Toothed belt axes ELGR

FESTO

Electromechanical drives

Selection aid

Overview of toothed belt and spindle axes

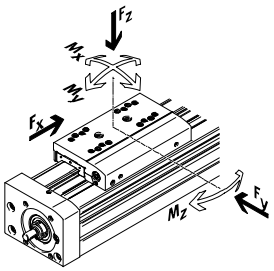
Toothed belt axes

- Speeds of up to 10 m/s
- Acceleration of up to 50 m/s^2
- Repetition accuracy of up to ±0.08 mm
- Strokes of up to 8500 mm (longer strokes on request)
- Flexible motor mounting

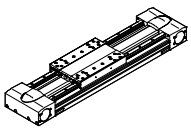
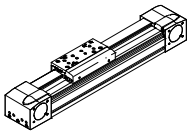
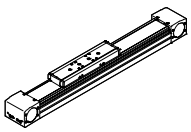
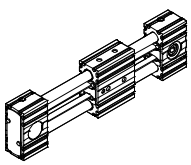
Spindle axes

- Speeds of up to 2 m/s
- Acceleration of up to 20 m/s^2
- Repetition accuracy of up to ±0.003 mm
- Strokes of up to 3000 mm

Coordinate system



Toothed belt axes

Type	F_x [N]	v [m/s]	Mx [Nm]	My [Nm]	Mz [Nm]	Key features
Heavy-duty recirculating ball bearing guide						
EGC-HD-TB						
	450 1000 1800	3 5 5	140 300 900	275 500 1450	275 500 1450	• Flat drive unit with rigid, closed profile • Precision DUO guide rail with high load capacity • Ideal as a basic axis for linear gantries and cantilever axes
Recirculating ball bearing guide						
EGC-TB-KF						
	50 100 350 800 2500	3 5 5 5 5	3.5 16 36 144 529	10 132 228 680 1820	10 132 228 680 1820	• Rigid, closed profile • Precision guide rail with high load capacity • Small drive pinions reduce required driving torque • Space-saving position sensing
ELGA-TB-KF						
	350 800 1300 2000	5 5 5 5	16 36 104 167	132 228 680 1150	132 228 680 1150	• Internal guide and toothed belt • Precision guide rail with high load capacity • Guide and toothed belt protected by cover band • High feed forces
ELGR-TB						
	50 100 350	3 3 3	2.5 5 15	20 40 124	20 40 124	• Cost-optimised rod guide • Ready-to-install unit • Ball bearings with high load capacity for dynamic operation

Electromechanical drives

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Overview of toothed belt and spindle axes

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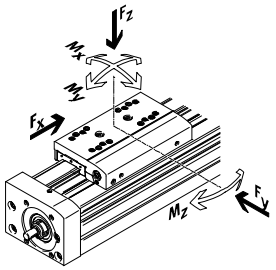
- Speeds of up to 10 m/s
- Acceleration of up to 50 m/s^2
- Repetition accuracy of up to ±0.08 mm
- Strokes of up to 8500 mm (longer strokes on request)
- Flexible motor mounting

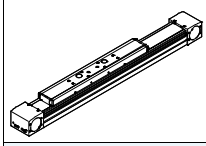
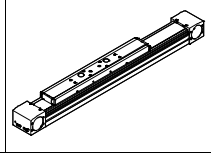
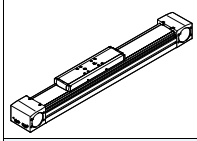
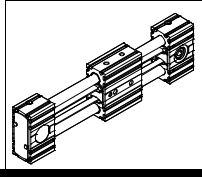
Spindle axes

- Speeds of up to 2 m/s
- Acceleration of up to 20 m/s^2
- Repetition accuracy of up to ±0.003 mm
- Strokes of up to 3000 mm

Coordinate system



Toothed belt axes

Type	F_x [N]	v [m/s]	Mx [Nm]	My [Nm]	Mz [Nm]	Key features
Roller bearing guide						
ELGA-TB-RF						
	350 800 1300	10 10 10	11 30 100	40 180 640	40 180 640	• Sturdy roller bearing guide • Guide and toothed belt protected by cover band • Speeds of up to 10 m/s • Lower weight than axes with guide rails
ELGA-TB-RF-F1						
	260 600 1000	10 10 10	8.8 24 80	32 144 512	32 144 512	• Suitable for use in the food zone • Sturdy roller bearing guide • Guide and toothed belt protected by cover band • Speeds of up to 10 m/s • Lower weight than axes with guide rails
Plain-bearing guide						
ELGA-TB-G						
	350 800 1300	5 5 5	5 10 120	30 60 120	10 20 40	• Guide and toothed belt protected by cover band • For simple handling tasks • As a drive component for external guides • Insensitive to harsh environmental conditions
ELGR-TB-GF						
	50 100 350	1 1 1	1 2.5 1	10 20 40	10 20 40	• Cost-optimised rod guide • Ready-to-install unit • Sturdy plain bearings for use in harsh environmental conditions

Electromechanical drives

Selection aid

Overview of toothed belt and spindle axes

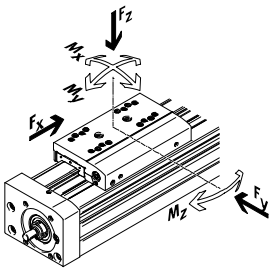
Toothed belt axes

- Speeds of up to 10 m/s
- Acceleration of up to 50 m/s²
- Repetition accuracy of up to ±0.08 mm
- Strokes of up to 8500 mm (longer strokes on request)
- Flexible motor mounting

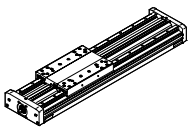
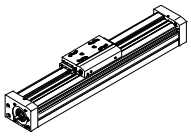
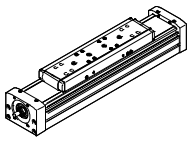
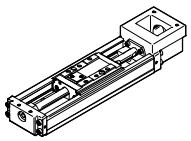
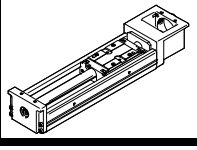
Spindle axes

- Speeds of up to 2 m/s
- Acceleration of up to 20 m/s²
- Repetition accuracy of up to ±0.003 mm
- Strokes of up to 3000 mm

Coordinate system



Spindle axes

Type	F_x [N]	v [m/s]	Mx [Nm]	My [Nm]	Mz [Nm]	Key features
Heavy-duty recirculating ball bearing guide						
EGC-HD-BS						
	300 600 1300	0.5 1.0 1.5	140 300 900	275 500 1450	275 500 1450	• Flat drive unit with rigid, closed profile • Precision DUO guide rail with high load capacity • Ideal as a basic axis for linear gantries and cantilever axes
Recirculating ball bearing guide						
EGC-BS-KF						
	300 600 1300 3000	0.5 1.0 1.5 2.0	16 36 144 529	132 228 680 1820	132 228 680 1820	• Rigid, closed profile • Precision guide rail with high load capacity • For the highest requirements in terms of feed force and accuracy • Space-saving position sensing
ELGA-BS-KF						
	300 600 1300 3000	0,5 1,0 1,5 2,0	16 36 104 167	132 228 680 1150	132 228 680 1150	• Internal guide and ball screw • Precision guide rail with high load capacity • For the highest requirements for feed force and precision • Guide and ball screw protected by cover strip • Space-saving position sensing
EGSK						
	57 133 184 239 392	0.33 1.10 0.83 1.10 1.48	13 28.7 60 79.5 231	3.7 9.2 20.4 26 77.3	3.7 9.2 20.4 26 77.3	• Spindle axes with maximum precision, compactness and rigidity • Recirculating ball bearing guide and ball screw without caged ball bearings • Standard designs in stock
EGSP						
	112 212 466 460	0.6 0.6 2.0 2.0	36.3 81.5 90.3 258	12.5 31.6 32.1 94	12.5 31.6 32.1 94	• Spindle axes with maximum precision, compactness and rigidity • Recirculating ball bearing guide with caged ball bearings • Ball screw sizes 33, 46 with caged ball bearings

Toothed belt axes ELGR

Key features

At a glance

General

- Optimum price/performance ratio
- Ready-to-install unit for quick and easy design
- High reliability thanks to tested service life of 5000 km
- Complete module for a simple and space-saving solution for end-position sensing

Properties

- Plain-bearing guide
  - For small loads
  - Restricted operating behaviour with torque load
  - Guide backlash = 0.05mm (on delivery)
- Recirculating ball bearing guide
  - For medium loads
  - Very good operating behaviour with torque load
  - Backlash-free guide (preloaded guide elements)

Range of applications

- Pick & place with payloads of up to 15 kg
- Positioning and handling with low process forces
- Actuation of guard doors in processing machines

Modular axis system with open motor interface ➔ 7

- Variable strokes
- Two guide variants
- Axial kits for servo and stepper motors
- The motor position can be freely selected on 4 sides and can be changed at any time.

Optimised Motion Series (OMS) – Package solution with motor and motor controller ➔ 20

A package that makes positioning easier than ever before.
The Optimised Motion Series is as easy to handle as a pneumatic cylinder, but with the functionality of an electric drive.

Simple choice

- Easy sizing and selection using cycle time charts
- No specialist knowledge of electric drive technology required

Ordering and logistics

- All the necessary component parts with a single part number
- Motors preassembled on the axis mechanism

Quick to configure

- Parameterisation and commissioning via web server/browser
- Parameterise up to 7 freely definable positions directly on the PC

For simple positioning tasks

Toothed belt axis ELGR

Controller CMMO
➔ Internet: cmmo

Toothed belt axes ELGR

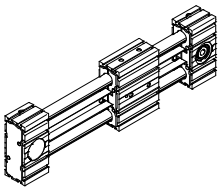
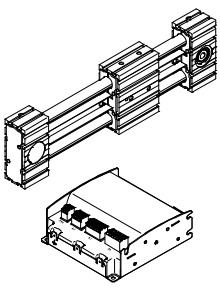
Features

Characteristic values of the axes

The specifications shown in the table are maximum values.
The precise values for each of the variants can be found in the relevant technical data.

Note

PositioningDrives engineering software
www.festo.com

Design	Size	Working stroke [mm]	Speed [m/s]	Repetition accuracy [mm]	Feed force [N]	Guide characteristics: Forces and torques Fy [N]	Fz [N]	Mx [Nm]	My [Nm]	Mz [Nm]	→ Page
Toothed belt axis ELGR											
	35	50 ... 800	3	±0.1	50	50	50	2.5	20	20	7
	45	50 ... 1000	3	±0.1	100	100	100	5	40	40	
	55	50 ... 1500	3	±0.1	350	300	300	15	124	124	
Toothed belt axis ELGR in combination with Optimised Motion series (OMS)											
	35	50 ... 800[1)]	1.1	±0.1	50	20	20	2.5	20	20	20
	45	50 ... 1000[1)]	1.1	±0.1	100	50	50	5	40	40	
	55	50 ... 1500[1)]	0.35	±0.1	350	90	90	15	124	124	

1) Only standard strokes can be ordered → 34

Toothed belt axes ELGR

Type codes

ELGR	–	TB	–		–	45	–	500	–	30H	–	L	–	

Type

ELGR	Linear axis

Drive function

TB	Toothed belt

Guide

–	Recirculating ball bearing guide
GF	Plain-bearing guide

Size

Stroke [mm]

Stroke reserve

Slide

–	Standard slide
L	Long slide

Additional slide

–	No additional slide
ZR	1 slide on right
ZL	1 slide on left
ZB	1 slide on right, 1 slide on left

➔	+	2SA		4NM	EA	2MA	+	

Proximity sensor

...SA	Proximity sensor (SIES), inductive, slot type 8, PNP, N/O contact, cable 7.5 m
...SB	Proximity sensor (SIES), inductive, slot type 8, PNP, N/C contact, cable 7.5 m

