# Spindle axis units ELGS-BS-KF

# **FESTO**





#### 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

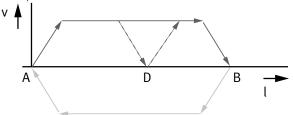
**IO**-Link

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

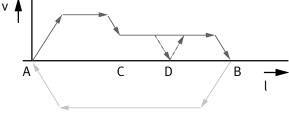
Basic profile for movement between two end positions: with speed control



→ Internet: www.festo.com/catalogue/...

- 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

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



#### 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 Electric cylinder unit EPCS

Electric cylinder unit with parallel motor mounting EPCS



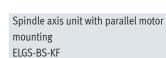
Mini slide unit EGSS-BS-KF



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



Spindle axis unit 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 spindle axis ELGC-BS-KF:



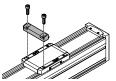
When compact dimensions and optimised installation space are important, e.g. for assembly systems, test and inspection systems, small parts handling, the electronics industry and desktop applications. Either as an individual axis or as a handling system.

- 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

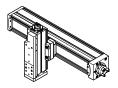
Combination matrix between axis ELGC-TB/ELGS-TB, ELGC-BS/ELGS-BS, mini slide EGSC-BS/EGSS-BS, electric cylinder EPCC-BS/EPCS-BS and guide axis ELFC Mounting options with profile mounting and with angle kit

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

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



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



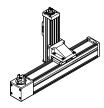


With angle kit EHAA-D-L2-...-AP



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





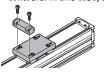
# Combination matrix between axis ELGC/ELGS-TB, ELGC/ELGS-BS, mini slide EGSC/EGSS-BS, electric cylinder EPCC/EPCS-BS and guide axis ELFC Mounting options with adapter kit or direct fastening

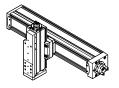
				BS/-TB; ELF S, EPCS-BS		; EPCC-BS;
	Size	25	32	45	60	80
Base axis	32			_	-	-
ELGC-BS/-TB; ELFC;	45	-		•	-	-
ELGS-BS/-TB	60	-	-			_
	80	-	-	-	1	

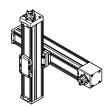
		Assembly ax	is EGSC-BS; EG	GSS-BS	
	Size	25	32	45	60
Base axis	25	•	-	-	-
EGSC-BS;	32	-	•	-	-
EGSS-BS	45	-	-	•	-
	60	-	-	-	

## 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

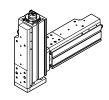






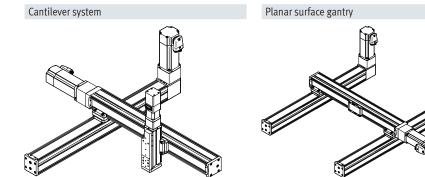
#### With direct mounting

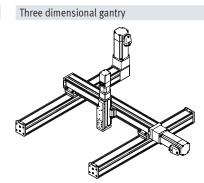
• Mounting option: base axis with the same size assembly axis



#### 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.



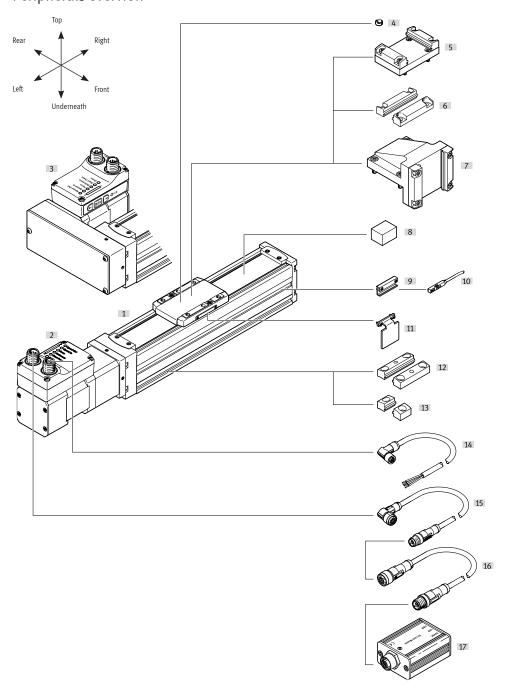


# Type codes

	Series	
ELGS	Gantry axis	
Loop		
002	Drive system	
BS	Ball screw drive	
003	Guide	
KF	Recirculating ball bearing guide	
004	Size	
32	32	
45	45	
60	60	
1		
005	Stroke [mm]	
100	100	
200	200	
300	300	
400	400	
500	500	
600	600	
800	800	
006	Spindle pitch	
	Standard	
8P	8 mm	
10P	10 mm	
12P	12 mm	
007	Motor type	
ST	Stepper motor ST	

008	Controller	
М	Integrated	
009	Control panel	
H1	Integrated	
L		
010	Bus protocol/activation	
PLK	PNP and IO-Link®	
NLK	NPN and IO-Link®	
011	End-position sensing	
AA	With integrated end-position sensing	
012	Cable outlet direction	
012	Standard	
D	Underneath	
F	Front	
В	Rear	
013	Motor attachment position	'
	Standard	
PB	Parallel, rear	
PF	Parallel, front	
PD	Parallel, bottom	
014	Electrical accessories	
014		
	None	
L1	Adapter for operation as IO-Link® device	
015	Operating instructions	
	With operating instructions	
DN	Without operating instructions	

