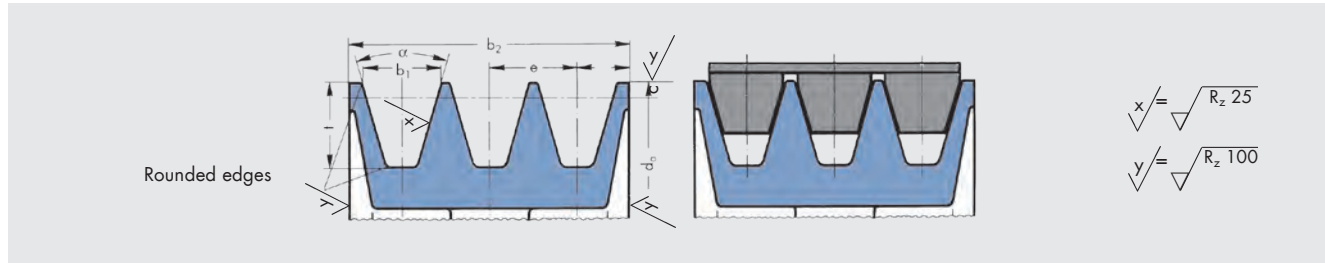
For drives with several grooves the total of all deviations from the nominal value  $e$  for all groove distances of a pulley  $\pm 0.8$  mm must not be exceeded. For further details see ARPM/MPTA.

### Note

The allowed variations of V-grooved pulleys according to ARPM/MPTA deviate only slightly from the values contained in ISO 5290 "Grooved pulleys for joint narrow V-belts (Kraftbands)". Therefore, optibelt KB kraftbands can be used in V-grooved pulleys manufactured according to both standards. These V-grooved pulleys are also suitable for optibelt SUPER X-POWER M=S V-belts.

# OVERVIEW – GEOMETRY DATA

## optibelt **KS** V-GROOVED PULLEYS FOR KRAFTBANDS



**Table 17: V-grooved pulleys for kraftbands with wedge belts ISO 529**

| Profile       | $d_a$                                            | $\alpha^\circ$<br>$\pm 30'$ | $b_1$<br>$\approx$ | $\delta h_{1\max}$ | $\delta h_{2\max}$ | $t_{\min}$ | e    | Tol e <sup>1)</sup> | $\Sigma$ Tol e <sup>2)</sup> | $f_{\min}$ | $d_{a\min}$      |
|---------------|--------------------------------------------------|-----------------------------|--------------------|--------------------|--------------------|------------|------|---------------------|------------------------------|------------|------------------|
| <b>3V/9J</b>  | 67 to 90<br>> 90 to 150<br>> 150 to 300<br>> 300 | 36<br>38<br>40<br>42        | 8.9                | 0.20               | 0.30               | 8.9        | 10.3 | $\pm 0.25$          | $\pm 0.5$                    | 9          | 84<br>(3VX) 63   |
| <b>5V/15J</b> | 180 to 250<br>> 250 to 400<br>> 400              | 38<br>40<br>42              | 15.2               | 0.25               | 0.40               | 15.2       | 17.5 | $\pm 0.25$          | $\pm 0.5$                    | 13         | 171<br>(5VX) 140 |
| <b>8V/25J</b> | 315 to 400<br>> 400 to 560<br>> 560              | 38<br>40<br>42              | 25.4               | 0.30               | 0.50               | 25.4       | 28.6 | $\pm 0.40$          | $\pm 0.8$                    | 19         | 355              |

For further details please see standard ISO 5290.

1) Tolerance for the centre distance "e" of two adjacent grooves.

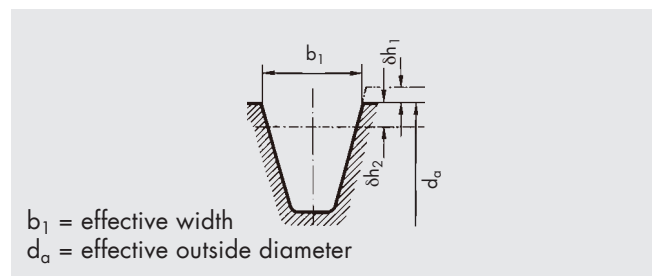
2) The sum of all deviations from the nominal dimension "e" for all groove distances of a pulley must not exceed the given tolerance.

The international standard ISO 5290 specifies pulley groove dimensions for belt profiles 3V/9J, 5V/15J, 8V/25J.

The groove top width "b<sub>1</sub>" is used as the basic reference dimension for standardisation of the grooves and joint V-belts. The pulley groove and joint V-belts are considered as a single unit in the standard ISO 5290.

The values  $\delta h_1$  and  $\delta h_2$  were chosen to ensure that

1. the top cover of the joint belt has no contact with the outside pulley diameter, in order to prevent the separation of the top cover.
2. the ribs are nevertheless still deep enough inside the pulley in order to ensure an optimum power transmission.



The groove faces must be straight at least to a level  $d_a - 2\delta h_2$ .

**Table 18: V-grooved pulleys for kraftbands with wedge belt profiles SPZ, SPA, SPB and SPC according to DIN 2211/ ISO 418**

| Profile    | $d_d$               | $\alpha^\circ$<br>$\pm 30'$ | $b_1$<br>$\approx$ | c   | $t_{\min}$ | e    | Tol e <sup>1)</sup> | $\Sigma$ Tol e <sup>2)</sup> | $f_{\min}$ | $d_{d\min}$      |
|------------|---------------------|-----------------------------|--------------------|-----|------------|------|---------------------|------------------------------|------------|------------------|
| <b>SPZ</b> | 71 to 80<br>> 80    | 34<br>38                    | 9.7                | 2.0 | 11         | 12.0 | $\pm 0.3$           | $\pm 0.6$                    | 8.0        | 80               |
| <b>SPA</b> | 100 to 118<br>> 118 | 34<br>38                    | 12.7               | 2.8 | 14         | 15.0 | $\pm 0.3$           | $\pm 0.6$                    | 10.0       | 112<br>(XPA) 90  |
| <b>SPB</b> | 160 to 190<br>> 190 | 34<br>38                    | 16.3               | 3.5 | 18         | 19.0 | $\pm 0.4$           | $\pm 0.8$                    | 12.5       | 160<br>(XPB) 140 |
| <b>SPC</b> | 250 to 315<br>> 315 | 34<br>38                    | 22.0               | 4.8 | 24         | 25.5 | $\pm 0.4$           | $\pm 0.8$                    | 17.0       | 250              |

# OVERVIEW – GEOMETRY DATA

## optibelt KS V-GROOVED PULLEYS FOR KRAFTBANDS



Table 19: V-grooved pulleys for kraftbands with classic V-belts ISO 5291/ASAE S211.5

| Profile | $d_a$               | $\alpha^\circ \pm 30'$ | $b_1 \approx$ | $\delta h_{1\max}$ | $\delta h_{2\max}$ | c   | $t_{\min}$ | e     | Tol e <sup>1)</sup> | $\Sigma$ Tol e <sup>2)</sup> | $f_{\min}$ | $d_{a\min}$ |
|---------|---------------------|------------------------|---------------|--------------------|--------------------|-----|------------|-------|---------------------|------------------------------|------------|-------------|
| AJ/HA   | 80 to 125<br>> 125  | 34<br>38               | 13.0          | 0.20               | 0.35               | 1.5 | 12.0       | 15.88 | $\pm 0.3$           | $\pm 0.6$                    | 9.0        | 80          |
| BJ/HB   | 130 to 195<br>> 195 | 34<br>38               | 16.5          | 0.25               | 0.40               | 2.0 | 14.0       | 19.05 | $\pm 0.4$           | $\pm 0.8$                    | 11.5       | 130         |
| CJ/HC   | 210 to 325<br>> 325 | 34<br>38               | 22.4          | 0.30               | 0.45               | 3.0 | 19.0       | 25.40 | $\pm 0.5$           | $\pm 1.0$                    | 16.0       | 210         |
| DJ/HD   | 370 to 490<br>> 490 | 36<br>38               | 32.8          | 0.30               | 0.55               | 4.5 | 26.0       | 36.53 | $\pm 0.6$           | $\pm 1.2$                    | 23.0       | 370         |

1) Tolerance for the centre distance "e" of two adjacent grooves.

2) The sum of all deviations from the nominal dimension "e" for all groove distances of a pulley must not exceed the given tolerance.

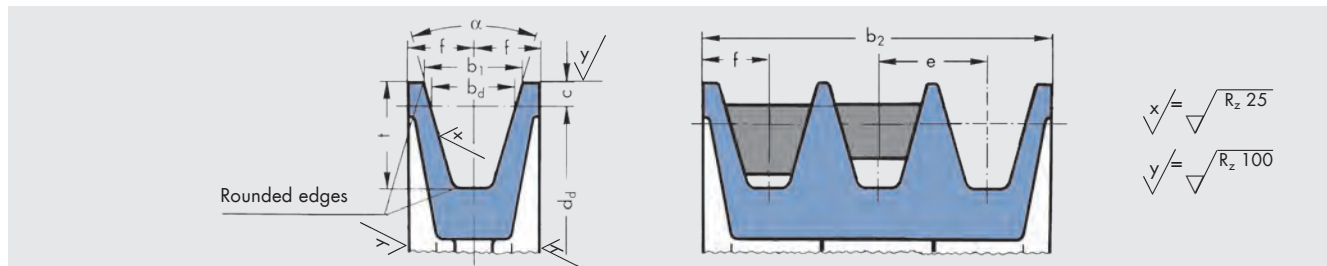
Table 20: Pulley width ranges for kraftbands

| Profile           | 3V/9J                                                            | 5V/15J | 8V/25J  | SPZ    | SPA    | SPB    | SPC     | AJ/HA  | BJ/HB  | CJ/HC   | DJ/HD   |
|-------------------|------------------------------------------------------------------|--------|---------|--------|--------|--------|---------|--------|--------|---------|---------|
| Number of grooves | Face width $b_2$ for number of grooves z $b_2 = (z - 1) e + 2 f$ |        |         |        |        |        |         |        |        |         |         |
| 2                 | 28.30                                                            | 43.50  | 66.60   | 28.00  | 35.00  | 44.00  | 59.50   | 33.88  | 42.05  | 57.40   | 82.53   |
| 3                 | 38.60                                                            | 61.00  | 95.20   | 40.00  | 50.00  | 63.00  | 85.00   | 49.76  | 61.10  | 82.80   | 119.06  |
| 4                 | 48.90                                                            | 78.50  | 123.80  | 52.00  | 65.00  | 82.00  | 110.50  | 65.64  | 80.15  | 108.20  | 155.59  |
| 5                 | 59.20                                                            | 96.00  | 152.40  | 64.00  | 80.00  | 101.00 | 136.00  | 81.52  | 99.20  | 133.60  | 192.12  |
| 6                 | 69.50                                                            | 113.50 | 181.00  | 76.00  | 95.00  | 120.00 | 161.50  | 97.40  | 118.25 | 159.00  | 228.65  |
| 7                 | 79.80                                                            | 131.00 | 209.60  | 88.00  | 110.00 | 139.00 | 187.00  | 113.28 | 137.30 | 184.40  | 265.18  |
| 8                 | 90.10                                                            | 148.50 | 238.20  | 100.00 | 125.00 | 158.00 | 212.50  | 129.16 | 156.35 | 209.80  | 301.71  |
| 9                 | 100.40                                                           | 166.00 | 266.80  | 112.00 | 140.00 | 177.00 | 238.00  | 145.04 | 175.40 | 235.20  | 338.24  |
| 10                | 110.70                                                           | 183.50 | 295.40  | 124.00 | 155.00 | 196.00 | 263.50  | 160.92 | 194.45 | 260.60  | 374.77  |
| 11                | 121.00                                                           | 201.00 | 324.00  | 136.00 | 170.00 | 215.00 | 289.00  | 176.80 | 213.50 | 286.00  | 401.30  |
| 12                | 131.30                                                           | 218.50 | 352.60  | 148.00 | 185.00 | 234.00 | 314.50  | 192.68 | 232.55 | 311.40  | 447.83  |
| 13                | 141.60                                                           | 236.00 | 381.20  | 160.00 | 200.00 | 253.00 | 340.00  | 208.56 | 251.60 | 336.80  | 484.36  |
| 14                | 151.90                                                           | 253.50 | 409.80  | 172.00 | 215.00 | 272.00 | 365.50  | 224.44 | 270.65 | 362.20  | 520.89  |
| 15                | 162.20                                                           | 271.00 | 438.40  | 184.00 | 230.00 | 291.00 | 391.00  | 240.32 | 289.70 | 387.60  | 557.42  |
| 16                | 172.50                                                           | 288.50 | 467.00  | 196.00 | 245.00 | 310.00 | 416.50  | 256.20 | 308.75 | 413.00  | 593.95  |
| 17                | 182.80                                                           | 306.00 | 495.60  | 208.00 | 260.00 | 329.00 | 442.00  | 272.08 | 327.80 | 438.40  | 630.48  |
| 18                | 193.10                                                           | 323.50 | 524.20  | 220.00 | 275.00 | 348.00 | 467.50  | 287.96 | 346.85 | 463.80  | 667.01  |
| 19                | 203.40                                                           | 341.00 | 552.80  | 232.00 | 290.00 | 367.00 | 493.00  | 303.84 | 365.90 | 489.20  | 703.54  |
| 20                | 213.70                                                           | 358.50 | 581.40  | 244.00 | 305.00 | 386.00 | 518.50  | 319.72 | 384.95 | 514.60  | 740.07  |
| 21                | 224.00                                                           | 376.00 | 610.00  | 256.00 | 320.00 | 405.00 | 544.00  | 335.60 | 404.00 | 540.00  | 776.60  |
| 22                | 234.30                                                           | 393.50 | 638.60  | 268.00 | 335.00 | 424.00 | 569.50  | 351.48 | 423.05 | 565.40  | 813.13  |
| 23                | 244.60                                                           | 411.00 | 667.20  | 280.00 | 350.00 | 443.00 | 595.00  | 367.36 | 442.10 | 590.80  | 849.66  |
| 24                | 254.90                                                           | 428.50 | 695.80  | 292.00 | 365.00 | 462.00 | 620.50  | 383.24 | 461.15 | 616.20  | 886.19  |
| 25                | 265.20                                                           | 446.00 | 724.40  | 304.00 | 380.00 | 481.00 | 646.00  | 399.12 | 480.20 | 641.60  | 922.72  |
| 26                | 275.50                                                           | 463.50 | 753.00  | 316.00 | 395.00 | 500.00 | 671.50  | 415.00 | 499.25 | 667.00  | 959.25  |
| 27                | 285.80                                                           | 481.00 | 781.60  | 328.00 | 410.00 | 519.00 | 697.00  | 430.88 | 518.30 | 692.40  | 995.78  |
| 28                | 296.10                                                           | 498.50 | 810.20  | 340.00 | 425.00 | 538.00 | 722.50  | 446.76 | 537.35 | 717.80  | 1032.31 |
| 29                | 306.40                                                           | 516.00 | 838.80  | 352.00 | 440.00 | 557.00 | 748.00  | 462.64 | 556.40 | 743.20  | 1068.84 |
| 30                | 316.70                                                           | 533.50 | 867.40  | 364.00 | 455.00 | 576.00 | 773.50  | 478.52 | 575.45 | 768.60  | 1105.37 |
| 31                | 327.00                                                           | 551.00 | 896.00  | 376.00 | 470.00 | 595.00 | 799.00  | 494.40 | 594.50 | 794.00  | 1141.90 |
| 32                | 337.30                                                           | 568.50 | 924.60  | 388.00 | 485.00 | 614.00 | 824.50  | 510.28 | 613.55 | 819.40  | 1178.43 |
| 33                | 347.60                                                           | 586.00 | 953.20  | 400.00 | 500.00 | 633.00 | 850.00  | 526.16 | 632.60 | 844.80  | 1214.96 |
| 34                | 357.90                                                           | 603.50 | 981.80  | 412.00 | 515.00 | 652.00 | 875.50  | 542.04 | 651.65 | 870.20  | 1251.49 |
| 35                | 368.20                                                           | 621.00 | 1010.40 | 424.00 | 530.00 | 671.00 | 901.00  | 557.92 | 670.70 | 895.60  | 1288.02 |
| 36                | 378.50                                                           | 638.50 | 1039.00 | 436.00 | 545.00 | 690.00 | 926.50  | 573.80 | 689.75 | 921.00  | 1324.55 |
| 37                | 388.80                                                           | 656.00 | 1067.60 | 448.00 | 560.00 | 709.00 | 952.00  | 589.68 | 708.80 | 946.40  | 1361.08 |
| 38                | 399.10                                                           | 673.50 | 1096.20 | 460.00 | 575.00 | 728.00 | 977.50  | 605.56 | 727.85 | 971.80  | 1397.61 |
| 39                | 409.40                                                           | 691.00 | 1124.80 | 472.00 | 590.00 | 747.00 | 1003.00 | 621.44 | 746.90 | 997.20  | 1434.14 |
| 40                | 419.70                                                           | 708.50 | 1153.40 | 484.00 | 605.00 | 766.00 | 1028.50 | 637.32 | 765.95 | 1022.60 | 1470.67 |

For KB sets please note the systematical classification.

# OVERVIEW – GEOMETRY DATA

## OPTIBELT DEEP GROOVED PULLEYS



**Table 21**

| Profile                                                                                |  | DIN 7753 Part 1/ISO |  | SPZ                                 | SPA                                  | SPB                                   | SPC                                    |     |
|----------------------------------------------------------------------------------------|--|---------------------|--|-------------------------------------|--------------------------------------|---------------------------------------|----------------------------------------|-----|
| Suitable for V-belts DIN 2215 and 2216                                                 |  |                     |  | 10                                  | 13                                   | 17                                    | 22                                     |     |
| b <sub>d</sub>                                                                         |  |                     |  | 8.5                                 | 11.0                                 | 14.0                                  | 19.0                                   |     |
| b <sub>1</sub> ≈                                                                       |  |                     |  | 11.0                                | 15.0                                 | 18.9                                  | 26.3                                   |     |
|                                                                                        |  |                     |  | 11.3                                | 15.4                                 | 19.5                                  | 27.3                                   |     |
| c                                                                                      |  |                     |  | 4.0                                 | 6.5                                  | 8.0                                   | 12.0                                   |     |
| e                                                                                      |  |                     |  | 14 ± 0.3                            | 18 ± 0.3                             | 23.0 ± 0.4                            | 31 ± 0.5                               |     |
| f                                                                                      |  |                     |  | 8 ± 0.6                             | 10 ± 0.6                             | 12.5 ± 0.8                            | 17 ± 1.0                               |     |
| t <sub>min</sub>                                                                       |  |                     |  | 13                                  | 18                                   | 22.5                                  | 31.5                                   |     |
| α                                                                                      |  |                     |  | 34° ± 1°<br>d <sub>d</sub> 63 to 80 | 34° ± 1°<br>d <sub>d</sub> 90 to 118 | 34° ± 1°<br>d <sub>d</sub> 140 to 190 | 34° ± 30′<br>d <sub>d</sub> 224 to 315 |     |
|                                                                                        |  |                     |  | 38° ± 1°<br>d <sub>d</sub> > 80     | 38° ± 1°<br>d <sub>d</sub> >118      | 38° ± 1°<br>d <sub>d</sub> > 190      | 38° ± 30′<br>d <sub>d</sub> > 315      |     |
| α                                                                                      |  |                     |  | 34° ± 1°<br>d <sub>d</sub> 50 to 80 | 34° ± 1°<br>d <sub>d</sub> 71 to 118 | 34° ± 1°<br>d <sub>d</sub> 112 to 190 | 34° ± 30′<br>d <sub>d</sub> 180 to 315 |     |
|                                                                                        |  |                     |  | 38° ± 1°<br>d <sub>d</sub> > 80     | 38° ± 1°<br>d <sub>d</sub> >118      | 38° ± 1°<br>d <sub>d</sub> > 190      | 38° ± 30′<br>d <sub>d</sub> > 315      |     |
| Face width b <sub>2</sub> for number of grooves z:<br>b <sub>2</sub> = (z – 1) e + 2 f |  |                     |  | 1                                   | 16                                   | 20                                    | 25                                     | 34  |
|                                                                                        |  |                     |  | 2                                   | 30                                   | 38                                    | 48                                     | 65  |
|                                                                                        |  |                     |  | 3                                   | 44                                   | 56                                    | 71                                     | 96  |
|                                                                                        |  |                     |  | 4                                   | 58                                   | 74                                    | 94                                     | 127 |
|                                                                                        |  |                     |  | 5                                   | 72                                   | 92                                    | 117                                    | 158 |
|                                                                                        |  |                     |  | 6                                   | 86                                   | 110                                   | 140                                    | 189 |
|                                                                                        |  |                     |  | 7                                   | 100                                  | 128                                   | 163                                    | 220 |
|                                                                                        |  |                     |  | 8                                   | 114                                  | 146                                   | 186                                    | 251 |
|                                                                                        |  |                     |  | 9                                   | 128                                  | 164                                   | 209                                    | 282 |
|                                                                                        |  |                     |  | 10                                  | 142                                  | 182                                   | 232                                    | 313 |
|                                                                                        |  |                     |  | 11                                  | 160                                  | 200                                   | 255                                    | 344 |
|                                                                                        |  |                     |  | 12                                  | 174                                  | 218                                   | 278                                    | 375 |

Please note the respective minimum pulley diameters.

**Attention:** Kraftbands are **not** suitable for deep grooved pulleys.

# STANDARD RANGE

## optibelt **KS** V-GROOVED PULLEYS FOR TAPER BUSHES – GROOVE ACCORDING TO DIN 2211



| Profile SPZ/Z/10                                        |                      |        |    |                                    |            |                                 |                      |        |   |                                    |            |
|---------------------------------------------------------|----------------------|--------|----|------------------------------------|------------|---------------------------------|----------------------|--------|---|------------------------------------|------------|
| Datum diameter<br>$d_d$<br>[mm]                         | Number<br>of grooves | Design |    | Weight<br>without bushes<br>[≈ kg] | Taper bush | Datum diameter<br>$d_d$<br>[mm] | Number<br>of grooves | Design |   | Weight<br>without bushes<br>[≈ kg] | Taper bush |
| 50▲◆                                                    | 1                    | ●      | 11 | 0.3                                | 1008       | 106                             | 1                    | ●      | 8 | 0.9                                | 1610       |
|                                                         | 2                    | ●      | 11 | 0.4                                | 1008       |                                 | 2                    | ●      | 6 | 1.1                                | 1610       |
| 56▲◆                                                    | 1                    | ●      | 11 | 0.4                                | 1008       |                                 | 3                    | ●      | 6 | 1.3                                | 1610       |
|                                                         | 2                    | ●      | 11 | 0.5                                | 1108       |                                 | 4                    | ●      | 6 | 1.3                                | 1610       |
| 60▲◆■                                                   | 1                    | ●      | 8  | 0.2                                | 1008       |                                 | 5                    | ●      | 6 | 1.5                                | 2012       |
|                                                         | 2                    | ●      | 11 | 0.6                                | 1108       |                                 | 6*                   | ●      | 6 | 1.6                                | 2012       |
| 63                                                      | 1                    | ●      | 8  | 0.2                                | 1108       | 112                             | 1                    | ●      | 8 | 1.0                                | 1610       |
|                                                         | 2                    | ●      | 6  | 0.3                                | 1108       |                                 | 2                    | ●      | 6 | 1.3                                | 1610       |
|                                                         | 3                    | ●      | 6  | 0.4                                | 1108       |                                 | 3                    | ●      | 6 | 1.3                                | 2012       |
| 67                                                      | 1                    | ●      | 8  | 0.3                                | 1108       |                                 | 4                    | ●      | 6 | 1.5                                | 2012       |
|                                                         | 2                    | ●      | 6  | 0.4                                | 1108       |                                 | 5                    | ●      | 6 | 1.8                                | 2012       |
|                                                         | 3                    | ●      | 6  | 0.5                                | 1108       |                                 | 6*                   | ●      | 6 | 1.9                                | 2012       |
| 71                                                      | 1                    | ●      | 8  | 0.3                                | 1108       | 118                             | 1                    | ●      | 8 | 0.9                                | 1610       |
|                                                         | 2                    | ●      | 6  | 0.4                                | 1108       |                                 | 2                    | ●      | 6 | 1.3                                | 1610       |
|                                                         | 3                    | ●      | 6  | 0.6                                | 1108       |                                 | 3                    | ●      | 6 | 1.6                                | 2012       |
| 75                                                      | 1                    | ●      | 8  | 0.4                                | 1108       |                                 | 4                    | ●      | 6 | 1.8                                | 2012       |
|                                                         | 2                    | ●      | 6  | 0.4                                | 1210       |                                 | 5                    | ●      | 6 | 1.8                                | 2012       |
|                                                         | 3                    | ●      | 6  | 0.5                                | 1210       |                                 | 6*                   | ●      | 6 | 2.0                                | 2517       |
| 80                                                      | 1                    | ●      | 8  | 0.5                                | 1210       | 125                             | 1                    | ●      | 8 | 1.0                                | 1610       |
|                                                         | 2                    | ●      | 6  | 0.6                                | 1210       |                                 | 2                    | ●      | 6 | 1.4                                | 1610       |
|                                                         | 3                    | ●      | 6  | 0.7                                | 1210       |                                 | 3                    | ●      | 2 | 1.8                                | 2012       |
|                                                         | 4                    | ●      | 6  | 0.8                                | 1210       |                                 | 4                    | ●      | 2 | 2.2                                | 2012       |
| 85                                                      | 1                    | ●      | 8  | 0.6                                | 1210       |                                 | 5                    | ●      | 6 | 2.3                                | 2012       |
|                                                         | 2                    | ●      | 6  | 0.5                                | 1610       |                                 | 6*                   | ●      | 6 | 2.5                                | 2517       |
|                                                         | 3                    | ●      | 6  | 0.6                                | 1610       | 132                             | 1                    | ●      | 8 | 1.1                                | 1610       |
|                                                         | 4                    | ●      | 6  | 0.9                                | 1610       |                                 | 2                    | ●      | 6 | 1.5                                | 1610       |
|                                                         | 5                    | ●      | 6  | 1.0                                | 1610       |                                 | 3                    | ●      | 2 | 2.3                                | 2012       |
| 90                                                      | 1                    | ●      | 8  | 0.7                                | 1210       |                                 | 4                    | ●      | 2 | 2.5                                | 2012       |
|                                                         | 2                    | ●      | 6  | 0.7                                | 1610       |                                 | 5                    | ●      | 6 | 2.7                                | 2517       |
|                                                         | 3                    | ●      | 6  | 0.8                                | 1610       |                                 | 6*                   | ●      | 6 | 2.9                                | 2517       |
|                                                         | 4                    | ●      | 6  | 1.0                                | 1610       | 140                             | 1                    | ●      | 8 | 1.2                                | 1610       |
|                                                         | 5                    | ●      | 6  | 1.2                                | 1610       |                                 | 2                    | ●      | 2 | 1.7                                | 1610       |
| 95                                                      | 1                    | ●      | 8  | 0.7                                | 1210       |                                 | 3                    | ●      | 2 | 2.6                                | 2012       |
|                                                         | 2                    | ●      | 6  | 0.8                                | 1610       |                                 | 4                    | ●      | 2 | 2.9                                | 2012       |
|                                                         | 3                    | ●      | 6  | 0.9                                | 1610       |                                 | 5                    | ●      | 2 | 3.2                                | 2517       |
|                                                         | 4                    | ●      | 6  | 1.1                                | 1610       |                                 | 6*                   | ●      | 2 | 3.5                                | 2517       |
|                                                         | 5                    | ●      | 6  | 1.3                                | 1610       |                                 | 8*                   | ●      | 4 | 4.0                                | 2517       |
| 100                                                     | 1                    | ●      | 8  | 0.8                                | 1210       | 150                             | 1                    | ●      | 8 | 1.2                                | 1610       |
|                                                         | 2                    | ●      | 6  | 0.9                                | 1610       |                                 | 2                    | ●      | 8 | 2.0                                | 2012       |
|                                                         | 3                    | ●      | 6  | 1.1                                | 1610       |                                 | 3                    | ●      | 2 | 3.1                                | 2012       |
|                                                         | 4                    | ●      | 6  | 1.1                                | 1610       |                                 | 4                    | ●      | 2 | 3.7                                | 2517       |
|                                                         | 5                    | ●      | 6  | 1.3                                | 2012       |                                 | 5                    | ●      | 2 | 4.0                                | 2517       |
|                                                         | 6*                   | ●      | 6  | 1.4                                | 2012       |                                 | 6*                   | ●      | 2 | 4.4                                | 2517       |
| ▲ for profile 10 ◆ for profile ZX/X10 ■ for profile XPZ |                      |        |    |                                    |            |                                 |                      |        |   |                                    |            |

|                                 |       |       |       |       |       |       |     |
|---------------------------------|-------|-------|-------|-------|-------|-------|-----|
| Number of grooves z             | 1     | 2     | 3     | 4     | 5     | 6     | 8   |
| Face width $b_2$ [mm]           | 16    | 28    | 40    | 52    | 64    | 76    | 100 |
| Taper bush                      | 1008  | 1108  | 1210  | 1610  | 2012  | 2517  |     |
| Bore $d_2$ [mm] from ... to ... | 10-25 | 10-28 | 11-32 | 14-42 | 14-50 | 16-60 |     |

● Solid pulley  
 ○ Plate pulley (with or without holes)  
 × Spoked pulley  
 Material: EN-GJL-200 (GG 20)  
 DIN EN 1561  
 \* Non stock items

Bore diameter  $d_2$  see page 70

# STANDARD RANGE

## optibelt **KS** V-GROOVED PULLEYS FOR TAPER BUSHES – GROOVE ACCORDING TO DIN 2211



| Profile SPZ/Z/10                |                      |        |    |                                    |            |                                 |                      |        |    |                                    |            |
|---------------------------------|----------------------|--------|----|------------------------------------|------------|---------------------------------|----------------------|--------|----|------------------------------------|------------|
| Datum diameter<br>$d_d$<br>[mm] | Number<br>of grooves | Design |    | Weight<br>without bushes<br>[≈ kg] | Taper bush | Datum diameter<br>$d_d$<br>[mm] | Number<br>of grooves | Design |    | Weight<br>without bushes<br>[≈ kg] | Taper bush |
| 160                             | 1                    | ●      | 8  | 1.3                                | 1610       | 280                             | 1                    | x      | 7  | 2.9                                | 2012       |
|                                 | 2                    | ●      | 8  | 2.5                                | 2012       |                                 | 2                    | x      | 7  | 4.0                                | 2012       |
|                                 | 3                    | ●      | 2  | 3.6                                | 2012       |                                 | 3                    | x      | 7  | 5.3                                | 2517       |
|                                 | 4                    | ●      | 2  | 4.4                                | 2517       |                                 | 4                    | x      | 10 | 6.4                                | 2517       |
|                                 | 5                    | ●      | 2  | 4.8                                | 2517       |                                 | 5                    | x      | 10 | 7.1                                | 2517       |
|                                 | 6*                   | ●      | 2  | 5.2                                | 2517       |                                 | 6*                   | x      | 10 | 7.8                                | 2517       |
|                                 | 8*                   | ●      | 4  | 5.6                                | 2517       |                                 | 8*                   | x      | 10 | 10.8                               | 3020       |
| 170                             | 1                    | ●      | 8  | 1.5                                | 1610       | 315                             | 1                    | x      | 7  | 3.1                                | 2012       |
|                                 | 2                    | ●      | 8  | 2.5                                | 2012       |                                 | 2                    | x      | 7  | 4.2                                | 2012       |
|                                 | 3                    | ○      | 9  | 4.2                                | 2012       |                                 | 3                    | x      | 7  | 6.1                                | 2517       |
|                                 | 4                    | ●      | 2  | 5.3                                | 2517       |                                 | 4                    | x      | 10 | 7.6                                | 2517       |
|                                 | 5                    | ●      | 2  | 5.9                                | 2517       |                                 | 5                    | x      | 10 | 8.6                                | 2517       |
|                                 | 6*                   | ●      | 2  | 6.5                                | 2517       |                                 | 6*                   | x      | 10 | 9.3                                | 2517       |
| 180                             | 1                    | x      | 8  | 1.6                                | 1610       | 355                             | 1                    | x      | 7  | 3.5                                | 2012       |
|                                 | 2                    | ○      | 8  | 2.5                                | 2012       |                                 | 2                    | x      | 7  | 5.1                                | 2012       |
|                                 | 3                    | ○      | 9  | 4.8                                | 2012       |                                 | 3                    | x      | 7  | 7.3                                | 2517       |
|                                 | 4                    | ●      | 9  | 6.1                                | 2517       |                                 | 4                    | x      | 10 | 8.9                                | 2517       |
|                                 | 5                    | ●      | 9  | 6.3                                | 2517       |                                 | 5                    | x      | 10 | 10.0                               | 2517       |
|                                 | 6*                   | ●      | 9  | 6.8                                | 2517       |                                 | 6*                   | x      | 10 | 10.7                               | 2517       |
|                                 | 8*                   | ●      | 4  | 7.1                                | 3020       |                                 | 8*                   | x      | 10 | 16.0                               | 3030       |
| 190                             | 1                    | x      | 8  | 1.8                                | 1610       | 400                             | 1                    | x      | 7  | 6.0                                | 2012       |
|                                 | 2                    | ○      | 8  | 2.6                                | 2012       |                                 | 2                    | x      | 7  | 6.3                                | 2517       |
|                                 | 3                    | ○      | 9  | 4.9                                | 2012       |                                 | 3                    | x      | 7  | 8.0                                | 2517       |
|                                 | 4                    | ○      | 9  | 5.3                                | 2517       |                                 | 4                    | x      | 10 | 10.1                               | 2517       |
|                                 | 5                    | ○      | 9  | 6.3                                | 2517       |                                 | 5                    | x      | 10 | 11.7                               | 3020       |
|                                 | 6*                   | ○      | 9  | 6.9                                | 2517       |                                 | 6*                   | x      | 10 | 14.5                               | 3030       |
|                                 |                      |        |    |                                    |            |                                 | 8*                   | x      | 10 | 18.2                               | 3030       |
| 200                             | 1                    | x      | 7  | 2.3                                | 2012       | 450                             | 1*                   | x      | 7  | 6.1                                | 2517       |
|                                 | 2                    | x      | 7  | 2.8                                | 2012       |                                 | 2*                   | x      | 7  | 8.2                                | 2517       |
|                                 | 3                    | x      | 10 | 3.5                                | 2517       |                                 | 3*                   | x      | 7  | 9.8                                | 2517       |
|                                 | 4                    | ○      | 9  | 4.7                                | 2517       |                                 | 4*                   | x      | 10 | 11.8                               | 3020       |
|                                 | 5                    | ○      | 9  | 5.5                                | 2517       |                                 | 5*                   | x      | 10 | 13.9                               | 3020       |
|                                 | 6*                   | ○      | 9  | 6.1                                | 2517       |                                 | 6*                   | x      | 10 | 16.9                               | 3030       |
|                                 | 8*                   | ●      | 4  | 9.3                                | 3020       |                                 | 8*                   | x      | 10 | 24.0                               | 3535       |
| 224                             | 1                    | x      | 7  | 2.5                                | 2012       | 500                             | 2*                   | x      | 7  | 9.1                                | 2517       |
|                                 | 2                    | x      | 7  | 3.2                                | 2012       |                                 | 3*                   | x      | 7  | 11.4                               | 2517       |
|                                 | 3                    | x      | 10 | 3.9                                | 2012       |                                 | 4*                   | x      | 10 | 14.3                               | 3020       |
|                                 | 4                    | x      | 10 | 5.2                                | 2517       |                                 | 5*                   | x      | 7  | 17.6                               | 3030       |
|                                 | 5                    | x      | 10 | 6.0                                | 2517       |                                 | 6*                   | x      | 10 | 19.9                               | 3030       |
|                                 | 6*                   | x      | 10 | 6.6                                | 2517       |                                 |                      |        |    |                                    |            |
|                                 | 8*                   | ●      | 10 | 11.8                               | 3020       | 630                             | 3*                   | x      | 7  | 15.9                               | 3020       |
| 250                             | 1                    | x      | 7  | 2.8                                | 2012       |                                 | 4*                   | x      | 7  | 20.0                               | 3030       |
|                                 | 2                    | x      | 7  | 3.5                                | 2012       |                                 | 5*                   | x      | 7  | 22.7                               | 3030       |
|                                 | 3                    | x      | 10 | 4.3                                | 2012       |                                 | 6*                   | x      | 7  | 33.6                               | 3535       |
|                                 | 4                    | x      | 10 | 5.7                                | 2517       |                                 |                      |        |    |                                    |            |
|                                 | 5                    | x      | 10 | 6.4                                | 2517       |                                 |                      |        |    |                                    |            |
|                                 | 6                    | x      | 10 | 7.0                                | 2517       |                                 |                      |        |    |                                    |            |
|                                 | 8*                   | x      | 10 | 10.5                               | 3020       |                                 |                      |        |    |                                    |            |

|                                 |       |       |       |       |       |       |     |
|---------------------------------|-------|-------|-------|-------|-------|-------|-----|
| Number of grooves z             | 1     | 2     | 3     | 4     | 5     | 6     | 8   |
| Face width $b_2$ [mm]           | 16    | 28    | 40    | 52    | 64    | 76    | 100 |
| Taper bush                      | 1610  | 2012  | 2517  | 3020  | 3030  | 3535  |     |
| Bore $d_2$ [mm] from ... to ... | 14-42 | 14-50 | 16-60 | 25-75 | 35-75 | 35-90 |     |

● Solid pulley  
 ○ Plate pulley (with or without holes)  
 × Spoked pulley  
 Material: EN-GJL-200 (GG 20)  
 DIN EN 1561  
 \* Non stock items

Bore diameter  $d_2$  see page 70

# STANDARD RANGE

## optibelt **KS** V-GROOVED PULLEYS FOR TAPER BUSHES – GROOVE ACCORDING TO DIN 2211



| Profile SPA/A/13                                        |                      |        |   |                                    |            |                                          |                      |        |     |                                    |            |
|---------------------------------------------------------|----------------------|--------|---|------------------------------------|------------|------------------------------------------|----------------------|--------|-----|------------------------------------|------------|
| Datum diameter<br>d <sub>d</sub><br>[mm]                | Number<br>of grooves | Design |   | Weight<br>without bushes<br>[≈ kg] | Taper bush | Datum diameter<br>d <sub>d</sub><br>[mm] | Number<br>of grooves | Design |     | Weight<br>without bushes<br>[≈ kg] | Taper bush |
| 63♦                                                     | 1                    | ●      | 8 | 0.6                                | 1008       | 118                                      | 1                    | ●      | 8   | 1.2                                | 1610       |
|                                                         | 2                    | ●      | 6 | 0.8                                | 1008       |                                          | 2                    | ●      | 6   | 1.4                                | 1610       |
| 67♦                                                     | 1                    | ●      | 8 | 0.3                                | 1108       |                                          | 3                    | ●      | 2   | 1.8                                | 2012       |
|                                                         | 2                    | ●      | 6 | 0.5                                | 1108       |                                          | 4                    | ●      | 2   | 2.0                                | 2012       |
| 71▲♦■                                                   | 1                    | ●      | 8 | 0.3                                | 1108       |                                          | 5                    | ●      | 2   | 2.4                                | 2012       |
|                                                         | 2                    | ●      | 6 | 0.5                                | 1108       | 125                                      | 1                    | ●      | 8   | 1.4                                | 1610       |
|                                                         | 3                    | ●      | 6 | 0.7                                | 1108       |                                          | 2                    | ●      | 6   | 1.7                                | 1610       |
| 75▲♦■                                                   | 1                    | ●      | 8 | 0.4                                | 1108       |                                          | 3                    | ●      | 2   | 2.0                                | 2012       |
|                                                         | 2                    | ●      | 6 | 0.6                                | 1108       |                                          | 4                    | ●      | 2   | 2.5                                | 2012       |
|                                                         | 3                    | ●      | 6 | 0.8                                | 1108       | 5                                        | ●                    | 4      | 2.7 | 2012                               |            |
| 80▲♦■                                                   | 1                    | ●      | 8 | 0.5                                | 1210       | 132                                      | 1                    | ●      | 8   | 1.6                                | 1610       |
|                                                         | 2                    | ●      | 6 | 0.6                                | 1210       |                                          | 2                    | ●      | 2   | 1.8                                | 2012       |
|                                                         | 3                    | ●      | 6 | 0.9                                | 1210       |                                          | 3                    | ●      | 2   | 2.3                                | 2012       |
|                                                         | 85▲♦■                | 1      | ● | 8                                  | 0.6        |                                          | 1210                 | 4      | ●   | 2                                  | 2.6        |
| 2                                                       |                      | ●      | 6 | 0.7                                | 1210       |                                          | 5                    | ●      | 4   | 2.9                                | 2517       |
| 3                                                       |                      | ●      | 6 | 1.0                                | 1210       | 140                                      | 1                    | ●      | 8   | 1.8                                | 1610       |
| 90                                                      | 1                    | ●      | 8 | 0.7                                | 1210       |                                          | 2                    | ●      | 6   | 2.0                                | 2012       |
|                                                         | 2                    | ●      | 6 | 0.7                                | 1610       |                                          | 3                    | ●      | 6   | 2.8                                | 2517       |
|                                                         | 3                    | ●      | 6 | 1.0                                | 1610       |                                          | 4                    | ●      | 2   | 3.1                                | 2517       |
|                                                         | 4                    | ●      | 6 | 1.2                                | 1615       |                                          | 5                    | ●      | 4   | 3.4                                | 2517       |
| 95                                                      | 1                    | ●      | 8 | 0.8                                | 1210       | 150                                      | 1                    | ●      | 8   | 1.4                                | 1610       |
|                                                         | 2                    | ●      | 6 | 0.9                                | 1610       |                                          | 2                    | ●      | 6   | 2.4                                | 2012       |
|                                                         | 3                    | ●      | 6 | 1.1                                | 1610       |                                          | 3                    | ●      | 6   | 3.5                                | 2517       |
|                                                         | 4                    | ●      | 6 | 1.4                                | 1615       |                                          | 4                    | ●      | 2   | 3.8                                | 2517       |
|                                                         | 5                    | ●      | 4 | 4.2                                | 2517       |                                          |                      |        |     |                                    |            |
| 100                                                     | 1                    | ●      | 8 | 0.8                                | 1610       | 160                                      | 1                    | ●      | 8   | 1.9                                | 1610       |
|                                                         | 2                    | ●      | 6 | 0.9                                | 1610       |                                          | 2                    | ●      | 6   | 2.9                                | 2012       |
|                                                         | 3                    | ●      | 2 | 1.2                                | 1610       |                                          | 3                    | ●      | 6   | 3.9                                | 2517       |
|                                                         | 4                    | ●      | 2 | 1.7                                | 1610       |                                          | 4                    | ●      | 2   | 4.4                                | 2517       |
|                                                         | 5                    | ●      | 2 | 1.9                                | 1615       |                                          | 5                    | ●      | 4   | 5.1                                | 2517       |
| 106                                                     | 1                    | ●      | 8 | 0.9                                | 1610       | 170                                      | 1                    | ●      | 8   | 2.0                                | 1610       |
|                                                         | 2                    | ●      | 6 | 1.1                                | 1610       |                                          | 2                    | ●      | 6   | 3.1                                | 2012       |
|                                                         | 3                    | ●      | 2 | 1.4                                | 1610       |                                          | 3                    | ●      | 6   | 4.6                                | 2517       |
|                                                         | 4                    | ●      | 6 | 2.0                                | 2012       |                                          | 4                    | ●      | 2   | 5.5                                | 2517       |
|                                                         | 5                    | ●      | 6 | 2.0                                | 2012       |                                          | 5                    | ●      | 4   | 5.9                                | 2517       |
| 112                                                     | 1                    | ●      | 8 | 1.0                                | 1610       | 180                                      | 1                    | x      | 7   | 2.1                                | 1610       |
|                                                         | 2                    | ●      | 6 | 1.2                                | 1610       |                                          | 2                    | ○      | 9   | 3.4                                | 2012       |
|                                                         | 3                    | ●      | 6 | 1.3                                | 2012       |                                          | 3                    | ●      | 6   | 5.1                                | 2517       |
|                                                         | 4                    | ●      | 6 | 1.9                                | 2012       |                                          | 4                    | ●      | 2   | 5.9                                | 2517       |
|                                                         | 5                    | ●      | 6 | 2.1                                | 2012       |                                          | 5                    | ●      | 4   | 6.2                                | 3020       |
|                                                         |                      |        |   |                                    |            | 190                                      | 1                    | x      | 7   | 2.3                                | 1610       |
|                                                         |                      |        |   |                                    |            |                                          | 2                    | ○      | 9   | 3.8                                | 2012       |
|                                                         |                      |        |   |                                    |            |                                          | 3                    | ●      | 6   | 5.4                                | 2517       |
|                                                         |                      |        |   |                                    |            |                                          | 4                    | ●      | 2   | 6.8                                | 2517       |
|                                                         |                      |        |   |                                    |            |                                          | 5                    | ●      | 2   | 7.4                                | 3020       |
| ▲ for profile 13 ♦ for profile AX/X13 ■ for profile XPA |                      |        |   |                                    |            |                                          |                      |        |     |                                    |            |

▲ for profile 13 ♦ for profile AX/X13 ■ for profile XPA

|                                          |       |       |       |       |       |       |       |
|------------------------------------------|-------|-------|-------|-------|-------|-------|-------|
| Number of grooves z                      | 1     | 2     | 3     | 4     | 5     |       |       |
| Face width b <sub>2</sub> [mm]           | 20    | 35    | 50    | 65    | 80    |       |       |
| Taper bush                               | 1108  | 1210  | 1610  | 1615  | 2012  | 2517  | 3020  |
| Bore d <sub>2</sub> [mm] from ... to ... | 10-28 | 11-32 | 14-42 | 14-42 | 14-50 | 16-60 | 25-75 |

● Solid pulley  
○ Plate pulley (with or without holes)  
x Spoked pulley  
Material: EN-GJL-200 (GG 20)  
DIN EN 1561

Bore diameter  $d_2$  see page 70

# STANDARD RANGE

## optibelt **KS** V-GROOVED PULLEYS FOR TAPER BUSHES – GROOVE ACCORDING TO DIN 2211



| Profile SPA/A/13          |                   |        |    |                              |            |                           |                   |        |    |                              |            |
|---------------------------|-------------------|--------|----|------------------------------|------------|---------------------------|-------------------|--------|----|------------------------------|------------|
| Datum diameter $d_d$ [mm] | Number of grooves | Design |    | Weight without bushes [≈ kg] | Taper bush | Datum diameter $d_d$ [mm] | Number of grooves | Design |    | Weight without bushes [≈ kg] | Taper bush |
| 200                       | 1                 | x      | 7  | 2.6                          | 2012       | 450                       | 1*                | x      | 7  | 7.0                          | 2012       |
|                           | 2                 | ○      | 5  | 4.1                          | 2517       |                           | 2                 | x      | 7  | 10.3                         | 2517       |
|                           | 3                 | ○      | 9  | 4.9                          | 2517       |                           | 3                 | x      | 7  | 14.1                         | 3020       |
|                           | 4                 | ●      | 2  | 7.4                          | 3020       |                           | 4                 | x      | 10 | 15.5                         | 3020       |
|                           | 5                 | ●      | 4  | 8.4                          | 3020       |                           | 5                 | x      | 7  | 24.3                         | 3535       |
| 212                       | 1                 | x      | 7  | 2.7                          | 2012       | 500                       | 1*                | x      | 7  | 8.0                          | 2517       |
|                           | 2                 | x      | 7  | 4.3                          | 2517       |                           | 2                 | x      | 7  | 11.6                         | 2517       |
|                           | 3                 | x      | 10 | 5.2                          | 2517       |                           | 3                 | x      | 7  | 16.0                         | 3020       |
|                           | 4                 | ●      | 2  | 7.3                          | 3020       |                           | 4                 | x      | 10 | 18.2                         | 3020       |
|                           | 5                 | ●      | 2  | 8.2                          | 3020       |                           | 5                 | x      | 7  | 27.3                         | 3535       |
| 224                       | 1                 | x      | 7  | 2.7                          | 2012       | 560                       | 1*                | x      | 7  | 11.6                         | 2517       |
|                           | 2                 | x      | 7  | 4.4                          | 2517       |                           | 2                 | x      | 7  | 15.5                         | 3020       |
|                           | 3                 | x      | 10 | 5.5                          | 2517       |                           | 3                 | x      | 7  | 17.8                         | 3020       |
|                           | 4                 | ●      | 2  | 7.4                          | 3020       |                           | 4                 | x      | 7  | 26.7                         | 3535       |
|                           | 5                 | ●      | 2  | 8.3                          | 3020       |                           | 5                 | x      | 7  | 30.4                         | 3535       |
| 236                       | 1                 | x      | 7  | 2.8                          | 2012       | 630                       | 1*                | x      | 7  | 10.1                         | 2517       |
|                           | 2                 | x      | 7  | 4.6                          | 2517       |                           | 2                 | x      | 7  | 16.0                         | 3020       |
|                           | 3                 | x      | 10 | 5.7                          | 2517       |                           | 3                 | x      | 7  | 22.0                         | 3020       |
|                           | 4                 | ●      | 9  | 7.8                          | 3020       |                           | 4                 | x      | 7  | 30.8                         | 3535       |
|                           | 5                 | ●      | 9  | 8.7                          | 3020       |                           | 5                 | x      | 7  | 33.7                         | 3535       |
| 250                       | 1                 | x      | 7  | 2.9                          | 2012       |                           |                   |        |    |                              |            |
|                           | 2                 | x      | 7  | 4.8                          | 2517       |                           |                   |        |    |                              |            |
|                           | 3                 | x      | 10 | 5.9                          | 2517       |                           |                   |        |    |                              |            |
|                           | 4                 | x      | 10 | 8.0                          | 3020       |                           |                   |        |    |                              |            |
|                           | 5                 | ○      | 9  | 9.0                          | 3020       |                           |                   |        |    |                              |            |
| 280                       | 1                 | x      | 7  | 3.3                          | 2012       |                           |                   |        |    |                              |            |
|                           | 2                 | x      | 7  | 5.4                          | 2517       |                           |                   |        |    |                              |            |
|                           | 3                 | x      | 10 | 6.7                          | 2517       |                           |                   |        |    |                              |            |
|                           | 4                 | x      | 10 | 8.8                          | 3020       |                           |                   |        |    |                              |            |
|                           | 5                 | x      | 7  | 15.5                         | 3535       |                           |                   |        |    |                              |            |
| 315                       | 1                 | x      | 7  | 3.6                          | 2012       |                           |                   |        |    |                              |            |
|                           | 2                 | x      | 7  | 6.0                          | 2517       |                           |                   |        |    |                              |            |
|                           | 3                 | x      | 7  | 8.3                          | 3020       |                           |                   |        |    |                              |            |
|                           | 4                 | x      | 10 | 9.7                          | 3020       |                           |                   |        |    |                              |            |
|                           | 5                 | x      | 7  | 17.0                         | 3535       |                           |                   |        |    |                              |            |
| 355                       | 1                 | x      | 7  | 4.2                          | 2012       |                           |                   |        |    |                              |            |
|                           | 2                 | x      | 7  | 6.7                          | 2517       |                           |                   |        |    |                              |            |
|                           | 3                 | x      | 7  | 9.2                          | 3020       |                           |                   |        |    |                              |            |
|                           | 4                 | x      | 10 | 11.0                         | 3020       |                           |                   |        |    |                              |            |
|                           | 5                 | x      | 7  | 18.6                         | 3535       |                           |                   |        |    |                              |            |
| 400                       | 1                 | x      | 7  | 4.9                          | 2012       |                           |                   |        |    |                              |            |
|                           | 2                 | x      | 7  | 8.1                          | 2517       |                           |                   |        |    |                              |            |
|                           | 3                 | x      | 7  | 11.0                         | 3020       |                           |                   |        |    |                              |            |
|                           | 4                 | x      | 10 | 12.8                         | 3020       |                           |                   |        |    |                              |            |
|                           | 5                 | x      | 7  | 21.0                         | 3535       |                           |                   |        |    |                              |            |

|                                 |       |       |       |       |    |
|---------------------------------|-------|-------|-------|-------|----|
| Number of grooves z             | 1     | 2     | 3     | 4     | 5  |
| Face width $b_2$ [mm]           | 20    | 35    | 50    | 65    | 80 |
| Taper bush                      | 2012  | 2517  | 3020  | 3535  |    |
| Bore $d_2$ [mm] from ... to ... | 14-50 | 16-60 | 25-75 | 35-90 |    |

● Solid pulley  
 ○ Plate pulley (with or without holes)  
 × Spoked pulley  
 Material: EN-GJL-200 (GG 20)  
 DIN EN 1561  
 \* Non stock items

Bore diameter  $d_2$  see page 70

# STANDARD RANGE

## optibelt **KS** V-GROOVED PULLEYS FOR TAPER BUSHES – GROOVE ACCORDING TO DIN 2211



| Profile SPB/B/17          |                   |        |   |                              |            |                           |                   |        |    |                              |            |
|---------------------------|-------------------|--------|---|------------------------------|------------|---------------------------|-------------------|--------|----|------------------------------|------------|
| Datum diameter $d_d$ [mm] | Number of grooves | Design |   | Weight without bushes [≈ kg] | Taper bush | Datum diameter $d_d$ [mm] | Number of grooves | Design |    | Weight without bushes [≈ kg] | Taper bush |
| 100◆                      | 1                 | ●      | 8 | 0.9                          | 1610       | 170                       | 1                 | ●      | 8  | 2.9                          | 1610       |
|                           | 2                 | ●      | 6 | 1.2                          | 1610       |                           | 2                 | ●      | 2  | 3.3                          | 2012       |
|                           | 3                 | ●      | 6 | 1.7                          | 1610       |                           | 3                 | ●      | 2  | 4.9                          | 2517       |
| 106                       | 1                 | ●      | 8 | 1.0                          | 1610       |                           | 4                 | ●      | 4  | 5.7                          | 2517       |
|                           | 2                 | ●      | 6 | 1.35                         | 1610       |                           | 5                 | ●      | 4  | 6.1                          | 3020       |
|                           | 3                 | ●      | 6 | 1.85                         | 1610       |                           | 6                 | ●      | 4  | 6.5                          | 3020       |
| 112▲◆■                    | 1                 | ●      | 8 | 1.1                          | 1610       |                           | 8                 | ●      | 4  | 8.0                          | 3030       |
|                           | 2                 | ●      | 6 | 1.5                          | 1610       | 180                       | 1                 | ●      | 9  | 4.1                          | 1610       |
|                           | 3                 | ●      | 6 | 2.0                          | 1610       |                           | 2                 | ●      | 8  | 4.5                          | 2517       |
| 118▲◆■                    | 1                 | ●      | 1 | 1.3                          | 1610       |                           | 3                 | ●      | 2  | 5.5                          | 2517       |
|                           | 2                 | ●      | 6 | 1.7                          | 1610       |                           | 4                 | ●      | 4  | 6.9                          | 2517       |
|                           | 3                 | ●      | 6 | 2.3                          | 1610       |                           | 5                 | ●      | 4  | 7.1                          | 3020       |
| 125▲◆■                    | 1                 | ●      | 8 | 1.5                          | 1610       |                           | 6                 | ●      | 4  | 7.7                          | 3020       |
|                           | 2                 | ●      | 2 | 1.9                          | 2012       |                           | 8                 | ●      | 4  | 9.5                          | 3030       |
|                           | 3                 | ●      | 2 | 2.4                          | 2012       | 190                       | 1                 | ○      | 5  | 4.6                          | 2012       |
|                           | 4                 | ●      | 4 | 3.0                          | 2012       |                           | 2                 | ●      | 8  | 5.0                          | 2517       |
|                           | 5                 | ●      | 6 | 3.5                          | 2012       |                           | 3                 | ●      | 2  | 6.3                          | 2517       |
| 132▲                      | 1                 | ●      | 8 | 1.8                          | 1610       |                           | 4                 | ●      | 4  | 7.6                          | 2517       |
|                           | 2                 | ●      | 2 | 2.2                          | 2012       |                           | 5                 | ●      | 4  | 8.1                          | 3020       |
|                           | 3                 | ●      | 2 | 2.8                          | 2012       |                           | 6                 | ●      | 4  | 9.2                          | 3020       |
|                           | 4                 | ●      | 4 | 3.4                          | 2012       |                           | 8                 | ●      | 4  | 11.2                         | 3030       |
|                           | 5                 | ●      | 6 | 3.7                          | 2517       | 200                       | 1                 | x      | 7  | 5.0                          | 2012       |
| 140                       | 1                 | ●      | 8 | 2.3                          | 1610       |                           | 2                 | ●      | 8  | 5.4                          | 2517       |
|                           | 2                 | ●      | 2 | 2.7                          | 2012       |                           | 3                 | ●      | 2  | 6.5                          | 2517       |
|                           | 3                 | ●      | 2 | 3.3                          | 2012       |                           | 4                 | ●      | 4  | 8.8                          | 3020       |
|                           | 4                 | ●      | 4 | 3.7                          | 2517       |                           | 5                 | ●      | 4  | 9.1                          | 3020       |
|                           | 5                 | ●      | 4 | 4.5                          | 2517       |                           | 6                 | ●      | 4  | 10.3                         | 3020       |
|                           | 6                 | ●      | 4 | 4.6                          | 2517       |                           | 8                 | ●      | 4  | 13.5                         | 3535       |
| 150                       | 1                 | ●      | 8 | 2.7                          | 1610       | 212                       | 1                 | x      | 7  | 4.2                          | 2012       |
|                           | 2                 | ●      | 2 | 3.1                          | 2012       |                           | 2                 | ○      | 5  | 4.9                          | 2517       |
|                           | 3                 | ●      | 2 | 3.9                          | 2517       |                           | 3                 | ○      | 9  | 6.0                          | 2517       |
|                           | 4                 | ●      | 2 | 4.4                          | 2517       |                           | 4                 | ●      | 4  | 9.8                          | 3020       |
|                           | 5                 | ●      | 4 | 5.2                          | 2517       |                           | 5                 | ●      | 4  | 11.0                         | 3020       |
|                           | 6                 | ●      | 4 | 5.6                          | 2517       |                           | 6                 | ●      | 4  | 14.3                         | 3535       |
| 160                       | 1                 | ●      | 8 | 2.8                          | 1610       |                           | 8                 | ●      | 4  | 16.6                         | 3535       |
|                           | 2                 | ●      | 2 | 3.9                          | 2012       | 224                       | 1                 | x      | 7  | 4.7                          | 2012       |
|                           | 3                 | ●      | 2 | 4.8                          | 2517       |                           | 2                 | x      | 7  | 5.3                          | 2517       |
|                           | 4                 | ●      | 4 | 5.7                          | 2517       |                           | 3                 | x      | 10 | 6.3                          | 2517       |
|                           | 5                 | ●      | 4 | 6.5                          | 3020       |                           | 4                 | ●      | 4  | 11.3                         | 3020       |
|                           | 6                 | ●      | 4 | 8.0                          | 3020       |                           | 5                 | ●      | 4  | 12.7                         | 3020       |
|                           |                   |        |   |                              |            |                           | 6                 | ●      | 4  | 17.0                         | 3535       |
|                           |                   |        |   |                              |            |                           | 8                 | ●      | 4  | 19.3                         | 3535       |
|                           |                   |        |   |                              |            |                           | 10                | ●      | 4  | 21.8                         | 3535       |
|                           |                   |        |   |                              |            |                           |                   |        |    |                              |            |

▲ for profile 17 ◆ for profile BX/X17 ■ for profile XPB

|                                 |       |       |       |       |       |       |     |     |
|---------------------------------|-------|-------|-------|-------|-------|-------|-----|-----|
| Number of grooves z             | 1     | 2     | 3     | 4     | 5     | 6     | 8   | 10  |
| Face width $b_2$ [mm]           | 25    | 44    | 63    | 82    | 101   | 120   | 158 | 196 |
| Taper bush                      | 1610  | 2012  | 2517  | 3020  | 3030  | 3535  |     |     |
| Bore $d_2$ [mm] from ... to ... | 14-42 | 14-50 | 16-60 | 25-75 | 35-75 | 35-90 |     |     |

● Solid pulley  
○ Plate pulley (with or without holes)  
× Spoked pulley  
Material: EN-GJL-200 (GG 20)  
DIN EN 1561

Bore diameter  $d_2$  see page 70

# STANDARD RANGE

## optibelt **KS** V-GROOVED PULLEYS FOR TAPER BUSHES – GROOVE ACCORDING TO DIN 2211



| Profile SPB/B/17                |                      |        |    |                                    |            |                                 |                      |        |    |                                    |            |
|---------------------------------|----------------------|--------|----|------------------------------------|------------|---------------------------------|----------------------|--------|----|------------------------------------|------------|
| Datum diameter<br>$d_d$<br>[mm] | Number<br>of grooves | Design |    | Weight<br>without bushes<br>[≈ kg] | Taper bush | Datum diameter<br>$d_d$<br>[mm] | Number<br>of grooves | Design |    | Weight<br>without bushes<br>[≈ kg] | Taper bush |
| 236                             | 1                    | x      | 7  | 5.0                                | 2012       | 335                             | 2                    | x      | 7  | 7.8                                | 2517       |
|                                 | 2                    | x      | 7  | 5.5                                | 2517       |                                 | 3                    | x      | 10 | 10.5                               | 3020       |
|                                 | 3                    | x      | 10 | 7.0                                | 2517       |                                 | 4                    | x      | 7  | 18.3                               | 3535       |
|                                 | 4                    | ●      | 4  | 14.5                               | 3020       |                                 | 5                    | x      | 10 | 19.5                               | 3535       |
|                                 | 5                    | ●      | 4  | 16.9                               | 3535       |                                 | 6                    | x      | 10 | 22.0                               | 3535       |
|                                 | 6                    | ●      | 4  | 20.0                               | 3535       |                                 | 8                    | x      | 10 | 28.2                               | 3535       |
|                                 | 8                    | ●      | 4  | 22.3                               | 3535       |                                 | 10                   | x      | 10 | 36.0                               | 4040       |
|                                 | 10                   | ●      | 4  | 25.3                               | 3535       | 355                             | 2                    | x      | 7  | 8.7                                | 3020       |
| 250                             | 1                    | x      | 7  | 5.4                                | 2012       |                                 | 3                    | x      | 10 | 10.8                               | 3020       |
|                                 | 2                    | x      | 7  | 5.5                                | 2517       |                                 | 4                    | x      | 7  | 18.6                               | 3535       |
|                                 | 3                    | x      | 10 | 7.7                                | 3020       |                                 | 5                    | x      | 10 | 20.8                               | 3535       |
|                                 | 4                    | x      | 10 | 19.6                               | 3020       |                                 | 6                    | x      | 9  | 22.8                               | 3535       |
|                                 | 5                    | ●      | 4  | 21.7                               | 3535       |                                 | 8                    | x      | 10 | 27.0                               | 3535       |
|                                 | 6                    | ●      | 4  | 23.3                               | 3535       |                                 | 10                   | x      | 10 | 38.0                               | 4040       |
|                                 | 8                    | ●      | 4  | 27.5                               | 3535       | 375                             | 2                    | x      | 7  | 9.5                                | 3020       |
|                                 | 10                   | ●      | 4  | 29.3                               | 3535       |                                 | 3                    | x      | 10 | 11.5                               | 3020       |
| 265                             | 2                    | x      | 7  | 6.2                                | 2517       |                                 | 4                    | x      | 7  | 16.5                               | 3525       |
|                                 | 3                    | ○      | 9  | 8.0                                | 3020       |                                 | 6                    | x      | 10 | 25.0                               | 3535       |
|                                 | 4                    | ○      | 9  | 9.5                                | 3020       | 400                             | 8                    | x      | 10 | 28.0                               | 3535       |
|                                 | 6                    | ●      | 4  | 16.7                               | 3525       |                                 | 2                    | x      | 7  | 10.0                               | 3020       |
|                                 | 8                    | ●      | 4  | 24.0                               | 3525       |                                 | 3                    | x      | 7  | 18.3                               | 3535       |
| 280                             | 1                    | x      | 7  | 6.1                                | 2012       |                                 | 4                    | x      | 7  | 20.5                               | 3535       |
|                                 | 2                    | x      | 7  | 6.8                                | 2517       |                                 | 5                    | x      | 10 | 23.4                               | 3535       |
|                                 | 3                    | x      | 10 | 8.6                                | 3020       |                                 | 6                    | x      | 10 | 25.1                               | 3535       |
|                                 | 4                    | ○      | 9  | 10.1                               | 3020       |                                 | 8                    | x      | 10 | 36.5                               | 4040       |
|                                 | 5                    | ○      | 9  | 17.8                               | 3535       |                                 | 10                   | x      | 10 | 41.0                               | 4040       |
|                                 | 6                    | ○      | 9  | 19.6                               | 3535       | 425                             | 2                    | x      | 7  | 11.5                               | 3020       |
|                                 | 8                    | ○      | 9  | 26.7                               | 3535       |                                 | 3                    | x      | 7  | 18.0                               | 3535       |
|                                 | 10                   | ○      | 9  | 30.5                               | 3535       |                                 | 4                    | x      | 7  | 19.5                               | 3535       |
| 300                             | 2                    | x      | 7  | 7.3                                | 2517       |                                 | 6                    | x      | 10 | 25.1                               | 3535       |
|                                 | 3                    | x      | 10 | 9.2                                | 3020       | 450                             | 8                    | x      | 10 | 52.5                               | 4040       |
|                                 | 4                    | x      | 7  | 14.3                               | 3535       |                                 | 2                    | x      | 7  | 12.1                               | 3020       |
|                                 | 5                    | x      | 10 | 18.2                               | 3535       |                                 | 3                    | x      | 7  | 21.9                               | 3535       |
|                                 | 6                    | x      | 10 | 21.9                               | 3535       |                                 | 4                    | x      | 7  | 24.5                               | 3535       |
|                                 | 8                    | ○      | 9  | 26.2                               | 3535       |                                 | 5                    | x      | 10 | 27.3                               | 3535       |
| 315                             | 1*                   | x      | 7  | 7.2                                | 2012       |                                 | 6                    | x      | 10 | 35.5                               | 4040       |
|                                 | 2                    | x      | 7  | 7.8                                | 2517       |                                 | 8                    | x      | 10 | 40.9                               | 4040       |
|                                 | 3                    | x      | 10 | 9.6                                | 3020       | 500                             | 10                   | x      | 10 | 53.5                               | 4545       |
|                                 | 4                    | ○      | 7  | 17.1                               | 3535       |                                 | 2                    | x      | 7  | 13.2                               | 3020       |
|                                 | 5                    | ○      | 10 | 18.8                               | 3535       |                                 | 3                    | x      | 7  | 23.1                               | 3535       |
|                                 | 6                    | ○      | 10 | 23.0                               | 3535       |                                 | 4                    | x      | 7  | 26.6                               | 3535       |
|                                 | 8                    | ○      | 10 | 26.0                               | 3535       |                                 | 5                    | x      | 10 | 29.9                               | 3535       |
|                                 | 10                   | ○      | 9  | 31.5                               | 3535       |                                 | 6                    | x      | 10 | 38.9                               | 4040       |
|                                 |                      |        |    |                                    |            |                                 | 8                    | x      | 10 | 45.5                               | 4040       |
|                                 |                      |        |    |                                    |            |                                 | 10                   | x      | 10 | 61.0                               | 4545       |

|                                 |       |       |       |       |       |        |        |     |
|---------------------------------|-------|-------|-------|-------|-------|--------|--------|-----|
| Number of grooves z             | 1     | 2     | 3     | 4     | 5     | 6      | 8      | 10  |
| Face width $b_2$ [mm]           | 25    | 44    | 63    | 82    | 101   | 120    | 158    | 196 |
| Taper bush                      | 2012  | 2517  | 3020  | 3030  | 3535  | 4040   | 4545   |     |
| Bore $d_2$ [mm] from ... to ... | 14-50 | 16-60 | 25-75 | 35-75 | 35-90 | 40-100 | 55-110 |     |

● Solid pulley  
 ○ Plate pulley (with or without holes)  
 × Spoked pulley  
 Material: EN-GJL-200 (GG 20)  
 DIN EN 1561  
 \* Non stock items

Bore diameter  $d_2$  see page 70

# STANDARD RANGE

## optibelt **KS** V-GROOVED PULLEYS FOR TAPER BUSHES – GROOVE ACCORDING TO DIN 2211



| Profile SPB/B/17                         |                      |        |    |                                    |            |                                          |                      |        |  |                                    |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------------------|----------------------|--------|----|------------------------------------|------------|------------------------------------------|----------------------|--------|--|------------------------------------|------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Datum diameter<br>d <sub>d</sub><br>[mm] | Number<br>of grooves | Design |    | Weight<br>without bushes<br>[≈ kg] | Taper bush | Datum diameter<br>d <sub>d</sub><br>[mm] | Number<br>of grooves | Design |  | Weight<br>without bushes<br>[≈ kg] | Taper bush |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 560                                      | 2*                   | x      | 7  | 16.5                               | 3030       |                                          |                      |        |  |                                    |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                          | 3                    | x      | 7  | 25.9                               | 3535       |                                          |                      |        |  |                                    |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                          | 4                    | x      | 7  | 29.0                               | 3535       |                                          |                      |        |  |                                    |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                          | 5                    | x      | 7  | 35.3                               | 4040       |                                          |                      |        |  |                                    |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                          | 6                    | x      | 10 | 43.1                               | 4040       |                                          |                      |        |  |                                    |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                          | 8                    | x      | 10 | 49.0                               | 4545       |                                          |                      |        |  |                                    |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                          | 10                   | x      | 10 | 55.7                               | 4545       |                                          |                      |        |  |                                    |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 630                                      | 2*                   | x      | 7  | 18.5                               | 3030       |                                          |                      |        |  |                                    |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                          | 3                    | x      | 7  | 28.9                               | 3535       |                                          |                      |        |  |                                    |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                          | 4                    | x      | 7  | 33.3                               | 3535       |                                          |                      |        |  |                                    |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                          | 5                    | x      | 7  | 43.1                               | 4040       |                                          |                      |        |  |                                    |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                          | 6                    | x      | 10 | 49.2                               | 4040       |                                          |                      |        |  |                                    |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                          | 8                    | x      | 10 | 62.0                               | 4545       |                                          |                      |        |  |                                    |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                          | 10                   | x      | 10 | 72.0                               | 4545       |                                          |                      |        |  |                                    |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 710                                      | 3                    | x      | 7  | 33.2                               | 3535       |                                          |                      |        |  |                                    |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                          | 4                    | x      | 7  | 39.1                               | 3535       |                                          |                      |        |  |                                    |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                          | 5                    | x      | 7  | 50.2                               | 4040       |                                          |                      |        |  |                                    |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                          | 6                    | x      | 10 | 62.3                               | 4040       |                                          |                      |        |  |                                    |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                          | 8                    | x      | 10 | 71.0                               | 4545       |                                          |                      |        |  |                                    |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                          | 10                   | x      | 10 | 80.0                               | 4545       |                                          |                      |        |  |                                    |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 800                                      | 3                    | x      | 7  | 36.7                               | 3535       |                                          |                      |        |  |                                    |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                          | 4                    | x      | 7  | 48.8                               | 4040       |                                          |                      |        |  |                                    |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                          | 5                    | x      | 7  | 56.1                               | 4040       |                                          |                      |        |  |                                    |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                          | 6                    | x      | 10 | 71.4                               | 4545       |                                          |                      |        |  |                                    |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                          | 8                    | x      | 10 | 90.9                               | 4545       |                                          |                      |        |  |                                    |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                          | 10                   | x      | 10 | 102.0                              | 4545       |                                          |                      |        |  |                                    |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 900                                      | 3*                   | x      | 7  | 46.8                               | 3535       |                                          |                      |        |  |                                    |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                          | 4                    | x      | 7  | 60.0                               | 4040       |                                          |                      |        |  |                                    |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                          | 5                    | x      | 7  | 74.8                               | 4040       |                                          |                      |        |  |                                    |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                          | 6                    | x      | 10 | 81.5                               | 4545       |                                          |                      |        |  |                                    |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                          | 8                    | x      | 10 | 110.0                              | 4545       |                                          |                      |        |  |                                    |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                          | 10*                  | x      | 10 | 126.0                              | 5050       |                                          |                      |        |  |                                    |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1000                                     | 3                    | x      | 7  | 56.5                               | 4040       |                                          |                      |        |  |                                    |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                          | 4                    | x      | 7  | 66.5                               | 4040       |                                          |                      |        |  |                                    |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                          | 5                    | x      | 7  | 80.5                               | 4545       |                                          |                      |        |  |                                    |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                          | 6                    | x      | 10 | 90.0                               | 4545       |                                          |                      |        |  |                                    |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                          | 8                    | x      | 10 | 132.0                              | 5050       |                                          |                      |        |  |                                    |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                          | 10*                  | x      | 10 | 147.0                              | 5050       |                                          |                      |        |  |                                    |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1250                                     | 4*                   | x      | 7  | 136.0                              | 4545       |                                          |                      |        |  |                                    |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                          | 5*                   | x      | 7  | 146.0                              | 4545       |                                          |                      |        |  |                                    |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                          | 6*                   | x      | 10 | 150.0                              | 4545       |                                          |                      |        |  |                                    |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                          | 8*                   | x      | 10 | 190.0                              | 5050       |                                          |                      |        |  |                                    |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                          |                      |        |    |                                    |            |                                          |                      |        |  |                                    |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

|                                 |       |       |       |        |        |        |     |
|---------------------------------|-------|-------|-------|--------|--------|--------|-----|
| Number of grooves z             | 2     | 3     | 4     | 5      | 6      | 8      | 10  |
| Face width $b_2$ [mm]           | 44    | 63    | 82    | 101    | 120    | 158    | 196 |
| Taper bush                      | 3020  | 3030  | 3535  | 4040   | 4545   | 5050   |     |
| Bore $d_2$ [mm] from ... to ... | 25-75 | 35-75 | 35-90 | 40-100 | 55-110 | 70-125 |     |

- Solid pulley
- Plate pulley (with or without holes)
- × Spoked pulley
- Material: EN-GJL-200 (GG 20)
- DIN EN 1561
- \* Non stock items

