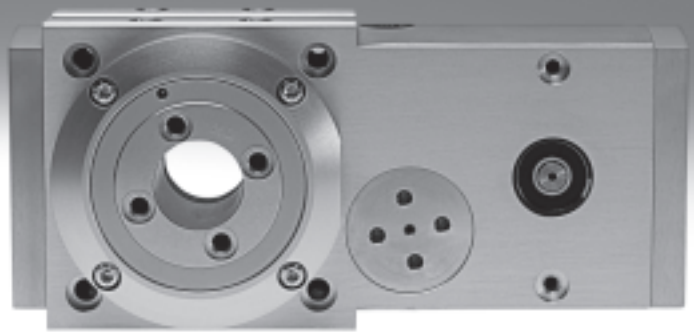
Rotary modules ERMB, electric

FESTO



New

Rotary modules ERMB, electric

Key features

At a glance

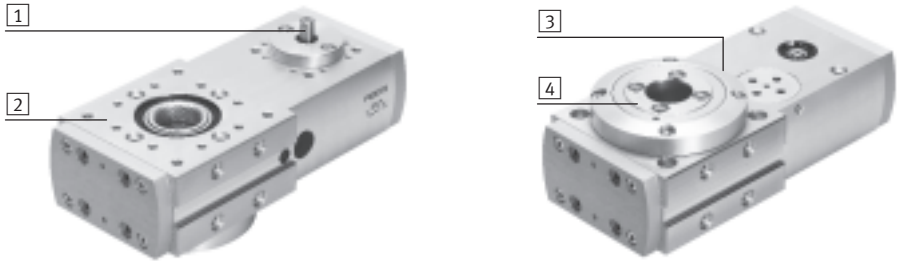
The rotary module ERMB facilitates unlimited and flexible rotation angles. The output interface is the same as on the semi-rotary drive DRQD.

The motor's power is transmitted to the output pinion by means of a circulating toothed belt with a specific transmission ratio. The drive and output pinions run on separate bearings. The toothed belt is pretensioned at the factory by means of an eccentric tensioning roller.

Advantages:
- Stable arrangement of the output shaft bearings
- Pretensioned toothed belt means low backlash
- Compact design

The technology in detail

1 Interface with the motor, via axial kit
2 Mounting interface
3 Mounting for proximity sensor SIEN in the retaining ring
4 Output interface:
Same as on the semi-rotary drive DRQD (with larger through-hole)



Sensing kit EAPS as an accessory

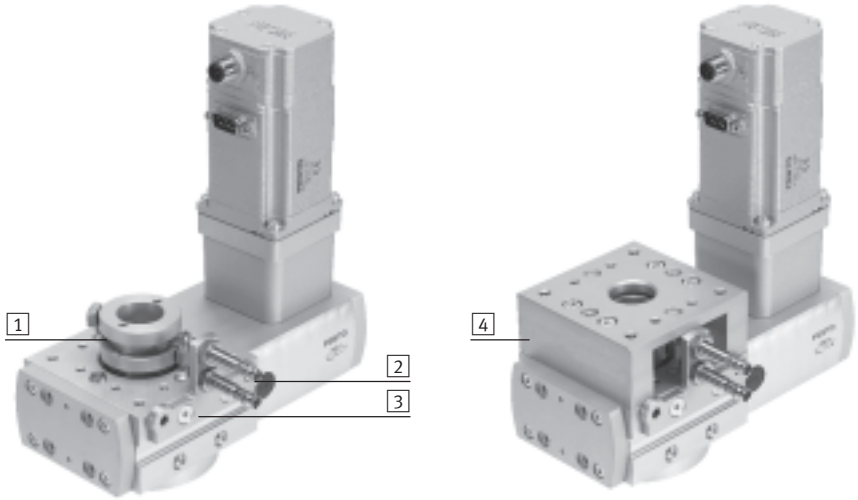
➔ 14

The sensing kit facilitates monitoring of the angle of rotation using adjustable cams. It can also be used for reference checking.

1 Trip cam support
2 Proximity sensor SIEN
3 Sensor bracket
4 Housing

Without housing

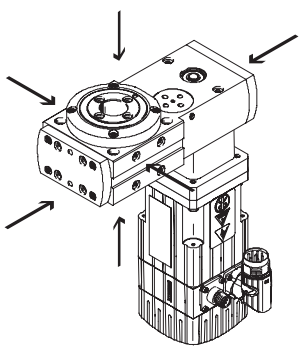
With housing



Mounting and installation options

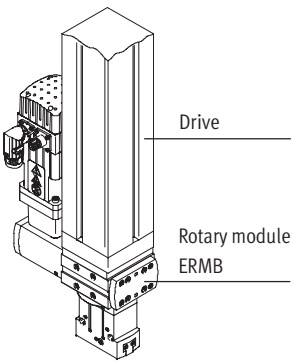
Mounting option

The rotary module can be attached on six sides.

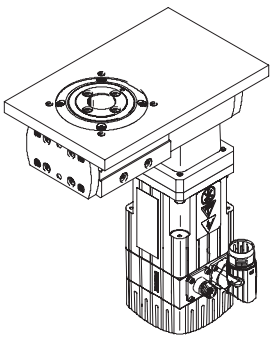


Installation option

As a front end



As a rotary table in a plate



Rotary modules ERMB, electric

Key features

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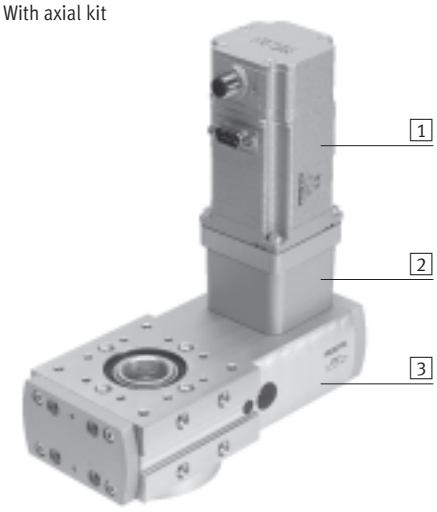
Total system comprising rotary module, motor and axial kit

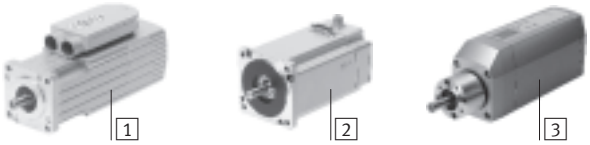
Rotary module ➔ 6

With axial kit



1 Motor
2 Axial kit
3 Rotary module

Motors ➔16

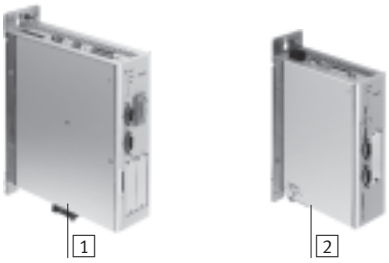


1 Servo motor EMMS-AS
2 Stepper motor EMMS-ST
3 Motor unit MTR-DCI

Note

A range of specially adapted complete solutions is available for the rotary module ERMB.

