

Toothed belt axis units ELGS-TB-KF

FESTO



This product is also available as a modular mechanical system
Toothed belt axis ELGC-TB-KF



Key features

At a glance

Plug and work with the Simplified Motion Series



The simplicity of pneumatics is now combined for the first time with the advantages of electric automation thanks to the Simplified Motion Series. These integrated drives are the perfect solution for all users who are looking for an electric alternative for very simple movement and positioning tasks between two mechanical end positions, but don't want the commissioning process for traditional electric drive systems that can often be quite complex.



There is no need for any software since operation is simply based on the "plug and work" principle. Digital I/O (DIO) and IO-Link are always automatically included – a product with two types of control as standard.

Integrated

The integrated electronics in the drive are at the heart of the Simplified Motion Series.

Easy

For commissioning, simply set all relevant parameters directly on the drive:

- Speed and force
- Reference end position and cushioning
- Manual operation

Standardised

Electrical connection via M12 plug design

- Power (4-pin): power supply for the motor
- Logic (8-pin): control signal, sensor signal and power for the integrated electronics

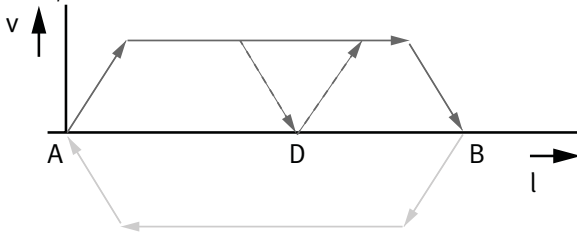
Connected

Use of extended functions possible via IO-Link:

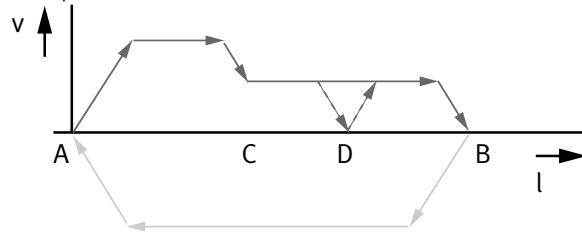
- Remote configuration of motion parameters
- Copy and backup function for transferring parameters
- Read function for extended process parameters
- Freely definable intermediate position
- Firmware update

The functions of the Simplified Motion Series

Basic profile for movement between two end positions: with speed control



Extended motion profile for simplified press-fitting and clamping functions: with speed and force control



- These drives are designed for simple movements between two end positions.
- Proximity switches are required in order to implement any intermediate positions.
- With the intermediate position that can be freely configured via IO-Link, movements can be stopped at a freely defined point between the end positions, without the need for proximity switches or external stops

Key features

At a glance



- Without external servo drive: all the necessary electronic components are combined in the integrated drive
- Two control options integrated as standard: digital I/O and IO-Link
- Complete solution for simple movements between mechanical end positions
- Protected against external influences by internal guide
- Simplified commissioning: all parameters can be manually set directly on the drive
- No special expertise required for commissioning
- End-position feedback similar to that of a conventional proximity switch is integrated as standard
- Clean Look design: easy to clean and less prone to contamination

The products in the Simplified Motion Series

Electric cylinder unit
EPCE



Mini slide unit
EGSS-BS-KF

Electric cylinder unit
EPCS



Mini slide unit with parallel motor mounting
EGSS-BS-KF

Electric cylinder unit with parallel motor mounting
EPCS



Spindle axis unit
ELGS-BS-KF

Spindle axis unit with parallel motor mounting
ELGS-BS-KF



Toothed belt axis unit
ELGS-TB-KF



Toothed belt axis unit
ELGE



Rotary drive unit
ERMS



Modular and flexible with motor, motor mounting kit and servo drive

This product is also available as a modular mechanical system as toothed belt axis ELGC-TB-KF:



When compact dimensions and optimised installation space are important, e.g. for assembly systems, test and inspection systems, small parts handling, the electronics industry and desktop applications. Either as an individual axis or as a handling system.

- Compact: optimum ratio of installation space to working space
- Unique: "one-size-down" mounting system
- Modular: individual combinations with motor, motor mounting kit and servo drive
- Flexible: wide range of mounting options for optimum machine integration

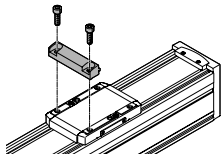
Key features

Combination matrix between axis ELGC-TB/ELGS-TB, ELGC-BS/ELGS-BS, mini slide EGSC-BS/EGSS-BS, electric cylinder EPCC-BS/EPCS-BS and guide axis ELFC
 Mounting options with profile mounting and with angle kit

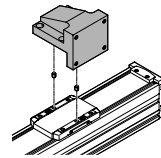
	Size	Assembly axis ELGC-BS/-TB; ELFC; EGSC-BS; EPCC-BS; ELGS-BS/-TB; EGSS-BS; EPCS-BS			
		25	32	45	60
Base axis	32	■	–	–	–
ELGC-BS/-TB; ELFC;	45	–	■	–	–
ELGS-BS/-TB	60	–	–	■	–
	80	–	–	–	■

With profile mounting EAHF-L2-...-P-D...

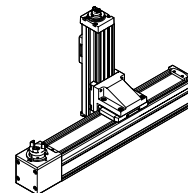
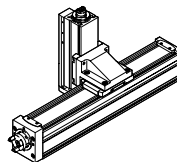
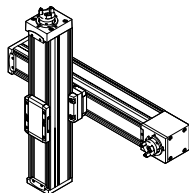
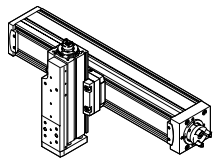
With angle kit EHAA-D-L2-...-AP



- Mounting option: base axis with one-size-down assembly axis



- Mounting option: base axis rotated through 90° with one-size-down assembly axis



Key features

Combination matrix between axis ELGC/ELGS-TB, ELGC/ELGS-BS, mini slide EGSC/EGSS-BS, electric cylinder EPCC/EPCS-BS and guide axis ELFC

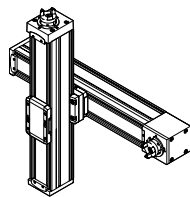
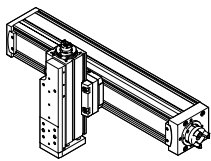
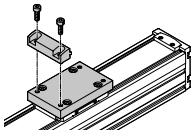
Mounting options with adapter kit or direct fastening

	Size	Assembly axis ELGC-BS/-TB; ELFC; EGSC-BS; EPCC-BS; ELGS-BS/-TB; EGSS-BS, EPCS-BS				
		25	32	45	60	80
Base axis	32		■	-	-	-
ELGC-BS/-TB; ELFC; ELGS-BS/-TB	45	-		■	-	-
	60	-	-		■	-
	80	-	-	-		■

	Size	Assembly axis EGSC-BS; EGSS-BS			
		25	32	45	60
Base axis	25	■	-	-	-
EGSC-BS; EGSS-BS	32	-	■	-	-
	45	-	-	■	-
	60	-	-	-	■

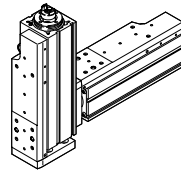
With adapter kit EHAA-D-L2

- Mounting option: base axis with the same size assembly axis
- Mounting option: base axis with height compensation for one-size-down assembly axis
- When motors are mounted using parallel kits, this may lead to interfering contours. In this case, the adapter plate is required for height compensation



With direct mounting

- Mounting option: base axis with the same size assembly axis

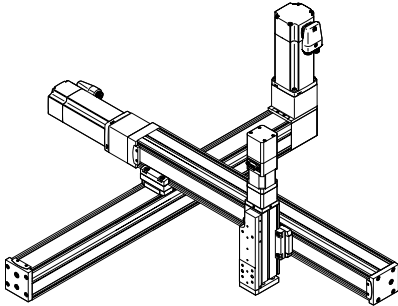


Key features

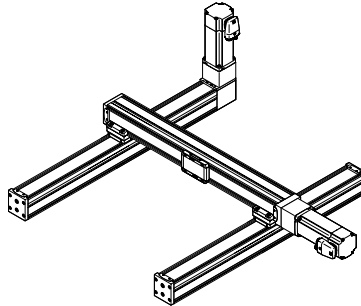
Typical handling systems

For applications where compact dimensions are essential, the axes ELGC can be combined into very space-saving handling systems that are suitable for assembly systems, test and inspection systems, small parts handling, the electronics industry and desktop applications. Combining the very compact linear axes ELGC, mini slide EGSC and electric cylinder EPCC offers an optimum ratio of installation space to working space. These feature a common system approach and platform architecture and the connections are largely adapterless.

