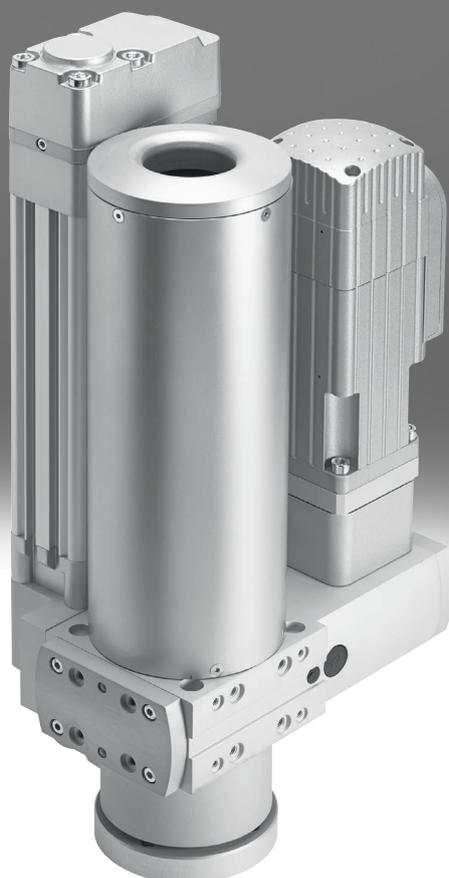


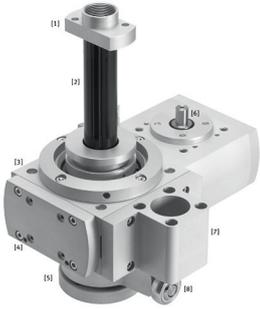
Rotary/lifting module EHMB

FESTO



Characteristics

At a glance



General information:

- The rotary lifting module EHMB combines rotary and linear motion in one compact unit.
- The rotary motion is always transferred via a toothed belt to a hollow shaft by an electric motor while the linear motion is generated either by a pneumatic cylinder DSBC or an electric cylinder ESBF.
- Both movements act on the output flange. Cables and tubing can be easily routed to the front unit of the rotary lifting module through the large hollow shaft.
- Various motors and cylinders enable the performance of the module to be easily adapted to the application.

The technology in detail

- [1] Stop nut
- [2] Grooved shaft guide
- [3] Through-hole for mounting
- [4] Mounting threads/mounting holes
- [5] Output flange with centring holes and threaded holes for payload
- [6] Drive shaft for rotary motion
- [7] Cylinder holder
- [8] Rod eye and connecting bolt for linear motion

Engineering tools

[Link](#)  [engineering tools](#)



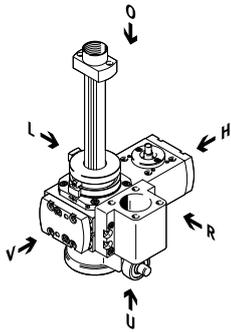
Save time with engineering tools: Smart engineering for the optimal solution. Our goal is to increase your productivity. Our engineering tools play an integral part in achieving this goal. They help you size your system correctly, tap into unimagined productivity reserves and generate additional productivity along the entire value chain. In every phase of your project, from the initial contact to the modernisation of your machine, you will come across a number of different tools that will be of use to you.

Electric Motion Sizing

- Create the optimum drive package quickly and reliably. Electric Motion Sizing calculates suitable combinations of electric axis, electric motor and servo drive using just a few application details. It provides all the relevant data including the bill of materials and documentation for your selected combination. This avoids design errors and results in significantly improved energy efficiency for the system. A smooth connection to the Festo Automation Suite also makes commissioning easier for you.

Characteristics

Overview



The rotary lifting module EHMB can be mounted on 4 sides:

- On the right or left of the housing (L, R)
- On the front cover (V)
- Underneath the housing (U)

The cylinder holder can be mounted on 3 sides:

- On the right or left of the housing (L, R)
- On the front, after removing the front cover (V)
- The side where the cylinder holder is mounted cannot be used for mounting the rotary lifting module
- Either a pneumatic standards-based cylinder DSBC or an electric cylinder ESBF can be attached to the cylinder holder (these cylinders must be ordered separately)

Note:

- Eccentric masses can destroy the bearing. The front side (V) may be used only to attach a symmetrical applied load.

Application example



- Complete system with motor for rotary motion and electric cylinder ESBF or standards-based cylinder DSBF for lifting movement.
- These parts must be ordered separately as accessories.

Type code

001	Series
EHMB	Rotary/lifting module

002	Size [mm]
20	20
25	25
32	32

003	Stroke [mm]
100	100
200	200

Datasheet

General

- All values are based on a room temperature of 23 °C.
- The connection between the drive for the linear motion and the EHMB is not backlash-free.
- When routing 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.

General technical data

Size	20	25	32
Design	Electromechanical rotary/lifting module, With toothed belt		
Drive pinion diameter	6 mm	8 mm	12 mm
Rotation angle	Infinite		
Working stroke	0 ... 200 mm		
Repetition accuracy	±0.03°		
Max. speed	1.5 m/s		
Gear unit ratio	4.5:1	4:1	3:1
Position detection	Via inductive sensors		
Mounting position	optional		

Mechanical data

Size	20	25	32
Max. drive torque	0.7 Nm	2.2 Nm	6.7 Nm
Max. output torque ¹⁾	3.15 Nm	8.8 Nm	20 Nm
Frictional torque independent of load ²⁾	0.07 Nm	0.18 Nm	0.5 Nm
Max. drive input speed	1,350 rpm	1,200 rpm	900 rpm
Max. drive output speed	300 rpm		
Max. feed force F _x	480 N		750 N
Reference value effective load, horizontal	3,000 g	5,000 g	8,000 g
Reference value effective load, vertical ³⁾	3,000 g	5,000 g	15,000 g
Toothed-belt pitch	2 mm	3 mm	5 mm
Mass moment of inertia ⁴⁾	1,000 kgcm ²	5,000 kgcm ²	10,000 kgcm ²

1) Output torque minus friction is dependent on speed

2) At maximum rotational speed

3) With symmetrical and non-eccentric configuration

4) These values indicate the upper limit regardless of the value determined using the inertia factor.