Motor controllers Technical data ➔ Internet: motor controller



1 Servo motor controller CMMP-AS, SEC-AC
2 Stepper motor controller CMMS-ST

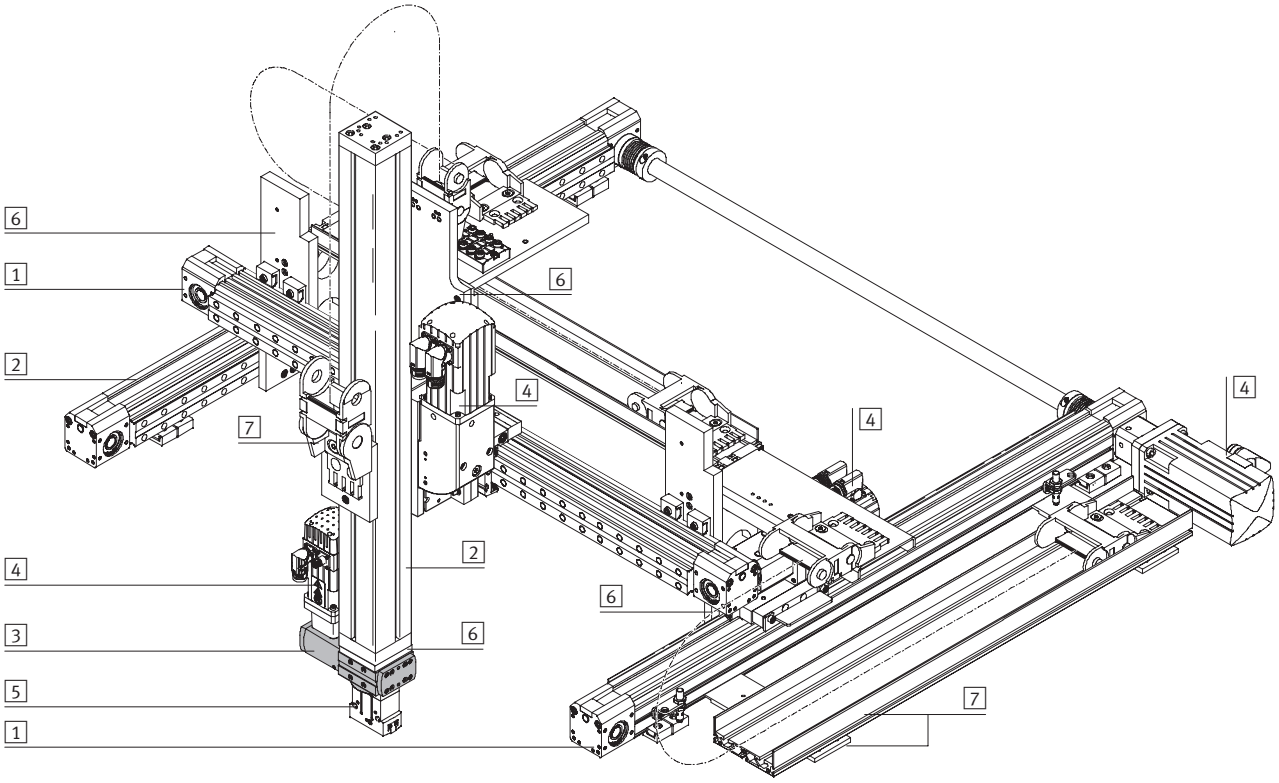
Axial kit ➔16

Kit comprising:
- Motor flange
- Coupling housing
- Coupling
- Screws

Rotary modules ERMB, electric

Key features

System product for handling and assembly technology



System components and accessories			
		Brief description	→ Page/Internet
1	Axes	Wide range of combinations possible within handling and assembly technology	axes
2	Guide axes	For extending force and torque capacity in multi-axis applications	guide axes
3	Rotary module	Wide range of combinations possible within handling and assembly technology	rotary module
4	Motors	Servo or stepper motors, with or without gear unit	motor
5	Gripper	Wide range of variations possible within handling and assembly technology	gripper
6	Adapters	For drive/drive and drive/gripper connections	adapter kit
7	Installation components	For a clean, safe layout of electrical cables and tubing	installation component

Rotary modules ERMB, electric

Type code and peripherals overview

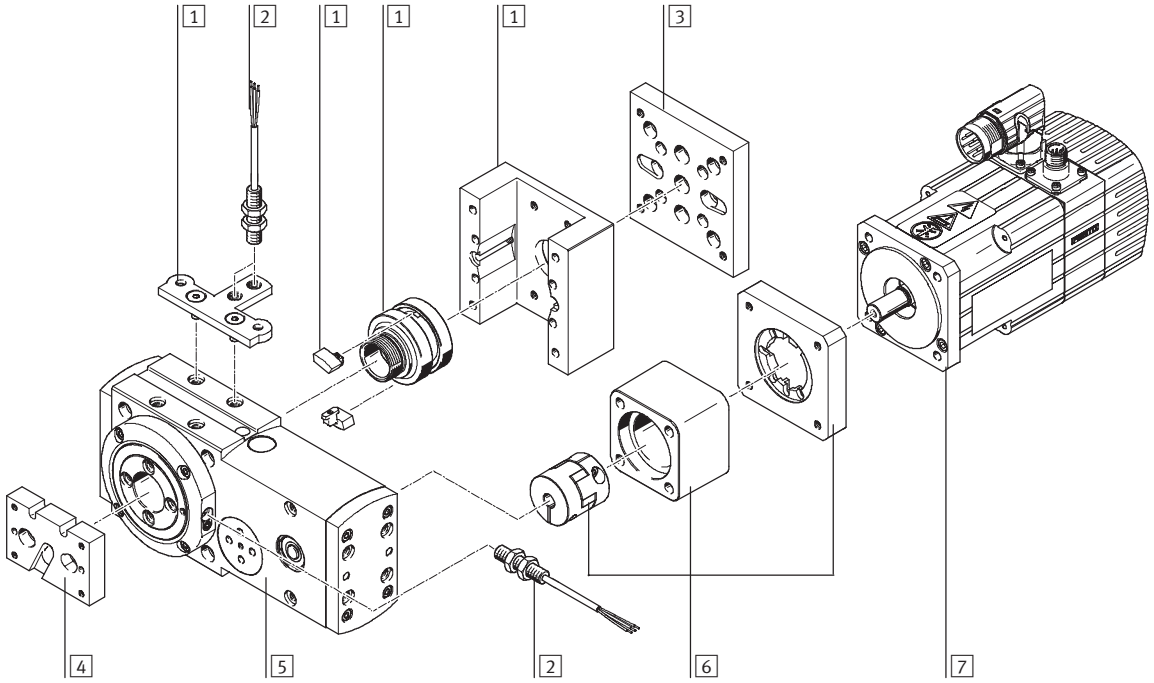
Type code

ERMB	–	25

Type	
ERMB	Rotary module

Size	
20	Size 20
25	Size 25
32	Size 32

Peripherals overview



Accessories

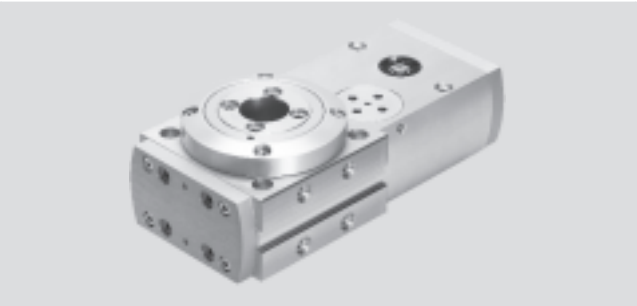
	Type	Brief description	→ Page/Internet
1	Sensing kit EAPS	For indicating impermissible swivel angles, i.e. obstacles or areas that cannot be approached can be sensed using proximity sensors (comprising: housing, trip cam support, 2 cams and sensor bracket)	19
2	Proximity sensor SIEN	For use as a signal or safety check	19
3	Adapter kit	Interface between the rotary module and drive (the rotary module can be attached to a drive with or without a sensing kit)	adapter kit
4	Adapter kit	Interface between the rotary module and gripper	adapter kit
5	Rotary module ERMB	Facilitates unlimited and flexible rotation angles	6
6	Axial kit EAMM-A	For axial motor mounting (comprising: coupling, coupling housing and motor flange)	16
7	Motor EMMS, MTR-DCI	• Motors specially matched to the axis, with or without brake • The motor can be turned by 90° for mounting, depending on requirements. This means the connection side can be freely selected	16

Rotary modules ERMB, electric

Technical data

FESTO

Size
20, 25, 32



General technical data				
Size		20	25	32
Constructional design		Electromechanical rotary module with toothed belt		
Drive shaft ∅	[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 motor unit MTR-DCI	[°]	±0.05		
Positioning times		→ 8		
Transmission ratio		4.5:1	4:1	3:1
Position sensing		Via proximity sensor		
Mounting position		Any		
Product weight	[g]	850	1,460	3,250

1) As per FN 942 027
2) Depends on the encoder resolution

Mechanical data				
Size		20	25	32
Max. driving torque	[Nm]	0.7	2.2	8.5
Max. output torque[1]	[Nm]	3.15	8.8	25.5
No-load driving torque[2]	[Nm]	< 0.07	< 0.18	≤ 0.5
Max. input speed	[rpm]	1,350	1,200	900
Max. output speed	[rpm]	300	300	300
Max. mass moment of inertia[3]				
with servo motor EMMS-AS	[kgcm²]	50	200	1,000
with stepper motor EMMS-ST	[kgcm²]	30	100	500
with motor unit MTR-DCI-...-G7	[kgcm²]	50	300	1,000
with motor unit MTR-DCI-...-G14	[kgcm²]	200	1,200	3,700
Toothed belt pitch		2	3	5
Hollow shaft ∅	[mm]	20	24	28