Cover

...NC	For mounting slot

Slot nut

...NM	For mounting slot

Drive shaft

...EA	Drive shaft

Profile mounting

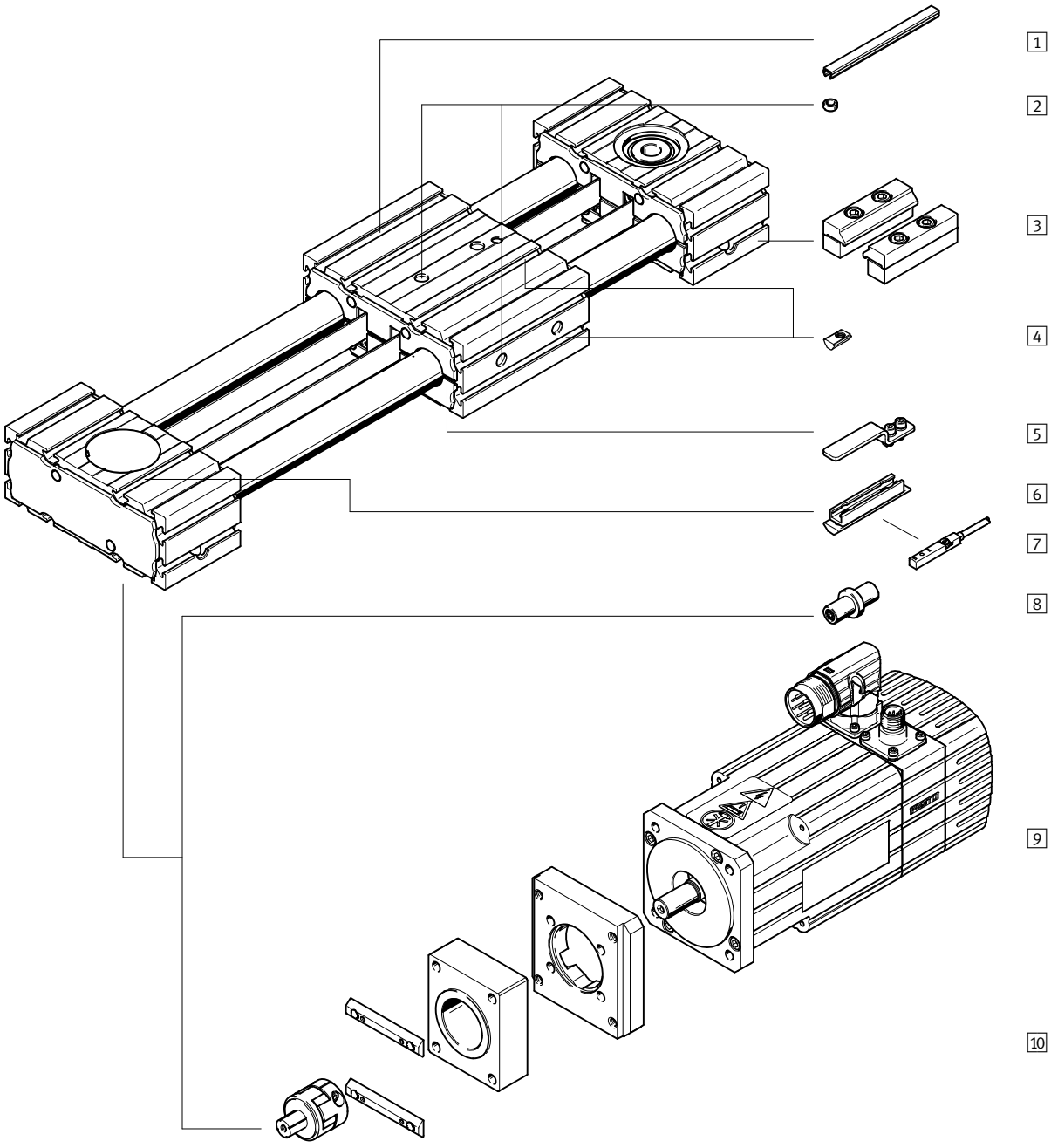
...MA	Profile mounting

Operating instructions

–	With operating instructions
DN	Without operating instructions

Toothed belt axes ELGR

Peripherals overview



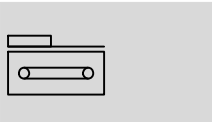
Accessories			
	Type/order code	**Description**	**➔ Page/Internet**
1	Slot cover NC	• For protecting against ingress of dirt	40
2	Centring sleeve ZBH	• For centring loads and attachments on the slide • 2 centring sleeves included in the scope of delivery of the axis	40
3	Profile mounting MA	For mounting the axis on the bearing cap	39
4	Slot nut NM	For mounting attachments	40
5	Switch lug SA, SB	For sensing the slide position	39
6	Sensor bracket SA, SB	Adapter for mounting the inductive proximity sensors on the axis	39
7	Proximity sensor, T-slot SA, SB	• Inductive proximity sensor, for T-slot • 1 switching lug and 1 sensor bracket are included in the scope of delivery with the order code SA, SB	41
8	Drive shaft EA	• Can, if required, be used as an alternative interface • No drive shaft is required for the axis/motor combinations ➔ 36	40
9	Motor EMME, EMMS	Motors specially matched to the axis, with or without brake	36
10	Axial kit EAMM	For axial motor mounting (comprises: coupling, coupling housing and motor flange)	36
–	Connecting cable NEBU	For proximity sensor (order code SA and SB)	41

Toothed belt axes ELGR

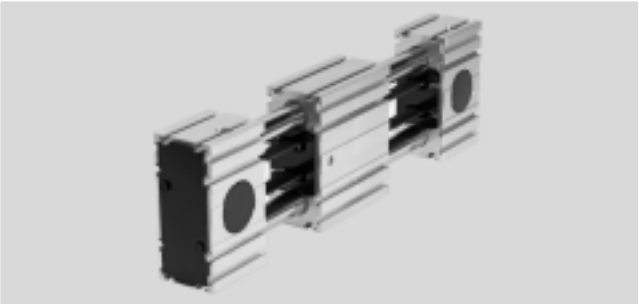
Technical data

FESTO

Function



- Size
  35 … 55
- Stroke length
  50 … 1500 mm
- www.festo.com



General technical data				
Size		35	45	55
Design		Electromechanical linear axis with toothed belt		
Guide		Recirculating ball bearing guide		
		Plain-bearing guide		
Mounting position		Any		
Working stroke	[mm]	50 … 800	50 … 1000	50 … 1500
Max. feed force F_x	[N]	50	100	350
Max. no-load torque	[Nm]	0.1	0.2	0.4
Max. driving torque	[Nm]	0.46	1.24	5
Max. no-load resistance to shifting	[N]	10.8	16.1	27.9
Max. speed				
Recirculating ball bearing guide	[m/s]	3		
Plain-bearing guide	[m/s]	1		
Max. acceleration[1)]	[m/s²]	50		
Repetition accuracy	[mm]	±0.1		

1) The max. acceleration is dependent on the payload, the driving torque and the max. feed force ➔ 13

Operating and environmental conditions		
Ambient temperature		
Recirculating ball bearing guide	[°C]	–10 … +50
Plain-bearing guide	[°C]	0 … +40
Degree of protection		IP20
Duty cycle	[%]	100

Weight [kg]				
Size		35	45	55
Recirculating ball bearing guide				
Basic weight with 0 mm stroke[1)]				
Standard slide		1.5	3.2	5.4
Long slide		1.9	4.3	7.4
Additional weight per 1000 mm stroke		2.5	5.0	7.8
Moving mass		0.5	1.1	1.9
Slide				
Standard slide		0.5	1.0	1.8
Long slide		0.8	1.7	3.0
Additional slide		0.4	0.9	1.7

1) Incl. slides

Weight [kg]			
Size	35	45	55
Plain-bearing guide			
Basic weight with 0 mm stroke[1)]			
Standard slide	1.4	3.1	5.1
Long slide	1.9	4.3	7.3
Additional weight per 1000 mm stroke	2.5	5.0	7.8
Moving mass	0.4	0.9	1.5
Slide			
Standard slide	0.4	0.9	1.5
Long slide	0.7	1.6	2.8
Additional slide	0.3	0.7	1.3

1) Incl. slides

Toothed belt				
Size		35	45	55
Pitch	[mm]	2	3	3
Expansion[1)]	[%]	0.094	0.08	0.21
Width	[mm]	10	15	19.3
Effective diameter	[mm]	18.46	24.83	28.65
Feed constant	[mm/rev]	58	78	90

1) At max. feed force

Mass moment of inertia				
Size		35	45	55
J_O				
Standard slide	[kg mm^2]	40.26	155.13	360.48
Long slide	[kg mm^2]	66.50	271.52	638.74
J_S per metre stroke	[kg mm^2/m]	0.26	1.06	1.88
J_L per kg payload	[kg mm^2/kg]	85.19	154.13	205.21
J_W Additional slide	[kg mm^2]	36.75	136.55	301.92

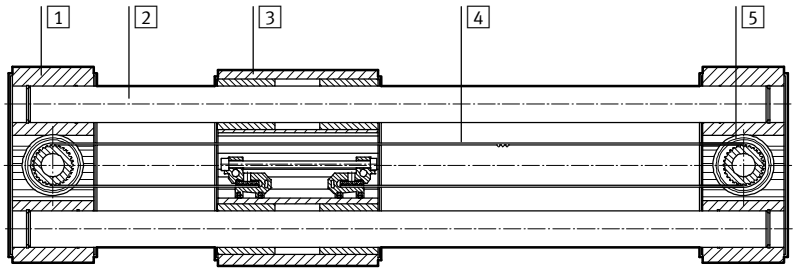
The mass moment of inertia J_A of the entire axis is calculated as follows:

$J_A = J_O + K \times J_W + J_H \times \text{working stroke [m]} + J_L \times m_{payload}$ [kg]

K = Number of additional slides

Materials

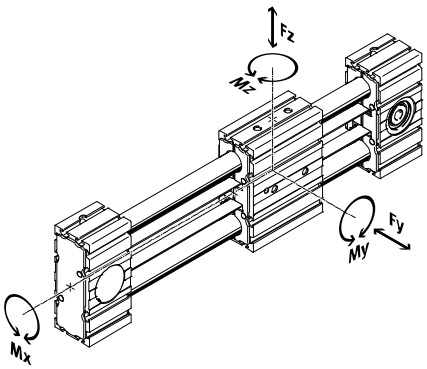
Sectional view



Axis		
1	Bearing cap, profile	Anodised wrought aluminium alloy
2	Guide rods	Tempered steel, hardened and hard-chromium plated
3	Slide, profile	Anodised wrought aluminium alloy
4	Toothed belt	Polychloroprene with glass cord and nylon coating
5	Belt pulley	High-alloy stainless steel
	Note on materials	RoHS-compliant
		Contains paint-wetting impairment substances

Characteristic load values

The indicated forces and torques refer to the centre of the guide. The point of application of force is the point where the centre of the guide and the longitudinal centre of the slide intersect. These values must not be exceeded during dynamic operation. Special attention must be paid to the cushioning phase.



If the axis is subjected to two or more of the indicated forces and torques simultaneously, the following equation must be satisfied in addition to the indicated maximum loads:

Calculating the load comparison factor:

$$f_v = \frac{|F_{y,dyn}|}{Fy_{max.}} + \frac{|F_{z,dyn}|}{Fz_{max.}} + \frac{|M_{x,dyn}|}{Mx_{max.}} + \frac{|M_{y,dyn}|}{My_{max.}} + \frac{|M_{z,dyn}|}{Mz_{max.}} \leq 1$$

Permissible forces and torques for a service life of 5000 km

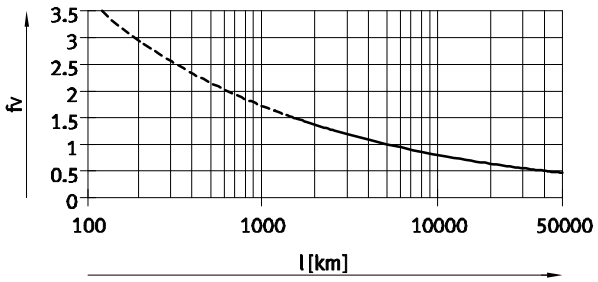
Guide		Plain-bearing guide			Recirculating ball bearing guide		
Size		35	45	55	35	45	55
$Fy_{max.}$, Fz_{max}	[N]	50	100	300	50	100	300
Standard slide							
$Mx_{max.}$	[Nm]	1	2.5	5	2.5	5	15
$My_{max.}$	[Nm]	4	8	16	8	16	48
$Mz_{max.}$	[Nm]	4	8	16	8	16	48
Long slide							
$Mx_{max.}$	[Nm]	1	2.5	5	2.5	5	15
$My_{max.}$	[Nm]	10	20	40	20	40	124
$Mz_{max.}$	[Nm]	10	20	40	20	40	124

Service life

The service life of the guide depends on the load. To provide a rough indication of the service life of the guide, the graph below plots the load comparison factor f_v against the service life.

These values are only theoretical. You must consult your local contact person at Festo for load comparison factors f_v greater than 1.5.

Load comparison factor f_v as a function of service life



Example:
A user wants to move an X kg load. Using the above formula gives a value of 1.5 for the load comparison factor f_v. According to the graph, the guide would have a service life of approx. 1500 km. Reducing the acceleration reduces the Mz and My values. A load comparison factor of 1 now gives a service life of 5000 km.

Note

PositioningDrives engineering software
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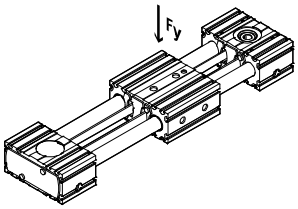
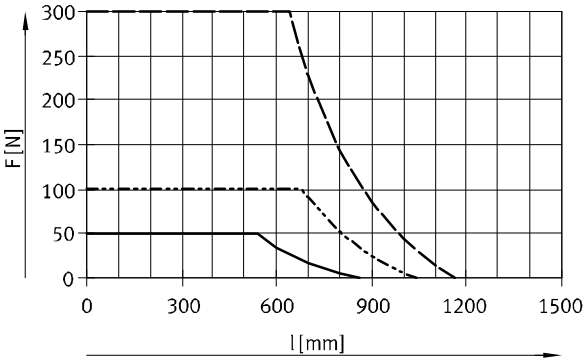
Max. load with flat mounting position

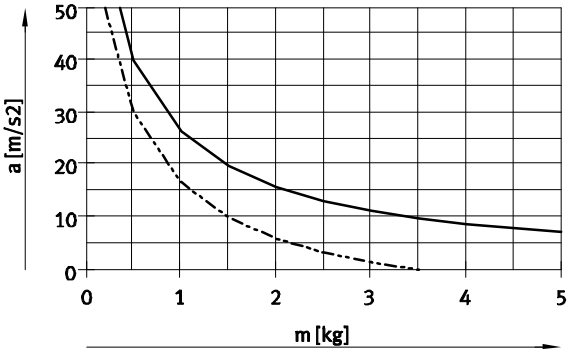


The characteristic curves in the graph correspond to the max. recommended deflection of 0.5 mm.
In this case, the axis can no longer support the maximum load past a certain stroke length.