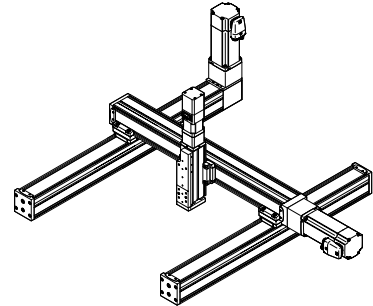
Cantilever system



Planar surface gantry



Three dimensional gantry



Type codes

001	Series
ELGS	Gantry axis

002	Drive system
TB	Toothed belt

003	Guide
KF	Recirculating ball bearing guide

004	Size
45	45
60	60

005	Stroke [mm]
200	200
300	300
500	500
600	600
800	800
1000	1000
1200	1200
1500	1500
1800	1800
2000	2000

006	Motor type
ST	Stepper motor ST

007	Controller
M	Integrated

008	Control panel
H1	Integrated

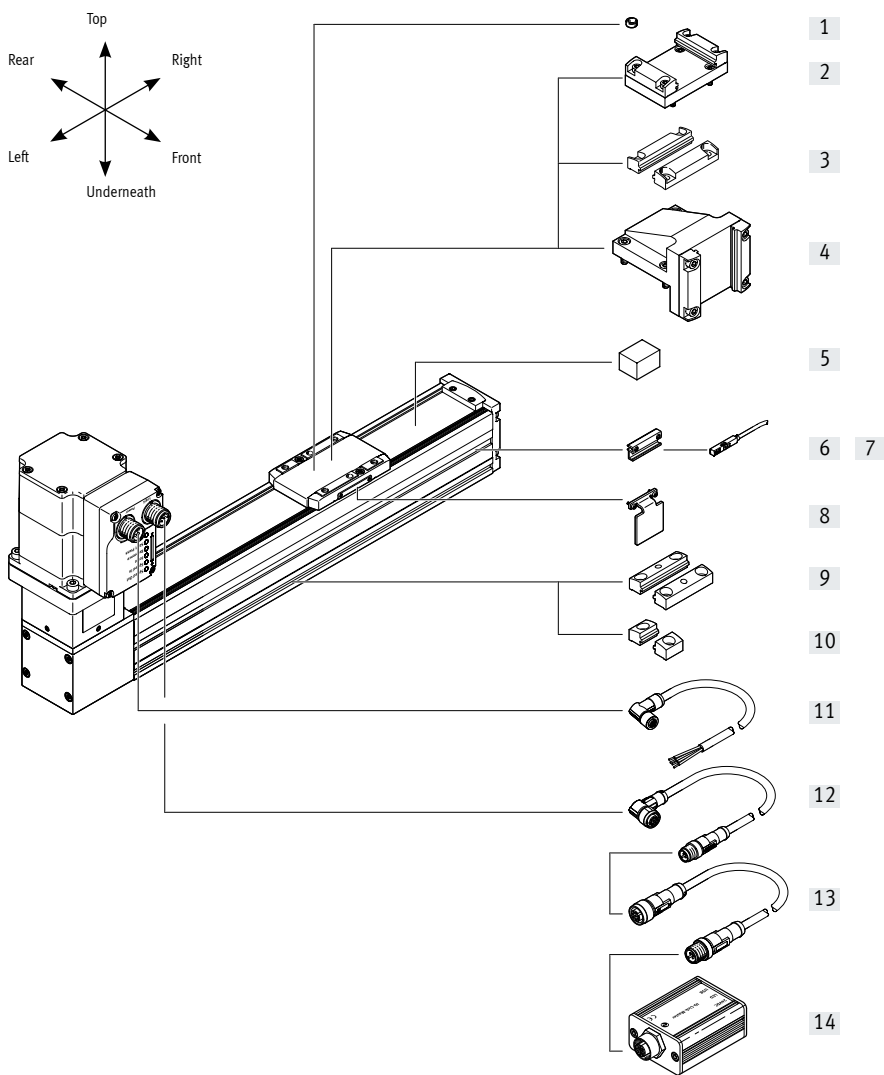
009	Bus protocol/activation
PLK	PNP and IO-Link®
NLK	NPN and IO-Link®

010	End-position sensing
AA	With integrated end-position sensing

011	Cable outlet direction
	Standard
L	Left
R	Right
F	Front

012	Electrical accessories
	None
L1	Adapter for operation as IO-Link® device

Peripherals overview



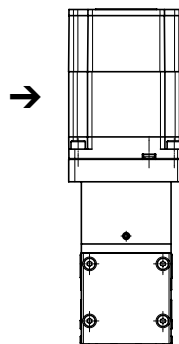
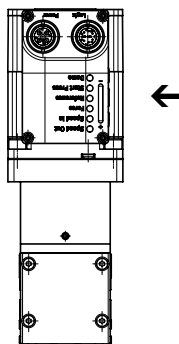
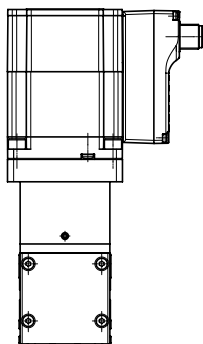
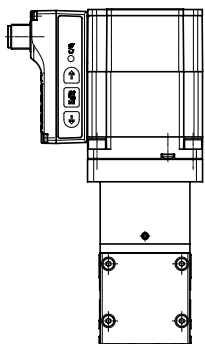
Motor attachment variants

Standard

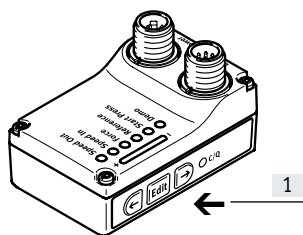
[F] Front

[L] Left

[R] Right



Control elements



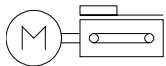
[1] Pushbutton actuators for parameterisation and control



Peripherals overview

Accessories			
	Type/order code	Description	→ Page/Internet
[1]	Centring pin/sleeve ZBS, ZBH	For centring loads and attachments on the slide	30
[2]	Adapter kit EHAA-D-L2	<ul style="list-style-type: none"> For axis/axis mounting with adapter plate Mounting option: base axis with the same size or one-size-down assembly axis When motors are mounted using parallel kits, this may lead to interfering contours. In this case, the adapter plate is required for height compensation (download CAD data → www.festo.com) 	27
[3]	Profile mounting EAHF-L2-...-P-D	<ul style="list-style-type: none"> For axis/axis mounting without adapter plate Mounting option: base axis with one-size-down assembly axis 	26
[4]	Angle kit EHAA-D-L2-...-AP	<ul style="list-style-type: none"> For mounting one-size-down vertical axes (assembly axes) on base axes with mounting position "slide at top" 	28
[5]	Clamping element EADTS-L5-32	<ul style="list-style-type: none"> Tool for retensioning the cover strip 	30
[6]	Sensor bracket ¹⁾ EAPM-L2-SH	For mounting the proximity switches on the axis. The proximity switches can only be mounted using the sensor bracket	29
[7]	Proximity switches ¹⁾ SIES-8M	Inductive proximity switches, for T-slot	30
	Proximity switches ¹⁾ SMT-8M	Magnetic proximity switches, for T-slot	30
[8]	Switch lug ¹⁾ EAPM-...-SLS	For sensing the slide position in conjunction with inductive proximity switches SIES-8M	29
[9]	Profile mounting EAHF-L2-...-P	For mounting the axis on the side of the profile. The profile mounting can be attached to the mounting surface using the drill hole in the centre	24
[10]	Profile mounting EAHF-L2-...-	For mounting the axis on the side of the profile	25
[11]	Supply cable NEBL-T12	For connecting load and logic supply	31
[12]	Connecting cable NEBC-M12	For connection to a controller	31
[13]	Adapter NEFC-M12G8	Connection between the motor and the IO-Link master	31
[14]	IO-Link master USB CDSU-1	For straightforward use of the mini slide unit via IO-Link	31

1) Proximity switches are optional and only required in order to sense any intermediate positions.

Datasheet



-  - Size
45 ... 60
-  - Stroke length
200 ... 2000 mm



General technical data		
Size	45	60
Design	Electromechanical axis with toothed belt and integrated drive	
Motor type	Stepper motor	
Guide	Recirculating ball bearing guide	
Mounting position	Horizontal	
Working stroke	[mm] 200, 300, 500, 600, 800, 1000, 1200, 1500	200, 300, 500, 600, 800, 1000, 1200, 1500, 1800, 2000
Stroke reserve	[mm] 0	
Additional functions	Built-in end-position sensing	
	User interface	
Display	LED	
Homing	Positive fixed stop block	
	Negative fixed stop block	
Type of mounting	With female thread	
	With accessories	
	With centring pin, centring sleeve	
Max. cable length		
Inputs/outputs	[m] 15	
IO-Link operation	[m] 20	

Mechanical data		
Size	45	60
Max. payload	[kg] 2.5	4
Max. feed force F_x	[N] 75	65
Max. speed ¹⁾	[m/s] 1.2	1.3
Speed "Speed Press" ²⁾	[m/s] 0.024	0.026
Max. acceleration ²⁾	[m/s ²] 6	6
Repetition accuracy	[mm] ± 0.1	± 0.1
Position sensing	Via proximity switch	
	Via IO-Link	

1) Adjustable in increments of 10%

2) Unchangeable parameter

Datasheet

Toothed belt			
Size		45	60
Pitch	[mm]	2	3
Elongation ¹⁾	[%]	0.187	0.124
Effective diameter	[mm]	19.1	24.83
Feed constant	[mm/rev]	60	78

1) At max. feed force

Electrical data			
Size		45	60
Motor			
Nominal voltage DC	[V]	24 (±15%)	
Nominal current	[A]	5.3	
Max. current consumption (load)	[A]	5.3	
Max. current consumption (logic)	[mA]	300	
Encoder			
Rotor position sensor		Absolute encoder, single turn	
Rotor position sensor measuring principle		Magnetic	
Rotor position encoder resolution	[bit]	16	

Interfaces			
Size		45	60
Parameterisation interface			
IO-Link		Yes	
User interface		Yes	
Digital inputs			
Number		2	
Switching logic		PNP	
		NPN	
Characteristics		Not galvanically isolated	
		Configurable	
Specification		Based on IEC 61131-2, type 1	
Operating range	[V]	24	
Digital outputs			
Number		2	
Switching logic		PNP	
		NPN	
Rotor position sensor		Absolute encoder, single turn	
Characteristics		Not galvanically isolated	
		Configurable	
Max. current	[mA]	100	

Datasheet

Technical data – IO-Link			
Size		45	60
SIO mode support		Yes	
Communication mode		COM3 (230.4 kBd)	
Connection technology		Plug	
Port class		A	
No. of ports		1	
Process data width OUT	[byte]	2	
Process data content OUT	[bit]	1 (Move in)	
	[bit]	1 (Move out)	
	[bit]	1 (Move Intermediate)	
	[bit]	1 (Quit Error)	
Process data width IN	[byte]	2	
Process data content IN	[bit]	1 (State Device)	
	[bit]	1 (State Move)	
	[bit]	1 (State in)	
	[bit]	1 (State out)	
	[bit]	1 (State Intermediate)	
Service data content IN	[bit]	32 (Force)	
	[bit]	32 (Position)	
	[bit]	32 (Speed)	
Minimum cycle time	[ms]	1	
Data memory required	[kilobyte]	0.5	
Protocol version		Device V 1.1	

