HIWIN®

ELECTRIC ACTUATOR

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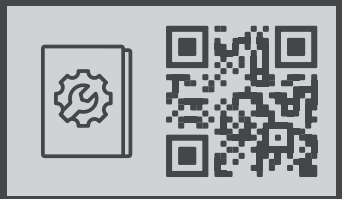
ELECTRIC ACTUATOR

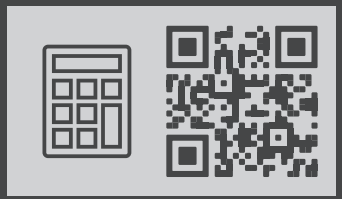
Our electric actuators are developed specially for use in industrial automation. They deliver flexible connectivity, powerful performance and a compact design. Rotational movement of the motor is converted into linear movement by a specially developed ballscrew that extends or retracts the actuator piston tube. The robust aluminium housing is equipped with versatile end/drive blocks and grooves machined into the profile. This enables easy, direct and flexible mounting. The motor connection can be selected as straight (inline) or belt driven (parallel). Two slide guides can also be retrofitted on the electric actuator. They reliably absorb transverse forces and torque and increase the stability of the piston tube during movement. The arrangement is freely selectable and depends on the acting forces.

DOWNLOADS AND **APPLICATIONS**

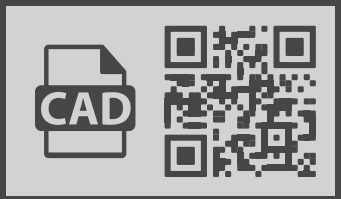
Assembly Instructions



Sizing tools



CAD Configurator

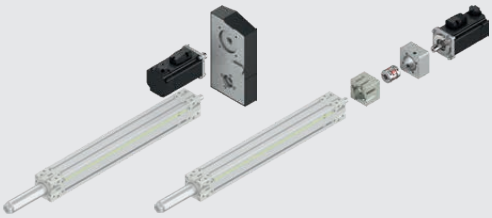


Contents

1. Product overview

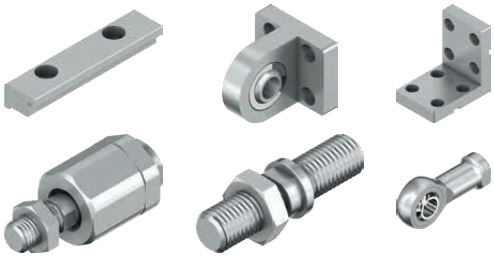
Electric actuator with ballscrew EA-S Page 10

- High feed thrust
- High positioning accuracy
- High drive rigidity
- High acceleration
- High velocity
- Optional with slide guide



Drive adaptation Page 41

- Adapter for flexible motor connection
- Straight (inline) or belt driven (parallel)



Accessories Page 45

- Mounting accessories
- Piston tube accessories
- Lubricants

2. General information

2.1 Properties of electric actuators EA

HIWIN electric actuators EA are powerful and compact linear drives developed specially for precise positioning tasks in industrial applications. They are based on a heavy-duty and low-wear ballscrew, combined with a sturdy and lightweight aluminium profile. Optionally, a slide guide can be mounted on the basic actuator.
With a stroke that can be freely selected in millimetre steps, an open motor connection and a wide selection of accessories, the electric actuators can be individually adapted to the respective application requirements.

Advantages of electric actuators EA

- **Product range:**
  The electric actuator is available in four sizes (40, 50, 60 and 80 mm). The stroke can be freely selected in millimetre steps.
- **High-performance ballscrew:**
  A ballscrew developed specially for the electric actuator ensures high force absorption, high accuracy, fast movements and optimum running behaviour.
- **Flexible connection:**
  The multifunctional end/drive block and the T-slots in the actuator profile facilitate connection in the application.
- **Optional slide guide:**
  The slide guide can be simply installed or retrofitted on the basic actuator. The alignment is freely selectable. It is used to absorb radial loads and for applications as a Z-axis in a multi-axis system (actuator or linear axis system) and increases system stability, thereby relieving the load on the drive.

Accessories:
Piston tube, mounting and adaptation accessories: We offer a wide range of accessories that are compatible with our electric actuators and enable the linear drives to be optimally adapted to your application.

- **Low maintenance:**
  Our electric actuators are lubricated for life, thus eliminating the need for relubricating. The block of the slide guide is equipped with a long-term lubrication unit and, therefore, does not have to be relubricated either.
- **100% duty cycle:**
  Thanks to its 100% duty cycle, the electric actuator is ideally suited for industrial use.

2.2 Installation location requirements

- Temperature range: +5 °C to +40 °C
- Dry
- Non-explosive
- No vacuum

3. Product selection

3.1 Electric actuator

Electric actuator for positioning in one direction.

Table 3.1 **Product selection diagram**

Drive element	Typical properties	Size	Max. static axial force [N] [1]	Max. dynamic feed force [N]	Max. drive torque [Nm]	Max. travel speed [m/s]	Max. standard stroke [mm] [2]	Repeatability [mm]	Page :
Electric actuator with ballscrew 	– High feed thrust – High positioning accuracy – High rigidity – High acceleration – High velocity – Optional with slide guide	**EA040-S**	5,400	2,800	6.71	1.3	800	± 0.02	Page 13
		EA050-S	7,500	3,500	7.73	1.5	1,000	± 0.02	Page 22
		EA060-S	10,000	3,900	10.67	1.5	1,300	± 0.02	Page 29
		EA080-S	24,000	11,800	51.22	1.6	1,500	± 0.02	Page 36

[1] Max. static force related to a static structural safety of 1.0.
For sizing, a static structural safety of at least 1.5 must be calculated.
Not suitable for dynamic operation; sizing must be taken into account.

[2] Larger strokes on request

4. Electric actuator with ballscrew EA-S

4.1 Properties of electric actuators EA-S

The HIWIN electric actuators with ballscrew are compact drive units that can be used flexibly. The peeled, heavy-duty and low-wear ballscrew enables the electric actuator to achieve high force absorption, high accuracy, fast movements and optimum running behaviour. They are particularly suitable for applications where linear movements must be performed precisely and powerfully.

Ballscrew

HIWIN's integrated high-performance ballscrews made of peeled material and cassette recirculation impress due their high lead precision and rigidity. As such, they enable precise positioning.
To meet all the feed force and dynamic response requirements, various spindle leads are available for each size.

Slide guide

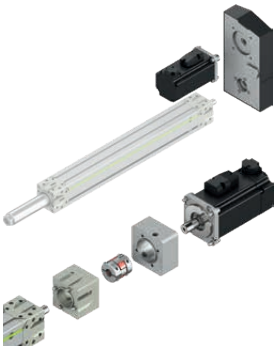
The optional slide guide can be simply installed or retrofitted on the basic actuator. It helps increase system stability while relieving the load on the drive. The installed HIWIN linear guideways provide additional support.
They are designed for radial forces and help guarantee exact guidance.

Piston tube

The piston tube is fixed with the nut of the ballscrew, which ensures reliable stroke movement.
By using top-quality stainless steel, it is characterised by its high-level strength and wear resistance.

Motor connection

The multi-part design of the motor adaptation creates an extremely flexible drive interface for attachment and conversion of the drive technology. Optionally, the motor attachment can be rotated 180° via a belt drive (parallel), which significantly reduces the overall length.

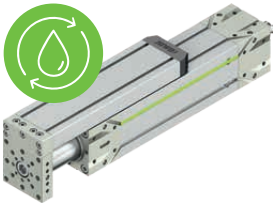


Multifunctional drive and end blocks

The multifunctional drive and end blocks enable easy mounting and connection of accessories and the slide guide.

Lifetime lubrication

Thanks to the standard lifetime lubrication of all moving components, the HIWIN electric actuator is low maintenance. This guarantees maximum operational reliability and minimum maintenance.
Prior to use in dusty or humid environments, please consult HIWIN.



Pressure equalisation

Pressure equalisation uses two air filters in the aluminium profile to prevent overpressure or underpressure from forming in the profile of the electric actuator due to stroke movements. The air supply and air exhaust openings must not be blocked and should not be used for a sealing air connection with compressed air. In special environments where air must not flow directly into and out of the area surrounding the electric actuator, a push-in fitting can be connected optionally to lead a cable out of the application.

4.2 Order code for electric actuators EA-S

EA	060	S	005	1234	0000	ABNN	FS

HIWIN electric actuator

Size (profile width):
040: 40 mm
050: 50 mm
060: 60 mm
080: 80 mm

Drive type:
S: Ballscrew

Thread lead/Motor size [mm]:
005
010
016
020
025
040

Stroke in mm

Piston tube extension in mm [1]

Flange plate:
NN: No flange plate
FS: Standard flange plate
FX: Customer-specific flange plate [2]

Slide guide [3]**:**
No slide:
NNNN
1 slide:
ANNN = top
BNNN = bottom
LNNN = left
RNNN = right
2 slide:
ABNN = top and bottom
LRNN = left and right
ARNN = top and right
ALNN = top and left
BRNN = bottom and right
BLNN = bottom and left

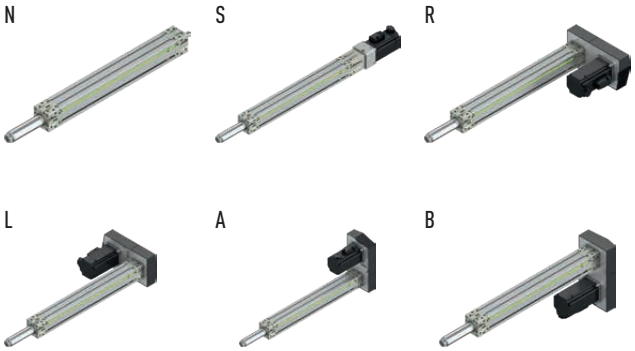
Continuation of order code for electric actuators EA-S

A	S1	xxxx

Limit switches:
N: Without limit switch
A: 1 × n/c contact, 300 mm cable, connector
B: 2 × n/c contact, 300 mm cable, connector
C: 1 × normally closed, 2 m open cable end
D: 2 × normally closed, 2 m open cable end

Drive interface:
N: Without
S1: Small coupling
S2: Large coupling
L10S: Left belt drive; transmission ratio =1.0; with swivel flange
L15S: Left belt drive; transmission ratio =1.5; with swivel flange
L10N: Left belt drive; transmission ratio =1.0; without swivel flange
L15N: Left belt drive; transmission ratio =1.5; without swivel flange
R10S: Right belt drive; transmission ratio =1.0; with swivel flange
R15S: Right belt drive; transmission ratio =1.5; with swivel flange
R10N: Right belt drive; transmission ratio =1.0; without swivel flange
R15N: Right belt drive; transmission ratio =1.5; without swivel flange
A10S: Top belt drive; transmission ratio =1.0; with swivel flange
A15S: Top belt drive; transmission ratio =1.5; with swivel flange
A10N: Top belt drive; transmission ratio =1.0; without swivel flange
A15N: Top belt drive; transmission ratio =1.5; without swivel flange
B10S: Bottom belt drive; transmission ratio =1.0; with swivel flange
B15S: Bottom belt drive; transmission ratio =1.5; with swivel flange
B10N: Bottom belt drive; transmission ratio =1.0; without swivel flange
B15N: Bottom belt drive; transmission ratio =1.5; without swivel flange

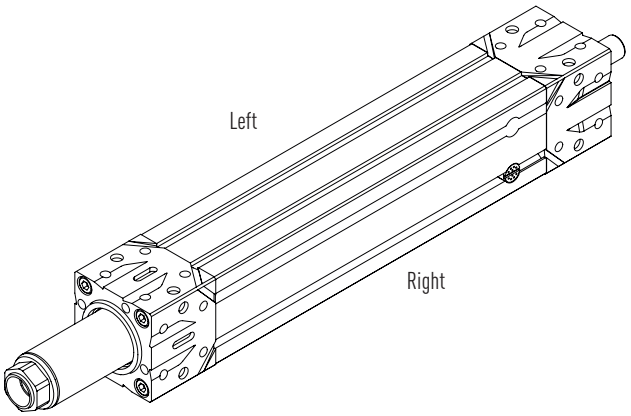
Motor flange type



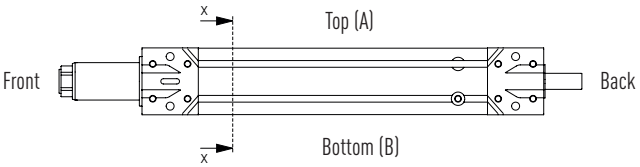
[1] Not possible in combination with slide guide
[2] Flange plate with specific hole pattern
[3] More than two slide guides on request. With slide guide, max. 300 mm stroke possible

4.3 Reference page for electric actuators EA-S

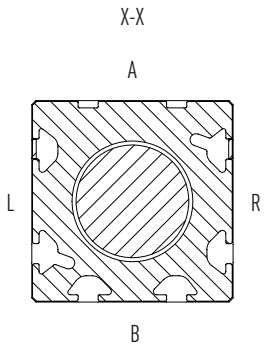
4.3.1 Isometric view



4.3.2 View from side



4.3.3 Sectional view



4.4 Dimensions and specifications EA040-S

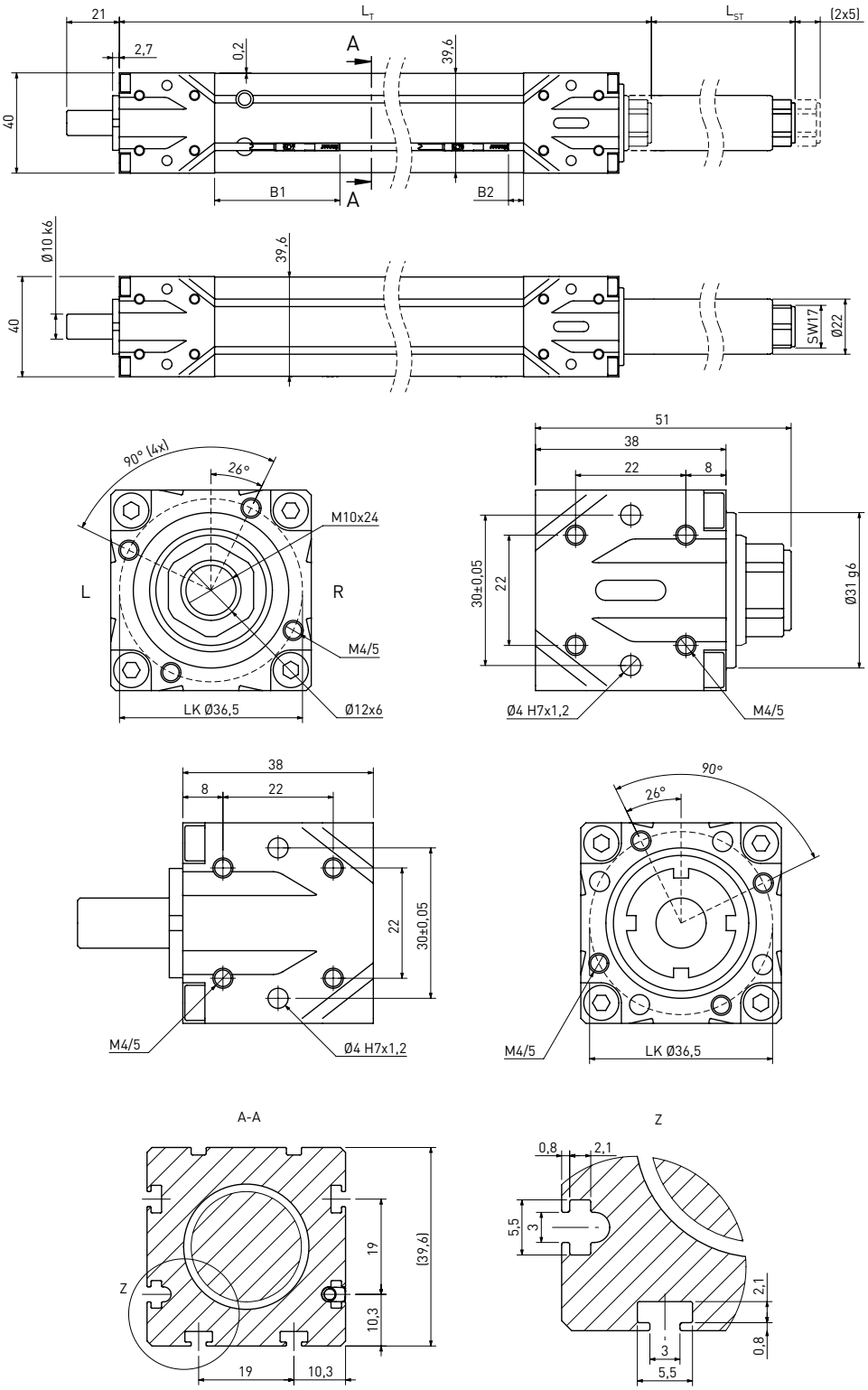


Table 4.1 **Dimensions EA040-S**			
Diameter × lead [mm]	15 × 5	15 × 10	15 × 16
Total length L_T [mm]	$L_T = L_{ST} + 155$	$L_T = L_{ST} + 171$	$L_T = L_{ST} + 187$
Max. stroke length L_{ST} [mm]	800	800	800
Switch position B1 [mm]	49	65	81
Switch position B2 [mm]	11	11	11