Bore diameter  $d_2$  see page 70

# STANDARD RANGE

## optibelt **KS** V-GROOVED PULLEYS FOR TAPER BUSHES – GROOVE ACCORDING TO DIN 2211



| Profile SPC/C/22                |                      |        |   |                                    |            |                                 |                      |        |    |                                    |            |
|---------------------------------|----------------------|--------|---|------------------------------------|------------|---------------------------------|----------------------|--------|----|------------------------------------|------------|
| Datum diameter<br>$d_d$<br>[mm] | Number<br>of grooves | Design |   | Weight<br>without bushes<br>[≈ kg] | Taper bush | Datum diameter<br>$d_d$<br>[mm] | Number<br>of grooves | Design |    | Weight<br>without bushes<br>[≈ kg] | Taper bush |
| 200▲◆■                          | 3                    | ●      | 4 | 9.0                                | 2517       | 315                             | 3                    | ○      | 7  | 21.6                               | 3535       |
|                                 | 4                    | ●      | 4 | 10.5                               | 3020       |                                 | 4                    | ○      | 10 | 24.6                               | 3535       |
|                                 | 5                    | ●      | 4 | 14.0                               | 3535       |                                 | 5                    | ○      | 10 | 29.0                               | 3535       |
|                                 | 6                    | ●      | 4 | 17.0                               | 3535       |                                 | 6                    | ○      | 10 | 31.4                               | 3535       |
| 212▲◆■                          | 3                    | ●      | 4 | 10.0                               | 3020       |                                 | 8                    | ●      | 4  | 50.0                               | 4040       |
|                                 | 4                    | ●      | 4 | 12.5                               | 3020       |                                 | 10*                  | ○      | 4  | 58.0                               | 4545       |
|                                 | 5                    | ●      | 4 | 15.0                               | 3535       |                                 | 12                   | ○      | 4  | 69.0                               | 5050       |
|                                 | 6                    | ●      | 4 | 18.0                               | 3535       |                                 |                      |        |    |                                    |            |
| 224                             | 3                    | ●      | 4 | 11.0                               | 3020       | 335                             | 3                    | x      | 7  | 22.5                               | 3535       |
|                                 | 4                    | ●      | 4 | 14.0                               | 3535       |                                 | 4                    | x      | 10 | 26.5                               | 3535       |
|                                 | 5                    | ●      | 4 | 16.2                               | 3535       |                                 | 5                    | x      | 10 | 30.0                               | 3535       |
|                                 | 6                    | ●      | 4 | 19.0                               | 3535       |                                 | 6                    | x      | 10 | 35.0                               | 3535       |
|                                 | 8                    | ●      | 4 | 24.9                               | 3535       |                                 | 8                    | ○      | 9  | 58.0                               | 4040       |
|                                 |                      |        |   |                                    |            |                                 | 10                   | ●      | 4  | 77.0                               | 4545       |
| 236                             | 4                    | ●      | 4 | 17.2                               | 3535       |                                 | 12                   | ●      | 4  | 82.0                               | 5050       |
|                                 | 5                    | ●      | 4 | 19.1                               | 3535       | 355                             | 3                    | ○      | 7  | 28.0                               | 3535       |
|                                 | 6                    | ●      | 4 | 20.8                               | 3535       |                                 | 4                    | ○      | 10 | 31.0                               | 3535       |
|                                 | 8                    | ●      | 4 | 25.5                               | 3535       |                                 | 5                    | ○      | 10 | 34.0                               | 3535       |
| 250                             | 3                    | ●      | 4 | 14.5                               | 3020       |                                 | 6                    | ○      | 10 | 37.5                               | 3535       |
|                                 | 4                    | ●      | 4 | 20.7                               | 3535       |                                 | 8                    | ○      | 10 | 49.5                               | 4040       |
|                                 | 5                    | ●      | 4 | 22.8                               | 3535       |                                 | 10*                  | ○      | 4  | 84.0                               | 4545       |
|                                 | 6                    | ●      | 4 | 26.0                               | 3535       |                                 | 12                   | ●      | 4  | 86.0                               | 5050       |
|                                 | 8                    | ●      | 4 | 29.7                               | 3535       | 375                             | 3                    | x      | 7  | 23.8                               | 3535       |
|                                 | 10*                  | ●      | 4 | 34.0                               | 4040       |                                 | 4                    | x      | 10 | 30.0                               | 3535       |
| 265                             | 3                    | ●      | 8 | 21.2                               | 3535       |                                 | 5                    | x      | 10 | 33.0                               | 3535       |
|                                 | 4                    | ●      | 4 | 24.0                               | 3535       |                                 | 6                    | x      | 10 | 45.5                               | 4040       |
|                                 | 5                    | ●      | 4 | 26.2                               | 3535       |                                 | 8                    | x      | 10 | 68.0                               | 4545       |
|                                 | 6                    | ●      | 4 | 29.0                               | 3535       |                                 | 10                   | ○      | 10 | 88.0                               | 4545       |
|                                 | 8                    | ●      | 4 | 33.3                               | 3535       |                                 | 12                   | ●      | 4  | 92.0                               | 5050       |
| 280                             | 3                    | ●      | 8 | 24.0                               | 3535       | 400                             | 3                    | x      | 7  | 24.1                               | 3535       |
|                                 | 4                    | ○      | 9 | 29.0                               | 3535       |                                 | 4                    | x      | 10 | 28.0                               | 3535       |
|                                 | 5                    | ○      | 9 | 31.0                               | 3535       |                                 | 5                    | x      | 10 | 34.0                               | 3535       |
|                                 | 6                    | ○      | 9 | 33.8                               | 3535       |                                 | 6                    | ○      | 10 | 48.0                               | 4040       |
|                                 | 8                    | ●      | 4 | 37.5                               | 3535       |                                 | 8                    | ○      | 10 | 65.0                               | 4545       |
|                                 | 10                   | ●      | 4 | 45.0                               | 4040       |                                 | 10*                  | ○      | 9  | 88.0                               | 5050       |
| 300                             | 3                    | x      | 7 | 21.0                               | 3535       | 425                             | 12                   | ○      | 9  | 98.0                               | 5050       |
|                                 | 4                    | ○      | 9 | 25.0                               | 3535       |                                 | 3                    | x      | 7  | 26.0                               | 3535       |
|                                 | 5                    | ○      | 9 | 28.5                               | 3535       |                                 | 4                    | x      | 10 | 31.0                               | 3535       |
|                                 | 6                    | ○      | 9 | 29.0                               | 3535       |                                 | 5                    | x      | 10 | 45.0                               | 3535       |
|                                 | 8                    | ●      | 4 | 46.5                               | 4040       |                                 | 6                    | x      | 10 | 58.0                               | 4040       |
|                                 | 10*                  | ●      | 4 | 53.5                               | 4545       |                                 | 8                    | x      | 10 | 74.0                               | 4545       |
|                                 |                      |        |   |                                    |            |                                 | 10                   | ○      | 9  | 96.0                               | 5050       |
|                                 |                      |        |   |                                    |            |                                 | 12                   | ○      | 9  | 100.0                              | 5050       |

▲ for profile 22 ◆ for profile CX/X22 ■ for profile XPC

|                                 |       |       |       |        |        |        |
|---------------------------------|-------|-------|-------|--------|--------|--------|
| Number of grooves z             | 3     | 4     | 5     | 6      | 8      | 10     |
| Face width $b_2$ [mm]           | 85    | 110.5 | 136   | 161.5  | 212.5  | 263.5  |
| Taper bush                      | 2517  | 3020  | 3535  | 4040   | 4545   | 5050   |
| Bore $d_2$ [mm] from ... to ... | 16-60 | 25-75 | 35-90 | 40-100 | 55-110 | 70-125 |

● Solid pulley  
○ Plate pulley (with or without holes)  
x Spoked pulley  
Material: EN-GJL-200 (GG 20)  
DIN EN 1561  
\* Non stock items

Bore diameter  $d_2$  see page 70

# STANDARD RANGE

## optibelt **KS** V-GROOVED PULLEYS FOR TAPER BUSHES – GROOVE ACCORDING TO DIN 2211



| Profile SPC/C/22                |                      |        |    |                                    |            |                                 |                      |        |    |                                    |            |
|---------------------------------|----------------------|--------|----|------------------------------------|------------|---------------------------------|----------------------|--------|----|------------------------------------|------------|
| Datum diameter<br>$d_d$<br>[mm] | Number<br>of grooves | Design |    | Weight<br>without bushes<br>[≈ kg] | Taper bush | Datum diameter<br>$d_d$<br>[mm] | Number<br>of grooves | Design |    | Weight<br>without bushes<br>[≈ kg] | Taper bush |
| 450                             | 3                    | x      | 7  | 28.6                               | 3535       | 1000                            | 5                    | x      | 10 | 134.0                              | 5050       |
|                                 | 4                    | x      | 10 | 33.5                               | 3535       |                                 | 6                    | x      | 10 | 150.0                              | 5050       |
|                                 | 5                    | x      | 10 | 45.0                               | 4040       |                                 | 8                    | x      | 10 | 181.4                              | 5050       |
|                                 | 6                    | x      | 10 | 61.1                               | 4545       |                                 | 10                   | x      | 10 | 217.2                              | 5050       |
|                                 | 8                    | x      | 10 | 78.7                               | 5050       |                                 | 12*                  | x      | 10 | 270.0                              | 5050       |
|                                 | 10                   | x      | 10 | 101.0                              | 5050       | 1250                            | 5                    | x      | 10 | 177.6                              | 5050       |
| 475                             | 12                   | O      | 9  | 113.0                              | 5050       |                                 | 6                    | x      | 10 | 201.4                              | 5050       |
|                                 | 3                    | x      | 7  | 40.0                               | 3535       |                                 | 8                    | x      | 10 | 243.7                              | 5050       |
|                                 | 4                    | x      | 10 | 47.0                               | 3535       |                                 | 10                   | x      | 10 | 292.1                              | 5050       |
|                                 | 5                    | x      | 10 | 47.2                               | 4040       |                                 | 12                   | x      | 10 | 310.0                              | 5050       |
|                                 | 6                    | O      | 10 | 62.8                               | 4545       |                                 |                      |        |    |                                    |            |
|                                 | 8                    | O      | 9  | 81.5                               | 5050       |                                 |                      |        |    |                                    |            |
| 500                             | 3                    | x      | 7  | 30.9                               | 3535       |                                 |                      |        |    |                                    |            |
|                                 | 4                    | x      | 10 | 39.0                               | 3535       |                                 |                      |        |    |                                    |            |
|                                 | 5                    | x      | 10 | 48.7                               | 4040       |                                 |                      |        |    |                                    |            |
|                                 | 6                    | x      | 10 | 60.2                               | 4545       |                                 |                      |        |    |                                    |            |
|                                 | 8                    | x      | 10 | 87.4                               | 5050       |                                 |                      |        |    |                                    |            |
|                                 | 10                   | x      | 10 | 105.0                              | 5050       |                                 |                      |        |    |                                    |            |
| 560                             | 12                   | O      | 9  | 127.0                              | 5050       |                                 |                      |        |    |                                    |            |
|                                 | 3                    | x      | 7  | 36.0                               | 3535       |                                 |                      |        |    |                                    |            |
|                                 | 4                    | x      | 10 | 50.0                               | 4040       |                                 |                      |        |    |                                    |            |
|                                 | 5                    | x      | 10 | 63.0                               | 4545       |                                 |                      |        |    |                                    |            |
|                                 | 6                    | x      | 10 | 77.0                               | 5050       |                                 |                      |        |    |                                    |            |
|                                 | 8                    | x      | 10 | 94.0                               | 5050       |                                 |                      |        |    |                                    |            |
| 630                             | 10                   | x      | 10 | 115.0                              | 5050       |                                 |                      |        |    |                                    |            |
|                                 | 12                   | x      | 10 | 145.0                              | 5050       |                                 |                      |        |    |                                    |            |
|                                 | 3                    | x      | 7  | 48.5                               | 4040       |                                 |                      |        |    |                                    |            |
|                                 | 4                    | x      | 7  | 61.0                               | 4545       |                                 |                      |        |    |                                    |            |
|                                 | 5                    | x      | 10 | 77.0                               | 5050       |                                 |                      |        |    |                                    |            |
|                                 | 6                    | x      | 10 | 86.0                               | 5050       |                                 |                      |        |    |                                    |            |
| 710                             | 8                    | x      | 10 | 105.5                              | 5050       |                                 |                      |        |    |                                    |            |
|                                 | 10                   | x      | 9  | 130.0                              | 5050       |                                 |                      |        |    |                                    |            |
|                                 | 12                   | x      | 10 | 160.0                              | 5050       |                                 |                      |        |    |                                    |            |
|                                 | 3*                   | x      | 7  | 48.5                               | 4040       |                                 |                      |        |    |                                    |            |
|                                 | 4*                   | x      | 7  | 61.0                               | 5050       |                                 |                      |        |    |                                    |            |
|                                 | 5                    | x      | 10 | 77.0                               | 5050       |                                 |                      |        |    |                                    |            |
| 800                             | 6                    | x      | 10 | 86.0                               | 5050       |                                 |                      |        |    |                                    |            |
|                                 | 8                    | x      | 10 | 105.5                              | 5050       |                                 |                      |        |    |                                    |            |
|                                 | 10                   | x      | 10 | 130.0                              | 5050       |                                 |                      |        |    |                                    |            |
|                                 | 12                   | x      | 10 | 160.0                              | 5050       |                                 |                      |        |    |                                    |            |
|                                 | 3*                   | x      | 7  | 72.0                               | 4545       |                                 |                      |        |    |                                    |            |
|                                 | 4*                   | x      | 7  | 90.8                               | 5050       |                                 |                      |        |    |                                    |            |
|                                 | 5                    | x      | 10 | 102.5                              | 5050       |                                 |                      |        |    |                                    |            |
|                                 | 6                    | x      | 10 | 113.7                              | 5050       |                                 |                      |        |    |                                    |            |
|                                 | 8                    | x      | 10 | 136.6                              | 5050       |                                 |                      |        |    |                                    |            |
|                                 | 10                   | x      | 9  | 160.7                              | 5050       |                                 |                      |        |    |                                    |            |
|                                 | 12                   | x      | 10 | 220.0                              | 5050       |                                 |                      |        |    |                                    |            |

|                                 |       |        |        |        |       |       |
|---------------------------------|-------|--------|--------|--------|-------|-------|
| Number of grooves z             | 3     | 4      | 5      | 6      | 8     | 10    |
| Face width $b_2$ [mm]           | 85    | 110.5  | 136    | 161.5  | 212.5 | 263.5 |
| Taper bush                      | 3535  | 4040   | 4545   | 5050   |       |       |
| Bore $d_2$ [mm] from ... to ... | 35-90 | 40-100 | 55-110 | 70-125 |       |       |

- Solid pulley
- O Plate pulley (with or without holes)
- × Spoked pulley
- Material: EN-GJL-200 (GG 20)
- DIN EN 1561
- \* Non stock items

Bore diameter  $d_2$  see page 70

# STANDARD RANGE

## optibelt **KS** V-GROOVED PULLEYS FOR CYLINDRICAL BORES – GROOVE ACCORDING TO DIN 2211



| Profile SPZ/Z/10                                          |                   |        |                  |                                           |                         |                                          |                   |        |                  |                                           |                         |
|-----------------------------------------------------------|-------------------|--------|------------------|-------------------------------------------|-------------------------|------------------------------------------|-------------------|--------|------------------|-------------------------------------------|-------------------------|
| Datum diameter<br>d <sub>d</sub><br>[mm]                  | Number of grooves | Design | Weight<br>[≈ kg] | Finished bore<br>d <sub>max</sub><br>[mm] | Hub length<br>l<br>[mm] | Datum diameter<br>d <sub>d</sub><br>[mm] | Number of grooves | Design | Weight<br>[≈ kg] | Finished bore<br>d <sub>max</sub><br>[mm] | Hub length<br>l<br>[mm] |
| 45▲◆                                                      | 1                 | ○      | 0.20             | 16                                        | 24                      | 132                                      | 1                 | ○      | 0.80             | 30                                        | 24                      |
|                                                           | 2                 | ○      | 0.30             | 16                                        | 35                      |                                          | 2                 | ○      | 1.30             | 38                                        | 35                      |
|                                                           | 3                 | ○      | 0.40             | 16                                        | 35                      |                                          | 3                 | ○      | 1.60             | 40                                        | 40                      |
| 50▲◆                                                      | 1                 | ○      | 0.30             | 20                                        | 24                      | 140                                      | 1                 | ○      | 0.90             | 28                                        | 24                      |
|                                                           | 2                 | ○      | 0.40             | 20                                        | 35                      |                                          | 2                 | ○      | 1.40             | 38                                        | 38                      |
|                                                           | 3                 | ○      | 0.50             | 20                                        | 40                      |                                          | 3                 | ○      | 1.70             | 38                                        | 40                      |
| 56▲◆■                                                     | 1                 | ○      | 0.30             | 20                                        | 24                      | 150                                      | 1                 | x      | 1.10             | 28                                        | 24                      |
|                                                           | 2                 | ○      | 0.50             | 25                                        | 35                      |                                          | 2                 | ○      | 1.50             | 38                                        | 38                      |
|                                                           | 3                 | ○      | 0.70             | 25                                        | 40                      |                                          | 3                 | ○      | 1.90             | 38                                        | 40                      |
| 63                                                        | 1                 | ○      | 0.30             | 25                                        | 24                      | 160                                      | 1                 | x      | 1.20             | 32                                        | 30                      |
|                                                           | 2                 | ○      | 0.60             | 25                                        | 35                      |                                          | 2                 | x      | 1.60             | 38                                        | 38                      |
|                                                           | 3                 | ○      | 0.90             | 25                                        | 40                      |                                          | 3                 | x      | 2.40             | 42                                        | 40                      |
| 71                                                        | 1                 | ○      | 0.30             | 25                                        | 24                      | 170                                      | 1                 | x      | 1.70             | 40                                        | 30                      |
|                                                           | 2                 | ○      | 0.60             | 25                                        | 35                      |                                          | 2                 | x      | 1.90             | 40                                        | 38                      |
|                                                           | 3                 | ○      | 1.00             | 30                                        | 40                      |                                          | 3                 | x      | 3.00             | 42                                        | 40                      |
| 75                                                        | 1                 | ○      | 0.40             | 24                                        | 24                      | 180                                      | 1                 | x      | 2.10             | 32                                        | 30                      |
|                                                           | 2                 | ○      | 0.64             | 24                                        | 35                      |                                          | 2                 | x      | 3.10             | 38                                        | 38                      |
|                                                           | 3                 | ○      | 1.05             | 28                                        | 40                      |                                          | 3                 | x      | 3.50             | 42                                        | 40                      |
| 80                                                        | 1                 | ○      | 0.40             | 25                                        | 24                      | 190                                      | 1                 | x      | 2.30             | 35                                        | 30                      |
|                                                           | 2                 | ○      | 0.70             | 30                                        | 35                      |                                          | 2                 | x      | 2.40             | 35                                        | 38                      |
|                                                           | 3                 | ○      | 1.10             | 38                                        | 35                      |                                          | 3                 | x      | 4.00             | 35                                        | 40                      |
| 85                                                        | 1                 | ○      | 0.30             | 25                                        | 24                      | 200                                      | 1                 | x      | 2.40             | 32                                        | 38                      |
|                                                           | 2                 | ○      | 0.70             | 30                                        | 35                      |                                          | 2                 | x      | 2.90             | 38                                        | 38                      |
|                                                           | 3                 | ○      | 1.10             | 38                                        | 35                      |                                          | 3                 | x      | 4.50             | 42                                        | 40                      |
| 90                                                        | 1                 | ○      | 0.40             | 25                                        | 24                      | 212                                      | 1                 | x      | 2.60             | 35                                        | 30                      |
|                                                           | 2                 | ○      | 0.80             | 30                                        | 35                      |                                          | 2                 | x      | 3.40             | 35                                        | 38                      |
|                                                           | 3                 | ○      | 1.20             | 38                                        | 38                      |                                          | 3                 | x      | 5.00             | 38                                        | 40                      |
| 95                                                        | 1                 | ○      | 0.40             | 28                                        | 24                      | 225                                      | 1                 | x      | 2.80             | 32                                        | 38                      |
|                                                           | 2                 | ○      | 0.83             | 28                                        | 35                      |                                          | 2                 | x      | 4.00             | 38                                        | 38                      |
|                                                           | 3                 | ○      | 1.20             | 38                                        | 38                      |                                          | 3                 | x      | 5.30             | 42                                        | 40                      |
| 100                                                       | 1                 | ○      | 0.50             | 28                                        | 24                      | 250                                      | 1                 | x      | 3.30             | 32                                        | 38                      |
|                                                           | 2                 | ○      | 0.90             | 30                                        | 35                      |                                          | 2                 | x      | 4.80             | 38                                        | 38                      |
|                                                           | 3                 | ○      | 1.30             | 38                                        | 38                      |                                          | 3                 | x      | 6.00             | 42                                        | 40                      |
| 106                                                       | 1                 | ○      | 0.50             | 30                                        | 24                      | 280                                      | 1                 | x      | 3.90             | 35                                        | 34                      |
|                                                           | 2                 | ○      | 1.00             | 28                                        | 35                      |                                          | 2                 | x      | 5.20             | 42                                        | 38                      |
|                                                           | 3                 | ○      | 1.30             | 38                                        | 38                      |                                          | 3                 | x      | 7.00             | 48                                        | 40                      |
| 112                                                       | 1                 | ○      | 0.50             | 28                                        | 24                      | 315                                      | 1                 | x      | 4.40             | 35                                        | 34                      |
|                                                           | 2                 | ○      | 1.00             | 30                                        | 35                      |                                          | 2                 | x      | 6.80             | 42                                        | 38                      |
|                                                           | 3                 | ○      | 1.40             | 38                                        | 38                      |                                          | 3                 | x      | 8.30             | 48                                        | 40                      |
| 118                                                       | 1                 | ○      | 0.60             | 28                                        | 24                      | 355                                      | 1                 | x      | 4.60             | 35                                        | 34                      |
|                                                           | 2                 | ○      | 1.10             | 38                                        | 35                      |                                          | 2                 | x      | 8.00             | 42                                        | 40                      |
|                                                           | 3                 | ○      | 1.50             | 38                                        | 38                      |                                          | 3                 | x      | 10.00            | 48                                        | 45                      |
| 125                                                       | 1                 | ○      | 0.70             | 28                                        | 24                      |                                          |                   |        |                  |                                           |                         |
|                                                           | 2                 | ○      | 1.20             | 30                                        | 35                      |                                          |                   |        |                  |                                           |                         |
|                                                           | 3                 | ○      | 1.60             | 38                                        | 40                      |                                          |                   |        |                  |                                           |                         |
| ▲ for profile Z/10 ◆ for profile ZX/X10 ■ for profile XPZ |                   |        |                  |                                           |                         |                                          |                   |        |                  |                                           |                         |

|                       |    |    |    |
|-----------------------|----|----|----|
| Number of grooves z   | 1  | 2  | 3  |
| Face width $b_2$ [mm] | 16 | 28 | 40 |

● Solid pulley  
 ○ Plate pulley (with or without holes)  
 x Spoked pulley  
 Hub position: flush one-sided  
 Material: EN-GJL-200 (GG 20) – DIN EN 1561

# STANDARD RANGE

## optibelt **KS** V-GROOVED PULLEYS FOR CYLINDRICAL BORES – GROOVE ACCORDING TO DIN 2211



| Profile SPA/A/13                |                   |        |                  |                                    |                           |                                 |                   |        |                  |                                    |                           |
|---------------------------------|-------------------|--------|------------------|------------------------------------|---------------------------|---------------------------------|-------------------|--------|------------------|------------------------------------|---------------------------|
| Datum diameter<br>$d_d$<br>[mm] | Number of grooves | Design | Weight<br>[≈ kg] | Finished bore<br>$d_{max}$<br>[mm] | Hub length<br>$l$<br>[mm] | Datum diameter<br>$d_d$<br>[mm] | Number of grooves | Design | Weight<br>[≈ kg] | Finished bore<br>$d_{max}$<br>[mm] | Hub length<br>$l$<br>[mm] |
| 50                              | 1                 | ○      | 0.30             | 18                                 | 34                        | 106                             | 1                 | ○      | 0.90             | 28                                 | 34                        |
|                                 | 2                 | ○      | 0.50             | 18                                 | 49                        |                                 | 2                 | ○      | 1.70             | 28                                 | 49                        |
|                                 | 3                 | ○      | 0.60             | 18                                 | 47                        |                                 | 3                 | ○      | 2.20             | 32                                 | 42                        |
| 56                              | 1                 | ○      | 0.40             | 20                                 | 34                        |                                 | 4▽                | ○      | 3.20             | 32                                 | 53                        |
|                                 | 2                 | ○      | 0.60             | 20                                 | 49                        |                                 | 5▽                | ○      | 3.90             | 35                                 | 60                        |
|                                 | 3                 | ○      | 0.70             | 20                                 | 47                        | 112                             | 1                 | ○      | 1.10             | 28                                 | 34                        |
| 63◆                             | 2                 | ○      | 0.80             | 25                                 | 49                        |                                 | 2                 | ○      | 1.80             | 38                                 | 49                        |
|                                 | 3                 | ○      | 0.90             | 25                                 | 47                        |                                 | 3                 | ○      | 2.40             | 38                                 | 42                        |
|                                 | 4▽                | ○      | 1.20             | 25                                 | 60                        |                                 | 4▽                | ○      | 3.40             | 42                                 | 53                        |
|                                 | 5▽                | ○      | 1.50             | 25                                 | 70                        |                                 | 5▽                | ○      | 4.00             | 42                                 | 60                        |
| 71▲◆■                           | 1                 | ○      | 0.50             | 25                                 | 34                        | 118                             | 1                 | ○      | 1.10             | 32                                 | 34                        |
|                                 | 2                 | ○      | 0.09             | 28                                 | 49                        |                                 | 2                 | ○      | 1.80             | 38                                 | 49                        |
|                                 | 3                 | ○      | 1.00             | 32                                 | 42                        |                                 | 3                 | ○      | 2.40             | 42                                 | 42                        |
|                                 | 4▽                | ○      | 1.50             | 32                                 | 60                        |                                 | 4▽                | ○      | 3.40             | 42                                 | 53                        |
|                                 | 5▽                | ○      | 1.80             | 32                                 | 70                        |                                 | 5▽                | ○      | 4.10             | 48                                 | 65                        |
| 75▲◆■                           | 1                 | ○      | 0.50             | 24                                 | 34                        | 125                             | 1                 | ○      | 1.40             | 32                                 | 34                        |
|                                 | 2                 | ○      | 1.00             | 24                                 | 49                        |                                 | 2                 | ○      | 1.90             | 38                                 | 49                        |
|                                 | 3                 | ○      | 1.10             | 24                                 | 42                        |                                 | 3                 | ○      | 2.60             | 42                                 | 42                        |
|                                 | 4▽                | ○      | 1.80             | 24                                 | 60                        |                                 | 4▽                | ○      | 3.50             | 42                                 | 53                        |
|                                 | 5▽                | ○      | 1.90             | 28                                 | 82                        |                                 | 5▽                | ○      | 4.40             | 48                                 | 65                        |
| 80▲◆■                           | 1                 | ○      | 0.60             | 28                                 | 34                        | 132                             | 1                 | ○      | 1.50             | 32                                 | 34                        |
|                                 | 2                 | ○      | 1.00             | 32                                 | 49                        |                                 | 2                 | ○      | 2.20             | 38                                 | 49                        |
|                                 | 3                 | ○      | 1.20             | 38                                 | 42                        |                                 | 3                 | ○      | 2.60             | 42                                 | 42                        |
|                                 | 4▽                | ○      | 1.90             | 38                                 | 60                        |                                 | 4▽                | ○      | 3.60             | 42                                 | 53                        |
|                                 | 5▽                | ○      | 2.00             | 38                                 | 55                        |                                 | 5▽                | ○      | 4.80             | 48                                 | 65                        |
| 85▲◆■                           | 1                 | ○      | 0.60             | 24                                 | 34                        | 140                             | 1                 | ○      | 1.50             | 32                                 | 34                        |
|                                 | 2                 | ○      | 1.20             | 28                                 | 49                        |                                 | 2                 | ○      | 2.30             | 38                                 | 49                        |
|                                 | 3                 | ○      | 1.40             | 28                                 | 42                        |                                 | 3                 | ○      | 2.60             | 42                                 | 42                        |
|                                 | 4▽                | ○      | 2.00             | 28                                 | 53                        |                                 | 4▽                | ○      | 3.70             | 42                                 | 53                        |
|                                 | 5▽                | ○      | 2.20             | 32                                 | 55                        |                                 | 5▽                | ○      | 5.00             | 48                                 | 65                        |
| 90                              | 1                 | ○      | 0.90             | 28                                 | 34                        | 150                             | 1                 | x      | 1.60             | 38                                 | 36                        |
|                                 | 2                 | ○      | 1.50             | 32                                 | 49                        |                                 | 2                 | x      | 2.60             | 38                                 | 49                        |
|                                 | 3                 | ○      | 1.60             | 38                                 | 42                        |                                 | 3                 | ○      | 3.00             | 42                                 | 42                        |
|                                 | 4▽                | ○      | 2.20             | 42                                 | 53                        |                                 | 4▽                | ○      | 4.00             | 42                                 | 53                        |
|                                 | 5▽                | ○      | 2.50             | 42                                 | 67                        |                                 | 5▽                | ○      | 5.20             | 48                                 | 65                        |
| 95                              | 1                 | ○      | 0.80             | 28                                 | 34                        | 160                             | 1                 | x      | 1.80             | 38                                 | 36                        |
|                                 | 2                 | ○      | 1.60             | 28                                 | 49                        |                                 | 2                 | x      | 2.40             | 38                                 | 49                        |
|                                 | 3                 | ○      | 1.90             | 28                                 | 42                        |                                 | 3                 | x      | 2.80             | 42                                 | 42                        |
|                                 | 4▽                | ○      | 2.50             | 32                                 | 53                        |                                 | 4▽                | ○      | 3.60             | 48                                 | 60                        |
|                                 | 5▽                | ○      | 2.80             | 35                                 | 67                        |                                 | 5▽                | ○      | 5.50             | 48                                 | 70                        |
| 100                             | 1                 | ○      | 0.80             | 28                                 | 34                        | 170                             | 1                 | x      | 2.00             | 35                                 | 36                        |
|                                 | 2                 | ○      | 1.40             | 32                                 | 49                        |                                 | 2                 | x      | 2.90             | 35                                 | 49                        |
|                                 | 3                 | ○      | 2.00             | 38                                 | 52                        |                                 | 3                 | x      | 3.20             | 35                                 | 42                        |
|                                 | 4▽                | ○      | 2.70             | 42                                 | 53                        |                                 | 4▽                | x      | 4.20             | 35                                 | 60                        |
|                                 | 5▽                | ○      | 3.10             | 42                                 | 60                        |                                 | 5▽                | x      | 5.80             | 38                                 | 70                        |

▲ for profile A/13 ◆ for profile AX/X13 ■ for profile XPA

▽  $d_d + 4 \text{ mm}$

|                       |    |    |    |    |    |
|-----------------------|----|----|----|----|----|
| Number of grooves z   | 1  | 2  | 3  | 4  | 5  |
| Face width $b_2$ [mm] | 20 | 35 | 50 | 67 | 82 |

● Solid pulley  
○ Plate pulley (with or without holes)  
x Spoked pulley  
Hub position: flush one-sided  
Material: EN-GJL-200 (GG 20) – DIN EN 1561

# STANDARD RANGE

## optibelt **KS** V-GROOVED PULLEYS FOR CYLINDRICAL BORES – GROOVE ACCORDING TO DIN 2211



| Profile SPA/A/13                |                      |        |                  |                                       |                              |                                 |                      |        |                  |                                       |                              |
|---------------------------------|----------------------|--------|------------------|---------------------------------------|------------------------------|---------------------------------|----------------------|--------|------------------|---------------------------------------|------------------------------|
| Datum diameter<br>$d_d$<br>[mm] | Number<br>of grooves | Design | Weight<br>[≈ kg] | Finished<br>bore<br>$d_{max}$<br>[mm] | Hub<br>length<br>$l$<br>[mm] | Datum diameter<br>$d_d$<br>[mm] | Number<br>of grooves | Design | Weight<br>[≈ kg] | Finished<br>bore<br>$d_{max}$<br>[mm] | Hub<br>length<br>$l$<br>[mm] |
| 180                             | 1                    | x      | 2.00             | 38                                    | 36                           | 315                             | 1                    | x      | 4.80             | 48                                    | 44                           |
|                                 | 2                    | x      | 3.20             | 42                                    | 49                           |                                 | 2                    | x      | 6.60             | 48                                    | 53                           |
|                                 | 3                    | x      | 3.60             | 42                                    | 42                           |                                 | 3                    | x      | 8.80             | 55                                    | 47                           |
|                                 | 4▽                   | x      | 4.70             | 48                                    | 60                           |                                 | 4▽                   | x      | 11.10            | 55                                    | 60                           |
|                                 | 5▽                   | x      | 6.10             | 48                                    | 70                           |                                 | 5▽                   | x      | 10.50            | 60                                    | 70                           |
| 190                             | 1                    | x      | 2.00             | 38                                    | 36                           | 355                             | 1                    | x      | 5.50             | 48                                    | 44                           |
|                                 | 2                    | x      | 3.20             | 42                                    | 49                           |                                 | 2                    | x      | 7.70             | 55                                    | 53                           |
|                                 | 3                    | x      | 4.00             | 42                                    | 42                           |                                 | 3                    | x      | 9.60             | 55                                    | 47                           |
|                                 | 4▽                   | x      | 5.20             | 48                                    | 60                           |                                 | 4▽                   | x      | 11.80            | 55                                    | 60                           |
|                                 | 5▽                   | x      | 6.30             | 48                                    | 70                           |                                 | 5▽                   | x      | 13.80            | 60                                    | 70                           |
| 200                             | 1                    | x      | 2.40             | 38                                    | 36                           | 400                             | 1▽                   | x      | 6.90             | 50                                    | 50                           |
|                                 | 2                    | x      | 2.90             | 42                                    | 49                           |                                 | 2▽                   | x      | 8.80             | 55                                    | 53                           |
|                                 | 3                    | x      | 4.20             | 48                                    | 42                           |                                 | 3▽                   | x      | 10.50            | 60                                    | 47                           |
|                                 | 4▽                   | x      | 5.00             | 55                                    | 60                           |                                 | 4▽                   | x      | 12.40            | 60                                    | 67                           |
|                                 | 5▽                   | x      | 6.50             | 60                                    | 70                           |                                 | 5▽                   | x      | 15.90            | 60                                    | 82                           |
| 212                             | 1                    | x      | 2.70             | 40                                    | 36                           | 450                             | 1▽                   | x      | 7.50             | 55                                    | 50                           |
|                                 | 2                    | x      | 3.40             | 42                                    | 49                           |                                 | 2▽                   | x      | 9.40             | 55                                    | 53                           |
|                                 | 3                    | x      | 4.40             | 42                                    | 42                           |                                 | 3▽                   | x      | 12.20            | 60                                    | 47                           |
|                                 | 4▽                   | x      | 5.70             | 42                                    | 60                           |                                 | 4▽                   | x      | 14.20            | 65                                    | 67                           |
|                                 | 5▽                   | x      | 6.90             | 42                                    | 70                           |                                 | 5▽                   | x      | 18.30            | 65                                    | 82                           |
| 225                             | 1                    | x      | 2.80             | 40                                    | 36                           | 500                             | 1▽                   | x      | 10.50            | 55                                    | 50                           |
|                                 | 2                    | x      | 3.90             | 42                                    | 49                           |                                 | 2▽                   | x      | 10.70            | 55                                    | 55                           |
|                                 | 3                    | x      | 4.60             | 42                                    | 42                           |                                 | 3▽                   | x      | 13.50            | 60                                    | 60                           |
|                                 | 4▽                   | x      | 6.50             | 42                                    | 60                           |                                 | 4▽                   | x      | 16.30            | 65                                    | 67                           |
|                                 | 5▽                   | x      | 7.30             | 42                                    | 70                           |                                 | 5▽                   | x      | 22.80            | 65                                    | 82                           |
| 236                             | 1                    | x      | 3.30             | 38                                    | 36                           | 560                             | 1▽                   | x      | 14.00            | 55                                    | 60                           |
|                                 | 2                    | x      | 4.10             | 42                                    | 49                           |                                 | 2▽                   | x      | 13.10            | 55                                    | 60                           |
|                                 | 3                    | x      | 4.90             | 48                                    | 42                           |                                 | 3▽                   | x      | 15.60            | 60                                    | 74                           |
|                                 | 4▽                   | x      | 6.20             | 55                                    | 60                           |                                 | 4▽                   | x      | 19.40            | 65                                    | 67                           |
|                                 | 5▽                   | x      | 7.50             | 55                                    | 70                           |                                 | 5▽                   | x      | 24.50            | 65                                    | 82                           |
| 250                             | 1                    | x      | 3.40             | 42                                    | 36                           |                                 |                      |        |                  |                                       |                              |
|                                 | 2                    | x      | 4.30             | 48                                    | 49                           |                                 |                      |        |                  |                                       |                              |
|                                 | 3                    | x      | 5.30             | 48                                    | 42                           |                                 |                      |        |                  |                                       |                              |
|                                 | 4▽                   | x      | 7.00             | 55                                    | 60                           |                                 |                      |        |                  |                                       |                              |
|                                 | 5▽                   | x      | 7.90             | 60                                    | 70                           |                                 |                      |        |                  |                                       |                              |
| 280                             | 1                    | x      | 3.90             | 42                                    | 44                           |                                 |                      |        |                  |                                       |                              |
|                                 | 2                    | x      | 5.40             | 48                                    | 53                           |                                 |                      |        |                  |                                       |                              |
|                                 | 3                    | x      | 6.50             | 48                                    | 47                           |                                 |                      |        |                  |                                       |                              |
|                                 | 4▽                   | x      | 8.50             | 55                                    | 60                           |                                 |                      |        |                  |                                       |                              |
|                                 | 5▽                   | x      | 9.90             | 60                                    | 70                           |                                 |                      |        |                  |                                       |                              |
| 300                             | 1                    | x      | 4.30             | 48                                    | 44                           |                                 |                      |        |                  |                                       |                              |
|                                 | 2                    | x      | 5.90             | 48                                    | 53                           |                                 |                      |        |                  |                                       |                              |
|                                 | 3                    | x      | 7.50             | 55                                    | 47                           |                                 |                      |        |                  |                                       |                              |
|                                 | 4▽                   | x      | 9.80             | 55                                    | 60                           |                                 |                      |        |                  |                                       |                              |
|                                 | 5▽                   | x      | 11.30            | 60                                    | 70                           |                                 |                      |        |                  |                                       |                              |
| ▽ $d_d + 4$ mm                  |                      |        |                  |                                       |                              | ▽ $d_d + 4$ mm                  |                      |        |                  |                                       |                              |

|                       |    |    |    |    |    |
|-----------------------|----|----|----|----|----|
| Number of grooves z   | 1  | 2  | 3  | 4  | 5  |
| Face width $b_2$ [mm] | 20 | 35 | 50 | 67 | 82 |

● Solid pulley  
 ○ Plate pulley (with or without holes)  
 x Spoked pulley  
 Hub position: flush one-sided  
 Material: EN-GJL-200 (GG 20) – DIN EN 1561

# STANDARD RANGE

## optibelt **KS** V-GROOVED PULLEYS FOR CYLINDRICAL BORES – GROOVE ACCORDING TO DIN 2211



| Profile SPB/B/17                                          |                      |        |                  |                                       |                              |                                 |                      |        |                  |                                       |                              |
|-----------------------------------------------------------|----------------------|--------|------------------|---------------------------------------|------------------------------|---------------------------------|----------------------|--------|------------------|---------------------------------------|------------------------------|
| Datum diameter<br>$d_d$<br>[mm]                           | Number<br>of grooves | Design | Weight<br>[≈ kg] | Finished<br>bore<br>$d_{max}$<br>[mm] | Hub<br>length<br>$l$<br>[mm] | Datum diameter<br>$d_d$<br>[mm] | Number<br>of grooves | Design | Weight<br>[≈ kg] | Finished<br>bore<br>$d_{max}$<br>[mm] | Hub<br>length<br>$l$<br>[mm] |
| 56                                                        | 1                    | ○      | 0.60             | 20                                    | 41                           | 112▲◆■                          | 1                    | ○      | 1.50             | 32                                    | 41                           |
|                                                           | 2                    | ○      | 1.00             | 20                                    | 60                           |                                 | 2                    | ○      | 2.40             | 38                                    | 60                           |
|                                                           | 3                    | ○      | 1.10             | 22                                    | 62                           |                                 | 3                    | ○      | 3.10             | 38                                    | 55                           |
| 63                                                        | 1                    | ○      | 0.80             | 20                                    | 41                           |                                 | 4▽                   | ○      | 4.80             | 42                                    | 67                           |
|                                                           | 2                    | ○      | 1.20             | 20                                    | 60                           |                                 | 5▽                   | ○      | 5.60             | 42                                    | 75                           |
|                                                           | 3                    | ○      | 1.20             | 22                                    | 62                           |                                 | 6▽                   | ○      | 6.20             | 42                                    | 85                           |
| 71                                                        | 1                    | ○      | 0.80             | 22                                    | 41                           | 118▲◆■                          | 1                    | ○      | 1.60             | 32                                    | 41                           |
|                                                           | 2                    | ○      | 1.30             | 22                                    | 60                           |                                 | 2                    | ○      | 2.40             | 38                                    | 60                           |
|                                                           | 3                    | ○      | 1.60             | 22                                    | 55                           |                                 | 3                    | ○      | 3.20             | 42                                    | 55                           |
| 75                                                        | 1                    | ○      | 0.80             | 25                                    | 41                           |                                 | 4▽                   | ○      | 5.20             | 42                                    | 70                           |
|                                                           | 2                    | ○      | 1.40             | 25                                    | 60                           |                                 | 5▽                   | ○      | 7.20             | 42                                    | 75                           |
|                                                           | 3                    | ○      | 1.90             | 25                                    | 62                           |                                 | 6▽                   | ○      | 6.60             | 42                                    | 85                           |
| 80                                                        | 1                    | ○      | 1.00             | 28                                    | 41                           | 125▲◆■                          | 1                    | ○      | 1.70             | 32                                    | 41                           |
|                                                           | 2                    | ○      | 1.70             | 28                                    | 60                           |                                 | 2                    | ○      | 2.60             | 38                                    | 60                           |
|                                                           | 3                    | ○      | 2.10             | 28                                    | 55                           |                                 | 3                    | ○      | 3.30             | 42                                    | 55                           |
|                                                           | 3                    | ○      | 2.40             | 28                                    | 70                           |                                 | 4▽                   | ○      | 4.70             | 42                                    | 70                           |
|                                                           | 5▽                   | ○      | 2.70             | 28                                    | 80                           |                                 | 5▽                   | ○      | 8.60             | 42                                    | 75                           |
|                                                           |                      |        |                  |                                       |                              |                                 | 6▽                   | ○      | 8.00             | 48                                    | 85                           |
| 85                                                        | 1                    | ○      | 1.10             | 30                                    | 41                           | 132▲◆■                          | 1                    | ○      | 1.90             | 30                                    | 41                           |
|                                                           | 2                    | ○      | 1.70             | 30                                    | 60                           |                                 | 2                    | ○      | 2.60             | 30                                    | 60                           |
|                                                           | 3                    | ○      | 2.20             | 30                                    | 55                           |                                 | 3                    | ○      | 3.50             | 42                                    | 55                           |
|                                                           | 4▽                   | ○      | 2.70             | 30                                    | 70                           |                                 | 4▽                   | ○      | 6.30             | 42                                    | 70                           |
|                                                           | 5▽                   | ○      | 3.00             | 30                                    | 75                           |                                 | 5▽                   | ○      | 9.40             | 42                                    | 75                           |
|                                                           |                      |        |                  |                                       |                              |                                 | 6▽                   | ○      | 8.50             | 42                                    | 85                           |
| 90◆                                                       | 1                    | ○      | 1.20             | 32                                    | 41                           | 140                             | 1                    | ○      | 2.10             | 32                                    | 41                           |
|                                                           | 2                    | ○      | 1.80             | 38                                    | 60                           |                                 | 2                    | ○      | 2.90             | 38                                    | 60                           |
|                                                           | 3                    | ○      | 2.30             | 38                                    | 55                           |                                 | 3                    | ○      | 3.90             | 42                                    | 55                           |
|                                                           | 4▽                   | ○      | 3.10             | 38                                    | 70                           |                                 | 4▽                   | ○      | 6.90             | 42                                    | 70                           |
|                                                           | 5▽                   | ○      | 3.30             | 38                                    | 75                           |                                 | 5▽                   | ○      | 7.60             | 48                                    | 75                           |
|                                                           |                      |        |                  |                                       |                              |                                 | 6▽                   | ○      | 11.40            | 48                                    | 85                           |
| 95◆                                                       | 1                    | ○      | 1.30             | 35                                    | 41                           | 150                             | 1                    | ○      | 2.40             | 32                                    | 43                           |
|                                                           | 2                    | ○      | 2.00             | 38                                    | 60                           |                                 | 2                    | ○      | 3.20             | 38                                    | 48                           |
|                                                           | 3                    | ○      | 2.50             | 38                                    | 67                           |                                 | 3                    | ○      | 4.30             | 42                                    | 60                           |
|                                                           | 4▽                   | ○      | 2.90             | 38                                    | 70                           |                                 | 4▽                   | ○      | 6.80             | 42                                    | 70                           |
|                                                           | 5▽                   | ○      | 3.60             | 38                                    | 75                           |                                 | 5▽                   | ○      | 8.40             | 48                                    | 75                           |
|                                                           |                      |        |                  |                                       |                              |                                 | 6▽                   | ○      | 12.10            | 48                                    | 85                           |
| 100◆                                                      | 1                    | ○      | 1.30             | 32                                    | 41                           | 160                             | 1                    | x      | 2.50             | 38                                    | 43                           |
|                                                           | 2                    | ○      | 2.10             | 38                                    | 60                           |                                 | 2                    | x      | 3,0              | 42                                    | 48                           |
|                                                           | 3                    | ○      | 2.90             | 38                                    | 55                           |                                 | 3                    | x      | 4.60             | 48                                    | 60                           |
|                                                           | 4▽                   | ○      | 3.80             | 38                                    | 70                           |                                 | 4▽                   | ○      | 7.00             | 48                                    | 70                           |
|                                                           | 5▽                   | ○      | 4.50             | 38                                    | 75                           |                                 | 5▽                   | ○      | 9.40             | 48                                    | 75                           |
|                                                           | 6▽                   | ○      | 5.20             | 38                                    | 124                          |                                 | 6▽                   | ○      | 12.90            | 55                                    | 85                           |
| 106◆                                                      | 1                    | ○      | 1.50             | 28                                    | 41                           | 170                             | 1                    | x      | 2.90             | 42                                    | 43                           |
|                                                           | 2                    | ○      | 2.00             | 28                                    | 60                           |                                 | 2                    | x      | 3.40             | 42                                    | 48                           |
|                                                           | 3                    | ○      | 3.00             | 30                                    | 55                           |                                 | 3                    | x      | 4.90             | 42                                    | 60                           |
|                                                           | 4▽                   | ○      | 4.30             | 30                                    | 70                           |                                 | 4▽                   | ○      | 7.20             | 48                                    | 70                           |
|                                                           | 5▽                   | ○      | 5.10             | 32                                    | 75                           |                                 | 5▽                   | ○      | 8.90             | 48                                    | 75                           |
|                                                           | 6▽                   | ○      | 6.00             | 32                                    | 124                          |                                 | 6▽                   | ○      | 13.10            | 48                                    | 85                           |
| ▲ for profile B/17 ◆ for profile BX/X17 ■ for profile XPB |                      |        |                  |                                       |                              | ▽ $d_d + 5.5$ mm                |                      |        |                  |                                       |                              |

|                       |    |    |    |    |     |     |
|-----------------------|----|----|----|----|-----|-----|
| Number of grooves z   | 1  | 2  | 3  | 4  | 5   | 6   |
| Face width $b_2$ [mm] | 25 | 44 | 63 | 86 | 105 | 124 |

● Solid pulley  
 ○ Plate pulley (with or without holes)  
 x Spoked pulley  
 Hub position: flush one-sided  
 Material: EN-GJL-200 (GG 20) – DIN EN 1561

# STANDARD RANGE

## optibelt **KS** V-GROOVED PULLEYS FOR CYLINDRICAL BORES – GROOVE ACCORDING TO DIN 2211



| Profile SPB/B/17                |                      |        |                  |                                       |                            |                                 |                      |        |                  |                                       |                            |
|---------------------------------|----------------------|--------|------------------|---------------------------------------|----------------------------|---------------------------------|----------------------|--------|------------------|---------------------------------------|----------------------------|
| Datum diameter<br>$d_d$<br>[mm] | Number<br>of grooves | Design | Weight<br>[≈ kg] | Finished<br>bore<br>$d_{max}$<br>[mm] | Hub<br>length<br> <br>[mm] | Datum diameter<br>$d_d$<br>[mm] | Number<br>of grooves | Design | Weight<br>[≈ kg] | Finished<br>bore<br>$d_{max}$<br>[mm] | Hub<br>length<br> <br>[mm] |
| 180                             | 1                    | x      | 3.10             | 38                                    | 43                         | 315                             | 1                    | x      | 6.40             | 48                                    | 49                         |
|                                 | 2                    | x      | 3.90             | 42                                    | 48                         |                                 | 2                    | x      | 8.20             | 55                                    | 55                         |
|                                 | 3                    | x      | 5.30             | 48                                    | 60                         |                                 | 3                    | x      | 12.90            | 55                                    | 67                         |
|                                 | 4▽                   | x      | 7.40             | 48                                    | 70                         |                                 | 4▽                   | x      | 13.00            | 60                                    | 80                         |
|                                 | 5▽                   | ○      | 9.10             | 55                                    | 75                         |                                 | 5▽                   | x      | 17.60            | 65                                    | 80                         |
|                                 | 6▽                   | ○      | 10.80            | 60                                    | 85                         |                                 | 6▽                   | x      | 20.60            | 75                                    | 90                         |
| 190                             | 1                    | x      | 3.20             | 42                                    | 43                         | 355                             | 1                    | x      | 7.00             | 48                                    | 49                         |
|                                 | 2                    | x      | 4.20             | 42                                    | 48                         |                                 | 2                    | x      | 9.70             | 55                                    | 55                         |
|                                 | 3                    | x      | 5.50             | 42                                    | 60                         |                                 | 3                    | x      | 13.40            | 55                                    | 67                         |
|                                 | 4▽                   | x      | 7.70             | 48                                    | 70                         |                                 | 4▽                   | x      | 18.30            | 60                                    | 80                         |
|                                 | 5▽                   | ○      | 9.20             | 50                                    | 75                         |                                 | 5▽                   | x      | 18.80            | 65                                    | 75                         |
|                                 | 6▽                   | ○      | 12.00            | 55                                    | 85                         |                                 | 6▽                   | x      | 19.80            | 75                                    | 90                         |
| 200                             | 1                    | x      | 3.40             | 38                                    | 43                         | 400                             | 1▽                   | x      | 8.50             | 50                                    | 49                         |
|                                 | 2                    | x      | 4.50             | 42                                    | 48                         |                                 | 2▽                   | x      | 10.00            | 55                                    | 55                         |
|                                 | 3                    | x      | 5.90             | 48                                    | 60                         |                                 | 3▽                   | x      | 14.30            | 60                                    | 67                         |
|                                 | 4▽                   | x      | 8.00             | 50                                    | 60                         |                                 | 4▽                   | x      | 18.50            | 65                                    | 80                         |
|                                 | 5▽                   | ○      | 9.50             | 55                                    | 80                         |                                 | 5▽                   | x      | 22.50            | 70                                    | 85                         |
|                                 | 6▽                   | ○      | 12.20            | 60                                    | 90                         |                                 | 6▽                   | x      | 28.00            | 75                                    | 90                         |
| 212                             | 1                    | x      | 3.80             | 42                                    | 43                         | 450                             | 1▽                   | x      | 9.90             | 50                                    | 55                         |
|                                 | 2                    | x      | 4.70             | 42                                    | 48                         |                                 | 2▽                   | x      | 10.90            | 55                                    | 55                         |
|                                 | 3                    | x      | 6.20             | 48                                    | 60                         |                                 | 3▽                   | x      | 15.10            | 60                                    | 67                         |
|                                 | 4▽                   | x      | 7.70             | 50                                    | 70                         |                                 | 4▽                   | x      | 20.50            | 65                                    | 80                         |
|                                 | 5▽                   | x      | 10.30            | 50                                    | 80                         |                                 | 5▽                   | x      | 26.00            | 70                                    | 80                         |
|                                 | 6▽                   | ○      | 13.50            | 55                                    | 90                         |                                 | 6▽                   | x      | 28.90            | 75                                    | 90                         |
| 225                             | 1                    | x      | 4.00             | 42                                    | 43                         | 500                             | 1▽                   | x      | 10.70            | 50                                    | 55                         |
|                                 | 2                    | x      | 5.40             | 42                                    | 48                         |                                 | 2▽                   | x      | 13.70            | 60                                    | 59                         |
|                                 | 3                    | x      | 6.90             | 48                                    | 60                         |                                 | 3▽                   | x      | 15.20            | 65                                    | 67                         |
|                                 | 4▽                   | x      | 8.60             | 55                                    | 70                         |                                 | 4▽                   | x      | 21.30            | 70                                    | 80                         |
|                                 | 5▽                   | ○      | 11.70            | 50                                    | 90                         |                                 | 5▽                   | x      | 30.00            | 75                                    | 80                         |
|                                 | 6▽                   | ○      | 14.80            | 55                                    | 90                         |                                 | 6▽                   | x      | 33.80            | 80                                    | 90                         |
| 250                             | 1                    | x      | 4.20             | 42                                    | 43                         | 560                             | 2▽                   | x      | 15.00            | 60                                    | 55                         |
|                                 | 2                    | x      | 6.10             | 48                                    | 55                         |                                 | 3▽                   | x      | 24.20            | 65                                    | 67                         |
|                                 | 3                    | x      | 8.60             | 55                                    | 60                         |                                 | 4▽                   | x      | 26.00            | 70                                    | 80                         |
|                                 | 4▽                   | x      | 9.80             | 60                                    | 70                         |                                 | 5▽                   | x      | 34.40            | 75                                    | 80                         |
|                                 | 5▽                   | x      | 13.20            | 65                                    | 80                         |                                 | 6▽                   | x      | 39.00            | 80                                    | 90                         |
|                                 | 6▽                   | x      | 17.00            | 65                                    | 90                         |                                 |                      |        |                  |                                       |                            |
| 280                             | 1                    | x      | 5.70             | 48                                    | 49                         | 630                             | 2▽                   | x      | 20.20            | 60                                    | 80                         |
|                                 | 2                    | x      | 7.00             | 48                                    | 55                         |                                 | 3▽                   | x      | 27.00            | 65                                    | 80                         |
|                                 | 3                    | x      | 9.70             | 55                                    | 60                         |                                 | 4▽                   | x      | 30.80            | 75                                    | 86                         |
|                                 | 4▽                   | x      | 11.50            | 60                                    | 70                         |                                 | 5▽                   | x      | 37.20            | 80                                    | 90                         |
|                                 | 5▽                   | x      | 15.50            | 65                                    | 80                         |                                 | 6▽                   | x      | 44.00            | 90                                    | 100                        |
|                                 | 6▽                   | x      | 18.00            | 65                                    | 90                         |                                 |                      |        |                  |                                       |                            |
| 300                             | 1                    | x      | 5.90             | 48                                    | 49                         |                                 |                      |        |                  |                                       |                            |
|                                 | 2                    | x      | 7.50             | 48                                    | 55                         |                                 |                      |        |                  |                                       |                            |
|                                 | 3                    | x      | 10.50            | 55                                    | 67                         |                                 |                      |        |                  |                                       |                            |
|                                 | 4▽                   | x      | 12.40            | 60                                    | 80                         |                                 |                      |        |                  |                                       |                            |
|                                 | 5▽                   | x      | 16.40            | 65                                    | 80                         |                                 |                      |        |                  |                                       |                            |
|                                 | 6▽                   | x      | 18.30            | 70                                    | 90                         |                                 |                      |        |                  |                                       |                            |
| ▽ $d_d + 5.5$ mm                |                      |        |                  |                                       |                            |                                 |                      |        |                  |                                       |                            |

|                       |    |    |    |    |     |     |
|-----------------------|----|----|----|----|-----|-----|
| Number of grooves z   | 1  | 2  | 3  | 4  | 5   | 6   |
| Face width $b_2$ [mm] | 25 | 44 | 63 | 86 | 105 | 124 |

● Solid pulley  
 ○ Plate pulley (with or without holes)  
 x Spoked pulley  
 Hub position: flush one-sided  
 Material: EN-GJL-200 (GG 20) – DIN EN 1561

# STANDARD RANGE

## optibelt **KS** V-GROOVED PULLEYS FOR CYLINDRICAL BORES – GROOVE ACCORDING TO DIN 2211



| Profile SPC/C/22                |                      |        |                  |                                       |                              |                                 |                      |        |                  |                                       |                              |
|---------------------------------|----------------------|--------|------------------|---------------------------------------|------------------------------|---------------------------------|----------------------|--------|------------------|---------------------------------------|------------------------------|
| Datum diameter<br>$d_d$<br>[mm] | Number<br>of grooves | Design | Weight<br>[≈ kg] | Finished<br>bore<br>$d_{max}$<br>[mm] | Hub<br>length<br>$l$<br>[mm] | Datum diameter<br>$d_d$<br>[mm] | Number<br>of grooves | Design | Weight<br>[≈ kg] | Finished<br>bore<br>$d_{max}$<br>[mm] | Hub<br>length<br>$l$<br>[mm] |
| 180▲◆■                          | 1*                   | ○      | 4.20             | 40                                    | 54                           | 450                             | 2*                   | x      | 21.10            | 70                                    | 80                           |
|                                 | 2*                   | ○      | 7.20             | 50                                    | 64                           |                                 | 3*                   | x      | 26.30            | 75                                    | 90                           |
|                                 | 3*                   | ○      | 10.40            | 55                                    | 90                           |                                 | 4*                   | x      | 31.10            | 75                                    | 105                          |
|                                 | 4*                   | ○      | 10.50            | 55                                    | 95                           |                                 | 5*                   | x      | 42.20            | 80                                    | 110                          |
|                                 | 5*                   | ○      | 18.00            | 60                                    | 100                          |                                 | 6*                   | x      | 48.50            | 80                                    | 120                          |
|                                 | 6*                   | ○      | 23.60            | 65                                    | 115                          |                                 |                      |        |                  |                                       |                              |
| 200▲◆■                          | 1*                   | ○      | 4.80             | 40                                    | 54                           | 500                             | 3*                   | x      | 28.40            | 75                                    | 90                           |
|                                 | 2*                   | ○      | 7.80             | 50                                    | 64                           |                                 | 4*                   | x      | 34.10            | 75                                    | 105                          |
|                                 | 3*                   | ○      | 8.80             | 55                                    | 90                           |                                 | 5*                   | x      | 48.20            | 80                                    | 110                          |
|                                 | 4*                   | ○      | 11.20            | 60                                    | 95                           |                                 | 6*                   | x      | 52.50            | 80                                    | 120                          |
|                                 | 5*                   | ○      | 15.40            | 65                                    | 100                          | 560                             | 3*                   | x      | 31.10            | 75                                    | 90                           |
|                                 | 6*                   | ○      | 27.00            | 70                                    | 125                          |                                 | 4*                   | x      | 39.00            | 75                                    | 105                          |
| 225                             | 1*                   | x      | 5.50             | 48                                    | 54                           |                                 | 5*                   | x      | 54.10            | 80                                    | 110                          |
|                                 | 2*                   | x      | 7.80             | 52                                    | 64                           | 630                             | 6*                   | x      | 61.50            | 85                                    | 120                          |
|                                 | 3*                   | x      | 10.60            | 52                                    | 90                           |                                 | 3*                   | x      | 38.50            | 80                                    | 90                           |
|                                 | 4*                   | x      | 13.10            | 55                                    | 95                           |                                 | 4*                   | x      | 48.10            | 80                                    | 105                          |
|                                 | 5*                   | x      | 16.70            | 60                                    | 100                          |                                 | 5*                   | x      | 62.20            | 85                                    | 110                          |
|                                 | 6*                   | x      | 35.00            | 60                                    | 115                          |                                 | 6*                   | x      | 73.20            | 85                                    | 120                          |
| 250                             | 1*                   | x      | 7.30             | 52                                    | 54                           |                                 |                      |        |                  |                                       |                              |
|                                 | 2*                   | x      | 8.80             | 52                                    | 64                           |                                 |                      |        |                  |                                       |                              |
|                                 | 3*                   | x      | 11.00            | 65                                    | 90                           |                                 |                      |        |                  |                                       |                              |
|                                 | 4*                   | x      | 15.30            | 70                                    | 95                           |                                 |                      |        |                  |                                       |                              |
|                                 | 5*                   | x      | 19.00            | 75                                    | 100                          |                                 |                      |        |                  |                                       |                              |
|                                 | 6*                   | x      | 23.70            | 60                                    | 115                          |                                 |                      |        |                  |                                       |                              |
| 280                             | 1*                   | x      | 8.70             | 52                                    | 54                           |                                 |                      |        |                  |                                       |                              |
|                                 | 2*                   | x      | 10.90            | 55                                    | 64                           |                                 |                      |        |                  |                                       |                              |
|                                 | 3*                   | x      | 15.60            | 70                                    | 90                           |                                 |                      |        |                  |                                       |                              |
|                                 | 4*                   | x      | 17.50            | 75                                    | 95                           |                                 |                      |        |                  |                                       |                              |
|                                 | 5*                   | x      | 20.50            | 75                                    | 100                          |                                 |                      |        |                  |                                       |                              |
| 315                             | 1*                   | x      | 9.10             | 52                                    | 54                           |                                 |                      |        |                  |                                       |                              |
|                                 | 2*                   | x      | 13.00            | 55                                    | 74                           |                                 |                      |        |                  |                                       |                              |
|                                 | 3*                   | x      | 17.10            | 70                                    | 90                           |                                 |                      |        |                  |                                       |                              |
|                                 | 4*                   | x      | 20.00            | 75                                    | 95                           |                                 |                      |        |                  |                                       |                              |
|                                 | 5*                   | x      | 24.70            | 80                                    | 100                          |                                 |                      |        |                  |                                       |                              |
|                                 | 6*                   | x      | 31.20            | 85                                    | 115                          |                                 |                      |        |                  |                                       |                              |
| 335                             | 2*                   | x      | 14.00            | 55                                    | 74                           |                                 |                      |        |                  |                                       |                              |
|                                 | 3*                   | x      | 18.30            | 55                                    | 90                           |                                 |                      |        |                  |                                       |                              |
|                                 | 4*                   | x      | 22.40            | 60                                    | 95                           |                                 |                      |        |                  |                                       |                              |
|                                 | 5*                   | x      | 28.30            | 65                                    | 100                          |                                 |                      |        |                  |                                       |                              |
|                                 | 6*                   | x      | 34.40            | 75                                    | 115                          |                                 |                      |        |                  |                                       |                              |
| 355                             | 2*                   | x      | 15.20            | 60                                    | 74                           |                                 |                      |        |                  |                                       |                              |
|                                 | 3*                   | x      | 19.20            | 70                                    | 90                           |                                 |                      |        |                  |                                       |                              |
|                                 | 4*                   | x      | 25.80            | 70                                    | 95                           |                                 |                      |        |                  |                                       |                              |
|                                 | 5*                   | x      | 32.00            | 75                                    | 100                          |                                 |                      |        |                  |                                       |                              |
|                                 | 6*                   | x      | 36.20            | 75                                    | 115                          |                                 |                      |        |                  |                                       |                              |
| 400                             | 3*                   | x      | 20.60            | 70                                    | 90                           |                                 |                      |        |                  |                                       |                              |
|                                 | 4*                   | x      | 28.00            | 70                                    | 105                          |                                 |                      |        |                  |                                       |                              |
|                                 | 5*                   | x      | 32.00            | 75                                    | 100                          |                                 |                      |        |                  |                                       |                              |

▲ for profile C/22 ◆ for profile CX/X22 ■ for profile XPC

|                       |    |    |    |     |     |     |
|-----------------------|----|----|----|-----|-----|-----|
| Number of grooves z   | 1  | 2  | 3  | 4   | 5   | 6   |
| Face width $b_2$ [mm] | 38 | 64 | 90 | 116 | 142 | 168 |

● Solid pulley  
○ Plate pulley (with or without holes)  
x Spoked pulley  
\* Non stock items  
Hub position: flush one-sided  
Material: EN-GJL-200 (GG 20) – DIN EN 1561



| Taper bushes with metrical bore. groove according to DIN 6885 Part 1 |                                                                  |                                                                       |                                                                            |                                                                            |                                                                      |                                                                                         |                                                                                         |                                                                                              |                                                                                        |                                                                            |                                                                      |                                                                                        |                                                                                        |                                                                                   |                                                                                              |                                                                            |
|----------------------------------------------------------------------|------------------------------------------------------------------|-----------------------------------------------------------------------|----------------------------------------------------------------------------|----------------------------------------------------------------------------|----------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|----------------------------------------------------------------------------|----------------------------------------------------------------------|----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
|                                                                      | Taper bush                                                       |                                                                       |                                                                            |                                                                            |                                                                      |                                                                                         |                                                                                         |                                                                                              |                                                                                        |                                                                            | Material: EN-GJL-200 – DIN EN 1561                                   |                                                                                        |                                                                                        |                                                                                   |                                                                                              |                                                                            |
|                                                                      | 1008                                                             | 1108                                                                  | 1210                                                                       | 1215                                                                       | 1310                                                                 | 1610                                                                                    | 1615                                                                                    | 2012                                                                                         | 2517                                                                                   | 3020                                                                       | 3030                                                                 | 3525                                                                                   | 3535                                                                                   | 4040                                                                              | 4545                                                                                         | 5050                                                                       |
| Bore diameter d <sub>2</sub> [mm]                                    | 10<br>11<br>12<br>14<br>16<br>18<br>19<br>20<br>22<br>24▲<br>25▲ | 10<br>11<br>12<br>14<br>16<br>18<br>19<br>20<br>22<br>24<br>25<br>28▲ | 11<br>12<br>14<br>16<br>18<br>19<br>20<br>22<br>24<br>25<br>28<br>30<br>32 | 11<br>12<br>14<br>16<br>18<br>19<br>20<br>22<br>24<br>25<br>28<br>30<br>32 | 14<br>16<br>18<br>19<br>20<br>22<br>24<br>25<br>28<br>30<br>32<br>35 | 14<br>16<br>18<br>19<br>20<br>22<br>24<br>25<br>28<br>30<br>32<br>35<br>38<br>40<br>42▲ | 14<br>16<br>18<br>19<br>20<br>22<br>24<br>25<br>28<br>30<br>32<br>35<br>38<br>40<br>42▲ | 14<br>16<br>18<br>19<br>20<br>22<br>24<br>25<br>28<br>30<br>32<br>35<br>38<br>40<br>42<br>45 | 16<br>18<br>19<br>20<br>22<br>24<br>25<br>28<br>30<br>32<br>35<br>38<br>40<br>42<br>45 | 25<br>28<br>30<br>32<br>35<br>38<br>40<br>42<br>45<br>48<br>50<br>55<br>60 | 35<br>38<br>40<br>42<br>45<br>48<br>50<br>55<br>60<br>65<br>70<br>75 | 35<br>38<br>40<br>42<br>45<br>48<br>50<br>55<br>60<br>65<br>70<br>75<br>80<br>85<br>90 | 35<br>38<br>40<br>42<br>45<br>48<br>50<br>55<br>60<br>65<br>70<br>75<br>80<br>85<br>90 | 40<br>42<br>45<br>48<br>50<br>55<br>60<br>65<br>70<br>75<br>80<br>85<br>90<br>100 | 55<br>60<br>65<br>70<br>75<br>80<br>85<br>90<br>95<br>100<br>105<br>110<br>115<br>120<br>125 | 70<br>75<br>80<br>85<br>90<br>95<br>100<br>105<br>110<br>115<br>120<br>125 |
| Hexagonal socket screw [inch]                                        | 1/4 x 1/2                                                        | 1/4 x 1/2                                                             | 3/8 x 5/8                                                                  | 3/8 x 5/8                                                                  | 3/8 x 5/8                                                            | 3/8 x 5/8                                                                               | 3/8 x 5/8                                                                               | 7/16 x 7/8                                                                                   | 1/2 x 1                                                                                | 5/8 x 1 1/4                                                                | 5/8 x 1 1/4                                                          | 1/2 x 1 1/2                                                                            | 1/2 x 1 1/2                                                                            | 5/8 x 1 3/4                                                                       | 3/4 x 2                                                                                      | 7/8 x 2 1/4                                                                |
| Tightening torque [Nm]                                               | 5.7                                                              | 5.7                                                                   | 20                                                                         | 20                                                                         | 20                                                                   | 20                                                                                      | 20                                                                                      | 31                                                                                           | 49                                                                                     | 92                                                                         | 92                                                                   | 115                                                                                    | 115                                                                                    | 172                                                                               | 195                                                                                          | 275                                                                        |
| Bush length [mm]                                                     | 22.3                                                             | 22.3                                                                  | 25.4                                                                       | 38.1                                                                       | 25.4                                                                 | 25.4                                                                                    | 38.1                                                                                    | 31.8                                                                                         | 44.5                                                                                   | 50.8                                                                       | 76.2                                                                 | 63.5                                                                                   | 88.9                                                                                   | 101.6                                                                             | 114.3                                                                                        | 127.0                                                                      |
| Weight for d <sub>2 min</sub> [≈ kg]                                 | 0.12                                                             | 0.16                                                                  | 0.28                                                                       | 0.39                                                                       | 0.32                                                                 | 0.41                                                                                    | 0.60                                                                                    | 0.75                                                                                         | 1.06                                                                                   | 2.50                                                                       | 3.75                                                                 | 3.90                                                                                   | 5.13                                                                                   | 7.68                                                                              | 12.70                                                                                        | 15.17                                                                      |

From 3525: Cylinder head screw with hexagonal socket ▲ This is a shallow keyway bore.

### Shallow keyways for taper bushes

| Bore diameter d <sub>2</sub> [mm] | Groove width b [mm] | Groove depth t <sub>2</sub> [mm] | Bore diameter d <sub>2</sub> [mm] | Groove width b [mm] | Groove depth t <sub>2</sub> [mm] |
|-----------------------------------|---------------------|----------------------------------|-----------------------------------|---------------------|----------------------------------|
| 24                                | 8                   | 2.0                              | 28                                | 8                   | 2.0                              |
| 25                                | 8                   | 1.3                              | 42                                | 12                  | 2.2                              |

| Taper bushes with imperial bores. groove according to British Standard BS 46 Part 1 |                                        |                                                 |                                        |                                           |                                             |                                                                                     |                                                                                     |                                                                                    |                                                                                                                |                                                                                                                    |                                                                                                                    |                                                                                                           |                                                                                                           |                                                                                                                                         |                                                                                                                                        |                                                                            |
|-------------------------------------------------------------------------------------|----------------------------------------|-------------------------------------------------|----------------------------------------|-------------------------------------------|---------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
|                                                                                     | Taper bush                             |                                                 |                                        |                                           |                                             |                                                                                     |                                                                                     |                                                                                    |                                                                                                                |                                                                                                                    | Material: EN-GJL-200 – DIN EN 1561                                                                                 |                                                                                                           |                                                                                                           |                                                                                                                                         |                                                                                                                                        |                                                                            |
|                                                                                     | 1008                                   | 1108                                            | 1210                                   | 1215                                      | 1310                                        | 1610                                                                                | 1615                                                                                | 2012                                                                               | 2517                                                                                                           | 3020                                                                                                               | 3030                                                                                                               | 3525                                                                                                      | 3535                                                                                                      | 4040                                                                                                                                    | 4545                                                                                                                                   | 5050                                                                       |
| Bore diameter d <sub>2</sub> [inch]                                                 | 3/8*<br>1/2<br>5/8<br>3/4<br>7/8<br>1▲ | 3/8*<br>1/2<br>5/8<br>3/4<br>7/8<br>1<br>1 1/8▲ | 1/2<br>5/8<br>3/4<br>7/8<br>1<br>1 1/8 | 5/8*<br>3/4<br>7/8<br>1<br>1 1/8<br>1 1/4 | 1/2*<br>5/8*<br>3/4*<br>7/8*<br>1*<br>1 1/8 | 1/2<br>5/8<br>3/4<br>7/8<br>1<br>1 1/8<br>1 1/4<br>1 3/8<br>1 1/2<br>1 5/8<br>1 7/8 | 1/2<br>5/8<br>3/4<br>7/8<br>1<br>1 1/8<br>1 1/4<br>1 3/8<br>1 1/2<br>1 5/8<br>1 7/8 | 5/8*<br>3/4<br>7/8<br>1<br>1 1/8<br>1 1/4<br>1 3/8<br>1 1/2<br>1 5/8<br>1 7/8<br>2 | 3/4<br>7/8<br>1<br>1 1/8<br>1 1/4<br>1 3/8<br>1 1/2<br>1 5/8<br>1 7/8<br>2<br>2 1/8<br>2 1/4<br>2 3/8<br>2 1/2 | 1 1/4<br>1 3/8<br>1 1/2<br>1 5/8<br>1 7/8<br>2<br>2 1/8<br>2 1/4<br>2 3/8<br>2 1/2<br>2 5/8<br>2 3/4<br>2 7/8<br>3 | 1 1/4<br>1 3/8<br>1 1/2<br>1 5/8<br>1 7/8<br>2<br>2 1/8<br>2 1/4<br>2 3/8<br>2 1/2<br>2 5/8<br>2 3/4<br>2 7/8<br>3 | 1 1/2<br>1 5/8<br>1 3/4<br>1 7/8<br>2<br>2 1/8<br>2 1/4<br>2 3/8<br>2 1/2<br>2 5/8<br>2 3/4<br>2 7/8<br>3 | 1 1/2<br>1 5/8<br>1 3/4<br>1 7/8<br>2<br>2 1/8<br>2 1/4<br>2 3/8<br>2 1/2<br>2 5/8<br>2 3/4<br>2 7/8<br>3 | 1 3/4*<br>1 7/8*<br>2<br>2 1/8<br>2 1/4<br>2 3/8<br>2 1/2<br>2 5/8<br>2 3/4<br>2 7/8<br>3<br>3 1/8<br>3 1/4<br>3 3/8<br>3 1/2<br>3 3/4▲ | 2 1/4*<br>2 3/8*<br>2 1/2*<br>2 3/4*<br>2 7/8*<br>3*<br>3 1/4*<br>3 3/8*<br>3 1/2*<br>3 3/4*<br>4*<br>4 1/4*<br>4 1/2*<br>4 3/4*<br>5▲ | 3*<br>3 1/4*<br>3 1/2*<br>3 3/4*<br>4*<br>4 1/4*<br>4 1/2*<br>4 3/4*<br>5▲ |
| Hexagonal socket screw [inch]                                                       | 1/4 x 1/2                              | 1/4 x 1/2                                       | 3/8 x 5/8                              | 3/8 x 5/8                                 | 3/8 x 5/8                                   | 3/8 x 5/8                                                                           | 3/8 x 5/8                                                                           | 7/16 x 7/8                                                                         | 1/2 x 1                                                                                                        | 5/8 x 1 1/4                                                                                                        | 5/8 x 1 1/4                                                                                                        | 1/2 x 1 1/2                                                                                               | 1/2 x 1 1/2                                                                                               | 5/8 x 1 3/4                                                                                                                             | 3/4 x 2                                                                                                                                | 7/8 x 2 1/4                                                                |
| Tightening torque [Nm]                                                              | 5.7                                    | 5.7                                             | 20                                     | 20                                        | 20                                          | 20                                                                                  | 20                                                                                  | 31                                                                                 | 49                                                                                                             | 92                                                                                                                 | 92                                                                                                                 | 115                                                                                                       | 115                                                                                                       | 172                                                                                                                                     | 195                                                                                                                                    | 275                                                                        |
| Bush length [mm]                                                                    | 22.3                                   | 22.3                                            | 25.4                                   | 38.1                                      | 25.4                                        | 25.4                                                                                | 38.1                                                                                | 31.8                                                                               | 44.5                                                                                                           | 50.8                                                                                                               | 76.2                                                                                                               | 63.5                                                                                                      | 88.9                                                                                                      | 101.6                                                                                                                                   | 114.3                                                                                                                                  | 127.0                                                                      |
| Weight for d <sub>2 min</sub> [≈ kg]                                                | 0.12                                   | 0.16                                            | 0.28                                   | 0.39                                      | 0.32                                        | 0.41                                                                                | 0.60                                                                                | 0.75                                                                               | 1.06                                                                                                           | 2.50                                                                                                               | 3.75                                                                                                               | 3.90                                                                                                      | 5.13                                                                                                      | 7.68                                                                                                                                    | 12.70                                                                                                                                  | 15.17                                                                      |

From 3525: Cylinder head screw with hexagonal socket \* Non stock items ▲ This is a shallow keyway bore.