# Peripherals overview



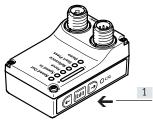
Acces	sories		
	Type/order code	Description	→ Page/Internet
[1]	Spindle axis unit	Electric drive	8
	ELGS-BS		
[2]	Axial kit	For axial motor mounting (included in the scope of delivery)	9
[3]	Parallel kit	For parallel motor mounting (included in the scope of delivery)	9
[4]	Centring pin/sleeve	For centring loads and attachments on the slide	36
	ZBS, ZBH		
[5]	Adapter kit	For axis/axis mounting with adapter plate	33
	EHAA-D-L2	<ul> <li>Mounting option: base axis with the same size or one-size-down assembly axis</li> </ul>	
		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)	
[6]	Profile mounting	For axis/axis mounting without adapter plate	32
	EAHF-L2P-D	<ul> <li>Mounting option: base axis with one-size-down assembly axis</li> </ul>	

# Peripherals overview

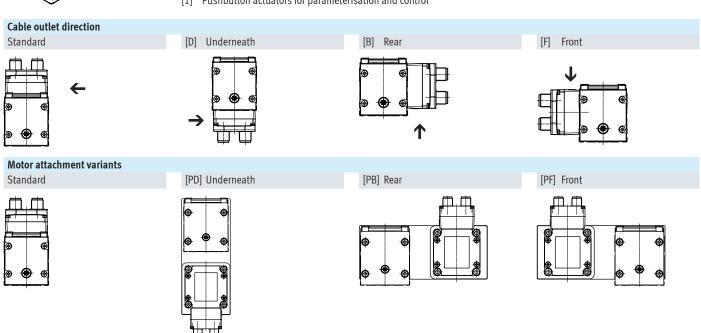
Acces	sories		
	Type/order code	Description	→ Page/Internet
[7]	Angle kit EHAA-D-L2AP	<ul> <li>For mounting one-size-down vertical axes (assembly axes) on</li> <li>base axes with mounting position "slide at top"</li> </ul>	34
[8]	Clamping element EADT-S-L5-32	Tool for retensioning the cover strip	36
[9]	Sensor bracket <sup>1)</sup> EAPM-L2-SH	For mounting the proximity switches on the axis. The proximity switches can only be mounted using the sensor bracket	35
[10]	Proximity switches <sup>1)</sup> SIES-8M	Inductive proximity switches, for T-slot	36
	Proximity switches <sup>1)</sup> SMT-8M	Magnetic proximity switches, for T-slot	36
[11]	Switch lug <sup>1)</sup> EAPMSLS	For sensing the slide position in conjunction with inductive proximity switches SIES-8M	35
[12]	Profile mounting EAHF-L2P	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	31
[13]	Profile mounting EAHF-L2	For mounting the axis on the side of the profile	30
[14]	Supply cable NEBL-T12	For connecting load and logic supply	37
[15]	Connecting cable NEBC-M12	For connection to a controller	37
[16]	Adapter NEFC-M12G8	Connection between the motor and the IO-Link master     Only recommended for use with IO-Link port class A master	37
[17]	IO-Link master USB CDSU-1	For straightforward use of the mini slide unit via IO-Link	37

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

## **Control elements**



[1] Pushbutton actuators for parameterisation and control





**Size** 32 ... 60

- Stroke length 100 ... 800 mm



General technical data				
Size		32	45	60
Design		Electromechanical axis with ball screw	and integrated drive	
Motor type		Stepper motor		
Guide		Recirculating ball bearing guide		
Mounting position		Any		
Working stroke	[mm]	100, 200, 300, 400, 500, 600, 800	100, 200, 300, 400, 500, 600, 800	100, 200, 300, 400, 500, 600, 800
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		32	45	60
Max. payload				
Horizontal	[kg]	2	10	20
Vertical	[kg]	2	5	13
Max. feed force F <sub>x</sub>	[N]	40	100	200
Repetition accuracy	[mm]	±0.015	±0.015	±0.01
Reversing backlash	[mm]	≤ 0.15		
Position sensing		Via proximity switch		
		Via IO-Link		
With axial motor mounting				
Max. speed <sup>1)</sup>	[m/s]	0.18	0.25	0.25
Speed "Speed Press" <sup>2)</sup>	[m/s]	0.01		·
Max. acceleration <sup>2)</sup>	[m/s <sup>2</sup> ]	5		
With parallel motor mounting				
Max. speed <sup>1)</sup>	[m/s]	0.18	0.235	0.215
Speed "Speed Press" <sup>2)</sup>	[m/s]	0.01		
Max. acceleration <sup>2)</sup>	[m/s <sup>2</sup> ]	3		

Rotational speed and speed are stroke-dependent.
 Adjustable in increments of 10%

2) Unchangeable parameter

Spindle				
Size		32	45	60
Diameter	[mm]	8	10	12
Pitch	[mm/rev]	8	10	12

Electrical data					
Size		32	45	60	
Motor					
Nominal voltage DC	[V]	24 (±15%)			
Nominal current	[A]	3	3	5.3	
Max. current consumption (load)	[A]	3	3	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		32	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, ty	/pe 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			

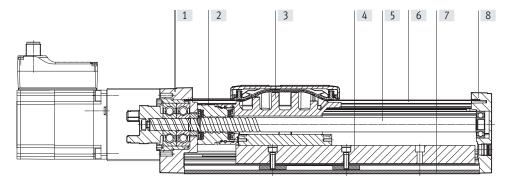
Technical data – IO-Link					
Size		32	45	60	
SIO mode support		Yes			
Communication mode		COM3 (230.4 kBd)			
Connection technology		Plug			
Port class		A			
No. of ports		1			
Process data width OUT	[byte]	2			
Process data content OUT	[bit]	1 (Move in)			
	[bit]	1 (Move out)			
	[bit]	1 (Move Intermediate)			
	[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		32	45	60	
Insulation class		В			
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 se	nsor with analogue output		
Relative humidity	[%]	090			
Protection class					
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		KCEMC			
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			
Maintenance interval Lifetime lubrication					

