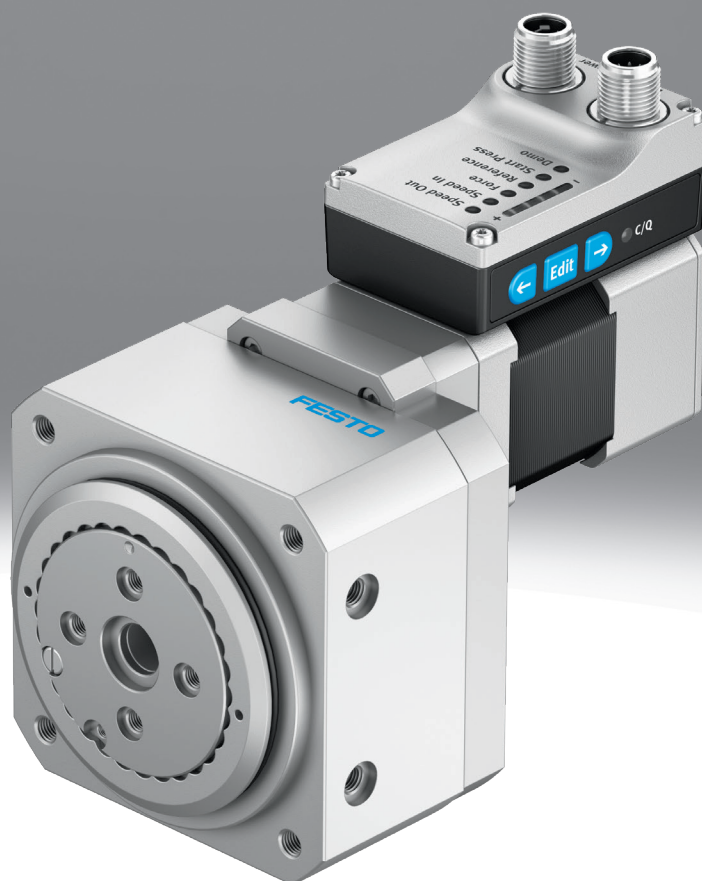


# Rotary drive unit ERMS

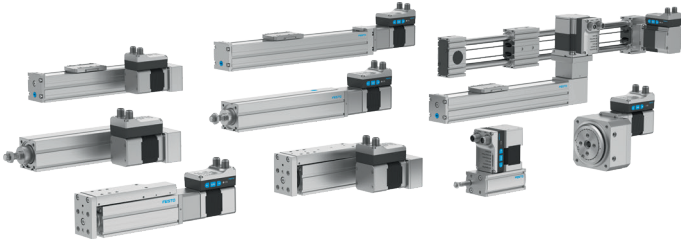
**FESTO**



## Characteristics

### At a glance

Further information → [erms](#)

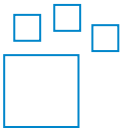


The simplicity of pneumatics is now combined for the first time with the advantages of electric automation thanks to the Simplified Motion Series. These integrated drives are the perfect solution for users who are looking for an electric alternative for very simple motion and positioning tasks between two mechanical end positions, but don't want the commissioning process for traditional electric drive systems that can often be quite complex.

- No external servo drive: all necessary electronic components combined in the integrated drive
- Two control options integrated as standard: digital I/O and IO-Link®
- Complete solution for simple movements between mechanical end positions
- Simplified commissioning: all parameters can be manually set directly on the drive
- No special knowledge required for commissioning
- Sealed hollow shaft for the integrated through-feed of cables and tubing
- Standardised mounting interface for direct connection to the electric mini slides EGSL, EGSC and EGSS

### Ordering data - modular system

Further information → [erms](#)



Configurable product

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

### Engineering tools

Further information → [engineering tools](#)

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

Simplified Motion Series - Solution Finder

- Selection tool for simple electric drive solutions from the Simplified Motion Series: This Solution Finder makes finding solutions for electric motion tasks child's play. All you have to do is enter the main application parameters like stroke, payload and motion type, and the system suggests the best solution for your simple motion task in seconds. Then you can simply add it to your shopping basket with just one click and order it online.

### Diagrams

Further information → [erms](#)



The diagrams shown in this document are also available online. These can be used to display precise values.

### Motor type

#### IO-Link

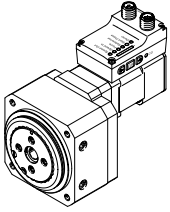
- The motor is integrated into the drive and can be easily commissioned according to the “plug and work” principle. The relevant parameters can be set directly on the drive. Control is via digital I/O or IO-Link.
- The service life of the motor at nominal power is 20000 h.

## Characteristics

### Control panel

When aligning the motor, make sure that the buttons (for parameterisation and control) can be used.

[H1] Integrated



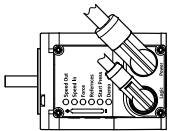
### Bus protocol/activation

PNP or NPN switching outputs can be selected for actuation.

