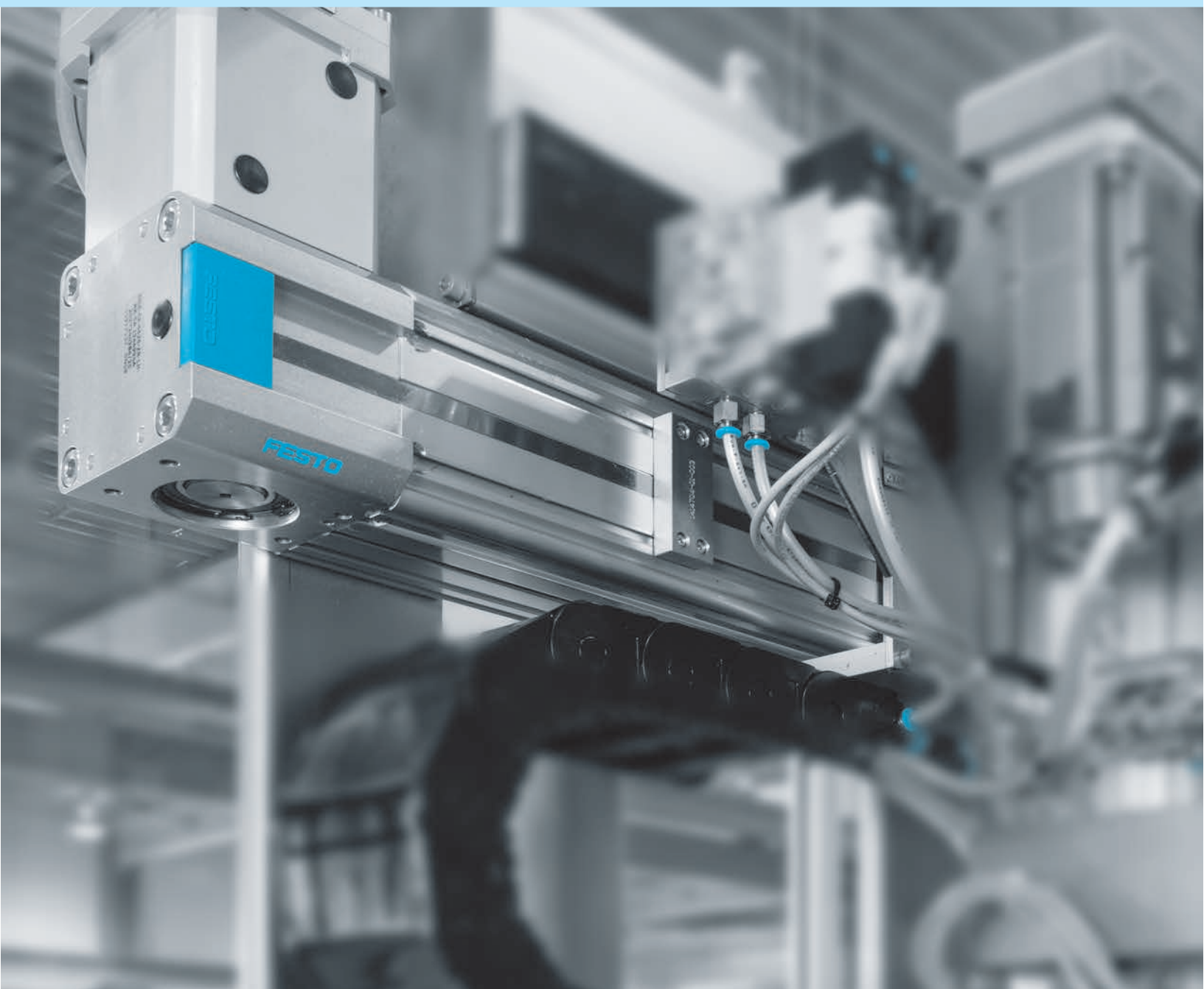


4 Electromechanical drives



- + Linear drives and slides
- + Semi-rotary drives
- + Electric handling modules
- + Direct drives
- + Accessories



EPCO

Electric cylinders

- + With permanently attached motor
- + With ball screw

→ page 505



ESBF

Electric cylinders

- + High feed forces with compact size
- + Optionally with high corrosion protection

→ page 517



EGC-BS-KF

Spindle axes

- + Spindle support enables maximum travel speed
- + Optionally with clamping unit

→ page 535

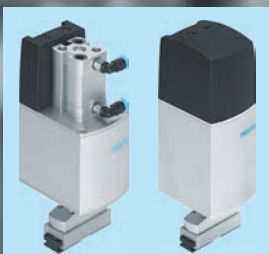


EFSD

Electric stopper cylinders

- + Power supply, communication and logic processing take place directly in the device

→ page 697



EHMD

Rotary gripper module

- + Infinite electric rotation, electric or pneumatic gripping

→ page 705

Contents

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Product overview

Software tool

PositioningDrives:
selection and sizing
of electromechanical
linear drives, motors,
and gear units



Which electromechanical linear drive, which motor and which gear unit best meets your needs? Enter the data for your application, such as position values, effective loads and mounting position, and the software suggests a number of solutions.

This tool can be found

- on the Internet at www.festo.com/catalogue by clicking on the blue "Engineering" button
- or on the DVD under "Engineering Tools"

Linear drives and slides

Type	 Electric cylinders EPCO	 Electric cylinders ESBF	 Spindle axes EGC-BS-KF	 Toothed belt axes EGC-TB-KF
Size	16, 25, 40	32, 40, 50, 63, 80, 100	70, 80, 120, 185	50, 70, 80, 120, 185
Max. feed force F _x	50 ... 650 N	1000 ... 17,000 N	300 ... 3000 N	50 ... 2500 N
Repetition accuracy	+/-0.02 mm	+/-0.01 mm, +/-0.015 mm, +/-0.05 mm	+/-0.02 mm	+/-0.08 mm, +/-0.1 mm
Stroke	1 ... 400 mm	30 ... 1500 mm	50 ... 3000 mm	50 ... 8500 mm
Description	• Linear drive with permanently attached motor • With ball screw • Optional: encoder, holding brake and female thread on the piston rod • Two different spindle pitches for high force or high speed • Suitable for simple applications in factory automation that in the past were mostly carried out using pneumatic solutions • Cost-optimised: 28 types and modular product system in stock • Optional: precision and backlash-free guide • Also available as an OMS product (Optimised Motion Series)	• Available with ball screw (size 32 ... 100) or lead screw (size 32 ... 50) • Optional: high corrosion protection, degree of protection IP65, suitable for use in the food industry (see www.festo.com/sp/esbf > "Certificates" tab), piston rod extension • Ball screw: three spindle pitches make it possible to select the optimal force-speed ratio • Axial or parallel motor mounting • 68 types in stock with short delivery times and modular product system for custom variants	• Recirculating ball bearing guide for high loads and torques • Optionally with clamping unit, at one or both ends • Profile with optimised rigidity • Various spindle pitches • The spindle support enables maximum travel speed • Axial or parallel motor mounting	• Recirculating ball bearing guide for high loads and torques • Optionally with clamping unit, at one or both ends • Profile with optimised rigidity • 22 types in stock with short delivery times and modular product system for custom variants
→ Page/online	505	517	535	551

Product overview

Linear drives and slides

				
Type	Toothed belt axes ELGA-TB-KF	Toothed belt axes ELGA-TB-RF	Spindle axes ELGC-BS-KF	Toothed belt axes ELGC-TB-KF
Size	70, 80, 120, 150	70, 80, 120	32, 45, 60, 80	45, 60, 80
Max. feed force F _x	260 ... 2000 N	260 ... 1000 N	110 ... 780 N	75 ... 250 N
Repetition accuracy	+/-0.08 mm, +/-0.1 mm	+/-0.08 mm	+/-0.0015 mm, +/-0.01 mm	+/-0.1 mm
Stroke	50 ... 8500 mm	50 ... 7400 mm	100 ... 1000 mm	200 ... 2000 mm
Description	- Recirculating ball bearing guide for high loads and torques - High feed forces - Precise and resilient guide - Speeds up to 5 m/s with high acceleration up to 50 m/s² - Optional: suitable for use in the food industry (see www.festo.com/sp/elga-tb-kf > "Certificates" tab for suitability for use in the food industry) - Flexible motor mounting - Guide and toothed belt protected by cover band 22 types in stock with short delivery times and modular product system for custom variants	- Integrated roller bearing guide - High speeds up to 10 m/s with high acceleration up to 50 m/s² - Guide backlash = 0 mm - Very good operating behaviour under torque load - Sturdy alternative to the recirculating ball bearing guide - Actuator for external guides, especially with high speeds - Motor can be mounted on any one of 4 sides	- Internal guide and ball screw - Space-saving position sensing - Flexible motor mounting - The toothed belt axes, spindle axes ELGC and mini slides EGSC form a scalable modular system for compact automation	- Precise and resilient guide - Internal guide and toothed belt - Flexible motor mounting - The toothed belt axes, spindle axes ELGC and mini slides EGSC form a scalable modular system for compact automation
→ Page/online	565	elga	579	591

04

Electromechanical drives

Linear drives and slides

				
Type	Mini slides EGSC-BS-KF	Spindle axes EGC-HD-BS	Toothed belt axes EGC-HD-TB	Mini slides EGSL
Size	25, 32, 45, 60	125, 160, 220	125, 160, 220	35, 45, 55, 75
Max. feed force F _x	50 ... 340 N	300 ... 1300 N	450 ... 1800 N	75 ... 450 N
Repetition accuracy	±0.02 mm	+/-0.02 mm	+/-0.08 mm, +/-0.1 mm	+/-0.015 mm
Stroke	25 ... 200 mm	50 ... 2400 mm	50 ... 5000 mm	50 ... 300 mm
Description	- Precision guide and ball screw - Compact dimensions - Flexible motor mounting - The toothed belt axes, spindle axes ELGC and mini slides EGSC form a scalable modular system for compact automation	- With heavy-duty guide - With integrated ball screw - For maximum loads and torques - Precision DUO guide rail with high load capacity - For maximum transverse load up to 900 Nm - Ideal as a basic axis for linear gantries and cantilever systems - The spindle support enables maximum travel speed	- With heavy-duty guide - For maximum loads and torques, high feed forces - Precision DUO guide rail with high load capacity - Motor can be mounted on any one of 4 sides - For maximum transverse load up to 900 Nm	- Very high rated slide loads, ideal for vertical applications such as press-fitting or joining - Reliable: the completely closed spindle stops dirt or stray small parts getting into the guide area - Axial or parallel motor mounting
→ Page/online	603	615	629	641

Product overview

Linear drives and slides

				
Type	Electric slides EGSK	Spindle axes ELGA-BS-KF	Toothed belt axes ELGA-TB-G	Toothed belt axes ELGG
Size	15, 20, 26, 33, 46	70, 80, 120, 185	70, 80, 120	35, 45, 55
Max. feed force Fx	19 ... 392 N	300 ... 3000 N	350 ... 1300 N	50 ... 350 N
Repetition accuracy	+/-0.003 mm, +/-0.004 mm, +/-0.003 mm, +/-0.01 mm, +/-0.01 mm	+/-0.02 mm	+/-0.08 mm	+/-0.1 mm
Stroke	25 ... 840 mm	50 ... 3000 mm	50 ... 8500 mm	50 ... 1200 mm
Description	- Electromechanical linear axis with ball screw - Recirculating ball bearing guide and ball screw without caged ball bearings - Standardised mounting interfaces - Compact design - High rigidity 22 types in stock with short delivery times and modular product system for custom variants	- Internal, precision recirculating ball bearing guide with high load capacity for high torque loads - Guide and ball screw protected by cover strip - For the highest requirements in terms of feed force and accuracy - Speeds up to 2 m/s with high acceleration up to 15 m/s² - Space-saving position sensing - Flexible motor mounting 34 preconfigured types and modular product system for custom variants	- Integrated plain-bearing guide - For small and medium loads - Guide and toothed belt protected by cover band - Low guide backlash - Actuator for external guides - Speeds up to 5 m/s with high acceleration up to 50 m/s² - Flexible motor mounting - Motor can be mounted on any one of 4 sides	- Toothed belt axis with two opposing slides - With low-cost plain bearing and precise ball bearing guide - Optional central support improves the rigidity - Motor can be mounted on any one of 4 sides
→ Page/online	egsk	655	elga	elgg

Linear drives and slides

				
Type	Toothed belt axes ELGR	Cantilever axes ELCC-TB-KF	Cantilever axes DGEA-ZR	Single-axis systems YXCS
Size	35, 45, 55	60, 70, 90, 110	18, 25, 40	
Max. feed force Fx	50 ... 350 N	300 ... 2500 N	230 ... 1000 N	
Repetition accuracy	+/-0.1 mm	+/-0.05 mm	+/-0.05 mm	
Stroke	50 ... 1500 mm	50 ... 2000 mm	1 ... 1000 mm	
Description	- Optimum price/performance ratio - Ready-to-install unit for quick and easy design - With plain or recirculating ball bearing guide - Motor can be mounted on any one of 4 sides - Also available as an OMS product (Optimised Motion Series)	- Stationary drive head - Toothed belt drive with recirculating ball bearing guide - High rigidity thanks to the innovative design principle - Very low moving mass - Vertical movement of high loads up to 100 kg possible	- Toothed belt drive with recirculating ball bearing guide - Dynamic cantilever operation - Stationary drive head	- Ready-to-install single-axis solution including energy chain for cables and tubing routing as well as matching motor and motor controller package - For any single-axis movement - Ideal for long gantry strokes and heavy loads - High mechanical rigidity and sturdy design
→ Page/online	elgr	elcc	dgea	yxcs

Linear drives and slides

			
Type	Toothed belt axes DGE-ZR, DGE-ZR-KF	Linear drives DGE-ZR-RF	Spindle axes DGE-SP
Size	8, 12, 18, 25, 40, 63	25, 40, 63	18, 25, 40, 63
Max. feed force F _x	15 ... 1500 N	260 ... 1500 N	140 ... 1600 N
Repetition accuracy	+/-0.08 mm, +/-0.1 mm	+/-0.1 mm	+/-0.02 mm
Stroke	1 ... 4500 mm	1 ... 5000 mm	100 ... 2000 mm
Description	- Electromechanical axis with toothed belt; DGE-ZR: without guide; DGE-ZR-KF: with recirculating ball bearing guide - Optional: protected version	- Electromechanical axis with toothed belt and internal roller bearing guide - High speeds possible	- Without guide or with recirculating ball bearing guide - Optional: protected version
→ Page/online	dge-zr	dge-zr	dge-sp

04

Semi-rotary drives

		
Type	Rotary drives, electric ERMO	Rotary modules, electric ERMB
Size	12, 16, 25, 32	20, 25, 32
Max. driving torque	0.15 ... 5 Nm	0.7 ... 8.5 Nm
Max. input speed	50 ... 100 rpm	900 ... 1350 rpm
Rotation angle	Infinite	Infinite
Description	- Electric rotary drive with stepper motor and integrated gear unit - ServoLite – closed-loop operation with encoder - Heavy-duty bearing for high forces and torques - Backlash-free pre-stressed rotating plate with very good axial eccentricity and concentricity properties - Quick and accurate installation - For simple rotary indexing table applications and as a rotary axis in multi-axis applications - Also available as an OMS product (Optimised Motion Series)	- Electromechanical rotary module with toothed belt - Compact design - Mounting interfaces on all sides - Stable output shaft bearings - Unlimited and flexible rotation angle
→ Page/online	671	687

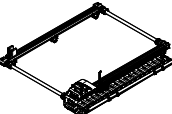
Electromechanical drives

Product overview

Stopper cylinders

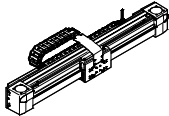
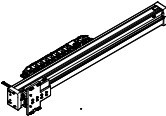
04	 NEW	
	Type	Stopper cylinders EFS
	Design	Electric stopper cylinders
	Size	20, 50, 100
	Position sensing	With Hall sensor
	Cushioning length	11.5 mm, 17.5 mm, 18.2 mm
	NEW	New series
	Description	- Quick and simple equipping of transfer systems without compressed air - For stopping transported material weighing from 0.25 kg to 100 kg - Status and error messages for visual fault diagnostics - Activation via digital I/O of a higher-order controller, such as terminal CPX, facilitates commissioning - Mounting interface for easy assembly on transfer systems - Adjustable cushioning force
	→ Page/online	697

Electric handling modules

Electromechanical drives	 NEW			
	Type	Rotary gripper modules EHMD	Rotary/lifting modules, electric EHMB	Handling modules EHM
	Size	40	20, 25, 32	
	Working stroke			200 ... 4500 mm
	Max. driving torque		0.7 ... 6.7 Nm	
	Max. input speed		900 ... 1350 rpm	
	Max. acceleration			50 m/s ²
	Max. speed			3 m/s, 5 m/s
	Rotation angle	Infinite	Infinite	
	Repetition accuracy			+/-0.08 mm, +/-0.1 mm
	NEW	New series		
	Description	- Ideal for small objects in laboratory automation - Infinite electric rotation, electric or pneumatic gripping	- Complete module with combined and configurable rotary/lifting movement - Dynamic, flexible, economical thanks to the modular drive concept for the linear movement - Hollow axis with large internal diameter makes laying power supply lines easy, convenient and safe	- To create 3D gantries of the series YXCR - For movements in the X direction in 3D gantries
	→ Page/online	705	717	ehm

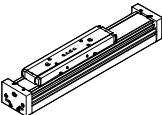
Product overview

Electric handling modules

		
Type	Handling modules EHMY	Handling modules EHMZ
Size		
Working stroke	50 ... 4500 mm	50 ... 1000 mm
Max. driving torque		
Max. input speed		
Max. acceleration	40 ... 50 m/s ²	15 ... 25 m/s ²
Max. speed	3 m/s, 5 m/s	0.3 m/s, 0.4 m/s, 0.5 m/s, 0.6 m/s, 0.65 m/s, 1 m/s, 1.3 m/s, 1.5 m/s, 3 m/s
Rotation angle		
Repetition accuracy	+/-0.08 mm, +/-0.1 mm	+/-0.015 mm, +/-0.02 mm, +/-0.05 mm
Description	- To create 3D gantries of the series YXCR - For movements in the Y direction in 3D gantries	- To create 2D and 3D gantries of the series YXCL and YXCR - For movements in the Z direction in 2D and 3D gantries
→ Page/online	ehmy	ehmz

04

Linear guides

				
Type	Guide axes ELFC	Guide units EAGF	Guide axes ELFA-KF	Guide axes ELFA-RF
Size	32, 45, 60, 80	16, 25, 32, 40, 50, 63, 80, 100	70, 80, 120	70, 80
Stroke	100 ... 2000 mm	1 ... 500 mm	50 ... 8500 mm	50 ... 7000 mm
Guidance	Recirculating ball bearing guide	Recirculating ball bearing guide	Recirculating ball bearing guide	Roller bearing
NEW	• New series			
Description	- Driveless linear guide unit with guide and freely movable slide - Increased torsional resistance - Reduced vibrations with dynamic loads	- For electric cylinder EPCO and ESBF - For absorbing high process forces and torques - High guide precision	- For spindle/toothed belt axes ELGA-BS/ELGA-TB (drive axes) - Driveless linear guide unit with guide and freely movable slide - For supporting force and torque capacity in multi-axis applications - Increased torsional resistance - Reduced vibrations with dynamic loads	- For toothed belt axes ELGA-TB (drive axes) - Driveless linear guide unit with guide and freely movable slide - For supporting force and torque capacity in multi-axis applications - Increased torsional resistance - Reduced vibrations with dynamic loads
→ Page/online	elfc	eagf	elfa	elfa

Electromechanical drives

Product overview

Linear guides

				
Type	Guide axes ELFR	Guide axes EGC-FA	Guide axes FDG-ZR-RF	Guide axes FDG-ZR-KF, FDG-SP-KF
Size	35, 45, 55	70, 80, 120, 185	25, 40, 63	18, 25, 40, 63
Stroke	50 ... 1500 mm	50 ... 8500 mm	1 ... 5000 mm	1 ... 4500 mm
Guidance	Plain-bearing guide, recirculating ball bearing guide	Recirculating ball bearing guide	Roller bearing	Recirculating ball bearing guide
Description	• Driveless guide unit with guide and freely movable slide • For supporting force and torque capacity in multi-axis applications • Increased torsional resistance	• Driveless guide unit with guide and freely movable slide • For supporting force and torque capacity in multi-axis applications • Increased torsional resistance	• Driveless linear guide unit with guide and freely movable slide • For supporting force and torque capacity in multi-axis applications • Increased torsional resistance • Reduced vibrations with dynamic loads • Integrated roller bearing guide • Can be combined with toothed belt axis DGE-ZR-RF	• Driveless linear guide unit with guide and freely movable slide • For supporting force and torque capacity in multi-axis applications • Increased torsional resistance • Reduced vibrations with dynamic loads • With recirculating ball bearing guide • Can be combined with toothed belt axis DGE-ZR-RF and spindle axis DGE-SP-KF
→ Page/online	elfr	egc	fdg	fdg

Accessories for electromechanical drives

		
Type	Bellows and ring gear couplings, mandrel couplings EAMC, EAMD	Connecting shafts KSK
Description	• System products for positioning applications • For force-locked and backlash-free transmission of small and medium torques between electric motors and axes	• For synchronising toothed belt axes DGE and EGC • For torsion-resistant transmission of the necessary torque • For slip-free transmission of the feed speed
→ Page/online	eamc	ksk

Customised components – for your specific requirements



Drives with customised designs

Can't find the electromechanical drive you need in our catalogue?

We can offer you customised components that are tailored to your specific requirements.

Common product modifications:

- Special strokes
- Design for special ambient conditions
- Design optimised for the fitting space
- Design with opposing carriages
- Design with absolute encoder

Many additional variants are possible. Ask your Festo sales engineer, who will be happy to help.

→ www.festo.com/contact



Excellent price/ performance ratio

- + Suitable for simple applications in factory automation that in the past were mostly carried out using pneumatic solutions
- + Fast delivery thanks to product types in stock
- + Complete system including controller and cables can be ordered with just one part number

Linear drives and slides ›

Electric cylinder with spindle drive

EPCO

Linear drives and slides >

Electric cylinder with spindle drive

EPCO



Overview, configuration and ordering

→ www.festo.com/catalogue/epco



Additional information, support and user documentation

→ www.festo.com/sp/epco



Spare parts service



- + Linear drive with permanently attached motor
- + With ball screw
- + Optional: encoder, holding brake and female thread on the piston rod
- + Two different spindle pitches for high force or high speed
- + Optional: precise and backlash-free guide

Electric cylinders EPCO, with spindle drive

Product range overview

Type/version	Size	Stroke [mm]	Feed force [N]	Spindle pitch [mm/rev]	Product options											
					A	E	B	D	L	R	KF	C5	DIO	LK	N	P
EPCO																
Ball screw	16, 25, 40	50 ... 400	50 ... 650	3 ... 12.7	■	■	■	■	■	■	■	■	■	■	■	■

Product options

- F Female piston rod thread
...E Piston rod extension
- A Position sensing
ST Stepper motor
E With encoder
B With brake
- D Cable outlet underneath
L Cable outlet to the left
R Cable outlet to the right
KF Guide unit
- C5 Motor controller CMMO
DIO Digital activation I/O interface
LK Activation IO-Link®
N Switching input/output NPN
P Switching input/output PNP

Also optionally available as an Optimised Motion Series (OMS)

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



Easy selection

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

Ordering and logistics

- All the required individual components – like controllers and cables – under a single part number
- Motors mounted on electric cylinders

Quick to configure

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



For simple positioning tasks
Electric cylinder EPCO



Motor controller CMMO
→ Page 827



Linear drives and slides >

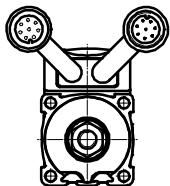
Electric cylinders EPCO, with spindle drive

Product options

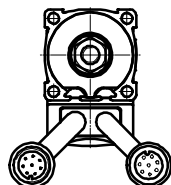
Motor mounting variants

EPCO-16

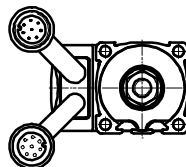
Standard



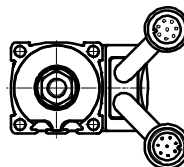
Underneath (feature D)



Left (feature L)

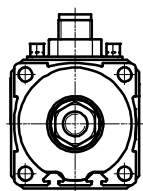


Right (feature R)

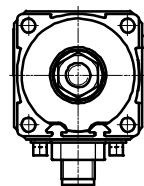


EPCO-25/-40

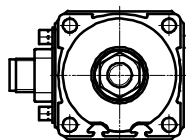
Standard



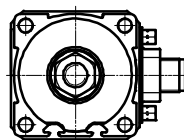
Underneath (feature D)



Left (feature L)



Right (feature R)



Electric cylinder EPCO with guide unit EAGF-P1



The guide unit provides protection from torsion in the case of high torque loads. It offers a high level of guide precision. The guide unit can be ordered via the order code.

Integrated mounting interfaces allow direct mounting for numerous multi-axis combinations, including connection to:

- Toothed belt axis ELGR
- ERMO rotary drive
- Mini slide DGSL

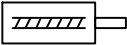
Note

Technical data for the guide unit EAGF-P1

→ www.festo.com/eagf-p1

Electric cylinders EPCO, with spindle drive

Data sheet

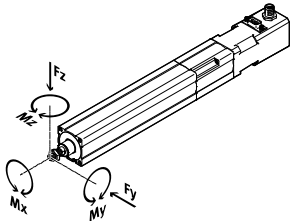


Technical data

Note

Engineering software
PositioningDrives
→ www.festo.com

Dimensions → Page 516



Technical data		16		25		40	
Size		16		25		40	
Spindle design		3P	8P	3P	10P	5P	12.7P
Working stroke	[mm]	50 ... 200		50 ... 300		50 ... 400	
Spindle pitch ¹⁾	[mm/rev]	3	8	3	10	5	12.7
Spindle diameter	[mm]	8	8	10	10	12	12.7
Max. payload ²⁾							
Horizontal ³⁾	[kg]	24	8	60	20	120	40
Vertical	[kg]	12	4	30	10	60	20
Max. feed force F_x	[N]	125	50	350	105	650	250
Max. speed	[mm/s]	125	300	150	500	180	460
Max. acceleration	[m/s ²]	10					
Reversing backlash ⁴⁾	[mm]	≤ 0.1					
Repetition accuracy	[mm]	±0.02					

- 1) Nominal value varies due to component tolerances.
- 2) Payload as a function of speed and acceleration.
- 3) Note max. lateral force.
- 4) In new condition.

Electrical data		16		25		40	
Size		16		25		40	
Motor							
Nominal voltage	[V DC]	24					
Nominal current	[A]	1.4		3		4.2	
Holding torque	[Nm]	0.09		0.5		1.13	
Brake							
Nominal voltage	[V DC]	24 ±10%					
Nominal power	[W]	8					
Holding torque	[Nm]	0.2		0.4		0.4	
Encoder							
Rotor position encoder		Incremental					
Rotor position encoder measur- ing principle		Optical					
Pulses/rotation	[1/rev]	500					
Interface		RS422, TTL, AB channel, zero index					
Operating voltage of encoder	[V DC]	5					

Operating conditions			
Ambient temperature ⁵⁾	[°C]	0 ... +50	
Degree of protection		IP40	

5) Note operating range of proximity sensors and motors.

Electric cylinders EPCO, with spindle drive

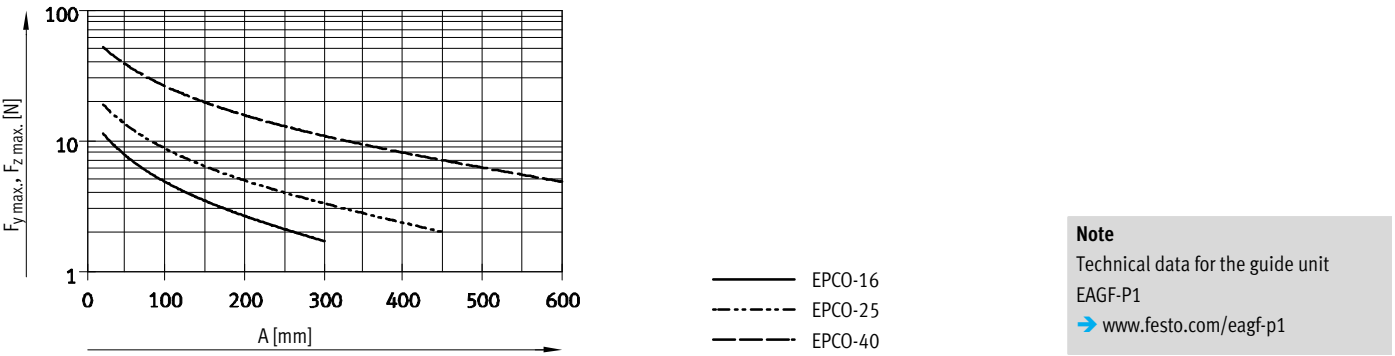
Data sheet

Mass moment of inertia							
Size		16		25		40	
Spindle design		3P	8P	3P	10P	5P	12.7P
J ₀ at 0 mm stroke							
EPCO-....-ST	[kg mm ²]	2.28	2.29	9.33	9.40	33.25	33.75
EPCO-....-ST-B	[kg mm ²]	2.97	2.98	10.63	10.70	34.55	35.05
j _H per metre stroke	[kg mm ² /m]	2.53	2.65	4.87	5.78	11.66	16.70
j _L per kg payload	[kg mm ² /kg]	0.23	1.62	0.23	2.54	0.64	4.09

The mass moment of inertia J_A of the electric cylinder is calculated as follows:

$$J_A = J_0 + j_H \times \text{working stroke [m]} + j_L \times m_{\text{moving payload [kg]}}$$

Maximum permissible lateral forces F_{y max} and F_{z max} on the piston rod as a function of projection A



Size		16		25		40	
Spindle design		3P	8P	3P	10P	5P	12.7P
F _{x max} (static)	[N]	125	50	350	105	650	250
M _{x max}	[Nm]	0		0		0	
M _{y max} , M _{z max}	[Nm]	0.6		1.0		3.3	

Materials	
Bearing cap	Smooth anodised wrought aluminium alloy
Cylinder barrel	Smooth anodised wrought aluminium alloy
Piston rod	High-alloy stainless steel
Spindle	Rolled steel
Spindle nut	Steel
Drive cover	Wrought aluminium alloy

Ordering – Product options

Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
→ www.festo.com/catalogue/...

Enter the type code in the search field.

Electric cylinders EPCO, with spindle drive

Order code

		EPCO	-		-		-		-	ST	-		-		-		-		+	+				
Type																								
EPCO	Electric cylinders																							
Size																								
	Stroke [mm]																							
	Spindle pitch [mm/rev]																							
16	50, 75, 100, 125, 150, 175, 200																						3P, 8P	
25	50, 75, 100, 125, 150, 175, 200, 250, 300																						3P, 10P	
40	50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400																						5P, 12.7P	
Position sensing																								
-	None																							
A	For proximity sensor																						1	
Motor type																								
ST	Stepper motor																							
Measuring unit																								
-	None																							
E	With encoder																							
Brake																								
-	None																							
B	With brake																							
Cable outlet direction																								
-	Top (standard)																							
D	Underneath																							
L	Left																							
R	Right																							
Guide unit																								
-	None																							
KF	Recirculating ball bearing guide with two guide rods																							
Connecting cable																								
-	None																							
1.5E	1.5 m, straight plug																						2	
1.5EA	1.5 m, angled plug																						2	
2.5E	2.5 m, straight plug																						2	
2.5EA	2.5 m, angled plug																						2	
5E	5 m, straight plug																						2	
5EA	5 m, angled plug																						2	
Motor controller																								
-	None																							
C5	CMMO, 5A																						2	
Bus protocol/activation																								
-	None																							
DIO	Digital I/O interface																						3	
LK	IO-Link®																						3	
Switching input/output																								
N	NPN																						3 4	
P	PNP																						3	

1 Must be selected if encoder E is not selected

2 Only with encoder E

3 Only in combination with motor controller C5

4 Not with IO-Link® LK

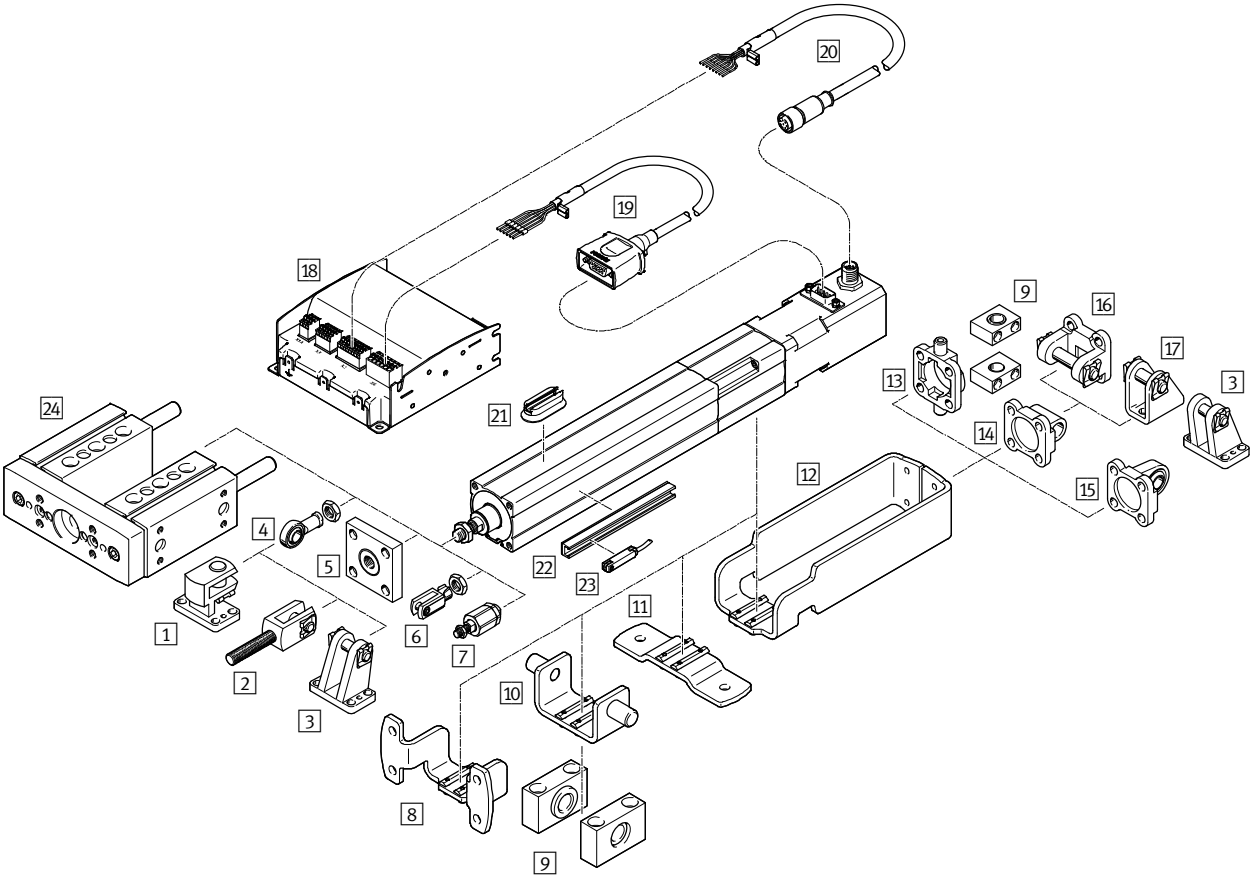
Order example: EPCO-25-50-10P-A-ST-EB-L+5EA+C5DION

Electric cylinder - size 25 - stroke 50 mm - spindle pitch 10 mm/rev. - with position sensing for proximity sensor - stepper motor - with encoder - with brake - with outlet cable left - without guide unit - connecting cable 5 m, angled plug - with motor controller CMMO - with digital I/O interface activation - with switching in-/output NPN

Linear drives and slides >

Electric cylinders EPCO, with spindle drive

Accessories



	For size			→ Page/online
	16	25	40	
1	Right-angle clevis foot LQG	–	–	■ 513
2	Rod clevis SGA	–	–	■ 513
3	Clevis foot LBG	–	–	■ 513
4	Rod eye SGS	■	■	■ 513
5	Coupling piece KSG	–	–	■ 513
6	Rod clevis SG/CRSG	■	■	■ 513
7	Self-aligning rod coupler FK	■	■	■ 513
8	Flange mounting EAHH	■	■	■ 513
9	Trunnion support LNZG	■	■	■ 513
10	Swivel mounting EAHS	■	■	■ 513
11	Foot mounting EAHF	■	■	■ 513
12	Adapter kit EAHA	■	■	■ 513
13	Trunnion flange ZNCF	–	–	■ 513

Note

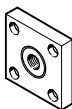
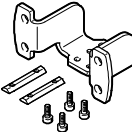
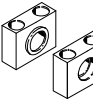
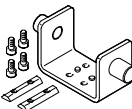
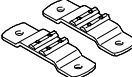
For applications involving high loads, the cylinder must not be mounted exclusively via the mounting thread on the front.

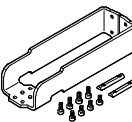
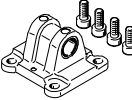
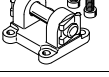
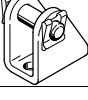
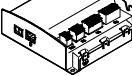
The mass of the motor can be amplified by the lever effect, which can result in the mounting thread being torn out.

	For size			→ Page/online
	16	25	40	
14	Swivel flange SNCL	■	■	■ 513
15	Swivel flange SNCS	–	–	■ 513
16	Swivel flange SNCB	–	–	■ 513
17	Clevis foot LBN	■	■	■ 513
18	Motor controller CMMO	■	■	■ 827
19	Motor cable NEBM	■	■	■ 515
20	Encoder cable NEBM	■	■	■ 515
21	Mounting kit CRSMB	■	■	■ 513
22	Sensor rail SAMH	■	■	■ 513
23	Proximity sensor SME/SMT-8	■	■	■ 514
24	Guide unit EAGF-P1	■	■	■ 514

Electric cylinders EPCO, with spindle drive

Accessories – Ordering data

	For size	Part no.	Type
1 Right-angle clevis foot			Data sheets online: → lqg
	40	31769	LQG-40
2 Rod clevis			Data sheets online: → sga
	40	32954	SGA-M10X1,25
3 Clevis foot			Data sheets online: → lbg
	40	31762	LBG-40
4 Rod eye			Data sheets online: → sgs
	16	★ 9254	SGS-M6
	25	★ 9255	SGS-M8
	40	★ 9261	SGS-M10X,25
5 Coupling piece			Data sheets online: → ksg
	40	32963	KSG-M10X1,25
6 Rod clevis			Data sheets online: → sg
	16	★ 3110	SG-M6
	25	★ 3111	SG-M8
	40	★ 6144	SG-M10X1,25
7 Self-aligning rod coupler			Data sheets online: → fk
	16	★ 2061	FK-M6
	25	★ 2062	FK-M8
	40	★ 6140	FK-M10X1,25
8 Flange mounting			Dimensions online: → epco
	16	1434906	EAHH-P1-16
	25	1434907	EAHH-P1-25
	40	1434908	EAHH-P1-40
9 Trunnion support			Data sheets online: → lnzg
	16	1434912	LNZG-16
	25	32959	LNZG-32
	40	32960	LNZG-40/50
10 Swivel mounting			Dimensions online: → epco
	16	1434909	EAHS-P1-16
	25	1434910	EAHS-P1-25
	40	1434911	EAHS-P1-40
11 Foot mounting			Dimensions online: → epco
	16	1434903	EAHF-P1-16
	25	1434904	EAHF-P1-25
	40	1434905	EAHF-P1-40

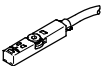
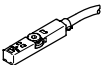
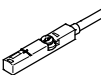
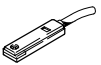
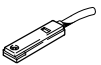
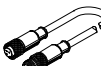
	For size	Part no.	Type
12 Adapter kit			Dimensions online: → epco
	16	1434900	EAHA-P1-16
	25	1434901	EAHA-P1-25
	40	1434902	EAHA-P1-40
13 Trunnion flange			Dimensions online: → epco
	40	174412	ZNCF-40
14 Swivel flange			Dimensions online: → epco
	16	537791	SNCL-16
	25	537793	SNCL-25
	40	★ 174405	SNCL-40
15 Swivel flange			Dimensions online: → epco
	40	★ 174398	SNCS-40
16 Swivel flange			Dimensions online: → epco
	40	★ 174391	SNCB-40
17 Clevis foot			Data sheets online: → lbn
	16	6058	LBN-12/16
	25	6059	LBN-20/25
	40	195861	LBN-40
18 Motor controller			Data sheets → Page 827
	With I/O interface		
	PNP	1512316	CMMO-ST-C5-1-DIOP
	NPN	1512317	CMMO-ST-C5-1-DION
	With IO-Link®		
	PNP	1512320	CMMO-ST-C5-1-LKP
21 Mounting kit for proximity sensor			Data sheets online: → crsmb
	16, 25, 40	525565	CRSMB-8-32/100 ¹⁾
22 Sensor rail⁴⁾ for proximity sensor			Data sheets online: → samh
	16, 25, 40	1600093	SAMH-N8-SR-50 ²⁾
		1600118	SAMH-N8-SR-100 ³⁾

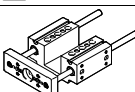
- 1) Length: 35 mm.
2) Length: 50 mm.
3) Length: 100 mm.
4) Size 25 can only be used with proximity sensor SMT-8 (magneto-resistive).

Linear drives and slides >

Electric cylinders EPCO, with spindle drive

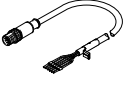
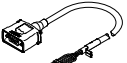
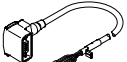
Accessories – Ordering data

	For size	Switching output, connection	Cable length [m]	Part no.	Type
23 Proximity sensor for T-slot, magneto-resistive – N/O contact Data sheets → Page 1206					
	16, 25, 40	PNP, cable	2.5	★ 574335	SMT-8M-A-PS-24V-E-2,5-OE
		PNP, plug	0.3	★ 574334	SMT-8M-A-PS-24V-E-0,3-M8D
		PNP, plug	0.3	★ 574337	SMT-8M-A-PS-24V-E-0,3-M12
		NPN, cable	2.5	★ 574338	SMT-8M-A-NS-24V-E-2,5-OE
		NPN, plug	0.3	★ 574339	SMT-8M-A-NS-24V-E-0,3-M8D
Magneto-resistive – N/C contact Data sheets → Page 1206					
	16, 25, 40	PNP, cable	7.5	★ 574340	SMT-8M-A-PO-24V-E-7,5-OE
23 Proximity sensor for T-slot, magnetic reed – N/O contact Data sheets → Page 1201					
	16, 25, 40	Contacting, cable	2.5	★ 543862	SME-8M-DS-24V-K-2,5-OE
		Contacting, cable	5.0	★ 543863	SME-8M-DS-24V-K-5,0-OE
		Contacting, cable	2.5	★ 543872	SME-8M-ZS-24V-K-2,5-OE
		Contacting, plug	0.3	★ 543861	SME-8M-DS-24V-K-0,3-M8D
23 Proximity sensor for T-slot, magnetic reed – N/C contact Data sheets → Page 1203					
	16, 25, 40	Contacting, cable	2.5	150855	SME-8-K-LED-24
		Contacting, plug	0.3	150857	SME-8-S-LED-24
Magnetic reed – N/C contact Data sheets → Page 1203					
	16, 25, 40	Contacting, cable	7.5	160251	SME-8-O-K-LED-24
Connecting cable					
	16, 25, 40	M8x1, 3-pin	0.5	★ 541346	NEBU-M8G3-K-0.5-M8G3
			1.0	★ 541347	NEBU-M8G3-K-1-M8G3
			2.5	★ 541348	NEBU-M8G3-K-2.5-M8G3
			5.0	★ 541349	NEBU-M8G3-K-5-M8G3

	For size	Stroke [mm]	Part no.	Type
24 Guide unit Data sheets online: → eagf				
	16	50	3192932	EAGF-P1-KF-16-50
		100	3192934	EAGF-P1-KF-16-100
		150	3192936	EAGF-P1-KF-16-150
		200	3192938	EAGF-P1-KF-16-200
		75, 125, 175	3192939	EAGF-P1-KF-16-
	25	50	3192943	EAGF-P1-KF-25-50
		100	3192945	EAGF-P1-KF-25-100
		150	3192947	EAGF-P1-KF-25-150
		200	3192949	EAGF-P1-KF-25-200
		300	3192951	EAGF-P1-KF-25-300
		75, 125, 175, 250	3192952	EAGF-P1-KF-25-
	40	50	3192955	EAGF-P1-KF-40-50
		100	3192957	EAGF-P1-KF-40-100
		150	3192959	EAGF-P1-KF-40-150
		200	3192961	EAGF-P1-KF-40-200
		300	3192963	EAGF-P1-KF-40-300
		75, 125, 175, 250, 350, 400	3192966	EAGF-P1-KF-40-

Electric cylinders EPCO, with spindle drive

Accessories – Ordering data

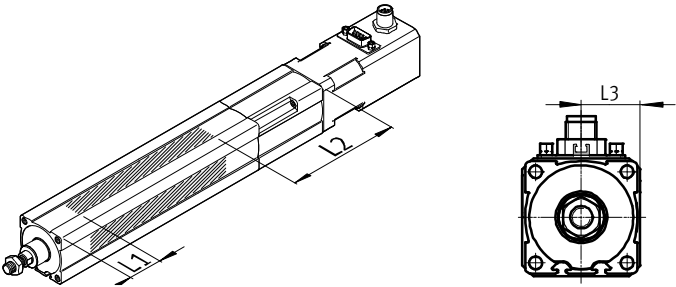
	Cable length [m]	Part no.	Type
19 Motor cable ¹⁾			
For EPCO-16			
Straight plug			
	1.5	1449600	NEBM-SM12G8-E-1.5-Q5-LE6
	2.5	1449601	NEBM-SM12G8-E-2.5-Q5-LE6
	5.0	1449602	NEBM-SM12G8-E-5-Q5-LE6
	7.0	1449603	NEBM-SM12G8-E-7-Q5-LE6
	10.0	1449604	NEBM-SM12G8-E-10-Q5-LE6
For EPCO-25/-40			
Straight plug			
	1.5	1450368	NEBM-S1G9-E-1.5-Q5-LE6
	2.5	1450369	NEBM-S1G9-E-2.5-Q5-LE6
	5.0	1450370	NEBM-S1G9-E-5-Q5-LE6
	7.0	1450371	NEBM-S1G9-E-7-Q5-LE6
	10.0	1450372	NEBM-S1G9-E-10-Q5-LE6
Angled plug			
	1.5	1450736	NEBM-S1W9-E-1.5-Q5-LE6
	2.5	1450737	NEBM-S1W9-E-2.5-Q5-LE6
	5.0	1450738	NEBM-S1W9-E-5-Q5-LE6
	7.0	1450739	NEBM-S1W9-E-7-Q5-LE6
	10.0	1450740	NEBM-S1W9-E-10-Q5-LE6

Sensor mounting

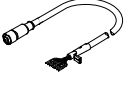
The sensor mountings can only be attached within the highlighted area due to the asymmetry of the internal magnets.

The proximity sensors may not switch reliably if they are mounted outside of this area.

The overall length of the sensor rail SAMH corresponds to the length of the sensing range plus approx. 10 mm adjustment range on either side for the proximity sensors.



Size	L1	L2	L3
16	29	95	15
25	33	121	20
40	40	150	27.5

	Cable length [m]	Part no.	Type
20 Encoder cable ¹⁾			
For EPCO-16/-25/-40			
Straight plug			
	1.5	1451586	NEBM-M12G8-E-1.5-LE8
	2.5	1451587	NEBM-M12G8-E-2.5-LE8
	5.0	1451588	NEBM-M12G8-E-5-LE8
	7.0	1451589	NEBM-M12G8-E-7-LE8
	10.0	1451590	NEBM-M12G8-E-10-LE8
For EPCO-25/-40			
Angled plug			
	1.5	1451674	NEBM-M12W8-E-1.5-LE8
	2.5	1451675	NEBM-M12W8-E-2.5-LE8
	5.0	1451676	NEBM-M12W8-E-5-LE8
	7.0	1451677	NEBM-M12W8-E-7-LE8
	10.0	1451678	NEBM-M12W8-E-10-LE8

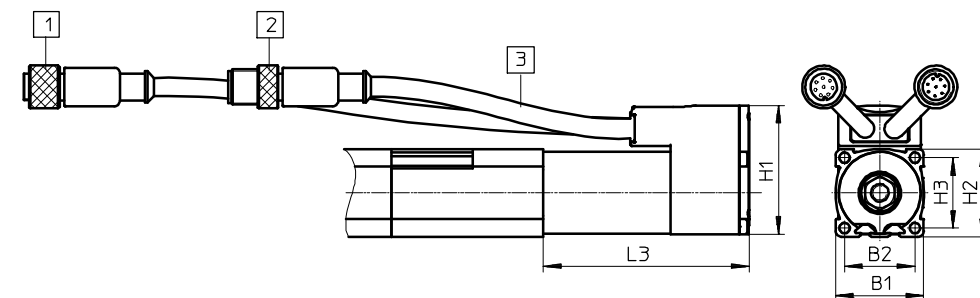
1) Other cable lengths on request.

Electric cylinders EPCO, with spindle drive

Dimensions

Download CAD data → www.festo.com

EPCO-16



- 1

Motor connection:
Round plug M12, 8-pin, socket
Cable length: 350 mm

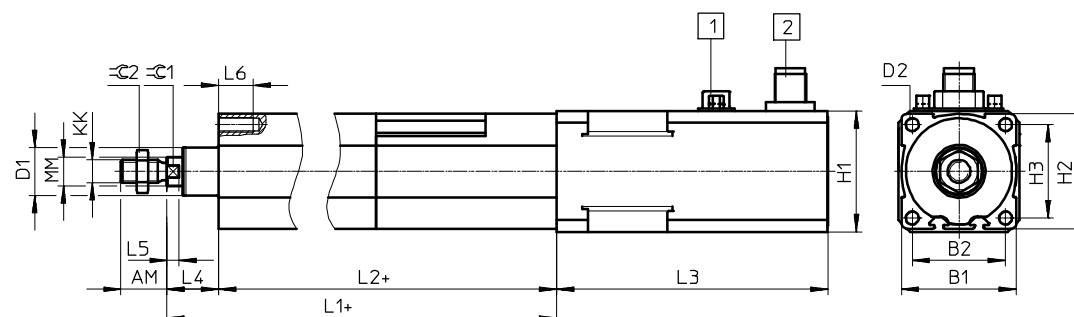
2

Encoder connection:
Round plug M12, 8-pin, pins
Cable length: 250 mm

3

Min. bending radius of the
cables: 60 mm

EPCO-25/-40



- 1

Motor connection:
SUB-D-plug, 9-pin, pins

2

Encoder connection:
Round plug M12, 8-pin, pins

+

= plus stroke length

Size	AM	B1	B2	D1 Ø ±0.05	D2 Ø	H1	H2	H3	KK	L1	L2 ±1
16	12	30	24	13.27	M4	44	30	24	M6	143	127
25	16	40	32.5	17.27	M5	42 ^{+0.3}	40	32.5	M8	174.6	156.6
40	19	55	42	26.52	M6	56.4	55	42	M10x1.25	214.2	192.7

Size	L3				L4	L5 -0.15	L6	MM -0.1	≲1	≲2
	EPCO-...	-E	-B	-EB						
16	70±1	70±1	96±1.5	96±1.5	16	3.7	10	8	7	10
25	66±1	94.4±1.2	114.4±1.3	127.4±1.3	18	4.2	12	10	9	13
40	73.5±0.8	102.5±1.1	123.5±1.1	138±1.1	21.5	4.7	14	12	10	17



Force meets precision

- + Wide range of sizes and spindle pitches ensures the right electric cylinder for every application
- + Fast delivery thanks to product types in stock
- + High feed forces with compact size
- + Extremely efficient: high performance permits downsizing in many applications

Linear drives and slides ›

Electric cylinder with spindle drive

ESBF

Linear drives and slides >

Electric cylinder with spindle drive

ESBF



Overview, configuration and ordering

→ www.festo.com/catalogue/esbf

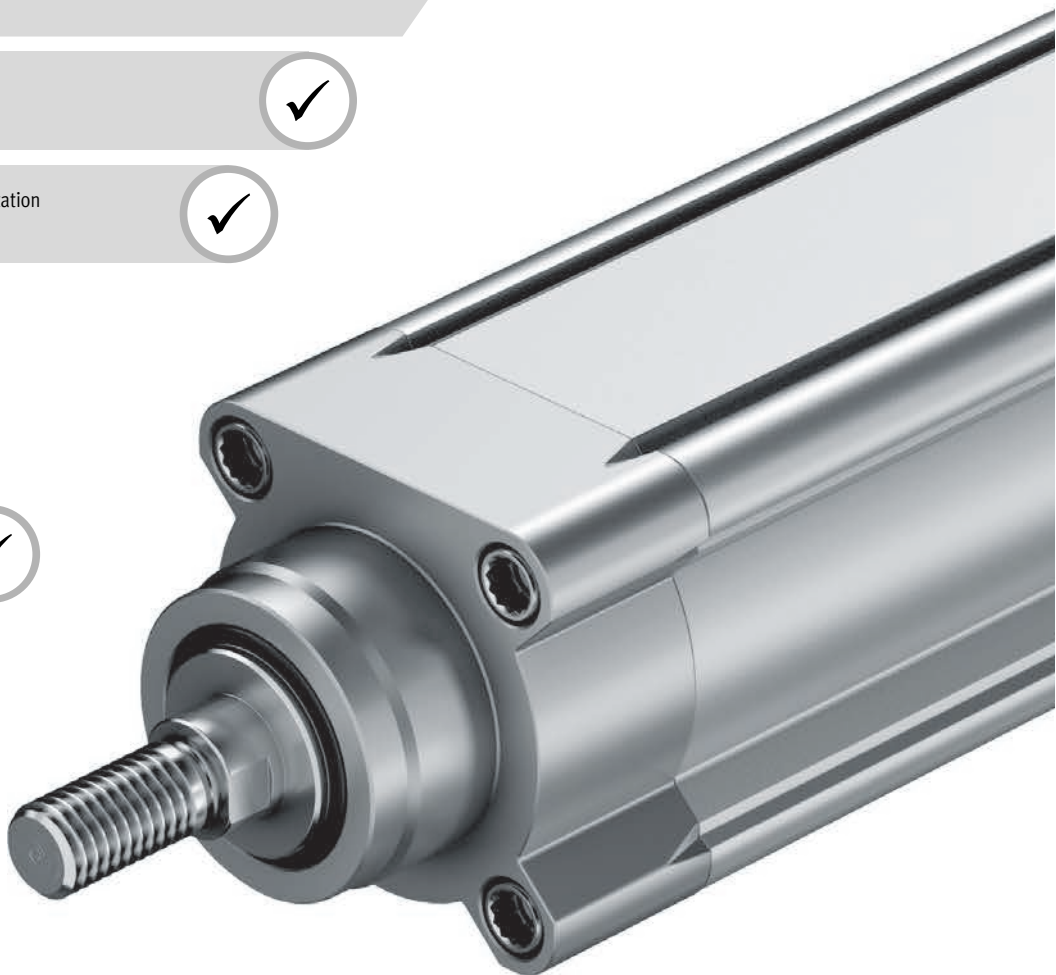


Additional information, support and user documentation

→ www.festo.com/sp/esbf



Spare parts service



- + Based on ISO 15552
- + Available with ball screw (size 32 ... 100) and three spindle pitches each, which make it possible to select the optimal force-speed ratio
- + Lead screw (size 32 ... 50) available
- + Optional: high corrosion protection, protection class IP65, suitable for use in the food industry in certain conditions, piston rod extension
- + High rigidity and precision (ball screw)
- + Axial or parallel motor mounting

Electric cylinders ESBF, with spindle drive

Product range overview

Type/version	Size	Stroke [mm]	Feed force [kN]	Spindle pitch [mm/rev]										
				2.5	3	4	5	10	15	16	20	25	32	40
ESBF														
BS – Ball screw	32	30 ... 800	1	–	–	–	■	■	–	–	–	–	–	–
	40	30 ... 800	3	–	–	–	■	■	–	■	–	–	–	–
	50	30 ... 1000	5	–	–	–	■	■	–	–	■	–	–	–
	63	30 ... 1200	7	–	–	–	■	■	–	–	–	■	–	–
	80	30 ... 1500	12	–	–	–	■	–	■	–	–	–	■	–
	100	30 ... 1500	17	–	–	–	■	–	–	–	■	–	–	■
LS - Lead screw	32	30 ... 800	1	■	–	–	–	–	–	–	–	–	–	–
	40	30 ... 800	3	–	■	–	–	–	–	–	–	–	–	–
	50	30 ... 1000	5	–	–	■	–	–	–	–	–	–	–	–

Product options

F Female piston rod thread

S1 Degree of protection IP65

R3 High corrosion protection

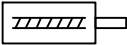
F1 Food-safe in
accordance with supplementary
material information

...E Piston rod extension

Linear drives and slides >

Electric cylinders ESBF, with spindle drive

Data sheet



Technical data – Ball screw										Dimensions → Page 532	
Size	32			40			50				
Spindle pitch	[mm/rev]	5	10	5	10	16	5	10	20		
Working stroke	[mm]	30 ... 800			30 ... 800			30 ... 1000			
Spindle diameter	[mm]	12			16			20			
Max. cylinder force ¹⁾	[kN]	1	1	3	3	2.6	5	5	4.5		
Max. driving torque	[Nm]	1.1	2	3	5.6	7.7	4.8	9.2	16.3		
Max. radial force ²⁾	[N]	115			130			300			
Max. speed	[m/s]	0.55	1.1	0.4	0.8	1.2	0.3	0.6	1.2		
Max. rotational speed	[rpm]	6600	6600	4800	4800	4500	3600	3600	3600		
Max. acceleration	[m/s ²]	5	15	5	15	25	5	15	25		
Max. angle of rotation at the piston rod	[°]	±0.25			±0.2			±0.15			
Reversing backlash ³⁾	[mm]	<0.03	<0.04	<0.03	<0.03	<0.04	<0.03	<0.03	<0.04		
Repetition accuracy	[mm]	±0.01									
No-load driving torque ⁴⁾	[Nm]	0.1			0.2			0.3			

Size	63			80			100				
Spindle pitch	[mm/rev]	5	10	25	5	15	32	5	20	40	
Working stroke	[mm]	30 ... 1200			30 ... 1500			30 ... 1500			
Spindle diameter	[mm]	25			32			40			
Max. cylinder force ¹⁾	[kN]	7	7	6	12	12	10	17	17	14.5	
Max. driving torque	[Nm]	7	13.1	26.5	11.9	33.7	56.6	16.9	63.7	102.6	
Max. radial force ²⁾	[N]	700			1100			1100			
Max. speed	[m/s]	0.27	0.53	1.35	0.21	0.62	1.34	0.16	0.67	1.34	
Max. rotational speed	[rpm]	3250	3220	3260	2530	2515	2515	2010	2010	2010	
Max. acceleration	[m/s ²]	5	15	25	5	15	25	5	15	25	
Max. angle of rotation at the piston rod	[°]	±0.4			±0.5			±0.5			
Reversing backlash ³⁾	[mm]	<0.03	<0.03	<0.04	<0.03	<0.03	<0.04	<0.03	<0.03	<0.04	
Repetition accuracy	[mm]	±0.015			±0.01						
No-load driving torque ⁴⁾	[Nm]	0.4	0.45	0.5	0.5	0.6	0.65	0.7	0.9	1.0	

1) The pressure force is dependent on the stroke and has an effect on the service life.

2) At the drive shaft.

3) In new condition.

4) At a spindle speed of 200 rpm.

Note

Engineering software

PositioningDrives

→ www.festo.com

Electric cylinders ESBF, with spindle drive

Data sheet

Technical data – Lead screw				Dimensions → Page 532	
Size		32	40	50	
Spindle pitch	[mm/rev]	2.5	3	4	
Working stroke	[mm]	30 ... 800	30 ... 800	30 ... 1000	
Spindle diameter	[mm]	12	16	20	
Max. cylinder force ¹⁾	[kN]	0.6	1	1.6	
Max. driving torque	[Nm]	1.1	2.4	4.8	
Max. radial force ²⁾	[N]	115	130	300	
Max. speed	[m/s]	0.05	0.05	0.05	
Max. rotational speed	[rpm]	1200	1000	750	
Max. acceleration	[m/s ²]	2.5	2.5	2.5	
Max. angle of rotation at the piston rod	[°]	±0.25	±0.2	±0.15	
Reversing backlash ³⁾	[mm]	<ΣΠ>0.1	<ΣΠ>0.1	<ΣΠ>0.1	
Repetition accuracy	[mm]	±0.05			
No-load driving torque ⁴⁾	[Nm]	0.1	0.2	0.3	

1) Electric cylinder with lead screw can be operated with maximum force over the entire stroke range.

2) At the drive shaft.

3) In new condition.

4) At a spindle speed of 200 rpm.

Mass moment of inertia – Ball screw									
Size		32		40			50		
Spindle pitch	[mm/rev]	5	10	5	10	16	5	10	20
J ₀ at 0 mm stroke	[kg cm ²]	0.023	0.036	0.050	0.078	0.125	0.145	0.187	0.329
j _S per metre stroke	[kg cm ² /m]	0.122	0.139	0.460	0.480	0.523	1.019	1.043	1.139
j _L per kg payload	[kg cm ² /kg]	0.006	0.025	0.006	0.025	0.065	0.006	0.025	0.101

Size		63			80			100		
Spindle pitch	[mm/rev]	5	10	25	5	15	32	5	20	40
J ₀ at 0 mm stroke	[kg cm ²]	0.491	0.486	0.650	1.529	1.648	2.119	4.696	5.050	6.170
j _S per metre stroke	[kg cm ² /m]	2.832	2.859	3.053	7.699	7.815	8.277	18.978	19.310	20.372
j _L per kg payload	[kg cm ² /kg]	0.006	0.025	0.158	0.006	0.057	0.259	0.006	0.101	0.405

Mass moment of inertia – Lead screw				
Size		32	40	50
Spindle pitch	[mm/rev]	2.5	3	4
J ₀ at 0 mm stroke	[kg cm ²]	0.016	0.045	0.141
j _S per metre stroke	[kg cm ² /m]	0.161	0.508	1.238
j _L per kg payload	[kg cm ² /kg]	0.002	0.002	0.004

The mass moment of inertia J_A of the electric cylinder is calculated as follows:

$$J_A = J_0 + j_S \times \text{working stroke [m]} + j_L \times m_{\text{moving payload [kg]}}$$

Operating conditions	
Ambient temperature ⁵⁾	[°C] 0 ... +60
Degree of protection	
ESBF-...	IP40
ESBF-...-S1	IP65
Food-safe with ESBF-...-F1 ⁶⁾	Supplementary material information

5) Note range of application of proximity sensors and motors.

6) Additional information www.festo.com/sp → Certificates. Only in combination with ESBF-BS-... (ball screw)

Materials	
Size	32 ... 50 63 ... 100
Bearing cap	Coated wrought aluminium alloy Coated gravity die-cast aluminium
Cylinder barrel	Smooth anodised wrought aluminium alloy
Piston rod	High-alloy stainless steel
Spindle	Rolled steel
Spindle nut	Rolled steel
Drive cover	Coated wrought aluminium alloy Coated gravity die-cast aluminium

Linear drives and slides >

Electric cylinders ESBF, with spindle drive

Order code

04

Electromechanical drives

ESBF

Type		
ESBF	Electric cylinder	

Drive system		
BS	Ball screw	
LS	Lead screw	

Size		
	Stroke [mm]	
		Spindle pitch [mm/rev]
32	30 ... 800	2.5P, 5P, 10P
40	30 ... 800	3P, 5P, 10P, 16P
50	30 ... 1000	4P, 5P, 10P, 20P
63	30 ... 1200	5P, 10P, 25P
80	30 ... 1500	5P, 15P, 32P
100	30 ... 1500	5P, 20P, 40P

Variant		
F	Female thread	
S1	Degree of protection IP65	
R3	High corrosion protection	
F1	Food-safe as per supplementary material information	
...E	Piston rod extension	

- 1

Linear drive 2.5P only in combination with lead screw LS
- 2

Linear drive 3P only in combination with lead screw LS
- 3

Linear drive 4P only in combination with lead screw LS
- 4

Only with S1
- 5

Only with R3
Not with LS

Order example:

ESBF-BS-80-400-15P-F-S1
Electric cylinder - ball screw - size 80 - stroke 400 mm - spindle pitch 15 mm/rev - with female thread - with degree of protection IP65 - without high corrosion protection - not food-safe - without piston rod extension

Ordering – Product options

Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or www.festo.com/catalogue/...

Enter the type code in the search field.

522

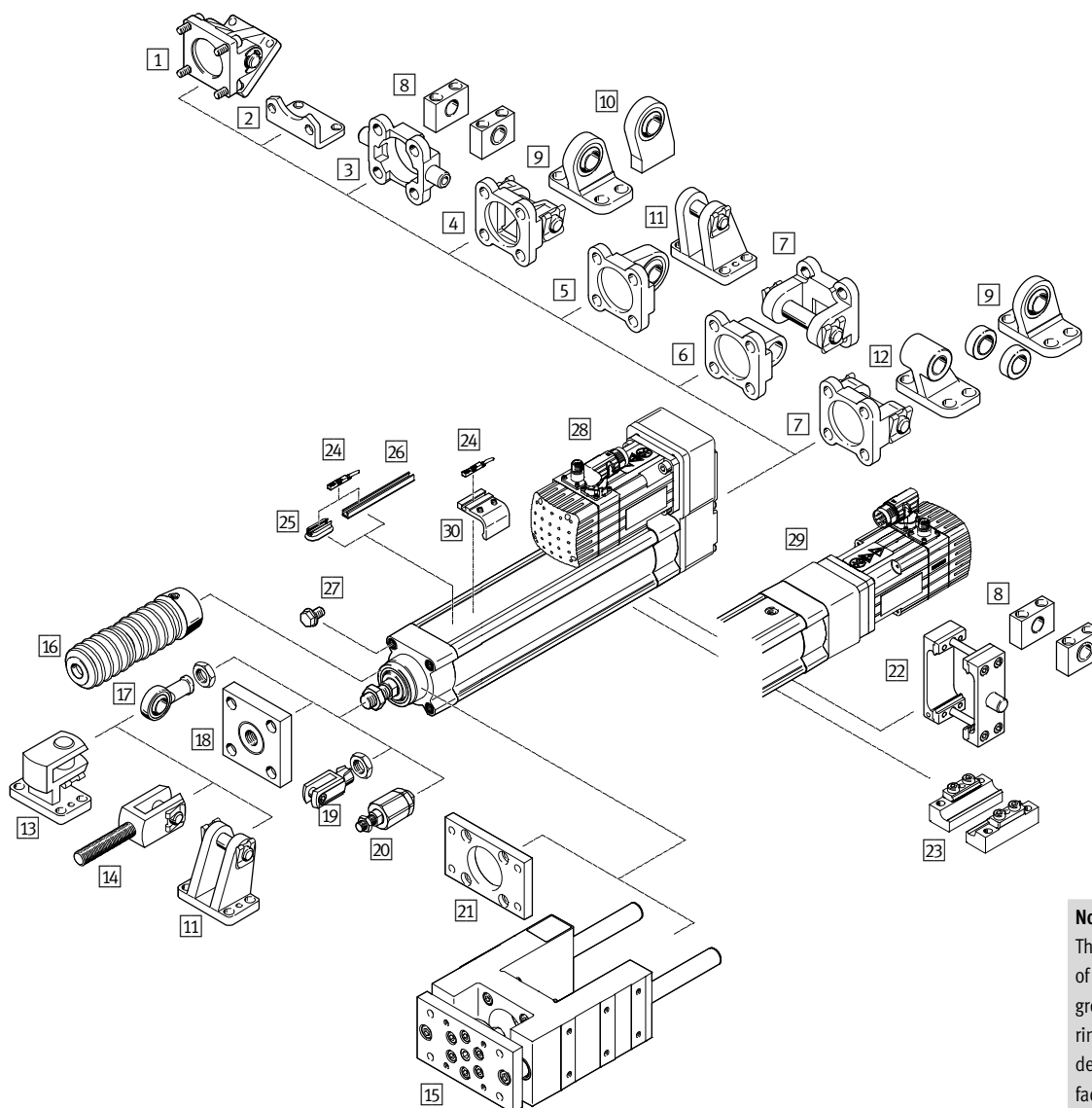
www.festo.com/catalogue/...

★ Generally ready for shipping ex works in 24 hours

Subject to change – 2018/11

Electric cylinders ESBF, with spindle drive

Accessories

**Note**

The maximum load carrying ability of the mounting parts must be greater than the maximum occurring load. The weight of the cylinder including the motor must be factored in.

	Suitable for high forces ¹⁾	→ Page/online
1 Swivel flange DAMS	■	524
2 Foot mounting HNC	–	524
Foot mounting CRHNC	–	esbf
3 Trunnion flange ZNCF	–	524
Trunnion flange CRZNG	–	esbf
4 Swivel flange SNC	–	524
5 Swivel flange SNCS	–	524
6 Swivel flange SNCL	–	524
7 Swivel flange SNCB	–	524
Swivel flange SNCB-...-R3	–	esbf
8 Trunnion support LNZG	–	524
Trunnion support CRLNZG	–	esbf
9 Clevis foot LSN/LSNG	–	524
10 Clevis foot LSNSG	–	524
11 Clevis foot LBG	–	524
12 Clevis foot LNG	–	524
Clevis foot CRLNG	–	esbf
13 Right-angle clevis foot LQG	–	524
14 Rod clevis SGA	■	524
15 Guide unit EAGF	■	525
16 Protective bellows kit EADB	■	esbf

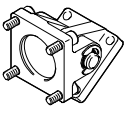
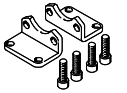
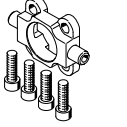
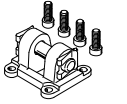
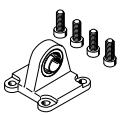
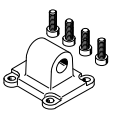
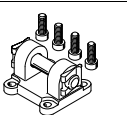
	Suitable for high forces ¹⁾	→ Page/online
17 Rod eye SGS	■	525
Rod eye CRSGS	■	esbf
18 Coupling piece KSZ	–	525
19 Rod clevis SG	■	525
Rod clevis CRSG	■	esbf
20 Self-aligning rod coupler FK	–	525
Self-aligning rod coupler CRFK	–	525
21 Flange mounting EAHH	■	525
22 Trunnion mounting kit DAMT	–	525
23 Profile mounting EAHF-...-P	■	525
24 Proximity sensor SMT-8M/ CRSMT-8M and connecting cable NEBU	■	526
25 Mounting kit CRSMB	■	525
26 Sensor rail SAMH	■	525
27 Plug screw DAMD-PS	■	525
28 Parallel kit EAMM-U	■	527
29 Axial kit EAMM-A	■	529
30 Mounting kit SMB-8-FENG	■	525

1) Shows which accessories can be used within the entire force range. For restricted force ranges see the relevant accessory part, from page 524.

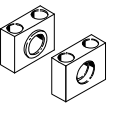
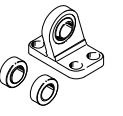
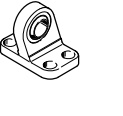
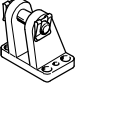
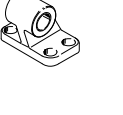
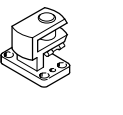
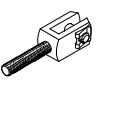
Linear drives and slides >

Electric cylinders ESBF, with spindle drive

Accessories – Ordering data

	For size	1) [kN]	Part no.	Type
1 Swivel flange Dimensions online: → esbf				
	40	3	2787470	DAMS-K-V1-40-V-R3
	50	5	2787651	DAMS-K-V1-50-V-R3
	63	7	1555443	DAMS-K-V1-63-V-R3
	80	12	1556588	DAMS-K-V1-80-V-R3
	100	17	1560237	DAMS-K-V1-100-V-R3
2 Foot mounting Dimensions online: → esbf				
	32	0.9	★ 174369	HNC-32
	40	1.5	★ 174370	HNC-40
	50	2.5	★ 174371	HNC-50
	63	4	★ 174372	HNC-63
	80	6	★ 174373	HNC-80
	100	9	174374	HNC-100
3 Trunnion flange Dimensions online: → esbf				
	32	0.9	174411	ZNCF-32
	40	1.5	174412	ZNCF-40
	50	2.5	174413	ZNCF-50
	63	4	174414	ZNCF-63
	80	6	174415	ZNCF-80
	100	9	174416	ZNCF-100
4 Swivel flange Data sheets online: → snc				
	32	0.9	★ 174383	SNC-32
	40	1.5	★ 174384	SNC-40
	50	2.5	★ 174385	SNC-50
	63	4	★ 174386	SNC-63
	80	6	★ 174387	SNC-80
	100	9	174388	SNC-100
5 Swivel flange Data sheets online: → sncs				
	32	1	★ 174397	SNCS-32
	40	1.5	★ 174398	SNCS-40
	50	2.5	★ 174399	SNCS-50
	63	4	★ 174400	SNCS-63
	80	6	★ 174401	SNCS-80
	100	9	174402	SNCS-100
6 Swivel flange Dimensions online: → sncl				
	32	0.9	★ 174404	SNCL-32
	40	1.5	★ 174405	SNCL-40
	50	2.5	★ 174406	SNCL-50
	63	4	★ 174407	SNCL-63
	80	6	★ 174408	SNCL-80
	100	9	174409	SNCL-100
7 Swivel flange Dimensions online: → sncb				
	32	1	★ 174390	SNCB-32
	40	1.5	★ 174391	SNCB-40
	50	2.5	★ 174392	SNCB-50
	63	4	★ 174393	SNCB-63
	80	6	★ 174394	SNCB-80
	100	9	174395	SNCB-100

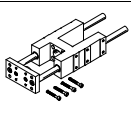
1) Max. load capacity.

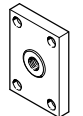
	For size	1) [kN]	Part no.	Type
8 Trunnion support Dimensions online: → lnzg				
	32	0.9	32959	LNZG-32
	40, 50	2.5	32960	LNZG-40/50
	63, 80	6	32961	LNZG-63/80
	100	9	32962	LNZG-100/125
9 Clevis foot Data sheets online: → lsn				
	32	0.9	5561	LSN-32
	40	1.5	5562	LSN-40
	50	2.5	5563	LSN-50
	63	4	5564	LSN-63
	80	6	5565	LSN-80
	100	9	5566	LSN-100
9 Clevis foot Data sheets online: → lsng				
	32	0.9	31740	LSNG-32
	40	1.5	31741	LSNG-40
	50	2.5	31742	LSNG-50
	63	4	31743	LSNG-63
	80	6	31744	LSNG-80
	100	9	31745	LSNG-100
10 Clevis foot Data sheets online: → lsng				
	32	0.9	31747	LSNSG-32
	40	1.5	31748	LSNSG-40
	50	2.5	31749	LSNSG-50
	63	4	31750	LSNSG-63
	80	6	31751	LSNSG-80
	100	9	31752	LSNSG-100
11 Clevis foot Data sheets online: → lbg				
	32	0.9	31761	LBG-32
	40	1.5	31762	LBG-40
	50	2.5	31763	LBG-50
	63	4	31764	LBG-63
	80	6	31765	LBG-80
	100	9	31766	LBG-100
12 Clevis foot Data sheets online: → lng				
	32	0.9	★ 33890	LNG-32
	40	1.5	★ 33891	LNG-40
	50	2.5	★ 33892	LNG-50
	63	4	★ 33893	LNG-63
	80	6	★ 33894	LNG-80
	100	9	33895	LNG-100
13 Right-angle clevis foot Data sheets online: → lqg				
	32	0.9	31768	LQG-32
	40	1.5	31769	LQG-40
	50	2.5	31770	LQG-50
	63	4	31771	LQG-63
	80	6	31772	LQG-80
	100	9	31773	LQG-100
14 Rod clevis Data sheets online: → sga				
	32	0.9	32954	SGA-M10x1,25
	40	1.5	10767	SGA-M12x1,25
	50, 63	4	10768	SGA-M16x1,5
	80, 100	9	10769	SGA-M20x1,5

1) Max. load capacity.

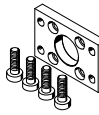
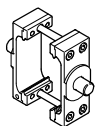
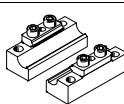
Electric cylinders ESBF, with spindle drive

Accessories – Ordering data

	Stroke [mm]	Part no.	Type
15 Guide unit for fixed strokes, with recirculating ball bearing guide Data sheets online: → eagf			
	For size 32		
	100	2782679	EAGF-V2-KF-32-100
	200	2782818	EAGF-V2-KF-32-200
	320	2782885	EAGF-V2-KF-32-320
	400	2782923	EAGF-V2-KF-32-400
	For size 40		
	100	2782939	EAGF-V2-KF-40-100
	200	2782976	EAGF-V2-KF-40-200
	320	2783047	EAGF-V2-KF-40-320
	400	2783080	EAGF-V2-KF-40-400
	For size 50		
	100	2783639	EAGF-V2-KF-50-100
	200	2784152	EAGF-V2-KF-50-200
	320	2784164	EAGF-V2-KF-50-320
	400	2784184	EAGF-V2-KF-50-400
	For size 63		
	100	1725842	EAGF-V2-KF-63-100
	200	1725843	EAGF-V2-KF-63-200
	320	1725844	EAGF-V2-KF-63-320
	400	1725845	EAGF-V2-KF-63-400
	For size 80		
	100	1725846	EAGF-V2-KF-80-100
	200	1725847	EAGF-V2-KF-80-200
	320	1725848	EAGF-V2-KF-80-320
	400	1725849	EAGF-V2-KF-80-400
	For size 100		
	100	1725850	EAGF-V2-KF-100-100
	200	1725851	EAGF-V2-KF-100-200
	320	1725852	EAGF-V2-KF-100-320
	400	1725853	EAGF-V2-KF-100-400

	For size	1) [kN]	Part no.	Type
17 Rod eye Data sheets online: → sgs				
	32	0.9	★ 9261	SGS-M10x1,25
	40	1.5	★ 9262	SGS-M12x1,25
	50, 63	4	★ 9263	SGS-M16x1,5
	80, 100	9	★ 9264	SGS-M20x1,5
18 Coupling piece Data sheets online: → ksz				
	32	0.9	36125	KSZ-M10x1,25
	40	1.5	36126	KSZ-M12x1,25
	50, 63	4	36127	KSZ-M16x1,5
	80, 100	9	36128	KSZ-M20x1,5
19 Rod clevis Data sheets online: → sg				
	32	0.9	★ 6144	SG-M10x1,25
	40	1.5	★ 6145	SG-M12x1,25
	50, 63	4	★ 6146	SG-M16x1,5
	80, 100	9	★ 6147	SG-M20x1,5

1) Max. load capacity.

	For size	1) [kN]	Part no.	Type
20 Self-aligning rod coupler Data sheets online: → fk				
	32	0.9	★ 6140	FK-M10x1,25
	40	1.5	★ 6141	FK-M12x1,25
	50, 63	4	★ 6142	FK-M16x1,5
	80, 100	9	★ 6143	FK-M20x1,5
21 Flange mounting Dimensions online: → esbf				
	32	1	2827587	EAHH-V2-32-R1
	40	3	2827588	EAHH-V2-40-R1
	50	5	2827589	EAHH-V2-50-R1
	63	7	1502305	EAHH-V2-63-R1
	80	12	1502306	EAHH-V2-80-R1
	100	17	1502307	EAHH-V2-100-R1
22 Trunnion mounting kit Dimensions online: → esbf				
	32	0.9	★ 2213233	DAMT-V1-32-A
	40	1.5	★ 2214899	DAMT-V1-40-A
	50	2.5	★ 2214909	DAMT-V1-50-A
	63	4	★ 2214971	DAMT-V1-63-A
	80	6	★ 163529	DAMT-V1-80-A
	100	9	★ 163530	DAMT-V1-100-A
23 Profile mounting Dimensions online: → esbf				
	32, 40	–	2838839	EAHF-V2-32/40-P
	50, 63	–	1547781	EAHF-V2-50/63-P
	80, 100	–	1547780	EAHF-V2-80/100-P
25 Mounting kit Dimensions online: → esbf				
	32 ... 100	–	525565	CRSMB-8-32/100
30 Mounting kit Dimensions online: → esbf				
	32, 40	–	175705	SMB-8-FENG-32/40
	50, 63	–	175706	SMB-8-FENG-50/63
	80, 100	–	175707	SMB-8-FENG-80/100
26 Sensor rail²⁾ Dimensions online: → esbf				
	32 ... 100	–	1600093	SAMH-N8-SR-50 ⁴⁾
	32 ... 100	–	1600118	SAMH-N8-SR-100 ⁵⁾
27 Blanking screw³⁾ Dimensions online: → esbf				
	32, 40	–	1355016	DAMD-PS-M6-12-R1
	50, 63	–	650121	DAMD-PS-M8-16-R1
	80, 100	–	1355026	DAMD-PS-M10-16-R1

1) Max. load capacity.

2) Length = 100 mm.

3) Packaging unit 4 pieces.

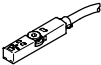
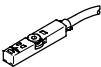
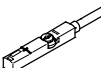
4) Length: 50 mm.

5) Length: 100 mm.

Linear drives and slides >

Electric cylinders ESBF, with spindle drive

Accessories – Ordering data

	For size	Switching output, connection	Cable length [m]	Part no.	Type
[24] Proximity sensor for T-slot, magneto-resistive – N/O contact Data sheets → Page 1206					
	32 ... 100	PNP, cable	2.5	★ 574335	SMT-8M-A-PS-24V-E-2,5-OE
		PNP, plug	0.3	★ 574334	SMT-8M-A-PS-24V-E-0,3-M8D
		PNP, plug	0.3	★ 574337	SMT-8M-A-PS-24V-E-0,3-M12
		NPN, cable	2.5	★ 574338	SMT-8M-A-NS-24V-E-2,5-OE
		NPN, plug	0.3	★ 574339	SMT-8M-A-NS-24V-E-0,3-M8D
Magneto-resistive – N/C contact Data sheets → Page 1206					
	32 ... 100	PNP, cable	7.5	★ 574340	SMT-8M-A-PO-24V-E-7,5-OE
Proximity sensor for T-slot, magneto-resistive, corrosion-resistant – N/O contact Data sheets → Page 1206					
	32 ... 100	PNP, cable	5	574380	CRSMT-8M-PS-24V-K-5,0-OE
		PNP, plug	0.3	574383	CRSMT-8M-PS-24V-K-0,3-M8D
		PNP, plug	0.3	574382	CRSMT-8M-PS-24V-K-0,3-M12
[24] Connecting cable, straight socket Data sheets → Page 1543					
	32 ... 100	M8x1, 3-pin	2.5	★ 541333	NEBU-M8G3-K-2.5-LE3
			5.0	★ 541334	NEBU-M8G3-K-5-LE3
		M12x1, 5-pin	2.5	★ 541363	NEBU-M12G5-K-2.5-LE3
			5.0	★ 541364	NEBU-M12G5-K-5-LE3
Angled socket Data sheets → Page 1543					
	32 ... 100	M8x1, 3-pin	2.5	★ 541338	NEBU-M8W3-K-2.5-LE3
			5.0	★ 541341	NEBU-M8W3-K-5-LE3
		M12x1, 5-pin	2.5	541367	NEBU-M12W5-K-2.5-LE3
			5.0	541370	NEBU-M12W5-K-5-LE3

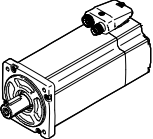
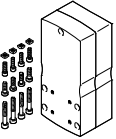
Electric cylinders ESBF, with spindle drive

Accessories – Ordering data

Note

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

When using parallel kits, the no-load driving torque of the respective kit must be taken into consideration.

Motor/gear unit ¹⁾	Parallel kit	
		
	• The kit can be mounted in all directions • Optionally with degree of protection IP65 • Use in combination with third-party motors on request	
	Part no.	Type
ESBF-32		
With servo motor		
EMME-AS-40-...	2153283	EAMM-U-50-D32-40P-78
	2154009	EAMM-U-50-D32-40P-78-S1 ²⁾
EMMS-AS-40-...	1201591	EAMM-U-50-D32-40A-78
	1202302	EAMM-U-50-D32-40A-78-S1 ²⁾
EMMS-AS-55-...	1210126	EAMM-U-60-D32-55A-91
	1210450	EAMM-U-60-D32-55A-91-S1 ²⁾
EMME-AS-60-...	2619586	EAMM-U-70-D32-60P-96
	2619688	EAMM-U-70-D32-60P-96-S1 ²⁾
EMMS-AS-70-...	2755565	EAMM-U-70-D32-70A-96
	2781711	EAMM-U-70-D32-70A-96-S1 ²⁾
With stepper motor		
EMMS-ST-42-...	1201607	EAMM-U-50-D32-42A-78
	1202312	EAMM-U-50-D32-42A-78-S1 ²⁾
EMMS-ST-57-...	1210419	EAMM-U-60-D32-57A-91
	1210453	EAMM-U-60-D32-57A-91-S1 ²⁾
With gear unit		
EMGA-40-P-..., EMGC-40-P-...	1577358	EAMM-U-60-D32-40G-91
	1577346	EAMM-U-60-D32-40G-91-S1 ²⁾
EMGA-60-P-...- SAS/SST ³⁾	2748181	EAMM-U-70-D32-60G-96
	2778302	EAMM-U-70-D32-60G-96-S1 ²⁾
EMGA-60-P-...-EAS, EMGC-60-P-... ³⁾	2778393	EAMM-U-70-D32-60H-96
	2781450	EAMM-U-70-D32-60H-96-S1 ²⁾

Note

The clamping element EADT is required to adjust the toothed belt pretensioning for EAMM-U-11Q.

The motor and/or axis shaft can optionally be supported with a counter bearing EMAG.

Additional information → [eamm-u](#)

Motor/gear unit ¹⁾	Parallel kit	
	Part no.	Type
ESBF-40		
With servo motor		
EMMS-AS-55-...	1210438	EAMM-U-60-D40-55A-91
	1210458	EAMM-U-60-D40-55A-91-S1 ²⁾
EMME-AS-60-...	2617488	EAMM-U-70-D40-60P-96
	2546123	EAMM-U-70-D40-60P-96-S1 ²⁾
EMMS-AS-70-...	2786204	EAMM-U-70-D40-70A-96
	2786316	EAMM-U-70-D40-70A-96-S1 ²⁾
EMMS-AS-70-...	1212826	EAMM-U-86-D40-70A-102
	1212854	EAMM-U-86-D40-70A-102-S1 ²⁾
EMME-AS-80-...	2802441	EAMM-U-86-D40-80P-102
	2802656	EAMM-U-86-D40-80P-102-S1 ²⁾
With stepper motor		
EMMS-ST-57-...	1210442	EAMM-U-60-D40-57A-91
	1210462	EAMM-U-60-D40-57A-91-S1 ²⁾
EMMS-ST-87-...	1215802	EAMM-U-86-D40-87A-102
	1215814	EAMM-U-86-D40-87A-102-S1 ²⁾
With gear unit		
EMGA-40-P-..., EMGC-40-P-...	1577165	EAMM-U-60-D40-40G-91
	1435968	EAMM-U-60-D40-40G-91-S1 ²⁾
EMGA-60-P-...- SAS/SST ³⁾	2785471	EAMM-U-70-D40-60G-96
	2785542	EAMM-U-70-D40-60G-96-S1 ²⁾
EMGA-60-P-...-EAS, EMGC-60-P-... ³⁾	2786101	EAMM-U-70-D40-60H-96
	2786137	EAMM-U-70-D40-60H-96-S1 ²⁾
EMGA-60-P-...- SAS/SST ³⁾	1586445	EAMM-U-86-D40-60G-102
	1586429	EAMM-U-86-D40-60G-102-S1 ²⁾
EMGA-60-P-...-EAS, EMGC-60-P-... ³⁾	1586496	EAMM-U-86-D40-60H-102
	1586372	EAMM-U-86-D40-60H-102 ²⁾
ESBF-50		
With servo motor		
EMMS-AS-70-...	2786899	EAMM-U-70-D50-70A-96
	2756078	EAMM-U-70-D50-70A-96-S1 ²⁾
EMME-AS-80-...	2803053	EAMM-U-86-D50-80P-102
	2803073	EAMM-U-86-D50-80P-102-S1 ²⁾
EMME-AS-100-...	2799424	EAMM-U-110-D50-100A-120
	2799488	EAMM-U-110-D50-100A-120-S1 ²⁾
EMMS-AS-100-...	2799424	EAMM-U-110-D50-100A-120
	2799488	EAMM-U-110-D50-100A-120-S1 ²⁾
With stepper motor		
EMMS-ST-87-...	2802708	EAMM-U-86-D50-87A-102
	2802742	EAMM-U-86-D50-87A-102-S1 ²⁾
With gear unit		
EMGA-60-P-...- SAS/SST ³⁾	2803125	EAMM-U-86-D50-60G-102
	2803197	EAMM-U-86-D50-60G-102-S1 ²⁾
EMGA-60-P-...-EAS, EMGC-60-P-... ³⁾	2803326	EAMM-U-86-D50-60H-102
	2803325	EAMM-U-86-D50-60H-102-S1 ²⁾
EMGA-60-P-...- SAS/SST ³⁾	2797368	EAMM-U-110-D50-60G-120
	2798665	EAMM-U-110-D50-60G-120-S1 ²⁾
EMGA-60-P-...-EAS, EMGC-60-P-... ³⁾	2798760	EAMM-U-110-D50-60H-120
	2799150	EAMM-U-110-D50-60H-120-S1 ²⁾
EMGA-80-P-...	2799196	EAMM-U-110-D50-80G-120
	2799281	EAMM-U-110-D50-80G-120-S1 ²⁾

1) The input torque must not exceed the max. perm. transferable torque of the parallel kit.

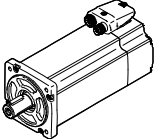
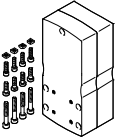
2) With degree of protection IP65.

3) Gear unit drive shaft diameter: EMGA-60-P-...-SAS/-SST: 11 mm;
EMGA-60-P-...-EAS, EMGC-60-P: 14 mm

Linear drives and slides >

Electric cylinders ESBF, with spindle drive

Accessories – Ordering data

Motor/gear unit ¹⁾	Parallel kit	
		
	- The kit can be mounted in all directions - Optionally with degree of protection IP65 - Use in combination with third-party motors on request	
	Part no.	Type
ESBF-63		
With servo motor		
EMMS-AS-70-...	1212477	EAMM-U-86-D60-70A-102
	1212835	EAMM-U-86-D60-70A-102-S1 ²⁾
EMME-AS-80	2155875	EAMM-U-86-D60-80P-102
	2156527	EAMM-U-86-D60-80P-102-S1 ²⁾
EMME-AS-100-...	1202436	EAMM-U-110-D60-100A-120
	1203112	EAMM-U-110-D60-100A-120-S1 ²⁾
EMMS-AS-100-...	1202436	EAMM-U-110-D60-100A-120
	1203112	EAMM-U-110-D60-100A-120-S1 ²⁾
With stepper motor		
EMMS-ST-87-...	1215784	EAMM-U-86-D60-87A-102
	1215810	EAMM-U-86-D60-87A-102-S1 ²⁾
With gear unit		
EMGA-60-P-...-SAS/SST ³⁾	1586347	EAMM-U-86-D60-60G-102
	1437163	EAMM-U-86-D60-60G-102-S1 ²⁾
EMGA-60-P-...-EAS, EMGC-60-P-... ³⁾	1586276	EAMM-U-86-D60-60H-102
	1530837	EAMM-U-86-D60-60H-102-S1 ²⁾
EMGA-60-P-...-SAS/SST ³⁾	1543240	EAMM-U-110-D60-60G-120
	1436183	EAMM-U-110-D60-60G-120-S1 ²⁾
EMGA-60-P-...-EAS, EMGC-60-P-... ³⁾	1542264	EAMM-U-110-D60-60H-120
	1530621	EAMM-U-110-D60-60H-120-S1 ²⁾
EMGA-80-P-...	1532949	EAMM-U-110-D60-80G-120
	1530875	EAMM-U-110-D60-80G-120-S1 ²⁾

Motor/gear unit ¹⁾	Parallel kit	
	Part no.	Type
ESBF-80		
With servo motor		
EMME-AS-100-...	1465438	EAMM-U-110-D80-100A-120
	1433650	EAMM-U-110-D80-100A-120-S1 ²⁾
EMMS-AS-100-...	1465438	EAMM-U-110-D80-100A-120
	1433650	EAMM-U-110-D80-100A-120-S1 ²⁾
EMMS-AS-140-...	1465530	EAMM-U-145-D80-140A-188
	1433709	EAMM-U-145-D80-140A-188-S1 ²⁾
With gear unit		
EMGA-80-P-...	1589614	EAMM-U-110-D80-80G-120
	1589706	EAMM-U-110-D80-80G-120-S1 ²⁾
ESBF-100		
With servo motor		
EMMS-AS-140-...	1465541	EAMM-U-145-D100-140A-188
	1433852	EAMM-U-145-D100-140A-188-S1 ²⁾
With gear unit		
EMGA-120-P-...	2803620	EAMM-U-145-D100-120G-188
	2803622	EAMM-U-145-D100-120G-188-S1 ²⁾

- 1) The input torque must not exceed the max. perm. transferable torque of the parallel kit.
 2) With degree of protection IP65.
 3) Gear unit drive shaft diameter: EMGA-60-P-...-SAS/-SST: 11 mm;
 EMGA-60-P-...-EAS, EMGC-60-P: 14 mm

Note

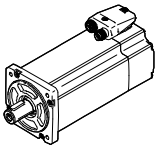
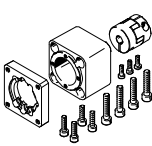
The clamping element EADT is required to adjust the toothed belt pretensioning for EAMM-U-110 and EAMM-U-145.

The motor and/or axis shaft can optionally be supported with a counter bearing EAMG.

Additional information → [eamm-u](https://www.festo.com/eamm-u)

Electric cylinders ESBF, with spindle drive

Accessories – Ordering data

Motor/gear unit ¹⁾	Axial kit	
		
	Part no.	Type
29 Permissible axis/motor combination with axial kit – Data sheets online: → eamm-a		
ESBF-32		
With servo motor		
EMME-AS-40-...	1976465	EAMM-A-D32-40P
	2207372	EAMM-A-D32-40P-S1 ²⁾
EMMS-AS-40-...	543147	EAMM-A-D32-40A
	1322178	EAMM-A-D32-40A-S1 ²⁾
EMMS-AS-55-...	550979	EAMM-A-D32-55A
	1322180	EAMM-A-D32-55A-S1 ²⁾
EMME-AS-60-...	1956054	EAMM-A-D32-60P
	2234020	EAMM-A-D32-60P-S1 ²⁾
With servo motor and gear unit		
EMME-AS-40-...	1454238	EAMM-A-D32-40G
EMGA-40-P-G...-EAS-40	2256396	EAMM-A-D32-40G-S1 ²⁾
EMMS-AS-40-...	1454238	EAMM-A-D32-40G
EMGA-40-P-G...-SAS-40	2256396	EAMM-A-D32-40G-S1 ²⁾
EMMS-AS-55-...	2946758	EAMM-A-D32-60G
EMGA-60-P-G...-SAS-55	2946759	EAMM-A-D32-60G-S1 ²⁾
EMME-AS-60-...	2946760	EAMM-A-D32-60H
EMGA-60-P-G...-EAS-60	2946761	EAMM-A-D32-60H-S1 ²⁾
EMMS-AS-70-...	2946758	EAMM-A-D32-60G
EMGA-60-P-G...-SAS-70	2946759	EAMM-A-D32-60G-S1 ²⁾
With stepper motor		
EMMS-ST-42-...	543148	EAMM-A-D32-42A
	1322179	EAMM-A-D32-42A-S1 ²⁾
EMMS-ST-57-...	550980	EAMM-A-D32-57A
	1322181	EAMM-A-D32-57A-S1 ²⁾
With stepper motor and gear unit		
EMMS-ST-42-...	1454238	EAMM-A-D32-40G
EMGA-40-P-G...-SST-42	2256396	EAMM-A-D32-40G-S1 ²⁾
EMMS-ST-57-...	2946758	EAMM-A-D32-60G
EMGA-60-P-G...-SST-57	2946759	EAMM-A-D40-60G-S1 ²⁾
With integrated drive		
EMCA-EC-67-...-	1454239	EAMM-A-D32-67A
	2256397	EAMM-A-D32-67A-S1 ²⁾
With integrated drive and gear unit		
EMCA-EC-67-...-	1454238	EAMM-A-D32-40G
EMGC-40-...	2256396	EAMM-A-D32-40G-S1 ²⁾
EMCA-EC-67-...-	2946760	EAMM-A-D32-60H
EMGC-60-...	2946761	EAMM-A-D32-60H-S1 ²⁾

Motor/gear unit ¹⁾	Axial kit	
	Part no.	Type
ESBF-40		
With servo motor		
EMMS-AS-55-...	543153	EAMM-A-D40-55A
	1322182	EAMM-A-D40-55A-S1 ²⁾
EMME-AS-60-...	1977000	EAMM-A-D40-60P
	2151519	EAMM-A-D40-60P-S1 ²⁾
EMMS-AS-70-...	550981	EAMM-A-D40-70A
	1322185	EAMM-A-D40-70A-S1 ²⁾
With servo motor and gear unit		
EMME-AS-40-...	560282	EAMM-A-D40-40G
EMGA-40-P-G...-EAS-40	2256398	EAMM-A-D40-40G-G2
	2256399	EAMM-A-D40-40G-S1 ²⁾
EMMS-AS-40-...	560282	EAMM-A-D40-40G
EMGA-40-P-G...-SAS-40	2256398	EAMM-A-D40-40G-G2 ³⁾
	2256399	EAMM-A-D40-40G-S1 ²⁾
EMMS-AS-55-...	2256400	EAMM-A-D40-60G
EMGA-60-P-G...-SAS-55	2256409	EAMM-A-D40-60G-S1 ²⁾
EMME-AS-60-...	1454242	EAMM-A-D40-60H
EMGA-60-P-G...-EAS-60	2256401	EAMM-A-D40-60H-S1 ²⁾
EMMS-AS-70-...	2256400	EAMM-A-D40-60G
EMGA-60-P-G...-SAS-70	2256409	EAMM-A-D40-60G-S1 ²⁾
With stepper motor		
EMMS-ST-57-...	543154	EAMM-A-D40-57A
	1322183	EAMM-A-D40-57A-S1 ²⁾
EMMS-ST-87-...	550982	EAMM-A-D40-87A
	1322186	EAMM-A-D40-87A-S1 ²⁾
With stepper motor and gear unit		
EMMS-ST-42-...	560282	EAMM-A-D40-40G
EMGA-40-P-G...-SST-42	2256398	EAMM-A-D40-40G-G2
	2256399	EAMM-A-D40-40G-S1 ²⁾
EMMS-ST-57-...	2256400	EAMM-A-D40-60G
EMGA-60-P-G...-SST-57	2256409	EAMM-A-D40-60G-S1 ²⁾
With integrated drive		
EMCA-EC-67-...-	1454243	EAMM-A-D40-67A
	2256695	EAMM-A-D40-67A-S1 ²⁾
With integrated drive and gear unit		
EMCA-EC-67-...-	560282	EAMM-A-D40-40G
EMGC-40-...	2256398	EAMM-A-D40-40G-G2
	2256399	EAMM-A-D40-40G-S1 ²⁾
EMCA-EC-67-...-	1454242	EAMM-A-D40-60H
EMGC-60-...	2256401	EAMM-A-D40-60H-S1 ²⁾

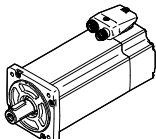
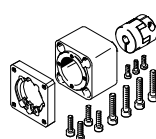
1) The input torque must not exceed the max. perm. transferable torque of the axial kit.

2) With degree of protection IP65.

Linear drives and slides >

Electric cylinders ESBF, with spindle drive

Accessories – Ordering data

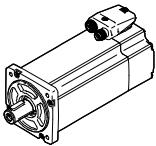
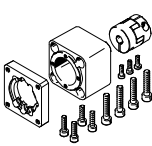
Motor/gear unit ¹⁾	Axial kit	
		
	Part no.	Type
ESBF-50		
With servo motor		
EMMS-AS-70-...	2733783	EAMM-A-D50-70A
	2734287	EAMM-A-D50-70A-S1 ²⁾
EMME-AS-80-...	2733785	EAMM-A-D50-80P
	2734289	EAMM-A-D50-80P-S1 ²⁾
EMME-AS-100-...	2733784	EAMM-A-D50-100A
	2734288	EAMM-A-D50-100A-S1 ²⁾
EMMS-AS-100-...	2733784	EAMM-A-D50-100A
	2734288	EAMM-A-D50-100A-S1 ²⁾
With servo motor and gear unit		
EMMS-AS-55-...	2733786	EAMM-A-D50-60G
EMGA-60-P-G...-SAS-55	2734290	EAMM-A-D50-60G-S1 ²⁾
EMME-AS-60-...	2733796	EAMM-A-D50-60H
EMGA-60-P-G...-EAS-60	2907418	EAMM-A-D50-60H-S1 ²⁾
EMMS-AS-70-...	2733786	EAMM-A-D50-60G
EMGA-60-P-G...-SAS-70	2734290	EAMM-A-D50-60G-S1 ²⁾
EMMS-AS-70-...	2733787	EAMM-A-D50-80G
EMGA-80-P-G...-SAS-70	2734291	EAMM-A-D50-80G-S1 ²⁾
EMME-AS-80-...	2733787	EAMM-A-D50-80G
EMGA-80-P-G...-EAS-80	2734291	EAMM-A-D50-80G-S1 ²⁾
EMME-AS-100-...	2733787	EAMM-A-D50-80G
EMGA-80-P-G...-SAS-100	2734291	EAMM-A-D50-80G-S1 ²⁾
EMMS-AS-100-...	2733787	EAMM-A-D50-80G
EMGA-80-P-G...-SAS-100	2734291	EAMM-A-D50-80G-S1 ²⁾
With stepper motor		
EMMS-ST-87-...	2733781	EAMM-A-D50-87A
	2734286	EAMM-A-D50-87A-S1 ²⁾
With stepper motor and gear unit		
EMMS-ST-57-...	2733786	EAMM-A-D50-60G
EMGA-60-P-G...-SST-57	2734290	EAMM-A-D50-60G-S1 ²⁾
EMMS-ST-87-...	2733787	EAMM-A-D50-80G
EMGA-80-P-G...-SST-87	2734291	EAMM-A-D50-80G-S1 ²⁾
With integrated drive and gear unit		
EMCA-EC-67-...-	2733796	EAMM-A-D50-60H
EMGC-60-...	2907418	EAMM-A-D50-60H-S1 ²⁾

Motor/gear unit ¹⁾	Axial kit	
	Part no.	Type
ESBF-63		
With servo motor		
EMMS-AS-70-...	543161	EAMM-A-D60-70A
	2256699	EAMM-A-D60-70A-S1 ²⁾
EMME-AS-80-...	1977073	EAMM-A-D60-80P
	2218564	EAMM-A-D60-80P-S1 ²⁾
EMME-AS-100-...	550983	EAMM-A-D60-100A
	2256700	EAMM-A-D60-100A-S1 ²⁾
EMMS-AS-100-...	550983	EAMM-A-D60-100A
	2256700	EAMM-A-D60-100A-S1 ²⁾
With servo motor and gear unit		
EMMS-AS-55-...	560283	EAMM-A-D60-60G
EMGA-60-P-G...-SAS-55	2256696	EAMM-A-D60-60G-G2
	2256698	EAMM-A-D60-60G-S1 ²⁾
EMME-AS-60-...	1454245	EAMM-A-D60-60H
EMGA-60-P-G...-EAS-60	2256697	EAMM-A-D60-60H-S1 ²⁾
EMMS-AS-70-...	560283	EAMM-A-D60-60G
EMGA-60-P-G...-SAS-70	2256696	EAMM-A-D60-60G-G2
	2256698	EAMM-A-D60-60G-S1 ²⁾
EMMS-AS-70-...	1499402	EAMM-A-D60-80G
EMGA-80-P-G...-SAS-70	2946762	EAMM-A-D60-80G-S1 ²⁾
EMME-AS-80-...	1499402	EAMM-A-D60-80G
EMGA-80-P-G...-EAS-80	2946762	EAMM-A-D60-80G-S1 ²⁾
EMME-AS-100-...	1499402	EAMM-A-D60-80G
EMGA-80-P-G...-SAS-100	2946762	EAMM-A-D60-80G-S1 ²⁾
EMMS-AS-100-...	1499402	EAMM-A-D60-80G
EMGA-80-P-G...-SAS-100	2946762	EAMM-A-D60-80G-S1 ²⁾
With stepper motor		
EMMS-ST-87-...	543162	EAMM-A-D60-87A
	1322188	EAMM-A-D60-87A-S1 ²⁾
With stepper motor and gear unit		
EMMS-ST-57-...	560283	EAMM-A-D60-60G
EMGA-60-P-G...-SST-57	2256696	EAMM-A-D60-60G-G2
	2256698	EAMM-A-D60-60G-S1 ²⁾
EMMS-ST-87-...	1499402	EAMM-A-D60-80G
EMGA-80-P-G...-SST-87	2946762	EAMM-A-D60-80G-S1 ²⁾
With integrated drive and gear unit		
EMCA-EC-67-...-	1454245	EAMM-A-D60-60H
EMGC-60-...	2256697	EAMM-A-D60-60H-S1 ²⁾

- 1) The input torque must not exceed the max. perm. transferable torque of the axial kit.
 2) With degree of protection IP65.

Electric cylinders ESBF, with spindle drive

Accessories – Ordering data

Motor/gear unit ¹⁾	Axial kit	
		
	Part no.	Type
ESBF-80		
With servo motor		
EMME-AS-100	1589665	EAMM-A-D80-100A
	1600673	EAMM-A-D80-100A-S1 ²⁾
EMMS-AS-100-...	1589665	EAMM-A-D80-100A
	1600673	EAMM-A-D80-100A-S1 ²⁾
EMMS-AS-140-...	1588299	EAMM-A-D80-140A
	1600674	EAMM-A-D80-140A-S1 ²⁾
With servo motor and gear unit		
EMMS-AS-70-...	2946763	EAMM-A-D80-80G
EMGA-80-P-G...-SAS-70	2946764	EAMM-A-D80-80G-S1 ²⁾
EMME-AS-80-...	2946763	EAMM-A-D80-80G
EMGA-80-P-G...-EAS-80	2946764	EAMM-A-D80-80G-S1 ²⁾
EMME-AS-100-...	2946763	EAMM-A-D80-80G
EMGA-80-P-G...-SAS-100	2946764	EAMM-A-D80-80G-S1 ²⁾
EMMS-AS-100-...	2946763	EAMM-A-D80-80G
EMGA-80-P-G...-SAS-100	2946764	EAMM-A-D80-80G-S1 ²⁾
With stepper motor and gear unit		
EMMS-ST-87-...	2946763	EAMM-A-D80-80G
EMGA-80-P-G...-SST-87	2946764	EAMM-A-D80-80G-S1 ²⁾

Motor/gear unit ¹⁾	Axial kit	
	Part no.	Type
ESBF-100		
With servo motor		
EMME-AS-100	3356796	EAMM-A-D100-100A
	3356931	EAMM-A-D100-100A-S1 ²⁾
EMMS-AS-100-...	3356796	EAMM-A-D100-100A
	3356931	EAMM-A-D100-100A-S1 ²⁾
EMMS-AS-140-...	1588349	EAMM-A-D100-140A
	1600675	EAMM-A-D100-140A-S1 ²⁾
With servo motor and gear unit		
EMME-AS-100-...	2449341	EAMM-A-D100-120G
EMGA-120-P-G...-SAS-100	2946765	EAMM-A-D100-120G-S1 ²⁾
EMMS-AS-100-...	2449341	EAMM-A-D100-120G
EMGA-120-P-G...-SAS-100	2946765	EAMM-A-D100-120G-S1 ²⁾
EMMS-AS-140-...	2449341	EAMM-A-D100-120G
EMGA-120-P-G...-SAS-140	2946765	EAMM-A-D100-120G-S1 ²⁾

- 1) The input torque must not exceed the max. perm. transferable torque of the axial kit.
 2) With degree of protection IP65.

Note

The axial kit (without "S1" in the type code) can be retrofitted with a seal set

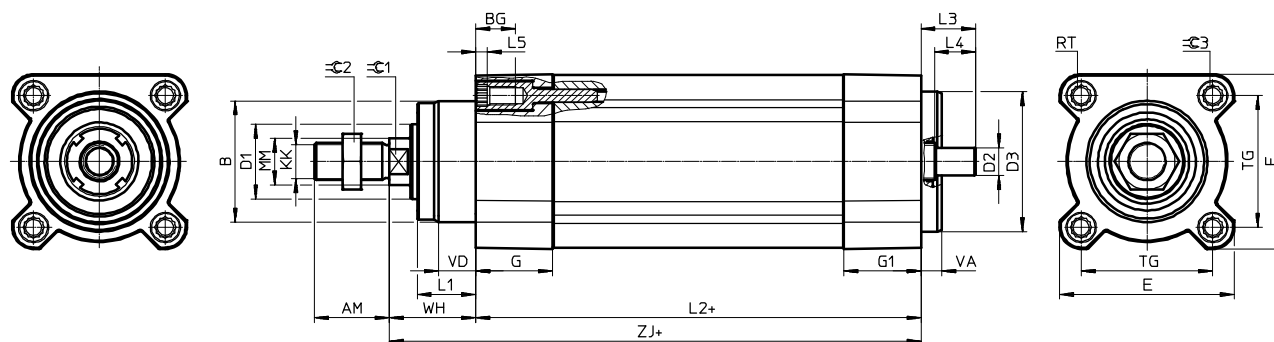
EADS-F to change the degree of protection from IP40 to IP65.
 Additional information → [eamm-a](#)

Linear drives and slides >

Electric cylinders ESBF, with spindle drive

Dimensions

Download CAD data → www.festo.com



+ = plus stroke length

Size	AM	B Ø d11	BG min.	D1 Ø h9	D2 Ø h6	D3 Ø f7	E	G
32	22	34	16	20	6	32	45 ^{+0.5}	25.5 _{-0.1}
40	24	39	16	24	8	40	54 ^{+0.5}	30 _{-0.1}
50	32	45	17	28	12	50	64 ^{+0.5}	30 _{-0.1}
63	32	52	17	32	12	60	75 ^{+0.5/-0.1}	33±0.1
80	40	60	17	40	19	80	93 ^{+0.5/-0.1}	39±0.1
100	40	70	17	50	24	100	110 ^{+0.5/-0.1}	39±0.1

Size	G1	L1	L2	L3	L4 ±0.2	L5 max.	KK	MM Ø -0.1
32	25.5 _{-0.1}	12 ^{+0.2}	122.5 ^{+0.2/-1.4}	15.9 ^{+0.8/-0.3}	8	4	M10x1.25	14
40	30 _{-0.1}	14 ^{+0.2}	144 ^{+0.2/-1.4}	18.4 ^{+0.8/-0.3}	14	4	M12x1.25	16
50	34 _{-0.1}	20 ^{+0.2}	163 ^{+0.2/-1.4}	27 ^{+0.8/-0.3}	17	5	M16x1.5	20
63	33±0.1	21 _{-0.5}	171 ^{+0.7/-1.2}	23.5±0.5	17	5	M16x1.5	20
80	39±0.1	28 _{-0.5}	204 ^{+0.7/-1.2}	33.5±0.5	26	25.9	M20x1.5	25
100	39±0.1	33 _{-0.5}	224 ^{+0.7/-1.2}	39.5±0.5	30	25.9	M20x1.5	25

Size	RT	TG	VA	VD	WH	ZJ	∅1	∅2	∅3
32	M6	32.5	7 _{-0.2}	8±0.1	25.5 ^{+1.9/-0.8}	148 ^{+2.1/-1.1}	10	17	6
40	M6	38	7 _{-0.2}	9±0.1	29.5 ^{+1.9/-0.8}	173.5 ^{+2.1/-1.1}	13	19	6
50	M8	46.5	9 _{-0.2}	11.5±0.1	36.5 ^{+1.9/-0.8}	199.5 ^{+2.1/-1.1}	17	24	8
63	M8	56.5±0.5	9±0.2	15±0.2	37 ^{+1.8/-1.7}	208	17	24	8
80	M10	72±0.5	10±0.2	18±0.2	46 ^{+1.8/-1.7}	250	22	30	6
100	M10	89±0.5	12±0.2	20±0.2	51 ^{+1.8/-1.7}	275	22	30	6

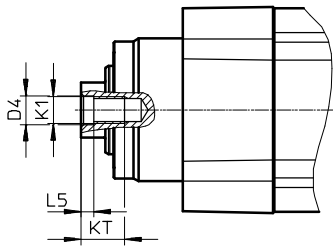
Electric cylinders ESBF, with spindle drive

Dimensions

Download CAD data → www.festo.com

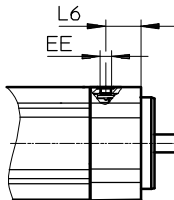
Variants

F – Female thread

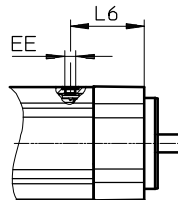


S1 – Degree of protection IP65 / F1 – For food zone

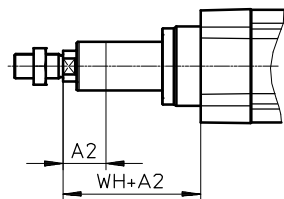
ESBF-32 ... 50



ESBF-63 ... 100



...E – Piston rod extension



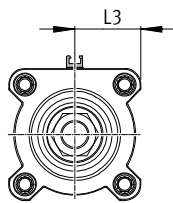
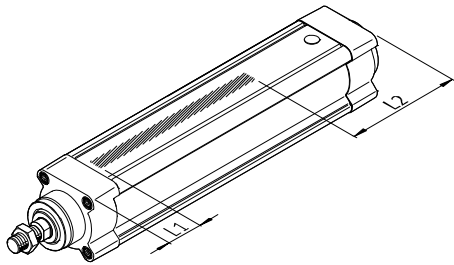
Size	A2	D4 Ø	EE	L5	L6	K1	KT	WH
	max.			±0.2			min.	
32	200	6.4 ^{+0.2}	M7	2.6	19.5	M6	12	25.5 ^{+1.9/-0.8}
40	200	8.4 ^{+0.2}	M7	3.3	24	M8	12	29.5 ^{+1.9/-0.8}
50	200	10.5 ^{+0.2}	M7	4.7	28	M10	16	36.5 ^{+1.9/-0.8}
63	200	10.5 ^{+0.1}	G1/8	4.7	48.5	M10	16	37 ^{+1.8/-1.7}
80	200	13 ^{+0.1}	G1/8	6.1	57.5	M12	20	46 ^{+1.8/-1.7}
100	200	13 ^{+0.1}	G1/8	6.1	68.5	M12	20	51 ^{+1.8/-1.7}

Sensor mounting

The sensor mountings can only be attached within the highlighted area due to the asymmetry of the internal magnets.

The proximity sensors may not switch reliably if they are mounted outside of this area.

The overall length of the sensor rail SAMH corresponds to the length of the sensing range plus approx. 10 mm adjustment range on either side for the proximity sensors.



Size	L1	L2	L3
32	26	48	22.3
40	30	65	26.5
50	30	84	31.5
63	33	99	37
80	39	132	46
100	39	151	54.5

Linear drives and slides >

04

Electromechanical drives



The all-rounder amongst spindle axes

- + Fast delivery thanks to product types in stock
- + Different spindle pitches, numerous sizes and variants open up a broad range of applications
- + Excellent price/performance ratio

Linear drives and slides ›

Spindle axes with recirculating ball bearing guide

EGC-BS-KF

Linear drives and slides >

Spindle axes with recirculating ball bearing guide

EGC-BS-KF



Overview, configuration and ordering

→ www.festo.com/catalogue/egc-bs



Additional information, support and user documentation

→ www.festo.com/sp/egc-bs



Spare parts service



- + Recirculating ball bearing guide for high loads and torques
- + Optionally with clamping unit, at one or both ends
- + Profile with optimised rigidity and load capacity
- + Spindle support enables maximum travel speed
- + Optimum force-speed ratio thanks to different spindle pitches
- + Comprehensive range of mounting accessories for multi-axis combinations

Spindle axes EGC-BS-KF, with recirculating ball bearing guide

Product range overview

Type/version	Size	Stroke [mm]	Feed force F _x [N]	Product options						 Page/ online
				S	ML	MR	GK	M1	M2	
EGC-BS										
KF – Recirculating ball bearing guide	70, 80, 120, 185	50 ... 3000	400 ... 3000							538
EGC-FA										
Passive guide axis	70, 80, 120, 185	50 ... 8500	–	–	–	–		–	–	egc-fa

Product options

S	Spindle support	GQ	Extended slide, protected	M1	Displacement encoder, incremental, resolution 2.5 µm	1HL	Clamping unit, 1-channel, on left
ML	Motor on left	KL	Additional slide on left	M2	Displacement encoder, incremental, resolution 10 µm	1HR	Clamping unit, 1-channel, on right
MR	Motor on right	KR	Additional slide on right			2H	Clamping unit, 2-channel
GK	Standard slide	C	Lubrication adapter			PN	Pneumatically actuated clamping unit
GV	Extended slide					DN	Without operating instructions
GP	Standard slide, protected						

At a glance

- Generously sized profiles with an optimised cross section afford maximum rigidity and load capacity
 - High speed, acceleration and torque resistance
 - Optional displacement encoder
- Different spindle pitches, numerous sizes and variants such as protected guides open up a broad range of applications
 - Due to the EGC's high performance it is often possible to use a smaller size
- Spindle support enables maximum travel speed with all stroke lengths
 - Space-saving position sensing possible via proximity sensor in the profile slot
- Wide range of options for mounting on drives
 - Comprehensive range of mounting accessories for multi-axis combinations

Linear drives and slides >

Spindle axes EGC-BS-KF, with recirculating ball bearing guide

Data sheet

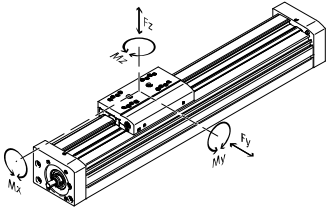


Technical data

Note

PositioningDrives
engineering software
→ www.festo.com

Dimensions → Page 546



Size		70	80	120	185
Spindle pitch	[mm/rev]	10	1020	1025	40
Working stroke	[mm]	50 ... 1000	50 ... 2000	50 ... 2500	50 ... 3000
Spindle diameter	[mm]	10	1020	1025	40
Max. feed force F _x	[N]	400	650	1500	3000
No-load torque	[Nm]	0.17	0.30.35	1.01.0	2.2
at min. travel speed	[m/s]	0.05	0.10.1	0.20.2	0.2
No-load torque	[Nm]	0.45	0.750.75	2.252.25	6.5
at max. travel speed	[m/s]	0.5	0.51	0.61.5	2
Max. radial force ¹⁾	[N]	220	250	500	4000
Max. rotational speed ²⁾	[rpm]	3000	3000	3600	3000
Max. acceleration	[m/s ²]	15			
Repetition accuracy	[mm]	±0.02			
Max. permissible force F _y	[N]	1850	3050	6890	15,200
Max. permissible force F _z	[N]	1850	3050	6890	15,200
Max. permissible torque M _x	[Nm]	16	36	144	529
Max. permissible torque M _y	[Nm]	51	97	380	1157
Max. permissible torque M _z	[Nm]	51	97	380	1157

1) At the drive shaft.

2) Rotational speed and speed are stroke-dependent.

Operating conditions

Ambient temperature ³⁾	[°C]	−10 ... +60
Degree of protection		IP40

3) Note operating range of proximity sensors.

Spindle axes EGC-BS-KF, with recirculating ball bearing guide

Data sheet

Mass moment of inertia							
Size		70	80		120		185
Spindle pitch	[mm/rev]	10	10	20	10	25	40
J_0	[kg mm ²]	1.99	5.2	5.2	64.46	64.46	594
J_S per metre stroke	[kg mm ² /m]	14.2	34.6	34.6	275.6	275.6	1803.1
J_L per kg payload	[kg mm ² /kg]	2.53	2.53	10.13	2.53	15.83	40.53
J_W slide	[kg mm ²]	1.04	1.86	7.46	6.09	38.06	348.87

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

$$J_A = J_0 + J_W + J_S \times \text{working stroke [m]} + J_L \times m_{\text{payload [kg]}}$$

Materials	
Cover	Anodised wrought aluminium alloy
Moment compensator	Anodised wrought aluminium alloy
Profile	Anodised wrought aluminium alloy
Slides	Anodised wrought aluminium alloy
Spindle	Steel
Guide rail	Steel
Cover strip	PU

Technical data – Displacement encoder			
Type		EGC-...-M1	EGC-...-M2
Resolution	[μm]	2.5	10
Max. travel speed with displacement encoder system	[m/s]	4	4
Encoder signal		5 V TTL; A/A, B/B; reference signal (N/N) cyclically every 5 mm (zero pulse)	
Signal output		Line driver, alternating, resistant to sustained short circuit	
Electrical connection		8-pin plug, round design, M12	
Cable length	[mm]	160	

Operating conditions – Displacement encoder		
Ambient temperature	[°C]	−10 ... +70
Degree of protection		IP64

Linear drives and slides >

Spindle axes EGC-BS-KF, with recirculating ball bearing guide

Order code

Electromechanical drives

EGC

BS

KF

GK

Type		
EGC	Electromechanical linear axis	

Size		
	Stroke [mm]	
70	100, 200, 300, 400, 500, 600, 700, 800, 1000	50 ... 980
80	100, 200, 300, 400, 500, 600, 700, 800, 900, 1000, 1400, 1500, 1800, 2000	50 ... 1980
120	100, 200, 300, 400, 500, 600, 700, 800, 900, 1000, 1400, 1500, 2000, 2500	50 ... 2480
185	300, 500, 600, 1000, 1500, 2000, 2500, 3000	50 ... 2980

Drive function		
BS	Ball screw	

Spindle pitch [mm/rev]		
10P	10	1
20P	20	2
25P	25	3
40P	40	4

Spindle support		
-	Without	
S	With spindle support 5	

Guide		
KF	Recirculating ball bearing guide	

Stroke reserve		
...H	0 ... 999 (0 = no stroke reserve)	6

Motor attachment position		
ML	Left	
MR	Right	

Slides		
GK	Standard slide	

Displacement encoder, incremental		
-	Without	
M1	Resolution: 2.5 µm	
M2	Resolution: 10 µm	

- 1

Only with size 70, 80, 120
- 2

Only with size 80
- 3

Only with size 120
- 4

Only with size 185.
- 5

Only above stroke 705 mm with size 70, only above stroke 780 mm with size 80, only above stroke 883 mm with size 120, only above stroke 1224 mm with size 185.
- 6

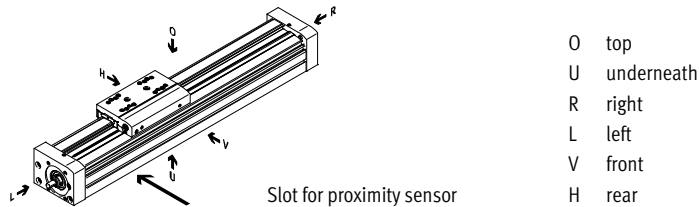
The sum of the stroke length and 2x stroke reserve must not exceed the maximum working stroke.

Order example:

EGC-70-500-BS-10P-KF-100H-ML-GK

Electromechanical linear axis EGC - size 70 - stroke 500 mm - ball screw - spindle pitch 10 mm/rev - without spindle support - recirculating ball bearing guide - stroke reserve 100 mm - motor attachment on left - standard slide- without displacement encoder

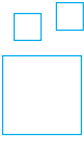
Ordering aid



Slot for proximity sensor

Spindle axes EGC-BS-KF, with recirculating ball bearing guide

Ordering – Product options



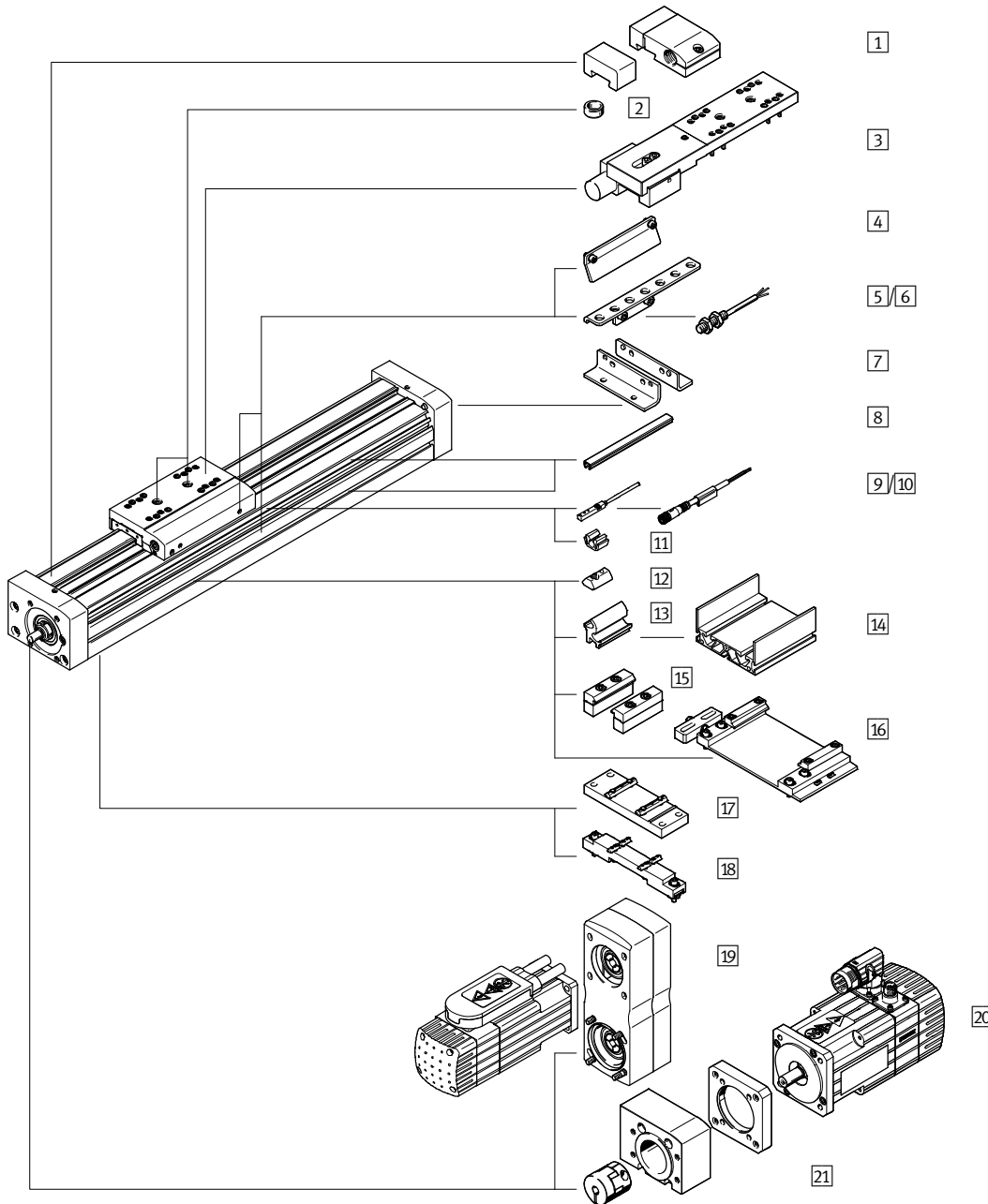
Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
→ www.festo.com/catalogue/...

