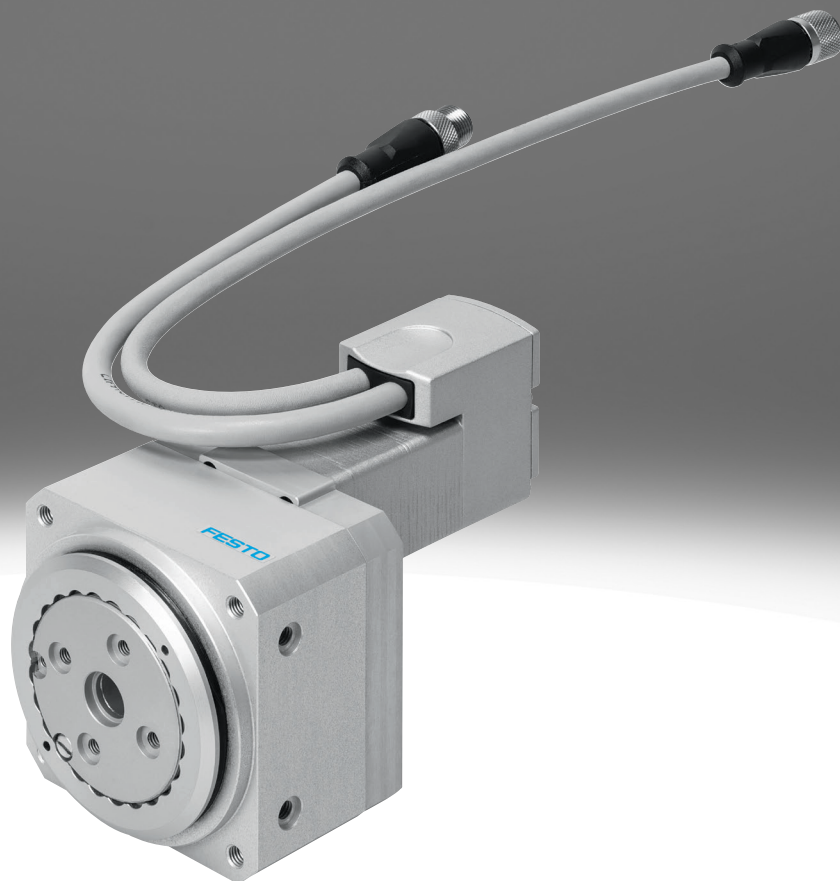


Rotary drive ERMO

FESTO



Characteristics

At a glance

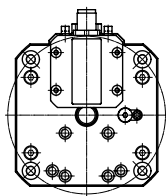
- Electric rotary drive with stepper motor and integrated gear unit
- ServoLite – closed-loop operation with encoder
- Heavy-duty bearing for high forces and torques
- Backlash-free pre-stressed rotating plate with very good axial eccentricity and concentricity
- Optional holding brake

Range of applications:

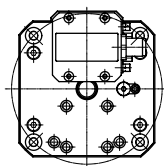
- Rotating and positioning parts
- Simple rotary indexing table applications
- As a rotary axis in multi-axis applications

Cable outlet direction

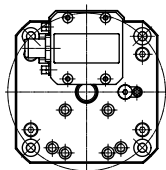
[] Standard



[L] Left



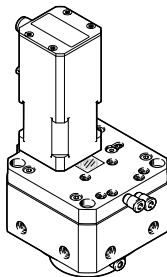
[R] Right



Energy through-feed

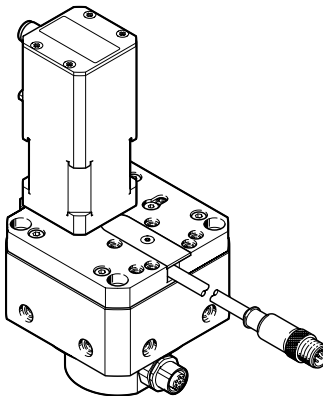
- The energy through-feed can be used to transfer electrical signals or compressed air through the hollow shaft
- This enables the quick and easy supply of the parts mounted on the rotating plate, even for infinitely rotating applications
- Tubing and electrical cables will not be damaged by the rotary movement
- Suitable for IO-Link® signal transmission
- Approved for vacuum operation
- The energy through-feed cannot be used in combination with the stop kit EADP-ES-R3

[P2] Pneumatic, 2 ducts



- Number of pneumatic ducts: 2
- Tubing outside diameter: 4 mm
- Operating pressure per duct: -0.85 ... 8 bar
- Flow rate per duct: 86 l/min

[E8] Electric, 8 signals



- No. of signal cables: 8
- Rated voltage: 30 V DC
- Max. current: 1.5 A
- Cable cross section: 0.1 mm²

Type code

001	Series	
ERMO	Rotary drive, electric	

002	Size	
12	12	
16	16	
25	25	
32	32	

003	Motor type	
ST	Stepper motor ST	

004	Measuring unit	
E	Encoder	

005	Brake	
	None	
B	With brake	

006	Cable outlet direction	
	Standard	
L	Left	
R	Right	

007	Energy through-feed	
	None	
E8	Electric, 8 signals	
P2	Pneumatic, 2 ducts	

Datasheet

General technical data

Size	12	16	25	32
Design	Electromechanical rotary drive, With integrated gear unit			
Rotation angle	Infinite			
Repetition accuracy ¹⁾	±0.05°			±0.1°
Torsional backlash ²⁾	0.2 deg			
Gear unit ratio	9:1			7:1
Type of mounting	Via female thread			
Mounting position	optional			
Product weight	475 g	900 g	1,350 g	2,200 g

1) Without payload in new condition

2) Without payload in new condition

Mechanical data

Size	12	16	25	32
Nominal torque ¹⁾	0.15 Nm	0.8 Nm	2.5 Nm	5 Nm
Nominal rotary speed	100 rpm		66 rpm	50 rpm
Max. speed at 90°	200 rpm		150 rpm	100 rpm
Permissible mass moment of inertia	3 kgcm ²	13 kgcm ²	65 kgcm ²	164 kgcm ²
Mass moment of inertia J _O	0.008 kgcm ²	0.038 kgcm ²	0.114 kgcm ²	0.39 kgcm ²

1) Theoretical torque at nominal rotational speed (see graph)

Electrical data

Size	12	16	25	32
Nominal operating voltage DC	24 V			
Nominal motor current	0.8	1.4	3	4.2
Stepper angle for complete step	1.8 deg			
Duty cycle	100%			
Operating voltage DC for brake	–	24 V		
Power consumption, brake	–	8 W		
Brake holding torque	–	1 Nm	2.5 Nm	
Mass moment of inertia of brake	–	0.007 kgcm ²	0.013 kgcm ²	
Rotor position sensor	Incremental encoder			
Rotor position sensor, encoder measuring principle	Optical			
Rotor position encoder interface	RS422 TTL AB channels + zero index			
Insulation protection class	B			

Operating and environmental conditions

Ambient temperature	0 ... 50°C
Storage temperature	-20 ... 60°C
Degree of protection	IP40
Relative air humidity	0 - 85%, Non-condensing
Corrosion resistance class CRC ¹⁾	1 - Low corrosion stress
CE mark (see declaration of conformity) ²⁾	To EU EMC Directive In accordance with EU RoHS Directive
CE marking (see declaration of conformity) ³⁾	To UK instructions for EMC To UK RoHS instructions
Approval	RCM trademark