Electric actuator

Electric actuator with ballscrew EA-S

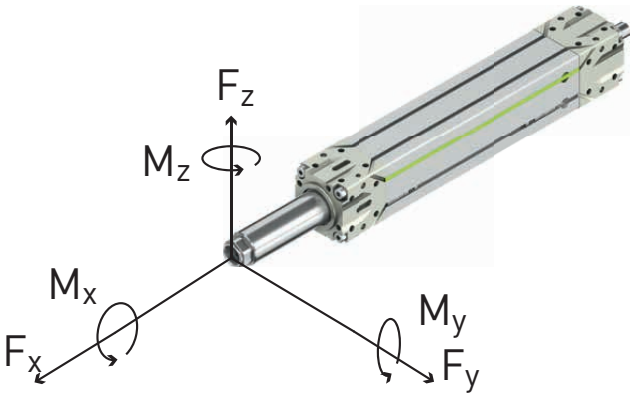


Table 4.2 **Technical data EA040-S**

Diameter × lead [mm]	15 × 5	15 × 10	15 × 16
Reference service life [km]	500	1,000	1,600
Max. static axial force [N] [1]	5,400	5,400	5,400
Max. dynamic feed force $F_{xdynmax}$ [N] [2]	2,800	2,300	1,700
Max. speed [m/s]	0.4	0.8	1.3
Max. acceleration [m/s²]	20	20	20
Repeatability [mm]	± 0.02	± 0.02	± 0.02
Max. drive torque M_{amax} [Nm]	2.68	4.28	5.01
Static load rating ballscrew C_{0BS} [N]	20,500	19,200	12,500
Dynamic load rating ballscrew C_{dynBS} [N]	16,900	14,100	10,400
Max. speed [rpm]	5,000	5,000	5,000

[1] Max. static force related to a static structural safety of 1.0.
For sizing, a static structural safety of at least 1.5 must be calculated.
Not suitable for dynamic operation; sizing must be taken into account.
[2] Based on the service life reference value

Table 4.3 **Mechanical properties EA040-S**

Diameter × lead [mm]	15 × 5	15 × 10	15 × 16
Moving mass at 0 stroke [kg]	0.31	0.376	0.431
Moving mass per 1 m stroke [kg/m]	1.21	1.21	1.21
J rot. at 0 stroke [kgcm²]	0.05	0.06	0.07
J rot. per 1 m stroke [kgcm²/m]	0.39	0.39	0.39
Total mass at 0 stroke [kg]	0.91	1.03	1.14
Total mass per 1 m stroke [kg/m]	4.03	4.03	4.03
Idle torque at 0 stroke [Nm]	0.2	0.2	0.2

4.5 Diagrams EA040-S

4.5.1 Attachment variants

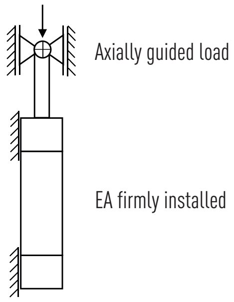


Fig. 4.1 **Attachment variant 1**

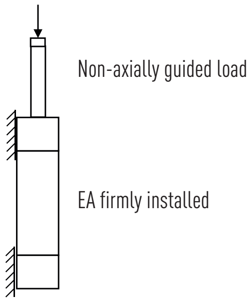


Fig. 4.2 **Attachment variant 2**

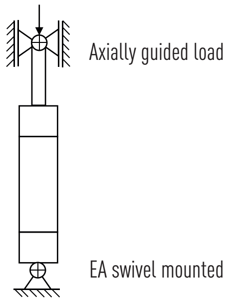
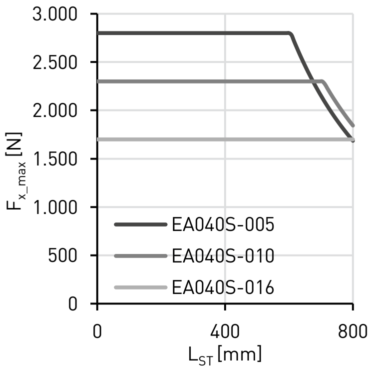
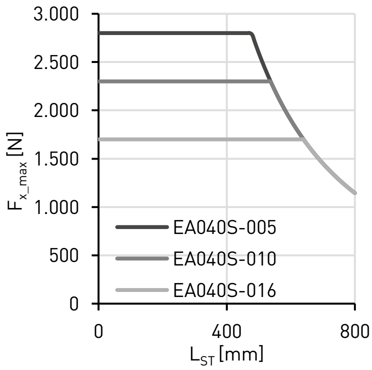
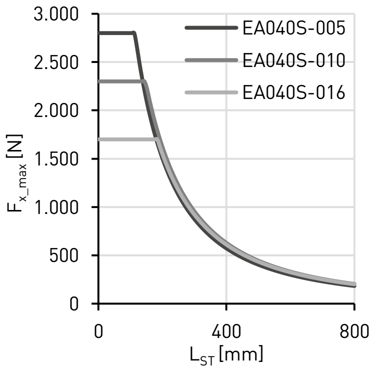


Fig. 4.3 **Attachment variant 3**







4.5.2 Maximum speed

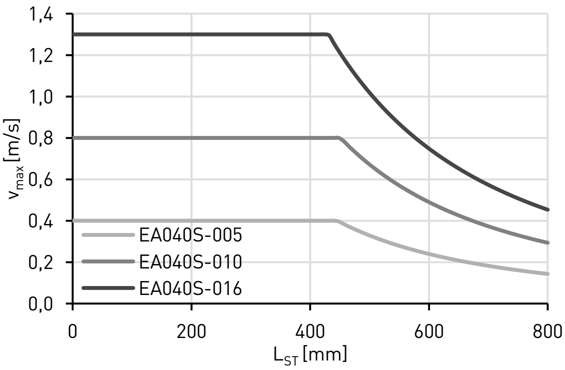


Fig. 4.4 **Unguided piston tube**

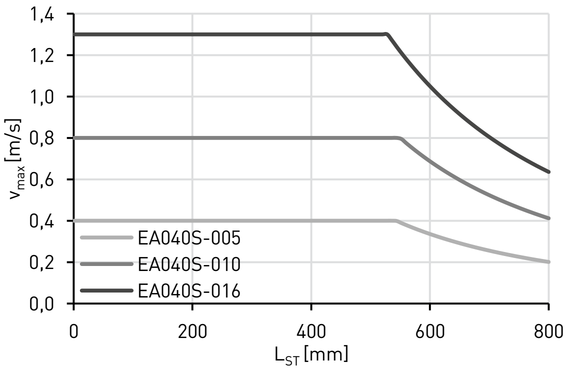
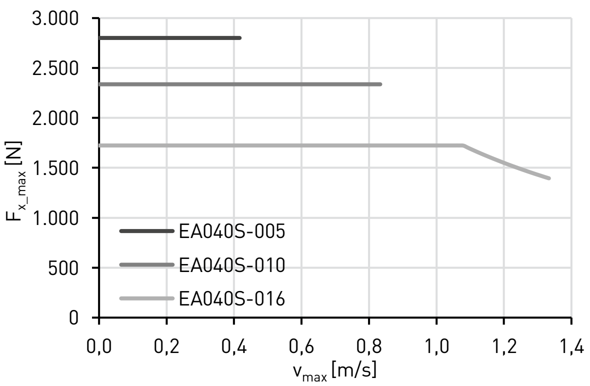
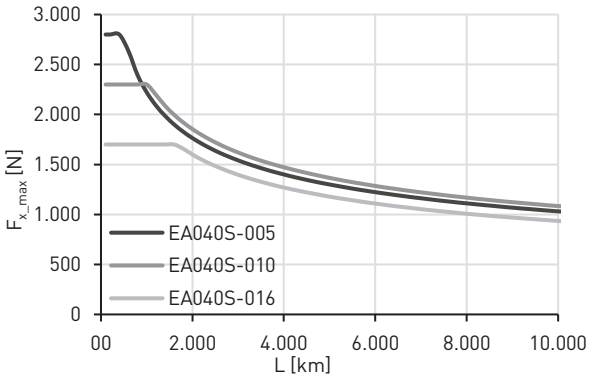


Fig. 4.5 **Externally guided piston tube**

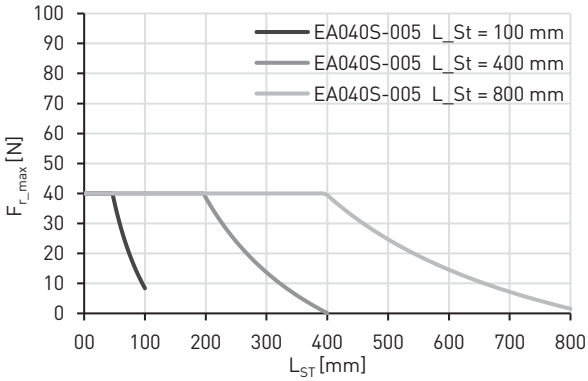
4.5.3 Ratio of force and speed



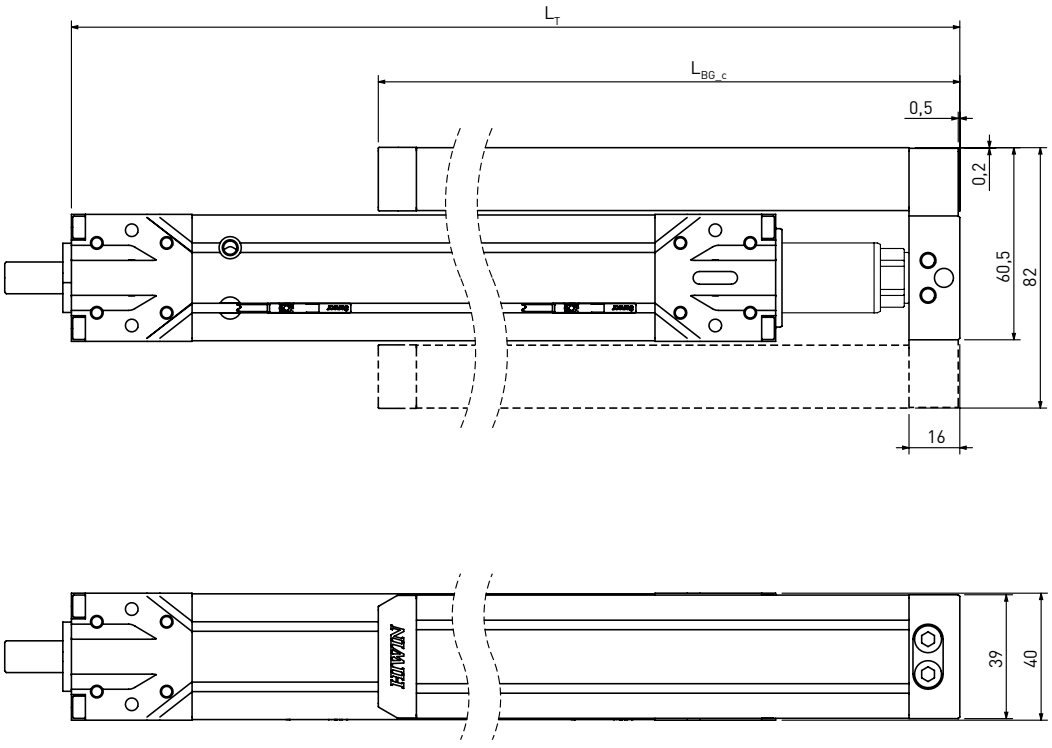
4.5.4 Service life characteristic curve



4.5.5 Permissible lateral forces



4.6 Dimensions and specifications EA040-S with slide guide



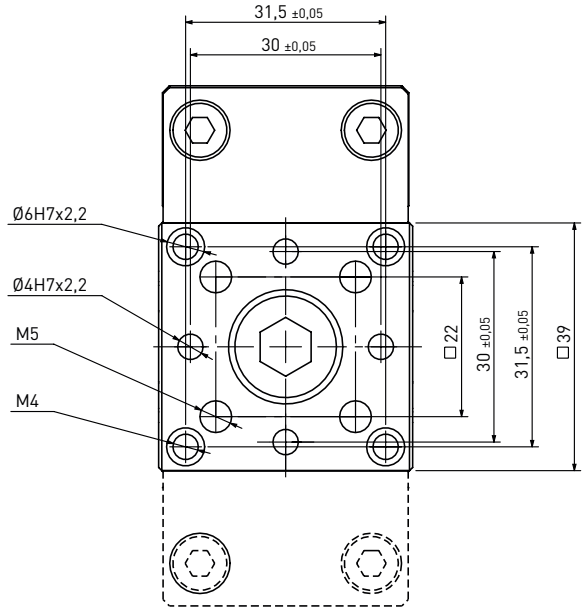


Table 4.4 **Dimensions EA040-S (with slide guide)**

Diameter × lead [mm]	15 × 5	15 × 10	15 × 16
Total length L_T [mm]	$L_T = L_{ST} + 171$	$L_T = L_{ST} + 187$	$L_T = L_{ST} + 203$
Max. stroke length L_{ST} [mm]	300	300	300
Zero stroke length interface assembly L_{BG_c} [mm]	103.35	103.35	103.35

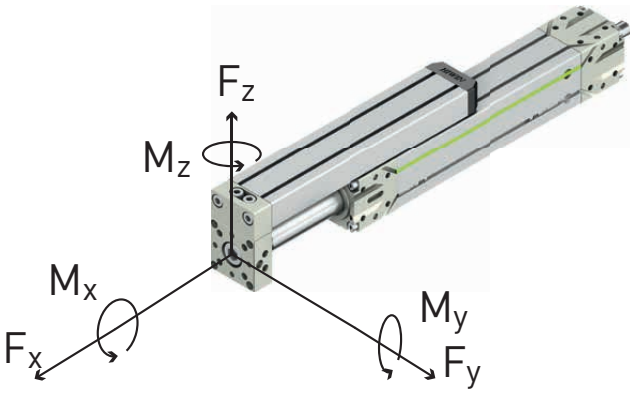


Table 4.5 **Technical data EA040-S (with slide guide)**

Diameter × lead [mm]	15 × 5	15 × 10	15 × 16
Reference service life [km]	500	1,000	1,600
Max. static feed force $Fx_{\_max}$ [N] 1)	5,400	5,400	5,400
Max. dynamic feed force $Fx_{\_max}$ [N] 2)	2,800	2,300	1,700
Max. speed [m/s]	0.4	0.8	1.3
Max. acceleration [m/s 2]	20	20	20
Repeatability [mm]	± 0.02	± 0.02	± 0.02
Max. drive torque M $A_{\_max}$ [Nm]	2.68	4.27	5.01
Static load rating ballscrew C 0 [N]	20,500	19,200	12,500
Dynamic load rating ballscrew C_{dyn} [N]	16,900	14,100	10,400
Static load rating block C_{0GW} [N]	5,890	5,890	5,890
Dynamic load rating block C_{dynGW} [N]	3,430	3,430	3,430
Max. speed [rpm]	5,000	5,000	5,000

1) Max. static force related to a static structural safety of 1.0.
For sizing, a static structural safety of at least 1.5 must be calculated.
Not suitable for dynamic operation; sizing must be taken into account.

