Loadable. Modular. Precise.

PMP Gantry Axis

With integrated pneumatic drive cylinder and scope-free, pretensioned recirculating ball-bearing guides.

Field of Application

For economic, robust, and precise gantry systems with long stroke range. Use in dirty environments is also possible due to the "bellow" option. Standardized connecting elements permit numerous combinations with other system components of modular assembly automation.

Advantages – Your benefits

High moment load capacity due to the use of high-performance profiled rail guides

High degree of rigidity due to special extruded profile geometry

High precision through machined locating surfaces for the guide

Efficient complete solutions due to numerous axis combination possibilities

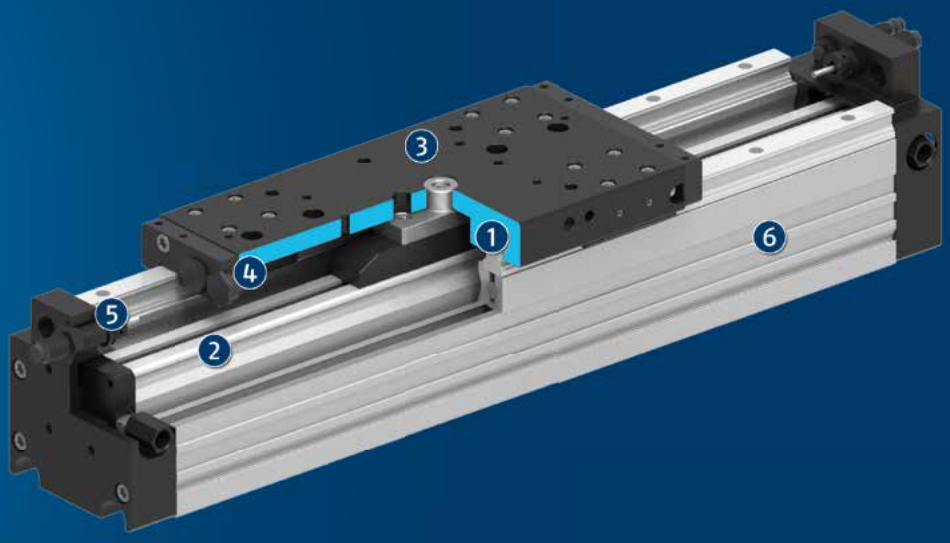
Manifold options (cable drag chain, bellow, intermediate position, etc.) for special optimization to fit your particular application

Standardized mounting bores for numerous combinations with other components from the modular system

Sizes	Effective stroke	Driving force	Moment loading	Repeat accuracy
Quantity: 2	800 .. 3700 mm	100 .. 250 N	300 .. 500 Nm	0.04 mm

Functional Description

The axis carriage is driven by a rodless pneumatic cylinder and precisely guided profiled rail guides.



① **Profiled rail guide**
for maximum positioning accuracy and moment loads

② **Drive**
Rodless cylinder; easy and yet reliable

③ **Mounting pattern**
Completely integrated in the module system

④ **Damping adjustment**
Adjustment of the damping characteristics

⑤ **End position adjustability**
Convenient adjustment using the shock absorber threads

⑥ **Profile**
Self-supporting and robust

CAD data, operating manuals and other current product documents are available at **schunk.com**

General Notes on the Series

Housing material: Extruded aluminum profile; hardened steel functional components

Guidance: Ball bearing guide

Actuation: pneumatic, with filtered compressed air as per ISO 8573-1:2010 [7:4:4].

Warranty: 24 months

Repeat accuracy: is defined as the distribution of the end positions for 100 consecutive cycles.

Stroke: is the maximum nominal stroke of the unit. This can be shortened on both sides by the shock absorbers.

Layout or control calculation: For layout or sizing of the modules, we recommend using our software TOOLBOX, which can be downloaded online. Verifying the sizing of the selected unit is absolutely necessary, since otherwise overloading can result.

Ambient conditions: The modules are particularly designed for the use in clean ambient conditions. If other ambient conditions should be given, SCHUNK offers various options to protect the units. Please contact us for assistance.

Application Example

Pneumatic cross gantry with intermediate position for converting medium-sized components.

1. SOE Single Base Support
2. SLH Hollow Pillar
3. APEV Single Mounting Plate
4. APPM Adapter Plate
5. PMP Gantry Module
6. APL Adapter Plate
7. LM Linear Module
8. ASG Adapter
9. PZN-plus 3-Finger Universal Gripper

SCHUNK offers more ...

The following components make the product PMP even more productive – the suitable addition for the highest functionality, flexibility, reliability, and controlled production.