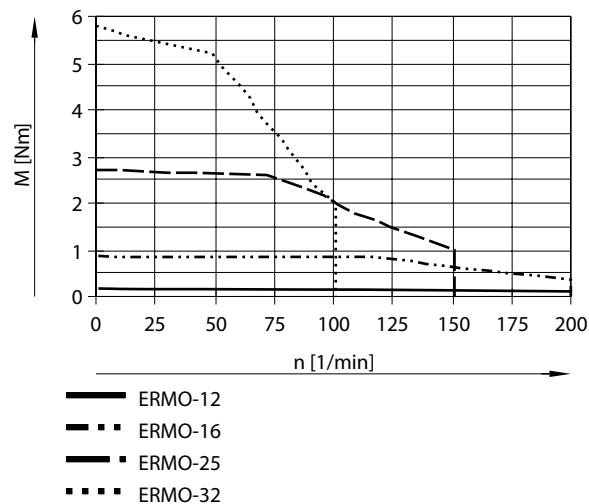
1) More information: www.festo.com/x/topic/crc2) Further information www.festo.com/catalogue/ermo → Support/Downloads3) Further information www.festo.com/catalogue/ermo → Support/Downloads

Datasheet

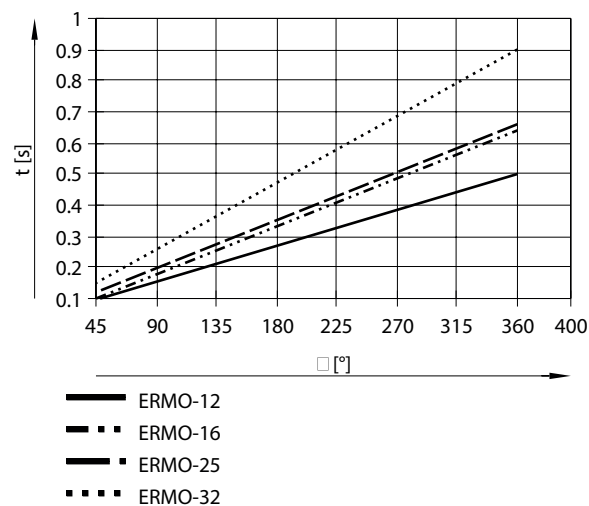
Materials

Material housing	Wrought aluminium alloy, Anodised
Material flange	Wrought aluminium alloy, Anodised
Note on materials	RoHS-compliant
LABS (PWIS) conformity	VDMA24364 zone III

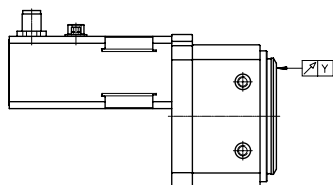
Torque M as a function of speed n



Positioning time t as a function of rotation angle a



Axial run-out



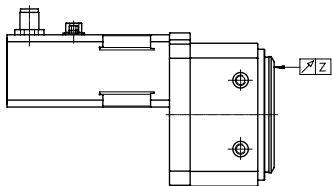
Measured on the surface of the rotating plate, at the edge of the plate, when new.

For sizes 12; 16; 25: less than 0.02 mm

For size 32: less than 0.04 mm

Datasheet

Concentricity

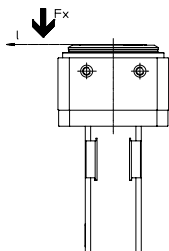


Measured at the centring hole of the rotating plate, when new.

For sizes 12; 16; 25: less than 0.02 mm

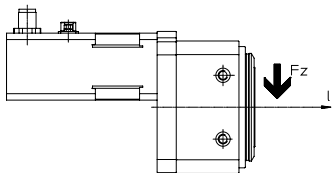
For size 32: less than 0.04 mm

Max. dynamic axial force F_x



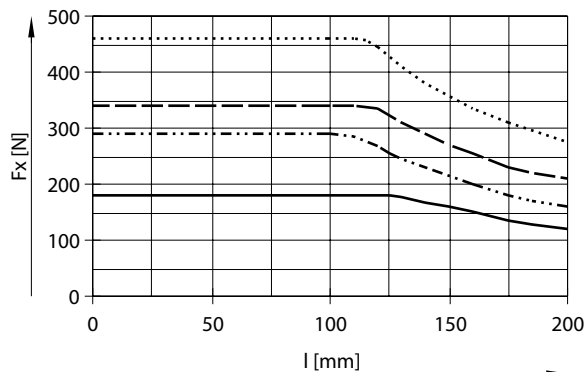
Size	12	16	25	32
Max. axial force	180	290	350	450

Max. dynamic radial force F_z



Size	12	16	25	32
Max. radial force	200	300	450	550

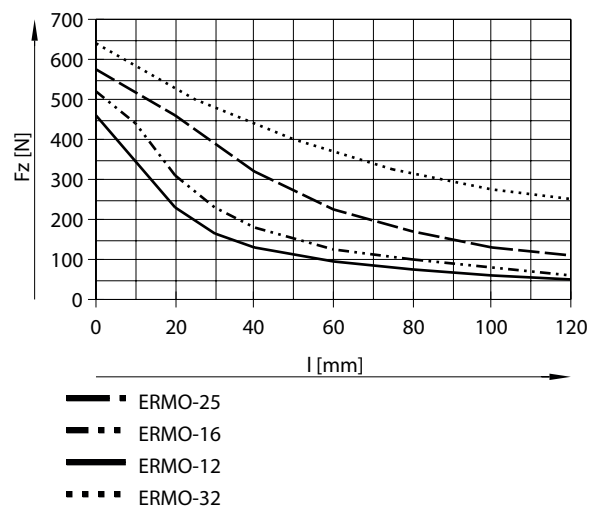
Dynamic axial force F_x as a function of lever arm l



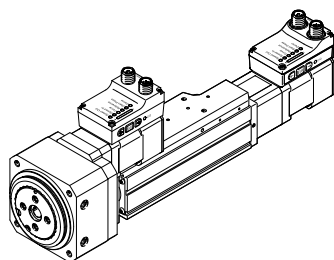
- ERMO-32
- - - ERMO-25
- · - ERMO-16
- ERMO-12

Datasheet

Dynamic radial force F_z as a function of lever arm l



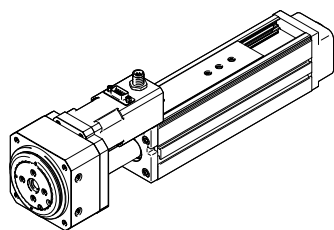
Combination of ERMO with mini slide EGSC



Required accessories:

- ERMO-12 / EGSC-32: 2x centring sleeve ZBH-7; 2x screw M4x12
- ERMO-16 / EGSC-45: 2x centring sleeve ZBH-7; 2x screw M5x12
- ERMO-25 / EGSC-45, 60: 2x centring sleeve ZBH-7; 2x screw M5x12
- ERMO-32 / EGSC-60: 2x centring sleeve ZBH-7; 2x screw M5x15

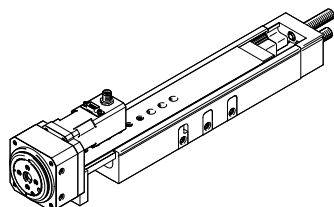
Combination of ERMO with mini slide EGSL



Required accessories:

- ERMO-12 / EGSL-35: 2x centring sleeve ZBH-7; 2x screw M4x12
- ERMO-16 / EGSL-45: 2x centring sleeve ZBH-7; 2x screw M5x12
- ERMO-25 / EGSL-55: 2x centring sleeve ZBH-7; 2x screw M5x14
- ERMO-32 / EGSL-55: 2x centring sleeve ZBH-7; 2x screw M5x14

Combination of ERMO with mini slide DGSL



Required accessories:

- ERMO-12 / DGSL-12: 2x centring sleeve ZBH-7; 2x screw M4x18
- ERMO-25 / DGSL-20: 2x connector sleeve ZBV-9-7; 2x screw M5x22
- ERMO-25 / DGSL-25: 2x connector sleeve ZBV-9-7; 2x screw M5x22

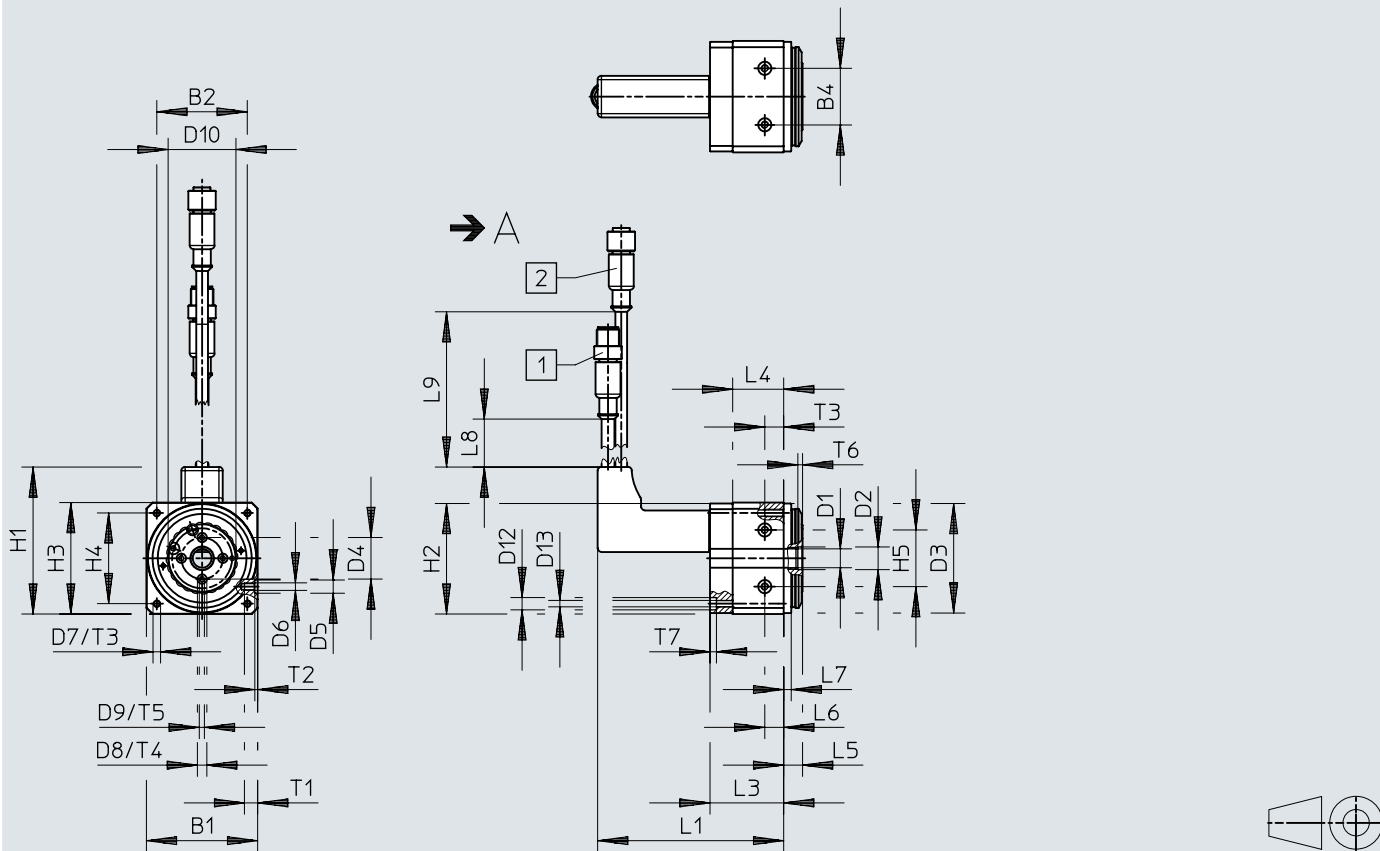
When combining ERMO-12 with DGSL-12, the proximity switch SIEN cannot be used as a reference switch for ERMO.

In this combination, the stroke is reduced by the head height of the screws for the DGSL. This shortened stroke must be compensated by external cushioning.

Dimensions

Dimensions – ERMO, size 12

Download CAD data → www.festo.com



- [1] Encoder cable
- [2] Motor cable
- [3] Min. bending radius of the cables is 60 mm

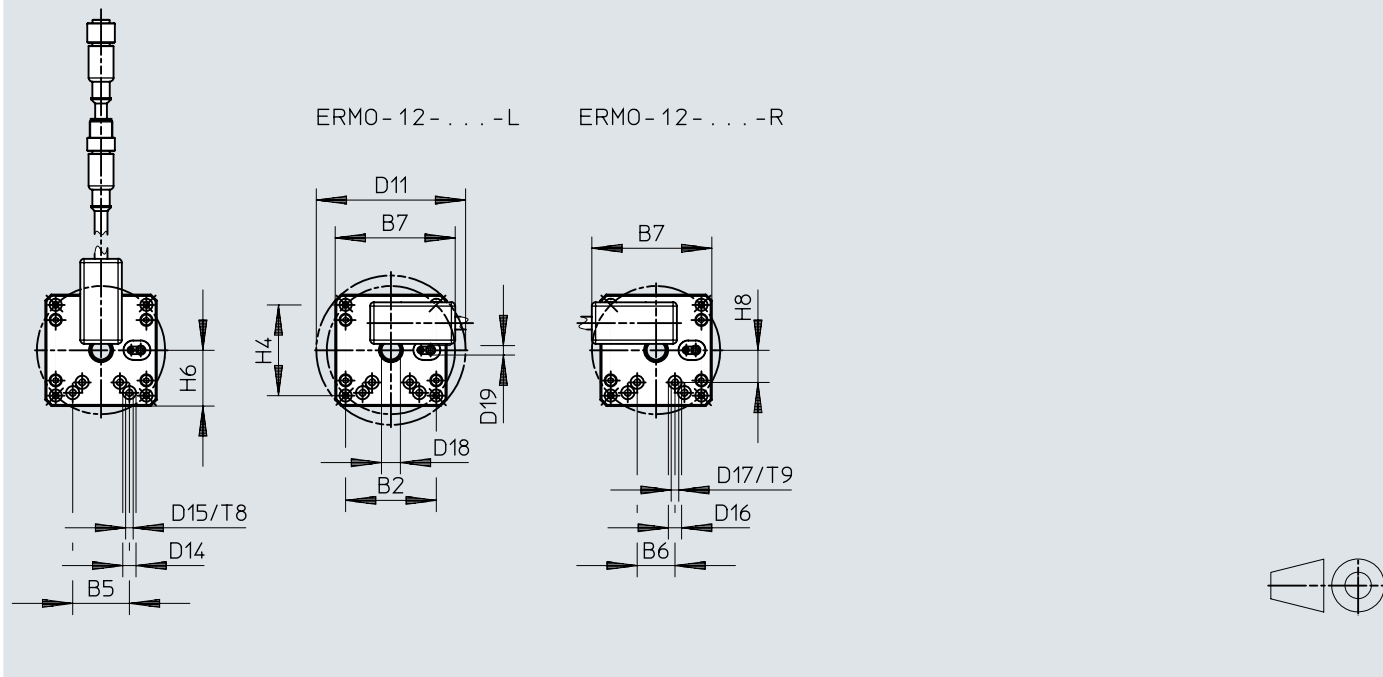
	B1	B2	B4	D1	D2	D3	D4	D5	D6
	±0,3		±0,03	∅	∅ H8	∅ f8	±0,02	∅ H7	
ERMO-12	59	48	30	10/7 ¹⁾	12	58	22	7	M4
	D7	D8	D9	D10	D12	D13	H1	H2	H4
		∅ H7		∅	∅	∅			
ERMO-12	M4	5	M3	36	6,5	3,4	80	58,5	48
	H3	H5	L1	L3	L4	L5	L6	L7	L8
	±0,3	±0,03	±1,5	±0,6		±0,2	±0,1	±0,1	
ERMO-12	59	30	100	39	27	10	10	4	300
	L9	T1	T2	T3	T4	T5	T6	T7	
			+0,1		+0,1		+0,1		
ERMO-12	300	7	1,5	10	1,2	7	2,5	3,4	

