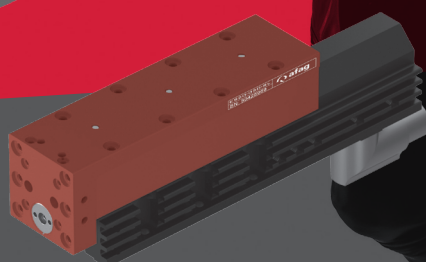
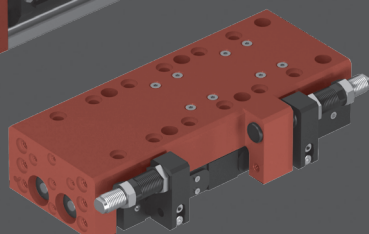
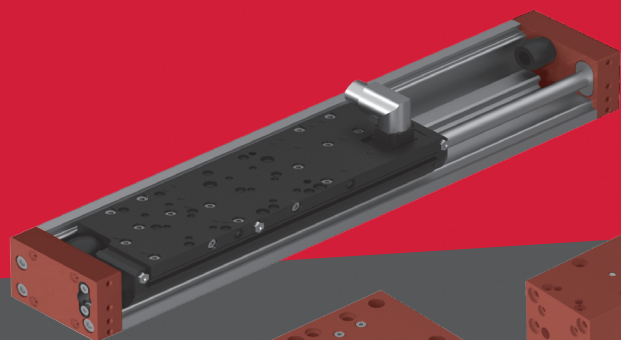




Handling
technology HT
Components
linear

**More than
Motion.**

Yesterday. Today. Tomorrow.





Handling technology HT Components linear

As the components of a perfectly coordinated modular system, all product groups within Afag's handling technology HT are consequently designed for universal modularity. The combination of different sizes amongst each other is facilitated in a simple manner. Pneumatic linear modules, for example, can be combined with electrical axes as well as with electrical grippers. The quality of our handling technology components as well as innovation, customer proximity and service are the key elements of Afag's philosophy. Free CAD data for all modules can be quickly obtained from a partserver. The 24 month service life reduces standstill periods, and replacement costs are also significantly cut.

The linear modules listed in this catalogue form the foundation of our large range of components. Pneumatic and electric linear components are available in various sizes. Gripping and rotary components can be found in separate catalogues, together with accessories.

Operating manuals containing detailed descriptions can be downloaded from our website: www.afag.com.

Updates of our documentations

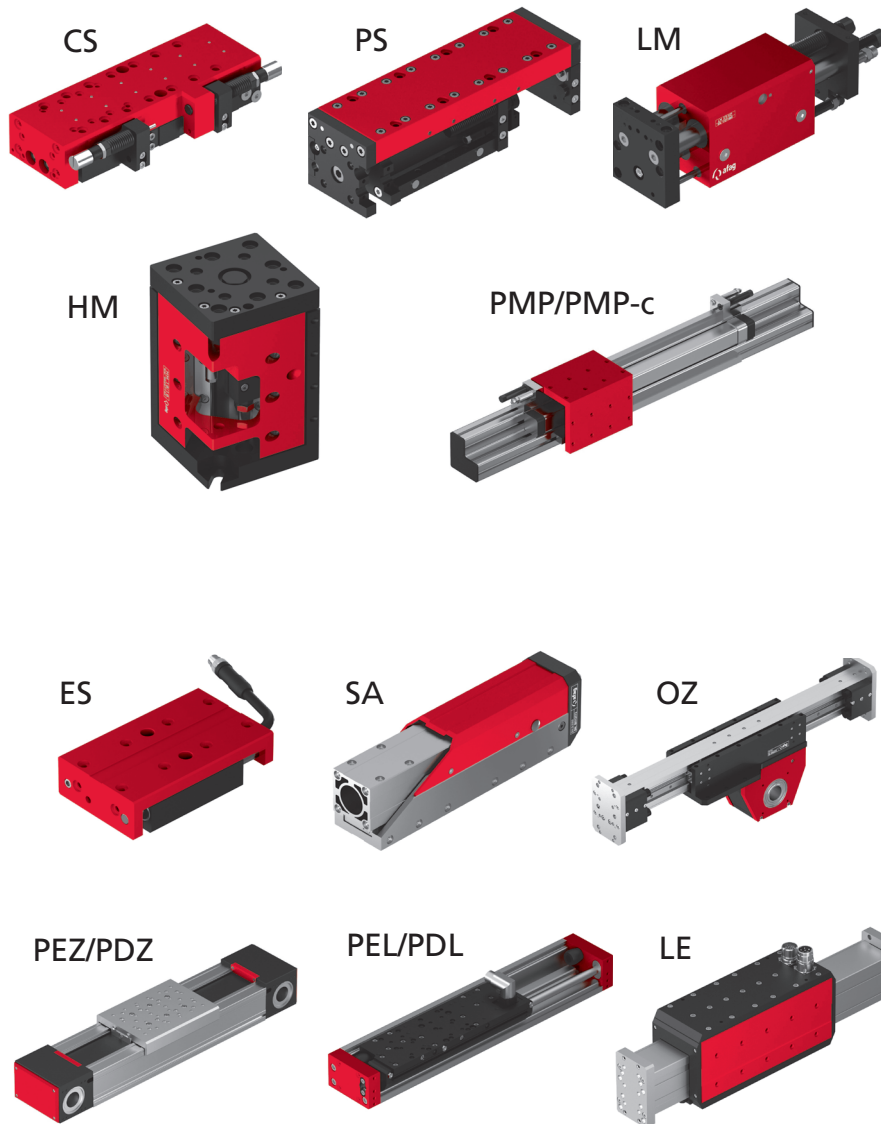


Unlike the printed documents, our digital instructions manuals, product data sheets and catalogues are being continuously updated on our website.

Please keep in mind that the digital documents on our website are always the latest versions.

Handling technology HT

Components linear



Pneumatic

- › The simplest combination for repeated handling is possible
- › Patented intermediate stop allows multiple positions
- › The perfect alignment of the guides permits high loads
- › A product that is well known, easy to understand and used often

Electric

- › Freely programmable
- › No air (expensive medium)
- › Flexibility if products are changed, less wear and maintenance
- › Smooth, quiet, interpolating processes
- › Pneumatic units can be combined easily

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Components linear		Page	Chapter
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	Gantry modules pneumatic PMP/PMP-c	140	5
electric	Electro slides ES	164	6
	Telescope spindle axis SA	234	7
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Compact slides CS

CS 6 - CS 25

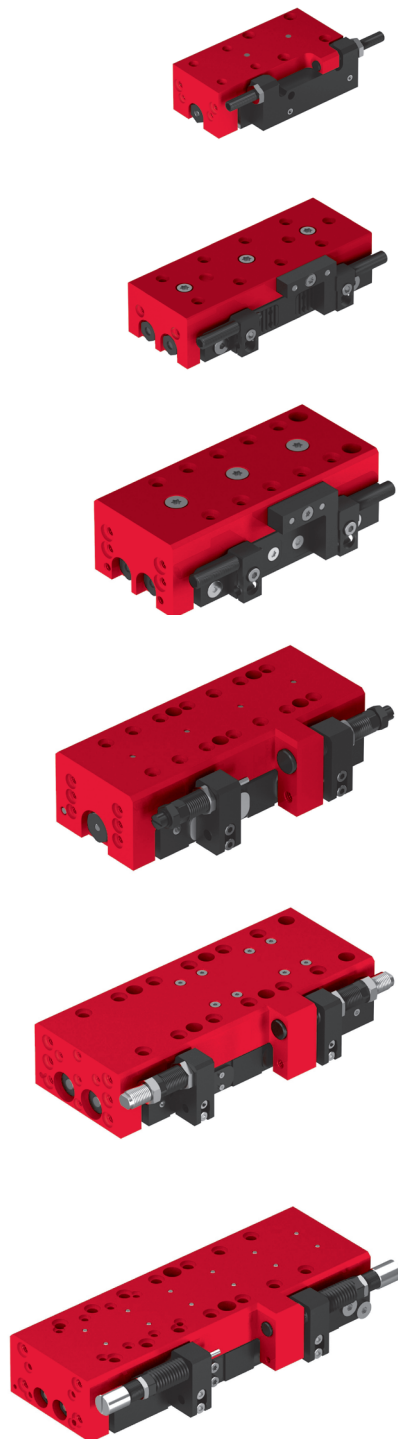
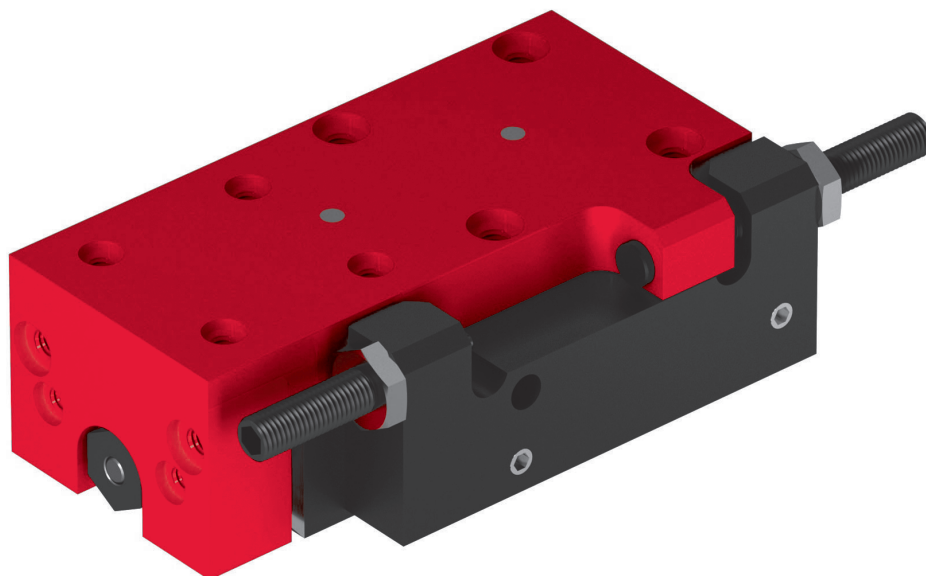


Table of Contents: CS

Compact slides CS	Page
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CS 8	16
CS 12	24
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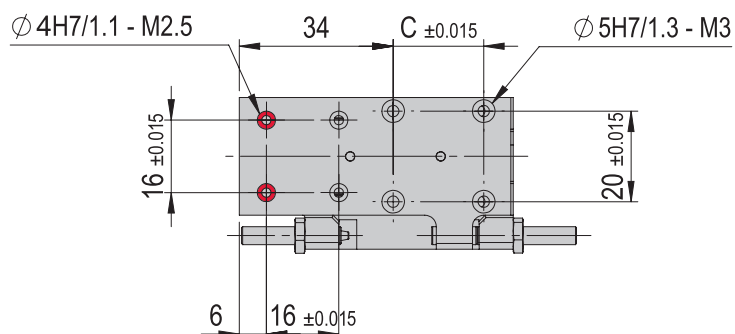
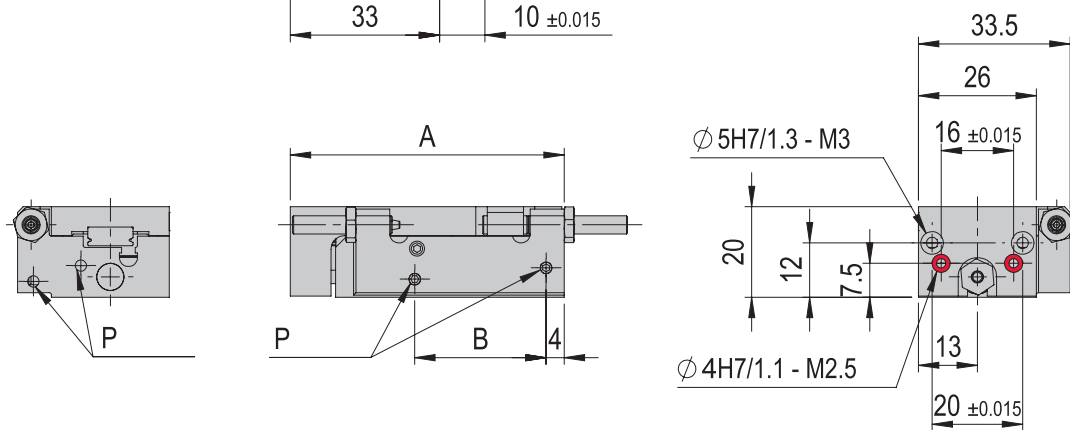
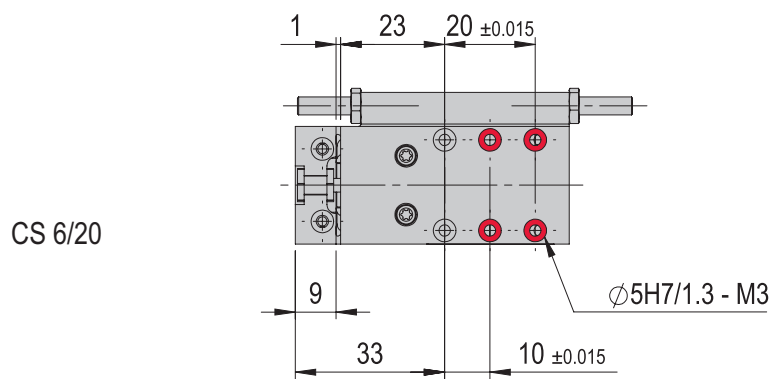
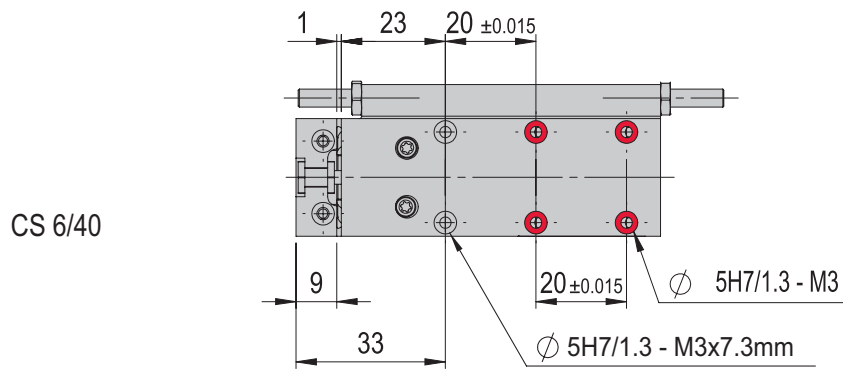
Compact slides CS

CS 6

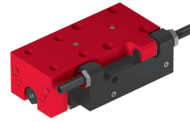


- Compact design
- Solid construction
- High rigidity

Type	CS 6/20-ED	CS 6/40-ED
A	60.5 mm	80.5 mm
B	29 mm	49 mm
C	1 x 20 mm	2 x 20 mm
P	M3	M3



Bores can be screwed through



CS 6	
Attachment grid	20 x 20 mm
Attachment grid alternative	16 x 16 mm
Attachment thread	M3
Attachment thread alternative	M2.5
Operating pressure	6 +/- 2 bar
Air connection P	M3
Cylinder Ø	6 mm
Retract piston force	12 N
Extend piston force	17 N
Operating temperature	0 - 50 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %
Medium filtered compressed air	10 - 40 µm

Type	CS 6/20-ED	CS 6/40-ED
Order number	50386049	50386050
Stroke H	20 mm	40 mm
Stroke limitation	2 x 10 mm	2 x 10 mm
Net weight	0.11 kg	0.14 kg
Moving weight	0.05 kg	0.065 kg
Air consumption/cycle	0.005 NL	0.009 NL
Noise level	60 dB (A)	60 dB (A)
Repeat accuracy	+/- 0.01 mm	+/- 0.01 mm
Maximum speed	1 m/s	1 m/s
Minimum speed	0.05 m/s	0.05 m/s
Mounting position	↕	↕

The technical data refers to a nominal pressure of 6 bar under Afag standard test conditions. The maximum payloads are listed in the payloads table in the slide loads section. The module can be operated with lubricated or dry air. Cleanroom class ISO 14644-1, class ISO 7

Included in the delivery

(Catalogue HT accessories)

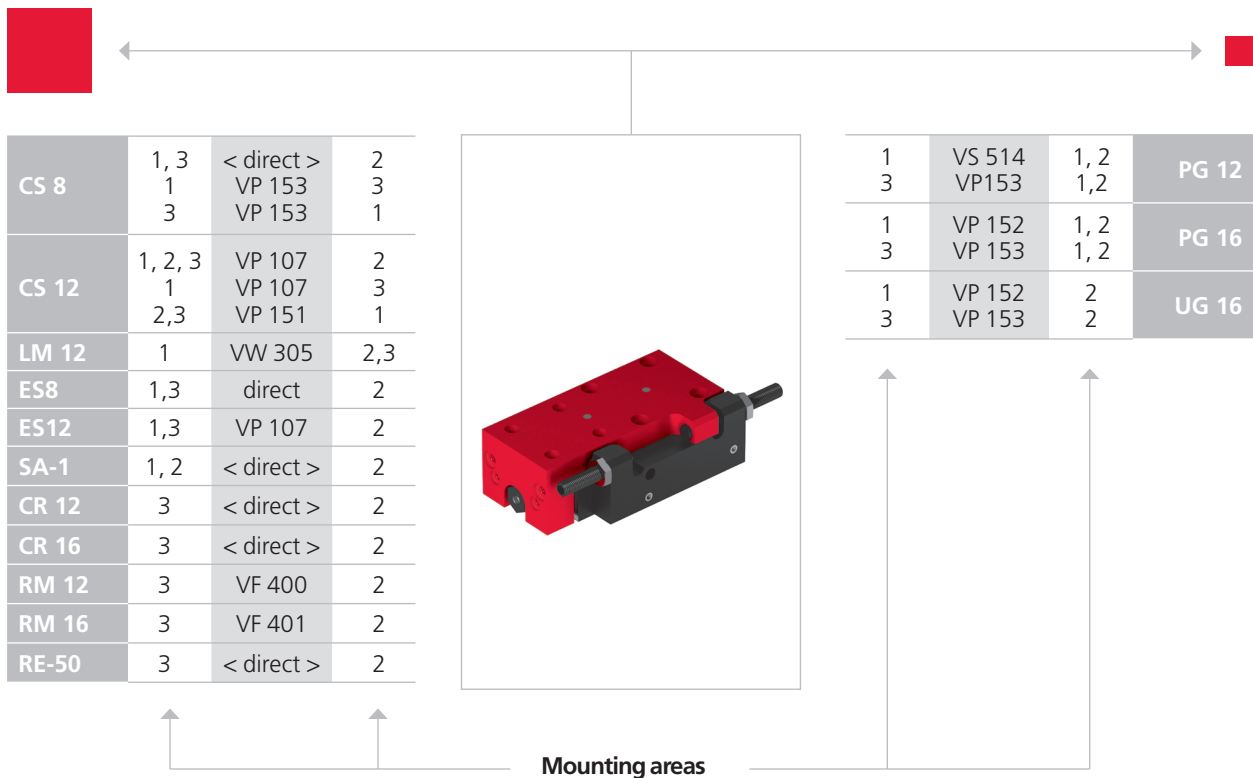
- 2x Centering bushing Ø5x2.5
- 2x Special screw M3x14.8/4
- 2x Special screw M3 x 16/6
- 2x Shock absorber ASED M4x0.5 -1
- 2x Set screw M3x3

Accessories

(Catalogue HT accessories)

- INI c10x20-Em-PNP-NO-M8x1

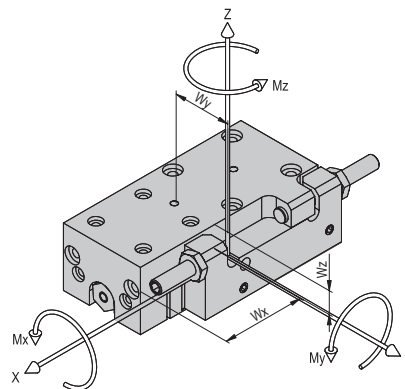
Warranty: 24 months following commissioning, but a maximum of 27 months following delivery



CS, ES 3 2	PS 3 2	LM, LE 3 2	HM 1 3 2	SA 1 2 3	OZ 1 2 1
PMP, PMP-c 4 2	PEZ, PDZ 3 4 2	PEL, PDL 3 2	CR, RM 32, RE, SREH 1 2 3	RM, RE 1 2 3	UG, GM, SG, DG, PG, GE 2 1 3

Note that there might be different mounting positions from one module to another one.
The required connection elements and the range of support columns are depicted in the catalogue HT accessories.

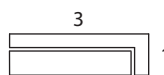
Type	CS 6/20-ED	CS 6/40-ED
Max. torque M_x	1.9 Nm	1.9 Nm
Max. torque M_y	1.3 Nm	1.3 Nm
Max. torque M_z	1.3 Nm	1.3 Nm
Effective distance W_x	25 mm	25 mm
Effective distance W_y	18 mm	18 mm
Effective distance W_z	7 mm	7 mm



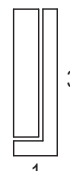
Maximum payload/type	CS 6/20-ED	CS 6/40-ED
Installation position (horizontal) for mounting side 1	0.08 kg	0.08 kg
Installation position (horizontal) for mounting side 3	0.1 kg	0.1 kg
Installation position (vertical) for mounting side 1	0.08 kg	0.08 kg
Installation position (vertical) for mounting side 3	0.1 kg	0.1 kg

Assembly sides
module mounting

horizontal:



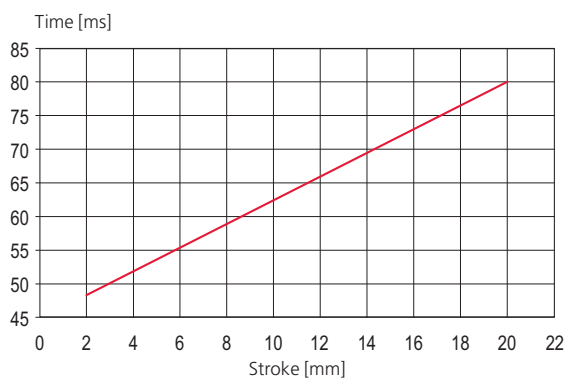
vertical:



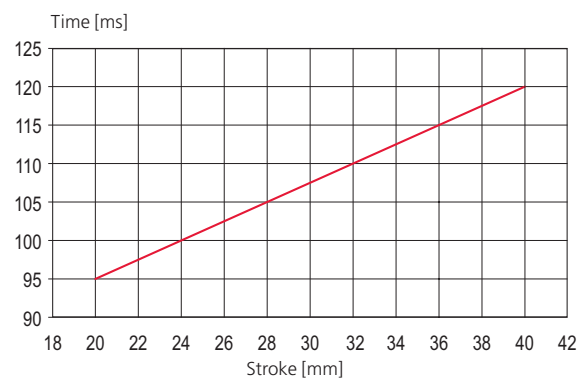
If the specified maximum payloads are exceeded, it must be ensured that the corresponding moments do not affect the service life of the module. In the event of critical applications, please contact Afag.

Operation time diagrams

CS 6/20-ED

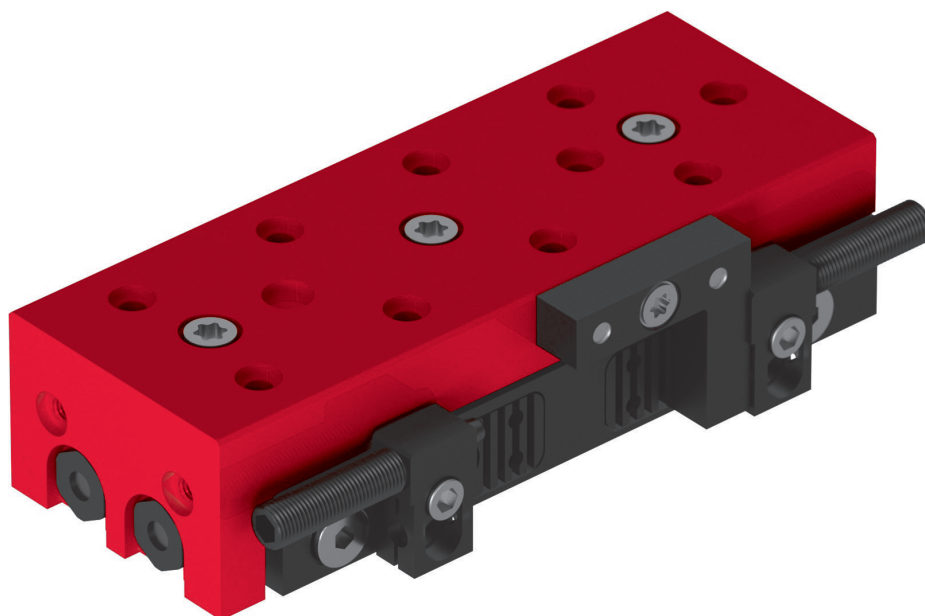


CS 6/40-ED



Compact slides CS

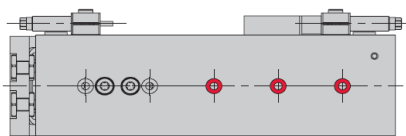
CS 8



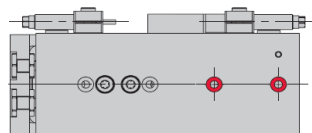
- Compact design
- Solid construction
- High rigidity

Type	CS 8/10	CS 8/30	CS 8/60
A	54 mm	90 mm	120 mm
B		66 mm	96 mm
C	7.5 mm	11 mm	8 mm
D	2 x 20 mm	3 x 20 mm	5 x 20 mm
E	20 mm	3 x 20 mm	4 x 20 mm
F		23.5 mm	23.5 mm
G	Screw-through (CS 8/30 and CS 8/60)		
P	M5	M5	M5

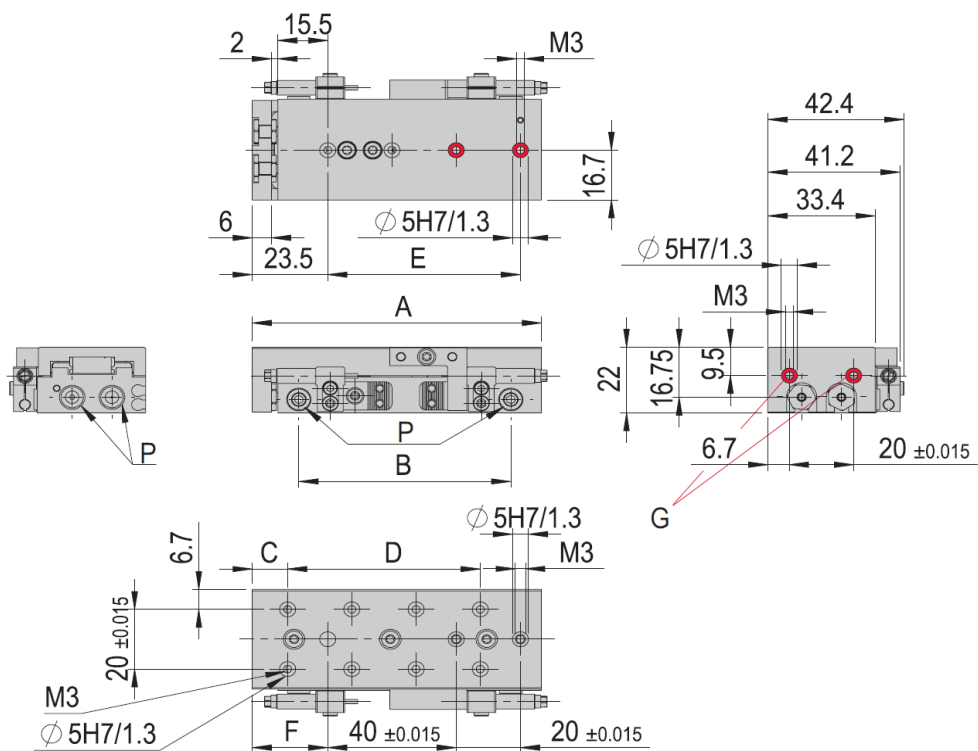
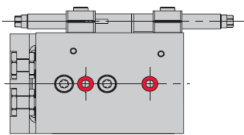
CS 8/60




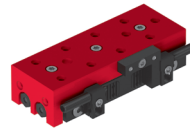
CS 8/30



CS 8/10



 Bores can be screwed through



CS 8	
Attachment grid	20 x 20 mm
Attachment thread	M3
Operating pressure	6 +/- 2 bar
Air connection P	M5
Cylinder Ø	2 x 6 mm
Retract piston force	25 N
Extend piston force	34 N
Operating temperature	0 - 50 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %
Medium filtered compressed air	10 - 40 µm

Type	CS 8/10-ED	CS 8/10-SD	CS 8/30-ED	CS 8/30-SD	CS 8/60-ED	CS 8/60-SD
Order number	50300525	50036720	50300526	50035820	50300527	50035829
Stroke H	10 mm	10 mm	30 mm	30 mm	60 mm	60 mm
Stroke limitation	2 x 10 mm	2 x 10 mm	2 x 25 mm	2 x 25 mm	2 x 25 mm	2 x 25 mm
Net weight	0.176 kg	0.175 kg	0.241 kg	0.24 kg	0.288 kg	0.287 kg
Moving weight	0.07 kg	0.07 kg	0.11 kg	0.11 kg	0.14 kg	0.14 kg
Air consumption/cycle	0.005 NL	0.005 NL	0.014 NL	0.014 NL	0.027 NL	0.027 NL
Noise level	60 dB (A)	60 dB (A)	60 dB (A)	60 dB (A)	60 dB (A)	60 dB (A)
Repeat accuracy	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm
Maximum speed	1 m/s	1 m/s	1 m/s	1 m/s	1 m/s	1 m/s
Minimum speed	0.05 m/s	0.05 m/s	0.05 m/s	0.05 m/s	0.05 m/s	0.05 m/s
Mounting position						

The technical data refers to a nominal pressure of 6 bar under Afag standard test conditions. The maximum payloads are listed in the payloads table in the slide loads section.
 Note: the CS 8/...-ED are supplied with an elastomer damper ASED
 The CS 8/...-SD are supplied with a hydraulic shock absorber ASSD
 The CS 8/...-SDH are supplied with a hydraulic shock absorber and with a stop sleeve
 The module can be operated with lubricated or dry air.
 Cleanroom class ISO 14644-1, class ISO 7

Included in the delivery

(Catalogue HT accessories)

- 2x Centering bushing Ø5x2.5
- 2x Special screw M3x14.8/4
- 2x Special screw M3 x 16/6
- 2x Shock absorber ASSD M5x0.5 -2
- 2x Shock absorber ASED M5x05 -1

Accessories

(Catalogue HT accessories)

- INI c10x28.5-Em-PNP-NO-M8x1

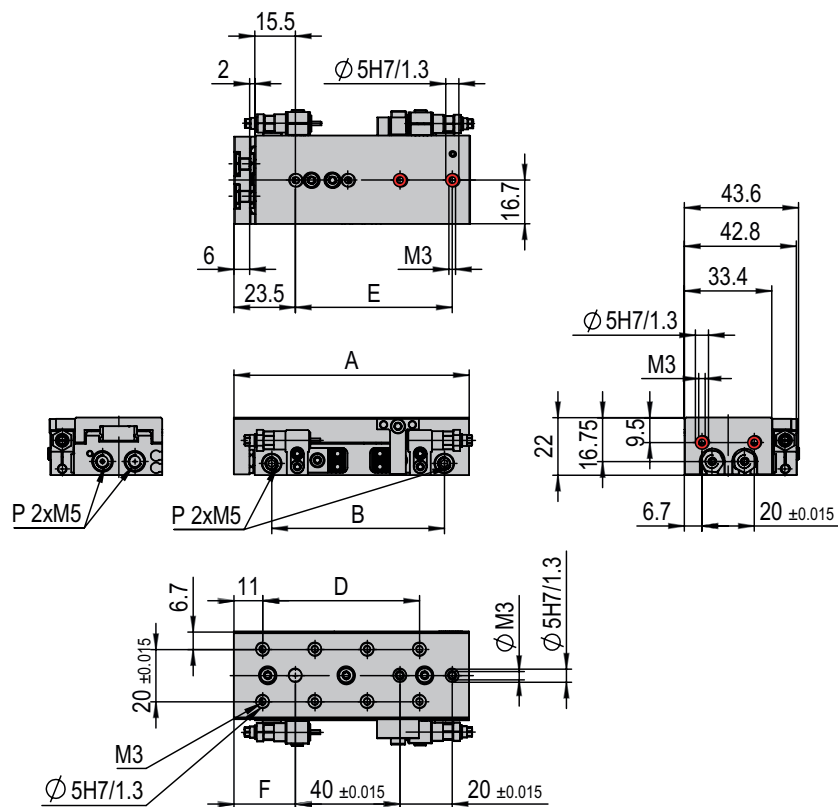
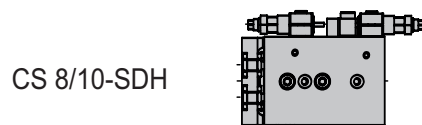
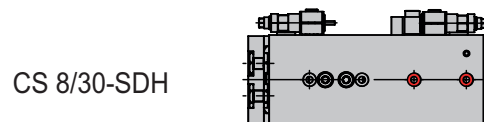
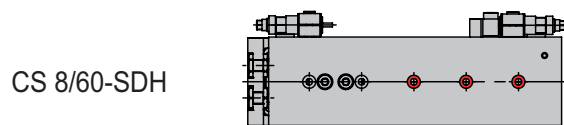
Alternative accessories

(Catalogue HT accessories)

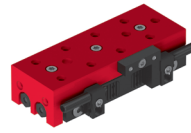
- Steel stop ASS 05/12
- Steel stop ASS 05/22
- Steel stop ASS 05/37
- Steel stop ASS 03/25
- INI d3x22-Sn0.8-PNP-NO-M8x1
- INI c10x19.5-Em-PNP-NO-M8x1
- INI c10x9-Em-PNP-NO-M8x1

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

Type	CS 8/10-SDH	CS 8/30-SDH	CS 8/60-SDH
A	54 mm	90 mm	120 mm
B		66 mm	96 mm
C	7.5 mm	11 mm	8 mm
D	2 x 20 mm	3 x 20 mm	5 x 20 mm
E	20 mm	3 x 20 mm	4 x 20 mm
F		23.5 mm	23.5 mm
G	Screw-through (CS 8/30 and CS 8/60)		
P	M5	M5	M5



Bores can be screwed through



CS 8	
Attachment grid	20 x 20 mm
Attachment thread	M3
Operating pressure	6 +/- 2 bar
Air connection P	M5
Cylinder Ø	2 x 6 mm
Retract piston force	25 N
Extend piston force	34 N
Operating temperature	0 - 50 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %
Medium filtered compressed air	10 - 40 µm

Type	CS 8/10-SDH	CS 8/30-SDH	CS 8/60-SDH
Order number	50509361	50509609	50509576
Stroke H	10 mm	30 mm	60 mm
Stroke limitation	2 x 10 mm	2 x 25 mm	2 x 25 mm
Net weight	0.181 kg	0.246 kg	0.293 kg
Moving weight	0.07 kg	0.11 kg	0.14 kg
Air consumption/cycle	0.005 NL	0.014 NL	0.027 NL
Noise level	60 dB (A)	60 dB (A)	60 dB (A)
Repeat accuracy	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm
Maximum speed	1 m/s	1 m/s	1 m/s
Minimum speed	0.05 m/s	0.05 m/s	0.05 m/s
Mounting position	✦	✦	✦

The technical data refers to a nominal pressure of 6 bar under Afag standard test conditions. The maximum payloads are listed in the payloads table in the slide loads section.

Note: the CS 8/...-ED are supplied with an elastomer damper ASED

The CS 8/...-SD are supplied with a hydraulic shock absorber ASSD

The CS 8/...-SDH are supplied with a hydraulic shock absorber and with a stop sleeve

The module can be operated with lubricated or dry air.

Cleanroom class ISO 14644-1, class ISO 7

Included in the delivery

(Catalogue HT accessories)

- 2x Centering bushing Ø5x2.5
- 2x Special screw M3x14.8/4
- 2x Special screw M3 x 16/6
- 2x Shock absorber ASSD M5x0.5 -2
- 2x Shock absorber ASED M5x05 -1

Accessories

(Catalogue HT accessories)

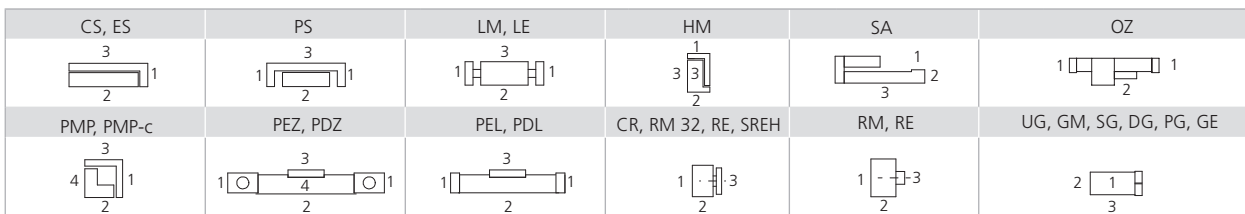
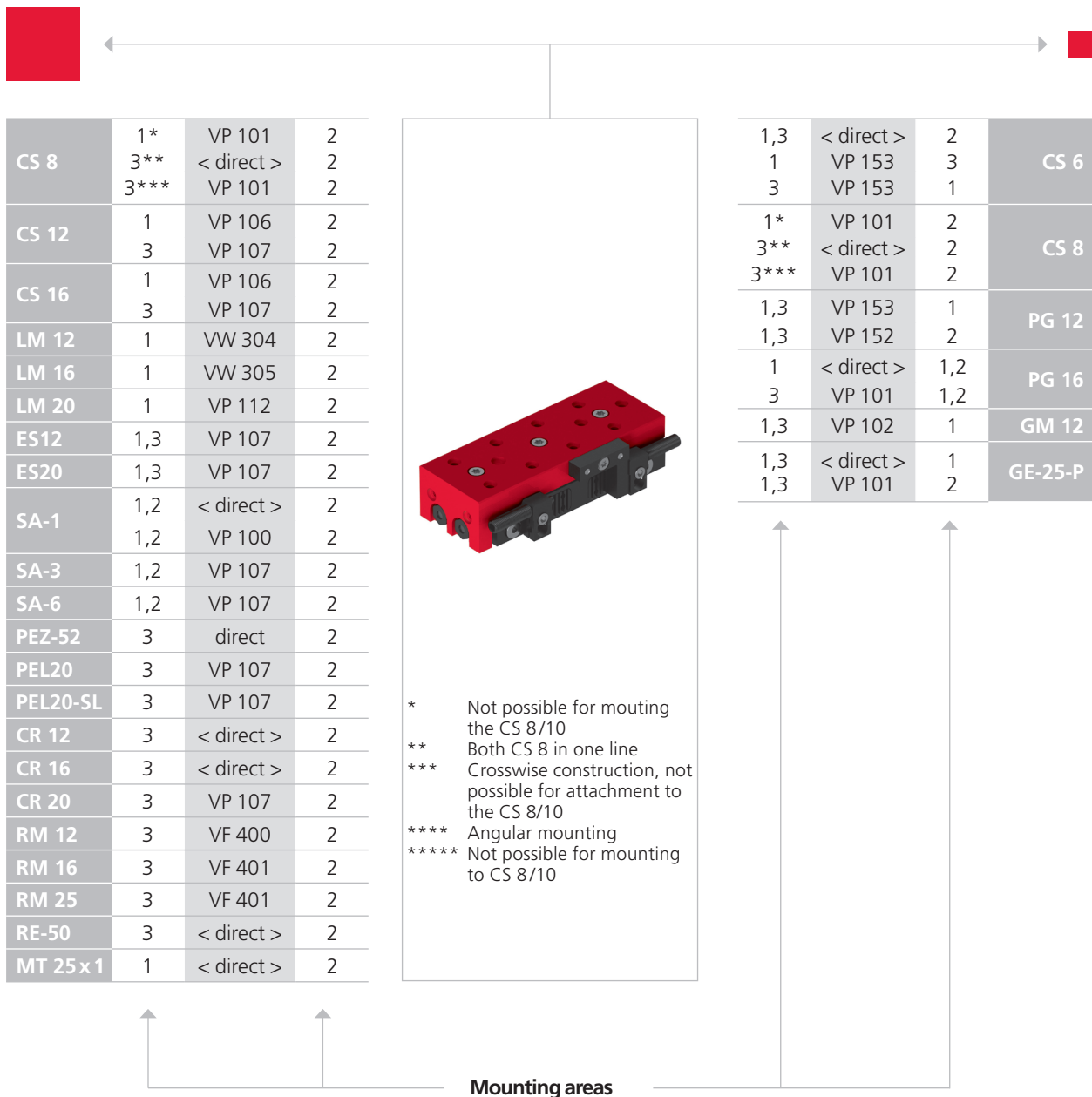
- INI c10x28.5-Em-PNP-NO-M8x1

Alternative accessories

(Catalogue HT accessories)

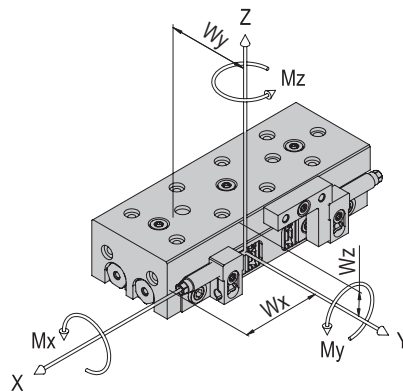
- Steel stop ASS 05/12
- Steel stop ASS 05/22
- Steel stop ASS 05/37
- Steel stop ASS 03/25
- INI d3x22-Sn0.8-PNP-NO-M8x1
- INI c10x19.5-Em-PNP-NO-M8x1
- INI c10x9-Em-PNP-NO-M8x1

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



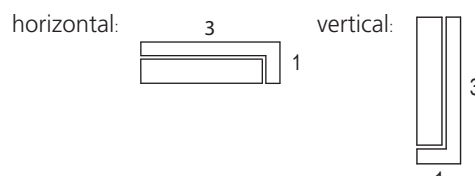
Note that there might be different mounting positions from one module to another one.
 The required connection elements and the range of support columns are depicted in the catalogue HT accessories.

Type	CS 8/10-ED	CS 8/10-SD	CS 8/10-SDH	CS 8/30-ED	CS 8/30-SD	CS 8/30-SDH	CS 8/60-ED	CS 8/60-SD	CS 8/60-SDH
Max. torque Mx	3.6 Nm	3.6 Nm	3.6 Nm	5.4 Nm	5.4 Nm	5.4 Nm	5.4 Nm	5.4 Nm	5.4 Nm
Max. torque My	1.7 Nm	1.7 Nm	1.7 Nm	3.6 Nm	3.6 Nm	3.6 Nm	3.6 Nm	3.6 Nm	3.6 Nm
Max. torque Mz	1.7 Nm	1.7 Nm	1.7 Nm	3.6 Nm	3.6 Nm	3.6 Nm	3.6 Nm	3.6 Nm	3.6 Nm
Effective distance Wx	24 mm	24 mm	24 mm	28 mm	28 mm	28 mm	28 mm	28 mm	28 mm
Effective distance Wy	20 mm	20 mm	20 mm	20 mm	20 mm	20 mm	20 mm	20 mm	20 mm
Effective distance Wz	6.5 mm	6.5 mm	6.5 mm	6.5 mm	6.5 mm	6.5 mm	6.5 mm	6.5 mm	6.5 mm



Maximum payload/type	CS 8/10-ED	CS 8/10-SD	CS 8/10-SDH	CS 8/30-ED	CS 8/30-SD	CS 8/30-SDH	CS 8/60-ED	CS 8/60-SD	CS 8/60-SDH
Installation position (horizontal) for mounting side 1	0.2 kg	0.3 kg	0.3 kg	0.2 kg	0.4 kg	0.4 kg	0.2 kg	0.4 kg	0.4 kg
Installation position (horizontal) for mounting side 3	0.2 kg	0.3 kg	0.3 kg	0.2 kg	0.7 kg	0.7 kg	0.2 kg	0.7 kg	0.7 kg
Installation position (vertical) for mounting side 1	0.2 kg	0.3 kg	0.3 kg	0.2 kg	0.4 kg	0.4 kg	0.2 kg	0.4 kg	0.4 kg
Installation position (vertical) for mounting side 3	0.2 kg	0.3 kg	0.3 kg	0.2 kg	0.7 kg	0.7 kg	0.2 kg	0.7 kg	0.7 kg

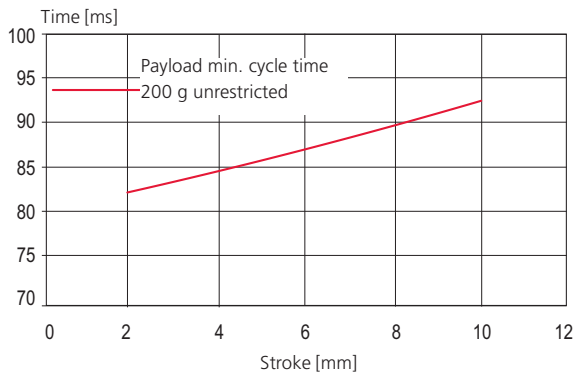
Assembly sides module mounting



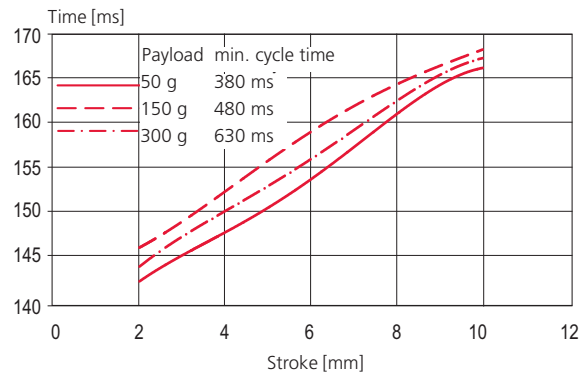
If the specified maximum payloads are exceeded, it must be ensured that the corresponding moments do not affect the service life of the module. In the event of critical applications, please contact Afag.

Operation time diagrams

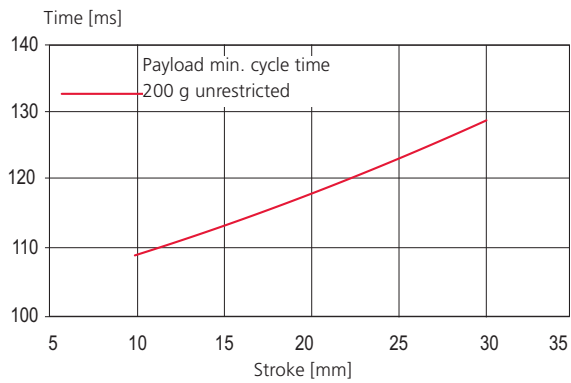
CS 8/10-ED elastomer



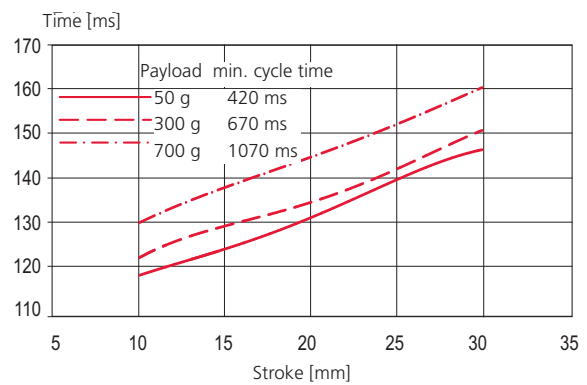
CS 8/10-SD hydraulic



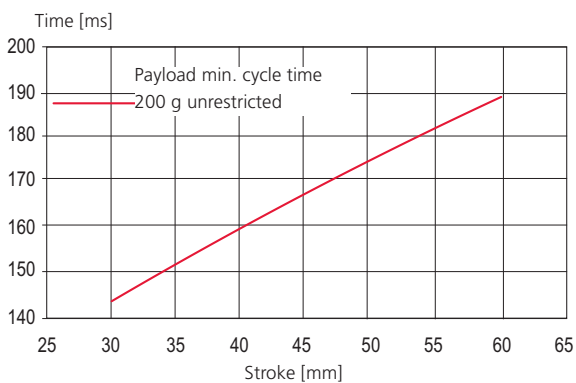
CS 8/30-ED elastomer



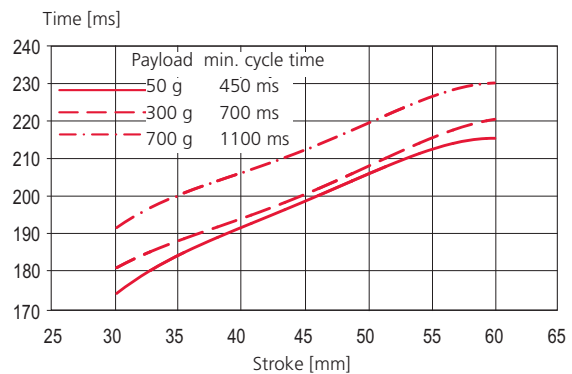
CS 8/30-SD hydraulic



CS 8/60-ED elastomer

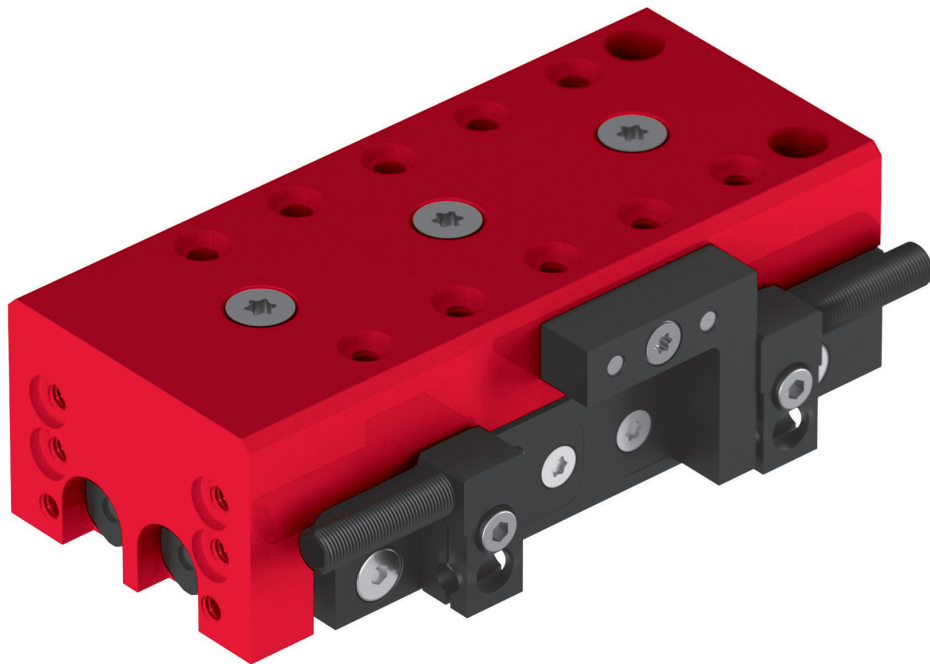


CS 8/60-SD hydraulic



Compact slides CS

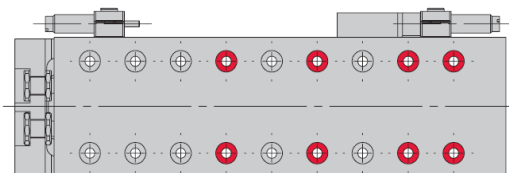
CS 12



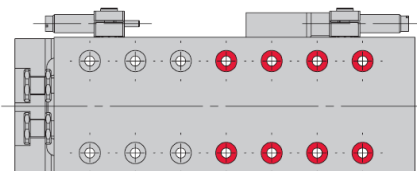
- Compact design
- Solid construction
- High rigidity

Type	CS 12/30	CS 12/60	CS 12/90
A	102 mm	132 mm	162 mm
B	70 mm	100 mm	130 mm
C	4 x 15 mm	6 x 15 mm	8 x 15 mm
D	4 x 15 mm	6 x 15 mm	8 x 15 mm

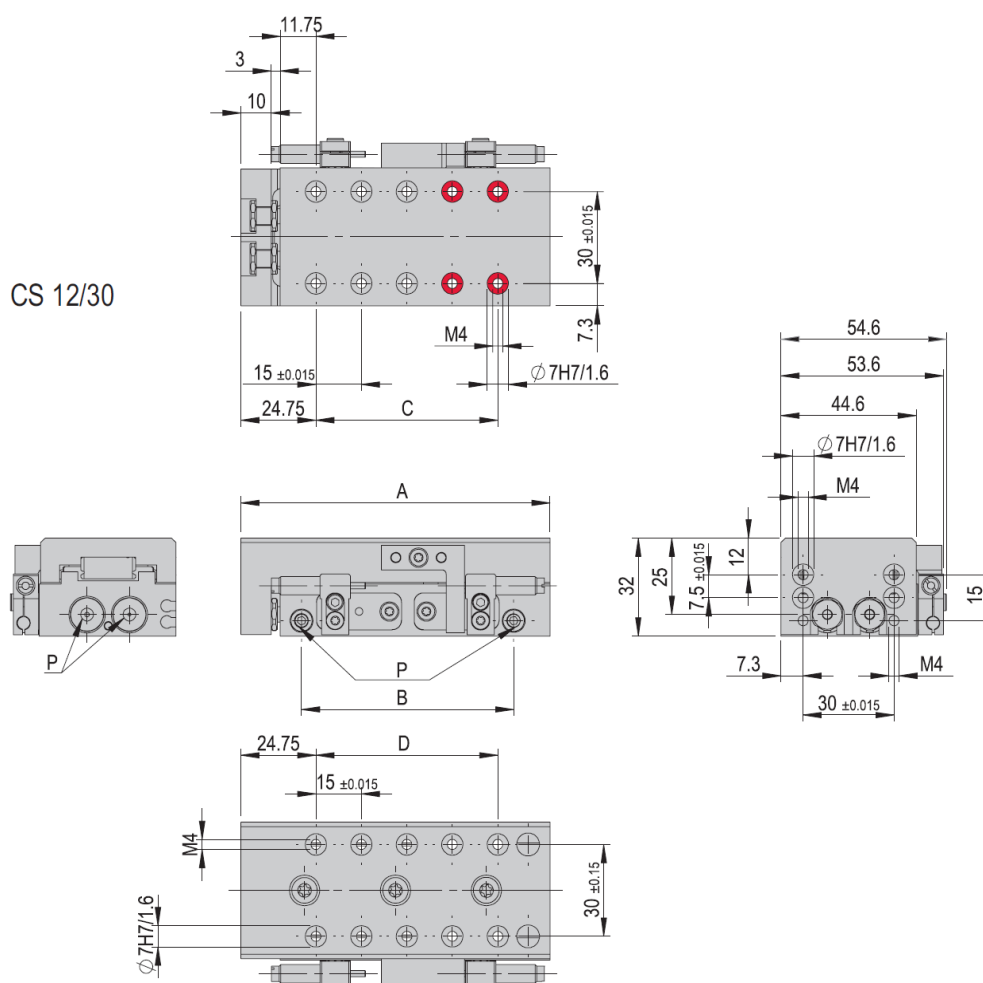
CS 12/90



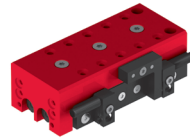
CS 12/60



CS 12/30



Bores can be screwed through



CS 12	
Attachment grid	30 x 30 mm
Attachment thread	M4
Operating pressure	6 +/- 2 bar
Air connection P	M5
Cylinder Ø	2 x 10 mm
Retract piston force	71 N
Extend piston force	94 N
Operating temperature	0 - 50 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %
Medium filtered compressed air	10 - 40 µm

Typ	CS 12/30-ED	CS 12/30-SD	CS 12/60-ED	CS 12/60-SD	CS 12/90-ED	CS 12/90-SD
Bestellnummer	50300528	50048476	50300529	50050602	50300530	50050825
Stroke H	30 mm	30 mm	60 mm	60 mm	90 mm	90 mm
Stroke limitation	2 x 25 mm	2 x 25 mm	2 x 25 mm	2 x 25 mm	2 x 25 mm	2 x 25 mm
Net weight	0.5 kg	0.5 kg	0.864 kg	0.61 kg	0.73 kg	0.73 kg
Moving weight	0.24 kg	0.24 kg	0.3 kg	0.3 kg	0.36 kg	0.36 kg
Air consumption/cycle	0.038 NL	0.038 NL	0.076 NL	0.076 NL	0.114 NL	0.114 NL
Noise level	64 dB (A)	64 dB (A)	64 dB (A)	64 dB (A)	64 dB (A)	64 dB (A)
Repeat accuracy	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm
Maximum speed	1 m/s	1 m/s	1 m/s	1 m/s	1 m/s	1 m/s
Minimum speed	0.02 m/s	0.02 m/s	0.02 m/s	0.02 m/s	0.02 m/s	0.02 m/s
Mounting position	✦	✦	✦	✦	✦	✦

The technical data refers to a nominal pressure of 6 bar under Afag standard test conditions. The maximum payloads are listed in the payloads table in the slide loads section.

Note: the CS 12/...-ED are supplied with an elastomer damper ASERD

The CS 12/...-SD are supplied with a hydraulic shock absorber ASSD

The CS 12/...-SDH are supplied with a hydraulic shock absorber and with a stop sleeve

The module can be operated with lubricated or dry air.

Cleanroom class ISO 14644-1, class ISO 7

Included in the delivery

(Catalogue HT accessories)

- 2x Centering bushing Ø7x3
- 4x Special screw M4 x 20/8
- 2x Shock absorber ASSD M6x0.5 - 4
- 2x Shock absorber ASERD M6x0.5 - 1

Accessories

(Catalogue HT accessories)

- INI c10x28.5-Em-PNP-NO-M8x1

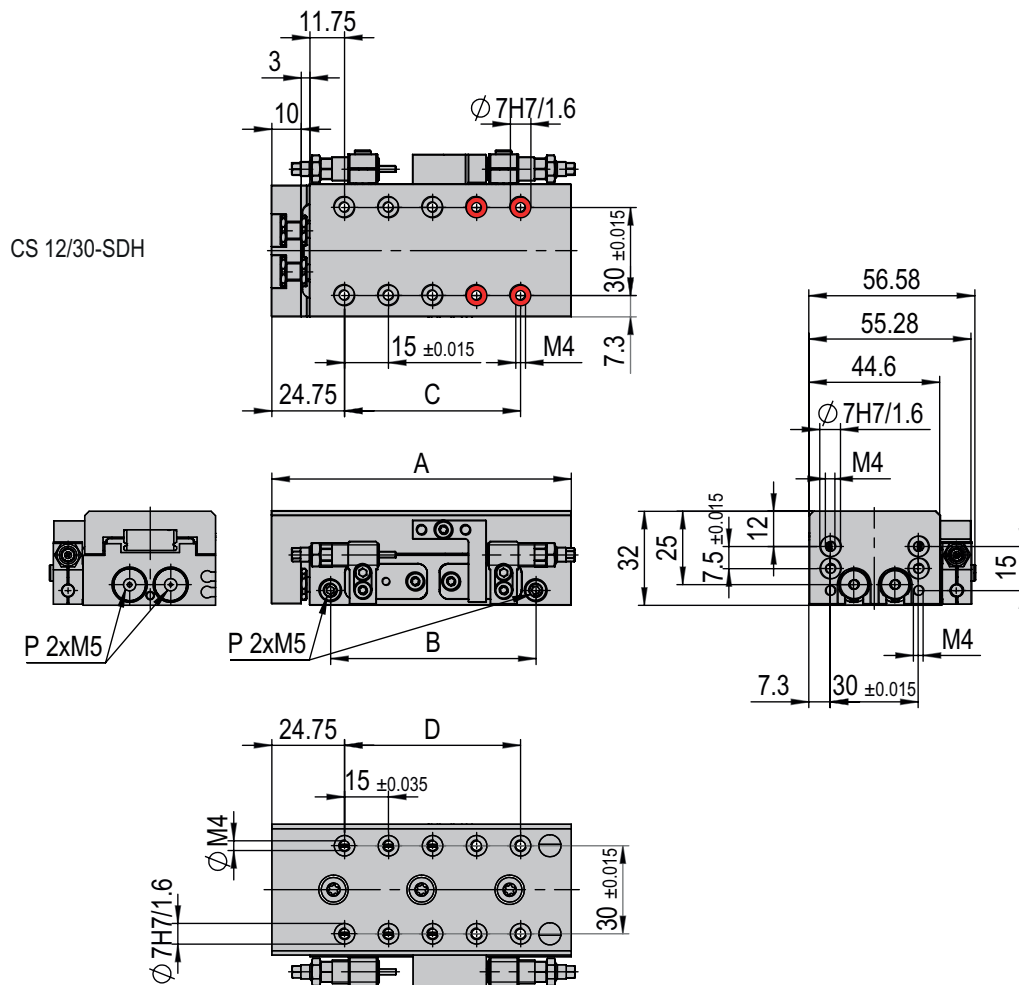
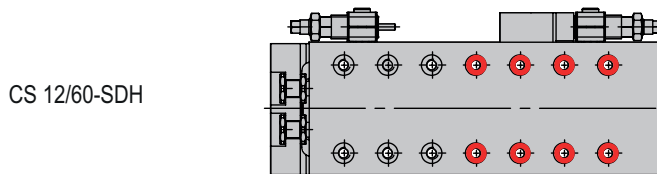
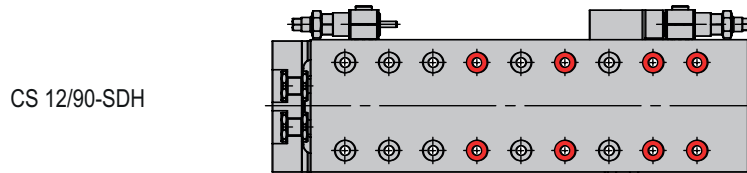
Alternative accessories

(Catalogue HT accessories)

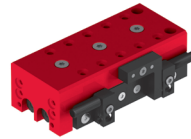
- Steel stop ASS 04/25
- INI d4x25-Sn1.0-PNP-NO-M8x1
- INI c10x19.5-Em-PNP-NO-M8x1
- INI c10x9-Em-PNP-NO-M8x1

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

Type	CS 12/30-SDH	CS 12/60-SDH	CS 12/90-SDH
A	102 mm	132 mm	162 mm
B	70 mm	100 mm	130 mm
C	4 x 15 mm	6 x 15 mm	8 x 15 mm
D	4 x 15 mm	6 x 15 mm	8 x 15 mm



Bores can be screwed through



CS 12 -SDH	
Attachment grid	30 x 30 mm
Attachment thread	M4
Operating pressure	6 +/- 2 bar
Air connection P	M5
Cylinder Ø	2 x 10 mm
Retract piston force	71 N
Extend piston force	94 N
Operating temperature	0 - 50 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %
Medium filtered compressed air	10 - 40 µm

Typ	CS 12/30-SDH	CS 12/60-SDH	CS 12/90-SDH
Bestellnummer	50509653	50509713	50509725
Stroke H	30 mm	60 mm	90 mm
Stroke limitation	2 x 25 mm	2 x 25 mm	2 x 25 mm
Net weight	0.5 kg	0.61 kg	0.73 kg
Moving weight	0.24 kg	0.3 kg	0.36 kg
Air consumption/cycle	0.038 NL	0.076 NL	0.114 NL
Noise level	64 dB (A)	64 dB (A)	64 dB (A)
Repeat accuracy	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm
Maximum speed	1 m/s	1 m/s	1 m/s
Minimum speed	0.02 m/s	0.02 m/s	0.02 m/s
Mounting position	✦	✦	✦

The technical data refers to a nominal pressure of 6 bar under Afag standard test conditions. The maximum payloads are listed in the payloads table in the slide loads section.
 Note: the CS 12/...-ED are supplied with an elastomer damper ASED
 The CS 12/...-SD are supplied with a hydraulic shock absorber ASSD
 The CS 12/...-SDH are supplied with a hydraulic shock absorber and with a stop sleeve
 The module can be operated with lubricated or dry air.
 Cleanroom class ISO 14644-1, class ISO 7

Included in the delivery

(Catalogue HT accessories)

- 2x Centering bushing Ø7x3
- 4x Special screw M4 x 20/8
- 2x Shock absorber ASSD M6x0.5 - 4
- 2x Shock absorber ASED M6x0.5 - 1

Accessories

(Catalogue HT accessories)

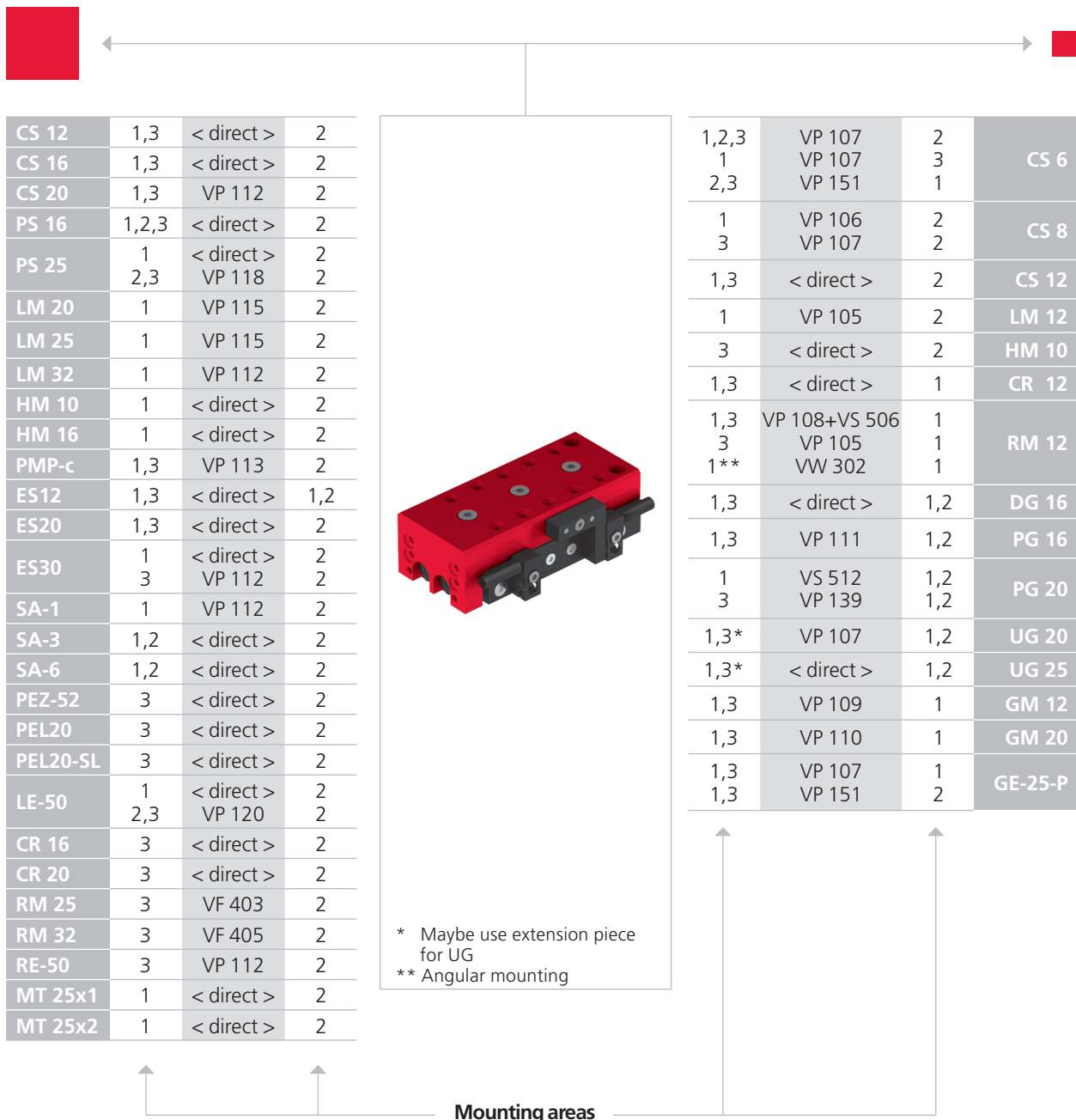
- INI c10x28.5-Em-PNP-NO-M8x1

Alternative accessories

(Catalogue HT accessories)

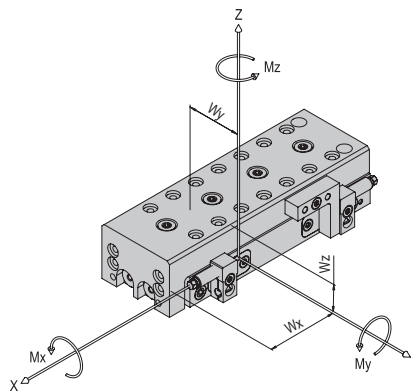
- Steel stop ASS 04/25
- INI d4x25-Sn1.0-PNP-NO-M8x1
- INI c10x19.5-Em-PNP-NO-M8x1
- INI c10x9-Em-PNP-NO-M8x1

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



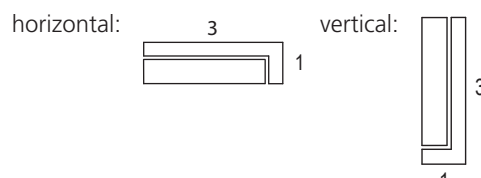
Note that there might be different mounting positions from one module to another one.
The required connection elements and the range of support columns are depicted in the catalogue HT accessories.

Type	CS 12/30-	CS 12/30-	CS 12/30-	CS 12/60-	CS 12/60-	CS 12/60-	CS 12/90-	CS 12/90-	CS 12/90-
	ED	SD	SDH	ED	SD	SDH	ED	SD	SDH
Max. torque M_x	13 Nm	13 Nm	13 Nm	13 Nm	13 Nm	13 Nm	13 Nm	13 Nm	13 Nm
Max. torque M_y	8 Nm	8 Nm	8 Nm	8 Nm	8 Nm	8 Nm	8 Nm	8 Nm	8 Nm
Max. torque M_z	8 Nm	8 Nm	8 Nm	8 Nm	8 Nm	8 Nm	8 Nm	8 Nm	8 Nm
Effective distance W_x	36.5 mm	36.5 mm	36.5 mm	36.5 mm	36.5 mm	36.5 mm	36.5 mm	36.5 mm	36.5 mm
Effective distance W_y	26 mm	26 mm	26 mm	26 mm	26 mm	26 mm	26 mm	26 mm	26 mm
Effective distance W_z	22 mm	22 mm	22 mm	22 mm	22 mm	22 mm	22 mm	22 mm	22 mm



Maximum payload/type	CS 12/30-	CS 12/30-	CS 12/30-	CS 12/60-	CS 12/60-	CS 12/60-	CS 12/90-	CS 12/90-	CS 12/90-
	ED	SD	SDH	ED	SD	SDH	ED	SD	SDH
Installation position (horizontal) for mounting side 1	0.3 kg	0.7 kg	0.7 kg	0.3 kg	0.7 kg	0.7 kg	0.3 kg	0.7 kg	0.7 kg
Installation position (horizontal) for mounting side 3	0.3 kg	1.2 kg	1.2 kg	0.3 kg	1.2 kg	1.2 kg	0.3 kg	1.2 kg	1.2 kg
Installation position (vertical) for mounting side 1	0.3 kg	0.7 kg	0.7 kg	0.3 kg	0.7 kg	0.7 kg	0.3 kg	0.7 kg	0.7 kg
Installation position (vertical) for mounting side 3	0.3 kg	1.2 kg	1.2 kg	0.3 kg	1.2 kg	1.2 kg	0.3 kg	1.2 kg	1.2 kg

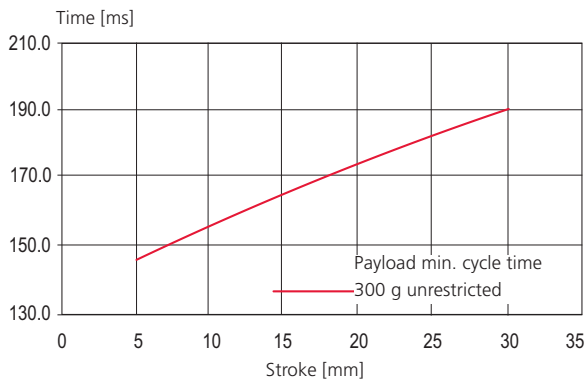
Assembly sides module mounting



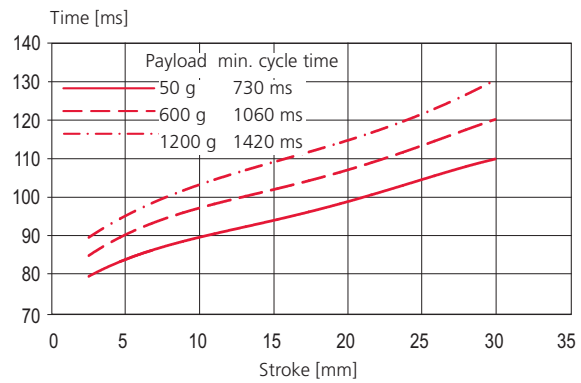
If the specified maximum payloads are exceeded, it must be ensured that the corresponding moments do not affect the service life of the module. In the event of critical applications, please contact Afag.

Operation time diagrams

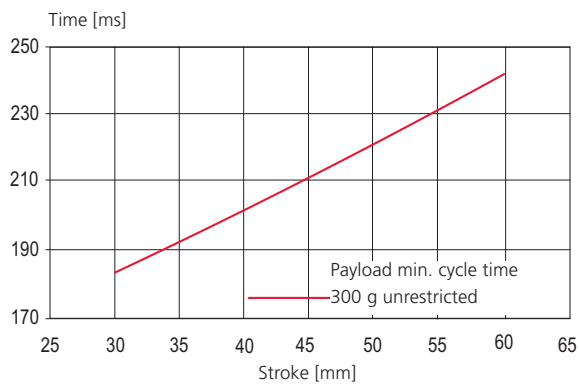
CS 12/30-ED elastomer



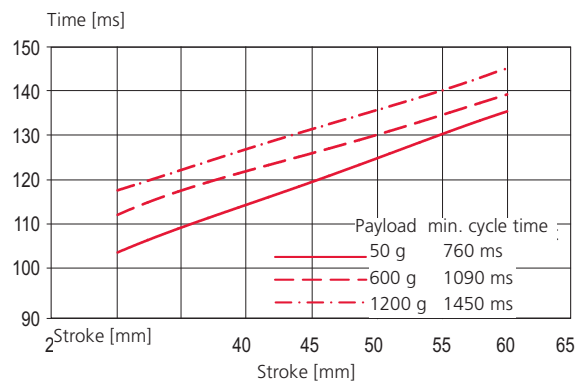
CS 12/30-SD hydraulic



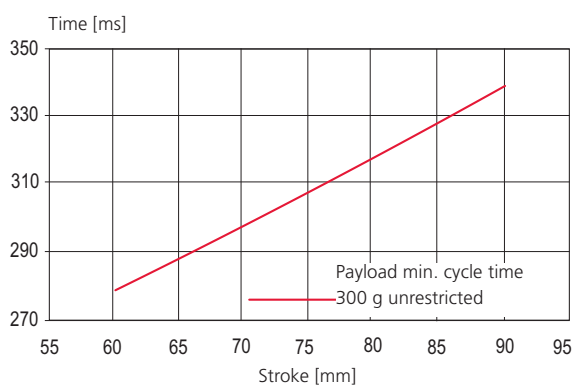
CS 12/60-ED elastomer



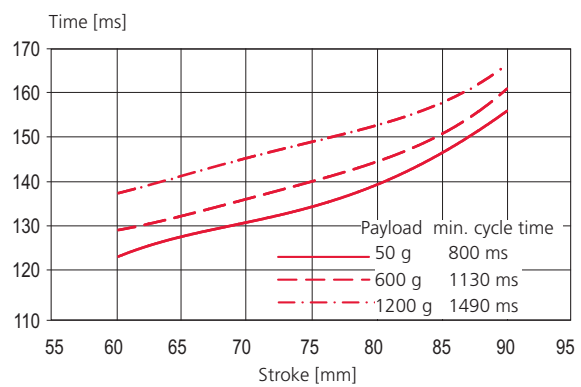
CS 12/60-SD hydraulic



CS 12/90-ED elastomer

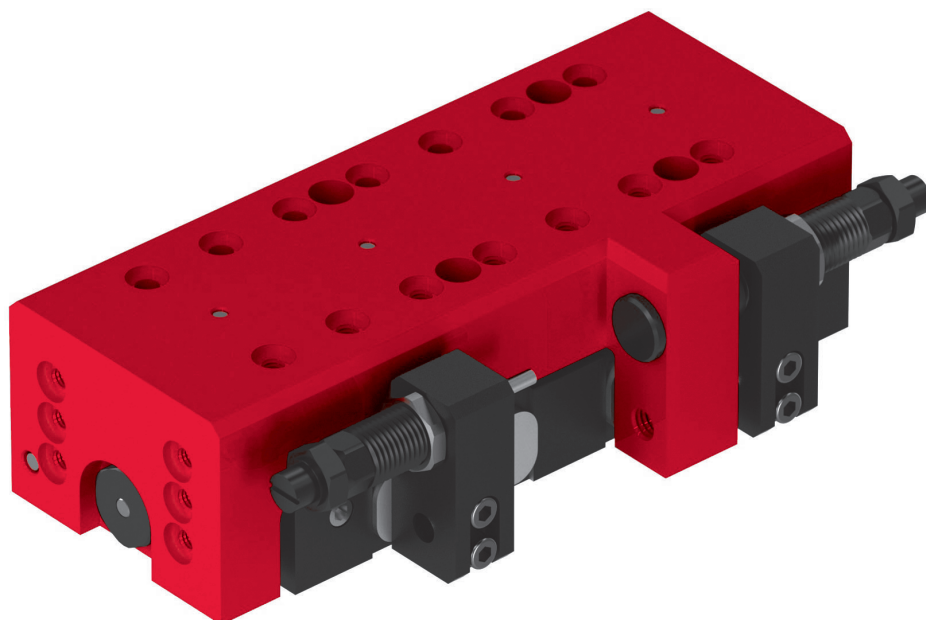


CS 12/90-SD hydraulic



Compact slides CS

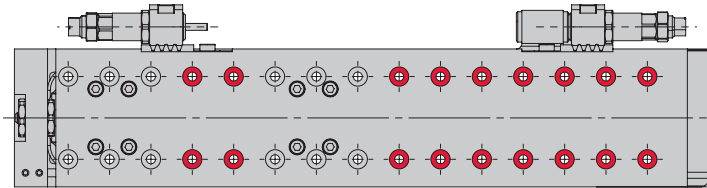
CS 16



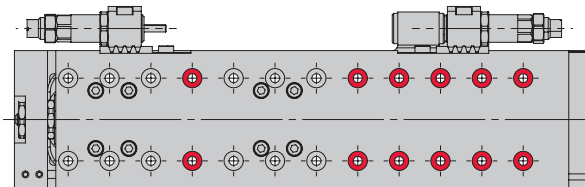
- Compact design
- Solid construction
- High rigidity
- Intermediate stop for 3rd Position

Type	CS 16/30	CS 16/60	CS 16/90	CS 16/120
A	6 x 15 mm	9 x 15 mm	11 x 15 mm	14 x 15 mm
B	93 mm	135.5 mm	167.5 mm	210 mm
C	130 mm	177 mm	209 mm	252 mm
D	6 x 15 mm	9 x 15 mm	11 x 15 mm	14 x 15 mm

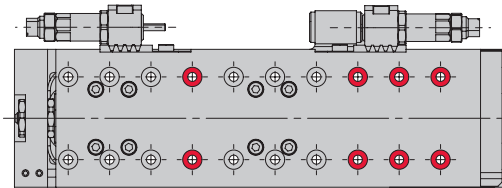
CS 16/120



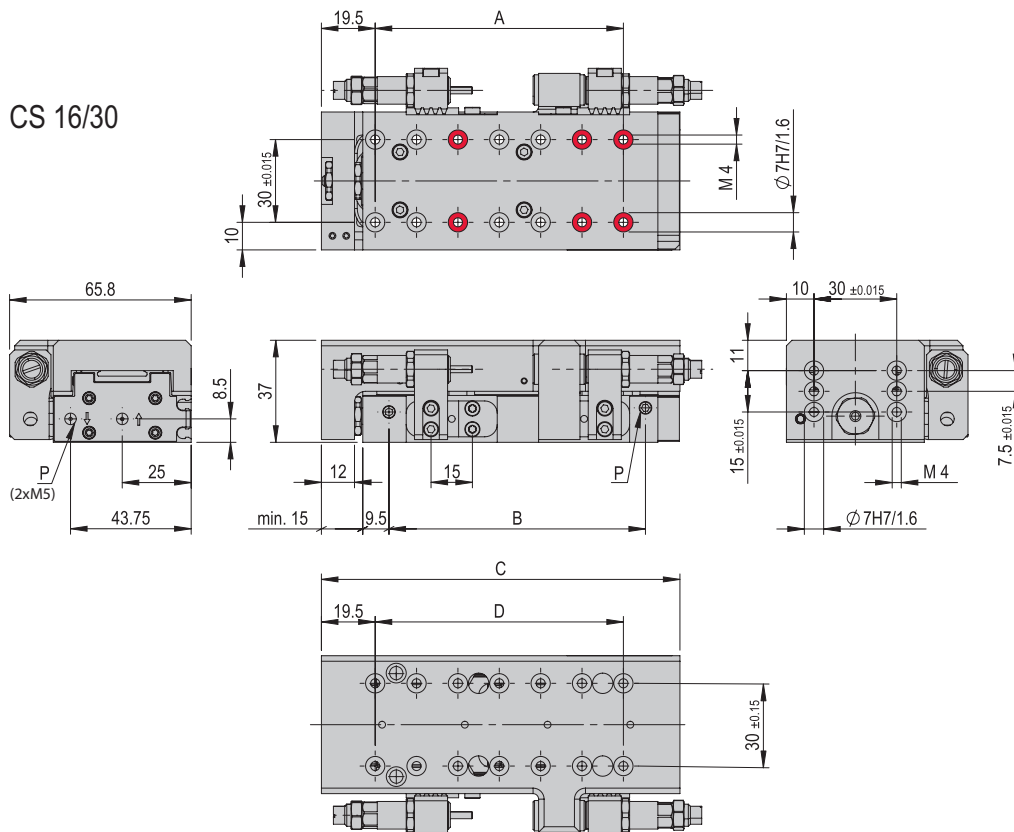
CS 16/90




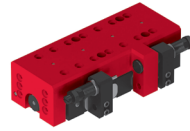
CS 16/60



CS 16/30



 Bores can be screwed through



CS 16	
Attachment grid	30 x 30 mm
Attachment thread	M4
Operating pressure	6 +/- 2 bar
Air connection P	M5
Cylinder Ø	16 mm
Retract piston force	103 N
Extend piston force	120 N
Operating temperature	0 - 50 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %
Medium filtered compressed air	10 - 40 µm

Type	CS 16/30	CS 16/60	CS 16/90	CS 16/120
Order number	50167742	50154069	50154070	50154071
Stroke H	30 mm	60 mm	90 mm	120 mm
Stroke limitation	2 x 30 mm	2 x 30 mm	2 x 30 mm	2 x 30 mm
Net weight	0.74 kg	0.98 kg	1.2 kg	1.27 kg
Moving weight	0.34 kg	0.48 kg	0.564 kg	0.671 kg
Air consumption/cycle	0.0554 NL	0.1109 NL	0.1664 NL	0.2218 NL
Noise level	64 dB (A)	64 dB (A)	64 dB (A)	64 dB (A)
Repeat accuracy	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm
Maximum speed	1 m/s	1 m/s	1 m/s	1 m/s
Minimum speed	0.1 m/s	0.1 m/s	0.1 m/s	0.1 m/s
Mounting position				

The technical data refers to a nominal pressure of 6 bar under Afag standard test conditions. The maximum payloads are listed in the payloads table in the slide loads section. The module can be operated with lubricated or dry air. Cleanroom class ISO 14644-1, class ISO 7

Included in the delivery

(Catalogue HT accessories)

- 2x Centering bushing Ø7x3
- 4x Special screw M4 x 20/8
- 2x Stop sleeve ASH M10x1 -1
- 2x Shock absorber SD M8x1 -4

Accessories

- Installation set proximity switch CS 16/CS 20 [p. 48]

(Catalogue HT accessories)

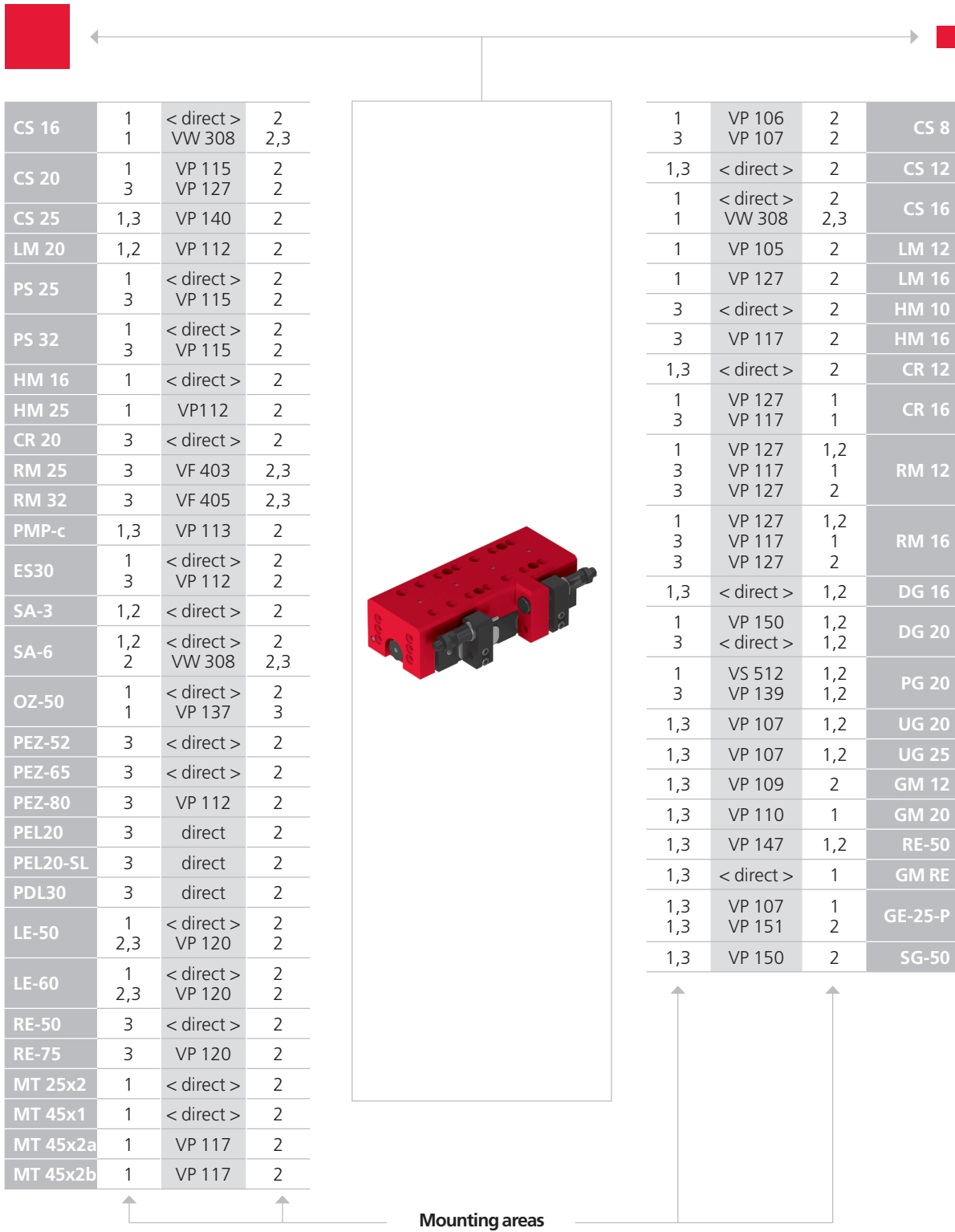
- INI c10x28.5-Em-PNP-NO-M8x1

Alternative accessories

(Catalogue HT accessories)

- INI c10x19.5-Em-PNP-NO-M8x1
- INI c10x9-Em-PNP-NO-M8x1
- INI d4x25-Sn1.0-PNP-NO-M8x1

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



CS 16	1 1	< direct > VW 308	2 2,3
CS 20	1 3	VP 115 VP 127	2 2
CS 25	1,3	VP 140	2
LM 20	1,2	VP 112	2
PS 25	1 3	< direct > VP 115	2 2
PS 32	1 3	< direct > VP 115	2 2
HM 16	1	< direct >	2
HM 25	1	VP112	2
CR 20	3	< direct >	2
RM 25	3	VF 403	2,3
RM 32	3	VF 405	2,3
PMP-c	1,3	VP 113	2
ES30	1 3	< direct > VP 112	2 2
SA-3	1,2	< direct >	2
SA-6	1,2 2	< direct > VW 308	2 2,3
OZ-50	1 1	< direct > VP 137	2 3
PEZ-52	3	< direct >	2
PEZ-65	3	< direct >	2
PEZ-80	3	VP 112	2
PEL20	3	direct	2
PEL20-SL	3	direct	2
PDL30	3	direct	2
LE-50	1 2,3	< direct > VP 120	2 2
LE-60	1 2,3	< direct > VP 120	2 2
RE-50	3	< direct >	2
RE-75	3	VP 120	2
MT 25x2	1	< direct >	2
MT 45x1	1	< direct >	2
MT 45x2a	1	VP 117	2
MT 45x2b	1	VP 117	2

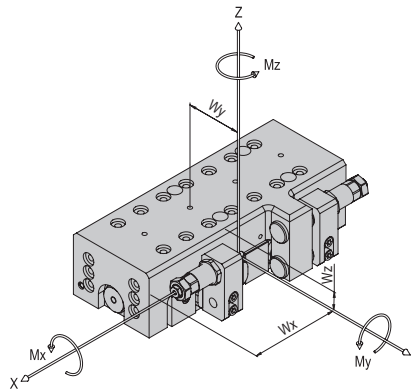
1 3	VP 106 VP 107	2 2	CS 8
1,3	< direct >	2	CS 12
1 1	< direct > VW 308	2 2,3	CS 16
1	VP 105	2	LM 12
1	VP 127	2	LM 16
3	< direct >	2	HM 10
3	VP 117	2	HM 16
1,3	< direct >	2	CR 12
1 3	VP 127 VP 117	1 1	CR 16
1 3 3	VP 127 VP 117 VP 127	1,2 1 2	RM 12
1 3 3	VP 127 VP 117 VP 127	1,2 1 2	RM 16
1,3	< direct >	1,2	DG 16
1 3	VP 150 < direct >	1,2 1,2	DG 20
1 3	VS 512 VP 139	1,2 1,2	PG 20
1,3	VP 107	1,2	UG 20
1,3	VP 107	1,2	UG 25
1,3	VP 109	2	GM 12
1,3	VP 110	1	GM 20
1,3	VP 147	1,2	RE-50
1,3	< direct >	1	GM RE
1,3 1,3	VP 107 VP 151	1 2	GE-25-P
1,3	VP 150	2	SG-50

Mounting areas

CS, ES 	PS 	LM, LE 	HM 	SA 	OZ
PMP, PMP-c 	PEZ, PDZ 	PEL, PDL 	CR, RM 32, RE, SREH 	RM, RE 	UG, GM, SG, DG, PG, GE

Note that there might be different mounting positions from one module to another one.
The required connection elements and the range of support columns are depicted in the catalogue HT accessories.

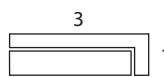
Type	CS 16/30	CS 16/60	CS 16/90	CS 16/120
Max. torque M_x	10 Nm	14 Nm	14 Nm	14 Nm
Max. torque M_y	18 Nm	32 Nm	33 Nm	39 Nm
Max. torque M_z	25 Nm	44 Nm	46 Nm	56 Nm
Effective distance W_x	51 mm	65 mm	65 mm	72 mm
Effective distance W_y	33 mm	33 mm	33 mm	33 mm
Effective distance W_z	11 mm	11 mm	11 mm	11 mm



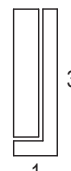
Maximum payload/type	CS 16/30	CS 16/60	CS 16/90	CS 16/120
Installation position (horizontal) for mounting side 1	1.5 kg	2 kg	2 kg	2 kg
Installation position (horizontal) for mounting side 3	2 kg	3 kg	3 kg	3 kg
Installation position (vertical) for mounting side 1	1.5 kg	2 kg	2 kg	2 kg
Installation position (vertical) for mounting side 3	2 kg	3 kg	3 kg	3 kg

Assembly sides
module mounting

horizontal:



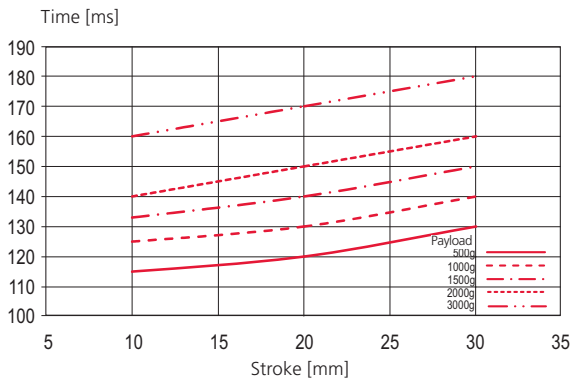
vertical:



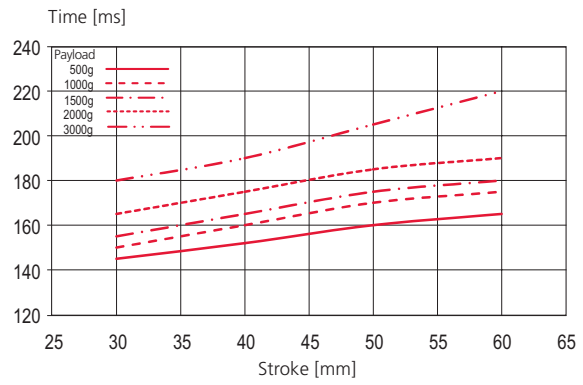
If the specified maximum payloads are exceeded, it must be ensured that the corresponding moments do not affect the service life of the module. In the event of critical applications, please contact Afag.

Operation time diagrams

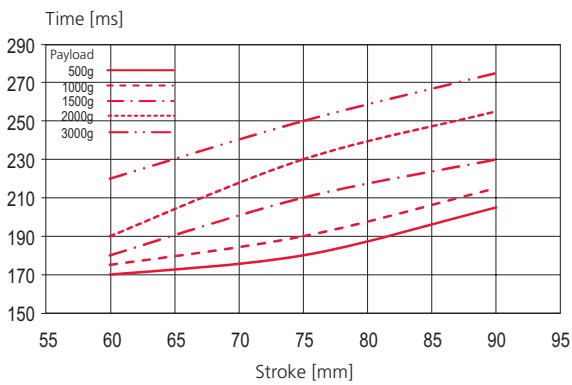
CS 16/30



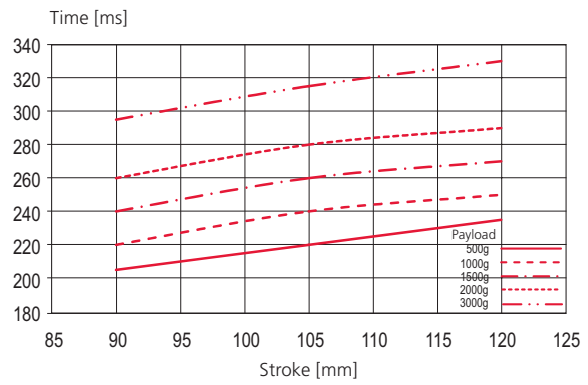
CS 16/60



CS 16/90

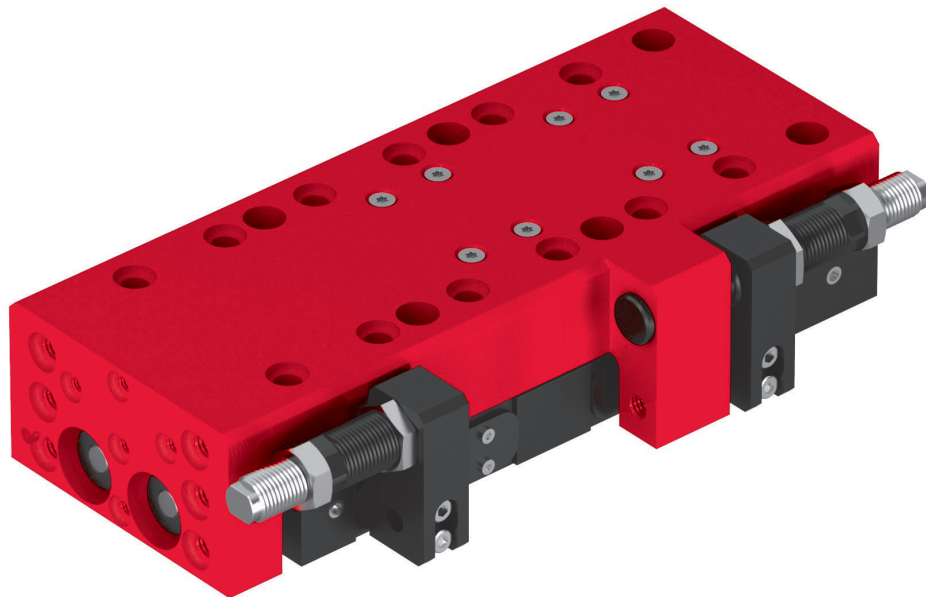


CS 16/120



Compact slides CS

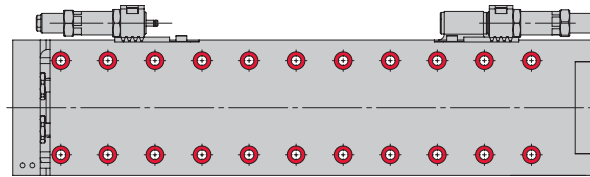
CS 20



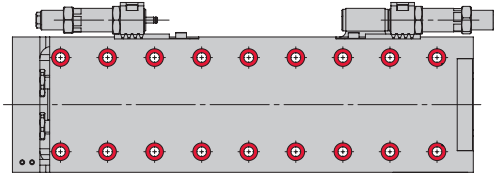
- Compact design
- Solid construction
- High rigidity
- Intermediate stop for 3rd Position

Type	CS 20/50	CS 20/100	CS 20/150
A	5 x 24 mm	8 x 24 mm	10 x 24 mm
B	134.5 mm	194.5 mm	254.5 mm
C	175 mm	235 mm	295 mm
D	5 x 24 mm	8 x 24 mm	10 x 24 mm
E	Top slide	Top slide	Top slide
F	Front	Front	Front

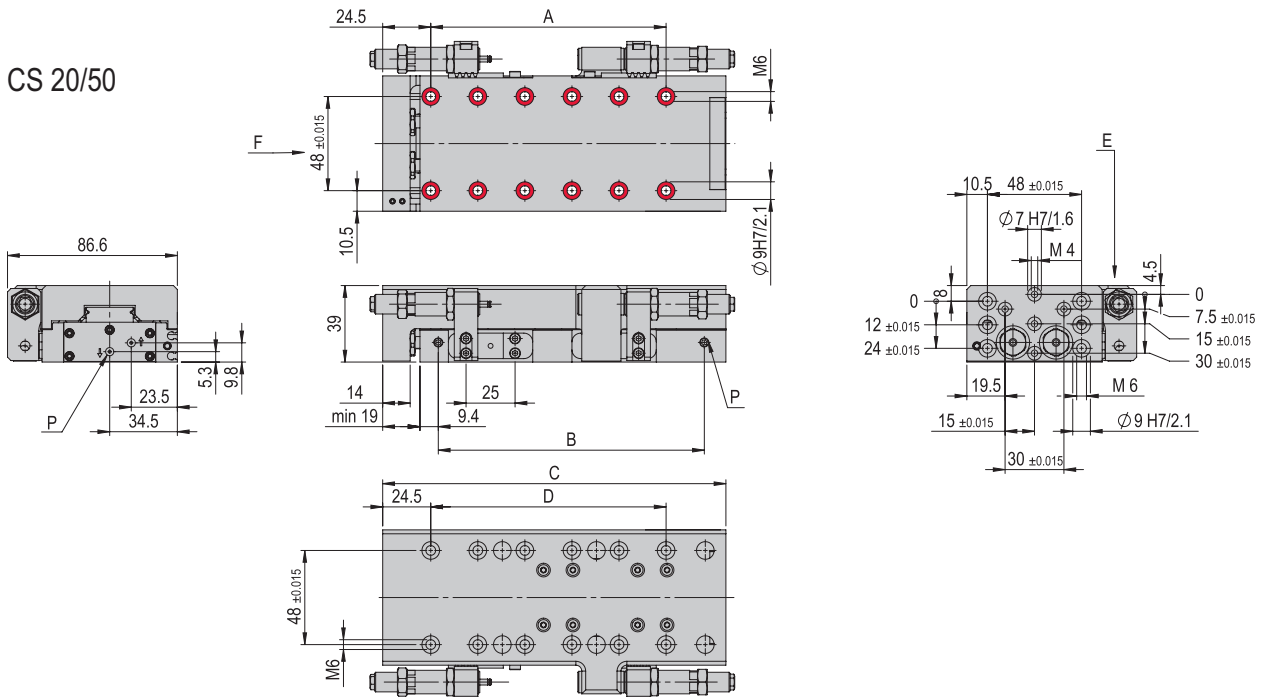
CS 20/150




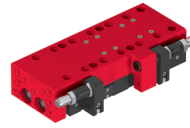
CS 20/100



CS 20/50



 Bores can be screwed through



CS 20	
Attachment grid	48 x 48 mm
Attachment thread	M6
Operating pressure	6 +/- 2 bar
Air connection P	M5
Cylinder Ø	2 x 16 mm
Retract piston force	207 N
Extend piston force	241 N
Operating temperature	0 - 50 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %
Medium filtered compressed air	10 - 40 µm

Type	CS 20/50	CS 20/100	CS 20/150
Order number	50100711	50100712	50100713
Stroke H	50 mm	100 mm	150 mm
Stroke limitation	2 x 25 mm	2 x 25 mm	2 x 25 mm
Net weight	1.5 kg	1.8 kg	2.2 kg
Moving weight	0.8 kg	1 kg	1.2 kg
Air consumption/cycle	0.1718 NL	0.3436 NL	0.5154 NL
Noise level	64 dB (A)	64 dB (A)	64 dB (A)
Repeat accuracy	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm
Maximum speed	1 m/s	1 m/s	1 m/s
Minimum speed	0.02 m/s	0.02 m/s	0.02 m/s
Mounting position	✦	✦	✦

The technical data refers to a nominal pressure of 6 bar under Afag standard test conditions. The maximum payloads are listed in the payloads table in the slide loads section. The module can be operated with lubricated or dry air. Cleanroom class ISO 14644-1, class ISO 7

Included in the delivery (Catalogue HT accessories)

- 2x Centering bushing Ø9x4
- 4x Special screw M6 x 25/9
- 2x Stop sleeve ASH M12x1 -1
- 2x Shock absorber SD M10x1 -5

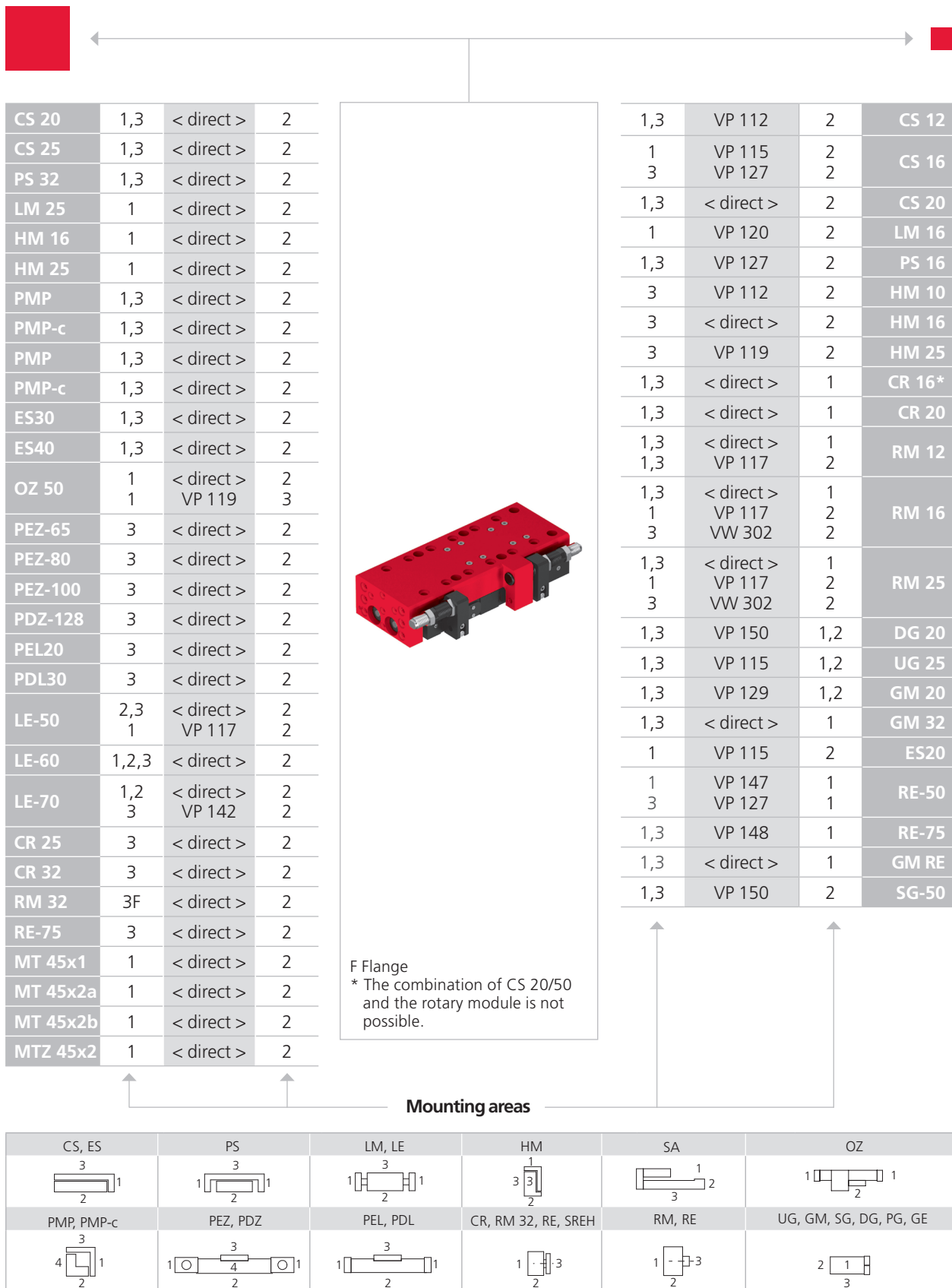
Accessories

- Intermediate stop ZA-CS 20 [p. 47]
 - Installation set proximity switch CS 16/CS 20 [p. 48]
- (Catalogue HT accessories)
- INI c10x28.5-Em-PNP-NO-M8x1

Alternative accessories

- (Catalogue HT accessories)
- INI d4x25-Sn1.0-PNP-NO-M8x1
 - INI c10x9-Em-PNP-NO-M8x1

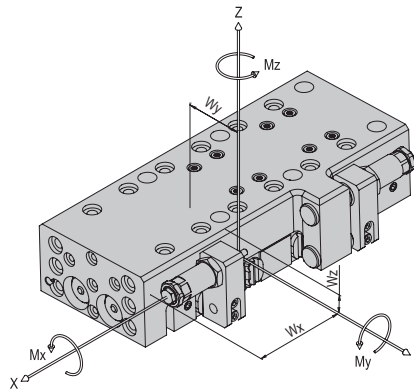
Warranty: 24 months following commissioning, but a maximum of 27 months following delivery



Note that there might be different mounting positions from one module to another one.

The required connection elements and the range of pedestals are depicted in the catalogue HT accessories.

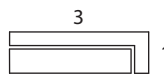
Type	CS 20/50	CS 20/100	CS 20/150
Max. torque M_x	57 Nm	57 Nm	57 Nm
Max. torque M_y	50 Nm	57 Nm	63 Nm
Max. torque M_z	50 Nm	57 Nm	63 Nm
Effective distance W_x	106 mm	163 mm	217 mm
Effective distance W_y	43 mm	43 mm	43 mm
Effective distance W_z	14 mm	14 mm	14 mm



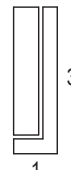
Maximum payload/type	CS 20/50	CS 20/100	CS 20/150
Installation position (horizontal) for mounting side 1	4 kg	4 kg	4 kg
Installation position (horizontal) for mounting side 3	5 kg	5 kg	5 kg
Installation position (vertical) for mounting side 1	4 kg	4 kg	4 kg
Installation position (vertical) for mounting side 3	5 kg	5 kg	5 kg

Assembly sides
module mounting

horizontal:



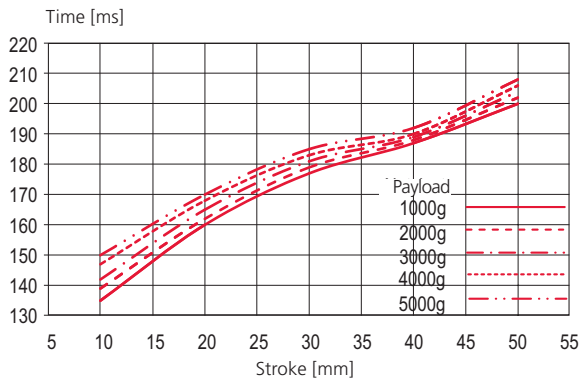
vertical:



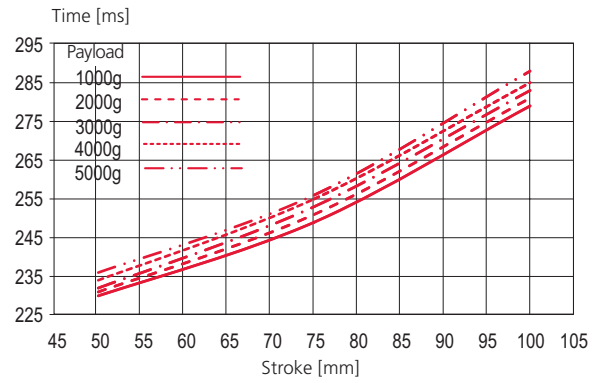
If the specified maximum payloads are exceeded, it must be ensured that the corresponding moments do not affect the service life of the module. In the event of critical applications, please contact Afag.

Operation time diagrams

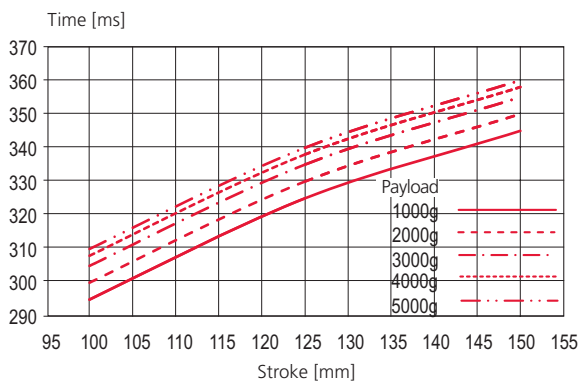
CS 20/50



CS 20/100

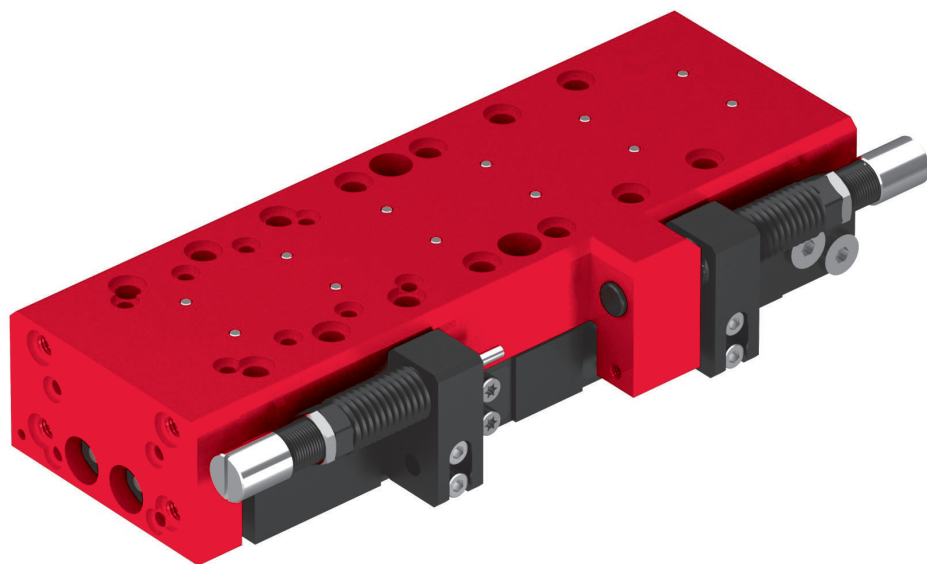


CS 20/150



Compact slides CS

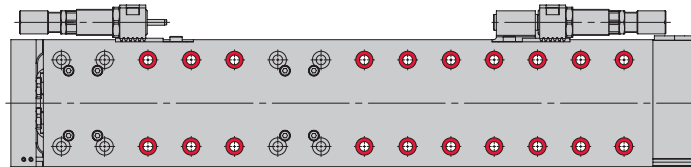
CS 25



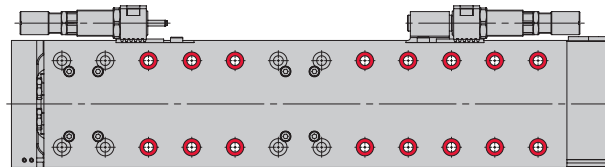
- Compact design
- Solid construction
- High rigidity
- Intermediate stop for 3rd Position

Type	CS 25/60	CS 25/120	CS 25/180	CS 25/240
A	265 mm	325 mm	415 mm	475 mm
B	6 x 30 mm	8 x 30 mm	11 x 30 mm	13 x 30 mm
C	6 x 30 mm	8 x 30 mm	11 x 30 mm	13 x 30 mm

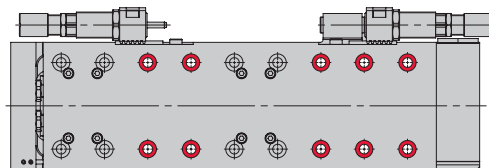
CS 25/240



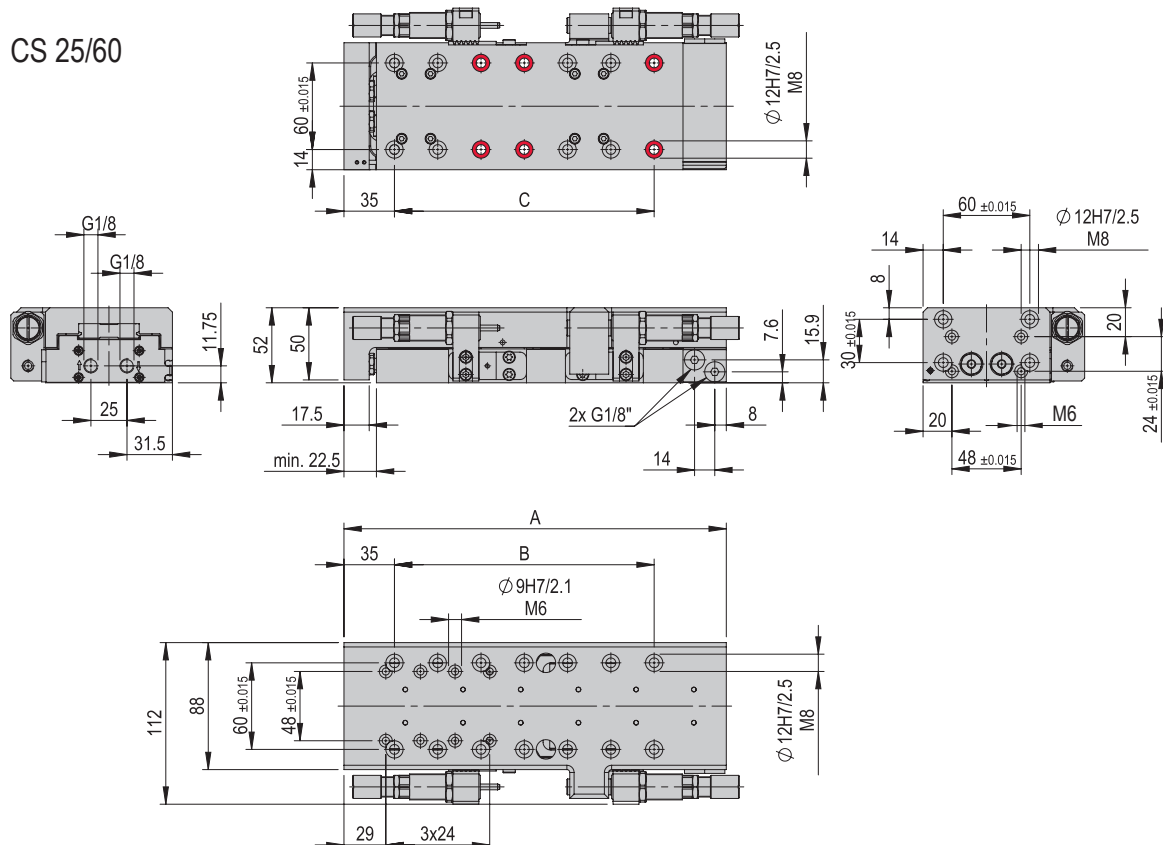
CS 25/180



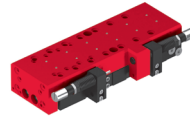
CS 25/120



CS 25/60



Bores can be screwed through



CS 25	
Attachment grid	60 x 60 mm
Attachment grid alternative	48 x 48 mm
Attachment thread	M8
Attachment thread alternative	M6
Operating pressure	6 +/- 2 bar
Air connection P	G1/8 "
Cylinder Ø	2 x 18 mm
Retract piston force	245 N
Extend piston force	305 N
Operating temperature	0 - 50 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %
Medium filtered compressed air	10 - 40 µm

Type	CS 25/60	CS 25/120	CS 25/180	CS 25/240
Order number	50224806	50224807	50224808	50224809
Stroke H	60 mm	120 mm	180 mm	240 mm
Stroke limitation	2 x 30 mm	2 x 30 mm	2 x 30 mm	2 x 30 mm
Net weight	3.935 kg	4.58 kg	5.62 kg	6.26 kg
Moving weight	1.9 kg	2.3 kg	3 kg	3.4 kg
Air consumption/cycle	0.253 NL	0.503 NL	0.759 NL	1.012 NL
Noise level	64 dB (A)	64 dB (A)	64 dB (A)	64 dB (A)
Repeat accuracy	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm
Maximum speed	1 m/s	1 m/s	1 m/s	1 m/s
Minimum speed	0.5 m/s	0.5 m/s	0.5 m/s	0.5 m/s
Mounting position	↕	↕	↕	↕

The technical data refers to a nominal pressure of 6 bar under Afag standard test conditions. The maximum payloads are listed in the payloads table in the slide loads section. The module can be operated with lubricated or dry air. Cleanroom class ISO 14644-1, class ISO 7

Included in the delivery

- (Catalogue HT accessories)
- 2x Centering bushing Ø12x4.8
 - 4x Special screw M8 x 35/15
 - 2x Stop sleeve ASH M18x1 -1
 - 2x Shock absorber SD M14x1 -2

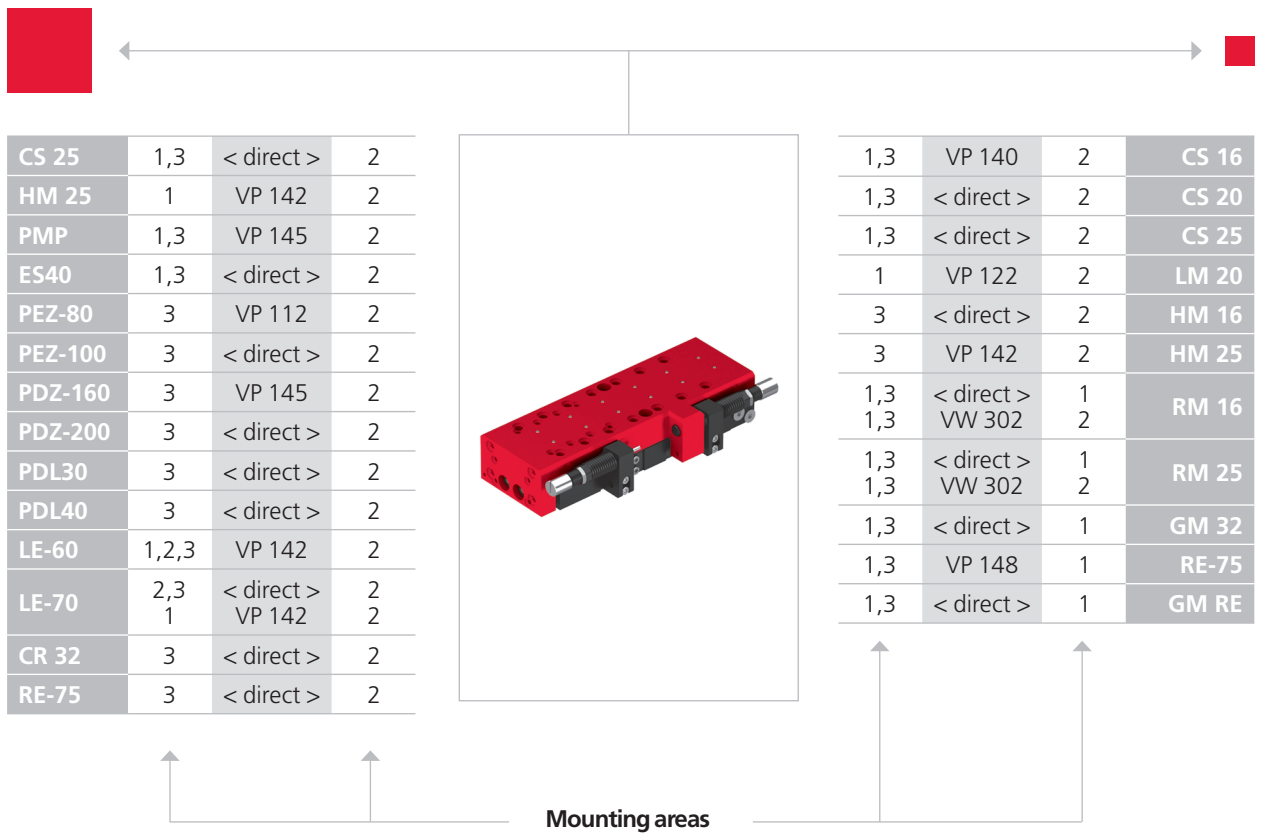
Accessories

- Intermediate stop ZA-CS 25 [p. 48]
 - Installation set proximity switch CS 25 [p. 48]
- (Catalogue HT accessories)
- INI c10x28.5-Em-PNP-NO-M8x1

Alternative accessories

- (Catalogue HT accessories)
- INI d6.5x35-Sn1.5-PNP-NO-M8x1
 - INI c10x9-Em-PNP-NO-M8x1

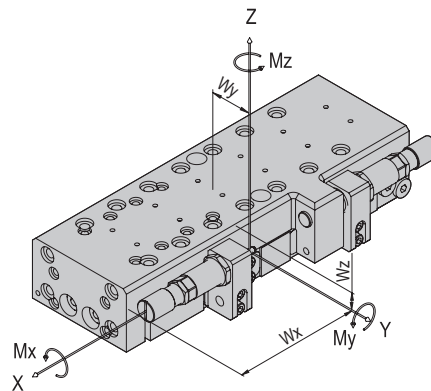
Warranty: 24 months following commissioning, but a maximum of 27 months following delivery



CS, ES 	PS 	LM, LE 	HM 	SA 	OZ
PMP, PMP-c 	PEZ, PDZ 	PEL, PDL 	CR, RM 32, RE, SREH 	RM, RE 	UG, GM, SG, DG, PG, GE

Note that there might be different mounting positions from one module to another one.
The required connection elements and the range of support columns are depicted in the catalogue HT accessories.

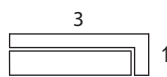
Type	CS 25/60	CS 25/120	CS 25/180	CS 25/240
Max. torque Mx	84 Nm	84 Nm	84 Nm	84 Nm
Max. torque My	133 Nm	133 Nm	140 Nm	140 Nm
Max. torque Mz	112 Nm	112 Nm	120 Nm	120 Nm
Effective distance Wx	95 mm	95 mm	95 mm	95 mm
Effective distance Wy	56 mm	56 mm	56 mm	56 mm
Effective distance Wz	14 mm	14 mm	14 mm	14 mm



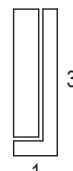
Maximum payload/type	CS 25/60	CS 25/120	CS 25/180	CS 25/240
Installation position (horizontal) for mounting side 1	5 kg	5 kg	5 kg	5 kg
Installation position (horizontal) for mounting side 3	7.5 kg	7.5 kg	7.5 kg	7.5 kg
Installation position (vertical) for mounting side 1	5 kg	5 kg	5 kg	5 kg
Installation position (vertical) for mounting side 3	7.5 kg	7.5 kg	7.5 kg	7.5 kg

Assembly sides
module mounting

horizontal:



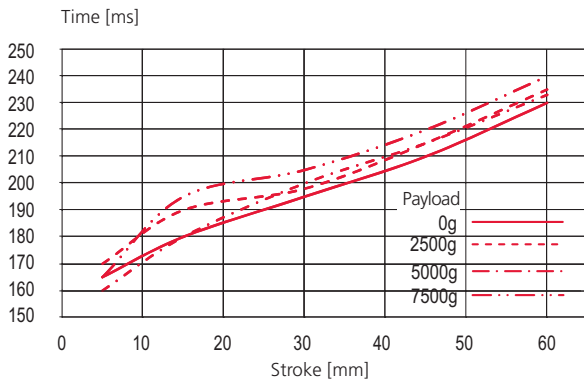
vertical:



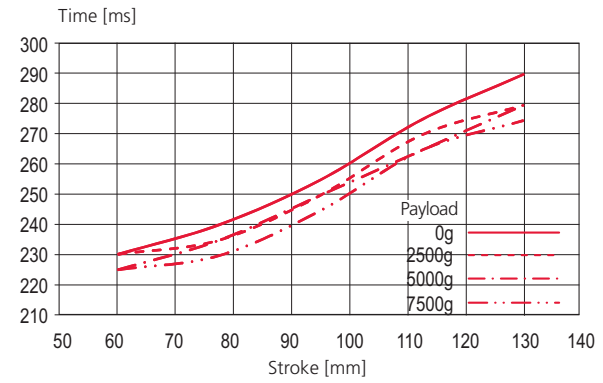
If the specified maximum payloads are exceeded, it must be ensured that the corresponding moments do not affect the service life of the module. In the event of critical applications, please contact Afag.