Operating and environmental conditions

Size	20	25	32
Ambient temperature	-10 ... 60°C		
Sound pressure level	54 dB(A)	51 dB(A)	
Information on the sound pressure level	With covering: 57 [dB (A)]	With covering: 56 [dB (A)]	With covering: 53 [dB (A)]

Weight

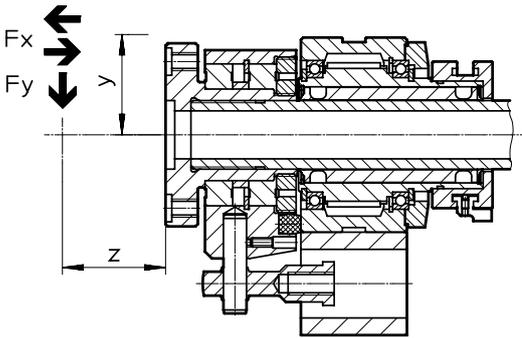
Size	20	25	32			
Working stroke	0 mm, 100 mm	0 mm, 200 mm	0 mm, 100 mm	0 mm, 200 mm		
Product weight	1,716 g	1,851 g	3,347 g	3,620 g	6,112 g	6,388 g
Moving mass	705 g	885 g	1,542 g	1,942 g	1,658 g	2,058 g

Datasheet

Materials

Material flange	Anodised wrought aluminium alloy
Material retaining	Wrought aluminium alloy, anodised
Material toothed belt	Polychloroprene with glass fibre
Material retaining bracket	Anodised wrought aluminium alloy
Material drive shaft	Steel
Material drive shaft	High-alloy stainless steel
LABS (PWIS) conformity	VDMA24364 zone III
Note on materials	RoHS-compliant

Max. radial and axial force Fx/Fy at the output shaft as a function of distance y/z



Max. radial and axial force Fx/Fy at the output shaft as a function of distance y/z

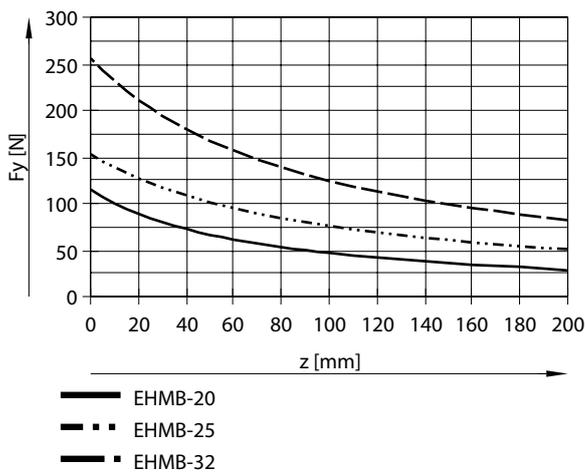
$$\frac{F_y(z)}{F_{y \max. (z)}} + \frac{F_x(y)}{F_{x \max. (y)}} \leq 1$$

If the rotary module is subjected to several forces at the same time, the following equation must be fulfilled in addition to the indicated maximum loads indicated below.

Fx / Fy = dynamic value

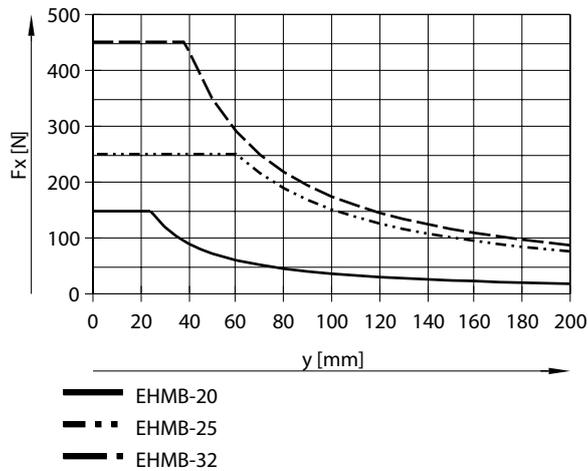
Fx max. / Fy max. = maximum value

Max. radial force Fy, dynamic

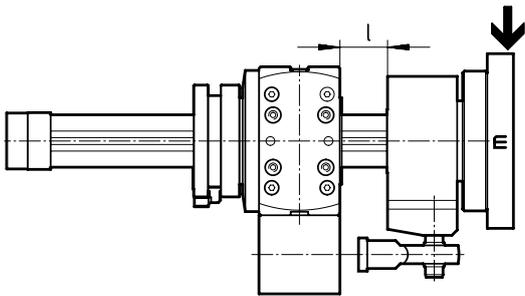


Datasheet

Max. axial force F_x , dynamic

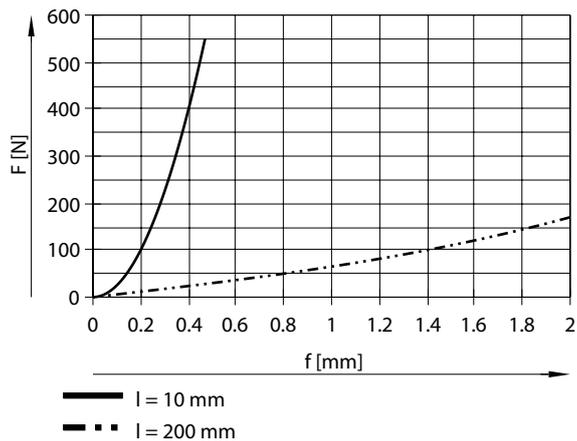


Deflection f as a function of lateral force F and stroke l



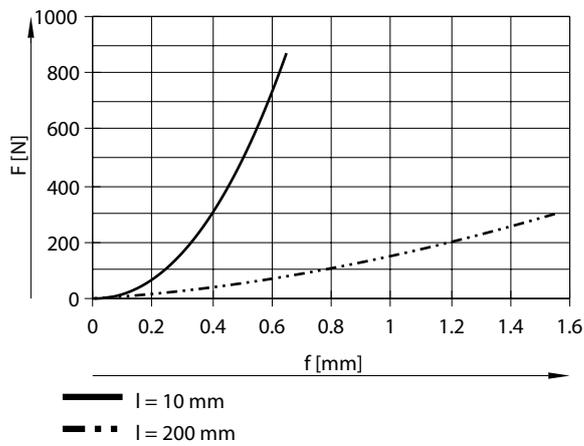
The following graphs show the deflection f of the rotary/lifting module under radial forces and with two strokes.