Intermediate Stop

Fittings

T-Nuts

Adapter Plate

Drag Chain

SAS Pillar Assembly System

Sensor Cables

Inductive Proximity Switches

SDV-P Pressure Maintenance Valve

Bellows Cover

ⓘ Additional information regarding the products can be found on the following product pages or at www.schunk.com. Please contact us for further information: SCHUNK technical hotline +49-7133-103-2696

Options and special Information

Bellow version: Increased degree of protection against penetrating materials; for use in dirty environments. This module can be combined as standard with many elements from the modular system. We can assist you with questions.

Sample Order

PMP - S - 25 - 0600 - 0 - 0 - 00 - 000

Bellow
S = without
F = with

Size
16
25

Useful stroke

Shock absorber
0 = without shock absorber
1 = with 1 shock absorber per end position
2 = with 2 shock absorbers per end position (only size 25)

Number of proximity switches

Cable track
0 = without cable track
1 = KSV, vertical slide
2 = KSH, horizontal slide

Attachment variant, cable track
1 = Variant 1

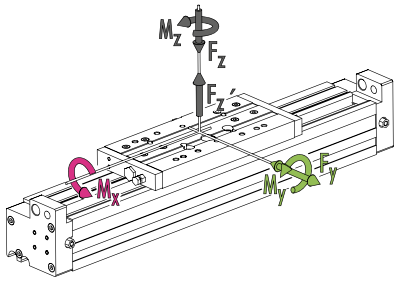
Intermediate position
0 = without intermediate position
1 = with AS 25-1 stop slide
2 = with AS 25-2 stop slide

Attachment, stop slide
1 = on the air-connection side (only size 25)
2 = opposite the air connection
3 = on both sides (only size 25)

Number of intermediate stops

ⓘ Not all combinations of options are possible. Please contact us to find the right combination for your application.

Moment loading



- M_x max. 80 Nm
- F_y max. 3000 N
- M_y max. 300 Nm
- F_z max. 3000 N
- M_z max. 300 Nm

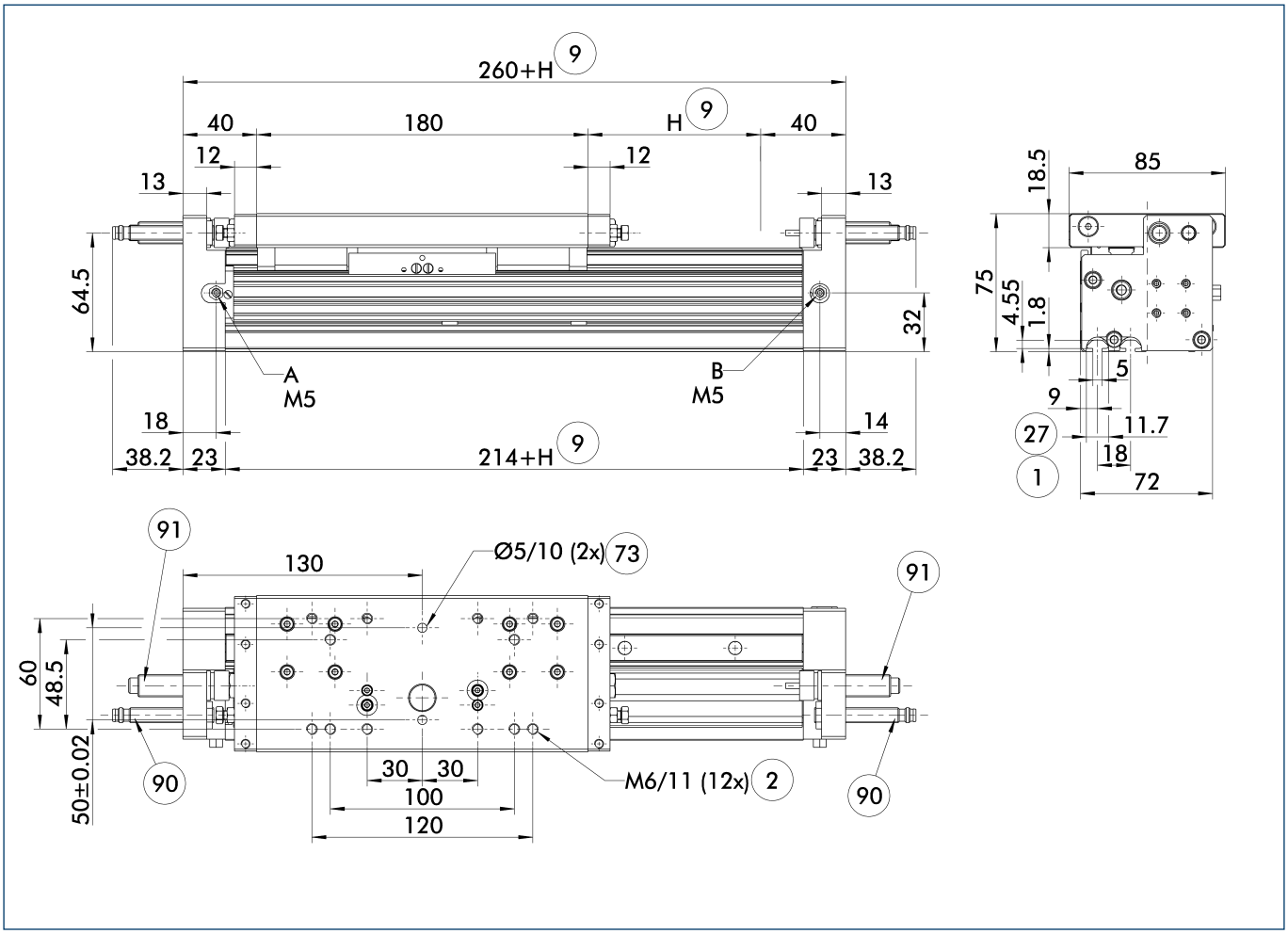
ⓘ Moments and forces may occur simultaneously.