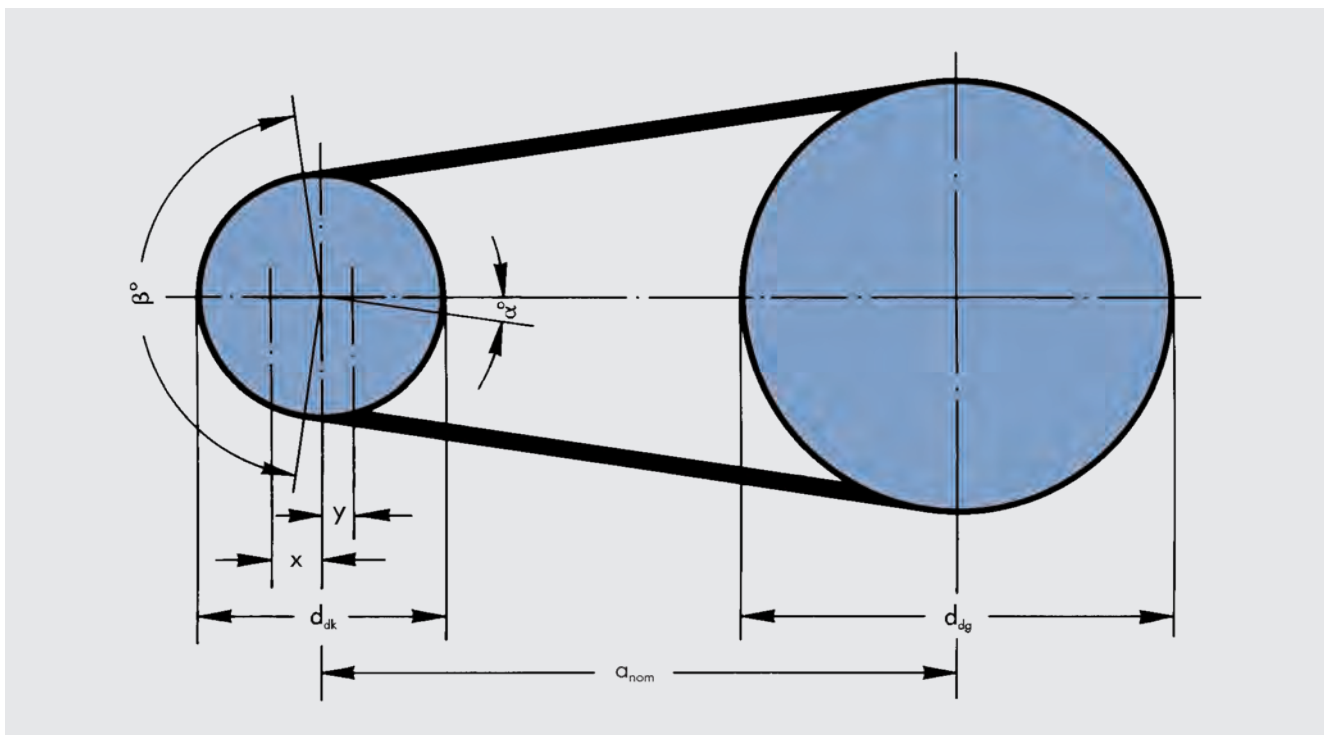
# DRIVE CALCULATION

## EXPLANATION OF SYMBOLS



|           |                                                                |                    |                  |                                                                               |                      |
|-----------|----------------------------------------------------------------|--------------------|------------------|-------------------------------------------------------------------------------|----------------------|
| $a$       | = drive centre distance provisional                            | [mm]               | $L_{ith}$        | = calculated inside belt length                                               | [mm]                 |
| $a_{nom}$ | = drive centre distance calculated with a standard belt length | [mm]               | $L_{dSt}$        | = standard belt datum length                                                  | [mm]                 |
| $b_d$     | = datum width                                                  |                    | $L_{dth}$        | = calculated belt datum length                                                | [mm]                 |
| $b_1$     | = top width                                                    |                    | $n_g$            | = speed of the larger pulley                                                  | [min <sup>-1</sup> ] |
| $c_1$     | = arc of contact correction factor                             |                    | $n_k$            | = speed of the smaller pulley                                                 | [min <sup>-1</sup> ] |
| $c_2$     | = service factor                                               |                    | $n_1$            | = speed of the driver pulley                                                  | [min <sup>-1</sup> ] |
| $c_3$     | = belt length factor                                           |                    | $n_2$            | = speed of the driven pulley                                                  | [min <sup>-1</sup> ] |
| $c_4$     | = number of idlers factor                                      |                    | $P$              | = motor or normal running power                                               | [kW*]                |
| $d_{dg}$  | = datum diameter of large pulley (DIN 2211 Sheet 1, Table 2)   | [mm]               | $P_B$            | = design power                                                                | [kW*]                |
| $d_{dk}$  | = datum diameter of small pulley (DIN 2211 Sheet 1, Table 2)   | [mm]               | $P_N$            | = nominal power rating per belt                                               | [kW*]                |
| $d_{d1}$  | = datum diameter of the driver pulley                          | [mm]               | $S_a$            | = minimum static shaft loading                                                | [N]                  |
| $d_{d2}$  | = datum diameter of the driven pulley                          | [mm]               | $T$              | = minimum static tension per belt                                             | [N]                  |
| $E$       | = belt deflection per 100 mm span length                       | [mm]               | $v$              | = belt speed                                                                  | [m/s]                |
| $E_a$     | = belt deflection for a given span length                      | [mm]               | $x$              | = minimum allowance above centre distance $a_{nom}$ for belt stretch and wear | [mm]                 |
| $f$       | = load used to set belt tension                                | [N]                | $y$              | = minimum allowance below centre distance $a_{nom}$ for easy belt fitting     | [mm]                 |
| $f_B$     | = flex rate                                                    | [s <sup>-1</sup> ] | $z$              | = number of belts                                                             |                      |
| $i$       | = drive ratio                                                  |                    | $\alpha$         | = angle of belt drive = $90^\circ - \frac{\beta}{2}$                          | [°]                  |
| $k$       | = constant for calculating centrifugal force in belt set       |                    | $\beta$          | = arc of contact on small pulley                                              | [°]                  |
| $L$       | = span length                                                  | [mm]               | * 1 kW = 1 kNm/s |                                                                               |                      |
| $L_{iSt}$ | = standard inside belt length                                  | [mm]               |                  |                                                                               |                      |

The terms pitch diameter ( $d_w$ ), pitch length ( $L_w$ ) and pitch circumference ( $U_w$ ) used previously have been changed to datum diameter ( $d_d$ ), datum length ( $L_d$ ) and datum circumference ( $U_d$ ) in order to bring them into line with current standard terminology.



# DRIVE CALCULATION

## OPTIBELT NOMINAL POWER RATING $P_N$ – ARC OF CONTACT CORRECTION FACTOR $c_1$



The Optibelt nominal power ratings  $P_N$  in tables 32 to 68 are based upon an internationally accepted basic formula and a theoretical belt life of 25.000 hours under ideal conditions. This formula contains material constants that take into account the quality of the raw materials used and make allowances for production methods. Due to the special qualities of Optibelt V-belts, other material constants than those given in DIN have been taken into account. As a result, the nominal Optibelt power ratings  $P_N$  significantly exceed the ratings given, for wedge belts according to DIN 7753 Part 2 and for classic V-belts according to DIN 2218, for the same theoretical belt life. The nominal power ratings  $P_N$  are based on the smallest loaded pulley in the drive system. The belt power rating value  $P_N$  is calculated taking into account

- the datum diameter of the smaller pulley  $d_{dk}$
- the speed of the smaller pulley  $n_k$
- the drive ratio  $i$
- an assumed arc of contact at the smaller pulley of  $\beta = 180^\circ$
- a reference belt length for the specific belt profile

In order to account for the actual drive data, based on the arc of contact and the belt lengths employed, correction factors for the arc of contact  $c_1$  and length  $c_3$  have been introduced. If required, drive calculations can be provided for any theoretical belt life.

Intermediate values for nominal power rating, arc of contact and length correction factors can be found via linear interpolation.

The factor  $c_1$  corrects the power rating  $P_N$ , when the arc of contact is smaller than  $180^\circ$ , as the  $P_N$  value is calculated on the arc of contact  $\beta = 180^\circ$  on the smaller pulley.

**Table 22**

| $\frac{d_{dg} - d_{dk}}{a_{nom}}$ | $\beta \approx$ | $c_1$ |
|-----------------------------------|-----------------|-------|
| 0                                 | 180°            | 1.00  |
| 0.05                              | 177°            | 1.00  |
| 0.10                              | 174°            | 1.00  |
| 0.15                              | 171°            | 1.00  |
| 0.20                              | 168°            | 0.99  |
| 0.25                              | 165°            | 0.99  |
| 0.30                              | 162°            | 0.99  |
| 0.35                              | 160°            | 0.99  |
| 0.40                              | 156°            | 0.99  |
| 0.45                              | 153°            | 0.98  |
| 0.50                              | 150°            | 0.98  |
| 0.55                              | 147°            | 0.98  |
| 0.60                              | 144°            | 0.98  |
| 0.65                              | 141°            | 0.97  |
| 0.70                              | 139°            | 0.97  |
| 0.75                              | 136°            | 0.97  |
| 0.80                              | 133°            | 0.96  |
| 0.85                              | 130°            | 0.96  |
| 0.90                              | 126°            | 0.96  |
| 0.95                              | 123°            | 0.95  |
| 1.00                              | 119°            | 0.94  |
| 1.05                              | 115°            | 0.94  |
| 1.10                              | 112°            | 0.93  |
| 1.15                              | 109°            | 0.93  |
| 1.20                              | 106°            | 0.92  |
| 1.25                              | 103°            | 0.91  |
| 1.30                              | 100°            | 0.91  |
| 1.35                              | 96°             | 0.90  |
| 1.40                              | 92°             | 0.88  |
| 1.45                              | 88°             | 0.87  |
| 1.50                              | 84°             | 0.86  |
| 1.55                              | 80°             | 0.84  |
| 1.60                              | 77°             | 0.83  |

# DRIVE CALCULATION

## LOAD FACTOR $c_2$



The service factor  $c_2$  takes account of the daily operating time and of the type of driver and driven machine. It applies exclusively to two-pulley drives. Other arrangements such as drives with tension and guide idlers have not been taken into consideration. Pages 136-137 provide the relevant basic design guidelines for drives with more than two pulleys. Adverse operating conditions (e.g. aggressive dust, particularly high ambient temperatures or the effects of various substances) **have not** been taken into account. As it is practically impossible to cover every conceivable combination of driver/driven machine/operating conditions in a summary that complies with the relevant standards, the service factors are **approximate values**.

**In special cases. e.g. increased starting torque (direct on-line starting of fans), in drives with frequent starts and stops, in systems subject to exceptional shock loads, or when significant masses are to be accelerated or braked, the service factor must be increased.**

**Empirical value:**

**With a starting torque > 1.8 this figure is to be divided by 1.5 in order to calculate the minimum load factor  $c_2$ .**

**Example: Starting torque MA = 3.0;  $c_2$  selected 2.0.**

**Please consult our Applications Engineering Department for the solution of special problems.**

Table 23

| Examples for work machines                                                                                                                                                                                                                                                                                 | Examples for drive machines                                                                                                                                                                                                                                                                                                                                                |               |         |                                                                                                                                                                                                                                                                                    |               |         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------|
|                                                                                                                                                                                                                                                                                                            | AC motors and three-phase induction machines with a normal starting torque (up to 1.8 times nominal torque), e. g. synchronous motors and single-phase motors with a starting-aid phase, three-phase squirrel cage motors with direct start, star-delta connection or slip ring starters; direct-current shunt-wound motors, combustion engines and turbines $n > 600$ rpm |               |         | AC motors and three-phase induction machines with high starting torque (over 1.8 times nominal torque), e. g. single-phase motors with high starting torque; direct-current series-wound motors with series connection and compound; combustion engines and turbines $n < 600$ rpm |               |         |
|                                                                                                                                                                                                                                                                                                            | Load factor $c_2$<br>for daily operating time (hours)                                                                                                                                                                                                                                                                                                                      |               |         | Load factor $c_2$<br>for daily operating time (hours)                                                                                                                                                                                                                              |               |         |
|                                                                                                                                                                                                                                                                                                            | up to 10                                                                                                                                                                                                                                                                                                                                                                   | over 10 to 16 | over 16 | up to 10                                                                                                                                                                                                                                                                           | over 10 to 16 | over 16 |
| <b>Light drives</b><br>Centrifugal pumps and compressors, belt conveyors (light weight materials), fans and pumps up to 7.5 kW                                                                                                                                                                             | 1.1                                                                                                                                                                                                                                                                                                                                                                        | 1.1           | 1.2     | 1.1                                                                                                                                                                                                                                                                                | 1.2           | 1.3     |
| <b>Medium drives</b><br>Plate cutters, presses, chain and belt conveyors (heavy materials), vibrating screens, generators and exciters, bakery machinery, machine tools (lathes and grinders), laundry machines, printing machinery, fans and pumps over 7.5 kW                                            | 1.1                                                                                                                                                                                                                                                                                                                                                                        | 1.2           | 1.3     | 1.2                                                                                                                                                                                                                                                                                | 1.3           | 1.4     |
| <b>Heavy drives</b><br>Crushing plants, piston compressors, heavy-duty conveyors, directional throw conveyors, push conveyors (screw, plate belts, bucket and shovel conveyors), lifts, briquette presses, textile machinery, paper machinery, piston pumps, excavator pumps, log frame saws, hammer mills | 1.2                                                                                                                                                                                                                                                                                                                                                                        | 1.3           | 1.4     | 1.4                                                                                                                                                                                                                                                                                | 1.5           | 1.6     |
| <b>Very heavy drives</b><br>Heavy-duty mills, stone crushers, calenders, mixers, winches, cranes, excavators, heavy-duty wood working machinery                                                                                                                                                            | 1.3                                                                                                                                                                                                                                                                                                                                                                        | 1.4           | 1.5     | 1.5                                                                                                                                                                                                                                                                                | 1.6           | 1.8     |

# DRIVE CALCULATION

## LENGTH FACTOR $c_3$ FOR OPTIBELT WEDGE BELTS AND KRAFTBANDS



The length factor  $c_3$  takes into account the flex rate of the belt based on the reference length for the particular belt profile.

This results in the following relationships:

belt length > reference length  $c_3 > 1.0$   
 belt length = reference length  $c_3 = 1.0$   
 belt length < reference length  $c_3 < 1.0$

**Table 24**

| Profile SPZ, XPZ  |             | Profile SPA, XPA  |             | Profile SPB, XPB  |             | Profile SPC, XPC  |             |
|-------------------|-------------|-------------------|-------------|-------------------|-------------|-------------------|-------------|
| Datum length [mm] | $c_3$       | Datum length [mm] | $c_3$       | Datum length [mm] | $c_3$       | Datum length [mm] | $c_3$       |
| 630               | <b>0.83</b> | 800               | <b>0.81</b> | 1250              | <b>0.83</b> | 2000              | <b>0.85</b> |
| 670               | <b>0.84</b> | 850               | <b>0.82</b> | 1320              | <b>0.84</b> | 2120              | <b>0.86</b> |
| 710               | <b>0.85</b> | 900               | <b>0.83</b> | 1400              | <b>0.85</b> | 2240              | <b>0.86</b> |
| 750               | <b>0.86</b> | 950               | <b>0.84</b> | 1500              | <b>0.86</b> | 2360              | <b>0.87</b> |
| 800               | <b>0.87</b> | 1000              | <b>0.85</b> | 1600              | <b>0.87</b> | 2500              | <b>0.88</b> |
| 850               | <b>0.88</b> | 1060              | <b>0.86</b> | 1700              | <b>0.88</b> | 2650              | <b>0.89</b> |
| 900               | <b>0.89</b> | 1120              | <b>0.86</b> | 1800              | <b>0.89</b> | 2800              | <b>0.90</b> |
| 950               | <b>0.90</b> | 1180              | <b>0.87</b> | 1900              | <b>0.90</b> | 3000              | <b>0.91</b> |
| 1000              | <b>0.91</b> | 1250              | <b>0.88</b> | 2000              | <b>0.91</b> | 3150              | <b>0.91</b> |
| 1060              | <b>0.92</b> | 1320              | <b>0.89</b> | 2120              | <b>0.92</b> | 3350              | <b>0.92</b> |
| 1120              | <b>0.93</b> | 1400              | <b>0.90</b> | 2240              | <b>0.93</b> | 3550              | <b>0.93</b> |
| 1180              | <b>0.94</b> | 1500              | <b>0.91</b> | 2360              | <b>0.93</b> | 3750              | <b>0.94</b> |
| 1250              | <b>0.95</b> | 1600              | <b>0.92</b> | 2500              | <b>0.94</b> | 4000              | <b>0.95</b> |
| 1320              | <b>0.96</b> | 1700              | <b>0.93</b> | 2650              | <b>0.95</b> | 4250              | <b>0.96</b> |
| 1400              | <b>0.98</b> | 1800              | <b>0.94</b> | 2800              | <b>0.96</b> | 4500              | <b>0.97</b> |
| 1500              | <b>0.99</b> | 1900              | <b>0.95</b> | 3000              | <b>0.97</b> | 4750              | <b>0.98</b> |
| <b>1600</b>       | <b>1.00</b> | 2000              | <b>0.96</b> | 3150              | <b>0.98</b> | 5000              | <b>0.98</b> |
| 1700              | <b>1.01</b> | 2120              | <b>0.97</b> | 3350              | <b>0.99</b> | 5300              | <b>0.99</b> |
| 1800              | <b>1.02</b> | 2240              | <b>0.98</b> | <b>3550</b>       | <b>1.00</b> | <b>5600</b>       | <b>1.00</b> |
| 1900              | <b>1.03</b> | 2360              | <b>0.99</b> | 3750              | <b>1.01</b> | 6000              | <b>1.01</b> |
| 2000              | <b>1.04</b> | <b>2500</b>       | <b>1.00</b> | 4000              | <b>1.02</b> | 6300              | <b>1.02</b> |
| 2120              | <b>1.05</b> | 2650              | <b>1.01</b> | 4250              | <b>1.03</b> | 6700              | <b>1.03</b> |
| 2240              | <b>1.06</b> | 2800              | <b>1.02</b> | 4500              | <b>1.04</b> | 7100              | <b>1.04</b> |
| 2360              | <b>1.07</b> | 3000              | <b>1.03</b> | 4700              | <b>1.04</b> | 7500              | <b>1.04</b> |
| 2500              | <b>1.08</b> | 3150              | <b>1.04</b> | 5000              | <b>1.05</b> | 8000              | <b>1.05</b> |
| 2650              | <b>1.09</b> | 3350              | <b>1.05</b> | 5300              | <b>1.06</b> | 8500              | <b>1.06</b> |
| 2800              | <b>1.10</b> | 3550              | <b>1.06</b> | 5600              | <b>1.07</b> | 9000              | <b>1.07</b> |
| 3000              | <b>1.11</b> | 3750              | <b>1.07</b> | 6000              | <b>1.08</b> | 9500              | <b>1.08</b> |
| 3150              | <b>1.12</b> | 4000              | <b>1.08</b> | 6300              | <b>1.09</b> | 10000             | <b>1.09</b> |
| 3350              | <b>1.13</b> | 4250              | <b>1.09</b> | 6700              | <b>1.10</b> | 10600             | <b>1.09</b> |
| 3550              | <b>1.15</b> | 4500              | <b>1.10</b> | 7100              | <b>1.11</b> | 11200             | <b>1.10</b> |
| 3750              | <b>1.16</b> | 4750              | <b>1.11</b> | 7500              | <b>1.12</b> | 11800             | <b>1.11</b> |
| 4000              | <b>1.17</b> | 5000              | <b>1.12</b> | 8000              | <b>1.13</b> | 12500             | <b>1.12</b> |
| 4250              | <b>1.18</b> | 5300              | <b>1.13</b> | 8500              | <b>1.14</b> | 13200             | <b>1.13</b> |
| 4500              | <b>1.19</b> | 5600              | <b>1.14</b> | 9000              | <b>1.15</b> | 14000             | <b>1.14</b> |
|                   |             | 6000              | <b>1.15</b> | 9500              | <b>1.16</b> | 15000             | <b>1.15</b> |
|                   |             |                   |             | 10000             | <b>1.17</b> |                   |             |

# DRIVE CALCULATION

## LENGTH FACTOR $c_3$ FOR OPTIBELT WEDGE BELTS AND KRAFTBANDS



Table 25

| Profile 3V/9N, 3VX/9NX<br>3V/9J, 3VX/9JX |                     |             | Profile 5V/15N, 5VX/15NX<br>5V/15J, 5VX/15JX |                     |             | Profile 8V/25N<br>8V/25J |                     |             |
|------------------------------------------|---------------------|-------------|----------------------------------------------|---------------------|-------------|--------------------------|---------------------|-------------|
| Belt designation                         | Outside length [mm] | $c_3$       | Belt designation                             | Outside length [mm] | $c_3$       | Belt designation         | Outside length [mm] | $c_3$       |
| 3V 265                                   | 673                 | <b>0.84</b> | 5V 500                                       | 1270                | <b>0.84</b> | 8V 1000                  | 2540                | <b>0.87</b> |
| 3V 280                                   | 711                 | <b>0.85</b> | 5V 530                                       | 1346                | <b>0.85</b> | 8V 1060                  | 2692                | <b>0.87</b> |
| 3V 300                                   | 762                 | <b>0.86</b> | 5V 560                                       | 1422                | <b>0.85</b> | 8V 1120                  | 2845                | <b>0.88</b> |
| 3V 315                                   | 800                 | <b>0.87</b> | 5V 600                                       | 1524                | <b>0.87</b> | 8V 1180                  | 2997                | <b>0.89</b> |
| 3V 335                                   | 851                 | <b>0.88</b> | 5V 630                                       | 1600                | <b>0.87</b> | 8V 1250                  | 3175                | <b>0.90</b> |
| 3V 355                                   | 902                 | <b>0.90</b> | 5V 670                                       | 1702                | <b>0.88</b> | 8V 1320                  | 3353                | <b>0.91</b> |
| 3V 375                                   | 952                 | <b>0.91</b> | 5V 710                                       | 1803                | <b>0.89</b> | 8V 1400                  | 3556                | <b>0.92</b> |
| 3V 400                                   | 1016                | <b>0.92</b> | 5V 750                                       | 1905                | <b>0.90</b> | 8V 1500                  | 3810                | <b>0.93</b> |
| 3V 425                                   | 1079                | <b>0.93</b> | 5V 800                                       | 2032                | <b>0.91</b> | 8V 1600                  | 4064                | <b>0.93</b> |
| 3V 450                                   | 1143                | <b>0.94</b> | 5V 850                                       | 2159                | <b>0.92</b> | 8V 1700                  | 4318                | <b>0.94</b> |
| 3V 475                                   | 1206                | <b>0.95</b> | 5V 900                                       | 2286                | <b>0.93</b> | 8V 1800                  | 4572                | <b>0.95</b> |
| 3V 500                                   | 1270                | <b>0.96</b> | 5V 950                                       | 2413                | <b>0.94</b> | 8V 1900                  | 4826                | <b>0.96</b> |
| 3V 530                                   | 1346                | <b>0.97</b> | 5V 1000                                      | 2540                | <b>0.95</b> | 8V 2000                  | 5080                | <b>0.97</b> |
| 3V 560                                   | 1422                | <b>0.98</b> | 5V 1060                                      | 2692                | <b>0.96</b> | 8V 2120                  | 5385                | <b>0.98</b> |
| 3V 600                                   | 1524                | <b>0.99</b> | 5V 1120                                      | 2845                | <b>0.96</b> | 8V 2240                  | 5690                | <b>0.98</b> |
| <b>3V 630</b>                            | <b>1600</b>         | <b>1.00</b> | 5V 1180                                      | 2997                | <b>0.97</b> | 8V 2360                  | 5994                | <b>0.99</b> |
| 3V 670                                   | 1702                | <b>1.01</b> | 5V 1250                                      | 3175                | <b>0.98</b> | <b>8V 2500</b>           | <b>6350</b>         | <b>1.00</b> |
| 3V 710                                   | 1803                | <b>1.02</b> | 5V 1320                                      | 3353                | <b>0.99</b> | 8V 2650                  | 6731                | <b>1.01</b> |
| 3V 750                                   | 1905                | <b>1.03</b> | <b>5V 1400</b>                               | <b>3556</b>         | <b>1.00</b> | 8V 2800                  | 7112                | <b>1.02</b> |
| 3V 800                                   | 2032                | <b>1.04</b> | 5V 1500                                      | 3810                | <b>1.01</b> | 8V 3000                  | 7620                | <b>1.03</b> |
| 3V 850                                   | 2159                | <b>1.05</b> | 5V 1600                                      | 4064                | <b>1.02</b> | 8V 3150                  | 8001                | <b>1.03</b> |
| 3V 900                                   | 2286                | <b>1.07</b> | 5V 1700                                      | 4318                | <b>1.03</b> | 8V 3350                  | 8509                | <b>1.04</b> |
| 3V 950                                   | 2413                | <b>1.07</b> | 5V 1800                                      | 4572                | <b>1.04</b> | 8V 3550                  | 9017                | <b>1.05</b> |
| 3V 1000                                  | 2540                | <b>1.08</b> | 5V 1900                                      | 4826                | <b>1.05</b> | 8V 3750                  | 9525                | <b>1.06</b> |
| 3V 1060                                  | 2692                | <b>1.09</b> | 5V 2000                                      | 5080                | <b>1.06</b> | 8V 4000                  | 10160               | <b>1.07</b> |
| 3V 1120                                  | 2845                | <b>1.11</b> | 5V 2120                                      | 5385                | <b>1.07</b> | 8V 4250                  | 10795               | <b>1.08</b> |
| 3V 1180                                  | 2997                | <b>1.11</b> | 5V 2240                                      | 5690                | <b>1.07</b> | 8V 4500                  | 11430               | <b>1.09</b> |
| 3V 1250                                  | 3175                | <b>1.13</b> | 5V 2360                                      | 5994                | <b>1.08</b> | 8V 4750                  | 12065               | <b>1.09</b> |
| 3V 1320                                  | 3353                | <b>1.14</b> | 5V 2500                                      | 6350                | <b>1.09</b> | 8V 5000                  | 12700               | <b>1.10</b> |
| 3V 1400                                  | 3556                | <b>1.15</b> | 5V 2650                                      | 6731                | <b>1.10</b> | 8V 5300                  | 13462               | <b>1.11</b> |
| 3V 1500                                  | 3810                | <b>1.16</b> | 5V 2800                                      | 7112                | <b>1.11</b> | 8V 5600                  | 14224               | <b>1.12</b> |
| 3V 1600                                  | 4064                | <b>1.17</b> | 5V 3000                                      | 7620                | <b>1.12</b> | 8V 6000                  | 15240               | <b>1.13</b> |
| 3V 1700                                  | 4318                | <b>1.18</b> | 5V 3150                                      | 8001                | <b>1.13</b> | 8V 6300                  | 16002               | <b>1.13</b> |
| 3V 1800                                  | 4572                | <b>1.19</b> | 5V 3350                                      | 8509                | <b>1.14</b> |                          |                     |             |
| 3V 1900                                  | 4826                | <b>1.20</b> | 5V 3550                                      | 9017                | <b>1.15</b> |                          |                     |             |
| 3V 2000                                  | 5080                | <b>1.21</b> | 5V 3750                                      | 9525                | <b>1.16</b> |                          |                     |             |
|                                          |                     |             | 5V 4000                                      | 10160               | <b>1.17</b> |                          |                     |             |

# DRIVE CALCULATION

## LENGTH FACTOR $c_3$ FOR OPTIBELT WEDGE BELTS AND KRAFTBANDS



Table 26

| Profile 5*           |       | Profile Y/6*      |       | Profile 8         |       | Profile Z/10, ZX/X10 |       | Profile A/13, AX/X13 |       | Profile B/17, BX/X17 |       | Profile 20        |       |
|----------------------|-------|-------------------|-------|-------------------|-------|----------------------|-------|----------------------|-------|----------------------|-------|-------------------|-------|
| Datum length [mm]    | $c_3$ | Datum length [mm] | $c_3$ | Datum length [mm] | $c_3$ | Datum length [mm]    | $c_3$ | Datum length [mm]    | $c_3$ | Datum length [mm]    | $c_3$ | Datum length [mm] | $c_3$ |
| 172                  | 0.87  | 280               | 0.97  | 299*              | 0.86  | 422*                 | 0.86  | 660                  | 0.80  | 900                  | 0.81  | 948               | 0.75  |
| 202                  | 0.91  | 295               | 0.99  | 334*              | 0.88  | 447*                 | 0.87  | 740                  | 0.82  | 990                  | 0.83  | 998               | 0.76  |
| 248                  | 0.95  | 315               | 1.00  | 374*              | 0.91  | 472*                 | 0.88  | 780                  | 0.83  | 1040                 | 0.84  | 1048              | 0.77  |
| 277                  | 0.97  | 330               | 1.01  | 419*              | 0.93  | 497*                 | 0.89  | 830                  | 0.85  | 1100                 | 0.85  | 1168              | 0.79  |
| 292                  | 0.99  | 350               | 1.02  | 444*              | 0.94  | 522*                 | 0.90  | 880                  | 0.86  | 1140                 | 0.85  | 1228              | 0.80  |
| 312                  | 1.00  | 370               | 1.04  | 469*              | 0.95  | 552*                 | 0.92  | 930                  | 0.87  | 1220                 | 0.87  | 1298              | 0.81  |
| 327                  | 1.01  | 390               | 1.05  | 494*              | 0.97  | 582*                 | 0.93  | 980                  | 0.88  | 1290                 | 0.88  | 1368              | 0.82  |
| 334                  | 1.01  | 415               | 1.06  | 549*              | 0.99  | 622                  | 0.94  | 1030                 | 0.89  | 1360                 | 0.89  | 1448              | 0.83  |
| 347                  | 1.02  | 440               | 1.07  | 579*              | 1.00  | 652                  | 0.95  | 1090                 | 0.90  | 1440                 | 0.90  | 1548              | 0.85  |
| 364                  | 1.03  | 465               | 1.09  | 594*              | 1.01  | 692                  | 0.96  | 1150                 | 0.91  | 1540                 | 0.92  | 1648              | 0.86  |
| 387                  | 1.05  | 490               | 1.10  | 619*              | 1.01  | 732                  | 0.98  | 1210                 | 0.92  | 1640                 | 0.93  | 1848              | 0.88  |
| 418                  | 1.06  | 515               | 1.11  | 649*              | 1.02  | 822                  | 1.00  | 1280                 | 0.94  | 1740                 | 0.94  | 2048              | 0.91  |
| 437                  | 1.07  | 555               | 1.13  | 689*              | 1.04  | 847                  | 1.01  | 1350                 | 0.95  | 1840                 | 0.95  | 2168              | 0.92  |
| 487                  | 1.10  | 615               | 1.15  | 729*              | 1.05  | 887                  | 1.02  | 1430                 | 0.96  | 1940                 | 0.97  | 2298              | 0.93  |
| 512                  | 1.11  | 725               | 1.19  | 769*              | 1.06  | 922                  | 1.02  | 1530                 | 0.97  | 2040                 | 0.98  | 2408              | 0.94  |
| 524                  | 1.11  | 765               | 1.20  | 819*              | 1.08  | 947                  | 1.03  | 1630                 | 0.99  | 2160                 | 0.99  | 2548              | 0.95  |
| 542                  | 1.12  | 865               | 1.23  | 869               | 1.09  | 997                  | 1.04  | 1730                 | 1.00  | 2280                 | 1.00  | 2698              | 0.96  |
| 566                  | 1.13  |                   |       | 894               | 1.10  | 1022                 | 1.05  | 1830                 | 1.01  | 2400                 | 1.01  | 2848              | 0.98  |
| 612                  | 1.15  |                   |       | 919               | 1.10  | 1082                 | 1.06  | 1930                 | 1.02  | 2590                 | 1.03  | 3048              | 0.99  |
|                      |       |                   |       | 969               | 1.11  | 1142                 | 1.07  | 2030                 | 1.03  | 2690                 | 1.04  | 3198              | 1.00  |
|                      |       |                   |       | 1019              | 1.13  | 1172                 | 1.08  | 2150                 | 1.05  | 2840                 | 1.05  | 3398              | 1.01  |
|                      |       |                   |       | 1139              | 1.15  | 1202                 | 1.08  | 2270                 | 1.06  | 3040                 | 1.06  | 3598              | 1.03  |
|                      |       |                   |       | 1269              | 1.18  | 1272                 | 1.10  | 2390                 | 1.07  | 3190                 | 1.07  | 3798              | 1.04  |
|                      |       |                   |       | 1339              | 1.19  | 1342                 | 1.11  | 2530                 | 1.08  | 3390                 | 1.09  | 4048              | 1.05  |
|                      |       |                   |       | 1419              | 1.20  | 1422                 | 1.12  | 2680                 | 1.10  | 3590                 | 1.10  | 4298              | 1.06  |
|                      |       |                   |       | 1519              | 1.22  | 1522                 | 1.14  | 2830                 | 1.11  | 3790                 | 1.11  | 4548              | 1.08  |
|                      |       |                   |       |                   |       | 1622                 | 1.15  | 3030                 | 1.12  | 4040                 | 1.13  | 4798              | 1.09  |
|                      |       |                   |       |                   |       |                      |       | 3180                 | 1.14  | 4290                 | 1.14  | 5048              | 1.10  |
|                      |       |                   |       |                   |       |                      |       | 3380                 | 1.15  | 4540                 | 1.15  | 5348              | 1.11  |
|                      |       |                   |       |                   |       |                      |       | 3780                 | 1.17  | 4790                 | 1.17  | 5648              | 1.13  |
|                      |       |                   |       |                   |       |                      |       | 4030                 | 1.19  | 5040                 | 1.18  | 6048              | 1.14  |
|                      |       |                   |       |                   |       |                      |       | 4530                 | 1.22  | 5340                 | 1.19  | 6348              | 1.15  |
|                      |       |                   |       |                   |       |                      |       | 5030                 | 1.24  | 5640                 | 1.20  | 7148              | 1.18  |
|                      |       |                   |       |                   |       |                      |       |                      |       | 6040                 | 1.22  | 8048              | 1.21  |
|                      |       |                   |       |                   |       |                      |       |                      |       | 6340                 | 1.23  |                   |       |
| Profile C/22, CX/X22 |       |                   |       | Profile 25        |       |                      |       | Profile D/32         |       |                      |       | Profile E/40      |       |
| 1458                 | 0.80  | 5058              | 1.06  | 1311              | 0.75  | 4311                 | 0.99  | 3225                 | 0.86  | 10075                | 1.10  | 4830              | 0.92  |
| 1558                 | 0.81  | 5358              | 1.07  | 1461              | 0.77  | 4561                 | 1.00  | 3425                 | 0.87  | 10675                | 1.11  | 5080              | 0.93  |
| 1658                 | 0.83  | 5658              | 1.09  | 1561              | 0.78  | 4811                 | 1.01  | 3625                 | 0.88  | 11275                | 1.13  | 5380              | 0.94  |
| 1858                 | 0.85  | 6058              | 1.10  | 1661              | 0.79  | 5061                 | 1.02  | 3825                 | 0.89  | 11875                | 1.14  | 5680              | 0.95  |
| 1958                 | 0.86  | 6358              | 1.11  | 1761              | 0.80  | 5361                 | 1.04  | 4075                 | 0.91  | 12575                | 1.15  | 6080              | 0.96  |
| 2058                 | 0.87  | 6758              | 1.13  | 1861              | 0.81  | 5661                 | 1.05  | 4325                 | 0.92  | 13275                | 1.16  | 6380              | 0.97  |
| 2178                 | 0.88  | 7158              | 1.14  | 1961              | 0.82  | 6061                 | 1.06  | 4575                 | 0.93  | 14075                | 1.18  | 6780              | 0.99  |
| 2298                 | 0.89  | 7558              | 1.15  | 2061              | 0.83  | 6361                 | 1.07  | 4825                 | 0.94  | 15075                | 1.19  | 7180              | 1.00  |
| 2418                 | 0.90  | 8058              | 1.17  | 2181              | 0.85  | 6761                 | 1.09  | 5075                 | 0.95  | 16075                | 1.21  | 7580              | 1.01  |
| 2558                 | 0.92  | 9058              | 1.19  | 2301              | 0.86  | 7161                 | 1.10  | 5375                 | 0.96  |                      |       | 8080              | 1.03  |
| 2708                 | 0.93  | 10058             | 1.22  | 2421              | 0.87  | 7561                 | 1.11  | 5675                 | 0.98  |                      |       | 8580              | 1.04  |
| 2858                 | 0.94  |                   |       | 2561              | 0.88  | 8061                 | 1.13  | 6075                 | 0.99  |                      |       | 9080              | 1.05  |
| 3058                 | 0.95  |                   |       | 2711              | 0.89  | 9061                 | 1.15  | 6375                 | 1.00  |                      |       | 9580              | 1.06  |
| 3208                 | 0.96  |                   |       | 2861              | 0.90  | 10061                | 1.18  | 6775                 | 1.01  |                      |       | 10080             | 1.07  |
| 3608                 | 0.99  |                   |       | 3061              | 0.92  | 11261                | 1.20  | 7175                 | 1.03  |                      |       | 10680             | 1.09  |
| 3808                 | 1.00  |                   |       | 3211              | 0.93  | 12561                | 1.23  | 7575                 | 1.04  |                      |       | 11280             | 1.10  |
| 4058                 | 1.01  |                   |       | 3411              | 0.94  |                      |       | 8075                 | 1.05  |                      |       | 11880             | 1.11  |
| 4308                 | 1.03  |                   |       | 3611              | 0.95  |                      |       | 8575                 | 1.06  |                      |       | 12580             | 1.12  |
| 4558                 | 1.04  |                   |       | 3811              | 0.96  |                      |       | 9075                 | 1.08  |                      |       | 13280             | 1.14  |
| 4808                 | 1.05  |                   |       | 4061              | 0.98  |                      |       | 9575                 | 1.09  |                      |       | 14080             | 1.15  |
|                      |       |                   |       |                   |       |                      |       |                      |       |                      |       | 15080             | 1.17  |
|                      |       |                   |       |                   |       |                      |       |                      |       |                      |       | 16080             | 1.18  |

\*Raw edge, cogged V-belts

# DRIVE CALCULATION

## GUIDELINES FOR SELECTING THE SUITABLE PROFILES FOR V-BELTS AND KRAFTBANDS



By using the following diagrams, the most suitable belt profiles as far as efficiency and size are concerned, can be selected for a specific application. The most efficient power transmission and economy is achieved by selecting as large a pulley diameter as possible for the profile in question. The limits to be observed are the maximum allowed circumferential speed, namely for

high performance wedge belts  $v_{\max} = 55 \text{ m/s}^*$ ;  
for classic V-belts  $v_{\max} = 30 \text{ m/s}$ .

If the circumferential speed is outside this recommendation, please contact our Application Engineering Department.

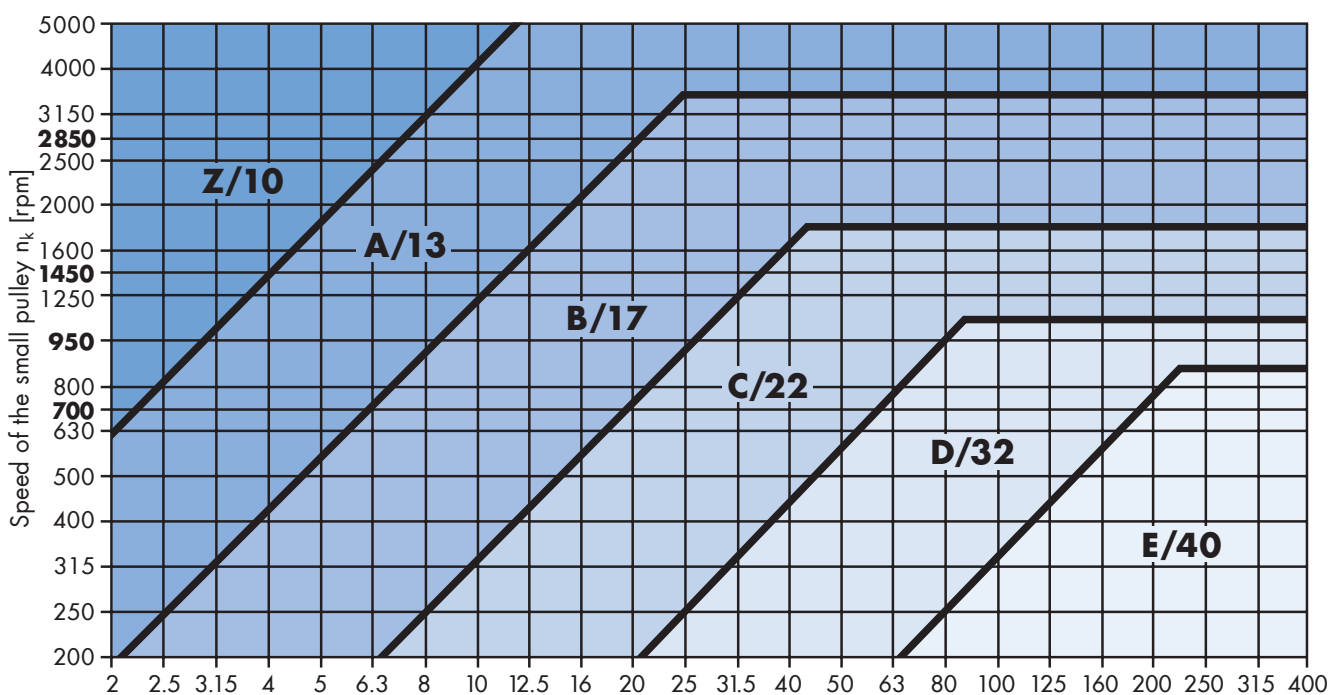
Experience has shown that minimum pulley diameters should be avoided. These drives require a larger number of belts with wider pulleys and are therefore more expensive.

In borderline cases we recommend using the next smaller profile belt for the same pulley diameter, as the smaller profile will often save both cost and space. A further recommended solution is the use of the raw edge optibelt SUPER X-POWER M=S V-belts.

Furthermore, we recommend evaluating if the intersection point in the selection diagram is in the limit values of two profiles.

Comparing space requirement and costs, the high performance wedge belt is usually far superior to classic V-belts in almost all industrial drives. For this reason, new constructions use high performance wedge belts almost exclusively. Only in special cases, for replacement parts, or for V-flat drives or special cases where the application of classic V-belts is obligatory.

**Diagram 1: optibelt VB classic V-belts DIN 2215**



Design power  $P_B = P \cdot c_2$  [kW]

\*  $v > 42 \text{ m/sec}$ . Please consult our Application Engineering Department.

# DRIVE CALCULATION

## GUIDELINES FOR SELECTING THE SUITABLE PROFILES

### FOR V-BELTS AND KRAFTBANDS



Diagram 2: optibelt SK high performance wedge belts DIN 7753 Part 1

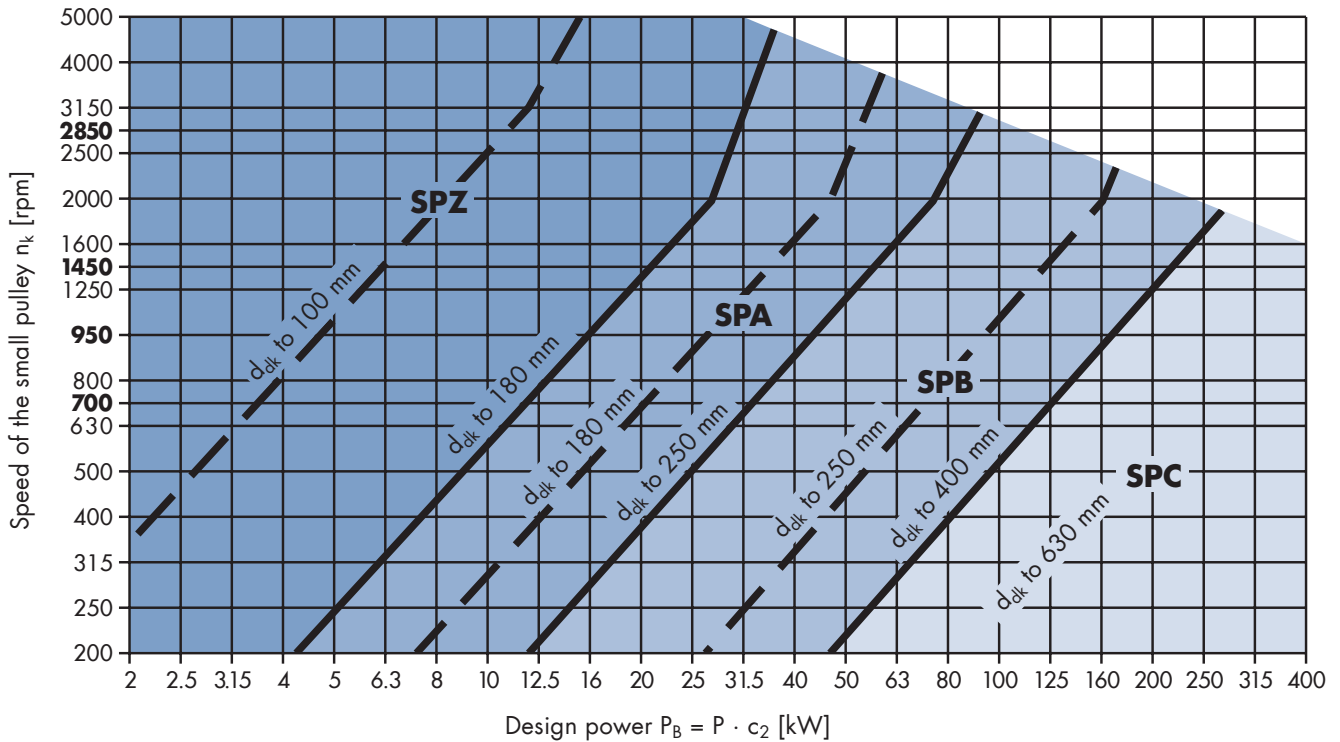
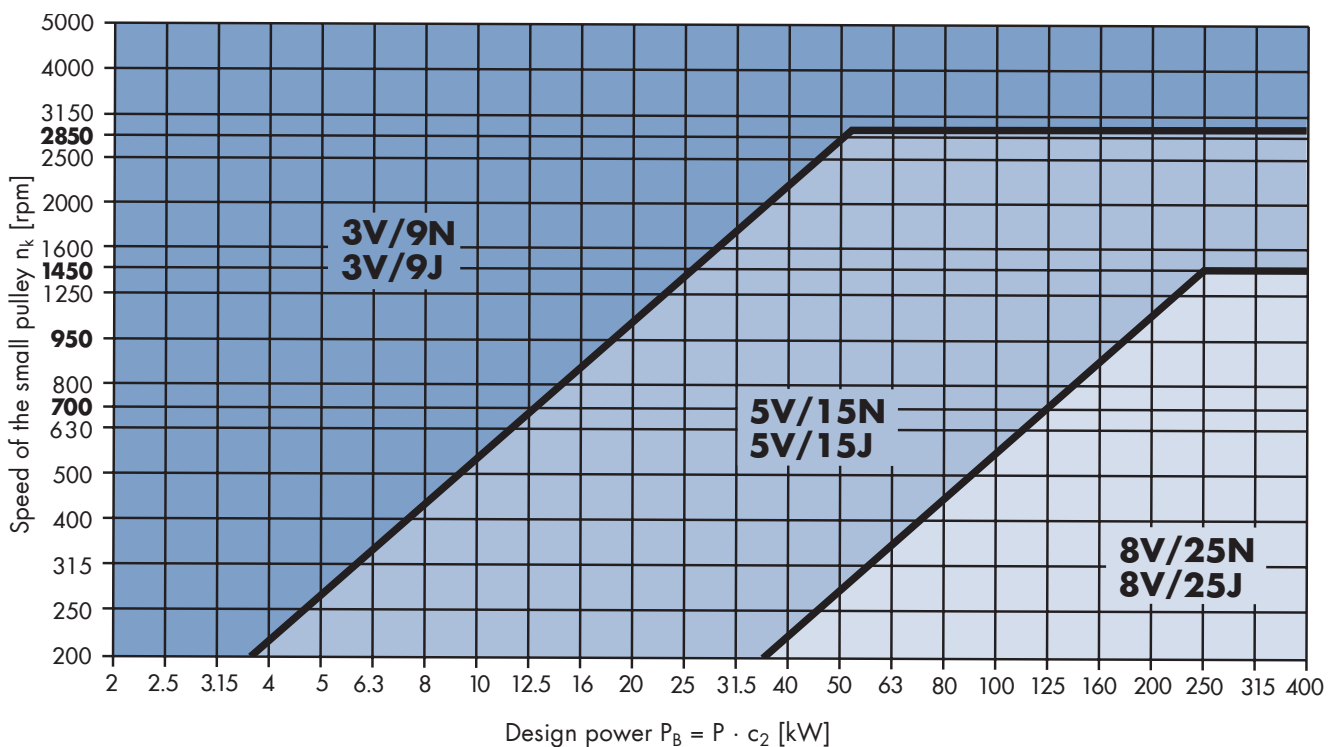


Diagram 3: optibelt SK high performance wedge belts ARPM/MPTA



# DRIVE CALCULATION

## GUIDELINES FOR SELECTING THE SUITABLE PROFILES

### FOR V-BELTS AND KRAFTBANDS



Diagram 4: optibelt SUPER X-POWER M=S wedge belts

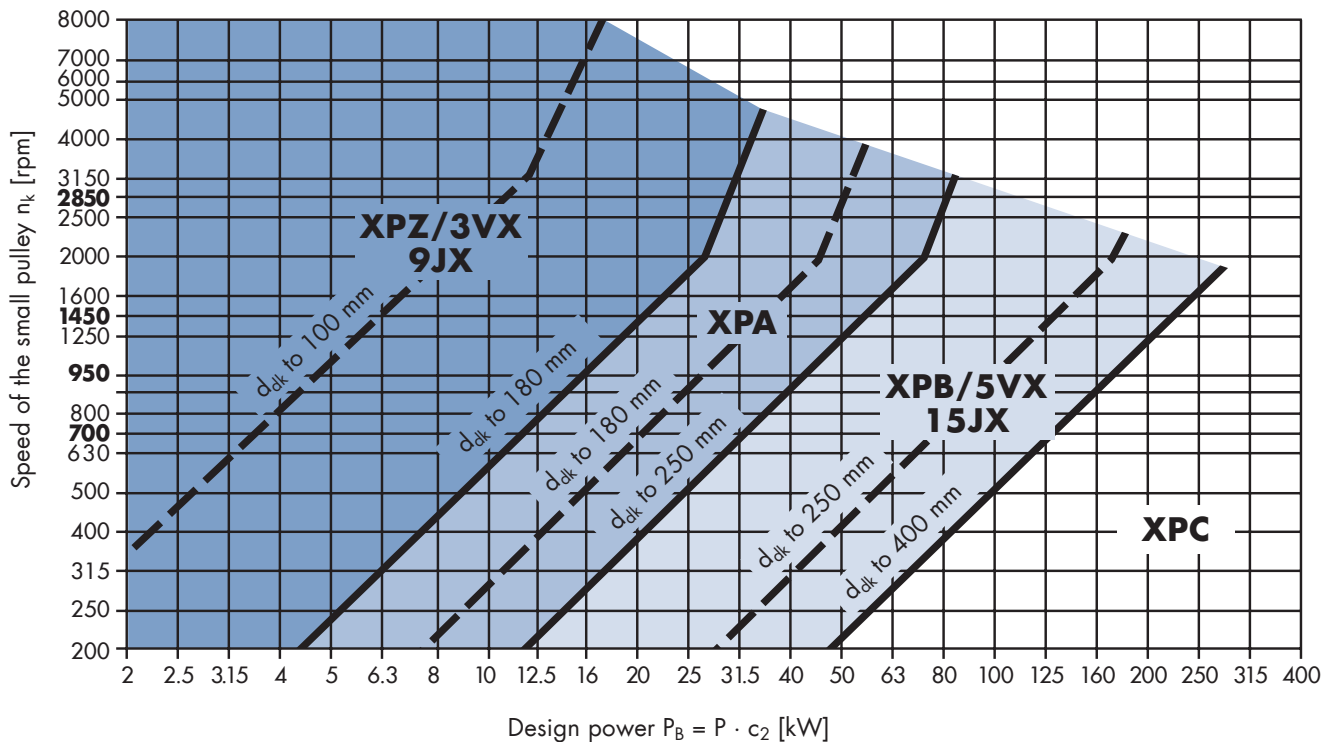
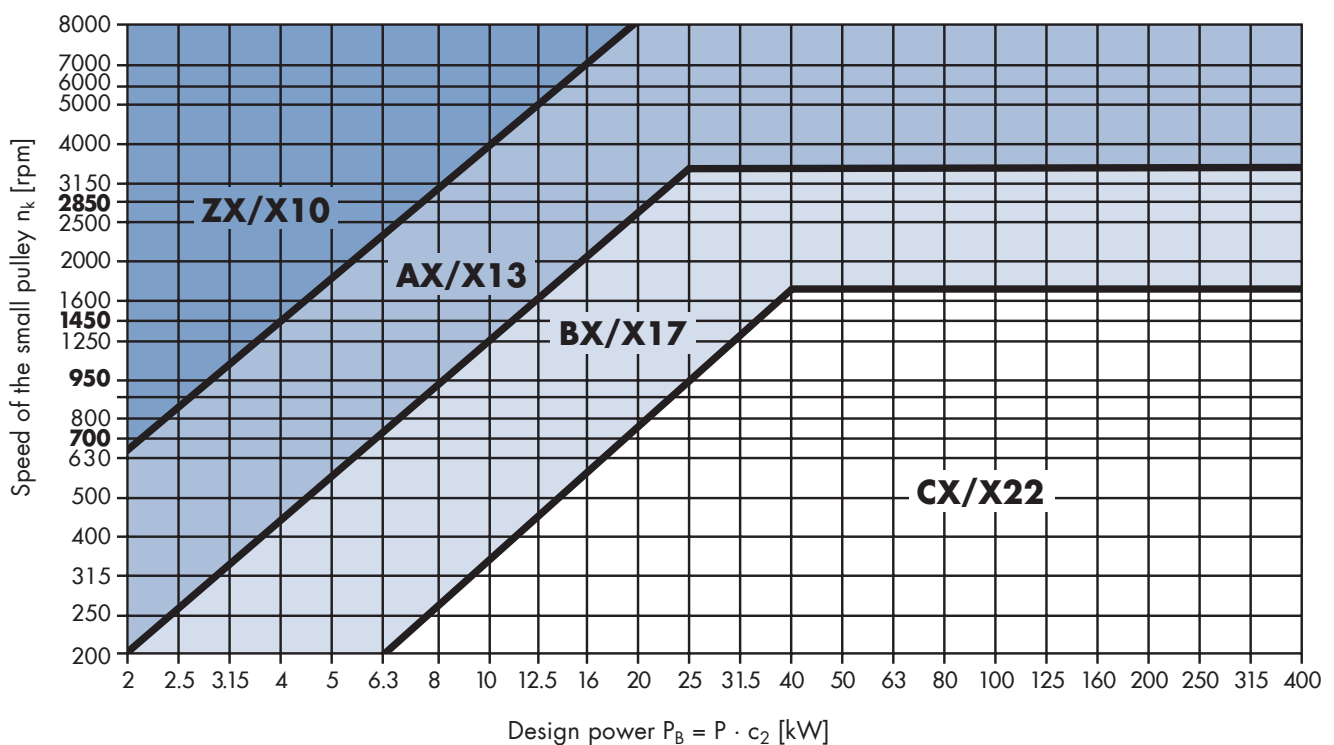


Diagram 5: optibelt SUPER TX M=S V-belts



# DRIVE CALCULATION

## MINIMUM ALLOWANCE X/Y

### FOR ADJUSTING CENTRE DISTANCE $a_{nom}$



Table 27: optibelt SK wedge belts

| Datum length<br>[mm] | Minimum<br>allowance x [mm] –<br>for tensioning | Minimum allowance y [mm] – for easy fitting |          |          |          |
|----------------------|-------------------------------------------------|---------------------------------------------|----------|----------|----------|
|                      |                                                 | SPZ, XPZ                                    | SPA, XPA | SPB, XPB | SPC, XPC |
| 487 ≤ 670            | 10                                              | 10                                          | 10       | —        | —        |
| > 670 ≤ 1 000        | 15                                              | 15                                          | 15       | —        | —        |
| > 1 000 ≤ 1 250      | 20                                              | 15                                          | 15       | —        | —        |
| > 1 250 ≤ 1 800      | 25                                              | 20                                          | 20       | 20       | —        |
| > 1 800 ≤ 2 240      | 25                                              | 20                                          | 20       | 20       | 25       |
| > 2 240 ≤ 3 000      | 35                                              | 20                                          | 20       | 20       | 30       |
| > 3 000 ≤ 4 000      | 45                                              | 20                                          | 20       | 20       | 30       |
| > 4 000 ≤ 5 000      | 55                                              | 20                                          | 20       | 25       | 30       |
| > 5 000 ≤ 6 300      | 70                                              | 25                                          | 25       | 30       | 35       |
| > 6 300 ≤ 8 000      | 85                                              | 25                                          | 25       | 35       | 40       |
| > 8 000 ≤ 10 000     | 110                                             | 30                                          | 30       | 35       | 45       |
| > 10 000 ≤ 12 500    | 135                                             | —                                           | —        | 35       | 45       |
| > 12 500 ≤ 15 000    | 150                                             | —                                           | —        | 45       | 55       |
| > 15 000 ≤ 18 000    | 190                                             | —                                           | —        | 45       | 55       |

Table 28: optibelt SK wedge belts

| Datum length    | Outside length<br>[mm] | Minimum<br>allowance x [mm] –<br>for tensioning | Minimum allowance y [mm] – for easy fitting |                     |        |
|-----------------|------------------------|-------------------------------------------------|---------------------------------------------|---------------------|--------|
|                 |                        |                                                 | 3V/9N.<br>3VX/9NX                           | 5V/15N.<br>5VX/15NX | 8V/25N |
| > 265 ≤ 400     | > 673 ≤ 1 016          | 15                                              | 15                                          | —                   | —      |
| > 400 ≤ 475     | > 1 016 ≤ 1 206        | 20                                              | 15                                          | —                   | —      |
| > 475 ≤ 710     | > 1 206 ≤ 1 803        | 25                                              | 20                                          | 20                  | —      |
| > 710 ≤ 850     | > 1 803 ≤ 2 159        | 25                                              | 20                                          | 20                  | —      |
| > 850 ≤ 1 180   | > 2 159 ≤ 2 997        | 35                                              | 20                                          | 20                  | 40     |
| > 1 180 ≤ 1 600 | > 2 997 ≤ 4 064        | 45                                              | 20                                          | 20                  | 40     |
| > 1 600 ≤ 2 000 | > 4 064 ≤ 5 080        | 55                                              | 20                                          | 25                  | 40     |
| > 2 000 ≤ 2 500 | > 5 080 ≤ 6 350        | 70                                              | —                                           | 30                  | 45     |
| > 2 500 ≤ 3 150 | > 6 350 ≤ 8 001        | 85                                              | —                                           | 35                  | 45     |
| > 3 150 ≤ 4 000 | > 8 001 ≤ 10 160       | 110                                             | —                                           | 35                  | 50     |
| > 4 000 ≤ 5 000 | > 10 160 ≤ 12 700      | 135                                             | —                                           | 35                  | 50     |
| > 5 000 ≤ 6 000 | > 12 700 ≤ 15 240      | 150                                             | —                                           | 45                  | 60     |
| > 6 000 ≤ 7 100 | > 15 240 ≤ 18 034      | 190                                             | —                                           | 45                  | 60     |

# DRIVE CALCULATION

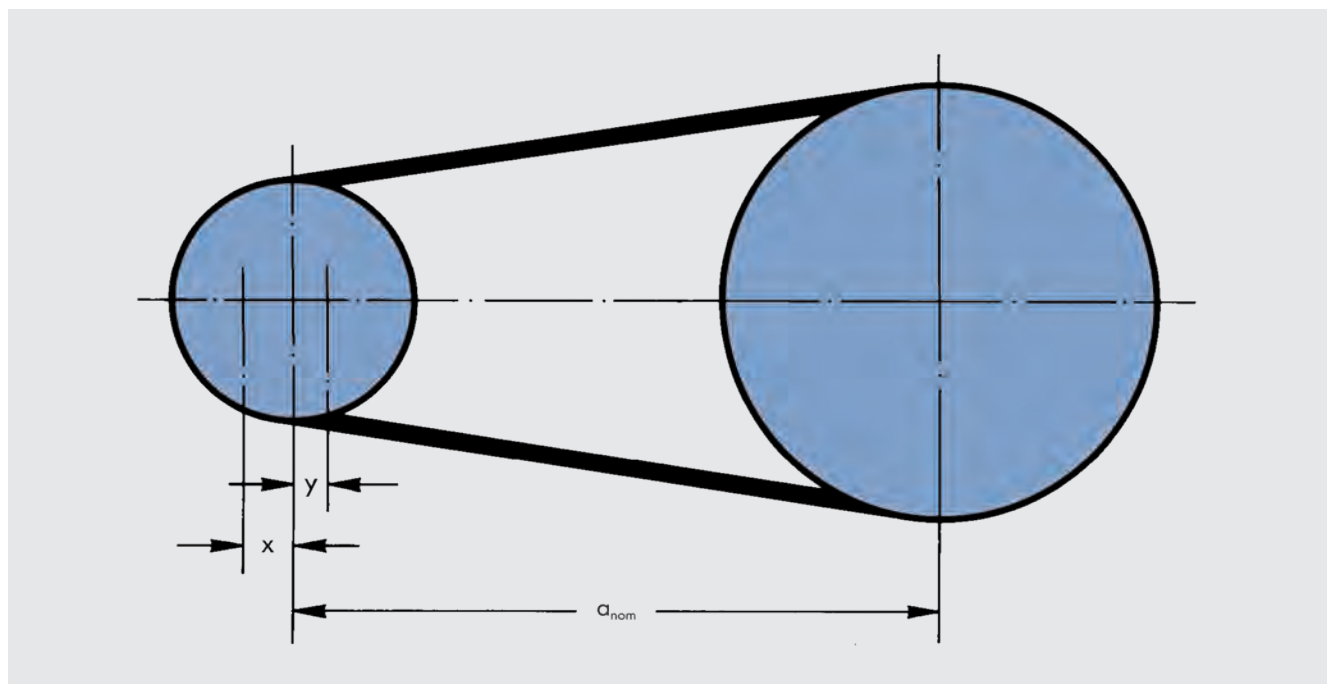
## MINIMUM ALLOWANCE X/Y

### FOR ADJUSTING CENTRE DISTANCE $a_{nom}$



Table 29: optibelt VB classic V-belts

| Datum length<br>[mm] | Minimum<br>allowance x [mm] –<br>for tensioning | Minimum allowance y [mm] – for easy fitting |     |    |                 |                 |                 |    |                 |    |      |      |
|----------------------|-------------------------------------------------|---------------------------------------------|-----|----|-----------------|-----------------|-----------------|----|-----------------|----|------|------|
|                      |                                                 | 5                                           | Y/6 | 8  | Z/10,<br>ZX/X10 | A/13,<br>AX/X13 | B/17,<br>BX/X17 | 20 | C/22,<br>CX/X22 | 25 | D/32 | E/40 |
| ≤ 200                | 5                                               | 10                                          | –   | –  | –               | –               | –               | –  | –               | –  | –    | –    |
| > 200 ≤ 250          | 5                                               | 10                                          | 10  | –  | –               | –               | –               | –  | –               | –  | –    | –    |
| > 250 ≤ 315          | 5                                               | 10                                          | 10  | 10 | 10              | –               | –               | –  | –               | –  | –    | –    |
| > 315 ≤ 670          | 10                                              | –                                           | –   | 10 | 10              | 10              | 10              | –  | –               | –  | –    | –    |
| > 670 ≤ 1000         | 15                                              | –                                           | –   | 10 | 15              | 15              | 15              | –  | –               | –  | –    | –    |
| > 1000 ≤ 1250        | 20                                              | –                                           | –   | 15 | 15              | 15              | 15              | 20 | 20              | –  | –    | –    |
| > 1250 ≤ 1800        | 25                                              | –                                           | –   | 15 | 20              | 20              | 20              | 20 | 25              | 25 | –    | –    |
| > 1800 ≤ 2240        | 25                                              | –                                           | –   | 20 | 20              | 20              | 20              | 25 | 25              | 30 | 35   | –    |
| > 2240 ≤ 3000        | 35                                              | –                                           | –   | –  | 20              | 20              | 20              | 25 | 30              | 30 | 35   | 40   |
| > 3000 ≤ 4000        | 45                                              | –                                           | –   | –  | 20              | 20              | 20              | 25 | 30              | 30 | 35   | 40   |
| > 4000 ≤ 5000        | 55                                              | –                                           | –   | –  | 20              | 20              | 20              | 30 | 30              | 30 | 35   | 40   |
| > 5000 ≤ 6300        | 70                                              | –                                           | –   | –  | –               | 20              | 25              | 35 | 35              | 35 | 40   | 45   |
| > 6300 ≤ 8000        | 85                                              | –                                           | –   | –  | –               | 20              | 25              | 40 | 40              | 40 | 45   | 50   |
| > 8000 ≤ 10000       | 110                                             | –                                           | –   | –  | –               | 25              | 25              | 40 | 45              | 45 | 45   | 50   |
| > 10000 ≤ 12500      | 135                                             | –                                           | –   | –  | –               | –               | 30              | 40 | 45              | 45 | 50   | 55   |
| > 12500 ≤ 15000      | 150                                             | –                                           | –   | –  | –               | –               | 40              | 50 | 55              | 55 | 60   | 65   |
| > 15000 ≤ 18000      | 190                                             | –                                           | –   | –  | –               | –               | 40              | 50 | 55              | 55 | 60   | 65   |



# DRIVE CALCULATION

## MINIMUM ALLOWANCE X/Y

### FOR ADJUSTING CENTRE DISTANCE $a_{nom}$



Table 30: optibelt KB kraftbands with wedge belts

| Datum length    | Outside length [mm] | Minimum allowance x [mm] – for tensioning | Minimum allowance y [mm] – for easy fitting |                  |        |     |
|-----------------|---------------------|-------------------------------------------|---------------------------------------------|------------------|--------|-----|
|                 |                     |                                           | SPZ, 3V/9J                                  | SPA, SPB, 5V/15J | 8V/25J | SPC |
| 475 ≤ 710       | 1 206 ≤ 1 803       | 25                                        | 35                                          | 40               | —      | —   |
| > 710 ≤ 850     | > 1 803 ≤ 2 159     | 25                                        | 35                                          | 40               | —      | —   |
| > 850 ≤ 1 180   | > 2 159 ≤ 2 997     | 35                                        | 35                                          | 40               | 80     | —   |
| > 1 180 ≤ 1 600 | > 2 997 ≤ 4 064     | 45                                        | 35                                          | 40               | 80     | 80  |
| > 1 600 ≤ 2 000 | > 4 064 ≤ 5 080     | 55                                        | 40                                          | 45               | 85     | 85  |
| > 2 000 ≤ 2 500 | > 5 080 ≤ 6 350     | 70                                        | 45                                          | 50               | 85     | 85  |
| > 2 500 ≤ 3 150 | > 6 350 ≤ 8 001     | 85                                        | 50                                          | 55               | 95     | 95  |
| > 3 150 ≤ 4 000 | > 8 001 ≤ 10 160    | 110                                       | 50                                          | 55               | 95     | 95  |
| > 4 000 ≤ 5 000 | > 10 160 ≤ 12 700   | 135                                       | —                                           | 60               | 95     | 95  |
| > 5 000 ≤ 6 000 | > 12 700 ≤ 15 240   | 150                                       | —                                           | 70               | 105    | 105 |
| > 6 000 ≤ 7 100 | > 15 240 ≤ 18 034   | 190                                       | —                                           | 85               | 120    | 120 |

Note: For kraftbands in profiles SPZ, SPA, SPB and SPC please take into account the datum lengths.  
For raw edge kraftbands the same x/y values apply.

Table 31: optibelt KB kraftbands with classic V-belts

| Length [mm]       | Minimum allowance x [mm] – for tensioning | Minimum allowance y [mm] – for easy fitting |      |      |      |
|-------------------|-------------------------------------------|---------------------------------------------|------|------|------|
|                   |                                           | A/HA                                        | B/HB | C/HC | D/HD |
| 1 200 ≤ 1 800     | 25                                        | 30                                          | 35   | —    | —    |
| > 1 800 ≤ 2 240   | 25                                        | 30                                          | 35   | —    | —    |
| > 2 240 ≤ 3 000   | 35                                        | 30                                          | 35   | 50   | 85   |
| > 3 000 ≤ 4 000   | 45                                        | 30                                          | 35   | 50   | 85   |
| > 4 000 ≤ 5 000   | 55                                        | 30                                          | 40   | 55   | 90   |
| > 5 000 ≤ 6 300   | 70                                        | 35                                          | 45   | 60   | 90   |
| > 6 300 ≤ 8 000   | 85                                        | 45                                          | 55   | 65   | 100  |
| > 8 000 ≤ 10 000  | 110                                       | 45                                          | 55   | 65   | 100  |
| > 10 000 ≤ 12 500 | 135                                       | 50                                          | 60   | 75   | 100  |
| > 12 500 ≤ 15 000 | 150                                       | 60                                          | 70   | 85   | 110  |
| > 15 000 ≤ 18 000 | 190                                       | 70                                          | 85   | 95   | 125  |

# DRIVE CALCULATION

## FORMULAS AND CALCULATION EXAMPLE

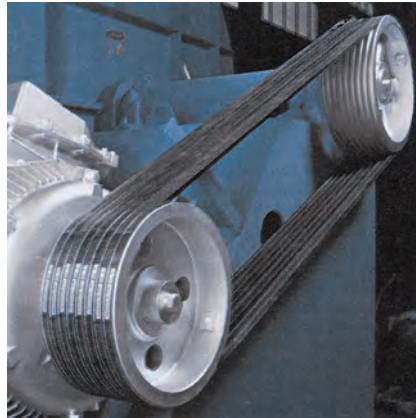


### Drive machine



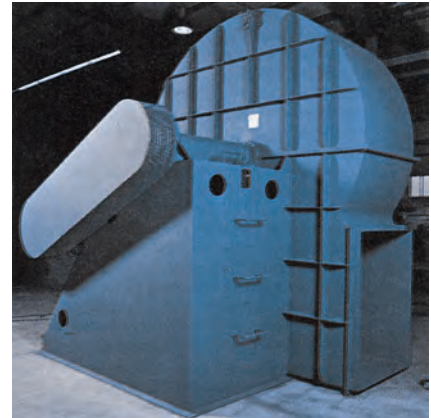
3-phase motor  
 $P = 132 \text{ kW}$   
 $n_1 = 1485 \text{ rpm}$   
 Star delta start  
 Starting torque  $M_A = 0.65 M_N$

### Operating conditions



Daily operation: approx. 18 hours  
 Number of starts: one per day  
 Operating conditions:  
 normal room temperature, no exposure  
 to oil, water or dust  
 Drive centre distance: between  
 1300 and 1500 mm, variable  
 Pulley diameter:  $d_{d1} \leq 300 \text{ mm}$

### Driven machine



Fan  
 $P = 132 \text{ kW}$   
 $n_2 = 825 \pm 15 \text{ rpm}$   
 Start-up: under load  
 Type of loading: continuous

Note: The calculation takes into account the standard specified according to ISO for datum diameter  $d_d$  (formerly pitch diameter  $d_w$ ) and datum length  $L_d$  (formerly pitch length  $L_w$ ).