Deflection f as a function of lateral force F and stroke l for EHMB-20

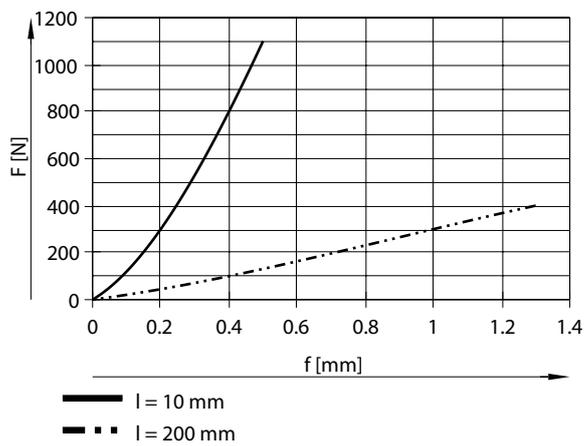


Datasheet

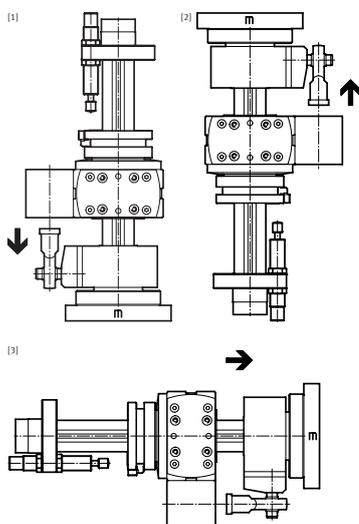
Deflection f as a function of transverse force F and stroke l for EHMB-25



Deflection f as a function of lateral force F and stroke l for EHMB-32

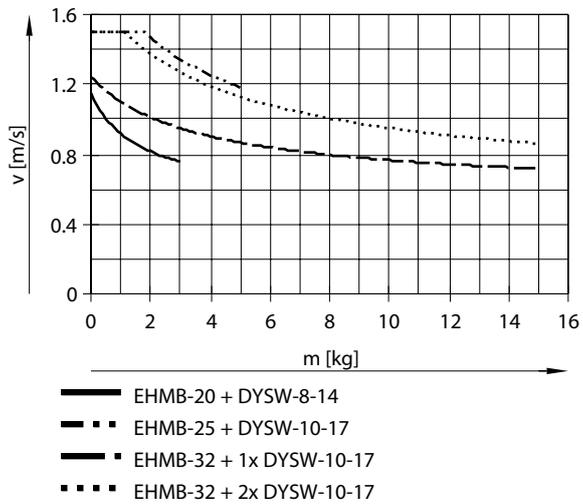
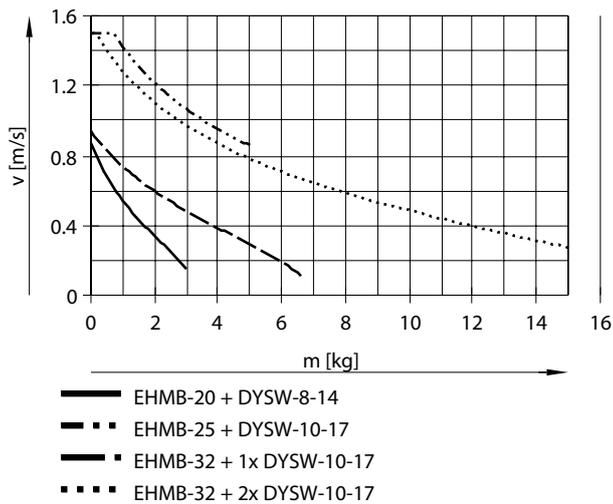
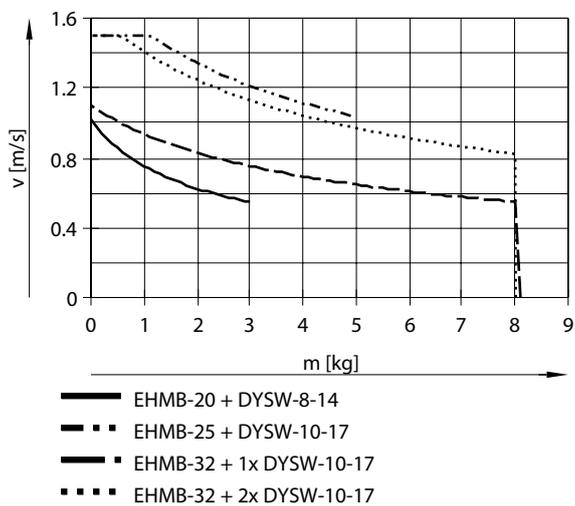


Max. speed v as a function of the payload m in conjunction with the standards-based cylinder DSBC



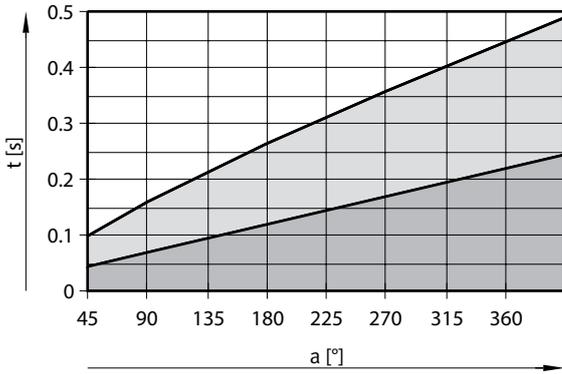
- Mounting position:
- [1] Vertical, linear movement downwards
 - [2] Vertical, linear movement upwards
 - [3] Horizontal

Datasheet

Max. speed v as a function of payload m , vertical mounting position, linear movement upwardsMax. speed v as a function of payload m , vertical mounting position, linear movement downwardsMax. speed v as a function of payload m , horizontal mounting position

Datasheet

Positioning time t as a function of rotation angle a for EHMB-20 with stepper motor



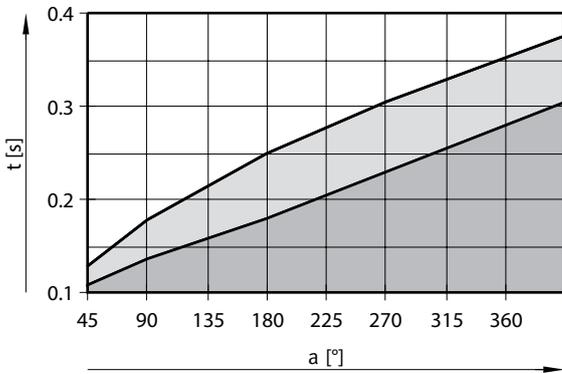
Ranges

White: permissible range

Light grey: typical working range, depending on motor size and inertia of the load

