

## Rotary drives ERMO, electric

**FESTO**



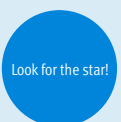
Festo core product range  
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Worldwide:  
Superb:  
Easy:

Always in stock  
Festo quality at an attractive price  
Reduces procurement and storing complexity

★ Ready for dispatch from the Festo factory in 24 hours  
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More than 2200 products

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Assembled for you in 4 service centres worldwide  
Up to  $6 \times 10^{12}$  variants per product series



# Rotary drives ERMO, electric

Key features

## At a glance

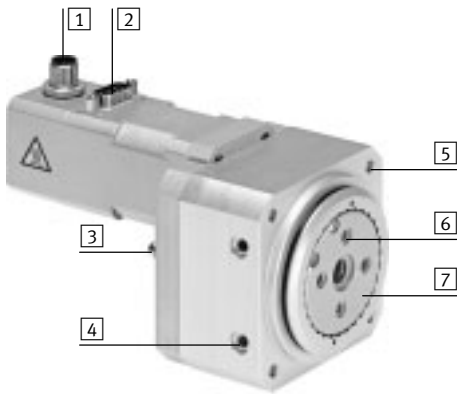
### General

- 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
- Optional holding brake
- Hollow shaft for energy throughfeed for attachments
- Quick and accurate installation

### Range of applications

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

## The technology in detail



- 1 Encoder connection
- 2 Motor connection
- 3 Proximity sensor for homing or position sensing
- 4 Thread/centring holes for mounting
- 5 Thread for mounting
- 6 Thread/centring holes for attachments
- 7 Rotating plate

## Optimised Motion Series (OMS) – Package solution with motor and motor controller

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.



### Simple choice

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

### Ordering and logistics

- All the necessary component parts with 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



Controller CMMO

→ Internet: [cmmo](http://cmmo)

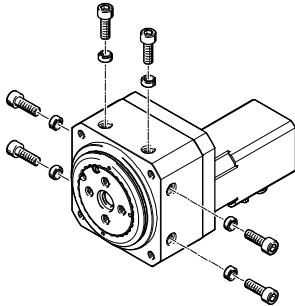


# Rotary drives ERMO, electric

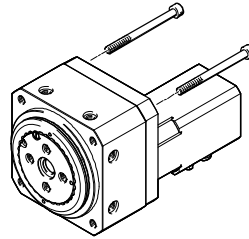
Key features

## Mounting options

At the side

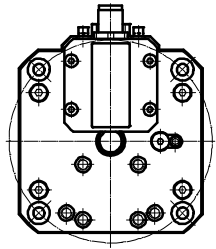


From the front/rear

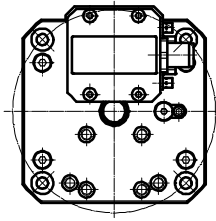


## Motor attachment variants

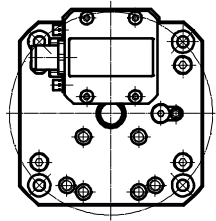
Top (standard)



Left (feature L)



Right (feature R)



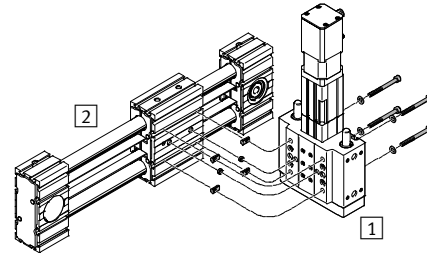
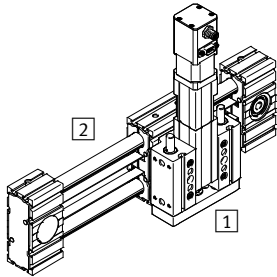
# Rotary drives ERMO, electric

Key features



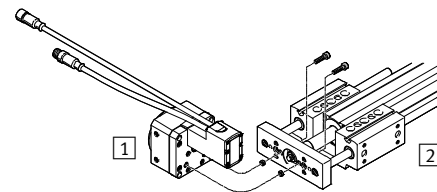
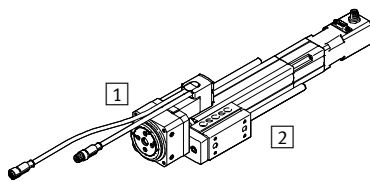
## Possible combinations within the Optimised Motion Series (OMS)

Electric cylinder EPCO on toothed belt axis ELGR



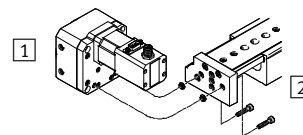
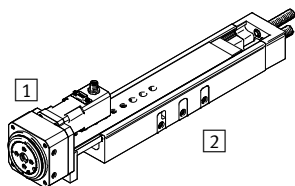
Size		Accessories			
1	2	Slot nut	Centring sleeve	Screw	Washer
EPCO	ELGR				
16	35	NST-3-M3 (x4)	ZBH-7 (x2)	M3x10 (x4)	–
25	45	NST-5-M5 (x4)	ZBH-7 (x2)	M5x50 (x4)	DIN125-A5.3 (x4)
40	55	NST-5-M5 (x4)	ZBH-7 (x2)	M5x65 (x4)	DIN125-A5.3 (x4)

## Rotary drive ERMO on electric cylinder EPCO



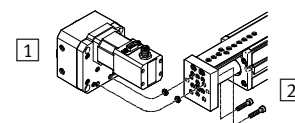
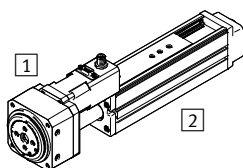
Size		Accessories	
1	2	Centring sleeve	Screw
ERMO	EPCO		
12	16	ZBH-7 (x2)	M4x16 (x2)
16	25	ZBH-7 (x2)	M5x18 (x2)
25	40	ZBH-7 (x2)	M5x20 (x2)

## Rotary drive ERMO on mini slide DGSL



Size		Accessories	
1	2	Centring sleeve	Screw
ERMO	DGSL		
12	12	ZBH-7 (x2)	M4x18 (x2)
25	20	ZBH-9-7 (x2)	M5x22 (x2)
25	25	ZBH-9-7 (x2)	M5x22 (x2)