Weight						
Size		32	45	60		
With axial motor mounting						
Basic weight at 0 mm stroke	[g]	889	1354	2862		
Additional weight per 10 mm stroke	[g]	18	36	51		
Moving mass with 0 mm stroke	[g]	83	220	525		
With parallel motor mounting	With parallel motor mounting					
Basic weight at 0 mm stroke	[g]	1053	1477	3126		
Additional weight per 10 mm stroke	[g]	18	36	51		
Moving mass with 0 mm stroke	[g]	83	220	525		

#### Materials

Sectional view



Axis		
[1]	Drive cover	Painted die-cast aluminium
[2]	Spindle nut	Steel
[3]	Slide	Die-cast aluminium
[4]	Guide	Steel
[5]	Spindle	Steel
[6]	Cover strip	High-alloy stainless steel
[7]	Profile	Anodised wrought aluminium alloy
[8]	End cap	Painted die-cast 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)
4	Tunctional earth (L)

## Logic interface

Plug

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

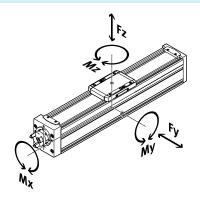


When used wit	When used with digital I/O				
Pin	Function				
1	Logic voltage supply (24 V DC)				
2	Digital output 1 (State "In")				
3	Digital output 2 (State "Out")				
4	Reference potential, logic voltage supply (GND)				
5	Digital input 1 (Move "In")				
6	Digital input 2 (Move "Out")				
7	Reserved,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

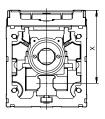
When use	When used with IO-Link				
Pin	Function				
1	L+ IO-Link power supply (24 V DC)				
2	Reserved, do not connect				
3	C/Q communication with the IO-Link master				
4	L – Reference potential, IO-Link power supply (0 V)				
5	Reserved, do not connect				
6	Reserved, do not connect				
7	Reserved,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

#### 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 ar	Max. permissible forces and torques on the slide (strength limits)							
Size		32	45	60				
Fy <sub>max</sub> .	[N]	150	300	600				
Fz <sub>max</sub> .	[N]	300	600	1800				
Mx <sub>max</sub> .	[Nm]	1.3	5.5	29.1				
My <sub>max</sub> .	[Nm]	1.1	4.7	31.8				
Mz <sub>max.</sub>	[Nm]	1.1	4.7	31.8				

Distance from the slide surface to the centre of the guide					
Size		32	45	60	
Dimension x	[mm]	31.4	42.8	54.6	

Max. permissible force	Max. permissible forces and torques for the guide calculation, for a service life of 5000 km or 5x 10 <sup>6</sup> cycles						
Size		32	45	60			
Fy <sub>max</sub> .	[N]	356	880	3641			
Fz <sub>max</sub> .	[N]	356	880	3641			
Mx <sub>max</sub> .	[Nm]	1.3	5.5	29.1			
My <sub>max</sub> .	[Nm]	1.1	4.7	31.8			
Mz <sub>max</sub> .	[Nm]	1.1	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  $fv \le 1$ , 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:

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

 $F_1/M_1 = dynamic value$ 

 $F_2/M_2 = maximum value$ 

#### Calculating the service life

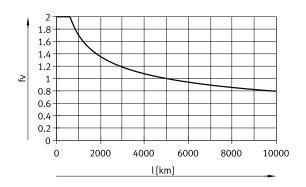
The service life of the guide depends on the load. To be able to make a statement as to the service life of the guide, the graph below plots the load comparison factor fv against the service life.

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

#### Load comparison factor fv as a function of service life l

#### Example:

A user wants to move an x kg load. Using the formula ( $\rightarrow$  page 14) gives a value of 1.5 for the load comparison factor fv. According to the graph, the guide would have a service life of approx. 1500 km. Reducing the acceleration reduces the My and Mz values. A load comparison factor fv 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 IIS.

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 force	Max. permissible forces and torques for a theoretical service life of 100 km (from a guide perspective only)						
Size		32	45	60			
Fy <sub>max.</sub>	[N]	1310	3240	13400			
Fz <sub>max</sub> .	[N]	1310	3240	13400			
Mx <sub>max</sub> .	[Nm]	5	20	107			
My <sub>max</sub> .	[Nm]	4	17	117			
Mz <sub>max</sub> .	[Nm]	4	17	117			

## Service life of the motor

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

#### Sizing example

Application data:

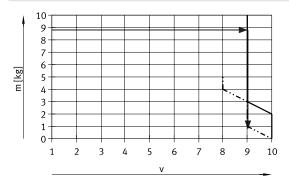
- Payload: 8 kg
- Mounting position: horizontal
- Motor mounting position: axial
- Stroke: 400 mm
- Max. permissible positioning time: 4 s (one direction)

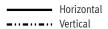
Step 1: Selecting the possible size from the table  $\rightarrow$  page 10

Mechanical data				
Size		32	45	60
Max. payload				
Horizontal	[kg]	2	10	20
Vertical	[kg]	2	5	13

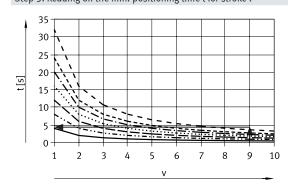
→ Smallest possible size: ELGS-BS-KF-45

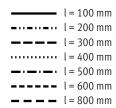
Step 2: Selecting the max. speed level v for payload m





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





→ Min. positioning time for 400 mm at level 9: 2 s

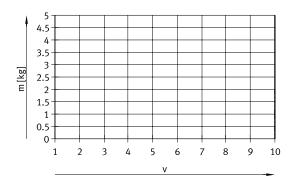
→ Max. speed level for payload: level 9

#### Result

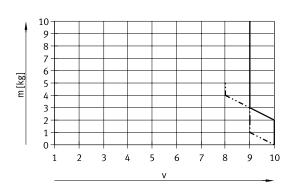
The application can be implemented using ELGS-BS-KF-45-400. A minimum positioning time (one direction) of 2 s is achieved. Longer positioning times can be selected at any time using a lower speed level.