Dark grey: range cannot be achieved

Positioning time t as a function of rotation angle a for EHMB-20 with servo motor



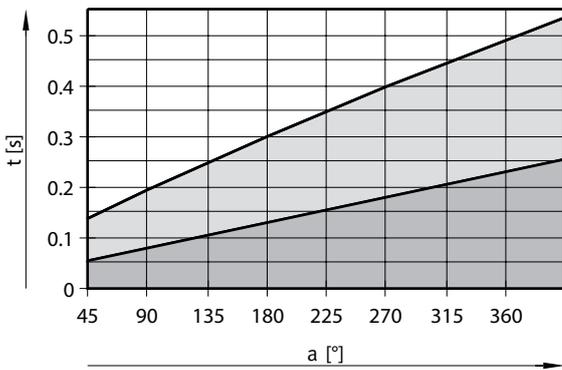
Ranges

White: permissible range

Light grey: typical working range, depending on motor size and inertia of the load

Dark grey: range cannot be achieved

Positioning time t as a function of rotation angle a for ERMB-25 with stepper motor



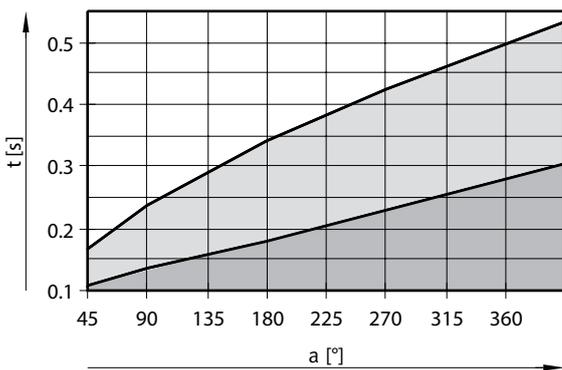
Ranges

White: permissible range

Light grey: typical working range, depending on motor size and inertia of the load

Dark grey: range cannot be achieved

Positioning time t as a function of rotation angle a for EHMB-25 with servo motor



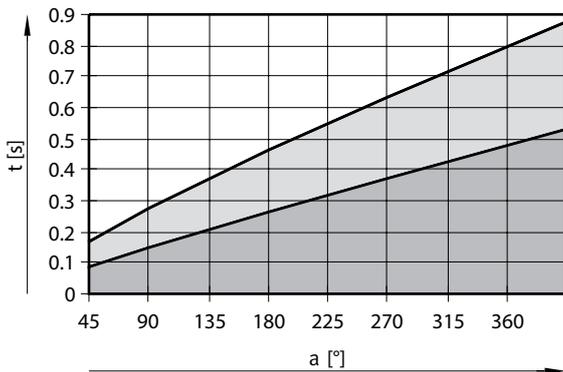
Ranges

White: permissible range

Light grey: typical working range, depending on motor size and inertia of the load

Dark grey: range cannot be achieved

Datasheet

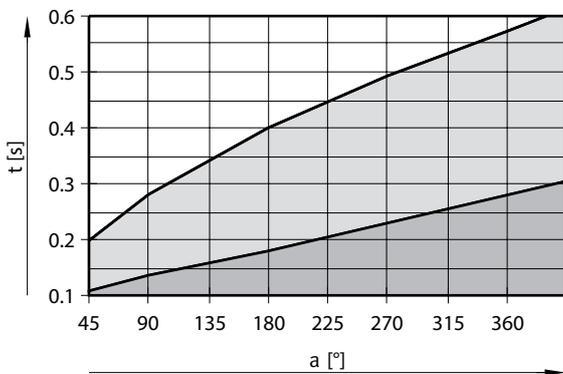
Positioning time t as a function of rotation angle a for EHMB-32 with stepper motor

Ranges

White: permissible range

Light grey: typical working range, depending on motor size and inertia of the load

Dark grey: range cannot be achieved

Positioning time t as a function of rotation angle a for EHMB-32 with servo motor

Ranges

White: permissible range

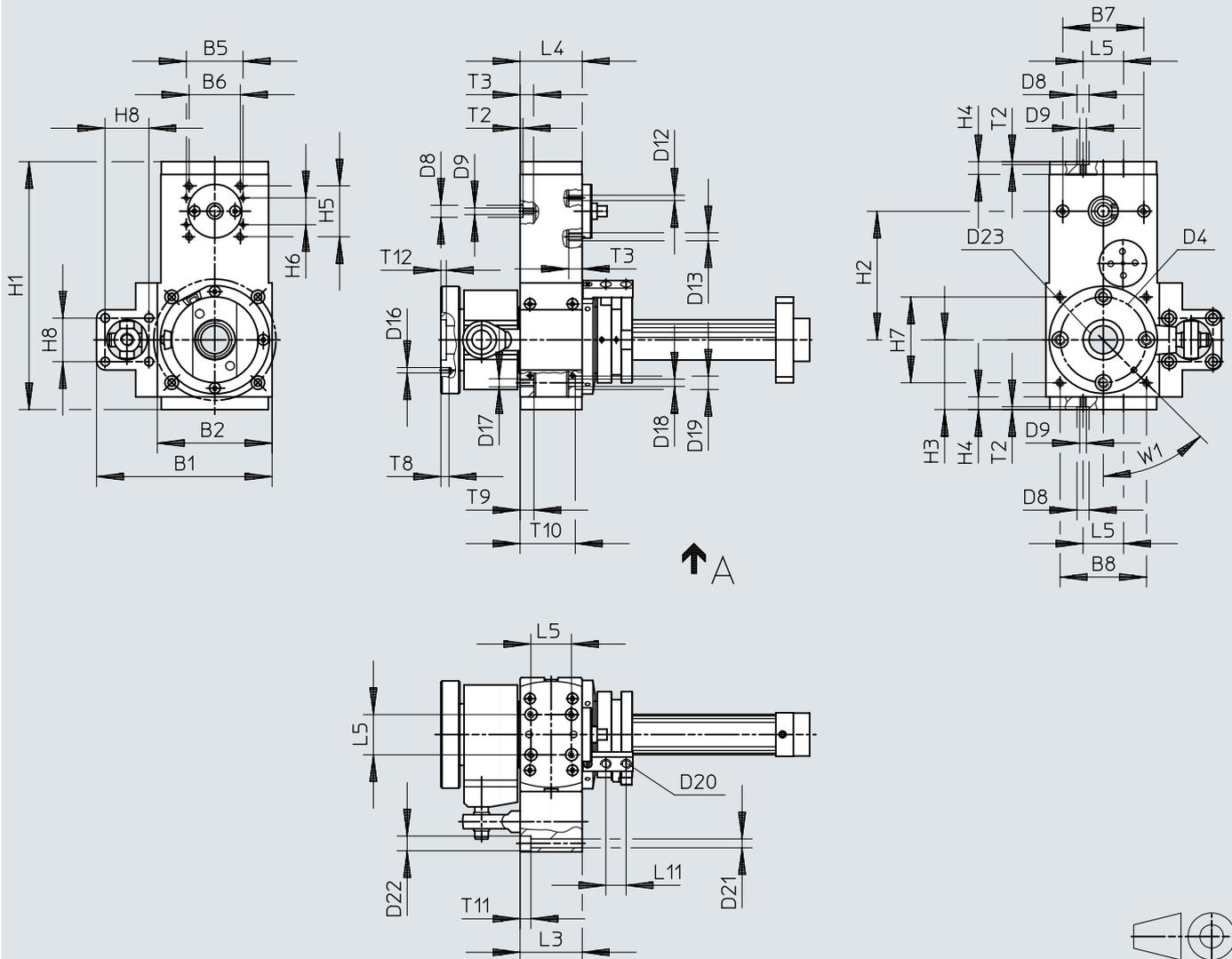
Light grey: typical working range, depending on motor size and inertia of the load