Technical data

Description		PMP-S-16	PMP-F-16
Max. stroke	[mm]	3700	800
Max. driving force	[N]	100	100
Repeat accuracy	[mm]	0.04	0.04
Piston diameter	[mm]	16	16
Min./max. operating pressure	[bar]	3/8	3/8
Nominal operating pressure	[bar]	6	6
Fluid consumption/10 mm stroke	[cm³]	2	2
Min./max. ambient temperature	[°C]	5/60	5/60
Weight	[kg]	3	4
Weight per 1 mm stroke	[kg]	0.0065	0.0085
Drive concept		Cylinder without piston rod	Cylinder without piston rod

ⓘ The specified weight arises at 0 mm stroke. The weight of the module increases by the value specified in the table for each 1 mm stroke.

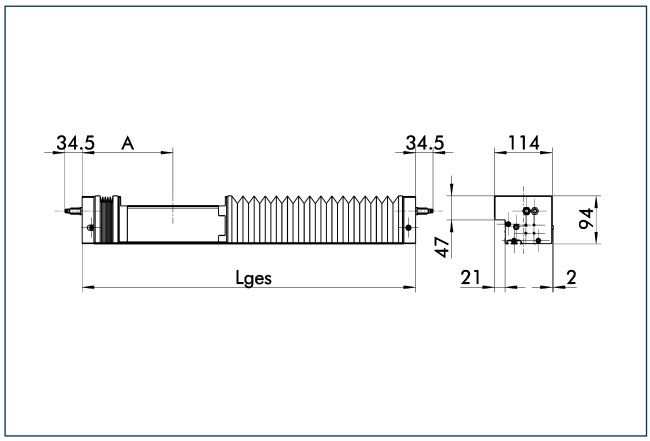
Main view



The drawing shows the unit in standard design, without considering any dimensions of the options described below.

A Main connection – linear unit extended
B Main connection – linear unit retracted
(1) Connection linear unit
(2) Attachment connection
(9) Effective stroke
(27) Fastening groove for T-nuts
(73) Fit for centering pins
(90) NI 30-KT
(91) LMST 101-KT

Bellow



The "Bellow" option increases the degree of protection against penetrating materials. The variable dimensions are calculated as follows:

ⓘ F_z = nominal stroke x 0.0375 [rounded to the nearest whole number];
FBB = F_z x 3.3 [rounded to nearest whole number];
L_{ges} = 278 + nominal stroke + 2 x FBB; A = 139 + FBB

KSH cable track, horizontal slide

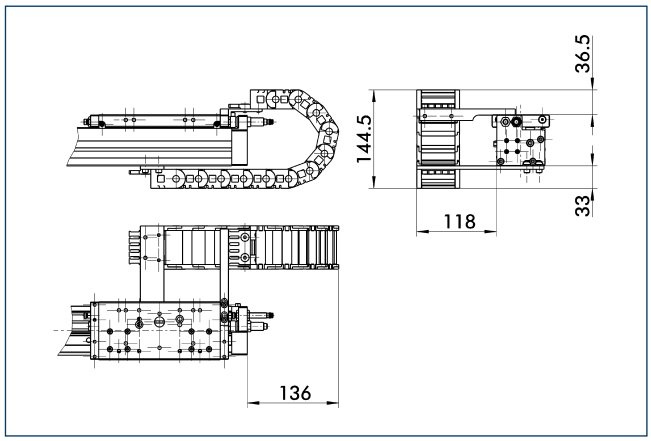


Illustration: Attachment variant 1. Other attachment variants are possible as standard. Please contact us for assistance.