Dimensions

Dimensions – ERMO, size 12 (view A)

Download CAD data → www.festo.com

→ A

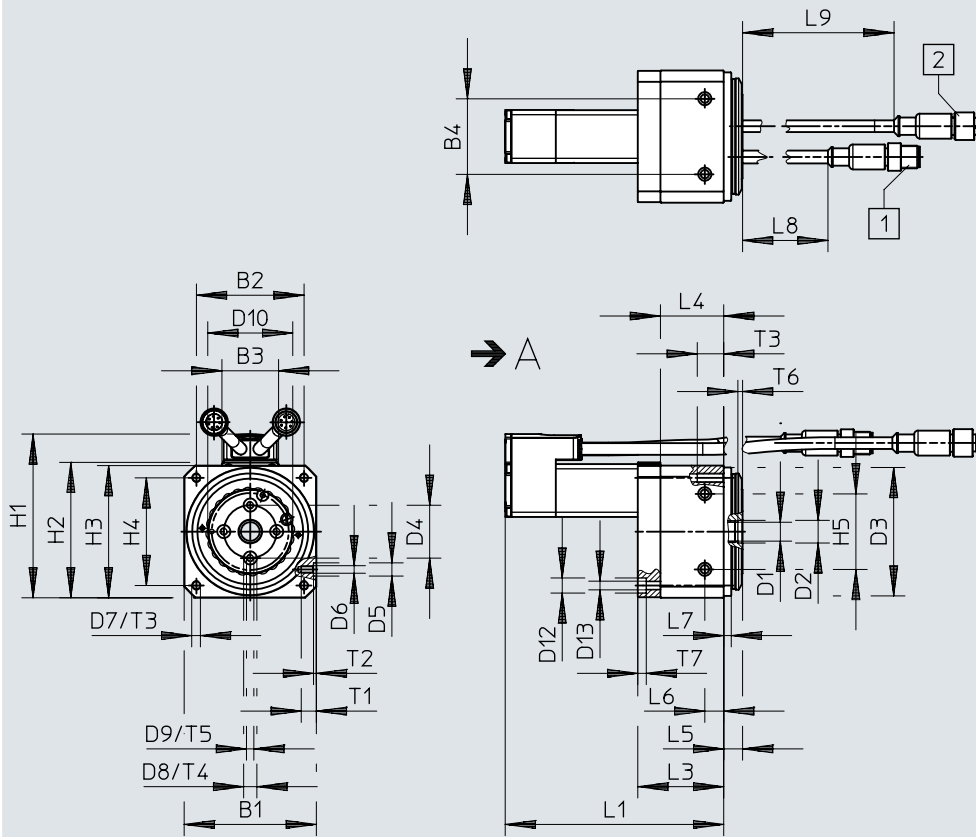


	B2	B5	B6	B7	D11 ∅	D14 ∅	D15	D16 ∅
		±0,02	±0,02		±0,5	H7		H7
ERMO-12	48	30	20	46	79	7	M4	7
	D17	D18	D19	H4	H6	H8	T8	T9
		max.						
ERMO-12	M4	7	M5x0,5	48	22,5	17	1,5	1,5

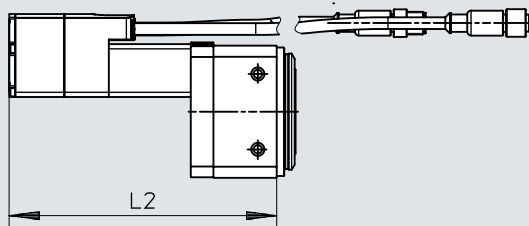
Dimensions

Dimensions – ERMO, size 16

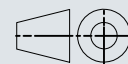
Download CAD data → www.festo.com



ERMO-16-ST-E-B



- [1] Encoder cable
- [2] Motor cable
- [3] Min. bending radius of the cables is 60 mm



Dimensions

	B1 ±0,3	B2	B3	B4 ±0,03	D1 ∅	D2 ∅ H8	D3 ∅ f8	D4 ∅ ±0,02	D5 ∅ H7	
ERMO-16	70	57	30	40	10	12	68	28	7	
	D6	D7	D8 ∅ H7	D9	D10 ∅	D12 ∅	D13 ∅	H1	H2	H3 ±0,3
ERMO-16	M5	M5	7	M4	45	8	4,6	87	71,8	70
	H4	H5 ±0,03	H4	H5 ±0,03	L1 ±1,5	L2 ±1,5	L3 ±0,6	L4	L5 ±0,2	L6 ±0,1
ERMO-16	57	40	57	40	116	142	45,5	33,5	10	10
	L7 ±0,1	L8	L9	T1	T2 +0,1	T3	T4 +0,1	T5	T6 +0,1	T7
ERMO-16	4	250	350	8	1,5	14	1,5	8	2,5	4,5

Dimensions

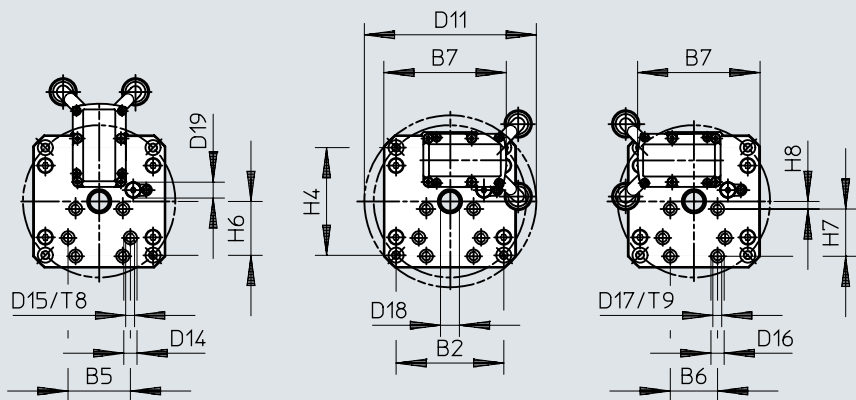
Dimensions – ERMO, size 16 (view A)