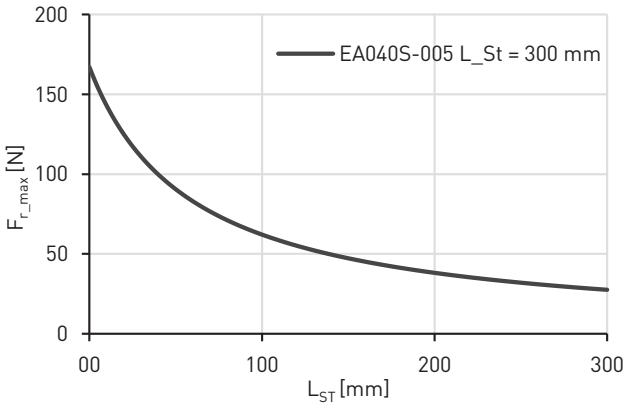
2) Based on the service life reference value

Table 4.6 **Mechanical properties EA040-S (with slide guide)**

Diameter × lead [mm]	15 × 5	15 × 10	15 × 16
Moving mass at 0 stroke [kg]	0.59	0.66	0.71
Moving mass per 1 m stroke [kg/m]	3.24	3.24	3.24
J rot. at 0 stroke [kgcm^2]	0.05	0.06	0.07
J rot. per 1 m stroke [kgcm^2/m]	0.39	0.39	0.39
Total mass at 0 stroke [kg]	1.25	1.37	1.48
Total mass per 1 m stroke [kg/m]	6.06	6.06	6.06
Idle torque at 0 stroke [Nm]	0.2	0.2	0.2

4.7 Diagrams EA040-S with slide guide

4.7.1 Permissible lateral forces



4.8 Dimensions and specifications EA050-S

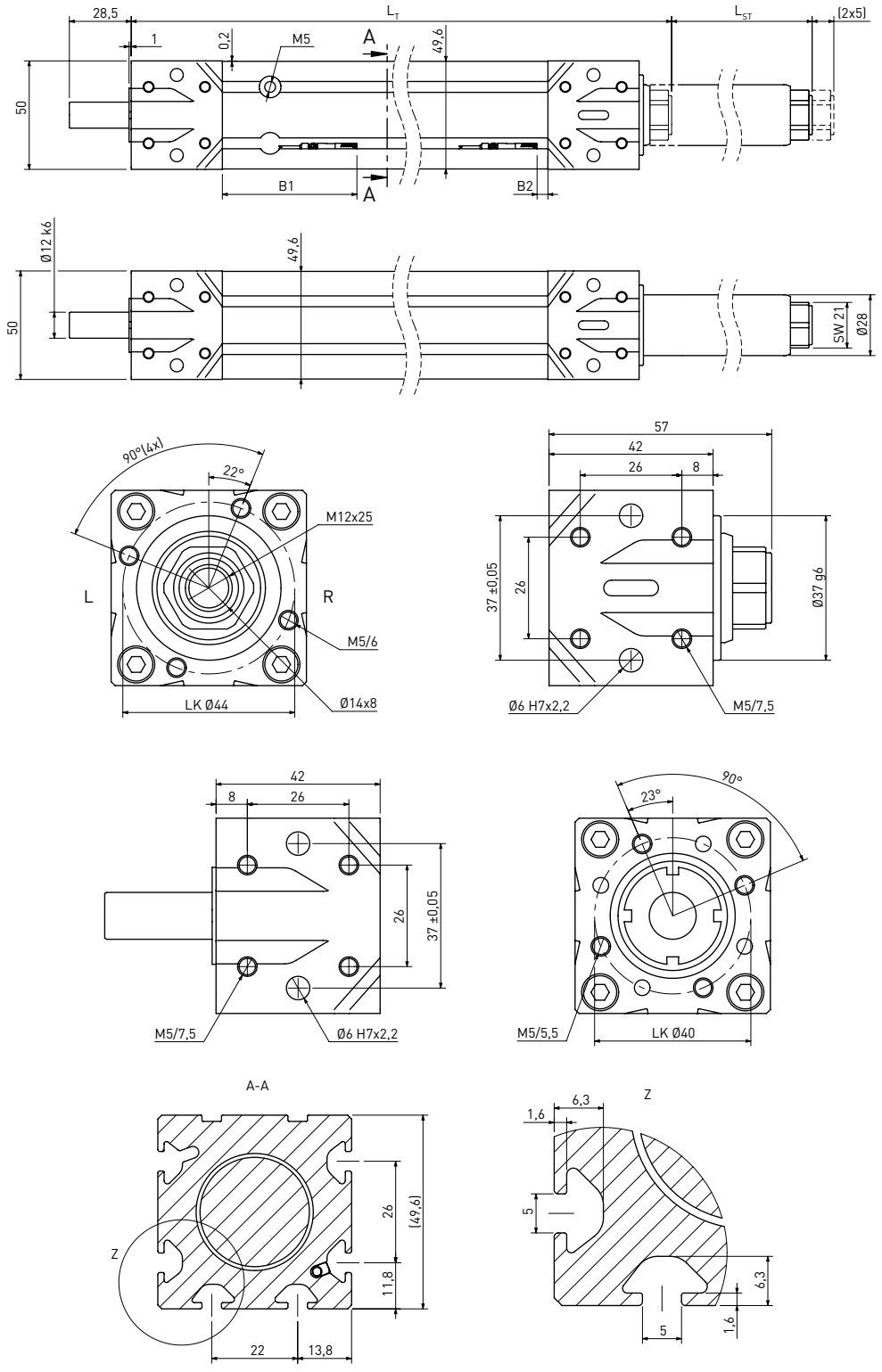


Table 4.7 **Dimensions EA050-S**			
Diameter × lead [mm]	20 × 5	20 × 10	20 × 20
Total length L_T [mm]	$L_T = L_{ST} + 165$	$L_T = L_{ST} + 181$	$L_T = L_{ST} + 201$
Max. stroke length L_{ST} [mm]	1,000	1,000	1,000
Switch position B1 [mm]	50	66	86
Switch position B2 [mm]	12	12	12

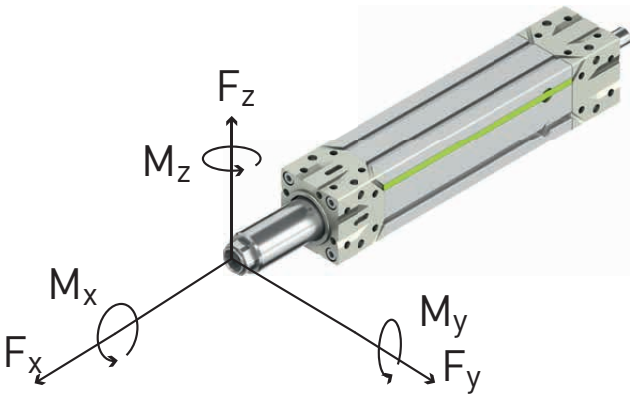


Table 4.8 **Technical data EA050-S**

Diameter × lead [mm]	20 × 5	20 × 10	20 × 20
Reference service life [km]	500	100	2,000
Max. static axial force [N] [1]	7,500	7,500	7,500
Max. dynamic feed force $F_{xdynmax}$ [N] [2]	3,500	2,800	1,700
Max. speed [m/s]	0.4	0.8	1.5
Max. acceleration [m/s²]	20	20	20
Repeatability [mm]	± 0.02	± 0.02	± 0.02
Max. drive torque M_{amax} [Nm]	3.40	5.25	6.31
Static load rating ballscrew C_{0BS} [N]	29,100	23,200	17,900
Dynamic load rating ballscrew C_{dynBS} [N]	21,200	17,100	10,400
Max. speed [rpm]	4,500	4,500	4,500

[1] Max. static force related to a static structural safety of 1.0.
For sizing, a static structural safety of at least 1.5 must be calculated.
Not suitable for dynamic operation; sizing must be taken into account.
[2] Based on the service life reference value

Table 4.9 **Mechanical properties EA050-S**

Diameter × lead [mm]	20 × 5	20 × 10	20 × 20
Moving mass at 0 stroke [kg]	0.46	0.51	0.61
Moving mass per 1 m stroke [kg/m]	1.86	1.86	1.86
J rot. at 0 stroke [kgcm²]	0.19	0.21	0.23
J rot. per 1 m stroke [kgcm²/m]	1.23	1.23	1.23
Total mass at 0 stroke [kg]	1.48	1.61	1.80
Total mass per 1 m stroke [kg/m]	6.62	6.62	6.62
Idle torque at 0 stroke [Nm]	0.3	0.3	0.3

4.9 Diagrams EA050-S

4.9.1 Attachment variants

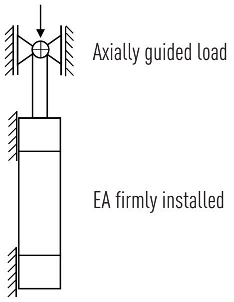


Fig. 4.6 **Attachment variant 1**

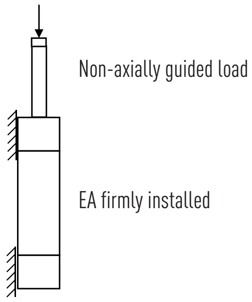


Fig. 4.7 **Attachment variant 2**

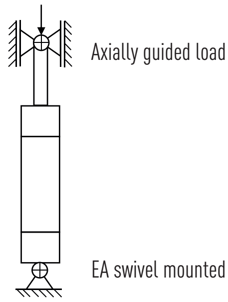
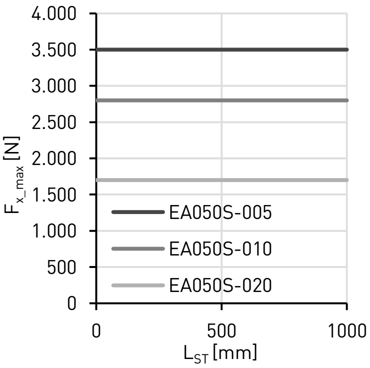
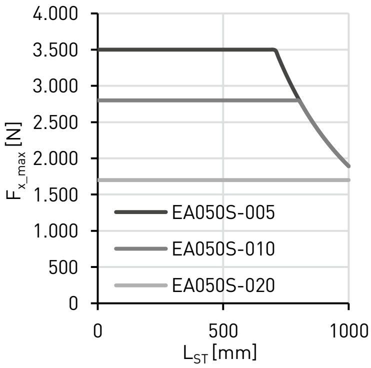
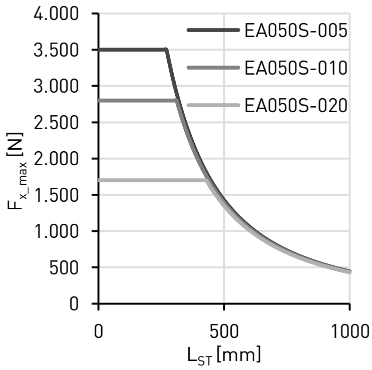


Fig. 4.8 **Attachment variant 3**







4.9.2 Maximum speed

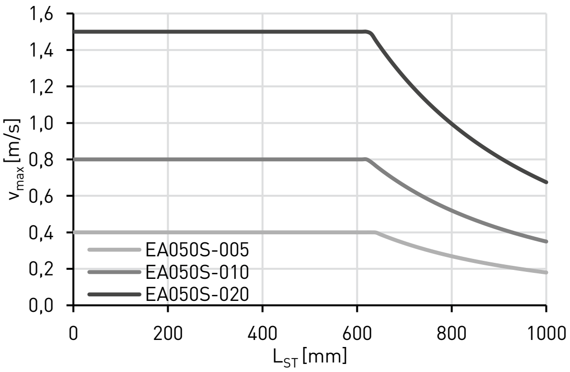


Fig. 4.9 **Unguided piston tube**

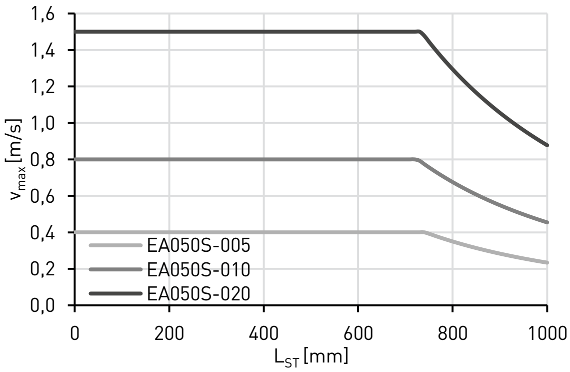
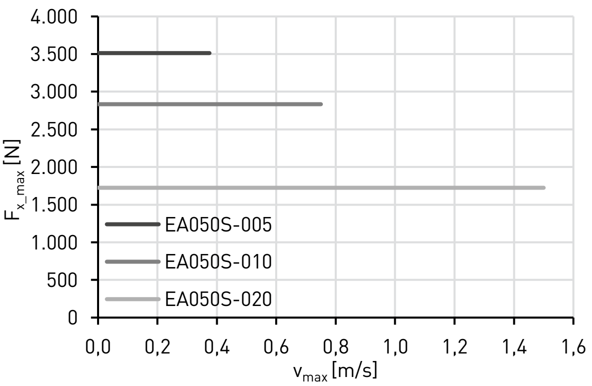
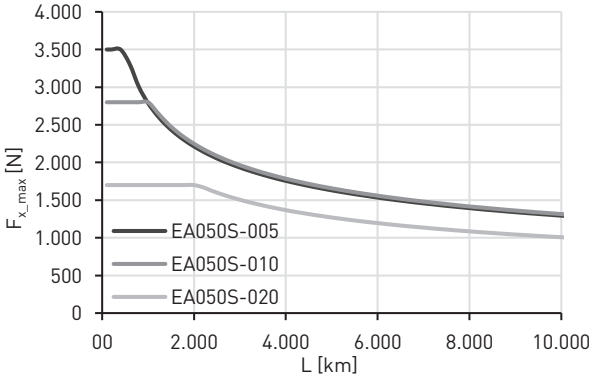


Fig. 4.10 **Externally guided piston tube**

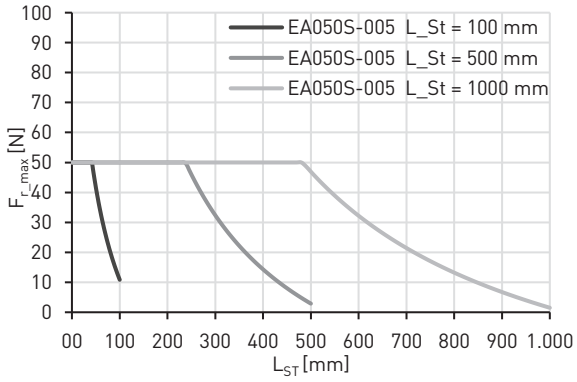
4.9.3 Ratio of force and speed



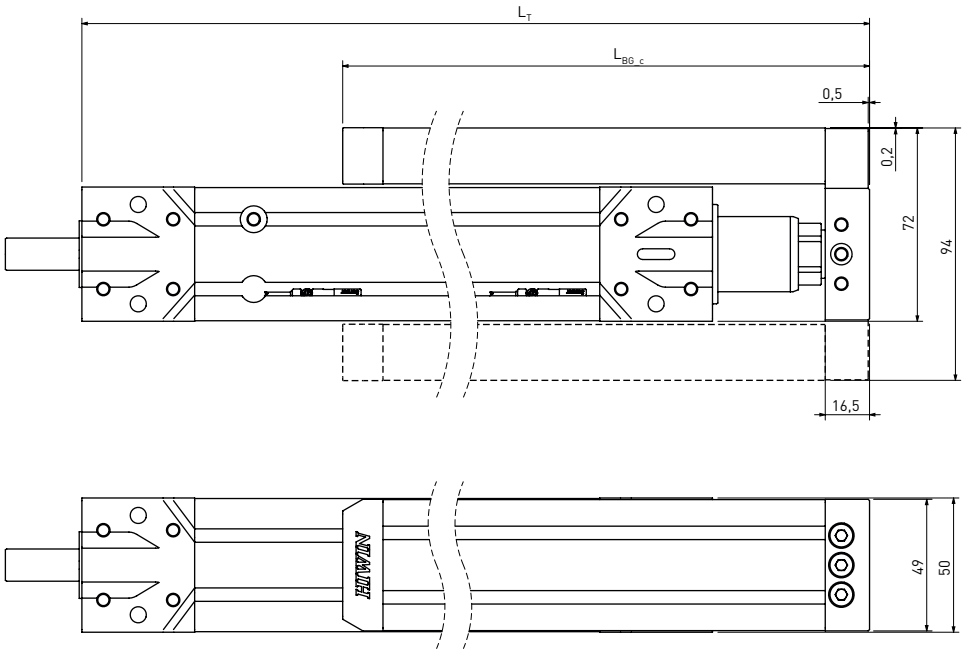
4.9.4 Service life characteristic curve



4.9.5 Permissible lateral forces



4.10 Dimensions and specifications EA050-S with slide guide



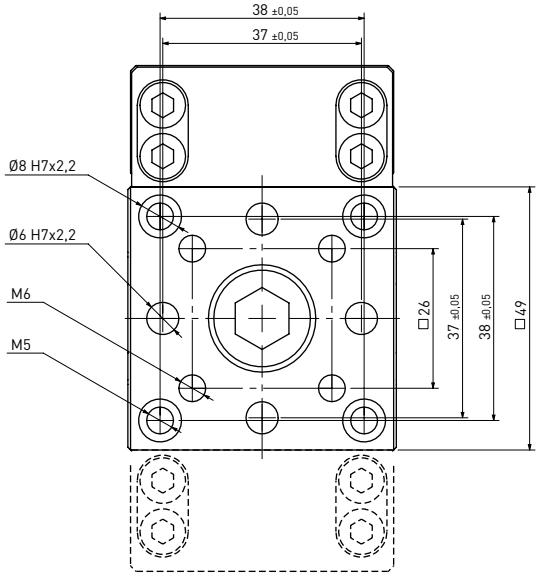


Table 4.10 **Dimensions EA050-S (with slide guide)**

Diameter × lead [mm]	20 × 5	20 × 10	20 × 20
Total length L_T [mm]	$L_T = L_{ST} + 181.5$	$L_T = L_{ST} + 197.5$	$L_T = L_{ST} + 217.5$
Max. stroke length L_{ST} [mm]	300	300	300
Zero stroke length interface assembly L_{BG_c} [mm]	110.85	110.85	110.85