KSV cable track, vertical slide

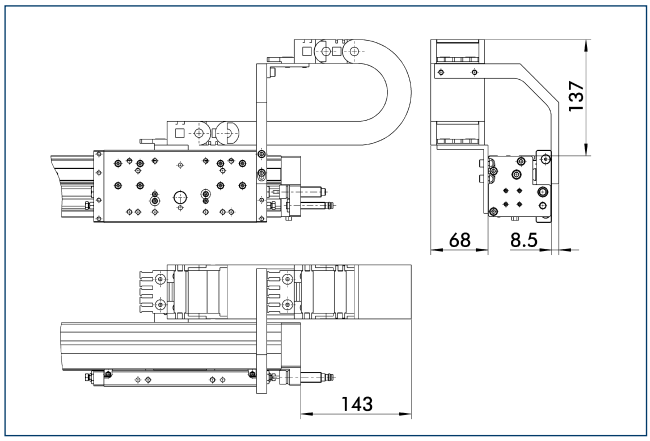
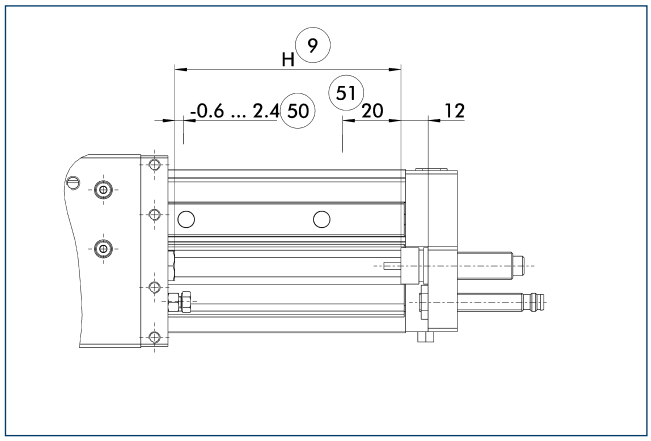


Illustration: Attachment variant 1. Other attachment variants are possible as standard. Please contact us for assistance.

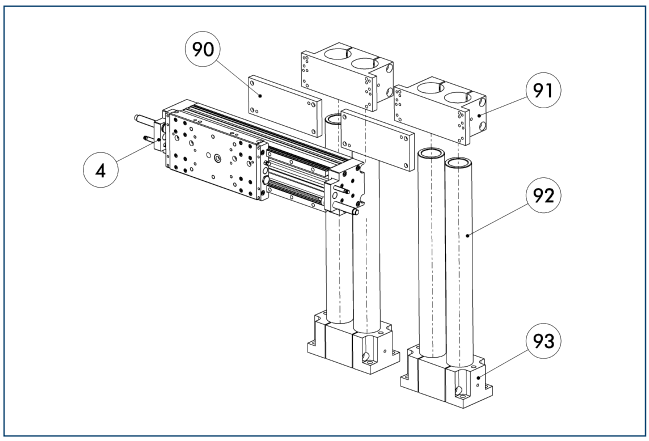
Stroke adjustment



(9) Nominal stroke
(50) Damping stroke adjustment range
(51) Stroke adjustment range

The nominal stroke for each end position can be finely adjusted by screwing out the shock absorber.

Attachment to a pillar assembly system

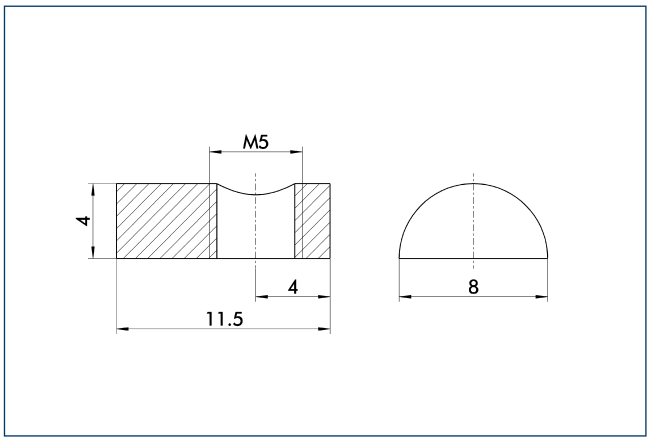


(4) Linear unit
(90) AGH adapter plate
(91) ADV mounting plate
(92) Pillars, hard-chromium plated, ground
(93) SOD double socket

This unit can be attached to the pillar assembly system as standard. See the SCHUNK Kombibox software, which can be found online, for the right arrangement for your application.