Enter the type code in the search field.

Accessories



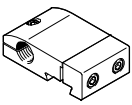
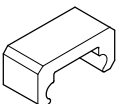
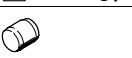
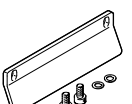
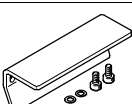
		→ Page/online
1	Emergency buffer NPE/shock absorber retainer KYE	542
2	Centring pin ZBS/centring sleeve ZBH	542
3	Clamping unit 1H...-PN, 2H-PN	egc-bs
4	Switch lug SF-EGC	542
5	Sensor bracket HWS-EGC	542
6	Inductive proximity sensor SIEN	542
7	Foot mounting HPE	542
8	Slot cover ABP/ABP-S	542
9	Inductive proximity sensor SIES	542
10	Connecting cable NEBU	542
11	Clip SMBK	543

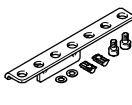
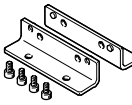
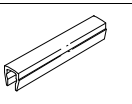
		→ Page/online
12	Slot nut NST	543
13	Adapter kit DHAM	egc-bs
14	Support profile HMIA	egc-bs
15	Profile mounting MUE	543
16	Adjusting kit EADC-E16	543
17	Central support EAHF-L5	543
18	Adjusting kit EADC-E15	543
19	Parallel kit EAMM-U	544
20	Motor EMME/EMMS	545
21	Axial kit EAMM-A	545

Linear drives and slides >

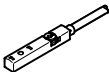
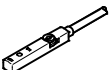
Spindle axes EGC-BS-KF, with recirculating ball bearing guide

Accessories – Ordering data

	For size	Part no.	Type
1 Shock absorber retainer Dimensions online: → egc-bs			
	70	557584	KYE-70
	80	557585	KYE-80
	120	557586	KYE-120
	185	557587	KYE-185
1 Emergency buffer			
	70	562581	NPE-70
	80	562582	NPE-80
	120	562583	NPE-120
	185	562584	NPE-185
2 Centring pin¹⁾²⁾ Data sheets online: → zbs			
	70	150928	ZBS-5
2 Centring sleeve¹⁾²⁾ Data sheets online: → zbh			
	80, 120, 185	150927	ZBH-9
4 Switch lug³⁾ Dimensions online: → egc-bs			
	70	558047	SF-EGC-1-70
	80	558048	SF-EGC-1-80
	120	558049	SF-EGC-1-120
	185	558051	SF-EGC-1-185
4 Switch lug⁴⁾ Dimensions online: → egc-bs			
	70	558052	SF-EGC-2-70
	80	558053	SF-EGC-2-80
	120	558054	SF-EGC-2-120
	185	558056	SF-EGC-2-185

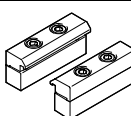
	For size	Part no.	Type
5 Sensor bracket⁵⁾ Dimensions online: → egc-bs			
	70	558057	HWS-EGC-M5
	80	558057	HWS-EGC-M5
	120	570365	HWS-EGC-M8-B
	185	560517	HWS-EGC-M8-KURZ
6 Inductive proximity sensor – N/O contact, M8 Data sheets → Page 1230			
	PNP, cable	★ 150386	SIEN-M8B-PS-K-L
	PNP, plug	★ 150387	SIEN-M8B-PS-S-L
N/C contact, M8 Data sheets → Page 1230			
	PNP, cable	150390	SIEN-M8B-PO-K-L
	PNP, plug	150391	SIEN-M8B-PO-S-L
7 Foot mounting Dimensions online: → egc-bs			
	70	558321	HPE-70
	80	558322	HPE-80
	120	558323	HPE-120
	185	558325	HPE-185
8 Slot cover⁶⁾			
	For mounting slot		
	70, 80	151681	ABP-5
	120, 185	151682	ABP-8
	For sensor slot		
	70 ... 185	563360	ABP-5-S1

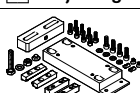
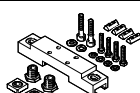
- 1) Packaging unit 10 pieces.
- 2) 2 centring pins/sleeves included in the scope of delivery of the axis.
- 3) For sensing via proximity sensor SIES-8M.
- 4) For sensing via proximity sensor SIEN-M8B or SIES-8M.
- 5) For proximity sensor SIEN-M8B.
- 6) Packaging unit 2x 0.5 m.

	For size	Switching output, connection	Cable length [m]	Part no.	Type
9 Proximity sensor for T-slot, inductive – N/O contact Data sheets → Page 1235					
	70 ... 185	PNP, cable	7.5	551386	SIES-8M-PS-24V-K-7,5-OE
		PNP, plug	0.3	551387	SIES-8M-PS-24V-K-0,3-M8D
		NPN, cable	7.5	551396	SIES-8M-NS-24V-K-7,5-OE
		NPN, plug	0.3	551397	SIES-8M-NS-24V-K-0,3-M8D
N/C contact Data sheets → Page 1235					
	70 ... 185	PNP, cable	7.5	551391	SIES-8M-PO-24V-K-7,5-OE
		PNP, plug	0.3	551392	SIES-8M-PO-24V-K-0,3-M8D
		NPN, cable	7.5	551401	SIES-8M-NO-24V-K-7,5-OE
		NPN, plug	0.3	551402	SIES-8M-NO-24V-K-0,3-M8D
10 Connecting cable, straight socket Data sheets → Page 1543					
	70 ... 185	M8x1, 3-pin	2.5	★ 541333	NEBU-M8G3-K-2.5-LE3
			5.0	★ 541334	NEBU-M8G3-K-5-LE3
Angled socket Data sheets → Page 1543					
	70 ... 185	M8x1, 3-pin	2.5	★ 541338	NEBU-M8W3-K-2.5-LE3
			5.0	★ 541341	NEBU-M8W3-K-5-LE3

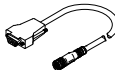
Spindle axes EGC-BS-KF, with recirculating ball bearing guide

Accessories – Ordering data

	For size	Part no.	Type
11 Clip			
	70 ... 185	534254	SMBK-8
12 Slot nut Dimensions online: → nst			
	70, 80	150914	NST-5-M5
		8047843	NST-5-M5-10¹⁾
		8047878	NST-5-M5-50²⁾
	120, 185	150915	NST-8-M6
		8047868	NST-8-M6-10¹⁾
		8047869	NST-8-M6-50²⁾
15 Profile mounting Dimensions online: → egc-bs			
	70	558043	MUE-70/80
	80	558043	MUE-70/80
	120	558044	MUE-120/185
	185	558044	MUE-120/185

	For size	Part no.	Type
16 Adjusting kit Dimensions online: → egc-bs			
	80	8047577	EADC-E16-80-E7
	120	8047578	EADC-E16-120-E7
	185	8047579	EADC-E16-185-E7
17 Central support Dimensions online: → egc-bs			
	70	2349256	EAHF-L5-70-P
	80	3535188	EAHF-L5-80-P
	120	2410274	EAHF-L5-120-P
18 Adjusting kit Dimensions online: → egc-bs			
	70	8047566	EADC-E15-80-E7
	80	8047566	EADC-E15-80-E7
	120	8047567	EADC-E15-120-E7
	185	8047568	EADC-E15-185-E7

- 1) Packaging unit 10 pieces.
2) Packaging unit 50 pieces.

	Electrical connection, left	Electrical connection, right	Cable length [m]	Part no.	Type
Encoder cables for displacement encoder, EGC-...-M1/-M2					
	Displacement encoder EGC-...-M1/-M2	Motor controller CMMP- AS-...	5	1599105	NEBM-M12G8-E-5-S1G9-V3
			10	1599106	NEBM-M12G8-E-10-S1G9-V3
			15	1599107	NEBM-M12G8-E-15-S1G9-V3
			X ³⁾	1599108	NEBM-M12G8-E-...-S1G9-V3

3) Max. cable length 25 m.

Linear drives and slides >

Spindle axes EGC-BS-KF, with recirculating ball bearing guide

Accessories – Ordering data

Note

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

When using parallel kits, the no-load driving torque of the respective kit must be taken into consideration.

Motor/gear unit ¹⁾	Parallel kit	
	Part no.	Type
EGC-120-...-BS		
With servo motor		
EMMS-AS-70-...	1217543	EAMM-U-86-S62-70A-177 ²⁾
EMME-AS-80-...	2157004	EAMM-U-86-S62-80P-177 ²⁾
EMME-AS-100-...	1217381	EAMM-U-110-S62-100A-207 ²⁾
EMMS-AS-100-...	1217381	EAMM-U-110-S62-100A-207 ²⁾
EMMS-AS-140-...	1219440	EAMM-U-145-S62-140A-288 ²⁾
With stepper motor		
EMMS-ST-87-...	1217373	EAMM-U-86-S62-87A-177 ²⁾
With gear unit		
EMGA-60-P-...-SAS/SST ³⁾	1587411	EAMM-U-86-S62-60G-177 ²⁾
EMGA-60-P-...-EAS, EMGC-60-P-... ³⁾	1587453	EAMM-U-86-S62-60H-177 ²⁾
EGC-185-...-BS		
With servo motor		
EMME-AS-100-...	1220656	EAMM-U-110-S95-100A-207 ²⁾
EMMS-AS-100-...	1220656	EAMM-U-110-S95-100A-207 ²⁾
EMMS-AS-140-...	1220582	EAMM-U-145-S95-140A-288 ²⁾
With gear unit		
EMGA-80-P-...	1589544	EAMM-U-110-S95-80G-207 ²⁾
EGC-70-...-BS		
With servo motor		
EMME-AS-40-...	2155239	EAMM-U-50-S38-40P-78
EMMS-AS-40-...	1217708	EAMM-U-50-S38-40A-78
EMMS-AS-55-...	1218538	EAMM-U-60-S38-55A-91
With stepper motor		
EMMS-ST-42-...	1217945	EAMM-U-50-S38-42A-78
EMMS-ST-57-...	1218568	EAMM-U-60-S38-57A-91
With gear unit		
EMGA-40-P-...	2283732	EAMM-U-60-S38-40G-91
EMGC-40-P-...	2283732	EAMM-U-60-S38-40G-91
EGC-80-...-BS		
With servo motor		
EMMS-AS-55-...	1219370	EAMM-U-60-S48-55A-91 ²⁾
EMME-AS-60-...	2629253	EAMM-U-70-S48-60P-96 ²⁾
EMMS-AS-70-...	2787320	EAMM-U-70-S48-70A-96 ²⁾
EMMS-AS-70-...	1217689	EAMM-U-86-S48-70A-102 ²⁾
With stepper motor		
EMMS-ST-57-...	1219379	EAMM-U-60-S48-57A-91 ²⁾
EMMS-ST-87-...	1217604	EAMM-U-86-S48-87A-177 ²⁾
With gear unit		
EMGA-40-P-...	2283760	EAMM-U-60-S48-40G-91 ²⁾
EMGC-40-P-...	2283760	EAMM-U-60-S48-40G-91 ²⁾
EMGA-60-P-...-SAS/SST ³⁾	2801627	EAMM-U-70-S48-60G-96 ²⁾
EMGA-60-P-...-EAS, EMGC-60-P-... ³⁾	2801715	EAMM-U-70-S48-60H-96 ²⁾
EMGA-60-P-...-SAS/SST ³⁾	1587251	EAMM-U-86-S48-60G-102 ²⁾
EMGA-60-P-...-EAS, EMGC-60-P-... ³⁾	1587338	EAMM-U-86-S48-60H-102 ²⁾

¹⁹⁾/²⁰⁾ Permissible axis/motor combination with parallel kit –

Data sheets online: → [eamm-u](#)

Motor/gear unit ¹⁾	Parallel kit	
	Part no.	Type
EGC-120-...-BS		
With servo motor		
EMMS-AS-70-...	1217543	EAMM-U-86-S62-70A-177 ²⁾
EMME-AS-80-...	2157004	EAMM-U-86-S62-80P-177 ²⁾
EMME-AS-100-...	1217381	EAMM-U-110-S62-100A-207 ²⁾
EMMS-AS-100-...	1217381	EAMM-U-110-S62-100A-207 ²⁾
EMMS-AS-140-...	1219440	EAMM-U-145-S62-140A-288 ²⁾
With stepper motor		
EMMS-ST-87-...	1217373	EAMM-U-86-S62-87A-177 ²⁾
With gear unit		
EMGA-60-P-...-SAS/SST ³⁾	1587411	EAMM-U-86-S62-60G-177 ²⁾
EMGA-60-P-...-EAS, EMGC-60-P-... ³⁾	1587453	EAMM-U-86-S62-60H-177 ²⁾
EGC-185-...-BS		
With servo motor		
EMME-AS-100-...	1220656	EAMM-U-110-S95-100A-207 ²⁾
EMMS-AS-100-...	1220656	EAMM-U-110-S95-100A-207 ²⁾
EMMS-AS-140-...	1220582	EAMM-U-145-S95-140A-288 ²⁾
With gear unit		
EMGA-80-P-...	1589544	EAMM-U-110-S95-80G-207 ²⁾

- 1) The input torque must not exceed the maximum permissible transferable torque of the parallel kit.
- 2) To support the axis shaft, a counter bearing EAMG and a clamping sleeve EAMH-...-P with integrated trunnion are included in the scope of delivery of the parallel kit → online: [eamm-u](#)
- 3) Gear unit drive shaft diameter: EMGA-60-P-...-SAS/SST: 11 mm; EMGA-60-P-...-EAS, EMGC-60-P: 14 mm

Note

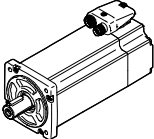
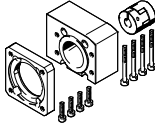
The clamping element EADT is required to adjust the toothed belt pretensioning for EAMM-U-110 and EAMM-U-145.

The motor and/or axis shaft can optionally be supported with a counter bearing EAMG.

More information → [eamm-u](#)

Spindle axes EGC-BS-KF, with recirculating ball bearing guide

Accessories – Ordering data

Motor ¹⁾	Axial kit	
		
	Part no.	Type
20/21 Permissible axis/motor combination with axial kit – Data sheets online: → eamm-a		
EGC-70-...-BS		
With servo motor		
EMME-AS-40-...	3637972	EAMM-A-S38-40P-G2
EMMS-AS-40-...	3637971	EAMM-A-S38-40A-G2
EMMS-AS-55-...	3637967	EAMM-A-S38-55A-G2
EMME-AS-60-...	3637958	EAMM-A-S38-60P-G2
With servo motor and gear unit		
EMME-AS-40-...	1456647	EAMM-A-S38-40G-G2
EMGA-40-P-G-...-EAS-40		
EMMS-AS-40-...	1456647	EAMM-A-S38-40G-G2
EMGA-40-P-G-...-SAS-40		
With stepper motor		
EMMS-ST-42-...	3637965	EAMM-A-S38-42A-G2
EMMS-ST-57-...	3637956	EAMM-A-S38-57A-G2
With stepper motor and gear unit		
EMMS-ST-42-...	1456647	EAMM-A-S38-40G-G2
EMGA-40-P-G-...-SST-42		
With integrated drive		
EMCA-EC-67-...	1456638	EAMM-A-S38-67A-G2
With integrated drive and gear unit		
EMCA-EC-67-...-	1456647	EAMM-A-S38-40G-G2
EMGC-40-...		
EGC-80-...-BS		
With servo motor		
EMMS-AS-55-...	3637961	EAMM-A-S48-55A-G2
EMME-AS-60-...	3637964	EAMM-A-S48-60P-G2
EMMS-AS-70-...	3637957	EAMM-A-S48-70A-G2
With servo motor and gear unit		
EMME-AS-40-...	1456650	EAMM-A-S48-40G-G2
EMGA-40-P-G-...-EAS-40		
EMMS-AS-40-...	1456650	EAMM-A-S48-40G-G2
EMGA-40-P-G-...-SAS-40		
EMMS-AS-55-...	2256701	EAMM-A-S48-60G-G2
EMGA-60-P-G-...-SAS-55		
EMME-AS-60-...	1456652	EAMM-A-S48-60H-G2
EMGA-60-P-G-...-EAS-60		
EMMS-AS-70-...	2256701	EAMM-A-S48-60G-G2
EMGA-60-P-G-...-SAS-70		
With stepper motor		
EMMS-ST-57-...	3637963	EAMM-A-S48-57A-G2
EMMS-ST-87-...	3637962	EAMM-A-S48-87A-G2

Motor/gear unit ¹⁾	Axial kit	
	Part no.	Type
EGC-80-...-BS		
With stepper motor and gear unit		
EMMS-ST-42-...	1456650	EAMM-A-S48-40G-G2
EMGA-40-P-G-...-SST-42		
EMMS-ST-57-...	2256701	EAMM-A-S48-60G-G2
EMGA-60-P-G-...-SST-57		
With integrated drive and gear unit		
EMCA-EC-67-...-	1456650	EAMM-A-S48-40G-G2
EMGC-40-...		
EMCA-EC-67-...-	1456652	EAMM-A-S48-60H-G2
EMGC-60-...		
EGC-120-...-BS		
With servo motor		
EMMS-AS-70-...	3637959	EAMM-A-S62-70A-G2
EMME-AS-80-...	3637970	EAMM-A-S62-80P-G2
EMME-AS-100-...	3637960	EAMM-A-S62-100A-G2
EMMS-AS-100-...	3637960	EAMM-A-S62-100A-G2
EMMS-AS-140-...	3637969	EAMM-A-S62-140A-G2
With servo motor and gear unit		
EMMS-AS-55-...	2297649	EAMM-A-S62-60G-G2
EMGA-60-P-G-...-SAS-55		
EMME-AS-60-...	1456654	EAMM-A-S62-60H-G2
EMGA-60-P-G-...-EAS-60		
EMMS-AS-70-...	2297649	EAMM-A-S62-60G-G2
EMGA-60-P-G-...-SAS-70		
EMMS-AS-70-...	1972530	EAMM-A-S62-80G-G2
EMGA-80-P-G-...-SAS-70		
EMME-AS-80-...	1972530	EAMM-A-S62-80G-G2
EMGA-80-P-G-...-EAS-80		
EMME-AS-100-...	1972530	EAMM-A-S62-80G-G2
EMGA-80-P-G-...-SAS-100		
EMMS-AS-100-...	1972530	EAMM-A-S62-80G-G2
EMGA-80-P-G-...-SAS-100		
With stepper motor		
EMMS-ST-87-...	3637966	EAMM-A-S62-87A-G2
With stepper motor and gear unit		
EMMS-ST-57-...	2297649	EAMM-A-S62-60G-G2
EMGA-60-P-G-...-SST-57		
EMMS-ST-87-...	1972530	EAMM-A-S62-80G-G2
EMGA-80-P-G-...-SST-87		
With integrated drive and gear unit		
EMCA-EC-67-...-	1456654	EAMM-A-S62-60H-G2
EMGC-60-...		
EGC-185-...-BS		
With servo motor		
EMME-AS-100-...	3637955	EAMM-A-S95-100A-G2
EMMS-AS-100-...	3637955	EAMM-A-S95-100A-G2
EMMS-AS-140-...	3637954	EAMM-A-S95-140A-G2

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

04

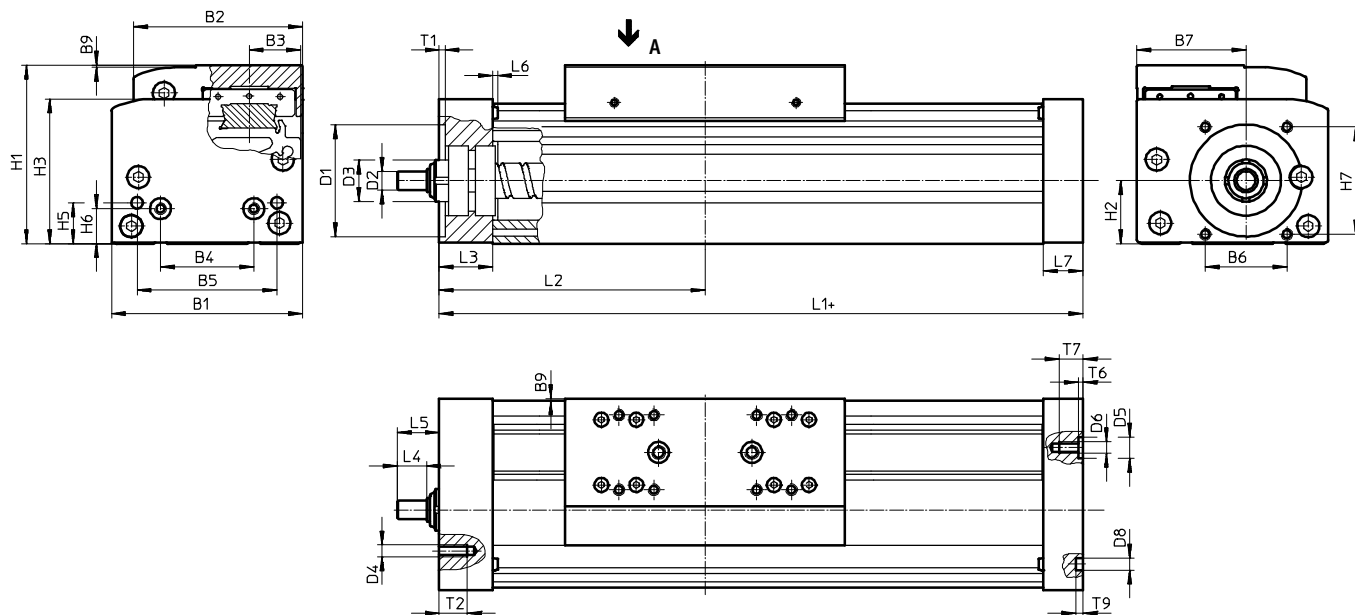
Electromechanical drives

Linear drives and slides >

Spindle axes EGC-BS-KF, with recirculating ball bearing guide

Dimensions

Download CAD data → www.festo.com



+ = plus stroke length + 2 x stroke reserve

Note

To avoid distortion in the slide, the bearing surfaces of the attachments must maintain a minimum flatness of 0.01 mm.

Size	Stroke	B1	B2	B3	B4	B5	B6	B7	B9	D1 Ø H7	D2 Ø h7	D3
70	50 ... 1000	69	58.6	16.5	30	45	29	39	1	38	6	≅13
80	< 1477	82	72.6	22	40	60	35	46.75	1	48	8	Ø18
	> 1477											
120	< 1704	120	107	33	80	40	64	78	1	62	12	Ø28
	> 1704											
185	< 2361	186	169	53	120	80	80	114	1	95	25	Ø44
	> 2361											

Size	Stroke	D4	D5 Ø H7	D6	D8 Ø H7	H1	H2	H3	H5	H6	H7	L1
70	50 ... 1000	M5	–	M5	5	64	22.5	50.5	13	13	36	168
80	< 1477	M5	9	M5	5	76.5	27	62	17.5	15	46	196
	> 1477											236
120	< 1704	M6	–	M8	9	111.5	42.5	89.5	22	22	54	309
	> 1704											369
185	< 2361	M8	–	M10	9	172.5	65.2	141.5	25	25	80	412
	> 2361											512

Size	Stroke	L2	L3	L4	L5	L6	L7	T1	T2	T6	T7	T9
70	50 ... 1000	86.5	21	8	14	1.8	16	2.5	12	–	10	3.1
80	< 1477	101	23	12.5	18	2	17	2.5	12	2.1	10	3.1
	> 1477	121										
120	< 1704	156	33	17.5	25.5	2	30	3	15	–	16	2.1
	> 1704	186										
185	< 2361	209	43	23	30.5	2	37	3	20	–	20	2.1
	> 2361	259										

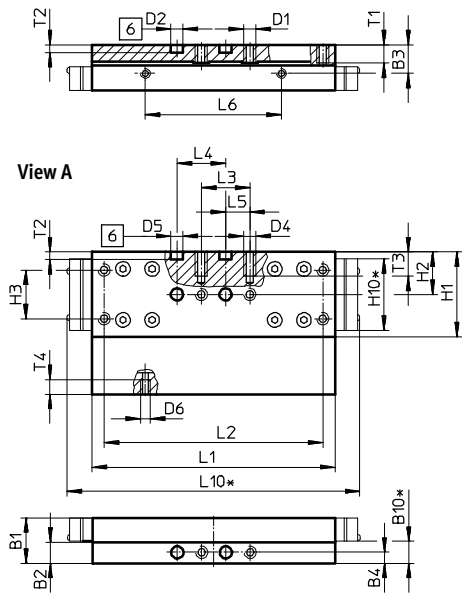
Spindle axes EGC-BS-KF, with recirculating ball bearing guide

Dimensions

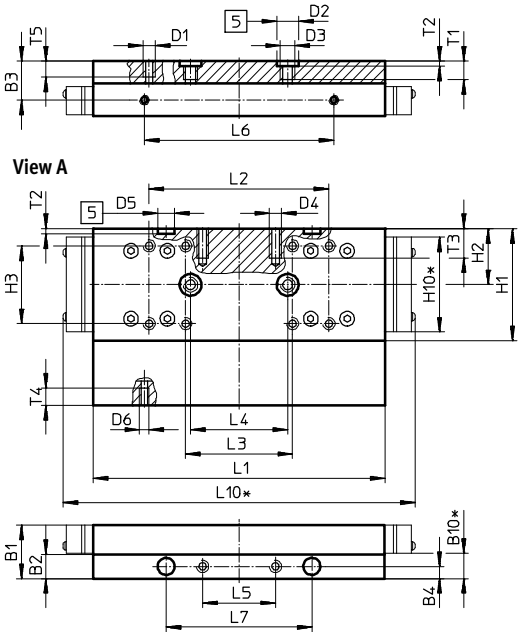
Download CAD data → www.festo.com

GK – Standard slide

Size 70



Size 80



- 5 Drill hole for centring sleeve
- 6 Drill hole for centring pin
- * Protected version

Size	B1	B2	B3	B4	B10*	D1	D2 Ø H7	D3	D4	D5 Ø H7
70	18.7	8.7	11.7	4.5	9	M5	5	–	M5	5
80	22	10	16	5	10.4	M5	9	M6	M5	7

Size	D6	H1	H2	H3	H10*	L1 ±0.1	L2	L3	L4 ±0.03
70	M4	35	17.5	20 ±0.1	29.4	100	90 ±0.1	20 ±0.1	20
80	M4	46	23	32 ±0.2	39	120	74 ±0.2	44 ±0.2	40

Size	L5	L6 ±0.1	L7 ±0.05	L10*	T1	T2 ±0.01	T3	T4	T5
70	10 ±0.1	56	–	121	7.5	3.1	10	6	–
80	30 ±0.1	78	60	145	8.6	2.1	12	7	7.5

* Protected version

Linear drives and slides >

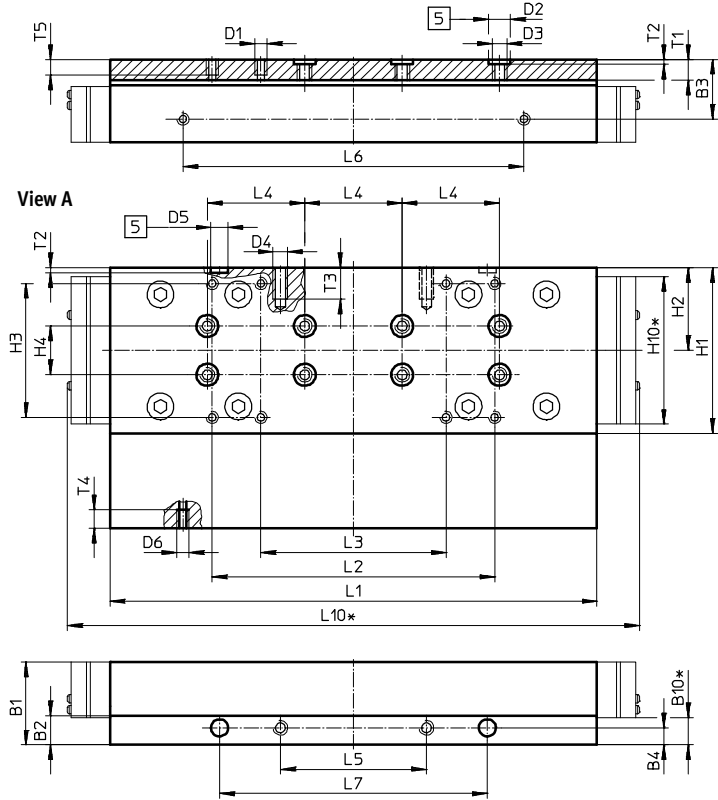
Spindle axes EGC-BS-KF, with recirculating ball bearing guide

Dimensions

GK – Standard slide

Size 120

Download CAD data → www.festo.com



5 Drill hole for centring sleeve
* Protected version

Size	B1	B2	B3	B4	B10*	D1	D2 Ø H7	D3	D4	D5 Ø H7
120	34	12	24.5	7	11.2	M5	9	M6	M6	7

Size	D6	H1	H2	H3	H4	H10*	L1	L2	L3	L4
					±0.03		±0.1			±0.03
120	M5	68	34	55 ±0.2	20	60.6	203.3	116 ±0.2	76 ±0.2	40

Size	L5	L6	L7	L10*	T1	T2	T3	T4	T5
		±0.1	±0.05			±0.01			
120	60 ±0.1	140	110	235	8.6	2.1	13	7.5	7.5

* Protected version

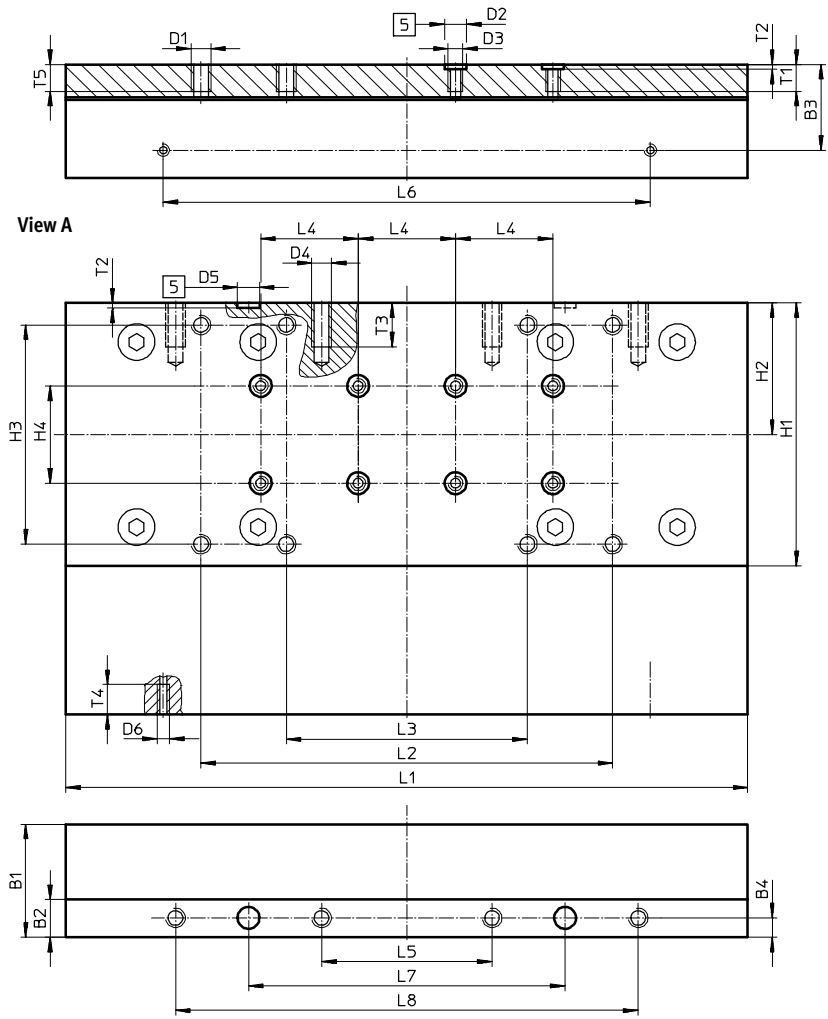
Spindle axes EGC-BS-KF, with recirculating ball bearing guide

Dimensions

GK – Standard slide

Size 185

Download CAD data → www.festo.com



5 Drill hole for centring sleeve

Size	B1	B2	B3	B4	D1	D2 Ø H7	D3	D4	D5 Ø H7
185	46.5	15.5	35.2	8	M8	9	M6	M8	9

Size	D6	H1	H2	H3	H4	L1	L2	L3	L4
					±0.03	±0.1			±0.03
185	M5	108	54	90 ±0.2	40	282.8	169 ±0.2	99 ±0.2	40

Size	L5	L6	L7	L8	T1	T2	T3	T4	T5
		±0.1	±0.05	±0.2		±0.01			
185	70 ±0.2	200	130	190	11	2.1	18	12.3	12

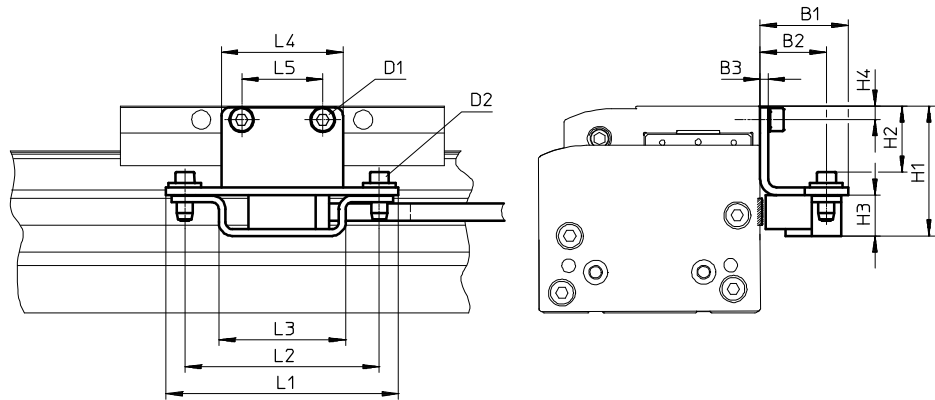
Linear drives and slides >

Spindle axes EGC-BS-KF, with recirculating ball bearing guide

Dimensions

Download CAD data → www.festo.com

M1/M2 – With incremental displacement encoder



Encoder cable (connection to the motor controller/safety system)
→ Page 543

Size	B1	B2	B3	H1	H2	H3	H4	D1	D2	L1	L2	L3	L4	L5
70	32.5	24.5	3	39	18.4	15	4.5	M5x8	M4x14	86	72	47	35	20
80				48	24.4		5	M5x8					45	30
120				60	36.4		7	M6x10					86	60
185				78.5	54.9		8	M8x12					86	70



Excellent price/ performance ratio

- + Fast delivery thanks to product types in stock
- + Different sizes and numerous variants open up a broad range of applications

Linear drives and slides ›

Toothed belt axes with recirculating
ball bearing guide

EGC-TB-KF

Linear drives and slides >

Toothed belt axes with recirculating ball bearing guide

EGC-TB-KF



Overview, configuration and ordering

→ www.festo.com/catalogue/egc-tb



Additional information, support and user documentation

→ www.festo.com/sp/egc-tb



Spare parts service



- + Recirculating ball bearing guide for high loads and torques
- + Optionally with clamping unit, at one or both ends
- + Profile with optimised rigidity and load capacity
- + Comprehensive range of mounting accessories for multi-axis combinations
- + Precision: the slide position can be sensed directly using the optional displacement encoder

Toothed belt axes EGC-TB-KF, with recirculating ball bearing guide

Product range overview

Type/version	Size	Stroke [mm]	Feed force F _x [N]	Product options			➔ Page/online
				GK	M1	M2	
EGC-TB							
KF – Recirculating ball bearing guide	50, 70, 80, 120, 185	50 ... 8500	50 ... 2500	■	■	■	554
EGC-FA							
Guide axis	70, 80, 120, 185	50 ... 8500	–	■	–	–	egc-fa

Product options

GK	Standard slide	KL	Additional slide on left	M1	Displacement encoder, incremental, resolution 2.5 µm	1HL	Clamping unit, 1-channel, on left
GV	Extended slide	KR	Additional slide on right	M2	Displacement encoder, incremental, resolution 10 µm	1HR	Clamping unit, 1-channel, on right
GP	Standard slide, protected	C	Lubrication adapter			2H	Clamping unit, 2-channel
GQ	Extended slide, protected					PN	Pneumatically actuated clamping unit
						DN	Without operating instructions

At a glance

- Generously sized profiles with an optimised cross section afford maximum rigidity and load capacity
 - High speed, acceleration and torque resistance
 - Optional displacement encoder
- Numerous sizes and variants such as protected guides open up a broad range of applications
 - Due to the EGC's high performance it is often possible to use a smaller size
- Space-saving position sensing with proximity sensor in the profile slot is possible
 - Wide range of options for mounting on drives
 - Comprehensive range of mounting accessories for multi-axis combinations

Flexible motor mounting

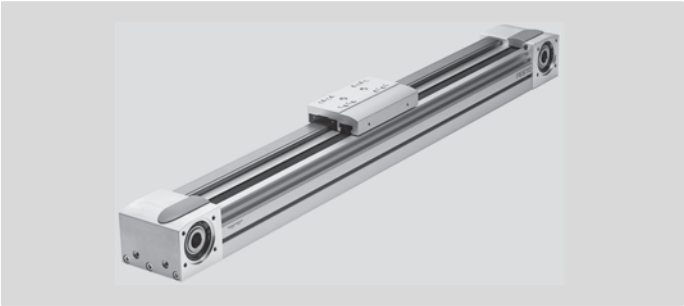
The motor position can be freely selected on 4 sides and can be changed at any time.



Linear drives and slides >

Toothed belt axes EGC-TB-KF, with recirculating ball bearing guide

Data sheet

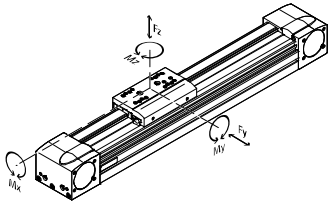


Technical data

Note

Engineering software
PositioningDrives
→ www.festo.com

Dimensions → Page 561



Size		50	70	80	120	185
Working stroke ¹⁾	[mm]	50 ... 1900	50 ... 5000	50 ... 8500	50 ... 8500	50 ... 8500
Max. feed force F_x	[N]	50	100	350	800	2500
Max. no-load torque ²⁾	[Nm]	0.072	0.18	0.4	1.4	4.05
Max. no-load resistance to shifting ¹⁾	[N]	8	14.5	28	70	110
Max. driving torque	[Nm]	0.46	1.24	5	16	93
Max. speed	[m/s]	3	5			
Max. acceleration	[m/s ²]	50				
Repetition accuracy	[mm]	±0.08				±0.1
Max. permissible force F_y	[N]	650	1850	3050	6890	15200
Max. permissible force F_z	[N]	650	1850	3050	6890	15200
Max. permissible torque M_x	[Nm]	3.5	16	36	144	529
Max. permissible torque M_y	[Nm]	10	51	97	380	1157
Max. permissible torque M_z	[Nm]	10	51	97	380	1157

1) Total stroke = working stroke + 2x stroke reserve.

2) At 0.2 m/s, with variant GK.

Operating conditions

Ambient temperature ³⁾	[°C]	−10 ... +60
Degree of protection		IP40

3) Note operating range of proximity sensors.

Toothed belt

Size		50	70	80	120	185
Pitch	[mm]	2	3	3	5	8
Tensile strength ⁴⁾	[%]	0.13	0.08	0.21	0.17	0.29
Width	[mm]	10	15	19.3	30.3	50.5
Effective diameter	[mm]	18.46	24.83	28.65	39.79	73.85
Feed constant	[mm/U]	58	78	90	125	232

4) At max. feed force.

Toothed belt axes EGC-TB-KF, with recirculating ball bearing guide

Data sheet

Mass moment of inertia						
Size		50	70	80	120	185
J_0	[kg mm ²]	16.94	83.34	205.9	1241	17976
J_S per metre stroke	[kg mm ² /m]	2.6	10.6	18.8	93	760
J_L per kg payload	[kg mm ² /Kg]	85	154	205	396	1363.5

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

$$J_A = J_0 + J_S \times \text{working stroke [m]} + J_L \times m_{\text{payload [kg]}}$$

Materials	
Cover	Anodised wrought aluminium alloy
Profile	Anodised wrought aluminium alloy
Guide rail	Steel
Pulleys	High-alloy stainless steel
Slides	Anodised wrought aluminium alloy
Toothed belt seals	Polychloroprene with glass cord and nylon coating

Technical data – Displacement encoder			
Type		EGC-...-M1	EGC-...-M2
Resolution	[μm]	2.5	10
Max. travel speed with displacement encoder system	[m/s]	4	4
Encoder signal		5 V TTL; A/A, B/B; reference signal (N/N) cyclically every 5 mm (zero pulse)	
Signal output		Line driver, alternating, resistant to sustained short circuit	
Electrical connection		8-pin plug, round design, M12	
Cable length	[mm]	160	

Operating conditions – Displacement encoder	
Ambient temperature	[°C]
Degree of protection	IP64

Linear drives and slides >

Toothed belt axes EGC-TB-KF, with recirculating ball bearing guide

Order code

EGC

TB

KF

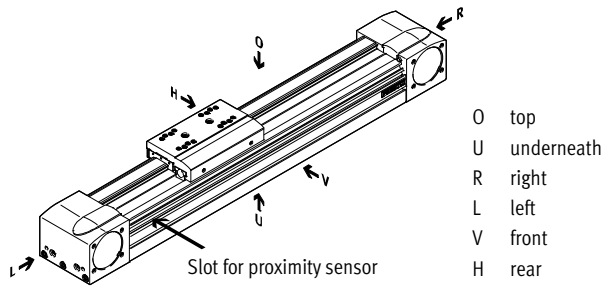
GK

Type	
EGC	Electromechanical linear axis
Size	
	Stroke [mm]
50	50 ... 1900
70	50 ... 5000
80	50 ... 8500
120	50 ... 8500
185	50 ... 8500
Drive function	
TB	Toothed belt
Guide	
KF	Recirculating ball bearing guide
Stroke reserve	
...H	0 ... 999 (0 = no stroke reserve)
	1
Slide	
GK	Standard slide
Displacement encoder, incremental	
-	None
M1	Resolution: 2.5 ìm
M2	Resolution: 10 ìm

1 The sum of the stroke length and 2x stroke reserve must not exceed the maximum working stroke.

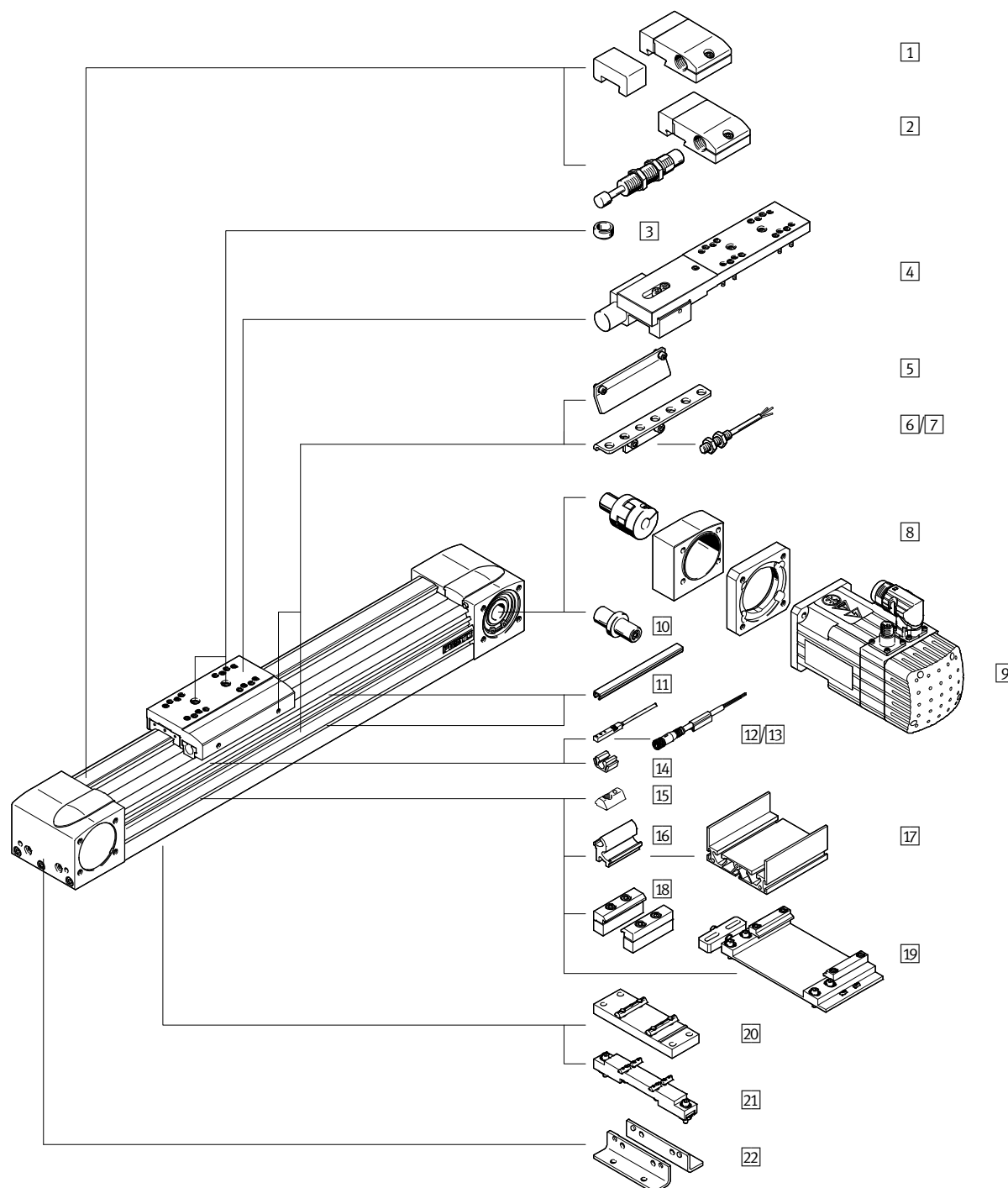
Order example:
EGC-70-500-TB-KF-100H-GK
Electromechanical linear axis EGC - size 70 - stroke 500 mm - toothed belt drive - recirculating ball bearing guide - stroke reserve 100 mm - standard slide - without displacement encoder

Ordering aid



Toothed belt axes EGC-TB-KF, with recirculating ball bearing guide

Accessories



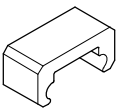
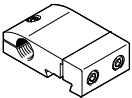
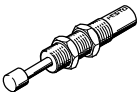
		→ Page/online
1	Emergency buffer NPE/shock absorber retainer KYE	558
2	Shock absorber YSRW/shock absorber retainer KYE	558
3	Centring pin ZBS/centring sleeve ZBH	558
4	Clamping unit 1H-P...N, 2H-PN	egc-tb
5	Switch lug SF-EGC	558
6	Sensor bracket HWS-EGC	558
7	Inductive proximity sensor SIEN	558
8	Axial kit EAMM-A	559
9	Motor EMME/EMMS	559
10	Drive shaft EAMB	560
11	Slot cover ABP/ABP-S	560

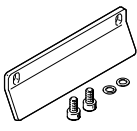
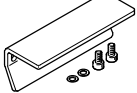
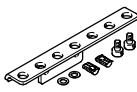
		→ Page/online
12	Inductive proximity sensor SIES	560
13	Connecting cable NEBU	560
14	Clip SMBK	560
15	Slot nut NST	560
16	Adapter kit DHAM	egc-tb
17	Support profile HMIA	egc-tb
18	Profile mounting MUE	560
19	Adjusting kit EADC-E16	560
20	Central support EAHF-L5	560
21	Adjusting kit EADC-E15	560
22	Foot mounting HPE	560

Linear drives and slides >

Toothed belt axes EGC-TB-KF, with recirculating ball bearing guide

Accessories – Ordering data

	For size	Part no.	Type
1 Emergency buffer			
	50	564897	NPE-50
	70	562581	NPE-70
	80	562582	NPE-80
	120	562583	NPE-120
	185	562584	NPE-185
1 Shock absorber retainer Dimensions online: egc-tb			
	50	557583	KYE-50
	70	557584	KYE-70
	80	557585	KYE-80
	120	557586	KYE-120
	185	557587	KYE-185
2 Shock absorber Data sheets online: ysrw			
	50	191192	YSRW-5-8
	70	191194	YSRW-8-14
	80	191196	YSRW-12-20
	120	191197	YSRW-16-26
	185	191198	YSRW-20-34
3 Centring pin¹⁾²⁾ Data sheets online: zbs			
	50, 70	150928	ZBS-5
3 Centring sleeve¹⁾²⁾ Data sheets online: zbh			
	80, 120, 185	150927	ZBH-9

	For size	Part no.	Type
5 Switch lug³⁾ Dimensions online: egc-tb			
	50	558046	SF-EGC-1-50
	70	558047	SF-EGC-1-70
	80	558048	SF-EGC-1-80
	120	558049	SF-EGC-1-120
	185	558051	SF-EGC-1-185
5 Switch lug⁴⁾ Dimensions online: egc-tb			
	70	558052	SF-EGC-2-70
	80	558353	SF-EGC-2-80
	120	558054	SF-EGC-2-120
	185	558056	SF-EGC-2-185
6 Sensor bracket⁵⁾ Dimensions online: egc-tb			
	70	558057	HWS-EGC-M5
	80	558057	HWS-EGC-M5
	120	570365	HWS-EGC-M8-B
	185	560517	HWS-EGC-M8-KURZ
7 Inductive proximity sensor – N/O contact, M8 Data sheets → Page 1230			
	PNP, cable	★ 150386	SIEN-M8B-PS-K-L
	PNP, plug	★ 150387	SIEN-M8B-PS-S-L
N/C contact, M8 Data sheets → Page 1230			
	PNP, cable	150390	SIEN-M8B-PO-K-L
	PNP, plug	150391	SIEN-M8B-PO-S-L

- 1) Packaging unit 10 pieces.
- 2) 2 centring pins/sleeves included in the scope of delivery of the axis.
- 3) For sensing via proximity sensor SIES-8M.
- 4) For sensing via proximity sensor SIEN-M8B or SIES-8M.
- 5) For proximity sensor SIEN-M8B.

04

Electromechanical drives

Toothed belt axes EGC-TB-KF, with recirculating ball bearing guide

Accessories – Ordering data

Note

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

Motor/gear unit ¹⁾	Axial kit	
	Part no.	Type
8/9 Permissible axis/motor combination with axial kit – Data sheets online: eamm-a		
EGC-50		
With servo motor		
EMMS-AS-55-...	557975	EAMM-A-L27-55A
With servo motor and gear unit		
EMME-AS-40-...	557974	EAMM-A-L27-40G
EMGA-40-P-G...-EAS-40		
EMMS-AS-40-...	557974	EAMM-A-L27-40G
EMGA-40-P-G...-SAS-40		
With stepper motor		
EMMS-ST-57-...	560678	EAMM-A-L27-57A
With stepper motor and gear unit		
EMMS-ST-42-...	557974	EAMM-A-L27-40G
EMGA-40-P-G...-SST-42		
With integrated drive		
EMCA-EC-67-...	1454261	EAMM-A-L27-67A
With integrated drive and gear unit		
EMCA-EC-67-...-	557974	EAMM-A-L27-40G
EMGC-40-...		
EGC-70		
With servo motor		
EMMS-AS-55-...	3683331	EAMM-A-L38-55A
EMME-AS-60-...	2037246	EAMM-A-L38-60P
EMMS-AS-70-...	557979	EAMM-A-L38-70A
With servo motor and gear unit		
EMMS-AS-55-...	557978	EAMM-A-L38-60G
EMGA-60-P-G...-SAS-55		
EMME-AS-60-...	1456610	EAMM-A-L38-60H
EMGA-60-P-G...-EAS-60		
EMMS-AS-70-...	557978	EAMM-A-L38-60G
EMGA-60-P-G...-SAS-70		
With stepper motor		
EMMS-ST-57-...	560679	EAMM-A-L38-57A
EMMS-ST-87-...	560680	EAMM-A-L38-87A
With stepper motor and gear unit		
EMMS-ST-57-...	557978	EAMM-A-L38-60G
EMGA-60-P-G...-SST-57		
With integrated drive and gear unit		
EMCA-EC-67-...-	1456610	EAMM-A-L38-60H
EMGC-60-...		

Motor/gear unit ¹⁾	Axial kit	
	Part no.	Type
EGC-80		
With servo motor		
EMMS-AS-70-...	557982	EAMM-A-L48-70A
EMME-AS-80-...	2042616	EAMM-A-L48-80P
EMME-AS-100-...	557984	EAMM-A-L48-100A
EMMS-AS-100-...	557984	EAMM-A-L48-100A
With servo motor and gear unit		
EMMS-AS-55-...	557983	EAMM-A-L48-60G
EMGA-60-P-G...-SAS-55		
EMME-AS-60-...	1456611	EAMM-A-L48-60H
EMGA-60-P-G...-EAS-60		
EMMS-AS-70-...	557983	EAMM-A-L48-60G
EMGA-60-P-G...-SAS-70		
With stepper motor		
EMMS-ST-87-...	560683	EAMM-A-L48-87A
With stepper motor and gear unit		
EMMS-ST-57-...	557983	EAMM-A-L48-60G
EMGA-60-P-G...-SST-57		
EGC-120		
With servo motor		
EMME-AS-100-...	557988	EAMM-A-L62-100A
EMMS-AS-100-...	557988	EAMM-A-L62-100A
EMMS-AS-140-...	557990	EAMM-A-L62-140A
With servo motor and gear unit		
EMMS-AS-70-...	557989	EAMM-A-L62-80G
EMGA-80-P-G...-SAS-70		
EMME-AS-80-...	557989	EAMM-A-L62-80G
EMGA-80-P-G...-EAS-80		
EMME-AS-100-...	557989	EAMM-A-L62-80G
EMGA-80-P-G...-SAS-100		
EMMS-AS-100-...	557989	EAMM-A-L62-80G
EMGA-80-P-G...-SAS-100		
With stepper motor and gear unit		
EMMS-ST-87-...	557989	EAMM-A-L62-80G
EMGA-80-P-G...-SST-87		
EGC-185		
With servo motor		
EMMS-AS-140-...	3657226	EAMM-A-L95-140A-G2
EMMS-AS-190-...	3659562	EAMM-A-L95-190A-G2
With servo motor and gear unit		
EMMS-AS-70-...	3660191	EAMM-A-L95-80G-G2
EMGA-80-P-G...-SAS-70		
EMME-AS-80-...	3660191	EAMM-A-L95-80G-G2
EMGA-80-P-G...-EAS-80		
EMME-AS-100-...	3660191	EAMM-A-L95-80G-G2
EMGA-80-P-G...-SAS-100		
EMMS-AS-100-...	3660191	EAMM-A-L95-80G-G2
EMGA-80-P-G...-SAS-100		
EMME-AS-100-...	3659941	EAMM-A-L95-120G-G2
EMGA-120-P-G...-SAS-100		
EMMS-AS-100-...	3659941	EAMM-A-L95-120G-G2
EMGA-120-P-G...-SAS-100		
EMMS-AS-140-...	3659941	EAMM-A-L95-120G-G2
EMGA-120-P-G...-SAS-140		

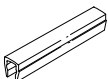
¹⁾ The input torque must not exceed the maximum permissible transferable torque of the axial kit.

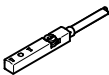
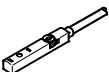
Linear drives and slides >

Toothed belt axes EGC-TB-KF, with recirculating ball bearing guide

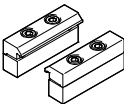
Accessories – Ordering data

	For size	Part no.	Type
10 Drive shaft			
	50	558034	EAMB-16-7-8X15-8X10
	70	558035	EAMB-18-9-8X16-10X12
	80	558036	EAMB-24-6-15X21-16X20
	120	558037	EAMB-34-6-25X26-23X27
	185	558038	EAMB-44-7-35X30-32X32

	For size	Part no.	Type
11 Slot cover¹⁾			
	For mounting slot		
	70, 80	151681	ABP-5
	120, 185	151682	ABP-8
	For sensor slot		
	50 ... 185	563360	ABP-5-S1

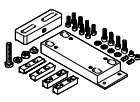
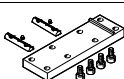
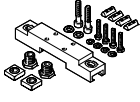
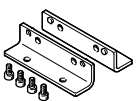
	For size	Switching output, connection	Cable length [m]	Part no.	Type
12 Proximity sensor for T-slot, inductive – N/O contact					
Data sheets → Page 1235					
	50 ... 185	PNP, cable	7.5	551386	SIES-8M-PS-24V-K-7,5-OE
		PNP, plug	0.3	551387	SIES-8M-PS-24V-K-0,3-M8D
		NPN, cable	7.5	551396	SIES-8M-NS-24V-K-7,5-OE
		NPN, plug	0.3	551397	SIES-8M-NS-24V-K-0,3-M8D
N/C contact					
Data sheets → Page 1235					
	50 ... 185	PNP, cable	7.5	551391	SIES-8M-PO-24V-K-7,5-OE
		PNP, plug	0.3	551392	SIES-8M-PO-24V-K-0,3-M8D
		NPN, cable	7.5	551401	SIES-8M-NO-24V-K-7,5-OE
		NPN, plug	0.3	551402	SIES-8M-NO-24V-K-0,3-M8D
13 Connecting cable, straight socket					
Data sheets → Page 1543					
	50 ... 185	M8x1, 3-pin	2.5	★ 541333	NEBU-M8G3-K-2.5-LE3
			5.0	★ 551334	NEBU-M8G3-K-5-LE3
Angled socket					
Data sheets → Page 1543					
	50 ... 185	M8x1, 3-pin	2.5	★ 541338	NEBU-M8W3-K-2.5-LE3
			5.0	★ 511341	NEBU-M8W3-K-5-LE3

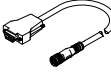
1) Packaging unit 2x 0.5 m.

	For size	Part no.	Type
14 Clip			
	50 ... 185	534254	SMBK-8
15 Slot nut			
Data sheets online: → nst			
	50	558045	NST-3-M3
	70, 80	150914	NST-5-M5
8047843		NST-5-M5-10 ²⁾	
8047878		NST-5-M5-50 ³⁾	
	120, 185	150915	NST-8-M6
		8047868	NST-8-M6-10 ²⁾
		8047869	NST-8-M6-50 ³⁾
18 Profile mounting			
Dimensions online: → egc-tb			
	50	558042	MUE-50
	70	558043	MUE-70/80
	80	558043	MUE-70/80
	120	558044	MUE-120/185
	185	558044	MUE-120/185

2) Packaging unit 10 pieces.

3) Packaging unit 50 pieces.

	For size	Part no.	Type
19 Adjusting kit			
	50	8047576	EADC-E16-50-E7
	80	8047577	EADC-E16-80-E7
	120	8047578	EADC-E16-120-E7
	185	8047579	EADC-E16-185-E7
Dimensions online: → egc-tb			
20 Central support			
	70	2349256	EAHF-L5-70-P
	80	3535188	EAHF-L5-80-P
	120	2410274	EAHF-L5-120-P
Dimensions online: → egc-tb			
21 Adjusting kit			
	50	8047565	EADC-E15-50-E7
	70	8047566	EADC-E15-80-E7
	80	8047566	EADC-E15-80-E7
	120	8047567	EADC-E15-120-E7
	185	8047568	EADC-E15-185-E7
Dimensions online: → egc-tb			
22 Foot mounting			
	50	558320	HPE-50
	70	558321	HPE-70
	80	558322	HPE-80
	120	558323	HPE-120
	185	558325	HPE-185

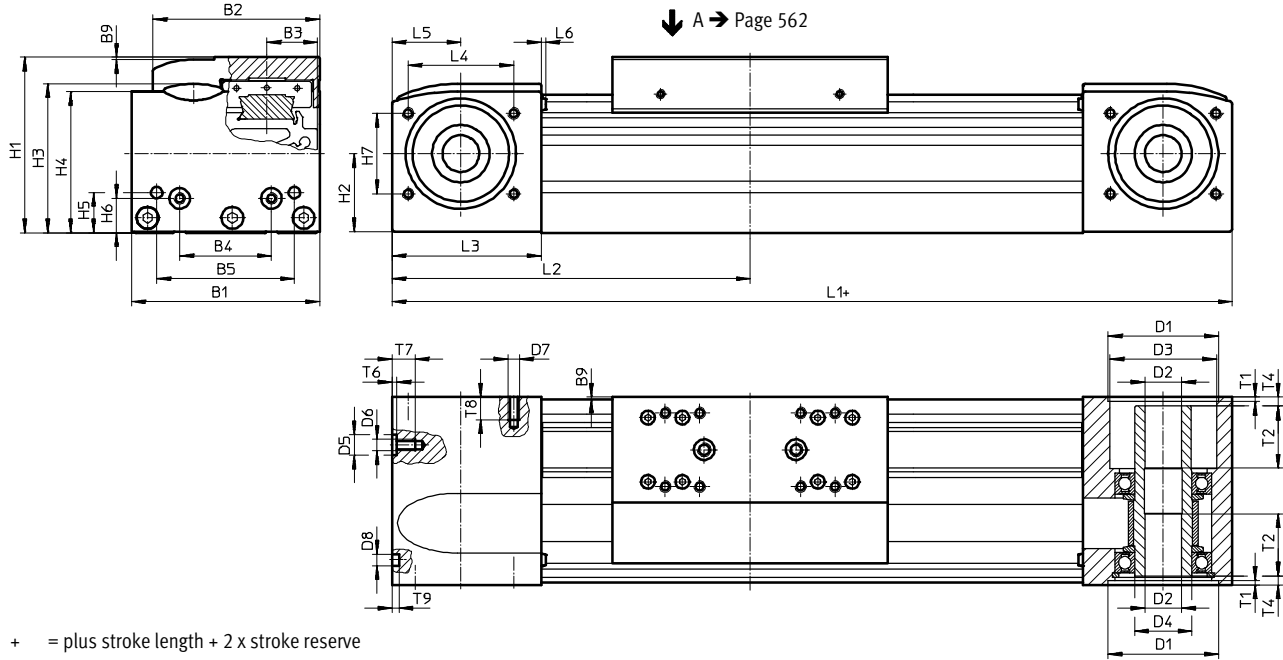
	Electrical connection, left	Electrical connection, right	Cable length [m]	Part no.	Type
Encoder cables for displacement encoder, EGC-...-M1/-M2					
	Displacement encoder EGC-...-M1/-M2	Motor controller CMMP-AS-...	5	1599105	NEBM-M12G8-E-5-S1G9-V3
			10	1599106	NEBM-M12G8-E-10-S1G9-V3
			15	1599107	NEBM-M12G8-E-15-S1G9-V3
			X ⁴⁾	1599108	NEBM-M12G8-E-...-S1G9-V3

4) Max. cable length 25 m.

Toothed belt axes EGC-TB-KF, with recirculating ball bearing guide

Dimensions

Download CAD data → www.festo.com



Note
To avoid distortion in the slide, the bearing surfaces of the attachments must maintain a minimum flatness of 0.01 mm.

Size	B1	B2	B3	B4	B5	B9	D1	D2	D3	D4	D5	D6
							H7	Ø H7	Ø	Ø	Ø H7	
50	48	39	11.5	20	35	1	27	8	20	15	–	M4
70	69	58.6	16.5	30	45	1	38	10	28	20	–	M5
80	82	72.6	22	40	60	1	48	16	46.5	25	9	M5
120	120	107	33	80	40	1	62	23	59	35	–	M8
185	186	169	53	120	80	1	95	32	90	60	–	M10

Size	D7	D8	H1	H2	H3	H4	H5	H6	H7	L1	L2	L3
		Ø H7										
50	M3	5	42.5	16.5	37.6	35.5	10.5	10.5	18	155	77.5	40
70	M5	5	64	28	53.7	50.8	13	13	29	246	123	57.5
80	M5	5	76.5	34.5	65	61.5	17.5	15	35	286	143	65
120	M6	9	111.5	51.6	95.9	91.1	22	22	54	446	223	100
185	M8	9	172.5	80.5	152.6	143	25	25	80	612	306	140

Size	L4	L5	L6	L8	L9	T1	T2	T4	T6	T7	T8	T9
50	26	20	1.8	3	–	1.5	–	5.9	–	7	8	3.1
70	36	27.5	1.8	3	10.5	2.1	18	7.15	–	10	12	3.1
80	46	30	2	3	13	2.1	27	4	2.1	10	10	3.1
120	64	50	2	3	18	3.1	29.5	4	–	16	14	2.1
185	80	70	2	3	21	2.8	34.5	4	–	20	17	2.1

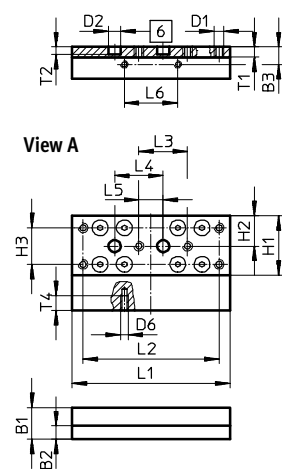
Linear drives and slides >

Toothed belt axes EGC-TB-KF, with recirculating ball bearing guide

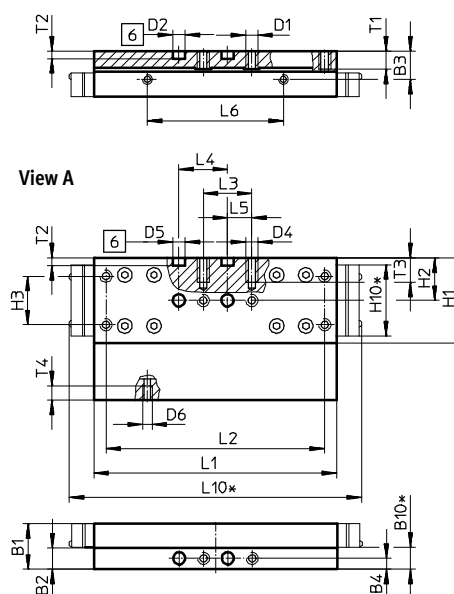
Dimensions

GK – Standard slide

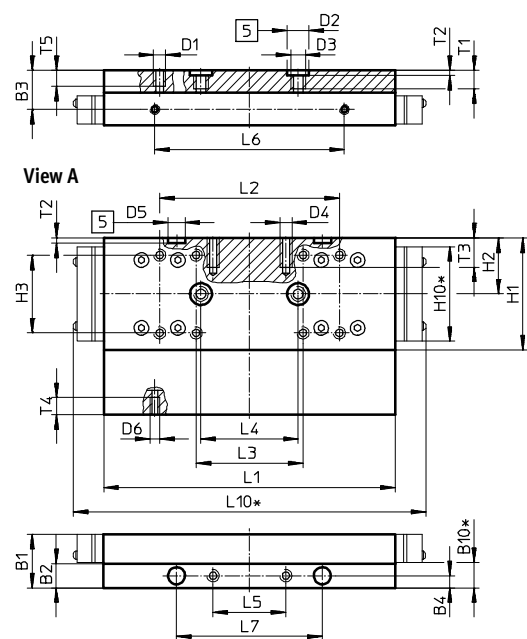
Size 50



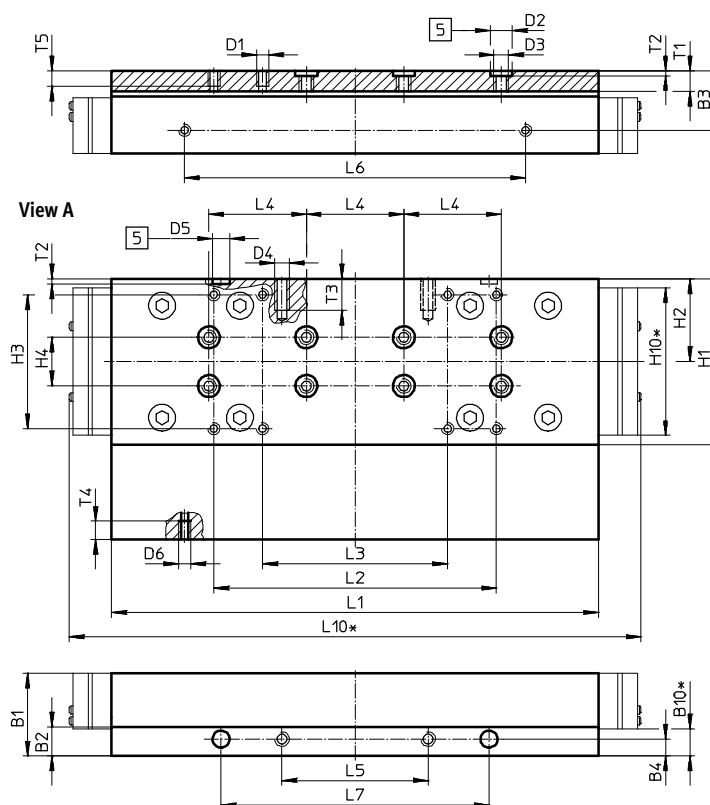
Size 70



Size 80



Size 120



- 5 Drill hole for centring sleeve
- 6 Drill hole for centring pin
- * Protected version

Download CAD data → www.festo.com

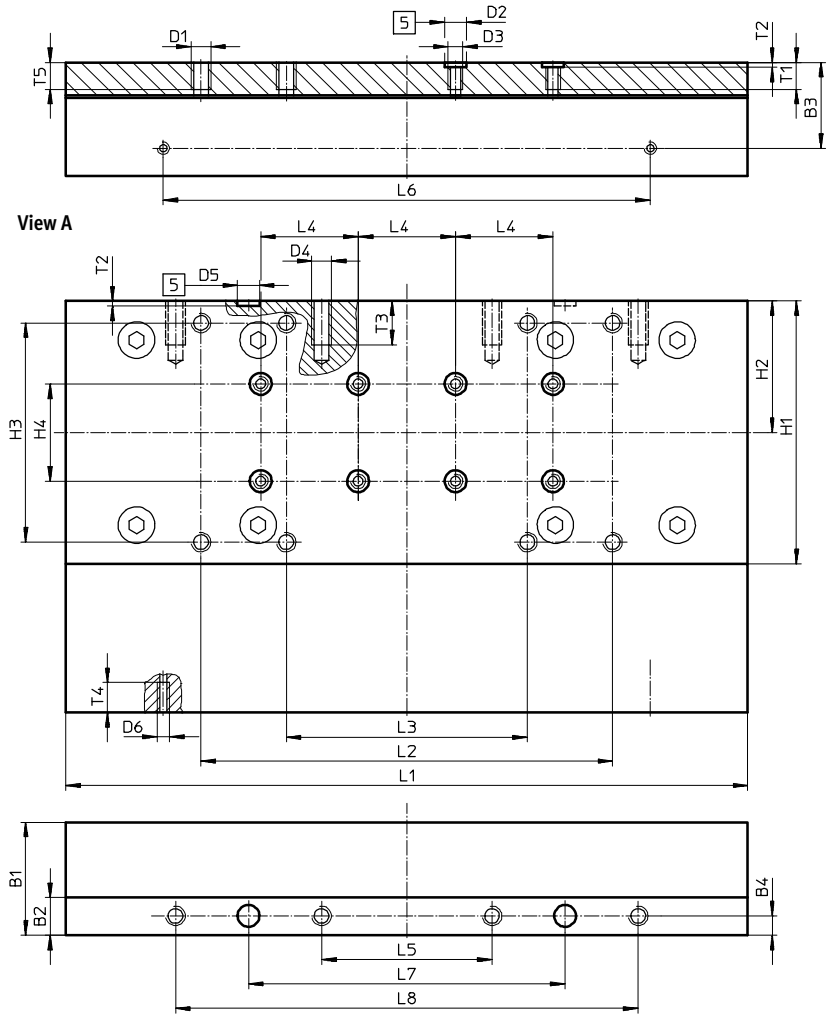
Toothed belt axes EGC-TB-KF, with recirculating ball bearing guide

Dimensions

GK – Standard slide

Size 185

Download CAD data → www.festo.com



[5] Drill hole for centring sleeve

Size	B1	B2	B3	B4	B10*	D1	D2 Ø H7	D3	D4	D5 Ø H7	D6	H1	H2	H3	H4 ±0.03
50	13	5.5	7.2	–	–	M4	5	–	–	–	M3	24.5	12.5	15 ±0.1	–
70	18.7	8.7	11.7	4.5	9	M5	5	–	M5	5	M4	35	17.5	20 ±0.1	–
80	22	10	16	5	10.4	M5	9	M6	M5	7	M4	46	23	32 ±0.2	–
120	34	12	24.5	7	11.2	M5	9	M6	M6	7	M5	68	34	55 ±0.2	20
185	46.5	15.5	35.2	8	–	M8	9	M6	M8	9	M5	108	54	90 ±0.2	40

Size	H10*	L1	L2	L3	L4	L5	L6	L7	L8	L10*	T1	T2	T3	T4	T5
		±0.1			±0.03		±0.1	±0.05	±0.2			±0.01			
50	–	65	56 ±0.1	20 ±0.1	20	10 ±0.1	22	–	–	–	4.2	3.1	–	6	–
70	29.4	100	90 ±0.1	20 ±0.1	20	10 ±0.1	56	–	–	121	7.5	3.1	10	6	–
80	39	120	74 ±0.2	44 ±0.2	40	30 ±0.1	78	60	–	145	8.6	2.1	12	7	7.5
120	60.6	203.3	116 ±0.2	76 ±0.2	40	60 ±0.1	140	110	–	235	8.6	2.1	13	7.5	7.5
185	–	282.8	169 ±0.2	99 ±0.2	40	70 ±0.2	200	130	190	–	11	2.1	18	12.3	12

* Protected version

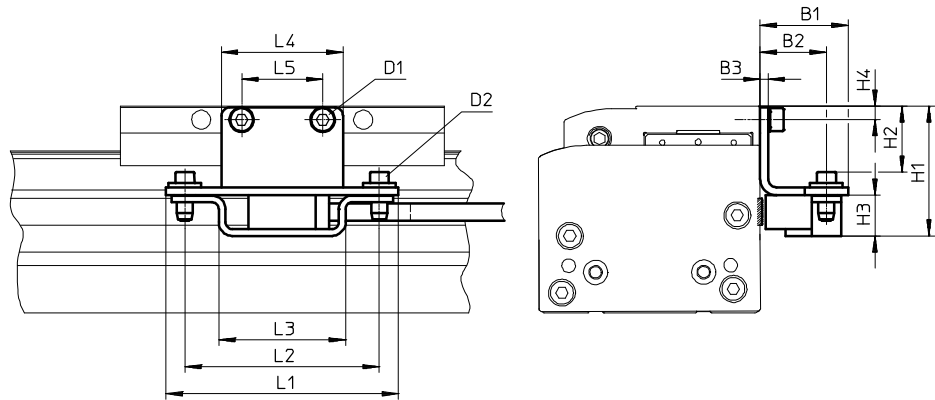
Linear drives and slides >

Toothed belt axes EGC-TB-KF, with recirculating ball bearing guide

Dimensions

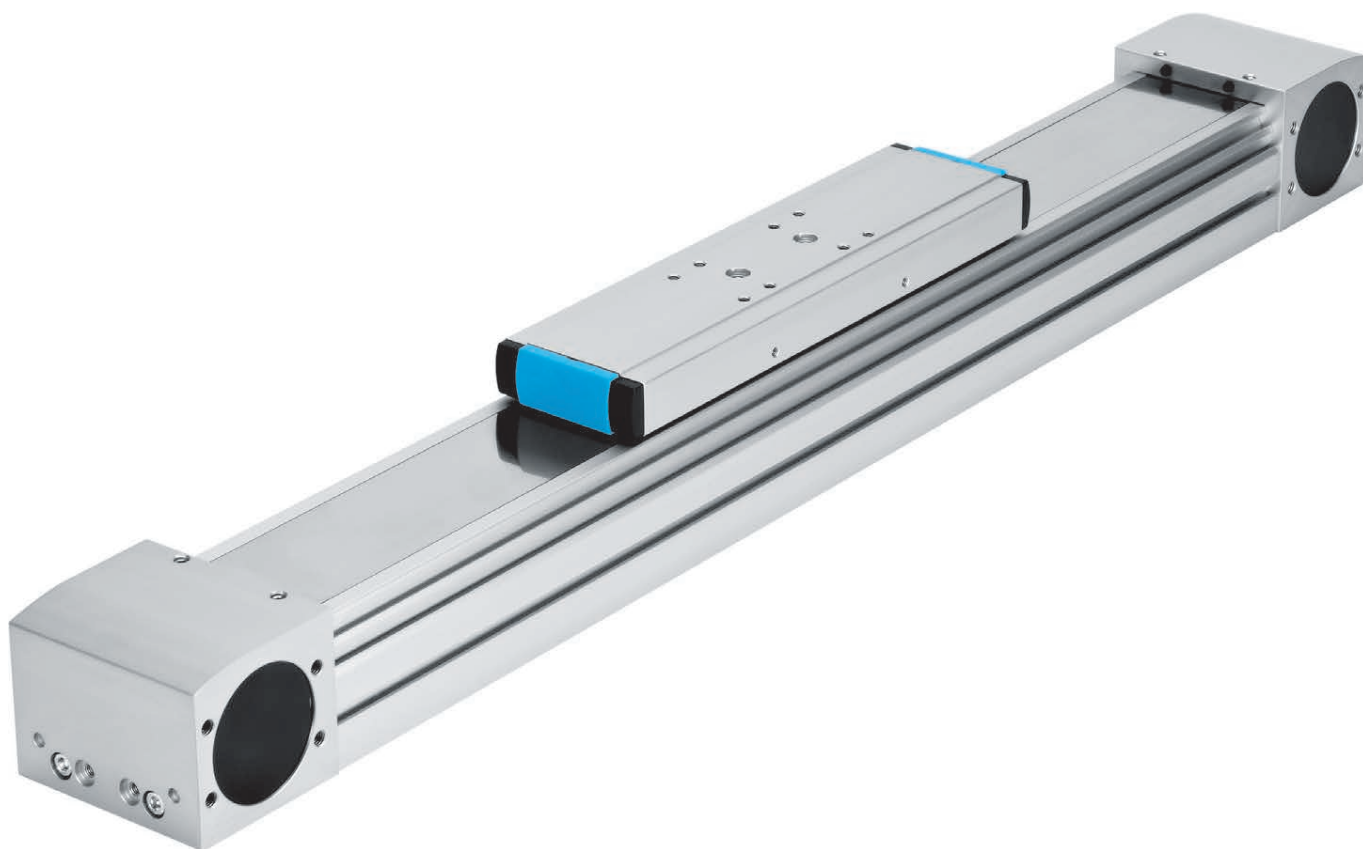
Download CAD data [→ www.festo.com](#)

M1/M2 – With incremental displacement encoder



Encoder cable (connection to the motor controller/safety system)
→ Page 560

Size	B1	B2	B3	H1	H2	H3	H4	D1	D2	L1	L2	L3	L4	L5
70	32.5	24.5	3	39	18.4	15	4.5	M5x8	M4x14	86	72	47	35	20
80				48	24.4		5	M5x8					45	30
120				60	36.4		7	M6x10					86	60
185				78.5	54.9		8	M8x12					86	70



Guide variants

- + Recirculating ball bearing guide:
precise and reliable,
for high torque absorption
- + Roller bearing guide:
for high speeds
- + Plain-bearing guide:
for small loads or external guides

Linear drives and slides ›

Toothed belt axes

ELGA-TB

ELGA-TB-KF

Linear drives and slides >

Toothed belt axes

ELGA-TB



Overview, configuration and ordering

→ www.festo.com/catalogue/elga-tb

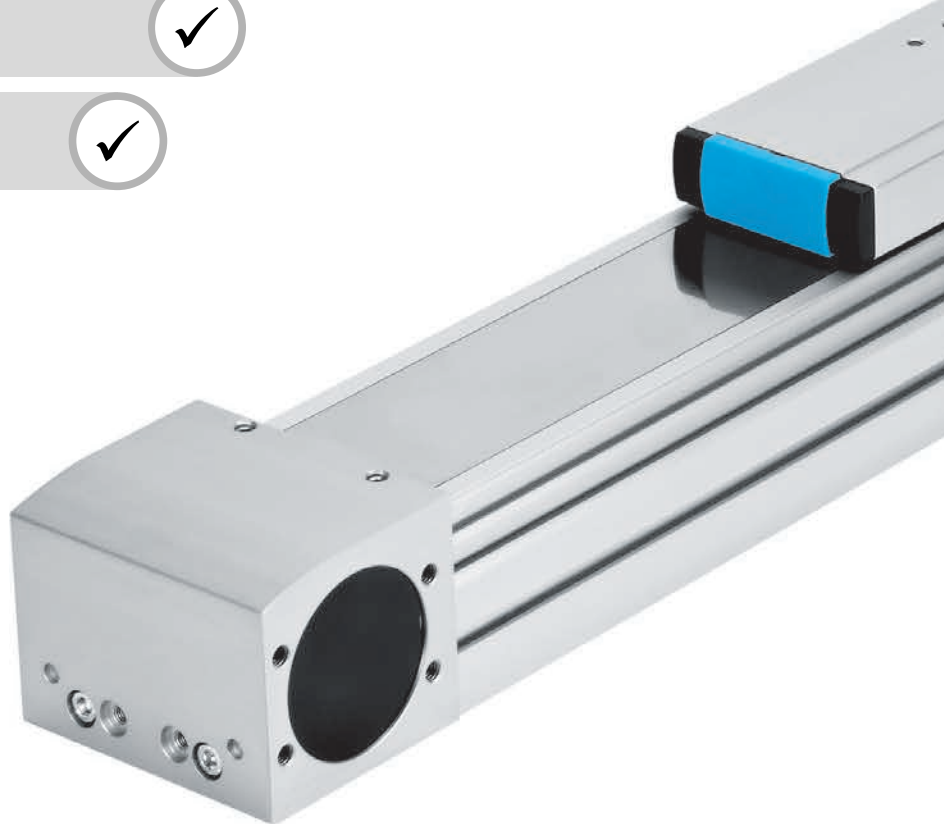


Additional information, support and user documentation

→ www.festo.com/sp/elga-tb



Spare parts service



- + Internal guide is protected by the magnetically sealed cover band
- + Sealing air connections prevent dirt getting into the axis
- + ELGA-TB-KF: precise and reliable recirculating ball bearing guide for high torque absorption
- + ELGA-TB-RF: integrated roller bearing guide for high speeds and torque loads
- + ELGA-TB-G: integrated plain-bearing guide for small and medium loads or external guides

Product range overview

Type/version	Size	Stroke [mm]	Feed force F _x [N]	Product options										→ Page/ online
				S	L	P0	ZL	ZR	M1	M2	B	F		
ELGA-TB														
KF – Recirculating ball bearing guide	70, 80, 120, 150	50 ... 8500	350 ... 2000	–	–	–	■	■	■	■	■	■	■	568
KF-F1 – Recirculating ball bearing guide, food-safe	70, 80, 120	50 ... 8500	260 ... 1000	–	–	–	■	■	–	–	–	–	–	elga
RF – Roller bearing guide	70, 80, 120	50 ... 7400	350 ... 1300	■	■	■	–	–	–	–	–	–	–	elga
RF-F1 – Roller bearing guide, food-safe	70, 80, 120	50 ... 7400	260 ... 1000	■	■	■	–	–	–	–	–	–	–	elga
G – Plain-bearing guide	70, 80, 120	50 ... 8500	350 ... 1300	–	–	■	–	–	–	–	–	–	–	elga
ELFA														
KF – Recirculating ball bearing guide	70, 80, 120	50 ... 8500	–	–	–	–	■	■	–	–	–	–	–	elfa
RF – Recirculating roller bearing guide	70, 80	50 ... 7000	–	■	■	■	–	–	–	–	–	–	–	elfa

Product options

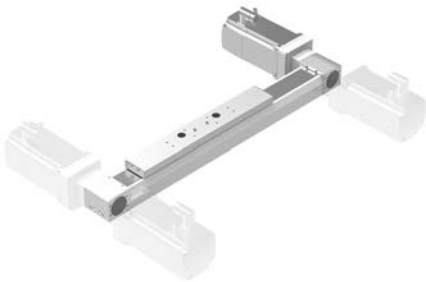
–	Standard slide	ZL	1 additional slide on left	M1	Displacement encoder, incremental, resolution 2.5 µm	B	Displacement encoder at rear
S	Short slide	ZR	1 additional slide on right			F	Displacement encoder at front
L	Long slide			M2	Displacement encoder, incremental, resolution 10 µm	DN	Without operating instructions
–	With strip cover						
P0	Without strip cover						

At a glance

- Internal, precision recirculating ball bearing guide with high load capacity for high torque loads
 - High feed forces
- Guide and toothed belt protected by cover band
 - Easy maintenance thanks to easily accessible lubrication connections
 - Optional displacement encoder
- Wide range of options for mounting on drives
 - Comprehensive range of mounting accessories for multi-axis combinations
 - Space-saving position sensing

Flexible motor mounting

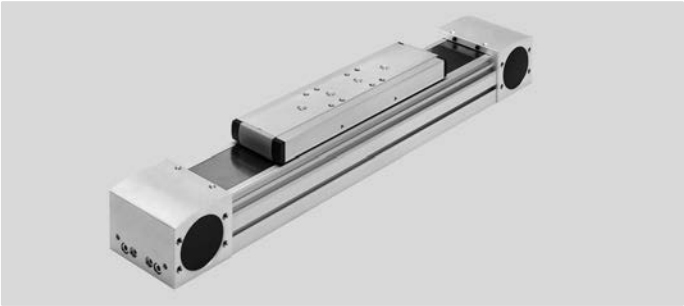
The motor position can be freely selected on 4 sides and can be changed at any time.



Linear drives and slides >

Toothed belt axes ELGA-TB-KF, with recirculating ball bearing guide

Data sheet

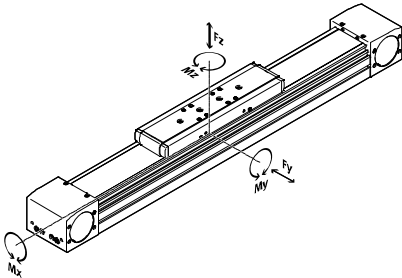


Technical data

Dimensions → Page 575

Note

Engineering software
PositioningDrives
→ www.festo.com



Size		70	80	120	150
Working stroke	[mm]	50 ... 5000	50 ... 8500	50 ... 8500	50 ... 7000
Max. feed force F_x	[N]	350	800	1300	2000
Max. no-load torque ¹⁾	[Nm]	0.6	1	2.8	4
Max. driving torque	[Nm]	5.02	15.92	34.1	73.85
Max. no-load resistance to shifting ¹⁾	[N]	41.9	50.3	76.2	108.3
Max. speed	[m/s]	5			
Max. acceleration	[m/s ²]	50			
Repetition accuracy	[mm]	±0.08			
Max. permissible force F_y	[N]	1500	2500	5500	11000
Max. permissible force F_z	[N]	1850	3050	6890	11000
Max. permissible torque M_x	[Nm]	16	36	104	167
Max. permissible torque M_y	[Nm]	132	228	680	1150
Max. permissible torque M_z	[Nm]	132	228	680	1150

1) At 0.2 m/s

Operating conditions

Ambient temperature	[°C]	−10 ... +60
Degree of protection		IP40

Toothed belt

Size		70	80	120	150
Pitch	[mm]	3	5	5	8
Tensile stress ²⁾	[%]	0.21	0.17	0.21	0.27
Effective diameter	[mm]	28.65	39.79	52.52	73.85
Feed constant	[mm/rev]	90	125	165	232

2) At max. feed force

Toothed belt axes ELGA-TB-KF, with recirculating ball bearing guide

Data sheet

Mass moment of inertia					
Size		70	80	120	150
J ₀	[kg mm ²]	243	982	4099	15426
J _S per metre stroke	[kg mm ² /m]	19	93	215	586
J _L per kg payload	[kg mm ² /Kg]	205	396	690	1363

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

$$J_A = J_0 + J_S \times \text{working stroke [m]} + J_L \times m_{\text{payload [kg]}}$$

Materials		
Size	70, 80	120, 150
Drive cover	Anodised wrought aluminium alloy	
Cover strip	Stainless steel strip, non-corroding	
Toothed belt	Polychloroprene with glass cord and nylon coating	
Guide rail	Stainless steel	Tempered steel
Slide	Anodised wrought aluminium alloy	
Pulleys	High-alloy stainless steel	

Technical data – Displacement encoder			
Type		ELGA-...-M1	ELGA-...-M2
Resolution	[μm]	2.5	10
Max. travel speed with displacement encoder	[m/s]	4	4
Encoder signal		5 V TTL; A/A, B/B; reference signal (N/N) cyclically every 5 mm (zero pulse)	
Signal output		Line driver, alternating, resistant to sustained short circuit	
Electrical connection		8-pin plug connector, round design, M12	
Cable length	[mm]	160	

Operating conditions – Displacement encoder		
Ambient temperature	[°C]	−10 ... +70
Degree of protection		IP64

Linear drives and slides >

Toothed belt axes ELGA-TB-KF, with recirculating ball bearing guide

Order code

04Electromechanical drives

Type	
ELGA	Linear axis
Drive function	
TB	Toothed belt
Guide	
KF	Recirculating ball bearing guide
Size	
	Stroke [mm]
70	1 ... 5000
80	1 ... 8500
120	1 ... 8500
150	1 ... 7000
Stroke reserve	
...H	0 ... 999 (0 = no stroke reserve) 1
Displacement encoder, incremental	
-	None
M1	Resolution 2.5 µm
M2	Resolution 10 µm
Displacement encoder attachment position	
-	None
B	At rear 2
F	At front 2

ELGA

TB

KF

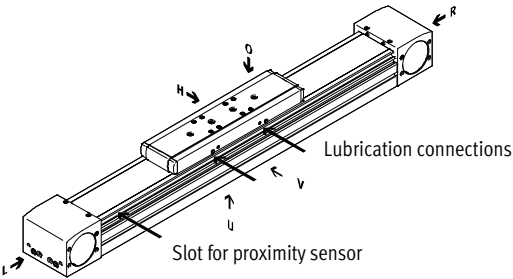
- 1 The sum of the stroke length and 2x stroke reserve must be at least 50 mm and must not exceed the maximum stroke length.
- 2 Only with displacement encoder M1, M2.

Order example:

ELGA-TB-KF-80-1300-80H-M1-F

Linear axis ELGA - toothed belt - recirculating ball bearing guide - size 80 - stroke 1300 mm - stroke reserve 80 mm - displacement encoder resolution 2.5 µm - attachment position at front

Ordering aid



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

Ordering – Product options

Configurable product

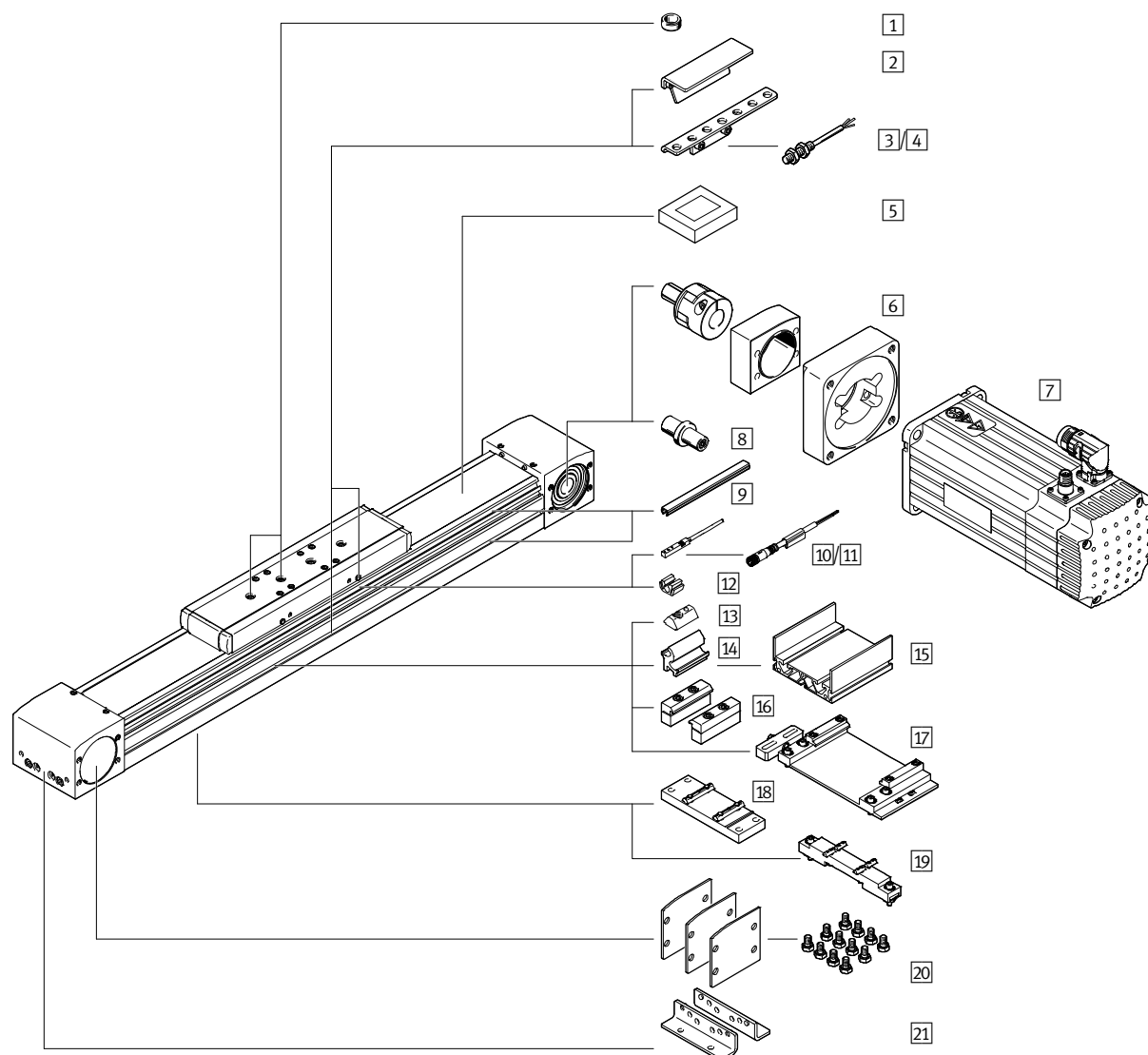
This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
[www.festo.com/catalogue/...](#)

Enter the type code in the search field.

Toothed belt axes ELGA-TB-KF, with recirculating ball bearing guide

Accessories



04

Electromechanical drives

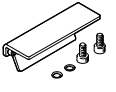
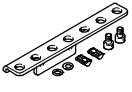
		→ Page/online
1	Centring pin ZBS/Centring sleeve ZBH	572
2	Switch lug SF	572
3	Sensor bracket HWS	572
4	Inductive proximity sensor M8 SIEN	572
5	Clamping component EADT	572
6	Axial kit EAMM	573
7	Motor EMME/EMMS	573
8	Drive shaft EAMB	572
9	Slot cover ABP/ABP-S	572
10	Inductive proximity sensor SIES for T-slot	574
11	Connecting cable NEBU	574

		→ Page/online
12	Clip SMBK	572
13	Slot nut NST	572
14	Adapter kit DHAM	elga-tb
15	Support profile HMIA	elga-tb
16	Adjusting kit EADC-E16	572
17	Profile mounting MUE	572
18	Adjusting kit EADC-E15	572
19	Central support EAHF	572
20	Cover kit EASC	572
21	Foot mounting HPE	572

Linear drives and slides >

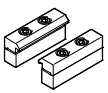
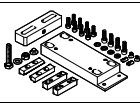
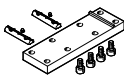
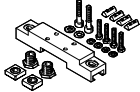
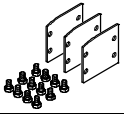
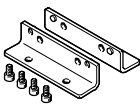
Toothed belt axes ELGA-TB-KF, with recirculating ball bearing guide

Accessories – Ordering data

	For size	Part no.	Type
1 Centring pin/sleeve¹⁾²⁾ Data sheets online: → zbh			
	For ELGA-TB-KF		
	70	150928	ZBS-5
	70, 80, 120, 150	150927	ZBH-9
	For ELGA-TB-RF		
	70, 80, 120	150927	ZBH-9
	For ELGA-TB-G		
	70	150928	ZBS-5
	80, 120	150927	ZBH-9
2 Switch lug for sensing with proximity sensor SIES Dimensions online: → elga			
	70	558047	SF-EGC-1-70
	80	558048	SF-EGC-1-80
	120	558049	SF-EGC-1-120
	150	558051	SF-EGC-1-185
2 Switch lug for sensing with proximity sensor SIEN Dimensions online: → elga			
	70	558052	SF-EGC-2-70
	80	558053	SF-EGC-2-80
	120	558054	SF-EGC-2-120
	150	558056	SF-EGC-2-185
3 Sensor bracket Dimensions online: → elga			
	70	558057	HWS-EGC-M5
	80	558057	HWS-EGC-M5
	120	570365	HWS-EGC-M8-B
	150	560517	HWS-EGC-M8-KURZ
4 Inductive proximity sensor – N/O contact, M8 Data sheets → Page 1230			
	PNP, cable	★ 150386	SIEN-M8B-PS-K-L
	PNP, plug	★ 150387	SIEN-M8B-PS-S-L
N/C contact, M8 Data sheets → Page 1230			
	PNP, cable	150390	SIEN-M8B-PO-K-L
	PNP, plug	150391	SIEN-M8B-PO-S-L
5 Clamping component Dimensions online: → elga			
	70, 80	8058451	EADT-S-L5-70
	120, 150	8058451	EADT-S-L5-120

1) Packaging unit 10 pieces.

2) 2 centring sleeves included in the scope of delivery of the axis.

	For size	Part no.	Type
8 Drive shaft			
	70	1344642	EAMB-24-9-15X21-16 X20
	80	558036	EAMB-24-6-15X21-16 X20
	120	558037	EAMB-34-6-25X26-23 X27
	150	558038	EAMB-44-7-35X30-3 2X32
9 Slot cover³⁾			
	For mounting slot		
	70, 80	151681	ABP-5
	120, 150	151682	ABP-8
	For sensor slot		
	70 ... 150	563360	ABP-5-S1
12 Clip			
	70 ... 150	534254	SMBK-8
13 Slot nut			
	70, 80	150914	NST-5-M5
	120, 150	150915	NST-8-M6
16 Profile mounting Dimensions online: → elga			
	70	558043	MUE-70/80
	80	558043	MUE-70/80
	120	558044	MUE-120/185
	150	558044	MUE-120/185
17 Adjusting kit Dimensions online: → elga			
	80	8047577	EADC-E16-80-E7
	120	8047578	EADC-E16-120-E7
18 Central support Dimensions online: → elga			
	70	2349256	EAHF-L5-70-P
	80	3535188	EAHF-L5-80-P
	120	2410274	EAHF-L5-120-P
	150	3535189	EAHF-L5-150-P
19 Adjusting kit Dimensions online: → elga			
	70	8047566	EADC-E15-80-E7
	80	8047566	EADC-E15-80-E7
	120	8047568	EADC-E15-185-E7
	185	8047568	EADC-E15-185-E7
20 Cover kit Dimensions online: → elga			
	70	8049255	EASC-L5-70
	80	8049254	EASC-L5-80
	120	8049253	EASC-L5-120
	150	8049244	EASC-L5-150
21 Foot mounting Dimensions online: → elga			
	70	558321	HPE-70
	80	558322	HPE-80
	120	558323	HPE-120
	150	3002636	HPE-150

3) Packaging unit 2x 0.5 m.

Toothed belt axes ELGA-TB-KF, with recirculating ball bearing guide

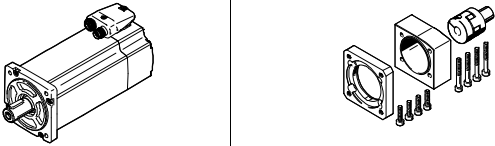
Accessories – Ordering data

Note

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

6/7 Permissible axis/motor combination with axial kit

Data sheets online: → [eamm-a](#)

Motor/gear unit ³⁾	Axial kit	
	Part no.	Type
ELGA-TB-...-70		
With servo motor		
EMMS-AS-70-...	1202331	EAMM-A-N38-70A
With servo motor and gear unit		
EMMS-AS-55-...	1202253	EAMM-A-N38-60G
EMGA-60-P-G-...-SAS-55		
EMME-AS-60-...	1456616	EAMM-A-N38-60H
EMGA-60-P-G-...-EAS-60		
EMMS-AS-70-...	1202253	EAMM-A-N38-60G
EMGA-60-P-G-...-SAS-70		
With stepper motor		
EMMS-ST-87-...	3324111	EAMM-A-N38-87A
With stepper motor and gear unit		
EMMS-ST-57-...	1202253	EAMM-A-N38-60G
EMGA-60-P-G-...-SST-57		
With integrated drive and gear unit		
EMCA-EC-67-...-	1456616	EAMM-A-N38-60H
EMGC-60-...		
ELGA-TB-...-80		
With servo motor		
EMME-AS-100-...	1201894	EAMM-A-N48-100A
EMMS-AS-100-...		
With servo motor and gear unit		
EMMS-AS-55-...	1972527	EAMM-A-N48-60G
EMGA-60-P-G-...-SAS-55		
EMME-AS-60-...	1456618	EAMM-A-N48-60H
EMGA-60-P-G-...-EAS-60		
EMMS-AS-70-...	1972527	EAMM-A-N48-60G
EMGA-60-P-G-...-SAS-70		
EMMS-AS-70-...	1258793	EAMM-A-N48-80G
EMGA-80-P-G-...-SAS-70		
EMME-AS-80-...	1258793	EAMM-A-N48-80G
EMGA-80-P-G-...-EAS-80		
EMME-AS-100-...	1258793	EAMM-A-N48-80G
EMGA-80-P-G-...-SAS-100		
EMMS-AS-100-...	1258793	EAMM-A-N48-80G
EMGA-80-P-G-...-SAS-100		
With stepper motor and gear unit		
EMMS-ST-57-...	1972527	EAMM-A-N48-60G
EMGA-60-P-G-...-SST-57		
EMMS-ST-87-...	1258793	EAMM-A-N48-80G
EMGA-80-P-G-...-SST-87		
With integrated drive and gear unit		
EMCA-EC-67-...-	1456618	EAMM-A-N48-60H
EMGC-60-...		

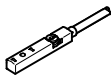
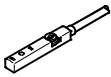
Motor/gear unit ¹⁾	Axial kit	
	Part no.	Type
ELGA-TB-...-120		
With servo motor		
EMMS-AS-140-...	1201691	EAMM-A-N80-140A
With servo motor and gear unit		
EMMS-AS-70-...	2372096	EAMM-A-N80-80G
EMGA-80-P-G-...-SAS-70		
EMME-AS-80-...	2372096	EAMM-A-N80-80G
EMGA-80-P-G-...-EAS-80		
EMME-AS-100-...	2372096	EAMM-A-N80-80G
EMGA-80-P-G-...-SAS-100		
EMMS-AS-100-...	2372096	EAMM-A-N80-80G
EMGA-80-P-G-...-SAS-100		
EMME-AS-100-...	1201695	EAMM-A-N80-120G
EMGA-120-P-G-...-SAS-100		
EMMS-AS-100-...	1201695	EAMM-A-N80-120G
EMGA-120-P-G-...-SAS-100		
EMMS-AS-140-...	1201695	EAMM-A-N80-120G
EMGA-120-P-G-...-SAS-140		
With stepper motor and gear unit		
EMMS-ST-87-...	2372096	EAMM-A-N80-80G
EMGA-80-P-G-...-SST-87		
ELGA-TB-...-150		
With servo motor		
EMMS-AS-140-...	3657226	EAMM-A-L95-140A-G2
EMMS-AS-190-...	3659562	EAMM-A-L95-190A-G2
With servo motor and gear unit		
EMMS-AS-70-...	3660191	EAMM-A-L95-80G-G2
EMGA-80-P-G-...-SAS-70		
EMME-AS-80-...	3660191	EAMM-A-L95-80G-G2
EMGA-80-P-G-...-EAS-80		
EMME-AS-100-...	3660191	EAMM-A-L95-80G-G2
EMGA-80-P-G-...-SAS-100		
EMMS-AS-100-...	3660191	EAMM-A-L95-80G-G2
EMGA-80-P-G-...-SAS-100		
EMME-AS-100-...	3659941	EAMM-A-L95-120G-G2
EMGA-120-P-G-...-SAS-100		
EMMS-AS-100-...	3659941	EAMM-A-L95-120G-G2
EMGA-120-P-G-...-SAS-100		
EMMS-AS-140-...	3659941	EAMM-A-L95-120G-G2
EMGA-120-P-G-...-SAS-140		
With stepper motor and gear unit		
EMMS-ST-87-...	3660191	EAMM-A-L95-80G-G2
EMGA-80-P-G-...-SST-87		

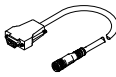
1) The input torque must not exceed the maximum permissible transferable torque of the axial kit.

Linear drives and slides >

Toothed belt axes ELGA-TB-KF, with recirculating ball bearing guide

Accessories – Ordering data

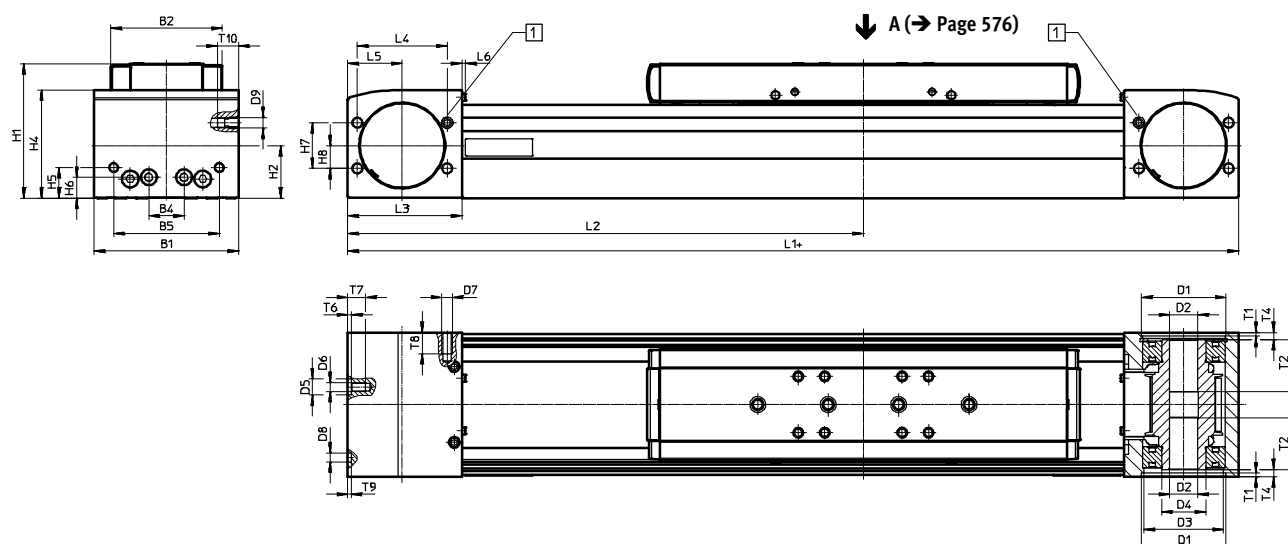
	For size	Switching output, connection	Cable length [m]	Part no.	Type
10 Proximity sensor for T-slot, inductive – N/O contact Data sheets → Page 1235					
	70 ... 150	PNP, cable	7.5	551386	SIES-8M-PS-24V-K-7,5-OE
		PNP, plug	0.3	551387	SIES-8M-PS-24V-K-0,3-M8D
		NPN, cable	7.5	551396	SIES-8M-NS-24V-K-7,5-OE
		NPN, plug	0.3	551397	SIES-8M-NS-24V-K-0,3-M8D
N/C contact Data sheets → Page 1235					
	70 ... 150	PNP, cable	7.5	551391	SIES-8M-PO-24V-K-7,5-OE
		PNP, plug	0.3	551392	SIES-8M-PO-24V-K-0,3-M8D
		NPN, cable	7.5	551401	SIES-8M-NO-24V-K-7,5-OE
		NPN, plug	0.3	551402	SIES-8M-NO-24V-K-0,3-M8D
11 Connecting cable, straight socket Data sheets → Page 1543					
	70 ... 150	M8x1, 3-pin	2.5	★ 541333	NEBU-M8G3-K-2.5-LE3
			5.0	★ 541334	NEBU-M8G3-K-5-LE3
Angled socket Data sheets → Page 1543					
	70 ... 150	M8x1, 3-pin	2.5	★ 541338	NEBU-M8W3-K-2.5-LE3
			5.0	★ 541341	NEBU-M8W3-K-5-LE3

	Electrical connection, left	Electrical connection, right	Cable length [m]	Part no.	Type
Encoder cables for displacement encoder, ELGA-...-M1/-M2					
	Displacement encoder ELGA-...-M1/-M2	Motor controller CMMP-AS-...	5	1599105	NEBM-M12G8-E-5-S1G9-V3
			10	1599106	NEBM-M12G8-E-10-S1G9-V3
			15	1599107	NEBM-M12G8-E-15-S1G9-V3
			X ¹⁾	1599108	NEBM-M12G8-E-...-S1G9-V3

1) Max. cable length 25 m.

Toothed belt axes ELGA-TB-KF, recirculating ball bearing guide

Dimensions

Download CAD data → www.festo.com

+ = plus stroke length + 2 x stroke reserve

1 Sealing air connections

Size	B1	B2	B4	B5	D1 Ø H7	D2 Ø H7	D3 Ø	D4 Ø	D5 Ø H7	D6	D7
70	69	48.2	30	45	38	16	34	25	–	M5	M6
80	82	63.2	20	60	48	16	45	25	9	M5	M6
120	120	95	80	40	80	23	72	45	–	M8	M8
150	154	125	115	80	95	32	90	60	–	M8	M8

Size	D8 Ø H7	D9	H1	H2	H4	H5	H6	H7	H8	L1	L2 min.
70	5	M6	64	26.5	50.8	13	13	24	12	346	173
80	5	M6	76.5	30	61.5	17.5	12	26	13	386	193
120	9	M8	111.5	45	91	22	22	59	32	546	273
150	9	M8	141.5	58.6	121	26.5	26.5	80	40	712	356

Size	L3	L4	L5	L6	T1	T2	T4	T6	T7	T8	T9	T10
70	57.5	42	27.5	2.3	2.1	18	7.2	–	10	12	3.1	12
80	65	51	31	2.3	2.1	29.5	4	2.1	10.1	12	2	12
120	100	76	50	2.5	3.1	29.5	4	–	16	16	2.1	16
150	140	80	70	2.5	2.8	32	4	–	18	17	2.1	17

Linear drives and slides >

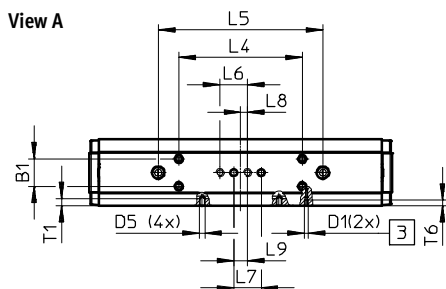
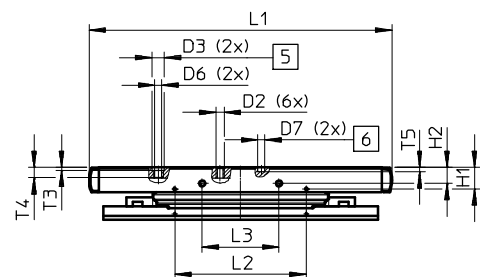
Toothed belt axes ELGA-TB-KF, recirculating ball bearing guide

Dimensions

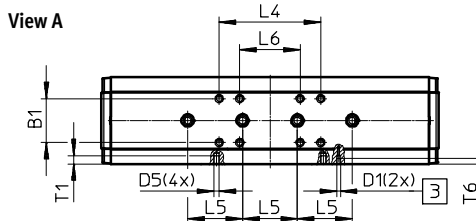
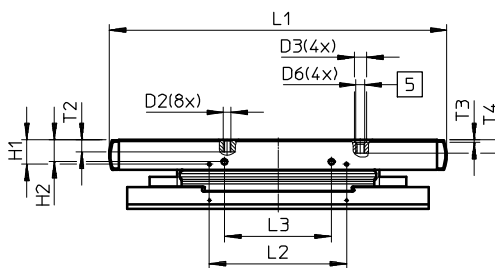
Download CAD data → www.festo.com

Slide

Size 70



Size 80



- [3] Lubrication connections
- [5] Drill hole for centring sleeve ZBH
- [6] Drill hole for centring pin ZBS

Size	B1	D1	D2	D3 Ø H7	D5	D6	D7 Ø H7	H1	H2	L1	L2	L3
	±0.1							±0.1	±0.1		±0.1	±0.1
70	20	M6	M5	9	M4	M6	5	14.2	11.7	221	96	56
80	32	M6	M5	9	M4	M6	–	16.6	16	246	101.4	78

Size	L4	L5	L6	L7	L8	L9	T1	T2	T3	T4	T5	T6	
	±0.1	±0.03	±0.1	±0.03		±0.1			+0.1		±0.1	min.	max.
70	90	120	20	20	5	10	5.1	–	2.1	7.5	3.1	4.2	4.6 _{–0.1}
80	74	40	44	–	–	–	6	9	2.1	9.7 _{–0.2}	–	5.6	5.9 _{–0.1}

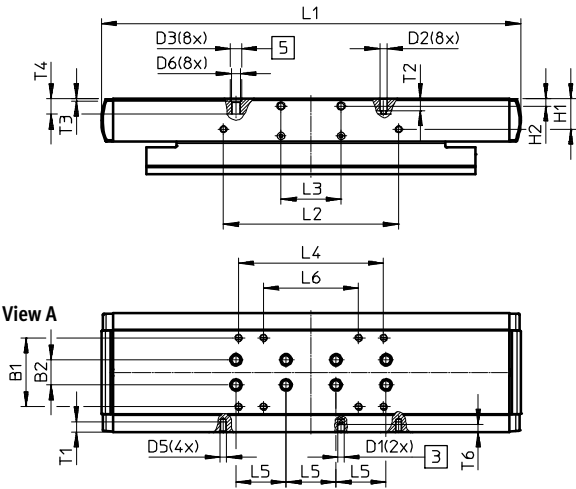
Toothed belt axes ELGA-TB-KF, recirculating ball bearing guide

Dimensions

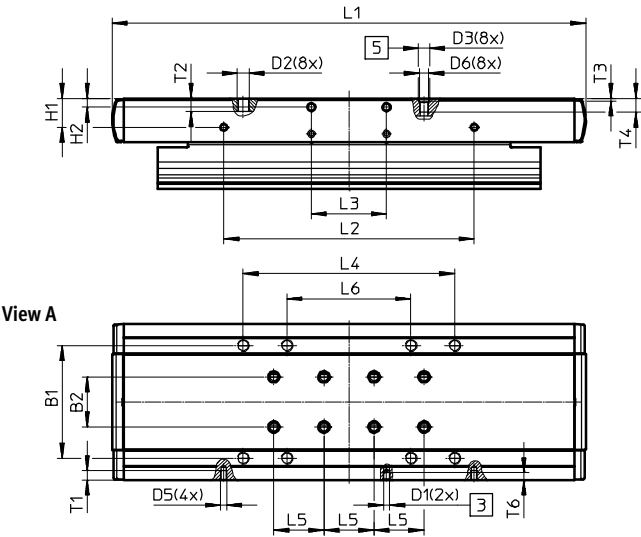
Download CAD data → www.festo.com

Slide

Size 120



Size 150



- 3 Lubrication connections
5 Drill hole for centring sleeve ZBH

Size	B1 ±0.1	B2 ±0.03	D1	D2	D3 Ø H7	D5	D6	H1 ±0.1	H2	L1
120	55	20	M6	M5	9	M5	M6	24.5	6	335
150	90	40	M6	M8	9	M5	M6	23	7±0.1	378.4

Size	L2 ±0.1	L3 ±0.1	L4 ±0.1	L5 ±0.03	L6 ±0.1	T1	T2	T3 +0.1	T4	T6
120	140	48	116	40	76	8	9.7	2.1	12.6-0.3	6
150	200	60	169	40	99	7.5	10.7	2.1	11	7

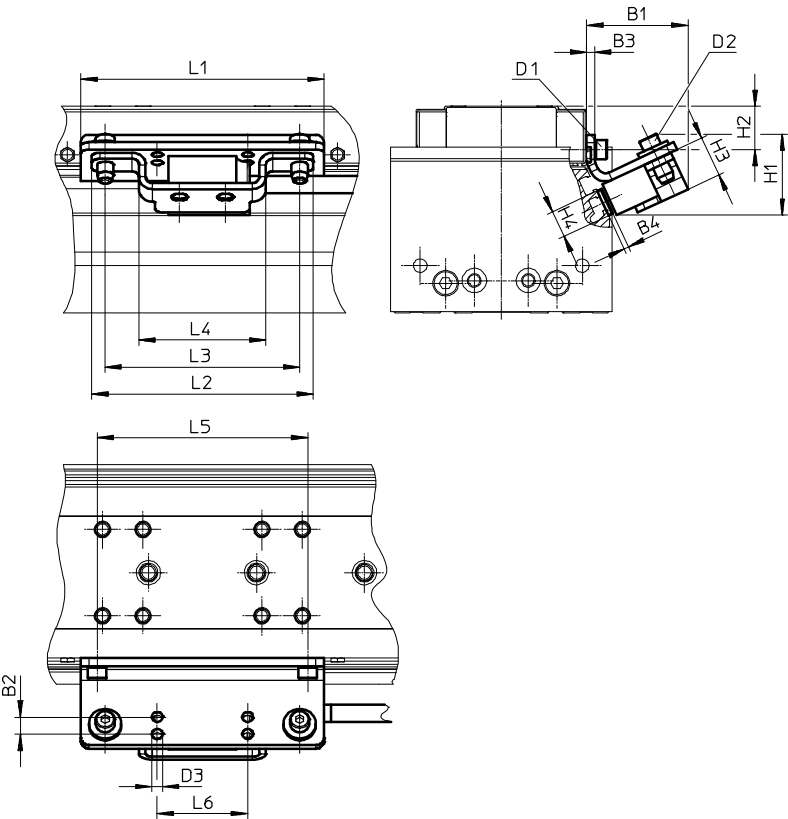
Linear drives and slides >

Toothed belt axes ELGA-TB-KF, recirculating ball bearing guide

Dimensions

Download CAD data [→ www.festo.com](#)

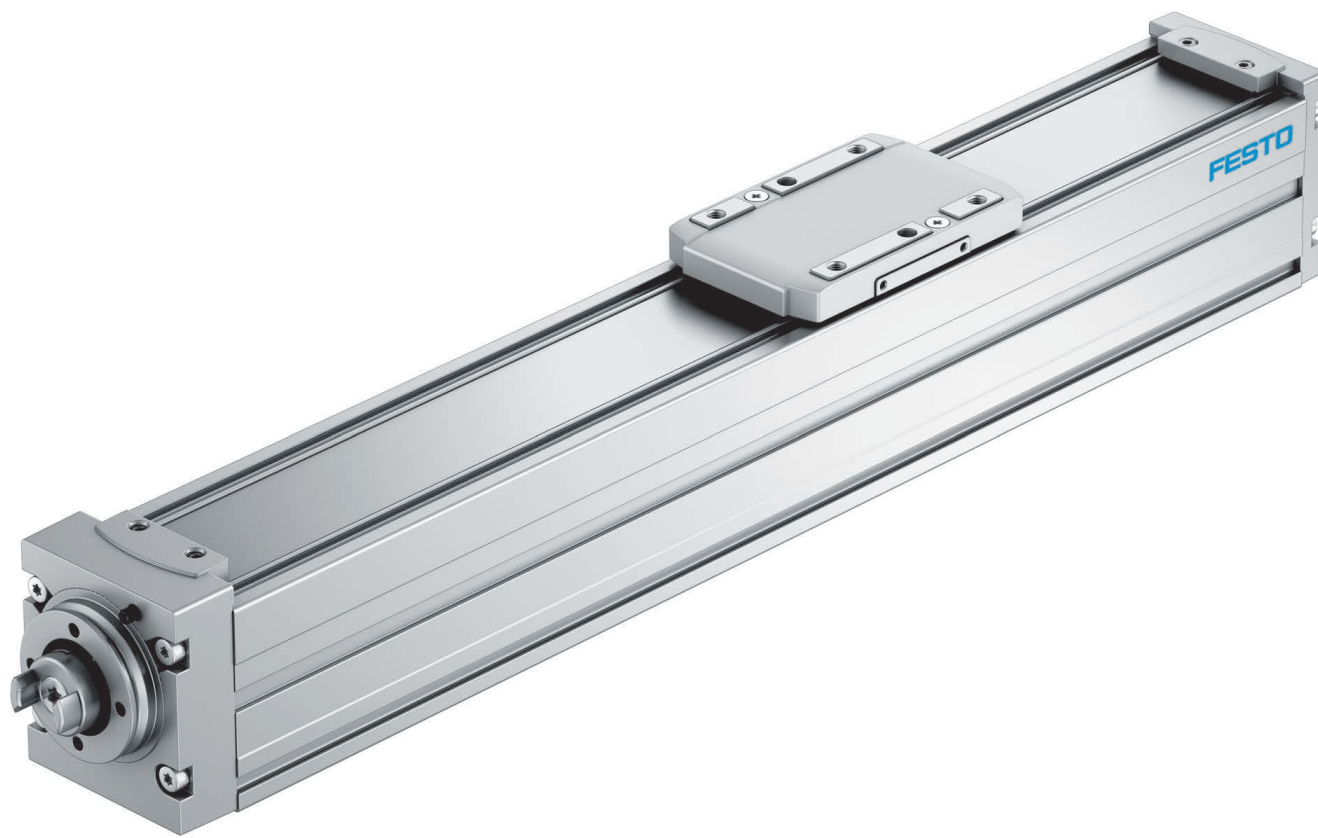
M1/M2 – With incremental displacement encoder



Encoder cable (connection to the motor controller/safety system)
→ Page 574

Size	B1	B2	B3	B4	D1	D2	D3 Ø	H1	H2
70	40	7	3	1.8	M4x8	M4x14	4	35	11.7
80					M4x14				16
120					M4x14				24.5
150					M5x10				23

Size	H3	H4	L1	L2	L3	L4	L5	L6
70	15	10	86	82	72	47	56	33.5
80			90				78	
120			170				140	
150			220				200	



Compact and flexible

- + Internal guide and ball screw
- + Space-saving position sensing
- + Flexible motor connection
- + The toothed belt and spindle axes ELGC together with the mini slides EGSC form a scalable modular system for compact automation

Linear drives and slides ›

Spindle axes with recirculating ball bearing guide

ELGC-BS-KF

Linear drives and slides >

Spindle axes with recirculating ball bearing guide

ELGC-BS-KF



Overview, configuration and ordering

→ www.festo.com/catalogue/elgc-bs-kf



Additional information, support and user documentation

→ www.festo.com/sp/elgc-bs-kf

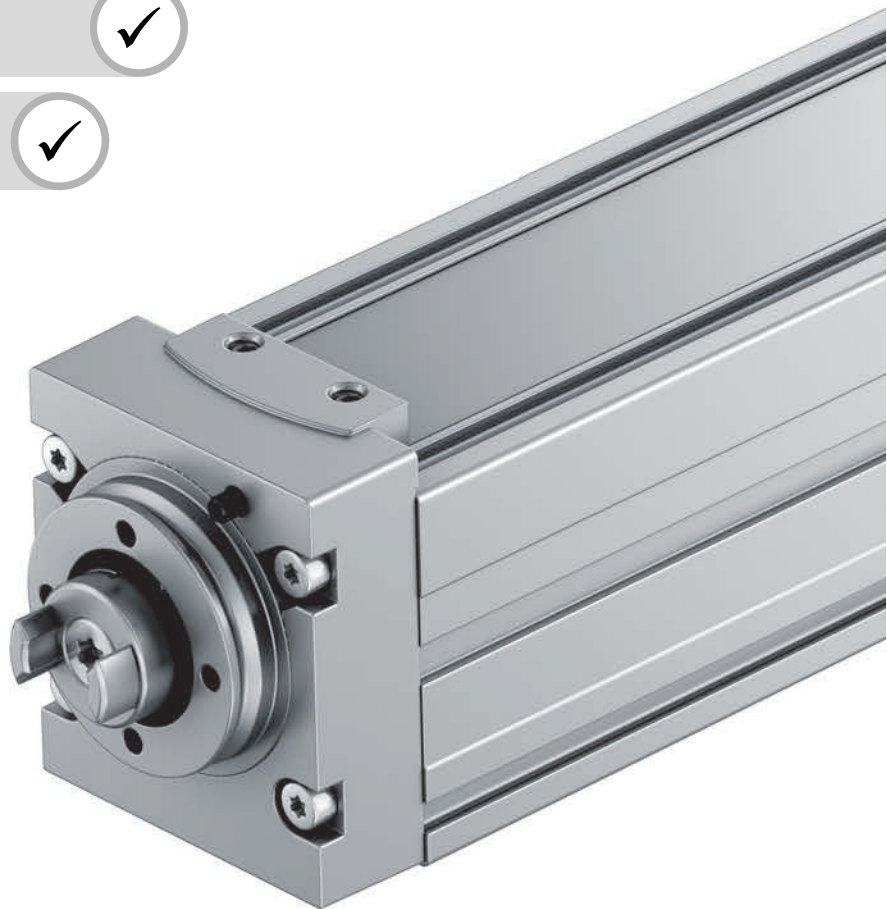


Selected types in accordance with the ATEX Directive for explosive atmospheres

→ www.festo.com/catalogue/ex



Spare parts service



- + The toothed belt and spindle axes ELGC together with the mini slides EGSC form a scalable modular system for compact automation
- + Internal guide and ball screw
- + Space-saving position sensing
- + Flexible motor connection

Spindle axes ELGC-BS-KF, with recirculating ball bearing guide

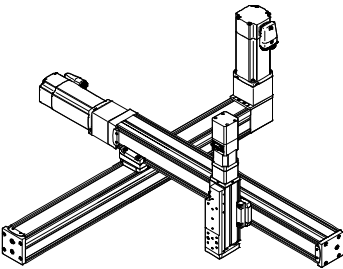
Product range overview

Type/version	Size	Stroke [mm]	Feed force F _x [N]
ELGC-BS			
KF – Recirculating ball bearing guide	32, 45, 60, 80	100 ... 1000	110 ... 780

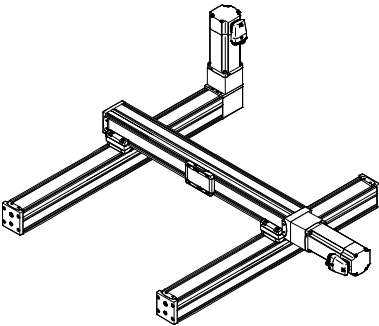
At a glance

- The toothed belt axes, spindle axes ELGC and mini slides EGSC form a scalable modular system for compact automation
 - The shared platform architecture creates a consistent range with harmonised interfaces. A wealth of systems can be realised entirely without adapter plates
- Powerful drive and guide components ensure a long service life, as well as excellent load capacity and reliability
 - The uniform and universal range of accessories reduces warehousing and design costs

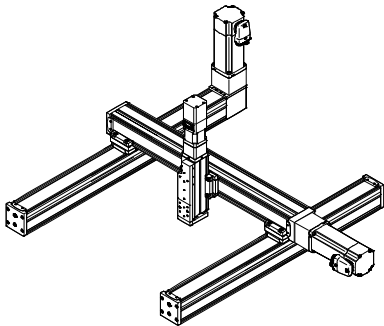
Cantilever system



Planar surface gantry



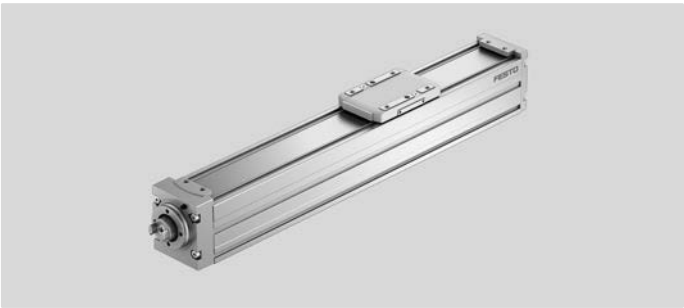
Three-dimensional gantry



Linear drives and slides >

Spindle axes ELGC-BS-KF, with recirculating ball bearing guide

Data sheet

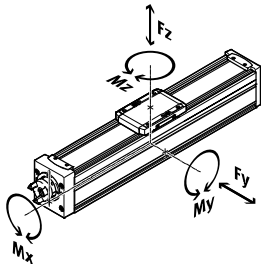


Technical data

Note

Engineering software
PositioningDrives
→ www.festo.com

Dimensions → Page 588



Size		32	45	60	80
Spindle pitch	[mm/rev]	8	10	12	16
Working stroke	[mm]	100, 200, 300, 400, 500, 600, 800	100, 200, 300, 400, 500, 600, 800	100, 200, 300, 400, 500, 600, 800	100, 200, 300, 400, 500, 600, 800, 1000
Max. feed force F_x	[N]	40	100	200	350
No-load torque	[Nm]	0.02	0.032	0.042	0.095
at min. travel speed	[m/s]	0.05	0.05	0.05	0.05
No-load torque	[Nm]	0.04	0.12	0.25	0.40
at max. travel speed	[m/s]	0.6	0.6	0.8	1
Max. radial force ¹⁾	[N]	75	180	230	400
Max. rotational speed ²⁾	[rpm]	4500	3600	4000	3750
Max. acceleration	[m/s ²]	15			
Repetition accuracy	[mm]	±0.015	±0.015	±0.01	±0.01
Max. permissible force F_y	[N]	356	880	3641	5543
Max. permissible force F_z	[N]	356	880	3641	5543
Max. permissible torque M_x	[Nm]	1.3	5.5	29.1	59.8
Max. permissible torque M_y	[Nm]	1.1	4.7	31.8	56.2
Max. permissible torque M_z	[Nm]	1.1	4.7	31.8	56.2
Position sensing		Magneto-resistive, inductive			

1) At the drive shaft.