## Rotary drive ERMO on mini slide EGSL



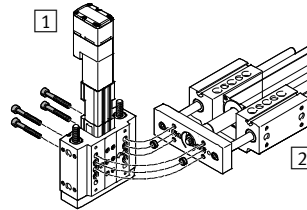
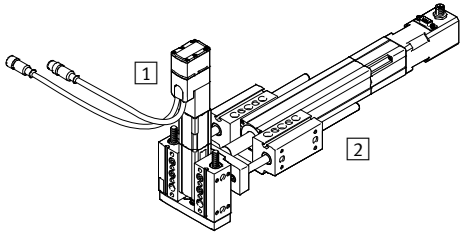
Size		Accessories	
1	2	Centring sleeve	Screw
ERMO	EGSL		
12	35	ZBH-7 (x2)	M4x12 (x2)
16	45	ZBH-7 (x2)	M5x12 (x2)
25	55	ZBH-7 (x2)	M5x14 (x2)
32	55	ZBH-7 (x2)	M5x14 (x2)

# Rotary drives ERMO, electric

Key features

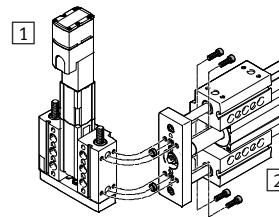
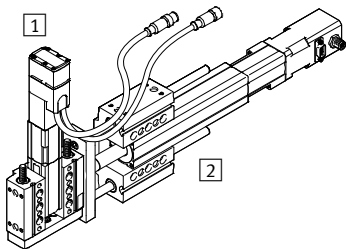
## Possible combinations within the Optimised Motion Series (OMS)

Electric cylinder EPCO on electric cylinder EPCO, horizontal



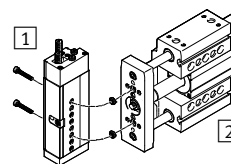
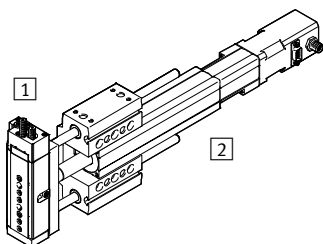
Size		Accessories	
1 EPCO	2 EPCO	Centring sleeve	Screw
16	25	ZBH-9 (x2)	M6x40 (x4)
25	40	ZBH-9 (x2)	M6x55 (x4)

Electric cylinder EPCO on electric cylinder EPCO, vertical



Size		Accessories	
1 EPCO	2 EPCO	Centring sleeve	Screw
16	25	ZBH-9 (x2)	M5x18 (x4)
25	40	ZBH-9 (x2)	M5x22 (x4)

Mini slide DGSL on electric cylinder EPCO



Size		Accessories	
1 DGSL	2 EPCO	Centring sleeve	Screw
8 (40mm) <sup>1)</sup>	16	ZBV-9-7 (x2)	M4x16 (x2)
10 (30mm) <sup>1)</sup>	25	ZBV-9-7 (x2)	M4x20 (x2)
12 (40mm) <sup>1)</sup>	40	ZBV-9-7 (x2)	M5x20 (x2)