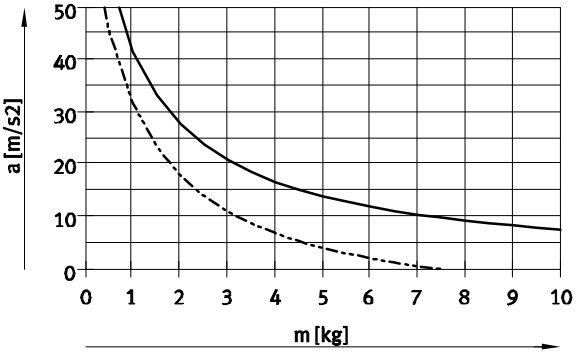


Maximum acceleration a as a function of the payload m

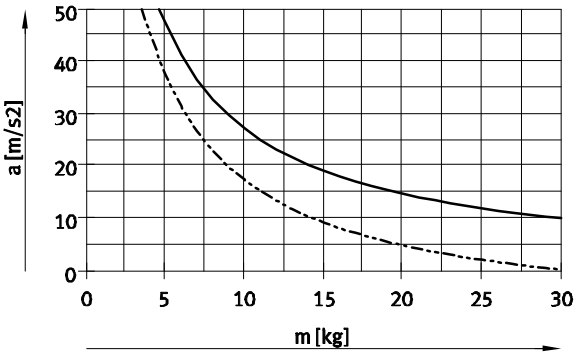
ELGR-35



ELGR-45

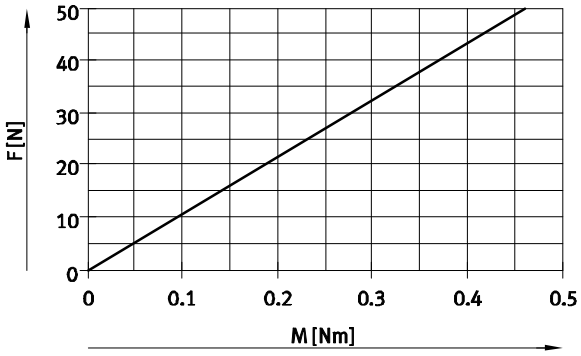


ELGR-55

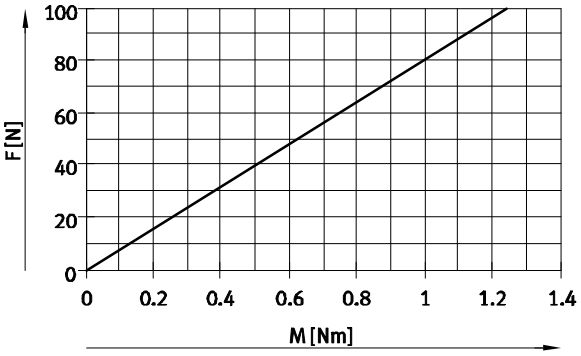


Feed force F_x as a function of input torque M

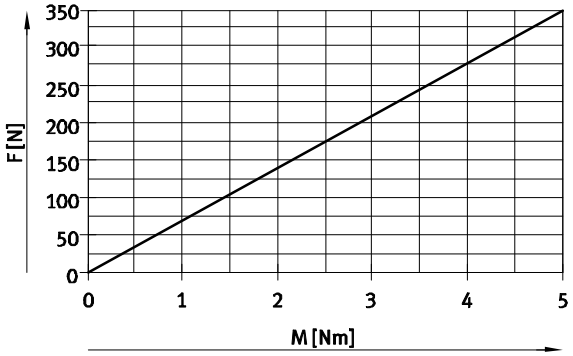
ELGR-35



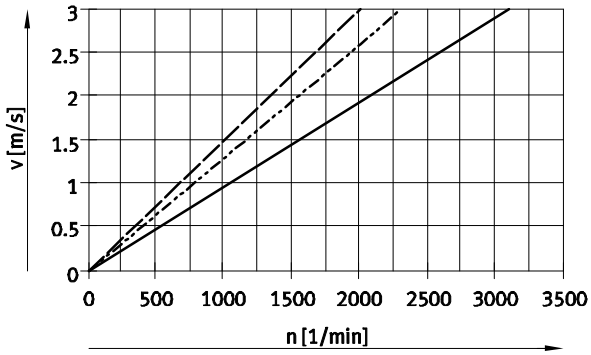
ELGR-45



ELGR-55



Speed v as a function of rotational speed n

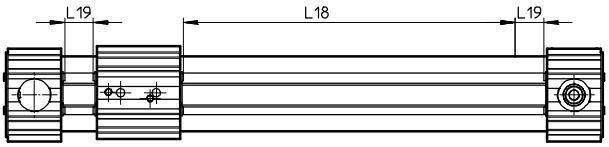


ELGR-TB-35
ELGR-TB-45
ELGR-TB-55

Minimum nominal stroke
for variants with additional slide ELGR-...-ZR/ZL/ZB

Size		35		45		55	
ELGR-		ZR/ZL	ZB	ZR/ZL	ZB	ZR/ZL	ZB
Min. nominal stroke	[mm]	126	202	146	242	166	282

Stroke reserve



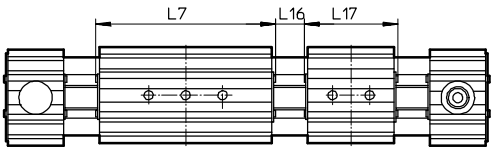
L18 = Nominal stroke
L19 = Stroke reserve

- The stroke reserve is a safety distance that can be available on both sides of the axis in addition to the nominal stroke
- The sum of the nominal stroke and 2x the stroke reserve must not exceed the maximum working stroke
- The stroke reserve length can be freely selected
- The stroke reserve is defined via the "stroke reserve" characteristic in the modular product system.

Example:
Type ELGR-TB-45-500-20H-...
Nominal stroke = 500 mm
2x stroke reserve = 40 mm

Working stroke = 540 mm
(540 mm = 500 mm + 2 x 20 mm)

Working stroke reduction
For standard slide or long slide with additional slide ELGR-...-ZR/ZL/ZB



L7 = Slide length
L16 = Distance between the two slides
L17 = Additional slide length

- For a toothed belt axis with additional slide, the working stroke is reduced by the length of the additional slide and the distance between the two slides
- If the long slide variant L is ordered, the additional slide is not extended

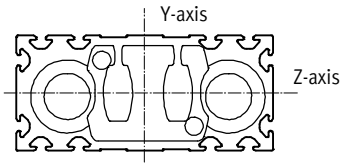
Example:
Type ELGR-TB-35-500-...-ZR
Working stroke = 500 mm
L16 = 10 mm
L7, L17 = 76 mm

Working stroke with additional slide = 414 mm
(500 mm – 10 mm – 76 mm)

Dimensions – Additional slide

Size		35	45	55
Length L17	[mm]	76	96	116
Distance between the slides L16	[mm]	≥ 0		

Second moment of area

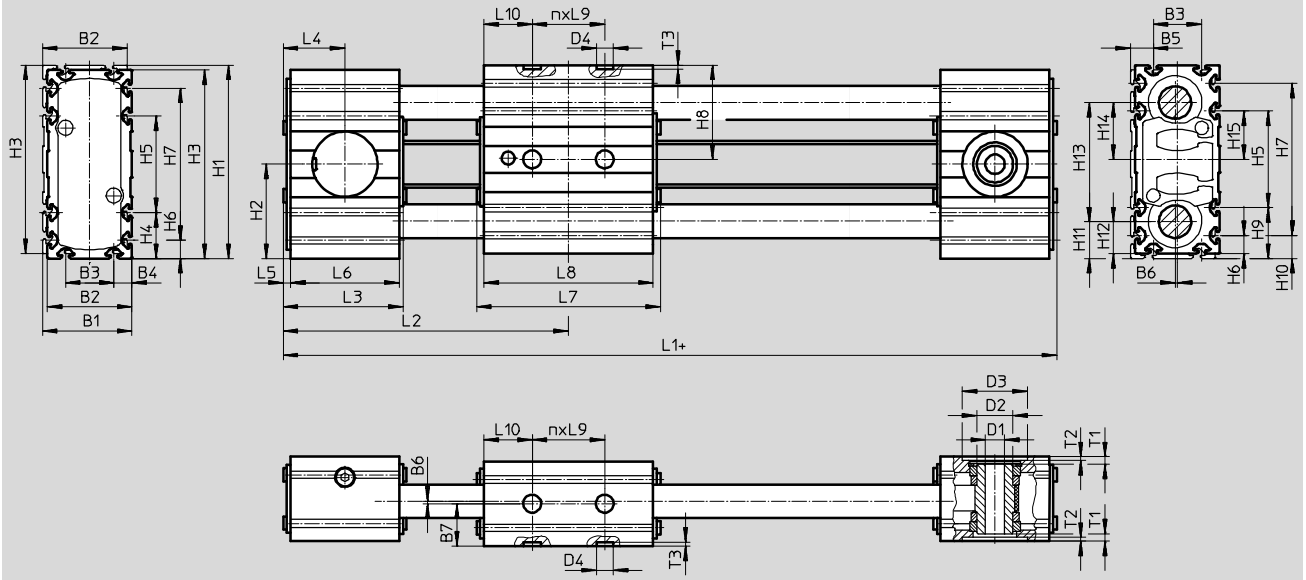


Size		35	45	55
Iy	[mm^4]	$3.77x10^3$	$1.57x10^4$	$3.83x10^4$
Iz	[mm^4]	$1.89x10^5$	$8.08x10^5$	$1.85x10^6$

Recommended deflection limits

Adherence to a maximum deflection of 0.5 mm is recommended so as not to impair the functional performance of the axes. Greater deformation can result in increased friction, greater wear and reduced service life.

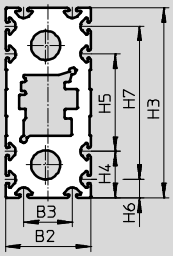
Dimensions Download CAD data ➔ **www.festo.com**



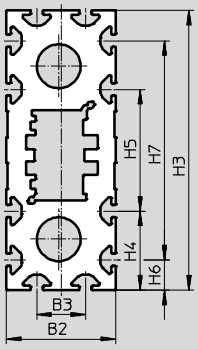
\+ plus stroke + 2x stroke reserve

Profile

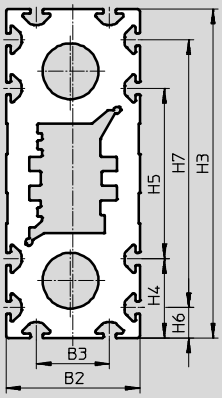
ELGR-35



ELGR-45



ELGR-55



Toothed belt axes ELGR

Technical data

Size	B1	B2	B3	B4	B5	B6	B7	D1 ∅ H7	D2 ∅	D3 ∅ H7	D4 ∅ H7	H1	H2
35	37	35	20	7.5	9.5	1	17.5	8	15	27	7	80	39
45	47	45	20	12.5	14.5		22.5	10	20	38		117	57.5
55	57	55	30	12.5	14.5		27.5	16	25	48		137	67.5

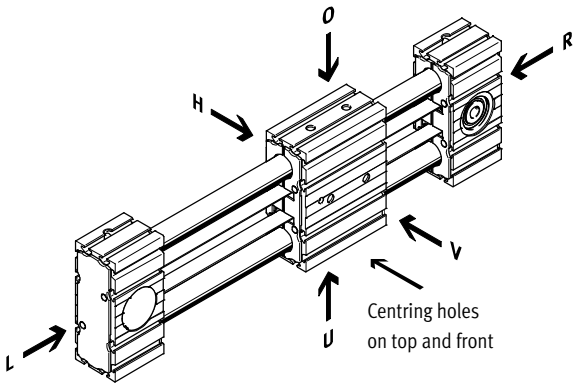
Size	H3	H4	H5	H6	H7	H8	H9	H10	H11	H12	H13	H14
35	78	19	40	7.5	63	39	21	9.5	15.5	13.5	49	23.5
45	115	32.5	50	12.5	90	57.5	34.5	14.5	23	21	71	34.5
55	135	32.5	70	12.5	110	67.5	34.5	14.5	25.5	23.5	86	42

Size	H15	L3	L4	L5	L6	L9	T1	T2	T3 +0.1
35	20	51	25.5	3	45	30	3.1	1.6	1.6
45	25	60	30		54	40	3	1.7	
55	35	62	31		56	40	4.5	2	

Size	L1		L2		L7		L8		L10		n	
ELGR-...		-L		-L		-L		-L		-L		-L
35	178	248	89	124	76	146	70	140	20	40	1	2
45	219	309	108	153	96	186	90	180	25	50	1	2
55	243	353	120	175	116	226	110	220	35	70	1	2

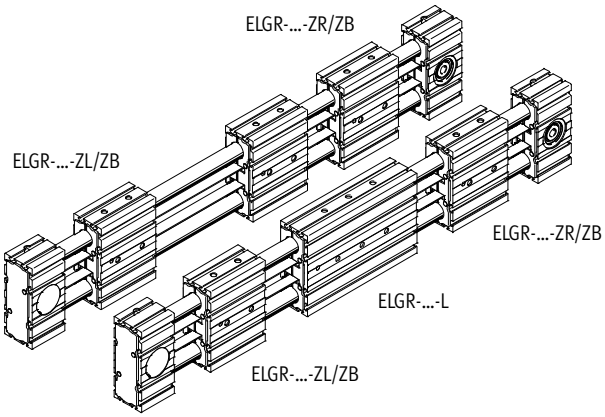
Order code

Mandatory data



O	top	L	left
U	underneath	V	front
R	right	H	rear

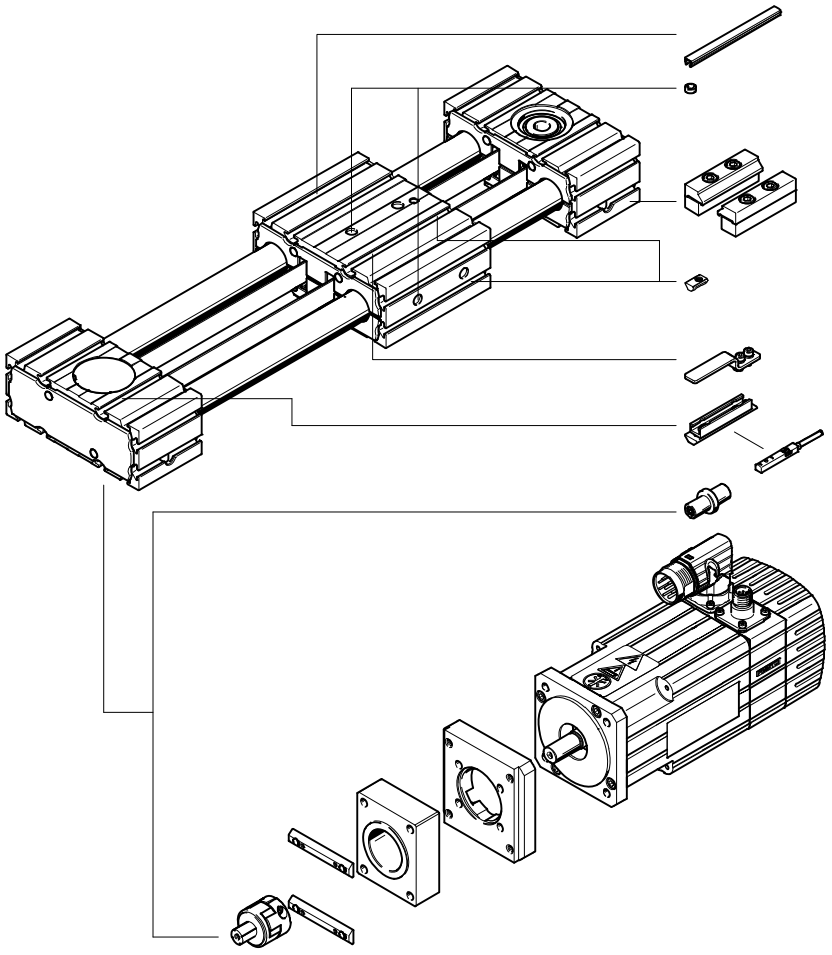
Additional slide



Minimum order stroke in combination with additional slide ELGR-...-ZR/ZL/ZB

Size		35		45		55	
ELGR-...		-ZR/ZL	-ZB	-ZR/ZL	-ZB	-ZR/ZL	-ZB
Min. nominal stroke	[mm]	126	202	146	242	166	282