2) Rotational speed and speed are stroke-dependent.

Spindle axes ELGC-BS-KF, with recirculating ball bearing guide

Data sheet

Operating conditions		
Ambient temperature ¹⁾	[°C]	0 ... +50
Degree of protection		IP40

1) Note operating range of proximity sensors.

Mass moment of inertia					
Size		32	45	60	80
J ₀	[kg mm ²]	0.274	0.820	2.235	7.856
J _S per metre stroke	[kg mm ² /m]	2.218	5.056	10.779	35.257
J _L per kg payload	[kg mm ² /kg]	1.621	2.533	3.648	6.485

The mass moment of inertia J_{rot} of the entire axis is calculated as follows:

J_{rot} = J₀ + J_S x working stroke [m]

Materials	
Drive cover	Painted die cast aluminium
Spindle nut	Steel
Slide	Die-cast aluminium
Guide	Steel
Spindle	Steel
Cover strip	High-alloy stainless steel
Profile	Anodised wrought aluminium alloy
End cap	Painted die cast aluminium

Linear drives and slides >

Spindle axes ELGC-BS-KF, with recirculating ball bearing guide

Order code

04 Electromechanical drives

ELGC

BS

KF

Type	
ELGC	Spindle axis

Drive system	
BS	Ball screw

Guide	
KF	Recirculating ball bearing guide

Size	
	Stroke [mm]
32	100, 200, 300, 400, 500, 600, 800
45	100, 200, 300, 400, 500, 600, 800
60	100, 200, 300, 400, 500, 600, 800
80	100, 200, 300, 400, 500, 600, 800, 1000

Spindle pitch [mm/rev]		
8P	8	1
10P	10	2
12P	12	3
16P	16	4

- 1

 Only with size 32
- 2

 Only with size 45
- 3

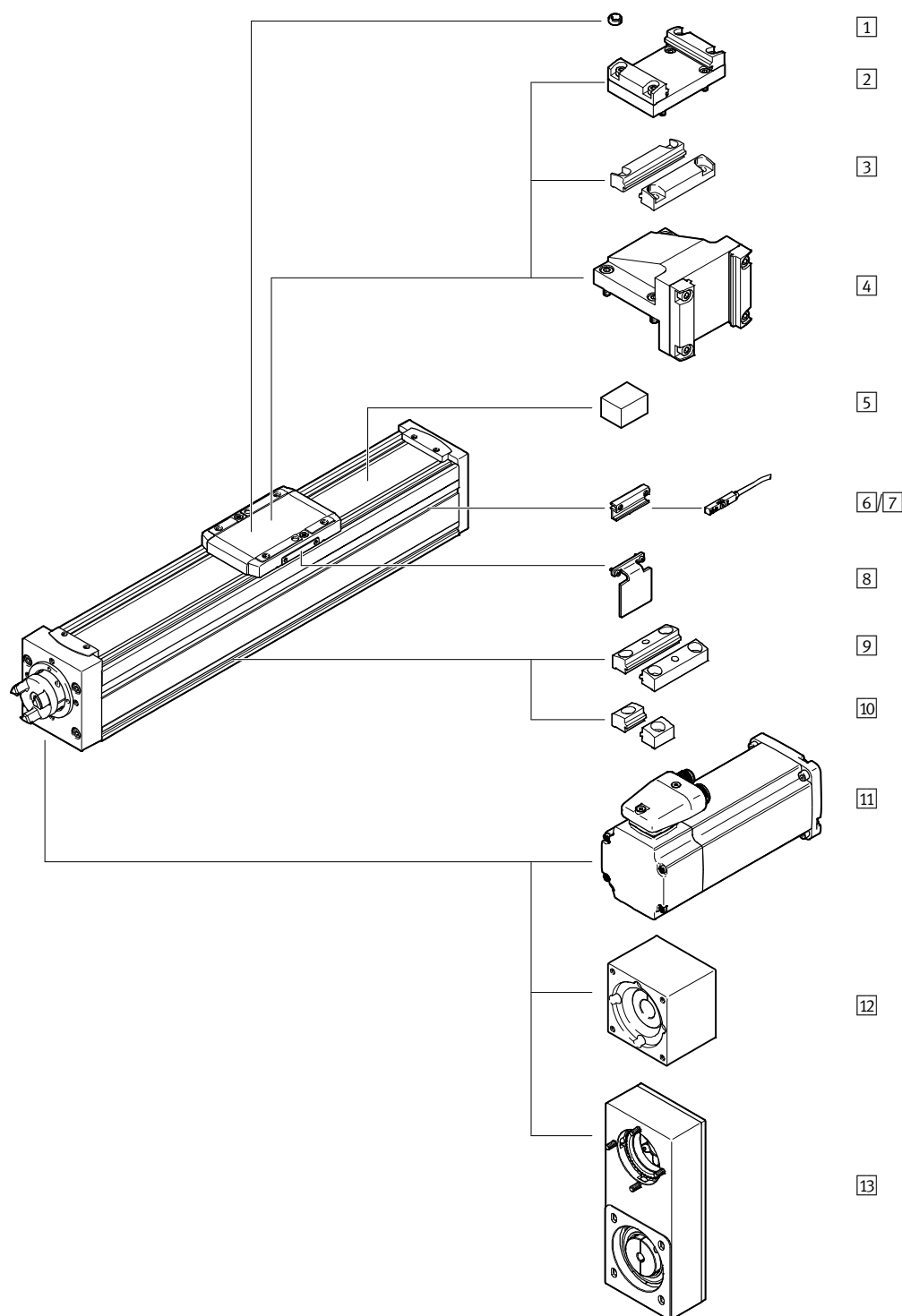
 Only with size 60
- 4

 Only with size 80

Order example:
ELGC-BS-KF-45-500-10P
Spindle axis ELGC- ball screw - recirculating ball bearing guide - size 45 - stroke 500 mm - spindle pitch 10 mm/rev

Spindle axes ELGC-BS-KF, with recirculating ball bearing guide

Accessories



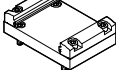
		→ Page/online
1	Centring pin ZBS/centring sleeve ZBH	586
2	Adapter kit EHAA-D-L2	586
3	Profile mounting EAHF-L2-...-P-D...	586
4	Angle kit EHAA-D-L2-...-AP	586
5	Clamping component EADT-S-L5-32	586
6	Sensor bracket EAPM-L2-SH	586
7	Proximity sensor SIES-8M	586
	Proximity sensor SMT-8M	

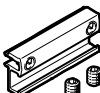
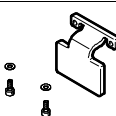
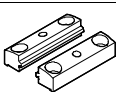
		→ Page/online
8	Switch lug EAPM-L2-...-SLS	586
9	Profile mounting EAHF-L2-...-P	586
10	Profile mounting EAHF-L2-...-P-S	587
11	Motor EMME-AS/EMMS-ST	587
12	Axial kit EAMM-A	587
13	Parallel kit EAMM-U	587

Linear drives and slides >

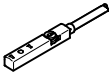
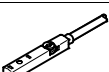
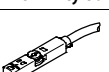
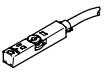
Spindle axes ELGC-BS-KF, with recirculating ball bearing guide

Accessories – Ordering data

	For size	Part no.	Type
1 Centring pin ZBS/centring sleeve ZBH¹⁾ Data sheets online: → zbh			
	32	525273	ZBS-2
	45	562959	ZBS-4
	60	189652	ZBH-5
	80	186717	ZBH-7
2 Adapter kit Data sheets online: → elgc-bs			
	32	8066713	EHAA-D-L2-32-L2-32
	45	8066714	EHAA-D-L2-45-L2-45
	60	8066715	EHAA-D-L2-60-L2-60
	80	8066716	EHAA-D-L2-80-L2-80
3 Profile mounting Data sheets online: → elgc-bs			
	32	4759753	EAHF-L2-25-P-D1
	45	4759748	EAHF-L2-25-P-D2
	60	4759739	EAHF-L2-45-P-D3
	80	4759726	EAHF-L2-45-P-D4
4 Angle kit Dimensions online: → elgc-bs			
	32	8066717	EHAA-D-L2-32-L2-25-AP
	45	8066718	EHAA-D-L2-45-L2-32-AP
	60	8066719	EHAA-D-L2-60-L2-45-AP
	80	8066720	EHAA-D-L2-80-L2-60-AP
5 Clamping component Dimensions online: → elgc-bs			
	32, 45	8065818	EADT-S-L5-32
	60, 80	8058451	EADT-S-L5-70

	For size	Part no.	Type
6 Sensor bracket Dimensions online: → elgc-bs			
	32 ... 80	4759852	EAPM-L2-SH
8 Switch lug Data sheets online: → elgc-bs			
	32	8067259	EAPM-L2-32-SLS
	45	8067260	EAPM-L2-45-SLS
	60	8067261	EAPM-L2-60-SLS
	80	8067262	EAPM-L2-80-SLS
9 Profile mounting Data sheets online: → elgc-bs			
	32	4835684	EAHF-L2-25-P
	45	4835728	EAHF-L2-45-P
	60	4835728	EAHF-L2-45-P
	80	4835728	EAHF-L2-45-P
10 Profile mounting Data sheets online: → elgc-bs			
	32	5183153	EAHF-L2-25-P-S
	45	5183133	EAHF-L2-45-P-S
	60	5183133	EAHF-L2-45-P-S
	80	5183133	EAHF-L2-45-P-S

1) Packaging unit 10 pieces.

	For size	Switching output, connection	Cable length [m]	Part no.	Type
7 Proximity sensor for T-slot, inductive – N/O contact Data sheets → Page 1235					
	32 ... 80	PNP, cable	7.5	551386	SIES-8M-PS-24V-K-7,5-OE
		PNP, plug	0.3	551387	SIES-8M-PS-24V-K-0,3-M8D
		NPN, cable	7.5	551396	SIES-8M-NS-24V-K-7,5-OE
		NPN, plug	0.3	551397	SIES-8M-NS-24V-K-0,3-M8D
N/C contact Data sheets → Page 1235					
	32 ... 80	PNP, cable	7.5	551391	SIES-8M-PO-24V-K-7,5-OE
		PNP, plug	0.3	551392	SIES-8M-PO-24V-K-0,3-M8D
		NPN, cable	7.5	551401	SIES-8M-NO-24V-K-7,5-OE
		NPN, plug	0.3	551402	SIES-8M-NO-24V-K-0,3-M8D
Proximity sensor for T-slot, magneto-resistive – N/O contact Data sheets → Page 1206					
	32 ... 80	PNP, cable	2.5	★ 574335	SMT-8M-A-PS-24V-E-2,5-OE
		PNP, plug	0.3	★ 574334	SMT-8M-A-PS-24V-E-0,3-M8D
N/C contact Data sheets → Page 1206					
	32 ... 80	PNP, cable	7.5	★ 574340	SMT-8M-A-PO-24V-E-7,5-OE
7 Connecting cable, straight socket Data sheets → Page 1544					
	32 ... 80	M8x1, 3-pin	2.5	★ 541333	NEBU-M8G3-K-2.5-LE3
			5.0	★ 541334	NEBU-M8G3-K-5-LE3
Angled socket Data sheets → Page 1544					
	32 ... 80	M8x1, 3-pin	2.5	★ 541338	NEBU-M8W3-K-2.5-LE3
			5.0	★ 541341	NEBU-M8W3-K-5-LE3

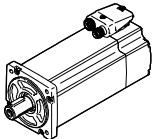
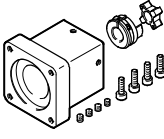
Spindle axes ELGC-BS-KF, with recirculating ball bearing guide

Accessories – Ordering data

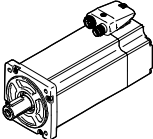
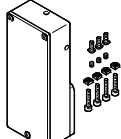
Note

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

When using parallel kits, the no-load driving torque of the kit must be taken into consideration.

Motor/gear unit ¹⁾	Axial kit	
		
	Part no.	Type
11/ 12 Permissible axis/motor combination with axial kit –		
Data sheets online: → eamm-a		
ELGC-BS-KF-32		
With servo motor		
EMME-AS-40-...	4491059	EAMM-A-V25-40P
With stepper motor		
EMMS-ST-42-...	4582608	EAMM-A-V25-42A
ELGC-BS-KF-45		
With servo motor		
EMME-AS-40-...	4595742	EAMM-A-V32-40P
EMME-AS-60-...	4608750	EAMM-A-V32-60P
With stepper motor		
EMMS-ST-42-...	4281142	EAMM-A-V32-42A
EMMS-ST-57-...	4597016	EAMM-A-V32-57A
ELGC-BS-KF-60		
With servo motor		
EMME-AS-60-...	4133487	EAMM-A-T42-60P
EMME-AS-80-...	4623788	EAMM-A-T42-80P
With stepper motor		
EMMS-ST-57-...	4327034	EAMM-A-T42-57A
EMMS-ST-87-...	4610008	EAMM-A-T42-87A
ELGC-BS-KF-80		
With servo motor		
EMME-AS-60-...	4824833	EAMM-A-T46-60P
EMME-AS-80-...	4624170	EAMM-A-T46-80P
EMME-AS-100-...	4624227	EAMM-A-T46-100A
EMMS-AS-100-...	4624227	EAMM-A-T46-100A
With stepper motor		
EMMS-ST-87-...	4048771	EAMM-A-T46-87A

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

Motor/gear unit ¹⁾	Parallel kit	
		
	• The kit can be mounted in all directions • Use in combination with third-party motors on request	
	Part no.	Type
11/ 13 Permissible axis/motor combination with parallel kit –		
Data sheets online: → eamm-u		
ELGC-BS-KF-32		
With servo motor		
EMME-AS-40-...	4782056	EAMM-U-45-V25-40P-63
With stepper motor		
EMMS-ST-42-...	4825645	EAMM-U-45-V25-42A-63
ELGC-BS-KF-45		
With servo motor		
EMME-AS-40-...	4718297	EAMM-U-45-V32-40P-63
With stepper motor		
EMMS-ST-42-...	4280674	EAMM-U-45-V32-42A-63
ELGC-BS-KF-60		
With servo motor		
EMME-AS-60-...	4784301	EAMM-U-65-T42-60P-87
With stepper motor		
EMMS-ST-57-...	4331535	EAMM-U-65-T42-57A-87
ELGC-BS-KF-80		
With servo motor		
EMME-AS-60-...	4824069	EAMM-U-87-T46-60P-114
EMME-AS-80-...	4822696	EAMM-U-87-T46-80P-114
With stepper motor		
EMMS-ST-87-...	4819278	EAMM-U-87-T46-87A-114

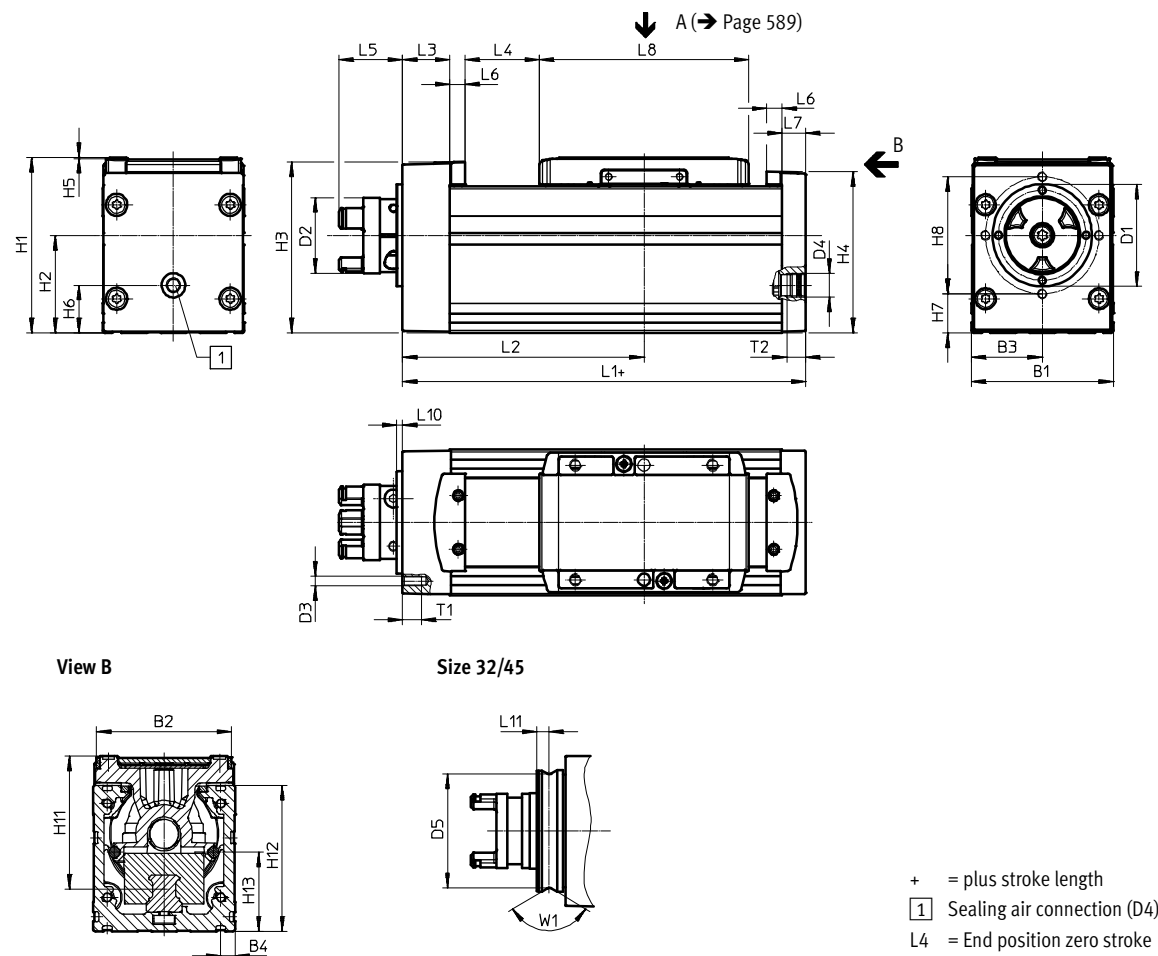
1) The input torque must not exceed the maximum permissible transferable torque of the parallel kit.

Linear drives and slides >

Spindle axes ELGC-BS-KF, with recirculating ball bearing guide

Dimensions

Download CAD data → www.festo.com



Size	B1	B2	B3	B4	D1 Ø	D2 Ø	D3	D4	D5 Ø	H1	H2
32	32	29.6	16	4.9	25	16.5	–	M5	23	38.5	20
45	45	42.6	22.5	6.1	32	16.5	–	G1/8	29.6	54	27.9
60	60	57.1	30	6.1	42	31	M4	G1/8	–	72	40
80	80	77.1	40	6.1	46	31	M6	G1/8	–	96	50

Size	H3	H4	H5	H6	H7	H8	H11	H12	H13	L1	L2 min.
32	36.3	35.6	0.3	8	–	–	31.4	32	13.7	104.5	57.9
45	50.8	49.6	0.5	12.5	–	–	42.8	45	18.5	134.3	79.7
60	70.1	66.1	0.5	19.5	16	48	54.6	60	32.5	170.5	102.1
80	90.6	88.1	0.5	20	17.5	65	72.5	80	41.5	198.5	119.6

Size	L3	L4	L5	L6	L7	L8	L10	L11	T1	T2	W1
32	10.5	13.4	19.9	4.5	5	59	6	2.6	–	5.5	120°
45	14.8	24.6	19.9	6.5	7	67.5	6	2.9	–	8	90°
60	20	31.4	26.9	6.5	10	88.5	2.5	–	8	8	–
80	21	39.1	25.9	6.5	12	106	2.5	–	15	8	–

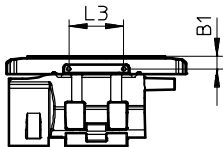
Spindle axes ELGC-BS-KF, with recirculating ball bearing guide

Dimensions

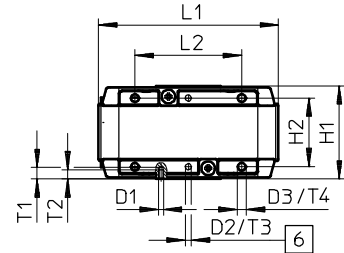
Download CAD data → www.festo.com

Slides

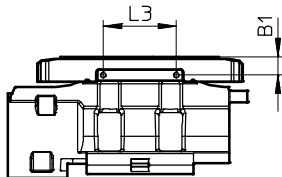
Size 32



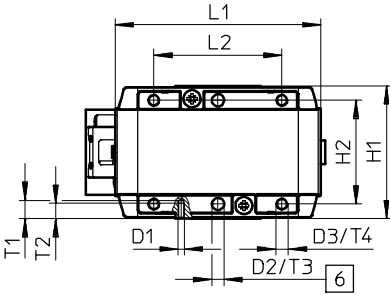
View A



Size 45



View A



6 Hole for centring pin ZBS

Size	B1 ±0.1	D1	D2 Ø H8	D3	H1 ±0.1	H2 ±0.1 For D2 ±0.03
32	4	M1.6	2	M3	30.5	22.5
45	6	M2	4	M4	43.5	34

Size	L1	L2 ±0.1	L3 ±0.1	T1	T2	T3 +0.1	T4 ¹⁾
32	59	35	18	3.8	3	3.1	4 ... 5
45	67.5	42	24	6	5	3.1	6 ... 7.5

1) Recommended screw-in depth.

Linear drives and slides >

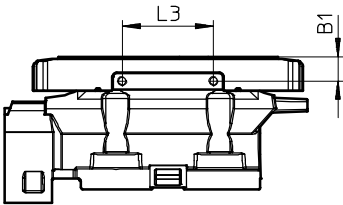
Spindle axes ELGC-BS-KF, with recirculating ball bearing guide

Dimensions

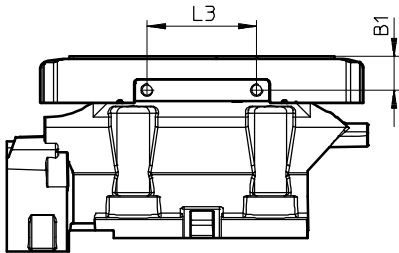
Download CAD data → www.festo.com

Slides

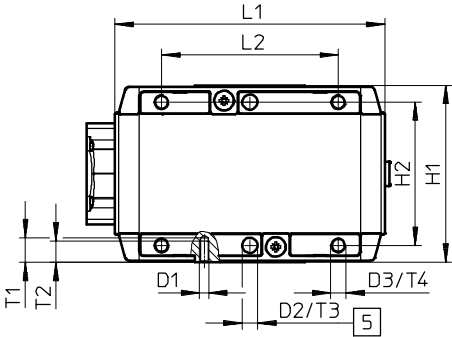
Size 60



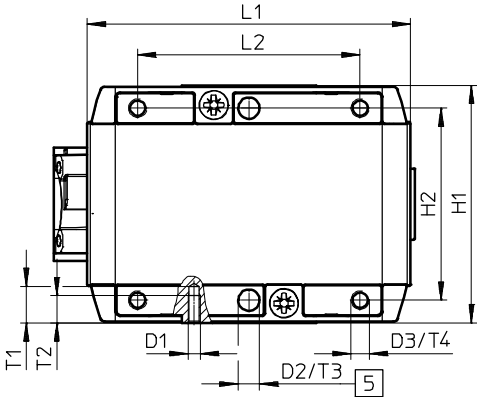
Size 80



View A



View A



5 Hole for centring sleeve ZBH

Size	B1 ±0.1	D1	D2 Ø H8	D3	H1 ±0.1	H2 ±0.1 For D2 ±0.03
60	8	M3	5	M5	58	47
80	11	M4	7	M6	78	63

Size	L1	L2 ±0.1	L3 ±0.1	T1	T2	T3 +0.1	T4 ¹⁾
60	88.5	58	30	9	7	1.3	8.5 ... 10
80	106	73	36	12	9	1.6	11 ... 14

1) Recommended screw-in depth.



Compact and flexible

- + Internal guide and toothed belt
- + Precise and resilient guide
- + Flexible motor connection
- + The toothed belt and spindle axes ELGC together with the mini slides EGSC form a scalable modular system for compact automation

Linear drives and slides ›

Toothed belt axes

ELGC-TB-KF

Linear drives and slides >

Toothed belt axes

ELGC-TB-KF



Overview, configuration and ordering

→ www.festo.com/catalogue/elgc-tb-kf



Additional information, support and user documentation

→ www.festo.com/sp/elgc-tb-kf



Selected types in accordance with the ATEX Directive for explosive atmospheres

→ www.festo.com/catalogue/ex



Spare parts service



- + The toothed belt and spindle axes ELGC together with the mini slides EGSC form a scalable modular system for compact automation
- + Internal guide and toothed belt
- + Precise and resilient guide
- + Flexible motor connection

Toothed belt axes ELGC-TB-KF, with recirculating ball bearing guide

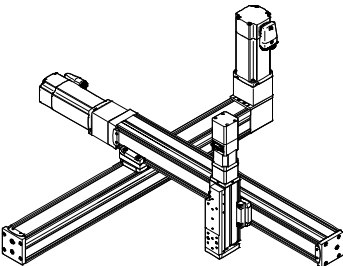
Product range overview

Type/Version	Size	Stroke [mm]	Feed force F _x [N]
ELGC-TB			
KF – Recirculating ball bearing guide	45, 60, 80	200 ... 2000	75 ... 250

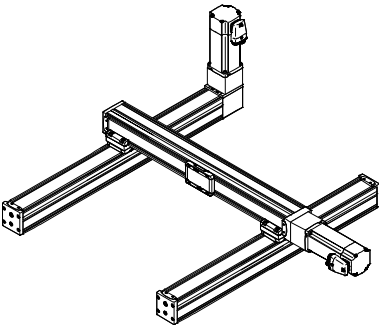
At a glance

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- Powerful drive and guide components ensure a long service life, as well as excellent load capacity and reliability
 - The uniform and universal range of accessories reduces warehousing and design costs

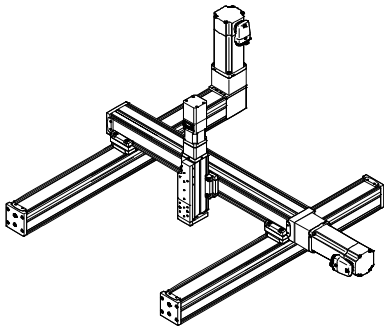
Cantilever system



Planar surface gantry



Three-dimensional gantry



Linear drives and slides >

Toothed belt axes ELGC-TB-KF, with recirculating ball bearing guide

Data sheet

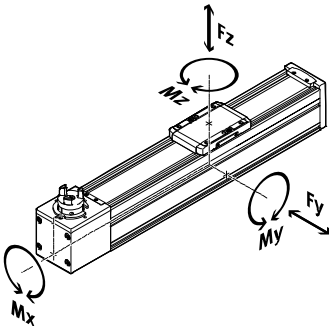


Technical data

Note

Engineering software
PositioningDrives
→ www.festo.com

Dimensions → Page 600



Size		45	60	80
Working stroke	[mm]	200, 300, 500, 600, 800, 1000, 1200, 1500	200, 300, 500, 600, 800, 1000, 1200, 1500, 1800, 2000	200, 300, 500, 600, 800, 1000, 1200, 1500, 1800, 2000
Max. feed force F_x	[N]	75	120	250
Max. no-load torque ¹⁾	[Nm]	0.075	0.194	0.413
Max. no-load resistance to shifting ¹⁾	[N]	7.8	15.6	24.7
Max. driving torque	[Nm]	0.716	1.49	4.178
Max. speed	[m/s]	1.2	1.5	1.5
Max. acceleration	[m/s ²]	15		
Repetition accuracy	[mm]	±0.1		
Max. permissible force F_y	[N]	880	3641	5543
Max. permissible force F_z	[N]	880	3641	5543
Max. permissible torque M_x	[Nm]	5.5	29.1	59.8
Max. permissible torque M_y	[Nm]	4.7	31.8	56.2
Max. permissible torque M_z	[Nm]	4.7	31.8	56.2
Position sensing		Magneto-resistive, inductive		

1) At 0.2 m/s

Operating conditions

Ambient temperature	[°C]	0 ... +50
Degree of protection		IP40

Toothed belt axes ELGC-TB-KF, with recirculating ball bearing guide

Data sheet

Toothed belt				
Size		45	60	80
Pitch	[mm]	2	3	3
Tensile strength ¹⁾	[%]	0.187	0.124	0.2
Effective diameter	[mm]	19.1	24.83	33.42
Feed constant	[mm/U]	60	78	105

1) At max. feed force

Mass moment of inertia				
Size		45	60	80
J ₀	[kg mm ²]	18.62	88.04	291.2
J _S per metre stroke	[kg mm ² /m]	2.81	8.51	19.27
J _L per kg payload	[kg mm ² /kg]	91.19	154.11	279.3

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

$J_A = J_0 + J_S \times \text{working stroke [m]} + J_L \times m_{\text{Payload [kg]}}$

Materials	
Drive cover	Painted die cast aluminium
Slides	Die-cast aluminium
Cover band	High-alloy stainless steel
Toothed belt	Polychloroprene with glass cord and nylon coating
Guide	Steel
Profile	Anodised wrought aluminium alloy
Guide pulley	Aluminium

Linear drives and slides >

Toothed belt axes ELGC-TB-KF, with recirculating ball bearing guide

Order code

ELGC

TB

KF

Type

ELGC

Linear axis

Drive function

TB

Toothed belt

Guide

KF

Recirculating ball bearing guide

Size

Stroke [mm]

45

200, 300, 500, 600, 800, 1000, 1200, 1500

60

200, 300, 500, 600, 800, 1000, 1200, 1500, 1800, 2000

80

200, 300, 500, 600, 800, 1000, 1200, 1500, 1800, 2000

Order example:

ELGC-TB-KF-80-1200

Linear axis ELGC - toothed belt - recirculating ball bearing guide - size 80 - stroke 1200 mm

Ordering – Product options

Configurable product

This product and all its options can be ordered using the configurator.

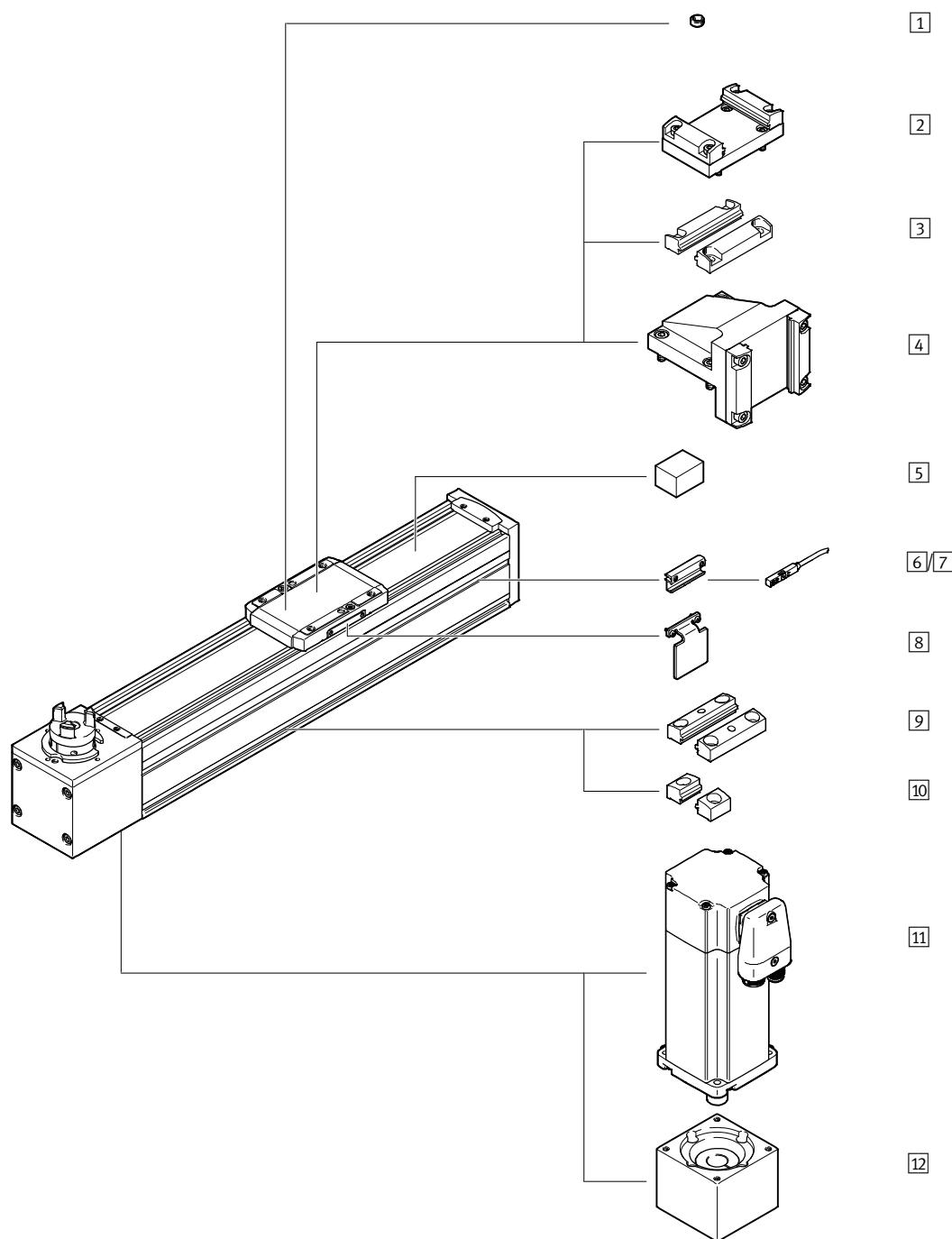
The configurator can be found under Products on the DVD or

[www.festo.com/catalogue/...](#)

Enter the type code in the search field.

Toothed belt axes ELGC-TB-KF, with recirculating ball bearing guide

Accessories



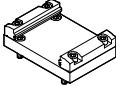
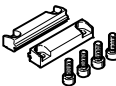
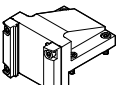
		→ Page/online
1	Centring pin ZBS/centring sleeve ZBH	598
2	Adapter kit EHAA-D-L2	598
3	Profile mounting EAHF-L2-...-P-D	598
4	Angle kit EHAA-D-L2-...-AP	598
5	Clamping component EADT-S-L5-32	598
6	Sensor bracket EAPM-L2-SH	598

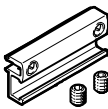
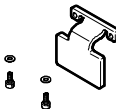
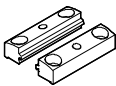
		→ Page/online
7	Proximity sensor SMT-8M	598
8	Switch lug EAPM-L2-...-SHS	598
9	Profile mounting EAHF-L2-...-P	598
10	Profile mounting EAHF-L2-...-P-S	599
11	Motor EMME-AS, EMMS-ST	599
12	Axial kit EAMM-A	599

Linear drives and slides >

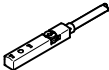
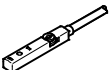
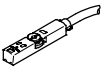
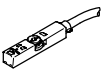
Toothed belt axes ELGC-TB-KF, with recirculating ball bearing guide

Accessories – Ordering data

	For size	Part no.	Type
1 Centring pin ZBS/centring sleeve ZBH¹⁾ Data sheets online: → zbh			
	45	562959	ZBS-4
	60	189652	ZBH-5
	80	186717	ZBH-7
2 Adapter kit Data sheets online: → elgc-tb			
	45	8066714	EHAA-D-L2-45-L2-45
	60	8066715	EHAA-D-L2-60-L2-60
	80	8066716	EHAA-D-L2-80-L2-80
3 Profile mounting Data sheets online: → elgc-tb			
	45	4759748	EAHF-L2-25-P-D2
	60	4759739	EAHF-L2-45-P-D3
	80	4759726	EAHF-L2-45-P-D4
4 Angle kit Dimensions online: → elgc-tb			
	45	8066718	EHAA-D-L2-45-L2-32-AP
	60	8066719	EHAA-D-L2-60-L2-45-AP
	80	8066720	EHAA-D-L2-80-L2-60-AP
5 Clamping component Dimensions online: → elgc-tb			
	45	8065818	EADT-S-L5-32
	60, 80	8058451	EADT-S-L5-70

	For size	Part no.	Type
6 Sensor bracket Dimensions online: → elgc-tb			
	45 ... 80	4759852	EAPM-L2-SH
8 Switch lug Data sheets online: → elgc-bs			
	45	8067260	EAPM-L2-45-SLS
	60	8067261	EAPM-L2-60-SLS
	80	8067262	EAPM-L2-80-SLS
9 Profile mounting Data sheets online: → elgc-tb			
	45	4835728	EAHF-L2-45-P
	60	4835728	EAHF-L2-45-P
	80	4835728	EAHF-L2-45-P
10 Profile mounting Data sheets online: → elgc-tb			
	45	5183133	EAHF-L2-45-P-S
	60	5183133	EAHF-L2-45-P-S
	80	5183133	EAHF-L2-45-P-S

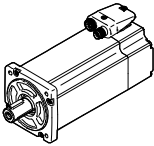
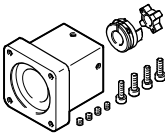
1) Packaging unit 10 pieces.

	For size	Switching output, connection	Cable length [m]	Part no.	Type
7 Proximity sensor for T-slot, inductive – N/O contact Data sheets → Page 1235					
	45 ... 80	PNP, cable	7.5	551386	SIES-8M-PS-24V-K-7,5-OE
		PNP, plug	0.3	551387	SIES-8M-PS-24V-K-0,3-M8D
		NPN, cable	7.5	551396	SIES-8M-NS-24V-K-7,5-OE
		NPN, plug	0.3	551397	SIES-8M-NS-24V-K-0,3-M8D
N/C contact Data sheets → Page 1235					
	45 ... 80	PNP, cable	7.5	551391	SIES-8M-PO-24V-K-7,5-OE
		PNP, plug	0.3	551392	SIES-8M-PO-24V-K-0,3-M8D
		NPN, cable	7.5	551401	SIES-8M-NO-24V-K-7,5-OE
		NPN, plug	0.3	551402	SIES-8M-NO-24V-K-0,3-M8D
Proximity sensor for T-slot, magneto-resistive – N/O contact Data sheets → Page 1206					
	45 ... 80	PNP, cable	2.5	★ 574335	SMT-8M-A-PS-24V-E-2,5-OE
		PNP, plug	0.3	★ 574334	SMT-8M-A-PS-24V-E-0,3-M8D
N/C contact Data sheets → Page 1206					
	45 ... 80	PNP, cable	7.5	★ 574340	SMT-8M-A-PO-24V-E-7,5-OE
7 Connecting cable, straight socket Data sheets → Page 1544					
	45 ... 80	M8x1, 3-pin	2.5	★ 541333	NEBU-M8G3-K-2.5-LE3
			5.0	★ 541334	NEBU-M8G3-K-5-LE3
Angled socket Data sheets → Page 1544					
	45 ... 80	M8x1, 3-pin	2.5	★ 541338	NEBU-M8W3-K-2.5-LE3
			5.0	★ 541341	NEBU-M8W3-K-5-LE3

Toothed belt axes ELGC-TB-KF, with recirculating ball bearing guide

Accessories – Ordering data

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

11/12 Permissible axis/motor combination with axial kit Data sheets online: → eamm-a		
Motor/gear unit ¹⁾	Axial kit	
		
	Part no.	Type
ELGC-TB-KF-45		
With servo motor		
EMME-AS-40-...	4595742	EAMM-A-V32-40P
EMME-AS-60-...	4608750	EAMM-A-V32-60P
With stepper motor		
EMMS-ST-42-...	4281142	EAMM-A-V32-42A
EMMS-ST-57-...	4597016	EAMM-A-V32-57A
ELGC-TB-KF-60		
With servo motor		
EMME-AS-60-...	4133487	EAMM-A-T42-60P
EMME-AS-80-...	4623788	EAMM-A-T42-80P
With stepper motor		
EMMS-ST-57-...	4327034	EAMM-A-T42-57A
EMMS-ST-87-...	4610008	EAMM-A-T42-87A
ELGC-TB-KF-80		
With servo motor		
EMME-AS-60-...	4824833	EAMM-A-T46-60P
EMME-AS-80-...	4624170	EAMM-A-T46-80P
EMME-AS-100-...	4624227	EAMM-A-T46-100A
EMMS-AS-100-...	4623227	EAMM-A-T46-100A
With stepper motor		
EMMS-ST-87-...	4048771	EAMM-A-T46-87A

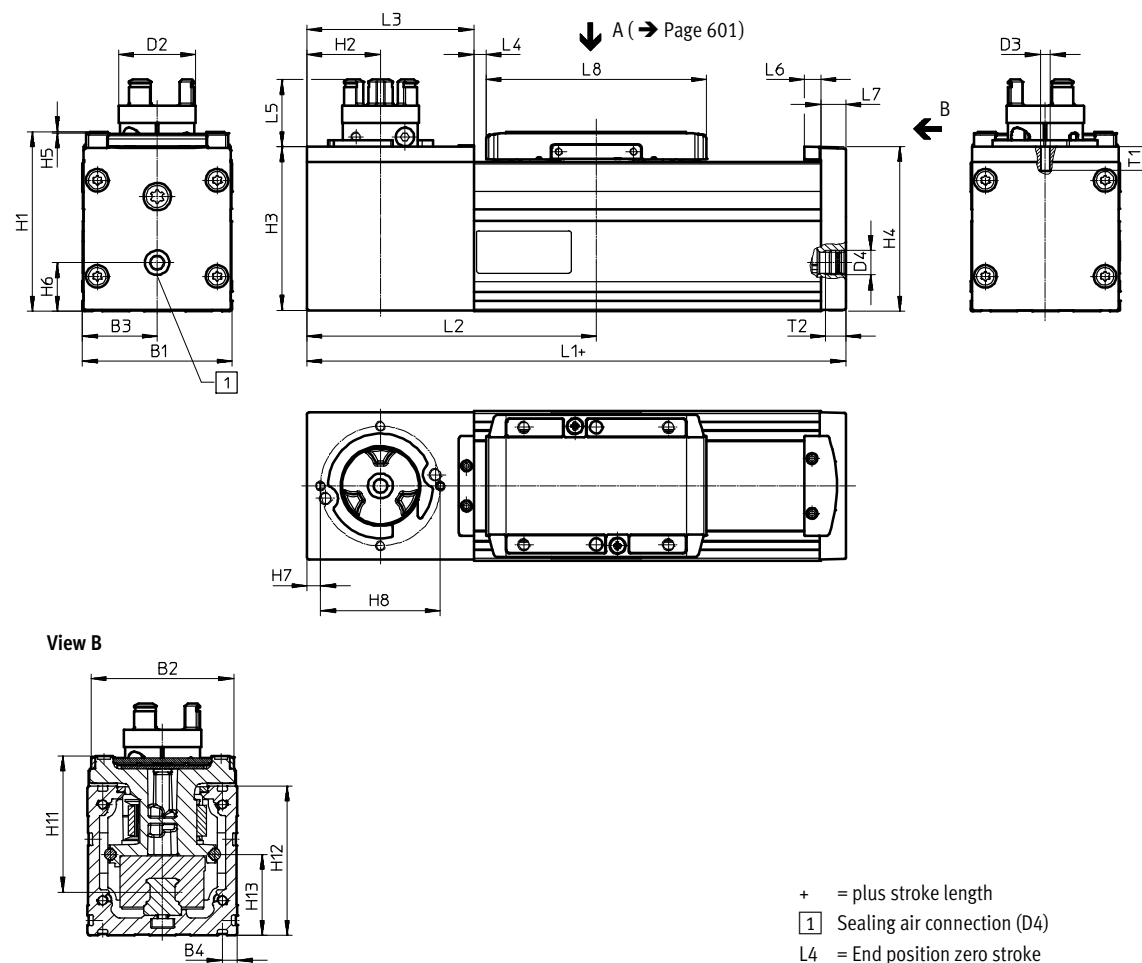
1) The input torque must not exceed the maximum permissible transferable torque of the axial kit.

Linear drives and slides >

Toothed belt axes ELGC-TB-KF, with recirculating ball bearing guide

Dimensions

Download CAD data → www.festo.com



Size	B1	B2	B3	B4	D2 Ø	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
80	80	77.1	40	6.1	31	M6	G1/8	96	39.5

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
80	85.5	88.1	0.5	20	7	65	72.5	80	41.5

Size	L1	L2	L3	L4 ¹⁾	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
80	260	145	87	5	25.9	6.5	12	106	12.5	8

1) Includes a stroke reserve of approx. 3 mm

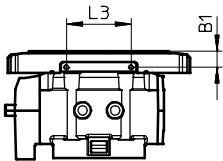
Toothed belt axes ELGC-TB-KF, with recirculating ball bearing guide

Dimensions

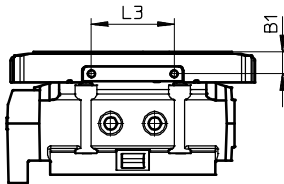
Download CAD data → www.festo.com

Slide

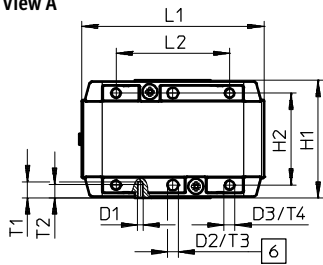
Size 45



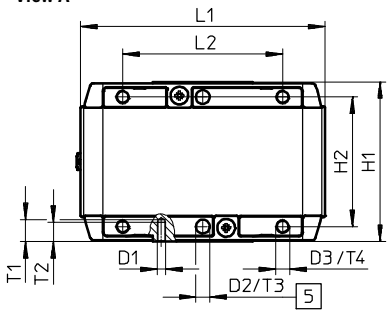
Size 60



View A



View A



- 5 Drill hole for centring sleeve ZBH
- 6 Drill hole for centring pin ZBS

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

Size	L1	L2	L3	T1	T2	T3	T4 ¹⁾
		±0.1	±0.1			±0.1	
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.

Linear drives and slides >

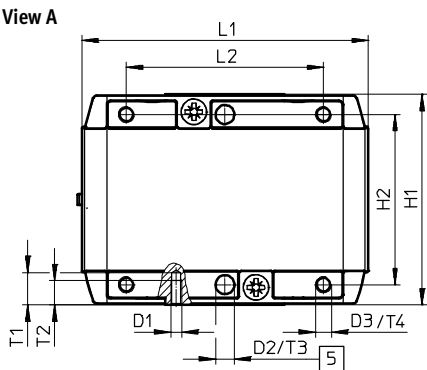
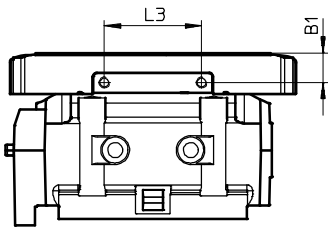
Toothed belt axes ELGC-TB-KF, with recirculating ball bearing guide

Dimensions

Download CAD data → www.festo.com

Slide

Size 80

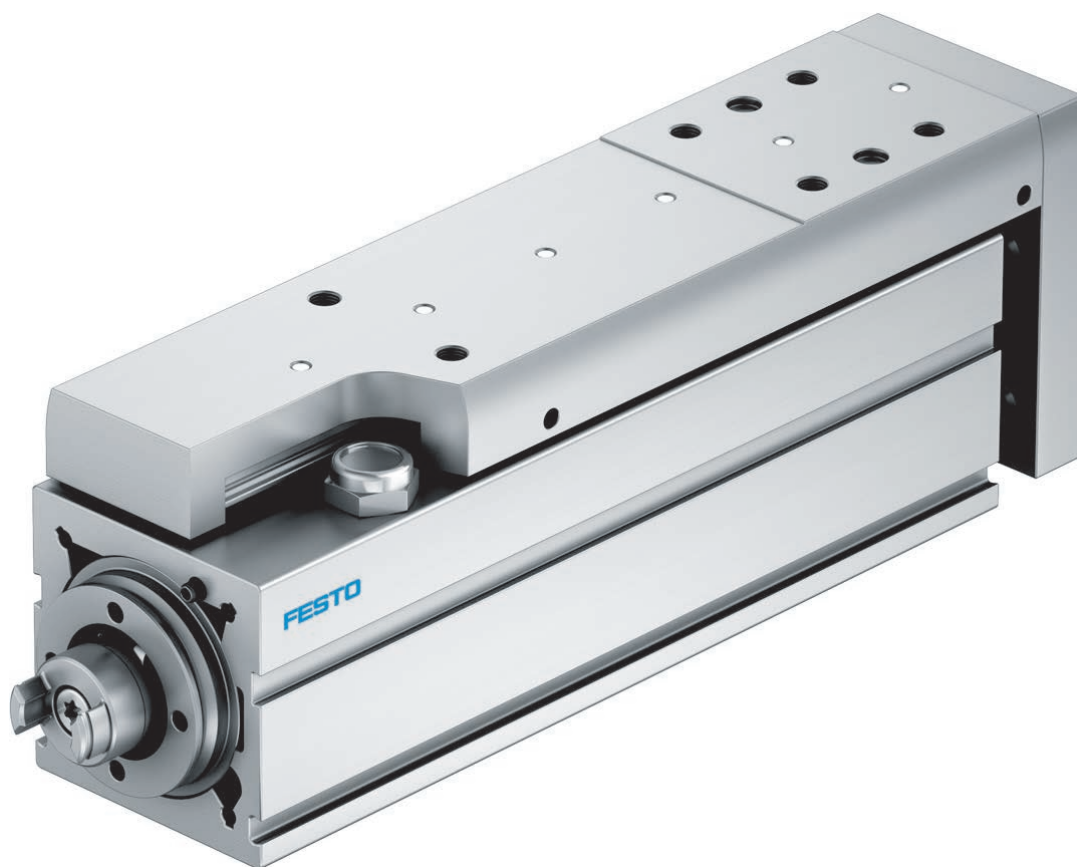


5 Drill hole for centring sleeve ZBH

Size	B1	D1	D2 Ø H8	D3	H1	H2 ±0.1 For D2 ±0.03
80	11 ±0.1	M4	7	M6	78 ±0.1	63

Size	L1	L2 ±0.1	L3 ±0.1	T1	T2	T3 +0.1	T4 ¹⁾
80	106	73	36	12	9	1.6	11 ... 14

1) Recommended screw-in depth.



Small and precise

- + Precise guide and ball screw
- + Compact dimensions
- + Flexible motor connection
- + The toothed belt and spindle axes ELGC together with the mini slides EGSC form a scalable modular system for compact automation

Linear drives and slides ›

Mini slides, electric

EGSC-BS

Linear drives and slides >

Mini slides, electric

EGSC-BS



Overview, configuration and ordering

→ www.festo.com/catalogue/egsc



Additional information, support and user documentation

→ www.festo.com/sp/egsc



Spare parts service



- + The toothed belt and spindle axes ELGC together with the mini slides EGSC form a scalable modular system for compact automation
- + Precise guide and ball screw
- + Compact dimensions
- + Flexible motor connection

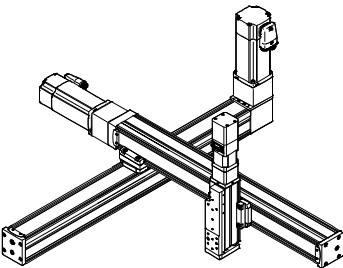
Product range overview

Type/version	Size	Stroke [mm]	Feed force F _x [N]	Max. speed [m/s]
EGSC	25, 32, 45, 60	25 ... 200	20 ... 250	0.6

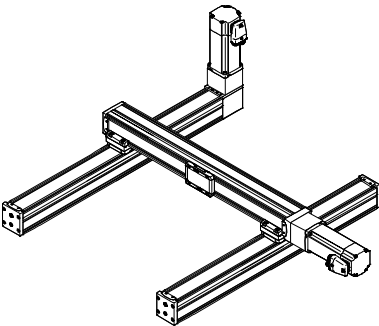
At a glance

- The toothed belt axes, spindle axes ELGC and mini slides EGSC form a scalable modular system for compact automation
 - The shared platform architecture creates a consistent range with harmonised interfaces. A wealth of systems can be realised entirely without adapter plates
- Powerful drive and guide components ensure a long service life, as well as excellent load capacity and reliability
 - The uniform and universal range of accessories reduces warehousing and design costs

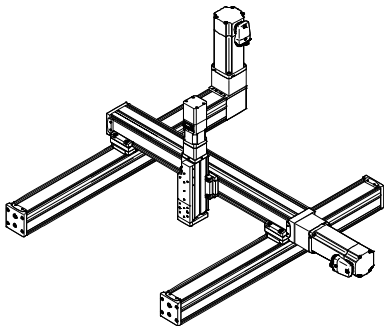
Cantilever system



Planar surface gantry



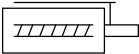
Three-dimensional gantry



Linear drives and slides >

Mini slides EGSC-BS

Data sheet



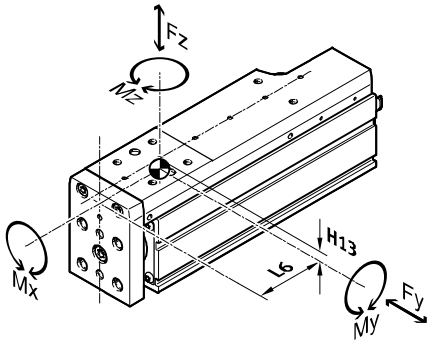
Technical data			Dimensions ➔ Page 612		
Size		25	32	45	60
Spindle pitch	[mm/U]	6	8	10	12
Working stroke	[mm]	25, 50, 75	25, 50, 75, 100	25, 50, 75, 100, 125, 150	50, 75, 100, 125, 150, 200
Max. permissible payload	[kg]	1	2	6	10
Max. feed force F _x	[N]	20	60	120	250
No-load driving torque at min. travel speed	[Nm]	0.008	0.014	0.026	0.069
	[m/s]	0.05	0.05	0.05	0.05
No-load driving torque at max. travel speed	[Nm]	0.029	0.042	0.1	0.306
	[m/s]	0.4	0.5	0.6	0.6
Max. radial force ¹⁾	[N]	30	75	180	230
Max. rotational speed	[rpm]	4000	3750	3600	3000
Max. acceleration	[m/s ²]	15			
Repetition accuracy	[mm]	±0.015			
Max. reversing backlash	[μm]	≤ 0.15			
Position sensing ²⁾		Magneto-resistive, inductive			

1) At the drive shaft.
2) For sizes 45 and 60, only inductive sensing is possible as of a stroke of 100 mm.

Permissible forces and torques/geometric characteristics

Note

Engineering software
PositioningDrives
→ www.festo.com



Size		25	32	45	60
Dimension H13	[mm]	7.3	7.9	10.2	15.9
Dimension L6	[mm]	25.1	31.8	37.3	53.4
Max. permissible force F_y	[N]	669	991	1314	4937
Max. permissible force F_z	[N]	669	991	1314	4937
Max. permissible torque M_x	[Nm]	2.0	3.4	8.1	20
Max. permissible torque M_y	[Nm]	2.1	3.2	7	30
Max. permissible torque M_z	[Nm]	2.1	3.2	7	30

1) The dimension relates to the retracted position of the slide. In the advanced position, the dimension must be extended accordingly.

Data sheet

Operating conditions		
Ambient temperature	[°C]	0 ... +50
Degree of protection		IP40

Mass moment of inertia					
Size		25	32	45	60
J ₀	[kg cm ²]	0.0014	0.0062	0.0136	0.0839
J _S per metre stroke	[kg cm ² /m]	0.0150	0.0493	0.1361	0.2708
J _L per kg payload	[kg cm ² /kg]	0.0091	0.0162	0.0253	0.0365

The mass moment of inertia J_{act} of the mini slide is calculated as follows:

J_{act} = J₀ + J_S/1000 mm x working stroke

Materials	
Yoke plate	Anodised wrought aluminium alloy
Slides	Anodised wrought aluminium alloy
Guide rail	Steel
Housing	Anodised wrought aluminium alloy
Spindle	Steel
Spindle nut	Steel

Linear drives and slides >

Mini slides EGSC-BS

Order code

EGSC

BS

KF

Type	
EGSC	Mini slide

Drive function	
BS	Ball screw

Guide	
KF	Recirculating ball bearing guide

Size		
	Stroke [mm]	
	Spindle pitch [mm/rev]	
25	25, 50, 75	6P
32	25, 50, 75, 100	8P
45	25, 50, 75, 100, 125, 150	10P
60	50, 75, 100, 125, 150, 200	12P

Order example:
EGSC-BS-KF-45-100-10P
Mini slide EGSC - ball screw - recirculating ball bearing guide - size 45 - stroke 100 mm - spindle pitch 10 mm/rev

Ordering – Product options

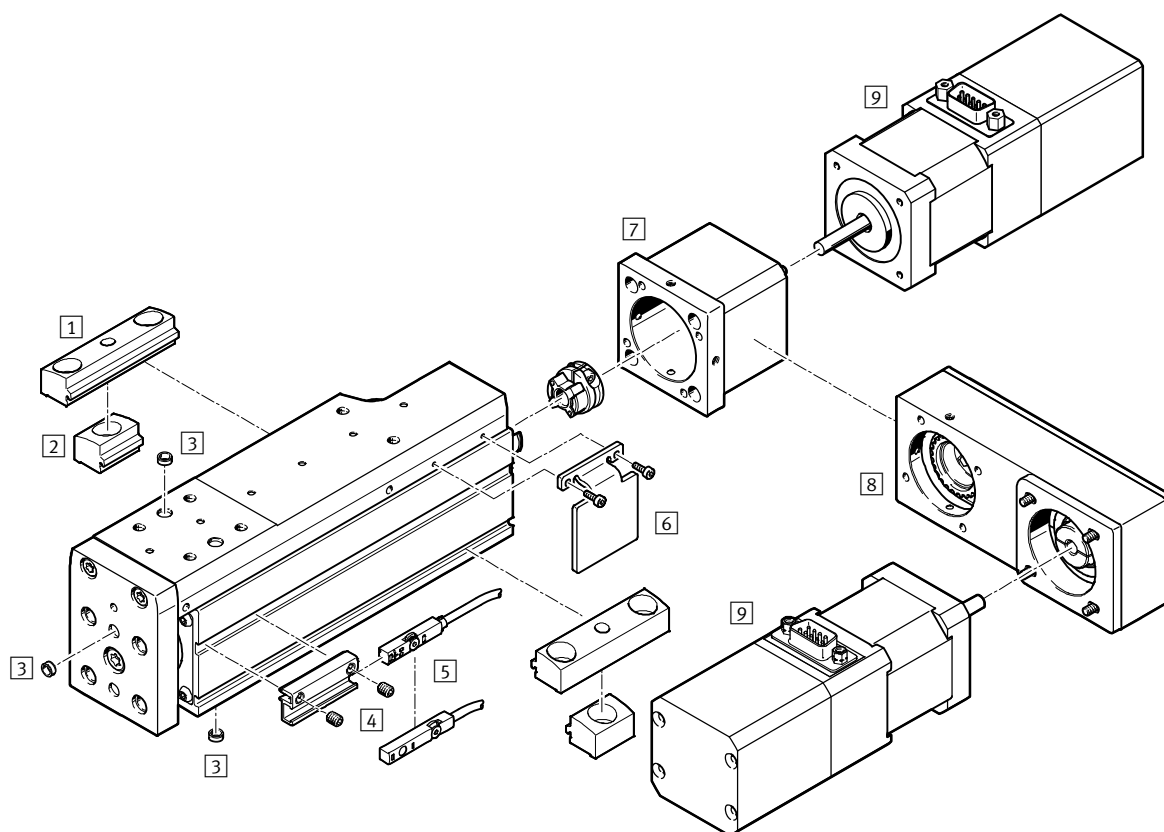
Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
[➔ www.festo.com/catalogue/...](#)

Enter the type code in the search field.

Accessories



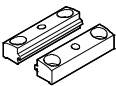
		→ Page/online
1	Profile mounting EAHF-L2-...-P	610
2	Profile mounting EAHF-L2-...-P-S	610
3	Centring pin ZBS/centring sleeve ZBH	610
4	Sensor bracket EAPM-L2	610
5	Proximity sensor SIES-8M	610
	Proximity sensor SMT-8M	610

		→ Page/online
6	Switch lug EAPM-...-SLS	610
7	Axial kit EAMM-A	611
8	Parallel kit EAMM-U	611
9	Motors EMME-AS, EMMS-ST	611

Linear drives and slides >

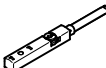
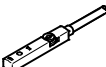
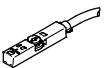
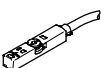
Mini slides EGSC-BS

Accessories – Ordering data

	For size	Part no.	Type
1 Profile mounting Data sheets online: → egsc-bs			
	25	4835684	EAHF-L2-25-P
	32	4835684	EAHF-L2-25-P
	45	4835728	EAHF-L2-45-P
	60	4835728	EAHF-L2-45-P
2 Profile mounting Data sheets online: → egsc-bs			
	25	5183153	EAHF-L2-25-P-S
	32	5183153	EAHF-L2-25-P-S
	45	5183133	EAHF-L2-45-P-S
	60	5183133	EAHF-L2-45-P-S
3 Centring pin ZBS/centring sleeve ZBH1 Data sheets online: → zbh			
	25	150928	ZBS-5
	32, 45, 60	186717	ZBH-7

	For size	Part no.	Type
4 Sensor bracket Dimensions online: → egsc-bs			
	25 ... 60	4759852	EAPM-L2-SH
6 Switch lug Data sheets online: → egsc-bs			
	25	8067258	EAPM-E19-25-SLS
	32	8067259	EAPM-L2-32-SLS
	45	8067260	EAPM-L2-45-SLS
	60	8067261	EAPM-L2-60-SLS

1) Packaging unit 10 pieces.

	For size	Switching output, connection	Cable length [m]	Part no.	Type
5 Proximity sensor for T-slot, inductive – N/O contact Data sheets → Page 1235					
	25 ... 60	PNP, cable	7.5	551386	SIES-8M-PS-24V-K-7,5-OE
		PNP, plug	0.3	551387	SIES-8M-PS-24V-K-0,3-M8D
		NPN, cable	7.5	551396	SIES-8M-NS-24V-K-7,5-OE
		NPN, plug	0.3	551397	SIES-8M-NS-24V-K-0,3-M8D
N/C contact Data sheets → Page 1235					
	25 ... 60	PNP, cable	7.5	551391	SIES-8M-PO-24V-K-7,5-OE
		PNP, plug	0.3	551392	SIES-8M-PO-24V-K-0,3-M8D
		NPN, cable	7.5	551401	SIES-8M-NO-24V-K-7,5-OE
		NPN, plug	0.3	551402	SIES-8M-NO-24V-K-0,3-M8D
Proximity sensor for T-slot, magneto-resistive – N/O contact Data sheets → Page 1206					
		PNP, cable	2.5	★ 574335	SMT-8M-A-PS-24V-E-2,5-OE
		PNP, plug	0.3	★ 574334	SMT-8M-A-PS-24V-E-0,3-M8D
N/C contact Data sheets → Page 1206					
	25 ... 60	PNP, cable	7.5	★ 574340	SMT-8M-A-PO-24V-E-7,5-OE
5 Connecting cable, straight socket Data sheets → Page 1544					
	25 ... 60	M8x1, 3-pin	2.5	★ 541333	NEBU-M8G3-K-2.5-LE3
			5.0	★ 541334	NEBU-M8G3-K-5-LE3
Angled socket Data sheets → Page 1544					
	25 ... 60	M8x1, 3-pin	2.5	★ 541338	NEBU-M8W3-K-2.5-LE3
			5.0	★ 541341	NEBU-M8W3-K-5-LE3

Note

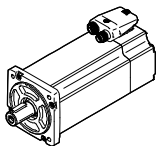
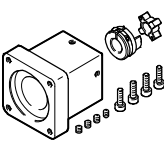
For sizes 45 and 60, inductive proximity sensor SIES-8M must be used for strokes greater than 100 mm.

Accessories – Ordering data

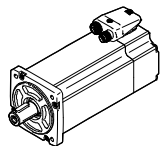
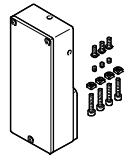
Note

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

When using parallel kits, the no-load driving torque of the respective kit must be taken into consideration.

Motor/gear unit ¹⁾	Axial kit	
		
	Part no.	Type
7/9 Permissible axis/motor combination with axial kit –		
Data sheets online: → eamm-a		
EGSC-BS-KF-25		
With stepper motor		
EMMS-ST-28-...	4505258	EAMM-A-V20-28A
EGSC-BS-KF-32		
With servo motor		
EMME-AS-40-...	4491059	EAMM-A-V25-40P
With stepper motor		
EMMS-ST-42-...	4582608	EAMM-A-V25-42A
EGSC-BS-KF-45		
With servo motor		
EMME-AS-40-...	4595742	EAMM-A-V32-40P
EMME-AS-60-...	4608750	EAMM-A-V32-60P
With stepper motor		
EMMS-ST-42-...	4281142	EAMM-A-V32-42A
EMMS-ST-57-...	4597016	EAMM-A-V32-57A
EGSC-BS-KF-60		
With servo motor		
EMME-AS-60-...	4133487	EAMM-A-T42-60P
EMME-AS-80-...	4623788	EAMM-A-T42-80P
With stepper motor		
EMMS-ST-57-...	4327034	EAMM-A-T42-57A
EMMS-ST-87-...	4610008	EAMM-A-T42-87A

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

Motor/gear unit ¹⁾	Parallel kit	
	 • The kit can be mounted in all directions • Use in combination with third-party motors on request	
	Part no.	Type
8/9 Permissible axis/motor combination with parallel kit –		
Data sheets online: → eamm-u		
EGSC-BS-KF-25		
With stepper motor		
EMMS-ST-28-...	4767125	EAMM-U-30-V20-28A-44
EGSC-BS-KF-32		
With servo motor		
EMME-AS-40-...	4782056	EAMM-U-45-V25-40P-63
With stepper motor		
EMMS-ST-42-...	4825645	EAMM-U-45-V25-42A-63
EGSC-BS-KF-45		
With servo motor		
EMME-AS-40-...	4718297	EAMM-U-45-V32-40P-63
With stepper motor		
EMMS-ST-42-...	4280674	EAMM-U-45-V32-42A-63
EGSC-BS-KF-60		
With servo motor		
EMME-AS-60-...	4784301	EAMM-U-65-T42-60P-87
With stepper motor		
EMMS-ST-57-...	4331535	EAMM-U-65-T42-57A-87

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

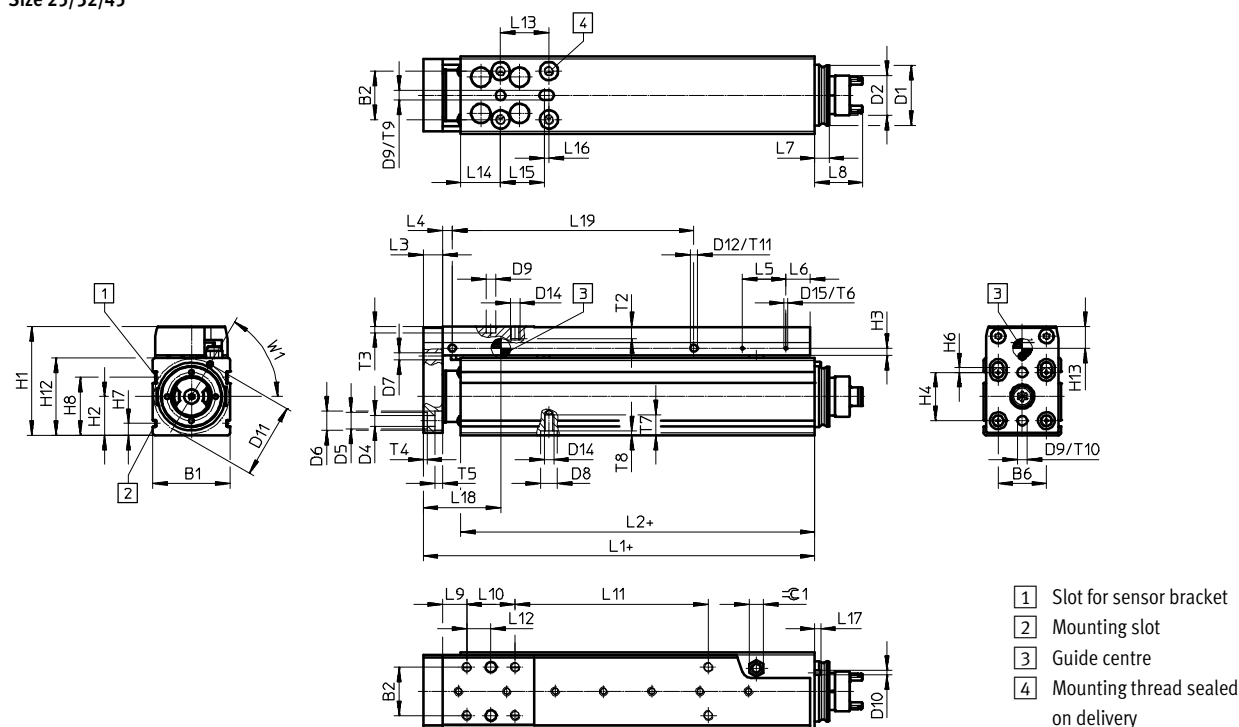
Linear drives and slides >

Mini slides EGSC-BS

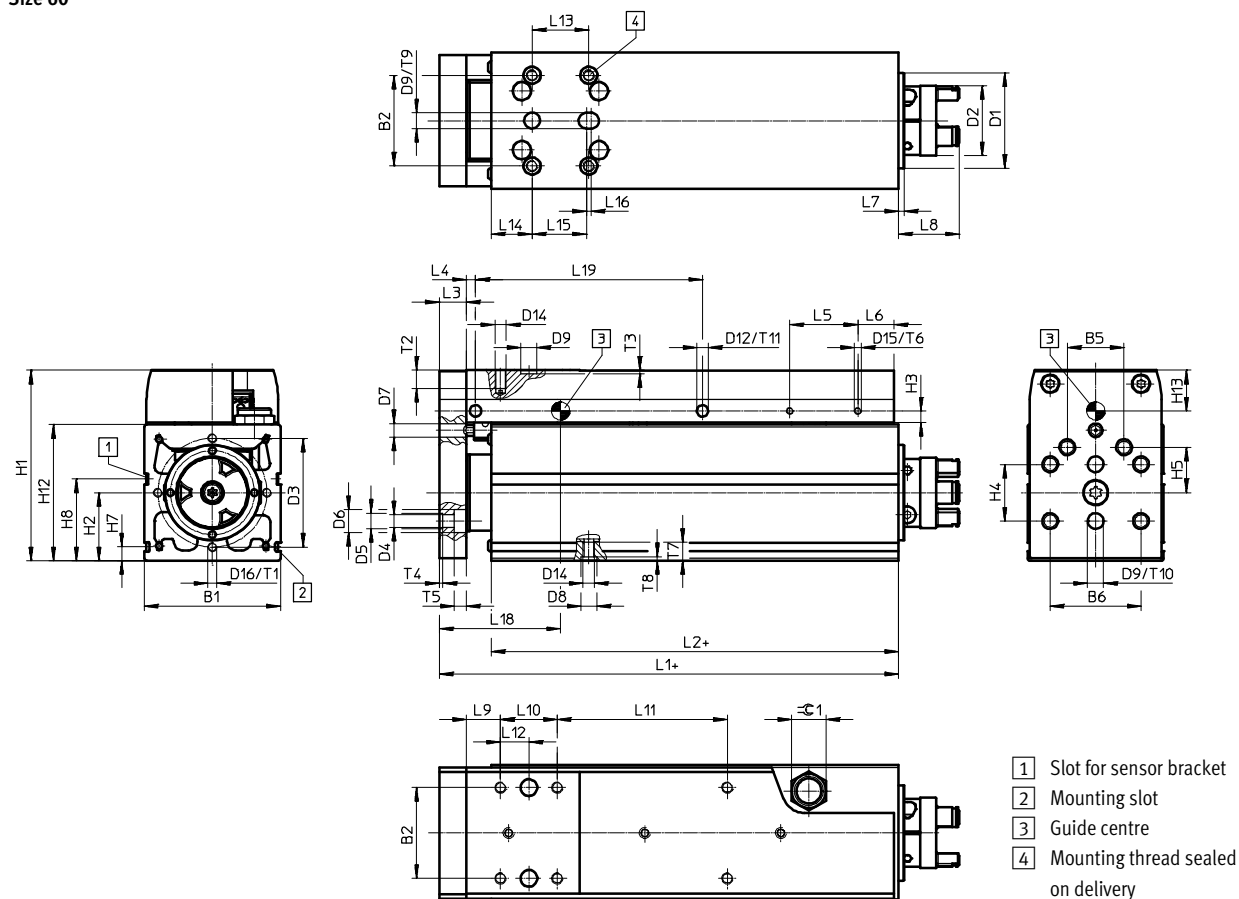
Dimensions

Size 25/32/45

Download CAD data → www.festo.com



Size 60



Dimensions

Download CAD data → www.festo.com

Size	B1 ±0.15	B2	B5	B6	D1 Ø	D2 Ø	D3 Ø	D4 Ø H13	D5 Ø H7	D6 Ø H13	D7 Ø	D8 Ø H7	D9 Ø H8	D10 Ø	D11 Ø
25	25	17	–	17	20.5	11	–	3.4	5	6	2.5	5	2	2	25
32	32	20	–	20	25	16.5	–	4.5	7	8	3	7	4	2	31
45	45	25	–	25	32	16.5	–	5.5	7	10	3	7	5	3	41
60	60	40	25	40	42	31	48	5.5	7	10	6	7	7	–	–

Size	D12 Ø	D13	D14	D15	D16	H1	H2	H3	H4	H5	H6	H7	H8	H12 ±0.15	H13
25	3	–	M3	M1.6	–	36.5	12.5	2.5	17	–	–	4.9	20.5	25	7.6
32	3	–	M4	M1.6	–	45	16	3	20	–	2	4.9	24	32	8.4
45	3	–	M5	M2	–	60.5	22.5	3	25	–	–	6.1	28.5	45	10.7
60	5	M4	M5	M3	M4	84	30	5	25	20	–	6.1	36	60	16.4

Size	L1	L2	L3 +0.2	L4	L5 ±0.1	L6	L7	L8	L9	L10	L12	L13	L14	L15	L16
25	53.6	42	6	4	18	6	5	15	10	17	8.5	17	13.5	16.5	1
32	62	46.5	8	4	18	10	6	19.9	10	20	10	20	16.5	18	2
45	73.8	54.5	10	4	24	12	6	19.9	15	25	12.5	25	17.5	24	2
60	102.4	79.5	12	4	30	16	2.5	26.9	15	25	12.5	25	30	24	2

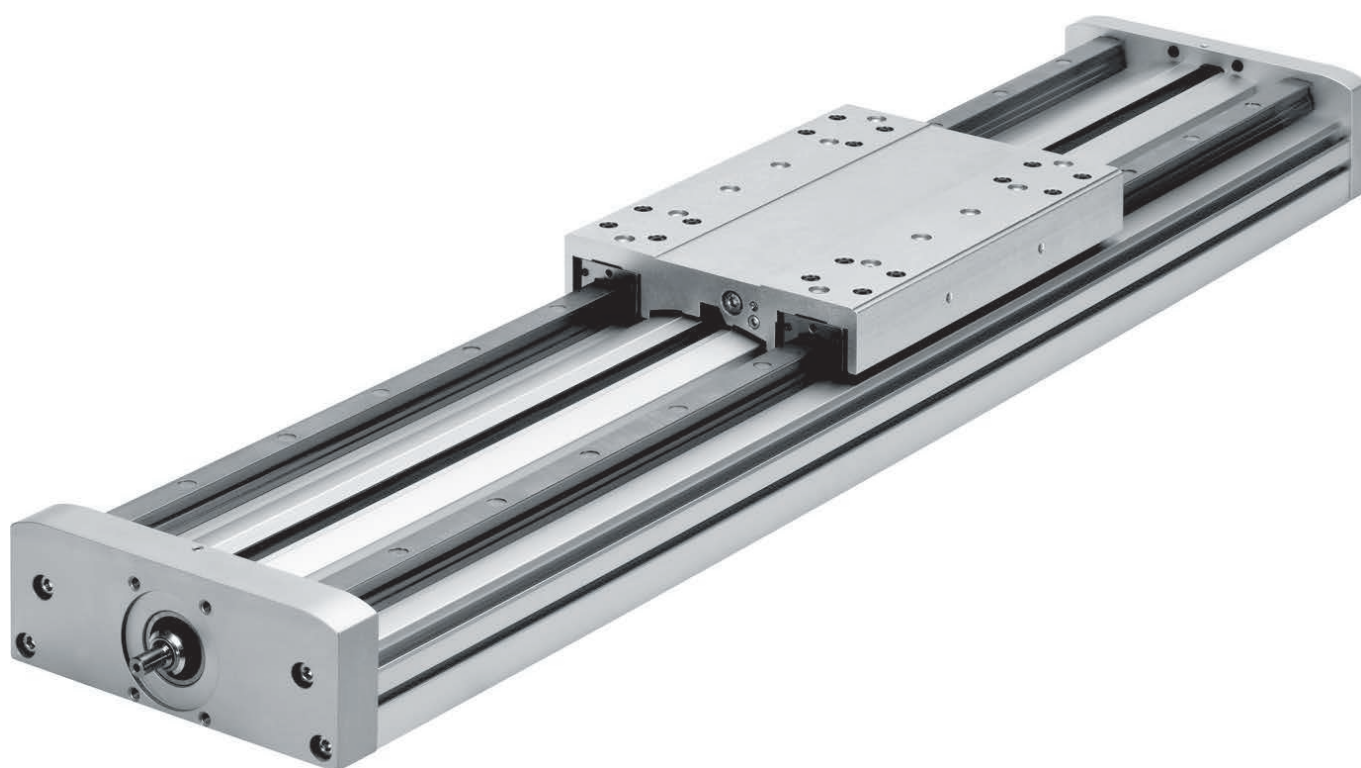
Size	L17	L18	T1	T2	T3 +0.1	T4 +0.1	T5	T6	T7	T8 +0.1	T9 +0.1	T10 +0.1	T11 –0.2	W1	≈ 1
25	2.5	25.1	–	4.5	2.6	1.3	3.2	2	6	1.3	2.1	3.1	2	60°	6
32	2.5	31.8	–	5	2.6	1.6	3.2	1.5	8.5	1.8	2.6	2.6	1.5	60°	6
45	2	37.3	–	6	1.3	1.6	5.4	4	7	1.8	1.3	1.3	5	60°	12
60	–	53.4	10	8	1.6	1.6	5.4	6	8	1.8	1.6	1.6	5	–	15

Size	Stroke [mm]	L19	L11
25	25	25	0
	50	50	33
	75	75	58
32	25	25	0
	50	50	30
	75	75	55
	100	100	80
45	25	25	0
	50	50	25
	75	75	50
	100	100	75
	125	125	100
	150	150	125
60	50	50	25
	75	75	50
	100	100	75
	125	125	100
	150	150	125
	200	200	175

Linear drives and slides >

04

Electromechanical drives



Performance and precision

- + Generously sized profiles with an optimised cross section afford maximum rigidity and load capacity
- + Spindle support enables maximum travel speed with all stroke lengths
- + Ideal as a basic axis for linear gantries and cantilever axes

Linear drives and slides ›

Spindle axes with heavy-duty guide

EGC-HD-BS

Linear drives and slides >

Spindle axes with heavy-duty guide

EGC-HD-BS



Overview, configuration and ordering

→ www.festo.com/catalogue/egc-hd-bs



Additional information, support and user documentation

→ www.festo.com/sp/egc-hd-bs



Spare parts service



- + DUO recirculating ball bearing guide for high loads and torques
- + Profile with maximum rigidity and load capacity
- + With a precision ball screw
- + Spindle support enables maximum travel speed
- + Optimum force-speed ratio thanks to different spindle pitches
- + For maximum loads and torques

Spindle axes EGC-HD-BS, with heavy-duty guide

Product range overview

Type/Version	Size	Stroke [mm]	Feed force F _x [N]	Product options
EGC-HD-BS				
HD – Heavy-duty guide	125, 160, 220	50 ... 2400	300 ... 1300	■

Product options

S	Spindle support	KL	Additional slide on left	DN	Without operating instructions
GK	Standard slide	KR	Additional slide on right		
GP	Standard slide, protected				

At a glance

- Heavy-duty design for:
 - Maximum loads and torques
 - High feed forces and speeds
 - Long service life
- Precision DUO guide rail with high load capacity
 - Ideal as a basic axis for linear gantries and cantilever axes
 - The spindle axis with integrated ball screw combines high precision and flexible spindle pitches
- Spindle support enables maximum travel speed with all stroke lengths
 - Space-saving position sensing possible via proximity sensor in the profile slot
- Wide range of options for mounting on drives

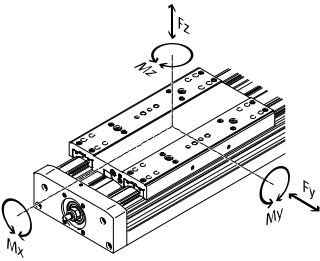
Linear drives and slides >

Spindle axes EGC-HD-BS, with heavy-duty guide

Data sheet



Technical data



Note
Engineering software
PositioningDrives
→ www.festo.com

Dimensions → Page 624

Size		125	160		220	
Spindle pitch	[mm/U]	10	10	20	10	25
Working stroke ¹⁾	[mm]	50 ... 900	50 ... 1900		50 ... 2400	
Spindle diameter	[mm]	12	15		25	
Max. feed force F _x	[N]	300	600		1300	
No-load torque	[Nm]	0.3	0.5	0.5	1.5	1.5
at min. travel speed	[m/s]	0.05	0.1	0.1	0.2	0.2
No-load torque	[Nm]	0.45	0.75	0.75	2.25	2.25
at max. travel speed	[m/s]	0.5	0.5	1	0.6	1.5
Max. radial force ²⁾	[N]	220	250		500	
Max. rotational speed ³⁾	[rpm]	3000	3000		3600	
Max. acceleration	[m/s ²]	15				
Repetition accuracy	[mm]	±0.02				
Max. permissible force F _y	[N]	3650	5600		13000	
Max. permissible force F _z	[N]	3650	5600		13000	
Max. permissible torque M _x	[Nm]	140	300		900	
Max. permissible torque M _y	[Nm]	275	500		1450	
Max. permissible torque M _z	[Nm]	275	500		1450	

- 1) Total stroke = working stroke + 2x stroke reserve.
- 2) At the drive shaft.
- 3) Rotational speed and speed are stroke-dependent.

Operating conditions

Ambient temperature ⁴⁾	[°C]	−10 ... +60
Degree of protection	IP40	

4) Note operating range of proximity sensors.

Mass moment of inertia

Size		125	160		220	
Spindle pitch		10	10	20	10	25
J ₀	[kg mm ²]	6.06	13.94	29.74	106.78	184.26
J _S per metre stroke	[kg mm ² /m]	14.2	34.6	34.6	275.6	275.6
J _L per kg payload	[kg mm ² /Kg]	2.53	2.53	10.13	2.53	15.83

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

J_A = J₀ + J_S x working stroke [m] + J_L x m_{Payload} [kg]

Materials

Cover	Anodised wrought aluminium alloy
Slides	Anodised wrought aluminium alloy
Guide rail	Coated and corrosion-resistant steel
Spindle	Steel
Cover strip	PU

Spindle axes EGC-HD-BS, with heavy-duty guide

Order code

04

Electromechanical drives

EGC – HD – – – BS – – – GK

Type		
EGC	Electromechanical linear axis	

Guide		
HD	Heavy-duty guide	

Size		
	Stroke [mm]	
125	100, 200, 300, 400, 500, 600, 700, 900	50 ... 880
160	100, 200, 300, 400, 500, 600, 700, 800, 900, 1300, 1400, 1700, 1900	50 ... 1880
220	100, 200, 300, 400, 500, 600, 700, 800, 900, 1300, 1400, 1900, 2400	50 ... 2380

Drive function		
BS	Ball screw	

Spindle pitch [mm/rev]		
10P	10	
20P	20	1
25P	25	2

Spindle support		
–	None	
S	With spindle support	3

Stroke reserve		
...H	0 ... 999 (0 = no stroke reserve)	4

Slides		
GK	Standard slide	

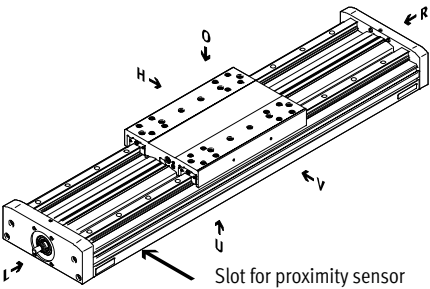
- 1 Only with size 160.
- 2 Only with size 220.
- 3 Only above stroke 605 mm with size 125, only above stroke 680 mm with size 160, only above stroke 783 mm with size 220.
- 4 The sum of the stroke length and 2x stroke reserve must not exceed the maximum working stroke.

Order example:

EGC-HD-160-500-BS-10P-20H-GK

Electromechanical linear axis EGC - heavy-duty guide - size 160 - stroke 500 mm - ball screw - spindle pitch 10 mm/rev - without spindle support - stroke reserve 20 mm - standard slide

Ordering aid

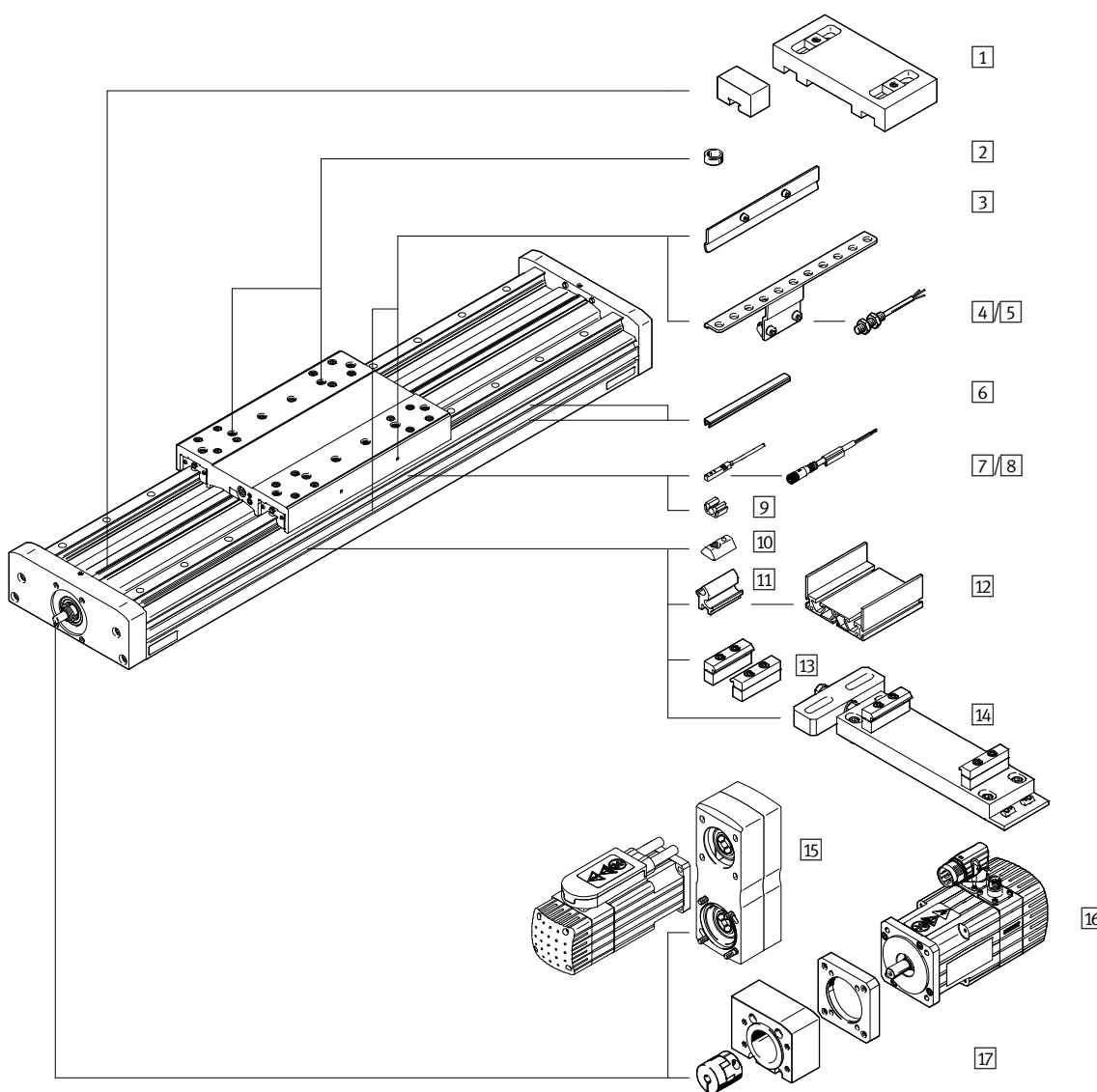
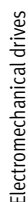


- O top
- U underneath
- R right
- L left
- V front
- H rear

Spindle axes EGC-HD-BS, with heavy-duty guide

Enter the type code in the search field.

Accessories

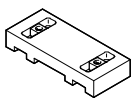
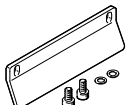
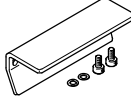


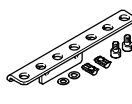
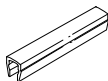
		➔ Page/online
1	Emergency buffer NPE/retainer EAYH	621
2	Centring pin ZBS/centring sleeve ZBH	621
3	Switch lug SF-EGC	621
4	Sensor bracket HWS-EGC	621
5	Inductive proximity sensor SIEN	621
6	Slot cover ABP/ABP-S	621
7	Inductive proximity sensor SIES	621
8	Connecting cable NEBU	621
9	Clip SMBK	621

		➔ Page/online
10	Slot nut NST	621
11	Adapter kit DAHM	egc-bs
12	Support profile HMIA	egc-bs
13	Profile mounting MUE	621
14	Adjusting kit EADC-E16	621
15	Parallel kit EAMM-U	622
16	Motor EMME/EMMS	622
17	Axial kit EAMM-A	623

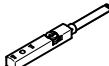
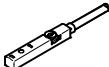
Spindle axes EGC-HD-BS, with heavy-duty guide

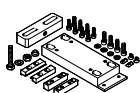
Accessories – Ordering data

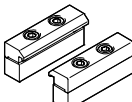
	For size	Part no.	Type
1 Retainer EAYH Dimensions online: → egc-hd-bs			
	125	1662803	EAYH-L2-125-N
	160	1669259	EAYH-L2-160-N
	220	1669260	EAYH-L2-220-N
1 Emergency buffer			
	125	1662475	NPE-125
	160	1672593	NPE-160
	220	1672598	NPE-220
2 Centring pin¹⁾²⁾ Data sheets online: → zbs			
	125	150928	ZBS-5
2 Centring sleeve¹⁾²⁾ Data sheets online: → zbh			
	125 ... 220	150927	ZBH-9
3 Switch lug³⁾ Dimensions online: → egc-hd-bs			
	125	570027	SF-EGC-HD-1-125
	160	1645872	SF-EGC-HD-1-160
	220	1645866	SF-EGC-HD-1-220
3 Switch lug⁴⁾ Dimensions online: → egc-hd-bs			
	125	570030	SF-EGC-HD-2-125
	160	1645865	SF-EGC-HD-2-160
	220	1645868	SF-EGC-HD-2-220

	For size	Part no.	Type
4 Sensor bracket⁵⁾ Dimensions online: → egc-hd-bs			
	125	558057	HWS-EGC-M5
	160	558057	HWS-EGC-M5
	220	570365	HWS-EGC-M8-B
5 Inductive proximity sensor – N/O contact, M8 Data sheets → Page 1230			
	PNP, cable	★ 150386	SIEN-M8B-PS-K-L
	PNP, plug	★ 150387	SIEN-M8B-PS-S-L
N/C contact, M8 Data sheets → Page 1230			
	PNP, cable	150390	SIEN-M8B-PO-K-L
	PNP, plug	150391	SIEN-M8B-PO-S-L
6 Slot cover⁶⁾			
	For mounting slot		
	125, 160 ⁷⁾	151681	ABP-5
	160 ⁸⁾ , 220	151682	ABP-8
	For sensor slot		
	125 ... 220	563360	ABP-5-S1

- 1) Packaging unit 10 pieces.
- 2) 2 centring pins/sleeves included in the scope of delivery of the axis.
- 3) For sensing via proximity sensor SIES-8M.
- 4) For sensing via proximity sensor SIEN-M8B or SIES-8M.
- 5) For proximity sensor SIEN-M8B.
- 6) Packaging unit 2x 0.5 m.
- 7) For mounting slot at side.
- 8) For mounting slot underneath.

	For size	Switching output, connection	Cable length [m]	Part no.	Type
7 Proximity sensor for T-slot, inductive – N/O contact					Data sheets → Page 1235
	125 ... 220	PNP, cable	7.5	551386	SIES-8M-PS-24V-K-7,5-OE
		PNP, plug	0.3	551387	SIES-8M-PS-24V-K-0,3-M8D
		NPN, cable	7.5	551396	SIES-8M-NS-24V-K-7,5-OE
		NPN, plug	0.3	551397	SIES-8M-NS-24V-K-0,3-M8D
N/C contact					Data sheets → Page 1235
	125 ... 220	PNP, cable	7.5	551391	SIES-8M-PO-24V-K-7,5-OE
		PNP, plug	0.3	551392	SIES-8M-PO-24V-K-0,3-M8D
		NPN, cable	7.5	551401	SIES-8M-NO-24V-K-7,5-OE
		NPN, plug	0.3	551402	SIES-8M-NO-24V-K-0,3-M8D

	For size	Part no.	Type
8 Connecting cable, straight socket Data sheets → Page 1543			
	2.5 m	★ 541333	NEBU-M8G3-K-2.5-LE3
	5.0 m	★ 541334	NEBU-M8G3-K-5-LE3
Angled socket Data sheets → Page 1543			
	2.5 m	★ 541338	NEBU-M8W3-K-2.5-LE3
	5.0 m	★ 541341	NEBU-M8W3-K-5-LE3
9 Clip			
	125 ... 220	534254	SMBK-8
14 Adjusting kit Dimensions online: → egc-hd-bs			
	125	8047580	EADC-E16-125-E14-8
	160	8047580	EADC-E16-160-E14-8
	220	8047580	EADC-E16-220-E14-8

	For size	Part no.	Type
10 Slot nut Data sheets online: → nst			
	125, 160 ⁹⁾	150914	NST-5-M5
		8047843	NST-5-M5-10 ¹¹⁾
		8047878	NST-5-M5-50 ¹²⁾
	160 ¹⁰⁾ , 220	150915	NST-8-M6
		8047868	NST-8-M6-10 ¹¹⁾
		8047869	NST-8-M6-50 ¹²⁾
13 Profile mounting Dimensions online: → egc-hd-bs			
	125	558043	MUE-70/80
	160	558043	MUE-70/80
	220	558044	MUE-120/185

- 9) For mounting slot at the side.
- 10) For mounting slot underneath.
- 11) Packaging unit 10 pieces.
- 12) Packaging unit 50 pieces.

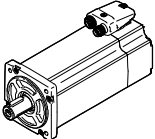
Spindle axes EGC-HD-BS, with heavy-duty guide

Accessories – Ordering data

Note

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

When using parallel kits, the no-load driving torque of the respective kit must be taken into consideration.

Motor/gear unit ¹⁾	Parallel kit
	 - The kit can be mounted in all directions - Use in combination with third-party motors on request
	Part no. Type

15/16 Permissible axis/motor combination with parallel kit –
Data sheets online: → [eamm-u](#)

EGC-HD-125

With servo motor

EMME-AS-40-...	2155239	EAMM-U-50-S38-40P-78
EMMS-AS-40-...	1217708	EAMM-U-50-S38-40A-78
EMMS-AS-55-...	1218538	EAMM-U-60-S38-55A-91

With stepper motor

EMMS-ST-42-...	1217945	EAMM-U-50-S38-42A-78
EMMS-ST-57-...	1218568	EAMM-U-60-S38-57A-91

With gear unit

EMGA-40-P-...	2283732	EAMM-U-60-S38-40G-91
EMGC-40-P-...	2283732	EAMM-U-60-S38-40G-91

EGC-HD-160

With servo motor

EMMS-AS-55-...	1219370	EAMM-U-60-S48-55A-91 ²⁾
EMME-AS-60-...	2629253	EAMM-U-70-S48-60P-96 ²⁾
EMMS-AS-70-...	2787320	EAMM-U-70-S48-70A-96 ²⁾
EMMS-AS-70-...	1217689	EAMM-U-86-S48-70A-102 ²⁾

With stepper motor

EMMS-ST-57-...	1219379	EAMM-U-60-S48-57A-91 ²⁾
EMMS-ST-87-...	1217604	EAMM-U-86-S48-87A-177 ²⁾

With gear unit

EMGA-40-P-...	2283760	EAMM-U-60-S48-40G-91 ²⁾
EMGC-40-P-...	2283760	EAMM-U-60-S48-40G-91 ²⁾
EMGA-60-P-...-SAS/SST ³⁾	2801627	EAMM-U-70-S48-60G-96 ²⁾
EMGA-60-P-...-EAS, EMGC-60-P-... ³⁾	2801715	EAMM-U-70-S48-60H-96 ²⁾
EMGA-60-P-...-SAS/SST ³⁾	1587251	EAMM-U-86-S48-60G-102 ²⁾
EMGA-60-P-...-EAS, EMGC-60-P-... ³⁾	1587338	EAMM-U-86-S48-60H-102 ²⁾

Motor/gear unit ¹⁾	Parallel kit	
	Part no.	Type
EGC-HD-220		
With servo motor		
EMMS-AS-70-...	1217543	EAMM-U-86-S62-70A-177 ²⁾
EMME-AS-80-...	2157004	EAMM-U-86-S62-80P-177 ²⁾
EMME-AS-100-...	1217381	EAMM-U-110-S62-100A-207 ²⁾
EMMS-AS-100-...	1217381	EAMM-U-110-S62-100A-207 ²⁾
EMMS-AS-140-...	1219440	EAMM-U-145-S62-140A-288 ²⁾
With stepper motor		
EMMS-ST-87-...	1217373	EAMM-U-86-S62-87A-177 ²⁾
With gear unit		
EMGA-60-P-...-SAS/SST ³⁾	1587411	EAMM-U-86-S62-60G-177 ²⁾
EMGA-60-P-...-EAS, EMGC-60-P-... ³⁾	1587453	EAMM-U-86-S62-60H-177 ²⁾

- The input torque must not exceed the maximum permissible transferable torque of the parallel kit.
- To support the axis shaft, a counter bearing EAMG and a clamping sleeve EAMH-...-P with integrated trunnion are included in the scope of delivery of the parallel kit → online: [eamm-u](#)
- Gear unit drive shaft diameter: EMGA-60-P-...-SAS/-SST: 11 mm; EMGA-60-P-...-EAS, EMGC-60-P: 14 mm

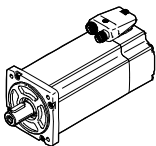
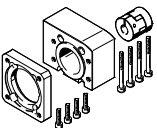
Note

The clamping element EADT is required to adjust the toothed belt pretensioning for EAMM-U-110 and EAMM-U-145.

The motor and/or axis shaft can optionally be supported with a counter bearing EAMG.
More information → [eamm-u](#)

Spindle axes EGC-HD-BS, with heavy-duty guide

Accessories – Ordering data

Motor ¹⁾	Axial kit	
		
	Part no.	Type
EGC-HD-125		
With servo motor		
EMME-AS-40-...	3637972	EAMM-A-S38-40P-G2
EMMS-AS-40-...	3637971	EAMM-A-S38-40A-G2
EMMS-AS-55-...	3637967	EAMM-A-S38-55A-G2
EMME-AS-60-...	3637958	EAMM-A-S38-60P-G2
With servo motor and gear unit		
EMME-AS-40-...	1456647	EAMM-A-S38-40G-G2
EMGA-40-P-G...-EAS-40		
EMMS-AS-40-...	1456647	EAMM-A-S38-40G-G2
EMGA-40-P-G...-SAS-40		
With stepper motor		
EMMS-ST-42-...	3637965	EAMM-A-S38-42A-G2
EMMS-ST-57-...	3637956	EAMM-A-S38-57A-G2
With stepper motor and gear unit		
EMMS-ST-42-...	1456647	EAMM-A-S38-40G-G2
EMGA-40-P-G...-SST-42		
With integrated drive		
EMCA-EC-67-...	1456638	EAMM-A-S38-67A-G2
With integrated drive and gear unit		
EMCA-EC-67-...-	1456647	EAMM-A-S38-40G-G2
EMGC-40-...		
EGC-HD-160		
With servo motor		
EMMS-AS-55-...	3637961	EAMM-A-S48-55A-G2
EMME-AS-60-...	3637964	EAMM-A-S48-60P-G2
EMMS-AS-70-...	3637957	EAMM-A-S48-70A-G2
With servo motor and gear unit		
EMME-AS-40-...	1456650	EAMM-A-S48-40G-G2
EMGA-40-P-G...-EAS-40		
EMMS-AS-40-...	1456650	EAMM-A-S48-40G-G2
EMGA-40-P-G...-SAS-40		
EMMS-AS-55-...	2256701	EAMM-A-S48-60G-G2
EMGA-60-P-G...-SAS-55		
EMME-AS-60-...	1456652	EAMM-A-S48-60H-G2
EMGA-60-P-G...-EAS-60		
EMMS-AS-70-...	2256701	EAMM-A-S48-60G-G2
EMGA-60-P-G...-SAS-70		

Motor/gear unit ¹⁾	Axial kit	
	Part no.	Type
EGC-HD-160		
With stepper motor		
EMMS-ST-57-...	3637963	EAMM-A-S48-57A-G2
EMMS-ST-87-...	3637962	EAMM-A-S48-87A-G2
With stepper motor and gear unit		
EMMS-ST-42-...	1456650	EAMM-A-S48-40G-G2
EMGA-40-P-G...-SST-42		
EMMS-ST-57-...	2256701	EAMM-A-S48-60G-G2
EMGA-60-P-G...-SST-57		
With integrated drive and gear unit		
EMCA-EC-67-...-	1456650	EAMM-A-S48-40G-G2
EMGC-40-...		
EMCA-EC-67-...-	1456652	EAMM-A-S48-60H-G2
EMGC-60-...		
EGC-HD-220		
With servo motor		
EMMS-AS-70-...	3637959	EAMM-A-S62-70A-G2
EMME-AS-80-...	3637970	EAMM-A-S62-80P-G2
EMME-AS-100-...	3637960	EAMM-A-S62-100A-G2
EMMS-AS-100-...	3637960	EAMM-A-S62-100A-G2
EMMS-AS-140-...	3637969	EAMM-A-S62-140A-G2
With servo motor and gear unit		
EMMS-AS-55-...	2297649	EAMM-A-S62-60G-G2
EMGA-60-P-G...-SAS-55		
EMME-AS-60-...	1456654	EAMM-A-S62-60H-G2
EMGA-60-P-G...-EAS-60		
EMMS-AS-70-...	2297649	EAMM-A-S62-60G-G2
EMGA-60-P-G...-SAS-70		
EMMS-AS-70-...	1972530	EAMM-A-S62-80G-G2
EMGA-80-P-G...-SAS-70		
EMME-AS-80-...	1972530	EAMM-A-S62-80G-G2
EMGA-80-P-G...-EAS-80		
EMME-AS-100-...	1972530	EAMM-A-S62-80G-G2
EMGA-80-P-G...-SAS-100		
EMMS-AS-100-...	1972530	EAMM-A-S62-80G-G2
EMGA-80-P-G...-SAS-100		
With stepper motor		
EMMS-ST-87-...	3637966	EAMM-A-S62-87A-G2
With stepper motor and gear unit		
EMMS-ST-57-...	2297649	EAMM-A-S62-60G-G2
EMGA-60-P-G...-SST-57		
EMMS-ST-87-...	1972530	EAMM-A-S62-80G-G2
EMGA-80-P-G...-SST-87		
With integrated drive and gear unit		
EMCA-EC-67-...-	1456654	EAMM-A-S62-60H-G2
EMGC-60-...		

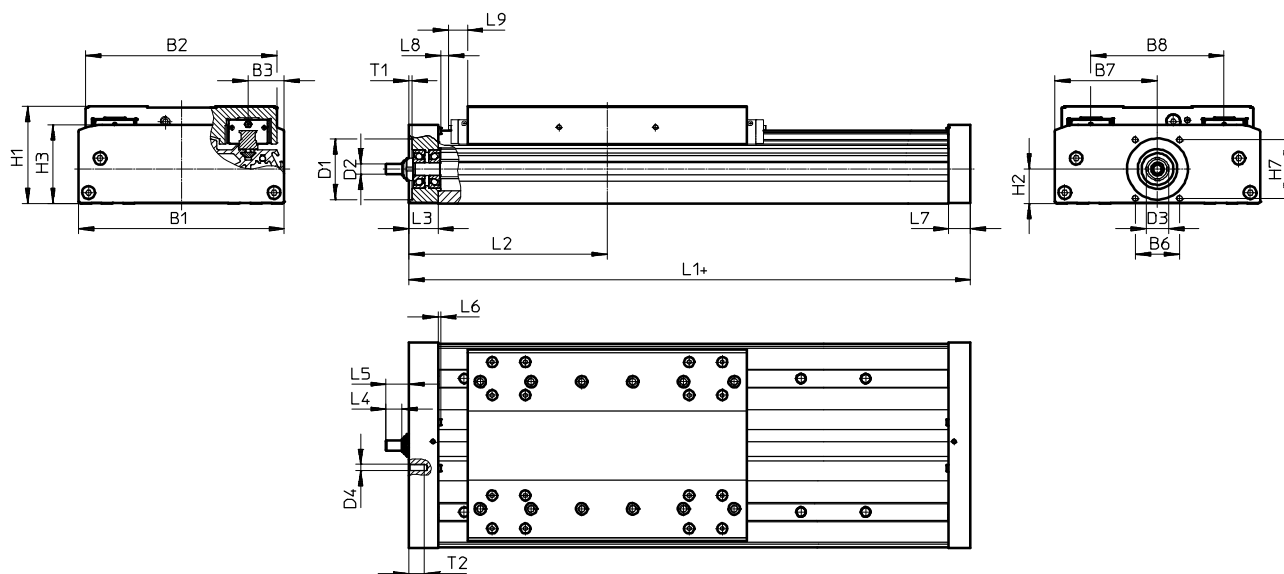
1) The input torque must not exceed the maximum permissible transferable torque of the axial kit.

Linear drives and slides >

Spindle axes EGC-HD-BS, with heavy-duty guide

Dimensions

Download CAD data → www.festo.com



+ = plus stroke length + 2 x stroke reserve

Size	B1	B2	B3	B6	B7	B8	D1 Ø H7	D2 Ø h6
125	124	120	21	29	62	80	38	6
160	162	150.7	27.5	35	81	105	48	8
220	224	204.2	40	64	112	140	62	12

size	D3	D4	H1	H2	H3	H7	L3	L4
125	15	M5	64	22.5	50.4	36	21	8
160	18	M5	76.5	27	62	46	23	12.5
220	28	M6	111.5	42.5	91	54	33	17.5

Size	L5	L6	L7	L8	L9	T1	T2
125	14	1.8	16	2	–	2.5	12
160	18	2	17	0.55	14.9	2.5	12
220	25.5	2	30	2	18	3	15

Size	Stroke	L1	L2 Min.
125	≤900	268	136.5
160	<1377	296	151.3
	≥1377	336	171
220	<1604	409	206
	≥1604	469	236

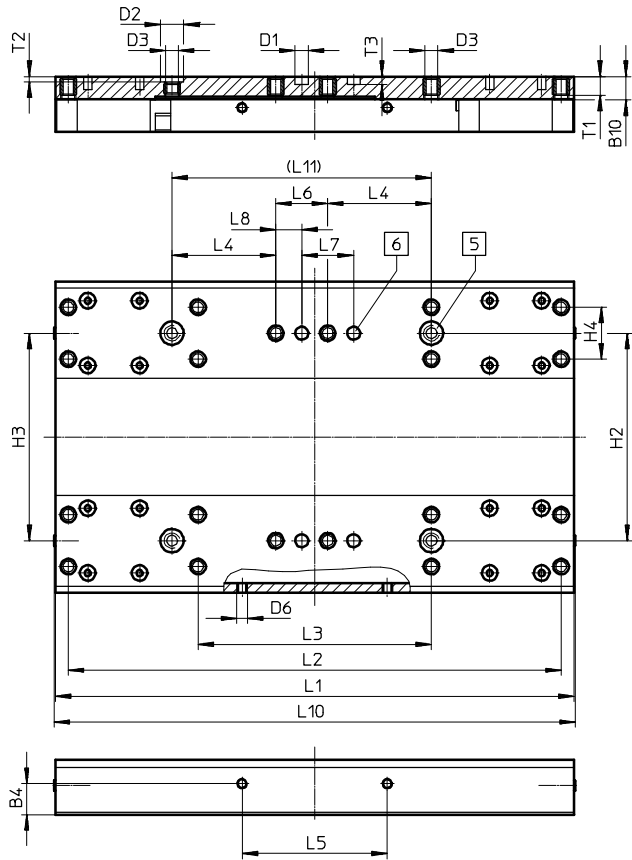
Spindle axes EGC-HD-BS, with heavy-duty guide

Dimensions

Download CAD data www.festo.com

GK – Standard slide

Size 125



- 5 Drill hole for centring sleeve ZBH
- 6 Drill hole for centring pin ZBS

Size	B4	B10	D1	D2	D3	D6	H2	H3	H4	L1	L2	L3
	±0.1		Ø H7	Ø H7			±0.03	±0.05	±0.1	±0.1	±0.2	±0.1
125	12	9	5	9	M5	M4	80	80	20	200	190	90

Size	L4	L5	L6	L7	L8	L10	L11	T1	T2	T3
	±0.1	±0.2	±0.1	±0.03	±0.1		±0.03		+0.1	+0.1
125	40	56	20	20	10	202	100	7.8	2.1	3.1

Linear drives and slides >

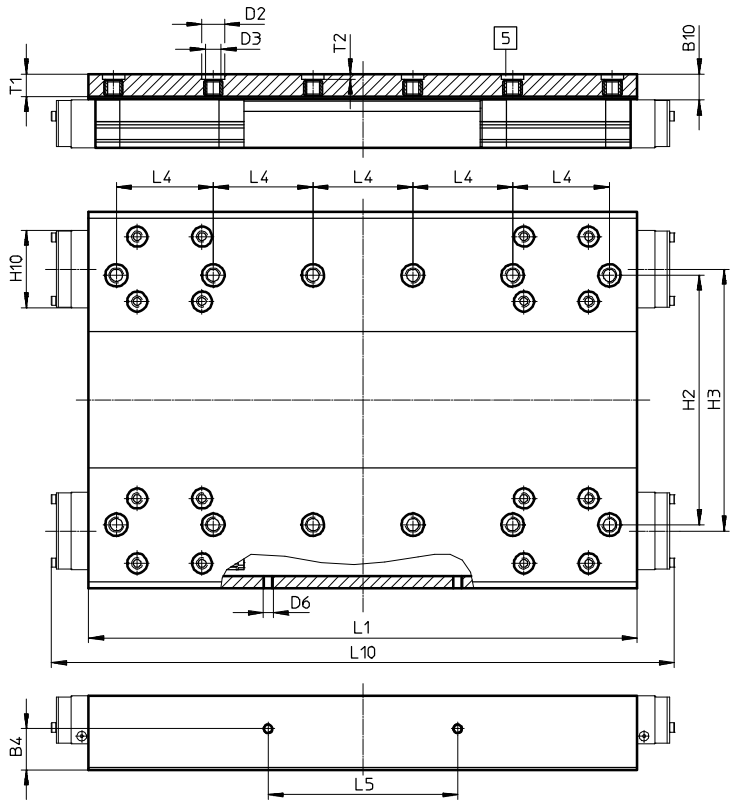
Spindle axes EGC-HD-BS, with heavy-duty guide

Dimensions

GK – Standard slide

Size 160

Download CAD data → www.festo.com



[5] Drill hole for centring sleeve ZBH

Size	B4	B10*	D2 Ø H7	D3	D6	H2 ±0.03	H3 ±0.05
160	16.5	10.5	9	M6	M4	100	105

Size	H10*	L1 ±0.1	L4 ±0.03	L5 ±0.1	L10*	T1	T2 +0.1
160	31	220	40	76	250	9	2.1

* Protected version

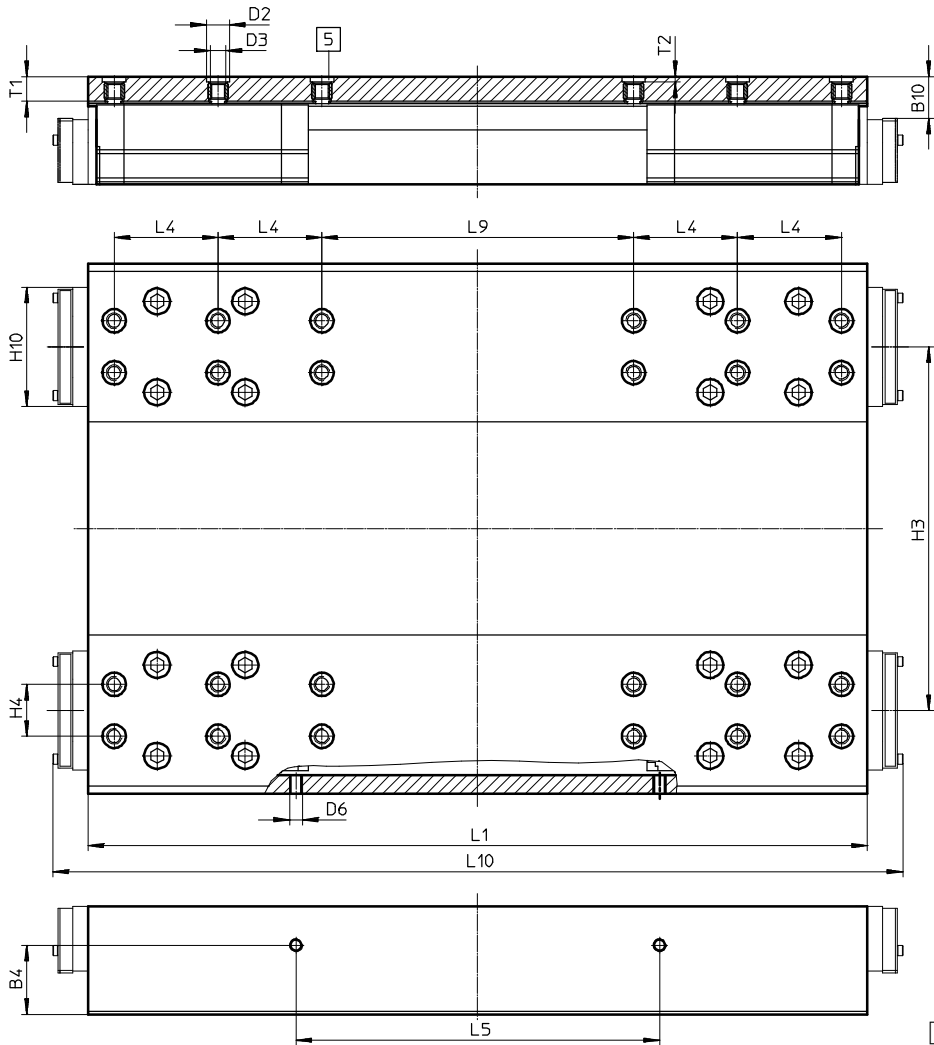
Spindle axes EGC-HD-BS, with heavy-duty guide

Dimensions

GK – Standard slide

Size 220

Download CAD data → www.festo.com



5 Drill hole for centring sleeve ZBH

Size	B4	B10*	D2 Ø H7	D3	D6	H3	H4	H10*
220	±0.1 26.6	16	9	M6	M5	±0.05 140	±0.03 20	45.95

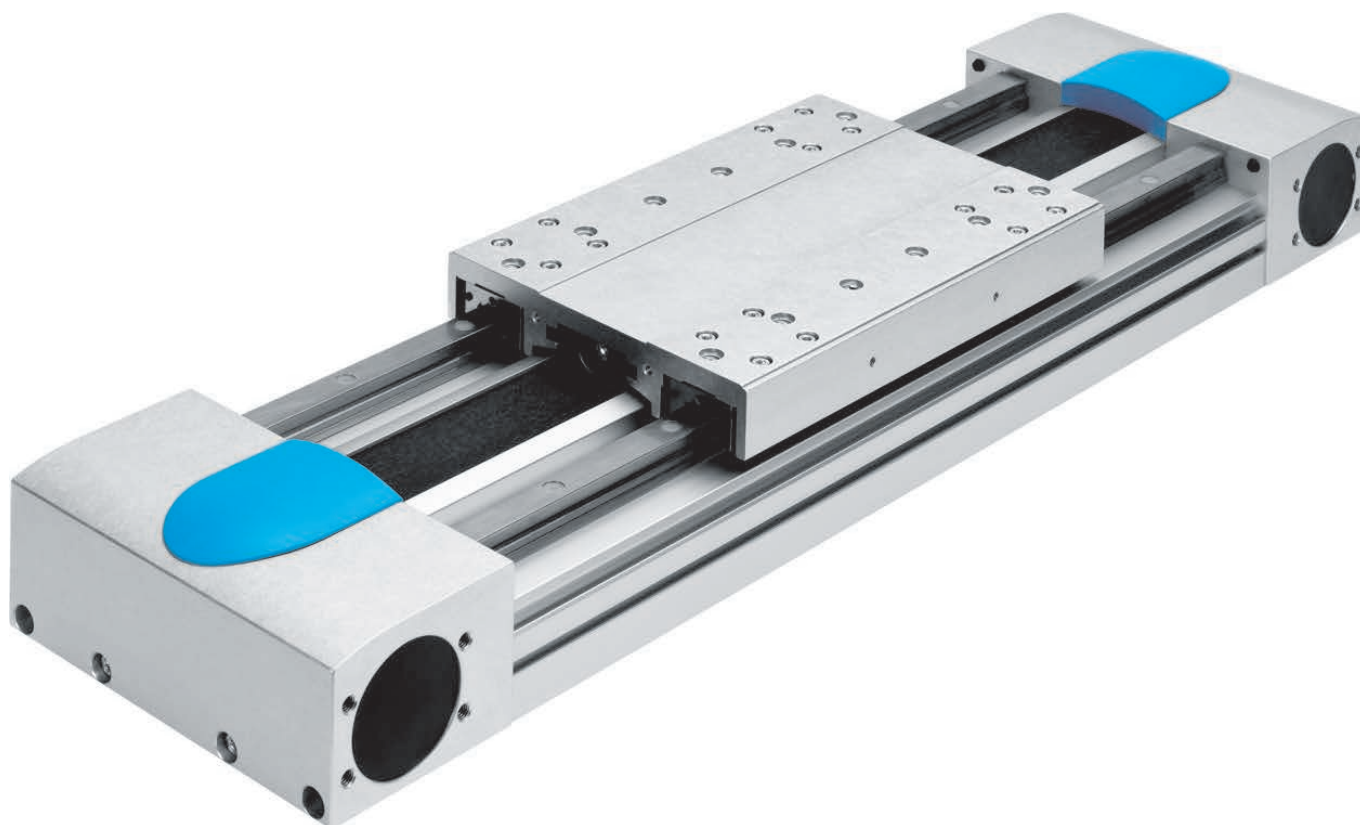
Size	L1	L4	L5	L9	L10*	T1	T2
	±0.1	±0.03	±0.1	±0.03			+0.1
220	302	40	140	120	328	9.5	2.1

* Protected version

Linear drives and slides >

04

Electromechanical drives



Powerful and dynamic

- + Generously sized profiles with an optimised cross section afford maximum rigidity and load capacity
- + Ideal as a basic axis for linear gantries and cantilever axes

Linear drives and slides ›

Toothed belt axes with heavy-duty guide

EGC-HD-TB

Linear drives and slides >

Toothed belt axes with heavy-duty guide

EGC-HD-TB



Overview, configuration and ordering

→ www.festo.com/catalogue/egc-hd-tb



Additional information, support and user documentation

→ www.festo.com/sp/egc-hd-tb



Spare parts service



- + Precision DUO recirculating ball bearing guide with high load capacity
- + For maximum loads and torques
- + For high feed forces and speeds
- + Generously sized profiles with an optimised cross section afford maximum rigidity and load capacity

Toothed belt axes EGC-HD-TB, with heavy-duty guide

Product range overview

Type/version	Size	Stroke [mm]	Feed force F _x [N]
EGC-HD-TB			
HD – Heavy-duty guide	125, 160, 220	50 ... 5000	450 ... 1800

Product options

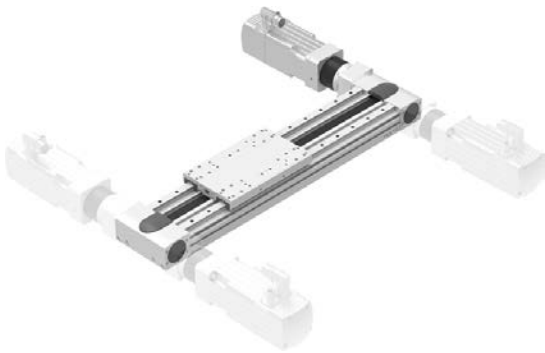
GK	Standard slide	KL	Additional slide on left	DN	Without operating instructions
GP	Standard slide, protected	KR	Additional slide on right		

At a glance

- Heavy-duty design for:
 - Maximum loads and torques
 - High feed forces and speeds
 - Long service life
- Precision DUO guide rail with high load capacity
- Ideal as a basic axis for linear gantries and cantilever axes
- Space-saving position sensing with proximity sensor in the profile slot is possible
- Wide range of options for mounting on drives

Flexible motor mounting

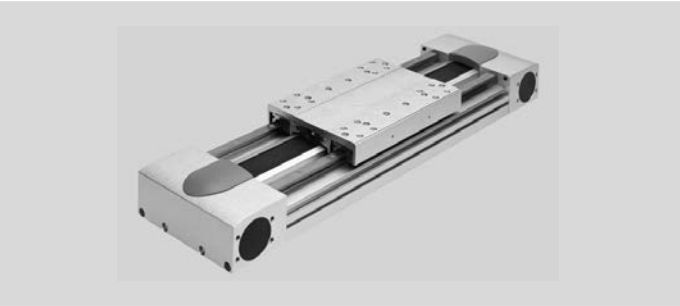
The motor position can be freely selected on 4 sides and can be changed at any time.



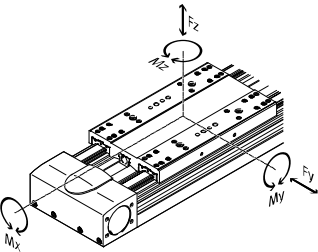
Linear drives and slides >

Toothed belt axes EGC-HD-TB, with heavy-duty guide

Data sheet



Technical data



Note

Engineering software
PositioningDrives
[www.festo.com](#)

Dimensions → Page 637

Size		125	160	220
Working stroke ¹⁾	[mm]	50 ... 3000	50 ... 5000	50 ... 4750
Max. feed force F_x	[N]	450	1000	1800
No-load torque ²⁾	[Nm]	1.1	2.1	4.1
Max. no-load resistance to shifting ²⁾	[N]	67.75	105.5	123.8
Max. driving torque	[Nm]	7.2	20	59.58
Max. speed	[m/s]	3	5	
Max. acceleration	[m/s ²]	40	50	
Repetition accuracy	[mm]	±0.08		±0.1
Max. permissible force F_y	[N]	3650	5600	13000
Max. permissible force F_z	[N]	3650	5600	13000
Max. permissible torque M_x	[Nm]	140	300	900
Max. permissible torque M_y	[Nm]	275	500	1450
Max. permissible torque M_z	[Nm]	275	500	1450

1) Total stroke = working stroke + 2x stroke reserve.

2) At 0.2 m/s.

Operating conditions

Ambient temperature ³⁾	[°C]	−10 ... +60
Degree of protection		IP40

3) Note operating range of proximity sensors.

Toothed belt

Size		125	160	220
Pitch	[mm]	3	5	8
Width	[mm]	30.3	40.0	50.5
Tensile strength ⁴⁾	[%]	0.31	0.23	0.29
Effective diameter	[mm]	32.47	39.79	66.21
Feed constant	[mm/U]	102	125	208

4) At max. feed force.