### End-position sensing

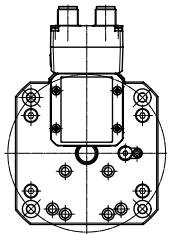
End position feedback similar to a conventional proximity switch, integrated as standard

### Cable outlet direction

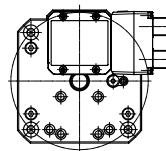


Describes the alignment of the motor on the drive. Depending on the alignment, the connecting cables can be routed according to the customer's specifications. The cables are positioned at a 45° angle to the axis.

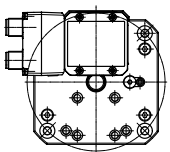
[ ] Standard



[L] Left



[R] Right



### Electrical accessories

Connecting cable between the motor and IO-Link master

Type code

001	Series	
<b>ERMS</b>	Rotary drive	

002	Size	
<b>25</b>	25	
<b>32</b>	32	

003	Nominal swivel angle	
<b>90</b>	90°	
<b>180</b>	180°	

004	Motor type	
<b>ST</b>	Stepper motor ST	

005	Controller	
<b>M</b>	Integrated	

006	Control panel	
<b>H1</b>	Integrated	

007	Bus protocol/activation	
<b>PLK</b>	PNP and IO-Link®	
<b>NLK</b>	NPN and IO-Link®	

008	End-position sensing	
<b>AA</b>	With integrated end-position sensing	

009	Cable outlet direction	
	Standard	
<b>L</b>	Left	
<b>R</b>	Right	

010	Electrical accessories	
	None	
<b>L1</b>	Adapter for operation as IO-Link® device	

## Datasheet

General technical data		
Size	25	32
Design	Electromechanical rotary drive, With integrated drive, With integrated gear unit	
Rotation angle	90°, 180°	
Gear unit ratio	9:1	7:1
Mounting position	optional	
Additional functions	User interface Built-in end-position sensing Integrated end-position sensing	User interface Integrated end-position sensing
Display	LED	
Referencing	Positive fixed stop block Negative fixed stop block	
Type of mounting	Via female thread	
Max. cable length	15 m outputs 15 m inputs 20 m with IO-Link® operation	
Product weight	1,472 g	2,304 g

Mechanical data		
Size	25	32
Permissible mass moment of inertia	0.006 kgm <sup>2</sup>	0.016 kgm <sup>2</sup>
Peak torque	2.7 Nm	5.6 Nm
Max. speed at 90°	105 rpm	100 rpm
Speed "Speed press"	3 m/s	2 m/s
Angular acceleration <sup>1)</sup>	≤140 rad/s <sup>2</sup>	
Repetition accuracy	±0.05°	±0.1°
Torsional backlash <sup>2)</sup>	0.2 deg	

1) Parameter cannot be changed

2) Without mass in new condition

Electrical data		
Size	25	32
Nominal voltage DC	24 V	
Permissible voltage fluctuations	+/- 15%	
Nominal current	3 A	5.3 A
Max. current consumption	3 A	5.3 A
Max. current consumption, logic	0.3 A	
Rotor position sensor	Absolute single-turn encoder	
Rotor position sensor, encoder measuring principle	Magnetic	
Rotor position transducer resolution	16 bit	

## Datasheet

Interfaces		
Size	25	32
Parameterisation interface	IO-Link, User interface	
Working range of logic input	24 V	
Number of digital logic inputs	2	
Features of logic input	Configurable Not galvanically isolated	
Switching logic for inputs	NPN (negative switching) PNP (positive switching)	
Specification logic input	Based on IEC 61131-2, type 1	
Max. current digital logic outputs	100 mA	
Number of digital logic outputs 24 V DC	2	
Features of digital logic outputs	Configurable Not galvanically isolated	
Switching logic for outputs	NPN (negative switching) PNP (positive switching)	

Technical data IO-Link®		
Size	25	32
IO-Link, SIO-Mode support	Yes	
IO-Link, communication mode	COM3 (230.4 kBaud)	
IO-Link, Port class	A	
IO-Link, Number of ports	1	
IO-Link, Process data length OUT	2 bytes	
IO-Link, Process data content OUT	Move in 1 bit Move out 1 bit Quit Error 1 bit Move intermediate 1 bit	
IO-Link, Process data length IN	2 bytes	
IO-Link, Process data content IN	State In 1 bit State Out 1 bit State Move 1 bit State Device 1 bit State Intermediate 1 bit	
IO-Link, Service data IN	32-bit force 32-bit position 32-bit speed	
IO-Link, Min. cycle time	1 ms	
IO-Link, Data storage required	0.5 KB	
IO-Link, Protocol version	Device V 1.1	