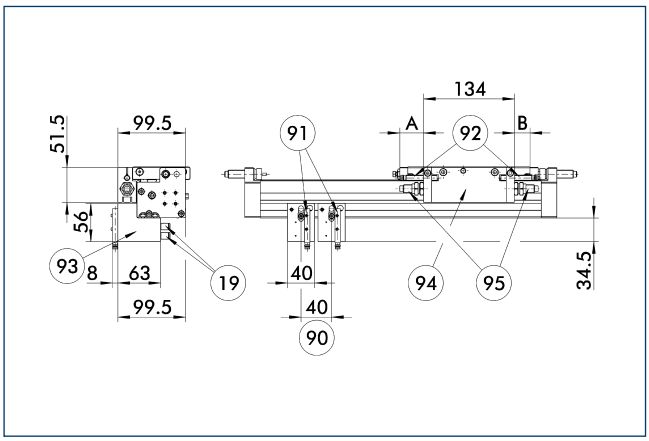
Description	ID	Pillar diameter	Material
		[mm]	
Pillar assembly system mounting plates			
AEV 55	0313516	55	Aluminum

Mounting



Description	ID	
T-Nuts		
NT-M5	0313607	

Stop slide

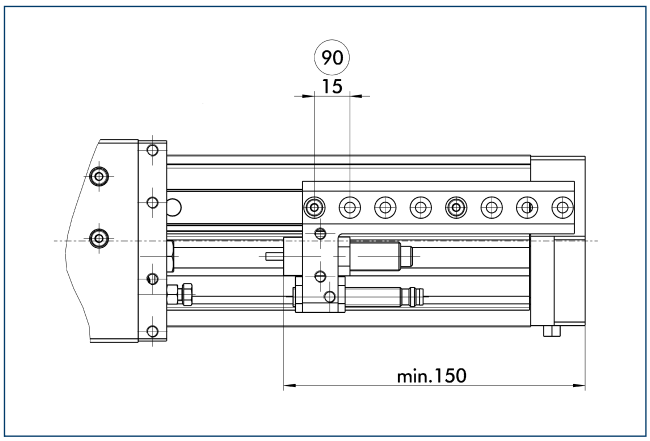


(19) Air connection
(90) ZA minimum distance between the intermediate stops
(91) NI 40
(92) NI 30-KT
(93) ZA 16
(94) AS 16
(95) STD 1200

By assembling AS and ZA, several intermediate positions can be achieved. For the AS 16-1 stop slide, the intermediate position can only be approached from one side. For the AS 16-2 stop slide, the intermediate position can be approached from both sides. The first intermediate position minimum 30 mm after the start position.

Description	ID	A	B	Number of hydraulic shock absorbers
		[mm]	[mm]	
Intermediate stop				
ZA 16	0314143			
Stop slide				
AS 16-1	0314145	5	35	1
AS 16-2	0314146	35	35	2

Variable end stop

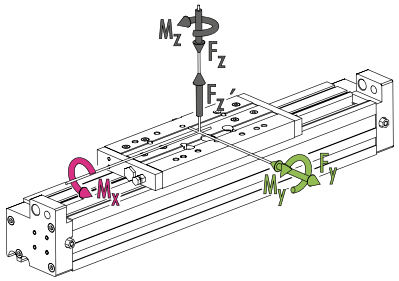


(90) Grid dimension, stroke adjustment

With the variable end stop, the end positions can be continuously adjusted over the whole length of the stroke, for example, for arranging the profile lengths independent from the actual used stroke. Additional carrier profiles are then no more needed.