Operation time diagrams

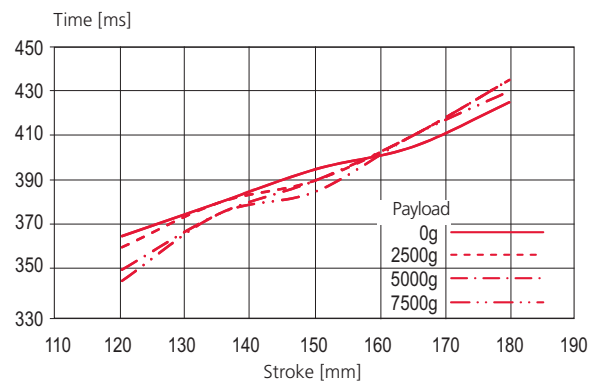
CS 25/60



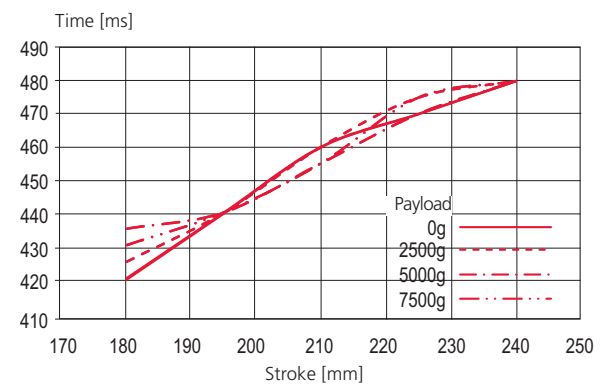
CS 25/120



CS 25/180

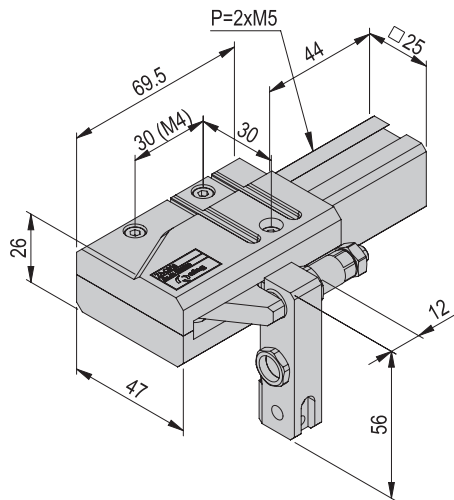


CS 25/240



Accessories CS

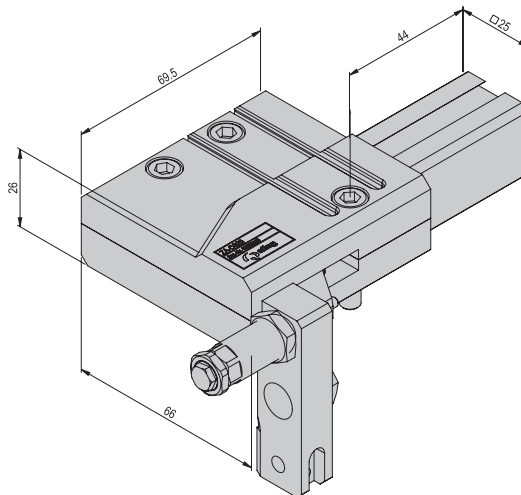
Intermediate stop ZA-CS 16	ZA-CS 16
Order number	50205052
Net weight	0.42 kg
P	M5



- Included in the delivery**
(Catalogue HT accessories)
- 3x Centering bushing Ø7x3
 - 3x Mounting screw M4x25
 - 1x Stop sleeve ASH M10x1 -1
 - 1x Shock absorber SD M8x1 -4

- Accessories**
(Catalogue HT accessories)
- INI c10x9-Em-PNP-NO-M8x1
 - INI c10x28.5-Em-PNP-NO-M8x1

Intermediate stop ZA-CS 20	ZA-CS 20
Order number	50205054
Net weight	0.411 kg
P	M5

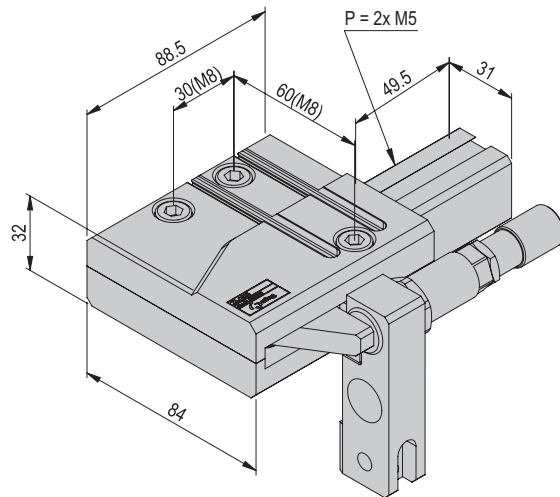


- Included in the delivery**
(Catalogue HT accessories)
- 3x Centering bushing Ø9x4
 - 3x Mounting screw M6x30
 - 1x Stop sleeve ASH M12x1 -1
 - 1x Shock absorber SD M10x1 -5

- Accessories**
(Catalogue HT accessories)
- INI d4x25-Sn1.0-PNP-NO-M8x1
 - INI c10x9-Em-PNP-NO-M8x1
 - INI c10x28.5-Em-PNP-NO-M8x1

Accessories CS

Intermediate stop ZA-CS 25	ZA-CS 25
Order number	50224670
Net weight	0.816 kg
P	M5



Included in the delivery

(Catalogue HT accessories)

- 3x Centering bushing $\varnothing 12 \times 4.8$
- 3x Mounting screw M8x35
- 1x Stop sleeve ASH M18x1 -1
- 1x Shock absorber SD M14x1 -2

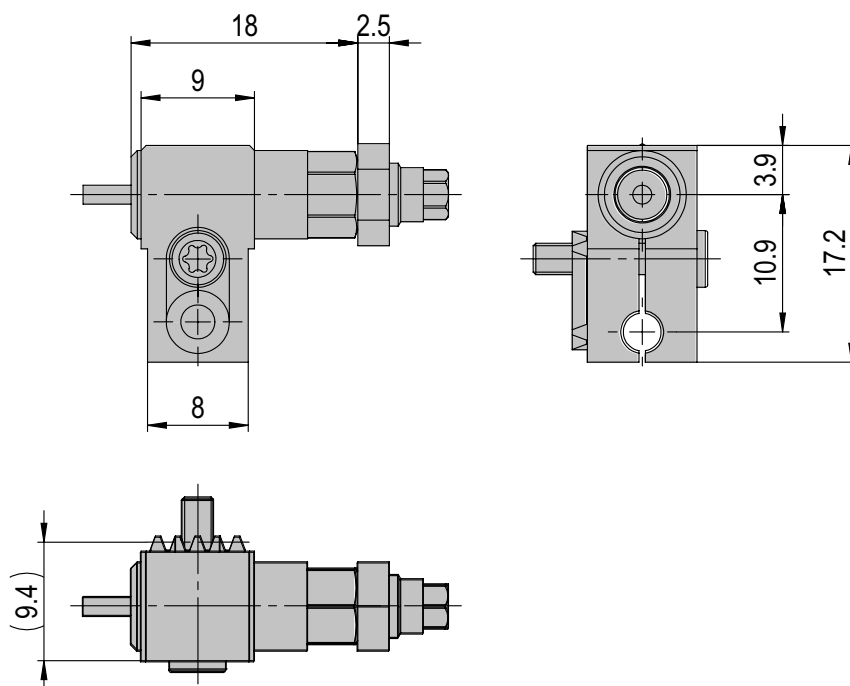
Accessories

(Catalogue HT accessories)

- INI d4x25-Sn1.0-PNP-NO-M8x1
- INI c10x9-Em-PNP-NO-M8x1
- INI c10x28.5-Em-PNP-NO-M8x1

SDH-fastening CS 8	
--------------------	--

Order number	50568020
Net weight	0.01 kg



Accessories CS

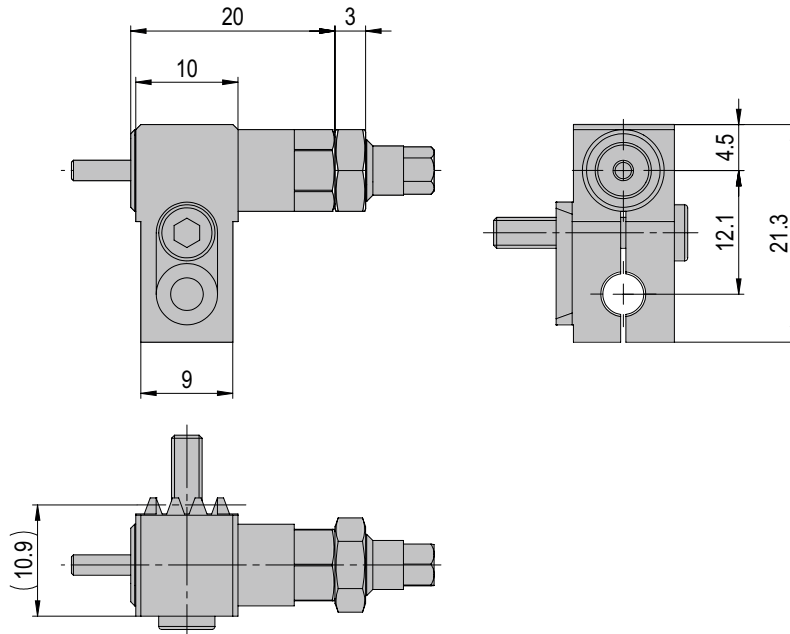
SDH-fastening CS 12

Order number

50568150

Net weight

0.01 kg



Installation set inductive switch CS

CS 16/CS 20 CS 25

Order number

50242140

50242141

Net weight

0.001 kg

0.001 kg



Note: Application purpose: See operating manual

High-precision slides PS

PS 16 - PS 32

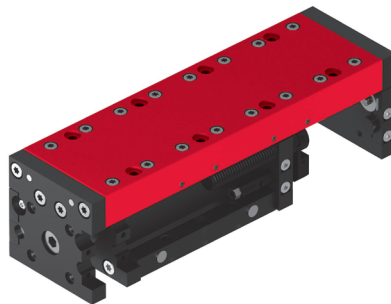
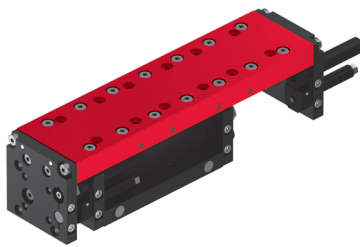
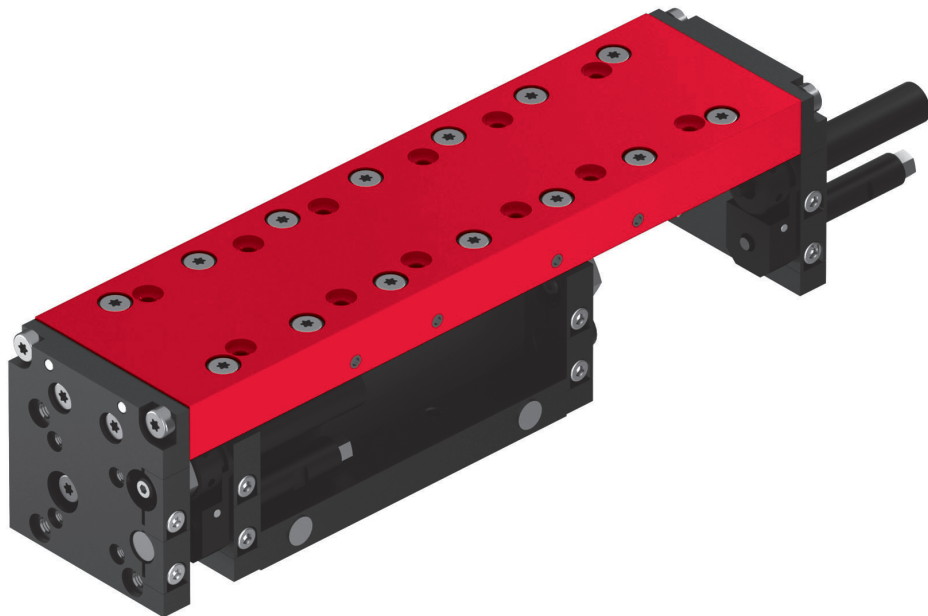


Table of contents: PS

High-precision slides PS		Page
PS 16		56
PS 25		62
PS 32		68
Accessories PS		73

High-precision slides PS

PS 16

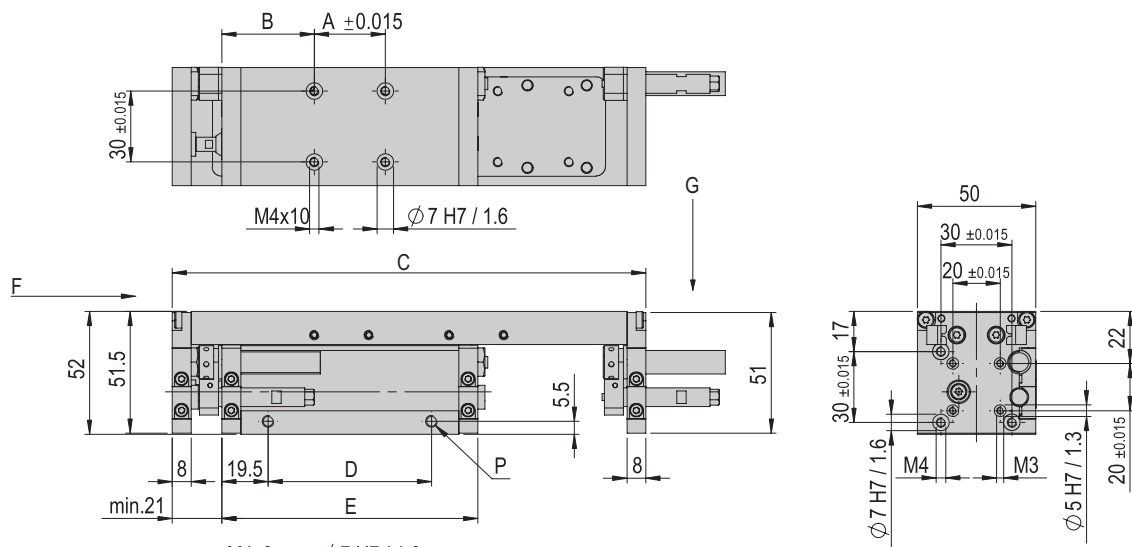


- For large loads
- Cross-roller guides
- Long strokes
- Intermediate stop for 3rd Position
- Portal construction possible

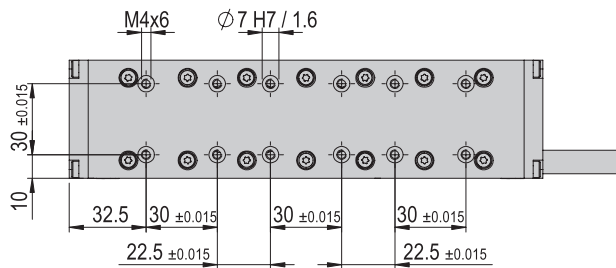
Dimensions and dimension drawings

PS 16

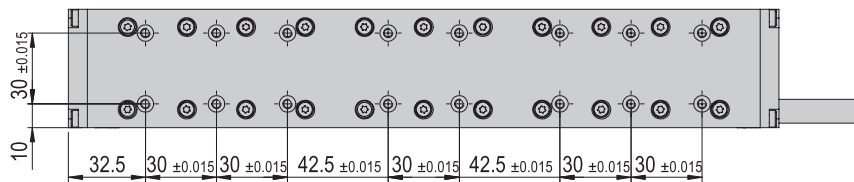
Type	PS 16/50	PS 16/100	PS 16/150
A	1 x 30 mm	3 x 30 mm	5 x 30 mm
B	39 mm	34 mm	29 mm
C	200 mm	300 mm	400 mm
D	69 mm	119 mm	169 mm
E	108 mm	158 mm	208 mm
F	Front	Front	Front
G	Top slide	Top slide	Top slide
P	M5	M5	M5



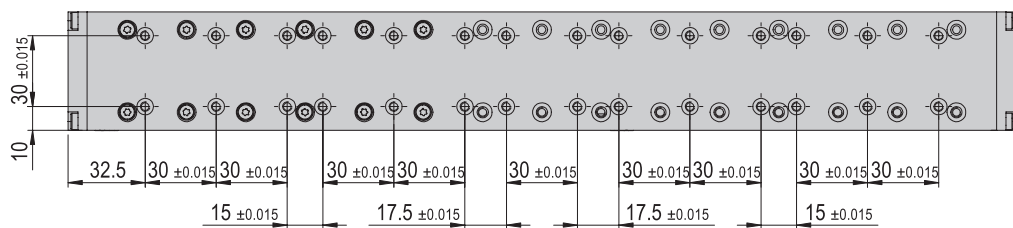
PS16/50

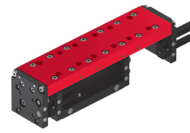


PS16/100



PS 16/150





PS 16	
Attachment grid	30 x 30 mm
Attachment grid alternative	20 x 20 mm
Attachment thread	M4
Attachment thread alternative	M3
Operating pressure	6 +/- 2 bar
Air connection P	M5
Cylinder Ø	16 mm
Retract piston force	104 N
Extend piston force	121 N
Operating temperature	0 - 50 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %
Medium filtered compressed air	10 - 40 µm

Type	PS 16/50	PS 16/100	PS 16/150
Order number	50076867	50076873	50076874
Stroke H	50 mm	100 mm	150 mm
Stroke limitation	2 x 25 mm	2 x 25 mm	2 x 25 mm
Net weight	1.407 kg	1.85 kg	2.282 kg
Moving weight	0.75 kg	0.97 kg	1.18 kg
Air consumption/cycle	0.0859 NL	0.1719 NL	0.2578 NL
Noise level	60 dB (A)	60 dB (A)	60 dB (A)
Repeat accuracy	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm
Maximum speed	0.2 m/s	0.3 m/s	0.4 m/s
Minimum speed	0.05 m/s	0.05 m/s	0.05 m/s
Mounting position	↕	↕	↕

The technical data refers to a nominal pressure of 6 bar under Afag standard test conditions. The maximum payloads are listed in the payloads table in the slide loads section. The module can be operated with lubricated or dry air. Cleanroom class ISO 14644-1, class ISO 7

Included in the delivery

(Catalogue HT accessories)

- 2x Centering bushing Ø5x2.5
- 2x Centering bushing Ø7x3
- 2x Shock absorber ASSD M10x1 -1
- 2x Stop screw AS 08/14

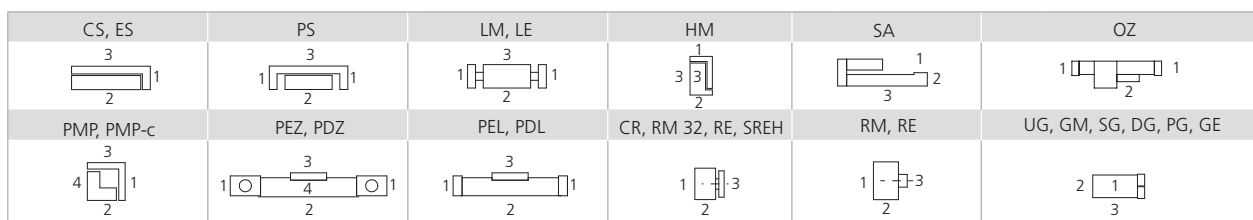
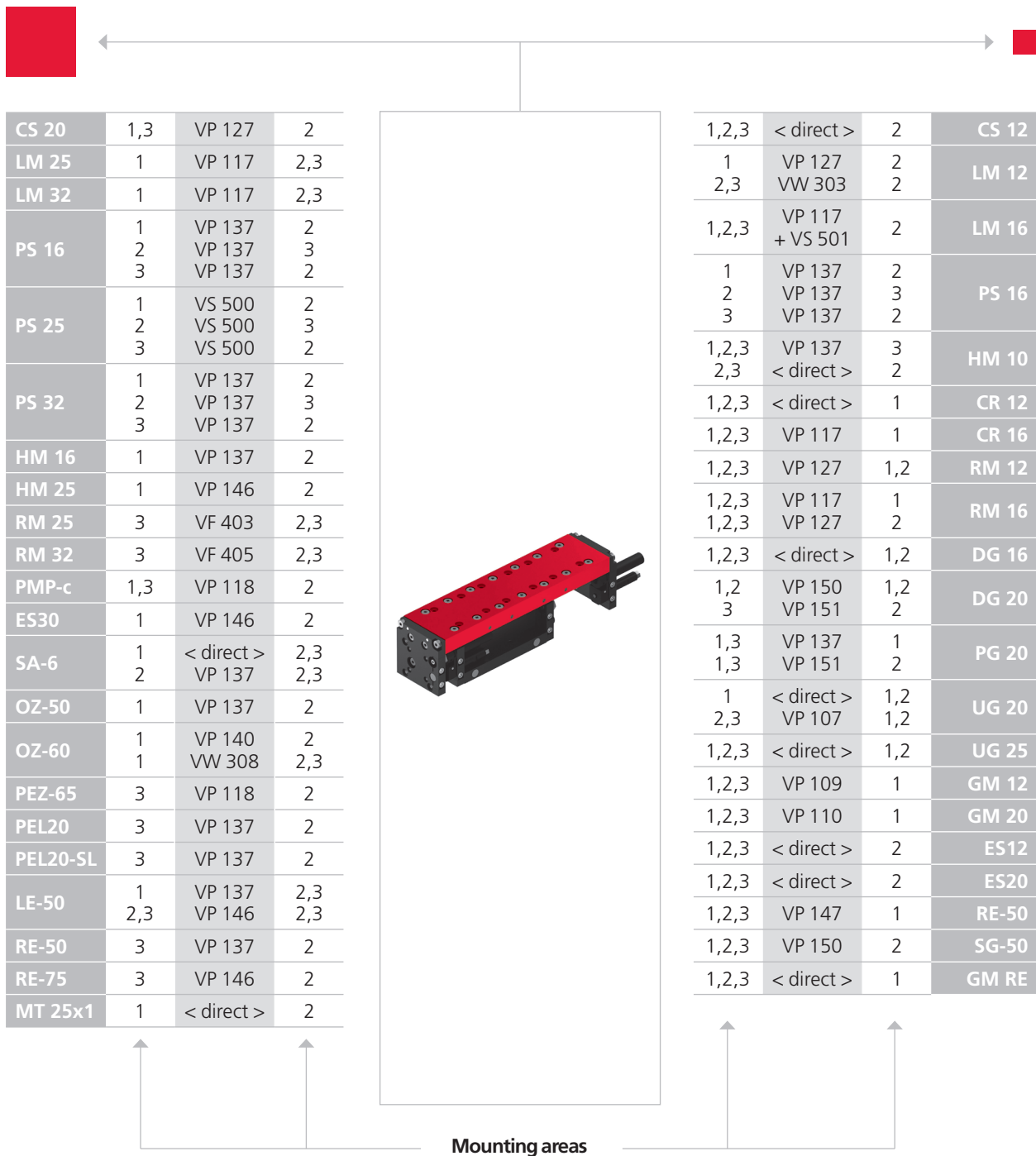
Accessories

- Intermediate stop ZA-PS 16 [p. 69]
- Stop extension [p. 72]
- Shock absorber ASSD M10x1 -1 [p. 72]
- Proximity switch holder PS 16 [p. 73]

(Catalogue HT accessories)

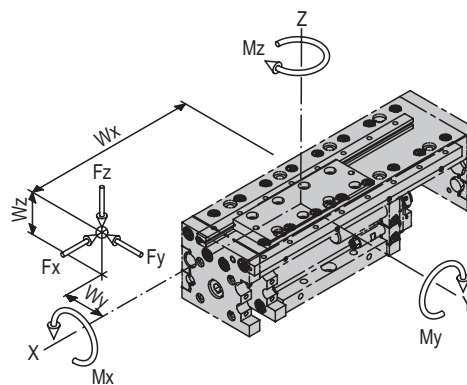
- INI d4/6.5x45-Sn1.0-PNP-NO-M8x1
- INI d4x25-Sn1.0-PNP-NO-M8x1

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



Note that there might be different mounting positions from one module to another one.
The required connection elements and the range of pedestals are depicted in the catalogue HT accessories.

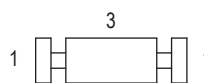
Type	PS 16/50	PS 16/100	PS 16/150
Max. static torque M_x	23 Nm	34.6 Nm	42.4 Nm
Max. static torque M_y	38.5 Nm	54.6 Nm	70.7 Nm
Max. static torque M_z	20.8 Nm	28.4 Nm	36.2 Nm
Max. dynamic torque M_x	8.9 Nm	13.3 Nm	16.3 Nm
Max. dynamic torque M_y	14.8 Nm	21.0 Nm	27.2 Nm
Max. dynamic torque M_z	8.0 Nm	10.9 Nm	13.9 Nm
Effective distance W_x	75 mm	100 mm	125 mm
Effective distance W_z	10 mm	10 mm	10 mm



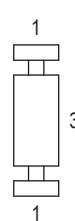
Maximum payload/type	PS 16/50	PS 16/100	PS 16/150
Installation position (horizontal) for mounting side 1	3.5 kg	3 kg	2.5 kg
Installation position (horizontal) for mounting side 3	8 kg	7.5 kg	7 kg
Installation position (vertical) for mounting side 1	3.5 kg	3 kg	2.5 kg
Installation position (vertical) for mounting side 3	8 kg	7.5 kg	7 kg

Assembly sides
module mounting

horizontal:

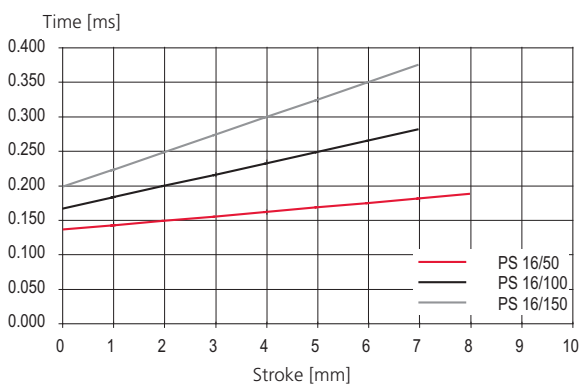


vertical:



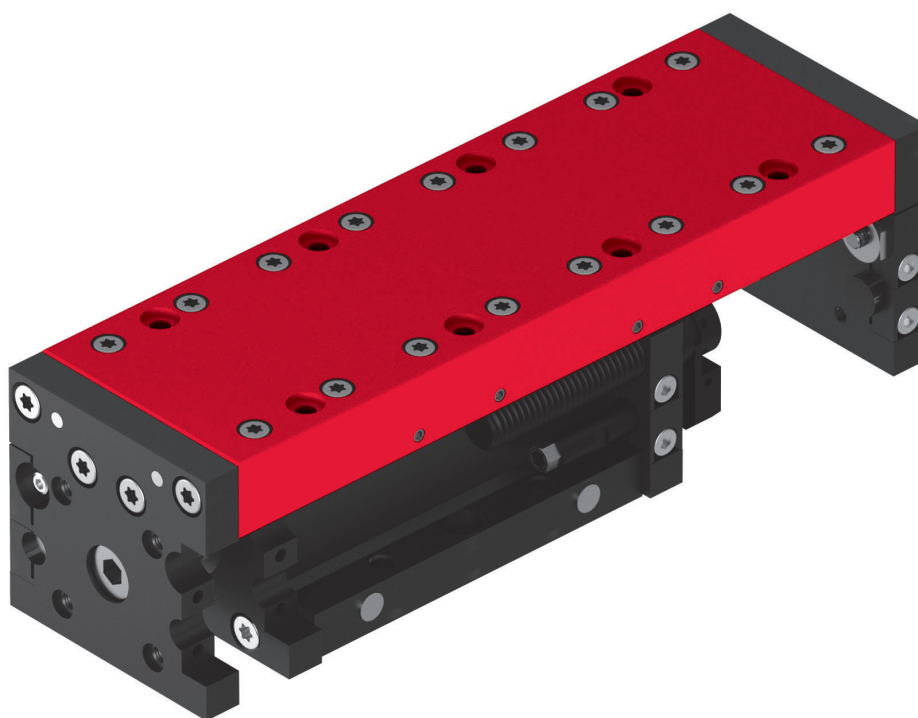
Operation time diagrams

Operation time PS 16



High-precision slides PS

PS 25

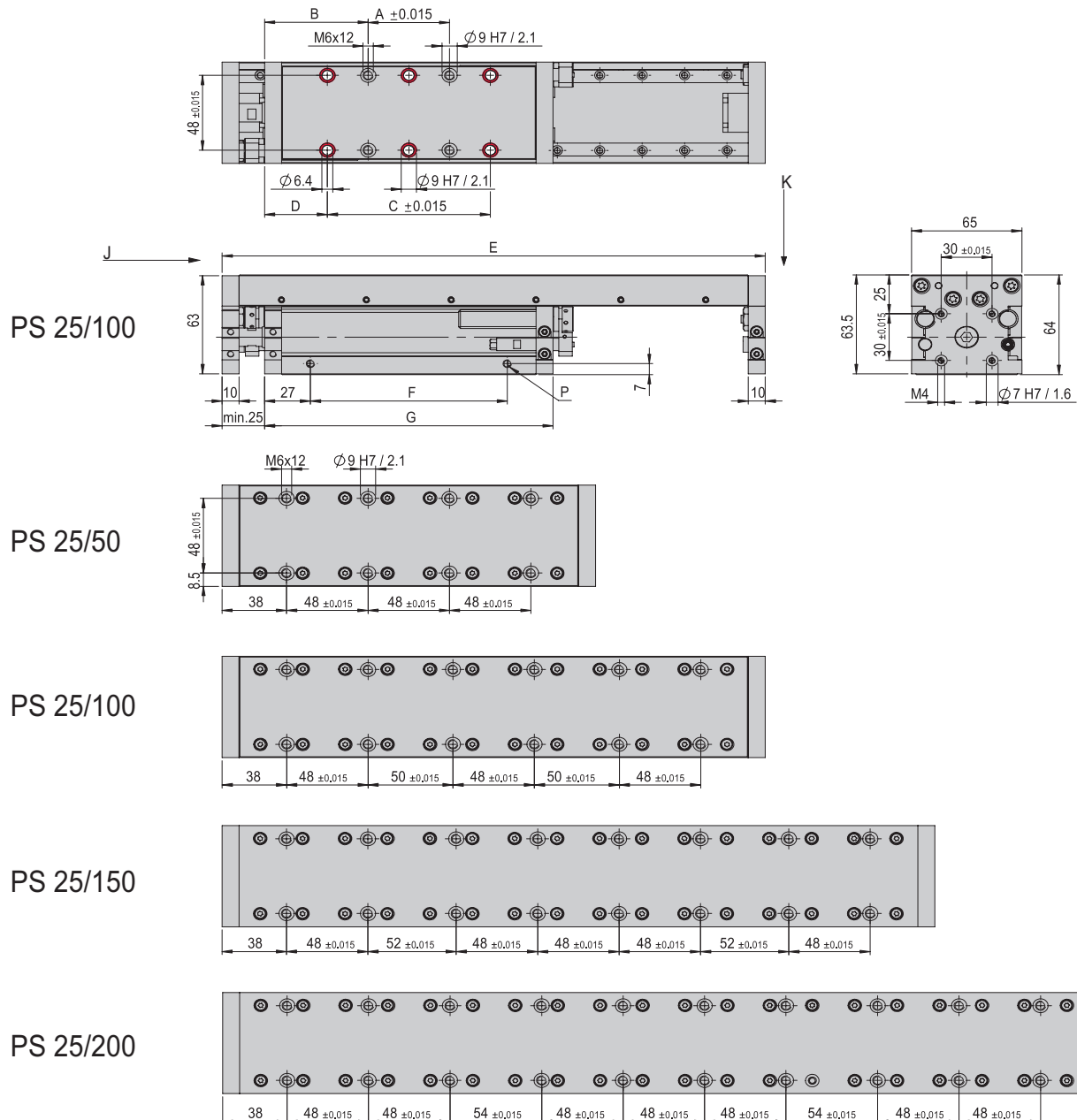


- For large loads
- Cross-roller guides
- Long strokes
- Intermediate stop for 3rd Position
- Portal construction possible

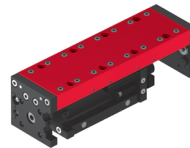
Dimensions and dimension drawings

PS 25

Type	PS 25/50	PS 25/100	PS 25/150	PS 25/200
A	1 x 48 mm	1 x 48 mm	3 x 48 mm	3 x 48 mm
B	36 mm	61 mm	38 mm	63 mm
C		2 x 48 mm	2 x 48 mm	4 x 48 mm
D	60 mm	37 mm	62 mm	39 mm
E	220 mm	320 mm	420 mm	520 mm
F	66 mm	116 mm	166 mm	216 mm
G	120 mm	170 mm	220 mm	270 mm
J	Front	Front	Front	Front
K	Top slide	Top slide	Top slide	Top slide
P	M5	M5	M5	M5



Bores can be screwed through



PS 25	
Attachment grid	48 x 48 mm
Attachment grid alternative	30 x 30 mm
Attachment thread	M6
Attachment thread alternative	M4
Operating pressure	6 +/- 2 bar
Air connection P	M5
Cylinder Ø	25 mm
Retract piston force	227 N
Extend piston force	295 N
Operating temperature	0 - 50 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %
Medium filtered compressed air	10 - 40 µm

Type	PS 25/50	PS 25/100	PS 25/150	PS 25/200
Order number	50076883	50076888	50076891	50076893
Stroke H	50 mm	100 mm	150 mm	200 mm
Stroke limitation	2 x 25 mm	2 x 25 mm	2 x 25 mm	2 x 25 mm
Net weight	3.086 kg	3.086 kg	3.72 kg	4.35 kg
Moving weight	1.32 kg	1.68 kg	2.05 kg	2.41 kg
Air consumption/cycle	0.2 NL	0.4 NL	0.6 NL	0.8 NL
Noise level	60 dB (A)	60 dB (A)	60 dB (A)	60 dB (A)
Repeat accuracy	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm
Maximum speed	0.2 m/s	0.3 m/s	0.4 m/s	0.4 m/s
Minimum speed	0.05 m/s	0.05 m/s	0.05 m/s	0.05 m/s
Mounting position	↕	↕	↕	↕

The technical data refers to a nominal pressure of 6 bar under Afag standard test conditions. The maximum payloads are listed in the payloads table in the slide loads section. The module can be operated with lubricated or dry air. Cleanroom class ISO 14644-1, class ISO 7

Included in the delivery

(Catalogue HT accessories)

- 2x Centering bushing Ø7x3
- 2x Centering bushing Ø9x4
- 4x Mounting screw M6x14
- 4x Mounting screw M6x16
- 2x Stop screw AS 08/16
- 2x Shock absorber ASSD M12x1 -1

Accessories

- Intermediate stop ZA-PS 25 [p. 70]
- Stop extension PS 25 [p. 72]
- Shock absorber ASSD M12x1 -1 [p. 72]
- Proximity switch holder PS 25 [p. 73]

(Catalogue HT accessories)

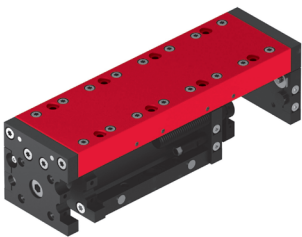
- INI d4/6.5x45-Sn1.0-PNP-NO-M8x1
- INI d4x25-Sn1.0-PNP-NO-M8x1

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

←

→








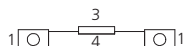
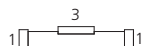



LM 32	1	< direct >	2,3
PS 25	1	VP 117	2
	2	< direct >	3
	3	< direct >	2
PS 32	1	< direct >	2
	2	< direct >	3
	3	< direct >	2
HM 25	1	< direct >	2
RM 32	3	VF410	2
	3F	< direct >	2
RM 63	3	VF 407	2,3
PMP	1,3	VP 119	3
	1,3	< direct >	2
ES30	1	< direct >	2
OZ-50	1	< direct >	2
OZ-60	1	< direct >	2
PEZ-80	3	VP 118	2
PDZ-128	3	< direct >	2
PEL20	3	direct	2
PDL30	3	direct	2
PDL40	3	direct	2
LE-60	1,2,3	< direct >	2
	1,2,3	VP 146	3
RE-75	3	< direct >	2
MH 45x1	1*	< direct >	2
MT 45x1	1	< direct >	2
MT 45x2b	1	< direct >	2,3
MTZ 45x2	1	< direct >	2,3



* 2x MH 45x1, portal F flange

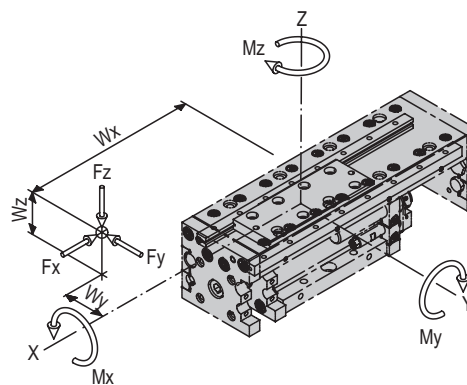
1	< direct >	2	CS 16
3	VP 115	2	
1	VP 112+VS 501	2	LM 16
2,3	VS 501		
1	VP 112	2	LM 20
2	< direct >	2	
3	VP 118	2	
1	VP 112+VS501	2	LM 25
2	< direct >	2	
3	VP 118	2	
1	VS 500	2	PS 16
2	VS 500	3	
3	VS 500	2	
1	VP 117	2	PS 25
2	< direct >	3	
3	< direct >	2	
1	VP 137	3	HM 10
2,3	VP 112	2	
2,3	VP 127	3	
1	VP 127	3	HM 16
2	< direct >	3	
2,3	< direct >	2	
3	VP 146	3	
1	VP 117	1	CR 16
2,3	< direct >	1	
1	VP 117	1	CR 20
2,3	< direct >	2	
1	VP 120	1,2	RM 12
2	< direct >	2	
2,3	< direct >	1	
3	VP 122	2	
1	VP 120	1,2	RM 16
2,3	< direct >	1	
2	< direct >	2	
3	VW 302	2	
1	VP 120+VS500	1	RM 25
1	VP 120+VS500	2	
2	< direct >	1,2	
3	< direct >	1	
3	VP 118	2	
1	VP 107	1,2	UG 20
2,3	VP 115	1,2	
1	< direct >	1,2	UG 25
2,3	VP 115	1,2	
1	VP 110	1	GM 20
2,3	VP 129	1	
1	VP 117	1	GM 32
2,3	< direct >	1	
1	VP 118	2	ES30
2,3	< direct >	2	
2	VP 117	3	SA-3
3	VP 113	3	
1	VP 147	1	RE-50
2,3	VP 127	1	
1	VP 146	1	RE-75
2	< direct >	1	
3	VP 148	1	
1	< direct >	1	GM RE
2,3	VP 112	1	
1,2,3	VP 150	2	SG-50

Mounting areas

CS, ES 	PS 	LM, LE 	HM 	SA 	OZ 
PMP, PMP-c 	PEZ, PDZ 	PEL, PDL 	CR, RM 32, RE, SREH 	RM, RE 	UG, GM, SG, DG, PG, GE 

Note that there might be different mounting positions from one module to another one.

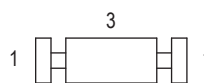
Type	PS 25/50	PS 25/100	PS 25/150	PS 25/200
Max. static torque Mx	60.7 Nm	87.7 Nm	105.2 Nm	131.6 Nm
Max. static torque My	65.9 Nm	89.6 Nm	113.2 Nm	136.8 Nm
Max. static torque Mz	37.4 Nm	48.0 Nm	58.9 Nm	69.3 Nm
Max. dynamic torque Mx	23.3 Nm	33.7 Nm	40.5 Nm	50.6 Nm
Max. dynamic torque My	25.3 Nm	34.5 Nm	43.5 Nm	52.6 Nm
Max. dynamic torque Mz	14.4 Nm	18.5 Nm	22.7 Nm	26.7 Nm
Effective distance Wx	85 mm	110 mm	135 mm	160 mm
Effective distance Wz	16 mm	16 mm	16 mm	16 mm



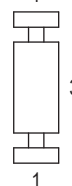
Maximum payload/type	PS 25/50	PS 25/100	PS 25/150	PS 25/200
Installation position (horizontal) for mounting side 1	6 kg	5.5 kg	5 kg	5 kg
Installation position (horizontal) for mounting side 3	12 kg	11 kg	10 kg	10 kg
Installation position (vertical) for mounting side 1	6 kg	5.5 kg	5 kg	5 kg
Installation position (vertical) for mounting side 3	12 kg	11 kg	10 kg	10 kg

Assembly sides
module mounting

horizontal:

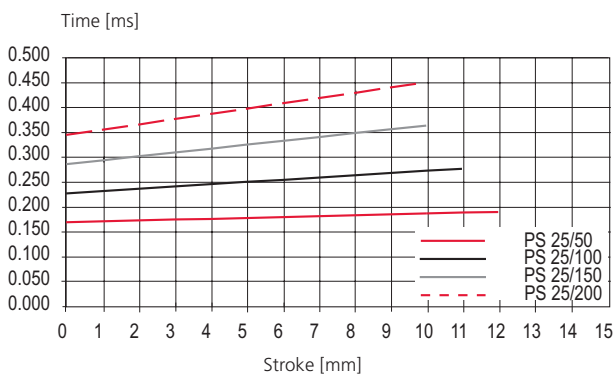


vertical:



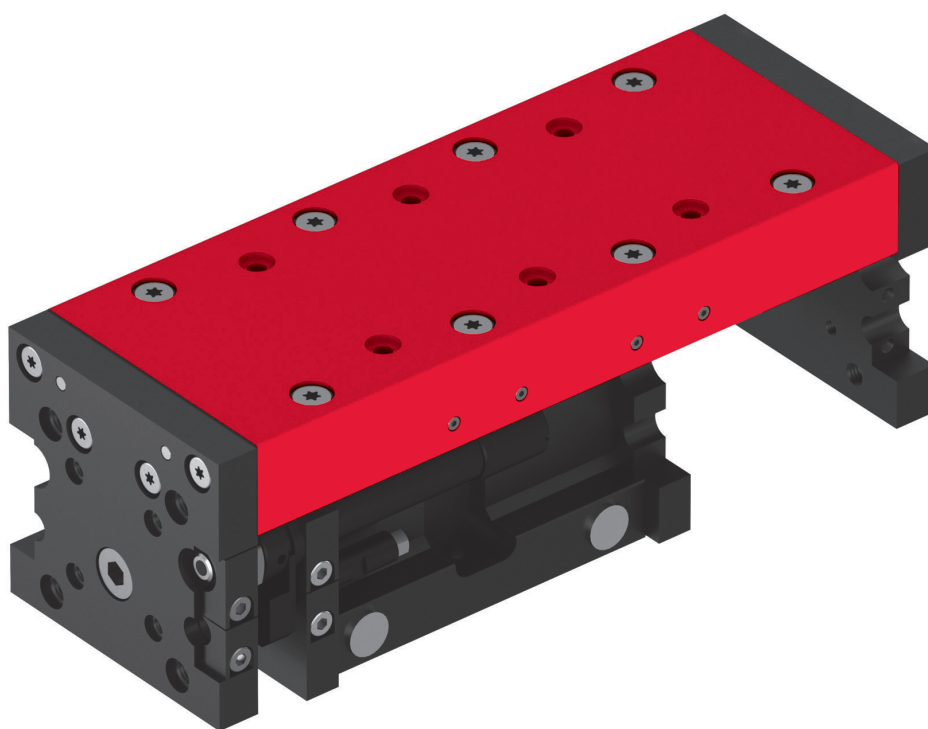
Operation time diagrams

Operation time PS 25



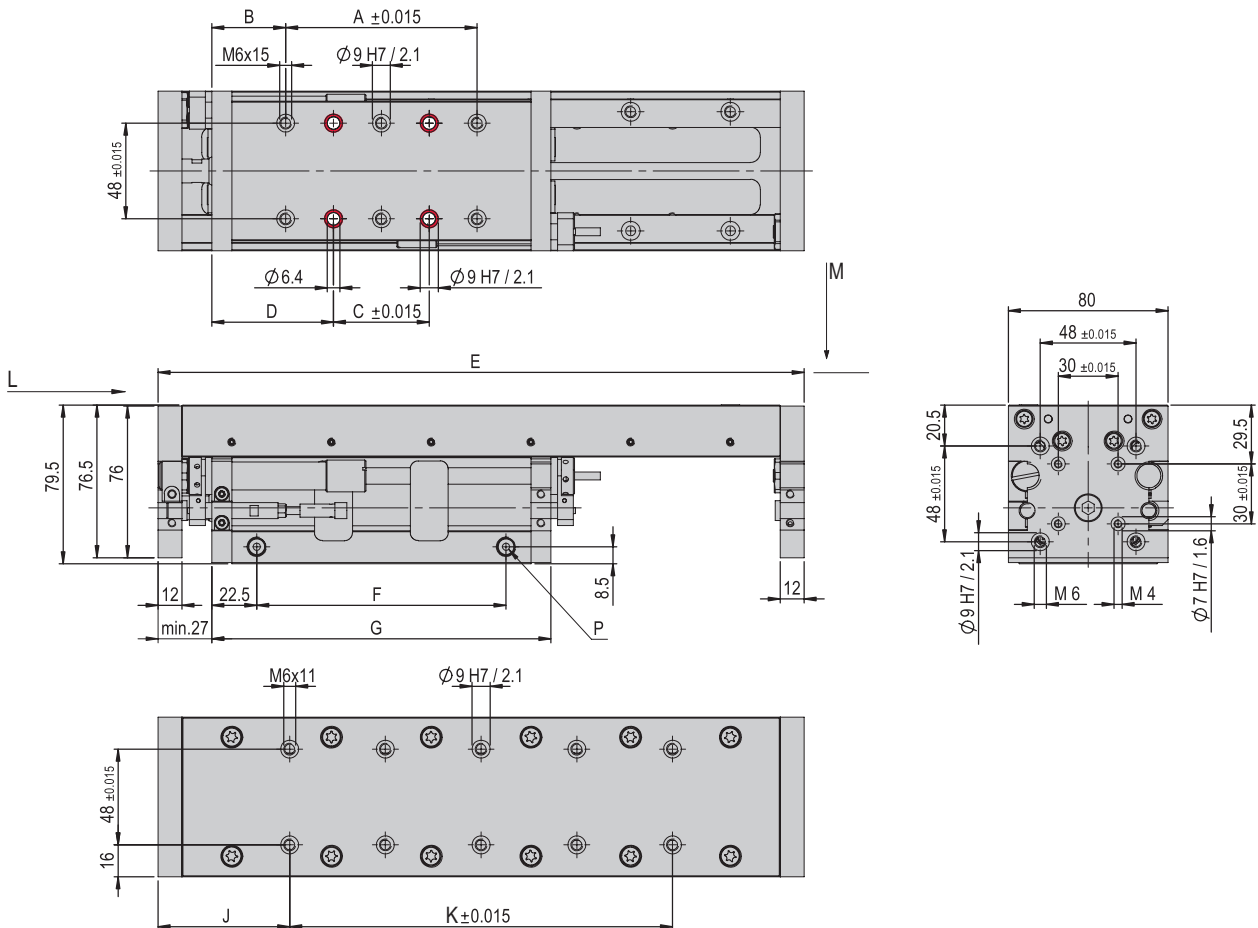
High-precision slides PS


PS 32

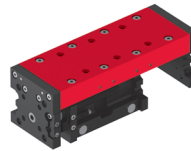


- For large loads
- Cross-roller guides
- Long strokes
- Intermediate stop for 3rd Position
- Portal construction possible

Type	PS 32/50	PS 32/100	PS 32/150	PS 32/200	PS 32/250
A	1 x 48 mm	2 x 48 mm	2 x 48 mm	4 x 48 mm	4 x 48 mm
B	36 mm	37 mm	62 mm	39 mm	64 mm
C		1 x 48 mm	3 x 48 mm	3 x 48 mm	5 x 48 mm
D	60 mm	61 mm	38 mm	63 mm	40 mm
E	224 mm	324 mm	424 mm	524 mm	624 mm
F	75 mm	125 mm	175 mm	225 mm	275 mm
G	120 mm	170 mm	220 mm	270 mm	320 mm
J	64 mm	66 mm	68 mm	70 mm	72 mm
K	2 x 48 mm	4 x 48 mm	6 x 48 mm	8 x 48 mm	10 x 48 mm
L	Front	Front	Front	Front	Front
M	Top slide	Top slide	Top slide	Top slide	Top slide
P	G1/8 "	G1/8 "	G1/8 "	G1/8 "	G1/8 "



 Bores can be screwed through



PS 32	
Attachment grid	48 x 48 mm
Attachment grid alternative	30 x 30 mm
Attachment thread	M6
Attachment thread alternative	M4
Operating pressure	6 +/- 2 bar
Air connection P	G 1/8 "
Cylinder Ø	32 mm
Retract piston force	415 N
Extend piston force	483 N
Operating temperature	0 - 50 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %
Medium filtered compressed air	10 - 40 µm

Type	PS 32/50	PS 32/100	PS 32/150	PS 32/200	PS 32/250
Order number	50076902	50076905	50076907	50076909	50076911
Stroke H	50 mm	100 mm	150 mm	200 mm	250 mm
Stroke limitation	2 x 25 mm	2 x 25 mm	2 x 25 mm	2 x 25 mm	2 x 25 mm
Net weight	4.21 kg	5.24 kg	6.29 kg	7.37 kg	8.4 kg
Moving weight	2.32 kg	2.96 kg	3.59 kg	4.23 kg	4.86 kg
Air consumption/cycle	0.34 NL	0.69 NL	1.03 NL	1.38 NL	1.72 NL
Noise level	60 dB (A)	60 dB (A)	60 dB (A)	60 dB (A)	60 dB (A)
Repeat accuracy	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm
Maximum speed	0.2 m/s	0.3 m/s	0.3 m/s	0.3 m/s	0.4 m/s
Minimum speed	0.05 m/s	0.05 m/s	0.05 m/s	0.05 m/s	0.05 m/s
Mounting position	↕	↕	↕	↕	↕

The technical data refers to a nominal pressure of 6 bar under Afag standard test conditions. The maximum payloads are listed in the payloads table in the slide loads section. The module can be operated with lubricated or dry air. Cleanroom class ISO 14644-1, class ISO 7

Included in the delivery

(Catalogue HT accessories)

- 2x Centering bushing Ø7x3
- 2x Centering bushing Ø9x4
- 4x Mounting screw M6x20
- 2x Shock absorber ASSD M14x1 -1
- 2x Stop screw AS 08/18

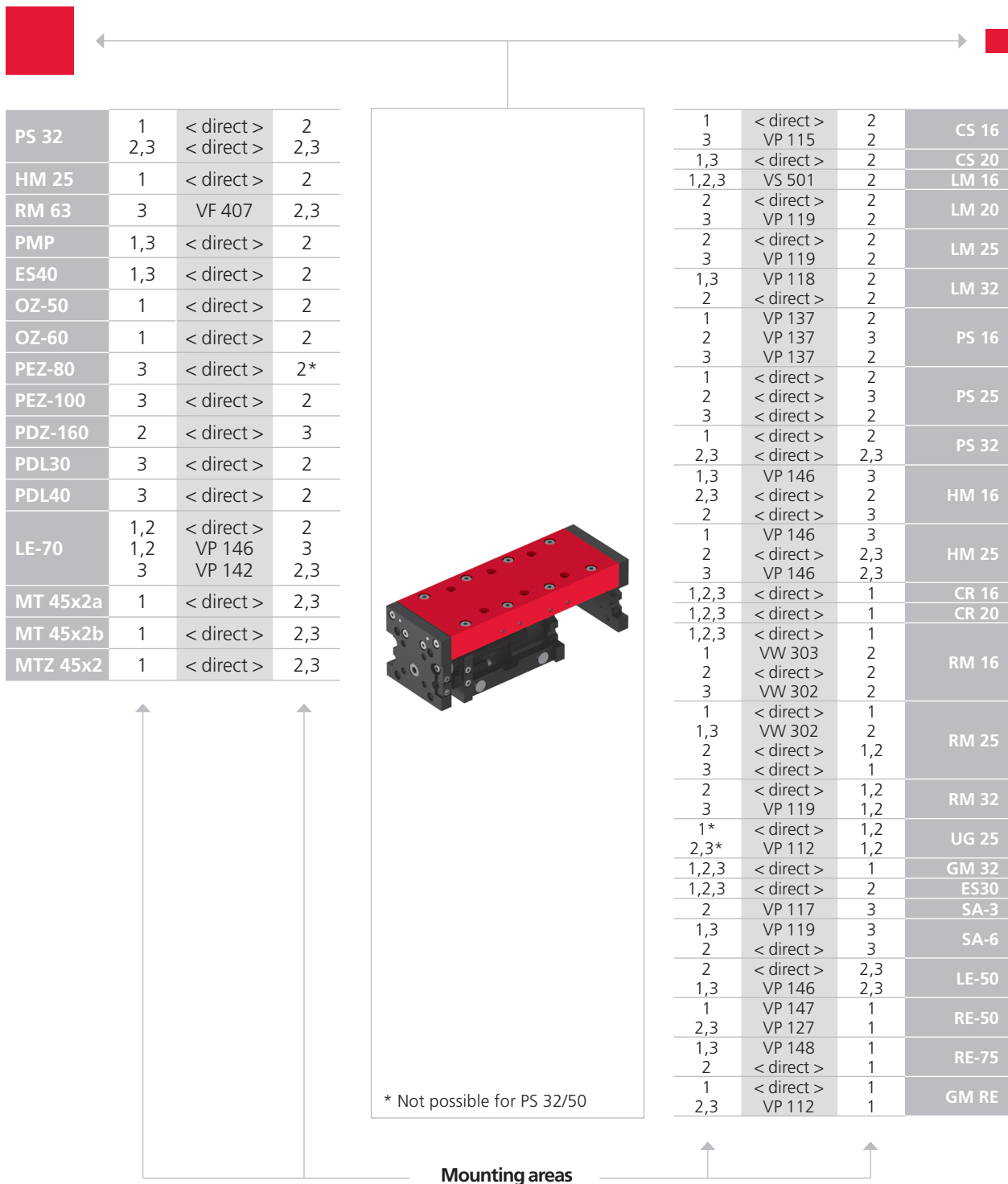
Accessories

- Intermediate stop ZA-PS 32 [p. 71]
- Stop extension PS 32 [p. 72]
- Shock absorber ASSD M14x1 -1 [p. 72]
- Proximity switch holder PS 32 [p. 73]

(Catalogue HT accessories)

- INI d4/6.5x45-Sn1.0-PNP-NO-M8x1
- INI d4x25-Sn1.0-PNP-NO-M8x1

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



PS 32	1 2,3	< direct > < direct >	2 2,3
HM 25	1	< direct >	2
RM 63	3	VF 407	2,3
PMP	1,3	< direct >	2
ES40	1,3	< direct >	2
OZ-50	1	< direct >	2
OZ-60	1	< direct >	2
PEZ-80	3	< direct >	2*
PEZ-100	3	< direct >	2
PDZ-160	2	< direct >	3
PDL30	3	< direct >	2
PDL40	3	< direct >	2
LE-70	1,2 1,2 3	< direct > VP 146 VP 142	2 3 2,3
MT 45x2a	1	< direct >	2,3
MT 45x2b	1	< direct >	2,3
MTZ 45x2	1	< direct >	2,3

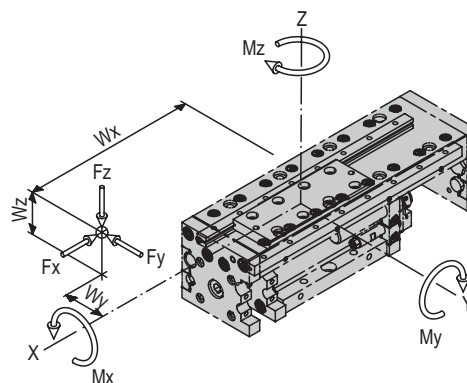


1 3	< direct > VP 115	2 2	CS 16
1,3	< direct >	2	CS 20
1,2,3	VS 501	2	LM 16
2 3	< direct > VP 119	2 2	LM 20
2 3	< direct > VP 119	2 2	LM 25
1,3 2	VP 118 < direct >	2 2	LM 32
1 2 3	VP 137 VP 137 VP 137	2 3 2	PS 16
1 2 3	< direct > < direct > < direct >	2 3 2	PS 25
1 2,3	< direct > < direct >	2 2,3	PS 32
1,3 2,3 2	VP 146 < direct > < direct >	3 2 3	HM 16
1 2 3	VP 146 < direct > VP 146	3 2,3 2,3	HM 25
1,2,3	< direct >	1	CR 16
1,2,3	< direct >	1	CR 20
1,2,3	< direct >	1	
1 2 3	VW 303 < direct > VW 302	2 2 2	RM 16
1 1,3 2 3	< direct > VW 302 < direct > < direct >	1 2 1,2 1	RM 25
2 3	< direct > VP 119	1,2 1,2	RM 32
1* 2,3*	< direct > VP 112	1,2 1,2	UG 25
1,2,3	< direct >	1	GM 32
1,2,3	< direct >	2	ES30
2	VP 117	3	SA-3
1,3 2	VP 119 < direct >	3 3	SA-6
2 1,3	< direct > VP 146	2,3 2,3	LE-50
1 2,3	VP 147 VP 127	1 1	RE-50
1,3 2	VP 148 < direct >	1 1	RE-75
1 2,3	< direct > VP 112	1 1	GM RE

CS, ES 	PS 	LM, LE 	HM 	SA 	OZ
PMP, PMP-c 	PEZ, PDZ 	PEL, PDL 	CR, RM 32, RE, SREH 	RM, RE 	UG, GM, SG, DG, PG, GE

Note that there might be different mounting positions from one module to another one.
The required connection elements and the range of support columns are depicted in the catalogue HT accessories.

Type	PS 32/50	PS 32/100	PS 32/150	PS 32/200	PS 32/250
Max. static torque Mx	104.7 Nm	130.8 Nm	183.2 Nm	209.2 Nm	261.7 Nm
Max. static torque My	152 Nm	217 Nm	282.1 Nm	347.2 Nm	412.2 Nm
Max. static torque Mz	92.2 Nm	120.4 Nm	150.4 Nm	181.3 Nm	211.7 Nm
Max. dynamic torque Mx	40.3 Nm	50.3 Nm	70.5 Nm	80.5 Nm	100.6 Nm
Max. dynamic torque My	58.3 Nm	83.5 Nm	108.5 Nm	133.5 Nm	158.5 Nm
Max. dynamic torque Mz	35.5 Nm	46.3 Nm	57.9 Nm	69.7 Nm	81.2 Nm
Effective distance Wx	87 mm	112 mm	137 mm	162 mm	187 mm
Effective distance Wz	18.5 mm	18.5 mm	18.5 mm	18.5 mm	18.5 mm



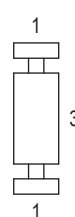
Maximum payload/type	PS 32/50	PS 32/100	PS 32/150	PS 32/200	PS 32/250
Installation position (horizontal) for mounting side 1	12 kg	12 kg	12 kg	12 kg	12 kg
Installation position (horizontal) for mounting side 3	20 kg	20 kg	20 kg	20 kg	20 kg
Installation position (vertical) for mounting side 1	12 kg	12 kg	12 kg	12 kg	12 kg
Installation position (vertical) for mounting side 3	20 kg	20 kg	20 kg	20 kg	20 kg

Assembly sides
module mounting

horizontal:

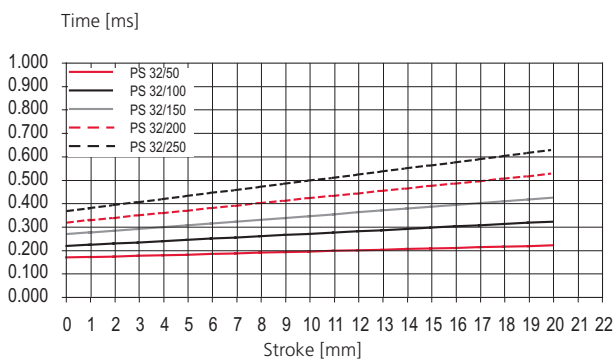


vertical:



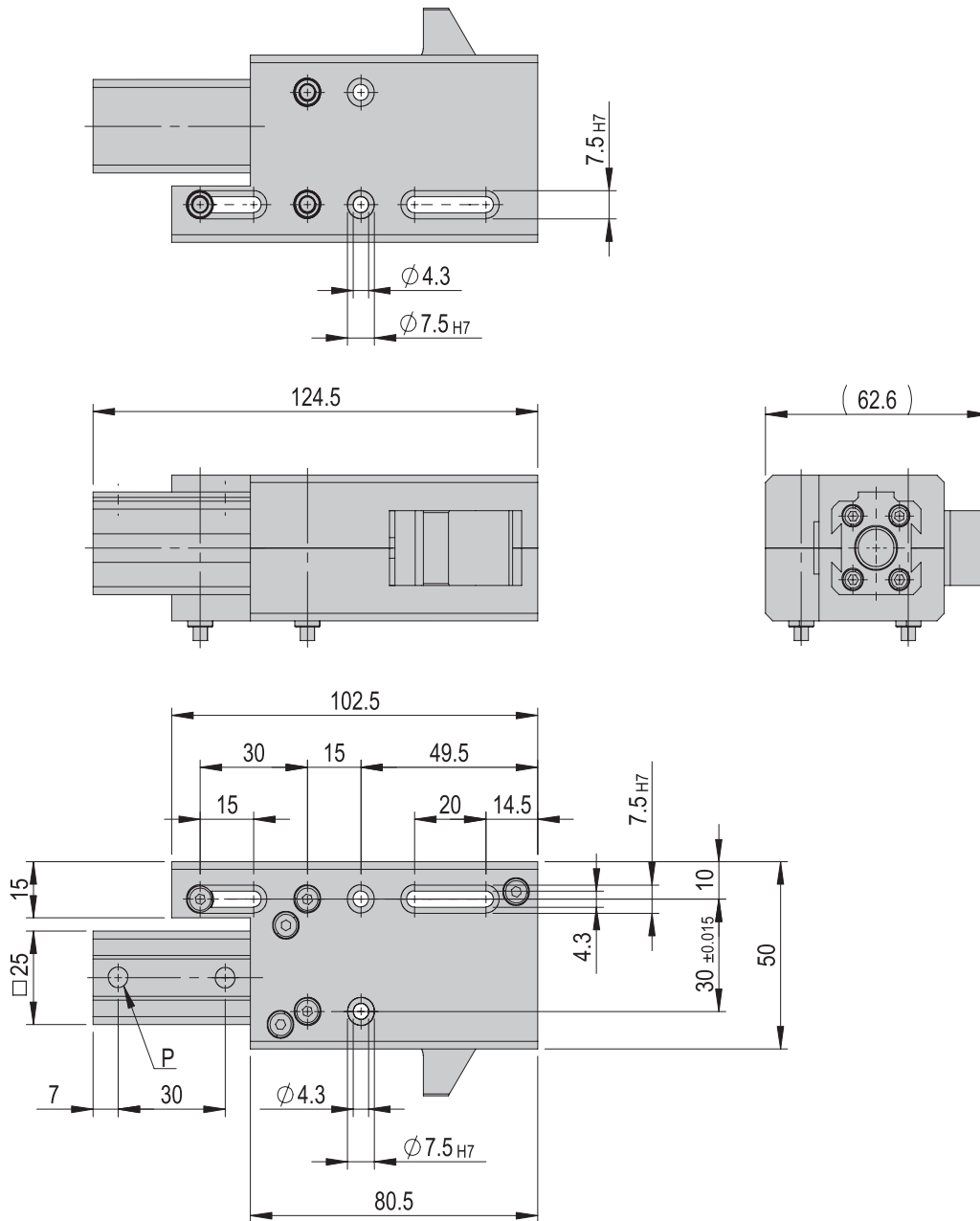
Operation time diagrams

Operation time PS 32



Accessories PS

Intermediate stop ZA-PS 16	ZA-PS 16
Order number	50222736
Net weight	0.5 kg
P	M5



The technical data refer to a nominal pressure of 6 bar under Afag standard test conditions.

Note: The ZA intermediate stops for the PS modules are distinguished by their compact size and construction that is adapted to the module. They can be set in various positions on the module slide grid. Depending on the module stroke length, several intermediate stops may be placed.

The intermediate stop can be easily modified so that it can then be used for retracting or extending movements.

Important: stop angle and shock absorber and adjusting stop screw are included in the delivery.

Included in the delivery

(Catalogue HT accessories)

- 3x Centering bushing ZA-PS 16
- 3x Mounting screw M4x70

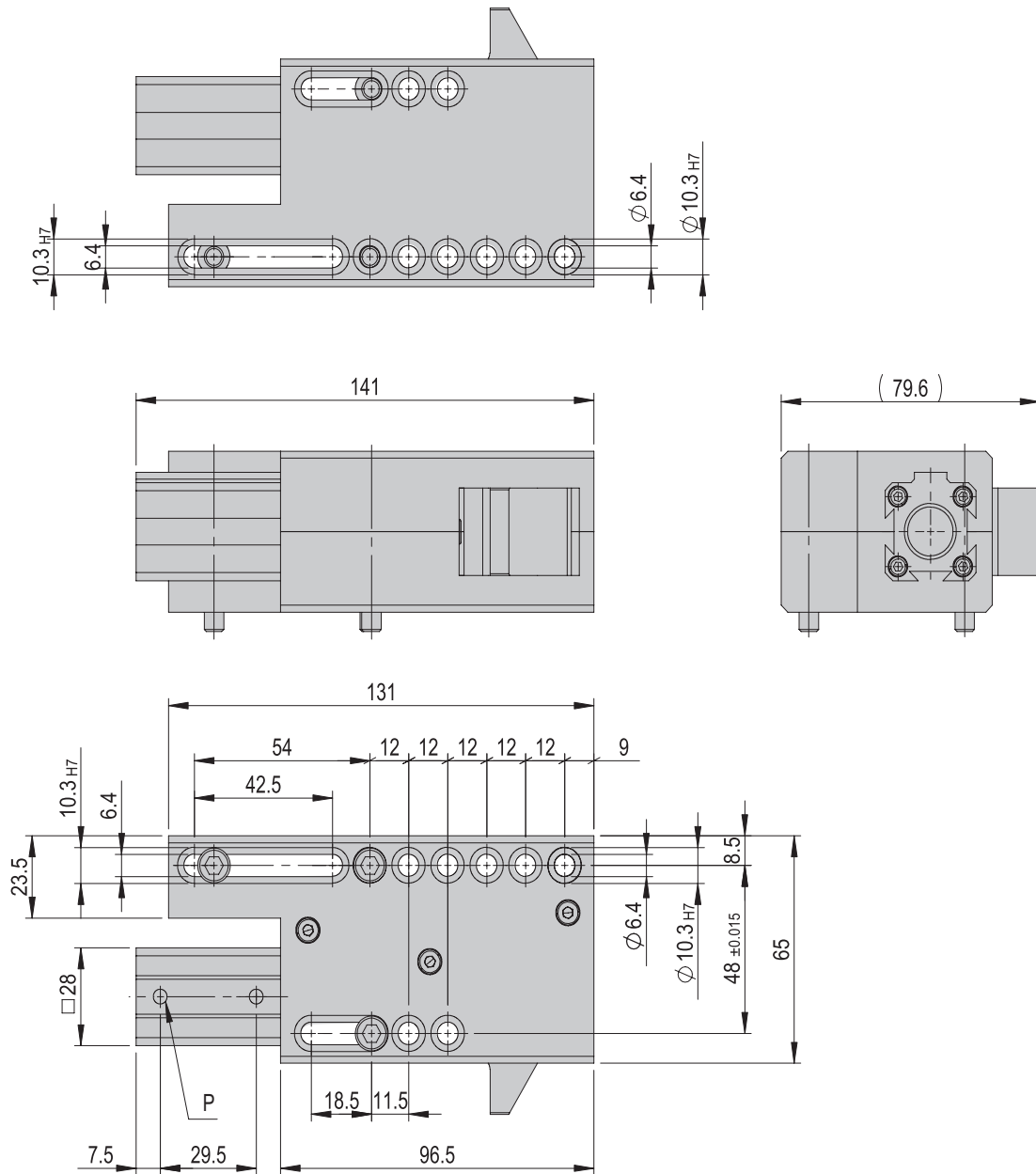
Accessories

(Catalogue HT accessories)

- INI 6.3x4.7x26.3-Em-PNP-NO-M8x1
- Cylinder switch ZA-PS

Accessories PS

Intermediate stop ZA-PS 25	ZA-PS 25
Order number	50222737
Net weight	1.296 kg
P	M5



The technical data refer to a nominal pressure of 6 bar under Afag standard test conditions.

Note: The ZA intermediate stops for the PS modules are distinguished by their compact size and construction that is adapted to the module. They can be set in various positions on the module slide grid. Depending on the module stroke length, several intermediate stops may be placed.

The intermediate stop can be easily modified so that it can then be used for retracting or extending movements.

Important: stop angle and shock absorber and adjusting stop screw are included in the delivery.

Included in the delivery

(Catalogue HT accessories)

- 3x Centering bushing ZA-PS 25
- 3x Mounting screw M6x45

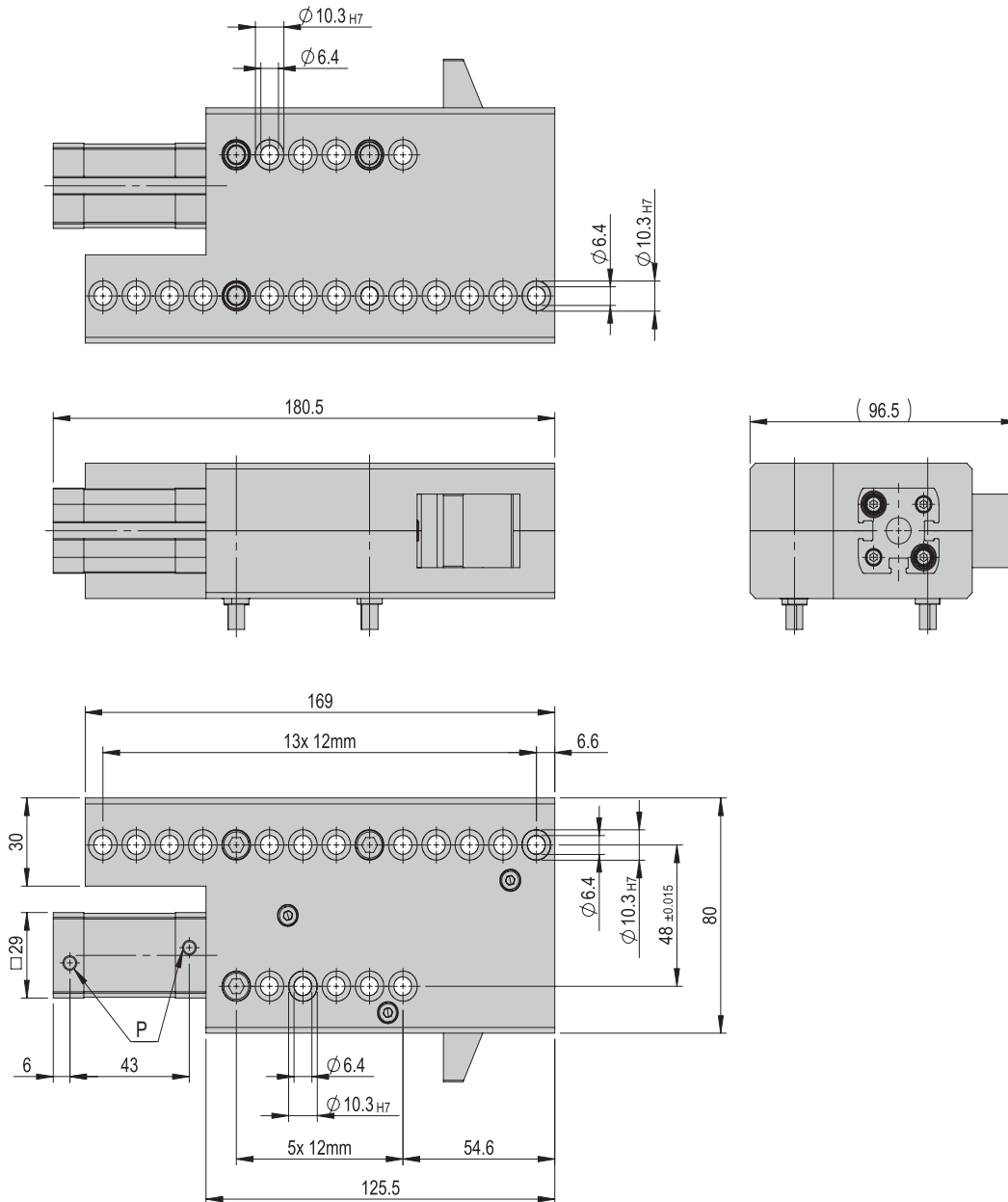
Accessories

(Catalogue HT accessories)

- INI 6.3x4.7x26.3-Em-PNP-NO-M8x1
- Cylinder switch ZA-PS

Accessories PS

Intermediate stop ZA-PS 32	ZA-PS 32
Order number	50222738
Net weight	2.115 kg
P	M5



The technical data refer to a nominal pressure of 6 bar under Afag standard test conditions.

Note: The ZA intermediate stops for the PS modules are distinguished by their compact size and construction that is adapted to the module. They can be set in various positions on the module slide grid. Depending on the module stroke length, several intermediate stops may be placed.

The intermediate stop can be easily modified so that it can then be used for retracting or extending movements.

Important: stop angle and shock absorber and adjusting stop screw are included in the delivery.

Included in the delivery

(Catalogue HT accessories)

- 3x Centering bushing ZA-PS 32
- 3x Mounting screw M6x60

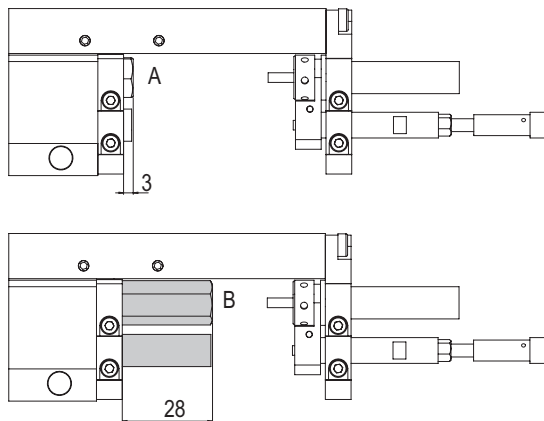
Accessories

(Catalogue HT accessories)

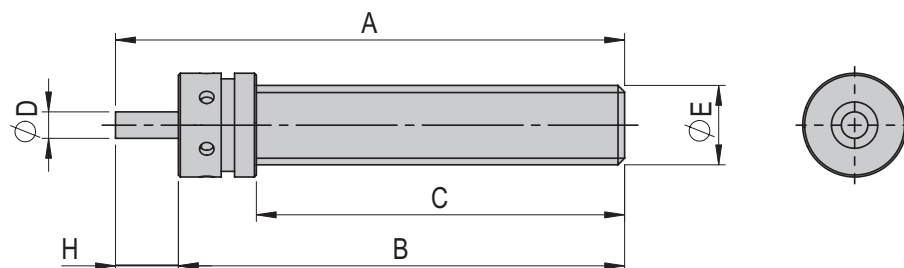
- INI 6.3x4.7x26.3-Em-PNP-NO-M8x1
- Cylinder switch ZA-PS

Accessories PS

Stopper extension for PS	PS 16	PS 25	PS 32
Order number	50138720	50138771	50138842
Net weight	0.013 kg	0.013 kg	0.021 kg
A	Stop position normal	Stop position normal	Stop position normal
B	Stop position with extension	Stop position with extension	Stop position with extension



Stop screw/shock absorber for PS	ASSD M10x1 -1	ASSD M12x1 -1	ASSD M14x1 -1
Order number	50105233	50105234	50105235
Net weight	0.026 kg	0.059 kg	0.1 kg
Max. energy input/stroke	12 Nm	18 Nm	17 Nm
Max. energy input/s	16 800 Nm	42 000 Nm	34 000 Nm
Suitable for	PS 16	PS 25	PS 32
A	59.5 mm	77 mm	102.1 mm
B	51.5 mm	67.5 mm	89 mm
C	41.5 mm	55.7 mm	77.2 mm
D	3 mm	4 mm	4 mm
E	M10x1 mm	M12x1 mm	M14x1 mm
H	8 mm	10 mm	13 mm



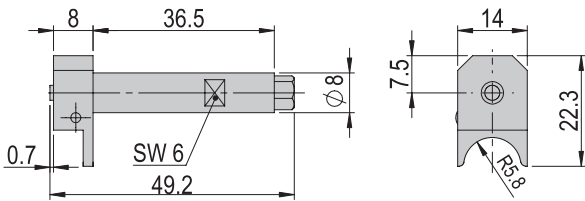
Accessories PS

Proximity switch holder PS 16

Order number 50138506

Net weight 0.024 kg

Suitable for PS 16

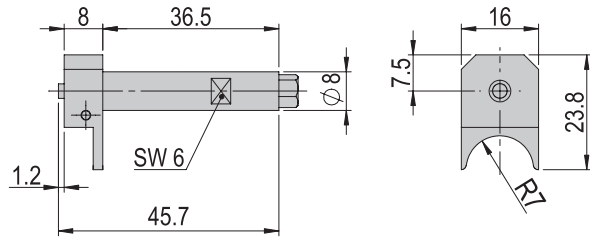


Proximity switch holder PS 25

Order number 50138579

Net weight 0.026 kg

Suitable for PS 25

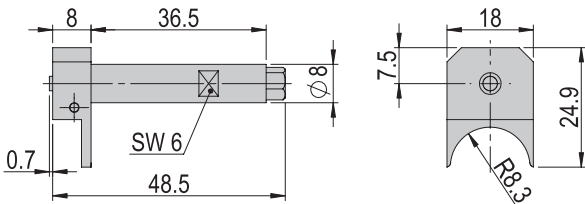


Proximity switch holder PS 32

Order number 50138592

Net weight 0.028 kg

Suitable for PS 32



Linear modules LM

LM 12 - LM 32

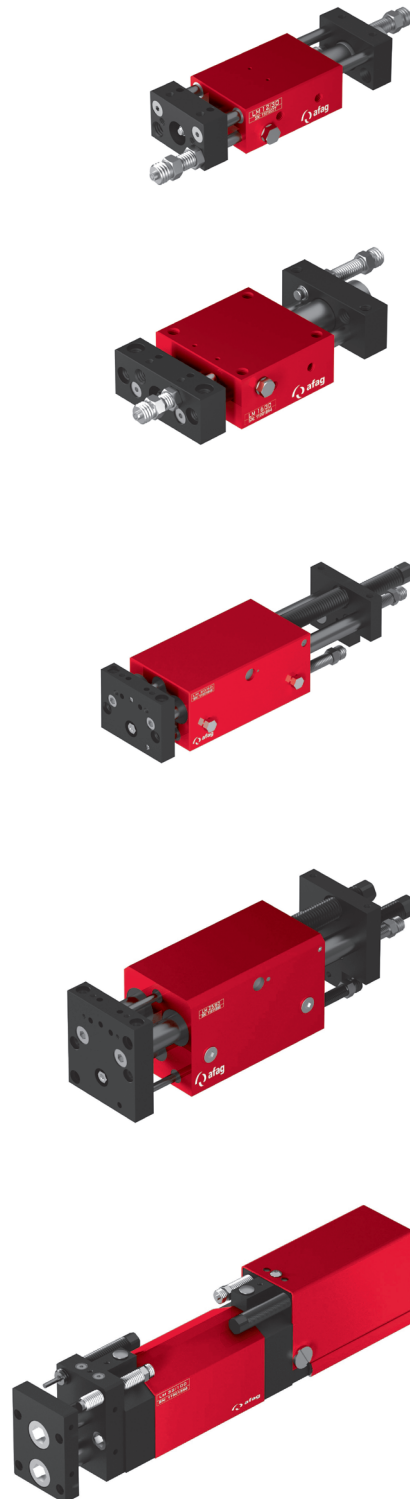
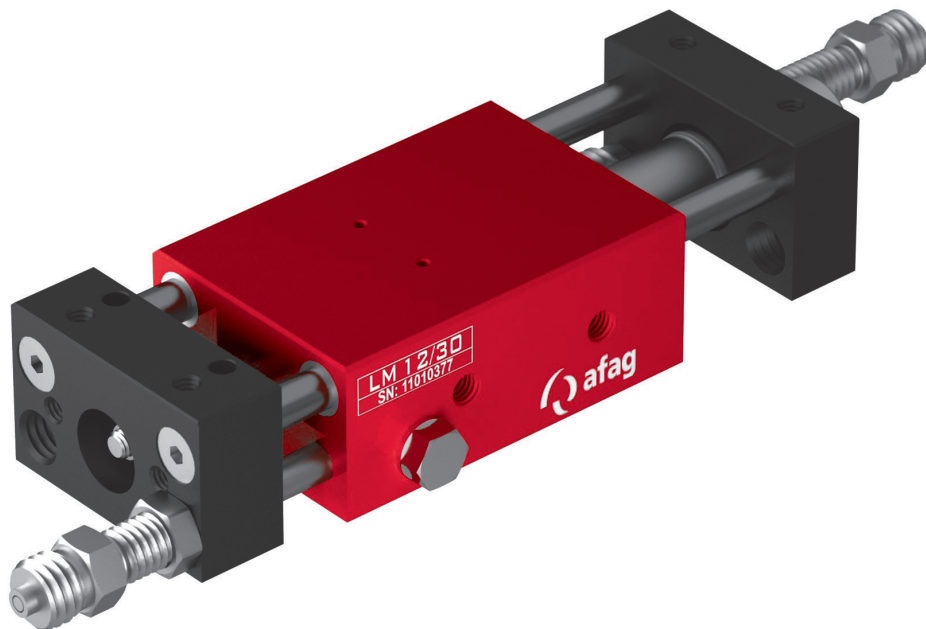


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LM 25	99
LM 32	105
Accessories LM	110

Linear modules LM

LM 12

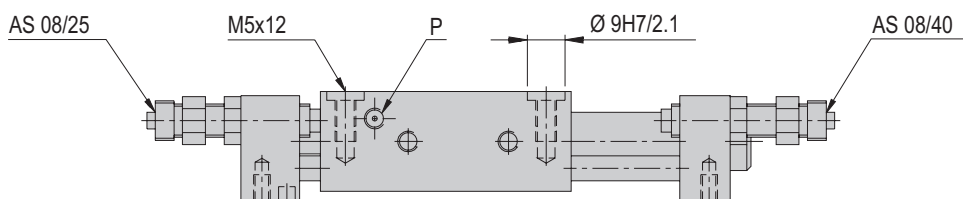
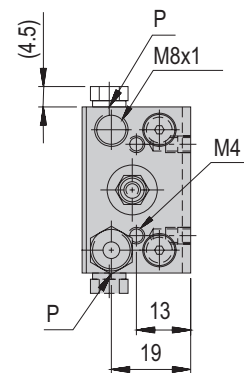
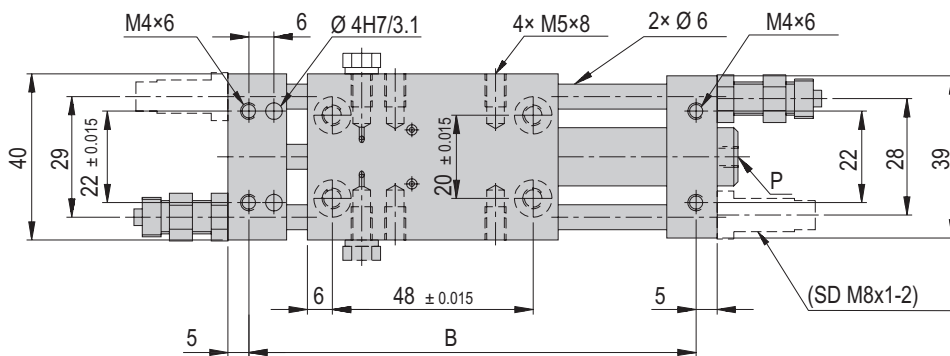
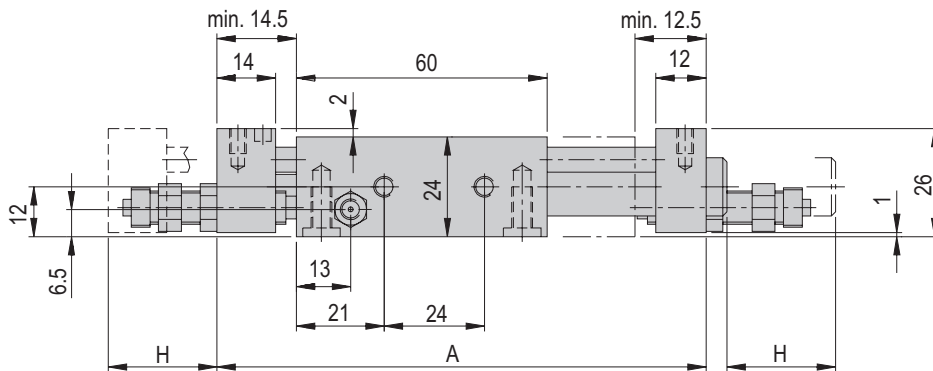


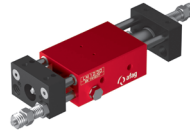
- Super robust
- Optional intermediate stops
- Tried, tested and frequently copied

Dimensions and dimension drawings

LM 12

Type	LM 12/30	LM 12/60	LM 12/90
A	117 mm	147 mm	177 mm
B	107 mm	137 mm	167 mm
H	30 mm	60 mm	90 mm
P	M5	M5	M5





LM 12	
Attachment grid	20 x 48 mm
Attachment thread	M5
Operating pressure	6 +/- 2 bar
Air connection P	M5
Cylinder Ø	12 mm
Retract piston force	51 N
Extend piston force	68 N
Operating temperature	0 - 50 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %
Medium filtered compressed air	10 - 40 µm

Type	LM 12/30	LM 12/60	LM 12/90
Order number	11010377	11010378	11010379
Stroke H	30 mm	60 mm	90 mm
Stroke limitation	*20 mm	*20 mm	*20 mm
Net weight	0.31 kg	0.34 kg	0.37 kg
Moving weight	0.13 kg	0.16 kg	0.19 kg
Air consumption/cycle	0.019 NL	0.038 NL	0.057 NL
Noise level	60 dB (A)	60 dB (A)	60 dB (A)
Repeat accuracy	+/- 0.02 mm	+/- 0.02 mm	+/- 0.02 mm
Mounting position	✦	✦	✦

The technical data refer to a nominal pressure of 6 bar under Afag standard test conditions.
 The module can be operated with lubricated or dry air.
 Cleanroom class ISO 14644-1, class ISO 7
 *Optional 2 x 20 mm

Included in the delivery

(Catalogue HT accessories)

- 2x Centering bushing Ø9x4
- 1x Stop screw AS 08/25
- 1x Stop screw AS 08/40

Accessories

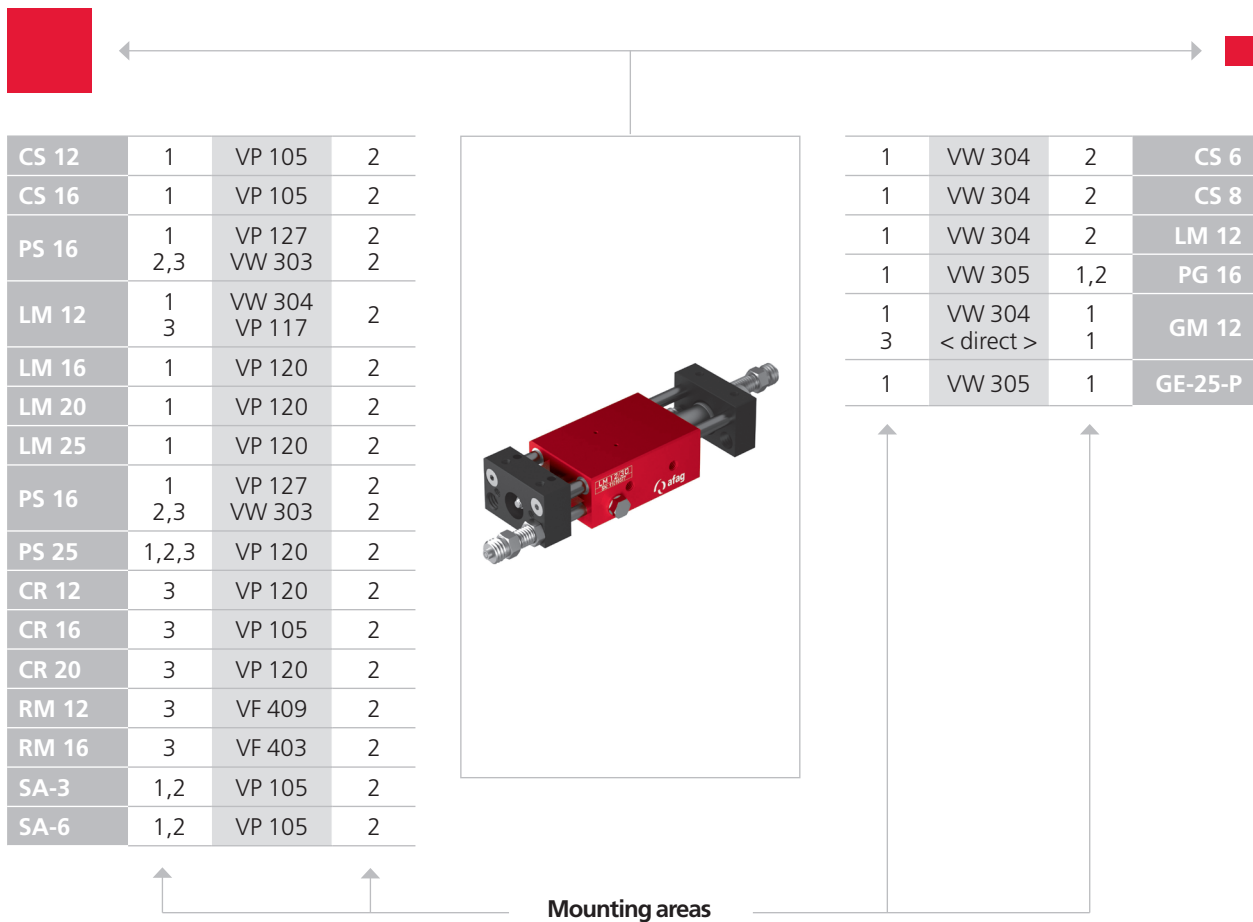
- Base plate LM 12 [p. 105]
 - Stop L-bar LM 12/LM 16 [p. 105]
- (Catalogue HT accessories)
- Adjusting stop pin M8x1/40
 - Adjusting stop pin M8x1/25
 - Stop screw AS 08/80
 - Shock absorber SD M8x1 -2
 - INI d6.5x44-Sn1.5-PNP-NO-M8x1

Alternative accessories

(Catalogue HT accessories)

- INI d6.5x35-Sn1.5-PNP-NO-M8x1

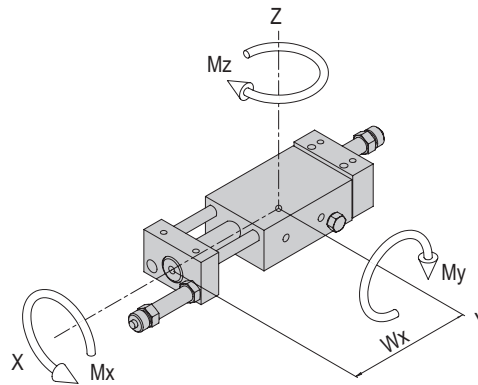
Warranty: 24 months following commissioning, but a maximum of 27 months following delivery



CS, ES 	PS 	LM, LE 	HM 	SA 	OZ
PMP, PMP-c 	PEZ, PDZ 	PEL, PDL 	CR, RM 32, RE, SREH 	RM, RE 	UG, GM, SG, DG, PG, GE

Note that there might be different mounting positions from one module to another one.
The required connection elements and the range of support columns are depicted in the catalogue HT accessories.

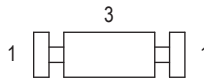
Type	LM 12/30	LM 12/60	LM 12/90
Max. static torque M_x	5.6 Nm	5.6 Nm	5.6 Nm
Max. static torque M_y	9.6 Nm	9.6 Nm	9.6 Nm
Max. static torque M_z	9.6 Nm	9.6 Nm	9.6 Nm
Max. dynamic torque M_x	2.5 Nm	2.5 Nm	2.5 Nm
Max. dynamic torque M_y	4.3 Nm	4.3 Nm	4.3 Nm
Max. dynamic torque M_z	4.3 Nm	4.3 Nm	4.3 Nm
Effective distance W_x	68 mm	68 mm	68 mm



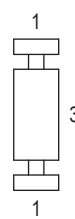
Maximum payload/type	LM 12/30	LM 12/60	LM 12/90
Installation position (horizontal) for mounting side 1	0.5 kg	0.5 kg	0.5 kg
Installation position (horizontal) for mounting side 3	0.5 kg	0.5 kg	0.5 kg
Installation position (vertical) for mounting side 1	0.5 kg	0.5 kg	0.5 kg
Installation position (vertical) for mounting side 3	0.5 kg	0.5 kg	0.5 kg

Assembly sides
module mounting

horizontal:

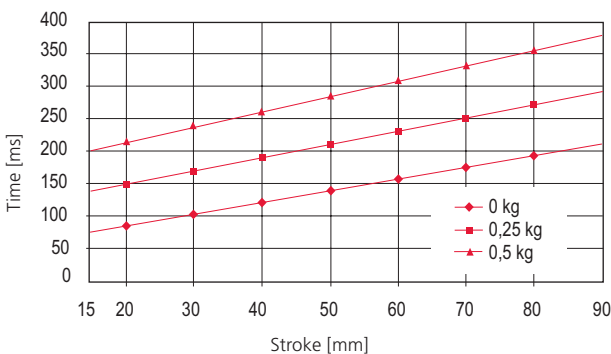


vertical:

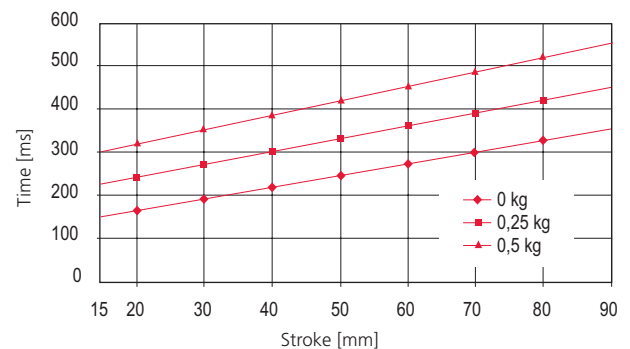


Operation time diagrams

Stroke time LM 12 with shock absorber

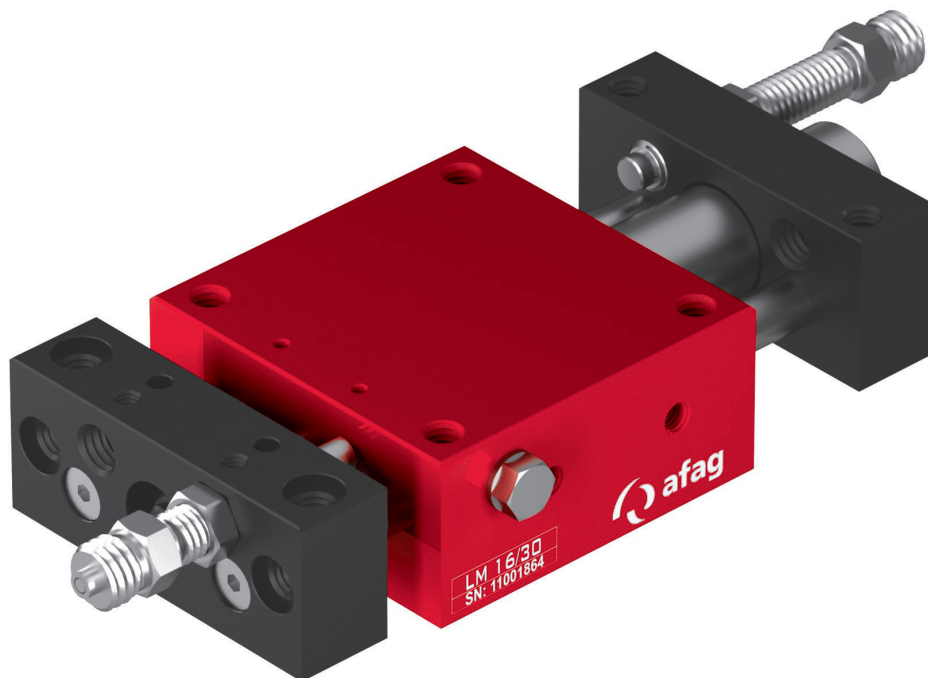


Stroke time LM 12 without shock absorber



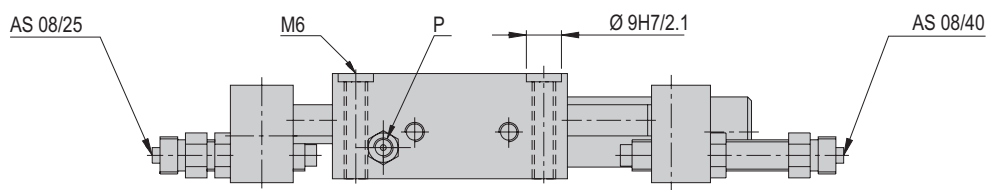
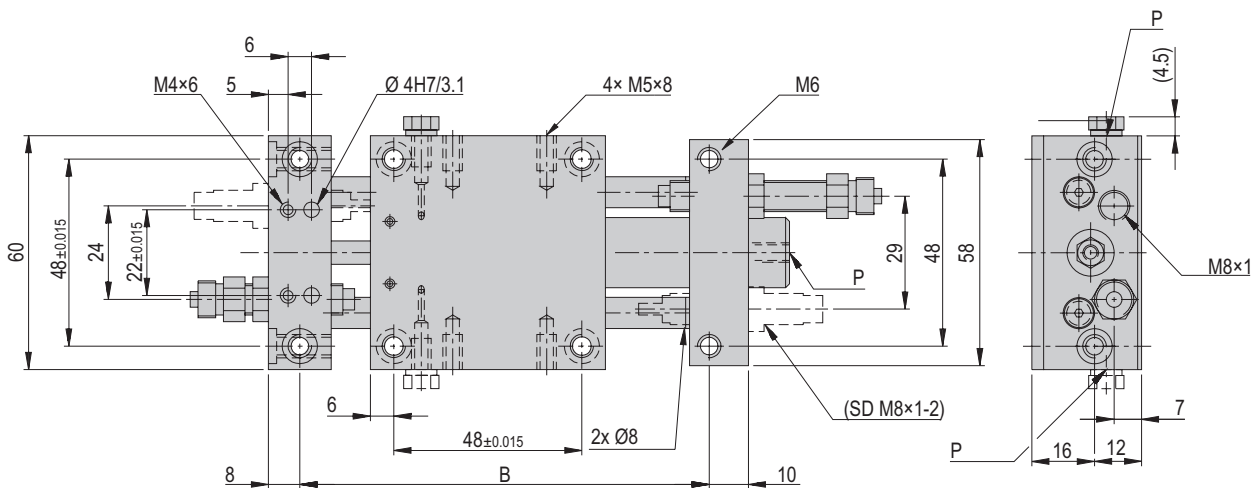
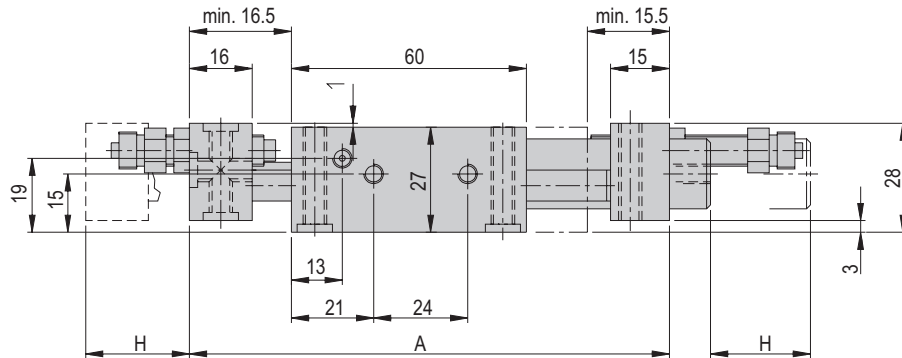
Linear modules LM

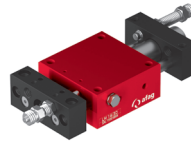
LM 16



- Super robust
- Optional intermediate stops
- Tried, tested and frequently copied

Type	LM 16/30	LM 16/60	LM 16/90
A	122.5 mm	152.5 mm	182.5 mm
B	104.5 mm	134.5 mm	164.5 mm
H	30 mm	60 mm	90 mm
P	M5	M5	M5





LM 16	
Attachment grid	48 x 48 mm
Attachment thread	M6
Operating pressure	6 +/- 2 bar
Air connection P	M5
Cylinder Ø	16 mm
Retract piston force	104 N
Extend piston force	121 N
Operating temperature	0 - 50 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %
Medium filtered compressed air	10 - 40 µm

Type	LM 16/30	LM 16/60	LM 16/90
Order number	11001864	11001865	11001866
Stroke H	30 mm	60 mm	90 mm
Stroke limitation	*20 mm	*20 mm	*20 mm
Net weight	0.478 kg	0.515 kg	0.554 kg
Moving weight	0.138 kg	0.175 kg	0.214 kg
Air consumption/cycle	0.036 NL	0.072 NL	0.108 NL
Noise level	60 dB (A)	60 dB (A)	60 dB (A)
Repeat accuracy	+/- 0.02 mm	+/- 0.02 mm	+/- 0.02 mm
Mounting position	✦	✦	✦

The technical data refer to a nominal pressure of 6 bar under Afag standard test conditions.
 The module can be operated with lubricated or dry air.
 Cleanroom class ISO 14644-1, class ISO 7
 *Optional 2 x 20 mm

Included in the delivery

(Catalogue HT accessories)

- 2x Centering bushing Ø9x4
- 1x Stop screw AS 08/25
- 1x Stop screw AS 08/40

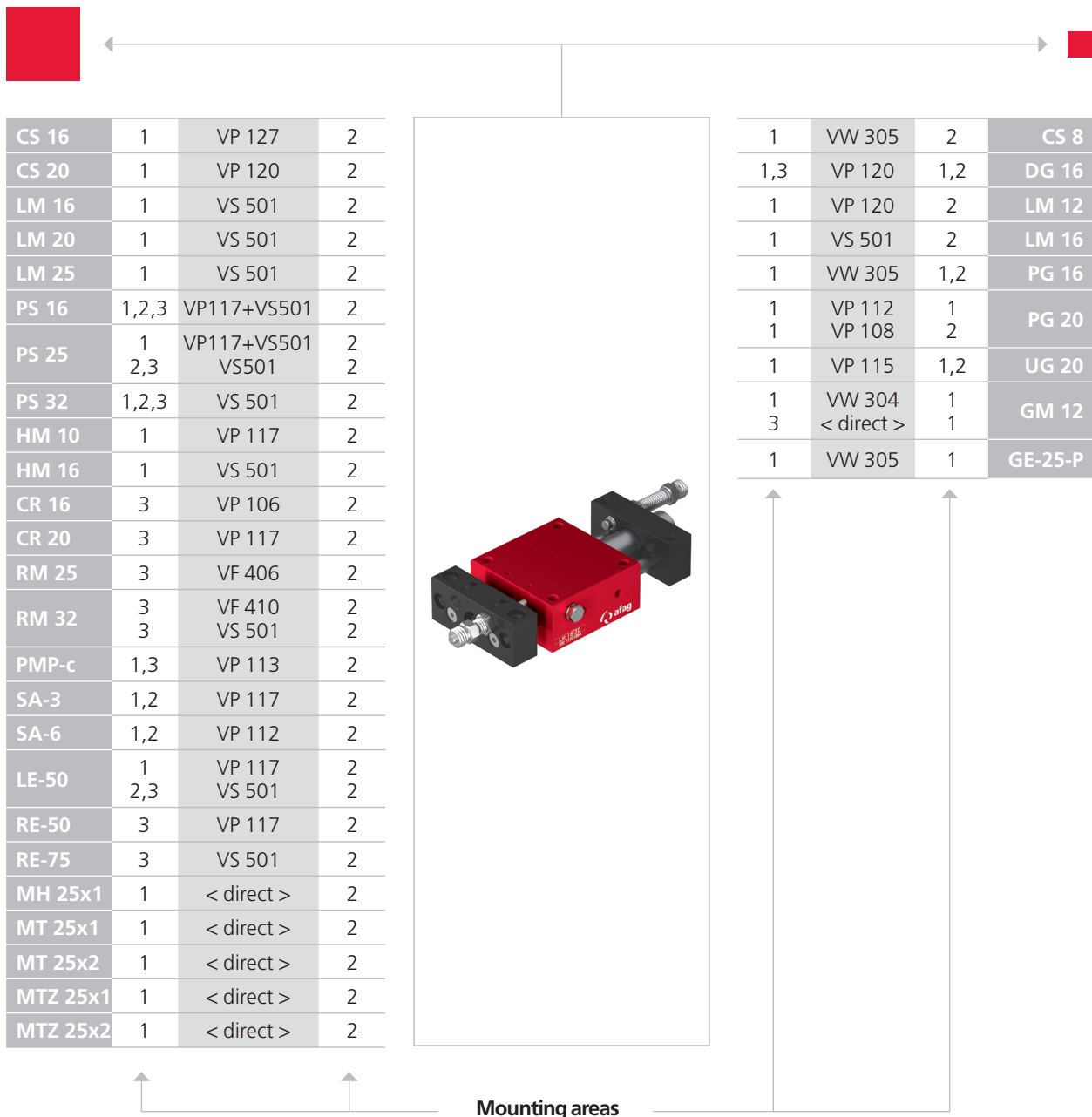
Accessories

- Base plate LM 16 [p. 105]
 - Stop L-bar LM 12/LM 16 [p. 105]
- (Catalogue HT accessories)
- Shock absorber SD M8x1 -2
 - Stop screw AS 08/80
 - INI d6.5x44-Sn1.5-PNP-NO-M8x1

Alternative accessories

- (Catalogue HT accessories)
- INI d6.5x35-Sn1.5-PNP-NO-M8x1

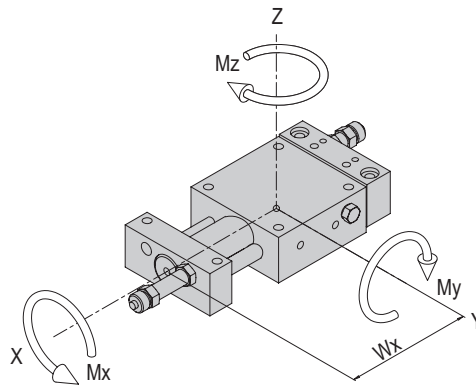
Warranty: 24 months following commissioning, but a maximum of 27 months following delivery



CS, ES 	PS 	LM, LE 	HM 	SA 	OZ
PMP, PMP-c 	PEZ, PDZ 	PEL, PDL 	CR, RM 32, RE, SREH 	RM, RE 	UG, GM, SG, DG, PG, GE

Note that there might be different mounting positions from one module to another one.
The required connection elements and the range of support columns are depicted in the catalogue HT accessories.

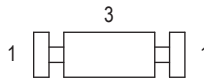
Type	LM 16/30	LM 16/60	LM 16/90
Max. static torque Mx	11 Nm	11 Nm	11 Nm
Max. static torque My	18 Nm	18 Nm	18 Nm
Max. static torque Mz	18 Nm	18 Nm	18 Nm
Max. dynamic torque Mx	5 Nm	5 Nm	5 Nm
Max. dynamic torque My	8 Nm	8 Nm	8 Nm
Max. dynamic torque Mz	8 Nm	8 Nm	8 Nm
Effective distance Wx	71 mm	71 mm	71 mm



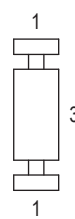
Maximum payload/type	LM 16/30	LM 16/60	LM 16/90
Installation position (horizontal) for mounting side 1	1 kg	1 kg	0.8 kg
Installation position (horizontal) for mounting side 3	1 kg	1 kg	0.8 kg
Installation position (vertical) for mounting side 1	1 kg	1 kg	0.8 kg
Installation position (vertical) for mounting side 3	1 kg	1 kg	0.8 kg

Assembly sides
module mounting

horizontal:

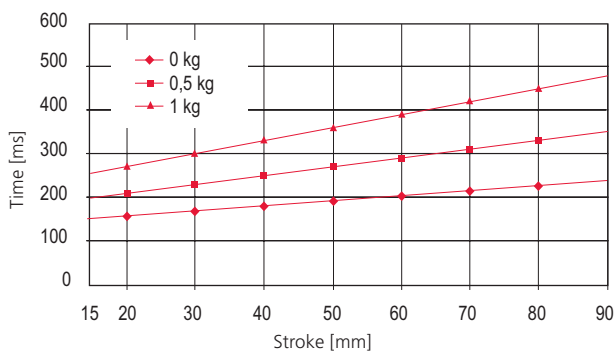


vertical:

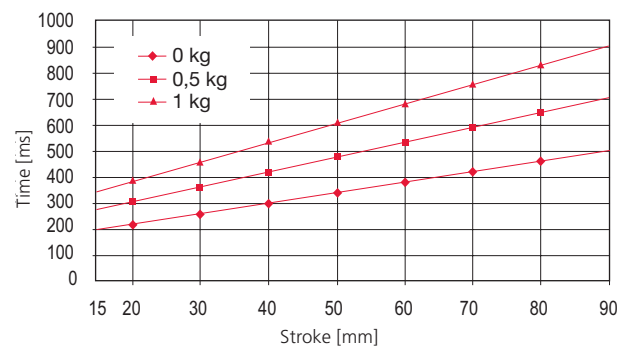


Operation time diagrams

Stroke time LM 16 with shock absorber

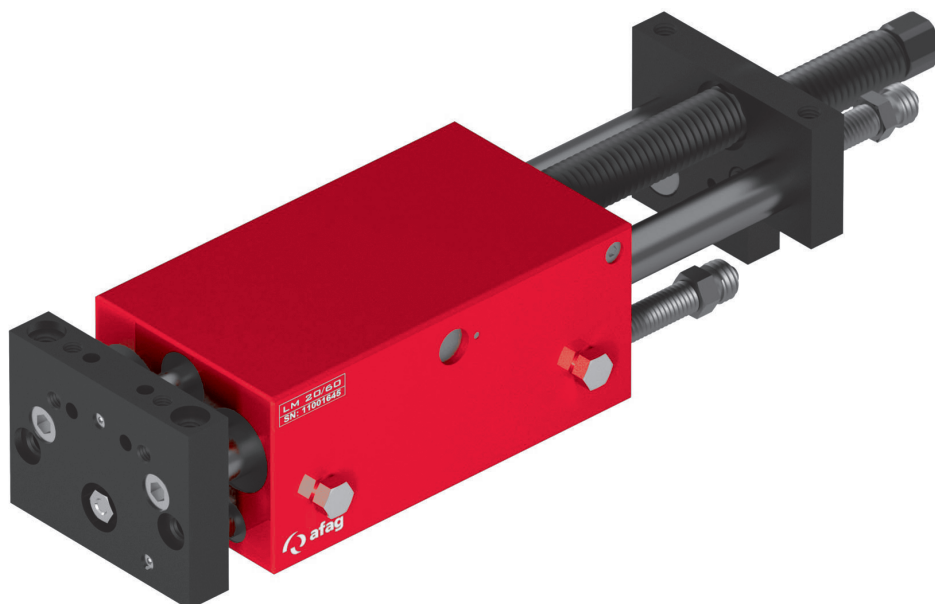


Stroke time LM 16 without shock absorber



Linear modules LM

LM 20

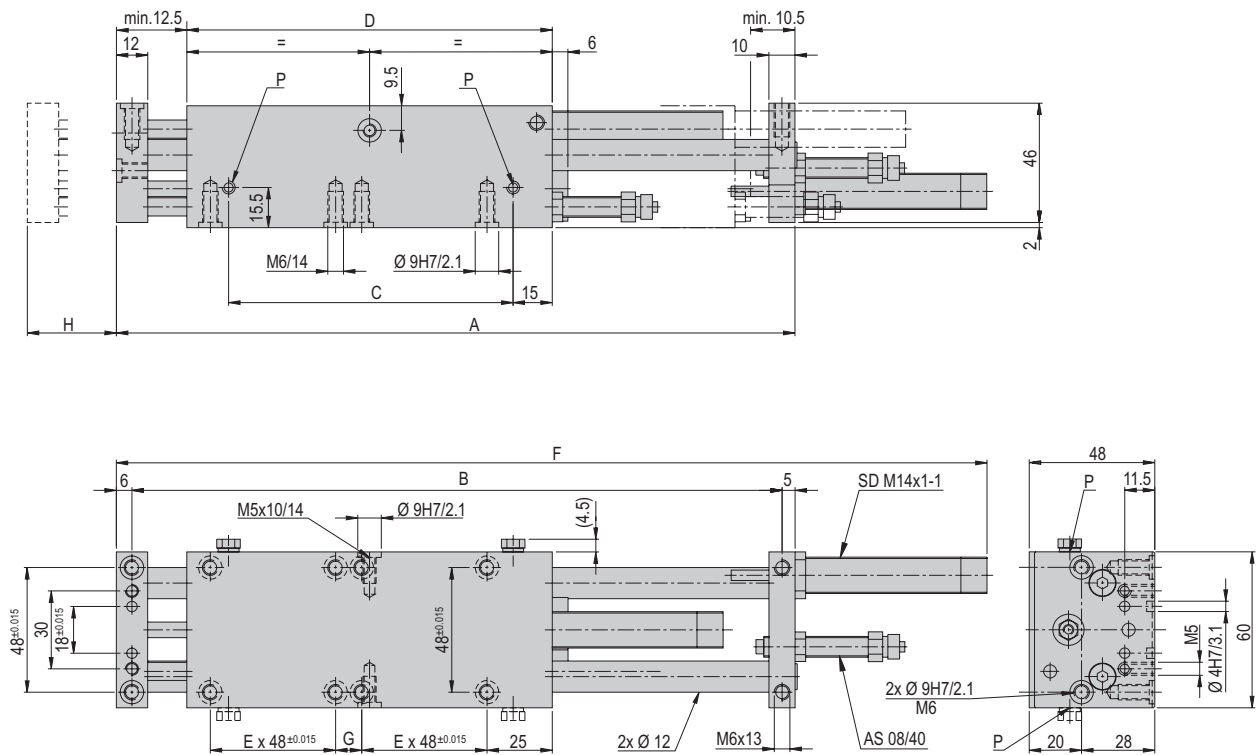


- Super robust
- Optional intermediate stops
- Tried, tested and frequently copied

Dimensions and dimension drawings

LM 20

Type	LM 20/30	LM 20/60	LM 20/90	LM 20/120	LM 20/150	LM 20/200
A	140 mm	200 mm	260 mm	320 mm	380 mm	480 mm
B	129 mm	189 mm	249 mm	309 mm	369 mm	469 mm
C	50 mm	79 mm	109 mm	139 mm	169 mm	219 mm
D	80 mm	110 mm	140 mm	170 mm	200 mm	250 mm
E	1	1	2	2	3	4
F	212 mm	272 mm	332 mm	392 mm	452 mm	552 mm
G			10 mm	24 mm		
H	30 mm	60 mm	90 mm	120 mm	150 mm	200 mm
P	M5	M5	M5	M5	M5	M5





LM 20	
Attachment grid	48 x 48 mm
Attachment thread	M6
Operating pressure	6 +/- 2 bar
Air connection P	M5
Cylinder Ø	20 mm
Retract piston force	140 N
Extend piston force	172 N
Operating temperature	0 - 50 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %
Medium filtered compressed air	10 - 40 µm

Type	LM 20/30	LM 20/60	LM 20/90	LM 20/120	LM 20/150	LM 20/200
Order number	11001720	11001645	11001646	11001647	11001648	11009043
Stroke H	30 mm	60 mm	90 mm	120 mm	150 mm	200 mm
Stroke limitation	2 x 25 mm	2 x 25 mm	2 x 25 mm	2 x 25 mm	2 x 25 mm	2 x 25 mm
Net weight	1.28 kg	1.55 kg	1.82 kg	2.1 kg	2.372 kg	2.82 kg
Moving weight	0.71 kg	0.84 kg	0.97 kg	1.11 kg	1.23 kg	1.44 kg
Air consumption/cycle	0.065 NL	0.125 NL	0.19 NL	0.255 NL	0.32 NL	0.43 NL
Noise level	65 dB (A)	65 dB (A)	65 dB (A)	65 dB (A)	65 dB (A)	65 dB (A)
Repeat accuracy	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm	+/- 0.02 mm	+/- 0.02 mm	+/- 0.02 mm
Number of interim attachments		1	1	1	1	1
Damping travel	15 mm	15 mm	15 mm	15 mm	15 mm	15 mm
Mounting position	✦	✦	✦	✦	✦	✦

The technical data refer to a nominal pressure of 6 bar under Afag standard test conditions.
 The module can be operated with lubricated or dry air.
 Cleanroom class ISO 14644-1, class ISO 7

Included in the delivery (Catalogue HT accessories)

- 2x Centering bushing Ø9x4
- 2x Stop screw AS 08/40
- 2x Shock absorber SD M14x1 -1

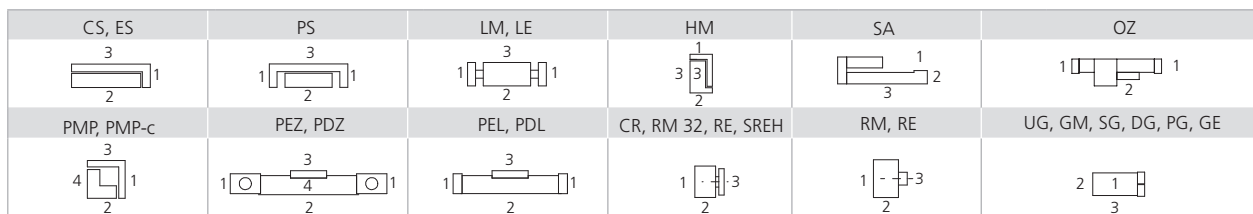
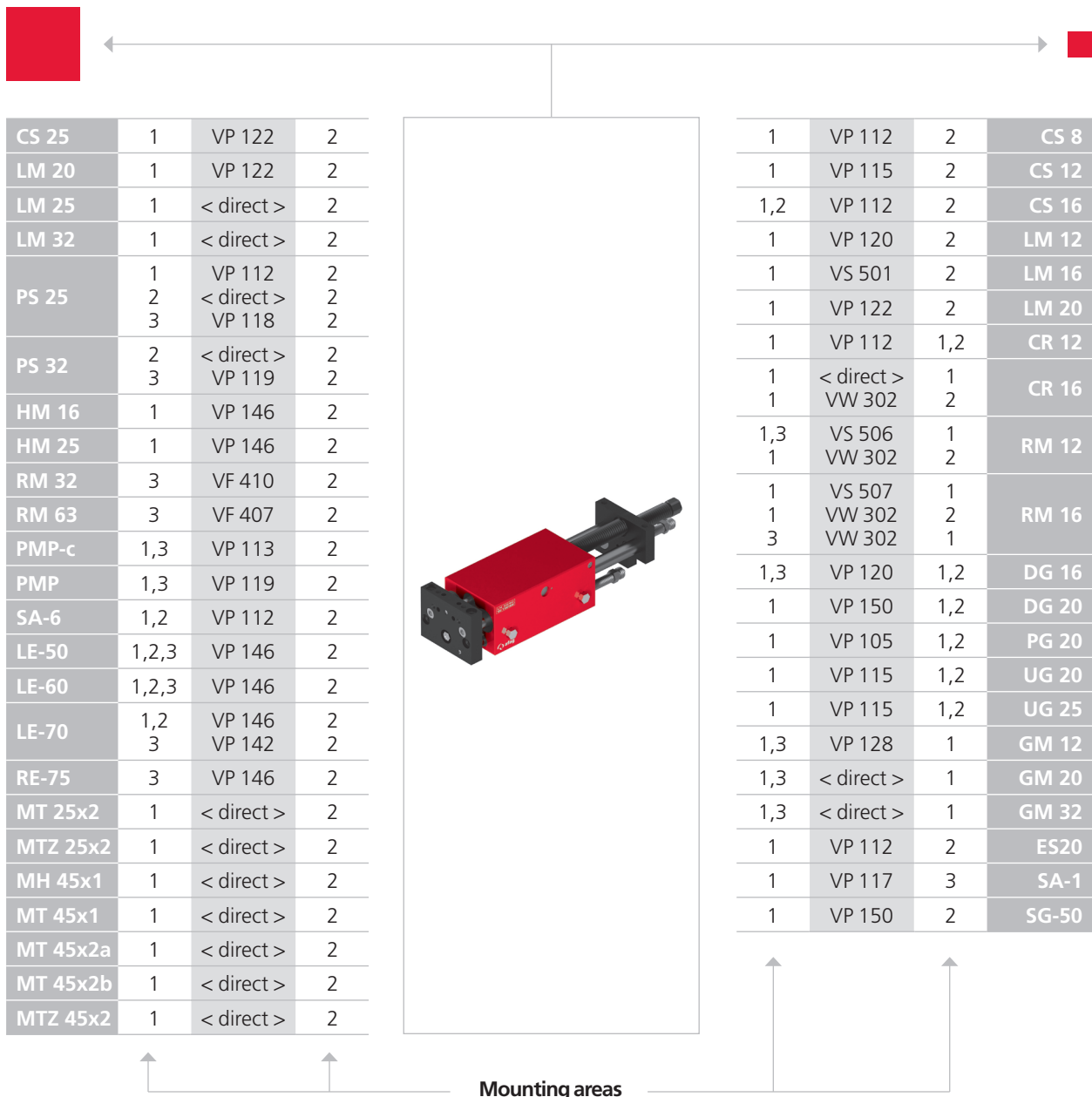
Accessories

- Base plate LM 20/LM 25 [p. 106]
 - 3. Position LM 20 [p. 106]
 - Intermediate stop ZA 20/25 [p. 108]
- (Catalogue HT accessories)
- Stop screw AS 08/80
 - Stop screw AS 08/25
 - INI d6.5x44-Sn1.5-PNP-NO-M8x1

Alternative accessories

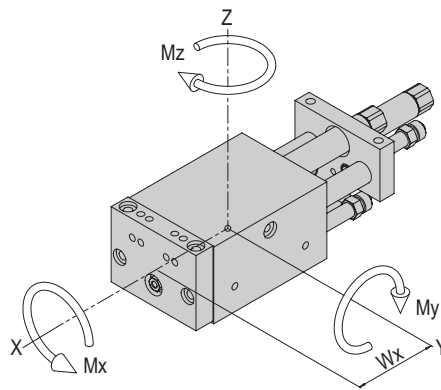
- (Catalogue HT accessories)
- INI d6.5x35-Sn1.5-PNP-NO-M8x1

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



Note that there might be different mounting positions from one module to another one.
The required connection elements and the range of support columns are depicted in the catalogue HT accessories.