Accessories



NC
➔ 40

MA

NM

SA, SB

SA, SB

EA

Servo motor
Stepper motor
➔ 36

Axial kit
➔ 36

Toothed belt axes ELGR

Ordering data – Modular products

FESTO

Ordering table

	Size		35	45	55	Condi-tions	Code		Entry code
M	Module no.		**560505**	**560506**	**560507**				
	Design		Linear axis				**ELGR**		ELGR
	Drive system		Toothed belt				**-TB**		-TB
O	Guide		Recirculating ball bearing guide						
			Plain-bearing guide				**-GF**		
M	Sizes		35	45	55		**-...**		
	Stroke length	[mm]	1 ... 800	1 ... 1000	1 ... 1500	1	**-...**		
	Stroke reserve	[mm]	0 ... 999 (0 = no stroke reserve)			1	**-...H**		
O	Slide design		Standard slide						
			Long slide				**-L**		
	Additional slide		No additional slide						
			1 slide on right			2	**-ZR**		
			1 slide on left			2	**-ZL**		
			1 slide on right, 1 slide on left			2	**-ZB**		
	Accessories		Accessories enclosed separately				**+**		+
	Proximity sensor (SIES), inductive, slot type 8, PNP, N/O contact, cable 7.5 m, incl. switch lug and sensor bracket		1 ... 6				**...SA**		
	Proximity sensor (SIES), inductive, slot type 8, PNP, N/C contact, cable 7.5 m, incl. switch lug and sensor bracket		1 ... 6				**... SB**		
	Mounting slot cover		–	1 ... 50 (1=2pc. 500 mm long)			**...NC**		
	Slot nut for mounting slot		1 ... 99				**...NM**		
	Drive shaft		1 ... 4				**...EA**		
	Profile mounting		1 ... 2				**...MA**		
	Operating instructions		With operating instructions						
			Without operating instructions				**+DN**		

1 **...** The sum of the stroke length and 2x the stroke reserve must not exceed the maximum stroke length or be less than the minimum stroke length of 50 mm

2 **ZR, ZL, ZB** Working stroke reduction ➔ 15

M Mandatory data
O Options

Transfer order code

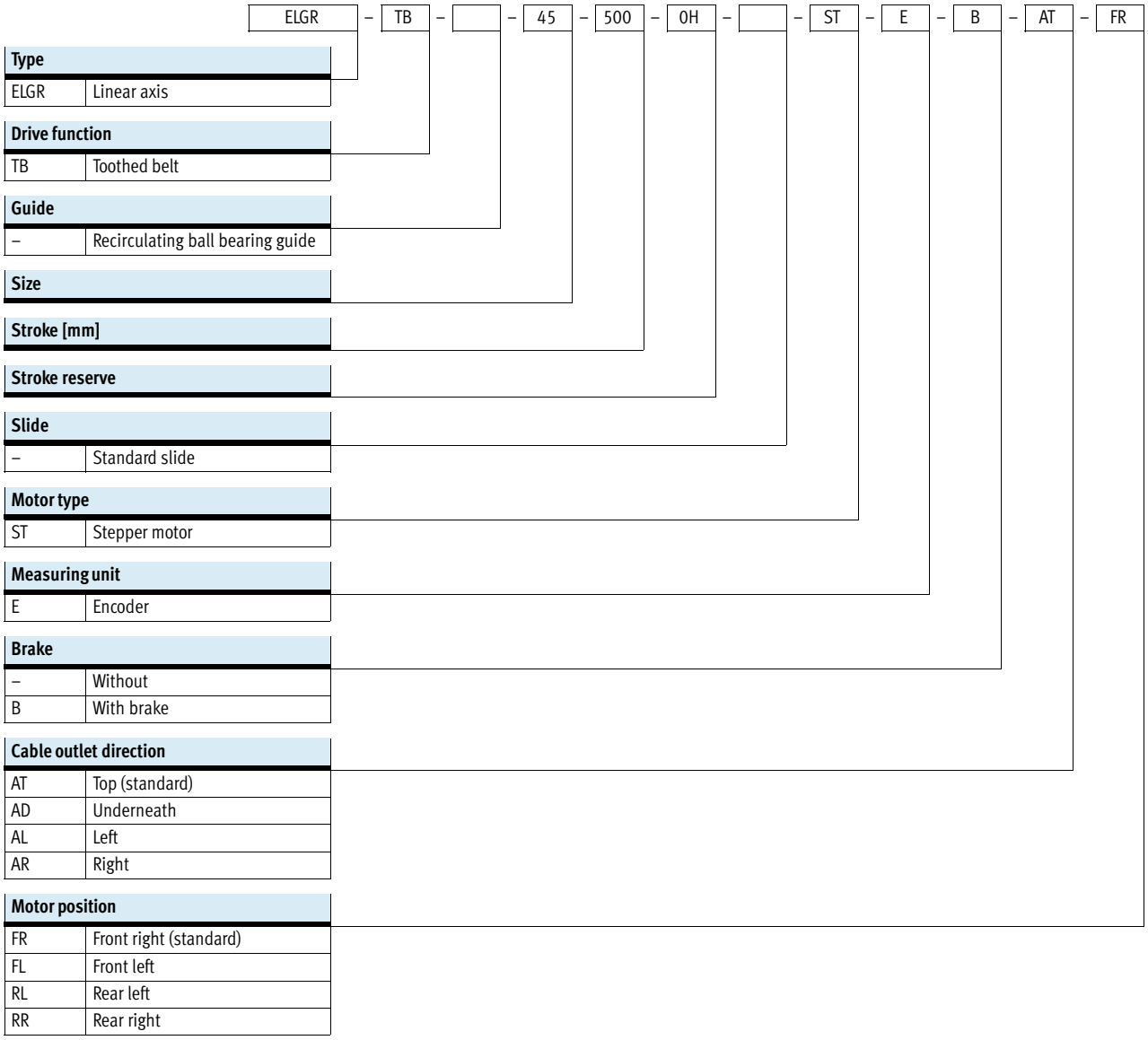
	ELGR	–	TB	–		–		–		–		–		+					

New

Toothed belt axes ELGR, for Optimised Motion Series (OMS)

FESTO

Type codes



Type	
ELGR	Linear axis

Drive function	
TB	Toothed belt

Guide	
–	Recirculating ball bearing guide

Size	

Stroke [mm]	

Stroke reserve	

Slide	
–	Standard slide

Motor type	
ST	Stepper motor

Measuring unit	
E	Encoder

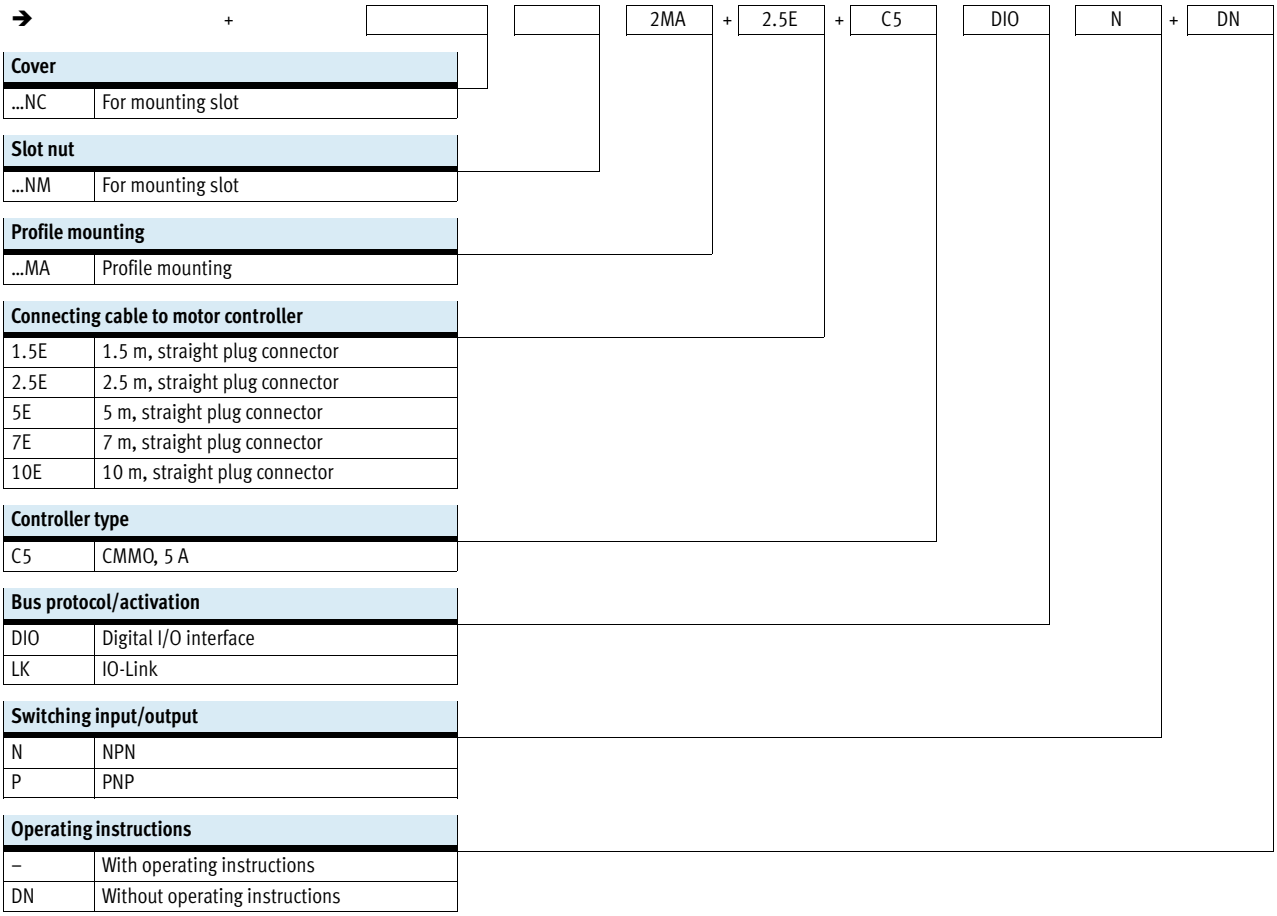
Brake	
–	Without
B	With brake

Cable outlet direction	
AT	Top (standard)
AD	Underneath
AL	Left
AR	Right

Motor position	
FR	Front right (standard)
FL	Front left
RL	Rear left
RR	Rear right

Toothed belt axes ELGR, for Optimised Motion Series (OMS)

Type codes



Cover	
...NC	For mounting slot

Slot nut	
...NM	For mounting slot

Profile mounting	
...MA	Profile mounting

Connecting cable to motor controller	
1.5E	1.5 m, straight plug connector
2.5E	2.5 m, straight plug connector
5E	5 m, straight plug connector
7E	7 m, straight plug connector
10E	10 m, straight plug connector

Controller type	
C5	CMMO, 5 A

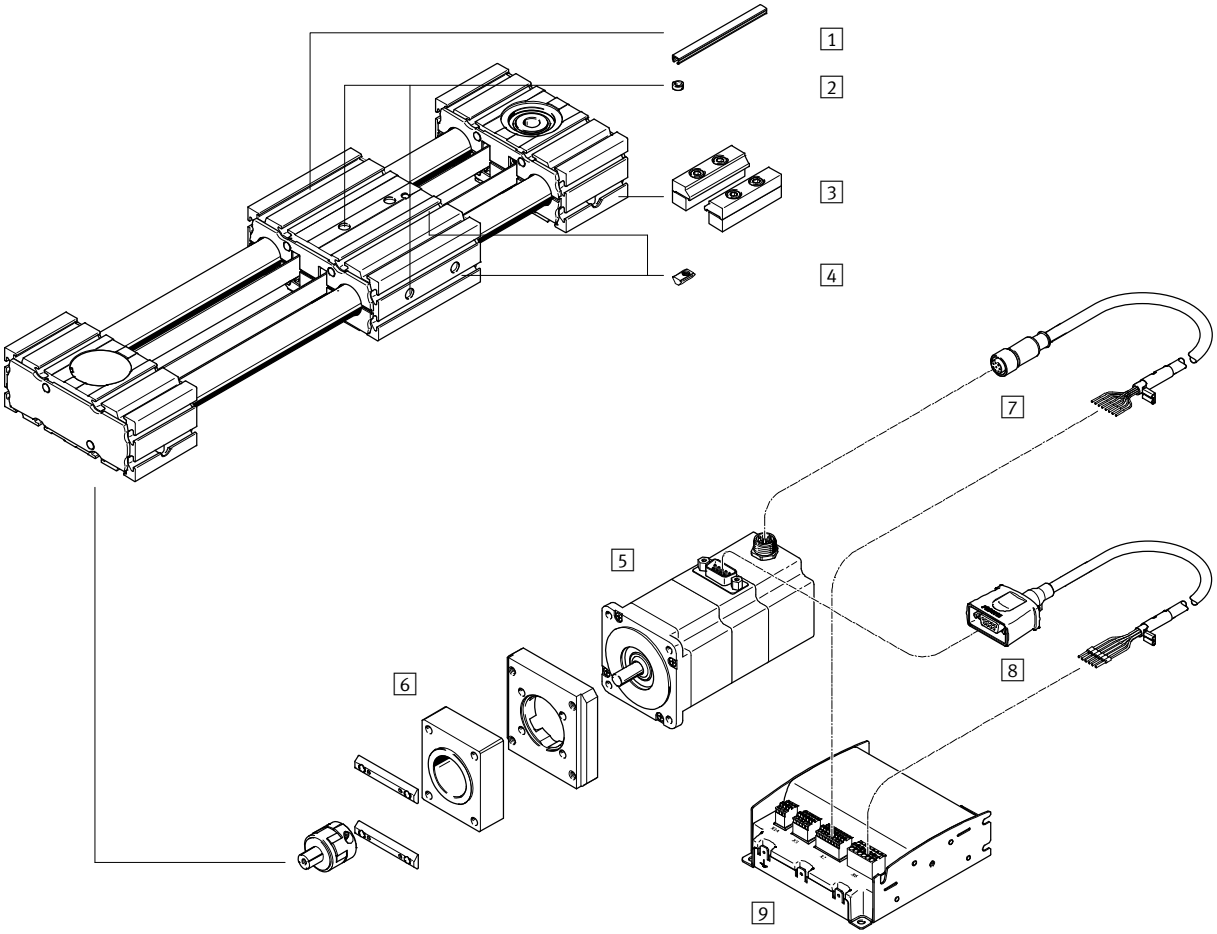
Bus protocol/activation	
DIO	Digital I/O interface
LK	IO-Link