1) Output torque less friction depends on speed
2) At maximum speed
3) Depends on the size of the motor. Suitable motors →16

Operating and environmental conditions				
Size		20	25	32
Ambient temperature	[°C]	–10 ... +60		
Protection class		IP20		
Corrosion resistance class CRC[1]		2		
Noise level $\overline{L}_{pEq}$[2]	[dB A]	32	49	53

1) Corrosion resistance class 2 as per Festo standard 940 070
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.
CRC 2 does not apply to ball bearings, retaining rings, screws < M5
2) In combination with servo motor EMMS-AS

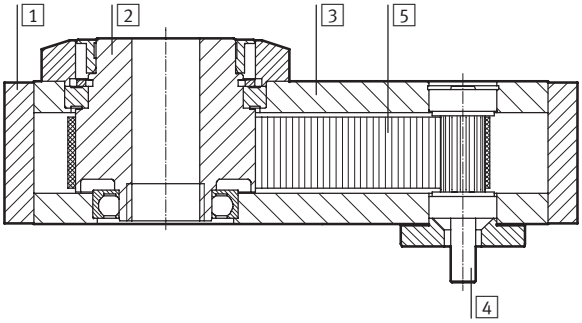
Rotary modules ERMB, electric

Technical data

FESTO

Materials

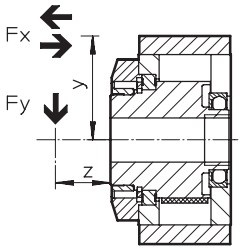
Sectional view



Rotary module		
1	End cap	Anodised aluminium
2	Output shaft	Wrought aluminium alloy, anodised
3	Housing	Wrought aluminium alloy, anodised
4	Drive shaft	High-alloy stainless steel
5	Toothed belt	Polychloroprene with glass fibres

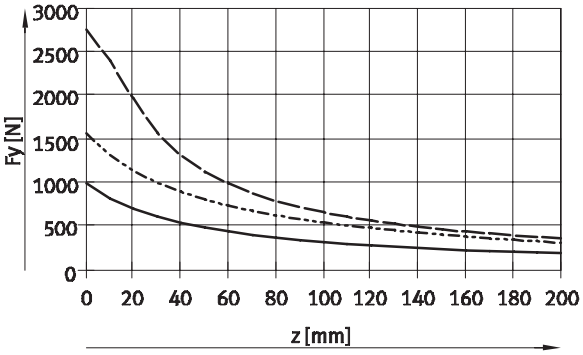
Maximum radial and axial force Fx/Fy on the output shaft as a function of the distance y/z

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

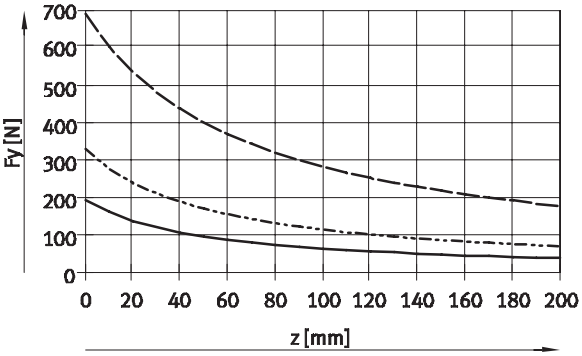


$$\frac{F_{y\,(z)}}{F_{y,\,max.\,(z)}} + \frac{F_{x,\,pushing\,(v)}}{F_{x,\,pushing,max.\,(v)}} + \frac{F_{x,\,pulling\,(v)}}{F_{x,\,pulling,max.\,(v)}} \leq 1$$

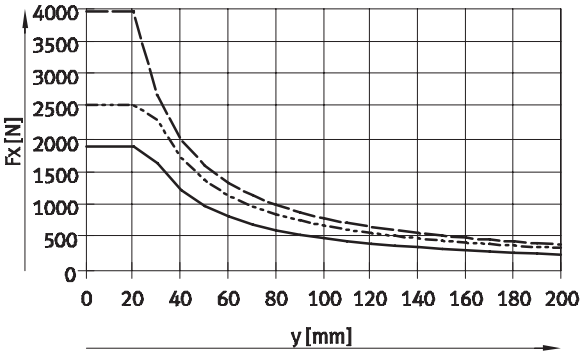
Max. radial force Fy, static



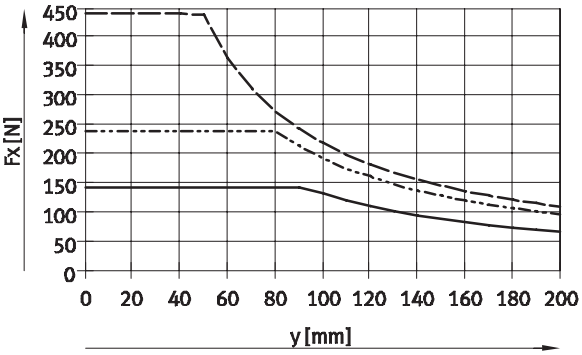
Max. radial force Fy, dynamic



Max. axial force Fx, static, pushing and pulling



Max. axial force Fx, dynamic, pushing and pulling



ERMB-20
ERMB-25
ERMB-32

Rotary modules ERMB, electric

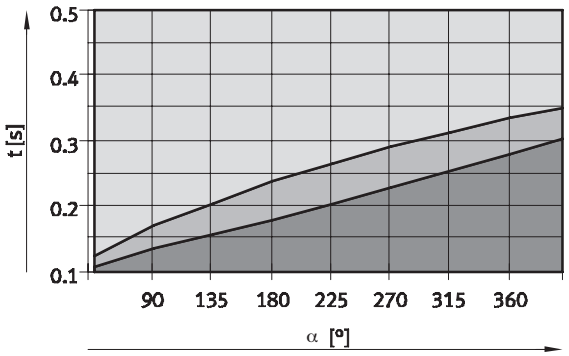
Technical data

FESTO

Positioning time t as a function of the rotation angle α in combination with motor EMMS-.../motor unit MTR-DCI-...

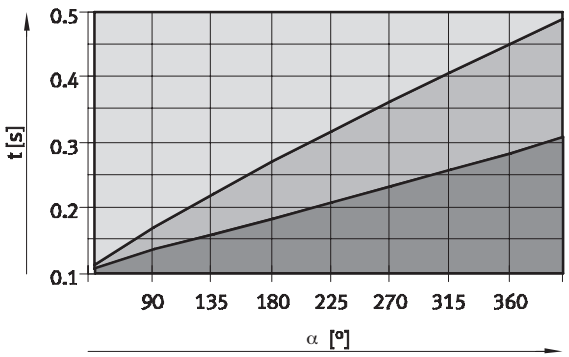
Size 20

with servo motor EMMS-AS



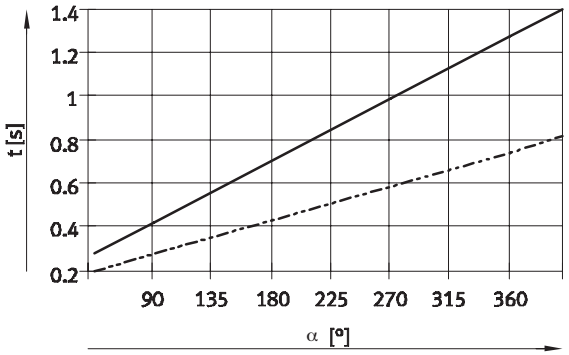
Extended operating range
Typical operating range, depending on motor size and load inertia
Unrealisable range

with stepper motor EMMS-ST



Extended operating range
Typical operating range, depending on motor size and load inertia
Unrealisable range

with motor unit MTR-DCI



Limit line for MTR-DCI-32-G14 at 0 ... 200 kgcm²
Limit line for MTR-DCI-32-G7 at 0 ... 50 kgcm²

Note

The positioning time t ends with the controller signal MC (motion complete), i.e. on the drive side. Increased positioning times are to be expected at the output shaft depending on the motor type and eccentricity of the moving load.