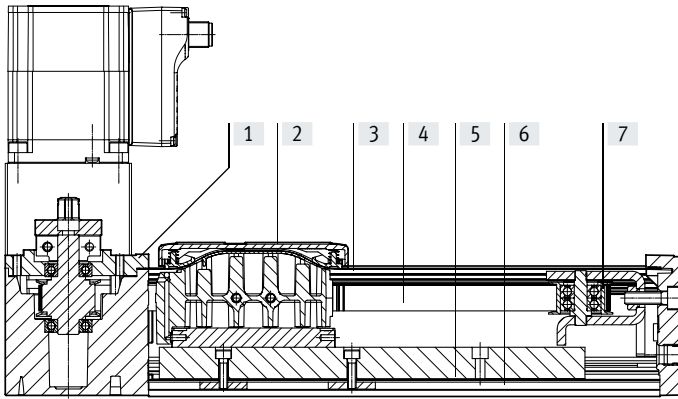
Operating and environmental conditions			
Size		45	60
Insulation class		B	
Ambient temperature	[°C]	0 ... +50	
Storage temperature	[°C]	-20 ... +60	
Note on ambient temperature		Above an ambient temperature of 30°C, the power must be reduced by 2% per K	
Temperature monitoring		Switch-off for excessive temperature	
		Integrated precise CMOS temperature sensor with analogue output	
Relative humidity	[%]	0 ... 90	
Protection class		III	
Degree of protection		IP40	
Duty cycle	[%]	100	
CE marking (see declaration of conformity)		To EU EMC Directive for EMCS-ST → festo.com/sp	
		To EU RoHS Directive	
UKCA marking (see declaration of conformity)		To UK instructions for EMC	
		To UK RoHS instructions	
KC mark		KC EMC	
Certification		RCM	
Vibration resistance		Transport application test with severity level 1 to FN 942017-4 and EN 61800-2 and EN 61800-5-1	
Shock resistance		Shock test with severity level 1 to FN 942017-5 and EN 61800-2	
Cleanroom class		Class 7 according to ISO 14644-1	
Maintenance interval		Lifetime lubrication	

Weight			
Size		45	60
Basic weight at 0 mm stroke	[g]	1790	2955
Additional weight per 10 mm stroke	[g]	23	43
Moving mass with 0 mm stroke	[g]	169	482

Datasheet

Materials

Sectional view



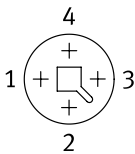
Axis		
[1]	Drive cover	Painted die-cast aluminium
[2]	Slide	Die-cast aluminium
[3]	Cover strip	High-alloy stainless steel
[4]	Toothed belt	Polychloroprene with glass filament and nylon coating
[5]	Guide	Steel
[6]	Profile	Anodised wrought aluminium alloy
[7]	Guide pulley	Aluminium
PWIS conformity		VDMA24364 zone III
Note on materials		RoHS-compliant

Pin allocation

Power supply

Plug

M12x1, 4-pin, T-coded to EN 61076-2-111

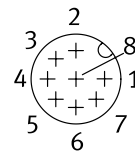


Pin	Function
1	Power voltage supply (24 V DC)
2	Reference potential, power voltage supply (GND)
3	Reserved, do not connect
4	Functional earth (FE)

Logic interface

Plug

M12x1, 8-pin, A-coded to EN 61076-2-101



When used with digital I/O

Pin	Function
1	Logic voltage supply (24 V DC)
2	Digital output 1 (State "In")
3	Digital output 2 (State "Out")
4	Reference potential, logic voltage supply (GND)
5	Digital input 1 (Move "In")
6	Digital input 2 (Move "Out")
7	Reserved, do not connect
8	Reference potential, logic voltage supply (GND)

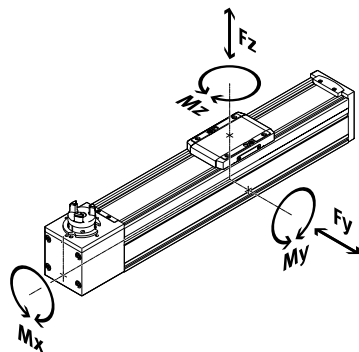
When used with IO-Link

Pin	Function
1	L+ IO-Link power supply (24 V DC)
2	Reserved, do not connect
3	C/Q communication with the IO-Link master
4	L – Reference potential, IO-Link power supply (0 V)
5	Reserved, do not connect
6	Reserved, do not connect
7	Reserved, do not connect
8	L – Reference potential, IO-Link power supply (0 V)

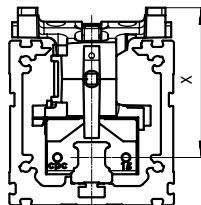
Datasheet

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 deceleration phase.



Distance from the slide surface to the centre of the guide



Max. permissible forces and torques on the slide (strength limits)

Size	45	60
$F_{y_{max}}$ [N]	300	600
$F_{z_{max}}$ [N]	600	1800
$M_{x_{max}}$ [Nm]	5.5	29.1
$M_{y_{max}}$ [Nm]	4.7	31.8
$M_{z_{max}}$ [Nm]	4.7	31.8

Distance from the slide surface to the centre of the guide

Size	45	60
Dimension x [mm]	42.8	54.6

Max. permissible forces and torques for the guide calculation, for a service life of 5000 km or 5x 10⁶ cycles

Size	45	60
$F_{y_{max}}$ [N]	880	3641
$F_{z_{max}}$ [N]	880	3641
$M_{x_{max}}$ [Nm]	5.5	29.1
$M_{y_{max}}$ [Nm]	4.7	31.8
$M_{z_{max}}$ [Nm]	4.7	31.8

Note

For a guide system to have a service life of 5000 km, the load comparison factor must have a value of $f_v \leq 1$, based on the maximum permissible forces and torques for a service life of 5000 km.

This formula can be used to calculate a guide value.

The engineering software "Electric Motion Sizing" is available for more precise calculations → www.festo.com

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:

$$f_v = \frac{|F_{y1}|}{F_{y2}} + \frac{|F_{z1}|}{F_{z2}} + \frac{|M_{x1}|}{M_{x2}} + \frac{|M_{y1}|}{M_{y2}} + \frac{|M_{z1}|}{M_{z2}} \leq 1$$

F_1/M_1 = dynamic value

F_2/M_2 = maximum value

Datasheet

Calculating the service life

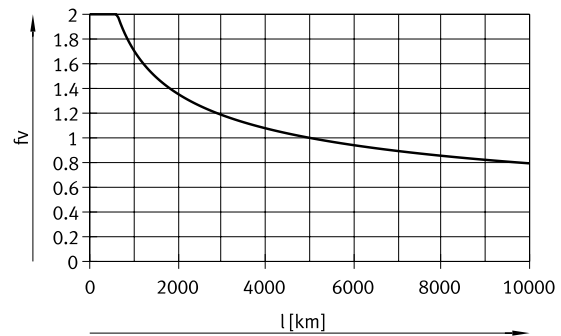
The service life of the guide depends on the load. To be able to make a statement as to the service life of the guide, the graph below plots the load comparison factor f_v against the service life.

These values are only theoretical. You must consult your local Festo contact for a load comparison factor f_v greater than 1.

Load comparison factor f_v as a function of service life l

Example:

A user wants to move an x kg load. Using the formula (→ page 14) 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. 1 500 km. Reducing the acceleration reduces the M_y and M_z values. A load comparison factor f_v of 1 now gives a service life of 5000 km.



Comparison of the characteristic load values for 5000 km with dynamic forces and torques of recirculating ball bearing guides

The characteristic load values of the bearing guides are standardised to ISO and JIS using dynamic and static forces and torques. These forces and torques are based on an expected service life of the guide system of 100 km to ISO or 50 km to JIS.

As the characteristic load values are dependent on the service life, the maximum permissible forces and torques for a 5000 km service life cannot be compared with the dynamic forces and torques of bearing guides to ISO/JIS.

To make it easier to compare the guide capacity of linear axes ELGS with bearing guides, the table below lists the theoretically permissible forces and torques for a calculated service life of 100 km. This corresponds to the dynamic forces and torques to ISO.

These 100 km values have been calculated mathematically and are only to be used for comparing with dynamic forces and torques to ISO. The drives must not be loaded with these characteristic values as this could damage the axes.

Max. permissible forces and torques for a theoretical service life of 100 km (from a guide perspective only)

Size	45	60
$F_{y_{max}}$ [N]	3240	13400
$F_{z_{max}}$ [N]	3240	13400
$M_{x_{max}}$ [Nm]	20	107
$M_{y_{max}}$ [Nm]	17	117
$M_{z_{max}}$ [Nm]	17	117

Service life of the motor

The service life of the motor at nominal power is 20000 h.