# Mass m as a function of speed level v With axial kit

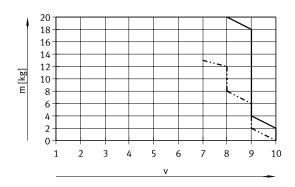
Size 32



Size 45



Size 60



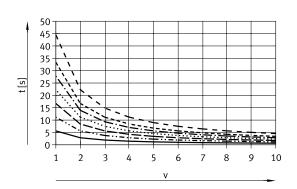
Note:

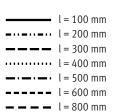
The lines represent the maximum values. The lower speed levels can be set at any time.

Horizontal

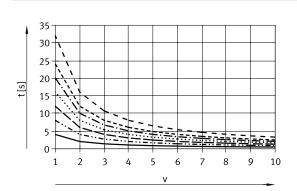
# Positioning time t as a function of speed level v and stroke l With axial kit

Size 32





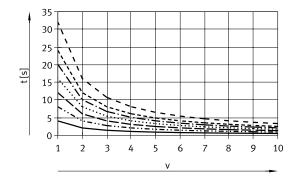
Size 45

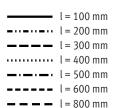




## Positioning time t as a function of speed level v and stroke l

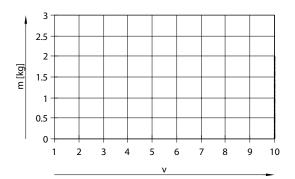
Size 60



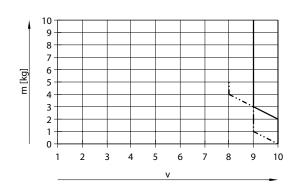


## Mass m as a function of speed level v With parallel kit

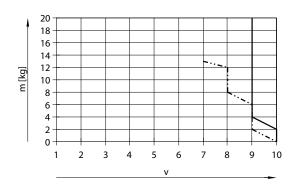
Size 32



Size 45



Size 60



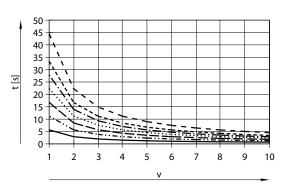
Note:

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

Horizontal

## Positioning time t as a function of speed level v and stroke l With parallel kit

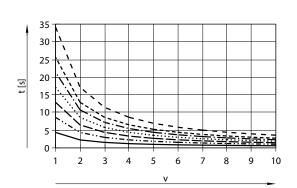
Size 32



l = 100 mm
l = 200 mm
l = 300 mm
l = 400 mm
l = 500 mm
l = 600 mm

**— — —** l = 800 mm

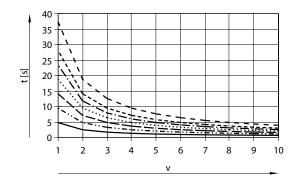
Size 45



l = 100 mm
l = 200 mm
l = 300 mm
l = 400 mm
l = 500 mm
l = 600 mm

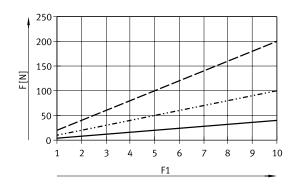
## Positioning time t as a function of speed level v and stroke l

Size 60



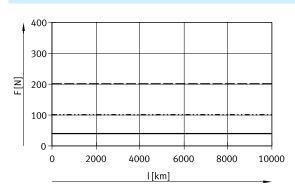
l = 100 mm
l = 200 mm
l = 300 mm
l = 400 mm
l = 500 mm
l = 600 mm

#### Feed force F as a function of force level F1



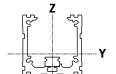


#### Feed force F as a function of service life l





#### 2nd moments of area

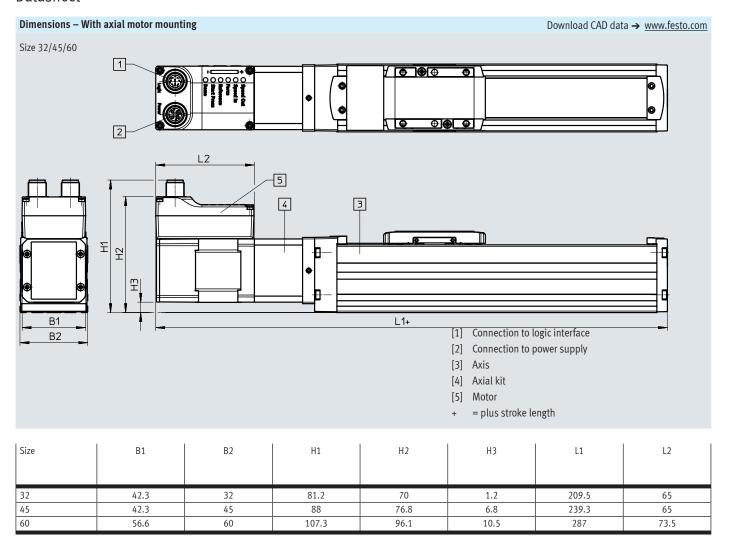


Size		32	45	60
ly	[mm <sup>4</sup> ]	38x10 <sup>3</sup>	140x10 <sup>3</sup>	441x10 <sup>3</sup>
Iz	[mm <sup>4</sup> ]	45x10 <sup>3</sup>	170x10 <sup>3</sup>	542x10 <sup>3</sup>

## Recommended deflection limits

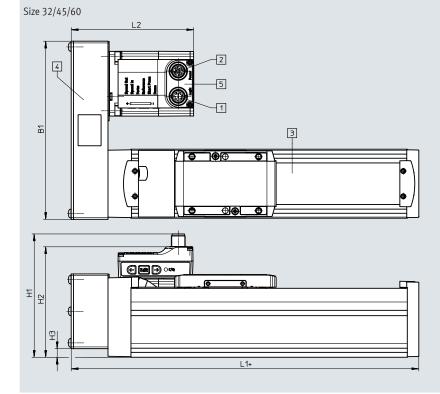
Adherence to the following deflection limits is recommended so as not to impair the functionality of the axes. Greater deformation can result in increased friction, greater wear and reduced service life.