1) Minimum stroke

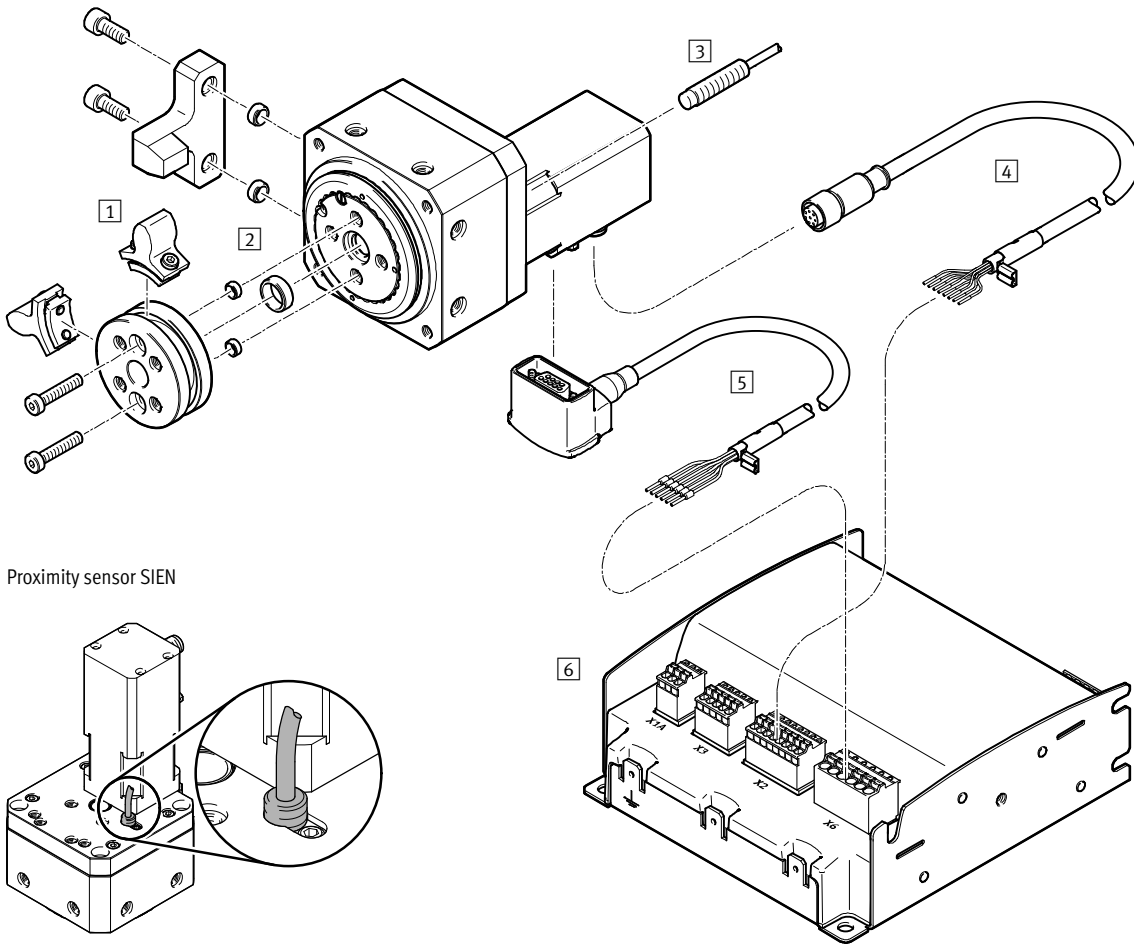
# Rotary drives ERMO, electric

Type codes

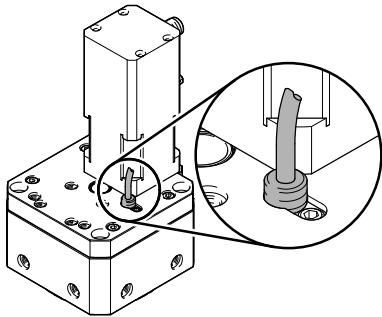
		ERMO	-	16	-	ST	-	E	B	-		+	5E	+	C5		DIO		P
<b>Type</b>																			
ERMO	Rotary drive																		
<b>Size</b>																			
<b>Motor type</b>																			
ST	Stepper motor																		
<b>Measuring unit</b>																			
E	Encoder																		
<b>Brake</b>							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

# Rotary drives ERMO, electric

Peripherals overview



Proximity sensor SIEN



Accessories		
Type/order code	Description	→ Page/Internet
1 Stop kit EADP	<ul style="list-style-type: none"> <li>• For homing to the end position</li> <li>• As end stop for rotary drives with no brake</li> <li>• For safety functions</li> </ul>	20
2 Centring sleeve ZBH	<ul style="list-style-type: none"> <li>• For centring attachments</li> <li>• For centring the rotary drive</li> </ul>	21
3 Proximity sensor SIEN	For homing or position sensing	21
4 Encoder cable NEBM	For connecting the encoder and controller	22
5 Motor cable NEBM	For connecting the motor and controller	22
6 Motor controller CMMO	For positioning the rotary drive	22

# Rotary drives ERMO, electric

Technical data

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Size

12, 16, 25, 32



General technical data					
Size	12	16	25	32	
Design	Electromechanical rotary drive with integrated gear unit				
Angle of rotation	Infinite				
Repetition accuracy <sup>1)</sup>	[°]	±0.05	±0.05	±0.05	±0.1
Torsional backlash <sup>1)</sup>	[°]	0.2			
Positioning time	→ page 10				
Gear ratio	9:1			7:1	
Type of mounting	Via internal thread				
Mounting position	Any				
Product weight					
Without brake	[g]	475	900	1350	2200
With brake	[g]	–	960	1500	2380

1) Without payload in new condition

Mechanical data					
Size	12	16	25	32	
Nominal torque <sup>1)</sup>	[Nm]	0.15	0.8	2.5	5
Holding torque	[Nm]	0.33	0.81	4	7
Nominal rotational speed	[rpm]	100	100	66	50
Max. speed	[rpm]	200	200	150	100
Permissible mass moment of inertia	[kgm <sup>2</sup> x10 <sup>-4</sup> ]	3	13	65	164
Mass moment of inertia J <sub>o</sub>	[kgm <sup>2</sup> x10 <sup>-4</sup> ]	0.0079	0.0383	0.114	0.39
Max. impact energy	[Jx10 <sup>-4</sup> ]	0.2	0.7	1.6	2.9

1) Theoretical torque at nominal rotary speed → page 10



# Rotary drives ERMO, electric

Technical data

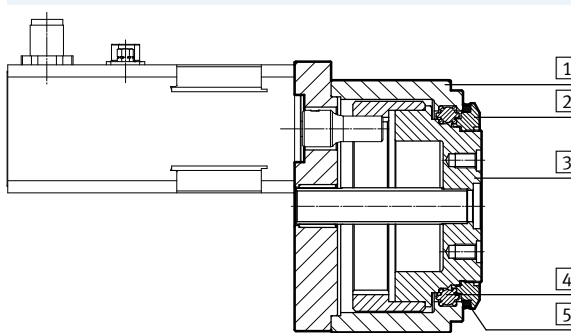
Electrical data					
Size		12	16	25	32
Motor					
Nominal operating voltage	[V DC]	24			
Nominal current	[A]	0.8	1.4	3	4.2
Step angle with full step	[°]	1.8 ±5%			
Duty cycle	[%]	100			
Brake					
Nominal voltage	[V DC]	–	24		
Rated output	[W]	–	8		
Holding torque	[Nm]	–	1	2.5	2.5
Mass moment of inertia	[kgm <sup>2</sup> x10 <sup>-4</sup> ]	–	0.69	1.3	1.3
Encoder					
Rotary position encoder		Incremental			
Rotary position encoder measuring principle		Opto-electrical			
Pulses/revolution	[1/rev]	500			
Interface		RS422, TTL, AB channel + zero index			
Operating voltage	[V DC]	5			
Insulation protection class		B (130 °C)			

Operating and environmental conditions		
Ambient temperature	[°C]	0 ... +50
Storage temperature	[°C]	–20 ... +60
Degree of protection		IP40
Relative air humidity	[%]	0 ... 85 (non-condensing)
Corrosion resistance class CRC <sup>1)</sup>		1
CE marking (see declaration of conformity)		To EU EMC Directive <sup>2)</sup>
Approval certificate		RCM trademark

- 1) Corrosion resistance class CRC 1 to Festo standard FN 940070  
Low corrosion stress. For dry indoor applications or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).
- 2) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: [www.festo.com/sp](http://www.festo.com/sp) → Certificates.  
If the component is subject to restrictions on usage in residential, office or commercial environments or small businesses, further measures to reduce the emitted interference may be necessary.