Datasheet

Sizing example

Application data:

- Payload: 3 kg
- Mounting position: horizontal
- Stroke: 600 mm
- Max. permitted positioning time: 1 s (one direction)

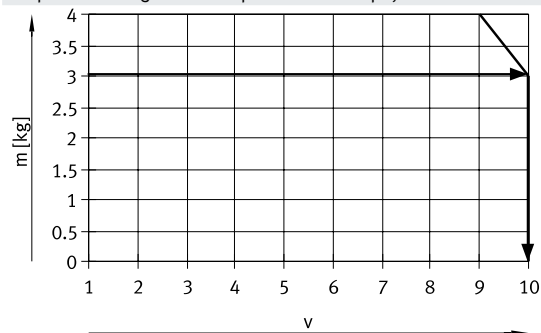
Step 1: Selecting the possible size from the table → page 10

Mechanical data

Size		45	60
Max. payload	[kg]	2.5	4

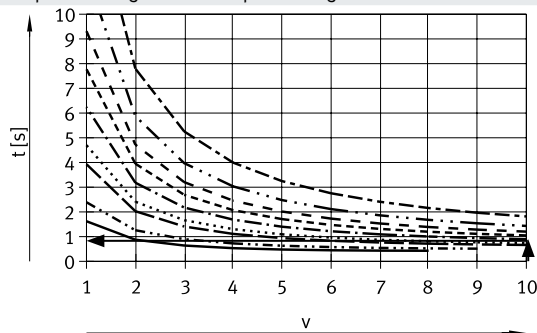
→ Smallest possible size: ELGS-TB-KF-60

Step 2: Selecting the max. speed level v for payload m



Horizontal

Step 3: Reading off the min. positioning time t for stroke l



- l = 200 mm
- · - · - l = 300 mm
- - - l = 500 mm
- · · · · l = 600 mm
- · - · - l = 800 mm
- - - l = 1000 mm
- - - l = 1200 mm
- · - · - l = 1500 mm
- · - · - l = 2000 mm

→ Max. speed level for payload: level 10

→ Min. positioning time for 600 mm at level 10: 0.8 s

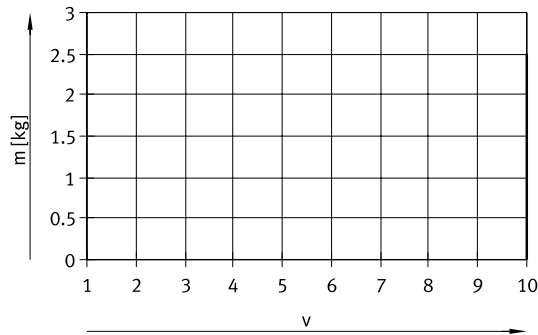
Result

The application can be implemented using ELGS-TB-KF-60-600. A minimum positioning time (one direction) of 0.8 s is achieved. Longer positioning times can be selected at any time using a lower speed level.

Datasheet

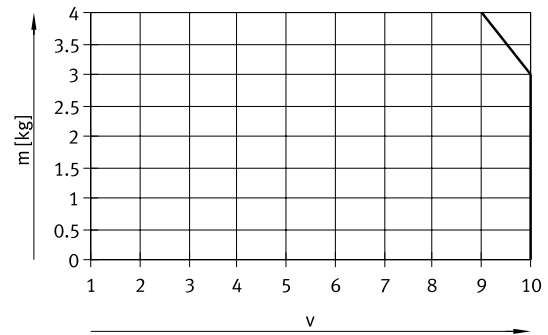
Mass m as a function of speed level v

Size 45



Horizontal

Size 60

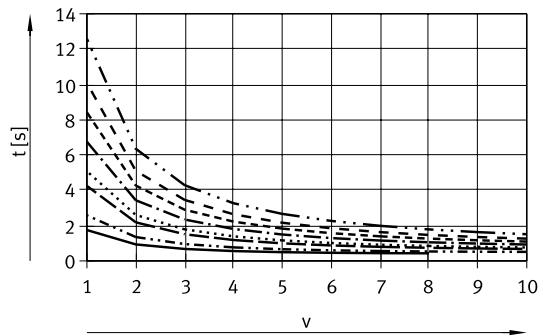


Note:

The lines represent the maximum values. The lower speed levels can be set at any time.

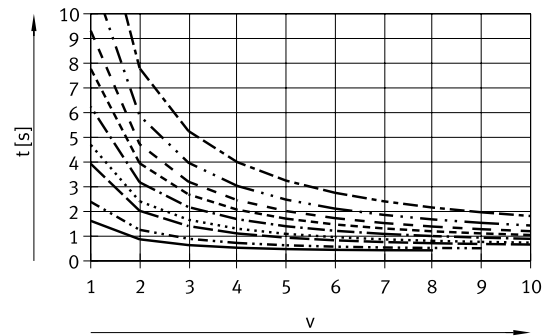
Positioning time t as a function of speed level v and stroke l

Size 45



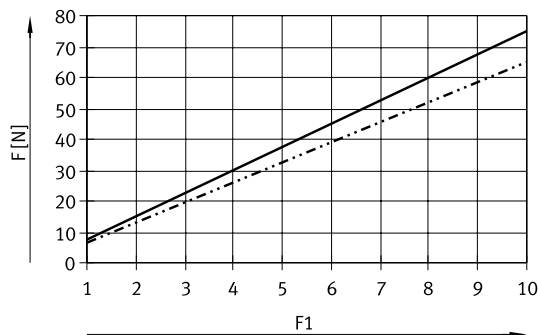
- $l = 200$ mm
- · - · - $l = 300$ mm
- - - $l = 500$ mm
- · · · · $l = 600$ mm
- · - · - $l = 800$ mm
- - - $l = 1000$ mm
- - - $l = 1200$ mm
- · - · - $l = 1500$ mm

Size 60



- $l = 200$ mm
- · - · - $l = 300$ mm
- - - $l = 500$ mm
- · · · · $l = 600$ mm
- · - · - $l = 800$ mm
- - - $l = 1000$ mm
- - - $l = 1200$ mm
- · - · - $l = 1500$ mm
- · - · - $l = 2000$ mm

Feed force F as a function of force level F_1



- ELGS-TB-45
- - - ELGS-TB-60

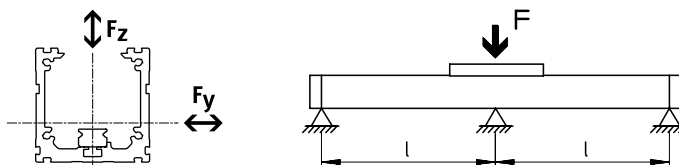
Datasheet

Maximum permissible support spacing L (without profile mounting) as a function of force F

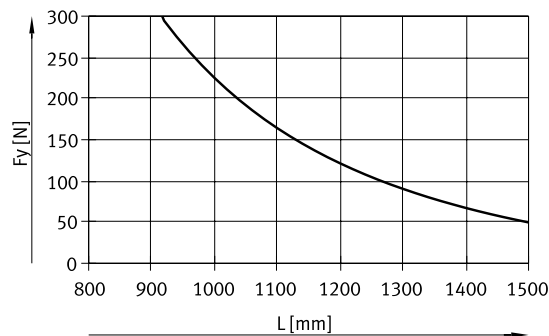
In order to limit deflection in the case of large strokes, the axis may need to be supported.

The following graphs can be used to determine the maximum permissible support spacing l as a function of force F acting on the axis.

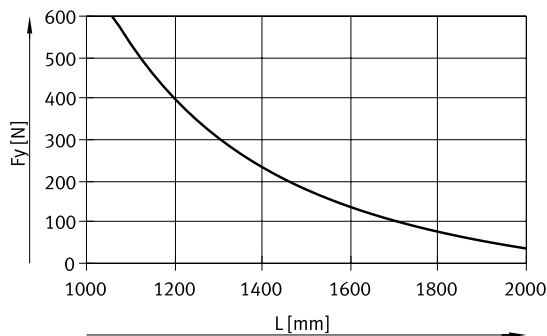
The deflection is $f = 0.5$ mm.



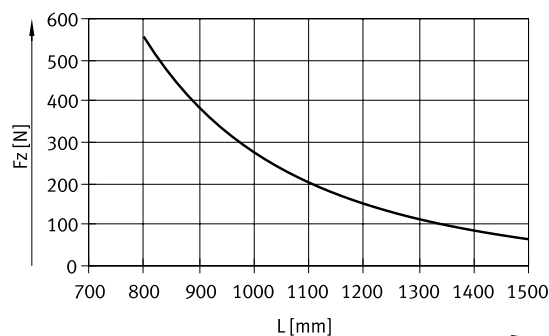
Force F_y
Size 45



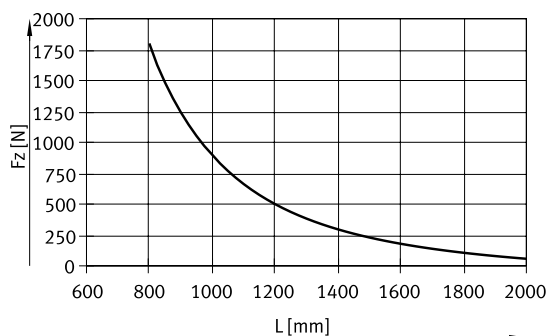
Size 60



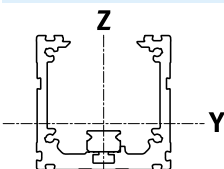
Force F_z
Size 45



Size 60



2nd moments of area



Size		45	60
I_y	[mm ⁴]	140×10^3	441×10^3
I_z	[mm ⁴]	170×10^3	542×10^3

Recommended deflection limits

Adherence to the following deflection limits is recommended so as not to impair the functionality of the axes. Greater deformation can result in increased friction, greater wear and reduced service life.