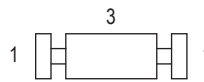
Type	LM 20/30	LM 20/60	LM 20/90	LM 20/120	LM 20/150	LM 20/200
Max. static torque Mx	11 Nm	11 Nm	11 Nm	11 Nm	11 Nm	11 Nm
Max. static torque My	11 Nm	17 Nm	23 Nm	29 Nm	35 Nm	45 Nm
Max. static torque Mz	11 Nm	17 Nm	23 Nm	29 Nm	35 Nm	45 Nm
Max. dynamic torque Mx	3 Nm	3 Nm	3 Nm	3 Nm	3 Nm	3 Nm
Max. dynamic torque My	5 Nm	8 Nm	10 Nm	13 Nm	16 Nm	20 Nm
Max. dynamic torque Mz	5 Nm	8 Nm	10 Nm	13 Nm	16 Nm	20 Nm
Effective distance Wx	80 mm	110 mm	140 mm	170 mm	200 mm	250 mm



Maximum payload/type	LM 20/30	LM 20/60	LM 20/90	LM 20/120	LM 20/150	LM 20/200
Installation position (horizontal) for mounting side 1	8 kg	7 kg	5 kg	4 kg	3 kg	2 kg
Installation position (horizontal) for mounting side 3	8 kg	7 kg	5 kg	4 kg	3 kg	2 kg
Installation position (vertical) for mounting side 1	8 kg	7 kg	5 kg	4 kg	3 kg	2 kg
Installation position (vertical) for mounting side 3	8 kg	7 kg	5 kg	4 kg	3 kg	2 kg

Assembly sides
module mounting

horizontal:

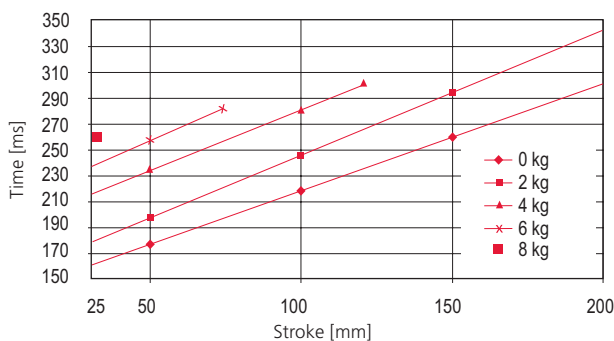


vertical:



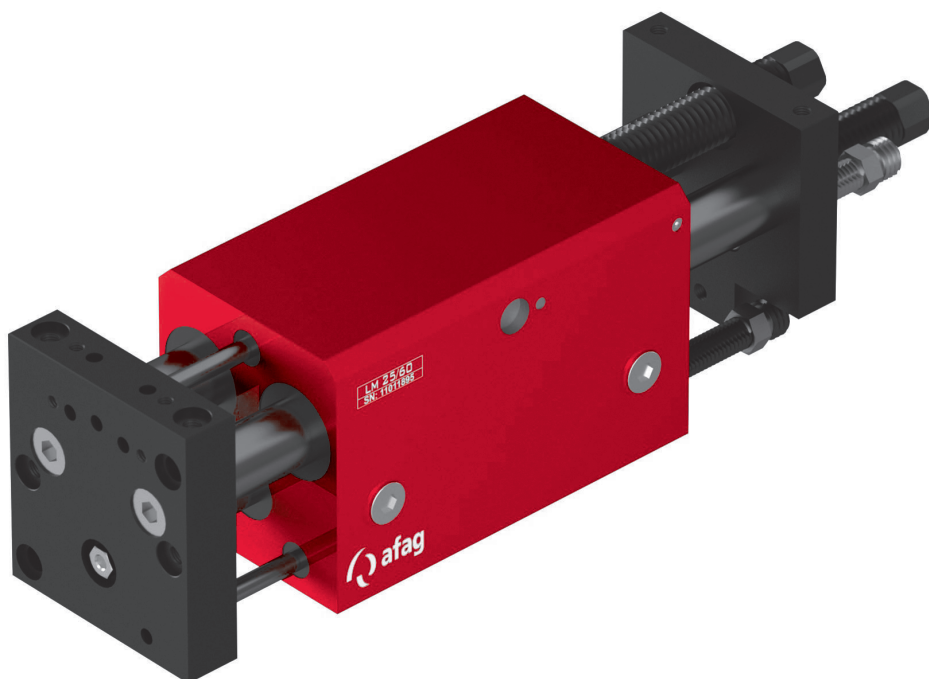
Operation time diagrams

Stroke time LM 20 with shock absorber



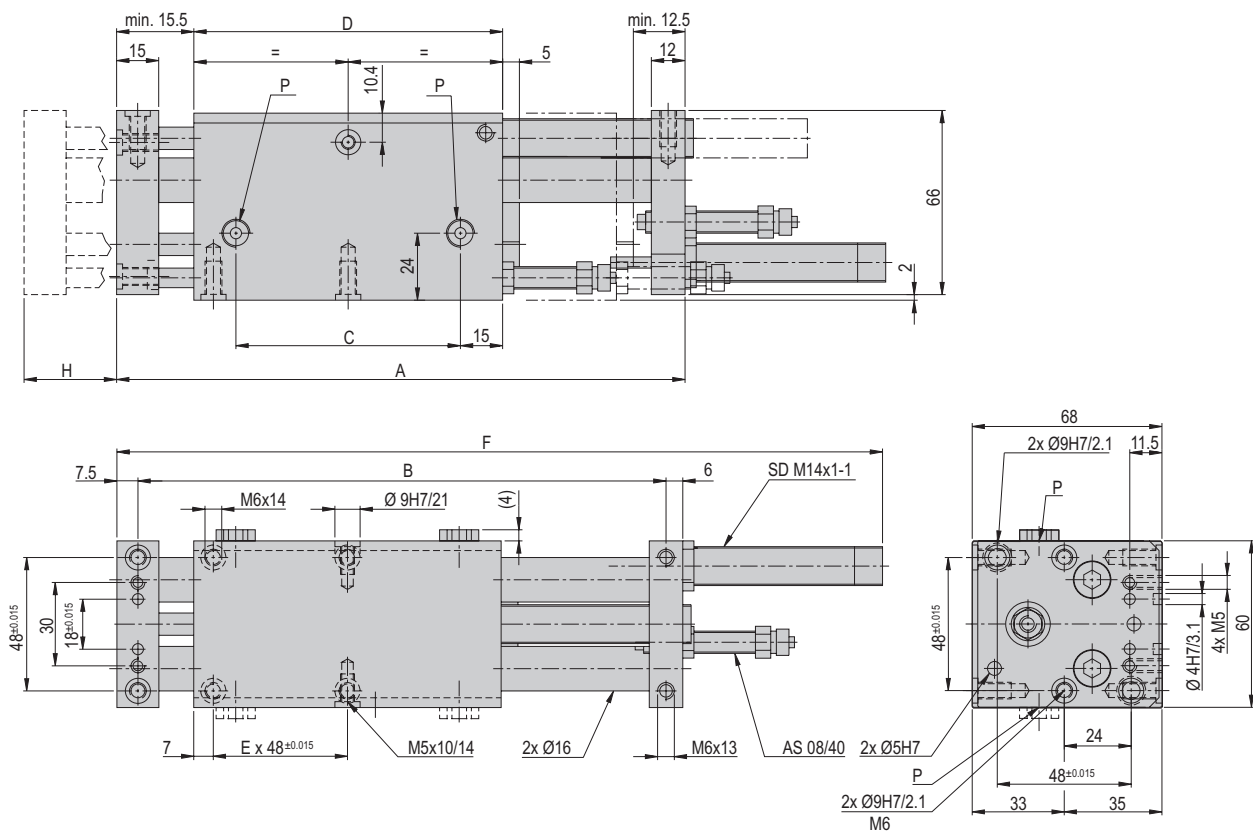
Linear modules LM

LM 25



- Super robust
- Optional intermediate stops
- Tried, tested and frequently copied

Type	LM 25/60	LM 25/120	LM 25/200
A	202.5 mm	322.5 mm	482.5 mm
B	189 mm	309 mm	469 mm
C	80 mm	140 mm	220 mm
D	110 mm	170 mm	250 mm
E	1	2	4
F	277.5 mm	397.5 mm	557.5 mm
H	60 mm	120 mm	200 mm
P	G 1/8 "	G 1/8 "	G 1/8 "





LM 25	
Attachment grid	48 x 48 mm
Attachment thread	M6
Operating pressure	6 +/- 2 bar
Air connection P	G1/8 "
Cylinder Ø	25 mm
Retract piston force	265 N
Extend piston force	295 N
Operating temperature	0 - 50 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %
Medium filtered compressed air	10 - 40 µm

Type	LM 25/60	LM 25/120	LM 25/200
Order number	11011895	11011896	11011897
Stroke H	60 mm	120 mm	200 mm
Stroke limitation	2x25 mm	2x25 mm	2x25 mm
Net weight	1.965 kg	2.821 kg	3.944 kg
Moving weight	0.99 kg	1.43 kg	2.01 kg
Air consumption/cycle	0.164 NL	0.33 NL	0.55 NL
Noise level	65 dB (A)	65 dB (A)	65 dB (A)
Repeat accuracy	+/- 0.01 mm	+/- 0.02 mm	+/- 0.02 mm
Mounting position	✦	✦	✦

The technical data refer to a nominal pressure of 6 bar under Afag standard test conditions.
 The module can be operated with lubricated or dry air.
 Cleanroom class ISO 14644-1, class ISO 7

Included in the delivery (Catalogue HT accessories)

- 2x Centering bushing Ø9x4
- 2x Stop screw AS 08/40
- 2x Shock absorber SD M14x1 -1

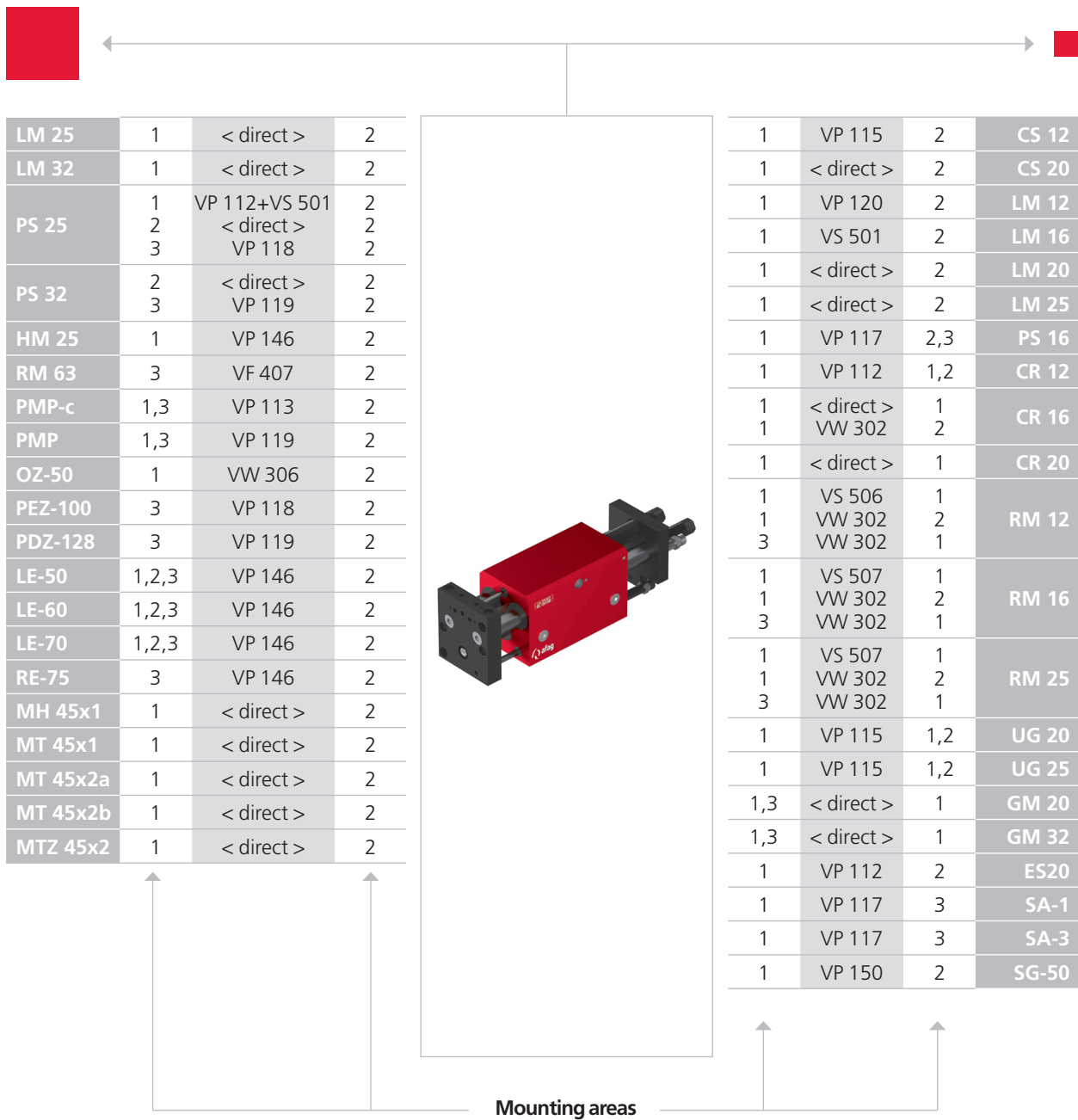
Accessories

- Base plate LM 20/LM 25 [p. 106]
 - 3. Position LM 25 [p. 107]
 - Intermediate stop ZA 20/25 [p. 108]
- (Catalogue HT accessories)
- INI d6.5x44-Sn1.5-PNP-NO-M8x1

Alternative accessories

- (Catalogue HT accessories)
- INI d6.5x35-Sn1.5-PNP-NO-M8x1

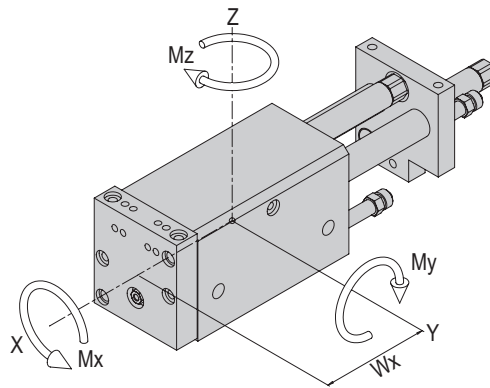
Warranty: 24 months following commissioning, but a maximum of 27 months following delivery



CS, ES 	PS 	LM, LE 	HM 	SA 	OZ
PMP, PMP-c 	PEZ, PDZ 	PEL, PDL 	CR, RM 32, RE, SREH 	RM, RE 	UG, GM, SG, DG, PG, GE

Note that there might be different mounting positions from one module to another one.
The required connection elements and the range of support columns are depicted in the catalogue HT accessories.

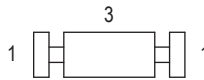
Type	LM 25/60	LM 25/120	LM 25/200
Max. static torque Mx	8 Nm	8 Nm	8 Nm
Max. static torque My	20 Nm	35 Nm	55 Nm
Max. static torque Mz	20 Nm	35 Nm	55 Nm
Max. dynamic torque Mx	4 Nm	4 Nm	4 Nm
Max. dynamic torque My	9 Nm	16 Nm	25 Nm
Max. dynamic torque Mz	9 Nm	16 Nm	25 Nm
Effective distance Wx	85 mm	115 mm	145 mm



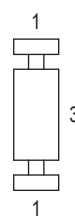
Maximum payload/type	LM 25/60	LM 25/120	LM 25/200
Installation position (horizontal) for mounting side 1	9 kg	6 kg	4 kg
Installation position (horizontal) for mounting side 3	9 kg	6 kg	4 kg
Installation position (vertical) for mounting side 1	9 kg	6 kg	4 kg
Installation position (vertical) for mounting side 3	9 kg	6 kg	4 kg

Assembly sides
module mounting

horizontal:

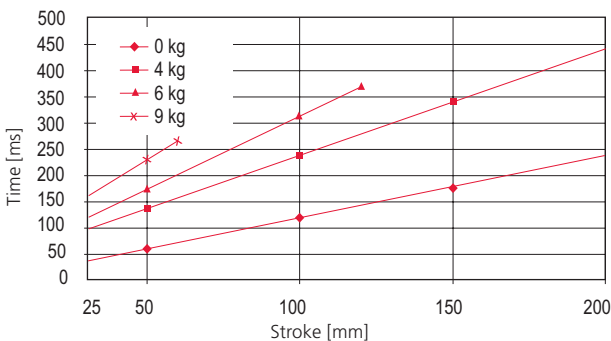


vertical:



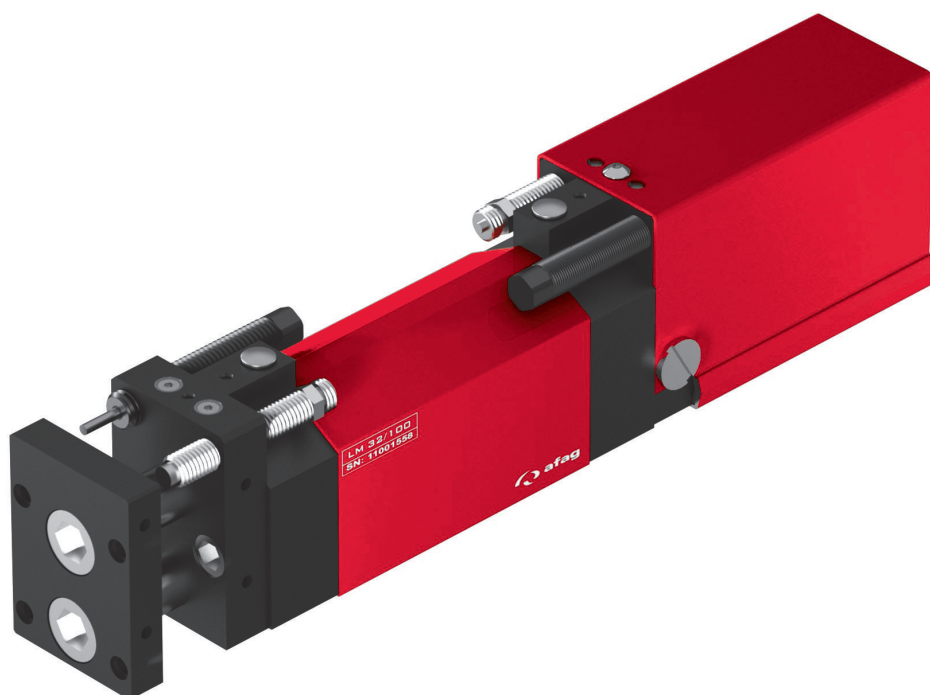
Operation time diagrams

Stroke time LM 25 with shock absorber



Linear modules LM

LM 32

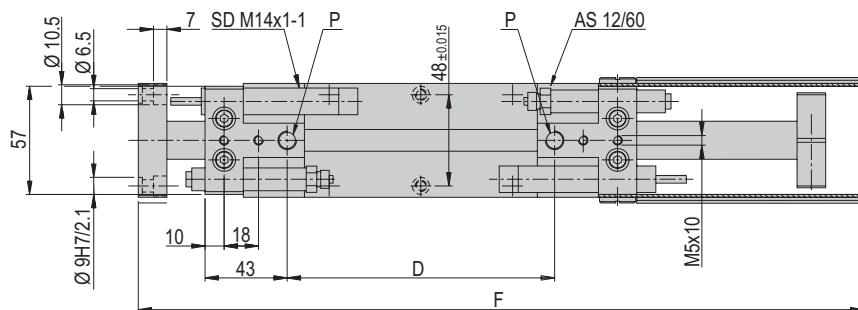
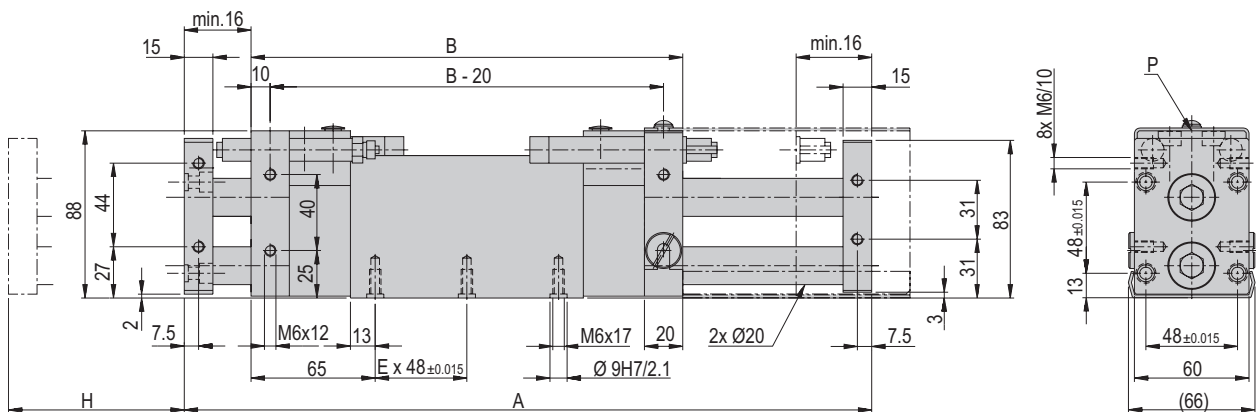


- Super robust
- Optional intermediate stops
- Tried, tested and frequently copied

Dimensions and dimension drawings

LM 32

Type	LM 32/100	LM 32/200	LM 32/300	LM 32/400
A	360 mm	560 mm	760 mm	960 mm
B	226 mm	326 mm	426 mm	526 mm
D	140 mm	240 mm <td 340 mm	440 mm	
E	2	4	6	8
F	365 mm	565 mm	765 mm	965 mm
H	100 mm	200 mm	300 mm	400 mm
P	G 1/8 "	G 1/8 "	G 1/8 "	G 1/8 "





LM 32	
Attachment grid	48 x 48 mm
Attachment thread	M6
Operating pressure	6 +/- 2 bar
Air connection P	G1/8 "
Cylinder Ø	32 mm
Retract piston force	295 N
Extend piston force	295 N
Operating temperature	0 - 50 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %
Medium filtered compressed air	10 - 40 µm

Type	LM 32/100	LM 32/200	LM 32/300	LM 32/400
Order number	11001558	11001559	11001561	11001562
Stroke H	100 mm	200 mm	300 mm	400 mm
Stroke limitation	2 x 40 mm	2 x 40 mm	2 x 40 mm	2 x 40 mm
Net weight	4 kg	5.4 kg	6.6 kg	7.9 kg
Moving weight	1.81 kg	2.29 kg	2.79 kg	3.28 kg
Air consumption/cycle	0.4 NL	0.8 NL	1.2 NL	1.6 NL
Noise level	65 dB (A)	65 dB (A)	65 dB (A)	65 dB (A)
Repeat accuracy	+/- 0.01 mm	+/- 0.01 mm	+/- 0.02 mm	+/- 0.02 mm
Mounting position	✦	✦	✦	✦

The technical data refer to a nominal pressure of 6 bar under Afag standard test conditions.
 The module can be operated with lubricated or dry air.
 Cleanroom class ISO 14644-1, class ISO 7

Included in the delivery

- (Catalogue HT accessories)
- 2x Centering bushing Ø9x4
 - 2x Stop screw AS 12/60
 - 2x Shock absorber SD M14x1 -1

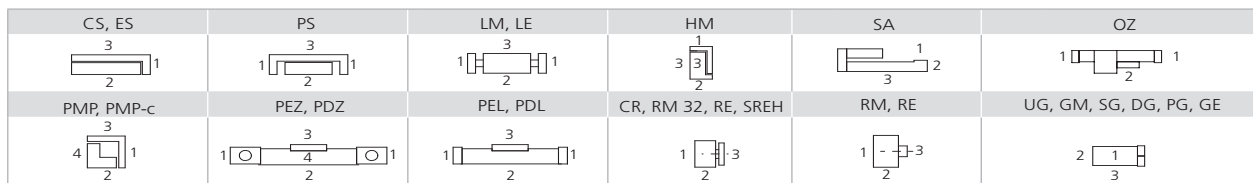
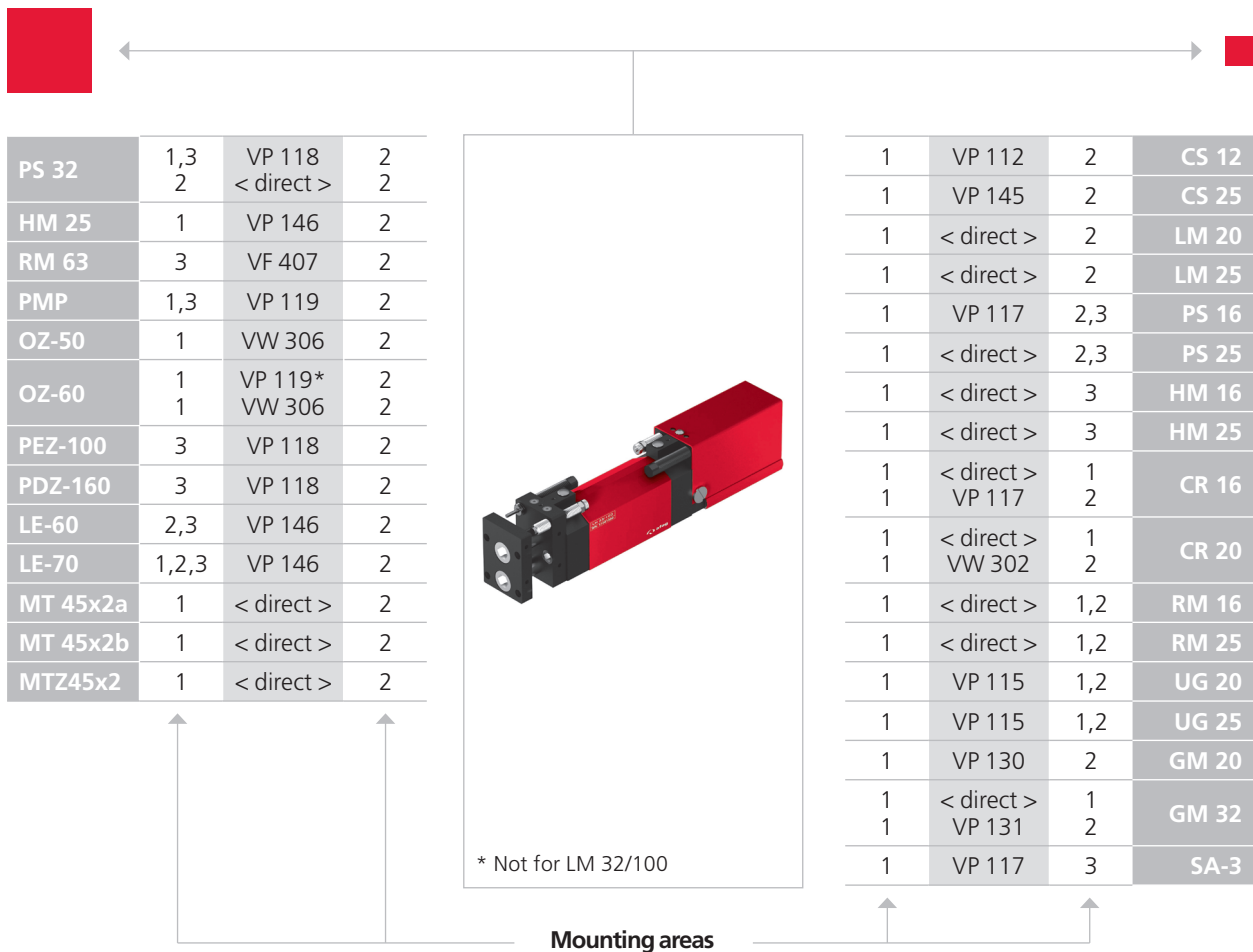
Accessories

- (Catalogue HT accessories)
- INI d6.5x44-Sn1.5-PNP-NO-M8x1

Alternative accessories

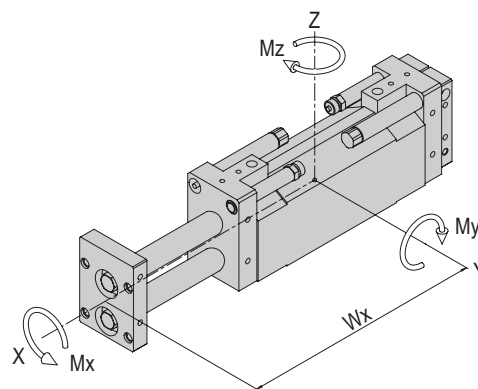
- (Catalogue HT accessories)
- INI d6.5x35-Sn1.5-PNP-NO-M8x1

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



Note that there might be different mounting positions from one module to another one.
The required connection elements and the range of support columns are depicted in the catalogue HT accessories.

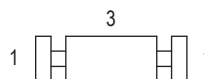
Type	LM 32/100	LM 32/200	LM 32/300	LM 32/400
Max. static torque Mx	12 Nm	12 Nm	12 Nm	12 Nm
Max. static torque My	95 Nm	127 Nm	158 Nm	190 Nm
Max. static torque Mz	95 Nm	127 Nm	158 Nm	190 Nm
Max. dynamic torque Mx	5 Nm	5 Nm	5 Nm	5 Nm
Max. dynamic torque My	43 Nm	57 Nm	71 Nm	85 Nm
Max. dynamic torque Mz	43 Nm	57 Nm	71 Nm	85 Nm
Effective distance Wx	311 mm	411 mm	511 mm	611 mm



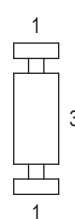
Maximum payload/type	LM 32/100	LM 32/200	LM 32/300	LM 32/400
Installation position (horizontal) for mounting side 1	10 kg	9 kg	7 kg	5 kg
Installation position (horizontal) for mounting side 3	10 kg	9 kg	7 kg	5 kg
Installation position (vertical) for mounting side 1	10 kg	9 kg	7 kg	5 kg
Installation position (vertical) for mounting side 3	10 kg	9 kg	7 kg	5 kg

Assembly sides
module mounting

horizontal:

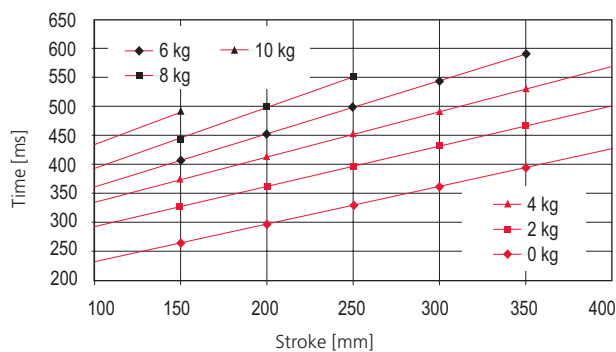


vertical:



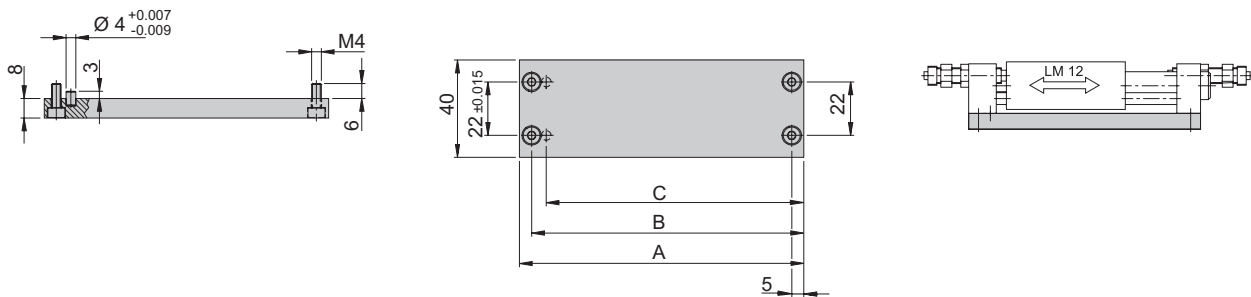
Operation time diagrams

Stroke time LM 32 with shock absorber

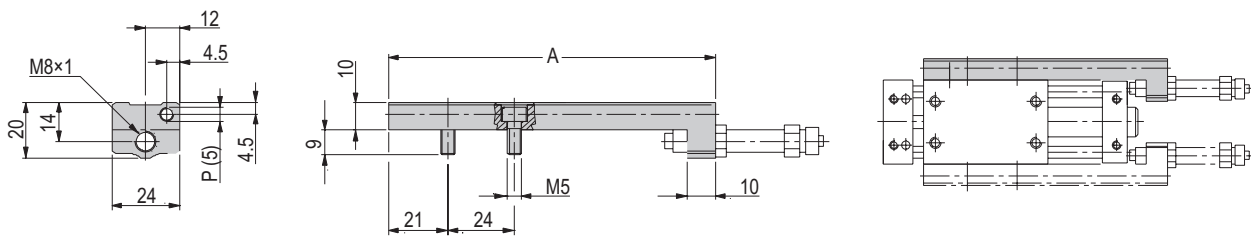


Accessories LM

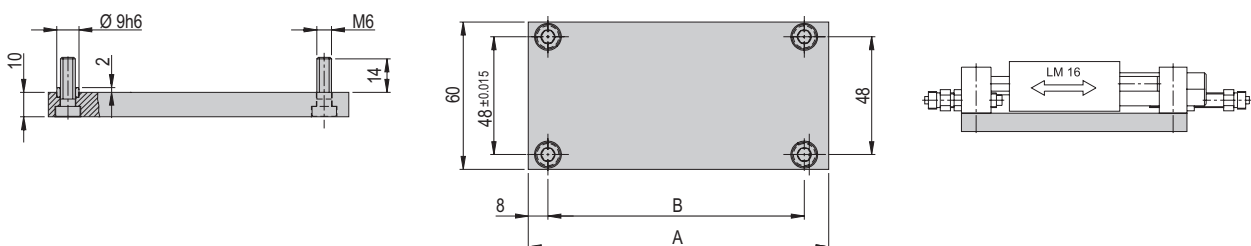
Base plate LM 12	LM 12/30	LM 12/60	LM 12/90
Order number	11010371	11010372	11010373
Net weight	0.1 kg	0.13 kg	0.16 kg
A	117 mm	147 mm	177 mm
B	112 mm	142 mm	172 mm
C	106 mm	136 mm	166 mm



Stop L-bar LM 12/LM 16	LM 12/30 / LM 16/30	LM 12/60 / LM 16/60	LM 12/90 / LM 16/90
Order number	11001880	11001884	11001887
Net weight	0.08 kg	0.1 kg	0.12 kg
A	117 mm	147 mm	177 mm



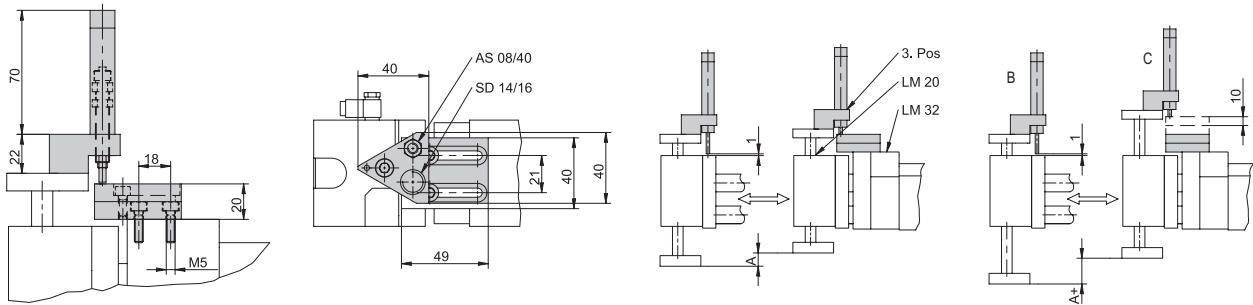
Base plate LM 16	LM 16/30	LM 16/60	LM 16/90
Order number	11001437	11001442	11001445
Net weight	0.21 kg	0.28 kg	0.32 kg
A	122.5 mm	152.5 mm	182.5 mm
B	104.5 mm	134.5 mm	164.5 mm



Accessories LM

3. Position LM 20

Order number	11001623
Net weight	0.45 kg
A	*24 mm
B	extended
C	retracted



Note: Requirement: Module combination LM 32 with LM 20
 Purpose: Various removal and application heights can be covered between the retracted and extended states.
 Stroke difference grading: Standard = +10 mm
 1 additional plate = +10 mm
 Max. 3 additional plates possible
 *LM 20/30 = 14 mm

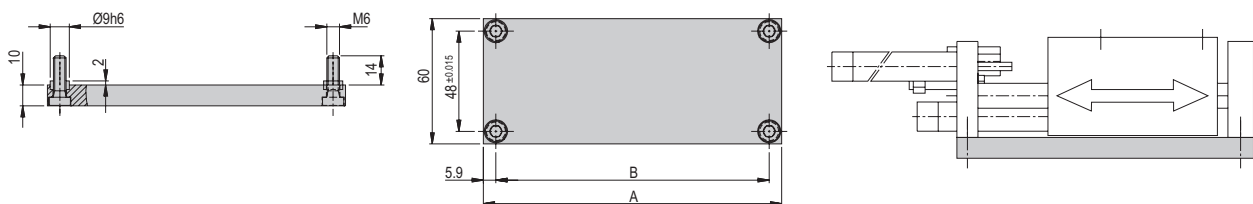
Included in the delivery (Catalogue HT accessories)

- 1x Stop carrier
- 1x Contact plate
- 1x Intermediate contact plate
- 1x Shock absorber SD M14x1 -1
- 1x Stop screw AS 08/40

Intermediate contact plate

Order number	11001613
Net weight	0.137 kg

Base plate LM 20 / LM 25	LM 20/30	LM 20/60 / LM 25/60	LM 20/90	LM 20/120 / LM 25/120	LM 20/150	LM 20/200 / LM 25/200
Order number	11001619	11001624	11001626	11001628	11001630	11009423
Net weight	0.25 kg	0.35 kg	0.44 kg	0.54 kg	0.64 kg	0.85 kg
A	140.8 mm	200.8 mm	260.8 mm	320.8 mm	380.8 mm	480.8 mm
B	129 mm	189 mm	249 mm	309 mm	369 mm	469 mm



Accessories LM

3. Position LM 25

Order number

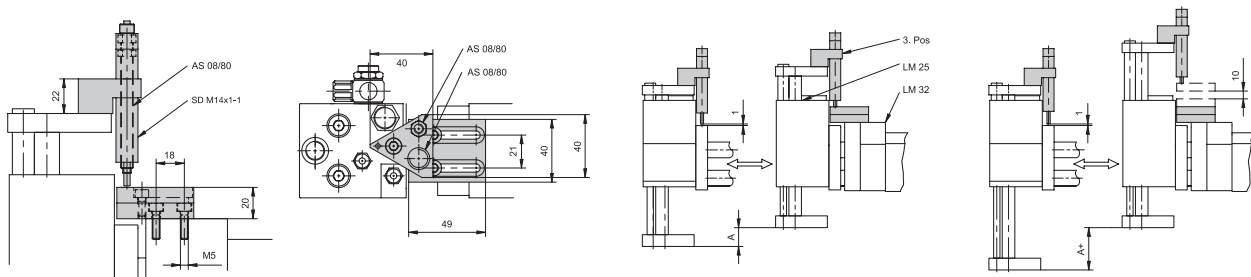
11013401

Net weight

0.45 kg

A

40 mm



Note: Requirement: Module combination LM 32 with LM 25

Purpose: Various removal and application heights can be covered between the retracted and extended states.

Stroke difference grading: Standard = 10 mm

1 additional plate = +10 mm

Max. 3 additional plates possible

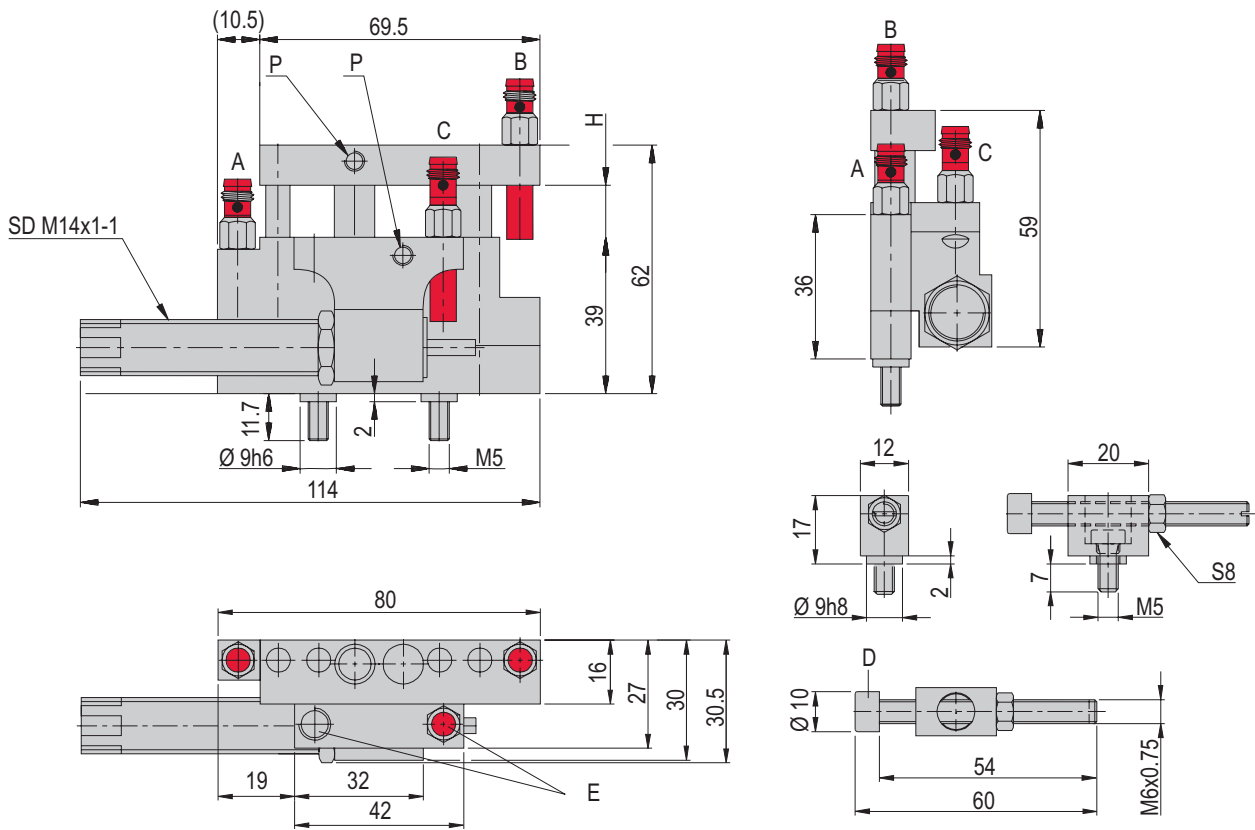
Included in the delivery

(Catalogue HT accessories)

- 1x Stop carrier
- 1x Contact plate
- 1x Intermediate contact plate
- 1x Shock absorber SD M14x1 -1
- 1x Stop screw AS 08/40

Accessories LM

Intermediate stop ZA 20/25	ZA 20/25
Order number	11011366
Net weight	0.3 kg
Weight, stop	0.03 kg
Air consumption/stroke	0.01 NL
Repeat accuracy	+/- 0.02 mm
A	ZA retracted (front)*
B	ZA extended (rear)
C	Shock absorber damped
D	Stop screw
E	Proximity switch (left or right) depending on SD installation
P	M5



 Proximity switches

The technical data refer to a nominal pressure of 6 bar under Afag standard test conditions.

Included in the delivery

(Catalogue HT accessories)

- 2x Centering bushing Ø9x4
- 1x Mounting screw M5x12
- 2x Mounting screw M5x16
- 1x Stop screw ZA20/25
- 1x Shock absorber SD M14x1 -1

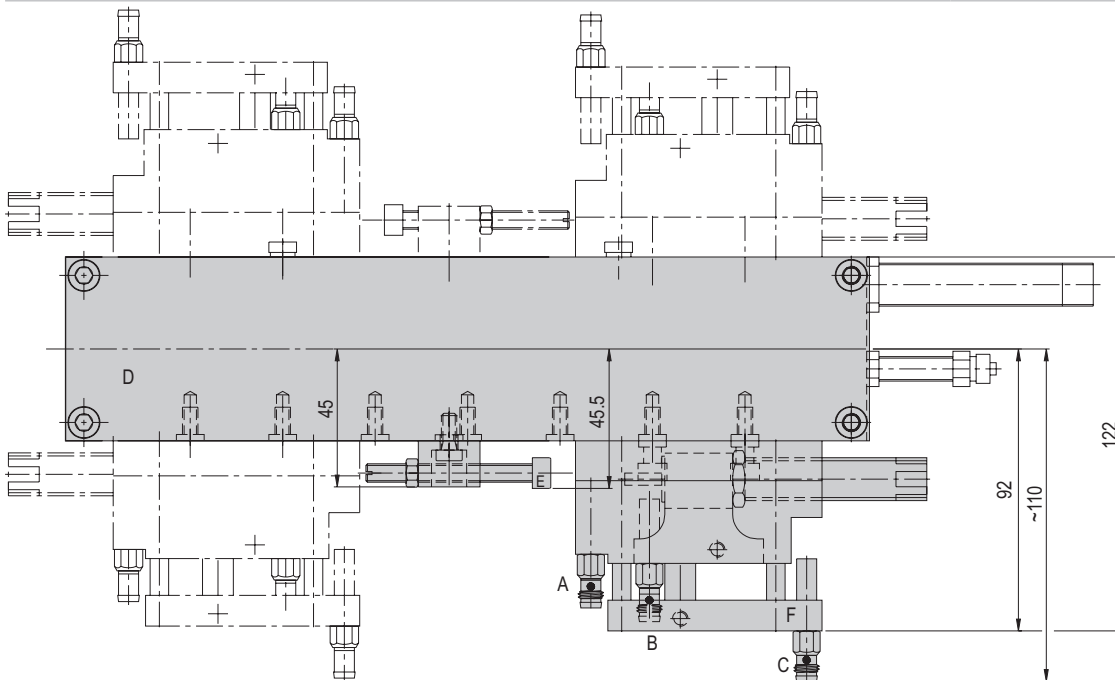
Accessories

- Base plate ZA LM 20/LM 25 [p.]
- INI d6.5x44-Sn1.5-PNP-NO-M8x1 [p.]

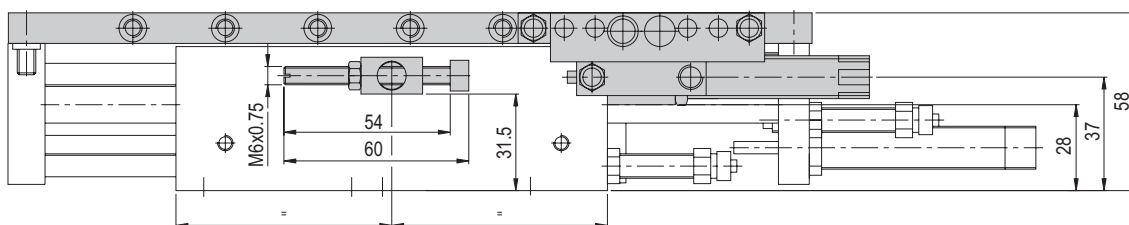
ZA 20/25

The intermediate stop can be installed acting forwards as well as backwards on the base plate ZA due to the symmetrical structure. Depending on how the base plate is installed, the intermediate stop can be fitted to the right or the left of the module. The head side of the stop screw is always oriented against the shock absorber. The base plate ZA and the stop serve for continuous intermediate position adjustment. The stop screw is fitted in the bore on the module slide and the intermediate stop is screwed into the desired position on the base plate. With the intermediate stop, you can limit the extension or retraction stroke with an intermediate position.

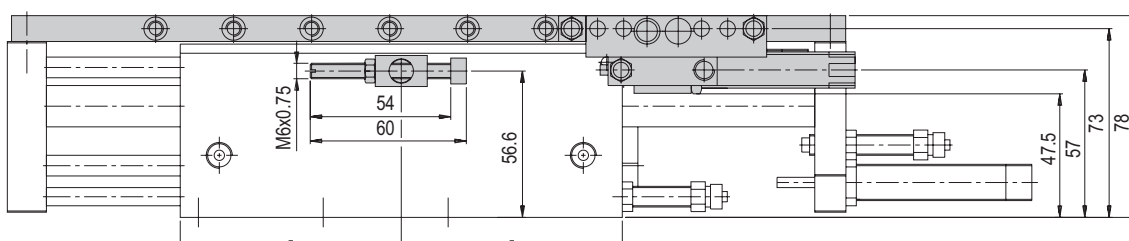
Type	ZA 20/25
A	ZA extended (rear)
B	Position SD
C	ZA retracted (front)
D	Base plate
E	Stop screw
F	Intermediate stop



ZA 20/25 - LM 20

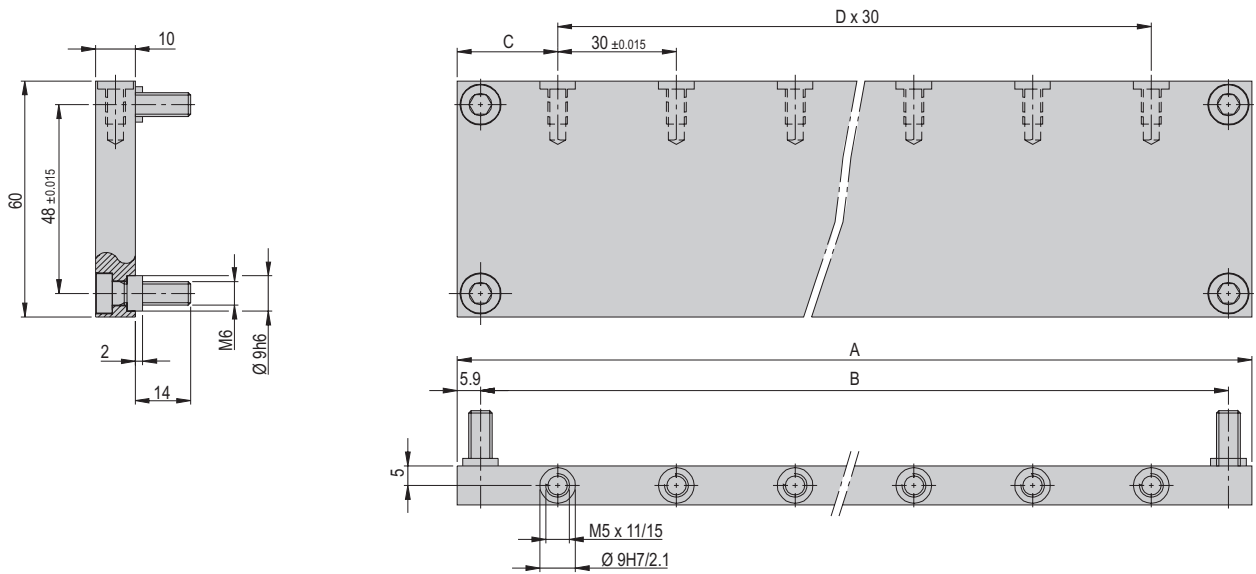


ZA 20/25 - LM 25



Accessories LM

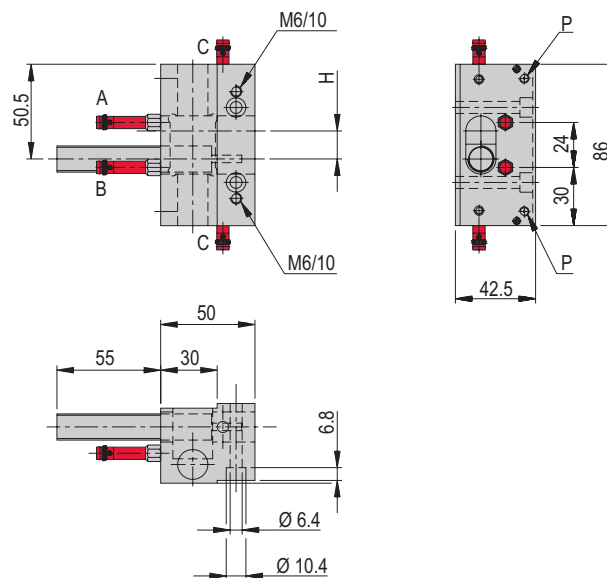
Base plate ZA LM 20 / LM 25	LM 20/60 LM 25/60	LM 20/90	LM 20/120 LM 25/120	LM 20/150	LM 20/200 LM 25/200
Order number	11011031	11011033	11011033	11011034	11011035
Net weight	0.34 kg	0.43 kg	0.53 kg	0.63 kg	0.84 kg
Number of interim attachments	1	1	1	1	1
A	200.8 mm	260.8 mm	320.8 mm	380.8 mm	480.8 mm
B	189 mm	249 mm	309 mm	369 mm	469 mm
C	25.4 mm	40.4 mm	55.4 mm	70.4 mm	90.4 mm
D	5	6	7	8	10



Note: No ZA is provided for the LM 20/30

Accessories LM

Intermediate stop ZA 32	ZA 32
Order number	11009325
Net weight	0.574 kg
A	ZA retracted (bottom)*
B	ZA extended (top)*
C	Shock absorber damped
H	15 mm
P	M5



Proximity switches

The technical data refer to a nominal pressure of 6 bar under Afag standard test conditions.
Note: A back or front stop rod, depending on the place of installation, must also be ordered.

*Proximity switch (optional)

Included in the delivery

(Catalogue HT accessories)

- 2x Mounting screw M6x45
- 1x Shock absorber SD M14x1 -1
- 2x Clamping nut M8x0.75

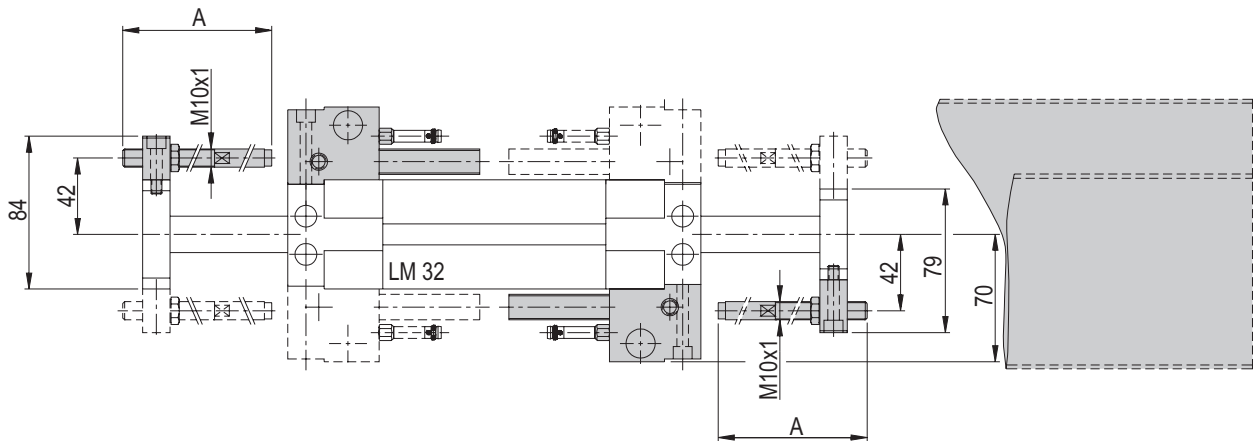
Accessories

- Back stop rod ZA 32 [p. 114]
 - Front stop rod ZA 32 [p. 113]
 - Narrow safety cover ZA 32 [p. 114]
 - Wide safety cover ZA 32 [p. 113]
- (Catalogue HT accessories)
- INI d6.5x44-Sn1.5-PNP-NO-M8x1

ZA 32

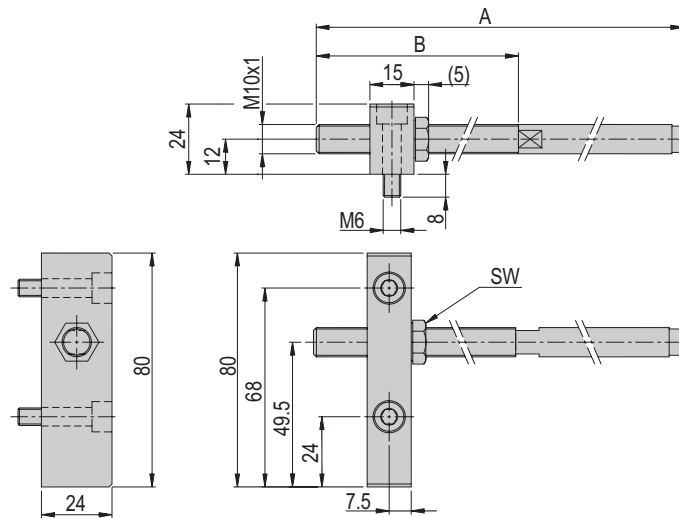
Should the ZA 32 be mounted up front to the LM 32 no extra safety cover is required. Mounted in the back depending on either one or both sides a «narrow» or «wide» cover is necessary. The covers have to be ordered seperately. The stop rods are needed for a continuous adjustability of the intermediate positions. It is recommended to always use the shortest possible stop rod.

Type	ZA 32/125	ZA 32/200	ZA 32/275
A	125 mm	200 mm	275 mm



Accessories LM

Front stop rod ZA 32	ZA 32/125	ZA 32/200	ZA 32/275
Order number	11010462	11010463	11010464
Net weight	0.139 kg	0.185 kg	0.23 kg
Suitable for	LM 32/100 LM 32/200 LM 32/300 LM 32/400	LM 32/200 LM 32/300 LM 32/400	LM 32/300 LM 32/400
A	125 mm	200 mm	275 mm
B	95 mm	95 mm	95 mm
SW	13 mm	13 mm	13 mm

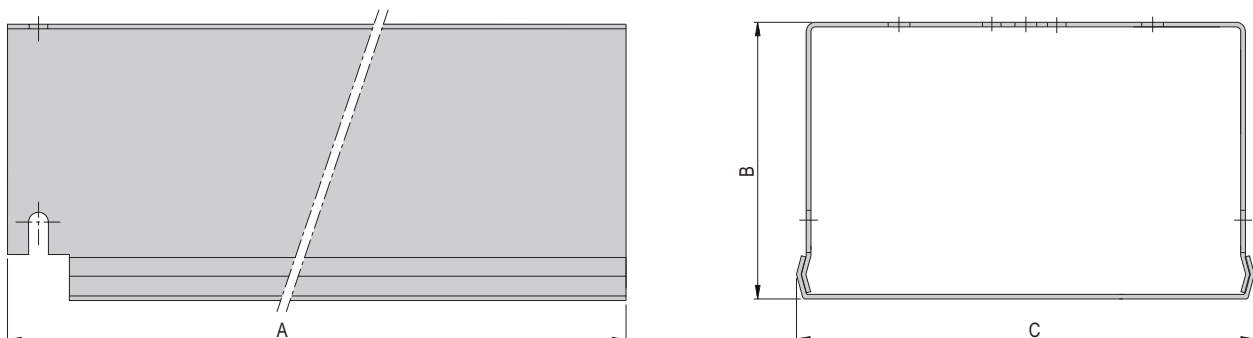


Included in the delivery

(Catalogue HT accessories)

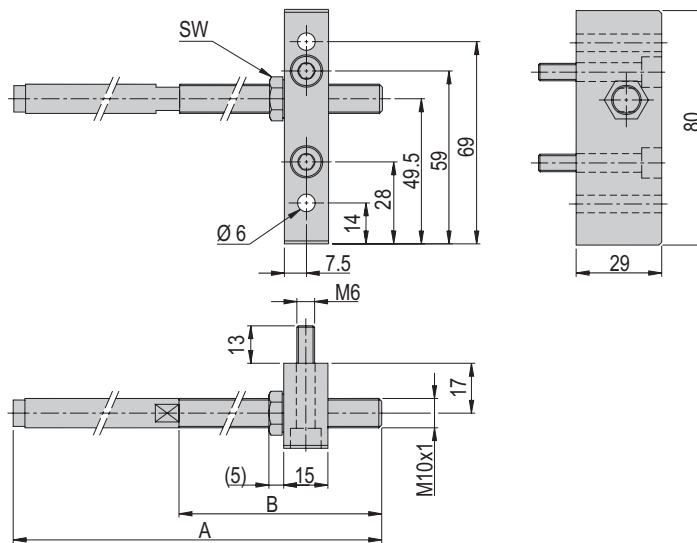
- 2 Mounting screw M6x25
- 1x Nut M10x1 for ZA 32

Wide safety cover ZA 32	ZA 32/100	ZA 32/200	ZA 32/300	ZA 32/400
Order number	11010473	11010472	11010471	11010470
Net weight	0.82 kg	0.63 kg	0.445 kg	0.26 kg
Suitable for	LM 32/100	LM 32/200	LM 32/300	LM 32/400
A	139 mm	239 mm	339 mm	439 mm
B	89 mm	89 mm	89 mm	89 mm
C	148 mm	148 mm	148 mm	148 mm



Accessories LM

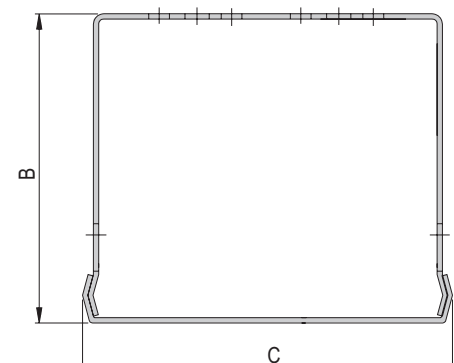
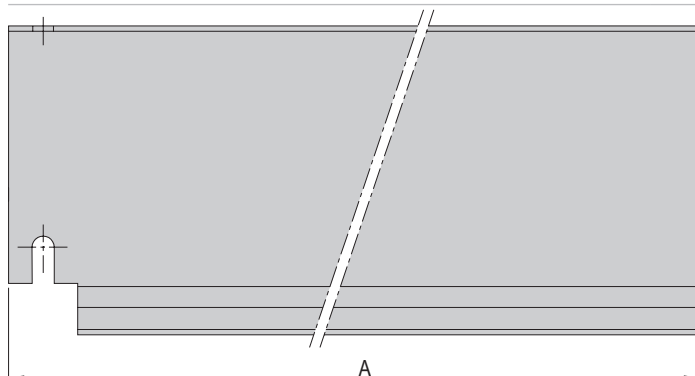
Back stop rod ZA 32	ZA 32/125	ZA 32/200	ZA 32/275
Order number	11009326	11009327	11009328
Net weight	0.15 kg	0.196 kg	0.241 kg
Suitable for	LM 32/100 LM 32/200 LM 32/300 LM 32/400	LM 32/200 LM 32/300 LM 32/400	LM 32/300 LM 32/400
A	125 mm	200 mm	275 mm
B	95 mm	95 mm	95 mm
SW	13 mm	13 mm	13 mm



Included in the delivery
(Catalogue HT accessories)

- 2 Mounting screw M6x25
- 1x Nut M10x1 for ZA 32

Narrow safety cover ZA 32	ZA 32/100	ZA 32/200	ZA 32/300	ZA 32/400
Order number	11010466	11010467	11010468	11010469
Net weight	0.22 kg	0.375 kg	0.53 kg	0.69 kg
Suitable for	LM 32/100	LM 32/200	LM 32/300	LM 32/400
A	139 mm	239 mm	339 mm	439 mm
B	89 mm	89 mm	89 mm	89 mm
C	108 mm	108 mm	108 mm	108 mm



Lifting modules HM

HM 10 - HM 25

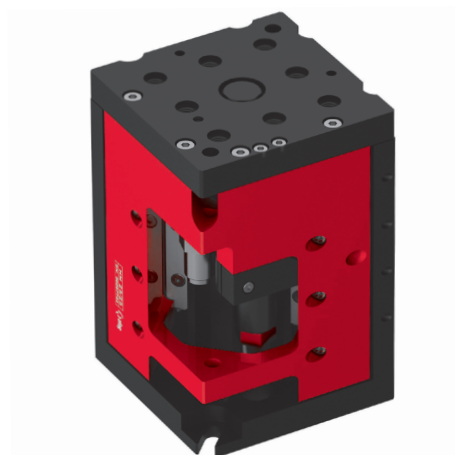
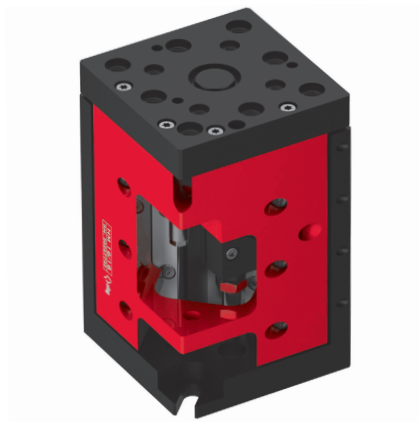
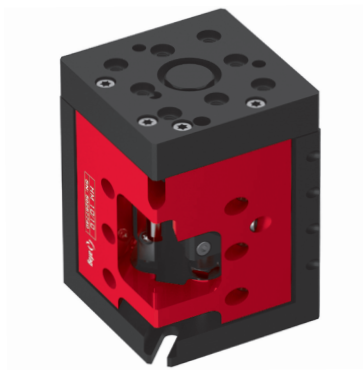
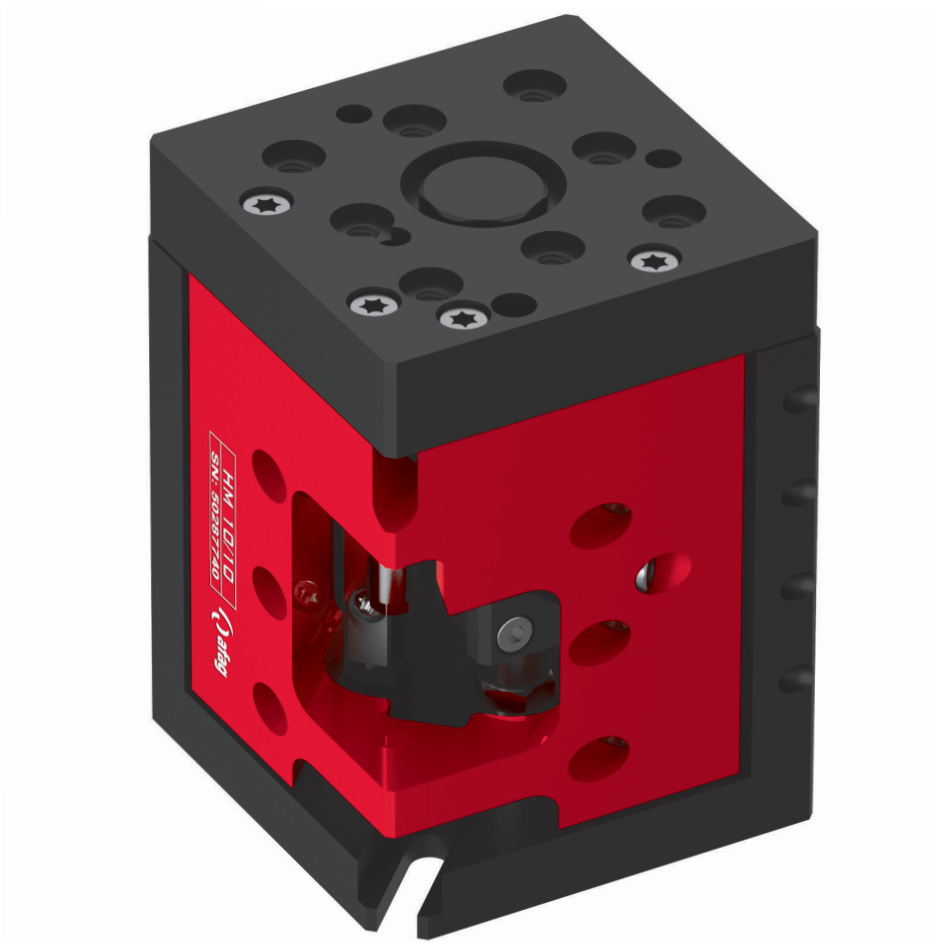


Table of contents: HM

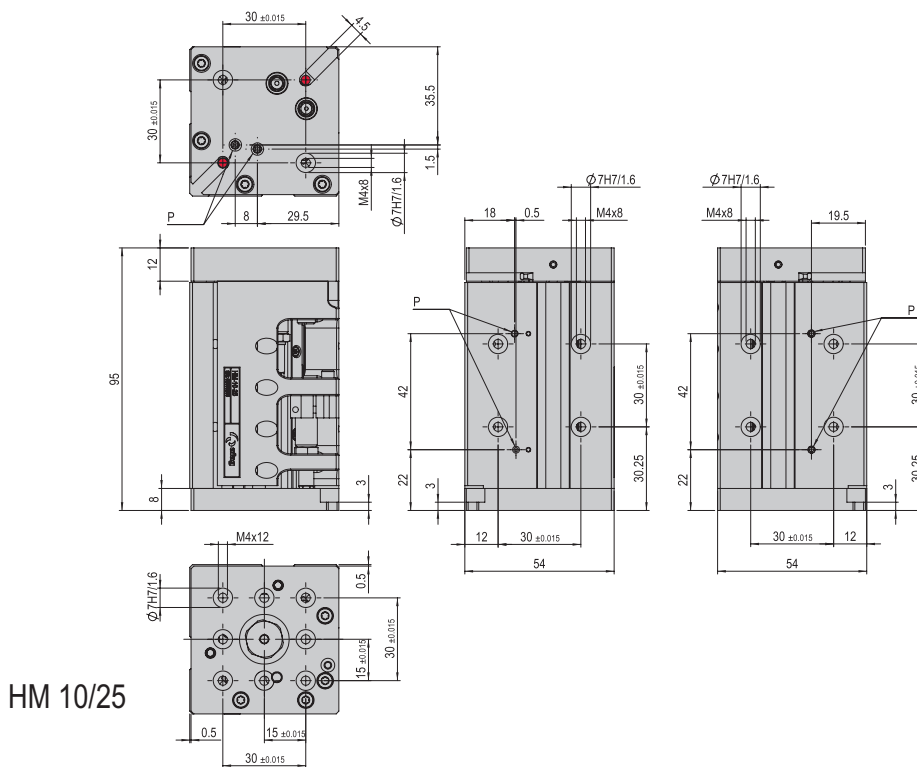
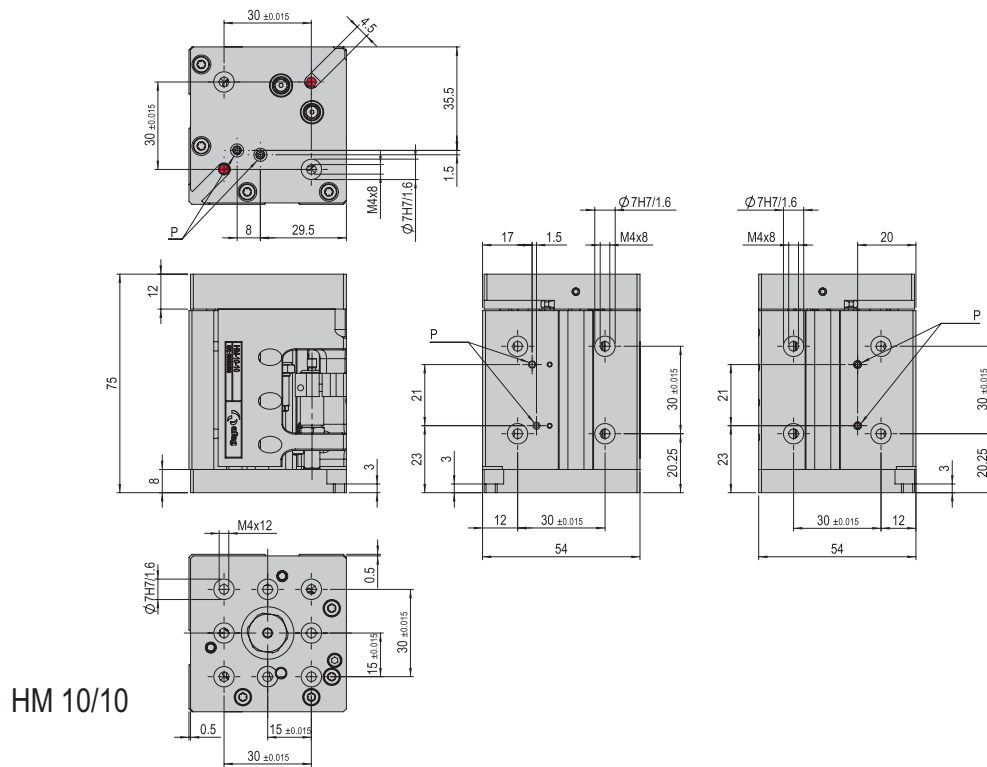
Lifting modules HM		Page
HM 10		123
HM 16		129
HM 25		135

Lifting modules HM

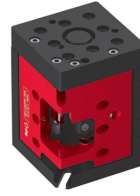
HM 10



- Torsion-resistant
- Short build
- Simple table installation



Bores can be screwed through



HM 10	
Attachment grid	30 x 30 mm
Attachment thread	M4
Operating pressure	6 +/- 2 bar
Air connection P	M3
Cylinder Ø	10 mm
Retract piston force	35 N
Extend piston force	47 N
Operating temperature	0 - 50 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %
Medium filtered compressed air	10 - 40 µm

Type	HM 10/10	HM 10/25
Order number	50287740	50287741
Stroke H	10 mm	25 mm
Net weight	0.519 kg	0.638 kg
Max. payload	1.2 kg	0.9 kg
Air consumption/cycle	0.007 NL	0.016 NL
Noise level	< 65 dB (A)	< 65 dB (A)
Repeat accuracy	+/- 0.01 mm	+/- 0.01 mm
Load balance (LA)	10 N	8.8 N
Mounting position	✦	✦

The technical data refer to a nominal pressure of 6 bar under Afag standard test conditions.
 Note: The load balance supports the extension stroke and damps the retraction stroke.
 The module can be operated with lubricated or dry air.
 Cleanroom class ISO 14644-1, class ISO 7

Included in the delivery

(Catalogue HT accessories)

- 2x Centering bushing Ø7x3
- 2x Mounting screw M4x8
- 2x Mounting screw M4x12
- 2x Washer M4
- 1x Shock absorber SD M6x0.5 -3
- 1x Stop sleeve ASH M8x1 -1

Accessories

(Catalogue HT accessories)

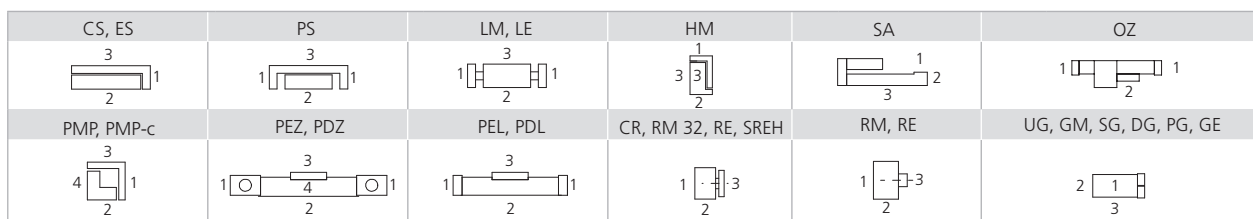
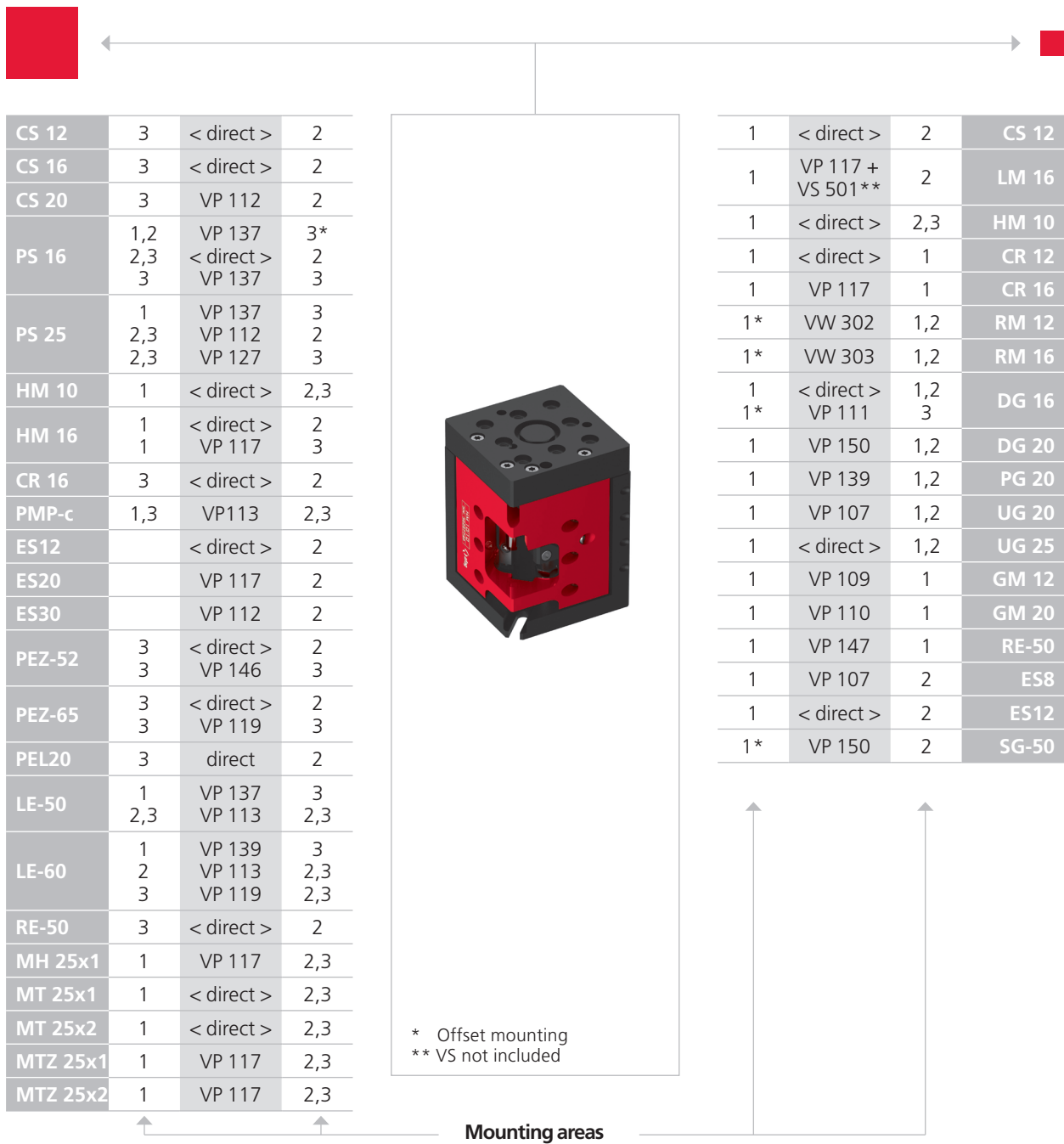
- Compressed air connection angled M3 x 0.5
- Compressed air connection straight M3 x 0.5
- INI c10x19.5-Em-PNP-NO-M8x1
- INI c10x9-Em-PNP-NO-M8x1

Alternative accessories

(Catalogue HT accessories)

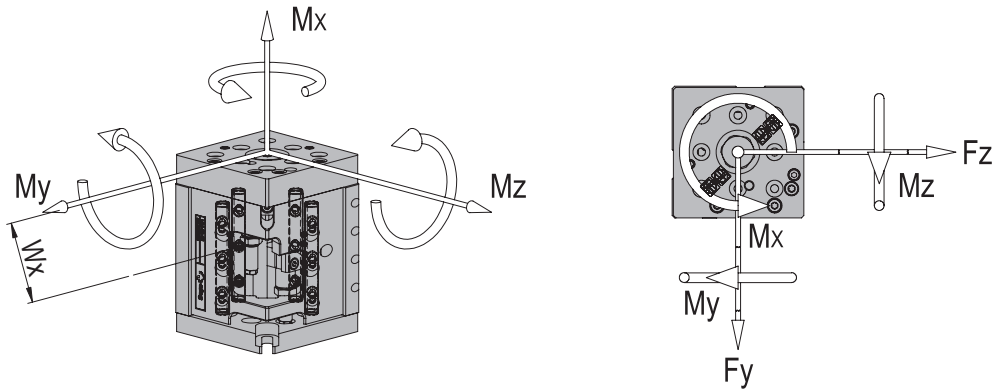
- INI c10x28.5-Em-PNP-NO-M8x1

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



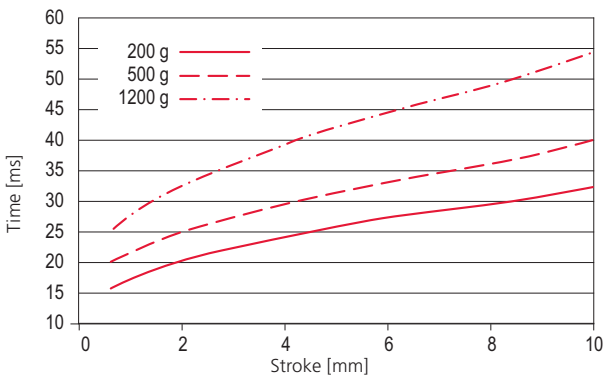
Note that there might be different mounting positions from one module to another one.
The required connection elements and the range of support columns are depicted in the catalogue HT accessories.

Type	HM 10/10	HM 10/25
Max. static torque M_x	11 Nm	14 Nm
Max. static torque M_y	7 Nm	7 Nm
Max. static torque M_z	7 Nm	7 Nm
Max. effective force F_y	180 N	150 N
Max. effective force F_z	180 N	150 N
Effective distance W_x	38 mm	45 mm

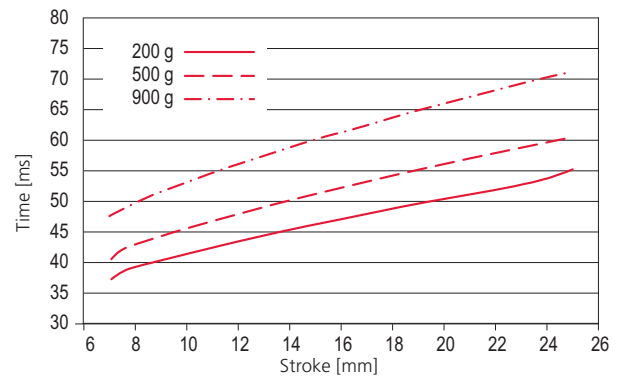


Operation time diagrams

Stroke times HM 10/10 extend vertically

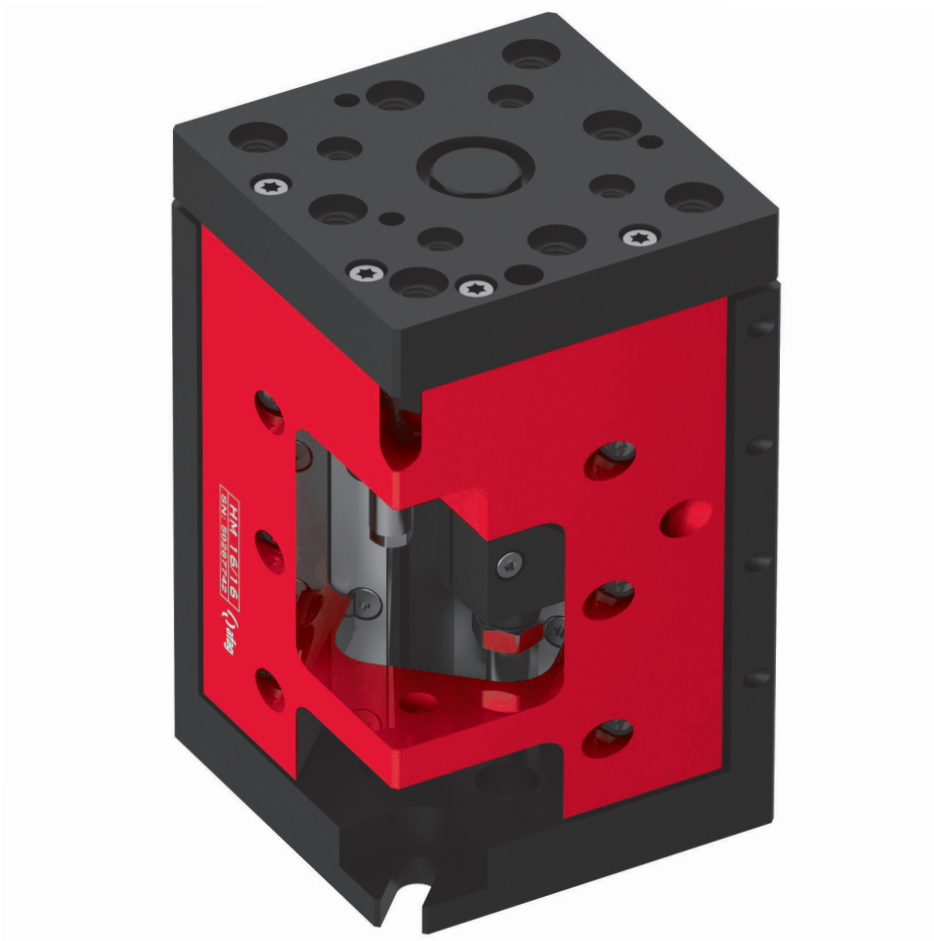


Stroke times HM 10/25 extend vertically

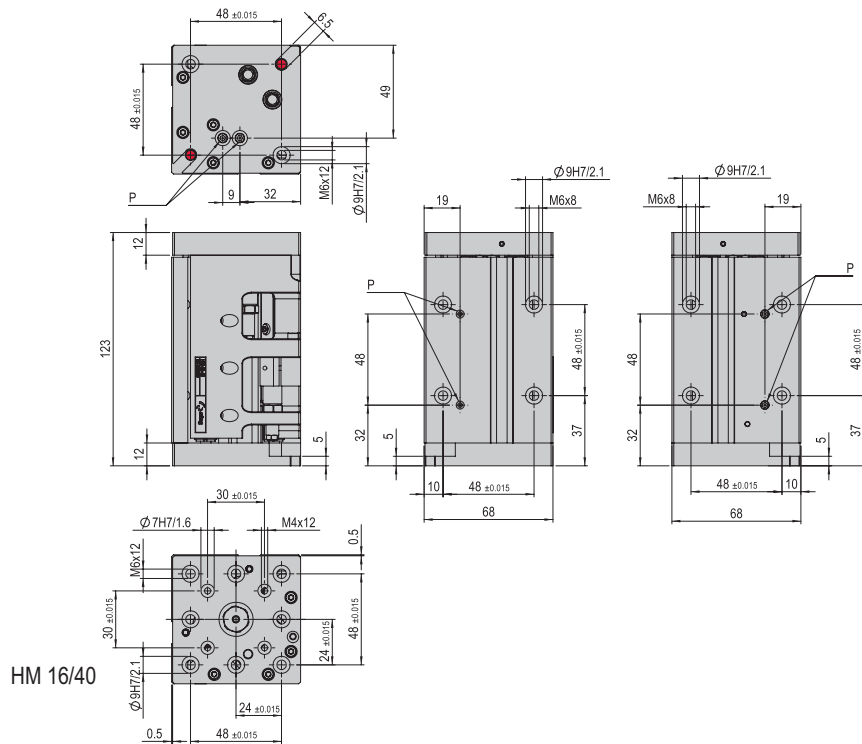
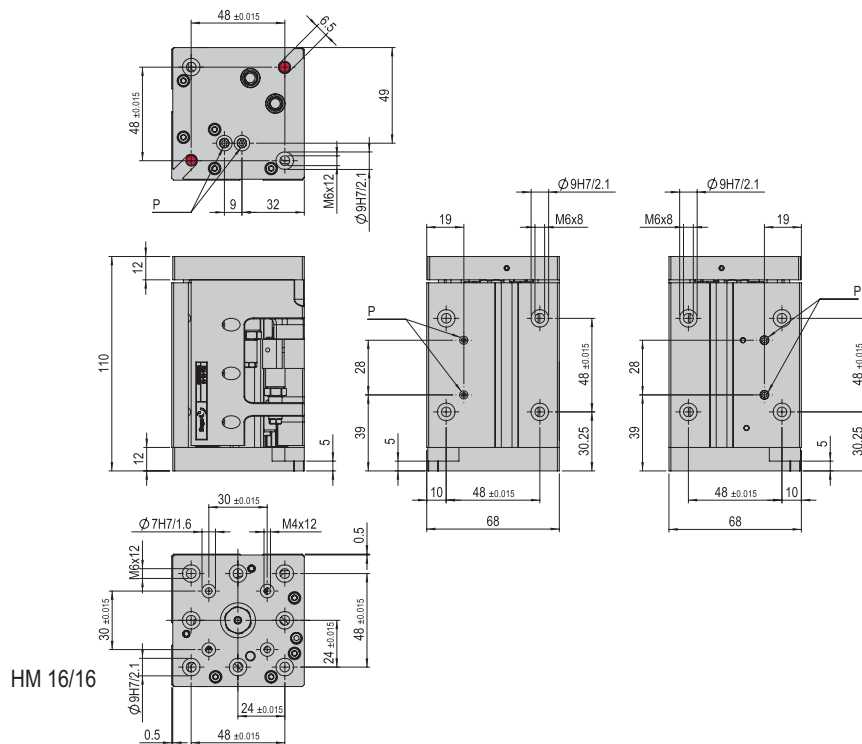



Lifting modules HM

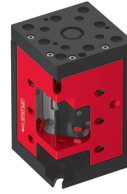
HM 16



- Torsion-resistant
- Short build
- Simple table installation



 Bores can be screwed through



HM 16	
Attachment grid	30 x 30 mm
Attachment grid alternative	48 x 48 mm
Attachment thread	M4
Attachment thread alternative	M6
Operating pressure	6 +/- 2 bar
Air connection P	M5
Cylinder Ø	16 mm
Retract piston force	103 N
Extend piston force	120 N
Operating temperature	0 - 50 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %
Medium filtered compressed air	10 - 40 µm

Type	HM 16/16	HM 16/40
Order number	50287742	50287743
Stroke H	16 mm	40 mm
Net weight	1.208 kg	1.321 kg
Max. payload	4 kg	3 kg
Air consumption/cycle	0.028 NL	0.069 NL
Noise level	< 65 dB (A)	< 65 dB (A)
Repeat accuracy	+/- 0.01 mm	+/- 0.01 mm
Load balance (LA)	30 N	25 N
Mounting position	↕	↕

The technical data refer to a nominal pressure of 6 bar under Afag standard test conditions.
 Note: The load balance supports the extension stroke and damps the retraction stroke.
 The module can be operated with lubricated or dry air.
 Cleanroom class ISO 14644-1, class ISO 7

Included in the delivery

(Catalogue HT accessories)

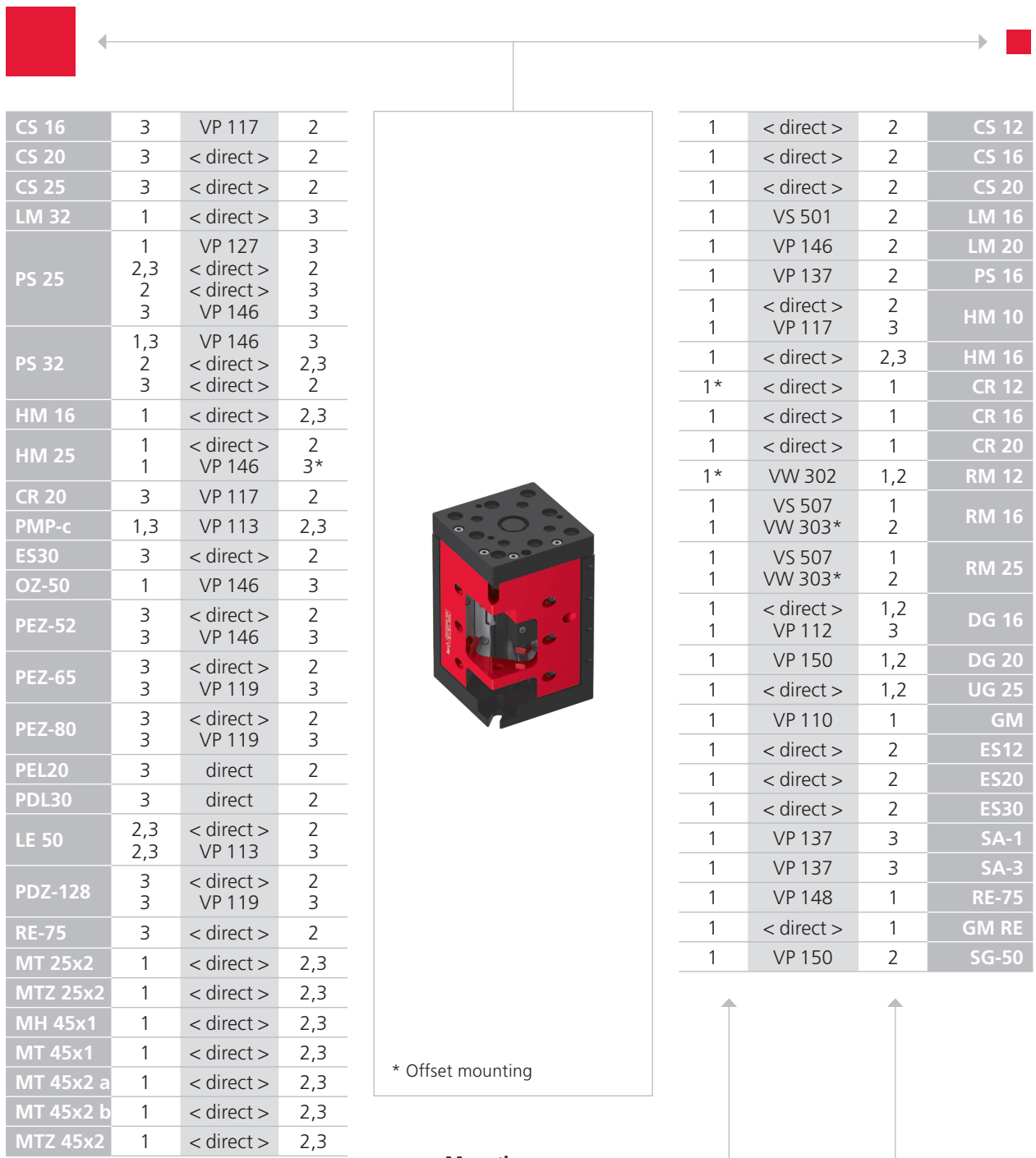
- 2x Centering bushing Ø9x4
- 2x Mounting screw M6x16
- 2x Washer M6
- 1x Stop sleeve ASH M10x1 -2
- 1x Shock absorber SD M8x1 -5

Accessories

(Catalogue HT accessories)

- INI c10x19.5-Em-PNP-NO-M8x1
- INI c10x9-Em-PNP-NO-M8x1
- INI c10x28.5-Em-PNP-NO-M8x1

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



CS 16	3	VP 117	2
CS 20	3	< direct >	2
CS 25	3	< direct >	2
LM 32	1	< direct >	3
PS 25	1	VP 127	3
	2,3	< direct >	2
	2	< direct >	3
	3	VP 146	3
PS 32	1,3	VP 146	3
	2	< direct >	2,3
	3	< direct >	2
HM 16	1	< direct >	2,3
HM 25	1	< direct >	2
	1	VP 146	3*
CR 20	3	VP 117	2
PMP-c	1,3	VP 113	2,3
ES30	3	< direct >	2
OZ-50	1	VP 146	3
PEZ-52	3	< direct >	2
	3	VP 146	3
PEZ-65	3	< direct >	2
	3	VP 119	3
PEZ-80	3	< direct >	2
	3	VP 119	3
PEL20	3	direct	2
PDL30	3	direct	2
LE 50	2,3	< direct >	2
	2,3	VP 113	3
PDZ-128	3	< direct >	2
	3	VP 119	3
RE-75	3	< direct >	2
MT 25x2	1	< direct >	2,3
MTZ 25x2	1	< direct >	2,3
MH 45x1	1	< direct >	2,3
MT 45x1	1	< direct >	2,3
MT 45x2 a	1	< direct >	2,3
MT 45x2 b	1	< direct >	2,3
MTZ 45x2	1	< direct >	2,3

1	< direct >	2	CS 12
1	< direct >	2	CS 16
1	< direct >	2	CS 20
1	VS 501	2	LM 16
1	VP 146	2	LM 20
1	VP 137	2	PS 16
1	< direct >	2	HM 10
1	VP 117	3	
1	< direct >	2,3	HM 16
1*	< direct >	1	CR 12
1	< direct >	1	CR 16
1	< direct >	1	CR 20
1*	VW 302	1,2	RM 12
1	VS 507	1	RM 16
1	VW 303*	2	
1	VS 507	1	RM 25
1	VW 303*	2	
1	< direct >	1,2	DG 16
1	VP 112	3	
1	VP 150	1,2	DG 20
1	< direct >	1,2	UG 25
1	VP 110	1	GM
1	< direct >	2	ES12
1	< direct >	2	ES20
1	< direct >	2	ES30
1	VP 137	3	SA-1
1	VP 137	3	SA-3
1	VP 148	1	RE-75
1	< direct >	1	GM RE
1	VP 150	2	SG-50

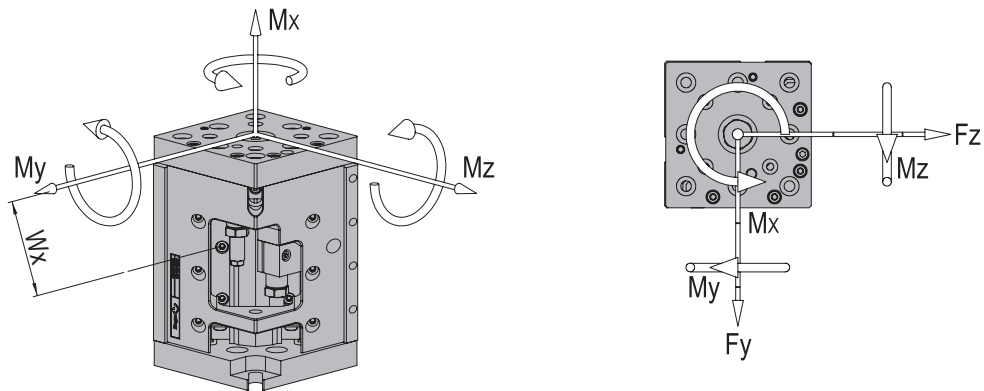
* Offset mounting

Mounting areas

CS, ES 	PS 	LM, LE 	HM 	SA 	OZ
PMP, PMP-c 	PEZ, PDZ 	PEL, PDL 	CR, RM 32, RE, SREH 	RM, RE 	UG, GM, SG, DG, PG, GE

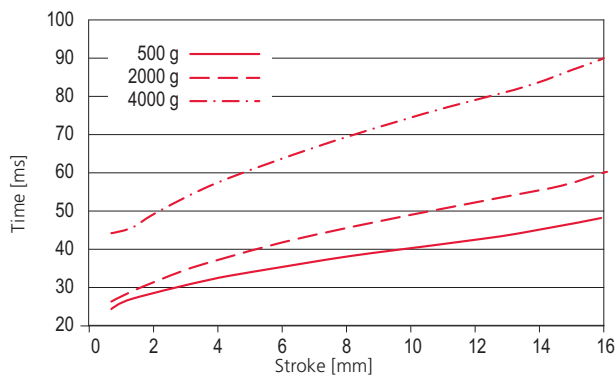
Note that there might be different mounting positions from one module to another one.
The required connection elements and the range of support columns are depicted in the catalogue HT accessories.

Type	HM 16/16	HM 16/40
Max. static torque M_x	30 Nm	30 Nm
Max. static torque M_y	20 Nm	22 Nm
Max. static torque M_z	20 Nm	22 Nm
Max. effective force F_y	380 N	420 N
Max. effective force F_z	380 N	420 N
Effective distance W_x	51.5 mm	51 mm

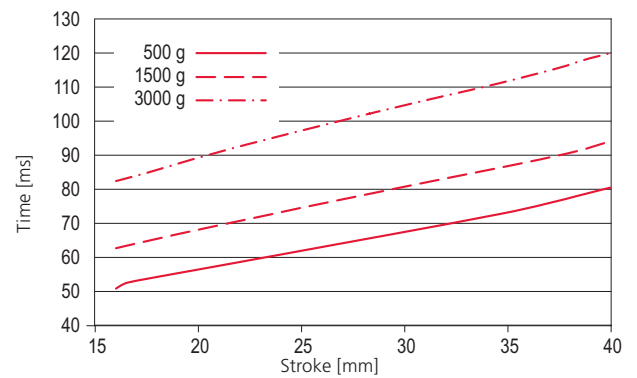


Operation time diagrams

Stroke times HM 16/16 extend vertically

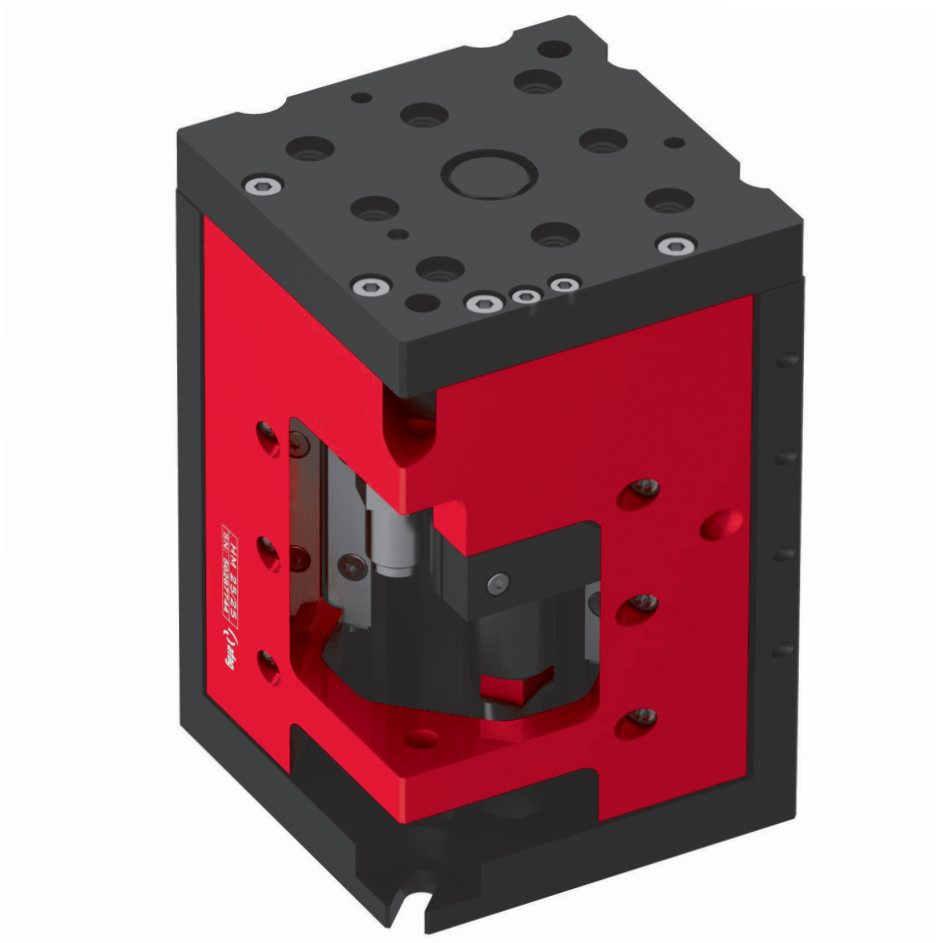


Stroke times HM 16/40 extend vertically

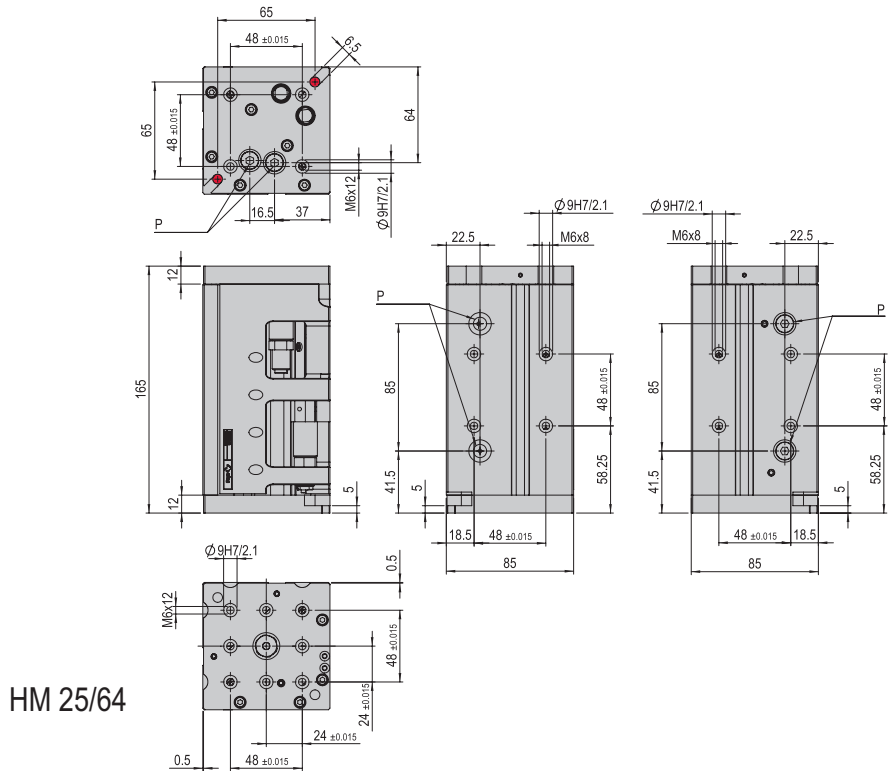
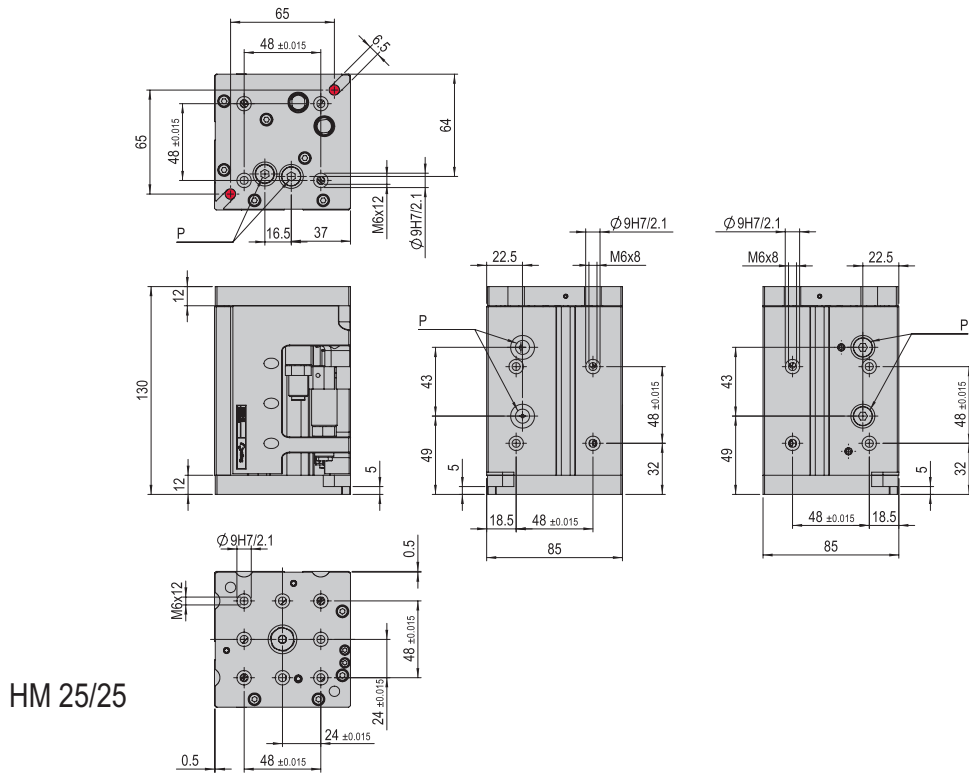



Lifting modules HM

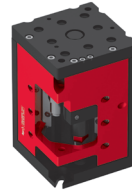
HM 25



- Torsion-resistant
- Short build
- Simple table installation



 Bores can be screwed through



HM 25	
Attachment grid	48 x 48 mm
Attachment thread	M6
Operating pressure	6 +/- 2 bar
Air connection P	G 1/8 "
Cylinder Ø	25 mm
Retract piston force	247 N
Extend piston force	295 N
Operating temperature	0 - 50 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %
Medium filtered compressed air	10 - 40 µm

Type	HM 25/25	HM 25/64
Order number	50287744	50287745
Stroke H	25 mm	64 mm
Net weight	2.168 kg	2.661 kg
Max. payload	10 kg	9 kg
Air consumption/cycle	0.104 NL	0.266 NL
Noise level	< 65 dB (A)	< 65 dB (A)
Repeat accuracy	+/- 0.01 mm	+/- 0.01 mm
Load balance (LA)	70 N	70 N
Mounting position	✦	✦

The technical data refer to a nominal pressure of 6 bar under Afag standard test conditions.
 Note: The load balance supports the extension stroke and damps the retraction stroke.
 The module can be operated with lubricated or dry air.
 Cleanroom class ISO 14644-1, class ISO 7

Included in the delivery

(Catalogue HT accessories)

- 2x Centering bushing Ø9x4
- 2x Mounting screw M6x16
- 2x Stop sleeve ASH M16x1 -1
- 2x Washer M6
- 2x Shock absorber SD M12x1 -1

Accessories

(Catalogue HT accessories)

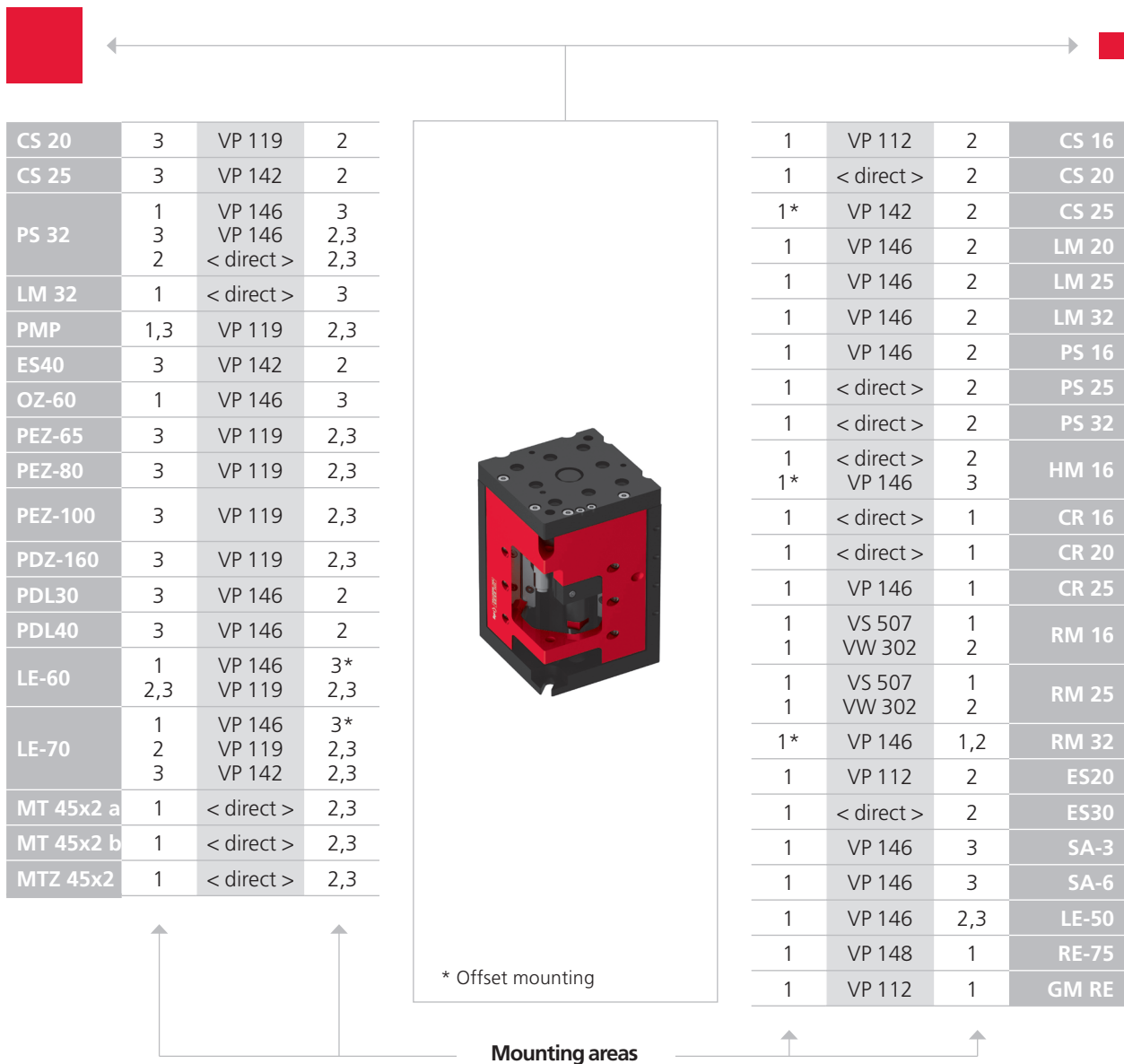
- INI c10x9-Em-PNP-NO-M8x1
- INI c10x28.5-Em-PNP-NO-M8x1

Alternative accessories

(Catalogue HT accessories)

- INI c10x19.5-Em-PNP-NO-M8x1

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



CS 20	3	VP 119	2
CS 25	3	VP 142	2
PS 32	1	VP 146	3
	3	VP 146	2,3
	2	< direct >	2,3
LM 32	1	< direct >	3
PMP	1,3	VP 119	2,3
ES40	3	VP 142	2
OZ-60	1	VP 146	3
PEZ-65	3	VP 119	2,3
PEZ-80	3	VP 119	2,3
PEZ-100	3	VP 119	2,3
PDZ-160	3	VP 119	2,3
PDL30	3	VP 146	2
PDL40	3	VP 146	2
LE-60	1	VP 146	3*
	2,3	VP 119	2,3
LE-70	1	VP 146	3*
	2	VP 119	2,3
	3	VP 142	2,3
MT 45x2 a	1	< direct >	2,3
MT 45x2 b	1	< direct >	2,3
MTZ 45x2	1	< direct >	2,3

1	VP 112	2	CS 16
1	< direct >	2	CS 20
1*	VP 142	2	CS 25
1	VP 146	2	LM 20
1	VP 146	2	LM 25
1	VP 146	2	LM 32
1	VP 146	2	PS 16
1	< direct >	2	PS 25
1	< direct >	2	PS 32
1	< direct >	2	HM 16
1*	VP 146	3	
1	< direct >	1	CR 16
1	< direct >	1	CR 20
1	VP 146	1	CR 25
1	VS 507	1	RM 16
1	VW 302	2	
1	VS 507	1	RM 25
1	VW 302	2	
1*	VP 146	1,2	RM 32
1	VP 112	2	ES20
1	< direct >	2	ES30
1	VP 146	3	SA-3
1	VP 146	3	SA-6
1	VP 146	2,3	LE-50
1	VP 148	1	RE-75
1	VP 112	1	GM RE

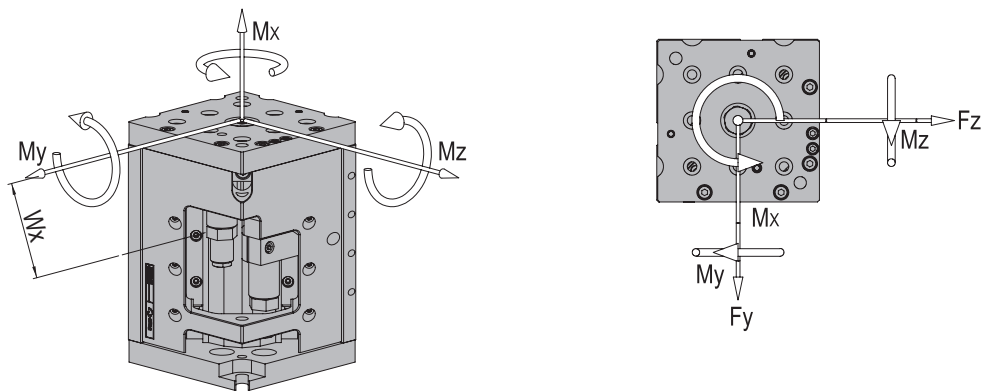
* Offset mounting

Mounting areas

CS, ES 3 1 2	PS 3 1 2	LM, LE 3 1 2	HM 1 3 2	SA 1 2 3	OZ 1 2 1
PMP, PMP-c 3 4 2	PEZ, PDZ 3 1 4 2	PEL, PDL 3 1 2	CR, RM 32, RE, SREH 1 2 3	RM, RE 1 2 3	UG, GM, SG, DG, PG, GE 2 1 3

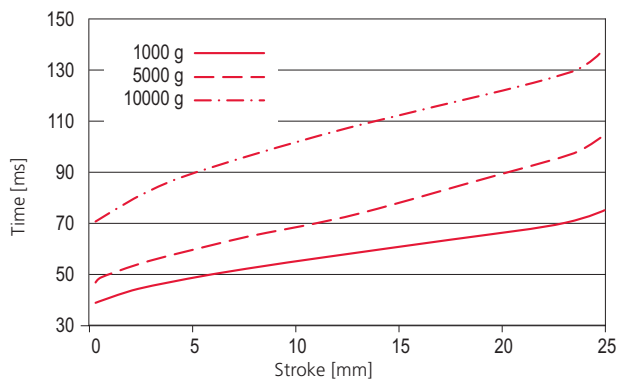
Note that there might be different mounting positions from one module to another one.
The required connection elements and the range of support columns are depicted in the catalogue HT accessories.

Type	HM 25/25	HM 25/64
Max. static torque M_x	50 Nm	56 Nm
Max. static torque M_y	25 Nm	27 Nm
Max. static torque M_z	25 Nm	27 Nm
Max. effective force F_y	410 N	400 N
Max. effective force F_z	410 N	400 N
Effective distance W_x	60 mm	66.5 mm

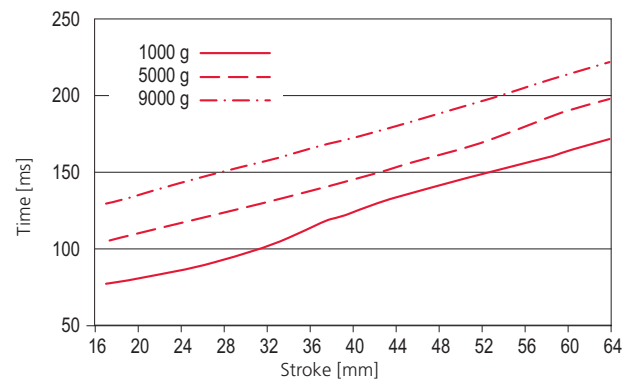


Operation time diagrams

Stroke times HM 25/25 extend vertically



Stroke times HM 25/64 extend vertically



Gantry modules pneumatic PMP

PMP & PMP-c

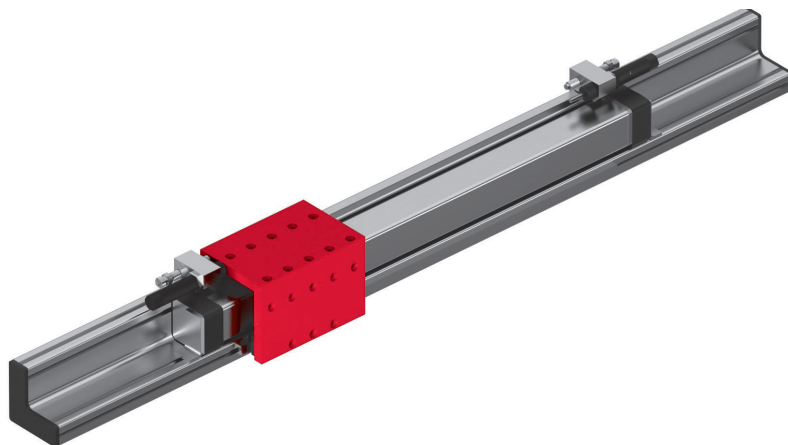
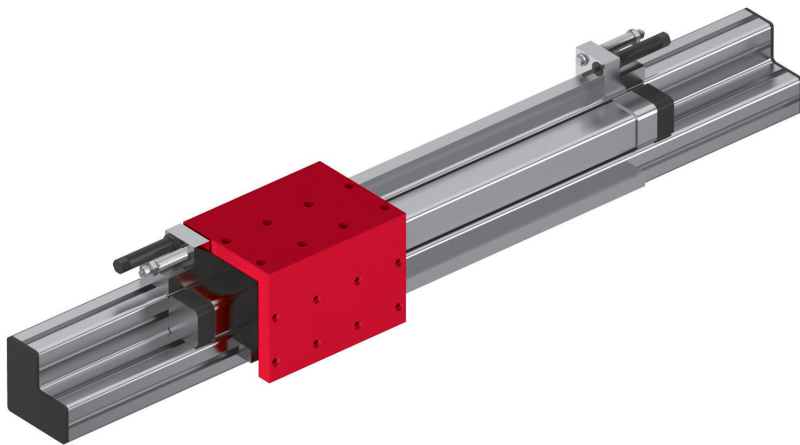


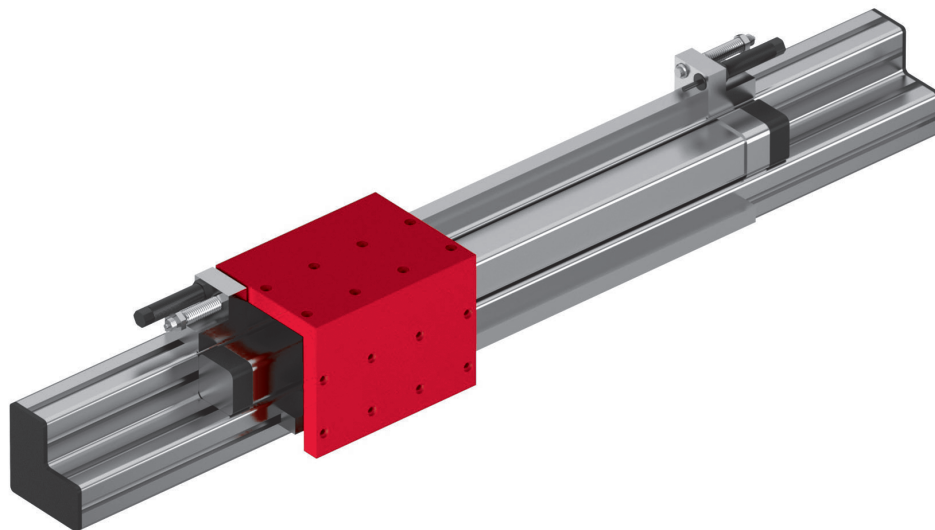
Table of contents: PMP & PMP-c

Gantry modules pneumatic PMP & PMP-c		Page
PMP		143
PMP-c		151
Accessories PMP & PMP-c		157

Gantry modules pneumatic PMP

PMP

5

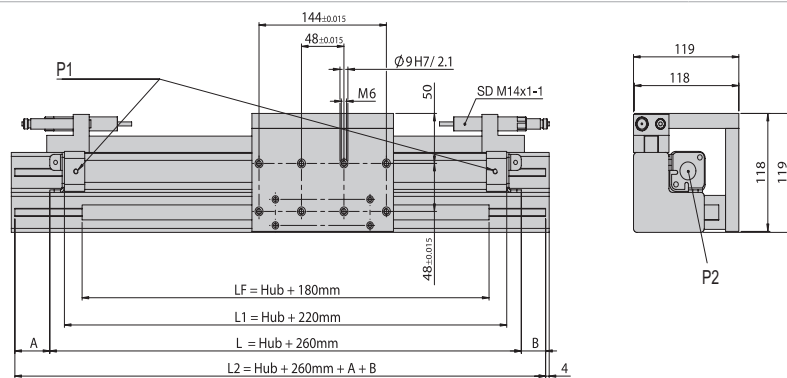


- Millimetre-accurate strokes
- Rigid construction
- Self-supporting profile
- Intermediate stop for any number of positions

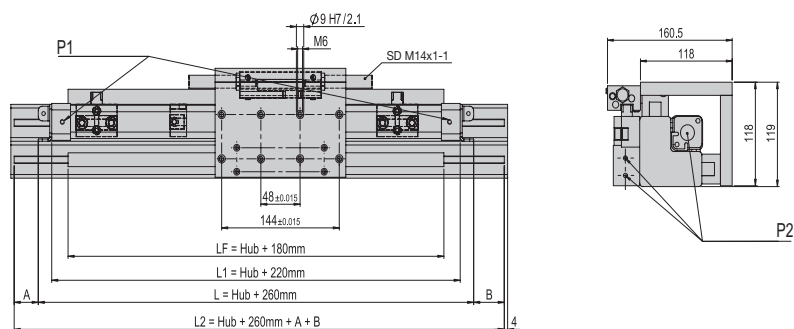
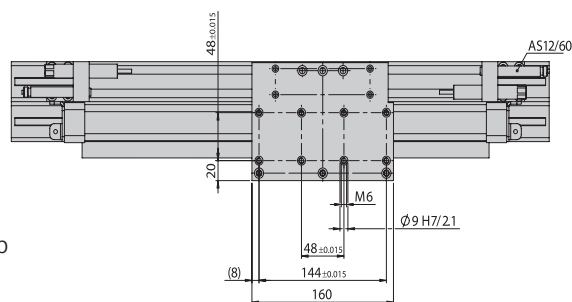
Dimensions and dimension drawings

PMP

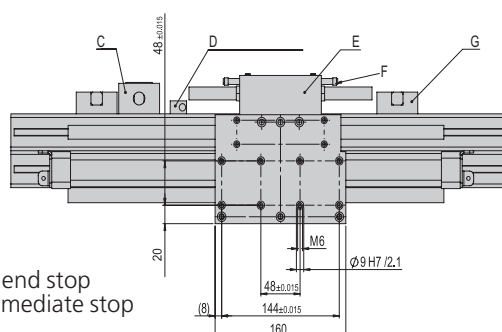
Type	PMP 01	PMP 02
A	Mounting protrusion 1	Mounting protrusion 1
B	Mounting protrusion 2	Mounting protrusion 2
C		
D		Proximity switch bracket
E		
F		
G		End stop
P1	G1/8 "	G1/8 "
P2	M5	M5

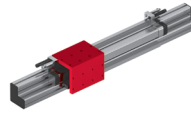


PMP 01
Fix end stop



PMP 02
Adjustable end stop
plus 1 intermediate stop





PMP	
Attachment grid	48 x 48 mm
Attachment thread	M6
Operating pressure	6 +/-2 bar
Air connection P	M5 / G 1/8 "
Cylinder Ø	25 mm
Operating temperature	0 - 50 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %

Type	PMP 01	PMP 02
Order number	11000105	11000106
Max. stroke	3000 mm	3000 mm
Net weight	6 kg	9.1 kg
Moving weight	1.87 kg	2.33 kg
Weight/100 mm stroke	1.11 kg	1.11 kg
Module weight, 0 mm stroke	6 kg	6 kg
Max. payload	*15 kg	*15 kg
Air consumption/100 mm stroke	0.25 NL	0.25 NL
Piston force	250 N	250 N
Repeat accuracy	+/- 0.1 mm	+/- 0.1 mm
Max. profile length	6000 mm	6000 mm
Mounting position	↔	↔

The technical data refer to a nominal pressure of 6 bar under Afag standard test conditions.

