

Rotary axes SE

SE20 & SE30

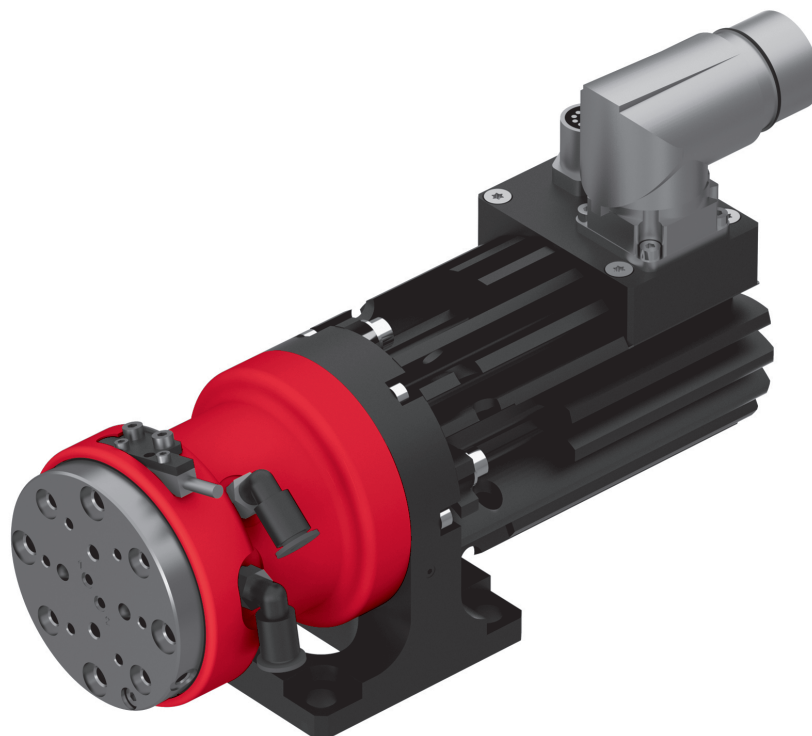
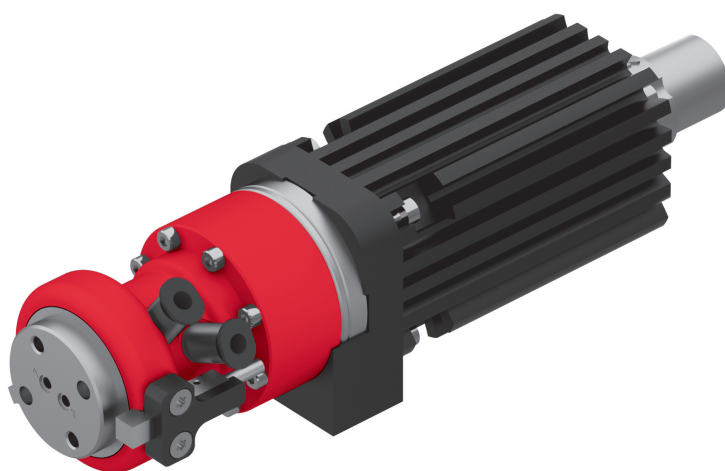
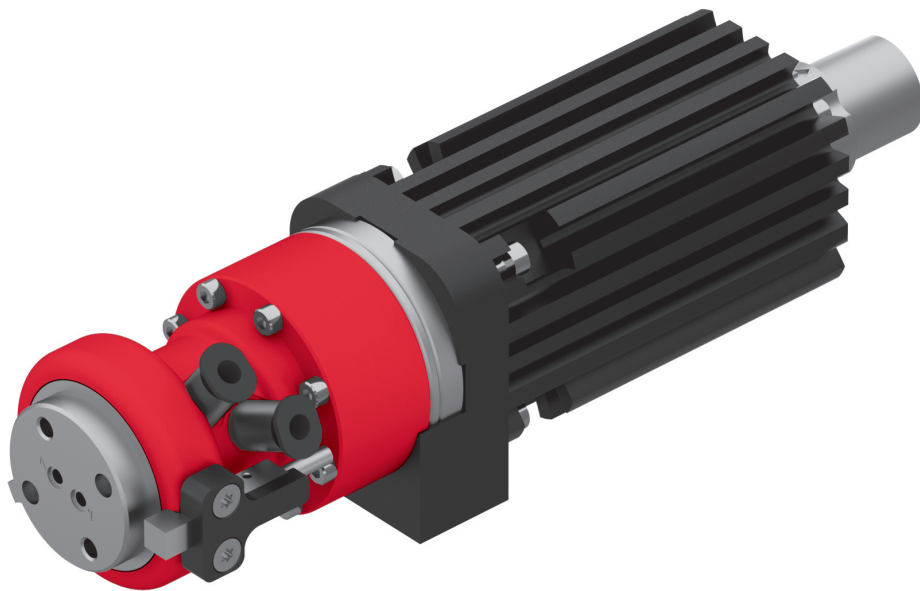


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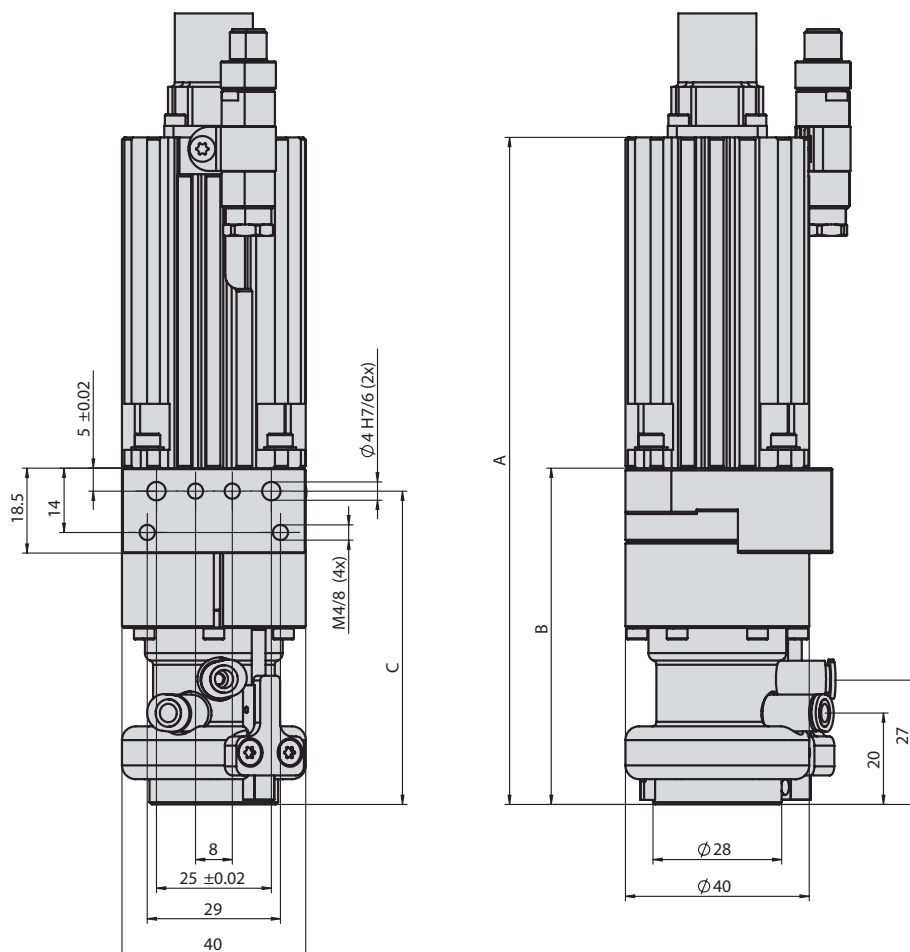
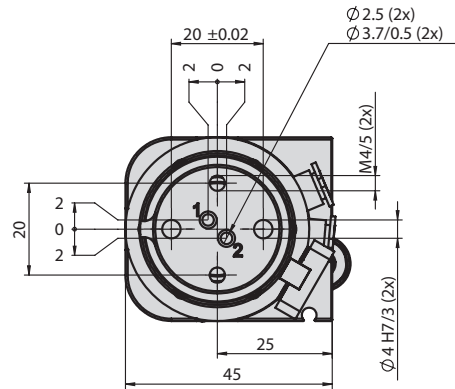
Rotary axes SE