Mass moment of inertia

Size		125	160	220
J_0	[kg cm ²]	4.639	14.49	108.99
J_S per metre stroke	[kg cm ² /m]	0.38	1.267	6.269
J_L per kg payload	[kg cm ² /Kg]	2.635	3.96	10.96

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

$J_A = J_0 + J_S \times \text{working stroke [m]} + J_L \times m_{\text{payload [kg]}}$

Materials

Cover	Anodised wrought aluminium alloy
Slides	Anodised wrought aluminium alloy
Guide rail	Coated and corrosion-resistant steel
Pulleys	High-alloy stainless steel
Toothed belt	Polychloroprene with glass cord and nylon coating

Toothed belt axes EGC-HD-TB, with heavy-duty guide

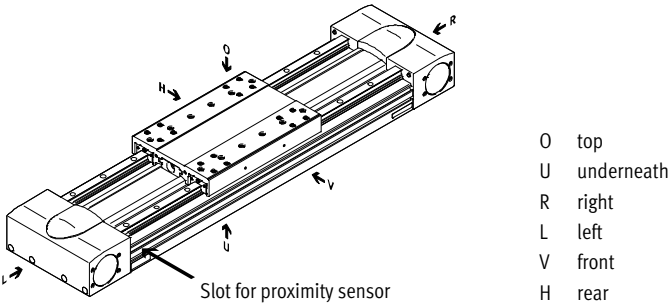
Order code

		EGC	–	HD	–		–		–	TB	–		–	GK
Type														
EGC		Electromechanical linear axis												
Guide														
HD		Heavy-duty guide												
Size														
		Stroke [mm]												
125		50 ... 3000												
160		50 ... 5000												
220		50 ... 4750												
Drive function														
TB		Toothed belt												
Stroke reserve														
...H		0 ... 999 (0 = no stroke reserve)												1
Slides														
GK		Standard slide												

1 The sum of the stroke length and 2x stroke reserve must not exceed the maximum working stroke.

Order example:
EGC-HD-160-500-TB-20H-GK
Electromechanical linear axis EGC - heavy-duty guide - size 160 - stroke 500 mm - toothed belt - stroke reserve 20 mm - standard slide

Ordering aid



Ordering – Product options

Configurable product

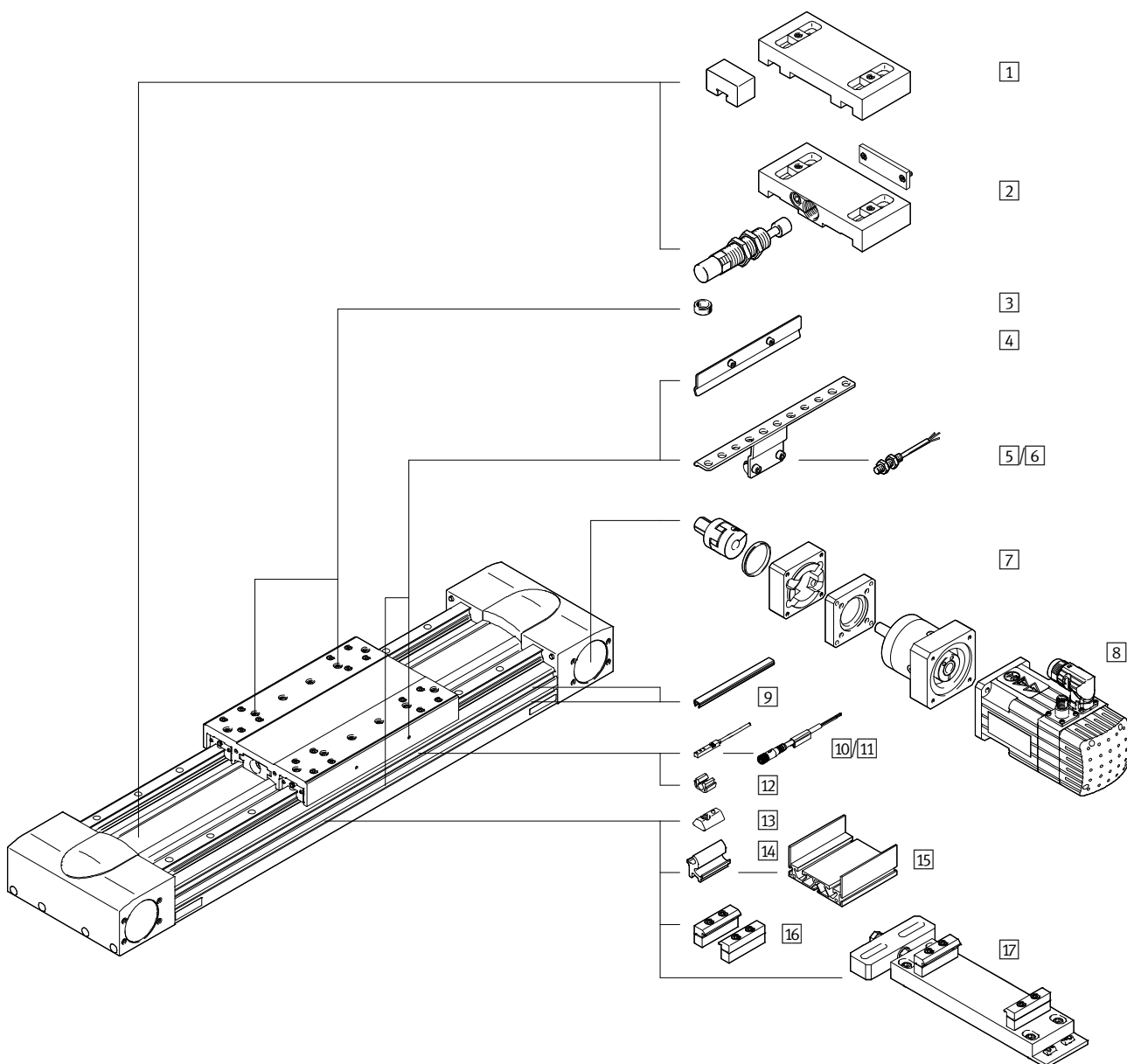
This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
→ www.festo.com/catalogue/...

Enter the type code in the search field.

Toothed belt axes EGC-HD-TB, with heavy-duty guide

Electromechanical drives

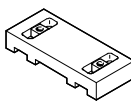
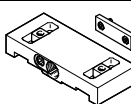
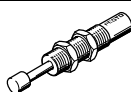
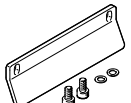
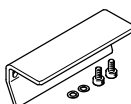
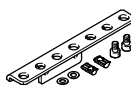
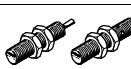


		➔ Page/online
1	Emergency buffer NPE/retainer EAYH	635
2	Shock absorber YSRW/shock absorber retainer EAYH	635
3	Centring pin ZBS/centring sleeve ZBH	635
4	Switch lug SF-EGC	635
5	Sensor bracket HWS-EGC	635
6	Inductive proximity sensor SIEN	635
7	Axial kit EAMM-A	635
8	Motor EMME/EMMS	635
9	Slot cover ABP/ABP-S	636

		➔ Page/online
9	Slot cover ABP/ABP-S	636
10	Inductive proximity sensor SIES	636
11	Connecting cable NEBU	636
12	Clip SMBK	636
13	Slot nut NST	636
14	Adapter kit DHAM	egc-hd-tb
15	Support profile HMIA	egc-hd-tb
16	Profile mounting MUE	636
17	Adjusting kit EADC-E16	636

Toothed belt axes EGC-HD-TB, with heavy-duty guide

Accessories – Ordering data

	For size	Part no.	Type
1 Retainer Dimensions online: → egc-hd-tb			
	125	1662803	EAYH-L2-125-N
	160	1669259	EAYH-L2-160-N
	220	1669260	EAYH-L2-220-N
1 Emergency buffer			
	125	1662475	NPE-125
	160	1672593	NPE-160
	220	1672598	NPE-220
2 Shock absorber retainer Dimensions online: → egc-hd-tb			
	125	1653251	EAYH-L2-125
	160	1653250	EAYH-L2-160
	220	1653253	EAYH-L2-220
2 Shock absorber Data sheets online: → egc-hd-tb			
	125	191196	YSRW-12-20
	160	191197	YSRW-16-26
	220	191198	YSRW-20-34
3 Centring pin¹⁾²⁾ Data sheets online: → zbs			
	125	150928	ZBS-5
3 Centring sleeve¹⁾²⁾ Data sheets online: → zbh			
	125 ... 220	150927	ZBH-9
4 Switch lug³⁾ Dimensions online: → egc-hd-tb			
	125	570027	SF-EGC-HD-1-125
	160	1645872	SF-EGC-HD-1-160
	220	1645866	SF-EGC-HD-1-220
4 Switch lug⁴⁾ Dimensions online: → egc-hd-tb			
	125	570030	SF-EGC-HD-2-125
	160	1645865	SF-EGC-HD-2-160
	220	1645868	SF-EGC-HD-2-220
5 Sensor bracket⁵⁾ Dimensions online: → egc-hd-tb			
	125	558057	HWS-EGC-M5
	160	558057	HWS-EGC-M5
	220	570365	HWS-EGC-M8-B
6 Inductive proximity sensor – N/O contact, M8 Data sheets → Page 1230			
	PNP, cable	★ 150386	SIEN-M8B-PS-K-L
	PNP, plug	★ 150387	SIEN-M8B-PS-S-L
N/C contact, M8 Data sheets → Page 1230			
	PNP, cable	150390	SIEN-M8B-PO-K-L
	PNP, plug	150391	SIEN-M8B-PO-S-L

1) Packaging unit 10 pieces.

2) 2 centring pins/sleeves included in the scope of delivery of the axis.

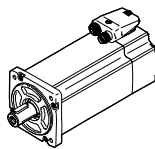
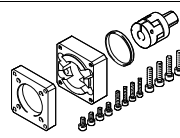
3) For sensing via proximity sensor SIEN-8M.

4) For sensing via proximity sensor SIEN-M8B or SIEN-8M.

5) For proximity sensor SIEN-M8B.

Note

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

Motor/gear unit ⁶⁾	Axial kit
	
	Part no. Type

7/8 Permissible axis/motor combination with axial kit –Data sheets online: → [eamm-a](#)**EGC-HD-125****With servo motor and gear unit**

EMMS-AS-55-... 1190076 EAMM-A-M43-60G

EMGA-60-P-G...-SAS-55

EMME-AS-60-... 1456612 EAMM-A-M43-60H

EMGA-60-P-G...-EAS-60

EMMS-AS-70-... 1190076 EAMM-A-M43-60G

EMGA-60-P-G...-SAS-70

With stepper motor and gear unit

EMMS-ST-57-... 1190076 EAMM-A-M43-60G

EMGA-60-P-G...-SST-57

With integrated drive and gear unit

EMCA-EC-67-...- 1456612 EAMM-A-M43-60H

EMGC-60-...

EGC-HD-160**With servo motor and gear unit**

EMME-AS-60-... 1456614 EAMM-A-M48-60H

EMGA-60-P-G...-EAS-60

EMMS-AS-70-... 1190421 EAMM-A-M48-80G

EMGA-80-P-G...-SAS-70

EMME-AS-80-... 1190421 EAMM-A-M48-80G

EMGA-80-P-G...-EAS-80

EMME-AS-100-... 1190421 EAMM-A-M48-80G

EMGA-80-P-G...-SAS-100

EMMS-AS-100-... 1190421 EAMM-A-M48-80G

EMGA-80-P-G...-SAS-100

With stepper motor and gear unit

EMMS-ST-87-... 1190421 EAMM-A-M80-120G

EMGA-80-P-G...-SST-87

With integrated drive and gear unit

EMCA-EC-67-...- 1456614 EAMM-A-M48-60H

EMGC-60-...

EGC-HD-220**With servo motor and gear unit**

EMME-AS-100-... 1190774 EAMM-A-M80-120G

EMGA-120-P-G...-SAS-100

EMMS-AS-100-... 1190774 EAMM-A-M80-120G

EMGA-120-P-G...-SAS-100

EMMS-AS-140-... 1190774 EAMM-A-M80-120G

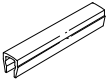
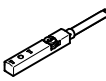
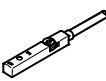
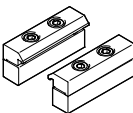
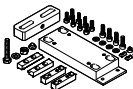
EMGA-120-P-G...-SAS-140

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

Linear drives and slides >

Toothed belt axes EGC-HD-TB, with heavy-duty guide

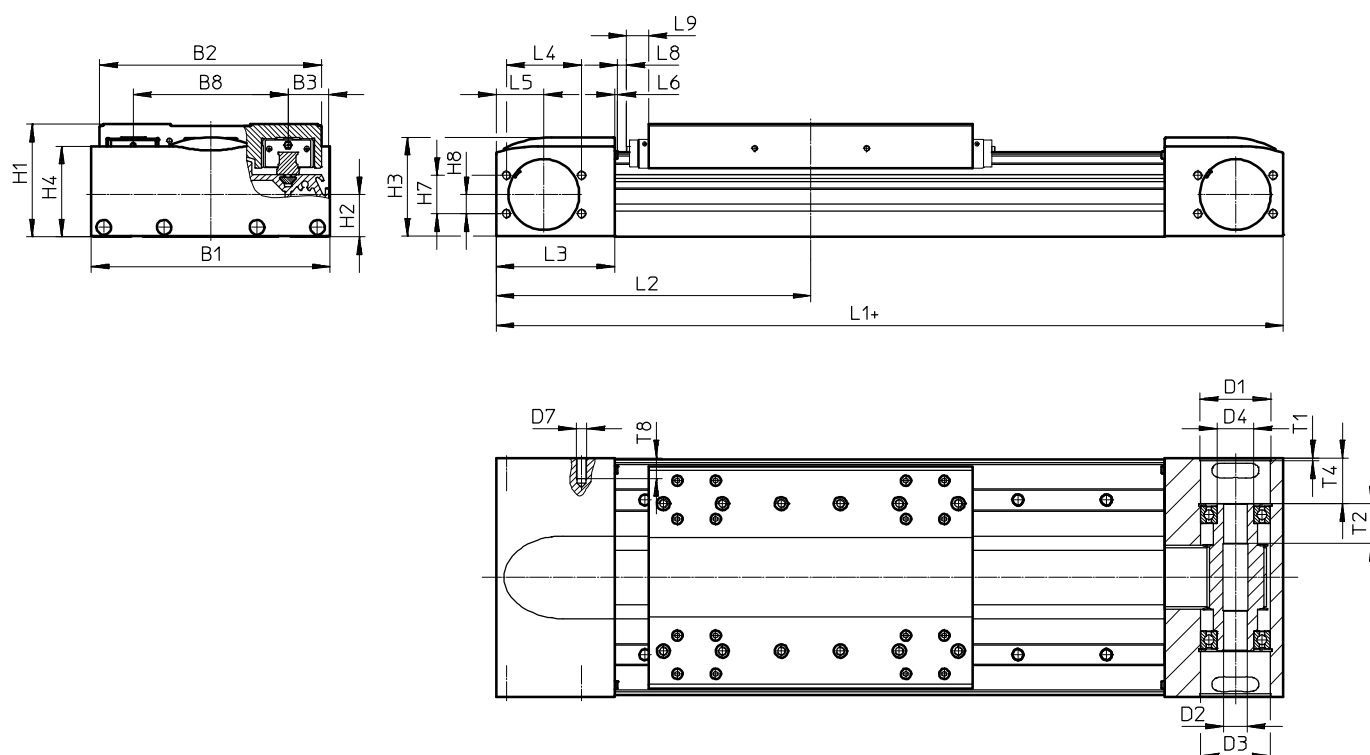
Accessories – Ordering data

	For size	Switching output, connection	Cable length [m]	Part no.	Type
9 Slot cover ¹⁾					
	For mounting slot				
	125, 160 ²⁾	–	–	151681	ABP-5
	160 ³⁾ , 220	–	–	151682	ABP-8
	For sensor slot				
	125 ... 220	–	–	563360	ABP-5-S1
10 Proximity sensor for T-slot, inductive – N/O contact Data sheets → Page 1235					
	125 ... 220	PNP, cable	7.5	551386	SIES-8M-PS-24V-K-7,5-OE
		PNP, plug	0.3	551387	SIES-8M-PS-24V-K-0,3-M8D
		NPN, cable	7.5	551396	SIES-8M-NS-24V-K-7,5-OE
		NPN, plug	0.3	551397	SIES-8M-NS-24V-K-0,3-M8D
N/C contact Data sheets → Page 1235					
	125 ... 220	PNP, cable	7.5	551391	SIES-8M-PO-24V-K-7,5-OE
		PNP, plug	0.3	551392	SIES-8M-PO-24V-K-0,3-M8D
		NPN, cable	7.5	551401	SIES-8M-NO-24V-K-7,5-OE
		NPN, plug	0.3	551402	SIES-8M-NO-24V-K-0,3-M8D
11 Connecting cable, straight socket Data sheets → Page 1543					
	125 ... 220	M8x1, 3-pin	2.5	★ 541333	NEBU-M8G3-K-2.5-LE3
			5.0	★ 541334	NEBU-M8G3-K-5-LE3
Angled socket Data sheets → Page 1543					
	125 ... 220	M8x1, 3-pin	2.5	★ 541338	NEBU-M8W3-K-2.5-LE3
			5.0	★ 541341	NEBU-M8W3-K-5-LE3
	For size			Part no.	Type
12 Clip					
	125 ... 220			534254	SMBK-8
13 Slot nut Data sheets online: → nst					
	125, 160 ²⁾			150914	NST-5-M5
				8047843	NST-5-M5-10 ⁴⁾
				8047878	NST-5-M5-50 ⁵⁾
	160 ³⁾ , 220			150915	NST-8-M6
				8047868	NST-8-M6-10 ⁴⁾
				8047869	NST-8-M6-50 ⁵⁾
16 Profile mounting Dimensions online: → egc-hd-tb					
	125			558043	MUE-70/80
	160			558043	MUE-70/80
	220			558044	MUE-120/185
17 Adjusting kit Dimensions online: → egc-hd-tb					
	125			8047580	EADC-E16-125-E14
	160			8047581	EADC-E16-160-E14
	220			8047582	EADC-E16-220-E14

- 1) Packaging unit 2x 0.5 m.
 2) For mounting slot at side.
 3) For mounting slot underneath.
 4) Packaging unit 10 pieces.
 5) Packaging unit 50 pieces.

Toothed belt axes EGC-HD-TB, with heavy-duty guide

Dimensions

Download CAD data → www.festo.com

+ = plus stroke length + 2 x stroke reserve

Size	B1	B2	B3	B8	D1 Ø H7	D2 Ø H7	D3 Ø	D4 Ø	D7
125	124	120	21	80	43	16	42	25	M6
160	162	156	27.5	105	48	16	47	25	M6
220	224	216	40	140	80	23	75	45	M8

Size	H1	H2	H3	H4	H7	H8	L1	L2 Min.	L3	L4
125	64	26.1	55.8	50.8	24	12	346	173	57.5	46
160	76.5	28.7	67.5	61.5	26	13	417	208.5	80.5	51
220	111.5	45.2	98	91.1	59	27	576	288	115	76

Size	L5	L6	L8	L9	T1	T2	T4	T8
125	27.5	1.8	2	–	2.1	27	23.65	13
160	32.5	2	0.55	14.9	3.1	27	31.1	14
220	50	2	2	18	3.1	29.5	47.5	16

Linear drives and slides >

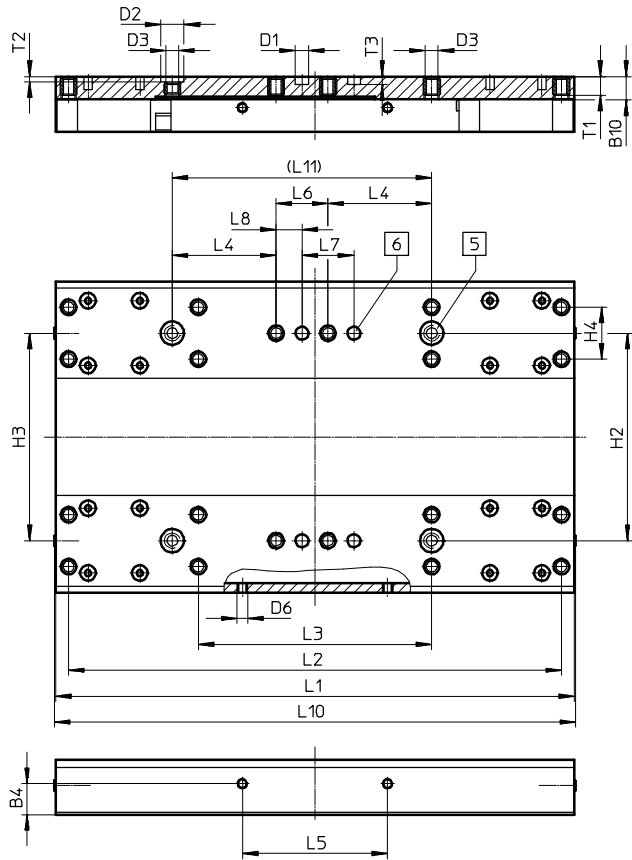
Toothed belt axes EGC-HD-TB, with heavy-duty guide

Dimensions

Download CAD data www.festo.com

GK – Standard slide

Size 125



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

Size	B4	B10	D1	D2	D3	D6	H2	H3	H4	L1	L2	L3
	±0.1		Ø H7	Ø H7			±0.03	±0.05	±0.1	±0.1	±0.2	±0.1
125	12	9	5	9	M5	M4	80	80	20	200	190	90

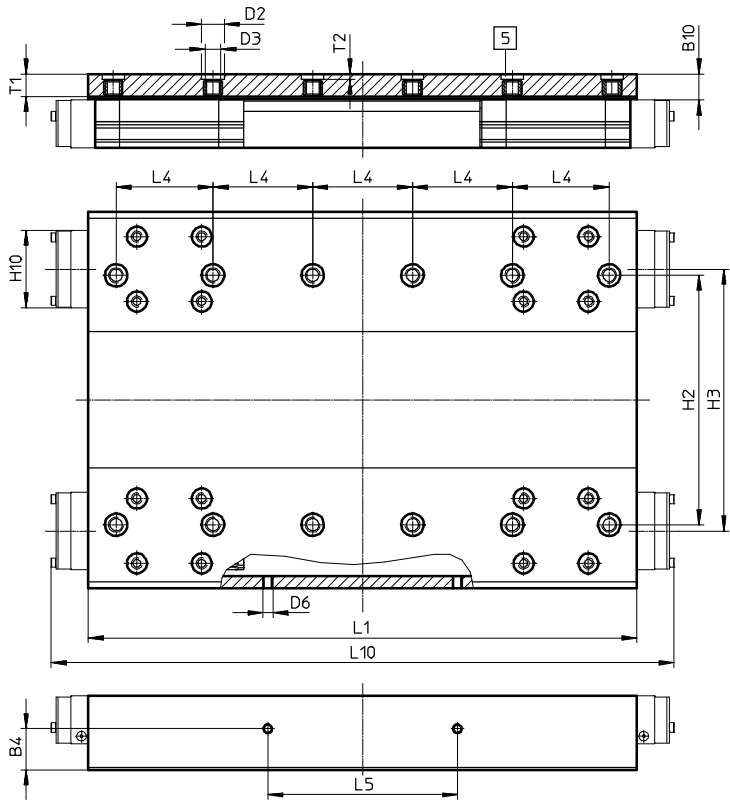
Size	L4	L5	L6	L7	L8	L10	L11	T1	T2	T3
	±0.1	±0.2	±0.1	±0.03	±0.1		±0.03		+0.1	+0.1
125	40	56	20	20	10	202	100	7.8	2.1	3.1

Toothed belt axes EGC-HD-TB, with heavy-duty guide

Dimensions

GK – Standard slide

Size 160



[5] Drill hole for centring sleeve ZBH

Size	B4	B10*	D2 Ø H7	D3	D6	H2 ±0.03	H3 ±0.05
160	16.5	10.5	9	M6	M4	100	105

Size	H10*	L1 ±0.1	L4 ±0.03	L5 ±0.1	L10*	T1	T2 +0.1
160	31	220	40	76	250	9	2.1

* Protected version

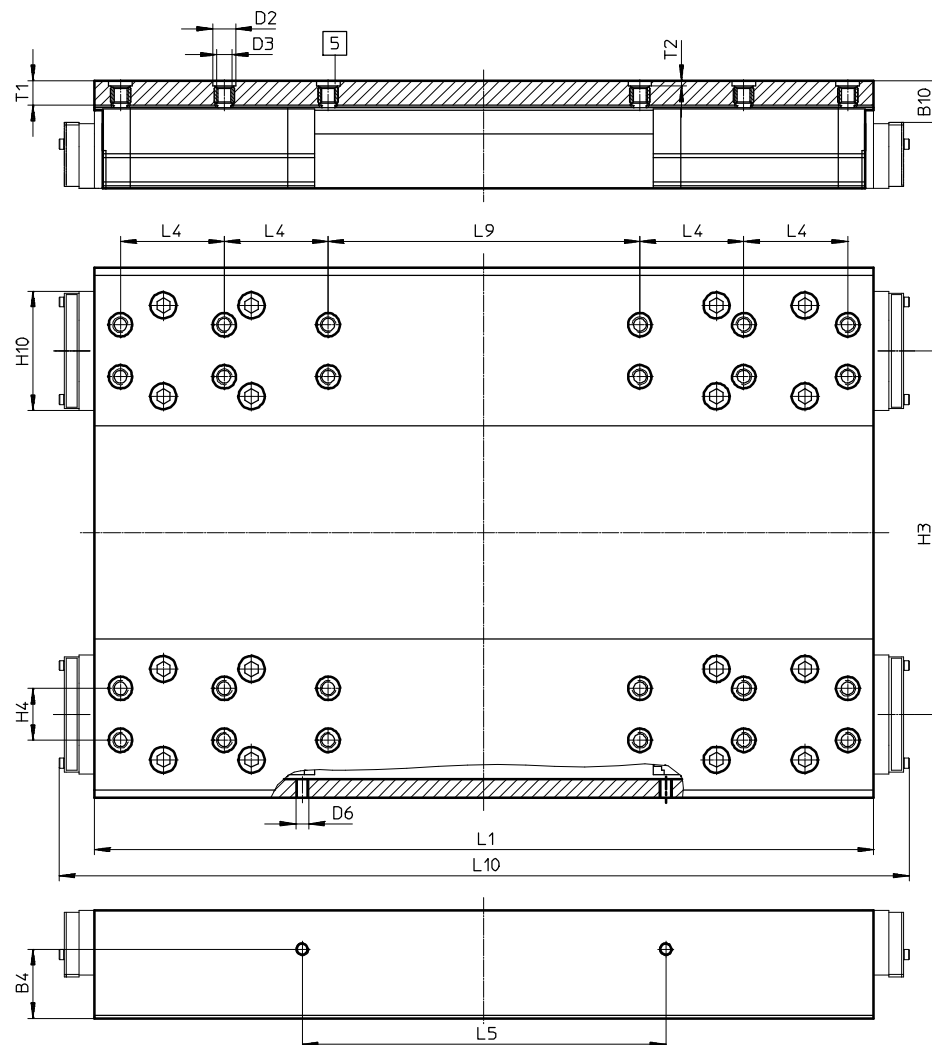
Toothed belt axes EGC-HD-TB, with heavy-duty guide

Dimensions

GK – Standard slide

Size 220

Download CAD data → www.festo.com

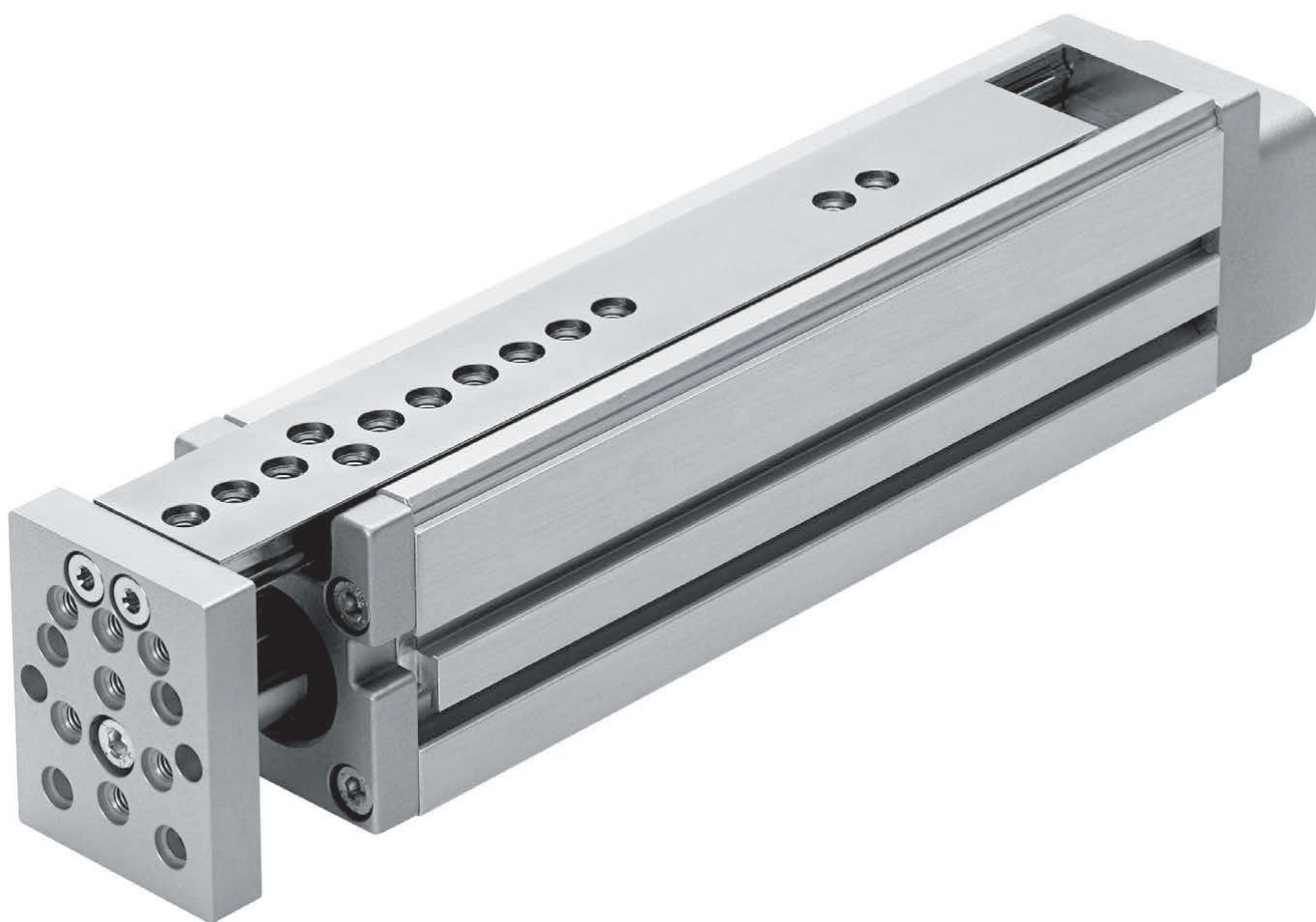


[5] Drill hole for centring sleeve ZBH

Size	B4	B10*	D2 Ø H7	D3	D6	H3	H4	H10*
220	±0.1 26.6	16	9	M6	M5	±0.05 140	±0.03 20	45.95

Size	L1	L4	L5	L9	L10*	T1	T2
	±0.1	±0.03	±0.1	±0.03			+0.1
220	302	40	140	120	328	9.5	2.1

* Protected version



Linearity and parallelism

- + Precise, dynamic and reliable positioning – the integrated guide ensures maximum precision
- + Pneumatic mini slides DGSL can be mounted without adapter plates, making them particularly simple and economical to use.

Linear drives and slides ›

Mini slides, electric

EGSL

Linear drives and slides >

Mini slides, electric

EGSL



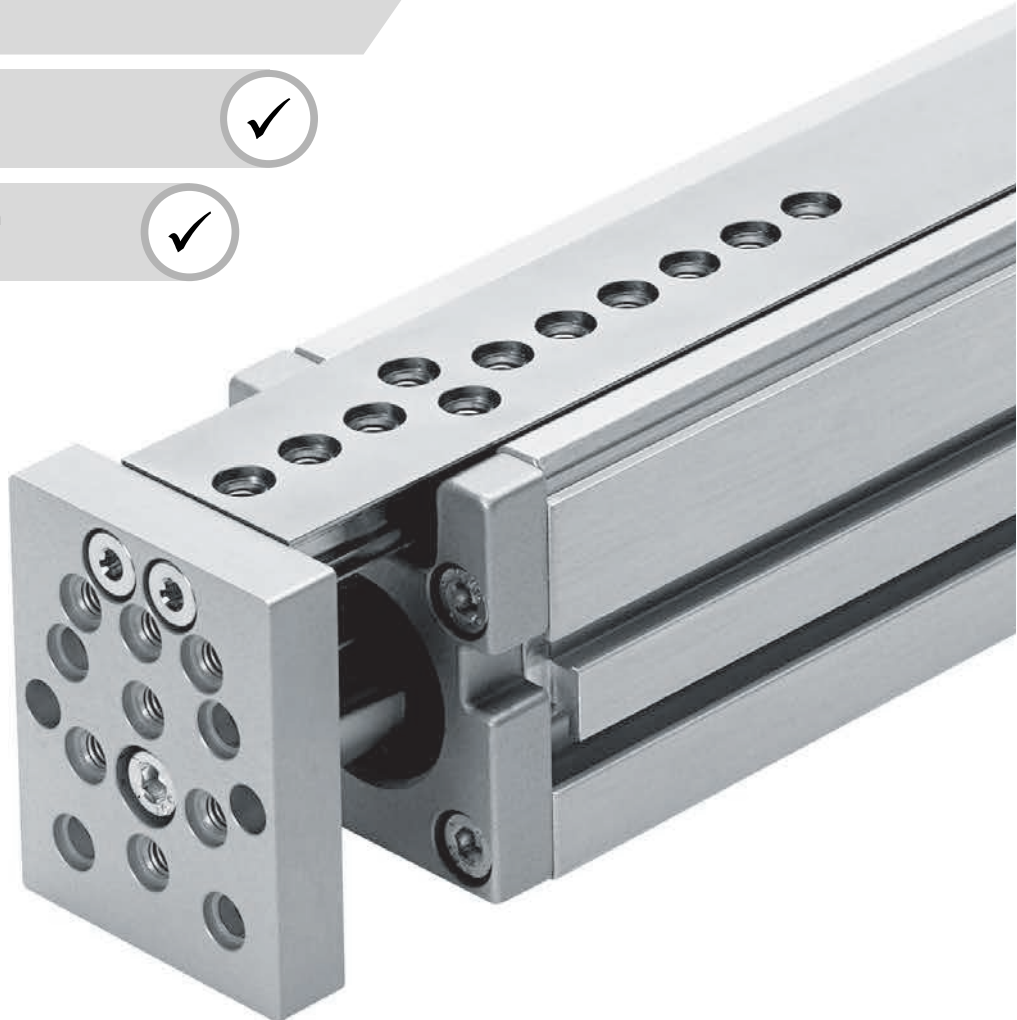
Overview, configuration and ordering

→ www.festo.com/catalogue/egsl



Additional information, support and user documentation

→ www.festo.com/sp/egsl



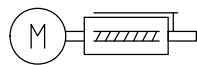
- + Very high rated slide loads, ideal for vertical applications such as press-fitting or joining
- + Reliable: the completely closed spindle stops dirt or stray small parts getting into the guide area
- + Optional guide cover protects against dirt

Mini slides EGSL, electric

Product range overview

Type/version	Size	Stroke [mm]	Feed force F_x [N]	Speed [m/s]
EGSL				
Electric	35, 45, 55, 75	50 ... 300	75 ... 450	0.5 ... 1.3

Data sheet



Technical data						Dimensions ➔ Page 650		
Size		35	45		55		75	
Spindle pitch	[mm/rev]	8	3	10	5	12.7	10	20
Working stroke	[mm]	50	100, 200		100, 200, 250		100, 200, 300	
Guide value for payload								
Horizontal	[kg]	2	6		10		14	
Vertical	[kg]	2	6		10		14	
Continuous feed force F _x	[N]	50	100		200		300	
Max. feed force F _x	[N]	75	150		300		450	
Max. no-load driving torque	[Nm]	0.015	0.090	0.080	0.100	0.135	0.265	0.165
Max. driving torque ¹⁾	[Nm]	0.2	0.45	0.51	0.9	1.25	3.25	3.25
Max. radial force ²⁾	[N]	20	120		260		300	
Max. speed	[m/s]	0.5	0.3	1.0	0.4	1.0	0.65	1.3
Nominal acceleration	[m/s ²]	15						
Max. acceleration ³⁾	[m/s ²]	25						
Repetition accuracy	[mm]	±0.015						
Max. reversing backlash ⁴⁾	[μm]	≤50						

1) Friction and torque due to acceleration of the rotating load taken into consideration.
2) At the drive shaft.
3) The max. acceleration is dependent on the moving mass, the driving torque and the max. feed force.
4) In new condition.

Note
All values are based on a room temperature of 20 °C.

Linear drives and slides >

Mini slides EGSL, electric

Data sheet

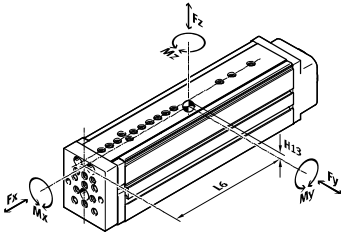
Permissible forces and torques/geometric characteristics

Note

Engineering software

PositioningDrives

www.festo.com



Size		35	45		55		75			
Stroke		50	100	200	100	200	250	100	200	300
Max. permissible force Fy	[N]	512	631	291	1047	490	563	1539	714	555
Max. permissible force Fz	[N]	512	631	291	1047	490	563	1539	714	555
Max. permissible torque Mx	[Nm]	6.2	18.6	14.3	33.1	24.2	27.0	67.4	48.5	46.4
Max. permissible torque My	[Nm]	6.0	16.3	12.3	31	22.6	33.3	47.1	33.8	36.5
Max. permissible torque Mz	[Nm]	6.0	16.3	12.3	31	22.6	33.3	47.1	33.8	36.5
Dimension H13	[mm]	4.2	6.4	6.4	6.4	6.4	6.4	7.6	7.6	7.6
Dimension L6										
Retracted	[mm]	83	114	164	132	182	221	139	189	241
Advanced	[mm]	106	162	262	180	280	344	187	287	389

Operating conditions										
Ambient temperature	[°C]	0 ... +60								
Degree of protection		IP40								

Materials	
Yoke plate	Anodised wrought aluminium alloy
Guide rail	Rolled steel
Housing	Anodised wrought aluminium alloy
Spindle	Rolled steel
Spindle nut	Rolled steel
End cap	Painted cast aluminium

Order code

EGSL

BS

Type		
EGSL	Mini slide	
Drive function		
BS	Ball screw	
Size		
	Stroke [mm]	
	Spindle pitch [mm/rev]	
35	50	8P
45	100, 200	3P, 10P
55	100, 200, 250	5P, 12.7P
75	100, 200, 300	10P, 20P

Order example:
EGSL-BS-45-200-10P
Mini slide EGSL - ball screw - size 45 - stroke 200 mm - spindle pitch 10 mm/rev

Ordering – Product options

Configurable product

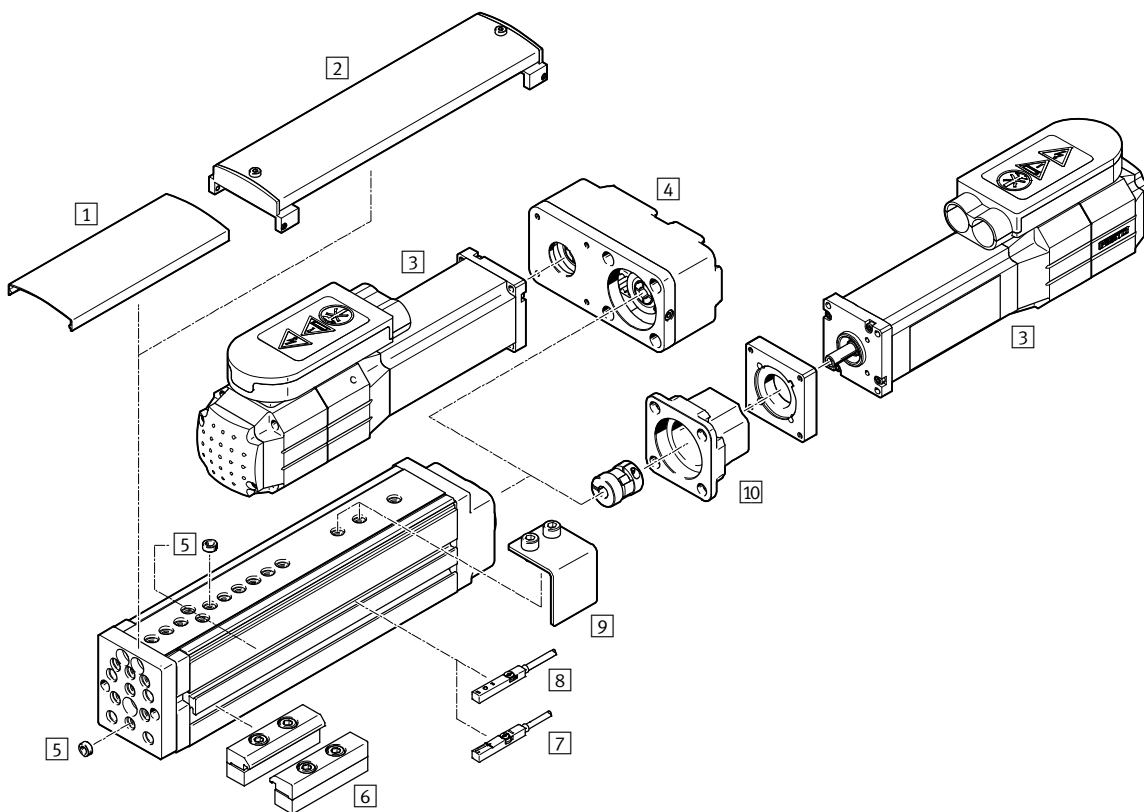
This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
➔ www.festo.com/catalogue/...

Enter the type code in the search field.

Mini slides EGSL, electric

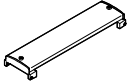
Electromechanical drives



		➔ Page/online
1	Cover EASC	646
2	Cover EASC-...-F	646
3	Motor EMME/EMMS	647
4	Parallel kit EAMM-U	647
5	Centring sleeve ZBH	649
6	Profile mounting EAHF, MUE	649

		➔ Page/online
7	Proximity sensor SIES	649
8	Proximity sensor SMT-8...-B	649
9	Switch lug EAPM	649
10	Axial kit EAMM-A	648
–	Connecting cable NEBU	649
–	Connector sleeve ZBV	649

	For size	Length [mm]	Part no.	Type
1 Cover for use without switch lug				
Dimensions online: → egsl				
	35	50	570819	EASC-G1-35-50
		500 ¹⁾	570874	EASC-G1-35-500
	45	100	570822	EASC-G1-45-100
		200	570823	EASC-G1-45-200
		500 ¹⁾	570875	EASC-G1-45-500
	55	100	570824	EASC-G1-55-100
		200	570825	EASC-G1-55-200
		250	570826	EASC-G1-55-250
		500 ¹⁾	570876	EASC-G1-55-500
	75	100	570827	EASC-G1-75-100
		200	570828	EASC-G1-75-200
		300	570829	EASC-G1-75-300
500 ¹⁾		570877	EASC-G1-75-500	

	For size	Length [mm]	Part no.	Type
2 Cover for use with switch lug Dimensions online: → egsl				
	35	50	570830	EASC-G1-35-50-F
	45	100	570833	EASC-G1-45-100-F
		200	570834	EASC-G1-45-200-F
	55	100	570835	EASC-G1-55-100-F
		200	570836	EASC-G1-55-200-F
		250	570837	EASC-G1-55-250-F
	75	100	570838	EASC-G1-75-100-F
		200	570839	EASC-G1-75-200-F
		300	570840	EASC-G1-75-300-F

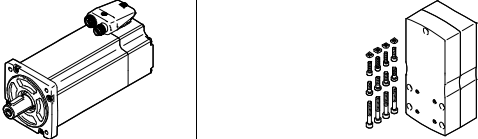
1) The cover can be shortened by the customer as required.

Accessories – Ordering data

Note

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

When using parallel kits, the no-load driving torque of the respective kit must be taken into consideration.

Motor/gear unit ¹⁾	Parallel kit	
	- The kit can be mounted in all directions - Use in combination with third-party motors on request	
	Part no.	Type
3 4 Permissible axis/motor combination with parallel kit – Data sheets online: → eamm-u		
EGSL-45		
With servo motor		
EMME-AS-40-...	2153283	EAMM-U-50-D32-40P-78
EMMS-AS-40-...	1201591	EAMM-U-50-D32-40A-78
EMMS-AS-55-...	1210126	EAMM-U-60-D32-55A-91
EMME-AS-60-...	2619586	EAMM-U-70-D32-60P-96
With stepper motor		
EMMS-ST-42-...	1201607	EAMM-U-50-D32-42A-78
EMMS-ST-57-...	1210419	EAMM-U-60-D32-57A-91
With integrated drive		
EMCA-EC-67-...	1577063	EAMM-U-60-D32-67A-91
With gear unit		
EMGA-40-P-...	1577358	EAMM-U-60-D32-40G-91
EMGC-40-P-...		
EMGA-60-P-...-SAS/SST ²⁾	2748181	EAMM-U-70-D32-60G-96
EMGA-60-P-...-EAS, EMGC-60-P-... ²⁾	2778393	EAMM-U-70-D32-60H-96

Motor/gear unit ¹⁾	Parallel kit	
	Part no.	Type
EGSL-55		
With servo motor		
EMMS-AS-55-...	1210438	EAMM-U-60-D40-55A-91
EMME-AS-60-...	2617488	EAMM-U-70-D40-60P-96
EMMS-AS-70-...	2786204	EAMM-U-70-D40-70A-96
EMMS-AS-70-...	1212826	EAMM-U-86-D40-70A-102
With stepper motor		
EMMS-ST-57-...	1210442	EAMM-U-60-D40-57A-91
EMMS-ST-87-...	1215802	EAMM-U-86-D40-87A-102
With integrated drive		
EMCA-EC-67-...	1577083	EAMM-U-60-D40-67A-91
With gear unit		
EMGA-40-P-...	1577165	EAMM-U-60-D40-40G-91
EMGC-40-P-...		
EMGA-60-P-...-SAS/SST ²⁾	2785471	EAMM-U-70-D40-60G-96
EMGA-60-P-...-EAS, EMGC-60-P-... ²⁾	2786101	EAMM-U-70-D40-60H-96
EMGA-60-P-...-SAS/SST ²⁾	1586445	EAMM-U-86-D40-60G-102
EMGA-60-P-...-EAS, EMGC-60-P-... ²⁾	1586496	EAMM-U-86-D40-60H-102
EGSL-75		
With servo motor		
EMMS-AS-70-...	1212477	EAMM-U-86-D60-70A-102
EMME-AS-80-...	2155875	EAMM-U-86-D60-80P-102
With stepper motor		
EMMS-ST-87-...	1215784	EAMM-U-86-D60-87A-102
With gear unit		
EMGA-60-P-...-SAS/SST ²⁾	1586347	EAMM-U-86-D60-60G-102
EMGA-60-P-...-EAS, EMGC-60-P-... ²⁾	1586276	EAMM-U-86-D60-60H-102
EMGA-60-P-...-SAS/SST ²⁾	1543240	EAMM-U-110-D60-60G-120
EMGA-60-P-...-EAS, EMGC-60-P-... ²⁾	1542264	EAMM-U-110-D60-60H-120
EMGA-80-P-...	1532949	EAMM-U-110-D60-80G-120

- 1) The input torque must not exceed the maximum permissible transferable torque of the parallel kit.
2) Gear unit drive shaft Ø: EMGA-60-P-...-SAS/SST: 11 mm; EMGA-60-P-...-EAS, EMGC-60-P: 14 mm

Note

The clamping component EADT is required to adjust the toothed belt pre-tensioning for EAMM-U-110.

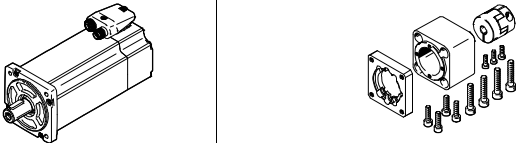
The motor and/or axis shaft can optionally be supported with a counter bearing EAMG.

More information → [eamm-u](#)

Linear drives and slides >

Mini slides EGSL, electric

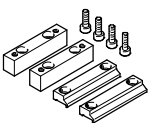
Accessories – Ordering data

Motor/gear unit ¹⁾	Axial kit	
		
	Part no.	Type
3/10 Permissible axis/motor combination with axial kit – Data sheets online: → eamm-a		
EGSL-35		
With servo motor		
EMME-AS-40-...	1981953	EAMM-A-D19-40P
EMMS-AS-40-...	1199152	EAMM-A-D19-40A
With stepper motor		
EMMS-ST-28-...	1081659	EAMM-A-D19-28A
EMMS-ST-42-...	1087642	EAMM-A-D19-42A
EGSL-45		
With servo motor		
EMME-AS-40-...	1976465	EAMM-A-D32-40P
EMMS-AS-40-...	543147	EAMM-A-D32-40A
EMMS-AS-55-...	550979	EAMM-A-D32-55A
EMME-AS-60-...	1956054	EAMM-A-D32-60P
With servo motor and gear unit		
EMME-AS-40-...	1454238	EAMM-A-D32-40G
EMGA-40-P-G...-EAS-40		
EMMS-AS-40-...	1454238	EAMM-A-D32-40G
EMGA-40-P-G...-SAS-40		
EMMS-AS-55-...	2946758	EAMM-A-D32-60G
EMGA-60-P-G...-SAS-55		
EMME-AS-60-...	2946760	EAMM-A-D32-60H
EMGA-60-P-G...-EAS-60		
EMMS-AS-70-...	2946758	EAMM-A-D32-60G
EMGA-60-P-G...-SAS-70		
With stepper motor		
EMMS-ST-42-...	543148	EAMM-A-D32-42A
EMMS-ST-57-...	550980	EAMM-A-D32-57A
With stepper motor and gear unit		
EMMS-ST-42-...	1454238	EAMM-A-D32-40G
EMGA-40-P-G...-SST-42		
EMMS-ST-57-...	2946758	EAMM-A-D32-60G
EMGA-60-P-G...-SST-57		
With integrated drive		
EMCA-EC-67-...	1454239	EAMM-A-D32-67A
With integrated drive and gear unit		
EMCA-EC-67-...-	1454238	EAMM-A-D32-40G
EMGC-40-...		
EMCA-EC-67-...-	2946760	EAMM-A-D32-60H
EMGC-60-...		
EGSL-55		
With servo motor		
EMMS-AS-55-...	543153	EAMM-A-D40-55A
EMME-AS-60-...	1977000	EAMM-A-D40-60P
EMMS-AS-70-...	550981	EAMM-A-D40-70A

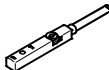
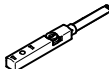
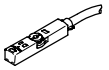
1) The input torque must not exceed the maximum permissible transferable torque of the axial kit.

Motor/gear unit ¹⁾	Axial kit	
	Part no.	Type
EGSL-55		
With servo motor and gear unit		
EMME-AS-40-...	560282	EAMM-A-D40-40G
EMGA-40-P-G...-EAS-40	2256398	EAMM-A-D40-40G-G2
EMMS-AS-40-...	560282	EAMM-A-D40-40G
EMGA-40-P-G...-SAS-40	2256398	EAMM-A-D40-40G-G2
EMMS-AS-55-...	2256400	EAMM-A-D40-60G
EMGA-60-P-G...-SAS-55		
EMME-AS-60-...	1454242	EAMM-A-D40-60H
EMGA-60-P-G...-EAS-60		
EMMS-AS-70-...	2256400	EAMM-A-D40-60G
EMGA-60-P-G...-SAS-70		
With stepper motor		
EMMS-ST-57-...	543154	EAMM-A-D40-57A
EMMS-ST-87-...	550982	EAMM-A-D40-87A
With stepper motor and gear unit		
EMMS-ST-42-...	560282	EAMM-A-D40-40G
EMGA-40-P-G...-SST-42	2256398	EAMM-A-D40-40G-G2
EMMS-ST-57-...	2256400	EAMM-A-D40-60G
EMGA-60-P-G...-SST-57		
With integrated drive		
EMCA-EC-67-...	1454243	EAMM-A-D40-67A
With integrated drive and gear unit		
EMCA-EC-67-...-	560282	EAMM-A-D40-40G
EMGC-40-...	2256398	EAMM-A-D40-40G-G2
EMCA-EC-67-...-	1454242	EAMM-A-D40-60H
EMGC-60-...		
EGSL-75		
With servo motor		
EMMS-AS-70-...	543161	EAMM-A-D60-70A
EMME-AS-80-...	1977073	EAMM-A-D60-80P
EMME-AS-100-...	550983	EAMM-A-D60-100A
EMMS-AS-100-...	550983	EAMM-A-D60-100A
With servo motor and gear unit		
EMMS-AS-55-...	560283	EAMM-A-D60-60G
EMGA-60-P-G...-SAS-55	2256696	EAMM-A-D60-60G-G2
EMME-AS-60-...	1454245	EAMM-A-D60-60H
EMGA-60-P-G...-EAS-60		
EMMS-AS-70-...	560283	EAMM-A-D60-60G
EMGA-60-P-G...-SAS-70	2256696	EAMM-A-D60-60G-G2
EMMS-AS-70-...	1499402	EAMM-A-D60-80G
EMGA-80-P-G...-SAS-70		
EMME-AS-80-...	1499402	EAMM-A-D60-80G
EMGA-80-P-G...-EAS-80		
EMME-AS-100-...	1499402	EAMM-A-D60-80G
EMGA-80-P-G...-SAS-100		
EMMS-AS-100-...	1499402	EAMM-A-D60-80G
EMGA-80-P-G...-SAS-100		
With stepper motor		
EMMS-ST-87-...	543162	EAMM-A-D60-87A
With stepper motor and gear unit		
EMMS-ST-57-...	560283	EAMM-A-D60-60G
EMGA-60-P-G...-SST-57	2256696	EAMM-A-D60-60G-G2
EMMS-ST-87-...	1499402	EAMM-A-D60-80G-G2
EMGA-80-P-G...-SST-87		
With integrated drive and gear unit		
EMCA-EC-67-...-	1454245	EAMM-A-D60-60H
EMGC-60-...		

Accessories – Ordering data

	For size	Part no.	Type
5 Centring sleeve¹⁾			
	35, 45, 55	186717	ZBH-7
	75	150927	ZBH-9
6 Profile mounting			
	35	1170211	EAHF-G1-35-P
	45	1168859	EAHF-G1-45-P
	55	558043	MUE-70/80
	75	558043	MUE-70/80

Dimensions online: → [egsl](#)

	For size	Switching output, connection	Cable length [m]	Part no.	Type
7 Proximity sensor for T-slot, inductive – N/O contact Data sheets → Page 1235					
	35 ... 75	PNP, cable	7.5	551386	SIES-8M-PS-24V-K-7,5-OE
		PNP, plug	0.3	551387	SIES-8M-PS-24V-K-0,3-M8D
		NPN, cable	7.5	551396	SIES-8M-NS-24V-K-7,5-OE
		NPN, plug	0.3	551397	SIES-8M-NS-24V-K-0,3-M8D
N/C contact Data sheets → Page 1235					
	35 ... 75	PNP, cable	7.5	551391	SIES-8M-PO-24V-K-7,5-OE
		PNP, plug	0.3	551392	SIES-8M-PO-24V-K-0,3-M8D
		NPN, cable	7.5	551401	SIES-8M-NO-24V-K-7,5-OE
		NPN, plug	0.3	551402	SIES-8M-NO-24V-K-0,3-M8D
8 Proximity sensor for T-slot, magneto-resistive – N/O contact Data sheets → Page 1206					
	35 ... 75	PNP, cable	2.5	★ 574335	SMT-8M-A-PS-24V-E-2,5-OE
		PNP, plug	0.3	★ 574334	SMT-8M-A-PS-24V-E-0,3-M8D
Connecting cable, straight socket Data sheets → Page 1543					
	35 ... 75	M8x1, 3-pin	2.5	★ 541333	NEBU-M8G3-K-2.5-LE3
			5.0	★ 541334	NEBU-M8G3-K-5-LE3
Angled socket Data sheets → Page 1543					
	35 ... 75	M8x1, 3-pin	2.5	★ 541338	NEBU-M8W3-K-2.5-LE3
			5.0	★ 541341	NEBU-M8W3-K-5-LE3

	For size	Part no.	Type
9 Switch lug			
	35	1235029	EAPM-G1-35-SLS
	45	1235033	EAPM-G1-45-SLS
	55	1235035	EAPM-G1-55-SLS
	75	1235036	EAPM-G1-75-SLS
Connector sleeve²⁾			
	45, 55	548803	ZBV-M5-7
	75	548804	ZBV-M6-9

1) Packaging unit 10 pieces.

2) Packaging unit 3 pieces.

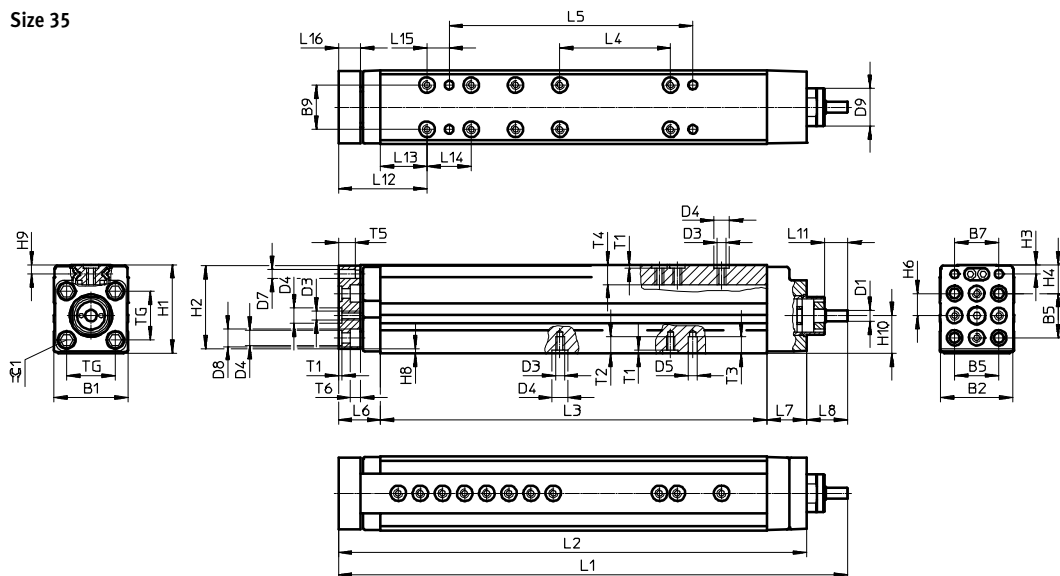
Linear drives and slides >

Mini slides EGSL, electric

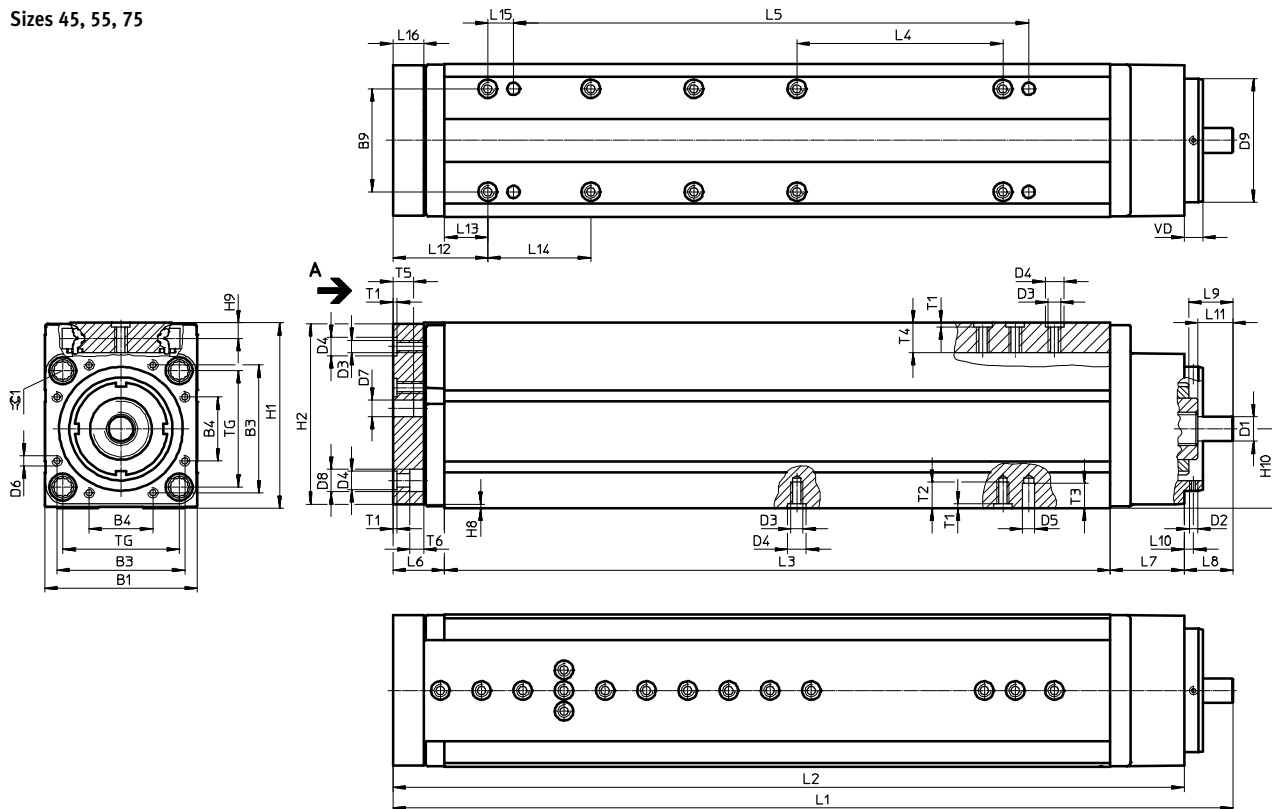
Dimensions

Download CAD data → www.festo.com

Size 35

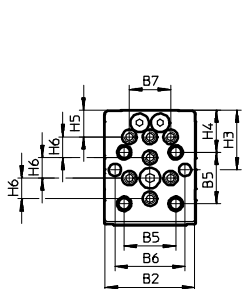


Sizes 45, 55, 75

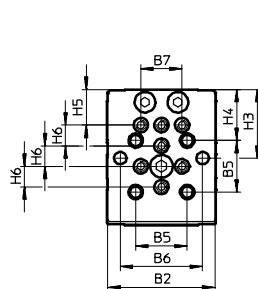


View A

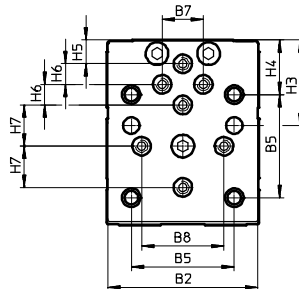
Size 45



Size 55



Size 75



1 Rubber buffer integrated in the slide. Can be removed when homing to fixed stop.

Mini slides EGSL, electric

Dimensions

Download CAD data → www.festo.com

Size	B1	B2	B3	B4	B5	B6	B7	B8	B9 ±0.5	D1 Ø
35	33.5	33	–	–	20	–	20	–	20	5
45	44.5	43.5	32	19	25	34	20	–	25	6
55	53	52	42	20	25	40	20	–	25	8
75	74	73	62	31	50	–	20	40	50	12

Size	D2	D3	D4 Ø H7	D5 Ø H7	D6	D7 Ø	D8 Ø	D9 Ø g7	H1	H2
35	–	M4	7	4	–	4	8	19	40	37.5
45	M3	M5	7	6	M3	6	10	32	56	53.5
55	M3	M5	7	6	M4	6	10	40	66	63.5
75	M4	M6	9	6	M5	8	11	60	90	87.5

Size	H3	H4	H5	H6	H7	H8	H9	H10	L6	
									2) ±1	3) ±1
35	4.2	13	–	10	–	2	4.2	17+0.09/–0.07	21	19
45	29	20.5	13	10	–	2	6.4	23±0.08	22	20
55	33.3	24.8	17.3	10	–	2	6.4	28.7±0.08	27	25
75	41.5	26.5	11.5	10	20	2	7.6	38.5±0.08	27	25

Size	L7	L8 ±1	L9	L10	L11 ±0.2	L12		L13 ¹⁾	L14 ¹⁾	L15 ±0.1
						2)	3)			
35	18	18.5	–	–	10.5	42	40	21	20	10
45	26	16	16.9	3.5	8	43	41	21	25	12.5
55	30	18.5	14.9	3.5	14	48	46	21	25	12.5
75	36	23.6	21.5	4.5	17	48	46	21	50	12.5

Size	L16	T1 ±0.1	T2	T3	T4	T5	T6	TG	VD	≈ 1
35	10	1.6	7.6	7.5	9	7.5	4.6	22	–	5
45	10	1.6	8.1	7.5	12.4	7.5	5.7	32.5	7	6
55	15	1.6	8.6	8.5	12.4	10	8.7	38	7	6
75	15	2.1	12.6	12	14.5	10	6.8	56.5	9	8

Size	Stroke [mm]	L1		L2		L3 –0.2	L4 ¹⁾	L5 ¹⁾ ±0.05
		2) ±1.5	3) ±1.5	2) ±1	3) ±1			
35	50	182	180	163.5	161.5	124.5	–	60
45	100	248	246	232	230	184	75	125
	200	348	346	332	330	284	100	175
55	100	284.5	282.5	266	264	209	100	150
	200	384.5	382.5	366	364	309	100	175
	250	463.5	461.5	445	443	388	100	175
75	100	309.6	307.6	286	284	223	–	150
	200	409.6	407.6	386	384	323	100	250
	300	514.6	512.6	491	489	428	150	350

1) Tolerance for centring hole ±0.02 mm

Tolerance for thread ±0.1 mm

2) With rubber buffer.

3) Without rubber buffer: when homing to fixed stop.

Linear drives and slides >

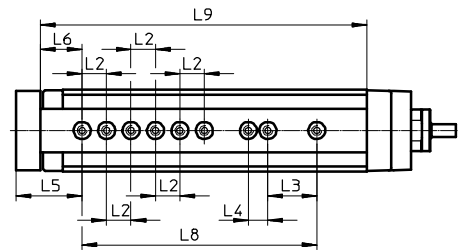
Mini slides EGSL, electric

Dimensions

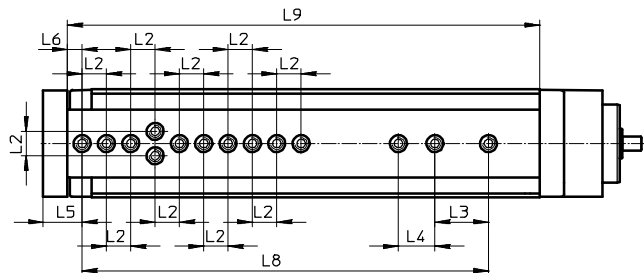
Download CAD data [→ www.festo.com](#)

Hole pattern for mounting threads and centring holes

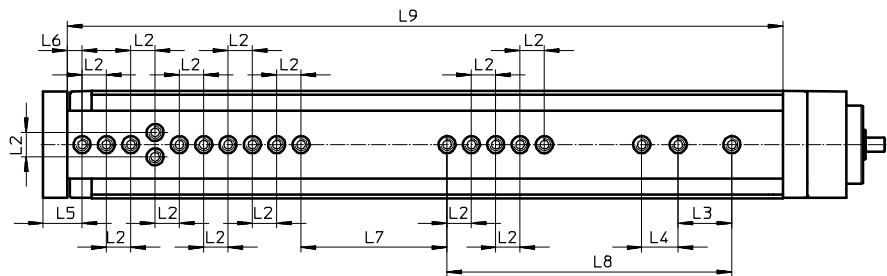
EGSL-35-50



EGSL-45-100



EGSL-45-200



Size	Stroke	L2 ¹⁾	L3 ¹⁾	L4 ¹⁾	L5	L6	L7 ¹⁾	L8 ¹⁾	L9
	[mm]								
35	50	10	20	8	27	17	–	96	133.5
45	100	10	22	15	16	6	–	167	194
	200						60	117	294

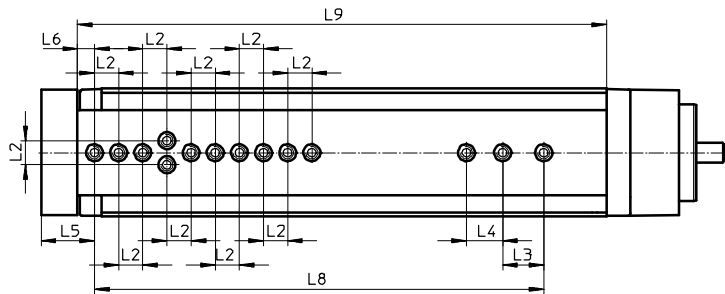
1) Tolerance for centring hole ±0.02 mm
Tolerance for thread ±0.1 mm

Dimensions

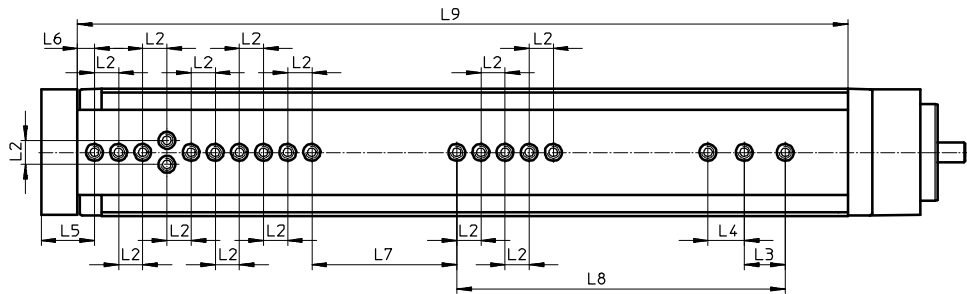
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Hole pattern for mounting threads and centring holes

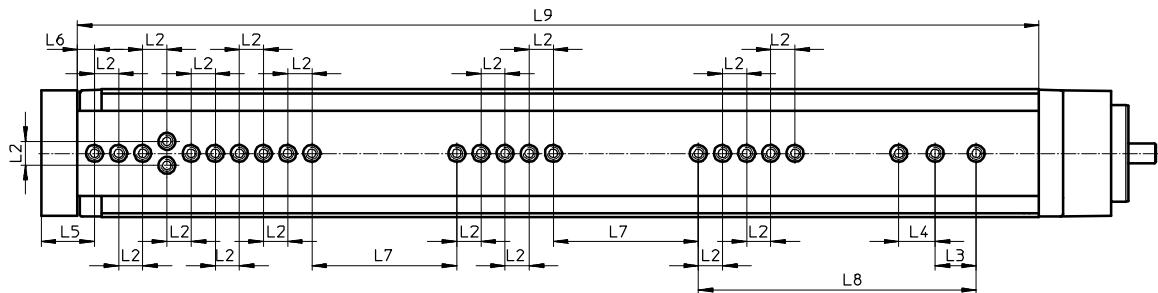
EGSL-55-100



EGSL-55-200



EGSL-55-250



Size	Stroke	L2 ¹⁾	L3 ¹⁾	L4 ¹⁾	L5	L6	L7 ¹⁾	L8 ¹⁾	L9
	[mm]								
55	100	10	17	15	22	7	–	186	219
	200						60	136	319
	250						60	115	398

1) Tolerance for centring hole ±0.02 mm
Tolerance for thread ±0.1 mm

Linear drives and slides >

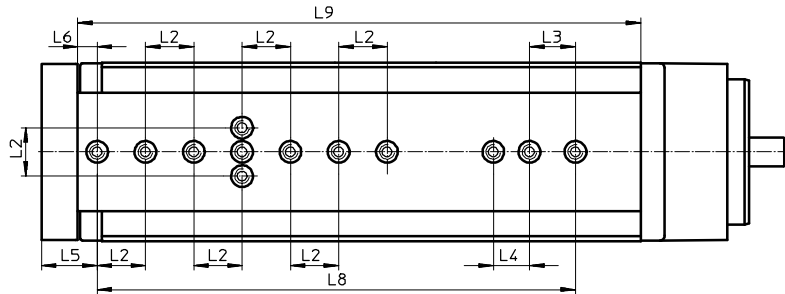
Mini slides EGSL, electric

Dimensions

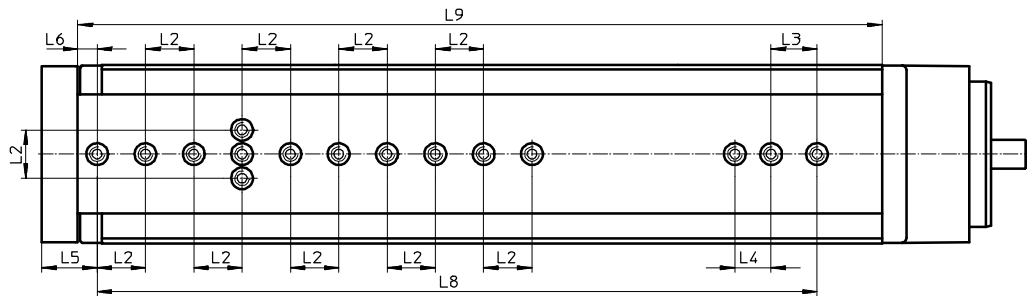
Download CAD data → www.festo.com

Hole pattern for mounting threads and centring holes

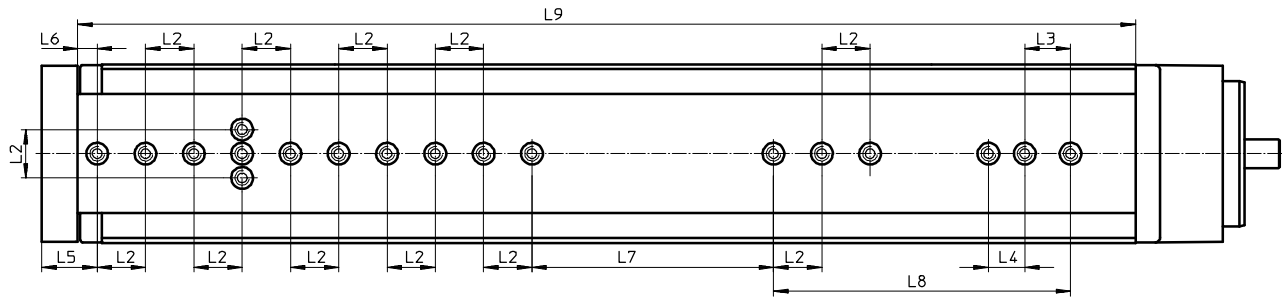
EGSL-75-100



EGSL-75-200



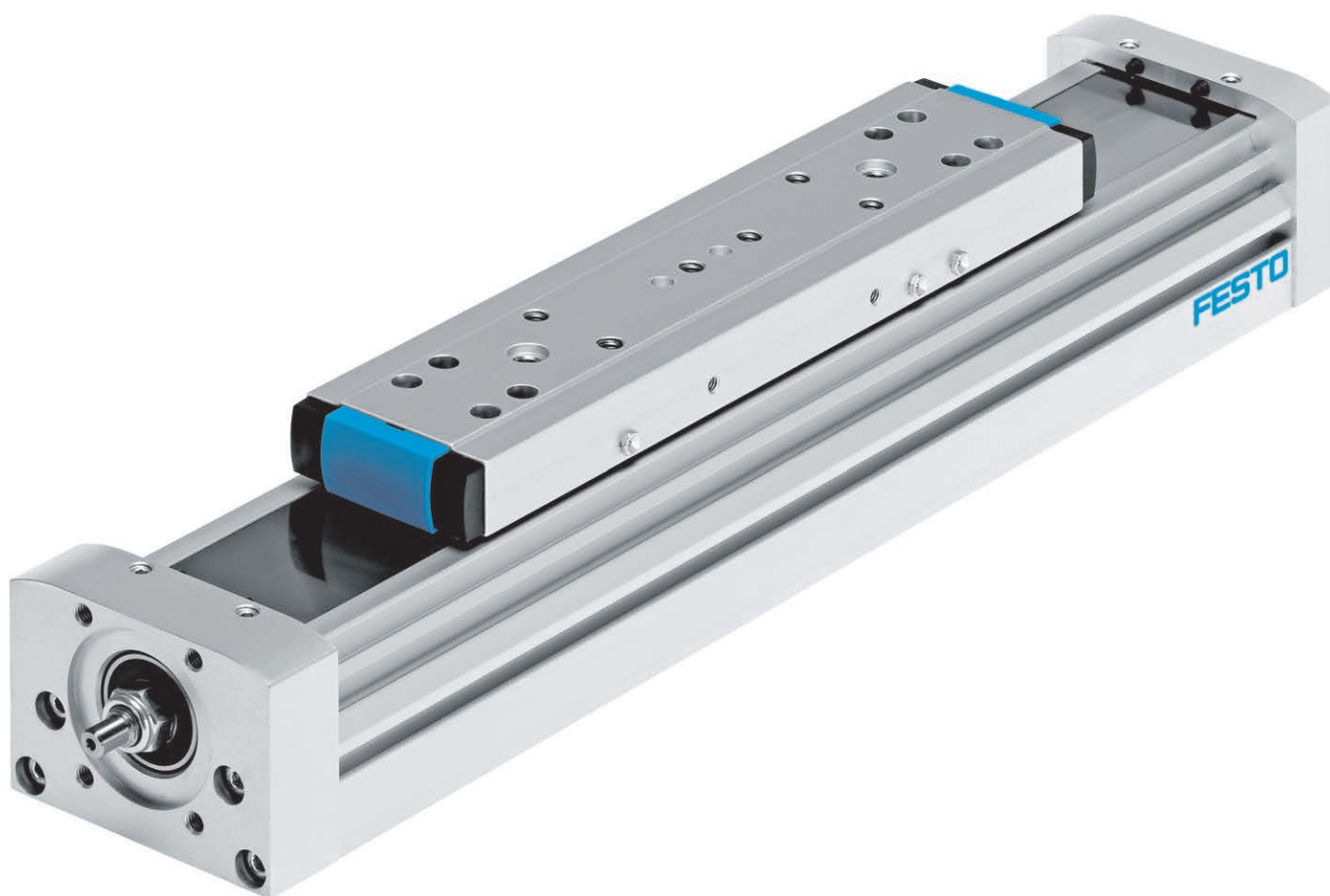
EGSL-75-300



Size	Stroke	L2 ¹⁾	L3 ¹⁾	L4 ¹⁾	L5	L6	L7 ¹⁾	L8 ¹⁾	L9
	[mm]								
75	100	20	19	15	23	8	–	198	233
	200						–	298	333
	300						100	123	438

1) Tolerance for centring hole ± 0.02 mm

Tolerance for thread ± 0.1 mm



Sturdy and precise

- + Internal, precision recirculating ball bearing guide with high load capacity for high torque loads
- + Protected ball screw ensures high feed force and precision

Linear drives and slides ›

Spindle axes with recirculating ball bearing guide

ELGA-BS-KF

Linear drives and slides >

Spindle axes with recirculating ball bearing guide

ELGA-BS-KF



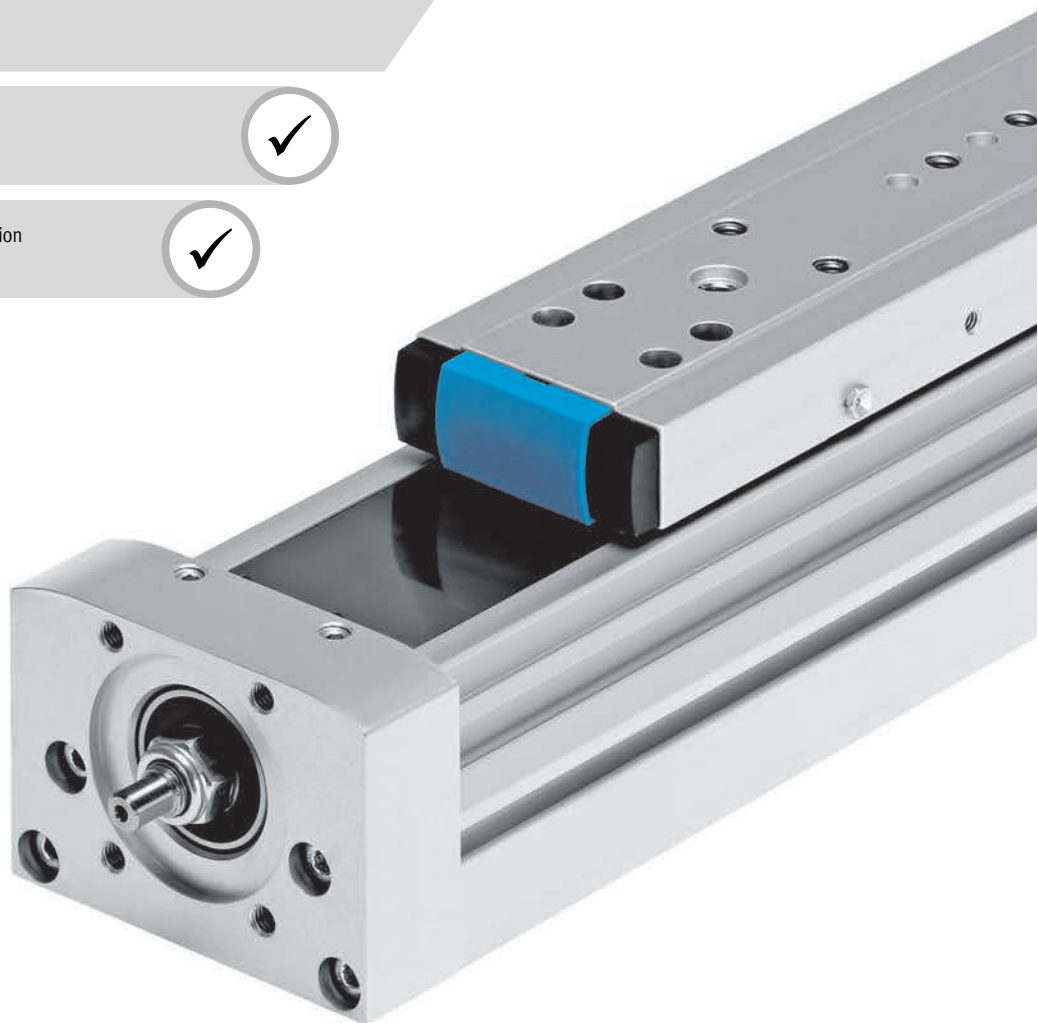
Overview, configuration and ordering

→ www.festo.com/catalogue/elga-bs-kf



Additional information, support and user documentation

→ www.festo.com/sp/elga-bs-kf



- + Internal guide and ball screw protected by the magnetically sealed cover band
- + Sealing air connections prevent dirt getting into the axis
- + For the highest requirements for feed force and accuracy, including in challenging environments
- + Easy maintenance thanks to easily accessible lubrication connections
- + Precision: the slide position can be sensed directly using the optional displacement encoder

Spindle axes ELGA-BS-KF, with recirculating ball bearing guide

Product range overview

Type/Version	Size	Stroke [mm]	Feed force F _x [N]	Product options						➔ Page/ online
				ML	MR	M1	M2	B	F	
ELGA-BS										
KF – Recirculating ball bearing guide	70, 80, 120, 150	50 ... 3000	650 ... 6400	■	■	■	■	■	■	658

Product options

ML	Motor on left	M1	Displacement encoder, incremental, resolution: 2.5 µm	B	Displacement encoder at rear	DN	Without operating instructions
MR	Motor on right	M2	Displacement encoder, incremental, resolution: 10 µm	F	Displacement encoder at front		

At a glance

- Internal, precision recirculating ball bearing guide with high load capacity for high torque loads
 - For the highest requirements in terms of feed force and accuracy
- Different spindle pitches and numerous sizes open up a broad range of applications
 - Guide and ball screw protected by cover strip
- Easy maintenance thanks to easily accessible lubrication connections
 - Optional displacement encoder
 - Wide range of options for mounting on drives
- Comprehensive range of mounting accessories for multi-axis combinations
 - Space-saving position sensing

Linear drives and slides >

Spindle axes ELGA-BS-KF, with recirculating ball bearing guide

Data sheet

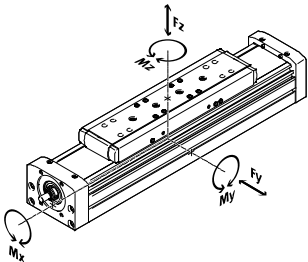


Technical data

Note

Engineering software
PositioningDrives
→ www.festo.com

Dimensions → Page 666



Size		70	80		120		150
Spindle pitch	[mm/rev]	10	10	20	10	25	40
Working stroke	[mm]	50 ... 900	50 ... 1940		50 ... 2460		50 ... 3000
Max. feed force F_x	[N]	650	1600		3400		6400
No-load torque	[Nm]	0.17	0.3	0.35	1.0	1.0	2.2
at min. travel speed	[m/s]	0.05	0.1		0.2		0.2
No-load torque	[Nm]	0.45	0.75	0.75	2.25	2.25	6.5
at max. travel speed	[m/s]	0.5	0.5	1	0.6	1.5	2
Max. radial force ¹⁾	[N]	220	250		500		4000
Max. rotational speed ²⁾	[rpm]	3000	3000		3600		3000
Max. speed	[m/s]	0.5	0.5	1	0.6	1.5	2
Max. acceleration	[m/s ²]	15					
Repetition accuracy	[mm]	±0.02					
Max. permissible force F_y	[N]	1500	2500		5500		5500
Max. permissible force F_z	[N]	1850	3050		6890		11000
Max. permissible torque M_x	[Nm]	16	36		104		167
Max. permissible torque M_y	[Nm]	132	228		680		1150
Max. permissible torque M_z	[Nm]	132	228		680		1150

1) At the drive shaft.

2) Rotational speed and speed are stroke-dependent.

Operating conditions

Ambient temperature ³⁾	[°C]	−10 ... +60
Degree of protection	IP40	

3) Note operating range of proximity sensors.

Mass moment of inertia

Size		70	80		120		150
Spindle pitch	[mm/rev]	10	10	20	10	25	40
J_0	[kg mm ²]	3.8	9.7	9.7	103.8	103.8	863
J_H per metre stroke	[kg mm ² /m]	14.2	34.6	34.6	275.6	275.6	1803.1
J_L per kg payload	[kg mm ² /kg]	2.53	2.53	10.13	2.53	15.83	40.53

The mass moment of inertia J_{rot} of the entire axis is calculated as follows:

$J_{rot} = J_0 + J_H \times \text{working stroke [m]}$

Spindle axes ELGA-BS-KF, with recirculating ball bearing guide

Data sheet

Materials	
Cover	Anodised wrought aluminium alloy
Profile	Anodised wrought aluminium alloy
Slides	Anodised wrought aluminium alloy
Spindle	Steel
Cover strip	Stainless steel strip, non-corroding

Technical data – Displacement encoder			
Type		ELGA-...-M1	ELGA-...-M2
Resolution	[µm]	2.5	10
Max. travel speed	[m/s]	4	4
with displacement encoder system			
Encoder signal		5 V TTL; A/A, B/B; reference signal (N/N) cyclically every 5 mm (zero pulse)	
Signal output		Line driver, alternating, resistant to sustained short circuit	
Electrical connection		8-pin plug, round design, M12	
Cable length	[mm]	160	

Operating conditions – Displacement encoder	
Ambient temperature	[°C]
Degree of protection	

Ordering – Product options

Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or

[www.festo.com/catalogue/...](#)

Enter the type code in the search field.

Linear drives and slides >

Spindle axes ELGA-BS-KF, with recirculating ball bearing guide

Order code

ELGA

BS

KF

Type	
ELGA	Spindle axis

Drive function	
BS	Ball screw

Guide	
KF	Recirculating ball bearing guide

Size		
	Stroke [mm]	
70	100, 200, 300, 400, 500, 600, 700, 900	50 ... 880
80	100, 200, 300, 400, 500, 600, 700, 800, 900, 1300, 1440, 1740, 1940	50 ... 1920
120	100, 200, 300, 400, 500, 600, 700, 800, 900, 1300, 1400, 1960, 2460	50 ... 2440
150	200, 400, 500, 900, 1400, 1900, 2500, 3000	50 ... 2980

Stroke reserve	
...H	0 ... 999 (0 = no stroke reserve) 1

Spindle pitch [mm/rev]	
10P	10 2
20P	20 3
25P	25 4
40P	40 5

Motor attachment position	
ML	Left
MR	Right

Displacement encoder, incremental	
-	None
M1	Resolution: 2.5 µm
M2	Resolution: 10 µm

Displacement encoder attachment position	
-	None
B	Retracted
F	Advanced

- 1

The sum of the stroke length and 2x stroke reserve must not exceed the maximum working stroke.
- 2

Only with size 70, 80, 120.
- 3

Only with size 80.
- 4

Only with size 120.
- 5

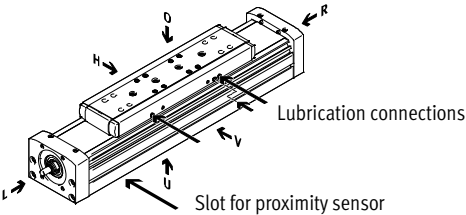
Only with size 150.

Order example:

ELGA-BS-KF-70-500-100H-10P-ML

Spindle axis ELGA - ball screw - recirculating ball bearing guide - size 70 - stroke 500 mm - stroke reserve 100 mm - spindle pitch 10 mm/rev - motor attachment on left - without displacement encoder - without displacement encoder attachment position

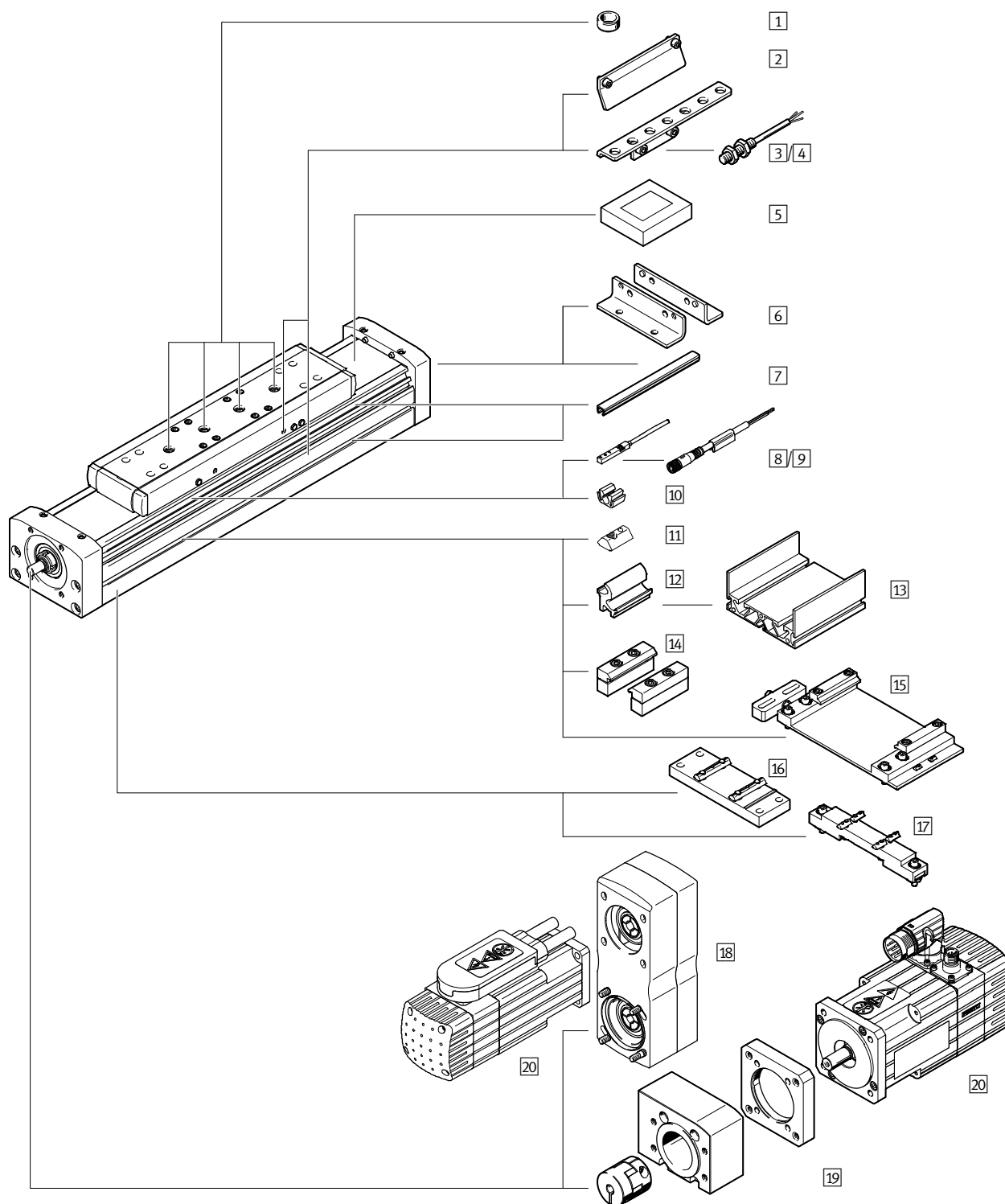
Ordering aid



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

Spindle axes ELGA-BS-KF, with recirculating ball bearing guide

Accessories



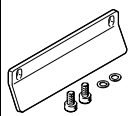
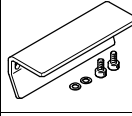
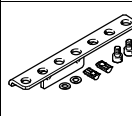
		→ Page/online
1	Centring pin ZBS/centring sleeve ZBH	662
2	Switch lug SF-EGC	662
3	Sensor bracket HWS-EGC	662
4	Inductive proximity sensor SIEN	662
5	Clamping component EADT	662
6	Foot mounting HPE	662
7	Slot cover ABP	662
8	Inductive proximity sensor SIES	662
9	Connecting cable NEBU	662
10	Clip SMBK	663

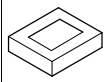
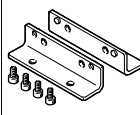
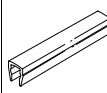
		→ Page/online
11	Slot nut NST	663
12	Adapter kit DHAM	elga-bs
13	Support profile HMIA	elga-bs
14	Profile mounting MUE	663
15	Adjusting kit EADC-E16	663
16	Central support EAHF-L5	663
17	Adjusting kit EADC-E15	663
18	Parallel kit EAMM-U	664
19	Axial kit EAMM-A	665
20	Motor EMME/EMMS	664

Linear drives and slides >

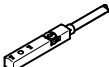
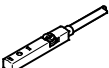
Spindle axes ELGA-BS-KF, with recirculating ball bearing guide

Accessories – Ordering data

	For size	Part no.	Type
1 Centring pin¹⁾²⁾ Data sheets online: → zbs			
	70	150928	ZBS-5
1 Centring sleeve¹⁾²⁾ Data sheets online: → zbh			
	70, 80, 120, 150	150927	ZBH-9
2 Switch lug³⁾ Dimensions online: → elga-bs			
	70	558047	SF-EGC-1-70
	80	558048	SF-EGC-1-80
	120	558049	SF-EGC-1-120
	150	558051	SF-EGC-1-185
2 Switch lug⁴⁾ Dimensions online: → elga-bs			
	70	558052	SF-EGC-2-70
	80	558053	SF-EGC-2-80
	120	558054	SF-EGC-2-120
	150	558056	SF-EGC-2-185
3 Sensor bracket⁵⁾ Dimensions online: → elga-bs			
	70	558057	HWS-EGC-M5
	80	558057	HWS-EGC-M5
	120	570365	HWS-EGC-M8-B
	150	560517	HWS-EGC-M8:KURZ

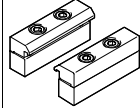
	For size	Part no.	Type
4 Inductive proximity sensor – N/O contact, M8 Data sheets → Page 1230			
	PNP, cable	★ 150386	SIEN-M8B-PS-K-L
	PNP, plug	★ 150387	SIEN-M8B-PS-S-L
N/C contact, M8 Data sheets → Page 1230			
	PNP, cable	150390	SIEN-M8B-PO-K-L
	PNP, plug	150391	SIEN-M8B-PO-S-L
5 Clamping component Dimensions online: → elga-bs			
	70, 80	8058451	EADT-S-L5-70
	120, 150	8058450	EADT-S-L5-120
6 Foot mounting Dimensions online: → elga-bs			
	70	558321	HPE-70
	80	558322	HPE-80
	120	558323	HPE-120
	150	3002636	HPE-150
7 Slot cover⁶⁾			
	For mounting slot		
	70, 80	151681	ABP-5
	120, 150	151682	ABP-8
	For sensor slot		
	70 ... 150	563360	ABP-5-S1

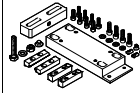
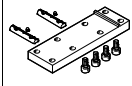
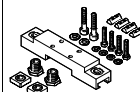
- 1) Packaging unit 10 pieces.
- 2) 2 centring pins/sleeves included in the scope of delivery of the axis.
- 3) For sensing via proximity sensor SIES-8M.
- 4) For sensing via proximity sensor SIEN-M8B or SIES-8M.
- 5) For proximity sensor SIEN-M8B.
- 6) Packaging unit 2x 0.5 m.

	For size	Switching output, connection	Cable length [m]	Part no.	Type
8 Proximity sensor for T-slot, inductive – N/O contact Data sheets → Page 1235					
	70 ... 150	PNP, cable	7.5	551386	SIES-8M-PS-24V-K-7,5-OE
		PNP, plug	0.3	551387	SIES-8M-PS-24V-K-0,3-M8D
		NPN, cable	7.5	551396	SIES-8M-NS-24V-K-7,5-OE
		NPN, plug	0.3	551397	SIES-8M-NS-24V-K-0,3-M8D
N/C contact Data sheets → Page 1235					
	70 ... 150	PNP, cable	7.5	551391	SIES-8M-PO-24V-K-7,5-OE
		PNP, plug	0.3	551392	SIES-8M-PO-24V-K-0,3-M8D
		NPN, cable	7.5	551401	SIES-8M-NO-24V-K-7,5-OE
		NPN, plug	0.3	551402	SIES-8M-NO-24V-K-0,3-M8D
9 Connecting cable, straight socket Data sheets → Page 1543					
	70 ... 150	M8x1, 3-pin	2.5	★ 541333	NEBU-M8G3-K-2.5-LE3
			5.0	★ 541334	NEBU-M8G3-K-5-LE3
Angled socket Data sheets → Page 1543					
	70 ... 150	M8x1, 3-pin	2.5	★ 541338	NEBU-M8W3-K-2.5-LE3
			5.0	★ 541341	NEBU-M8W3-K-5-LE3

Spindle axes ELGA-BS-KF, with recirculating ball bearing guide

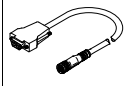
Accessories – Ordering data

	For size	Part no.	Type
10	Clip		
	70 ... 150	534254	SMBK-8
11	Slot nut Dimensions online: → nst		
	70, 80	150914	NST-5-M5
		8047843	NST-5-M5-10 ¹⁾
		8047878	NST-5-M5-50 ²⁾
	120, 150	150915	NST-8-M6
		8047868	NST-8-M6-10 ¹⁾
		8047869	NST-8-M6-50 ²⁾
14	Profile mounting Dimensions online: → elga-bs		
	70	558043	MUE-70/80
	80	558043	MUE-70/80
	120	558044	MUE-120/185
	150	558044	MUE-120/185

15	Adjusting kit Dimensions online: → egc-bs		
	80	8047577	EADC-E16-80-E7
	120	8047578	EADC-E16-120-E7
16	Central support Dimensions online: → elga-bs		
	70	2349256	EAHF-L5-70-P
	80	3535188	EAHF-L5-80-P
	120	2410274	EAHF-L5-120-P
	150	3535189	EAHF-L5-150-P
17	Adjusting kit Dimensions online: → egc-bs		
	70	8047566	EADC-E15-80-E7
	80	8047566	EADC-E15-80-E7
	120	8047568	EADC-E15-185-E7
	185	8047568	EADC-E15-185-E7

1) Packaging unit 10 pieces.

2) Packaging unit 50 pieces.

	Electrical connection, left	Electrical connection, right	Cable length [m]	Part no.	Type
Encoder cables for displacement encoder, ELGA-...-M1/-M2					
	Displacement encoder ELGA-...-M1/-M2	Motor controller CMMP-AS-...	5	1599105	NEBM-M12G8-E-5-S1G9-V3
			10	1599106	NEBM-M12G8-E-10-S1G9-V3
			15	1599107	NEBM-M12G8-E-15-S1G9-V3
			χ ³⁾	1599108	NEBM-M12G8-E-...-S1G9-V3

3) Max. cable length 25 m.

Linear drives and slides >

Spindle axes ELGA-BS-KF, with recirculating ball bearing guide

Accessories – Ordering data

Note

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

When using parallel kits, the no-load driving torque of the respective kit must be taken into consideration.

Motor/gear unit ¹⁾	Parallel kit	
	Part no.	Type
ELGA-BS-KF-120		
With servo motor		
EMMS-AS-70-...	1217543	EAMM-U-86-S62-70A-177 ²⁾
EMME-AS-80-...	2157004	EAMM-U-86-S62-80P-177 ²⁾
EMME-AS-100-...	1217381	EAMM-U-110-S62-100A-207 ²⁾
EMMS-AS-100-...	1217381	EAMM-U-110-S62-100A-207 ²⁾
EMMS-AS-140-...	1219440	EAMM-U-145-S62-140A-288 ²⁾
With stepper motor		
EMMS-ST-87-...	1217373	EAMM-U-86-S62-87A-177 ²⁾
With gear unit		
EMGA-60-P-...-SAS/SST ³⁾	1587411	EAMM-U-86-S62-60G-177 ²⁾
EMGA-60-P-...-EAS, EMGC-60-P-... ³⁾	1587453	EAMM-U-86-S62-60H-177 ²⁾
ELGA-BS-KF-150		
With servo motor		
EMME-AS-100-...	1220656	EAMM-U-110-S95-100A-207 ²⁾
EMMS-AS-100-...	1220656	EAMM-U-110-S95-100A-207 ²⁾
EMMS-AS-140-...	1220582	EAMM-U-145-S95-140A-288 ²⁾
With gear unit		
EMGA-80-P-...	1589544	EAMM-U-110-S95-80G-207 ²⁾
ELGA-BS-KF-80		
With servo motor		
EMMS-AS-55-...	1219370	EAMM-U-60-S48-55A-91 ²⁾
EMME-AS-60-...	2629253	EAMM-U-70-S48-60P-96 ²⁾
EMMS-AS-70-...	2787320	EAMM-U-70-S48-70A-96 ²⁾
EMMS-AS-70-...	1217689	EAMM-U-86-S48-70A-102 ²⁾
With stepper motor		
EMMS-ST-57-...	1219379	EAMM-U-60-S48-57A-91 ²⁾
EMMS-ST-87-...	1217604	EAMM-U-86-S48-87A-177 ²⁾
With gear unit		
EMGA-40-P-...	2283760	EAMM-U-60-S48-40G-91 ²⁾
EMGC-40-P-...	2283760	EAMM-U-60-S48-40G-91 ²⁾
EMGA-60-P-...-SAS/SST ³⁾	2801627	EAMM-U-70-S48-60G-96 ²⁾
EMGA-60-P-...-EAS, EMGC-60-P-... ³⁾	2801715	EAMM-U-70-S48-60H-96 ²⁾
EMGA-60-P-...-SAS/SST ³⁾	1587251	EAMM-U-86-S48-60G-102 ²⁾
EMGA-60-P-...-EAS, EMGC-60-P-... ³⁾	1587338	EAMM-U-86-S48-60H-102 ²⁾

18/20 Permissible axis/motor combination with parallel kit –

Data sheets online: → [eamm-u](https://www.festo.com/eamm-u)

ELGA-BS-KF-70

With servo motor

EMME-AS-40-... 2155239 EAMM-U-50-S38-40P-78

EMMS-AS-40-... 1217708 EAMM-U-50-S38-40A-78

EMMS-AS-55-... 1218538 EAMM-U-60-S38-55A-91

With stepper motor

EMMS-ST-42-... 1217945 EAMM-U-50-S38-42A-78

EMMS-ST-57-... 1218568 EAMM-U-60-S38-57A-91

With gear unit

EMGA-40-P-... 2283732 EAMM-U-60-S38-40G-91

EMGC-40-P-... 2283732 EAMM-U-60-S38-40G-91

ELGA-BS-KF-80

With servo motor

EMMS-AS-55-... 1219370 EAMM-U-60-S48-55A-91²⁾

EMME-AS-60-... 2629253 EAMM-U-70-S48-60P-96²⁾

EMMS-AS-70-... 2787320 EAMM-U-70-S48-70A-96²⁾

EMMS-AS-70-... 1217689 EAMM-U-86-S48-70A-102²⁾

With stepper motor

EMMS-ST-57-... 1219379 EAMM-U-60-S48-57A-91²⁾

EMMS-ST-87-... 1217604 EAMM-U-86-S48-87A-177²⁾

With gear unit

EMGA-40-P-... 2283760 EAMM-U-60-S48-40G-91²⁾

EMGC-40-P-... 2283760 EAMM-U-60-S48-40G-91²⁾

EMGA-60-P-...-SAS/SST³⁾ 2801627 EAMM-U-70-S48-60G-96²⁾

EMGA-60-P-...-EAS, EMGC-60-P-...³⁾ 2801715 EAMM-U-70-S48-60H-96²⁾

EMGA-60-P-...-SAS/SST³⁾ 1587251 EAMM-U-86-S48-60G-102²⁾

EMGA-60-P-...-EAS, EMGC-60-P-...³⁾ 1587338 EAMM-U-86-S48-60H-102²⁾

EMGC-60-P-...³⁾

Motor/gear unit ¹⁾	Parallel kit	
	Part no.	Type
ELGA-BS-KF-120		
With servo motor		
EMMS-AS-70-...	1217543	EAMM-U-86-S62-70A-177 ²⁾
EMME-AS-80-...	2157004	EAMM-U-86-S62-80P-177 ²⁾
EMME-AS-100-...	1217381	EAMM-U-110-S62-100A-207 ²⁾
EMMS-AS-100-...	1217381	EAMM-U-110-S62-100A-207 ²⁾
EMMS-AS-140-...	1219440	EAMM-U-145-S62-140A-288 ²⁾
With stepper motor		
EMMS-ST-87-...	1217373	EAMM-U-86-S62-87A-177 ²⁾
With gear unit		
EMGA-60-P-...-SAS/SST ³⁾	1587411	EAMM-U-86-S62-60G-177 ²⁾
EMGA-60-P-...-EAS, EMGC-60-P-... ³⁾	1587453	EAMM-U-86-S62-60H-177 ²⁾
ELGA-BS-KF-150		
With servo motor		
EMME-AS-100-...	1220656	EAMM-U-110-S95-100A-207 ²⁾
EMMS-AS-100-...	1220656	EAMM-U-110-S95-100A-207 ²⁾
EMMS-AS-140-...	1220582	EAMM-U-145-S95-140A-288 ²⁾
With gear unit		
EMGA-80-P-...	1589544	EAMM-U-110-S95-80G-207 ²⁾

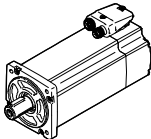
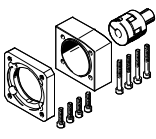
- 1) The input torque must not exceed the maximum permissible transferable torque of the parallel kit.
- 2) To support the axis shaft, a counter bearing EAMG and a clamping sleeve EAMH-...-P with integrated trunnion are included in the scope of delivery of the parallel kit. → online: eamm-u
- 3) Gear unit drive shaft diameter: EMGA-60-P-...-SAS/-SST: 11 mm; EMGA-60-P-...-EAS, EMGC-60-P: 14 mm

Note

The clamping component EADT is required to adjust the toothed belt pretensioning for EAMM-U-110 and EAMM-U-145.

Spindle axes ELGA-BS-KF, with recirculating ball bearing guide

Accessories – Ordering data

Motor/gear unit ¹⁾	Axial kit	
		
	Part no.	Type
19/20 Permissible axis/motor combination with axial kit –		
Data sheets online: → eamm-a		
ELGA-BS-KF-70		
With servo motor		
EMME-AS-40-...	3637972	EAMM-A-S38-40P-G2
EMMS-AS-40-...	3637971	EAMM-A-S38-40A-G2
EMMS-AS-55-...	3637967	EAMM-A-S38-55A-G2
EMME-AS-60-...	3637958	EAMM-A-S38-60P-G2
With servo motor and gear unit		
EMME-AS-40-...	1456647	EAMM-A-S38-40G-G2
EMGA-40-P-G...-EAS-40		
EMMS-AS-40-...	1456647	EAMM-A-S38-40G-G2
EMGA-40-P-G...-SAS-40		
With stepper motor		
EMMS-ST-42-...	3637965	EAMM-A-S38-42A-G2
EMMS-ST-57-...	3637956	EAMM-A-S38-57A-G2
With stepper motor and gear unit		
EMMS-ST-42-...	1456647	EAMM-A-S38-40G-G2
EMGA-40-P-G...-SST-42		
With integrated drive		
EMCA-EC-67-...	1456638	EAMM-A-S38-67A-G2
With integrated drive and gear unit		
EMCA-EC-67-...-	1456647	EAMM-A-S38-40G-G2
EMGC-40-...		
ELGA-BS-KF-80		
With servo motor		
EMMS-AS-55-...	3637961	EAMM-A-S48-55A-G2
EMME-AS-60-...	3637964	EAMM-A-S48-60P-G2
EMMS-AS-70-...	3637957	EAMM-A-S48-70A-G2
With servo motor and gear unit		
EMME-AS-40-...	1456650	EAMM-A-S48-40G-G2
EMGA-40-P-G...-EAS-40		
EMMS-AS-40-...	1456650	EAMM-A-S48-40G-G2
EMGA-40-P-G...-SAS-40		
EMMS-AS-55-...	2256701	EAMM-A-S48-60G-G2
EMGA-60-P-G...-SAS-55		
EMME-AS-60-...	1456652	EAMM-A-S48-60H-G2
EMGA-60-P-G...-EAS-60		
EMMS-AS-70-...	2256701	EAMM-A-S48-60G-G2
EMGA-60-P-G...-SAS-70		
With stepper motor		
EMMS-ST-57-...	3637963	EAMM-A-S48-57A-G2
EMMS-ST-87-...	3637962	EAMM-A-S48-87A-G2

Motor/gear unit ¹⁾	Axial kit	
	Part no.	Type
ELGA-BS-KF-80		
With stepper motor and gear unit		
EMMS-ST-42-...	1456650	EAMM-A-S48-40G-G2
EMGA-40-P-G...-SST-42		
EMMS-ST-57-...	2256701	EAMM-A-S48-60G-G2
EMGA-60-P-G...-SST-57		
With integrated drive and gear unit		
EMCA-EC-67-...-	1456650	EAMM-A-S48-40G-G2
EMGC-40-...		
EMCA-EC-67-...-	1456652	EAMM-A-S48-60H-G2
EMGC-60-...		
ELGA-BS-KF-120		
With servo motor		
EMMS-AS-70-...	3637959	EAMM-A-S62-70A-G2
EMME-AS-80-...	3637970	EAMM-A-S62-80P-G2
EMME-AS-100-...	3637960	EAMM-A-S62-100A-G2
EMMS-AS-100-...	3637960	EAMM-A-S62-100A-G2
EMMS-AS-140-...	3637969	EAMM-A-S62-140A-G2
With servo motor and gear unit		
EMMS-AS-55-...	2297649	EAMM-A-S62-60G-G2
EMGA-60-P-G...-SAS-55		
EMME-AS-60-...	1456654	EAMM-A-S62-60H-G2
EMGA-60-P-G...-EAS-60		
EMMS-AS-70-...	2297649	EAMM-A-S62-60G-G2
EMGA-60-P-G...-SAS-70		
EMMS-AS-70-...	1972530	EAMM-A-S62-80G-G2
EMGA-80-P-G...-SAS-70		
EMME-AS-80-...	1972530	EAMM-A-S62-80G-G2
EMGA-80-P-G...-EAS-80		
EMME-AS-100-...	1972530	EAMM-A-S62-80G-G2
EMGA-80-P-G...-SAS-100		
EMMS-AS-100-...	1972530	EAMM-A-S62-80G-G2
EMGA-80-P-G...-SAS-100		
With stepper motor		
EMMS-ST-87	3637966	EAMM-A-S62-87A-G2
With stepper motor and gear unit		
EMMS-ST-57-...	2297649	EAMM-A-S62-60G-G2
EMGA-60-P-G...-SST-57		
EMMS-ST-87-...	1972530	EAMM-A-S62-80G-G2
EMGA-80-P-G...-SST-87		
With integrated drive and gear unit		
EMCA-EC-67-...-	1456654	EAMM-A-S62-60H-G2
EMGC-60-...		
ELGA-BS-KF-150		
With servo motor		
EMME-AS-100-...	3637955	EAMM-A-S95-100A-G2
EMMS-AS-100-...	3637955	EAMM-A-S95-100A-G2
EMMS-AS-140-...	3637954	EAMM-A-S95-140A-G2

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

04

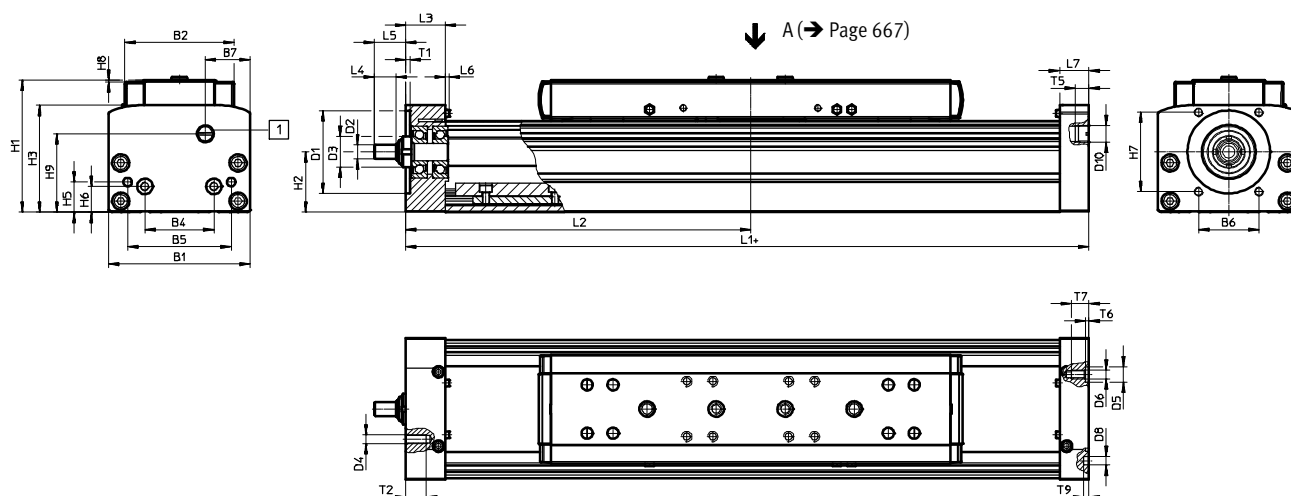
Electromechanical drives

Linear drives and slides >

Spindle axes ELGA-BS-KF, with recirculating ball bearing guide

Dimensions

Download CAD data → www.festo.com



+ = plus stroke length + 2 x stroke reserve

1 Sealing air connection

Size	B1	B2	B4	B5	B6	B7	D1 Ø	D2 Ø	D3 Ø	D4	D5 Ø H7
70	69	48.2	30	45	29	21.5	38	6	SW13	M5	–
80	82	63.2	40	60	35	26	48	8	18	M5	9
120	120	95	80	40	64	35	62	12	28	M6	–
150	154	125	40	80	80	42	95	25	44	M8	–

Size	D6	D8 Ø H7	D10	H1	H2	H3	H5	H6	H7	H8	H9	L1
70	M5	5	G1/8	64	28.5	50.5	13	13	36	1	37.5	268
80	M5	5	G1/8	76.5	35	62	17.5	15	46	1	45.5	296
120	M8	9	G1/8	111.5	54	89	22	22	54	1	65.5	409
150	M8	9	G1/8	141.5	72.5	122	26.5	26.5	80	1	91	512

Size	L2 min.	L3	L4	L5	L6	L7	T1	T2	T5	T6	T7	T9
70	133.5	21	8	14	2.3	16	2.5	12	8	–	10	3.1
80	148.2	23	12.5	18	2.3	17	2.5	12	8	2.1	10.1	3.1
120	202.3	33	17.5	25.5	1.8	30	3	15	8	–	16	2.1
150	235.7	43	23	30.5	3.5	37	3	20	8	–	16	2.1

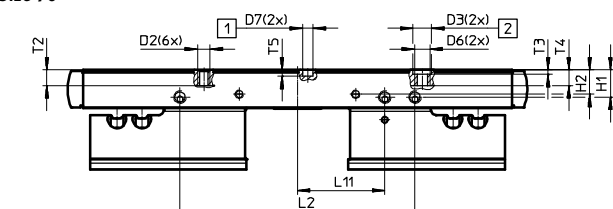
Spindle axes ELGA-BS-KF, with recirculating ball bearing guide

Dimensions

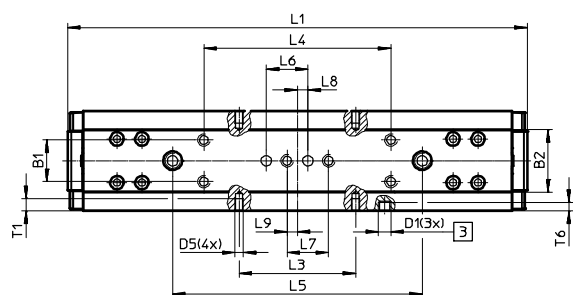
Download CAD data → www.festo.com

Slide

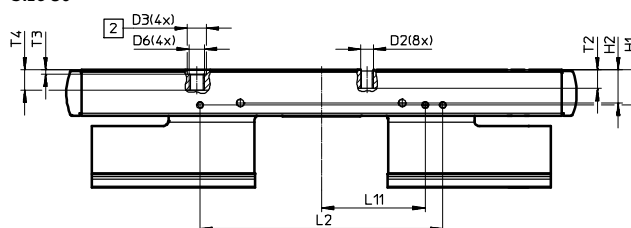
Size 70



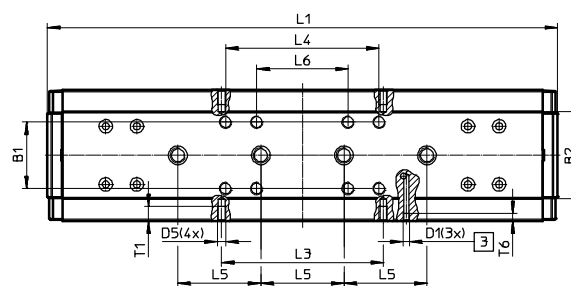
View A



Size 80



View A



- 1 Drill hole for centring pin ZBS
2 Drill hole for centring sleeve ZBH
3 Lubrication connections

Size	B1	B2	D1	D2	D3 Ø H7	D5	D6	D7 Ø H7	H1	H2	L1	L2	L3	L4
	±0.1	±0.2							±0.1			±0.1	±0.1	±0.1
70	20	30	M6	M5	9	M4	M6	5	13.1	11.7	221	113	56	90
80	32	42	M6	M5	9	M4	M6	—	16.5	16	246	120	78	74

Size	L5	L6	L7	L8	L9	L11	T1	T2	T3	T4	T5	T6	
	±0.03	±0.1	±0.03						+0.1		+0.1	min.	max.
70	120	20	20	5	5	42	6	7.5	2.1	7.5	3.1	4.2	4.6 _{-0.1}
80	40	44	—	—	—	50.5	8	9	2.1	9.7	—	5.6	5.9 _{-0.1}

Linear drives and slides >

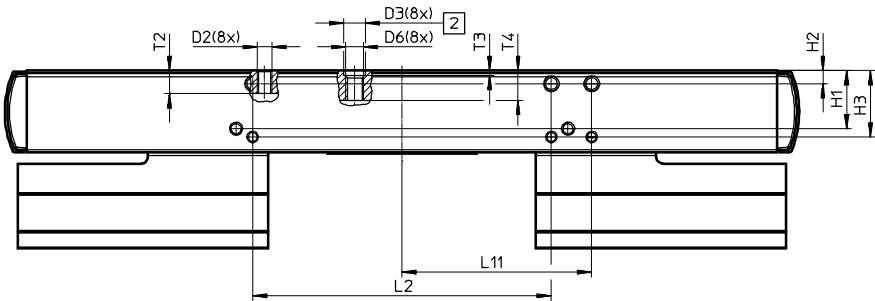
Spindle axes ELGA-BS-KF, with recirculating ball bearing guide

Dimensions

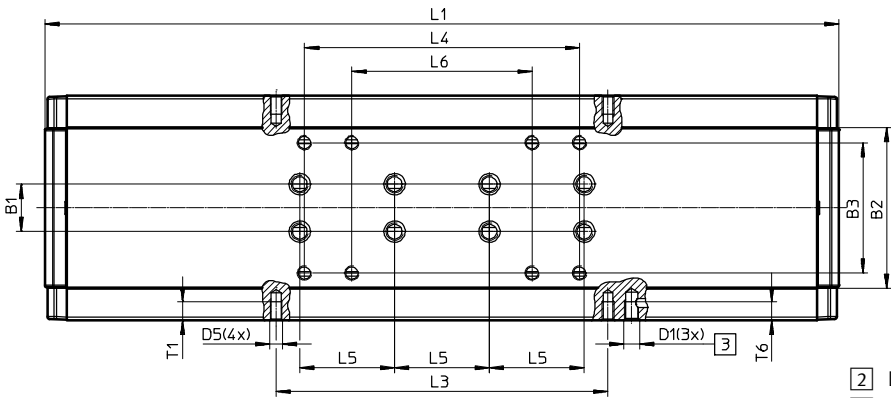
Download CAD data → www.festo.com

Slide

Size 120



View A



- 2 Drill hole for centring sleeve ZBH
- 3 Lubrication connections

Size	B1	B2	B3	D1	D2	D3 Ø H7	D5	D6	H1	H2	H3	L1
120	±0.03 20	±0.2 68	±0.1 55	M6	M5	9	M5	M6	24.5	5.5	28	335

Size	L2	L3	L4	L5	L6	L11	T1	T2	T3	T4	T6
	±0.1	±0.1	±0.2	±0.03	±0.2				+0.1		
120	126	140	116	40	76	80	8	9.7	2.1	12.55	8

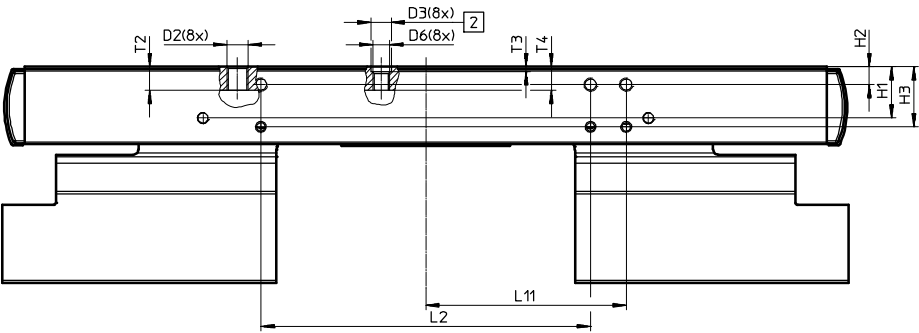
Spindle axes ELGA-BS-KF, with recirculating ball bearing guide

Dimensions

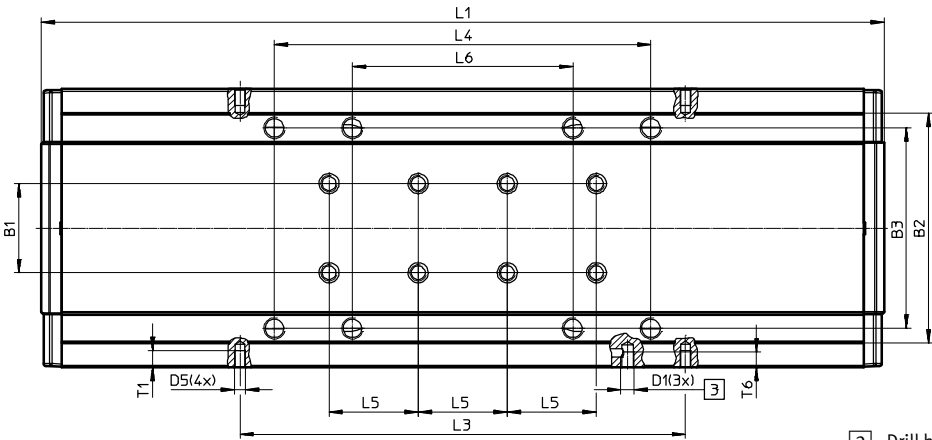
Download CAD data www.festo.com

Slide

Size 150



View A



- [2] Drill hole for centring sleeve ZBH
- [3] Lubrication connections

Size	B1	B2	B3	D1	D2	D3 Ø H7	D5	D6	H1	H2	H3	L1
150	40 ±0.03	103 ±0.2	90 ±0.1	M6	M8	9	M5	M6	23	8	27	378.4

Size	L2	L3	L4	L5	L6	L11	T1	T2	T3	T4	T6
150	148 ±0.1	200 ±0.1	169 ±0.2	40 ±0.03	99 ±0.2	90	7.5	10.7	2.1 +0.1	14	7

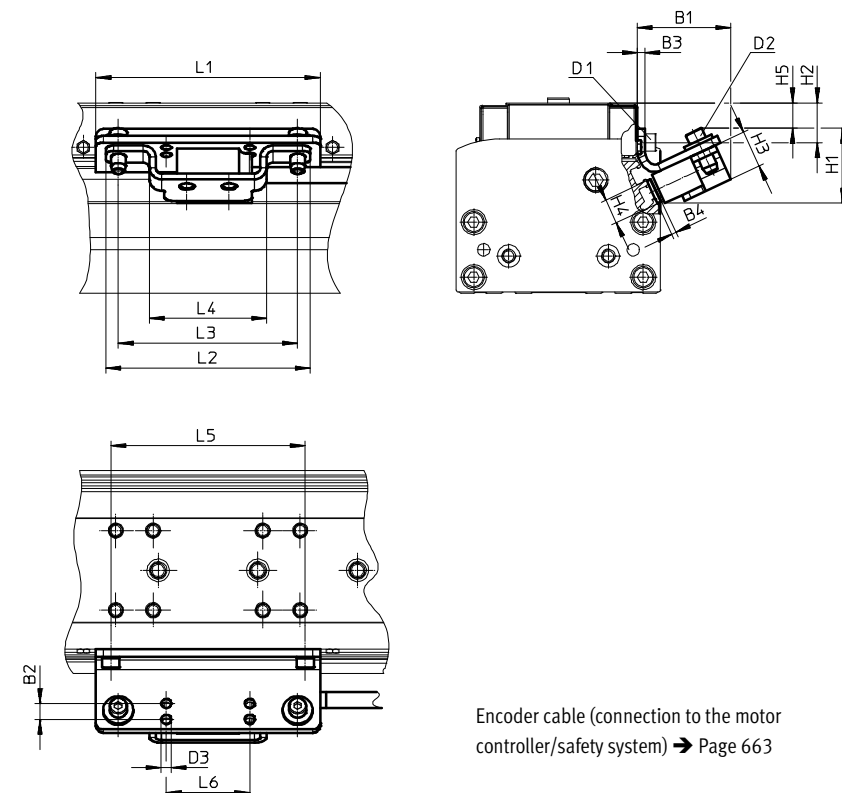
Linear drives and slides >

Spindle axes ELGA-BS-KF, with recirculating ball bearing guide

Dimensions

Download CAD data → www.festo.com

M1/M2 – With incremental displacement encoder



Size	B1	B2	B3	B4	D1	D2	D3 Ø	H1	H2
70	40	7	3	1.8	M4x8	M4x14	4	35	11.7
80	40	7	3	1.8	M4x14	M4x14	4	35	16
120	41	7	3	1.8	M4x14	M4x14	4	35	24.5
150	42	7	3	1.8	M5x10	M4x14	4	35	23

Size	H3	H4	H5	L1	L2	L3	L4	L5	L6
70	15	10	3.5	86	82	72	47	56	33.5
80	15	10	9	90	82	72	47	78	33.5
120	15	10	21	170	82	72	47	140	33.5
150	15	10	22.4	220	82	72	47	200	33.5



High-performance rotation

- + Heavy-duty bearing for high forces and torques
- + Backlash-free pre-stressed rotating plate with very good axial eccentricity and concentricity properties
- + Easy: also as an Optimised Motion Series (OMS) with motor controller and cable in one drive package

Semi-rotary drives >

Rotary drives, electric

ERMO

Semi-rotary drives >

Rotary drives, electric

ERMO



Overview, configuration and ordering

→ www.festo.com/catalogue/ermo



Additional information, support and user documentation

→ www.festo.com/sp/ermo



- + With stepper motor and integrated gear unit
- + ServoLite – closed-loop operation with encoder
- + Simple and direct mounting on EGSL and EPCO with EAGF
- + Optional holding brake
- + Hollow shaft for energy throughfeed for attachments

Product range overview

Type/version	Size	Product options									
		ST	E	B	L	R	C5	DIO	LK	N	P
ERMO											
Rotary drive	12	■	■	–	■	■	■	■	■	■	■
	16, 20, 32	■	■	■	■	■	■	■	■	■	■

Product options

ST	Stepper motor	P2	Pneumatic energy throughfeed	C5	Motor controller CMMO	N	Switching input/output NPN
E	With encoder	E8	Electric energy throughfeed	DIO	Activation via digital I/O interface	P	Switching input/output PNP
B	With brake			LK	Activation IO-Link		
L	Cable outlet to the left						
R	Cable outlet to the right						

Optionally available as Optimised Motion Series (OMS)

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



Easy selection

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

Ordering and logistics

- All the necessary individual components under a single part number
- Motors mounted on rotary drive

Quick to configure

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



For simple positioning tasks

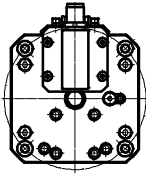
Rotary drive ERMO



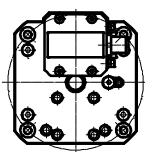
Motor controller CMMO
➔ Page 827



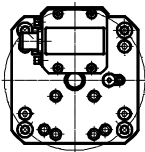
Motor attachment variants
Top (standard)



Left (feature L)



Right (feature R)



Semi-rotary drives >

Rotary drives ERMO, electric

Data sheet



Technical data

Size		12	16	25	32
Rotation angle		Infinite			
Repetition accuracy ¹⁾	[°]	±0.05	±0.05	±0.05	±0.1
Torsional backlash ¹⁾	[°]	0.2			
Gear ratio		9:1	9:1	9:1	7:1
Nominal torque	[Nm]	0.15	0.8	2.5	5
Nominal rotational speed	[rpm]	100	100	66	50
Max. speed	[rpm]	200	200	150	100
Permissible mass moment of inertia	[kgm ² x10 ⁻⁴]	3	13	65	164
Mass moment of inertia Jo	[kgm ² x10 ⁻⁴]	0.0079	0.0383	0.114	0.390

1) Without payload in new condition.