Download CAD data → www.festo.com



ERMO-16-...-L

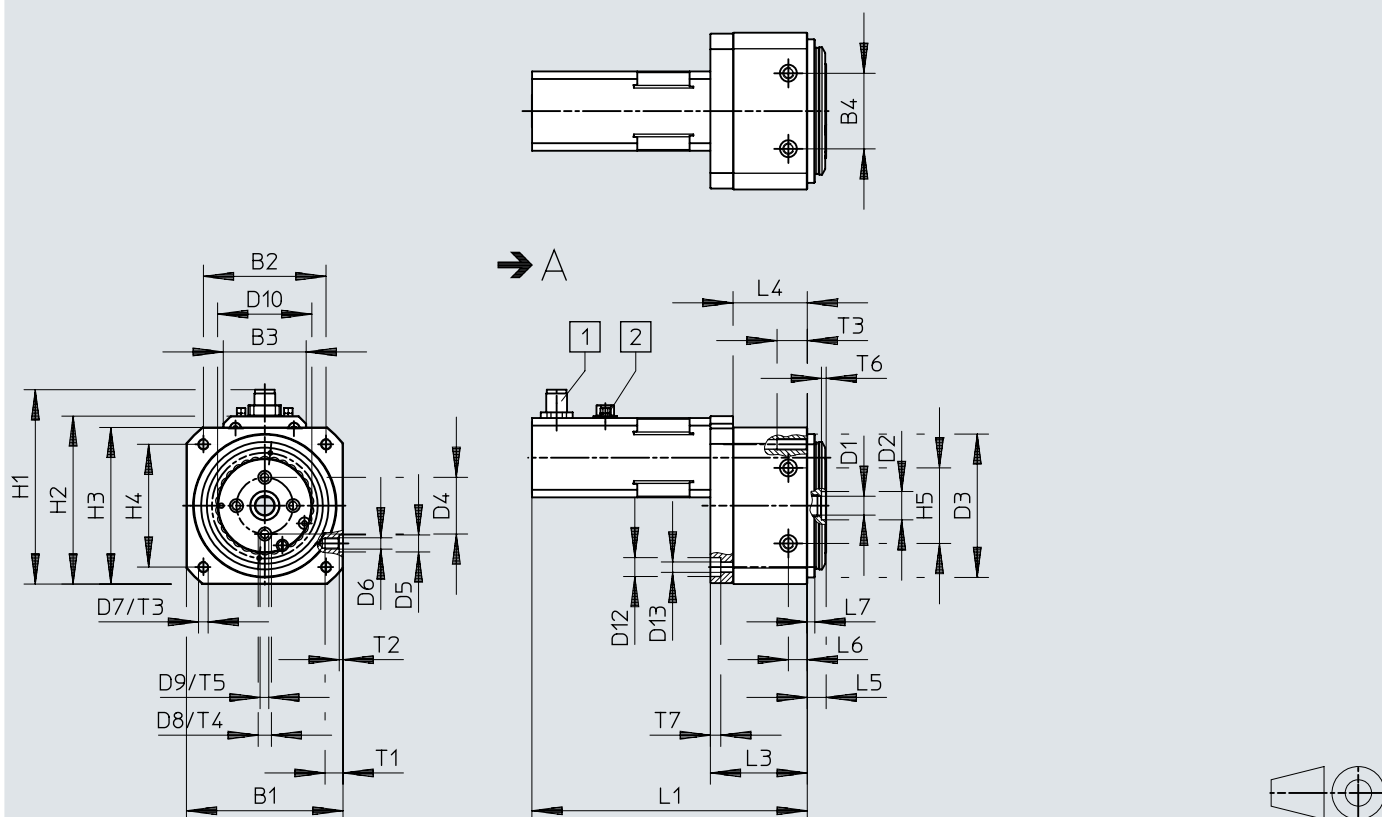
ERMO-16-...-R



	B5	B6	B7	D11 ∅	D14 ∅	D15	D16 ∅	D17
	±0,02	±0,02		±0,5	H7		H7	
ERMO-16	33	25	65	91	7	M5	7	M5
	D18	D19	H4	H6	H7	H8	T8	T9
	max.				±0,02			
ERMO-16	–	M8x1	57	19,3	25	4	1,5	1,5

Dimensions

Dimensions – ERMO, sizes 25/32

 Download CAD data → www.festo.com


- [1] Encoder cable
 [2] Motor cable
 [3] Min. bending radius of the cables is 60 mm

	B1	B2	B3	B4	B6	D1	D2	D3
	±0,3			±0,03	±0,02	∅	∅ H8	∅ f8
ERMO-25	83	65	44	40	25	10	15	76
ERMO-32	105	85	58	60	25	16/9 ¹⁾	20	96

	D4	D5	D6	D7	D8	D9	D10	D12	D13	D32
	∅ ±0,02	∅ H7			∅ H7		∅	∅	∅	±0,02
ERMO-25	30	9	M6	M6	7	M5	50	10	5,5	–
ERMO-32	42	12	M8	M8	7	M5	65	11	6,6	30

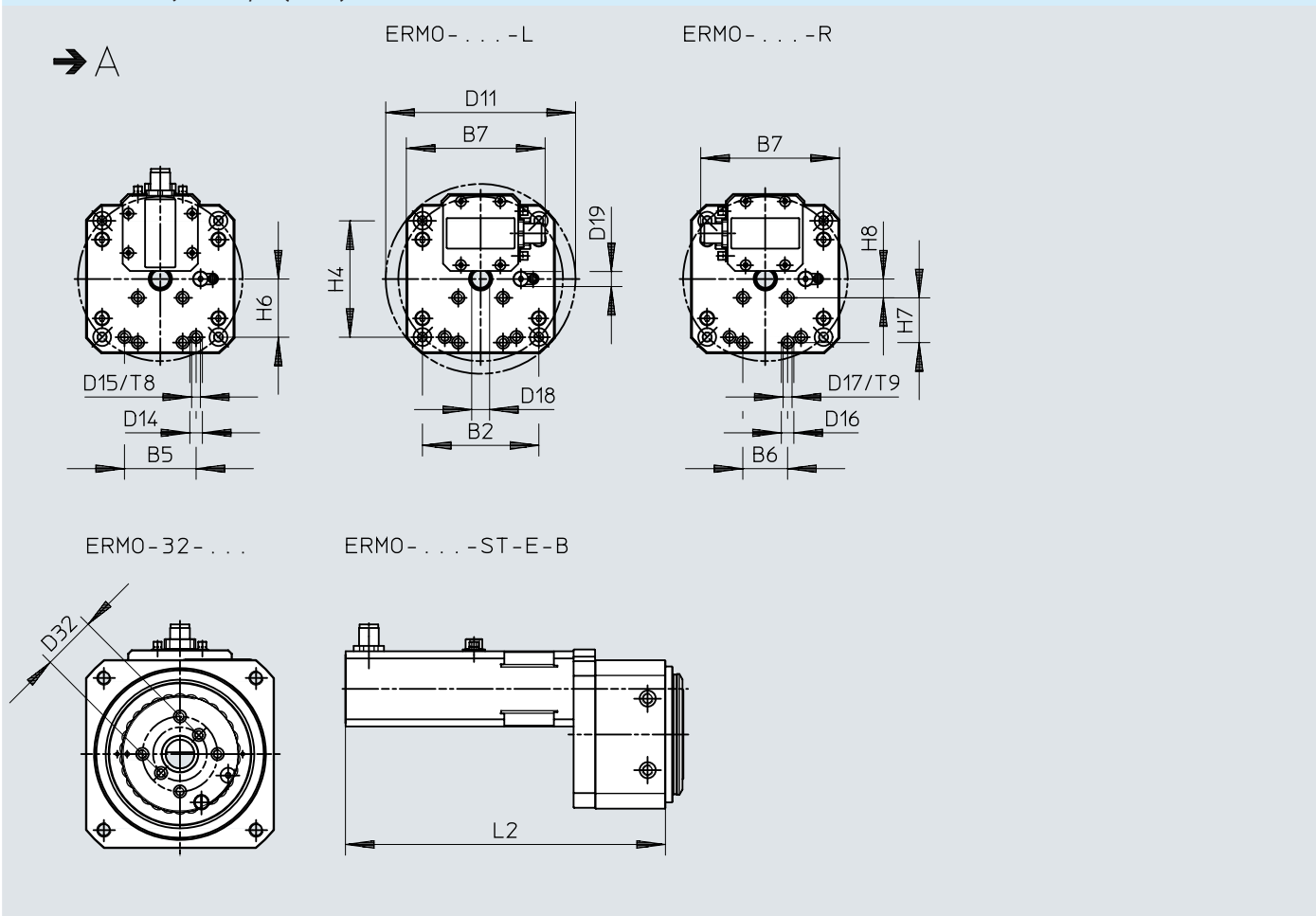
	H1	H2	H3	H4	H5	L1	L2	L3	L4	L5
			±0,3		±0,03	±1,5	±1,5	±0,6		±0,2
ERMO-25	103	89	40	65	40	146	179	51,3	39,3	10
ERMO-32	125	110,5	60	85	60	148	189	46,5	34,5	12