## Materials

Sectional view

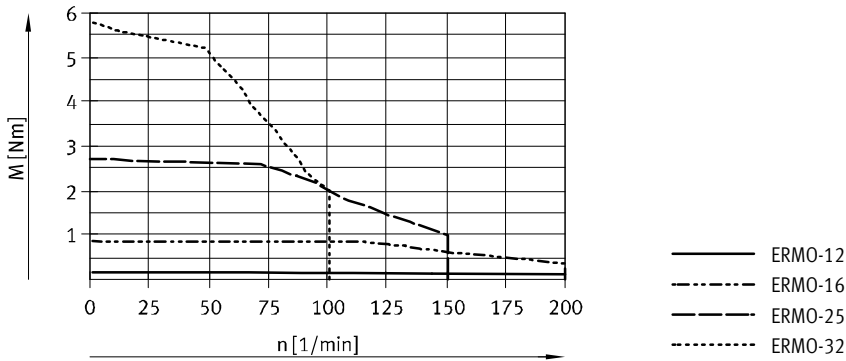


Rotary drive		
1	Housing	Anodised wrought aluminium alloy
2	Clamping ring	Anodised wrought aluminium alloy
3	Rotating plate	Anodised wrought aluminium alloy
4	Ball bearing	Rolled steel
5	Sealing ring	NBR
Note on materials		RoHS compliant Contains paint-wetting impairment substances

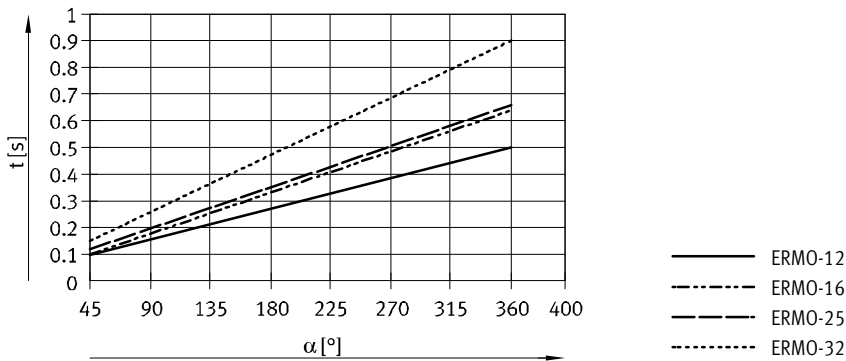
# Rotary drives ERMO, electric

Technical data

## Torque M as a function of speed n



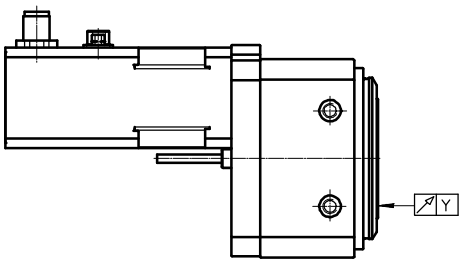
## Positioning time t as a function of angle of rotation $\alpha$



## Axial eccentricity and concentricity

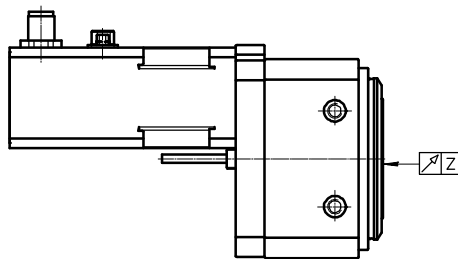
### Axial eccentricity

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



### Concentricity

Measured at the centring hole of the rotating plate, in new condition.



Size		12	16	25	32
Axial eccentricity Y	[mm]	<0.02	<0.02	<0.02	<0.04
Concentricity Z	[mm]	<0.02	<0.02	<0.02	<0.04

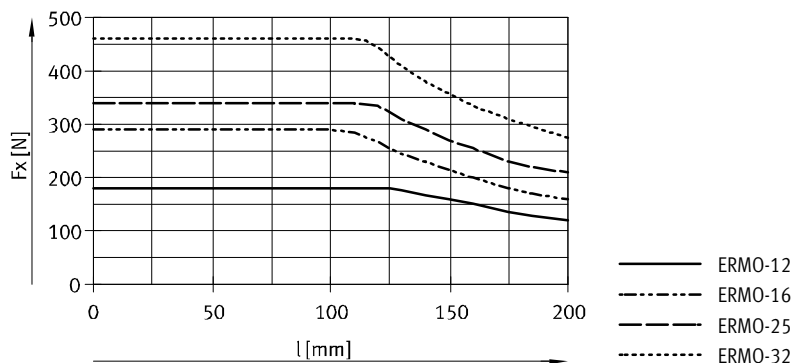
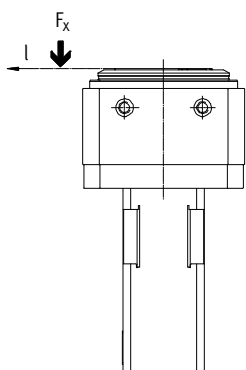
# Rotary drives ERMO, electric

Technical data

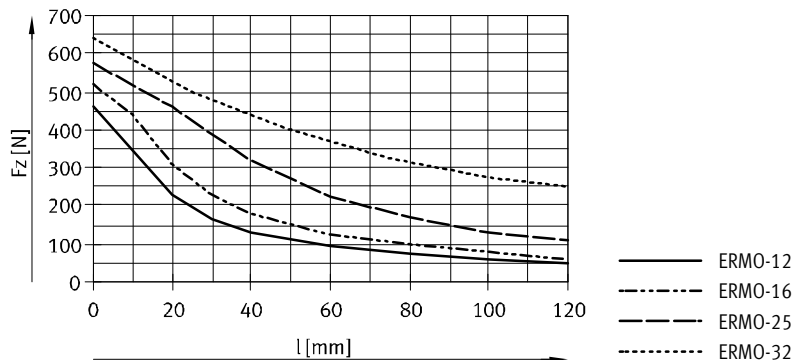
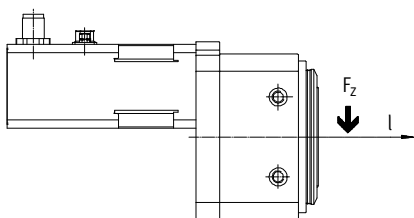


Max. permissible axial and radial force $F_x/F_z$					
Size		12	16	25	32
Static					
Axial force $F_x$	[N]	500	600	700	800
Radial force $F_z$	[N]	500	750	1200	2000
Dynamic					
Axial force $F_x$	[N]	180	290	350	450
Radial force $F_z$	[N]	200	300	450	550

Max. dynamic axial force  $F_x$  as a function of lever arm  $l$



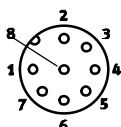
Max. dynamic radial force  $F_z$  as a function of lever arm  $l$



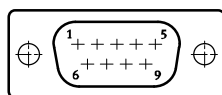
## Pin allocation

Motor

ERMO-12/-16

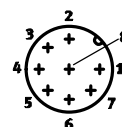


ERMO-25/-32



Encoder

ERMO-12/-16/-25/-32



PIN	Function
1	String A
2	String A/
3	String B
4	String B/
5	n.c.
6	n.c.
7	Brake +24 V DC <sup>1)</sup>
8	Brake GND <sup>1)</sup>
-	-

PIN	Function
1	String A
2	String A/
3	String B
4	String B/
5	n.c.
6	n.c.
7	Brake +24 V DC <sup>1)</sup>
8	Brake GND <sup>1)</sup>
9	n.c.