SE20



- Peak torques of up to 4 Nm with a minimum weight of 0.59 kg
- High-quality, backlash-free harmonic drive gear
- Position, speed, acceleration and force can all be programmed

Type	SE20-2	SE20-2 with encoder
A	145 mm	178 mm
B	73 mm	73 mm
C	68 mm	68 mm





SE20-2	
Operating temperature	0 - 50 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %

Type	SE20-2-30-G	SE20-2-30-W	SE20-2-30-G-E	SE20-2-30-W-E
Order number	50444455	50444457	50444451	50444453
Net weight	0.59 kg	0.59 kg	0.64 kg	0.64 kg
Angle of rotation	∞	∞	∞	∞
Max. rotational speed	280 rpm	280 rpm	280 rpm	280 rpm
Fluid passages	2	2	2	2
Continuous torque	1.2 Nm	1.2 Nm	1.2 Nm	1.2 Nm
Max. output torque	2.4 Nm	2.4 Nm	2.4 Nm	2.4 Nm
Drive	electric	electric	electric	electric
Ratio	30:1	30:1	30:1	30:1
Repeat accuracy	+/- 0.0017°	+/- 0.0017°	+/- 0.0017°	+/- 0.0017°
Encoder (optional)			SV-TTL ABZ 15360 Inc/U	SV-TTL ABZ 15360 Inc/U
Mounting position	✦	✦	✦	✦

Type	SE20-2-50-G	SE20-2-50-W	SE20-2-50-G-E	SE20-2-50-W-E
Order number	50444454	50444456	50444450	50444452
Net weight	0.59 kg	0.59 kg	0.64 kg	0.64 kg
Angle of rotation	∞	∞	∞	∞
Max. rotational speed	140 rpm	140 rpm	140 rpm	140 rpm
Fluid passages	2	2	2	2
Continuous torque	2 Nm	2 Nm	2 Nm	2 Nm
Max. output torque	4 Nm	4 Nm	4 Nm	4 Nm
Drive	electric	electric	electric	electric
Ratio	50:1	50:1	50:1	50:1
Repeat accuracy	+/- 0.0017°	+/- 0.0017°	+/- 0.0017°	+/- 0.0017°
Encoder (optional)			SV-TTL ABZ 25600 Inc/U	SV-TTL ABZ 25600 Inc/U
Mounting position	✦	✦	✦	✦

The technical data pertains to Afag standard test conditions.
Air purity class 5 (ISO 14644-1)
Cleanroom class ISO 14644-1, class ISO 7

There are two version of motor plugs.
A „G“ in the article description of the rotary axis stand for a straight and the W“ for an angular plug. Also see order key for SE20 and SE30.

Included in the delivery

(Catalogue HT accessories)

- 2x Centering pin Ø4x6
- 2x O-ring Ø 2.5x0.62

Accessories

- Add-on rotation limiter for SE20 [p. 247]
 - Adapter E520-SE20 [p. 247]
- (Catalogue HT accessories)
- Motor cable-M16
 - Controller C11xx
 - Plug kit for C1X00-1S
 - USB-RS232 Converter for controllers
 - Power supply S01-72/500, 1-phase