### Formulas

#### Load factor

$c_2$  from table 23, page 73

#### Design power

$$P_B = P \cdot c_2$$

#### Selection of belt profile

from diagram 2, page 78

#### Speed ratio

$$i = \frac{n_1}{n_2} = \frac{d_{d2}}{d_{d1}}$$

#### Datum diameter of the grooved pulley

$d_{d1}$  selected from table 15, page 50

$$d_{d2} = d_{d1} \cdot i$$

$$d_{d1} = \frac{d_{d2}}{i}$$

### Calculation example

$$c_2 = 1.3$$

$$P_B = 132 \cdot 1.3 = 171.6 \text{ kW}$$

**SPB**

$$i = \frac{1485}{825} = 1.8$$

$d_{d1} = 280 \text{ mm}$  selected

$$d_{d2} = 280 \text{ mm} \cdot 1.8 = 504$$

$d_{d2} = 500 \text{ mm}$  selected from table 15, page 50

# DRIVE CALCULATION

## FORMULAS AND CALCULATION EXAMPLE



### Formulas

#### Verification of driven unit speed

$$i_{\text{vorh}} = \frac{d_{d2}}{d_{d1} \cdot n_1}$$

$$n_{2 \text{ vorh}} = \frac{n_1}{i_{\text{vorh}}}$$

#### Drive centre distance (preliminary choice)

recommended:  $a > 0.7 (d_{dg} + d_{dk})$

$a < 2 (d_{dg} + d_{dk})$

#### Datum length of the V-belt

$$L_{dth} \approx 2a + 1.57 (d_{dg} + d_{dk}) + \frac{(d_{dg} - d_{dk})^2}{4a}$$

actual:

$$L_{dth} = 2a \cdot \sin \frac{\beta}{2} + \frac{\pi}{2} (d_{dg} + d_{dk}) + \frac{\alpha \cdot \pi}{180^\circ} (d_{dg} - d_{dk})$$

#### Centre distance

Calculated from  $L_{dSt}$  and  $L_{dth}$

$$(\text{if } L_{dSt} > L_{dth}) a_{\text{nom}} \approx a + \frac{L_{dSt} - L_{dth}}{2}$$

$$(\text{if } L_{dSt} < L_{dth}) a_{\text{nom}} \approx a - \frac{L_{dth} - L_{dSt}}{2}$$

actual:

$$a_{\text{nom}} = \frac{L_{dSt} - \frac{\pi}{2} (d_{dg} + d_{dk})}{4} + \sqrt{\left[ \frac{L_{dSt} - \frac{\pi}{2} (d_{dg} + d_{dk})}{4} \right]^2 - \frac{(d_{dg} - d_{dk})^2}{8}}$$

#### Minimum allowance x/y for adjusting centre distance $a_{\text{nom}}$

x/y from table 28, page 80

#### Speed and flex rate of belt

$$v = \frac{d_{dk} \cdot n_k}{19100} \quad (v_{\text{max}} \approx 55 \text{ m/s})$$

$$f_b = \frac{2 \cdot 1000 \cdot v}{L_{dSt}} \quad (f_{B \text{ max}} \approx 100 \text{ s}^{-1})$$

### Calculation example

$$i_{\text{vorh}} = \frac{500}{280} = 1.79$$

$$n_{2 \text{ vorh}} = \frac{1485}{1.79} = 830 \text{ min}^{-1}$$

required:  
825 ± 15 rpm  
(requirement met)

$a = 1400 \text{ mm}$  selected

$$L_{dth} \approx 2 \cdot 1400 + 1.57 \cdot 780 + \frac{220^2}{4 \cdot 1400} \approx 4033 \text{ mm}$$

next standard length selected from page 27

$L_{dSt} = 4000 \text{ mm}$

$$a_{\text{nom}} \approx 1400 - \frac{4033 - 4000}{2} \approx 1383.5 \text{ mm}$$

$x \geq 45 \text{ mm} / y \geq 20 \text{ mm}$

$$v = \frac{280 \cdot 1485}{19100} = 21.76 \text{ m/s}$$

$$f_b = \frac{2 \cdot 1000 \cdot 21.76}{4000} = 10.88 \text{ s}^{-1}$$

# DRIVE CALCULATION

## FORMULAS AND CALCULATION EXAMPLE



### Formulas

#### Arc of contact and correction factor

$$\frac{d_{dg} - d_{dk}}{a_{nom}}$$

$\beta^\circ$  approximate and  $c_1$  from table 22, page 72

$$\text{actual: } \cos \frac{\beta}{2} = \frac{d_{dg} - d_{dk}}{2 a_{nom}}$$

#### Length factor

$c_3$  from table 24, page 74

#### Nominal power per belt

$$P_N \text{ for } \begin{cases} d_{dk} = 280 \text{ mm} \\ i = 1.79 \\ n_k = 1485 \text{ min}^{-1} \end{cases} \quad \begin{matrix} \text{profile SPB} \\ \text{from table 43, page 98} \end{matrix}$$

#### Number of belts

$$z = \frac{P \cdot c_2}{P_N \cdot c_1 \cdot c_3}$$

#### Profile SPB:

##### Minimum static tension per belt

(multiply by factor 1.3 at initial installation)

$$T \approx \frac{500 \cdot (2.04 - c_1) \cdot P_B}{c_1 \cdot z \cdot v} + k \cdot v^2$$

$k$  from diagram 8, page 144

##### Minimum static shaft load

(multiply by factor 1.3 at initial installation)

$$S_a \approx 2 T \cdot \sin \frac{\beta}{2} \cdot z$$

##### Belt deflection

$$E_a \approx \frac{E \cdot L}{100}$$

$E$  from diagram 8, page 144

$$L = a_{nom} \cdot \sin \frac{\beta}{2}$$

### Calculation example

$$\frac{500 - 280}{1383.5} = 0.16$$

$$\beta \approx 170^\circ$$

$$c_1 = 1.0$$

} linearly interpolated

$$c_3 = 1.02$$

$$P_N = 20.63 + 1.24 = 21.87 \text{ kW}$$

$$z = \frac{132 \cdot 1.3}{21.87 \cdot 1.0 \cdot 1.02} = 7.69$$

suggested:

**8 optibelt SK high performance wedge belts  
SPB 4000 L<sub>d</sub> S=C Plus**

$$T \approx \frac{500 \cdot (2.04 - 1.0) \cdot 171.6}{1.0 \cdot 8 \cdot 21.76} + 0.19 \cdot 473.5 \approx 593 \text{ N}$$

initial installation:

$$T = 593 \text{ N} \cdot 1.3 = 771 \text{ N}$$

$$S_a \approx 2 \cdot 593 \cdot 0.9962 \cdot 8 \approx 9452 \text{ N}$$

initial installation:

$$S_a = 9452 \text{ N} \cdot 1.3 = 12288 \text{ N}$$

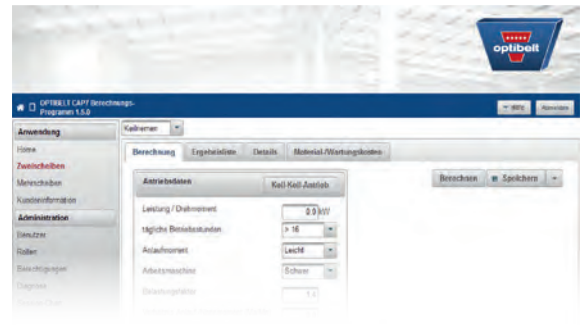
$$E_a \approx \frac{2.7 \cdot 1378}{100} \approx 37 \text{ mm}$$

$$E \approx 2.7 \text{ mm}$$

$$L = 1383.5 \cdot 0.9962 = 1378 \text{ mm}$$

The drive requires:

- 8 pieces optibelt SK wedge belts SPC 6300 L<sub>d</sub> S=C Plus
- optibelt KS V-grooved pulley for taper bushes TB SPC 400-8
- optibelt TB taper bush 4545 (bore diameter 55-110 mm)
- optibelt KS V-grooved pulleys for taper bushes TB SPC 800-8
- optibelt TB taper bush 5050 (bore diameter 70-125 mm)



Deviations/Notes

|                                           |                        |                         |                                  |
|-------------------------------------------|------------------------|-------------------------|----------------------------------|
| <b>Type of driver unit</b>                | :                      | <b>electric motor</b>   |                                  |
| <b>Type of driven unit</b>                | :                      | <b>fans &gt; 7.5 kW</b> |                                  |
| Calculation power                         | PB:                    | 364.00 kW               |                                  |
| <b>Drive power</b>                        | <b>P:</b>              | <b>260.00 kW</b>        |                                  |
| Torque at driver pulley                   | M:                     | 1399 Nm                 |                                  |
| <b>Driver speed</b>                       | <b>n<sub>1</sub>:</b>  | <b>1775 1/min</b>       |                                  |
| <b>Effective driven speed</b>             | <b>n<sub>2</sub>:</b>  | <b>888 1/min</b>        | –1 1/min                         |
| <b>Datum diameter pulley 1</b>            | <b>d<sub>d1</sub>:</b> | <b>400.00 mm</b>        |                                  |
| <b>Datum diameter pulley 2</b>            | <b>d<sub>d2</sub>:</b> | <b>800.00 mm</b>        |                                  |
| Datum length                              | L <sub>d</sub> :       | 6300 mm                 |                                  |
| <b>Actual centres</b>                     | <b>a:</b>              | <b>2198.40 mm</b>       | –1.60 mm                         |
| Actual drive ratio                        | i:                     | 2.00                    | 0.1 %                            |
| Adjustment required for belt installation | y:                     | 35.00 mm                |                                  |
| Adjustment required for belt tensioning   | x:                     | 70.00 mm                |                                  |
| <b>Actual load factor</b>                 | <b>c<sub>2</sub>:</b>  | <b>1.61</b>             |                                  |
| Belt speed                                | v:                     | 37.17 m/s               | Dynamic balancing required       |
| Flex rate                                 | f <sub>B</sub> :       | 11.80 1/s               |                                  |
| Nominal power per belt                    | P <sub>N</sub> :       | 51.84 kW                |                                  |
| Arc of contact factor                     | c <sub>1</sub> :       | 0.99                    |                                  |
| Belt length factor                        | c <sub>3</sub> :       | 1.02                    |                                  |
| Arc of contact on small pulley            | β:                     | 169.60 °                |                                  |
| Pulley face width                         | b <sub>2</sub> :       | 212.50 mm               |                                  |
| Span length                               | <:                     | 2189.30 mm              |                                  |
| <b>Calculated number of belts</b>         | <b>z<sub>th</sub>:</b> | <b>6.94</b>             | for raised c <sub>2</sub> = 1.40 |
| Weight of drive                           |                        | 276.87 kg               |                                  |
| Static shaft load at initial installation | S <sub>ast</sub> :     | 23653 N                 |                                  |
| Static shaft load at re-tensioning        | S <sub>ast</sub> :     | 18195 N                 |                                  |
| Dynamic shaft load                        | S <sub>dyn</sub> :     | 10283 N                 |                                  |

| <b>Tensioning methods</b>                  |                            | <b>Initial installation</b> | <b>Operating tension</b> |
|--------------------------------------------|----------------------------|-----------------------------|--------------------------|
| for raised c <sub>2</sub> = 1.40           |                            | new belts                   | existing belts           |
| 1. optibelt OPTIKRIK II + III              | static tension per V-belt: | 1484 N                      | 1142 N                   |
| 2. Belt deflection with tension gauge      | test load:                 | 125 N                       | 125 N                    |
|                                            | deflection:                | 41 mm                       | 51 mm                    |
| 3. Length addition per 1000 mm belt length | :                          | 5.7 mm                      | 4.3 mm                   |
| 4. Optibelt frequency tension tester       | frequency:                 | 14.3 1/s                    | 12.6 1/s                 |

Regarding liability concerning this drive design we refer to our Terms and Conditions.



























# POWER RATINGS

optibelt **SK** PROFILE 8V/25N, 8V/25J

NOMINAL POWER RATING  $P_N$  [kW]

FOR  $\beta = 180^\circ$  AND 8V 2500/6350 mm  $L_d$



Table 45

| Pulleys                                          | $v$ [m/s] | $n_k$<br>[min <sup>-1</sup> ] | Outside diameter of small pulley $d_{ok}$ [mm] |       |       |       |       |       |       |       |       |       |       |       | Additional power [kW]<br>per belt for speed ratio $i$ |                    |                    |                    |  |
|--------------------------------------------------|-----------|-------------------------------|------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------------------------------------------------------|--------------------|--------------------|--------------------|--|
|                                                  |           |                               | 335                                            | 355   | 375   | 425   | 450   | 475   | 500   | 530   | 560   | 600   | 630   | 710   | 800                                                   | 1.01<br>to<br>1.05 | 1.06<br>to<br>1.26 | 1.27<br>to<br>1.57 |  |
| Statically balanced                              | 5         | 700                           | 25.67                                          | 28.61 | 31.52 | 38.62 | 42.08 | 45.49 | 48.82 | 52.74 | 56.57 | 61.51 | 65.09 | 74.10 | 83.23                                                 | 0.28               | 1.83               | 2.60               |  |
|                                                  |           | 950                           | 32.09                                          | 35.77 | 39.37 | 48.03 | 52.17 | 56.17 | 60.03 | 64.47 | 68.68 | 73.95 | 77.62 | 86.13 | 93.33                                                 | 0.38               | 2.48               | 3.52               |  |
|                                                  |           | 1450                          | 40.47                                          | 44.90 | 49.10 | 58.51 | 62.60 | 66.25 | 69.44 | 72.63 | 75.10 | 77.18 | 77.79 |       |                                                       | 5.38               | 6.60               | 4.32               |  |
|                                                  |           | 50                            | 2.63                                           | 2.89  | 3.16  | 3.82  | 4.15  | 4.48  | 4.80  | 5.19  | 5.58  | 6.10  | 6.48  | 7.51  | 8.65                                                  | 0.02               | 0.13               | 0.19               |  |
|                                                  |           | 100                           | 4.87                                           | 5.38  | 5.89  | 7.15  | 7.78  | 8.41  | 9.03  | 9.78  | 10.52 | 11.51 | 12.24 | 14.19 | 16.37                                                 | 0.04               | 0.26               | 0.37               |  |
|                                                  |           | 150                           | 6.97                                           | 7.71  | 8.46  | 10.30 | 11.22 | 12.13 | 13.03 | 14.12 | 15.20 | 16.63 | 17.70 | 20.53 | 23.68                                                 | 0.06               | 0.39               | 0.56               |  |
|                                                  |           | 200                           | 8.97                                           | 9.94  | 10.91 | 13.31 | 14.51 | 15.69 | 16.88 | 18.29 | 19.69 | 21.56 | 22.94 | 26.61 | 30.68                                                 | 0.08               | 0.52               | 0.74               |  |
|                                                  |           | 250                           | 10.89                                          | 12.08 | 13.27 | 16.22 | 17.68 | 19.14 | 20.59 | 22.31 | 24.03 | 26.30 | 28.00 | 32.46 | 37.40                                                 | 0.10               | 0.65               | 0.93               |  |
|                                                  |           | 300                           | 12.74                                          | 14.15 | 15.56 | 19.04 | 20.76 | 22.47 | 24.18 | 26.21 | 28.22 | 30.89 | 32.87 | 38.09 | 43.84                                                 | 0.12               | 0.78               | 1.11               |  |
|                                                  |           | 350                           | 14.54                                          | 16.16 | 17.78 | 21.77 | 23.74 | 25.71 | 27.66 | 29.98 | 32.28 | 35.32 | 37.57 | 43.49 | 49.98                                                 | 0.14               | 0.91               | 1.30               |  |
|                                                  |           | 400                           | 16.28                                          | 18.11 | 19.93 | 24.42 | 26.64 | 28.84 | 31.02 | 33.62 | 36.19 | 39.58 | 42.10 | 48.66 | 55.82                                                 | 0.16               | 1.05               | 1.48               |  |
|                                                  |           | 450                           | 17.97                                          | 20.00 | 22.01 | 26.99 | 29.44 | 31.87 | 34.28 | 37.14 | 39.97 | 43.69 | 46.44 | 53.59 | 61.33                                                 | 0.18               | 1.18               | 1.67               |  |
|                                                  |           | 500                           | 19.61                                          | 21.83 | 24.04 | 29.48 | 32.16 | 34.81 | 37.43 | 40.54 | 43.60 | 47.62 | 50.59 | 58.27 | 66.50                                                 | 0.20               | 1.31               | 1.86               |  |
|                                                  |           | 550                           | 21.20                                          | 23.61 | 26.00 | 31.89 | 34.78 | 37.64 | 40.46 | 43.80 | 47.08 | 51.38 | 54.54 | 62.67 | 71.30                                                 | 0.22               | 1.44               | 2.04               |  |
|                                                  |           | 600                           | 22.74                                          | 25.33 | 27.90 | 34.22 | 37.31 | 40.36 | 43.37 | 46.92 | 50.41 | 54.95 | 58.28 | 66.79 | 75.70                                                 | 0.24               | 1.57               | 2.23               |  |
|                                                  |           | 650                           | 24.23                                          | 27.00 | 29.74 | 36.46 | 39.75 | 42.98 | 46.16 | 49.91 | 53.57 | 58.33 | 61.80 | 70.61 | 79.69                                                 | 0.26               | 1.70               | 2.41               |  |
|                                                  |           | 700                           | 25.67                                          | 28.61 | 31.52 | 38.62 | 42.08 | 45.49 | 48.82 | 52.74 | 56.57 | 61.51 | 65.09 | 74.10 | 83.23                                                 | 0.28               | 1.83               | 2.60               |  |
|                                                  |           | 750                           | 27.06                                          | 30.16 | 33.23 | 40.69 | 44.32 | 47.87 | 51.35 | 55.42 | 59.38 | 64.46 | 68.13 | 77.26 | 86.31                                                 | 0.30               | 1.96               | 2.78               |  |
|                                                  |           | 800                           | 28.40                                          | 31.66 | 34.87 | 42.67 | 46.45 | 50.14 | 53.74 | 57.94 | 62.01 | 67.20 | 70.92 | 80.06 | 88.88                                                 | 0.32               | 2.09               | 2.97               |  |
|                                                  |           | 850                           | 29.68                                          | 33.09 | 36.44 | 44.56 | 48.47 | 52.28 | 55.99 | 60.30 | 64.44 | 69.70 | 73.44 | 82.49 | 90.92                                                 | 0.34               | 2.22               | 3.15               |  |
|                                                  |           | 900                           | 30.91                                          | 34.46 | 37.94 | 46.34 | 50.38 | 54.29 | 58.09 | 62.47 | 66.67 | 71.95 | 75.67 | 84.52 | 92.42                                                 | 0.36               | 2.35               | 3.34               |  |
|                                                  |           | 950                           | 32.09                                          | 35.77 | 39.37 | 48.03 | 52.17 | 56.17 | 60.03 | 64.47 | 68.68 | 73.95 | 77.62 | 86.13 | 93.33                                                 | 0.38               | 2.48               | 3.52               |  |
|                                                  |           | 1000                          | 33.21                                          | 37.01 | 40.72 | 49.61 | 53.84 | 57.90 | 61.81 | 66.27 | 70.48 | 75.68 | 79.25 | 87.31 | 93.63                                                 | 0.40               | 2.61               | 3.71               |  |
|                                                  |           | 1050                          | 34.27                                          | 38.18 | 42.00 | 51.09 | 55.38 | 59.49 | 63.42 | 67.87 | 72.04 | 77.12 | 80.56 | 88.04 | 93.28                                                 | 0.42               | 2.74               | 3.90               |  |
|                                                  |           | 1100                          | 35.27                                          | 39.29 | 43.19 | 52.45 | 56.79 | 60.93 | 64.85 | 69.27 | 73.36 | 78.28 | 81.53 | 88.30 | 92.28                                                 | 0.44               | 2.88               | 4.08               |  |
|                                                  |           | 1150                          | 36.21                                          | 40.32 | 44.30 | 53.69 | 58.06 | 62.20 | 66.11 | 70.46 | 74.44 | 79.13 | 82.16 | 88.06 | 90.56                                                 | 0.46               | 3.01               | 4.27               |  |
|                                                  |           | 1200                          | 37.09                                          | 41.28 | 45.33 | 54.82 | 59.20 | 63.32 | 67.17 | 71.42 | 75.25 | 79.66 | 82.42 | 87.31 | 88.14                                                 | 0.49               | 3.14               | 4.45               |  |
|                                                  |           | 1250                          | 37.90                                          | 42.16 | 46.27 | 55.82 | 60.19 | 64.27 | 68.04 | 72.16 | 75.80 | 79.87 | 82.31 | 86.03 |                                                       | 0.51               | 3.27               | 4.64               |  |
|                                                  |           | 1300                          | 38.65                                          | 42.97 | 47.12 | 56.69 | 61.03 | 65.04 | 68.71 | 72.65 | 76.06 | 79.74 | 81.80 |       |                                                       | 0.53               | 3.40               | 4.82               |  |
|                                                  |           | 1350                          | 39.33                                          | 43.70 | 47.88 | 57.44 | 61.71 | 65.63 | 69.17 | 72.90 | 76.04 | 79.25 | 80.89 |       |                                                       | 0.55               | 3.53               | 5.01               |  |
|                                                  |           | 1400                          | 39.93                                          | 44.34 | 48.54 | 58.04 | 62.24 | 66.04 | 69.42 | 72.90 | 75.72 |       | 79.56 |       |                                                       | 0.57               | 3.66               | 5.19               |  |
|                                                  |           | 1450                          | 40.47                                          | 44.90 | 49.10 | 58.51 | 62.60 | 66.25 | 69.44 | 72.63 | 75.10 |       | 77.79 |       |                                                       | 0.59               | 3.79               | 5.38               |  |
|                                                  |           | 1500                          | 40.93                                          | 45.37 | 49.56 | 58.84 | 62.80 | 66.27 | 69.24 |       |       |       |       |       |                                                       | 0.61               | 3.92               | 5.57               |  |
|                                                  |           | 1550                          | 41.31                                          | 45.75 | 49.91 | 59.01 | 62.81 | 66.08 | 68.80 |       |       |       |       |       |                                                       | 0.63               | 4.05               | 5.75               |  |
|                                                  |           | 1600                          | 41.62                                          | 46.04 | 50.16 | 59.04 | 62.65 | 65.69 | 68.11 |       |       |       |       |       |                                                       | 0.65               | 4.18               | 5.94               |  |
|                                                  |           | 1650                          | 41.85                                          | 46.24 | 50.30 | 58.90 | 62.31 | 65.08 | 67.18 |       |       |       |       |       |                                                       | 0.67               | 4.31               | 6.12               |  |
|                                                  |           | 1700                          | 41.99                                          | 46.34 | 50.33 | 58.61 | 61.77 | 64.25 | 65.99 |       |       |       |       |       |                                                       | 0.69               | 4.44               | 6.31               |  |
|                                                  |           | 1750                          | 42.05                                          | 46.35 | 50.24 | 58.15 | 61.05 | 63.19 | 64.54 |       |       |       |       |       |                                                       | 0.71               | 4.57               | 6.49               |  |
|                                                  |           | 1800                          | 42.03                                          | 46.25 | 50.04 | 57.52 | 60.12 |       |       |       |       |       |       |       |                                                       | 0.73               | 4.70               | 6.68               |  |
|                                                  |           | 1850                          | 41.92                                          | 46.05 | 49.71 | 56.72 | 58.98 |       |       |       |       |       |       |       |                                                       | 0.75               | 4.84               | 6.86               |  |
|                                                  |           | 1900                          | 41.72                                          | 45.74 | 49.26 | 55.74 | 57.64 |       |       |       |       |       |       |       |                                                       | 0.77               | 4.97               | 7.05               |  |
|                                                  |           | 1950                          | 41.42                                          | 45.32 | 48.69 | 54.58 | 56.08 |       |       |       |       |       |       |       |                                                       | 0.79               | 5.10               | 7.23               |  |
|                                                  |           | 2000                          | 41.04                                          | 44.79 | 47.98 | 53.23 | 54.31 |       |       |       |       |       |       |       |                                                       | 0.81               | 5.23               | 7.42               |  |
|                                                  |           | 2050                          | 40.55                                          | 44.15 | 47.14 |       |       |       |       |       |       |       |       |       |                                                       | 0.83               | 5.36               | 7.61               |  |
|                                                  |           | 2100                          | 39.97                                          | 43.40 | 46.16 |       |       |       |       |       |       |       |       |       |                                                       | 0.85               | 5.49               | 7.79               |  |
|                                                  |           | 2150                          | 39.29                                          | 42.52 | 45.05 |       |       |       |       |       |       |       |       |       |                                                       | 0.87               | 5.62               | 7.98               |  |
|                                                  |           | 2200                          | 38.50                                          | 41.53 | 43.79 |       |       |       |       |       |       |       |       |       |                                                       | 0.89               | 5.75               | 8.16               |  |
|                                                  |           | 2250                          | 37.62                                          | 40.41 | 42.40 |       |       |       |       |       |       |       |       |       |                                                       | 0.91               | 5.88               | 8.35               |  |
| Dynamically balanced (for details see ARPM/MPTA) |           |                               |                                                |       |       |       |       |       |       |       |       |       |       |       |                                                       | $v$ [m/s]          |                    |                    |  |
|                                                  |           |                               |                                                |       |       |       |       |       |       |       |       |       |       |       |                                                       | Pulleys            |                    |                    |  |

$v > 42$  m/s.  
Please consult our  
Application Engineering  
Department.





# POWER RATINGS

optibelt **VB** PROFILE 8

NOMINAL POWER RATING  $P_N$  [kW]

FOR  $\beta = 180^\circ$  AND  $L_d = 579$  mm



Table 48

| Pulleys             | v [m/s] | $n_k$<br>[min <sup>-1</sup> ] | Datum diameter of small pulley $d_{dk}$ [mm] |      |      |      |      |      |      |      | Additional power [kW]<br>per belt for speed ratio i |                    |                    |                    |  |
|---------------------|---------|-------------------------------|----------------------------------------------|------|------|------|------|------|------|------|-----------------------------------------------------|--------------------|--------------------|--------------------|--|
|                     |         |                               | 35                                           | 40   | 45   | 50   | 56   | 63   | 71   | 80   | 90                                                  | 1.01<br>to<br>1.05 | 1.06<br>to<br>1.26 | 1.27<br>to<br>1.57 |  |
| Statically balanced | ②       | 700                           | 0.12                                         | 0.15 | 0.18 | 0.21 | 0.25 | 0.29 | 0.34 | 0.39 | 0.45                                                | 0.00               | 0.01               | 0.01               |  |
|                     |         | 950                           | 0.15                                         | 0.19 | 0.23 | 0.27 | 0.32 | 0.37 | 0.43 | 0.50 | 0.57                                                | 0.00               | 0.01               | 0.02               |  |
|                     |         | 1450                          | 0.19                                         | 0.25 | 0.31 | 0.37 | 0.43 | 0.51 | 0.59 | 0.69 | 0.79                                                | 0.00               | 0.02               | 0.03               |  |
|                     |         | 2850                          | 0.28                                         | 0.38 | 0.48 | 0.57 | 0.69 | 0.81 | 0.95 | 1.11 | 1.27                                                | 0.01               | 0.03               | 0.05               |  |
|                     |         | 100                           | 0.03                                         | 0.03 | 0.04 | 0.04 | 0.05 | 0.06 | 0.07 | 0.08 | 0.09                                                | 0.00               | 0.00               | 0.00               |  |
|                     |         | 200                           | 0.05                                         | 0.06 | 0.07 | 0.08 | 0.09 | 0.11 | 0.12 | 0.14 | 0.16                                                | 0.00               | 0.00               | 0.00               |  |
|                     |         | 300                           | 0.06                                         | 0.08 | 0.09 | 0.11 | 0.13 | 0.15 | 0.17 | 0.20 | 0.23                                                | 0.00               | 0.00               | 0.01               |  |
|                     |         | 400                           | 0.08                                         | 0.10 | 0.12 | 0.14 | 0.16 | 0.19 | 0.22 | 0.25 | 0.28                                                | 0.00               | 0.00               | 0.01               |  |
|                     |         | 500                           | 0.09                                         | 0.12 | 0.14 | 0.16 | 0.19 | 0.22 | 0.26 | 0.30 | 0.34                                                | 0.00               | 0.01               | 0.01               |  |
|                     |         | 600                           | 0.11                                         | 0.13 | 0.16 | 0.19 | 0.22 | 0.26 | 0.30 | 0.35 | 0.40                                                | 0.00               | 0.01               | 0.01               |  |
|                     |         | 700                           | 0.12                                         | 0.15 | 0.18 | 0.21 | 0.25 | 0.29 | 0.34 | 0.39 | 0.45                                                | 0.00               | 0.01               | 0.01               |  |
|                     |         | 800                           | 0.13                                         | 0.17 | 0.20 | 0.24 | 0.28 | 0.32 | 0.38 | 0.43 | 0.50                                                | 0.00               | 0.01               | 0.02               |  |
|                     |         | 900                           | 0.14                                         | 0.18 | 0.22 | 0.26 | 0.30 | 0.35 | 0.41 | 0.48 | 0.55                                                | 0.00               | 0.01               | 0.02               |  |
|                     |         | 1000                          | 0.15                                         | 0.19 | 0.24 | 0.28 | 0.33 | 0.38 | 0.45 | 0.52 | 0.59                                                | 0.00               | 0.01               | 0.02               |  |
|                     |         | 1100                          | 0.16                                         | 0.21 | 0.25 | 0.30 | 0.35 | 0.41 | 0.48 | 0.56 | 0.64                                                | 0.00               | 0.01               | 0.02               |  |
|                     |         | 1200                          | 0.17                                         | 0.22 | 0.27 | 0.32 | 0.38 | 0.44 | 0.51 | 0.59 | 0.68                                                | 0.00               | 0.01               | 0.02               |  |
|                     |         | 1300                          | 0.18                                         | 0.23 | 0.29 | 0.34 | 0.40 | 0.47 | 0.55 | 0.63 | 0.72                                                | 0.00               | 0.02               | 0.03               |  |
|                     |         | 1400                          | 0.19                                         | 0.24 | 0.30 | 0.36 | 0.42 | 0.49 | 0.58 | 0.67 | 0.77                                                | 0.00               | 0.02               | 0.03               |  |
|                     |         | 1500                          | 0.20                                         | 0.26 | 0.32 | 0.37 | 0.44 | 0.52 | 0.61 | 0.70 | 0.81                                                | 0.00               | 0.02               | 0.03               |  |
|                     |         | 1600                          | 0.20                                         | 0.27 | 0.33 | 0.39 | 0.46 | 0.55 | 0.64 | 0.74 | 0.85                                                | 0.00               | 0.02               | 0.03               |  |
|                     |         | 1700                          | 0.21                                         | 0.28 | 0.34 | 0.41 | 0.48 | 0.57 | 0.67 | 0.77 | 0.88                                                | 0.00               | 0.02               | 0.03               |  |
|                     |         | 1800                          | 0.22                                         | 0.29 | 0.36 | 0.42 | 0.50 | 0.59 | 0.69 | 0.80 | 0.92                                                | 0.00               | 0.02               | 0.03               |  |
|                     |         | 1900                          | 0.22                                         | 0.30 | 0.37 | 0.44 | 0.52 | 0.62 | 0.72 | 0.84 | 0.96                                                | 0.00               | 0.02               | 0.04               |  |
|                     |         | 2000                          | 0.23                                         | 0.31 | 0.38 | 0.46 | 0.54 | 0.64 | 0.75 | 0.87 | 0.99                                                | 0.00               | 0.02               | 0.04               |  |
|                     |         | 2100                          | 0.24                                         | 0.32 | 0.40 | 0.47 | 0.56 | 0.66 | 0.77 | 0.90 | 1.03                                                | 0.00               | 0.02               | 0.04               |  |
|                     |         | 2200                          | 0.24                                         | 0.33 | 0.41 | 0.49 | 0.58 | 0.68 | 0.80 | 0.93 | 1.06                                                | 0.01               | 0.03               | 0.04               |  |
|                     |         | 2300                          | 0.25                                         | 0.34 | 0.42 | 0.50 | 0.60 | 0.70 | 0.83 | 0.96 | 1.10                                                | 0.01               | 0.03               | 0.04               |  |
|                     |         | 2400                          | 0.25                                         | 0.34 | 0.43 | 0.51 | 0.61 | 0.73 | 0.85 | 0.98 | 1.13                                                | 0.01               | 0.03               | 0.04               |  |
|                     |         | 2500                          | 0.26                                         | 0.35 | 0.44 | 0.53 | 0.63 | 0.75 | 0.87 | 1.01 | 1.16                                                | 0.01               | 0.03               | 0.05               |  |
|                     |         | 2600                          | 0.27                                         | 0.36 | 0.45 | 0.54 | 0.65 | 0.77 | 0.90 | 1.04 | 1.19                                                | 0.01               | 0.03               | 0.05               |  |
|                     |         | 2700                          | 0.27                                         | 0.37 | 0.46 | 0.56 | 0.66 | 0.79 | 0.92 | 1.07 | 1.22                                                | 0.01               | 0.03               | 0.05               |  |
|                     |         | 2800                          | 0.27                                         | 0.38 | 0.47 | 0.57 | 0.68 | 0.80 | 0.94 | 1.09 | 1.25                                                | 0.01               | 0.03               | 0.05               |  |
|                     |         | 2900                          | 0.28                                         | 0.38 | 0.48 | 0.58 | 0.69 | 0.82 | 0.96 | 1.12 | 1.28                                                | 0.01               | 0.03               | 0.05               |  |
|                     |         | 3000                          | 0.28                                         | 0.39 | 0.49 | 0.59 | 0.71 | 0.84 | 0.99 | 1.14 | 1.31                                                | 0.01               | 0.03               | 0.06               |  |
|                     |         | 3100                          | 0.29                                         | 0.40 | 0.50 | 0.60 | 0.72 | 0.86 | 1.01 | 1.17 | 1.34                                                | 0.01               | 0.04               | 0.06               |  |
|                     |         | 3200                          | 0.29                                         | 0.40 | 0.51 | 0.62 | 0.74 | 0.88 | 1.03 | 1.19 | 1.36                                                | 0.01               | 0.04               | 0.06               |  |
|                     |         | 3300                          | 0.30                                         | 0.41 | 0.52 | 0.63 | 0.75 | 0.89 | 1.05 | 1.21 | 1.39                                                | 0.01               | 0.04               | 0.06               |  |
|                     |         | 3400                          | 0.30                                         | 0.42 | 0.53 | 0.64 | 0.77 | 0.91 | 1.07 | 1.24 | 1.41                                                | 0.01               | 0.04               | 0.06               |  |
|                     |         | 3500                          | 0.30                                         | 0.42 | 0.54 | 0.65 | 0.78 | 0.93 | 1.09 | 1.26 | 1.44                                                | 0.01               | 0.04               | 0.06               |  |
|                     |         | 3600                          | 0.31                                         | 0.43 | 0.55 | 0.66 | 0.79 | 0.94 | 1.10 | 1.28 | 1.46                                                | 0.01               | 0.04               | 0.07               |  |
|                     |         | 3700                          | 0.31                                         | 0.43 | 0.55 | 0.67 | 0.81 | 0.96 | 1.12 | 1.30 | 1.49                                                | 0.01               | 0.04               | 0.07               |  |
|                     |         | 3800                          | 0.31                                         | 0.44 | 0.56 | 0.68 | 0.82 | 0.97 | 1.14 | 1.32 | 1.51                                                | 0.01               | 0.04               | 0.07               |  |
|                     |         | 3900                          | 0.31                                         | 0.44 | 0.57 | 0.69 | 0.83 | 0.99 | 1.16 | 1.34 | 1.53                                                | 0.01               | 0.05               | 0.07               |  |
|                     |         | 4000                          | 0.32                                         | 0.45 | 0.58 | 0.70 | 0.84 | 1.00 | 1.17 | 1.36 | 1.55                                                | 0.01               | 0.05               | 0.07               |  |
|                     |         | 4100                          | 0.32                                         | 0.45 | 0.58 | 0.71 | 0.85 | 1.02 | 1.19 | 1.38 | 1.57                                                | 0.01               | 0.05               | 0.08               |  |
|                     |         | 4200                          | 0.32                                         | 0.46 | 0.59 | 0.72 | 0.86 | 1.03 | 1.21 | 1.40 | 1.59                                                | 0.01               | 0.05               | 0.08               |  |
|                     |         | 4300                          | 0.32                                         | 0.46 | 0.60 | 0.73 | 0.88 | 1.04 | 1.22 | 1.41 | 1.61                                                | 0.01               | 0.05               | 0.08               |  |
|                     |         | 4400                          | 0.33                                         | 0.47 | 0.60 | 0.73 | 0.89 | 1.06 | 1.24 | 1.43 | 1.63                                                | 0.01               | 0.05               | 0.08               |  |
|                     |         | 4500                          | 0.33                                         | 0.47 | 0.61 | 0.74 | 0.90 | 1.07 | 1.25 | 1.45 | 1.65                                                | 0.01               | 0.05               | 0.08               |  |
|                     |         | 4600                          | 0.33                                         | 0.48 | 0.62 | 0.75 | 0.91 | 1.08 | 1.27 | 1.46 | 1.66                                                | 0.01               | 0.05               | 0.09               |  |
|                     |         | 4700                          | 0.33                                         | 0.48 | 0.62 | 0.76 | 0.92 | 1.09 | 1.28 | 1.48 | 1.68                                                | 0.01               | 0.05               | 0.09               |  |
|                     |         | 4800                          | 0.33                                         | 0.48 | 0.63 | 0.77 | 0.93 | 1.10 | 1.29 | 1.49 | 1.69                                                | 0.01               | 0.06               | 0.09               |  |
|                     |         | 4900                          | 0.33                                         | 0.49 | 0.63 | 0.77 | 0.94 | 1.11 | 1.31 | 1.51 | 1.71                                                | 0.01               | 0.06               | 0.09               |  |
|                     |         | 5000                          | 0.34                                         | 0.49 | 0.64 | 0.78 | 0.94 | 1.13 | 1.32 | 1.52 | 1.72                                                | 0.01               | 0.06               | 0.09               |  |
|                     |         | 5100                          | 0.34                                         | 0.49 | 0.64 | 0.79 | 0.95 | 1.14 | 1.33 | 1.53 | 1.74                                                | 0.01               | 0.06               | 0.09               |  |
|                     |         | 5200                          | 0.34                                         | 0.50 | 0.65 | 0.79 | 0.96 | 1.15 | 1.34 | 1.55 | 1.75                                                | 0.01               | 0.06               | 0.10               |  |
|                     |         | 5300                          | 0.34                                         | 0.50 | 0.65 | 0.80 | 0.97 | 1.16 | 1.35 | 1.56 | 1.76                                                | 0.01               | 0.06               | 0.10               |  |
|                     |         | 5400                          | 0.34                                         | 0.50 | 0.66 | 0.81 | 0.98 | 1.17 | 1.36 | 1.57 | 1.77                                                | 0.01               | 0.06               | 0.10               |  |
|                     |         | 5500                          | 0.34                                         | 0.51 | 0.66 | 0.81 | 0.99 | 1.17 | 1.38 | 1.58 | 1.78                                                | 0.01               | 0.06               | 0.10               |  |
|                     |         | 5600                          | 0.34                                         | 0.51 | 0.67 | 0.82 | 0.99 | 1.18 | 1.38 | 1.59 | 1.79                                                | 0.01               | 0.06               | 0.10               |  |
|                     |         | 5700                          | 0.34                                         | 0.51 | 0.67 | 0.83 | 1.00 | 1.19 | 1.39 | 1.60 | 1.80                                                | 0.01               | 0.07               | 0.11               |  |
|                     |         | 5800                          | 0.34                                         | 0.51 | 0.68 | 0.83 | 1.01 | 1.20 | 1.40 | 1.61 | 1.81                                                | 0.01               | 0.07               | 0.11               |  |
|                     |         | 5900                          | 0.34                                         | 0.51 | 0.68 | 0.84 | 1.01 | 1.21 | 1.41 | 1.62 | 1.82                                                | 0.01               | 0.07               | 0.11               |  |
|                     |         | 6000                          | 0.34                                         | 0.52 | 0.68 | 0.84 | 1.02 | 1.22 | 1.42 | 1.63 | 1.82                                                | 0.01               | 0.07               | 0.11               |  |
|                     |         | 6200                          | 0.34                                         | 0.52 | 0.69 | 0.85 | 1.03 | 1.23 | 1.43 | 1.64 | 1.83                                                | 0.01               | 0.07               | 0.11               |  |
|                     |         | 6400                          | 0.34                                         | 0.52 | 0.69 | 0.86 | 1.04 | 1.24 | 1.45 | 1.65 | 1.84                                                | 0.01               | 0.07               | 0.12               |  |
|                     |         | 6600                          | 0.34                                         | 0.52 | 0.70 | 0.87 | 1.05 | 1.25 | 1.46 | 1.66 | 1.84                                                | 0.02               | 0.08               | 0.12               |  |
|                     |         | 6800                          | 0.34                                         | 0.53 | 0.70 | 0.87 | 1.06 | 1.26 | 1.47 | 1.67 | 1.84                                                | 0.02               | 0.08               | 0.13               |  |
|                     |         | 7000                          | 0.34                                         | 0.53 | 0.71 | 0.88 | 1.07 | 1.27 | 1.48 | 1.67 | 1.84                                                | 0.02               | 0.08               | 0.13               |  |
|                     |         | 7200                          | 0.33                                         | 0.53 | 0.71 | 0.88 | 1.07 | 1.28 | 1.48 | 1.67 | 1.84                                                | 0.02               | 0.08               | 0.13               |  |
|                     |         | 7400                          | 0.33                                         | 0.53 | 0.71 | 0.89 | 1.08 | 1.28 | 1.48 | 1.67 | 1.83                                                | 0.02               | 0.09               | 0.14               |  |
|                     |         | 7600                          | 0.33                                         | 0.53 | 0.72 | 0.89 | 1.08 | 1.29 | 1.49 | 1.67 | 1.81                                                | 0.02               | 0.09               | 0.14               |  |
|                     |         | 7800                          | 0.32                                         | 0.53 | 0.72 | 0.89 | 1.09 | 1.29 | 1.49 | 1.66 | 1.80                                                | 0.02               | 0.09               | 0.14               |  |
|                     |         | 8000                          | 0.32                                         | 0.52 | 0.72 | 0.89 | 1.09 | 1.29 | 1.48 | 1.65 | 1.78                                                | 0.02               | 0.09               | 0.15               |  |
|                     |         |                               |                                              |      |      |      |      |      |      |      | v [m/s]                                             |                    |                    |                    |  |
|                     |         |                               |                                              |      |      |      |      |      |      |      | Dynamically balanced                                | Pulleys            |                    |                    |  |

# POWER RATINGS

optibelt **VB** PROFILE Z/10

NOMINAL POWER RATING  $P_N$  [kW]

FOR  $\beta = 180^\circ$  AND  $L_d = 822$  mm



Table 49

| Pulleys                                         | v [m/s] | $n_k$<br>[min <sup>-1</sup> ] | Datum diameter of small pulley $d_{dk}$ [mm] |      |      |      |      |      |      |      | Additional power [kW]<br>per belt for speed ratio $i$ |                    |                    |                    |  |
|-------------------------------------------------|---------|-------------------------------|----------------------------------------------|------|------|------|------|------|------|------|-------------------------------------------------------|--------------------|--------------------|--------------------|--|
|                                                 |         |                               | 45                                           | 50   | 56   | 63   | 71   | 80   | 90   | 100  | 112                                                   | 1.01<br>to<br>1.05 | 1.06<br>to<br>1.26 | 1.27<br>to<br>1.57 |  |
| Statically balanced                             | ②       | 700                           | 0.18                                         | 0.22 | 0.28 | 0.34 | 0.42 | 0.50 | 0.59 | 0.67 | 0.77                                                  | 0.00               | 0.02               | 0.03               |  |
|                                                 |         | 950                           | 0.22                                         | 0.28 | 0.35 | 0.44 | 0.53 | 0.64 | 0.75 | 0.86 | 1.00                                                  | 0.00               | 0.02               | 0.04               |  |
|                                                 |         | 1450                          | 0.29                                         | 0.38 | 0.48 | 0.60 | 0.74 | 0.89 | 1.06 | 1.22 | 1.40                                                  | 0.01               | 0.03               | 0.06               |  |
|                                                 |         | 2850                          | 0.42                                         | 0.58 | 0.77 | 0.98 | 1.22 | 1.47 | 1.75 | 2.02 | 2.33                                                  | 0.01               | 0.07               | 0.11               |  |
|                                                 |         | 100                           | 0.04                                         | 0.05 | 0.06 | 0.07 | 0.08 | 0.10 | 0.11 | 0.13 | 0.15                                                  | 0.00               | 0.00               | 0.00               |  |
|                                                 |         | 200                           | 0.07                                         | 0.08 | 0.10 | 0.12 | 0.15 | 0.17 | 0.20 | 0.23 | 0.27                                                  | 0.00               | 0.00               | 0.01               |  |
|                                                 |         | 300                           | 0.09                                         | 0.12 | 0.14 | 0.17 | 0.21 | 0.25 | 0.29 | 0.33 | 0.38                                                  | 0.00               | 0.01               | 0.01               |  |
|                                                 |         | 400                           | 0.12                                         | 0.15 | 0.18 | 0.22 | 0.26 | 0.31 | 0.37 | 0.42 | 0.48                                                  | 0.00               | 0.01               | 0.02               |  |
|                                                 |         | 500                           | 0.14                                         | 0.17 | 0.21 | 0.26 | 0.32 | 0.38 | 0.44 | 0.51 | 0.58                                                  | 0.00               | 0.01               | 0.02               |  |
|                                                 |         | 600                           | 0.16                                         | 0.20 | 0.25 | 0.30 | 0.37 | 0.44 | 0.51 | 0.59 | 0.68                                                  | 0.00               | 0.01               | 0.02               |  |
|                                                 |         | 700                           | 0.18                                         | 0.22 | 0.28 | 0.34 | 0.42 | 0.50 | 0.59 | 0.67 | 0.77                                                  | 0.00               | 0.02               | 0.03               |  |
|                                                 |         | 800                           | 0.19                                         | 0.25 | 0.31 | 0.38 | 0.46 | 0.55 | 0.65 | 0.75 | 0.87                                                  | 0.00               | 0.02               | 0.03               |  |
|                                                 |         | 900                           | 0.21                                         | 0.27 | 0.34 | 0.42 | 0.51 | 0.61 | 0.72 | 0.83 | 0.95                                                  | 0.00               | 0.02               | 0.03               |  |
|                                                 |         | 1000                          | 0.23                                         | 0.29 | 0.37 | 0.45 | 0.55 | 0.66 | 0.78 | 0.90 | 1.04                                                  | 0.00               | 0.02               | 0.04               |  |
|                                                 |         | 1100                          | 0.24                                         | 0.31 | 0.39 | 0.49 | 0.60 | 0.72 | 0.85 | 0.97 | 1.12                                                  | 0.01               | 0.03               | 0.04               |  |
|                                                 |         | 1200                          | 0.25                                         | 0.33 | 0.42 | 0.52 | 0.64 | 0.77 | 0.91 | 1.05 | 1.21                                                  | 0.01               | 0.03               | 0.05               |  |
|                                                 | ⑤       | 1300                          | 0.27                                         | 0.35 | 0.45 | 0.56 | 0.68 | 0.82 | 0.97 | 1.11 | 1.29                                                  | 0.01               | 0.03               | 0.05               |  |
|                                                 |         | 1400                          | 0.28                                         | 0.37 | 0.47 | 0.59 | 0.72 | 0.87 | 1.03 | 1.18 | 1.37                                                  | 0.01               | 0.03               | 0.05               |  |
|                                                 |         | 1500                          | 0.29                                         | 0.39 | 0.49 | 0.62 | 0.76 | 0.91 | 1.08 | 1.25 | 1.44                                                  | 0.01               | 0.04               | 0.06               |  |
|                                                 |         | 1600                          | 0.31                                         | 0.40 | 0.52 | 0.65 | 0.80 | 0.96 | 1.14 | 1.31 | 1.52                                                  | 0.01               | 0.04               | 0.06               |  |
|                                                 |         | 1700                          | 0.32                                         | 0.42 | 0.54 | 0.68 | 0.84 | 1.01 | 1.19 | 1.38 | 1.59                                                  | 0.01               | 0.04               | 0.07               |  |
|                                                 |         | 1800                          | 0.33                                         | 0.44 | 0.56 | 0.71 | 0.87 | 1.05 | 1.25 | 1.44 | 1.66                                                  | 0.01               | 0.04               | 0.07               |  |
|                                                 |         | 1900                          | 0.34                                         | 0.45 | 0.59 | 0.74 | 0.91 | 1.10 | 1.30 | 1.50 | 1.73                                                  | 0.01               | 0.05               | 0.07               |  |
|                                                 |         | 2000                          | 0.35                                         | 0.47 | 0.61 | 0.77 | 0.94 | 1.14 | 1.35 | 1.56 | 1.80                                                  | 0.01               | 0.05               | 0.08               |  |
|                                                 |         | 2100                          | 0.36                                         | 0.48 | 0.63 | 0.79 | 0.98 | 1.18 | 1.40 | 1.62 | 1.87                                                  | 0.01               | 0.05               | 0.08               |  |
|                                                 |         | 2200                          | 0.37                                         | 0.50 | 0.65 | 0.82 | 1.01 | 1.22 | 1.45 | 1.68 | 1.94                                                  | 0.01               | 0.05               | 0.08               |  |
|                                                 |         | 2300                          | 0.38                                         | 0.51 | 0.67 | 0.85 | 1.05 | 1.26 | 1.50 | 1.73 | 2.00                                                  | 0.01               | 0.06               | 0.09               |  |
|                                                 |         | 2400                          | 0.39                                         | 0.52 | 0.69 | 0.87 | 1.08 | 1.30 | 1.55 | 1.79 | 2.06                                                  | 0.01               | 0.06               | 0.09               |  |
|                                                 |         | 2500                          | 0.39                                         | 0.54 | 0.70 | 0.90 | 1.11 | 1.34 | 1.60 | 1.84 | 2.12                                                  | 0.01               | 0.06               | 0.10               |  |
|                                                 |         | 2600                          | 0.40                                         | 0.55 | 0.72 | 0.92 | 1.14 | 1.38 | 1.64 | 1.89 | 2.18                                                  | 0.01               | 0.06               | 0.10               |  |
|                                                 | ⑩       | 2700                          | 0.41                                         | 0.56 | 0.74 | 0.94 | 1.17 | 1.42 | 1.69 | 1.94 | 2.24                                                  | 0.01               | 0.06               | 0.10               |  |
|                                                 |         | 2800                          | 0.42                                         | 0.57 | 0.76 | 0.97 | 1.20 | 1.46 | 1.73 | 1.99 | 2.30                                                  | 0.01               | 0.07               | 0.11               |  |
|                                                 |         | 2900                          | 0.42                                         | 0.59 | 0.77 | 0.99 | 1.23 | 1.49 | 1.77 | 2.04 | 2.35                                                  | 0.01               | 0.07               | 0.11               |  |
|                                                 |         | 3000                          | 0.43                                         | 0.60 | 0.79 | 1.01 | 1.26 | 1.53 | 1.81 | 2.09 | 2.41                                                  | 0.01               | 0.07               | 0.12               |  |
|                                                 |         | 3100                          | 0.44                                         | 0.61 | 0.81 | 1.03 | 1.29 | 1.56 | 1.85 | 2.14 | 2.46                                                  | 0.01               | 0.07               | 0.12               |  |
|                                                 |         | 3200                          | 0.44                                         | 0.62 | 0.82 | 1.06 | 1.31 | 1.59 | 1.89 | 2.18 | 2.51                                                  | 0.02               | 0.08               | 0.12               |  |
|                                                 |         | 3300                          | 0.45                                         | 0.63 | 0.84 | 1.08 | 1.34 | 1.63 | 1.93 | 2.22 | 2.56                                                  | 0.02               | 0.08               | 0.13               |  |
|                                                 |         | 3400                          | 0.46                                         | 0.64 | 0.85 | 1.10 | 1.37 | 1.66 | 1.97 | 2.27 | 2.60                                                  | 0.02               | 0.08               | 0.13               |  |
|                                                 |         | 3500                          | 0.46                                         | 0.65 | 0.87 | 1.12 | 1.39 | 1.69 | 2.01 | 2.31 | 2.65                                                  | 0.02               | 0.08               | 0.13               |  |
|                                                 |         | 3600                          | 0.47                                         | 0.66 | 0.88 | 1.14 | 1.42 | 1.72 | 2.04 | 2.35 | 2.69                                                  | 0.02               | 0.09               | 0.14               |  |
|                                                 |         | 3700                          | 0.47                                         | 0.67 | 0.90 | 1.15 | 1.44 | 1.75 | 2.08 | 2.39 | 2.74                                                  | 0.02               | 0.09               | 0.14               |  |
|                                                 |         | 3800                          | 0.48                                         | 0.68 | 0.91 | 1.17 | 1.46 | 1.78 | 2.11 | 2.42 | 2.78                                                  | 0.02               | 0.09               | 0.15               |  |
|                                                 |         | 3900                          | 0.48                                         | 0.68 | 0.92 | 1.19 | 1.49 | 1.81 | 2.14 | 2.46 | 2.81                                                  | 0.02               | 0.09               | 0.15               |  |
|                                                 |         | 4000                          | 0.48                                         | 0.69 | 0.93 | 1.21 | 1.51 | 1.83 | 2.17 | 2.49 | 2.85                                                  | 0.02               | 0.10               | 0.15               |  |
|                                                 | ⑮       | 4100                          | 0.49                                         | 0.70 | 0.95 | 1.22 | 1.53 | 1.86 | 2.20 | 2.53 | 2.89                                                  | 0.02               | 0.10               | 0.16               |  |
|                                                 |         | 4200                          | 0.49                                         | 0.71 | 0.96 | 1.24 | 1.55 | 1.89 | 2.23 | 2.56 | 2.92                                                  | 0.02               | 0.10               | 0.16               |  |
|                                                 |         | 4300                          | 0.49                                         | 0.71 | 0.97 | 1.26 | 1.57 | 1.91 | 2.26 | 2.59 | 2.95                                                  | 0.02               | 0.10               | 0.17               |  |
|                                                 |         | 4400                          | 0.50                                         | 0.72 | 0.98 | 1.27 | 1.59 | 1.93 | 2.29 | 2.62 | 2.98                                                  | 0.02               | 0.11               | 0.17               |  |
|                                                 |         | 4500                          | 0.50                                         | 0.73 | 0.99 | 1.29 | 1.61 | 1.96 | 2.32 | 2.65 | 3.01                                                  | 0.02               | 0.11               | 0.17               |  |
|                                                 |         | 4600                          | 0.50                                         | 0.73 | 1.00 | 1.30 | 1.63 | 1.98 | 2.34 | 2.67 | 3.04                                                  | 0.02               | 0.11               | 0.18               |  |
|                                                 |         | 4700                          | 0.50                                         | 0.74 | 1.01 | 1.32 | 1.65 | 2.00 | 2.37 | 2.70 | 3.06                                                  | 0.02               | 0.11               | 0.18               |  |
|                                                 |         | 4800                          | 0.51                                         | 0.74 | 1.02 | 1.33 | 1.67 | 2.02 | 2.39 | 2.72 | 3.08                                                  | 0.02               | 0.12               | 0.18               |  |
|                                                 |         | 4900                          | 0.51                                         | 0.75 | 1.03 | 1.34 | 1.68 | 2.04 | 2.41 | 2.75 | 3.10                                                  | 0.02               | 0.12               | 0.19               |  |
|                                                 |         | 5000                          | 0.51                                         | 0.75 | 1.04 | 1.35 | 1.70 | 2.06 | 2.43 | 2.77 | 3.12                                                  | 0.02               | 0.12               | 0.19               |  |
|                                                 |         | 5100                          | 0.51                                         | 0.76 | 1.05 | 1.37 | 1.71 | 2.08 | 2.45 | 2.79 | 3.14                                                  | 0.02               | 0.12               | 0.20               |  |
|                                                 |         | 5200                          | 0.51                                         | 0.76 | 1.05 | 1.38 | 1.73 | 2.10 | 2.47 | 2.80 | 3.15                                                  | 0.03               | 0.13               | 0.20               |  |
|                                                 |         | 5300                          | 0.51                                         | 0.77 | 1.06 | 1.39 | 1.74 | 2.11 | 2.49 | 2.82 | 3.16                                                  | 0.03               | 0.13               | 0.20               |  |
|                                                 |         | 5400                          | 0.51                                         | 0.77 | 1.07 | 1.40 | 1.76 | 2.13 | 2.50 | 2.83 | 3.17                                                  | 0.03               | 0.13               | 0.21               |  |
|                                                 |         | 5500                          | 0.51                                         | 0.77 | 1.08 | 1.41 | 1.77 | 2.14 | 2.52 | 2.85 | 3.18                                                  | 0.03               | 0.13               | 0.21               |  |
|                                                 | ⑳       | 5600                          | 0.51                                         | 0.78 | 1.08 | 1.42 | 1.78 | 2.16 | 2.53 | 2.86 | 3.19                                                  | 0.03               | 0.13               | 0.22               |  |
|                                                 |         | 5800                          | 0.51                                         | 0.78 | 1.09 | 1.44 | 1.80 | 2.18 | 2.56 | 2.88 | 3.19                                                  | 0.03               | 0.14               | 0.22               |  |
|                                                 |         | 6000                          | 0.51                                         | 0.79 | 1.10 | 1.45 | 1.82 | 2.20 | 2.57 | 2.89 | 3.19                                                  | 0.03               | 0.14               | 0.23               |  |
|                                                 |         | 6200                          | 0.51                                         | 0.79 | 1.11 | 1.47 | 1.84 | 2.22 | 2.59 | 2.90 | 3.18                                                  | 0.03               | 0.15               | 0.24               |  |
|                                                 |         | 6400                          | 0.50                                         | 0.79 | 1.12 | 1.48 | 1.85 | 2.23 | 2.60 | 2.89 | 3.15                                                  | 0.03               | 0.15               | 0.25               |  |
|                                                 |         | 6600                          | 0.50                                         | 0.79 | 1.12 | 1.49 | 1.86 | 2.24 | 2.60 | 2.88 | 3.12                                                  | 0.03               | 0.16               | 0.25               |  |
|                                                 |         | 6800                          | 0.49                                         | 0.79 | 1.13 | 1.49 | 1.87 | 2.25 | 2.60 | 2.87 | 3.08                                                  | 0.03               | 0.16               | 0.26               |  |
|                                                 |         | 7000                          | 0.49                                         | 0.79 | 1.13 | 1.50 | 1.88 | 2.25 | 2.59 | 2.85 | 3.03                                                  | 0.03               | 0.17               | 0.27               |  |
|                                                 |         | 7200                          | 0.48                                         | 0.78 | 1.13 | 1.50 | 1.88 | 2.25 | 2.58 | 2.82 | 2.97                                                  | 0.03               | 0.17               | 0.28               |  |
|                                                 |         | 7400                          | 0.47                                         | 0.78 | 1.13 | 1.50 | 1.88 | 2.24 | 2.56 | 2.78 | 2.90                                                  | 0.04               | 0.18               | 0.28               |  |
|                                                 |         | 7600                          | 0.46                                         | 0.77 | 1.12 | 1.50 | 1.88 | 2.23 | 2.53 |      |                                                       | 0.04               | 0.18               | 0.29               |  |
|                                                 |         | 7800                          | 0.45                                         | 0.77 | 1.12 | 1.49 | 1.87 | 2.22 | 2.50 |      |                                                       | 0.04               | 0.19               | 0.30               |  |
|                                                 |         | 8000                          | 0.44                                         | 0.76 | 1.11 | 1.49 | 1.86 | 2.20 | 2.47 |      |                                                       | 0.04               | 0.19               | 0.31               |  |
|                                                 |         | 8200                          | 0.42                                         | 0.75 | 1.11 | 1.48 | 1.85 | 2.17 |      |      |                                                       | 0.04               | 0.20               | 0.32               |  |
|                                                 |         | 8400                          | 0.41                                         | 0.74 | 1.10 | 1.47 | 1.83 | 2.15 |      |      |                                                       | 0.04               | 0.20               | 0.32               |  |
|                                                 |         |                               |                                              |      |      |      |      |      |      |      | v [m/s]                                               |                    |                    |                    |  |
| Dynamically balanced (for details see DIN 2211) |         |                               |                                              |      |      |      |      |      |      |      | Pulleys                                               |                    |                    |                    |  |

v > 30 m/s. Please consult our Application Engineering Department.



# POWER RATINGS

optibelt **VB** PROFILE B/17

NOMINAL POWER RATING  $P_N$  [kW]

FOR  $\beta = 180^\circ$  AND  $L_d = 2280$  mm



Table 51

| Pulleys             | v [m/s]                                                                     | $n_k$<br>[min <sup>-1</sup> ] | Datum diameter of small pulley $d_{dk}$ [mm] |      |      |      |      |      |      |      |      |       |       |       |       |       | Additional power [kW]<br>per belt for speed ratio i |                    |                    |                    |        |
|---------------------|-----------------------------------------------------------------------------|-------------------------------|----------------------------------------------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-----------------------------------------------------|--------------------|--------------------|--------------------|--------|
|                     |                                                                             |                               | 112                                          | 125  | 132  | 140  | 150  | 160  | 170  | 180  | 190  | 200   | 212   | 224   | 236   | 250   | 280                                                 | 1.01<br>to<br>1.05 | 1.06<br>to<br>1.26 | 1.27<br>to<br>1.57 | > 1.57 |
| Statically balanced | 5                                                                           | 700                           | 1.49                                         | 1.96 | 2.21 | 2.50 | 2.85 | 3.20 | 3.55 | 3.89 | 4.24 | 4.58  | 4.98  | 5.38  | 5.78  | 6.23  | 7.19                                                | 0.03               | 0.17               | 0.27               | 0.30   |
|                     |                                                                             | 950                           | 1.83                                         | 2.45 | 2.77 | 3.15 | 3.61 | 4.06 | 4.51 | 4.96 | 5.40 | 5.83  | 6.35  | 6.86  | 7.36  | 7.94  | 9.14                                                | 0.05               | 0.23               | 0.37               | 0.41   |
|                     |                                                                             | 1450                          | 2.37                                         | 3.25 | 3.72 | 4.24 | 4.89 | 5.52 | 6.14 | 6.75 | 7.35 | 7.94  | 8.63  | 9.31  | 9.96  | 10.70 | 12.20                                               | 0.07               | 0.35               | 0.56               | 0.63   |
|                     |                                                                             | 2850                          | 2.99                                         | 4.37 | 5.08 | 5.87 | 6.80 | 7.67 | 8.49 | 9.24 | 9.93 | 10.56 | 11.22 | 11.78 | 12.24 | 12.62 | 12.90                                               | 0.14               | 0.69               | 1.10               | 1.24   |
|                     |                                                                             | 100                           | 0.33                                         | 0.41 | 0.46 | 0.51 | 0.57 | 0.63 | 0.69 | 0.75 | 0.81 | 0.87  | 0.94  | 1.01  | 1.08  | 1.17  | 1.34                                                | 0.00               | 0.02               | 0.04               | 0.04   |
|                     |                                                                             | 200                           | 0.58                                         | 0.73 | 0.81 | 0.91 | 1.02 | 1.14 | 1.25 | 1.37 | 1.48 | 1.59  | 1.73  | 1.86  | 1.99  | 2.15  | 2.47                                                | 0.01               | 0.05               | 0.08               | 0.09   |
|                     |                                                                             | 300                           | 0.79                                         | 1.01 | 1.13 | 1.27 | 1.43 | 1.60 | 1.77 | 1.93 | 2.09 | 2.25  | 2.45  | 2.64  | 2.83  | 3.05  | 3.52                                                | 0.01               | 0.07               | 0.12               | 0.13   |
|                     |                                                                             | 400                           | 0.99                                         | 1.27 | 1.43 | 1.60 | 1.82 | 2.03 | 2.25 | 2.46 | 2.67 | 2.88  | 3.13  | 3.37  | 3.62  | 3.91  | 4.51                                                | 0.02               | 0.10               | 0.15               | 0.17   |
|                     |                                                                             | 500                           | 1.17                                         | 1.52 | 1.70 | 1.92 | 2.18 | 2.44 | 2.70 | 2.96 | 3.22 | 3.47  | 3.77  | 4.07  | 4.37  | 4.72  | 5.45                                                | 0.02               | 0.12               | 0.19               | 0.22   |
|                     |                                                                             | 600                           | 1.33                                         | 1.74 | 1.96 | 2.21 | 2.52 | 2.83 | 3.13 | 3.44 | 3.74 | 4.03  | 4.39  | 4.74  | 5.09  | 5.49  | 6.34                                                | 0.03               | 0.14               | 0.23               | 0.26   |
|                     |                                                                             | 700                           | 1.49                                         | 1.96 | 2.21 | 2.50 | 2.85 | 3.20 | 3.55 | 3.89 | 4.24 | 4.58  | 4.98  | 5.38  | 5.78  | 6.23  | 7.19                                                | 0.03               | 0.17               | 0.27               | 0.30   |
|                     |                                                                             | 800                           | 1.63                                         | 2.16 | 2.44 | 2.77 | 3.16 | 3.56 | 3.95 | 4.33 | 4.72 | 5.09  | 5.55  | 5.99  | 6.43  | 6.94  | 8.00                                                | 0.04               | 0.19               | 0.31               | 0.35   |
|                     |                                                                             | 900                           | 1.77                                         | 2.35 | 2.67 | 3.02 | 3.46 | 3.90 | 4.33 | 4.75 | 5.17 | 5.59  | 6.09  | 6.57  | 7.06  | 7.61  | 8.77                                                | 0.04               | 0.22               | 0.35               | 0.39   |
|                     |                                                                             | 1000                          | 1.89                                         | 2.54 | 2.88 | 3.27 | 3.75 | 4.22 | 4.69 | 5.16 | 5.61 | 6.07  | 6.60  | 7.13  | 7.65  | 8.25  | 9.50                                                | 0.05               | 0.24               | 0.39               | 0.43   |
|                     |                                                                             | 1100                          | 2.01                                         | 2.71 | 3.08 | 3.50 | 4.02 | 4.53 | 5.04 | 5.54 | 6.03 | 6.52  | 7.10  | 7.66  | 8.22  | 8.86  | 10.18                                               | 0.05               | 0.27               | 0.42               | 0.48   |
|                     |                                                                             | 1200                          | 2.12                                         | 2.88 | 3.28 | 3.73 | 4.28 | 4.83 | 5.37 | 5.91 | 6.44 | 6.95  | 7.57  | 8.17  | 8.76  | 9.43  | 10.82                                               | 0.06               | 0.29               | 0.46               | 0.52   |
|                     |                                                                             | 1300                          | 2.23                                         | 3.03 | 3.46 | 3.94 | 4.53 | 5.12 | 5.69 | 6.26 | 6.82 | 7.37  | 8.01  | 8.64  | 9.26  | 9.97  | 11.41                                               | 0.06               | 0.31               | 0.50               | 0.56   |
|                     |                                                                             | 1400                          | 2.33                                         | 3.18 | 3.63 | 4.14 | 4.77 | 5.39 | 6.00 | 6.59 | 7.18 | 7.76  | 8.43  | 9.09  | 9.74  | 10.47 | 11.95                                               | 0.07               | 0.34               | 0.54               | 0.61   |
|                     |                                                                             | 1500                          | 2.42                                         | 3.32 | 3.80 | 4.33 | 5.00 | 5.65 | 6.28 | 6.91 | 7.52 | 8.12  | 8.83  | 9.51  | 10.18 | 10.93 | 12.44                                               | 0.07               | 0.36               | 0.58               | 0.65   |
|                     |                                                                             | 1600                          | 2.50                                         | 3.45 | 3.95 | 4.52 | 5.21 | 5.89 | 6.56 | 7.21 | 7.85 | 8.47  | 9.20  | 9.90  | 10.58 | 11.35 | 12.88                                               | 0.08               | 0.39               | 0.62               | 0.69   |
|                     |                                                                             | 1700                          | 2.58                                         | 3.57 | 4.10 | 4.69 | 5.41 | 6.12 | 6.81 | 7.49 | 8.15 | 8.79  | 9.54  | 10.26 | 10.95 | 11.73 | 13.26                                               | 0.08               | 0.41               | 0.66               | 0.74   |
|                     |                                                                             | 1800                          | 2.65                                         | 3.69 | 4.24 | 4.85 | 5.60 | 6.34 | 7.05 | 7.75 | 8.43 | 9.09  | 9.85  | 10.58 | 11.29 | 12.07 | 13.59                                               | 0.09               | 0.43               | 0.70               | 0.78   |
|                     |                                                                             | 1900                          | 2.72                                         | 3.79 | 4.36 | 5.00 | 5.78 | 6.54 | 7.27 | 7.99 | 8.69 | 9.36  | 10.14 | 10.88 | 11.58 | 12.36 | 13.85                                               | 0.09               | 0.46               | 0.73               | 0.82   |
|                     |                                                                             | 2000                          | 2.77                                         | 3.89 | 4.48 | 5.14 | 5.94 | 6.72 | 7.48 | 8.21 | 8.92 | 9.61  | 10.39 | 11.14 | 11.84 | 12.61 | 14.06                                               | 0.10               | 0.48               | 0.77               | 0.87   |
|                     |                                                                             | 2100                          | 2.82                                         | 3.98 | 4.59 | 5.27 | 6.09 | 6.90 | 7.67 | 8.42 | 9.14 | 9.83  | 10.62 | 11.36 | 12.06 | 12.81 | 14.19                                               | 0.10               | 0.51               | 0.81               | 0.91   |
|                     |                                                                             | 2200                          | 2.87                                         | 4.06 | 4.69 | 5.39 | 6.23 | 7.05 | 7.84 | 8.60 | 9.33 | 10.02 | 10.81 | 11.55 | 12.23 | 12.96 | 14.26                                               | 0.11               | 0.53               | 0.85               | 0.96   |
|                     |                                                                             | 2300                          | 2.91                                         | 4.14 | 4.78 | 5.49 | 6.36 | 7.19 | 7.99 | 8.76 | 9.49 | 10.19 | 10.97 | 11.70 | 12.36 | 13.06 | 14.26                                               | 0.11               | 0.56               | 0.89               | 1.00   |
|                     |                                                                             | 2400                          | 2.94                                         | 4.20 | 4.86 | 5.59 | 6.47 | 7.32 | 8.13 | 8.90 | 9.63 | 10.32 | 11.10 | 11.81 | 12.45 | 13.11 | 14.19                                               | 0.12               | 0.58               | 0.93               | 1.04   |
|                     |                                                                             | 2500                          | 2.96                                         | 4.25 | 4.93 | 5.67 | 6.57 | 7.43 | 8.24 | 9.02 | 9.75 | 10.43 | 11.19 | 11.88 | 12.49 | 13.10 | 14.04                                               | 0.12               | 0.60               | 0.97               | 1.09   |
|                     |                                                                             | 2600                          | 2.98                                         | 4.30 | 4.98 | 5.74 | 6.65 | 7.52 | 8.34 | 9.11 | 9.83 | 10.51 | 11.25 | 11.90 | 12.48 |       |                                                     | 0.13               | 0.63               | 1.00               | 1.13   |
|                     |                                                                             | 2700                          | 2.99                                         | 4.34 | 5.03 | 5.80 | 6.72 | 7.59 | 8.41 | 9.18 | 9.90 | 10.55 | 11.27 | 11.89 | 12.42 |       |                                                     | 0.13               | 0.65               | 1.04               | 1.17   |
|                     |                                                                             | 2800                          | 2.99                                         | 4.36 | 5.07 | 5.85 | 6.77 | 7.65 | 8.47 | 9.23 | 9.93 | 10.57 | 11.25 | 11.83 | 12.31 |       |                                                     | 0.14               | 0.68               | 1.08               | 1.22   |
|                     |                                                                             | 2900                          | 2.98                                         | 4.38 | 5.10 | 5.88 | 6.81 | 7.69 | 8.50 | 9.25 | 9.93 | 10.55 | 11.19 | 11.73 | 12.15 |       |                                                     | 0.14               | 0.70               | 1.12               | 1.26   |
|                     |                                                                             | 3000                          | 2.97                                         | 4.39 | 5.11 | 5.90 | 6.84 | 7.71 | 8.51 | 9.25 | 9.91 | 10.49 | 11.09 | 11.58 | 11.93 |       |                                                     | 0.14               | 0.72               | 1.16               | 1.30   |
|                     |                                                                             | 3100                          | 2.95                                         | 4.39 | 5.12 | 5.91 | 6.84 | 7.71 | 8.50 | 9.22 | 9.85 | 10.41 |       |       |       |       |                                                     | 0.15               | 0.75               | 1.20               | 1.35   |
|                     |                                                                             | 3200                          | 2.92                                         | 4.37 | 5.11 | 5.90 | 6.83 | 7.69 | 8.47 | 9.16 | 9.77 | 10.28 |       |       |       |       |                                                     | 0.15               | 0.77               | 1.24               | 1.39   |
|                     |                                                                             | 3300                          | 2.89                                         | 4.35 | 5.09 | 5.88 | 6.81 | 7.65 | 8.41 | 9.08 | 9.65 | 10.12 |       |       |       |       |                                                     | 0.16               | 0.80               | 1.27               | 1.43   |
|                     |                                                                             | 3400                          | 2.85                                         | 4.32 | 5.06 | 5.85 | 6.77 | 7.59 | 8.33 | 8.96 | 9.50 | 9.92  |       |       |       |       |                                                     | 0.16               | 0.82               | 1.31               | 1.48   |
|                     |                                                                             | 3500                          | 2.80                                         | 4.27 | 5.01 | 5.80 | 6.71 | 7.52 | 8.22 | 8.82 | 9.31 | 9.68  |       |       |       |       |                                                     | 0.17               | 0.84               | 1.35               | 1.52   |
|                     |                                                                             | 3600                          | 2.74                                         | 4.22 | 4.96 | 5.74 | 6.63 | 7.41 | 8.09 |      |      |       |       |       |       |       |                                                     | 0.17               | 0.87               | 1.39               | 1.56   |
|                     |                                                                             | 3700                          | 2.67                                         | 4.15 | 4.89 | 5.66 | 6.53 | 7.29 | 7.93 |      |      |       |       |       |       |       |                                                     | 0.18               | 0.89               | 1.43               | 1.61   |
|                     |                                                                             | 3800                          | 2.59                                         | 4.08 | 4.80 | 5.57 | 6.42 | 7.15 | 7.75 |      |      |       |       |       |       |       |                                                     | 0.18               | 0.92               | 1.47               | 1.65   |
|                     |                                                                             | 3900                          | 2.51                                         | 3.99 | 4.71 | 5.46 | 6.29 | 6.98 | 7.54 |      |      |       |       |       |       |       |                                                     | 0.19               | 0.94               | 1.51               | 1.69   |
|                     |                                                                             | 4000                          | 2.42                                         | 3.89 | 4.60 | 5.34 | 6.13 | 6.79 | 7.31 |      |      |       |       |       |       |       |                                                     | 0.19               | 0.97               | 1.55               | 1.74   |
|                     |                                                                             | 4100                          | 2.31                                         | 3.78 | 4.48 | 5.19 | 5.96 |      |      |      |      |       |       |       |       |       |                                                     | 0.20               | 0.99               | 1.58               | 1.78   |
|                     |                                                                             | 4200                          | 2.20                                         | 3.65 | 4.34 | 5.04 | 5.77 |      |      |      |      |       |       |       |       |       |                                                     | 0.20               | 1.01               | 1.62               | 1.82   |
|                     |                                                                             | 4300                          | 2.08                                         | 3.52 | 4.19 | 4.86 | 5.56 |      |      |      |      |       |       |       |       |       |                                                     | 0.21               | 1.04               | 1.66               | 1.87   |
|                     |                                                                             | 4400                          | 1.95                                         | 3.37 | 4.02 | 4.67 | 5.32 |      |      |      |      |       |       |       |       |       |                                                     | 0.21               | 1.06               | 1.70               | 1.91   |
|                     |                                                                             | 4500                          | 1.82                                         | 3.21 | 3.84 | 4.46 | 5.07 |      |      |      |      |       |       |       |       |       |                                                     | 0.22               | 1.09               | 1.74               | 1.95   |
|                     |                                                                             | 4600                          | 1.67                                         | 3.03 | 3.65 |      |      |      |      |      |      |       |       |       |       |       |                                                     | 0.22               | 1.11               | 1.78               | 2.00   |
|                     |                                                                             | 4700                          | 1.51                                         | 2.85 | 3.44 |      |      |      |      |      |      |       |       |       |       |       |                                                     | 0.23               | 1.13               | 1.82               | 2.04   |
|                     |                                                                             | 4800                          | 1.34                                         | 2.65 | 3.21 |      |      |      |      |      |      |       |       |       |       |       |                                                     | 0.23               | 1.16               | 1.85               | 2.08   |
|                     |                                                                             | 4900                          | 1.16                                         | 2.43 | 2.97 |      |      |      |      |      |      |       |       |       |       |       |                                                     | 0.24               | 1.18               | 1.89               | 2.13   |
|                     |                                                                             | 5000                          | 0.97                                         | 2.20 | 2.71 |      |      |      |      |      |      |       |       |       |       |       |                                                     | 0.24               | 1.21               | 1.93               | 2.17   |
| (30)                | v > 30 m/s.<br>Please consult our<br>Application Engineering<br>Department. |                               |                                              |      |      |      |      |      |      |      |      |       |       |       |       |       |                                                     |                    |                    | v [m/s]            |        |
|                     | Dynamically balanced (for details see DIN 2211)                             |                               |                                              |      |      |      |      |      |      |      |      |       |       |       |       |       |                                                     |                    |                    | Pulleys            |        |



# POWER RATINGS

optibelt **VB** PROFILE 20

NOMINAL POWER RATING  $P_N$  [kW]