For servo motor: 50 ... 100 ms
For stepper motor: 100 ... 200 ms

Note

The "PositioningDrives" design tool compiles the optimum combination of rotary module and motor for the respective application with respect to mass moment of inertia, positioning time and positioning accuracy.
➔www.festo.com

Rotary modules ERMB, electric

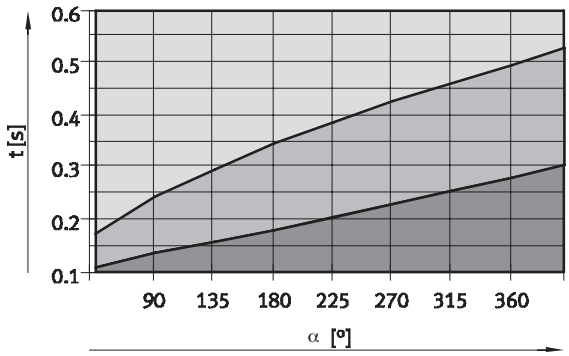
Technical data

FESTO

Positioning time t as a function of the rotation angle α in combination with motor EMMS-.../motor unit MTR-DCI-...

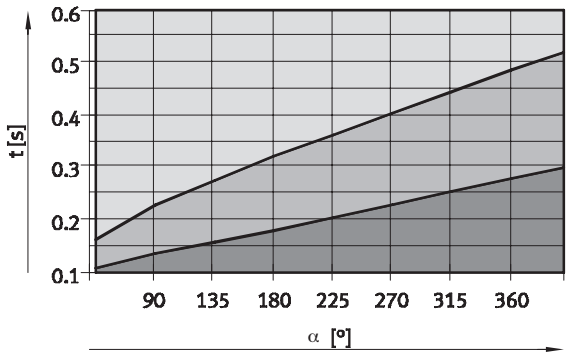
Size 25

with servo motor EMMS-AS



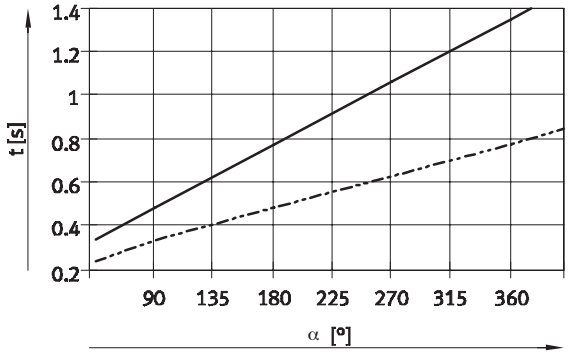
Extended operating range
Typical operating range, depending on motor size and load inertia
Unrealisable range

with stepper motor EMMS-ST



Extended operating range
Typical operating range, depending on motor size and load inertia
Unrealisable range

with motor unit MTR-DCI



Limit line for MTR-DCI-42-G14 at 0 ... 1,200 kgcm²
Limit line for MTR-DCI-42-G7 at 0 ... 300 kgcm²

Note

The positioning time t ends with the controller signal MC (motion complete), i.e. on the drive side. Increased positioning times are to be expected at the output shaft depending on the motor type and eccentricity of the moving load.

For servo motor: 50 ... 100 ms
For stepper motor: 100 ... 200 ms

Note

The "PositioningDrives" design tool compiles the optimum combination of rotary module and motor for the respective application with respect to mass moment of inertia and positioning time, positioning accuracy.
➔www.festo.com

Rotary modules ERMB, electric

Technical data

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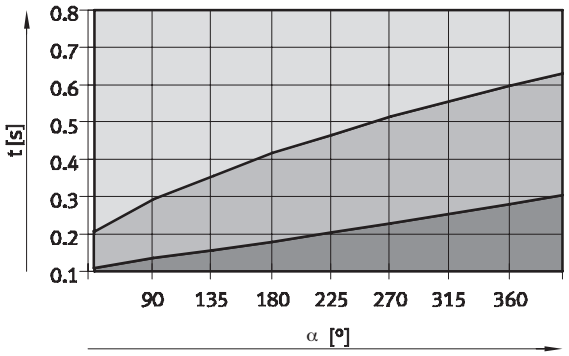
Positioning time t as a function of the rotation angle α in combination with motor EMMS-.../motor unit MTR-DCI-...

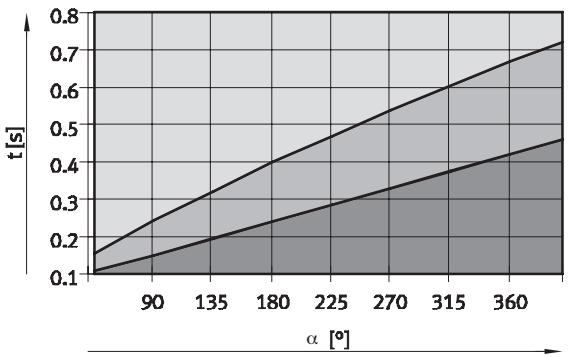
Size 32

with servo motor EMMS-AS



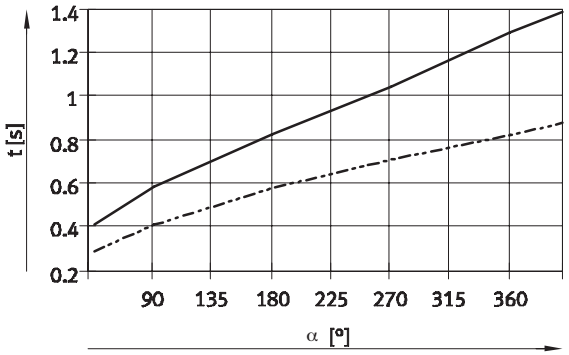
Extended operating range
Typical operating range, depending on motor size and load inertia
Unrealisable range

with stepper motor EMMS-ST



Extended operating range
Typical operating range, depending on motor size and load inertia
Unrealisable range

with motor unit MTR-DCI



Limit line for MTR-DCI-52-G14 at 0 ... 3,700 kgcm²
Limit line for MTR-DCI-52-G7 at 0 ... 1,000 kgcm²

Note

The positioning time t ends with the controller signal MC (motion complete), i.e. on the drive side. Increased positioning times are to be expected at the output shaft depending on the motor type and eccentricity of the moving load.

For servo motor: 50 ... 100 ms
For stepper motor: 100 ... 200 ms

Note

The "PositioningDrives" design tool compiles the optimum combination of rotary module and motor for the respective application with respect to mass moment of inertia and positioning time, positioning accuracy.
➔www.festo.com

Rotary modules ERMB, electric

Technical data

FESTO

Information on service life characteristic values

Within the framework of product qualification, the specified statistic load changes/switching cycles were achieved with 3 samples.

Definition of load change/switching cycle:
A switching cycle corresponds to two load changes: position A to position B and back.

Size		20	25	32
Guide value load changes	[Mio.]	30	40	40
Guide value switching cycles	[Mio.]	15	20	20
Mass moment of inertia at output	[kgcm^2]	24	80	400
Medium angle acceleration at output	[°/sec^2]	28,000	20,000	12,000
Maximum angle speed at output	[°/sec]	1,800	1,800	1,800