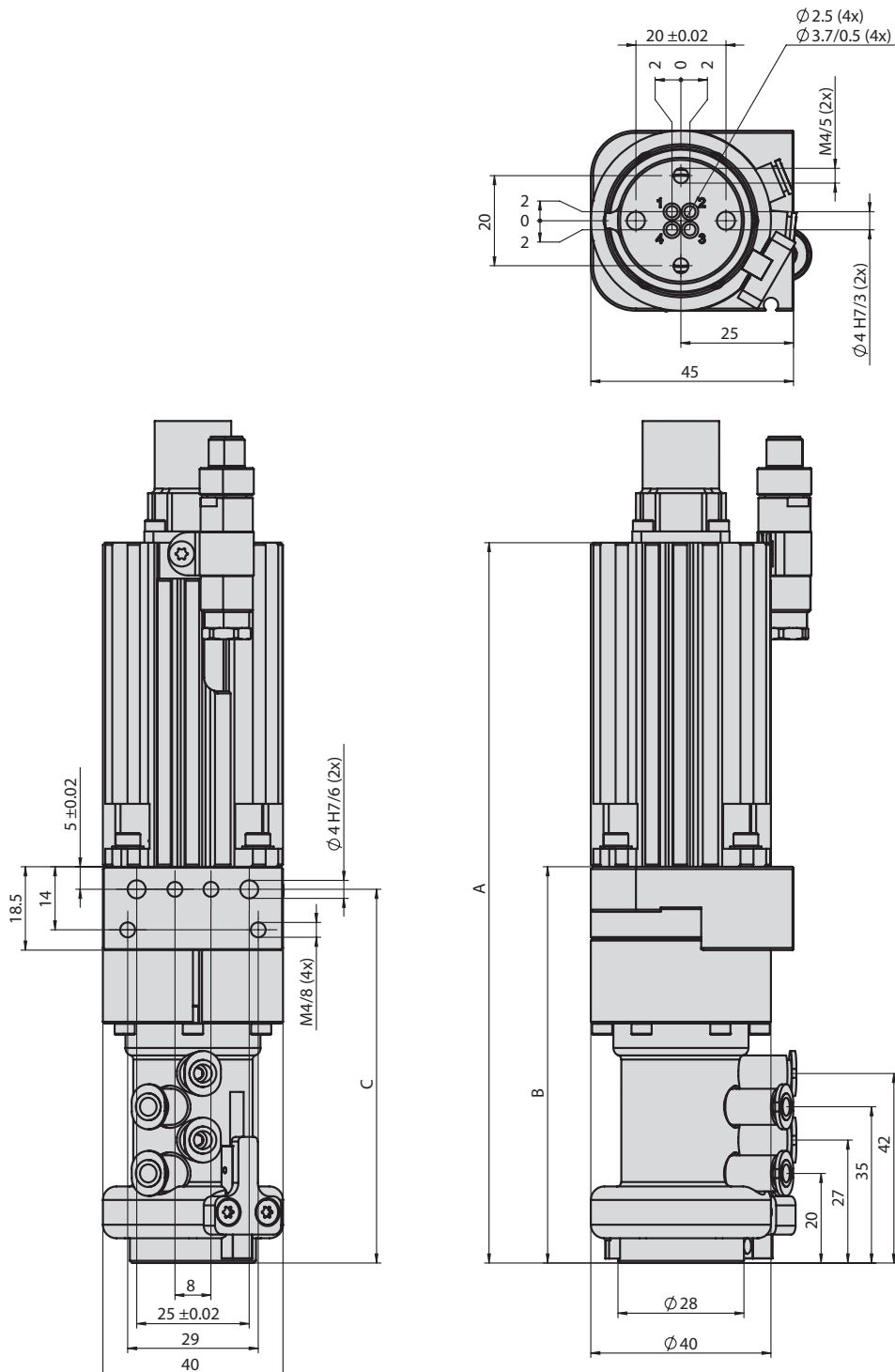
Alternative accessories

(Catalogue HT accessories)

- Additional motor cables
- Additional controllers
- Additional power supplies

Warranty: 24 months following commissioning, but a maximum of 27 months following delivery

Type	SE20-4	SE20-4 with encoder
A	160 mm	193 mm
B	88 mm	88 mm
C	83 mm	83 mm





SE20-4	
Operating temperature	0 - 50 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %

Type	SE20-4-30-G	SE20-4-30-W	SE20-4-30-G-E	SE20-4-30-W-E
Order number	50444460	50444462	50444464	50444466
Net weight	0.64 kg	0.64 kg	0.69 kg	0.69 kg
Angle of rotation	∞	∞	∞	∞
Max. rotational speed	280 rpm	280 rpm	280 rpm	280 rpm
Fluid passages	4	4	4	4
Continuous torque	1.2 Nm	1.2 Nm	1.2 Nm	1.2 Nm
Max. output torque	2.4 Nm	2.4 Nm	2.4 Nm	2.4 Nm
Drive	electric	electric	electric	electric
Ratio	30:1	30:1	30:1	30:1
Repeat accuracy	+/- 0.0017°	+/- 0.0017°	+/- 0.0017°	+/- 0.0017°
Encoder (optional)			SV-TTL ABZ 15360 Inc/U	SV-TTL ABZ 15360 Inc/U
Mounting position	✦	✦	✦	✦

Type	SE20-4-50-G	SE20-4-50-W	SE20-4-50-G-E	SE20-4-50-W-E
Order number	50444459	50444461	50444463	50444465
Net weight	0.64 kg	0.64 kg	0.69 kg	0.69 kg
Angle of rotation	∞	∞	∞	∞
Max. rotational speed	140 rpm	140 rpm	140 rpm	140 rpm
Fluid passages	4	4	4	4
Continuous torque	2 Nm	2 Nm	2 Nm	2 Nm
Max. output torque	4 Nm	4 Nm	4 Nm	4 Nm
Drive	electric	electric	electric	electric
Ratio	50:1	50:1	50:1	50:1
Repeat accuracy	+/- 0.0017°	+/- 0.0017°	+/- 0.0017°	+/- 0.0017°
Encoder (optional)			SV-TTL ABZ 25600 Inc/U	SV-TTL ABZ 25600 Inc/U
Mounting position	✦	✦	✦	✦

The technical data pertains to Afag standard test conditions.
Air purity class 5 (ISO 14644-1)
Cleanroom class ISO 14644-1, class ISO 7

There are two version of motor plugs.
A „G“ in the article description of the rotary axis stand for a straight and the W“ for an angular plug. Also see order key for SE20 and SE30.

Included in the delivery

(Catalogue HT accessories)

- 2x Centering pin Ø4x6
- 4x O-ring Ø 2.5x0.62

Accessories

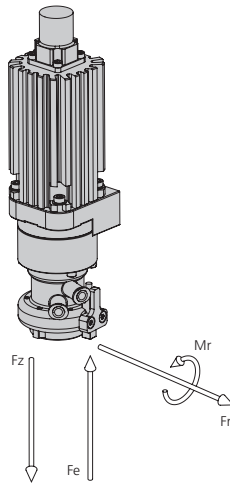
- Add-on rotation limiter for SE20 [p. 247]
 - Adapter ES20 - SE20 [p. 247]
- (Catalogue HT accessories)
- Motor cable-M16
 - Controller C11xx
 - Plug kit for C1X00-1S
 - USB-RS232 Converter for controllers
 - Power supply S01-72/500, 1-phase

Alternative accessories

- (Catalogue HT accessories)
- Additional motor cables
 - Additional controllers
 - Additional power supplies

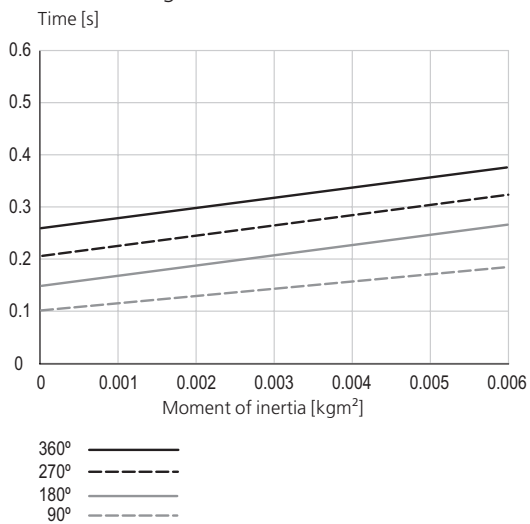
Warranty: 24 months following commissioning, but a maximum of 27 months following delivery

Type	SE20
Max. torque M_r	10 Nm
Max. press-in force F_e	800 N
Max. radial force	± 700 N
Max. pulling force F_z	350 N

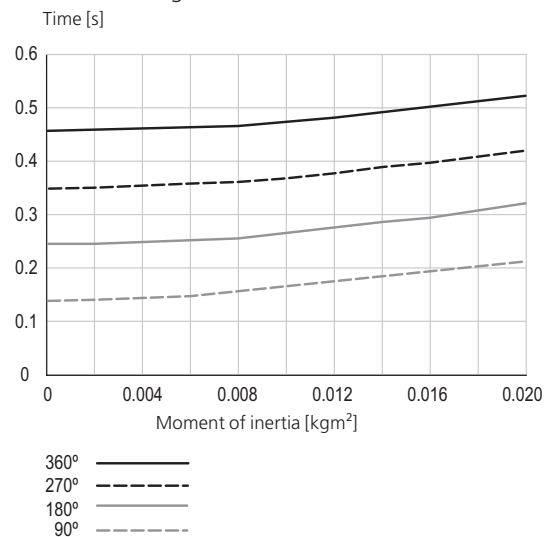


Rotation time diagrams

SE20 with 30:1-gear



SE20 with 50:1-gear



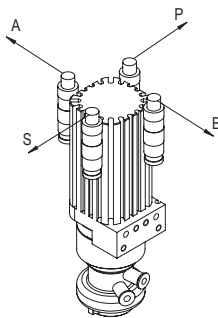
The times refer to break times of 600 ms