FOR  $\beta = 180^\circ$  AND  $L_d = 3198$  mm



Table 53

| Pulleys              | v [m/s] | $n_k$<br>[min <sup>-1</sup> ] | Datum diameter of small pulley $d_{dk}$ [mm] |      |      |      |      |       |       |       | Additional power [kW]<br>per belt for speed ratio $i$ |         |                                                                               |                    |                    |        |
|----------------------|---------|-------------------------------|----------------------------------------------|------|------|------|------|-------|-------|-------|-------------------------------------------------------|---------|-------------------------------------------------------------------------------|--------------------|--------------------|--------|
|                      |         |                               | 140                                          | 160  | 180  | 200  | 224  | 236   | 250   | 280   | 315                                                   | 355     | 1.01<br>to<br>1.05                                                            | 1.06<br>to<br>1.26 | 1.27<br>to<br>1.57 | > 1.57 |
| Statically balanced  | 5       | 700                           | 2.62                                         | 3.33 | 4.02 | 4.70 | 5.49 | 5.88  | 6.32  | 7.25  | 8.30                                                  | 9.44    | 0.04                                                                          | 0.18               | 0.29               | 0.32   |
|                      |         | 950                           | 3.21                                         | 4.11 | 4.99 | 5.83 | 6.82 | 7.30  | 7.84  | 8.97  | 10.21                                                 | 11.53   | 0.05                                                                          | 0.24               | 0.39               | 0.44   |
|                      |         | 1450                          | 4.08                                         | 5.30 | 6.46 | 7.56 | 8.80 | 9.38  | 10.03 | 11.32 | 12.61                                                 | 13.81   | 0.07                                                                          | 0.37               | 0.59               | 0.67   |
|                      |         | 2850                          | 4.64                                         | 6.11 | 7.29 | 8.16 | 8.75 | 8.85  | 8.79  | 7.99  | 5.78                                                  |         | 0.15                                                                          | 0.73               | 1.17               | 1.31   |
|                      |         | 50                            | 0.34                                         | 0.41 | 0.48 | 0.55 | 0.63 | 0.68  | 0.72  | 0.83  | 0.94                                                  | 1.08    | 0.00                                                                          | 0.01               | 0.02               | 0.02   |
|                      |         | 100                           | 0.60                                         | 0.73 | 0.86 | 0.99 | 1.15 | 1.22  | 1.31  | 1.50  | 1.71                                                  | 1.96    | 0.01                                                                          | 0.03               | 0.04               | 0.05   |
|                      |         | 150                           | 0.82                                         | 1.02 | 1.20 | 1.39 | 1.61 | 1.72  | 1.84  | 2.11  | 2.42                                                  | 2.76    | 0.01                                                                          | 0.04               | 0.06               | 0.07   |
|                      |         | 200                           | 1.04                                         | 1.28 | 1.52 | 1.76 | 2.04 | 2.18  | 2.34  | 2.68  | 3.07                                                  | 3.51    | 0.01                                                                          | 0.05               | 0.08               | 0.09   |
|                      |         | 250                           | 1.23                                         | 1.53 | 1.82 | 2.11 | 2.45 | 2.62  | 2.82  | 3.23  | 3.70                                                  | 4.23    | 0.01                                                                          | 0.06               | 0.10               | 0.12   |
|                      |         | 300                           | 1.42                                         | 1.76 | 2.11 | 2.44 | 2.84 | 3.04  | 3.27  | 3.75  | 4.29                                                  | 4.91    | 0.02                                                                          | 0.08               | 0.12               | 0.14   |
|                      |         | 350                           | 1.59                                         | 1.99 | 2.38 | 2.76 | 3.22 | 3.44  | 3.70  | 4.24  | 4.87                                                  | 5.56    | 0.02                                                                          | 0.09               | 0.14               | 0.16   |
|                      |         | 400                           | 1.76                                         | 2.20 | 2.64 | 3.07 | 3.58 | 3.83  | 4.11  | 4.72  | 5.41                                                  | 6.19    | 0.02                                                                          | 0.10               | 0.16               | 0.18   |
|                      |         | 450                           | 1.92                                         | 2.41 | 2.89 | 3.37 | 3.92 | 4.20  | 4.51  | 5.18  | 5.94                                                  | 6.79    | 0.02                                                                          | 0.12               | 0.18               | 0.21   |
|                      |         | 500                           | 2.07                                         | 2.61 | 3.13 | 3.65 | 4.26 | 4.56  | 4.90  | 5.63  | 6.45                                                  | 7.36    | 0.03                                                                          | 0.13               | 0.21               | 0.23   |
|                      |         | 550                           | 2.22                                         | 2.80 | 3.37 | 3.93 | 4.58 | 4.90  | 5.28  | 6.06  | 6.94                                                  | 7.92    | 0.03                                                                          | 0.14               | 0.23               | 0.25   |
|                      |         | 600                           | 2.36                                         | 2.98 | 3.59 | 4.19 | 4.90 | 5.24  | 5.64  | 6.47  | 7.41                                                  | 8.45    | 0.03                                                                          | 0.15               | 0.25               | 0.28   |
|                      |         | 650                           | 2.49                                         | 3.16 | 3.81 | 4.45 | 5.20 | 5.56  | 5.99  | 6.87  | 7.86                                                  | 8.96    | 0.03                                                                          | 0.17               | 0.27               | 0.30   |
|                      |         | 700                           | 2.62                                         | 3.33 | 4.02 | 4.70 | 5.49 | 5.88  | 6.32  | 7.25  | 8.30                                                  | 9.44    | 0.04                                                                          | 0.18               | 0.29               | 0.32   |
|                      |         | 750                           | 2.75                                         | 3.50 | 4.23 | 4.94 | 5.78 | 6.18  | 6.65  | 7.63  | 8.72                                                  | 9.91    | 0.04                                                                          | 0.19               | 0.31               | 0.35   |
|                      |         | 800                           | 2.87                                         | 3.66 | 4.43 | 5.18 | 6.05 | 6.48  | 6.97  | 7.98  | 9.12                                                  | 10.35   | 0.04                                                                          | 0.21               | 0.33               | 0.37   |
|                      |         | 850                           | 2.99                                         | 3.81 | 4.62 | 5.40 | 6.32 | 6.76  | 7.27  | 8.33  | 9.50                                                  | 10.77   | 0.04                                                                          | 0.22               | 0.35               | 0.39   |
|                      |         | 900                           | 3.10                                         | 3.96 | 4.81 | 5.62 | 6.57 | 7.03  | 7.56  | 8.66  | 9.87                                                  | 11.16   | 0.05                                                                          | 0.23               | 0.37               | 0.42   |
|                      |         | 950                           | 3.21                                         | 4.11 | 4.99 | 5.83 | 6.82 | 7.30  | 7.84  | 8.97  | 10.21                                                 | 11.53   | 0.05                                                                          | 0.24               | 0.39               | 0.44   |
|                      |         | 1000                          | 3.31                                         | 4.25 | 5.16 | 6.04 | 7.06 | 7.55  | 8.11  | 9.27  | 10.54                                                 | 11.88   | 0.05                                                                          | 0.26               | 0.41               | 0.46   |
|                      |         | 1050                          | 3.41                                         | 4.39 | 5.33 | 6.24 | 7.29 | 7.79  | 8.37  | 9.56  | 10.85                                                 | 12.20   | 0.05                                                                          | 0.27               | 0.43               | 0.48   |
|                      |         | 1100                          | 3.51                                         | 4.52 | 5.49 | 6.43 | 7.51 | 8.03  | 8.62  | 9.83  | 11.14                                                 | 12.50   | 0.06                                                                          | 0.28               | 0.45               | 0.51   |
|                      |         | 1150                          | 3.60                                         | 4.64 | 5.65 | 6.61 | 7.72 | 8.25  | 8.86  | 10.09 | 11.41                                                 | 12.77   | 0.06                                                                          | 0.29               | 0.47               | 0.53   |
|                      |         | 1200                          | 3.69                                         | 4.76 | 5.80 | 6.79 | 7.92 | 8.47  | 9.08  | 10.33 | 11.66                                                 | 13.01   | 0.06                                                                          | 0.31               | 0.49               | 0.55   |
|                      |         | 1250                          | 3.78                                         | 4.88 | 5.94 | 6.96 | 8.11 | 8.67  | 9.30  | 10.56 | 11.90                                                 | 13.23   | 0.06                                                                          | 0.32               | 0.51               | 0.58   |
|                      | 10      | 1300                          | 3.86                                         | 4.99 | 6.08 | 7.12 | 8.30 | 8.86  | 9.50  | 10.77 | 12.11                                                 | 13.42   | 0.07                                                                          | 0.33               | 0.53               | 0.60   |
|                      |         | 1350                          | 3.94                                         | 5.10 | 6.21 | 7.27 | 8.47 | 9.05  | 9.69  | 10.97 | 12.30                                                 | 13.58   | 0.07                                                                          | 0.35               | 0.55               | 0.62   |
|                      |         | 1400                          | 4.01                                         | 5.20 | 6.34 | 7.42 | 8.64 | 9.22  | 9.87  | 11.15 | 12.47                                                 | 13.71   | 0.07                                                                          | 0.36               | 0.57               | 0.65   |
|                      |         | 1450                          | 4.08                                         | 5.30 | 6.46 | 7.56 | 8.80 | 9.38  | 10.03 | 11.32 | 12.61                                                 | 13.81   | 0.07                                                                          | 0.37               | 0.59               | 0.67   |
|                      |         | 1500                          | 4.15                                         | 5.40 | 6.58 | 7.69 | 8.94 | 9.53  | 10.18 | 11.46 | 12.74                                                 | 13.88   | 0.08                                                                          | 0.38               | 0.62               | 0.69   |
|                      |         | 1550                          | 4.22                                         | 5.49 | 6.69 | 7.82 | 9.08 | 9.67  | 10.33 | 11.60 | 12.84                                                 | 13.92   | 0.08                                                                          | 0.40               | 0.64               | 0.71   |
|                      |         | 1600                          | 4.28                                         | 5.57 | 6.79 | 7.94 | 9.21 | 9.80  | 10.45 | 11.71 | 12.92                                                 | 13.93   | 0.08                                                                          | 0.41               | 0.66               | 0.74   |
|                      |         | 1650                          | 4.34                                         | 5.65 | 6.89 | 8.05 | 9.33 | 9.92  | 10.57 | 11.81 | 12.97                                                 | 13.90   | 0.08                                                                          | 0.42               | 0.68               | 0.76   |
|                      |         | 1700                          | 4.39                                         | 5.73 | 6.98 | 8.15 | 9.43 | 10.02 | 10.67 | 11.89 | 13.00                                                 | 13.84   | 0.09                                                                          | 0.44               | 0.70               | 0.78   |
|                      |         | 1750                          | 4.44                                         | 5.80 | 7.07 | 8.24 | 9.53 | 10.12 | 10.76 | 11.95 | 13.01                                                 | 13.75   | 0.09                                                                          | 0.45               | 0.72               | 0.81   |
|                      | 15      | 1800                          | 4.49                                         | 5.87 | 7.15 | 8.33 | 9.62 | 10.20 | 10.83 | 11.99 | 12.99                                                 | 13.62   | 0.09                                                                          | 0.46               | 0.74               | 0.83   |
|                      |         | 1850                          | 4.53                                         | 5.93 | 7.22 | 8.41 | 9.69 | 10.27 | 10.89 | 12.02 | 12.94                                                 | 13.46   | 0.09                                                                          | 0.47               | 0.76               | 0.85   |
|                      |         | 1900                          | 4.57                                         | 5.98 | 7.29 | 8.48 | 9.76 | 10.33 | 10.94 | 12.02 | 12.87                                                 | 13.26   | 0.10                                                                          | 0.49               | 0.78               | 0.88   |
|                      |         | 1950                          | 4.61                                         | 6.04 | 7.35 | 8.55 | 9.81 | 10.38 | 10.97 | 12.01 | 12.77                                                 | 13.02   | 0.10                                                                          | 0.50               | 0.80               | 0.90   |
|                      |         | 2000                          | 4.64                                         | 6.08 | 7.41 | 8.60 | 9.86 | 10.41 | 10.99 | 11.97 | 12.65                                                 | 12.74   | 0.10                                                                          | 0.51               | 0.82               | 0.92   |
|                      |         | 2050                          | 4.67                                         | 6.13 | 7.45 | 8.65 | 9.89 | 10.43 | 10.99 | 11.92 | 12.49                                                 |         | 0.11                                                                          | 0.53               | 0.84               | 0.95   |
|                      |         | 2100                          | 4.70                                         | 6.16 | 7.50 | 8.69 | 9.91 | 10.44 | 10.98 | 11.84 | 12.31                                                 |         | 0.11                                                                          | 0.54               | 0.86               | 0.97   |
|                      |         | 2150                          | 4.72                                         | 6.20 | 7.53 | 8.71 | 9.92 | 10.43 | 10.95 | 11.75 | 12.10                                                 |         | 0.11                                                                          | 0.55               | 0.88               | 0.99   |
|                      |         | 2200                          | 4.74                                         | 6.22 | 7.56 | 8.74 | 9.92 | 10.41 | 10.91 | 11.63 | 11.86                                                 |         | 0.11                                                                          | 0.56               | 0.90               | 1.01   |
|                      |         | 2250                          | 4.75                                         | 6.25 | 7.58 | 8.75 | 9.91 | 10.38 | 10.85 | 11.49 | 11.59                                                 |         | 0.12                                                                          | 0.58               | 0.92               | 1.04   |
|                      | 20      | 2300                          | 4.76                                         | 6.27 | 7.60 | 8.75 | 9.88 | 10.34 | 10.77 | 11.33 |                                                       |         | 0.12                                                                          | 0.59               | 0.94               | 1.06   |
|                      |         | 2350                          | 4.77                                         | 6.28 | 7.61 | 8.75 | 9.84 | 10.28 | 10.68 | 11.14 |                                                       |         | 0.12                                                                          | 0.60               | 0.96               | 1.08   |
|                      |         | 2400                          | 4.77                                         | 6.29 | 7.61 | 8.73 | 9.79 | 10.20 | 10.57 | 10.94 |                                                       |         | 0.12                                                                          | 0.62               | 0.98               | 1.11   |
|                      |         | 2450                          | 4.77                                         | 6.29 | 7.60 | 8.71 | 9.73 | 10.11 | 10.44 | 10.71 |                                                       |         | 0.13                                                                          | 0.63               | 1.01               | 1.13   |
|                      |         | 2500                          | 4.77                                         | 6.28 | 7.59 | 8.67 | 9.66 | 10.01 | 10.30 | 10.45 |                                                       |         | 0.13                                                                          | 0.64               | 1.03               | 1.15   |
|                      |         | 2550                          | 4.76                                         | 6.28 | 7.57 | 8.63 | 9.57 | 9.89  |       |       |                                                       |         | 0.13                                                                          | 0.65               | 1.05               | 1.18   |
|                      |         | 2600                          | 4.75                                         | 6.26 | 7.54 | 8.58 | 9.47 | 9.76  |       |       |                                                       |         | 0.13                                                                          | 0.67               | 1.07               | 1.20   |
|                      |         | 2650                          | 4.74                                         | 6.24 | 7.51 | 8.51 | 9.35 | 9.61  |       |       |                                                       |         | 0.14                                                                          | 0.68               | 1.09               | 1.22   |
|                      |         | 2700                          | 4.72                                         | 6.22 | 7.47 | 8.44 | 9.22 | 9.44  |       |       |                                                       |         | 0.14                                                                          | 0.69               | 1.11               | 1.25   |
|                      |         | 2750                          | 4.69                                         | 6.19 | 7.42 | 8.36 | 9.08 | 9.26  |       |       |                                                       |         | 0.14                                                                          | 0.71               | 1.13               | 1.27   |
|                      | 25      | 2800                          | 4.67                                         | 6.15 | 7.36 | 8.27 | 8.92 |       |       |       |                                                       |         | 0.14                                                                          | 0.72               | 1.15               | 1.29   |
|                      |         | 2850                          | 4.64                                         | 6.11 | 7.29 | 8.16 | 8.75 |       |       |       |                                                       |         | 0.15                                                                          | 0.73               | 1.17               | 1.31   |
|                      |         | 2900                          | 4.60                                         | 6.06 | 7.22 | 8.05 | 8.57 |       |       |       |                                                       |         | 0.15                                                                          | 0.74               | 1.19               | 1.34   |
|                      |         | 2950                          | 4.56                                         | 6.01 | 7.14 | 7.93 | 8.37 |       |       |       |                                                       |         | 0.15                                                                          | 0.76               | 1.21               | 1.36   |
|                      |         | 3000                          | 4.52                                         | 5.95 | 7.05 | 7.79 | 8.16 |       |       |       |                                                       |         | 0.15                                                                          | 0.77               | 1.23               | 1.38   |
|                      |         |                               |                                              |      |      |      |      |       |       |       |                                                       |         | $v > 30$ m/s.<br>Please consult our<br>Application Engineering<br>Department. |                    |                    |        |
|                      |         |                               |                                              |      |      |      |      |       |       |       |                                                       |         | v [m/s]                                                                       |                    |                    |        |
| Dynamically balanced |         |                               |                                              |      |      |      |      |       |       |       |                                                       | Pulleys |                                                                               |                    |                    |        |

# POWER RATINGS

optibelt **VB** PROFILE 25

NOMINAL POWER RATING  $P_N$  [kW]

FOR  $\beta = 180^\circ$  AND  $L_d = 4561$  mm



Table 54

| Pulleys                                                                     | v<br>[m/s] | n <sub>k</sub><br>[min <sup>-1</sup> ] | Datum diameter of small pulley d <sub>dk</sub> [mm] |      |       |       |       |       |       |       |       | Additional power [kW]<br>per belt for speed ratio i |                    |                    |                    |        |      |      |
|-----------------------------------------------------------------------------|------------|----------------------------------------|-----------------------------------------------------|------|-------|-------|-------|-------|-------|-------|-------|-----------------------------------------------------|--------------------|--------------------|--------------------|--------|------|------|
|                                                                             |            |                                        | 224                                                 | 236  | 250   | 280   | 315   | 355   | 400   | 450   | 500   | 560                                                 | 1.01<br>to<br>1.05 | 1.06<br>to<br>1.26 | 1.27<br>to<br>1.57 | > 1.57 |      |      |
| Statically balanced                                                         | 5          | 700                                    | 5.68                                                | 6.47 | 7.38  | 9.28  | 11.45 | 13.84 | 16.43 | 19.16 | 21.74 | 24.62                                               | 0.12               | 0.61               | 0.97               | 1.09   |      |      |
|                                                                             |            | 950                                    | 6.86                                                | 7.86 | 9.00  | 11.38 | 14.03 | 16.90 | 19.91 | 22.94 | 25.63 | 28.37                                               | 0.16               | 0.82               | 1.32               | 1.48   |      |      |
|                                                                             |            | 1450                                   | 8.15                                                | 9.43 | 10.88 | 13.78 | 16.81 | 19.77 | 22.40 |       |       |                                                     | 0.25               | 1.26               | 2.01               | 2.26   |      |      |
|                                                                             |            | 2850                                   |                                                     |      |       |       |       |       |       |       |       |                                                     | 0.49               | 2.47               | 3.95               | 4.44   |      |      |
|                                                                             |            | 50                                     | 0.71                                                | 0.78 | 0.87  | 1.05  | 1.26  | 1.50  | 1.76  | 2.06  | 2.35  | 2.69                                                | 0.01               | 0.04               | 0.07               | 0.08   |      |      |
|                                                                             |            | 100                                    | 1.26                                                | 1.40 | 1.56  | 1.91  | 2.31  | 2.76  | 3.26  | 3.81  | 4.35  | 5.00                                                | 0.02               | 0.09               | 0.14               | 0.16   |      |      |
|                                                                             |            | 150                                    | 1.76                                                | 1.96 | 2.20  | 2.69  | 3.27  | 3.92  | 4.64  | 5.44  | 6.22  | 7.15                                                | 0.03               | 0.13               | 0.21               | 0.23   |      |      |
|                                                                             |            | 200                                    | 2.22                                                | 2.48 | 2.79  | 3.43  | 4.18  | 5.02  | 5.96  | 6.98  | 7.99  | 9.19                                                | 0.03               | 0.17               | 0.28               | 0.31   |      |      |
|                                                                             |            | 250                                    | 2.65                                                | 2.97 | 3.34  | 4.13  | 5.04  | 6.07  | 7.21  | 8.46  | 9.69  | 11.14                                               | 0.04               | 0.22               | 0.35               | 0.39   |      |      |
|                                                                             |            | 300                                    | 3.06                                                | 3.43 | 3.87  | 4.80  | 5.87  | 7.08  | 8.41  | 9.87  | 11.30 | 12.99                                               | 0.05               | 0.26               | 0.42               | 0.47   |      |      |
|                                                                             |            | 350                                    | 3.44                                                | 3.88 | 4.38  | 5.44  | 6.67  | 8.05  | 9.57  | 11.23 | 12.86 | 14.76                                               | 0.06               | 0.30               | 0.49               | 0.55   |      |      |
|                                                                             |            | 400                                    | 3.81                                                | 4.30 | 4.86  | 6.06  | 7.43  | 8.98  | 10.68 | 12.53 | 14.34 | 16.45                                               | 0.07               | 0.35               | 0.55               | 0.62   |      |      |
|                                                                             |            | 450                                    | 4.16                                                | 4.70 | 5.33  | 6.65  | 8.17  | 9.87  | 11.75 | 13.78 | 15.75 | 18.05                                               | 0.08               | 0.39               | 0.62               | 0.70   |      |      |
|                                                                             |            | 500                                    | 4.49                                                | 5.09 | 5.77  | 7.22  | 8.88  | 10.74 | 12.77 | 14.97 | 17.10 | 19.56                                               | 0.09               | 0.43               | 0.69               | 0.78   |      |      |
|                                                                             |            | 10                                     | 550                                                 | 4.81 | 5.45  | 6.20  | 7.77  | 9.56  | 11.56 | 13.75 | 16.11 | 18.37                                               | 20.97              | 0.10               | 0.48               | 0.76   | 0.86 |      |
|                                                                             |            |                                        | 600                                                 | 5.12 | 5.81  | 6.61  | 8.29  | 10.22 | 12.36 | 14.69 | 17.18 | 19.57                                               | 22.29              | 0.10               | 0.52               | 0.83   | 0.94 |      |
|                                                                             |            |                                        | 650                                                 | 5.41 | 6.15  | 7.00  | 8.80  | 10.85 | 13.12 | 15.58 | 18.20 | 20.70                                               | 23.51              | 0.11               | 0.56               | 0.90   | 1.01 |      |
|                                                                             |            |                                        | 700                                                 | 5.68 | 6.47  | 7.38  | 9.28  | 11.45 | 13.84 | 16.43 | 19.16 | 21.74                                               | 24.62              | 0.12               | 0.61               | 0.97   | 1.09 |      |
|                                                                             |            |                                        | 750                                                 | 5.95 | 6.78  | 7.73  | 9.75  | 12.02 | 14.53 | 17.22 | 20.05 | 22.70                                               | 25.61              | 0.13               | 0.65               | 1.04   | 1.17 |      |
|                                                                             |            |                                        | 800                                                 | 6.20 | 7.07  | 8.08  | 10.19 | 12.57 | 15.18 | 17.97 | 20.88 | 23.57                                               | 26.49              | 0.14               | 0.69               | 1.11   | 1.25 |      |
|                                                                             |            |                                        | 850                                                 | 6.43 | 7.35  | 8.40  | 10.61 | 13.09 | 15.79 | 18.67 | 21.64 | 24.35                                               | 27.25              | 0.15               | 0.74               | 1.18   | 1.33 |      |
|                                                                             |            |                                        | 900                                                 | 6.65 | 7.61  | 8.71  | 11.00 | 13.57 | 16.37 | 19.31 | 22.33 | 25.04                                               | 27.88              | 0.16               | 0.78               | 1.25   | 1.40 |      |
|                                                                             |            |                                        | 950                                                 | 6.86 | 7.86  | 9.00  | 11.38 | 14.03 | 16.90 | 19.91 | 22.94 | 25.63                                               | 28.37              | 0.16               | 0.82               | 1.32   | 1.48 |      |
|                                                                             |            |                                        | 1000                                                | 7.06 | 8.09  | 9.27  | 11.73 | 14.46 | 17.40 | 20.44 | 23.48 | 26.12                                               | 28.72              | 0.17               | 0.87               | 1.39   | 1.56 |      |
|                                                                             |            |                                        | 1050                                                | 7.24 | 8.30  | 9.52  | 12.06 | 14.86 | 17.85 | 20.92 | 23.93 | 26.50                                               | 28.93              | 0.18               | 0.91               | 1.46   | 1.64 |      |
|                                                                             |            |                                        | 1100                                                | 7.40 | 8.50  | 9.76  | 12.36 | 15.22 | 18.26 | 21.33 | 24.31 | 26.77                                               | 28.99              | 0.19               | 0.95               | 1.53   | 1.72 |      |
|                                                                             |            |                                        | 1150                                                | 7.55 | 8.69  | 9.98  | 12.64 | 15.56 | 18.62 | 21.69 | 24.60 | 26.92                                               | 28.88              | 0.20               | 1.00               | 1.60   | 1.79 |      |
|                                                                             |            |                                        | 1200                                                | 7.69 | 8.85  | 10.18 | 12.90 | 15.86 | 18.93 | 21.98 | 24.80 | 26.96                                               | 28.62              | 0.21               | 1.04               | 1.66   | 1.87 |      |
|                                                                             |            |                                        | 1250                                                | 7.81 | 9.00  | 10.36 | 13.13 | 16.12 | 19.20 | 22.20 | 24.90 | 26.87                                               | 28.18              | 0.22               | 1.08               | 1.73   | 1.95 |      |
|                                                                             |            |                                        | 15                                                  | 1300 | 7.92  | 9.14  | 10.52 | 13.33 | 16.35 | 19.42 | 22.36 | 24.92                                               |                    |                    | 0.23               | 1.13   | 1.80 | 2.03 |
|                                                                             |            |                                        |                                                     | 1350 | 8.02  | 9.25  | 10.66 | 13.51 | 16.54 | 19.59 | 22.45 | 24.83                                               |                    |                    | 0.23               | 1.17   | 1.87 | 2.10 |
|                                                                             |            |                                        |                                                     | 1400 | 8.09  | 9.35  | 10.78 | 13.66 | 16.69 | 19.71 | 22.46 | 24.65                                               |                    |                    | 0.24               | 1.21   | 1.94 | 2.18 |
|                                                                             |            | 1450                                   |                                                     | 8.15 | 9.43  | 10.88 | 13.78 | 16.81 | 19.77 | 22.40 | 24.36 |                                                     |                    | 0.25               | 1.26               | 2.01   | 2.26 |      |
|                                                                             |            | 1500                                   |                                                     | 8.20 | 9.50  | 10.96 | 13.87 | 16.89 | 19.78 | 22.26 | 23.96 |                                                     |                    | 0.26               | 1.30               | 2.08   | 2.34 |      |
|                                                                             |            | 1550                                   |                                                     | 8.23 | 9.54  | 11.01 | 13.93 | 16.92 | 19.73 |       |       |                                                     |                    | 0.27               | 1.34               | 2.15   | 2.42 |      |
|                                                                             |            | 1600                                   |                                                     | 8.24 | 9.57  | 11.05 | 13.97 | 16.92 | 19.63 |       |       |                                                     |                    | 0.28               | 1.39               | 2.22   | 2.49 |      |
|                                                                             |            | 1650                                   |                                                     | 8.24 | 9.57  | 11.06 | 13.97 | 16.87 | 19.46 |       |       |                                                     |                    | 0.29               | 1.43               | 2.29   | 2.57 |      |
|                                                                             |            | 1700                                   |                                                     | 8.22 | 9.56  | 11.04 | 13.94 | 16.78 | 19.24 |       |       |                                                     |                    | 0.29               | 1.47               | 2.36   | 2.65 |      |
|                                                                             |            | 1750                                   |                                                     | 8.18 | 9.52  | 11.01 | 13.88 | 16.64 | 18.95 |       |       |                                                     |                    | 0.30               | 1.52               | 2.43   | 2.73 |      |
|                                                                             |            | 20                                     | 1800                                                | 8.12 | 9.47  | 10.95 | 13.79 | 16.46 |       |       |       |                                                     |                    | 0.31               | 1.56               | 2.50   | 2.81 |      |
|                                                                             |            |                                        | 1850                                                | 8.04 | 9.39  | 10.87 | 13.66 | 16.23 |       |       |       |                                                     |                    | 0.32               | 1.60               | 2.57   | 2.88 |      |
|                                                                             |            |                                        | 1900                                                | 7.95 | 9.29  | 10.76 | 13.50 | 15.95 |       |       |       |                                                     |                    | 0.33               | 1.65               | 2.64   | 2.96 |      |
|                                                                             |            |                                        | 1950                                                | 7.84 | 9.17  | 10.62 | 13.30 | 15.63 |       |       |       |                                                     |                    | 0.34               | 1.69               | 2.70   | 3.04 |      |
|                                                                             |            |                                        | 2000                                                | 7.70 | 9.03  | 10.46 | 13.07 | 15.25 |       |       |       |                                                     |                    | 0.35               | 1.73               | 2.77   | 3.12 |      |
|                                                                             |            |                                        | 2050                                                | 7.55 | 8.87  | 10.27 | 12.80 |       |       |       |       |                                                     |                    | 0.36               | 1.78               | 2.84   | 3.20 |      |
|                                                                             |            |                                        | 2100                                                | 7.38 | 8.68  | 10.06 | 12.49 |       |       |       |       |                                                     |                    | 0.36               | 1.82               | 2.91   | 3.27 |      |
|                                                                             |            |                                        | 2150                                                | 7.19 | 8.47  | 9.82  | 12.15 |       |       |       |       |                                                     |                    | 0.37               | 1.86               | 2.98   | 3.35 |      |
|                                                                             |            |                                        | 2200                                                | 6.97 | 8.23  | 9.55  | 11.76 |       |       |       |       |                                                     |                    | 0.38               | 1.91               | 3.05   | 3.43 |      |
|                                                                             |            |                                        | 2250                                                | 6.74 | 7.97  | 9.25  | 11.34 |       |       |       |       |                                                     |                    | 0.39               | 1.95               | 3.12   | 3.51 |      |
|                                                                             |            | 25                                     | 2300                                                | 6.48 | 7.69  | 8.92  |       |       |       |       |       |                                                     |                    | 0.40               | 1.99               | 3.19   | 3.59 |      |
|                                                                             |            |                                        | 2350                                                | 6.21 | 7.38  | 8.56  |       |       |       |       |       |                                                     |                    | 0.41               | 2.04               | 3.26   | 3.66 |      |
|                                                                             |            |                                        | 2400                                                | 5.91 | 7.04  | 8.17  |       |       |       |       |       |                                                     |                    | 0.42               | 2.08               | 3.33   | 3.74 |      |
|                                                                             |            |                                        | 2450                                                | 5.58 | 6.68  | 7.75  |       |       |       |       |       |                                                     |                    | 0.42               | 2.12               | 3.40   | 3.82 |      |
|                                                                             |            |                                        | 2500                                                | 5.24 | 6.29  | 7.30  |       |       |       |       |       |                                                     |                    | 0.43               | 2.17               | 3.47   | 3.90 |      |
| 30                                                                          |            |                                        |                                                     |      |       |       |       |       |       |       |       |                                                     | v [m/s]            |                    |                    |        |      |      |
|                                                                             |            |                                        |                                                     |      |       |       |       |       |       |       |       |                                                     | Pulleys            |                    |                    |        |      |      |
| v > 30 m/s.<br>Please consult our<br>Application Engineering<br>Department. |            |                                        |                                                     |      |       |       |       |       |       |       |       |                                                     |                    |                    |                    |        |      |      |
| Dynamically balanced (for details see DIN 2211)                             |            |                                        |                                                     |      |       |       |       |       |       |       |       |                                                     | Pulleys            |                    |                    |        |      |      |

v > 30 m/s.  
Please consult our  
Application Engineering  
Department.

















# POWER RATINGS

optibelt **SUPER XE-POWER PRO M=S PROFILE** XPB, 5VX, 15JX

NOMINAL POWER RATING  $P_N$  [kW]

FOR  $\beta = 180^\circ$  AND  $L_d = 3550$  mm



Table 63

| Pulleys             | $v$ [m/s] | $n_k$<br>[min <sup>-1</sup> ] | Datum diameter of small pulley $d_{dk}$ [mm] |       |       |       |       |       |       |       |       |       |       |       | Additional power [kW]<br>per belt for speed ratio $i$ |                    |                    |                    |        |
|---------------------|-----------|-------------------------------|----------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------------------------------------------------------|--------------------|--------------------|--------------------|--------|
|                     |           |                               | 112                                          | 118   | 125   | 140   | 150   | 160   | 180   | 200   | 224   | 250   | 280   | 315   | 400                                                   | 1.01<br>to<br>1.05 | 1.06<br>to<br>1.26 | 1.27<br>to<br>1.57 | > 1.57 |
| Statically balanced | 5         | 700                           | 3.98                                         | 4.51  | 5.12  | 6.43  | 7.31  | 8.17  | 9.91  | 11.63 | 13.68 | 15.89 | 18.41 | 21.32 | 28.27                                                 | 0.04               | 0.29               | 0.41               | 0.50   |
|                     |           | 950                           | 5.26                                         | 5.96  | 6.79  | 8.54  | 9.71  | 10.87 | 13.18 | 15.47 | 18.19 | 21.11 | 24.43 | 28.25 | 37.22                                                 | 0.06               | 0.39               | 0.55               | 0.68   |
|                     |           | 1450                          | 7.69                                         | 8.75  | 9.97  | 12.59 | 14.30 | 16.02 | 19.42 | 22.75 | 26.70 | 30.88 | 35.58 | 40.88 | 52.82                                                 | 0.09               | 0.59               | 0.84               | 1.03   |
|                     |           | 2850                          | 13.63                                        | 15.55 | 17.76 | 22.40 | 25.42 | 28.37 | 34.08 | 39.48 | 45.53 | 51.50 | 57.56 | 63.36 |                                                       | 0.18               | 1.17               | 1.65               | 2.03   |
|                     |           | 100                           | 0.66                                         | 0.73  | 0.83  | 1.03  | 1.16  | 1.30  | 1.56  | 1.82  | 2.14  | 2.48  | 2.87  | 3.32  | 4.43                                                  | 0.01               | 0.04               | 0.06               | 0.07   |
|                     |           | 200                           | 1.25                                         | 1.40  | 1.60  | 1.98  | 2.24  | 2.51  | 3.02  | 3.54  | 4.15  | 4.82  | 5.58  | 6.48  | 8.63                                                  | 0.01               | 0.08               | 0.12               | 0.14   |
|                     |           | 300                           | 1.82                                         | 2.05  | 2.33  | 2.90  | 3.29  | 3.67  | 4.44  | 5.21  | 6.12  | 7.10  | 8.23  | 9.55  | 12.72                                                 | 0.02               | 0.12               | 0.17               | 0.21   |
|                     |           | 400                           | 2.38                                         | 2.69  | 3.05  | 3.80  | 4.32  | 4.82  | 5.84  | 6.85  | 8.05  | 9.35  | 10.84 | 12.58 | 16.73                                                 | 0.03               | 0.16               | 0.23               | 0.28   |
|                     |           | 500                           | 2.92                                         | 3.30  | 3.74  | 4.70  | 5.33  | 5.96  | 7.21  | 8.46  | 9.95  | 11.56 | 13.40 | 15.54 | 20.66                                                 | 0.03               | 0.20               | 0.29               | 0.36   |
|                     |           | 600                           | 3.46                                         | 3.91  | 4.44  | 5.57  | 6.32  | 7.08  | 8.57  | 10.06 | 11.83 | 13.74 | 15.92 | 18.46 | 24.50                                                 | 0.04               | 0.25               | 0.35               | 0.43   |
|                     |           | 700                           | 3.98                                         | 4.51  | 5.12  | 6.43  | 7.31  | 8.17  | 9.91  | 11.63 | 13.68 | 15.89 | 18.41 | 21.32 | 28.27                                                 | 0.04               | 0.29               | 0.41               | 0.50   |
|                     |           | 800                           | 4.50                                         | 5.10  | 5.80  | 7.28  | 8.28  | 9.26  | 11.23 | 13.18 | 15.50 | 18.00 | 20.84 | 24.13 | 31.93                                                 | 0.05               | 0.33               | 0.46               | 0.57   |
|                     |           | 900                           | 5.00                                         | 5.68  | 6.47  | 8.14  | 9.24  | 10.34 | 12.53 | 14.71 | 17.30 | 20.08 | 23.24 | 26.89 | 35.48                                                 | 0.06               | 0.37               | 0.52               | 0.64   |
|                     |           | 1000                          | 5.51                                         | 6.25  | 7.12  | 8.96  | 10.19 | 11.40 | 13.82 | 16.22 | 19.07 | 22.13 | 25.61 | 29.59 | 38.94                                                 | 0.06               | 0.41               | 0.58               | 0.71   |
|                     |           | 1100                          | 6.01                                         | 6.83  | 7.76  | 9.78  | 11.12 | 12.46 | 15.10 | 17.71 | 20.82 | 24.14 | 27.91 | 32.22 | 42.26                                                 | 0.07               | 0.45               | 0.64               | 0.78   |
|                     |           | 1200                          | 6.50                                         | 7.38  | 8.41  | 10.60 | 12.05 | 13.49 | 16.34 | 19.18 | 22.54 | 26.11 | 30.17 | 34.79 | 45.46                                                 | 0.08               | 0.49               | 0.70               | 0.85   |
|                     |           | 1300                          | 6.98                                         | 7.93  | 9.05  | 11.40 | 12.96 | 14.51 | 17.59 | 20.63 | 24.23 | 28.06 | 32.38 | 37.28 | 48.52                                                 | 0.08               | 0.53               | 0.75               | 0.93   |
|                     |           | 1400                          | 7.46                                         | 8.48  | 9.67  | 12.19 | 13.86 | 15.52 | 18.80 | 22.06 | 25.88 | 29.95 | 34.52 | 39.71 | 51.43                                                 | 0.09               | 0.57               | 0.81               | 1.00   |
|                     |           | 1500                          | 7.93                                         | 9.02  | 10.28 | 12.97 | 14.75 | 16.51 | 20.00 | 23.45 | 27.50 | 31.80 | 36.62 | 42.04 | 54.18                                                 | 0.09               | 0.61               | 0.87               | 1.07   |
|                     |           | 1600                          | 8.40                                         | 9.55  | 10.90 | 13.74 | 15.62 | 17.50 | 21.19 | 24.83 | 29.10 | 33.61 | 38.65 | 44.29 | 56.77                                                 | 0.10               | 0.65               | 0.93               | 1.14   |
|                     |           | 1700                          | 8.86                                         | 10.08 | 11.50 | 14.51 | 16.49 | 18.47 | 22.36 | 26.17 | 30.65 | 35.36 | 40.62 | 46.46 | 59.18                                                 | 0.11               | 0.70               | 0.99               | 1.21   |
|                     |           | 1800                          | 9.31                                         | 10.60 | 12.08 | 15.25 | 17.34 | 19.42 | 23.50 | 27.49 | 32.17 | 37.08 | 42.52 | 48.53 | 61.40                                                 | 0.11               | 0.74               | 1.05               | 1.28   |
|                     |           | 1900                          | 9.76                                         | 11.10 | 12.67 | 16.00 | 18.18 | 20.35 | 24.62 | 28.79 | 33.66 | 38.74 | 44.35 | 50.50 | 63.42                                                 | 0.12               | 0.78               | 1.10               | 1.35   |
|                     |           | 2000                          | 10.19                                        | 11.60 | 13.25 | 16.73 | 19.01 | 21.28 | 25.72 | 30.06 | 35.10 | 40.34 | 46.10 | 52.37 | 65.24                                                 | 0.13               | 0.82               | 1.16               | 1.42   |
|                     |           | 2100                          | 10.62                                        | 12.10 | 13.81 | 17.44 | 19.82 | 22.18 | 26.80 | 31.30 | 36.50 | 41.90 | 47.78 | 54.12 | 66.84                                                 | 0.13               | 0.86               | 1.22               | 1.50   |
|                     |           | 2200                          | 11.05                                        | 12.59 | 14.38 | 18.14 | 20.62 | 23.06 | 27.85 | 32.50 | 37.86 | 43.39 | 49.38 | 55.76 | 68.21                                                 | 0.14               | 0.90               | 1.28               | 1.57   |
|                     |           | 2300                          | 11.47                                        | 13.07 | 14.92 | 18.83 | 21.40 | 23.93 | 28.88 | 33.67 | 39.18 | 44.82 | 50.89 | 57.30 | 69.35                                                 | 0.15               | 0.94               | 1.34               | 1.64   |
|                     |           | 2400                          | 11.88                                        | 13.54 | 15.46 | 19.51 | 22.16 | 24.78 | 29.88 | 34.80 | 40.44 | 46.19 | 52.32 | 58.70 | 70.24                                                 | 0.15               | 0.98               | 1.39               | 1.71   |
|                     |           | 2500                          | 12.28                                        | 14.00 | 15.98 | 20.18 | 22.92 | 25.62 | 30.86 | 35.90 | 41.66 | 47.50 | 53.65 | 59.98 | 70.86                                                 | 0.16               | 1.02               | 1.45               | 1.78   |
|                     |           | 2600                          | 12.67                                        | 14.45 | 16.51 | 20.83 | 23.65 | 26.42 | 31.81 | 36.97 | 42.84 | 48.73 | 54.89 | 61.12 | 71.22                                                 | 0.16               | 1.06               | 1.51               | 1.85   |
|                     |           | 2700                          | 13.07                                        | 14.90 | 17.02 | 21.47 | 24.37 | 27.22 | 32.74 | 38.00 | 43.96 | 49.90 | 56.04 | 62.12 |                                                       | 0.17               | 1.10               | 1.57               | 1.92   |
|                     |           | 2800                          | 13.45                                        | 15.34 | 17.51 | 22.09 | 25.08 | 28.00 | 33.64 | 39.00 | 45.02 | 50.99 | 57.08 | 62.99 |                                                       | 0.18               | 1.15               | 1.63               | 1.99   |
|                     |           | 2900                          | 13.82                                        | 15.76 | 18.00 | 22.70 | 25.76 | 28.75 | 34.50 | 39.95 | 46.03 | 52.01 | 58.02 | 63.71 |                                                       | 0.18               | 1.19               | 1.68               | 2.06   |
|                     |           | 3000                          | 14.18                                        | 16.18 | 18.48 | 23.30 | 26.42 | 29.47 | 35.34 | 40.86 | 46.99 | 52.94 | 58.85 | 64.27 |                                                       | 0.19               | 1.23               | 1.74               | 2.14   |
|                     |           | 3100                          | 14.54                                        | 16.58 | 18.95 | 23.88 | 27.07 | 30.18 | 36.14 | 41.74 | 47.89 | 53.81 | 59.57 | 64.67 |                                                       | 0.20               | 1.27               | 1.80               | 2.21   |
|                     |           | 3200                          | 14.89                                        | 16.98 | 19.40 | 24.44 | 27.70 | 30.86 | 36.92 | 42.56 | 48.72 | 54.59 | 60.17 | 64.91 |                                                       | 0.20               | 1.31               | 1.86               | 2.28   |
|                     |           | 3300                          | 15.23                                        | 17.38 | 19.84 | 25.00 | 28.31 | 31.54 | 37.67 | 43.34 | 49.50 | 55.27 | 60.65 | 64.99 |                                                       | 0.21               | 1.35               | 1.92               | 2.35   |
|                     |           | 3400                          | 15.55                                        | 17.75 | 20.27 | 25.52 | 28.90 | 32.17 | 38.38 | 44.08 | 50.22 | 55.88 | 61.02 |       |                                                       | 0.22               | 1.39               | 1.97               | 2.42   |
|                     |           | 3500                          | 15.88                                        | 18.12 | 20.69 | 26.04 | 29.47 | 32.78 | 39.05 | 44.77 | 50.87 | 56.40 | 61.25 |       |                                                       | 0.22               | 1.43               | 2.03               | 2.49   |
|                     |           | 3600                          | 16.19                                        | 18.48 | 21.10 | 26.53 | 30.01 | 33.37 | 39.68 | 45.42 | 51.44 | 56.82 | 61.36 |       |                                                       | 0.23               | 1.47               | 2.09               | 2.56   |
|                     |           | 3700                          | 16.49                                        | 18.82 | 21.49 | 27.01 | 30.54 | 33.94 | 40.28 | 46.01 | 51.96 | 57.14 | 61.33 |       |                                                       | 0.23               | 1.51               | 2.15               | 2.63   |
|                     |           | 3800                          | 16.79                                        | 19.15 | 21.86 | 27.48 | 31.04 | 34.46 | 40.85 | 46.55 | 52.39 | 57.37 |       |       |                                                       | 0.24               | 1.55               | 2.21               | 2.71   |
|                     |           | 3900                          | 17.06                                        | 19.48 | 22.24 | 27.91 | 31.52 | 34.98 | 41.38 | 47.04 | 52.76 | 57.50 |       |       |                                                       | 0.25               | 1.60               | 2.26               | 2.78   |
|                     |           | 4000                          | 17.34                                        | 19.79 | 22.58 | 28.34 | 31.98 | 35.46 | 41.87 | 47.48 | 53.06 | 57.54 |       |       |                                                       | 0.25               | 1.64               | 2.32               | 2.85   |
|                     |           | 4100                          | 17.60                                        | 20.09 | 22.92 | 28.75 | 32.41 | 35.90 | 42.31 | 47.86 | 53.28 | 57.46 |       |       |                                                       | 0.26               | 1.68               | 2.38               | 2.92   |
|                     |           | 4200                          | 17.86                                        | 20.38 | 23.24 | 29.14 | 32.83 | 36.34 | 42.72 | 48.19 | 53.42 | 57.28 |       |       |                                                       | 0.27               | 1.72               | 2.44               | 2.99   |
|                     |           | 4300                          | 18.10                                        | 20.65 | 23.56 | 29.50 | 33.22 | 36.72 | 43.08 | 48.46 | 53.48 |       |       |       |                                                       | 0.27               | 1.76               | 2.50               | 3.06   |
|                     |           | 4400                          | 18.32                                        | 20.92 | 23.86 | 29.84 | 33.58 | 37.09 | 43.40 | 48.67 | 53.47 |       |       |       |                                                       | 0.28               | 1.80               | 2.56               | 3.13   |
|                     |           | 4500                          | 18.54                                        | 21.17 | 24.13 | 30.17 | 33.91 | 37.42 | 43.68 | 48.83 | 53.36 |       |       |       |                                                       | 0.28               | 1.84               | 2.61               | 3.20   |
|                     |           | 4600                          | 18.74                                        | 21.40 | 24.40 | 30.47 | 34.22 | 37.73 | 43.92 | 48.92 | 53.18 |       |       |       |                                                       | 0.29               | 1.88               | 2.67               | 3.28   |
|                     |           | 4700                          | 18.95                                        | 21.62 | 24.65 | 30.74 | 34.50 | 37.99 | 44.10 | 48.95 |       |       |       |       |                                                       | 0.30               | 1.92               | 2.73               | 3.35   |
|                     |           | 4800                          | 19.13                                        | 21.83 | 24.88 | 31.01 | 34.75 | 38.23 | 44.24 | 48.91 |       |       |       |       |                                                       | 0.30               | 1.96               | 2.79               | 3.42   |
|                     |           | 4900                          | 19.30                                        | 22.03 | 25.09 | 31.24 | 34.98 | 38.42 | 44.34 | 48.82 |       |       |       |       |                                                       | 0.31               | 2.00               | 2.85               | 3.49   |
|                     |           | 5000                          | 19.46                                        | 22.21 | 25.30 | 31.45 | 35.18 | 38.59 | 44.39 | 48.66 |       |       |       |       |                                                       | 0.32               | 2.05               | 2.90               | 3.56   |
|                     |           | 5100                          | 19.61                                        | 22.38 | 25.48 | 31.64 | 35.35 | 38.74 | 44.39 | 48.43 |       |       |       |       |                                                       | 0.32               | 2.09               | 2.96               | 3.63   |
|                     |           | 5200                          | 19.74                                        | 22.52 | 25.64 | 31.80 | 35.50 | 38.83 | 44.33 | 48.13 |       |       |       |       |                                                       | 0.33               | 2.13               | 3.02               | 3.70   |
|                     |           | 5300                          | 19.87                                        | 22.67 | 25.79 | 31.94 | 35.60 | 38.89 | 44.23 |       |       |       |       |       |                                                       | 0.34               | 2.17               | 3.08               | 3.77   |
|                     |           | 5400                          | 19.98                                        | 22.79 | 25.92 | 32.06 | 35.69 | 38.92 | 44.08 |       |       |       |       |       |                                                       | 0.34               | 2.21               | 3.14               | 3.84   |
|                     |           | 5500                          | 20.08                                        | 22.90 | 26.03 | 32.15 | 35.74 | 38.90 | 43.86 |       |       |       |       |       |                                                       | 0.35               | 2.25               | 3.19               | 3.92   |
|                     |           | 5600                          | 20.16                                        | 22.98 | 26.12 | 32.21 | 35.76 | 38.86 | 43.60 |       |       |       |       |       |                                                       | 0.35               | 2.29               | 3.25               | 3.99   |
|                     |           | 5700                          | 20.22                                        | 23.06 | 26.20 | 32.26 | 35.75 | 38.76 | 43.28 |       |       |       |       |       |                                                       | 0.36               | 2.33               | 3.31               | 4.06   |
|                     |           | 5800                          | 20.28                                        | 23.12 | 26.26 | 32.27 | 35.70 | 38.64 | 42.91 |       |       |       |       |       |                                                       | 0.37               | 2.37               | 3.37               | 4.13   |
|                     |           | 5900                          | 20.32                                        | 23.16 | 26.29 | 32.24 | 35.62 | 38.47 |       |       |       |       |       |       |                                                       | 0.37               | 2.41               | 3.43               | 4.20   |
|                     |           |                               |                                              |       |       |       |       |       |       |       |       |       |       |       |                                                       |                    |                    |                    |        |











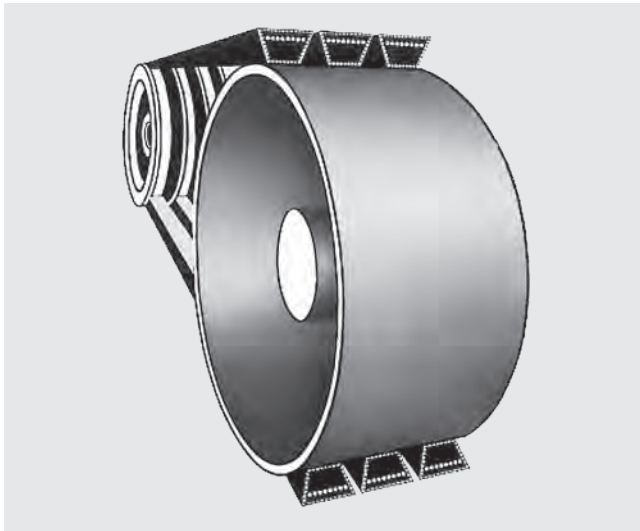
## SPECIAL DRIVES

### V-FLAT DRIVES

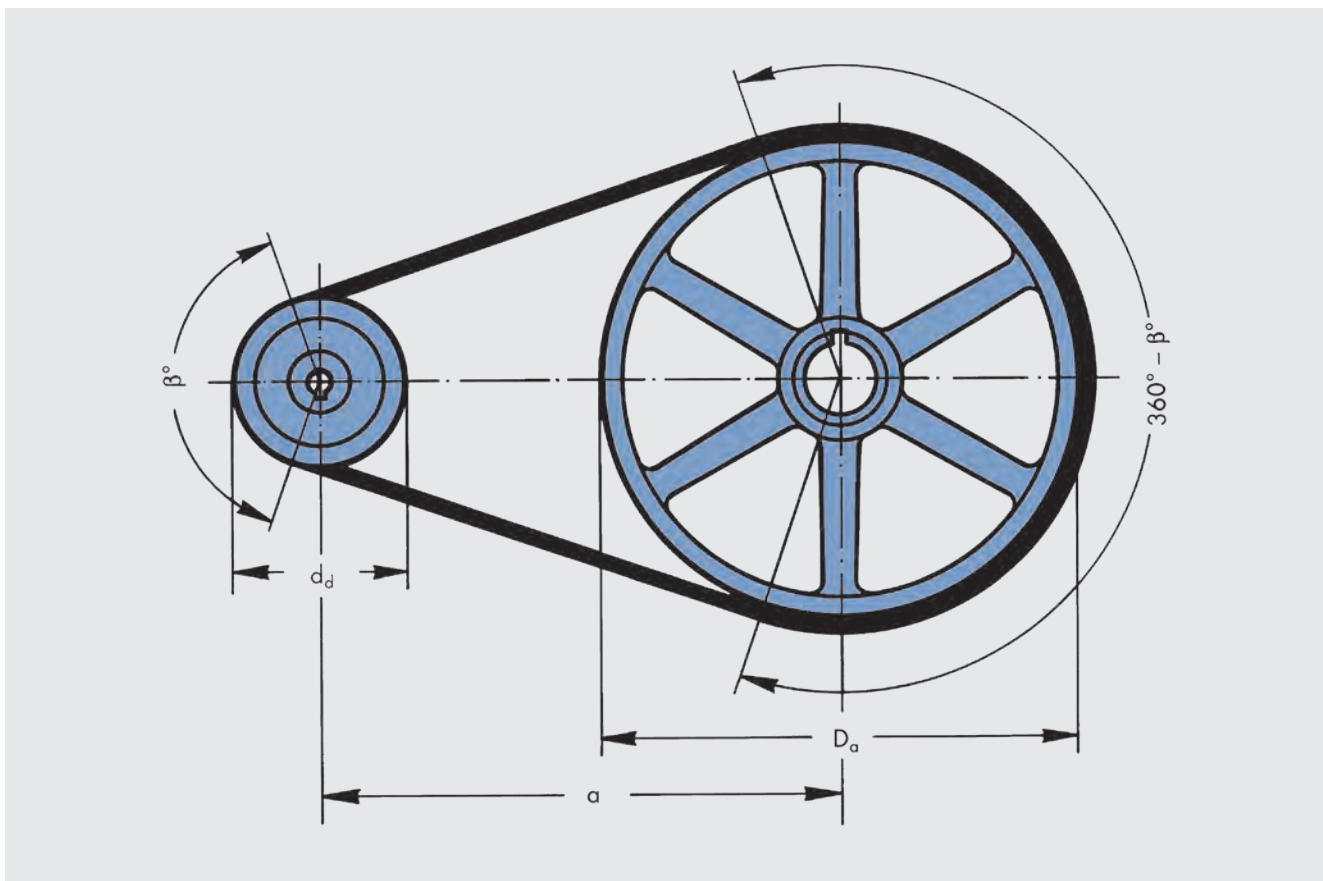


The V-flat drive comprises one grooved pulley and one flat pulley. This type of gear can, under certain conditions, be used for drives with intermittent loading or with large moments of inertia. As flywheels or flat pulleys are often

already present, the costs of the drive can be reduced. When changing over a flat belt drive to a V-flat drive, it will usually be economical to continue to use the flat pulley.



|           |                                                                       |                      |
|-----------|-----------------------------------------------------------------------|----------------------|
| $a$       | = drive centre distance                                               | [mm]                 |
| $b$       | = face width of the flat pulley                                       | [mm]                 |
| $b_v$     | = bottom width of the belt                                            | [mm]                 |
| $b_2$     | = face width of the grooved pulley                                    | [mm]                 |
| $D_a$     | = outside diameter of the flat pulley                                 | [mm]                 |
| $D_Z$     | = correction factor for determination of the theoretical diameter     | [mm]                 |
| $d_a$     | = outside diameter of the grooved pulley                              | [mm]                 |
| $d_d$     | = datum diameter of the grooved pulley                                | [mm]                 |
| $F_1$     | = contact area of V-belt and flat pulley                              | [cm <sup>2</sup> ]   |
| $f$       | = correction factor for calculating the face width of the flat pulley | [mm]                 |
| $h$       | = height of crown per 100 mm pulley face width                        | [mm]                 |
| $i$       | = speed ratio                                                         |                      |
| $L_{ath}$ | = calculated outside length of the kraftband                          | [mm]                 |
| $L_{dth}$ | = calculated datum length of the V-belt                               | [mm]                 |
| $p_f$     | = specific surface pressure                                           | [N/cm <sup>2</sup> ] |
| $P$       | = power to be transmitted by the belt drive                           | [kW]                 |
| $S_n$     | = circumferential force                                               | [N]                  |
| $\alpha$  | = arc of contact on the flat pulley = $360^\circ - \beta$             | [°]                  |
| $k_f$     | = factor                                                              |                      |
|           | datum length $L_d \triangleq$ pitch length $L_w$                      |                      |



# SPECIAL DRIVES

## V-FLAT DRIVES



### Calculating V-flat drives

The calculation of V-flat drives is based on the same method as presented on pages 83 to 85. In order to ensure reliability and efficiency, the V-flat belt drive must meet the following requirements:

- The small pulley must always be V-grooved.
- When using single belts, only classic V-belts in profiles Z/10, A/13, B/17, C/22, D/32, E/40 must be used.
- Wedge belts must never be used as their narrow base and larger relative height tends to make them turn and twist.
- All optibelt KB kraftbands – both with wedge belts and classic V-belts – are particularly suitable for this type of drive due to their single belt characteristic. Turning over even under extreme shock load conditions is prevented.
- A V-flat drive is particularly economic when

$$kf = \frac{D_a - d_d}{a} \text{ is between } 0.5 \text{ and } 1.15$$

The optimum drive dimensioning is achieved when  $kf = 0.85$ . If the factor  $kf$  is outside the recommended range, it is more economical to design a standard V-belt drive.

- The following recommendations result from these requirements:

|                 | Classic V-belts                    | Kraftbands                         |
|-----------------|------------------------------------|------------------------------------|
| Speed ratio     | $i = \frac{D_a + D_z}{d_d} \geq 3$ | $i = \frac{D_a + D_z}{d_a} \geq 3$ |
| Centre distance | $a_{zul} \geq D_a$                 | $a_{zul} \geq D_a$                 |
|                 | $a = \frac{D_a - d_d}{0.85}$       | $a = \frac{D_a - d_a}{0.85}$       |
| kf factor       | $kf = \frac{D_a - d_d}{a}$         | $kf = \frac{D_a - d_a}{a}$         |
|                 | $0.5 \leq kf_{zul} \leq 1.15$      |                                    |

- When calculating the number of belts and the belt tension, it should be noted that a special arc of contact factor  $c_1$  must be used as shown in the following table.

Table 69: Arc of contact factor  $c_1$  (only for V-flat drives)

| $kf = \frac{D_a - d_d}{a}$ | $\beta =$ | $c_1$ |
|----------------------------|-----------|-------|
| 0                          | 180°      | 0.75  |
| 0.07                       | 176°      | 0.76  |
| 0.15                       | 170°      | 0.77  |
| 0.22                       | 167°      | 0.79  |
| 0.29                       | 163°      | 0.79  |
| 0.35                       | 163°      | 0.79  |
| 0.40                       | 156°      | 0.81  |
| 0.45                       | 153°      | 0.81  |
| 0.50                       | 150°      | 0.82  |
| 0.57                       | 146°      | 0.83  |
| 0.64                       | 143°      | 0.84  |
| 0.70                       | 140°      | 0.85  |
| 0.75                       | 137°      | 0.85  |
| 0.80                       | 134°      | 0.86  |
| 0.85                       | 130°      | 0.86  |
| 0.92                       | 125°      | 0.84  |
| 1.00                       | 120°      | 0.82  |
| 1.07                       | 115°      | 0.80  |
| 1.15                       | 110°      | 0.78  |
| 1.21                       | 106°      | 0.77  |
| 1.30                       | 100°      | 0.73  |
| 1.36                       | 96°       | 0.72  |
| 1.45                       | 90°       | 0.70  |

- For classic V-belts, the length is calculated using the datum length  $L_d$ , and for kraftbands using the outside length  $L_a$ . Therefore, the correction factor  $D_z$  must be added to the outside diameter of the flat pulley in order to approximate the theoretical design diameter.

### Correction factor $D_z$ for determination of the theoretical design diameter

Classic V-belts

| Profile  | Z/10 | A/13 | B/17 | C/22 | D/32 | E/40 |
|----------|------|------|------|------|------|------|
| $D_z$ mm | 7    | 10   | 13   | 18   | 23   | 25   |

Kraftbands

| Profile  | 3V/9J | 5V/15J | 8V/25J | SPZ | SPA | SPB | SPC | A/HA | B/HB | C/HC | D/HD |
|----------|-------|--------|--------|-----|-----|-----|-----|------|------|------|------|
| $D_z$ mm | 13    | 23     | 41     | 12  | 15  | 19  | 26  | 12   | 20   | 24   | 35   |

### Calculation of the datum length for classic V-belts

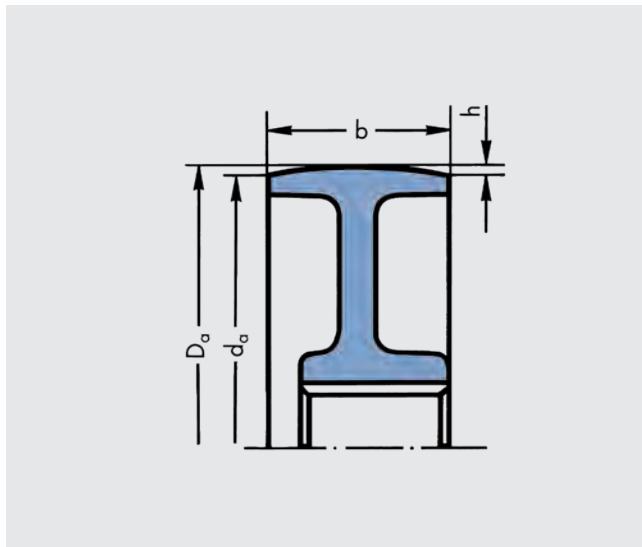
$$L_{dth} \approx 2a + 1.57 (d_d + D_a + D_z) + \frac{(D_a + D_z - d_d)^2}{4a}$$

### Calculation of the outside length for kraftbands

$$L_{ath} \approx 2a + 1.57 (d_a + D_a + D_z) + \frac{(D_a + D_z - d_a)^2}{4a}$$

Length conversion factors are given on pages 167/168.  
Datum length  $L_d \triangleq$  pitch length  $L_w$

- The flat pulley should be shaped cylindrically. With existing flat pulleys that are re-used for the V-flat belt drive, the height of the crown should be checked.



The following conditions must be met:

### Maximum crown height

$h_{\max} = 1 \text{ mm per } 100 \text{ mm pulley face width}$

$$h = \frac{D_a - d_a}{2} \quad (h < h_{\max})$$

In addition, the pulley face width must be calculated or checked as shown in the following example:

Given/Calculated:

V-grooved pulley 6 grooves  
Profile B/17  
Drive centre distance a 850 mm

Solution:

$$b = b_2 + f$$

$$b = 120 + 35 = \mathbf{155 \text{ mm}}$$

$b_2$  for classic V-belts, page 49, table 14.

$b_2$  for kraftbands, page 53, table 20

f from table 70.

Selected standard flat pulley according to DIN 111 with crown width  $b = \mathbf{160 \text{ mm}}$

Table 70: Additional factor f for determining the crown width of the flat pulley

| Z/10, SPZ,<br>A/13/HA, 3V/9J |    | SPB, 5V/15J |    | C/22/HC, SPC |    | D/32/HD, 8V/25J |    | E/40      |    |
|------------------------------|----|-------------|----|--------------|----|-----------------|----|-----------|----|
| a                            | f  | a           | f  | a            | f  | a               | f  | a         | f  |
| < 500                        | 20 | < 750       | 25 | < 1000       | 30 | < 1250          | 40 | < 1750    | 45 |
| 500-750                      | 25 | 750-1000    | 35 | 1000-1250    | 40 | 1250-1750       | 50 | 1750-2250 | 60 |
| > 750                        | 30 | > 1000      | 40 | > 1250       | 50 | > 1750          | 65 | > 2250    | 75 |

### Calculation of the specific surface pressure on the flat pulley

#### Calculation of the effective belt tension $S_n$ [N]

$$S_n = \frac{P \cdot 1000}{v}$$

#### Surface pressure on flat pulley $p_f$ [N/cm<sup>2</sup>]\*

$$p_f = \frac{S_n}{F_l}$$

#### Area of belt contact on flat pulley $F_l$ [cm<sup>2</sup>]

$$F_l = \frac{D_a \cdot \pi \cdot \alpha \cdot b_u \cdot z}{36000}$$

#### Recommended surface pressure $p_f$ [N/cm<sup>2</sup>]\*

$$p_f \leq 4 \text{ N/cm}^2^*$$

\*  $10 \text{ N/cm}^2 = 1 \text{ Bar} = 10^5 \text{ Pascal}$

Formula:

#### Calculation of the static belt tension for V-flat belt drives $T$ [N]

$$T = \frac{500 \cdot (2.25 - c_1) \cdot P_B}{c_1 \cdot z \cdot v} + k \cdot v^2$$

In addition to the calculation method on pages 83 to 85 the static belt tension for V-flat drives must be calculated according to the formulae given here.

# SPECIAL DRIVES

## PRODUCT DESCRIPTION

optibelt **OPTIMAX HF**

## ENDLESS HIGH PERFORMANCE FLAT BELTS



### Structure

The raw material of the optibelt OPTIMAX HF high performance flat belt is polyester yarn. This will be woven to endless sleeves and then covered with a high-quality rubber compound on both sides.



optibelt OPTIMAX HF high performance flat belts are produced in two different types that differ in thickness and strength.

Type HF 150 is intended for general use, whereas type 075 is only intended for special drives.

### Characteristics

optibelt OPTIMAX HF are particularly distinguished by the following features:

- High flexibility
- Very small pulley diameters (HF 075 from 6 mm)
- High belt speeds
- High efficiency
- Low noise development and low vibration
- Low maintenance requirement
- Good chemical and ozone resistance
- High friction values (0.5  $\mu$ )

A special advantage of this drive element is the low thickness. As a result, very small pulley diameters are possible, which almost always leads to a considerable cost reduction. Due to the use of high-quality synthetic materials, a very high strength is reached despite the low belt thickness.

In addition, the raw materials used guarantee a temperature resistance of  $-30^{\circ}\text{C}$  to  $+110^{\circ}\text{C}$ . With optibelt OPTIMAX HF high performance flat belts, belt speeds of up to 50 m/s are easily possible. No noise and vibrations occur.

Due to its low elongation, this belt can be used even for drives with fixed centre distance for low power transmission systems.

Without engendering the risk of a reduced lifetime, idlers can be used in a flat belt drive. This can be done for tensioning or power reduction.

The high-quality neoprene rubber compound makes optibelt OPTIMAX HF high performance flat belts conditionally resistant to oil, fat, solvent and moisture.

optibelt OPTIMAX HF are electrically conductive; an ISO 1813 certificate can be issued on request.

### Application areas

For power transmission, optibelt OPTIMAX HF belts are particularly used in drives with a medium torque or high speeds. Examples of this include: Tool, wood processing, textile, printing, dyeing as well as agricultural machines, etc.

For all the machines listed, we recommend type HF 150, as its low elongation, high strength and sufficient elasticity largely neutralize any impacts and vibrations that occur. Type HF 075 is especially useful when high precision is required where smooth running and tolerances are concerned. It is therefore used for computers and office equipment as well as small devices.

In addition, the HF 075 can be used for small conveying applications.

**Table 71**

| Type          | Thickness<br>[mm] | Thickness tolerance<br>[mm] | Width tolerance<br>[mm] | Minimum pulley<br>diameter<br>[mm] | Weight per metre<br>per 1 mm belt width<br>[g/m] |
|---------------|-------------------|-----------------------------|-------------------------|------------------------------------|--------------------------------------------------|
| <b>HF 075</b> | 0.5               | $\pm 0.15$                  | $\pm 0.5$               | 6                                  | 0.7                                              |
| <b>HF 150</b> | 0.9               | $\pm 0.15$                  | $\pm 0.5$               | 15                                 | 1.12                                             |



**Table 72**

**Standard range of optibelt OPTIMAX HF TYPE 150 [L; mm]**

|     |     |      |      |      |      |      |      |
|-----|-----|------|------|------|------|------|------|
| 200 | 690 | 970  | 1270 | 1570 | 1880 | 2270 | 3100 |
| 400 | 695 | 980  | 1280 | 1580 | 1890 | 2280 | 3150 |
| 410 | 700 | 990  | 1290 | 1590 | 1900 | 2290 | 3200 |
| 420 | 710 | 1000 | 1300 | 1600 | 1920 | 2300 | 3250 |
| 430 | 720 | 1010 | 1310 | 1610 | 1930 | 2320 | 3300 |
| 440 | 730 | 1020 | 1320 | 1620 | 1940 | 2340 | 3400 |
| 450 | 740 | 1030 | 1330 | 1630 | 1950 | 2350 | 3500 |
| 460 | 750 | 1040 | 1340 | 1640 | 1960 | 2370 | 3600 |
| 470 | 760 | 1050 | 1350 | 1650 | 1970 | 2380 | 3700 |
| 480 | 770 | 1060 | 1360 | 1660 | 1980 | 2400 | 3790 |
| 490 | 780 | 1070 | 1370 | 1670 | 2000 | 2430 |      |
| 500 | 790 | 1080 | 1380 | 1680 | 2020 | 2440 |      |
| 510 | 800 | 1090 | 1390 | 1700 | 2030 | 2450 |      |
| 520 | 810 | 1100 | 1400 | 1710 | 2040 | 2480 |      |
| 530 | 820 | 1110 | 1410 | 1720 | 2050 | 2500 |      |
| 540 | 830 | 1120 | 1420 | 1730 | 2060 | 2520 |      |
| 550 | 840 | 1130 | 1430 | 1740 | 2070 | 2550 |      |
| 560 | 850 | 1140 | 1440 | 1750 | 2090 | 2570 |      |
| 570 | 860 | 1150 | 1450 | 1760 | 2100 | 2600 |      |
| 580 | 870 | 1160 | 1460 | 1770 | 2110 | 2650 |      |
| 590 | 880 | 1170 | 1470 | 1780 | 2120 | 2660 |      |
| 600 | 890 | 1180 | 1480 | 1790 | 2130 | 2700 |      |
| 610 | 900 | 1190 | 1490 | 1800 | 2140 | 2750 |      |
| 620 | 910 | 1200 | 1500 | 1810 | 2150 | 2780 |      |
| 630 | 920 | 1210 | 1510 | 1820 | 2190 | 2800 |      |
| 640 | 930 | 1220 | 1520 | 1830 | 2200 | 2850 |      |
| 650 | 935 | 1230 | 1530 | 1840 | 2210 | 2900 |      |
| 660 | 940 | 1240 | 1540 | 1850 | 2220 | 2950 |      |
| 670 | 950 | 1250 | 1550 | 1860 | 2240 | 3000 |      |
| 680 | 960 | 1260 | 1560 | 1870 | 2250 | 3050 |      |

#### **Widths**

This standard range can be supplied up to a length of 460 mm in any width from 10 to 330 mm.  
 With a belt length of more than 460 mm, the optibelt OPTIMAX HF is available in any width from 10 to 420 mm.

#### **Non standard lengths**

In addition to these standard lengths, any length between 200 and 3850 mm can be delivered on request.

#### **Tolerances**

Length tolerance:

- < 600 mm nominal length  $\pm 5$  mm
- $\geq 600$  mm nominal length  $\pm 0.5$  %

Width tolerance:

$\pm 0.5$  mm

#### **Delivery options**

Type HF 150: The standard range is available from stock.

Type HF 075: Production goods

# SPECIAL DRIVES

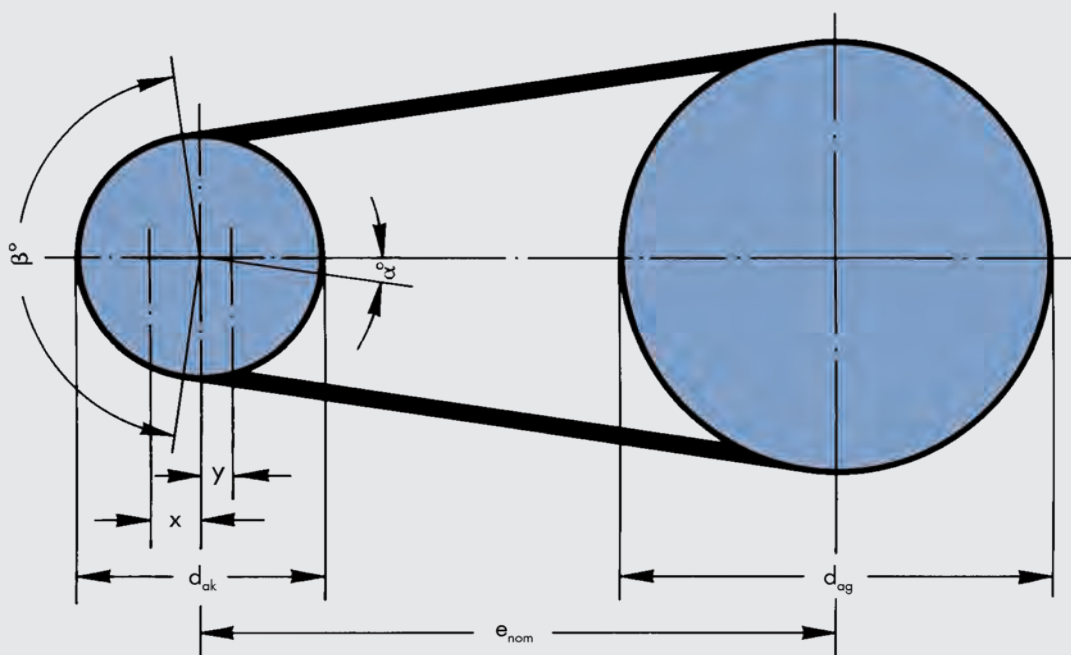
## CALCULATION

### optibelt OPTIMAX HF

#### ABBREVIATIONS USED IN FORMULAS



|           |                                                          |       |                  |                                                                                                            |       |
|-----------|----------------------------------------------------------|-------|------------------|------------------------------------------------------------------------------------------------------------|-------|
| A         | = Length addition value                                  | [mm]  | $n_k$            | = Speed of small pulley                                                                                    | [rpm] |
| B         | = Width of the flat belt                                 | [mm]  | $n_1$            | = Speed of driver pulley                                                                                   | [rpm] |
| $B^*$     | = $\frac{\text{Standard width}}{10}$                     | [mm]  | $n_2$            | = Speed of driven pulley                                                                                   | [rpm] |
| $c_o$     | = Base drive service factor                              |       | P                | = Power to be transmitted by the belt drive                                                                | [kW*] |
| $c_1$     | = Arc of contact correction factor                       |       | $P_B$            | = Design power                                                                                             | [kW*] |
| $c_2$     | = Total drive service factor                             |       | $P_N$            | = Power rating per 10 mm flat belt width                                                                   | [kW*] |
| $c_4$     | = Additional factor                                      |       | R                | = Elongation factor                                                                                        |       |
| $d_{ag}$  | = Outside diameter of large pulley                       | [mm]  | $S_a$            | = Minimum shaft loading                                                                                    | [N]   |
| $d_{ak}$  | = Outside diameter of small pulley                       | [mm]  | v                | = Belt speed                                                                                               | [m/s] |
| $d_{a1}$  | = Outside diameter of driver pulley                      | [mm]  | x                | = Minimum allowance above drive centre distance $e_{nom}$ for tensioning and retensioning of the flat belt | [mm]  |
| $d_{a2}$  | = Outside diameter of driven pulley                      | [mm]  | y                | = Minimum allowance below drive centre distance $e_{nom}$ for installation of the flat belt                | [mm]  |
| e         | = Drive centre distance                                  | [mm]  | $\alpha$         | = Angle of belt run = $90^\circ - \frac{\beta}{2}$                                                         | [°]   |
| $e_{nom}$ | = Centre distance with a standard belt length calculated | [mm]  | $\beta$          | = Arc of contact on small pulley                                                                           | [°]   |
| i         | = Speed ratio                                            |       | * 1 kW = 1 kNm/s |                                                                                                            |       |
| $L_{iSt}$ | = Standard inside length of flat belt                    | [mm]  |                  |                                                                                                            |       |
| $L_{bth}$ | = Calculated inside length of flat belt                  | [mm]  |                  |                                                                                                            |       |
| $L^*$     | = Measured length after tensioning                       | [mm]  |                  |                                                                                                            |       |
| $n_g$     | = Speed of large pulley                                  | [rpm] |                  |                                                                                                            |       |



# SPECIAL DRIVES

## CALCULATION

optibelt **OPTIMAX HF**

### BASE DRIVE SERVICE FACTOR $c_0$ –

### ARC OF CONTACT CORRECTION FACTOR $c_1$ – ADDITIONAL FACTOR $c_4$

#### Base drive service factor $c_0$

The base drive service factor  $c_0$  takes into account the type of drive and driven machine. It applies exclusively to two-pulley drives and for a daily operating time of less than ten hours. No special conditions have been taken into account. Please observe the additional factor  $c_4$ . Since it is practically impossible to condense every possible combination of drive unit, driven machine, and operating conditions into a standard-compliant short version, the drive

service factors are **guide values**. In special cases, e.g. increased starting torque (direct starting with fans), drives with a high switching frequency, extraordinary impact load, considerable mass acceleration and deceleration, the drive service factor must be increased. In cases of doubt, we recommend that you contact our consulting engineers.

Table 73

| Examples for work machines                                                                                                                                                                                          | Examples for drive machines |                                                                                                         |                                                  |                                                                                                           |                                                                                                                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|---------------------------------------------------------------------------------------------------------|--------------------------------------------------|-----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                     | Small motors                | Single-phase and three-phase AC motors with normal starting torque (up to 1.8 times the nominal torque) | Single-phase AC motor with star-delta connection | Single-phase and three-phase AC motors with high starting torque (more than 1.8 times the nominal torque) | Single-phase and three-phase AC motors with high starting torque (more than 1.8 times the nominal torque) and direct starting |
| <b>Light duty drives</b><br>Centrifugal pumps, fans, etc.                                                                                                                                                           | 1.0                         | 1.2                                                                                                     | 1.3                                              | 1.5                                                                                                       | 1.6                                                                                                                           |
| <b>Medium duty drives</b><br>Textile machines, paper mills, presses, tool machines, wood processing machines, machines in the paper industry, rotating presses, printing machines, lifting tools, oil burners, etc. | 1.2                         | 1.4                                                                                                     | 1.5                                              | 1.7                                                                                                       | 1.8                                                                                                                           |
| <b>Heavy duty drives</b><br>Weaving looms, combing machines in the textile industry, calenders, crushers, cranes, ball mills, piston compressors, agricultural machines, band saws and circular saws, etc.          | 1.4                         | 1.6                                                                                                     | 1.7                                              | 1.9                                                                                                       | 2.0                                                                                                                           |

#### Arc of contact correction factor $c_1$

The arc of contact correction factor  $c_1$  corrects the power rating  $P_N$ , when the arc of contact of the belt is smaller than  $180^\circ$ , since the  $P_N$  value of the arc of contact  $\beta = 180^\circ$  was determined on the small pulley  $d_{ak}$ .

#### Additional factor $c_4$

If special conditions need to be taken into account on a drive, the additional factor  $c_4$  is to be added to the base drive service factor  $c_0$ .