Note: Also included in the PMP 02 scope of delivery:

- 1 x stop slide PMP
- 2 x end stops PMP
- 1 x intermediate stop PMP

*Observe operation time diagram

**0 mm stroke

Included in the delivery

(Catalogue HT accessories)

- 2x Shock absorber SD M14x1 -1
- 2x Stop screw AS 12/60

Accessories

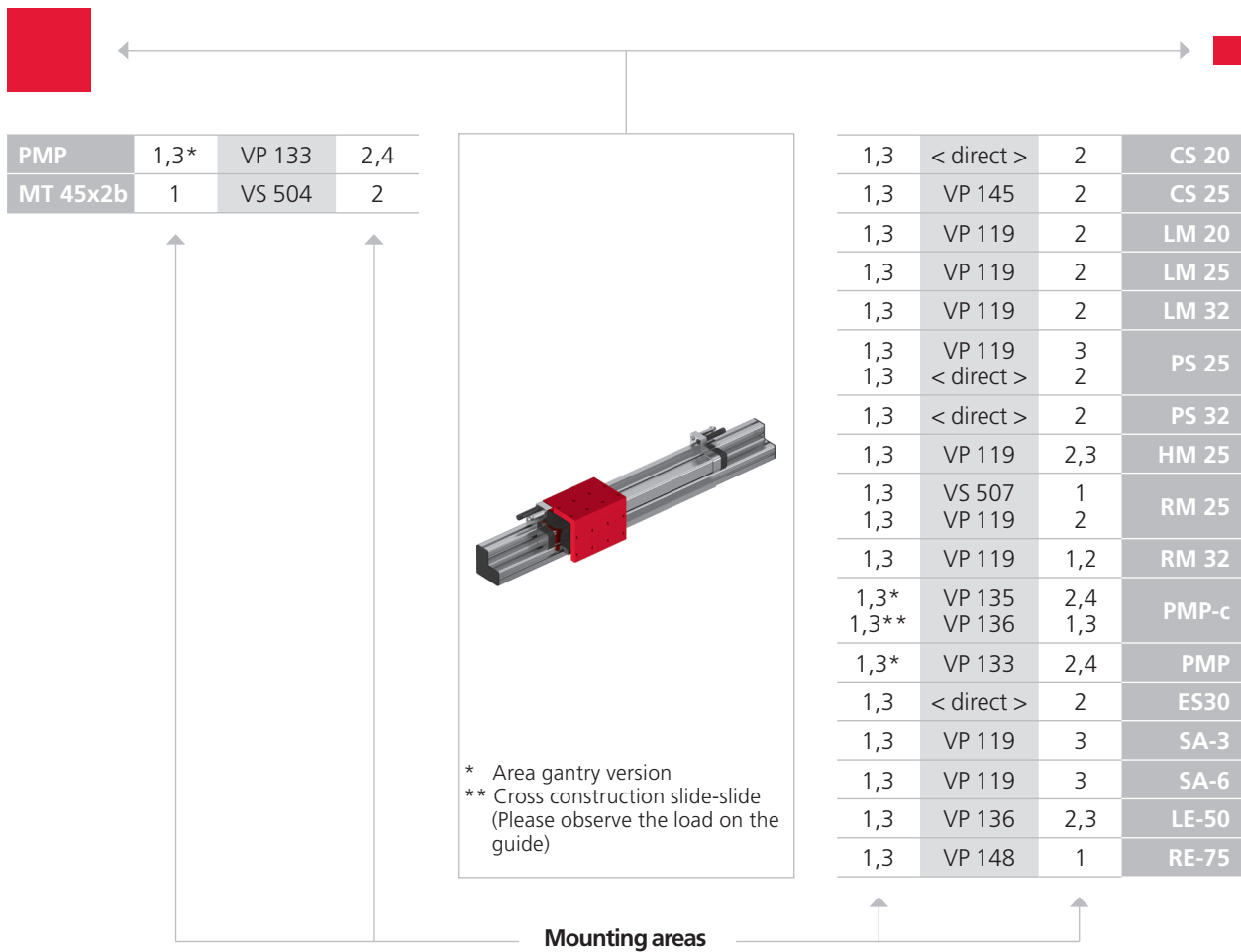
- Stop slide PMP [p. 153]
- Safety brake PMP [p. 153]
- Intermediate stop PMP [p. 154]
- Fine adjustment PMP [p. 154]
- End stop PMP [p. 154]
- Proximity switch bracket PMP [p. 154]
- Cover cap 40 x 40 [p. 155]
- Cover cap 40 x 80 [p. 155]
- Angle profile PMP [p. 155]
- Lubricator adapter PMP [p. 155]

(Catalogue HT accessories)

- T-nut M8
- INI d6.5x44-Sn1.5-PNP-NO-M8x1

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

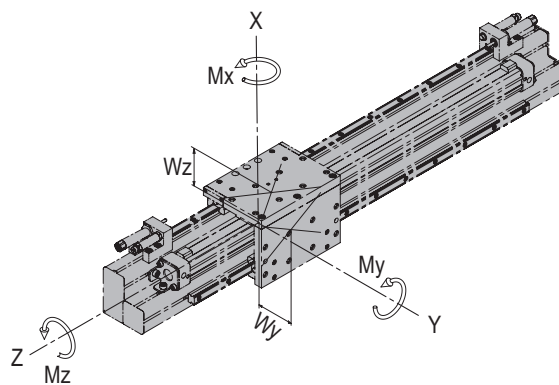
afag.com



CS, ES	PS	LM, LE	HM	SA	OZ
PMP, PMP-c	PEZ, PDZ	PEL, PDL	CR, RM 32, RE, SREH	RM, RE	UG, GM, SG, DG, PG, GE

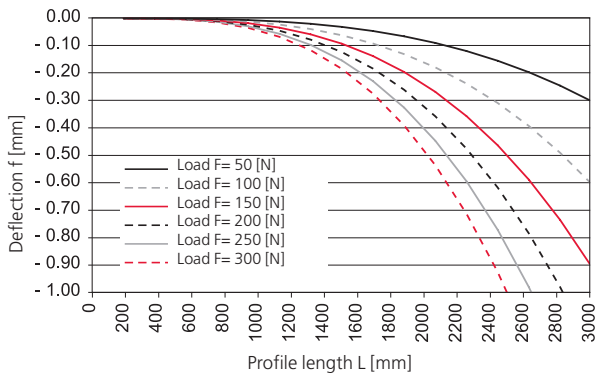
Note that there might be different mounting positions from one module to another one.
 The required connection elements and the range of support columns are depicted in the catalogue HT accessories.

Type	PMP 01	PMP 02
Max. static torque M_x	380 Nm	380 Nm
Max. static torque M_y	380 Nm	380 Nm
Max. static torque M_z	650 Nm	650 Nm
Max. dynamic torque M_x	26.5 Nm	26.5 Nm
Max. dynamic torque M_y	26.5 Nm	26.5 Nm
Max. dynamic torque M_z	40 Nm	40 Nm
Effective distance W_y	40 mm	40 mm
Effective distance W_z	40 mm	40 mm

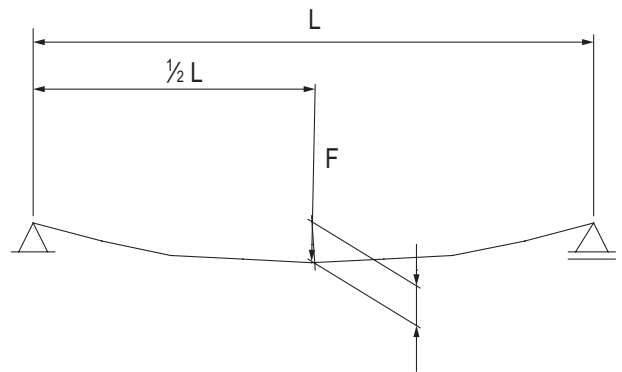


PMP diagrams

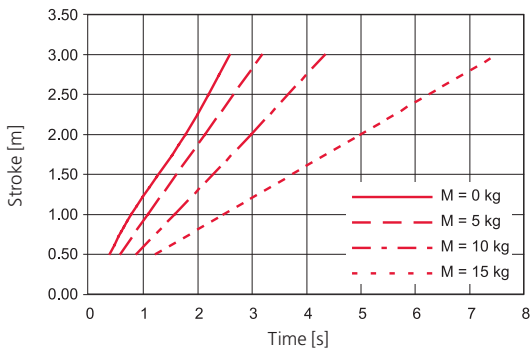
Angle profile deflection, load case static

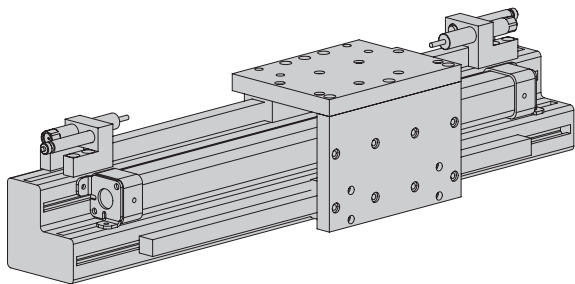


Angle profile deflection, load case static



Angle profile deflection, load case static



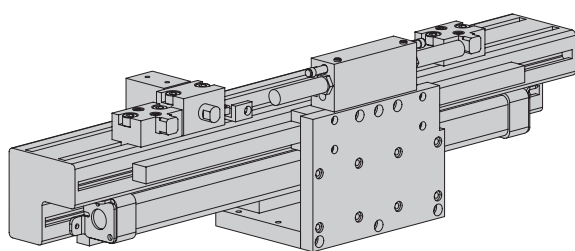
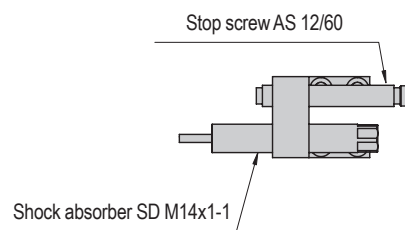
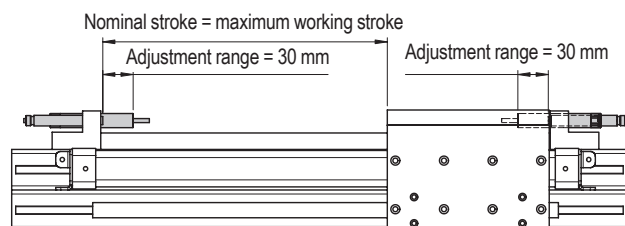


PMP 01

Version with pneumatic cylinder and two fixed limit stops.

Determination of the stroke for PMP 01

The maximum work area is determined with the nominal stroke data. We recommend a stroke reserve for the determination of the nominal stroke. The adjustment range of the stop screws is up to 30 mm per stop side.



PMP 02

Version with pneumatic cylinder and adjustable intermediate and end stops.

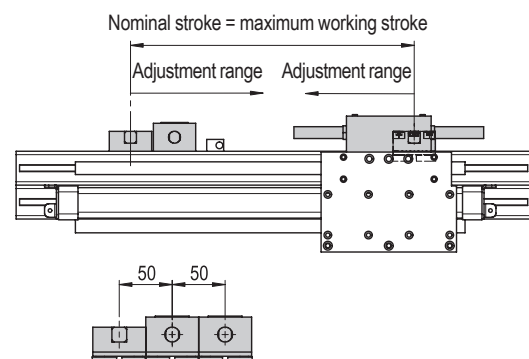
Determination of the stroke for PMP 02

With the information of nominal stroke, you determine the maximum field of action. We recommend adding some extra stroke depending on the application.

Due to the slideable end stops the work area can be limited. Please note that a minimal grid of 50 mm is given when using more than one intermediate stop.

Please contact out technicians for tasks that require a smaller grid.

If pneumatic cylinders are measured by the means of magnetic switches a minimum gap of 60 mm is necessary.



Order form	PMP-Version	XXXXXXXX	XXXX	XXXX	XXXX
			stroke	Maß A	Maß B

Ordering example 1

PMP 01	11000105	1500 mm	500 mm	800 mm
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Ordering example 2

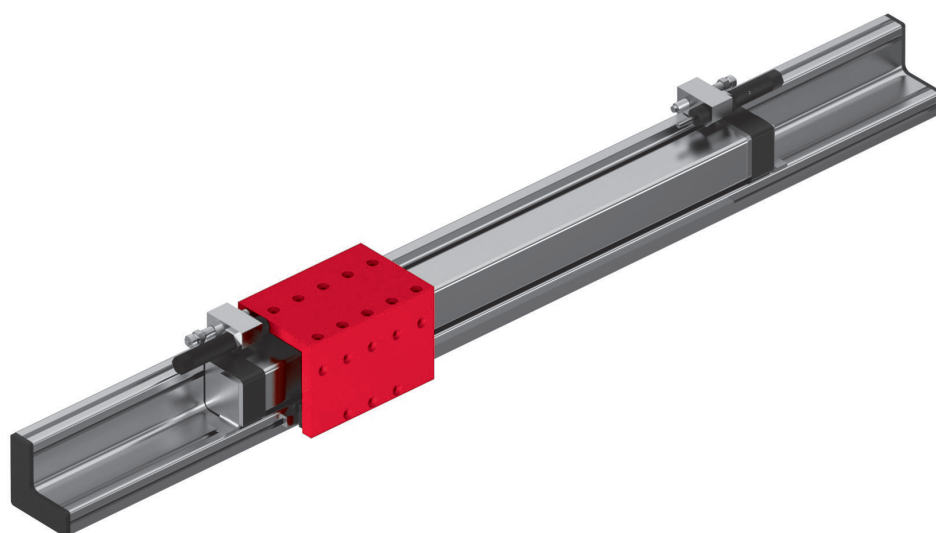
PMP 02	11000106	3000 mm	100 mm	100 mm
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Ordering process

- Select the desired PMP version, the stroke length, dimension A and dimension B.
- Enter the corresponding red order number in the order form in the place of the cross.
- Enter the corresponding lengths in mm for the stroke as well as dimensions A and B (also in mm) in the order form in the place of the cross.

Gantry modules pneumatic PMP

PMP-C

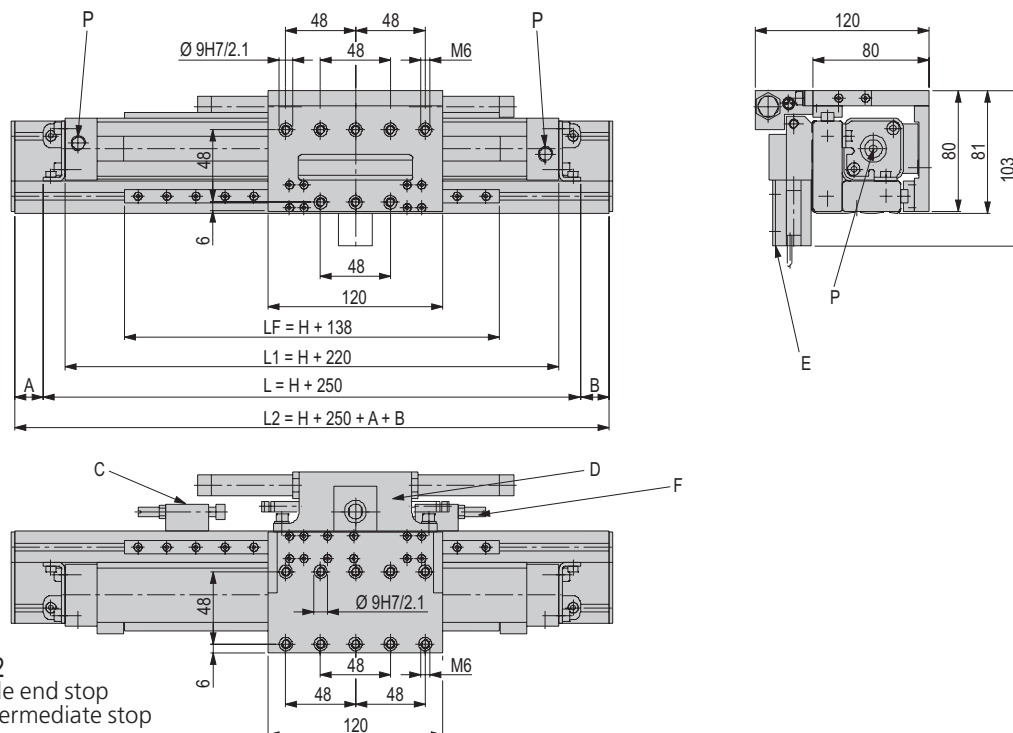
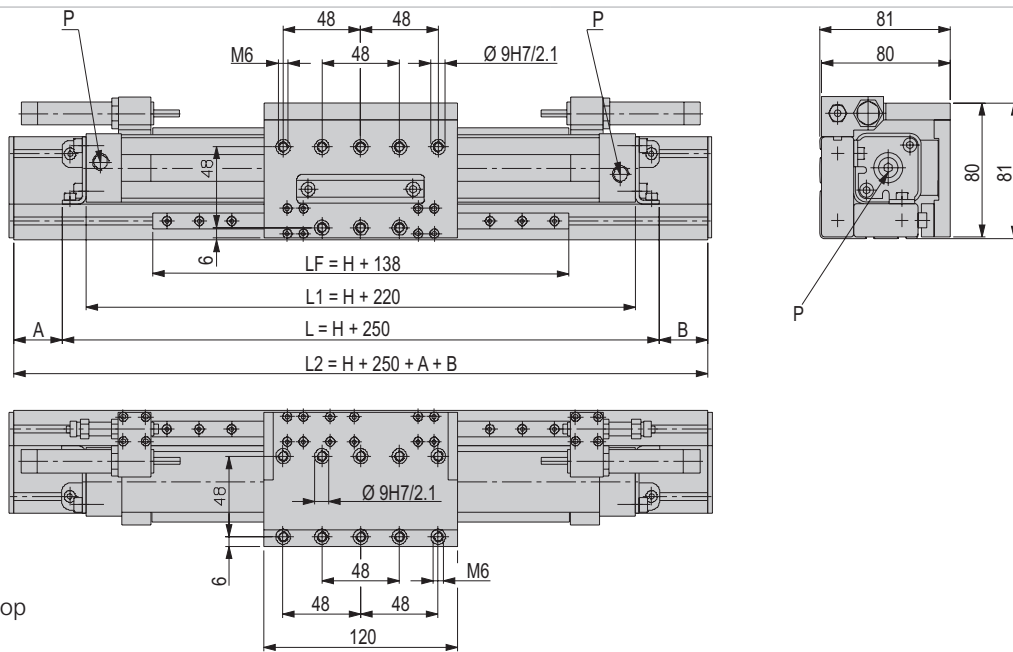


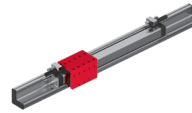
- Millimetre-accurate strokes
- Rigid construction
- Self-supporting profile
- Intermediate stop for any number of positions

Dimensions and dimension drawings

PMP-c

Type	PMP-c 01	PMP-c 02
A	Mounting protrusion 1	Mounting protrusion 1
B	Mounting protrusion 2	Mounting protrusion 2
C		End stop
D		Stop slide
E		Intermediate stop
F		Proximity switch $\varnothing 6.5$ mm
P	G1/8"	G1/8"





PMP-c	
Attachment grid	48 x 48 mm
Attachment thread	M6
Operating pressure	6 +/-2 bar
Air connection P	G 1/8 "
Cylinder Ø	25 mm
Operating temperature	0 - 50 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %

Type	PMP-c 01	PMP-c 02
Order number	11015620	11015621
Max. stroke	2000 mm	2000 mm
Net weight	2.2 kg	2.6 kg
Moving weight	0.55 kg	0.89 kg
Weight/100 mm stroke	0.54 kg	0.54 kg
Module weight, 0 mm stroke	2.22 kg	2.64 kg
Max. payload	*5 kg	*5 kg
Air consumption/100 mm stroke	0.25 NL	0.25 NL
Piston force	250 N	250 N
Repeat accuracy	+/- 0.1 mm	+/- 0.1 mm
Max. profile length	3000 mm	3000 mm
Mounting position	↔	↔

The technical data refer to a nominal pressure of 6 bar under Afag standard test conditions.

Note: Also included in the PMP-c 02 scope of delivery:

- 1 x stop slide PMP-c
- 2 x end stops PMP-c
- 1 x intermediate stop PMP-c

*Observe operation time diagram
**0 mm stroke

Included in the delivery

(Catalogue HT accessories)

- 2x Stop screw AS 08/40
- 2x Shock absorber SD M14x1 -1

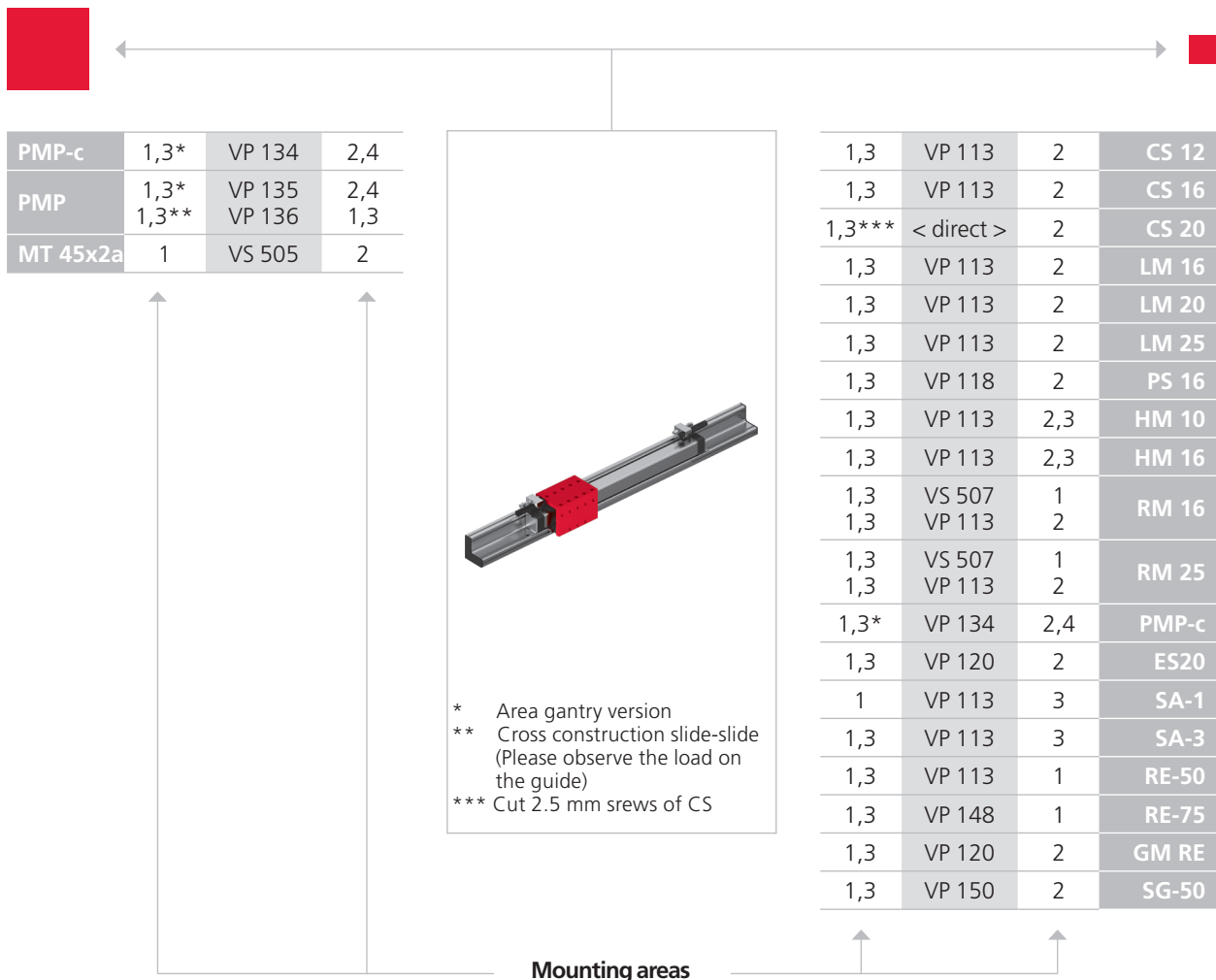
Accessories

- Stop slide PMP-c [p. 156]
- Safety brake PMP-c [p. 157]
- Intermediate stop PMP -c [p. 156]
- Fine adjustment PMP-c [p. 156]
- End stop PMP-c [p. 158]
- Drag-chain PMP-c [p. 157]
- Cover cap 40 x 20 [p. 157]
- Cover cap 60 x 20 [p. 157]
- Angle profile PMP-c [p. 158]

(Catalogue HT accessories)

- INI d6.5x44-Sn1.5-PNP-NO-M8x1
- T-nut M4

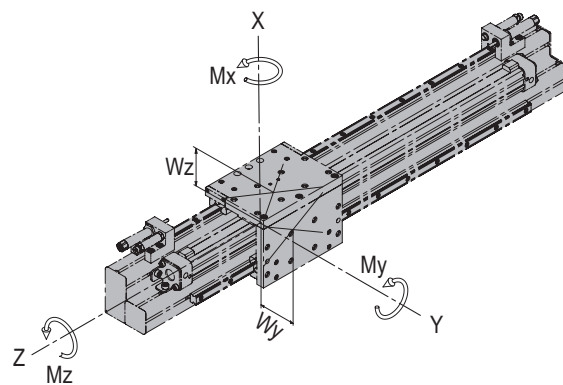
Warranty: 24 months following commissioning, but a maximum of 27 months following delivery



CS, ES 	PS 	LM, LE 	HM 	SA 	OZ
PMP, PMP-c 	PEZ, PDZ 	PEL, PDL 	CR, RM 32, RE, SREH 	RM, RE 	UG, GM, SG, DG, PG, GE

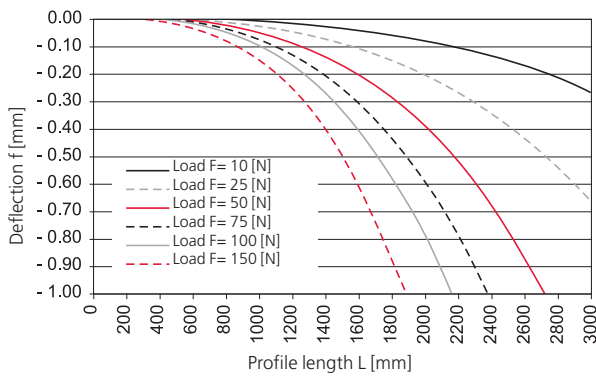
Note that there might be different mounting positions from one module to another one.
 The required connection elements and the range of support columns are depicted in the catalogue HT accessories.

Type	PMP-c 01	PMP-c 02
Max. static torque Mx	158 Nm	158 Nm
Max. static torque My	158 Nm	158 Nm
Max. static torque Mz	199 Nm	199 Nm
Max. dynamic torque Mx	5.2 Nm	5.2 Nm
Max. dynamic torque My	5.2 Nm	5.2 Nm
Max. dynamic torque Mz	6.5 Nm	6.5 Nm
Effective distance Wy	26 mm	26 mm
Effective distance Wz	26 mm	26 mm

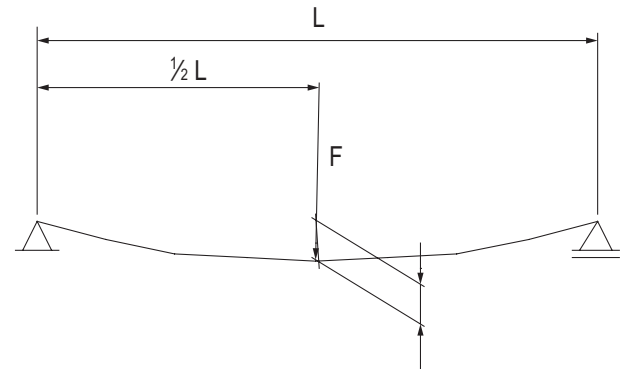


PMP-c diagrams

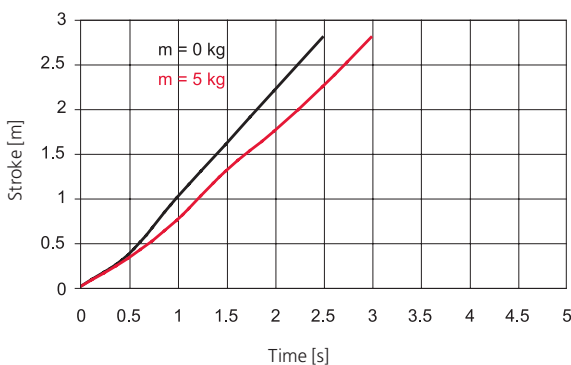
Angle profile deflection, load case static

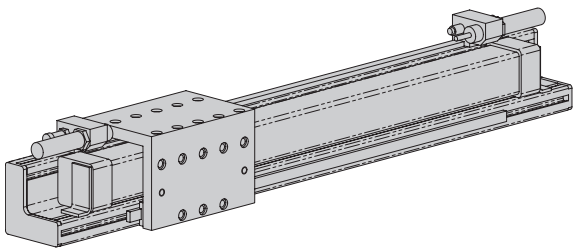


Angle profile deflection, load case static



Angle profile deflection, load case static





PMP-c 01

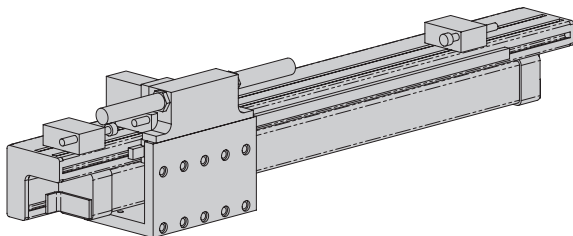
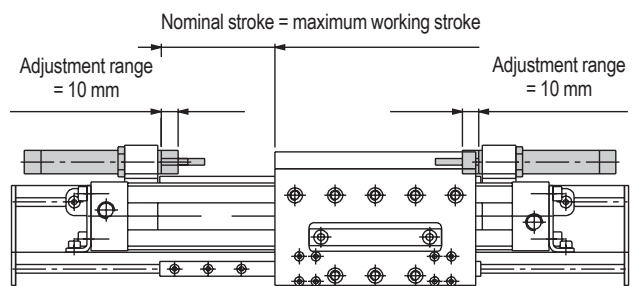
Version with pneumatic cylinder and two fixed limit stops.

Determination of the stroke for PMP-c 01

The maximum work area is determined with the nominal stroke data.

We recommend a stroke reserve for the determination of the nominal stroke.

The adjustment range of the stop screws is up to 10 mm per stop side.



PMP-c 02

Version with pneumatic cylinder and adjustable intermediate and end stops.

Determination of the stroke for PMP-c 02

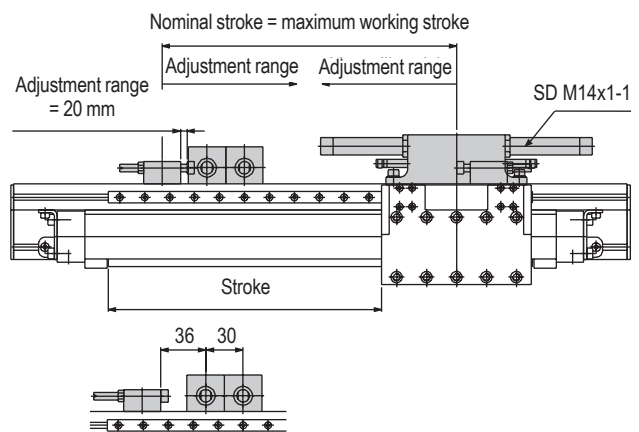
With the information of nominal stroke, you determine the maximum field of action. We recommend adding some extra stroke depending on the application.

Due to the slideable end stops the work area can be limited.

Please note that a minimal grid of 30 mm is given when using more than one intermediate stop.

Please contact out technicians for tasks that require a smaller grid.

If pneumatic cylinders are measured by the means of magnetic switches a minimum gap of 40 mm is necessary.



Order form	PMP-c Version	XXXXXXXX	XXXX	XXXX	XXXX
			Stroke	Dimension A	Dimension B

Ordering example 1

PMP-c 01	11015620	1500 mm	500 mm	800 mm
----------	----------	---------	--------	--------

Ordering example 2

PMP-c 02	11015621	2000 mm	100 mm	100 mm
----------	----------	---------	--------	--------

Ordering process

- Select the desired PMP-c version, the stroke length, dimension A and dimension B.
- Enter the corresponding red order number in the order form in the place of the cross.
- Enter the corresponding lengths in mm for the stroke as well as dimensions A and B (also in mm) in the order form in the place of the cross.

Accessories PMP & PMP-c

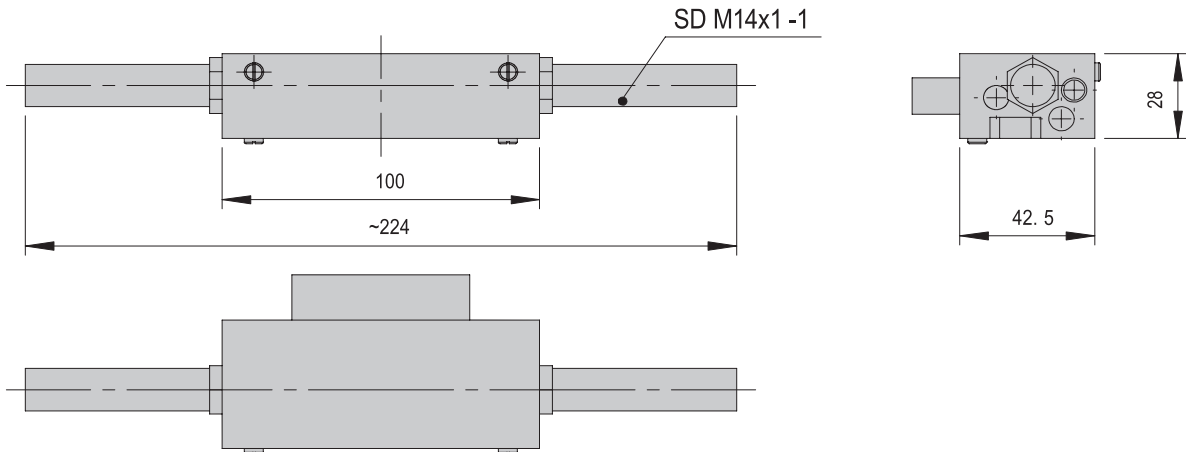
Stop slide PMP

Order number

11000110

Net weight

0.5 kg



Included in the delivery

(Catalogue HT accessories)

- 2x Shock absorber SD M14x1 -1

Accessories

(Catalogue HT accessories)

- INI d6.5x35-Sn1.5-PNP-NO-M8x1
- INI d6.5x44-Sn1.5-PNP-NO-M8x1

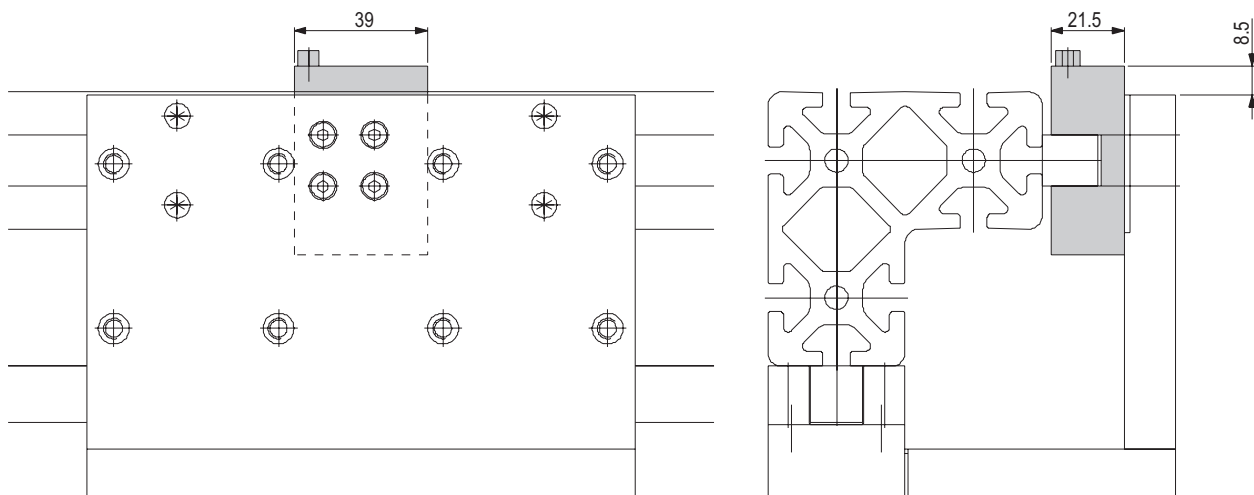
Safety brake PMP

Order number

11016936

Net weight

2.852 kg



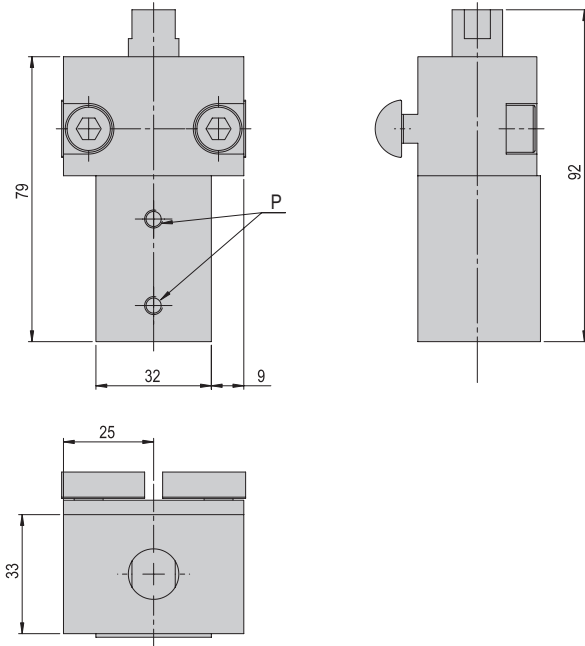
Accessories PMP & PMP-c

Intermediate stop PMP

Order number 11000111

Net weight 0.351 kg

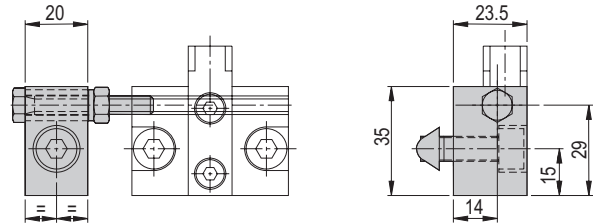
P M5



Fine adjustment PMP

Order number 11004973

Net weight 0.302 kg



Accessories

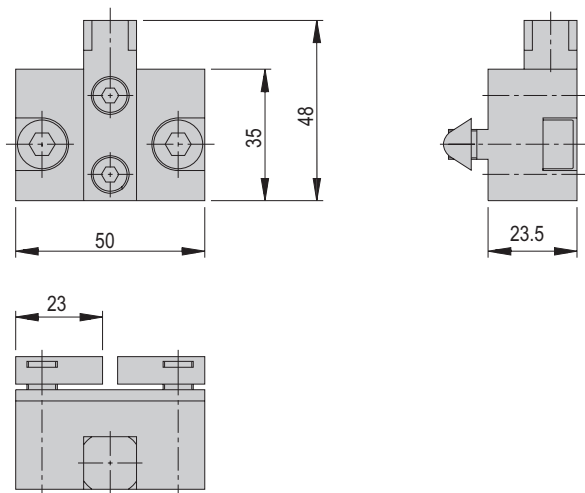
(Catalogue HT accessories)

- INI 10.5x5.8x30-Em-PNP-NO-M8x1

End stop PMP

Order number 11000112

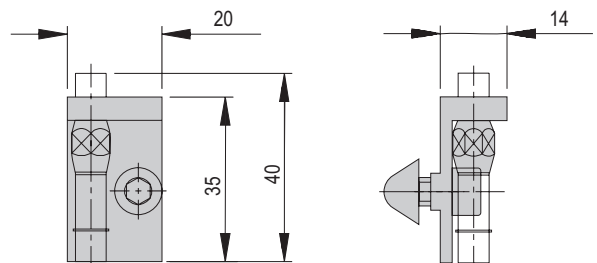
Net weight 0.203 kg



Proximity switch holder PMP

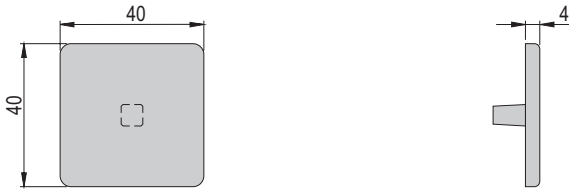
Order number 11004972

Net weight 0.036 kg

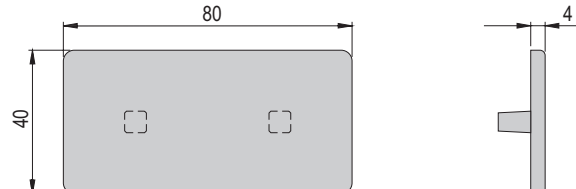


Accessories PMP & PMP-c

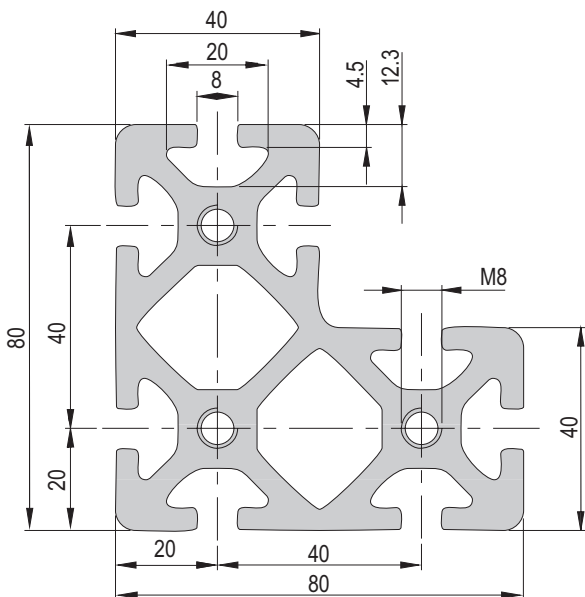
Cover cap 40 x 40	40 x 40
Order number	11002454
Net weight	0.007 kg



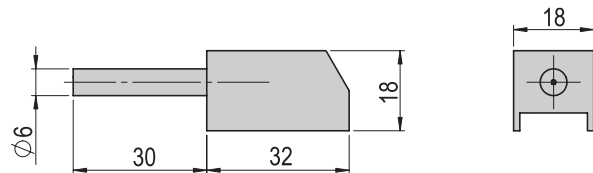
Cover cap 40 x 80	40 x 80
Order number	11002455
Net weight	0.006 kg



Angle profile PMP	
Order number	11001162
Net weight	0.646 kg
Weight/100 mm stroke	6.5 kg
Max. profile length	*6000 mm
Straightness and twisting	< 0.5/1000 mm



Lubricator adapter PMP	
Order number	11016038
Net weight	0.028 kg



*When ordering, note the desired length after the order number. Example: 11001162/300 mm

Accessories PMP & PMP-c

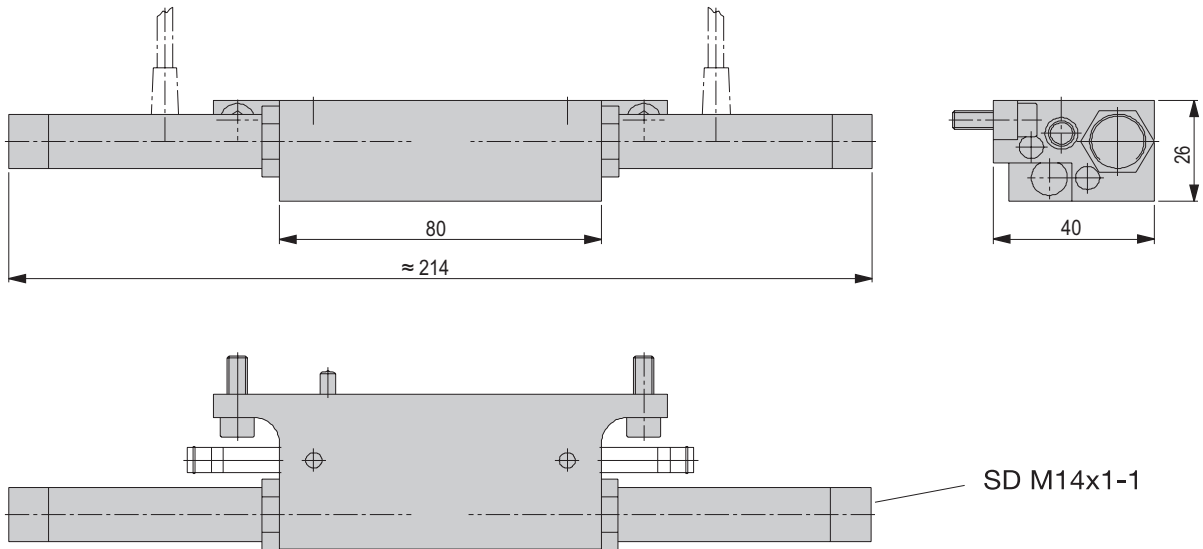
Fence carriage PMP-c

Order number

11014642

Net weight

0.376 kg



Included in the delivery

(Catalogue HT accessories)

- 2x Shock absorber SD M14x1 -1

Accessories

(Catalogue HT accessories)

- INI d6.5x44-Sn1.5-PNP-NO-M8x1
- INI d6.5x35-Sn1.5-PNP-NO-M8x1

Intermediary stop PMP-c

Order number

11014641

Net weight

0.167 kg

A

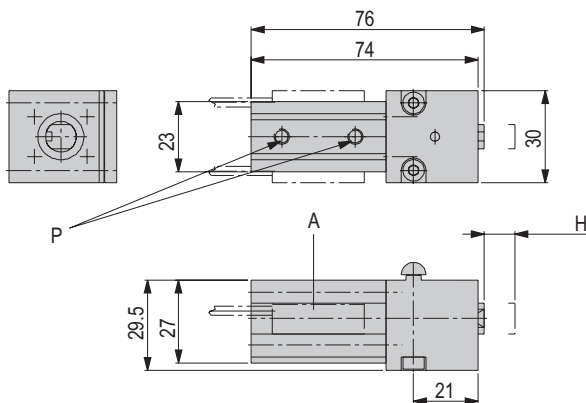
Magnetic proximity switch

H

10 mm

P

M5



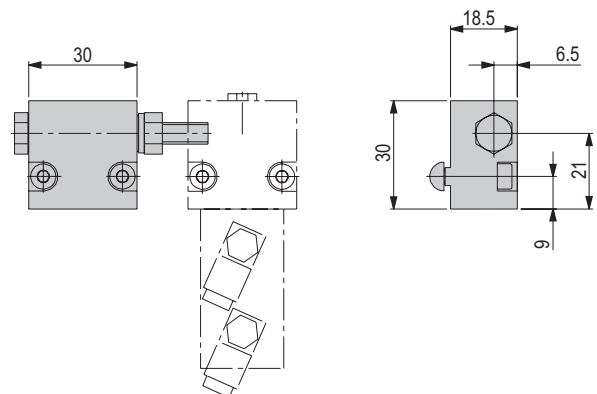
Fine adjustment PMP-c

Order number

11015746

Net weight

0.237 kg

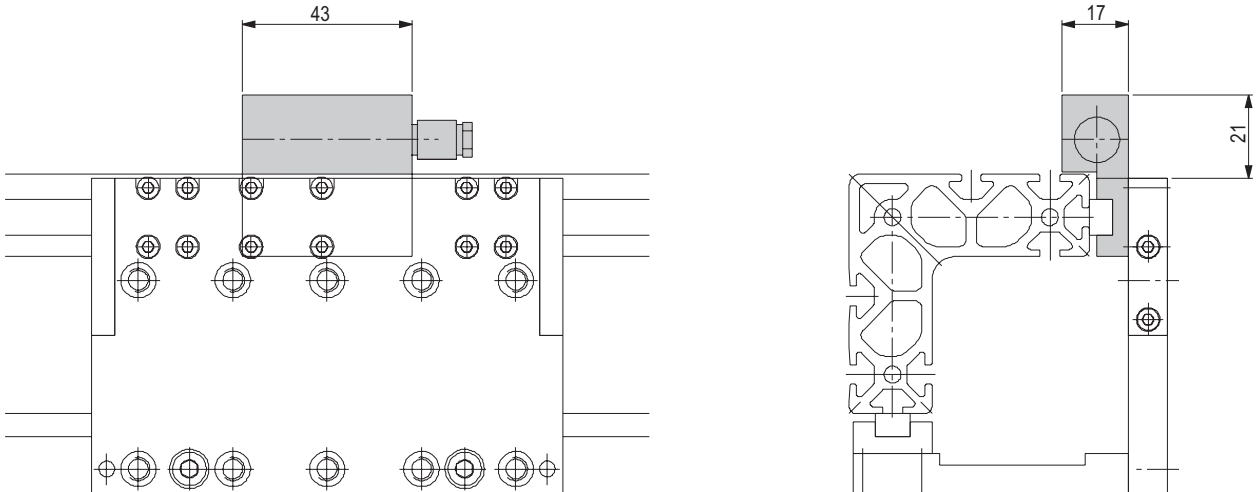


Accessories PMP & PMP-c

Safety brake PMP-c

Order number **11014638**

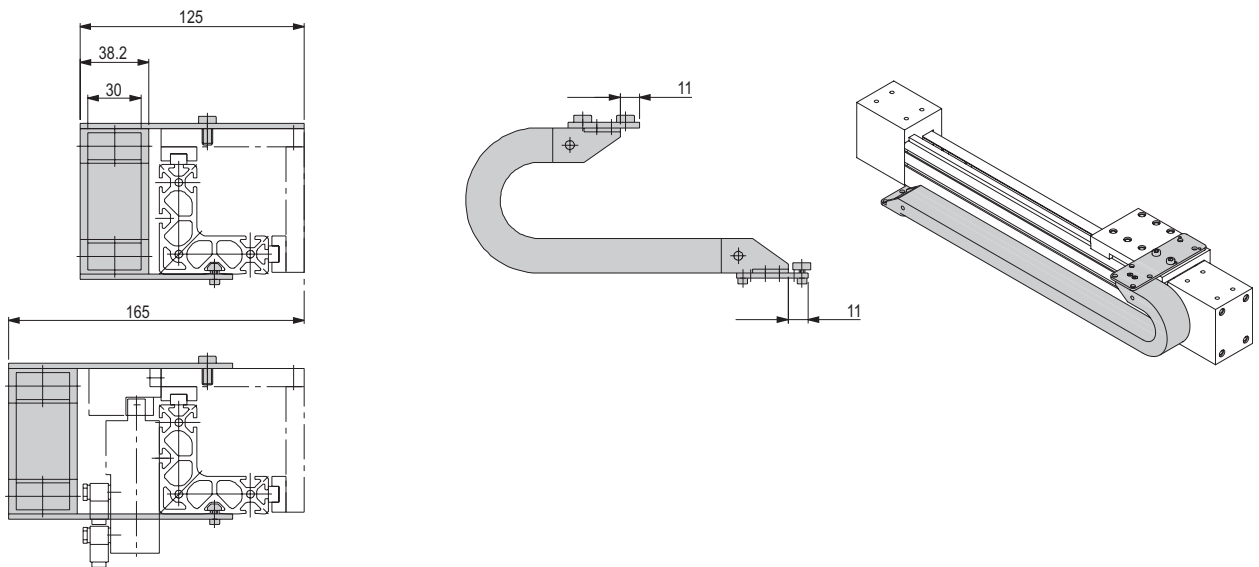
Net weight 0.15 kg



Drag-chain PMP-c

Order number **11014738**

Net weight 0.8 kg

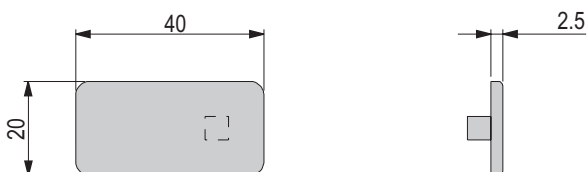


Note: Chain length = axis stroke: 2 + 210 mm

Cover cap 40 x 20 **40x20**

Order number **11014897**

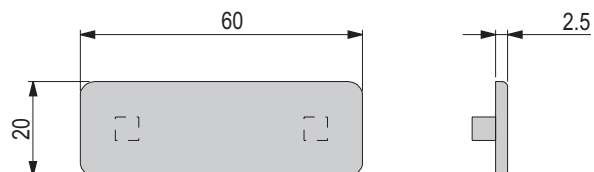
Net weight 0.002 kg



Cover cap 60 x 20 **60x20**

Order number **11014898**

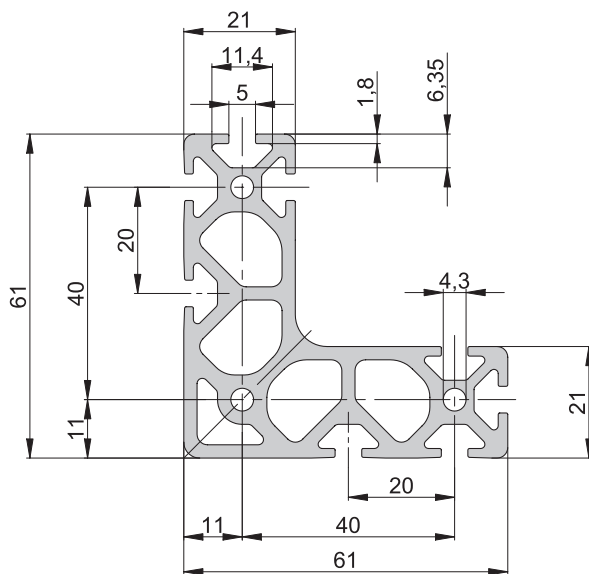
Net weight 0.003 kg



Accessories PMP & PMP-c

Angle profile PMP-c

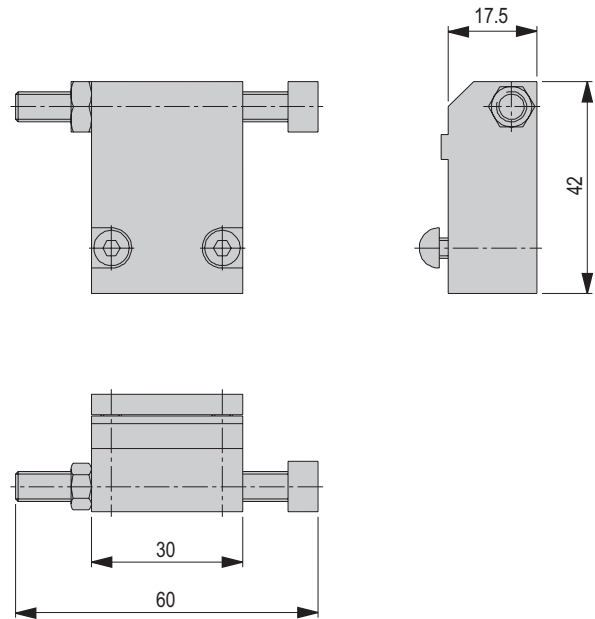
Order number	11015615
Net weight	0.254 kg
Weight/100 mm stroke	2.544 kg
Max. profile length	*3000 mm
Straightness and twisting	< 0.5/1000 mm



*When ordering, note the desired length after the order number. Example: 11015615/300 mm

End stop PMP-c

Order number	11014639
Net weight	0.082 kg



Electro slides ES

ES8 - ES40

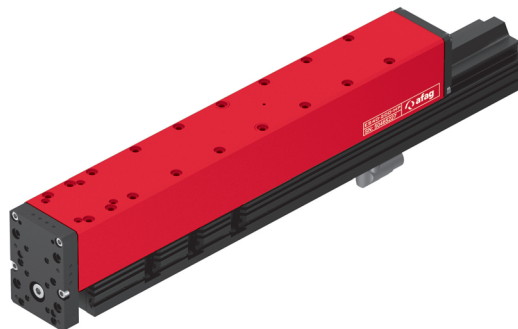
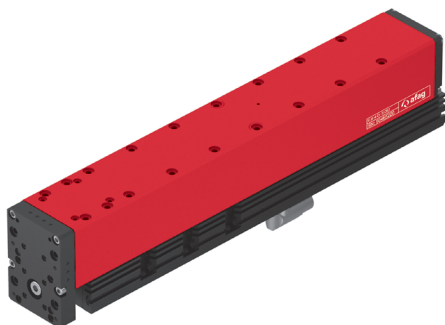
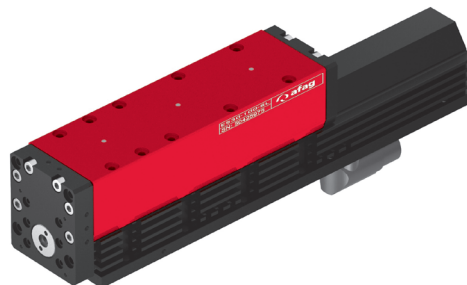
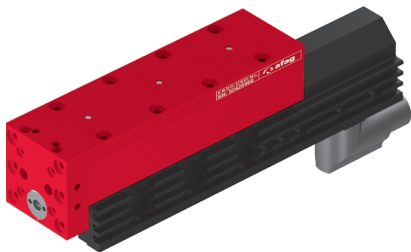
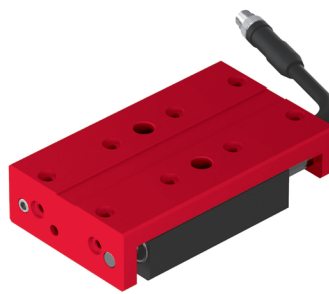


Table of contents: ES

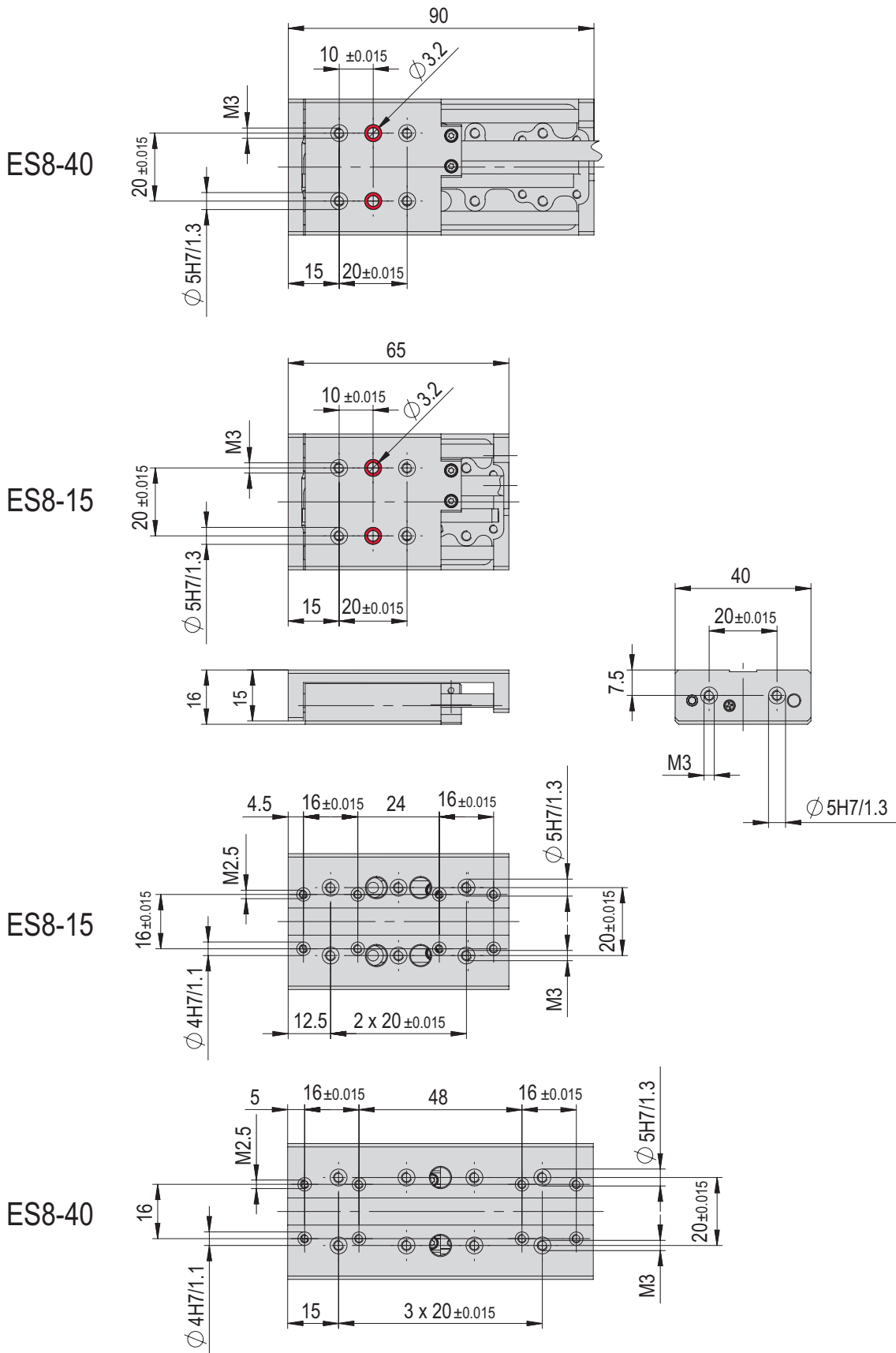
Electro slides ES	Page
ES8	167
ES12	173
ES20	179
ES30	187
ES40	197
Accessories ES	213

Electro slides ES

ES8



- Smallest electrical slide
- Freely programmable
- Modular



Bore can be screwed through



ES8	
Attachment grid	20 x 20 mm
Attachment thread	M3
Attachment thread alternative	M2.5
Operating temperature	10 - 40 °C
Storage temperature	10 - 40 °C
Humidity	< 90 %

Type	ES8-15	ES8-40
Order number	50433800	50433801
Stroke H	15 mm	40 mm
Net weight	0.107 kg	0.118 kg
Moving weight	0.046 kg	0.067 kg
Nominal voltage	< 50 VDC	< 50 VDC
Drive	Linear motor, electric	
Protection type	IP 30	IP 30
Peak force Fx	2.74 N	2.74 N
Force constant	1.94 N/A	1.94 N/A
Permanent force	1.03 N	1.03 N
Peak force	2.74 N	2.74 N
Repeat accuracy	+/- 0.02 mm	+/- 0.02 mm
Mounting position	↔	↔

Cleanroom class ISO 14644-1, class ISO 7

*Vertical installation upon request

Included in the delivery

(Catalogue HT accessories)

- 2x Centering bushing Ø5x2.5
- 4x Mounting screw M3x12

Accessories

(Catalogue HT accessories)

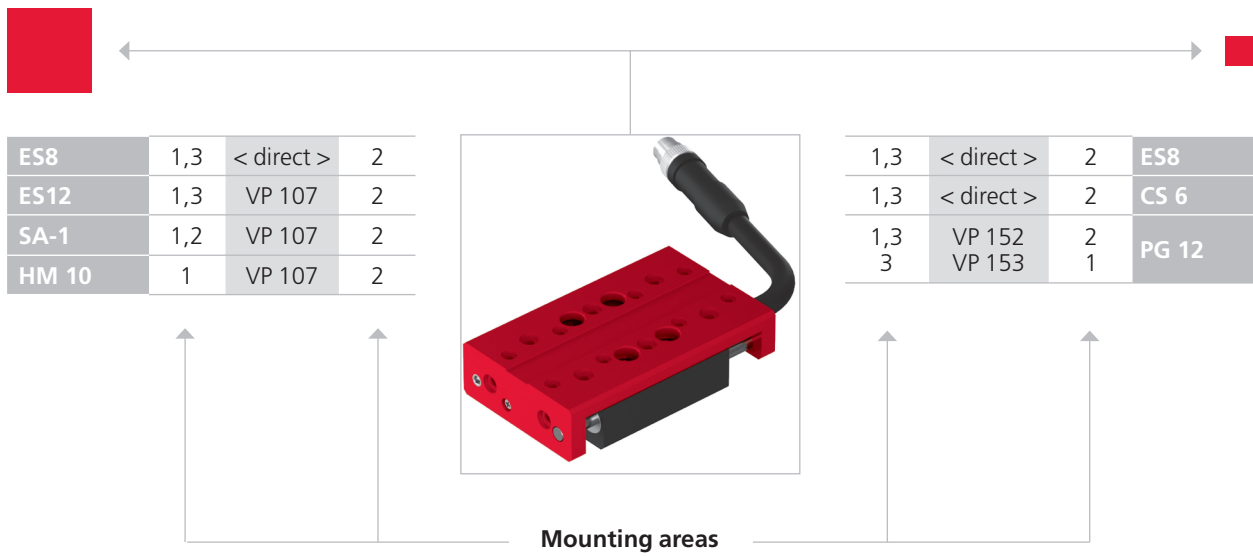
- Adapter ES8/12 LinMot
- Motor cable-M16
- Controller C1xxx-1S
- Plug kit for C1xxx-1S
- USB-RS232 Converter for controllers

Alternative accessories

(Catalogue HT accessories)

- Additional motor cables
- Additional controllers

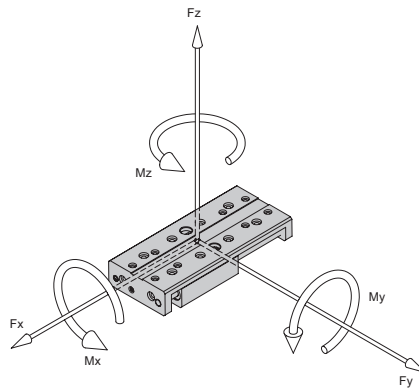
Warranty: 24 months following commissioning, but a maximum of 27 months following delivery



CS, ES 	PS 	LM, LE 	HM 	SA 	OZ
PMP, PMP-c 	PEZ, PDZ 	PEL, PDL 	CR, RM 32, RE, SREH 	RM, RE 	UG, GM, SG, DG, PG, GE

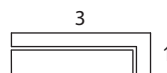
Note that there might be different mounting positions from one module to another one.
The required connection elements and the range of support columns are depicted in the catalogue HT accessories.

Type	ES8-15	ES8-40
Max. static torque M_x	6 Nm	6 Nm
Max. static torque M_y	6 Nm	6 Nm
Max. static torque M_z	6 Nm	6 Nm
Max. dynamic torque M_x	0.25 Nm	0.25 Nm
Max. dynamic torque M_y	0.25 Nm	0.25 Nm
Max. dynamic torque M_z	0.25 Nm	0.25 Nm
Peak force F_x	2.74 N	2.74 N

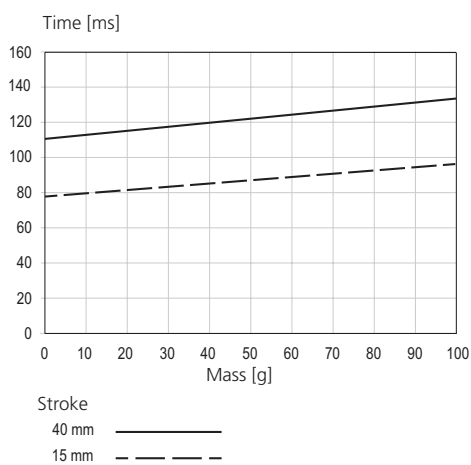


Maximum payload/type	ES8-15	ES8-40
Installation position (horizontal) for mounting side 1/3	0.1 kg	0.1 kg

Assembly sides module mounting horizontal:

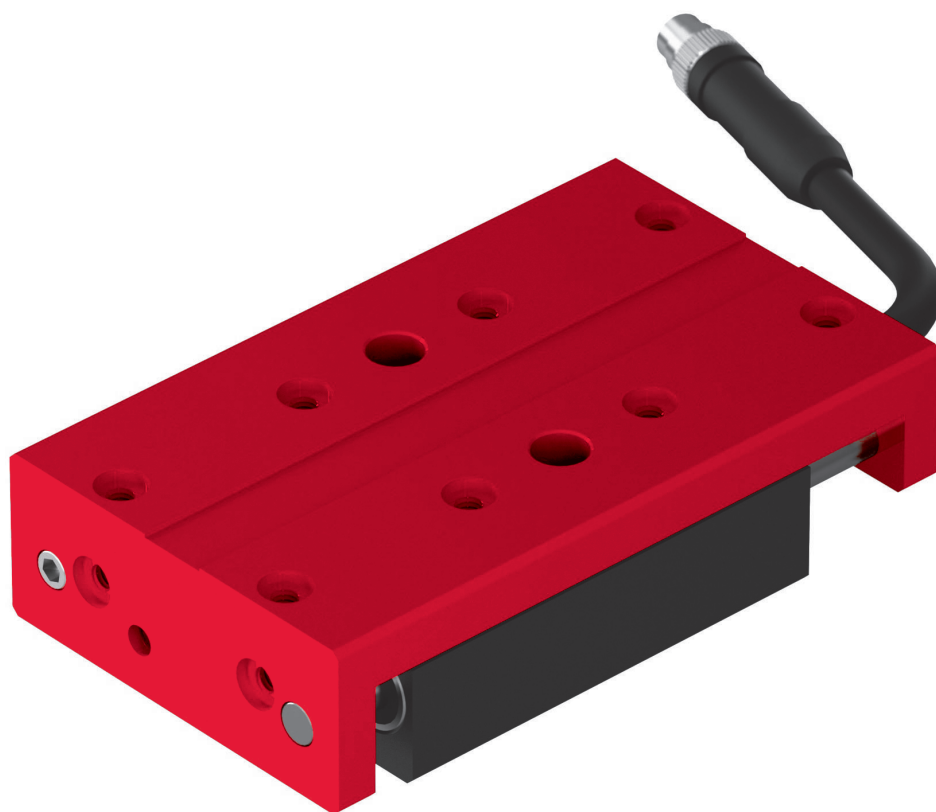


Operation time diagrams



Electro slides ES

ES12

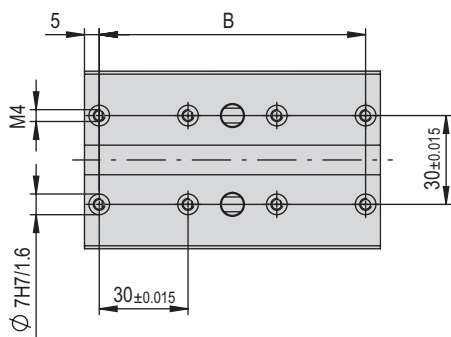
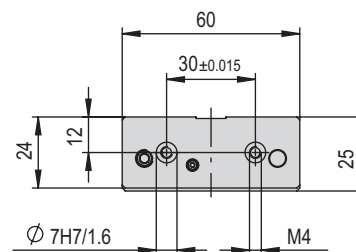
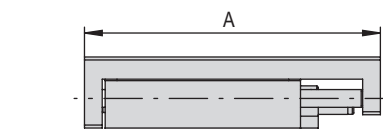
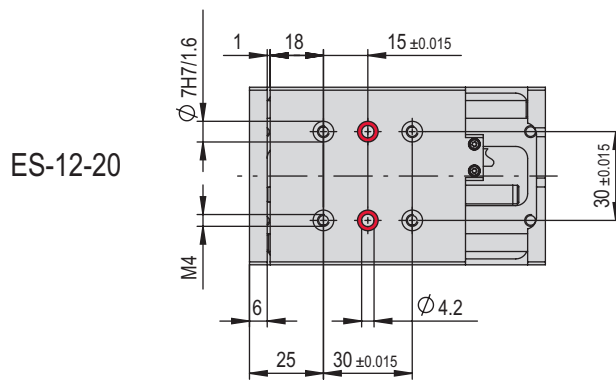
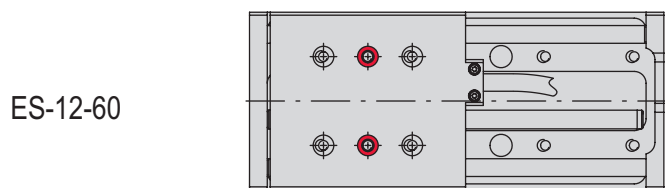
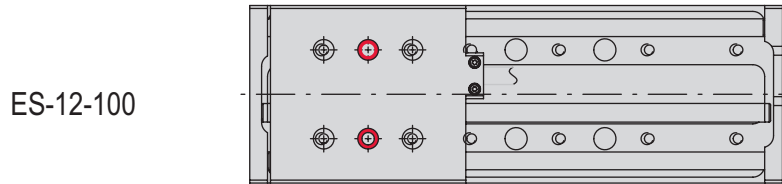


- Compact electrical slide
- Freely programmable
- Modular

Dimensions and dimension drawings

ES12

Type	ES12-20	ES12-60	ES12-100
A	100 mm	140 mm	180 mm
B	3x30 mm	4x30 mm	5x30 mm



Bores can be screwed through



ES12	
Attachment grid	30 x 30 mm
Attachment thread	M4
Attachment thread alternative	M3
Operating temperature	10 - 40 °C
Storage temperature	10 - 40 °C
Humidity	< 90 %

Type	ES12-20	ES12-60	ES12-100
Order number	50433802	50433803	50433804
Stroke H	20 mm	60 mm	100 mm
Net weight	0.331 kg	0.368 kg	0.403 kg
Moving weight	0.126 kg	0.163 kg	0.199 kg
Nominal voltage	< 75 VDC	< 75 VDC	< 75 VDC
Drive	Linear motor, electric		
Protection type	IP 30	IP 30	IP 30
Peak force Fx	10.7 N	10.7 N	10.7 N
Force constant	6.43 N/A	6.43 N/A	6.43 N/A
Permanent force	3.6 N	3.6 N	3.6 N
Peak force	10.7 N	10.7 N	10.7 N
Repeat accuracy	+/- 0.02 mm	+/- 0.02 mm	+/- 0.02 mm
Mounting position	↔	↔	↔

Cleanroom class ISO 14644-1, class ISO 7

*Vertical installation upon request

Included in the delivery

(Catalogue HT accessories)

- 2x Centering bushing Ø7x3
- 4x Mounting screw M4x22

Accessories

(Catalogue HT accessories)

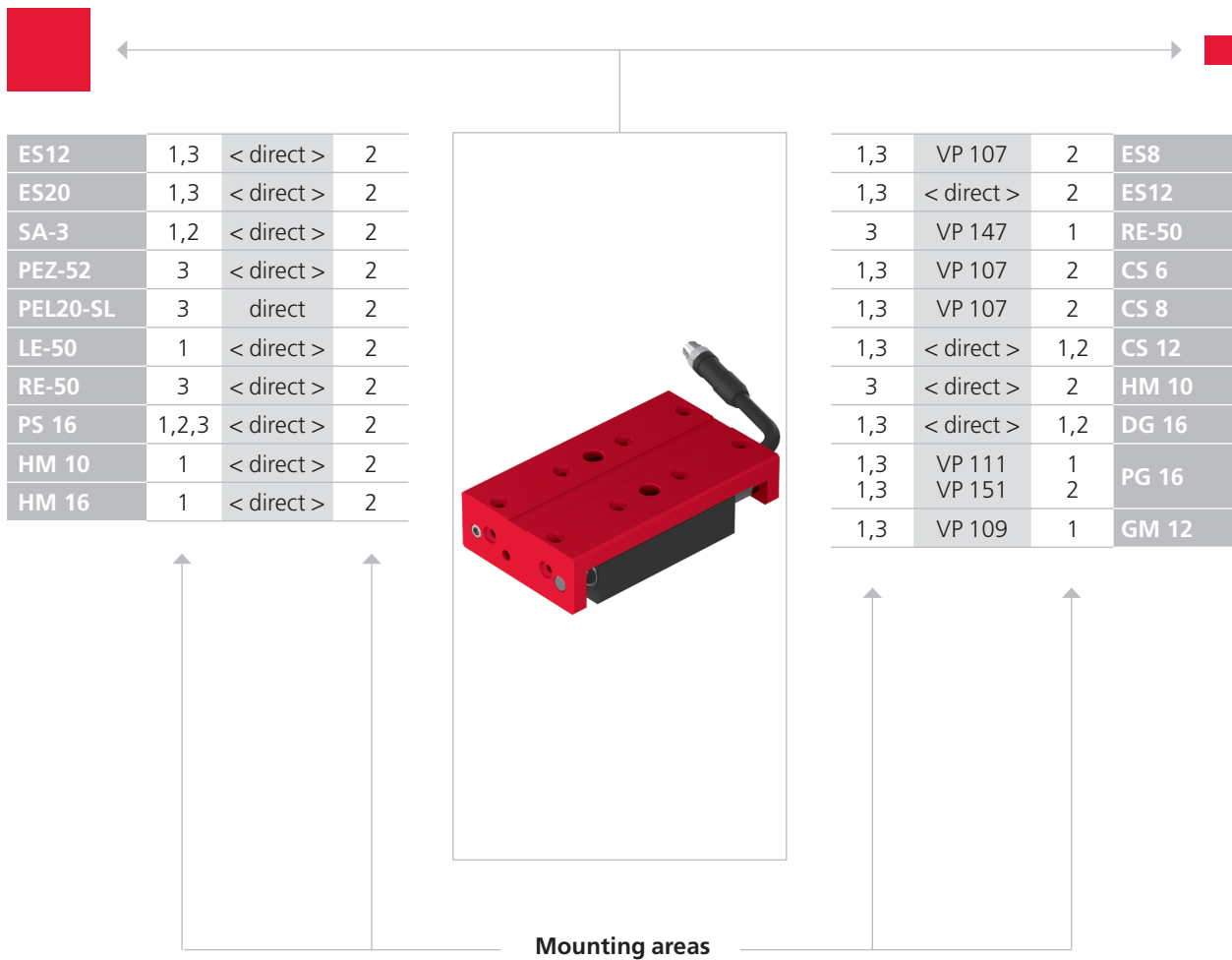
- Adapter ES8/12 LinMot
- Motor cable-M16
- Controller C1xxx-1S
- Plug kit for C1xxx-1S
- USB-RS232 Converter for controllers

Alternative accessories

(Catalogue HT accessories)

- Additional motor cables
- Additional controllers

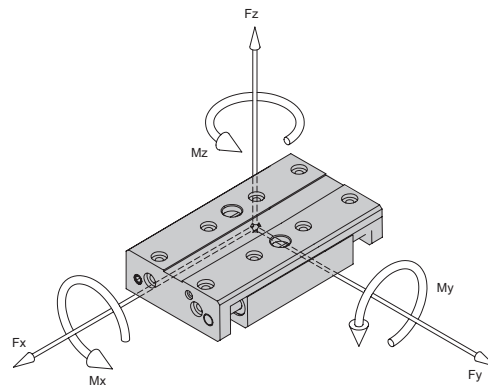
Warranty: 24 months following commissioning, but a maximum of 27 months following delivery



CS, ES 	PS 	LM, LE 	HM 	SA 	OZ
PMP, PMP-c 	PEZ, PDZ 	PEL, PDL 	CR, RM 32, RE, SREH 	RM, RE 	UG, GM, SG, DG, PG, GE

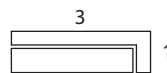
Note that there might be different mounting positions from one module to another one.
The required connection elements and the range of support columns are depicted in the catalogue HT accessories.

Type	ES12-20	ES12-60	ES12-100
Max. static torque Mx	10 Nm	10 Nm	10 Nm
Max. static torque My	10 Nm	10 Nm	10 Nm
Max. static torque Mz	10 Nm	10 Nm	10 Nm
Max. dynamic torque Mx	0.5 Nm	0.5 Nm	0.5 Nm
Max. dynamic torque My	0.5 Nm	0.5 Nm	0.5 Nm
Max. dynamic torque Mz	0.5 Nm	0.5 Nm	0.5 Nm
Peak force Fx	10.7 N	10.7 N	10.7 N



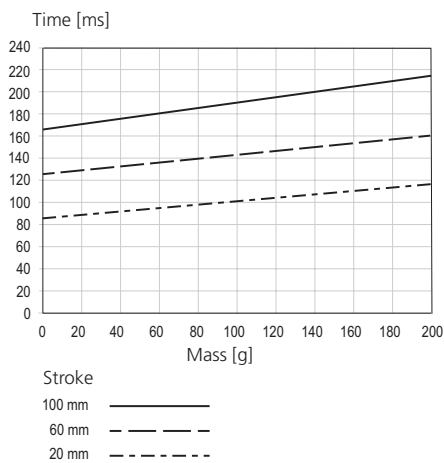
Maximum payload/type	ES12-20	ES12-60	ES12-100
Installation position (horizontal) for mounting side 1/3	0.2 kg	0.2 kg	0.2 kg

Assembly sides module mounting horizontal:



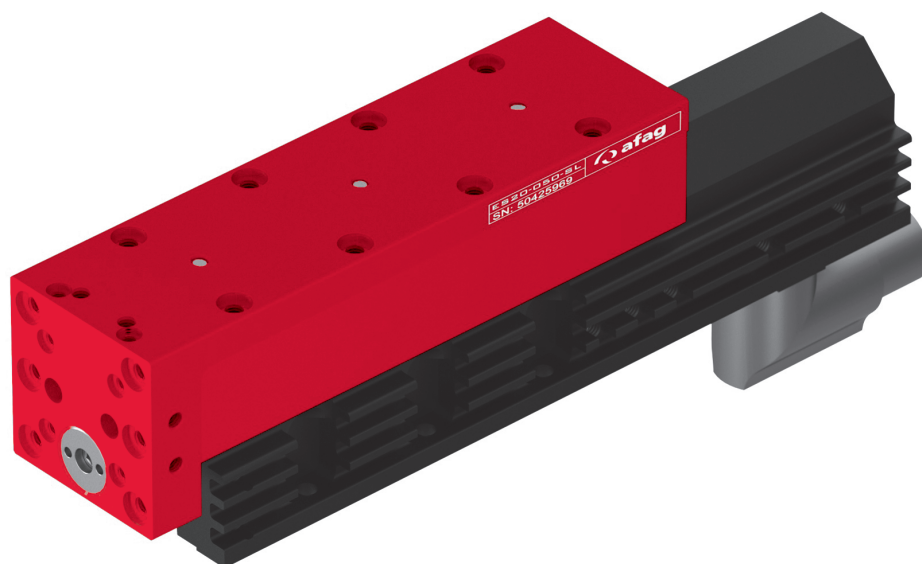
Operation time diagrams

Operation time ES12



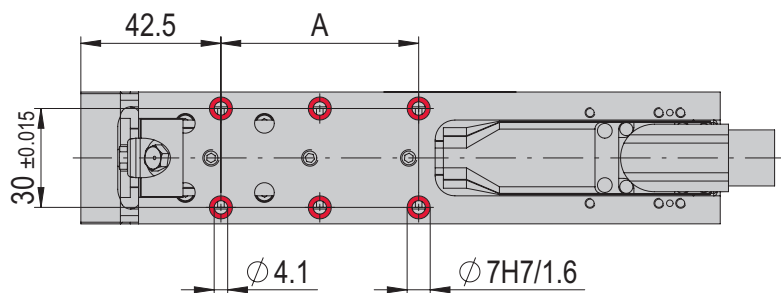
Electro slides ES

ES20

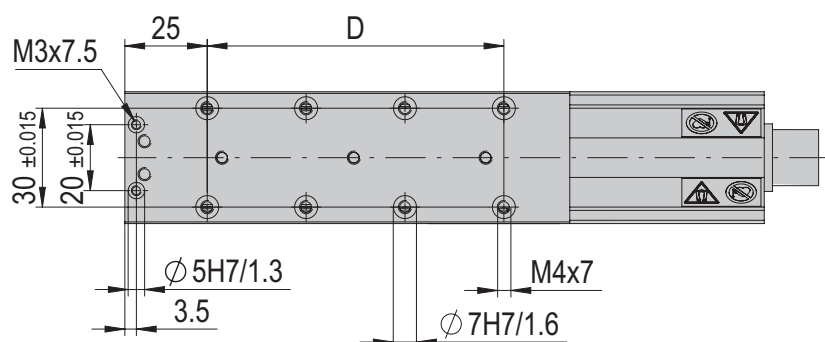
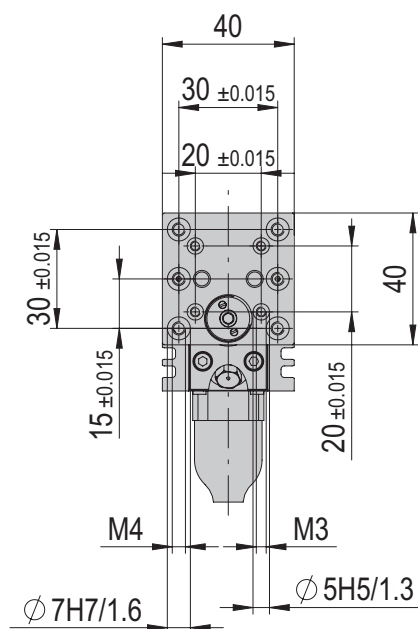
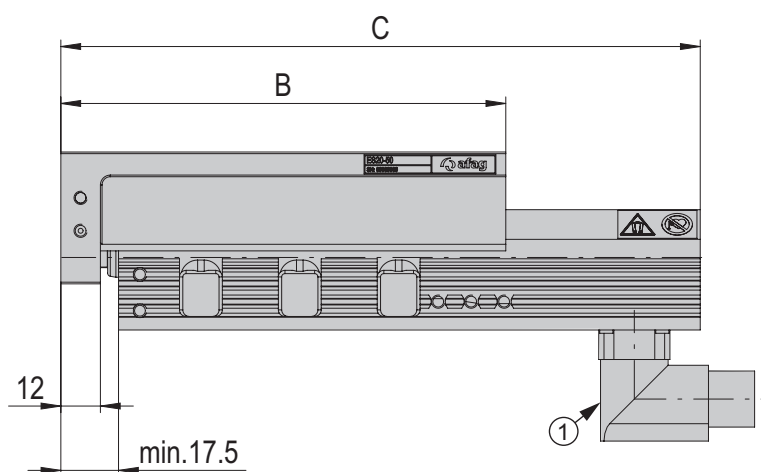


- Extremely light-weight linear motor axis
- Freely programmable
- High dynamics up to 120 m/s^2 acceleration

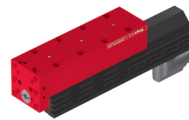
Type	ES20-50-SL	ES20-100-SL	ES20-200	ES20-300
A	2 x 30 mm	4 x 30 mm	4 x 30 mm	4 x 30 mm
B	135 mm	185 mm	343 mm	443 mm
C	194 mm	287.5 mm	367.5 mm	497.5 mm
D	3 x 30 mm	5 x 30 mm	10 x 30 mm	13 x 30 mm



① - 270° rotatable connector



⊕ Bores can be screwed through



ES20	
Attachment grid	30 x 30 mm
Attachment thread	M4
Attachment thread alternative	M3
Operating temperature	0 - 50 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %

Type	ES20-50-SL	ES20-100-SL	ES20-200	ES20-300
Order number	50425969	50425970	50425971	50425972
Stroke H	50 mm	100 mm	200 mm	300 mm
Net weight	1.1 kg	1.5 kg	2.1 kg	2.5 kg
Moving weight	0.5 kg	0.7 kg	1.1 kg	1.4 kg
Nominal voltage	72 VDC	72 VDC	72 VDC	72 VDC
Drive	Linear motor, electric			
Protection type	IP 30	IP 30	IP 30	IP 30
Max. speed v	6.8 m/s	4.8 m/s	4.8 m/s	4.8 m/s
Peak force Fx	67 N	137 N	137 N	137 N
Constant force Fx	15 N	31 N	31 N	31 N
Force constant	9 N/A	12.5 N/A	12.5 N/A	12.5 N/A
Repeat accuracy	+/- 0.05 mm	+/- 0.05 mm	+/- 0.05 mm	+/- 0.05 mm
- with external position measuring system	+/- 0.02 mm	+/- 0.02 mm	+/- 0.02 mm	+/- 0.02 mm
Mounting position				

Note: Note: For vertical installation, a weight compensation via MagSpring or compensation spring (ES20-50-SL) is required. This compensates the load mass for vertically installed axes. Furthermore, the peripherals and the workpiece are also prevented from falling when the electric slide is in a deenergised state.
Cleanroom class ISO 14644-1, class ISO 7

Included in the delivery

(Catalogue HT accessories)

- 2x Centering bushing Ø7x3
- 4x Mounting screw M4x14

Accessories

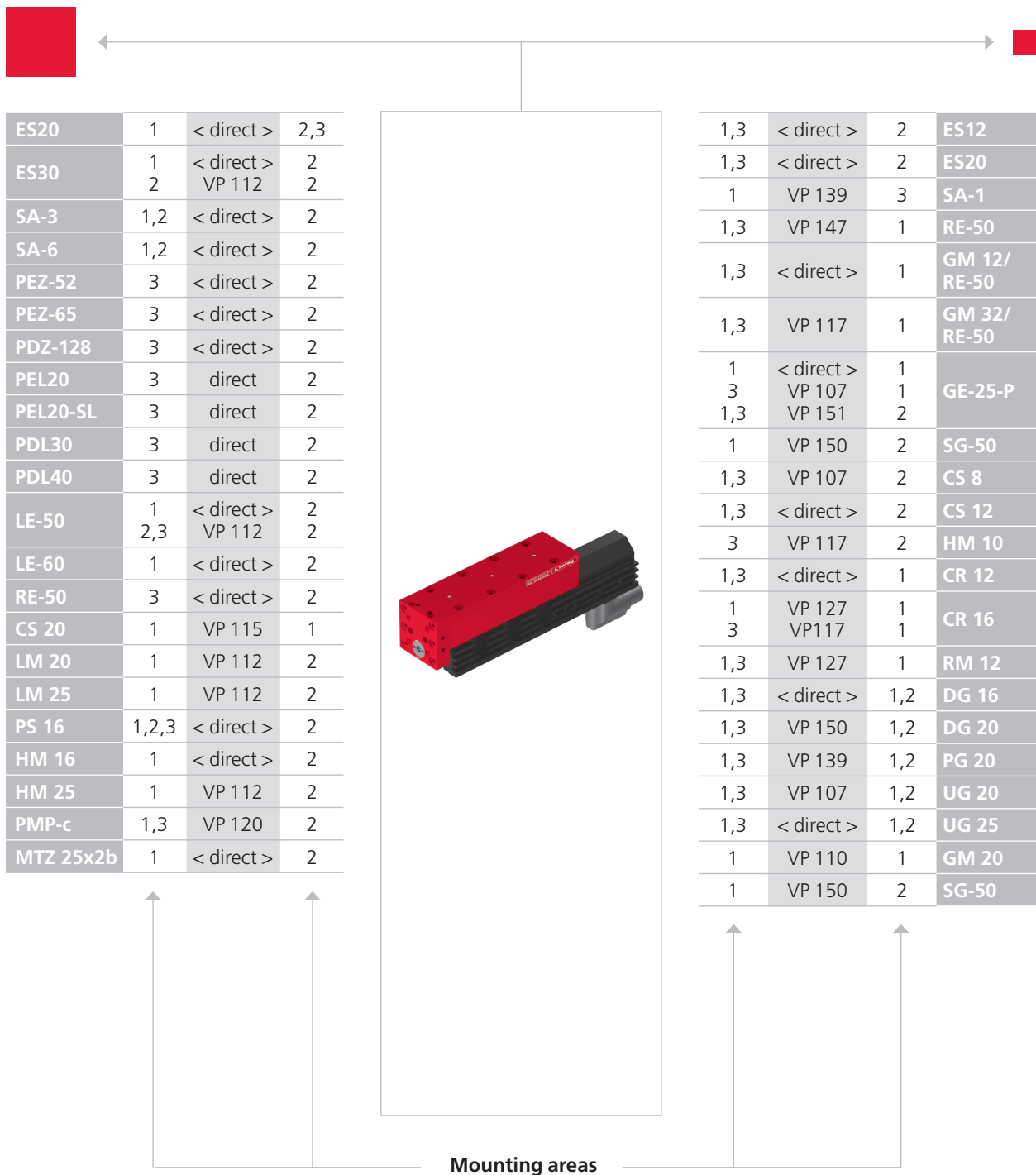
- MagSpring side/front[p. 192-196]
 - Compensation spring ES20-50-SL[p. 203]
 - External position measuring system ES20[p. 204]
- (Catalogue HT accessories)
- Centering bushing Ø5x2.5
 - Motor cable-M16
 - Controller C1xxx-1S
 - Plug kit for C1xxx-1S
 - USB-RS232 Converter for controllers
 - Power supply S01-72/500, 1-phase
 - MTZ 25x2b Double centric mounting module

Alternative accessories

(Catalogue HT accessories)

- Additional motor cables
- Additional controllers
- Additional power supplies
- Additional mounting modules

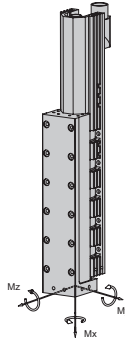
Warranty: 24 months following commissioning, but a maximum of 27 months following delivery



CS, ES 	PS 	LM, LE 	HM 	SA 	OZ
PMP, PMP-c 	PEZ, PDZ 	PEL, PDL 	CR, RM 32, RE, SREH 	RM, RE 	UG, GM, SG, DG, PG, GE

Note that there might be different mounting positions from one module to another one.
The required connection elements and the range of support columns are depicted in the catalogue HT accessories.

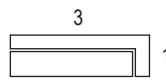
Type	ES20-50-SL	ES20-100-SL	ES20-200	ES20-300
Max. dynamic torque Mx	5 Nm	5 Nm	5 Nm	5 Nm
Max. dynamic torque My	25 Nm	25 Nm	50 Nm	50 Nm
Max. dynamic torque Mz	25 Nm	25 Nm	50 Nm	50 Nm
Peak force Fx	67 N	137 N	137 N	137 N



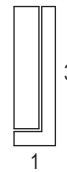
Maximum payload/type	ES20-50-SL	ES20-100-SL	ES20-200	ES20-300
Installation position (horizontal) for mounting side 1/3	4 kg	4 kg	3 kg	2 kg
Installation position (vertical) for mounting side 1/3	4 kg	4 kg	3 kg	2 kg

Assembly sides module mounting

horizontal:

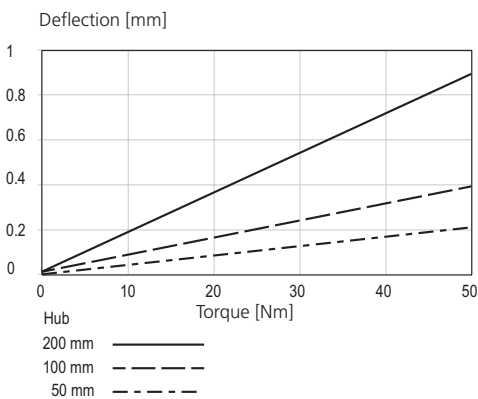


vertical:

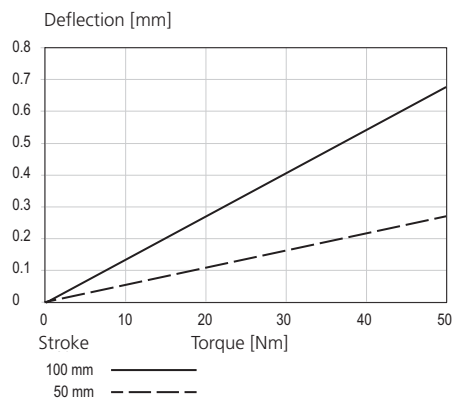


Diagrams

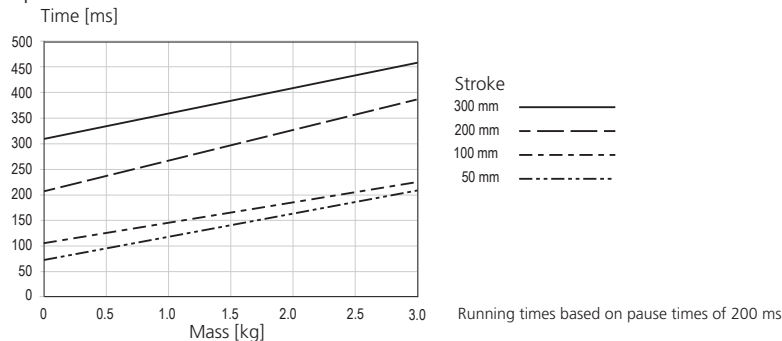
Deflection ES20



Deflection ES20-SL



Operation time ES20

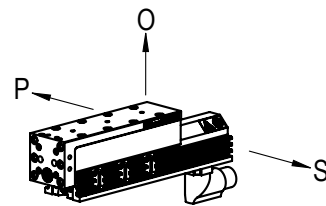


Order form	ES20	XXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXXXX	X	X
		Electric slide	Compensation spring	MagSpring	External position measuring system	Position MagSpring	External position measuring system

Coordinate system

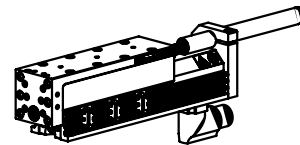
The coordinate system allows you to define the position of the MagSpring as well as that of the external position measuring system.

- P = left
- O = top
- S = right



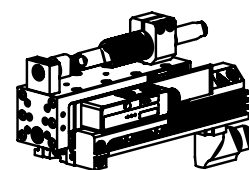
Ordering example 1 with compensation spring

ES20	50425969	50427546	X	X	X	X
------	----------	----------	---	---	---	---



Ordering example 2 with MagSpring and external position measuring system

ES20	50425970	X	50427554	50427547	O	S
------	----------	---	----------	----------	---	---



Ordering process

- Select the desired electric slide, compensation spring (only for ES20-50SL), external position measuring system and external MagSpring from the order key.
- Enter the corresponding red order numbers in the order form in the place of the cross.
- Determine the desired position of the MagSpring and the external position measuring system.
- Enter the corresponding letters from the coordinate system in the order form in the place of the cross.

Compensation spring

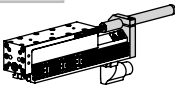
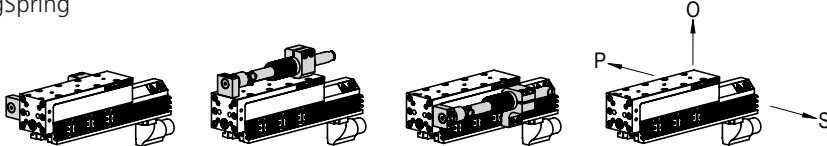
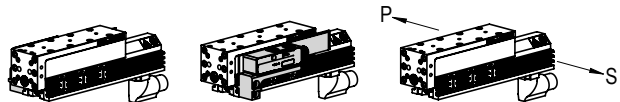
- The compensation spring can only be used for the ES20-50-SL. It serves as an inexpensive alternative to the MagSpring.

MagSpring

- The MagSpring serves to balance the weight forces in a vertical installation position.
- The dimensioning of the MagSpring must match the moving weight in the vertical installation position.

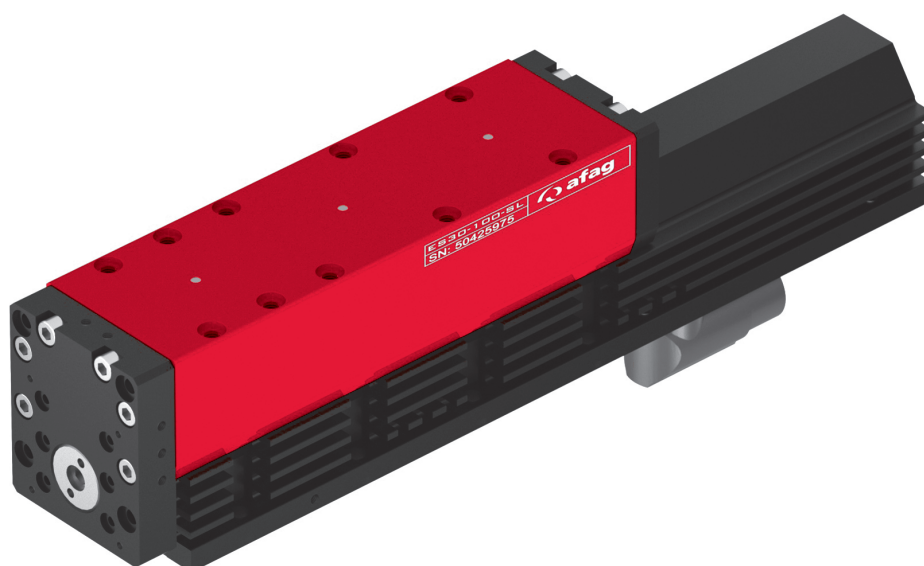
External position measuring system

- The external position measuring system must be ordered in accordance with the module length.

Electro slide	ES20	XXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXXXX	X	X
	ES20-50-SL	50425969	Compensation spring 50427546	MagSpring side (s)	MagSpring front (v)	External position measuring system	Position MagSpring
	ES20-100-SL	50425970					
	ES20-200	50425971					
	ES20-300	50425972					
Compensation spring	Compensation spring ES20-50-SL						
	Without compensation spring						X
MagSpring for ES20-50	MagSpring ES20 s/v 11N			50427548	50427554		
	MagSpring ES20 s/v 17N			50427549	50427555		
	MagSpring ES20 s/v 22N			50427550	50427556		
	MagSpring ES20 s/v 40N			50427551	50427557		
	MagSpring ES20 s/v 50N			50427552	50427558		
	MagSpring ES20 s/v 60N			50427553	50427559		
MagSpring for ES20-100	MagSpring ES20 s/v 11N			50427561	50427567		
	MagSpring ES20 s/v 17N			50427562	50427568		
	MagSpring ES20 s/v 22N			50427563	50427569		
	MagSpring ES20 s/v 40N			50427564	50427570		
	MagSpring ES20 s/v 50N			50427565	50427571		
	MagSpring ES20 s/v 60N			50427566	50427572		
MagSpring for ES20-200	MagSpring ES20 s/v 11N			50427574	50427580		
	MagSpring ES20 s/v 17N			50427575	50427581		
	MagSpring ES20 s/v 22N			50427576	50427582		
	MagSpring ES20 s/v 40N			50427577	50427583		
	MagSpring ES20 s/v 50N			50427578	50427584		
	MagSpring ES20 s/v 60N			50427579	50427585		
MagSpring for ES20-300	MagSpring ES20 s/v 11N			50427587	50427593		
	MagSpring ES20 s/v 17N			50427588	50427594		
	MagSpring ES20 s/v 22N			50427589	50427595		
	MagSpring ES20 s/v 40N			50427590	50427596		
	MagSpring ES20 s/v 50N			50427591	50427597		
	MagSpring ES20 s/v 60N			50427592	50427598		
External position measuring system	Without MagSpring						X
	External position measuring system ES20 050mm					50427547	
	External position measuring system ES20 100mm					50427560	
	External position measuring system ES20 200mm					50427573	
	External position measuring system ES20 300mm					50427586	
Mounting	Position MagSpring						P O S
	Position external position measuring system						P S

Electro slides ES

ES30

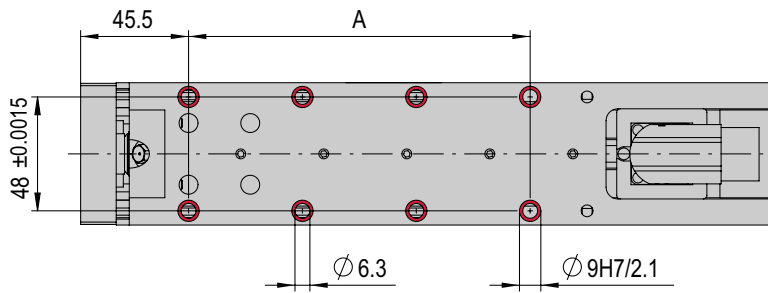


- Rigid linear motor axis
- Freely programmable
- Cantilever axis with large stroke

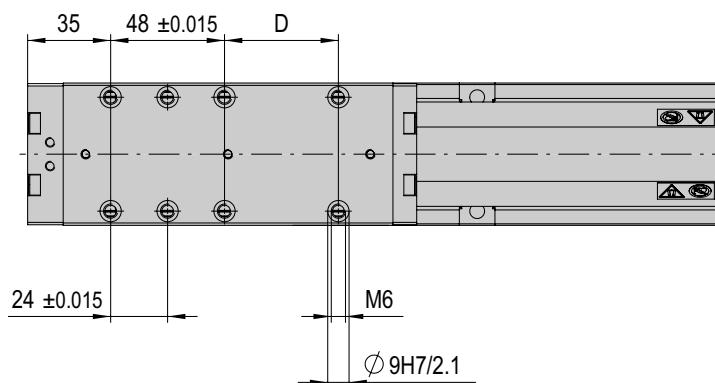
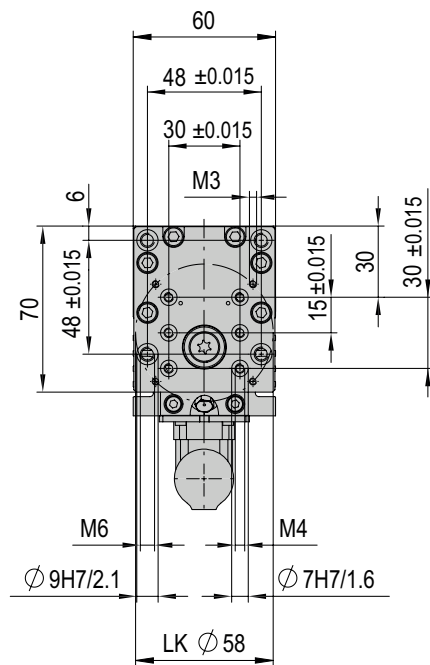
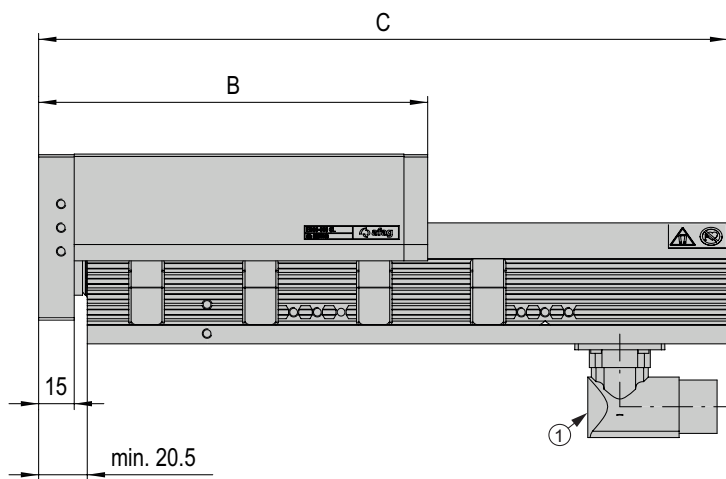
Dimensions and dimension drawings


ES30

Type	ES30-50-SL	ES30-100-SL	ES30-100	ES30-200-SL	ES30-200	ES30-300	ES30-400	ES30-500
A	3 x 48 mm	3 x 48 mm	3 x 48 mm	3 x 48 mm	3 x 48 mm	3 x 48 mm	3 x 48 mm	3 x 48 mm
B	164 mm	214 mm	326 mm	314 mm	426 mm	526 mm	626 mm	726 mm
C	290.5 mm	330.5 mm	330.5 mm	430.5 mm	430.5 mm	530.5 mm	630.5 mm	730.5 mm
D	1 x 48 mm	2 x 48 mm	4 x 48 mm	4 x 48 mm	6 x 48 mm	8 x 48 mm	10 x 48 mm	12 x 48 mm



① - 270° rotatable connector



 Bores can be screwed through



ES30	
Attachment grid	48 x 48 mm
Attachment thread	M6
Operating temperature	0 - 50 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %

Type	ES30-50-SL	ES30-100-SL	ES30-100	ES30-200-SL	ES30-200	ES30-300	ES30-400	ES30-500
Order number	50425973	50425974	50425975	50425976	50425977	50425978	50425979	50425980
Stroke H	50 mm	100 mm	100 mm	200 mm	200 mm	300 mm	400 mm	500 mm
Net weight	3.1 kg	3.5 kg	4.1 kg	4.3 kg	4.9 kg	5.7 kg	6.5 kg	7.2 kg
Moving weight	1.3 kg	1.6 kg	1.85 kg	2.2 kg	2.6 kg	3.2 kg	3.8 kg	4.4 kg
Nominal voltage	72 VDC	72 VDC	72 VDC	72 VDC	72 VDC	72 VDC	72 VDC	72 VDC
Drive	Linear motor, electric							
Protection type	IP 30	IP 30	IP 30	IP 30	IP 30	IP 30	IP 30	IP 30
Max. speed v	3.2 m/s	3.2 m/s	3.2 m/s	3.2 m/s	3.2 m/s	3.2 m/s	3.2 m/s	3.2 m/s
Peak force Fx	255 N	255 N	255 N	255 N	255 N	255 N	255 N	255 N
Constant force Fx	51 N	51 N	51 N	51 N	51 N	51 N	51 N	51 N
Force constant	17 N/A	17 N/A	17 N/A	17 N/A	17 N/A	17 N/A	17 N/A	17 N/A
Repeat accuracy	+/- 0.05 mm	+/- 0.05 mm	+/- 0.05 mm	+/- 0.05 mm	+/- 0.05 mm	+/- 0.05 mm	+/- 0.05 mm	+/- 0.05 mm
- with external position measuring system	+/- 0.02 mm	+/- 0.02 mm	+/- 0.02 mm	+/- 0.02 mm	+/- 0.02 mm	+/- 0.02 mm	+/- 0.02 mm	+/- 0.02 mm
Mounting position								

Note: For vertical installation, a weight compensation via MagSpring or pneumatic weight balancing is required. If the weight compensation is not carried out, the slide will fall below when in a deenergised state. Furthermore, the operation time from the operation time diagram cannot be achieved.
Cleanroom class ISO 14644-1, class ISO 7

Included in the delivery
(Catalogue HT accessories)

- 2x Centering bushing Ø9x4
- 4x Mounting screw M6x20

Accessories

- MagSpring side/front [p. 198-202]
- External position measuring system ES30 [p. 204] (Catalogue HT accessories)
- Motor cable-M23
- Controller C 1xxx-1S
- Plug kit for C 1xxx-1S
- USB-RS232 Converter for controllers
- Power supply S01-72/1000, 3-phase
- MTZ 45x2b Double centric mounting module

Alternative accessories
(Catalogue HT accessories)

- Additional motor cables
- Additional controllers
- Additional power supplies
- Additional mounting modules

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



ES30	3	< direct >	2
ES40	1,3	< direct >	2
ES40-HP	1,3	< direct >	2
OZ-50	1	< direct >	2
OZ-60	1	< direct >	2
PEZ-65	3	< direct >	2
PEZ-80	3	< direct >	2
PDZ-128	3	< direct >	2
PDZ-160	3	< direct >	2
PEL20	3	< direct >	2
PDL30	3	< direct >	2
PDL40	3	< direct >	2
PDL40-HP	3	< direct >	2
LE-50	1, 2,3	< direct >	2
LE-60	1, 2, 3	< direct >	2
LE-70	1, 2, 3	< direct >	2
RE-75	3	< direct >	2
PS 25	1 2,3	VP 118 < direct >	2 2
PS 32	1, 2,3	< direct >	2
HM 16	1	< direct >	2
HM 25	1	< direct >	2
PMP	1,3	< direct >	2
MT 45x2c	1	< direct >	2
MTZ 45x2b	1	< direct >	2

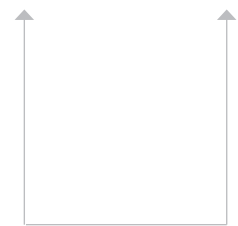


1	< direct >	2	ES20
3	VP 112	2	ES30
3	< direct >	2	SA-3
1	VP 146	3	RE-50
1,3	VP 147	1	RE-75
1,3	VP 148	1	EG-20/ GM20
1	< direct >	1	GM 12/ RE-50
3	VP 112	1	GM 20/ RE-50
1	< direct >	1	GM 20/ RE-50
3	VP 112	1	GM 32/ RE-50
1	VP 117	1	GM 32/ RE-50
3	< direct >	1	GM 32/ RE-75
1, 3	< direct >	1	SG-50
1	VP 150	2	CS 12
3	< direct >	2	CS 12
1	< direct >	2	CS 16
3	VP 112	2	CS 16
1,3	< direct >	2	CS 20
1	VP 146	2	PS 16
1	< direct >	2	PS 25
3	VP 112	2	HM 10
3	< direct >	2	HM 16
1	< direct >	1	CR 12
3	VP112	1	CR 12
1,3	< direct >	1	CR 16
1,3	< direct >	1	CR 20
1,3	VS 506	1	RM 12
1,3	VS 507	1	RM 16
1,3	VP 150	1,2	DG 20
1	< direct >	1,2	UG 20
3	VP 115	1	UG 25
3	VP 112	2	UG 25
1,3	< direct >	1	GM 32



Mounting areas

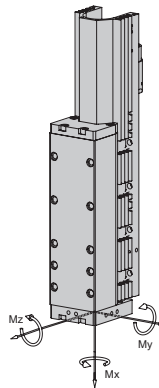
<p>CS, ES</p>	<p>PS</p>	<p>LM, LE</p>
<p>PMP, PMP-c</p>	<p>PEZ, PDZ</p>	<p>PEL, PDL</p>
<p>HM</p>	<p>SA</p>	<p>OZ</p>
<p>RM, RM 32, RE, SREH</p>	<p>RM, RE</p>	<p>UG, GM, SG, DG, PG, GE</p>



Mounting areas

Note that there might be different mounting positions from one module to another one. The required connection elements and the range of support columns are depicted in the catalogue HT accessories.

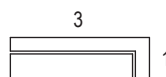
Type	ES30-50-SL	ES30-100-SL	ES30-100	ES30-200-SL	ES30-200	ES30-300	ES30-400	ES30-500
Max. dynamic torque Mx	30 Nm	30 Nm	30 Nm	30 Nm	30 Nm	30 Nm	30 Nm	30 Nm
Max. dynamic torque My	40 Nm	40 Nm	80 Nm	40 Nm	80 Nm	80 Nm	80 Nm	80 Nm
Max. dynamic torque Mz	40 Nm	40 Nm	80 Nm	40 Nm	80 Nm	80 Nm	80 Nm	80 Nm
Peak force Fx	255 N	255 N	255 N	255 N	255 N	255 N	255 N	255 N



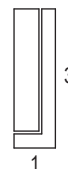
Maximum payload/type	ES30-50-SL	ES30-100-SL	ES30-100	ES30-200-SL	ES30-200	ES30-300	ES30-400	ES30-500
Installation position (horizontal) for mounting side 1/3	10 kg	10 kg	10 kg	8 kg	8 kg	6 kg	5 kg	4 kg
Installation position (vertical) for mounting side 1/3	10 kg	10 kg	10 kg	8 kg	8 kg	6 kg	5 kg	4 kg

Assembly sides module mounting

horizontal:

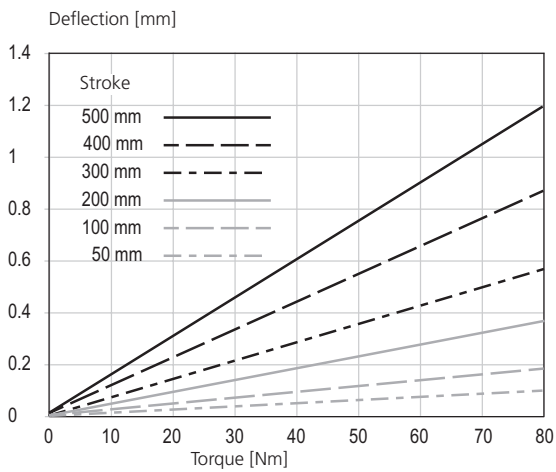


vertical:

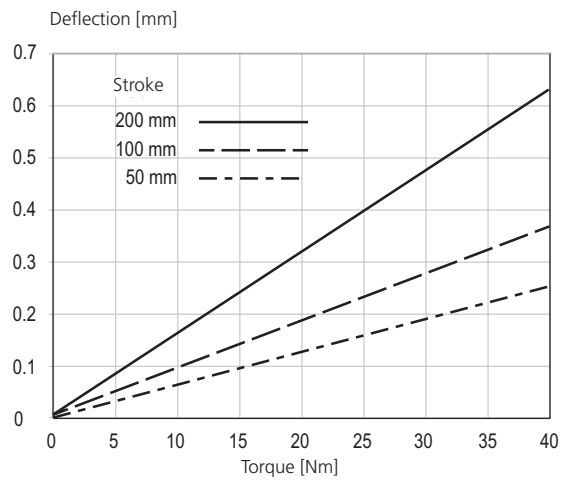


Diagrams

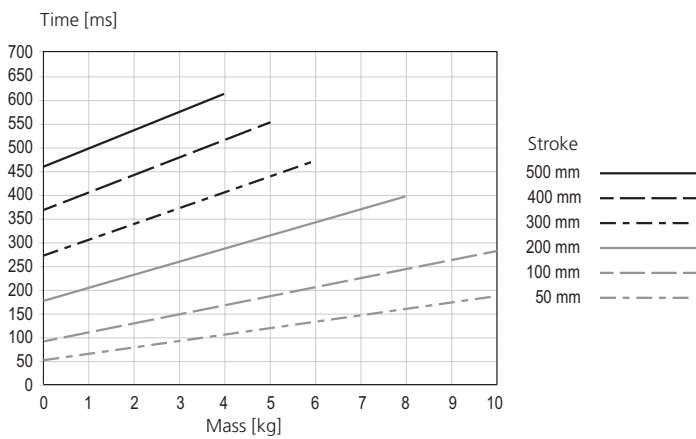
Deflection ES30



Deflection ES30-SL



Operation time ES30



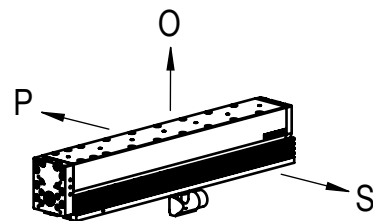
Running times based on pause times of 200 ms

Order form	ES30	XXXXXXXX	XXXXXXXX	XXXXXXXX	X	X
		Electric slide	MagSpring	External position measuring system	Position MagSpring	Position external position measuring system

Coordinate system

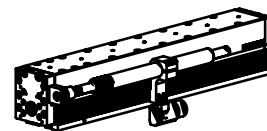
The coordinate system allows you to define the position of the MagSpring as well as that of the external position measuring system.

- P = left
- O = top
- S = right



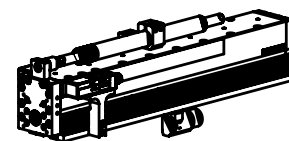
Ordering example 1 with MagSpring

ES30	50425977	50429231	X	S	X
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Ordering example 2 with MagSpring and external position measuring system

ES30	50425975	50429237	50429230	O	S
------	----------	----------	----------	---	---



Ordering process

- Select the desired electric slide, external position measuring system and MagSpring from the order key.
- Enter the corresponding red order numbers in the order form in the place of the cross.
- Determine the desired position of the MagSpring and the external position measuring system.
- Enter the corresponding letters from the coordinate system in the order form in the place of the cross.

MagSpring

- The MagSpring serves to balance the weight forces in a vertical installation position.
- The dimensioning of the MagSpring must match the moving weight in the vertical installation position.

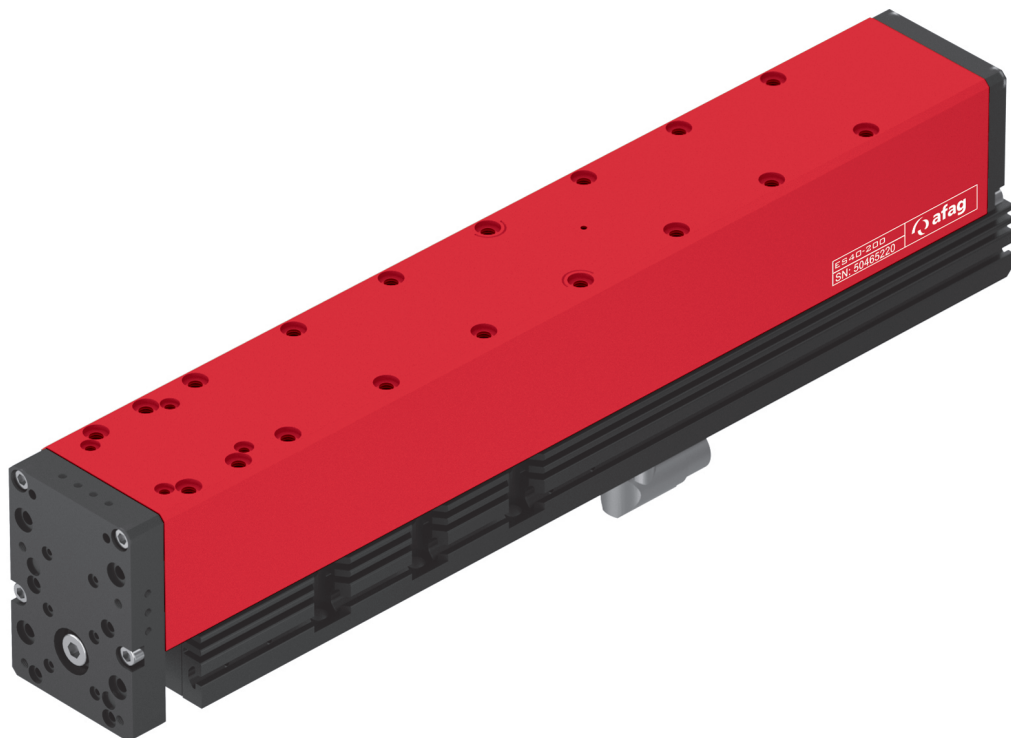
External position measuring system

- The external position measuring system must be ordered in accordance with the module length.