Dark grey: range cannot be achieved

Dimensions

Dimensions – Rotary/lifting module EHMB, electric

Download CAD data www.festo.com



Dimensions

	B1 ±0,5	B2 ±0,2	B5 ±0,15	B6 ±0,15	B7 ¹⁾	B8 ±0,15	D4 ∅ ±0,05	D8 ∅ H7	D9	D12	D13	D16 ∅ H7	D17
EHMB-20	110	65	32	32,5	30	52	45	9	M5	M3	M6	4	M5
EHMB-25	130	85	42	38	60	64	64	9	M5	M4	M6	4	M6
EHMB-32	169,5	115	62	56,5	80	88	64	9	M5	M5	M8	4	M6

	D18 ∅	D19 ∅	D20	D21 ∅	D22 ∅	D23 ∅	H1 ±0,5	H2 ±0,05	H3	H4	H5 ±0,15	H6 ±0,15	H7 ±0,15
EHMB-20	–	–	M8x1	6,6	11	19 ^{H8}	149	72	45	9,5	32,5	19	44
EHMB-25	5,5	10	M8x1	6,6	11	30 ^{H7}	185	96	52	9,5	38	20	64
EHMB-32	6,2	10	M8x1	6,6	11	30 ^{H7}	229,5	108	70,5	13	56,5	31	88

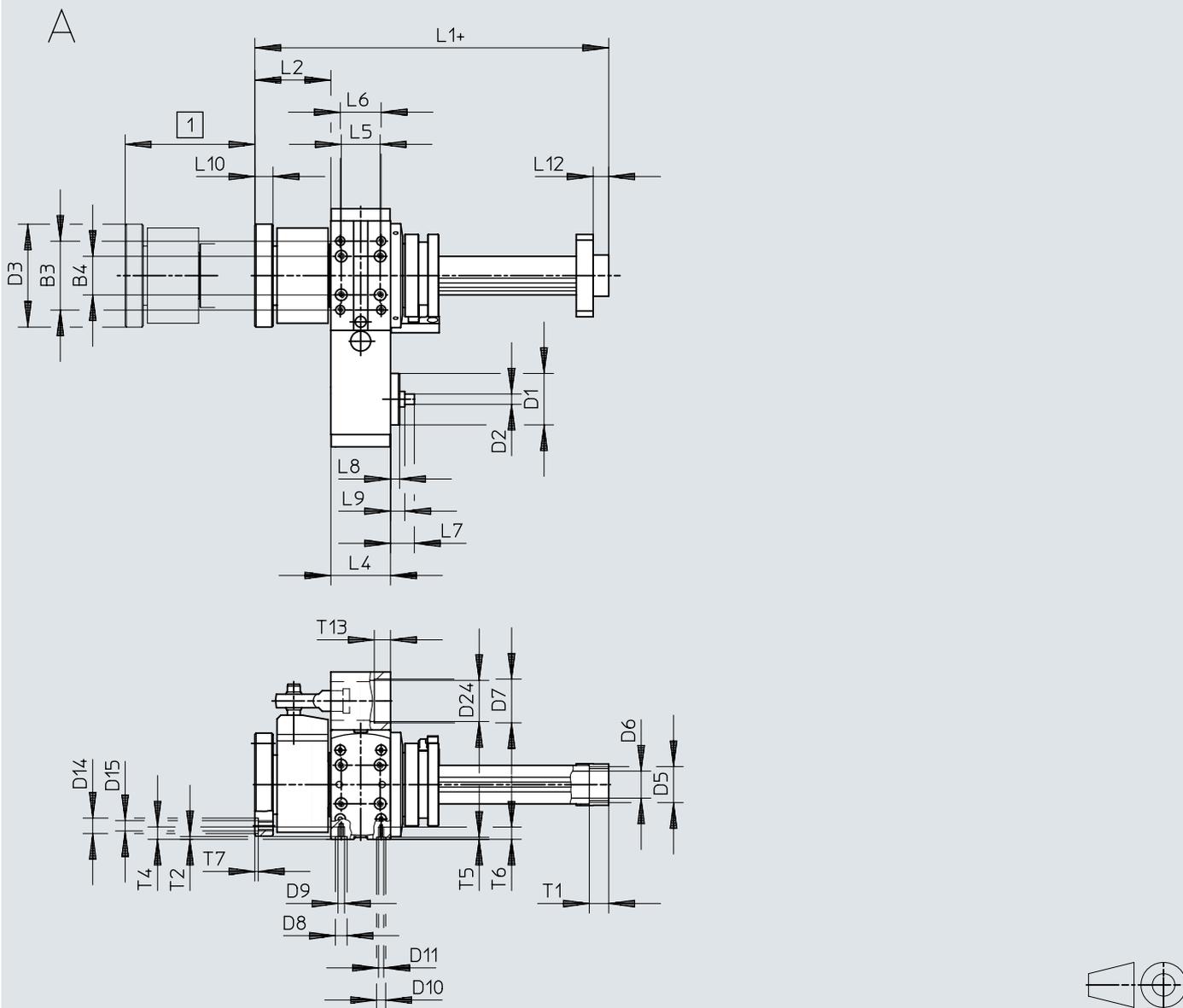
	H8	L3 ±0,1	L4 ±0,1	L5 ¹⁾	L11 ±0,1	T2 +0,1	T3	T8	T9	T10 ±0,2	T11	T12 ±0,5	W1
EHMB-20	32,5	52	40	30	15	2,1	10	6	8,5	–	11	3	45°
EHMB-25	32,5	46	46	30	15	2,1	10	6	10	40,8	8	4	45°
EHMB-32	38	60	60	40	15	2,1	10	6	10	54,3	15	4	45°