Table 74

| $\frac{d_{ag} - d_{ak}}{e_{nom}}$ | $\beta \approx$ | $c_1$ |
|-----------------------------------|-----------------|-------|
| 0                                 | $180^\circ$     | 1.00  |
| 0.15                              | $170^\circ$     | 0.94  |
| 0.35                              | $160^\circ$     | 0.89  |
| 0.50                              | $150^\circ$     | 0.84  |
| 0.70                              | $140^\circ$     | 0.78  |
| 0.85                              | $130^\circ$     | 0.72  |
| 1.00                              | $120^\circ$     | 0.66  |
| 1.15                              | $< 120^\circ$   | 0.60  |

Table 75

| Operating conditions                 | $c_4$ |
|--------------------------------------|-------|
| Daily operating time $\geq 10$ hours | 0.20  |
| Strong exposure to dust              | 0.30  |
| Multi-pulley drive                   | 0.40  |
| Reversing operation                  | 1.00  |
| Fixed centre distance                | 1.00  |



# SPECIAL DRIVES

## CALCULATION

### optibelt **OPTIMAX HF**

#### FORMULAS AND CALCULATION EXAMPLE



##### Driving machine

Three-phase AC motor with direct starting  
 $P = 5 \text{ kW}$   
 $n_1 = 3000 \text{ rpm}$

##### Operating conditions

Starting: under load  
Centre distance: selectable between 550 and 600 mm  
Pulley diameter: freely selectable  
Operating conditions: normal  
Operational hours per day: >10 hours

##### Driven machine

Textile machine  
 $P = 5 \text{ kW}$   
 $n_2 = 5376 \text{ rpm}$

##### Formulas

###### Total drive service factor

$c_2 = c_0 + c_4$   
 $c_0$  from table 73, page 130  
 $c_4$  from table 75, page 130

###### Design power

$P_B = P \cdot c_2$

###### Speed ratio

$i = \frac{n_1}{n_2} = \frac{d_{a2}}{d_{a1}}$

###### Outside diameter of flat belt pulleys

$d_{a1} = \text{selected from DIN 111}$   
 $d_{a2} = d_{a1} \cdot i$   
 $d_{a1} = \frac{d_{a2}}{i}$

###### Drive centre distance (preliminary)

$e$  selectable between 550 and 600 mm

###### Inside length of the flat belt

$L_{ith} \approx 2e + 1.57 (d_{ag} + d_{ak}) + \frac{(d_{ag} - d_{ak})^2}{4e}$

##### Calculation example

$c_2 = 1.8 + 0.2 = \mathbf{2.0}$

$P_B = 5 \text{ kW} \cdot 2.0 = \mathbf{10 \text{ kW}}$

$i = \frac{3000 \text{ min}^{-1}}{5376 \text{ min}^{-1}} = \mathbf{0.56}$

$d_{a1} = \mathbf{224 \text{ mm}}$  selected  
 $d_{a2} = 224 \text{ mm} \cdot 0.56 = 125.4 \text{ mm}$   
 $d_{a2} = \mathbf{125 \text{ mm}}$  selected from DIN 111

$e = \mathbf{580 \text{ mm}}$  preliminary

$L_{ith} \approx 2 \cdot 580 + 1.57 \cdot 349 + \frac{99^2}{4 \cdot 580} \approx 1712 \text{ mm}$   
Next standard inside length  
selected from table 72, page 128  
 $L_{iSt} = \mathbf{1710 \text{ mm}}$

# SPECIAL DRIVES

## CALCULATION

### optibelt **OPTIMAX HF**

#### FORMULAS AND CALCULATION EXAMPLE



#### Formulas

##### Drive centre distance

Design from  $L_{iSt}$  and  $L_{iTh}$

$$\text{(if } L_{iSt} > L_{iTh}) \quad e_{nom} \approx e + \frac{L_{iSt} - L_{iTh}}{2}$$

$$\text{(if } L_{iSt} < L_{iTh}) \quad e_{nom} \approx e - \frac{L_{iTh} - L_{iSt}}{2}$$

##### Minimum allowance x/y of the centre distance $e_{nom}$

$x = 1.0 \%$  from  $L_{iSt}$

$y = 0.5 \%$  from  $L_{iSt}$

##### Speed of the flat belt

$$v = \frac{d_{ak} \cdot n_k}{19100} \quad (v_{max} \approx 50 \text{ m/s})$$

##### Arc of contact correction factor and arc of contact

$$\frac{d_{ag} - d_{ak}}{e_{nom}}$$

$\beta$  approximately and  $c_1$  from table 74, page 130

##### Nominal power per 10 mm flat belt width

$P_N$  from table 76, page 133

##### Width of the flat belt

$$B = \frac{P \cdot c_2 \cdot 10}{P_N \cdot c_1}$$

##### Minimum static shaft loading

$$S_a \approx 120 \cdot B^* \quad B^* = \frac{\text{Standard width}}{10}$$

##### Determination of the belt tension with length addition value

$A = L \cdot R$  (L and R see page 133)

$L^* = L + A$

#### Calculation example

$$e_{nom} \approx 580 \text{ mm} - \frac{1712 \text{ mm} - 1710 \text{ mm}}{2} = \mathbf{579 \text{ mm}}$$

$$x = \mathbf{17.0 \text{ mm}}$$

$$y = \mathbf{8.5 \text{ mm}}$$

$$v = \frac{125 \text{ mm} \cdot 5376 \text{ min}^{-1}}{19100} = \mathbf{35.18 \text{ m/s}}$$

$$\frac{224 \text{ mm} - 125 \text{ mm}}{579 \text{ mm}}$$

$$c_1 = \mathbf{0.94}$$

$$\beta \approx \mathbf{170^\circ}$$

$$P_N = \mathbf{3.18 \text{ kW}}$$
 by linear interpolation

$$B = \frac{5 \text{ kW} \cdot 2 \cdot 10}{3.18 \text{ kW} \cdot 0.94} = 33.5 \text{ mm}$$

Design:

**1 pc. optibelt OPTIMAX HF high performance flat belt  
HF 150/1710 x 35**

$$S_a \approx 120 \cdot 3.5 \approx \mathbf{420 \text{ N}}$$

$$A = 1710 \text{ mm} \cdot 0.007 = \mathbf{11.97 \text{ mm}}$$

$$L^* = 1710 \text{ mm} + 10 \text{ mm} = \mathbf{1720 \text{ mm}}$$

# SPECIAL DRIVES

## CALCULATION

### optibelt **OPTIMAX HF**

## NOMINAL POWER AND TENSION



Table 76

| Belt speed<br>v [m/s] | Transferable power per<br>10 mm belt width [kW] |        |
|-----------------------|-------------------------------------------------|--------|
|                       | HF 075                                          | HF 150 |
| 2                     | 0.07                                            | 0.18   |
| 3                     | 0.12                                            | 0.22   |
| 4                     | 0.18                                            | 0.37   |
| 5                     | 0.22                                            | 0.46   |
| 6                     | 0.27                                            | 0.56   |
| 7                     | 0.31                                            | 0.65   |
| 8                     | 0.36                                            | 0.75   |
| 9                     | 0.40                                            | 0.82   |
| 10                    | 0.45                                            | 0.89   |
| 11                    | 0.49                                            | 0.93   |
| 12                    | 0.53                                            | 1.11   |
| 13                    | 0.57                                            | 1.21   |
| 14                    | 0.61                                            | 1.31   |
| 15                    | 0.64                                            | 1.41   |
| 16                    | 0.68                                            | 1.51   |
| 17                    | 0.72                                            | 1.57   |
| 18                    | 0.76                                            | 1.63   |
| 19                    | 0.79                                            | 1.69   |
| 20                    | 0.83                                            | 1.75   |
| 21                    | 0.86                                            | 1.82   |
| 22                    | 0.89                                            | 1.89   |
| 23                    | 0.91                                            | 1.99   |
| 24                    | 0.94                                            | 2.09   |
| 25                    | 0.96                                            | 2.19   |
| 26                    | 0.99                                            | 2.28   |
| 27                    | 1.00                                            | 2.39   |
| 28                    | 1.02                                            | 2.50   |
| 29                    | 1.03                                            | 2.60   |
| 30                    | 1.05                                            | 2.70   |
| 31                    | 1.06                                            | 2.81   |
| 32                    | 1.07                                            | 2.91   |
| 33                    | 1.07                                            | 3.01   |
| 34                    | 1.08                                            | 3.11   |
| 35                    | 1.08                                            | 3.18   |
| 36                    | 1.08                                            | 3.25   |
| 37                    | 1.07                                            | 3.33   |
| 38                    | 1.06                                            | 3.40   |
| 39                    | 1.05                                            | 3.48   |
| 40                    | 1.03                                            | 3.55   |
| 41                    | 1.02                                            | 3.58   |
| 42                    | 1.00                                            | 3.60   |
| 43                    | 0.98                                            | 3.63   |
| 44                    | 0.95                                            | 3.65   |
| 45                    | 0.93                                            | 3.66   |
| 46                    | 0.90                                            | 3.70   |
| 47                    | 0.85                                            | 3.73   |
| 48                    | 0.80                                            | 3.75   |
| 49                    | 0.75                                            | 3.78   |
| 50                    | 0.70                                            | 3.80   |

### Tension of flat belts

The correct level of belt tension is of enormous importance for trouble-free transmission of power and for achieving an acceptable belt service life.

Often tension which is either too high or too low results in early belt failure. A belt which is over tensioned often causes bearing failure in the drive or driven machine. It has been shown that common tensioning instructions, such as using the "thumb pressure deflection method", are not suitable for obtaining optimum tension for operating at full efficiency.

Over or undertensioning of the drive can be avoided if the tension is calculated, set or checked according to the following method.

### Tension through span force

An optimum tension is achieved if a span force of 300 N per 10 mm belt width is applied for type HF 150.

This belt tension approximately corresponds to an elongation of 0.7 % of the belt length.

Type HF 075 can be tensioned according to the same method, with the exception that the span force is 150 N per 10 mm belt width and an elongation of 0.8 % of the belt length can be expected.

The span force can easily be checked on a belt width of up to 50 mm with the aid of optibelt TT using the frequency measuring method. If the frequency has been determined, the span force can be calculated as follows:

$$T = 4 \cdot k \cdot L^2 \cdot f^2$$

T = Belt tension [kN]

k = Weight per metre per mm belt width [g/m]

L = Belt tension [m]

f = Frequency [Hz]

### Checking the tension with a length addition value

The length (L) of the relevant flat belt is measured in an untensioned condition on the top surface of the belt.

Calculate the length addition value "A" by using the formula:

$$A = L \cdot R \text{ (elongation value)}$$

R = 0.007 for type HF 150

R = 0.008 for type HF 075

This length addition value A should then be added to the measured length.

The flat belts are now tensioned until the calculated length is reached (length + length addition value A). The belt is then correctly tensioned.

If the drive is to be retensioned, the belt must first be slackened off so that it can be measured in a tension-free state.

After that, follow the procedure described above.

A = Length addition value [mm]

L = Length of flat belt [mm]

L\* = Measured length after tensioning [mm]

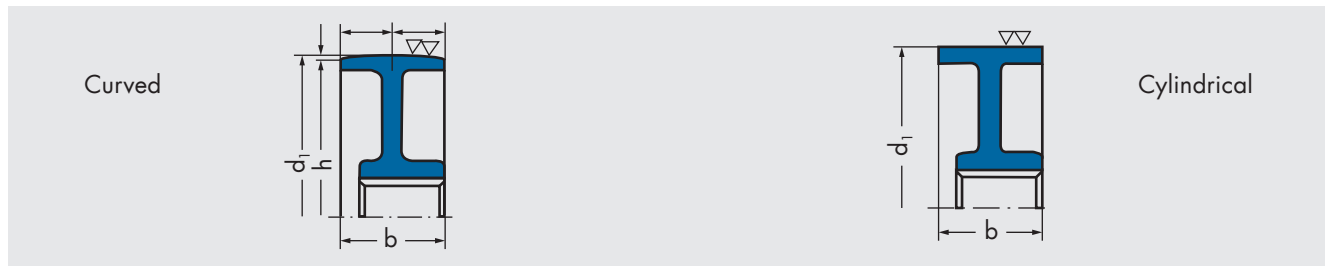
R = Elongation factor [mm]

# SPECIAL DRIVES

optibelt **OPTIMAX HF**

## FLAT BELT PULLEYS

### STANDARDS – SELECTION CRITERIA – TYPES



Flat belt pulleys are an essential part of the flat belt drive. They are mainly manufactured of GG 20 cast iron according to DIN 1691 and supplied with a pilot hole, pre-fabricated hole or with a clamping bush system. Other materials, such as steel or aluminium can also be used depending on the drive conditions.

When selecting the flat belt pulleys, the following must be adhered to:

- Use standardized pulley diameters. If this is not possible for structural reasons, a standardized diameter should be selected for the largest pulley.
- Do not use less than the minimum pulley diameter in the interest of the belt lifetime and the efficiency of the drive.

#### Minimum pulley diameter

Type HF 075 = 6 mm

Type HF 150 = 15 mm

- If users produce their own flat belt pulleys, a standard-compliant design and finish must be ensured (DIN 111).
- Flat belt pulleys are generally balanced on a level (statically), quality grade G 16, according to VDI 2060.

- Balancing on two levels (dynamically), quality grade G 6.3, becomes necessary if:
  1.  $v > 30$  m/s or
  2. The ratio of diameter to pulley face width is  $d : b < 4$  with  $v > 20$  m/s.
- Flanged pulleys should be avoided if possible.

#### Pulley face widths

When selecting flat belt pulleys, a suitable width must be ensured. The following rule applies: Belt width plus 10 %.

#### Pulley type

The flat belt pulley should be of cylindrical or curved design. When using curved pulleys, the crown height specified in DIN 111 must be observed (also see tables).

Table 77

| Diameter $d_1$ [mm] | Crown height $h$ [mm] | Run out tolerance $t$ [mm] |
|---------------------|-----------------------|----------------------------|
| Nominal size        | Permissible deviation |                            |
| 40                  | $\pm 0.5$             | 0.2                        |
| 50                  | $\pm 0.6$             |                            |
| 63                  | $\pm 0.8$             |                            |
| 71                  | $\pm 1$               |                            |
| 80                  | $\pm 1.2$             |                            |
| 90                  | $\pm 1.2$             | 0.3                        |
| 100                 | $\pm 1.6$             |                            |
| 112                 | $\pm 2$               |                            |
| 125                 | $\pm 2.5$             |                            |
| 140                 | $\pm 2.5$             | 0.4                        |
| 160                 | $\pm 3.2$             |                            |
| 180                 | $\pm 3.2$             |                            |
| 200                 | $\pm 3.2$             |                            |
| 224                 | $\pm 3.2$             | 0.5                        |
| 250                 | $\pm 3.2$             |                            |
| 280                 | $\pm 3.2$             |                            |
| 315                 | $\pm 3.2$             |                            |
| 355                 | $\pm 3.2$             |                            |

In the case of diameters  $< 400$  mm, the crown height does not depend on the pulley face width (DIN 111).

Table 78

| Diameter $d_1$ [mm]        | Crown height $h$ [mm] | Run out tolerance $t$ [mm] |
|----------------------------|-----------------------|----------------------------|
| Nominal size               | Perm. dev.            |                            |
| 400                        | $\pm 4$               | 0.5                        |
| 450                        |                       | 0.6                        |
| 500                        |                       | 0.6                        |
| 560                        | $\pm 5$               | 0.6                        |
| 630                        |                       | 0.8                        |
| 710                        |                       | 0.8                        |
| 800                        | $\pm 6.3$             | 0.8                        |
| 900                        |                       | 0.8                        |
| 1000                       |                       | 0.8                        |
| 1120                       | $\pm 8$               | 1                          |
| 1250                       |                       | 1                          |
| 1400                       |                       | 1                          |
| 1600                       | $\pm 10$              | 1                          |
| 1800                       |                       | 1.2                        |
| 2000                       |                       | 1.2                        |
| Pulley face width $b$ [mm] | $\leq 125$            | $\leq 400$                 |

Idlers are grooved or flat pulleys that do not transmit any power in a drive system. Due to the fact that additional flexing stress is created in the belt, it is recommended that idlers are only used sparingly under the following conditions if possible:

- with fixed drive centres in order to produce the required tension and to take up the maximum possible belt stretch and wear.
- as an idler pulley when dealing with extremely long free belt spans that are subject to twisting.
- as outside idlers where the arc of contact on one of the loaded pulleys is too low. Their inclusion increases the arc of contact and often reduces excessive slip or eliminates the need to increase the number of belts.
- as idler pulleys and guide idlers on drives where pulleys are not all on the same plane such as quarter turn drives.
- to guide belts past obstructions.
- as pneumatically, hydraulically or spring loaded idlers to maintain a constant tension.
- as clutching idlers with which the driven pulley can be engaged or disengaged. Complex clutches are no longer required. Because of their single belt characteristics, optibelt KB kraftbands are particularly suited for these applications.

If, for the reasons listed above, it is absolutely essential to employ idlers, the following criteria should be considered when designing the drive:

- idler configuration
- position of the idler in the belt span
- idler diameter
- idler design
- adjustment allowance of the idler for installation and initial and subsequent tensioning of the belt
- correction of the power rating  $P_N$

### Idler configuration

In principle, idlers can be used as inside or outside idlers depending on the drive situation. Unless design requirements call for an outside idler, the inside idler is usually more advantageous. Its diameter can be kept smaller than that of the outside idler.

Depending on the belt type, **inside idlers** can either be grooved or flat pulleys.

**Table 79: Profile dimensions**

| Belt type                                                                                    | V-grooved pulley | Flat pulley |
|----------------------------------------------------------------------------------------------|------------------|-------------|
| High performance wedge belts<br>DIN 7753 Part 1<br>SPZ; SPA; SPB; SPC                        | •                |             |
| High performance wedge belts<br>ARPM/MPTA<br>3V/9N; 5V/15N; 8V/25N                           | •                |             |
| Classic V-belts DIN 2215<br>Z/10; A/13; B/17; 20; C/22; 25;<br>D/32; E/40                    | •                | •           |
| Kraftbands with high performance<br>wedge belts<br>3V/9J; 5V/15J; 8V/25J; SPA; SPZ; SPB; SPC | •                | •           |
| Kraftbands<br>with classic V-belts<br>A/HA; B/HB; C/HC; D/HD                                 | •                | •           |

For raw edge V-belts and kraftbands the same requirements as given in table 79 apply.

Inside idlers reduce the arc of contact on the loaded pulleys and with it the arc of contact correction factor  $c_1$ . When calculating the number of belts, the arc of contact correction factor should be selected for the position of the idler at the point of maximum belt stretch (see table 81, page 137).

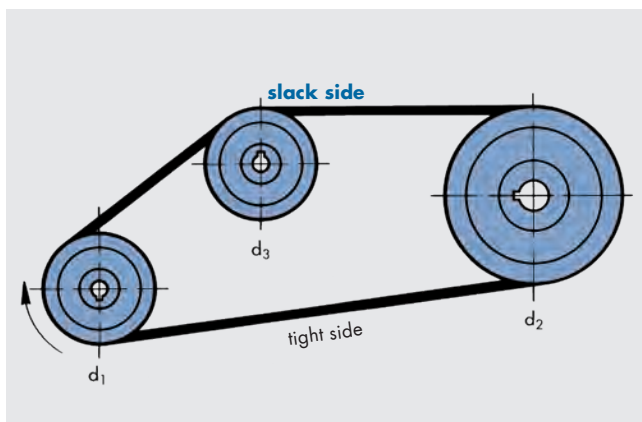
**Outside idlers** generally have to be flat pulleys as they are running on the back of the belt. They increase the arc of contact. Care must be taken to ensure that the maximum possible belt stretch is taken up and that contact with the opposite span is prevented. The reverse bending caused by outside idlers will lead to a reduction of the belt service life.

Special V-belt constructions on request.

### Position of the idler in the belt span

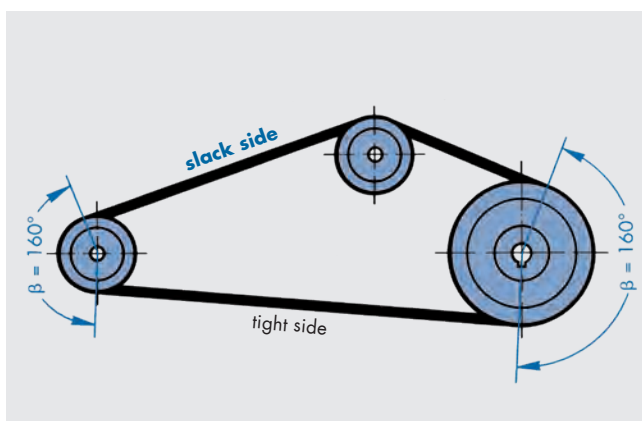
Theoretical power transmission formulas and actual practice have shown that idlers should, wherever possible, be placed in the slack side of the drive. The tension idler force can be reduced very significantly then. A spring loaded idler must not be employed in a reversing drive as the slack and tight sides of the drive are constantly changing. Our Application Engineering Department will be pleased to assist you when spring loaded idlers present special problems.

Fig. 1



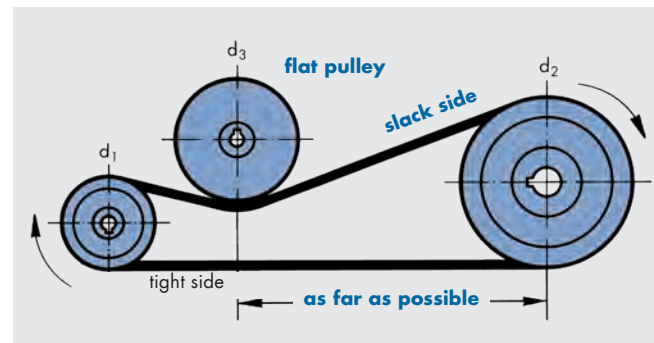
Grooved pulleys can be used as inside idlers anywhere on the slack side. Where possible, however, the arc of contact should be the same on both pulleys when the idler reaches its end position, i.e. belt stretch is at its maximum.

Fig. 2



Flat pulleys, whether used as inside or outside idlers, are to be placed as far as possible away from the grooved pulley on to which the belt runs next. Any alignment errors between the idler and the pulley and the resultant sideways movement of the belt on the pulley are thus avoided.

Fig. 3



On drives with long belt spans, grooved pulleys are the preferred choice for inside idlers because with flat pulleys transverse vibrations and belt turnover can occur.

### Minimum diameter for idlers

Inside idlers should not be smaller than the recommended minimum pulley diameter ( $d_{d \min}$ ) for the belt section concerned (see page 49, table 14)

Inside idler  $\geq$  minimum pulley diameter for the belt section concerned

The presence of an outside idler exposes the belt additionally to a varying bending load. Due to this load, outside idlers must be at least 1.35 times greater than the minimum pulley diameter for the particular belt section.

Outside idler  $\geq 1.35 \cdot \min.$  pulley diameter for the belt section concerned

The belt service life is significantly reduced if the minimum recommended idler diameter is less than the recommended size. The use of an Optibelt special construction can significantly improve service life.

### Idler design

Grooved pulleys which are used as idlers can usually have standard groove dimensions. On drives with too severe vibration and long drive centre distances, it is recommended that deep grooved pulleys are used.

Flat pulleys should, if possible, be cylindrical and not crowned. Flanged pulleys are recommended as belt guides. The edges formed by the contact surface and pulley flange should be sharp. Round edges encourage the belt to run on the flanges causing it to turn over.

The face width or the contact surface between the two flanges is calculated as follows:

$$b = b_2 + m$$

$b$  = face width/contact surface [mm]

$b_2$  = face width of the grooved pulley [mm]

$m$  = additional value [mm]

| Profile           | Additional value $m$ [mm] |
|-------------------|---------------------------|
| SPZ, 3V/9N, Z/10  | 15                        |
| SPA, A/13         | 20                        |
| SPB, 5V/15N, B/17 | 25                        |
| SPC, C/22         | 30                        |
| 8V/25N            | 35                        |
| D/32              | 40                        |
| E/40              | 45                        |

This also applies to raw edge V-belts

### Drive calculation

Calculating the length and determining the number of belts is basically the same as for 2-pulley drives. Certain details are, however, to be noted:

1. Calculate the belt length over two pulleys using the formula: see notes on standards page 178.

$$L_{dth} \approx 2a + 1.57 (d_{dg} + d_{dk}) + \frac{(d_{dg} - d_{dk})^2}{4a}$$

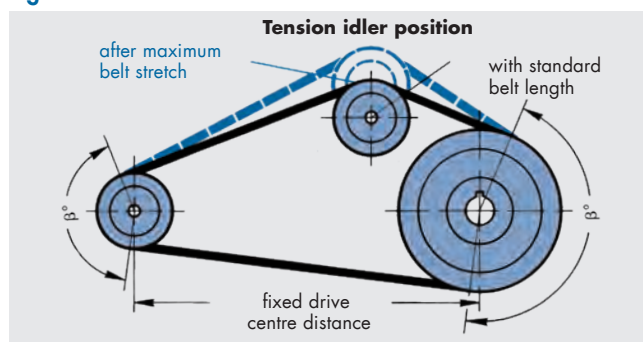
2. As the belt has to be fitted without force with fixed centre distances, the double adjustment  $y$  must be added to the belt length  $L_{dth}$  (see pages 80/81).

$$L_d = L_{dth} + 2y$$

3. The next largest standard length  $L_{dst}$  should then be selected. A check should be made, usually on the drawing, to determine whether the belt can be adequately tensioned with the idler in the outermost position. In this idler position, both the standard length  $L_{dst}$  and the double adjustment  $x$  must be taken up (see pages 80/81).

$$L_d \text{ for idler end position} = L_{dst} + 2x$$

Fig. 4



### Number of belts

The use of idlers increases the bending stress in the belts. To avoid a reduction in belt service life, the idler correction factor  $c_4$  must also be included in the calculation. This correction factor takes into account the number of idlers that are larger than the minimum diameter.

Table 80

| Number of idlers | $c_4$ |
|------------------|-------|
| 0                | 1.00  |
| 1                | 0.91  |
| 2                | 0.86  |
| 3                | 0.81  |

The nominal power rating  $P_N$  per belt is, as before, based on the smallest loaded pulley.

Calculation of the arc of contact correction factor  $c_1$  must be based on the smallest contact angle of the loaded pulley which occurs when the belt is stretched to its maximum limit.

Table 81: Arc of contact correction factor  $c_1$

| $\beta =$ | $c_1$ | $\beta =$ | $c_1$ |
|-----------|-------|-----------|-------|
| 75°       | 0.82  | 175°      | 1.00  |
| 80°       | 0.84  | 180°      | 1.00  |
| 85°       | 0.86  | 185°      | 1.00  |
| 90°       | 0.88  | 190°      | 1.00  |
| 95°       | 0.90  | 195°      | 1.01  |
| 100°      | 0.91  | 200°      | 1.01  |
| 105°      | 0.92  | 205°      | 1.01  |
| 110°      | 0.93  | 210°      | 1.01  |
| 115°      | 0.94  | 215°      | 1.01  |
| 120°      | 0.95  | 220°      | 1.01  |
| 125°      | 0.96  | 225°      | 1.01  |
| 130°      | 0.96  | 230°      | 1.01  |
| 135°      | 0.97  | 240°      | 1.02  |
| 140°      | 0.97  | 250°      | 1.02  |
| 145°      | 0.98  |           |       |
| 150°      | 0.98  |           |       |
| 155°      | 0.99  |           |       |
| 160°      | 0.99  |           |       |
| 165°      | 0.99  |           |       |
| 170°      | 1.00  |           |       |

The following formula for determining the number of belts is obtained using the idler correction factor  $c_4$ :

$$z = \frac{P \cdot c_2}{P_N \cdot c_1 \cdot c_3 \cdot c_4}$$

Drives with crossing belt spans are often simply termed twist drives. These can be drives where the shafts are not parallel, whose pulleys and idlers are not all arranged on one plane, or drives with two parallel but counter rotating shafts. Because of the twisting of the belt, this type of drive requires a certain degree of lateral bending flexibility. Due to the cross section of V-belts, flat belts are better suited for this application. In most cases twist drives use single V-belts, but drives using belt sets are also possible. The crossing of the belt spans and the non-aligned entry of the belt into the pulley leads to a reduction of the belt service life. The entry and exit angle between the belt and the pulley plane should not be more than  $5^\circ$ .

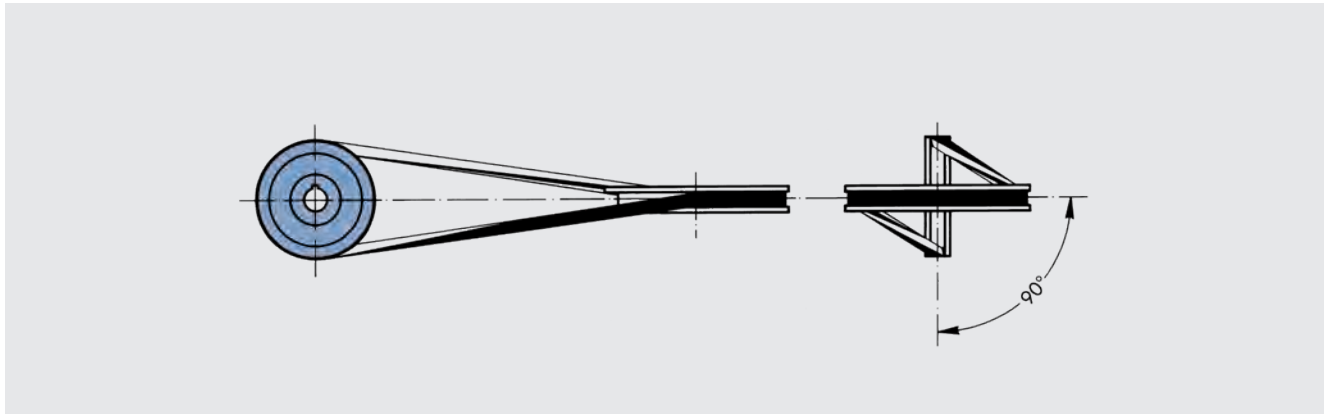
The required inclination of the shafts and the pulleys relative to each other and the belt entry and exit angles should be confirmed by practical tests. In addition, certain critical drives may have a considerably improved safety factor if special constructions by Optibelt are used. The most important types of twist drives and the according design guidelines are illustrated below.

### Quarter twist drive

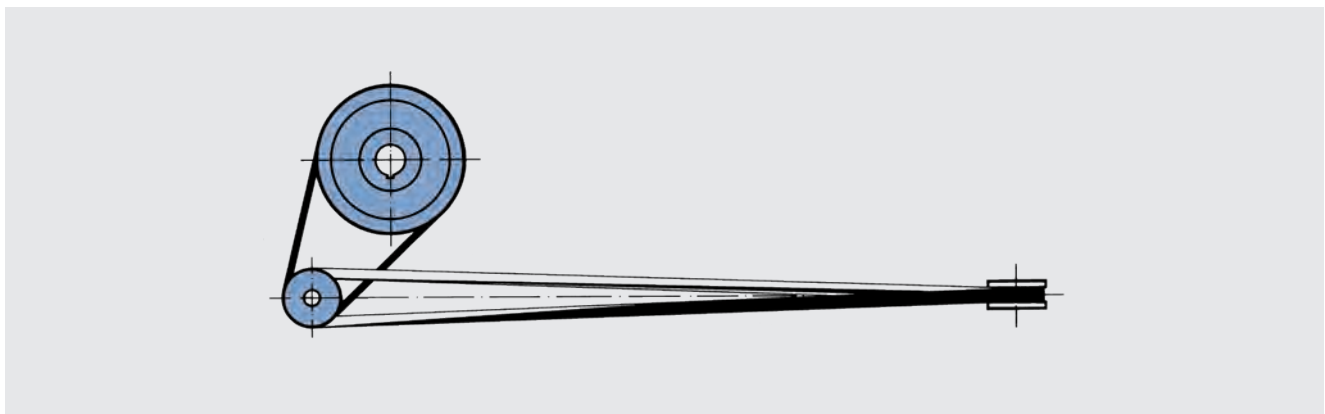
The term quarter twist drive is used to describe systems where the shafts are at an angle of  $90^\circ$  to each other. The ratio  $i$  or  $1 : i$  of quarter twist drives should not exceed 2.5.

Where this is not possible, a two stage drive should be employed, in which one stage is a standard V-belt drive.

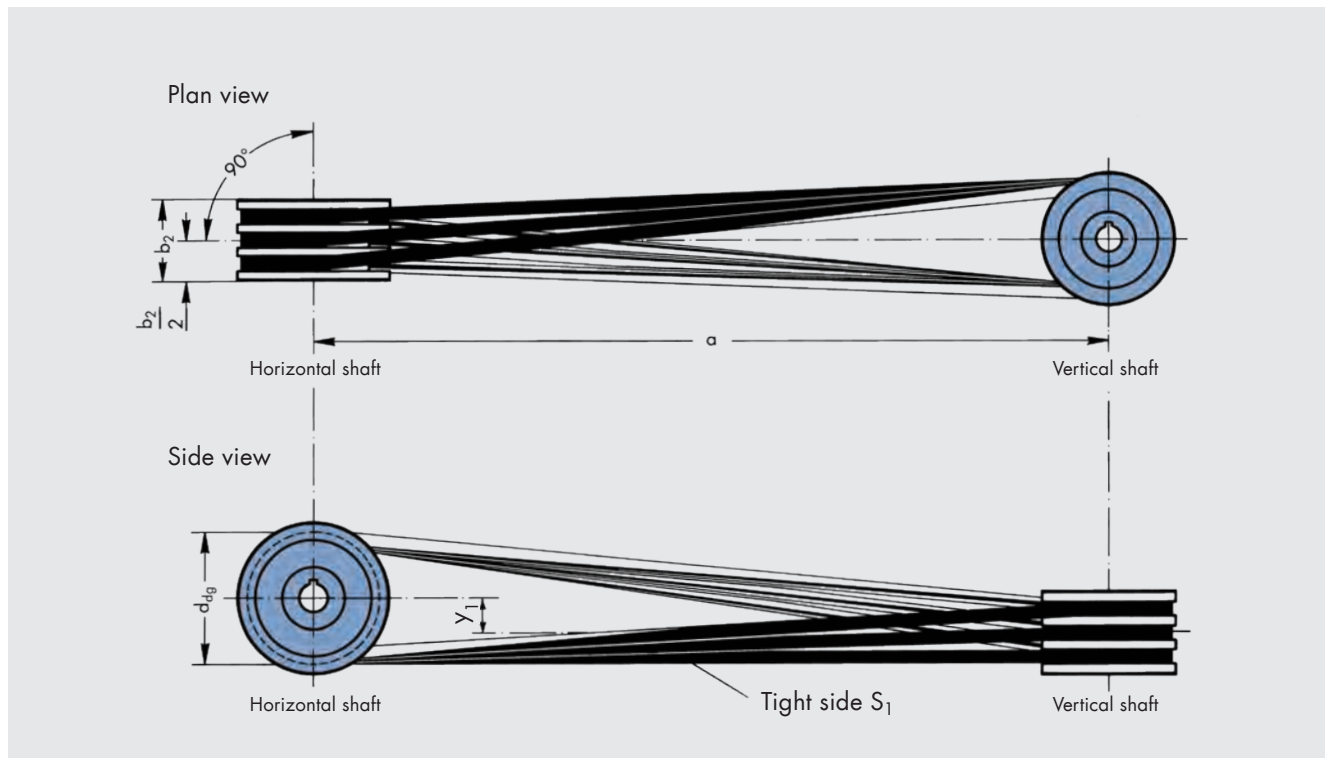
### Quarter twist drive – ratio $i$ or $1 : i < 2.5$



### Quarter twist drive – ratio $i$ or $1 : i > 2.5$



### Design guidelines for quarter twist drives



1.  $a_{\min} = 5.5 (d_{dg} + b_2)$
2. The drive must be aligned in such a way that a straight line drawn through the centre of the vertical shaft runs through the centre of the face  $b_2$  of the pulley on the horizontal shaft (plan view). The horizontal shaft must be at right angles to this straight line.
3. The horizontal centre line of the pulley on the horizontal shaft must be above and at a distance  $y_1$  from the centre line of the pulley on the vertical shaft (side view). The distance  $y_1$  changes with the centre distance " $a$ ".
4. The direction of rotation must be arranged so that the tight side  $S_1$  is at the bottom.
5. Deep grooved pulleys should be specified if possible for single belt drives. This ensures an improved entry and exit of the belt, thus preventing turnover.
6. Never specify deep grooved pulleys when using kraftbands. Kraftband pulleys should always be used. We recommend, in any case, consulting our Application Engineering Department.
7. When calculating the number of belts, the examples given on pages 83 to 85 should be followed. An arc of contact correction factor  $c_1 = 1$  must always be used.
8. The static belt tension " $T$ " should be calculated using the formula on page 126.
9. The drive or work machine must be adjustable so that the belt can be fitted without force, the necessary tension can be applied and the belt stretch and wear can be taken up during its service life.

**Table 82**

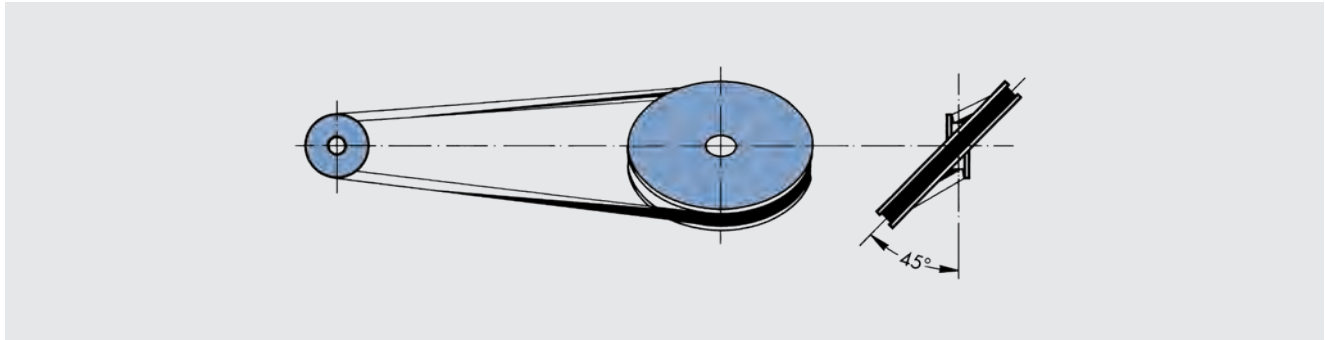
| Drive centre distance $a$ [mm] | $y_1$ [mm]<br>Classic V-belts | $y_1$ [mm]<br>Wedge belts |
|--------------------------------|-------------------------------|---------------------------|
| 1200 ≤ 1500                    | 5                             | –                         |
| > 1500 ≤ 2000                  | 8                             | 5                         |
| > 2000 ≤ 2500                  | 12                            | 8                         |
| > 2500 ≤ 3000                  | 17                            | 10                        |
| > 3000 ≤ 3500                  | 25                            | 15                        |
| > 3500 ≤ 4000                  | 35                            | 25                        |
| > 4000 ≤ 4500                  | 45                            | 30                        |
| > 4500 ≤ 5000                  | 55                            | 40                        |
| > 5000 ≤ 5500                  | 65                            | 45                        |
| > 5500 ≤ 6000                  | 80                            | 55                        |
| > 6000                         | 100                           | 65                        |

### Eighth twist drives

Eighth twist drives are seldom necessary. The shafts in this drive system are at an angle of  $45^\circ$  to each other.

### Design guidelines

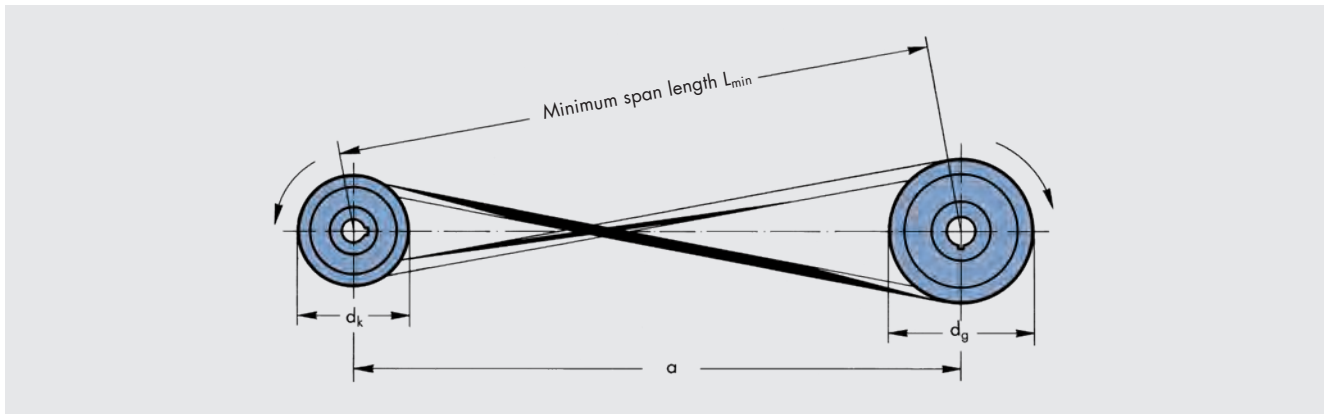
1.  $a_{\min} = 4 (d_{dg} + b_2)$
2. Otherwise the design guidelines for quarter twist drives are applicable.



### Drives with $180^\circ$ twist

The driver and the driven shafts are, as with conventional drives, parallel to each other. The belt is twisted  $180^\circ$  so

that both spans cross. A change in direction is thus achieved at very little cost.



### Design guidelines

1. In order to enable a perfect running of the belts in the pulley grooves, the belt span length must not be less than the minimum given in the following table.
2. If possible, the crossover point of both belt spans should be arranged in the centre of the drive. The rubbing of the belt spans against each other is at a minimum at this point. In order to avoid contact completely, it is recommended that a guide pulley is placed in the slack side  $S_2$  near the crossover point.

Table 83

| Profile     | Minimum span length<br>$L_{\min}$<br>[mm] |
|-------------|-------------------------------------------|
| SPZ. 3V/9N  | 350                                       |
| SPA         | 400                                       |
| SPB. 5V/15N | 450                                       |
| SPC         | 600                                       |
| 8V/25N      | 700                                       |
| A/13        | 460                                       |
| B/17        | 560                                       |
| C/22        | 720                                       |
| D/32        | 940                                       |
| E/40        | 1150                                      |

3. Length calculation

$$L \approx 2a + 1.57 (d_g + d_k) + \frac{(d_g + d_k)^2}{4a}$$

4. Otherwise. the design guidelines as described in points 4 to 9 for quarter twist drives apply.

◀ These values also apply for raw edge belts.

# SPECIAL DRIVES

## DRIVE ELEMENTS WITH ARAMID STRUCTURES



Aramid is an organic polyamide fibre that is manufactured in a complex chemical process. It may be used wherever maximum stress resistance and reliability are required. The processing of this fibre requires the highest level of experience and know-how as well as sophisticated testing facilities. Aramid is used as the tension cord material for highly loaded V-belts and kraftbands.

### Structure and properties

Compared to materials commonly used for tension cords e.g. polyesters, aramid stands out due to its extremely low-stretch properties. Its tensile strength is twice as high as that of a standard fibre in the same thickness.

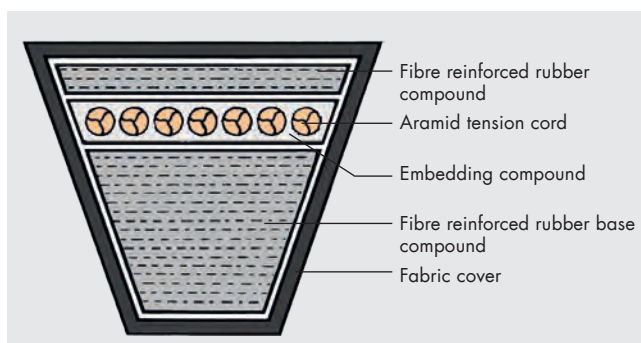
|           | Tensile strength<br>[cN/tex] | Stretching at break<br>[%] | Tension at 2 %<br>[cN/tex] |
|-----------|------------------------------|----------------------------|----------------------------|
| Polyester | 81                           | 14                         | 15                         |
| Aramid    | 190                          | 4                          | 73                         |

cN = Centi-Newton Thread weight: 1 tex = 1 g/1000 m

Despite its extreme strength, this fibre is remarkably flexible and has sufficient elasticity to absorb shock loads or vibration.

These properties, which are of special importance for V-belts and kraftbands, result in huge improvements in comparison to conventional constructions.

Optibelt V-belts in aramid cord structure comprise:



The high quality, specially processed aramid tension cord is embedded in a special rubber compound. The upper and substructure are thus supported effectively. These consist of a fibre reinforced polychloroprene rubber compound. The cover fabric is treated with a rubber compound on both sides and covers the whole belt.

### Applications areas

The advantages of Optibelt V-belts and kraftbands with aramid tension cords are best applicable where

- high power transmission is required
- there is only small installation space
- there is little adjustment range
- high temperature influences occur

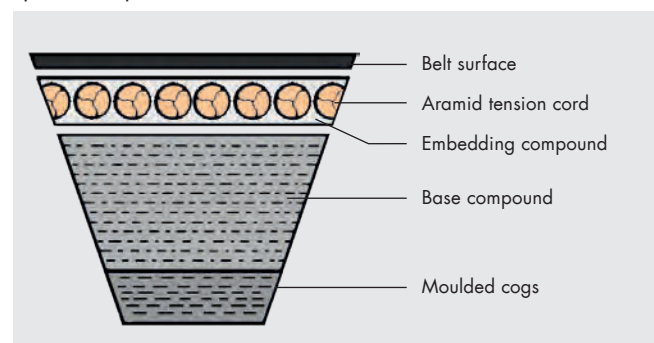
Thus, with the same number of belts and unchanged drive parameters, significantly higher power levels can be transmitted without reducing the service life of the belts. Even drive constructions that have previously had to be classified as critical may now be considered risk free. From now on, load limits apply as safety buffer zones; minimal belt stretch results in virtually maintenance-free running.

For these reasons Optibelt V-belts and kraftbands with aramid tension cord are to be found on drives with exceptional loading requirements –

- on critical drives in industrial applications
- on special machines
- on agricultural machinery
- on horticultural machinery

**Attention:** With two-pulley drives, particular requirements are placed on the shafts and bearings. It is recommended to use spring-loaded idlers (inside/outside idlers) with aramid V-belts / aramid kraftbands.

A discussion of all the relevant criteria would be beyond the scope of this manual. We therefore recommend contacting our Application Engineering Department to discuss your special requirements.



Special applications can also be designed with raw edge V-belts and kraftbands employing aramid tension cords.

### Drive calculation

Calculation should follow the example given on pages 83 to 85.

Please ask for the higher power ratings.

# SPECIAL DRIVES

## DRIVE ELEMENTS WITH ARAMID STRUCTURES



Diagram 6

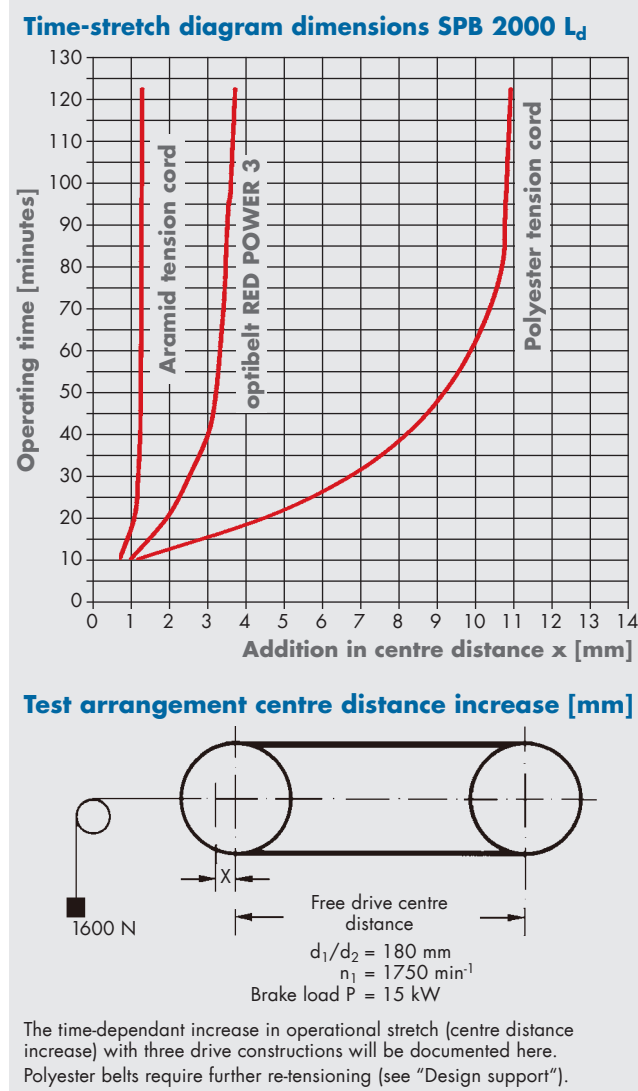
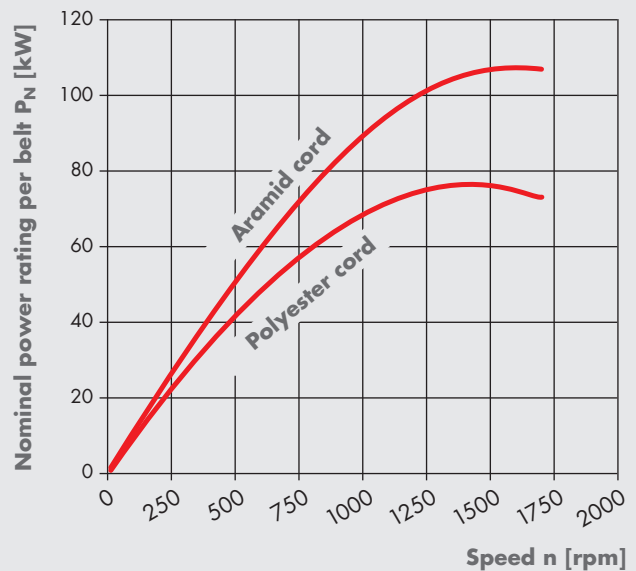


Diagram 7

### Power rating diagram belt size 8V 2000 L<sub>d</sub>

Datum diameter of the small pulley  $d_{ak} = 450 \text{ mm}$

Speed ratio  $i > 1.57$



This diagram shows the significantly higher power rating of the Optibelt V-belts with aramid cord in direct comparison to polyester cord belts.

### Profiles/Lengths

Raw edge and wrapped Optibelt V-belts and kraftbands are available with aramid to DIN/ISO and ARPM/MPTA. Lengths and minimum order quantities on request.

### Special information:

Aramid belts are to be ordered in sets.  
V-belts/kraftbands are to be ordered in sets.

| Profile    | Length                              |                                      | Range                                    |
|------------|-------------------------------------|--------------------------------------|------------------------------------------|
| V-belts    |                                     |                                      | As per the<br>Optibelt standard<br>range |
| SPZ        | ≥ 1000 L <sub>w</sub>               | ≤ 3550 L <sub>w</sub>                |                                          |
| SPA        | ≥ 1000 L <sub>w</sub>               | ≤ 4500 L <sub>w</sub>                |                                          |
| SPB        | ≥ 1250 L <sub>w</sub>               | ≤ 8000 L <sub>w</sub>                |                                          |
| SPC        | ≥ 2000 L <sub>w</sub>               | ≤ 12500 L <sub>w</sub>               |                                          |
| 3V/9N      | ≥ 3V 400 / 9N 1016 L <sub>a</sub>   | ≤ 3V 1400 / 9N 3556 L <sub>a</sub>   |                                          |
| 5V/15N     | ≥ 5V 500 / 15N 1270 L <sub>a</sub>  | ≤ 5V 3550 / 15N 9017 L <sub>a</sub>  |                                          |
| 8V/25N     | ≥ 8V 1000 / 25N 2540 L <sub>a</sub> | ≤ 8V 5000 / 25N 12700 L <sub>a</sub> |                                          |
| Kraftbands |                                     |                                      |                                          |
| 3V/9J      | ≥ 3V 500 / 9J 1270 L <sub>a</sub>   | ≤ 3V 1400 / 9J 3556 L <sub>a</sub>   |                                          |
| 5V/15J     | ≥ 5V 500 / 15J 1270 L <sub>a</sub>  | ≤ 5V 3550 / 15J 9017 L <sub>a</sub>  |                                          |
| 8V/25J     | ≥ 8V 1000 / 25J 2540 L <sub>a</sub> | ≤ 8V 4750 / 25J 12065 L <sub>a</sub> |                                          |

Further profiles and length ranges as well as minimum order quantities on request.

Datum length  $L_d \triangleq$  pitch length  $L_w$ ; outside length =  $L_a$

For proper power transmission and for achieving an acceptable belt service life, the correct belt tension is of the utmost importance.

Too low or too high belt tension will lead to the premature failure of the belts. Over tensioning often leads to bearing failure on the driver or the driven machine. Experience has shown that unscientific belt tensioning methods, such as the "thumb pressure method", are not suitable for applying the optimum tension to the drive for maximum efficiency. It is therefore recommended that for each drive the required static belt tension "T" is calculated using the formulas by Optibelt. This tension is the lowest possible required by a drive to transmit the highest power level from the drive, taking account of the normal amount of slip.

Once the belt has been fitted and the initial tension has been applied, it should be checked using an Optibelt tension gauge.

The belt should be monitored regularly during the first hours of operation. Experience has shown that the first re-tensioning should be carried out after approximately 30 minutes to four hours operating under full load. In doing so, the initial stretch is absorbed.

After approximately 24 hours of operation, it is often recommended to check the drive and re-tension the belts if necessary, particularly when not continuously run under full load. The time between checks can be significantly increased then. Also see our installation and maintenance advice on pages 156 to 157.

Too high or too low tension of the drive will be avoided if the belt tension is calculated, set and checked using one of the following methods.

### I. Checking the belt tension by span deflection

This method provides an indirect measurement of the calculated or actual static belt tension. It is applicable for belt sections SPZ, SPA, SPB, SPC, 3V/9N, 5V/15N, Z/10, A/13, B/17, 20, C/22, 25, D/32, XPZ, XPA, XPB, XPC, 3VX, 5VX, ZX/X10, AX/X13, BX/X17, CX/X22.

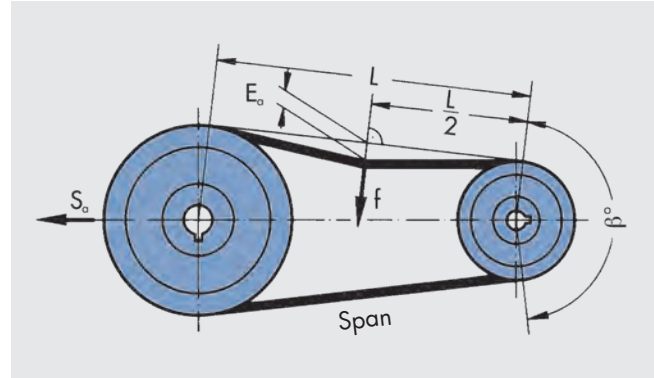
|                |                                                 |      |
|----------------|-------------------------------------------------|------|
| E              | = belt deflection per 100 mm span length        | [mm] |
| E <sub>a</sub> | = belt deflection for a given span length       | [mm] |
| f              | = load used to set belt tension                 | [N]  |
| k              | = constant for calculation of centrifugal force |      |
| L              | = drive span length                             | [mm] |
| S <sub>a</sub> | = minimum static shaft load                     | [N]  |
| T              | = minimum static tension per belt               | [N]  |

1. Calculation of the static belt tension using the following formula:

$$T \approx \frac{500 \cdot (2.04 - c_1) \cdot P_B}{c_1 \cdot z \cdot v} + k \cdot v^2$$

During new installation, the drive is to be tensioned with 1.3 T.

2. Determine the belt deflection per 100 mm span length E from the belt tension/deflection diagrams 8 to 11.



3. Calculate the belt deflection for a given span length E<sub>a</sub> for the actual drive span length L.

$$E_a \approx \frac{E \cdot L}{100}$$

$$L = a_{nom} \cdot \sin \frac{\beta}{2}$$

Apply test load "f" (taken from diagrams 8 to 11 for the appropriate belt profile) to the centre of, and perpendicular to, the span as illustrated above. Measure the deflection and if necessary adjust the centres until the correct belt tension is achieved.

### II. Checking the belt tension via speed measurement

This method checks belt tension using the theoretical slip. The speed of the driver and driven pulleys are measured first in an unloaded condition and then under load.

|                 |                                      |       |
|-----------------|--------------------------------------|-------|
| S               | = slip                               | [%]   |
| n <sub>1L</sub> | = driver pulley speed.<br>no load    | [rpm] |
| n <sub>2L</sub> | = driven pulley speed.<br>no load    | [rpm] |
| n <sub>1B</sub> | = driver pulley speed.<br>under load | [rpm] |
| n <sub>2B</sub> | = driven pulley speed.<br>under load | [rpm] |

Formula for calculating the slip:

$$S = \left(1 - \frac{n_{1L}/n_{2L}}{n_{1B}/n_{2B}}\right) \cdot 100$$

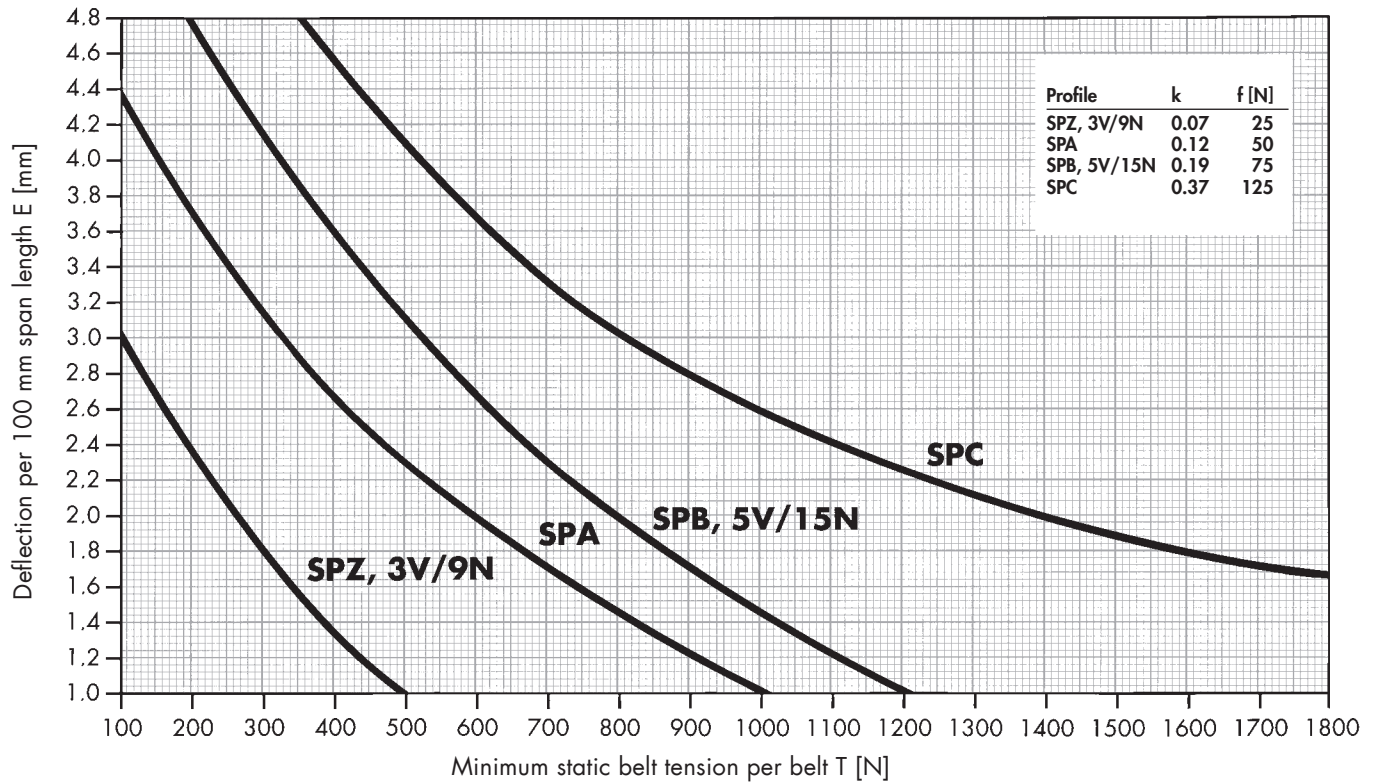
At the rated loading, the slip should not exceed 1 %. The belt service life is considerably shortened due to incorrectly low tension or overloading with a slip of over 2 %.

# DESIGN SUPPORT

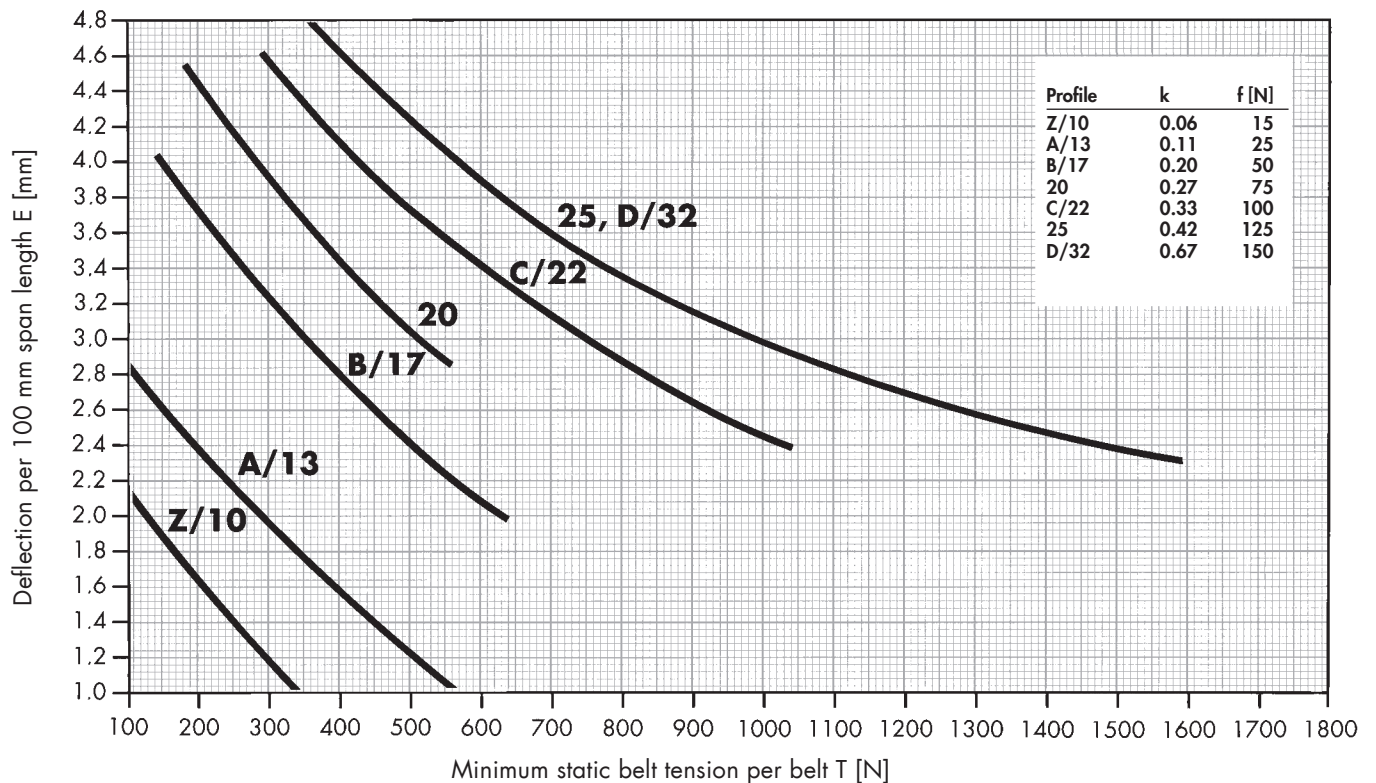
## BELT TENSION FOR OPTIBELT V-BELTS



**Diagram 8: Belt tension characteristics for optibelt SK high performance wedge belts DIN 7753 Part 1**



**Diagram 9: Belt tension characteristics for optibelt VB classic V-belts DIN 2215**

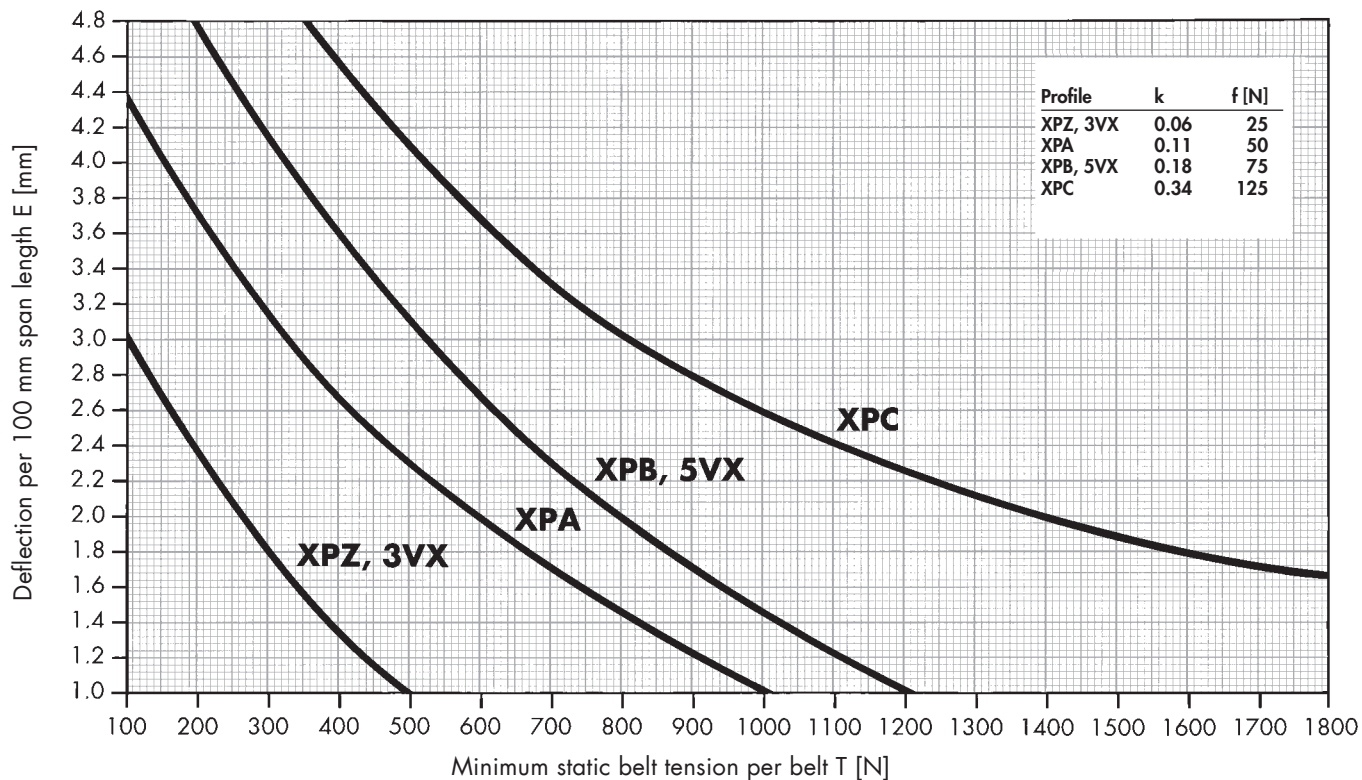


# DESIGN SUPPORT

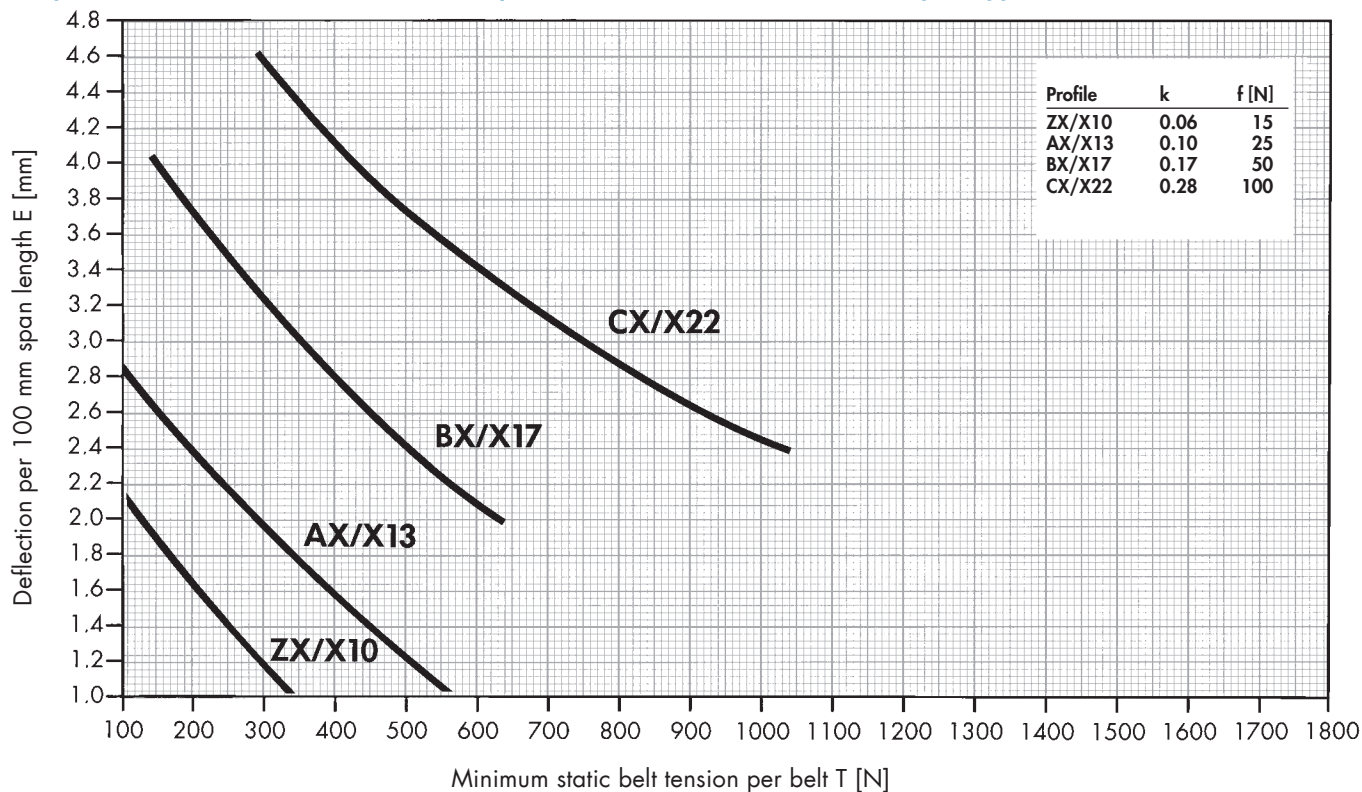
## BELT TENSION FOR OPTIBELT V-BELTS



**Diagram 10: Belt tension characteristics for optibelt X-POWER M=S wedge belts – raw edge, cogged**



**Diagram 11: Belt tension characteristics for optibelt SUPER TX M=S V-belts – raw edge, cogged**



# DESIGN SUPPORT

## BELT TENSION FOR OPTIBELT V-BELTS AND optibelt **KB** KRAFTBANDS



### III. Belt tensioning via "length addition value" method

It has become evident that span deflection methods are not ideal for checking the tension of kraftbands of all profiles. and of individual belts. The following, very simple method for the setting and checking of belt tension is therefore recommended:

Example:

$$P_B = 1136 \text{ kW}$$

$$c_1 = 0.97$$

$$v = 25.91 \text{ m/s}$$

Drive arrangement with one set comprising:

2 optibelt KB kraftbands 4-8V 3750/25J 9525 L<sub>0</sub>

2 optibelt KB kraftbands 5-8V 3750/25J 9525 L<sub>0</sub>

1. Calculation of the static belt tension "T":

$$T \approx \frac{500 \cdot (2.04 - c_1) \cdot P_B}{c_1 \cdot z \cdot v} + k \cdot v^2$$

$$T \approx \frac{500 \cdot (2.04 - 0.97) \cdot 1136}{0.97 \cdot 18 \cdot 25.91} + 0.69 \cdot 25.91^2 = 1807 \text{ N}$$

2. Measure the setting length "M" of the kraftband or the single belt, on the top surface of the kraftband or on the belt top surface when not tensioned. However the belt can be measured when fitted to the drive, provided that it is completely **without** tension.

3. Procedure

- a) Install the kraftband or the single belt on the pulleys. Provisionally tighten the belt in order to seat it into the pulley grooves.
- b) Next, completely slacken the kraftband or the single belt.
- c) Mark two lines on the top of the belt, with distance "M". The lines must be marked on the free span length, not where the belt is on the pulley ("M" should ideally be 1000 mm minimum or a multiple of it).

**Important:** The longer the measured profile, the more accurate the tension setting will be.

4. Calculate the length additional value "A" using the formula:

$$A = \frac{M \cdot R}{1000}$$

R = stretch factor from table 84 page 147

"M" selected 4000 mm

$$A = \frac{4000 \cdot 5.5}{1000} = 22.0 \text{ mm}$$

5. Tighten the kraftband or the single belt until the length calculated under point 4 is reached. The drive is now correctly tensioned.

Tighten the kraftband until the length additional value is reached. This will set the correct tension.

6. If the drive has to be re-tensioned, the belts have to be slackened first so that they can be re-measured completely free of tension. After that, the procedure described in paragraphs 3 to 5 applies.