PIN	Function
1	Signal trace A
2	Signal trace A/
3	Signal trace B
4	Signal trace B/
5	GND encoder
6	Signal trace N
7	Signal trace N/
8	VCC auxiliary supply +5 V
GND	Shield on plug housing

1) Only on motors with brake.

# Rotary drives ERMO, electric

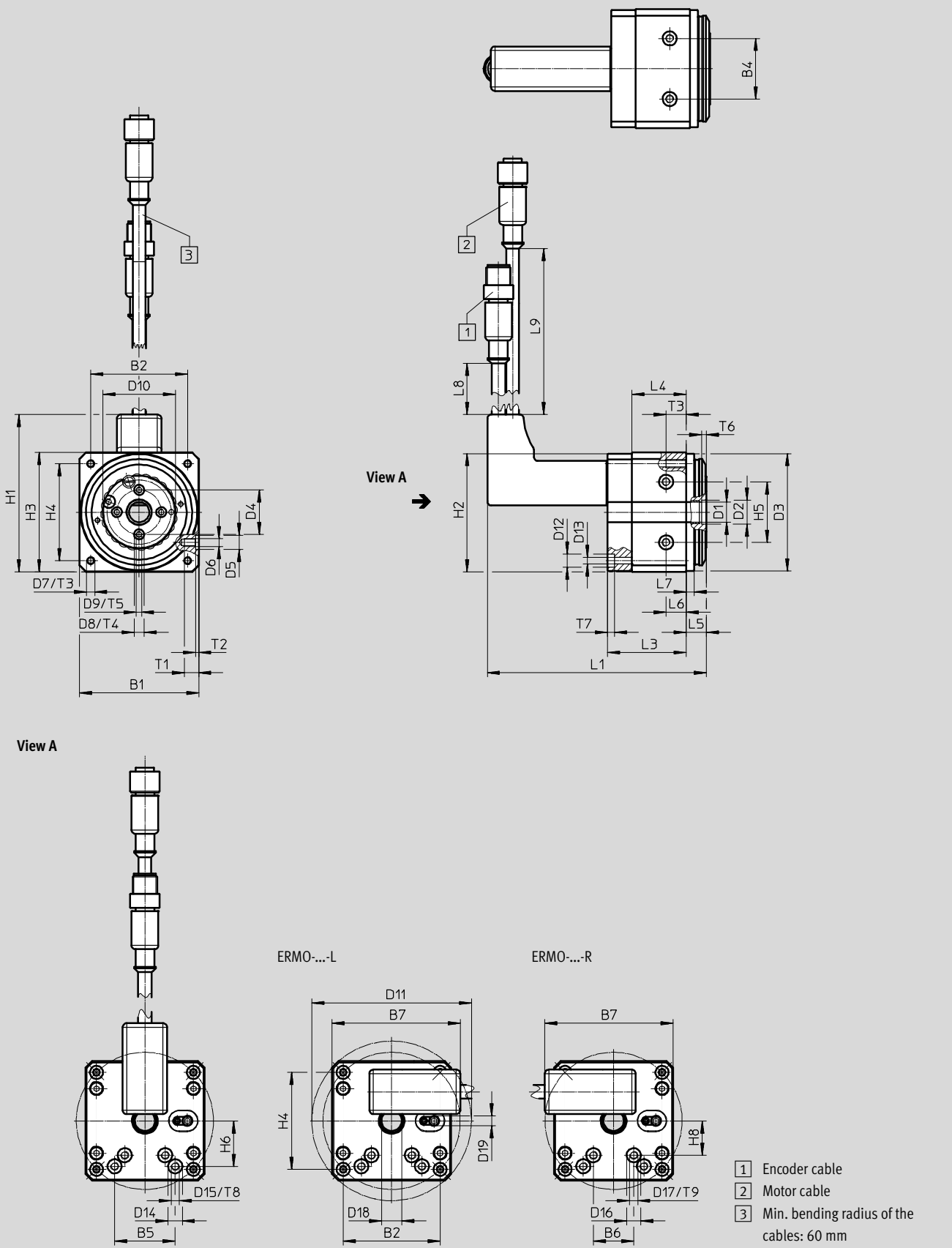
Technical data

FESTO

## Dimensions

Download CAD data → [www.festo.com](http://www.festo.com)

Size 12



# Rotary drives ERMO, electric

Technical data

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	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