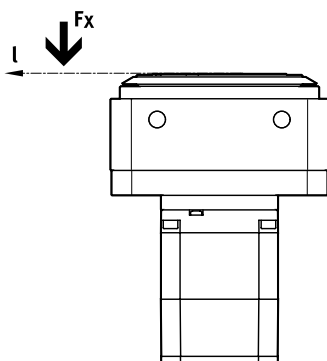
## Datasheet

## Operating and environmental conditions

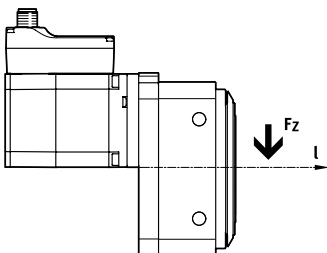
Size	25	32
Ambient temperature	0 ... 50°C	
Storage temperature	-20 ... 60°C	
Note on ambient temperature	Power must be reduced by 2% per K at ambient temperatures above 30°C.	
Protective function	Temperature monitoring	
Relative air humidity	0 - 85%	
Insulation protection class	B	
Protection class	III	
Degree of protection	IP40	
Duty cycle	100%	
CE mark (see declaration of conformity)	To EU EMC Directive In accordance with EU RoHS Directive	
CE marking (see declaration of conformity)	To UK instructions for EMC To UK RoHS instructions	
KC mark	KC-EMV	
Approval	RCM trademark	
Vibration resistance	Transport application test with severity level 1 to FN 942017-4 and EN 60068-2-6	
Shock resistance	Shock test with severity level 1 to FN 942017-5 and EN 60068-2-27	
Maintenance interval	Life-time lubrication	

## Materials

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

Max. dynamic axial force  $F_x$ 

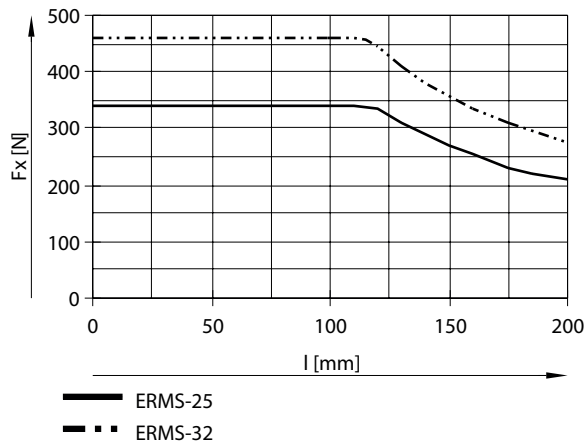
Size	25	32
Max. axial force	350	450

Max. dynamic radial force  $F_z$ 

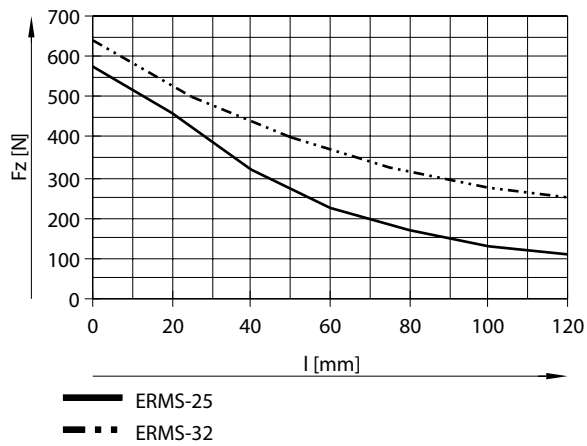
Size	25	32
Max. radial force	450	550

## Datasheet

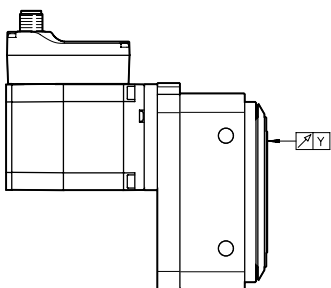
### Dynamic axial force $F_x$ as a function of lever arm $l$