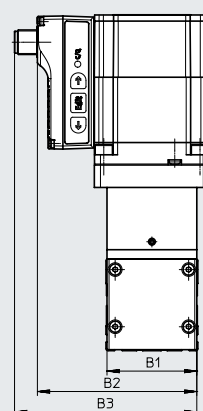
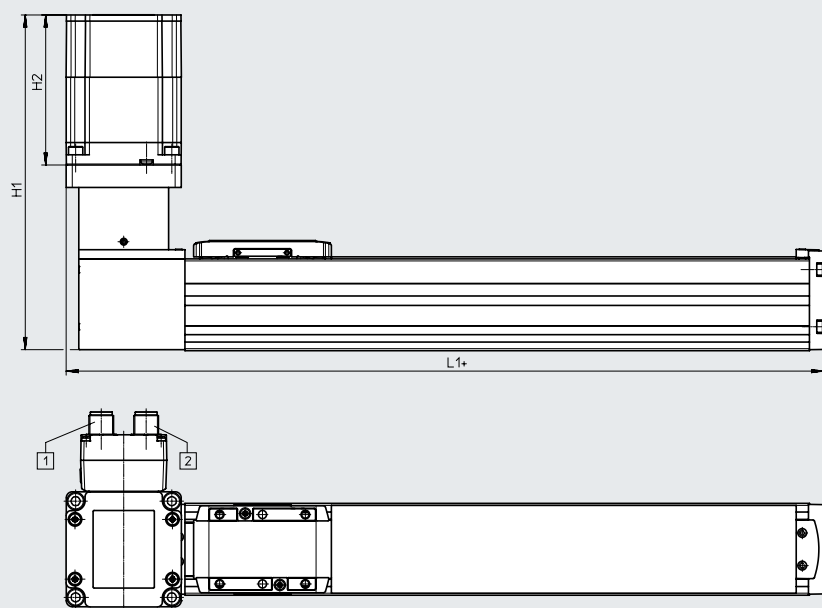
Size	Dynamic deflection (moving load)	Static deflection (stationary load)
45 ... 60	0.05% of the axis length, max. 0.5 mm	0.1% of the axis length

Datasheet

Dimensions – With motor

Download CAD data → www.festo.com

Size 45/60



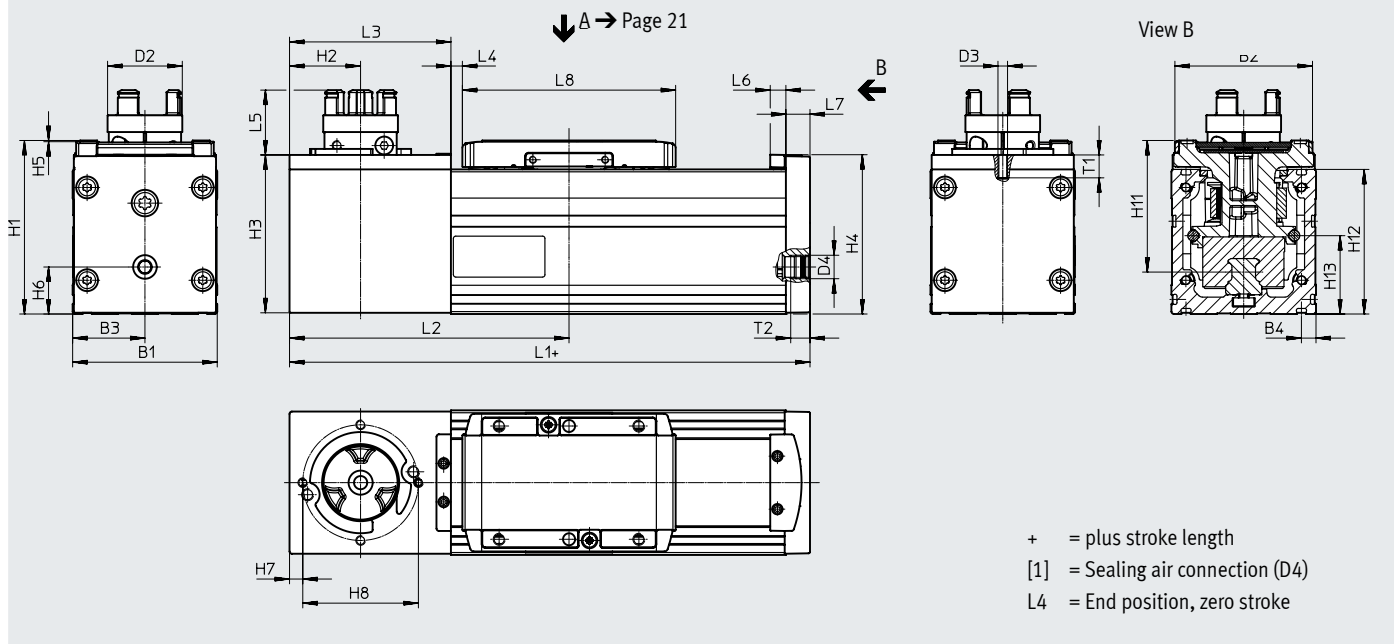
- [1] Connection to logic interface
- [2] Connection to power supply
- + = plus stroke length

Size	B1	B2	B3	H1	H2	L1
45	44	78.1	89.3	164	73.5	171.2
60	59	85.6	96.8	182	73.5	216

Datasheet

Dimensions

Download CAD data → www.festo.com



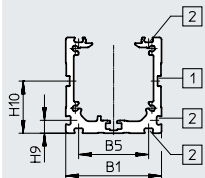
Size	B1	B2	B3	B4	D2 ∅	D3	D4	H1	H2
45	45	42.6	22.5	6.1	16.5	–	G1/8	54	22
60	60	57.1	30	6.1	31	M4	G1/8	72	29.5

Size	H3	H4	H5	H6	H7	H8	H11	H12	H13
45	49	49.6	0.5	12.5	–	–	42.8	45	18.5
60	65.5	66.1	0.5	19.5	5.5	48	54.6	60	32.5

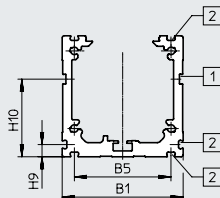
Size	L1	L2	L3	L4	L5	L6	L7	L8	T1	T2
		min.		min.						
45	165	90	52	4.25	19.9	6.5	7	67.5	–	8
60	216	116	67	4.75	26.9	6.5	10	88.5	9.5	8

Profile

Size 45



Size 60



- [1] = Slot for sensor bracket
- [2] = Mounting slot

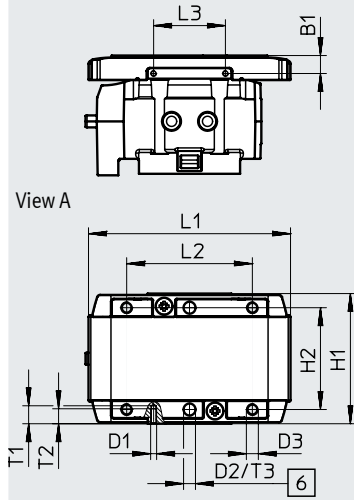
Size	B1	B5	H9	H10
45	45	32.9	6.1	24.5
60	60	47.9	6.1	38.5

Datasheet

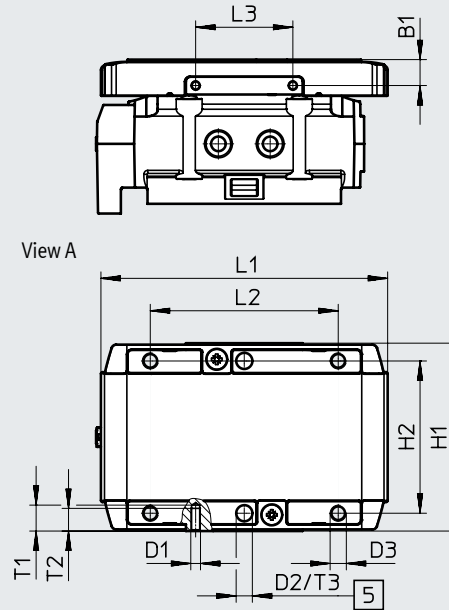
Dimensions

Download CAD data → www.festo.com

Slide
Size 45



Size 60



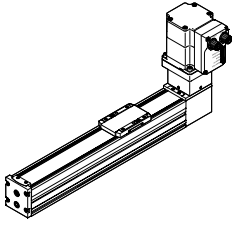
- [5] Drilled hole for centring sleeve ZBH
- [6] Drilled hole for centring pin ZBS

Size	B1 ±0.1	D1	D2 ∅ H8	D3	H1 ±0.1	H2 ±0.1 For D2 ±0.03
45	6	M2	4	M4	43.5	34
60	8	M3	5	M5	58	47

Size	L1	L2 ±0.1	L3 ±0.1	T1	T2	T3 +0.1	T4 ¹⁾
45	67.5	42	24	6	5	3.1	6 ... 7.5
60	88.5	58	30	9	7	1.3	8.5 ... 10

1) Recommended screw-in depth

Ordering data

Ordering data	Size	Stroke	Part no.	Type
	45	200	8083665	ELGS-TB-KF-45-200-ST-M-H1-PLK-AA
		300	8083666	ELGS-TB-KF-45-300-ST-M-H1-PLK-AA
		500	8083667	ELGS-TB-KF-45-500-ST-M-H1-PLK-AA
		600	8083668	ELGS-TB-KF-45-600-ST-M-H1-PLK-AA
		800	8083669	ELGS-TB-KF-45-800-ST-M-H1-PLK-AA
		1000	8083670	ELGS-TB-KF-45-1000-ST-M-H1-PLK-AA
		1200	8083671	ELGS-TB-KF-45-1200-ST-M-H1-PLK-AA
		1500	8083672	ELGS-TB-KF-45-1500-ST-M-H1-PLK-AA
	60	200	8083570	ELGS-TB-KF-60-200-ST-M-H1-PLK-AA
		300	8083571	ELGS-TB-KF-60-300-ST-M-H1-PLK-AA
		500	8083572	ELGS-TB-KF-60-500-ST-M-H1-PLK-AA
		600	8083573	ELGS-TB-KF-60-600-ST-M-H1-PLK-AA
		800	8083574	ELGS-TB-KF-60-800-ST-M-H1-PLK-AA
		1000	8083575	ELGS-TB-KF-60-1000-ST-M-H1-PLK-AA
		1200	8083576	ELGS-TB-KF-60-1200-ST-M-H1-PLK-AA
		1500	8083577	ELGS-TB-KF-60-1500-ST-M-H1-PLK-AA
		1800	8083578	ELGS-TB-KF-60-1800-ST-M-H1-PLK-AA
		2000	8083579	ELGS-TB-KF-60-2000-ST-M-H1-PLK-AA