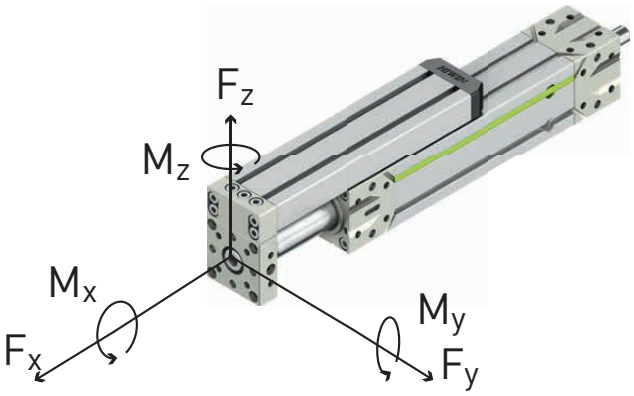


Table 4.11 **Technical data EA050-S (with slide guide)**

Diameter × lead [mm]	20 × 5	20 × 10	20 × 20
Reference service life [km]	500	100	2,000
Max. static feed force $Fx_{\_max}$ [N] [1]	7,500	7,500	7,500
Max. dynamic feed force $Fx_{\_max}$ [N] [2]	3,500	2,800	1,700
Max. speed [m/s]	0.4	0.8	1.5
Max. acceleration [m/s 2]	20	20	20
Repeatability [mm]	± 0.02	± 0.02	± 0.02
Max. drive torque M $A_{\_max}$ [Nm]	3.40	5.25	6.31
Static load rating ballscrew C 0 [N]	29,100	23,200	17,900
Dynamic load rating ballscrew C_{dyn} [N]	21,200	17,100	10,400
Static load rating block C_{0GW} [N]	5,890	5,890	5,890
Dynamic load rating block C_{dynGW} [N]	3,430	3,430	3,430
Max. speed [rpm]	4,500	4,500	4,500

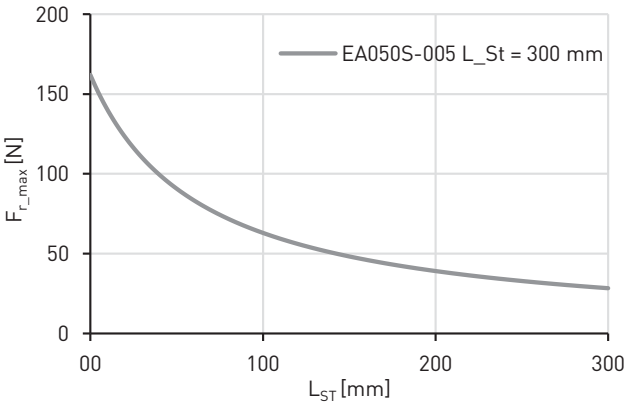
[1] Max. static force related to a static structural safety of 1.0.
For sizing, a static structural safety of at least 1.5 must be calculated.
Not suitable for dynamic operation; sizing must be taken into account.
[2] Based on the service life reference value

Table 4.12 **Mechanical properties EA050-S (with slide guide)**

Diameter × lead [mm]	20 × 5	20 × 10	20 × 20
Moving mass at 0 stroke [kg]	0.85	0.91	1.00
Moving mass per 1 m stroke [kg/m]	4.32	4.32	4.32
J rot. at 0 stroke [kgcm²]	0.19	0.21	0.23
J rot. per 1 m stroke [kgcm²/m]	1.23	1.23	1.23
Total mass at 0 stroke [kg]	1.93	2.06	2.26
Total mass per 1 m stroke [kg/m]	9.08	9.08	9.08
Idle torque at 0 stroke [Nm]	0.3	0.3	0.3

4.11 Diagrams EA050-S with slide guide

4.11.1 Permissible lateral forces



4.12 Dimensions and specifications EA060-S

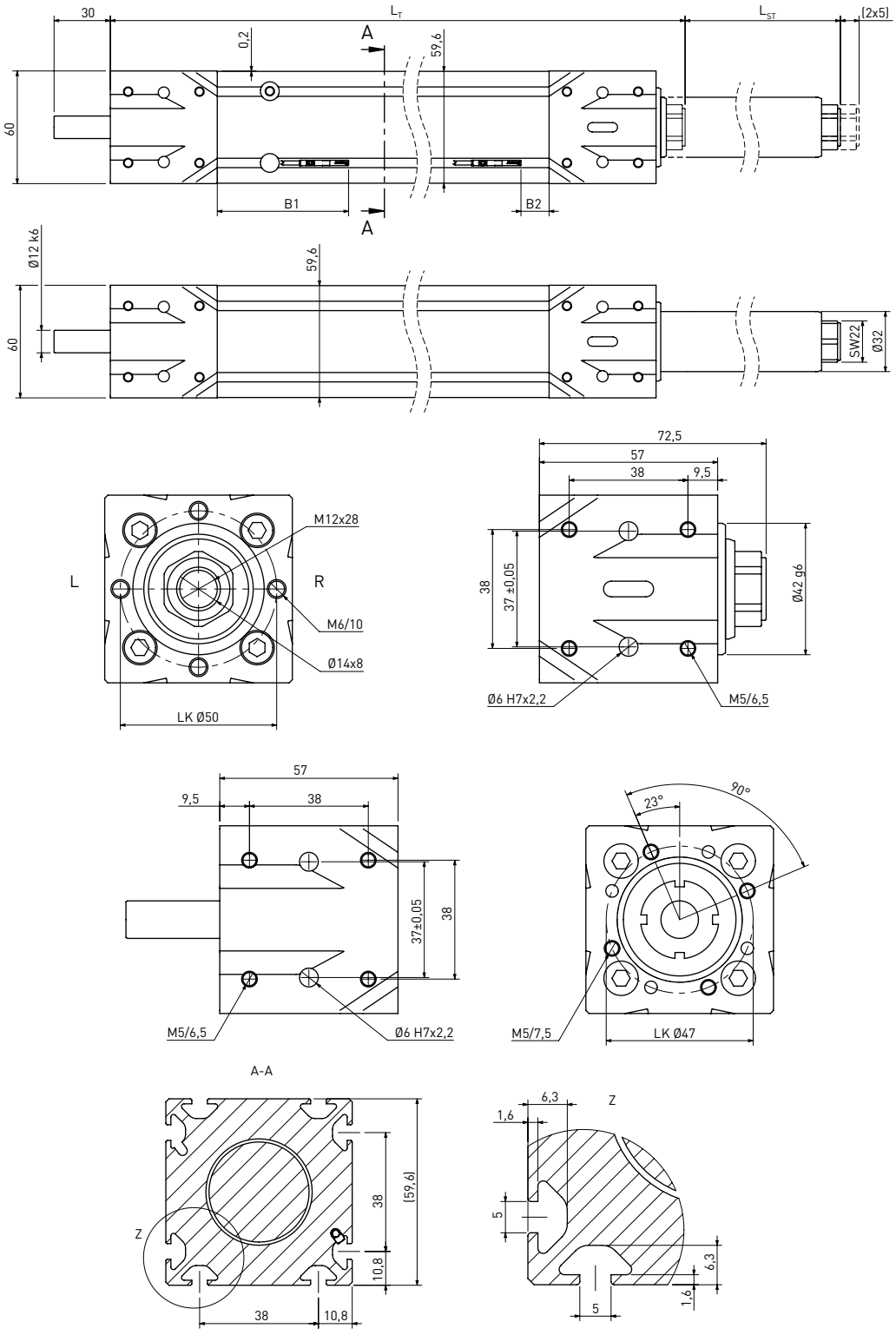


Table 4.13 **Dimensions EA060-S**			
Diameter × lead [mm]	25 × 5	25 × 10	25 × 25
Total length L_T [mm]	$L_T = L_{ST} + 197.5$	$L_T = L_{ST} + 213.5$	$L_T = L_{ST} + 248.5$
Max. stroke length L_{ST} [mm]	1,300	1,300	1,300
Switch position B1 [mm]	49	65	100
Switch position B2 [mm]	12	12	12

Electric actuator

Electric actuator with ballscrew EA-S

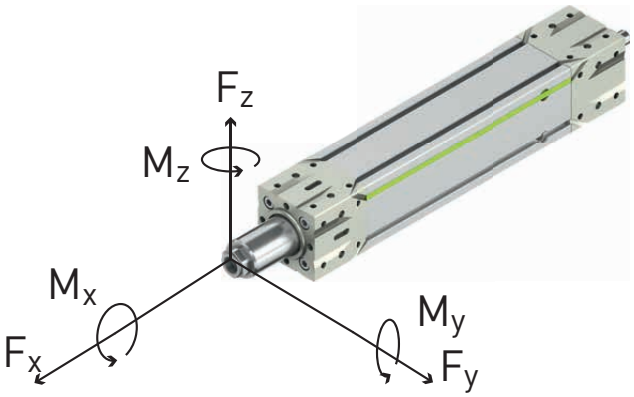


Table 4.14 **Technical data EA060-S**

Diameter × lead [mm]	25 × 5	25 × 10	25 × 25
Reference service life [km]	500	1,000	2,500
Max. static axial force [N] [1]	10,000	10,000	10,000
Max. dynamic feed force $F_{xdynmax}$ [N]	3,900	3,100	2,400
Max. speed [m/s]	0.3	0.6	1.5
Max. acceleration [m/s²]	20	20	20
Repeatability [mm]	± 0.02	± 0.02	± 0.02
Max. drive torque M_{amax} [Nm]	3.95	5.98	11.11
Static load rating ballscrew C_{0BS} [N]	37,300	29,700	22,400
Dynamic load rating ballscrew C_{dynBS} [N]	23,400	19,000	14,300
Max. speed [rpm]	3,600	3,600	3,600

[1] Max. static force related to a static structural safety of 1.0.
For sizing, a static structural safety of at least 1.5 must be calculated.
Not suitable for dynamic operation; sizing must be taken into account.
[2] Based on the service life reference value

Table 4.15 **Mechanical properties EA060-S**

Diameter × lead [mm]	25 × 5	25 × 10	25 × 25
Moving mass at 0 stroke [kg]	0.63	0.75	0.98
Moving mass per 1 m stroke [kg/m]	1.83	1.83	1.83
J rot. at 0 stroke [kgcm²]	0.51	0.56	0.67
J rot. per 1 m stroke [kgcm²/m]	3.01	3.01	3.01
Total mass at 0 stroke [kg]	2.48	2.71	3.21
Total mass per 1 m stroke [kg/m]	9.25	9.25	9.25
Idle torque at 0 stroke [Nm]	0.5	0.5	0.5

4.13 Diagrams EA060-S

4.13.1 Attachment variants

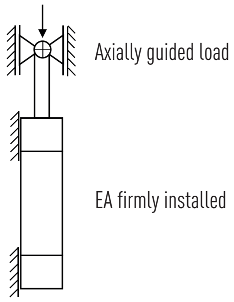


Fig. 4.11 **Attachment variant 1**

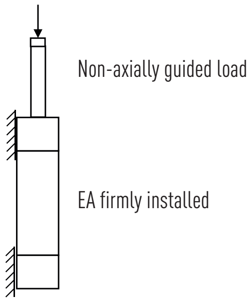


Fig. 4.12 **Attachment variant 2**

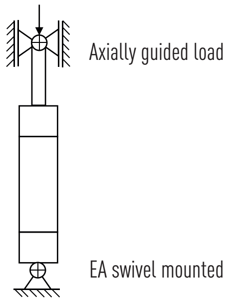
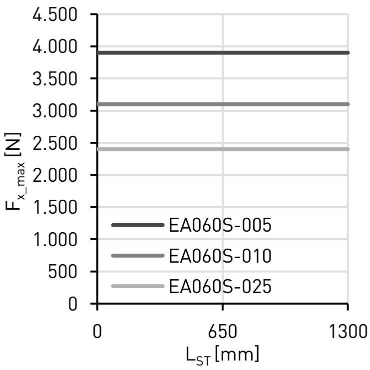
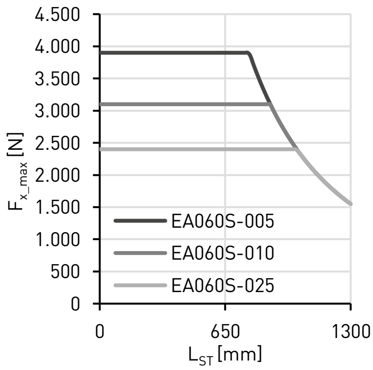
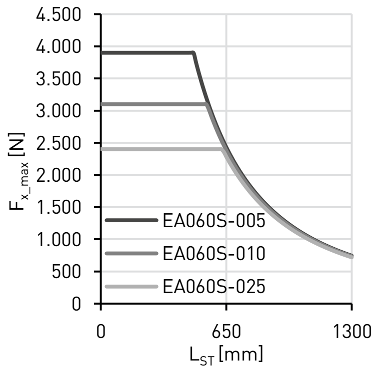


Fig. 4.13 **Attachment variant 3**







4.13.2 Maximum speed

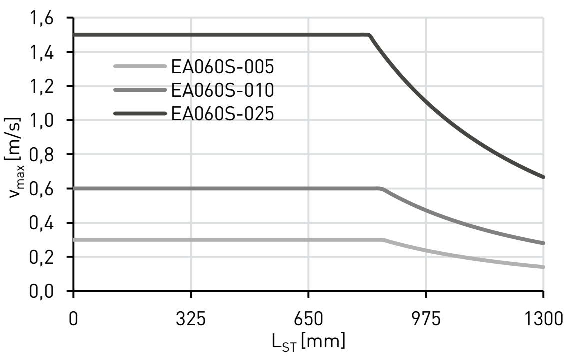


Fig. 4.14 **Unguided piston tube**

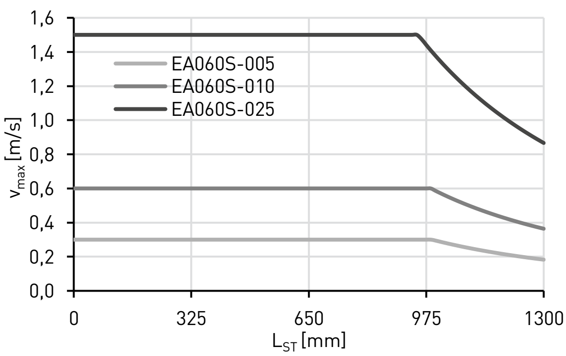
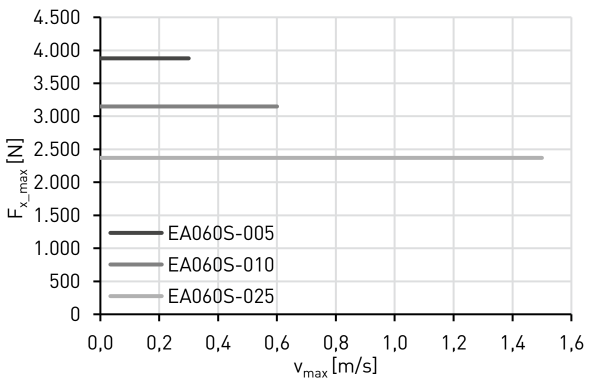
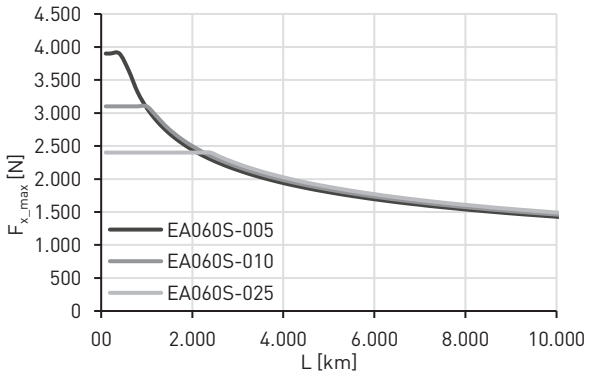