	L6	L7	T1	T2	T3	T4	T5	T6	T7
	±0,1	±0,1		+0,1		+0,1		+0,1	
ERMO-25	10	4	9,5	2	16	1,5	8,5	2,5	5,5
ERMO-32	10	6	15	2,5	20	1,5	10	2,8	6,8

Dimensions

Dimensions – ERMO, sizes 25/32 (view A)

Download CAD data → www.festo.com

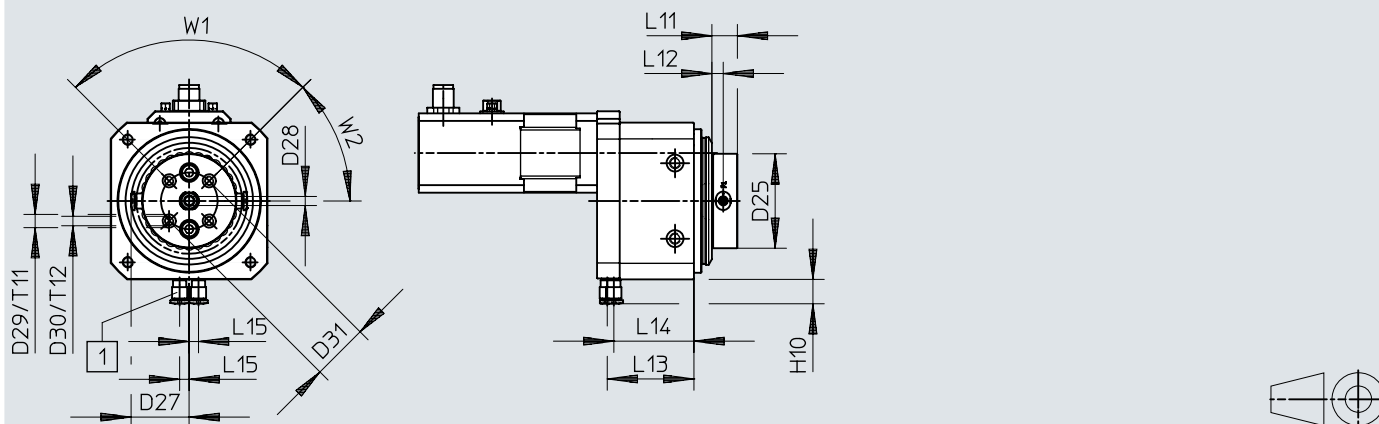


	B2	B5 ±0,02	B7	D11 ∅ ±0,5	D14 ∅ H7	D15	D16 ∅ H7	D17
ERMO-25	65	40	78	106	7	M5	7	M5
ERMO-32	85	–	96	135	–	–	7	M5

	D18 max.	D19	H4	H6	H7 ±0,02	H8	T8	T9
ERMO-25	10	M8x1	65	32,5	25	10,5	1,5	1,5
ERMO-32	9	M8x1	85	–	25	15	–	1,5

Dimensions

Dimensions

 Download CAD data → www.festo.com


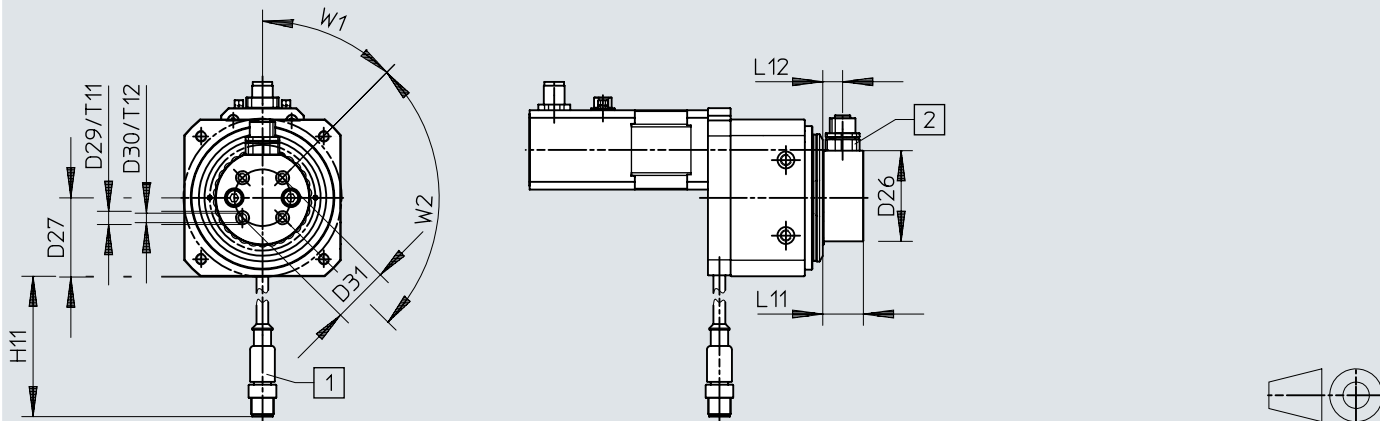
[1] 4x push-in fitting QSM-M5-4-I

	D26 ∅	D27 ∅	D28 ∅	D29 ∅ H7	D30	D31 ∅ ±0,02	H10 ±1	L11	L12	L13	L14	L15	T11 +0,1	T12	W1	W2
ERMO-12	44	R29,5	3	5	M3	22	13	13,5	6	33,8	30,3	4	1,2	8	90°	45°
ERMO-16	44	R31	4,8	7	M4	28	13	13	6	40,6	37	5	1,5	8	90°	45°
ERMO-25	50	R31	4,8	7	M5	30	13	13,5	6	45,9	42,4	5	1,5	8,5	90°	45°
ERMO-32	64	R36	4,8	7	M5	42	13	16	8,6	41,5	38	5	1,5	10	90°	22,5°