Electro slide	ES30	XXXXXXXX	XXXXXXXX		XXXXXXXX	X	X
	ES30-50-SL	50425973	MagSpring side (s)	MagSpring front (v)	External position measuring system	Position MagSpring	Position external position measuring system
	ES30-100-SL	50425974					
	ES30-100	50425975					
	ES30-200-SL	50425976					
	ES30-200	50425977					
	ES30-300	50425978					
	ES30-400	50425979					
	ES30-500	50425980					
MagSpring for ES30-50	MagSpring ES30 s/v 11N	50429205					
	MagSpring ES30 s/v 17N	50429206	50429212				
	MagSpring ES30 s/v 22N	50429207	50429213				
	MagSpring ES30 s/v 40N	50429208	50429214				
	MagSpring ES30 s/v 50N	50429209	50429215				
	MagSpring ES30 s/v 60N	50429210	50429216				
MagSpring for ES30-100	MagSpring ES30 s/v 11N	50429218	50429224				
	MagSpring ES30 s/v 17N	50429219	50429225				
	MagSpring ES30 s/v 22N	50429220	50429226				
	MagSpring ES30 s/v 40N	50429221	50429227				
	MagSpring ES30 s/v 50N	50429222	50429228				
	MagSpring ES30 s/v 60N	50429223	50429229				
MagSpring for ES30-200	MagSpring ES30 s/v 11N	50429231	50429237				
	MagSpring ES30 s/v 17N	50429232	50429238				
	MagSpring ES30 s/v 22N	50429233	50429239				
	MagSpring ES30 s/v 40N	50429234	50429240				
	MagSpring ES30 s/v 50N	50429235	50429241				
	MagSpring ES30 s/v 60N	50429236	50429242				
MagSpring for ES30-300	MagSpring ES30 s/v 11N	50429244	50429250				
	MagSpring ES30 s/v 17N	50429245	50429251				
	MagSpring ES30 s/v 22N	50429246	50429252				
	MagSpring ES30 s/v 40N	50429247	50429253				
	MagSpring ES30 s/v 50N	50429248	50429254				
	MagSpring ES30 s/v 60N	50429249	50429255				
	Without MagSpring	X					
External position measuring system	External position measuring system ES30 050mm	50429204					
	External position measuring system ES30 100mm	50429217					
	External position measuring system ES30 200mm	50429230					
	External position measuring system ES30 300mm	50429243					
	External position measuring system ES30 400mm	50429256					
	External position measuring system ES30 500mm	50429257					
	Without external position measuring system	X					
Mounting	Position MagSpring						
	Position external position measuring system						

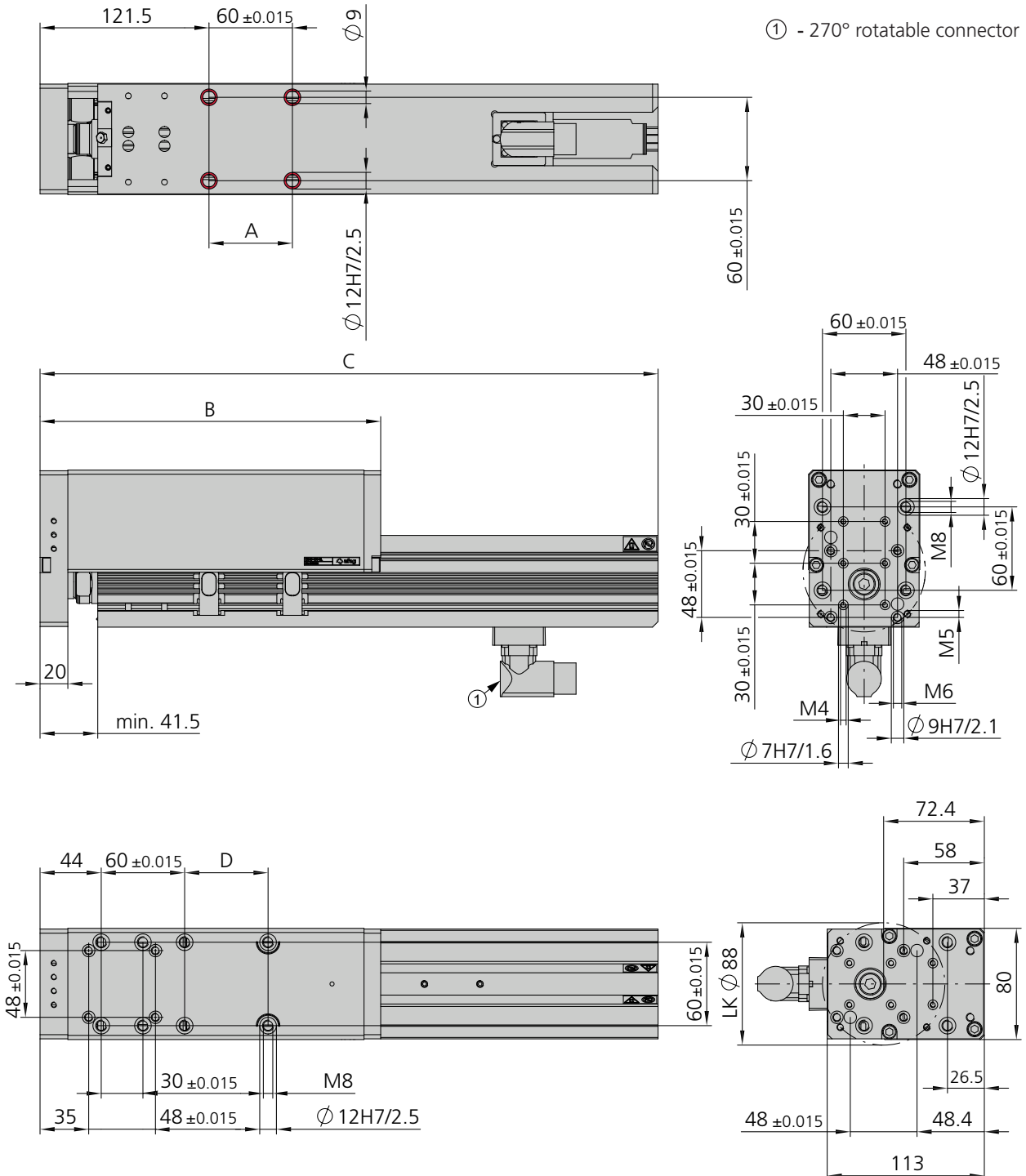
Electro slides ES40


ES40



- Powerful cantilever axis
- Freely programmable
- High dynamics

Type	ES40-100-SL	ES40-100	ES40-200	ES40-300	ES40-400	ES40-500
A	1 x 60 mm	2 x 60 mm	2 x 60 mm	2 x 60 mm	2 x 60 mm	3 x 60 mm
B	245 mm	445 mm	545 mm	645 mm	745 mm	904 mm
C	444.5 mm	451.5 mm	551.5 mm	651.5 mm	751.5 mm	910.5 mm
D	2 x 60 mm	6 x 60 mm	7 x 60 mm	9 x 60 mm	11 x 60 mm	13 x 60 mm



 Bores can be screwed through



ES40	
Attachment grid	60 x 60 mm
Attachment thread	M8
Operating temperature	0 - 50 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %

Type	ES40-100-SL	ES40-100	ES40-200	ES40-300	ES40-400	ES40-500
Order number	50465218	50465219	50465220	50465221	50465222	50465223
Stroke H	100 mm	100 mm	200 mm	300 mm	400 mm	500 mm
Net weight	8.23 kg	10.08 kg	11.65 kg	13.35 kg	14.91 kg	17.11 kg
Moving weight	3.84 kg	5.33 kg	6.48 kg	7.67 kg	8.91 kg	10.5 kg
Max. speed	2 m/s	2 m/s	2 m/s	2 m/s	2 m/s	1.8 m/s
Nominal voltage	72 VDC	72 VDC	72 VDC	72 VDC	72 VDC	72 VDC
Drive	Linear motor, electric					
Protection type	IP 30	IP 30	IP 30	IP 30	IP 30	IP 30
Peak force Fx	550 N	550 N	550 N	550 N	550 N	550 N
Constant force Fx	145 N	145 N	145 N	145 N	145 N	145 N
Force constant	22 N/A	22 N/A	22 N/A	22 N/A	22 N/A	22 N/A
Repeat accuracy	+/- 0.05 mm	+/- 0.05 mm	+/- 0.05 mm	+/- 0.05 mm	+/- 0.05 mm	+/- 0.05 mm
- with external position measuring system	+/- 0.02 mm	+/- 0.02 mm	+/- 0.02 mm	+/- 0.02 mm	+/- 0.02 mm	+/- 0.02 mm
Mounting position	✦	✦	✦	✦	✦	✦

Note: For vertical installation, a weight compensation via MagSpring or pneumatic weight balancing is required. If the weight compensation is not carried out, the slide will fall below when in a deenergised state. Furthermore, the operation time from the operation time diagram cannot be achieved.
Cleanroom class ISO 14644-1, class ISO 7

Included in the delivery

- (Catalogue HT accessories)
- 2x Centering bushing Ø12x4.8
 - 4x Mounting screw M8x25

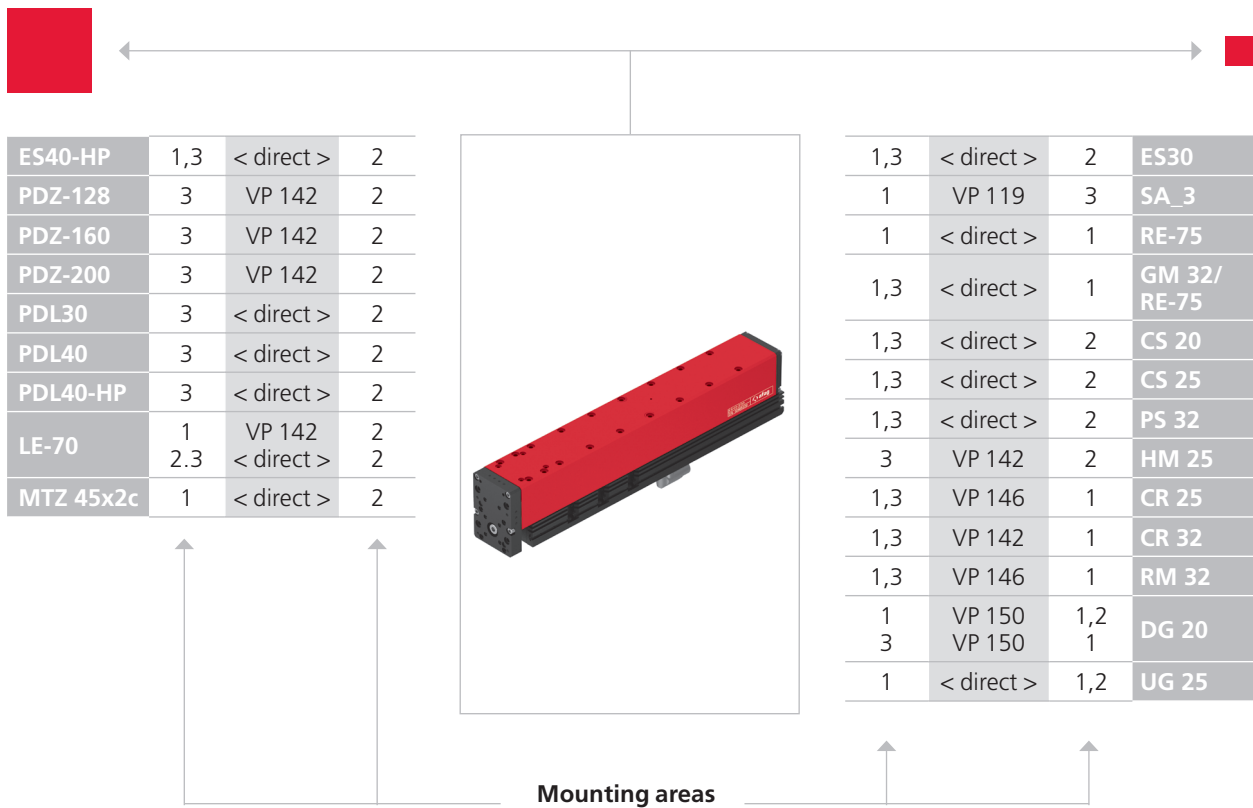
Accessories

- (Product-specific accessories)
- MagSpring side/front
 - External position measuring system ES40
- (Catalogue HT accessories)
- Motor cable-M17
 - Controller C1xxx-1S
 - Plug kit for C1xxx-1S
 - USB-RS232 Converter for controllers
 - Power supply S01-72/1000, 3-phase
 - Double module support centric MTZ 45x2c

Alternative accessories

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

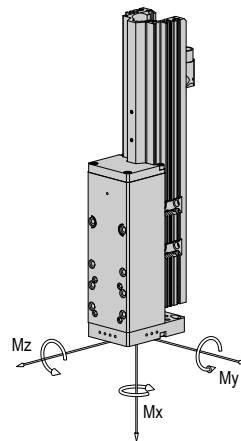
Warranty: 24 months following commissioning, but a maximum of 27 months following delivery



CS, ES 	PS 	LM, LE 	HM 	SA 	OZ
PMP, PMP-c 	PEZ, PDZ 	PEL, PDL 	CR, RM 32, RE, SREH 	RM, RE 	UG, GM, SG, DG, PG, GE

Note that there might be different mounting positions from one module to another one. The required connection elements and the range of support columns are depicted in the catalogue HT accessories.

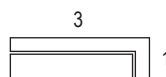
Type	ES40-100-SL	ES40-100	ES40-200	ES40-300	ES40-400	ES40-500
Max. dynamic torque Mx	35 Nm	45 Nm	45 Nm	45 Nm	45 Nm	45 Nm
Max. dynamic torque My	80 Nm	180 Nm	180 Nm	180 Nm	180 Nm	200 Nm
Max. dynamic torque Mz	80 Nm	180 Nm	180 Nm	180 Nm	180 Nm	200 Nm



Maximum payload/type	ES40-100-SL	ES40-100	ES40-200	ES40-300	ES40-400	ES40-500
Installation position (horizontal) for mounting side 1/3	25 kg	30 kg	30 kg	30 kg	30 kg	30 kg
Installation position (vertical) for mounting side 1/3	8 kg	6 kg	5 kg	4 kg		

Assembly sides module mounting

horizontal:

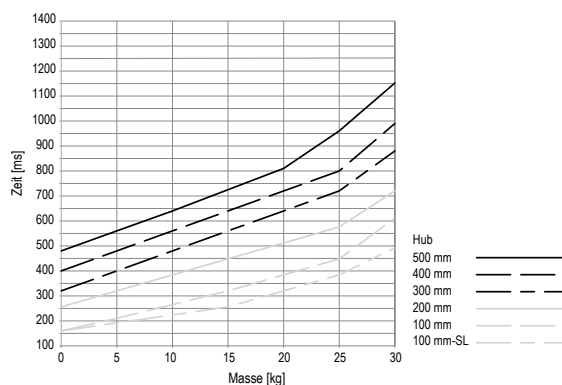


vertical:



Diagrams ES40

Operation time ES40

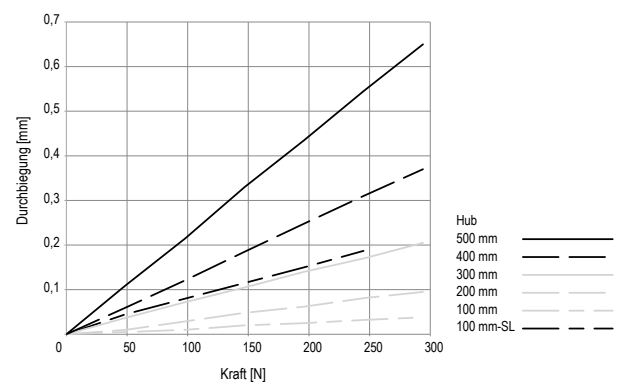


Die Fahrzeiten wurden unter den nachfolgenden Bedingungen gemessen:

- horizontal
- Umgebungstemperatur 20 °C
- Servoregler C1150-1S-PN
- Motorspannung 72 VDC
- Motorkabel-M17-8m-0-1-1

The times refer to break times of 200 ms.

Deflection ES40

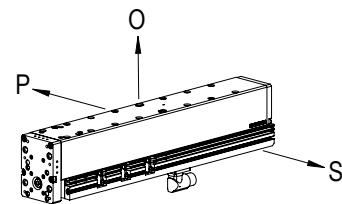


Order form	ES40	XXXXXXXX	XXXXXXXX	XXXXXXXX	X	X
		Electric slide	MagSpring	External position measuring system	Position MagSpring	Position external position measuring system

Coordinate system

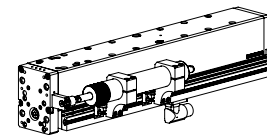
The coordinate system allows you to define the position of the MagSpring as well as that of the external position measuring system.

- P = left
- O = top
- S = right



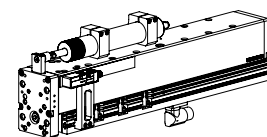
Ordering example 1 with MagSpring

ES40	50465220	50470232	X	S	X
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Ordering example 2 with MagSpring and external position measuring system

ES40	50465220	50470235	50470245	O	S
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Ordering process

- Select the desired electric slide, external position measuring system and MagSpring from the order key.
- Enter the corresponding red order numbers in the order form in the place of the cross.
- Determine the desired position of the MagSpring and the external position measuring system.
- Enter the corresponding letters from the coordinate system in the order form in the place of the cross.

MagSpring

- The MagSpring serves to balance the weight forces in a vertical installation position.
- The dimensioning of the MagSpring must match the moving weight in the vertical installation position.

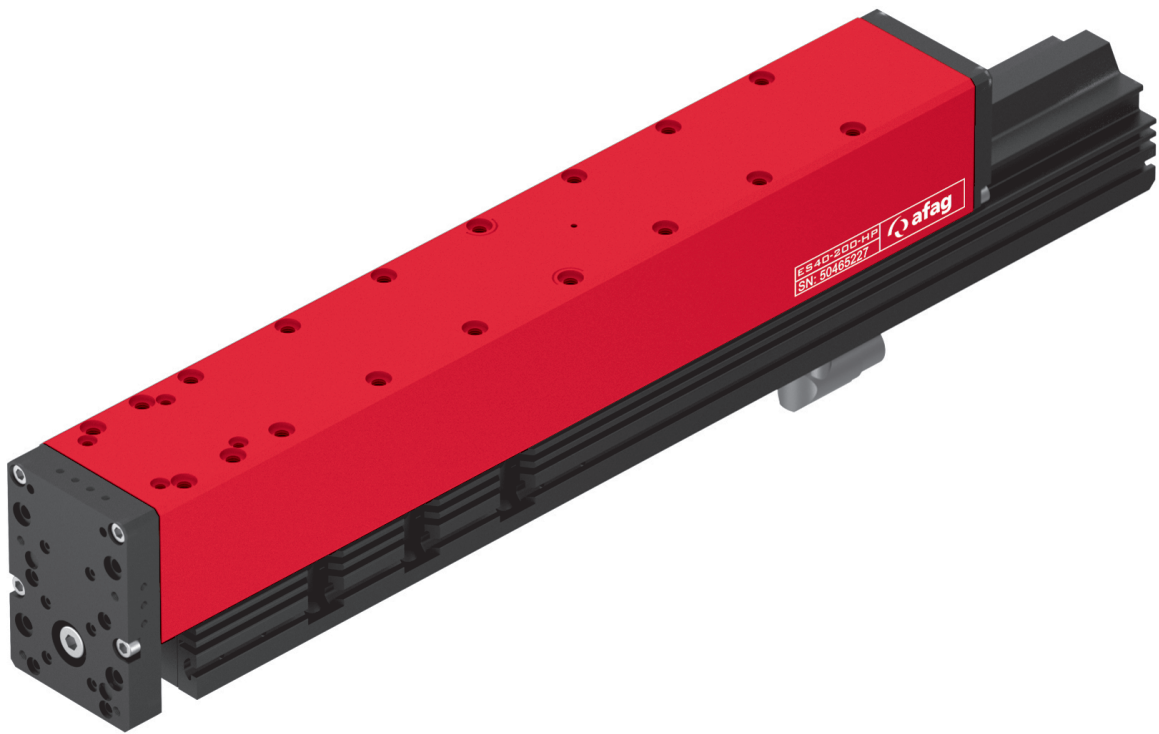
External position measuring system

- The external position measuring system must be ordered in accordance with the module length.

Electro slide	ES40	XXXXXXXX	XXXXXXXX		XXXXXXXX	X	X
	ES40-100-SL	50465218	MagSpring side (s)	MagSpring front (v)	External position measuring system	Position MagSpring	Position external position measuring system
	ES40-100	50465219					
	ES40-200	50465220					
	ES40-300	50465221					
	ES40-400	50465222					
	ES40-500	50465223					
MagSpring for ES40-100	MagSpring ES40 s/v 40N	50470226					
	MagSpring ES40 s/v 50N	50470227	50470230				
	MagSpring ES40 s/v 60N	50470228	50470231				
MagSpring for ES40-200	MagSpring ES40 s/v 40N	50470232	50470235				
	MagSpring ES40 s/v 50N	50470233	50470236				
	MagSpring ES40 s/v 60N	50470234	50470237				
MagSpring for ES40-300	MagSpring ES40 s/v 40N	50470238	50470241				
	MagSpring ES40 s/v 50N	50470239	50470242				
	MagSpring ES40 s/v 60N	50470240	50470243				
	Without MagSpring			X			
External position measuring system	External position measuring system ES40 100mm				50470244		
	External position measuring system ES40 200mm				50470245		
	External position measuring system ES40 300mm				50470246		
	External position measuring system ES40 400mm				50470247		
	External position measuring system ES40 500mm				50470248		
	Without external position measuring system						X
Mounting	Position MagSpring						POS
	Position external position measuring system						PS

Electro slides ES40-HP

ES40-HP

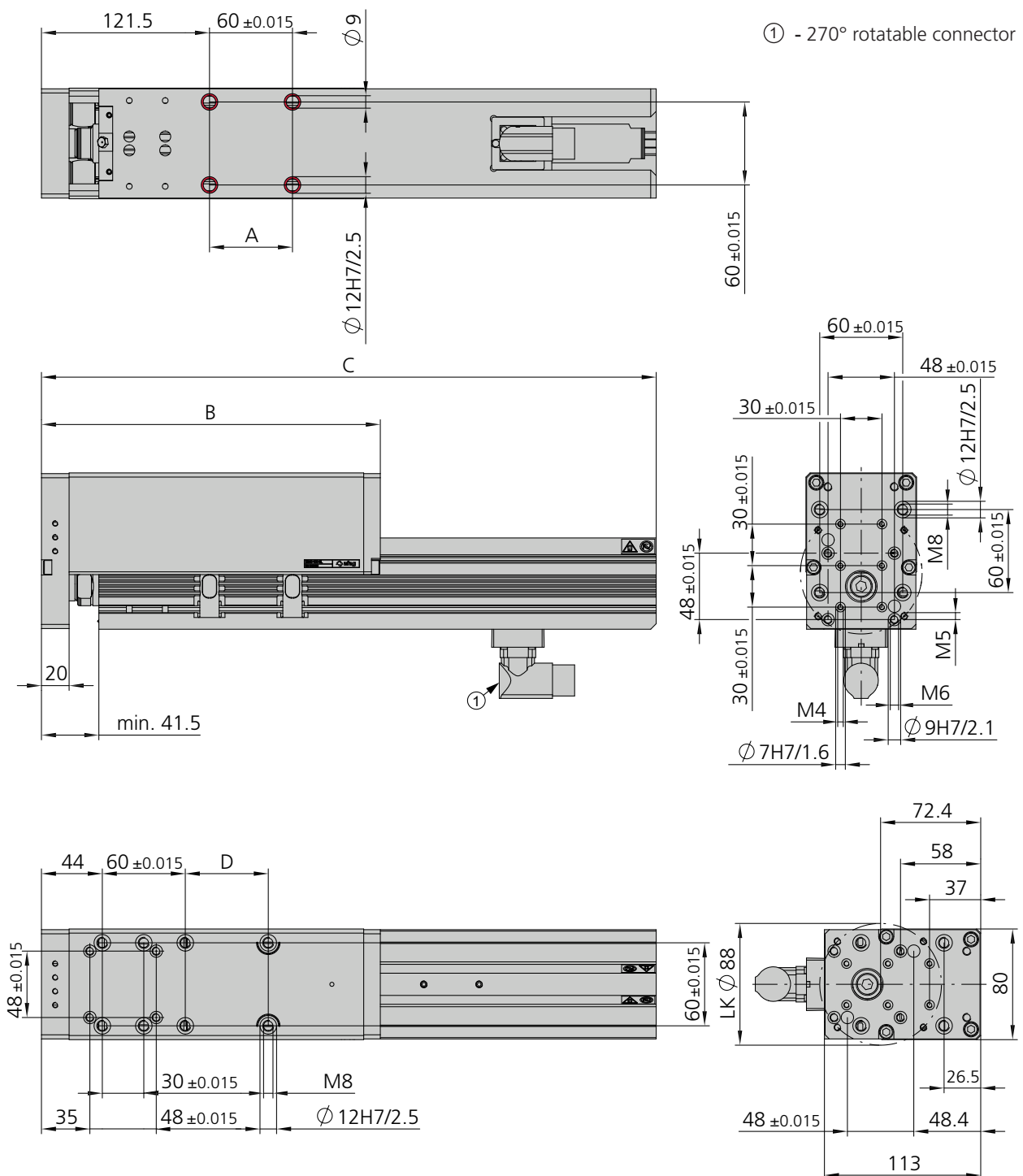


- The strongest gantry axis of its kind
- Freely programmable
- For press-in tasks up to 1000 N

Dimensions and dimension drawings

ES40-HP

Type	ES40-100-HP-SL	ES40-100-HP	ES40-200-HP	ES40-300-HP	ES40-400-HP	ES40-500-HP
A	1 x 60 mm	2 x 60 mm	2 x 60 mm	2 x 60 mm	2 x 60 mm	3 x 60 mm
B	245 mm	445 mm	545 mm	645 mm	745 mm	1024 mm
C	534.5 mm	534.5 mm	654.5 mm	744.5 mm	834.5 mm	1031.5 mm
D	2 x 60 mm	6 x 60 mm	7 x 60 mm	9 x 60 mm	11 x 60 mm	15 x 60 mm



⊕ Bores can be screwed through



ES40-HP	
Attachment grid	60 x 60 mm
Attachment thread	M8
Operating temperature	0 - 50 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %

Type	ES40-100-HP-SL	ES40-100-HP	ES40-200-HP	ES40-300-HP	ES40-400-HP	ES40-500-HP
Order number	50465225	50465226	50465227	50465228	50465229	50465230
Stroke H	100 mm	100 mm	200 mm	300 mm	400 mm	500 mm
Net weight	10.08 kg	11.9 kg	13.7 kg	15.21 kg	16.73 kg	18.91 kg
Moving weight	4.27 kg	5.75 kg	7.04 kg	8.18 kg	9.34 kg	11.06 kg
Max. speed	2 m/s	2 m/s	1.8 m/s	1.8 m/s	1.8 m/s	1.7 m/s
Nominal voltage	72 VDC	72 VDC	72 VDC	72 VDC	72 VDC	72 VDC
Drive	Linear motor, electric					
Protection type	IP 30	IP 30	IP 30	IP 30	IP 30	IP 30
Peak force Fx	1024 N	1024 N	1024 N	1024 N	1024 N	1024 N
Constant force Fx	203 N	203 N	203 N	203 N	203 N	203 N
Force constant	32 N/A	32 N/A	32 N/A	32 N/A	32 N/A	32 N/A
Repeat accuracy	+/- 0.05 mm	+/- 0.05 mm	+/- 0.05 mm	+/- 0.05 mm	+/- 0.05 mm	+/- 0.05 mm
- with external position measuring system	+/- 0.02 mm	+/- 0.02 mm	+/- 0.02 mm	+/- 0.02 mm	+/- 0.02 mm	+/- 0.02 mm
Mounting position	✦	✦	✦	✦	✦	✦

Note: For vertical installation, a weight compensation via MagSpring or pneumatic weight balancing is required. If the weight compensation is not carried out, the slide will fall below when in a deenergised state. Furthermore, the operation time from the operation time diagram cannot be achieved.
Cleanroom class ISO 14644-1, class ISO 7

Included in the delivery

(Catalogue HT accessories)

- 2x Centering bushing Ø12x4.8
- 4x Mounting screw M8x25

Accessories

(Product-specific accessories)

- MagSpring side/front
- External position measuring system ES40

(Catalogue HT accessories)

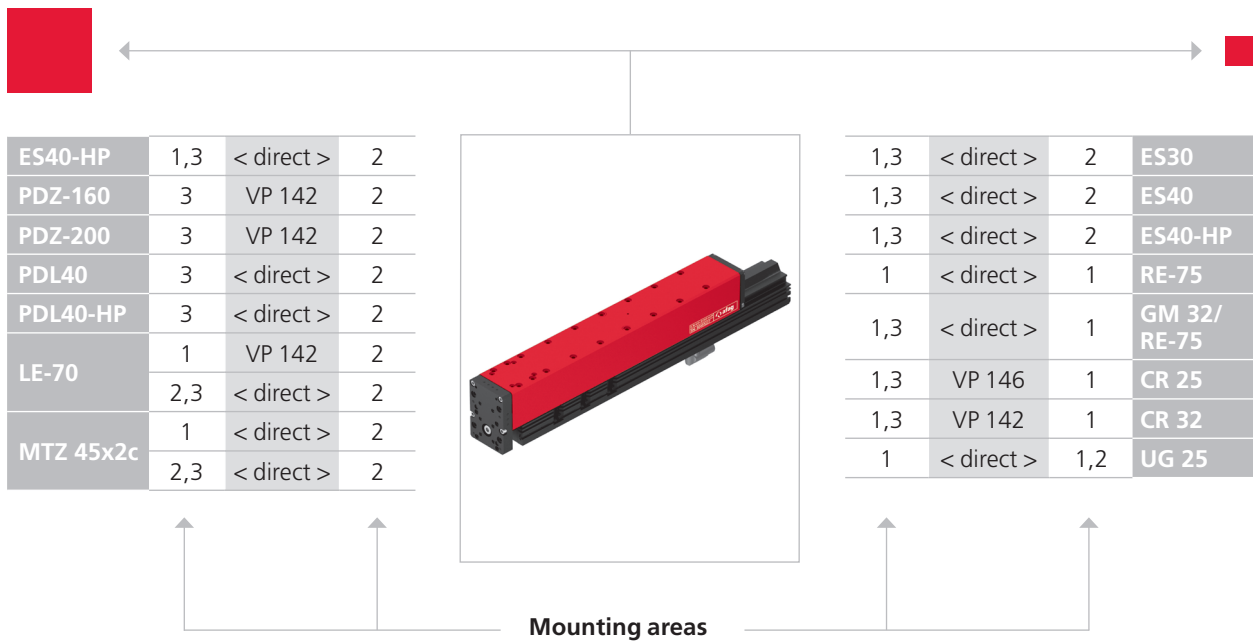
- Motor cable-M17
- Controller C1xxx-1S
- Plug kit for C1xxx-1S
- USB-RS232 Converter for controllers
- Power supply S01-72/1000, 3-phase
- Double module support centric MTZ 45x2c

Alternative accessories

(Catalogue HT accessories)

- Additional motor cables
- Additional controllers
- Additional power supplies

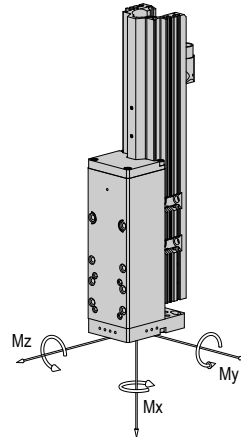
Warranty: 24 months following commissioning, but a maximum of 27 months following delivery



CS, ES 	PS 	LM, LE 	HM 	SA 	OZ
PMP, PMP-c 	PEZ, PDZ 	PEL, PDL 	CR, RM 32, RE, SREH 	RM, RE 	UG, GM, SG, DG, PG, GE

Note that there might be different mounting positions from one module to another one. The required connection elements and the range of support columns are depicted in the catalogue HT accessories.

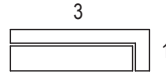
Type	ES40-100-HP-SL	ES40-100-HP	ES40-200-HP	ES40-300-HP	ES40-400-HP	ES40-500-HP
Max. dynamic torque Mx	40 Nm	45 Nm	45 Nm	45 Nm	45 Nm	45 Nm
Max. dynamic torque My	80 Nm	180 Nm	180 Nm	180 Nm	180 Nm	200 Nm
Max. dynamic torque Mz	80 Nm	180 Nm	180 Nm	180 Nm	180 Nm	200 Nm



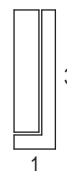
Maximum payload/type	ES40-100-HP-SL	ES40-100-HP	ES40-200-HP	ES40-300-HP	ES40-400-HP	ES40-500-HP
Installation position (horizontal) for mounting side 1/3	25 kg	30 kg	30 kg	30 kg	30 kg	30 kg
Installation position (vertical) for mounting side 1/3	7 kg	6 kg	4 kg	3 kg		

Assembly sides module mounting

horizontal:

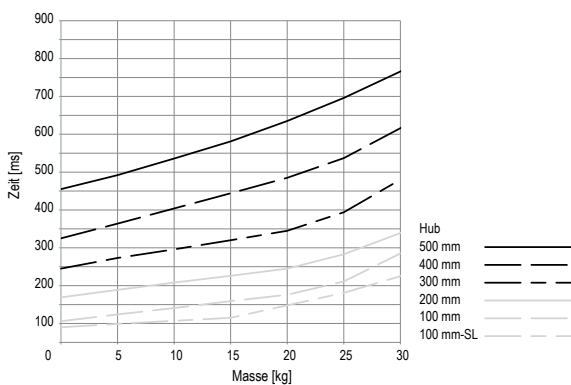


vertical:



Diagrams ES40-HP

Operation time ES40-HP

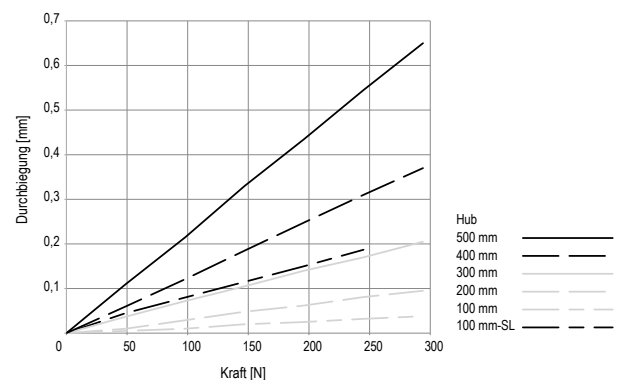


Die Fahrzeiten wurden unter den nachfolgenden Bedingungen gemessen:

- horizontal
- Umgebungstemperatur 20 °C
- Servoregler **E1250-1S-PN (32A)**
- Motorspannung 72 VDC
- Motorkabel-M17-8m-0-1-1

The times refer to break times of 200 ms.

Deflection ES40-HP

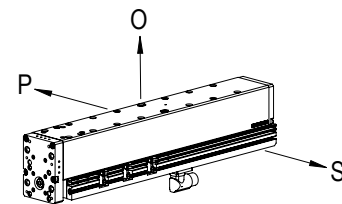


Order form	ES40-HP	XXXXXXXX	XXXXXXXX	XXXXXXXX	X	X
		Electric slide	MagSpring	External position measuring system	Position MagSpring	Position external position measuring system

Coordinate system

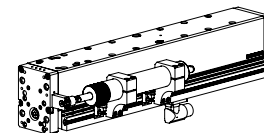
The coordinate system allows you to define the position of the MagSpring as well as that of the external position measuring system.

- P = left
- O = top
- S = right



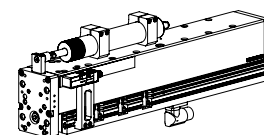
Ordering example 1 with MagSpring

ES40-HP	50465227	50470232	X	S	X
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Ordering example 2 with MagSpring and external position measuring system

ES40-HP	50465227	50470235	50470245	O	S
---------	----------	----------	----------	---	---



Ordering process

- Select the desired electric slide, external position measuring system and MagSpring from the order key.
- Enter the corresponding red order numbers in the order form in the place of the cross.
- Determine the desired position of the MagSpring and the external position measuring system.
- Enter the corresponding letters from the coordinate system in the order form in the place of the cross.

MagSpring

- The MagSpring serves to balance the weight forces in a vertical installation position.
- The dimensioning of the MagSpring must match the moving weight in the vertical installation position.

External position measuring system

- The external position measuring system must be ordered in accordance with the module length.

Electro slide	ES40-HP	xxxxxxx	xxxxxxx		xxxxxxx	x	x
	ES40-100-HP-SL	50465225	MagSpring side (s)	MagSpring front (v)	External position measuring system	Position MagSpring	Position external position measuring system
	ES40-100-HP	50465226					
	ES40-200-HP	50465227					
	ES40-300-HP	50465228					
	ES40-400-HP	50465229					
	ES40-500-HP	50465230					
MagSpring for ES40-100-HP							
	MagSpring ES40 s/v 40N	50470226	50470229				
	MagSpring ES40 s/v 50N	50470227	50470230				
	MagSpring ES40 s/v 60N	50470228	50470231				
MagSpring for ES40-200-HP							
	MagSpring ES40 s/v 40N	50470232	50470235				
	MagSpring ES40 s/v 50N	50470233	50470236				
	MagSpring ES40 s/v 60N	50470234	50470237				
MagSpring for ES40-300-HP							
	MagSpring ES40 s/v 40N	50470238	50470241				
	MagSpring ES40 s/v 50N	50470239	50470242				
	MagSpring ES40 s/v 60N	50470240	50470243				
	Without MagSpring			x			
External position measuring system	External position measuring system ES40 100mm				50470244		
	External position measuring system ES40 200mm				50470245		
	External position measuring system ES40 300mm				50470246		
	External position measuring system ES40 400mm				50470247		
	External position measuring system ES40 500mm				50470248		
	Without external position measuring system						x
Mounting	Position MagSpring						POS
	Position external position measuring system						PS

The MagSpring is a passive component which supplies a constant force via a specific stroke range based on permanent magnets. This balances the load mass for vertically installed axes. Furthermore, the peripherals and the workpiece are also prevented from falling when the electric slide is in a deenergised state.

The MagSpring and holder are provided in accordance with the ES electric slides ES20, ES30 and ES40. This can be mounted on the left, right or front side of the axis.

Advantages:

- Constant force over the entire stroke range
- Overstretching of the spring is impossible
- Energy-efficient weight compensation

MagSpring ES20-50-SL

Description	Order number
MagSpring ES20 s 11N 050mm	50427548
MagSpring ES20 s 17N 050mm	50427549
MagSpring ES20 s 22N 050mm	50427550
MagSpring ES20 v 11N 050mm	50427554
MagSpring ES20 v 17N 050mm	50427555
MagSpring ES20 v 22N 050mm	50427556
MagSpring ES20 s 40N 050mm	50427551
MagSpring ES20 s 50N 050mm	50427552
MagSpring ES20 s 60N 050mm	50427553
MagSpring ES20 v 40N 050mm	50427557
MagSpring ES20 v 50N 050mm	50427558
MagSpring ES20 v 60N 050mm	50427559

MagSpring ES20-100-SL

Description	Order number
MagSpring ES20 s 11N 100mm	50427561
MagSpring ES20 s 17N 100mm	50427562
MagSpring ES20 s 22N 100mm	50427563
MagSpring ES20 v 11N 100mm	50427567
MagSpring ES20 v 17N 100mm	50427568
MagSpring ES20 v 22N 100mm	50427569
MagSpring ES20 s 40N 100mm	50427564
MagSpring ES20 s 50N 100mm	50427565
MagSpring ES20 s 60N 100mm	50427566
MagSpring ES20 v 40N 100mm	50427570
MagSpring ES20 v 50N 100mm	50427571
MagSpring ES20 v 60N 100mm	50427572

MagSpring ES20-200

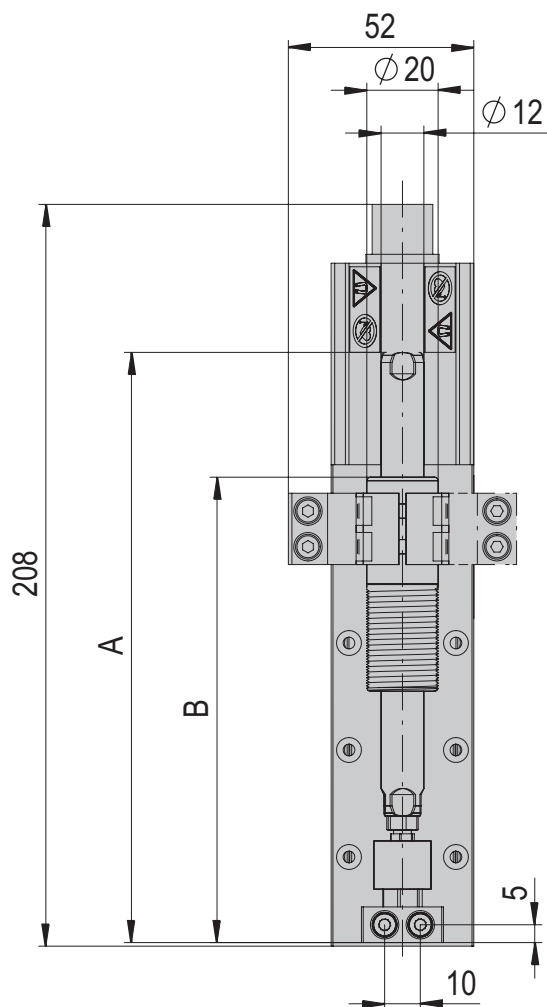
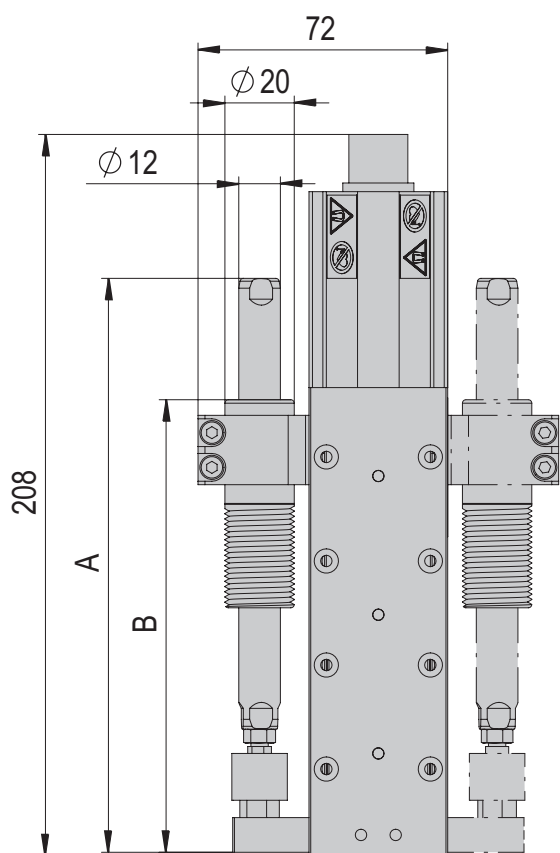
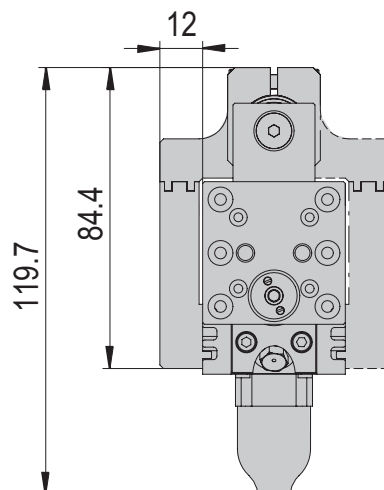
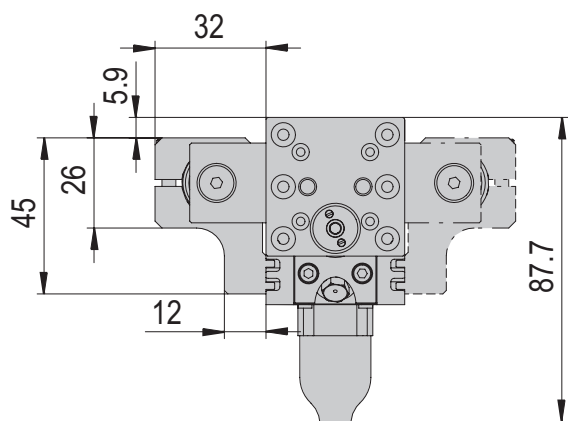
Description	Order number
MagSpring ES20 s 11N 200mm	50427574
MagSpring ES20 s 17N 200mm	50427575
MagSpring ES20 s 22N 200mm	50427576
MagSpring ES20 v 11N 200mm	50427580
MagSpring ES20 v 17N 200mm	50427581
MagSpring ES20 v 22N 200mm	50427582
MagSpring ES20 s 40N 200mm	50427577
MagSpring ES20 s 50N 200mm	50427578
MagSpring ES20 s 60N 200mm	50427579
MagSpring ES20 v 40N 200mm	50427583
MagSpring ES20 v 50N 200mm	50427584
MagSpring ES20 v 60N 200mm	50427585

MagSpring ES20-300

Description	Order number
MagSpring ES20 s 11N 300mm	50427587
MagSpring ES20 s 17N 300mm	50427588
MagSpring ES20 s 22N 300mm	50427589
MagSpring ES20 v 11N 300mm	50427593
MagSpring ES20 v 17N 300mm	50427594
MagSpring ES20 v 22N 300mm	50427595
MagSpring ES20 s 40N 300mm	50427590
MagSpring ES20 s 50N 300mm	50427591
MagSpring ES20 s 60N 300mm	50427592
MagSpring ES20 v 40N 300mm	50427596
MagSpring ES20 v 50N 300mm	50427597
MagSpring ES20 v 60N 300mm	50427598

MagSpring side	ES20-50-SL	ES20-100-SL	ES20-200	ES20-300
A	165 mm	245 mm	325 mm	405 mm
B	130 mm	210 mm	290 mm	370 mm

MagSpring front	ES20-50-SL	ES20-100-SL	ES20-200	ES20-300
	165 mm	245 mm	325 mm	405 mm
	130 mm	210 mm	290 mm	370 mm



MagSpring ES20-50-SL	side			front		
Order number	50427548	50427549	50427550	50427554	50427555	50427556
Stroke H	50 mm	50 mm	50 mm	50 mm	50 mm	50 mm
Net weight	0.235 kg	0.235 kg	0.235 kg	0.265 kg	0.265 kg	0.265 kg
Permanent force	11 N	17 N	22 N	11 N	17 N	22 N

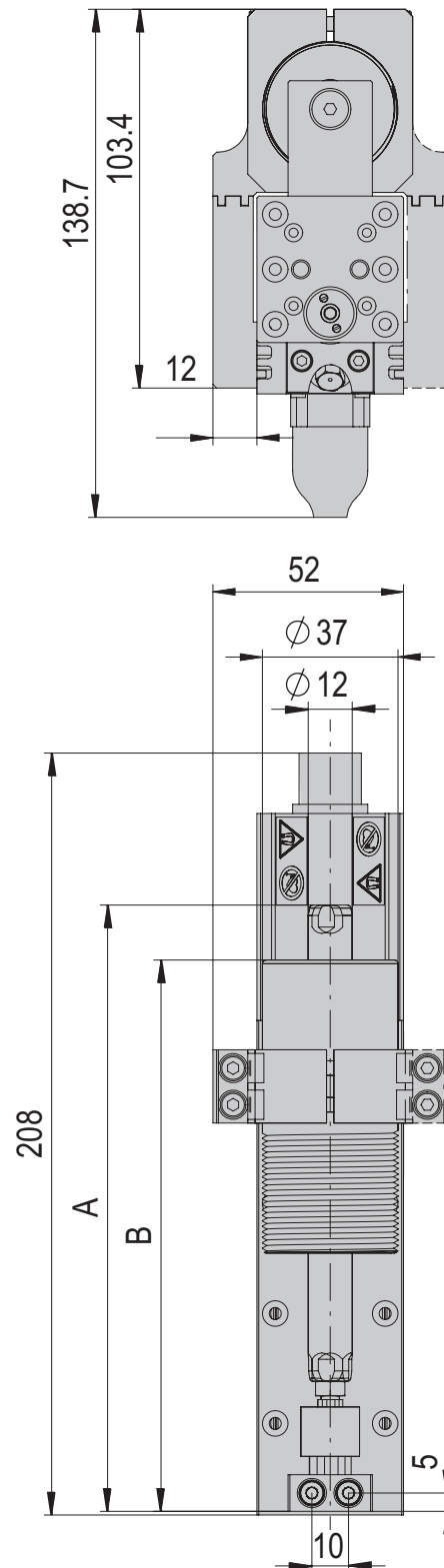
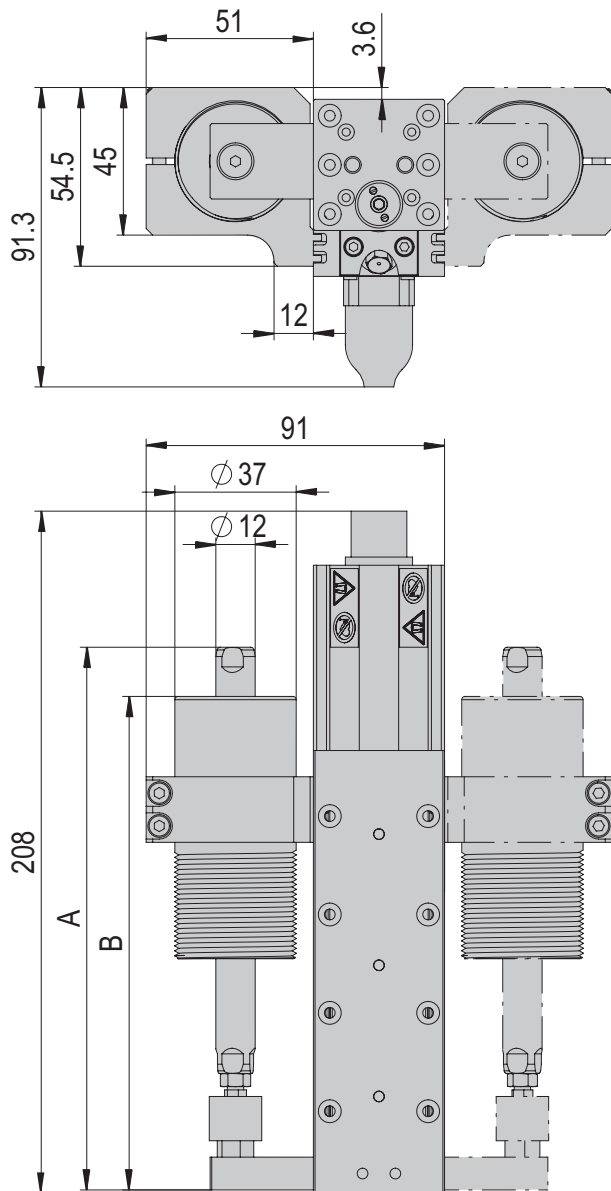
MagSpring ES20-100-SL	side			front		
Order number	50427561	50427562	50427563	50427567	50427568	50427569
Stroke H	100 mm	100 mm	100 mm	100 mm	100 mm	100 mm
Net weight	0.42 kg	0.42 kg	0.42 kg	0.45 kg	0.45 kg	0.45 kg
Permanent force	11 N	17 N	22 N	11 N	17 N	22 N

MagSpring ES20-200	side			front		
Order number	50427574	50427575	50427576	50427580	50427581	50427582
Stroke H	200 mm	200 mm	200 mm	200 mm	200 mm	200 mm
Net weight	0.59 kg	0.59 kg	0.59 kg	0.62 kg	0.62 kg	0.62 kg
Permanent force	11 N	17 N	22 N	11 N	17 N	22 N

MagSpring ES20-300	side			front		
Order number	50427587	50427588	50427589	50427593	50427594	50427595
Stroke H	290 mm	290 mm	290 mm	290 mm	290 mm	290 mm
Net weight	0.753 kg	0.753 kg	0.753 kg	0.783 kg	0.783 kg	0.783 kg
Permanent force	11 N	17 N	22 N	11 N	17 N	22 N

MagSpring side	ES20-50-SL	ES20-100-SL	ES20-200	ES20-300
A	165 mm	245 mm	325 mm	405 mm
B	150 mm	210 mm	300 mm	375 mm

MagSpring front	ES20-50-SL	ES20-100-SL	ES20-200	ES20-300
A	165 mm	245 mm	325 mm	405 mm
B	150 mm	225 mm	300 mm	375 mm



MagSpring ES20-50-SL	side			front		
Order number	50427551	50427552	50427553	50427557	50427558	50427559
Stroke H	50 mm	50 mm	50 mm	50 mm	50 mm	50 mm
Net weight	0.632 kg	0.632 kg	0.632 kg	0.662 kg	0.662 kg	0.662 kg
Permanent force	40 N	50 N	60 N	40 N	50 N	60 N

MagSpring ES20-100-SL	side			front		
Order number	50427564	50427565	50427566	50427570	50427571	50427572
Stroke H	100 mm	100 mm	100 mm	100 mm	100 mm	100 mm
Net weight	1.152 kg	1.152 kg	1.152 kg	1.182 kg	1.182 kg	1.182 kg
Permanent force	40 N	50 N	60 N	40 N	50 N	60 N

MagSpring ES20-200	side			front		
Order number	50427577	50427578	50427579	50427583	50427584	50427585
Stroke H	200 mm	200 mm	200 mm	200 mm	200 mm	200 mm
Net weight	1.657 kg	1.657 kg	1.657 kg	1.687 kg	1.687 kg	1.687 kg
Permanent force	40 N	50 N	60 N	40 N	50 N	60 N

MagSpring ES20-300	side			front		
Order number	50427590	50427591	50427592	50427596	50427597	50427598
Stroke H	275 mm	275 mm	275 mm	275 mm	275 mm	275 mm
Net weight	2.197 kg	2.197 kg	2.197 kg	2.227 kg	2.227 kg	2.227 kg
Permanent force	40 N	50 N	60 N	40 N	50 N	60 N

The MagSpring is a passive component which supplies a constant force via a specific stroke range based on permanent magnets. This balances the load mass for vertically installed axes. Furthermore, the peripherals and the workpiece are also prevented from falling when the electric slide is in a deenergised state.

The MagSpring and holder are provided in accordance with the ES electric slides ES20, ES30 and ES40. This can be mounted on the left, right or front side of the axis.

Advantages:

- Constant force over the entire stroke range
- Overstretching of the spring is impossible
- Energy-efficient weight compensation»

MagSpring ES30-50/-SL

Description	Order number
MagSpring ES30 s 11N 050mm	50429205
MagSpring ES30 s 17N 050mm	50429206
MagSpring ES30 s 22N 050mm	50429207
MagSpring ES30 v 11N 050mm	50429211
MagSpring ES30 v 17N 050mm	50429212
MagSpring ES30 v 22N 050mm	50429213
MagSpring ES30 s 40N 050mm	50429208
MagSpring ES30 s 50N 050mm	50429209
MagSpring ES30 s 60N 050mm	50429210
MagSpring ES30 v 40N 050mm	50429214
MagSpring ES30 v 50N 050mm	50429215
MagSpring ES30 v 60N 050mm	50429216

MagSpring ES30-100/-SL

Description	Order number
MagSpring ES30 s 11N 100mm	50429218
MagSpring ES30 s 17N 100mm	50429219
MagSpring ES30 s 22N 100mm	50429220
MagSpring ES30 v 11N 100mm	50429224
MagSpring ES30 v 17N 100mm	50429225
MagSpring ES30 v 22N 100mm	50429226
MagSpring ES30 s 40N 100mm	50429221
MagSpring ES30 s 50N 100mm	50429222
MagSpring ES30 s 60N 100mm	50429223
MagSpring ES30 v 40N 100mm	50429227
MagSpring ES30 v 50N 100mm	50429228
MagSpring ES30 v 60N 100mm	50429229

MagSpring ES30-200/-SL

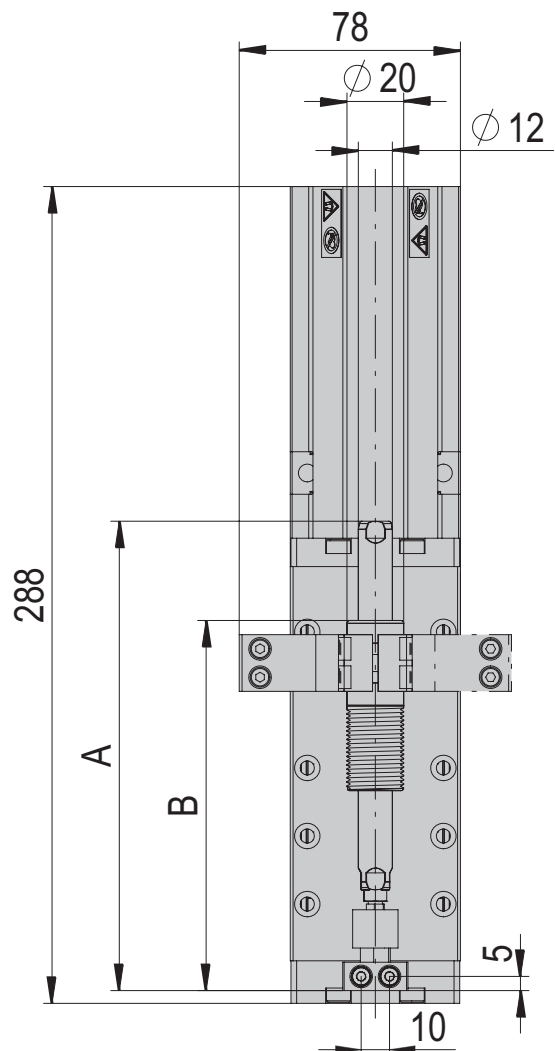
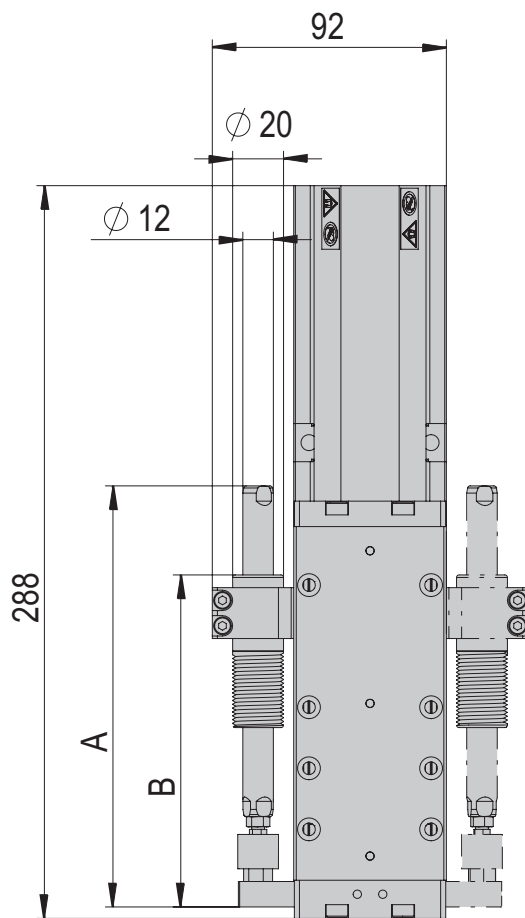
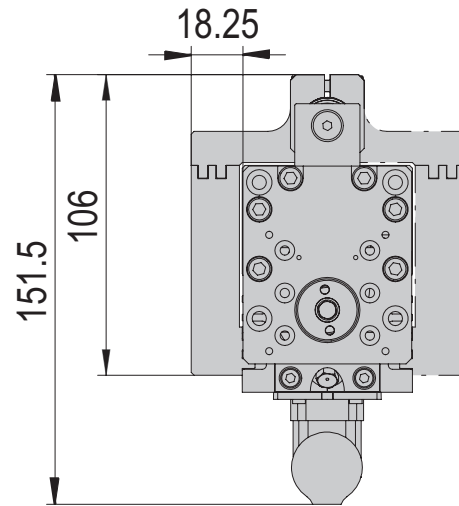
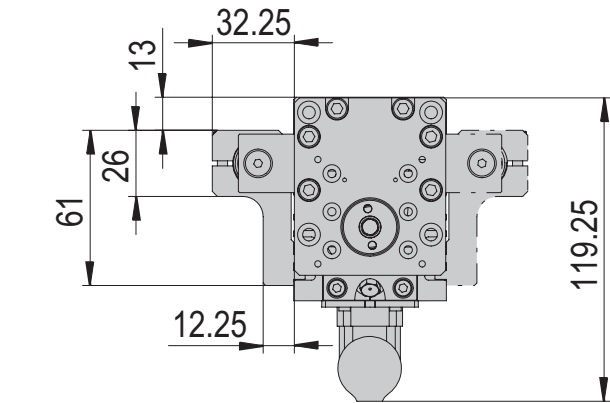
Description	Order number
MagSpring ES30 s 11N 200mm	50429231
MagSpring ES30 s 17N 200mm	50429232
MagSpring ES30 s 22N 200mm	50429233
MagSpring ES30 v 11N 200mm	50429237
MagSpring ES30 v 17N 200mm	50429238
MagSpring ES30 v 22N 200mm	50429239
MagSpring ES30 s 40N 200mm	50429234
MagSpring ES30 s 50N 200mm	50429235
MagSpring ES30 s 60N 200mm	50429236
MagSpring ES30 v 40N 200mm	50429240
MagSpring ES30 v 50N 200mm	50429241
MagSpring ES30 v 60N 200mm	50429242

MagSpring ES30-300

Description	Order number
MagSpring ES30 s 11N 300mm	50429244
MagSpring ES30 s 17N 300mm	50429245
MagSpring ES30 s 22N 300mm	50429246
MagSpring ES30 v 11N 300mm	50429250
MagSpring ES30 v 17N 300mm	50429251
MagSpring ES30 v 22N 300mm	50429252
MagSpring ES30 s 40N 300mm	50429247
MagSpring ES30 s 50N 300mm	50429248
MagSpring ES30 s 60N 300mm	50429249
MagSpring ES30 v 40N 300mm	50429253
MagSpring ES30 v 50N 300mm	50429254
MagSpring ES30 v 60N 300mm	50429255

MagSpring side	ES30-50-SL	ES30-100/-SL	ES30-200/-SL	ES30-300
A	165 mm	245 mm	325 mm	405 mm
B	130 mm	210 mm	290 mm	370 mm

MagSpring front	ES30-50-SL	ES30-100/-SL	ES30-200/-SL	ES30-300
	165 mm	245 mm	325 mm	405 mm
	130 mm	210 mm	290 mm	370 mm



MagSpring ES30-50-SL	side			front		
Order number	50429205	50429206	50429207	50429211	50429212	50429213
Stroke H	50 mm	50 mm	50 mm	50 mm	50 mm	50 mm
Net weight	0.243 kg	0.243 kg	0.243 kg	0.315 kg	0.315 kg	0.315 kg
Permanent force	11 N	17 N	22 N	11 N	17 N	22 N

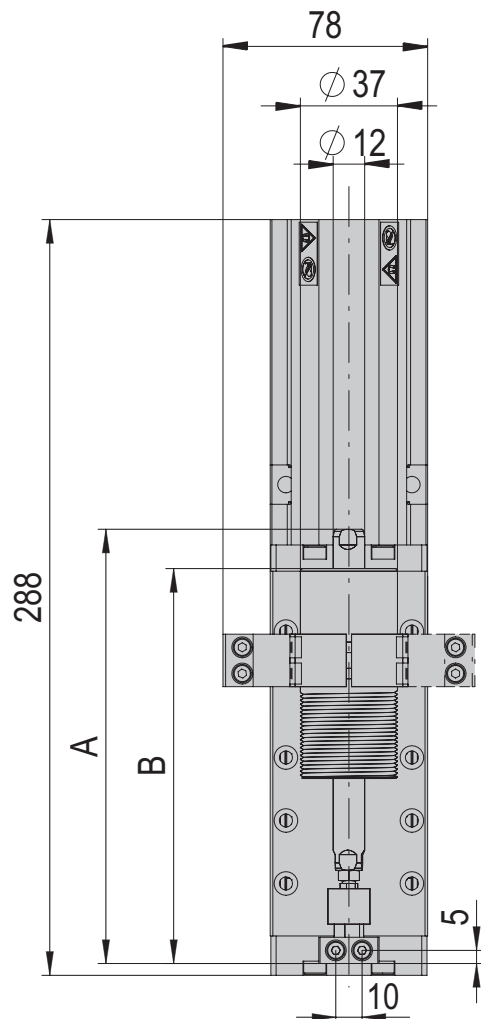
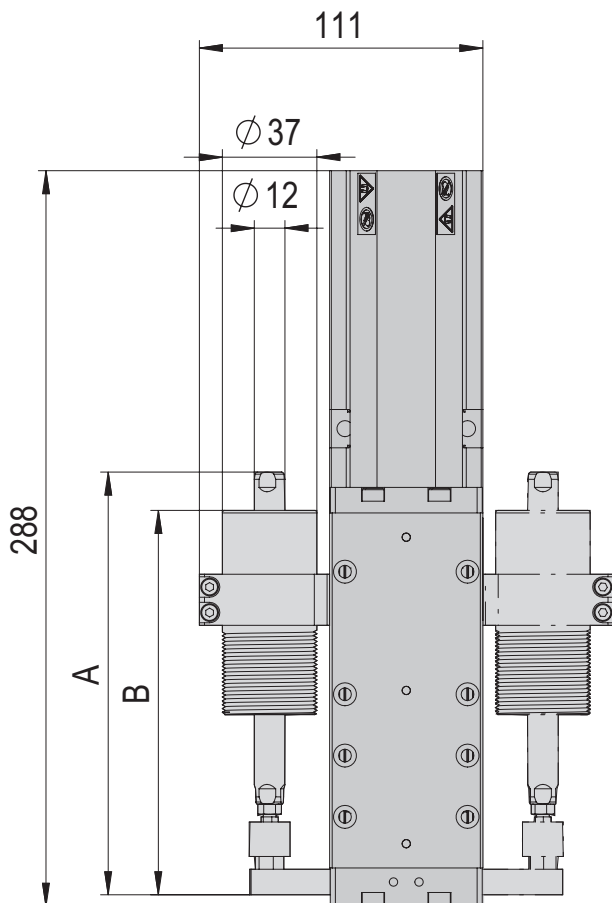
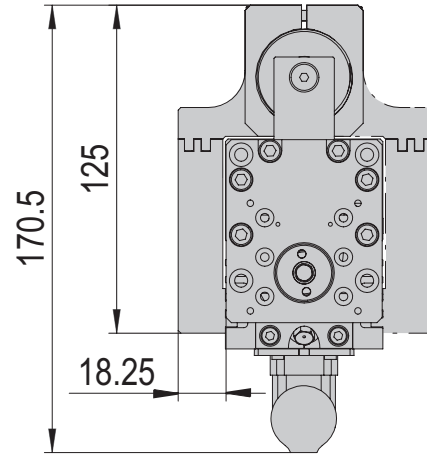
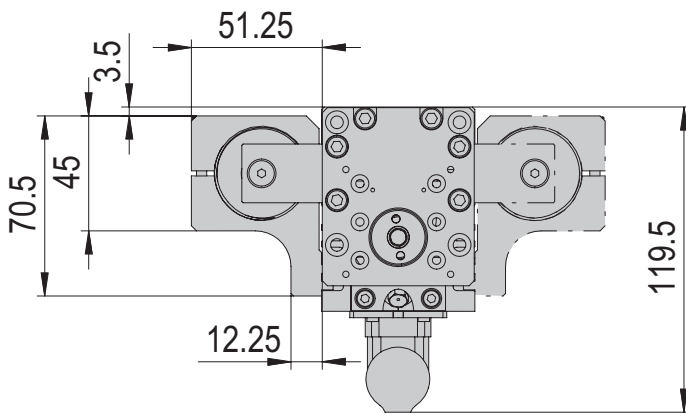
MagSpring ES30-100/-SL	side			front		
Order number	50429218	50429219	50429220	50429224	50429225	50429226
Stroke H	100 mm	100 mm	100 mm	100 mm	100 mm	100 mm
Net weight	0.428 kg	0.428 kg	0.428 kg	0.5 kg	0.5 kg	0.5 kg
Permanent force	11 N	17 N	22 N	11 N	17 N	22 N

MagSpring ES30-200/-SL	side			front		
Order number	50429231	50429232	50429233	50429237	50429238	50429239
Stroke H	200 mm	200 mm	200 mm	200 mm	200 mm	200 mm
Net weight	0.598 kg	0.598 kg	0.598 kg	0.67 kg	0.67 kg	0.67 kg
Permanent force	11 N	17 N	22 N	11 N	17 N	22 N

MagSpring ES30-300	side			front		
Order number	50429244	50429245	50429246	50429250	50429251	50429252
Stroke H	290 mm	290 mm	290 mm	290 mm	290 mm	290 mm
Net weight	0.761 kg	0.761 kg	0.761 kg	0.833 kg	0.833 kg	0.833 kg
Permanent force	11 N	17 N	22 N	11 N	17 N	22 N

MagSpring side	ES30-50-SL	ES30-100/-SL	ES30-200/-SL	ES30-300
A	165 mm	245 mm	325 mm	405 mm
B	150 mm	225 mm	300 mm	375 mm

MagSpring side	ES30-50-SL	ES30-100/-SL	ES30-200/-SL	ES30-300
	165 mm	245 mm	325 mm	405 mm
	150 mm	225 mm	300 mm	375 mm



MagSpring ES30-50-SL	side			front		
Order number	50429208	50429209	50429210	50429214	50429215	50429216
Stroke H	50 mm	50 mm	50 mm	50 mm	50 mm	50 mm
Net weight	0.646 kg	0.646 kg	0.646 kg	0.718 kg	0.718 kg	0.718 kg
Permanent force	40 N	50 N	60 N	40 N	50 N	60 N

MagSpring ES30-100/-SL	side			front		
Order number	50429221	50429222	50429223	50429227	50429228	50429229
Stroke H	100 mm	100 mm	100 mm	100 mm	100 mm	100 mm
Net weight	1.166 kg	1.166 kg	1.166 kg	1.238 kg	1.238 kg	1.238 kg
Permanent force	40 N	50 N	60 N	40 N	50 N	60 N

MagSpring ES30-200/-SL	side			front		
Order number	50429234	50429235	50429236	50429240	50429241	50429242
Stroke H	200 mm	200 mm	200 mm	200 mm	200 mm	200 mm
Net weight	1.671 kg	1.671 kg	1.671 kg	1.743 kg	1.743 kg	1.743 kg
Permanent force	40 N	50 N	60 N	40 N	50 N	60 N

MagSpring ES30-300	side			front		
Order number	50429247	50429248	50429249	50429253	50429254	50429255
Stroke H	275 mm	275 mm	275 mm	275 mm	275 mm	275 mm
Net weight	2.211 kg	2.211 kg	2.211 kg	2.283 kg	2.283 kg	2.283 kg
Permanent force	40 N	50 N	60 N	40 N	50 N	60 N

The MagSpring is a passive component which supplies a constant force via a specific stroke range based on permanent magnets. This balances the load mass for vertically installed axes. Furthermore, the peripherals and the workpiece are also prevented from falling when the electric slide is in a deenergised state.

The MagSpring and holder are provided in accordance with the ES electric slides ES20, ES30 and ES40. This can be mounted on the left, right or front side of the axis.

Advantages:

- Constant force over the entire stroke range
- Overstretching of the spring is impossible
- Energy-efficient weight compensation

MagSpring ES40-100/-HP/-SL

Description	Order number
MagSpring ES40 s 40N 100mm	50470226
MagSpring ES40 s 50N 100mm	50470227
MagSpring ES40 s 60N 100mm	50470228
MagSpring ES40 v 40N 100mm	50470229
MagSpring ES40 v 50N 100mm	50470230
MagSpring ES40 v 60N 100mm	50470231

MagSpring E40-200/-HP

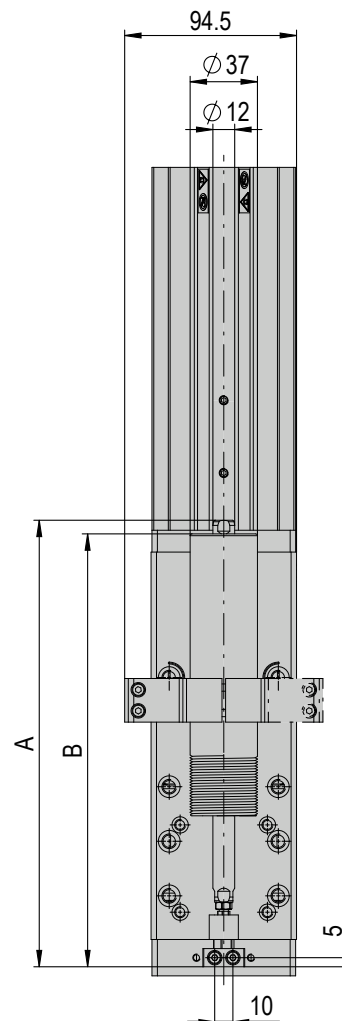
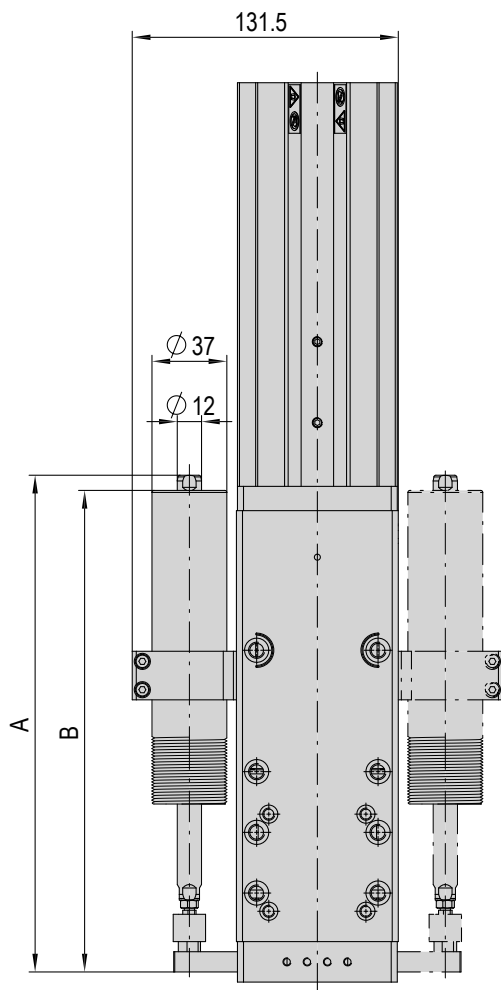
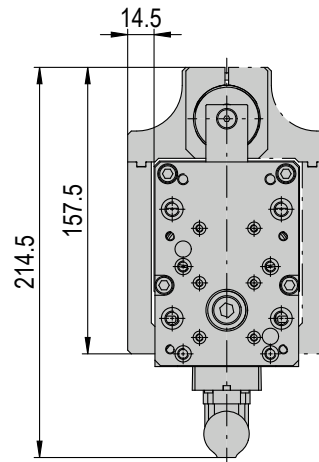
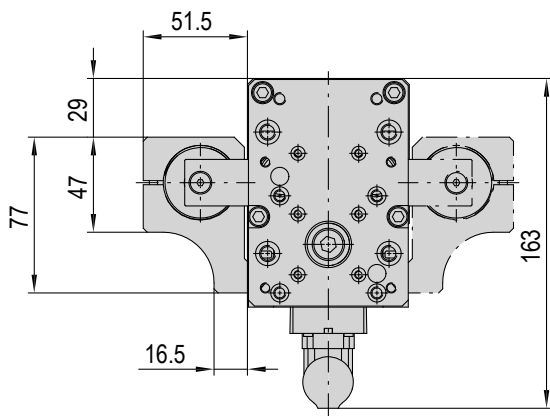
Description	Order number
MagSpring ES40 s 40N 200mm	50470232
MagSpring ES40 s 50N 200mm	50470233
MagSpring ES40 s 60N 200mm	50470234
MagSpring ES40 v 40N 200mm	50470235
MagSpring ES40 v 50N 200mm	50470236
MagSpring ES40 v 60N 200mm	50470237

MagSpring ES40-300/-HP

Description	Order number
MagSpring ES40 s 40N 300mm	50470238
MagSpring ES40 s 50N 300mm	50470239
MagSpring ES40 s 60N 300mm	50470240
MagSpring ES40 v 40N 300mm	50470241
MagSpring ES40 v 50N 300mm	50470242
MagSpring ES40 v 60N 300mm	50470243

MagSpring side	ES40-100/-SL/-HP	ES40-200/-HP	ES40-300/-HP
A	245.5 mm	325.5 mm	405.5 mm
B	238 mm	300.5 mm	363 mm

MagSpring front	ES40-100/-SL/-HP	ES40-200/-HP	ES40-300/-HP
A	245.5 mm	325.5 mm	405.5 mm
B	238 mm	300.5 mm	363 mm



Magspring ES40-100	side			front		
Order number	50470226	50470227	50470228	50470229	50470230	50470231
Stroke H	100 mm	100 mm	100 mm	100 mm	100 mm	100 mm
Net weight	1.205 kg	1.205 kg	1.205 kg	1.295 kg	1.295 kg	1.295 kg
Permanent force	40 N	50 N	60 N	40 N	50 N	60 N

Magspring ES40-200	side			front		
Order number	50470232	50470233	50470234	50470235	50470236	50470237
Stroke H	200 mm	200 mm	200 mm	200 mm	200 mm	200 mm
Net weight	1.842 kg	1.842 kg	1.842 kg	2.02 kg	2.02 kg	2.02 kg
Permanent force	40 N	50 N	60 N	40 N	50 N	60 N

Magspring ES40-300	side			front		
Order number	50470238	50470239	50470240	50470241	50470242	50470243
Stroke H	275 mm	275 mm	275 mm	275 mm	275 mm	275 mm
Net weight	2.382 kg	2.382 kg	2.382 kg	2.56 kg	2.56 kg	2.56 kg
Permanent force	40 N	50 N	60 N	40 N	50 N	60 N

External position measuring system for ES20, ES30 and ES40

The contact-free, absolute, magnetic-based position measuring system with integrated analysis electronics is used wherever the axes cannot be securely referenced. In addition, a high positional accuracy and smooth movements are also achieved. The system consists of a sensor and a strip on which magnetic information is stored. Both components are fixed to the module.

The motor's internal position sensor achieves a repeat accuracy of ± 0.05 mm and an absolute accuracy deviation of between 0.1% and 0.4% (depending on the drive unit). If this does not suffice, we recommend an external position measuring system.

Advantages:

- Referencing not necessary
- High absolute accuracy
- Smooth movements
- Minimization of control noises

Order numbers for ES20:

Description	Order number
External position measuring system ES20 050mm	50427547
External position measuring system ES20 100mm	50427560
External position measuring system ES20 200mm	50427573
External position measuring system ES20 300mm	50427586

Order numbers for ES30:

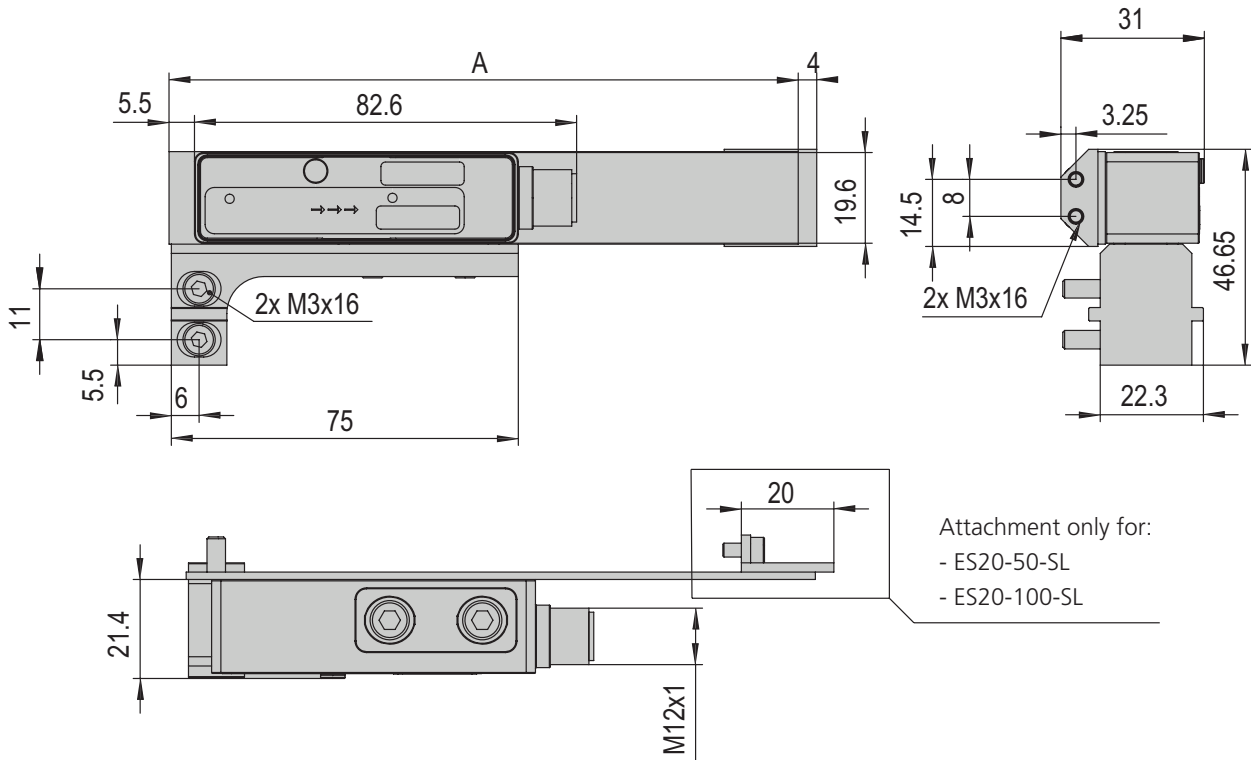
Description	Order number
External position measuring system ES30 050mm	50429204
External position measuring system ES30 100mm	50429217
External position measuring system ES30 200mm	50429230
External position measuring system ES30 300mm	50429243
External position measuring system ES30 400mm	50429256
External position measuring system ES30 500mm	50429257

Order numbers for ES40:

Description	Order number
External position measuring system ES40 100mm	50470244
External position measuring system ES40 200mm	50470245
External position measuring system ES40 300mm	50470246
External position measuring system ES40 400mm	50470247
External position measuring system ES40 500mm	50470248

Accessories ES

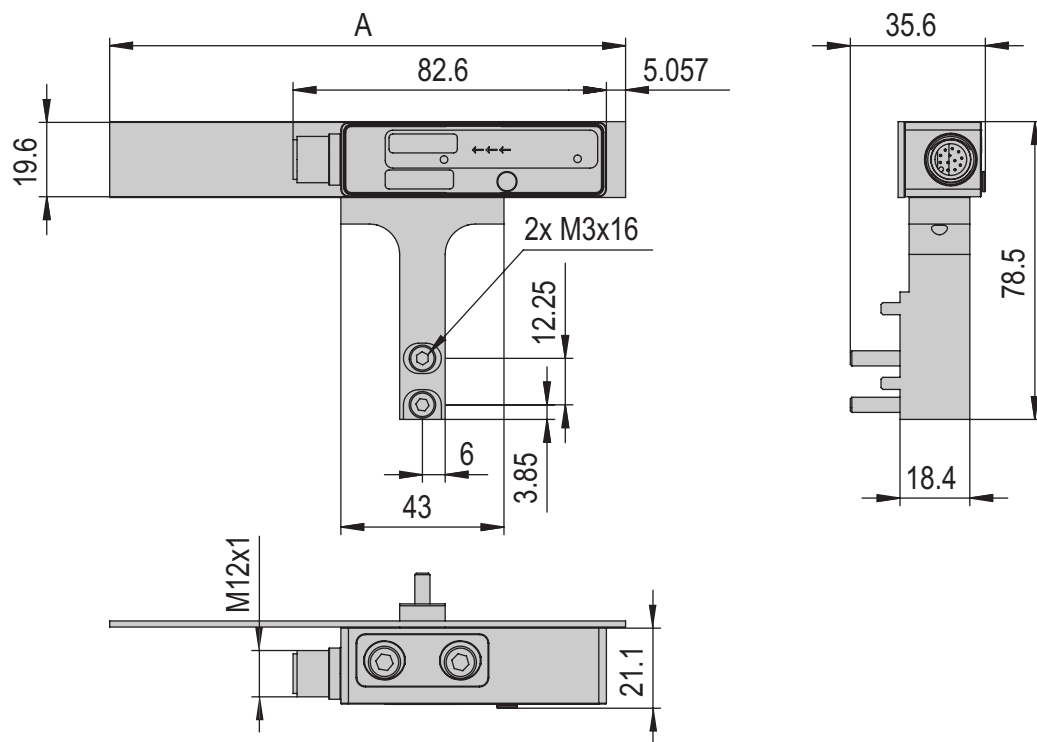
External position measuring system ES20	50	100	200	300
Order number	50427547	50427560	50427573	50427586
Net weight	0.143 kg	0.149 kg	0.158 kg	0.17 kg
Repeat accuracy	+/- 0.02 mm	+/- 0.02 mm	+/- 0.02 mm	+/- 0.02 mm
A	136 mm	186 mm	286 mm	386 mm



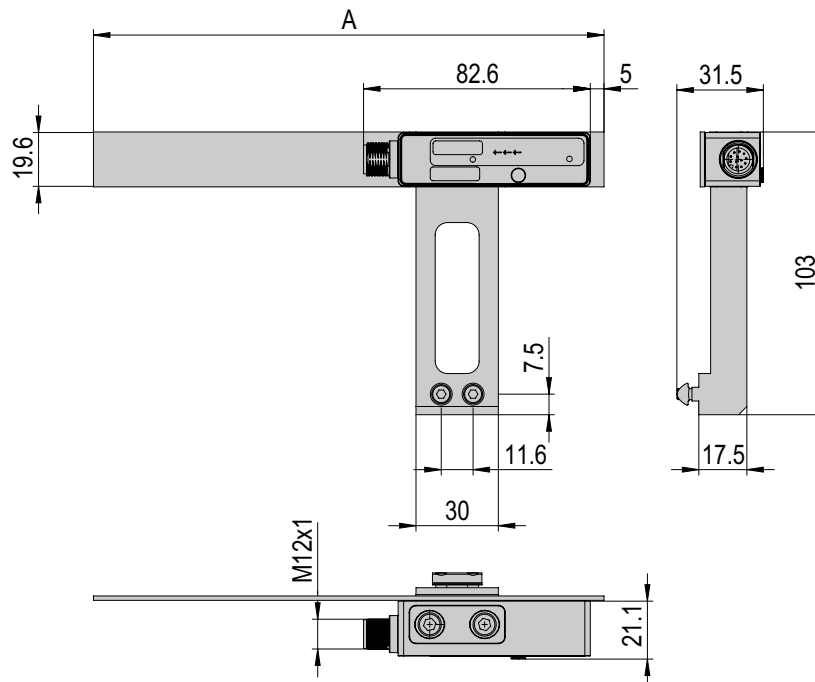
Accessories ES

External position measuring system ES30	50	100	200	300	400	500
Order number	50429204	50429217	50429230	50429243	50429256	50429257
Net weight	0.144 kg	0.15 kg	0.163 kg	0.175 kg	0.188 kg	0.2 kg
Repeat accuracy	+/- 0.02 mm	+/- 0.02 mm	+/- 0.02 mm	+/- 0.02 mm	+/- 0.02 mm	+/- 0.02 mm
A	136 mm	186 mm	286 mm	386 mm	486 mm	586 mm

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External position measuring system ES40/-HP/-SL	100	200	300	400	500
Order number	50470244	50470245	50470246	50470247	50470248
Net weight	0.172 kg	0.185 kg	0.197 kg	0.21 kg	0.222 kg
Repeat accuracy	+/- 0.02 mm	+/- 0.02 mm	+/- 0.02 mm	+/- 0.02 mm	+/- 0.02 mm
A	186 mm	286 mm	386 mm	486 mm	586 mm



Telescope spindle axis SA

SA-1 - SA-6

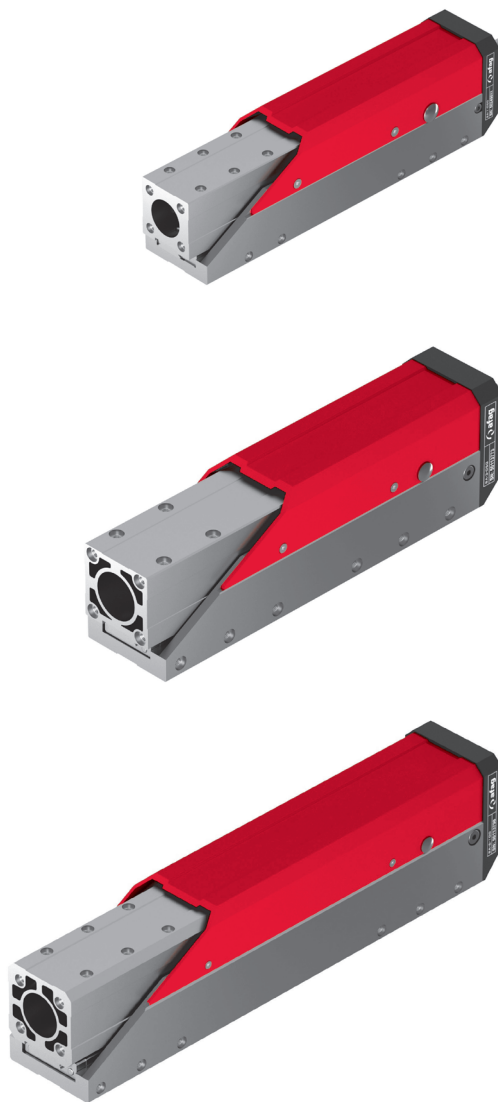
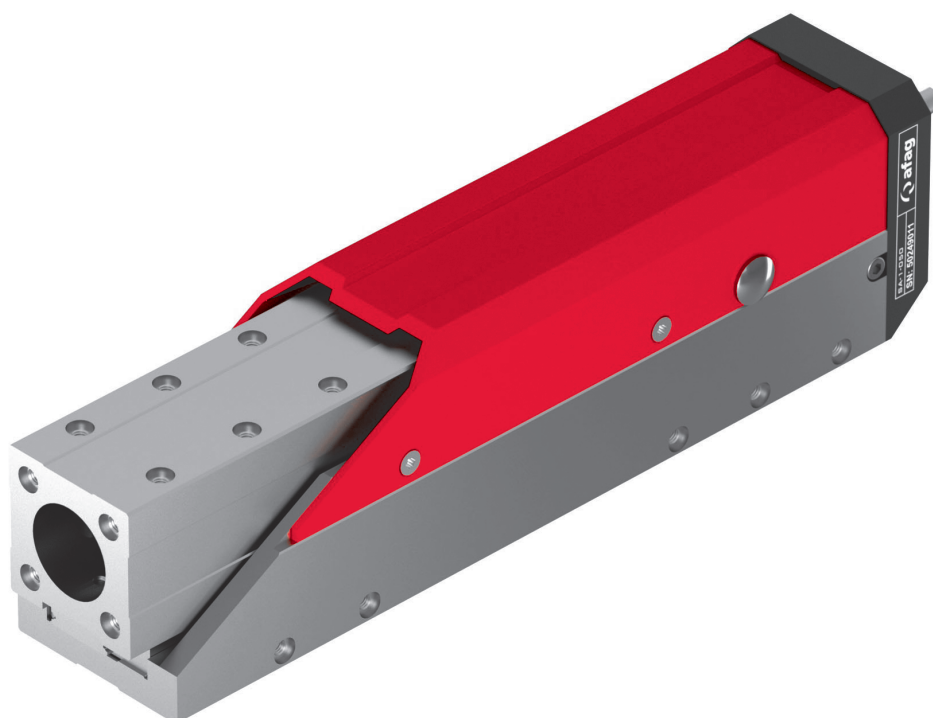


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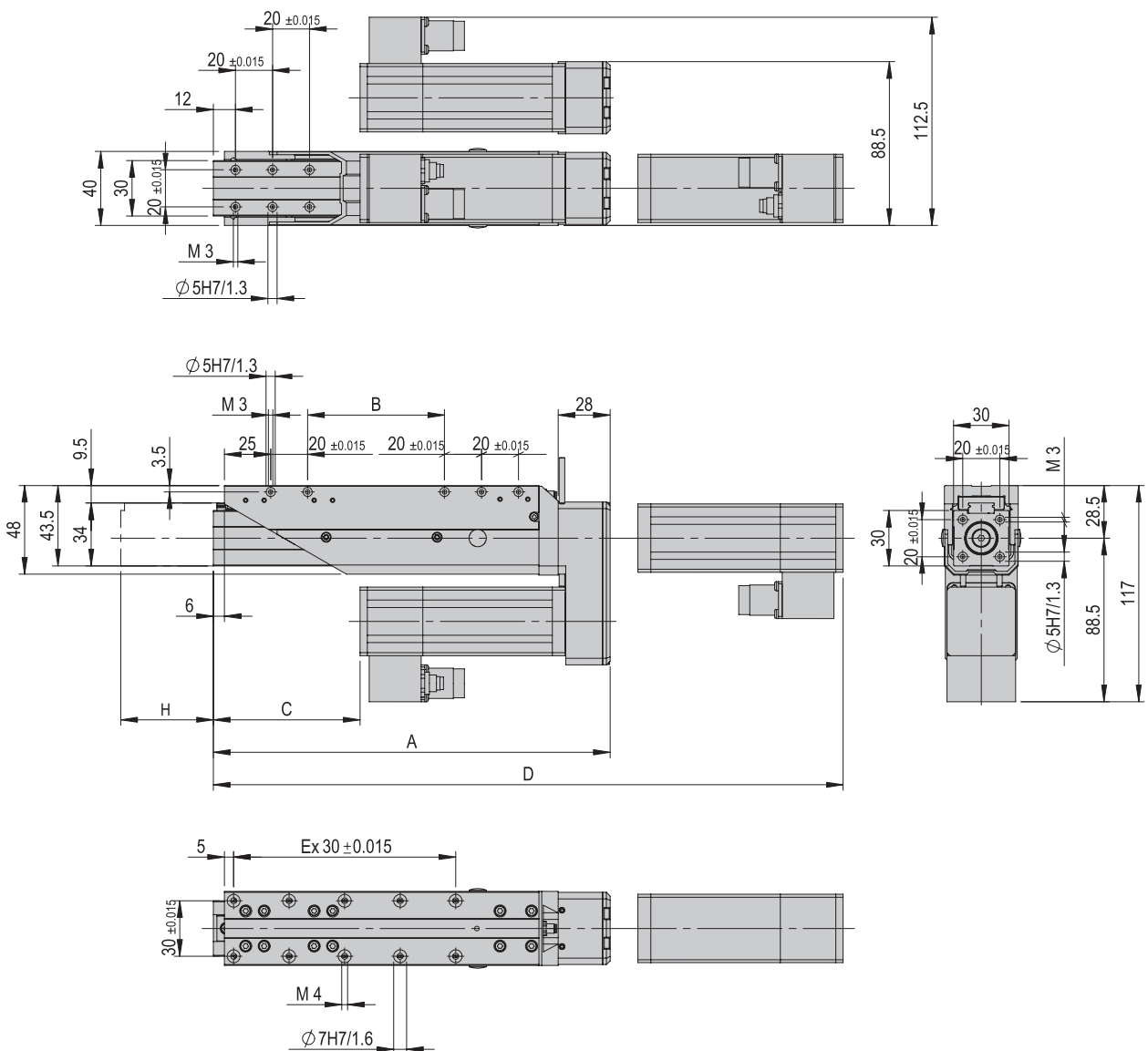
Telescope spindle axis SA

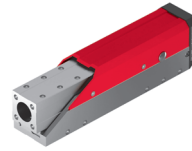
SA-1 & SA-1-FL



- Extremely compact and higher power density for -FL variety
- Flexible motor mounting
- Precise spindle drive

Type	SA-1-050/-FL	SA-1-100/-FL	SA-1-150/-FL
A	213.5 mm	263.5 mm	313.5 mm
B	74 mm	124 mm	174 mm
C	***79.3 mm ****109.3 mm	***129.3 mm ****159.3 mm	***179.3 mm ****209.3 mm
D	***306 mm ****336 mm	***356 mm ****386 mm	***410 mm ****440 mm
E	4 x	6 x	7 x
H	50 mm	100 mm	150 mm





Type	SA-1-xxx	SA-1-xxx-FL
Spindle Ø	8 mm	8 mm
Spindle pitch (mm/1 turn)	12 mm	4 mm
Drive shaft Ø	5 mm	5 mm
Operating temperature	10 - 40 °C	10 - 40 °C
Storage temperature	0 - 50 °C	0 - 50 °C
Humidity	< 90 %	< 90 %

Type	SA-1-050	SA-1-050-FL	SA-1-100	SA-1-100-FL	SA-1-150	SA-1-150-FL
Order number	50249011	50471882	50249013	50471883	50249014	50471884
Stroke H	50 mm	50 mm	100 mm	100 mm	150 mm	150 mm
Net weight	0.8 kg	0.8 kg	1.0 kg	1.0 kg	1.2 kg	1.2 kg
Moving weight	**0.45 kg	**0.45 kg	**0.55 kg	**0.55 kg	**0.65 kg	**0.65 kg
Weight, gear	**0.15 kg	**0.15 kg	**0.15 kg	**0.15 kg	**0.15 kg	**0.15 kg
Weight, motor	**0.45 kg	**0.45 kg	**0.45 kg	**0.45 kg	**0.45 kg	**0.45 kg
Noise level	65 dB (A)	65 dB (A)	65 dB (A)	65 dB (A)	65 dB (A)	65 dB (A)
Max. drive torque	0.07 Nm	0.07 Nm	0.07 Nm	0.07 Nm	0.07 Nm	0.07 Nm
Inertia, spindle	3.08 gcm ²	3.08 gcm ²	4.65 gcm ²	4.65 gcm ²	6.22 gcm ²	6.22 gcm ²
Drive	AC Servo	AC Servo	AC Servo	AC Servo	AC Servo	AC Servo
Protection type	IP 30	IP 30	IP 30	IP 30	IP 30	IP 30
Max. speed v	*1.2 m/s	*0.3 m/s	*1.2 m/s	*0.3 m/s	*1.2 m/s	*0.3 m/s
Max. acceleration a	*25 m/s ²	*25 m/s ²	*25 m/s ²	*25 m/s ²	*25 m/s ²	*25 m/s ²
Peak force Fx	50 N	150 N	50 N	150 N	50 N	150 N
Measuring system	Resolver	Resolver	Resolver	Resolver	Resolver	Resolver
Repeat accuracy	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm
Mounting position	✦	✦	✦	✦	✦	✦

The technical data pertains to Afag standard test conditions.

Note: The inductive reference sensor is integrated within the SA axis.

Cleanroom class ISO 14644-1, class ISO 7

*The maximum values listed above depend on the application and must not be combined. In case of doubt, please contact your Afag partner.

**Total weight = gross weight + slide + gear + motor

***Without brakes

****With brakes

Included in the delivery

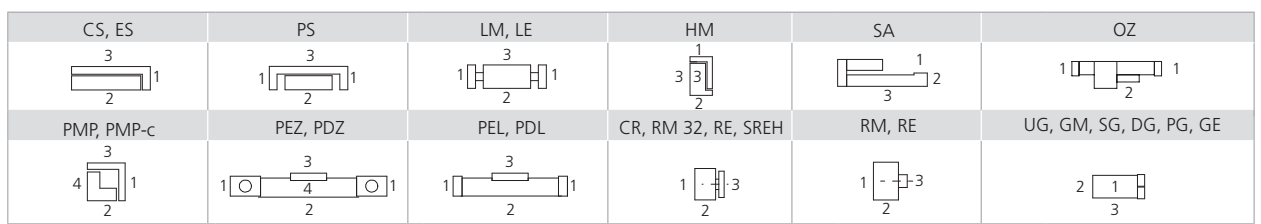
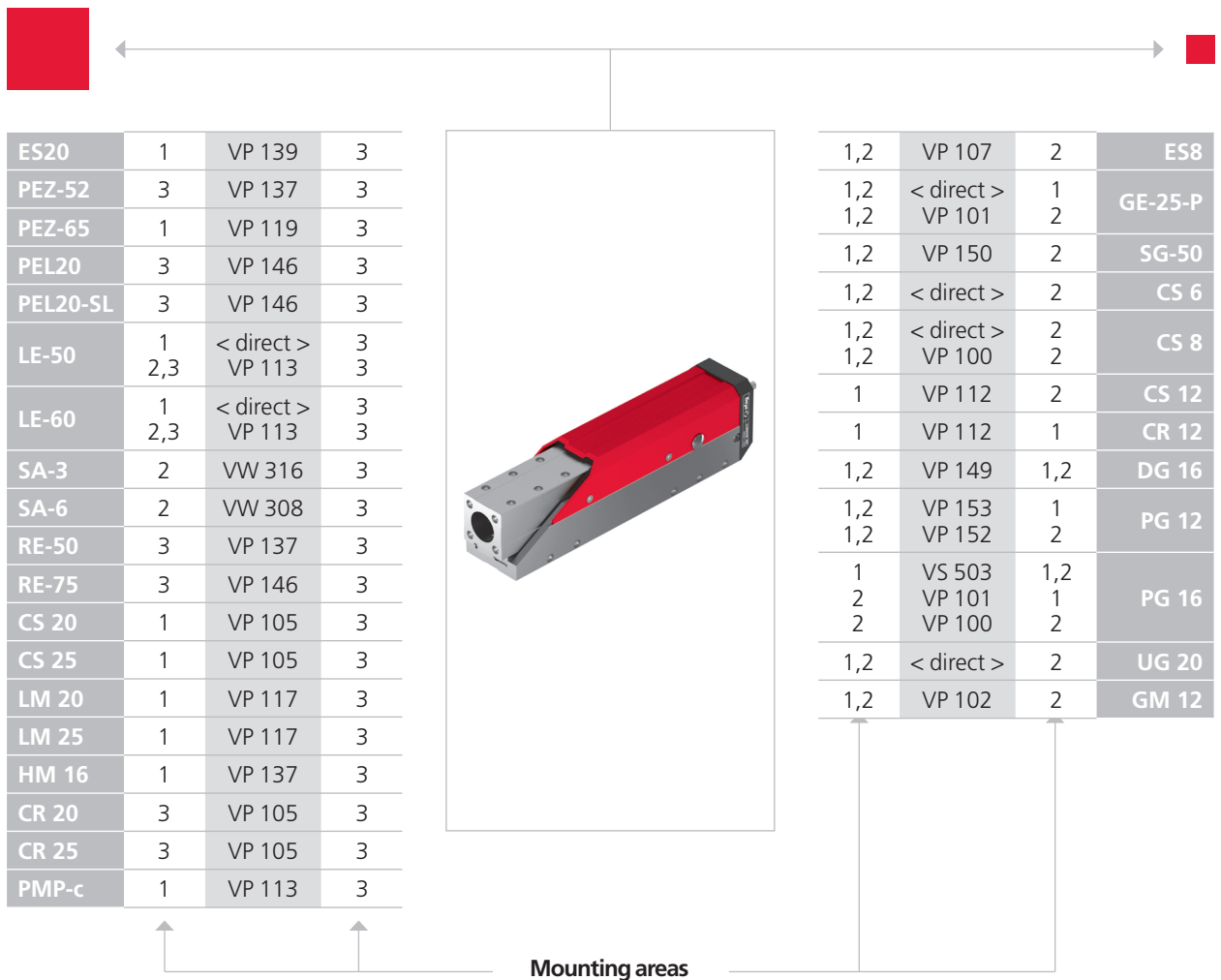
(Catalogue HT accessories)

- 2x Centering bushing Ø5x2.5
- 2x Centering bushing Ø7x3

Accessories

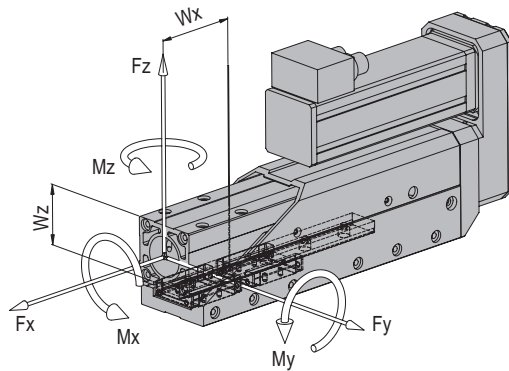
- Toothed belt drive SA-1
 - Coupling flange SA-1
 - Coupling flange SA-1 without motor
 - Grease press attachment SA
- (Catalogue HT accessories)
- Servo motor-11-72VDC-060W
 - Servo controller-11-320VDC-060W
 - Servo controller C1xxx-1S
 - Servo controller E12xx
 - Servo controller SE-Power

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



Note that there might be different mounting positions from one module to another one.
The required connection elements and the range of support columns are depicted in the catalogue HT accessories.

Type	SA-1-050	SA-1-050-FL	SA-1-100	SA-1-100-FL	SA-1-150	SA-1-150-FL
Max. torque Mx	6 Nm	6 Nm	6 Nm	6 Nm	6 Nm	6 Nm
Max. torque My	15 Nm	15 Nm	15 Nm	15 Nm	15 Nm	15 Nm
Max. torque Mz	15 Nm	15 Nm	15 Nm	15 Nm	15 Nm	15 Nm
Effective distance Wx	41 mm	41 mm	41 mm	41 mm	41 mm	41 mm
Effective distance Wy	0 mm	0 mm	0 mm	0 mm	0 mm	0 mm
Effective distance Wz	32 mm	32 mm	32 mm	32 mm	32 mm	32 mm
Peak force Fx	50 N	150 N	50 N	150 N	50 N	150 N

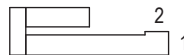


$$\frac{M_x}{M_{x \max}} + \frac{M_y}{M_{y \max}} + \frac{M_z}{M_{z \max}} < 1$$

Maximum payload/type	SA-1-050	SA-1-050-FL	SA-1-100	SA-1-100-FL	SA-1-150	SA-1-150-FL
Installation position (horizontal) for mounting side 1/2	4 kg	4 kg	4 kg	4 kg	4 kg	4 kg
Installation position (vertical) for mounting side 1/2	4 kg	4 kg	4 kg	4 kg	4 kg	4 kg

Assembly sides module mounting

horizontal:

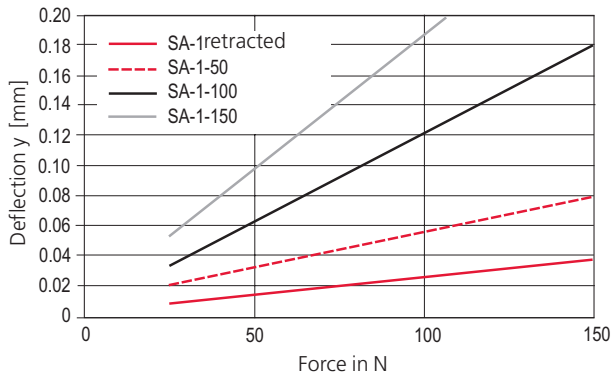


vertical:

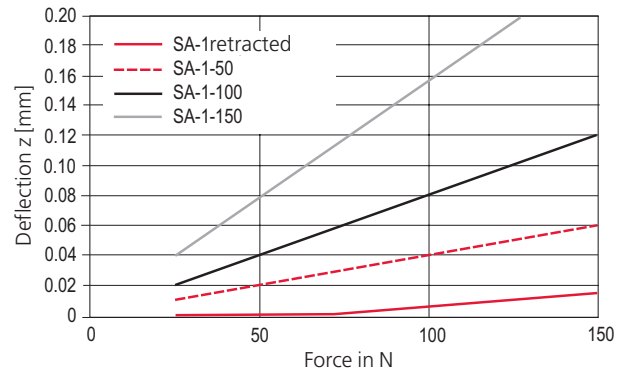


Load diagrams

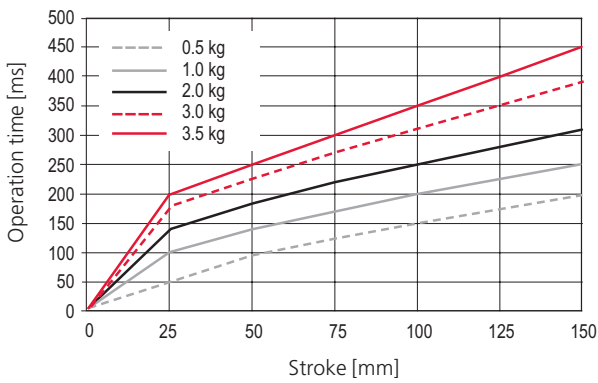
Deflection in Y direction



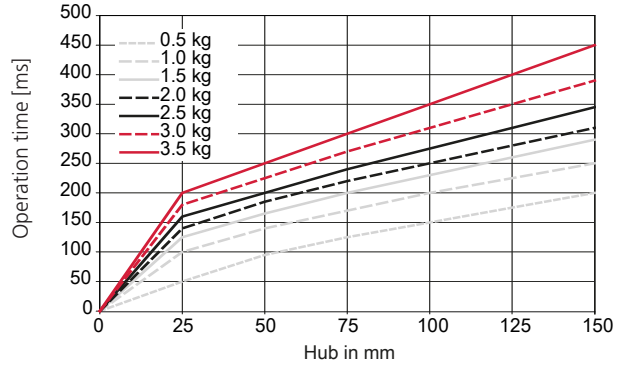
Deflection in Z direction



Operation time SA-1



Operation time SA-1-FL

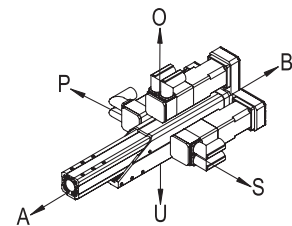


Order form	SA-1 / -FL	XXXXXXXX	XXXXXXXX	XXXXXXXX	X	X
		Stroke	Gear	Motor	Position gear	Position motor plug.

Coordinate system

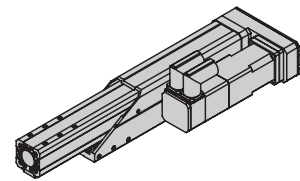
The coordinate system allows you to define the position of the gear as well as that of the motor plug.

- A = before
- B = base
- O = top
- P = left
- S = right
- U = downside



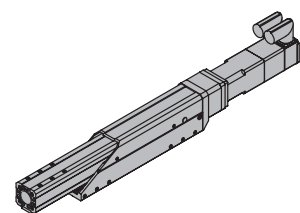
Ordering example 1

SA-1	50249013	50249015	50495879	S	O
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Ordering example 2

SA-1	50249013	50249016	50485876	B	O
------	----------	----------	----------	---	---



Ordering process

- Select the desired stroke length, gear and motor from the order key.
- Enter the corresponding red order numbers in the order form in the place of the cross.
- Determine the desired position of the gear and the motor plug.
- Enter the corresponding letters from the coordinate system in the order form in the place of the cross.

Third-party motors

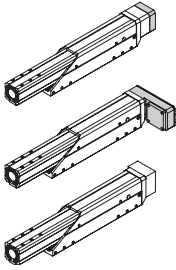



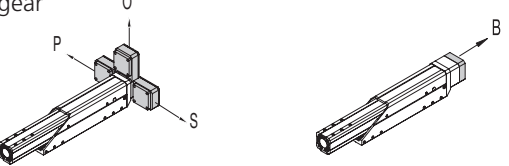
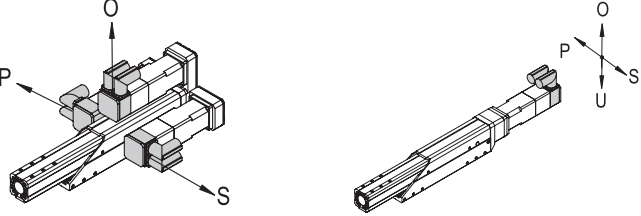
- If motors from other suppliers are to be attached to Afag modules, an adapter plate will be required. This adapter plate can be provided by Afag, if desired.

External controller

- Mechanical limiting values of the module must be observed (v max., a max.,...).
- The controller parametrisation is carried out by the customer.

Order key

SA-1/SE-Power/C1xxx/E12xx

Telescope spindle axis	SA-1	xxxxxxxx	xxxxxxxx	xxxxxxxx	x	x	
		Stroke		Gear	Motor	Position gear	Position motor plug
	SA-1-050	50249011					
	SA-1-050-FL	50471882					
	SA-1-100	50249013					
	SA-1-100-FL	50471883					
	SA-1-150	50249014					
SA-1-150-FL	50471884						
Gear			50249016	 BG1			
			50249015				
			50261931	 M0	B	X	
Motor/controller	Without motor M0			X			
	 BG1	Servomotor-11-72VDC-060W-60-B-I-x-x	B	50485433			
		Servomotor-11-72VDC-060W-60-x-I-x-x			50495876		
		Servomotor-11-320VDC-060W-60-B-R-x-x	B	50495879			
		Servomotor-11-320VDC-060W-60-x-R-x-x			50495878		
Position gear					B O P S		
	Position motor plug						
Assembly						O P S U	
	<p>The plug can be turned 180°. You can find further information in the operating manual.</p>						

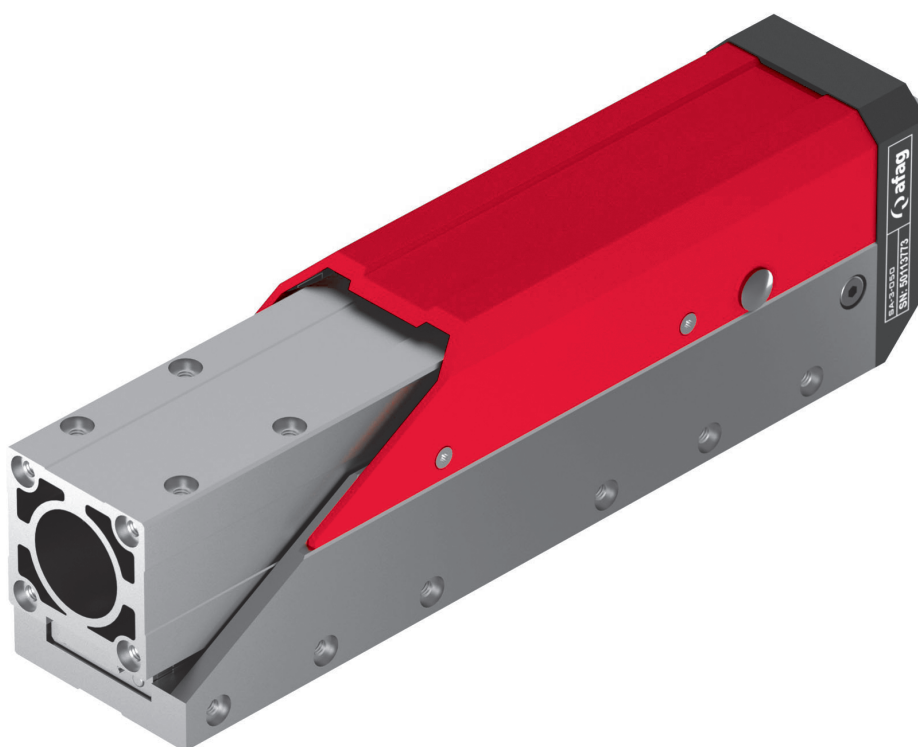
7

SE-Power C1xxx
1 kVA E12xx

B: Motor with brakes
BG: Motor size

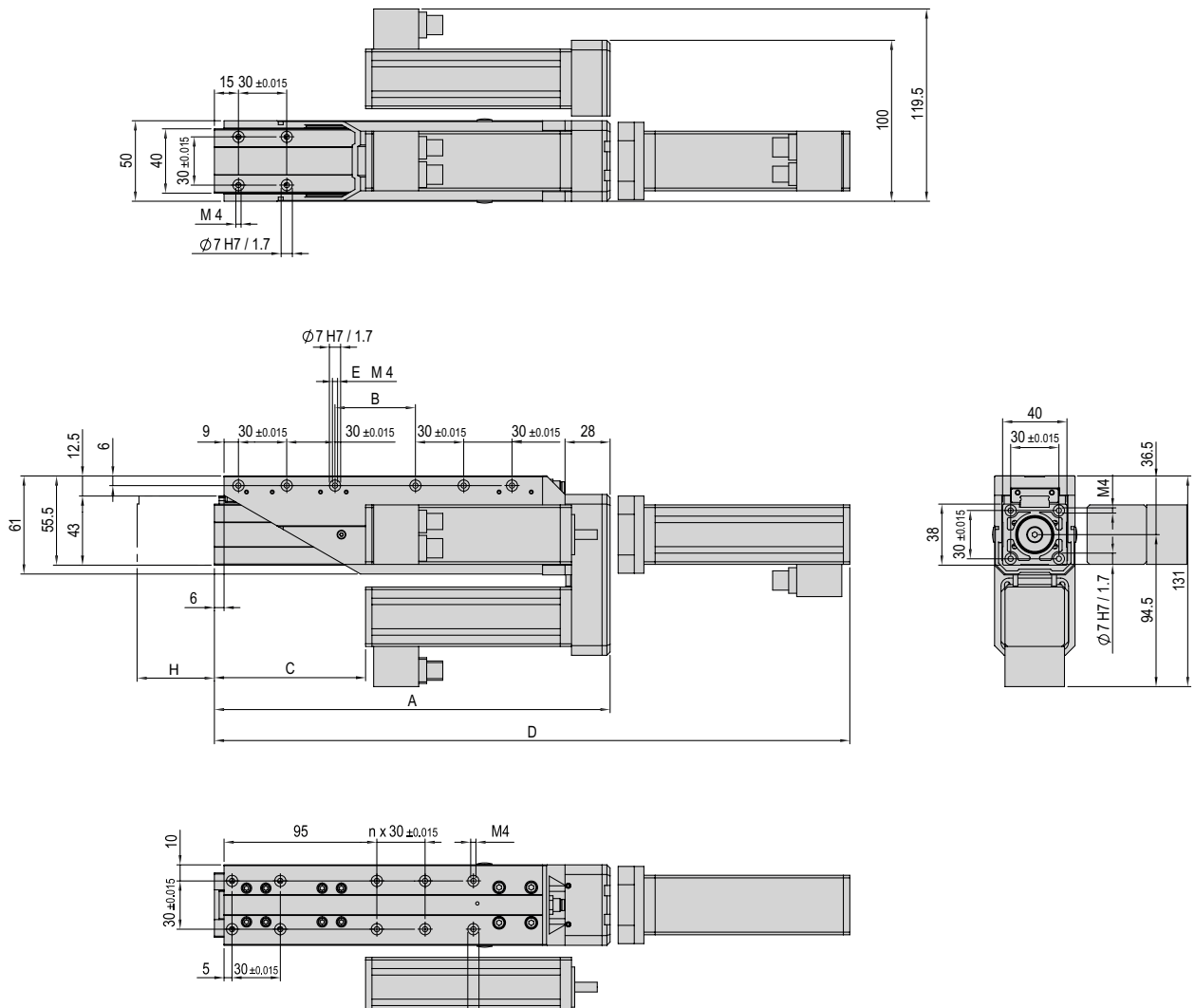
Telescope spindle axis SA

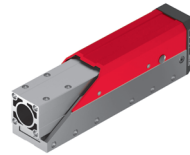
SA-3 & SA-3-FL



- Extremely compact and higher power density for -FL variety
- Flexible motor mounting
- Precise spindle drive

Type	SA-3-050/-FL	SA-3-100/-FL	SA-3-150/-FL
A	246 mm	296 mm	346 mm
B	50 mm	100 mm	150 mm
C	***94 mm ****124 mm	***144 mm ****174 mm	***154 mm ****184 mm
D	***365 mm ****395 mm	***415 mm ****445 mm	***465 mm ****495 mm
E	6 x both sides	6 x both sides	6 x both sides
F	2	3	5
H	50 mm	100 mm	150 mm





Type	SA-3-xxx	SA-3-xxx-FL
Spindle Ø	10 mm	10 mm
Spindle pitch (mm/1 turn)	10 mm	5 mm
Drive shaft Ø	6 mm	6 mm
Operating temperature	10 - 40 °C	10 - 40 °C
Storage temperature	0 - 50 °C	0 - 50 °C
Humidity	< 90 %	< 90 %

Type	SA-3-050	SA-3-050-FL	SA-3-100	SA-3-100-FL	SA-3-150	SA-3-150-FL
Order number	50113773	50471885	50113781	50471886	50251726	50471887
Stroke H	50 mm	50 mm	100 mm	100 mm	150 mm	150 mm
Net weight	1.35 kg	1.35 kg	1.65 kg	1.65 kg	1.95 kg	1.95 kg
Moving weight	**0.6 kg	**0.6 kg	**0.75 kg	**0.75 kg	**0.9 kg	**0.9 kg
Weight, gear	**0.25 kg	**0.25 kg	**0.25 kg	**0.25 kg	**0.25 kg	**0.25 kg
Weight, motor	**0.6 kg	**0.6 kg	**0.6 kg	**0.6 kg	**0.6 kg	**0.6 kg
Noise level	65 dB (A)	65 dB (A)	65 dB (A)	65 dB (A)	65 dB (A)	65 dB (A)
Max. drive torque	0.17 Nm	0.17 Nm	0.17 Nm	0.17 Nm	0.17 Nm	0.17 Nm
Inertia, spindle	9.58 gcm ²	9.58 gcm ²	13.41 gcm ²	13.41 gcm ²	17.24 gcm ²	17.24 gcm ²
Drive	AC Servo	AC Servo	AC Servo	AC Servo	AC Servo	AC Servo
Protection type	IP 30	IP 30	IP 30	IP 30	IP 30	IP 30
Max. speed v	*1.0 m/s	*0.5 m/s	*1.0 m/s	*0.5 m/s	*1.0 m/s	*0.5 m/s
Max. acceleration a	*25 m/s ²	*25 m/s ²	*25 m/s ²	*25 m/s ²	*25 m/s ²	*25 m/s ²
Peak force Fx	100 N	300 N	100 N	300 N	100 N	300 N
Measuring system	Resolver	Resolver	Resolver	Resolver	Resolver	Resolver
Repeat accuracy	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm
Mounting position	✦	✦	✦	✦	✦	✦

The technical data pertains to Afag standard test conditions.

Note: The inductive reference sensor is integrated within the SA axis.

Cleanroom class ISO 14644-1, class ISO 7

*The maximum values listed above depend on the application and must not be combined. In case of doubt, please contact your Afag partner.

**Total weight = gross weight + slide + gear + motor

***Without brakes

****With brakes

Included in the delivery

(Catalogue HT accessories)

- 4x Centering bushing Ø7x3

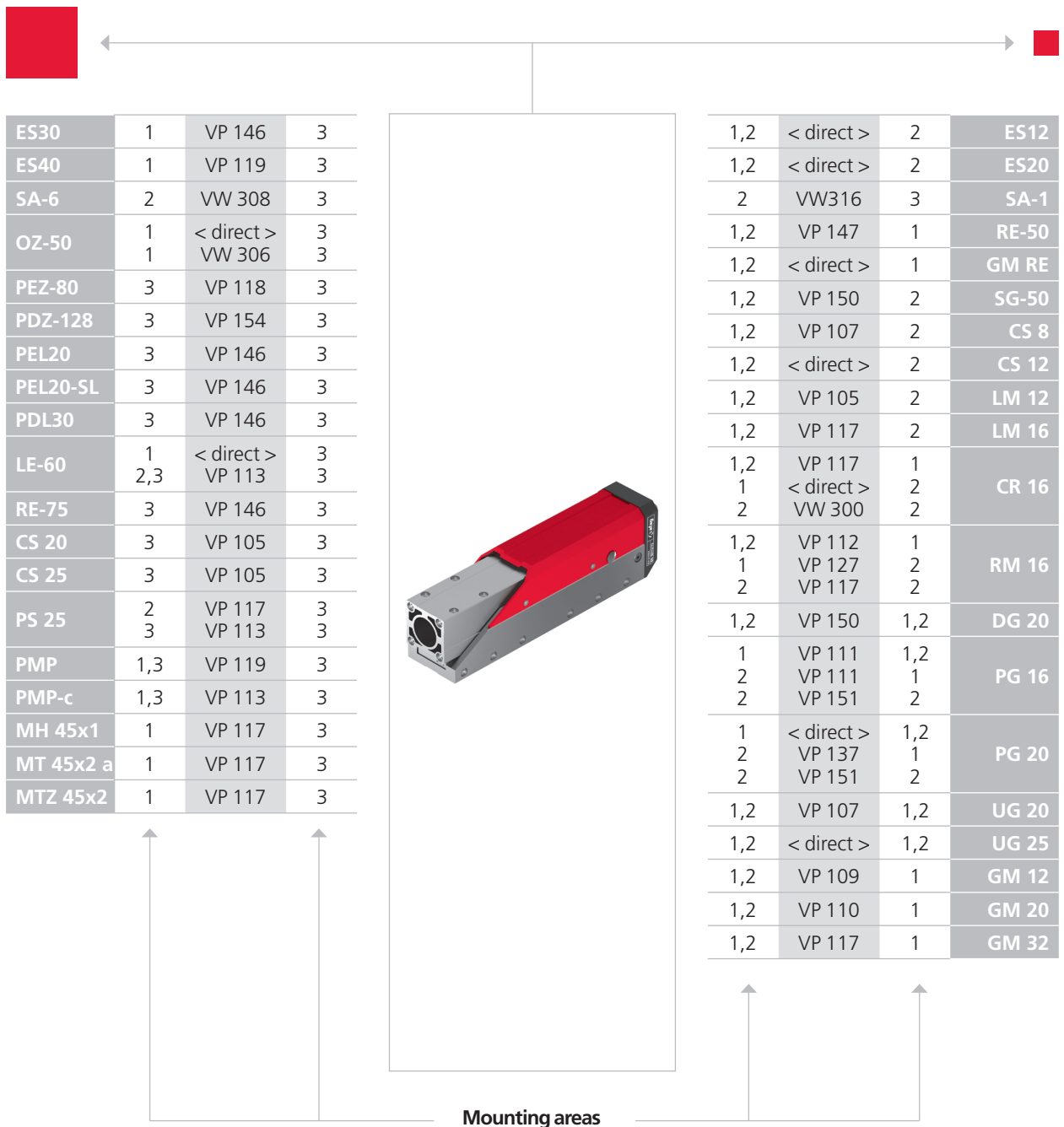
Accessories

- Coupling flange SA-3
 - Toothed belt drive SA-3
 - Coupling flange SA-3 without motor]
 - Grease press attachment SA
- (Catalogue HT accessories)
- Servomotor-11-72VDC-120W
 - Servo motor- 11-320VDC-120W
 - Servo controller C1xxx -1S
 - Servo controller E12xx
 - Servo controller SE-Power

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

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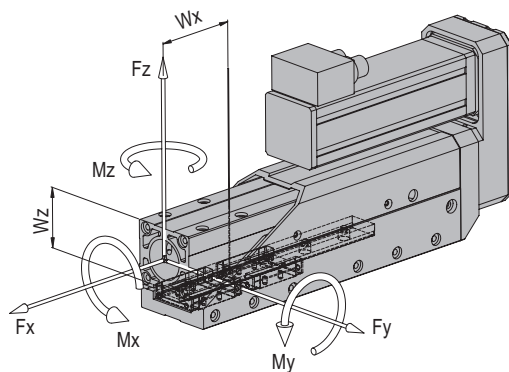
Handling technology HT Components linear



CS, ES 	PS 	LM, LE 	HM 	SA 	OZ
PMP, PMP-c 	PEZ, PDZ 	PEL, PDL 	CR, RM 32, RE, SREH 	RM, RE 	UG, GM, SG, DG, PG, GE

Note that there might be different mounting positions from one module to another one.
The required connection elements and the range of support columns are depicted in the catalogue HT accessories.