Order form	SE20	XXXXXXXX	X	X	XX
		Rotary axis	Rotation limiter	Plug holder reference sensor	Fluid connection

Coordinate system

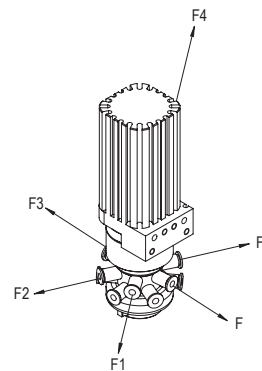
The coordinate system allows you to define the position of the plug holder of the reference sensor.

- A= before
- B= base
- P= left
- S= right



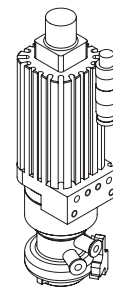
The coordinate system allows you to define the position of the fluid connection.

- F= 0°
- F1
- F2
- F3= 180°
- F4
- F5



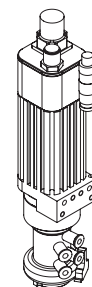
Ordering example 1 with 2-fold fluid passages, straight motor plug, gear ratio i=50 and rotation limiter

SE20	50444454	50444458	B	F
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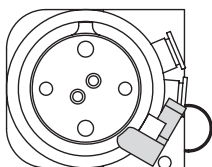
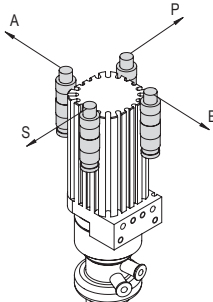
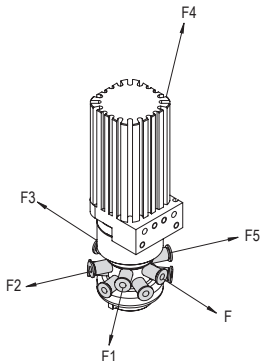
Ordering example 2 with 4-fold fluid passages, straight motor plug, gear ratio i=30 and encoder

SE20	50444464	X	B	F
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Ordering process

- Select the desired rotary axis from the order key.
- Enter the corresponding red order numbers in the order form in the place of the cross.
- If you want an rotation limiter select the order number in the order form in the place of the cross.
- To define the position of the plug connection and the reference sensor, enter the corresponding red order number in the order form in the place of the cross.
- To define the position of the fluid connection, enter the corresponding red order number in the place of the cross.

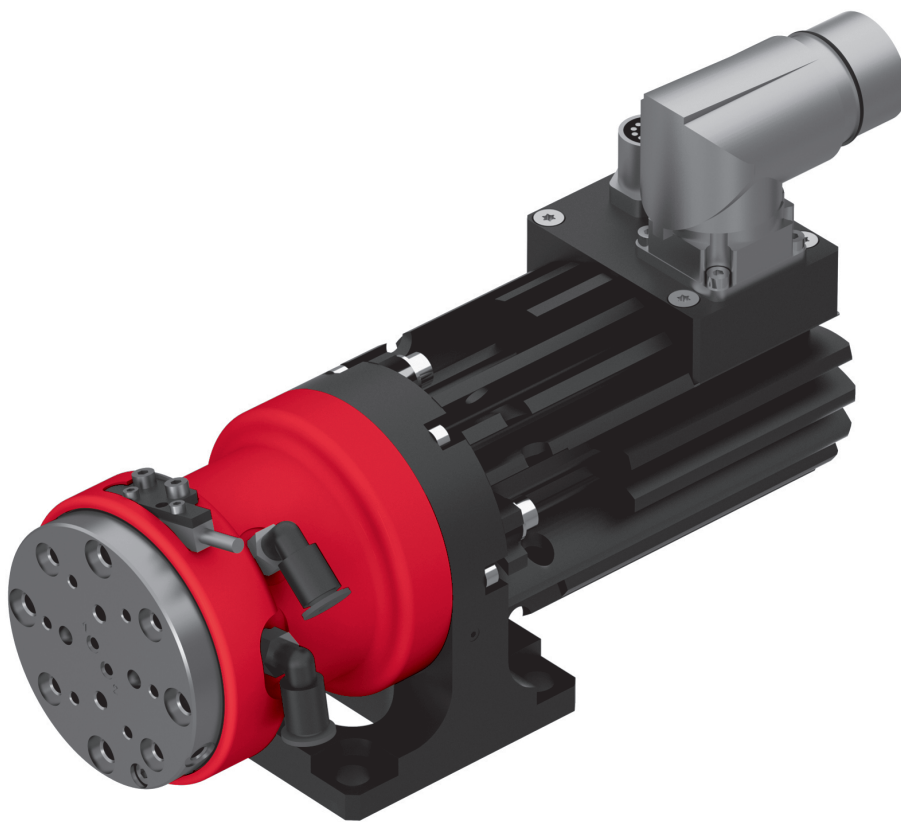
Rotary axis	SE20		i		i-E		x	x	xx	
	Fluid passages	Plug type	30	50	30-E	50-E				
Rotary axis	2-fold fluid passages	Angular	50444457	50444456	50444453	50444452				
		Straight	50444455	50444454	50444451	50444450				
	4-fold fluid passages	Angular	50444462	50444461	50444466	50444465				
		Straight	50444460	50444459	50444464	50444463				
Rotation limiter	Without						X			
	 With rotation limiter (rotational angle approx. 340°)								50444458	
Plug holder reference sensor								A		
								B		
								P		
								S		
Fluid connection								F		
							F1		F1	
							F2		F2	
							F3= 180°		F3	
							F4		F4	
							F5		F5	

i= Gear ratio E= Encoder A= Front B= Base P= Left
 S= Right F= Fluid connection position

A rotation limiter is recommended when extensions to the rotary axis have to be supplied with additional cables. This will avoid a shearing and ripping of the wire.