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

Dimensions

Dimensions – Rotary/lifting module EHMB, view A

Download CAD data www.festo.com



[1] Stroke

[2] + = plus stroke length

Dimensions

	B3 ¹⁾	B4 ¹⁾	D1 ∅ g7	D2 ∅ h6	D3 ∅	D5	D6 ∅	D7 ∅ H8	D8 ∅ H7	D9	D10 ∅ H7
EHMB-20	54	34	32	6	58	Pg16	14	34/30 ²⁾	9	M5	7
EHMB-25	53,5	30	40	8	80	Pg21	21	34/30 ²⁾	9	M5	7
EHMB-32	70	40	60	12	80	Pg21	21	39/35 ²⁾	9	M5	–

	D11	D14 ∅ H7	D15	D24 ∅	L1	L2 min.	L4 ±0,1	L5 ¹⁾	L6 ¹⁾	L7
EHMB-20	M4	9	M6	32	147,5	40,5	40	30	30	15,8
EHMB-25	M4	12	M8	32	173	58,6	46	30	31,5	18,35
EHMB-32	M5	12	M8	37	183	61,4	60	40	47	23,3

	L8	L9	L10	L12	T1	T2 +0,1	T4	T5 +0,2	T6	T7 +0,1	T13 +0,4
EHMB-20	5	7,8	9	12	14	2,1	9	1,6	9,5	2,1	12,5
EHMB-25	7	–	14	12	15	2,1	9,6	1,6	9,5	2,7	12,5
EHMB-32	6	–	14	12	15	2,1	9	–	9,5	2,7	14,5

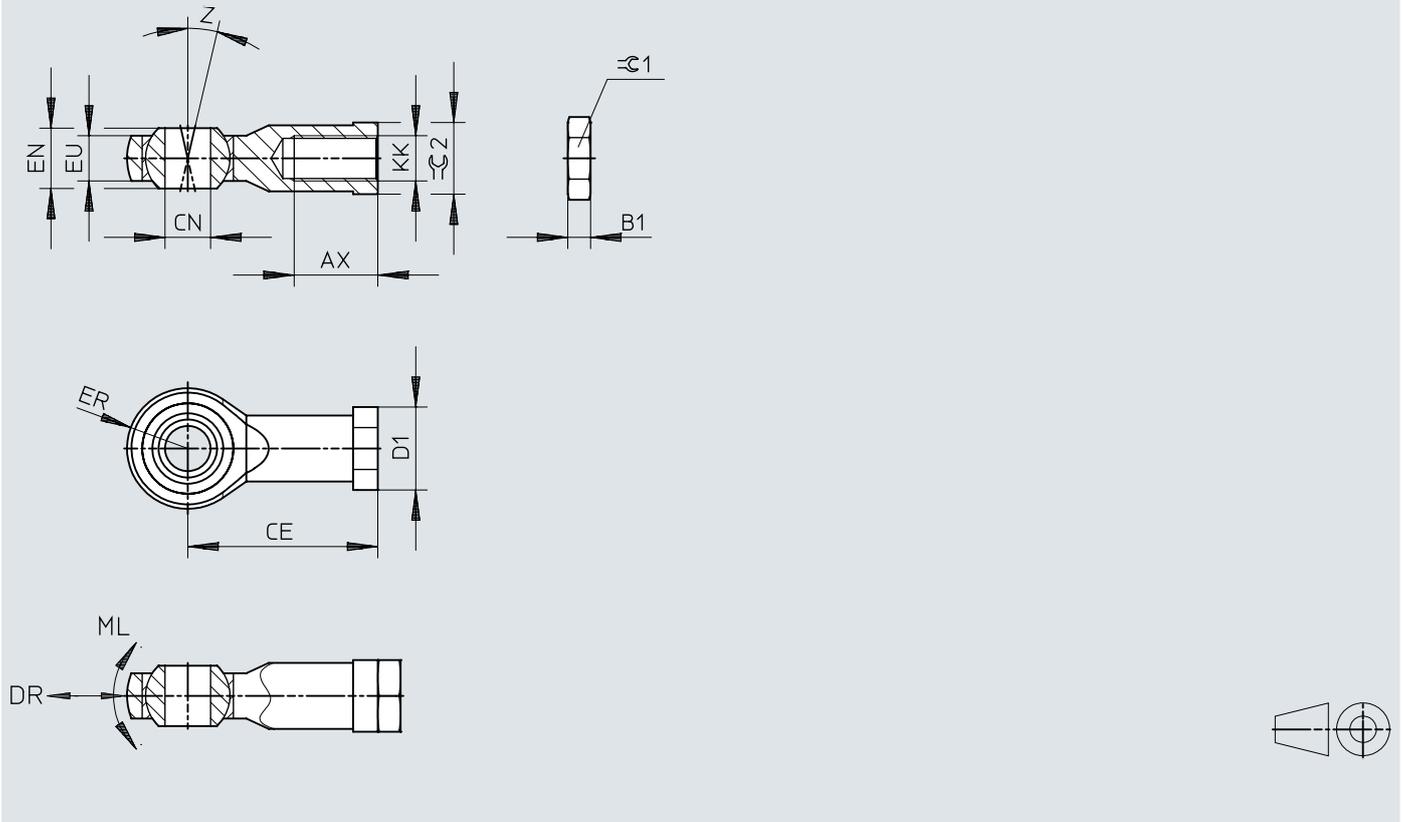
1) Tolerance for centring hole ±0.02 mm Tolerance for thread ±0.1 mm

2) The diameter can be reduced using a centring ring (included in the scope of delivery of the EHMB)