Type	SA-3-050	SA-3-050-FL	SA-3-100	SA-3-100-FL	SA-3-150	SA-3-150-FL
Max. torque Mx	10 Nm	10 Nm	10 Nm	10 Nm	10 Nm	10 Nm
Max. torque My	25 Nm	25 Nm	25 Nm	25 Nm	25 Nm	25 Nm
Max. torque Mz	25 Nm	25 Nm	25 Nm	25 Nm	25 Nm	25 Nm
Effective distance Wx	50 mm	50 mm	50 mm	50 mm	50 mm	50 mm
Effective distance Wy	0 mm	0 mm	0 mm	0 mm	0 mm	0 mm
Effective distance Wz	41 mm	41 mm	41 mm	41 mm	41 mm	41 mm
Peak force Fx	100 N	300 N	100 N	300 N	100 N	300 N

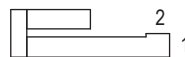


$$\frac{M_x}{M_{x \max}} + \frac{M_y}{M_{y \max}} + \frac{M_z}{M_{z \max}} < 1$$

Maximum payload/type	SA-3-050	SA-3-050-FL	SA-3-100	SA-3-100-FL	SA-3-150	SA-3-150-FL
Installation position (horizontal) for mounting side 1/2	8 kg	8 kg	8 kg	8 kg	8 kg	8 kg
Installation position (vertical) for mounting side 1/2	8 kg	8 kg	8 kg	8 kg	8 kg	8 kg

Assembly sides module mounting

horizontal:

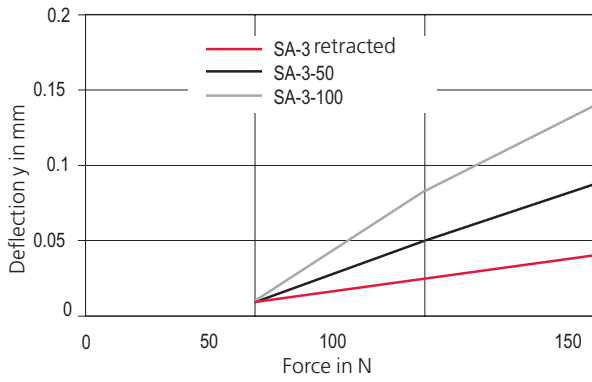


vertical:

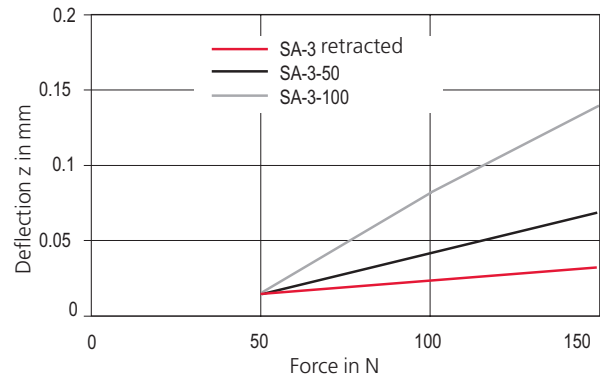


Load diagrams

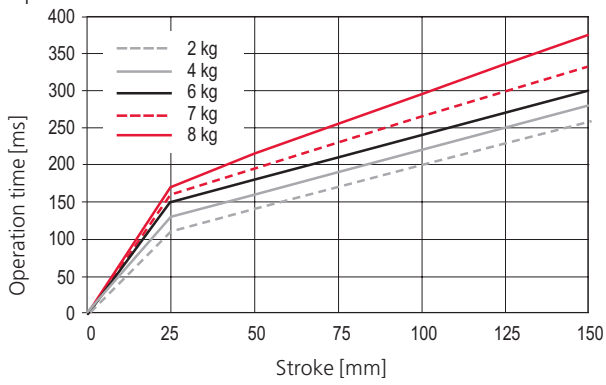
Deflection in Y direction



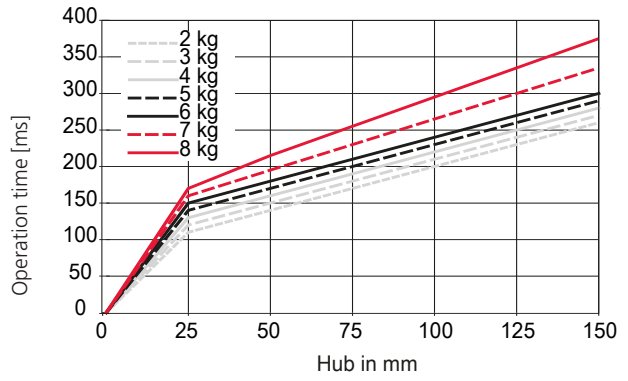
Deflection in Z direction



Operation time SA-3



Operation time SA-3-FL

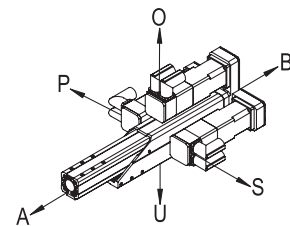


Order form	SA-3 / -FL	XXXXXXXX	XXXXXXXX	XXXXXXXX	X	X
		Stroke	Gear	Motor	Position gear	Position motor plug.

Coordinate system

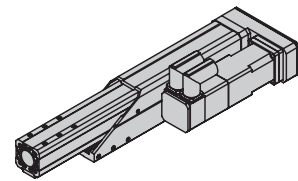
The coordinate system allows you to define the position of the gear as well as that of the motor plug.

- A = before
- B = base
- O = top
- P = left
- S = right
- U = downside



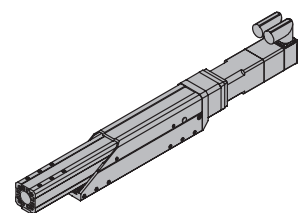
Ordering example 1

SA-3	50113773	50113764	50495881	S	O
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Ordering example 2

SA-3	50113773	50113754	50495877	B	O
------	----------	----------	----------	---	---



Ordering process

- Select the desired stroke length, gear and motor from the order key.
- Enter the corresponding red order numbers in the order form in the place of the cross.
- Determine the desired position of the gear and the motor plug.
- Enter the corresponding letters from the coordinate system in the order form in the place of the cross.

Third-party motors

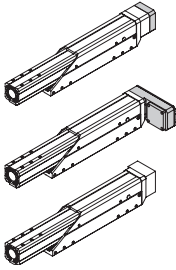



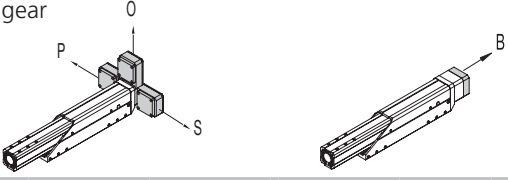
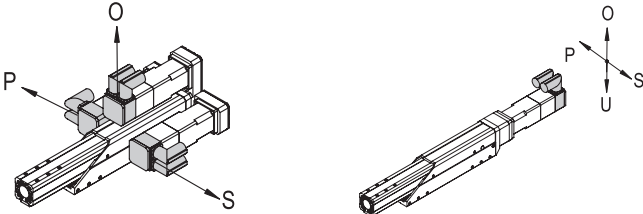
- If motors from other suppliers are to be attached to Afag modules, an adapter plate will be required. This adapter plate can be provided by Afag, if desired.

External controller

- Mechanical limiting values of the module must be observed (v max., a max.,...).
- The controller parametrisation is carried out by the customer.

Order key

SA-3/SE-Power/C1xxx/E12xx

Telescope spindle axis	SA-3	xxxxxxxx	xxxxxxxx	xxxxxxxx	x	x	
		Stroke		Gear	Motor	Position gear	Position motor plug
	SA-3-050	50113773					
	SA-3-050-FL	50471885					
	SA-3-100	50113781					
	SA-3-100-FL	50471886					
	SA-3-150	50251726					
SA-3-150-FL	50471887						
Gear			50113754	 BG1			
			50113764				
				50164698	 M0	B	X
Motor/controller	Without motor M0			X	B	X	
	 BG1	Servomotor-11-72VDC-120W-60-B-I-x-x	B	50485434			
		Servomotor-11-72VDC-120W-60-x-I-x-x		50495877			
		Servomotor-11-320VDC-120W-60-B-R-x-x	B	50495881			
		Servomotor-11-320VDC-120W-60-x-R-x-x		50495880			
Assembly	Position gear 				B O P S		
	Position motor plug  <p>The plug can be turned 180°. You can find further information in the operating manual.</p>					O P S U	

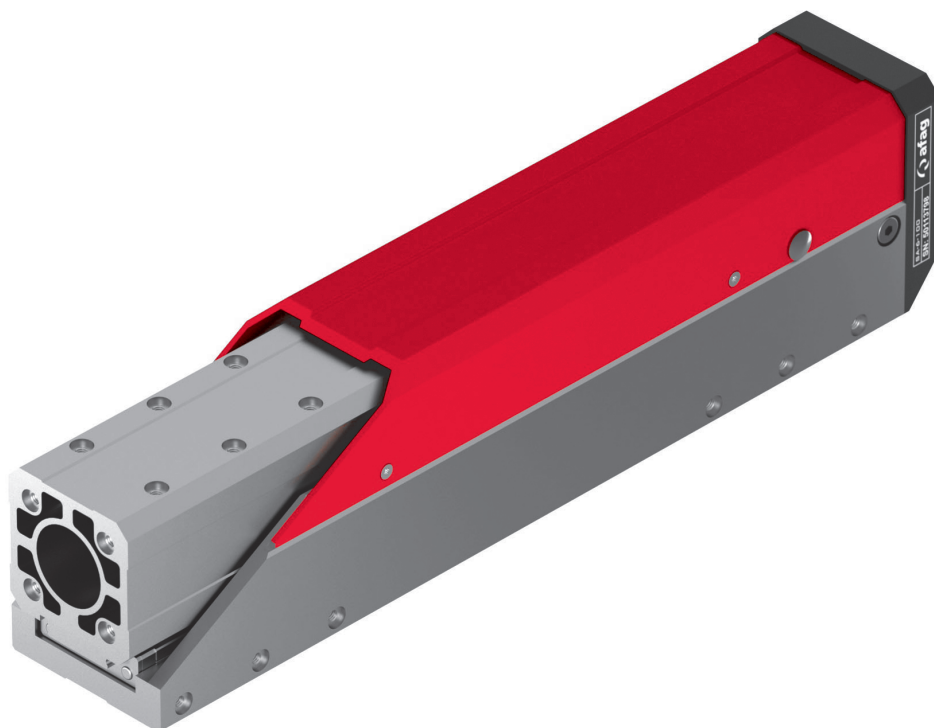
7

SE-Power C1xxx
1 kVA E12xx

B: Motor with brakes
BG: Motor size

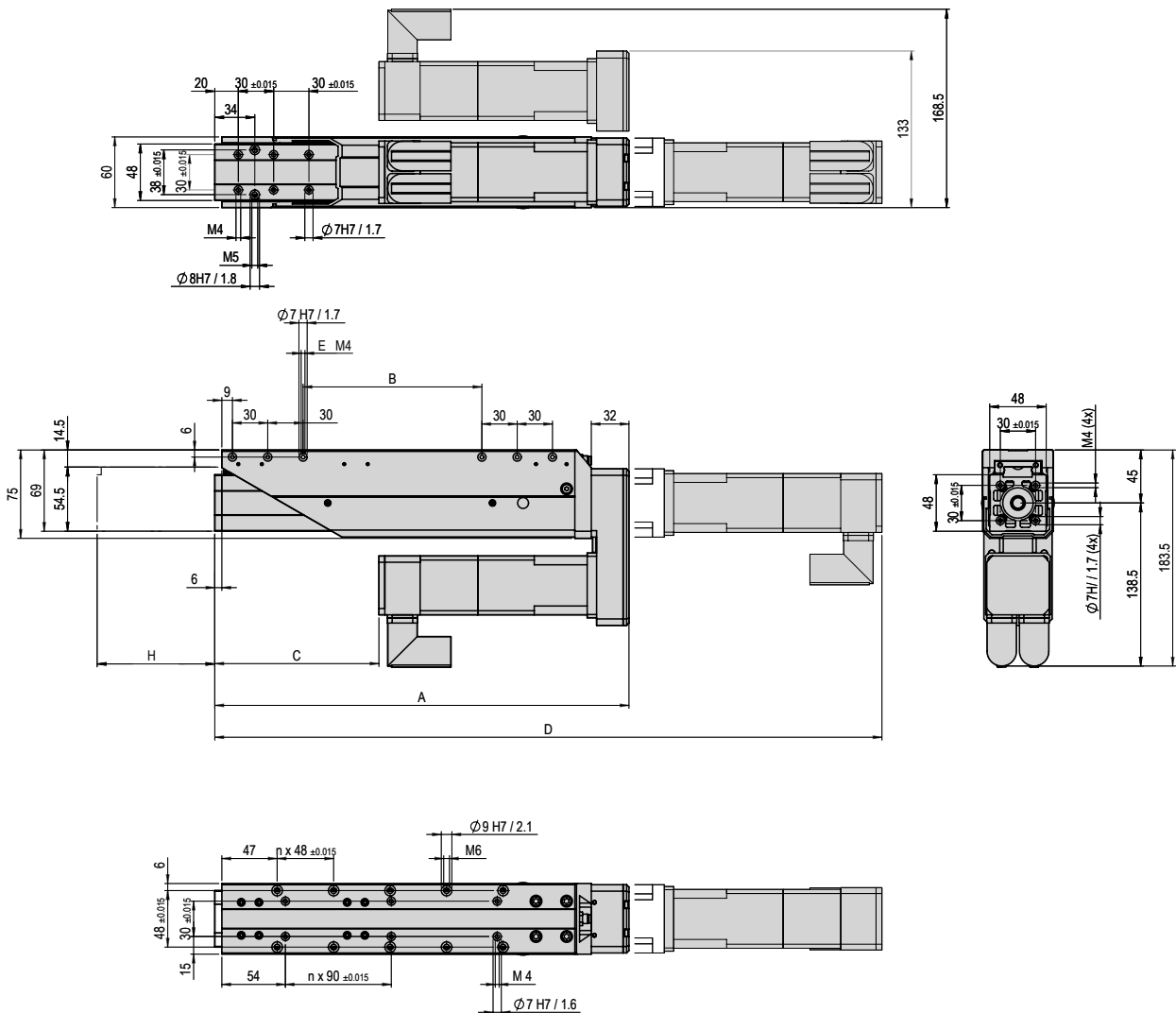
Telescope spindle axis SA

SA-6 & SA-6-FL



- Extremely compact and higher power density for -FL variety
- Flexible motor mounting
- Precise spindle drive

Type	SA-6-100/-FL	SA-6-200/-FL	SA-6-300/-FL
A	352 mm	452 mm	552 mm
B	152 mm	252 mm	352 mm
C	***139 mm ****174 mm	***239 mm ****274 mm	***339 mm ****374 mm
D	***532 mm ****567 mm	***632 mm ****667 mm	***732 mm ****767 mm
E	6 x both sides	6 x both sides	6 x both sides
F	4	6	8
H	100 mm	200 mm	300 mm





Type	SA-6-xxx	SA-6-xxx-FL
Spindle Ø	12.7 mm	12 mm
Spindle pitch (mm/1 turn)	25.4 mm	10 mm
Drive shaft Ø	8 mm	8 mm
Operating temperature	10 - 40 °C	10 - 40 °C
Storage temperature	0 - 50 °C	0 - 50 °C
Humidity	< 90 %	< 90 %

Type	SA-6-100	SA-6-100-FL	SA-6-200	SA-6-200-FL	SA-6-300	SA-6-300-FL
Order number	50113798	50471888	50113800	50471889	50113804	50471890
Stroke H	100 mm	100 mm	200 mm	200 mm	300 mm	300 mm
Net weight	2.80 kg	2.80 kg	3.65 kg	3.65 kg	4.50 kg	4.50 kg
Moving weight	**1.32 kg	**1.32 kg	**1.32 kg	**1.32 kg	**1.32 kg	**1.32 kg
Weight, gear	**0.44 kg	**0.44 kg	**0.44 kg	**0.44 kg	**0.44 kg	**0.44 kg
Weight, motor	**1.57 kg	**1.57 kg	**1.57 kg	**1.57 kg	**1.57 kg	**1.57 kg
Noise level	65 dB (A)	65 dB (A)	65 dB (A)	65 dB (A)	65 dB (A)	65 dB (A)
Max. drive torque	0.85 Nm	0.85 Nm	0.85 Nm	0.85 Nm	0.85 Nm	0.85 Nm
Inertia, spindle	33.5 gcm ²	33.5 gcm ²	52.19 gcm ²	52.19 gcm ²	70.89 gcm ²	70.89 gcm ²
Drive	AC Servo	AC Servo	AC Servo	AC Servo	AC Servo	AC Servo
Protection type	IP 30	IP 30	IP 30	IP 30	IP 30	IP 30
Max. speed v	*1.5 m/s	*0.6 m/s	*1.5 m/s	*0.6 m/s	*1 m/s	*0.6 m/s
Max. acceleration a	*25 m/s ²	*25 m/s ²	*25 m/s ²	*25 m/s ²	*25 m/s ²	*25 m/s ²
Peak force Fx	200 N	600 N	200 N	600 N	200 N	600 N
Measuring system	Resolver	Resolver	Resolver	Resolver	Resolver	Resolver
Repeat accuracy	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm
Mounting position	✦	✦	✦	✦	✦	✦

The technical data pertains to Afag standard test conditions.
 Note: The inductive reference sensor is integrated within the SA axis.
 Cleanroom class ISO 14644-1, class ISO 7

*The maximum values listed above depend on the application and must not be combined. In case of doubt, please contact your Afag partner.

**Total weight = gross weight + slide + gear + motor + controller SE-48 (0.9 kg)

***Without brakes

****With brakes

Included in the delivery

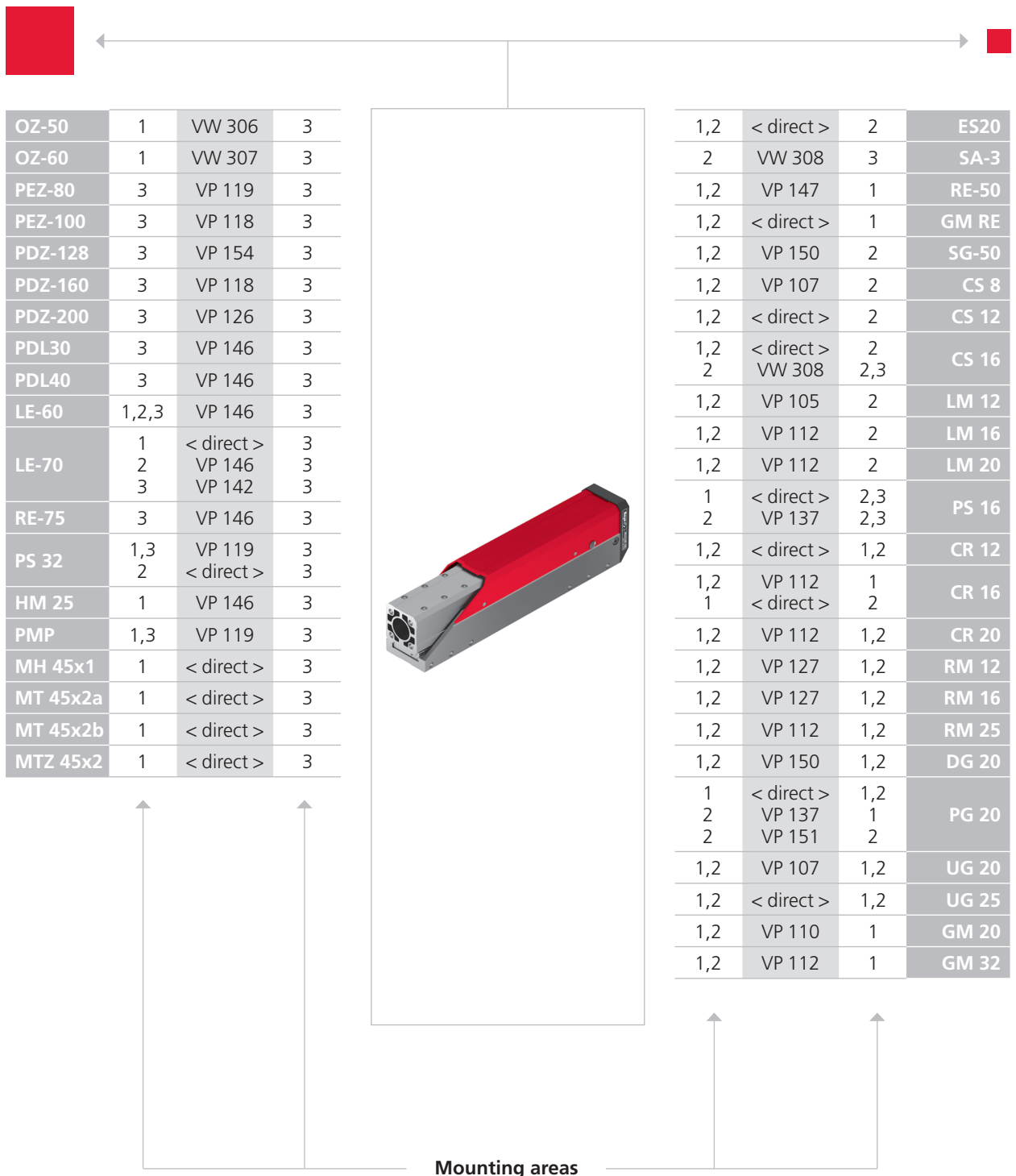
(Catalogue HT accessories)

- 2x Centering bushing Ø7x3
- 2x Centering bushing Ø9x4

Accessories

- Toothed belt drive SA-6
 - Coupling flange SA-6
 - Coupling flange SA-6 without motor
 - Grease press attachment SA
- (Catalogue HT accessories)
- Servo motor-21-72VDC-400W
 - Servo motor 21-320VDC-400W
 - Servo controller SE-Power
 - Servo controller C1xxx -1S
 - Servo controller E12-xx

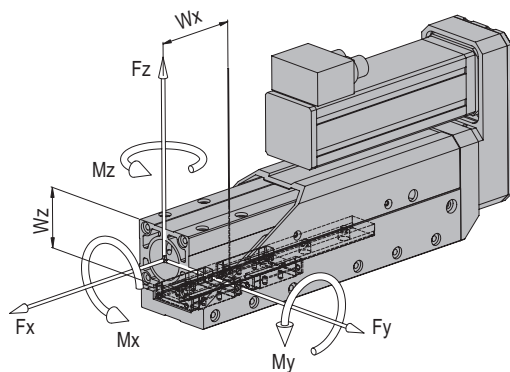
Warranty: 24 months following commissioning, but a maximum of 27 months following delivery



CS, ES 	PS 	LM, LE 	HM 	SA 	OZ
PMP, PMP-c 	PEZ, PDZ 	PEL, PDL 	CR, RM 32, RE, SREH 	RM, RE 	UG, GM, SG, DG, PG, GE

Note that there might be different mounting positions from one module to another one.
The required connection elements and the range of support columns are depicted in the catalogue HT accessories.

Type	SA-6-100	SA-6-100-FL	SA-6-200	SA-6-200-FL	SA-6-300	SA-6-300-FL
Max. torque Mx	25 Nm	25 Nm	25 Nm	25 Nm	25 Nm	25 Nm
Max. torque My	70 Nm	70 Nm	70 Nm	70 Nm	70 Nm	70 Nm
Max. torque Mz	70 Nm	70 Nm	70 Nm	70 Nm	70 Nm	70 Nm
Effective distance Wx	75 mm	75 mm	75 mm	75 mm	75 mm	75 mm
Effective distance Wy	0 mm	0 mm	0 mm	0 mm	0 mm	0 mm
Effective distance Wz	52 mm	52 mm	52 mm	52 mm	52 mm	52 mm
Peak force Fx	200 N	600 N	200 N	600 N	200 N	600 N

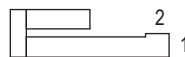


$$\frac{M_x}{M_{x \max}} + \frac{M_y}{M_{y \max}} + \frac{M_z}{M_{z \max}} < 1$$

Maximum payload/type	SA-6-100	SA-6-100-FL	SA-6-200	SA-6-200-FL	SA-6-300	SA-6-300-FL
Installation position (horizontal) for mounting side 1/2	16 kg	16 kg	16 kg	16 kg	16 kg	16 kg
Installation position (vertical) for mounting side 1/2	16 kg	16 kg	16 kg	16 kg	16 kg	16 kg

Assembly sides module mounting

horizontal:

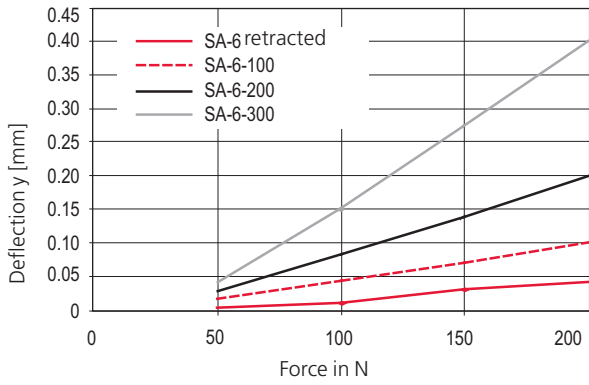


vertical:

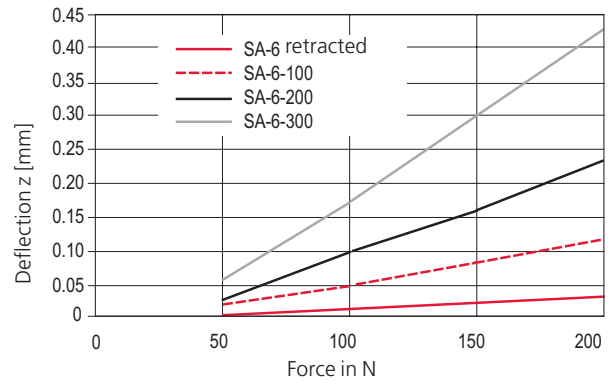


Load diagrams

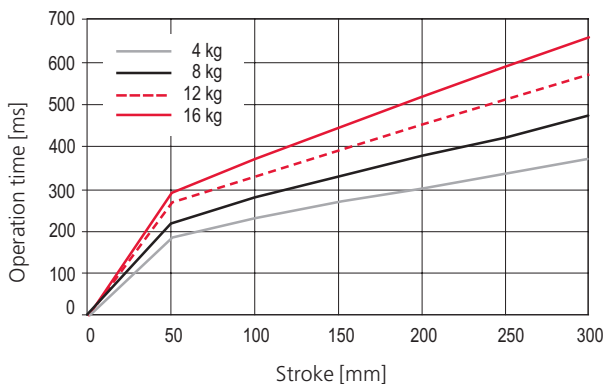
Deflection in Y direction



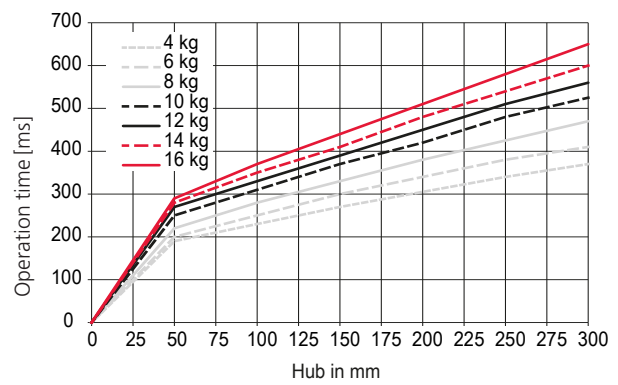
Deflection in Z direction



Operation time SA-6



Operation time SA-6-FL

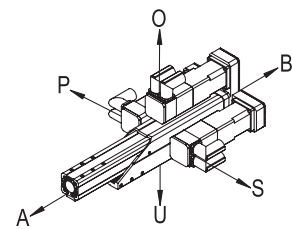


Order form	SA-6 /-FL	XXXXXXXX	XXXXXXXX	XXXXXXXX	X	X	X
		Stroke	Gear	Motor	Position gear	Position control	Position motor plug

Coordinate system

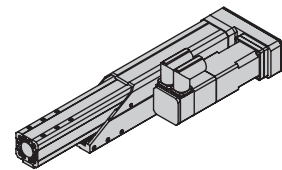
The coordinate system allows you to define the position of the gear, control as well as that of the motor plug.

- A = before
- B = base
- O = top
- P = left
- S = right
- U = downside



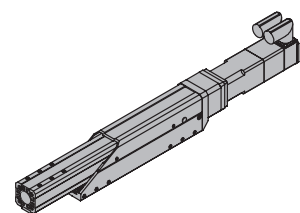
Ordering example 1

SA-6	50113798	50164846	50495884	S	O	A
------	----------	----------	----------	---	---	---



Ordering example 2

SA-6	50113798	50164846	50495883	B	X	A
------	----------	----------	----------	---	---	---



Ordering process

- Select the desired stroke length, gear and motor from the order key.
- Enter the corresponding red order numbers in the order form in the place of the cross.
- Determine the desired position of the gear and the motor plug.
- Enter the corresponding letters from the coordinate system in the order form in the place of the cross.

Third-party motors

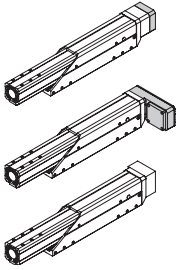


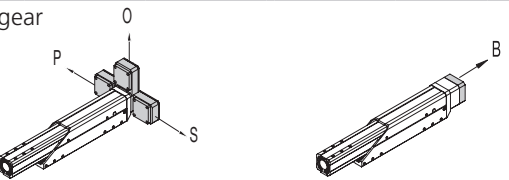
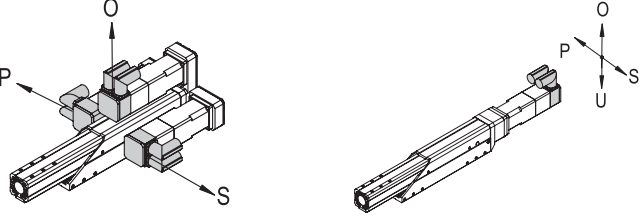
- If motors from other suppliers are to be attached to Afag modules, an adapter plate will be required. This adapter plate can be provided by Afag, if desired.

External controller

- Mechanical limiting values of the module must be observed (v max., a max.,...).
- The controller parametrisation is carried out by the customer.

Order key

SA-6/SE-Power/C1xxx/E12xx

Telescope spindle axis	SA-6	xxxxxxxx	xxxxxxxx	xxxxxxxx	x	x	
		Stroke		Gear	Motor	Position gear	Position motor plug
	SA-6-100	50113798					
	SA-6-100-FL	50471888					
	SA-6-200	50113800					
	SA-6-200-FL	50471889					
	SA-6-300	50113804					
SA-6-300-FL	50471890						
Gear			50164846	 BG2	B	X	
			50113795				
			50164873	M0			
Motor/controller	Without motor M0			X			
	 BG2	Servomotor-21-72VDC-400W-45-B-I-x-x	B	50485435	B O P S	SE-Power C1xxx 1 kVA E12xx	
		Servomotor-21-72VDC-400W-45-x-I-x-x		50495882			
		Servomotor-21-320VDC-400W-45-B-R-x-x	B	50495884			
		Servomotor-21-320VDC-400W-45-x-R-x-x		50495883			
Position gear							
Assembly	Position motor plug				O P S U		
							
<p>The plug can be turned 180°. You can find further information in the operating manual.</p>							

7

B: Motor with brakes
BG: Motor size

Accessories SA

Toothed belt drive SA-1

Order number 50249015

Net weight 0.185 kg

Coupling flange SA-1

Order number 50249016

Net weight 0.127 kg

Coupling flange SA-1 without motor

Order number 50261931

Net weight 0.091 kg

Toothed belt drive SA-3

Order number 50113764

Net weight 0.236 kg

Coupling flange SA-3

Order number 50113754

Net weight 0.236 kg

Coupling flange SA-3 without motor

Order number 50164698

Net weight 0.178 kg

Toothed belt drive SA-6

Order number 50113795

Net weight 0.397 kg

Coupling flange SA-6

Order number 50164846

Net weight 0.448 kg

Coupling flange SA-6 without motor

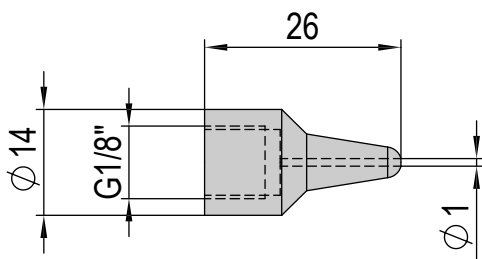
Order number 50164873

Net weight 0.299 kg

Grease press attachment SA

Order number 11012190

Net weight 0.01 kg



Omega-cantilever axes OZ

OZ-50 & OZ-60

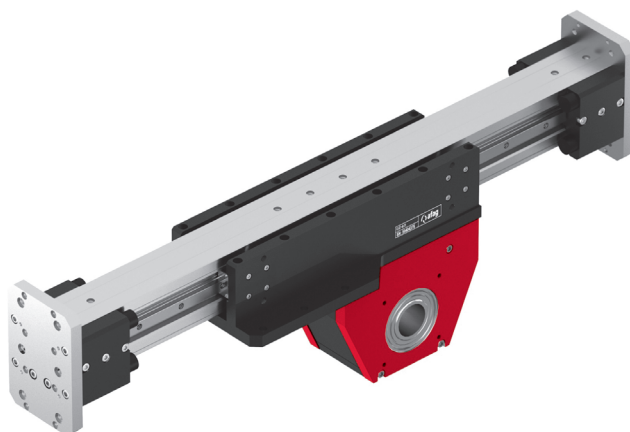
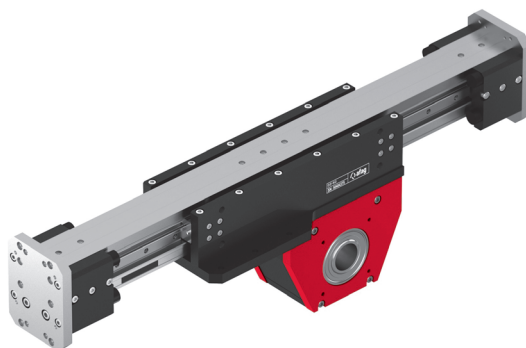
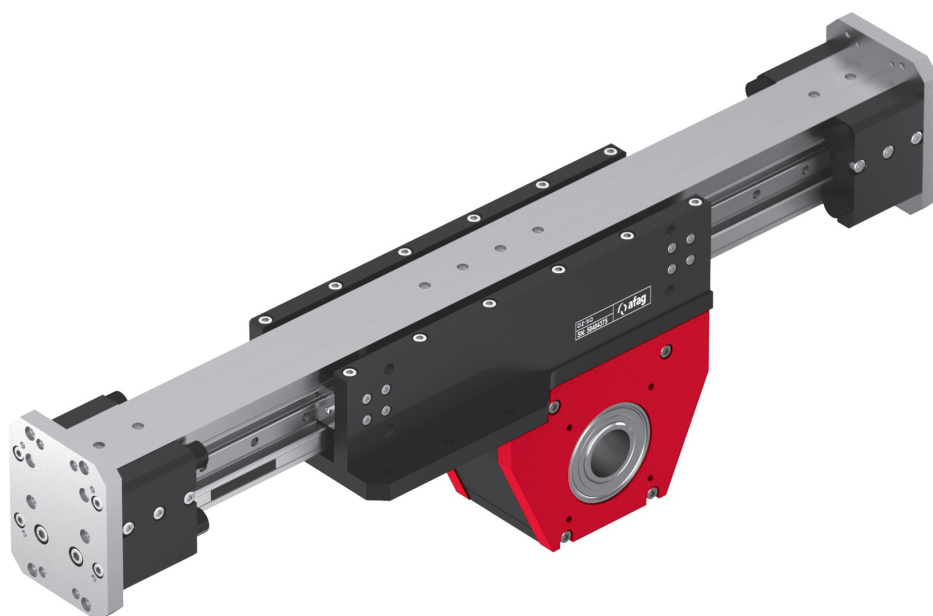


Table of contents: OZ

Omega-cantilever axis OZ		Page
OZ-50		271
OZ-60		279

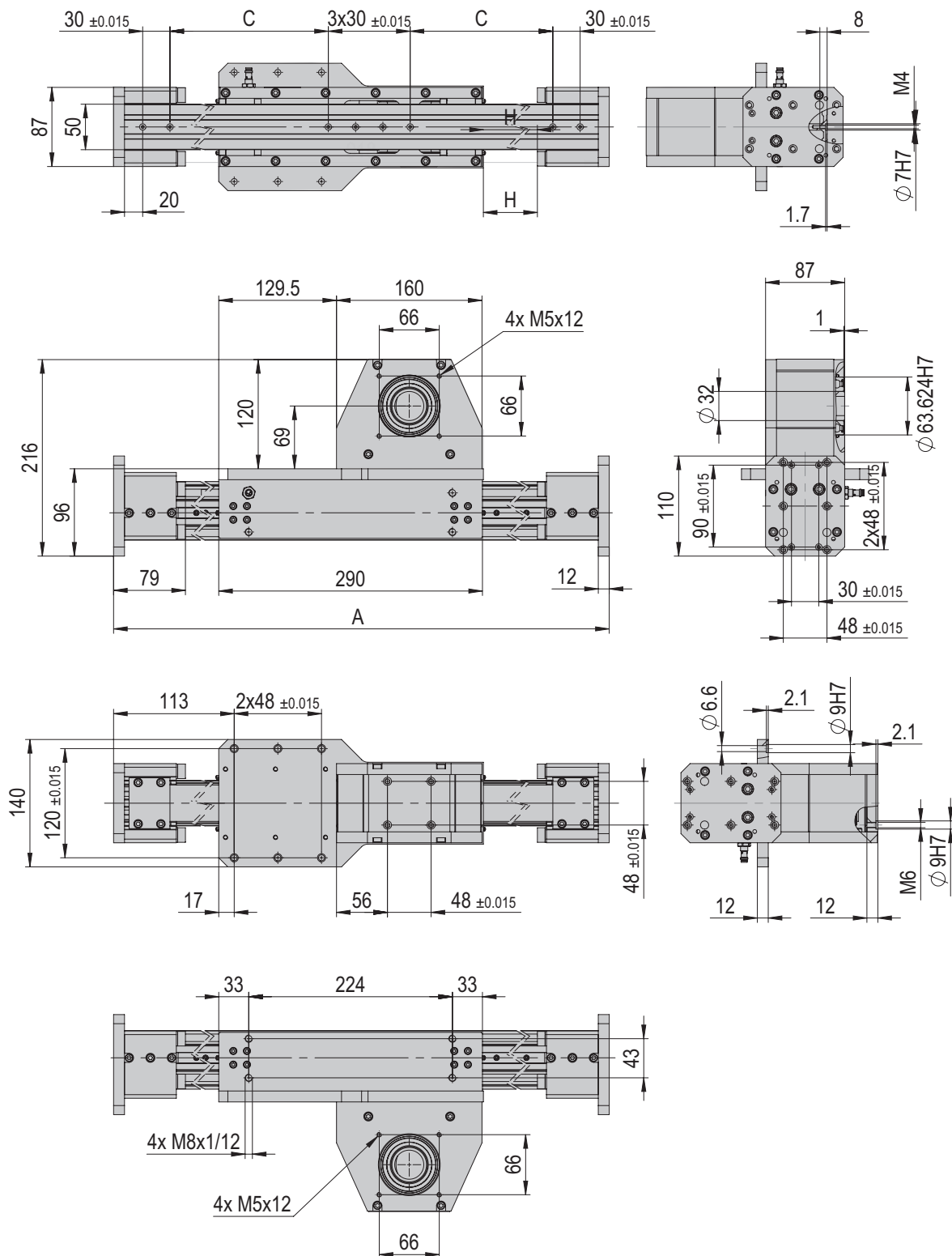
Omega-cantilever axes OZ

OZ-50



- Highly dynamic cantilever axis
- Simple, short cable guide
- Horizontal and vertical installation

Type	OZ-50-XXX
A	H + 482 mm
C	(H+458)/2 - 95 mm
H	100 - 820 mm





OZ-50	
Operating temperature	10 - 40 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %
Type	
OZ-50-XXX	
Order number	50404375
Max. stroke	820 mm
Stroke increment	40 from 100 mm
Net weight	10.7 kg (at 100 mm stroke)
Moving weight at 100 mm stroke	5.6 kg
Moving weight/40 mm stroke	0.2 kg
Noise level	78 dB (A)
Torque	14.3 Nm
Protection type	IP 20
Feed constant	180 mm/U
Max. speed v	*5 m/s
Max. acceleration a	*50 m/s ²
Peak force Fx	**500 N
Repeat accuracy	+/- 0.05 mm
Mounting position	↕

The technical data pertains to Afag standard test conditions.

Note: Total weight = gross weight + motor + mounting set + gear

The mounting sets, gears, motors, controllers and cables can be found in the corresponding chapters.

Cleanroom class ISO 14644-1, class ISO 7

*The maximum values listed above depend on the application and must not be combined. In case of doubt, please contact your Afag partner.

**If Fx is exceeded, the toothed belt may jump.

Included in the delivery

(Catalogue HT accessories)

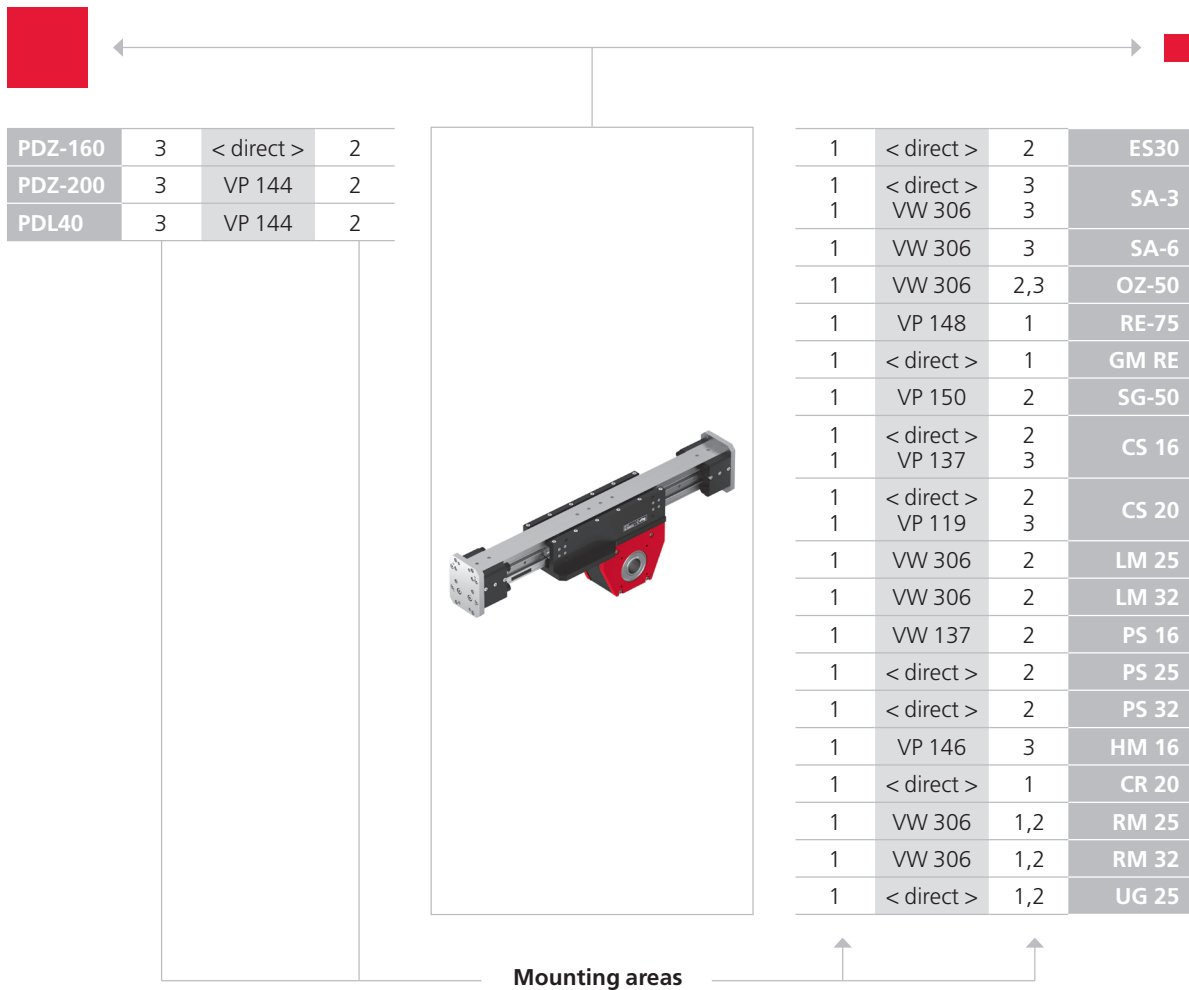
- 2x Centering bushing Ø9x4
- 4x Mounting screw M6x25

Accessories

(Catalogue HT accessories)

- INI d8x36-Sn2.0-PNP-NC-M8x1
- Mounting set 060
- Mounting set 070
- Planetary gearbox PE070
- Planetary gearbox AF060
- Angular gearbox PER070
- Angular gearbox AFR060
- Servomotor-31-320VDC-950W
- Servomotor-31-560VDC-950W
- Servo controller SE-Power
- Servo controller E14xx

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

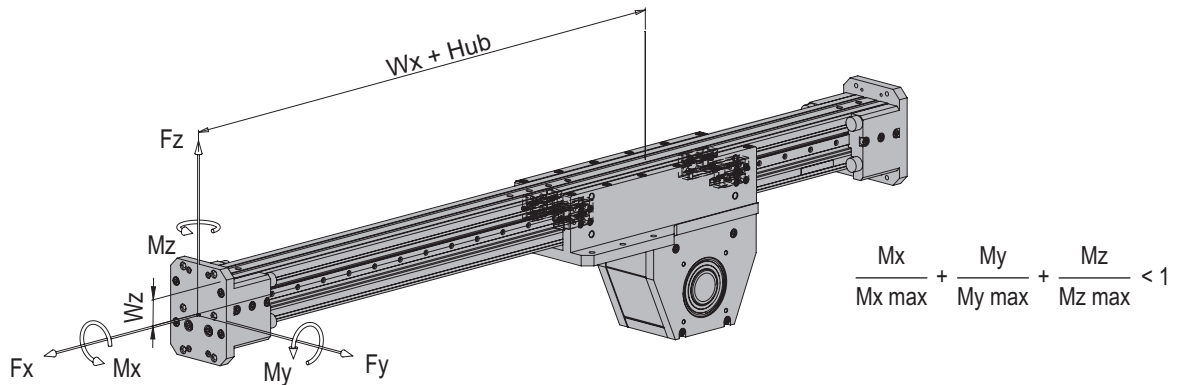


CS, ES 	PS 	LM, LE 	HM 	SA 	OZ
PMP, PMP-c 	PEZ, PDZ 	PEL, PDL 	CR, RM 32, RE, SREH 	RM, RE 	UG, GM, SG, DG, PG, GE

Note that there might be different mounting positions from one module to another one.

The required connection elements and the range of support columns are depicted in the catalogue HT accessories.

Type	OZ-50-XXX
Max. torque Mx	40 Nm
Max. torque My	170 Nm
Max. torque Mz	170 Nm
Effective distance Wx	262 mm
Effective distance Wy	0 mm
Effective distance Wz	30 mm
Peak force Fx	**500 N

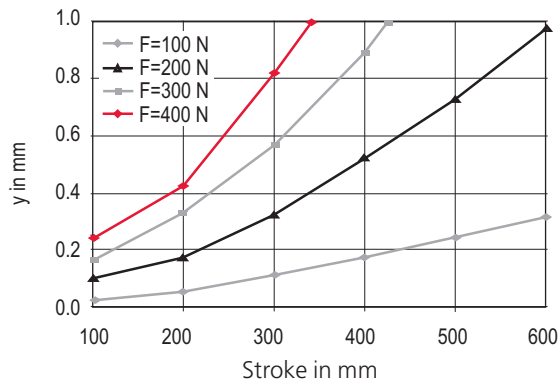


Maximum payload/type	OZ-50-XXX
Installation position (horizontal) for mounting side 1	40 kg
Installation position (vertical) for mounting side 1	40 kg

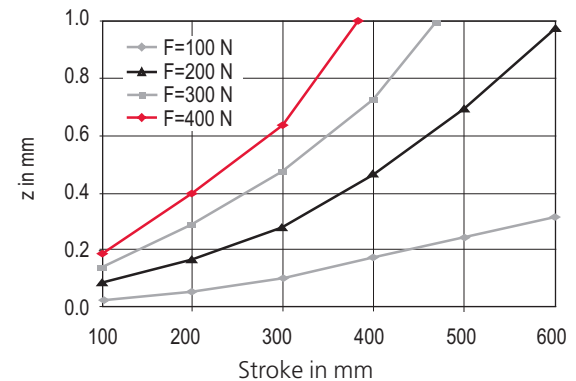


Deviation diagrams

OZ-50: Deviation Y-direction via force Fy



OZ-50: Deviation Z-direction via force Fz

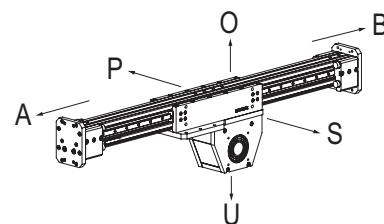


Order form	OZ-50	50404375	xxxxxxxx	xxxxxxxx	xxxxxxxx	xxxxxxxx	x	x	x
	Axis	Nominal stroke	Mounting set	Gear	Motor		Position gear	Position angular gearbox	Position motor plug.

Coordinate system

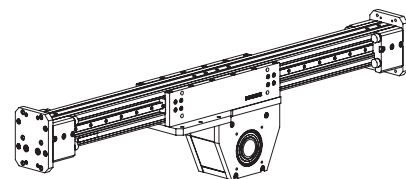
The coordinate system allows you to define the Position von gear as well as that of the motor plug.

- A = before
- B = base
- O = top
- P = left
- S = right
- U = downside



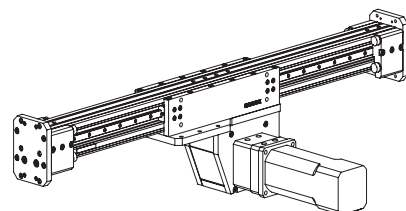
Ordering example 1 without motor

OZ-50	50404375	220	x	x	x	x	x	x
-------	----------	-----	---	---	---	---	---	---



Ordering example 2 with motor

OZ-50	50404375	220	50255204	50467058	50495887	S	x	U
-------	----------	-----	----------	----------	----------	---	---	---



Ordering process

- Select the desired stroke length, gear and motor from the order key.
- Enter the corresponding red order numbers in the order form in the place of the cross.
- Determine the desired position of the gear and the motor plug. Enter the corresponding letters from the coordinate system in the order form in the place of the cross.




Third-party motors

- If the mounting of a third-party motor is desired the Afag axis can be provided with a gear, including a motor adapter plate for the third-party motor.

External controller

- Mechanical limiting values of the module must be observed (v max., a max.,...).
- The controller parametrisation is carried out by the customer.

Legend order key

-  Planetary gearbox
-  Angular gearbox
-  Coupling housing

OZ-50		50404375	x	x	x	x	x	x	x		
Mounting kit/gear (1 : x)		PE	AF	PER	AFR						
	Mounting kit	50255203	50255204	50255203	50255204						
	1 : 5	50477900	50467058	50477912	50467070						
	1 : 7	50477901	50467059	50477913	50467071						
	1 : 10	50477902	50467060	50477914	50467072						
Third-party motor			KG		AA		M0		X		
					AA		M0		X		
	Without gear				X			X	X		
Without motor		M0					X		X		
Motor/controller		Servomotor-31-320VDC-950W-45-B-R-x-x	B	50503160							
		Servomotor-31-320VDC-950W-45-x-R-x-x		50503156							
		Servomotor-31-560VDC-950W-45-B-R-x-x	B	50495887							
		Servomotor-31-560VDC-950W-45-x-R-x-x		50495886							
		Servomotor-31-560VDC-950W-45-B-I-x-x	B	50485436							
		Servomotor-31-560VDC-950W-45-x-I-x-x		50495885							
Assembly	Assembly side of the gear						P	S			
	Assembly direction of the angular gear						B	O	U		
	Position of the motor connector						A	B	O	P	S
The plug can be turned 180°. You can find further information in the operating manual.											

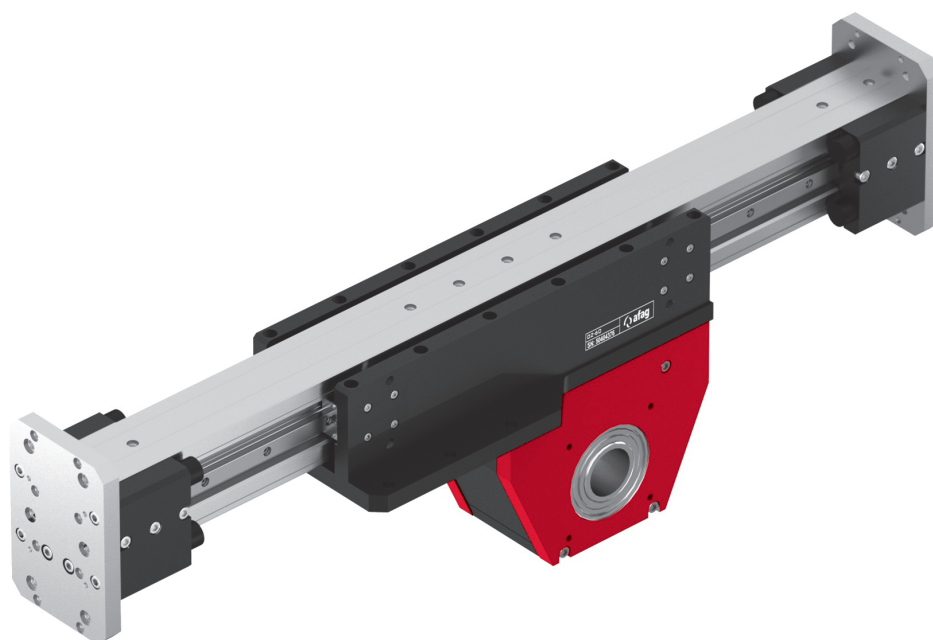
Motor and gear selection:
Design by Afag

E14xx SE-Power 3 kVA
SE-Power 1 kVA

AA: Upon request BG: Motor size PE: Planetary gearbox AF: Planetary gearbox, low-backlash
 B: Motor with brakes KG: Coupling housing PER: Angular gearbox AFR: Angular gearbox, low-backlash

Omega-cantilever axes OZ

OZ-60

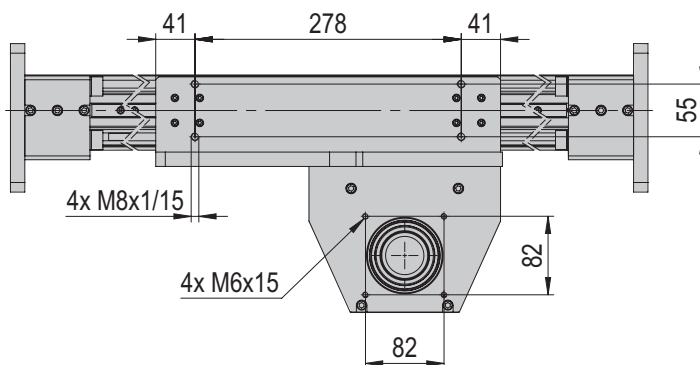
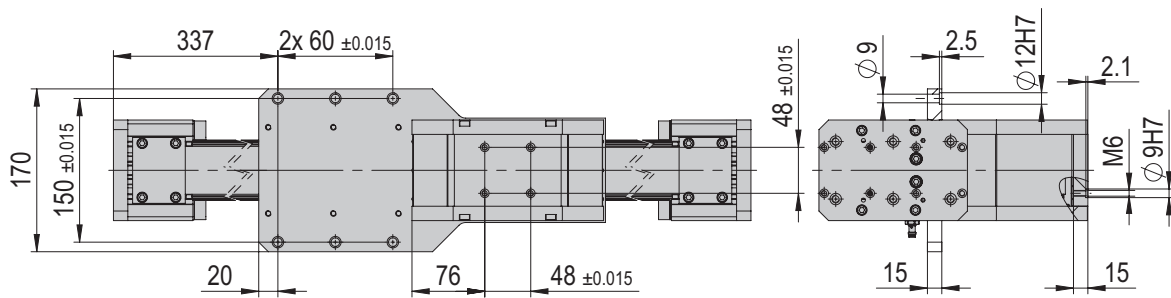
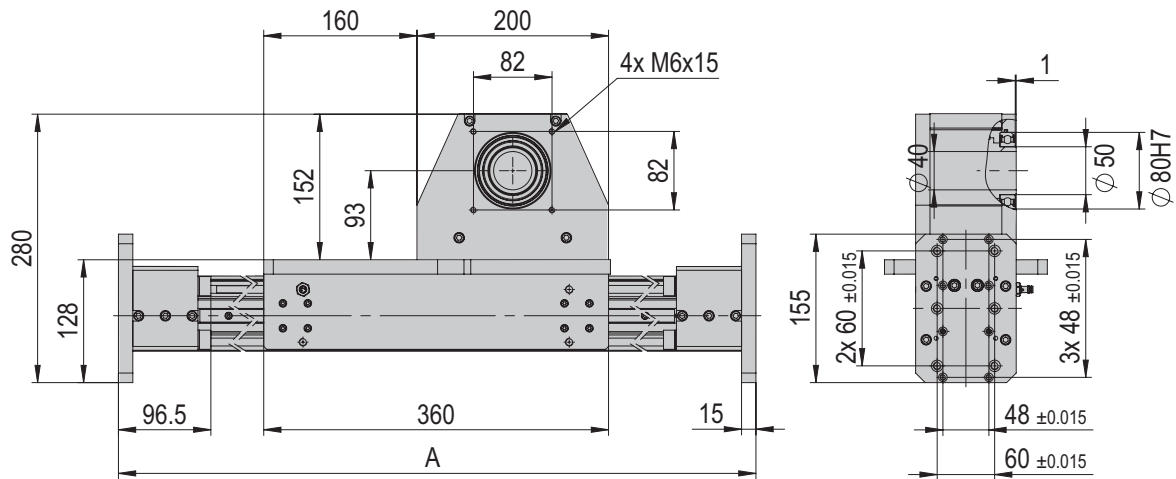
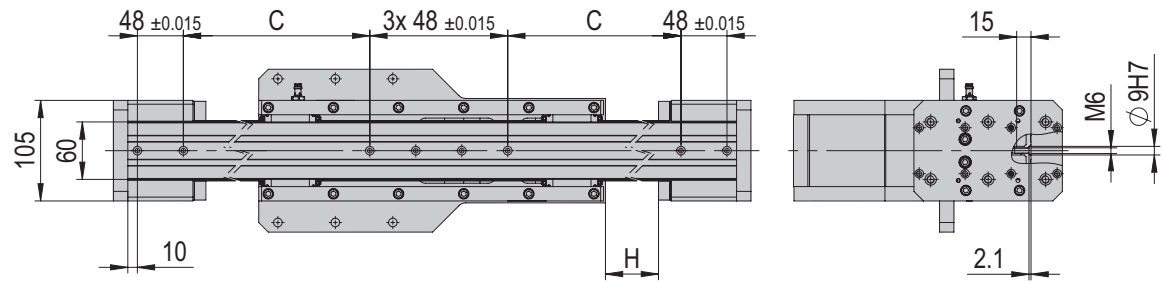


- Highly dynamic cantilever axis
- Simple, short cable guide
- Horizontal and vertical installation

Dimensions and dimension drawings

OZ-60

Type	OZ-60-XXX
A	H+590 mm
C	(H+560)/2 - 130 mm
H	120 - 1320 mm





OZ-60	
Operating temperature	10 - 40 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %

Type	OZ-60-XXX
------	-----------

Order number	50404376
---------------------	-----------------

Max. stroke	1320 mm
Stroke increment	60 from 120 mm
Net weight	20.3 kg (at 120 mm stroke)
Moving weight at 120 mm stroke	10.7 kg
Moving weight/60 mm stroke	0.5 kg
Noise level	78 dB (A)
Torque	28 Nm
Protection type	IP 20
Feed constant	220 mm/U
Max. speed v	*5 m/s
Max. acceleration a	*50 m/s ²
Peak force Fx	**800 N
Repeat accuracy	+/- 0.05 mm
Mounting position	↕

The technical data pertains to Afag standard test conditions.

Note: Total weight = gross weight + motor + mounting set + gear

The mounting sets, gears, motors, controllers and cables can be found in the corresponding chapters.

Cleanroom class ISO 14644-1, class ISO 7

*The maximum values listed above depend on the application and must not be combined. In case of doubt, please contact your Afag partner.

**If Fx is exceeded, the toothed belt may jump.

Included in the delivery

(Catalogue HT accessories)

- 2x Centering bushing Ø12x4.8
- 4x Mounting screw M8x30

Accessories

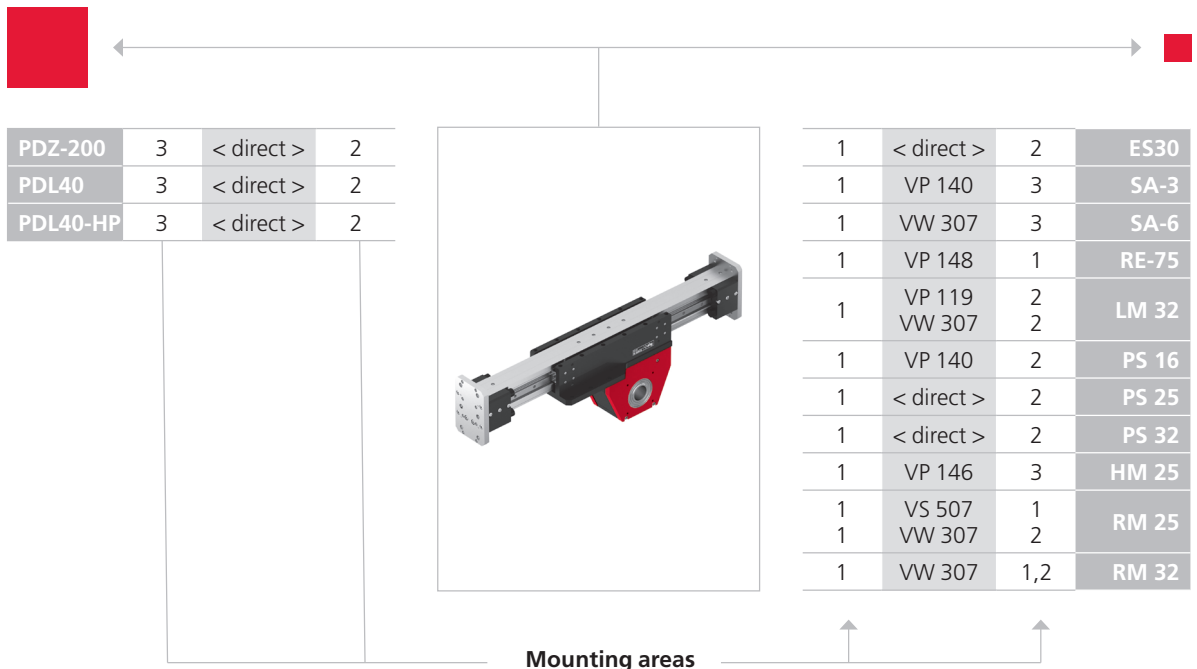
(Catalogue HT accessories)

- INI d8x36-Sn2.0-PNP-NC-M8x1
- Mounting set 075
- Mounting set 090
- Planetary gearbox PE075
- Planetary gearbox AF090
- Angular gearbox PER075
- Angular gearbox AFR090
- Servomotor-41-560VDC-2.8kW
- Servo controller SE-Power
- Servo controller E14xx

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

afag.com

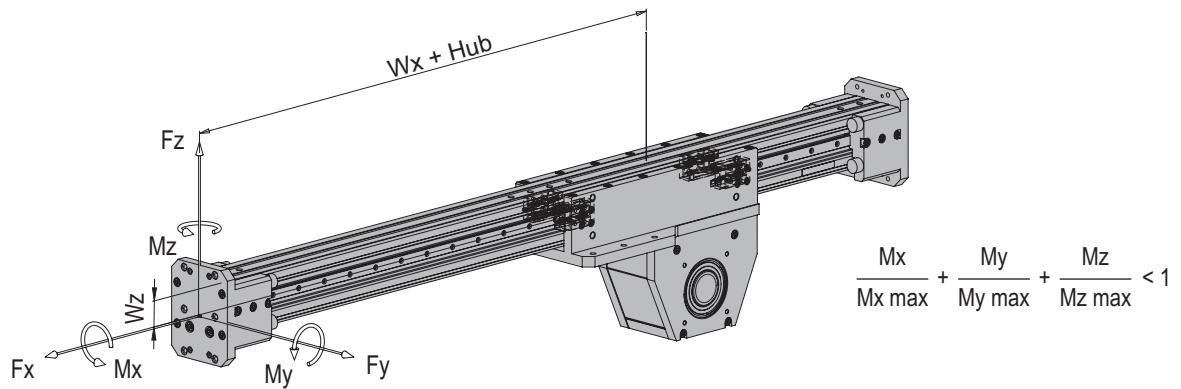
Handling technology HT Components linear



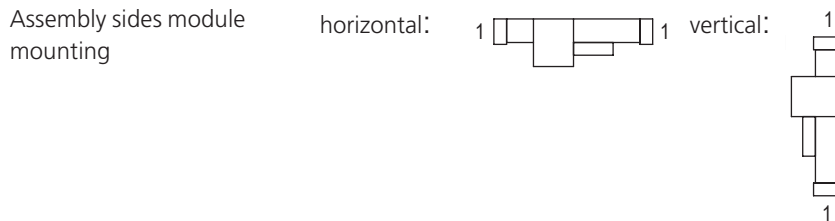
CS, ES 	PS 	LM, LE 	HM 	SA 	OZ
PMP, PMP-c 	PEZ, PDZ 	PEL, PDL 	CR, RM 32, RE, SREH 	RM, RE 	UG, GM, SG, DG, PG, GE

Note that there might be different mounting positions from one module to another one.
The required connection elements and the range of support columns are depicted in the catalogue HT accessories.

Type	OZ-60-XXX
Max. torque Mx	80 Nm
Max. torque My	400 Nm
Max. torque Mz	400 Nm
Effective distance Wx	315 mm
Effective distance Wy	0 mm
Effective distance Wz	37 mm
Peak force Fx	**800 N

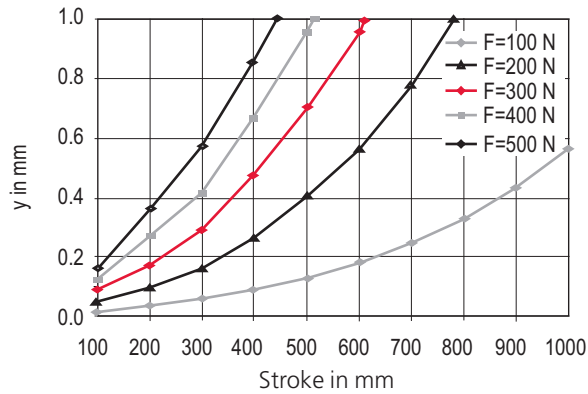


Maximum payload/type	OZ-60-XXX
Installation position (horizontal) for mounting side 1	60 kg
Installation position (vertical) for mounting side 1	60 kg

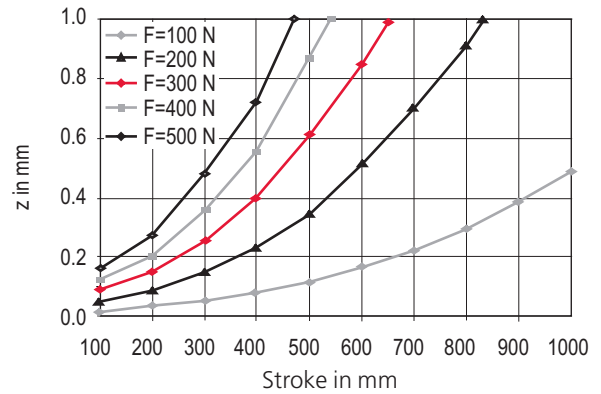


Deviation diagrams

OZ-60: Deviation Y-direction via force Fy



OZ-60: Deviation Z-direction via force Fz

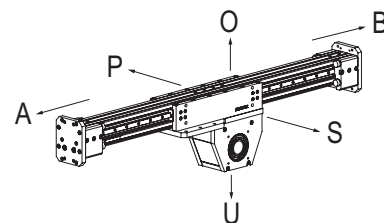


Order form	OZ-60	50404376	xxxxxxxx	xxxxxxxx	xxxxxxxx	xxxxxxxx	x	x	x
	Axis	Nominal stroke	Mounting set	Gear	Motor		Position gear	Position angular gearbox	Position motor plug.

Coordinate system

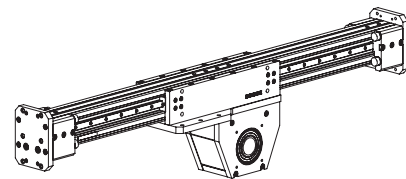
The coordinate system allows you to define the position of the gear as well as that of the motor plug.

- A = before
- B = base
- O = top
- P = left
- S = right
- U = downside



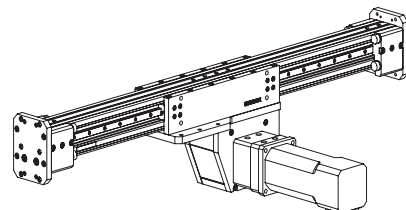
Ordering example 1 without motor

OZ-60	50404376	300	x	x	x	x	x	x
-------	----------	-----	---	---	---	---	---	---



Ordering example 2 with motor

OZ-60	50404376	300	50255205	50477903	50495890	S	x	U
-------	----------	-----	----------	----------	----------	---	---	---



Ordering process

- Select the desired stroke length, gear and motor from the order key.
- Enter the corresponding red order numbers in the order form in the place of the cross.
- Determine the desired position of the gear and the motor plug.
- Enter the corresponding letters from the coordinate system in the order form in the place of the cross.




Third-party motors

- If the mounting of a third-party motor is desired the Afag axis can be provided with a gear, including a motor adapter plate for the third-party motor.

External controller

- Mechanical limiting values of the module must be observed (v max., a max.,...).
- The controller parametrisation is carried out by the customer.

Legend order key

-  Planetary gearbox
-  Angular gearbox
-  Coupling housing

		OZ-60	50404376	x	x	x	x	x	x	
Mounting kit/gear (1 : x)		PE	AF	PER	AFR					
	Mounting kit									
	1 : 5	50255205	50255206	50255205	50255206					
	1 : 7	50477903	50467061	50477915	50467073					
	1 : 10	50477904	50467062	50477916	50467074					
	Third-party motor		KG		AA					
Motor/controller										
	Without gear				X					
	Without motor M0					X				
	afag BG4	Servomotor-41-560VDC-2.8kW-45-B-R-x-x B								
		Servomotor-41-560VDC-2.8kW-45-x-R-x-x								
		Servomotor-41-560VDC-2.8kW-45-B-l-x-x B								
Servomotor-41-560VDC-2.8kW-45-x-l-x-x										
Assembly	Assembly side of the gear									
	Assembly direction of the angular gear									
	Position of the motor connector									
<p>The plug can be turned 180°. You can find further information in the operating manual.</p>										
<p>P S</p> <p>B O U</p> <p>A B O P S U</p>										
<p>Motor and gear selection: Design by Afag</p> <p>E14xx SE-Power 3kVA / 6kVA</p>										

AA: Upon request
B: Motor with brakes

BG: Motor size
KG: Coupling housing

PE: Planetary gearbox
PER: Angular gearbox

AF: Planetary gearbox, low-backlash
AFR: Angular gearbox, low-backlash

Portal axes PEZ & PDZ

PEZ-52 - PEZ-100 &
PDZ-128 - PDZ-200

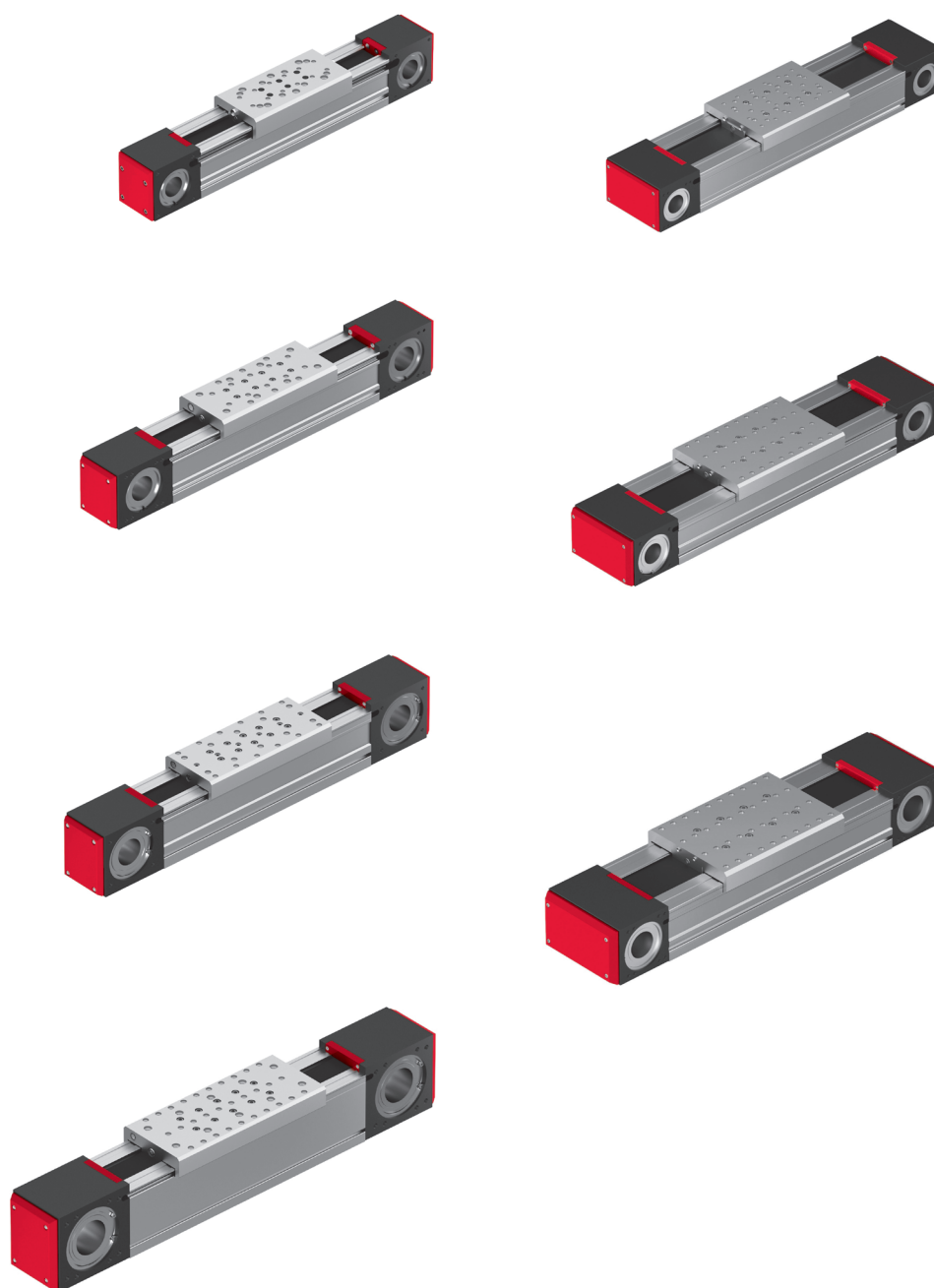
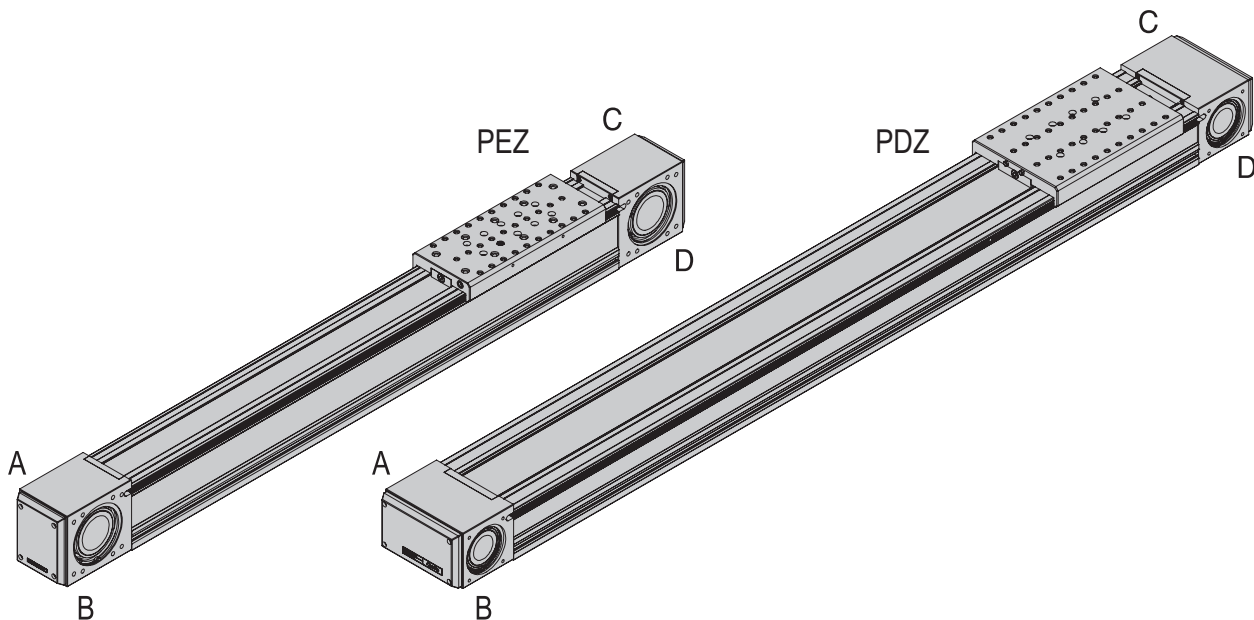


Table of contents: PEZ & PDZ

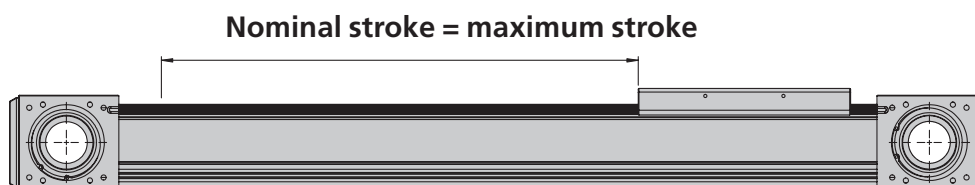
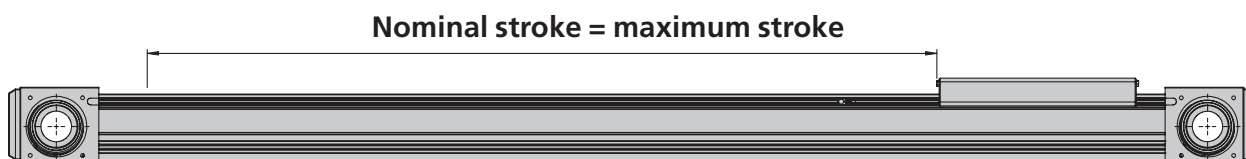
Portal axes PEZ & PDZ	Page
PEZ-52	289
PEZ-65	297
PEZ-80	305
PEZ-100	313
PDZ-128	321
PDZ-160	329
PDZ-200	337
Accessories PEZ & PDZ	344

Type	P	D	E	Z	Mounting kit/gear	Guide carriage
PEZ	Portal axis		Single guide	Belt drive	A, B, C, D	2 pieces
PDZ	Portal axis	Double guide		Belt drive	A, B, C, D	4 pieces



Definition of stroke on PEZ & PDZ

With the information of nominal stroke, you determine the maximum field of action. We recommend to add some extra stroke depending on the application.



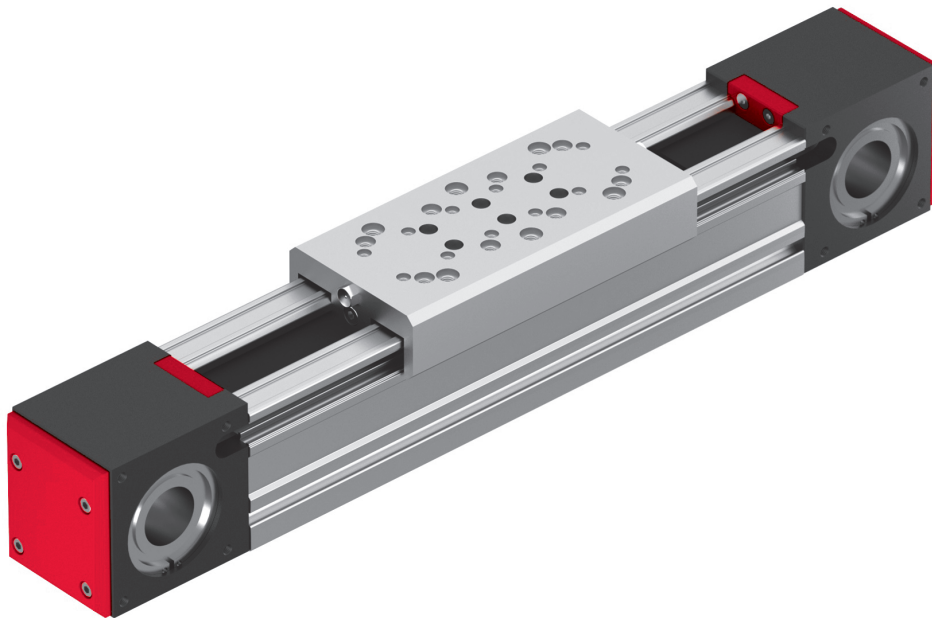
Definition of the suitable drive for PEZ & PDZ

Our technicians are gladly ready to help you in the case of the determination of the suitable drive. Please send us the information of the table below for your application. With that information we will find the correct drive for you.

	Planned, max. length of stroke	Max. mass (to be moved):	Min. desired translating time:
PEZ	xxxx mm	xx kg	xx seconds
PDZ	xxxx mm	xx kg	xx seconds

Portal axes PEZ & PDZ

PEZ-52

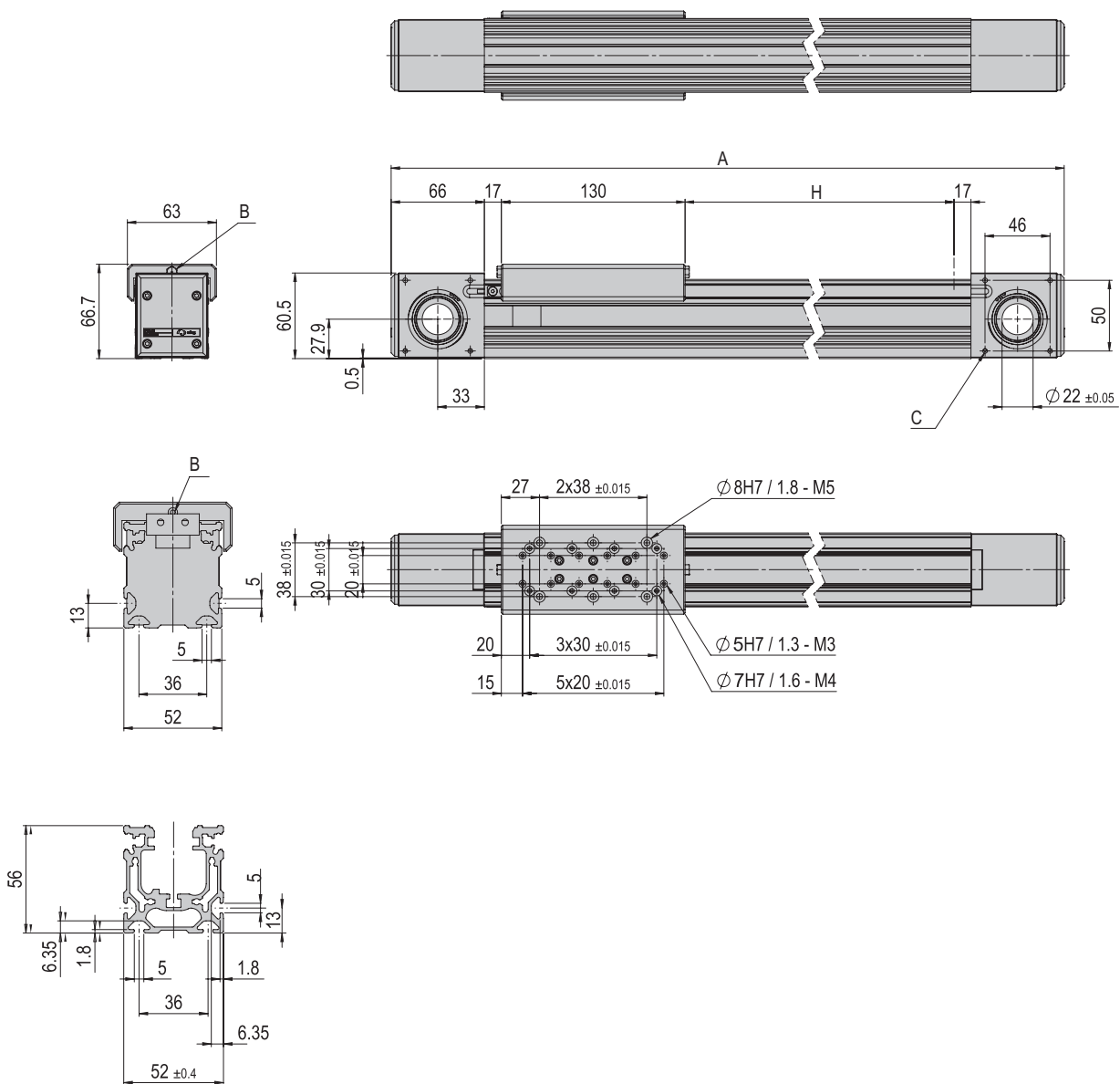


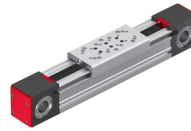
- The most rigid portal axes
- Single or double guide
- Fully symmetrical

Dimensions and dimension drawings

PEZ-52


Type	PEZ-52
A	Module length (stroke + 296) mm
B	Lubricator nipple
C	8x both sides M4
H	Module stroke xxxx mm





PEZ-52	
Operating temperature	10 - 40 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %

Type	PEZ-52
------	--------

Order number	50394895
Max. stroke	1800 mm
Net weight	2.5 kg (at 0 mm stroke)
Moving weight	0.8 kg
Weight/100 mm stroke	0.34 kg
Cross-section profile W x H	52 x 56 mm
Module length	H + 296 mm
Toothed belt width	25 mm
Groove size (below/side)	5/5 mm
Groove distance (below)	36 mm
Hollow shaft Ø	22 mm
Number of linear guides	1 pcs
Torque	5 Nm
Protection type	IP 30
Feed constant	126 mm/U
Max. speed v	*3 m/s
Max. acceleration a	*30 m/s ²
Max. circumferential force	250 N
Repeat accuracy	+/- 0.05 mm
Mounting position	

The technical data pertains to Afag standard test conditions.

Note: The mounting sets, gears, motors, controllers and cables can be found in the corresponding chapters.
Cleanroom class ISO 14644-1, class ISO 7

*The maximum values listed above depend on the application and must not be combined. In case of doubt, please contact your Afag partner.

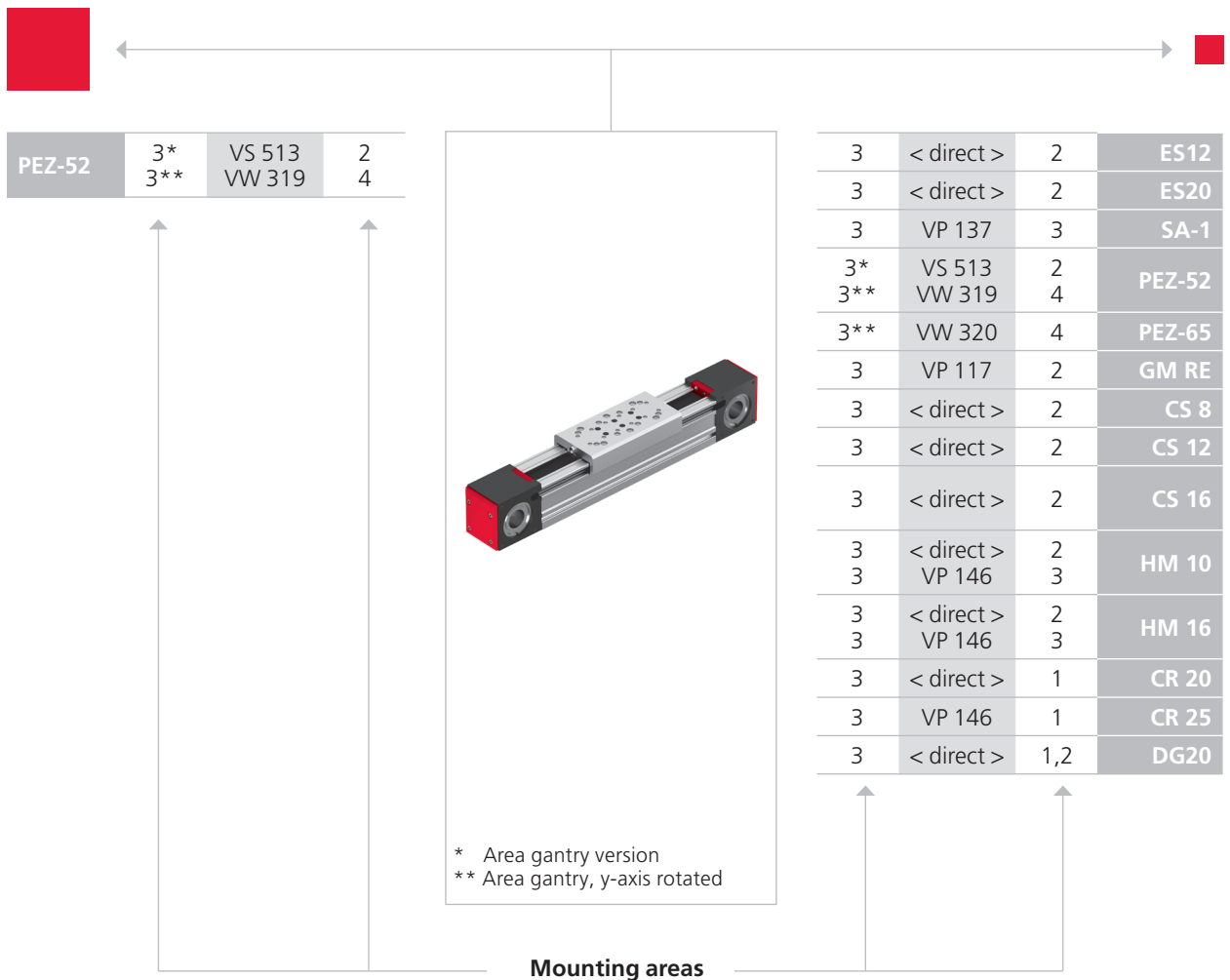
Included in the delivery

- 1x Sensor set portal axes [p. 321]

Accessories

- Load transmission unit PEZ-52 [p. 318]
 - Stroke limitation PEZ-52 [p. 320]
- (Catalogue HT accessories)
- INI 8x4.7x16-Sn2.0-PNP-NC-M8x1
 - T-nut M5
 - Connecting set VS 513
 - Mounting set 042
 - Planetary gearbox PE050
 - Servomotor-2-48VDC-400W
 - Servomotor-21-320VDC-400W
 - Servo controller SE-Power
 - Servo controller C1xxx-1S
 - Servo controller E12xx

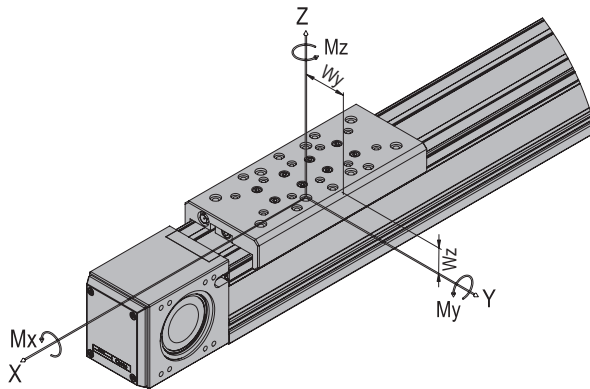
Warranty: 24 months following commissioning, but a maximum of 27 months following delivery



CS, ES 	PS 	LM, LE 	HM 	SA 	OZ
PMP, PMP-c 	PEZ, PDZ 	PEL, PDL 	CR, RM 32, RE, SREH 	RM, RE 	UG, GM, SG, DG, PG, GE

Note that there might be different mounting positions from one module to another one.
The required connection elements and the range of support columns are depicted in the catalogue HT accessories.

Type	PEZ-52
Max. torque Mx	15 Nm
Max. torque My	130 Nm
Max. torque Mz	130 Nm



$$\frac{M_x}{M_{x \max}} + \frac{M_y}{M_{y \max}} + \frac{M_z}{M_{z \max}} < 1$$

Maximum payload/type	PEZ-52
Installation position (horizontal) for mounting side 3	20 kg
Installation position (vertical) for mounting side 3	20 kg

Assembly sides module mounting

horizontal:



vertical:



Calculation of position versus time

The travel times of electrically driven gantry axis are dependent on the useful load, stroke + drive.

Our technicians will be pleased to make an optimum position/time calculation for you based on the gantry axis chosen. For being able to advise you correctly, we need the following data from you.

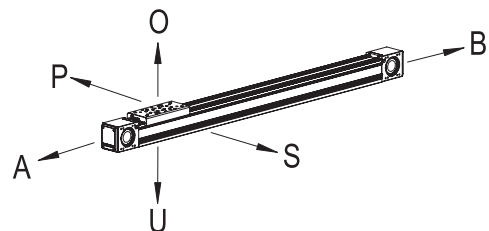
- Maximum planned stroke length
- Maximum moving mass
- Operation time desired

Order form	PEZ-52	XXXXXXXX	XXXX	XXXXXXXX	XXXXXXXX	XXXXXXXX	X	X	X
	Axis	Nominal stroke	Mounting set	Gear	Motor	Position gear	Position angular gearbox	Position motor plug.	

Coordinate system

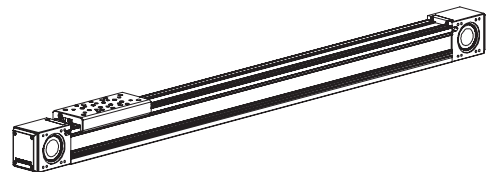
The coordinate system allows you to define the position of the gear as well as that of the motor plug.

- A = before
- B = base
- O = top
- P = left
- S = right
- U = downside



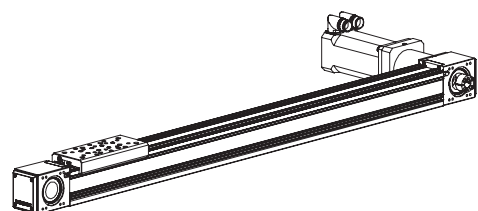
Ordering example 1 without motor

PEZ-52	50394895	800	X	X	X	X	X	X
--------	----------	-----	---	---	---	---	---	---



Ordering example 2 with motor

PEZ-52	50394895	600	50396325	50477898	50495884	P	X	O
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Ordering process

- Select the desired portal axis, the gear and the motor.
- Enter the corresponding red order numbers in the order form in the place of the cross.
- Enter the desired length (mm) in the field nominal stroke.
- Select the desired position of the gears as well as the position of the motor plug.
- Enter the corresponding letters from the coordinate system in the order form in the place of the cross.

Third-party motors






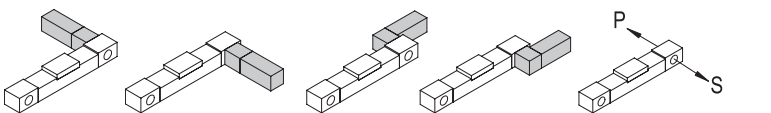
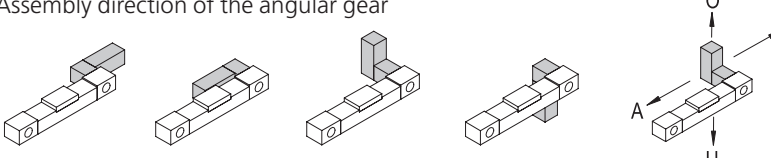
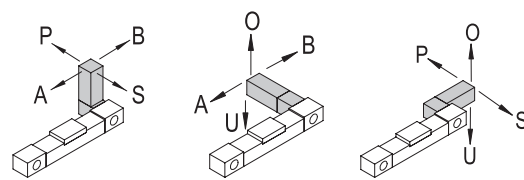
- If the mounting of a third-party motor is desired the Afag axis can be provided with a gear, including a motor adapter plate for the third-party motor.

External controller

- Mechanical limiting values of the module must be observed (v max., a max.,...).
- The controller parametrisation is carried out by the customer.

Legend order key

- Planetary gearbox
- Angular gearbox
- Coupling housing

Axis	PEZ-52	50394895	xxxx	xxxxxxxx	xxxxxxxx	xxxxxxxx	x	x	x		
	Axis	Nominal stroke	Mounting kit	Gear	Motor		Position of gear	Assembly direction of the angular gear	Position of the motor connector		
Mounting kit/gear (1 : x)		PE	AF	PER	AFR						
	Mounting kit	50396325	50467366	50396325	50467366						
	1 : 5	50477897	50467055	50477909	50467067	 BG2					
	1 : 7	50477898	50467056	50477910	50467068						
	1 : 10	50477899	50467057	50477911	50467069						
	Third-party motor			KG 	AA 		M0	X	X	X	
	Without gear				AA 	M0	X	X	X		
Without motor M0				X		X	X	X			
Motor/controller	 BG2	Servomotor-21-72VDC-400W-45-B-I-x-x	B	50485435							
		Servomotor-21-72VDC-400W-45-x-I-x-x		50495882							
		Servomotor-21-320VDC-400W-45-B-R-x-x	B	50495884							
		Servomotor-21-320VDC-400W-45-x-R-x-x		50495883							
Assembly	Position of gear						P	S			
	Assembly direction of the angular gear						A	B	O	U	
	Position of the motor connector						A	B	O	P	S
	The plug can be turned 180°. You can find further information in the operating manual.										

AA: Upon request
B: Motor with brakes

BG: Motor size
KG: Coupling housing

PE: Planetary gearbox
PER: Angular gearbox

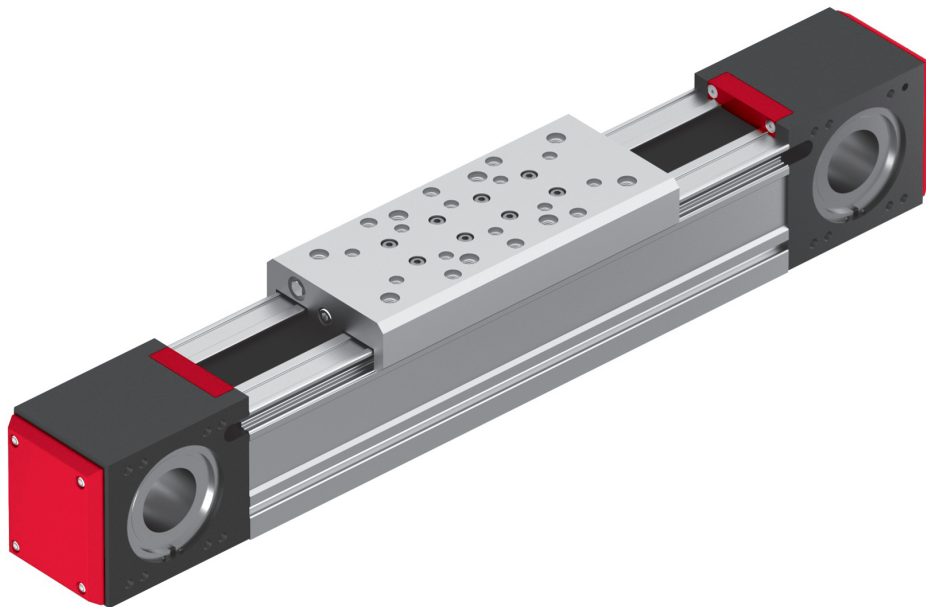
AF: Planetary gearbox, low-backlash
AFR: Angular gearbox, low-backlash

Motor and gear selection: Design by Afag

SE-Power C1xxx
1kVA E12xx

Portal axes PEZ & PDZ

PEZ-65

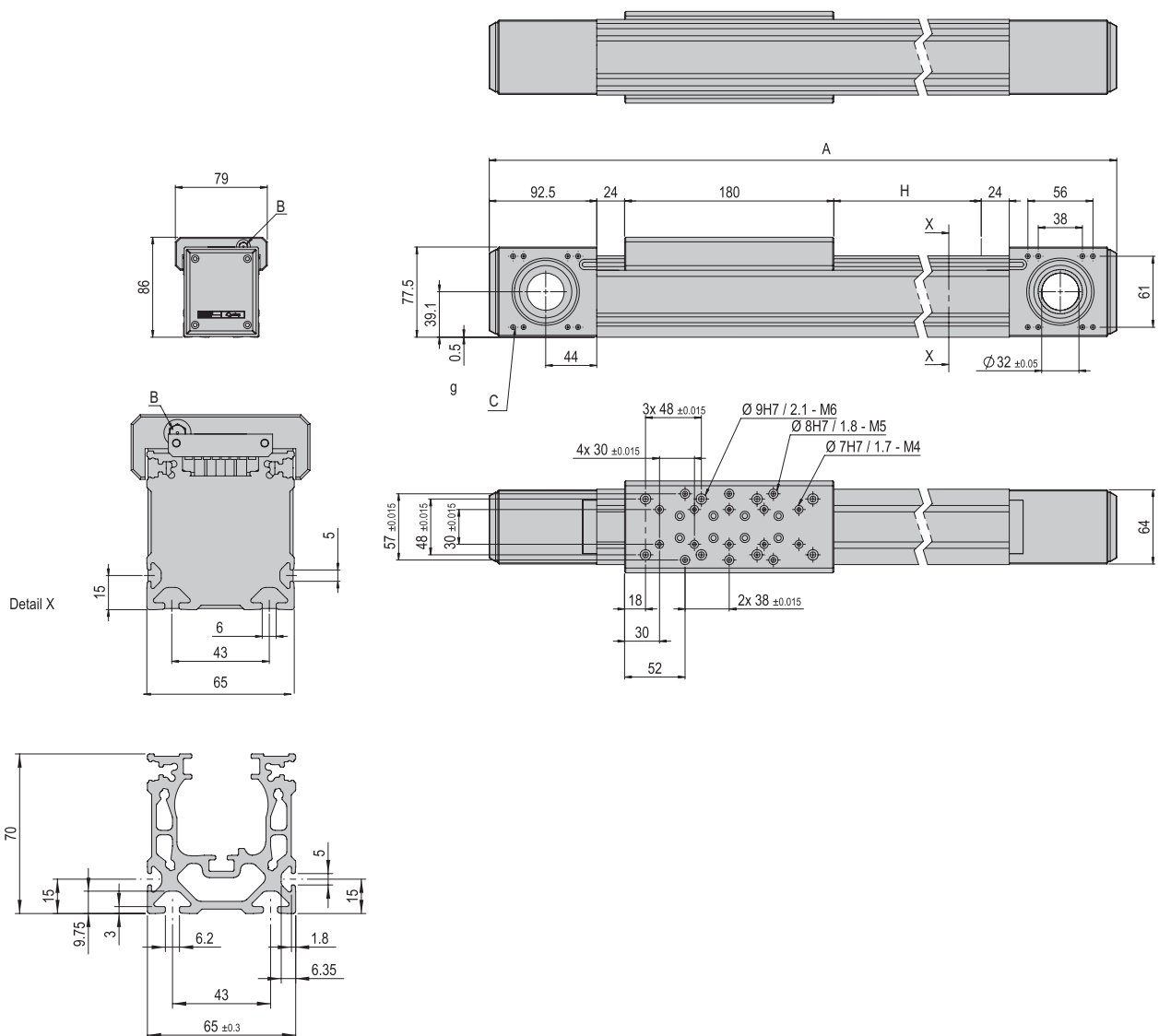


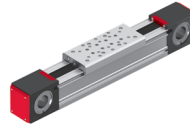
- The most rigid portal axes
- Single or double guide
- Fully symmetrical

Dimensions and dimension drawings

PEZ-65

Type	PEZ-65
A	Module length (stroke + 413) mm
B	Lubricator nipple
C	8x both sides M5
H	Module stroke xxxx mm





PEZ-65	
Operating temperature	10 - 40 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %

Type	PEZ-65
Order number	50245031
Max. stroke	3760 mm
Net weight	5.2 kg (at 0 mm stroke)
Moving weight	1.7 kg
Weight/100 mm stroke	0.5 kg
Cross-section profile W x H	65 x 70 mm
Module length	H + 413 mm
Toothed belt width	30 mm
Groove size (below/side)	6/5 mm
Groove distance (below)	43 mm
Hollow shaft Ø	32 mm
Number of linear guides	1 pcs
Torque	14.2 Nm
Protection type	IP 30
Feed constant	165 mm/U
Max. speed v	*5 m/s
Max. acceleration a	*50 m/s ²
Max. circumferential force	540 N
Repeat accuracy	+/- 0.05 mm
Mounting position	

The technical data pertains to Afag standard test conditions.

Note: The mounting sets, gears, motors, controllers and cables can be found in the corresponding chapters.
Cleanroom class ISO 14644-1, class ISO 7

*The maximum values listed above depend on the application and must not be combined. In case of doubt, please contact your Afag partner.

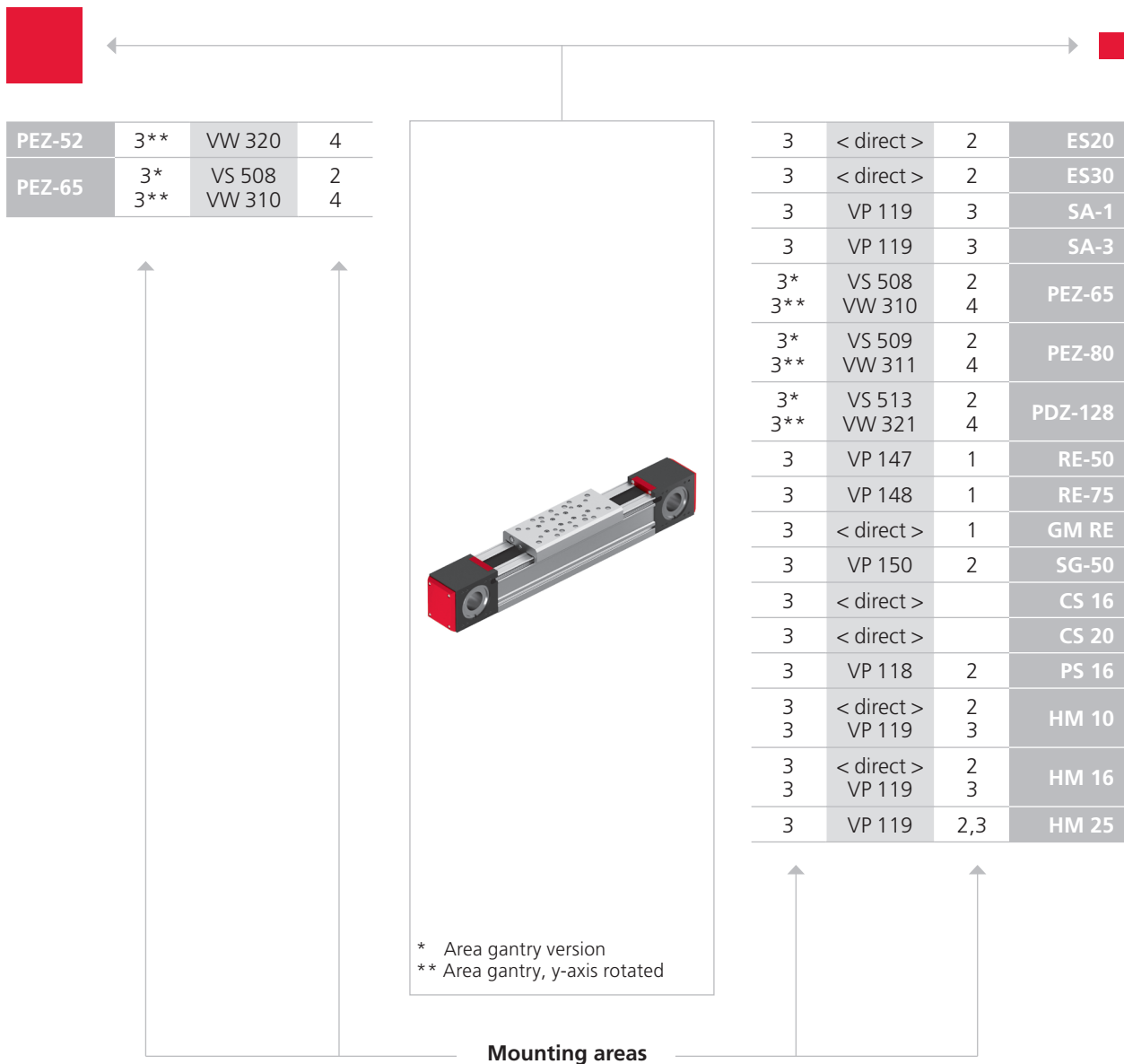
Included in the delivery

- 1x Sensor set portal axes [p. 321]

Accessories

- Load transmission unit PEZ-65/PDZ-128 [p. 317]
- Stroke limitation PEZ-65 [p. 319]
- (Catalogue HT accessories)
 - INI 8x4.7x16-Sn2.0-PNP-NC-M8x1
 - T-nut M5
 - Connecting set VS 508
 - Mounting set 050
 - Mounting set 060
 - Mounting set 070
 - Planetary gearbox PE050
 - Planetary gearbox PE070
 - Planetary gearbox AF060
 - Angular gearbox PER070
 - Angular gearbox AFR060
 - Servomotor-21-72VDC-400W
 - Servomotor-31-320VDC-950W
 - Servomotor-31-560VDC-950W
 - Servo controller SE-Power
 - Servo controller C1xxx-1S
 - Servo controller E12xx
 - Servo controller E14xx

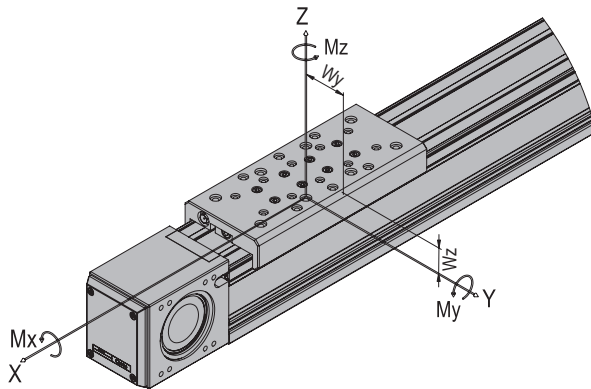
Warranty: 24 months following commissioning, but a maximum of 27 months following delivery



CS, ES 	PS 	LM, LE 	HM 	SA 	OZ
PMP, PMP-c 	PEZ, PDZ 	PEL, PDL 	CR, RM 32, RE, SREH 	RM, RE 	UG, GM, SG, DG, PG, GE

Note that there might be different mounting positions from one module to another one.
 The required connection elements and the range of support columns are depicted in the catalogue HT accessories.

Type	PEZ-65
Max. torque Mx	26 Nm
Max. torque My	260 Nm
Max. torque Mz	260 Nm



$$\frac{M_x}{M_{x \max}} + \frac{M_y}{M_{y \max}} + \frac{M_z}{M_{z \max}} < 1$$

Maximum payload/type	PEZ-65
Installation position (horizontal) for mounting side 3	40 kg
Installation position (vertical) for mounting side 3	40 kg

Assembly sides module mounting

horizontal:



vertical:



Calculation of position versus time

The travel times of electrically driven gantry axis are dependent on the useful load, stroke + drive.

Our technicians will be pleased to make an optimum position/time calculation for you based on the gantry axis chosen. For being able to advise you correctly, we need the following data from you.

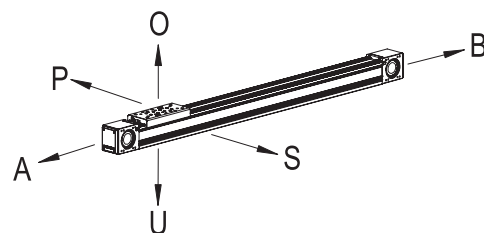
- Maximum planned stroke length
- Maximum moving mass
- Operation time desired

Order form	PEZ-65	XXXXXXXX	XXXX	XXXXXXXX	XXXXXXXX	XXXXXXXX	X	X	X
	Axis	Nominal stroke	Mounting set	Gear	Motor	Position gear	Position angular gearbox	Position motor plug	

Coordinate system

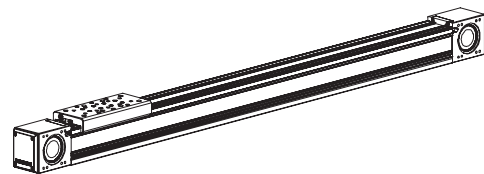
The coordinate system allows you to define the position of the gear as well as that of the motor plug.

- A = before
- B = base
- O = top
- P = left
- S = right
- U = downside



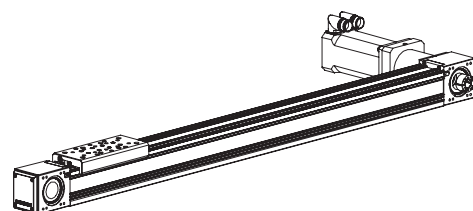
Ordering example 1 without motor

PEZ-65	50245031	800	X	X	X	X	X	X
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Ordering example 2 with motor

PEZ-65	50245031	600	50253994	50477899	50485435	P	X	O
--------	----------	-----	----------	----------	----------	---	---	---



Ordering process

- Select the desired portal axis, the gear and the motor.
- Enter the corresponding red order numbers in the order form in the place of the cross.
- Enter the desired length (mm) in the field nominal stroke.
- Select the desired position of the gears as well as the position of the motor plug.
- Enter the corresponding letters from the coordinate system in the order form in the place of the cross.

Third-party motors

- If the mounting of a third-party motor is desired the Afag axis can be provided with a gear, including a motor adapter plate for the third-party motor.

External controller

- Mechanical limiting values of the module must be observed (v max., a max.,...).
- The controller parametrisation is carried out by the customer.

Legend order key

- Planetary gearbox
- Angular gearbox
- Coupling housing

Axis	PEZ-65	50245031	xxxx	xxxxxxxx	xxxxxxxx	xxxxxxxx	x	x	x
	Axis	Nominal stroke	Mounting kit	Gear	Motor		Position of gear	Assembly direction of the angular gear	Position of the motor connector
Mounting kit/gear (1 : x)		PE	AF	PER	AFR				
	Mounting kit	50253994							
	1 : 5	50477897				afag BG2			
	1 : 7	50477898							
	1 : 10	50477899							
	Mounting kit	50253995	50253996	50253995	50253996				
	1 : 5	50477900	50467058	50477912	50467070	afag BG3			
	1 : 7	50477901	50467059	50477913	50467071				
	1 : 10	50477902	50467060	50477914	50467072				
	Third-party motor			KG	AA	M0	X	X	X
				AA	M0	X	X	X	
Without gear				X		X	X	X	
Without motor M0					X	X	X	X	
Motor/controller	afag BG2	Servomotor-21-72VDC-400W-45-B-l-x-x				B	50485435		
		Servomotor-21-72VDC-400W-45-x-l-x-x					50495882		
		Servomotor-21-320VDC-400W-45-B-R-x-x				B	50495884		
		Servomotor-21-320VDC-400W-45-x-R-x-x					50495883		
	afag BG3	Servomotor-31-320VDC-950W-45-B-R-x-x				B	50503160		
		Servomotor-31-320VDC-950W-45-x-R-x-x					50503156		
		Servomotor-31-560VDC-950W-45-B-R-x-x				B	50495887		
		Servomotor-31-560VDC-950W-45-x-R-x-x					50495886		
		Servomotor-31-560VDC-950W-45-B-l-x-x				B	50485436		
		Servomotor-31-560VDC-950W-45-x-l-x-x					50495885		
Assembly	Position of gear						P	S	
	Assembly direction of the angular gear						A	B	O
	Position of the motor connector						A	B	O
The plug can be turned 180°. You can find further information in the operating manual.						P	S	U	

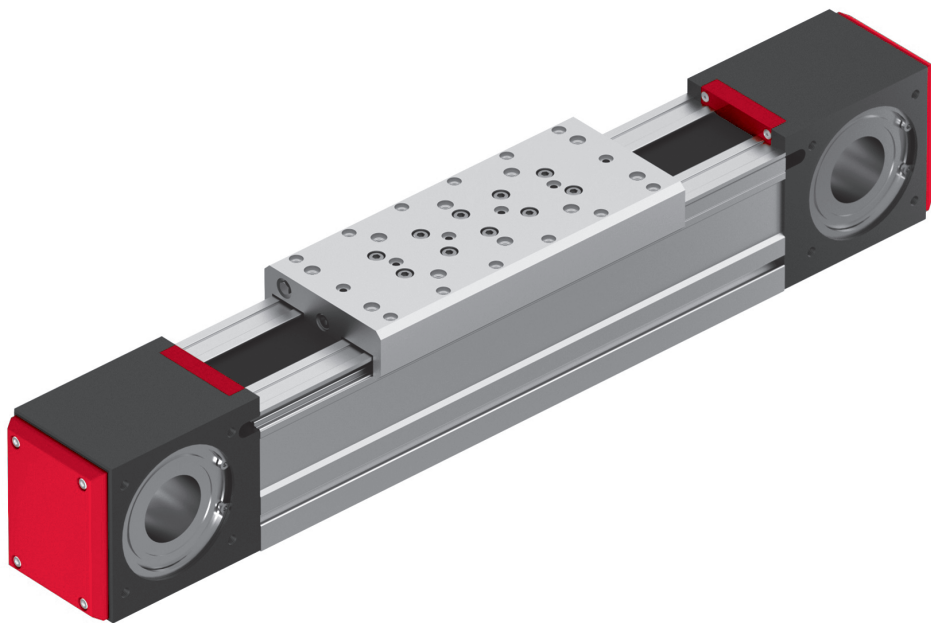
Motor and gear selection: Design by Afag

E14xx SE-Power 3 kVA
C1xxx SE-Power 1 kVA
E12xx C1xxx E12xx

- AA: Upon request BG: Motor size PE: Planetary gearbox AF: Planetary gearbox, low-backlash
- B: Motor with brakes KG: Coupling housing PER: Angular gearbox AFR: Angular gearbox, low-backlash

Portal axes PEZ & PDZ

PEZ-80

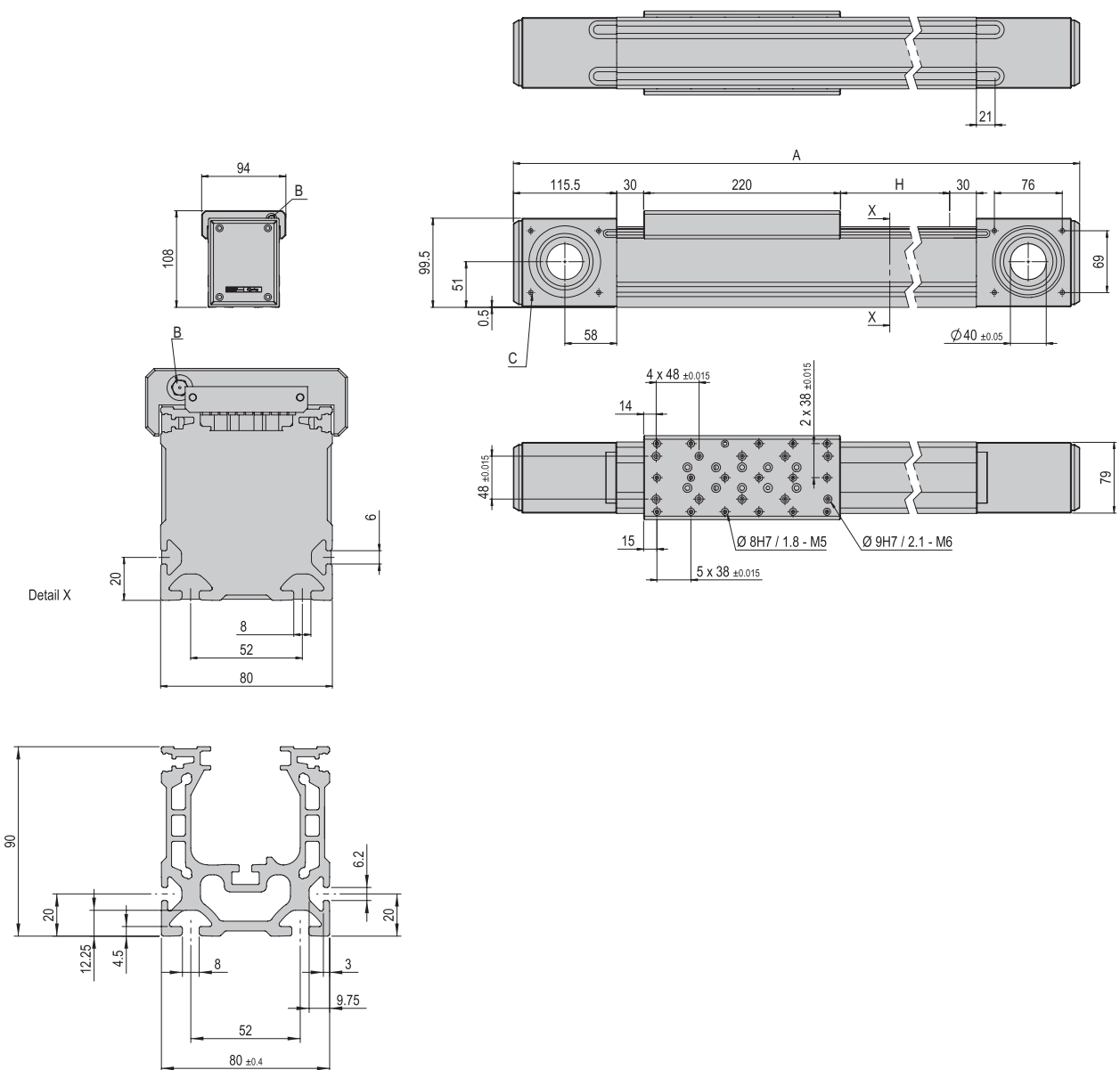


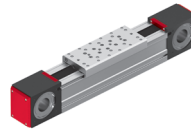
- The most rigid portal axes
- Single or double guide
- Fully symmetrical

Dimensions and dimension drawings


PEZ-80

Type	PEZ-80
A	Module length (stroke + 511) mm
B	Lubricator nipple
C	4x both sides M6
H	Module stroke xxxx mm





PEZ-80	
Operating temperature	10 - 40 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %

Type	PEZ-80
Order number	50245032
Max. stroke	5330 mm
Net weight	10.1 kg (at 0 mm stroke)
Moving weight	3 kg
Weight/100 mm stroke	0.83 kg
Cross-section profile W x H	80 x 80 mm
Module length	H + 511 mm
Toothed belt width	38 mm
Groove size (below/side)	8/6 mm
Groove distance (below)	52 mm
Hollow shaft Ø	40 mm
Number of linear guides	1 pcs
Torque	23.4 Nm
Protection type	IP 30
Feed constant	215 mm/U
Max. speed v	*5 m/s
Max. acceleration a	*50 m/s ²
Max. circumferential force	684 N
Repeat accuracy	+/- 0.05 mm
Mounting position	

The technical data pertains to Afag standard test conditions.

Note: The mounting sets, gears, motors, controllers and cables can be found in the corresponding chapters.
Cleanroom class ISO 14644-1, class ISO 7

*The maximum values listed above depend on the application and must not be combined. In case of doubt, please contact your Afag partner.

Included in the delivery

- 1x Sensor set portal axes [p. 321]

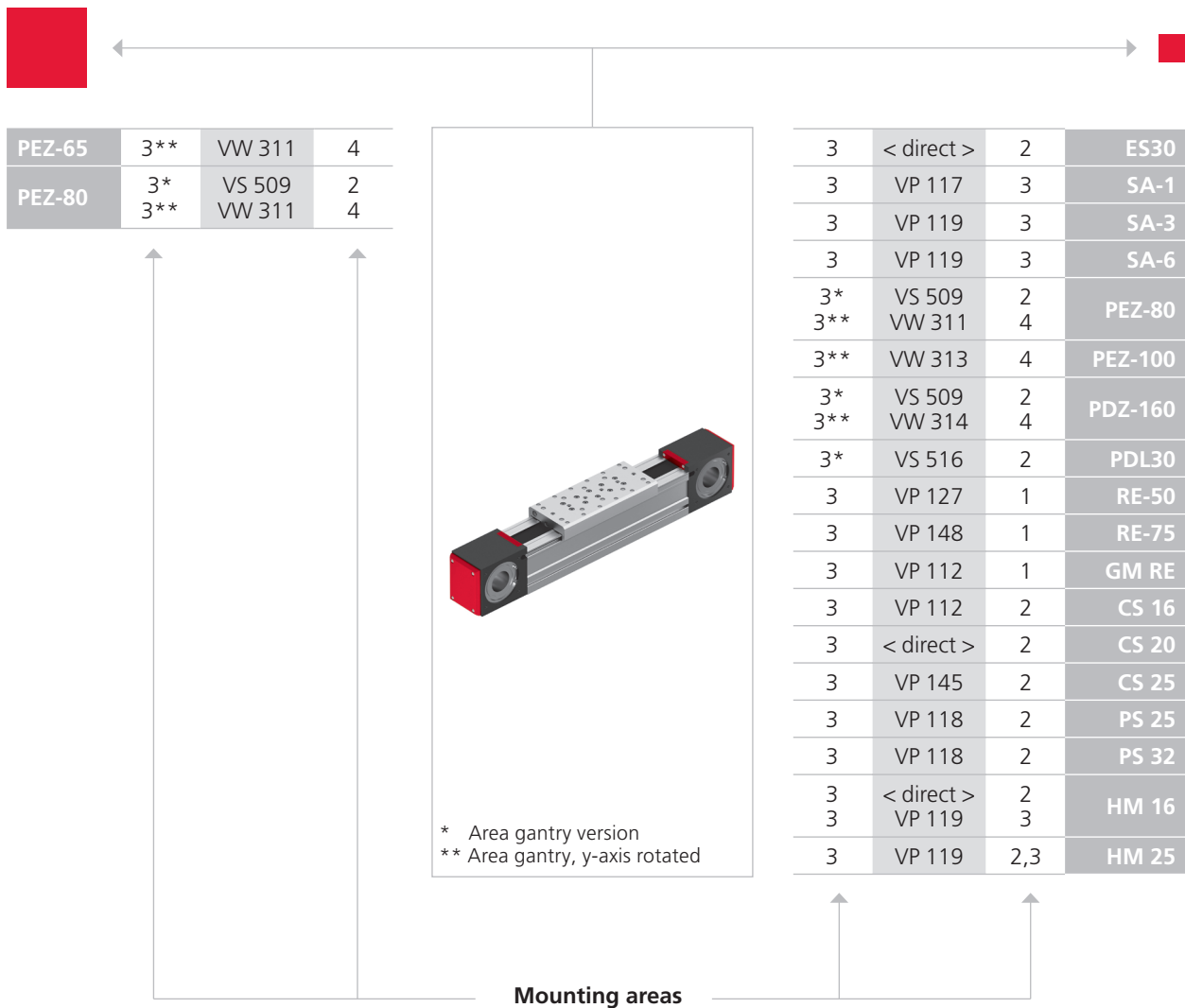
Accessories

- Stroke limitation PEZ-80 [p. 320]
- Load transmission unit PEZ-80/PDZ-160 [p. 318]

(Catalogue HT accessories)

- T-nut M6
- INI 8x4.7x16-Sn2.0-PNP-NC-M8x1
- Connecting set VS 509
- Mounting set 060
- Mounting set 070
- Mounting set 075
- Mounting set 090
- Planetary gearbox PE070
- Planetary gearbox PE090
- Planetary gearbox AF060
- Planetary gearbox AF075
- Angular gearbox PER070
- Angular gearbox PER090
- Angular gearbox AFR060
- Angular gearbox AFR075
- Servomotor-31-320VDC-950W
- Servomotor-31-560VDC-950W
- Servomotor-41-560VDC-2.8kW
- Servo controller SE-Power
- Servo controller E14xx

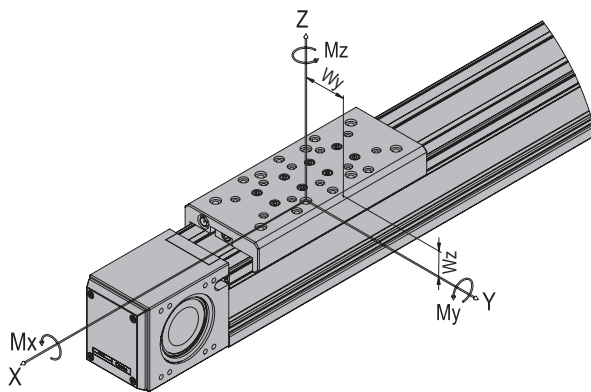
Warranty: 24 months following commissioning, but a maximum of 27 months following delivery



CS, ES 	PS 	LM, LE 	HM 	SA 	OZ
PMP, PMP-c 	PEZ, PDZ 	PEL, PDL 	CR, RM 32, RE, SREH 	RM, RE 	UG, GM, SG, DG, PG, GE

Note that there might be different mounting positions from one module to another one.
 The required connection elements and the range of support columns are depicted in the catalogue HT accessories.