### Dynamic radial force $F_z$ as a function of lever arm $l$



### Axial run-out



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

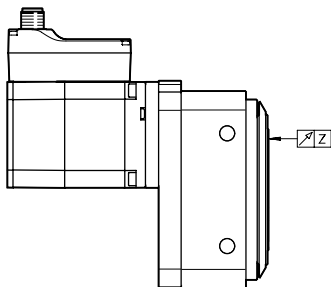
For size 25 < 0.02 mm

For size 32 < 0.04 mm



## Datasheet

### Concentricity

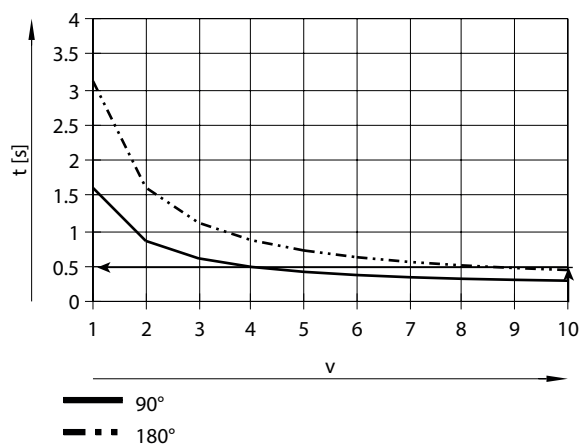
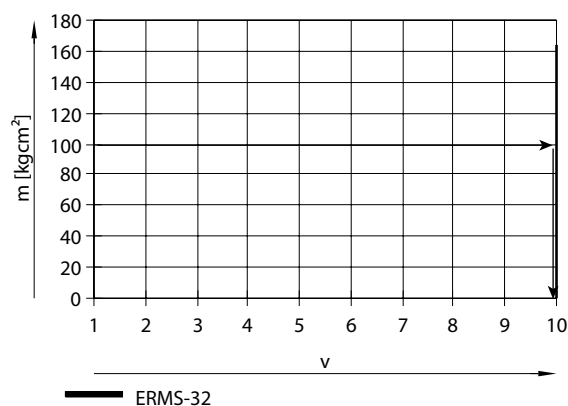


Measured at the centring hole of the rotating plate, when new.

For size 25 < 0.02 mm

For size 32 < 0.04 mm

### Sizing example



Application data:

- Mass moment of inertia: 100 kgcm<sup>2</sup>
- Mounting position: horizontal
- Rotation angle: 180°
- Max. permissible positioning time: 1 s (one direction)

Step 1:

Possible size from the table “Mechanical data”: ERMS-32-180

Step 2:

Selecting the max. speed level v for mass moment of inertia (see diagram on the left)

Step 3:

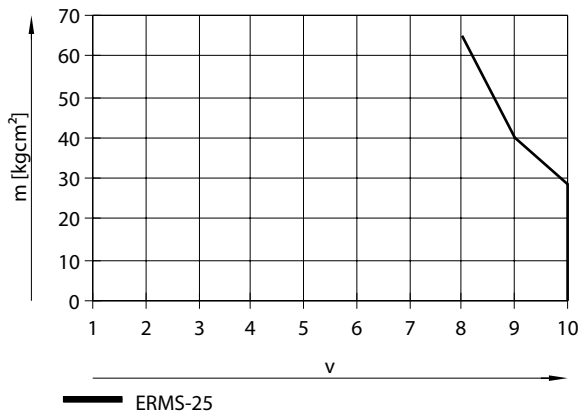
Reading off the min. positioning time t for rotation angle (see diagram on the left)

Result: The application can be realised with ERMS-32-180. A minimum positioning time (one direction) of 0.5 s is achieved.

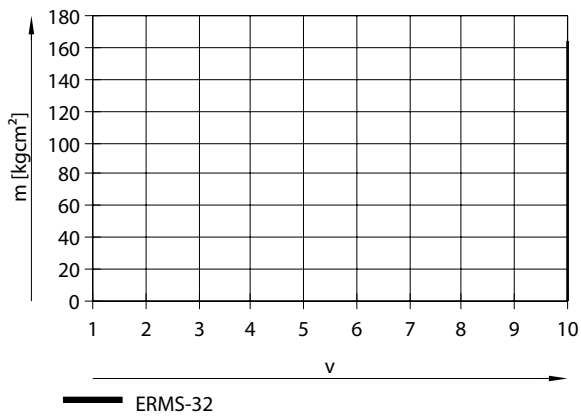
Longer positioning times can be selected at any time by using a lower speed setting.

Datasheet

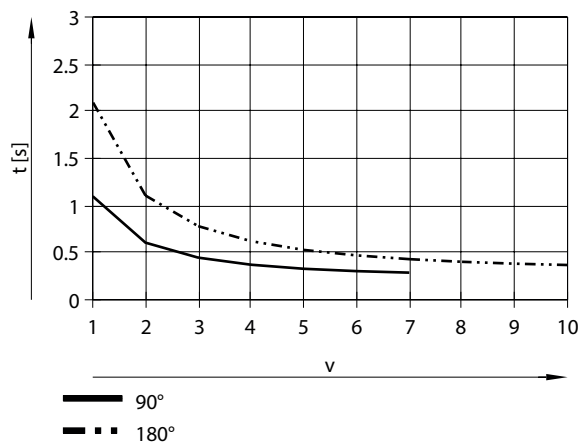
Mass moment of inertia  $M$  as a function of speed level  $v$  for ERMS-25



