Superior Clamping and Gripping

SCHUNK®

Product Information

Universal gripper PGF 125

Flexible. Compact. Robust.

Universal gripper PGF

Universal parallel gripper with surface-guided base jaws

Field of application

suitable for clean work environments and high part diversity due to its long jaw stroke and high gripping forces

Advantages – Your benefits

Precise flat guidance for very good guidance characteristics

Large stroke at compact design for minimal interfering contours

Mounting from two sides in three screw directions for universal and flexible gripper assembly

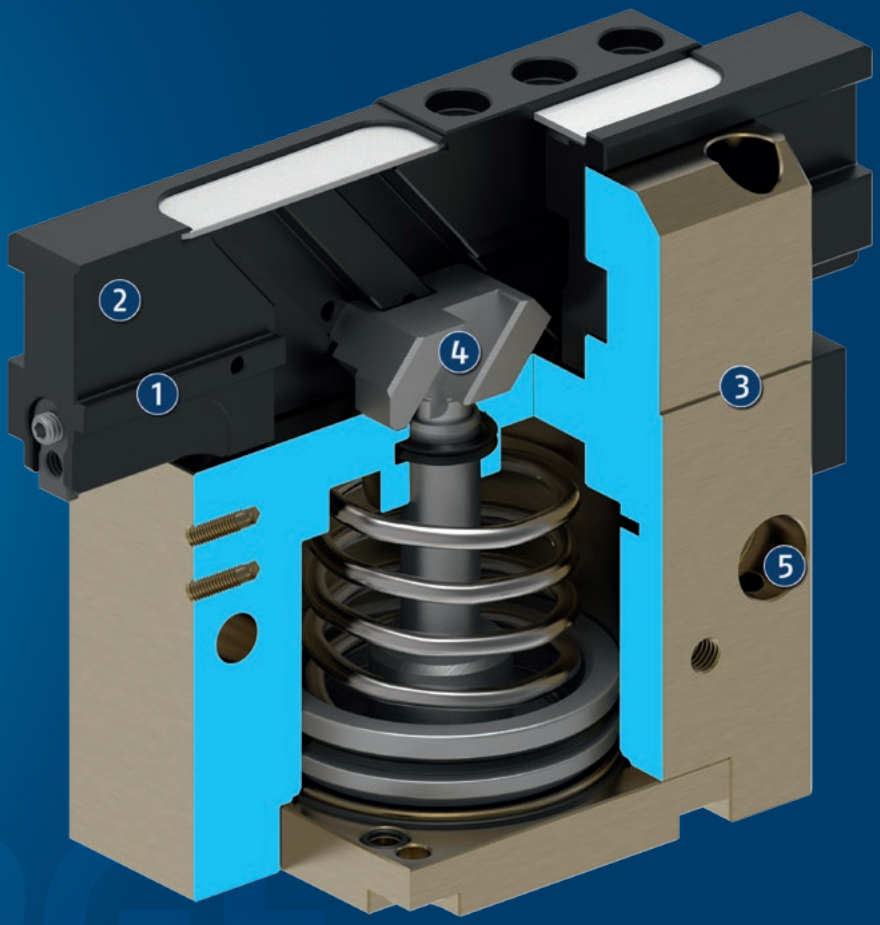
Air supply via hose-free direct connection or screw connections for flexible pressure supply in all automated systems

M5 connection on both sides of the guidances for the use of lubricating nipples

Sizes	Weight	Gripping force	Stroke per jaw	Workpiece weight
Quantity: 5	0.3 .. 5.3 kg	240 .. 1900 N	7.5 .. 31.5 mm	1.2 .. 7.1 kg

Functional description

The round piston is pushed upwards or downwards with compressed air.
The angled active surfaces of the wedge-hook produce a synchronized, parallel jaw motion.