Fig. 4.15 **Externally guided piston tube**

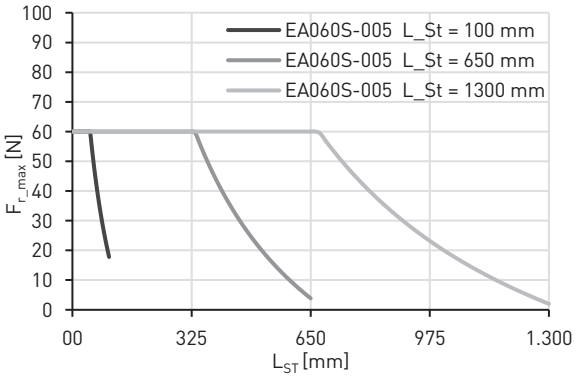
4.13.3 Ratio of force and speed



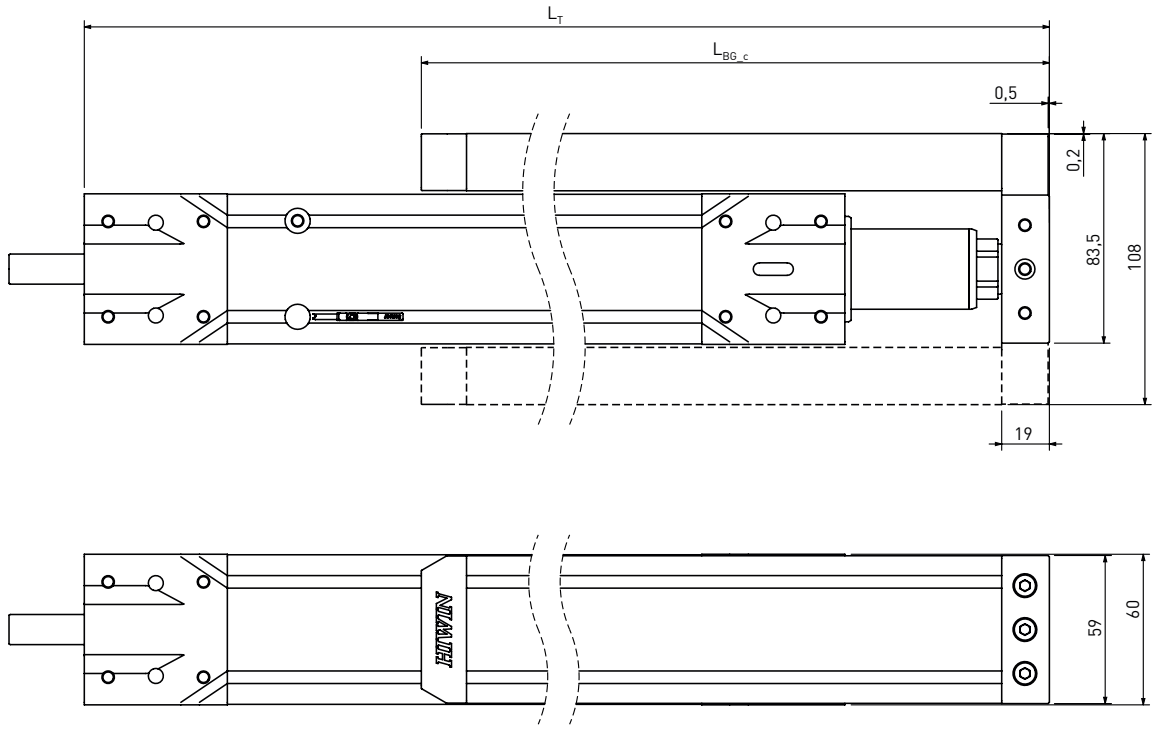
4.13.4 Service life characteristic curve



4.13.5 Permissible lateral forces



4.14 Dimensions and specifications EA060-S with slide guide



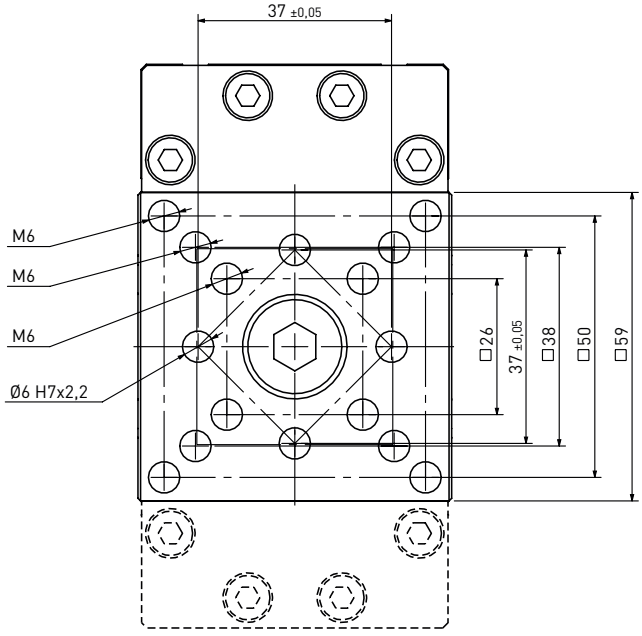


Table 4.16 **Dimensions EA060-S (with slide guide)**

Diameter × lead [mm]	25 × 5	25 × 10	25 × 25
Total length L_T [mm]	$L_T = L_{ST} + 216.5$	$L_T = L_{ST} + 232.5$	$L_T = L_{ST} + 267.5$
Max. stroke length L_{ST} [mm]	300	300	300
Zero stroke length interface assembly L_{BG_c} [mm]	129.2	129.2	129.2

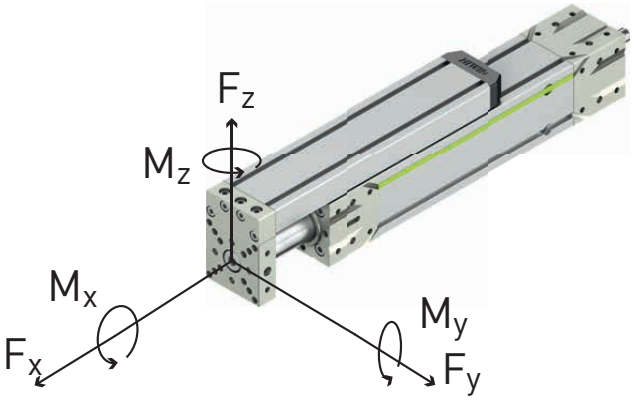


Table 4.17 **Technical data EA060-S (with slide guide)**

Diameter × lead [mm]	25 × 5	25 × 10	25 × 25
Reference service life [km]	500	1,000	2,500
Max. static feed force Fx_{max} [N] 1)	10,000	10,000	10,000
Max. dynamic feed force Fx_{max} [N] 2)	3,900	3,100	2,400
Max. speed [m/s]	0.3	0.6	1.5
Max. acceleration [m/s 2]	20	20	20
Repeatability [mm]	± 0.02	± 0.02	± 0.02
Max. drive torque M A_{max} [Nm]	3.95	5.98	11.11
Static load rating ballscrew C 0 [N]	37,300	29,700	22,400
Dynamic load rating ballscrew C_{dyn} [N]	23,400	19,000	14,300
Static load rating block C_{0GW} [N]	8,240	8,240	8,240
Dynamic load rating block C_{dynGW} [N]	5,100	5,100	5,100
Max. speed [rpm]	3,600	3,600	3,600

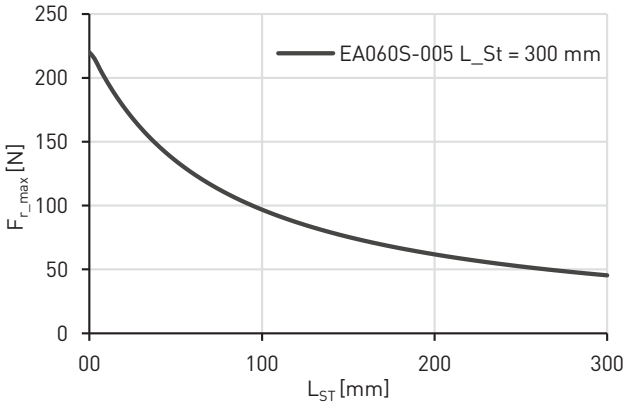
1) Max. static force related to a static structural safety of 1.0.
For sizing, a static structural safety of at least 1.5 must be calculated.
Not suitable for dynamic operation; sizing must be taken into account.
2) Based on the service life reference value

Table 4.18 **Mechanical properties EA060-S (with slide guide)**

Diameter × lead [mm]	25 × 5	25 × 10	25 × 25
Moving mass at 0 stroke [kg]	1.24	1.35	1.59
Moving mass per 1 m stroke [kg/m]	5.24	5.24	5.24
J rot. at 0 stroke [kgcm²]	0.51	0.56	0.67
J rot. per 1 m stroke [kgcm²/m]	3.01	3.01	3.01
Total mass at 0 stroke [kg]	3.19	3.42	3.92
Total mass per 1 m stroke [kg/m]	12.66	12.66	12.66
Idle torque at 0 stroke [Nm]	0.5	0.5	0.5

4.15 Diagrams EA060-S with slide guide

4.15.1 Permissible lateral forces



4.16 Dimensions and specifications EA080-S

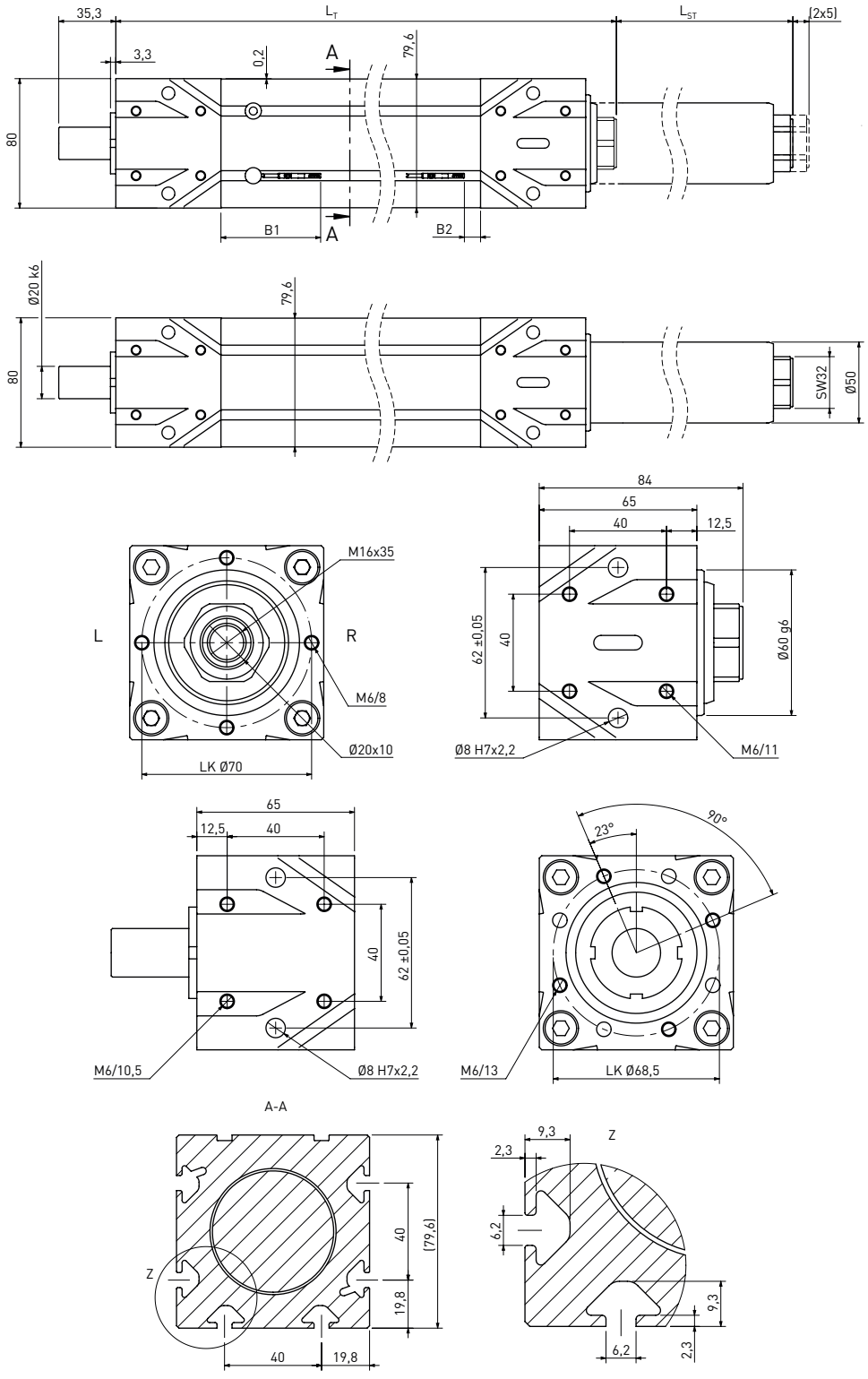


Table 4.19 **Dimensions EA080-S**

Diameter × lead [mm]	40 × 5	40 × 10	40 × 20	40 × 40
Total length L_T [mm]	$L_T = L_{ST} + 237$	$L_T = L_{ST} + 261$	$L_T = L_{ST} + 291$	$L_T = L_{ST} + 332$
Max. stroke length L_{ST} [mm]	1,500	1,500	1,500	1,500
Switch position B1 [mm]	64	88	118	159
Switch position B2 [mm]	16	16	16	16

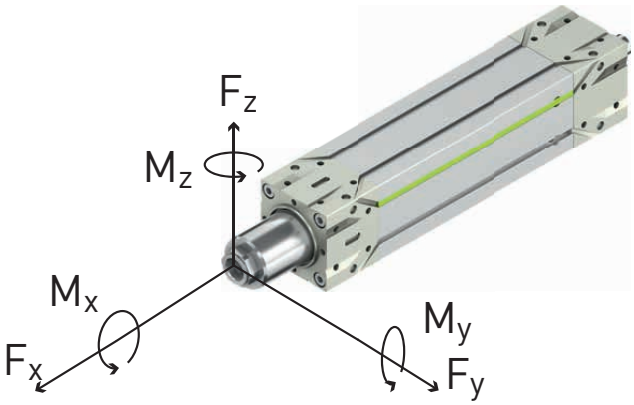


Table 4.20 **Technical data EA080-S**

Diameter × lead [mm]	40 × 5	40 × 10	40 × 20	40 × 40
Reference service life [km]	500	1,000	2,000	4,000
Max. static axial force [N] [1]	24,000	24,000	24,000	24,000
Max. dynamic feed force $F_{xdynmax}$ [N] [2]	5,600	11,900	9,600	7,300
Max. speed [m/s]	0.2	0.4	0.8	1.6
Max. acceleration [m/s²]	20	15	15	15
Repeatability [mm]	± 0.02	± 0.02	± 0.02	± 0.02
Max. drive torque M_{amax} [Nm]	5.95	22.04	34.95	52.64
Static load rating ballscrew C_{0BS} [N]	74,000	132,300	78,600	80,000
Dynamic load rating ballscrew C_{dynBS} [N]	33,800	71,800	58,000	43,900
Max. speed [rpm]	2,400	2,400	2,400	2,400

[1] Max. static force related to a static structural safety of 1.0.
For sizing, a static structural safety of at least 1.5 must be calculated.
Not suitable for dynamic operation; sizing must be taken into account.
[2] Based on the service life reference value

Table 4.21 **Mechanical properties EA080-S**

Diameter × lead [mm]	40 × 5	40 × 10	40 × 20	40 × 40
Moving mass at 0 stroke [kg]	1.55	1.78	2.16	2.67
Moving mass per 1 m stroke [kg/m]	3.5	3.5	3.5	3.5
J rot. at 0 stroke [kgcm²]	4.14	3.76	4.24	4.90
J rot. per 1 m stroke [kgcm²/m]	19.73	16.07	16.07	16.07
Total mass at 0 stroke [kg]	5.79	6.31	7.07	8.09
Total mass per 1 m stroke [kg/m]	18.76	17.84	17.84	17.84
Idle torque at 0 stroke [Nm]	1	1	1	1

4.17 Diagrams EA080-S

4.17.1 Attachment variants

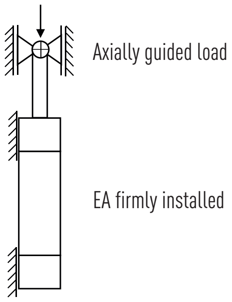


Fig. 4.16 **Attachment variant 1**

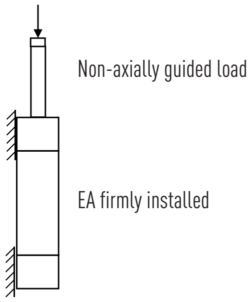


Fig. 4.17 **Attachment variant 2**

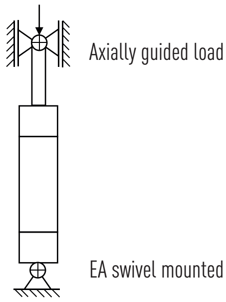
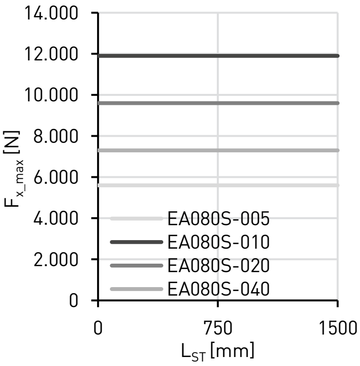
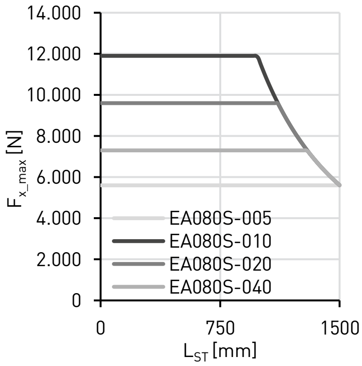
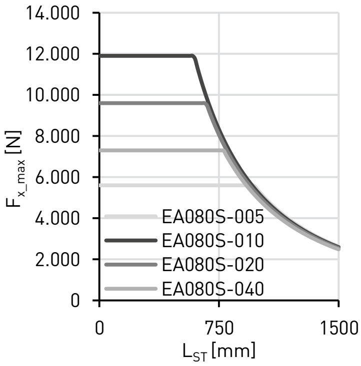