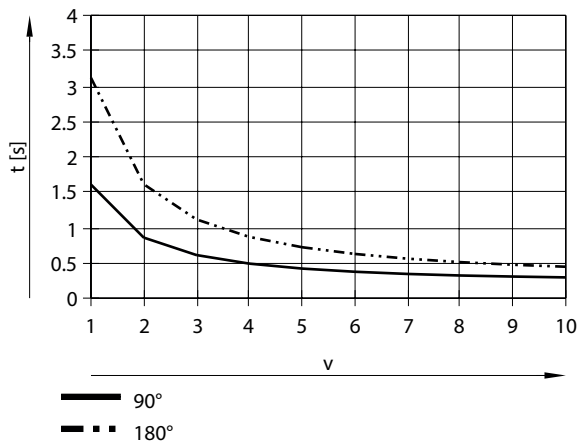
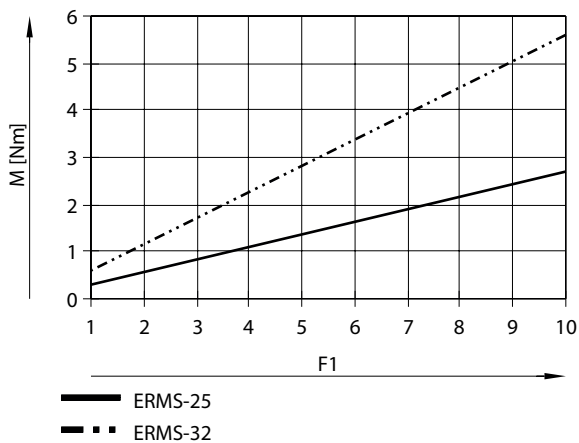
Mass moment of inertia  $M$  as a function of speed level  $v$  for ERMS-32



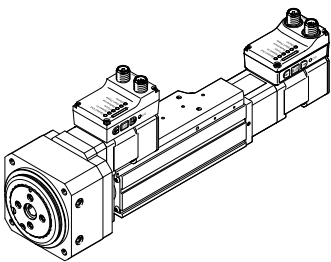
Positioning time  $t$  as a function of speed level  $v$  and rotation angle for ERMS-25



## Datasheet

Positioning time  $t$  as a function of speed level  $v$  and rotation angle for ERMS-32Torque  $M$  as a function of force level  $F_1$ 

## Combination of ERMS with mini slide unit EGSS

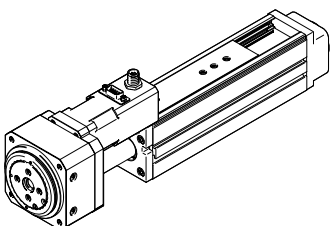


Required accessories:

ERMS-25 / EGSS-45, 60: 2x centring sleeve ZBH-7; 2x screw M5x12

ERMS-32 / EGSS-60: 2x centring sleeve ZBH-7; 2x screw M5x15

## Combination of ERMS with mini slide EGSL

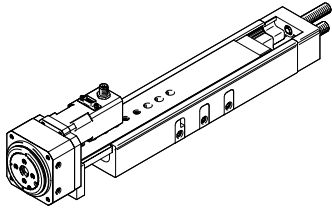


Required accessories:

ERMS-25, 32 / EGSL-55: 2x centring sleeve ZBH-7; 2x screw M5x14

## Datasheet

### Combination of ERMS with mini slide DGSL

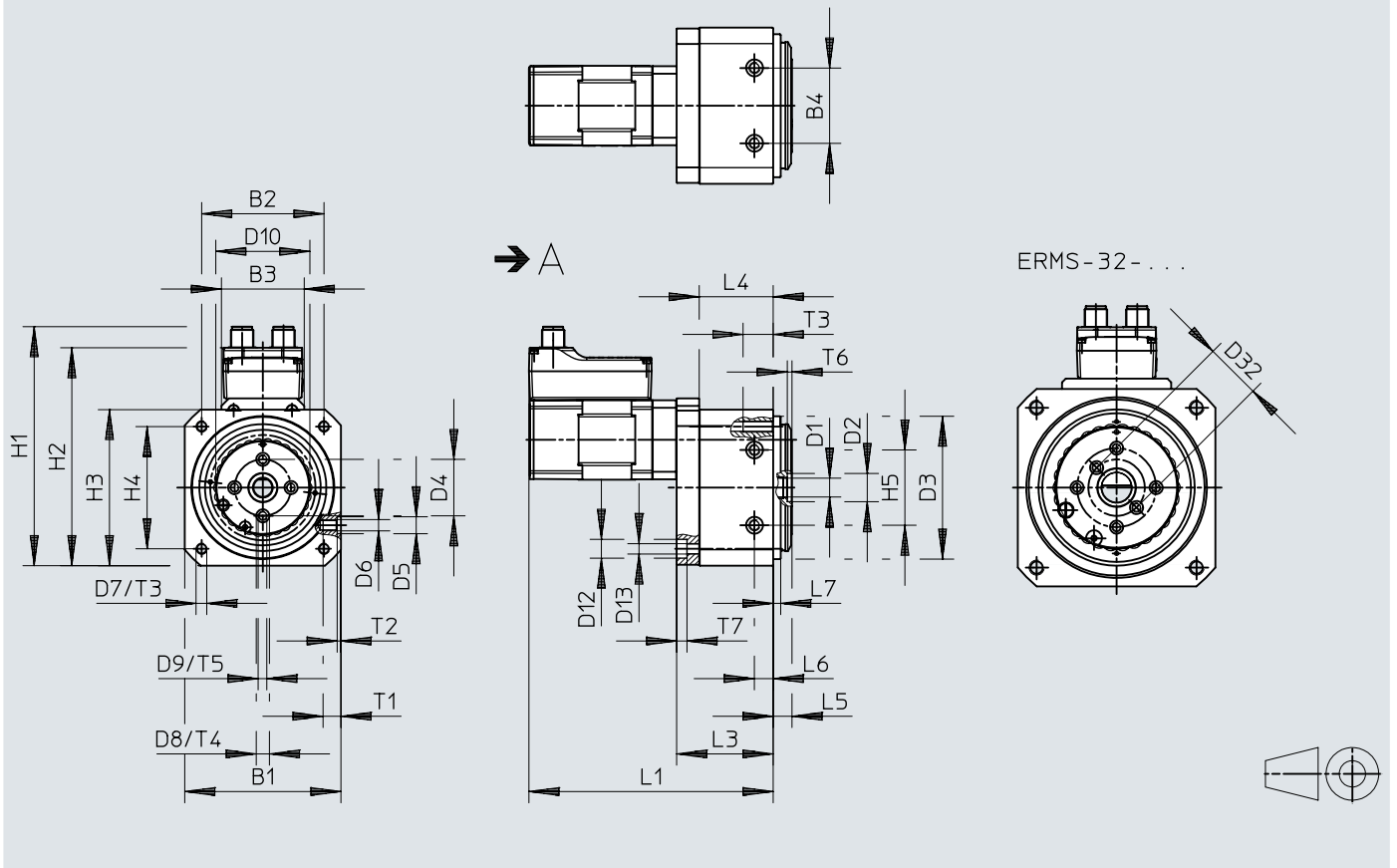


Required accessories:

ERMS-25 / DGSL-20, 25: 2x connector sleeve ZBV-9-7; 2x screw M5x22

Dimensions

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



## Dimensions

	B1 ±0,3	B2	B3	B4 ±0,03	B5 ±0,02	B6 ±0,02	B7	D1 ∅	D2 ∅ H8	D3 ∅ f8	D4 ∅ ±0,02
ERMS-25	83	65	44	40	40	25	101,6	10	15	76	30
ERMS-32	105	85	58	60	–	25	120	16	20	96	42

	D5 ∅ H7	D6	D7	D8 ∅ H7	D9	D10 ∅	D11 ∅ ±0,5	D12 ∅	D13 ∅	D14 ∅ H7	D15
ERMS-25	9	M6	M6	7	M5	50	106	10	5,5	7	M5
ERMS-32	12	M8	M8	7	M5	65	135	11	6,6	–	–

	D16 ∅ H7	D17	D18 max.	D19	D32 ±0,02	H1	H2	H3 ±0,3	H4	H5 ±0,03
ERMS-25	7	M5	10	M8x1	–	127,1	115,9	83	65	40
ERMS-32	7	M5	9	M8x1	30	149	137,8	105	85	60

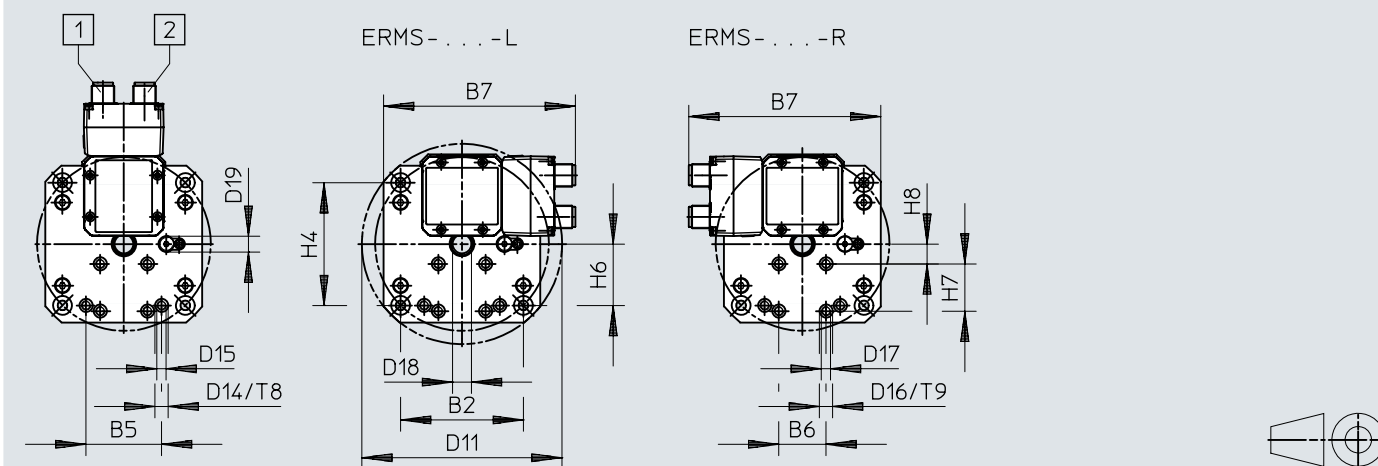
	H6	H7 ±0,02	H8	L1 ±1,5	L3 ±0,6	L4	L5 ±0,2	L6 ±0,1	L7 ±0,1
ERMS-25	32,5	25	10,5	129,8	51,3	39,3	10	10	4
ERMS-32	–	25	15	127	46,5	34,5	12	10	6