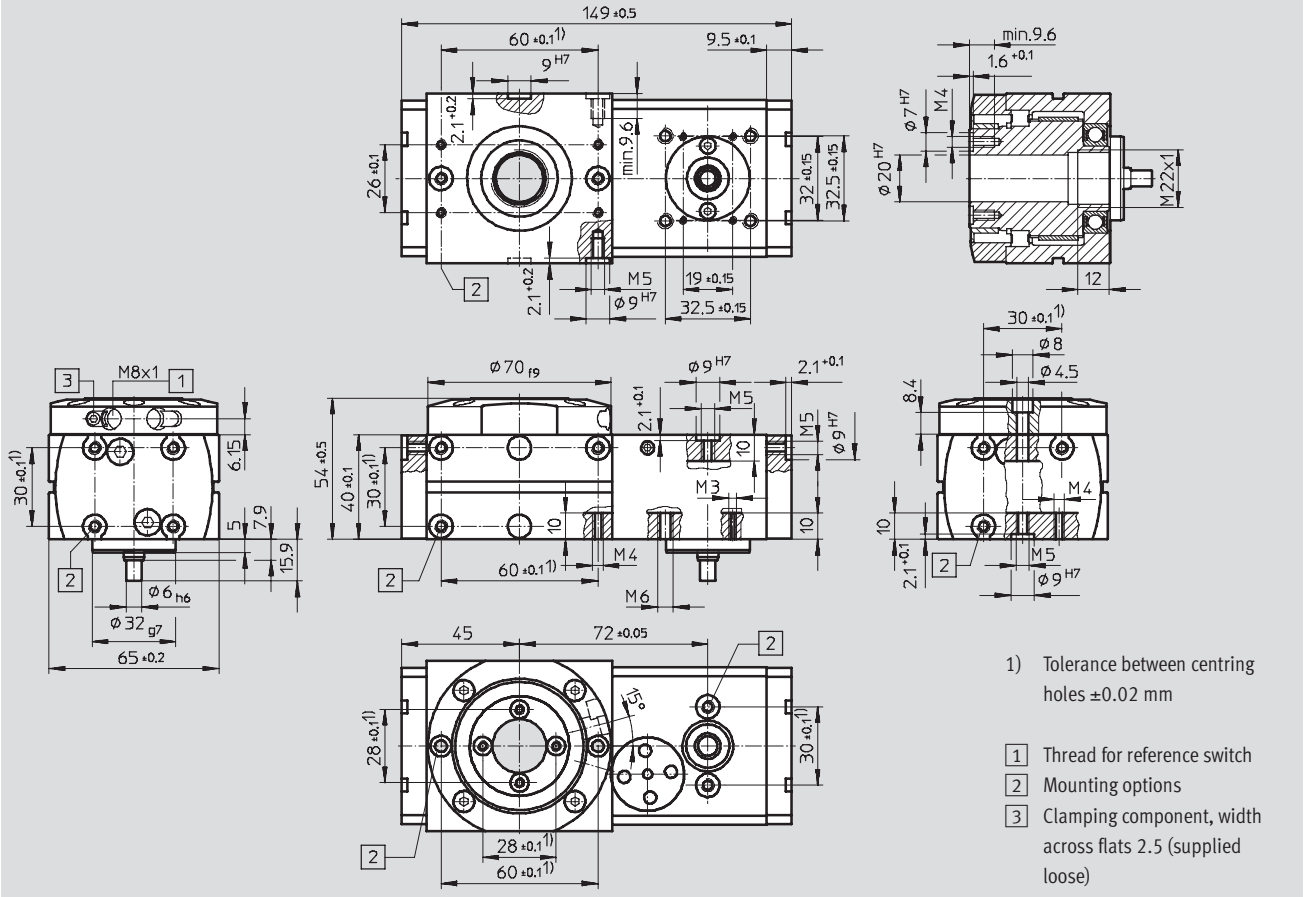
The above specified statistic load change/switching cycles were achieved under the following defined operating conditions: horizontally hanging fitting, 180° swivel angle, frequency 2 Hz, mass moment of inertia, acceleration (jerk-free) and max. angle speed as specified in the table, room temperature (23 ±5) °C.

Under different operating conditions, a shorter or longer service life is possible.
The conditions of use and safety regulations specified in the product documentation must also be taken into account.

Dimensions

Download CAD data ➔ **www.festo.com**

Size 20



1) Tolerance between centring holes ±0.02 mm

1 Thread for reference switch
2 Mounting options
3 Clamping component, width across flats 2.5 (supplied loose)

Rotary modules ERMB, electric

Technical data

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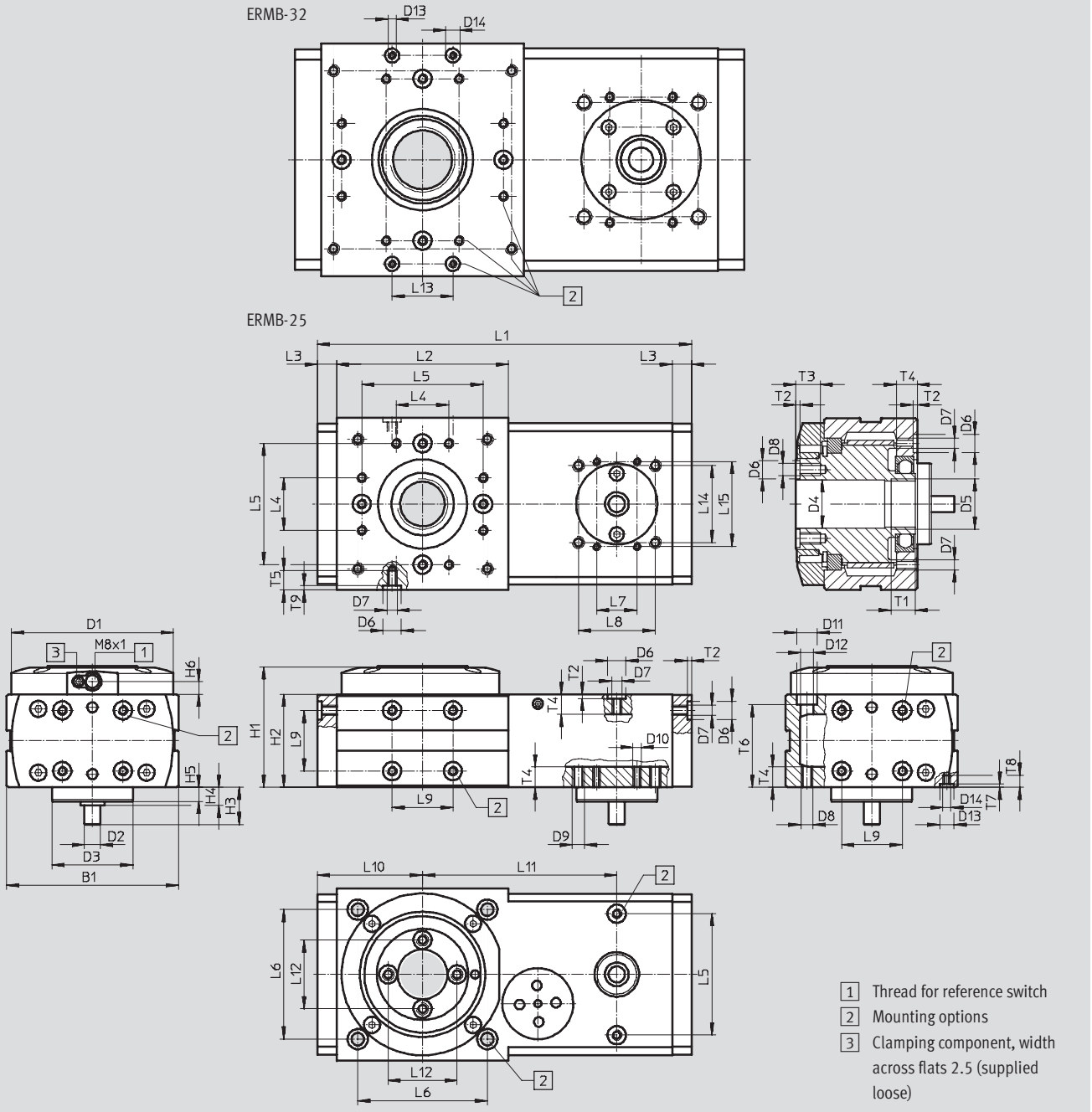
Dimensions Download CAD data ➔ **www.festo.com**

Size 25/32



Rotary modules ERMB, electric

Technical data

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Size	B1 ±0.2	D1 ∅ f9	D2 ∅ h6	D3 ∅ g7	D4 ∅ H7	D5	D6 ∅ H7	D7	D8	D9	D10
25	85	80	8	40	24	M25x1	9	M5	M6	M6	M4
32	115	112	12	60	28	M32x1.5	9	M5	M6	M8	M5

Size	D11 ∅	D12 ∅	D13 ∅ H7	D14	H1 ±0.5	H2 ±0.1	H3	H4	H5	H6	L1 ±0.5
25	10	6.2	–	–	60	46	18.45	–	7	6.3	185
32	10	6.2	7	M4	76.05	60	23.5	6.5	6	9.4	222

Size	L2 ±0.2	L3 ±0.1	L4 ±0.1	L5[1)] ±0.1	L6	L7 ±0.15	L8 ±0.15	L9[1)] ±0.1	L10	L11 ±0.05	L12[1)] ±0.1	L13[1)] ±0.1
25	85	9.5	26	60	64±0.15	20	38	30	52	96	34	–
32	100	13	36	80	88±0.1	31	56.5	40	63	108	45	30