Dimensions

Dimensions – Rod eye SGS

Download CAD data www.festo.com



		AX	B1	CE	CN ∅ H7	D1 ∅ max.	DR max.	EN
SGS-M10x1,25	EHMB-20, 25	20 -2	5	43 ±1,2	10	20	40	14
SGS-M12x1,25	EHMB-32	22 -2	6	50 ±1,2	12	23	45	16

		ER ±0,5	EU	KK	ML max.	Z	∅1	∅2
SGS-M10x1,25	EHMB-20, 25	14	10,5	M10x1,25	0,23	13°	17	17
SGS-M12x1,25	EHMB-32	16	12	M12x1,25	0,28	13°	19	19

Ordering data

Rotary/lifting module				
	Size	Stroke [mm]	Part no.	Type
	20	100 mm	1107096	EHMB-20-100
		200 mm	1107097	EHMB-20-200
	25	100 mm	1095933	EHMB-25-100
		200 mm	1095934	EHMB-25-200
	32	100 mm	1098558	EHMB-32-100
		200 mm	1098559	EHMB-32-200

For EHMB-20/-25:Cylinder connection for linear movement with standards-based cylinder DSBC				
	Stroke	Part no.	Type	
	100 mm	★ 1376426	DSBC-32-100-PPVA-N3	
	200 mm	★ 1376429	DSBC-32-200-PPVA-N3	

For EHMB-32:Cylinder connection for linear movement with standards-based cylinder DSBC				
	Stroke	Part no.	Type	
	100 mm	★ 1376660	DSBC-40-100-PPVA-N3	
	200 mm	★ 1376663	DSBC-40-200-PPVA-N3	

For EHMB-20/-25:Cylinder connection for linear movement with electric cylinder ESBF				
	Stroke ¹⁾	Part no.	Type	
	30 ... 800 mm	8022569	ESBF-...-32- -	

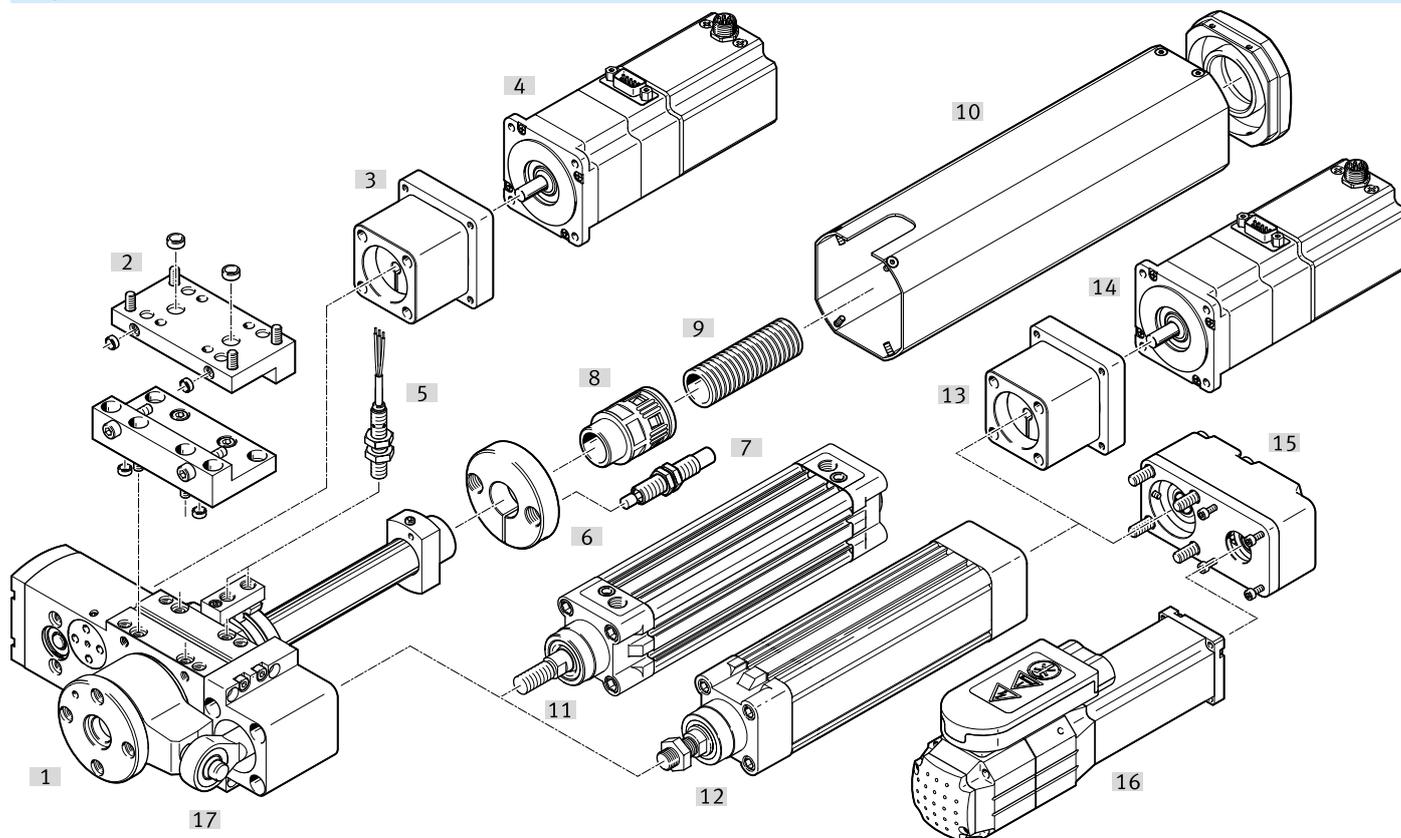
1) Order details:Internet: esbf
Select stroke = 100 mm or 200 mm

For EHMB-32:Cylinder connection for linear movement with electric cylinder ESBF				
	Stroke ¹⁾	Part no.	Type	
	30 ... 800 mm	8022585	ESBF-...-40- -	