Type	PEZ-80
Max. torque Mx	56 Nm
Max. torque My	630 Nm
Max. torque Mz	630 Nm

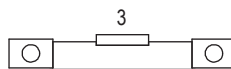


$$\frac{M_x}{M_{x \max}} + \frac{M_y}{M_{y \max}} + \frac{M_z}{M_{z \max}} < 1$$

Maximum payload/type	PEZ-80
Installation position (horizontal) for mounting side 3	60 kg
Installation position (vertical) for mounting side 3	60 kg

Assembly sides module mounting

horizontal:



vertical:



Calculation of position versus time

The travel times of electrically driven gantry axis are dependent on the useful load, stroke + drive.

Our technicians will be pleased to make an optimum position/time calculation for you based on the gantry axis chosen. For being able to advise you correctly, we need the following data from you.

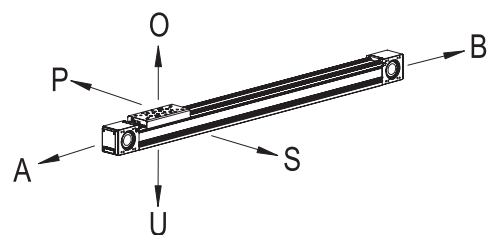
- Maximum planned stroke length
- Maximum moving mass
- Operation time desired

Order form	PEZ-80	XXXXXXXX	XXXX	XXXXXXXX	XXXXXXXX	XXXXXXXX	X	X	X
		Axis	Nominal stroke	Mounting set	Gear	Motor	Position gear	Position angular gearbox	Position motor plug

Coordinate system

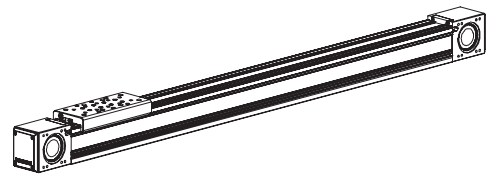
The coordinate system allows you to define the position of the gear as well as that of the motor plug.

- A = before
- B = base
- O = top
- P = left
- S = right
- U = downside



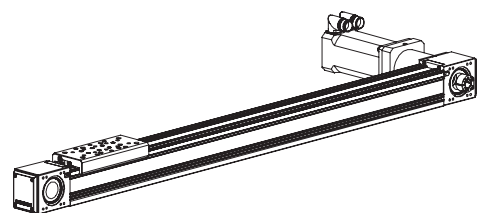
Ordering example 1 without motor

PEZ-80	50245032	1000	X	X	X	X	X	X
--------	----------	------	---	---	---	---	---	---



Ordering example 2 with motor

PEZ-80	50245032	1000	50253997	50477900	50495886	P	X	O
--------	----------	------	----------	----------	----------	---	---	---



Ordering process

- Select the desired portal axis, the gear and the motor.
- Enter the corresponding red order numbers in the order form in the place of the cross.
- Enter the desired length (mm) in the field nominal stroke.
- Select the desired position of the gears as well as the position of the motor plug.
- Enter the corresponding letters from the coordinate system in the order form in the place of the cross.




Third-party motors

- If the mounting of a third-party motor is desired the Afag axis can be provided with a gear, including a motor adapter plate for the third-party motor.

External controller

- Mechanical limiting values of the module must be observed (v max., a max.,...).
- The controller parametrisation is carried out by the customer.

Legend order key

-  Planetary gearbox
-  Angular gearbox
-  Coupling housing

Order key

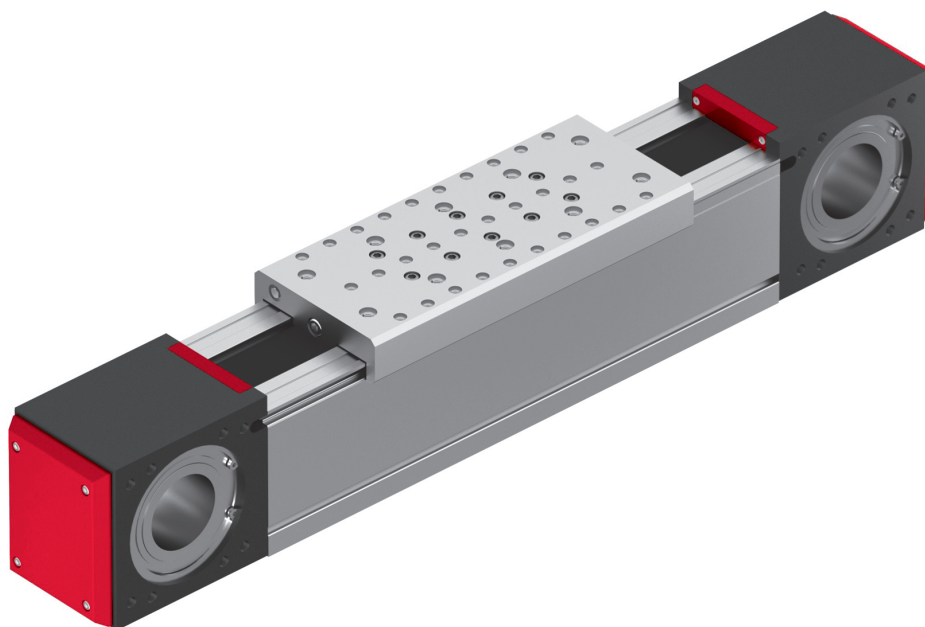
PEZ-80 /SE-Power/E14xx

Axis	PEZ-80	50245032	xxxx	xxxxxxxx	xxxxxxxx	xxxxxxxx	x	x	x
	Axis	Nominal stroke	Mounting kit	Gear	Motor		Position of gear	Assembly direction of the angular gear	Position of the motor connector
Mounting kit/gear (1 : x)		PE	AF	PER	AFR				
	Mounting kit	50253997	50253999	50253997	50253999				
	1 : 5	50477900	50467058	50477912	50467070				
	1 : 7	50477901	50467059	50477913	50467071				
	1 : 10	50477902	50467060	50477914	50467072				
	Mounting kit	50253998	50254000	50253998	50254000				
	1 : 5	50477903	50467061	50477915	50467073				
	1 : 7	50477904	50467062	50477916	50467074				
	1 : 10	50477905	50467063	50477917	50467075				
	Third-party motor			KG	AA	M0	X	X	X
	Without gear				AA	M0	X	X	X
	Without motor M0					X	X	X	X
Motor/controller		Servomotor-31-320VDC-950W-45-B-R-x-x		B	50503160				
		Servomotor-31-320VDC-950W-45-x-R-x-x			50503156				
		Servomotor-31-560VDC-950W-45-B-R-x-x		B	50495887				
		Servomotor-31-560VDC-950W-45-x-R-x-x			50495886				
		Servomotor-31-560VDC-950W-45-B-l-x-x		B	50485436				
		Servomotor-31-560VDC-950W-45-x-l-x-x			50495885				
		Servomotor-41-560VDC-2.8kW-45-B-R-x-x		B	50495890				
		Servomotor-41-560VDC-2.8kW-45-x-R-x-x			50495889				
		Servomotor-41-560VDC-2.8kW-45-B-l-x-x		B	50485437				
		Servomotor-41-560VDC-2.8kW-45-x-l-x-x			50495888				
Assembly	Position of gear						P S		
	Assembly direction of the angular gear						A B O U		
	Position of the motor connector						A B O P S U		
	The plug can be turned 180°. You can find further information in the operating manual.								

AA: Upon request BG: Motor size PE: Planetary gearbox AF: Planetary gearbox, low-backlash
 B: Motor with brakes KG: Coupling housing PER: Angular gearbox AFR: Angular gearbox, low-backlash

Portal axes PEZ & PDZ

PEZ-100

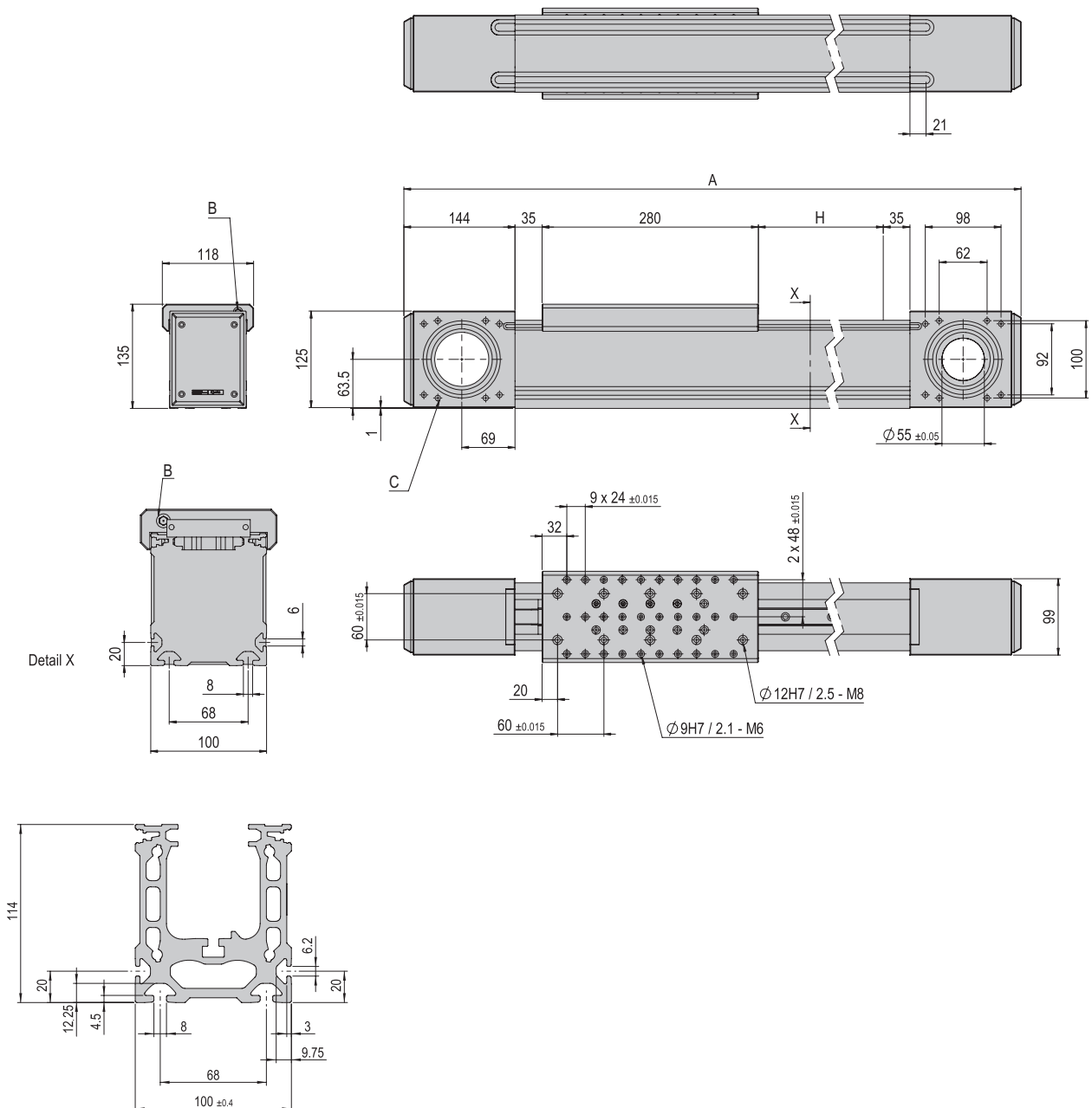


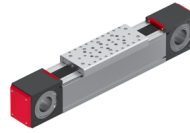
- The most rigid portal axes
- Single or double guide
- Fully symmetrical

Dimensions and dimension drawings


PEZ-100

Type	PEZ-100
A	Module length (stroke + 638) mm
B	Lubricator nipple
C	8x both sides M8
H	Module stroke xxxx mm





PEZ-100	
Operating temperature	10 - 40 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %

Type	PEZ-100
Order number	50231524
Max. stroke	5260 mm
Net weight	18.3 kg (at 0 mm stroke)
Moving weight	5 kg
Weight/100 mm stroke	1.4 kg
Cross-section profile W x H	100 x 114 mm
Module length	H + 638 mm
Toothed belt width	50 mm
Groove size (below/side)	8/6 mm
Groove distance (below)	68 mm
Hollow shaft Ø	55 mm
Number of linear guides	1 pcs
Torque	89.1 Nm
Protection type	IP 30
Feed constant	280 mm/U
Max. speed v	*5 m/s
Max. acceleration a	*50 m/s ²
Max. circumferential force	2000 N
Repeat accuracy	+/- 0.05 mm
Mounting position	

The technical data pertains to Afag standard test conditions.

Note: The mounting sets, gears, motors, controllers and cables can be found in the corresponding chapters.
Cleanroom class ISO 14644-1, class ISO 7

*The maximum values listed above depend on the application and must not be combined. In case of doubt, please contact your Afag partner.

Included in the delivery

- 1x Sensor set portal axes [p. 321]

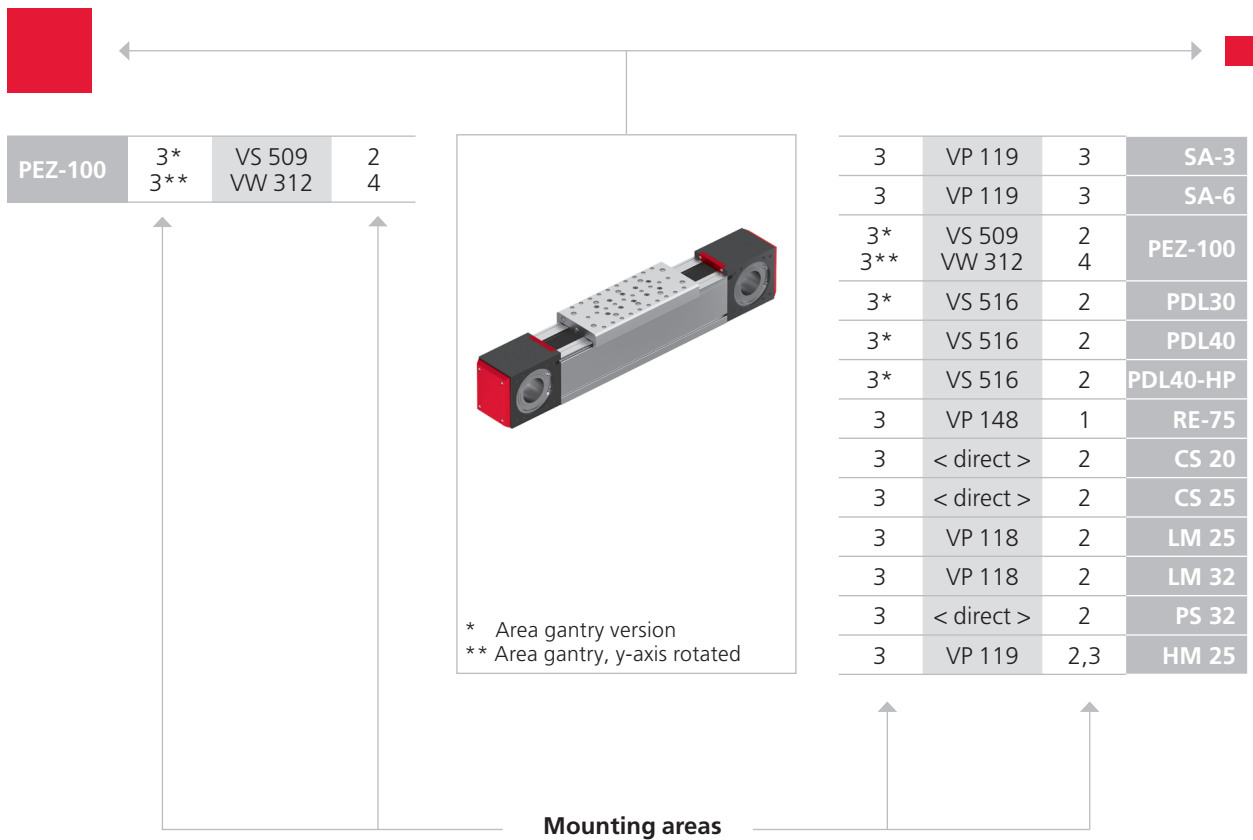
Accessories

- Stroke limitation PEZ-100 [p. 320]
- Load transmission unit PEZ-100/PDZ-200 [p. 318]

(Catalogue HT accessories)

- INI 8x4.7x16-Sn2.0-PNP-NC-M8x1
- T-nut M10
- Connecting set VS 509
- Mounting set 075
- Mounting set 090
- Mounting set 100
- Mounting set 120
- Planetary gearbox PE090
- Planetary gearbox PE120
- Planetary gearbox AF075
- Planetary gearbox AF100
- Angular gearbox PER090
- Angular gearbox PER120
- Angular gearbox AFR075
- Angular gearbox AFR100
- Servomotor-41-560VDC-2.8kW
- Servomotor-51-560VDC-5.0kW
- Servo controller SE-Power
- Servo controller C1xxx-1S
- Servo controller E12xx
- Servo controller E14xx

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

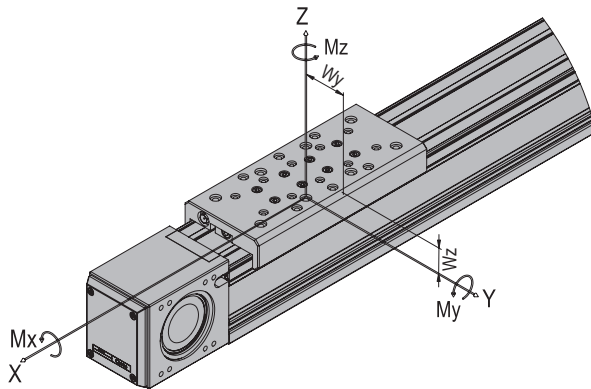


* Area gantry version
 ** Area gantry, y-axis rotated

CS, ES	PS	LM, LE	HM	SA	OZ
PMP, PMP-c	PEZ, PDZ	PEL, PDL	CR, RM 32, RE, SREH	RM, RE	UG, GM, SG, DG, PG, GE

Note that there might be different mounting positions from one module to another one.
 The required connection elements and the range of support columns are depicted in the catalogue HT accessories.

Type	PEZ-100
Max. torque Mx	94 Nm
Max. torque My	1100 Nm
Max. torque Mz	1100 Nm

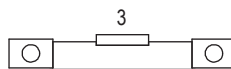


$$\frac{M_x}{M_{x \max}} + \frac{M_y}{M_{y \max}} + \frac{M_z}{M_{z \max}} < 1$$

Maximum payload/type	PEZ-100
Installation position (horizontal) for mounting side 3	100 kg
Installation position (vertical) for mounting side 3	100 kg

Assembly sides module mounting

horizontal:



vertical:



Calculation of position versus time

The travel times of electrically driven gantry axis are dependent on the useful load, stroke + drive.

Our technicians will be pleased to make an optimum position/time calculation for you based on the gantry axis chosen. For being able to advise you correctly, we need the following data from you.

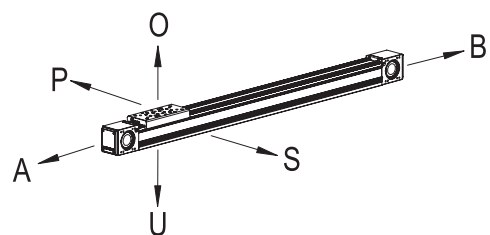
- Maximum planned stroke length
- Maximum moving mass
- Operation time desired

Order form	PEZ-100	XXXXXXXX	XXXX	XXXXXXXX	XXXXXXXX	XXXXXXXX	X	X	X
	Axis	Nominal stroke	Mounting set	Gear	Motor	Position gear	Position angular gearbox	Position motor plug.	

Coordinate system

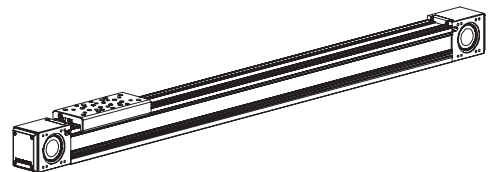
The coordinate system allows you to define the position of the gear as well as that of the motor plug.

- A = before
- B = base
- O = top
- P = left
- S = right
- U = downside



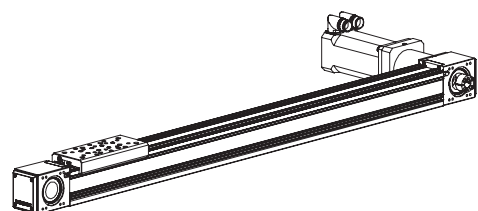
Ordering example 1 without motor

PEZ-100	50231524	1200	X	X	X	X	X	X
---------	----------	------	---	---	---	---	---	---



Ordering example 2 with motor

PEZ-100	50231524	1200	50254002	50477906	50495889	P	X	O
---------	----------	------	----------	----------	----------	---	---	---



Ordering process

- Select the desired portal axis, the gear and the motor.
- Enter the corresponding red order numbers in the order form in the place of the cross.
- Enter the desired length (mm) in the field nominal stroke.
- Select the desired position of the gears as well as the position of the motor plug.
- Enter the corresponding letters from the coordinate system in the order form in the place of the cross.

Third-party motors

- If the mounting of a third-party motor is desired the Afag axis can be provided with a gear, including a motor adapter plate for the third-party motor.

External controller








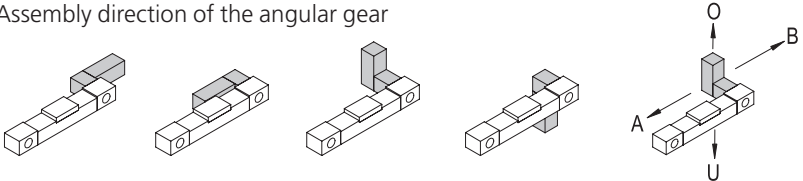
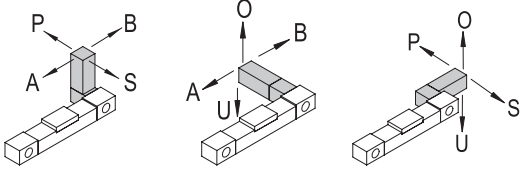
- Mechanical limiting values of the module must be observed (v max., a max.,...).
- The controller parametrisation is carried out by the customer.

Legend order key

- Planetary gearbox
- Angular gearbox
- Coupling housing

Order key

PEZ-100 /SE-Power/E14xx

Axis	PEZ-100	50231524	xxxx	xxxxxxxx	xxxxxxxx	xxxxxxxx	x	x	x
	Axis	Nominal stroke	Mounting kit	Gear	Motor		Position of gear	Assembly direction of the angular gear	Position of the motor connector
Mounting kit/gear (1 : x)		PE	AF	PER	AFR				
	Mounting kit	50254001	50254003	50254001	50254003				
	1 : 5	50477903	50467061	50477915	50467073	 BG4			
	1 : 7	50477904	50467062	50477916	50467074				
	1 : 10	50477905	50467063	50477917	50467075				
	Mounting kit	50254002	50254004	50254002	50254004	 BG5			
	1 : 5	50477906	50467064	50477918	50467076				
	1 : 7	50477907	50467065	50477919	50467077				
	1 : 10	50477908	50467066	50477920	50467078				
	Third-party motor			KG 	AA 	M0	X	X	X
				AA 	M0	X	X	X	
Without gear				X		X	X	X	
Without motor M0					X	X	X	X	
Motor/controller	 BG4	Servomotor-41-560VDC-2.8kW-45-B-R-X-X			B	50495890			
		Servomotor-41-560VDC-2.8kW-45-X-R-X-X				50495889			
		Servomotor-41-560VDC-2.8kW-45-B-I-X-X			B	50485437			
		Servomotor-41-560VDC-2.8kW-45-X-I-X-X				50495888			
	 BG5	Servomotor-51-560VDC-5.0kW-45-B-R-X-X			B	50495893			
		Servomotor-51-560VDC-5.0kW-45-X-R-X-X				50495892			
		Servomotor-51-560VDC-5.0kW-45-B-I-X-X			B	50485438			
		Servomotor-51-560VDC-5.0kW-45-X-I-X-X				50495891			
Assembly	Position of gear						 P S	 A B O U	
	Assembly direction of the angular gear								
	Position of the motor connector								
The plug can be turned 180°. You can find further information in the operating manual.  A B O P S U									

Motor and gear selection: Design by Afag

E14xx SE-Power E14xx SE-Power
6kVA (3 kVA) 6kVA

AA: Upon request
B: Motor with brakes

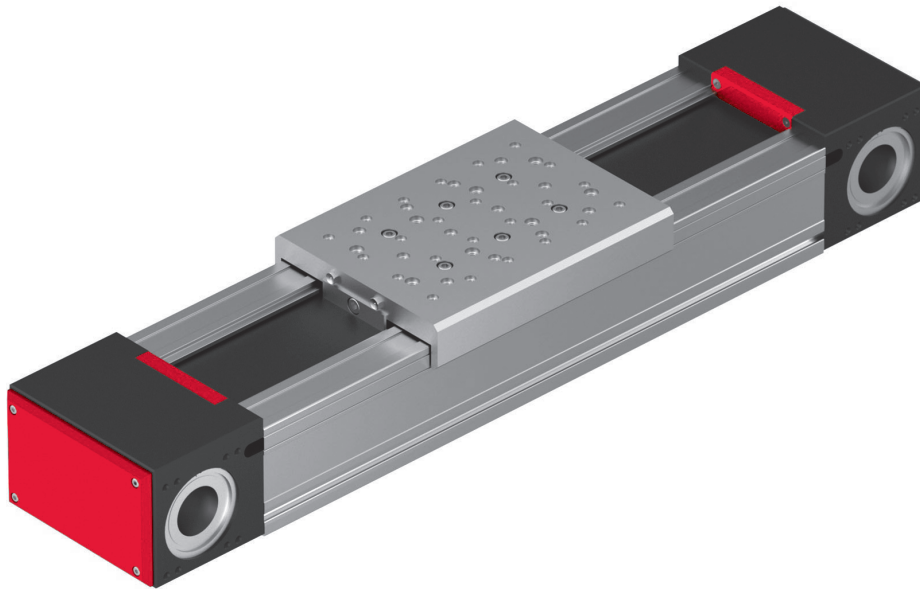
BG: Motor size
KG: Coupling housing

PE: Planetary gearbox
PER: Angular gearbox

AF: Planetary gearbox, low-backlash
AFR: Angular gearbox, low-backlash

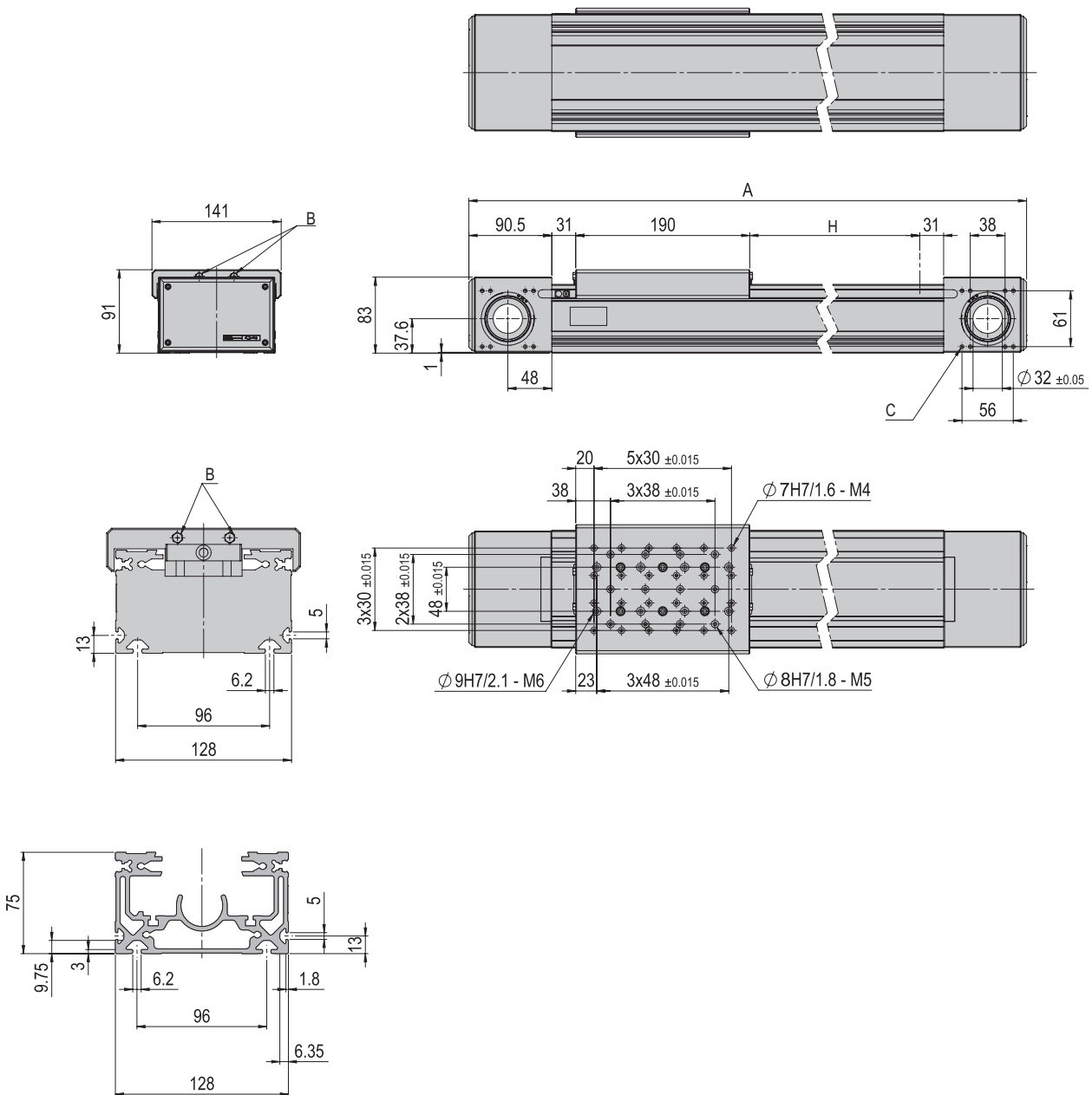
Portal axes PEZ & PDZ

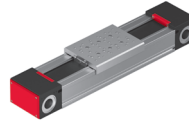
PDZ-128




- The most rigid portal axes
- Single or double guide
- Fully symmetrical

Type	PDZ-128
A	Module length (stroke + 433) mm
B	Lubricator nipple
C	8x both sides M5
H	Module stroke xxxx mm





PDZ-128	
Operating temperature	10 - 40 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %

Type	PDZ-128
Order number	50394896
Max. stroke	1700 mm
Net weight	10.7 kg (at 0 mm stroke)
Moving weight	3.4 kg
Weight/100 mm stroke	0.95 kg
Cross-section profile W x H	128 x 75 mm
Module length	H + 433 mm
Toothed belt width	65 mm
Groove size (below/side)	6/5 mm
Groove distance (below)	96 mm
Hollow shaft Ø	32 mm
Number of linear guides	2 pcs
Torque	65.5 Nm
Protection type	IP 30
Feed constant	175 mm/U
Max. speed v	*3 m/s
Max. acceleration a	*30 m/s ²
Max. circumferential force	2340 N
Repeat accuracy	+/- 0.05 mm
Mounting position	

The technical data pertains to Afag standard test conditions.

Note: The mounting sets, gears, motors, controllers and cables can be found in the corresponding chapters.
Cleanroom class ISO 14644-1, class ISO 7

*The maximum values listed above depend on the application and must not be combined. In case of doubt, please contact your Afag partner.

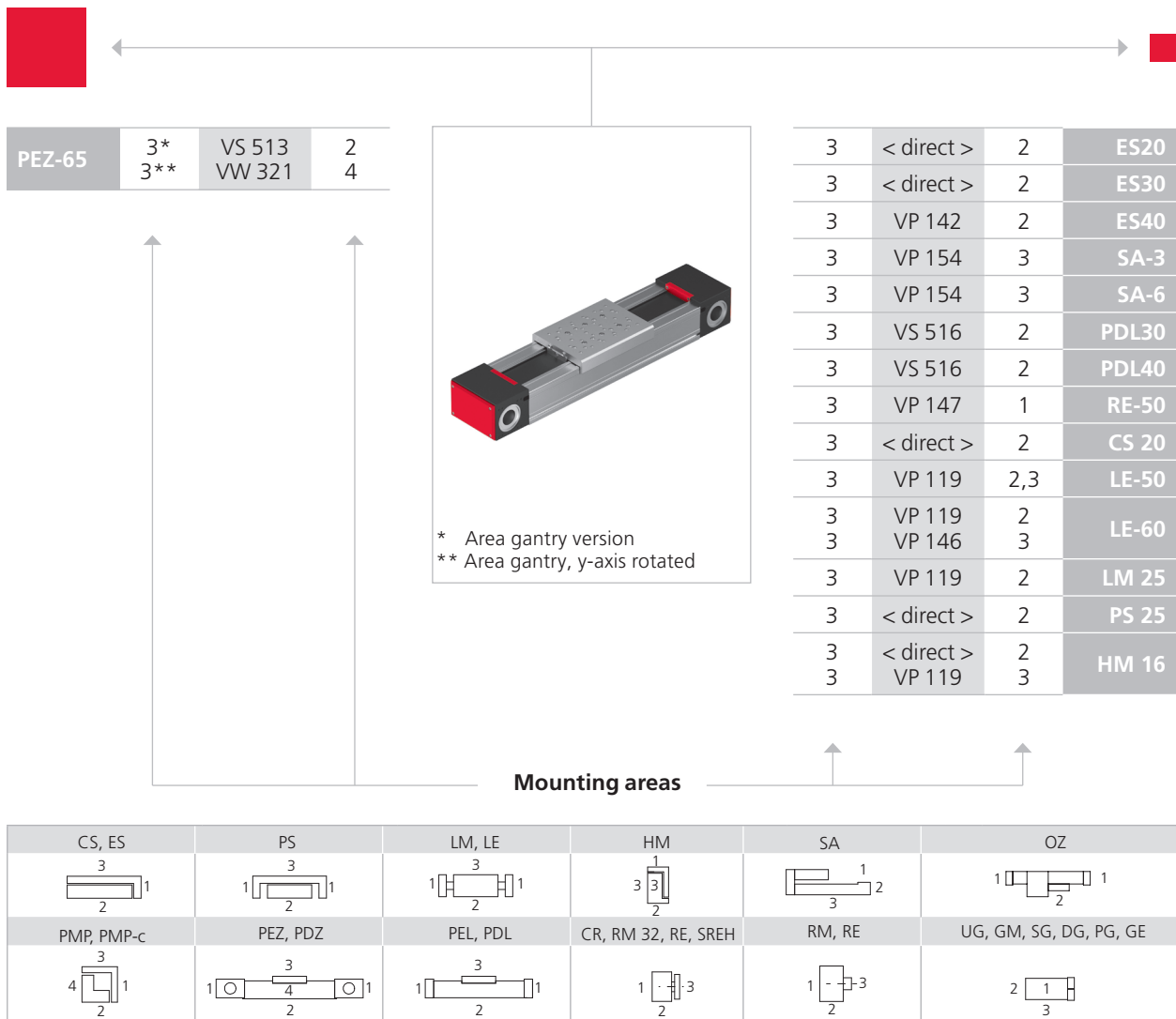
Included in the delivery

- 1x Sensor set portal axes [p. 321]

Accessories

- Stroke limitation PDZ-128 [p. 317]
 - Load transmission unit PEZ-65/PDZ-128 [p. 320]
- (Catalogue HT accessories)
- T-nut M5
 - Connecting set VS 513
 - Mounting set 060
 - Mounting set 070
 - Planetary gearbox PE050
 - Planetary gearbox PE070
 - Planetary gearbox AF060
 - Angular gearbox AFR060
 - Servomotor-21-72VDC-400W
 - Servomotor-31-320VDC-950W
 - Servomotor-31-560VDC-950W
 - Servo controller SE-Power
 - Servo controller E14xx

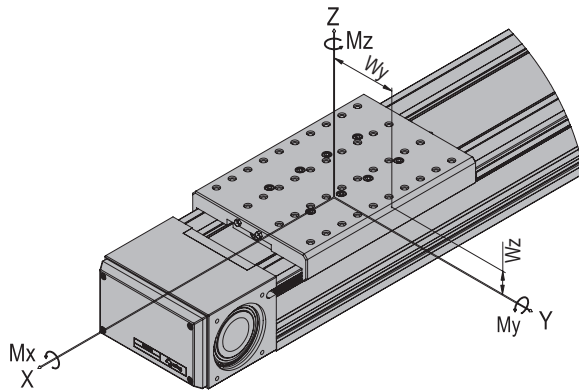
Warranty: 24 months following commissioning, but a maximum of 27 months following delivery



Note that there might be different mounting positions from one module to another one.

The required connection elements and the range of support columns are depicted in the catalogue HT accessories.

Type	PDZ-128
Max. torque Mx	110 Nm
Max. torque My	230 Nm
Max. torque Mz	230 Nm

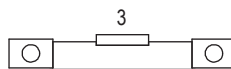


$$\frac{M_x}{M_{x \max}} + \frac{M_y}{M_{y \max}} + \frac{M_z}{M_{z \max}} < 1$$

Maximum payload/type	PDZ-128
Installation position (horizontal) for mounting side 3	100 kg
Installation position (vertical) for mounting side 3	100 kg

Assembly sides module mounting

horizontal:



vertical:



Calculation of position versus time

The travel times of electrically driven gantry axis are dependent on the useful load, stroke + drive.

Our technicians will be pleased to make an optimum position/time calculation for you based on the gantry axis chosen. For being able to advise you correctly, we need the following data from you.

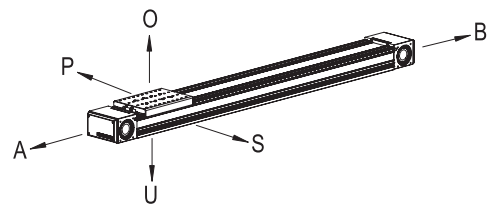
- Maximum planned stroke length
- Maximum moving mass
- Operation time desired

Order form	PDZ-128	XXXXXXXX	XXXX	XXXXXXXX	XXXXXXXX	XXXXXXXX	X	X	X
	Axis	Nominal stroke	Mounting set	Gear	Motor	Position gear	Position angular gearbox	Position motor plug.	

Coordinate system

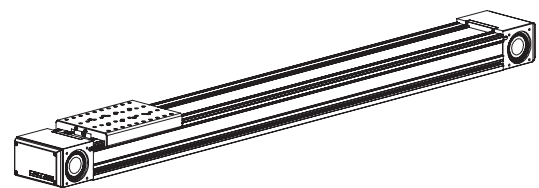
The coordinate system allows you to define the position of the gear as well as that of the motor plug.

- A = before
- B = base
- O = top
- P = left
- S = right
- U = downside



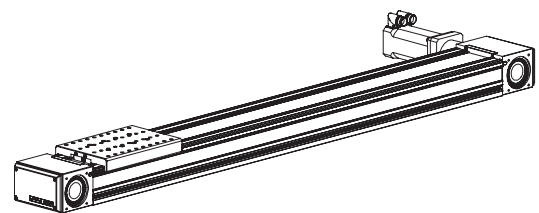
Ordering example 1 without motor

PDZ-128	50394896	1000	X	X	X	X	X	X
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Ordering example 2 with motor

PDZ-128	50394896	1000	50253994	50477897	50495884	P	X	O
---------	----------	------	----------	----------	----------	---	---	---



Ordering process

- Select the desired portal axis, the gear and the motor.
- Enter the corresponding red order numbers in the order form in the place of the cross.
- Enter the desired length (mm) in the field nominal stroke.
- Select the desired position of the gears as well as the position of the motor plug.
- Enter the corresponding letters from the coordinate system in the order form in the place of the cross.

Third-party motors










- If the mounting of a third-party motor is desired the Afag axis can be provided with a gear, including a motor adapter plate for the third-party motor.

External controller

- Mechanical limiting values of the module must be observed (v max., a max.,...).
- The controller parametrisation is carried out by the customer.

Legend order key

- Planetary gearbox
- Angular gearbox
- Coupling housing

Axis	PDZ-128	50394896	xxxx	xxxxxxxx	xxxxxxxx	xxxxxxxx	x	x	x
		Axis	Nominal stroke	Mounting kit	gear	Motor	Position of gear	Assembly direction of the angular gear	Position of the motor connector
Mounting kit/gear (1 : x)		PE	AF	PER	AFR				
	Mounting kit	50253994							
	1 : 5	50477897				 BG2			
	1 : 7	50477898							
	1 : 10	50477899							
	Mounting kit	50253995	50253996	50253995	50253996				
	1 : 5	50477900	50467058	50477912	50467070	 BG3			
	1 : 7	50477901	50467059	50477913	50467071				
	1 : 10	50477902	50467060	50477914	50467072				
	Third-party motor			KG 	AA 	 M0  M0	X	X	X
Without gear				AA 		X	X	X	
Without Motor M0						X	X	X	
Motor/controller	 BG2	Servomotor-21-72VDC-400W-45-B-l-x-x	B	50485435					
		Servomotor-21-72VDC-400W-45-x-l-x-x		50495882					
		Servomotor-21-320VDC-400W-45-B-R-x-x	B	50495884					
		Servomotor-21-320VDC-400W-45-x-R-x-x		50495883					
	 BG3	Servomotor-31-320VDC-950W-45-B-R-x-x	B	50503160					
		Servomotor-31-320VDC-950W-45-x-R-x-x		50503156					
		Servomotor-31-560VDC-950W-45-B-R-x-x	B	50495887					
		Servomotor-31-560VDC-950W-45-x-R-x-x		50495886					
		Servomotor-31-560VDC-950W-45-B-l-x-x	B	50485436					
		Servomotor-31-560VDC-950W-45-x-l-x-x		50495885					
Assembly	Position of gear						P	S	
	Assembly direction of the angular gear						A	B	O
	Position of the motor connector						A	B	O
The plug can be turned 180°. You can find further information in the operating manual.						P	S	U	

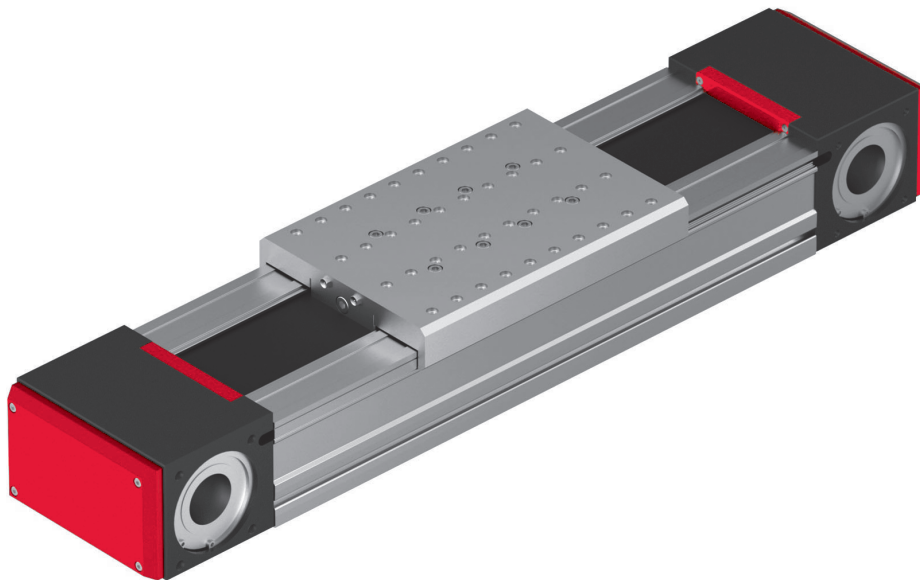
AA: Upon request BG: Motor size PE: Planetary gearbox AF: Planetary gearbox, low-backlash
 B: Motor with brakes KG: Coupling housing PER: Angular gearbox AFR: Angular gearbox, low-backlash

Motor and gear selection: Design by Afag

C1xxx
E12xx
SE-Power
1 kVA
3kVA

Portal axes PEZ & PDZ

PDZ-160

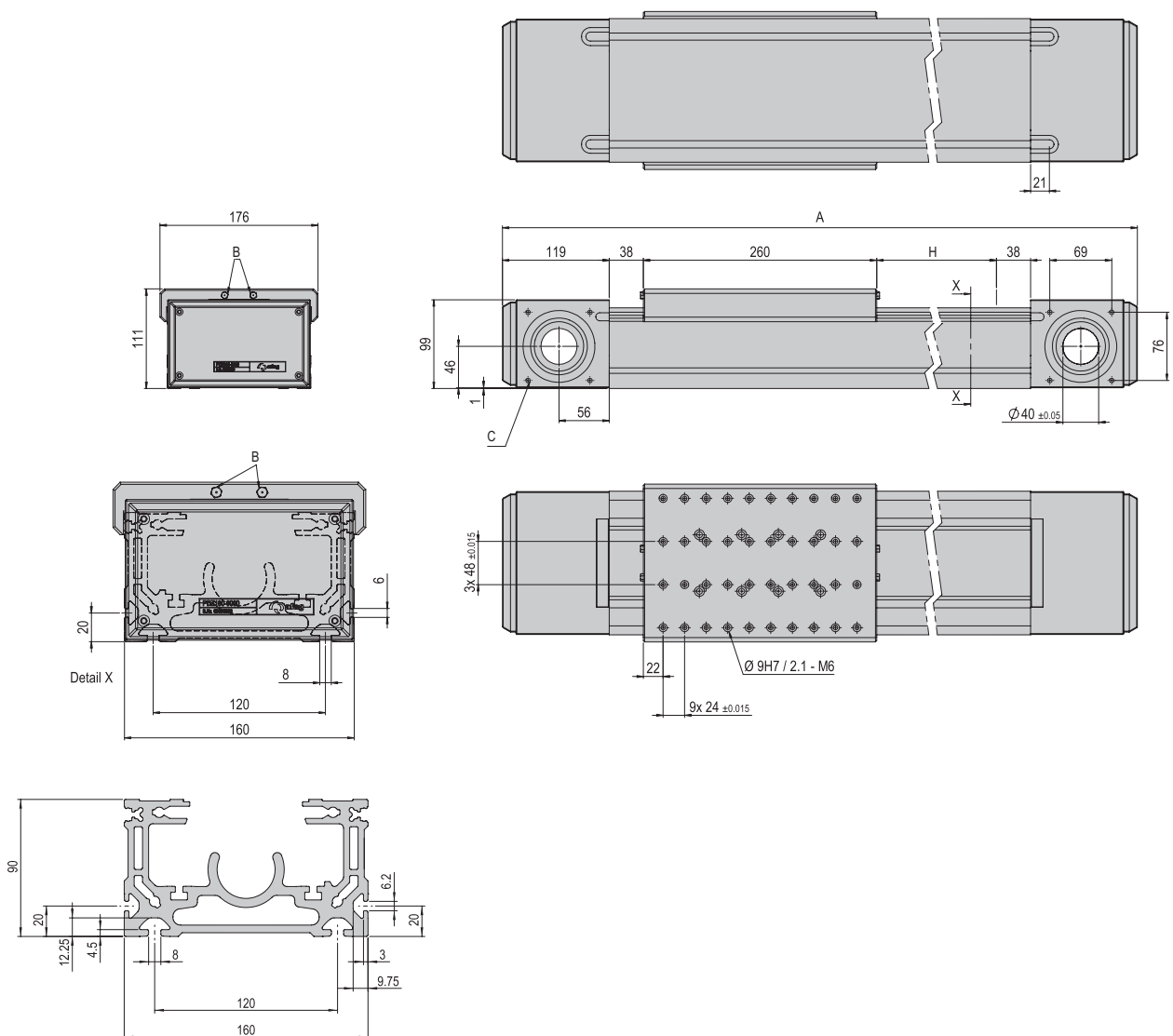


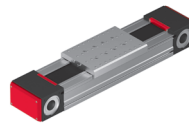
- The most rigid portal axes
- Single or double guide
- Fully symmetrical

Dimensions and dimension drawings


PDZ-160

Type	PDZ-160
A	Module length (stroke + 574) mm
B	Lubricator nipple
C	4x both sides M6
H	Module stroke xxxx mm





PDZ-160	
Operating temperature	10 - 40 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %

Type	PDZ-160
Order number	50245033
Max. stroke	3650 mm
Net weight	20.8 kg (at 0 mm stroke)
Moving weight	6.8 kg
Weight/100 mm stroke	1.62 kg
Cross-section profile W x H	160 x 90 mm
Module length	H + 574 mm
Toothed belt width	80 mm
Groove size (below/side)	8/6 mm
Groove distance (below)	120 mm
Hollow shaft Ø	40 mm
Number of linear guides	2 pcs
Torque	114.1 Nm
Protection type	IP 30
Feed constant	224 mm/U
Max. speed v	*5 m/s
Max. acceleration a	*50 m/s ²
Max. circumferential force	3200 N
Repeat accuracy	+/- 0.05 mm
Mounting position	

The technical data pertains to Afag standard test conditions.

Note: The mounting sets, gears, motors, controllers and cables can be found in the corresponding chapters.
Cleanroom class ISO 14644-1, class ISO 7

*The maximum values listed above depend on the application and must not be combined. In case of doubt, please contact your Afag partner.

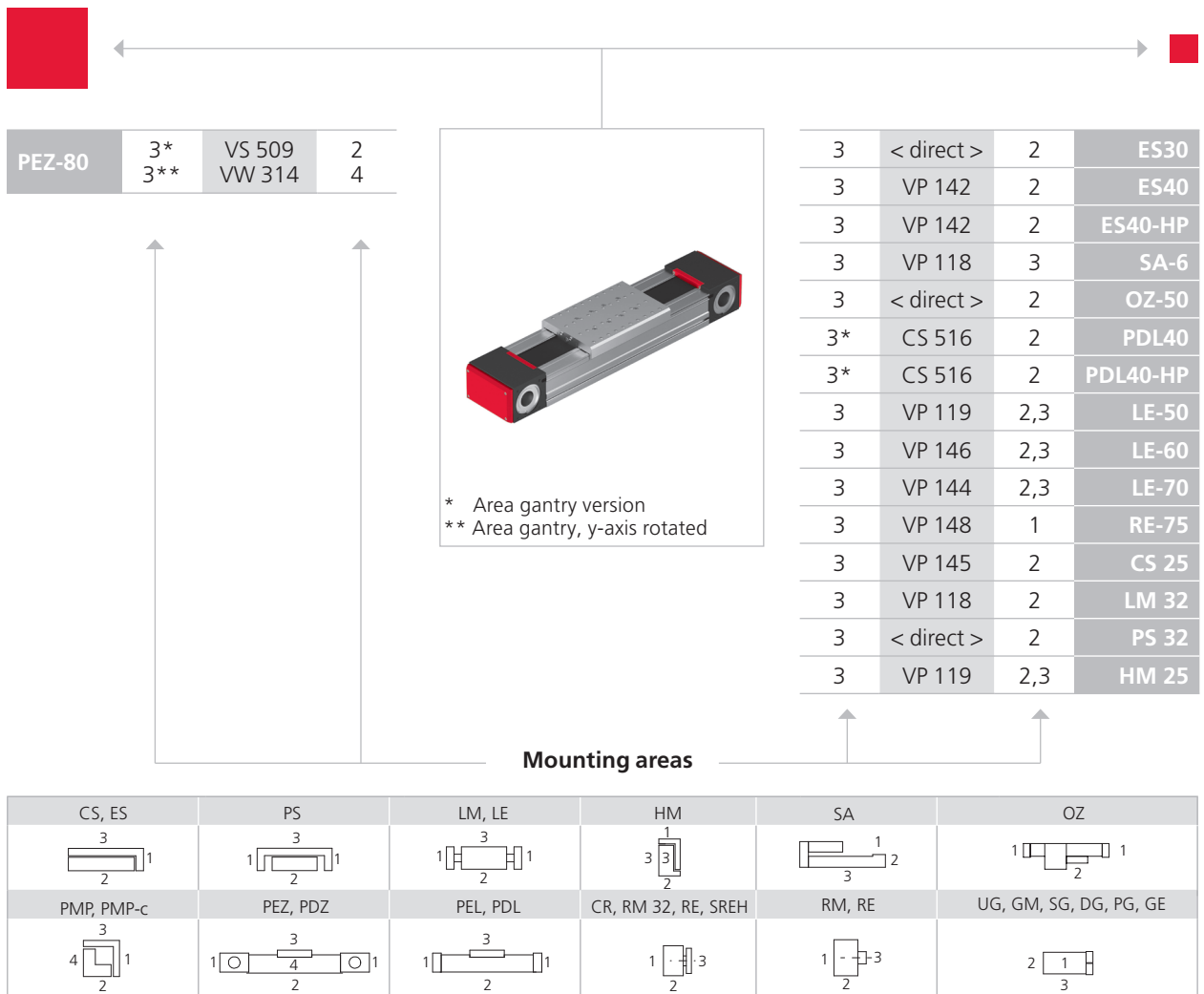
Included in the delivery

- 1x Sensor set portal axes [p. 321]

Accessories

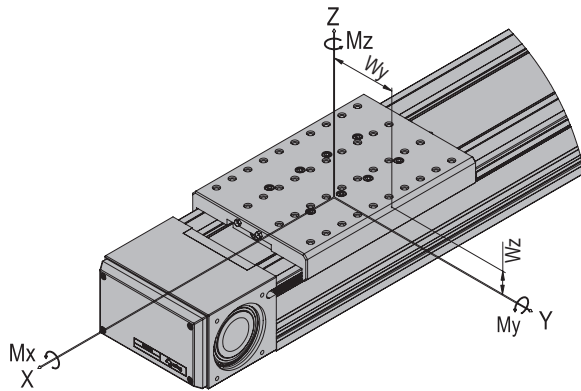
- Stroke limitation PDZ-160 [p. 321]
 - Load transmission unit PEZ-80/PDZ-160 [p. 318]
- (Catalogue HT accessories)
- T-nut M6
 - INI 8x4.7x16-Sn2.0-PNP-NC-M8x1
 - Connecting set VS 509
 - Mounting set 060
 - Mounting set 070
 - Mounting set 075
 - Mounting set 090
 - Planetary gearbox PE070
 - Planetary gearbox PE090
 - Planetary gearbox AF060
 - Planetary gearbox AF075
 - Angular gearbox PER070
 - Angular gearbox PER090
 - Angular gearbox AFR060
 - Angular gearbox AFR075
 - Servomotor-31-320VDC-950W
 - Servomotor-31-560VDC-950W
 - Servomotor-41-560VDC-2.8kW
 - Servo controller SE-Power
 - Servo controller E14xx

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



Note that there might be different mounting positions from one module to another one.
The required connection elements and the range of support columns are depicted in the catalogue HT accessories.

Type	PDZ-160
Max. torque Mx	260 Nm
Max. torque My	550 Nm
Max. torque Mz	550 Nm

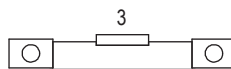


$$\frac{M_x}{M_{x \max}} + \frac{M_y}{M_{y \max}} + \frac{M_z}{M_{z \max}} < 1$$

Maximum payload/type	PDZ-160
Installation position (horizontal) for mounting side 3	200 kg
Installation position (vertical) for mounting side 3	200 kg

Assembly sides module mounting

horizontal:



vertical:



Calculation of position versus time

The travel times of electrically driven gantry axis are dependent on the useful load, stroke + drive.

Our technicians will be pleased to make an optimum position/time calculation for you based on the gantry axis chosen. For being able to advise you correctly, we need the following data from you.

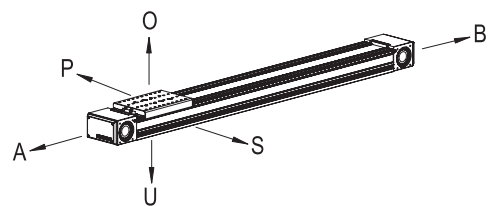
- Maximum planned stroke length
- Maximum moving mass
- Operation time desired

Order form	PDZ-160	XXXXXXXX	XXXX	XXXXXXXX	XXXXXXXX	XXXXXXXX	X	X	X
	Axis	Nominal stroke	Mounting set	Gear	Motor	Position gear	Position angular gearbox	Position motor plug.	

Coordinate system

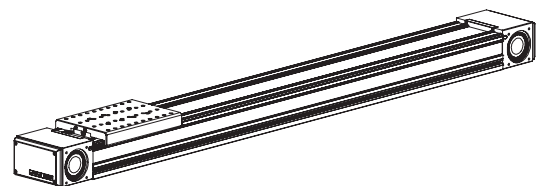
The coordinate system allows you to define the position of the gear as well as that of the motor plug.

- A = before
- B = base
- O = top
- P = left
- S = right
- U = downside



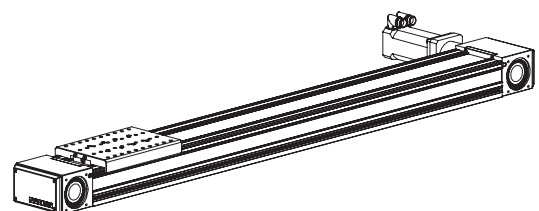
Ordering example 1 without motor

PDZ-160	50245033	1500	X	X	X	X	X	X
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Ordering example 2 with motor

PDZ-160	50245033	1500	50253999	50477900	50142524	P	X	O
---------	----------	------	----------	----------	----------	---	---	---



Ordering process

- Select the desired portal axis, the gear and the motor.
- Enter the corresponding red order numbers in the order form in the place of the cross.
- Enter the desired length (mm) in the field nominal stroke.
- Select the desired position of the gears as well as the position of the motor plug.
- Enter the corresponding letters from the coordinate system in the order form in the place of the cross.




Third-party motors

- If the mounting of a third-party motor is desired the Afag axis can be provided with a gear, including a motor adapter plate for the third-party motor.

External controller

- Mechanical limiting values of the module must be observed (v max., a max.,...).
- The controller parametrisation is carried out by the customer.

Legend order key

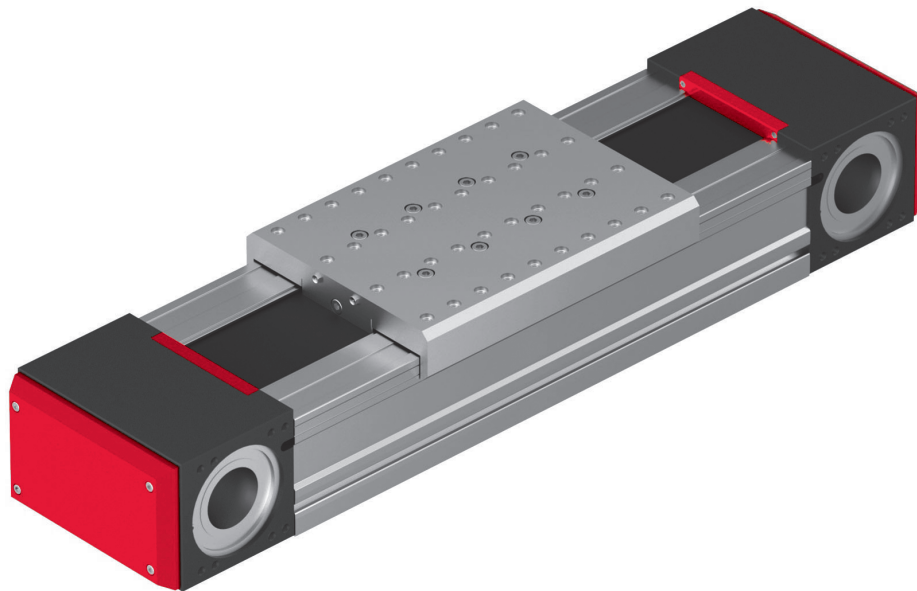
-  Planetary gearbox
-  Angular gearbox
-  Coupling housing

Axis	PDZ-160	50245033	xxxx	xxxxxxxx	xxxxxxxx	xxxxxxxx	x	x	x	
	Axis	Nominal stroke	Mounting kit	gear	Motor	Position of gear	Assembly direction of the angular gear	Position of the motor connector		
Mounting kit/gear (1 : x)		PE	AF	PER	AFR					
	Mounting kit	50253997	50253999	50253997	50253999					
	1 : 5	50477900	50467058	50477912	50467070					
	1 : 7	50477901	50467059	50477913	50467071					
	1 : 10	50477902	50467060	50477914	50467072					
	Mounting kit	50253998	50254000	50253998	50254000					
	1 : 5	50477903	50467061	50477915	50467073					
	1 : 7	50477904	50467062	50477916	50467074					
	1 : 10	50477905	50467063	50477917	50467075					
	Third-party motor			KG	AA		X	X	X	
					AA		X	X	X	
	Without gear				X		X	X	X	
	Without Motor M0					X	X	X	X	
	Motor/controller		Servomotor-31-320VDC-950W-45-B-R-x-x	B	50503160					SE-Power SE-Power E14xx 1 kVA 3 kVA
		Servomotor-31-320VDC-950W-45-x-R-x-x		50503156						
		Servomotor-31-560VDC-950W-45-B-R-x-x	B	50495887						
		Servomotor-31-560VDC-950W-45-x-R-x-x		50495886						
		Servomotor-31-560VDC-950W-45-B-l-x-x	B	50485436						
		Servomotor-31-560VDC-950W-45-x-l-x-x		50495885						
		Servomotor-41-560VDC-2.8kW-45-B-R-x-x	B	50495890						
		Servomotor-41-560VDC-2.8kW-45-x-R-x-x		50495889						
		Servomotor-41-560VDC-2.8kW-45-B-l-x-x	B	50485437						
		Servomotor-41-560VDC-2.8kW-45-x-l-x-x		50495888						
Assembly	Position of gear						P S			
	Assembly direction of the angular gear						A B O U			
	Position of the motor connector						A B O P S U			
	The plug can be turned 180°. You can find further information in the operating manual.									

AA: Upon request BG: Motor size PE: Planetary gearbox AF: Planetary gearbox, low-backlash
 B: Motor with brakes KG: Coupling housing PER: Angular gearbox AFR: Angular gearbox, low-backlash

Portal axes PEZ & PDZ

PDZ-200

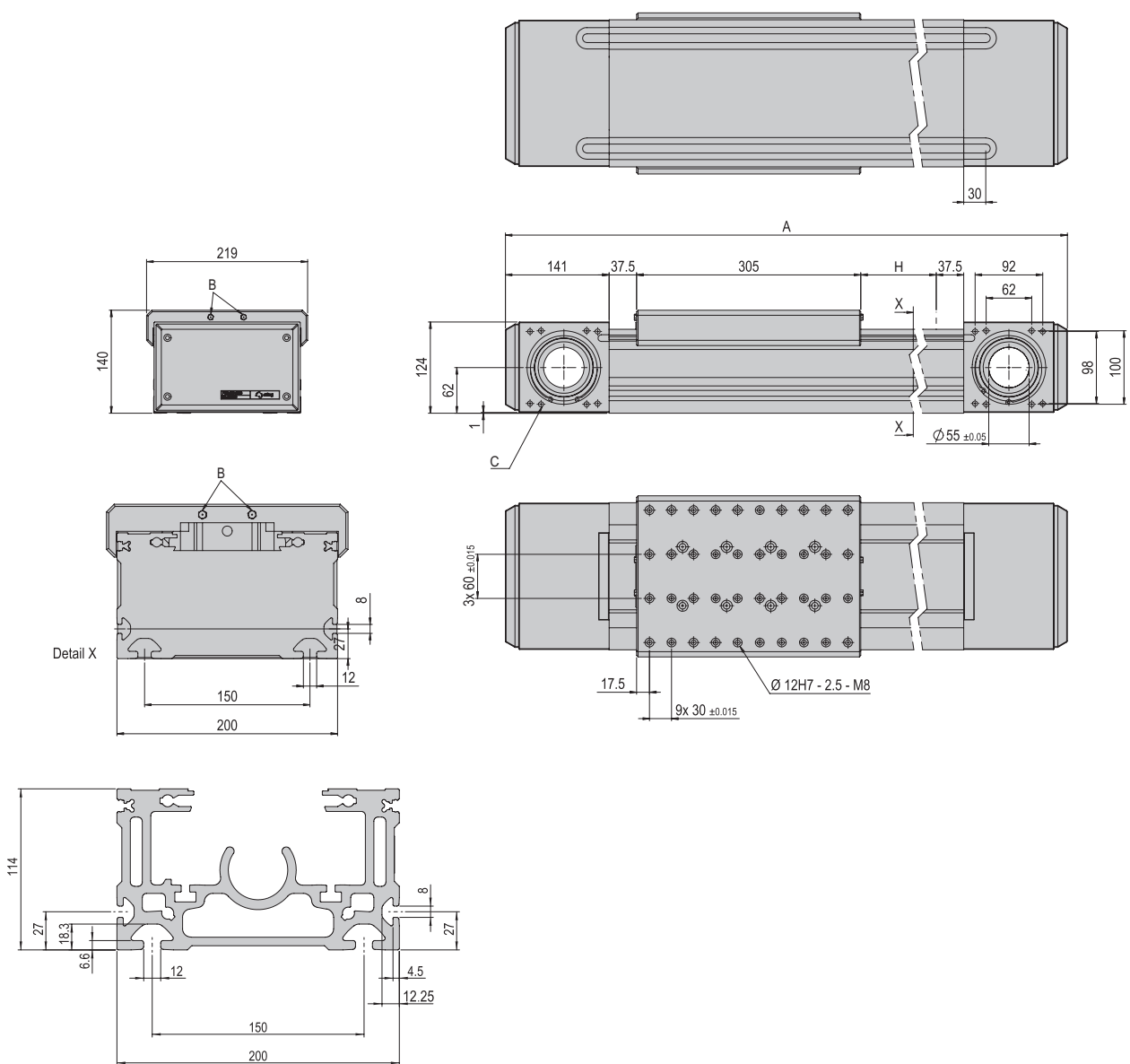


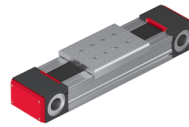
- The most rigid portal axes
- Single or double guide
- Fully symmetrical

Dimensions and dimension drawings


PDZ-200

Type	PDZ-200
A	Module length (stroke + 662) mm
B	Lubricator nipple
C	8x both sides M8
H	Module stroke xxxx mm





PDZ-200	
Operating temperature	10 - 40 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %

Type	PDZ-200
Order number	50228209
Max. stroke	5260 mm
Net weight	35.6 kg (at 0 mm stroke)
Moving weight	11.8 kg
Weight/100 mm stroke	2.5 kg
Cross-section profile W x H	200 x 114 mm
Module length	H + 662 mm
Toothed belt width	100 mm
Groove size (below/side)	12/8 mm
Groove distance (below)	150 mm
Hollow shaft Ø	55 mm
Number of linear guides	2 pcs
Torque	178.3 Nm
Protection type	IP 30
Feed constant	280 mm/U
Max. speed v	*5 m/s
Max. acceleration a	*50 m/s ²
Max. circumferential force	4000 N
Repeat accuracy	+/- 0.05 mm
Mounting position	

The technical data pertains to Afag standard test conditions.

Note: The mounting sets, gears, motors, controllers and cables can be found in the corresponding chapters.
Cleanroom class ISO 14644-1, class ISO 7

*The maximum values listed above depend on the application and must not be combined. In case of doubt, please contact your Afag partner.

Included in the delivery

(Catalogue HT accessories)

- 1x Sensor set portal axes [p. 321]

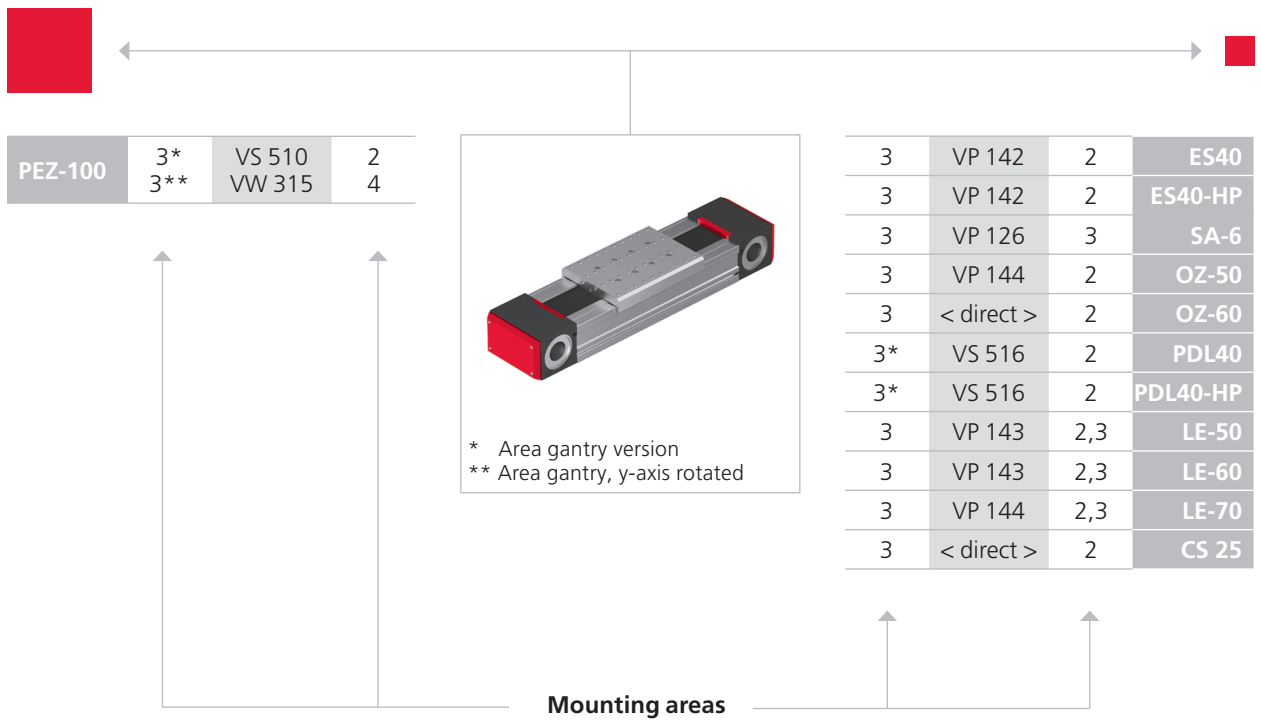
Accessories

- Stroke limitation PDZ-200 [p. 321]
- Load transmission unit PEZ-100/PDZ-200 [p. 318]

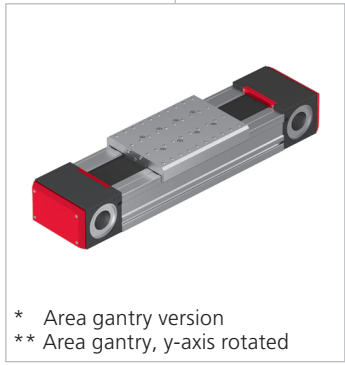
(Catalogue HT accessories)

- INI 8x4.7x16-Sn2.0-PNP-NC-M8x1
- T-nut M10
- Connecting set VS 510
- Mounting set 075
- Mounting set 090
- Mounting set 100
- Mounting set 120
- Planetary gearbox PE090
- Planetary gearbox PE120
- Planetary gearbox AF075
- Planetary gearbox AF100
- Angular gearbox PER090
- Angular gearbox PER120
- Angular gearbox AFR075
- Angular gearbox AFR100
- Servomotor-41-560VDC-2.8kW
- Servomotor-51-560VDC-5.0kW
- Servo controller SE-Power
- Servo controller E14xx

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



PEZ-100	3*	VS 510	2
	3**	VW 315	4

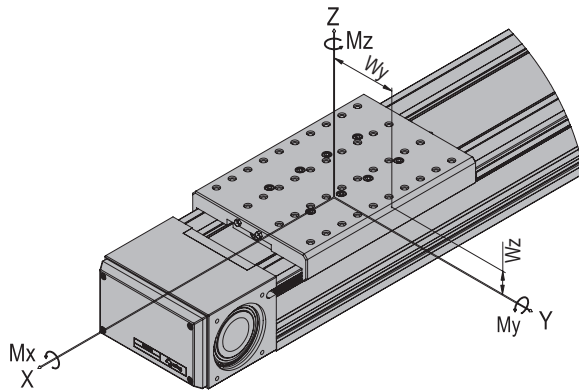


3	VP 142	2	ES40
3	VP 142	2	ES40-HP
3	VP 126	3	SA-6
3	VP 144	2	OZ-50
3	< direct >	2	OZ-60
3*	VS 516	2	PDL40
3*	VS 516	2	PDL40-HP
3	VP 143	2,3	LE-50
3	VP 143	2,3	LE-60
3	VP 144	2,3	LE-70
3	< direct >	2	CS 25

CS, ES 	PS 	LM, LE 	HM 	SA 	OZ
PMP, PMP-c 	PEZ, PDZ 	PEL, PDL 	CR, RM 32, RE, SREH 	RM, RE 	UG, GM, SG, DG, PG, GE

Note that there might be different mounting positions from one module to another one.
The required connection elements and the range of support columns are depicted in the catalogue HT accessories.

Type	PDZ-200
Max. torque Mx	500 Nm
Max. torque My	930 Nm
Max. torque Mz	930 Nm



$$\frac{M_x}{M_{x \max}} + \frac{M_y}{M_{y \max}} + \frac{M_z}{M_{z \max}} < 1$$

Maximum payload/type	PDZ-200
Installation position (horizontal) for mounting side 3	300 kg
Installation position (vertical) for mounting side 3	300 kg

Assembly sides module mounting

horizontal:



vertical:



Calculation of position versus time

The travel times of electrically driven gantry axis are dependent on the useful load, stroke + drive.

Our technicians will be pleased to make an optimum position/time calculation for you based on the gantry axis chosen. For being able to advise you correctly, we need the following data from you.

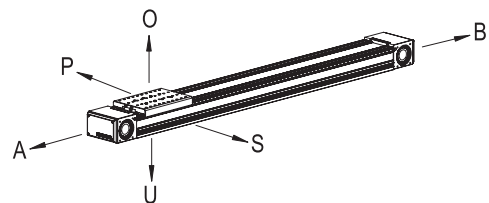
- Maximum planned stroke length
- Maximum moving mass
- Operation time desired

Order form	PDZ-200	XXXXXXXX	XXXX	XXXXXXXX	XXXXXXXX	XXXXXXXX	X	X	X
	Axis	Nominal stroke	Mounting set	Gear	Motor	Position gear	Position angular gearbox	Position motor plug.	

Coordinate system

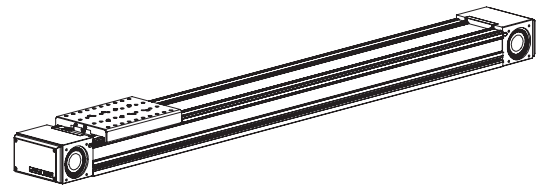
The coordinate system allows you to define the position of the gear as well as that of the motor plug.

- A = before
- B = base
- O = top
- P = left
- S = right
- U = downside



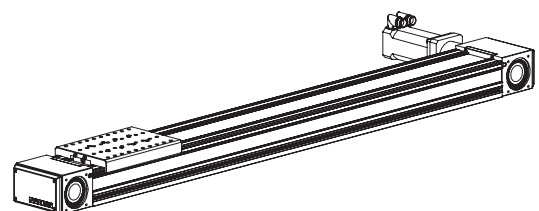
Ordering example 1 without motor

PDZ-200	50228209	2000	X	X	X	X	X	X
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Ordering example 2 with motor

PDZ-200	50228209	2000	50254004	50467064	50245911	P	X	O
---------	----------	------	----------	----------	----------	---	---	---



Ordering process

- Select the desired portal axis, the gear and the motor.
- Enter the corresponding red order numbers in the order form in the place of the cross.
- Enter the desired length (mm) in the field nominal stroke.
- Select the desired position of the gears as well as the position of the motor plug.
- Enter the corresponding letters from the coordinate system in the order form in the place of the cross.

Third-party motors















- If the mounting of a third-party motor is desired the Afag axis can be provided with a gear, including a motor adapter plate for the third-party motor.

External controller

- Mechanical limiting values of the module must be observed (v max., a max.,...).
- The controller parametrisation is carried out by the customer.

Legend order key

- Planetary gearbox
- Angular gearbox
- Coupling housing

Axis	PDZ-200	50228209	xxxx	xxxxxxxx	xxxxxxxx	xxxxxxxx	x	x	x	
	Axis	Nominal stroke	Mounting kit	gear	Motor		Position of gear	Assembly direction of the angular gear	Position of the motor connector	
Mounting kit/gear (1 : x)		PE 	AF 	PER 	AFR 					
	Mounting kit	50254001	50254003	50254001	50254003					
	1 : 5	50477903	50467061	50477915	50467073					
	1 : 7	50477904	50467062	50477916	50467074					
	1 : 10	50477905	50467063	50477917	50467075					
	Mounting kit	50254002	50254004	50254002	50254004					
	1 : 5	50477906	50467064	50477918	50467076					
	1 : 7	50477907	50467065	50477919	50467077					
	1 : 10	50477908	50467066	50477920	50467078					
	Third-party motor			KG 	AA 	M0 	X	X	X	
					AA 	M0 	X	X	X	
	Without gear				X	X	X	X	X	
Without Motor M0					X	X	X	X		
Motor/controller	 BG4	Servomotor-41-560VDC-2.8kW-45-B-R-X-X	B	50495890						
		Servomotor-41-560VDC-2.8kW-45-X-R-X-X		50495889						
		Servomotor-41-560VDC-2.8kW-45-B-I-X-X	B	50485437						
		Servomotor-41-560VDC-2.8kW-45-X-I-X-X		50495888						
	 BG5	Servomotor-51-560VDC-5.0kW-45-B-R-X-X	B	50495893						
		Servomotor-51-560VDC-5.0kW-45-X-R-X-X		50495892						
		Servomotor-51-560VDC-5.0kW-45-B-I-X-X	B	50485438						
		Servomotor-51-560VDC-5.0kW-45-X-I-X-X		50495891						
Assembly	Position of gear						P S			
	Assembly direction of the angular gear							A B O U		
	Position of the motor connector								A B O P S U	
The plug can be turned 180°. You can find further information in the operating manual.										

AA: Upon request
B: Motor with brakes

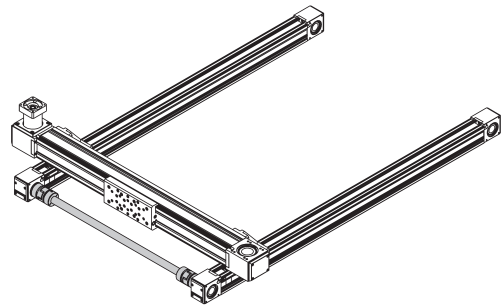
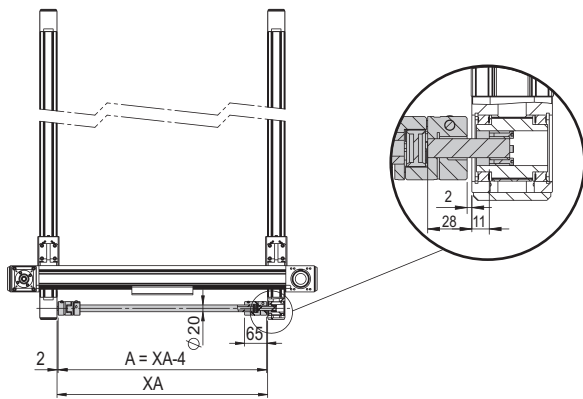
BG: Motor size
KG: Coupling housing

PE: Planetary gearbox
PER: Angular gearbox

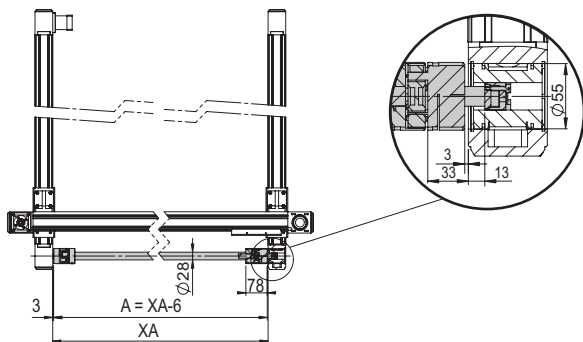
AF: Planetary gearbox, low-backlash
AFR: Angular gearbox, low-backlash

Accessories PEZ & PDZ

Load transmission unit PEZ-52	PEZ-52
Order number	50396400
Net weight	1.579 kg
Suitable for	PEZ-52
A	Required length in mm

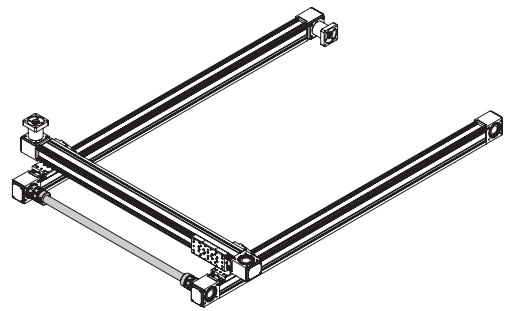
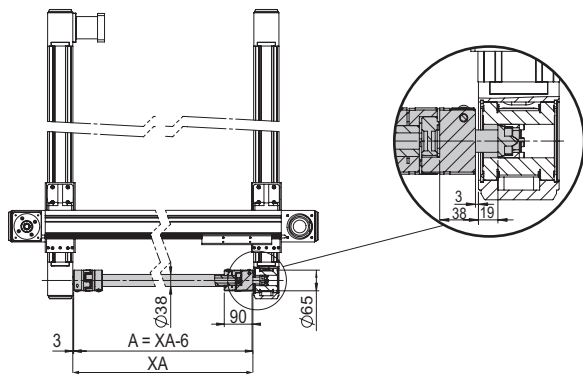


Load transmission unit PEZ-65/PDZ-128	PEZ-65 / PDZ-128
Order number	50267101
Net weight	3.276 kg
Suitable for	PEZ-65 PDZ-128
A	Required length in mm



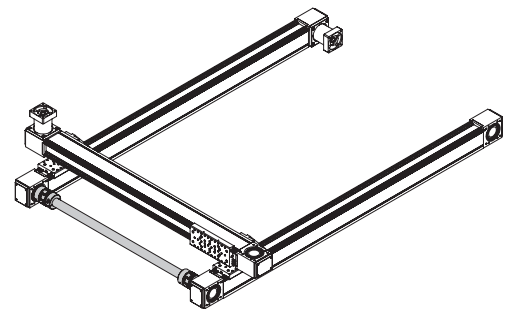
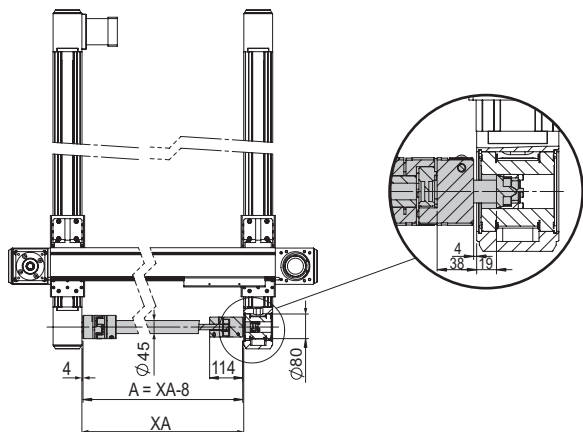
Accessories PEZ & PDZ

Load transmission unit PEZ-80/PDZ-160	PEZ-80 / PDZ-160
Order number	50267102
Net weight	4.948 kg
Suitable for	PEZ-80 PDZ-160
A	Required length in mm



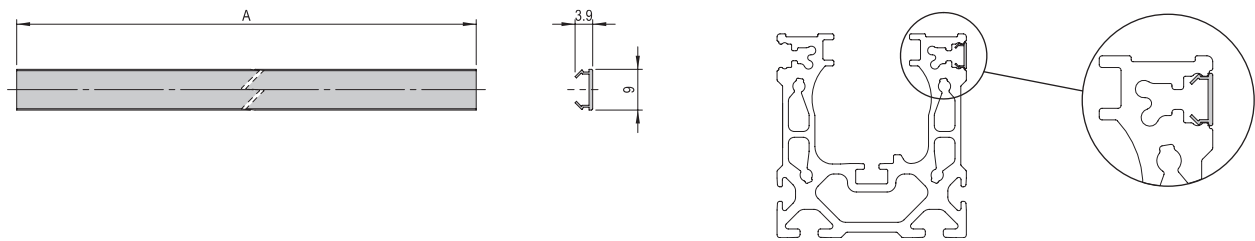
9

Load transmission unit PEZ-100/PDZ-200	PEZ-100 / PDZ-200
Order number	50267103
Net weight	4.85 kg
Suitable for	PEZ-100 PDZ-200
A	Required length in mm

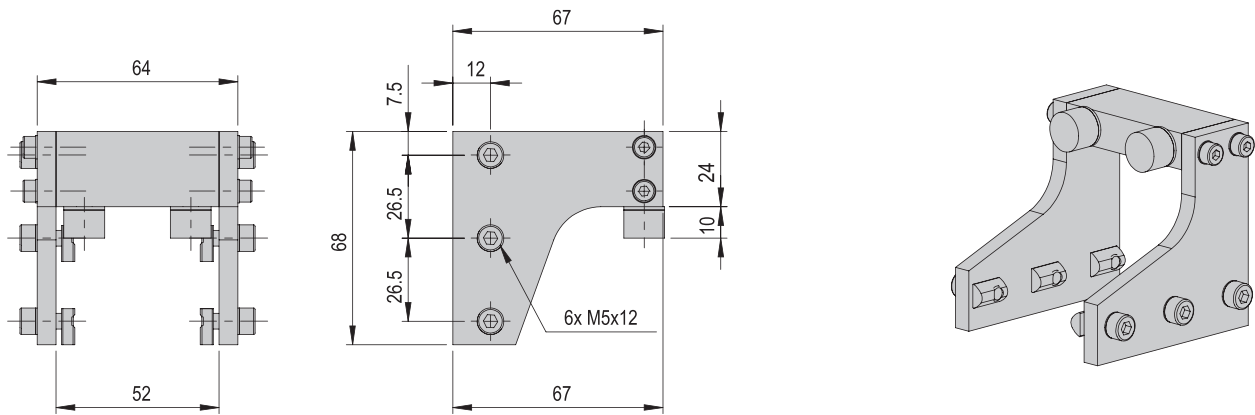


Accessories PEZ & PDZ

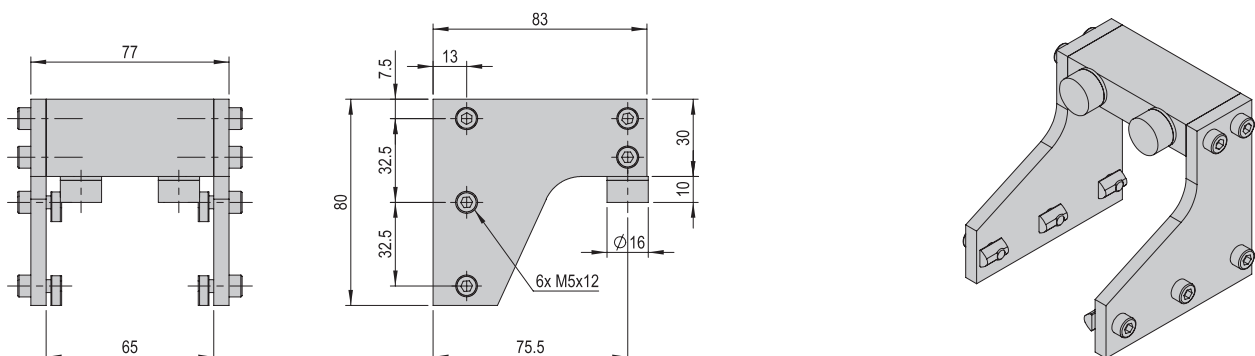
Sensor slot cover PEZ/PDZ	PEZ/PDZ
Order number	50247660
Net weight	0.011 kg
Suitable for	all PEZ and PDZ
A	Required length in mm



Stroke limitation PEZ-52	PEZ-52
Order number	50403195
Net weight	0.195 kg
Suitable for	PEZ-52

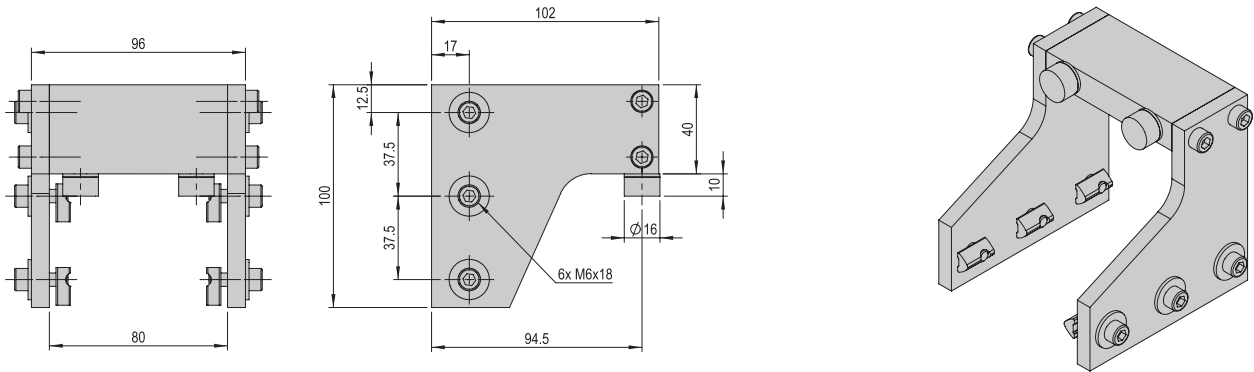


Stroke limitation PEZ-65	PEZ-65
Order number	50281376
Net weight	0.275 kg
Suitable for	PEZ-65

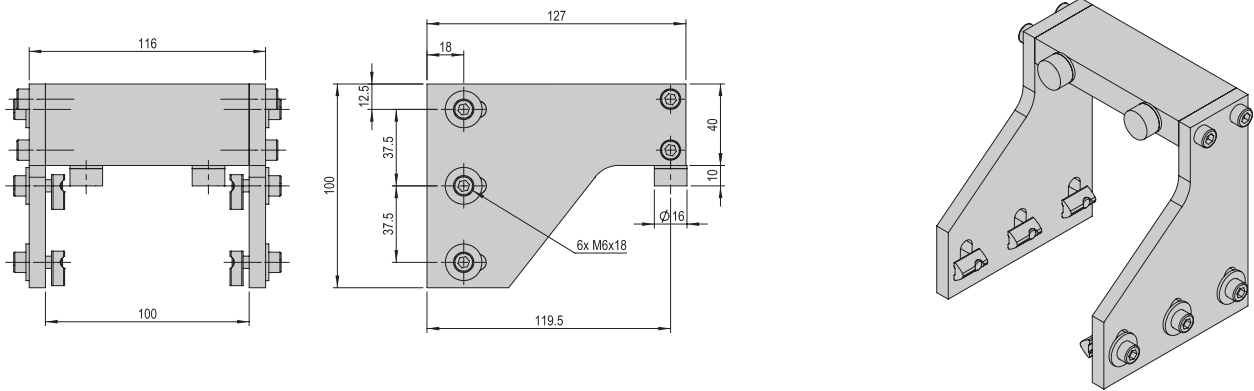


Accessories PEZ & PDZ

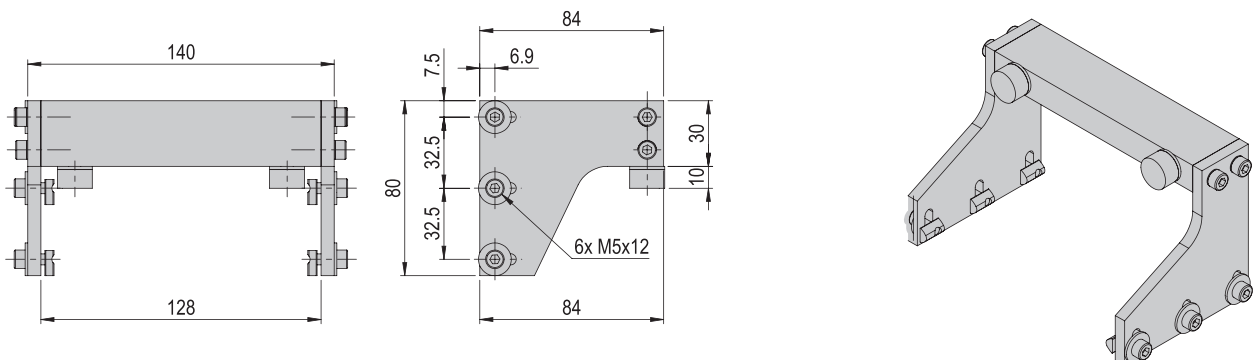
Stroke limitation PEZ-80	PEZ-80
Order number	50281045
Net weight	0.542 kg
Suitable for	PEZ-80



Stroke limitation PEZ-100	PEZ-100
Order number	50281046
Net weight	0.646 kg
Suitable for	PEZ-100

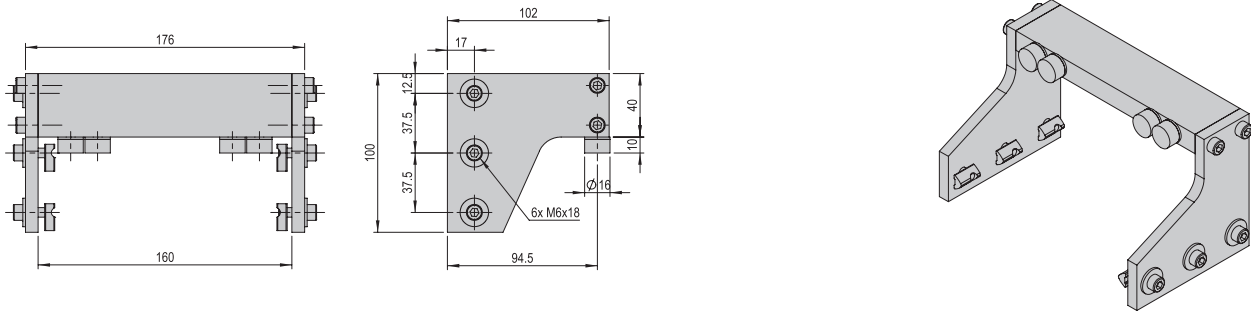


Stroke limitation PDZ-128	PDZ-128
Order number	50403196
Net weight	0.358 kg
Suitable for	PDZ-128

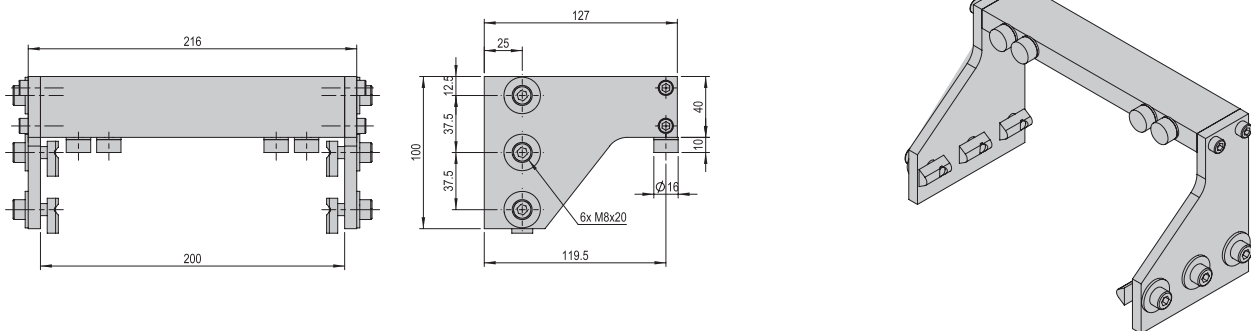


Accessories PEZ & PDZ

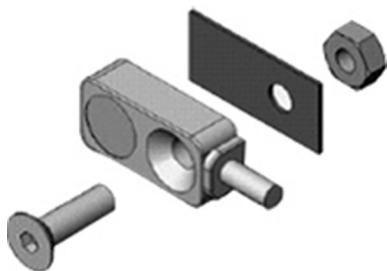
Stroke limitation PDZ-160	PDZ-160
Order number	50281047
Net weight	0.675 kg
Suitable for	PDZ-160



Stroke limitation PDZ-200	PDZ-200
Order number	50281048
Net weight	0.908 kg
Suitable for	PDZ-200



Sensor set portal axes [p. 321]	Sensor-Set
Order number	50318206
Net weight	0.006 kg
Suitable for	all PEZ and PDZ



Portal axes PEL & PDL

PEL20-SL - PEL20 &
PDL30 - PDL40-HP

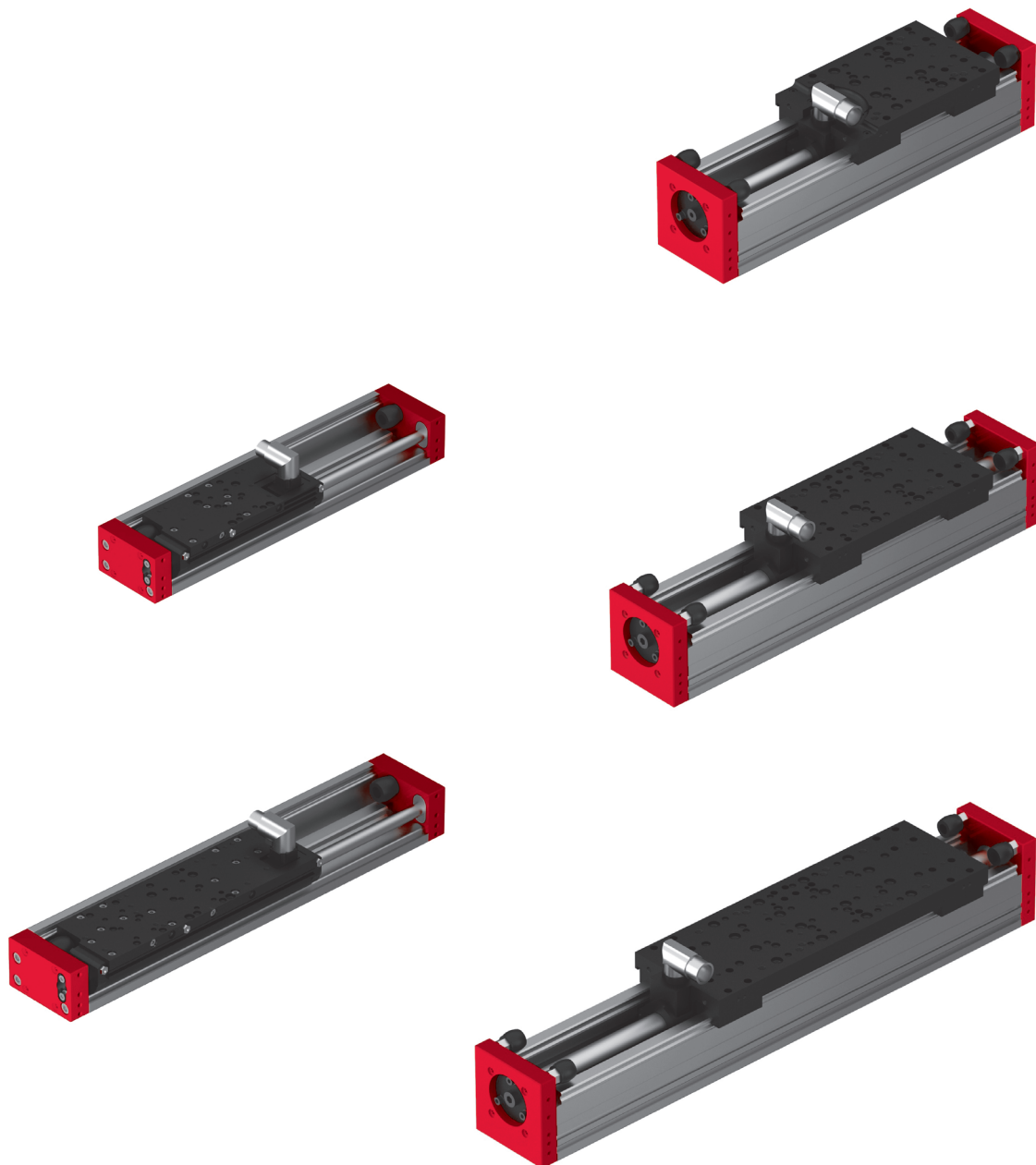
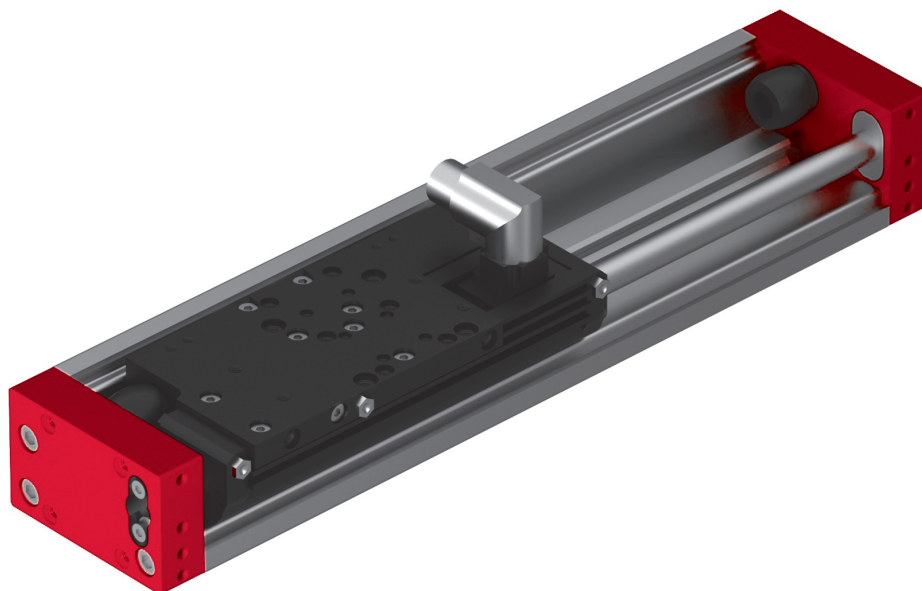


Table of contents: PEL & PDL

Portal axes PEL & PDL	Page
PEL20-SL	353
PEL20	361
PDL30	369
PDL40	377
PDL40-HP	385
Accessories PEL & PDL	392

Portal axes PEL & PDL

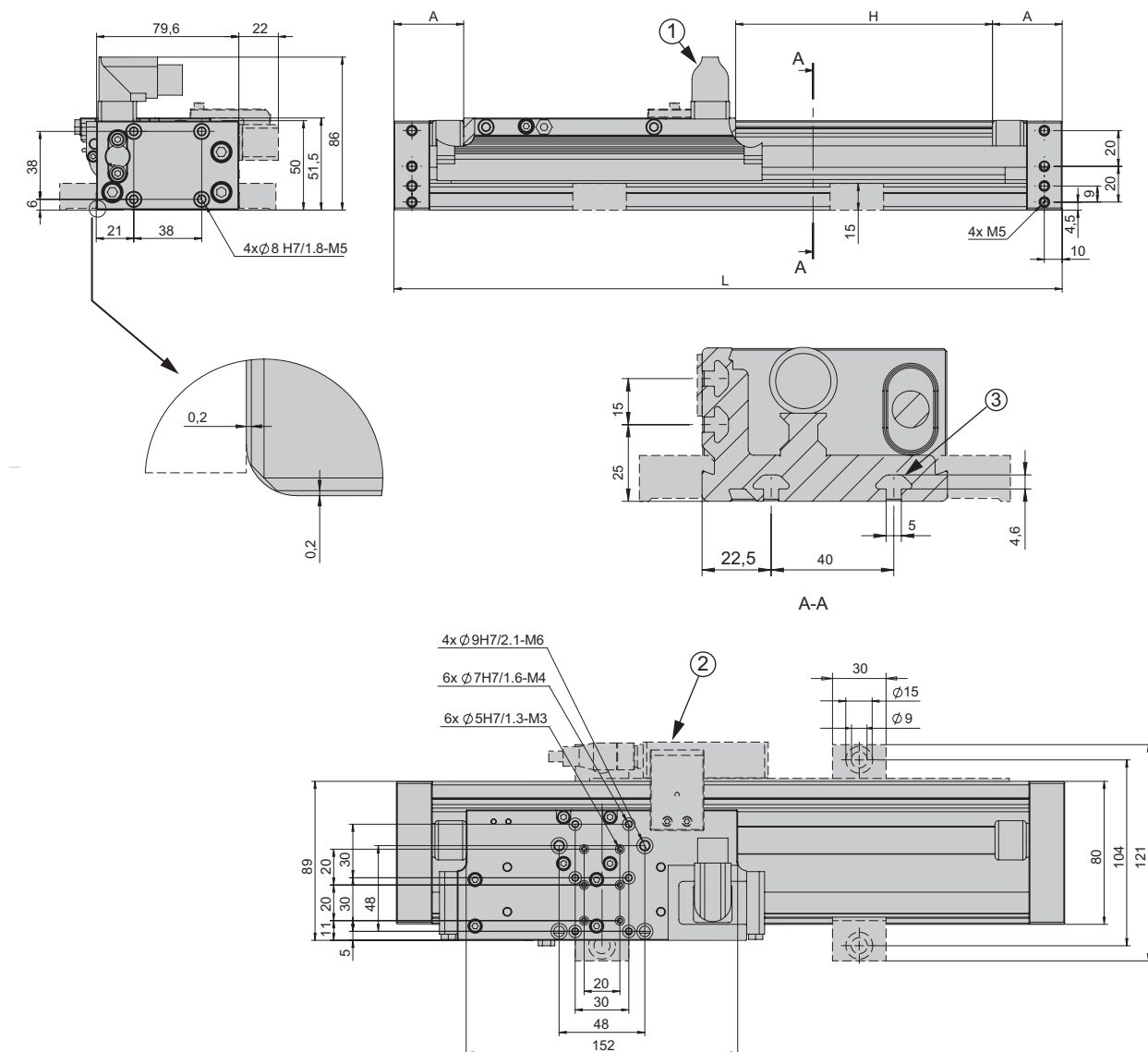
PEL20-SL

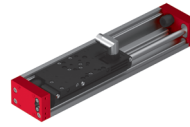


- Compact, simple portal axis
- Maximum stroke at minimum installation space
- Cost-efficient entry into linear motor technology

Type	PEL20-SL
A	41 mm
L	H + 234 mm

- ① - 270° rotatable connector
- ② - External position measuring system
- ③ - Groove for sliding block size 5





PEL20-SL	
Operating temperature	0 - 50 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %

Type	PEL20-080-SL	PEL20-140-SL	PEL20-210-SL	PEL20-270-SL	PEL20-370-SL	PEL20-550-SL	PEL20-640-SL
Order number	50444484	50444485	50444486	50444487	50444488	50444489	50444490
Stroke H	80 mm	140 mm	210 mm	270 mm	370 mm	550 mm	640 mm
Net weight	3.2 kg	3.5 kg	3.85 kg	4.15 kg	4.65 kg	5.55 kg	6 kg
Max. speed	6.8 m/s						
Moving weight	0.8 kg						
Drive	Linear motor, electric						
Permanent force	15 N						
Peak force	67 N						
Repeat accuracy*	+/- 0.05 mm						
- with external position measuring system	+/- 0.02 mm						
Mounting position							

The technical data pertains to Afag standard test conditions.
 Note: For vertical installation, a weight compensation is required.
 Cleanroom class ISO 14644-1, class ISO 7

*The installation of the portal axis, via attachment blocks, guarantees improved rigidity and accuracy.

Included in the delivery

(Catalogue HT accessories)

- 4x Centering bushing Ø8x3.5
- Funnel-type lubrication nipple 90° M6

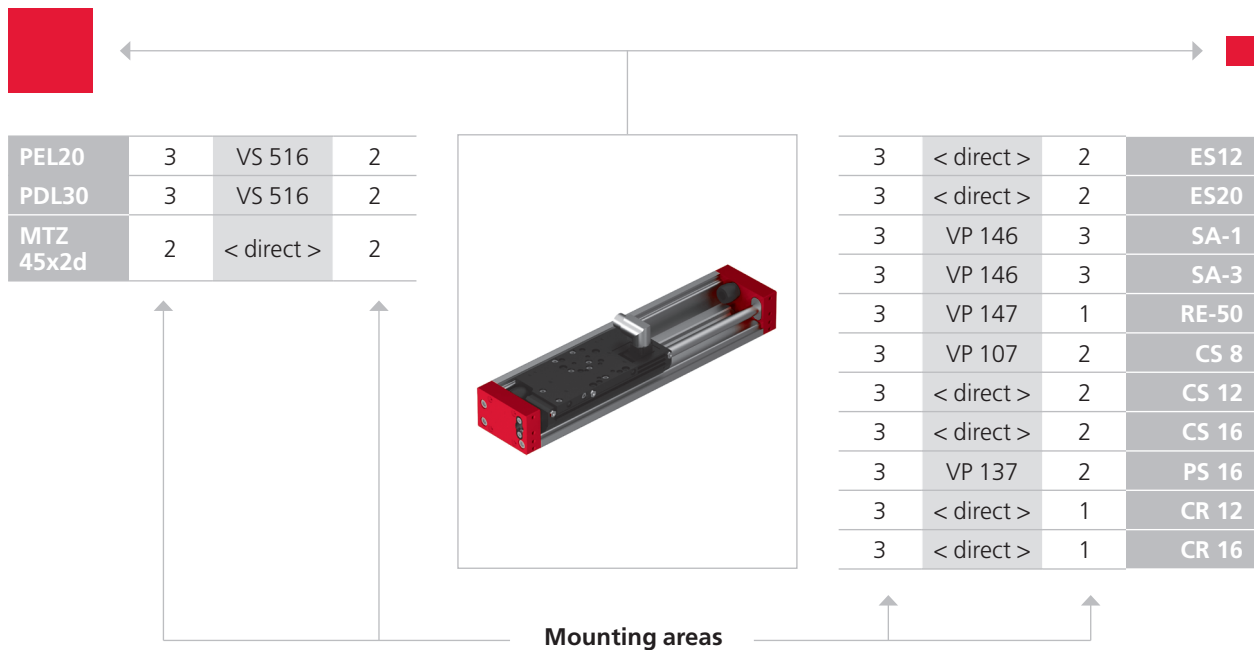
Accessories

- External position measuring system PEL20 [p. 365]
 - Connecting set VS 516 [p. 366]
- (Catalogue HT accessories)
- T-nut M5
 - Motor cable-M16
 - Controller C11xx-1S
 - Plug kit for C1xxx-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
 - Console in program for supports/columns
 - Drag-chain on request

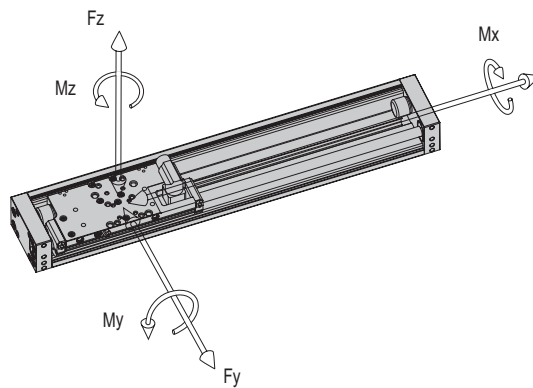
Warranty: 24 months following commissioning, but a maximum of 27 months following delivery



CS, ES 	PS 	LM, LE 	HM 	SA 	OZ
PMP, PMP-c 	PEZ, PDZ 	PEL, PDL 	CR, RM 32, RE, SREH 	RM, RE 	UG, GM, SG, DG, PG, GE

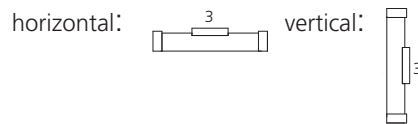
Note that there might be different mounting positions from one module to another one.
The required connection elements and the range of support columns are depicted in the catalogue HT accessories.

Type	PEL20-SL
Force F_y	1500 N
Force F_z	1500 N
Max. dynamic torque M_x	50 Nm
Max. dynamic torque M_y	40 Nm
Max. dynamic torque M_z	40 Nm

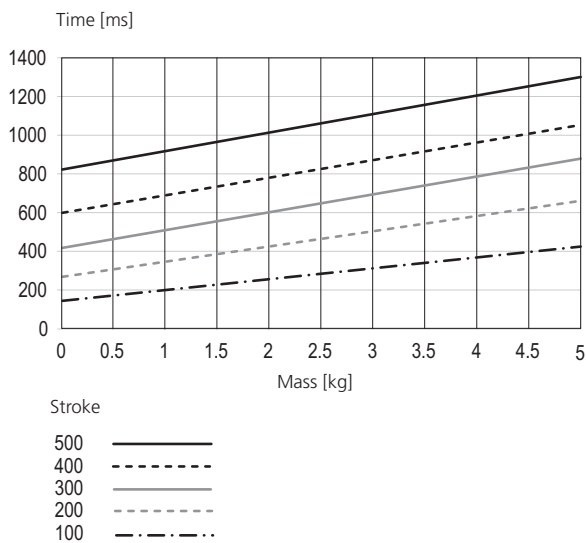


Maximum payload/type	PEL20-SL
Installation position (horizontal) for mounting side 3	5 kg
Installation position (vertical) for mounting side 3	5 kg

Assembly sides module mounting



Operation time diagram



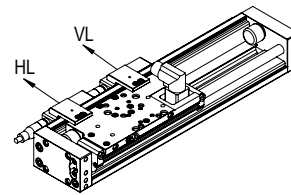
Running times based on pause times of 300 ms

Order form	PEL20-SL	XXXXXXXX	X	X	X
		Portal axis	External position measuring system	Additional slides short (SL)	Additional slides long

Coordinate system

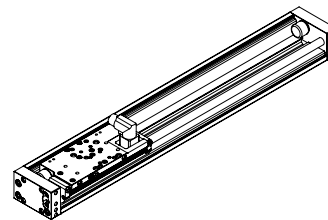
The coordinate system allows you to define the position of the external position measuring system.

- VL = front left
- HL = back left



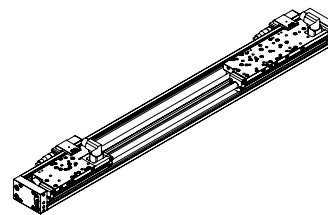
Ordering example 1 without external position measuring system and without additional slide

PEL20-SL	50444488	X	0	0
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Ordering example 2 with external position measuring system and with additional slide long

PEL20-SL	50444490	R	0	1
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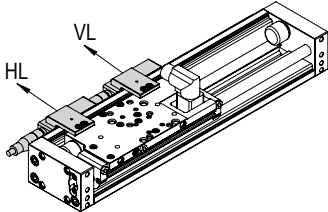
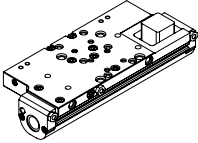
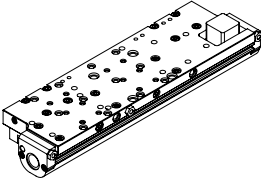


Ordering process

- Select the desired portal 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 external position measuring system, select the position of the external position measuring system.
- Enter the corresponding letters from the coordinate system in the order form in the place of the cross.
- If you need an additional slide, select the number of the corresponding additional slides.
- Enter the corresponding number of additional slides in the order form in the place of the cross.

Additional slides

- The additional slide is always positioned to right of the current slide of the portal axis.

Portal axis	PEL20-SL	xxxxxxxx	x	x	x
	PEL20-80-SL	50444484	External position measuring system	Quantity additional slide (SL)	Quantity additional slide long
	PEL20-140-SL	50444485			
	PEL20-210-SL	50444486			
	PEL20-270-SL	50444487			
	PEL20-370-SL	50444488			
	PEL20-550-SL	50444489			
	PEL20-640-SL	50444490			
External position measuring system					
	Without		x		
	Front Left		VL		
	Back Left		HL		
Additional slide	Quantity short (SL)			0, 1, 2, 3, ...	
	Quantity long				0, 1, 2, 3, ...

The entire stroke of the portal axis is reduced by 155 mm for a short additional slide (SL), and by 235 mm for a long one.

Portal axes PEL & PDL

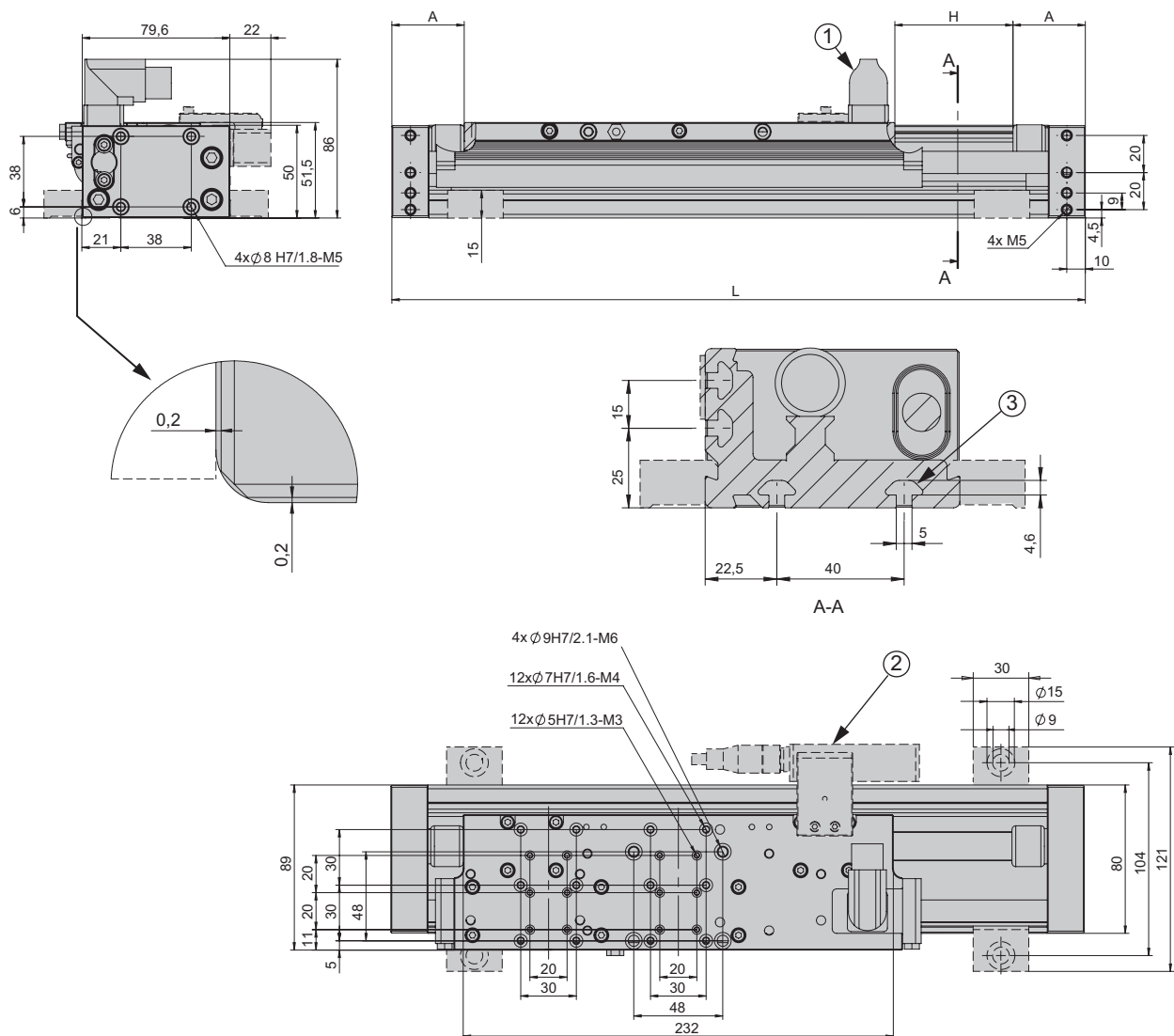
PEL20

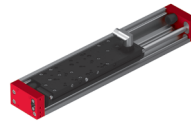


- Compact axis for higher masses
- High flexibility from comprehensive drilling pattern
- Long service life from direct drive

Type	PEL20
A	41 mm
L	H + 314 mm

- ① - 270° rotatable connector
- ② - External position measuring system
- ③ - Groove for sliding block size 5





PEL20	
Operating temperature	0 - 50 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %

Type	PEL20-060	PEL20-130	PEL20-190	PEL20-290	PEL20-470	PEL20-560
Order number	50444491	50444492	50444493	50444494	50444495	50444496
Stroke H	60 mm	130 mm	190 mm	290 mm	470 mm	560 mm
Net weight	3.3 kg	3.65 kg	3.95 kg	4.45 kg	5.35 kg	5.8 kg
Max. speed	4.8 m/s					
Moving weight	1.2 kg					
Drive	Linear motor, electric					
Permanent force	31 N					
Peak force	137 N					
Repeat accuracy*	+/- 0.05 mm					
- with external position measuring system	+/- 0.02 mm					
Mounting position	✦					

The technical data pertains to Afag standard test conditions.
 Note: For vertical installation, a weight compensation is required.
 Cleanroom class ISO 14644-1, class ISO 7

*The installation of the portal axis, via attachment blocks, guarantees improved rigidity and accuracy.