Size		Static deflection (stationary load)
32 60	0.05% of the axis length, max. 0.5 mm	0.1% of the axis length



## Dimensions - With parallel motor mounting

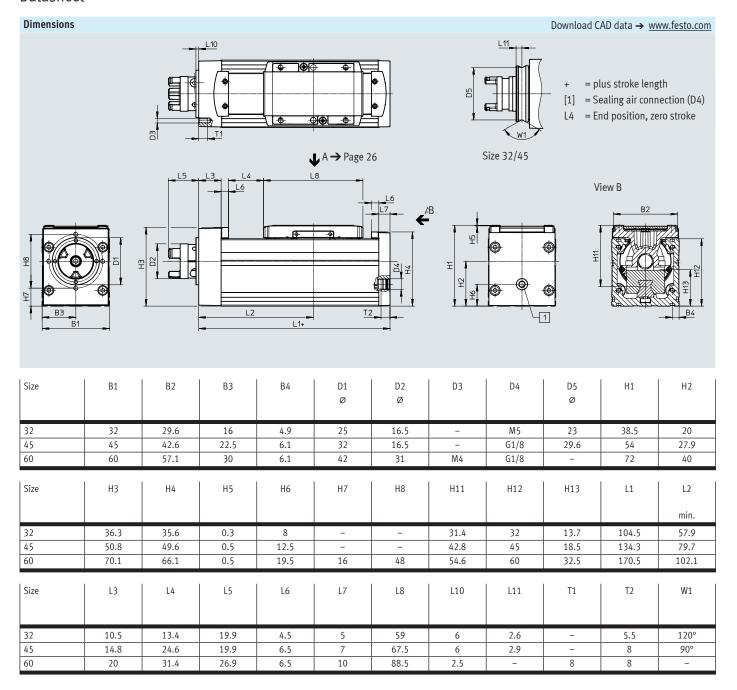
Download CAD data → www.festo.com

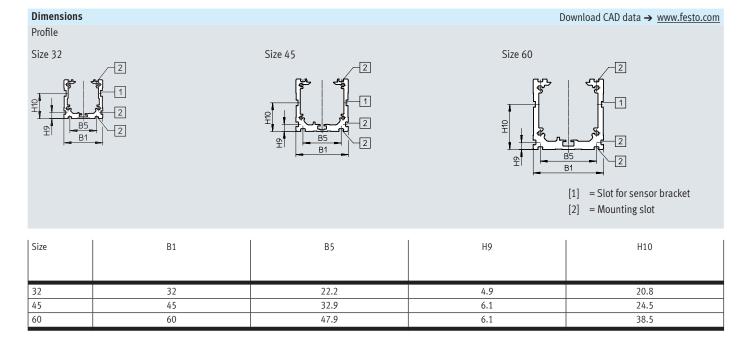


- [1] Connection to logic interface
- [2] Connection to power supply
- [3] Axis
- [4] Parallel kit
- [5] Motor
- + = plus stroke length

Dimensions for other motor mounting variants → CAD data.

Size	B1	H1	H2	Н3	L1	L2
32	111	80	69	-2.5	128.5	93
45	111	88	76	5.4	158.3	93
60	155	107	96	7.5	202.5	106.5





#### Dimensions Download CAD data → www.festo.com Slide Size 32 Size 45 L1 L1 View A View A 모모 D3 D2/T3 6 D1 D3 D2/T3 6 [6] Drilled hole for centring pin ZBS D2 D3 Size В1 D1 Н1 H2 Ø ±0.1 ±0.1 Н8 ±0.1 For D2 ±0.03 M1.6 М3 30.5 32 4 2 22.5 45 M2 4 M4 43.5 34 6 T4 1) Size L1 L2 L3 T1 T2 T3 ±0.1 ±0.1 +0.1

3.8

3

59

67.5

35

42

18

24

32

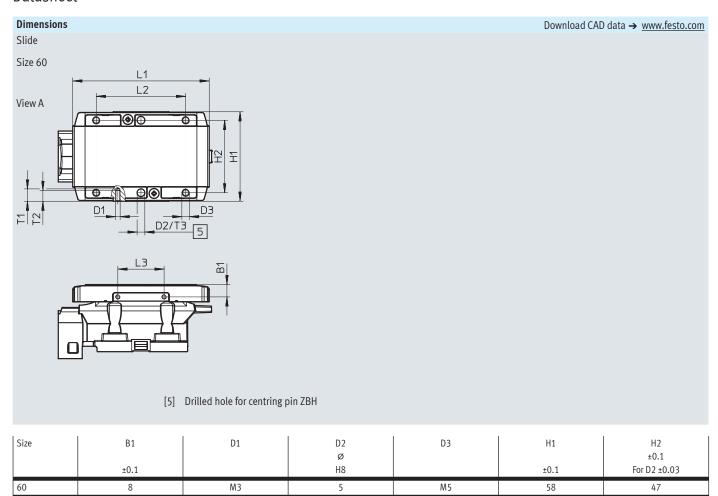
45

4 ... 5 6 ... 7.5

3.1

3.1

<sup>1)</sup> Recommended screw-in depth



Size	L1	L2	L3	T1	T2	T3	T4 <sup>1)</sup>
		±0.1	±0.1			+0.1	
60	88.5	58	30	9	7	1.3	8.5 10