Size	L14 ±0.15	L15 ±0.15	L16 +0.2	T1	T2 +0.1	T3 min.	T4	T5 min.	T6	T7 +0.1	T8 min.	T9 +0.2
25	38	42	–	12	2.1	12	10	9.6	40.8±0.2	–	–	2.1
32	56.5	62	103	12	2.1	12	10	10	54.3	1.6	7.6	2.1

1) Tolerance between centring holes ±0.02 mm

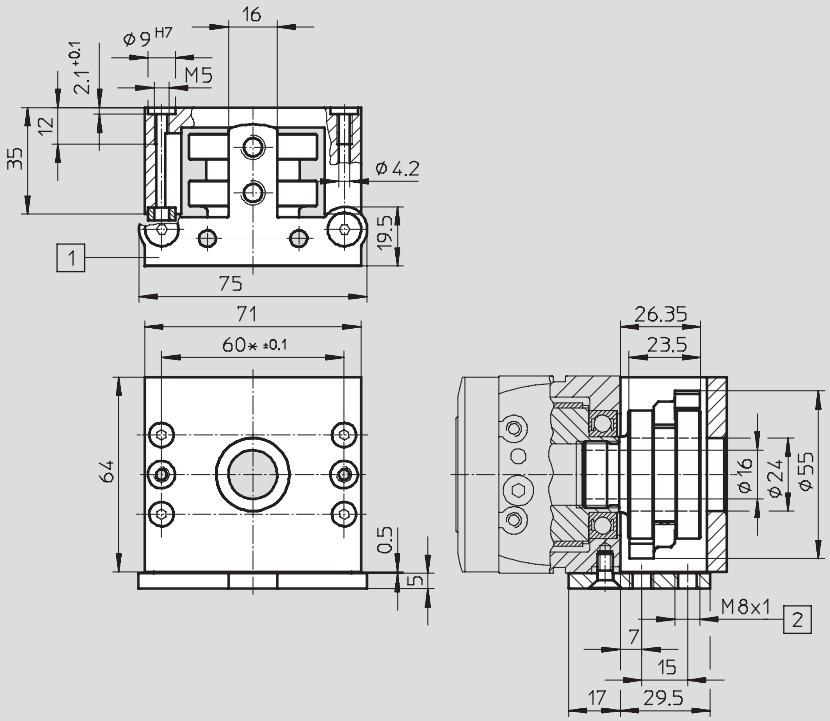
Rotary modules ERMB, electric

Technical data

FESTO

Dimensions Download CAD data ➔ **www.festo.com**

Sensing kit EAPS-R1-20-S for size 20



Note

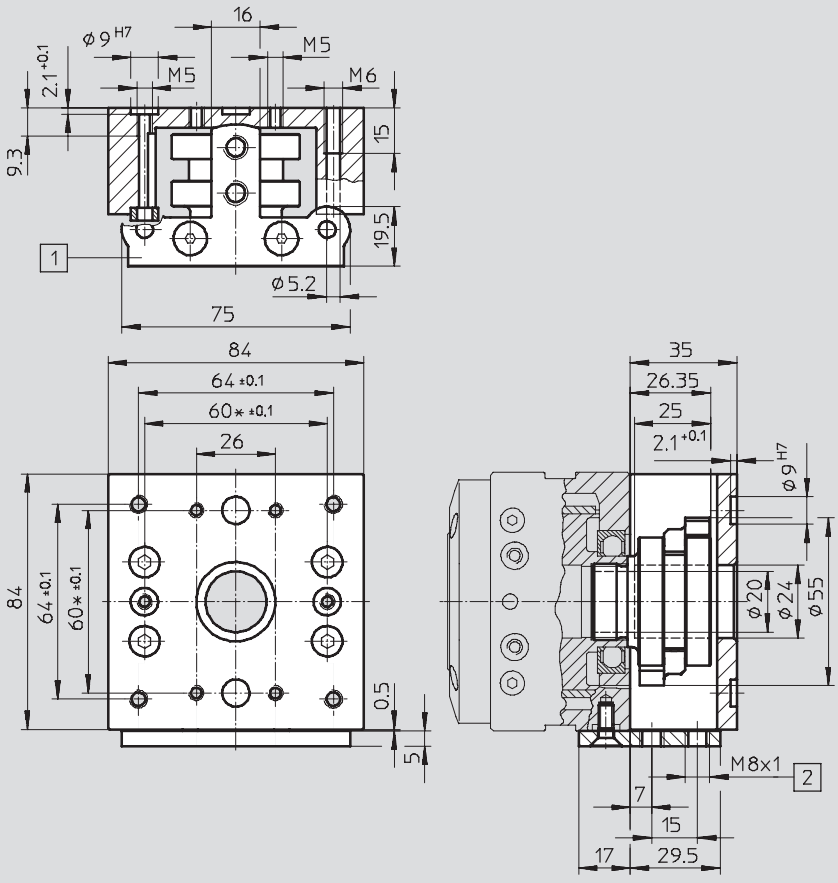
Ordering data ➔ 19

* Tolerance between centring holes ±0.02 mm

1 Bracket for proximity sensor SIEN-M8B

2 Thread for proximity sensor SIEN-M8B

Sensing kit EAPS-R1-25-S for size 25



Note

Ordering data ➔ 19

* Tolerance between centring holes ±0.02 mm

1 Bracket for proximity sensor SIEN-M8B

2 Thread for proximity sensor SIEN-M8B

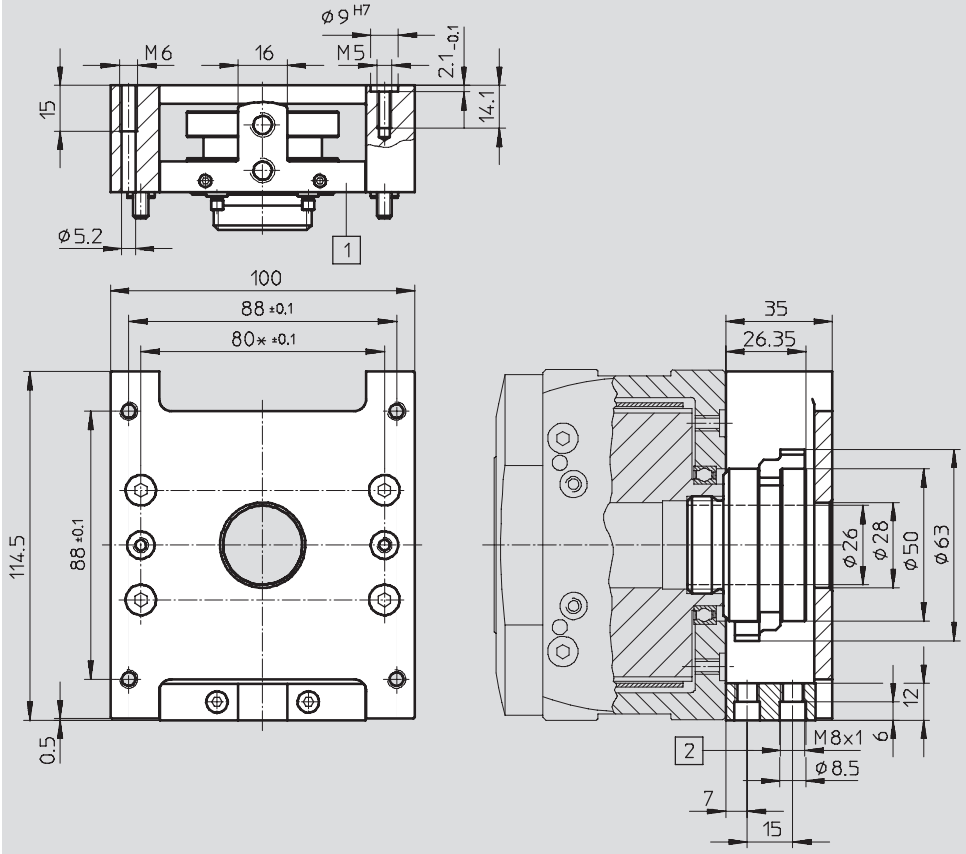
Rotary modules ERMB, electric

Technical data

FESTO

Dimensions Download CAD data ➔ **www.festo.com**

Sensing kit EAPS-R1-32-S for size 32



Note

Ordering data ➔ 19

* Tolerance between centring holes ±0.02 mm

1 Bracket for proximity sensor SIEN-M8B

2 Thread for proximity sensor SIEN-M8B

Rotary modules ERMB, electric

Technical data and accessories

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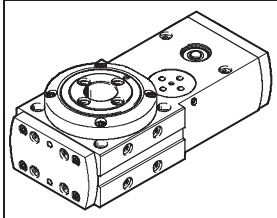
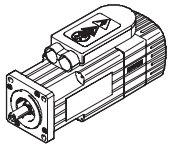
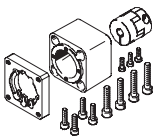
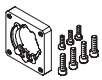
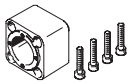
Ordering data