Switching input/output	
N	NPN
P	PNP

Operating instructions	
–	With operating instructions
DN	Without operating instructions

Toothed belt axes ELGR, for Optimised Motion Series (OMS)

Peripherals overview



Toothed belt axes ELGR, for Optimised Motion Series (OMS)

Peripherals overview

Accessories

	Type/order code	Description	➔ Page/Internet
1	Slot cover NC	• For protecting against ingress of dirt	40
2	Centring sleeve ZBH	• For centring loads and attachments on the slide • 2 centring sleeves included in the scope of delivery of the axis	40
3	Profile mounting MA	For mounting the axis on the bearing cap	39
4	Slot nut NM	For mounting attachments	40
5	Motor EMMS-ST	Motors specially matched to the axis, with or without brake	36
6	Axial kit EAMM	For axial motor mounting (comprises: coupling, coupling housing and motor flange)	36
7	Encoder cable NEBM	For connecting the encoder and controller	41
8	Motor cable NEBM	For connecting the motor and controller	41
9	Motor controller CMMO	For parameterising and positioning the toothed belt axis	41

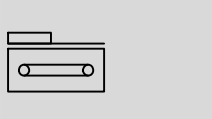
New

Toothed belt axes ELGR, for Optimised Motion Series (OMS)

Technical data

FESTO

Function



Size
35 ... 55

Stroke length
50 ... 1 500 mm

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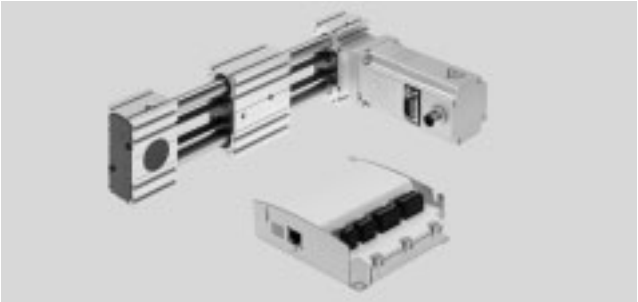


General technical data				
Size		35	45	55
Design		Electromechanical linear axis with toothed belt		
Guide		Recirculating ball bearing guide		
Mounting position		Any		
Standard stroke	[mm]	50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800	50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800, 900, 1000	50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800, 900, 1000, 1100, 1200, 1300, 1400, 1500
Max. working load	[kg]	2.8	5.0	6.8
Max. feed force F_x	[N]	50	100	350
Max. driving torque	[Nm]	0.46	1.24	5
Max. speed	[m/s]	1.1	1.1	0.35
Max. acceleration[1)]	[m/s^2]	15		
Repetition accuracy	[mm]	±0.1		

1) In combination with Optimised Motion Series (OMS).
The max. acceleration is dependent on the payload, the driving torque and the max. feed force ➔ 27

Operating and environmental conditions		
Ambient temperature	[°C]	–10 ... +50
Degree of protection		IP20
Duty cycle	[%]	100

Toothed belt axes ELGR, for Optimised Motion Series (OMS)

Technical data

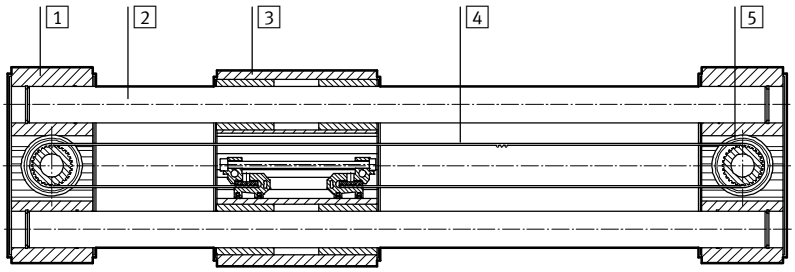
FESTO

Weight of axis/axial kit/motor [kg]			
Size	35	45	55
Basic weight with 0 mm stroke[1)]			
Axis/axial kit/motor	3.9	8.0	13.2
Additional weight per 1000 mm stroke	2.5	5.0	7.8
Moving mass	0.5	1.1	1.9
Slide			
Standard slide	0.5	1.0	1.8

1) Incl. slide

Materials

Sectional view



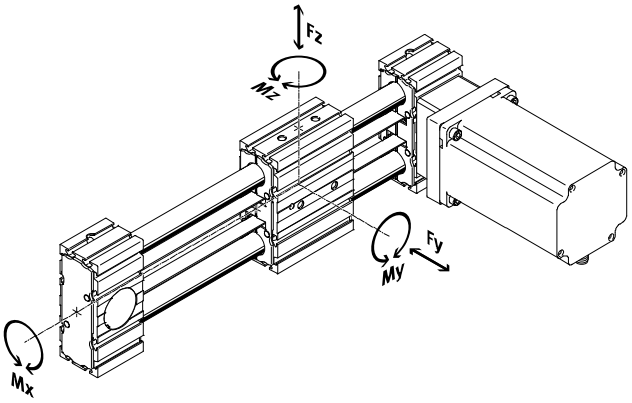
Axis	
1 Bearing cap, profile	Anodised wrought aluminium alloy
2 Guide rods	Steel
3 Slide, profile	Anodised wrought aluminium alloy
4 Toothed belt	Polychloroprene with glass cord and nylon coating
5 Belt pulley	High-alloy stainless steel
Note on materials	RoHS-compliant
	Contains paint-wetting impairment substances

Toothed belt axes ELGR, for Optimised Motion Series (OMS)

Technical data

Characteristic load values

The indicated forces and torques refer to the centre of the guide. The point of application of force is the point where the centre of the guide and the longitudinal centre of the slide intersect. These values must not be exceeded during dynamic operation. Special attention must be paid to the cushioning phase.



If the axis is subjected to two or more of the indicated forces and torques simultaneously, the following equation must be satisfied in addition to the indicated maximum loads:

Calculating the load comparison factor:

$$f_v = \frac{|F_{y,dyn}|}{Fy_{max.}} + \frac{|F_{z,dyn}|}{Fz_{max.}} + \frac{|M_{x,dyn}|}{Mx_{max.}} + \frac{|M_{y,dyn}|}{My_{max.}} + \frac{|M_{z,dyn}|}{Mz_{max.}} \leq 1$$

Permissible forces and torques for a service life of 5000 km

Guide		Recirculating ball bearing guide		
Size		35	45	55
$Fy_{max.}$, Fz_{max} [1]	[N]	50	100	300
Standard slide				
$Mx_{max.}$	[Nm]	2.5	5	15
$My_{max.}$	[Nm]	8	16	48
$Mz_{max.}$	[Nm]	8	16	48

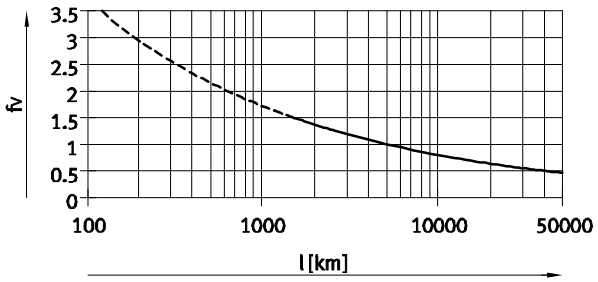
1) In combination with Optimised Motion Series (OMS) max. working load limited only by drive system

Service life

The service life of the guide depends on the load. To provide a rough indication of the service life of the guide, the graph below plots the load comparison factor f_v against the service life.

These values are only theoretical. You must consult your local contact person at Festo for load comparison factors f_v greater than 1.5.

Load comparison factor f_v as a function of service life



Example:
A user wants to move an X kg load. Using the above formula gives a value of 1.5 for the load comparison factor f_v. According to the graph, the guide would have a service life of approx. 1500 km. Reducing the acceleration reduces the Mz and My values. A load comparison factor of 1 now gives a service life of 5000 km.

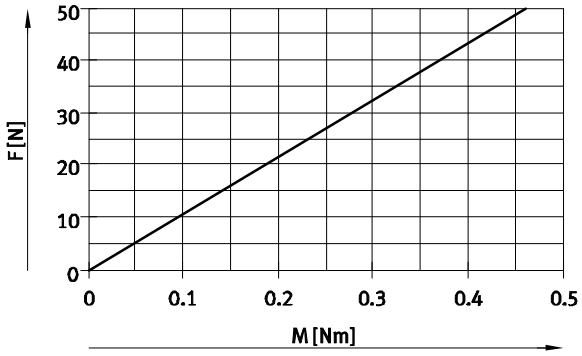
Toothed belt axes ELGR, for Optimised Motion Series (OMS)

Technical data

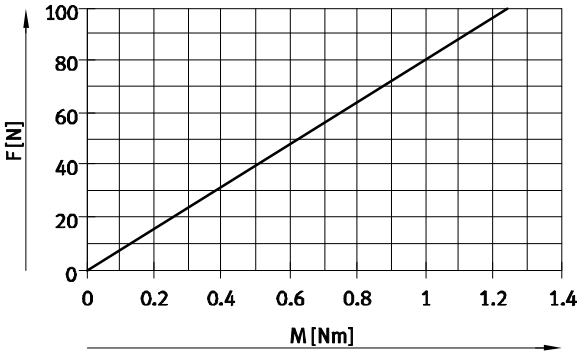
FESTO

Feed force F_x as a function of input torque M

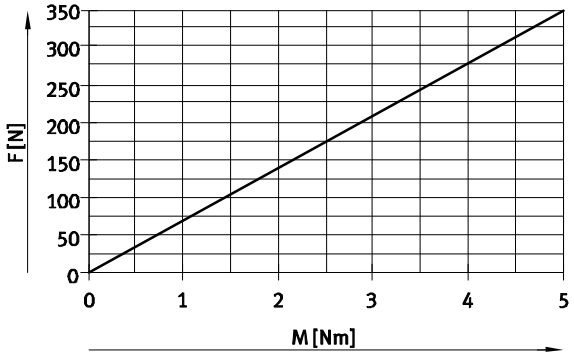
ELGR-35



ELGR-45

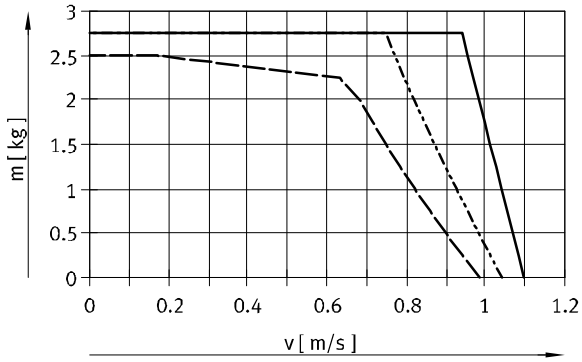


ELGR-55

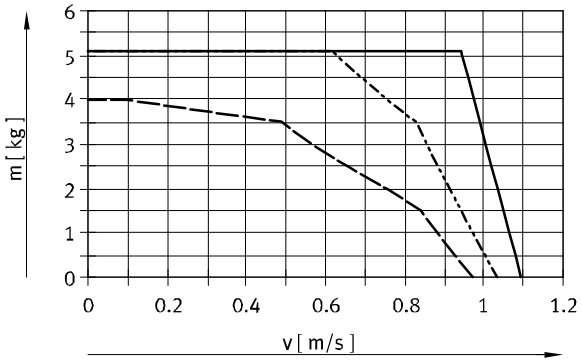


Max. payload m as a function of acceleration a and speed v[1)]

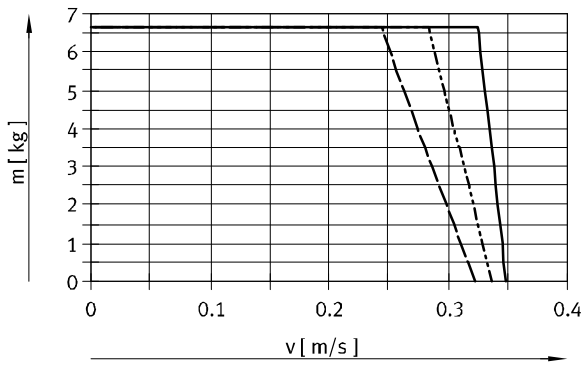
ELGR-35

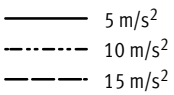


ELGR-45



ELGR-55





1) In combination with Optimised Motion Series (OMS)

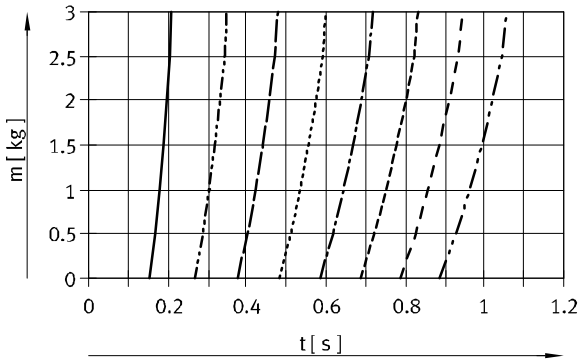
Toothed belt axes ELGR, for Optimised Motion Series (OMS)