<sup>1)</sup> Recommended screw-in depth

Ordering data					
	Size	Spindle pitch	Stroke	Part no.	Туре
,8 <sub>30</sub>	32	8	100	8083424	ELGS-BS-KF-32-100-8P-ST-M-H1-PLK-AA
			200	8083425	ELGS-BS-KF-32-200-8P-ST-M-H1-PLK-AA
			300	8083426	ELGS-BS-KF-32-300-8P-ST-M-H1-PLK-AA
			400	8083427	ELGS-BS-KF-32-400-8P-ST-M-H1-PLK-AA
			500	8083428	ELGS-BS-KF-32-500-8P-ST-M-H1-PLK-AA
			600	8083429	ELGS-BS-KF-32-600-8P-ST-M-H1-PLK-AA
			800	8083430	ELGS-BS-KF-32-800-8P-ST-M-H1-PLK-AA
	45	10	100	8083470	FLGS-BS-KF-45-100-10P-ST-M-H1-PLK-AA
	47	10	200	8083471	ELGS-BS-KF-45-200-10F-ST-M-H1-PLK-AA
			300	8083472	ELGS-BS-KF-45-300-10P-ST-M-H1-PLK-AA
			400	8083473	ELGS-BS-KF-45-400-10P-ST-M-H1-PLK-AA
			500	8083474	ELGS-BS-KF-45-500-10P-ST-M-H1-PLK-AA
			600	8083475	ELGS-BS-KF-45-600-10P-ST-M-H1-PLK-AA
			800	8083476	ELGS-BS-KF-45-800-10P-ST-M-H1-PLK-AA
	60	12	100	8083383	ELGS-BS-KF-60-100-12P-ST-M-H1-PLK-AA
			200	8083384	ELGS-BS-KF-60-200-12P-ST-M-H1-PLK-AA
			300	8083385	ELGS-BS-KF-60-300-12P-ST-M-H1-PLK-AA
			400	8083386	ELGS-BS-KF-60-400-12P-ST-M-H1-PLK-AA
			500	8083387	ELGS-BS-KF-60-500-12P-ST-M-H1-PLK-AA
			600	8083388	ELGS-BS-KF-60-600-12P-ST-M-H1-PLK-AA
			800	8083389	ELGS-BS-KF-60-800-12P-ST-M-H1-PLK-AA

# Ordering data – Modular product system

Ordering table							
Size		32	45	60	Conditions	Code	Enter code
Module no.		8083433	8083493	8083398			
Series		ELGS				ELGS	ELGS
Drive system		Ball screw	screw				-BS
Guide		Recirculating ball bearing guid	е			-KF	-KF
Size		32	45	60			
Stroke	[mm]	100, 200, 300, 400, 500, 600, 800	100, 200, 300, 400, 500, 600, 800	100, 200, 300, 400, 500, 600, 800			
Spindle pitch	[mm]	8P	10P	12P			
Motor type		Stepper motor ST	epper motor ST				-ST
Controller		Integrated	tegrated				-M
Operator panel		Integrated	ntegrated				-H1
Bus protocol/control		NPN and IO-Link				-NLK	
		PNP and IO-Link				-PLK	
End-position sensing		With integrated end-position s	ensing			-AA	-AA
Cable outlet direction		Standard			[1]		
		Underneath			[2]	-D	
		Rear			[2]	-B	
		Front			[3]	-F	
Motor attachment position		Axial (standard)					
		Parallel, rear			[4]	-PB	
		Parallel, front			[5]	-PF	
		Parallel, underneath			[6]	-PD	
Electrical accessories		None					
		Adapter for operation as IO de	vice			+L1	
Operating instructions		With operating instructions					
		Without operating instructions				DN	

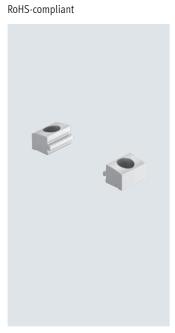
<sup>[1]</sup> Not with motor mounting position PB; PD

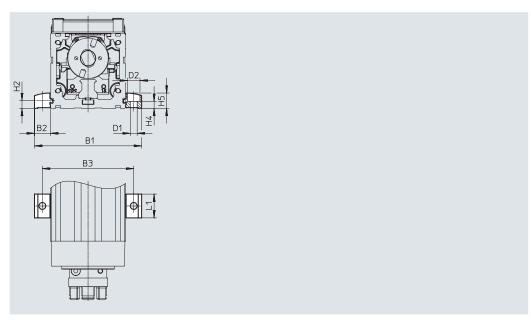
<sup>[2]</sup> Not with motor mounting position PF

Not with motor mounting position PB
 Not in combination with cable outlet direction standard or F
 Not in combination with cable outlet direction B; D
 Only in combination with cable outlet direction standard

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

Material: Anodised wrought aluminium alloy • For mounting the axis on the side of the profile





Dimensions and ordering data								
For size	B1	B2	В3	D1	D2	H2		
				Ø	Ø			
				H13	H13			
32	51.4	9.7	42	4.5	8	4.9		
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	H5	L1	Weight	Part no.	Туре
	±0.1			[g]		
32	4.2	9	19	4	5183153	EAHF-L2-25-P-S
	г.г.	12.2	10	(	5184133	EAHF-L2-45-P-S
45	5.5	12.2	19	0	3104133	LAIII-LZ-43-F-3

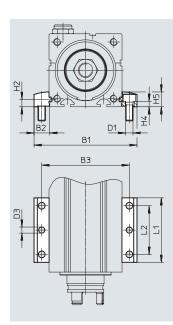
## Profile mounting EAHF-L2-...-P

Material:
Anodised wrought aluminium alloy

• 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	D2	D3	H2	
				Ø	Ø	ø		
				H13	H13			
32	51.4	9.7	42	4.5	8	4	4.9	
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	H5	L1	L2	Weight	Part no.	Туре
	±0.1				[g]		
32	4.2	9	53	40	19	4835684	EAHF-L2-25-P
45	5.5	12.2	53	40	35	4835728	EAHF-L2-45-P
60		12.2	C 2	40	35	4835728	EAHF-L2-45-P