	Size	Part No.	Type
	20	**552 706**	**ERMB-20**
	25	**552 707**	**ERMB-25**
	32	**552 708**	**ERMB-32**

Accessories

Permissible axis/motor combinations with axial kit – Without gear unit

Motor/motor unit	Axial kit	Axial kit comprising:		
		Motor flange	Coupling	Coupling housing
				
Type	Part No. Type	Part No. Type	Part No. Type	Part No. Type
ERMB-20				
with servo motor				
EMMS-AS-40-...	**560 281** **EAMM-A-D32-35-40A**	**–**	**558 312** **EAMC-30-32-6-6**	**560 280** **EAMK-A-D32-35-40A**
with stepper motor				
EMMS-ST-42-...	**543 148** **EAMM-A-D32-42A**	**552 164** **EAMF-A-28B-42A**	**543 419** **EAMC-16-20-5-6**	**552 155** **EAMK-A-D32-28B**
EMMS-ST-57-S-...	**550 980** **EAMM-A-D32-57A**	**530 081** **MTR-FL44-ST57**	**551 002** **EAMC-30-32-6-6.35**	**551 006** **EAMK-A-D32-44**
with motor unit				
MTR-DCI-32S-...	**543 149** **EAMM-A-D32-32B**	**–**	**543 420** **EAMC-16-20-6-6**	**552 156** **EAMK-A-D32-32B**
ERMB-25				
with servo motor				
EMMS-AS-55-...	**543 153** **EAMM-A-D40-55A**	**529 942** **MTR-FL44-AC55**	**543 423** **EAMC-30-32-8-9**	**552 157** **EAMK-A-D40-44**
EMMS-AS-70-S-...	**550 981** **EAMM-A-D40-70A**	**529 943** **MTR-FL44-AC70**	**551 004** **EAMC-30-32-8-11**	**552 157** **EAMK-A-D40-44**
with stepper motor				
EMMS-ST-57-...	**543 154** **EAMM-A-D40-57A**	**530 081** **MTR-FL44-ST57**	**543 421** **EAMC-30-32-6.35-8**	**552 157** **EAMK-A-D40-44**
with motor unit				
MTR-DCI-42S-...-G7	**543 155** **EAMM-A-D40-42B**	**–**	**543 422** **EAMC-30-32-8-8**	**552 158** **EAMK-A-D40-42B**
MTR-DCI-42S-...-G14	**543 156** **EAMM-A-D40-42C**	**–**	**543 422** **EAMC-30-32-8-8**	**552 159** **EAMK-A-D40-42C**

Rotary modules ERMB, electric

Accessories

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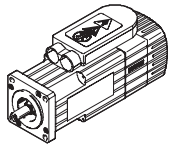
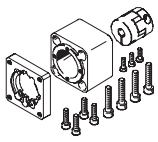
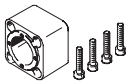
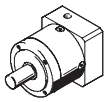
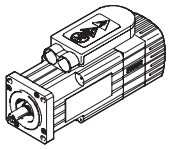
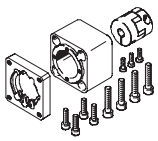
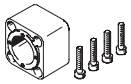
Permissible axis/motor combinations with axial kit – Without gear unit				
Motor/motor unit	Axial kit	Axial kit comprising:		
		Motor flange	Coupling	Coupling housing
				
Type	Part No. Type	Part No. Type	Part No. Type	Part No. Type
ERMB-32				
with servo motor				
EMMS-AS-70-M-...	**543 161** **EAMM-A-D60-70A**	**529 945** **MTR-FL64-AC70**	**543 424** **EAMC-42-50-11-12**	**552 160** **EAMK-A-D60-64-L51**
EMMS-AS-100-S-...	**550 983** **EAMM-A-D60-100A**	**529 947** **MTR-FL64-AC100**	**551 005** **EAMC-42-50-12-19**	**551 007** **EAMK-A-D60-64-L61**
with stepper motor				
EMMS-ST-87-M-... **EMMS-ST-87-L-...**	**543 162** **EAMM-A-D60-87A**	**533 140** **MTR-FL64-ST87**	**543 424** **EAMC-42-50-11-12**	**552 160** **EAMK-A-D60-64-L51**
with motor unit				
MTR-DCI-52S-...-G7	**543 163** **EAMM-A-D60-52B**	**–**	**533 709** **EAMC-42-50-12-12**	**552 161** **EAMK-A-D60-52B**
MTR-DCI-52S-...-G14	**543 164** **EAMM-A-D60-52C**	**–**	**533 709** **EAMC-42-50-12-12**	**552 162** **EAMK-A-D60-52C**

Permissible axis/motor combinations with axial kit – With gear unit					
Gear unit	Motor	Axial kit	Axial kit comprising:		
			Motor flange	Coupling	Coupling housing
					
Type	Type	Part No. Type	Part No. Type	Part No. Type	Part No. Type
ERMB-25					
with servo motor					
EMGA-40-P-G3-SAS-40	**EMMS-AS-40-...**	**560 282** **EAMM-A-D40-40G**	**550 986** **EAMF-A-44-40G**	**558 029** **EAMC-30-32-8-10**	**552 157** **EAMK-A-D40-44**
ERMB-32					
with servo motor					
EMGA-60-P-G...-SAS-55	**EMMS-AS-55-...**	**560 283** **EAMM-A-D60-60G**	**550 987** **EAMF-A-64-60G**	**543 424** **EAMC-42-50-11-12**	**552 160** **EAMK-A-D60-64-L51**
EMGA-60-P-G3-SAS-70	**EMMS-AS-70-...**	**560 283** **EAMM-A-D60-60G**	**550 987** **EAMF-A-64-60G**	**543 424** **EAMC-42-50-11-12**	**552 160** **EAMK-A-D60-64-L51**

Note

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

Rotary modules ERMB, electric

Accessories

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Axial kit EAMM-A-...
Material:
Coupling housing: Die-cast aluminium
Coupling hubs: Wrought aluminium alloy
Clamping component: High-alloy steel
Screws: Galvanised steel

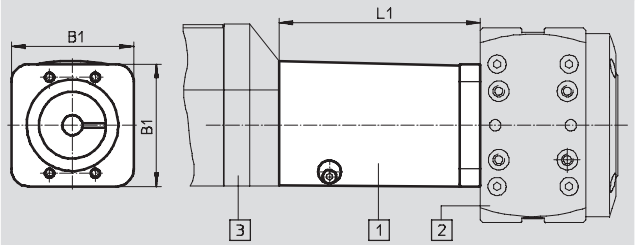


Diagram:
1 Axial kit
2 Rotary module
3 Motor

General technical data									
EAMM-A-...		D32-				D40-			
		32B	35-40A	42A	57A	42B	42C	55A	57A
Transferable torque	[Nm]	1.1	4.0	0.8	4.0	8.0			6.0
Mass moment of inertia	[kgmm²]	0.3	5.87	0.3	5.87	5.87			
Mounting position		Any				Any			

EAMM-A-...		D40-		D60-					
		70A	40G	52B	52C	70A	87A	100A	60G
Transferable torque	[Nm]	8.0		14.0		12.0		14.0	12.0
Mass moment of inertia	[kgmm²]	5.87		35.5					
Mounting position		Any							

Operating and environmental conditions		
Ambient temperature	[°C]	0 ... 50
Storage temperature	[°C]	–25 ... +60
Protection class[1)]		IP40
Relative air humidity	[%]	0 ... 95