Dimensions

Dimensions – E8 – Energy through-feed, electrical

Download CAD data → www.festo.com

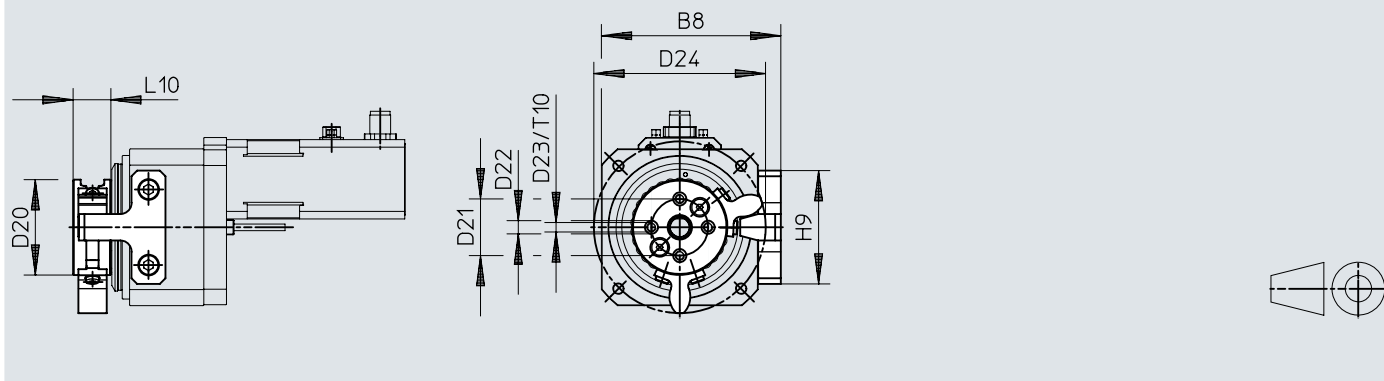


- [1] M12 plug, 8-pin
- [2] M12 socket, 8-pin

	D26 ∅	D27 ∅	D29 ∅ H7	D30	D31 ∅ ±0,02	H11 ±10	L11	L12	T11 +0,1	T12	W1	W2
ERMO-12	44	R38,5	5	M3	22	205	21,5	10	1,2	8	54°	72°
ERMO-16	44	R37,5	7	M4	28	195	21	10,5	1,5	8	55°	70°
ERMO-25	48	R42	7	M5	30	185	21,5	10,5	1,5	8,5	45°	90°
ERMO-32	64	R47	7	M5	42	175	21	11	1,5	10	45°	90°

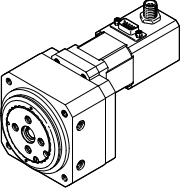
Dimensions


Dimensions – Stop kit EADP

Download CAD data → www.festo.com

	B8	D20 ∅ ±0,1	D21 ∅ ±0,1	D22 ∅ H7	D23	D24 ∅	H9	L10 ±0,1	T10
EADP-ES-R3-12	69	44	28	7	M4	74,8	40	16	16
EADP-ES-R3-16	80	44	28	7	M4	74,2	52	16	16
EADP-ES-R3-25	95	50,5	30	7	M5	91	60	20	20
EADP-ES-R3-32	120	64	42	7	M5	90	80	27	27

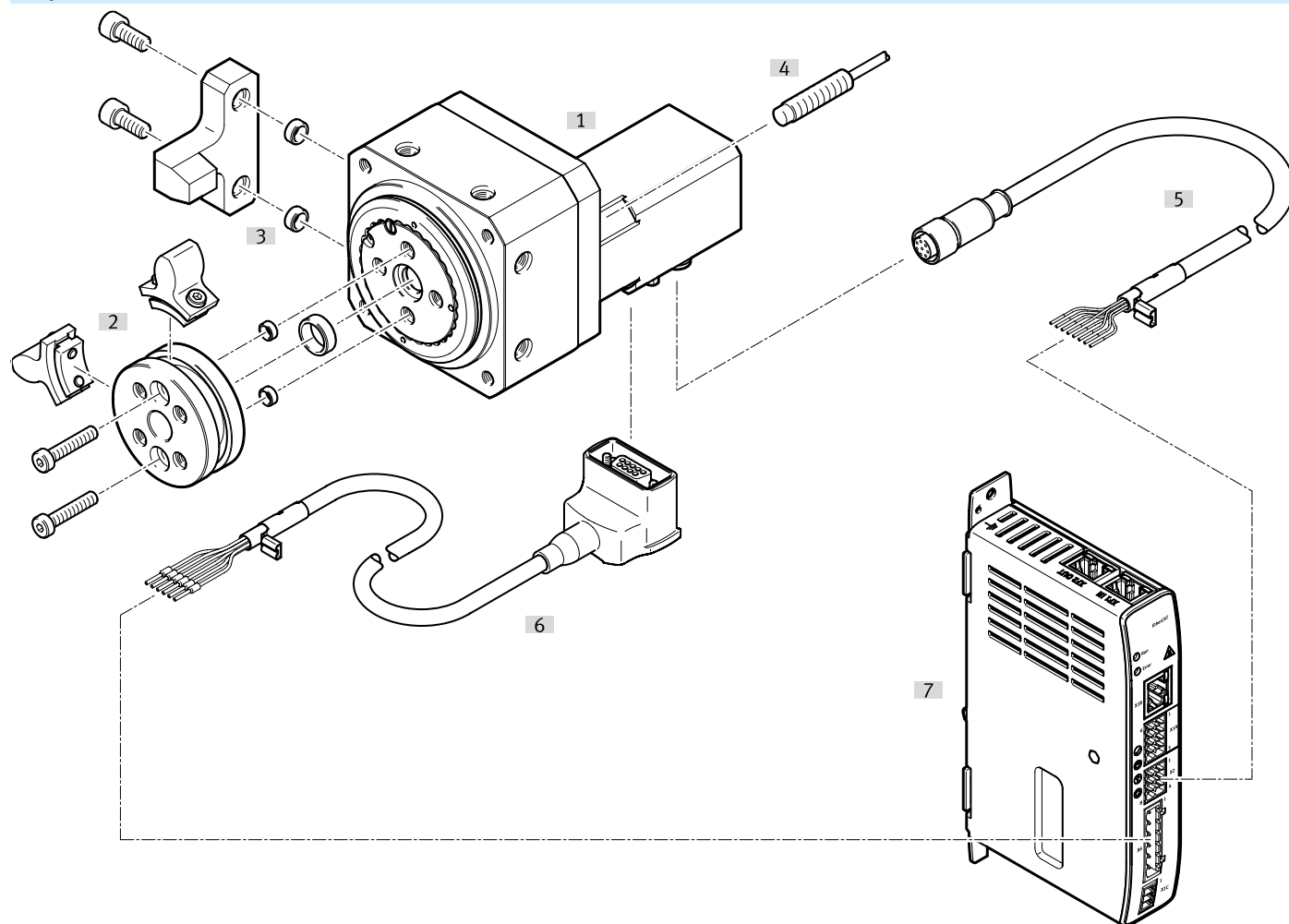
Ordering data

Ordering data			
	Size	Part no.	Type
	12	3008525	ERMO-12-ST-E
	16	3008526	ERMO-16-ST-E
	25	3008527	ERMO-25-ST-E
	32	3008528	ERMO-32-ST-E

Ordering data – Modular product system			
	Size	Part no.	Type
	12	2954695	ERMO-12
	16	2954696	ERMO-16
	25	2954697	ERMO-25
	32	2954698	ERMO-32

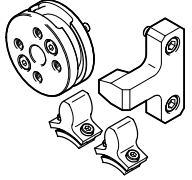
Peripherals


Peripherals overview





Accessories			→ Link
Type/order code	Description		
[1] Rotary drives ERMO	Electric rotary drive		ermo
[2] Stop kit EADP-ES-R3	<ul style="list-style-type: none"> • For homing to the end position • As end stop for rotary drives without brake • For safety functions 		20
[3] Centring sleeve ZBH	<ul style="list-style-type: none"> • For centring attachments • For centring the rotary drive 		20
[4] Proximity switch SIEN	For homing or position sensing		20
[5] Encoder cable NEBM	For connecting the encoder and controller		22
[6] Motor cable NEBM	For connecting the motor and controller		21
[7] Servo drive CMMT-ST	For positioning the rotary drive		22
[8] Adapter kit DHAA	For drive/gripper connections		adapter-bausatz