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

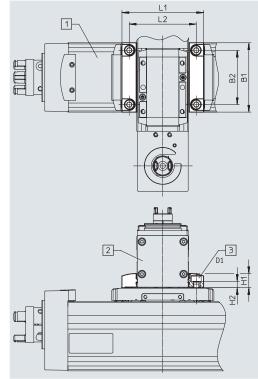
Material:

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		1				
		[2] Assembly axis	ELGC-BS/-TB; ELFC; EGSC-BS			
	Size	25	32	45	60	
[1] Base axis	32	4759753	-	-	-	
ELGC-BS/-TB; ELFC	45	-	4759748	-	-	
	60	_	_	4759739	_	





- [1] Base axis
- [2] Assembly axis

Dimensions and ordering	Dimensions and ordering data							
For combination	B1	B2	D1	H1				
(size)								
45/32	45	34	M4	9				
60/45	60	47	M5	12.2				

For combination (size)	H2 ±0.1	L1	L2	Weight [g]	Part no.	Туре
45/32	3.7	51.4	42	24	4759748	EAHF-L2-25-P-D2
60/45	5.5	70.6	58	56	4759739	EAHF-L2-45-P-D3

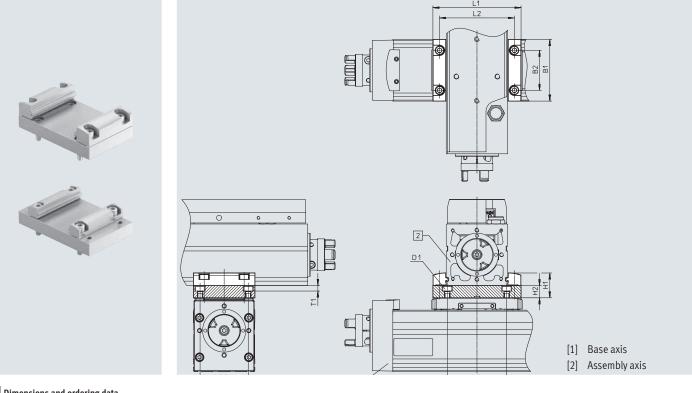
## Adapter kit EHAA-D-L2

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 ELGO	C-BS/-TB; ELFC; EGSC-BS			
	Size	25	32	45	60	80
[1] Base axis	32	8066713		-	-	-
ELGC-BS/-TB; ELFC	45	-	8066714		-	-
	60	-	-	8066715		_



Dimensions and ordering	Dimensions and ordering data											
For combination (size)	B1	B3 ±0.05	D1	H1	H2	L1	L2	L3	T1	Weight [g]	Part no.	Туре
45/32	45	34	M4	19	10	51.4	42	42	5.4	136	8066714	EHAA-D-L2-45-L2-45
60/45	60	47	M5	24.2	12	70.6	58	58	5.4	205	8066715	EHAA-D-L2-60-L2-60

For combination	B1	B2	В3	D1	H1	H2	L1	L2	L3	T1	Weight	Part no.	Туре
(size)			±0.05								[g]		
45/45	45	32	34	M4	22.2	10	71	58	42	5.4	136	8066714	EHAA-D-L2-45-L2-45
60/60	60	39	47	M5	24.2	12	86	73	58	5.4	205	8066715	EHAA-D-L2-60-L2-60

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

Material:

Anodised wrought aluminium alloy

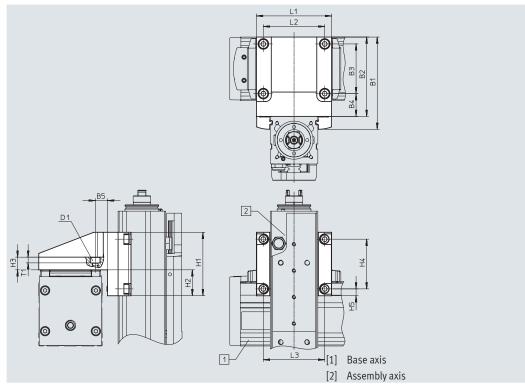
RoHS-compliant

• 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	25	32	45	60	
[1] Base axis	32	8066717	-	-	-	
ELGC-BS/-TB; ELFC	45	-	8066718	-	-	
	60	-	-	8066719	-	





Dimensions and order	ing data									
For combination (size)	B1	B2	В3	B4	B5	D1	H1	H2	Н3	H4
45/32	69	60	34	20.5	11.5	M4	45	17.5	10	34
60/45	87.2	75	47	21.5	11.5	M5	60	24.5	12	47

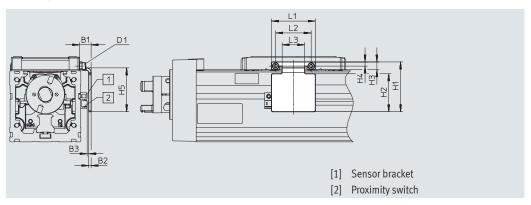
For combination (size)	H5	L1	L2	L3	T1	Weight [g]	Part no.	Туре
45/32	5.5	52	42	42	5.4	222	8066718	EHAA-D-L2-45-L2-32-AP
60/45	6.5	71	58	58	5.4	433	8066719	EHAA-D-L2-60-L2-45-AP

## Switch lug EAPM-L2-SLS

For sensing using inductive proximity switches SIES-8M

Material: Galvanised steel RoHS-compliant





Dimensions and ord	ering data							
For size	B1	B2	В3	D1	H1	H2	Н3	H4
					±0.2			
32	9.2	2	1.0±0.31	M1.6	27	19	4.3	2.5
45	9.4	2	1.2±0.31	M2	37	28	5.5	3.3
60	9.7	2	1.3±0.31	M3	37	32	6.6	3.5