Description	ID	
Variable end stop		
VEP-F 16	0313604	
VEP-S 16	0313603	

Moment loading



M_x max. 250 Nm
F_y max. 4200 N
M_y max. 500 Nm
F_z max. 4200 N
M_z max. 500 Nm

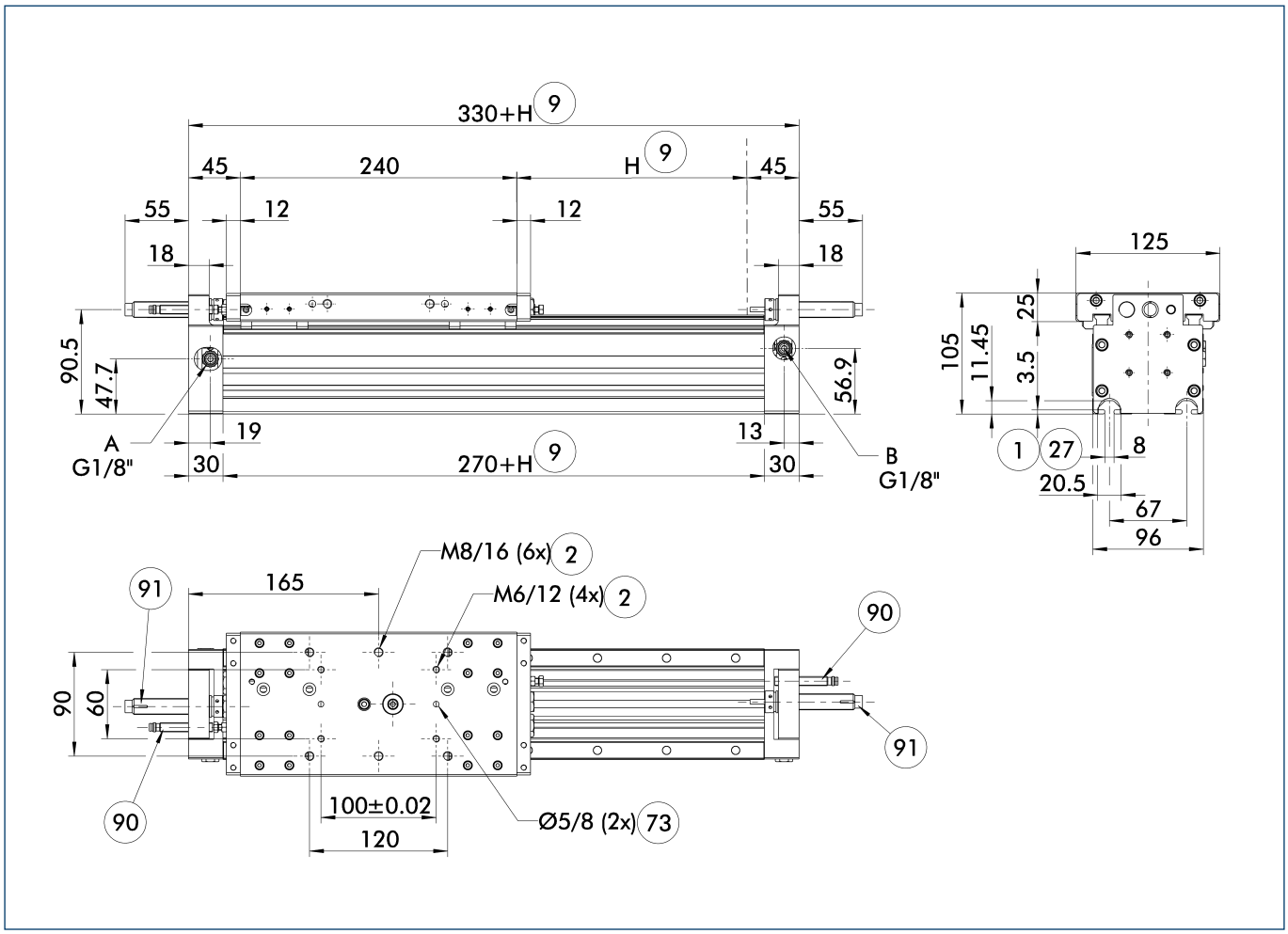
ⓘ Moments and forces may occur simultaneously.

Technical data

Description		PMP-S-25	PMP-F-25
Max. stroke	[mm]	3700	1000
Max. driving force	[N]	250	250
Repeat accuracy	[mm]	0.04	0.04
Piston diameter	[mm]	25	25
Min./max. operating pressure	[bar]	3/8	3/8
Nominal operating pressure	[bar]	6	6
Fluid consumption/10 mm stroke	[cm³]	4.9	4.9
Min./max. ambient temperature	[°C]	5/60	5/60
Weight	[kg]	6.8	8.8
Weight per 1 mm stroke	[kg]	0.0103	0.0134
Drive concept		Cylinder without piston rod	Cylinder without piston rod

ⓘ The specified weight arises at 0 mm stroke. The weight of the module increases by the value specified in the table for each 1 mm stroke.