# Rotary drives ERMO, electric

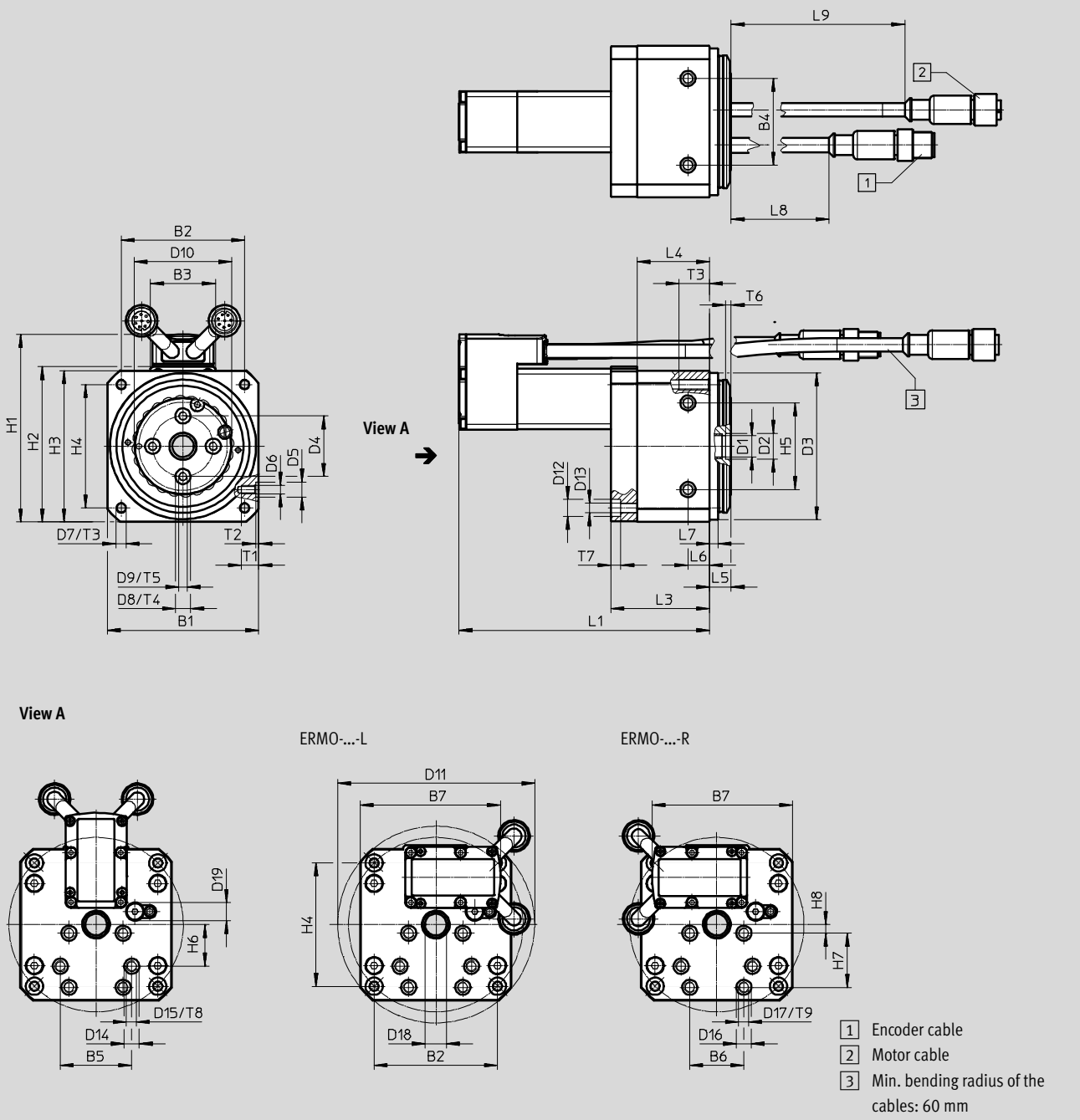
Technical data

FESTO

## Dimensions

Download CAD data → [www.festo.com](http://www.festo.com)

Size 16



# Rotary drives ERMO, electric

Technical data

Size	B1	B2	B3	B4	B5	B6	B7	D1 ∅	D2 ∅ H8	D3 ∅ f8	D4 ∅ ±0.02
16	±0.3			±0.03	±0.02	±0.02		10	12	68	28

Size	D5 ∅ H7	D6	D7	D8 ∅ H7	D9	D10 ∅	D11 ∅ ±0.5	D12 ∅	D13 ∅	D14 ∅ H7
16	7	M5	M5	7	M4	45	91	8	4.6	7

Size	D15	D16 ∅ H7	D17	D18 max.	D19	H1	H2	H3 ±0.3	H4	H5 ±0.03
16	M5	7	M5	–	M8x1	87	71.8	70	57	40

Size	H6	H7 ±0.02	H8	L1 ±1.5	L3 ±0.6	L4	L5 ±0.2	L6 ±0.1	L7 ±0.1	L8
16	19.3	25	4	116/142 <sup>1)</sup>	45.5	33.5	10	10	4	250