1) Only with combined attachment of motor and axis

Dimensions and ordering data					
Type	B1	L1	Weight [g]	Part No.	Type
EAMM-A-D32-32B	45	43	150	**543 149**	**EAMM-A-D32-32B**
EAMM-A-D32-35-40A	40	46	220	**560 281**	**EAMM-A-D32-35-40A**
EAMM-A-D32-42A	45	48	140	**543 148**	**EAMM-A-D32-42A**
EAMM-A-D32-57A	45	50.5	270	**550 980**	**EAMM-A-D32-57A**
EAMM-A-D40-42B	53.5	88	340	**543 155**	**EAMM-A-D40-42B**
EAMM-A-D40-42C	53.5	101	370	**543 156**	**EAMM-A-D40-42C**
EAMM-A-D40-40G	53.5	55.5	350	**560 282**	**EAMM-A-D40-40G**
EAMM-A-D40-55A	53.5	49.2	350	**543 153**	**EAMM-A-D40-55A**
EAMM-A-D40-57A	53.5	50.5	350	**543 154**	**EAMM-A-D40-57A**
EAMM-A-D40-70A	53.5	52	410	**550 981**	**EAMM-A-D40-70A**
EAMM-A-D60-52B	74	112	930	**543 163**	**EAMM-A-D60-52B**
EAMM-A-D60-52C	74	126	1,020	**543 164**	**EAMM-A-D60-52C**
EAMM-A-D60-60G	74	71.4	830	**560 283**	**EAMM-A-D60-60G**
EAMM-A-D60-70A	74	63.2	750	**543 161**	**EAMM-A-D60-70A**
EAMM-A-D60-87A	74	64.7	890	**543 162**	**EAMM-A-D60-87A**
EAMM-A-D60-100A	74	78.2	1,170	**550 983**	**EAMM-A-D60-100A**

Rotary modules ERMB, electric

Accessories

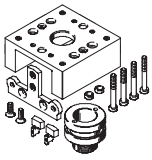
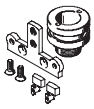
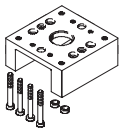
FESTO

Ordering data – Centring sleeves

	For size	Brief description	Number	Part No.	Type	PU[1]
	20	For centring loads and attachments (centring sleeves are included in the scope of delivery of the rotary module)	2	**186 717**	**ZBH-7**	10
			2	**150 927**	**ZBH-9**	
	25, 32		4			

1) Packaging unit quantity

Ordering data

	For size	Brief description	Weight [g]	Part No.	Type	PU[1]
Sensing kit EAPS-...-S						
	20	Kit with housing (trip cam support, 2 cams, sensor bracket)	258	**558 392**	**EAPS-R1-20-S**	1
	25		406	**558 393**	**EAPS-R1-25-S**	
	32		560	**558 394**	**EAPS-R1-32-S**	
Sensing kit without housing EAPS-...-S-WH						
	20	Kit without housing (trip cam support, 2 cams, sensor bracket)	86	**558 395**	**EAPS-R1-20-S-WH**	1
	25		90	**558 396**	**EAPS-R1-25-S-WH**	
	32		136	**558 397**	**EAPS-R1-32-S-WH**	
Cam EAPS-...-CK						
	20, 25, 32	For sensing positions (the scope of delivery includes two cams)	5 each	**558 398**	**EAPS-R1-CK**	2
Sensor bracket EAPS-...-SH						
	20, 25	For attaching proximity sensors to the rotary module	24	**558 399**	**EAPS-R1-20-SH**	1
	32		30	**558 400**	**EAPS-R1-32-SH**	
Housing EAPS-...-H						
	20	For protecting the sensing kit and as mounting interface with a drive	172	**560 673**	**EAPS-R1-20-H**	1
	25		316	**560 674**	**EAPS-R1-25-H**	
	32		424	**560 675**	**EAPS-R1-32-H**	

Ordering data – Proximity sensors, inductive Technical data ➔ Internet: sien

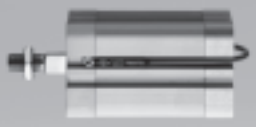
	Contact	Connection	Part No.	Type
	N/O contact	Cable	**150 386**	**SIEN-M8B-PS-K-L**
		Plug	**150 387**	**SIEN-M8B-PS-S-L**
	N/C contact	Cable	**150 390**	**SIEN-M8B-PO-K-L**
		Plug	**150 391**	**SIEN-M8B-PO-S-L**

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	**541 333**	**NEBU-M8G3-K-2.5-LE3**
			5	**541 334**	**NEBU-M8G3-K-5-LE3**

Products and services – everything from a single source

Products incorporating new ideas are created when enthusiasm for technology and efficiency come together. Tailor-made service goes without saying when the customer is the focus of attention.



Pneumatic and electrical drives

- Pneumatic cylinders
- Semi-rotary drives
- Handling modules
- Servopneumatic positioning systems
- Electromechanical drives
- Positioning controllers and controllers

Valves and valve terminals

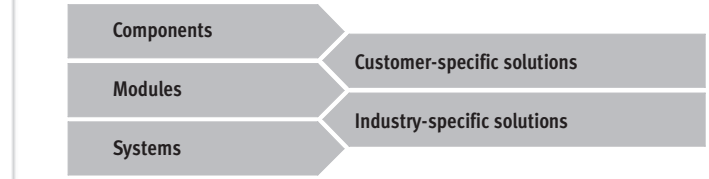
- Standard valves
- Universal and application-optimised valves
- Manually and mechanically actuated valves
- Shut-off, pressure control and flow control valves
- Proportional valves
- Safety valves

Fieldbus systems/ electrical peripherals

- Fieldbus Direct
- Installation system CP/CPI
- Modular electrical terminal CPX

Compressed air preparation

- Service unit combinations
- Filter regulators
- Filters
- Pressure regulators
- Lubricators
- On-off and soft-start valves
- Dryers
- Pressure amplifiers
- Accessories for compressed air preparation



Services from Festo to increase your productivity – across the entire value creation sequence

Engineering – for greater speed in the development process

- CAD models
- 14 engineering tools
- Digital catalogue
- FluidDRAW®
- More than 1,000 technical consultants and project engineers worldwide
- Technical hotlines

Supply chain – for greater speed in the procurement process

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- Online order tracking
- Euro special manufacturing service
- Logistics optimisation

Gripping and vacuum technology

- Vacuum generators
- Vacuum grippers
- Vacuum security valves
- Vacuum accessories
- Standard grippers
- Micro grippers
- Precision grippers
- Heavy-duty grippers

Sensors and monitoring units

- Proximity sensors
- Pressure and flow sensors
- Display and operating units
- Inductive and optical proximity sensors
- Displacement encoders for positioning cylinders
- Optical orientation detection and quality inspection

Controllers/bus systems

- Pneumatic and electropneumatic controllers
- Programmable logic controllers
- Fieldbus systems and accessories
- Timers/counters
- Software for visualisation and data acquisition
- Display and operating units

Accessories

- Pipes
- Tubing
- Pipe connectors and fittings
- Electrical connection technology
- Silencers
- Reservoirs
- Air guns

All in all, 100% product and service quality

A customer-oriented range with unlimited flexibility:
Components combine to produce ready-to-install modules and systems. Included in this are special designs – since at Festo, most industry-specific products and customer-specific solutions are based on the 23,000 plus catalogue products. Combined with the services for the entire value creation sequence, the end result is unbeatable economy.

Assembly – for greater speed in the assembly/commissioning process

- Prepack
- Preassembly
- Turnkey pneumatics
- Handling solutions

Operation – for greater speed in the operational process

- Spare parts service
- Energy saving service
- Compressed air consumption analysis
- Compressed air quality analysis
- Customer service

What must be observed when using Festo components?

Specified limit values for technical data and any specific instructions must be adhered to by the user in order to ensure recommended operating conditions.
When pneumatic components are used, the user shall ensure that they are operated using correctly prepared compressed air without aggressive media.
When Festo components are used in safety-oriented applications, the user shall ensure that all applicable national and local safety laws and regulations, for example the machine directive, together with the relevant references to standards are observed.
Unauthorised conversions or modifications to products and systems from Festo involve a safety risk and are thus not permissible.
Festo does not accept any liability for resulting damages.
You should contact Festo's advisors if one of the following apply to your application:

- The ambient conditions and conditions of use or the operating medium differ from the specified technical data.
- The product is to perform a safety function.
- A risk or safety analysis is required.
- You are unsure about the product's suitability for use in the planned application.
- You are unsure about the product's suitability for use in safety-oriented applications.