	T1	T2 +0,1	T3	T4 +0,1	T5	T6 +0,1	T7	T8	T9
ERMS-25	9,5	2	16	1,5	8,5	2,5	5,5	1,5	1,5
ERMS-32	15	2,5	20	1,5	10	2,8	6,8	–	1,5

## Dimensions

### Dimensions – View A

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




- [1] Connection to logic interface
- [2] Power supply connection


	B2	B5	B6	B7	D11	D14	D15	D16	D17
		±0,02	±0,02		∅ ±0,5	∅ H7		∅ H7	
ERMS-25	65	40	25	101,6	106	7	M5	7	M5
ERMS-32	85	–	25	120	135	–	–	7	M5

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

## Ordering data

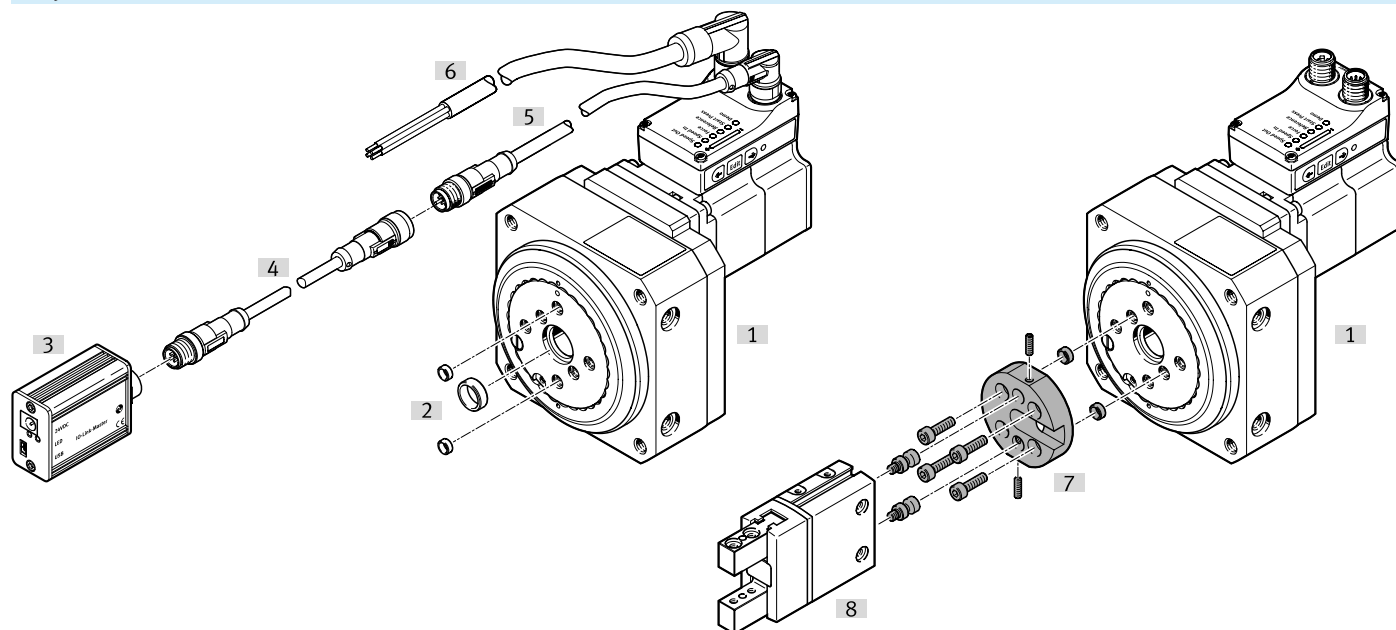
Ordering data				
	Size	Rotation angle	Part no.	Type
	25	90°	<b>8087819</b>	<b>ERMS-25-90-ST-M-H1-PLK-AA</b>
		180°	<b>8087820</b>	<b>ERMS-25-180-ST-M-H1-PLK-AA</b>
	32	90°	<b>8087821</b>	<b>ERMS-32-90-ST-M-H1-PLK-AA</b>
		180°	<b>8087822</b>	<b>ERMS-32-180-ST-M-H1-PLK-AA</b>

Ordering data – Modular product system				
	Size		Part no.	Type
	25		<b>8087808</b>	<b>ERMS-25-</b>
	32		<b>8087809</b>	<b>ERMS-32-</b>