Electrical data

Size		12	16	25	40
Motor					
Nominal operating voltage	[V DC]	24			
Nominal current	[A]	0.8	1.4	3	4.2
Step angle with full step	[°]	1.8 ±5%			
Duty cycle	[%]	100			
Brake					
Nominal voltage	[V DC]	–	24	24	24
Nominal power	[W]	–	8	8	8
Holding torque	[Nm]	–	1	2.5	2.5
Mass moment of inertia	[kgm ² x10 ⁻⁴]	–	0.69	1.3	1.3
Encoder					
Rotor position encoder		Incremental			
Rotary position encoder measuring principle		Optical			
Pulses/rotation	[1/rev]	500			
Interface		RS422, TTL, AB channel + zero index			
Operating voltage	[V DC]	5			

Operating conditions

Ambient temperature ²⁾	[°C]	0 ... +50
Degree of protection		IP40

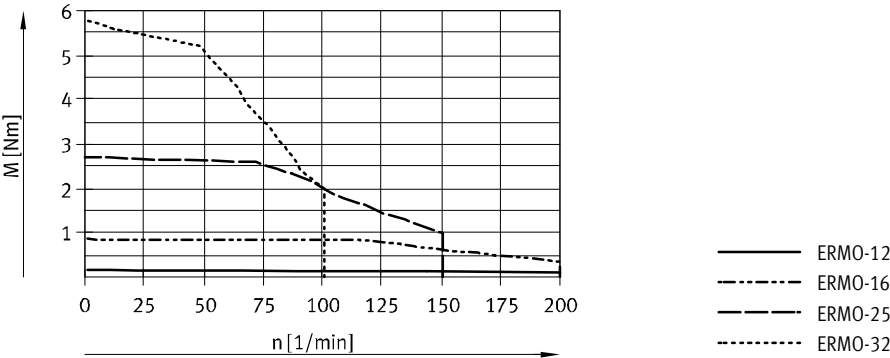
2) Note range of application of proximity sensors and motors.

Data sheet

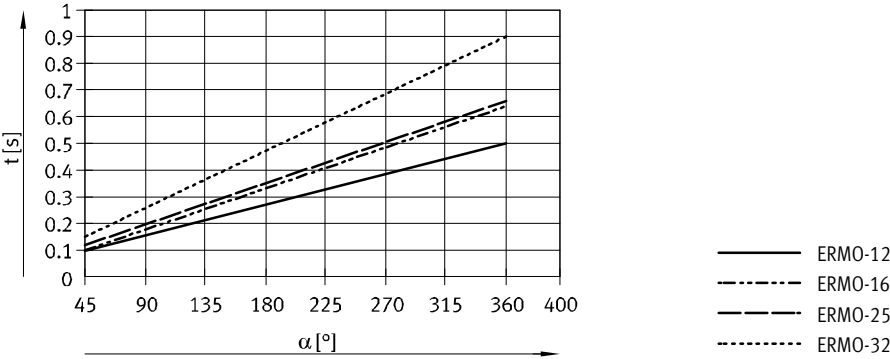
Max. permissible axial and radial force F _x /F _z ¹⁾					
Static forces					
Size		12	16	25	32
Static					
Axial force F _x	[N]	500	600	700	800
Radial force F _z	[N]	500	750	1200	2000
Dynamic					
Axial force F _x	[N]	180	290	350	450
Radial force F _z	[N]	200	300	450	550

1) The forces depend on the lever arm.

Torque M as a function of rotational speed n



Positioning time t as a function of rotation angle α



Materials	
Housing	Anodised wrought aluminium alloy
Clamping ring	Anodised wrought aluminium alloy
Rotating plate	Anodised wrought aluminium alloy
Ball bearing	Rolled steel
Sealing ring	NBR

Semi-rotary drives >

Rotary drives ERMO, electric

Order code

04

Electromechanical drives

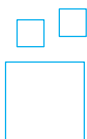
Type		Size		Motor type		Measuring unit		Brake		Cable outlet direction		Connecting cable to motor controller		Controller type		Bus protocol/activation		Switching input/output	
ERMO	Rotary drive	12, 16, 25, 32		ST	Stepper motor	E	With encoder	-	None	-	Top (standard)	-	None	-	None	-	None	-	None
								B	With brake	L	Left	1.5E	1.5 m, straight plug	C5	CMMO, 5A	DIO	Digital I/O interface	N	NPN
										R	Right	2.5E	2.5 m, straight plug			LK	IO-Link	P	PNP
												5E	5 m, straight plug						
												7E	7 m, straight plug						
												10E	10 m, straight plug						
												1.5EA	1.5 m, angled plug						
												2.5EA	2.5 m, angled plug						
												5EA	5 m, angled plug						
												7EA	7 m, angled plug						
												10EA	10 m, angled plug						

- 1
Not with size 12.
- 2
Not with size 12 and 16.
- 3
Only in combination with motor controller C5.
- 4
Not with IO-Link LK.

Order example: ERMO-25-ST-EB-L+5EA+C5DION

Rotary drive - size 25 - stepper motor - with encoder - with brake - with cable outlet to the left - connecting cable 5 m , angled plug - with motor controller CMMO - with activation via digital I/O interface - with switching input/output NPN

Ordering – Product options



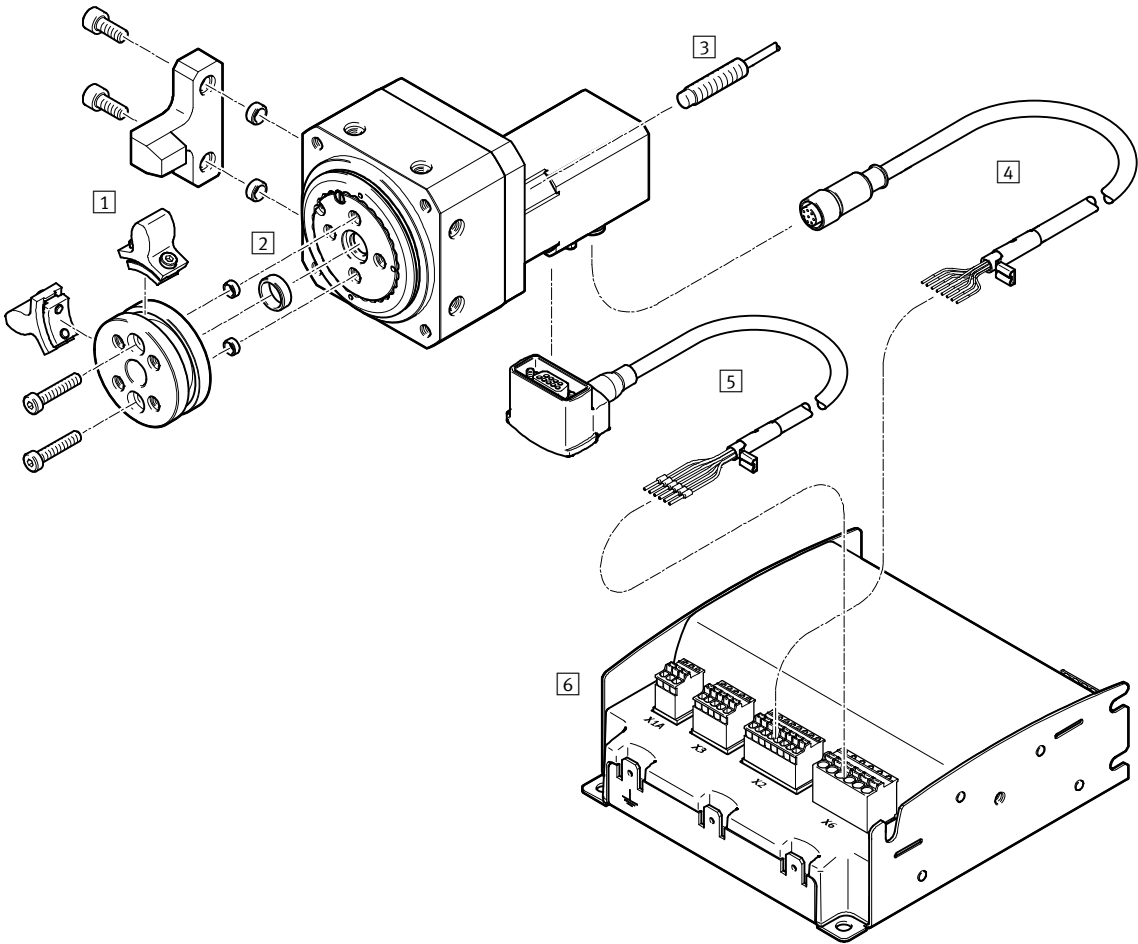
Configurable product

This product and all its options can be ordered using the configurator.

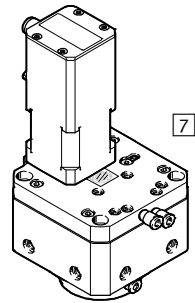
The configurator can be found under Products on the DVD or
→ www.festo.com/catalogue/...

Enter the type code in the search field.

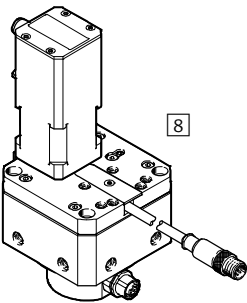
Accessories



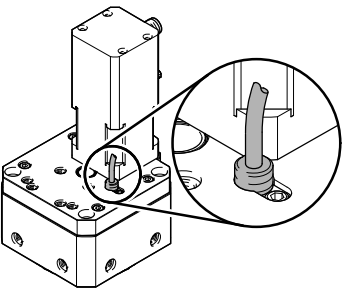
Pneumatic energy throughfeed



Electric energy throughfeed



Proximity sensor SIEN



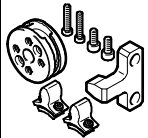
	→ Page/online
1 Stop kit EADP	678
2 Centring sleeve ZBH	678
3 Proximity sensor SIEN	678
4 Encoder cable NEBM	679

	→ Page/online
5 Motor cable NEBM	679
6 Motor controller CMMO	679
7 Pneumatic energy throughfeed	ermo
8 Electric energy throughfeed	ermo

Semi-rotary drives >

Rotary drives ERMO, electric

Accessories – Ordering data

	For size	Part no.	Type
1 Stop kit			Data sheets online: → eadp
	12	3044562	EADP-ES-R3-12
	16	2715501	EADP-ES-R3-16
	25	2721599	EADP-ES-R3-25
	32	2735411	EADP-ES-R3-32

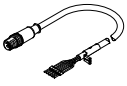
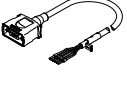
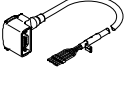
	For size	Part no.	Type
2 Centring sleeve			Data sheets online: → zbh
	12, 16	186717	ZBH-7 ¹⁾⁴⁾
	25	150927	ZBH-9 ¹⁾⁴⁾
	32	189653	ZBH-12 ¹⁾⁴⁾
	12 ... 32	186717	ZBH-7 ²⁾⁴⁾
	12, 16	189653	ZBH-12 ³⁾⁴⁾
	25	191409	ZBH-15 ³⁾⁴⁾
	32	150901	SLZZ-25/16 ³⁾⁵⁾

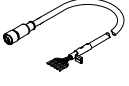
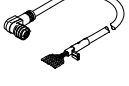
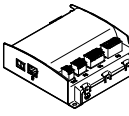
- 1) For centring the drive for lateral mounting.
- 2) For centring attachments on the rotating plate.
- 3) For centring attachments in the middle of the rotating plate.
- 4) Packaging unit 10 pieces.
- 5) Packaging unit 1 piece.

	For size	Switching output, connection	Cable length [m]	Part no.	Type
3 Inductive proximity sensor – N/O contact, M5 Data sheets → Page 1230					
	12	PNP, cable	2.5	★ 150370	SIEN-M5B-PS-K-L
		PNP, plug	–	★ 150371	SIEN-M5B-PS-S-L
N/C contact, M5 Data sheets → Page 1230					
	12	PNP, cable	2.5	150374	SIEN-M5B-PO-K-L
		PNP, plug	–	150375	SIEN-M5B-PO-S-L
N/O contact, M8 Data sheets → Page 1230					
	16 ... 32	PNP, cable	2.5	★ 150386	SIEN-M8B-PS-K-L
		PNP, plug	–	★ 150387	SIEN-M8B-PS-K-L
N/C contact, M8 Data sheets → Page 1230					
	16 ... 32	PNP, cable	2.5	150390	SIEN-M8B-PO-K-L
		PNP, plug	–	150391	SIEN-M8B-PO-K-L

	For size	Connection	Cable length [m]	Part no.	Type
Connecting cable, straight socket					Data sheets → Page 1543
	16 ... 32	M8x1, 3-pin	2.5	159420	SIM-M8-3GD-2,5-PU
			2.5	★ 541333	NEBU-M8G3-K-2.5-LE3
			5.0	★ 541334	NEBU-M8G3-K-5-LE3
Angled socket					Data sheets → Page 1543
	16 ... 32	M8x1, 3-pin	2.5	★ 541338	NEBU-M8W3-K-2.5-LE3
			5.0	★ 541341	NEBU-M8W3-K-5-LE3

Accessories – Ordering data

	Cable length [m]	Part no.	Type
4 Motor cable¹⁾			
For ERMO-12, 16			
Straight plug			
	1.5	1449600	NEBM-SM12G8-E-1.5-Q5-LE6
	2.5	1449601	NEBM-SM12G8-E-2.5-Q5-LE6
	5.0	1449602	NEBM-SM12G8-E-5-Q5-LE6
	7.0	1449603	NEBM-SM12G8-E-7-Q5-LE6
	10.0	1449604	NEBM-SM12G8-E-10-Q5-LE6
For ERMO-25, 32			
Straight plug			
	1.5	1450368	NEBM-S1G9-E-1.5-Q5-LE6
	2.5	1450369	NEBM-S1G9-E-2.5-Q5-LE6
	5.0	1450370	NEBM-S1G9-E-5-Q5-LE6
	7.0	1450371	NEBM-S1G9-E-7-Q5-LE6
	10.0	1450372	NEBM-S1G9-E-10-Q5-LE6
Angled plug			
	1.5	1450736	NEBM-S1W9-E-1.5-Q5-LE6
	2.5	1450737	NEBM-S1W9-E-2.5-Q5-LE6
	5.0	1450738	NEBM-S1W9-E-5-Q5-LE6
	7.0	1450739	NEBM-S1W9-E-7-Q5-LE6
	10.0	1450740	NEBM-S1W9-E-10-Q5-LE6

	Cable length [m]	Part no.	Type
5 Encoder cable¹⁾			
For ERMO-12, 16, 25, 32			
Straight plug			
	1.5	1451586	NEBM-M12G8-E-1.5-LE8
	2.5	1451587	NEBM-M12G8-E-2.5-LE8
	5.0	1451588	NEBM-M12G8-E-5-LE8
	7.0	1451589	NEBM-M12G8-E-7-LE8
	10.0	1451590	NEBM-M12G8-E-10-LE8
For ERMO-25, 32			
Angled plug			
	1.5	1451674	NEBM-M12W8-E-1.5-LE8
	2.5	1451675	NEBM-M12W8-E-2.5-LE8
	5.0	1451676	NEBM-M12W8-E-5-LE8
	7.0	1451677	NEBM-M12W8-E-7-LE8
	10.0	1451678	NEBM-M12W8-E-10-LE8
	Function	Part no.	Type
6 Motor controller			
Data sheets → Page 827			
	With I/O interface		
	PNP	1512316	CMMO-ST-C5-1-DIOP
	NPN	1512317	CMMO-ST-C5-1-DION
	With IO-Link		
	PNP	1512320	CMMO-ST-C5-1-LKP

1) Other cable lengths on request.

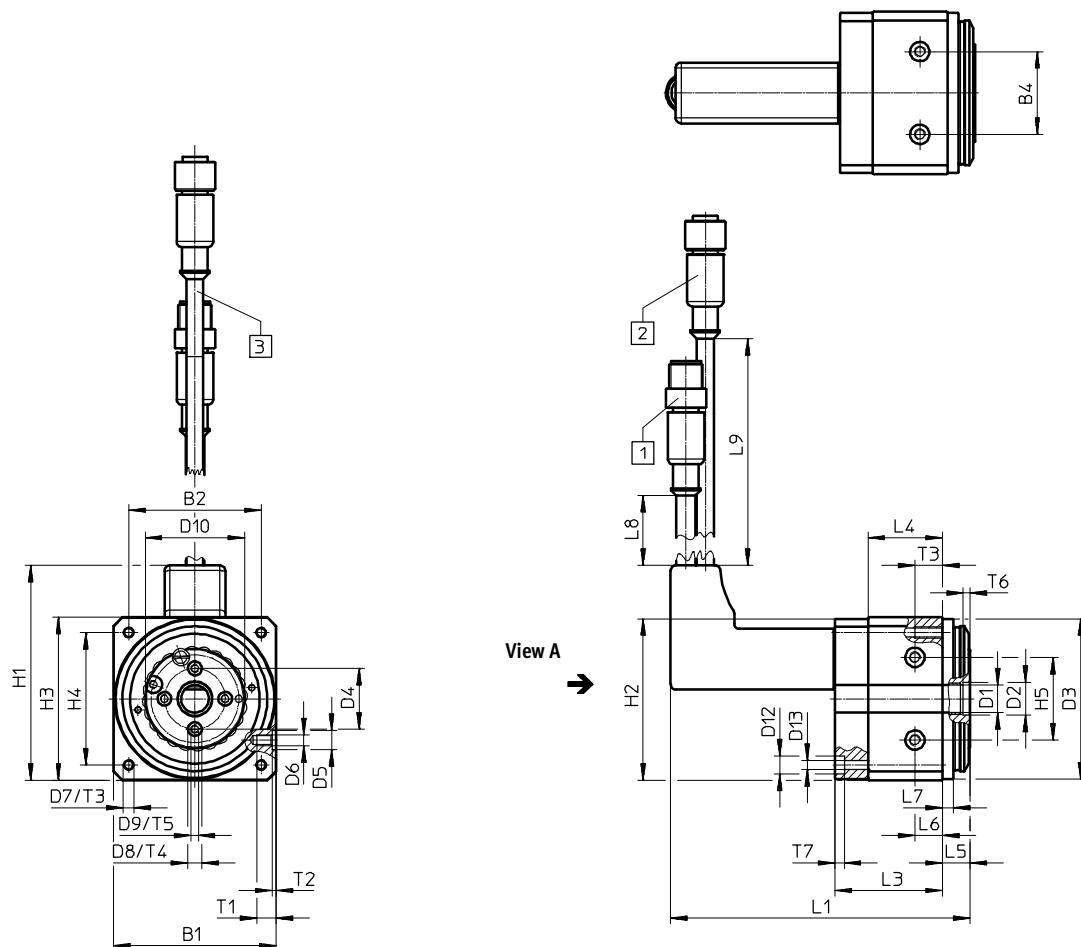
Semi-rotary drives >

Rotary drives ERMO, electric

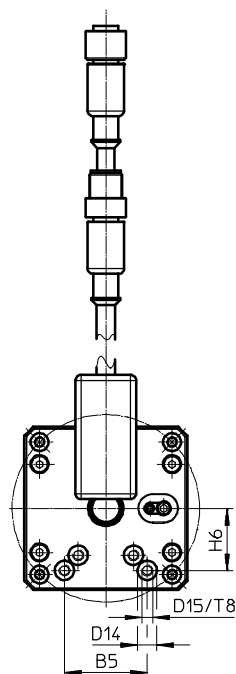
Dimensions

ERMO-12

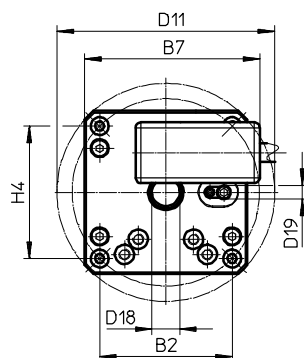
Download CAD data → www.festo.com



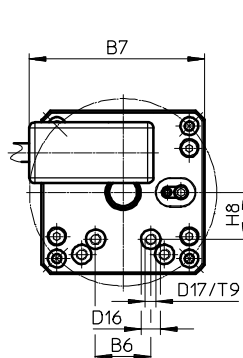
View A



ERMO-...-L



ERMO-...-R



- 1 Encoder cable
- 2 Motor cable
- 3 Min. bending radius of cables: 60 mm

Rotary drives ERMO, electric

Dimensions

Download CAD data → www.festo.com

Size	B1	B2	B4	B5	B6	B7	D1	D2	D3	D4
	±0.3		±0.03	±0.02	±0.02		∅	∅ H8	∅ f8	∅ ±0.02
12	59	48	30	30	20	46	10/7 ¹⁾	12	58	22

Size	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14
	∅ H7			∅ H7		∅	∅ ±0.5	∅	∅	∅ H7
12	7	M4	M4	5	M3	36	79	6.5	3.4	7

Size	D15	D16	D17	D18	D19	H1	H2	H3	H4	H5
		∅ H7		max.				±0.3		±0.03
12	M4	7	M4	7	M5x0.5	80	58.5	59	48	30

Size	H6	H8	L1	L3	L4	L5	L6	L7	L8	L9
			±1.5	±0.6		±0.2	±0.1	±0.1		
12	22.5	17	100	39	27	10	10	4	300	300

Size	T1	T2	T3	T4	T5	T6	T7	T8	T9
		+0.1		+0.1		+0.1			
12	7	1.5	10	1.2	7	2.5	3.4	1.5	1.5

1) With attached motor.

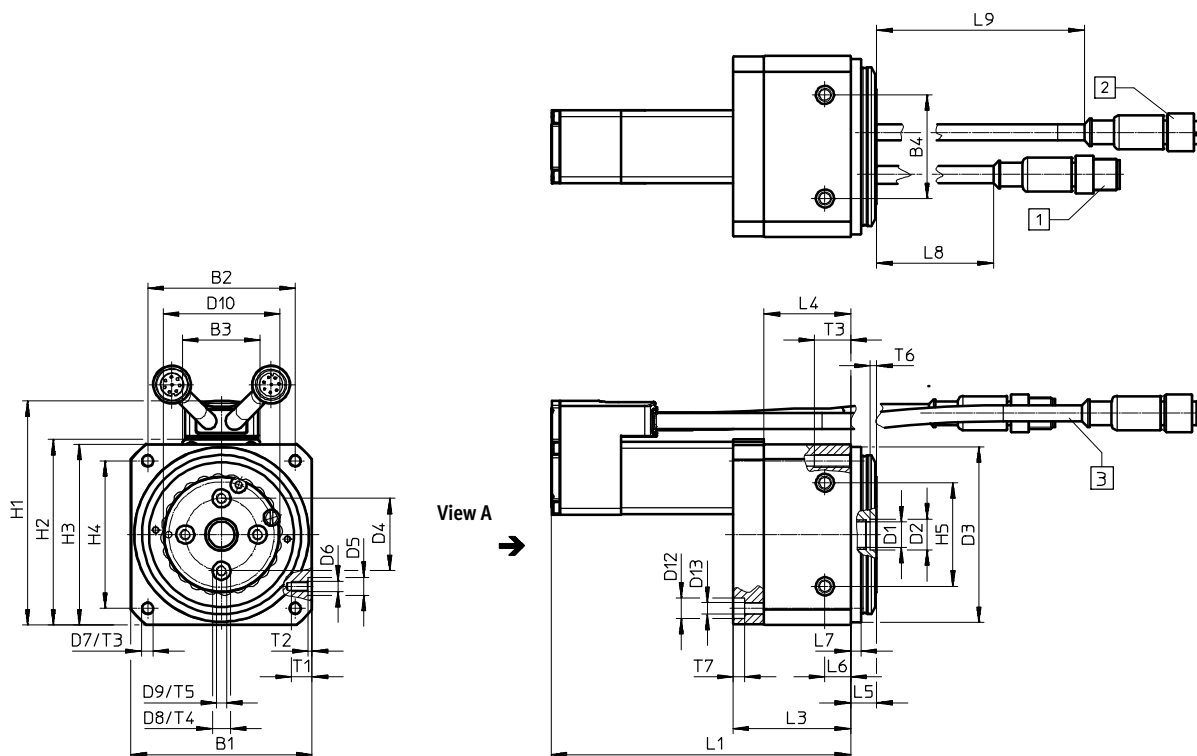
Semi-rotary drives >

Rotary drives ERM0, electric

Dimensions

ERM0-16

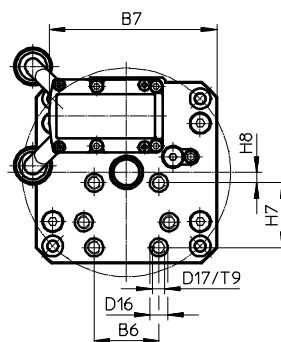
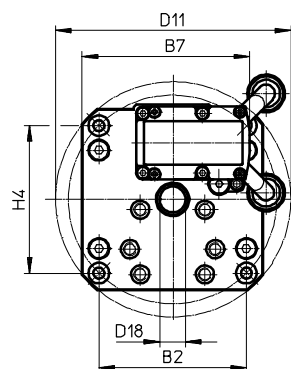
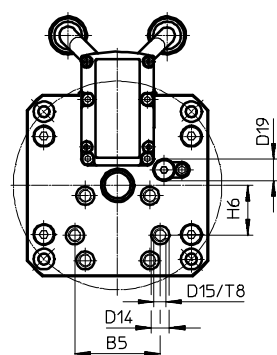
Download CAD data → www.festo.com



View A

ERM0-...-L

ERM0-...-R



- 1 Encoder cable
- 2 Motor cable
- 3 Min. bending radius of cables: 60 mm

Rotary drives ERMO, electric

Dimensions

Download CAD data → www.festo.com

Size	B1 ±0.3	B2	B3	B4 ±0.03	B5 ±0.02	B6 ±0.02	B7	D1 ∅	D2 ∅ H8	D3 ∅ f8
16	70	57	30	40	33	25	65	10	12	68

Size	D4 ∅ ±0.02	D5 ∅ H7	D6	D7	D8 ∅ H7	D9	D10 ∅	D11 ∅ ±0.5	D12 ∅	D13 ∅
16	28	7	M5	M5	7	M4	45	91	8	4.6

Size	D14 ∅ H7	D15	D16 ∅ H7	D17	D18 max.	D19	H1	H2	H3 ±0.3	H4
16	7	M5	7	M5	–	M8x1	87	71.8	70	57

Size	H5 ±0.03	H6	H7 ±0.02	H8	L1 ±1.5	L3 ±0.6	L4	L5 ±0.2	L6 ±0.1	L7 ±0.1
16	40	19.3	25	4	116/142 ¹⁾	45.5	33.5	10	10	4

Size	L8	L9	T1	T2 +0.1	T3	T4 +0.1	T5	T6 +0.1	T7	T8	T9
16	250	350	8	1.5	14	1.5	8	2.5	4.5	1.5	1.5

1) Motor with brake.

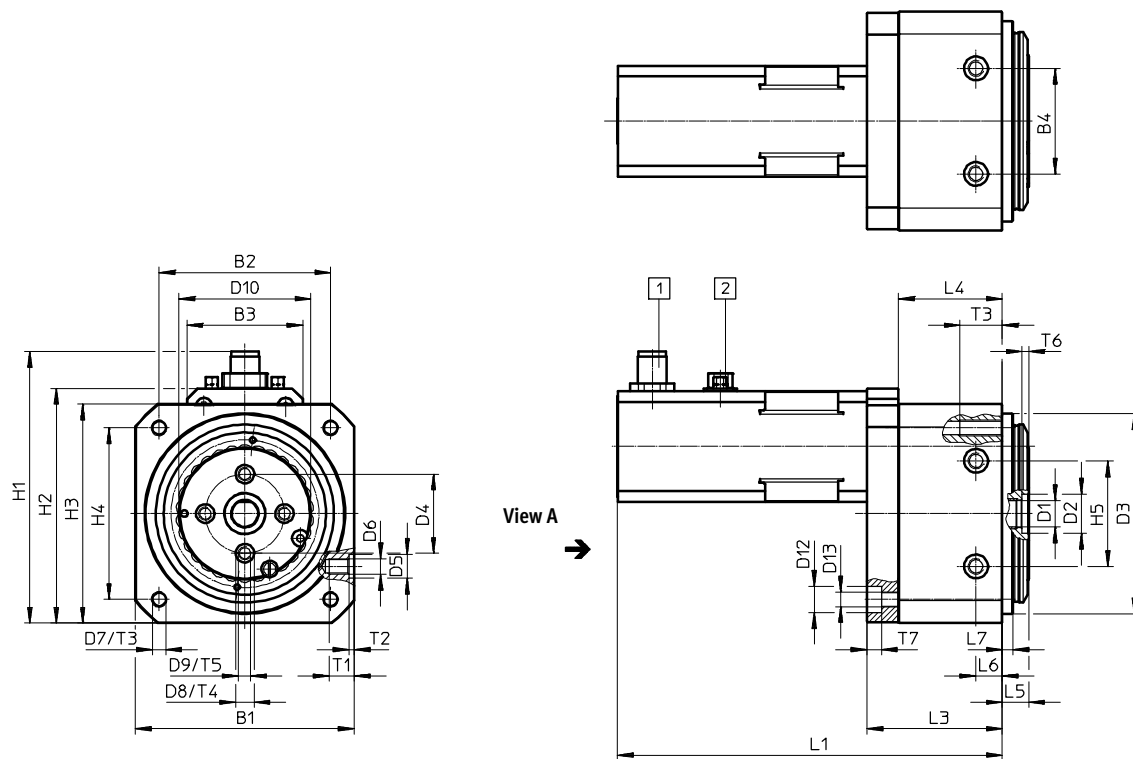
Semi-rotary drives >

Rotary drives ERMO, electric

Dimensions

ERMO-25/32

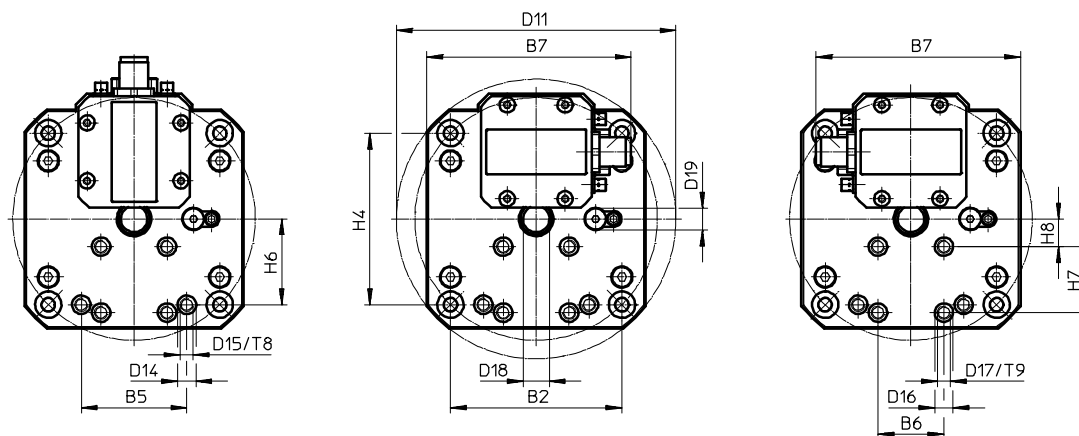
Download CAD data → www.festo.com



View A

ERMO-...-L

ERMO-...-R



- 1 Encoder connection
- 2 Motor connection

Rotary drives ERMO, electric

Dimensions

Download CAD data → www.festo.com

Size	B1 ±0.3	B2	B3	B4 ±0.03	B5 ±0.02	B6 ±0.02	B7	D1 ∅	D2 ∅ H8	D3 ∅ f8
25	83	65	44	40	40	25	78	10	15	76
32	105	85	58	60	–	25	96	16/9 ¹⁾	20	96

Size	D4 ∅ ±0.02	D5 ∅ H7	D6	D7	D8 ∅ H7	D9	D10 ∅	D11 ∅ ±0.5	D12 ∅	D13 ∅
25	30	9	M6	M6	7	M5	50	106	10	5.5
32	42	12	M8	M8	7	M5	65	135	11	6.6

Size	D14 ∅ H7	D15	D16 ∅ H7	D17	D18 max.	D19	H1	H2	H3 ±0.3	H4
25	7	M5	7	M5	10	M8x1	103	89	83	65
32	–	–	7	M5	9	M8x1	125	110.5	105	85

Size	H5 ±0.03	H6	H7 ±0.02	H8	L1 ±1.5	L3 ±0.6	L4	L5 ±0.2	L6 ±0.1	L7 ±0.1
25	40	32.5	25	10.5	146/179 ²⁾	51.3	39.3	10	10	4
32	60	–	25	15	148/189 ²⁾	46.5	34.5	12	10	6

Size	T1	T2 +0.1	T3	T4 +0.1	T5	T6 +0.1	T7	T8	T9
25	9.5	2	16	1.5	8.5	2.5	5.5	1.5	1.5
32	15	2.5	20	1.5	10	2.8	6.8	–	1.5

1) With attached motor.

2) Motor with brake.

Semi-rotary drives >

04

Electromechanical drives



Flexible rotation angles

- + High force and torque absorption thanks to stable output interface bearings
- + Simple mounting: the rotary module can be attached to 6 sides, fixed or as a front unit
- + Output interface with large internal diameter makes laying power supply lines easy, convenient and safe

Semi-rotary drives ›

Rotary modules

ERMB

Semi-rotary drives >

Rotary modules

ERMB



Overview, configuration and ordering

→ www.festo.com/catalogue/ermb



Additional information, support and user documentation

→ www.festo.com/sp/ermb



Spare parts service



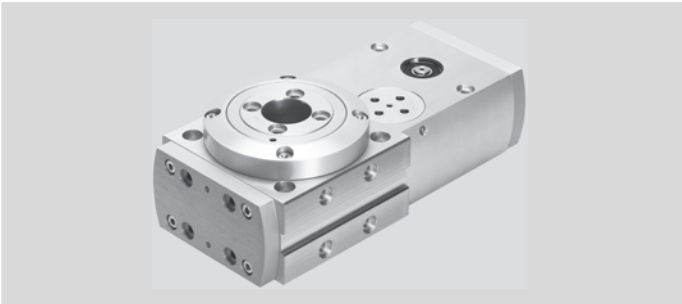
- + Unlimited and flexible rotation angles thanks to recirculating toothed belt
- + Large energy throughfeed for attachments
- + Mounting interfaces on all sides for fixed installation or as a front unit
- + Stable output shaft bearings for absorbing high forces and torques

Rotary modules ERMB, electric

Product range overview

Type/version	Size	Rotation angle [°]	Driving torque [Nm]	Output torque [Nm]
ERMB				
Rotary module	20, 25, 32	Infinite	0.7 ... 8.5	3.15 ... 25.5

Data sheet



Technical data

Dimensions → Page 694

Size		20	25	32
Drive pinion Ø	[mm]	6	8	12
Rotation angle		Infinite		
Repetition accuracy ¹⁾				
With servo motor EMMS-AS	[°]	±0.03		
With stepper motor EMMS-ST ²⁾	[°]	±0.08		
With integrated drive EMCA	[°]	±0.05		
Transmission ratio		4.5:1	4:1	3:1
Max. driving torque	[Nm]	0.7	2.2	8.5
Max. output torque ³⁾	[Nm]	3.15	8.8	25.5
Average no-load driving torque ⁴⁾	[Nm]	< 0.07	< 0.18	≤ 0.5
Max. input speed	[rpm]	1350	1200	900
Max. output speed	[rpm]	300	300	300

- 1) As per FN 942 027. The specifications apply only when the motor is directly mounted. If a gear unit is also installed, the repetition accuracy will be different.
- 2) Dependent on the encoder resolution.
- 3) Output torque minus friction dependent on speed.
- 4) At maximum rotational speed.

Note

Note the maximum permissible driving torque of the rotary module ERMB.
The motor current may need to be limited.

Mass moment of inertia				
Size		20	25	32
Max. mass moment of inertia ⁵⁾	[kgcm ²]	1000	5000	10000
Max. inertia factor ⁶⁾				
For servo motor EMMS-AS/EMME-AS		45		
For stepper motor EMMS-ST		30		

- 5) These values indicate the upper limit regardless of the value determined using the inertia factor.
- 6) The inertia factor is the max. adjustable ratio between the inertia of the load and the intrinsic inertia of the motor with brake.

Example:
Rotary/lifting module ERMB-20 → gear ratio i = 4.5
Motor EMME-AS-40-S with brake → intrinsic inertia 0.055 kgcm²
Gear unit EMGA-40-P-G3-40 → gear ratio i = 3

Limit for inertia of load (+ intrinsic inertia) on output side:
0.055 kgcm² x 45 x 3² x 4.5² = 451 kgcm²

Semi-rotary drives >

Rotary modules ERMB, electric

Data sheet

Operating conditions		
Ambient temperature ¹⁾	[°C]	–10 ... +60
Degree of protection		IP20

1) Note operating range of proximity sensors.

Materials	
Cover	Anodised wrought aluminium alloy
Output shaft	Anodised wrought aluminium alloy
Housing	Anodised wrought aluminium alloy
Drive shaft	High-alloy stainless steel
Toothed belt	Polychloroprene with glass fibre

Order code

ERMB

Type
ERMB Rotary module

Size
20
25
32

Order example:
ERMB-25
Rotary module ERMB - size 25

Ordering – Product options

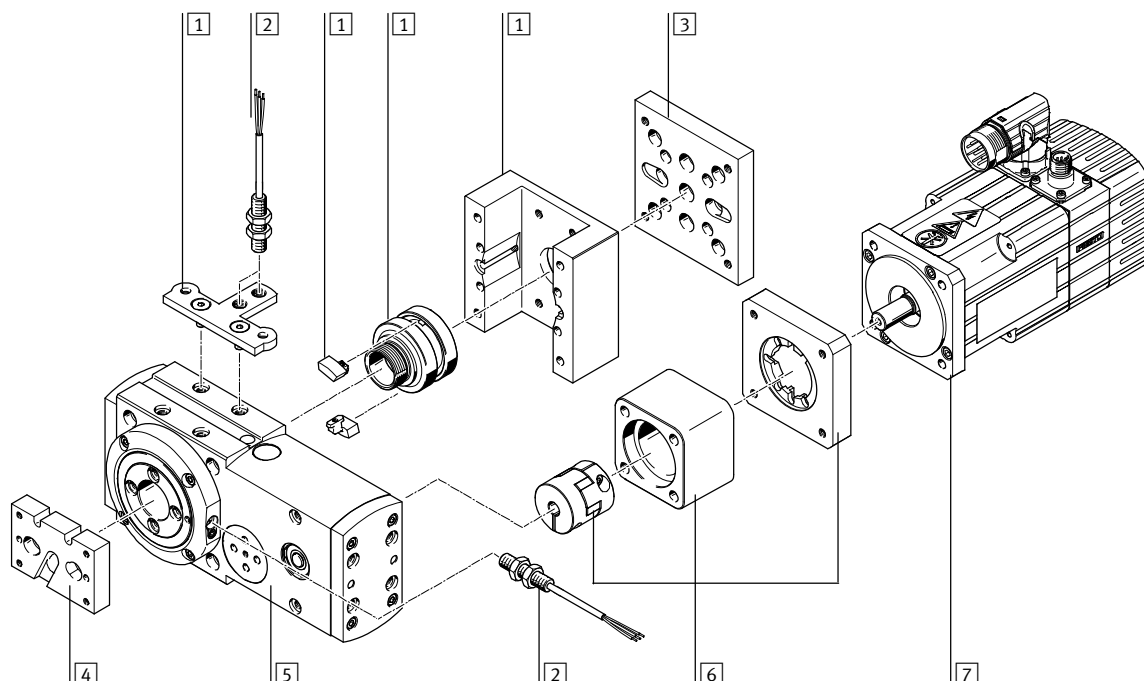
Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
➔ www.festo.com/catalogue/...

Enter the type code in the search field.

Accessories



	→ Page/online
1 Sensing kit EAPS	691
2 Inductive proximity sensor SIEN	691
3 Drive/drive connections	ermb
4 Drive/gripper connections	ermb

	→ Page/online
5 Rotary module ERMB	689
6 Axial kit EAMM-A	692
7 Motor EMME, EMMS, EMCA	692

Accessories – Ordering data

	For size	Part no.	Type
1 Sensing kit Data sheets online: → eamm-a			
	20	558392	EAPS-R1-20-S
	25	558393	EAPS-R1-25-S
	32	558394	EAPS-R1-32-S
Sensing kit without housing			
	20	558395	EAPS-R1-20-S-WH
	25	558396	EAPS-R1-25-S-WH
	32	558397	EAPS-R1-32-S-WH
Cam			
	20, 25, 32	558398	EAPS-R1-CK

1) Packaging unit 10 pieces.

	For size	Part no.	Type
Sensor bracket			
	20, 25	558399	EAPS-R1-20-SH
	32	558400	EAPS-R1-32-SH
Housing			
	20	560673	EAPS-R1-20-H
	25	560674	EAPS-R1-25-H
	32	560675	EAPS-R1-32-H
Centring sleeve¹⁾ Data sheets online: → zbh			
	20	186717	ZBH-7
	25.32	150927	ZBH-9
2 Connecting cable, straight socket Data sheets → Page 1543			
	2.5 m	★ 541333	NEBU-M8G3-K-2.5-LE3
	5 m	★ 541334	NEBU-M8G3-K-5-LE3

	For size	Connection	Cable length [m]	Part no.	Type
2 Inductive proximity sensor – N/O contact, M8 Data sheets ➔ Page 1230					
	20, 25, 32	PNP, cable	2.5	★ 150386	SIEN-M8B-PS-K-L
		PNP, plug	–	★ 150387	SIEN-M8B-PS-S-L
N/C contact, M8 Data sheets ➔ Page 1230					
	20, 25, 32	PNP, cable	2.5	150390	SIEN-M8B-PO-K-L
		PNP, plug	–	150391	SIEN-M8B-PO-S-L

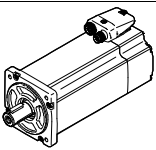
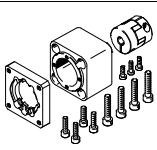
Semi-rotary drives >

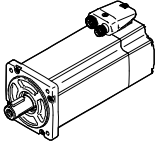
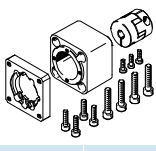
Rotary modules ERM, electric

Accessories – Ordering data

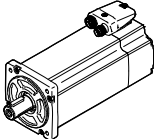
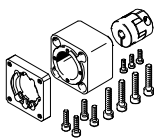
Note

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

Motor/gear unit ¹⁾	Axial kit	
		
	Part no.	Type
6/7 Permissible axis/motor combination with axial kit Data sheets online: eamm-a		
ERMB-20		
With servo motor		
EMME-AS-40-...	2207441	EAMM-A-D32-35A-40P
EMMS-AS-40-...	560281	EAMM-A-D32-35A-40A
EMMS-AS-55-...	550979	EAMM-A-D32-55A
EMME-AS-60-...	1956054	EAMM-A-D32-60P
With servo motor and gear unit		
EMME-AS-40-...	1454238	EAMM-A-D32-40G
EMGA-40-P-G...-EAS-40		
EMMS-AS-40-...	1454238	EAMM-A-D32-40G
EMGA-40-P-G...-SAS-40		
EMMS-AS-55-...	2946758	EAMM-A-D32-60G
EMGA-60-P-G...-SAS-55		
EMME-AS-60-...	2946760	EAMM-A-D32-60H
EMGA-60-P-G...-EAS-60		
EMMS-AS-70-...	2946758	EAMM-A-D32-60G
EMGA-60-P-G...-SAS-70		
With stepper motor		
EMMS-ST-42-...	543148	EAMM-A-D32-42A
EMMS-ST-57-...	550980	EAMM-A-D32-57A
With stepper motor and gear unit		
EMMS-ST-42-...	1454238	EAMM-A-D32-40G
EMGA-40-P-G...-SST-42		
EMMS-ST-57-...	2946758	EAMM-A-D32-60G
EMGA-60-P-G...-SST-57		
With integrated drive		
EMCA-EC-67-...-	1454239	EAMM-A-D32-67A
With integrated drive and gear unit		
EMCA-EC-67-...-	1454238	EAMM-A-D32-40G
EMGC-40-...		
EMCA-EC-67-...-	2946760	EAMM-A-D32-60H
EMGC-60-...		

Motor/gear unit ¹⁾	Axial kit	
		
	Part no.	Type
6/7 Permissible axis/motor combination with axial kit Data sheets online: eamm-a		
ERMB-25		
With servo motor		
EMMS-AS-55-...	543153	EAMM-A-D40-55A
EMME-AS-60-...	1977000	EAMM-A-D40-60P
EMMS-AS-70-...	550981	EAMM-A-D40-70A
With servo motor and gear unit		
EMME-AS-40-...	560282	EAMM-A-D40-40G
EMGA-40-P-G...-EAS-40	2256398	EAMM-A-D40-40G-G2
EMMS-AS-40-...	560282	EAMM-A-D40-40G
EMGA-40-P-G...-SAS-40	2256398	EAMM-A-D40-40G-G2
EMMS-AS-55-...	2256400	EAMM-A-D40-60G
EMGA-60-P-G...-SAS-55		
EMME-AS-60-...	1454242	EAMM-A-D40-60H
EMGA-60-P-G...-EAS-60		
EMMS-AS-70-...	2256400	EAMM-A-D40-60G
EMGA-60-P-G...-SAS-70		
With stepper motor		
EMMS-ST-57-...	543154	EAMM-A-D40-57A
EMMS-ST-87-...	550982	EAMM-A-D40-87A
With stepper motor and gear unit		
EMMS-ST-42-...	560282	EAMM-A-D40-40G
EMGA-40-P-G...-SST-42		
EMMS-ST-57-...	2256400	EAMM-A-D40-60G
EMGA-60-P-G...-SST-57		
With integrated drive		
EMCA-EC-67-...-	1454243	EAMM-A-D40-67A
With integrated drive and gear unit		
EMCA-EC-67-...-	2256398	EAMM-A-D40-40G-G2
EMGC-40-...		
EMCA-EC-67-...-	1454242	EAMM-A-D40-60H
EMGC-60-...		

Accessories – Ordering data

Motor/gear unit ¹⁾	Axial kit	
		
	Part no.	Type
6/7 Permissible axis/motor combination with axial kit		
Data sheets online: → eamm-a		
ERMB-32		
With servo motor		
EMMS-AS-70-...	543161	EAMM-A-D60-70A
EMME-AS-80-...	1977073	EAMM-A-D60-80P
EMME-AS-100-...	550983	EAMM-A-D60-100A
EMMS-AS-100-...	550983	EAMM-A-D60-100A
With servo motor and gear unit		
EMMS-AS-55-...	560283	EAMM-A-D60-60G
EMGA-60-P-G...-SAS-55		
EMME-AS-60-...	1454245	EAMM-A-D60-60H
EMGA-60-P-G...-EAS-60		
EMMS-AS-70-...	560283	EAMM-A-D60-60G
EMGA-60-P-G...-SAS-70		
EMMS-AS-70-...	1499402	EAMM-A-D60-80G
EMGA-80-P-G...-SAS-70		
EMMS-AS-80-...	1499402	EAMM-A-D60-80G
EMGA-80-P-G...-EAS-80		
EMME-AS-100-...	1499402	EAMM-A-D60-80G
EMGA-80-P-G...-SAS-100		
EMMS-AS-100-...	1499402	EAMM-A-D60-80G
EMGA-80-P-G...-SAS-100		
With stepper motor		
EMMS-ST-87-...	543162	EAMM-A-D60-87A
With stepper motor and gear unit		
EMMS-ST-57-...	560283	EAMM-A-D60-60G
EMGA-60-P-G...-SST-57		
	2256696	EAMM-A-D60-60G-G2
EMMS-ST-87-...	1499402	EAMM-A-D60-80G
EMGA-80-P-G...-SST-87		
With integrated drive and gear unit		
EMCA-EC-67-...-	1454245	EAMM-A-D60-60H
EMGC-60-...		

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

Semi-rotary drives >

Rotary modules ERM, electric

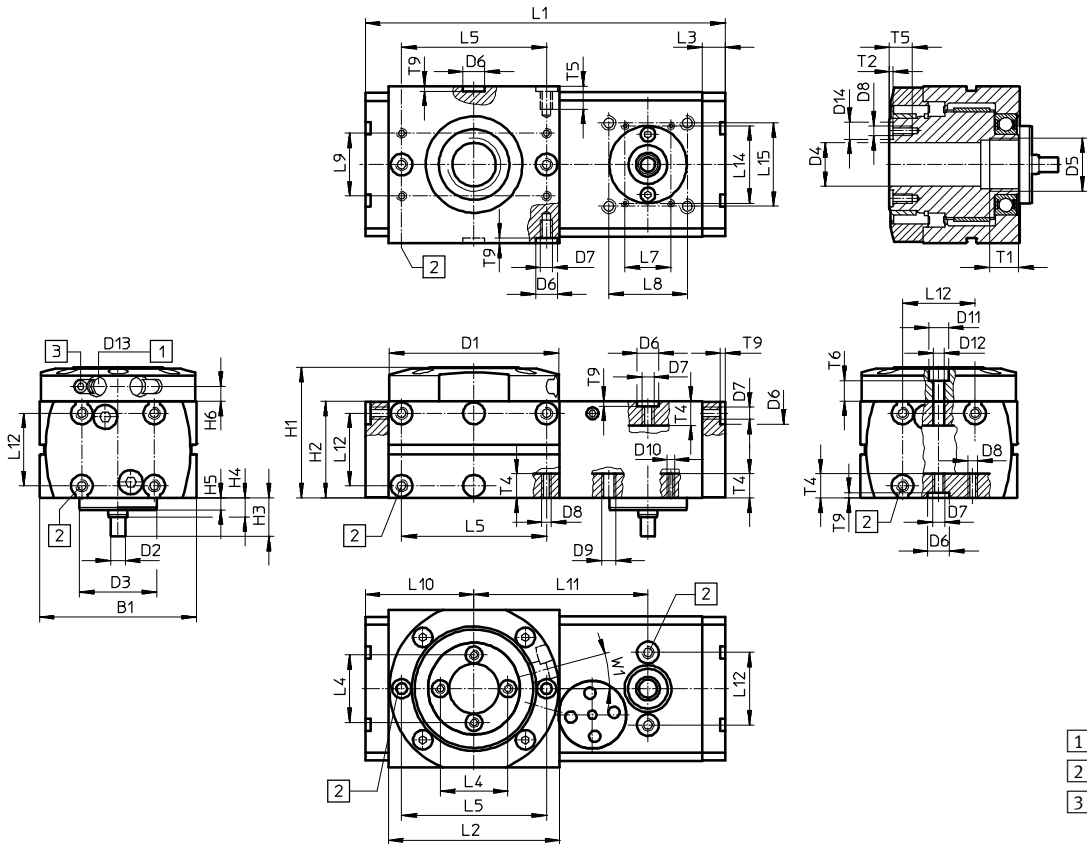
Dimensions

Download CAD data [→ www.festo.com](#)

Size 20

04

Electromechanical drives



- 1

 Thread for reference switch
- 2

 Mounting options
- 3

 Clamping component, width across flats 2.5 (enclosed separately)

Size	B1	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13
	±0.2	∅ f9	∅ h6	∅ g7	∅ H7	M22x1	∅ H7					∅	∅	
20	65	70	6	32	20	M22x1	9	M5	M4	M6	M3	8	4.5	M8x1

Size	D14	H1	H2	H3	H4	H5	H6	L1	L2	L3	L4 ¹⁾	L5 ¹⁾	L7	L8
	∅ H7	±0.5	±0.1					±0.5	±0.2	±0.1			±0.15	±0.15
20	7	54	40	15.9	7.9	5	6.15	149	71	9.5	28	60	19	32.5

Size	L9 ¹⁾	L10	L11	L12 ¹⁾	L14	L15	T1	T2	T4	T5	T6	T9	W1
			±0.05		±0.15	±0.15		+0.1		min		+0.2	
20	26	45	72	30	32	32.5	12	1.6	10	9.6	8.4	2.1	15°

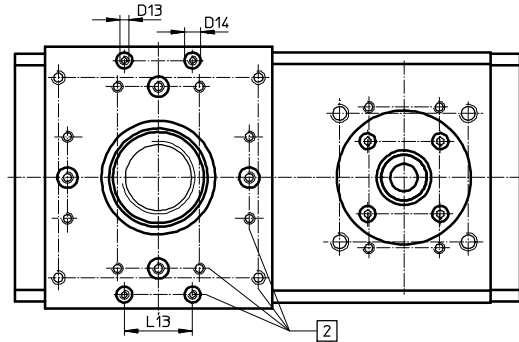
1) Tolerance for centring hole ±0.02 mm.
Tolerance for thread ±0.1 mm.

Dimensions

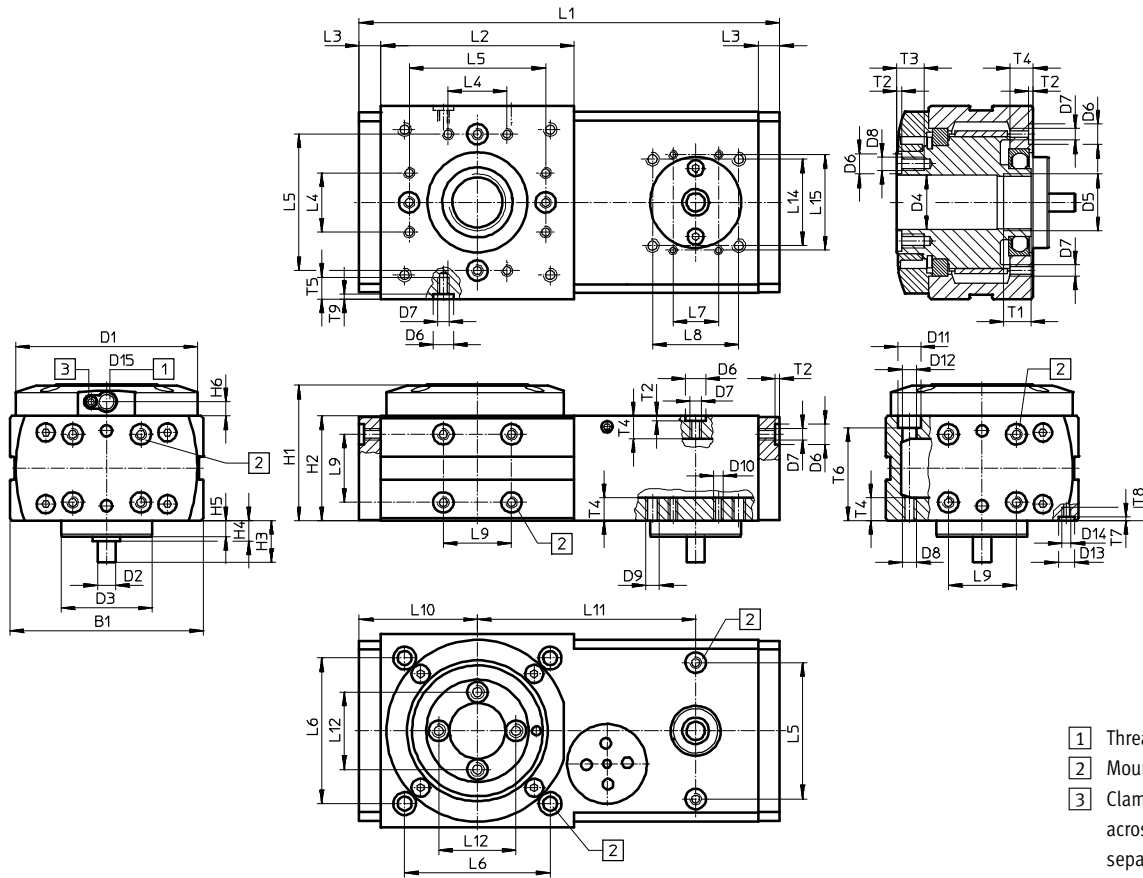
Size 25/32

Download CAD data → www.festo.com

Size 32



Size 25/32



- 1 Thread for reference switch
- 2 Mounting options
- 3 Clamping component, width across flats 2.5 (enclosed separately)

Size	B1	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14
	±0.2	∅ f9	∅ h6	∅ g7	∅ H7		∅ H7					∅	∅	∅ H7	
25	85	80	8	40	24	M25x1	9	M5	M6	M6	M4	10	6.2	–	–
32	115	112	12	60	28	M32x1.5	9	M5	M6	M8	M5	10	6.2	7	M4

Size	D15	H1	H2	H3	H4	H5	H6	L1	L2	L3	L4	L5 ¹⁾	L6	L7	L8
		±0.5	±0.1					±0.5	±0.2	±0.1	±0.1			±0.15	±0.15
25	M8x1	60	46	18.45	–	7	6.45	185	85	9.5	26	60	64 ±0.15	20	38
32	M8x1	76.05	60	23.5	6.5	6	9.4	222	100	13	36	80	88 ±0.1	31	56.5

Size	L9 ¹⁾	L10	L11	L12 ¹⁾	L13 ¹⁾	L14	L15	T1	T2	T3	T4	T5	T6	T7	T8	T9
			±0.05			±0.15	±0.15	+0.1	min			min		+0.1	min	+0.2
25	30	52	96	34	–	38	42	12	2.1	12	10	9.6	40.8 ±0.2	–	–	2.1
32	40	63	108	45	30	56.5	62	12	2.1	12	10	10	54.3	1.6	7.6	2.1

1) Tolerance for centring hole ±0.02 mm.
Tolerance for thread ±0.1 mm.

Semi-rotary drives >

04

Electromechanical drives

New New series



Electric stopper that is child's play to install!

- + Easy to install
- + Connects directly
- + Adjustable cushioning
- + Integrated sensor
for position feedback

Stopper cylinders ›

Stopper cylinders, electric

EFSD

Stopper cylinders >

Stopper cylinders, electric

EFSD



Overview, configuration and ordering

→ www.festo.com/catalogue/efsd



Additional information, support and user documentation

→ www.festo.com/sp/efsd



Spare parts service



- + Three sizes to stop transported materials weighing between 0.25 kg and 100 kg
- + Activation via digital I/O
- + Integrated sensors to sense retraction or extension

NEW

Stopper cylinders >

Stopper cylinders EFSD

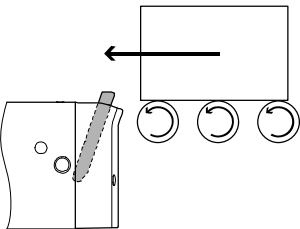
Product range overview

Type/version	Size	Max. stoppable load [kg]	Max. lateral force [N]
EFSD	20, 50, 100	0.25 ... 100	20 ... 100

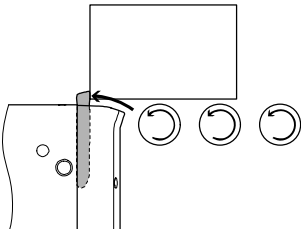
At a glance

- Quick and easy to set up on transfer systems without compressed air
- Three sizes for stopping conveyed goods weighing between 0.25 kg and 100 kg
- Control via digital I/O
- Integrated sensors for sensing retracted or extended position
- LED indicator for status and error messages
- Cushioning module with adjustable cushioning
- Mounting interface for ease of mounting on transfer systems

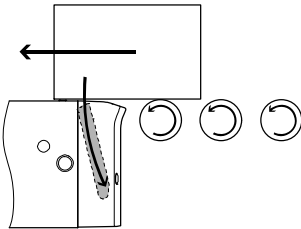
Functional sequence



Position 1
Stopper cylinder is in the initial position
The stop is extended and ready to stop a conveyed item
(LED status message: closed)



Position 2
Stopper cylinder is in the holding position
The conveyed item is stopped by internal cushioning and then held in position
(LED status message: closed)



Position 3
Stopper cylinder is in the release position
The stop is retracted and the conveyed item is released
(LED status message: open)

04

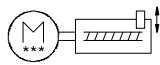
Electromechanical drives

Stopper cylinders >

Stopper cylinders EFSD

NEW

Data sheet



Technical data		Dimensions → Page 703		
Size		20	50	100
Retracting/extending time				
Max. time for retracting ¹⁾	[s]	0.1	0.15	0.3
Max. time for extending	[s]	0.1	0.15	0.2
Maximum lateral force during switching operation	[N]	20	50	100
Cushioning length	[mm]	11.5	17.5	18.2
Position sensing	[Nm]	Via integrated Hall sensor		

1) At the drive shaft

Maximum stoppable load at conveying speed v_f				
Size		20	50	100
Conveying speed v_f				
6 m/min	[kg]	0.25 ... 20	1 ... 50	3 ... 100
9 m/min	[kg]	0.25 ... 10	1 ... 35	3 ... 70
12 m/min	[kg]	0.25 ... 7	1 ... 30	3 ... 60
18 m/min	[kg]	0.25 ... 3.5	1 ... 18	3 ... 50
24 m/min	[kg]	0.25 ... 2.5	1 ... 12	3 ... 45
30 m/min	[kg]	0.25 ... 2	1 ... 8	3 ... 30
36 m/min	[kg]	0.25 ... 1	1 ... 5	3 ... 20
For friction coefficient $\mu^{1)}$		0.1	0.1	0.07

1) For size 20/50: between conveyed goods and belt system
For size 100: between conveyed goods and roller system

Electrical data				
Size		20	50	100
Motor type		Stepper motor		
Power supply	[V DC]	24 ±15%		
Max current consumption ¹⁾				
Actuator	[A]	1.9	1.2	1.4
Sensor	[A]	0.3		
Max. cycle rate	[Hz]	0.33		
Max. cable length	[m]	30		

1) During the switch-on process, there is a brief increase in the starting current.

Operating conditions		
Ambient temperature	[°C]	−10 ... +60
Degree of protection		IP40

Materials		
Cover		PA reinforced
Housing		Anodised wrought aluminium alloy
Piston rod		High-alloy stainless steel
Screws		Coated steel
Seals		NBR

NEW

Stopper cylinders >

Stopper cylinders EFSD

Order code

EFSD		—		—	PV	—	M12
Type							
EFSD	Stopper cylinder						
Size							
20							
50							
100							
Cushioning							
PV	Adjustable						
Electrical connection							
M12							

Order example:
EFSD-50-PV-M12
Stopper cylinder EFSD - size 50 - adjustable cushioning - electrical connection M12

Ordering – Product options

Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
➔ www.festo.com/catalogue/...

Enter the type code in the search field.

Electromechanical drives

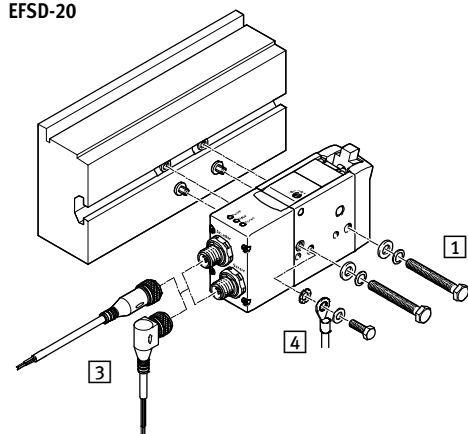
Stopper cylinders >

Stopper cylinders EFSD

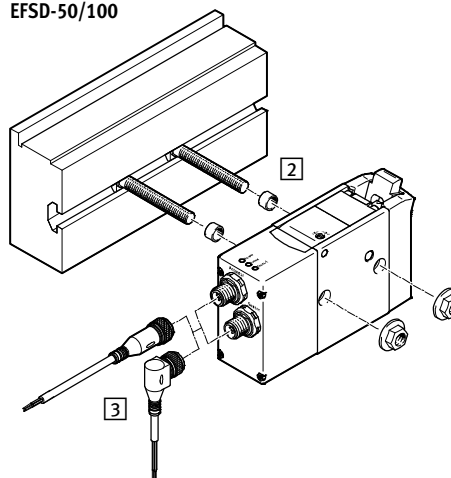
NEW

Accessories

EFSD-20



EFSD-50/100



		→ Page/online
1	Mounting kit EAHM-E18-K-20	702
2	Mounting kit EAHM-E18-K-50	702
	Mounting kit EAHM-E18-K-50-Z65	662
3	Connecting cable NEBU	662
4	Earthing kit	–

Accessories – Ordering data

	For size	Part no.	Type
1	Mounting kit		
	20	8058454	EAHM-E18-K-20
2	Mounting kit		
	50/100 ¹⁾	8058455	EAHM-E18-K-50-Z65
	50/100 ²⁾	8058456	EAHM-E18-K-50

- 1) For a profile with web width of approx. 3.7 mm
- 2) For a profile with web width of approx. 6 mm

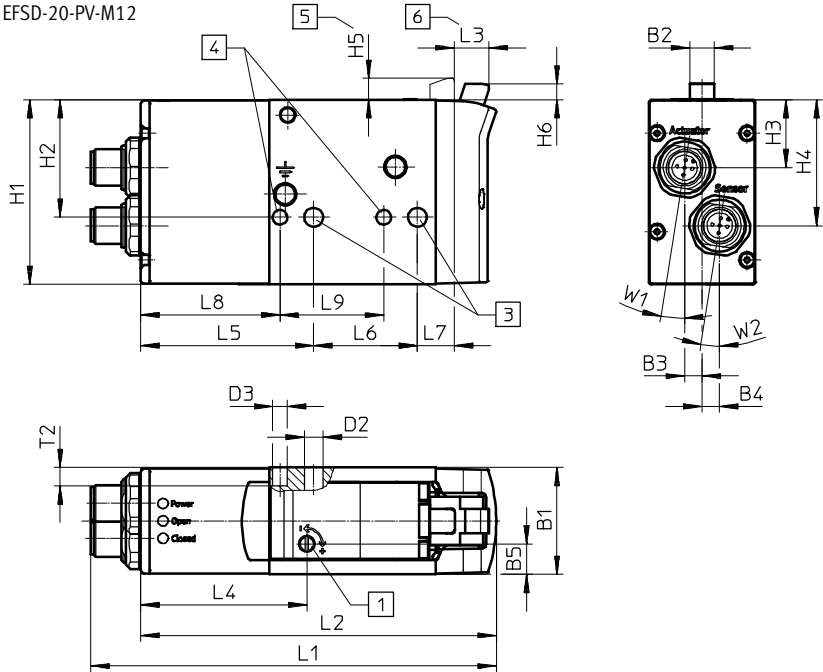
	Outlet direction	Cable length [m]	Part no.	Type
3	Connecting cable, M12, 5-pin			
Straight socket				Data sheets → Page 1543
	M12x1, 5-pin	0.5	8003617	NEBU-M12G5-K-0.5-M12W5
		2.0	8003618	NEBU-M12G5-K-2-M12W5
		5.0	574321	NEBU-M12G5-E-5-Q8N-M12G5
		7.5	574322	NEBU-M12G5-E-7.5-Q8N-M12G5
		10	574323	NEBU-M12G5-E-10-Q8N-M12G5
Angled socket				Data sheets → Page 1543
	M12x1, 5-pin	0.5	570733	NEBU-M12W5-K-0.5-M12W5
		2.0	570734	NEBU-M12W5-K-2-M12W5
3	Connecting cable, M12, 5-pin – open cable end, 5-wire			
Straight socket				Data sheets → Page 1543
	M12x1, 5-pin	2.5	541330	NEBU-M12G5-K-2.5-LE5
		5.0	541331	NEBU-M12G5-K-5-LE5
		10	554038	NEBU-M12G5-K-10-LE5
Angled socket				Data sheets → Page 1543
	M12x1, 5-pin	2.5	567843	NEBU-M12W5-K-2.5-LE5
	M12x1, 5-pin	5.0	567844	NEBU-M12W5-K-5-LE5

NEW

Dimensions

Download CAD data → www.festo.com

EFSD-20-PV-M12



Size	B1	B2	B3	B4	B5	D2 Ø	D3 Ø	H1	H2	H3	H4	H5
	±0.05		±0.4	±0.4	±0.25	+0.1/-0.05	±0.05		±0.15	±0.5	±0.5	±0.55
20	35	8	5.75	5.75	7.5	6.2	4.8	60.5	38.5	22.25	41.25	7

Size	H6	L1	L2	L3	L4	L5	L6	L7	L8	L9	T2	W1	W2
	±0.55	±1	±0.5	+0.5/-1	±0.5		±0.1	±0.5		±0.1	±0.2		
20	5.1	132.8	116.4	11.5	54.4	56.6	34	12	45.6	34	6	9°	9°

Stopper cylinders >

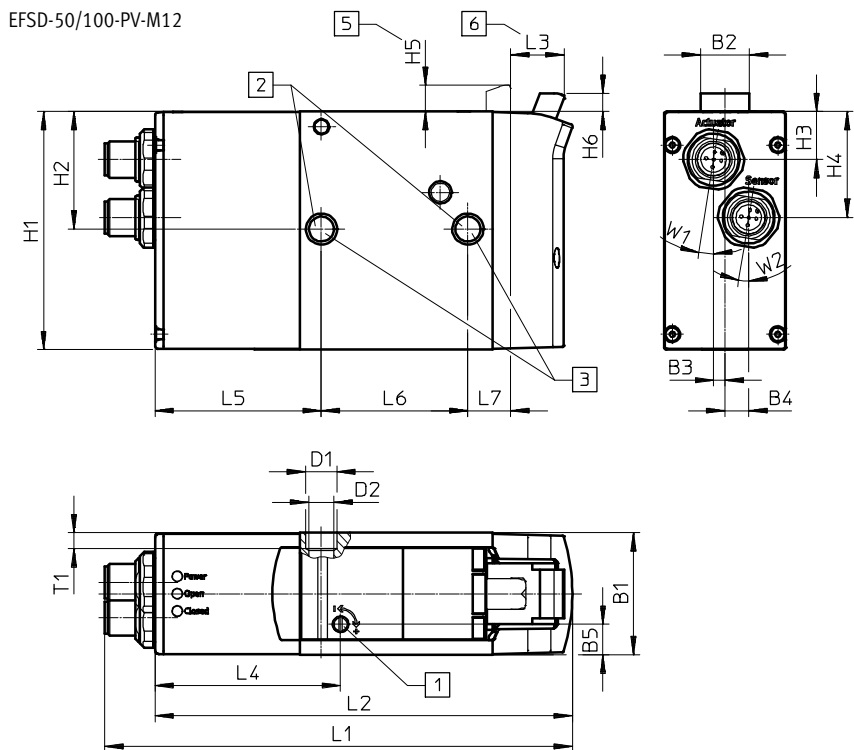
Stopper cylinders EFSD

NEW

Dimensions

Download CAD data → www.festo.com

EFSD-50/100-PV-M12



- 1 Cushioning adjustment
- 2 Hole for centring sleeve
- 3 Hole for mounting screw
- 5 Return stroke min. dimension H5
- 6 Cushioning stroke

Size	B1	B2	B3	B4	B5	D2 Ø	D3 Ø	H1	H2	H3	H4	H5
	±0.05		±0.4	±0.4	±0.25	+0.1/-0.05			±0.15	±0.5	±0.5	±0.55
50	40	16	3.75	7.75	10	10.2	8.2	78	38.5	15.75	34.75	8.6
100	44	16	5.4	8.7	11.5	10.2	8.2	78	38.5	14	29.4	8.6

Size	H6	L1	L2	L3	L4	L5	L6	L7	T1	W1	W2
	±0.55	±1	±0.5	+0.2	±0.5		±0.1	±0.5	+0.1/-0.05		
50	6	153.2	136.7	17.5	60.8	54.5	48	14 ±0.5	5.2	9°	9°
100	6.3	163.7	147.2	18.2	67.3	58	52	13.8 ±0.6	5.2	9°	9°

New New series



Electrical or hybrid rotating and gripping? The choice is yours!

- + Pick & place small parts from trays and tablets
- + To fit or remove caps on bottles

Electric handling modules >
Rotary gripper modules

EHMD

Electric handling modules >

Rotary gripper modules

EHMD



Overview, configuration and ordering

→ www.festo.com/catalogue/ehmd



Additional information, support and user documentation

→ www.festo.com/sp/ehmd



- + For payloads up to 250 g
- + Compact: 48 x 63 x 172/145 mm

NEW

Electric handling modules >

Rotary gripper modules EHMD

Product range overview

Type/version	Size	Stroke per gripper jaw [mm]	Gripping force per gripper jaw [mm]	Rotation angle	Output torque [Nm]	Rated load [g]
EHMD						
GE – electric	40	0 ... 5	7 ... 35	Infinite	0.3	250
GP – pneumatic		5	5 ... 35			

At a glance

- The rotary gripper module is a compact module for handling small objects
- The rotary movement is realised via a stepper motor
- The gripping motion is implemented either electrically with a stepper motor or pneumatically using a cylinder
- The gripper can grip in force mode when combined with the motor controller CMMO-ST. This enables flexible gripping

Applications:

- Picking & placing small objects from trays and tablets
- For fitting and removing bottle caps

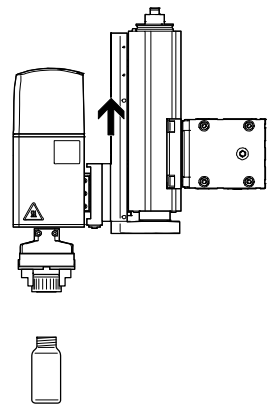
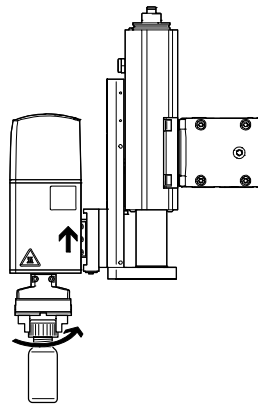
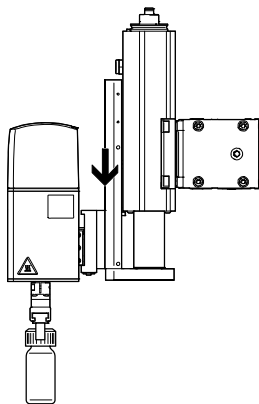
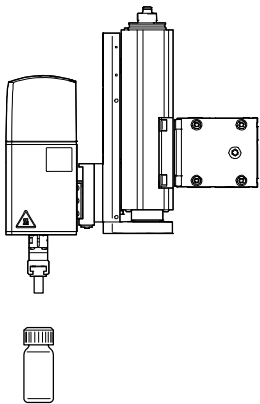
Mode of operation

Screwing caps onto bottles and removing them

- Mini slide EGSC-BS retracts
- Mounting EHAM-E20
- Mini slide EGSC-BS extends
- Rotary gripper module EHMD grips the cap

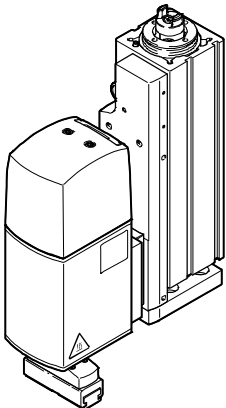
- Rotary gripper module EHMD twists the cap from the bottle
- The mounting EHAM-E20 takes on the Z compensation without the need to move the mini slide (Z-axis)

- Once the cap has been twisted off, the mini slide EGSC-BS retracts
- The Z compensation moves back into the lower end position due to the weight

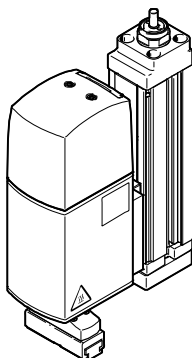


Combination options

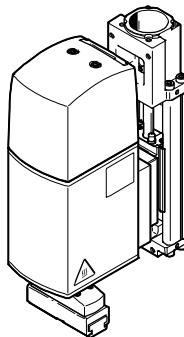
With mini slide EGSC-BS-25/32



With mini slide EGSL-BS-35/45



With electric slide EGSK-20/26

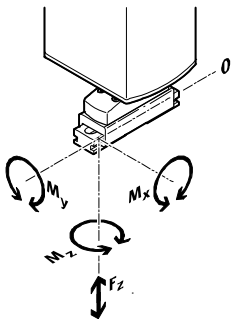


Data sheet



Technical data

Dimensions → Page 714



Type	EHMD-...	
	-GE	-GP
Design	Electric rotary drive	Electric rotary drive
	Electric gripper	Pneumatic gripper
Gripper function	Parallel	
Number of gripper jaws	2	
Stroke per gripper jaw	[mm]	0 ... 5
Rated load ¹⁾	[g]	250
Rotation angle	Infinite	
Pneumatic connection	–	QS-4
Nominal voltage	[V DC]	24
Nominal current		
Rotation	[A]	0.9
Gripping	[A]	0.5
Technical data – Gripping		
Gripping force per gripper jaw	[N]	7 ... 35
Gripping force per gripper jaw at 6 bar closing	[N]	–
Max. gripping force		
Closed loop operation	[N]	35
Open loop operation	[N]	20 ... 25
Minimum gripping force	[N]	7
Technical data – Rotation		
Max. output torque	[Nm]	0.3
Max. output speed	[rpm]	240
Moment of inertia	[kgm ²]	1.25x 10 ^{–5}
Max. permissible force F _x	[N]	30
Max. permissible force F _z	[N]	30
Max. permissible torque M _x	[Nm]	0.7
Max. permissible torque M _y	[Nm]	1.5
Max. permissible torque M _z	[Nm]	0.7

1) Rated load = gripper finger + payload

NEW

Electric handling modules >

Rotary gripper module EHMD

Data sheet

Operating conditions		
Grippers	Electric	Pneumatic
Operating pressure	[bar]	–
Ambient temperature ¹⁾	[°C]	0 ... +40
Degree of protection	IP20	

1) Note operating range of proximity sensors.

Materials		
Grippers	Electric	Pneumatic
Cover	PA-reinforced	PA
Housing	Anodised wrought aluminium alloy	
Tie rod	Stainless steel	
Gripper kinematics	Tempered steel	

Order code

EHMD

40

RE

Type

EHMD

Rotary gripper module, electric

Size

40

Rotary module drive system

RE

Electric

Gripper drive system

GE

Electric

GP

Pneumatic

Order example:
EHMD-40-RE-GP
Rotary gripper module EHMD - size 40 - electric drive system - pneumatic gripper

Ordering – Product options

Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
➔ www.festo.com/catalogue/...

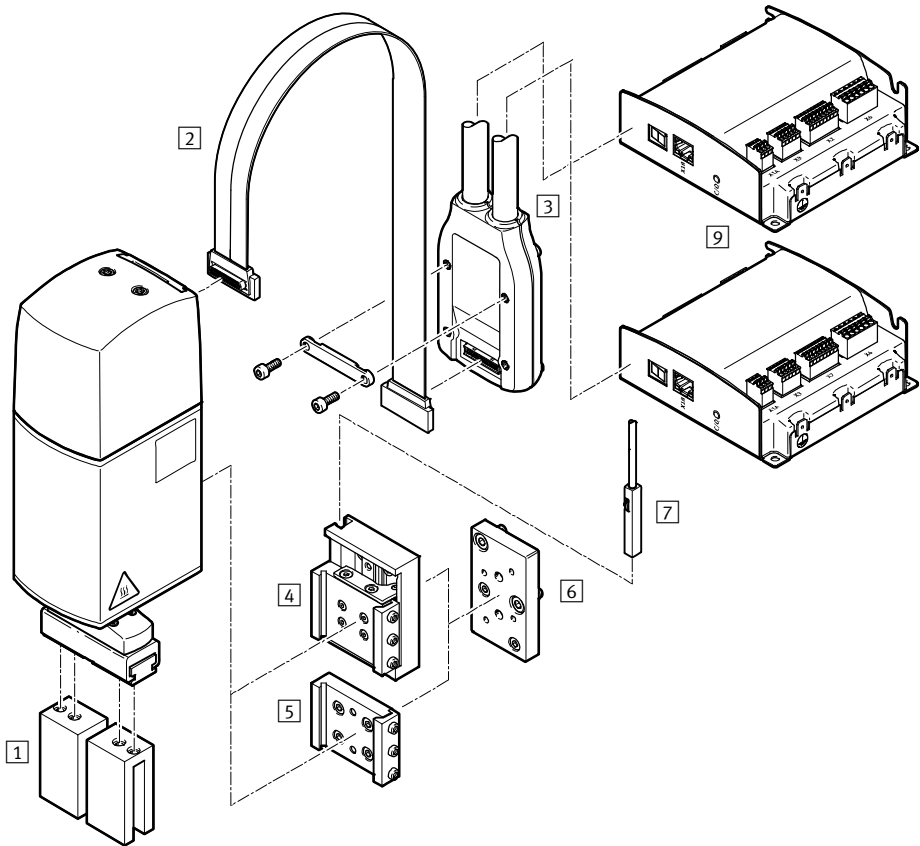
Enter the type code in the search field.

04

Electromechanical drives

Accessories

EHMD-40-RE-GE – electric gripping

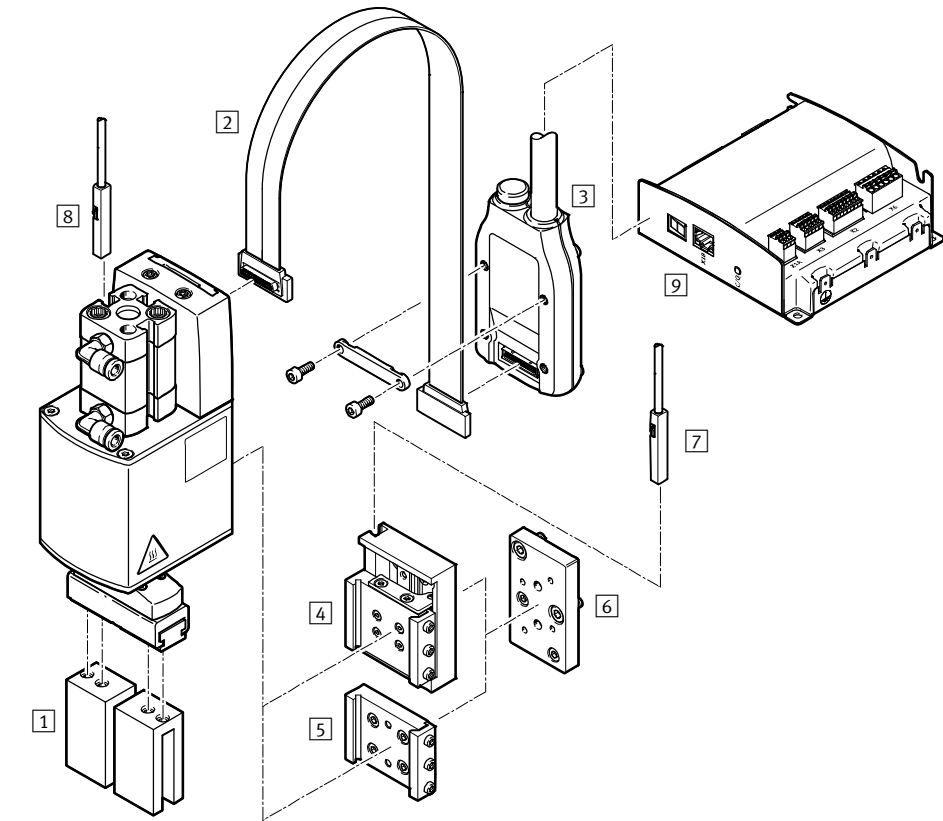


Note
The gripper is only intended as an external gripper (in the closing direction).

		→ Page/online
1	Gripper jaw blank BUB-HGPT-16-B	712
2	Motor cable NEBM-F1W31	712
3	Motor cable NEBM-SF1	712
4	Mounting (with Z compensation) EHAM-E20-40-Z	712
5	Mounting (rigid) EHAM-E20-40	712
6	Adapter kit EHAM-E20-40-E...	712
7	Proximity sensors, T-slot SIES-M8	713
9	Motor controller CMMO-ST	712
–	Connecting cable NEBU	713
–	Centring sleeve ZBS/ZBH	712

Accessories

EHMD-40-RE-GP – pneumatic gripping



Note
The gripper is only intended as an external gripper (in the closing direction).

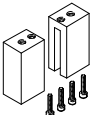
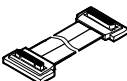
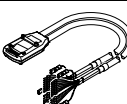
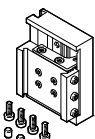
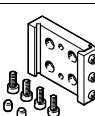
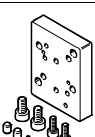
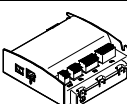
	→ Page/online
1 Gripper jaw blank BUB-HGPT-16-B	712
2 Motor cable NEBM-F1W31	712
3 Motor cable NEBM-SF1	712
4 Mounting (with Z compensation) EHAM-E20-40-Z	712
5 Mounting (rigid) EHAM-E20-40	712
6 Adapter kit EHAM-E20-40-E...	712
7 Proximity sensors, T-slot SIES-M8	713
8 Proximity sensor, T-slot SME/SMT-M8	713
9 Motor controller CMMO-ST	712
– Connecting cable NEBU	713
– Centring sleeve ZBS/ZBH	712

Electric handling modules >

Rotary gripper modules EHMD

NEW

Accessories – Ordering data

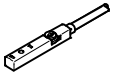
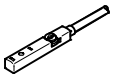
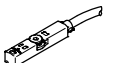
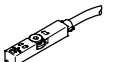
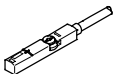
	Description	Part no.	Type
1 Gripper jaw blank 		560244	BUB-HGPT-16-B
	Blanks specially match the gripper jaws for manufacturing gripper fingers		
2 Motor cable 	Connecting cable between EHMD and motor cable NEBM-SF1 For EHMD-...-GE and EHMD-...-GP	8079819	NEBM-F1W31-EC-03-F1N-DF1W31
3 Motor cable 	Cable with adapter between motor cable NEBM-F1 and motor controller CMMO-ST For EHMD-...-GE	5213342	NEBM-SF1W31-EH-2.6-Q15N-LE-28
	Cable with adapter between motor cable NEBM-F1 and motor controller CMMO-ST For EHMD-...-GP	5213343	NEBM-SF1W31-EH-2.6-Q15N-LE-14
4 Mounting with Z compensation 	Mounting option via dovetail mounting.	5293408	EHAM-E20-40-Z
5 Mounting (rigid) 	Rigid mounting option via dovetail mounting.	4991965	EHAM-E20-40
6 Adapter kit 	To fit the mountings on the Z-axes	8080760	EHAM-E20-40-E19-25
		8081015	EHAM-E20-40-E8-35
		8081016	EHAM-E20-40-E9-20
9 Motor controller 		Data sheets → Page 827	
	With I/O interface		
	Switching input/output PNP	1512316	CMMO-ST-C5-1-DIOP
	Switching input/output NPN	1512317	CMMO-ST-C5-1-DION
	With IO-Link		
	Switching input/output PNP	1512320	CMMO-ST-C5-1-LKP
Centring sleeve 		Data sheets online: → zbh	
	For mountings EHAM and gripper jaw blank BUB	562959	ZBS-4
		189652	ZBH-5

NEW

Electric handling modules >

Rotary gripper modules EHMD

Accessories – Ordering data

	Switching output, connection	Cable length [m]	Part no.	Type
7 Inductive proximity sensor – N/O contact, M8			Data sheets → Page 1230	
	PNP, cable	7.5	551386	SIES-8M-PS-24V-K-7,5-OE
	PNP, plug	0.3	551387	SIES-8M-PS-24V-K-0,3-M8D
	NPN, cable	7.5	551396	SIES-8M-NS-24V-K-7,5-OE
	NPN, plug	0.3	551397	SIES-8M-NS-24V-K-0,3-M8D
N/C contact, M8			Data sheets → Page 1230	
	PNP, cable	7.5	551391	SIES-8M-PO-24V-K-7,5-OE
	PNP, plug	0.3	551392	SIES-8M-PO-24V-K-0,3-M8D
	NPN, cable	7.5	551401	SIES-8M-NO-24V-K-7,5-OE
	NPN, plug	0.3	551402	SIES-8M-NO-24V-K-0,3-M8D
8 Proximity sensor for T-slot, magneto-resistive – N/O contact			Data sheets → Page 1206	
	PNP, cable	2.5	★ 574335	SMT-8M-A-PS-24V-E-2,5-OE
	PNP, plug	0.3	★ 574334	SMT-8M-A-PS-24V-E-0,3-M8D
	PNP, plug	0.3	★ 574337	SMT-8M-A-PS-24V-E-0,3-M12
	NPN, cable	2.5	★ 574338	SMT-8M-A-NS-24V-E-2,5-OE
	NPN, plug	0.3	★ 574339	SMT-8M-A-NS-24V-E-0,3-M8D
Magneto-resistive – N/C contact			Data sheets → Page 1206	
	PNP, cable	7.5	★ 574340	SMT-8M-A-PO-24V-E-7,5-OE
Magnetic reed – N/O contact			Data sheets → Page 1201	
	Contacting, cable	2.5	★ 543862	SME-8M-DS-24V-K-2,5-OE
	Contacting, cable	5.0	★ 543863	SME-8M-DS-24V-K-5,0-OE
	Contacting, cable	2.5	★ 543872	SME-8M-ZS-24V-K-2,5-OE
	Contacting, plug	0.3	★ 543861	SME-8M-DS-24V-K-0,3-M8D
Connecting cable, straight socket			Data sheets → Page 1543	
	M8x1, 3-pin	2.5	★ 541333	NEBU-M8G3-K-2.5-LE3
		5.0	★ 541334	NEBU-M8G3-K-5-LE3
Angled socket			Data sheets → Page 1543	
	M8x1, 3-pin	2.5	★ 541338	NEBU-M8W3-K-2.5-LE3
		5.0	★ 541341	NEBU-M8W3-K-5-LE3

04

Electromechanical drives

Download CAD data → www.festo.com

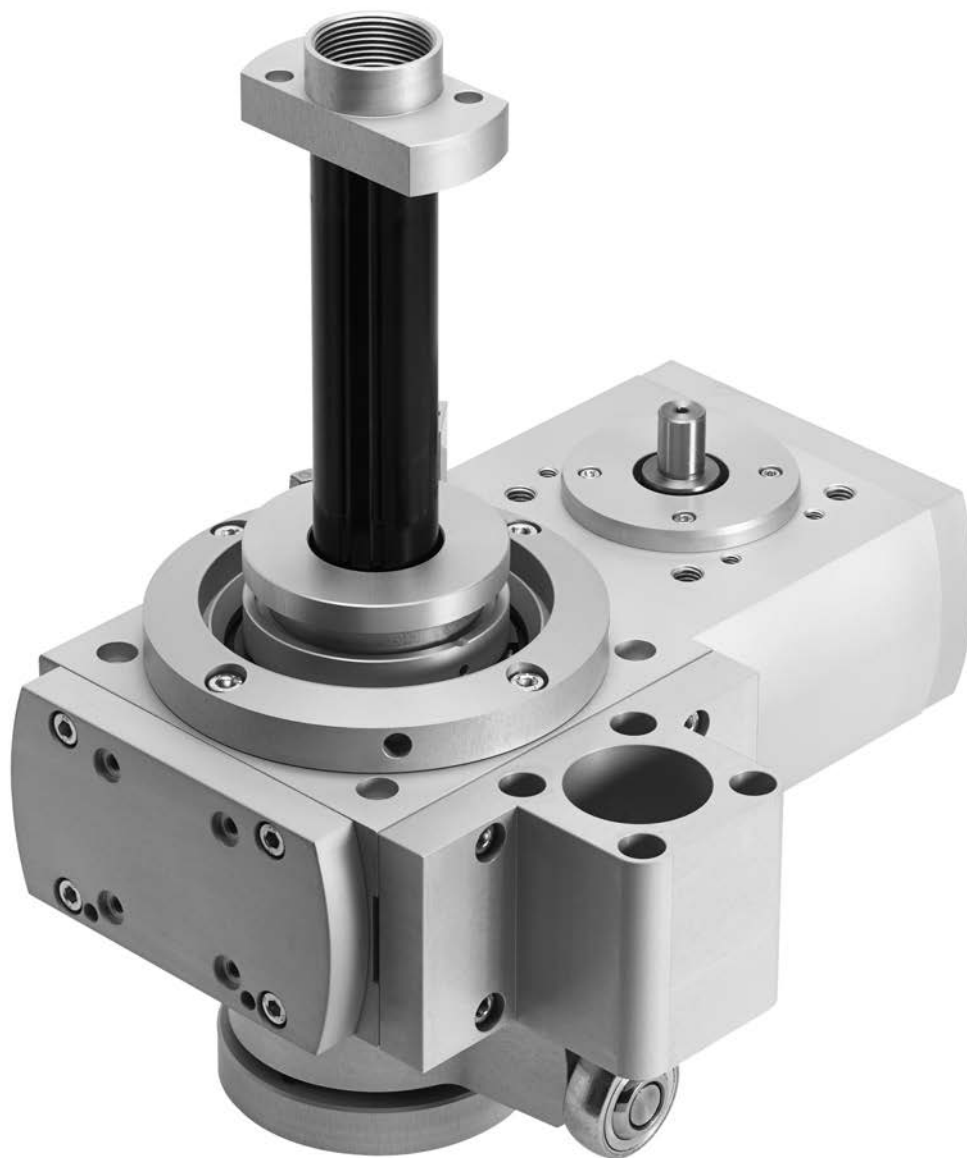
- 1** Max. screw-in depth
Included in the scope of delivery:
- 4x screws M3x12
 - 4x centring sleeves ZBH-5
(for gripper fingers)

Electric handling modules >

NEW

04

Electromechanical drives



More than just rotation

- + Cables and tubing can be easily and conveniently routed to the front end of the rotary/lifting module through the large hollow shaft.
- + Economic: the clever design offers a movement pattern very similar to a SCARA robot
- + Minimal installation/working space required with under-table mounting

Electric handling modules ›

Rotary/lifting modules, electric

EHMB

Electric handling modules >

Rotary/lifting modules, electric

EHMB



Overview, configuration and ordering

→ www.festo.com/catalogue/ehmb



Additional information, support and user documentation

→ www.festo.com/sp/ehmb



- + Complete module with combined and configurable rotary/lifting movement
- + Dynamic, flexible, economical thanks to the electric or pneumatic drive concept for the linear movement
- + Simple and convenient laying of energy cables through the large internal diameter of the hollow shaft

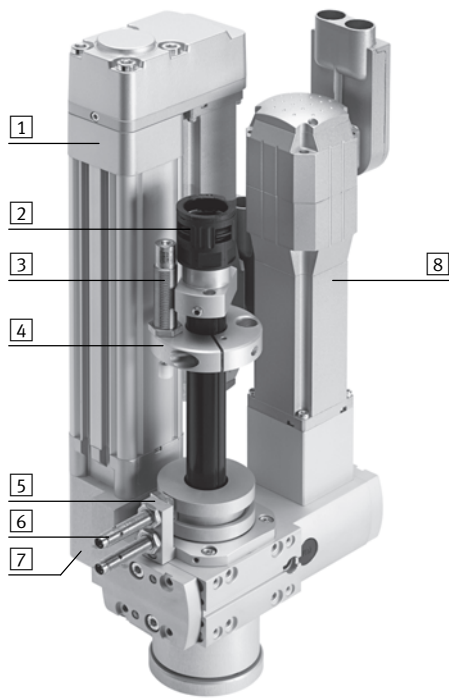
Rotary/lifting modules EHMB, electric

Product range overview

Type/Version	Size	Drive pinion Ø	Stroke [mm]	Rotation angle	Output torque [Nm]	Payload [kg]
EHMB						
Rotary/lifting module	20, 25, 32	6, 8, 12	100, 200	Infinite	3.15 ... 20	3 ... 15

Complete system consisting of rotary/lifting module, motor and axial kit

Rotary/lifting module



- 1 Electric cylinder ESBF, alternatively standards-based cylinder DSBC¹⁾
- 2 Protective conduit fitting¹⁾
- 3 Shock absorber¹⁾
- 4 Shock absorber retainer¹⁾
- 5 Sensor bracket
- 6 Proximity sensor SIEN¹⁾
- 7 Cylinder retainer
- 8 Motor for rotary motion¹⁾

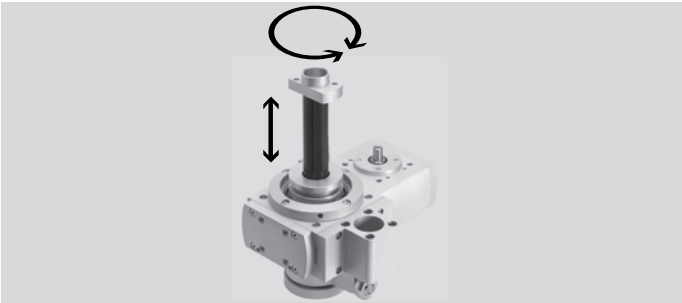
1) These parts must be ordered separately as accessories.

Electric handling modules >

Rotary/lifting modules EHMB, electric

Data sheet

Note
All values are based on a room temperature of 23 °C.



Dimensions ➔ Page 726

Technical data				
Size		20	25	32
Drive pinion Ø	[mm]	6	8	12
Rotation angle		Infinite		
Stroke, linear	[mm]	100, 200		
Repetition accuracy, rotary ¹⁾				
With servo motor EMMS-AS	[°]	±0.03		
With stepper motor EMMS-ST ²⁾	[°]	±0.08		
Max. speed, linear				
With standards-based cylinder DSBC	[m/s]	1	1.1	1.5
With electric cylinder ESBF	[m/s]	1.1		1.2
Gear ratio		4.5:1	4:1	3:1
Max. driving torque	[Nm]	0.7	2.2	6.7
Max. output torque ³⁾	[Nm]	3.15	8.8	20
Average no-load driving torque ⁴⁾	[Nm]	< 0.07	< 0.18	< 0.5
Max. input speed	[rpm]	1350	1200	900
Max. output speed	[rpm]	300	300	300
Max. payload, horizontal	[kg]	3	5	8
Max. payload, vertical	[kg]	3	5	15 ⁵⁾
Toothed belt pitch		2	3	5

1) As per FN 942 027, with electric cylinder DNCE. The specifications apply only when the motor is directly mounted. If a gear unit is also installed, the repetition accuracy will be different.
2) Dependent on the encoder resolution.
3) Output torque minus friction is dependent on speed.
4) At maximum rotational speed.
5) With symmetrical and non-eccentric arrangement.

Mass moment of inertia		20	25	32
Size				
Max. mass moment of inertia ⁶⁾	[kgcm ²]	1000	5000	10,000
Max. inertia factor ⁷⁾				
For servo motor EMMS-AS/EMME-AS		45		
For stepper motor EMMS-ST		30		

6) These values indicate the upper limit regardless of the value determined using the inertia factor.
7) The inertia factor is the max. adjustable ratio between the inertia of the load and the intrinsic inertia of the motor with brake.

Example:
Rotary/lifting module EHMB-20 → gear ratio i = 4.5
Motor EMME-AS-40-S with brake → intrinsic inertia 0.055 kgcm²
Gear unit EMGA-40-P-G3-40 → gear ratio i = 3

Limit for inertia of load (+ intrinsic inertia) on output side:
0.055 kgcm² x 45 x 3² x 4.5² = 451 kgcm²

Data sheet

Operating conditions			
Size	20	25	32
Ambient temperature ¹⁾	[°C] -10 ... +60		

1) Note operating range of proximity sensors.

Materials	
Flange	Anodised aluminium
Retainer	Anodised aluminium
Holder	Anodised wrought aluminium alloy
Cover	Anodised wrought aluminium alloy
Output shaft	Steel
Housing	Anodised wrought aluminium alloy
Drive shaft	High-alloy stainless steel
Toothed belt	Polychloroprene with glass fibre

Note

- The connection between the drive for the linear movement and the EHMB is not backlash-free.
- When laying electrical cables or compressed air tubing through the hollow shaft of the grooved shaft guide, the rotation angle of the EHMB must be limited to a rotation angle appropriate to the cables or compressed air tubing. Infinite rotation damages cables and tubing.

Order code

EHMB

Type
EHMB Rotary/lifting module, electric
Size
20, 25, 32
Stroke [mm]
100, 200

Order example:
EHMB-25-200
Rotary/lifting module EHMB - size 25 - stroke 200 mm

Ordering – Product options

Configurable product

This product and all its options can be ordered using the configurator.

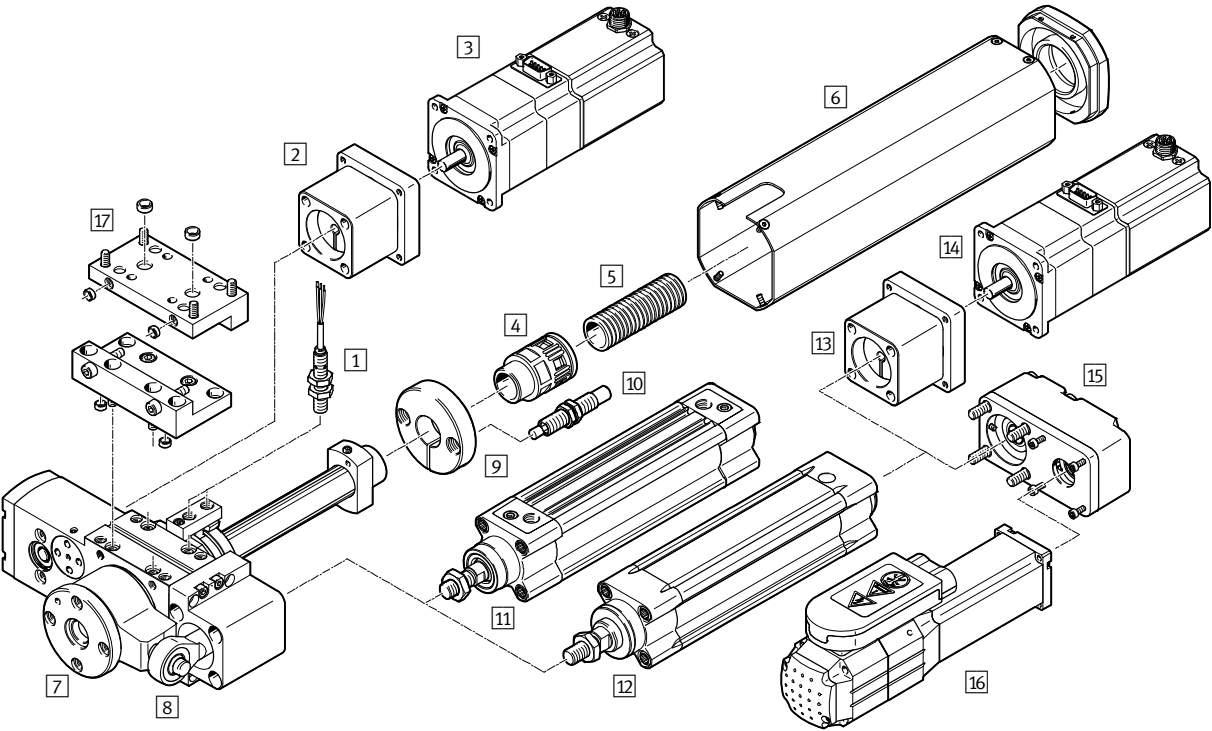
The configurator can be found under Products on the DVD or
→ www.festo.com/catalogue/...

Enter the type code in the search field.

Electric handling modules >

Rotary/lifting modules EHMB, electric

Accessories



	→ Page/online
1 Proximity sensor SIEN	724
2 Axial kit EAMM-A for the rotary motion of the rotary/ lifting module	723
3 Motor EMMS, EMME, EMCA for the rotary movement of the rotary/lifting module	723
4 Protective conduit fitting EASA	724
5 Protective conduit MKR	724
6 Cover EASC	724
7 Rotary/lifting module EHMB	719
8 Rod eye SGS	724
9 Shock absorber retainer EAYH	724
10 Shock absorber DYSW	724
11 Standards-based cylinder DSBC, pneumatic drive for the linear motion of the rotary/lifting module	724

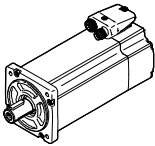
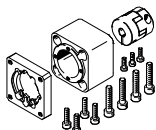
	→ Page/online
12 Electric cylinder ESBF, electric drive for the linear motion of the rotary/lifting module	724
13 Axial kit EAMM-A, for the linear motion of the rotary/ lifting module	527
14 Motor EMMS, EMME, EMCA for the linear motion of the rotary/lifting module	527
15 Parallel kit EAMM-U for the linear motion of the rotary/ lifting module	527
16 Motor EMMS, EMME, EMCA for the linear motion of the rotary/lifting module	527
17 Adapter plate kit EHAM	724
- Connecting cable NEBU	724
- Centring sleeve ZBH	724
- Cam EAPS	724

Accessories – Ordering data

Note

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

Motor mounting for rotary movement

Motor/gear unit ¹⁾	Axial kit
	
Part no.	Type

2/3 Permissible axis/motor combination with axial kit

Data sheets online: → [eamm-a](#)

EHMB-20**With servo motor**

EMME-AS-40-...	2207441	EAMM-A-D32-35A-40P
EMMS-AS-40-...	560281	EAMM-A-D32-35A-40A

With stepper motor

EMMS-ST-42-...	543148	EAMM-A-D32-42A
EMMS-ST-57-...	550980	EAMM-A-D32-57A

With integrated drive

EMCA-EC-67-...	1454239	EAMM-A-D32-67A
----------------	---------	----------------

With integrated drive and gear unit

EMCA-EC-67-...-	1454238	EAMM-A-D32-40G
EMGC-40-...		
EMCA-EC-67-...-	2946760	EAMM-A-D32-60H
EMGC-60-...		

EHMB-25**With servo motor**

EMMS-AS-55-...	543153	EAMM-A-D40-55A
EMME-AS-60-...	1977000	EAMM-A-D40-60P
EMMS-AS-70-...	550981	EAMM-A-D40-70A

With servo motor and gear unit

EMME-AS-40-...	560282	EAMM-A-D40-40G
EMGA-40-P-G-...-EAS-40		
EMMS-AS-40-...	560282	EAMM-A-D40-40G
EMGA-40-P-G-...-SAS-40		

With stepper motor

EMMS-ST-57-...	543154	EAMM-A-D40-57A
----------------	--------	----------------

With stepper motor and gear unit

EMMS-ST-42-...	560282	EAMM-A-D40-40G
EMGA-40-P-G-...-SST-42		

With integrated drive

EMCA-EC-67-...-	1454243	EAMM-A-D40-67A
-----------------	---------	----------------

With integrated drive and gear unit

EMCA-EC-67-...-	2256398	EAMM-A-D40-40G-G2
EMGC-40-...		
EMCA-EC-67-...-	1454242	EAMM-A-D40-60H
EMGC-60-...		

Motor/gear unit ¹⁾	Axial kit	
	Part no.	Type
EHMB-32		
With servo motor		
EMMS-AS-70-...	543161	EAMM-A-D60-70A
EMME-AS-80-...	1977073	EAMM-A-D60-80P
EMME-AS-100-...	550983	EAMM-A-D60-100A
EMMS-AS-100-...	550983	EAMM-A-D60-100A
With servo motor and gear unit		
EMMS-AS-55-...	560283	EAMM-A-D60-60G
EMGA-60-P-G-...-SAS-55		
EMMS-AS-70-...	560283	EAMM-A-D60-60G
EMGA-60-P-G-...-SAS-70		
With stepper motor		
EMMS-ST-87-...	543162	EAMM-A-D60-87A
With stepper motor and gear unit		
EMMS-ST-57-...	560283	EAMM-A-D60-60G
EMGA-60-P-G-...-SST-57		
With integrated drive and gear unit		
EMCA-EC-67-...-	1454245	EAMM-A-D60-60H
EMGC-60-...		

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

Note

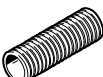
Note the maximum permissible driving torque of the EHMB. The motor current may need to be limited.

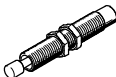
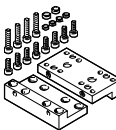
The following tool is available for sizing:
engineering software
PositioningDrives
→ www.festo.com

Electric handling modules >

Rotary/lifting modules EHMB, electric

Accessories – Ordering data

	For size	Part no.	Type
1 Inductive proximity sensor – N/O contact, M8			
Data sheets → Page 1230			
	PNP, cable	★ 150386	SIEN-M8B-PS-K-L
	PNP, plug	★ 150387	SIEN-M8B-PS-S-L
N/C contact, M8			
Data sheets → Page 1230			
	PNP, cable	150390	SIEN-M8B-PO-K-L
	PNP, plug	150391	SIEN-M8B-PO-S-L
4 Protective conduit fitting ¹⁾			
	20	1157774	EASA-H1-20-PG16
	25, 32	1096549	EASA-H1-22-PG21
5 Protective conduit			
	20	177566	MKR-16,5-PG-16
	25, 32	177567	MKR-23-PG-21
6 Cover ¹⁾			
	20	1099901	EASC-H1-20-100
		1099902	EASC-H1-20-200
	25	1096387	EASC-H1-25-100
		1096388	EASC-H1-25-200
	32	1107235	EASC-H1-32-100
		1107236	EASC-H1-32-200
8 Rod eye			
Data sheets online: → sgs			
	20,25	★ 9261	SGS-M10x1,25
	32	★ 9262	SGS-M12x1,25
9 Shock absorber retainer ¹⁾			
	20	1153896	EAYH-H1-20
	25, 32	1153905	EAYH-H1-25

	For size	Part no.	Type
[10] Shock absorber¹⁾			
Data sheets online: ➔ dysw			
	20	548073	DYSW-8-14-Y1F
	25, 32	548074	DYSW-10-17-Y1F
[17] Adapter plate kit¹⁾			
	20	1132369	EHAM-H1-20-L2-80
	25	1132402	EHAM-H1-25-L2-80
	32	1132529	EHAM-H1-32-L2-120
Connecting cable, straight socket			
Data sheets ➔ Page 1543			
	2.5 m	★ 541333	NEBU-M8G3-K-2.5-LE3
	5 m	★ 541334	NEBU-M8G3-K-5-LE3
Centring sleeve²⁾			
Data sheets online: ➔ zbh			
	– ³⁾	186717	ZBH-7
		150927	ZBH-9
		189653	ZBH-12
Cam⁴⁾			
	20	1234887	EAPS-H1-20-CK
	25, 32	1234888	EAPS-H1-25-CK

- 1) Packaging unit 1 piece.
 2) Packaging unit 10 pieces.
 3) → Dimensional drawing page 726.
 4) 2 included in the scope of delivery of the rotary/lifting module EHMB.

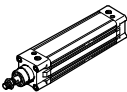
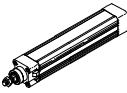
Note

The bracket for the proximity sensor SIEN is included in the scope of delivery of the rotary/lifting module.

04

Electromechanical drives

Accessories – Ordering data

Cylinder connection for linear motion				Data sheets online: → dsbc	
11 In combination with pneumatic standards-based cylinder DSBC					
	For rotary/lifting module	Standards-based cylinder DSBC			
		Part no.	Type		
	EHMB-20-100	1376426	DSBC-32-100-PPVA-N3		
	EHMB-20-200	1376429	DSBC-32-200-PPVA-N3		
	EHMB-25-100	1376426	DSBC-32-100-PPVA-N3		
	EHMB-25-200	1376429	DSBC-32-200-PPVA-N3		
	EHMB-32-100	1376660	DSBC-40-100-PPVA-N3		
	EHMB-32-200	1376663	DSBC-40-200-PPVA-N3		
12 In combination with electric cylinder ESBF				Data sheets online: → esbf	
	For rotary/lifting module	Electric cylinder ESBF			
		Part no.	Type		
	EHMB-20-100	1)	ESBF-...-32-100-...		
	EHMB-20-200	1)	ESBF-...-32-100-...		
	EHMB-25-100	1)	ESBF-...-32-100-...		
	EHMB-25-200	1)	ESBF-...-32-100-...		
	EHMB-32-100	1)	ESBF-...-32-100-...		
	EHMB-32-200	1)	ESBF-...-32-100-...		

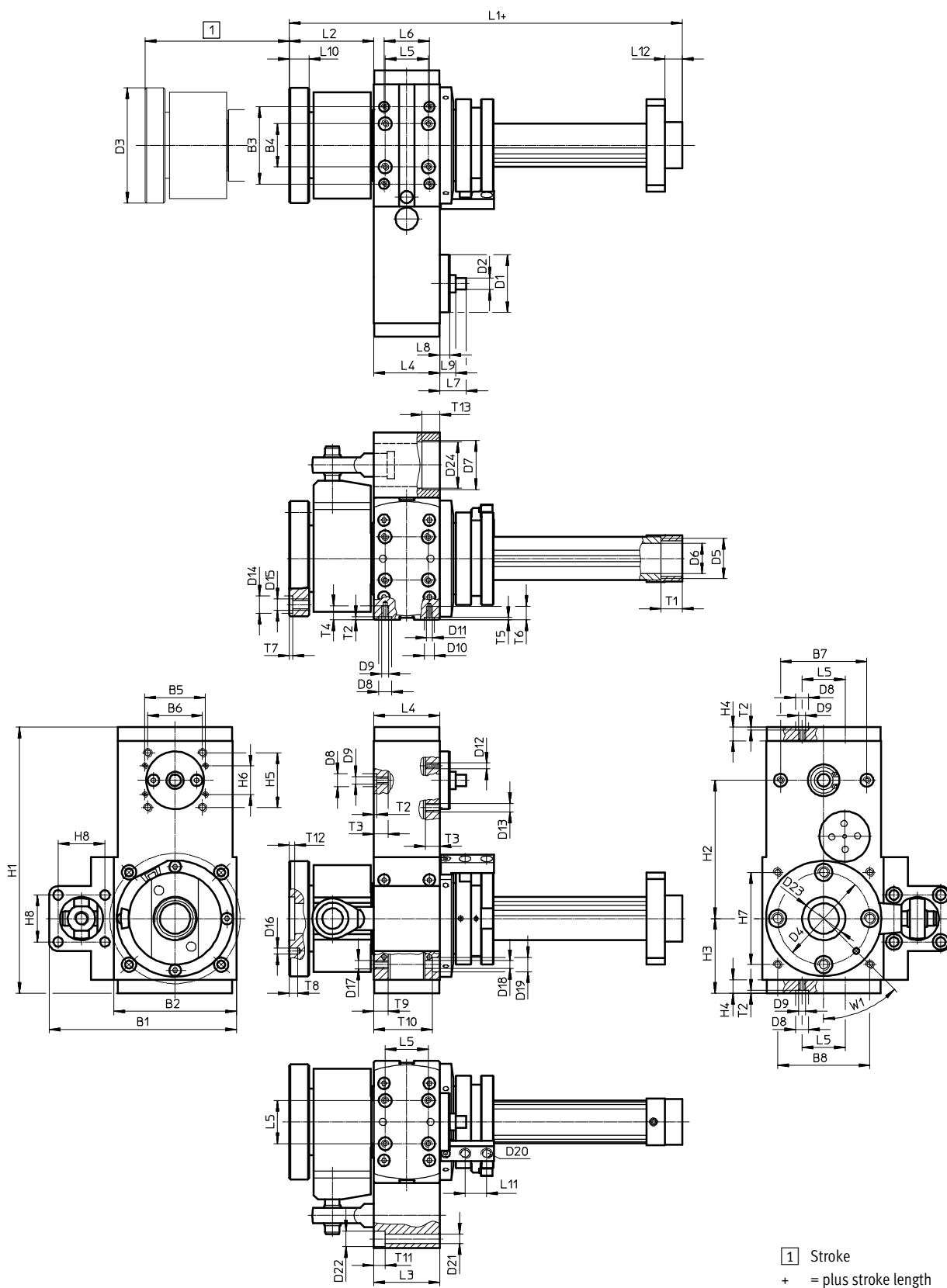
1) Ordering data: → internet: [esbf](#)

Electric handling modules >

Rotary/lifting modules EHMB, electric

Dimensions

Download CAD data → www.festo.com



Rotary/lifting modules EHMB, electric

Dimensions

Download CAD data → www.festo.com

Size	B1	B2	B3 ¹⁾	B4 ¹⁾	B5	B6	B7 ¹⁾	B8	D1 Ø g7	D2 Ø h6	D3 Ø	D4 Ø ±0.05
	±0.5	±0.2			±0.15	±0.15		±0.15				
20	110	65	54	34	32	32.5	30	52	32	6	58	45
25	130	85	53.5	30	42	38	60	64	40	8	80	64
32	169.5	115	70	40	62	56.5	80	88	60	12	80	64

Size	D5	D6 Ø	D7 Ø H8	D8 Ø H7	D9	D10 Ø H7	D11	D12	D13	D14 Ø H7	D15	D16 Ø H7	D17
20	Pg16	14	34/30 ²⁾	9	M5	7	M4	M3	M6	9	M6	4	M5
25	Pg21	21	34/30 ²⁾	9	M5	7	M4	M4	M6	12	M8	4	M6
32	Pg21	21	39/35 ²⁾	9	M5	–	M5	M5	M8	12	M8	4	M6

Size	D18 Ø	D19 Ø	D20	D21 Ø	D22 Ø	D23 Ø	D24 Ø	H1 ±0.5	H2 ±0.05	H3	H4	H5 ±0.15	H6 ±0.15
20	–	–	M8x1	6.6	11	19 ^{H8}	32	149	72	45	9.5	32.5	19
25	5.5	10	M8x1	6.6	11	30 ^{H7}	32	185	96	52	9.5	38	20
32	6.2	10	M8x1	6.6	11	30 ^{H7}	37	229.5	108	70.5	13	56.5	31

Size	H7 ±0.15	H8	L1	L2 min.	L3 ±0.1	L4 ±0.1	L5 ¹⁾	L6 ¹⁾	L7	L8	L9	L10	L11 ±0.1	L12
20	44	32.5	147.5	40.5	52	40	30	30	15.8	5	7.8	9	15	12
25	64	32.5	173	58.6	46	46	30	31.5	18.35	7	–	14	15	12
32	88	38	183	61.4	60	60	40	47	23.3	6	–	14	15	12

Size	T1	T2 +0.1	T3	T4	T5 +0.2	T6	T7 +0.1	T8	T9	T10 ±0.2	T11	T12 ±0.5	T13 +0.4	W1
20	14	2.1	10	9	1.6	9.5	2.1	6	8.5	–	11	3	12.5	45°
25	15	2.1	10	9.6	1.6	9.5	2.7	6	10	40.8	8	4	12.5	45°
32	15	2.1	10	9	–	9.5	2.7	6	10	54.3	15	4	14.5	45°

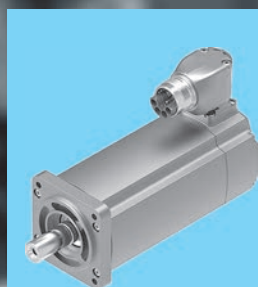
- 1) Tolerance for centring hole ±0.02 mm.
Tolerance for thread ±0.1 mm.

Note

- 2) The diameter can be reduced using a centring ring (included in the scope of delivery of the EHMB).