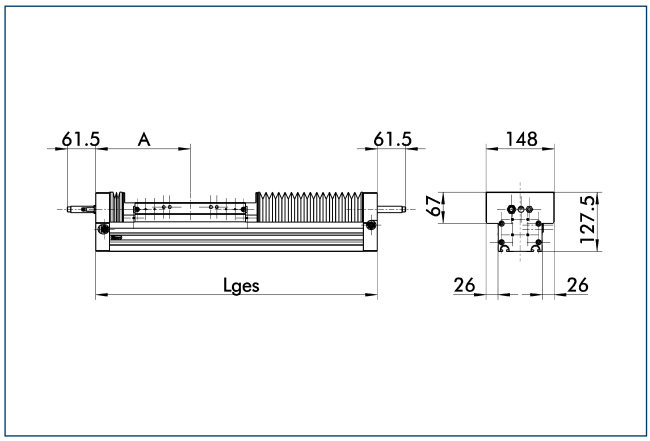
Main view



The drawing shows the unit in standard design, without considering any dimensions of the options described below.

A Main connection – linear unit extended
B Main connection – linear unit retracted
(1) Connection linear unit
(2) Attachment connection
(9) Effective stroke
(27) Fastening groove for T-nuts
(73) Fit for centering pins
(90) NI 30-KT
(91) LMST 200-KT

Bellow



The "Bellow" option increases the degree of protection against penetrating materials. The variable dimensions are calculated as follows:

ⓘ F_z = nominal stroke x 0.0288 [rounded to nearest whole number];
FBB = F_z x 3.3 [rounded to nearest whole number];
L_{ges} = 370 + nominal stroke + 2 x FBB; A = 185 + FBB

KSH cable track, horizontal slide

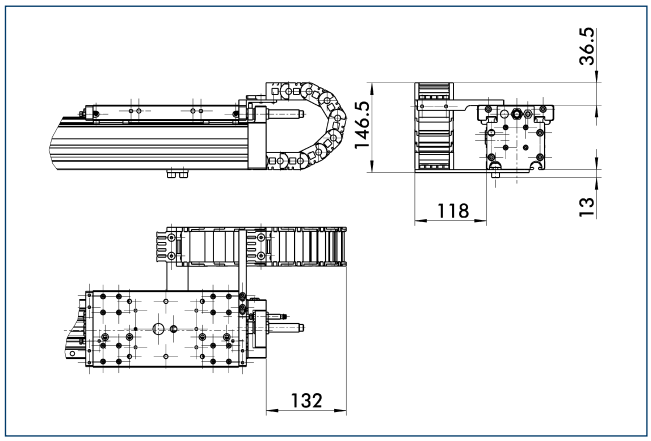


Illustration: Attachment variant 1. Other attachment variants are possible as standard. Please contact us for assistance.

KSV cable track, vertical slide

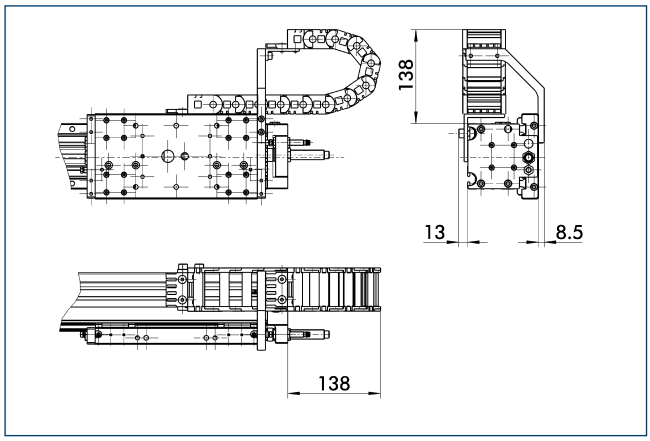
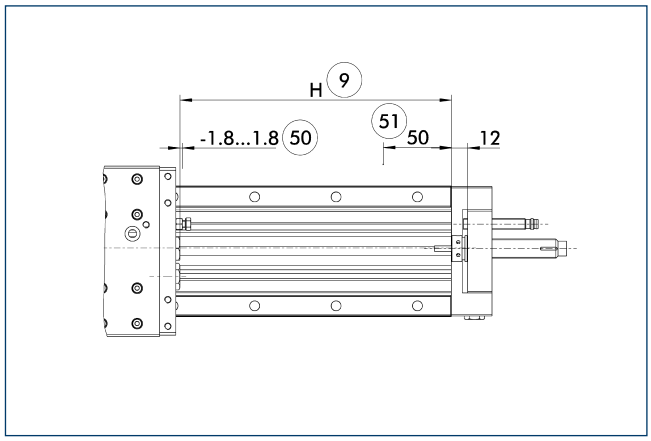


Illustration: Attachment variant 1. Other attachment variants are possible as standard. Please contact us for assistance.