1) Order details:Internet: esbf
Select stroke = 100 mm or 200 mm

Peripherals

Peripherals overview



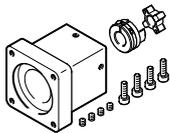
Accessories			→ Link
Type/order code	Description		
[1] Rotary/lifting module EHMB, electric	Combination of linear and rotary drive		ehmb
[2] Adapter plate kit EHAM	<ul style="list-style-type: none"> For mounting on the axes EGC and DGC Screws and centring sleeves are included in the scope of delivery of the adapter plate kit 		ehmb
[3] Axial kit EAMM-A	<ul style="list-style-type: none"> For the rotary motion of the rotary/lifting module For axial motor mounting (Consists of: coupling, coupling housing and motor flange) 		eamm-a
[4] Motor EMMT, EMMB	<ul style="list-style-type: none"> For the rotary motion of the rotary/lifting module Motors specially matched to the axis, with or without brake The motor can be mounted and turned 90° depending on the requirements. This means that the connection side can be freely selected 		eamm-a
[5] Proximity switch SIEN	<ul style="list-style-type: none"> For use as a proximity signal or safety check The retainer for the proximity switch SIEN is included in the scope of delivery of the rotary/lifting module. Two cams EAPS for position sensing are included in the scope of delivery 		21
[6] Shock absorber retainer EAYH	Bracket for shock absorber DYSW		20
[7] Shock absorber DYSW	Hydraulic shock absorber with path-controlled flow control function		20
[8] Protective conduit fitting EASA	For attaching the protective conduit		20
[9] Protective conduit MKR	For protecting electrical cables and pneumatic tubing		20
[10] Covering EASC	<ul style="list-style-type: none"> For protecting the grooved shaft guide and the trip cams Cannot be used in combination with the parallel kit EAMM-U for size 20, 25 		20
[11] Standards-based cylinder DSBC	Pneumatic drive for the linear motion of the rotary/lifting module		dsbc
[12] Electric cylinder ESBF	Electric drive for the linear motion of the rotary/lifting module		esbf
[13] Axial kit EAMM-A	<ul style="list-style-type: none"> For the linear motion of the rotary/lifting module For axial motor mounting Alternative parallel kit EAMM-U (Consists of: coupling, coupling housing and motor flange) 		esbf
[14] Motor EMMT, EMMB	<ul style="list-style-type: none"> For the linear motion of the rotary/lifting module Motors specially matched to the axis, with or without brake The motor can be mounted and turned 90° depending on the requirements. This means that the connection side can be freely selected 		esbf

Peripherals

Accessories		→ Link
Type/order code	Description	
[15] Parallel kit EAMM-U	For the linear motion of the rotary/lifting module For parallel motor mounting Alternative axial kit EAMM-A (Consists of: housing, clamping part, clamping sleeve, toothed belt pulley, toothed belt)	esbf
[16] Motor EMMT, EMMB	<ul style="list-style-type: none"> • For the linear motion of the rotary/lifting module • Motors specially matched to the axis, with or without brake • The motor can be mounted and turned 90° depending on the requirements. This means that the connection side can be freely selected 	esbf
[17] Rod eye SGS	<ul style="list-style-type: none"> • Connecting piece between rotary/lifting module and standard/electric cylinder • Included in the scope of delivery of the rotary/lifting 	20

Accessories

Permitted axis/motor combinations for axial and parallel kits



By following these links you will find all the information on:

- Axis/motor combinations
- Permitted third-party motors
- Technical data
- Dimensions

For axial kits → Internet: www.festo.com/catalogue/eamm-a

For parallel kits → Internet: www.festo.com/catalogue/eamm-u

Rod eye SGS					
	Description	Note on materials	Product weight	Part no.	Type
	For sizes 20, 25	RoHS-compliant	88 g	★ 9261	SGS-M10X1,25
	For size 32		130 g	★ 9262	SGS-M12X1,25

Covering EASC					
	Description	Description	Product weight	Part no.	Type
	For size 20	To protect the grooved shaft guide, Cannot be used in combination with parallel kit EAMM-U	303 g	1099901	EASC-H1-20-100
			388 g	1099902	EASC-H1-20-200
	For size 25		385 g	1096387	EASC-H1-25-100
			482 g	1096388	EASC-H1-25-200
	For size 32		383 g	1107235	EASC-H1-32-100
			481 g	1107236	EASC-H1-32-200

Shock absorber retainer EAYH					
	Description	Description	Product weight	Part no.	Type
	For size 20	For mounting the shock absorbers	68 g	1153896	EAYH-H1-20
	For size 25, 32		106 g	1153905	EAYH-H1-25

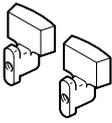
Shock absorber DYSW					
	Description	Description	Product weight	Part no.	Type
	For size 20	Progressive shock absorbers	42 g	548073	DYSW-8-14-Y1F
	For size 25, 32		67 g	548074	DYSW-10-17-Y1F

Protective conduit fitting EASA					
	Description	Description	Part no.	Type	
	For size 20	For mounting the protective conduit	1157774	EASA-H1-20-PG16	
	For size 25, 32		1096549	EASA-H1-25-PG21	

Protective conduit MKR					
	Description	Description	Part no.	Type	
	For size 20	For protecting cables and tubing	177566	MKR-16,5-PG-16	

Accessories

Protective conduit MKR					
	Description	Description	Part no.	Type	
	For sizes 25 and 32	For protecting cables and tubing	177567	MKR-23-PG-21	

Cam EAPS					
	Description	Description	Product weight	Part no.	Type
	For size 20	For position sensing (2 cams included in the scope of delivery)	10 g	1234887	EAPS-H1-20-CK
	For size 25, 32			1234888	EAPS-H1-25-CK

Centring sleeve ZBH					
	Material sleeve	Size of pack	Product weight	Part no.	Type
	Steel	10	1 g	8137185	ZBH-12-B
				8146544	ZBH-7-B
			2 g	8137184	ZBH-9-B

Proximity switch SIEN (round design), inductive						Link sien-m8
	Switching element function ¹⁾	Electrical connection	Switching output	Cable length	Part no.	Type
	N/C contact	3-pin, M8x1, Plugs	PNP		150391	SIEN-M8B-PO-S-L
		Cable		2.5 m	150390	SIEN-M8B-PO-K-L
	N/O contact	3-pin, M8x1, Plugs			150387	SIEN-M8B-PS-S-L
		Cable		2.5 m	150386	SIEN-M8B-PS-K-L

1) The retainer for the proximity sensor SIEN is included in the scope of delivery of the rotary/lifting module.

Connecting cable NEBA, straight						Link neba
	Electrical connection 1, connector system	Electrical connection 2, connector system	Electrical connection 2, number of connections/cores	Cable length	Part no.	Type
	M8x1, A-coded, to EN 61076-2-104	Open end	3	2.5 m	★ 8078223	NEBA-M8G3-U-2.5-N-LE3
				5 m	★ 8078224	NEBA-M8G3-U-5-N-LE3