5 Motors and controllers

- + Servo motors
- + Stepper motors
- + Controllers and control systems
- + Gear units for electromechanical drives
- + Accessories for positioning controllers and regulators



EMMT-AS

Servo motors

- + Brushless, permanently excited synchronous servo motor
- + Digital absolute displacement encoder in single-turn or multi-turn version

→ page 769



EMCA

Integrated drives

- + Integrated power, controller and control electronics
- + For decentralised positioning tasks

→ page 791



CMMT-AS

Servo drives

- + Can be used universally
- + Precise force, speed and position control

→ page 811

Contents

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Servo motors EMME-AS	737
Servo motors EMMS-AS	749
Servo motors EMMT-AS	769
NEW New series	
Stepper motors EMMS-ST	777
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Gear units EMGA-SST	801
Gear units EMGA-EAS, EMGA-SAS	805
Gear units EMGC	785
Servo drives CMMT-AS	811
NEW New series	
Motor controllers CMMP-AS	817
Motor controllers CMMO-ST	825

Product overview

Software tool

PositioningDrives: selection and sizing of electromechanical linear drives, motors, and gear units		Which electromechanical linear drive, which motor and which gear unit best meets your needs? Enter the data for your application, such as position values, effective loads and mounting position, and the software suggests a number of solutions.	This tool can be found - on the Internet at www.festo.com/catalogue by clicking on the blue "Engineering" button - or on the DVD under "Engineering Tools"
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05

Servo motors

			
Type	Servo motors EMME-AS	Servo motors EMMS-AS	Servo motors EMMT-AS
Nominal torque	0.12 ... 6.4 Nm	0.14 ... 22.63 Nm	0.6 ... 1.4 Nm
Nominal rotational speed	3000 ... 9000 rpm	2000 ... 10,300 rpm	3000 rpm
Peak torque	0.7 ... 30 Nm	0.5 ... 120 Nm	1.6 ... 5.6 Nm
Max. rotational speed	3910 ... 10,000 rpm	2210 ... 23,040 rpm	6800 ... 12,500 rpm
NEW			• New series
Description	- Brushless, permanently excited synchronous servo motor - Digital absolute displacement encoder in single-turn or multi-turn version - Reliable, dynamic, precise - Optimised connection technology - Over 40 types in stock - Optionally with holding brake - Optional multi-turn encoder with SIL2	- Brushless, permanently excited synchronous servo motor - Digital absolute displacement encoder in single-turn or multi-turn version 66 types in stock 490 built-to-order variants - Optionally with holding brake, IP65, resolver - Various winding variants	- Brushless, permanently excited synchronous servo motor - Digital absolute displacement encoder in single-turn or multi-turn version - Extremely low resting torque – supports high synchronisation even at low rotational speeds - Simple connection technology (OCP: one cable plug) – one connecting cable for supply and encoder - Optionally with holding brake
→ Page/online	737	749	769

Stepper motors

	
Type	Stepper motors EMMS-ST
Max. rotational speed	430 ... 6000 rpm
Motor holding torque	0.09 ... 9.3 Nm
Description	- Small increment and high driving torques 28 types in stock - With incremental encoder for closed-loop operation - Optionally with holding brake
→ Page/online	777

Motors with integrated controller

	
Type	Integrated drives EMCA
Nominal torque	0.37 ... 0.45 Nm
Nominal rotational speed	3100 ... 3150 rpm
Peak torque	0.85 ... 0.91 Nm
Max. rotational speed	3300 ... 3500 1/min
Description	• 64 freely programmable position sets • Convenient web diagnostics • Digital absolute displacement encoder, single-turn and multi-turn with buffering • Degree of protection IP54 as standard, optionally IP65 • Actuation via CANopen, EtherNet/IP, I/O-Interface, PROFINET, EtherCAT®, Modbus/TCP • Interpolating movement via CANopen and EtherCat®
→ Page/online	791

05

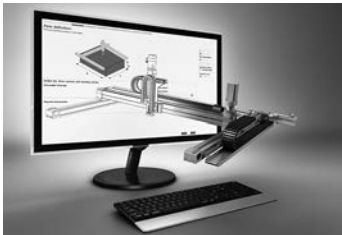
Gear units

				
Type	Gear units EMGC	Gear units EMGA-SST	Gear units EMGA-EAS	Gear units EMGA-SAS
Continuous output torque	2 ... 44 Nm	11 ... 110 Nm	11 ... 110 Nm	11 ... 450 Nm
Max. drive speed	4500 ... 6000 1/min	7000 ... 18,000 rpm	7000 ... 18,000 rpm	6500 ... 18,000 rpm
Torsional rigidity	0.105 ... 2.4 Nm/arcmin	1 ... 6 Nm/arcmin	1 ... 6 Nm/arcmin	1 ... 38 Nm/arcmin
Torsional backlash	0.5 ... 0.67°	0.12 ... 0.25°	0.12 ... 0.25°	0.1 ... 0.25°
Mass moment of inertia gear units	0.04 ... 0.4 kgcm²	0.019 ... 0.77 kgcm²	0.019 ... 0.77 kgcm²	0.019 ... 12.14 kgcm²
Max. efficiency	90 ... 94%	98%	98%	98%
Description	• Planetary gear units, one-stage or two-stage, for integrated drives EMCA • Gear ratio i = 5 and i = 20, available ex-stock • Life-time lubrication	• Planetary gear units for stepper motors EMMS-ST • Gear ratio i = 3 and i = 5, available from stock • Life-time lubrication	• Planetary gear units for servo motors EMMS-AS • Gear ratio i = 3 and i = 5, available from stock • Life-time lubrication	• Planetary gear units for servo motors EMMS-AS • Gear ratio i = 3 and i = 5, available from stock • Life-time lubrication
➔ Page/online	785	801	805	805

Motors and controllers

Product overview

Software tool

Festo Automation Suite 	Parameterisation, programming and maintenance of electronic devices from Festo in one software program The modular design and the ability to install device-specific plug-ins allow optimum customisation to your requirements. Interactive assistants help you to commission electric drive systems efficiently.	The Festo Automation Suite can be found on the Support Portal at www.festo.com/sp > enter search term "Festo Automation Suite" > click "Find" > select "Software" tab.
Festo Configuration Tool (FCT) 	FCT is a proven configuration and parameterisation software program that supports existing device families, in particular motor controllers. It is extremely flexible, provides full support for the device properties and is simple and intuitive to operate. The user is guided step-by-step through the commissioning process while each individual step is checked.	The parameterisation software can be found at www.festo.com/fct

Controllers for AC servo motors

Type	 Servo drives CMMT-AS	 Motor controllers CMMP-AS-M0, CMMP-AS-M3
Nominal current		2.5 ... 15 A
Nominal operating voltage AC	230 V	230 ... 400 V
Nominal operating voltage phases	1-phase	1-phase, 3-phase
Rated output controller	350 ... 700 VA	500 ... 12000 VA
Fieldbus coupling		PROFIBUS DP, CANopen, DeviceNet®, EtherCAT®, EtherNet/IP, Modbus/TCP, PROFINET
NEW	New series	
Description	- Single-phase servo drive - Can be used universally - Parameterisation, programming and maintenance with the Festo Automation Suite, see www.festo.com/sp	- Numerous interfaces and functions for decentralised motion functions (flying saw, flying measurement, modulo function, etc.) - Optional: integrated cam disk controllers and highly dynamic movements - Interpolating movement via CANopen and EtherCat - Standardised interfaces allow seamless integration in mechatronic multi-axis modular systems - Reliable and easy commissioning and parameterisation with the Festo Configuration Tool (FCT) - Optionally with 3 slots, safety module or extension module 255 position sets
→ Page/online	811	817

Controllers for DC servo motors

	Motor controllers SFC-DC	
	Type	
Nominal current load supply	3 A	
Nominal voltage, load supply DC	24V	
Rated output controller	75 VA	
Fieldbus coupling	CANopen, DeviceNet®, PROFIBUS DP	
Description	• For actuating parallel gripper HGPLE • Easy actuation via I/O interface, PROFIBUS, CANopen, DeviceNet® • Parameterisation via RS 232 interface • Field controller with protection to IP54 • Reliable and easy commissioning and parameterisation with the Festo Configuration Tool (FCT)	
→ Page/online	sfc-dc	

Controllers for stepper motors

	Motor controllers CMMO-ST			Motor controllers CMMS-ST	
	Type			Type	
Nominal current load supply	6 A			8 A	
Nominal voltage, load supply DC	24 V			48 V	
Fieldbus coupling	Ethernet			CANopen, PROFIBUS DP	
Description	• Motor controllers from the Optimised Motion Series (for drives EPCO, ELGR, ERMO) • With convenient FCT commissioning for stepper motor EMMS-ST • Quick and easy parameterisation via web browser and parameter cloud • Reliable and easy commissioning and parameterisation with the Festo Configuration Tool (FCT) • Simple actuation via digital I/Os, IO-Link®, I-Port, Modbus TCP • Safe torque off (STO) safety function, PLd • Sinusoidal current injection for especially silent motor operation • Compact design			• For controlling stepper motors EMMS-ST and Optimised Motion Series (for drives EPCO, ELGR, ERMO) • Easy and convenient: commissioning and firmware updates via SD card slot • Reliable and easy commissioning and parameterisation with the Festo Configuration Tool (FCT) • Integrated process interface: digital I/O module, CAN, RS485 • Safe torque off (STO) safety function, PLd • Optional PROFIBUS and DeviceNet®	
→ Page/online	825			cmms-st	

Product overview

Multi-axis controllers

			
Type	Controllers CMXH-ST2	Control blocks CPX-CEC-M1	Controllers CECX-X-C1, CECX-X-M1
CPU data		256 MB RAM, 32 MB flash, 800 MHz processor	64 MB DRAM, 400 MHz processor
Configuration support	FCT (Festo Configuration Tool)	CODESYS V3	
Processing time		Approx. 200 µs/1 k instructions	
Degree of protection	IP 20	IP65, IP67	IP20
Fieldbus coupling	1x CANopen Slave		
Description	- For actuating two stepper motors in servo mode - For actuating planar surface gantries EXCM-30 and EXCM-40 - Easy and convenient actuation using integrated transformation and linear interpolation - Supports the safe torque off (STO) safety function - Simple actuation via digital I/O interface, CAN interface or Ethernet TCP/IP - H-rail mounting possible - Parameterisation with the Festo Configuration Tool (FCT)	- Easy actuation of valve terminal configurations - Programming with CODESYS to IEC 61131-3 - Connection to all fieldbuses as a remote controller and for pre-processing - Actuation of electric drives via CANopen - SoftMotion functions for coordinated multi-axis movements	- Modular master controller with CODESYS or motion controller with CODESYS and SoftMotion - Programming to standard IEC 61131-3 - Three plug-in slots for optional modules - Optional: communication module for PROFIBUS
→ Page/online	cpx-cec-m1	cpx-cec-m1	cec-x

Positioners for process automation

		
Type	Positioners CMSX	★
Standard nominal flow rate	50 ... 130 l/min	
Ambient temperature	-5 ... 60 °C	
Setpoint value	0 - 20 mA, 4 - 20 mA, 0 - 10 V	
Operating voltage range DC	21.6 ... 26.4 V	
Operating pressure	3 ... 8 bar	
Safety information	Adjustable, opening, closing, holding	
Degree of protection	IP65	
Type of mounting	On flange ISO 5211, via accessories	
Information on materials - housing	PC	
Description	- Digital electropneumatic positioner for single-acting or double-acting pneumatic quarter turn actuators and double-acting pneumatic linear actuators - No air consumption at rest - Safety function in the event of a power failure: fail-safe or fail-freeze function (opening/closing or blocking)	
→ Page/online	cmsx	

Accessories for motors and controllers

		
Type	Safety modules CAMC-G-S1	Safety modules CAMC-G-S3
Safety function	Safe Torque Off (STO)	Safe Torque Off (STO), Safe Stop 1 (SS1), Safe Stop 2 (SS2), Safe Operating Stop (SOS), Safely Limited Speed (SLS), Safe Speed Range (SSR), Safe Brake Control (SBC), Safe Speed Monitor (SSM)
Safety Integrity Level (SIL)	Safe Torque Off (STO)/SIL 3/SILCL 3	Safe Brake Control (SBC)/SIL 3, Safely Limited Speed (SLS)/SIL 3, Safe Operating Stop (SOS)/SIL 3, Safe Stop 1 (SS1)/SIL 3, Safe Stop 2 (SS2)/SIL 3, Safe Speed Monitor (SSM)/SIL 3, Safe Speed Range (SSR)/SIL 3, Safe Torque Off (STO)/SIL 3
Characteristics of logic inputs	Electrically isolated	4 safe, 2-channel inputs equivalent/antivalent switching, configurable test pulses, configurable function, 6 safe, 1-channel inputs, configurable test pulses
No. of digital logic inputs	2	10
Digital output design	Potential-free signal contact	3 safe, 2-channel semiconductor outputs
Description	• Plug-in module • For motor controller CMMP-AS-...-M3	• Plug-in module • For motor controller CMMP-AS-...-M3
→ Page/online	camc	camc

Power supply units

	
Type	Power supply units CACN
Nominal output voltage DC	24 ... 48 V
Nominal output current	5 ... 20 A
Input voltage range AC	100 ... 500 V
Power failure buffering	24 ... 110 ms
Description	• H-rail mounting • Mounting position: free convection
→ Page/online	cacn



Economical solution

- + Wear-free and maintenance-free synchronous motor for a long service life
- + Short delivery times
- + SIL2 multi-turn encoder for high safety requirements
- + High efficiency ensures economical operation

Servo motors ›

Servo motors

EMME-AS

Servo motors >

Servo motors

EMME-AS



Overview, configuration and ordering

→ www.festo.com/catalogue/emme-as



Additional information, support and user documentation

→ www.festo.com/sp/emme-as



- + Brushless, permanently excited synchronous servo motor
- + Choice of feedback systems: digital absolute displacement encoder, single-turn or multi-turn
- + Optional: absolute displacement encoder, multi-turn with SIL2
- + Optimised connection technology

Servo motors EMME-AS

Product range overview

Motor flange size	Nominal voltage [V AC]	Nominal torque [Nm]	Product options									
			S	M	LS	LV	HS	A	S	M	MX	B
40	360	0.12 ... 0.21	■	■	–	■	–	■	■	■	–	■
60	360	0.6 ... 1.2	■	■	■	–	–	■	■	■	■	■
80	360, 565	2.3 ... 3.2	■	■	■	–	■	■	■	■	■	■
100	565	4.8 ... 6.4	■	■	–	–	■	■	■	■	■	■

Product options

S	Short length	LS	Low-voltage, standard	A	Push-in L-connector	MX	Absolute safety encoder, multi-turn
M	Medium length	LV	Low-voltage, speed-optimised	S	Absolute, single-turn	B	Brake
K	Shaft to DIN 6885 (with feather key)	HS	High-voltage, standard	M	Absolute encoder, multi-turn		

Data sheet



Technical data										Dimensions → Page 748	
Motor flange size		40		60		80				100	
Length		S	M	S	M	S		M		S	M
Winding		LV	LV	LS	LS	LS	HS	LS	HS	HS	HS
Nominal voltage	[V AC]	360	360	360	360	360	565	360	565	565	565
Nominal current	[A]	0.7	1.2	0.8	1.5	2.6	1.6	3.7	2.1	3.0	4.1
Continuous stall current		0.8	1.6	0.9	1.8	3.1	1.8	3.9	2.2	3.4	4.6
Peak current	[A]	3.2	6.4	3.6	7.2	12.4	7.2	15.6	8.8	13.6	18.4
Nominal power	[W]	110	200	190	380	750	720	1000	1000	1500	2000
Nominal torque	[Nm]	0.12	0.21	0.6	1.2	2.4	2.3	3.2	3.2	4.8	6.4
Peak torque	[Nm]	0.7	1.4	2.8	6.0	11.2	11.2	14.0	14.0	22.4	30.0
Standstill torque	[Nm]	0.18	0.35	0.7	1.5	2.8	2.8	3.5	3.5	5.6	7.5
Nominal rotational speed	[rpm]	9000	9000	3000	3000	3000	3000	3000	3000	3000	3000
Max. rotational speed	[rpm]	10000	10000	5131	4925	4690	4192	4627	4097	3910	3941
Brake											
Operating voltage	[V DC]	24 +6 ... –10%									
Performance	[W]	8		11		12				18	
Holding torque	[Nm]	0.4		2.0		4.5				9.0	

Operating conditions	
Ambient temperature	[°C] –10 ... +40 (up to 100 °C with derating of 1.5% per degree Celsius)
Degree of protection	
Motor shaft	IP21
Motor housing incl. connection technology	IP65
Insulation class	F (155 °C)
Rating class to EN 60034-1	S1 (continuous operation)
Thermal class to EN 60034-1	F (155 °C)

Servo motors >

Servo motors EMME-AS

Data sheet

Safety characteristics – Encoder									
Type	EMME-AS-...-S				EMME-AS-...-M				
Flange size	40	60	80	100	40	60	80	100	
Measuring unit	Absolute, single-turn (SEK 34/37)				Absolute, multi-turn (SEL 34/37)				
Rotor position encoder									
MTTFd ¹⁾	Years	340			271				
Holding brake									
MTTF	Years	371	538	797	1037	371	538	797	1037
Switching cycles ²⁾	5 million idle actuations								

- 1) Fault exclusions for the mechanical encoder connection are not possible.
- 2) Guide value for the number of switching actuations (release/application) during exclusive use as holding brake without friction (i.e. jamming at standstill).

Technical data – Encoder		
Type	EMME-AS-...-S	EMME-AS-...-M
Measuring unit	Absolute, single-turn (SEK 34/37)	
Operating voltage	[V DC]	Absolute, multi-turn (SEL 34/37)
Interface signals/Protocol – HIPERFACE®		
Measuring principle	Capacitive	
Process data channel	SIN, REFSIN, COS, REFCOS (analogue differential)	
Sinusoidal/cosinusoidal periods per revolution	16	
Parameter channel	RS485 (digital)	
Absolute position values per revolution	512 (resolution 9 bits)	
Max. rotational speed		
For absolute value generation	[rpm]	6000
Mechanical	[rpm]	12000
Revolutions	1	4096 revolutions, 12 bits
Interpolation of sine/cosine signals in the motor controller ³⁾		
Measurement step at e.g. 12 bits per period	20" (angular seconds) [360°/16/2 ¹² =20"]	
Angular accuracy	±20' (angular minutes)	

- 3) Dependent on the motor controller.

Safety characteristics – Encoder with SIL transmitter ⁴⁾	
Type	EMME-AS-...-MX
Measuring unit	Absolute, multi-turn (SKM36S)
Rotor position encoder	
MTTFd	874 years
Performance Level (PL) to EN ISO 13849-1	Category 3, Performance Level d
Safety Integrity Level (SIL) to EN 62061, EN 61508	SIL2
PFHd	1.3x 10 ^{−8}
T _M (duration of use)	20 years
CE marking (see declaration of conformity)	To EU EMC Directive ⁵⁾

- 4) Related documents from SICK AG → www.sick.com:
Description of HIPERFACE® Interface
Implementation Manual on HIPERFACE® Safety
Operating Instructions on SKM36S Stand-Alone
- 5) For information about the area of use, see the EC declaration of conformity at: www.festo.com/sp → Certificates.
If the device is subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

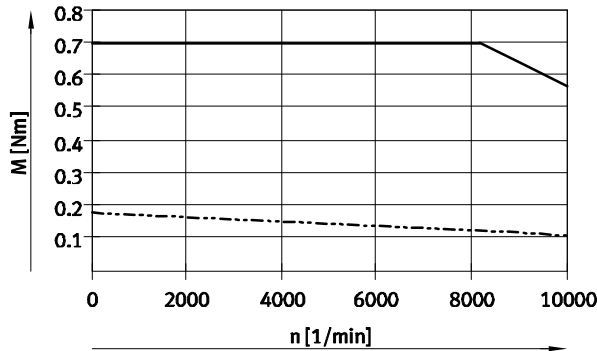
Data sheet

Technical data – Encoder with SIL transmitter		
Type	EMME-AS-...-MX	
Measuring unit	Absolute, multi-turn (SKM36S)	
Operating voltage	[V DC]	7 ... 12 (±5%)
Interface signals/Protocol – HIPERFACE®		
Measuring principle	Optical	
Process data channel	SIN, REFSIN, COS, REFCOS (analogue differential)	
Sinusoidal/cosinusoidal periods per revolution	128	
Parameter channel	RS485 (digital)	
Absolute position values per revolution	4096 (resolution 12 bits)	
Max. rotational speed		
For absolute value generation	[rpm]	9000
Mechanical	[rpm]	9000
Revolutions	4096 revolutions, 12 bits	
Interpolation of sine/cosine signals in the motor controller ¹⁾		
Measurement step at e.g. 12 bits per period	2.5'' (angular seconds) [360°/128/212=2.5'']	
Angular accuracy	±20' (angular minutes)	

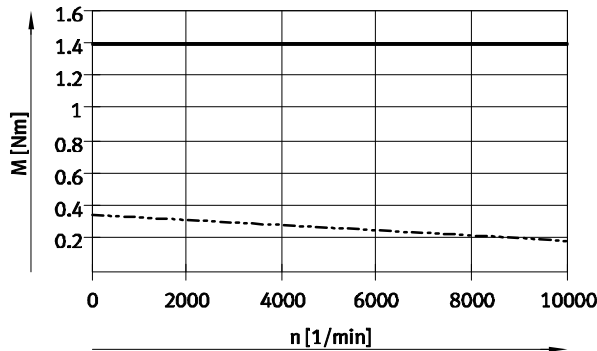
1) Dependent on the motor controller.

Torque M as a function of rotational speed n
Flange size 40

Length S
Winding LV

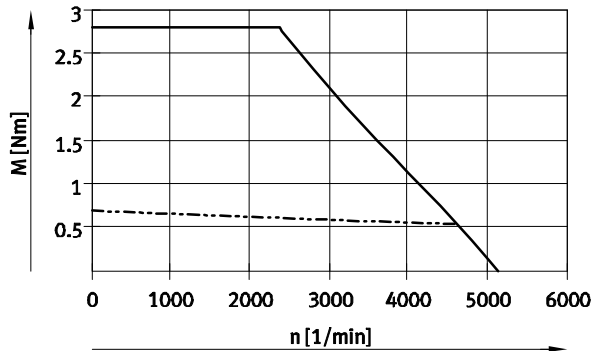


Length M
Winding LV

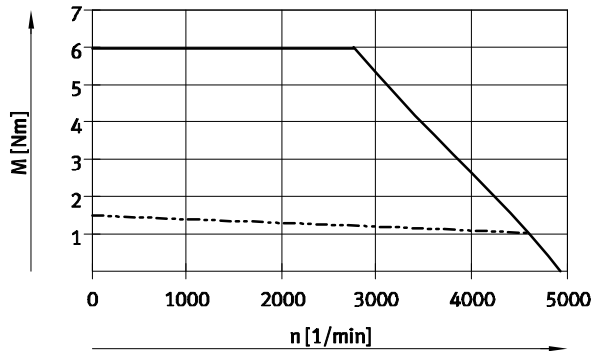


Flange size 60

Length S
Winding LS



Length M
Winding LS



— Peak torque
- - - Nominal torque

Note
Typical motor characteristic curve with nominal voltage and optimal motor controller.

Servo motors >

Servo motors EMME-AS

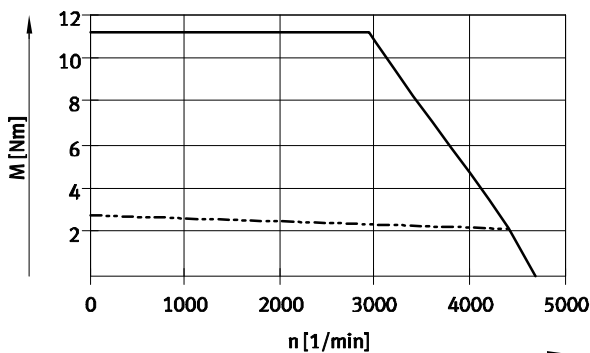
Data sheet

Torque M as a function of rotational speed n

Flange size 80

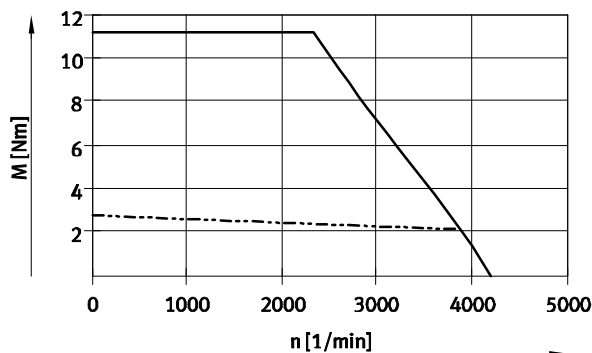
Length S

Winding LS



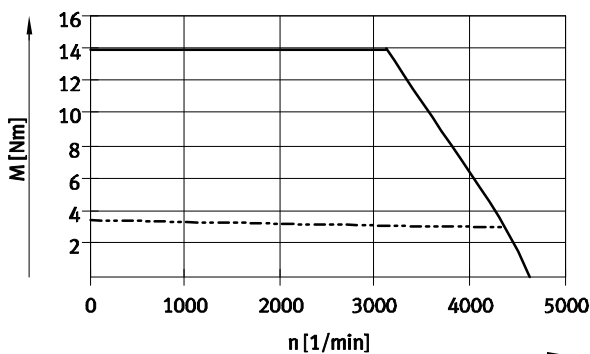
Length S

Winding HS



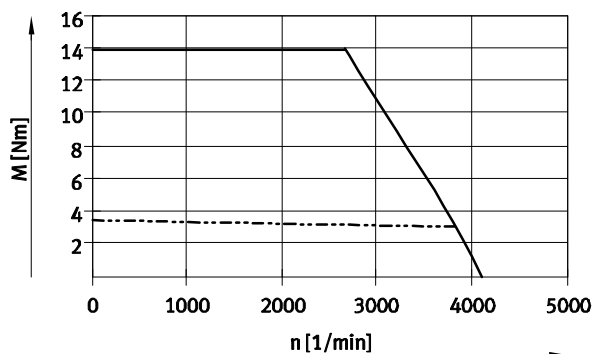
Length M

Winding LS



Length M

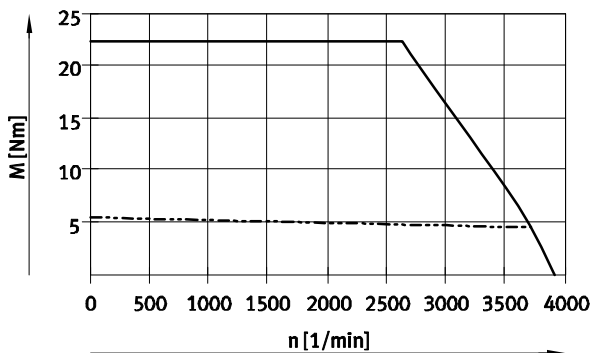
Winding HS



Flange size 100

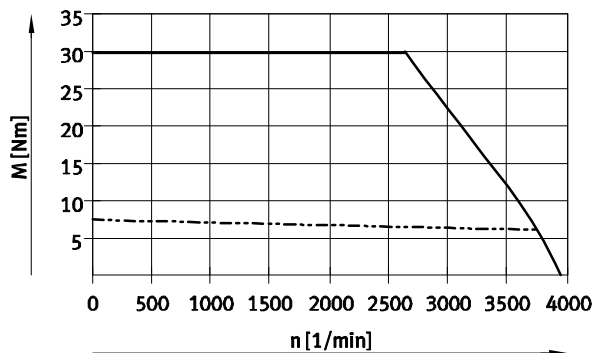
Length S

Winding HS



Length M

Winding HS



— Peak torque
 - - - Nominal torque

Note

Typical motor characteristic curve with nominal voltage and optimal motor controller.

Order code – Flange size 40

		EMME	–	AS	–	40	–		–	LV	–	A
Type												
EMME	Motor											
Motor type												
AS	Servo motor											
Motor flange size												
40	40 mm											
Length												
S	Short											
M	Medium											
Winding												
LV	Low-voltage, speed optimised											
Electrical connection												
A	Push-in L-connector, fixed – outlet direction: shaft											
Measuring unit												
S	Absolute encoder, single-turn											
M	Absolute encoder, multi-turn											
Brake												
–	None											
B	With brake											

Order example:

EMME-AS-40-M-LV-ASB
Motor EMME - servo motor - flange size 40 - length: medium - winding: low-voltage, speed-optimised - push-in L-connector - measuring unit: absolute encoder, single-turn - with brake

Servo motors >

Servo motors EMME-AS

Order code – Flange size 60

05

Motors and controllers

		EMME	–	AS	–	60	–		–	LS	–	A
Type												
EMME	Motor											
Motor type												
AS	Servo motor											
Motor flange size												
60	60 mm											
Length												
S	Short											
M	Medium											
Output shaft												
–	Smooth shaft											
K	Shaft to DIN 6885 (with feather key)	1										
Winding												
LS	Low voltage, standard											
Electrical connection												
A	Push-in L-connector, fixed – outlet direction: shaft											
Measuring unit												
S	Absolute encoder, single-turn											
M	Absolute encoder, multi-turn											
MX	Absolute safety encoder, multi-turn											
Brake												
–	None											
B	With brake											

1

 Only with measuring unit MX

Order example:

EMME-AS-60-M-LS-ASB

Motor EMME - servo motor - flange size 60 - length: medium - smooth shaft - winding: low-voltage, standard - push-in L-connector - measuring unit: absolute encoder, single-turn - with brake

Order code – Flange size 80

		EMME	–	AS	–	80	–		–		–	A
Type												
EMME	Motor											
Motor type												
AS	Servo motor											
Motor flange size												
80	80 mm											
Length												
S	Short											
M	Medium											
Output shaft												
–	Smooth shaft											
K	Shaft to DIN 6885 (with feather key)	1										
Winding												
LS	Low voltage, standard											
HS	High-voltage, standard											
Electrical connection												
A	Push-in L-connector, fixed – outlet direction: shaft											
Measuring unit												
S	Absolute encoder, single-turn											
M	Absolute encoder, multi-turn											
MX	Absolute safety encoder, multi-turn											
Brake												
–	None											
B	With brake											

1 Only with measuring unit MX

Order example:

EMME-AS-80-M-LS-ASB
Motor EMME - servo motor - flange size 80 - length: medium - smooth shaft - winding: low-voltage, standard - push-in L-connector - measuring unit: absolute encoder, single-turn - with brake

Servo motors >

Servo motors EMME-AS

Order code – Flange size 100

	EMME	–	AS	–	100	–		–	HS	–	A
Type											
EMME	Motor										
Motor type											
AS	Servo motor										
Motor flange size											
100	100 mm										
Length											
S	Short										
M	Medium										
Output shaft											
–	Smooth shaft										
K	Shaft to DIN 6885 (with feather key) 1										
Winding											
HS	High-voltage, standard										
Electrical connection											
A	Push-in L-connector, fixed – outlet direction: shaft										
Measuring unit											
S	Absolute encoder, single-turn										
M	Absolute encoder, multi-turn										
MX	Absolute safety encoder, multi-turn										
Brake											
–	None										
B	With brake										

1 Only with measuring unit MX

Order example:

EMME-AS-100-M-HS-ASB

Motor EMME - servo motor - flange size 100 - length: medium - smooth shaft - winding: high-voltage, standard - push-in L-connector - measuring unit: absolute encoder, single-turn - with brake

Ordering – Product options

Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or

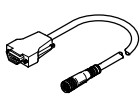
➔ www.festo.com/catalogue/...

Enter the type code in the search field.

Accessories – Ordering data

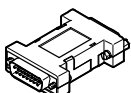
Motor cable		Part no.	Type
	Cable length [m]		
	For EMME-AS-40/60 with CMMP-AS (cable cross section output: 0.75 mm²)		
	2.5	8004662	NEBM-M16G8-E-2.5-Q7-LE8
	5.0	8003770	NEBM-M16G8-E-5-Q7-LE8
	7.5	8004663	NEBM-M16G8-E-7.5-Q7-LE8
	10.0	8003771	NEBM-M16G8-E-10-Q7-LE8
	15.0	8003772	NEBM-M16G8-E-15-Q7-LE8
	X length ¹⁾	8003773	NEBM-M16G8-E-...-Q7-LE8
	For EMME-AS-40/60 with CMMT-AS (cable cross section output: 0.75 mm²)		
	2.5	5391541	NEBM-M16G8-E-2.5-Q7-LE8-1
	5.0	5391543	NEBM-M16G8-E-5-Q7-LE8-1
	7.5	5391548	NEBM-M16G8-E-7.5-Q7-LE8-1
	10.0	8085952	NEBM-M16G8-E-10-Q7-LE8-1
	15.0	8085953	NEBM-M16G8-E-15-Q7-LE8-1
	X length ¹⁾	8085954	NEBM-M16G8-E-...-Q7-LE8-1
	For EMME-AS-80/100 with CMMP-AS (cable cross section output: 1.5 mm²)		
	2.5	8004660	NEBM-M16G8-E-2.5-Q9-LE8
	5.0	8003766	NEBM-M16G8-E-5-Q9-LE8
	7.5	8004661	NEBM-M16G8-E-7.5-Q9-LE8
	10.0	8003767	NEBM-M16G8-E-10-Q9-LE8
	15.0	8003768	NEBM-M16G8-E-15-Q9-LE8
	X length ¹⁾	8003769	NEBM-M16G8-E-...-Q9-LE8
	For EMME-AS-80/100 with CMMT-AS (cable cross section output: 1.5 mm²)		
	2.5	5391540	NEBM-M16G8-E-2.5-Q9-LE8-1
	5.0	5391545	NEBM-M16G8-E-5-Q9-LE8-1
	7.5	5391547	NEBM-M16G8-E-7.5-Q9-LE8-1
	10.0	5391549	NEBM-M16G8-E-10-Q9-LE8-1
	15.0	5391550	NEBM-M16G8-E-15-Q9-LE8-1
	X length ¹⁾	5392489	NEBM-M16G8-E-...-Q9-LE8-1

1) Selectable cable length: 0.5 ... 99.9 m, in 0.1 m increments. Cable lengths >25 m possible following technical clarification. For motors with a holding brake, the max. cable length is 50 m.

Encoder cable		Part no.	Type
	Cable length [m]		
	For EMME-AS-40/60/80/100 with CMMP-AS		
	2.5	8004664	NEBM-M12G8-E-2.5-N-S1G15
	5.0	8003762	NEBM-M12G8-E-5-N-S1G15
	7.5	8004665	NEBM-M12G8-E-7.5-N-S1G15
	10.0	8003763	NEBM-M12G8-E-10-N-S1G15
	15.0	8003764	NEBM-M12G8-E-15-N-S1G15
	X length ¹⁾	8003765	NEBM-M12G8-E-...-N-S1G15
	For EMME-AS-40/60/80/100 with CMMT-AS		
	2.5	5212312	NEBM-M12G8-E-2.5-N-R3G8
	5.0	5212313	NEBM-M12G8-E-5-N-R3G8
	7.5	5212314	NEBM-M12G8-E-7.5-N-R3G8
	10.0	5212315	NEBM-M12G8-E-10-N-R3G8
	15.0	5212316	NEBM-M12G8-E-15-N-R3G8
	X length ^{1) 2)}	5212317	NEBM-M12G8-E-...-N-R3G8

1) Selectable cable length: 0.5 ... 99.9 m, in 0.1 m increments. Cable lengths >25 m possible following technical clarification. For motors with a holding brake, the max. cable length is 50 m.

2) EMC filter CAMF-C5-FC included in the scope of delivery.

EMC filter ³⁾		Part no.	Type
	Degree of protection	Ambient temperature [°C]	
	IP 30 in assembled state	-40 ... +80	4825847 CAMF-C5-FC

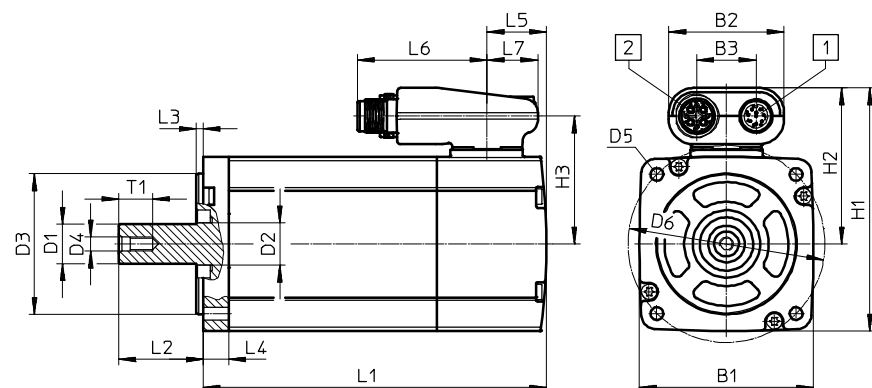
3) For cable lengths ≥ 10 m, the use of the EMC filter is recommended to reduce EMC interference.
For encoder cables ≥ 10 m, the filter is included in the scope of delivery of the cable.

Servo motors >

Servo motors EMME-AS

Dimensions

Download CAD data → www.festo.com

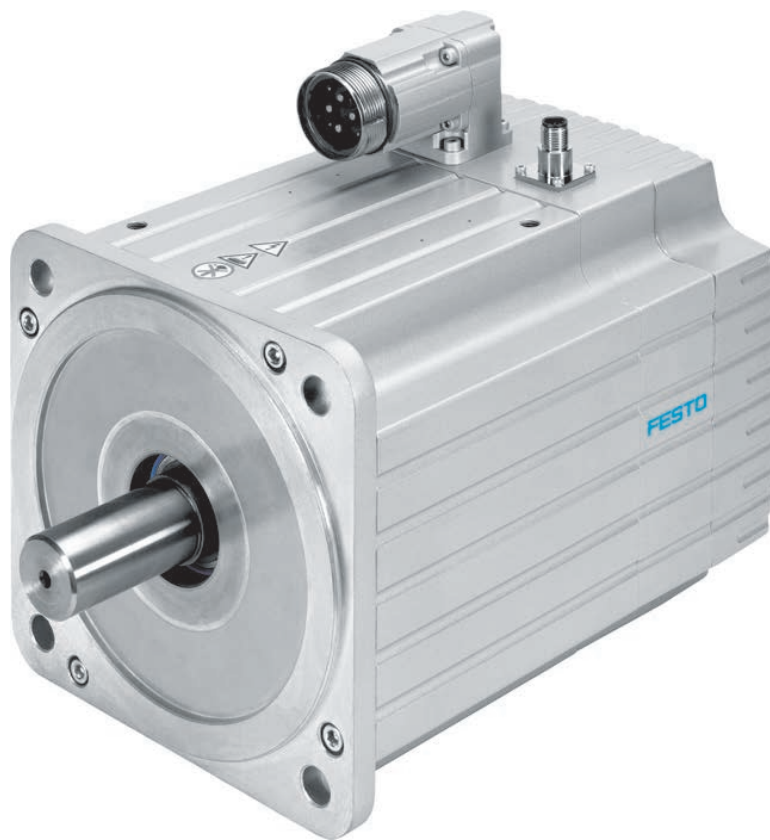


- 1 Encoder cable
- 2 Motor cable

Flange size	Length	B1	B2	B3	D1 Ø h6	D2 Ø	D3 Ø h7	D4
40	S	40	41	21	8	10	30	M3
	M							
60	S	62	41	21	14	15	50	M5
	M							
80	S	82	41	21	19	20	70	M6
	M							
100	S	102	41	21	19	25	95	M6
	M							

Flange size	Length	D5 Ø	D6 Ø ±0.3	H1	H2	H3	L1	
							±2	With brake ±2
40	S	3.4	45	68.5	48.5	38.5	89	124
	M						114	149
60	S	4.5	70	86.5	55.5	45.5	122	156
	M						152	186
80	S	5.5	90	106.5	65.5	55.5	158	200
	M						178	220
100	S	9	115	126.5	75.5	65.5	200	242
	M						225	267

Flange size	Length	L2	L3 ±0.2	L4 ±0.3	L5	L6	L7	T1
40	S	20+0.5/-0.7	2.5	4.5	25.3	46.2	18	9
	M							
60	S	30+0.5/-0.2	2.5	9	21	46.2	18	12.5
	M							
80	S	35+0.4/-0.2	3	10	23	46.2	18	16
	M							
100	S	40+0.4/-0.2	3	12	25.5	46.2	18	16
	M							



Short delivery time

- + Always the perfect fit and best choice for your application with numerous best sellers in stock or as build-to-order variants
- + Wear-free and maintenance-free synchronous motor for a long service life
- + High efficiency ensures economical operation

Servo motors ›

Servo motors

EMMS-AS

Servo motors >

Servo motors

EMMS-AS



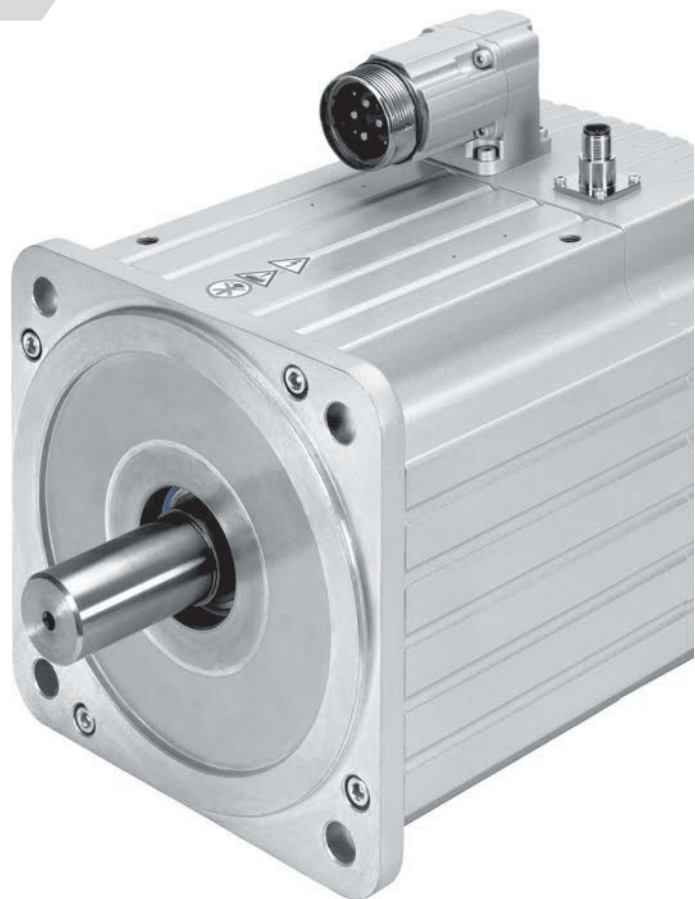
Overview, configuration and ordering

→ www.festo.com/catalogue/emms-as



Additional information, support and user documentation

→ www.festo.com/sp/emms-as



- + Brushless, permanently excited synchronous servo motor
- + Digital absolute displacement encoder in single-turn or multi-turn version
- + Range of options: holding brake, shaft sealing ring, woodruff key, resolver and different winding variants
- + Over 60 variants in stock

Product range overview

Motor flange size	Nominal voltage [V AC]	Nominal torque [Nm]	Product options																
			S	M	L	K	LS	LV	HS	HV	A	R	S	T	S	M	R	B	S1
40	360	0.14 ... 0.22	■	■	–	■	■	–	–	–	–	–	■	■	■	■	■	■	–
55	360, 565	0.31 ... 0.68	■	–	–	■	■	–	■	–	–	■	–	■	■	■	■	■	■
70	360, 565	1.37 ... 2.29	■	■	–	■	■	■	■	■	–	–	–	–	■	■	■	■	■
100	565	3.24 ... 7.51	■	■	■	■	–	–	■	■	–	■	–	–	■	■	■	■	■
140	565	9.55 ... 21.12	■	–	■	■	–	–	■	■	–	■	–	–	■	■	■	■	■
190	565	17.47 ... 22.63	■	–	–	■	–	–	■	–	■	–	–	–	■	■	■	■	■

Product options

S	Short length	LS	Low voltage, standard	A	Push-in L-connector	S	Absolute encoder, single turn
M	Medium length	LV	Low voltage, speed-optimised	R	Push-in L-connector, rotatable	M	Absolute encoder, multi-turn
L	Long length	HS	High voltage, standard	S	Straight plug	R	Resolver
K	Shaft to DIN 6885 (with feather key)	HV	High voltage, speed-optimised	T	Terminal box	B	Brake
						S1	IP65 (with rotary shaft seal)

Data sheet



Technical data		Dimensions → Page 765									
Motor flange size		40		55			70				
Length		S	M	S	S	M	M	S	S	S	S
Winding		LS	LS	LS	HS	LS	HS	LS	LV	HS	HV
Nominal voltage	[V AC]	360	360	360	565	360	565	360	360	565	565
Nominal current	[A]	0.83	0.63	0.83	0.49	1.19	0.80	2.20	2.64	1.29	1.60
Peak current	[A]	3.3	3.3	4.30	2.70	5	4.90	5	11	5.90	7.50
Nominal power	[W]	135	232	261	246	461	470	866	945	794	992
Nominal torque	[Nm]	0.14	0.22	0.34	0.31	0.67	0.68	1.43	1.37	1.31	1.28
Peak torque	[Nm]	0.5	1	1.65	1.62	2.7	3.8	3.10	5	5.17	5.17
Standstill torque	[Nm]	0.16	0.26	0.49	0.46	0.97	0.99	1.64	1.64	1.50	1.62
Nominal rotational speed	[rpm]	9000	10,300	7400	7600	6600	6600	5300	6600	5800	7400
Max. rotational speed	[rpm]	23,040	11,520	9800	9840	7330	7750	6450	8070	6460	8200
Brake											
Operating voltage	[V DC]	24 +6 ... –10%									
Holding torque	[Nm]	0.4		0.8			2				

Flange size	70				100			
Length	M	M	M	M	S	M	L	L
Winding	LS	LV	HS	HV	HS	HS	HS	HV
Nominal voltage	[V AC]	360	360	565	565	565	565	565
Nominal current	[A]	2.60	3.02	1.70	1.84	3.30	3.40	3.79
Peak current	[A]	10	12.50	7.40	8.30	15	15	24.80
Nominal power	[W]	1061	1100	1044	1146	1560	2000	2240
Nominal torque	[Nm]	2.29	2.28	2.26	2.19	3.24	5.63	7.51
Peak torque	[Nm]	7.75	8.30	8.55	8.55	12.50	22.10	39.80
Standstill torque	[Nm]	2.56	2.57	2.53	2.52	4.71	8.01	10.94
Nominal rotational speed	[rpm]	4100	4600	4400	5000	4600	3400	3000
Max. rotational speed	[rpm]	4880	5570	4960	5560	6680	4030	3360
Brake								
Operating voltage	[V DC]	24 +6 ... –10%						
Holding torque	[Nm]	2				9		

Servo motors EMMS-AS

Data sheet

Flange size	140				190	
Length	S	S	L	L	S	M
Winding	HS	HV	HS	HV	HS	HS
Nominal voltage	[V AC]	565	565	565	565	565
Nominal current	[A]	4.40	5.23	7.80	9.96	14.24
Peak current	[A]	15	24.40	20	51.50	88.20
Nominal power	[W]	2600	3140	4420	5110	5490
Nominal torque	[Nm]	9.55	7.70	21.12	17.41	17.47
Peak torque	[Nm]	25.60	27	48.80	67.50	80
Standstill torque	[Nm]	11.20	11.08	25.60	25.50	26.20
Nominal rotational speed	[rpm]	2600	3900	2000	2800	3000
Max. rotational speed	[rpm]	3060	4510	2460	3830	5300
Brake						4060
Operating voltage	[V DC]	24 +6 ... -10%				
Holding torque	[Nm]	18				30

Operating conditions		Encoder	Resolver
Ambient temperature	[°C]	−10 ... +40 (up to 100°C with derating)	−40 ... +40 (up to 130°C with derating)
Degree of protection			
Motor shaft		IP54	
Motor housing incl. connection technology		IP65	
With shaft sealing ring		IP65	
Insulation class		F	
Rating class to EN 60034-1		S1	
Thermal class to EN 60034-1		F	

Technical data – Encoder		
Type	EMMS-AS-...-...S... Absolute, single turn	EMMS-AS-...-...M... Absolute, multi-turn
Operating voltage	[V DC]	5
Protocol	EnDat 2.1, digital channel only, max. cycle rate (CLOCK) 2 MHz	
Position values per revolution	262 144	
Resolution	18 bit	
	–	4096 revolutions, 12 bits

Technical data – Resolver		
Version		Transmitter
Input voltage	[V DC]	4
Input current	[mA]	50
Number of poles		2
Carrier frequency	[kHz]	3.4 ... 8.0

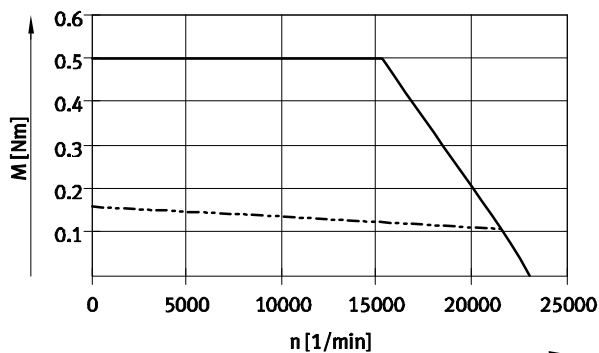
Data sheet

Torque M as a function of rotational speed n

Flange size 40

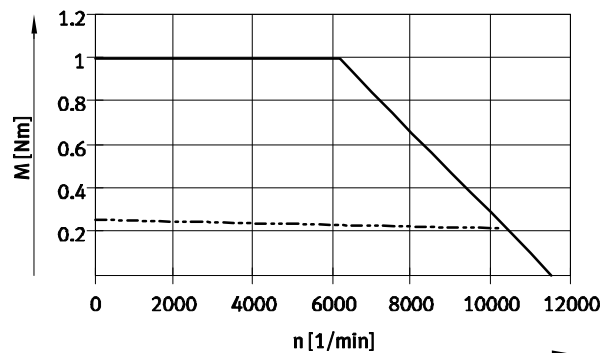
Length S

Winding LS



Length M

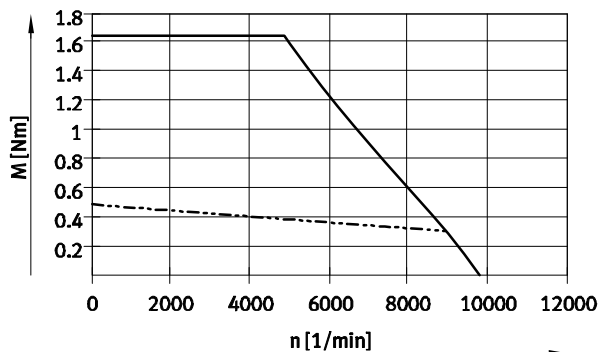
Winding LS



Flange size 55

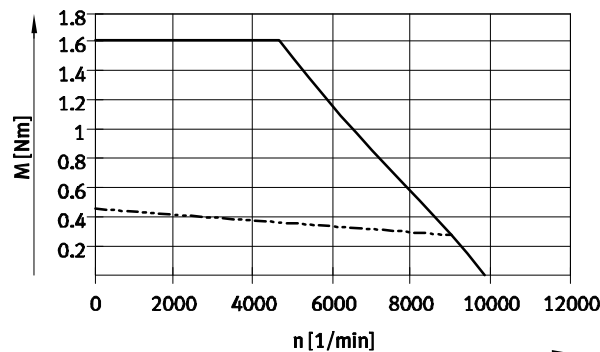
Length S

Winding LS



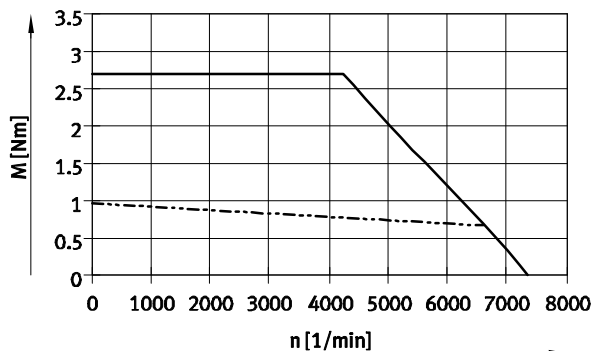
Length S

Winding HS



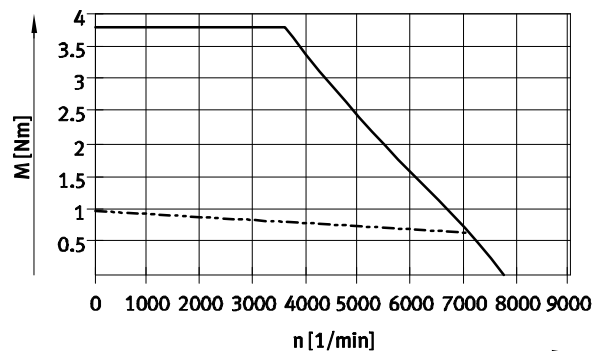
Length M

Winding LS



Length M

Winding HS



— Peak torque
- - - - - Nominal torque

Note

Typical motor characteristic curve with nominal voltage and optimal motor controller.

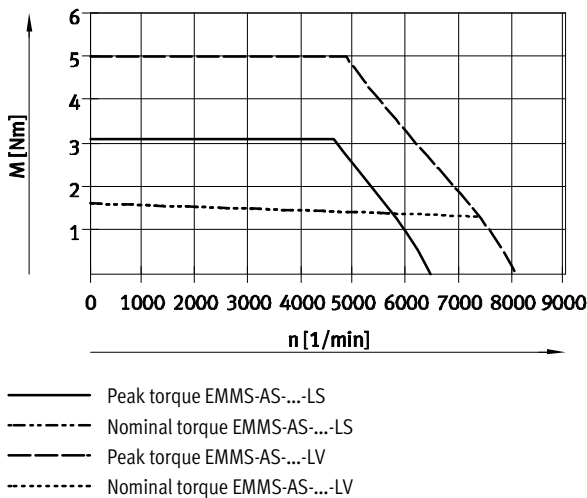
Servo motors >

Servo motors EMMS-AS

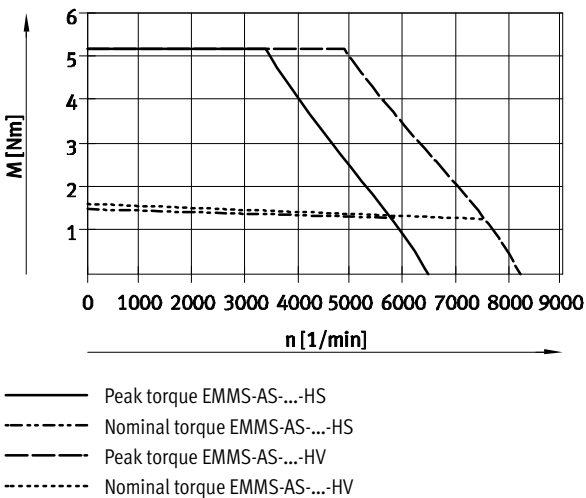
Data sheet

Torque **M** as a function of rotational speed **n**
Flange size 70

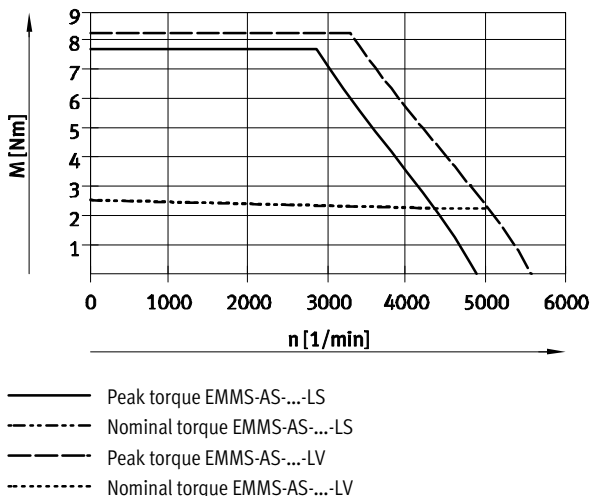
Length S
Winding LS, LV



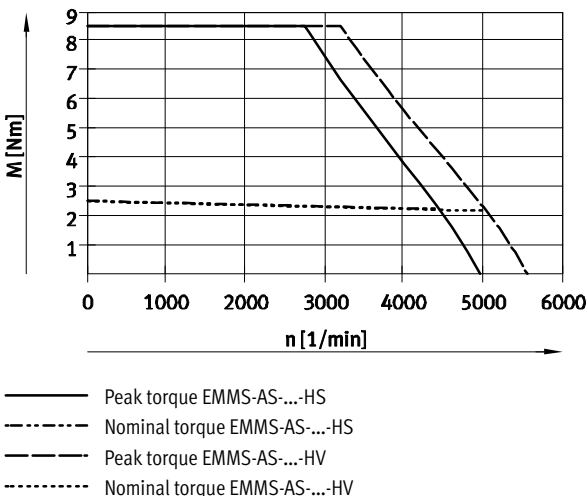
Length S
Winding HS, HV



Length M
Winding LS, LV



Length M
Winding HS, HV



Note
Typical motor characteristic curve with nominal voltage and optimal motor controller.

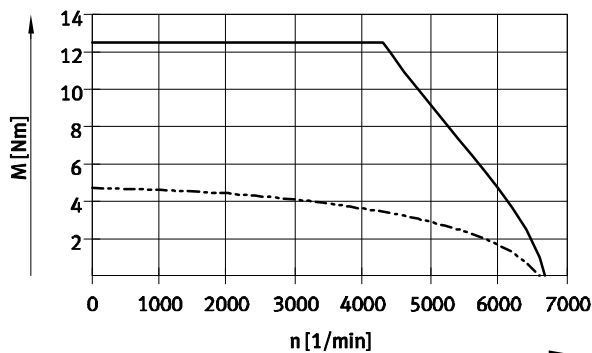
Data sheet

Torque M as a function of rotational speed n

Flange size 100

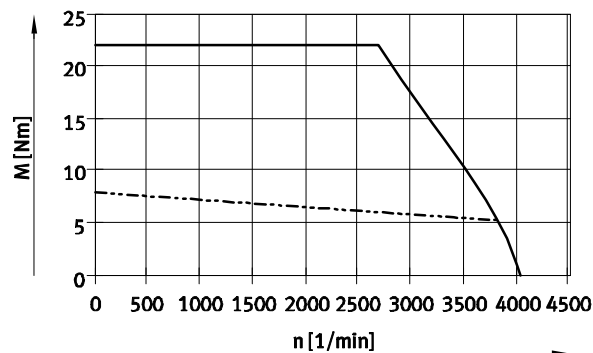
Length S

Winding HS



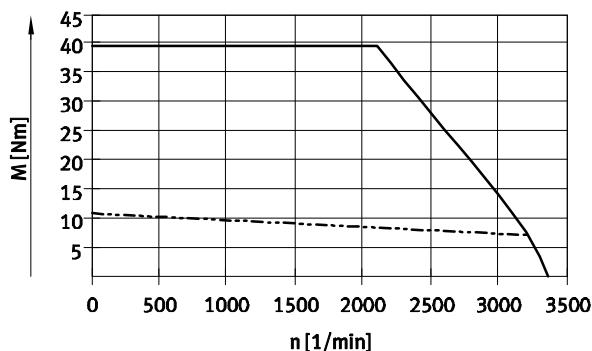
Length M

Winding HS



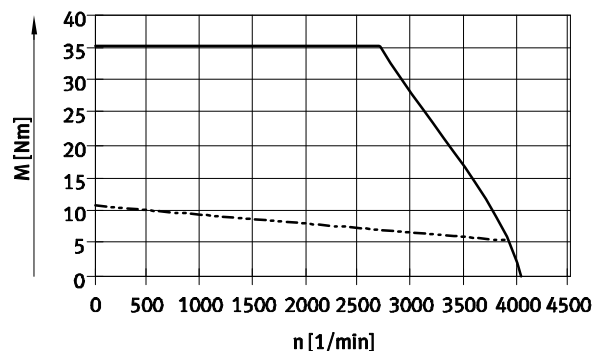
Length L

Winding HS



Length L

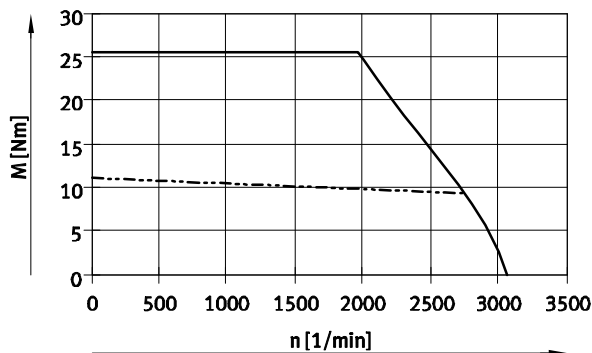
Winding HV



Flange size 140

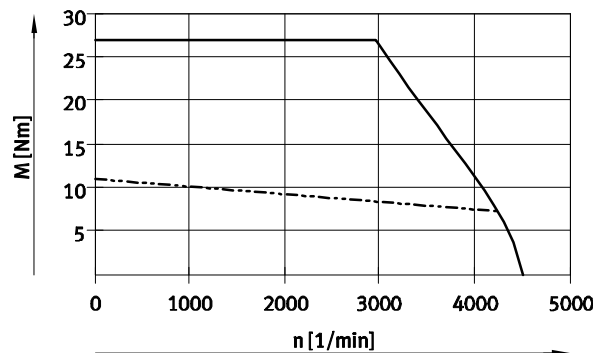
Length S

Winding HS



Length S

Winding HV



— Peak torque
 - - - - - Nominal torque

Note

Typical motor characteristic curve with nominal voltage and optimal motor controller.

Servo motors >

Servo motors EMMS-AS

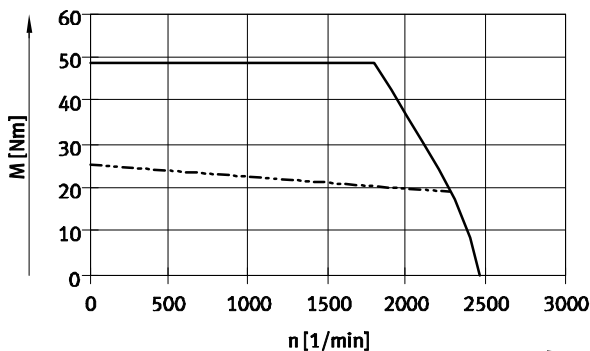
Data sheet

Torque M as a function of rotational speed n

Flange size 140

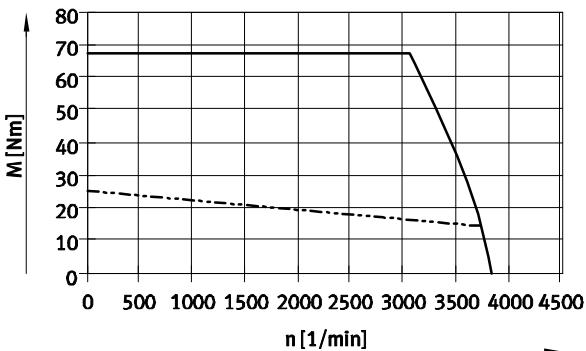
Length L

Winding HS



Length L

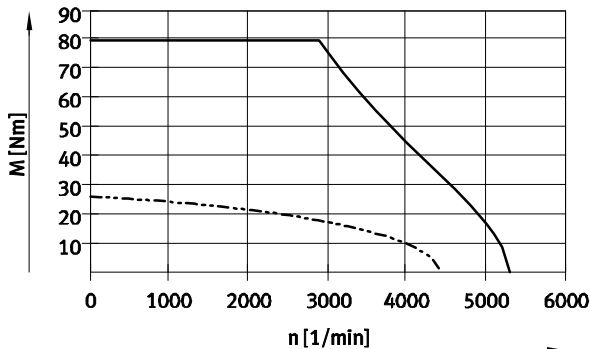
Winding HV



Flange size 190

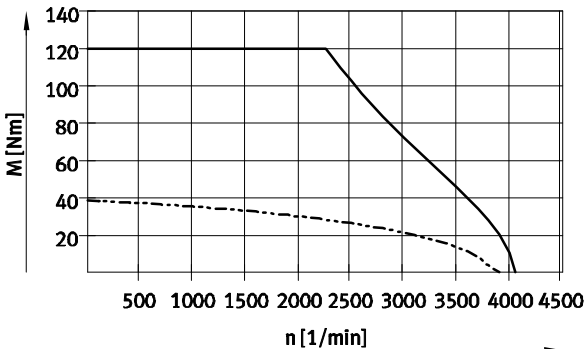
Length S

Winding HS



Length M

Winding HS



— Peak torque
- - - Nominal torque

Note

Typical motor characteristic curve with nominal voltage and optimal motor controller.

Order code – Flange size 40

		EMMS	–	AS	–	40	–		–	LS	–	
Type												
EMMS	Motor											
Motor type												
AS	Servo motor											
Motor flange size												
40	40 mm											
Length												
S	Short											
M	Medium											
Output shaft												
–	Smooth shaft											
K	Shaft to DIN 6885 (with feather key)											
Winding												
LS	Low voltage, standard											
Electrical connection												
S	Straight plug											
T	Terminal box											
Measuring unit												
S	Absolute encoder, single turn											1
M	Absolute encoder, multi-turn											1
R	Resolver											2
Brake												
–	None											
B	With brake											

- 1 Only with electrical connection T.
- 2 Only with electrical connection S.

Order example:

EMMS-AS-40-M-LS-TSB

Motor EMMS - servo motor - flange size 40 - length: medium - output shaft: smooth shaft - winding: low voltage, standard - electrical connection: terminal box - measuring unit: absolute encoder, single turn - with brake

Servo motors >

Servo motors EMMS-AS

Order code – Flange size 55

	EMMS	–	AS	–	55	–		–		–		–	
Type													
EMMS	Motor												
Motor type													
AS	Servo motor												
Motor flange size													
55	55 mm												
Length													
S	Short												
M	Medium												
Output shaft													
–	Smooth shaft												
K	Shaft to DIN 6885 (with feather key)												
Winding													
LS	Low voltage, standard												
HS	High voltage, standard												
Electrical connection													
R	Push-in L-connector, rotatable												
T	Terminal box												
Measuring unit													
S	Absolute encoder, single turn											1	
M	Absolute encoder, multi-turn											1	
R	Resolver											2	
Brake													
–	None												
B	With brake												
Degree of protection													
–	Standard												
S1	IP65 (with rotary shaft seal)												

- 1 Only with electrical connection T.
- 2 Only with electrical connection R.

Order example:
EMMS-AS-55-M-LS-TSB
Motor EMMS - servo motor - flange size 55 - length: medium - output shaft: smooth shaft - winding: low voltage, standard - electrical connection: terminal box - measuring unit: absolute encoder, single turn - with brake

Order code – Flange size 70

		EMMS	–	AS	–	70	–		–		–		–		–	
Type																
EMMS	Motor															
Motor type																
AS	Servo motor															
Motor flange size																
70	70 mm															
Length																
S	Short															
M	Medium															
Output shaft																
–	Smooth shaft															
K	Shaft to DIN 6885 (with feather key)															
Winding																
LS	Low voltage, standard															
LV	Low voltage, speed-optimised															
HS	High voltage, standard															
HV	High voltage, speed-optimised															
Electrical connection																
R	Push-in L-connector, rotatable															
Measuring unit																
S	Absolute encoder, single turn															
M	Absolute encoder, multi-turn															
R	Resolver															
Brake																
–	None															
B	With brake															
Degree of protection																
–	Standard															
S1	IP65 (with rotary shaft seal)															

Order example:

EMMS-AS-70-M-LS-RSB

Motor EMMS - servo motor - flange size 70 - length: medium - output shaft: smooth shaft - winding: low voltage, standard - electrical connection: push-in L-connector, rotatable - measuring unit: absolute encoder, single turn - with brake - degree of protection: standard

Servo motors >

Servo motors EMMS-AS

Order code – Flange size 100

	EMMS	–	AS	–	100	–		–		–		–	
Type													
EMMS	Motor												
Motor type													
AS	Servo motor												
Motor flange size													
100	100 mm												
Length													
S	Short												
M	Medium												
L	Long												
Output shaft													
–	Smooth shaft												
K	Shaft to DIN 6885 (with feather key)												
Winding													
HS	High voltage, standard												
HV	High voltage, speed-optimised ¹												
Electrical connection													
R	Push-in L-connector, rotatable												
Measuring unit													
S	Absolute encoder, single turn												
M	Absolute encoder, multi-turn												
R	Resolver												
Brake													
–	None												
B	With brake												
Degree of protection													
–	Standard												
S1	IP65 (with rotary shaft seal)												

¹ Only with length L.

Order example:
EMMS-AS-100-M-HS-RSB
Motor EMMS - servo motor - flange size 100 - length: medium - output shaft: smooth shaft - winding: high voltage, standard - electrical connection: push-in L-connector, rotatable - measuring unit: absolute encoder, single turn - with brake - degree of protection: standard

Order code – Flange size 140

		EMMS	–	AS	–	140	–		–		–		–	
Type														
EMMS	Motor													
Motor type														
AS	Servo motor													
Motor flange size														
140	140 mm													
Length														
S	Short													
L	Long													
Output shaft														
–	Smooth shaft													
K	Shaft to DIN 6885 (with feather key)													
Winding														
HS	High voltage, standard													
HV	High voltage, speed-optimised													
Electrical connection														
R	Push-in L-connector, rotatable													
Measuring unit														
S	Absolute encoder, single turn													
M	Absolute encoder, multi-turn													
R	Resolver													
Brake														
–	None													
B	With brake													
Degree of protection														
–	Standard													
S1	IP65 (with rotary shaft seal)													

Order example:
EMMS-AS-140-L-HS-RSB
Motor EMMS - servo motor - flange size 140 - length: long - output shaft: smooth shaft - winding: high voltage, standard - electrical connection: push-in L-connector, rotatable - measuring unit: absolute encoder, single turn - with brake - degree of protection: standard

Servo motors >

Servo motors EMMS-AS

Order code – Flange size 190

EMMS

AS

190

Type	
EMMS	Motor
Motor type	
AS	Servo motor
Motor flange size	
190	190 mm
Length	
S	Short
M	Medium
Output shaft	
–	Smooth shaft
K	Shaft to DIN 6885 (with feather key)
Winding	
HS	High voltage, standard
Electrical connection	
A	Push-in L-connector
Measuring unit	
S	Absolute encoder, single turn
M	Absolute encoder, multi-turn
R	Resolver
Brake	
–	None
B	With brake
Degree of protection	
–	Standard
S1	IP65 (with rotary shaft seal)

Order example:
EMMS-AS-190-M-HS-ASB
Motor EMMS - servo motor - flange size 190 - length: medium - output shaft: smooth shaft - winding: high voltage, standard - electrical connection: push-in L-connector - measuring unit: absolute encoder, single turn - with brake - degree of protection: standard

Ordering – Product options

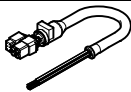
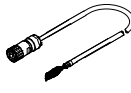
Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
➔ www.festo.com/catalogue/...

Enter the type code in the search field.

Accessories – Ordering data

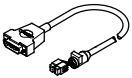
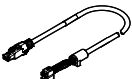
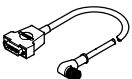
Motor cable		Part no.	Type
Cable length [m]			
 For EMMS-AS-40/55 with encoder with CMMP-AS (cable cross section output: 0.75 mm²)			
5.0		550306	NEBM-T1G8-E-5-Q7N-LE8
10.0		550307	NEBM-T1G8-E-10-Q7N-LE8
15.0		550308	NEBM-T1G8-E-15-Q7N-LE8
X length ¹⁾		550309	NEBM-T1G8-E-...-Q7N-LE8
For EMMS-AS-40/55 with encoder with CMMT-AS (cable cross section output: 0.75 mm²)			
5.0		8085948	NEBM-T1G8-E-5-Q7N-LE8-1
10.0		8085949	NEBM-T1G8-E-10-Q7N-LE8-1
15.0		8085950	NEBM-T1G8-E-15-Q7N-LE8-1
X length ¹⁾		8085951	NEBM-T1G8-E-...-Q7N-LE8-1
 For EMMS-AS-40/55 with resolver and EMMS-AS-70/100/140 with CMMP-AS (cable cross section output: 1.5 mm²)			
5.0		550310	NEBM-M23G8-E-5-Q9N-LE8
10.0		550311	NEBM-M23G8-E-10-Q9N-LE8
15.0		550312	NEBM-M23G8-E-15-Q9N-LE8
X length ¹⁾		550313	NEBM-M23G8-E-...-Q9N-LE8
For EMMS-AS-70/100/140 with CMMT-AS (cable cross section output: 1.5 mm²)			
5.0		5391141	NEBM-M23G8-E-5-Q9N-LE8-1
10.0		5391144	NEBM-M23G8-E-10-Q9N-LE8-1
15.0		5391139	NEBM-M23G8-E-15-Q9N-LE8-1
X length ¹⁾		5391145	NEBM-M23G8-E-...-Q9N-LE8-1
 For EMMS-AS-190 with CMMP-AS (cable cross section output: 2.5 mm²)			
5.0		1750241	NEBM-M40G8-E-5-Q10N-LE8
10.0		1750242	NEBM-M40G8-E-10-Q10N-LE8
15.0		1750243	NEBM-M40G8-E-15-Q10N-LE8
X length ¹⁾		1750244	NEBM-M40G8-E-...-Q10N-LE8
For EMMS-AS-190 with CMMT-AS (cable cross section output: 2.5 mm²)			
5.0		8085961	NEBM-M40G8-E-5-Q10N-LE8-1
10.0		8085960	NEBM-M40G8-E-10-Q10N-LE8-1
15.0		8085962	NEBM-M40G8-E-15-Q10N-LE8-1
X length ¹⁾		8085959	NEBM-M40G8-E-...-Q10N-LE8-1

1) Choice of cable lengths: 0.5 ... 99.9 m, in 0.1 m increments. Cable lengths >25 m possible following technical clarification. In the case of motors with holding brake, the maximum cable length is 50 m.

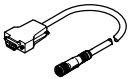
Servo motors >

Servo motors EMMS-AS

Accessories – Ordering data

Encoder cable		Part no.	Type
	Cable length [m]		
	For EMMS-AS-40/55 with CMMP-AS		
	5.0	550314	NEBM-T1G8-E-5-N-S1G15
	10.0	550315	NEBM-T1G8-E-10-N-S1G15
	15.0	550316	NEBM-T1G8-E-15-N-S1G15
	X length ¹⁾	550317	NEBM-T1G8-E-...-N-S1G15
	For EMMS-AS-40/55 with CMMT-AS		
	5.0	8085944	NEBM-T1G8-E-5-N-R3G8
	10.0	8085945	NEBM-T1G8-E-10-N-R3G8
	15.0	8085946	NEBM-T1G8-E-15-N-R3G8
	X length ¹⁾	8085947	NEBM-T1G8-E-...-N-R3G8
	For EMMS-AS-70/100/140/190 with CMMP-AS		
	5.0	550318	NEBM-M12W8-E-5-N-S1G15
	10.0	550319	NEBM-M12W8-E-10-N-S1G15
	15.0	550320	NEBM-M12W8-E-15-N-S1G15
	X length ¹⁾	550321	NEBM-M12W8-E-...-N-S1G15
	For EMMS-AS-70/100/140/190 with CMMT-AS		
	5.0	5213423	NEBM-M12W8-E-5-N-R3G8
	10.0	5213425	NEBM-M12W8-E-10-N-R3G8
	15.0	5213426	NEBM-M12W8-E-15-N-R3G8
	X length ¹⁾	5213428	NEBM-M12W8-E-...-N-R3G8

1) Choice of cable lengths: 0.5 ... 99.9 m, in 0.1 m increments. Cable lengths >25 m possible following technical clarification. In the case of motors with holding brake, the maximum cable length is 50 m.

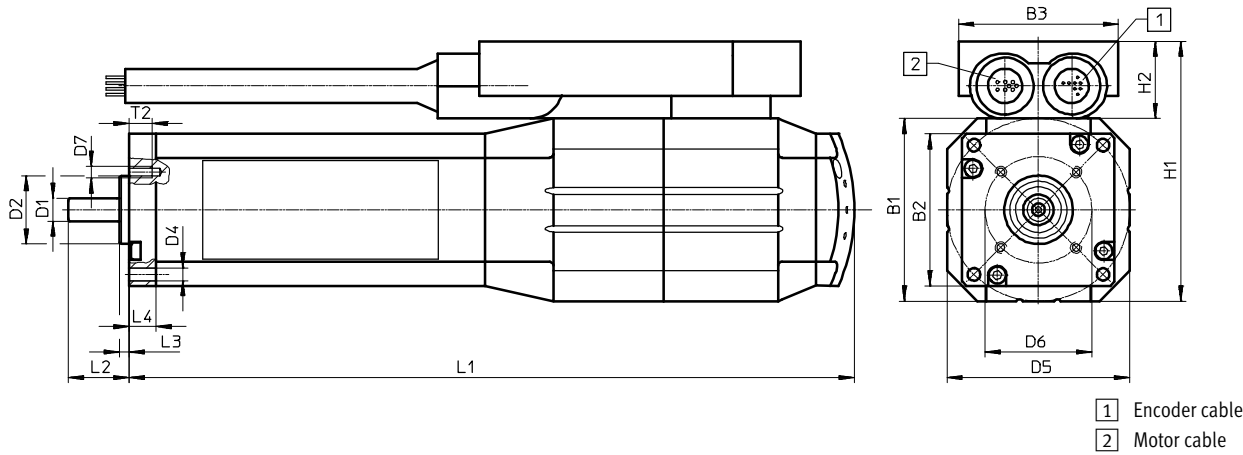
Resolver cable only for CMMP-AS		Part no.	Type
	Cable length [m]		
	For EMMS-AS-40/55/70/100/140/190		
	5.0	1732653	NEBM-M23G12-E-5-N-S1G9
	10.0	1732654	NEBM-M23G12-E-10-N-S1G9
	15.0	1732655	NEBM-M23G12-E-15-N-S1G9
	X length ¹⁾	1732656	NEBM-M23G12-E-...-N-S1G9

1) Choice of cable lengths: 0.5 ... 99.9 m, in 0.1 m increments. Cable lengths >25 m possible following technical clarification. In the case of motors with holding brake, the maximum cable length is 50 m.

Dimensions

Download CAD data www.festo.com

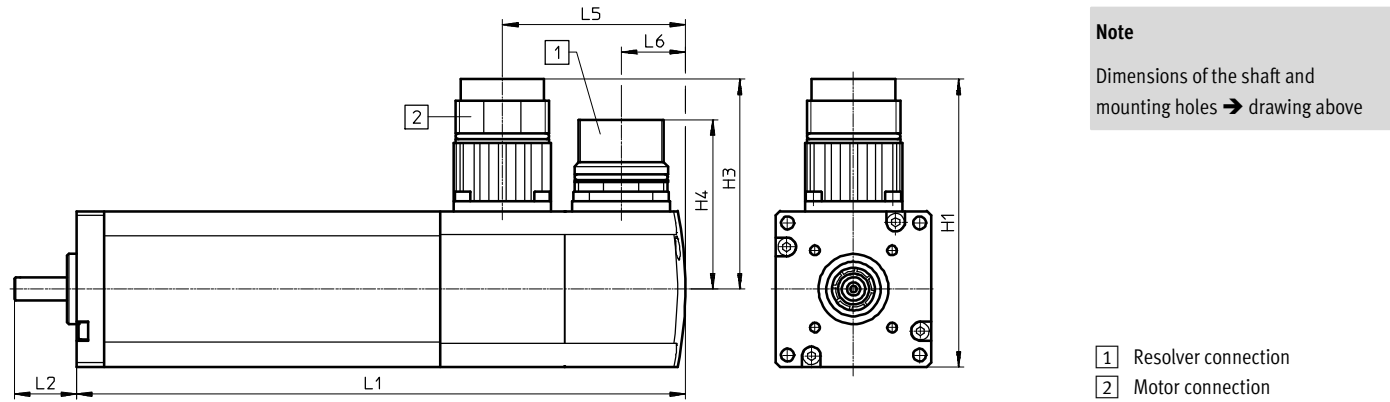
Flange size 40 – With encoder



Length	B1	B2	B3	D1 Ø +0.009/-0.001	D2 Ø +0.012/-0.006	D4 Ø	D5 Ø	D6 Ø
S	48	40	42	6	18	3.3	48	28
M								

Length	D7	H1	H2	L1	L2	L3 -0.1	L4	T2
S				170.5				
M	M3	68.3	20.3	190.5	16	2.5	7	6

Flange size 40 – With resolver



Length	H1	H3	H4	L1 With brake	L2	L5 With brake	L6
S	74	54	44	134.9	136.4	46.5	48
M				154.9	156.4		17

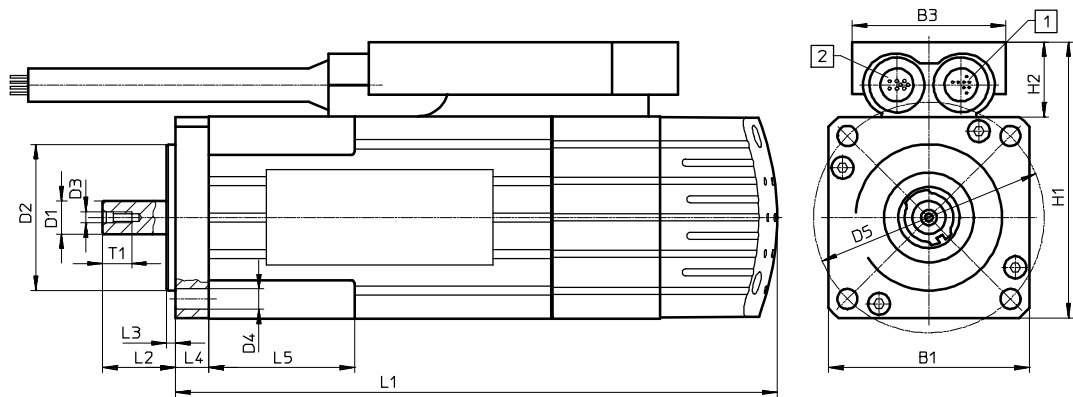
Servo motors >

Servo motors EMMS-AS

Dimensions

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Flange size 55 – With encoder

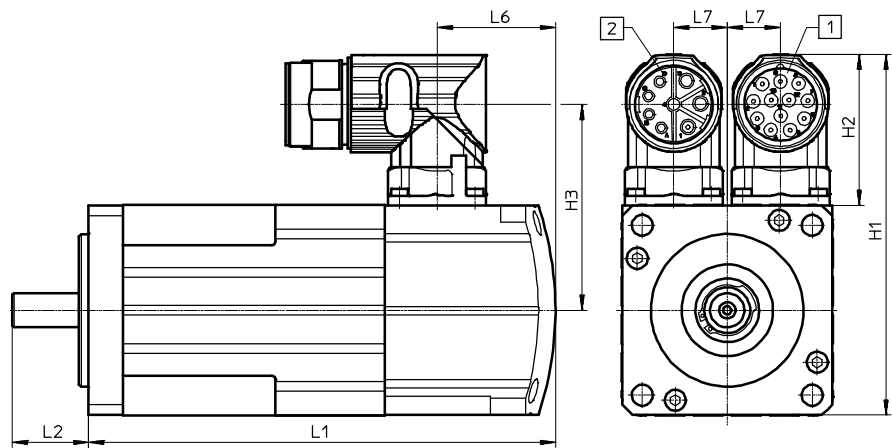


- 1 Encoder cable
- 2 Motor cable

Length	B1	B3	D1 Ø +0.01/−0.001	D2 Ø +0.11/−0.005	D3	D4 Ø	D5 Ø
S	55	42	9	40	M2.5	5.5	63
M							

Length	H1	H2	L1	L2	L3 ±0.05	L4	L5	T1
S	76	20.5	139.4	20	2.5	9	40	8
M			164.4					

Flange size 55 – With resolver



Note

Dimensions of the shaft and mounting holes → drawing above

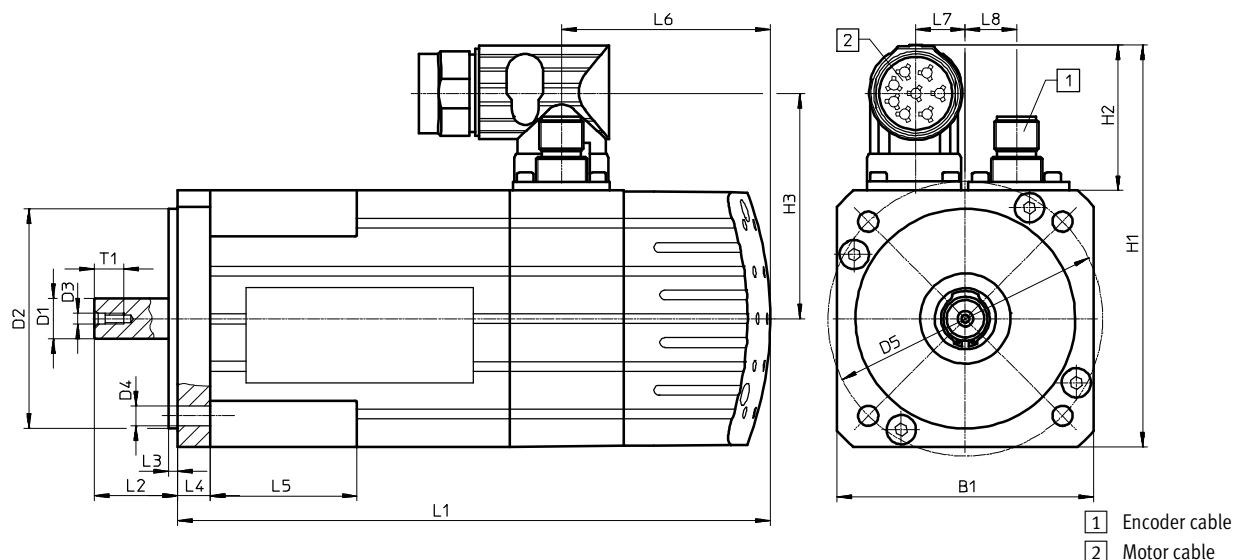
- 1 Resolver connection
- 2 Motor connection

Length	H1	H2	H3	L1		L2	L6		L7
					With brake			With brake	
S	94.7	39.7	54	122.4	139.4	20	31	48	14
M				147.4	164.4				

Dimensions

Download CAD data → www.festo.com

Flange size 70, 100, 140, 190 – With encoder



Length	B1	D1 Ø	D2 Ø	D3	D4 Ø	D5 Ø	H1	H2	H3
Flange size 70									
S	70	11+0.012/+0.001	60+0.012/-0.007	M2.5	5.5	75	109.7	39.7	61.5
M									
Flange size 100									
S	100.5	19+0.015/+0.002	95+0.013/-0.009	M4	9.2	115	140	39.7	77
M									
L									
Flange size 140									
S	140.5	24+0.015/-0.002	130+0.018/-0.007	M4	11.3	165	181	39.7	97.7
L									
Flange size 190									
S	190	32+0.018/+0.002	180+0.014/-0.011	M4	13.7	215	251	61	136
M									

Length	L1	L2	L3	L4	L5	L6	L7	L8	T1
Flange size 70									
S	161.8	22.7	2.5 _{-0.1}	9	40	57	14	14	8
M	187.3								
Flange size 100									
S	192.3	40	3	9.8	—	58.9	19	19	16
M	243.3								
L	294.3								
Flange size 140									
S	209	50	3.5	12.2	—	58.6	33.5	33.5	16
L	285.5								
Flange size 190									
S	262	60	4 _{-0.1}	11	—	81	25	33	16
M	300								

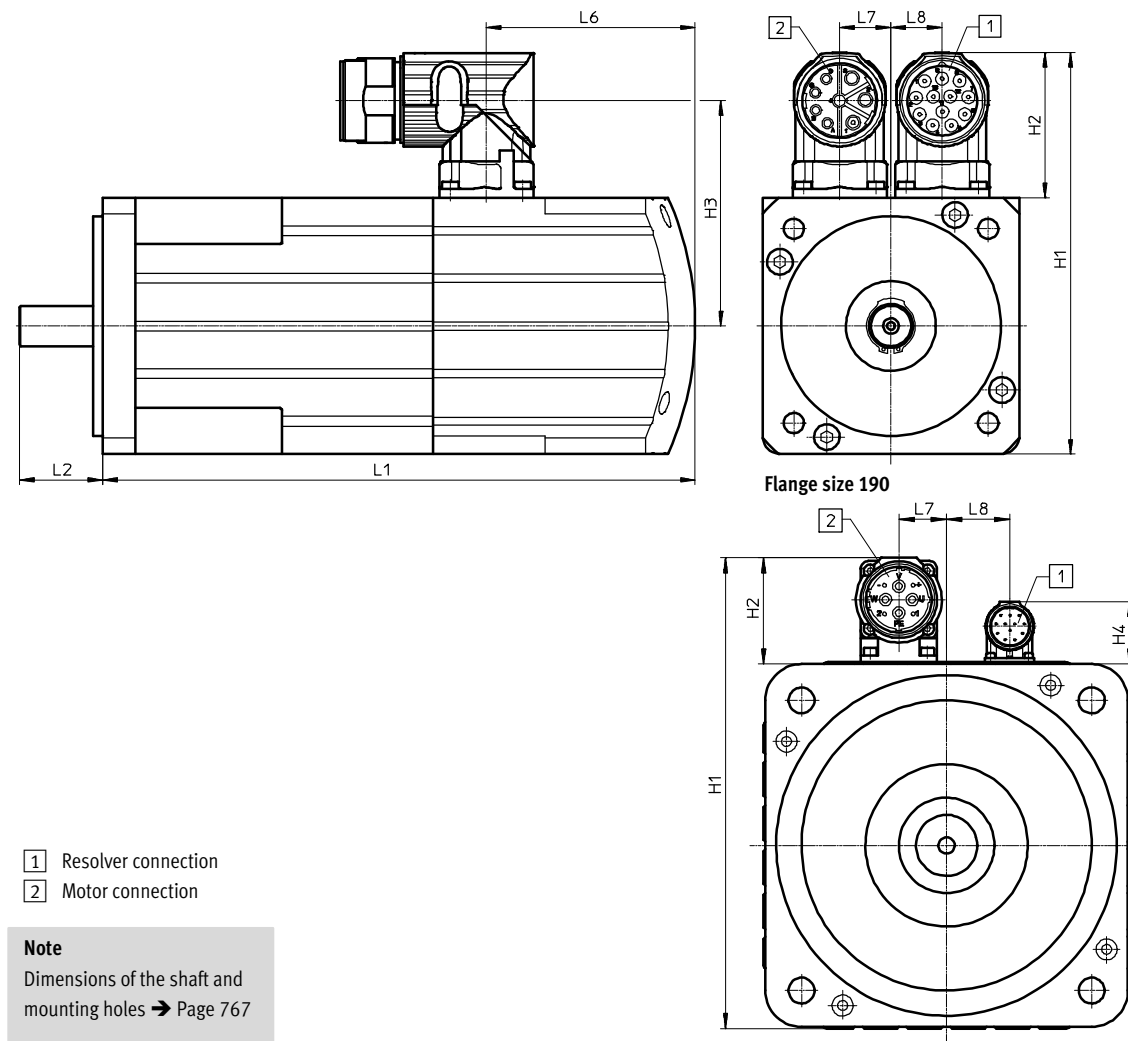
Servo motors >

Servo motors EMMS-AS

Dimensions

Download CAD data → www.festo.com

Flange size 70, 100, 140, 190 – With resolver

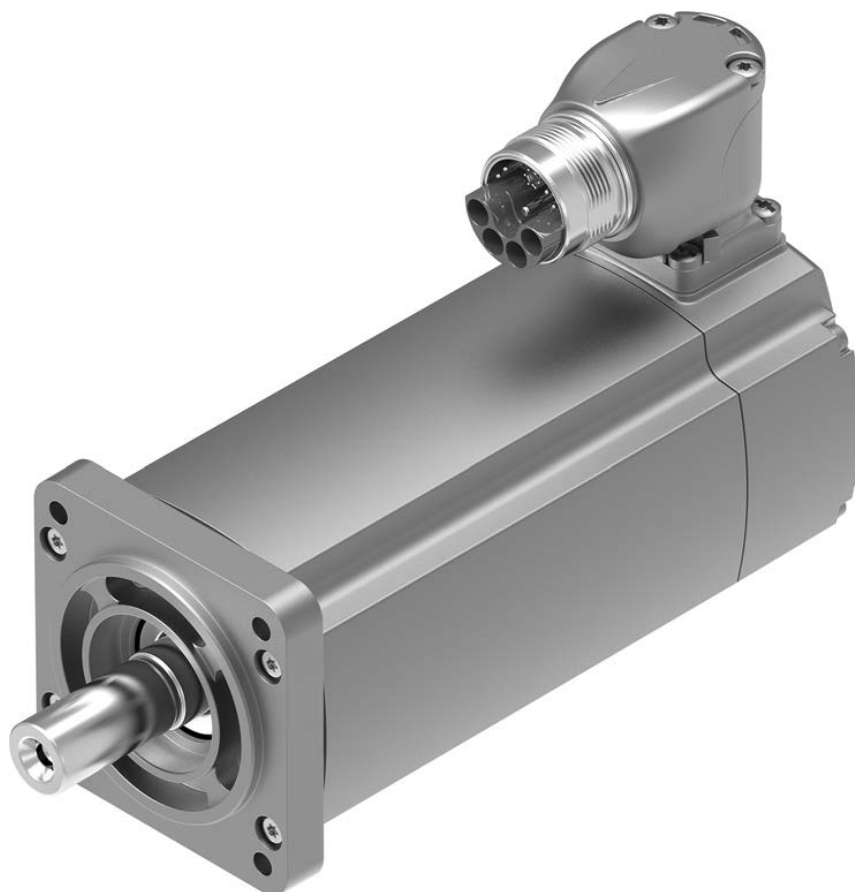


Length	H1	H2	H3	H4	L1		L2	L6		L7	L8
						With brake			With brake		
Flange size 70											
S	109.7	39.7	61.5	–	139.8	161.8	22.7	35	57	14	14
M					165.3	187.3					
Flange size 100											
S	140.2	39.7	76.8	–	171.1	192.1	40	37.8	58.9	19	19
M					222.1	243.1					
L					273.1	294.1					
Flange size 140											
S	180.2	39.7	96.8	–	194.6	209	50	44.2	58.6	33.5	33.5
L					271.1	285.5					
Flange size 190											
S	244	54	128.8	33	225	262	60	44	81	25	33
M					263	300					

Note

Only motors without feather key may be used in combination with parallel and axial kits (EAMM-U/EAMM-A).

New New series



Dynamic and efficient

- + Optimised torque, optimised rotational speed
- + Wear-free and maintenance-free synchronous motor for a long service life
- + High efficiency ensures economical operation

Servo motors ›

Servo motors

EMMT-AS

Servo motors >

Servo motors

EMMT-AS



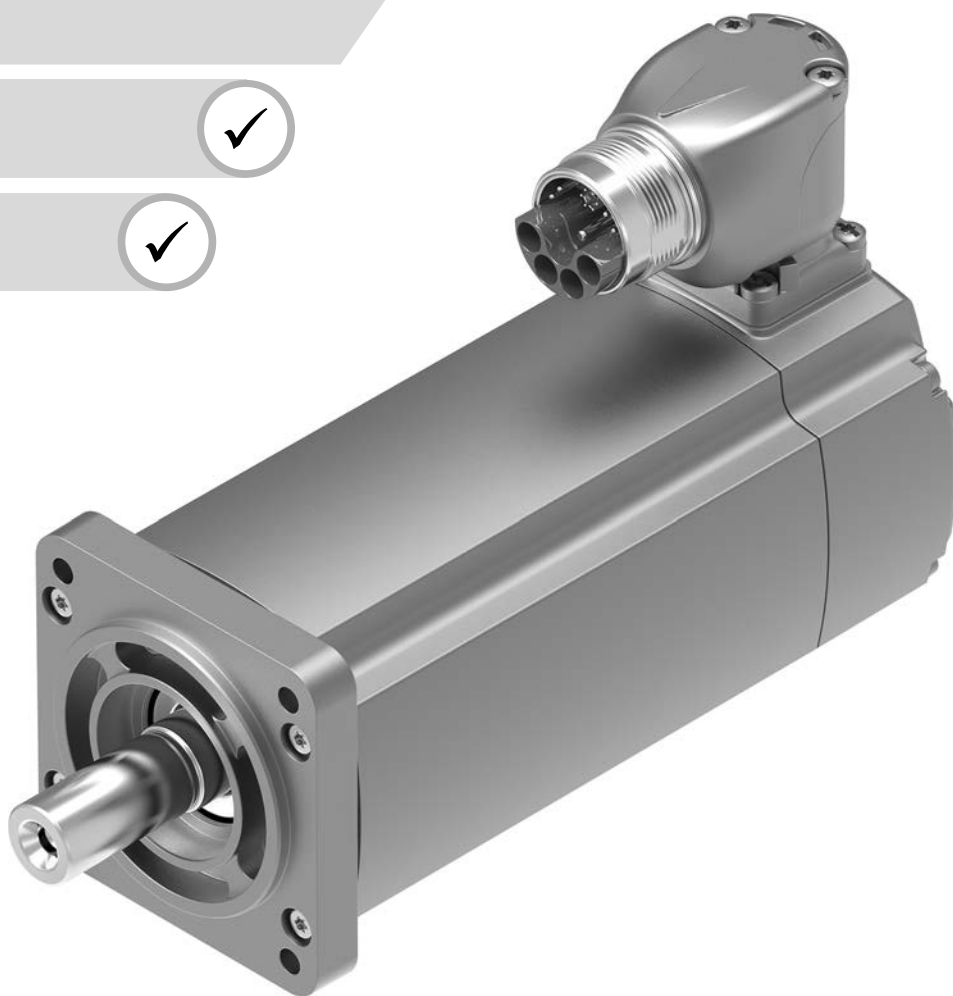
Overview, configuration and ordering

→ www.festo.com/catalogue/emmt-as



Additional information, support and user documentation

→ www.festo.com/sp/emmt-as



- + Dynamic, brushless, permanently excited synchronous servo motors
- + Extremely low resting torque – supports high synchronisation even at low rotational speeds
- + Simple connection technology (OCP: one cable plug) – one connecting cable for supply and encoder

NEW

Servo motors >

Servo motors EMMT-AS

Product range overview

Motor flange size	Nominal voltage [V AC]	Nominal torque [Nm]	Product options										
			S	M	L	K	R	LS	HS	R	S	M	B
60	325, 565	0.64 ... 1.4	■	■	■	■	■	■	■	■	■	■	■

Product options

S	Short length	K	Shaft to DIN 6885 (with feather key)	LS	Low-voltage, standard	S	Absolute encoder, single turn
M	Medium length	R	With standard shaft seal	HS	High-voltage, standard	M	Absolute encoder, multi-turn
L	Long length			R	Push-in L-connector, rotatable	B	Brake

Data sheet



Technical data		Dimensions → Page 776					
Motor flange size		60					
Length		S		M		L	
Winding		LS		HS		LS	
Nominal voltage	[V DC]	325	565	325	565	325	565
Nominal current ¹⁾	[A]	1.6	1.6	2.4	2.4	3.2	3.2
Peak current ¹⁾	[A]	5.4	5.4	11.0	11.0	18.3	18.3
Nominal power ¹⁾	[W]	200	200	350	350	440	440
Nominal torque ¹⁾	[Nm]	0.64	0.64	1.1	1.1	1.4	1.4
Peak torque	[Nm]	1.6	1.6	3.4	3.4	5.6	5.6
Standstill torque ¹⁾	[Nm]	0.7	0.7	1.24	1.24	1.66	1.66
Nominal rotational speed	[rpm]	3000					
Max. rotational speed	[rpm]	7100	12,500	6800	11,800	6800	11,900
Brake							
Operating voltage	[V DC]	24 (+6 ... -10%)					
Holding torque	[Nm]	2.5					

1) Without brake

Operating conditions	
Ambient temperature	[°C] -15 ... +40 (up to 80°C with derating of -1.5% per degree Celsius)
Degree of protection	
Motor shaft	IP40
Motor housing incl. connection technology	IP67
With rotary shaft seal	IP67
Rating class to EN 60034-1	S1
Thermal class to EN 60034-1	F

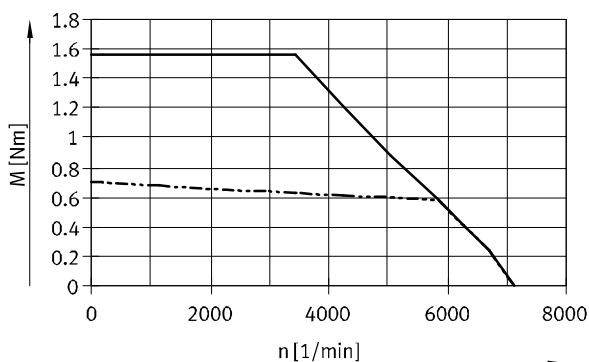
Technical data – Encoder		
Measuring unit	Absolute, single turn	Absolute, multi-turn
Operating voltage	[V DC] 5	
Protocol	EnDat 2.2, digital channel only, max. cycle rate (CLOCK) ≤16 MHz	
Position values per revolution	262144	524288
Resolution	18 bit	19 bit
	–	4096 revolutions, 12 bits

Data sheet

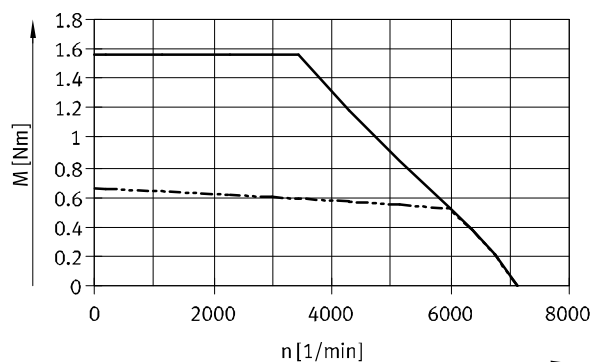
Torque M as a function of rotational speed n

Length S

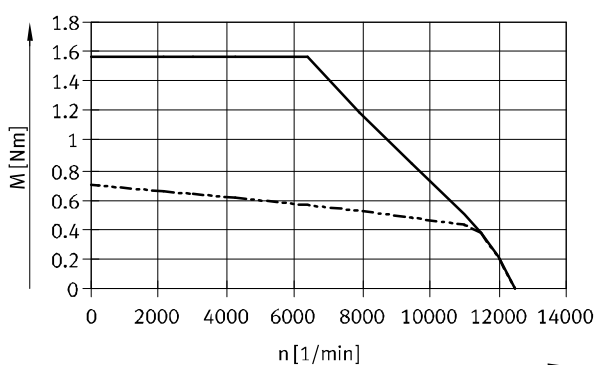
Winding LS (without brake)



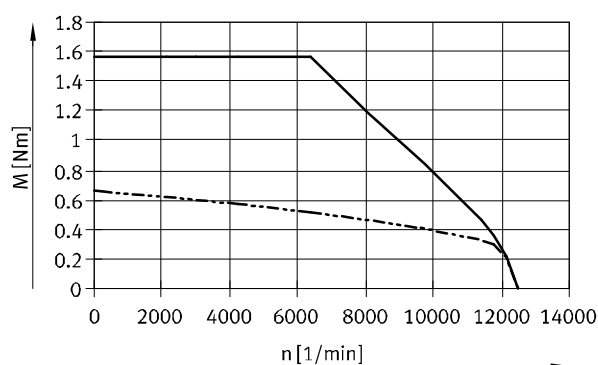
Winding LS-B (with brake)



Winding HS (without brake)

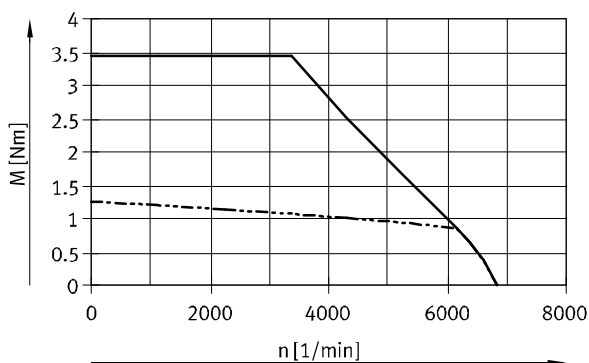


Winding HS-B (with brake)

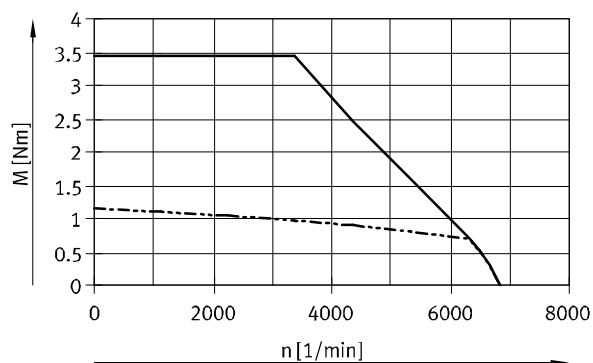


Length M

Winding LS (without brake)



Winding LS-B (with brake)



— Peak torque
 - - - Nominal torque

Note

Typical motor characteristic curve with nominal voltage and optimal motor controller.

Note the maximum permissible rotational speeds of add-on and installation components (such as brake, encoder, etc.).

NEW

Servo motors >

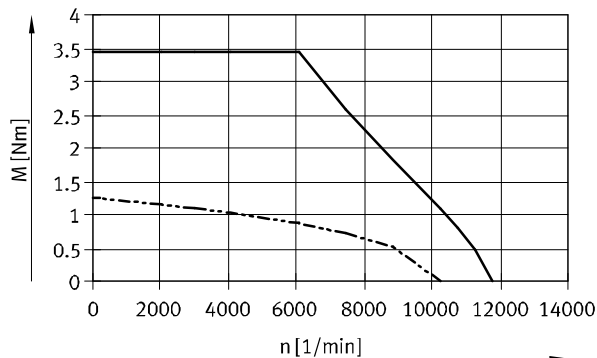
Servo motors EMMT-AS

Data sheet

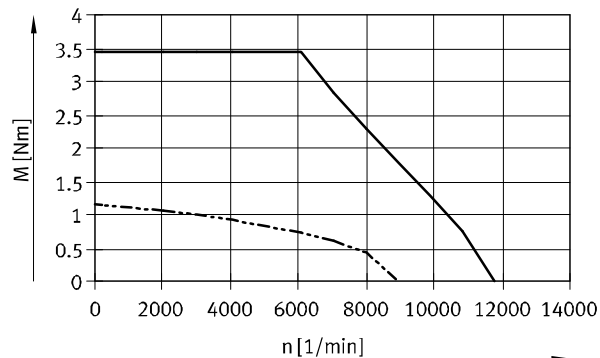
Torque M as a function of rotational speed n

Length M

Winding HS (without brake)

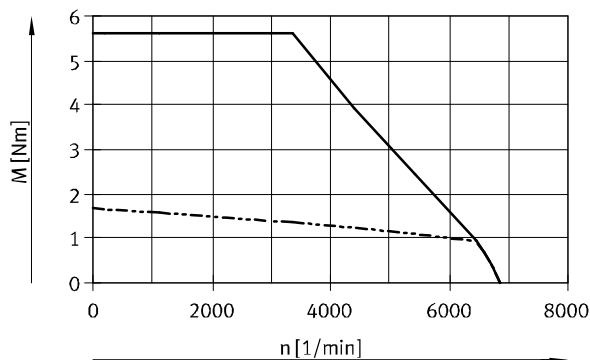


Winding HS-B (with brake)

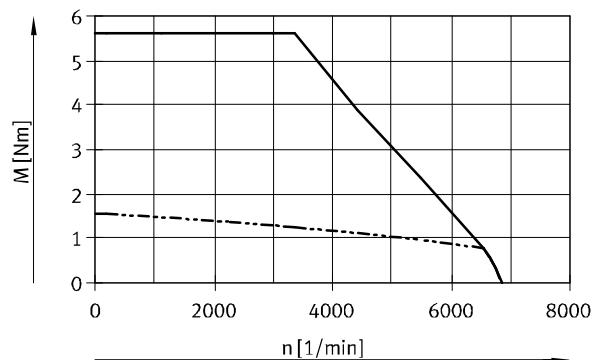


Length L

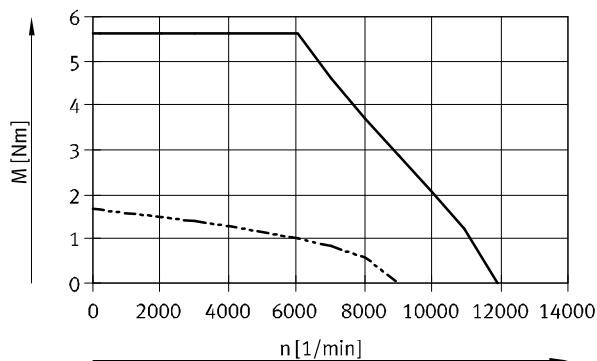
Winding LS (without brake)



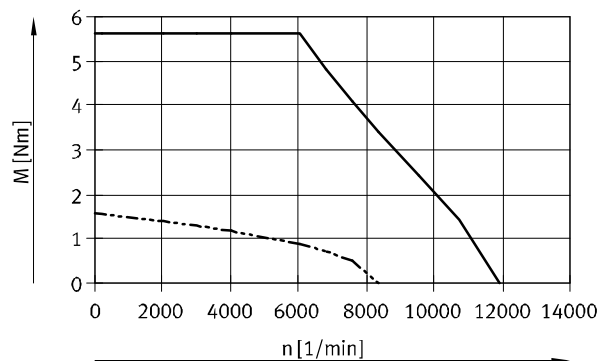
Winding LS-B (with brake)



Winding HS (without brake)



Winding HS-B (with brake)



— Peak torque
- - - Nominal torque

Note

Typical motor characteristic curve with nominal voltage and optimal motor controller.

Note the maximum permissible rotational speeds of add-on and installation components (such as brake, encoder, etc.).

05

Motors and controllers

Servo motors >

Servo motors EMMT-AS

NEW

Order code

EMMT

AS

60

Type	
EMMT	Motor
Motor type	
AS	Servo motor
Motor flange size	
60	60 mm
Length	
S	Short
M	Medium
L	Long
Output shaft	
–	Smooth shaft
K	Shaft to DIN 6885 (with featherkey)
Rotary shaft seal	
–	Without
R	With standard shaft seal
Winding	
LS	Low-voltage, standard
HS	High-voltage, standard
Electrical connection	
R	Push-in L-connector, rotatable
Measuring unit	
S	Absolute encoder, single turn
M	Absolute encoder, multi turn
Brake	
–	Without
B	With brake

Order example:

EMMT-AS-60-MR-LS-RSB

Motor EMMT - servo motor - flange size 60 - length: medium - output shaft: smooth shaft - standard shaft seal - winding: low-voltage, standard - push-in L-connector, rotatable - single turn - with brake

Ordering – Product options

Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or [www.festo.com/catalogue/...](#)

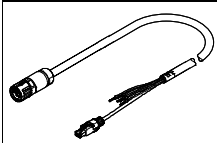
Enter the type code in the search field.

NEW

Servo motors >

Servo motors EMMT-AS

Accessories – Ordering data

Ordering data – Motor cable		Part no.	Type
	Cable length [m]		
	2.5	5251374	NEBM-M23G15-EH-2.5-Q7N-R3LEG14
	5	5251375	NEBM-M23G15-EH-5-Q7N-R3LEG14
	7.5	5251376	NEBM-M23G15-EH-7.5-Q7N-R3LEG14
	10	5251377	NEBM-M23G15-EH-10-Q7N-R3LEG14
	15	5251378	NEBM-M23G15-EH-15-Q7N-R3LEG14
	20	5251379	NEBM-M23G15-EH-20-Q7N-R3LEG14
	X length ¹⁾	5251373	NEBM-M23G15-EH-...-Q7N-R3LEG14

1) Choice of cable lengths: 0.5 ... 99.9 m, in increments of 0.1 m.

Note
Cable lengths > 25 m possible following technical consultation.
In the case of motors with a holding brake, the max. cable length is 50 m.

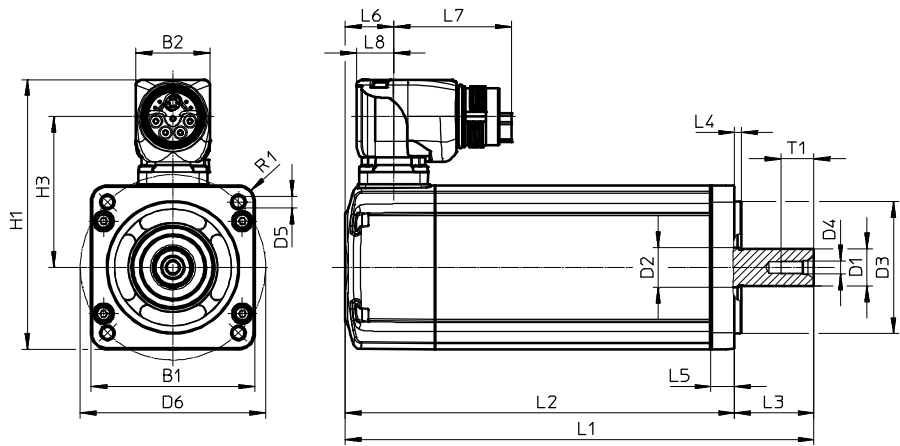
Ordering data – Rotary shaft seal		Part no.	Type
	Description		
	• Protection to IP67 is achieved in combination with the sealing ring • Based on the operating conditions, the shaft seal must be replaced after 5000 operating hours at the latest • Notes on installation/replacement → www.festo.com/sp	8079786	EASS-RS-T-A-4P-15-30-B7

05

Motors and controllers

Dimensions

Download CAD data → www.festo.com

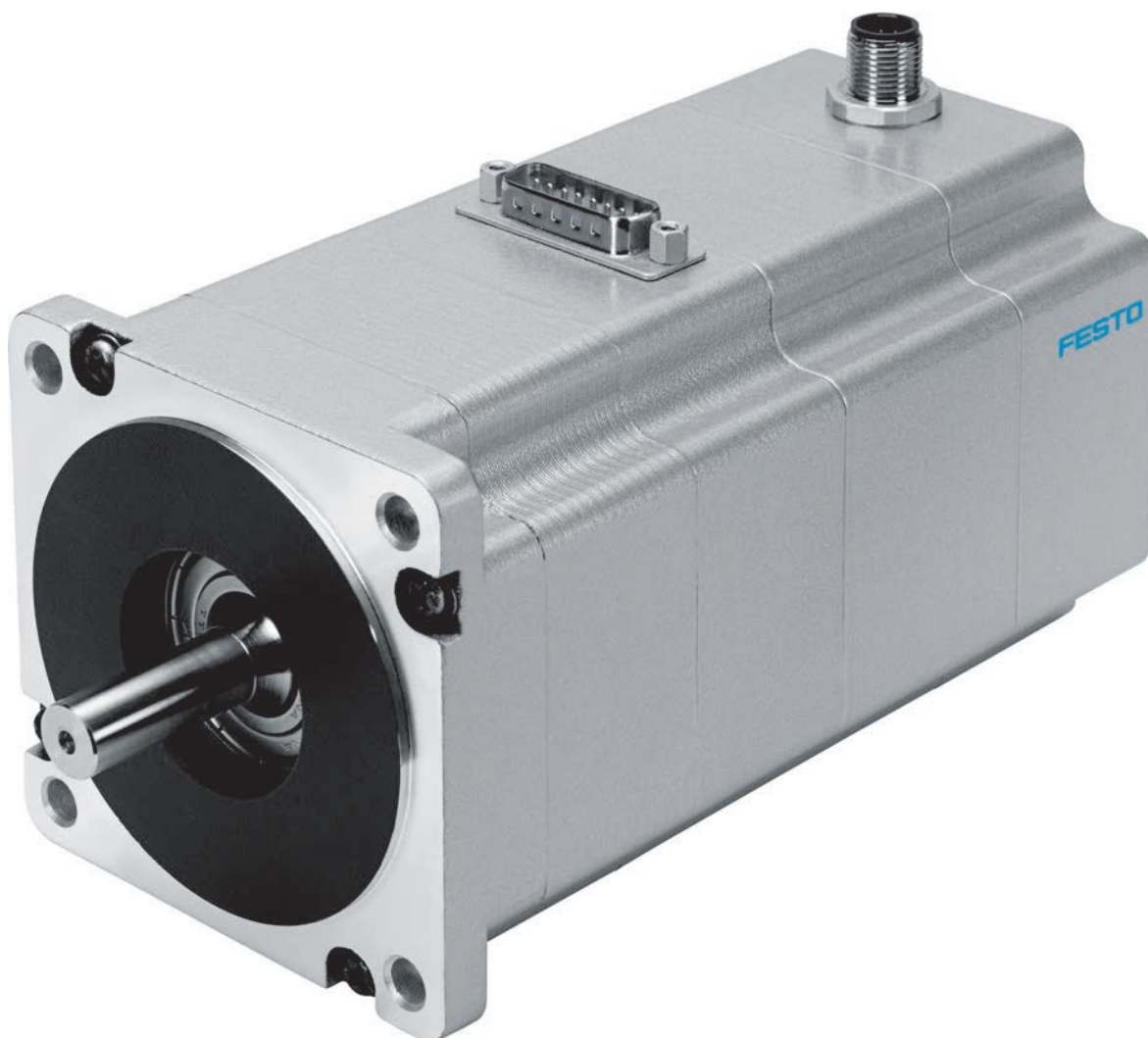


Size	Length	B1	B2	D1 Ø h6	D2 Ø	D3 Ø h7	D4	D5 Ø
60	S	62	28	14	15	50	M5	4.3
	M							
	L							

Size	Length	D6 Ø ±0.3	H1	H3	L1		L2	
						With brake	±2	With brake ±2
60	S	70	102	57	144.5	177.3	114.5	147.3
	M				164.5	197.3	134.5	167.3
	L				184.5	217.3	154.5	187.3

Size	Length	L3 +0.5/-0.2	L4 ±0.2	L5 ±0.3	L6	L7	L8	R1	T1
60	S	30	2.5	9	18.4	44.7	14	6	12.5
	M								
	L								

Note
Only motors without feather key may be used in combination with parallel and axial kits (EAMM-U/EAMM-A).



Controlled progress

- + For a long service life
- + No step losses and high running performance thanks to closed loop
- + Reliable position and torque control in the servo motor system with integrated encoder
- + Excellent price/performance ratio in combination with motor controller CMMO-ST

Stepper motors ›

Stepper motors

EMMS-ST

Stepper motors >

Stepper motors

EMMS-ST



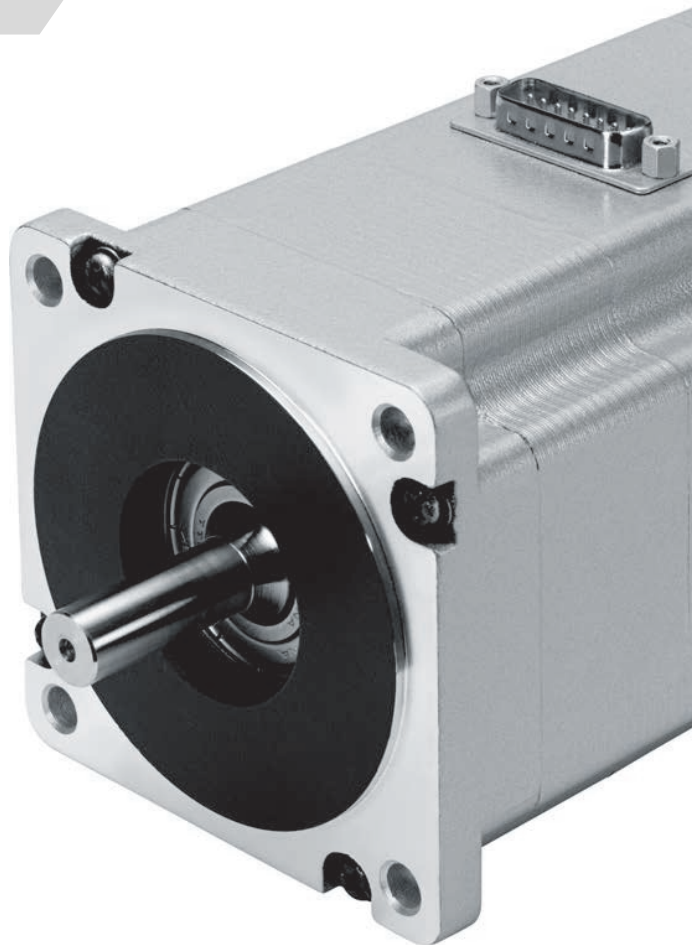
Overview, configuration and ordering

→ www.festo.com/catalogue/emms-st



Additional information, support and user documentation

→ www.festo.com/sp/emms-st



- + 2-phase hybrid technology
- + Standard industrial connection technology
- + Optional: encoder and brake
- + Cost-effective complete solutions for simple positioning tasks

Product range overview

Motor flange size	Nominal voltage [V DC]	Holding torque [Nm]	Product options						
			S	M	L	S	E	B	G2
28	48	0.09	–	–	■	■	■	■	–
42	48	0.5	■	–	–	■	■	■	■
57	48	0.8 ... 1.4	■	■	–	■	■	■	■
87	48	2.5 ... 9.3	■	■	■	■	■	■	■

Product options

S	Short length	S	Straight connection	G2	Second generation
M	Medium length	E	Encoder		
L	Long length	B	Brake		

Data sheet



Technical data		Dimensions ➔ Page 783						
Motor flange size		28	42	57-S	57-M	87-S	87-M	87-L
Nominal voltage	[V DC]	48						
Nominal current	[A]	1.4	1.8	5		9.5		
Holding torque	[Nm]	0.09	0.5	0.8	1.4	2.5	5.9	9.3
Step angle	[°]	1.8 ±5%						
Brake								
Operating voltage	[V DC]	24 ±10%						
Holding torque	[Nm]	0.2	0.4	0.4	1	2		

Technical data – Encoder	
Encoder, optical	
Operating voltage	[V DC] 5
Pulses/revolution	[1/rev] 500
Zero pulse	Yes
Line driver	RS422 protocol

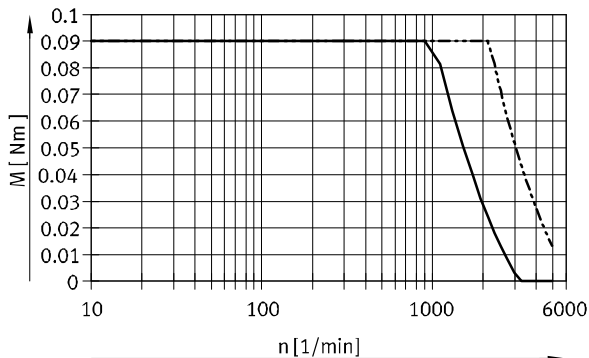
Operating conditions		28	42	57-S	57-M	87-S	87-M	87-L
Ambient temperature	[°C]	–10 ... +50						
Degree of protection: motor shaft		IP40						
Degree of protection: motor housing incl. connection technology		IP65	IP54					
Insulation class		B						

Stepper motors EMMS-ST

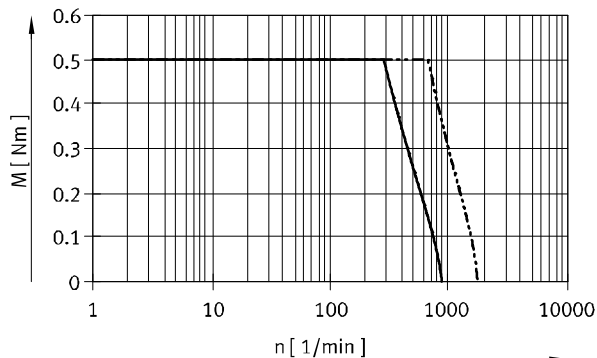
Data sheet

Torque **M** as a function of rotational speed **n**

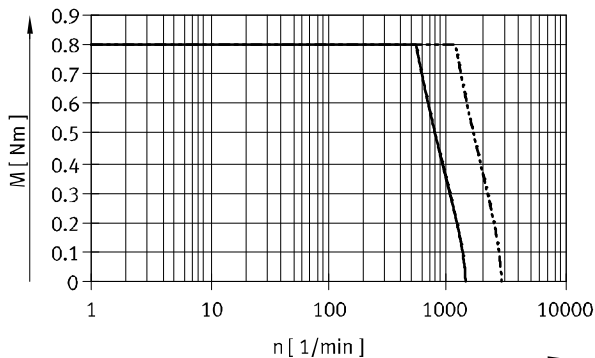
EMMS-ST-28



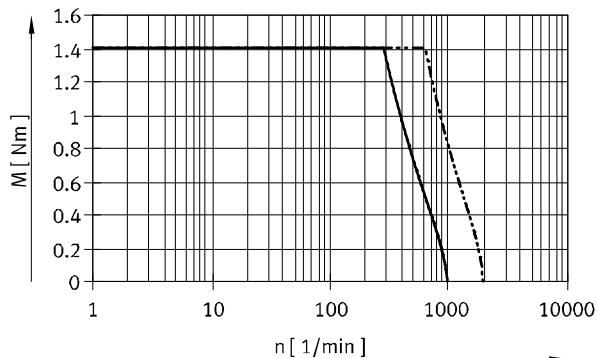
EMMS-ST-42



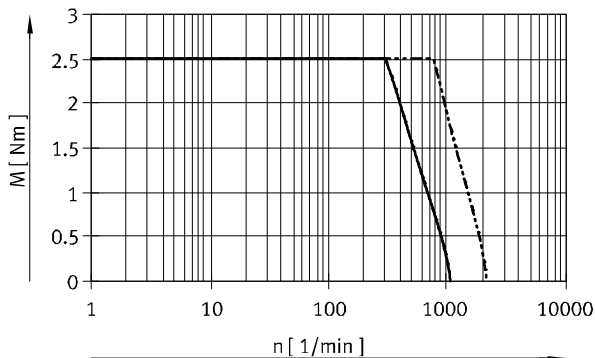
EMMS-ST-57-S



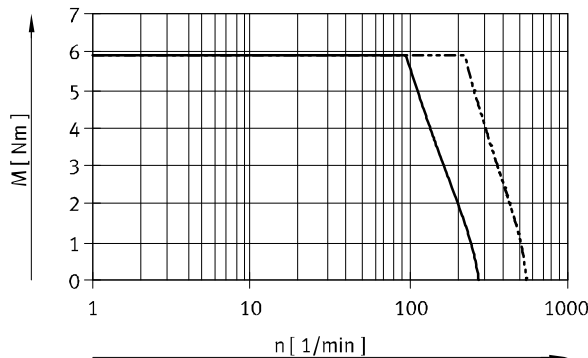
EMMS-ST-57-M



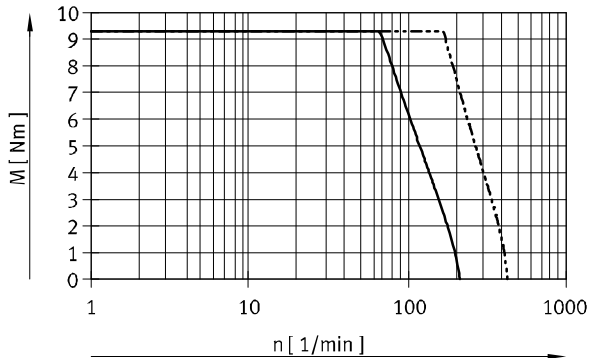
EMMS-ST-87-S



EMMS-ST-87-M



EMMS-ST-87-L



Note

Typical motor characteristics (typical production tolerances $\pm 20\%$) at nominal voltage and with suitable motor controller.

— 24 V DC
- - - 48 V DC

Order code

EMMS – ST – – – S

Type	
EMMS	Motor

Motor technology	
ST	Stepper motor

Motor flange size		
28	28	1
42	42	2
57	57	3
87	87	

Length	
S	Short
M	Medium
L	Long

Electrical connection	
S	Straight plug

Measuring unit	
–	Not specified
E	Encoder

Brake	
–	Not specified
B	Brake

Generation		
G2	2nd generation	4

- 1 Only with length L
- 2 Only with length S
- 3 Only with lengths S and M
- 4 Not with flange size 28

Order example:
EMMS-ST-42-S-SEB-G2
Motor EMMS - stepper motor - flange size 42 - length: short - electrical connection: straight plug - measuring unit: encoder - brake - second generation

Ordering – Product options

Configurable product

This product and all its options can be ordered using the configurator.

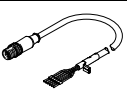
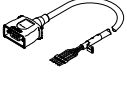
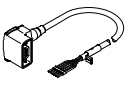
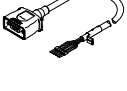
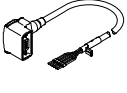
The configurator can be found under Products on the DVD or
➔ www.festo.com/catalogue/...

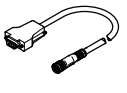
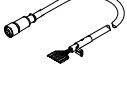
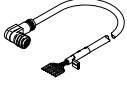
Enter the type code in the search field.

Stepper motors >

Stepper motors EMMS-ST

Accessories – Ordering data

Motor cable			
	Cable length [m]	Part no.	Type
For EMMS-ST-28			
and motor controller CMMO-ST			
Straight plug			
	1.5	1449600	NEBM-SM12G8-E-1.5-Q5-LE6
	2.5	1449601	NEBM-SM12G8-E-2.5-Q5-LE6
	5.0	1449602	NEBM-SM12G8-E-5-Q5-LE6
	7.0	1449603	NEBM-SM12G8-E-7-Q5-LE6
	10.0	1449604	NEBM-SM12G8-E-10-Q5-LE6
	X length ¹⁾	1449605	NEBM-SM12G8-E-...-Q5-LE6
For EMMS-ST-42/57			
and motor controller CMMS-ST/CMMO-ST			
Straight plug			
	1.5	1450368	NEBM-S1G9-E-1.5-Q5-LE6
	2.5	1450369	NEBM-S1G9-E-2.5-Q5-LE6
	5.0	1450370	NEBM-S1G9-E-5-Q5-LE6
	7.0	1450371	NEBM-S1G9-E-7-Q5-LE6
	10.0	1450372	NEBM-S1G9-E-10-Q5-LE6
	X length ¹⁾	1450373	NEBM-S1G9-E-...-Q5-LE6
Angled plug			
	1.5	1450736	NEBM-S1W9-E-1.5-Q5-LE6
	2.5	1450737	NEBM-S1W9-E-2.5-Q5-LE6
	5.0	1450738	NEBM-S1W9-E-5-Q5-LE6
	7.0	1450739	NEBM-S1W9-E-7-Q5-LE6
	10.0	1450740	NEBM-S1W9-E-10-Q5-LE6
	X length ¹⁾	1450741	NEBM-S1W9-E-...-Q5-LE6
For EMMS-ST-87			
and motor controller CMMS-ST/CMMO-ST			
Straight plug			
	1.5	1450834	NEBM-S1G15-E-1.5-Q7-LE6
	2.5	1450835	NEBM-S1G15-E-2.5-Q7-LE6
	5.0	1450836	NEBM-S1G15-E-5-Q7-LE6
	7.0	1450837	NEBM-S1G15-E-7-Q7-LE6
	10.0	1450838	NEBM-S1G15-E-10-Q7-LE6
	X length ¹⁾	1450839	NEBM-S1G15-E-...-Q7-LE6
Angled plug			
	1.5	1450943	NEBM-S1W15-E-1.5-Q7-LE6
	2.5	1450944	NEBM-S1W15-E-2.5-Q7-LE6
	5.0	1450945	NEBM-S1W15-E-5-Q7-LE6
	7.0	1450946	NEBM-S1W15-E-7-Q7-LE6
	10.0	1450947	NEBM-S1W15-E-10-Q7-LE6
	X length ¹⁾	1450948	NEBM-S1W15-E-...-Q7-LE6

Encoder cable			
	Cable length [m]	Part no.	Type
For motor controller CMMS-ST			
Straight plug			
	5.0	550748	NEBM-M12G8-E-5-S1G9
	10.0	550749	NEBM-M12G8-E-10-S1G9
	15.0	550750	NEBM-M12G8-E-15-S1G9
	X length ¹⁾	550751	NEBM-M12G8-E-...-S1G9
For motor controller CMMO-ST			
Straight plug			
	1.5	1451586	NEBM-M12G8-E-1.5-LE8
	2.5	1451587	NEBM-M12G8-E-2.5-LE8
	5.0	1451588	NEBM-M12G8-E-5-LE8
	7.0	1451589	NEBM-M12G8-E-7-LE8
	10.0	1451590	NEBM-M12G8-E-10-LE8
	X length ¹⁾	1451591	NEBM-M12G8-E-...-LE8
Angled plug			
	1.5	1451674	NEBM-M12W8-E-1.5-LE8
	2.5	1451675	NEBM-M12W8-E-2.5-LE8
	5.0	1451676	NEBM-M12W8-E-5-LE8
	7.0	1451677	NEBM-M12W8-E-7-LE8
	10.0	1451678	NEBM-M12W8-E-10-LE8
	X length ¹⁾	1451679	NEBM-M12W8-E-...-LE8

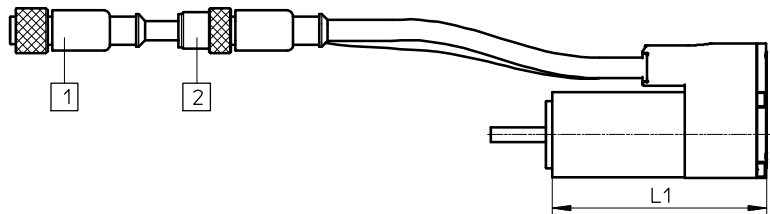
1) Max. 25 m. Cable lengths > 25 m possible following technical consultation; up to 100 m on request. Available in 0.1 m increments.