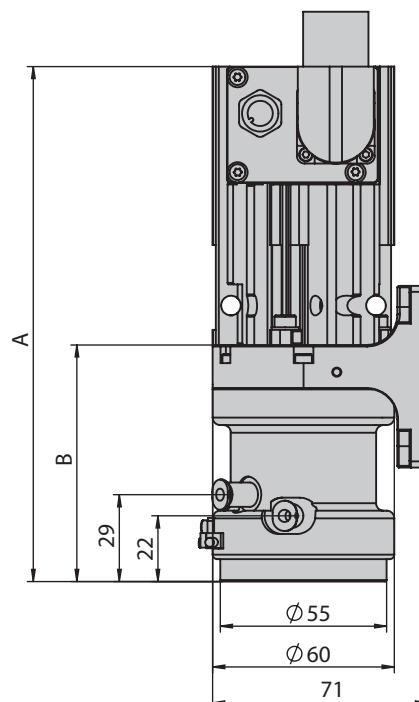
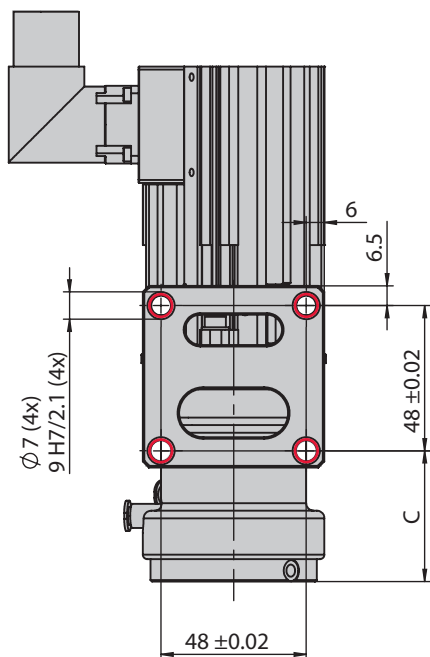
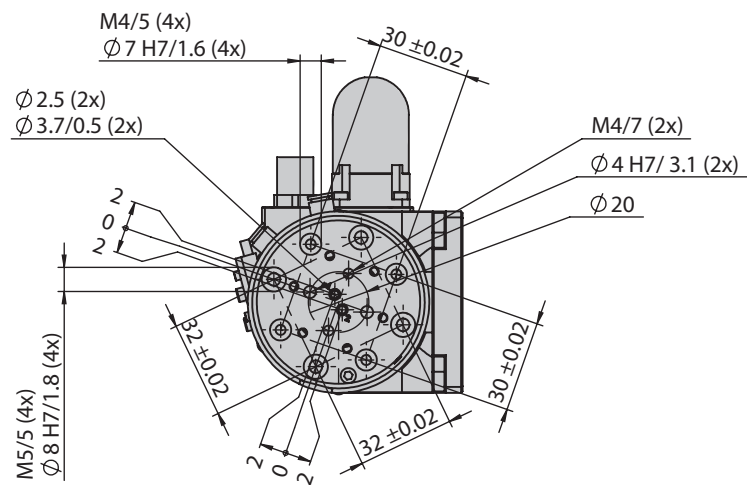
Rotary axes SE


SE30

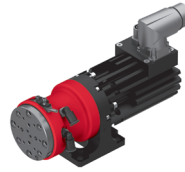


- Light-weight and high-torque rotating unit
- Precise positioning
- Can be used flexibly

Type	SE30-2
A	170 mm
B	78 mm
C	43.2 mm



 Bores can be screwed through



SE30-2	
Operating temperature	0 - 50 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %

Type	SE30-2-30-G	SE30-2-30-W	SE30-2-30-G-E	SE30-2-30-W-E
Order number	50444469	50444470	50444477	50444478
Net weight	1.45 kg	1.45 kg	1.45 kg	1.45 kg
Angle of rotation	∞	∞	∞	∞
Max. rotational speed	280 rpm	280 rpm	280 rpm	280 rpm
Fluid passages	2	2	2	2
Continuous torque	3.3 Nm	3.3 Nm	3.3 Nm	3.3 Nm
Max. output torque	8 Nm	8 Nm	8 Nm	8 Nm
Drive	electric	electric	electric	electric
Ratio	30:1	30:1	30:1	30:1
Repeat accuracy	+/- 0.0017°	+/- 0.0017°	+/- 0.0017°	+/- 0.0017°
Encoder (optional)			SV-TTL ABZ 61440 Inc/U	SV-TTL ABZ 61440 Inc/U
Brake (24V)	No	No	No	No
Mounting position	✚	✚	✚	✚

Type	SE30-2-50-G	SE30-2-50-W	SE30-2-50-G-E	SE30-2-50-W-E
Order number	50444467	50444468	50444475	50444476
Net weight	1.45 kg	1.45 kg	1.45 kg	1.45 kg
Angle of rotation	∞	∞	∞	∞
Max. rotational speed	140 rpm	140 rpm	140 rpm	140 rpm
Fluid passages	2	2	2	2
Continuous torque	5.6 Nm	5.6 Nm	5.6 Nm	5.6 Nm
Max. output torque	16 Nm	16 Nm	16 Nm	16 Nm
Drive	electric	electric	electric	electric
Ratio	50:1	50:1	50:1	50:1
Repeat accuracy	+/- 0.0017°	+/- 0.0017°	+/- 0.0017°	+/- 0.0017°
Encoder (optional)			SV-TTL ABZ 102400 Inc/U	SV-TTL ABZ 102400 Inc/U
Brake (24V)	No	No	No	No
Mounting position	✚	✚	✚	✚

The technical data pertains to Afag standard test conditions.
Air purity class 5 (ISO 14644-1)
Cleanroom class ISO 14644-1, class ISO 7

There are two version of motor plugs.
A „G“ in the article description of the rotary axis stand for a straight and the „W“ for an angular plug. Also see order key for SE20 and SE30.

Included in the delivery

(Catalogue HT accessories)