## Peripherals


## Peripherals overview





Accessories			→ Page/Internet
Type/order code	Description		
[1] Rotary drive unit ERMS	Electric drive		erms
[2] Centring sleeve ZBH	<ul style="list-style-type: none"> <li>• For centring attachments</li> <li>• For centring the rotary drive</li> </ul>		18
[3] IO-Link® master USB, CDSU-1	For straightforward use of the mini slide unit with IO-Link		18
[4] Adapter NEFC-M12G8	Connection between the motor and the IO-Link® master		18
[5] Connecting cable NEBC-M12	For connection to a controller		19
[6] Supply cable NEBL-T12	For connecting the load and logic supply		19
[7] Adapter kit DHAA	For drive/gripper connections		adapter-bausatz
[8] Grippers			greifer


## Accessories

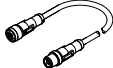
Centring sleeve ZBH						
	Description	Material sleeve	Size of pack	Product weight	Part no.	Type
	For sizes 25, 32	Steel	10	1 g	<b>8146544</b>	<b>ZBH-7-B</b>

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

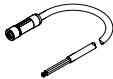
Centring sleeve ZBH						
	Description	Material sleeve	Size of pack	Product weight	Part no.	Type
	For size 32	Steel	10	1 g	<b>8137185</b>	<b>ZBH-12-B</b>

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


IO-Link® master USB						
	Description			Part no.	Type	
	For using the unit with IO-Link®, an external power supply plug is also required (not included in the scope of delivery)			<b>8091509</b>	<b>CDSU-1</b>	

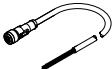
Adapter NEFC						
	Electrical connection 1, connector system	Electrical connection 2, connector system <sup>1)</sup>	Electrical connection 2, number of connections/cores	Cable length	Part no.	Type
	M12x1, A-coded to EN 61076-2-101	M12x1, A-coded to EN 61076-2-101	5	0.3 m	<b>8080777</b>	<b>NEFC-M12G8-0.3-M12G5-LK</b>


1) Only recommended for use with IO-Link® Port class A master

Supply cables NEBL, straight						
	Electrical connection 1, connector system	Electrical connection 2, connector system	Electrical connection 2, number of connections/cores	Cable length	Part no.	Type
	M12x1, T-coded according to EN 61076-2-111	Open end	4	2 m	<b>8080790</b>	<b>NEBL-T12G4-E-2-N-LE4</b>
				5 m	<b>8080791</b>	<b>NEBL-T12G4-E-5-N-LE4</b>
				10 m	<b>8080792</b>	<b>NEBL-T12G4-E-10-N-LE4</b>
				15 m	<b>8080793</b>	<b>NEBL-T12G4-E-15-N-LE4</b>

## Accessories

Supply cables NEBL, angled						
	Electrical connection 1, connector system	Electrical connection 2, connector system	Electrical connection 2, number of connections/cores	Cable length	Part no.	Type
	M12x1, T-coded according to EN 61076-2-111	Open end	4	2 m	8080778	NEBL-T12W4-E-2-N-LE4
				5 m	8080779	NEBL-T12W4-E-5-N-LE4
				10 m	8080780	NEBL-T12W4-E-10-N-LE4
				15 m	8080781	NEBL-T12W4-E-15-N-LE4

Connecting cables NEBC, straight						
	Electrical connection 1, connector system	Electrical connection 2, connector system	Electrical connection 2, number of connections/cores	Cable length	Part no.	Type
	M12x1, A-coded to EN 61076-2-101	M12x1, A-coded to EN 61076-2-101	8	2 m	8080782	NEBC-M12G8-E-2-N-M12G8
				5 m	8080783	NEBC-M12G8-E-5-N-M12G8
				10 m	8080784	NEBC-M12G8-E-10-N-M12G8
				15 m	8080785	NEBC-M12G8-E-15-N-M12G8
		Open end	2 m	8094480	NEBC-M12G8-E-2-N-B-LE8	
			5 m	8094477	NEBC-M12G8-E-5-N-B-LE8	
			10 m	8094482	NEBC-M12G8-E-10-N-B-LE8	
			15 m	8094475	NEBC-M12G8-E-15-N-B-LE8	

Connecting cables NEBC, angled						
	Electrical connection 1, connector system	Electrical connection 2, connector system	Electrical connection 2, number of connections/cores	Cable length	Part no.	Type
	M12x1, A-coded to EN 61076-2-101	M12x1, A-coded to EN 61076-2-101	8	2 m	8080786	NEBC-M12W8-E-2-N-M12G8
				5 m	8080787	NEBC-M12W8-E-5-N-M12G8
				10 m	8080788	NEBC-M12W8-E-10-N-M12G8
				15 m	8080789	NEBC-M12W8-E-15-N-M12G8
		Open end	2 m	8094476	NEBC-M12W8-E-2-N-B-LE8	
			5 m	8094478	NEBC-M12W8-E-5-N-B-LE8	
			10 m	8094481	NEBC-M12W8-E-10-N-B-LE8	
			15 m	8094479	NEBC-M12W8-E-15-N-B-LE8	