Technical data

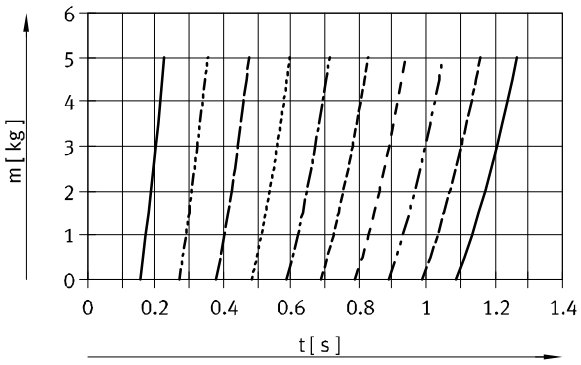
FESTO

Max. payload m as a function of stroke l and positioning time t[1)]

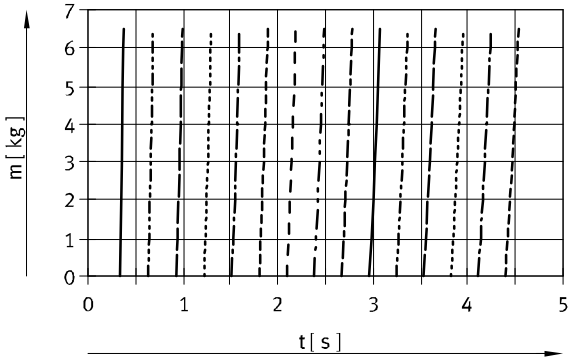
ELGR-35

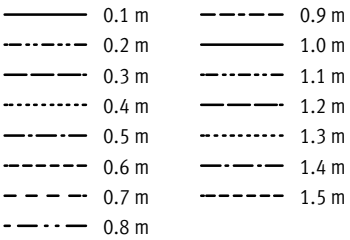


ELGR-45

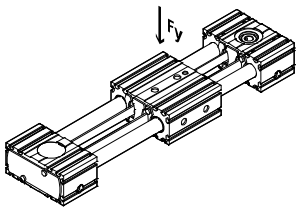


ELGR-55

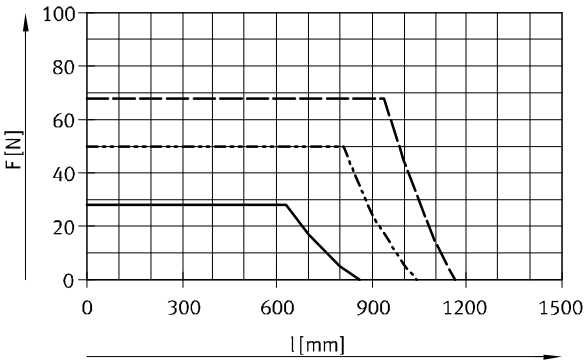


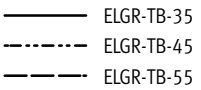


Max. load with flat mounting position[1)]



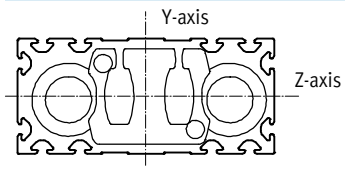
The characteristic curves in the graph correspond to the max. recommended deflection of 0.5 mm.
In this case, the axis can no longer support the maximum load past a certain stroke length.





1) In combination with Optimised Motion Series (OMS) max. working load limited only by drive system

Second moment of area



Size		35	45	55
Iy	[mm^4]	3.77x10^3	1.57x10^4	3.83x10^4
Iz	[mm^4]	1.89x10^5	8.08x10^5	1.85x10^6

Recommended deflection limits

Adherence to a maximum deflection of 0.5 mm is recommended so as not to impair the functional performance of the axes. Greater deformation can result in increased friction, greater wear and reduced service life.

Toothed belt axes ELGR, for Optimised Motion Series (OMS)

Technical data

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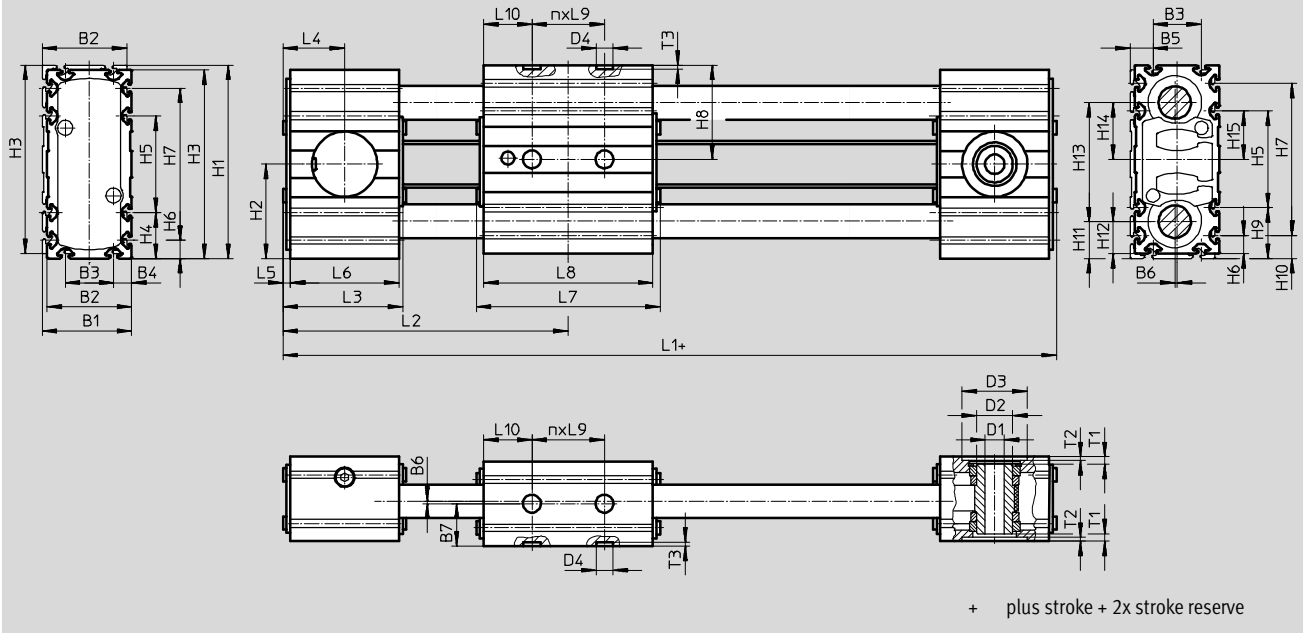
Dimensions Download CAD data ➔ **www.festo.com**



\+ plus stroke + 2x stroke reserve

Size	B1	B2	B3	B4	B5	B6	B7	D1 ∅ H7	D2 ∅	D3 ∅ H7
35	37	35	20	7.5	9.5	1	17.5	8	15	27
45	47	45	20	12.5	14.5		22.5	10	20	38
55	57	55	30	12.5	14.5		27.5	16	25	48

Size	D4 ∅ H7	H1	H2	H3	H4	H5	H6	H7	H8	H9
35	7	80	39	78	19	40	7.5	63	39	21
45		117	57.5	115	32.5	50	12.5	90	57.5	34.5
55		137	67.5	135	32.5	70	12.5	110	67.5	34.5

Size	H10	H11	H12	H13	H14	H15	L1	L2	L3	L4
35	9.5	15.5	13.5	49	23.5	20	178	89	51	25.5
45	14.5	23	21	71	34.5	25	219	108	60	30
55	14.5	25.5	23.5	86	42	35	243	120	62	31

Size	L5	L6	L7	L8	L9	L10	T1	T2	T3 +0.1	n
35	3	45	76	70	30	20	3.1	1.6	1.6	1
45		54	96	90	40	25	3	1.7		1
55		56	116	110	40	35	4.5	2		1

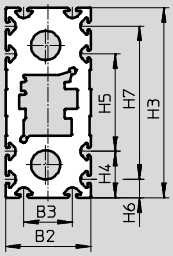
Toothed belt axes ELGR, for Optimised Motion Series (OMS)

Technical data

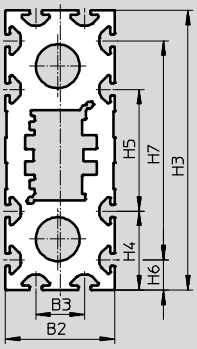
Dimensions Download CAD data ➔ **www.festo.com**

Profile

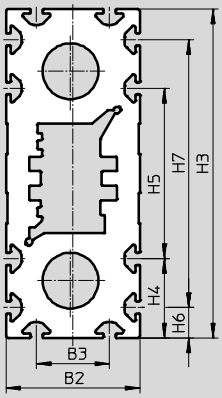
ELGR-35



ELGR-45



ELGR-55



Size	B2	B3	H3	H4
35	35	20	78	19
45	45	20	115	32.5
55	55	30	135	32.5

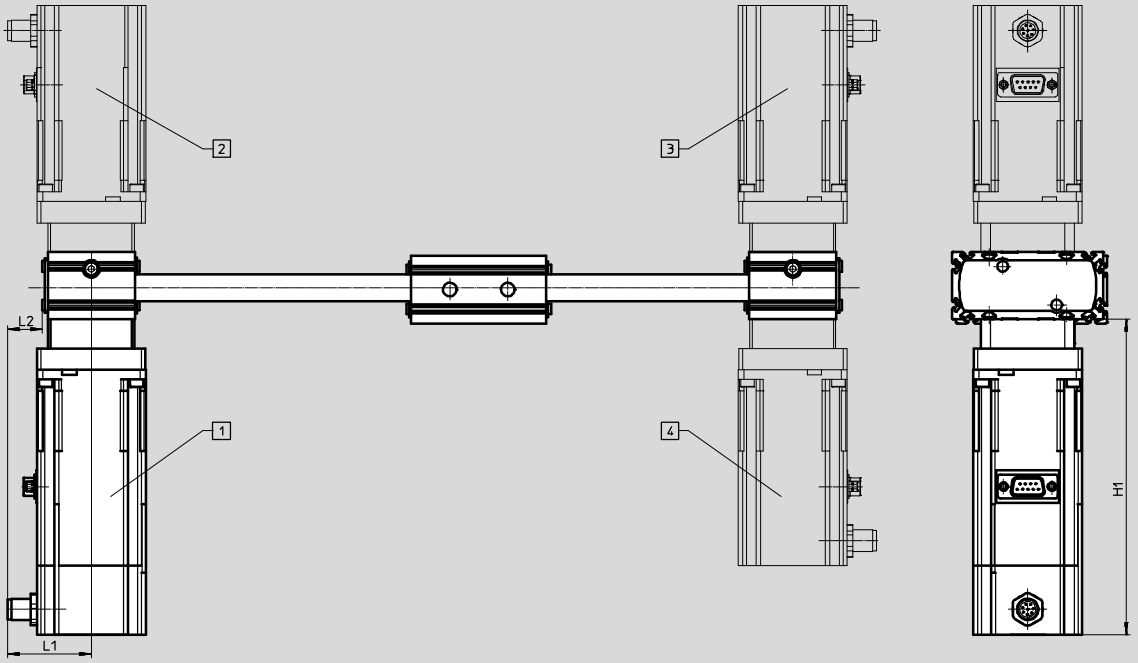
Size	H5	H6	H7
35	40	7.5	63
45	50	12.5	90
55	70	12.5	110

Toothed belt axes ELGR, for Optimised Motion Series (OMS)

Technical data

Dimensions Download CAD data ➔ **www.festo.com**

Motor attachment variants



1 ELGR-...-FL (motor at front left)
2 ELGR-...-RL (motor at rear left)
3 ELGR-...-RR (motor at rear right)
4 ELGR-...-FR (motor at front right)

Size	H1		L1		L2	
	ELGR-...		ELGR-...		ELGR-...	
		-B		-B		-B
35	127.5	163	43.2	44	17.7	18
45	152.4	192.5	58	58	28	28
55	190	230	58	58	27	27

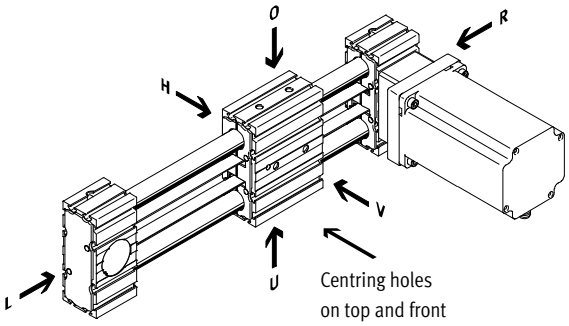
Toothed belt axes ELGR, for Optimised Motion Series (OMS)