Ordering data – Modular product system

Ordering table					
Size	45	60	Conditions	Code	Enter code
Module no.	8083664	8083557			
Series	ELGS			ELGS	ELGS
Drive system	Toothed belt			-TB	-TB
Guide	Recirculating ball bearing guide			-KF	-KF
Size	45	60		-...	
Stroke [mm]	200, 300, 500, 600, 800, 1000, 1200, 1500	200, 300, 500, 600, 800, 1000, 1200, 1500, 1800, 2000		-...	
Motor type	Stepper motor ST			-ST	-ST
Controller	Integrated			-M	-M
Operator panel	Integrated			-H1	-H1
Bus protocol/control	NPN and IO-Link			-NLK	
	PNP and IO-Link			-PLK	
End-position sensing	With integrated end-position sensing			-AA	-AA
Cable outlet direction	Rear				
	Front			-F	
	Left			-L	
	Right			-R	
Electrical accessories	None				
	Adapter for operation as IO device			+L1	

Accessories

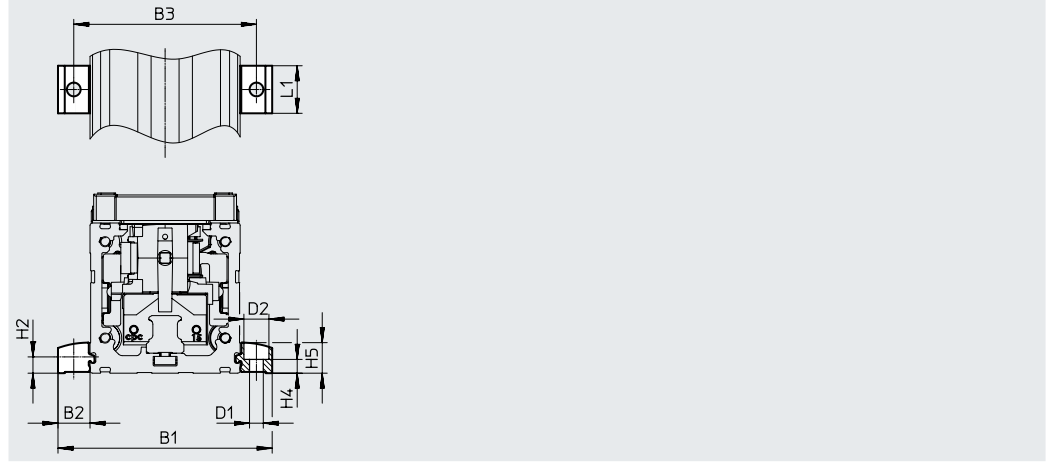
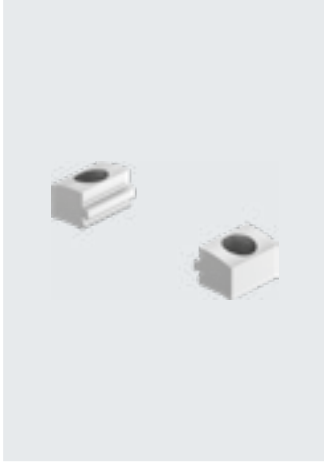
Profile mounting EAHF-L2-...-P-S

Material:

Anodised wrought aluminium alloy

RoHS-compliant

- For mounting the axis on the side of the profile



Dimensions and ordering data

For size	B1	B2	B3	D1 ∅ H13	D2 ∅ H13	H2
45	70.6	12.8	58	5.5	10	6.1
60	85.6	12.8	73	5.5	10	6.1

For size	H4 ±0.1	H5	L1	Weight [g]	Part no.	Type
45	5.5	12.2	19	6	5184133	EAHF-L2-45-P-S
60	5.5	12.2	19	6	5184133	EAHF-L2-45-P-S

Accessories

Profile mounting EAHF-L2-...-P

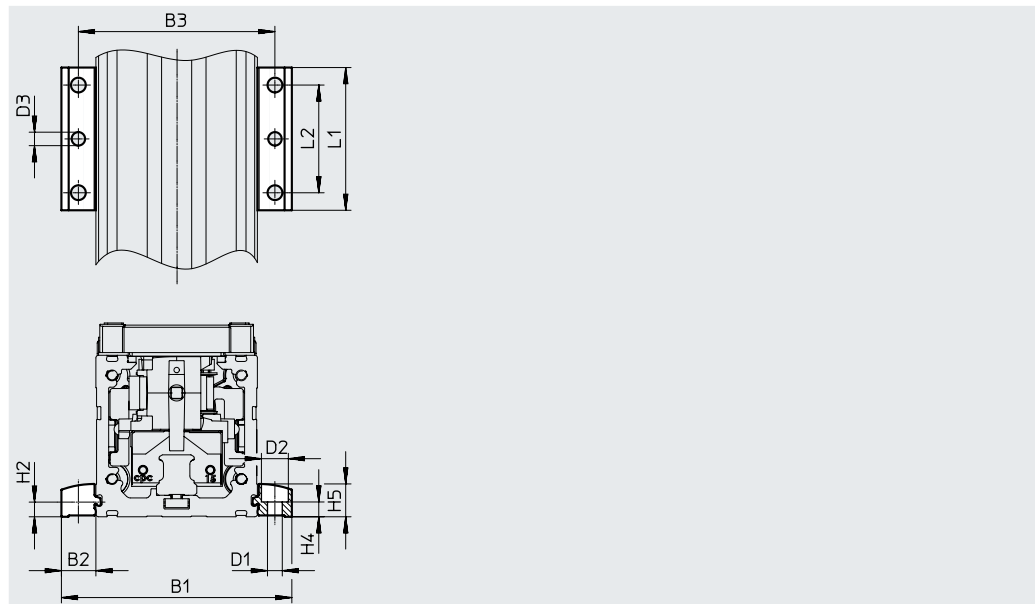
Material:

Anodised wrought aluminium alloy

RoHS-compliant

- For mounting the axis on the side of the profile.

The profile mounting can be attached to the mounting surface using the drilled hole in the centre.



Dimensions and ordering data

For size	B1	B2	B3	D1 ∅ H13	D2 ∅ H13	D3 ∅	H2
45	70.6	12.8	58	5.5	10	5	6.1
60	85.6	12.8	73	5.5	10	5	6.1

For size	H4 ±0.1	H5	L1	L2	Weight [g]	Part no.	Type
45	5.5	12.2	53	40	35	4835728	EAHF-L2-45-P
60	5.5	12.2	53	40	35	4835728	EAHF-L2-45-P

Accessories

Profile mounting EAHF-L2-...-P-D...

Material:

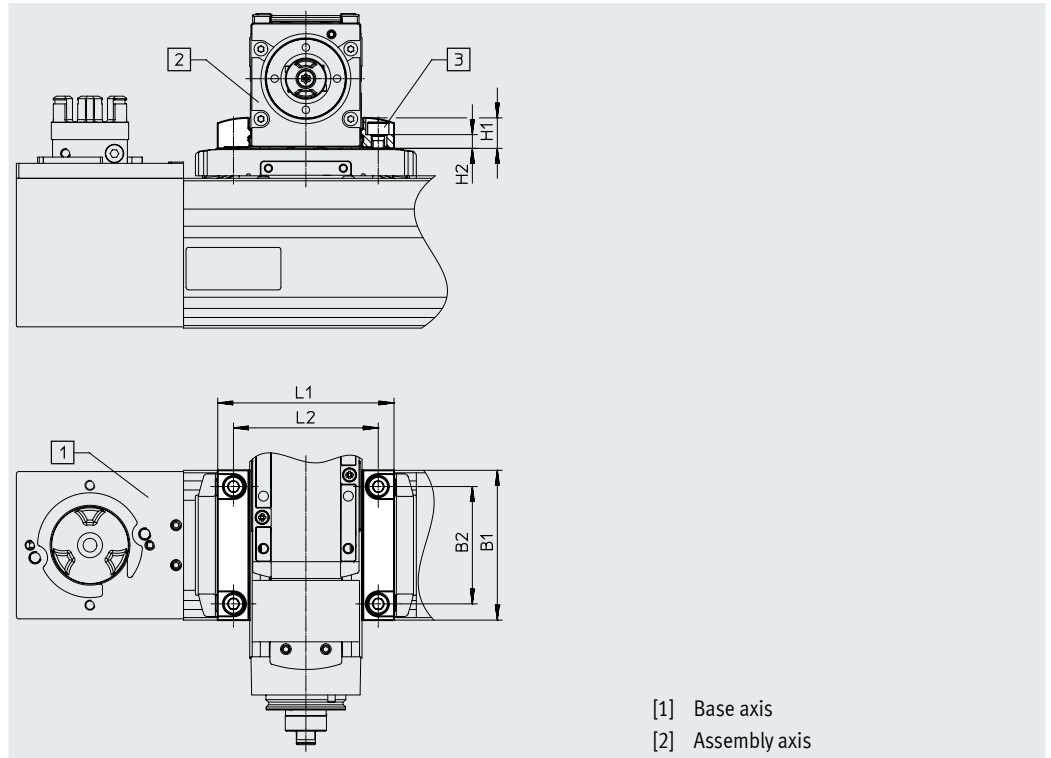
Anodised wrought aluminium alloy

RoHS-compliant

- For axis/axis mounting without adapter plate
- Mounting option: base axis with one-size-down assembly axis (→ page 4)

Combination matrix

		[2] Assembly axis ELGC-BS/-TB; ELFC; EGSC-BS		
	Size	32	45	60
[1] Base axis ELGC-BS/-TB, ELFC	45	4759748	-	-
	60	-	4759739	-