Dimensions

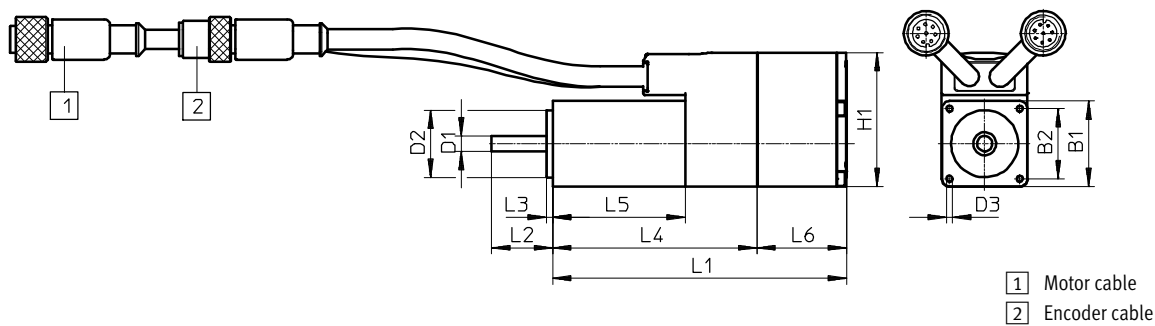
Download CAD data → www.festo.com

Size 28

EMMS-ST-...-S/SE



EMMS-ST-...-SB/SEB



Type	B1	B2	D1 Ø	D2 Ø	D3	H1
	±1	±0.2	-0.013	-0.03		
EMMS-ST-28-L-S	28	23	5	22	M2.5x4.5	44
EMMS-ST-28-L-SE						
EMMS-ST-28-L-SB						
EMMS-ST-28-L-SEB						

Type	L1	L2	L3	L4	L5	L6				
		±1		±1	±1	±0.5				
EMMS-ST-28-L-S	70±1	20	2	67	43	-				
EMMS-ST-28-L-SE										
EMMS-ST-28-L-SB	96±1.5					29				
EMMS-ST-28-L-SEB										

Stepper motors >

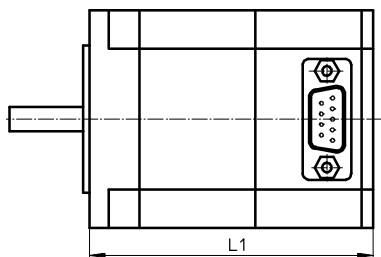
Stepper motors EMMS-ST

Dimensions

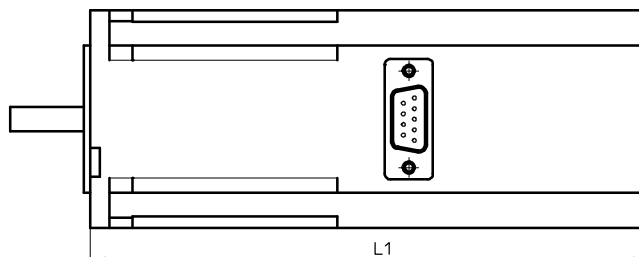
Download CAD data → www.festo.com

Sizes 42, 57, 87

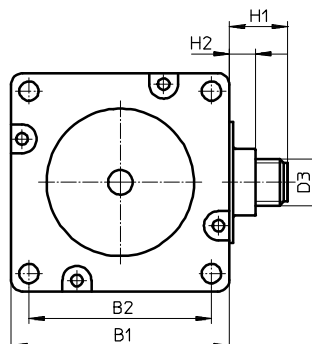
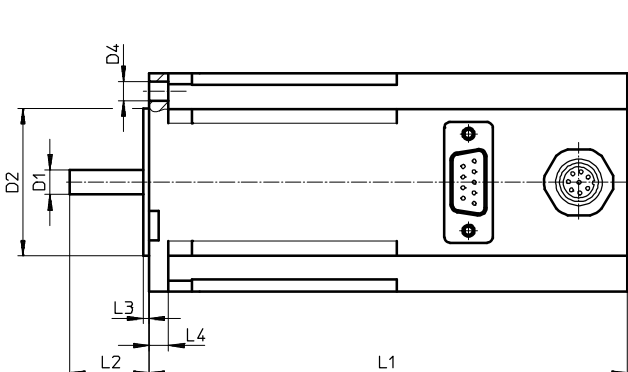
EMMS-ST-...-S



EMMS-ST-...-SB

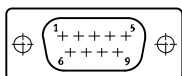


EMMS-ST-...-SE/SEB

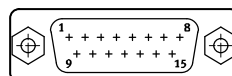


Plug pattern

9-pin Sub-D plug with size 42, 57



15-pin Sub-D plug with size 87



Type	B1	B2 ±0.2	D1 Ø	D2 Ø	D3	D4 Ø	H1	H2	L1	L2	L3	L4
EMMS-ST-42-S-S-G2	42.3	31	5-0012	22-005	-	M3x4.5	-	6.5	66±1	24±1	2	-
EMMS-ST-42-S-SE-G2					M12		13		94±1.2			
EMMS-ST-42-S-SB-G2					-		-		114±1.3			
EMMS-ST-42-S-SEB-G2					M12		13		127±1.3			
EMMS-ST-57-S-S-G2	56.4	47.14	6.35-0013	38.1±0025	-	5	-	6.5	73.5±0.8	20.6±0.5	1.6	5
EMMS-ST-57-S-SE-G2					M12		13		102.5±1.1			
EMMS-ST-57-S-SB-G2					-		-		123.5±1.1			
EMMS-ST-57-S-SEB-G2					M12		13		138±1.1			
EMMS-ST-57-M-S-G2					-		-		95±0.8			
EMMS-ST-57-M-SE-G2					M12		13		124±1.1			
EMMS-ST-57-M-SB-G2					-		-		145±1.1			
EMMS-ST-57-M-SEB-G2					M12		13		159.5±1.1			
EMMS-ST-87-S-S-G2	85.85	69.5	11-0013	73-0046	-	6.6	-	6.5	82.6±1	27±1	2	8.38
EMMS-ST-87-S-SE-G2					M12		13		112.6±1.3			
EMMS-ST-87-S-SB-G2					-		-		132.6±1.3			
EMMS-ST-87-S-SEB-G2					M12		13		152.6±1.3			
EMMS-ST-87-M-S-G2					-		-		114.9±1			
EMMS-ST-87-M-SE-G2					M12		13		144.9±1.3			
EMMS-ST-87-M-SB-G2					-		-		164.9±1.3			
EMMS-ST-87-M-SEB-G2					M12		13		184.9±1.3			
EMMS-ST-87-L-S-G2					-		-		144.9±1			
EMMS-ST-87-L-SE-G2					M12		13		174.9±1.3			
EMMS-ST-87-L-SB-G2					-		-		194.9±1.3			
EMMS-ST-87-L-SEB-G2					M12		13		214.9±1.3			



... for integrated drives EMCA

- + Short delivery times thanks to gear ratios available from stock
- + Compact design and low weight ensure high performance density

Gear units ›

Gear units for integrated drives

EMGC

Gear units >

Gear units for integrated drives

EMGC



Overview, configuration and ordering

→ www.festo.com/catalogue/emgc



Additional information, support and user documentation

→ www.festo.com/sp/emgc



- + Planetary gear units EMGC for integrated drives EMCA
- + Gear ratio $i = 5$ and $i = 20$, available from stock
- + Customised gear ratios available at short notice
- + Sturdy and maintenance-free with life-time lubrication
- + High efficiency for economical operation

Product range overview

Gear unit type	Flange size [mm]	Output torque [Nm]	Gear ratio	[i]	Product options		
					P	A	SEC
Planetary gear unit	40	10 ... 17.5	1-stage	3 ... 7	–	■	■
			2-stage	12 ... 35	–	■	■
	60	24 ... 52	1-stage	3 ... 10	–	■	■
			2-stage	12 ... 40	–	■	■
Right-angle gear unit	67	2.1	–	1	■	–	■

Product options

A Right-angle gear unit P Planetary gear unit SEC EC motor interface

Data sheet – Planetary gear unit

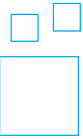
Dimensions → Page 789

Technical data										
Gear unit type		EMGC-40-P-G...								
Gear ratio [i]		3	4	5	7	12	16	20	25	35
Gear unit type		Planetary gear unit								
		1-stage					2-stage			
Continuous output torque ¹⁾ [Nm]		5	6.5	6.5	6.5	10	14	14	14	14
Max. output torque ²⁾ [Nm]		10	13	13	13	12.5	17.5	17.5	17.5	17.5
Max. torsional backlash [deg]		0.5					0.67			
Mass moment of inertia ³⁾ [kgcm ²]		0.06	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Operating temperature [°C]		–20 ... +90								
Degree of protection		IP54								

Gear unit type		EMGC-60-P-G...										
Gear ratio [i]		3	4	5	7	10	12	16	20	25	35	40
Gear unit type		Planetary gear unit										
		1-stage						2-stage				
Continuous output torque ¹⁾ [Nm]		20	26	26	26	16	36	42	42	44	44	42
Max. output torque ²⁾ [Nm]		36	44	44	44	24	45	52	52	55	55	52
Max. torsional backlash [deg]		0.5						0.67				
Mass moment of inertia ⁶⁾ [kgcm ²]		0.4	0.34	0.32	0.3	0.29	0.34	0.34	0.32	0.32	0.3	0.29
Operating temperature [°C]		–20 ... +90										
Degree of protection		IP54										

- 1) At the output shaft
2) In relation to a rotational speed of 3000 rpm and operating mode S1.
3) In relation to the drive shaft.
4) Note the temperature range of the motor.

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
→ www.festo.com/catalogue/...

Enter the type code in the search field.

Ordering data – Planetary gear unit

Motor flange size	Part no.	Type	Motor flange size	Part no.	Type
67	8000594	EMGC-40-P-G3-SEC-67	67	8000612	EMGC-60-P-G3-SEC-67
	8000595	EMGC-40-P-G4-SEC-67		8000613	EMGC-60-P-G4-SEC-67
	8000597	EMGC-40-P-G7-SEC-67		8000615	EMGC-60-P-G7-SEC-67
	8000598	EMGC-40-P-G12-SEC-67		8000616	EMGC-60-P-G10-SEC-67
	8000599	EMGC-40-P-G16-SEC-67		8000617	EMGC-60-P-G12-SEC-67
	8000601	EMGC-40-P-G25-SEC-67		8000618	EMGC-60-P-G16-SEC-67
	8000602	EMGC-40-P-G35-SEC-67		8000620	EMGC-60-P-G25-SEC-67
				8000621	EMGC-60-P-G35-SEC-67
				8000622	EMGC-60-P-G40-SEC-67

Gear units >

Gear units EMGC

Data sheet – Right-angle gear unit

Technical data		Dimensions → Page 790
Gear unit type		EMGC-67-A-G1-...
Gear ratio	[i]	1
Gear unit type		Right-angle gear unit
Continuous output torque ¹⁾	[Nm]	2
Max. output torque ²⁾	[Nm]	2.1
Max. torsional backlash	[deg]	0.67
Mass moment of inertia ³⁾	[kgcm ²]	0.09
Max. efficiency	[%]	90
Operating temperature ⁴⁾	[°C]	–20 ... +90
Degree of protection		IP54

- 1) At the output shaft
- 2) In relation to a rotational speed of 3000 rpm and operating mode S1.
- 3) In relation to the drive shaft.
- 4) Note the temperature range of the motor.

Ordering – Product options

Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or

→ www.festo.com/catalogue/...

Enter the type code in the search field.

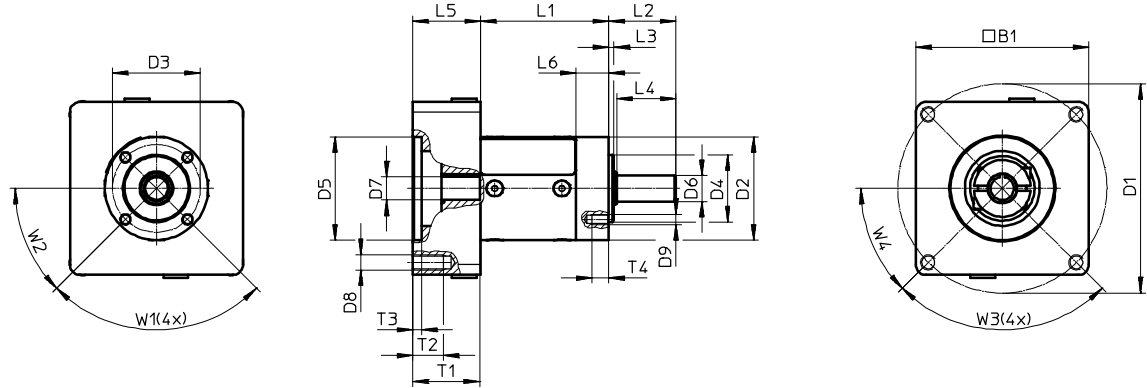
Ordering data – Right-angle gear unit

Motor flange size	Part no.	Type
67	2321480	EMGC-67-A-G1-SEC-67

Dimensions – Planetary gear unit

Download CAD data → www.festo.com

EMGC-40-P-...

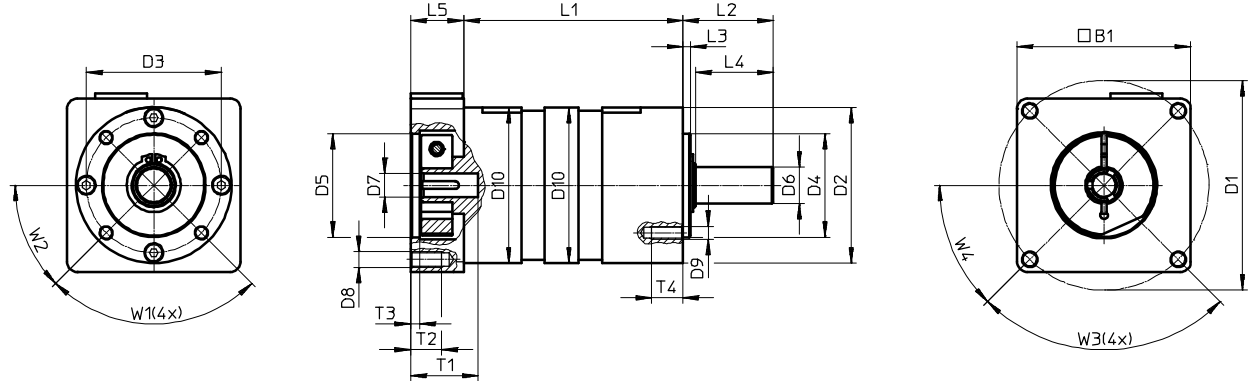


Type	B1	D1 Ø ±0.1	D2 Ø -0.1	D3 Ø ±0.1	D4 Ø h6	D5 Ø G7	D6 Ø h7	D7 Ø G6	D8	D9	L1 ±0.5	L2 -0.3	L3 ±0.2
EMGC-40-P-...	67	81	40	34	26	40	10	9	M6	M4	49.7 ¹⁾ /65.3 ²⁾	26	2

Type	L4 -0.1	L5	L6	T1	T2	T3 +0.2	T4	W1	W2	W3	W4
EMGC-40-P-...	23	26.3	12.7	26	13	3.5	6.5	90°	45°	90°	45°

- 1) EMGC-40-P-G3/G4/G5/G7
2) EMGC-40-P-G12/G1 6/G20/G25/G35

EMGC-60-P-...



Type	B1	D1 Ø ±0.1	D2 Ø -0.1	D3 Ø ±0.1	D4 Ø h6	D5 Ø G7	D6 Ø h6	D7 Ø G6	D8	D9	D10 Ø	L1 ±0.5
EMGC-60-P-...	67	81	60	52	40	40	14	9	M6	M5	60	62.5 ¹⁾ /84.5 ²⁾

Type	L2 -0.3	L3 ±0.2	L4 -0.1	L5	T1	T2	T3 +0.2	T4	W1	W2	W3	W4
EMGC-60-P-...	35	3	30	20.5	26.1	13	3.5	12	90°	45°	90°	45°

- 1) EMGC-60-P-G3/G4/G5/G7/G10
2) EMGC-60-P-G12/G1 6/G20/G25/G35/G40

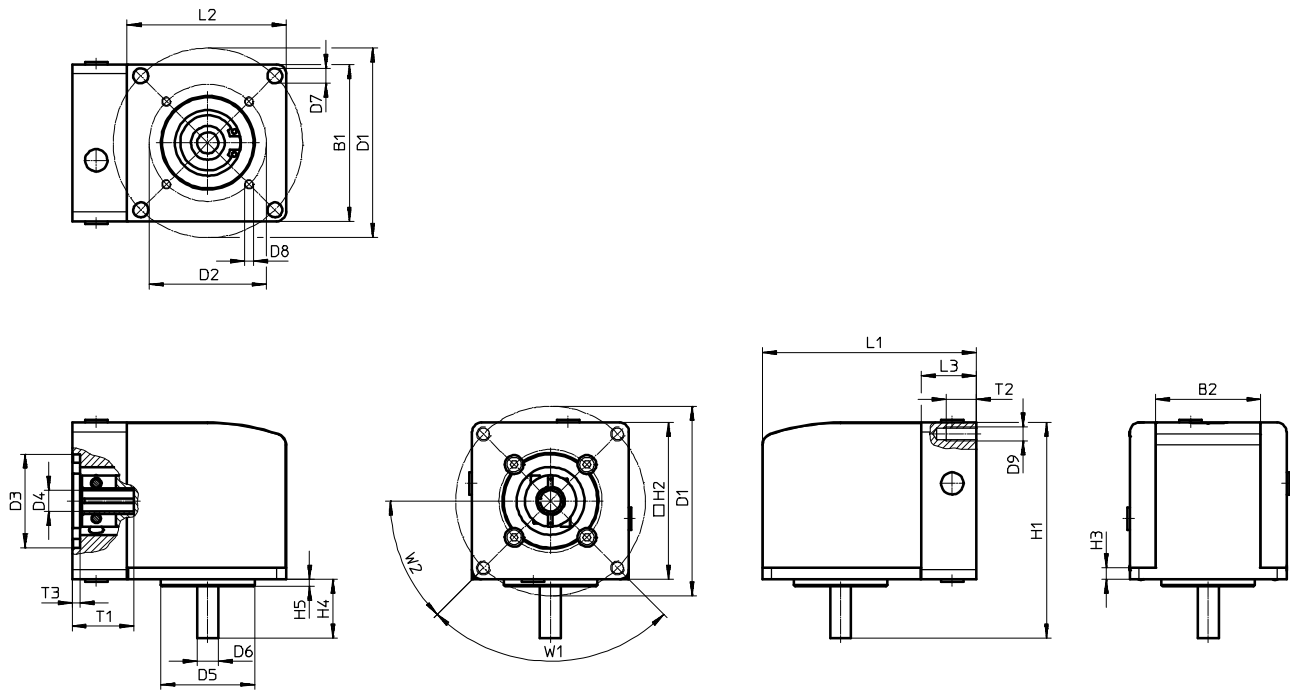
Gear units >

Gear units EMGC

Dimensions – Right-angle gear unit

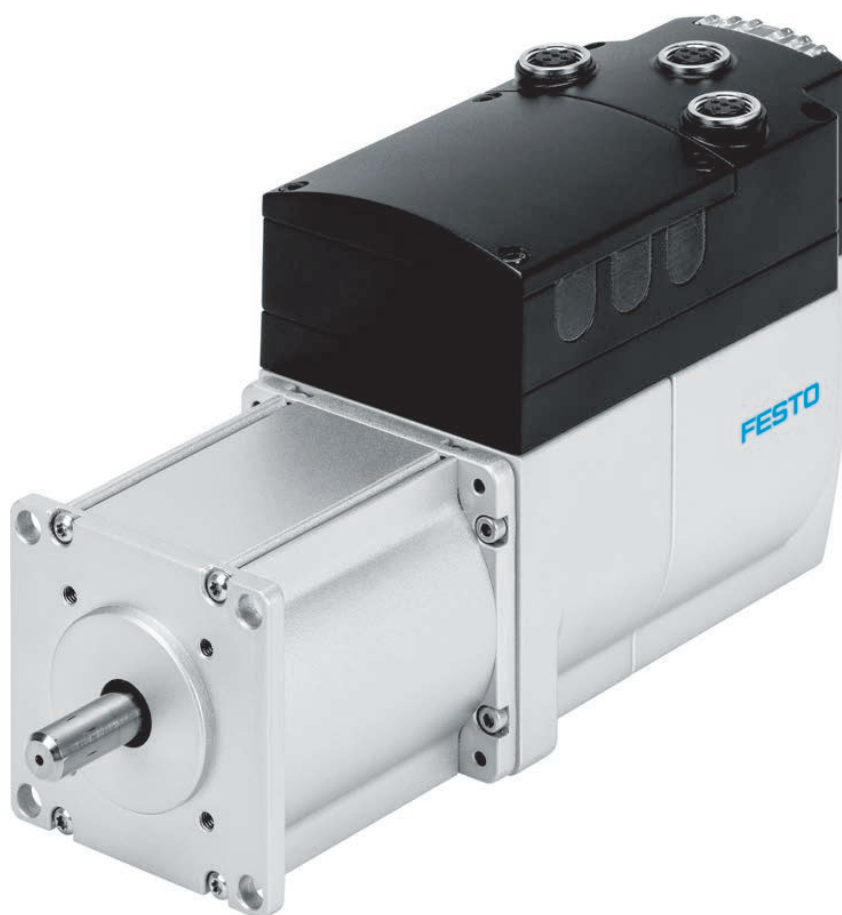
Download CAD data → www.festo.com

EMGC-67-A-...



Type	B1	B2	D1 Ø	D2 Ø	D3 Ø	D4 Ø	D5 Ø	D6 Ø	D7 Ø	D8	D9	H1
		±0.2	±0.1	±0.1	G7	G6	h7	h7	H12			
EMGC-67-A-G1-SEC-67	67	45	81	50	40	9	40	9	6.4	M4	M6	92

Type	H2	H3	H4	H5	L1	L2	L3	T1	T2	T3	W1	W2
		±0.1	−0.1							+0.2		
EMGC-67-A-G1-SEC-67	67	5	25	3	91.5	68	23.5	26.3	13	3.5	90°	45°



Decentralised positioning drive for modular system architecture

- + Wear-free and maintenance-free
EC motor for a long service life
- + Reduces installation costs
and space requirement
- + High performance
with small dimensions

Servo motors ›

Integrated drives

EMCA

Servo motors >

Integrated drives

EMCA



Overview, configuration and ordering

→ www.festo.com/catalogue/emca



Additional information, support and user documentation

→ www.festo.com/sp/emca



- + Multi-turn encoder with buffering
- + Degree of protection IP54 as standard
- + Optional: protection to IP65 in combination with the standard clean look for challenging environments
- + Activation via PROFINET[®], EtherCAT[®], Modbus/TCP[®], CANopen[®], EtherNet/IP[®] and I/O interface
- + Interpolating movement via CANopen[®] and EtherCAT[®]

Product range overview

Flange size	Nominal voltage [V DC]	Nominal torque [Nm]	Product options										
			S	M	E	M	B	DIO	CO	PN	EP	EC	S1
67	24	0.37 ... 0.45	■	■	■	■	■	■	■	■	■	■	■

Product options

S	Short length	E	Absolute encoder, single turn	DIO	Digital I/O interface	EP	EtherNet/IP
M	Medium length	M	Absolute encoder, multi-turn	CO	CANopen	EC	EtherCAT
		B	With holding brake	PN	PROFINET	S1	Degree of protection IP65

At a glance

The positioning drive EMCA is a brushless DC motor (EC motor) for positioning tasks with integrated power and control electronics.

This prevents the need for long motor cables, improves the electromagnetic compatibility and reduces the installation time and space requirements.

- 64 freely programmable position sets (target variable: position, speed or torque)
- Absolute position sensing via:
 - Standard: single-turn absolute encoder
 - Optional: multi-turn absolute displacement encoder with integrated buffer for saving the position values of movements for up to 7 days
- Optional: integrated holding brake including holding brake control
- Bus protocol: digital I/O interface; CANopen, PROFINET; EtherNet/IP; EtherCAT
- Safety function: "Safe Torque Off" (STO)
- Selectable degree of protection:
 - Standard: IP54 housing and connection technology
 - Optional: IP65 housing and connection technology for increased requirements

Data sheet

Bus protocol

CANopen

EtherNet/IP

Modbus

PROFINET

EtherCAT



05

Motors and controllers

Technical data

Dimensions → Page 798

Controller operating mode		PWM MOSFET power output stage
		Cascade controller with: P position controller; PI speed controller; PI current controller
Parameterisation interface		Ethernet
Ethernet, supported protocols		TCP/IP
Max. transmission rate	[Mbps]	100
Rotary position encoder	Absolute encoder, single turn	
	Absolute encoder, multi-turn displacement encoder	
Rotary position encoder measuring principle		Magnetic
Resolution		
Single turn	[bit]	12 (4096 increments per revolution)
Multi-turn displacement encoder	[bit]	12 (4096 increments per revolution; ±2,147,483,648 revolutions)

Electrical data

Size		S	M
Nominal voltage	[V DC]	24 ±20%	
Nominal current	[A]	6.9	7.2
Peak current	[A]	10.2	10.3
Nominal motor power	[W]	120	150
Peak motor power	[W]	158	200
Max. current, digital outputs	[mA]	100	
Switching logic, input/output		PNP	

Servo motors >

Integrated drives EMCA

Data sheet

Technical data – Motor			
Size		S	M
Nominal rotational speed	[rpm]	3100	3150
Max. rotational speed	[rpm]	3500	3300
Nominal torque	[Nm]	0.37	0.45
Peak torque	[Nm]	0.85	0.91
Mass moment of inertia of rotor	[kg cm ²]	0.175	0.301
Permissible shaft load			
Axial	[N]	60	
Radial	[N]	100	
Holding brake			
Holding torque	[Nm]	1	
Power consumption	[W]	9	
Mass moment of inertia	[kg cm ²]	0.021	

Technical data					
Interfaces	I/O	CANopen	PROFINET	EtherNet/IP	EtherCAT
Number of digital logic outputs	4	2	2	2	2
Number of digital logic inputs	11	2	2	2	2

Technical data – Bus protocol					
Interfaces	Modbus TCP	CANopen	PROFINET	EtherNet/IP	EtherCAT
Position sets	64	64	64	64	64
Communication profile	FHPP	CiA 402 and FHPP	FHPP	FHPP	CiA 402 and FHPP
Max. fieldbus transmission rate	[Mbps]	100	1	100	100
Terminating resistor	[Ω]	–	120 (can be activated via DIP switches)	–	–

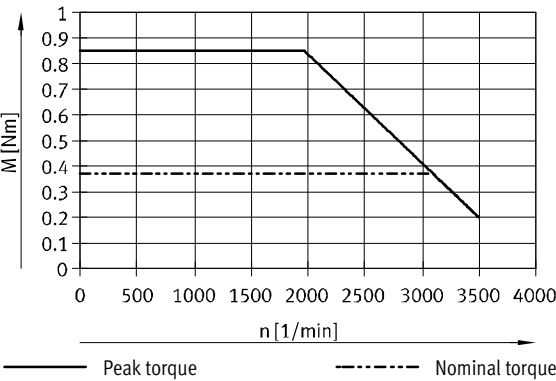
Safety data	
Safety function to EN 61800-5-2	Safe Torque Off (STO)
Performance Level (PL) to EN ISO 13849-1	Category 3, Performance Level d
Safety Integrity Level (SIL) to EN 61800-5-2	SIL 2
Certificate issuing authority	TÜV 01/205/5514.00/16
CE marking (see declaration of conformity)	To EU EMC Directive ¹⁾
	To EC Machinery Directive

1) For information about the area of use, see the EC declaration of conformity at: www.festo.com/sp → Certificates.
If the device is subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

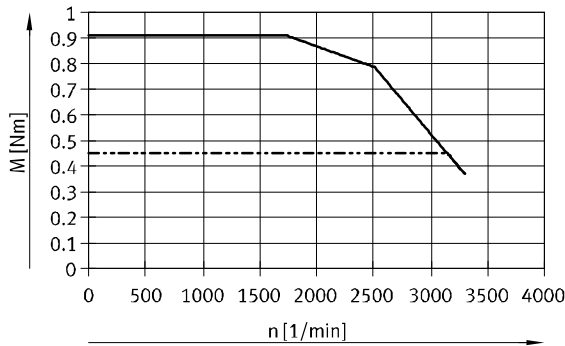
Operating conditions	
Degree of protection	
EMCA-..., motor shaft	IP54
EMCA-... ²⁾	IP54
EMCA-...-S1 ²⁾	IP65
Ambient temperature	[°C] 0 ... +50
Note on ambient temperature	Power must be reduced by 1.75% per °C at ambient temperatures above 20°C

2) Motor housing incl. connection technology

Torque M as a function of speed n
EMCA-EC-67-S



EMCA-EC-67-M



Order code

		EMCA	-	EC	-	67	-		-	1		T			-		-	
Type																		
EMCA	Motor with controller																	
Motor technology																		
EC	EC motor																	
Motor flange size																		
67	67 mm																	
Length																		
S	Short																	
M	Medium																	
Nominal operating voltage																		
1	24 V DC																	
Electrical connection																		
T	Terminal box																	
Measuring unit																		
E	Absolute encoder, single turn																	
M	Absolute encoder, multi-turn																	
Brake																		
-	Without																	
B	With holding brake																	
Bus protocol/activation																		
DIO	Digital I/O interface + Modbus TCP																	
CO	CANopen																	
PN	PROFINET																	
EP	EtherNet/IP																	
EC	EtherCAT																	
Degree of protection, electrical system																		
-	Standard																	
S1	IP65																	

Order example:
EMCA-EC-67-M-1TEB-CO
Motor EMCA - servo motor - flange size 67 - length: medium - nominal operating voltage 24 V DC - electrical connection: terminal box - measuring unit: absolute encoder, single turn - with holding brake - bus protocol: CANopen - degree of protection IP54

Ordering – Product options

Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or

www.festo.com/catalogue/...

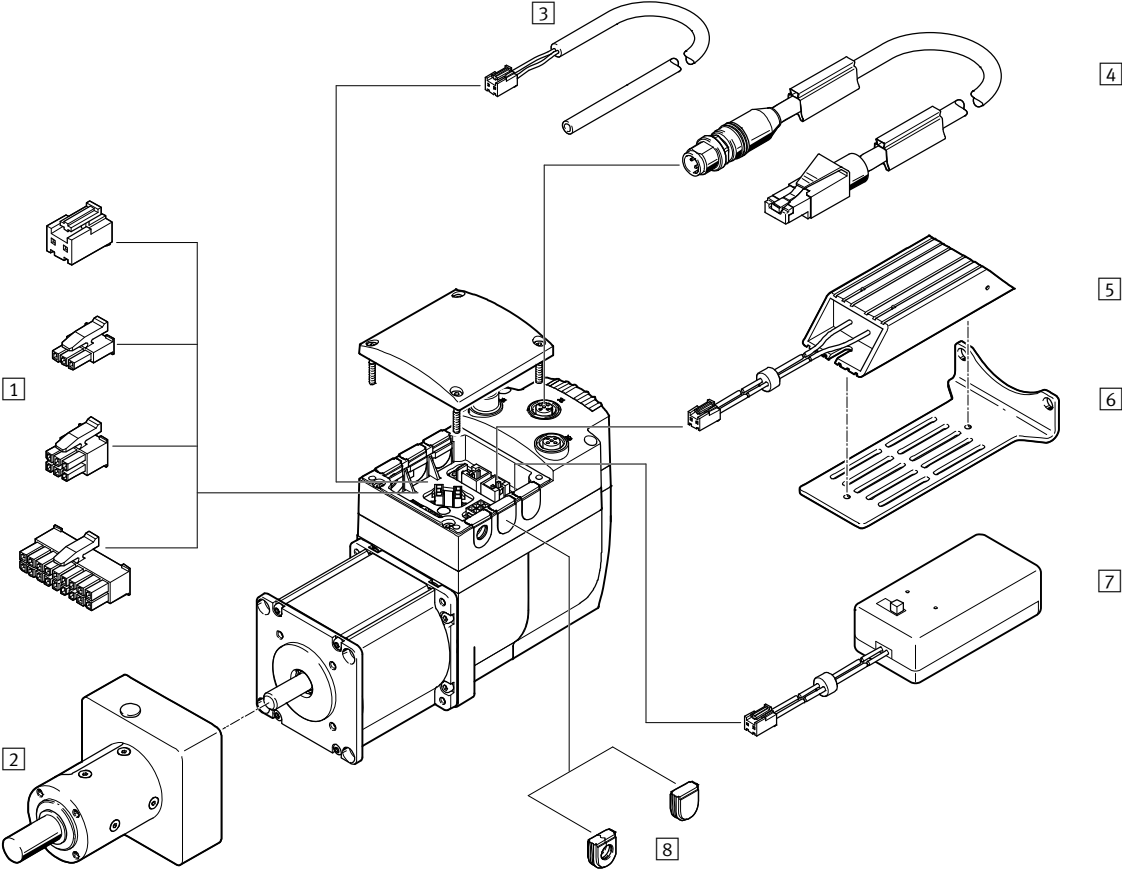
Enter the type code in the search field.

Servo motors >

Integrated drives EMCA

Accessories

Using the variant EMCA-...-CO as an example

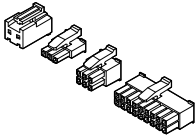
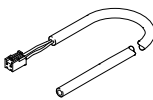
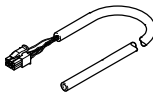
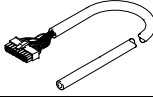
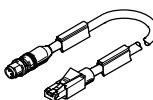
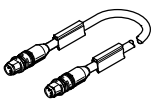
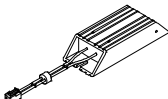
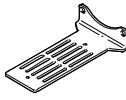
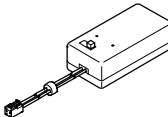
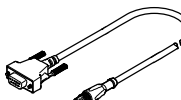


Accessories ¹⁾	→ Page/online
1 Assortment of plugs NEKM	797
2 Gear unit EMGC	787
3 Pre-assembled cable NEBM	797
4 Connecting cable NEBC-D12G4	797

Accessories ¹⁾	→ Page/online
5 Braking resistor CACR-LE2	797
6 Mounting bracket EAHM.M1	797
7 Battery box EADA	797
8 Rubber seals ²⁾	emca

1) Not included in the scope of delivery of the integrated drive
2) Assortment of seals included in the scope of delivery

Accessories – Ordering data

	Description	Cable length [m]	Part no.	Type
1 Assortment of plugs				
	CANopen, PROFINET, EtherNet/IP, EtherCAT	–	8034242	NEKM-C-20
	I/O interface with Modbus TCP	–	8034243	NEKM-C-21
3 Pre-assembled cable				
	For power supply	10	4977492	NEBM-L4G2-E-10-N-LE2T
	For STO interface	10	4977493	NEBM-L5G6-E-10-N-LE6
	For I/O interface	10	4977494	NEBM-L5G18-E-10-N-LE18
4 Connecting cable				
	For parameterisation interface	1	8040451	NEBC-D12G4-ES-1-S-R3G4-ET
		3	8040452	NEBC-D12G4-ES-3-S-R3G4-ET
		5	8040453	NEBC-D12G4-ES-5-S-R3G4-ET
		10	8040454	NEBC-D12G4-ES-10-S-R3G4-ET
	For PROFINET, EtherNet/IP, EtherCAT interface	0.5	8040446	NEBC-D12G4-ES-0.5-S-D12G4-ET
		1	8040447	NEBC-D12G4-ES-1-S-D12G4-ET
		3	8040448	NEBC-D12G4-ES-3-S-D12G4-ET
		5	8040449	NEBC-D12G4-ES-5-S-D12G4-ET
		10	8040450	NEBC-D12G4-ES-10-S-D12G4-ET
5 Braking resistor				
	Resistance value: 6 Ω	0.3	8047913	CACR-LE2-6-W60
	Nominal power: 60 W			
6 Mounting bracket				
	For flexible mounting of the braking resistor	–	8047912	EAHM-M1-AB
7 Battery box				
	To save the position values in combination with the multi-turn absolute displacement encoder	0.3	8080406	EADA-A-9
Fieldbus adapter for CANopen				
	Bus terminating resistor must be connected externally	0.1	540324	FBA-CO-SUB-9-M12

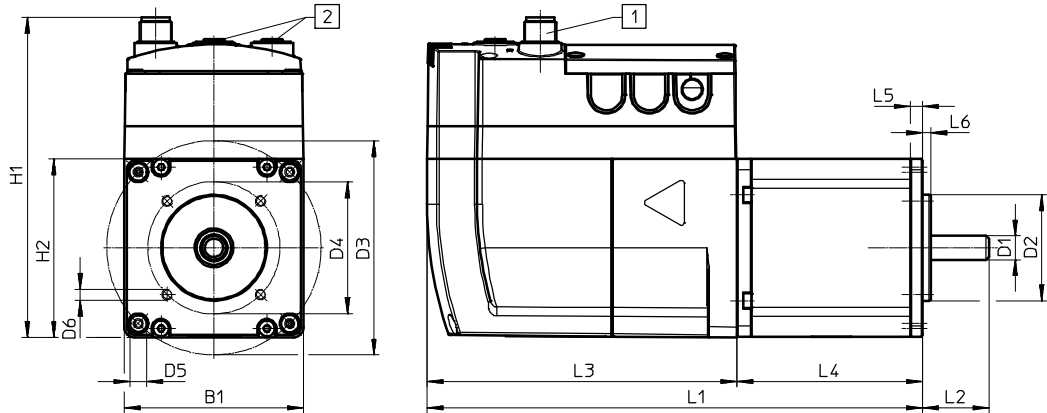
Servo motors >

Integrated drives EMCA

Dimensions

Download CAD data www.festo.com

EMCA-...-CO



- 1 Plug M12x1
- 2 Socket M12x1

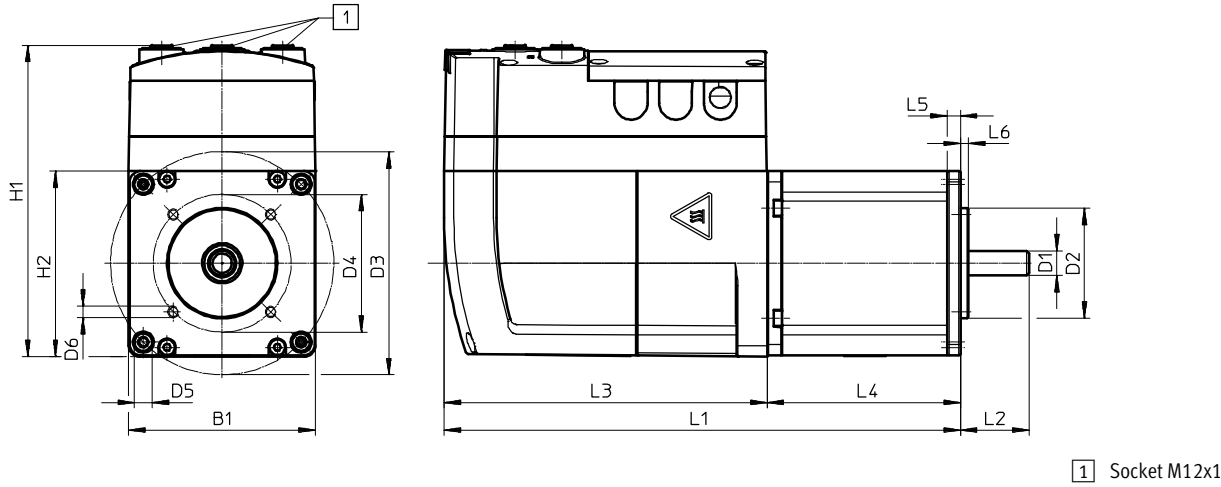
Type	B1	D1 Ø h6	D2 Ø h8	D3 Ø ±0.2	D4 Ø ±0.2	D5 Ø +0.2	D6	H1 ±0.5
EMCA-...-S	67	9	40	81	50	6.3	M4x5	121.1
EMCA-...-M								

Type	H2	L1	L2 ±0.5	L3 ±0.3	L4 ±0.8	L5 ±0.3	L6 −0.1
EMCA-...-S	67	169.9	25	117.2	52.7	4.7	3
EMCA-...-M		187.4			70.2		

Dimensions

EMCA-...-PN/-EP/-EC/-DIO

Download CAD data → www.festo.com



Type	B1	D1 Ø h6	D2 Ø h8	D3 Ø ±0.2	D4 Ø ±0.2	D5 Ø +0.2	D6	H1 ±0.5
With PROFINET, EtherNet/IP, EtherCAT interface								
EMCA-...-S	67	9	40	81	50	6.3	M4x5	113
EMCA-...-M								
With I/O interface								
EMCA-...-S	67	9	40	81	50	6.3	M4x5	111.5
EMCA-...-M								

Type	H2	L1	L2 ±0.5	L3 ±0.3	L4 ±0.8	L5 ±0.3	L6 −0.1
With PROFINET, EtherNet/IP, EtherCAT interface							
EMCA-...-S	67	169.9	25	117.2	52.7	4.7	3
EMCA-...-M		187.4			70.2		
With I/O interface							
EMCA-...-S	67	169.9	25	117.2	52.7	4.7	3
EMCA-...-M		187.4			70.2		

Servo motors >

05

Motors and controllers



... for stepper motors EMMS-ST

- + Maintenance-free operation thanks to life-time lubrication
- + Low torsional backlash permits precise positioning
- + Short delivery times thanks to gear ratios available from stock
- + Customised gear ratios – including for third-party motors – available at short notice

Accessories > Gear units >

Gear units for stepper motors

EMGA-SST

Accessories > Gear units >

Gear units for stepper motors

EMGA-SST



Overview, configuration and ordering

→ www.festo.com/catalogue/emga-sst



Additional information, support and user documentation

→ www.festo.com/sp/emga-sst



- + Planetary gear units for stepper motors EMMS-ST
- + Gear ratios $i = 3$ and $i = 5$ available from stock
- + Maintenance-free operation thanks to life-time lubrication
- + Low torsional backlash permits precise positioning

Gear units EMGA-SST, for stepper motors

Product range overview

Flange size	Output torque [Nm]	Gear ratio	
		3	5
42, 57, 87	17.6 ... 176	■	■

Product options

P	Planetary gear	G5	Gear ratio 5:1
G3	Gear ratio 3:1	SST	Stepper motor

Data sheet

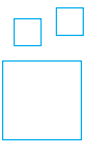
Technical data		Dimensions → Page 804					
Motor flange size		42		57		87	
Gear unit type		EMGA-40-P-G...		EMGA-60-P-G...		EMGA-80-P-G...	
Gear ratio	[i]	3	5	3	5	3	5
Continuous output torque ¹⁾	[Nm]	11	14	22	22	85	110
Max. output torque	[Nm]	17.6	22	35.2	35.2	136	176
Torsional backlash	[deg]	0.25		0.17		0.12	
Mass moment of inertia ²⁾	[kgcm ²]	0.031	0.019	0.135	0.078	0.77	0.45
Operating temperature ³⁾	[°C]	-25 ... +90					
Degree of protection		IP54					
Note on materials		RoHS-compliant					

1) At the output shaft.

2) In relation to the drive shaft.

3) Note the temperature range of the motor.

Ordering – Product options

**Configurable
product****This product and all its options can
be ordered using the configurator.**The configurator can be found under
Products on the DVD or→ www.festo.com/catalogue/...

Enter the type code in the search field.

Ordering data

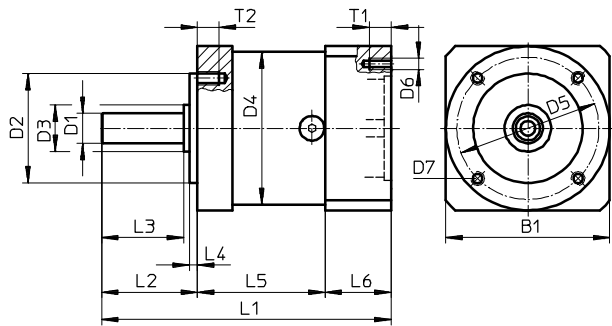
Motor flange size	Part no.	Type
42	549428	EMGA-40-P-G3-SST-42
	549429	EMGA-40-P-G5-SST-42
57	549430	EMGA-60-P-G3-SST-57
	549431	EMGA-60-P-G5-SST-57

Motor flange size	Part no.	Type
87	549432	EMGA-80-P-G3-SST-87
	549433	EMGA-80-P-G5-SST-87

Gear units EMGA-SST, for stepper motors

Dimensions

Download CAD data → www.festo.com



Motor flange size	B1	D1 Ø h7	D2 Ø h7	D3 Ø	D4 Ø	D5 Ø	D6	D7
42	40	10	26	12	40	34	Ø3.4	M4
57	60	11	40	17	60	52	M4	M5
87	90	20	60	25	80	70	M5	M6

Motor flange size	L1	L2	L3	L4	L5	L6	T1	T2
	±1.5		±0.2	±0.2				
42	92.5	26±0.6	23	2	39	27.5	5	6
57	106	35±0.8	30	3	47	24	8	8
87	135.5	40±0.8	36	3	60	35.5	12	10



... for servo motors EMMx-AS

- + Maintenance-free operation thanks to life-time lubrication
- + Low torsional backlash permits precise positioning
- + Short delivery times thanks to gear ratios available from stock
- + Other ratios and versions on request

Accessories › Gear units ›

Gear units for servo motors

EMGA-EAS EMGA-SAS

Accessories > Gear units >

Gear units for servo motors

EMGA-EAS, -SAS



Overview, configuration and ordering

→ www.festo.com/catalogue/emga



Additional information, support and user documentation

→ www.festo.com/sp/emga



- + Planetary gear units EMGA-EAS for servo motors EMMS-AS
- + Planetary gear units EMGA-SAS for servo motors EMMS-AS
- + Gear ratio $i = 3$ and $i = 5$, available from stock
- + Maintenance-free operation thanks to life-time lubrication
- + Low torsional backlash permits precise positioning

Gear units EMGA-EAS, for servo motors

Product range overview

Flange size	Output torque [Nm]	Gear ratio	
		3	5
40 ... 140	17.6 ... 312	■	■

Product options

P	Planetary gear	G5	Gear ratio 5:1
G3	Gear ratio 3:1	EAS	Eco AC synchronous

Data sheet

Technical data		Dimensions → Page 808	
Motor flange size		40	60
Gear unit type		EMGA-40-P-G...-40	EMGA-60-P-G...-60
Gear ratio	[i]	3	5
Continuous output torque ¹⁾	[Nm]	11	40
Max. output torque ²⁾	[Nm]	17.6	64
Torsional backlash	[deg]	0.25	0.17
Moment of inertia ³⁾	[kgcm ²]	0.031	0.078
Operating temperature ⁴⁾	[°C]	-25 ... +90	
Degree of protection		IP54	
Note on materials		RoHS-compliant	

Motor flange size		80	100
Gear unit type		EMGA-80-P-G...-80	EMGA-100-P-G...-100
Gear ratio	[i]	3	5
Continuous output torque ¹⁾	[Nm]	85	115
Max. output torque ²⁾	[Nm]	136	184
Torsional backlash	[deg]	0.12	0.12
Moment of inertia ³⁾	[kgcm ²]	0.77	2.63
Operating temperature ⁴⁾	[°C]	-25 ... +90	
Degree of protection		IP54	
Note on materials		RoHS-compliant	

1) At the output shaft.
2) The specifications refer to an output shaft speed of 100 rpm as well as operating mode S1 and a temperature of 30 °C.
3) In relation to the drive shaft.
4) Note the temperature range of the motor.

Ordering – Product options

Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
→ www.festo.com/catalogue/...

Enter the type code in the search field.

Ordering data

Motor flange size	Part no.	Type
40	2297684	EMGA-40-P-G3-EAS-40
	2297685	EMGA-40-P-G5-EAS-40
60	2297686	EMGA-60-P-G3-EAS-60
	2297687	EMGA-60-P-G5-EAS-60
80	2297690	EMGA-80-P-G3-EAS-80
	2297691	EMGA-80-P-G5-EAS-80

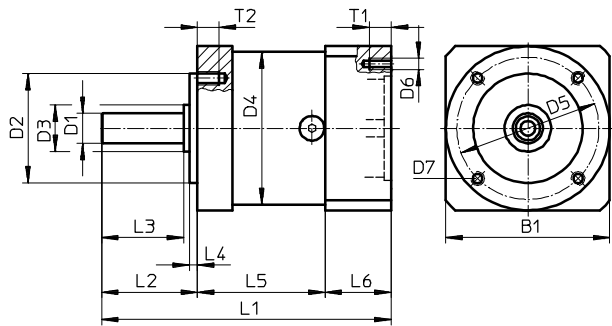
Motor flange size	Part no.	Type
100	552194	EMGA-80-P-G3-SAS-100
	552195	EMGA-80-P-G5-SAS-100
	552196	EMGA-120-P-G3-SAS-100
	552197	EMGA-120-P-G5-SAS-100

Accessories > Gear units >

Gear units EMGA-EAS, for servo motors

Dimensions

Download CAD data → www.festo.com



Type	B1	D1 Ø h7	D2 Ø h7	D3 Ø	D4 Ø	D5 Ø	D6	D7
EMGA-40-...-40	40	10	26	12	40	34	M3	M4
EMGA-60-...-60	60	14	40	17	60	52	M5	M5
EMGA-80-...-80	80	20	60	25	80	70	M5	M6
EMGA-80-...-100	100	20	60	25	80	70	M8	M6
EMGA-120-...-100	115	25	80	35	115	100	M8	M10

Type	L1	L2	L3 ±0.2	L4 ±0.2	L5	L6	T1	T2
EMGA-40-...-40	93.5	26	23	2	39	28.5	8	6
EMGA-60-...-60	113.5	35	30	3	47	31	10	8
EMGA-80-...-80	138.5	40	36	3	60	38.5	12	10
EMGA-80-...-100	143.5	40	36	3	60	43.5	16	10
EMGA-120-...-100	176.5	55	50	4	74	47.5	20	16

Motors and controllers

Gear units EMGA-SAS, for servo motors

Product range overview

Flange size	Output torque [Nm]	Gear ratio	
		3	5
40 ... 140	17.6 ... 720	■	■

Product options

P	Planetary gear	G5	Gear ratio 5:1
G3	Gear ratio 3:1	SAS	AC synchronous

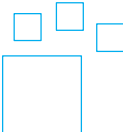
Data sheet

Technical data		Dimensions → Page 810							
Motor flange size		40		55		70			
Gear unit type		EMGA-40-P-G...-40		EMGA-60-P-G...-55		EMGA-60-P-G...-70		EMGA-80-P-G...-70	
Gear ratio	[i]	3	5	3	5	3	5	3	5
Continuous output torque ¹⁾	[Nm]	11	14	22	22	22	22	85	110
Max. output torque ²⁾	[Nm]	17.6	22	35.2	35.2	35.2	35.2	136	176
Torsional backlash	[deg]	0.25		0.17		0.17		0.12	
Mass moment of inertia ³⁾	[kgcm ²]	0.031	0.019	0.135	0.078	0.135	0.078	0.77	0.45
Operating temperature ⁴⁾	[°C]	-25 ... +90							
Degree of protection		IP54							
Note on materials		RoHS-compliant							

Motor flange size		100		140					
Gear unit type		EMGA-80-P-G...-100		EMGA-120-P-G...-100		EMGA-120-P-G...-140		EMGA-160-P-G...-140	
Gear ratio	[i]	3	5	3	5	3	5	3	5
Continuous output torque ¹⁾	[Nm]	85	110	115	195	115	195	400	450
Max. output torque ²⁾	[Nm]	136	176	184	312	184	312	640	720
Torsional backlash	[deg]	0.12		0.12		0.12		0.1	
Mass moment of inertia ³⁾	[kgcm ²]	0.77	0.45	2.63	1.53	2.63	1.53	12.14	6.07
Operating temperature ⁴⁾	[°C]	-25 ... +90							
Degree of protection		IP54							
Note on materials		RoHS-compliant							

- 1) At the output shaft.
2) The specifications refer to an output shaft speed of 100 rpm as well as operating mode S1 and a temperature of 30 °C.
3) In relation to the drive shaft.
4) Note the temperature range of the motor.

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
→ www.festo.com/catalogue/...

Enter the type code in the search field.

Ordering data

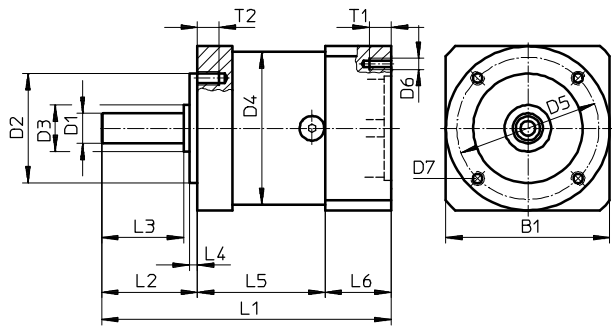
Motor flange size	Part no.	Type	Motor flange size	Part no.	Type
40	552186	EMGA-40-P-G3-SAS-40	100	552194	EMGA-80-P-G3-SAS-100
	552187	EMGA-40-P-G5-SAS-40		552195	EMGA-80-P-G5-SAS-100
55	552188	EMGA-60-P-G3-SAS-55		552196	EMGA-120-P-G3-SAS-100
	552189	EMGA-60-P-G5-SAS-55		552197	EMGA-120-P-G5-SAS-100
70	552190	EMGA-60-P-G3-SAS-70	140	552198	EMGA-120-P-G3-SAS-140
	552191	EMGA-60-P-G5-SAS-70		552199	EMGA-120-P-G5-SAS-140
	552192	EMGA-80-P-G3-SAS-70		552200	EMGA-160-P-G3-SAS-140
	552193	EMGA-80-P-G5-SAS-70		552201	EMGA-160-P-G5-SAS-140

Accessories > Gear units >

Gear units EMGA-SAS, for servo motors

Dimensions

Download CAD data → www.festo.com



Type	B1	D1 Ø h7	D2 Ø h7	D3 Ø	D4 Ø	D5 Ø	D6	D7
EMGA-40-...-40	40	10	26	12	40	34	M3	M4
EMGA-60-...-55	60	11	40	17	60	52	M5	M5
EMGA-60-...-70	70	11	40	17	60	52	M5	M5
EMGA-80-...-70	80	20	60	25	80	70	M5	M6
EMGA-80-...-100	100	20	60	25	80	70	M8	M6
EMGA-120-...-100	115	25	80	35	115	100	M8	M10
EMGA-120-...-140	140	25	80	35	115	100	M10	M10
EMGA-160-...-140	140	40	130	55	160	145	M10	M12

Type	L1	L2	L3 ±0.2	L4 ±0.2	L5	L6	T1	T2
EMGA-40-...-40	88.5±1.5	26±0.6	23	2	39	23.5	6	6
EMGA-60-...-55	106±1.5	35±0.8	30	3	47	24	12	8
EMGA-60-...-70	106±1.5	35±0.8	30	3	47	24	12	8
EMGA-80-...-70	133.5±1.5	40±0.8	36	3	60	33.5	12	10
EMGA-80-...-100	143.5±1.5	40±0.8	36	3	60	43.5	16	10
EMGA-120-...-100	176.5±2	55±0.8	50	4	74	47.5	20	16
EMGA-120-...-140	186±2	55±0.8	50	4	74	57.5	25	16
EMGA-160-...-140	255.5±2	87±0.8	80	5	104	64.5	25	20

New New series



Universal and precise

- + Universal servo drive for PM-synchronous servo motors up to 700 W
- + Precise force, speed and position control

Controllers › Controllers for servo motors ›
Servo drives

CMMT-AS

Controllers > Controllers for servo motors >

Servo drives

CMMT-AS



Overview, configuration and ordering

→ www.festo.com/catalogue/cmmt-as



Additional information, support and user documentation

→ www.festo.com/sp/cmmt-as



- + Movements from point-to-point to interpolated motion
- + Integrated safety functions
- + Bus protocol EtherCAT® with the profile CIA 402

Product range overview

Type	Output voltage range [V AC]	Nominal current [A _{eff}]	Interfaces EtherCAT
CMMT-AS-C2-3A...	3x (0 – Input)	2	■
CMMT-AS-C4-3A...	3x (0 – Input)	4	■

Product options

C2	Nominal current 2 A	3A	Input voltage
C4	Nominal current 4 A		100 ... 230 V AC

Features

- Universal servo drive for PM-synchronous servo motors up to 700 W
 - Supports the motor series EMMT-AS, EMME-AS and EMMS-AS as well as third-party motors
 - Integrated single-phase mains connection 230 V AC, mains filter and braking resistor, connection option for external braking resistor
- Precise force, speed and position control
 - Point-to-point to interpolated motion
 - Comprehensively integrated protective functions for the servo drive, motor and axis with automatic motor shut-down/quick stop
 - Bus protocol EtherCAT® with the profile CIA 402
- Prepared device description files and function elements for integration in PLC systems
 - Configuration
 - Automatically with the "Festo Automation Suite" as well as auto-tuning
 - Directly via fieldbus and PLC
 - Data backup concept via PLC or control unit CDSB
- Supports digital absolute encoders (EnDat, Hiperface, Nikon-A) in the motor as well as incremental (A/B, Sin/Cos) displacement encoders on the axis

Fieldbus interfaces

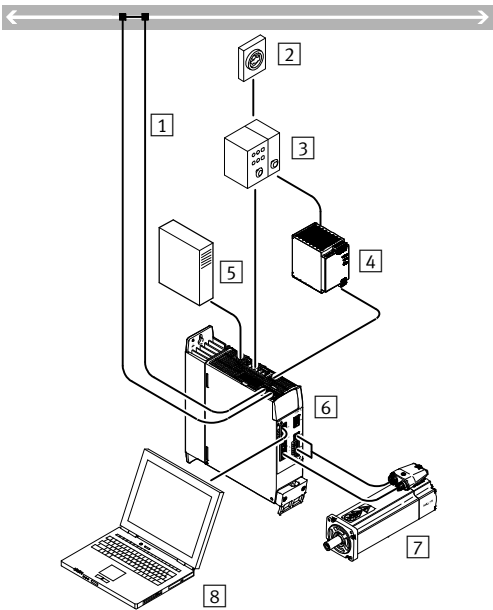


Library for EPLAN



- EPLAN macros for fast and reliable planning of electrical projects in combination with motor controllers, motors and cables.
- This enables a high level of planning reliability, standardisation of documentation, no need to create symbols, graphics and master data.
- Safe Torque Off (STO) up to SIL3/Cat. 4 PL e
 - Safe Stop 1 (SS1) when using a suitable external safety switching device and suitable circuitry for the servo drive
 - Safe Brake Control (SBC) up to SIL3/Cat. 3 PL e
 - Diagnostic outputs STA and SBA for feedback on the active safety function

System overview



- 1 Bus/network
- 2 Power switch
- 3 Circuit breaker/fuses
- 4 Power supply unit for logic voltage supply 24 V DC (PELV)
- 5 External braking resistor (optional)
- 6 Servo drive CMMT-AS
- 7 Servo motor
- 8 PC with Ethernet connection for parameterisation

EtherCAT®, ePlan® is a registered trademark of its respective trademark holder in certain countries.

Servo drives CMMT-AS

NEW

Data sheet

Bus protocol

EtherCAT➔



05

Motors and controllers

Technical data		Download CAD data → www.festo.com	
CMMT-AS-	C2-3A-...	C4-3A-...	
Operating mode	• Field-oriented control, position resolution 24-bit/U • Sampling rate 16 kHz • PWM with 8 or 16 KHz, vector modulation with third harmonic • Real-time data acquisition: – 2x input capture (x, v, F) – 2x output trigger (x, v, F) – 2x position encoder input – 1x SYNC interface for encoder emulation or encoder input		
Protocol	DHCP		
	FTP		
	TCP/IP		
Ethernet	Parameterisation and commissioning		
Function of position encoder 1	ENDAT 2.1 encoder, ENDAT 2.2 encoder		
	Hiperface sensor		
	Incremental encoder		
	SIN/COS encoder		
	Nikon-A encoder		
Function of position encoder 2	Incremental encoder		
	SIN/COS encoder		
Encoder output, characteristics	Resolution up to 16384 ppr		
	1 MHz maximum output frequency		
Encoder input, characteristics	Resolution up to 16384 ppr		
	1 MHz maximum input frequency		
Braking resistor, integrated	[Ω]	100	
Braking resistor, pulse power	[kVA]	1.6	
Braking resistor, external	[Ω]	100 ... 160	70 ... 100
Number of digital inputs		12	
Operating range of digital inputs	[V]	0 ... 30	
Number of digital outputs		6	
Number of analogue inputs		1	
Operating range of analogue inputs	[V]	±10	
Number of potential-free switching outputs		1	

Electrical data					
CMMT-AS-		C2-3A-...		C4-3A-...	
Output connection data					
Output voltage range		[V AC]	3x (0 – Input)		
Nominal current per phase		[A _{eff}]	2		4
Nominal power		[VA]	350		700
Peak power		[VA]	1000		2000
Output frequency		[Hz]	0 ... 599		
Load voltage AC					
Nominal operating voltage phases			Single-phase		
Input voltage range		[V AC]	100 ... 230 –20%/+15%		
Nominal current		[A]	2.8		5.6
Nominal power		[VA]	350		700
Peak power		[VA]	1000		2000
Mains frequency		[Hz]	48 ... 62		
Mains filter			Integrated		

Data sheet

Electrical data		
CMMT-AS-	C2-3A-...	C4-3A-...
Load voltage DC		
Input voltage range	[V DC]	80 ... 360
Max. DC link voltage	[VA]	395
Nominal current at 320 V DC	[A]	1.3
Active PTC	[VA]	No
Logic supply		
Nominal voltage	[V DC]	24 ±20%
Max. current consumption	[A]	0.5/2.1 ¹⁾

1) Max. current at full expansion, with two position encoders, brake output and all I/Os with max. specified loads connected.

Operating and environmental conditions		
Ambient temperature ²⁾	[°C]	0 ... +50
Degree of protection		IP20
CE marking (see declaration of conformity) ³⁾		To EU EMC Directive
		To EU Machinery Directive
		To EU Low Voltage Directive
		To EU RoHS Directive

2) Above 40 °C power is reduced by 3% per K.

3) For information about the area of use, see the EC declaration of conformity at: www.festo.com/sp → Certificates.

If the component is subject to usage restrictions in residential, office or commercial locations or small businesses, further measures for the reduction of the emitted interference may be necessary.

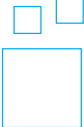
Bus protocol	
Interfaces	EtherCAT
Function	Bus connection incoming/outgoing
Process interfacing	Interpolated mode CSP
	Interpolated mode CSV
	Interpolated mode CST
	Point-to-point mode PP
	Point-to-point mode PV
	Point-to-point mode TQ
	Homing mode HM
	Record table with 128 entries
Communication profile	CiA402
	CoE (CANopen over EtherCAT)
	EoE (Ethernet over EtherCAT)
Max. fieldbus transmission rate	[Mbps] 100

Safety data	
Safety function to EN 61800-5-2	Safe Torque Off (STO)
	Safe Stop 1 (SS1)
	Safe Brake Control (SBC)
Performance Level (PL) to EN ISO 13849-1	
Safe Torque Off (STO)	Category 4, Performance Level e
Safe Brake Control (SBC)	Category 3, Performance Level e
Safety Integrity Level (SIL) to EN 62061 and EN 61508	
Safe Torque Off (STO)	SIL 3/SILCL 3
Safe Brake Control (SBC)	SIL 3/SILCL 3
Certificate issuing authority	TÜV Rheinland 01/205/5640.00/18
Safe Failure Fraction (SFF)	Up to 99%

Servo drives CMMT-AS

NEW

Ordering – Product options



Configurable product

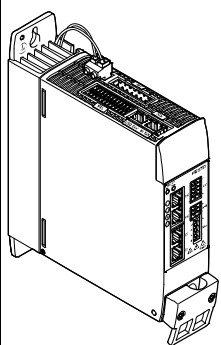
This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or

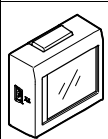
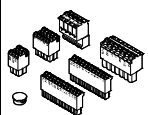
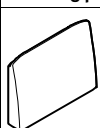
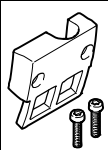
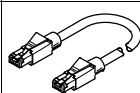
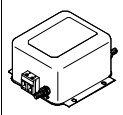
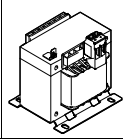
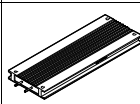
→ www.festo.com/catalogue/...

Enter the type code in the search field.

Ordering data

	Description	Part no.	Type
	The assortment of plugs NEKM is not included in the delivery of the servo drive.	5340819	CMMT-AS-C2-3A-EC-S1
		5340820	CMMT-AS-C4-3A-EC-S1

Accessories – Ordering data

	Part no.	Type
Control unit		
	8070984	CDSB-A1
Assortment of plugs¹⁾		
	For single wiring connection	
	4325822	NEKM-C-6-C16-S
	For double wiring connection	
	5054513	NEKM-C-6-C16-D
Blanking plate		
	5395254	CAFC-06-C
Shield clamp		
	1501329	CAMC-DS-M1
Connecting cable²⁾		
	8082383	NEBC-R3G8-KS-0.2-N-S-R3G8-ET
Mains filter		
	8 A, for: 2x CMMT-AS-C2-3A or 1x CMMT-AS-C4-3A	
	8088928	CAMF-C6-F-C8-3A
	20 A, for: 6x CMMT-AS-C2-3A or 3x CMMT-AS-C4-3A	
	8088929	CAMF-C6-F-C20-3A
Filter flow control		
	For: 2x CMMT-AS-C2-3A or 1x CMMT-AS-C4-3A	
	8088930	CAMF-C6-FD-C6-3A
Braking resistor		
	For CMMT-AS-C2-3A	
	1336615	CACR-LE2-100-W500
	For CMMT-AS-C4-3A	
	1336611	CACR-LE2-72-W500
	1336615	CACR-LE2-100-W500

- 1) The assortment of plugs is not included in the delivery of the servo drive.
2) Patch cable for the daisy-chain connection of the bus interfaces X19A/B



Maximum flexibility and modularity

- + Power factor correction: increase the motor voltage independently of the supply voltage
- + Integrated safety functions reduce wiring and commissioning costs
- + Large number of functions for applications outside of classic drive electronics

Controllers > Controllers for servo motors >
Motor controller

CMMP-AS

Controllers > Controllers for servo motors >

Motor controllers

CMMP-AS



Overview, configuration and ordering

→ www.festo.com/catalogue/cmmp-as



Additional information, support and user documentation

→ www.festo.com/sp/cmmp-as



- + CMMP-AS-M3: Always flexibly tailored to the application thanks to three plug-in slots
- + CMMP-AS-M0: Particularly economical thanks to full integration of the STO safety function
- + Short machine cycle times thanks to temporary four-fold increase in motor current and high acceleration
- + High precision and mass inertia ratio thanks to short scanning times of the cascade controller
- + SD card backup for fast recommissioning and convenient firmware upgrades and downgrades
- + Simple connection to a higher-order controller even in the basic version via I/O, CANopen[®] or Modbus/TCP[®]

Motor controllers CMMP-AS, for servo motors

Product range overview

Type	Output voltage range [V AC]	Nominal current [A _{eff}]	Interfaces ¹⁾							
			I/O inter-face	CANopen	Modbus/TCP	PROFIBUS DP	DeviceNet	EtherCAT	EtherNet/IP	PROFINET RT
CMMP-AS-C2-...	3x 0 ... 270	2.5	■	■	■	■	■	■	■	■
CMMP-AS-C5-3A-...	3x 0 ... 270	5	■	■	■	■	■	■	■	■
CMMP-AS-C5-11A-...	3x 0 ... 360	5	■	■	■	■	■	■	■	■
CMMP-AS-C10-...	3x 0 ... 360	10	■	■	■	■	■	■	■	■
CMMP-AS-C15-...	3x 0 ... 360	15	■	■	■	■	■	■	■	■

1) Additional information → page 822 (top table)

Product options

C2	Nominal current 2.5 A	3A	Input voltage	P3	3-phase
C5	Nominal current 5 A		100 ... 230 V AC	M0	Without slot
C10	Nominal current 10 A	11A	Input voltage	M3	With 3 slots
C15	Nominal current 15 A		3x 230 ... 480 V AC		

Features

Compactness

- Small dimensions
 - Full integration of all components for the controller and power section, including CANopen interface
- Integrated brake chopper
 - Integrated EMC filters
 - Automatic actuation for a holding brake

Motion control

- Evaluation of digital absolute encoder (EnDat/HIPERFACE) in single-turn or multi-turn versions
 - Can be operated as a torque, speed or position controller
 - Integrated position controller
 - Time-optimised (trapezoidal) or jerk-free (S-shaped) positioning
- Absolute and relative movements
 - Point-to-point positioning with and without motion path smoothing
 - Position synchronisation
 - Electronic gear unit
 - 255 position sets
 - Wide range of homing methods

Fieldbus interfaces

Integrated:



Optional:



Optional:



Input/output

- Freely programmable I/Os
- High-resolution 16-bit analogue input
- Jog/teach mode
- Easy connection to a higher-order controller via I/O or fieldbus
- Synchronous operation
- Master/slave mode
- Additional I/Os with the plug-in card CAMC-D-8E8A → page 824

Integrated sequence control

- Automatic sequence of position sets without a higher-order controller
- Linear and cyclical position sequences
- Adjustable delay times
- Branches and wait positions
- Overlapping restart possible during the movement

Motor controllers CMMP-AS, for servo motors

Features

Integrated safety functions

- Depending on the variant or plug-in card, the motor controller supports the following safety functions:
 - Safe Torque Off (STO)
 - Safe Stop 1 (SS1)
 - Safe Brake Control (SBC)
 - Safe Operating Stop (SOS)
 - Safe Stop 2 (SS2)
 - Safely Limited Speed (SLS)
 - Safe Speed Range (SSR)
 - Safe Speed Monitor (SSM)

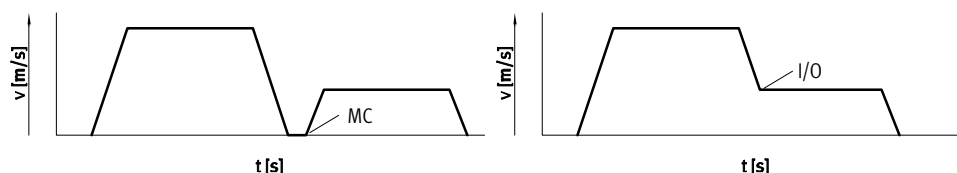
Interpolating multi-axis movement

- With a suitable controller, the CMMP-AS can perform path movements with interpolation via CANopen or EtherCAT. To do this, the controller specifies setpoint position values in a

fixed time slot pattern. In between, the servo position controller independently interpolates the data values between two data points.

Travel program

- Linking of any number of position sets into a travel program
- Step criteria for the travel program possible via digital inputs, for example
 - MC – motion complete
 - I/O – digital inputs



Library for EPLAN



EPLAN macros for fast and reliable planning of electrical projects in combination with motor controllers, motors and cables.

This enables a high level of planning reliability, standardisation of documentation, no need to create symbols, graphics and master data.

Cam disc functionality

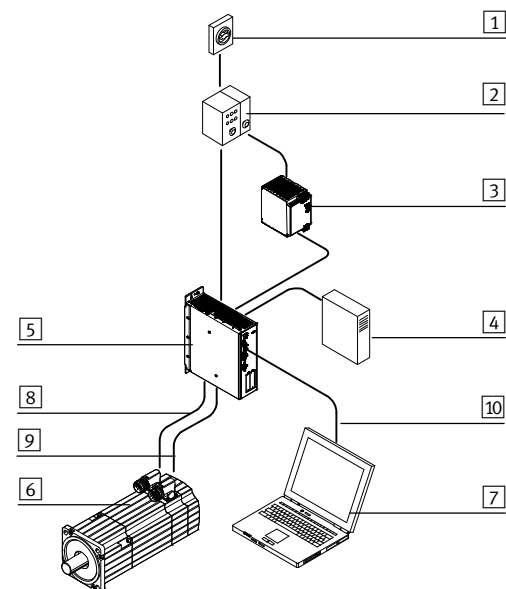
The "electronic cam disc" application type creates optimised motion profiles that generate less vibration and acceleration force at the machine. In addition, the motion of the motor is always synchronous in position with a master axis, which enables easy definition of overlapping, time-optimised motion sequences.

To be able to use the cam disc function, you will need the Festo Configuration Tool (FCT) and also the curve editor
→ online: cmmp.

Key features:

- High flexibility of the system. The mechanical system does not need to be modified if the requirements for the curve shapes change.
- User-friendly motion plan editor. All limits for position, speed and acceleration are immediately displayed in the editor.
- Up to 16 cam discs with a total of up to 2048 data points can be managed. The data points can be randomly distributed along the cam discs.
- There are four digital trip cams coupled with each cam disc.
- Each cam disc can be offset by a certain amount from the master axis.

System overview



- 1 Mains switch
- 2 Circuit breaker
- 3 24 V DC power supply unit
- 4 External braking resistor (optional)
- 5 Motor controller CMMP-AS
- 6 Motor EMMS-AS
- 7 PC
- 8 Encoder cable
- 9 Motor cable
- 10 Programming cable

Motor controllers CMMP-AS, for servo motors

Data sheet

Fieldbus interfaces



Technical data		Download CAD data → www.festo.com				
CMMP-AS-		C2-3A-...	C5-3A-...	C5-11A-P3-...	C10-11A-P3-...	C15-11A-P3-...
Parameterisation interface		USB, Ethernet				
Active PFC		Yes			–	
Encoder interface input		Resolver				
		Incremental encoder with analogue or digital tracking signals				
		Absolute encoder with EnDat V2.1 serial/V2.2				
		Absolute encoder with HIPERFACE				
		Additional input for synchronous/cam disc operation				
Encoder interface output		Actual value feedback via encoder signals in speed control mode				
		Setpoint specification for downstream slave drive				
		Resolution up to 16384 ppr				
Braking resistor, integrated	[Ω]	60			68	
Pulse power of braking resistor	[kVA]	2.8			8.5	
Number of analogue outputs		2				
Operating range of analogue outputs		[V]	±10			
Resolution of analogue outputs		[bit]	9			
Number of analogue inputs		3				
Operating range of analogue inputs		[V]	±10			
Mains filter		Integrated				External ¹⁾

1) The mains filter is mandatory for compliance with the CE and EN standards.

Electrical data														
CMMP-AS-		C2-3A-...		C5-3A-...		C5-11A-P3-...		C10-11A-P3-...		C15-11A-P3-...				
Load supply														
Input voltage range		[V AC]	100 ... 230 ±10%			3x 230 ... 480 ±10%								
Max. nominal input current		[A]	3		6		5.5			11		13		
Nominal power		[VA]	500		1000		3000			6000			9000	
Peak power		[VA]	1000		2000		6000			12000			18000	
Mains frequency		[Hz]	50 ... 60											
Output connection data														
Output voltage range		[V AC]	3x 0 ... 270				3x 0 ... 360							
Nominal current		[A _{eff}]	2.5		5		5			10			15	
Logic supply														
Nominal voltage		[V DC]	24 ±20%											
Nominal current		[A]	0.55/2.05 ²⁾		0.65/2.15 ²⁾		1/3.5 ²⁾							

2) Max. current with brake and I/Os.

Operating conditions		
Ambient temperature	[°C]	0 ... +40
Degree of protection		
With plug at X6 and X9		IP20
Without plug at X6 and X9		IP10
CE marking (see declaration of conformity)		To EU EMC Directive ³⁾
		To EC Machinery Directive
		To EU Low Voltage Directive

3) For information about the area of use, see the EC declaration of conformity at: www.festo.com/sp → Certificates.
If the component is subject to usage restrictions in residential, office or commercial locations or small businesses, further measures for the reduction of the emitted interference may be necessary.

Motor controllers CMMP-AS, for servo motors

Data sheet

Technical data – Fieldbus interfaces										
Interfaces	I/O	Additional I/O ¹⁾	CANopen	Modbus/TCP	PROFIBUS DP	DeviceNet	EtherCAT	EtherNet/IP	PROFINET RT	
Number of digital logic outputs	5	8	5							
Characteristics of digital logic outputs	Freely configurable									
Number of digital logic inputs	10	8	10							
Characteristics of logic inputs	Freely configurable									
Process coupling	16 (127) position sets ²⁾	255 position sets	250 position sets							
Communication profile	–	–	DS301, FHPP+	FHPP+	DP-V0/FHPP+	FHPP+	DS301, FHPP+	FHPP+	FHPP+	
			DS301, DSP402				CoE: DS301, DSP402			
Max. fieldbus transmission rate [Mbps]	–	–	1	100	12	0.5	100	100	100	
Interface										
CMMP-AS-...-M0	Integrated	■	–	■	■	–	–	–	–	–
CMMP-AS-...-M3	Integrated	■	–	■	■	–	–	–	–	–
	Optional ³⁾	–	■	–	–	■	■	■	■	■

- 1) With additional I/O plug-in card CAMC-D8E8A → page 824
- 2) Can be expanded with configurable logic inputs up to max. 127 position sets
- 3) Plug-in cards can be ordered separately → page 824

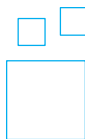
Safety functions to EN 61800-5-2			
Motor controller	CMMP-AS-		
	C2/C5/C10-...-M0 ⁴⁾	C2/C5/C10/C15-...-M3 ⁵⁾	
With plug-in card	–	CAMC-G-S1 → page 824	CAMC-G-S3 → page 824
Safe Torque Off (STO)	■	■	■
Safe Stop 1 (SS1)	–	–	■
Safe Brake Control (SBC)	■	■	■
Safe Operating Stop (SOS)	–	–	■
Safe Stop 2 (SS2)	–	–	■
Safely Limited Speed (SLS)	–	–	■
Safe Speed Range (SSR)	–	–	■
Safe Speed Monitor (SSM)	–	–	■

Safety data	
CMMP-AS-	C2/C5/C10-...-M0 ⁴⁾
Safety function to EN 61800-5-2	Safe Torque Off (STO)
Performance Level (PL) to EN ISO 13849-1	Category 4, Performance Level e
Safety Integrity Level (SIL) to EN 61800-5-2, EN 62061, EN 61508	SIL 3
Certificate issuing authority	TÜV 01/205/5262.01/14

- 4) Motor controller without slot.
- 5) Motor controller with 3 slots.

Motor controllers CMMP-AS, for servo motors

Ordering – Product options

**Configurable
product****This product and all its options can
be ordered using the configurator.**The configurator can be found under
Products on the DVD or→ www.festo.com/catalogue/...

Enter the type code in the search field.

Ordering data

	Description	Part no.	Type
	with 3 slots – CMMP-AS-...-M3		
	The plug assortment NEKM is included in the scope of delivery of the motor controller.	1501325	CMMP-AS-C2-3A-M3
	A plug-in card in slot 1 → page 824 is mandatory for operation.	1501326	CMMP-AS-C5-3A-M3
	Possible plug-in cards:	1501327	CMMP-AS-C5-11A-P3-M3
	• CAMC-DS-M1, CAMC-G-S1, CAMC-G-S3 → page 824	1501328	CMMP-AS-C10-11A-P3-M3
		3215473	CMMP-AS-C15-11A-P3-M3
	without slot – CMMP-AS-...-M0		
	The plug assortment NEKM is included in the scope of delivery of the motor controller.	1622901	CMMP-AS-C2-3A-M0
		1622902	CMMP-AS-C5-3A-M0
		1622903	CMMP-AS-C5-11A-P3-M0
		1622904	CMMP-AS-C10-11A-P3-M0

Accessories – Ordering data

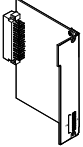
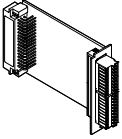
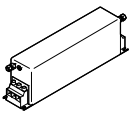
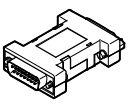
	Cable length [m]	Part no.	Type
Cable and plug			
Control cable, for I/O interface to any controller			
	2.5	552254	NEBC-S1G25-K-2.5N-LE26¹⁾
	3.2	8001373	NEBC-S1G25-K-3.2N-LE25²⁾
Programming cable			
	1.8	1501332	NEBC-U1G-K-1.8-N-U2G
Encoder plug			
	–	564264	NECC-A-S-S1G9-C2M
Plugs			
	For PROFIBUS interface		
	–	533780	FBS-SUB-9-WS-PB-K
	For CANopen interface		
	–	533783	FBS-SUB-9-WS-CO-K
	For DeviceNet interface		
	–	525635	FBSD-KL-2X5POL

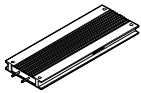
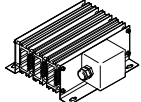
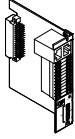
	Part no.	Type
Cable and plug		
Plug assortment		
	For CMMP-AS-C2/-C5-3A-M0, CMMP-AS-C2/-C5-3A-M3	
	1659228	NEKM-C-7
	For CMMP-AS-C5/-C10-11A-P3-M0, for CMMP-AS-C5/-C10/-15-11A-P3-M3	
	552256	NEKM-C-3
	For interface CAMC-D-8E8A	
	569959	NEKM-C-5³⁾
	For safety module CAMC-G-S1	
	Motor controller CMMP-AS-...-M0	
	1660640	NEKM-C-8³⁾
	For safety module CAMC-G-S3	
	1660937	NEKM-C-9³⁾
Plug-in card		
	For PROFIBUS interface	
	547450	CAMC-PB
	For DeviceNet interface	
	547451	CAMC-DN
	For EtherCAT interface	
	567856	CAMC-EC
	For EtherNet/IP interface	
	1911917	CAMC-F-EP
	For PROFINET RT interface	
	1911916	CAMC-F-PN

- 1) Recommended for analogue signals since the cable is shielded
2) Cannot be used if the incremental encoder interface (input) is in use
3) Plugs are included in the scope of delivery of the plug-in card

Motor controllers CMMP-AS, for servo motors

Accessories – Ordering data

	Part no.	Type
Plug-in card¹⁾		
Switch module		
	1501329	CAMC-DS-M1
Interface, for extending the digital I/Os ²⁾		
	567855	CAMC-D-8E8A
Mains filter		
For CMMP-AS-C15-11A		
	3947275	CADF-C15-11A-P3
EMC filter³⁾		
For servo motors EMME-AS		
	4825847	CAMF-C5-FC

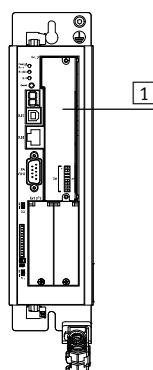
	Part no.	Type
Braking resistor		
For CMMP-AS-C2-3A, CMMP-AS-C5-3A		
	2882342	CACR-LE2-50-W500 ⁴⁾
	1336611	CACR-LE2-72-W500
For CMMP-AS-C5-11A, CMMP-AS-C10-11A, CMMP-AS-C15-11A		
	1336617	CACR-KL2-67-W1800
	2882343	CACR-KL2-40-W2000 ⁴⁾
Safety module (see following table)		
	1501330	CAMC-G-S1
	1501331	CAMC-G-S3
Documentation and software		
	Ordering data → online: cmmp	

- 1) The plugs are included in the scope of delivery.
- 2) 8 digital input/outputs.
- 3) To reduce EMC interference, the use of the EMC filter is recommended above a cable length of ≥ 10 m. For encoder cables ≥ 10 m, the filter is included in the scope of delivery of the cable.
- 4) Recommended braking resistor.

	Safety module CAMC-G-S1	Safety module CAMC-G-S3
Safety functions to EN 61800-5-2	• Safe Torque Off (STO) • Safe Brake Control (SBC)	• Safe Torque Off (STO) • Safe Brake Control (SBC) • Safe Stop 1 (SS1) • Safe Operating Stop (SOS) • Safe Stop 2 (SS2) • Safely Limited Speed (SLS) • Safe Speed Range (SSR) • Safe Speed Monitor (SSM)
Performance Level (PL) to EN ISO 13849-1	Category 4, Performance Level e	Category 4, Performance Level e
Safety Integrity Level (SIL) to EN 61800-5-2, EN 62061, EN 61508	SIL 3	SIL 3
Certificate issuing authority	TÜV 01/205/5165.01/14	TÜV 01/205/5165.01/14

Note

One of the plug-in cards CAMC-G-S1, CAMC-G-S3 or CAMC-DS-M1 must be inserted in slot 1 for operation of the motor controller CMMP-AS-...-M3.



Note

The mains filter is mandatory with CMMP-AS-C15... for compliance with the CE and EN standards.



Cost-optimised, convenient

- + Excellent price/performance ratio in combination with motors EMMS-ST
- + Convenient and safe thanks to integrated Safe Torque Off (STO) safety function
- + Extremely quick and easy commissioning thanks to web technology and parameter cloud
- + Compact and space-saving, optimised design

Controllers › Controllers for stepper motors ›
Motor controllers for stepper motors

CMMO-ST

Controllers > Controllers for stepper motors >

Motor controllers for stepper motors

CMMO-ST



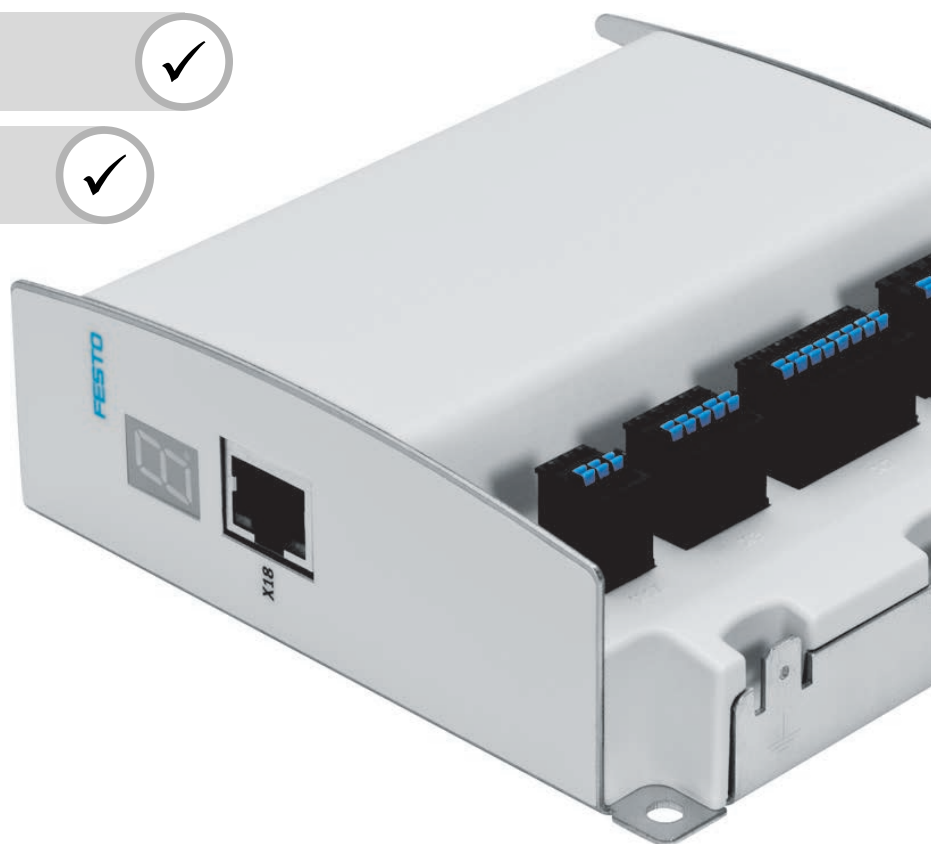
Overview, configuration and ordering

→ www.festo.com/catalogue/cmmo-st



Additional information, support and user documentation

→ www.festo.com/sp/cmmo-st



- + Extremely quick and easy commissioning thanks to web technology and parameter cloud
- + Full access and diagnostics via a standard web browser do away with the need for handheld terminals
- + Supports the Safe Torque Off (STO) safety function
- + Compact and space-saving, optimised design
- + Reliable position and torque control in the servo motor system for motors with integrated encoder

Motor controllers CMMO-ST, for stepper motors

Product range overview

Type	Nominal voltage [V DC]	Nominal current [A]	Interfaces	
			I/O interface	IO-Link
CMMO-ST	24 ±15%	6	■	■

Product options

DIO	Control via inputs/outputs	N	Switching input/output NPN
LK	Bus protocol IO-Link	P	Switching input/output PNP

Data sheet

Technical data			Download CAD data → www.festo.com
CMMO-ST-...	-DIOP/-DION	-LKP	

Operating mode		
Open-loop operation	Sinusoidal current form	
Closed-loop operation	Controlled sinusoidal current, cascade controller for speed and position	
Rotary position encoder	Encoder	
Encoder interface input	RS422	
Parameterisation interface	Ethernet	
Ethernet, supported protocols	TCP/IP	TCP/IP, Modbus TCP
Protocol	–	IO-Link
		I-Port
		Modbus TCP
Position sets	32	64
Communication profile	–	FHPP
Number of digital logic inputs	11	1
Number of digital logic outputs	11	3

Electrical data			
CMMO-ST-...	-DIOP	-DION	-LKP
General			
Max. DC link voltage	[V DC]	28	31
Nominal output current	[A]	5.7	
Load voltage			
Nominal voltage	[V DC]	24 ±15%	
Nominal current	[A]	6	
Peak current	[A]	8	
Logic supply			
Nominal voltage	[V DC]	24 ±15%	
Nominal current	[A]	0.3	
Max. current per output	[mA]	100	
Switching logic, input/output	PNP	NPN	PNP

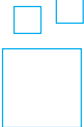
Operating conditions		
Ambient temperature	[°C]	0 ... +50
Degree of protection	IP40	
CE marking (see declaration of atmosphere)	To EU EMC Directive ¹⁾	
	To EU Machinery Directive	

1) For information about the area of use, see the EC declaration of conformity at: www.festo.com/sp → Certificates.
If the component is subject to usage restrictions in residential, office or commercial locations or small businesses, further measures for the reduction of the emitted interference may be necessary.

Safety data	
Safety function to EN 61800-5-2	Safe Torque Off (STO)
Performance Level (PL) to EN ISO 13849-1	Category 3, Performance Level e
Safety Integrity Level (SIL) to EN 61800-5-2, EN 62061, EN 61508	SIL 3 / SIL CL 3
Certificate issuing authority	TÜV 01/205/5252.01/15

Motor controllers CMMO-ST, for stepper motors

Ordering – Product options



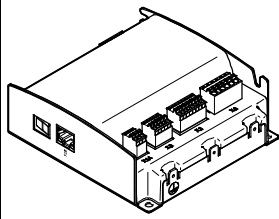
Configurable product

This product and all its options can be ordered using the configurator.

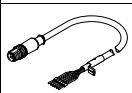
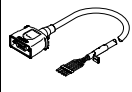
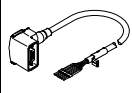
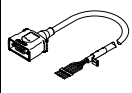
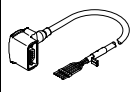
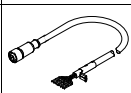
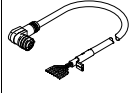
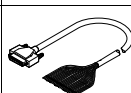
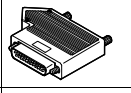
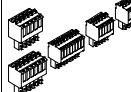
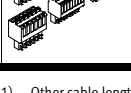
The configurator can be found under
Products on the DVD or
→ www.festo.com/catalogue/...

Enter the type code in the search field.

Ordering data

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

Accessories – Ordering data

	Cable length [m] ¹⁾	Part no.	Type
Motor cable			
For EPCO-16; ERMO-12/-16; EMMS-ST-28			
Straight plug			
	1.5	1449600	NEBM-SM12G8-E-1.5-Q5-LE6
	2.5	1449601	NEBM-SM12G8-E-2.5-Q5-LE6
	5.0	1449602	NEBM-SM12G8-E-5-Q5-LE6
	7.0	1449603	NEBM-SM12G8-E-7-Q5-LE6
	10.0	1449604	NEBM-SM12G8-E-10-Q5-LE6
For EPCO-25/-40; ELGR-35; ERMO-25/-32; EMMS-ST-42/-57			
Straight plug			
	1.5	1450368	NEBM-S1G9-E-1.5-Q5-LE6
	2.5	1450369	NEBM-S1G9-E-2.5-Q5-LE6
	5.0	1450370	NEBM-S1G9-E-5-Q5-LE6
	7.0	1450371	NEBM-S1G9-E-7-Q5-LE6
	10.0	1450372	NEBM-S1G9-E-10-Q5-LE6
Angled plug			
	1.5	1450736	NEBM-S1W9-E-1.5-Q5-LE6
	2.5	1450737	NEBM-S1W9-E-2.5-Q5-LE6
	5.0	1450738	NEBM-S1W9-E-5-Q5-LE6
	7.0	1450739	NEBM-S1W9-E-7-Q5-LE6
	10.0	1450740	NEBM-S1W9-E-10-Q5-LE6
For ELGR-45/-55; EMMS-ST-87			
Straight plug			
	1.5	1450834	NEBM-S1G15-E-1.5-Q7-LE6
	2.5	1450835	NEBM-S1G15-E-2.5-Q7-LE6
	5.0	1450836	NEBM-S1G15-E-5-Q7-LE6
	7.0	1450837	NEBM-S1G15-E-7-Q7-LE6
	10.0	1450838	NEBM-S1G15-E-10-Q7-LE6
Angled plug			
	1.5	1450943	NEBM-S1W15-E-1.5-Q7-LE6
	2.5	1450944	NEBM-S1W15-E-2.5-Q7-LE6
	5.0	1450945	NEBM-S1W15-E-5-Q7-LE6
	7.0	1450946	NEBM-S1W15-E-7-Q7-LE6
	10.0	1450947	NEBM-S1W15-E-10-Q7-LE6
Encoder cable			
For EPCO-16/-25/-40; ELGR-35/-45/-55; ERMO-12/-16/-25/-32; EMMS-ST-28/-42/-57/-87			
Straight plug			
	1.5	1451586	NEBM-M12G8-E-1.5-LE8
	2.5	1451587	NEBM-M12G8-E-2.5-LE8
	5.0	1451588	NEBM-M12G8-E-5-LE8
	7.0	1451589	NEBM-M12G8-E-7-LE8
	10.0	1451590	NEBM-M12G8-E-10-LE8
For EPCO-25/-40; ERMO-25/32; EMMS-ST-42/-57/-87			
Angled plug			
	1.5	1451674	NEBM-M12W8-E-1.5-LE8
	2.5	1451675	NEBM-M12W8-E-2.5-LE8
	5.0	1451676	NEBM-M12W8-E-5-LE8
	7.0	1451677	NEBM-M12W8-E-7-LE8
	10.0	1451678	NEBM-M12W8-E-10-LE8
Control cable for I/O interface to any controller			
	3.2	8001373	NEBC-S1G25-K-3.2-N-LE25
Plug for I/O interface to any controller			
	–	8001372	NEFC-S1G25-C2W25-S6
Assortment of plugs			
	For CMMO-ST-...-DIOP/-DION		
	–	576005	NEKM-C-10 ²⁾
	For CMMO-ST-...-LKP		
	–	2948940	NEKM-C-14 ²⁾

1) Other cable lengths on request.

2) Plugs are included in the scope of delivery of the motor controller.

6 Handling systems

- + With the Handling Guide Online you will find the right standard system quickly and easily
- + Handling modules with electric or pneumatic drives
- + Cartesian systems: variants consisting of linear drives and slide drives
- + Parallel kinematic systems: high-speed handling system with robotic functionality for free movement in three dimensions
- + Ready-to-install control systems



HGO

Handling Guide Online



- + Configuration and ordering system for handling systems of the YXC... series
- + Economical and safe

→ page 835

EXCT

Linear gantries



- + Short cycle times thanks to high dynamic response

→ page 843

EXCM

Planar surface gantries



- + Compact gantry
- + Perfectly matched drive and controller packages

→ page 847

EXCH

Planar surface gantries



- + Maximum working space coverage
- + Low moving mass
- + High payload

→ page 851

Contents

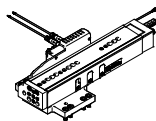
Product overview	832
Handling Guide Online HGO, for single-axis systems to 3D gantries	835
Linear gantries EXCT	843
Planar surface gantries EXCM	847
Planar surface gantries EXCH	851

Product overview

Software tool

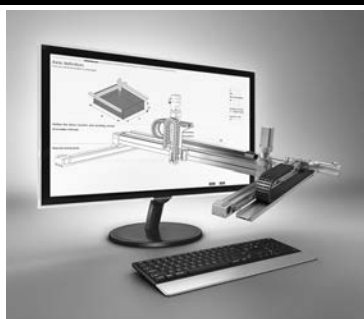
Configurator		Design a product with numerous features reliably and quickly with the help of the configurator. Select all the relevant product features step-by-step. The use of logic checks ensures that only correct configurations are available for selection.	The configurator is part of the electronic catalogue and is not available as a separate software program.
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Handling modules

			
Type	Handling modules DHMZ-DGSL	Handling modules HSP	Handling modules, pneumatic HSW-AP, HSW-AS
Size	8 mm, 16 mm, 20 mm, 25 mm, 32 mm	12, 16, 25	10, 12, 16
Working stroke	10 ... 200 mm		
Y stroke		52 ... 170 mm	
Z stroke		20 ... 70 mm	80 ... 100 mm
Repetition accuracy		+/-0.01 mm, +/-0.02 mm	
Minimum cycle time		0.6 ... 1 s	0.6 ... 1 s
Theoretical force at 6 bar		40 ... 65 N	30 ... 55 N
Max. speed	0.5 ... 0.8 m/s		
Description	Intended for combination with handling modules EHY	- Function module for the automatic transfer, feeding in and removal of small parts in extremely confined spaces - Guided vertical and horizontal motion sequence - High precision and good rigidity - Compact design - Extremely short cycle times - Cost-optimised - Stroke adjustment along Y- and Z-axes	- Function module for the automatic transfer, feeding in and removal of small parts in extremely confined spaces - Guided swivel and linear motion - High precision and good rigidity - HSW-AP: pneumatic, with swivel module DSM; HSW-AS: without drive, with drive shaft - Fast and compact - Low-cost and ideal for universal use
→ Page/online	yxcl	hsp	hsw

Software tool

Engineering tool:
Handling Guide Online
(HGO)
→ 835



Planning and designing complex handling systems, e.g. for pick & place applications, generally takes a lot of time. With the innovative Handling Guide Online (HGO) you can design a tailor-made system in just a few steps, simply using your application data such as the load mass, travel and cycle time.

Advantages:

- 1D- ... 3D kinematics
- Tailor-made system solution within just a few minutes
- CAD model available immediately
- Fully automatic selection of all relevant components
- Fully automated processing including ordering function
- Fully assembled or partly assembled systems
- Including commissioning files

This tool is integrated in the Festo electronic catalogue or can be called up directly at www.festo.com/handling-guide

Cartesian systems

Type	 Single-axis systems YXCS	 Linear gantries YXCL	 Planar surface gantries YXCF	 Three-dimensional gantries YXCR
Description	• Ready-to-install single-axis solution including energy chain for cables and tubing routing as well as matching motor and motor controller package • For any single-axis movement • Ideal for long gantry strokes and heavy loads • High mechanical rigidity and sturdy design	• Ideal for long gantry strokes and heavy loads • High mechanical rigidity and sturdy design • Frequently used in feeding or loading applications • Use of tried and tested drives/axes from Festo	• Can be used universally for handling light to very heavy workpieces or high payloads • Especially suitable for very long strokes • High mechanical rigidity and sturdy design • Freely positionable; any intermediate positions	• Can be used universally for handling light to very heavy workpieces or high payloads • Especially suitable for very long strokes • High mechanical rigidity and sturdy design • Pneumatic or electric vertical axis on request • As an electrical solution – freely positionable/any intermediate positions
→ Page/online	835	835	835	835

06

Handling systems

Cartesian systems

Type	 Linear gantries EXCT	 Planar surface gantries EXCM	 Planar surface gantries EXCH
Description	• Short cycle times thanks to high dynamic response • Perfectly matched drive and controller package for quick commissioning • Especially economical due to the low moving dead weight	• Excellent functionality in confined spaces • Low moving dead weight • Actuation via two stepper motors with integrated optical encoder and two-axis controller • With recirculating ball bearing guide	• Optimal dynamic response when compared with other Cartesian gantry systems • Drive concept with low moving dead weight • Flat system design • High acceleration in both axial directions • Large working space
→ Page/online	843	847	851

Product overview

Parallel kinematic systems

Type	
	Parallel kinematic system EXPT
Max. payload	5 kg
Working space nominal diameter	450 ... 1200 mm
Working space nominal height	100 mm
Max. picking rate	150 picks/min in 12" cycle
Description	• Low moving mass – ideal for high demands on dynamic response in three dimensions • Great path accuracy with a range of path profiles, even for very dynamic operation • Optional: rotary unit as 4th axis, on request with pneumatic rotary throughfeed for vacuum or gauge pressure
→ Page/online	expt

Control systems

Type	
	Control systems CMCA
Electrical connection	Spring-loaded terminal
Mains voltage AC	230/400 V
Nominal operating voltage phases	3-phase
Mains frequency	50 ... 60 Hz
Safety function	Safe Stop 1 (SS1)
Description	• Control system for handling systems from Festo • Available on a mounting plate with or without control cabinet housing • Includes the multi-axis controller CMXR and the motor controller CMMP required for actuation • Controller solution CMCA is pre-parameterised and already tested with the respective parallel kinematic system • Version with the control cabinet housing additionally features control components and fans in the door • Also included: terminals for control cabinet lighting, plug socket for PC in the control cabinet, terminals for Festo camera, terminals for two proximity sensors per axis
→ Page/online	cmca

Note
Control system cabinets for controlling handling systems → page 1689

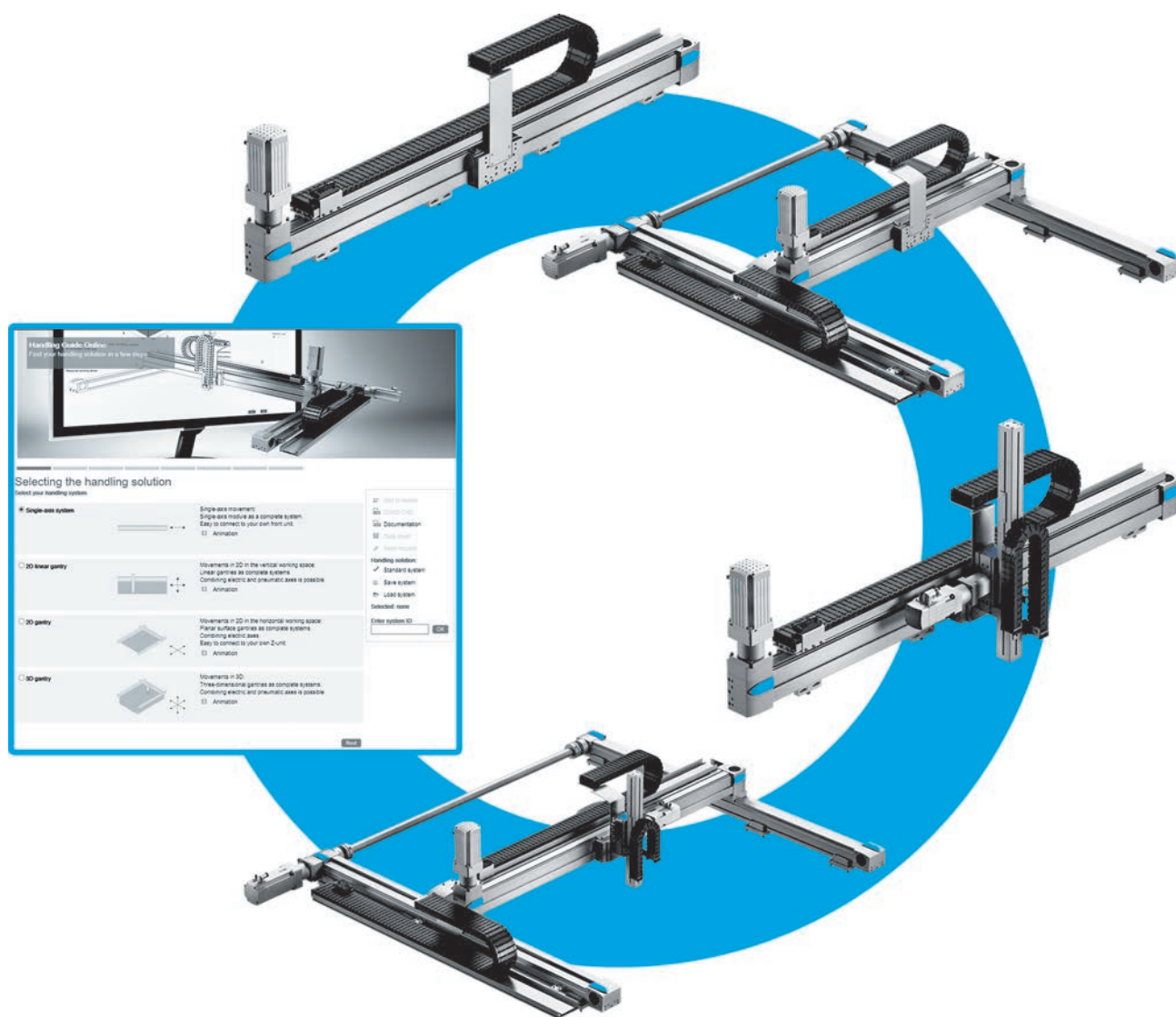
Customised components – for your specific requirements



- Compact handling system for desktop applications**

 - Modular system kit comprising operating software and planar surface gantry EXCM-30
 - Quick and easy programming and commissioning using the predefined function elements from the Positioning Desktop Lib
 - One basic platform for a wide range of applications (screwing, dispensing, testing, soldering, gripping, machine vision and much more)
- Predefined function elements from the software library make for easy programming and commissioning
 - Easy integration, even in the most compact of installation spaces – Fit for Industry 4.0 thanks to the OPC UA interface at the controller

Many variants are possible. Ask your Festo sales engineer, who will be happy to help.
→ www.festo.com/contact



Quick and easy

- + The right handling system for you in just three steps
- + Ready-to-install handling systems significantly shorten your processes, from project engineering to commissioning

Cartesian systems >

Handling Guide Online

HGO

Single-axis systems YXCS

2D linear gantries YXCL

2D planar surface gantries YXCF

3D gantries YXCR

Cartesian systems >

Handling Guide Online

HGO



Overview, configuration and ordering

→ www.festo.com/catalogue/hgo



Additional information, support and user documentation

→ www.festo.com/sp/hgo



- + With the Handling Guide Online you will find the right handling system quickly and easily in just three steps
- + The correct CAD model and data sheet for the configuration
- + Assembled and ready to install or partly assembled
- + Including commissioning files

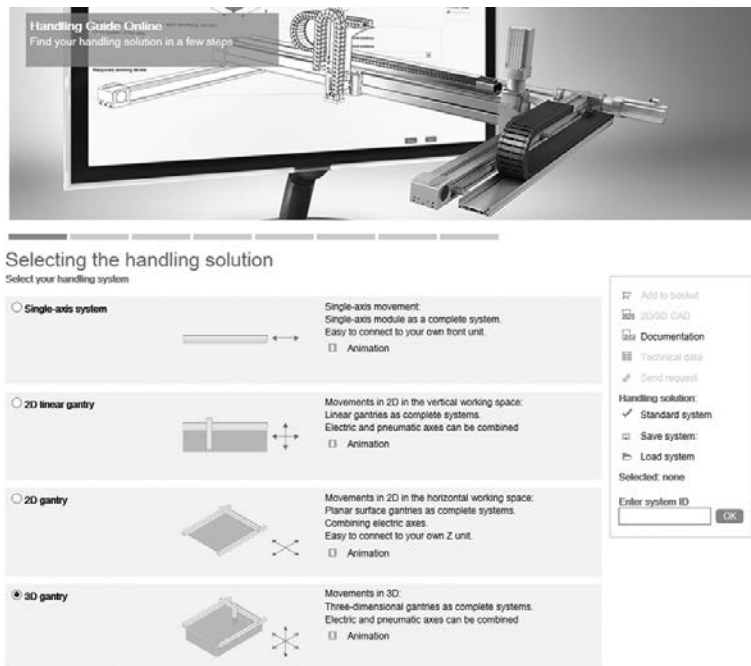
At a glance

Handling systems from Festo: versatile, economical, perfectly fitting

Are you looking for the right partner for your new handling system? Festo offers you a diverse range of handling systems for a multitude of applications, from standard solutions for common applications through to customised solutions for your own very specific requirements. In addition, our ready-to-install systems and support services

mean less work for you. We support you from the design stage through to installation and commissioning. That allows you to concentrate entirely on your core business and increase your productivity.

Handling Guide Online



The Handling Guide Online is a configuration and ordering platform in one. You will find it - like all our products - on Festo's website under the tab "Products". It reduces your engineering time and effort to a minimum and guides you to the right handling system in record time.

All you have to do is enter the data for your application. The Handling Guide Online automatically works out suitable solutions, including CAD model, data sheet and net price. You then simply select the system you want, which you can order immediately through the Online Shop. There's no faster or simpler way to get the right handling system. Try out the new tool today!

Advantages at a glance

Economical

- Minimal engineering work
- Reduced time and effort for logistics, installation and commissioning

Everything from a single source

- Hardware, software, service
- With the right drive package

Ready to install

- Completely assembled, all tubing and wiring fitted and fully tested
- Including user documentation

Reliable

- Tried and tested standard axes
- Perfectly matching components

Cartesian systems >

Handling Guide Online HGO

At a glance

Three steps to your handling system

1st step:

Choose the type of handling system and enter your application data into the Handling Guide Online. The tool calculates appropriate handling systems, including price.

Handling Guide Online
Find your handling solution in a few steps

Selecting the handling solution

Select your handling system

☐ Single-axis system

Single-axis movement:
Single-axis module as a complete system.
Easy to connect to your own front unit.
☐ Animation

☐ 2D linear gantry

Movements in 2D in the vertical working space:
Linear gantries as complete systems.
Electric and pneumatic axes can be combined
☐ Animation

☐ 2D gantry

Movements in 2D in the horizontal working space:
Planar surface gantries as complete systems.
Combining electric axes.
Easy to connect to your own Z unit.
☐ Animation

☒ 3D gantry

Movements in 3D:
Three-dimensional gantries as complete systems.
Electric and pneumatic axes can be combined
☐ Animation

Handling solution:
☒ Standard system
☐ Save system:

Selected: none

☒ 3D Raumportal

Bewegungen in 3D:
Raumportale als Komplettsystem.
Kombination von elektrischen und pneumatischen Achsen möglich.

☐ Animation

2nd step:

Select the suitable handling system from the list of suggestions. The correctly configured CAD model and the data sheet with all the relevant figures are immediately available for download.

Result of calculation

Select the appropriate system and continue with the configuration:

No.	System series	System workload	Repetition accuracy (H-)
☒ 1	YXCR-2	16 %	0.11 mm
☐ 2	YXCR-2	18 %	0.11 mm
☐ 3	YXCR-2	19 %	0.11 mm
☐ 4	YXCR-2	16 %	0.11 mm
☐ 5	YXCR-2	18 %	0.11 mm

Handling solution:
☒ Standard system
☐ Save system:

Selected: system # 1

3D gantry YXCR-2: #1

Drive module	X module: toothed belt axis EOC-80	Y module: toothed belt axis EOC-80	Z module: Electric mini slide EGSL-45
Stroke	300 mm	500 mm	100 mm
Repetition accuracy (H-)	0.08 mm	0.08 mm	0.02 mm
Gear units	6:1	5:1	Without
Motor type	Servo motor EMMS-AS	Servo motor EMMS-AS	Servo motor EMMS-AS
Motor position	Middle	Left	Top
Motor controller	CMMP-AS-M3	CMMP-AS-M3	CMMP-AS-M3
Nominal voltage phases	1-phase	1-phase	1-phase

3rd step:

You can use additional options to configure your selected system in accordance with your requirements. Then add the preferred handling system to your shopping basket and confirm your order. Festo will deliver a ready-to-install system, including all user documentation in accordance with the EC Machinery Directive, as quickly as possible.

Your handling solution

Your selected system overview:

Update CAD Preview

Feature	Value

Your system ID:
C137963

Your next step:

Handling solution:
☒ Standard system
☐ Save system:

Selected: system # 1

Vacuum technology
 Find the right vacuum generators and suction cups for your application.

At a glance

Standard handling systems

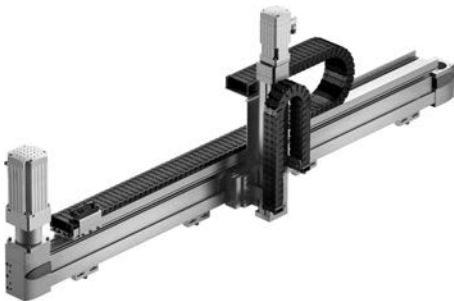
Ready-to-install standard handling systems from Festo provide you with fast and reliable solutions for all standard applications: fully assembled and tested, including energy chain, connection technology and matching drive package. The individual components are perfectly harmonised and guarantee reliable operation.

Single-axis system YXCS



- For one-dimensional movements
- High mechanical rigidity
- For the following strokes:
Y direction: up to 3000 mm
- Outstanding operational and process reliability ensured by routing of tubing and cables through energy chains in Y direction
- Standardised interface for easy connection of a front unit

Linear gantry YXCL



- For vertical movements in 2D
- High mechanical rigidity
- For the following strokes:
Y direction: up to 3000 mm
Z direction: up to 800 mm
- Outstanding operational and process reliability ensured by routing of tubing and cables through energy chains in Y and Z direction

Planar surface gantry YXCF



- For horizontal movements in 2D
- High mechanical rigidity
- For the following strokes:
X direction: up to 3000 mm
Y direction: up to 2000 mm
- Outstanding operational and process reliability ensured by routing the tubing and cables through energy chains in X and Y direction
- Standardised interface for easy connection of a front unit

Three-dimensional gantry YXCR

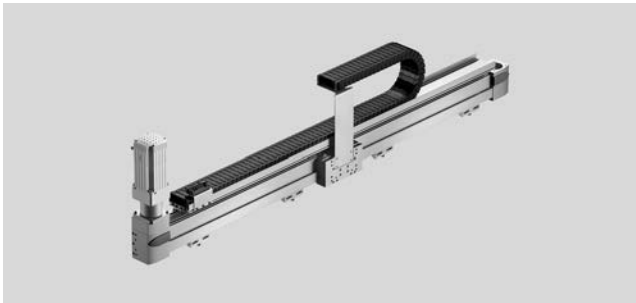


- For three-dimensional movements in a space
- High mechanical rigidity
- For the following strokes:
X direction: up to 3000 mm
Y direction: up to 2000 mm
Z direction: up to 800 mm
- In the Z direction, you can choose between pneumatic and electric components
- Outstanding operational and process reliability ensured by routing the tubing and cables through energy chains in X, Y and Z direction

Data sheet – Single-axis systems

Range of applications

- For any single-axis movement
- Ideal for long gantry strokes and heavy loads



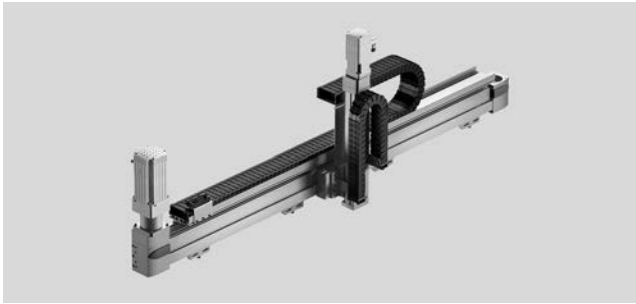
Technical data

Size	Y direction	Max. working stroke [mm]	Max. payload [N]	Mounting position
YXCS	EGC-50-TB-KF	1900	Dependent on the selected dynamic response	Horizontal
	EGC-80-TB-KF	3000		
	EGC-120-TB-KF	3000		
	EGC-185-TB-KF	3000		
	EGC-HD-125-TB-KF	3000		
	EGC-HD-160-TB-KF	3000		
	EGC-HD-220-TB-KF	3000		
Other requirements	Customised on request			

Data sheet – Linear gantries

Range of applications

- Ideal for long gantry strokes and heavy loads
- Frequently used in feeding or loading applications



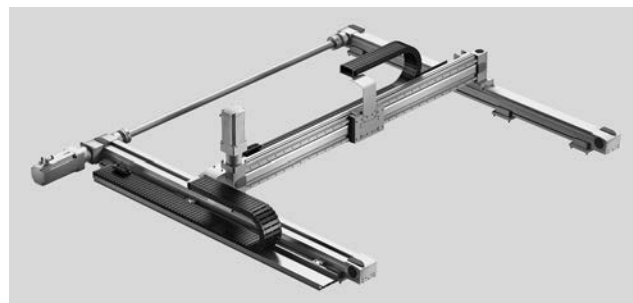
Technical data

Size	Y direction	Z direction	Max. working stroke [mm]	Max. payload [N]	Mounting position
YXCL-1	EGC-50-TB-KF	- EGSL-35 - DGSL-6	Y: 1900 Z: 50	Dependent on the selected dynamic response	Horizontal
YXCL-2	- EGC-80-TB-KF - EGC-HD-125-TB-KF	- EGSL-45/55 - DGEA-18 - EGC-70-BS-KF - DGSL-12/16	Y: 3000 Z: 800		
YXCL-3	- EGC-120-TB-KF - EGC-HD-160-TB-KF	- EGSL-75 - DGEA-25/40 - EGC-80-BS-KF - DGSL-20/25	Y: 3000 Z: 800		
YXCL-4	- EGC-120-TB-KF - EGC-HD-160-TB-KF	- EGSL-75 - DGEA-25/40 - EGC-80-BS-KF - DGSL-20/25	Y: 3000 Z: 800		
Other requirements	Customised on request				

Data sheet – Planar surface gantries

Range of applications

- For any movement in 2D space
- For very high requirements in terms of precision combined with long strokes
- Can be used universally for handling light to very heavy workpieces or high payloads



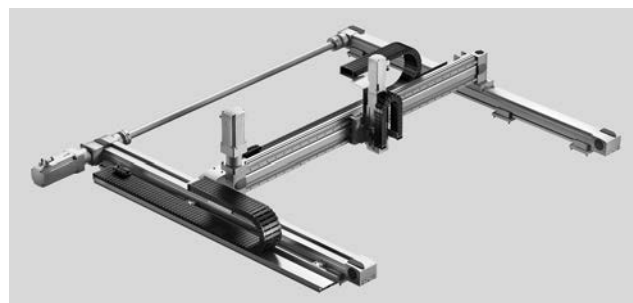
Technical data

Size	Y direction	Z direction	Max. working stroke [mm]	Max. payload [N]	Mounting position
YXCF-1	• EGC-50-TB-KF	• EGC-50-TB-KF	Y: 1900 Z: 1900	Dependent on the selected dynamic response	Horizontal
YXCF-2	• EGC-80-TB-KF	• EGC-80-TB-KF • EGC-HD-125-TB-KF	Y: 3000 Z: 2000		
YXCF-3	• EGC-120-TB-KF	• EGC-120-TB-KF • EGC-HD-160-TB	Y: 3000 Z: 2000		
YXCF-4	• EGC-185-TB-KF	• EGC-185-TB-KF • EGC-HD-220-TB-KF	Y: 3000 Z: 2000		
Other requirements	Customised on request				

Data sheet – Three-dimensional gantries

Range of applications

- For any movement in 3D space
- For very high requirements in terms of precision combined with long strokes
- Can be used universally for handling light to very heavy workpieces or high payloads



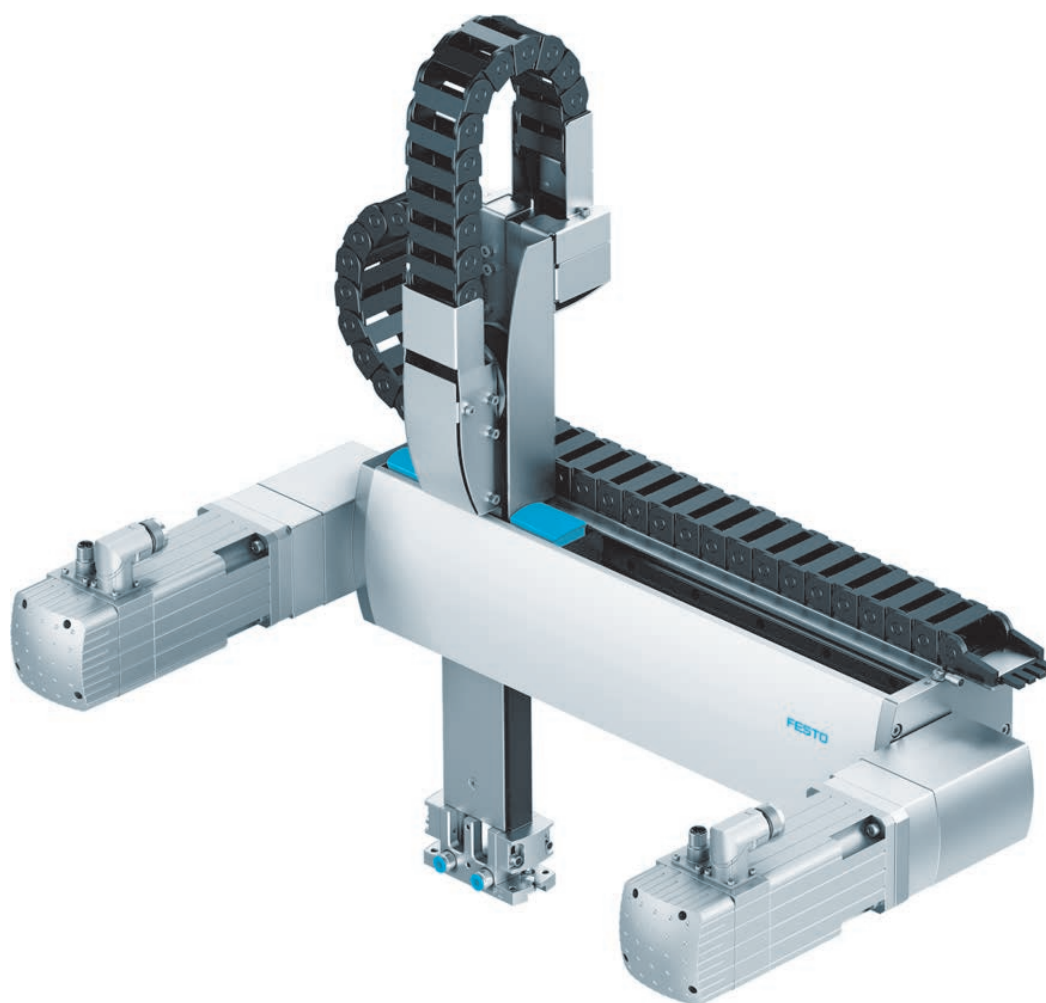
Technical data

Size	X direction	Y direction	Z direction	Max. working stroke [mm]	Max. payload [N]	Mounting position
YXCR-1	• EGC-50-TB-KF	• EGC-50-TB-KF	• EGSL-35 • DGSL-6	X: 1900 Y: 1900 Z: 50	Dependent on the selected dynamic response	Horizontal
YXCR-2	• EGC-80-TB-KF	• EGC-80-TB-KF • EGC-HD-125-TB	• EGSL-45/55 • DGEA-18 • EGC-70-BS-KF • DGSL-12/16	X: 3000 Y: 2000 Z: 800		
YXCR-3	• EGC-120-TB-KF	• EGC-120-TB-KF • EGC-HD-160-TB	• EGSL-75 • DGEA-25/40 • EGC-80-BS-KF • DGSL-20/25	X: 3000 Y: 2000 Z: 800		
YXCR-4	• EGC-185-TB-KF	• EGC-185-TB-KF • EGC-HD-220-TB-KF	• DGEA-40 • EGC-120-BS-KF	X: 3000 Y: 2000 Z: 800		
Other requirements	Customised on request					

Cartesian systems >

06

Handling systems



Short cycle times

- + Thanks to a high dynamic response
- + Perfectly matched drive and controller package for quick commissioning
- + Especially economical operation due to the low moving dead weight

Cartesian systems › 2D linear gantries ›
Linear gantries

EXCT

Cartesian systems > 2D linear gantries >

Linear gantries

EXCT



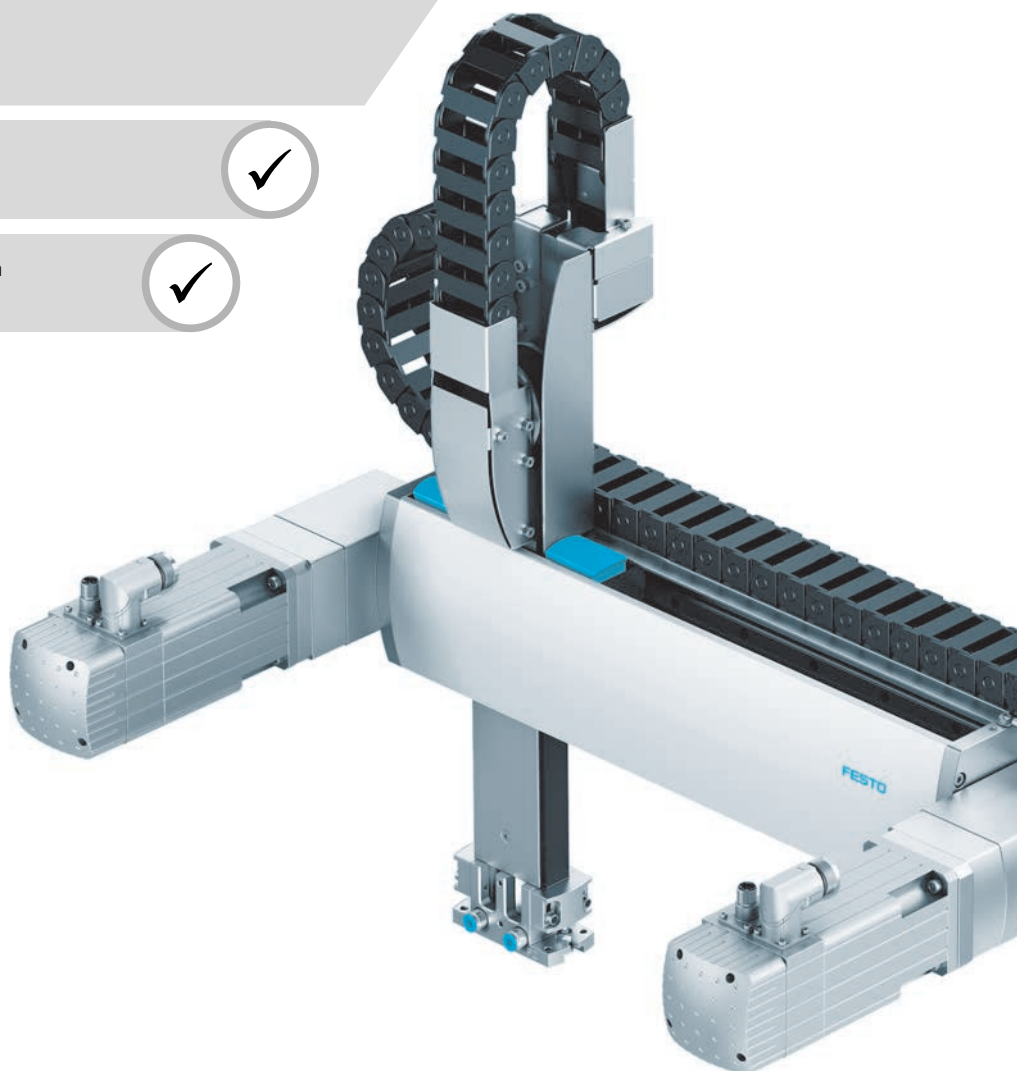
Overview, configuration and ordering

→ www.festo.com/catalogue/exct



Additional information, support and user documentation

→ www.festo.com/sp/exct



- + High acceleration in both axis directions
- + Optimal dynamic response when compared with other Cartesian gantry systems
- + Interface for many grippers from Festo
- + Optional: Rotary drive as front unit, with pneumatic rotary feedthrough

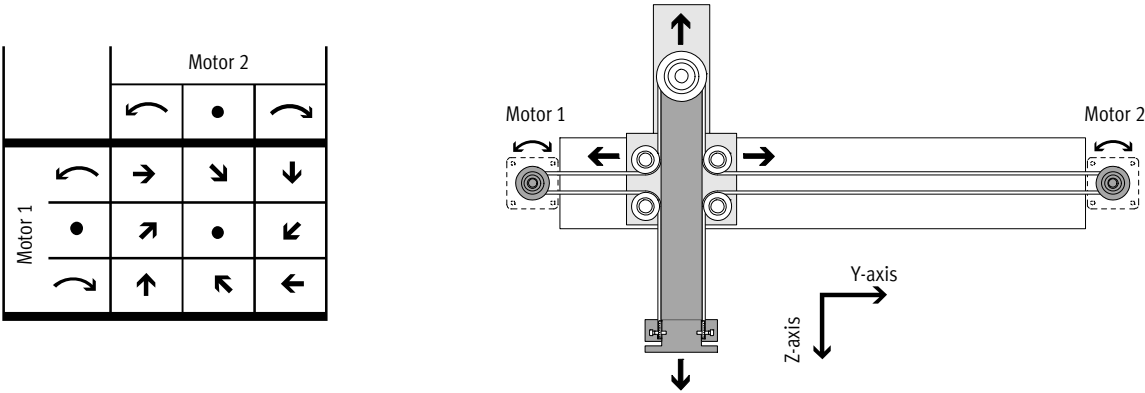
At a glance

Operating principle

Two fixed servo motors drive a toothed belt arranged in a T-shape. The toothed belt moves the slide of the Y-axis and the interface located on the Z-axis in a two-dimensional space. A controller calculates the position of the interface. The controlled interaction of the motors results in the corresponding movement of the interface. The use of attachment components enables additional processes to be carried out.