- 2x Centering bushing Ø9x4
- 2x O-ring Ø 2.5x0.62

Accessories

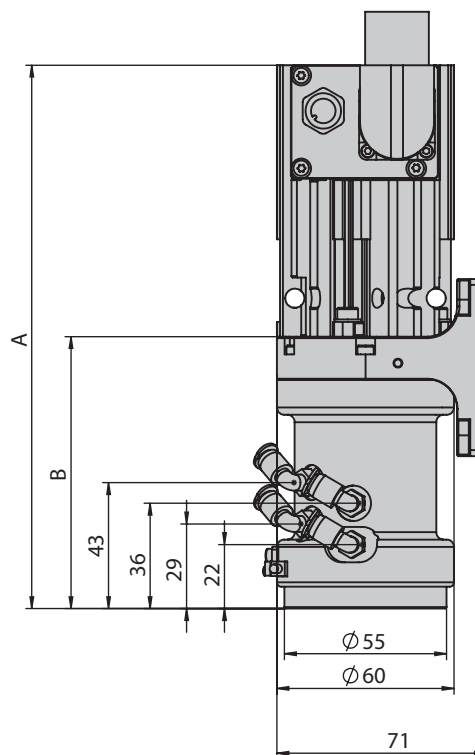
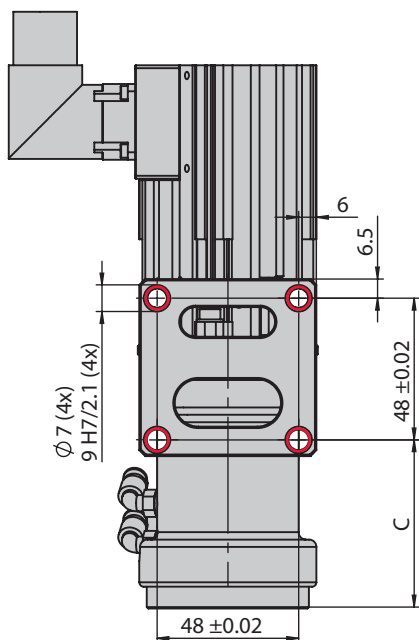
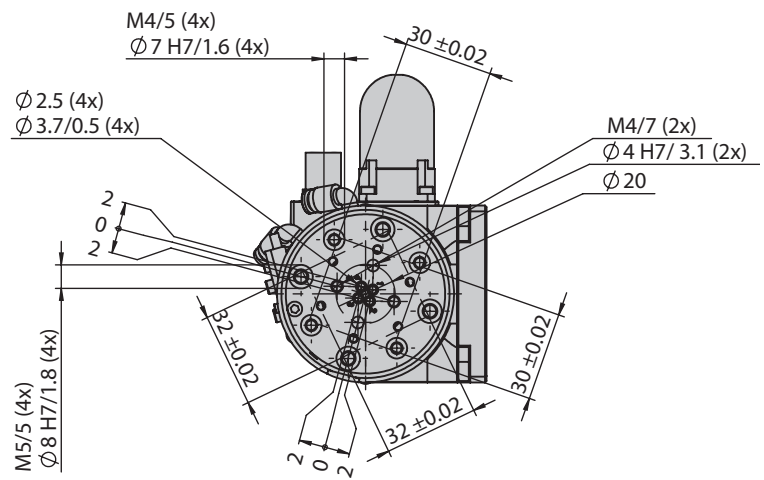
- Add-on rotation limiter for SE30 [p. 247]
 - Power supply S01-48/960, 3-phase [p. 248]
- (Catalogue HT accessories)
- Motor cable-M17
 - Controller C11xx
 - Plug kit for C1X00-1S


Alternative accessories

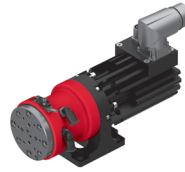
- (Catalogue HT accessories)
- Additional motor cables
 - Additional controllers

Warranty: 24 months following commissioning, but a maximum of 27 months following delivery

Type	SE30-4
A	184 mm
B	92 mm
C	57.2 mm



 Bores can be screwed through



SE30-4	
Operating temperature	0 - 50 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %

Type	SE30-4-30-G	SE30-4-30-W	SE30-4-30-G-E	SE30-4-30-W-E
Order number	50444473	50444474	50444481	50444482
Net weight	1.54 kg	1.54 kg	1.54 kg	1.54 kg
Angle of rotation	∞	∞	∞	∞
Max. rotational speed	280 rpm	280 rpm	280 rpm	280 rpm
Fluid passages	4	4	4	4
Continuous torque	3.3 Nm	3.3 Nm	3.3 Nm	3.3 Nm
Max. output torque	8 Nm	8 Nm	8 Nm	8 Nm
Drive	electric	electric	electric	electric
Ratio	30:1	30:1	30:1	30:1
Repeat accuracy	+/- 0.0017°	+/- 0.0017°	+/- 0.0017°	+/- 0.0017°
Encoder (optional)			SV-TTL ABZ 61440 Inc/U	SV-TTL ABZ 61440 Inc/U
Brake (24V)	No	No	No	No
Mounting position	⊕	⊕	⊕	⊕

Type	SE30-4-50-G	SE30-4-50-W	SE30-4-50-G-E	SE30-4-50-W-E
Order number	50444471	50444472	50444479	50444480
Net weight	1.54 kg	1.54 kg	1.54 kg	1.54 kg
Angle of rotation	∞	∞	∞	∞
Max. rotational speed	140 rpm	140 rpm	140 rpm	140 rpm
Fluid passages	4	4	4	4
Continuous torque	5.6 Nm	5.6 Nm	5.6 Nm	5.6 Nm
Max. output torque	16 Nm	16 Nm	16 Nm	16 Nm
Drive	electric	electric	electric	electric
Ratio	50:1	50:1	50:1	50:1
Repeat accuracy	+/- 0.0017°	+/- 0.0017°	+/- 0.0017°	+/- 0.0017°
Encoder (optional)			SV-TTL ABZ 102400 Inc/U	SV-TTL ABZ 102400 Inc/U
Brake (24V)	No	No	No	No
Mounting position	⊕	⊕	⊕	⊕

The technical data pertains to Afag standard test conditions.
Air purity class 5 (ISO 14644-1)
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Included in the delivery

(Catalogue HT accessories)

- 2x Centering bushing Ø9x4
- 4x O-ring Ø 2.5x0.62

Accessories

- Add-on rotation limiter for SE30 [p. 247]
 - Power supply S01-48/960, 3-phase [p. 248]
- (Catalogue HT accessories)
- Motor cable-M17
 - Controller C11xx
 - Plug kit for C1X00-1S

Alternative accessories

(Catalogue HT accessories)

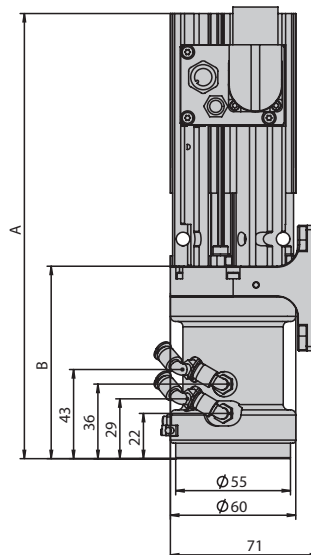
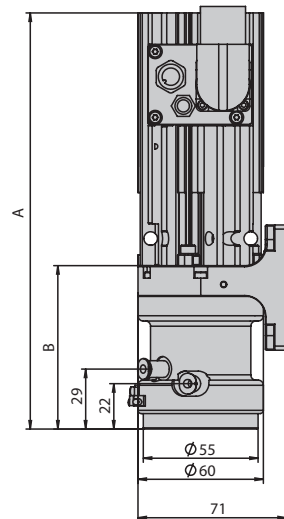
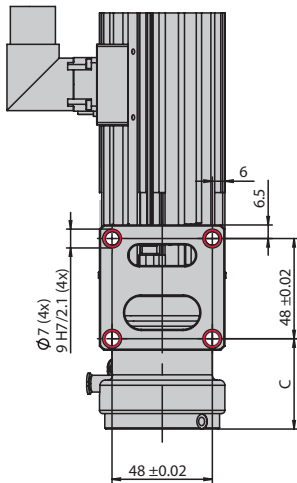
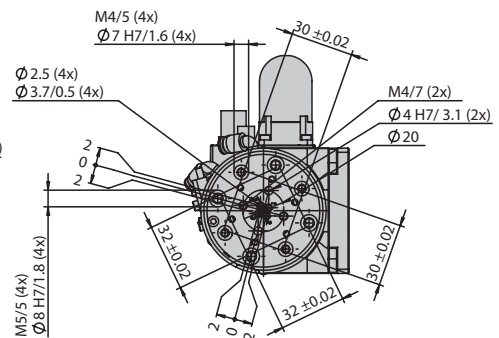
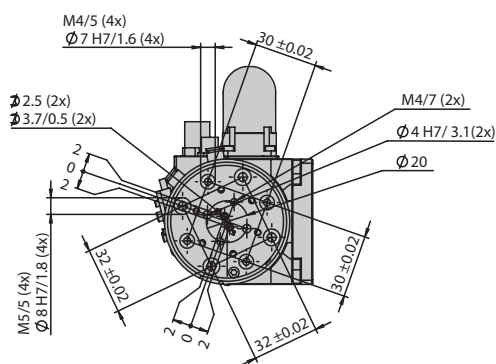
- Additional motor cables
- Additional controllers