For size	H5 ±0.2	L1 ±0.2	L2 ±0.15	L3	Weight [g]	Part no.	Туре
32	24	22	18	10	10	8067259	EAPM-L2-32-SLS
45	33	30	24	14	18	8067260	EAPM-L2-45-SLS
60	37	42	30	19	27	8067261	EAPM-L2-60-SLS

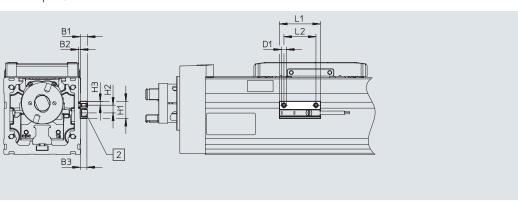
## Sensor bracket EAPM-L2-SH

Material:

Anodised wrought aluminium alloy

RoHS-compliant





Dimensions and ord	Dimensions and ordering data										
For size	B1	B2	D1	H1	H2						
32, 45, 60	5.5	1.3	M4	13.4	6						

For size	Н3	L1	L2	Weight [g]	Part no.	Туре
32, 45, 60	3	32	25	4	4759852	EAPM-L2-SH

Ordering dat	ta				
	For size	Description	Part no.	Туре	PU <sup>1)</sup>
Centring pin 2	ZBS/centring sleeve	ZBH			
	32	For slide	525273	ZBS-2	10
	45		562959	ZBS-4	
	60		8146543	ZBH-5-B	
Clamping ele	ement EADT				
$\overline{}$	32, 45	Tool for retensioning the cover strip	8065818	EADT-S-L5-32	1
	60		8058451	EADT-S-L5-70	
$\searrow$					
Push-in fitting	ng				
	32	for sealing air connection	133003	QSM-M5-3-I-R	10
			133004	QSM-M5-4-I-R	
	45, 60		186266	QSM-G1/8-4-I	
			186267	QSM-G1/8-6-I	

1) Packaging unit

Ordering dat	a – Proximity switches for T-slot, inductive					Datasheets → Internet: sie
	Type of mounting	Switching output	Electrical connection	Cable length [m]	Part no.	Туре
N/O			<u>'</u>	'	<u>'</u>	·
	Inserted in the slot from above, flush with	PNP	Cable, 3-wire	7.5	551386	SIES-8M-PS-24V-K-7.5-0E
	the cylinder profile		Plug M8x1, 3-pin	0.3	551387	SIES-8M-PS-24V-K-0.3-M8D
<i>6</i>		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	PNP	Cable, 3-wire	7.5	551391	SIES-8M-PO-24V-K-7.5-OE
<b>S</b>	the cylinder profile		Plug M8x1, 3-pin	0.3	551392	SIES-8M-PO-24V-K-0.3-M8D
<i>6</i> /		NPN	Cable, 3-wire	7.5	551401	SIES-8M-NO-24V-K-7.5-0E
			Plug M8x1, 3-pin	0.3	551402	SIES-8M-NO-24V-K-0.3-M8D
Ordering dat	a – Proximity switch for T-slot, magneto-resis	tive		i		Datasheets → Internet: sr
	Type of mounting	Switching	Electrical connection	Cable length	Part no.	Type
	, ype or mounting	output		[m]		1,750
N/O		'	<u>'</u>	<u>'</u>	<u>'</u>	'
	Inserted in the slot from above,	PNP	Cable, 3-wire	2.5	574335	SMT-8M-A-PS-24V-E-2.5-0E
	flush with the cylinder profile,		Plug M8x1, 3-pin	0.3	574334	SMT-8M-A-PS-24V-E-0.3-M8D
	short design					,
N/C						
26/	Inserted in the slot from above,	PNP	Cable, 3-wire	7.5	574340	SMT-8M-A-PO-24V-E-7.5-OE
3 9 6 P	flush with the cylinder profile,					

Ordering data - Connecting cables  Datasheets → Interne					
	Electrical connection, left	Electrical connection, right	Cable length	Part no.	Туре
			[m]		
	Straight socket, M8x1, 3-pin	Cable, open end, 3-wire	2.5	541333	NEBU-M8G3-K-2.5-LE3
<b>6</b>			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.

short design

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# Accessories

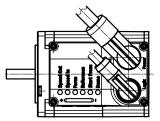
Ordering data − Supply cables  Datasheets → Internet: nebl					
	Electrical connection, left	Electrical connection, right	Cable length [m]	Part no.	Туре
	Angled socket, M12x1, 4-pin	Cable, open end, 4-wire	2	8080778	NEBL-T12W4-E-2-N-LE4
(B)	)		5	8080779	NEBL-T12W4-E-5-N-LE4
			10	8080780	NEBL-T12W4-E-10-N-LE4
			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	Part no.	Туре	
			[m]			
	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	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 10 15	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	
NEW 30		Straight plug, M12x1, 8-pin	2	8080782	NEBC-M12G8-E-2-N-M12G8	
			5	8080783	NEBC-M12G8-E-5-N-M12G8	
The state of the s			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 -	Ordering data − IO-Link master USB  Datasheets → Internet						
	Description	Cable length [m]	Part no.	Туре			
	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 dat	Ordering data – Adapter  Datasheets → Internet: nefc						
	Electrical connection, left	Electrical connection, right	Cable length	Part no.	Туре		
			[m]				
OLD COMPANY	Straight socket, M12x1, 8-pin	Straight plug, M12x1, 5-pin     Only recommended for use with IO-Link port class A master	0.3	8080777	NEFC-M12G8-0.3-M12G5-LK		

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