Fig. 4.18 **Attachment variant 3**







4.17.2 Maximum speed

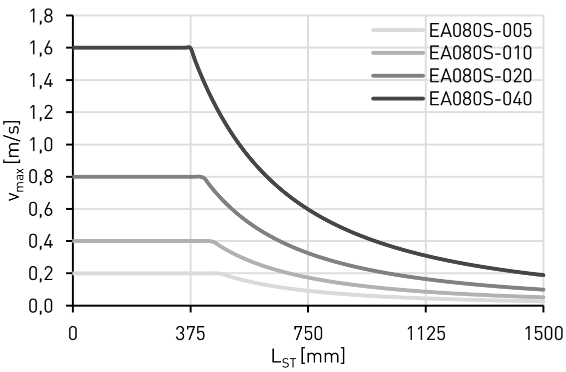


Fig. 4.19 **Unguided piston tube**

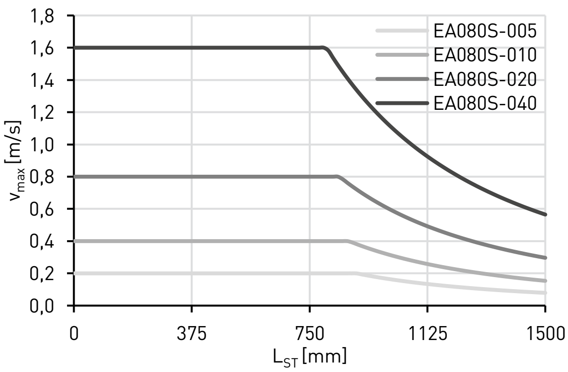
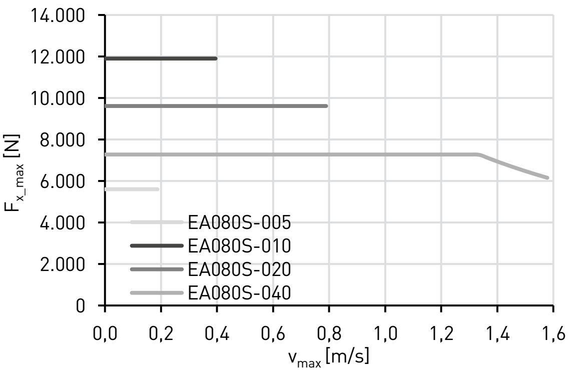
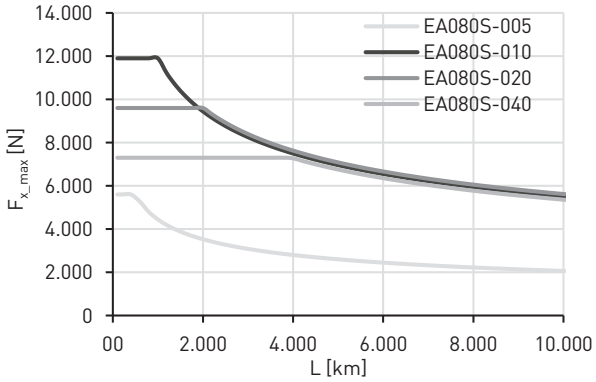


Fig. 4.20 **Externally guided piston tube**

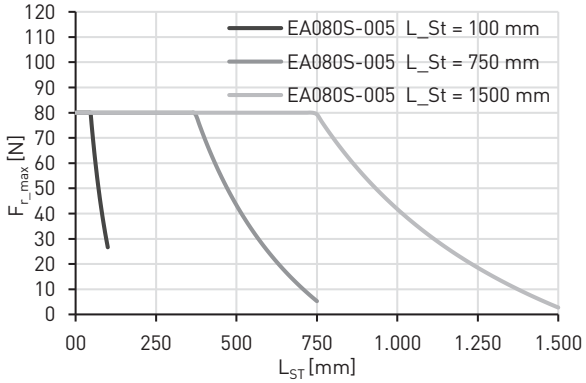
4.17.3 Ratio of force and speed



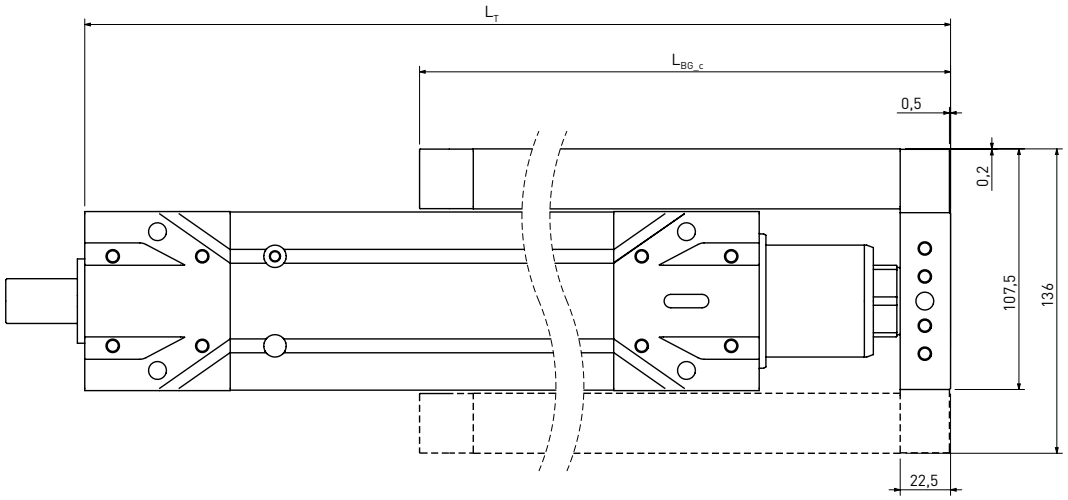
4.17.4 Service life characteristic curve

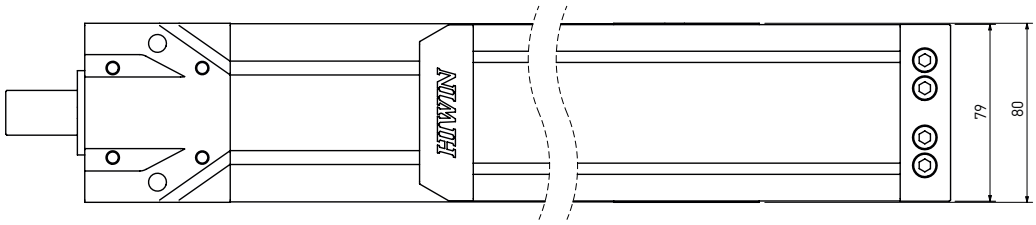


4.17.5 Permissible lateral forces



4.18 Dimensions and specifications EA080-S with slide guide





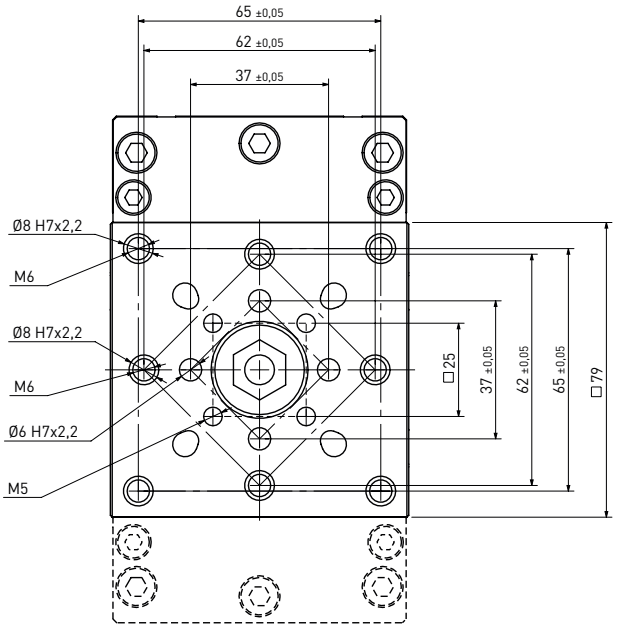


Table 4.22 **Dimensions EA080-S (with slide guide)**

Diameter × lead [mm]	40 × 5	40 × 10	40 × 20	40 × 40
Total length L_T [mm]	$L_T = L_{ST} + 259.5$	$L_T = L_{ST} + 283.5$	$L_T = L_{ST} + 313.5$	$L_T = L_{ST} + 354.5$
Max. stroke length L_{ST} [mm]	300	300	300	300
Switch position B1 [mm]	64	88	118	159
Switch position B2 [mm]	16	16	16	16
Zero stroke length interface assembly L_{BG_c} [mm]	153.9	153.9	153.9	153.9

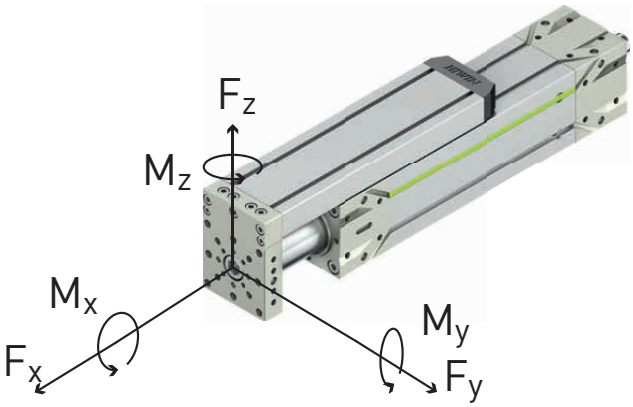


Table 4.23 **Technical data EA080-S (with slide guide)**

Diameter × lead [mm]	40 × 5	40 × 10	40 × 20	40 × 40
Reference service life [km]	500	1,000	2,000	4,000
Max. static feed force $Fx_{\_max}$ [N] 1)	24,000	24,000	24,000	24,000
Max. dynamic feed force $Fx_{\_max}$ [N] 2)	5,600	11,900	9,600	7,300
Max. speed [m/s]	0.2	0.4	0.8	1.6
Max. acceleration [m/s 2]	20	15	15	15
Repeatability [mm]	± 0.02	± 0.02	± 0.02	± 0.02
Max. drive torque M $A_{\_max}$ [Nm]	5.95	22.04	34.95	52.64
Static load rating ballscrew C 0 [N]	74,000	132,300	78,600	80,000
Dynamic load rating ballscrew C_{dyn} [N]	33,800	71,800	58,000	43,900
Static load rating block C_{0GW} [N]	13,380	13,380	13,380	13,380
Dynamic load rating block C_{dynGW} [N]	8,930	8,930	8,930	8,930
Max. speed [rpm]	2,400	2,400	2,400	2,400

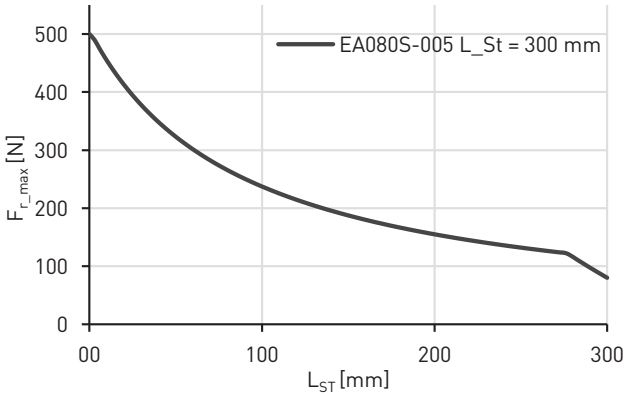
1) Max. static force related to a static structural safety of 1.0.
For sizing, a static structural safety of at least 1.5 must be calculated.
Not suitable for dynamic operation; sizing must be taken into account.
2) Based on the service life reference value

Table 4.24 **Mechanical properties EA080-S (with slide guide)**

Diameter × lead [mm]	40 × 5	40 × 10	40 × 20	40 × 40
Moving mass at 0 stroke [kg]	2.77	3.00	3.39	3.89
Moving mass per 1 m stroke [kg/m]	9.31	9.31	9.31	9.31
J rot. at 0 stroke [kgcm²]	4.14	3.76	4.24	4.90
J rot. per 1 m stroke [kgcm²/m]	19.729	16.07	16.07	16.07
Total mass at 0 stroke [kg]	7.33	7.85	8.61	9.63
Total mass per 1 m stroke [kg/m]	24.57	23.65	23.65	23.65
Idle torque at 0 stroke [Nm]	1	1	1	1

4.19 Diagrams EA080-S with slide guide

4.19.1 Permissible lateral forces



5. Drive adaptation

5.1 Drive adaptation of electric actuators EA-S

5.2 Motor adaptation of electric actuators EA-S

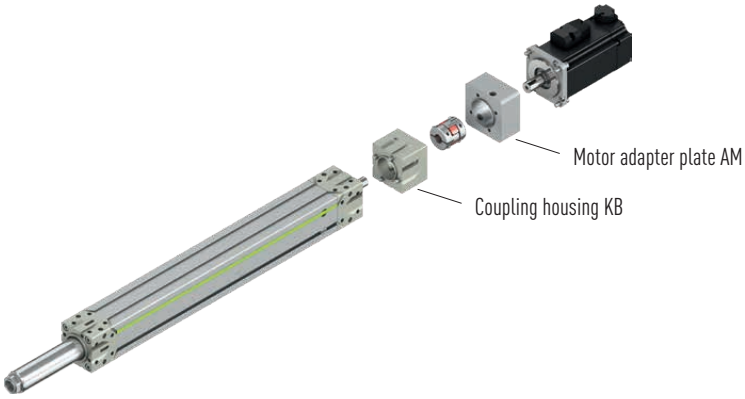
The drive adaptation of electric actuators EA S is designed in two parts to ensure easy flange-mounting of all common motors.

The flange type set comprises the following components:

- Coupling housing KB
- Coupling components
- Motor adapter plate AM or belt drive RT

The dimensions of the coupling housing for HIWIN motors can be found in section 5.2.3 on page 42. Adaptations for motors of other manufacturers can be found in the configurator at hiwin.de.

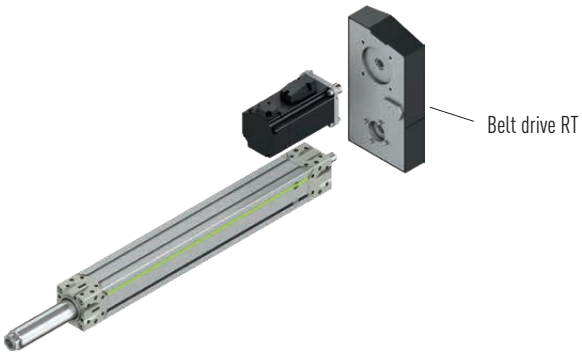
5.2.1 Motor adaptation of electric actuators with ballscrew – inline



Motor adapter plate AM: Adapter from coupling housing to motor
Coupling housing KB: Adapter between actuator and motor adapter plate

Fig. 5.1 **Motor adaptation of electric actuators EA-S inline**

5.2.2 Motor adaptation of electric actuators with ballscrew with belt drive (parallel)



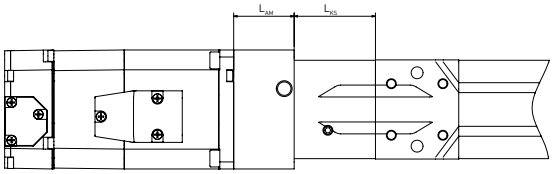
Belt drive RT: For deflecting the drive by 180°

Fig. 5.2 **Motor adaptation of electric actuators EA-S with belt drive (parallel)**

5.2.3 Dimensions of motor adaptation of electric actuators EA-S

The total length of the electric actuator depends on the following factors:
- Adaptation material (coupling housing KB, motor adapter plate AM)
- Belt drive RT
- Motor

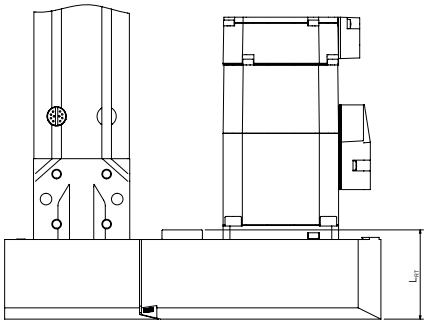
5.2.3.1 Electric actuators inline



L_{KS} Length of coupling housing, see Table 5.1
L_{AM} Length of motor adapter plate, see Table 5.4

Fig. 5.3 **Motor connection of electric actuators EA-S inline**

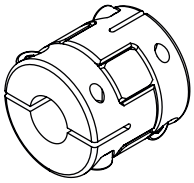
5.2.3.2 Electric actuators with belt drive (parallel)

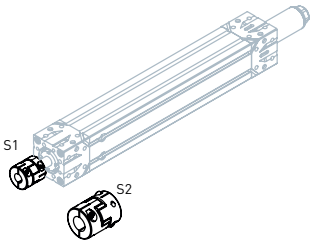


L_{RT} Length of belt drive, see Table 5.3

Fig. 5.4 **Motor connection of electric actuators EA-S with belt drive (parallel)**