Warranty: 24 months following commissioning, but a maximum of 27 months following delivery

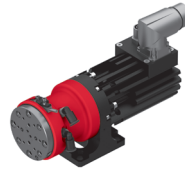
Dimensions and dimension drawings

SE30-B

Type	SE30-2-B	SE30-4-B
A	199 mm	213 mm
B	78 mm	92 mm
C	43.2 mm	57.2 mm



 Bores can be screwed through



SE30-B	
Operating temperature	0 - 50 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %

Type	SE30-2-30-G-E-B	SE30-2-30-W-E-B	SE30-2-50-G-E-B	SE30-2-50-W-E-B
Order number	50472260	50472261	50472257	50472259
Net weight	1.64 kg	1.64 kg	1.64 kg	1.64 kg
Angle of rotation	∞	∞	∞	∞
Max. rotational speed	280 rpm	280 rpm	140 rpm	140 rpm
Fluid passages	2	2	2	2
Continuous torque	3.3 Nm	3.3 Nm	5.6 Nm	5.6 Nm
Max. output torque	8 Nm	8 Nm	16 Nm	16 Nm
Drive	electric	electric	electric	electric
Ratio	30:1	30:1	50:1	50:1
Repeat accuracy	+/- 0.0017°	+/- 0.0017°	+/- 0.0017°	+/- 0.0017°
Encoder (optional)	SV-TTL ABZ 61440 Inc/U	SV-TTL ABZ 61440 Inc/U	SV-TTL ABZ 102400 Inc/U	SV-TTL ABZ 102400 Inc/U
Brake (24V)	Yes	Yes	Yes	Yes
Mounting position	⚡	⚡	⚡	⚡

Type	SE30-4-30-G-E-B	SE30-4-30-W-E-B	SE30-4-50-G-E-B	SE30-4-50-W-E-B
Order number	50472265	50472266	50472262	50472263
Net weight	1 kg	1 kg	1 kg	1 kg
Angle of rotation	∞	∞	∞	∞
Max. rotational speed	280 rpm	280 rpm	140 rpm	140 rpm
Fluid passages	4	4	4	4
Continuous torque	3.3 Nm	3.3 Nm	5.6 Nm	5.6 Nm
Max. output torque	8 Nm	8 Nm	16 Nm	16 Nm
Drive	electric	electric	electric	electric
Ratio	30:1	30:1	50:1	50:1
Repeat accuracy	+/- 0.0017°	+/- 0.0017°	+/- 0.0017°	+/- 0.0017°
Encoder (optional)	SV-TTL ABZ 61440 Inc/U	SV-TTL ABZ 61440 Inc/U	SV-TTL ABZ 102400 Inc/U	SV-TTL ABZ 102400 Inc/U
Brake (24V)	Yes	Yes	Yes	Yes
Mounting position	⚡	⚡	⚡	⚡

The technical data pertains to Afag standard test conditions.
Air purity class 5 (ISO 14644-1)
Cleanroom class ISO 14644-1, class ISO 7

There are two version of motor plugs.
A „G“ in the article description of the rotary axis stand for a straight and the „W“ for an angular plug. Also see order key for SE20 and SE30.

Included in the delivery

(Catalogue HT accessories)

- 2x Centering bushing Ø9x4
- 2/4x O-ring Ø 2.5x0.62

Accessories

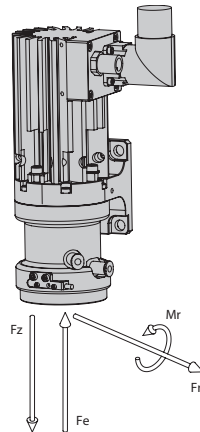
- Add-on rotation limiter for SE30 [p. 247]
 - Power supply S01-48/960, 3-phase [p. 248]
- (Catalogue HT accessories)
- Motor cable-M17
 - Controller C11xx
 - Plug kit for C1X00-1S

Alternative accessories

- (Catalogue HT accessories)
- Additional motor cables
 - Additional controllers

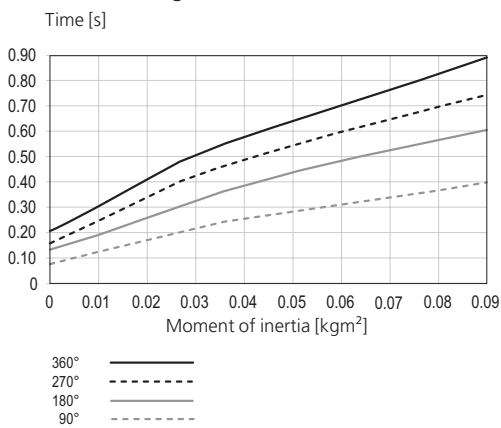
Warranty: 24 months following commissioning, but a maximum of 27 months following delivery

Type	SE30
Max. torque M_r	30 Nm
Max. press-in force F_e	1000 N
Max. radial force	± 1400 N
Max. pulling force F_z	745 N

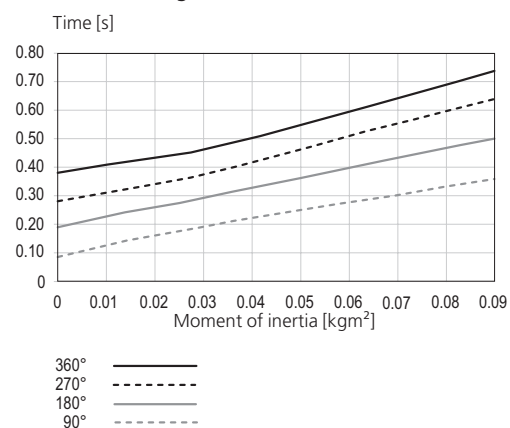


Rotation time diagrams

SE30 with 30:1-gear



SE30 with 50:1-gear



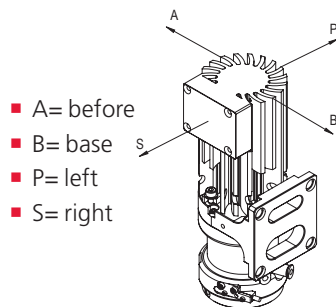
The times refer to break times of 600 ms

Order form	SE30	XXXXXXXX	X	X	X	XX
		Rotary axis	Rotation limiter	Plug connection	Plug holder reference sensor	Fluid connection

Coordinate system

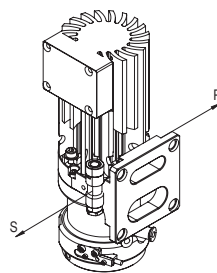
The coordinate system allows you to define the position of the plug connection, the plug holder of the reference sensor as well as that of the fluid connection.