Ordering data – Modular products

FESTO

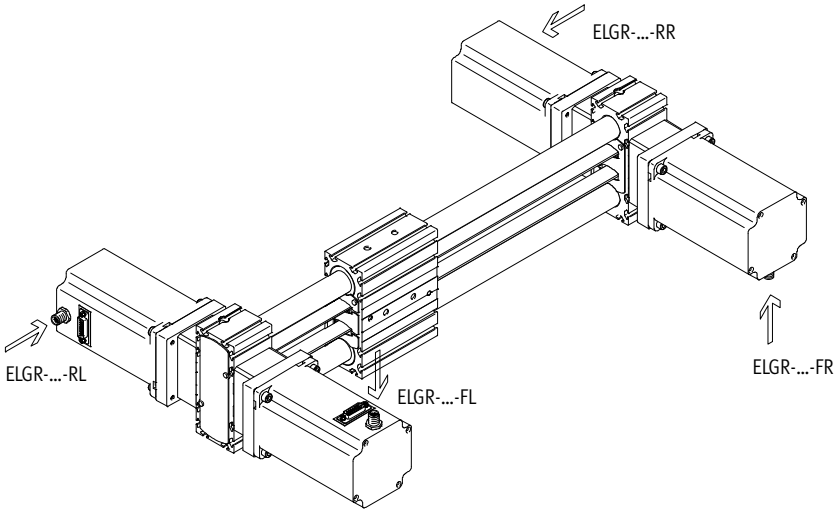
Order code

Mandatory data

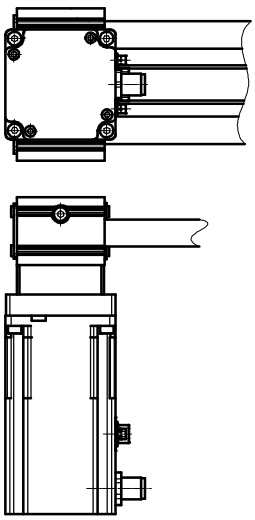


O	top	L	left
U	underneath	V	front
R	right	H	rear

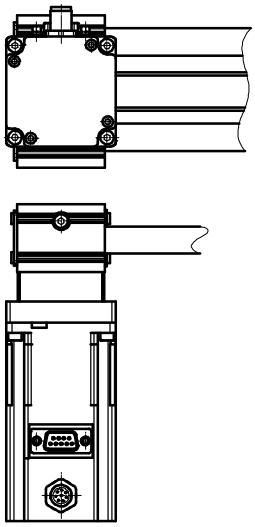
Motor attachment variants



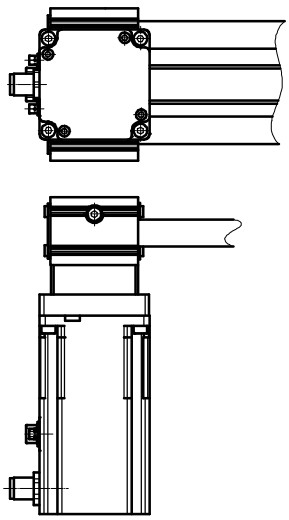
ELGR-...-AR – right



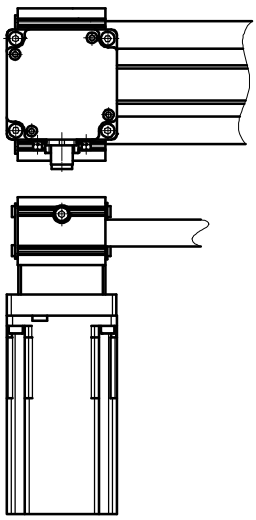
ELGR-...-AT – top



ELGR-...-AL – left



ELGR-...-AD – underneath

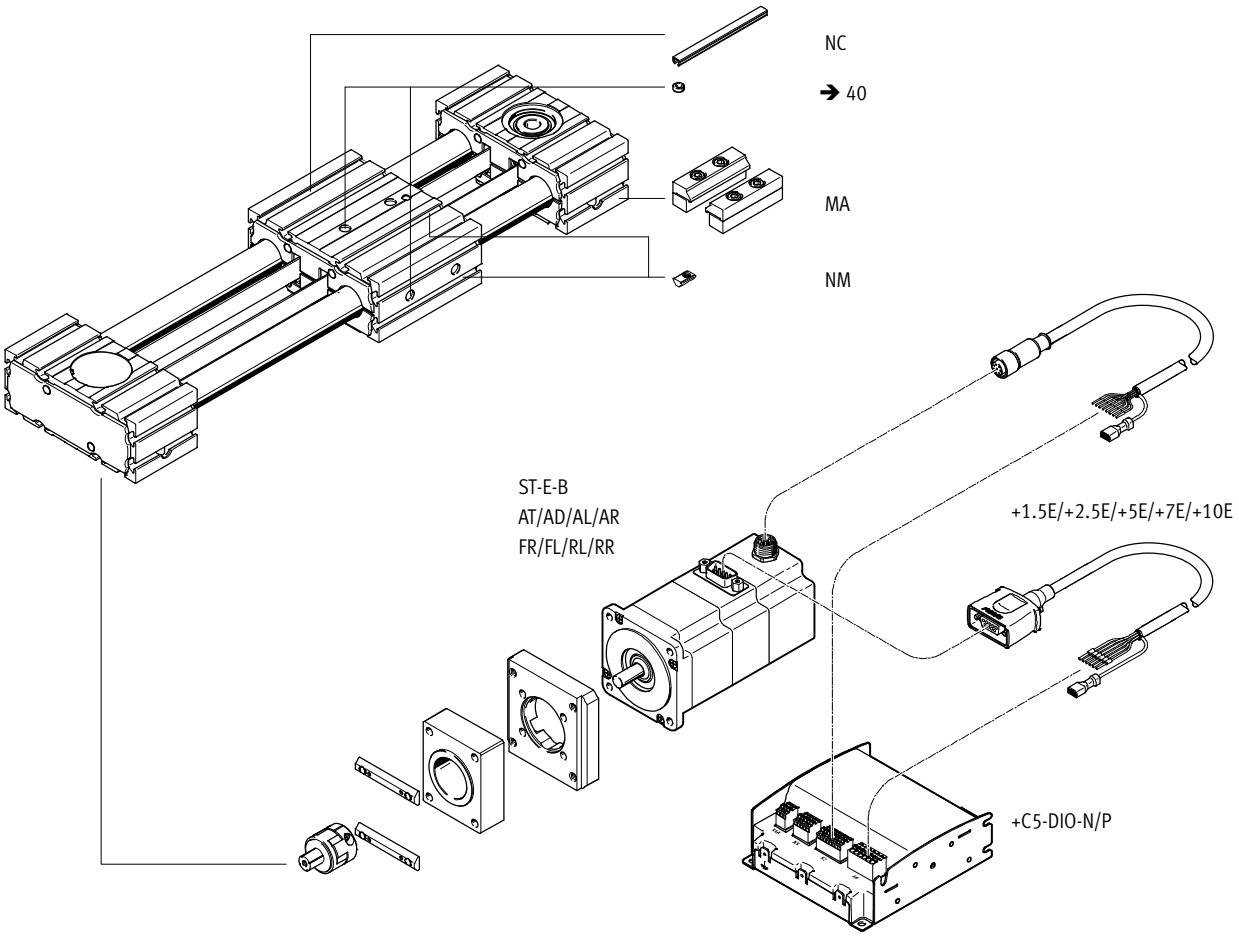


Toothed belt axes ELGR, for Optimised Motion Series (OMS)

Ordering data – Modular product system

FESTO

Accessories



Note

The associated axial kit (➔ 36) is automatically included in the scope of delivery.
Motor and axial kit are installed on delivery.

New

Toothed belt axes ELGR, for Optimised Motion Series (OMS)

FESTO

Ordering data – Modular product system

Ordering table

	Size	35	45	55	Condi-tions	Code		Entry code
M	Module no.	**560505**	**560506**	**560507**				
	Design	Linear axis				**ELGR**		ELGR
	Drive system	Toothed belt				**-TB**		-TB
	Sizes	35	45	55		**-...**		
	Standard stroke [mm]	50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800	50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800, 900, 1000	50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800, 900, 1000, 1100, 1200, 1300, 1400, 1500				
	Stroke reserve [mm]	0 mm				**-0H**		-0H
	Slide design	Standard slide						
	Motor type	Stepper motor				**-ST**		-ST
	Measuring unit	Encoder				**-E**		-E
	Brake	Without						
		With brake				**B**		
	Cable outlet direction	Top (standard)				**-AT**		
		Underneath				**-AD**		
		Left				**-AL**		
		Right				**-AR**		
	Motor position	Front right (standard)				**-FR**		
		Front left				**-FL**		
		Rear left				**-RL**		
		Rear right				**-RR**		

M Mandatory data
O Options

Transfer order code

	ELGR	–	**TB**	–		–		–	**0H**	–	**ST**	–	**E**	–		–		–		

Toothed belt axes ELGR, for Optimised Motion Series (OMS)

FESTO

Ordering data – Modular product system

Ordering table

	Size	35	45	55	Condi-tions	Code		Entry code
	Accessories	Accessories enclosed separately				**+**		+
O	Mounting slot cover	–	1 … 50 (1=2pc. 500 mm long)			**…NC**		
	Slot nut for mounting slot	1 … 99				**…NM**		
	Profile mounting	1 … 2				**…MA**		
M	Connecting cable to motor controller, suitable for use with energy chains	Without						
		1.5 m, straight plug connector				**+1.5E**		
		2.5 m, straight plug connector				**+2.5E**		
		5 m, straight plug connector				**+5E**		
		7 m, straight plug connector				**+7E**		
		10 m, straight plug connector				**+10E**		
	Controller type	CMMO, 5 A				**+C5**		+C5
	Bus protocol/activation	Digital I/O interface				**DIO**		
		IO-Link				**LK**		
	Switching input/output	NPN			1	**N**		
		PNP				**P**		
	Operating instructions	With operating instructions						
		Without operating instructions				**+DN**		

1 **N** Not with LK

M Mandatory data
O Options

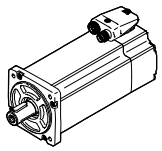
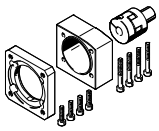
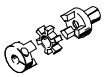
Transfer order code

+ [ ] – [ ] – [ ] – [ ] + **C5** – [ ] – [ ] + [ ]

- Note

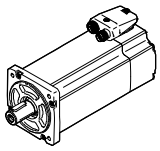
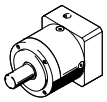
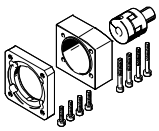
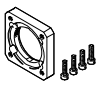
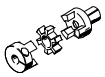
Depending on the combination of motor and drive, it may not be possible to reach the maximum feed force of the drive.

Permissible axis/motor combinations with axial kit – Without gear unit Technical data ➔ Internet: eamm-a

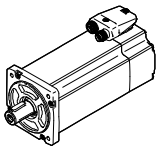
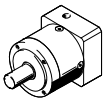
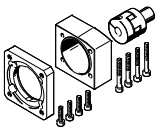
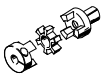
Motor[1]	Axial kit	Axial kit comprises:		
		Motor flange	Coupling	Coupling housing
				
Type	Part No. Type	Part No. Type	Part No. Type	Part No. Type
ELGR-35				
With servo motor				
EMMS-AS-55-...	**1133400** **EAMM-A-R27-55A**	**558176** **EAMF-A-38A-55A**	**557999** **EAMD-19-15-9-8X10**	**1133397** **EAMK-A-R27-38A**
With stepper motor				
EMMS-ST-57-...[2]	**1133403** **EAMM-A-R27-57A**	**560692** **EAMF-A-38A-57A**	**561292** **EAMD-16-15-6.35-8X10**	**1133397** **EAMK-A-R27-38A**
With integrated drive				
EMCA-EC-67-...	**1456619** **EAMM-A-R27-67A**	**1490100** **EAMF-A-38A-67A**	**557999** **EAMD-19-15-9-8X10**	**1133397** **EAMK-A-R27-38A**
ELGR-45				
With servo motor				
EMME-AS-60-...	**2224996** **EAMM-A-R38-60P**	**1987412** **EAMF-A-38A-60P**	**1453861** **EAMD-28-22-14-10X12**	**1133398** **EAMK-A-R38-38A**
EMMS-AS-70-...	**1133401** **EAMM-A-R38-70A**	**558018** **EAMF-A-38A-70A**	**558000** **EAMD-25-22-11-10X12**	**1133398** **EAMK-A-R38-38A**
With stepper motor				
EMMS-ST-57-...	**1578138** **EAMM-A-R38-57A**	**560692** **EAMF-A-38A-57A**	**561293** **EAMD-25-22-6.35-10X12**	**1133398** **EAMK-A-R38-38A**
EMMS-ST-87-...[2]	**1133404** **EAMM-A-R38-87A**	**560693** **EAMF-A-38A-87A**	**558000** **EAMD-25-22-11-10X12**	**1133398** **EAMK-A-R38-38A**
ELGR-55				
With servo motor				
EMMS-AS-70-...	**1578139** **EAMM-A-R48-70A**	**558025** **EAMF-A-48A-70A**	**558001** **EAMD-32-32-11-16X20**	**1133399** **EAMK-A-R48-48A**
EMME-AS-80-...	**2225090** **EAMM-A-R48-80P**	**2043427** **EAMF-A-48A-80P**	**558002** **EAMD-42-40-19-16X25**	**1133399** **EAMK-A-R48-48A**
EMMS-AS-100-...	**1133402** **EAMM-A-R48-100A**	**558020** **EAMF-A-48A-100A**	**558002** **EAMD-42-40-19-16X25**	**1133399** **EAMK-A-R48-48A**
With stepper motor				
EMMS-ST-87-...[2]	**1133405** **EAMM-A-R48-87A**	**560695** **EAMF-A-48A-87A**	**558001** **EAMD-32-32-11-16X20**	**1133399** **EAMK-A-R48-48A**

1) The input torque must not exceed the maximum permissible transferable torque of the axial kit
2) Motors used in combination with Optimised Motion Series (OMS)

Permissible axis/motor combinations with axial kit – With gear unit Technical data ➔ Internet: eamm-a

Motor[1]	Gear unit	Axial kit	Axial kit comprises:		
			Motor flange	Coupling	Coupling housing
					