① **Sliding guide**
precise gripping through flat, low-play precision ground guidance along the entire length of the housing

② **Base Jaw**
for the connection of workpiece-specific gripper fingers

③ **Housing**
is weight-optimized due to the use of high-strength aluminum alloy

④ **Wedge-hook design**
for high force transmission and centric gripping

⑤ **Centering and mounting possibilities**
for universal assembly of the gripper

General notes about the series

Operating principle: Wedge-hook kinematics

Housing material: Aluminum alloy, anodized

Base jaw material: Steel

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

Warranty: 24 months

Scope of delivery: Brackets for proximity switches, centering sleeves, O-rings for direct connection, assembly instructions (operating manual with declaration of incorporation is available online)

Gripping force maintenance device: possible by using the version with mechanical gripping force maintenance or pressure maintenance valve SDV-P

Gripping force: is the arithmetic sum of the individual force applied to each jaw at distance P (see illustration).

Finger length: is measured from the reference surface as the distance P in direction to the main axis.
The maximum permissible finger length applies until the nominal operating pressure is achieved. With higher pressures, the finger length must be reduced proportionally to the nominal operating pressure.

Repeat accuracy: is defined as a distribution of the end Position for 100 consecutive strokes.

Workpiece weight: is calculated for force-fit gripping with a coefficient of static friction of 0.1 and a safety factor of 2 against workpiece slippage at acceleration due to gravity g. For form-fit or capture gripping, there are significantly higher permissible workpiece weights.

Closing and opening times: are purely the times that the base jaws or fingers are in motion. Valve switching times, hose fill times, or PLC reaction times are not included, and are to be considered when cycle times are calculated.

Application example

Compensation unit for mounting a pin in a bore with a roughly toleranced position. The compensation unit compensates for the planar offset without turning or tilting the workpiece.

1. 2-finger parallel gripper PGF with top finger and workpiece
2. Compensation unit AGE-XY

SCHUNK offers more ...

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

Compensation unit

Anti-collision and overload protection sensor

Manual change system

Pressure maintenance valve

Inductive proximity switches

Flexible position sensor

ⓘ For more information on these products can be found on the following product pages or at schunk.com.

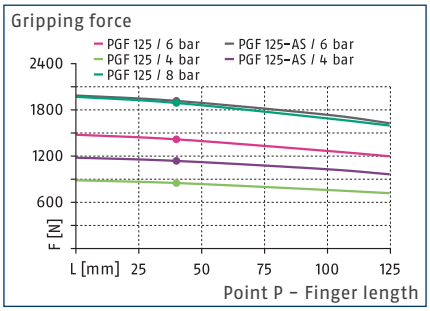
Options and special information

Gripping force maintenance version AS/IS: The mechanical gripping force maintenance version ensures minimum gripping force even in the event of a pressure drop. In the AS/S version this acts as a closing force, in the IS version as an opening force.
Due to the long guidance, the gripper is highly resistant during gripping operations where the gripper fingers are exposed to high moment loads. Grippers with a higher exchange accuracy are available on request.