Plug connection



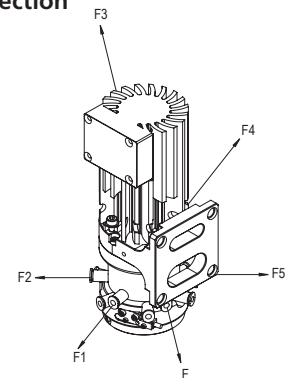
- A= before
- B= base
- P= left
- S= right

Plug holder reference sensor



- P= left
- S= right

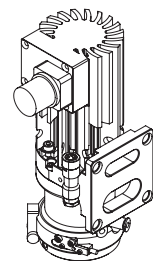
Fluid connection



- F= 0°
- F1= 60°
- F2= 120°
- F3= 180°
- F4= 240°
- F5= 300°

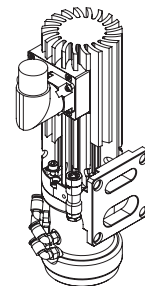
Ordering example 1 with 2-fold fluid passages, straight motor plug, gear ratio $i=50$ and rotation limiter

SE30	50444467	50444483	S	S	F5
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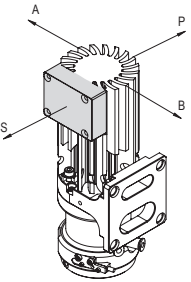
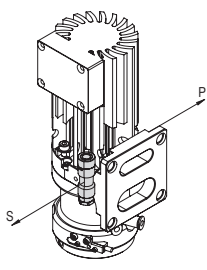
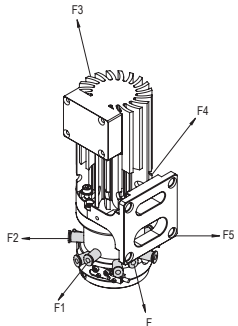
Ordering example 2 with 4-fold fluid passages, angular motor plug, gear ratio $i=30$, encoder and brake

SE30	50472266	X	S	S	F1
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Ordering process

- Select the desired rotary axis from the order key.
- Enter the corresponding red order numbers in the order form in the place of the cross.
- If you want an rotation limiter select the order number in the order form in the place of the cross.
- To define the position of the plug connection and the reference sensor, enter the corresponding red order number in the order form in the place of the cross.
- To define the position of the fluid connection, enter the corresponding red order number in the order form in the place of the cross.

Rotary axis	SE30		i		i-E		i-E-B		x	x	x	xx	
	Fluid passages	Plug type	30	50	30-E	50-E	30-E-B	50-E-B					
2-fold fluid passages	Straight		50444469	50444467	50444477	50444475	50472260	50472257					
		Angular	50444470	50444468	50444478	50444476	50472261	50472259					
	4-fold fluid passages	Straight	50444473	50444471	50444481	50444479	50472265	50472262					
		Angular	50444474	50444472	50444482	50444480	50472266	50472263					
Rotation limiter	Without								X				
	With rotation limiter (rotational angle approx. 340°)												50444483
Plug holder									A				
										B			
											P		
												S	
Plug holder reference sensor										P			
											S		
Fluid connection										F			
										F1			
										F2			
										F3			
										F4			
										F5			

i=Gear ratio E=Encoder A= Front B=Base P=Left
 S=Right F= Fluid connection Position

A rotation limiter is recommended when extensions to the rotary axis have to be supplied with additional cables. This will avoid a shearing and ripping of the wire.

Accessories SE

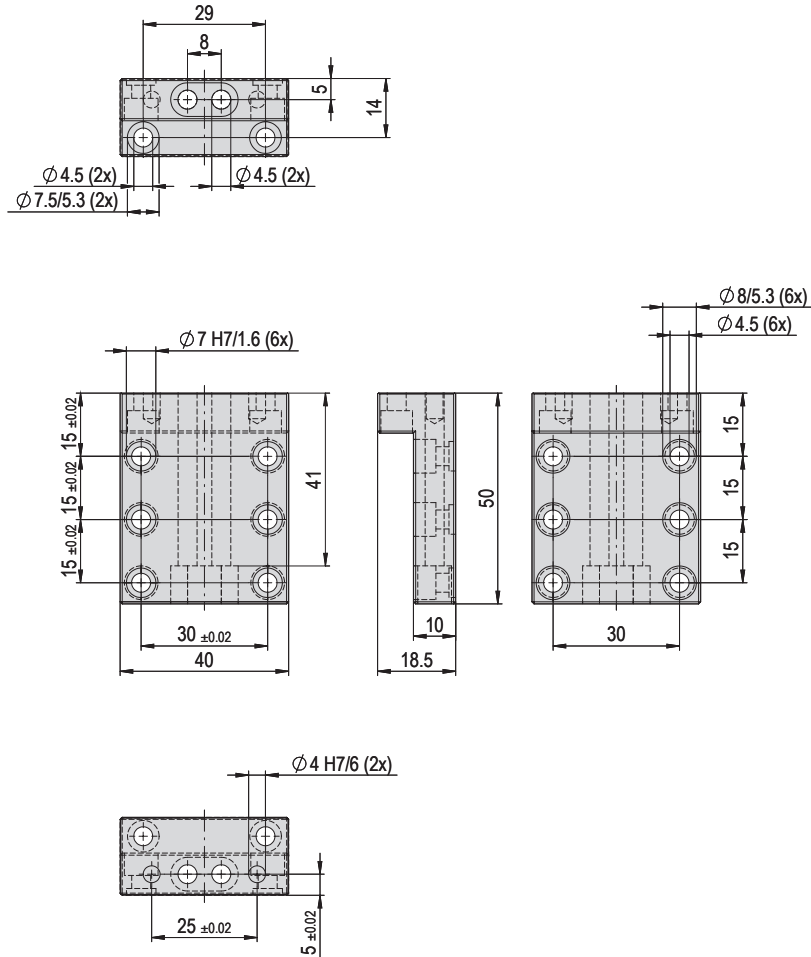
Adapter ES20 - SE20

Order number

50470289

Net weight

0.04 kg



Add-on rotation limiter for SE20

Order number

50444458

Net weight

0.01 kg

Add-on rotation limiter for SE30

Order number

50444483

Net weight

0.02 kg

Accessories SE

Power supply S01-48/960, 3-phase	
Operating temperature	-25 - 70 °C

Type	Power supply S01-48/960, 3-phase
Order number	50469060
Net weight	2 kg
Protection rating	IP 20
Output power	960 W
Primary voltage	3 x 340 - 550 VAC, 50/60 Hz
Secondary voltage	40 - 55 VDC adjustable
Nominal output current	40 A
External fuse	16-32 A (C, D, K Type)

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