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

1) Motor with brake

# Rotary drives ERMO, electric

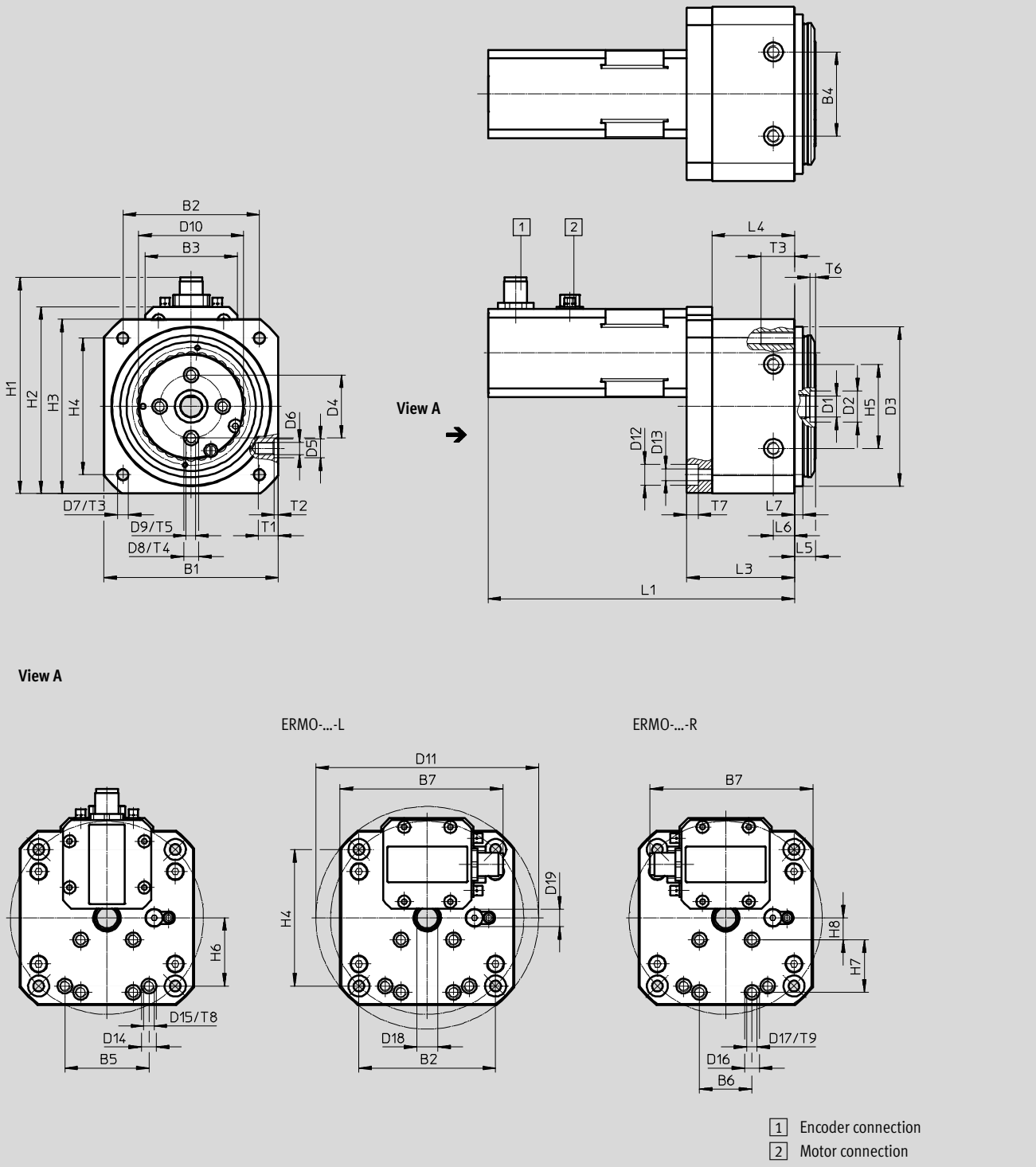
Technical data

FESTO

## Dimensions

Download CAD data → [www.festo.com](http://www.festo.com)

Size 25/32





# Rotary drives ERMO, electric

Technical data

Size	B1 ±0.3	B2	B3	B4 ±0.03	B5 ±0.02	B6 ±0.02	B7	D1 ∅	D2 ∅ H8	D3 ∅ f8	D4 ∅ ±0.02
25	83	65	44	40	40	25	78	10	15	76	30
32	105	85	58	60	-	25	96	16	20	96	42

Size	D5 ∅ H7	D6	D7	D8 ∅ H7	D9	D10 ∅	D11 ∅ ±0.5	D12 ∅	D13 ∅	D14 ∅ H7
25	9	M6	M6	7	M5	50	106	10	5.5	7
32	12	M8	M8	7	M5	65	135	11	6.6	-

Size	D15	D16 ∅ H7	D17	D18 max.	D19	H1	H2	H3 ±0.3	H4	H5 ±0.03
25	M5	7	M5	10	M8x1	103	89	83	65	40
32	-	7	M5	9	M8x1	125	110.5	105	85	60

Size	H6	H7 ±0.02	H8	L1 ±1.5	L3 ±0.6	L4	L5 ±0.2	L6 ±0.1	L7 ±0.1
25	32.5	25	10.5	146/179 <sup>1)</sup>	51.3	39.3	10	10	4
32	-	25	15	148/189 <sup>1)</sup>	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

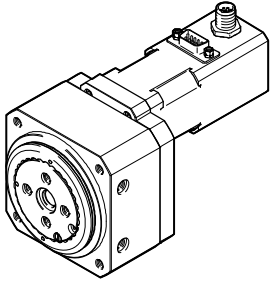
1) Motor with brake

# Rotary drives ERMO, electric

Technical data

FESTO

## ★ Core product range

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

Festo core product range

- ★ Ready for dispatch from the Festo factory in 24 hours
- ★ Ready for dispatch in 5 days maximum from stock

# Rotary drives ERMO, electric

Ordering data – Modular products

Ordering table							
Size	12	16	25	32	Condi- tions	Code	Entry code
<b>M</b> Module no.	<b>2954695</b>	<b>2954696</b>	<b>2954697</b>	<b>2954698</b>			
Function	Electric cylinders					<b>ERMO</b>	ERMO
Size	12	16	25	32		★ -...	
Motor type	Stepper motor					★ -ST	-ST
Measuring unit	Encoder					★ -E	-E
<b>O</b> Brake	None					★	
	-		With brake			<b>B</b>	
Cable outlet direction	Top (standard)					★	
	Left					-L	
	Right					-R	
Connecting cable to motor controller	Without					★	
	1.5 m, straight plug connector					★ +1.5E	
	2.5 m, straight plug connector					★ +2.5E	
	5 m, straight plug connector					★ +5E	
	7 m, straight plug connector					★ +7E	
	10 m, straight plug connector					★ +10E	
	-		1.5 m, angled plug connector			★ +1.5EA	
	-		2.5 m, angled plug connector			★ +2.5EA	
	-		5 m, angled plug connector			★ +5EA	
-		7 m, angled plug connector			★ +7EA		
-		10 m, angled plug connector			★ +10EA		
Controller type	None					★	
	CMMO, 5 A				[1]	★ +C5	
Bus protocol/activation	None					★	
	Digital I/O interface					★ DIO	
	IO-Link					★ LK	
Switching input/output	None					★	
	NPN				[2]	★ N	
	PNP					★ P	

[1] **DIO, LK, N, P** Must be selected if controller type +C5 is selected.

[2] **N** Not with IO-Link LK

**M** Mandatory data

**O** Options

### Transfer order code

[ ] **ERMO** - [ ] - **ST** - **E** [ ] [ ] - [ ] + [ ] + [ ] [ ] [ ]

Festo core product range

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# Rotary drives ERMO, electric

Accessories

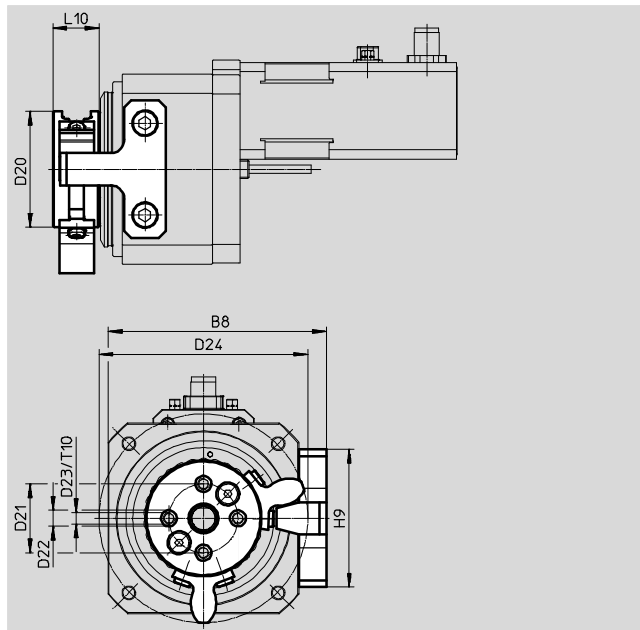
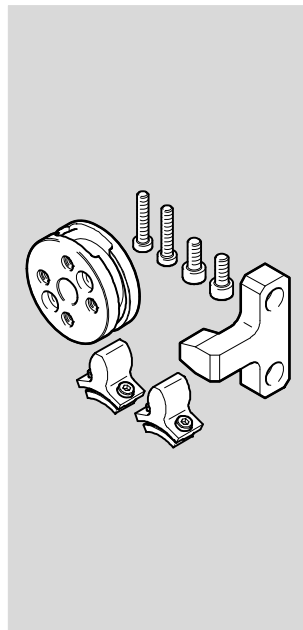