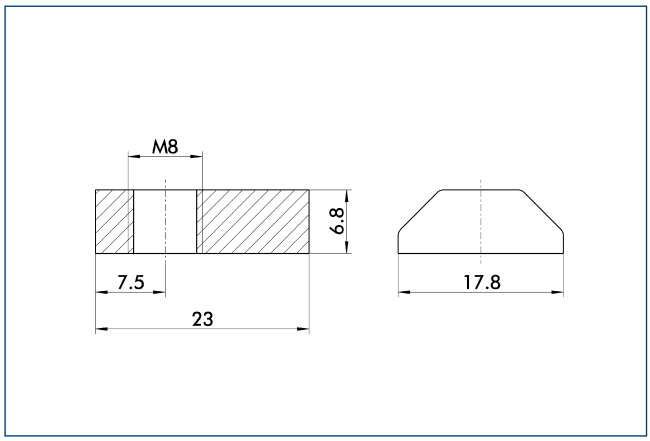
Stroke adjustment



(9) Nominal stroke
(50) Damping stroke adjustment range
(51) Stroke adjustment range

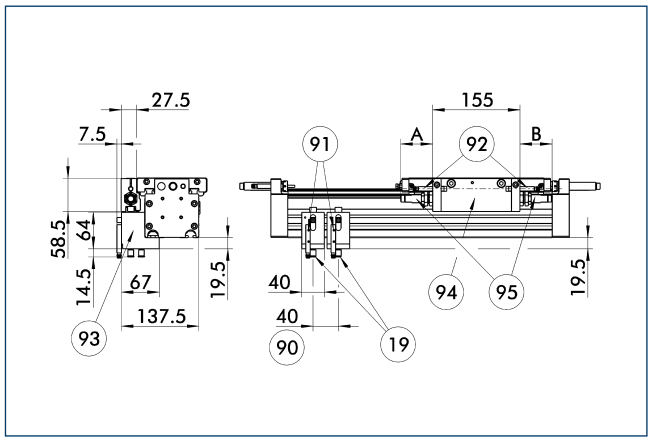
The nominal stroke for each end position can be finely adjusted by screwing out the shock absorber.

Mounting



Description	ID	
T-Nuts		
NT-M8	0313608	

Stop slide

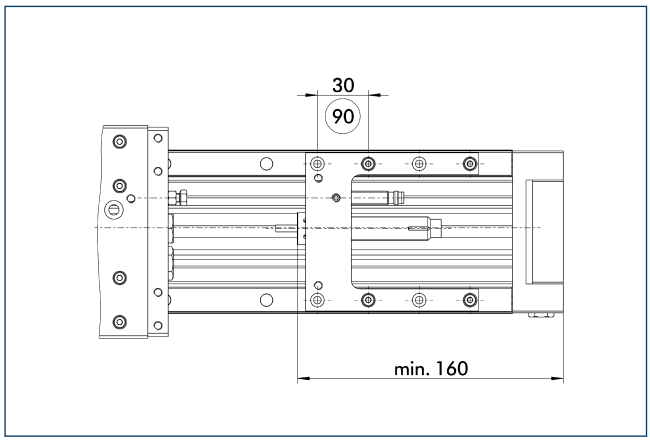


19 Air connection
90 Minimum distance between the intermediate stops, ZA
91 NI 40
92 NI 30-KT
93 ZA 25
94 AS 25
95 STD 1403

By assembling AS and ZA, several intermediate positions can be achieved. For the AS 25-1 stop slide, the intermediate position can only be approached from one side. For the AS 25-2 stop slide, the intermediate position can be approached from both sides. It is also possible to attach two stop slides to the main slide. The first intermediate position minimum 30 mm after the start position.

Description	ID	A	B	Number of hydraulic shock absorbers
		[mm]	[mm]	
Intermediate stop				
ZA 25	0314144			
Stop slide				
AS 25-1	0314147	6	57	1
AS 25-2	0314148	57	57	2

Variable end stop



90 Grid dimension, stroke adjustment

With the variable end stop, the end positions can be continuously adjusted over the whole length of the stroke, for example, for arranging the profile lengths independent from the actual used stroke. Additional carrier profiles are then no more needed.

Description	ID	
Variable end stop		
VEP-F 25	0313606	
VEP-S 25	0313605	