[1] Base axis
[2] Assembly axis

Dimensions and ordering data

For combination (size)	B1	B2	D1	H1
60/45	60	47	M5	12.2

For combination (size)	H2 ±0.1	L1	L2	Weight [g]	Part no.	Type
60/45	5.5	70.6	58	56	4759739	EAHF-L2-45-P-D3

Accessories

Adapter kit EHAA-D-L2

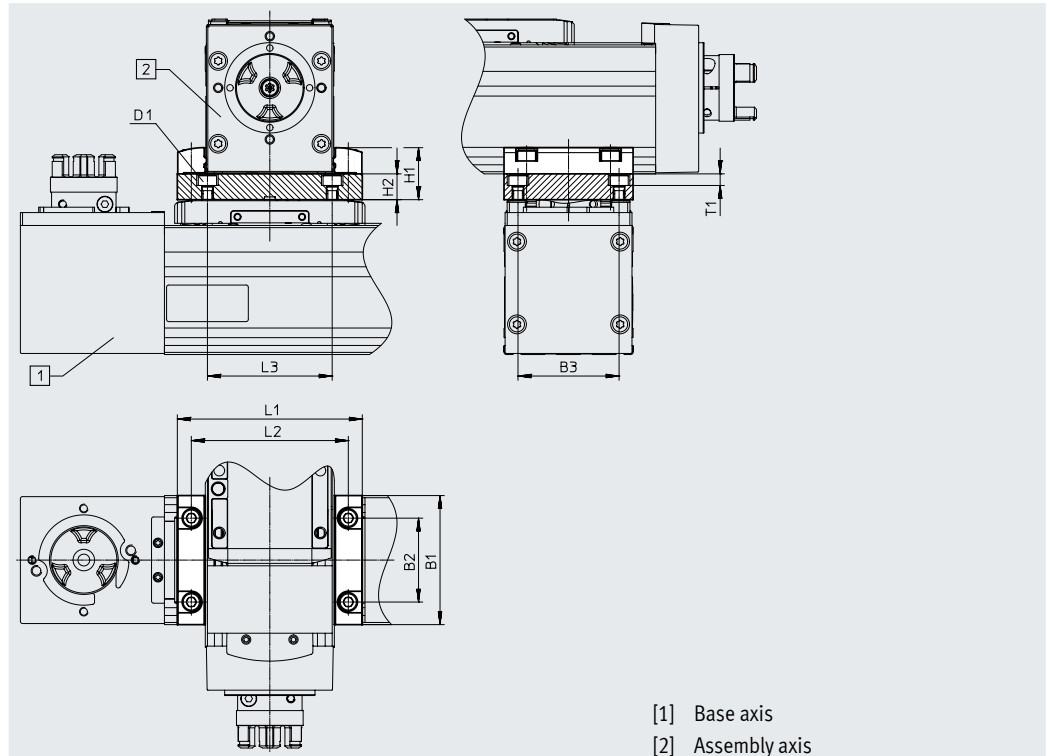
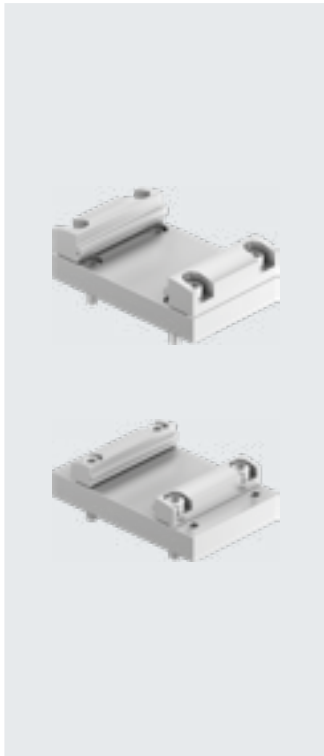
Material:

Anodised wrought aluminium alloy

RoHS-compliant

- For axis/axis mounting with adapter plate
- Mounting option: base axis with same size or one-size-down assembly axis (→ page 4)

Combination matrix		[2] Assembly axis ELGC-BS/-TB; ELFC; EGSC-BS			
	Size	32	45	60	80
[1] Base axis	45	8066714		-	-
ELGC-BS/-TB; ELFC	60	-	8066715		-



Dimensions and ordering data												
For combination (size)	B1	B3 ±0.05	D1	H1	H2	L1	L2	L3	T1	Weight [g]	Part no.	Type
60/45	60	47	M5	24.2	12	70.6	58	58	5.4	205	8066715	EHAA-D-L2-60-L2-60

For combination (size)	B1	B2	B3 ±0.05	D1	H1	H2	L1	L2	L3	T1	Weight [g]	Part no.	Type
60/60	60	39	47	M5	24.2	12	86	73	58	5.4	205	8066715	EHAA-D-L2-60-L2-60

Accessories

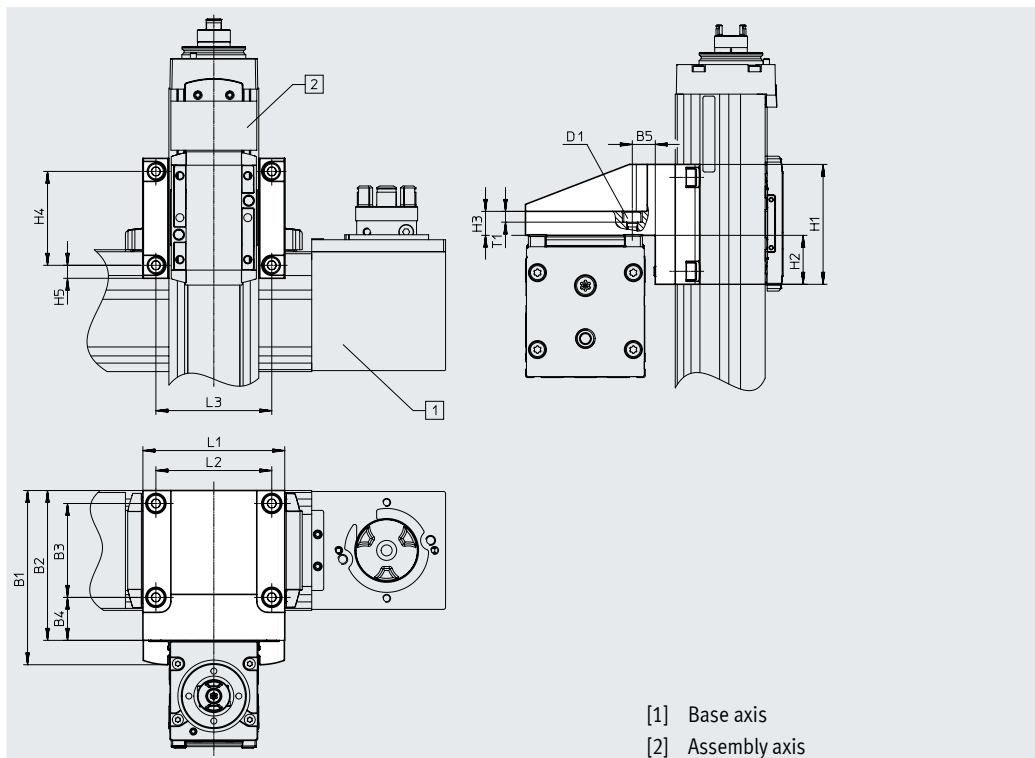
Angle kit EHAA-D-L2-...-AP

Material:
Anodised wrought aluminium alloy
RoHS-compliant

- For mounting one-size-down vertical axes (assembly axes) on base axes with mounting position "slide at top" (→ page 4)

Combination matrix

		[2] Assembly axis ELGC-BS/-TB; ELFC; EGSC-BS		
	Size	32	45	60
[1] Base axis	45	8066718	-	-
ELGC-BS/-TB; ELFC	60	-	8066719	-



Dimensions and ordering data

For combination (size)	B1	B2	B3	B4	B5	D1	H1	H2	H3	H4
60/45	87.2	75	47	21.5	21.5	M5	60	24.5	12	47

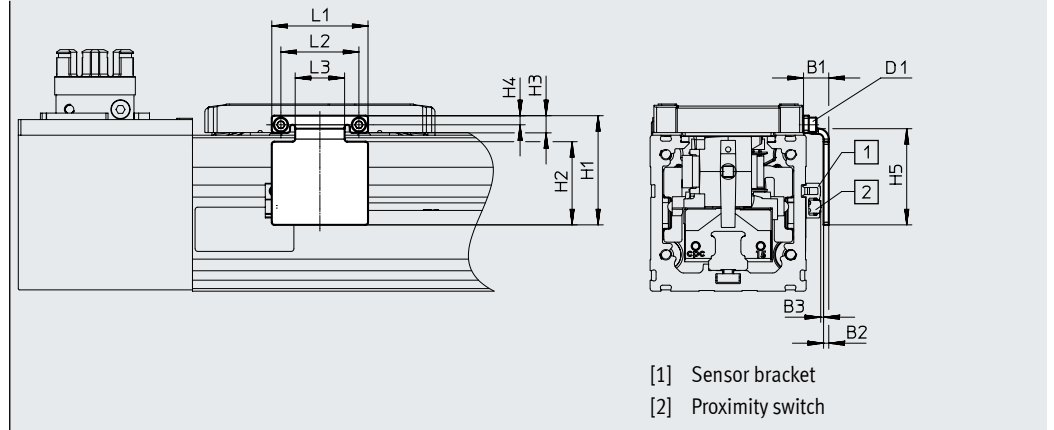
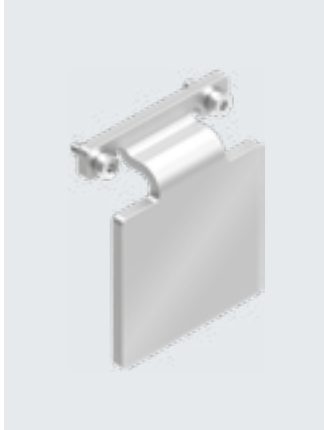
For combination (size)	H5	L1	L2	L3	T1	Weight [g]	Part no.	Type
60/45	6.5	71	58	58	5.4	433	8066719	EHAA-D-L2-60-L2-45-AP