Included in the delivery

(Catalogue HT accessories)

- 4x Centering bushing Ø8x3.5
- Funnel-type lubrication nipple 90° M6

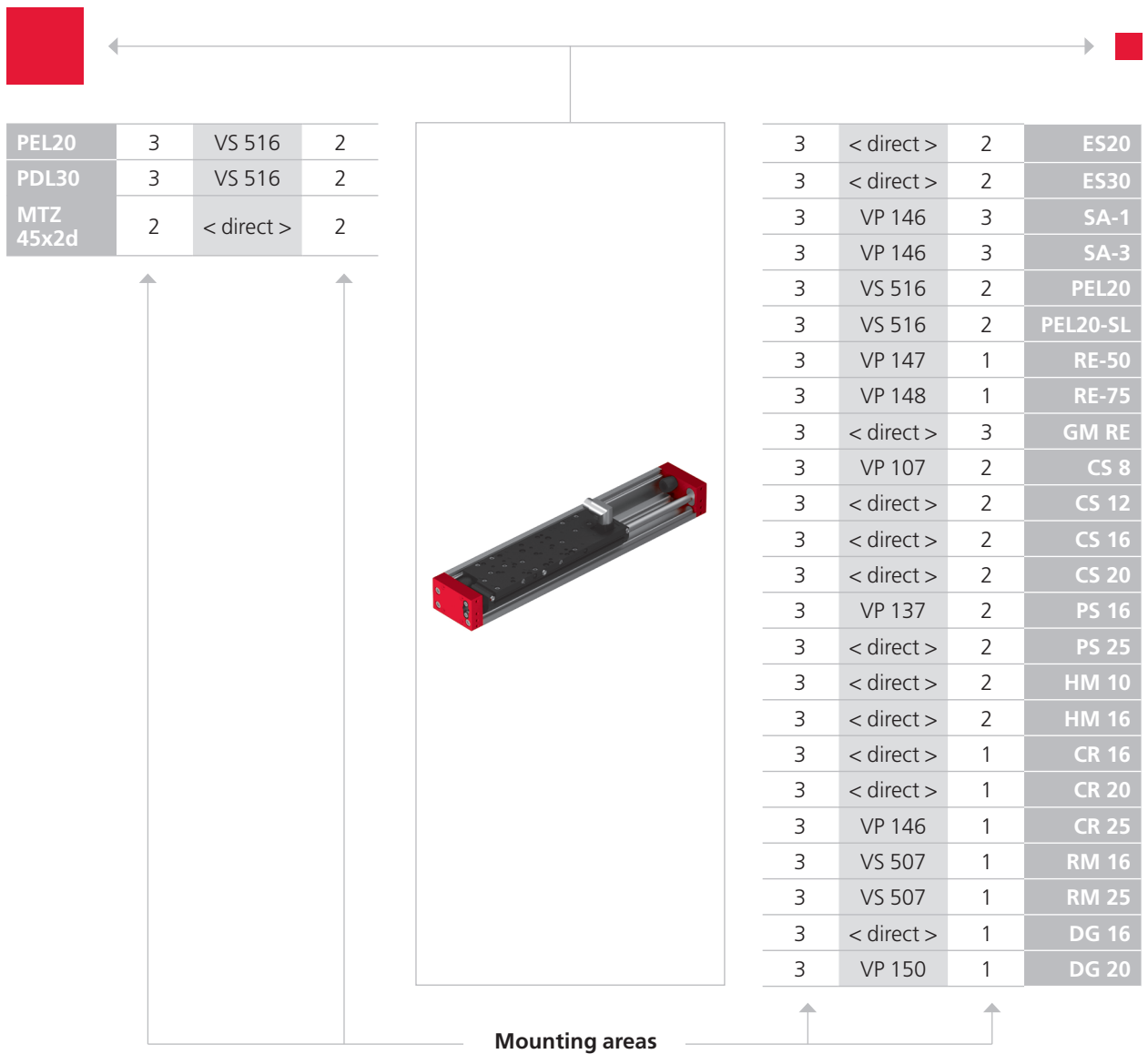
Accessories

- External position measuring system PEL20 [p. 365]
 - Connecting set VS 516 [p. 366]
- (Catalogue HT accessories)
- T-nut M5
 - Motor cable-M16
 - Controller C11xx-1S
 - Plug kit for C1xxx-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
 - Console in program for supports/columns
 - Drag-chain on request

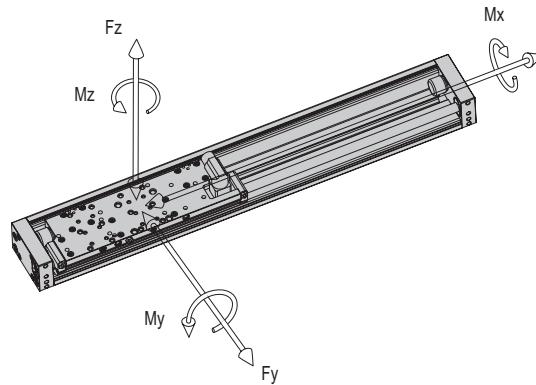
Warranty: 24 months following commissioning, but a maximum of 27 months following delivery



CS, ES 3 	PS 3 	LM, LE 3 	HM 1 3 2 	SA 1 2 3 	OZ 1 2 1
PMP, PMP-c 3 4 2 1 	PEZ, PDZ 3 1 4 2 1 	PEL, PDL 3 1 2 1 	CR, RM 32, RE, SREH 1 2 3 	RM, RE 1 2 3 	UG, GM, SG, DG, PG, GE 2 1 3

Note that there might be different mounting positions from one module to another one.
The required connection elements and the range of support columns are depicted in the catalogue HT accessories.

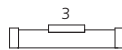
Type	PEL20
Force F_y	3000 N
Force F_z	3000 N
Max. dynamic torque M_x	80 Nm
Max. dynamic torque M_y	300 Nm
Max. dynamic torque M_z	300 Nm



Maximum payload/type	PEL20
Installation position (horizontal) for mounting side 3	10 kg
Installation position (vertical) for mounting side 3	10 kg

Assembly sides module mounting

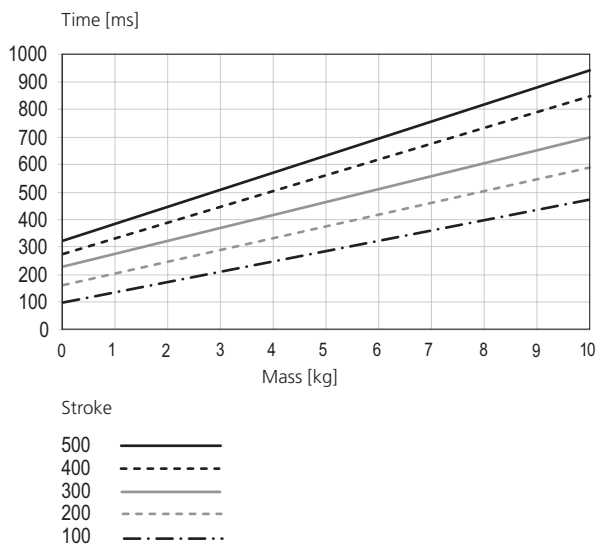
horizontal:



vertical:



Operation time diagram



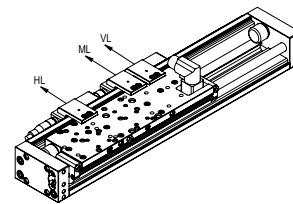
Running times based on pause times of 300 ms

Order form	PEL20	XXXXXXXX	X	X	X
		Portal axis	External position measuring system	Additional slides short (SL)	Additional slides long

Coordinate system

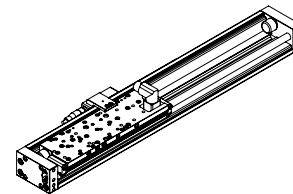
The coordinate system allows you to define the position of the external position measuring system.

- HL = back left
- ML = middle left
- VL = front left



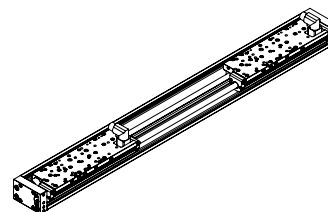
Ordering example 1 with external position measuring system and without additional slide

PEL20	50444494	M	0	0
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Ordering example 2 without external position measuring system and with additional slide (long)

PEL20	50444496	X	0	1
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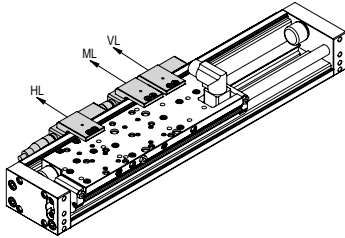
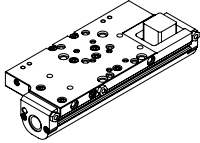
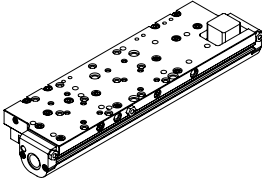


Ordering process

- Select the desired portal 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 external position measuring system, select the position of the external position measuring system.
- Enter the corresponding letters from the coordinate system in the order form in the place of the cross.
- If you need an additional slide, select the number of the corresponding additional slides. Enter the corresponding number of additional slides in the order form in the place of the cross.

Additional slides

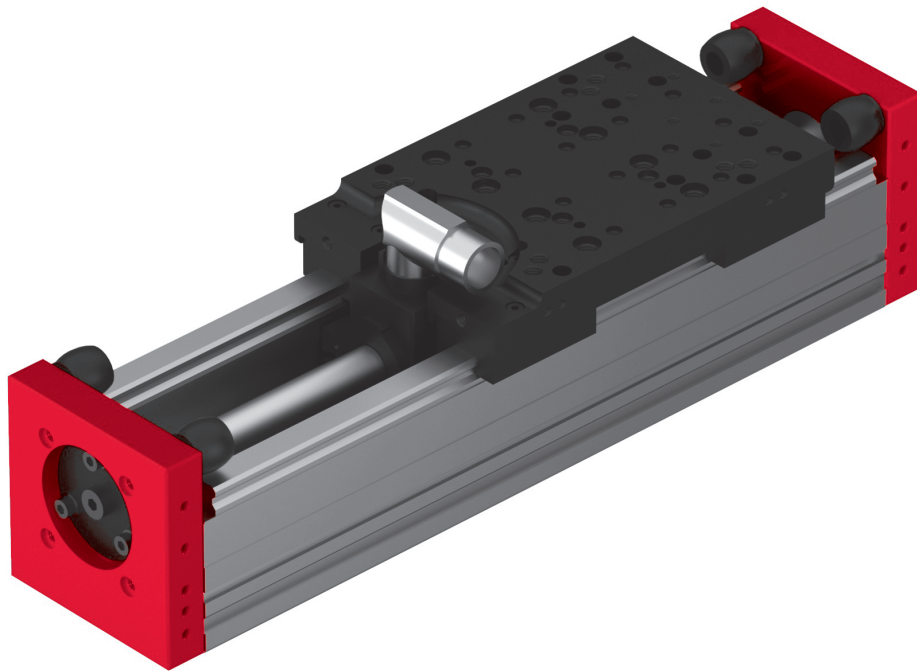
- The additional slide is always positioned to right of the current slide of the portal axis.

Portal axis	PEL20	xxxxxxxx	x	x	x
	PEL20-60	50444491	External position measuring system	Quantity additional slide (SL)	Quantity additional slide long
	PEL20-130	50444492			
	PEL20-190	50444493			
	PEL20-290	50444494			
	PEL20-470	50444495			
	PEL20-560	50444496			
External position measuring system					
	Without		X		
	Front Left		VL		
	Middle Left		ML		
	Back Left		HL		
Additional slide				0, 1, 2, 3, ...	
					0, 1, 2, 3, ...

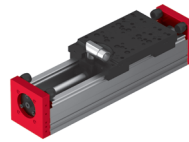
The entire stroke of the portal axis is reduced by 155 mm for a short additional slide (SL), and by 235 mm for a long one.

Portal axes PEL & PDL

PDL30




- High torsion stiffness from double guide
- Ideal for area booms
- Robust design for long service life



PDL30	
Operating temperature	0 - 50 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %

Type	PDL30-0090-D19	PDL30-0150-D19	PDL30-0250-D19	PDL30-0350-D19	PDL30-0450-D19	PDL30-0550-D19	PDL30-0650-D19
Order number	50444497	50444498	50444499	50444500	50444501	50444502	50444503
Stroke H	90 mm	150 mm	250 mm	350 mm	450 mm	550 mm	650 mm
Net weight	7.2 kg	7.8 kg	8.8 kg	9.8 kg	10.8 kg	11.8 kg	12.8 kg
Max. speed	3.2 m/s						
Moving weight	3.11 kg						
Drive	Linear motor, electric						
Permanent force	51 N						
Peak force	255 N						
Repeat accuracy	+/- 0.05 mm						
- with external position measuring system	+/- 0.05 mm						

Type	PDL30-0130-D20	PDL30-0230-D20	PDL30-0330-D20	PDL30-0430-D20	PDL30-0530-D20	PDL30-0630-D20	PDL30-0730-D20
Order number	50444504	50444505	50444506	50444507	50444508	50444509	50444510
Stroke H	130 mm	230 mm	330 mm	430 mm	530 mm	630 mm	730 mm
Net weight	7.6 kg	8.6 kg	9.6 kg	10.6 kg	11.6 kg	12.6 kg	13.6 kg
Max. speed	3.2 m/s						
Moving weight	3.11 kg						
Drive	Linear motor, electric						
Permanent force	51 N						
Peak force	255 N						
Repeat accuracy	+/- 0.05 mm						
- with external position measuring system	+/- 0.02 mm						

Type	PDL30-0930-D20	PDL30-1130-D20	PDL30-1330-D20
Order number	50444511	50444512	50444513
Stroke H	930 mm	1130 mm	1330 mm
Net weight	15.6 kg	17.6 kg	19.6 kg
Max. speed	3.2 m/s		
Moving weight	3.11 kg		
Drive	Linear motor, electric		
Permanent force	51 N		
Peak force	255 N		
Repeat accuracy	+/- 0.05 mm		
- with external position measuring system	+/- 0.02 mm		
Mounting position is the same for all PDL30 			

The technical data pertains to Afag standard test conditions.
 Note: For vertical installation, a weight compensation is required.
 Cleanroom class ISO 14644-1, class ISO 7

Included in the delivery

(Catalogue HT accessories)

- 4x Centering bushing Ø9x4

Accessories

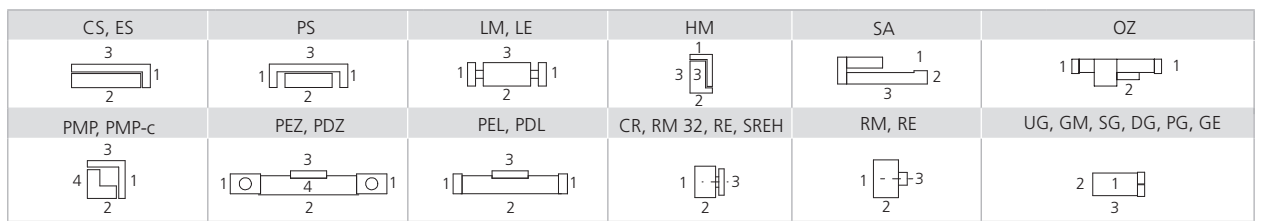
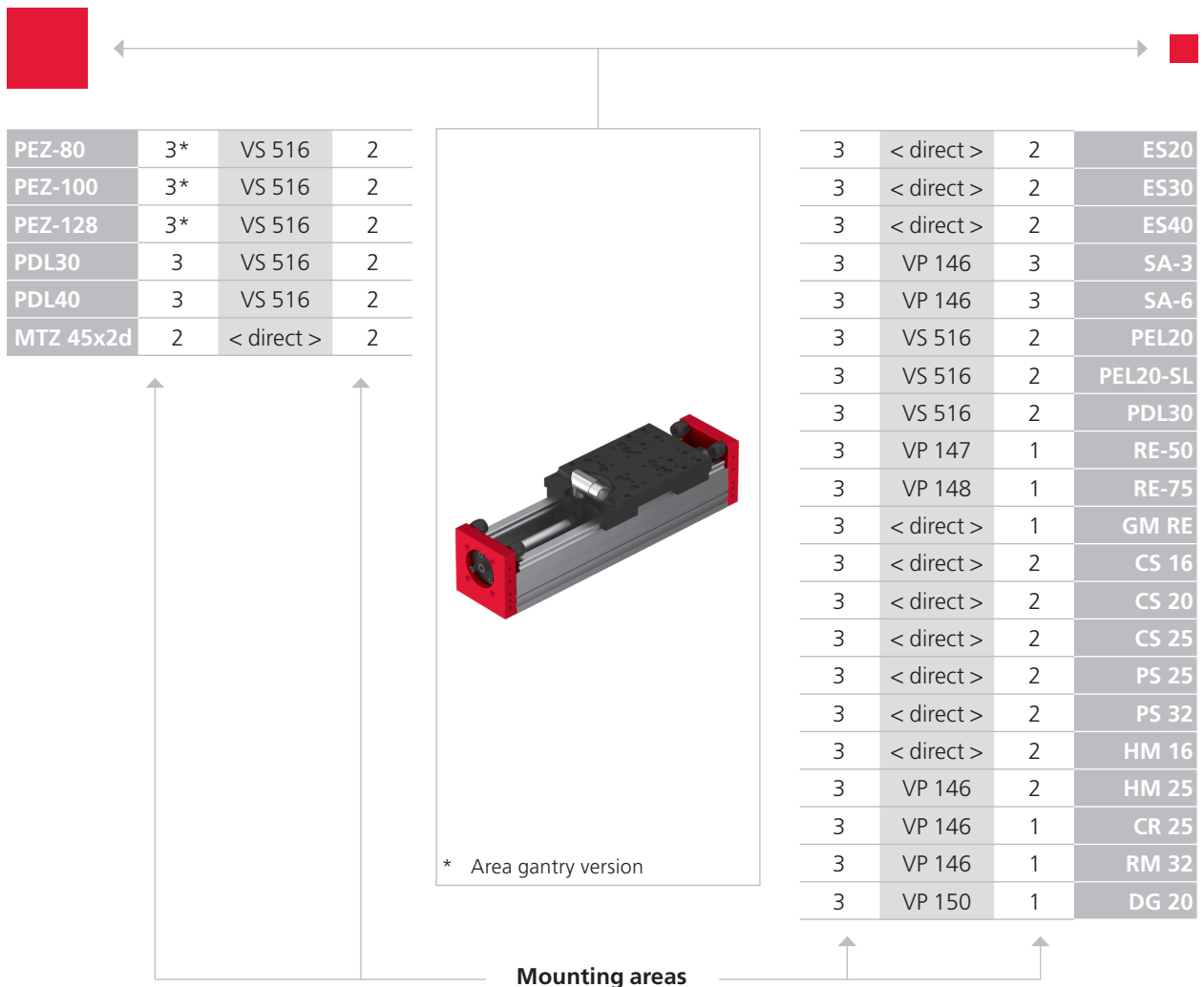
- External position measuring system PDL30/40 [p. 365]
 - Connecting set VS 516 [p. 366]
- (Catalogue HT accessories)
- T-nut M8
 - Motor cable-M17
 - Controller C11xx-1S
 - Plug kit for C1xxx-1S
 - USB-RS232 Converter for controllers
 - Power supply S01-72/1000, 3-phase

Alternative Accessories

(Catalogue HT accessories)

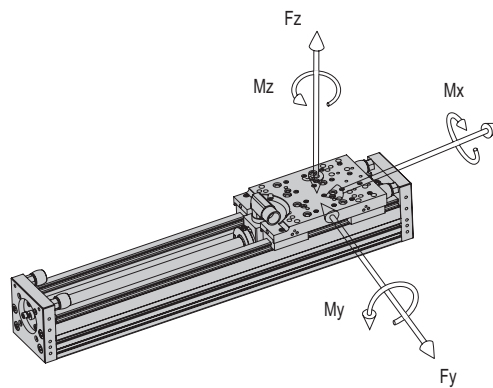
- Additional motor cables
- Additional controllers
- Additional power supplies
- Console in program for supports/columns
- Drag-chain on request

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



Note that there might be different mounting positions from one module to another one.
The required connection elements and the range of support columns are depicted in the catalogue HT accessories.

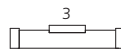
Type	PDL30
Force F_y	4500 N
Force F_z	4500 N
Max. dynamic torque M_x	850 Nm
Max. dynamic torque M_y	1400 Nm
Max. dynamic torque M_z	1400 Nm



Maximum payload/type	PDL30
Installation position (horizontal) for mounting side 3	20 kg
Installation position (vertical) for mounting side 3	20 kg

Assembly sides module mounting

horizontal:

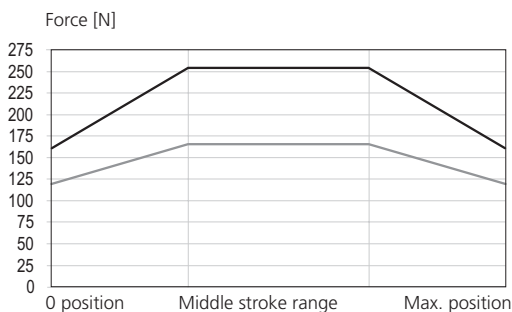


vertical:



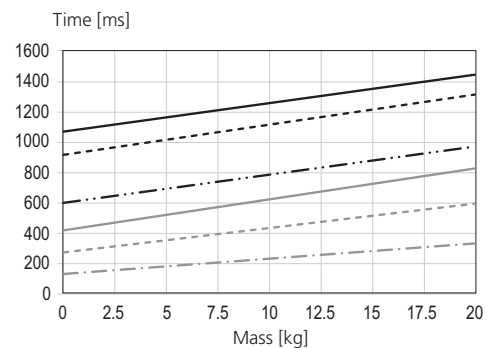
Diagram PDL30

Force range D19



Middle stroke range	Controller HC (15 A)	Controller Std (8 A)
PDL30-90-D19	20 mm	—
PDL30-150-D19	80 mm	—
PDL30-250-D19	180 mm	—
PDL30-350-D19	280 mm	—
PDL30-450-D19	380 mm	—
PDL30-550-D19	480 mm	—
PDL30-650-D19	580 mm	—

Operation time diagram



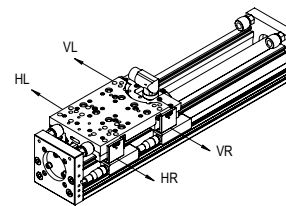
Running times based on pause times of 200 ms

Order form	PDL30	XXXXXXXX	XX	X
		Portal axis	External position measuring system	Additional slides

Coordinate system

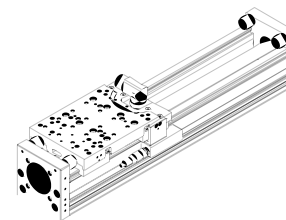
The coordinate system allows you to define the position of the external position measuring system.

- VR= front right
- HR= back right
- VL= front left
- HL= back left



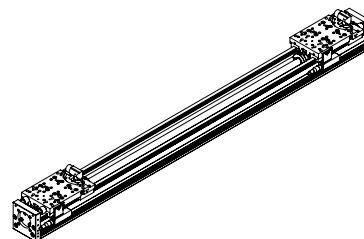
Ordering example 1 with external position measuring system and without additional slide

PDL30	50444499	VR 50472113	X
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Ordering example 2 with external position measuring system and with additional slide

PDL30	50444512	HL	16630159
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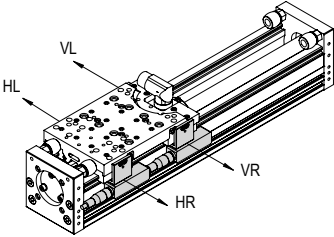
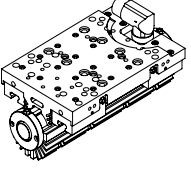


Ordering process

- Select the desired portal 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 external position measuring system, select the position of the external position measuring system.
- Enter the corresponding letters from the coordinate system in the order form in the place of the cross.
- If you need an additional slide, select the number of the corresponding additional slides. Enter the corresponding number of additional slides in the order form in the place of the cross.

Additional slides

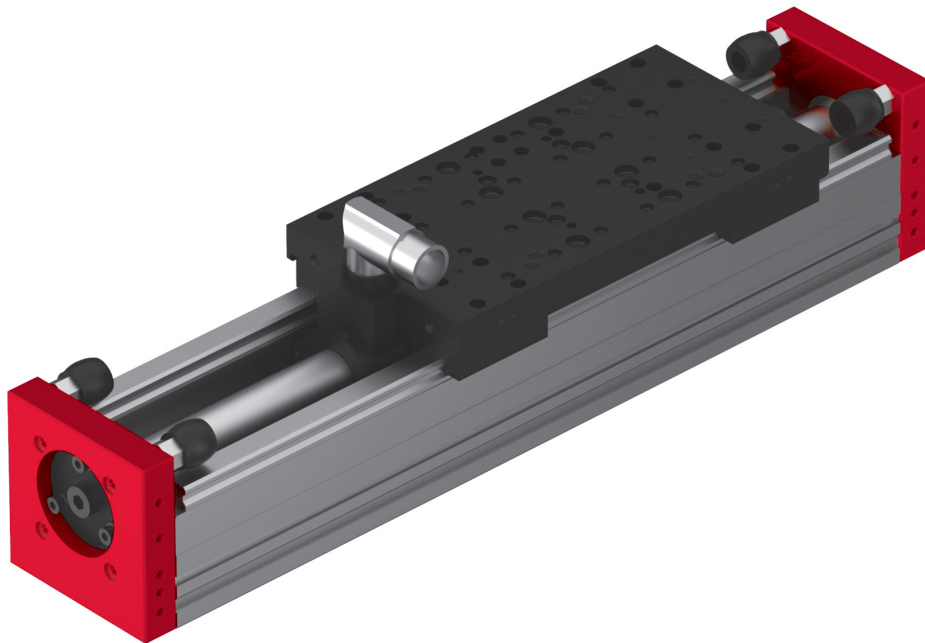
- The additional slide is always positioned to right of the current slide of the portal axis.

Portal axis	PDL30	xxxxxxx	50472113	x
	PDL30-90-D19	50444497	External position measuring system	Quantity additional slide
	PDL30-150-D19	50444498		
	PDL30-250-D19	50444499		
	PDL30-350-D19	50444500		
	PDL30-450-D19	50444501		
	PDL30-550-D19	50444502		
	PDL30-650-D19	50444503		
	PDL30-130-D20	50444504		
	PDL30-230-D20	50444505		
	PDL30-330-D20	50444506		
	PDL30-430-D20	50444507		
	PDL30-530-D20	50444508		
	PDL30-630-D20	50444509		
	PDL30-730-D20	50444510		
	PDL30-930-D20	50444511		
	PDL30-1130-D20	50444512		
PDL30-1330-D20	50444513			
External position measuring system				
	Without		X	
	Front right		VR	
	Back right		HR	
	Front left		VL	
Back left		HL		
Additional slide			16630159 ADD. SLIDE PDL30 FIT. W. STRIPPER 16630160 ADD. SLIDE PDL30 FIT. WO. STRIPPER	
Additional slide				

The entire stroke of the portal axis is reduced by 228 mm for an additional slide with a D19 portal axis and by 247 mm with a D20 portal axis.

Portal axes PEL & PDL

PDL40



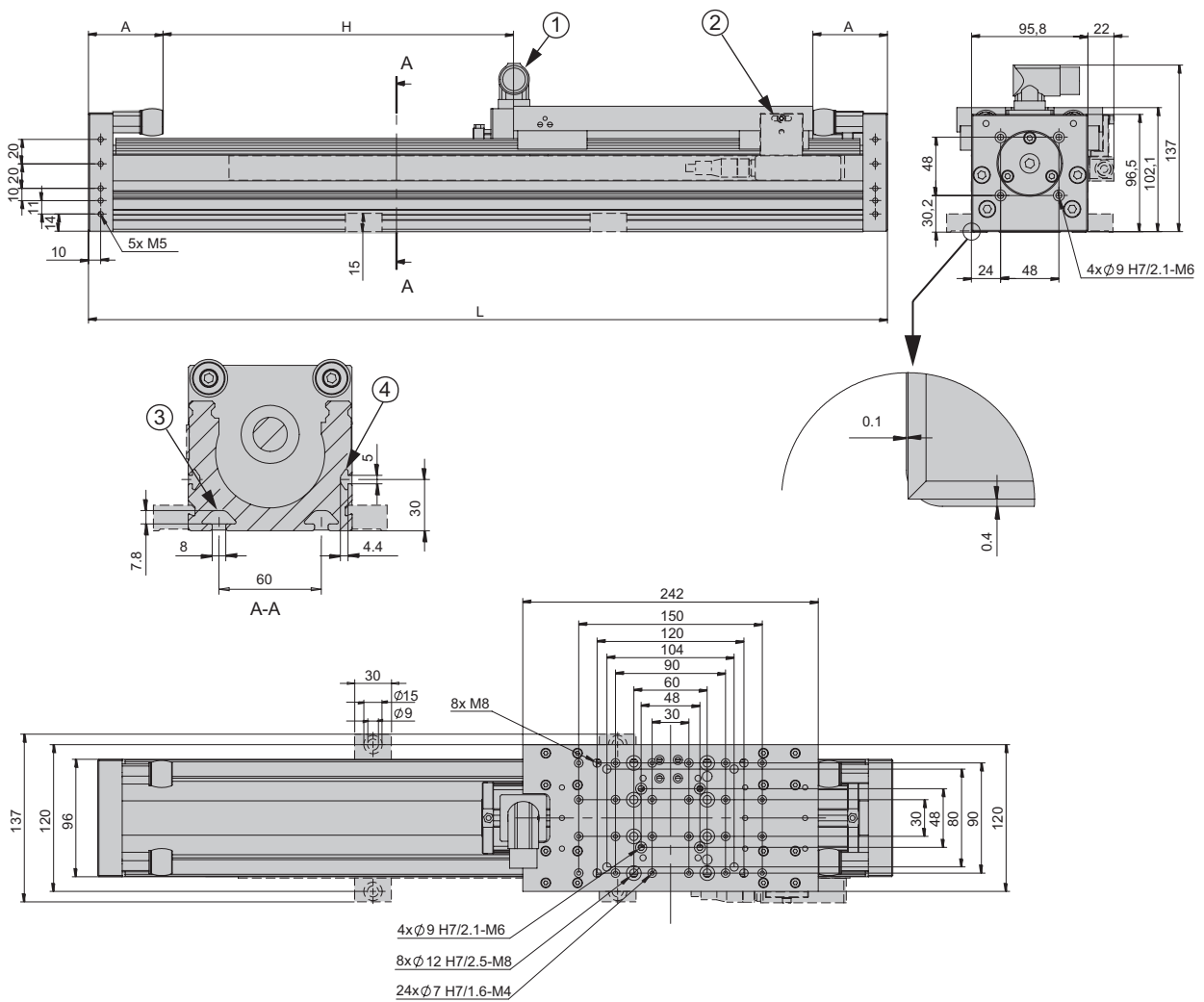
- Force package with high dynamics
- For the faster applications
- High performance from compact build

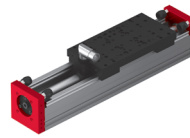
Dimensions and dimension drawings

PDL40

Type	PDL40-D27	PDL40-D28
A	49 mm	64 mm
L	H + 340 mm	H + 370 mm

- ① - 270° rotatable connector
- ② - External position measuring system
- ③ - Groove for sliding block size 8
- ④ - Groove for sliding block size 5





PDL40	
Operating temperature	0 - 50 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %

Type	PDL40-0170-D27	PDL40-0230-D27	PDL40-0320-D27	PDL40-0440-D27	PDL40-0530-D27
Order number	50444514	50444515	50444516	50444517	50444518
Stroke H	170 mm	230 mm	320 mm	440 mm	530 mm
Net weight	10.2 kg	10.8 kg	11.7 kg	12.9 kg	13.8 kg
Max. speed	3 m/s				
Moving weight	4.64 kg				
Drive	Linear motor, electric				
Permanent force	145 N				
Peak force	550 N				
Repeat accuracy	+/- 0.05 mm				
- with external position measuring system	+/- 0.02 mm				

Type	PDL40-0070-D28	PDL40-0160-D28	PDL40-0280-D28	PDL40-0370-D28	PDL40-0460-D28	PDL40-0580-D28	PDL40-0670-D28
Order number	50444519	50444520	50444521	50444522	50444523	50444524	50444525
Stroke H	70 mm	160 mm	280 mm	370 mm	460 mm	580 mm	670 mm
Net weight	9.2 kg	10.1 kg	11.3 kg	12.2 kg	13.1 kg	14.3 kg	15.2 kg
Max. speed	3 m/s						
Moving weight	4.64 kg						
Drive	Linear motor, electric						
Permanent force	145 N						
Peak force	550 N						
Repeat accuracy	+/- 0.05 mm						
- with external position measuring system	+/- 0.02 mm						

Type	PDL40-0880-D28	PDL40-1060-D28	PDL40-1270-D28	PDL40-1480-D28	PDL40-1660-D28
Order number	50444526	50444527	50444528	50444529	50444530
Stroke H	880 mm	1060 mm	1270 mm	1480 mm	1660 mm
Net weight	17.3 kg	19.1 kg	21.2 kg	23.3 kg	25.1 kg
Max. speed	3 m/s				
Moving weight	4.64 kg				
Drive	Linear motor, electric				
Permanent force	145 N				
Peak force	550 N				
Repeat accuracy	+/- 0.05 mm				
- with external position measuring system	+/- 0.02 mm				
Mounting position is the same for all PDL40	✦				

The technical data pertains to Afag standard test conditions. Note: For vertical installation, a weight compensation is required. Cleanroom class ISO 14644-1, class ISO 7

Included in the delivery

(Catalogue HT accessories)

- 4x Centering bushing Ø9x4

Accessories

- External position measuring system PDL30/40 [p. 365]

- Connecting set VS 516 [p. 366]

(Catalogue HT accessories)

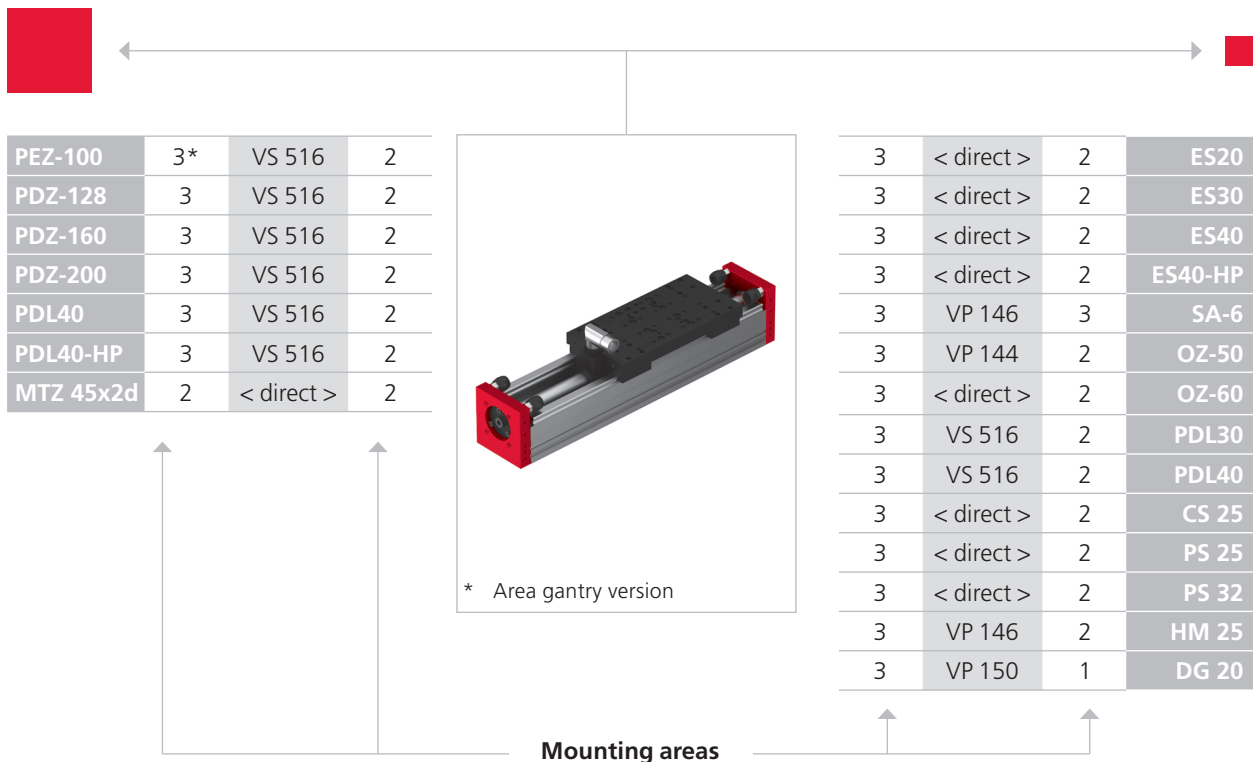
- T-nut M8
- Motor cable-M17
- Controller C11xx-1S
- Plug kit for C1xxx-1S
- USB-RS232 Converter for controllers
- Power supply S01-72/1000, 3-phase








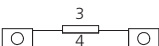




Alternative accessories

(Catalogue HT accessories)

- Additional motor cables
- Additional controllers
- Additional power supplies
- Console in program for supports/columns
- Drag-chain on request

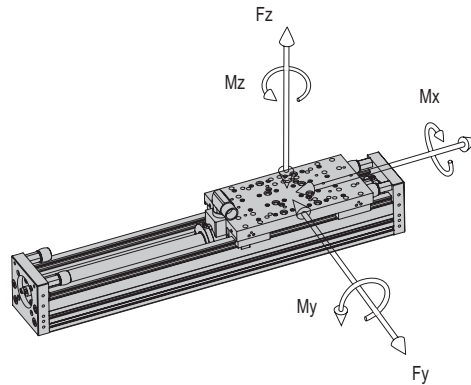
Warranty: 24 months following commissioning, but a maximum of 27 months following delivery



CS, ES 	PS 	LM, LE 	HM 	SA 	OZ 
PMP, PMP-c 	PEZ, PDZ 	PEL, PDL 	CR, RM 32, RE, SREH 	RM, RE 	UG, GM, SG, DG, PG, GE 

Note that there might be different mounting positions from one module to another one.
The required connection elements and the range of support columns are depicted in the catalogue HT accessories.

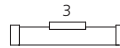
Type	PDL40
Force F_y	4500 N
Force F_z	4500 N
Max. dynamic torque M_x	850 Nm
Max. dynamic torque M_y	1900 Nm
Max. dynamic torque M_z	1900 Nm



Maximum payload/type	PDL40
Installation position (horizontal) for mounting side 3	45 kg
Installation position (vertical) for mounting side 3	45 kg

Assembly sides module mounting

horizontal:

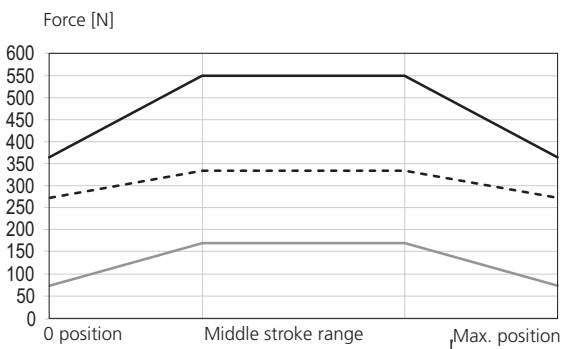


vertical:



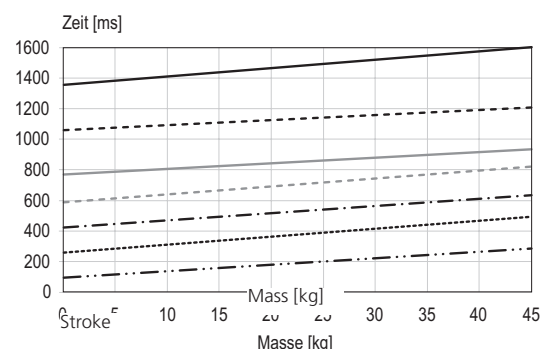
PDL40 diagrams

Force range D27



Middle stroke range		Controller XC (25 A)	—————
PDL40-170-D27	30 mm	Controller HC (15 A)	- - - - -
PDL40-230-D27	90 mm	Controller Std (8 A)	—————
PDL40-320-D27	180 mm		
PDL40-440-D27	300 mm		
PDL40-530-D27	390 mm		

Opt. Time [ms] me diagram



Hub	
1600	—————
1200	- - - - -
900	—————
700	- - - - -
500	-
300	-
100	-

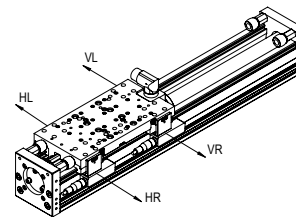
Running times based on pause times of 200 ms

Order form	PDL40	xxxxxxxx	xx	x	x
		Portal axis	External position measuring system	Clamping element	Additional slides

Coordinate system

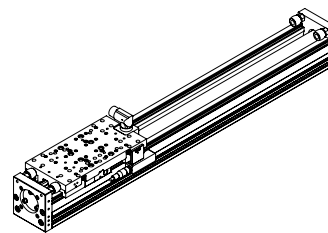
The coordinate system allows you to define the position of the external position measuring system.

- VR= front right
- HR= back right
- VL= front left
- HL= back left



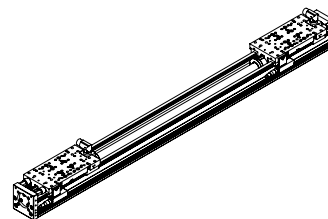
Ordering example 1 with external position measuring system, clamping element and without additional slide

PDL40	50444518	VR	1	0
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Ordering example 2 with external position measuring system and einem dditional slide

PDL40	50444527	HR	x	1
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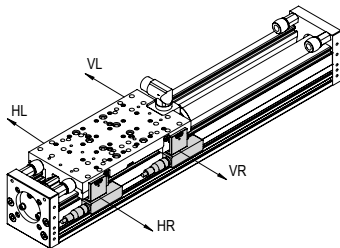
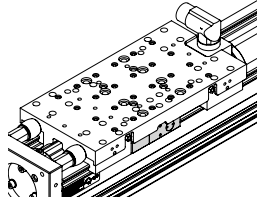
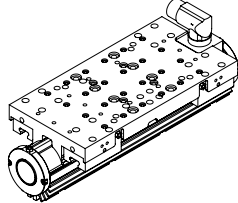


Ordering process

- Select the desired portal 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 external position measuring system, select the position of the external position measuring system.
- Enter the corresponding letters from the coordinate system in the order form in the place of the cross.
- When selecting a clamping element, write X if they are not required and write 1 if they are required.
- If you need an additional slide, select the number of the corresponding additional slides. Enter the corresponding number of additional slides in the order form in the place of the cross.

Additional slides

- The additional slide is always positioned to right of the current slide of the portal axis.

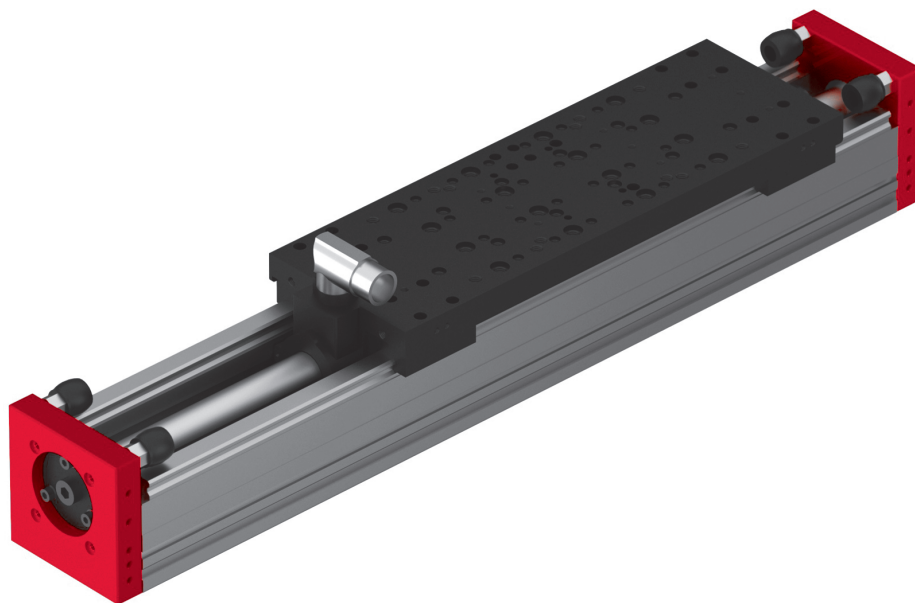
Portal axis	PDL40	xxxxxxx	xx	x	x
	PDL40-170-D27	50444514	External position measuring system	Clamping element	Quantity additional slide
	PDL40-230-D27	50444515			
	PDL40-320-D27	50444516			
	PDL40-440-D27	50444517			
	PDL40-530-D27	50444518			
	PDL40-70-D28	50444519			
	PDL40-160-D28	50444520			
	PDL40-280-D28	50444521			
	PDL40-370-D28	50444522			
	PDL40-460-D28	50444523			
	PDL40-580-D28	50444524			
	PDL40-670-D28	50444525			
	PDL40-880-D28	50444526			
	PDL40-1060-D28	50444527			
	PDL40-1270-D28	50444528			
	PDL40-1480-D28	50444529			
PDL40-1660-D28	50444530				
External position measuring system					
	Without			X	
	Front right		VR 50472113		
	Back right			HR	
	Front left			VL	
Back left			HL		
Clamping element	Without				X
	Clamping element				16640324 mount. kit Clamping element PDL40/PDL40-HP
Additional slide	Additional slide				16640269 ADD. SLIDE PDL40 FIT. W. STRIPPER 16640270 ADD. SLIDE PDL40 FIT. WO. STRIPPER

The entire stroke of the portal axis is reduced by 299 mm for an additional slide with a D27 portal axis and by 324 mm with a D28 portal axis.
The clamping element guarantees secure clamping in the event of power failure.

Portal axes PEL & PDL

PDL40-HP

10



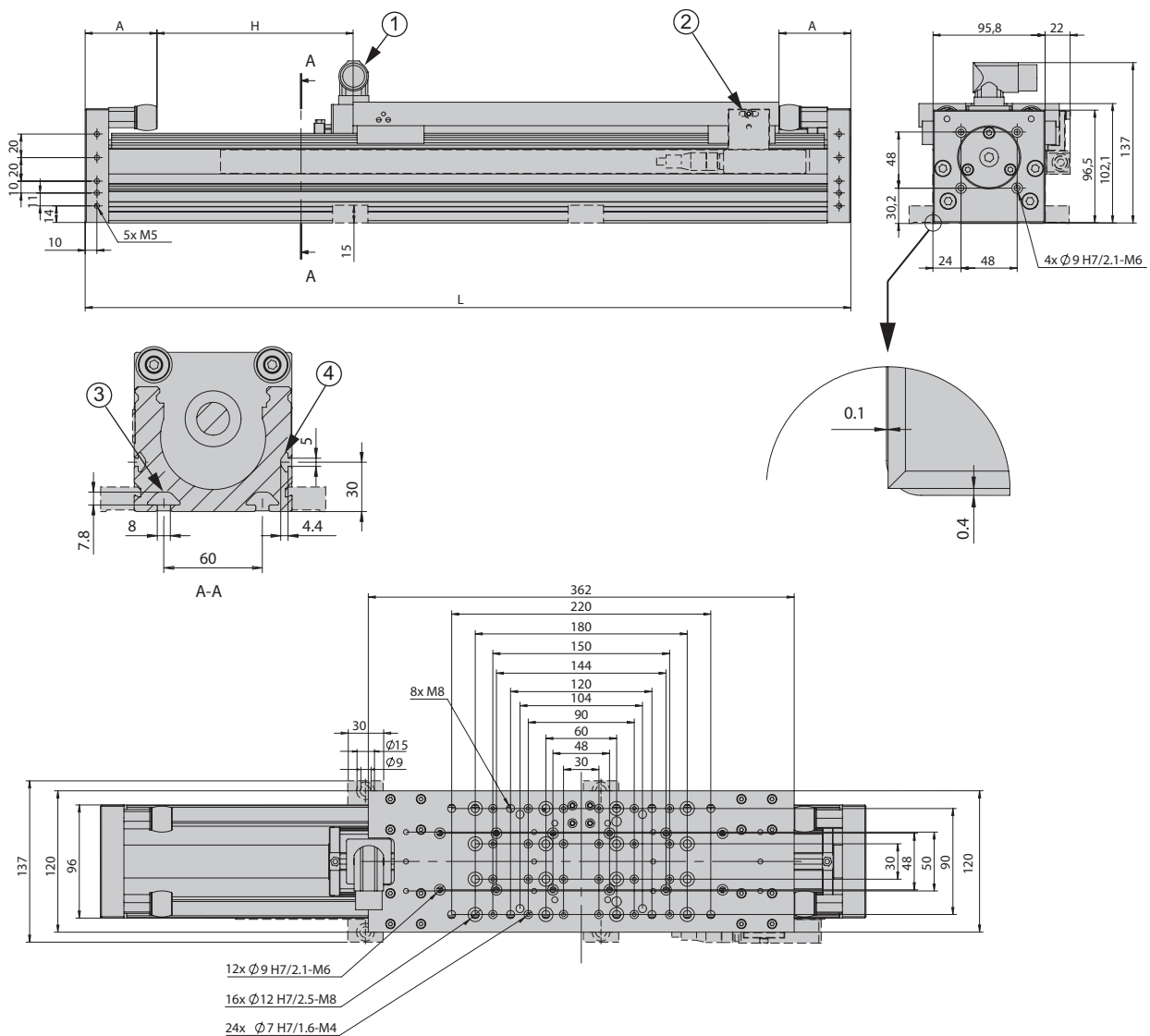
- Force package for highest demands
- Up to 1000 N peak force
- High force and dynamics even at high masses

Dimensions and dimension drawings

PDL40-HP

Type	PDL40-D27	PDL40-D28
A	49 mm	64 mm
L	H + 460 mm	H + 490 mm

- ① - 270° rotatable connector
- ② - External position measuring system
- ③ - Groove for sliding block size 8
- ④ - Groove for sliding block size 5





PDL40-HP	
Operating temperature	0 - 50 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %

Type	PDL40-0200-HP-D27	PDL40-0320-HP-D27	PDL40-0410-HP-D27
Order number	50444532	50444533	50444534
Stroke H	200 mm	320 mm	410 mm
Net weight	14 kg	15.2 kg	16.1 kg
Max. speed		2 m/s	
Moving weight		6.3 kg	
Drive		Linear motor, electric	
Permanent force		203 N	
Peak force		1024 N	
Repeat accuracy		+/- 0.05 mm	
- with external position measuring system		+/- 0.02 mm	

Type	PDL40-0160-HP-D28	PDL40-0250-HP-D28	PDL40-0340-HP-D28	PDL40-0460-HP-D28	PDL40-0550-HP-D28	PDL40-0760-HP-D28
Order number	50444535	50444536	50444537	50444538	50444539	50444540
Stroke H	160 mm	250 mm	340 mm	460 mm	550 mm	760 mm
Net weight	13.6 kg	14.5 kg	15.4 kg	16.6 kg	17.5 kg	19.6 kg
Max. speed				2 m/s		
Moving weight				6.3 kg		
Drive				Linear motor, electric		
Permanent force				203 N		
Peak force				1024 N		
Repeat accuracy				+/- 0.05 mm		
- with external position measuring system				+/- 0.02 mm		

Type	PDL40-0940-HP-D28	PDL40-1150-HP-D28	PDL40-1360-HP-D28	PDL40-1540-HP-D28
Order number	50444541	50444542	50444543	50444544
Stroke H	940 mm	1150 mm	1360 mm	1540 mm
Net weight	21.4 kg	23.5 kg	25.6 kg	27.4 kg
Max. speed			2 m/s	
Moving weight			6.3 kg	
Drive		Linear motor, electric		
Permanent force		203 N		
Peak force		1024 N		
Repeat accuracy		+/- 0.05 mm		
- with external position measuring system		+/- 0.02 mm		
Mounting position is the same for all PDL40-HP		✚		

The technical data pertains to Afag standard test conditions.
 Note: For vertical installation, a weight compensation is required.
 Cleanroom class ISO 14644-1, class ISO 7

Included in the delivery

(Catalogue HT accessories)

- 4x Centering bushing Ø9x4

Accessories

- External position measuring system PDL30/40 [p. 365]
- Connecting set VS 516 [p. 366]

(Catalogue HT accessories)

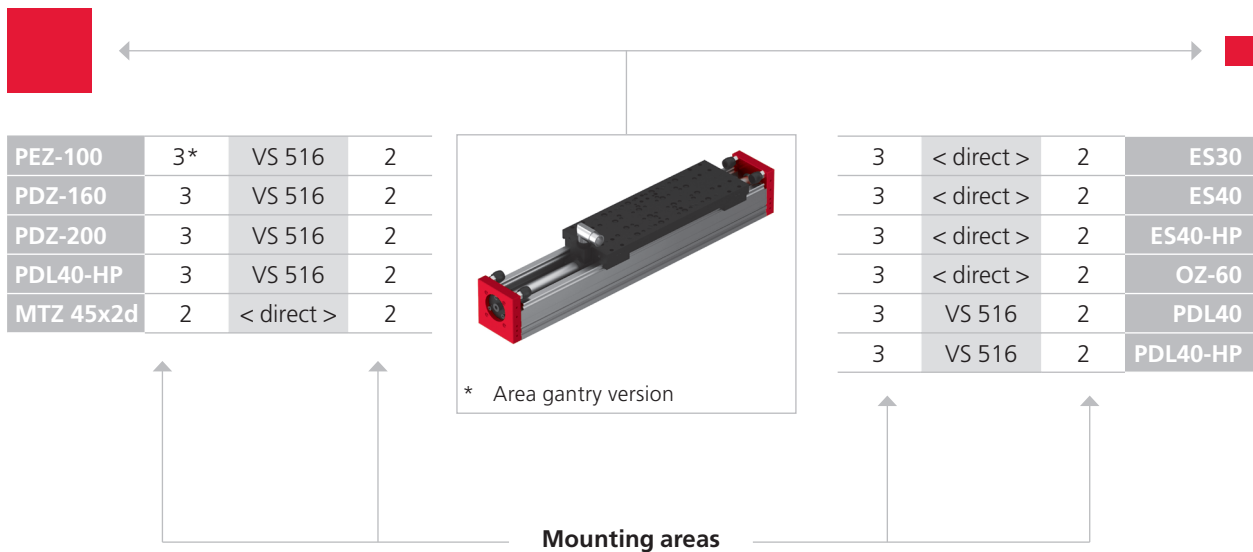
- T-nut M8
- Motor cable-M17
- Controller C11xx-1S
- Plug kit for C1xxx-1S
- USB-RS232 Converter for controllers
- Power supply T01-72/1500 multi,3-phase

Alternative accessories

(Catalogue HT accessories)

- Additional motor cables
- Additional controllers
- Additional power supplies
- Console in program for supports/columns
- Drag-chain on request

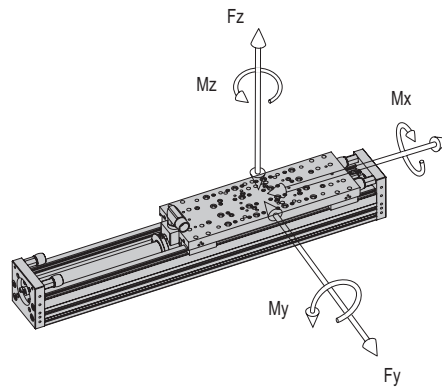
Warranty: 24 months following commissioning, but a maximum of 27 months following delivery



CS, ES 	PS 	LM, LE 	HM 	SA 	OZ
PMP, PMP-c 	PEZ, PDZ 	PEL, PDL 	CR, RM 32, RE, SREH 	RM, RE 	UG, GM, SG, DG, PG, GE

Note that there might be different mounting positions from one module to another.
The required connection elements and the range of support columns are depicted in the catalogue HT accessories.

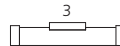
Type	PDL40-HP
Force F_y	4500 N
Force F_z	4500 N
Max. dynamic torque M_x	850 Nm
Max. dynamic torque M_y	3200 Nm
Max. dynamic torque M_z	3200 Nm



Maximum payload/type	PDL40-HP
Installation position (horizontal) for mounting side 3	85 kg
Installation position (vertical) for mounting side 3	85 kg

Assembly sides module mounting

horizontal:

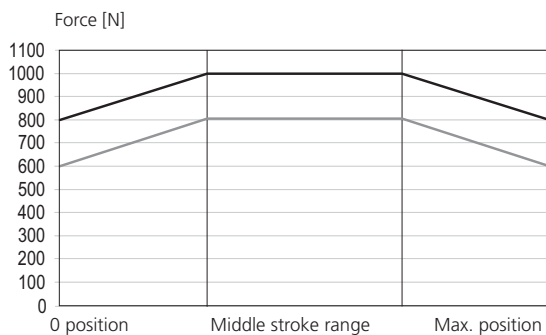


vertical:



PDL40-HP diagrams

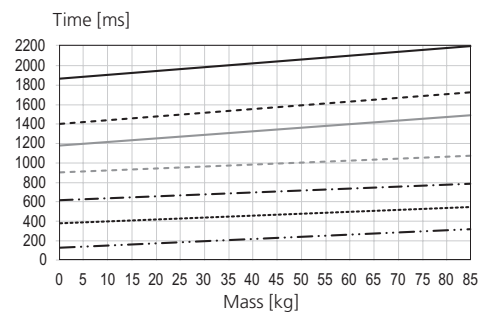
Force range D27



Middle stroke range
 PDL40-200-HP-D27 90 mm
 PDL40-320-HP-D27 180 mm
 PDL40-410-HP-D27 270 mm

Controller UC (32 A)
 Controller XC (25 A)

Operation time diagram



Stroke
 1500
 1200
 900
 700
 500
 300
 100

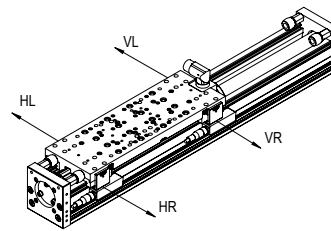
Running times based on pause times of 200 ms

Order form	PDL40-HP	xxxxxxxx	xx	x	x
		Portal axis	External position measuring system	Clamping element	Additional slides

Coordinate system

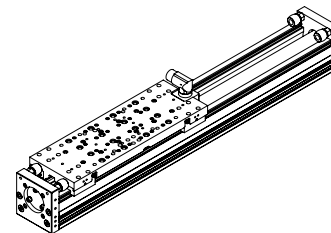
The coordinate system allows you to define the position of the external position measuring system.

- VR= front right
- HR= back right
- VL= front left
- HL= back left



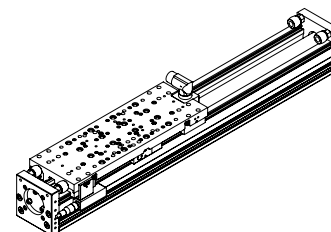
Ordering example 1 without external position measuring system, without clamping element and without additional slide

PDL40-HP	50444533	x	x	0
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Ordering example 2 with external position measuring system and clamping element

PDL40-HP	50444533	HR	1	0
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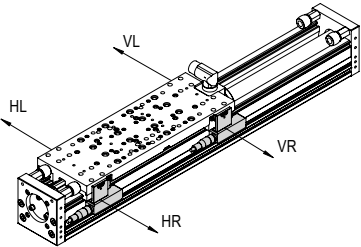
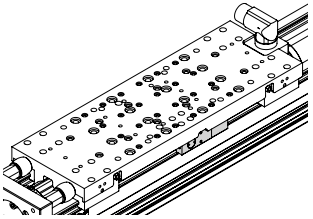
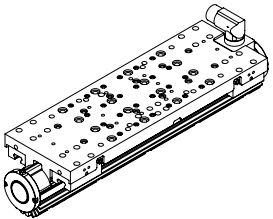


Ordering process

- Select the desired portal 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 external position measuring system, select the position of the external position measuring system.
- Enter the corresponding letters from the coordinate system in the order form in the place of the cross.
- When selecting a clamping element, write X if they are not required and write 1 if they are required.
- If you need an additional slide, select the number of the corresponding additional slides. Enter the corresponding number of additional slides in the order form in the place of the cross.

Additional slides

- The additional slide is always positioned to right of the current slide of the portal axis.

Portal axis	PDL40-HP	xxxxxxxx	xx	x	x
	PDL40-200-HP-D27	50444532	External position measuring system	Clamping element	Quantity additional slide
	PDL40-320-HP-D27	50444533			
	PDL40-410-HP-D27	50444534			
	PDL40-160-HP-D28	50444535			
	PDL40-250-HP-D28	50444536			
	PDL40-340-HP-D28	50444537			
	PDL40-460-HP-D28	50444538			
	PDL40-550-HP-D28	50444539			
	PDL40-760-HP-D28	50444540			
	PDL40-940-HP-D28	50444541			
	PDL40-1150-HP-D28	50444542			
	PDL40-1360-HP-D28	50444543			
PDL40-1540-HP-D28	50444544				
External position measuring system					
	Without		X		
	Front right		VR		
	Back right		HR		
	Front left		VL		
	Back left		HL		
Clamping element	Without			X	
	Clamping element				1
Additional slide					
	Additional slide				0, 1, 2, 3, ...

The entire stroke of the portal axis is reduced by 419 mm for an additional slide with a D27 portal axis and by 444 mm with a D28 portal axis.
 The clamping element guarantees secure clamping in the event of power failure.

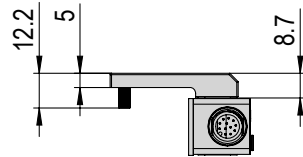
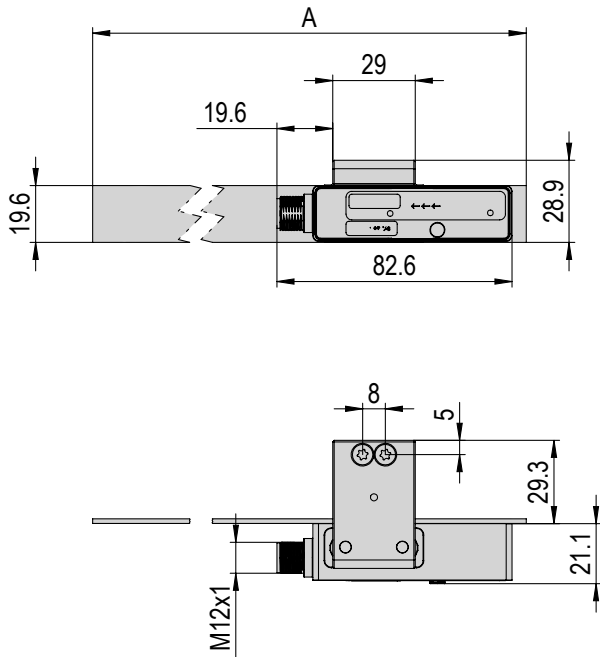
Accessories PEL & PDL

External position measuring system PEL20/-SL

Order number

50472112

A: Stroke + 100 mm



Included in the delivery

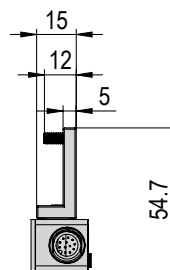
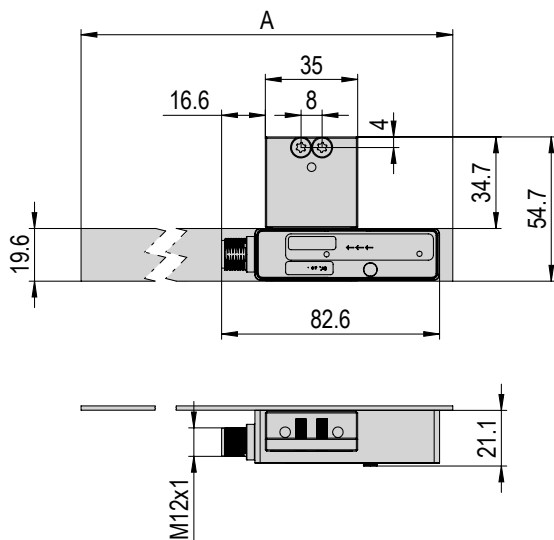
- 2x Mounting screw M4x12

External position measuring system PDL30/PDL40/PDL40/-HP

Order number

50472113

A: Stroke + 100 mm



Included in the delivery

- 2x Mounting screw M4x12

Accessories PEL & PDL

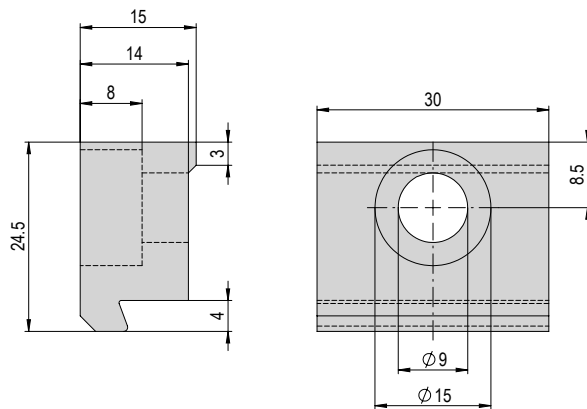
Connecting set VS 516

Order number

50471445

Suitable for

PEL, PDL



Included in the delivery

- 1x Clamping jaws PEL20, PDL30 & PDL40
- 1x Mounting screw M8x20
- 1x Washer M8

10

Linear modules LE

LE-50 - LE-70-D

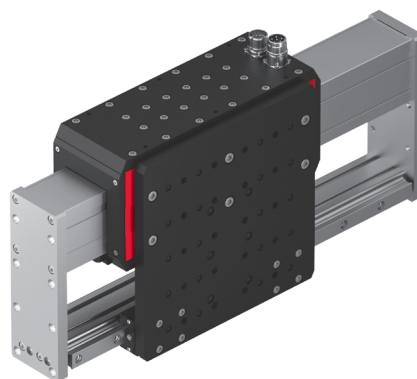
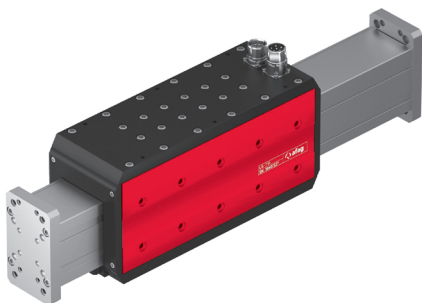
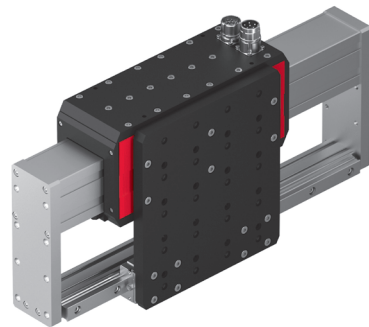
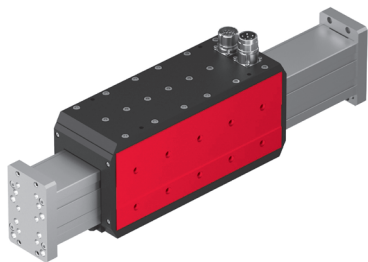
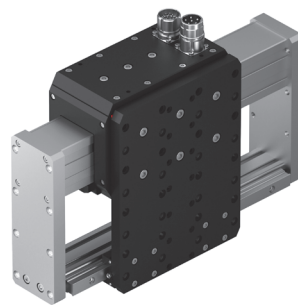


Table of contents: LE

Linear modules LE	Page
LE-50	397
LE-60	405
LE-70	413

Linear modules LE

LE-50

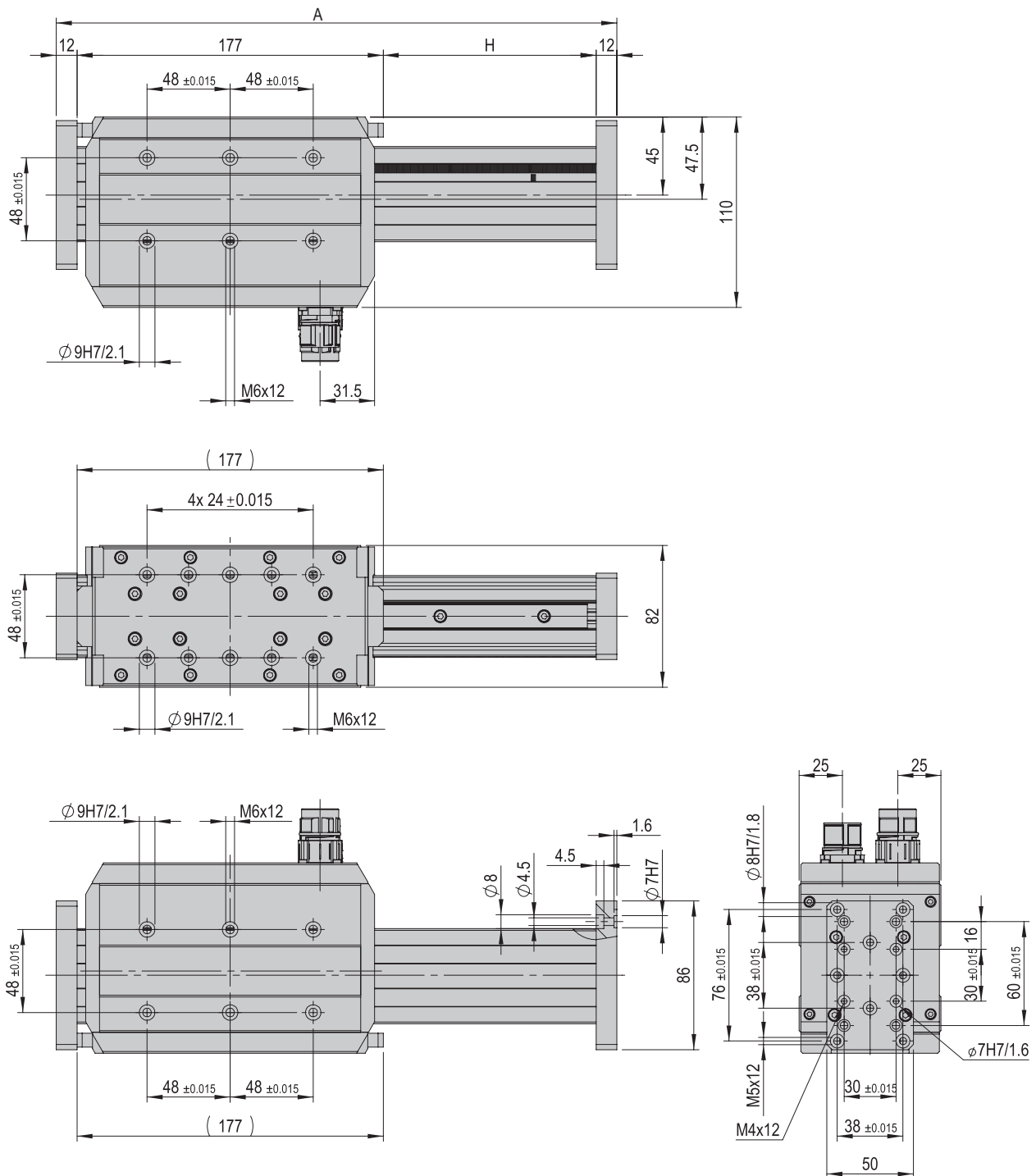


- Highly dynamic and accurate
- Low-noise
- Diverse position measuring systems

Dimensions and dimension drawings

LE-50

Type	LE-50-XXX-SIN	LE-50-XXX TTL	LE-50-XXX-ABS-B	LE-50-XXX-ABS-S
A	H + 224 mm	H + 224 mm	H + 224 mm	H + 224 mm
H	100-600 mm	100-600 mm	100-600 mm	100-600 mm





LE-50	
Attachment grid	48 mm
Attachment thread	M6
Operating temperature	10 - 40 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %

Type	LE-50-XXX-SIN	LE-50-XXX TTL	LE-50-XXX-ABS-B	LE-50-XXX-ABS-S
Order number	50407225	50307890	50447984	50443272
Max. stroke	600 mm	600 mm	600 mm	600 mm
Stroke increment	20 mm from 100 mm	20 mm from 100 mm	20 mm from 100 mm	20 mm from 100 mm
Net weight	5.028 kg	5.028 kg	5.031 kg	5.031 kg
Weight/100 mm stroke	0.84 kg	0.84 kg	0.84 kg	0.84 kg
Weight, slide	4.1 kg	4.1 kg	4.1 kg	4.1 kg
Weight, cantilever (100 mm stroke)	3.4 kg	3.4 kg	3.4 kg	3.4 kg
Noise Level	67 dB (A)	67 dB (A)	67 dB (A)	67 dB (A)
Nominal current	3 A	3 A	3 A	3 A
Maximalstrom	9 A	9 A	9 A	9 A
Nominal voltage	max. 600 VDC	max. 600 VDC	max. 600 VDC	max. 600 VDC
Supply voltage	5 VDC	5 VDC	5 VDC	5 VDC
Drive	Linear motor	Linear motor	Linear motor	Linear motor
Protection type	IP 30	IP 30	IP 30	IP 30
Max. speed v	3.5 m/s	3.5 m/s	3.5 m/s	3.5 m/s
Max. acceleration a	40 m/s ²	40 m/s ²	40 m/s ²	40 m/s ²
Peak force Fx	170 N	170 N	170 N	170 N
Constant force Fx	70 N	70 N	70 N	70 N
Connection resistance	4.02 Ohm	4.02 Ohm	4.02 Ohm	4.02 Ohm
Connection inductance	20.83 mH	20.83 mH	20.83 mH	20.83 mH
Channel	A, /A, B, /B, Z, /Z		Clk, /Clk, DATA, /DATA	
Force constant	29.4 N/A	29.4 N/A	29.4 N/A	29.4 N/A
Counter-voltage constant	24.1 V (m/s)	24.1 V (m/s)	24.1 V (m/s)	24.1 V (m/s)
Pole pair distance	38 mm	38 mm	38 mm	38 mm
Digital incremental encoder	RS422	RS422	RS422	RS422
Resolution	1 period/mm	1 µm/increment	0.9765625 µm (1000/1024 µm)	
Repeat accuracy	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm
Mounting position	↔	↔	↔	↔

The technical data pertains to Afag standard test conditions.
 Cleanroom class ISO 14644-1, class ISO 7
 *XXX = stroke

Included in the delivery

(Catalogue HT accessories)

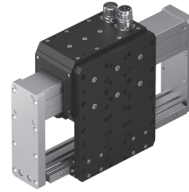
- 2x Centering bushing Ø7x3
- 2x Centering bushing Ø8x3.5
- 2x Centering bushing Ø9x4
- 4x Mounting screw M4x16
- 4x Mounting screw M6x16

Accessories

- Only for -SIN/-TTL: Servoregler SE-Power

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

Technical data



LE-50-D

LE-50-D	
Attachment grid	48 mm
Attachment thread	M6
Operating temperature	10 - 40 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %

Type	LE-50-D-XXX-SIN	LE-50-D-XXX TTL	LE-50-D-XXX-ABS-B	LE-50-D-XXX-ABS-S
Order number	50407228	50308538	50447987	50443275
Max. stroke	600 mm	600 mm	600 mm	600 mm
Stroke increment	20 mm from 100 mm	20 mm from 100 mm	20 mm from 100 mm	20 mm from 100 mm
Net weight	7.603 kg	7.603 kg	7.606 kg	7.606 kg
Weight/100 mm stroke	0.84 kg	0.84 kg	0.84 kg	0.84 kg
Weight, slide	4.1 kg	4.1 kg	4.1 kg	4.1 kg
Weight, cantilever (100 mm stroke)	3.4 kg	3.4 kg	3.4 kg	3.4 kg
Noise Level	67 dB (A)	67 dB (A)	67 dB (A)	67 dB (A)
Nominal current	3 A	3 A	3 A	3 A
Maximalstrom	9 A	9 A	9 A	9 A
Nominal voltage	max. 600 VDC	max. 600 VDC	max. 600 VDC	max. 600 VDC
Supply voltage	5 VDC	5 VDC	5 VDC	5 VDC
Drive	Linear motor	Linear motor	Linear motor	Linear motor
Protection type	IP 30	IP 30	IP 30	IP 30
Max. speed v	3.5 m/s	3.5 m/s	3.5 m/s	3.5 m/s
Max. acceleration a	40 m/s ²	40 m/s ²	40 m/s ²	40 m/s ²
Peak force Fx	170 N	170 N	170 N	170 N
Constant force Fx	70 N	70 N	70 N	70 N
Connection resistance	4.02 Ohm	4.02 Ohm	4.02 Ohm	4.02 Ohm
Connection inductance	20.83 mH	20.83 mH	20.83 mH	20.83 mH
Channel	A, /A, B, /B, Z, /Z		Clk, /Clk, DATA, /DATA	
Force constant	29.4 N/A	29.4 N/A	29.4 N/A	29.4 N/A
Counter-voltage constant	24.1 V (m/s)	24.1 V (m/s)	24.1 V (m/s)	24.1 V (m/s)
Pole pair distance	38 mm	38 mm	38 mm	38 mm
Digital incremental encoder	RS422	RS422	RS422	RS422
Resolution	1 period/mm	1 µm/increment	0.9765625 µm (1000/1024 µm)	
Repeat accuracy	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm
Mounting position	↔	↔	↔	↔

The technical data pertains to Afag standard test conditions.

Cleanroom class ISO 14644-1, class ISO 7

Note: The LE-50-D can only be operated with movable slide. The operation with fixed slide and moving profile is not allowed.

*XXX = stroke

Included in the delivery

(Catalogue HT accessories)

- 2x Centering bushing Ø7x3
- 2x Centering bushing Ø8x3.5
- 2x Centering bushing Ø9x4
- 4x Mounting screw M4x16
- 4x Mounting screw M6x16

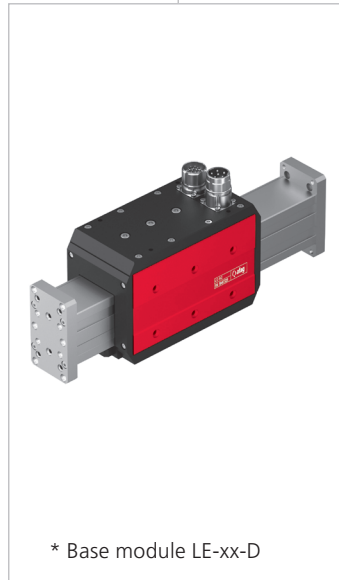
Accessories

- Only for -SIN/-TTL: Servoregler SE-Power

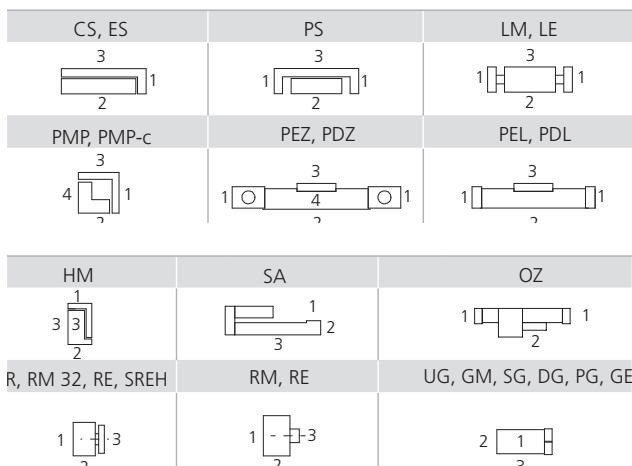
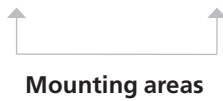
24 months following commissioning, but a maximum of 27 months following delivery



PDZ-128	3	VP 119	2,3
PDZ-160	3	VP 119	2,3
PDZ-200	3	VP 143	2,3
LE-50	3*	< direct >	2,3
LE-60	3*	< direct >	2,3
LE-70	3*	< direct >	2,3
PS 32	2	< direct >	2,3
	1,3	VP 146	2,3
HM 25	1	VP 146	2,3
CR 32	3	VP 146	2,3
RM 63	3	VF 407	2,3
PMP	1,3	VP 136	2,3
MT 45x2a	1	< direct >	2,3
MT 45x2b	1	< direct >	2,3
MTZ 45x2	1	< direct >	2,3



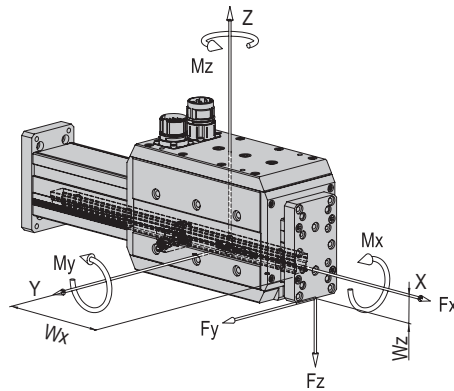
1	direct	2	ES12
1	< direct >	2	ES20
2,3	VP 112	2	
1,2,3	< direct >	2	ES30
1	< direct >	3	SA-1
2,3	VP 113	3	
1	< direct >	3	SA-3
2,3	VP 113	3	
3*	< direct >	2,3	LE-50
1	VP 147	1	RE-50
2,3	VP 127	1	
1	VP 146	1	RE-75
2,3	VP 148	1	
1	< direct >	1	GM RE
2,3	VP 112	1	
1	< direct >	2	SG-50
2,3	VP 120	2	
1	< direct >	2	CS 12
2,3	VP 120	2	
1	< direct >	2	CS 16
1	VP120	2	
1	< direct >	2	CS 20
1	VP117	2	
1	VP 117	2	LM 16
2,3	VS 501	2	
1,2,3	VP 146	2	LM 20
1,2,3	VP 146	2	
1	VP 137	2,3	PS 16
2,3	VP 146	2,3	
2,3	VP 113	2,3	HM 10
1	VP 137	3	
2,3	< direct >	2	HM 16
2,3	VP 113	3	
1	< direct >	2	CR 16
2,3	< direct >	1	
1	VP 117	1	
2,3	VP 119	2	
2,3	< direct >	1	CR 20
1	VP 117	1	
2,3	VP 119	2	
1	VP 117	1	RM 16
1	VP 127	2	
2,3	VP 147	1	
2,3	VP 147	1	RM 25
1	VP 117	1	
1,2,3	VP 146	2	
1	VP 507	1	RM 25
1	VP 146	2	
1,2,3	VP 507	1	
1	< direct >	1,2	DG 16
1	< direct >	1,2	DG 20
1	< direct >	1,2	PG 20
1**	VP 107	1,2	UG 20
1**	< direct >	1,2	UG 25



Note that there might be different mounting positions from one module to another one.
The required connection elements and the range of support columns are depicted in the catalogue HT accessories.



Type	LE-50-XXX-SIN	LE-50-XXX-TTL	LE-50-XXX-ABS-B	LE-50-XXX-ABS-S
Max. torque Mx	30 Nm	30 Nm	30 Nm	30 Nm
Max. torque My	*180 Nm	*180 Nm	*180 Nm	*180 Nm
Max. torque Mz	**140 Nm	**140 Nm	**140 Nm	**140 Nm
Effective distance Wx	83 mm	83 mm	83 mm	83 mm
Effective distance Wz	24 mm	24 mm	24 mm	24 mm
Peak force Fx	170 N	170 N	170 N	170 N



$$\frac{M_x}{M_{x \max}} + \frac{M_y}{M_{y \max}} + \frac{M_z}{M_{z \max}} < 1$$

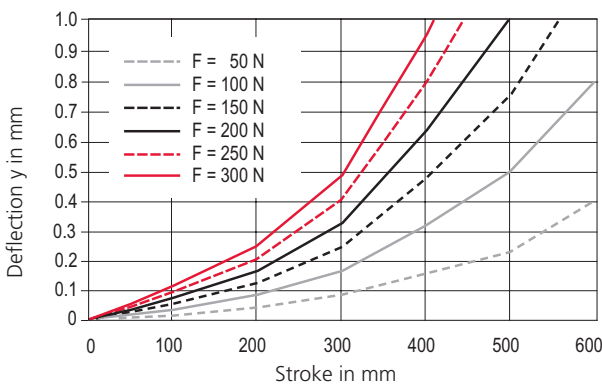
Maximum payload/type	LE-50-XXX-SIN	LE-50-XXX-TTL	LE-50-XXX-ABS-B	LE-50-XXX-ABS-S
Installation position (horizontal) for mounting side 1	10 kg	10 kg	10 kg	10 kg
Installation position (horizontal) for mounting side 3	10 kg	10 kg	10 kg	10 kg

Assembly sides module mounting

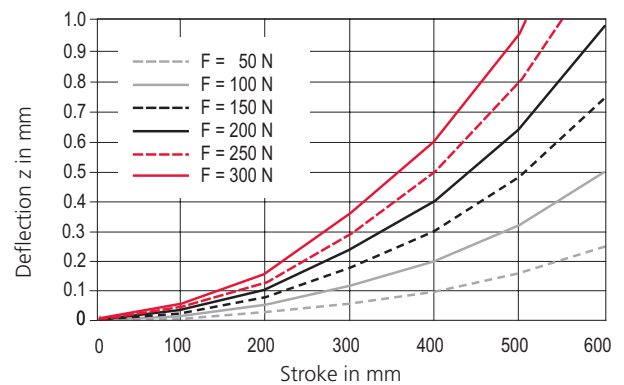


Load diagrams

Deflection in Y direction LE-50



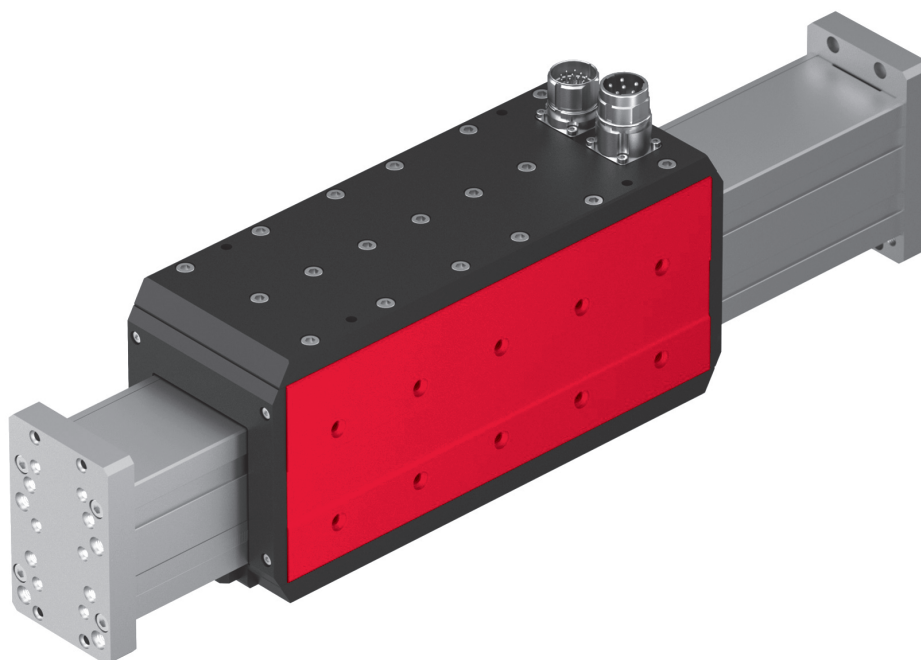
Deflection in Z direction LE-50



*corresponds to: 1 mm deflection on course 500 mm and f = 300 N
 **corresponds to: 1 mm deflection on course 400 mm and f = 300 N

Linear modules LE

LE-60

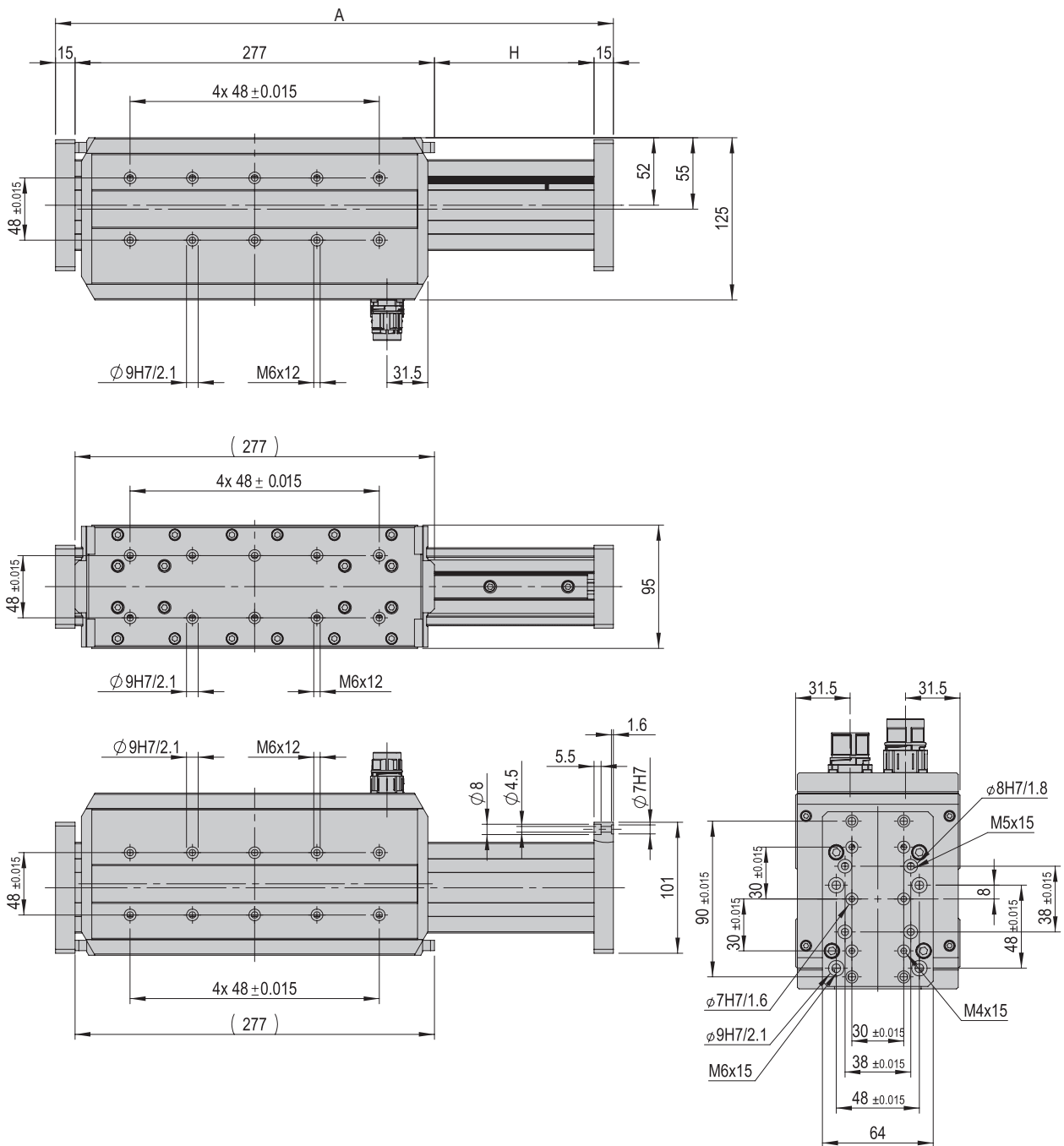


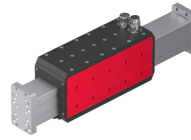
- Highly dynamic and accurate
- Low-noise
- Diverse position measuring systems

Dimensions and dimension drawings

LE-60

Type	LE-60-XXX-SIN	LE-60-XXX TTL	LE-60-XXX-ABS-B	LE-60-XXX-ABS-S
A	H + 330 mm	H + 330 mm	H + 330 mm	H + 330 mm
H	100-800 mm	100-800 mm	100-800 mm	100-800 mm





LE-60	
Attachment grid	48 mm
Attachment thread	M6
Operating temperature	10 - 40 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %

Type	LE-60-XXX-SIN	LE-60-XXX-TTL	LE-60-XXX-ABS-B	LE-60-XXX-ABS-S
Order number	50407226	50307891	50447985	50443273
Max. stroke	800 mm	800 mm	800 mm	800 mm
Stroke increment	20 mm from 100 mm	20 mm from 100 mm	20 mm from 100 mm	20 mm from 100 mm
Net weight	10.304 kg	10.304 kg	10.316 kg	10.316 kg
Weight/100 mm stroke	0.9 kg	0.9 kg	0.9 kg	0.9 kg
Weight, slide	5.6 kg	5.6 kg	5.6 kg	5.6 kg
Weight, cantilever (100 mm stroke)	4 kg	4 kg	4 kg	4 kg
Noise Level	69 dB (A)	69 dB (A)	69 dB (A)	69 dB (A)
Nominal current	5 A	5 A	5 A	5 A
Maximalstrom	15 A	15 A	15 A	15 A
Nominal voltage	max. 600 VDC	max. 600 VDC	max. 600 VDC	max. 600 VDC
Supply voltage	5 VDC	5 VDC	5 VDC	5 VDC
Drive	Linear motor	Linear motor	Linear motor	Linear motor
Protection type	IP 30	IP 30	IP 30	IP 30
Max. speed v	3.5 m/s	3.5 m/s	3.5 m/s	3.5 m/s
Max. acceleration a	40 m/s ²	40 m/s ²	40 m/s ²	40 m/s ²
Peak force F _x	350 N	350 N	350 N	350 N
Constant force F _x	150 N	150 N	150 N	150 N
Connection resistance	2.1 Ohm	2.1 Ohm	2.1 Ohm	2.1 Ohm
Connection inductance	10.41 mH	10.41 mH	10.41 mH	10.41 mH
Channel	A, /A, B, /B, Z, /Z		Clk, /Clk, DATA, /DATA	
Force constant	29.4 N/A	29.4 N/A	29.4 N/A	29.4 N/A
Counter-voltage constant	24.1 V (m/s)	24.1 V (m/s)	24.1 V (m/s)	24.1 V (m/s)
Pole pair distance	38 mm	38 mm	38 mm	38 mm
Digital incremental encoder	RS422	RS422	RS422	RS422
Resolution	1 period/mm	1 µm/increment	0.9765625 µm (1000/1024 µm)	
Repeat accuracy	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm
Mounting position	↔	↔	↔	↔

The technical data pertains to Afag standard test conditions.
Cleanroom class ISO 14644-1, class ISO 7
*XXX = stroke

Included in the delivery

(Catalogue HT accessories)

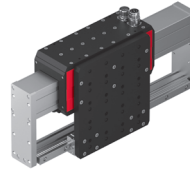
- 2x Centering bushing Ø7x3
- 2x Centering bushing Ø8x3.5
- 4x Centering bushing Ø9x4
- 4x Mounting screw M4x18
- 4x Mounting screw M6x18

Accessories

- Only for -SIN-TTL: Servo controller SE-Power

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

Technical data



LE-60-D

LE-60-D	
Attachment grid	48 mm
Attachment thread	M6
Operating temperature	10 - 40 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %

Type	LE-60-D-XXX-SIN	LE-60-D-XXX TTL	LE-60-D-XXX-ABS-B	LE-60-D-XXX-ABS-S
Order number	50407229	50319222	50447988	50443276
Max. stroke	800 mm	800 mm	800 mm	800 mm
Stroke increment	20 mm from 100 mm	20 mm from 100 mm	20 mm from 100 mm	20 mm from 100 mm
Net weight	15.204 kg	15.204 kg	15.216 kg	15.216 kg
Weight/100 mm stroke	1.21 kg	1.21 kg	1.21 kg	1.21 kg
Weight, slide	8.2 kg	8.2 kg	8.2 kg	8.2 kg
Weight, cantilever (100 mm stroke)	6.3 kg	6.3 kg	6.3 kg	6.3 kg
Noise Level	69 dB (A)	69 dB (A)	69 dB (A)	69 dB (A)
Nominal current	5 A	5 A	5 A	5 A
Maximalstrom	15 A	15 A	15 A	15 A
Nominal voltage	max. 600 VDC	max. 600 VDC	max. 600 VDC	max. 600 VDC
Supply voltage	5 VDC	5 VDC	5 VDC	5 VDC
Drive	Linear motor	Linear motor	Linear motor	Linear motor
Protection type	IP 30	IP 30	IP 30	IP 30
Max. speed v	3.5 m/s	3.5 m/s	3.5 m/s	3.5 m/s
Max. acceleration a	40 m/s ²	40 m/s ²	40 m/s ²	40 m/s ²
Peak force Fx	350 N	350 N	350 N	350 N
Constant force Fx	150 N	150 N	150 N	150 N
Connection resistance	2.1 Ohm	2.1 Ohm	2.1 Ohm	2.1 Ohm
Connection inductance	10.41 mH	10.41 mH	10.41 mH	10.41 mH
Channel	A, /A, B, /B, Z, /Z		Clk, /Clk, DATA, /DATA	
Force constant	29.4 N/A	29.4 N/A	29.4 N/A	29.4 N/A
Counter-voltage constant	24.1 V (m/s)	24.1 V (m/s)	24.1 V (m/s)	24.1 V (m/s)
Pole pair distance	38 mm	38 mm	38 mm	38 mm
Digital incremental encoder	RS422	RS422	RS422	RS422
Resolution	1 period/mm	1 µm/increment	0.9765625 µm (1000/1024 µm)	
Repeat accuracy	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm
Mounting position	↔	↔	↔	↔

The technical data pertains to Afag standard test conditions.

Cleanroom class ISO 14644-1, class ISO 7

Note: The LE-60-D can only be operated with movable slide. The operation with fixed slide and moving profile is not allowed.

*XXX = stroke

Included in the delivery

(Catalogue HT accessories)

- 2x Centering bushing Ø7x3
- 2x Centering bushing Ø8x3.5
- 4x Centering bushing Ø9x4
- 4x Mounting screw M4x18
- 4x Mounting screw M6x18

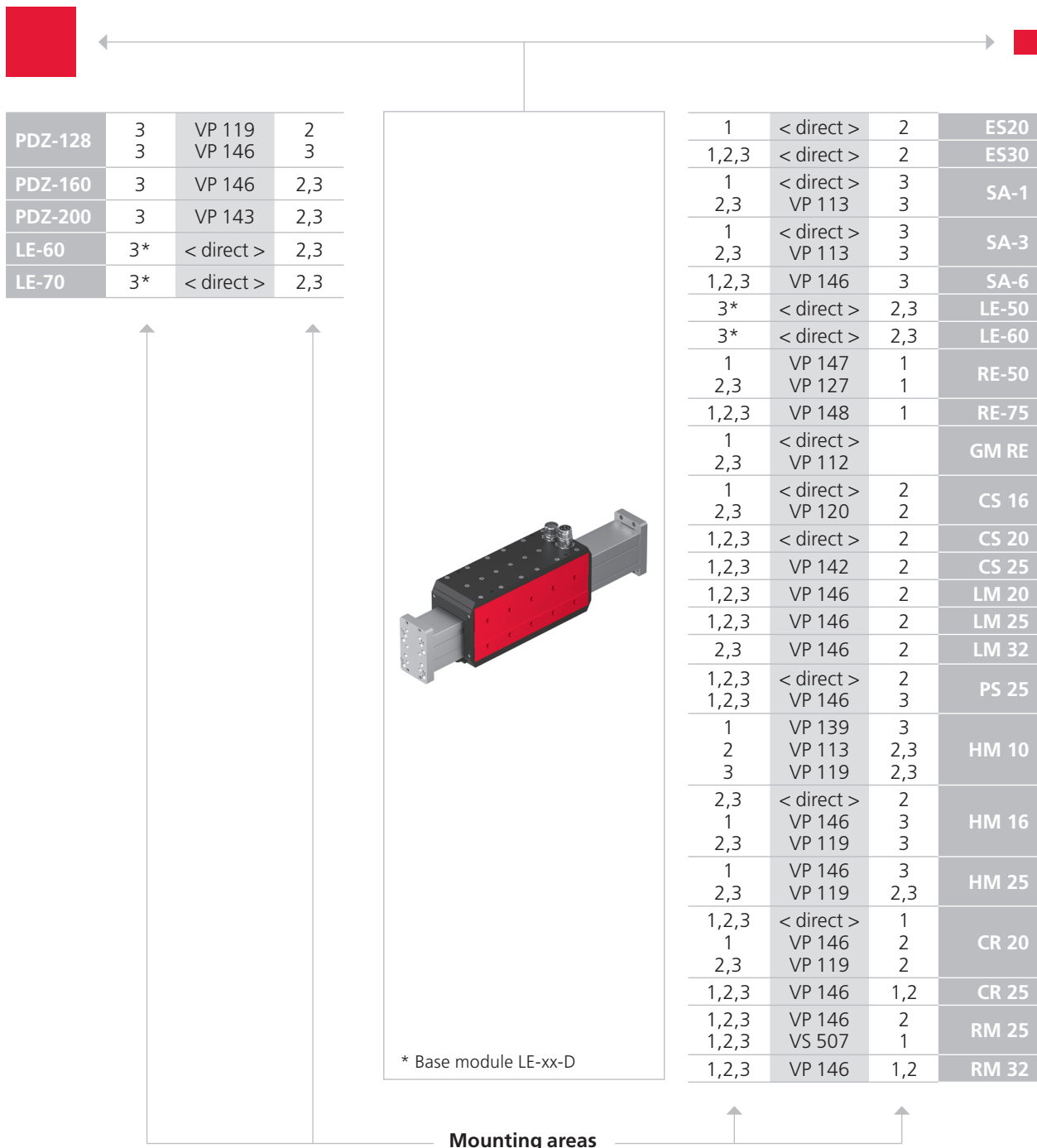
Accessories

- Only for -SIN/-TTL: Servo controller SE-Power

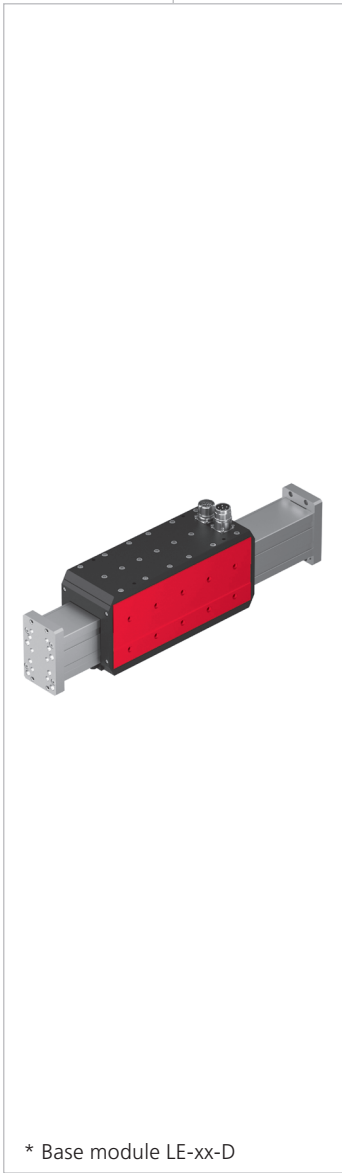
24 months following commissioning, but a maximum of 27 months following delivery

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Handling technology HT Components linear



PDZ-128	3 3	VP 119 VP 146	2 3
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LE-60	3*	< direct >	2,3
LE-70	3*	< direct >	2,3



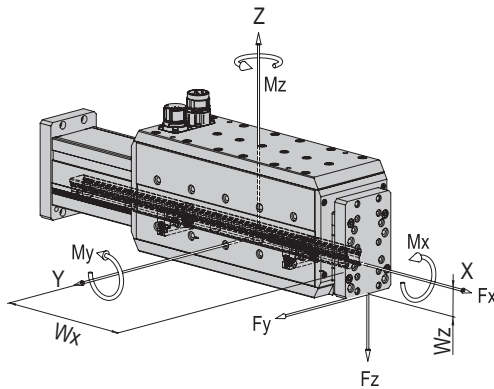
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1 2,3	< direct > VP 113	3 3	SA-1
1 2,3	< direct > VP 113	3 3	SA-3
1,2,3	VP 146	3	SA-6
3*	< direct >	2,3	LE-50
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1 2,3	VP 147 VP 127	1 1	RE-50
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1 2,3	< direct > VP 112		GM RE
1 2,3	< direct > VP 120	2 2	CS 16
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2,3	VP 146	2	LM 32
1,2,3 1,2,3	< direct > VP 146	2 3	PS 25
1 2 3	VP 139 VP 113 VP 119	3 2,3 2,3	HM 10
2,3 1 2,3	< direct > VP 146 VP 119	2 3 3	HM 16
1 2,3	VP 146 VP 119	3 2,3	HM 25
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1,2,3	VP 146	1,2	CR 25
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1,2,3	VP 146	1,2	RM 32

Mounting areas

CS, ES 	PS 	LM, LE 	HM 	SA 	OZ
PMP, PMP-c 	PEZ, PDZ 	PEL, PDL 	CR, RM 32, RE, SREH 	RM, RE 	UG, GM, SG, DG, PG, GE

Note that there might be different mounting positions from one module to another one.
The required connection elements and the range of support columns are depicted in the catalogue HT accessories.

Type	LE-60-XXX-SIN	LE-60-XXX-TTL	LE-60-XXX-ABS-B	LE-60-XXX-ABS-S
Max. torque Mx	50 Nm	50 Nm	50 Nm	50 Nm
Max. torque My	*270 Nm	*270 Nm	*270 Nm	*270 Nm
Max. torque Mz	**220 Nm	**220 Nm	**220 Nm	**220 Nm
Effective distance Wx	133 mm	133 mm	133 mm	133 mm
Effective distance Wz	30 mm	30 mm	30 mm	30 mm
Peak force Fx	350 N	350 N	350 N	350 N

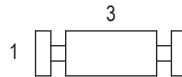


$$\frac{M_x}{M_{x \max}} + \frac{M_y}{M_{y \max}} + \frac{M_z}{M_{z \max}} < 1$$

Maximum payload/type	LE-60-XXX-SIN	LE-60-XXX-TTL	LE-60-XXX-ABS-B	LE-60-XXX-ABS-S
Installation position (horizontal) for mounting side 1	20 kg	20 kg	20 kg	20 kg
Installation position (horizontal) for mounting side 3	20 kg	20 kg	20 kg	20 kg

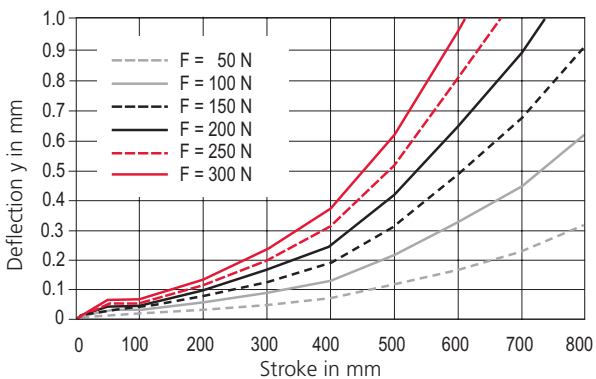
Assembly sides module mounting

horizontal:

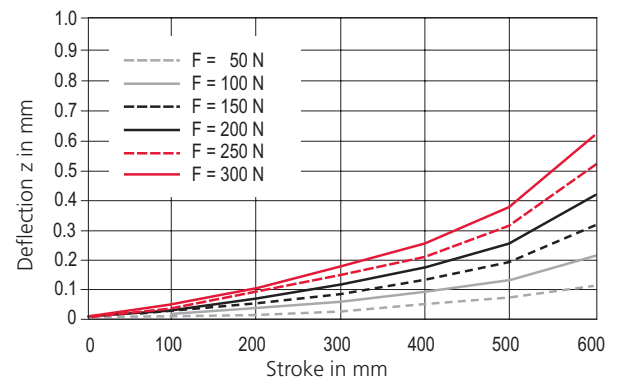


Load diagrams

Deflection in Y direction LE-60



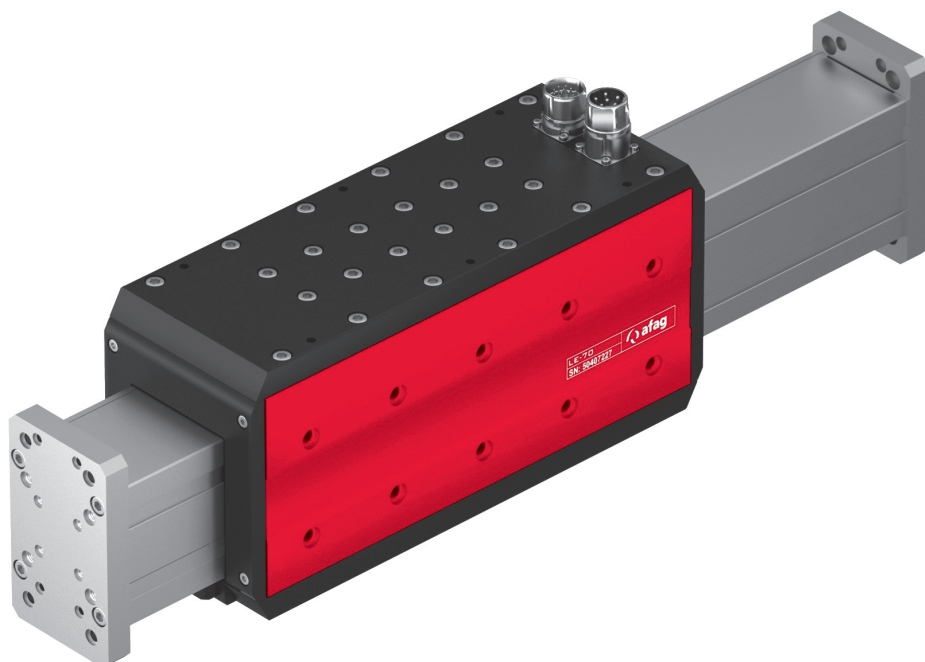
Deflection in Z direction LE-60



*corresponds to: 1 mm deflection on course 750 mm and f = 300 N
 **corresponds to: 1 mm deflection on course 600 mm and f = 300 N

Linear modules LE

LE-70

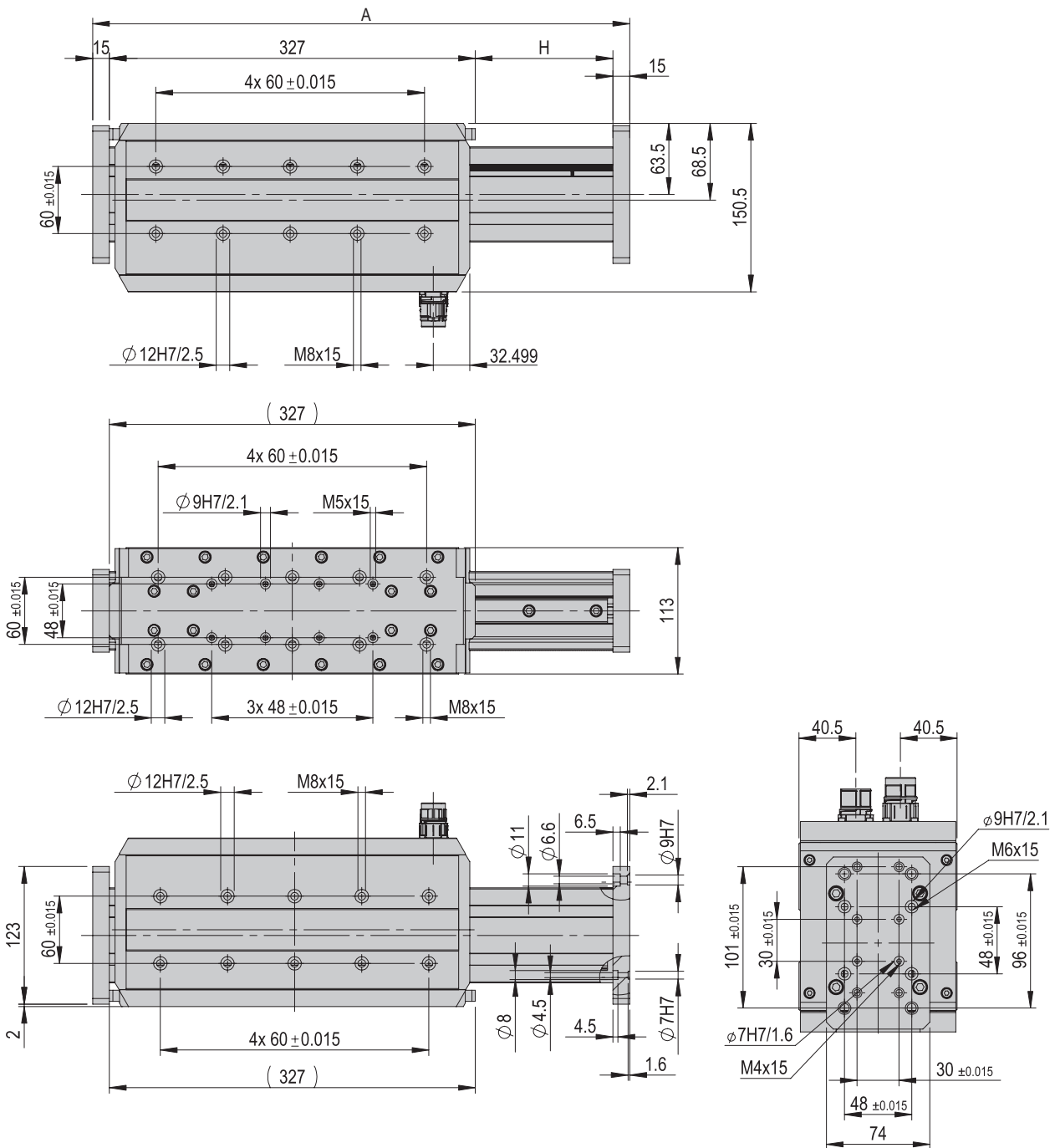


- Highly dynamic and accurate
- Low-noise
- Diverse position measuring systems

Dimensions and dimension drawings

LE-70

Type	LE-70-XXX-SIN	LE-70-XXX TTL	LE-70-XXX-ABS-B	LE-70-XXX-ABS-S
A	H + 380 mm	H + 380 mm	H + 380 mm	H + 380 mm
H	100-1000 mm	100-1000 mm	100-1000 mm	100-1000 mm





LE-70	
Attachment grid	48 mm
Attachment thread	M6
Operating temperature	10 - 40 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %

Type	LE-70-XXX-SIN	LE-70-XXX-TTL	LE-70-XXX-ABS-B	LE-70-XXX-ABS-S
Order number	50407227	50307892	50447986	50443274
Max. stroke	1000 mm	1000 mm	1000 mm	1000 mm
Stroke increment	20 mm from 100 mm	20 mm from 100 mm	20 mm from 100 mm	20 mm from 100 mm
Net weight	16.802 kg	16.802 kg	16.819 kg	16.819 kg
Weight/100 mm stroke	1.3 kg	1.5 kg	1.3 kg	1.3 kg
Weight, slide	10 kg	10 kg	10 kg	10 kg
Weight, cantilever (100 mm stroke)	6.4 kg	6.4 kg	6.4 kg	6.4 kg
Noise Level	72 dB (A)	72 dB (A)	72 dB (A)	72 dB (A)
Nominal current	8 A	8 A	8 A	8 A
Maximalstrom	20 A	20 A	20 A	20 A
Nominal voltage	max. 600 VDC	max. 600 VDC	max. 600 VDC	max. 600 VDC
Supply voltage	5 VDC	5 VDC	9-35 VDC	9-35 VDC
Drive	Linear motor	Linear motor	Linear motor	Linear motor
Protection type	IP 30	IP 30	IP 30	IP 30
Max. speed v	5 m/s	5 m/s	5 m/s	5 m/s
Max. acceleration a	50 m/s ²	50 m/s ²	50 m/s ²	50 m/s ²
Peak force F _x	800 N	800 N	800 N	800 N
Constant force F _x	350 N	350 N	350 N	350 N
Connection resistance	1.69 Ohm	1.69 Ohm	1.69 Ohm	1.69 Ohm
Connection inductance	14.63 mH	14.63 mH	14.63 mH	14.63 mH
Channel	A, /A, B, /B, Z, /Z		Clk, /Clk, DATA, /DATA	
Force constant	53.7 N/A	53.7 N/A	53.7 N/A	53.7 N/A
Counter-voltage constant	44 V (m/s)	44 V (m/s)	44 V (m/s)	44 V (m/s)
Pole pair distance	38 mm	38 mm	38 mm	38 mm
Digital incremental encoder	RS422	RS422	RS422	RS422
Resolution	1 period/mm	1 µm/increment	0.9765625 µm (1000/1024 µm)	
Repeat accuracy	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm
Mounting position	↔	↔	↔	↔

The technical data pertains to Afag standard test conditions.

Cleanroom class ISO 14644-1, class ISO 7

*XXX = stroke

Included in the delivery

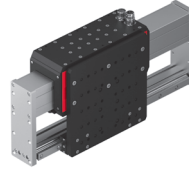
(Catalogue HT accessories)

- 2x Centering bushing Ø7x3
- 2x Centering bushing Ø8x3.5
- 4x Centering bushing Ø9x4
- 4x Mounting screw M4x18
- 4x Mounting screw M6x18

Accessories

- Only for -SIN/-TTL: Servo controller SE-Power

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



LE-70-D	
Attachment grid	48 mm
Attachment thread	M6
Operating temperature	10 - 40 °C
Storage temperature	0 - 50 °C
Humidity	< 90 %

Type	LE-70-D-XXX-SIN	LE-70-D-XXX TTL	LE-70-D-XXX-ABS-B	LE-70-D-XXX-ABS-S
Order number	50407230	50319225	50447989	50443277
Max. stroke	1000 mm	1000 mm	1000 mm	1000 mm
Stroke increment	20 mm from 100 mm	20 mm from 100 mm	20 mm from 100 mm	20 mm from 100 mm
Net weight	23.75 kg	23.75 kg	23.767 kg	23.767 kg
Weight/100 mm stroke	2 kg	2 kg	2 kg	2 kg
Weight, slide	14 kg	14 kg	14 kg	14 kg
Weight, cantilever (100 mm stroke)	9.4 kg	9.4 kg	9.4 kg	9.4 kg
Noise Level	72 dB (A)	72 dB (A)	72 dB (A)	72 dB (A)
Nominal current	8 A	8 A	8 A	8 A
Maximalstrom	20 A	20 A	20 A	20 A
Nominal voltage	max. 600 VDC	max. 600 VDC	max. 600 VDC	max. 600 VDC
Supply voltage	5 VDC	5 VDC	5 VDC	5 VDC
Drive	Linear motor	Linear motor	Linear motor	Linear motor
Protection type	IP 30	IP 30	IP 30	IP 30
Max. speed v	5 m/s	5 m/s	5 m/s	5 m/s
Max. acceleration a	50 m/s ²	50 m/s ²	50 m/s ²	50 m/s ²
Peak force Fx	800 N	800 N	800 N	800 N
Constant force Fx	350 N	350 N	350 N	350 N
Connection resistance	1.69 Ohm	1.69 Ohm	1.69 Ohm	1.69 Ohm
Connection inductance	14.63 mH	14.63 mH	14.63 mH	14.63 mH
Channel	A, /A, B, /B, Z, /Z		Clk, /Clk, DATA, /DATA	
Force constant	53.7 N/A	53.7 N/A	53.7 N/A	53.7 N/A
Counter-voltage constant	44 V (m/s)	44 V (m/s)	44 V (m/s)	44 V (m/s)
Pole pair distance	38 mm	38 mm	38 mm	38 mm
Digital incremental encoder	RS422	RS422	RS422	RS422
Resolution	1 period/mm	1 µm/increment	0.9765625 µm (1000/1024 µm)	
Repeat accuracy	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm	+/- 0.01 mm
Mounting position	↔	↔	↔	↔

The technical data pertains to Afag standard test conditions.
Cleanroom class ISO 14644-1, class ISO 7

Note: The LE-70-D can only be operated with movable slide. The operation with fixed slide and moving profile is not allowed.

*XXX = stroke

Included in the delivery

(Catalogue HT accessories)

- 2x Centering bushing Ø7x3
- 2x Centering bushing Ø8x3.5
- 4x Centering bushing Ø9x4
- 4x Mounting screw M4x18
- 4x Mounting screw M6x18

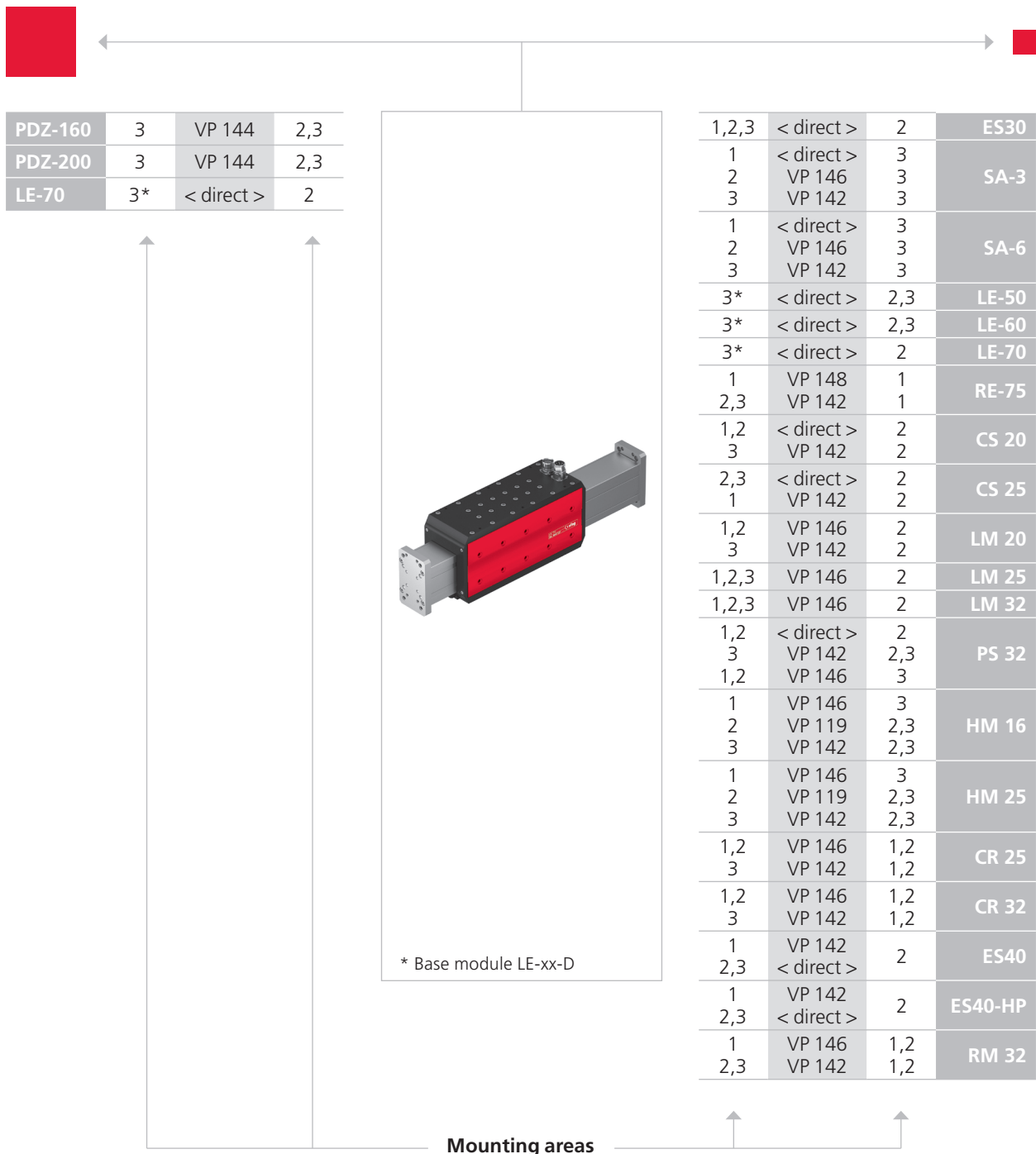
Accessories

- Only for -SIN/-TTL: Servo controller SE-Power

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

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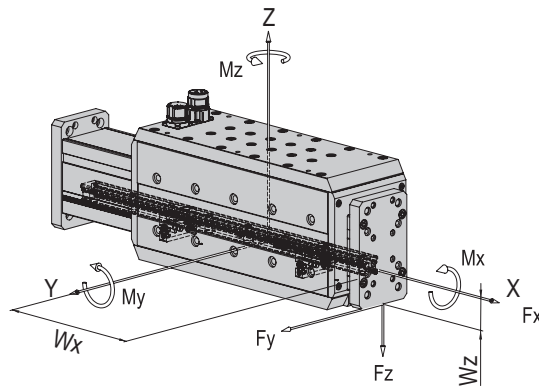
Handling technology HT Components linear



CS, ES	PS	LM, LE	HM	SA	OZ
PMP, PMP-c	PEZ, PDZ	PEL, PDL	CR, RM 32, RE, SREH	RM, RE	UG, GM, SG, DG, PG, GE

Note that there might be different mounting positions from one module to another one.
The required connection elements and the range of support columns are depicted in the catalogue HT accessories.

Type	LE-70-XXX-SIN	LE-70-XXX-TTL	LE-70-XXX-ABS-B	LE-70-XXX-ABS-S
Max. torque Mx	80 Nm	80 Nm	80 Nm	80 Nm
Max. torque My	*330 Nm	*330 Nm	*330 Nm	*330 Nm
Max. torque Mz	**280 Nm	**280 Nm	**280 Nm	**280 Nm
Effective distance Wx	158 mm	158 mm	158 mm	158 mm
Effective distance Wz	37 mm	37 mm	37 mm	37 mm
Peak force Fx	800 N	800 N	800 N	800 N

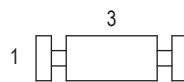


$$\frac{M_x}{M_{x \max}} + \frac{M_y}{M_{y \max}} + \frac{M_z}{M_{z \max}} < 1$$

Maximum payload/type	LE-70-XXX-SIN	LE-70-XXX-TTL	LE-70-XXX-ABS-B	LE-70-XXX-ABS-S
Installation position (horizontal) for mounting side 1	30 kg	30 kg	30 kg	30 kg
Installation position (horizontal) for mounting side 3	30 kg	30 kg	30 kg	30 kg

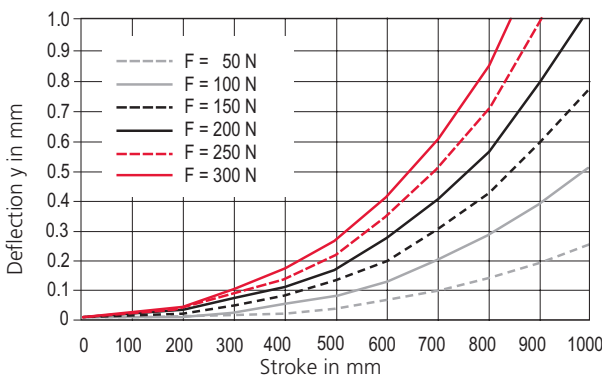
Assembly sides module mounting

horizontal:

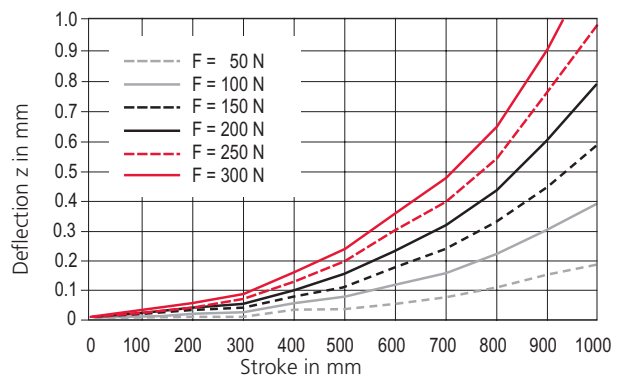


Load diagrams

Deflection in Y direction LE-60



Deflection in Z direction LE-60



*corresponds to: 1 mm deflection on course 950 mm and f = 300 N
 **corresponds to: 1 mm deflection on course 800 mm and f = 300 N

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