5.2.3.4 Coupling





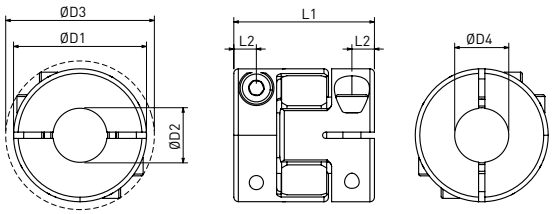
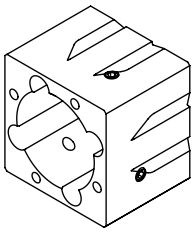
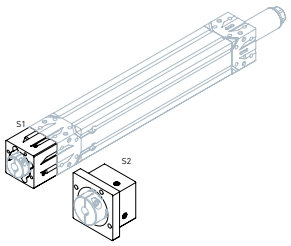


Table 5.2 **Coupling specifications** Unit: mm

Size	ø D1	øD2	øD3	L1	L2	øD4
EA040-S1	24.5	5-14	27	34	5	10
EA040-S2	29.5	5-16	33	32	5	10
EA050-S1	29.5	5-16	33	32	5	12
EA050-S2	39.5	6.35-24	45	50	8	12
EA060-S1	39.5	6.35-24	45	50	8	12
EA060-S2	54.5	10-32	57	54	7	12
EA080-S1	54.5	10-32	57	54	7	20
EA080-S2	64.5	14-38	68	61	9	20

5.2.3.3 Coupling housing KS for electric actuators EA-S





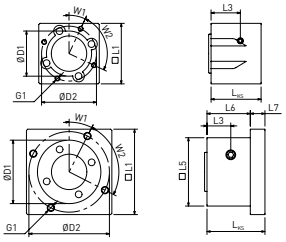
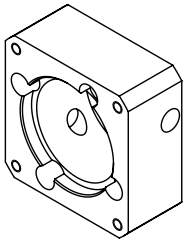
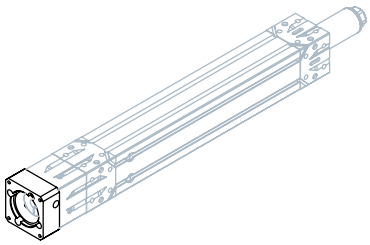


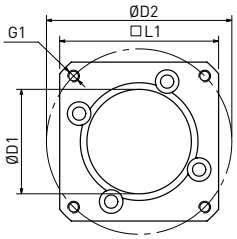
Table 5.1 **Coupling housing specifications** Unit: mm

Size	ø D1	øD2	G1	L1	W1 [°]	W2 [°]	L3	L_{KS}	L5	L6	L7
EA040-S1	30 H7	36	M4	42	20	90	15	35.5	39.6	23.5	12
EA040-S2	37 H7	45	M4	47	25	90	16.5	33.5	43	24	9.5
EA050-S1	37 H7	45	M4	49.6	25	90	24	41	–	–	–
EA050-S2	52 H7	66	M6	70	27	90	19.5	47.5	56	35.5	12
EA060-S1	52 H7	66	M6	70	27	90	21	49	59.6	34	15
EA060-S2	63 H7	70	M6	75	30	90	19	51.5	64	36.5	15
EA080-S1	63 H7	70	M6	79.6	30	90	24.3	56.8	–	–	–
EA080-S2	78 H7	87	M8	90	30	90	23.3	58	79.6	44	14

5.2.4 Motor adapter plate AM for electric actuators EA-S







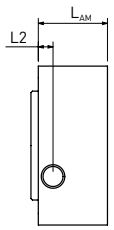
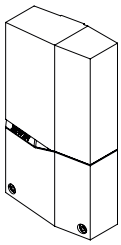
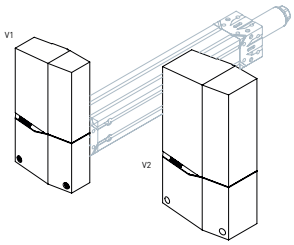


Table 5.4 **Motor adapter plate specifications**

ø D1	ø D2	G1	L1	L_{AM}	L2
Pilot diameter of motor	Pitch circle of motor	Thread corresponds to ø of motor	Flange size of motor	Length of motor adapter plate	Mounting hole position

5.2.3.5 Belt drive RT for electric actuators EA-S





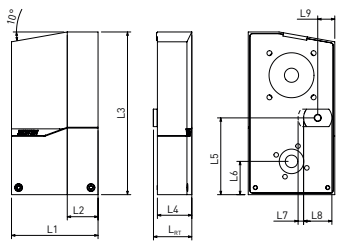


Table 5.3 **Belt drive RT specifications** Unit: mm

Size	L1	L2	L3	L_{RT}	L4	L5	L6	L7	L8	L9
EA040-V1	74	25	150	40	36	69.8	32	4	4	15
EA040-V2	97	35	185	45	41	69	32	6	6	16.5
EA050-V1	104	37	195.5	46.5	41.5	92.3	40	6.5	6.5	20.5
EA050-V2	122	42	235	67	62	81.5	40	7	7	20.5
EA060-V1	104	37	195.5	46.5	41.5	92.3	40	6.5	6.5	20.5
EA060-V2	122	42	235	67	62	81.5	40	7	7	20.5
EA060-V3	138	50	244	77.5	72.5	81.5	40	8.5	8.5	25.5
EA080-V1	126	43	252.5	68.5	62	108	50.5	8.5	8.5	24
EA080-V2	154	57	291	80	73.5	108.5	50.5	11	11	23

6. Accessories

6.1 Overview of accessories

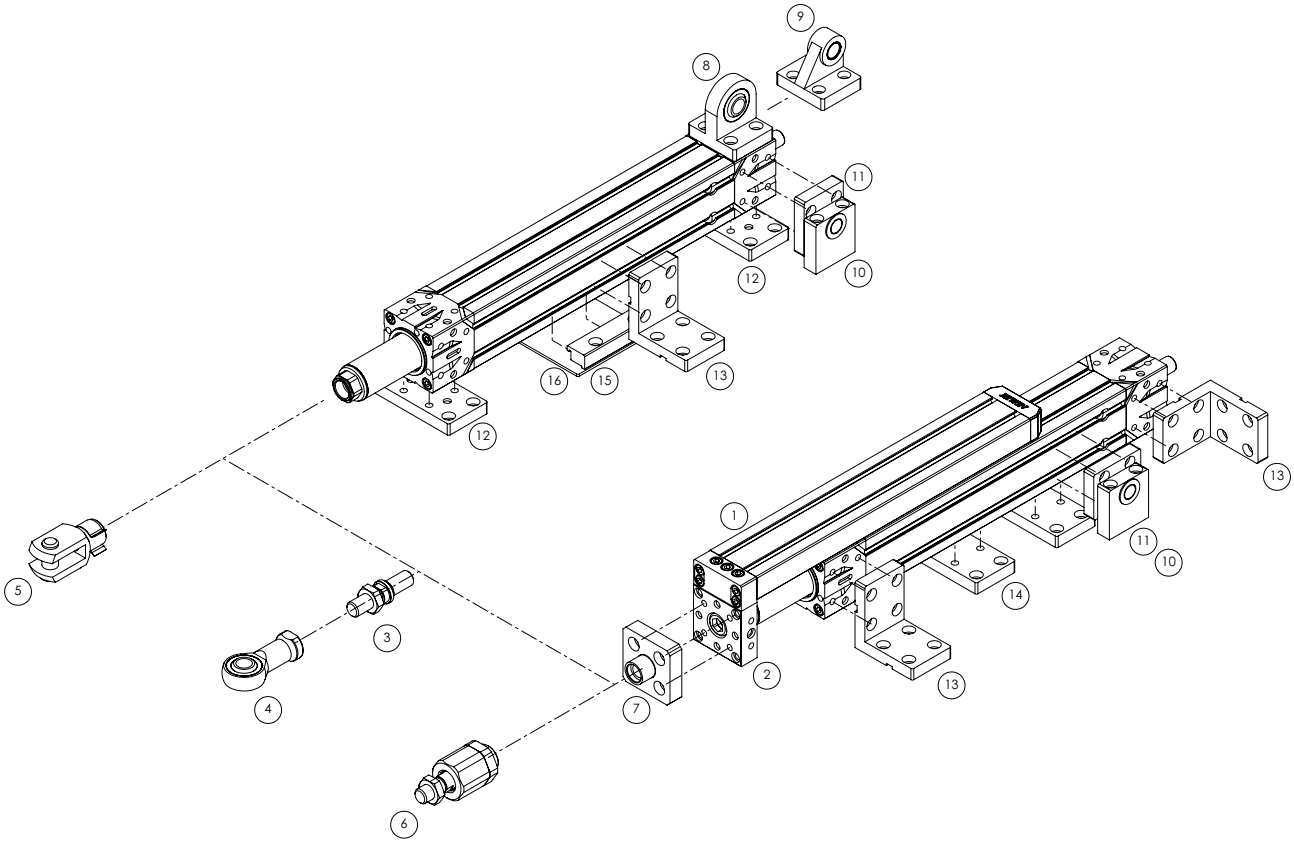


Table 6.1 **Overview of accessories**

POS.	Name
1	Slide guide
2	Flange plate
3	Thread adapter
4	Joint head
5	Cradle
6	Compensating coupling
7	Adapter plate threaded bolt
8	Spherical bearing
9	Bearing pedestal
10	Swivel bearing
11	Plate for swivel adapter
12	Connection plate
13	Connection bracket
14	Connection profile groove
15	Clamping profile
16	Spacer plate clamping profile

6.2 Mounting accessories

For easy installation, flexible alignment and high stability. The right mounting accessories are essential for reliable and precise integration of electric actuators in your application. The mounting accessories are supplied as a set together with bolts and centring sleeves.

6.2.1 Connection bracket

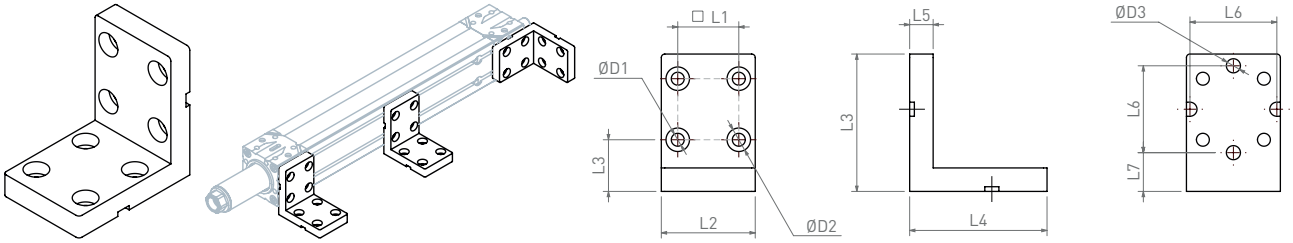


Table 6.2 **Connection bracket specifications** Unit: mm

Size	L1	L2	L3	ø D1	ø D2	L4	L5	ø D3	L6	L7
EA040	22	36	17	4.5	8 × 4.4	46.5	8	4 H7 × 2	30	13.0
EA050	26	40	22	5.5	10 × 5.4	58.5	10	6 H7 × 2	37	16.5
EA060	38	55	21	5.5	10 × 5.4	69	10	6 H7 × 2	37	21.5
EA080	40	63	32	6.6	11 × 6.4	91	12	8 H7 × 2	62	21.0

6.2.2 Connection plate

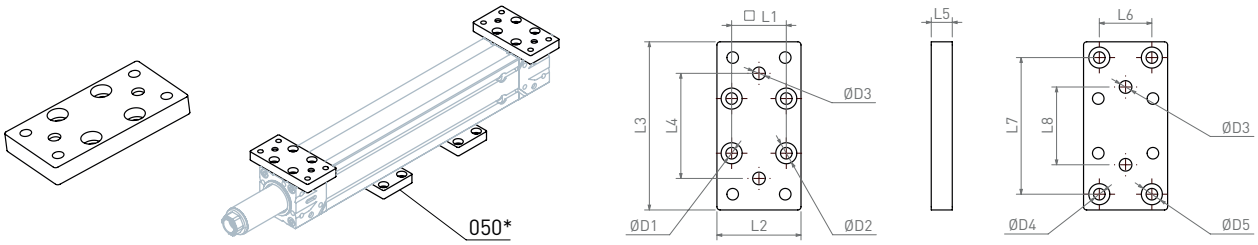


Table 6.3 **Connection plate specifications** Unit: mm

Size	L1	L2	L3	L4	ø D1	ø D2	ø D3	L5	L6	L7	L8	ø D4	ø D5
EA040	22	36	70	40	4.5	8 × 4.4	4 H7 × 2	8	20	55	30	5.5	10 × 5.0
EA050	26	40	80	50	5.5	10 × 5.4	6 H7 × 2	10	25	65	37	5.5	10 × 5.4
EA050*	26 × 22	40	80	50	5.5	10 × 5.4	6 H7 × 2	10	25	65	–	5.5	10 × 5.4
EA060	38	55	90	60	5.5	10 × 5.4	6 H7 × 2	10	40	75	37	5.5	10 × 5.4
EA080	40	63	120	80	6.6	11 × 6.4	8 H7 × 2	12	47	104	62	6.6	11 × 6.4

6.2.3 Plate for swivel adapter

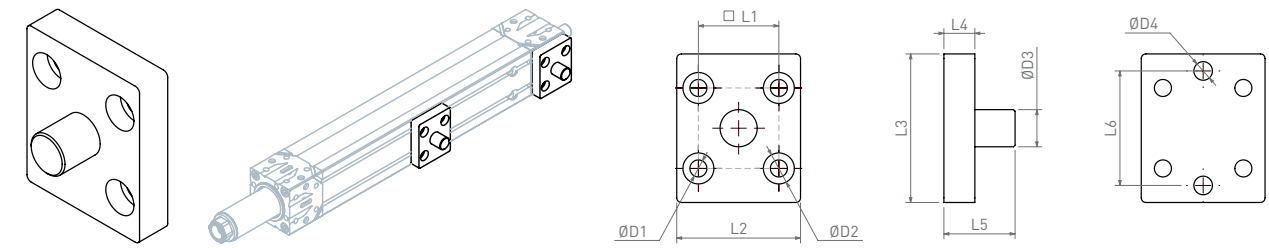
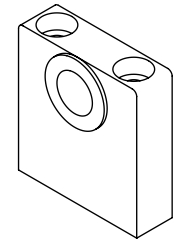
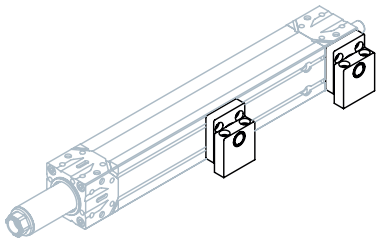
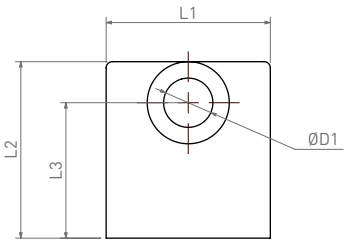


Table 6.4 **Plate for swivel adapter specifications** Unit: mm

Size	L1	L2	ø D1	ø D2	L3	L4	L5	ø D3	L6	ø D4
EA040	22	36	4.5	8 × 4.4	36	8	21	10h9	30	4 H7 × 2
EA050	26	40	5.5	10 × 5.4	48	10	23	12 h9	37	6 H7 × 2
EA060	38	55	5.5	10 × 5.4	55	10	24	14 h9	37	6 H7 × 2
EA080	40	63	6.6	11 × 6.4	78	12	31	16 h9	62	8 H7 × 2

6.2.4 Swivel bearing

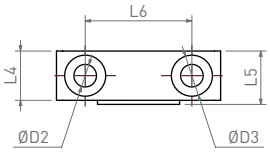
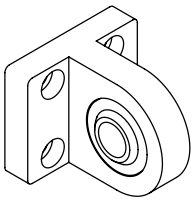
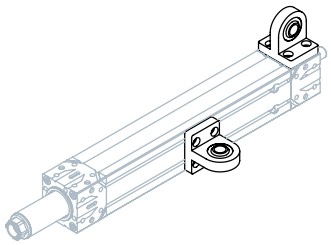
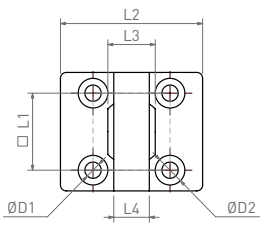
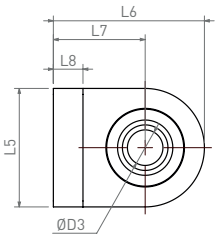


Table 6.5 **Swivel bearing specifications** Unit: mm

Size	L1	L2	L3	ø D1	L4	L5	L6	ø D2	ø D2
EA040	36	38	28	10	12	13	22	5.5	10 × 5
EA050	40	43	33	12	12	13	26	5.5	10 × 5
EA060	55	52	40	14	13	14	38	6.6	11 × 6.4
EA080	63	67	52	16	18	19	40	9	15 × 8.6