**At initial installation, the static belt tension must be multiplied by 1.3.**

# DESIGN SUPPORT

## BELT TENSION FOR OPTIBELT V-BELTS AND optibelt **KB** KRAFTBANDS



Table 84: Length addition per 1000 mm belt length

| Profile                                               | Kraftband   | 3V/9J | 5V/15J | 8V/25J | SPZ  | SPA  | SPB  | SPC  | A/HA | B/HB | C/HC | D/HD |
|-------------------------------------------------------|-------------|-------|--------|--------|------|------|------|------|------|------|------|------|
|                                                       | Single belt | 3V/9N | 5V/15N | 8V/25N | SPZ  | SPA  | SPB  | SPC  | A/13 | B/17 | C/22 | D/32 |
| Minimum static belt tension per rib/single belt T [N] |             | [mm]  | [mm]   | [mm]   | [mm] | [mm] | [mm] | [mm] | [mm] | [mm] | [mm] | [mm] |
| 50                                                    |             | 0.8   |        |        | 0.8  | 0.8  |      |      | 0.8  |      |      |      |
| 75                                                    |             | 1.2   |        |        | 1.2  | 1.0  |      |      | 1.0  |      |      |      |
| 100                                                   |             | 1.6   |        |        | 1.6  | 1.3  |      |      | 1.3  |      |      |      |
| 125                                                   |             | 2.1   |        |        | 2.1  | 1.6  |      |      | 1.6  |      |      |      |
| 150                                                   |             | 2.6   |        |        | 2.6  | 1.9  |      |      | 1.9  | 0.8  |      |      |
| 175                                                   |             | 3.0   |        |        | 3.0  | 2.2  |      |      | 2.2  | 0.9  |      |      |
| 200                                                   |             | 3.5   |        |        | 3.5  | 2.5  |      |      | 2.5  | 1.1  |      |      |
| 225                                                   |             | 4.0   |        |        | 4.0  | 2.8  |      |      | 2.8  | 1.2  |      |      |
| 250                                                   |             | 4.5   |        |        | 4.5  | 3.0  |      |      | 3.0  | 1.4  |      |      |
| 275                                                   |             | 4.9   |        |        | 4.9  | 3.3  |      |      | 3.3  | 1.5  |      |      |
| 300                                                   |             | 5.3   | 1.3    |        | 5.3  | 3.6  | 1.3  |      | 3.6  | 1.6  | 1.6  |      |
| 350                                                   |             | 6.4   | 1.7    |        | 6.4  | 4.2  | 1.7  |      | 4.2  | 1.8  | 1.8  |      |
| 400                                                   |             | 7.6   | 2.0    |        | 7.6  | 4.7  | 2.0  |      | 4.7  | 2.0  | 2.1  |      |
| 450                                                   |             | 8.7   | 2.4    |        | 8.7  | 5.3  | 2.4  |      | 5.3  | 2.2  | 2.3  |      |
| 500                                                   |             | 10.0  | 2.7    |        | 10.0 | 5.8  | 2.7  |      | 5.8  | 2.5  | 2.5  |      |
| 550                                                   |             |       | 3.1    |        |      |      | 3.1  |      |      | 2.7  | 2.7  |      |
| 600                                                   |             |       | 3.4    |        |      |      | 3.4  | 2.0  |      | 3.0  | 2.9  | 2.0  |
| 650                                                   |             |       | 3.8    |        |      |      | 3.8  | 2.2  |      | 3.2  | 3.1  | 2.2  |
| 700                                                   |             |       | 4.1    |        |      |      | 4.1  | 2.4  |      | 3.5  | 3.4  | 2.4  |
| 800                                                   |             |       | 4.8    |        |      |      | 4.8  | 2.8  |      | 4.2  | 3.8  | 2.7  |
| 900                                                   |             |       | 5.5    |        |      |      | 5.5  | 3.3  |      | 4.8  | 4.2  | 2.9  |
| 1000                                                  |             |       | 6.2    |        |      |      | 6.2  | 3.7  |      | 5.3  | 4.7  | 3.3  |
| 1100                                                  |             |       | 6.9    |        |      |      | 6.9  | 4.1  |      |      | 5.1  | 3.6  |
| 1200                                                  |             |       | 7.6    | 2.9    |      |      | 7.6  | 4.5  |      |      | 5.5  | 3.9  |
| 1300                                                  |             |       | 8.3    | 3.3    |      |      | 8.3  | 5.0  |      |      |      | 4.2  |
| 1400                                                  |             |       | 9.0    | 3.7    |      |      | 9.0  | 5.4  |      |      |      | 4.5  |
| 1500                                                  |             |       | 9.7    | 4.1    |      |      | 9.7  | 5.8  |      |      |      | 4.8  |
| 1600                                                  |             |       | 10.4   | 4.6    |      |      | 10.4 | 6.3  |      |      |      | 5.1  |
| 1700                                                  |             |       | 11.1   | 5.0    |      |      | 11.1 | 6.8  |      |      |      | 5.5  |
| 1800                                                  |             |       | 11.8   | 5.5    |      |      | 11.8 | 7.3  |      |      |      | 5.8  |
| 1900                                                  |             |       |        | 6.0    |      |      |      | 7.8  |      |      |      |      |
| 2000                                                  |             |       |        | 6.5    |      |      |      | 8.3  |      |      |      |      |
| 2100                                                  |             |       |        | 7.0    |      |      |      | 8.8  |      |      |      |      |
| 2200                                                  |             |       |        | 7.5    |      |      |      | 9.3  |      |      |      |      |
| 2300                                                  |             |       |        | 8.0    |      |      |      | 9.8  |      |      |      |      |
| 2400                                                  |             |       |        | 8.6    |      |      |      |      |      |      |      |      |
| 2500                                                  |             |       |        | 9.6    |      |      |      |      |      |      |      |      |
| 2600                                                  |             |       |        | 10.6   |      |      |      |      |      |      |      |      |
| 2700                                                  |             |       |        | 11.7   |      |      |      |      |      |      |      |      |
| 2800                                                  |             |       |        | 12.8   |      |      |      |      |      |      |      |      |
| 2900                                                  |             |       |        | 13.5   |      |      |      |      |      |      |      |      |
| 3000                                                  |             |       |        | 14.2   |      |      |      |      |      |      |      |      |
| 3100                                                  |             |       |        | 14.9   |      |      |      |      |      |      |      |      |
| 3200                                                  |             |       |        | 15.6   |      |      |      |      |      |      |      |      |
| 3300                                                  |             |       |        | 16.3   |      |      |      |      |      |      |      |      |
| Factor k for kraftbands                               |             | 0.12  | 0.25   | 0.69   | 0.12 | 0.16 | 0.25 | 0.55 | 0.16 | 0.27 | 0.45 | 0.85 |
| Factor k for single belts                             |             | 0.07  | 0.19   | 0.57   | 0.07 | 0.12 | 0.19 | 0.37 | 0.11 | 0.20 | 0.33 | 0.67 |

Intermediate values may be determined by linear interpolation.  
The values only apply to drives with V-grooved pulleys.  
Values for V-flat drives on request.

# DESIGN SUPPORT

## CALCULATING THE AXIAL LOAD/SHAFT LOAD UNDER DYNAMIC CONDITIONS



Using drives that have electric motors as drive machines and are/or will be designed according to DIN 2211 Part 3, ensures that the dynamic stress that occurs can be absorbed by the appropriate shafts and bearings of the motor.

However drives with

- electric motors out with the DIN standards for the determined dependencies of pulley diameter and power.
- combustion engines.
- turbines as well as
- heavy duty drives such as stone crushers, calenders or heavily loaded mills

**have been found to require determination of the dynamic bearing load**, i.e. the loads that occur for shafts and bearings on the input or output drive units.

Precise calculation of the "Dynamic axial load" prevents unnecessary costs due to

- premature failure of the bearing.
- breaking of the shaft.
- over dimensioned bearings and shafts.

In the case of 2-pulley drives, the driver and driven shafts and the bearings are subjected to the same dynamic axial force, but in opposite directions. When idlers are employed, the magnitude and the direction of the axial force are almost always different on each pulley. If the magnitude and direction of the dynamic axial force is to be determined, a graphical solution, using a vector diagram for the dynamic forces in the tight side  $S_1$  and the slack side  $S_2$ , is recommended.

If only the magnitude of the dynamic axial force has to be determined, this can be achieved using the formula for " $S_{a \text{ dyn}}$ ". Both procedures will be illustrated in the following example.

Data from the calculation examples given on pages 83 to 85  
 $P_B = 171.6 \text{ kW}$   $c_1 = 1.00$   
 $v = 21.76 \text{ m/s}$   $\beta = 170^\circ$

### Dynamic tension on the tight side during belt operation

$$S_1 \approx \frac{1020 \cdot P_B}{c_1 \cdot v}$$

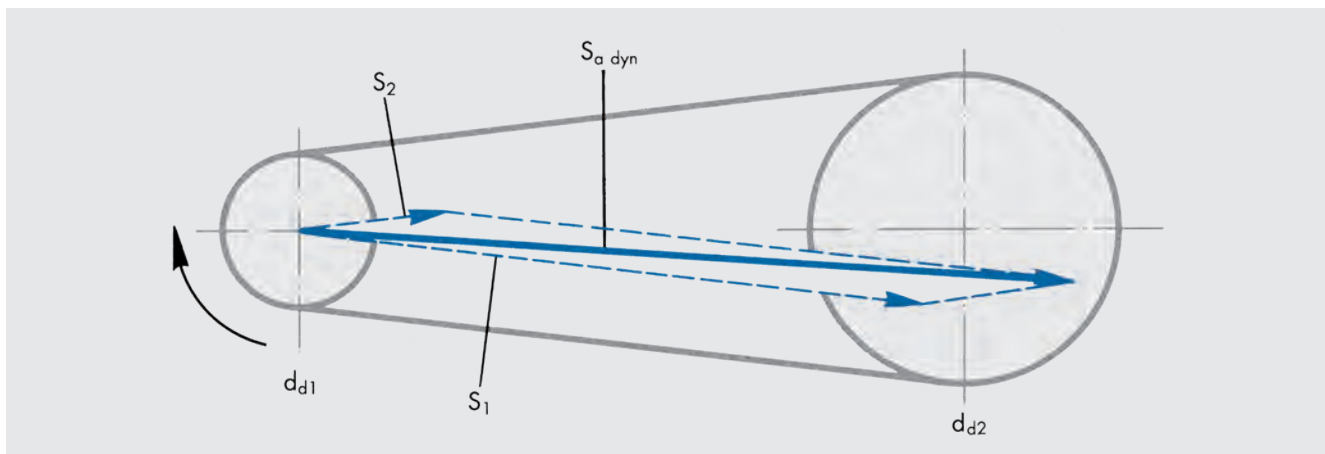
$$S_1 \approx \frac{1020 \cdot 171.6}{1.0 \cdot 21.76} \approx \mathbf{8044 \text{ N}}$$

### Dynamic tension on the slack side during belt operation

$$S_2 \approx \frac{1000 \cdot (1.02 - c_1) \cdot P_B}{c_1 \cdot v}$$

$$S_2 \approx \frac{1000 \cdot (1.02 - 1.0) \cdot 171.6}{1.0 \cdot 21.76} \approx \mathbf{158 \text{ N}}$$

## A) Graphical solution



## B) Solution using the formula $S_{a \text{ dyn}}$

### Axial load under dynamic conditions

$$S_{a \text{ dyn}} \approx \sqrt{S_1^2 + S_2^2 - 2 \cdot S_1 \cdot S_2 \cdot \cos \beta}$$

$$S_{a \text{ dyn}} \approx \sqrt{8044^2 + 158^2 - 2 \cdot 8044 \cdot 158 \cdot 0.9848} \approx \mathbf{8200 \text{ N}}$$

# DESIGN SUPPORT

## TECHNICAL TOOLS

### FREQUENCY METER / TENSION TESTER **optibelt TT**



The optibelt TT frequency tension tester is an appliance that is used to check the tension of drive belts by means of measuring frequency. Thanks to a compact design, this product offers universal application possibilities in machine construction, in the automotive industry and many other technical applications. The optibelt TT can even be effortlessly used in difficult-to-reach places so that the tension values of V-belts, ribbed belts and timing belts can be easily and quickly checked.

After start up, the device is immediately ready for obtaining data. The measuring head is held over the belt to be tested (two red LED light points help to position it). The belt is made to vibrate by striking it with a finger or an object. The optibelt TT begins recording data and displays the result in Hertz [Hz]. The condition, colour and type of the belt have no effect upon the measurement. The sample calculation below uses the data from the CAP calculation on page 86.

#### Calculation of frequency

$$f = \sqrt{\frac{T \cdot 10^6}{4 \cdot k \cdot L^2}}$$

$$f = \sqrt{\frac{1484 \text{ N} \cdot 10^6}{4 \cdot 0.377 \frac{\text{kg}}{\text{m}} \cdot 2189.3^2 \text{ mm}^2}} = 14.33 \text{ Hz} \approx 14.3 \text{ Hz}$$

#### Calculation of static belt tension

$$T = 4 \cdot 10^{-6} \cdot k \cdot L^2 \cdot f^2$$

$$T = 4 \cdot 10^{-6} \cdot 0.377 \frac{\text{kg}}{\text{m}} \cdot 2189.3^2 \text{ mm}^2 \cdot 14.33^2 \text{ Hz}^2 = 1484.24 \text{ N} \approx 1484 \text{ N}$$

$T \triangleq$  belt tension [N]  
 $k \triangleq$  meter weight [kg/m]  
 $L \triangleq$  span length [mm]  
 $f \triangleq$  frequency [Hz]

#### Advantages of optibelt TT

- Two trouble-free measuring methods:  
EM: electro magnetic wave  
AC: acceleration, integrated
- Usable also for long centre distances by all-time wide frequency range:  
AC: 1 - 10 Hz  
EM: 6 - 600 Hz
- Easy handling of the measuring head: two red LED points on the belt help to find the correct position
- For hard accessible belt span: measuring head on flexible goose-neck (EM) or with 250 mm cable (AC)
- Safe meter-reading by big display: width 43 mm and height 58 mm, illuminated and colored
- Long running time and environment-friendly by high capacity, rechargeable battery (USB) and changeability
- Chargeable via USB
- No interference in loud and bright environments
- Automatic switch-off function

#### The optibelt TT:

A guarantee for longer durability of your V-belts, ribbed belts, and timing belts!

## DESIGN SUPPORT

### TECHNICAL TOOLS

#### FREQUENCY METER / TENSION TESTER **optibelt TT LINE**



##### Advantages of optibelt TT DATA

- Comfortable input and selection of belt drive data on touch screen; show own company logo on start display
- Use own belt drive data and general belt set values from optibelt TT database and span length calculation
- Simultaneous display: set, measuring values; simple decision to okay / not okay: select and register tolerances
- Save measurement results and new belt drive data in optibelt TT DATA: Micro SD slot including Micro SD card
- PC synchronisation for database administration with optibelt TT DATA software: USB cable, Micro SD card; optibelt TT DATA update
- Use data from CAP 7.0 in optibelt TT DATA: Send belt drive identification and set values to TT DATA software

##### Advantages of optibelt TT RFID

- Integrated optibelt TT RFID Reader loads belt drive data directly from the machine: RFID LABEL with data set
- RFID database administration on optibelt TT RFID or. more comfortable on PC: optibelt TT DATA/RFID software
- RFID LABEL data in- and output with optibelt TT RFID or with PC: optional USB RFID Reader Dongle
- RFID LABEL with free print area for address data of machine and user; adhesive backside, on paper rolls
- Print and data input of RFID LABEL with RFID printer: Data e-mailing, RFID LABEL by post
- Easy mounting of RFID LABEL on the machine: 6 mm thick. adhesive and screwable RFID PLATE

# Follow soon!

# DESIGN SUPPORT

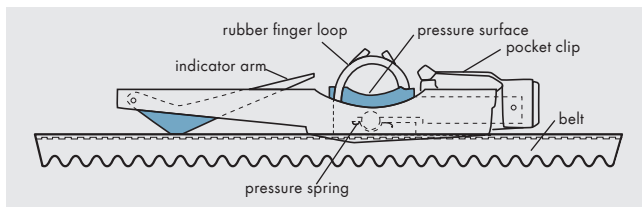
## TECHNICAL TOOLS

### optibelt OPTIKRIK TENSION GAUGES



#### This gauge offers a simple method of belt tensioning.

It helps e.g. mechanics during the maintenance of belt drives when technical data is not known and the optimum tension therefore cannot be calculated. This method requires only knowledge of the diameter of the small pulley and the belt profile. The Optibelt tension gauge is used to directly read the belt tension. By reducing or increasing the belt tension the desired value is achieved. For different tensioning values, optibelt OPTIKRIK 0, I, II, III with corresponding measurement ranges are available.



#### Instructions for use

1. The gauge is placed in the middle between the two pulleys on the back of the belt, in the case of sets of belts ideally on the belt in the middle. (Before doing so, please press the indicator completely into the gauge body.)
2. Place the gauge loosely on the belt to be measured and slowly press a finger onto the pressure surface.
3. Try not to touch the gauge with more than one finger during the measuring process.
4. When you feel or hear a definite "click", immediately release the pressure, the indicator arm stays in the measured position.
5. Carefully lift the gauge without moving the indicator arm. Read the belt tension (see fig.). Read the measurement at the exact point where the top of the indicator arm crosses the scale.
6. Reduce or increase the belt tension according to the measurement result until it is within the desired tension level

# DESIGN SUPPORT

## BELT TENSION FOR WRAPPED OPTIBELT V-BELTS



| Profile                | Diameter of the small pulley<br>[mm] | Static belt tension [N]          |                                       |                      |                            |                                               |                                  |                            |
|------------------------|--------------------------------------|----------------------------------|---------------------------------------|----------------------|----------------------------|-----------------------------------------------|----------------------------------|----------------------------|
|                        |                                      | optibelt RED POWER 3             |                                       | Standard (wrapped)   |                            | optibelt BLUE POWER                           |                                  |                            |
|                        |                                      | Initial installation new V-belts | Initial installation existing V-belts | Initial installation | Operation after running in | Diameter of the small pulley                  | Initial installation new V-belts | Operation after running in |
| <b>SPZ;<br/>3V/9N</b>  | ≤ 71                                 | 250                              | 200                                   | 200                  | 150                        | —                                             | —                                | —                          |
|                        | > 71 ≤ 90                            | 300                              | 250                                   | 250                  | 200                        |                                               |                                  |                            |
|                        | > 90 ≤ 125                           | 400                              | 300                                   | 350                  | 250                        |                                               |                                  |                            |
|                        | > 125*                               |                                  |                                       |                      |                            |                                               |                                  |                            |
| <b>SPA</b>             | ≤ 100                                | 400                              | 300                                   | 350                  | 250                        | —                                             | —                                | —                          |
|                        | > 100 ≤ 140                          | 500                              | 400                                   | 400                  | 300                        |                                               |                                  |                            |
|                        | > 140 ≤ 200                          | 600                              | 450                                   | 500                  | 400                        |                                               |                                  |                            |
|                        | > 200*                               |                                  |                                       |                      |                            |                                               |                                  |                            |
| <b>SPB;<br/>5V/15N</b> | ≤ 160                                | 700                              | 550                                   | 650                  | 500                        | ≤ 180<br>> 180 ≤ 236<br>> 236 ≤ 400<br>> 400* | 780<br>1100<br>1500              | 600<br>850<br>1100         |
|                        | > 160 ≤ 224                          | 850                              | 650                                   | 700                  | 550                        |                                               |                                  |                            |
|                        | > 224 ≤ 355                          | 1000                             | 800                                   | 900                  | 700                        |                                               |                                  |                            |
|                        | > 355*                               |                                  |                                       |                      |                            |                                               |                                  |                            |
| <b>SPC</b>             | ≤ 355                                | 1400                             | 1100                                  | 1000                 | 800                        | ≤ 280<br>> 280 ≤ 375<br>> 375 ≤ 700<br>> 700* | 1600<br>2500<br>3100             | 1200<br>1900<br>2400       |
|                        | > 355 ≤ 560                          | 1600                             | 1200                                  | 1400                 | 1100                       |                                               |                                  |                            |
|                        | > 560*                               | 1900                             | 1500                                  | 1800                 | 1400                       |                                               |                                  |                            |
|                        |                                      |                                  |                                       |                      |                            |                                               |                                  |                            |
| <b>Z/10</b>            | > 50 ≤ 71                            | —                                | —                                     | 120                  | 90                         | —                                             | —                                | —                          |
|                        | > 71 ≤ 100                           |                                  |                                       | 140                  | 110                        |                                               |                                  |                            |
|                        | > 100*                               |                                  |                                       |                      |                            |                                               |                                  |                            |
|                        |                                      |                                  |                                       |                      |                            |                                               |                                  |                            |
| <b>A/13</b>            | ≤ 80                                 | —                                | —                                     | 150                  | 110                        | —                                             | —                                | —                          |
|                        | > 80 ≤ 100                           |                                  |                                       | 200                  | 150                        |                                               |                                  |                            |
|                        | > 100 ≤ 132                          |                                  |                                       | 300                  | 250                        |                                               |                                  |                            |
|                        | > 132*                               |                                  |                                       |                      |                            |                                               |                                  |                            |
| <b>B/17</b>            | ≤ 125                                | —                                | —                                     | 300                  | 250                        | —                                             | —                                | —                          |
|                        | > 125 ≤ 160                          |                                  |                                       | 400                  | 300                        |                                               |                                  |                            |
|                        | > 160 ≤ 200                          |                                  |                                       | 500                  | 400                        |                                               |                                  |                            |
|                        | > 200*                               |                                  |                                       |                      |                            |                                               |                                  |                            |
| <b>C/22</b>            | ≤ 200                                | —                                | —                                     | 700                  | 500                        | —                                             | —                                | —                          |
|                        | > 200 ≤ 250                          |                                  |                                       | 800                  | 600                        |                                               |                                  |                            |
|                        | > 250 ≤ 355                          |                                  |                                       | 900                  | 700                        |                                               |                                  |                            |
|                        | > 355*                               |                                  |                                       |                      |                            |                                               |                                  |                            |
| <b>D/32</b>            | ≤ 355                                | —                                | —                                     | 1000                 | 750                        | —                                             | —                                | —                          |
|                        | > 355*                               |                                  |                                       | 1200                 | 900                        |                                               |                                  |                            |

**8V**

Check of belt tension via length addition value

\* Tension values for these pulleys must be calculated.

### Tension gauges:

optibelt OPTIKRIK 0 Measuring range: 70 - 150 N  
 optibelt OPTIKRIK I Measuring range: 150 - 600 N  
 optibelt OPTIKRIK II Measuring range: 500 - 1400 N  
 optibelt OPTIKRIK III Measuring range: 1300 - 3100 N

The tension values (static belt tension) are reference values, if no exact drive data is available. These values are given for maximum power transmission (per belt).

### Calculation basis

Wedge belts speed  $v = 5$  to  $42$  m/s  
 Classic V-belts speed  $v = 5$  to  $30$  m/s

# DESIGN SUPPORT

## BELT TENSION FOR RAW EDGE OPTIBELT V-BELTS



| Profile              | Diameter of the small pulley<br><br>[mm] | Static belt tension [N]                             |                            |                                 |                            |
|----------------------|------------------------------------------|-----------------------------------------------------|----------------------------|---------------------------------|----------------------------|
|                      |                                          | optibelt SUPER X-POWER M=S<br>optibelt SUPER TX M=S |                            | optibelt SUPER XE-POWER PRO M=S |                            |
|                      |                                          | Initial installation                                | Operation after running in | Initial installation            | Operation after running in |
| <b>XPZ; 3VX/9NX</b>  | ≤ 71                                     | 250                                                 | 200                        | 300                             | 250                        |
|                      | > 71 ≤ 90                                | 300                                                 | 250                        | 350                             | 300                        |
|                      | > 90 ≤ 125                               | 400                                                 | 300                        | 500                             | 400                        |
|                      | > 125*                                   |                                                     |                            |                                 |                            |
| <b>XPA</b>           | ≤ 100                                    | 400                                                 | 300                        | 500                             | 400                        |
|                      | > 100 ≤ 140                              | 500                                                 | 400                        | 600                             | 500                        |
|                      | > 140 ≤ 200                              | 600                                                 | 450                        | 700                             | 550                        |
|                      | > 200*                                   |                                                     |                            |                                 |                            |
| <b>XPB; 5VX/15NX</b> | ≤ 160                                    | 700                                                 | 550                        | 850                             | 650                        |
|                      | > 160 ≤ 224                              | 850                                                 | 650                        | 1000                            | 800                        |
|                      | > 224 ≤ 355                              | 1000                                                | 800                        | 1200                            | 950                        |
|                      | > 355*                                   |                                                     |                            |                                 |                            |
| <b>XPC</b>           | ≤ 250                                    | 1400                                                | 1100                       | 1700                            | 1300                       |
|                      | > 250 ≤ 355                              | 1600                                                | 1200                       | 1900                            | 1500                       |
|                      | > 355 ≤ 560                              | 1900                                                | 1500                       | 2300                            | 1800                       |
|                      | > 560*                                   |                                                     |                            |                                 |                            |
| <b>ZX/X10</b>        | ≤ 50                                     | 120                                                 | 90                         |                                 |                            |
|                      | > 50 ≤ 71                                | 140                                                 | 110                        |                                 |                            |
|                      | > 71 ≤ 100                               | 160                                                 | 130                        |                                 |                            |
|                      | > 100*                                   |                                                     |                            |                                 |                            |
| <b>AX/X13</b>        | ≤ 80                                     | 200                                                 | 150                        |                                 |                            |
|                      | > 80 ≤ 100                               | 250                                                 | 200                        |                                 |                            |
|                      | > 100 ≤ 132                              | 400                                                 | 300                        |                                 |                            |
|                      | > 132*                                   |                                                     |                            |                                 |                            |
| <b>BX/X17</b>        | ≤ 125                                    | 450                                                 | 350                        |                                 |                            |
|                      | > 125 ≤ 160                              | 500                                                 | 400                        |                                 |                            |
|                      | > 160 ≤ 200                              | 600                                                 | 450                        |                                 |                            |
|                      | > 200*                                   |                                                     |                            |                                 |                            |
| <b>CX/X22</b>        | ≤ 200                                    | 800                                                 | 600                        |                                 |                            |
|                      | > 200 ≤ 250                              | 900                                                 | 700                        |                                 |                            |
|                      | > 250 ≤ 355                              | 1000                                                | 800                        |                                 |                            |
|                      | > 355*                                   |                                                     |                            |                                 |                            |
| <b>DX/X32</b>        | ≤ 355                                    | 1000                                                | 750                        |                                 |                            |
|                      | > 355*                                   | 1200                                                | 900                        |                                 |                            |

\* Tension values for these pulleys must be calculated.

### Tension gauges:

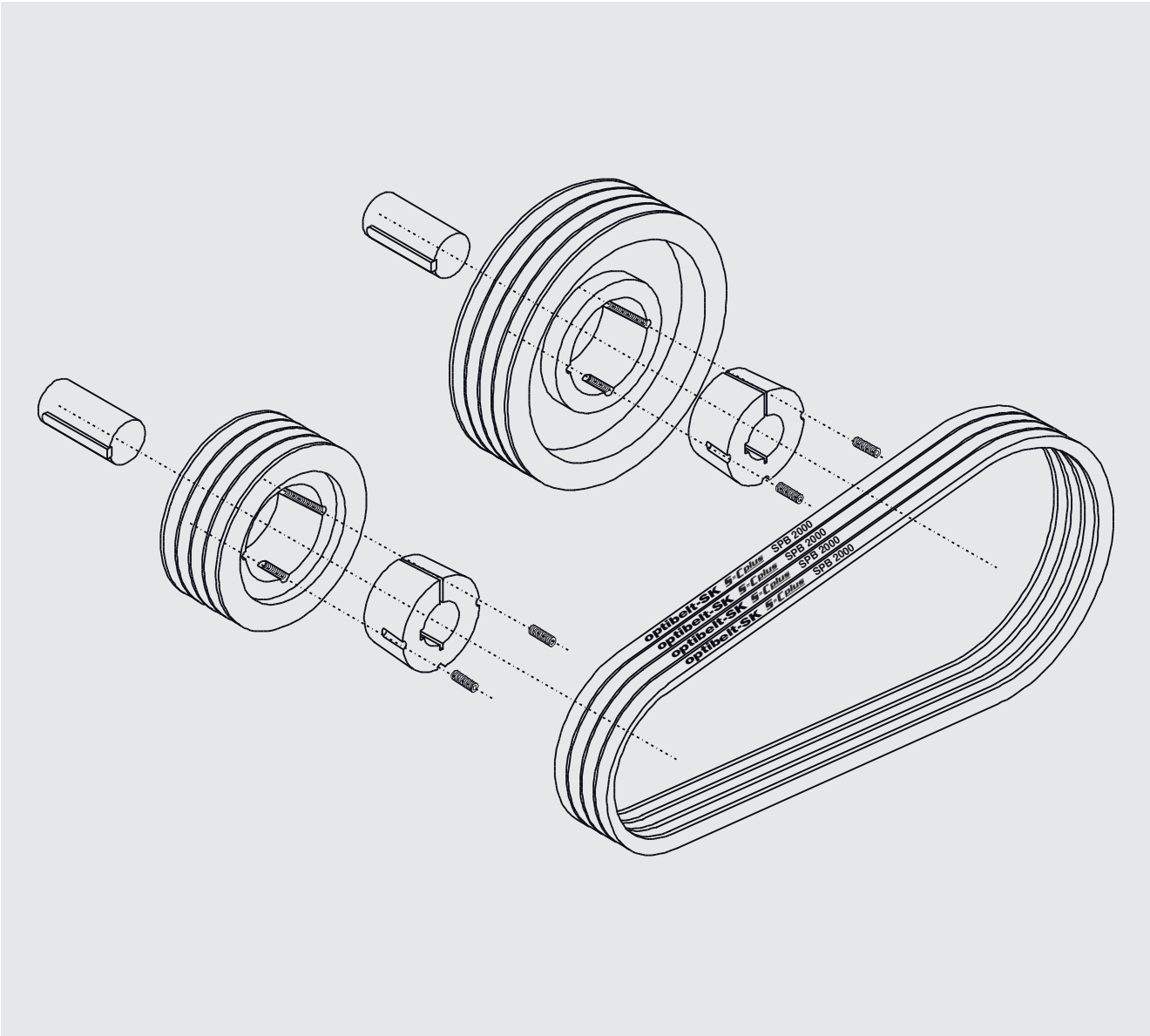
optibelt OPTIKRIK 0 Measuring range: 70 - 150 N  
 optibelt OPTIKRIK I Measuring range: 150 - 600 N  
 optibelt OPTIKRIK II Measuring range: 500 - 1400 N  
 optibelt OPTIKRIK III Measuring range: 1300 - 3100 N

The tension values (static belt tension) are reference values, if no exact drive data is available. These values are given for maximum power transmission (per belt).

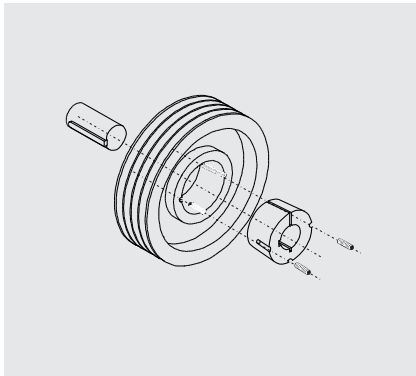
### Calculation basis

Wedge belts speed  $v = 5$  to  $42$  m/s  
 Classic V-belts speed  $v = 5$  to  $30$  m/s





**Safety:** Before starting any maintenance work, it is extremely important that any machine components are in a safe position which cannot be changed during maintenance work. In addition, safety recommendations of the manufacturer are to be strictly observed.



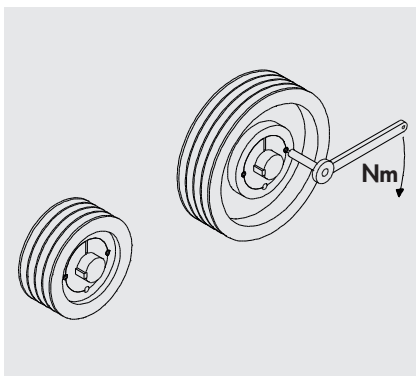
### optibelt KS V-GROOVED PULLEY WITH TAPER BUSH

The V-grooved pulleys are to be checked for damage and correct dimensions before installation.

#### Installation

1. All shiny surfaces like bore and tapered surface of the pulley have to be cleaned and degreased. Insert taper bush in hub and align all connecting bores. Half tapped holes have to face half plain bores.
2. Stud screws (TB 1008-3030) and/or cap head screws (TB 3525-5050) should be slightly greased and screwed in. Do not yet tighten the screws.

3. Clean and degrease the shaft. Push pulley with taper bush to the desired position on the shaft. See alignment of the V-grooved pulley.
4. When using a key, it has to be inserted in the hub of the shaft first. Between key and bore hub there needs to be a certain tolerance.
5. With a socket wrench according to DIN 911 stud screws and/or cap head screws have to be tightened equally using the tightening torque stated in the table.
6. After a short operating time (0.5 to 1 hour) check tightening torque of the screws and correct if necessary.
7. In order to prevent the entering of foreign substances, fill empty connection bores with grease.



### TAPER BUSHES. SCREW TIGHTENING TORQUE

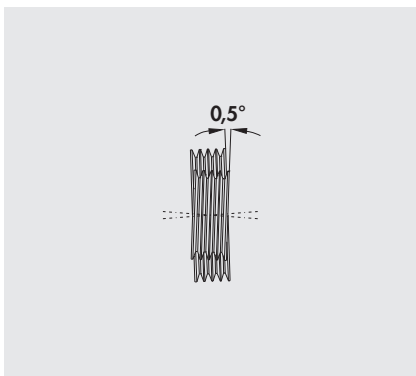
| Dimension                       | Wrench size | Number of screws | Tightening torque [Nm] |
|---------------------------------|-------------|------------------|------------------------|
| TB 1008, 1108                   | 3           | 2                | 5.7                    |
| TB 1210, 1215, 1310, 1610, 1615 | 5           | 2                | 20.0                   |
| TB 2012                         | 6           | 2                | 31.0                   |
| TB 2517                         | 6           | 2                | 49.0                   |
| TB 3020, 3030                   | 8           | 2                | 92.0                   |
| TB 3525, 3535                   | 10          | 3                | 115.0                  |
| TB 4040                         | 12          | 3                | 172.0                  |
| TB 4545                         | 14          | 3                | 195.0                  |
| TB 5050                         | 14          | 3                | 275.0                  |

### HORIZONTAL ALIGNMENT OF SHAFTS

Motor and drive shafts are to be aligned using a spirit level, if necessary.

#### Note!

Maximum shaft deviation 0.5°

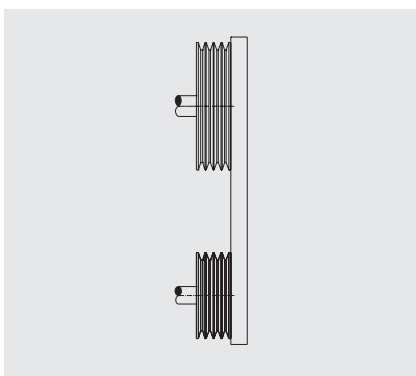


### VERTICAL ALIGNMENT OF THE V-GROOVED PULLEYS

The alignment of the V-grooved pulleys is checked before and after tightening the taper bushes with an alignment rail.

#### Note!

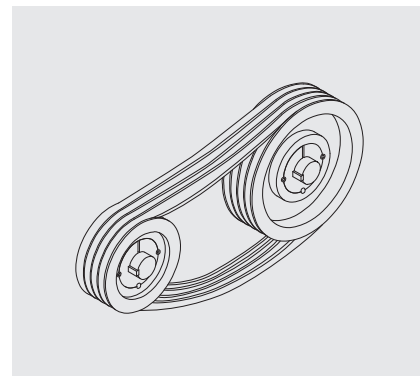
Check whether the face widths of the V-grooved pulleys have the same sizes. A possible deviation of the face width has to be taken into account. With a symmetrical face set-up, the distance of the parallel, to the smaller face is half the deviation.



### INITIAL INSTALLATION

Always install the V-belts without force. Installations using screw drivers, crowbars etc, cause external and internal damage to the belt. V-belts installed under force might only run for several days. A proper installation of the belt saves time and money.

If the installation space is too small, the V-grooved pulleys with belts should be slid onto the shafts.

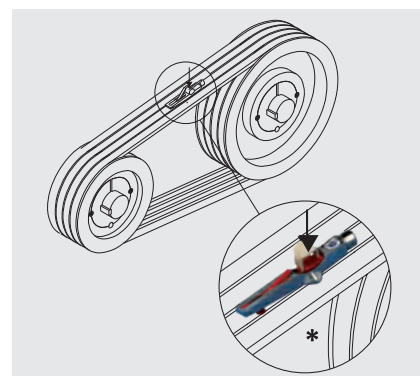


### BELT TENSION

Use belt tensioning values according to Optibelt recommendations. Set the belt tension with parallel motor and machine shafts. Operate the belt for some rotations and check the belt tension again. In our experience, belt tension should be checked again after an operating time of about 0.5 to 4 hours and then be corrected, if necessary.

For further information about belt tensioning see page 151-153.

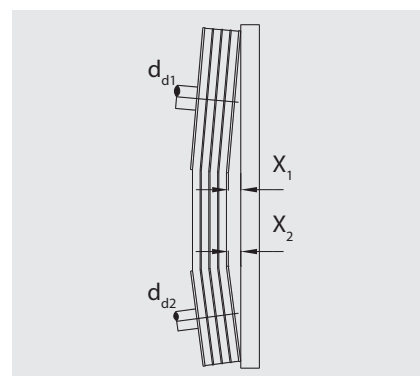
\* **optibelt OPTIKRIK**



### ALLOWED SHAFT DEVIATION

After applying the initial installation tension, the distances  $X_1$ ,  $X_2$  between the two pulleys  $d_{d1}$ ,  $d_{d2}$  and the alignment rail on axis level should be measured. alternatively with the optibelt LASER POINTER. The maximum allowed values for the distance  $X$  from the table should not be exceeded, depending on the diameter  $d_d$ . Depending on the pulley diameter, the intermediate values for  $X$  should be interpolated.

| Pulley diameter<br>$d_{d1}$ , $d_{d2}$ | Maximum allowed deviation<br>$X_1$ , $X_2$ |
|----------------------------------------|--------------------------------------------|
| 112 mm                                 | 0.5 mm                                     |
| 224 mm                                 | 1.0 mm                                     |
| 450 mm                                 | 2.0 mm                                     |
| 630 mm                                 | 3.0 mm                                     |
| 900 mm                                 | 4.0 mm                                     |
| 1100 mm                                | 5.0 mm                                     |
| 1400 mm                                | 6.0 mm                                     |
| 1600 mm                                | 7.0 mm                                     |



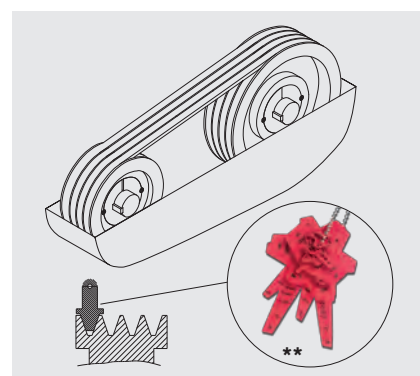
### DRIVE CHECKING

We recommend checking the drive regularly. e.g. after each 3 to 6 months. V-grooved pulleys are to be checked for wear and consistency. Use the Optibelt profile and V-groove gauge tools.

When changing V-grooved pulleys with taper bushes (see fig. on page 158) the following aspects have to be observed:

1. Loosen all screws. Unscrew out one or two screws depending on the bush size. grease them and screw them into the set bores.
2. Tighten the screw or screws equally until the bush releases from the hub and the pulley can be moved freely on the shaft.
3. Remove the pulley with the bush from the shaft.

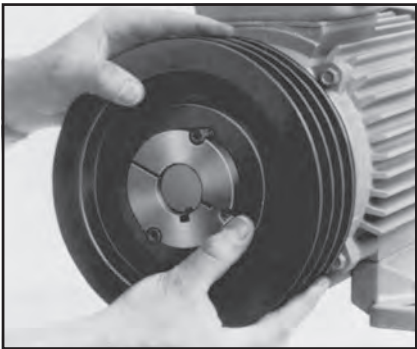
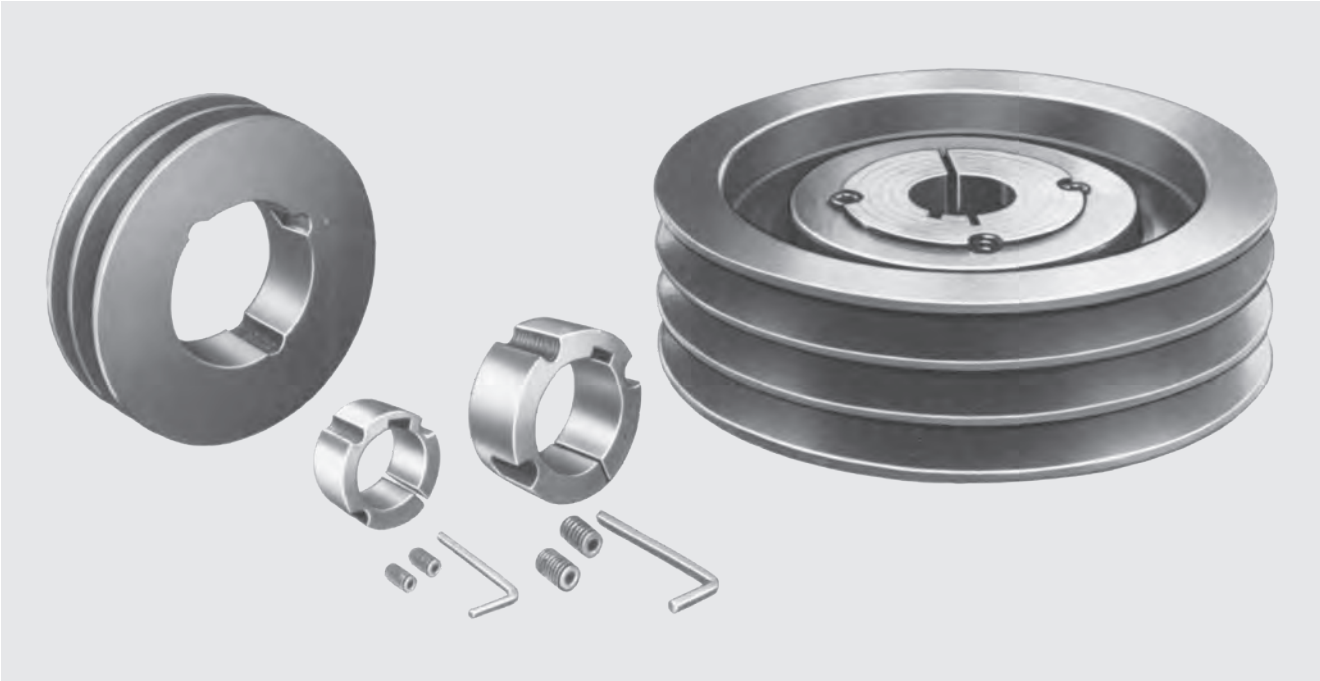
\*\* **Profile and V-groove gauge**



# DESIGN SUPPORT

## INSTALLATION AND MAINTENANCE SUPPORT

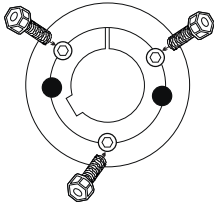
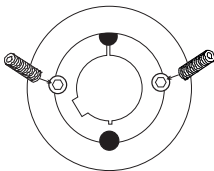
### V-GROOVED PULLEYS WITH TAPER BUSHES



#### Installation

Dimension  
TB 1008-3030

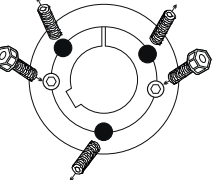
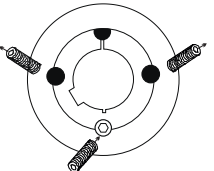
Dimension  
TB 3525-5050



#### Removal

Dimension  
TB 1008-3030

Dimension  
TB 3525-5050





- **Storage length**

Properly stored drive belts retain their quality and properties for a period of up to 6 years if the following conditions are met.

However, when stored under adverse conditions or handled incorrectly, the physical properties of most rubber products will be impaired.

- **Storage area**

The storage area should be dry and dust-free. Drive belts must not be stored together with chemicals, solvents, fuels, lubricants, acids, etc.

- **Temperature**

Drive belts should be stored at temperatures between +15 °C and +25 °C. Lower temperatures usually have no negative effect on the drive belts. However, since belts may become very rigid at low temperatures, they should be warmed to approximately +20 °C before installation and use to avoid breaking and cracking. Radiators and supply pipes must be shielded. Drive belts should be stored at least 1 metre away from heat sources.

- **Light**

Drive belts should be protected from light, especially direct sunlight and strong artificial light with high ultraviolet radiation (ozone formation) such as naked fluorescent tubes. The use of suitable room lighting is advisable.

- **Ozone**

In order to counteract the harmful effects of ozone, storage rooms must not contain any appliances that generate ozone, such as fluorescent lights, mercury vapour lamps or high-voltage electrical equipment. Combustion gases and vapours which could lead to the formation of ozone by photochemical processes, must be avoided or eliminated.

- **Moisture**

Damp storage areas are unsuitable. Care must be taken to ensure that condensation does not develop. The most favourable relative air humidity is below 65 %.

- **Proper storage**

Because stress can promote both permanent deformation and cracking, care must be taken to ensure that drive belts are stored without stress i.e. without tension, compression or any other form of pressure. If V-belts have to be stored horizontally and stacked on top of each other, it is recommended that the stack height does not exceed 300 mm in order to avoid permanent deformation. If, in order to save space, drive belts are hung, the diameter of the cylinder on which the belts rest should be at least ten times the height of the belt profile.

- **Cleaning**

Dirty rubber drive belts can be cleaned using a 1:10 mixture of glycerine and methyl spirits or with brake cleaner. Petrol, benzene, turpentine, or similar should not be used.

In addition, sharp objects, wire brushes, emery paper etc. must be avoided under all circumstances, as these can cause mechanical damage to the belt.

- **Reference to standards**

Further information can be found in DIN 7716.

**optibelt S=C Plus and optibelt M=S belts do not need to be stored in sets as they can be used in sets without measuring.**

# DESIGN SUPPORT

## PROPERTIES



| This table is intended to simplify the selection of the suitable Optibelt drive element according to the specific drive conditions. Detailed information is given in the according chapters of this manual. | Temperature resistance from ... to ... [°C] |                    | Oil resistance  |                | Electrically conductive                 | S=C Plus SetConstant <sup>1)</sup><br>M=S Matched Sets <sup>2)</sup><br>Applies only for single belts | Mining industry approval | Smooth running  | Permanent stretch |                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|--------------------|-----------------|----------------|-----------------------------------------|-------------------------------------------------------------------------------------------------------|--------------------------|-----------------|-------------------|----------------|
|                                                                                                                                                                                                             | Standard design                             | Special design XHR | Standard design | Special design |                                         |                                                                                                       |                          |                 | Standard design   | Special design |
| <b>optibelt SK /<br/>optibelt SK KB<br/>high performance<br/>wedge belts/kraftbands</b>                                                                                                                     | -40<br>+70                                  | -30<br>+90         | good            | excellent      | yes                                     | yes <sup>1)</sup>                                                                                     | yes                      | medium/<br>good | low               | very low       |
| <b>optibelt RED POWER 3 /<br/>optibelt KB RED POWER 3<br/>high performance<br/>wedge belts/kraftbands</b>                                                                                                   | -30<br>+100                                 |                    | good            |                | yes                                     | yes <sup>1)</sup>                                                                                     |                          | good            | very low          |                |
| <b>optibelt BLUE POWER /<br/>optibelt KB BLUE POWER<br/>high performance<br/>wedge belts/kraftbands</b>                                                                                                     | - 30<br>+100                                |                    | good            |                | yes                                     |                                                                                                       |                          | excellent       | very low          |                |
| <b>optibelt<br/>SUPER XE-POWER PRO</b>                                                                                                                                                                      | - 40<br>+120                                |                    | limited         |                | yes                                     | yes <sup>2)</sup>                                                                                     |                          | excellent       | very low          |                |
| <b>optibelt SUPER X-POWER<br/>M=S / optibelt KBX /<br/>optibelt SUPER TX M=S<br/>raw edge, cogged<br/>V-belts</b>                                                                                           | -30<br>+90                                  |                    | good            |                | yes                                     | yes <sup>2)</sup>                                                                                     |                          | good            | very low          |                |
| <b>optibelt MARATHON X</b>                                                                                                                                                                                  | - 40<br>+120                                |                    | limited         |                | yes*                                    | yes*                                                                                                  |                          | excellent       | very low          |                |
| <b>optibelt MARATHON 2<br/>M=S<br/>automotive V-belts</b>                                                                                                                                                   | -30<br>+90                                  |                    | good            |                | yes*                                    | yes <sup>2)</sup>                                                                                     |                          | excellent       | very low          |                |
| <b>optibelt VB<br/>classic V-belts</b>                                                                                                                                                                      | -40<br>+70                                  | -30<br>+90         | limited         | excellent      | yes                                     | yes <sup>1)</sup>                                                                                     | yes                      | medium/<br>good | low               | very low       |
| <b>optibelt DK<br/>double-sided V-belts</b>                                                                                                                                                                 | -35<br>+85                                  |                    | good            |                | yes                                     |                                                                                                       |                          | medium          | low               |                |
| <b>optibelt VARIO POWER<br/>variable speed belts</b>                                                                                                                                                        | -30<br>+90                                  |                    | good            |                | yes                                     |                                                                                                       |                          | excellent       | very low          |                |
| <b>optibelt RB<br/>ribbed belts</b>                                                                                                                                                                         | -30<br>+90                                  | - 30<br>+120       | good            |                | • PJ<br>PK, PL<br>special constructions |                                                                                                       |                          | excellent       | low               |                |

\* on request

• after testing/examination

| Recommended<br>max. belt speed<br>m/s | Efficiency | Behaviour under<br>shock loading | Vibration tendency | Synchronous | Recommended<br>max. speed ratio           | Suitable for<br>outside<br>idlers |                         | Maintenance                   | <b>Main application areas</b><br>For some application areas and applications different belt types are suitable. The suitable belt is then determined individually for each case. |
|---------------------------------------|------------|----------------------------------|--------------------|-------------|-------------------------------------------|-----------------------------------|-------------------------|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                       |            |                                  |                    |             |                                           | Standard<br>construction          | Special<br>construction |                               |                                                                                                                                                                                  |
| ≤ 42                                  | up to 97%  | good                             | low                | no          | up to 1 : 10                              | no                                | yes                     | low                           | Compressors, mixers, rotary print machines, extruders, screw compressors, weaving machines, axial fans, rotary pumps                                                             |
| ≤ 55*                                 | up to 97%  | good                             | low                | no          | up to 1 : 10                              | yes                               |                         | maintenance-free              | Fans, pumps, mixers, mills, special machines, lathes and drilling machines, grinding machines                                                                                    |
| ≤ 50*                                 | up to 97%  | limited                          | low                | no          | up to 1 : 10                              | yes                               |                         |                               | Medium to large, heavy to very heavy drives in the machine building industry                                                                                                     |
| ≤ 55*                                 | up to 97%  | good                             | low                | no          | up to 1 : 12                              | yes                               |                         | maintenance-free              | Fans, ventilators, compressors, pumps, mixers, crushing mills, special machines, lathes and drills, grinding machines                                                            |
| depends on profile ≤ 55*              | up to 97%  | good                             | low                | no          | up to 1 : 12                              | no                                | yes                     | low maintenance               | Fans, pumps, mixers, mills, special machines, lathes and drilling machines, grinding machines                                                                                    |
| ≤ 55                                  | up to 97%  | good                             | low                | no          | up to 1 : 12                              | yes                               |                         | To car makers' specifications | Cars and light commercial vehicles                                                                                                                                               |
| ≤ 42                                  | up to 97%  | good                             | low                | no          | up to 1 : 12                              | no                                | yes                     | To car makers' specifications | Commercial vehicles                                                                                                                                                              |
| ≤ 30                                  | up to 97%  | good                             | low                | no          | up to 1 : 12                              | no                                | yes                     | low                           | Pumps, presses, crushers, disk saws, box column drilling machines, plane machines, concrete mixers, compactors, lawn mowers, aerators, baling presses, shredders                 |
| ≤ 30                                  | up to 95%  | good                             | low                | no          | up to 1 : 5                               | yes                               |                         | low                           | Special drives with changing rotary directions, weaving looms, sweepers, harvesters                                                                                              |
| depends on profile ≤ 42               | up to 95%  | good                             | low                | no          | up to 1 : 12 for 2 variable speed pulleys | no                                | yes                     | low                           | Special drives, compact units, snow mobile drives, multi-colour offset printing machines, variable speed pulley sets, threshing drum drives, winding machines, lathes            |
| depends on profile ≤ 60               | up to 96%  | good                             | very low           | no          | up to 1 : 35                              | yes                               |                         | low                           | Offset machines, washing machines, milling machines, electric floor polishers, auxiliaries, main spindle drives                                                                  |

\*  $v > 42$  m/s. Please contact our Application Engineering Department.



| <p>This table is intended to simplify the selection of the suitable Optibelt drive element according to the specific drive conditions. Detailed information is given in the according chapters of this manual.</p> | Temperature resistance from ... to ... [°C] |                            | Oil resistance  | Electrically conductive | Smooth running | Permanent stretch |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|----------------------------|-----------------|-------------------------|----------------|-------------------|
|                                                                                                                                                                                                                    | Standard design                             | Special design XHR and XCR | Standard design |                         |                |                   |
| <b>optibelt OMEGA.</b><br><b>optibelt OMEGA HP +</b><br><b>optibelt OMEGA HL</b><br><b>timing belts</b>                                                                                                            | - 30<br>+100                                | - 40<br>+140               | limited         | yes•                    | medium/good    | none              |
| <b>optibelt ZR</b><br><b>timing belts</b>                                                                                                                                                                          | - 30<br>+100                                | - 30<br>+140               | limited         | no                      | medium         | none              |
| <b>optibelt ALPHA</b><br><b>polyurethane</b><br><b>timing belts</b>                                                                                                                                                | -30<br>+80                                  |                            | good            | no                      | medium         | none              |
| <b>optibelt RR</b><br><b>round belts</b>                                                                                                                                                                           | -10<br>+80                                  |                            | good            | no                      | medium         | high              |
| <b>optibelt KK</b><br><b>V-beltting</b>                                                                                                                                                                            | -10<br>+80                                  |                            | good            | no                      | medium         | high              |
| <b>optibelt OPTIMAT OE</b><br><b>open-ended V-belts,</b><br><b>DIN 2216, punched</b>                                                                                                                               | -20<br>+70                                  |                            | limited         | no                      | medium         | high              |
| <b>optibelt PKR</b><br><b>endless timing belts</b><br><b>with patterned top</b><br><b>surface</b>                                                                                                                  | -30<br>+70                                  |                            | limited         | yes                     | medium         | low               |
| <b>optibelt OPTIMAX HF</b><br><b>endless high</b><br><b>performance</b><br><b>flat belts</b>                                                                                                                       | - 20<br>+110                                |                            | limited         | no                      | excellent      | low               |

• partly after testing/examination

# DESIGN SUPPORT

## PROPERTIES



| Recommended<br>max. belt speed<br>m/s | Efficiency    | Behaviour with<br>shock loads | Vibration behaviour    | Synchronous running | Recommended<br>max. conversion | Suitable<br>for<br>outside idlers |                   | Maintenance              | <b>Main application areas</b><br>For some application areas and applications different belt types are suitable. The suitable belt is then determined individually for each case.                                                                                       |
|---------------------------------------|---------------|-------------------------------|------------------------|---------------------|--------------------------------|-----------------------------------|-------------------|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                       |               |                               |                        |                     |                                | Standard<br>design                | Special<br>design |                          |                                                                                                                                                                                                                                                                        |
| depends<br>on profile<br>≤ 80         | up to<br>98 % | sensitive                     | depends<br>on<br>speed | yes                 | up to<br>1 : 10                | yes                               | yes               | maintenance-<br>free     | Textile machines, spinning machines, weaving machines, printing machines, paper machines, woodworking machines, machine tools, linear units, roller conveyors, ski systems, packaging machines, gate and door openers, lifting devices, mixers, extruders, compressors |
| depends<br>on profile<br>≤ 80         | up to<br>98 % | sensitive                     | depends<br>on<br>speed | yes                 | up to<br>1 : 10                | yes                               | yes               | maintenance-<br>free     | Copying machines, household appliances, swivel arm robots, gripper drives, belt grinders, camshaft drives, brush drives, clocks, X-Ray devices, enveloping machines, cameras, plotters, slot machines, main machines and feeders, feed drives, material feed, printers |
| depends<br>on profile<br>≤ 80         | up to<br>98 % | sensitive                     | depends<br>on<br>speed | yes                 | up to<br>1 : 10                | yes                               | yes               | maintenance-<br>free     | Cameras, plotters, printers, slot machines, main machines and feeders, feed drives, material feed, test conveyance, flight models                                                                                                                                      |
| ≤ 20                                  | up to<br>95 % | good                          | low                    | no                  | up to<br>1 : 10                | yes                               | yes               | frequent<br>retensioning | Special machinery                                                                                                                                                                                                                                                      |
| ≤ 20                                  | up to<br>95 % | good                          | low                    | no                  | up to<br>1 : 10                | yes                               | yes               | frequent<br>retensioning | Packaging machines, conveyor units, enamelling lines, accumulating conveyor                                                                                                                                                                                            |
| ≤ 20                                  | up to<br>90 % | good                          | medium                 | no                  | up to<br>1 : 10                | limited                           |                   | frequent<br>retensioning | Where installation conditions are difficult                                                                                                                                                                                                                            |
| depends<br>on profile<br>≤ 20         | up to<br>95 % | good                          | low                    | no                  | up to<br>1 : 10                | limited                           | yes               | low                      | Conveyor units in the wood industry, in concrete factories, in the agricultural industry, ceramic industry, glass industry, at airports, in seaports and inland ports                                                                                                  |
| ≤ 70                                  | up to<br>95 % | good                          | very<br>low            | no                  | up to<br>1 : 12                | yes                               |                   | low                      | Water turbines, emergency power generators, saw gates, hackers, screw compressors, roller drives, transmission drives, conical drives, cross cutters, floor cleaners, multi-drives, crushers, close belts, hammer mills                                                |



| Problem                                                        | Causes                                                                                                                                                                                                                                             | Remedies                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Belt failure shortly after installation (belt snaps)</b>    | <p>Forced installation, causing damage to the tension cord</p> <p>Entry of foreign objects during operation</p> <p>Drive undersized, not enough belts</p> <p>Drive jammed</p>                                                                      | <p>Follow installation instructions for easy installation</p> <p>Fit protective guard</p> <p>Check drive design and determine new dimensions</p> <p>Remove cause</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Breaks and cracks in the base of the belt (brittleness)</b> | <p>Outside idler pulley in use that does not comply with the positioning and sizes recommended by us</p> <p>Pulley diameter too small</p> <p>Excessive heat</p> <p>Excessive cold</p> <p>Excessive belt slip</p> <p>Contamination by chemicals</p> | <p>Observe Optibelt recommendations, e.g. increase the diameter; replace with an inside idler on the slack side of the drive; use optibelt RED POWER 3 or an Optibelt special design</p> <p>Re-design using recommended minimum pulley diameters; use an Optibelt special design, or optibelt SUPER X-POWER M=S, optibelt SUPER TX M=S</p> <p>Remove or screen heat source; improve ventilation; use optibelt SUPER X-POWER M=S, optibelt SUPER TX M=S or V-belt with aramid cord construction</p> <p>Warm the belt before operation; use Optibelt special design (extra cold resistant)</p> <p>Re-tension drive according to installation instructions; check drive design and re-design if necessary</p> <p>Protect drive from contamination source; use Optibelt special design</p> |
| <b>Severe belt vibration</b>                                   | <p>Drive underdimensioned</p> <p>Centre distance significantly longer than recommended</p> <p>High shock load</p> <p>Belt tension too low</p> <p>Unbalanced V-pulleys</p>                                                                          | <p>Check drive design and modify if necessary</p> <p>Shorten centre distance; use an inside idler in the drive slack side; re-design using optibelt KB kraftbands</p> <p>Use optibelt KB kraftbands; use an inside idler in the drive slack side; use an Optibelt special construction</p> <p>Correct tension</p> <p>Balance pulleys</p>                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Belts cannot be re-tensioned</b>                            | <p>Insufficient allowance for centre distance in drive design</p> <p>Excessive stretch caused by inadequate performance</p> <p>Incorrect belt length</p>                                                                                           | <p>Modify drive to allow for the Optibelt recommended adjustment</p> <p>Carry out drive calculation and re-design</p> <p>Use shorter belts</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

Should other problems occur, please contact our Application Engineering Department. They will require comprehensive technical details in order to provide you with solutions.

# DESIGN SUPPORT

## PROBLEM – CAUSES – REMEDIES



| Problem                                      | Causes                                                                                                                                                                                                                                                                                      | Remedies                                                                                                                                                                                                                                                                                                                                                             |
|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Belts turning over</b>                    | Poor drive alignment<br>Incorrect belt/pulley groove profile<br>Excessive wear in pulley grooves<br>Excessive vibration<br><br>Belt tension too low<br>Foreign matter in the pulley grooves                                                                                                 | Realign pulleys<br>Match belt and pulley groove profile<br>Renew pulleys<br>Use an inside idler on drive slack side; use optibelt KB kraftbands<br>Re-tension drive<br>Remove foreign matter and screen drive                                                                                                                                                        |
| <b>Excessive wear on belt edges</b>          | Starting torque too high<br>Incorrect pulley groove angle<br>Excessive pulley groove wear<br>Incorrect belt/pulley groove profile<br>Poor pulley alignment<br>Pulley diameter below recommended minimum<br><br>Belt tension too low<br>Belt rubbing against or catching on protruding parts | Check drive design and re-design<br>Re-machine or replace pulleys<br>Replace pulleys<br>Match belt and pulley groove profile<br>Realign pulleys<br>Increase pulley diameter (re-design drive); use Optibelt special constructions. optibelt SUPER X-POWER M=S or optibelt SUPER TX M=S<br>Check tension and re-tension<br>Remove protruding parts; re-position drive |
| <b>Excessive running noise</b>               | Poor pulley alignment<br>Belt tension too low<br>Drive overloaded                                                                                                                                                                                                                           | Realign pulleys<br>Check tension and re-tension<br>Check drive design and re-design if necessary                                                                                                                                                                                                                                                                     |
| <b>Belt swelling or softening and sticky</b> | Contamination by oil, grease, chemicals                                                                                                                                                                                                                                                     | Protect drive from contamination source; use optibelt SUPER X-POWER M=S or optibelt SUPER TX M=S or Optibelt special design 05; clean pulley grooves with petrol, alcohol or brake cleaner before installation of new belts                                                                                                                                          |
| <b>Uneven belt stretch</b>                   | Worn or badly manufactured pulley grooves<br>Used belts mixed with new belts on the drive<br>Belts from different manufacturers used on same drive                                                                                                                                          | Replace pulleys<br><br>Replace with a completely new set of belts<br>Belt sets must comprise belts from one manufacturer only – optibelt S=C Plus, optibelt SUPER TX M=S, optibelt SUPER X-POWER M=S                                                                                                                                                                 |

Should other problems occur, please contact our Application Engineering Department. They will require comprehensive technical details in order to provide you with solutions.

# DESIGN SUPPORT

## LENGTH MEASUREMENT CONDITIONS AND CONVERSION FACTORS



### Belt length measurement

The belt is placed over two identically sized measuring pulleys of the groove design shown in the following drawings. The dimensions are given in the tables 85 to 91 on pages 167/168.

By moving to the adjustable pulley the force  $Q$  is applied on the belt. Before measuring the drive centre distance  $a$ , the belt should be rotated three times under load. This ensures that the belt is well seated in the pulley, an essential pre-condition for the accuracy of the resulting measurement.

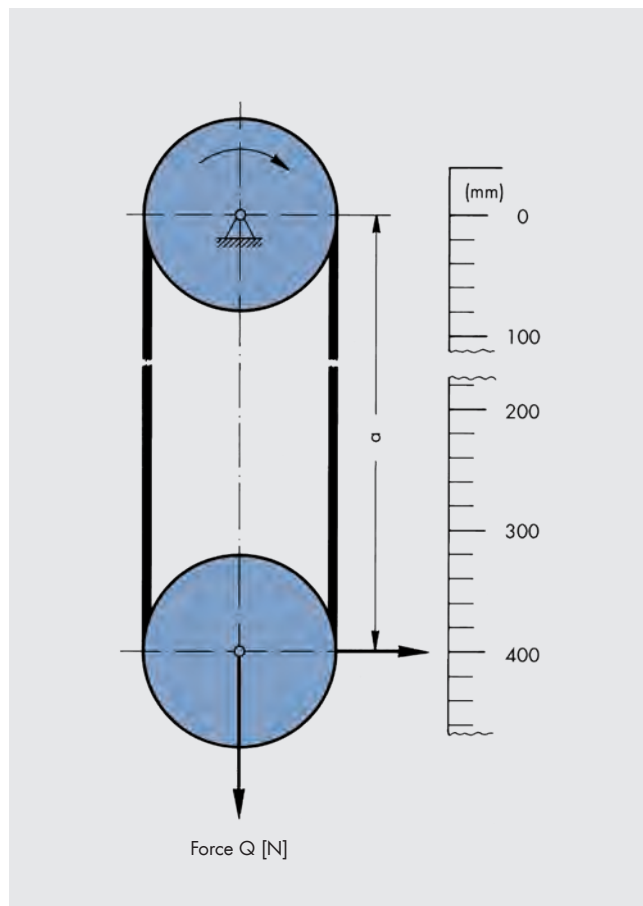
The length is obtained by adding the diameter of the pulley to twice the drive centre distance  $a$ .

$$L_d = 2 a + U_d$$

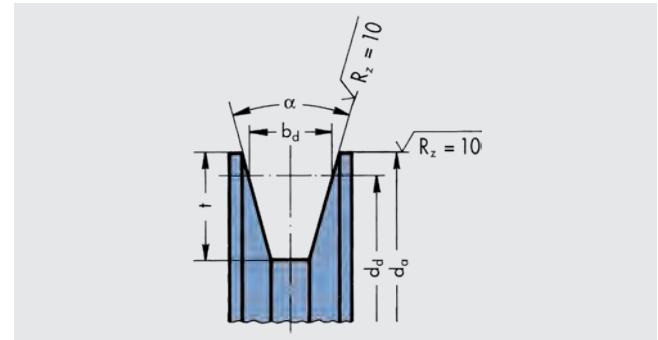
$$L_a = 2 a + U_a$$

Length conversion factors are given in the tables on pages 167/168 and 171/172.

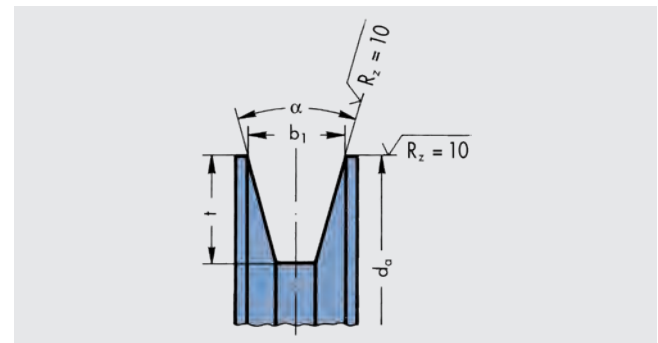
### Arrangement for measuring belt length



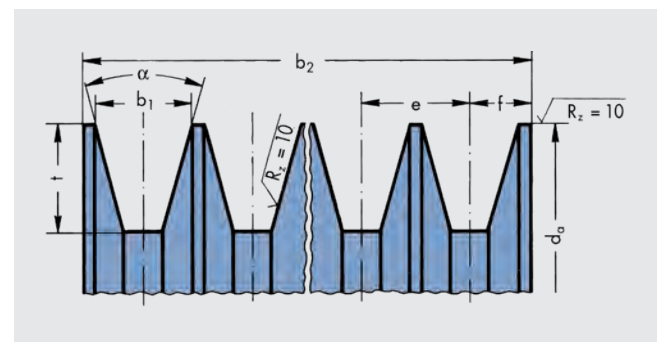
### Measuring pulley for wedge belts DIN 7753 Part 1 and classic V-belts DIN 2215



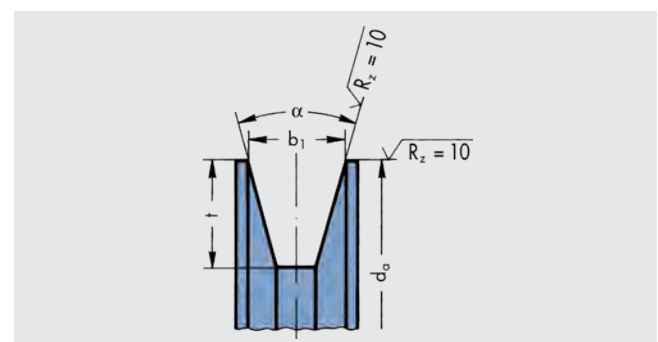
### Measuring pulley for wedge belts ARPM/MPTA



### Measuring pulley for kraftbands



### Measuring pulley for double-sided V-belts



# DESIGN SUPPORT

## LENGTH MEASUREMENT CONDITIONS AND CONVERSION FACTORS



**Table 85: optibelt SK high performance wedge belts**  
 optibelt SUPER X-POWER M=S wedge belts – raw edge, cogged  
 optibelt SUPER XE-POWER PRO M=S high performance wedge belts – raw edge, cogged  
 Measuring pulleys and force according to DIN 7753 Part 1 and ISO 4183

| Profile         | Datum circumference<br>$U_d$<br>$= d_d \cdot \pi$ | Datum diameter<br>$d_d$<br>$\pm 0.05$ | Outside diameter<br>$d_a$<br>$\pm 0.05$ | Datum width<br>$b_d$ | Groove angle<br>$\alpha^\circ$<br>$\pm 10'$ | Groove depth<br>$t_{\min}$ | Measuring force<br>$Q$ [N] | Outside length<br>$L_a$ [mm]                      | Inside length<br>$L_i$ [mm]                       |
|-----------------|---------------------------------------------------|---------------------------------------|-----------------------------------------|----------------------|---------------------------------------------|----------------------------|----------------------------|---------------------------------------------------|---------------------------------------------------|
| <b>SPZ; XPZ</b> | 300                                               | 95.49                                 | 100                                     | 8.50                 | 36                                          | 11                         | 360                        | $L_a \approx L_i + 13$<br>$L_a \approx L_i + 51$  | $L_i \approx L_d - 38$<br>$L_i \approx L_a - 51$  |
| <b>SPA; XPA</b> | 450                                               | 143.24                                | 149                                     | 11.00                | 36                                          | 14                         | 560                        | $L_a \approx L_i + 18$<br>$L_a \approx L_i + 63$  | $L_i \approx L_d - 45$<br>$L_i \approx L_a - 63$  |
| <b>SPB; XPB</b> | 600                                               | 190.99                                | 198                                     | 14.00                | 36                                          | 18                         | 900                        | $L_a \approx L_i + 22$<br>$L_a \approx L_i + 82$  | $L_i \approx L_d - 60$<br>$L_i \approx L_a - 82$  |
| <b>SPC; XPC</b> | 1000                                              | 318.31                                | 328                                     | 19.00                | 36                                          | 24                         | 1500                       | $L_a \approx L_i + 30$<br>$L_a \approx L_i + 113$ | $L_i \approx L_d - 83$<br>$L_i \approx L_a - 113$ |

**Table 86: optibelt SK high performance wedge belts**  
 optibelt SUPER X-POWER M=S wedge belts – raw edge, cogged  
 optibelt SUPER XE-POWER PRO M=S high performance wedge belts – raw edge, cogged  
 Measuring pulleys and force according to ARPM/MPA

| Profile                 | Outside circumference<br>$U_a$<br>$= d_a \cdot \pi$ | Outside diameter<br>$d_a$<br>$\pm 0.13$ | Upper groove width<br>$b_1$<br>$\pm 0.13$ | Groove angle<br>$\alpha^\circ$<br>$\pm 15'$ | Groove depth<br>$t_{\min}$ | Measuring force<br>$Q$ [N] | Inside length<br>$L_i$ [mm] |
|-------------------------|-----------------------------------------------------|-----------------------------------------|-------------------------------------------|---------------------------------------------|----------------------------|----------------------------|-----------------------------|
| <b>3V/9N; 3VX/9NX</b>   | 300                                                 | 95.50                                   | 8.90                                      | 38                                          | 9.00                       | 445                        | $L_i \approx L_a - 42$      |
| <b>5V/15N; 5VX/15NX</b> | 600                                                 | 191.00                                  | 15.24                                     | 38                                          | 15.00                      | 1000                       | $L_i \approx L_a - 71$      |
| <b>8V/25N</b>           | 1000                                                | 318.30                                  | 25.40                                     | 38                                          | 25.50                      | 2225                       | $L_i \approx L_a - 120$     |

**Table 87: optibelt VB classic V-belts**  
 optibelt SUPER TX M=S classic V-belts – raw edge, cogged  
 Measuring pulleys and force according to DIN 2215 und ISO 4183

| Profile             | Datum circumference<br>$U_d$<br>$= d_d \cdot \pi$ | Datum diameter<br>$d_d$<br>$\pm 0.05$ | Outside diameter<br>$d_a$<br>$\pm 0.05$ | Datum width<br>$b_d$ | Groove angle<br>$\alpha^\circ$<br>$\pm 10'$ | Groove depth<br>$t_{\min}$ | Measuring force<br>$Q$ [N] | Outside length<br>$L_a$ [mm]                      | Datum length<br>$L_d$ [mm]                       |
|---------------------|---------------------------------------------------|---------------------------------------|-----------------------------------------|----------------------|---------------------------------------------|----------------------------|----------------------------|---------------------------------------------------|--------------------------------------------------|
| <b>5</b>            | 70                                                | 22.28                                 | 24.88                                   | 4.20                 | 32                                          | 5                          | 30                         | $L_a \approx L_i + 19$<br>$L_a \approx L_d + 8$   | $L_d \approx L_i + 11$<br>$L_d \approx L_a - 8$  |
| <b>Y/6</b>          | 90                                                | 28.65                                 | 31.85                                   | 5.30                 | 32                                          | 6                          | 40                         | $L_a \approx L_i + 25$<br>$L_a \approx L_d + 10$  | $L_d \approx L_i + 15$<br>$L_d \approx L_a - 10$ |
| <b>8</b>            | 140                                               | 44.56                                 | 48.56                                   | 6.70                 | 32                                          | 8                          | 80                         | $L_a \approx L_i + 31$<br>$L_a \approx L_d + 12$  | $L_d \approx L_i + 19$<br>$L_d \approx L_a - 12$ |
| <b>Z/10; ZX/X10</b> | 180                                               | 57.30                                 | 62.30                                   | 8.50                 | 34                                          | 10                         | 110                        | $L_a \approx L_i + 38$<br>$L_a \approx L_d + 16$  | $L_d \approx L_i + 22$<br>$L_d \approx L_a - 16$ |
| <b>A/13; AX/X13</b> | 300                                               | 95.50                                 | 102.10                                  | 11.00                | 34                                          | 12                         | 200                        | $L_a \approx L_i + 50$<br>$L_a \approx L_d + 20$  | $L_d \approx L_i + 30$<br>$L_d \approx L_a - 20$ |
| <b>B/17; BX/X17</b> | 400                                               | 127.32                                | 135.72                                  | 14.00                | 34                                          | 15                         | 300                        | $L_a \approx L_i + 69$<br>$L_a \approx L_d + 29$  | $L_d \approx L_i + 40$<br>$L_d \approx L_a - 29$ |
| <b>20</b>           | 520                                               | 165.52                                | 175.12                                  | 17.00                | 34                                          | 18                         | 750                        | $L_a \approx L_i + 79$<br>$L_a \approx L_d + 31$  | $L_d \approx L_i + 50$<br>$L_d \approx L_a - 31$ |
| <b>C/22; CX/X22</b> | 700                                               | 222.82                                | 234.22                                  | 19.00                | 34                                          | 20                         | 750                        | $L_a \approx L_i + 88$<br>$L_a \approx L_d + 30$  | $L_d \approx L_i + 58$<br>$L_d \approx L_a - 30$ |
| <b>25</b>           | 800                                               | 254.65                                | 267.25                                  | 21.00                | 34                                          | 22                         | 750                        | $L_a \approx L_i + 100$<br>$L_a \approx L_d + 39$ | $L_d \approx L_i + 60$<br>$L_d \approx L_a - 39$ |
| <b>D/32</b>         | 1000                                              | 318.31                                | 334.52                                  | 27.00                | 36                                          | 28                         | 1400                       | $L_a \approx L_i + 126$<br>$L_a \approx L_d + 51$ | $L_d \approx L_i + 75$<br>$L_d \approx L_a - 51$ |
| <b>E/40</b>         | 1800                                              | 572.96                                | 596.96                                  | 32.00                | 36                                          | 36                         | 1800                       | $L_a \approx L_i + 157$<br>$L_a \approx L_d + 77$ | $L_d \approx L_i + 80$<br>$L_d \approx L_a - 77$ |

# DESIGN SUPPORT

## LENGTH MEASUREMENT CONDITIONS AND CONVERSION FACTORS



**Table 88: optibelt KB kraftbands with high performance wedge belts**  
Measuring pulleys and force

| Profile       | Outside circumference<br>$U_a = d_a \cdot \pi$ | Outside diameter<br>$d_a \pm 0.13$ | Upper groove width<br>$b_1 \pm 0.13$ | Groove angle<br>$\alpha^\circ \pm 15'$ | Groove depth<br>$t_{\min}$ | Groove pitch<br>$e$ | Tolerance<br>$e^{1)}$ | $\Sigma$ Tol.<br>$e^{2)}$ | Force per rib<br>$Q$ [N] | Inside length<br>$L_i$ [mm] |
|---------------|------------------------------------------------|------------------------------------|--------------------------------------|----------------------------------------|----------------------------|---------------------|-----------------------|---------------------------|--------------------------|-----------------------------|
| <b>3V/9J</b>  | 300                                            | 95.50                              | 8.90                                 | 38                                     | 9.00                       | 10.30               | $\pm 0.25$            | $\pm 0.5$                 | 445                      | $L_i \approx L_a - 42$      |
| <b>5V/15J</b> | 600                                            | 191.00                             | 15.20                                | 38                                     | 15.00                      | 17.50               | $\pm 0.25$            | $\pm 0.5$                 | 1000                     | $L_i \approx L_a - 71$      |
| <b>8V/25J</b> | 1000                                           | 318.30                             | 25.40                                | 38                                     | 25.50                      | 28.60               | $\pm 0.40$            | $\pm 0.8$                 | 2225                     | $L_i \approx L_a - 120$     |

**Table 89: optibelt KB kraftbands**  
Measuring pulleys and force

| Profile    | Datum circumference<br>$U_d = d_d \cdot \pi$ | Datum diameter<br>$d_d \pm 0.13$ | Outside diameter<br>$d_a \pm 0.13$ | Datum width<br>$b_d$ | Groove angle<br>$\alpha^\circ \pm 15'$ | Groove depth<br>$t_{\min}$ | Groove pitch<br>$e$ | Tolerance<br>$e^{1)}$ | $\Sigma$ Tol.<br>$e^{2)}$ | Force per rib<br>$Q$ [N] | Datum length<br>$L_d$ [mm] |
|------------|----------------------------------------------|----------------------------------|------------------------------------|----------------------|----------------------------------------|----------------------------|---------------------|-----------------------|---------------------------|--------------------------|----------------------------|
| <b>SPZ</b> | 300                                          | 95.49                            | 100.00                             | 8.50                 | 36                                     | 11.00                      | 12.00               | $\pm 0.30$            | $\pm 0.5$                 | 360                      | $L_d \approx L_a - 13$     |
| <b>SPA</b> | 450                                          | 143.24                           | 149.00                             | 11.00                | 36                                     | 14.00                      | 15.00               | $\pm 0.30$            | $\pm 0.5$                 | 560                      | $L_d \approx L_a - 18$     |
| <b>SPB</b> | 600                                          | 190.99                           | 198.00                             | 14.00                | 36                                     | 18.00                      | 19.00               | $\pm 0.40$            | $\pm 0.8$                 | 900                      | $L_d \approx L_a - 22$     |
| <b>SPC</b> | 1000                                         | 318.31                           | 328.00                             | 19.00                | 36                                     | 24.00                      | 25.50               | $\pm 0.40$            | $\pm 0.8$                 | 1500                     | $L_d \approx L_a - 30$     |

**Table 90: optibelt KB kraftbands with classic V-belts**  
Measuring pulleys and force

| Profile     | Outside circumference<br>$U_a = d_a \cdot \pi$ | Outside diameter<br>$d_a \pm 0.13$ | Upper groove width<br>$b_1 \pm 0.13$ | Groove angle<br>$\alpha^\circ \pm 15'$ | Groove depth<br>$t_{\min}$ | Groove pitch<br>$e$ | Tolerance<br>$e^{1)}$ | $\Sigma$ Tol.<br>$e^{2)}$ | Force per rib<br>$Q$ [N] | Inside length<br>$L_i$ [mm] |
|-------------|------------------------------------------------|------------------------------------|--------------------------------------|----------------------------------------|----------------------------|---------------------|-----------------------|---------------------------|--------------------------|-----------------------------|
| <b>A/HA</b> | 254                                            | 80.85                              | 12.45                                | 32                                     | 12.50                      | 15.88               | $\pm 0.38$            | $\pm 0.8$                 | 300                      | $L_i \approx L_a - 36$      |
| <b>B/HB</b> | 381                                            | 121.28                             | 16.00                                | 32                                     | 14.50                      | 19.05               | $\pm 0.38$            | $\pm 0.8$                 | 450                      | $L_i \approx L_a - 62$      |
| <b>C/HC</b> | 635                                            | 202.13                             | 22.33                                | 34                                     | 20.00                      | 25.40               | $\pm 0.38$            | $\pm 0.8$                 | 850                      | $L_i \approx L_a - 75$      |
| <b>D/HD</b> | 889                                            | 282.96                             | 31.98                                | 34                                     | 28.00                      | 36.53               | $\pm 0.38$            | $\pm 0.8$                 | 1000                     | $L_i \approx L_a - 111$     |

1) Tolerance for the medium distance  $e$  between two adjacent grooves

2) Sum of all deviations from the nominal size  $e$  for all groove distances on one pulley must not exceed the given values.