Accessories

Switch lug EAPM-L2-SLS

For sensing using inductive proximity switches SIES-8M

Material:
Galvanised steel
RoHS-compliant



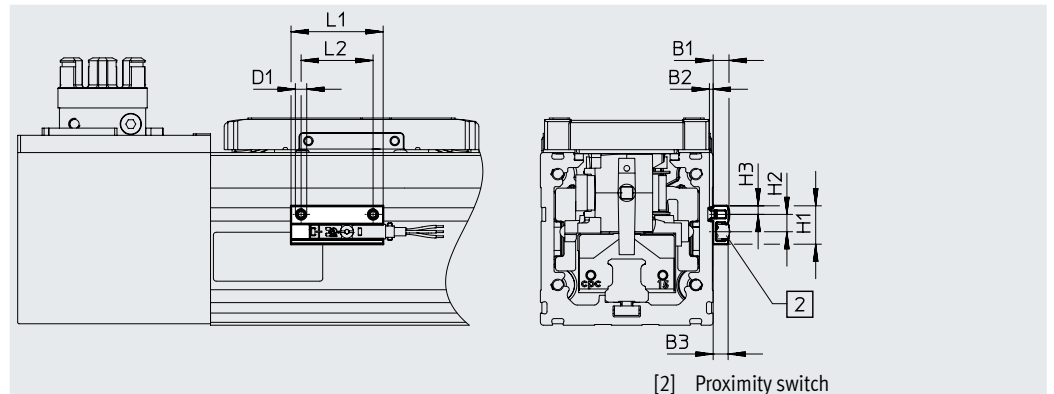
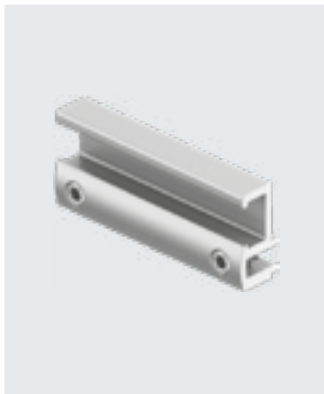
Dimensions and ordering data

For size	B1	B2	B3	D1	H1 ±0.2	H2	H3	H4
45	9.4	2	1.2±0.31	M2	37	28	5.5	3.3
60	9.7	2	1.3±0.31	M3	42	32	6.6	3.5

For size	H5 ±0.2	L1 ±0.2	L2 ±0.15	L3	Weight [g]	Part no.	Type
45	33	30	24	14	18	8067260	EAPM-L2-45-SLS
60	37	37	30	19	27	8067261	EAPM-L2-60-SLS

Sensor bracket EAPM-L2-SH

Material:
Anodised wrought aluminium alloy
RoHS-compliant






Dimensions and ordering data

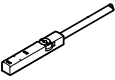
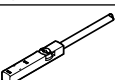
For size	B1	B2	D1	H1	H2
45, 60	5.5	1.3	M4	13.4	6

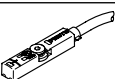
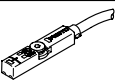
For size	H3	L1	L2	Weight [g]	Part no.	Type
45, 60	3	32	25	4	4759852	EAPM-L2-SH



Accessories


Ordering data		For size	Description	Part no.	Type	PU ¹⁾
Centring pin ZBS/centring sleeve ZBH						
	45	For slide		562959	ZBS-4	10
	60			8146543	ZBH-5-B	
Clamping element EADT						
	45	Tool for retensioning the cover strip		8065818	EADT-S-L5-32	1
	60			8058451	EADT-S-L5-70	
Push-in fitting						
	45, 60	for sealing air connection		186266	QSM-G1/8-4-I	10
				186267	QSM-G1/8-6-I	

1) Packaging unit

Ordering data – Proximity switches for T-slot, inductive						Datasheets → Internet: sies
	Type of mounting	Switching output	Electrical connection	Cable length [m]	Part no.	Type
N/O						
	Inserted in the slot from above, flush with the cylinder profile	PNP	Cable, 3-wire	7.5	551386	SIES-8M-PS-24V-K-7.5-OE
			Plug M8x1, 3-pin	0.3	551387	SIES-8M-PS-24V-K-0.3-M8D
		NPN	Cable, 3-wire	7.5	551396	SIES-8M-NS-24V-K-7.5-OE
			Plug M8x1, 3-pin	0.3	551397	SIES-8M-NS-24V-K-0.3-M8D
N/C						
	Inserted in the slot from above, flush with the cylinder profile	PNP	Cable, 3-wire	7.5	551391	SIES-8M-PO-24V-K-7.5-OE
			Plug M8x1, 3-pin	0.3	551392	SIES-8M-PO-24V-K-0.3-M8D
		NPN	Cable, 3-wire	7.5	551401	SIES-8M-NO-24V-K-7.5-OE
			Plug M8x1, 3-pin	0.3	551402	SIES-8M-NO-24V-K-0.3-M8D


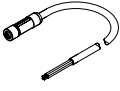
Ordering data – Proximity switch for T-slot, magneto-resistive						Datasheets → Internet: smt
	Type of mounting	Switching output	Electrical connection	Cable length [m]	Part no.	Type
N/O						
	Inserted in the slot from above, flush with the cylinder profile, short design	PNP	Cable, 3-wire	2.5	574335	SMT-8M-A-PS-24V-E-2.5-OE
			Plug M8x1, 3-pin	0.3	574334	SMT-8M-A-PS-24V-E-0.3-M8D
N/C						
	Inserted in the slot from above, flush with the cylinder profile, short design	PNP	Cable, 3-wire	7.5	574340	SMT-8M-A-PO-24V-E-7.5-OE



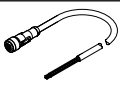
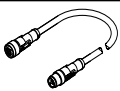
Ordering data – Connecting cables					Datasheets → Internet: nebu
	Electrical connection, left	Electrical connection, right	Cable length [m]	Part no.	Type
	Straight socket, M8x1, 3-pin	Cable, open end, 3-wire	2.5	541333	NEBU-M8G3-K-2.5-LE3
			5	541334	NEBU-M8G3-K-5-LE3
	Angled socket, M8x1, 3-pin	Cable, open end, 3-wire	2.5	541338	NEBU-M8W3-K-2.5-LE3
			5	541341	NEBU-M8W3-K-5-LE3


 Note

Proximity switches are optional and only required in order to sense any intermediate positions.

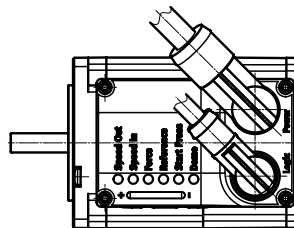
Accessories


Ordering data – Supply cables					Datasheets → Internet: nebl
	Electrical connection, left	Electrical connection, right	Cable length [m]	Part no.	Type
	Angled socket, M12x1, 4-pin	Cable, open end, 4-wire	2	8080778	NEBL-T12W4-E-2-N-LE4
			5	8080779	NEBL-T12W4-E-5-N-LE4
			10	8080780	NEBL-T12W4-E-10-N-LE4
			15	8080781	NEBL-T12W4-E-15-N-LE4
	Straight socket, M12x1, 4-pin	Cable, open end, 4-wire	2	8080790	NEBL-T12G4-E-2-N-LE4
			5	8080791	NEBL-T12G4-E-5-N-LE4
			10	8080792	NEBL-T12G4-E-10-N-LE4
			15	8080793	NEBL-T12G4-E-15-N-LE4


Ordering data – Connecting cables					Datasheets → Internet: nebc
	Electrical connection, left	Electrical connection, right	Cable length [m]	Part no.	Type
	Angled socket, M12x1, 8-pin	Cable, open end, 8-wire	2	8094476	NEBC-M12W8-E-2-N-B-LE8
			5	8094478	NEBC-M12W8-E-5-N-B-LE8
			10	8094481	NEBC-M12W8-E-10-N-B-LE8
			15	8094479	NEBC-M12W8-E-15-N-B-LE8
	Straight plug, M12x1, 8-pin	Cable, open end, 8-wire	2	8080786	NEBC-M12W8-E-2-N-M12G8
			5	8080787	NEBC-M12W8-E-5-N-M12G8
			10	8080788	NEBC-M12W8-E-10-N-M12G8
			15	8080789	NEBC-M12W8-E-15-N-M12G8
	Straight socket, M12x1, 8-pin	Cable, open end, 8-wire	2	8094480	NEBC-M12G8-E-2-N-B-LE8
			5	8094477	NEBC-M12G8-E-5-N-B-LE8
			10	8094482	NEBC-M12G8-E-10-N-B-LE8
			15	8094475	NEBC-M12G8-E-15-N-B-LE8
	Straight plug, M12x1, 8-pin	Cable, open end, 8-wire	2	8080782	NEBC-M12G8-E-2-N-M12G8
			5	8080783	NEBC-M12G8-E-5-N-M12G8
			10	8080784	NEBC-M12G8-E-10-N-M12G8
			15	8080785	NEBC-M12G8-E-15-N-M12G8

 **Note**

The cables are positioned at a 45° angle to the axis.



Ordering data – IO-Link master USB					Datasheets → Internet: cdsu
	Description	Cable length [m]	Part no.	Type	
	<ul style="list-style-type: none"> For using the unit with IO-Link An external power supply plug is also required (not included in the scope of delivery) 	0.3	8091509	CDSU-1	

Ordering data – Adapter					Datasheets → Internet: nefc
	Electrical connection, left	Electrical connection, right	Cable length [m]	Part no.	Type
	Straight socket, M12x1, 8-pin	Straight plug, M12x1, 5-pin	0.3	8080777	NEFC-M12G8-0.3-M12G5-LK