## Stop kit EADP

Materials:

Housing: Anodised aluminium

Stops: Nickel-plated beryllium bronze






Dimensions and ordering data									
For size	B8	D20 Ø ±0.1	D21 Ø ±0.1	D22 Ø H7	D23	D24 Ø	H9	L10 ±0.1	T10
12	69	44	28	7	M4	74.8	40	16	16
16	80	44	28	7	M4	74.2	52	16	16
25	95	50.5	30	7	M5	91	60	20	20
32	120	64	42	7	M5	90	80	27	27

For size	Setting range for rotation angle		Weight [g]	Part No.	Type
	1 stop	2 stops			
12	0 ... 325	0 ... 280	96	3044562	EADP-ES-R3-12
16	0 ... 325	0 ... 280	100	2715501	EADP-ES-R3-16
25	0 ... 325	0 ... 270	210	2721599	EADP-ES-R3-25
32	0 ... 325	0 ... 270	290	2735411	EADP-ES-R3-32



# Rotary drives ERMO, electric



Accessories

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Ordering data – Centring sleeves			Technical data → Internet: zbh		
	For size	Description	Part No.	Type	PU <sup>1)</sup>
	12, 16	For centring the drive for lateral mounting	<b>186717</b>	<b>ZBH-7</b>	10
	25		<b>150927</b>	<b>ZBH-9</b>	
	32		<b>189653</b>	<b>ZBH-12</b>	
	12 ... 32	For centring attachments on the rotating plate	<b>186717</b>	<b>ZBH-7</b>	
	12, 16	For centring attachments in the middle of the rotating plate	<b>189653</b>	<b>ZBH-12</b>	1
	25		<b>191409</b>	<b>ZBH-15</b>	
	32		<b>150901</b>	<b>SLZZ-25/16</b>	

1) Packaging unit

Ordering data – Proximity sensor M5/M8 (round design), inductive						Technical data → Internet: sien	
	Switching element function	Electrical connection	LED	Switching output	Cable length [m]	Part No.	Type
For size 12							
	N/O contact	Cable, 3-wire	■	PNP	2.5	★ <b>150370</b>	<b>SIEN-M5B-PS-K-L</b>
		Plug connector M8x1, 3-pin			–	★ <b>150371</b>	<b>SIEN-M5B-PS-S-L</b>
	N/C contact	Cable, 3-wire	■	PNP	2.5	<b>150374</b>	<b>SIEN-M5B-PO-K-L</b>
		Plug connector M8x1, 3-pin			–	<b>150375</b>	<b>SIEN-M5B-PO-S-L</b>
For size 16 ... 32							
	N/O contact	Cable, 3-wire	■	PNP	2.5	★ <b>150386</b>	<b>SIEN-M8B-PS-K-L</b>
		Plug connector M8x1, 3-pin			–	★ <b>150387</b>	<b>SIEN-M8B-PS-S-L</b>
	N/C contact	Cable, 3-wire	■	PNP	2.5	<b>150390</b>	<b>SIEN-M8B-PO-K-L</b>
		Plug connector M8x1, 3-pin			–	<b>150391</b>	<b>SIEN-M8B-PO-S-L</b>

Ordering data – Connecting cables				Technical data → Internet: nebu	
	Electrical connection, left	Electrical connection, right	Cable length [m]	Part No.	Type
	Straight socket, M8x1, 3-pin	Cable, open end, 3-wire	2.5	<b>159420</b>	<b>SIM-M8-3GD-2,5-PU</b>
			2.5	★ <b>541333</b>	<b>NEBU-M8G3-K-2.5-LE3</b>
			5.0	★ <b>541334</b>	<b>NEBU-M8G3-K-5-LE3</b>
			2.5	★ <b>541338</b>	<b>NEBU-M8W3-K-2.5-LE3</b>
	Angled socket, M8x1, 3-pin	Cable, open end, 3-wire	5.0	★ <b>541341</b>	<b>NEBU-M8W3-K-5-LE3</b>

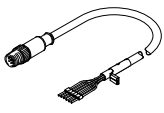
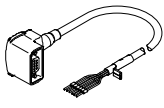
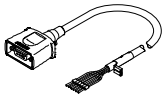
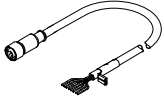
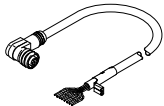
Festo core product range

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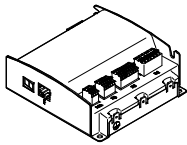
# Rotary drives ERMO, electric

Accessories

FESTO

Ordering data – Cables <sup>1)</sup>					
	For size	Description	Cable length [m]	Part No.	Type
<b>Motor cable</b>					
	12, 16	Straight plug connector			
		– Min. bending radius: 62 mm – Suitable for use with energy chains – Ambient temp.: –40 ... +80 °C	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		
	25, 32	Angled plug connector			
		– Min. bending radius: 62 mm – Suitable for use with energy chains – Ambient temp.: –40 ... +80 °C	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		
	25, 32	Straight plug connector			
		– Min. bending radius: 62 mm – Suitable for use with energy chains – Ambient temp.: –40 ... +80 °C	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		
<b>Encoder cable</b>					
	12, 16, 25, 32	Straight plug connector			
		– Min. bending radius: 68 mm – Suitable for use with energy chains – Ambient temp.: –40 ... +80 °C	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		
	25, 32	Angled plug connector			
		– Min. bending radius: 68 mm – Suitable for use with energy chains – Ambient temp.: –40 ... +80 °C	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.

Ordering data – Motor controller			Technical data → Internet: cmmo	
	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	

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