**Table 91: optibelt DK double-sided V-belts**  
Measuring pulleys and force according to ISO 5289

| Profile        | Outside circumference<br>$U_a = d_a \cdot \pi$ | Outside diameter<br>$d_a$ | Upper groove width<br>$b_1$ | Groove angle<br>$\alpha^\circ \pm 20'$ | Groove depth<br>$t_{\min}$ | Measuring force<br>$Q$ [N] |
|----------------|------------------------------------------------|---------------------------|-----------------------------|----------------------------------------|----------------------------|----------------------------|
| <b>AA/HAA</b>  | 300                                            | 95.49                     | 12.60                       | 34                                     | 8                          | 300                        |
| <b>BB/HBB</b>  | 400                                            | 127.32                    | 16.20                       | 34                                     | 10                         | 450                        |
| <b>CC/HCC</b>  | 600                                            | 190.99                    | 22.30                       | 34                                     | 14                         | 850                        |
| <b>DD/HDD</b>  | 900                                            | 286.48                    | 32.00                       | 34                                     | 20                         | 1400                       |
| <b>22 x 22</b> | 600                                            | 190.99                    | 22.30                       | 34                                     | 14                         | 750                        |
| <b>25 x 22</b> | 942                                            | 300.00                    | 25.00                       | 34                                     | 22                         | 1200                       |

# DESIGN SUPPORT

## LENGTH TOLERANCES



Table 92: Endless wedge belts DIN 7753 Part 1

| Profile                                  | Datum length [mm] | Length tolerance [mm]<br>Allowed deviation<br>of the datum lengths |                | Set tolerances [mm]<br>Allowed deviation between<br>datum lengths $L_d$ of the belts in one<br>and the same set on<br>multi-grooved belt drives |                      |                              |                               |
|------------------------------------------|-------------------|--------------------------------------------------------------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-------------------------------|
|                                          |                   | Optibelt<br>wrapped                                                | DIN 7753       | Optibelt<br>wrapped                                                                                                                             | Optibelt<br>raw edge | DIN 7753/ISO 4184<br>wrapped | DIN 7753/ISO 4184<br>raw edge |
| SPZ/XPZ<br>SPA/XPA<br>SPB/XPB<br>SPC/XPC | > 630 ≤ 900       | DIN                                                                | ± 6 to ± 9     | 2                                                                                                                                               | 2                    | 2                            | 2                             |
|                                          | > 900 ≤ 1250      | DIN                                                                | ± 9 to ± 12    | 2                                                                                                                                               | 4                    | 2                            | 4                             |
|                                          | > 1250 ≤ 2000     | ± 2                                                                | ± 12 to ± 20   | ± 2                                                                                                                                             | 6                    | 2                            | 6                             |
|                                          | > 2000 ≤ 3150     | ± 2                                                                | ± 20 to ± 32   | ± 2                                                                                                                                             | 6                    | 4                            | 6                             |
|                                          | > 3150 ≤ 5000*    | ± 2                                                                | ± 32 to ± 50   | ± 2                                                                                                                                             | 10*                  | 6                            | 10*                           |
|                                          | > 5000 ≤ 8000     | ± 4                                                                | ± 50 to ± 80   | ± 4                                                                                                                                             |                      | 10                           |                               |
|                                          | > 8000 ≤ 10000    | ± 6                                                                | ± 80 to ± 100  | ± 6                                                                                                                                             |                      | 16                           |                               |
|                                          | > 10000 ≤ 12500   | ± 8                                                                | ± 100 to ± 125 | ± 8                                                                                                                                             |                      |                              |                               |

Table 93: Classic V-belts DIN 2215

| Profile                                                                                                   | Datum length [mm] | Length tolerance [mm]<br>Allowed deviation<br>of the datum lengths |            | Set tolerances [mm]<br>Allowed deviation between<br>datum lengths $L_d$ of the belts in one<br>and the same set on<br>multi-grooved belt drives |                      |                              |                               |
|-----------------------------------------------------------------------------------------------------------|-------------------|--------------------------------------------------------------------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-------------------------------|
|                                                                                                           |                   | Optibelt<br>wrapped                                                | DIN 2215   | Optibelt<br>wrapped                                                                                                                             | Optibelt<br>raw edge | DIN 2215/ISO 4184<br>wrapped | DIN 2215/ISO 4184<br>raw edge |
| 5<br>Y/6<br>8<br>Z/10; ZX/X10<br>A/13; AX/X13<br>B/17; BX/X17<br>20<br>C/22; CX/X22<br>25<br>D/32<br>E/40 | ≤ 250             | DIN                                                                | + 8/- 4    | 2                                                                                                                                               |                      | 2                            | 2                             |
|                                                                                                           | > 250 ≤ 315       | DIN                                                                | + 9/- 4    | 2                                                                                                                                               |                      | 2                            | 2                             |
|                                                                                                           | > 315 ≤ 400       | DIN                                                                | + 10/- 5   | 2                                                                                                                                               |                      | 2                            | 2                             |
|                                                                                                           | > 400 ≤ 500       | DIN                                                                | + 11/- 6   | 2                                                                                                                                               |                      | 2                            | 2                             |
|                                                                                                           | > 500 ≤ 630       | DIN                                                                | + 13/- 6   | 2                                                                                                                                               | 2                    | 2                            | 2                             |
|                                                                                                           | > 630 ≤ 800       | DIN                                                                | + 15/- 7   | 2                                                                                                                                               | 2                    | 2                            | 2                             |
|                                                                                                           | > 800 ≤ 900       | DIN                                                                | + 17/- 8   | 2                                                                                                                                               | 2                    | 2                            | 2                             |
|                                                                                                           | > 900 ≤ 1250      | DIN                                                                | + 19/- 10  | 4                                                                                                                                               | 4                    | 4                            | 4                             |
|                                                                                                           | > 1250 ≤ 1600     | ± 2                                                                | + 23/- 11  | ± 2                                                                                                                                             | 4                    | 4                            | 4                             |
|                                                                                                           | > 1600 ≤ 2000     | ± 2                                                                | + 27/- 13  | ± 2                                                                                                                                             | 4                    | 4                            | 4                             |
|                                                                                                           | > 2000 ≤ 2500     | ± 2                                                                | + 31/- 16  | ± 2                                                                                                                                             | 6                    | 8                            | 8                             |
|                                                                                                           | > 2500 ≤ 3150     | ± 2                                                                | + 37/- 18  | ± 2                                                                                                                                             | 8                    | 8                            | 8                             |
|                                                                                                           | > 3150 ≤ 4000*    | ± 2                                                                | + 44/- 22  | ± 2                                                                                                                                             | 8*                   | 12                           | 12*                           |
|                                                                                                           | > 4000 ≤ 5000     | ± 2                                                                | + 52/- 26  | ± 2                                                                                                                                             |                      | 12                           |                               |
|                                                                                                           | > 5000 ≤ 6300     | ± 4                                                                | + 63/- 32  | ± 4                                                                                                                                             |                      | 20                           |                               |
|                                                                                                           | > 6300 ≤ 8000     | ± 4                                                                | + 77/- 38  | ± 4                                                                                                                                             |                      | 20                           |                               |
|                                                                                                           | > 8000 ≤ 10000    | ± 6                                                                | + 93/- 46  | ± 6                                                                                                                                             |                      | 32                           |                               |
|                                                                                                           | > 10000 ≤ 12500   | ± 8                                                                | + 112/- 56 | ± 8                                                                                                                                             |                      | 32                           |                               |
|                                                                                                           | > 12500 ≤ 15000   | DIN                                                                | + 140/- 70 | DIN                                                                                                                                             |                      | 48                           |                               |
|                                                                                                           | > 15000 ≤ 20000   | DIN                                                                | + 170/- 85 | DIN                                                                                                                                             |                      | 48                           |                               |

\* Maximum production length for raw edge V-belts ≤ 3550 mm

optibelt S=C Plus and optibelt M=S V-belts can be used in sets without measuring.

# DESIGN SUPPORT

## LENGTH TOLERANCES



Table 94: Endless wedge belts ARPM/MPTA

| Profile                                          | Length designation | Outside length [mm] | Length tolerance [mm]<br>Allowed deviation from outside lengths<br>Replace complete belt sets! |           | Set tolerance [mm]<br>Allowed deviation between the outside lengths $L_o$ of the belts in one and the same set on multi-grooved belt drives<br>Replace complete belt sets! |          |           |
|--------------------------------------------------|--------------------|---------------------|------------------------------------------------------------------------------------------------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----------|
|                                                  |                    |                     | Optibelt wrapped                                                                               | ARPM/MPTA | Optibelt wrapped                                                                                                                                                           | raw edge | ARPM/MPTA |
| 3V/9N<br>3VX/9NX<br>5V/15N<br>5VX/15NX<br>8V/25N | 265 ≤ 500          | 673 ≤ 1 270         | acc. ARPM/MPTA                                                                                 | ± 8       | 4                                                                                                                                                                          | 4        | 4         |
|                                                  | 530                | 1 346               | ± 2                                                                                            | ± 10      | ± 2                                                                                                                                                                        | 4        | 4         |
|                                                  | 560                | 1 422               | ± 2                                                                                            | ± 10      | ± 2                                                                                                                                                                        | 6        | 6         |
|                                                  | 600 ≤ 800          | 1 524 ≤ 2 032       | ± 2                                                                                            | ± 10      | ± 2                                                                                                                                                                        | 6        | 6         |
|                                                  | 800 ≤ 1 000        | 2 032 ≤ 2 540       | ± 2                                                                                            | ± 13      | ± 2                                                                                                                                                                        | 6        | 6         |
|                                                  | 1 000 ≤ 1 060      | 2 540 ≤ 2 692       | ± 2                                                                                            | ± 15      | ± 2                                                                                                                                                                        | 6        | 6         |
|                                                  | 1 120 ≤ 1 400      | 2 845 ≤ 3 556       | ± 2                                                                                            | ± 15      | ± 2                                                                                                                                                                        | 10*      | 10        |
|                                                  | 1 500 ≤ 1 900      | 3 810 ≤ 4 826       | ± 2                                                                                            | ± 20      | ± 2                                                                                                                                                                        |          | 10        |
|                                                  | 2 000 ≤ 2 360      | 5 080 ≤ 5 994       | ± 4                                                                                            | ± 20      | ± 4                                                                                                                                                                        |          | 10        |
|                                                  | 2 500 ≤ 3 000      | 6 350 ≤ 7 620       | ± 4                                                                                            | ± 20      | ± 4                                                                                                                                                                        |          | 16        |
|                                                  | 3 150 ≤ 3 750      | 8 001 ≤ 9 525       | ± 6                                                                                            | ± 25      | ± 6                                                                                                                                                                        |          | 16        |
|                                                  | 4 000              | 10 160              | ± 8                                                                                            | ± 25      | ± 8                                                                                                                                                                        |          | 16        |
|                                                  | 4 250 ≤ 4 500      | 10 795 ≤ 11 430     | ± 8                                                                                            | ± 30      | ± 8                                                                                                                                                                        |          | 16        |
|                                                  | 4 750 ≤ 5 000      | 12 065 ≤ 12 700     | ± 12                                                                                           | ± 30      | ± 12                                                                                                                                                                       |          | 24        |

Table 95: Double-sided V-belts

| Profile                                                    | Reference length [mm] | Length tolerance [mm]<br>Allowed deviation of the reference lengths | Set tolerance [mm]<br>Allowed deviation between the reference length of the double-sided V-belts in one and the same set on multi-grooved belt drives |
|------------------------------------------------------------|-----------------------|---------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| AA/HAA<br>BB/HBB<br>CC/HCC<br>DD/HDD<br>22 x 22<br>25 x 22 | 1 250 < 1 320         | + 8/- 16                                                            | 4                                                                                                                                                     |
|                                                            | 1 320 < 1 700         | + 9/- 18                                                            | 4                                                                                                                                                     |
|                                                            | 1 700 < 2 120         | + 11/- 22                                                           | 5                                                                                                                                                     |
|                                                            | 2 120 < 2 650         | + 13/- 26                                                           | 6.3                                                                                                                                                   |
|                                                            | 2 650 < 3 350         | + 15/- 30                                                           | 8                                                                                                                                                     |
|                                                            | 3 350 < 4 250         | + 18/- 36                                                           | 10                                                                                                                                                    |
|                                                            | 4 250 < 5 300         | + 22/- 44                                                           | 12.5                                                                                                                                                  |
|                                                            | 5 300 < 6 700         | + 26/- 52                                                           | 16                                                                                                                                                    |
|                                                            | 6 700 < 8 500         | + 32/- 64                                                           | 20                                                                                                                                                    |
|                                                            | 8 500 < 10 000        | + 39/- 78                                                           | 25                                                                                                                                                    |

Table 96: Kraftbands with high performance wedge belts and classic V-belts

| Profile                                      | Length and set tolerances |
|----------------------------------------------|---------------------------|
| 3V/9J; 3VX/9JX<br>5V/15J; 5VX/15JX<br>8V/25J | see table 94. ARPM/MPTA   |
| SPZ; SPA; SPB; SPC                           | see table 92. DIN/ISO     |
| A/HA<br>B/HB<br>C/HC<br>D/HD                 | DIN/ASAE                  |

\* Maximum production length for raw edge V-belts ≤ 3550 mm

# TABLES

## CONVERSION FACTORS



### optibelt SK high performance wedge belts DIN 7753 Part 1

| Profile | Cross-section<br>$b \times h \approx$ | Bottom<br>belt<br>width<br>$b_u \approx$ | Nominal<br>width<br>$b_d$ | Belt length                |                                                   |                       |                                                   | Recommended<br>minimum<br>pulley diameter<br>[mm] | Meter<br>weight<br>[ $\approx$ kg/m] |
|---------|---------------------------------------|------------------------------------------|---------------------------|----------------------------|---------------------------------------------------|-----------------------|---------------------------------------------------|---------------------------------------------------|--------------------------------------|
|         |                                       |                                          |                           | Nominal<br>length<br>$L_d$ | Outside length<br>$L_o$                           | Pitch length<br>$L_i$ | Inside length<br>$L_i$                            |                                                   |                                      |
| SPZ     | 9.7 x 8                               | 4.2                                      | 8.5                       | Nominal<br>length<br>$L_d$ | $L_o \approx L_d + 13$<br>$L_o \approx L_i + 51$  | —                     | $L_i \approx L_d - 38$<br>$L_i \approx L_o - 51$  | 63                                                | 0.074                                |
| SPA     | 12.7 x 10                             | 5.8                                      | 11.0                      |                            | $L_o \approx L_d + 18$<br>$L_o \approx L_i + 63$  | —                     | $L_i \approx L_d - 45$<br>$L_i \approx L_o - 63$  | 90                                                | 0.123                                |
| SPB     | 16.3 x 13                             | 7.3                                      | 14.0                      |                            | $L_o \approx L_d + 22$<br>$L_o \approx L_i + 82$  | —                     | $L_i \approx L_d - 60$<br>$L_i \approx L_o - 82$  | 140                                               | 0.195                                |
| SPC     | 22.0 x 18                             | 9.6                                      | 19.0                      |                            | $L_o \approx L_d + 30$<br>$L_o \approx L_i + 113$ | —                     | $L_i \approx L_d - 83$<br>$L_i \approx L_o - 113$ | 224                                               | 0.377                                |

### optibelt SK high performance wedge belts ARPM/MPPTA

|        |           |     |   |                            |   |                         |                         |     |       |
|--------|-----------|-----|---|----------------------------|---|-------------------------|-------------------------|-----|-------|
| 3V/9N  | 9.0 x 8   | 4.2 | — | Outside<br>length<br>$L_o$ | — | $L_d \approx L_o - 4*$  | $L_i \approx L_o - 42$  | 67  | 0.074 |
| 5V/15N | 15.0 x 13 | 7.3 | — |                            | — | $L_d \approx L_o - 11*$ | $L_i \approx L_o - 71$  | 151 | 0.195 |
| 8V/25N | 25.0 x 23 | 9.6 | — |                            | — | —                       | $L_i \approx L_o - 120$ | 315 | 0.575 |

\* The conversion factor  $L_d$  to  $L_o$  is used when a profile according to DIN 7753 Part 1 is to be replaced by the corresponding profile according to ARPM/MPPTA.

### optibelt SUPER X-POWER M=S wedge belts – raw edge, cogged – DIN 7753 Part 1

### optibelt SUPER XE-POWER PRO M=S high performance wedge belts – raw edge, cogged – DIN 7753 Part 1

|     |           |     |      |                            |                                                   |   |                                                   |     |       |
|-----|-----------|-----|------|----------------------------|---------------------------------------------------|---|---------------------------------------------------|-----|-------|
| XPZ | 9.7 x 8   | 4.2 | 8.5  | Nominal<br>length<br>$L_d$ | $L_o \approx L_d + 13$<br>$L_o \approx L_i + 51$  | — | $L_i \approx L_d - 38$<br>$L_i \approx L_o - 51$  | 56  | 0.065 |
| XPA | 12.7 x 10 | 5.8 | 11.0 |                            | $L_o \approx L_d + 18$<br>$L_o \approx L_i + 63$  | — | $L_i \approx L_d - 45$<br>$L_i \approx L_o - 63$  | 71  | 0.111 |
| XPB | 16.3 x 13 | 7.3 | 14.0 |                            | $L_o \approx L_d + 22$<br>$L_o \approx L_i + 82$  | — | $L_i \approx L_d - 60$<br>$L_i \approx L_o - 82$  | 112 | 0.183 |
| XPC | 22.0 x 18 | 9.6 | 19.0 |                            | $L_o \approx L_d + 30$<br>$L_o \approx L_i + 113$ | — | $L_i \approx L_d - 83$<br>$L_i \approx L_o - 113$ | 180 | 0.340 |

### optibelt SUPER X-POWER M=S wedge belts – raw edge, cogged – ARPM/MPPTA

### optibelt SUPER XE-POWER PRO M=S high performance wedge belts – raw edge, cogged – ARPM/MPPTA

|          |           |     |   |                            |   |                         |                        |     |       |
|----------|-----------|-----|---|----------------------------|---|-------------------------|------------------------|-----|-------|
| 3VX/9NX  | 9.0 x 8   | 4.2 | — | Outside<br>length<br>$L_o$ | — | $L_d \approx L_o - 4*$  | $L_i \approx L_o - 42$ | 56  | 0.065 |
| 5VX/15NX | 15.0 x 13 | 7.3 | — |                            | — | $L_d \approx L_o - 11*$ | $L_i \approx L_o - 71$ | 112 | 0.183 |

\* The conversion factor  $L_d$  to  $L_o$  is used when a profile according to DIN 7753 Part 1 is to be replaced by the corresponding profile according to ARPM/MPPTA.

### optibelt SUPER TX M=S V-belts – raw edge, cogged

|        |           |      |      |                            |                                                  |   |                                                  |     |       |
|--------|-----------|------|------|----------------------------|--------------------------------------------------|---|--------------------------------------------------|-----|-------|
| ZX/X10 | 10.0 x 6  | 5.9  | 8.5  | Nominal<br>length<br>$L_d$ | $L_o \approx L_i + 38$<br>$L_o \approx L_d + 16$ | — | $L_i \approx L_d - 22$<br>$L_i \approx L_o - 38$ | 40  | 0.062 |
| AX/X13 | 13.0 x 8  | 7.5  | 11.0 |                            | $L_o \approx L_i + 50$<br>$L_o \approx L_d + 20$ | — | $L_i \approx L_d - 30$<br>$L_i \approx L_o - 50$ | 63  | 0.099 |
| BX/X17 | 17.0 x 11 | 9.4  | 14.0 |                            | $L_o \approx L_i + 69$<br>$L_o \approx L_d + 29$ | — | $L_i \approx L_d - 40$<br>$L_i \approx L_o - 69$ | 90  | 0.165 |
| CX/X22 | 22.0 x 14 | 12.3 | 19.0 |                            | $L_o \approx L_i + 88$<br>$L_o \approx L_d + 30$ | — | $L_i \approx L_d - 58$<br>$L_i \approx L_o - 88$ | 140 | 0.276 |

### optibelt VB classic V-belts DIN 2215

|      |             |      |      |                            |                                                   |                                                  |   |     |       |
|------|-------------|------|------|----------------------------|---------------------------------------------------|--------------------------------------------------|---|-----|-------|
| 5    | 5.0 x 3     | 2.8  | 4.2  | Nominal<br>length<br>$L_d$ | $L_o \approx L_i + 19$<br>$L_o \approx L_d + 8$   | $L_d \approx L_i + 11$<br>$L_d \approx L_o - 8$  | — | 20  | 0.018 |
| Y/6  | 6.0 x 4     | 3.3  | 5.3  |                            | $L_o \approx L_i + 25$<br>$L_o \approx L_d + 10$  | $L_d \approx L_i + 15$<br>$L_d \approx L_o - 10$ | — | 28  | 0.026 |
| 8    | 8.0 x 5     | 4.5  | 6.7  |                            | $L_o \approx L_i + 31$<br>$L_o \approx L_d + 12$  | $L_d \approx L_i + 19$<br>$L_d \approx L_o - 12$ | — | 40  | 0.042 |
| Z/10 | 10.0 x 6    | 5.9  | 8.5  |                            | $L_o \approx L_i + 38$<br>$L_o \approx L_d + 16$  | $L_d \approx L_i + 22$<br>$L_d \approx L_o - 16$ | — | 50  | 0.064 |
| A/13 | 13.0 x 8    | 7.5  | 11.0 |                            | $L_o \approx L_i + 50$<br>$L_o \approx L_d + 20$  | $L_d \approx L_i + 30$<br>$L_d \approx L_o - 20$ | — | 71  | 0.109 |
| B/17 | 17.0 x 11   | 9.4  | 14.0 |                            | $L_o \approx L_i + 69$<br>$L_o \approx L_d + 29$  | $L_d \approx L_i + 40$<br>$L_d \approx L_o - 29$ | — | 112 | 0.196 |
| 20   | 20.0 x 12.5 | 11.4 | 17.0 |                            | $L_o \approx L_i + 79$<br>$L_o \approx L_d + 31$  | $L_d \approx L_i + 50$<br>$L_d \approx L_o - 31$ | — | 160 | 0.266 |
| C/22 | 22.0 x 14   | 12.3 | 19.0 |                            | $L_o \approx L_i + 88$<br>$L_o \approx L_d + 30$  | $L_d \approx L_i + 58$<br>$L_d \approx L_o - 30$ | — | 180 | 0.324 |
| 25   | 25.0 x 16   | 14.0 | 21.0 |                            | $L_o \approx L_i + 100$<br>$L_o \approx L_d + 39$ | $L_d \approx L_i + 60$<br>$L_d \approx L_o - 39$ | — | 250 | 0.420 |
| D/32 | 32.0 x 20   | 18.2 | 27.0 |                            | $L_o \approx L_i + 126$<br>$L_o \approx L_d + 51$ | $L_d \approx L_i + 75$<br>$L_d \approx L_o - 51$ | — | 355 | 0.668 |
| E/40 | 40.0 x 25   | 22.8 | 32.0 |                            | $L_o \approx L_i + 157$<br>$L_o \approx L_d + 77$ | $L_d \approx L_i + 80$<br>$L_d \approx L_o - 77$ | — | 500 | 0.958 |

# TABLES

## CONVERSION FACTORS



### optibelt KB kraftbands / optibelt BLUE POWER kraftbands with high performance wedge belts to ISO 5290/ARPM/MPTA

| Profile   | Height<br>h ≈ | Bottom<br>belt width<br>b <sub>u</sub> ≈<br>of the<br>single belt | Belt length                         |                                  |                                |                                       | Recommended<br>minimum pulley<br>diameter<br>[mm] |     | Meter<br>weight<br>per rib<br>≈ kg/m |
|-----------|---------------|-------------------------------------------------------------------|-------------------------------------|----------------------------------|--------------------------------|---------------------------------------|---------------------------------------------------|-----|--------------------------------------|
|           |               |                                                                   | Nominal<br>length                   | Outside length<br>L <sub>a</sub> | Datum length<br>L <sub>d</sub> | Inside length<br>L <sub>i</sub>       |                                                   |     |                                      |
| 3V/9J     | 9.9           | 4.2                                                               | Outside<br>length<br>L <sub>a</sub> | —                                | —                              | L <sub>i</sub> ≈ L <sub>a</sub> – 42  | Outside<br>diameter<br>d <sub>a</sub>             | 84  | 0.122                                |
| 5V/15J    | 15.1          | 7.3                                                               |                                     | —                                | —                              | L <sub>i</sub> ≈ L <sub>a</sub> – 71  |                                                   | 171 | 0.252                                |
| 5V/15J BP | 15.1          | 7.3                                                               |                                     | —                                | —                              | L <sub>i</sub> ≈ L <sub>a</sub> – 71  |                                                   | 211 | 0.253                                |
| 8V/25J    | 25.5          | 9.6                                                               |                                     | —                                | —                              | L <sub>i</sub> ≈ L <sub>a</sub> – 120 |                                                   | 355 | 0.693                                |
| 8V/25J BP | 25.5          | 9.6                                                               |                                     | —                                | —                              | L <sub>i</sub> ≈ L <sub>a</sub> – 120 |                                                   | 400 | 0.702                                |

### optibelt KB kraftbands / optibelt BLUE POWER kraftbands with high performance wedge belts

|        |      |     |                                   |                                      |   |   |                                     |     |       |
|--------|------|-----|-----------------------------------|--------------------------------------|---|---|-------------------------------------|-----|-------|
| SPZ    | 10.5 | 5.4 | Datum<br>length<br>L <sub>d</sub> | L <sub>a</sub> ≈ L <sub>d</sub> + 13 | — | — | Datum<br>diameter<br>d <sub>d</sub> | 80  | 0.120 |
| SPA    | 12.5 | 7.0 |                                   | L <sub>a</sub> ≈ L <sub>d</sub> + 18 | — | — |                                     | 112 | 0.166 |
| SPB    | 15.6 | 8.8 |                                   | L <sub>a</sub> ≈ L <sub>d</sub> + 22 | — | — |                                     | 160 | 0.261 |
| SPB BP | 15.6 | 8.8 |                                   | L <sub>a</sub> ≈ L <sub>d</sub> + 22 | — | — |                                     | 200 | 0.283 |
| SPC    | 22.6 | 9.3 |                                   | L <sub>a</sub> ≈ L <sub>d</sub> + 24 | — | — |                                     | 250 | 0.555 |
| SPC BP | 22.6 | 9.3 |                                   | L <sub>a</sub> ≈ L <sub>d</sub> + 24 | — | — |                                     | 300 | 0.567 |

### optibelt KB kraftbands with classic V-belts

|   |      |      |                                   |                                       |                                      |   |                                     |     |       |
|---|------|------|-----------------------------------|---------------------------------------|--------------------------------------|---|-------------------------------------|-----|-------|
| A | 9.9  | 7.5  | Datum<br>length<br>L <sub>d</sub> | L <sub>a</sub> ≈ L <sub>i</sub> + 36  | L <sub>d</sub> ≈ L <sub>i</sub> + 30 | — | Datum<br>diameter<br>d <sub>d</sub> | 80  | 0.163 |
| B | 13.0 | 9.4  |                                   | L <sub>a</sub> ≈ L <sub>i</sub> + 62  | L <sub>d</sub> ≈ L <sub>i</sub> + 40 | — |                                     | 125 | 0.266 |
| C | 16.2 | 12.3 |                                   | L <sub>a</sub> ≈ L <sub>i</sub> + 75  | L <sub>d</sub> ≈ L <sub>i</sub> + 58 | — |                                     | 200 | 0.447 |
| D | 22.4 | 18.2 |                                   | L <sub>a</sub> ≈ L <sub>i</sub> + 111 | L <sub>d</sub> ≈ L <sub>i</sub> + 75 | — |                                     | 355 | 0.798 |

### optibelt KB kraftbands according to US standard ASAE S 211. ...

|    |      |      |                                     |   |   |                                       |                                       |     |       |
|----|------|------|-------------------------------------|---|---|---------------------------------------|---------------------------------------|-----|-------|
| HA | 9.9  | 7.5  | Outside<br>length<br>L <sub>a</sub> | — | — | L <sub>i</sub> ≈ L <sub>a</sub> - 36  | Outside<br>diameter<br>d <sub>a</sub> | 80  | 0.163 |
| HB | 13.0 | 9.4  |                                     | — | — | L <sub>i</sub> ≈ L <sub>a</sub> - 62  |                                       | 125 | 0.266 |
| HC | 16.2 | 12.3 |                                     | — | — | L <sub>i</sub> ≈ L <sub>a</sub> - 75  |                                       | 200 | 0.447 |
| HD | 22.4 | 18.2 |                                     | — | — | L <sub>i</sub> ≈ L <sub>a</sub> - 111 |                                       | 355 | 0.798 |

The width of the kraftband is dependent upon the number of ribs.

### optibelt DK double-sided V-belts to DIN 7722 / ISO 5289

| Profile | Cross-section<br>b x h ≈ | Bottom<br>belt width<br>b <sub>u</sub> ≈ | Nominal<br>length   | Belt length                          | Recommended<br>minimum<br>pulley diameter<br>[mm] | Meter<br>weight<br>[≈ kg/m] |
|---------|--------------------------|------------------------------------------|---------------------|--------------------------------------|---------------------------------------------------|-----------------------------|
| AA/HAA  | 13 x 10                  | —                                        | Reference<br>length | Reference length ≈ centre length - 4 | 80                                                | 0.150                       |
| BB/HBB  | 17 x 13                  | —                                        |                     | Reference length ≈ centre length - 8 | 125                                               | 0.250                       |
| CC/HCC  | 22 x 17                  | —                                        |                     | Reference length ≈ centre length + 3 | 224                                               | 0.440                       |
| DD/HDD  | 32 x 25                  | —                                        |                     | Reference length = centre length     | 355                                               | 0.935                       |

### optibelt DK double-sided V-belts – special profiles

|         |         |   |                     |                                  |                                       |     |       |
|---------|---------|---|---------------------|----------------------------------|---------------------------------------|-----|-------|
| 22 x 22 | 22 x 22 | — | Reference<br>length | Reference length = centre length | Outside<br>diameter<br>d <sub>a</sub> | 280 | 0.511 |
| 25 x 22 | 25 x 22 | — |                     | Reference length = centre length |                                       | 280 | 0.625 |

### optibelt MARATHON X / optibelt MARATHON 2 M=S automotive V-belts

| Profile     | Cross-section<br>b x h ≈ | Bottom<br>belt width<br>b <sub>u</sub> ≈ | Nominal<br>width<br>b <sub>d</sub> | Belt length                         |                                      |                                      | Recommended<br>minimum<br>pulley diameter<br>[mm]               | Meter<br>weight<br>[≈ kg/m] |
|-------------|--------------------------|------------------------------------------|------------------------------------|-------------------------------------|--------------------------------------|--------------------------------------|-----------------------------------------------------------------|-----------------------------|
|             |                          |                                          |                                    | Nominal<br>length                   | Pitch length<br>L <sub>d</sub>       | Inside length<br>L <sub>i</sub>      |                                                                 |                             |
| AVX 10/9.5  | 10 x 8                   | 4.9                                      | 8.5                                | Outside<br>length<br>L <sub>a</sub> | L <sub>d</sub> ≈ L <sub>a</sub> - 13 | L <sub>i</sub> ≈ L <sub>a</sub> - 51 | According to agreement<br>and check with<br>automotive industry | 0.076                       |
| AVX 13/12.5 | 13 x 10                  | 5.8                                      | 11.0                               |                                     | L <sub>d</sub> ≈ L <sub>a</sub> - 18 | L <sub>i</sub> ≈ L <sub>a</sub> - 63 |                                                                 | 0.118                       |
| 15A         | 16.6 x 10.4              | 9.2                                      | —                                  |                                     | L <sub>d</sub> ≈ L <sub>a</sub> - 0  | L <sub>i</sub> ≈ L <sub>a</sub> - 65 | 76                                                              | 0.139                       |
| 17A         | 18.2 x 10.8              | 10.6                                     | —                                  |                                     | L <sub>d</sub> ≈ L <sub>a</sub> - 10 | L <sub>i</sub> ≈ L <sub>a</sub> - 68 | 76                                                              | 0.157                       |
| 20A         | 21.4 x 12.4              | 12.6                                     | —                                  |                                     | L <sub>d</sub> ≈ L <sub>a</sub> - 20 | L <sub>i</sub> ≈ L <sub>a</sub> - 78 | 89                                                              | 0.236                       |

# CONVEYOR ELEMENTS

## PRODUCT DESCRIPTION



Optibelt has developed a series of conveyor elements for the economical conveyance of goods in a varied range of applications.

- optibelt PKR endless V-belts DIN 2215 with patterned top surfaces
- optibelt PKR endless V-belts DIN 2215 with light coloured fabric cover and patterned top surfaces within the standard belt height
- optibelt KB kraftbands with patterned top surfaces
- optibelt optimat PKR open-ended V-belts DIN 2216 with patterned top surfaces
- optibelt optimat FK open-ended conveyor belts, punched
- optibelt optimax HF high performance flat belts

### Construction/Quality

Optibelt conveyor elements consist of the basic belt and the top surface. These parts are specially connected via vulcanisation. The variety of applications required constructions with numerous patterns available in different qualities. Both pattern and surface quality should be adapted to the individual application.

**Table 97**

| Type/<br>Colour | Temperature<br>resistance<br>[°C] | Hardness<br>(Shore A) | Oil<br>resist-<br>ance | Loss of<br>colour |
|-----------------|-----------------------------------|-----------------------|------------------------|-------------------|
| SBR-NR/light    | -40 to + 70                       | 55*/65**              | no                     | no                |
| CR/black        | -25 to +100                       | ≈ 65                  | limited                | yes               |

CR/black is available as standard. We would be pleased to inform you about the production of the other constructions.

SBR = Styrene-Butadiene-Rubber

NR = Natural Rubber

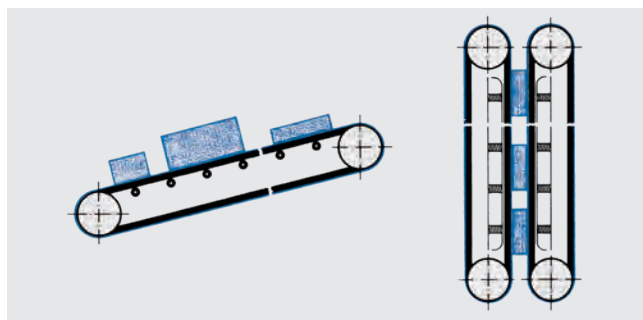
CR = Chloroprene Rubber

\* ≈ 55 for top surfaces above the standard height

\*\* ≈ 65 for top surfaces within the standard height

### Properties

Special surfaced belts are used instead of expensive conventional type conveyor belts. They run individually, or in sets arranged adjacent to each other, transporting goods



horizontally, or inclined up or down. Vertical conveying is also possible if the belts are arranged top surface to top surface, gripping the goods between them.

### Applications areas

Here are just a few examples of the wide range of applications in which Optibelt conveyor belts are used successfully.

For the conveyance of:

- doors, cupboard parts, veneer and plastic panels in the woodworking industry
- body parts and sharp-edged sheet metal in the automotive industry
- cardboard and boxes in the packaging industry
- roof tiles, concrete slabs and block paving stones
- tiles
- flat glass
- postal items
- bowling balls on bowling lanes

In addition to the conveyance options, these belts are also used for

- labelling and sealing of tins and jars in the canning industry
- lifting, chopping and sorting of beet, potatoes, salad, cauliflower, Brussels sprouts and other vegetables in the agricultural industry

Due to their single belt characteristics and high surface load, optibelt KB kraftbands with patterned top surfaces are especially suitable in conveyor systems and lifting platforms for:

- the conveyance of cargo containers
- loading and clearing of airplanes and railway wagons
- stowing and unloading of ship cargos

### optibelt KB with top surface



### Drive and guide pulleys

The drive and guide pulleys should be V-grooved pulleys. The minimum diameters should be selected according to the standard recommendations for V-belts and kraftbands. See the chapter on V-grooved pulleys.

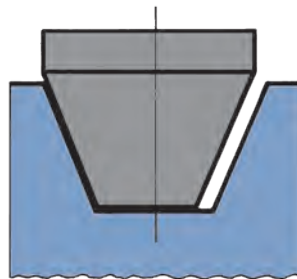
Due to the relatively low transporting speed (experience has shown that it is usually less than 1 m/s) and the resulting low flex rate, pulley diameters can be reduced to approximately 10% below the recommended minimum. With greater reduction, there is danger that the top surface separates from the V-belt base.

The driver pulley should be arranged at the discharge end of the conveyor so that the goods are pulled along.

### Support idlers/tracks

In most cases, support idlers or tracks are required to prevent the belt from sagging under load.

Support idlers may be flat faced or V-grooved pulleys. The dimensions of the pulley grooves should support the base of the conveyor belt in the base of the groove so only one edge can run on the groove flank, and thus cannot get stuck in the groove.



The diameter and the number of support idlers required depend on the length of the conveying span and the weight and size of the goods to be conveyed.

Supporting tracks, generally made of plastic, are either flat or with a key seat to improve guidance of the conveyor belt. As with the support idlers, the grooves must have an adequate width.

### Adjustment of the drive centre distance allowances

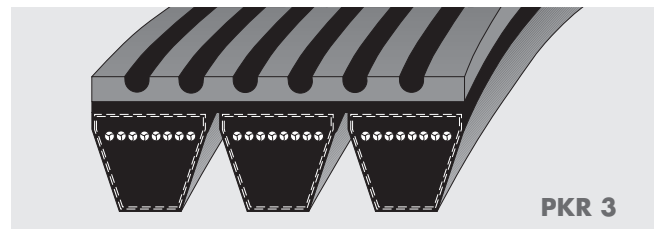
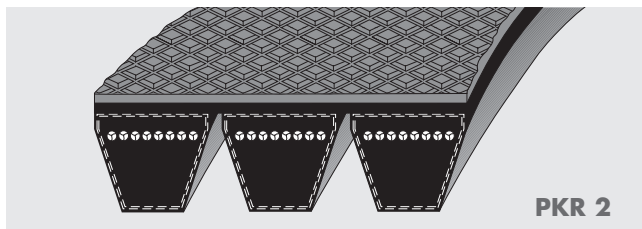
The tables on pages 80 to 82 show the drive centre distance allowances for special purpose conveyor belts and kraftbands.

### Tensioning options

An adequate belt tension is essential to the reliable operation of the conveyor system. Tension is applied by adjusting the drive centre distance or, when the centres are fixed, by tension idlers.

When idlers are employed, they should be arranged inside the belt if possible, as otherwise the alternating flexing of the belt will reduce its service life.

## optibelt KB KRAFTBANDS WITH PATTERNED TOP SURFACE



| Pattern type | Top surface height<br>standard<br>[mm] | maximum<br>[mm] | Pitch<br>[mm] | Groove<br>width<br>[mm] |
|--------------|----------------------------------------|-----------------|---------------|-------------------------|
| PKR 0        | 3                                      | 5               | —             | —                       |
| PKR 1        | 3                                      | 5               | 10            | —                       |
| PKR 2        | 3                                      | 5               | —             | —                       |
| PKR 3        | 5                                      | —               | —             | 3.7                     |

| Type/Colour  | Temperature<br>resistance<br>[°C] | Hardness<br>(Shore A) | Oil<br>resistance | Loss of<br>colour |
|--------------|-----------------------------------|-----------------------|-------------------|-------------------|
| SBR-NR/light | -40 to + 70                       | ≈ 55                  | no                | no                |
| CR/black     | -25 to +100                       | ≈ 65                  | limited           | yes               |

SBR = Styrene-Butadiene-Rubber  
NR = Natural Rubber  
CR = Chloroprene Rubber

Table 98

| Profile | Cross-sectional<br>dimensions of the belt<br>[mm] | Kraftband height<br>without top<br>surface [mm] | Length<br>designation | Length<br>[mm]              | Maximum<br>production length<br>[mm] | Pattern type |       |       |       |
|---------|---------------------------------------------------|-------------------------------------------------|-----------------------|-----------------------------|--------------------------------------|--------------|-------|-------|-------|
|         |                                                   |                                                 |                       |                             |                                      | PKR 0        | PKR 1 | PKR 2 | PKR 3 |
| 3V/9J   | 9 x 8                                             | 9.9                                             | 500 ≤ 1400            | 1400 ≤ 3556 L <sub>a</sub>  | 4250                                 | •            | •     | •     | —     |
| 5V/15J  | 15 x 13                                           | 15.1                                            | 500 ≤ 3550            | 1400 ≤ 9017 L <sub>a</sub>  | 10000                                | •            | •     | •     | —     |
| 8V/25J  | 25 x 23                                           | 25.5                                            | 1000 ≤ 4750           | 2540 ≤ 12065 L <sub>a</sub> | 15000                                | •            | •     | •     | —     |
| SPB     | 16.3 x 13                                         | 15.6                                            | —                     | 2400 ≤ 6000 L <sub>d</sub>  | 6000                                 | •            | •     | •     | —     |
| A/HA    | 13 x 8                                            | 9.9                                             | —                     | 1400 ≤ 5000 L <sub>i</sub>  | 8000                                 | •            | •     | •     | —     |
|         |                                                   |                                                 |                       | 2850 ≤ 8000 L <sub>i</sub>  | on request                           | —            | —     | —     | •     |
| B/HB    | 17 x 11                                           | 13.0                                            | —                     | 1400 ≤ 7100 L <sub>i</sub>  | 10000                                | •            | •     | •     | —     |
| C/HC    | 22 x 14                                           | 16.2                                            | —                     | 2286 ≤ 7100 L <sub>i</sub>  | 12000                                | •            | •     | •     | —     |

L<sub>a</sub> = outside length; L<sub>i</sub> = inside length; L<sub>d</sub> = datum length

Product Range: see pages 38-40. Minimum order quantities: on request.

# CONVEYOR ELEMENTS

optibelt **PKR** ENDLESS V-BELTS AND

optibelt **KB** KRAFTBANDS WITH PATTERNED TOP SURFACE



Table 99

| Pattern types | Top surface height |                 | Pitch<br>[mm] | Groove<br>width<br>[mm] |
|---------------|--------------------|-----------------|---------------|-------------------------|
|               | standard<br>[mm]   | maximum<br>[mm] |               |                         |
| <b>PKR 0</b>  | 3                  | 5               | —             | —                       |
| <b>PKR 1</b>  | 3                  | 5               | 10            | —                       |
| <b>PKR 2</b>  | 3                  | 5               | —             | —                       |
| <b>PKR 5</b>  | 5                  | —               | 13            | —                       |

Table 100

| Type/Colour         | Temperature<br>resistance<br>[°C] | Hardness<br>(Shore A) | Oil<br>resistance | Loss of<br>colour |
|---------------------|-----------------------------------|-----------------------|-------------------|-------------------|
| <b>SBR-NR/light</b> | -40 to + 70                       | ≈ 55*/65**            | no                | no                |
| <b>CR/black</b>     | -25 to +100                       | ≈ 65                  | limited           | yes               |

SBR = Styrene-Butadiene-Rubber

NR = Natural Rubber

CR = Chloroprene Rubber

\* ≈ 55 for top surfaces above the standard height

\*\* ≈ 65 for top surfaces within the standard height

Table 101

| Top surfaces <b>above</b> the standard height |                              |                                                              |              |       |       |                      | Top surfaces 3 or 5 mm above the standard height                                                        |                                                                                  |
|-----------------------------------------------|------------------------------|--------------------------------------------------------------|--------------|-------|-------|----------------------|---------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Profile                                       | Stand-<br>ard height<br>[mm] | Standard<br>insight length range<br>[mm]                     | Pattern Type |       |       |                      | Minimum order quantities for V-belts<br>with patterned top surface<br><b>PKR 0; PKR 1; PKR 2; PKR 5</b> |                                                                                  |
|                                               |                              |                                                              | PKR 0        | PKR 1 | PKR 2 | PKR 5                | for standard<br>range<br>(as listed on<br>pages 29 to 33)                                               | for non-stand-<br>ard length<br>ranges<br>(sizes not included<br>in this manual) |
| <b>A/13</b>                                   | 8.0                          | 1 200 ≤ 5 000 <sup>1)</sup>                                  | •            | •     | •     | —                    | 18 pieces                                                                                               | 31 pieces                                                                        |
| <b>B/17</b>                                   | 11.0                         | 1 200 ≤ 2 000 <sup>1)</sup><br>2 001 ≤ 7 100 <sup>1)</sup>   | •            | •     | •     | —                    | 15 pieces<br>15 pieces                                                                                  | 50 pieces<br>42 pieces                                                           |
| <b>20</b>                                     | 12.5                         | 1 850 ≤ 2 000 <sup>2)</sup><br>2 001 ≤ 8 000 <sup>2)</sup>   | •            | •     | •     | —                    | 13 pieces<br>13 pieces                                                                                  | 21 pieces<br>36 pieces                                                           |
| <b>C/22</b>                                   | 14.0                         | 1 850 ≤ 2 000 <sup>2)</sup><br>2 001 ≤ 10 000 <sup>2)</sup>  | •            | •     | •     | —                    | 12 pieces<br>12 pieces                                                                                  | 57 pieces<br>48 pieces                                                           |
| <b>25</b>                                     | 16.0                         | 1 850 ≤ 2 000 <sup>2)</sup><br>2 001 ≤ 10 000 <sup>2)</sup>  | •            | •     | •     | —                    | 11 pieces<br>11 pieces                                                                                  | 51 pieces<br>42 pieces                                                           |
| <b>D/32</b>                                   | 20.0                         | 2 850 ≤ 12 500 <sup>2)</sup><br>2 850 ≤ 12 500 <sup>2)</sup> | •            | •     | •     | —<br>• <sup>3)</sup> | 9 pieces<br>8 pieces                                                                                    | 22 pieces<br>8 pieces                                                            |
| <b>E/40</b>                                   | 25.0                         | —                                                            | —            | —     | —     | —                    | on request                                                                                              | on request                                                                       |

1) Maximum production length on request

2) Maximum production length 21.000 mm

3) Only available in CR/black

Profile Z/10 on request

Table 102

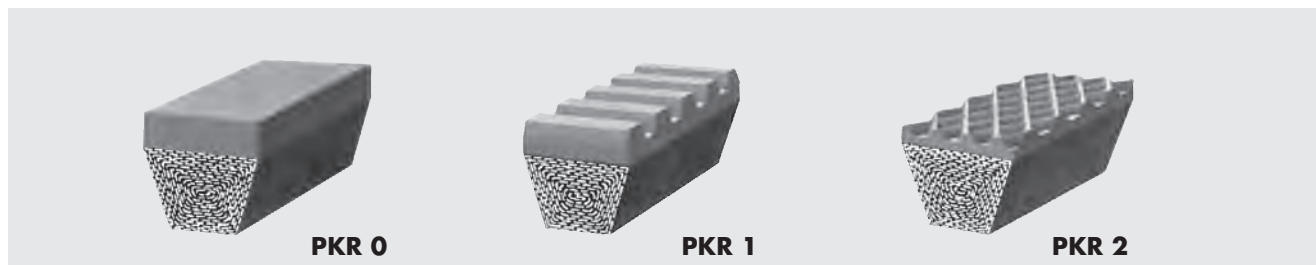
| Top surfaces <b>within</b> the standard height |              |       |                               |
|------------------------------------------------|--------------|-------|-------------------------------|
| Standard<br>insight length range<br>[mm]       | Pattern Type |       | Mini-<br>mum<br>quan-<br>tity |
|                                                | PKR 0        | PKR 2 |                               |
| 3 550 ≤ 10 000 <sup>1)</sup>                   | •            | •     | 10                            |
| 2 850 ≤ 21 000 <sup>1)</sup>                   | •            | •     | 10                            |
| 3 550 ≤ 21 000 <sup>1)</sup>                   | •            | •     | 8                             |
| 3 550 ≤ 21 000 <sup>1)</sup>                   | •            | •     | 8                             |
| 2 850 ≤ 21 000 <sup>1)</sup>                   | •            | •     | 8                             |
| 2 850 ≤ 21 000 <sup>1)</sup>                   | •            | •     | 6                             |
| 4 000 ≤ 21 000 <sup>1)</sup>                   | •            | •     | 5                             |

When ordering please give the overall height of the V-belt including top surface. For this purpose, you need the designation of the profile described as follows:

Profile B/17 – top surface within the standard height = 17 x 11  
 Profile B/17 – with additional 3 mm top surface = 17 x 14  
 Profile B/17 – with additional 5 mm top surface = 17 x 16

# CONVEYOR ELEMENTS

## optimat **PKR** OPEN-ENDED V-BELTS DIN 2216 WITH PATTERNED TOP SURFACE



**Table 103**

| Profile     | PKR 0<br>CR/red-brown |   | PKR 0<br>SBR-NR/light |   | PKR 1 |   | PKR 2 |   |
|-------------|-----------------------|---|-----------------------|---|-------|---|-------|---|
|             | S                     | P | S                     | P | S     | P | S     | P |
| <b>Z/10</b> | •                     | • | —                     | — | —     | — | —     | — |
| <b>A/13</b> | •                     | • | •                     | • | •     | • | •     | • |
| <b>B/17</b> | •                     | • | •                     | • | •     | • | •     | • |
| <b>C/22</b> | •                     | • | •                     | • | •     | • | •     | • |
| <b>25</b>   | •                     | • | •                     | • | •     | • | •     | • |
| <b>D/32</b> | •                     | • | •                     | • | •     | • | —     | — |

S = standard; P = polyester

**Table 104**

| Pattern types                             | Top surface height |              | Pitch<br>[mm] |
|-------------------------------------------|--------------------|--------------|---------------|
|                                           | standard<br>[mm]   | max.<br>[mm] |               |
| <b>PKR 0</b>                              | 2                  | 3            | —             |
| <b>PKR 1<br/>A/13;<br/>B/17;<br/>C/22</b> | 3                  | 3            | 10            |
| <b>PKR 1<br/>25; D/32</b>                 | 5                  | 5            | 10            |
| <b>PKR 2</b>                              | 3                  | —            | —             |

**Table 105**

| Type/Colour            | Temperature<br>resistance<br>[°C] | Hardness<br>(Shore A) | Oil<br>resistance | Loss of<br>colour |
|------------------------|-----------------------------------|-----------------------|-------------------|-------------------|
| <b>PKR 0</b>           |                                   |                       |                   |                   |
| CR/red brown           | −25 to +100                       | ≈ 50                  | limited           | no                |
| SBR-NR/light           | −40 to + 70                       | ≈ 45                  | no                | no                |
| <b>PKR 1 and PKR 2</b> |                                   |                       |                   |                   |
| NR/red brown           | −40 to + 70                       | ≈ 48                  | no                | no                |
| SBR-NR/light           | −40 to + 70                       | ≈ 45                  | no                | no                |
| CR/red brown           | −25 to +100                       | ≈ 50                  | limited           | no                |
| CR/black               | −25 to +100                       | ≈ 68                  | limited           | yes               |

# CONVEYOR ELEMENTS

optibelt **RR** ROUND BELTS, optibelt **KK** PLASTIC BELTS



| Profile | Width x Height [mm] | Roll length [m] | Diameter [mm] | Roll length [m] | Weight [≈ kg/m] |
|---------|---------------------|-----------------|---------------|-----------------|-----------------|
| 8       | 8 x 5               | 50              | 2             | 200             | 0.004           |
| Z/10    | 10 x 6              | 50              | 3             | 200             | 0.009           |
| A/13    | 13 x 8              | 50              | 4             | 200             | 0.016           |
| B/17    | 17 x 11             | 50              | 5             | 200             | 0.024           |
| C/22    | 22 x 14             | 25              | 6             | 100             | 0.035           |
|         |                     |                 | 7             | 100             | 0.048           |
|         |                     |                 | 8             | 100             | 0.064           |
|         |                     |                 | 10            | 100             | 0.096           |
|         |                     |                 | 12            | 50              | 0.132           |
|         |                     |                 | 15            | 50              | 0.211           |

optibelt RR round belts and optibelt KK plastic belts are especially suitable as conveyor elements in the food industry, ceramic industry, and for applications in contact with oil and chemicals. They can also be used as drive elements for specific capacity ranges. Optibelt supplies different qualities that can be easily distinguished due to their different colours.

Minimum lengths for endless connection:

|              |                              |
|--------------|------------------------------|
| Round belts: | 200 mm                       |
| V-belts:     | Profile Z/10 to A/13: 300 mm |
|              | Profile B/17: 500 mm         |
|              | Profile C/22: 700 mm         |

## optibelt **KK** PLASTIC V-BELTS WITH PATTERNED TOP SURFACE (WHITE. 92 SHORE A) PLASTIC V-BELTS WITH POINTED ROOF PROFILE



| Profile | Width x Height [mm] | Roll length [m] | Form | Profile | Roll length [m] |
|---------|---------------------|-----------------|------|---------|-----------------|
| 8       | 8 x 5               | 50              | 1    | A/13    | 25              |
| Z/10    | 10 x 6              | 50              | 2    | A/13    | 25              |
| A/13    | 13 x 8              | 50              | 1    | B/17    | 25              |
| B/17    | 17 x 11             | 50              | 2    | B/17    | 25              |
| C/22    | 22 x 14             | 25              | 1    | C/22    | 25              |
|         |                     |                 | 2    | C/22    | 25              |

### Federal Republic of Germany

|                    |                                                                                                              |
|--------------------|--------------------------------------------------------------------------------------------------------------|
| DIN 109 Sheet 1    | – Drive Elements; Circumferential Speeds                                                                     |
| DIN 109 Sheet 2    | – Drive Elements; Centre Distances for V-Belt Drives                                                         |
| DIN 111            | – Pulleys for Flat Transmission Belts; Dimensions. Nominal Torques                                           |
| DIN 111 Sheet 2    | – Pulleys for Flat Transmission Belts; Classification for Electrical Machines                                |
| DIN 2211 Sheet 1   | – Grooved Pulleys for Narrow V-Belts; Dimensions. Materials                                                  |
| DIN 2211 Sheet 2   | – Grooved Pulleys for Narrow V-Belts; Inspections of Grooves                                                 |
| DIN 2211 Sheet 3   | – Grooved Pulleys for Narrow V-Belts; Classification for Electrical Machines                                 |
| DIN 2215           | – Endless V-Belts, Classical Profiles; Minimum Datum Diameter of the Pulleys, Internal and Datum Belt Length |
| DIN 2216           | – Open-Ended V-Belts; Dimensions                                                                             |
| DIN 2217 Sheet 1   | – V-Belt Pulleys for Classical Profiles; Dimensions. Materials                                               |
| DIN 2217 Sheet 2   | – V-Belt Pulleys for Classical Profiles; Inspections of Grooves                                              |
| DIN 2218           | – Endless V-Belts, Classic Profiles for Mechanical Engineering; Calculation of Drives, Performance Data      |
| DIN 7716           | – Rubber Products; Requirements for Storage, Cleaning and Maintenance                                        |
| DIN 7719 Part 1    | – Endless Wide V-Belts for Industrial Speed Changers; Belts and Groove Profiles for Corresponding Pulleys    |
| DIN 7719 Part 2    | – Endless Wide V-Belts for Industrial Speed Changers; Measurement of Centre Distance Variations              |
| DIN 7721 Part 1    | – Synchronous Belt Drives, Metric Pitch; Synchronous Belts                                                   |
| DIN 7721 Part 2    | – Synchronous Belt Drives. Metric Pitch; Tooth Space Profile of Synchronous Pulleys                          |
| DIN 7722           | – Endless Hexagonal Belts for Agricultural Machines and Groove Profiles of Corresponding Pulleys             |
| DIN 7753 Part 1    | – Endless Narrow V-Belts for Mechanical Engineering; Dimensions                                              |
| DIN 7753 Part 2    | – Endless Narrow V-Belts for Mechanical Engineering; Drive Calculation, Performance Data                     |
| DIN 7753 Part 3    | – Endless Narrow V-Belts for the Automotive Industry; Dimensions                                             |
| DIN 7753 Part 4    | – Endless Narrow V-Belts for the Automotive Industry; Fatigue Testing                                        |
| DIN 7867           | – V-Ribbed Belts and Pulleys                                                                                 |
| DIN/ISO 5290       | – Grooved Pulleys for Joined Narrow V-Belts; Groove Profiles 9J; 15J; 20J; 25J                               |
| DIN 22100-7        | – Articles from Synthetics for Use in Underground Mines, Paragraph 5.4 – V-Belts                             |
| DIN EN 60695-11-10 | – Fire Hazard Testing                                                                                        |

|              |                                                                                                                  |
|--------------|------------------------------------------------------------------------------------------------------------------|
| ISO 2790     | – Narrow V-Belt Drives for the Automotive Industry; Dimensions                                                   |
| ISO 3410     | – Endless Speed Changer Belts and Pulleys for Agricultural Machinery                                             |
| ISO 4183     | – Grooved Pulleys for Classical V-Belts and Narrow V-Belts                                                       |
| ISO 4184     | – Classical V-Belts and Narrow V-Belts; Lengths                                                                  |
| ISO 5256     | – Synchronous Belt Drives; Belt Tooth Pitch Code Part 1 MXL; XL; L; H; XH; XXH Part 2 MXL; XXL Metric Dimensions |
| ISO 5287     | – Narrow V-Belt Drives for the Automotive Industry; Fatigue Test                                                 |
| ISO 5288     | – Vocabulary from Timing Belt Drives                                                                             |
| ISO 5289     | – Endless Double Profile V-Belts and Pulleys for Agricultural Machinery                                          |
| ISO 5290     | – Grooved Pulleys for Joined Narrow V-Belts; Profiles: 9J; 15J; 20J; 25J                                         |
| ISO 5291     | – Grooved Pulleys for Joined Classical V-Belts; Profiles: AJ; BJ; CJ; DJ                                         |
| ISO 5292     | – Industrial V-Belt Drives; Calculations of the Performance Data and Centre Distance                             |
| ISO 5295     | – Timing Belts; Calculations of the Performance Data and Centre Distance – “Inch Pitch”                          |
| ISO 8370-1   | – Dynamic Test to Determine Pitch Zone Location with V-Belts                                                     |
| ISO 8370-2   | – Dynamic Test to Determine Pitch Zone Location with V-Ribbed Belts                                              |
| ISO/DIS 8419 | – Belt Drives; Joined Narrow V-Belts; Lengths in Effective System; 9N/J, 15N/J, 25N/J                            |
| ISO 9010     | – Synchronous Belt Drives – Automotive Belts                                                                     |
| ISO 9011     | – Synchronous Belt Drives – Automotive Pulleys                                                                   |
| ISO 9563     | – Antistatic Endless Synchronous Belts; Electrical Conductibility; Characteristics and Testing Method            |
| ISO 9980     | – Belt Drives; V-Belt Pulleys, Geometric Inspection of Grooves                                                   |
| ISO 9981     | – Belt Drives – Pulleys and V-Ribbed Belts for the Automotive Industry; PK Profile                               |
| ISO 9982     | – Belt Drives; Pulleys and V-Ribbed Belts for Industrial Requirements; Geometric Data PH, PJ, PK, PL, PM         |
| ISO 11749    | – Belt Drives – V-Ribbed Belts for the Automotive Industry; Fatigue Testing                                      |
| ISO 12046    | – Synchronous Belt Drives – Automotive Belts – Physical Characteristics                                          |
| ISO 13050    | – Synchronous Belt Drives – Metric Pitch, Curvilinear Profile Systems G, H, R and S, Belts and Pulleys           |
| ISO 17396    | – Synchronous Belt Drives – Metric Pitch, Trapezoidal Profile Systems T and AT, Belts and Pulleys                |
| ISO 19347    | – Synchronous belt drives – Imperial pitch trapezoidal profile system – Belts and pulleys                        |

### ISO – International Organization for Standardization

|          |                                                                                                           |
|----------|-----------------------------------------------------------------------------------------------------------|
| ISO 22   | – Widths of Flat Transmission Belts and Corresponding Pulleys                                             |
| ISO 63   | – Flat Belt Drives; Lengths                                                                               |
| ISO 99   | – Diameter of the Belt Pulleys for Flat Belts                                                             |
| ISO 100  | – Bulging Height of the Belt Pulleys for Flat Belts                                                       |
| ISO 155  | – Belt Pulleys; Limiting Values for Adjustment of Centre Distances                                        |
| ISO 254  | – Quality, Finish and Balance of Belt Pulleys                                                             |
| ISO 255  | – Pulleys for Classical V-Belts and Narrow V-Belts; Geometric Testing of Grooves                          |
| ISO 1081 | – Vocabulary from V-Belts, V-Ribbed Belts and Pulleys                                                     |
| ISO 1604 | – Endless Speed Changer Belts and Pulleys for Mechanical Engineering                                      |
| ISO 1813 | – Electrical Conductivity of V-Belts, Kraftbands, V-Ribbed Belts, Wide V-Belts and Double Profile V-Belts |
| ISO 2230 | – Please Consult DIN 7716                                                                                 |

### USA

|                |                                                                |
|----------------|----------------------------------------------------------------|
| RMA/ARPM IP-20 | – Classical V-Belts and Sheaves (A; B; C; D; Cross Profiles)   |
| RMA/ARPM IP-21 | – Double (Hexagonal) Belts (AA; BB; CC; DD Cross Profiles)     |
| RMA/ARPM IP-22 | – Narrow Multiple V-Belts (3V; 5V; and 8V Cross Profiles)      |
| RMA/ARPM IP-23 | – Single V-Belts (2L; 3L; 4L; and 5L Cross Profiles)           |
| RMA/ARPM IP-24 | – Synchronous Belts (MXL; XL; L; H; XH; and XXH Belt Profiles) |
| RMA/ARPM IP-25 | – Variable Speed V-Belts (12 Cross Profiles)                   |
| RMA/ARPM IP-26 | – V-Ribbed Belts (PH; PJ; PK; PL; and PM Cross Profiles)       |
| RMA/ARPM IP-27 | – Curvilinear Toothed Synchronous Belts (8M – 14M Pitches)     |
| ASAE S 211.... | – V-Belt Drives for Agricultural Machines                      |
| SAE J636b      | – V-Belts and Pulleys                                          |
| SAE J637       | – Automotive V-Belt Drives                                     |

# DATA SHEET

## FOR THE CALCULATION/CHECKING OF DRIVES



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F +49 5271 976200  
E info@optibelt.com  
www.optibelt.com

Company \_\_\_\_\_

(stamp)

For test ☐ New drive ☐  
For initial production ☐ Existing drive ☐  
For series production ☐ Usage \_\_\_\_\_ belts/year

Fitted with:

| Number | Size | Manufacturer |
|--------|------|--------------|
|        |      |              |

### Prime Mover

Type (e.g. electric motor, diesel engine 3 cyl.) \_\_\_\_\_  
Size of starting torque (e.g. MA = 1.8 MN) \_\_\_\_\_  
Method of starting (e.g. star delta) \_\_\_\_\_  
Operational hours per day \_\_\_\_\_ hours  
Number of starts \_\_\_\_\_ per hour ☐ per day ☐  
Rational reverses \_\_\_\_\_ per minute ☐ per hour ☐  
\*Power: P normal \_\_\_\_\_ kW  
P maximum \_\_\_\_\_ kW  
or maximum torque \_\_\_\_\_ Nm at  $n_1$  \_\_\_\_\_ r.p.m.  
\*Speed  $n_1$  \_\_\_\_\_ r.p.m.  
Position of shafts: horizontal ☐ vertical ☐  
angled ☐  $\alpha$  \_\_\_\_\_ °  
Maximum allowable shaft loading  $S_{a \max}$  \_\_\_\_\_ N  
\*Datum or outside diameter of pulley:  
 $d_{d1}$  \_\_\_\_\_ mm  $d_{a1}$  \_\_\_\_\_ mm  
 $d_{d1 \min}$  \_\_\_\_\_ mm  $d_{a1 \min}$  \_\_\_\_\_ mm  
 $d_{d1 \max}$  \_\_\_\_\_ mm  $d_{a1 \max}$  \_\_\_\_\_ mm  
Pulley face width  $b_{2 \max}$  \_\_\_\_\_ mm

Speed ratio  $i$  \_\_\_\_\_  
•Centre distance  $a$  \_\_\_\_\_ mm  
Tension/guide pulleys: inside ☐  
outside ☐  
 $d_d$  \_\_\_\_\_ mm V-pulley ☐  
 $d_a$  \_\_\_\_\_ mm flat pulley ☐

**Operating Conditions:** Ambient temperature

Exposure to oil ☐  
water ☐  
acid ☐  
dust ☐

\* required  
• optional

### Driven Machine

Type (e.g. lathe, compressor) \_\_\_\_\_  
Start: loaded ☐ unloaded ☐  
Nature of load: constant ☐ pulsating ☐  
shock ☐  
Rating: P normal \_\_\_\_\_ kW  
P maximum \_\_\_\_\_ kW  
or maximum torque \_\_\_\_\_ Nm at  $n_2$  \_\_\_\_\_ r.p.m.  
Speed  $n_2$  \_\_\_\_\_ r.p.m.  
 $n_{2 \min}$  \_\_\_\_\_ r.p.m.  
 $n_{2 \max}$  \_\_\_\_\_ r.p.m.  
Maximum allowable shaft loading  $S_{a \max}$  \_\_\_\_\_ N  
Datum or outside diameter of pulley:  
 $d_{d2}$  \_\_\_\_\_ mm  $d_{a2}$  \_\_\_\_\_ mm  
 $d_{d2 \min}$  \_\_\_\_\_ mm  $d_{a2 \min}$  \_\_\_\_\_ mm  
 $d_{d2 \max}$  \_\_\_\_\_ mm  $d_{a2 \max}$  \_\_\_\_\_ mm  
Pulley face width  $b_{2 \max}$  \_\_\_\_\_ mm

$i_{\min}$  \_\_\_\_\_  $i_{\max}$  \_\_\_\_\_  
 $a_{\min}$  \_\_\_\_\_ mm  $a_{\max}$  \_\_\_\_\_ mm  
in drive slack side ☐  
in drive tight side ☐  
movable ☐ (e.g. spring loaded) \_\_\_\_\_  
fixed ☐  
\_\_\_\_\_ °C minimum  
\_\_\_\_\_ °C maximum  
(e.g. oil mist, droplets) \_\_\_\_\_  
(e.g. spray) \_\_\_\_\_  
(type, concentration, temperature) \_\_\_\_\_  
(type) \_\_\_\_\_

Special conditions: Where the drive is subjected to unusual conditions, e.g. inside or outside idler pulleys, 3- or multi-pulley drives, as well as drives with reverse rotational direction, drawings are required. Please use the back of this data sheet for sketches.

Details about the drive:

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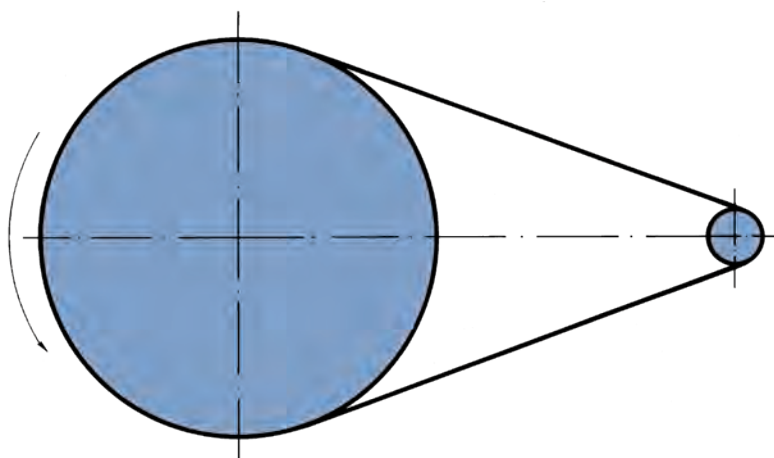
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# DATA SHEET

## FOR THE CALCULATION/CHECKING OF CONVEYOR SYSTEMS



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Company

(stamp)

For one off use ☐  
For series production ☐  
Usage \_\_\_\_\_ belts/year

New drive ☐  
Existing drive ☐

Fitted with:

| Number | Section/Length | Top surface | Manufacturer |
|--------|----------------|-------------|--------------|
|        |                |             |              |

### Prime Mover

Type (e.g. geared motor) \_\_\_\_\_  
Size of starting torque (e.g. MA = 1.8 MN) \_\_\_\_\_  
Method of starting (e.g. star delta) \_\_\_\_\_  
Start \_\_\_\_\_ under load ☐  
\_\_\_\_\_ unloaded ☐  
Operational hours per day \_\_\_\_\_ hours  
Number of starts \_\_\_\_\_ per hour ☐ per day ☐  
Power: P normal \_\_\_\_\_ kW  
P maximum \_\_\_\_\_ kW  
or maximum torque \_\_\_\_\_ Nm at  $n_1$  \_\_\_\_\_ r.p.m.  
Rotational speed  $n_1$  \_\_\_\_\_ r.p.m.  
Rotational speed  $n_2$  \_\_\_\_\_ r.p.m.  
Conveying speed min. \_\_\_\_\_ m/min  
max. \_\_\_\_\_ m/min  
Continuously variable yes ☐  
no ☐

Maximum allowable shaft loading  $S_{a \max}$  \_\_\_\_\_ N

Datum or outside diameter of the driver pulley:

$d_{d1}$  \_\_\_\_\_ mm  $d_{a1}$  \_\_\_\_\_ mm  
 $d_{d1 \min}$  \_\_\_\_\_ mm  $d_{a1 \min}$  \_\_\_\_\_ mm  
 $d_{d1 \max}$  \_\_\_\_\_ mm  $d_{a1 \max}$  \_\_\_\_\_ mm

Datum or outside diameter of the guide pulleys:

$d_{d2}$  \_\_\_\_\_ mm  $d_{a2}$  \_\_\_\_\_ mm  
 $d_{d2 \min}$  \_\_\_\_\_ mm  $d_{a2 \min}$  \_\_\_\_\_ mm  
 $d_{d2 \max}$  \_\_\_\_\_ mm  $d_{a2 \max}$  \_\_\_\_\_ mm

Speed ratio  $i$  \_\_\_\_\_  $i_{\min}$  \_\_\_\_\_  $i_{\max}$  \_\_\_\_\_

Position of shafts: horizontal ☐ vertical ☐  
angled ☐  $\angle$  \_\_\_\_\_ °

Overall width of the system \_\_\_\_\_ mm

Drive centre distance  $a$  \_\_\_\_\_ mm  $a_{\min}$  \_\_\_\_\_ mm  $a_{\max}$  \_\_\_\_\_ mm

Allowance for tensioning - \_\_\_\_\_ mm + \_\_\_\_\_ mm

Tension/guide pulleys: inside ☐  
outside ☐

$d_d$  \_\_\_\_\_ mm  $d_a$  \_\_\_\_\_ mm

Supporting pulleys V-pulleys ☐ flat pulleys ☐  
Bearings plain ☐ ball ☐  
Number \_\_\_\_\_ pieces  
 $d_d$  \_\_\_\_\_ mm  $d_a$  \_\_\_\_\_ mm  
Spacing  $t$  \_\_\_\_\_ pieces  
Support rails flat ☐ V-grooved ☐  
Material (e.g. steel, plastic) \_\_\_\_\_

### Conveyed Material

Type (e.g. concrete slabs) \_\_\_\_\_  
Condition of the corners round ☐  
sharp ☐  
Conditions of the contact surface rough ☐  
smooth ☐  
Conveyed horizontally ☐ vertically ☐  
inclined ☐  $\angle$  \_\_\_\_\_ °  
downwards ☐ upwards ☐  
Dimensions  $l \times w \times h$  [mm] \_\_\_\_\_ x \_\_\_\_\_ x \_\_\_\_\_  
Motion continuous ☐ cycled ☐  
collected ☐

### Operating Conditions

Ambient temperature \_\_\_\_\_ °C minimum  
\_\_\_\_\_ °C maximum  
Exposure to oil ☐ (e.g. oil mist) \_\_\_\_\_  
water ☐ (e.g. spray) \_\_\_\_\_  
acid ☐ (type, concentration, temperature) \_\_\_\_\_  
dust ☐ (type) \_\_\_\_\_  
In the open air yes ☐  
no ☐

The back of this data sheet is provided for sketches of the drive arrangement. Please include the dimensions of all the pulleys and idlers used in the proposed design.



#### Details about the conveyor system:

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