6.2.5 Spherical bearing



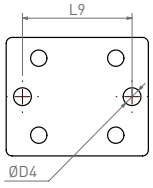
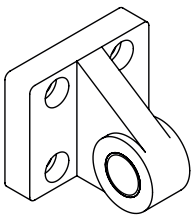
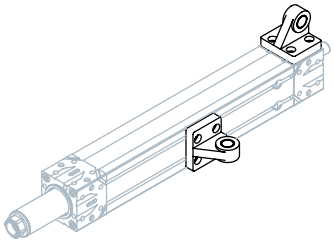
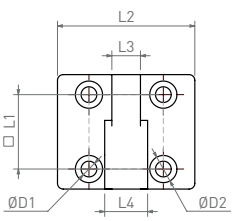
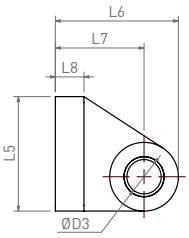


Table 6.6 **Spherical bearing specifications** Unit: mm

Size	L1	L2	L3	L4	Ø D1	Ø D2	L5	L6	L7	L8	Ø D3	L9	Ø D4
EA040	22	36	14	10.5	4.5	8 × 4.4	36	41	25	8	10	30	4 H7 × 2
EA050	26	48	16	12	5.5	10 × 5.4	40	51	31	10	12	37	6 H7 × 2
EA060	38	55	19	13.5	5.5	10 × 5.4	55	55	33	10	14	37	6 H7 × 2
EA080	40	78	21	15	6.6	11 × 6.4	63	61	37	12	16	62	8 H7 × 2

6.2.6 Bearing pedestal



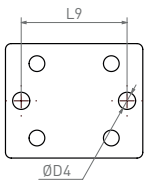


Table 6.7 **Bearing pedestal specifications** Unit: mm

Size	L1	L2	L3	L4	Ø D1	Ø D2	L5	L6	L7	L8	Ø D3	L9	Ø D4
EA040	22	36	8	12	4.5	8 × 4.4	36	35	25	8	10	30	4 H7 × 2
EA050	26	48	10	15	5.5	10 × 5.4	40	43	31	10	12	37	6 H7 × 2
EA060	38	55	10	18	5.5	10 × 5.4	55	47	33	10	14	37	6 H7 × 2
EA080	40	78	12	20	6.6	11 × 6.4	63	52	37	12	16	62	8 H7 × 2

6.2.7 Clamping profile

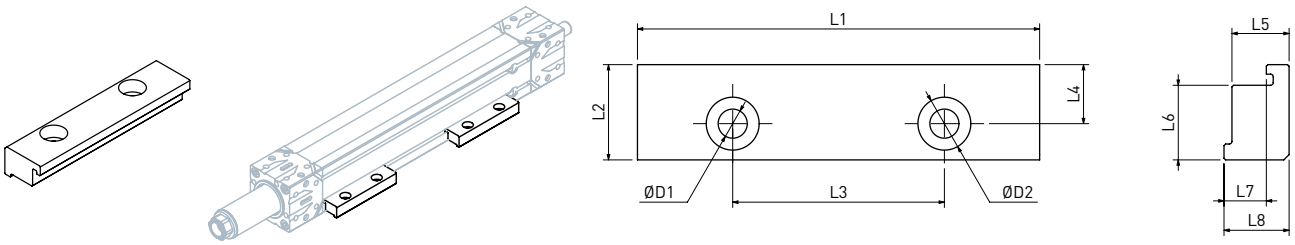


Table 6.8 **Clamping profile specifications** Unit: mm

Size	L1	L2	L3	L4	Ø D1	Ø D2	L5	L6	L7	L8
EA040	–	–	–	–	–	–	–	–	–	–
EA050	76	18	40	11.15	5.5	10 × 5.4	10.8	14.1	8	12.3
EA060	76	18	40	11.15	5.5	10 × 6.5	9.8	14.1	6.8	11.3
EA080	76	25.6	40	15.6	6.6	11 × 9.5	18.9	19.6	15.5	20.9

6.2.8 Spacer plate clamping profile

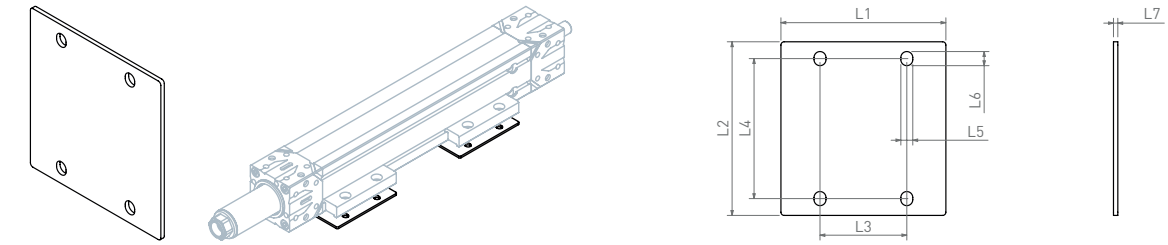
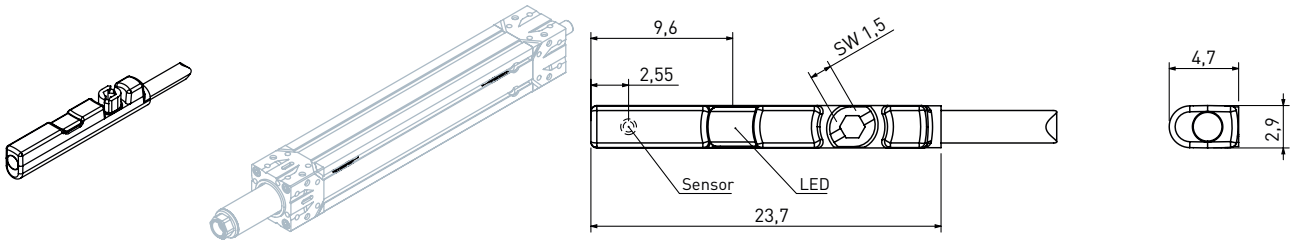


Table 6.9 **Spacer plate clamping profile specifications** Unit: mm

Size	L1	L2	L3	L4	L5	L6	L7
EA040	–	–	–	–	–	–	–
EA050	76	80	40	64.5	5.5	6.5	2
EA060	76	90	40	75	5.5	6.5	2
EA080	78	120.8	40	99.8	6.5	7.5	2

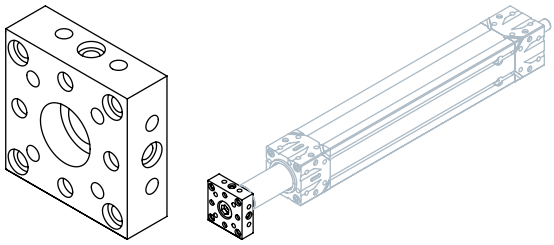
6.2.9 Limit switch



6.3 Piston tube accessories

The ideal addition for the reliable operation of electric actuators. The accessories are bolted to the piston tube to ensure maximum service life and optimum force transmission.

6.3.1 Flange plate



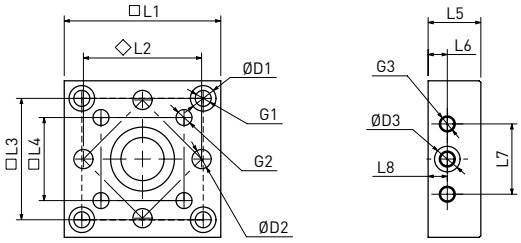
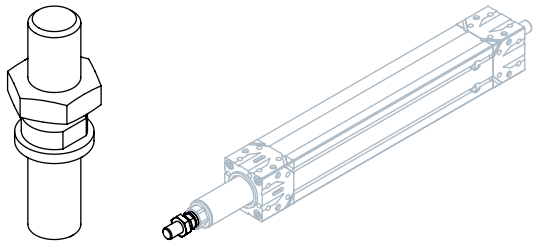


Table 6.10 **Flange plate specifications** Unit: mm

Size	L1	L2	L3	L4	G1	G2	Ø D1	Ø D2	L5	L6	L7	L8	G1	Ø D3
EA040	39	30	31.5	22	M4	M5	6 H7 × 2.2	4 H7 × 2.2	16	6	11	11	M6	6 H7 × 2.2
EA050	49	37	38	26	M5	M6	8 H7 × 2.2	6 H7 × 2.2	16.5	6	22	6	M5	8 H7 × 2.2
EA060	59	37	50	38	M6	M6	–	6 H7 × 2.2	19	9.25	35	9.25	M5	8 H7 × 2.2
EA080	79	62	65	40	M6	M6	8 H7 × 2.2	6 H7 × 2.2	22.5	11	47	11	M6	8 H7 × 2.2

6.3.2 Thread adapter



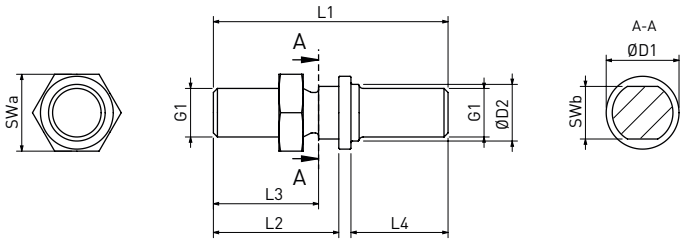
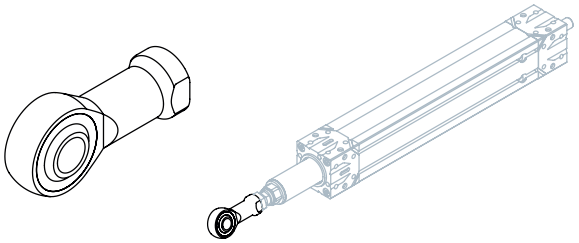


Table 6.11 **Thread adapter specifications** Unit: mm

Size	L1	L2	L3	L4	G1	SWa	SWb	Ø D1	Ø D2
EA040	51	27	23	21	M10	17	10	16	12
EA050	58	31	26	24	M12	19	13	18	14
EA060	58	31	26	24	M12	19	13	18	14
EA080	80	42	37	34	M16	24	22	30	20

6.3.3 Joint head



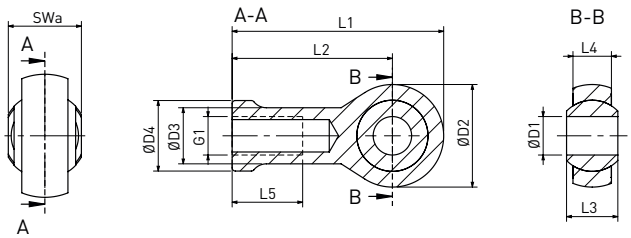


Table 6.12 **Joint head specifications** Unit: mm

Size	L1	L2	L3	Ø D1	L4	L5	G1	Ø D2	Ø D3	Ø D4	SWa
EA040	57	43	14	10 H7	10.5	20	M10	28	15	19	17
EA050	66	50	16	12 H7	12	22	M12	32	17.5	22	19
EA060	66	50	16	12 H7	12	22	M12	32	17.5	22	19
EA080	85	64	21	16 H7	15	28	M16	42	22	27	22

6.3.4 Cradle

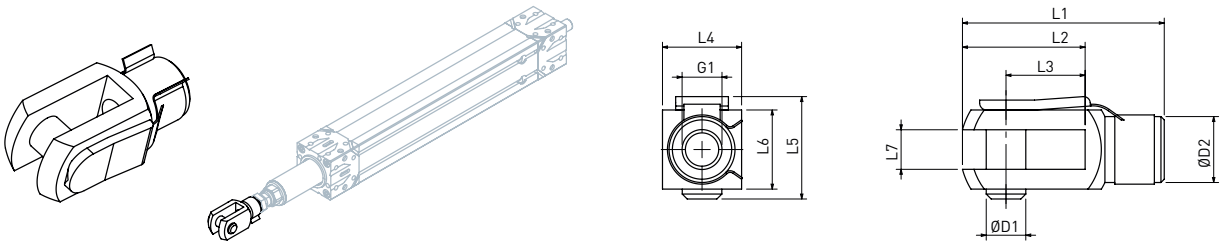


Table 6.13 **Cradle specifications** Unit: mm

Size	L1	L2	L3	Ø D1	Ø D2	L4	L5	L6	L7	G1
EA040	51	31	20	10	18	20	26	20	10	M10
EA050	61	37	24	12	20	24	30	24	12	M12
EA060	61	37	24	12	20	24	30	24	12	M12
EA080	82	50	32	16	26	32	38	32	16	M16

6.3.5 Compensating coupling

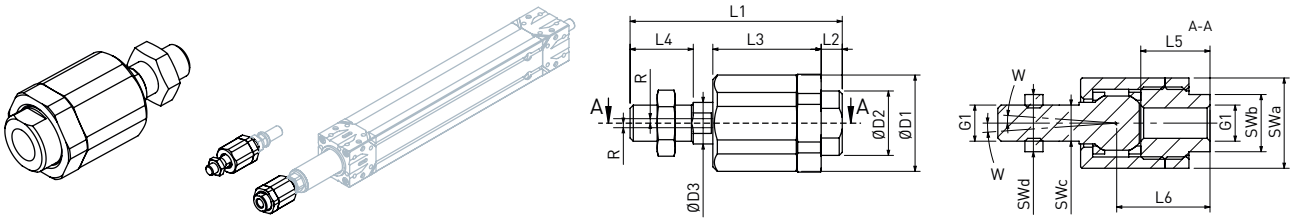


Table 6.14 **Compensating coupling specifications** Unit: mm

Size	L1	L2	L3	L4	Ø D1	Ø D2	Ø D3	SWa	SWb	SWc	SWd	G1	L5	L6	R	W [°]
EA040	67.5	7	36	18	32.5	21.4	13.8	30	19	12	17	M10	23	31	0.7	4
EA050	70.5	7	36	21	32.5	21.4	13.8	30	19	12	19	M12	23	31	0.7	4
EA060	70.5	7	36	21	32.5	21.4	13.8	30	19	12	19	M12	23	31	0.7	4
EA080	97	10	53	26	45	33.8	22	41	30	19	24	M16	32	44.5	1	4

6.3.6 Adapter plate threaded bolt

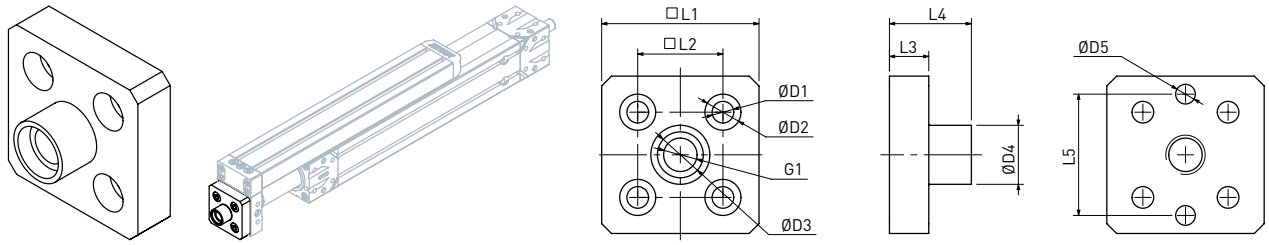


Table 6.15 **Adapter plate threaded bolt specifications** Unit: mm

Size	L1	L2	D1	D2	D3	G1	L3	L4	D4	L5	D5
EA040	38	22	5.5	10 × 5.4	12 × 4	M10	21	11	17	30	4 H7 × 1
EA050	48	26	6.6	11 × 6.2	14 × 4	M12	25	12	18	37	6 H7 × 2
EA060	48	26	6.6	11 × 6.2	14 × 4	M12	25	12	18	37	6 H7 × 2
EA080	78	62	6.6	11 × 6.4	20 × 5	M16	35	15	30	62	8 H7 × 2

6.4 Lubricants

Table 6.16 **Lubricants used**

Grease type	Area of application
Klüber Isoflex LDS18 Special A	Ballscrew
Klübersynth R 42-111	Piston tube
Mobil SHC 636	Slide guide (linear guideway)

7. Glossary

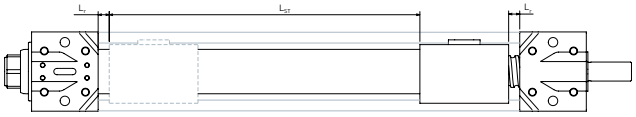
Dynamic load rating C_{dyn}
Dynamic load rating C_{dyn} describes the load at which 90% of similar linear guideways reach the life expectancy of 50 km. It is fundamental for the calculation of dynamic applications.

Duty cycle
Electric actuators EA-S are designed for a 100% duty cycle. Bending stress and impact loads must be avoided.

Stroke
The stroke describes the travel distance that the piston tube can cover between the two switching points of the limit switches.

Positioning accuracy
The positioning accuracy describes the maximum deviation between the actual and target position.

Reserve stroke



Static load rating C_0
Static load rating C_0 corresponds to a static load that causes a permanent deformation of 0.0001 × ball diameter at the contact point that is most heavily loaded. It is fundamental for the calculation of static applications.

Feed constant
The feed constant corresponds to the distance in mm that the ballscrew nut travels during one revolution of the drive.

Repeatability
The repeatability indicates how accurately the piston rod is positioned when approaching a position several times from the same direction (unidirectional). The maximum deviation between the actual positions reached is indicated.

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Note:
The technical data in this catalogue may be changed
without prior notice.