General

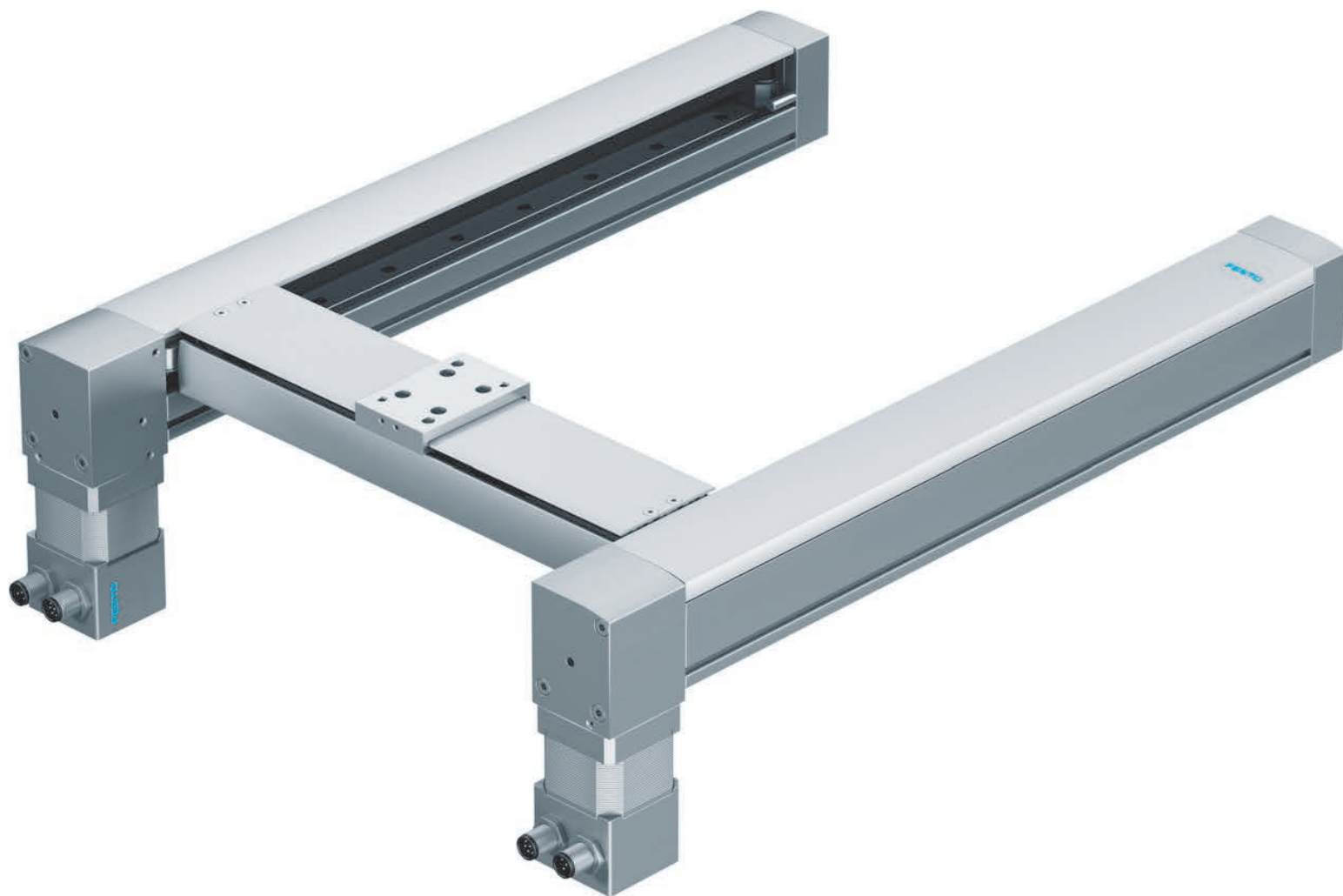
- Optimal dynamic response when compared with other Cartesian gantry systems
- The drive concept ensures low moving dead weight
- Flat system design
- Perfectly matched drive and controller package
- High acceleration in both axis directions
- Interface for many grippers from Festo
- Fast repositioning of parts and modules in a large, rectangular working space, e.g.:
 - Sorting
 - Loading, unloading
 - Gluing, cutting



Data sheet

Size	15	30	100	
Guide	Recirculating ball bearing guide			
Stroke of the				
Y-axis	[mm]	100 ... 1000	100 ... 1500	100 ... 2000
Z-axis	[mm]	100, 200	250, 500	250, 500, 800
Rated load at max. dynamic response ¹⁾	[kg]	1.5	3	10
Max. process force in Z direction	[N]	100	300	500
Max. acceleration	[m/s²]	50	50	30
Max. speed ²⁾	[m/s]	4.8	5	4
Repetition accuracy	[mm]	±0.1		
Mounting position	Vertical			

1) Rated load = tool load (attachment component + gripper, for example) + payload.
2) These data only apply under ideal conditions.
For a precise configuration please consult a sales engineer from Festo.



Movements in 2D in the horizontal working space

- + Small planar surface gantry with rectangular working space offering extensive functionality with a highly compact design
- + Simple integration thanks to the matched drive and controller package
- + Small moving mass thanks to the parallel kinematic drive concept

Cartesian systems › 2D planar surface gantries ›
Planar surface gantries

EXCM

Cartesian systems > 2D planar surface gantries >

Planar surface gantries

EXCM



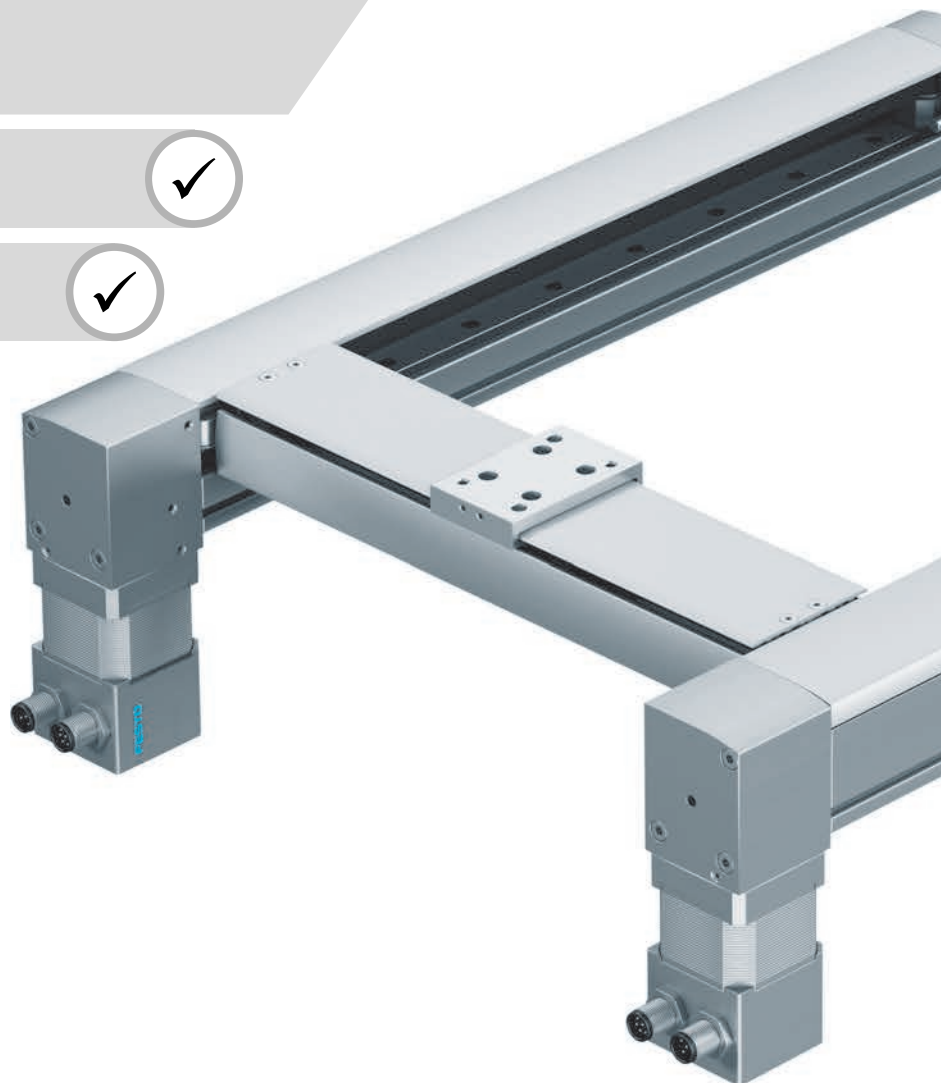
Overview, configuration and ordering

→ www.festo.com/catalogue/excm



Additional information, support and user documentation

→ www.festo.com/sp/excm



- + Movements in 2D in the horizontal working space
- + Compact planar surface gantry with extremely neat design
- + Maximum working space coverage
- + Low moving masses enable high payloads
- + Commissioning and maintenance are child's play thanks to the two-axis controller with integrated transformation and interpolation
- + Optional Z-axis for movements in 3D space
- + New: Motor controller with 48 V load voltage for higher dynamic response

At a glance

Operating principle

The planar surface gantry EXCM can approach any position within its working space. The recirculating toothed belt, driven by fixed motors, moves the slide within a two-dimensional area.

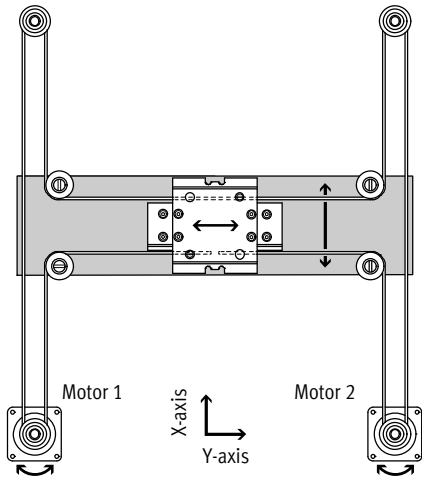
Drive and controller package

The drive and controller package are optimally adapted to each other. The encoder allows closed-loop operation on the basis of position control.

EXCM-30/40

For applications in the area of small parts assembly or automated laboratory applications.

		Motor 1		
Motor 2				



Data sheet

Size	30	40
Guide	Recirculating ball bearing guide	Recirculating ball bearing guide
Stroke of the		
X-axis	[mm] 100, 150, 200, 300, 400, 500 90 ... 700	– 200 ... 2000
Y-axis	[mm] 110, 160, 210, 260, 310, 360, 410, 460, 510 110 ... 510	– 200 ... 1000
Rated load at max. dynamic response ¹⁾	[kg] 2/3 ²⁾	4
Max. speed	[m/s] 1	2
Max. acceleration	[m/s ²] 20	20
Repetition accuracy	[mm] ±0.05	±0.1
Mounting position	Any ³⁾	Horizontal

1) Rated load = tool load (attachment components) + payload.
2) Vertical/horizontal mounting position.
3) Motors with brake must be used in the case of vertical installation.



Highly dynamic movements in 2D

- + Ready-to-install complete system, including matching motor and motor controller package
- + High dynamic response and large working space
- + Small moving mass thanks to the parallel kinematic drive concept

Cartesian systems › 2D planar surface gantries ›
Planar surface gantries

EXCH

Cartesian systems > 2D planar surface gantries >

Planar surface gantries

EXCH



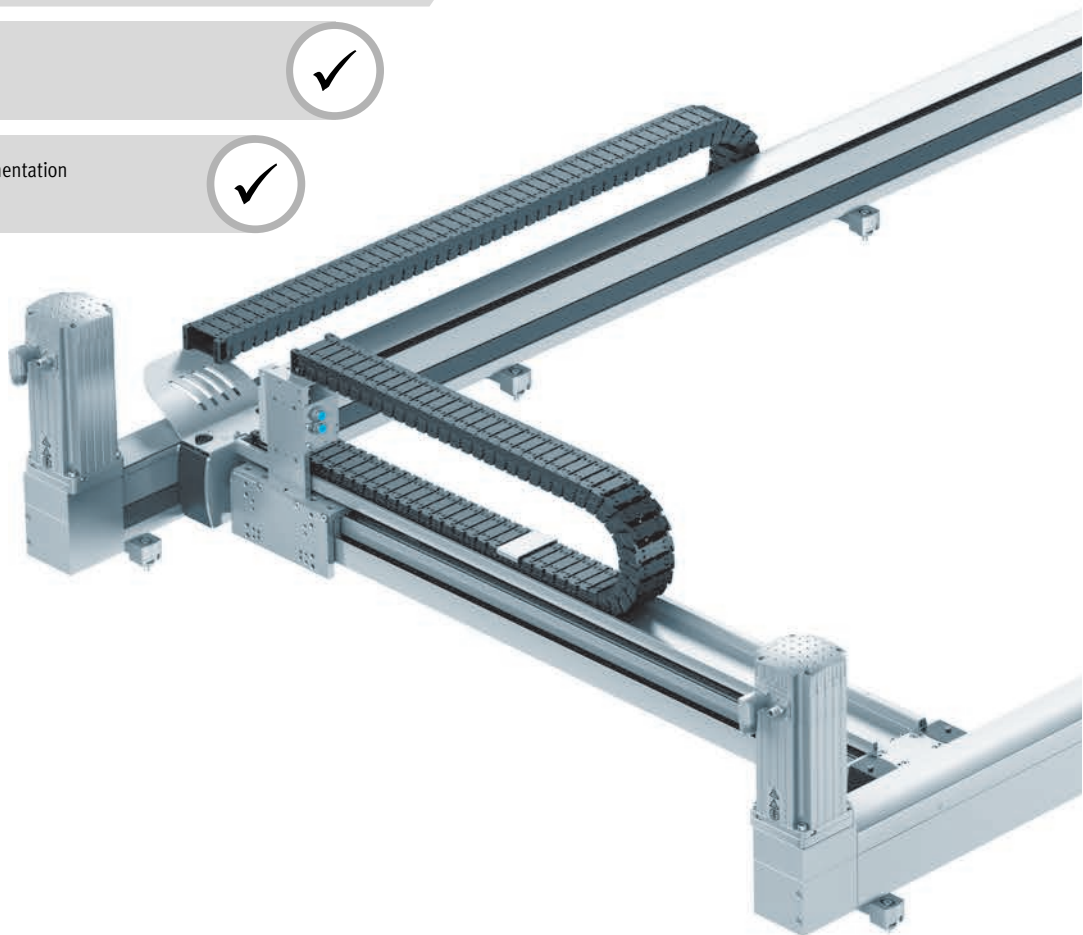
Overview, configuration and ordering

→ www.festo.com/catalogue/exch



Additional information, support and user documentation

→ www.festo.com/sp/exch



- + High dynamic planar surface gantry
- + Optimal dynamic response when compared with other Cartesian gantry systems
- + Perfectly matched drive and controller packages
- + Optional complete control system CMCA incl. safety circuit
- + Attachment components for pneumatic and electric Z-axes

At a glance

Operating principle

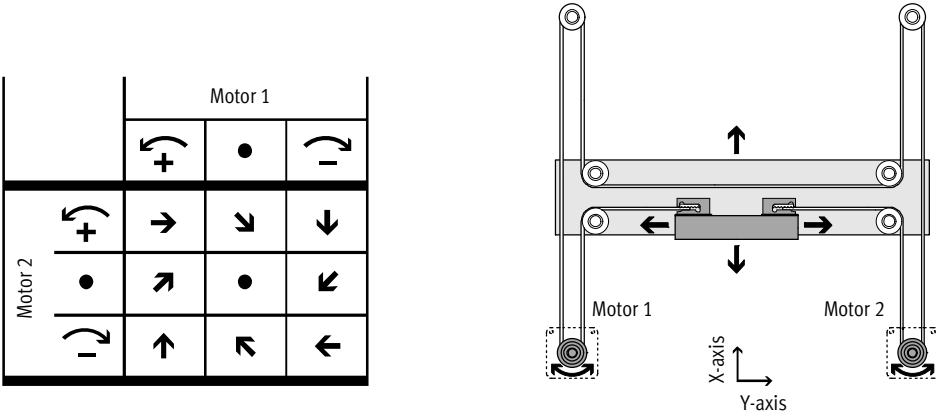
A slide is moved in a two-dimensional space (X-axis/Y-axis) via a toothed belt. The system is powered by two fixed motors. The motors are coupled to the toothed belt. The belt is guided via pulleys so that the slide can move to any position in a working space when the motors are actuated accordingly.

When using attachment components, additional processes can be carried out by independent Z-axes.

Drive and controller package

The drive and controller package are optimally adapted to each other.

The encoder allows closed-loop operation on the basis of position control.



Data sheet

Size		40	60
Guide	Recirculating ball bearing guide		
Stroke of the			
X-axis	[mm]	200 ... 2000	500 ... 2500
Y-axis	[mm]	200 ... 1000	500 ... 1500
Z-axis	[mm]	50, 100, 150, 200	
Rated load at max. dynamic response ¹⁾	[kg]	4	6
Max. speed			
Horizontal	[m/s]	5	
Vertical	[m/s]	4	3
Max. acceleration			
Horizontal	[m/s ²]	50	
Vertical	[m/s ²]	30	
Repetition accuracy ²⁾	[mm]	±0.1	
Mounting position ³⁾	Vertical or horizontal		

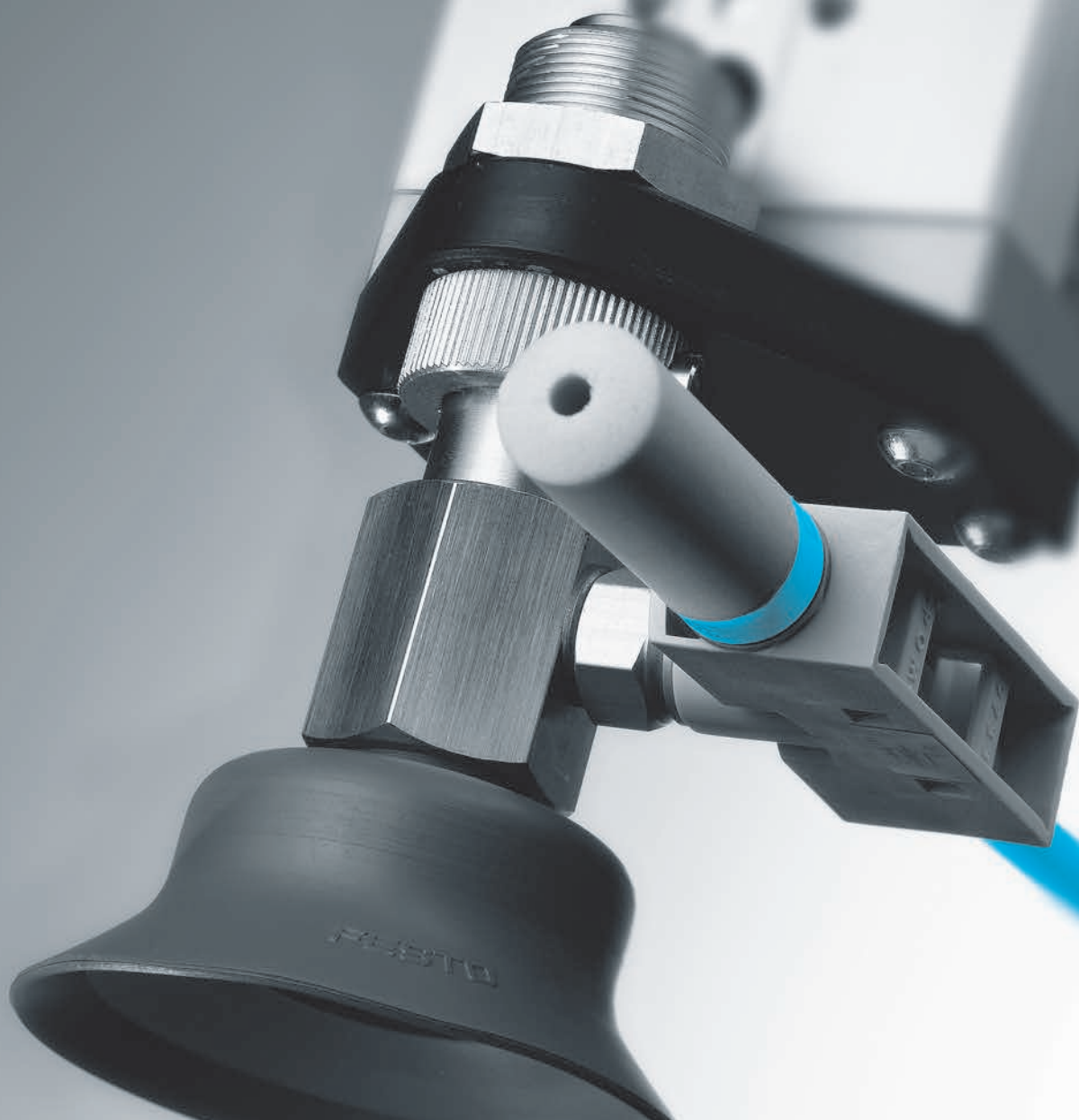
1) Rated load = tool load (attachment component (Z-axis) + gripper, for example) + payload.

2) The repetition accuracy relates to the centre point of the slide.

3) Vertical installation only permitted with motors with brake and braking resistors.

7 Vacuum technology

- + Vacuum generators: according to the Venturi principle in various performance categories
- + Vacuum gripping technology: wide variety of suction grippers and suction cups
- + Assembly, connection and compensating elements
- + Accessories





OVEL

Vacuum generators

- + Ideal for quick small-parts handling
- + Lightweight design for assembly in the gripping area

→ page 861



OVEM

Vacuum generators

- + Compact design
- + Monitoring with vacuum sensor

→ page 871



VN

Vacuum generators

- + Generate a vacuum easily and quickly
- + Lightweight design for assembly in the gripping area

→ page 881



OGGB

Bernoulli grippers

- + Ideally suited to transporting thin, extremely delicate and brittle workpieces
- + Low energy costs thanks to minimised air consumption

→ page 857

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Software tool

Vacuum generators

/acuum technology

Product overview

Vacuum generators

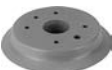
			
Type	Vacuum generators, electropneumatic VN	Vacuum generators for valve terminal CPV CPV10-M1H, CPV14-M1H, CPV18-M1H	Vacuum generator cartridges VN
Nominal width of Laval nozzle	0.45 ... 3 mm	0.7 ... 1.4 mm	0.45 ... 2 mm
Ejector characteristics	Standard, high suction rate, high vacuum	High vacuum	Standard, high suction rate, high vacuum
Integrated function	Pneumatic ejector pulse, electric on-off valve, open silencer		
Max. vacuum	92 ... 93%	85%	92 ... 93%
Max. suction rate with respect to atmosphere	7.2 ... 186 l/min		7.2 ... 184.4 l/min
Description	• Can be used directly in the work space • Cost-effective • Maintenance-free operation and reduced noise level through an integrated, open silencer • With solenoid valve vacuum on/off	• Combinations of switching valves with vacuum generators are possible on a valve terminal • With solenoid valve vacuum on/off • Optionally with ejector pulse	• For fitting into customised housing for decentralised vacuum generation
→ Page/online	881	cpv10-m1h	vn

Vacuum gripping technology

			
Type	Bernoulli grippers OGGB	Suction grippers ESG	Suction cups with connection attachments ESS
Suction cup size		10x30 mm, 15x45 mm, 20x60 mm, 25x75 mm, 30x90 mm, 4x10 mm, 4x20 mm, 6x10 mm, 6x20 mm, 8x20 mm, 8x30 mm	10x30 mm, 15x45 mm, 20x60 mm, 25x75 mm, 30x90 mm, 4x10 mm, 4x20 mm, 6x10 mm, 6x20 mm, 8x20 mm, 8x30 mm
Suction cup diameter	60 mm, 100 mm, 140 mm	2 ... 200 mm	2 ... 200 mm
Holding force at nominal operating pressure	6 ... 10 N	0.1 ... 1610 N	0.1 ... 1610 N
Design		Vacuum port on top, vacuum port on the side, with height compensator, with long height compensator	Round, bell-shaped
Information on materials - suction cup	POM, NBR	BR, FPM, NBR, PUR, VMQ (silicone), Vulkollan	BR, FPM, NBR, PUR, VMQ (silicone), Vulkollan
Description	• Ideally suited to transporting thin, extremely delicate and brittle workpieces • Minimised workpiece contact, gentle workpiece handling • Low energy costs thanks to minimised air consumption • The solution for low-contact, flexible, porous, brittle gripping tasks	• Modular system of suction cup holders and suction cups with over 5000 variants • Optionally with angle compensator, height compensator, filter • 15 suction cup diameters • 6 suction cup shapes • Suction cup volume: 0.002 ... 245 cm³ • Min. workpiece radius: 10 ... 680 mm • Vacuum port: push-in connector or barbed fitting for plastic tubing, threaded connection	• Suction cup consisting of the suction cup itself, plus the support plate with mounting • Suction cup volume: 0.002 ... 245 cm³ • Min. workpiece radius: 10 ... 680 mm • Mounting for suction cup holder: female thread, male thread, push-in connector • Suction cup with mounting thread
→ Page/online	oggb	esg	ess

Product overview

Vacuum gripping technology

		
Type	Vacuum suction cups ESV	Suction cups with connection attachments VAS, VASB
Suction cup size		
Suction cup diameter	20 ... 200 mm	2 ... 125 mm
Holding force at nominal operating pressure	8.2 ... 1610 N	0.14 ... 700 N
Design	Bell-shaped or round bellows	Vacuum port on top, vacuum port on the side, round, bellows 1.5 convolutions, round, flat
Information on materials - suction cup	BR, FPM, NBR, PUR, VMQ (silicone), Vulkollan	NBR, PUR, TPE-U(PU), VMQ (silicone)
Description	- Wearing part for suction cup - Easily interchangeable - Suction cup volume: 0.318 ... 245 cm³ - Min. workpiece radius: 10 ... 680 mm	- Sturdy and reliable - Suction cups with fixed connecting thread 11 suction cup diameters - Round suction cup shape, bellows - Vacuum port on top, on the side - Screw-in thread
→ Page/online	esv	vas

Assembly and connection components

	
Type	Suction cup holders ESH
Design	Vacuum port on top, vacuum port on the side, with height compensator
Description	- With or without height compensator 6 holder sizes 8 holder types 3 tubing connector options
→ Page/online	esh

Accessories for vacuum

			
Type	Elbow fittings LJK	Height compensators VAL	Vacuum gauges VAM, FVAM
Description	Vacuum port M5, G1/8, G1/4	Vacuum port M5, G1/8, G1/4	- Designs based on DIN EN 837-1, available with red-green range - Pneumatic connection via R or G thread - Double or single scale - For front panel mounting, screw-in - Display units bar, in Hg, psi
→ Page/online	ljk	val	vam

Product overview

Accessories for vacuum

			
Type	Vacuum filters ESF, VAF, OAFF	Angle compensators ESWA	Vacuum security valves ISV
Description	• Vacuum port G1/2, G1/4, G3/8, M4, M6 • Grade of filtration 10 µm, 40 µm, 50 µm, 80 µm • Vacuum filter ESF: for suction grippers ESG • Vacuum filter VAF: with transparent housing or transparent bowl for identifying the degree of contamination • Vacuum filter OAFF: for vacuum generators OVEL	• Vacuum connection M4x0.7, M6x1, M10x1.5	• For maintaining the vacuum when using multiple suction cups and one fails • Gripping of randomly placed products • Saves air and energy
→ Page/online	esf	eswa	isv

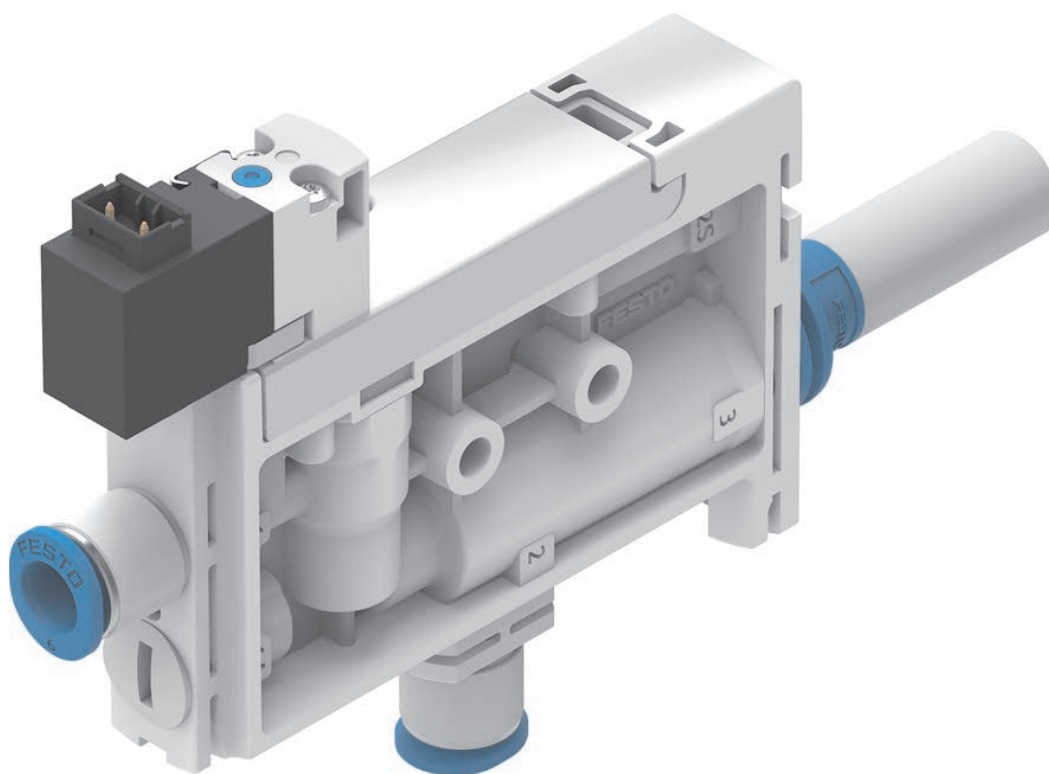
Accessories for vacuum

		
Type	Silencers UO, UOM Silencer extensions UOMS	Adapters AD
Description	• For vacuum generators • Facilitates trouble-free operation of the vacuum generator • Special open minimal resistance silencer	• Vacuum port G1/8, G1/4, G1/2, G3/8, G3/4, G1
→ Page/online	1659	ad

07

Vacuum technology

New Additional versions



Affordable and lightweight

- + Various performance levels and vacuum types
- + Short switching times thanks to integrated solenoid valves
- + Quick, precise and safe placement of the workpiece by means of the ejector pulse

Vacuum generators >

Vacuum generators

OVEL

Vacuum generators >

Vacuum generators

OVEL



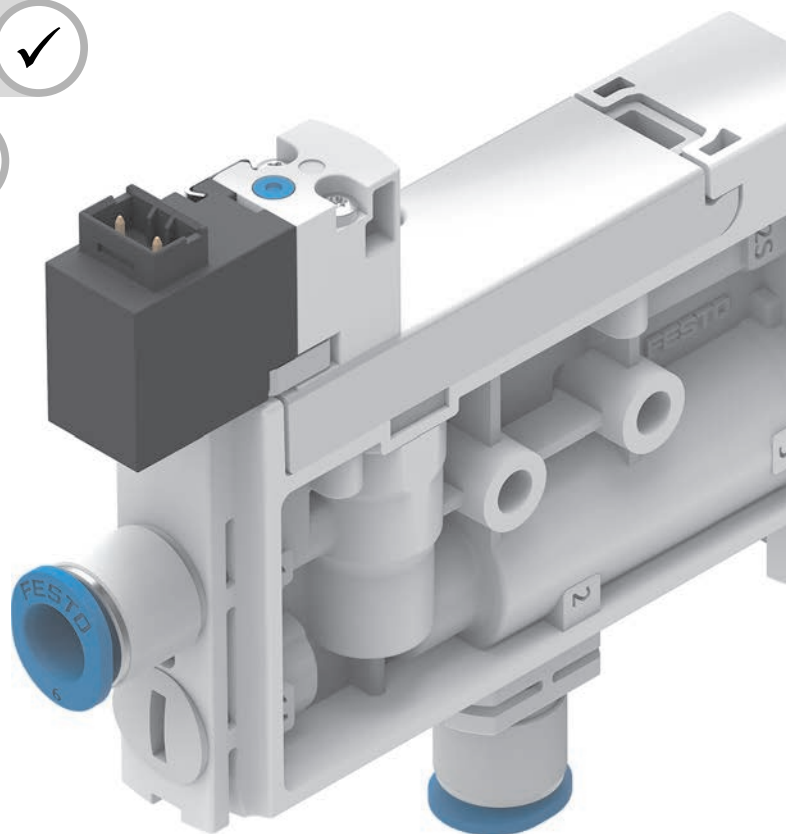
Overview, configuration and ordering

→ www.festo.com/catalogue/ovel



Additional information, support and user documentation

→ www.festo.com/sp/ovel



- + Compact and lightweight design for assembly in the gripping area
- + Ideal for quick small-parts handling
- + Maintenance-free open silencer

NEW

Vacuum generators >

Vacuum generators OVEL

Product range overview

Type	Nominal width of Laval nozzle [mm]	Product options																	
		H	L	P	PQ	VQ3	VQ4	VQ6	RQ	UA	Z	C	A	V1	B2	B	V	PNLK	H3
Grid dimension 10 mm																			
OVEL-05	Q45	■	■	■	■	■	■	–	■	■	■	■	■	■	■	■	■	■	■
Grid dimension 15 mm																			
OVEL-07	Q7	■	■	■	■	–	■	■	■	■	■	■	■	■	■	■	■	■	■
OVEL-10	Q95						–												

Product options

H	High vacuum	VQ4	Vacuum connection with push-in connector 4 mm	Z	Ejector pulse via additional connection	V	Output signal, vacuum sensor 0 ... 10 V
L	High suction rate	VQ6	Vacuum connection with push-in connector 6 mm	C	Normally closed	PNLK	Output signal, vacuum sensor PNP, NPN or IO-Link
P	Pneumatic connection 1 prepared for common supply manifold	RQ	Pneumatic connection 3 with push-in connectors, metric	A	Ejector pulse, electric	H3	Connection pattern H, vertical plug
PQ	Pneumatic connection 1 with push-in connectors, metric	UA	Pneumatic connection 3 with open silencer	V1	Pressure measuring range, vacuum sensor –1 ... 0 bar		
VQ3	Vacuum connection with push-in connector 3 mm			B2	Pressure measuring range, vacuum sensor –1 ... 1 bar		
				B	Output signal, vacuum sensor 1 ... 5 V		

Vacuum generators OVEL

NEW

At a glance

Rapid purging of vacuum for safe placement of the workpiece by a solenoid valve to control the ejector pulse, optional

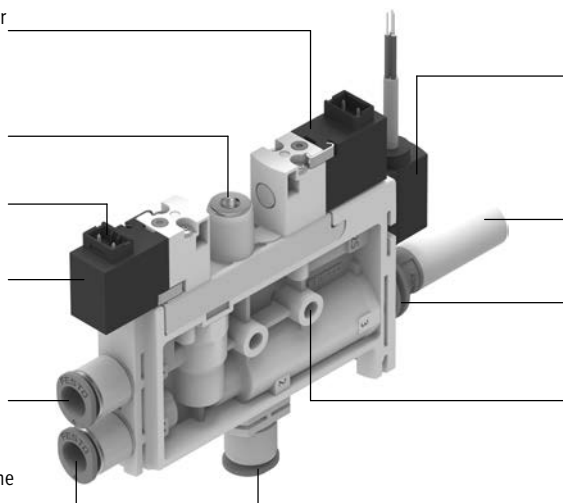
Flow control screw to adjust the ejector impulse

Electrical connection via H3 plug

Fast vacuum build-up using a solenoid valve to control the compressed air supply

Supply port, secured with clamp strap

Additional supply port for the separate supply of the ejector pulse, optional, secured with clamp strap



Pressure transmitter SPTE/pressure sensor SPAE to monitor the vacuum, optional, secured with clamp strap

Maintenance-free operation and reduced noise level through an open silencer, optional

Vacuum generator cartridge, secured with clamp strap

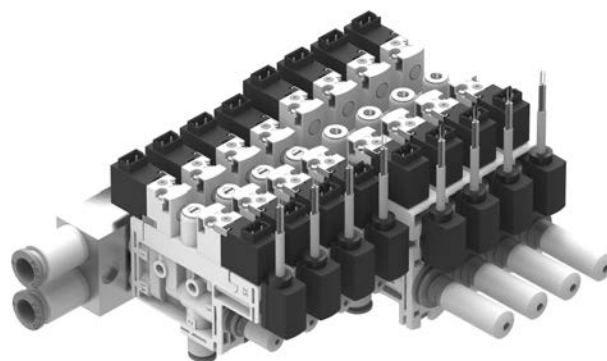
Housing with mounting holes

Vacuum connection, secured with clamp strap

The compact vacuum generator

- Reasonably priced, compact vacuum generator
- Light weight
- Various performance levels and vacuum types
- Short switching times thanks to integrated solenoid valves
 - Vacuum on/off
 - Ejector pulse
- Quick, precise and safe placement of the workpiece via the ejector pulse
- Simple installation via H3 plug and push-in fittings
- Straightforward mounting with mounting screws
- Low-noise operation due to integrated silencer
- Integrated filter
- Reduced contamination of the vacuum generator thanks to an open silencer
- Solenoid valves are switched via mechanical manual override
- Monitoring of the vacuum by a vacuum sensor
- Interlocking of multiple vacuum generators on a common supply manifold

Vacuum generators OVEL on common supply manifold OABM-P



Functional principle OVEL

Vacuum ON/OFF

The compressed air supply is controlled by a solenoid valve. The solenoid valve can be supplied with the NC (normally closed) switching function, i.e. the vacuum is not generated until the vacuum generator is pressurised with compressed air and the solenoid valve has been switched.

Vacuum sensor, optional

The set or taught-in reference value for the generated vacuum is monitored via a vacuum sensor. If the reference value is reached or if it is not reached due to mal-

functions, e.g. leakages, dropped workpiece, the vacuum sensor emits an electrical signal.

Ejector pulse, optional

After the vacuum is switched off, an ejector pulse is activated and generated by a second solenoid valve to release the workpiece safely from the suction cup and to purge the vacuum

quickly.

The compressed air for the ejector pulse can be supplied either via the supply port or a separate connection.

OVEL-...-V1B/V1V/B2B/B2V:

Pressure transmitter SPTE with an analogue output. Recording of the analogue signals and conversion into digital switching signals with subsequent signal converter SCDN and LCD display.

OVEL-...-V1PNLK/B2PNLK:

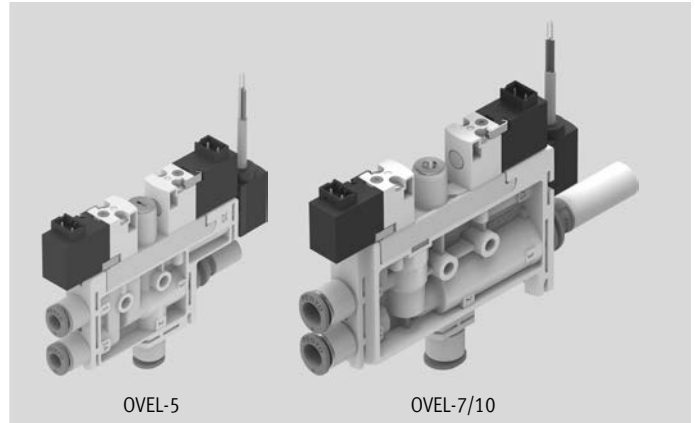
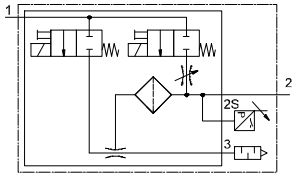
Pressure sensor SPAE with different switching outputs as well as LCD display, IO-Link and teach function.

NEW

Vacuum generators >

Vacuum generators OVEL

Data sheet



Technical data		Download CAD data → www.festo.com			
Type		OVEL-5-H/L	OVEL-7-H	OVEL-7-L	OVEL-10-H/L
Nominal width of Laval nozzle	[mm]	0.45	0.7		0.95
Grid dimension	[mm]	10	15		15
Ejector characteristics		High vacuum/standard H		–	High vacuum/standard H
		High suction rate/standard L	–	High suction rate/standard L	
Grade of filtration	[µm]	40			
Pneumatic connection 1	OVEL-...-P	Common connection via manifold rail			
	OVEL-...-PQ-VQ3	For tubing O.D. 3 mm	–		–
	OVEL-...-PQ-VQ4	For tubing O.D. 4 mm	For tubing O.D. 4 mm		–
	OVEL-...-PQ-VQ6	–	–		For tubing O.D. 6 mm
Vacuum connection	OVEL-...-VQ3	For tubing O.D. 3 mm	–	–	–
	OVEL-...-VQ4	For tubing O.D. 4 mm	For tubing O.D. 4 mm	–	–
	OVEL-...-VQ6	–	–	For tubing O.D. 6 mm	For tubing O.D. 6 mm
Pneumatic connection 3	OVEL-...-UA	Silencer open			
	OVEL-...-RQ	For tubing O.D. 4 mm	For tubing O.D. 6 mm		For tubing O.D. 6 mm
Connection for ejector pulse ¹⁾	OVEL-...-Z-A	Corresponds to the selected size of pneumatic connection 1			
Type of mounting		Via through-hole			
		On manifold rail			
Mounting position		Any			
Design		T-shape			
Integrated function		Electric on-off valve			
		Filter			
	OVEL-...-UA	Silencer open			
	OVEL-...-A	Ejector pulse, electric			
	OVEL-...-A	Flow control valve			
	OVEL-...-V1B/V1V/B2B/B2V	Pressure transmitter			
	OVEL-...-V1PNLK/B2PNLK	Pressure sensor			
Valve function		Closed			
Manual override		Non-detenting			
Length [mm]	OVEL-...-RQ	70	99		99
	OVEL-...-UA-...-V1B/V1V/B2B/B2V	81	115		115
	OVEL-...-UA-...-V1PNLK/B2PNLK	99	115		115
Width [mm]		10	15		15
Height [mm]		62	74		74

1) If there is no ejector impulse or the ejector impulse is generated via pneumatic connection 1, the additional connection for the ejector impulse is sealed with a blanking plug.

Vacuum generators OVEL

NEW

Data sheet

Operating conditions		
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]	
Note on operating/pilot medium	Lubricated operation not possible	
Operating pressure	[bar]	2 ... 7
Ambient temperature	[°C]	0 ... +50

Performance data – High vacuum				
Type		OVEL-5-H	OVEL-7-H	OVEL-10-H
Max. vacuum	[%]	89	92	92
Operating pressure for max. vacuum	[bar]	4.2	4.5	3.8
Operating pressure for max. suction rate	[bar]	3	4	4
Max. suction rate with respect to atmosphere	[l/min]	4	17	21
Air supply time at nominal operating pressure 4 bar (for 1 l volume) ¹⁾	[s]	2	1.2	1
Noise level at p1 = 4 bar	[db(A)]	64	61	68

1) Time required to reduce the vacuum to a residual vacuum of –0.05 bar after switching off the operating pressure.

Performance data – High suction rate				
Type		OVEL-5-L	OVEL-7-L	OVEL-10-L
Operating pressure for max. suction rate	[bar]	5	5	6
Max. suction rate with respect to atmosphere	[l/min]	11	33	45
Air supply time at nominal operating pressure 4 bar (for 1 l volume) ²⁾	[s]	0.8	0.4	0.4
Noise level at p1 = 4 bar	[db(A)]	52	64	67

2) Time required to reduce the vacuum to a residual vacuum of –0.05 bar after switching off the operating pressure.

Technical data – Electrical connection		
Solenoid valve		
Electrical connection input	Function	Ejector pulse
		Vacuum generation
	Connection type	2x plug
	Connection technology	Connection pattern H
	Number of poles/wires	2
	Type of mounting	Snap-locking
Operating voltage range	[V DC]	21.6 ... 26.4
Duty cycle	[%]	100
Coil characteristics, 24 V DC	[W]	1.0
Vacuum sensor		
Electrical connection output	Function	Sensor
	Connection type	Cable
	Connection technology	Open end
	Number of poles/wires	3
Cable diameter	[mm]	2.9 ±0.1
Cable length	[m]	2.5
Conductor nominal cross section	[mm ²]	0.14
Cable characteristic		Suitable for energy chains

NEW

Vacuum generators OVEL

Data sheet

Technical data – Vacuum sensor							
Type		OVEL-...-V1B	OVEL-...-V1V	OVEL-...-B2B	OVEL-...-B2V	OVEL-...-V1PNLK	OVEL-...-B2PNLK
Mechanical							
Method of measurement		Piezoresistive pressure sensor				Piezoresistive pressure sensor with display	
Pressure measuring range		[bar]	–1 ... 0		–1 ... 1	–1 ... 0	–1 ... 1
Setting options		–				Teach-in	
						IO-Link	
						Via display and keys	
Display type		–				LED display, 2-digit	
Electrical							
Operating voltage range, sensor		[V DC]	10 ... 30	18 ... 30	10 ... 30	18 ... 30	18 ... 30
Switching output		–				PNP/NPN, switchable	
Switching element function		–				N/C or N/O contact, switchable	
Switching function		–				Freely programmable	
Analogue output		[V]	1 ... 5	0 ... 10	1 ... 5	0 ... 10	–
Materials							
Housing		PA reinforced					
Silencer		PE					
Filter		POM					
Adjusting screw		Steel					
Connecting thread		POM					
Screws		Steel					
Cable sheath		PVC (colour: grey)					
Seals		NBR					

Ordering – Product options

Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
→ www.festo.com/catalogue/...

Enter the type code in the search field.

Vacuum technology

/acuum technology

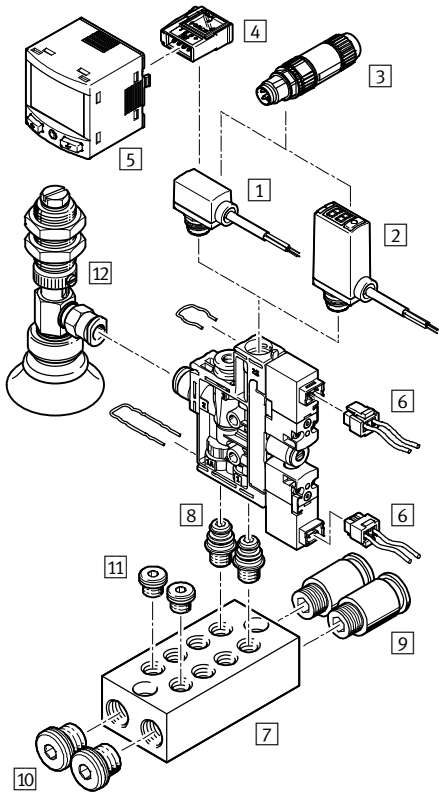
- | | | | |
|---|--|---|---|
| 1 | Not with Laval nozzle nominal width 7 or 10. | 5 | Only with Laval nozzle nominal width 10 or Laval nozzle nominal width 7 in combination with ejector characteristic L. |
| 2 | Not with Laval nozzle nominal width 5. | 6 | Mandatory information in combination with ejector pulse connection Z. |
| 3 | Only with Laval nozzle nominal width 5. | 7 | Mandatory information in combination with pressure measuring range vacuum sensor B2 or V1. |
| 4 | Only with Laval nozzle nominal width 5 or Laval nozzle nominal width 7 in combination with ejector characteristic H. | | |

NEW

Vacuum generators >

Vacuum generators OVEL

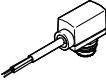
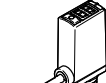
Accessories

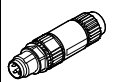
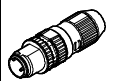
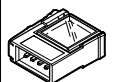
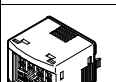


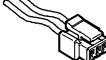
Accessories	→ Page/online
1 Pressure transmitter SPTE	869
2 Pressure sensor SPAE	869
3 Plug NECU-S-M8G3/M12G3	869
4 Plug NECU-S-ECG4	869
5 Signal converter SCDN	869
6 Plug socket with cable NEBV	869
7 Common supply manifold OABM-P ¹⁾	870
8 Mounting kit OABM-MK	870
9 Push-in fitting QS	870
10 Blanking plug B-1/8	870
11 Blanking plug B-M7	870
12 Suction gripper ESG	esg
– Vacuum filter OAFF	870

- 1) On the common supply manifold, vacuum generators with an additional connection for the ejector impulse (OVEL-...-Z-C-A) cannot be combined with vacuum generators without an additional connection (OVEL-...-C-A).

Accessories – Ordering data

	Pneumatic connection	Electrical connection	Pressure measuring range [bar]	Analogue output [V]	Cable length [m]	Part no.	Type
1 Pressure transmitter SPTE Data sheets online: → spte							
	Cartridge 10 mm	Cable, 3-wire, open end	–1 ... 0	0 ... 10	2.5	8025974	SPTE-V1R-PC10-V-2.5K
				1 ... 5	2.5	8025975	SPTE-V1R-PC10-B-2.5K
			–1 ... 1	0 ... 10	2.5	8025976	SPTE-B2R-PC10-V-2.5K
				1 ... 5	2.5	8025977	SPTE-B2R-PC10-B-2.5K
2 Pressure sensor SPAE Data sheets online: → spae							
	Cartridge 10 mm	Cable, 3-wire, open end	–1 ... 0	–	2.5	8025978	SPAE-V1R-PC10-PNLK-2.5K
			–1 ... 1	–	2.5	8025979	SPAE-B2R-PC10-PNLK-2.5K

		Part no.	Type
3 Plug NECU-S-M8G3/M12G3 Data sheets online: ➔ necu			
		562024	NECU-S-M8G3-HX
		562027	NECU-S-M12G3-HX
4 Plug NECU-S-ECG4 Data sheets online: ➔ necu			
		570922	NECU-S-ECG4-HX-Q3
5 Signal converter SCDN Data sheets online: ➔ scdn			
		8035555	SCDN-2V-EC4-PNLK-L1

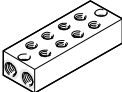
	Cable length [m]		Part no.	Type
6 Plug socket with cable NEBV				
Data sheets online: ➔ nebv				
	0.5	★	566654	NEBV-H1G2-KN-0.5-N-LE2
	1	★	566655	NEBV-H1G2-KN-1-N-LE2
	2.5	★	566656	NEBV-H1G2-KN-2.5-N-LE2
	5		566657	NEBV-H1G2-KN-5-N-LE2
	0.5	★	566658	NEBV-H1G2-P-0.5-N-LE2
	1	★	566659	NEBV-H1G2-P-1-N-LE2
	2.5	★	566660	NEBV-H1G2-P-2.5-N-LE2
	5		566661	NEBV-H1G2-P-5-N-LE2

Vacuum generators >

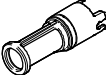
Vacuum generators OVEL

NEW

Accessories – Ordering data

	Description	Number of device locations	Part no.	Type
7 Common supply manifold OABM-P			Data sheets online: → oabm-p	
	For OVEL-5	2	8049141	OABM-P-G3-10-2
		4	8049142	OABM-P-G3-10-4
		8	8049143	OABM-P-G3-10-8
	For OVEL-5/7/10	2	8049144	OABM-P-G3-15-2
		4	8049145	OABM-P-G3-15-4
		8	8049146	OABM-P-G3-15-8

	Description	Part no.	Type	PU ¹⁾
8 Mounting kit OABM-MK				
	–	8065850	OABM-MK-G3	
9 Push-in fitting QS		Data sheets → Page 1443		
	G1/8	★ 186098	QS-G1/8-8	10
	G1/8	★ 186109	QS-G1/8-8-I	10
10 Blanking plug B-1/8		Data sheets → Page 1510		
	G1/8	★ 3568	B-1/8	10
11 Blanking plug B-M7		Data sheets → Page 1510		
	M7	★ 174309	B-M7	10

	Description	Part no.	Type	PU ¹⁾
Vacuum filter OAFF		Data sheets online: → oaff		
	For OVEL-5	8068944	OAFF-G3-5	10
	For OVEL-7/10	8068945	OAFF-G3-7	10

1) Packaging unit quantity



Powerful

- + Monitoring with vacuum sensor with IO-Link
- + Integrated filter with inspection window
- + Optionally with air-saving function and LCD display
- + Adjustable ejector pulse

Vacuum generators ›

Vacuum generators

OVEM

Vacuum generators >

Vacuum generators

OVEM



Overview, configuration and ordering

→ www.festo.com/catalogue/ovem



Additional information, support and user documentation

→ www.festo.com/sp/ovem



- + Generate and monitor a reliable vacuum
- + Maintenance-free open silencer
- + Highly efficient with air-saving function

Vacuum generators OVEM

Product range overview

Type	Nominal width of Laval nozzle [mm]	Product options																					
		Ejector characteristics		Pneumatic connections P-V-R						Normal position of the vacuum generator				Vacuum sensor, electrical switching output									
		H	L	QO	QS	GN	GO	PL	PO	ON	OE	CN	CE	1P	1PD	1N	2P	2N	PU	PI	NU	NI	LK
Grid dimension 20 mm																							
OVEM-05	0.45																						
OVEM-07	0.7																						
OVEM-10	0.95																						
OVEM-14	1.4																						
OVEM-20	2.0																						
	—																						

Product options

H	High vacuum	PL	Common supply manifold prepared, V-R with QS fitting	CN	N/C, normally closed (no vacuum generation)	PU	Switching output 1x PNP, 1 analogue output 0 ... 10 V
L	High suction rate			CE	N/C, normally closed (no vacuum generation) with ejector pulse	PI	Switching output 1x PNP, 1 analogue output 4 ... 20 mA
QO	P-V with QS fitting, R with open silencer	PO	Common supply manifold prepared, V with QS fitting, R with open silencer	1P	Switching output 1x PNP	NU	Switching output 1x NPN, 1 analogue output 0 ... 10 V
QS	P-V-R with QS fitting	ON	N/O, normally open (vacuum generation)	1PD	Switching output 1x PNP and LCD display	NI	Switching output 1x NPN, 1 analogue output 4 ... 20 mA
GN	P-V-R with female thread	OE	N/O, normally open (vacuum generation) with ejector pulse	1N	Switching output 1x NPN	LK	IO-Link
GO	P-V with female thread, R with open silencer			2P	Switching output 2x PNP	H	Alternative vacuum display inchHG
				2N	Switching output 2x NPN		

Key features

Configurable

The modular vacuum generator series OVEM offers a wide range of individually selectable functions, making it possible to find a solution for the most varied of applications.

- 5 nominal widths
- Vacuum generator characteristics in two designs: high vacuum and high suction rate

- Various pneumatic connection variants (QS fitting or female thread)
- Electrical switching output of the vacuum sensor can be selected
- Various switching functions (N/O / N/C) with or without ejector pulse can be supplied

Reliable

- Permanent monitoring of the entire vacuum system via a vacuum sensor (condition monitoring)
- Prevention of pressure drop using an integrated air-saving function in conjunction with an integrated check valve

Space-optimised

- All functions are compactly integrated in one unit.
- No protruding elements such as valves or vacuum sensors
 - Space-optimised installation is possible as all the control elements can be accessed from one side

Economical

- Short switching times thanks to integrated solenoid valves
 - Vacuum on/off
 - Ejector pulse
- Quick, precise and safe placement of the workpiece via the ejector pulse
- Cost saving through preventive main-

- tenance/service thanks to maintenance indicator
- Cost saving through integrated air-saving function
 - Low-cost variants with one switching output (OVEM-...-1P/1N)

Easy to maintain

- Integrated filter with inspection window for maintenance indication
- Reduced contamination of the vacuum generator thanks to an open silencer

Choice of mounting types

- Direct mounting or via mounting bracket
- Straightforward mounting on H-rail via accessories
- Interlocking of multiple vacuum generators on a common supply manifold

Vacuum generators OVEM

At a glance

Rapid purging of vacuum for safe placement of the workpiece using an integrated solenoid valve to control the ejector pulse

Central electrical connection via an M12 plug

OVEM-...-1PD/2P/2N/PU/NU/PI/NI/LK

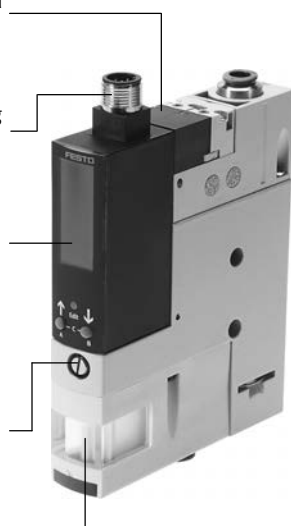
Monitoring and visualisation of the vacuum pressure using a vacuum sensor with LCD display (bar)

OVEM-...-LK

Vacuum sensor with IO-Link

Adjustment of the ejector pulse via a flow control screw

Contamination of the vacuum generator is prevented by an integrated filter



Quick and secure installation thanks to QS fitting

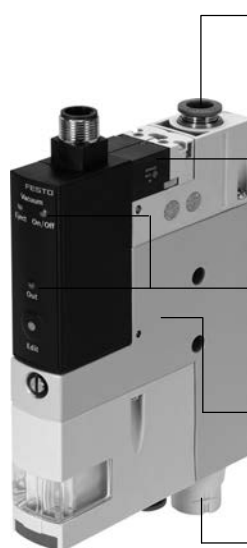
Fast vacuum build-up using an integrated solenoid valve to control the compressed air supply

OVEM-...-1P/1N

Monitoring of the vacuum pressure and status displays for switching output and solenoid valves using a vacuum sensor with LED display

Prevention of pressure drop using an integrated check valve

Maintenance-free operation and reduced noise level through an integrated, open silencer



Functional principle of OVEM

Vacuum ON/OFF

The compressed air supply is controlled by an integrated solenoid valve.

The solenoid valve can be supplied with two different switching functions, N/C and N/O.

- N/C - normally closed: The vacuum is generated when the vacuum generator is pressurised with compressed air and the solenoid valve has been switched.

- N/O - normally open: The vacuum is generated when the vacuum generator is pressurised with compressed air and the solenoid valve is in the normal position.

Vacuum sensor

The set or taught-in reference value for the generated vacuum is monitored via an integrated vacuum sensor. If the reference value is reached or if it is not reached due to malfunctions, e.g. leakages, dropped workpiece, the vacuum sensor emits an electrical signal.

Ejector pulse

After the vacuum is switched off, an ejector pulse is activated and generated by a second integrated solenoid valve to release the workpiece safely from the suction cup and to purge the vacuum quickly.

Connection to higher-level systems and configuration of the switching outputs

OVEM-...-1P/1PD/1N

- Switching inputs for actuating the solenoid valves for vacuum generation and ejector pulse
- OVEM-...-1P/1N only: one switching output for supplying a control signal
 - Configured as an N/O contact
 - Switching function configured as a threshold value comparator
- OVEM-...-1PD only: one digital switching output for supplying a control signal
 - Switching output can be configured as N/C or N/O contact
 - Switching function of the output can be configured as a threshold value or window comparator

OVEM-...-2P/2N/PU/NU/PI/NI

- One digital switching input for actuating the solenoid valves
- Two digital switching outputs or one digital switching output and one analogue output for supplying control signals
 - Switching outputs can be configured as N/C or N/O contacts
 - Switching function of the outputs can be configured as a threshold value or window comparator

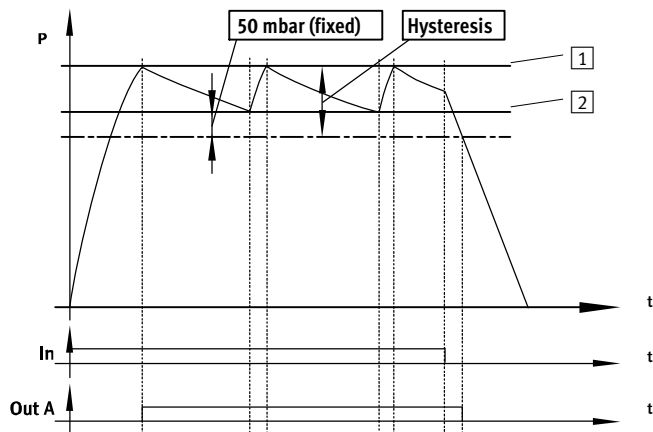
- If there are two switching outputs, these can be configured independently of each other. This enables tasks to be performed in parallel with one vacuum generator, reducing the time needed for sorting good and reject parts, for example.

OVEM-...-LK

- Digital setpoint and actual value transfer for simple parameterisation and diagnostic feedback. Communication takes place in IO-Link mode with an IO-Link master.
- SIO mode is supported. In the case of this local configuration using the operating buttons on the vacuum sensor, the OVEM takes on the function of an OVEM-...-2P.

At a glance

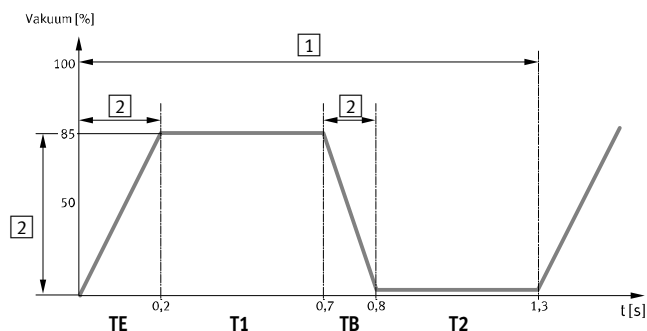
OVEM-...-1PD/2P/2N/PU/NU/PI/NI/LK- Air saving function LS (-CE, -OE)



If the desired threshold value 1 for the vacuum is reached, vacuum generation is automatically switched off. A check valve prevents a decrease of the vacuum. Nonetheless, leakage, e.g. due to rough workpiece surfaces, will slowly reduce

the vacuum. If the vacuum drops below the threshold value 2, vacuum generation is switched on automatically. Vacuum is generated until the set threshold value 1 is reached again.

OVEM-...-1PD/2P/2N/PU/NU/PI/NI/LK – Condition monitoring and diagnostics



1 Cycle time

2 Monitoring

TE Evacuation time

T1 Transport time

TB Air supply time

T2 Return time

The most important operating parameters:

- Vacuum
- Evacuation time
- Air supply time

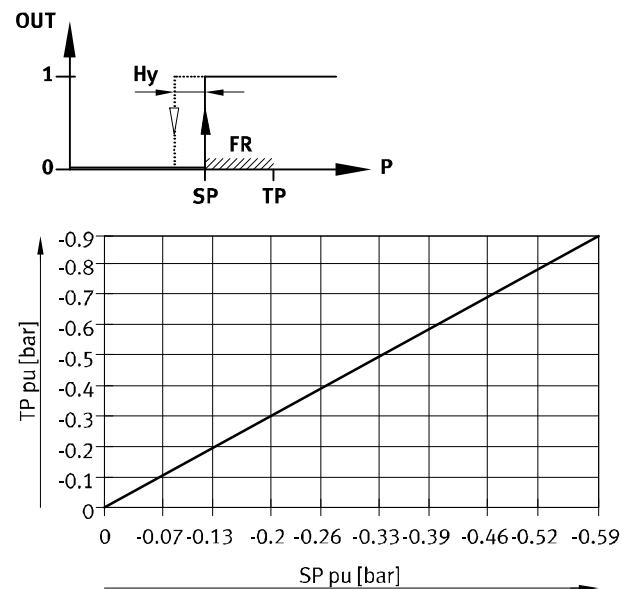
are continuously measured in the vacuum generator and compared with the individually set reference values (condition monitoring). If deviations in the reference values occur, these will be determined by the vacuum generator and shown on the display (diagnostics).

In addition, in the case of an OVEM with switching outputs (-2P, -2N, -LK in SIO mode), diagnostic messages can also be transmitted by the switching output Out B.

This permits preventive action:

- in order to prevent machine failure or downtime, for example, through timely maintenance
- and to ensure process reliability (adherence to the cycle time).

OVEM-...-1P/1N – From the teach-in point to the switching point



TP Teach-in point

SP Switching point

Hy Hysteresis

FR Function reserve

The switching point is determined from the teach pressure and the function reserve.

A function reserve (35% of the teach pressure) is deducted from the teach pressure ($SP = TP - 0.35 \cdot TP$).

For example, with a teach pressure of -0.5 bar, a switching point of -0.33 bar is set.

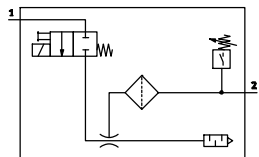
The hysteresis has a fixed value.

Vacuum generators >

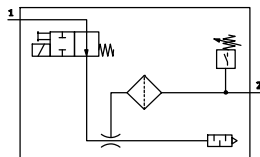
Vacuum generators OVEM

Data sheet

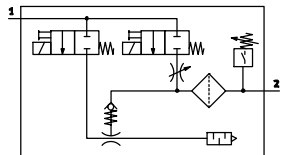
OVEM-...-CN



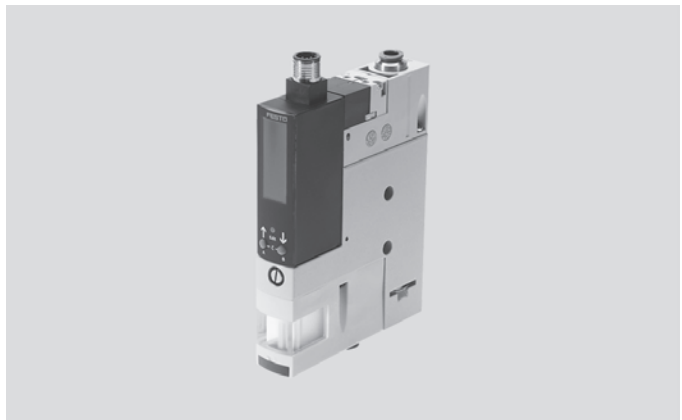
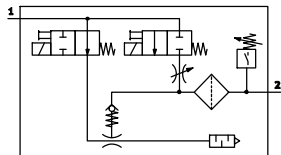
OVEM-...-ON



OVEM-...-CE



OVEM-...-OE



Technical data		Download CAD data → www.festo.com				
Type		OVEM-05-H/L	OVEM-07-H/L	OVEM-10-H/L	OVEM-14-H/L	OVEM-20-H
Nominal width of Laval nozzle	[mm]	0.45	0.7	0.95	1.4	2.0
Grid dimension	[mm]	20				
Ejector characteristics		High vacuum/standard H				
		High suction rate/standard L				
Grade of filtration	[µm]	40				
Pneumatic connection 1	OVEM-...-QO	QS-6	QS-8	QS-8	QS-8	QS-8
	OVEM-...-GO	G1/8	G1/4	G1/4	G1/4	G1/4
Vacuum connection	OVEM-...-QO	QS-6	QS-8	QS-8	QS-8	QS-8
	OVEM-...-GO	G1/8	G1/4	G1/4	G1/4	G1/4
Pneumatic connection 3		Silencer open				
Type of mounting		Via through-hole				
		Via female thread				
		Via accessories				
Mounting position		Any				
Design		Modular				
Integrated function	OVEM-...-ON/CN	Electric on-off valve				
		Vacuum sensor				
		Filter				
		Silencer open				
	OVEM-...-OE/CE	Electric on-off valve				
		Electric ejector pulse				
		Flow control valve				
		Vacuum sensor				
		Air saving function, electric (only possible with OVEM-...-1PD/2P/2N/LK)				
		Check valve				
		Filter				
		Silencer open				
Valve function	OVEM-...-ON/OE	Open				
	OVEM-...-CN/CE	Closed				
Manual override		Non-detenting				
		Additionally via operating buttons (only possible with OVEM-...-1PD/2P/2N/LK)				
Length/width/height	[mm]	145/21/90	165/21/90	165/21/90	195/21/90	195/21/90

Operating conditions	
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium	Lubricated operation not possible
Operating pressure	[bar] 2 ... 8
Ambient temperature	[°C] 0 ... +50

Data sheet

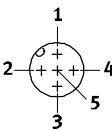
Performance data – High vacuum																					
Type	[mm]	OVEM-05-H				OVEM-07-H				OVEM-10-H				OVEM-14-H				OVEM-20-H			
Normal position of the vacuum generator		ON	OE	CN	CE	ON	OE	CN	CE	ON	OE	CN	CE	ON	OE	CN	CE	ON	OE	CN	CE
Max. vacuum	[%]	93																			
Operating pressure for max. vacuum	[bar]	5.1				4.1				3.5				3.6				5.3			
Max. suction rate with respect to atmosphere	[l/min]	6				16				19.5				50.5				86.5			
Suction rate at p ₁ = 6 bar	[l/min]	5.9				15.1				18.6				46				80.5			
Air supply time at nominal operating pressure 6 bar (for 1 l volume) ¹⁾	[s]	4.8	2	4.8	2	1.9	0.4	1.9	0.4	1.2	0.2	1.2	0.2	0.6	0.2	0.6	0.2	0.4	0.2	0.4	0.2
Noise level at p ₁ = 6 bar	[db(A)]	51				58				73				77				74			

1) Time required to reduce the vacuum to a residual vacuum of –0.05 bar after switching off the operating pressure.

Performance data – High suction rate																	
Type	[mm]	OVEM-05-L				OVEM-07-L				OVEM-10-L				OVEM-14-L			
Normal position of the vacuum generator		ON	OE	CN	CE	ON	OE	CN	CE	ON	OE	CN	CE	ON	OE	CN	CE
Max. suction rate with respect to atmosphere	[l/min]	13				31.5				45				92			
Suction rate at p ₁ = 6 bar	[l/min]	12.8				31.5				45.1				88.7			
Air supply time at nominal operating pressure 6 bar (for 1 l volume) ²⁾	[s]	2	1.3	2	1.3	1	0.2	1	0.2	0.8	0.2	0.8	0.2	0.4	0.2	0.4	0.2
Noise level at p ₁ = 6 bar	[db(A)]	45				53				64				70			

2) Time required to reduce the vacuum to a residual vacuum of –0.05 bar after switching off the operating pressure.

Technical data – Electrical connection					
Type		OVEM-...-1P	OVEM-...-1PD	OVEM-...-2P/2N	OVEM-...-LK
Electrical connection		Plug M12x1, 5-pin			
Standard switching input		IEC 61131-2			
Operating voltage range	[V DC]	20.4 ... 27.6			
Duty cycle	[%]	100			
Coil characteristics 24 V DC	[W]	Low-current phase: 0.3			
		High-current phase: 2.55			
Max. current consumption	[mA]	180	170	270	150 (270 in SIO mode)
Insulation voltage	[V]	50			
Surge resistance	[kV]	0.8			
Reverse polarity protection		For all electrical connections			
Degree of protection		IP65			
Protection class		III			

Pin allocation						
	Plug M12x1, 5-pin	Pin	Meaning			
			OVEM-...-1P			
			OVEM-...-1PD			
			OVEM-...-2P/2N			
			OVEM-...-LK			
		1	Supply voltage +24 V DC			
		2	Switching input for vacuum ON/OFF	Digital output Out A (switching output for vacuum sensor)	Digital output Out B	
		3	0 V			
		4	Switching output (switching output for vacuum sensor)	Digital switching input (ejector pulse)	Digital output Out A (switching output for vacuum sensor)	IO-Link communication or digital output Out A (switching output for vacuum sensor) ³⁾
		5	Switching input for ejector pulse ON/OFF	Digital switching input (vacuum ON/OFF)	Digital switching input (vacuum ON/OFF and ejector pulse)	Not assigned or digital switching input (vacuum ON/OFF and ejector pulse) ⁴⁾

3) After a fallback or in SIO mode, this pin has the configuration of a digital switching output.

4) This pin is not allocated in the IO-Link mode. After a fallback or in SIO mode, this pin has the configuration of a digital input.

Vacuum generators >

Vacuum generators OVEM

Data sheet

Technical data – Vacuum sensor						
Type		OVEM-...-1P	OVEM-...-1PD	OVEM-...-2P	OVEM-...-2N	OVEM-...-LK
Mechanical						
Measured variable		Relative pressure				
Measuring principle		Piezoresistive				
Pressure measuring range	[bar]	–1 ... 0				
Accuracy FS ¹⁾	[%]	±0.5	±3			
Reproducibility of switching value FS ¹⁾	[%]	0.6	0.6			
Setting options		Teach-in	Via display and keys			IO-Link
Threshold value setting range	[bar]	–1 ... 0	–0.999 ... 0			
Hysteresis setting range	[bar]	–	–0.9 ... 0			
Setting range duration, ejector pulse	[ms]	–	– ²⁾	20 ... 9999 (OVEM-05)	40 ... 9999	
				40 ... 9999 (OVEM-07/10/14/20)		
Display type		LED	4-character alphanumeric, backlit LCD			
Display range	[bar]	–	–0.999 ... 0			
Switching status indication		Opto-electrical	Opto-electrical			
Switching position indication		LED	LCD			
Protection against tampering		–	PIN code	–	Electronic locking	
Electrical						
Switching output		1x PNP	1x PNP	2x PNP	2x NPN	2x PNP
Switching element function		N/O contact				
		–	N/C contact			
Switching function		–	Window comparator			
		Threshold value comparator ³⁾				
Fixed hysteresis	[mbar]	20	–			
Idle current	[mA]	< 80	< 70			
Residual current	[mA]	0.1				
Max. output current	[mA]	100				
Voltage drop	[V]	≤1.5	≤2	≤1.5		≤1.8
Inductive protective circuit		Adapted to MZ, MY, ME coils				
Short circuit protection		Yes				
Overload protection		Yes				

- 1) % FS = % of the measuring range final value (full scale).
- 2) Generation of an ejector pulse via a control signal at the digital switching input.
- 3) OVEM-...-1P threshold value with fixed hysteresis.

Materials		
Type	OVEM-...-1P	OVEM-...-1PD/2P/2N/LK
Housing	Die-cast aluminium, PA reinforced	
Filter housing	PA reinforced	
Silencer	Polyurethane foam, wrought aluminium alloy	
Keypad	PA reinforced	TPE-U
Inspection window	–	PA
Fitting	Nickel-plated brass	
Plug housing	Nickel-plated brass	
Connecting thread	Anodised wrought aluminium alloy	
Seals	NBR	

Order code

OVEM

B

N

Type	
OVEM	Vacuum generator

Nominal width of Laval nozzle [mm]	
05	0.45
07	0.7
10	0.95
14	1.4
20	2.0

Ejector characteristics	
H	High vacuum/standard
L	High suction rate/standard

Housing size/width	
B	Grid dimension 20 mm

Pneumatic connections			
Supply port (P)			
		Vacuum connection (V)	
		Exhaust port (R)	
QO	QS fitting	QS fitting	Silencer, open
GO	Female thread	Female thread	Silencer, open

Normal position of the vacuum generator	
ON	N/O, normally open (vacuum generation)
OE	N/O, normally open (vacuum generation) with ejector impulse
CN	N/C, normally closed (no vacuum generation)
CE	N/C, normally closed (no vacuum generation) with ejector pulse

Electrical connection	
N	Plug M12 (5-pin)

Vacuum sensor, electrical switching output	
1P	Switching output 1x PNP
1PD	Switching output 1x PNP and LCD display
2P	Switching output 2x PNP
2N	Switching output 2x NPN
LK	IO-Link

- 1 Not with Laval nozzle nominal width 20.
- 2 Not where ON or CN are the normal position of the vacuum generator.

Order example:
OVEM-05-H-B-QO-ON-N-2P
Vacuum generator OVEM - nominal width of Laval nozzle 0.45 mm - high vacuum/standard - grid dimension 20 mm - P-V with QS fitting, R with open silencer - N/O, normally open - plug M12 (5-pin) - switching output 2x PNP

Ordering – Product options

Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or

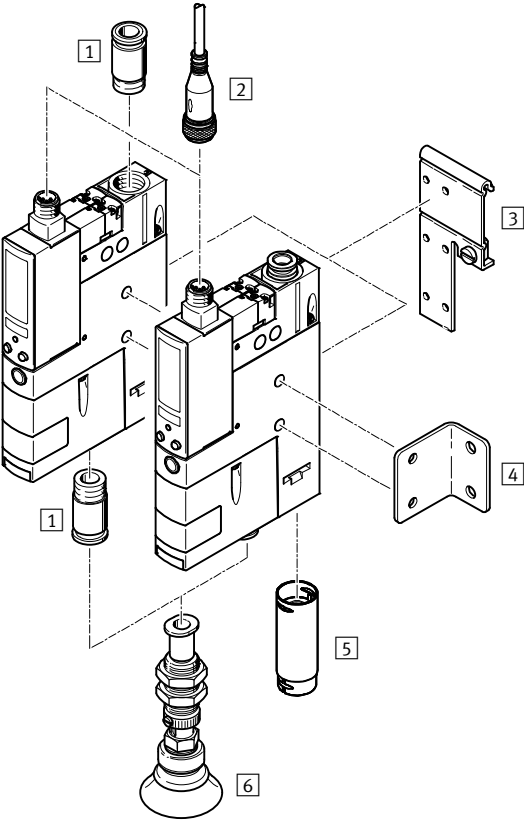
www.festo.com/catalogue/...

Enter the type code in the search field.

Vacuum generators >

Vacuum generators OVEM

Accessories



Accessories		→ Page/online
1	Push-in fitting QS	1443
2	Connecting cable NEBU-M12	880
3	H-rail mounting OABM-H	880
4	Mounting bracket HRM-1	880
5	Silencer extension UOMS ¹⁾	880
6	Suction gripper ESG	esg

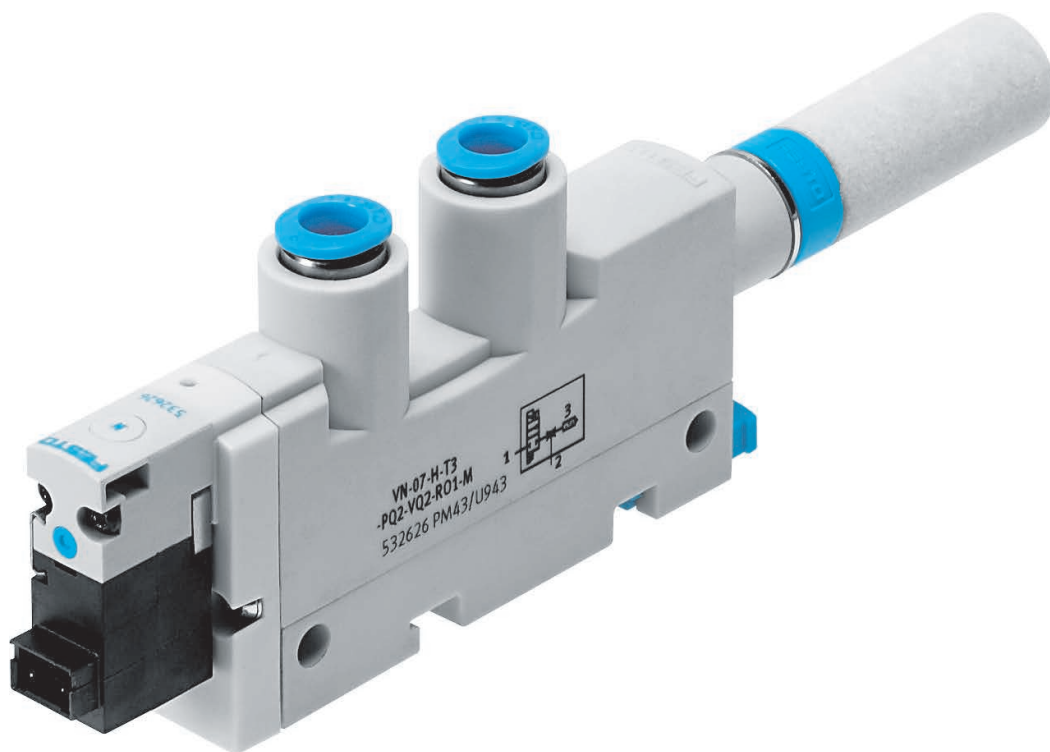
1) Silencer extension UOMS is included in the scope of delivery of the OVEM-20.

Accessories – Ordering data

Electrical connection			Cable length [m]	Part no.	Type
2 Connecting cable NEBU-M12			Data sheets → 1544		
	Straight socket, M12x1, 5-pin	Open end, 5-wire	2.5	541330	NEBU-M12G5-K-2.5-LE5
			5	541331	NEBU-M12G5-K-5-LE5
			10	554038	NEBU-M12G5-K-10-LE5
	Angled socket, M12x1, 5-pin	Open end, 5-wire	2.5	567843	NEBU-M12W5-K-2.5-LE5
			5	567844	NEBU-M12W5-K-5-LE5

Description	Part no.	Type
3 H-rail mounting OABM-H	Data sheets online: → oabm-h	
 For H-rail TH-35-15	549461	OABM-H
4 Mounting bracket HRM-1	Data sheets online: → hrm-1	
 –	9769	HRM-1

Description	Part no.	Type
5 Silencer extension UOMS	Data sheets → Page 1664	
 –	538436	UOMS-1/4



Lightweight and affordable

- + Can be used directly in the work space
- + Cost-effective
- + Maintenance-free operation and reduced noise level through an integrated, open silencer
- + With solenoid valve vacuum on/off

Vacuum generators ›

Vacuum generators

VN

Vacuum generators >

Vacuum generators

VN



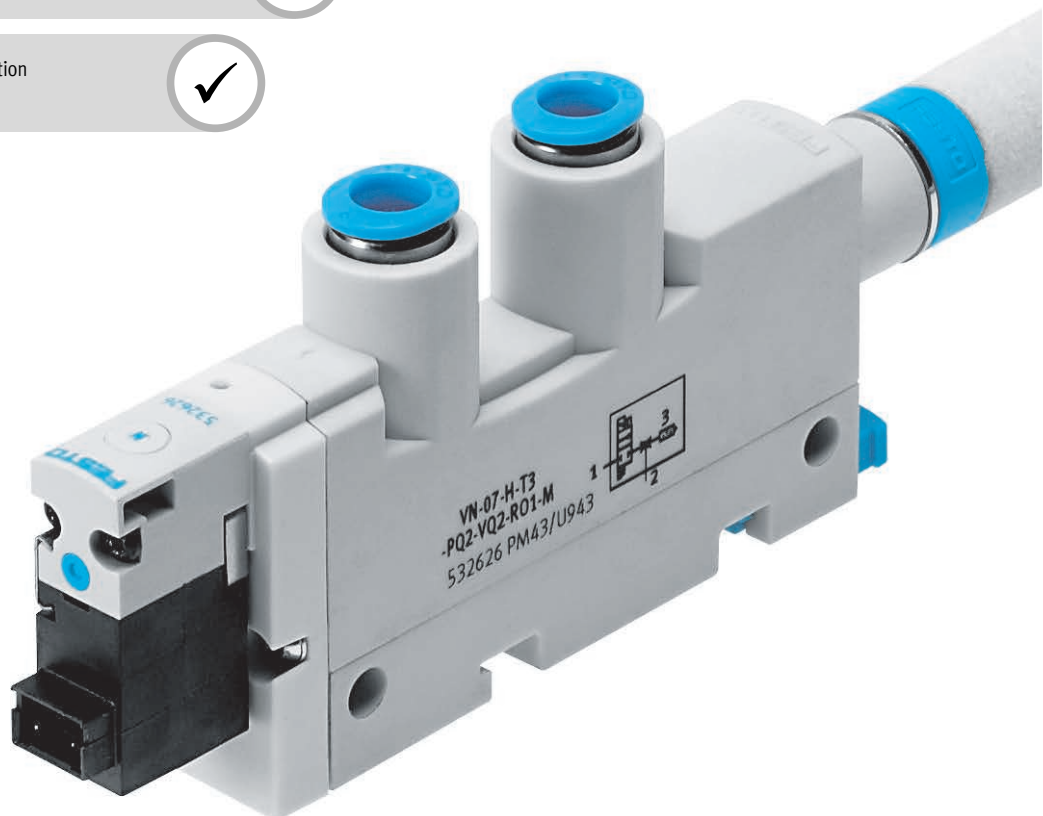
Overview, configuration and ordering

→ www.festo.com/catalogue/vn



Additional information, support and user documentation

→ www.festo.com/sp/vn



- + Generate a vacuum easily and quickly
- + The compact and lightweight design permits assembly in the gripping area
- + Maintenance-free open silencer
- + Optional: integrated solenoid valve and ejector pulse

Product range overview

Type	Nominal width of Laval nozzle	High vacuum		High suction rate		Grid dimension		➔ Page/ online
						T-shape	Straight	
	[mm]	Standard H	Inline M	Standard L	Inline N	[mm]	[mm]	
VN-05	0.45	■	–	■	–	10, 14	–	884
		–	■	–	–	10, 14	10, 13	
		–	–	–	■	14	13	
VN-07	0.7	■	–	–	–	10, 14	–	
		–	–	■	–	14	–	
		–	■	–	–	10, 14	10, 13	
VN-10	0.95	■	–	■	–	14, 18	–	
		–	■	–	–	–	13	
VN-14	1.4	■	–	■	–	18	–	
VN-20	2.0	■	–	■	–	24	–	
VN-30	3.0	■	–	■	–	24	–	
With integrated vacuum switch								
VN-05-...-P	0.45	■	–	■	–	16	–	891
VN-07-...-P	0.7	■	–	■	–	16	–	
VN-10-...-P	0.95	■	–	■	–	16	–	
With ejector pulse								
VN-05-...-A	0.45	■	–	■	–	14	–	894
		–	■	–	■	–	14.5	
VN-07-...-A	0.7	■	–	■	–	14	–	
		–	■	–	■	–	14.5	
VN-10-...-A	0.95	■	–	■	–	14	–	
VN-14-...-A	1.4	■	–	■	–	18	–	
With solenoid valve vacuum ON/OFF								
VN-05-...-M	0.45	■	–	■	–	14	–	894
VN-07-...-M	0.7	■	–	■	–	14	–	
VN-10-...-M	0.95	■	–	■	–	14	–	
VN-14-...-M	1.4	■	–	■	–	18	–	
VN-20-...-M	2.0	■	–	–	–	24	–	
VN-30-...-M	3.0	■	–	–	–	24	–	
With ejector pulse and solenoid valve vacuum ON/OFF								
VN-05-...-B	0.45	■	–	■	–	14	–	894
VN-07-...-B	0.7	■	–	■	–	14	–	
VN-10-...-B	0.95	■	–	■	–	14	–	
VN-14-...-B	1.4	■	–	■	–	18	–	

At a glance

- Vacuum generators for high vacuum up to 93%
 - Vacuum generators for high suction rates and thus particularly short evacuation times
- Modular principle: large selection of different types
 - Laval nozzles in six nominal widths
 - Minimal space required
 - Wear- and maintenance-free
- Compact and robust design
 - Can be used directly in the work space, making it particularly effective
 - Plastic housing
- Flexible connection options:
 - Without or with integrated vacuum switch for monitoring the vacuum with PNP output

Two functional principles

Standard	Inline
Compressed air and vacuum connection offset by 90°.	Compressed air and vacuum connection arranged in a line.
T-shape housing	- T-shape housing - Straight housing without exhaust port

Two housing types

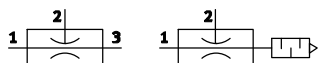
T-shape	Straight
Connection options:	Connection options:
- QS push-in connectors - Female thread - Male thread - Silencer	- QS push-in connectors - Push-in sleeve

Vacuum generators >

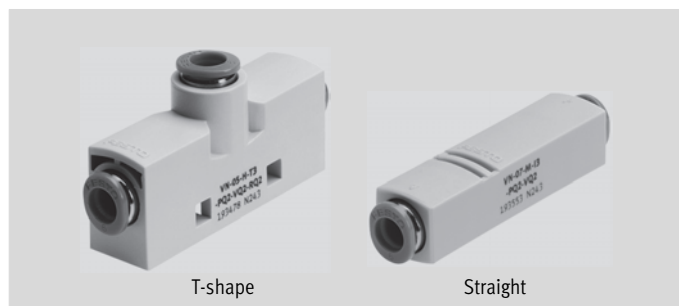
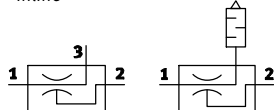
Vacuum generators VN

Data sheet

Standard



Inline



T-shape

Straight

Technical data – Standard		Download CAD data → www.festo.com								
Design		T-shape								
Type		VN-05		VN-07		VN-10		VN-14	VN-20	VN-30
Grid dimension [mm]		10	14	10	14	14	18	18	24	24
Nominal width of Laval nozzle [mm]		0.45		0.7		0.95		1.4	2.0	3.0
Ejector characteristics		High vacuum H								
		High suction rate L		–	High suction rate L					
Pneumatic connection 1	Push-in connector	QS-4	QS-6	QS-4	QS-6	QS-6	QS-6	QS-6	QS-10	QS-10
	Female thread	M5	G1⁄8	M5	G1⁄8	G1⁄8	–	G1⁄8	G1⁄4	G1⁄4
Vacuum connection 2	Push-in connector	QS-4	QS-6	QS-4	QS-6	QS-6	QS-8	QS-8	QS-12	QS-12
	Male thread	–	G1⁄8	–	G1⁄8	G1⁄8	G1⁄4	G1⁄4	G1⁄4	G1⁄4
	Female thread	M5	G1⁄8	M5	G1⁄8	G1⁄8	–	G1⁄4	G3⁄8	G3⁄8
Pneumatic connection 3	Push-in connector	QS-4	QS-6	QS-4	QS-6	QS-6	QS-8	QS-8	–	–
	Female thread	M5	G1⁄8	M5	G1⁄8	G1⁄8	–	G1⁄4	–	–
	Silencer	Open	Open	Open	Open	Open	Open	Open	Open	Open
Type of mounting		Via through-hole								
		Via H-rail								
		Via accessories								
Mounting position		Any								
Length [mm]	With push-in connector	58	59	58	59	59	64	64	–	–
	With push-in connector and silencer	87	98	87	98	98	126	126	221	221
	Via female thread	61	70	61	70	70	81	81	–	–
	With female thread and silencer	88	103	88	103	103	129	129	229	229
Width [mm]		10	14	10	14	14	18	18	24	24
Height [mm]	With push-in connector	31	30	31	30	30	36	36	75	75
	Via male thread	–	42	–	42	42	51	51	92	92
	Via female thread	33	36	33	36	36	48	48	83	83

Technical data – Inline						Download CAD data → www.festo.com				
Design		T-shape				Straight				
Type		VN-05		VN-07		VN-05		VN-07		VN-10
Grid dimension [mm]		10	14	10	14	10	13	10	13	13
Nominal width of Laval nozzle [mm]		0.45		0.7		0.45		0.7		0.95
Ejector characteristics		High vacuum M								
		–	High suction rate N	–	–	–	High suction rate N	–	–	–
Pneumatic connection 1	Push-in connector	QS-4	QS-6	QS-4	QS-6	QS-4	QS-6	QS-4	QS-6	QS-6
	Female thread	M5	G1/8	M5	G1/8	–				
Vacuum connection 2	Push-in connector	QS-4	QS-6	QS-4	QS-6	QS-4	QS-6	QS-4	QS-6	QS-6
	Female thread	M5	G1/8	M5	G1/8	–				
	Push-in sleeve	–	–	–	–	QS-4	QS-6	QS-4	QS-6	–
Pneumatic connection 3	Push-in connector	QS-4	QS-6	QS-4	QS-6	Not ducted				
	Female thread	M5	G1/8	M5	G1/8					
	Silencer	Open	Open	Open	Open					

Data sheet

Technical data – Inline										Download CAD data ➔ www.festo.com	
Design		T-shape				Straight					
Type		VN-05		VN-07		VN-05		VN-07		VN-10	
Grid dimension [mm]		10	14	10	14	10	13	10	13	13	
Type of mounting		Via through-hole				In-line installation					
		Via H-rail									
		Via accessories									
Mounting position		Any									
Length [mm]	With push-in connector	58	59	58	59	57	59	57	59	66	
	With push-in connector and push-in sleeve	–				62	60	62	60	–	
	Via female thread	61	70	61	70	–					
Width [mm]		10	14	10	14	10	13	10	13	13	
Height [mm]	Without connection	–				10	13	10	13	22	
	With push-in connector	31	30	31	30	–					
	Via female thread	33	36	33	36	–					
	With silencer	60	69	60	69	–					

Operating conditions									
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]							
Note on the operating/pilot medium		Lubricated operation not possible							
Operating pressure [bar]		1 ... 8							
Ambient temperature [°C]		0 ... +60							

Performance data – High vacuum										
Ejector characteristics		Standard H						Inline M		
Nominal width of Laval nozzle	[mm]	0.45	0.7	0.95	1.4	2.0	3.0	0.45	0.7	0.95
Max. vacuum	[%]	88	88	89	88	92	93	86	86	86
Operating pressure for max. vacuum	[bar]	4.5	4.7	4.5	5.0	3.5	3.7	6.0	5.8	5.8
Max. suction rate with respect to atmosphere	[l/min]	6.2	16	25	51.6	98	186	6.1	13.5	28
Operating pressure for max. suction rate	[bar]	2.1	2.1	3.1	5.1	2.0	3.0	6.3	7.0	5.0
Air supply time at nominal operating pressure 6 bar (for 1 l volume) ¹⁾	[s]	4.8	1.9	1.1	0.5	0.2	0.1	4.7	2.1	0.96

1) Time required to reduce the vacuum to a residual vacuum of –0.05 bar after switching off the operating pressure.

Performance data – High suction rate									
Ejector characteristics		Standard L						Inline N	
Nominal width of Laval nozzle [mm]		0.45	0.7	0.95	1.4	2.0	3.0	0.45	
Max. suction rate with respect to atmosphere [l/min]		15.7	38.8	62.7	90.0	188.0	339.0	12.0	
Operating pressure for max. suction rate [bar]		5.0	6.2	4.0	8.0	3.0	6.0	6.0	
Air supply time at nominal operating pressure 6 bar (for 1 l volume) ²⁾ [s]		1.7	0.5	0.46	0.25	0.15	0.1	1.57	

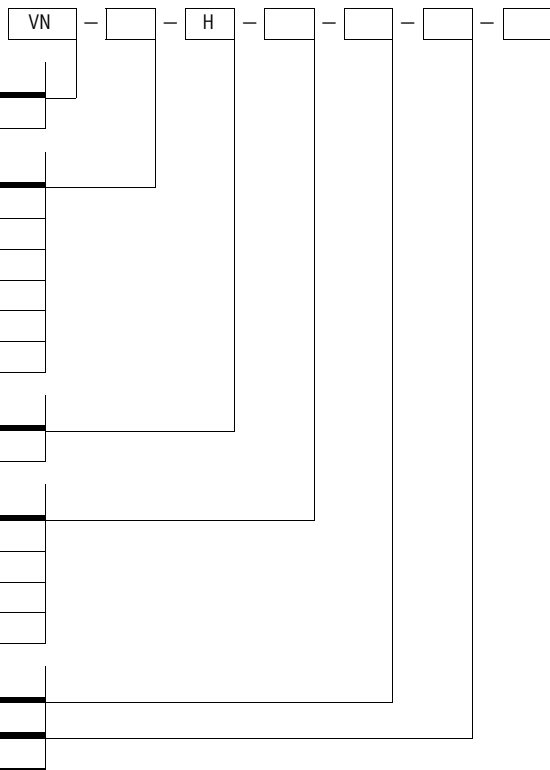
2) Time required to reduce the vacuum to a residual vacuum of –0.05 bar after switching off the operating pressure.

Materials		
Type	VN-...-R01	VN-...-R02
Housing	POM-reinforced	
Silencer	PE	POM, polyurethane foam, wrought aluminium alloy
Fitting	Nickel-plated brass	
Seals	NBR	

Vacuum generators >

Vacuum generators VN

Order code – High vacuum/Standard



Type	
VN	Vacuum generator

Nominal width of Laval nozzle [mm]	
05	0.45
07	0.7
10	0.95
14	1.4
20	2.0
30	3.0

Ejector characteristics	
H	High vacuum/Standard

Housing type	
T2	T-shape, grid dimension 10 mm (only Laval nozzle nominal width 05 or 07)
T3	T-shape, grid dimension 14 mm (only Laval nozzle nominal width 05, 07 or 10)
T4	T-shape, grid dimension 18 mm (only Laval nozzle nominal width 10 or 14)
T6	T-shape, grid dimension 24 mm (only Laval nozzle nominal width 20 or 30)

Supply port (P)					
		Vacuum connection (V)			
				Exhaust port (R)	
Housing type T2					
PQ1	Push-in connector QS-4	VQ1	Push-in connector QS-4	RQ1	Push-in connector QS-4
				RO1	Silencer, open
PI2	Female thread M5	VI2	Female thread M5	RI2	Female thread M5
				RO1	Silencer, open
Housing type T3					
PQ2	Push-in connector QS-6	VQ2	Push-in connector QS-6	RQ2	Push-in connector QS-6
				RO1	Silencer, open
PQ2	Push-in connector QS-6	VA4	Male thread G $\frac{1}{8}$	RQ2	Push-in connector QS-6
				RO1	Silencer, open
PI4	Female thread G $\frac{1}{8}$	VI4	Female thread G $\frac{1}{8}$	RI4	Female thread G $\frac{1}{8}$
				RO1	Silencer, open
Housing type T4					
PQ2	Push-in connector QS-6	VQ3	Push-in connector QS-8	RQ3	Push-in connector QS-8
				RO2	Silencer, open
PQ2	Push-in connector QS-6	VA5	Male thread G $\frac{1}{4}$	RQ3	Push-in connector QS-8
				RO2	Silencer, open
PI4	Female thread G $\frac{1}{8}$	VI5	Female thread G $\frac{1}{4}$	RI5	Female thread G $\frac{1}{4}$
				RO2	Silencer, open
Housing type T6					
PQ4	Push-in connector QS-10	VQ5	Push-in connector QS-12	RO2	Silencer, open
PQ4	Push-in connector QS-10	VA5	Male thread G $\frac{1}{4}$	RO2	Silencer, open
PI5	Female thread G $\frac{1}{4}$	VI6	Female thread G $\frac{3}{8}$	RO2	Silencer, open

1 Not with Laval nozzle nominal width 10.

Order example:

VN-30-H-T6-PQ4-VA5-RO2

Vacuum generator VN - Laval nozzle nominal width 3.0 mm - high vacuum/standard - housing type T-shape, grid dimension 24 mm - compressed air connection push-in connector QS-10 - vacuum connection male thread G $\frac{1}{4}$ - exhaust port silencer, open

Vacuum generators VN

Order code – High suction rate/Standard

Type		VN		-		-		L		-		-		-		-	
VN		Vacuum generator															
Nominal width of Laval nozzle [mm]																	
05	0.45																
07	0.7																
10	0.95																
14	1.4																
20	2.0																
30	3.0																
Ejector characteristics																	
L	High suction rate/standard																
Housing type																	
T2	T-shape, grid dimension 10 mm (only Laval nozzle nominal width 05)																
T3	T-shape, grid dimension 14 mm (only Laval nozzle nominal width 05, 07 or 10)																
T4	T-shape, grid dimension 18 mm (only Laval nozzle nominal width 10 or 14)																
T6	T-shape, grid dimension 24 mm (only Laval nozzle nominal width 20 or 30)																
Supply port (P)																	
				Vacuum connection (V)													
						Exhaust port (R)											
Housing type T2																	
PQ1	Push-in connector QS-4	VQ1	Push-in connector QS-4	RQ1	Push-in connector QS-4												
				RO1	Silencer, open												
PI2	Female thread M5	VI2	Female thread M5	RI2	Female thread M5												
				RO1	Silencer, open												
Housing type T3																	
PQ2	Push-in connector QS-6	VQ2	Push-in connector QS-6	RQ2	Push-in connector QS-6												
				RO1	Silencer, open												
PQ2	Push-in connector QS-6	VA4	Male thread G $\frac{1}{8}$	RQ2	Push-in connector QS-6												
				RO1	Silencer, open												
PI4	Female thread G $\frac{1}{8}$	VI4	Female thread G $\frac{1}{8}$	RI4	Female thread G $\frac{1}{8}$												
				RO1	Silencer, open												
PI4	Female thread G $\frac{1}{8}$	VA4	Male thread G $\frac{1}{8}$	RO1	Silencer, open	[1]											
Housing type T4																	
PQ2	Push-in connector QS-6	VQ3	Push-in connector QS-8	RQ3	Push-in connector QS-8												
				RO2	Silencer, open												
PQ2	Push-in connector QS-6	VA5	Male thread G $\frac{1}{4}$	RQ3	Push-in connector QS-8												
				RO2	Silencer, open												
PI4	Female thread G $\frac{1}{8}$	VI5	Female thread G $\frac{1}{4}$	RI5	Female thread G $\frac{1}{4}$	[2]											
				RO2	Silencer, open	[2]											
Housing type T6																	
PQ4	Push-in connector QS-10	VQ5	Push-in connector QS-12	RO2	Silencer, open	[3]											
PQ4	Push-in connector QS-10	VA5	Male thread G $\frac{1}{4}$	RO2	Silencer, open												
PI5	Female thread G $\frac{1}{4}$	VI6	Female thread G $\frac{3}{8}$	RO2	Silencer, open												

[1] Only with Laval nozzle nominal width 10.

[3] Not with Laval nozzle nominal width 30.

[2] Not with Laval nozzle nominal width 10.

Order example:

VN-07-L-T3-PQ2-VQ2-RQ2

Vacuum generator VN - Laval nozzle nominal width 0.7 mm - high suction rate/standard - housing type T-shape, grid dimension 14 mm - compressed air connection push-in connector QS-6 - vacuum connection push-in connector QS-6 - exhaust port push-in connector QS-6

Vacuum generators VN

Order code – High vacuum/Inline

The diagram illustrates a sequence of operations or steps. At the top, a horizontal line contains a series of boxes connected by minus signs: **VN** - [] - **M** - [] - [] - [] - [] - [] - []. Below this, a vertical axis on the left has several horizontal bars of varying lengths. Lines connect the boxes in the top row to these bars: the first box (**VN**) connects to the first bar, the second box connects to the second bar, the third box (**M**) connects to the third bar, and the subsequent empty boxes connect to the fourth, fifth, sixth, seventh, and eighth bars respectively. The bars have different lengths, with the first bar being the longest and the eighth bar being the shortest.

Type					
VN	Vacuum generator				
Nominal width of Laval nozzle [mm]					
05	0.45				
07	0.7				
10	0.95				
Ejector characteristics					
M	High vacuum/inline				
Housing type					
T2	T-shape, grid dimension 10 mm (only Laval nozzle nominal width 05 or 07)				
T3	T-shape, grid dimension 14 mm (only Laval nozzle nominal width 05 or 07)				
I2	Straight, grid dimension 10 mm (only Laval nozzle nominal width 05 or 07)				
I3	Straight, grid dimension 13 mm				
Supply port (P)					
			Vacuum connection (V)		
			Exhaust port (R)		
Housing type T2					
PQ1	Push-in connector QS-4	VQ1	Push-in connector QS-4	RQ1	Push-in connector QS-4
				RO1	Silencer, open
PI2	Female thread M5	VI2	Female thread M5	RI2	Female thread M5
				RO1	Silencer, open
Housing type T3					
PQ2	Push-in connector QS-6	VQ2	Push-in connector QS-6	RQ2	Push-in connector QS-6
				RO1	Silencer, open
PI4	Female thread G1/8	VI4	Female thread G1/8	RI4	Female thread G1/8
				RO1	Silencer, open
Housing type I2					
PQ1	Push-in connector QS-4	VQ1	Push-in connector QS-4	–	–
		VT1	Push-in sleeve Ø 4 mm	–	–
Housing type I3					
PQ2	Push-in connector QS-6	VQ2	Push-in connector QS-6	–	–
		VT2	Push-in sleeve Ø 6 mm	–	–

[1] Not with Laval nozzle nominal width 10.

Order example:

VN-05-M-13-P02-VT2

Vacuum generator VN - Laval nozzle nominal width 0.45 mm - high vacuum/inline - housing type, straight, grid dimension 13 mm - compressed air connection push-in connector OS-6 - vacuum connection push-in sleeve Ø 6 mm

Vacuum generators VN

Order code – High suction rate/inline

Type

VN

Vacuum generator

Nominal width of Laval nozzle [mm]

05

0.45

Ejector characteristics

N

High suction rate/inline

Housing type

T3

T-shape, grid dimension 14 mm

I3

Straight, grid dimension 13 mm

Supply port (P)

Vacuum connection (V)

Exhaust port (R)

Housing type T3

PQ2

Push-in connector QS-6

VQ2

Push-in connector QS-6

RQ2

Push-in connector QS-6

RO1

Silencer, open

PI4

Female thread G1/8

VI4

Female thread G1/8

RI4

Female thread G1/8

RO1

Silencer, open

Housing type I3

PQ2

Push-in connector QS-6

VQ2

Push-in connector QS-6

–

–

VT2

Push-in sleeve Ø 6 mm

–

–

VN

–

05

–

N

–

–

–

–

–

Order example:
VN-05-N-T3-PI4-VI4-RO1
Vacuum generator VN - Laval nozzle nominal width 0.45 mm - high suction rate/inline - housing type T-shape, grid dimension 14 mm - compressed air connection female thread Gx - vacuum connection female thread Gx - exhaust port silencer, open

Ordering – Product options

Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
➔ www.festo.com/catalogue/...

Enter the type code in the search field.

Vacuum generators >

Vacuum generators VN

Accessories

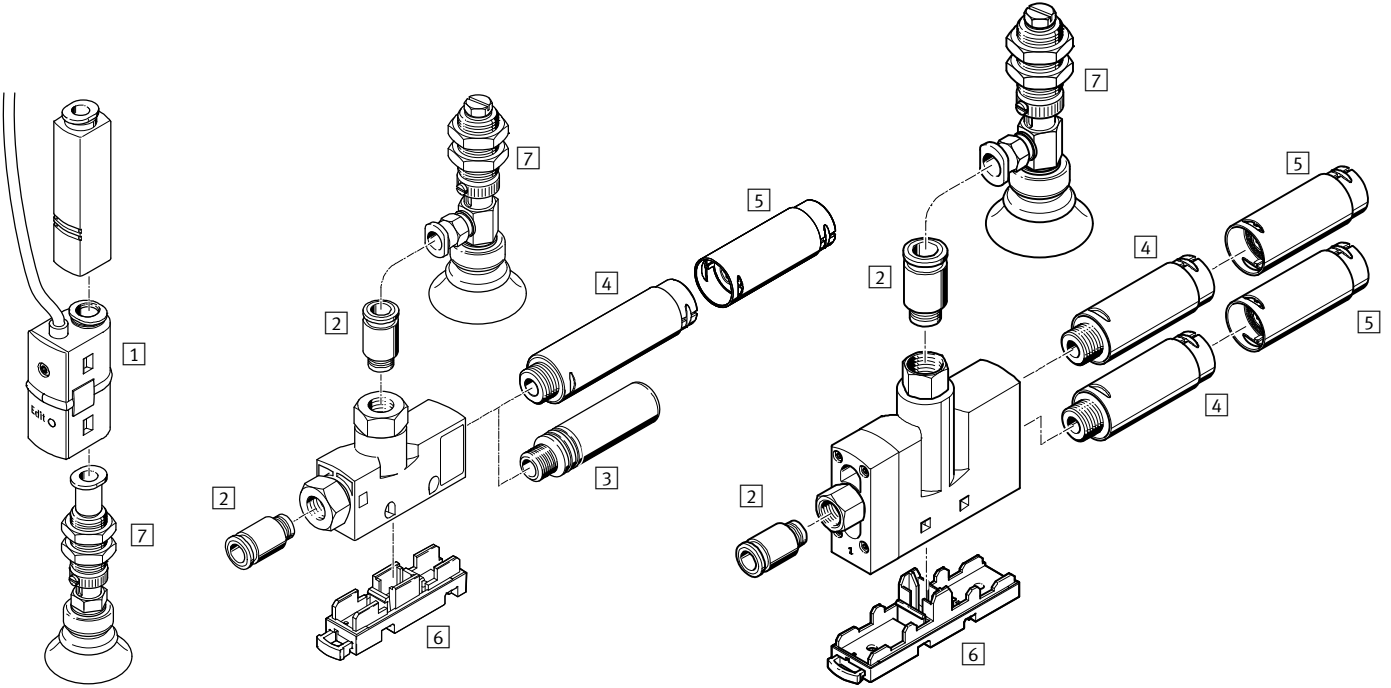
Straight

VN-05/07/10

T-shape

VN-05/07/10/14

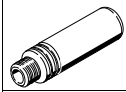
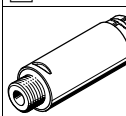
VN-20/30

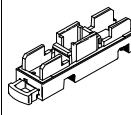
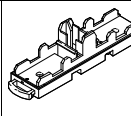


Accessories		→ Page/online
1	Pressure switch SDE5	1247
2	Push-in fitting QS	1443
3	Silencer UO	890
4	Silencer UOM	890

Accessories		→ Page/online
5	Silencer extension UOMS	890
6	Mounting plate VN-T	890
7	Suction gripper ESG	esg

Accessories – Ordering data

	Pneumatic connection	Part no.	Type
3 Silencer UO Data sheets → Page 1664			
	M7	197582	UO-M7
	G1/8	197583	UO-1/8
	G1/4	197584	UO-1/4
4 Silencer UOM Data sheets → Page 1664			
	G1/4	538432	UOM-1/4
	G3/8	538433	UOM-3/8
5 Silencer extension UOMS Data sheets → Page 1664			
	-	538436	UOMS-1/4
		538437	UOMS-3/8

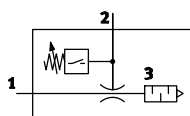
	Description	Part no.	Type
6 Mounting plate VN-T Data sheets online: → vn-t			
	Grid dimension 10 mm	196951	VN-T2-BP-NRH
	Grid dimension 14 mm	193641	VN-T3-BP-NRH
	Grid dimension 18 mm	195279	VN-T4-BP-NRH
	Grid dimension 24 mm	196956	VN-T6-BP-NRH ¹⁾

1) Horizontal wall mounting is not permitted with mounting plate VN-T6-BP-NRH.

Vacuum generators VN-P, with integrated vacuum switch

Data sheet

Standard



Technical data		Download CAD data → www.festo.com		
Design		T-shape		
Type		VN-05	VN-07	VN-10
Grid dimension	[mm]	16	16	16
Nominal width of Laval nozzle	[mm]	0.45	0.7	0.95
Ejector characteristics		High vacuum/Standard H High suction rate/Standard L		
Pneumatic connection 1		QS-6		
Vacuum connection		QS-6		
Pneumatic connection 3		Silencer, open		
Type of mounting		Via through-hole		
Mounting position		Any ¹⁾		
Measured variable		Relative pressure		
Pressure measuring range	[bar]	−1 ... 0		
Display type/switching status indication		LED		
Switching output		PNP		
Switching element function		N/O contact		
Switching function		Threshold value comparator with fixed hysteresis		
		Threshold value comparator with variable hysteresis		
Operating voltage range	[V DC]	15 ... 30		
Electrical connection		M8x1, 3-pin		
Length/width/height	[mm]	94/16/40	107/16/40	107/16/40

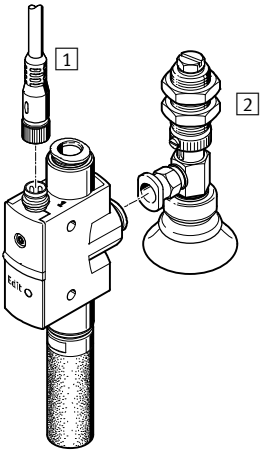
1) It should not be possible for condensed water to collect in the sensor.

Operating conditions	
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]
Note on the operating/pilot medium	Lubricated operation not possible
Operating pressure	[bar] 1 ... 8
Ambient temperature	[°C] 0 ... +50

Performance data		High vacuum/Standard H			High suction rate/Standard L		
Ejector characteristics							
Nominal width of Laval nozzle	[mm]	0.45	0.7	0.95	0.45	0.7	0.95
Max. vacuum	[%]	92	92	93	–	–	–
Operating pressure for max. vacuum	[bar]	4.9	4.4	3.5	–	–	–
Max. suction rate with respect to atmosphere	[l/min]	7.2	16.2	21.8	13.6	30.9	41.5
Operating pressure for max. suction rate	[bar]	3	3	3	5	4	5

Vacuum generators VN-P, with integrated vacuum switch

Accessories



Accessories		➔ Page/online
1	Connecting cable NEBU-M8	893
2	Suction gripper ESG	esg

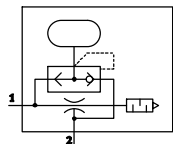
Accessories – Ordering data

Electrical connection		Cable length [m]	Part no.	Type
1 Connecting cable NEBU-M8				Data sheets ➔ 1544
	M8x1, 3-pin	2.5	★ 541333	NEBU-M8G3-K-2.5-LE3
		5	★ 541334	NEBU-M8G3-K-5-LE3
	M8x1, 3-pin	2.5	★ 541338	NEBU-M8W3-K-2.5-LE3
		5	★ 541341	NEBU-M8W3-K-5-LE3

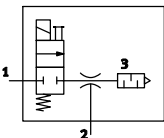
Vacuum generators VN-A/M/B, with additional functions

Data sheet

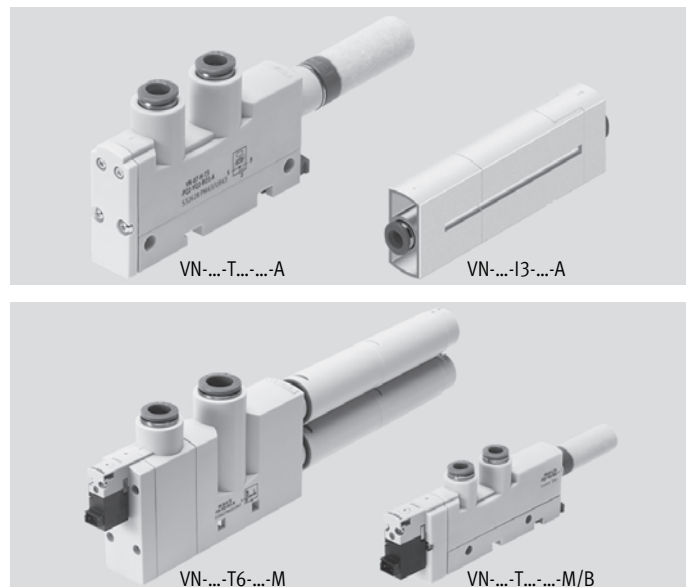
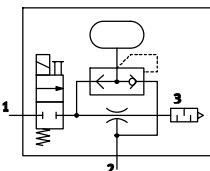
VN-A



VN-M



VN-B



Technical data – Standard															Download CAD data ➔ www.festo.com		
Design		T-shape															
Type		VN-05			VN-07			VN-10			VN-14			VN-20		VN-30	
Grid dimension [mm]		14			14			14			18			24		24	
Integrated function		A	M	B	A	M	B	A	M	B	A	M	B	M	M		
Nominal width of Laval nozzle [mm]		0.45			0.7			0.95			1.4			2.0		3.0	
Ejector characteristics		High vacuum H															
		High suction rate L													–		
Pneumatic connection 1	Push-in connector	QS-6	QS-6	QS-6	QS-6	QS-6	QS-6	QS-6	QS-6	QS-6	QS-6	QS-8	QS-8	QS-8	QS-10	QS-10	
	Female thread	G1/8	–	–	G1/8	–	–	G1/8	–	–	G1/8	–	–	–	–	–	
Vacuum connection	Push-in connector	QS-6	QS-6	QS-6	QS-6	QS-6	QS-6	QS-6	QS-6	QS-6	QS-6	QS-8	QS-8	QS-8	QS-12	QS-12	
	Female thread	G1/8	–	–	G1/8	–	–	G1/8	–	–	G1/8	–	–	–	–	–	
Pneumatic connection 3		Silencer open															
Type of mounting		Via through-hole															
		Via H-rail													–		
		Via accessories															
Mounting position		Any															
Length [mm]	Push-in connector	110	132		119	141		119	141		166	192		253			
	Female thread	110	–		119	–		119	–		166	–		–			
Width [mm]		14			14			14			18			24			
Height [mm]	Push-in connector	48			48			48			50			75			
	Female thread	53	–		53	–		53	–		62	–		–			

Technical data – Inline			Download CAD data → www.festo.com	
Design		Straight		
Type		VN-05	VN-07	
Grid dimension [mm]		14.5	14.5	
Integrated function		A	A	
Nominal width of Laval nozzle [mm]		0.45	0.7	
Ejector characteristics		High vacuum M		
		High suction rate N		
Pneumatic connection 1		QS-6		
Vacuum connection		QS-6		
Type of mounting		In-line installation		
Mounting position		Any		
Length [mm]		81	97	
Width [mm]		14.5	14.5	
Height [mm]		33.1	33.1	

Vacuum generators VN-A/M/B, with additional functions

Data sheet

Operating conditions				
Pneumatic connection		Via push-in fitting		
		Via female thread		
Integrated function		A	M	B
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]		
Note on the operating/pilot medium		Lubricated operation not possible		
Operating pressure	[bar]	1 ... 8	2 ... 8	1 ... 8
Ambient temperature	[°C]	0 ... +60	0 ... +50	0 ... +60

Performance data – High vacuum															
Ejector characteristics		Standard H												Inline M	
Nominal width of Laval nozzle	[mm]	0.45			0.7			0.95			1.4			2.0	3.0
Integrated function		A	M	B	A	M	B	A	M	B	A	M	B	M	M
Max. vacuum	[%]	92			92			93			92			92	93
Operating pressure for max. vacuum	[bar]	4.9			4.4			3.5			3.5			3.5	3.7
Max. suction rate with respect to atmosphere	[l/min]	7.2			16.2			21.8			48.8			98	186
Operating pressure for max. suction rate	[bar]	3			3			3			4			2	3
Air supply time at nominal operating pressure 6 bar (for 1 l volume) ¹⁾	[s]	3.63	3.9		1.5	1.69		0.96	1.06		0.43	0.5		0.24	0.13

1) Time required to reduce the vacuum to a residual vacuum of –0.05 bar after switching off the operating pressure.

Performance data – High suction rate															
Ejector characteristics		Standard L												Inline N	
Nominal width of Laval nozzle	[mm]	0.45			0.7			0.95			1.4			0.45	0.7
Integrated function		A	M	B	A	M	B	A	M	B	A	M	B	A	A
Max. suction rate with respect to atmosphere	[l/min]	13.6			30.9			40.5			92.6			13.3	32.6
Operating pressure for max. suction rate	[bar]	5			4			5			5			5	4
Air supply time at nominal operating pressure 6 bar (for 1 l volume) ²⁾	[s]	1.93	1.97		0.79	0.83		0.62	0.67		0.28	0.32		2.24	0.89

2) Time required to reduce the vacuum to a residual vacuum of –0.05 bar after switching off the operating pressure.

Technical data of solenoid valve	
Operating voltage range	[V DC] 21.6 ... 26.4
Duty cycle	[%] 100
Degree of protection	IP40 (to EN 60529)
Valve function	2/2-way valve
Manual override	Non-detenting

Materials	
Type	VN-...-R01
Housing	POM-reinforced, PA-reinforced
Pneumatic silencers	PE
Fitting	Nickel-plated brass
Seals	NBR

Vacuum generators VN-A/M/B, with additional functions

Order code – High vacuum/standard, high suction rate/standard

VN

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Type	
VN	Vacuum generator

Nominal width of Laval nozzle [mm]	
05	0.45
07	0.7
10	0.95
14	1.4
20	2.0
30	3.0

Ejector characteristics	
H	High vacuum/standard
L	High suction rate/standard

Housing type	
T3	T-shape, grid dimension 14 mm (only Laval nozzle nominal width 05, 07 or 10)
T4	T-shape, grid dimension 18 mm (only Laval nozzle nominal width 14)
T6	T-shape, grid dimension 24 mm (only Laval nozzle nominal width 20 or 30)

Supply port (P)					
	<table><tr><th colspan="2">Vacuum connection (V)</th></tr><tr><td></td><td>Exhaust port (R)</td></tr></table>	Vacuum connection (V)			Exhaust port (R)
Vacuum connection (V)					
	Exhaust port (R)				
Housing type T3					
PQ2	Push-in connector QS-6				
VI2	Push-in connector QS-6				
RO1	Silencer, open				
PI4	Female thread G1/8				
VI4	Female thread G1/8				
RO1	Silencer, open				
Housing type T4					
PQ3	Push-in connector QS-8				
VI3	Push-in connector QS-8				
RO2	Silencer, open				
PI5	Female thread G3/4				
VI5	Female thread G3/4				
RO2	Silencer, open				
Housing type T6					
PQ4	Push-in connector QS-10				
VI5	Push-in connector QS-12				
RO2	Silencer, open				

Additional function	
A	Ejector impulse
M	Solenoid valve vacuum ON/OFF
B	Solenoid valve vacuum ON/OFF and ejector pulse

1 Only with ejector characteristic, high vacuum and additional function solenoid valve vacuum ON/OFF.

2 Only with additional function, ejector pulse.

Order example:
VN-30-H-T6-PQ4-VQ5-RO2-M
Vacuum generator VN - Laval nozzle nominal width 3.0 mm - high vacuum/standard - housing type T-shape, grid dimension 24 mm - compressed air connection push-in connector QS-10 - vacuum connection push-in connector QS-12 - exhaust port silencer, open - additional function solenoid valve vacuum ON/OFF

Vacuum generators VN-A/M/B, with additional functions

Order code – High vacuum/inline, high suction rate/inline

VN

–

–

–

I3

–

PQ2

–

VQ2

–

A

Type	
VN	Vacuum generator

Nominal width of Laval nozzle [mm]	
05	0.45
07	0.7

Ejector characteristics	
M	High vacuum/inline
N	High suction rate/inline

Housing type	
I3	Straight, grid dimension 14.5 mm

Supply port (P)	
Vacuum connection (V)	
Housing type I3	
PQ2	Push-in connector QS-6
VQ2	Push-in connector QS-6

Additional function	
A	Ejector impulse

Order example:
VN-07-N-I3-PQ2-VQ2-A
Vacuum generator VN - Laval nozzle nominal width 0.7 mm - high suction rate/inline - straight, grid dimension 14.5 mm - compressed air connection push-in connector QS-6 - vacuum connection push-in connector QS-6 - additional function ejector pulse

Ordering – Product options

Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
➔ www.festo.com/catalogue/...

Enter the type code in the search field.

Vacuum generators >

Vacuum generators VN-A/M/B, with additional functions

Accessories

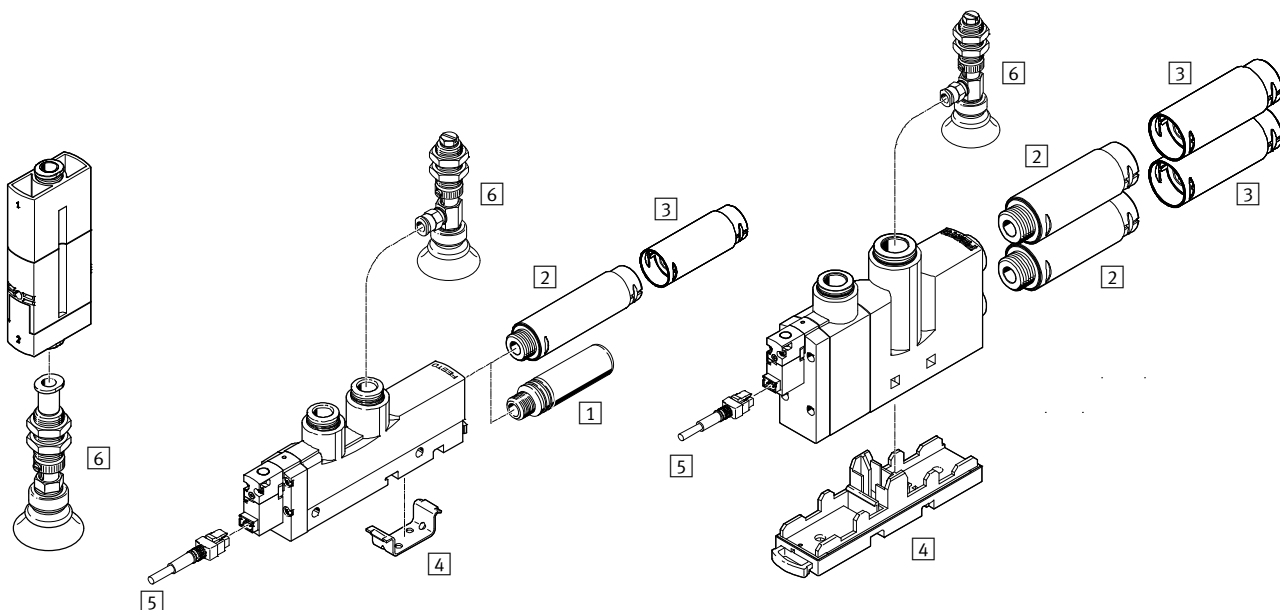
Straight

VN-05/07-...-A

T-shape

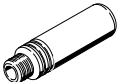
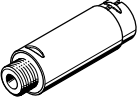
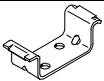
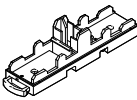
VN-05/07/10/14-...-A/M/B

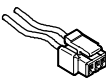
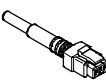
VN-20/30-...-M



Mounting components and accessories		→ Page/online
1	Silencer UO	898
2	Silencer UOM	898
3	Silencer extension UOMS	898
4	Mounting plate VN-T	898
5	Plug socket with cable NEBV	898
6	Suction gripper ESG	esg

Accessories – Ordering data

	Pneumatic connection	Part no.	Type
1 Silencer UO Data sheets → Page 1664			
	M7	197582	UO-M7
	G1/8	197583	UO-1/8
	G1/4	197584	UO-1/4
2 Silencer UOM Data sheets → Page 1664			
	G1/4	538432	UOM-1/4
	G3/8	538433	UOM-3/8
3 Silencer extension UOMS Data sheets → Page 1664			
	–	538436	UOMS-1/4
	–	538437	UOMS-3/8
4 Mounting plate VN-T Data sheets online: → vn-t			
	Grid dimension 14 mm	547436	VN-T3-BP
	Grid dimension 18 mm	547437	VN-T4-BP
	Grid dimension 24 mm	196956	VN-T6-BP-NRH ¹⁾

	Cable length [m]	Part no.	Type
5 Plug socket with cable NEBV Data sheets online: → nebv			
	0.5	★ 566654	NEBV-H1G2-KN-0.5-N-LE2
	1	★ 566655	NEBV-H1G2-KN-1-N-LE2
	2.5	★ 566656	NEBV-H1G2-KN-2.5-N-LE2
	5	566657	NEBV-H1G2-KN-5-N-LE2
	0.5	★ 566658	NEBV-H1G2-P-0.5-N-LE2
	1	★ 566659	NEBV-H1G2-P-1-N-LE2
	2.5	★ 566660	NEBV-H1G2-P-2.5-N-LE2
	5	566661	NEBV-H1G2-P-5-N-LE2

1) Horizontal wall mounting is not permitted with mounting plate VN-T6-BP-NRH.