Type		Part No. Type	Part No.. Type	Part No. Type	Part No. Type
ELGR-35					
With servo motor					
EMME-AS-40-...	**EMGA-40-P-G...-EAS-40**	**1456622** **EAMM-A-R27-40G**	**1460097** **EAMF-A-38A-40G**	**557998** **EAMD-19-15-10-8X10**	**1133397** **EAMK-A-R27-38A**
EMMS-AS-40-...	**EMGA-40-P-G...-SAS-40**	**1456622** **EAMM-A-R27-40G**	**1460097** **EAMF-A-38A-40G**	**557998** **EAMD-19-15-10-8X10**	**1133397** **EAMK-A-R27-38A**
With stepper motor					
EMMS-ST-42-...	**EMGA-40-P-G...-SST-42**	**1456622** **EAMM-A-R27-40G**	**1460097** **EAMF-A-38A-40G**	**557998** **EAMD-19-15-10-8X10**	**1133397** **EAMK-A-R27-38A**
With integrated drive					
EMCA-EC-67-...	**EMGC-40-...**	**1456622** **EAMM-A-R27-40G**	**1460097** **EAMF-A-38A-40G**	**557998** **EAMD-19-15-10-8X10**	**1133397** **EAMK-A-R27-38A**
ELGR-45					
With servo motor					
EMME-AS-40-...	**EMGA-40-P-G...-EAS-40**	**1456623** **EAMM-A-R38-40G**	**1460097** **EAMF-A-38A-40G**	**1453860** **EAMD-25-22-10-10X12**	**1133398** **EAMK-A-R38-38A**
EMMS-AS-40-...	**EMGA-40-P-G...-SAS-40**	**1456623** **EAMM-A-R38-40G**	**1460097** **EAMF-A-38A-40G**	**1453860** **EAMD-25-22-10-10X12**	**1133398** **EAMK-A-R38-38A**
EMMS-AS-55-...	**EMGA-60-P-G...-SAS-55**	**2310075** **EAMM-A-R38-60G**	**558017** **EAMF-A-38A-60G/H**	**558000** **EAMD-25-22-11-10X12**	**1133398** **EAMK-A-R38-38A**
EMME-AS-60-...	**EMGA-60-P-G...-EAS-60**	**1456630** **EAMM-A-R38-60H**	**558017** **EAMF-A-38A-60G/H**	**1453861** **EAMD-28-22-14-10X12**	**1133398** **EAMK-A-R38-38A**
EMMS-AS-70-...	**EMGA-60-P-G...-SAS-70**	**2310075** **EAMM-A-R38-60G**	**558017** **EAMF-A-38A-60G/H**	**558000** **EAMD-25-22-11-10X12**	**1133398** **EAMK-A-R38-38A**
With stepper motor					
EMMS-ST-42-...	**EMGA-40-P-G...-SST-42**	**1456623** **EAMM-A-R38-40G**	**1460097** **EAMF-A-38A-40G**	**1453860** **EAMD-25-22-10-10X12**	**1133398** **EAMK-A-R38-38A**
EMMS-ST-57-...	**EMGA-60-P-G...-SST-57**	**2310075** **EAMM-A-R38-60G**	**558017** **EAMF-A-38A-60G/H**	**558000** **EAMD-25-22-11-10X12**	**1133398** **EAMK-A-R38-38A**
With integrated drive					
EMCA-EC-67-...	**EMGC-40-...**	**1456623** **EAMM-A-R38-40G**	**1460097** **EAMF-A-38A-40G**	**1453860** **EAMD-25-22-10-10X12**	**1133398** **EAMK-A-R38-38A**
	EMGC-60-...	**1456630** **EAMM-A-R38-60H**	**558017** **EAMF-A-38A-60G/H**	**1453861** **EAMD-28-22-14-10X12**	**1133398** **EAMK-A-R38-38A**

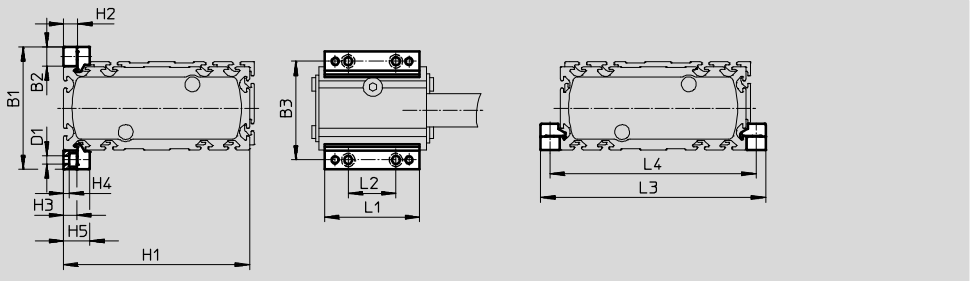
1) The input torque must not exceed the maximum permissible transferable torque of the axial kit

Permissible axis/motor combinations with axial kit – With gear unit					Technical data ➔ Internet: eamm-a
Motor[1]	Gear unit	Axial kit	Axial kit comprises:		
			Motor flange	Coupling	Coupling housing
					
Type		Part No. Type	Part No.. Type	Part No. Type	Part No. Type
ELGR-55					
With servo motor					
EMMS-AS-55-...	**EMGA-60-P-G...-SAS-55**	**2374780** **EAMM-A-R48-60G**	**558019** **EAMF-A-48A-60G/H**	**558001** **EAMD-32-32-11-16X20**	**1133399** **EAMK-A-R48-48A**
EMME-AS-60-...	**EMGA-60-P-G...-EAS-60**	**1456633** **EAMM-A-R48-60H**	**558019** **EAMF-A-48A-60G/H**	**1377840** **EAMD-32-32-14-16X20**	**1133399** **EAMK-A-R48-48A**
EMMS-AS-70-...	**EMGA-60-P-G...-SAS-70**	**2374780** **EAMM-A-R48-60G**	**558019** **EAMF-A-48A-60G/H**	**558001** **EAMD-32-32-11-16X20**	**1133399** **EAMK-A-R48-48A**
With stepper motor					
EMMS-ST-57-...	**EMGA-60-P-G...-SST-57**	**2374780** **EAMM-A-R48-60G**	**558019** **EAMF-A-48A-60G/H**	**558001** **EAMD-32-32-11-16X20**	**1133399** **EAMK-A-R48-48A**
With integrated drive					
EMCA-EC-67-...	**EMGC-60-...**	**1456633** **EAMM-A-R48-60H**	**558019** **EAMF-A-48A-60G/H**	**1377840** **EAMD-32-32-14-16X20**	**1133399** **EAMK-A-R48-48A**

1) The input torque must not exceed the maximum permissible transferable torque of the axial kit

Profile mounting MUE
(Order code MA)

Materials:
Anodised aluminium
RoHS-compliant



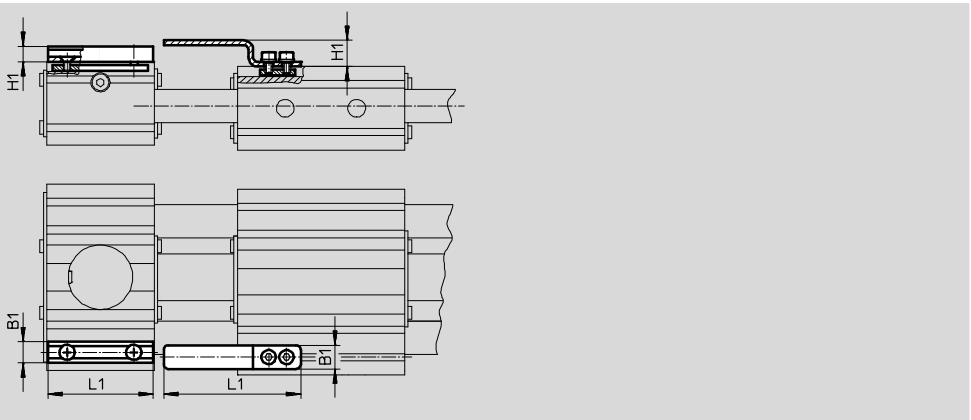
Dimensions and ordering data

For size	B1	B2	B3	D1 ∅	H1	H2	H3	H4
35	51	8	43	3.4	78	6	5.5	2.3
45	69	12	57	5.5	115	10	9	3.2
55	79	12	67	5.5	135	10	9	3.2

For size	H5	L1	L2	L3	L4	Weight [g]	Part No.	Type
35	11	40	20	94	86	20	**558042**	**MUE-50**
45	17.5	52	40	139	127	32	**562238**	**MUE-45**
55	17.5	52	40	159	147	32	**562238**	**MUE-45**

Sensor bracket EAPM-...-SHS, switch lug EAPM-...-SLS
(Order code SA/SB)

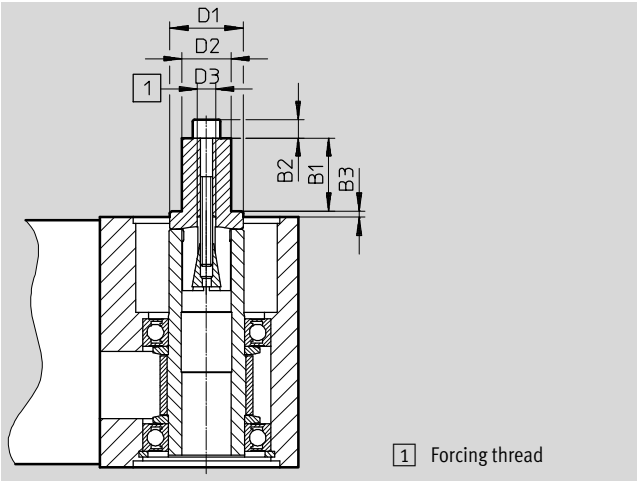
Materials:
Switch lug: Galvanised steel
Sensor bracket: Wrought aluminium alloy, anodised
RoHS-compliant



Dimensions and ordering data

For size	B1	H1	L1	Weight [g]	Part No.	Type
Sensor bracket						
35, 45, 55	9	6.5	44	20	**567537**	**EAPM-L4-SHS**
Switch lug						
35, 45, 55	10	11	57.5	15	**567538**	**EAPM-L4-SLS**

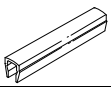
Drive shaft EAMB
Alternative interface
(Order code EA)



Dimensions and ordering data

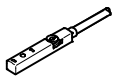
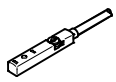
For size	B1	B2	B3	D1 ∅	D2 ∅	D3	Weight [g]	Part No.	Type
35	12	3	3.9	16	8	M4	20	**558034**	**EAMB-16-7-8X15-8X10**
45	12	4	6	18	8	M5	29	**558035**	**EAMB-18-9-8X16-10X12**
55	21	–	1.5	24	15	M6	70	**558036**	**EAMB-24-6-15X21-16X20**

Ordering data

	For size	Comment	Order code	Part No.	Type	PU[1]
Slot nut NST						
	35	For mounting slot	NM	**558045**	**NST-3-M3**	1
	45, 55			**150914**	**NST-5-M5**	
Centring sleeve ZBH[2]						
	35, 45, 55	For slide	–	**186717**	**ZBH-7**	10
Slot cover ABP						
	45, 55	For mounting slot Every 0.5 m	NC	**151681**	**ABP-5**	2

1) Packaging unit
2) 2 centring sleeves included in the scope of delivery of the axis

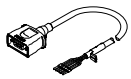
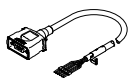
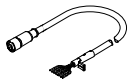
Ordering data – Proximity sensor for T-slot, inductive — Technical data ➔ Internet: sies

	Type of mounting	Electrical connection	Switching output	Cable length [m]	Order code	Part No.	Type
N/O contact							
	Insertable in the slot from above, flush with the cylinder profile	Cable, 3-wire	PNP	7.5	SA	**551386**	**SIES-8M-PS-24V-K-7,5-OE**
		Plug connector M8x1, 3-pin		0.3	–	**551387**	**SIES-8M-PS-24V-K-0,3-M8D**
		Cable, 3-wire	NPN	7.5	–	**551396**	**SIES-8M-NS-24V-K-7,5-OE**
		Plug connector M8x1, 3-pin		0.3	–	**551397**	**SIES-8M-NS-24V-K-0,3-M8D**
N/C contact							
	Insertable in the slot from above, flush with the cylinder profile	Cable, 3-wire	PNP	7.5	SB	**551391**	**SIES-8M-PO-24V-K-7,5-OE**
		Plug connector M8x1, 3-pin		0.3	–	**551392**	**SIES-8M-PO-24V-K-0,3-M8D**
		Cable, 3-wire	NPN	7.5	–	**551401**	**SIES-8M-NO-24V-K-7,5-OE**
		Plug connector M8x1, 3-pin		0.3	–	**551402**	**SIES-8M-NO-24V-K-0,3-M8D**

Ordering data – Connecting cables — Technical data ➔ Internet: nebu

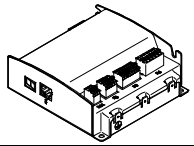
	Electrical connection, left	Electrical connection, right	Cable length [m]	Part No.	Type
	Straight socket, M8x1, 3-pin	Cable, open end, 3-wire	2.5	**541333**	**NEBU-M8G3-K-2.5-LE3**
			5.0	**541334**	**NEBU-M8G3-K-5-LE3**
	Angled socket, M8x1, 3-pin	Cable, open end, 3-wire	2.5	**541338**	**NEBU-M8W3-K-2.5-LE3**
			5.0	**541341**	**NEBU-M8W3-K-5-LE3**

Ordering data – Cables[1)]

	For size	Description	Cable length [m]	Part No.	Type
Motor cable					
	35	Straight plug connector			
		– Min. bending radius: 62 mm	1.5	**1450368**	**NEBM-S1G9-E-1.5-Q5-LE6**
		– Suitability for energy chains	2.5	**1450369**	**NEBM-S1G9-E-2.5-Q5-LE6**
		– Ambient temp.:	5.0	**1450370**	**NEBM-S1G9-E-5-Q5-LE6**
		–40 … +80°C	7.0	**1450371**	**NEBM-S1G9-E-7-Q5-LE6**
			10.0	**1450372**	**NEBM-S1G9-E-10-Q5-LE6**
	45, 55	Straight plug connector			
		– Min. bending radius: 80 mm	1.5	**1450834**	**NEBM-S1G15-E-1.5-Q7-LE6**
		– Suitability for energy chains	2.5	**1450835**	**NEBM-S1G15-E-2.5-Q7-LE6**
		– Ambient temp.:	5.0	**1450836**	**NEBM-S1G15-E-5-Q7-LE6**
		–40 … +80°C	7.0	**1450837**	**NEBM-S1G15-E-7-Q7-LE6**
			10.0	**1450838**	**NEBM-S1G15-E-10-Q7-LE6**
Encoder cable					
	35, 45, 55	Straight plug connector			
		– Min. bending radius: 68 mm	1.5	**1451586**	**NEBM-M12G8-E-1.5-LE8**
		– Suitable for use with energy chains	2.5	**1451587**	**NEBM-M12G8-E-2.5-LE8**
		– Ambient temp.:	5.0	**1451588**	**NEBM-M12G8-E-5-LE8**
		–40 … +80°C	7.0	**1451589**	**NEBM-M12G8-E-7-LE8**
			10.0	**1451590**	**NEBM-M12G8-E-10-LE8**

1) Other cable lengths on request.

Ordering data — Technical data ➔ Internet: cmmo

Motor controller	Description	Part No.	Type
	With I/O interface		
	Switching input/output PNP	**1512316**	**CMMO-ST-C5-1-DIOP**
	Switching input/output NPN	**1512317**	**CMMO-ST-C5-1-DION**
	With IO-Link		
	Switching input/output PNP	**1512320**	**CMMO-ST-C5-1-LKP**