Accessories

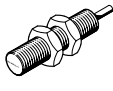
Stop kit EADP					
	Size	Product weight	Part no.	Type	
	12	96 g	3044562	EADP-ES-R3-12	
	16	100 g	2715501	EADP-ES-R3-16	
	25	210 g	2721599	EADP-ES-R3-25	
	32	290 g	2735411	EADP-ES-R3-32	

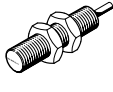
Centring sleeve ZBH						
	Description	Material sleeve	Size of pack	Product weight	Part no.	Type
	For sizes 12 ... 32	Steel	10	1 g	8146544	ZBH-7-B

Centring sleeve ZBH						
	Description	Material sleeve	Size of pack	Product weight	Part no.	Type
	For size 25	Steel	10	2 g	8137184	ZBH-9-B

Centring sleeve ZBH						
	Description	Material sleeve	Size of pack	Product weight	Part no.	Type
	For sizes 12, 16, 32	Steel	10	1 g	8137185	ZBH-12-B

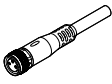
Centring sleeve ZBH						
	Description	Material sleeve	Size of pack	Product weight	Part no.	Type
	For size 25	High-alloy stainless steel	10	3 g	191409	ZBH-15

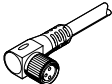
Proximity switch SIEN (round design), inductive – for sizes 12						
	Switching element function	Electrical connection	Switching output	Cable length	Part no.	Type
	N/C contact	3-wire, Cable	PNP	2.5 m	150374	SIEN-M5B-PO-K-L
		3-pin, M8x1, Plugs			150375	SIEN-M5B-PO-S-L
	N/O contact	3-wire, Cable	PNP	2.5 m	150370	SIEN-M5B-PS-K-L
		3-pin, M8x1, Plugs			150371	SIEN-M5B-PS-S-L

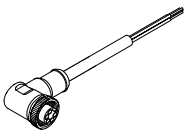
Proximity switch SIEN (round design), inductive – for sizes 16 ... 32						
	Switching element function ¹⁾	Electrical connection	Switching output	Cable length	Part no.	Type
	N/C contact	3-pin, M8x1, Plugs	PNP	2.5 m	150391	SIEN-M8B-PO-S-L
		Cable			150390	SIEN-M8B-PO-K-L
	N/O contact	3-pin, M8x1, Plugs	PNP	2.5 m	150387	SIEN-M8B-PS-S-L
		Cable			150386	SIEN-M8B-PS-K-L

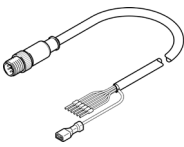
1) Cannot be fitted on size 16 in combination with motor attachment variant "left" (ERMO-16...-L).

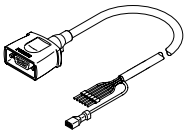
Accessories

Connecting cables						
	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	541333	NEBU-M8G3-K-2.5-LE3
				5 m	541334	NEBU-M8G3-K-5-LE3

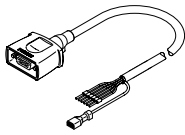
Connecting cables						
	Electrical connection 1, connector system	Electrical connection 2, connector system	Electrical connection 2, number of connections/cores	Cable length	Part no.	Type
	M8x1, A-coded, to EN 61076-2-104	Open end	3	2.5 m	541338	NEBU-M8W3-K-2.5-LE3
				5 m	541341	NEBU-M8W3-K-5-LE3

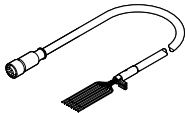
Connecting cables for energy through-feed							
	Electrical connection 2, connector system	Electrical connection 1, cable outlet		Cable length	Part no.	Type	
	M12x1, A-coded to EN 61076-2-101 Open end	Straight		2 m	525617	KM12-8GD8GS-2-PU	
				5 m	525616	SIM-M12-8GD-2-PU	
				5 m	525618	SIM-M12-8GD-5-PU	
				10 m	570008	SIM-M12-8GD-10-PU	
		Angled			2 m	542256	NEBU-M12W8-K-2-N-LE8
					5 m	542257	NEBU-M12W8-K-5-N-LE8
					10 m	570007	NEBU-M12W8-K-10-N-LE8

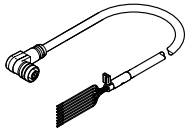
Motor cable							
	Electrical connection 1, connection type	Electrical connection 1, cable outlet	Electrical connection 2, connector system	Cable characteristic	Cable length	Part no.	Type
	Plugs	Straight	Open end	Suitable for energy chains	1.5 m	★ 1449600	NEBM-SM12G8-E-1.5-Q5-LE6
					2.5 m	★ 1449601	NEBM-SM12G8-E-2.5-Q5-LE6
					5 m	★ 1449602	NEBM-SM12G8-E-5-Q5-LE6
					7 m	★ 1449603	NEBM-SM12G8-E-7-Q5-LE6
					10 m	★ 1449604	NEBM-SM12G8-E-10-Q5-LE6


Motor cable							
	Electrical connection 1, connection type	Electrical connection 1, cable outlet	Electrical connection 2, connector system	Cable characteristic	Cable length	Part no.	Type
	Socket	Straight	Open end	Suitable for energy chains	1.5 m	★ 1450368	NEBM-S1G9-E-1.5-Q5-LE6
					2.5 m	★ 1450369	NEBM-S1G9-E-2.5-Q5-LE6
					5 m	★ 1450370	NEBM-S1G9-E-5-Q5-LE6
					7 m	★ 1450371	NEBM-S1G9-E-7-Q5-LE6
					10 m	★ 1450372	NEBM-S1G9-E-10-Q5-LE6
					Angled		
		2.5 m	★ 1450737	NEBM-S1W9-E-2.5-Q5-LE6			
		5 m	★ 1450738	NEBM-S1W9-E-5-Q5-LE6			

Accessories

Motor cable							
	Electrical connection 1, connection type	Electrical connection 1, cable outlet	Electrical connection 2, connector system	Cable characteristic	Cable length	Part no.	Type
	Socket	Angled	Open end	Suitable for energy chains	7 m	★ 1450739	NEBM-S1W9-E-7-Q5-LE6
					10 m	★ 1450740	NEBM-S1W9-E-10-Q5-LE6

Motor cable							
	Electrical connection 1, connection type	Electrical connection 1, cable outlet	Electrical connection 2, connector system	Cable characteristic	Cable length	Part no.	Type
	Socket	Straight	Open end	Suitable for energy chains	1.5 m	1451586	NEBM-M12G8-E-1.5-LE8
					2.5 m	★ 1451587	NEBM-M12G8-E-2.5-LE8
					5 m	★ 1451588	NEBM-M12G8-E-5-LE8
					7 m	★ 1451589	NEBM-M12G8-E-7-LE8
					10 m	★ 1451590	NEBM-M12G8-E-10-LE8

Motor cable							
	Electrical connection 1, connection type	Electrical connection 1, cable outlet	Electrical connection 2, connector system	Cable characteristic	Cable length	Part no.	Type
	Socket	Angled	Open end	Suitable for energy chains	1.5 m	★ 1451674	NEBM-M12W8-E-1.5-LE8
					2.5 m	★ 1451675	NEBM-M12W8-E-2.5-LE8
					5 m	★ 1451676	NEBM-M12W8-E-5-LE8
					7 m	★ 1451677	NEBM-M12W8-E-7-LE8
					10 m	★ 1451678	NEBM-M12W8-E-10-LE8

Motor controller				
	Type of mounting	Fieldbus link	Part no.	Type
	Mounting plate, attached with screws, With H-rail	EtherCAT, EtherNet/IP, Modbus/TCP, PROFINET	★ 8163946	CMMT-ST-C8-1C-MP-S0