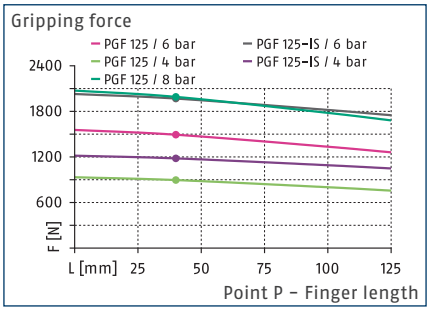
PGF 125

Universal gripper

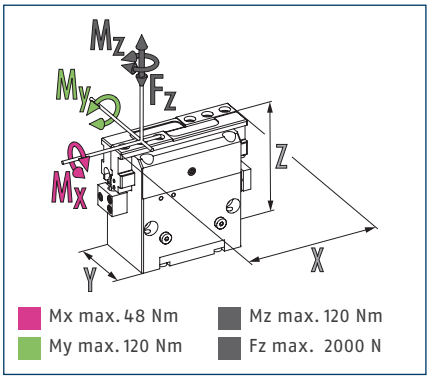
Gripping force O.D. gripping



Gripping force I.D. gripping



Dimensions and maximum loads



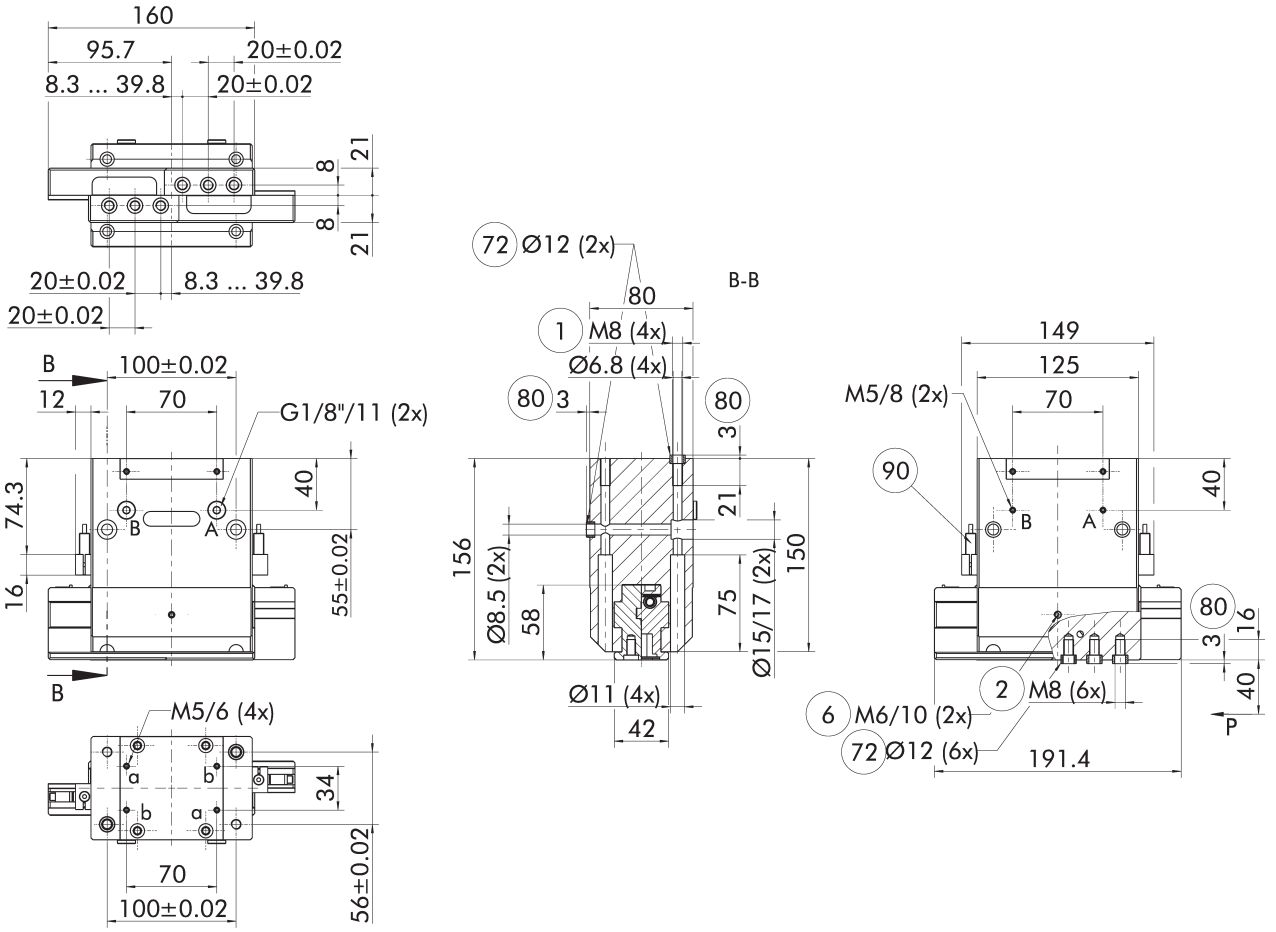
ⓘ The indicated moments and forces are statical values, apply for each base jaw and may appear simultaneously. Loads may additionally occur to the moment produced by the gripping force itself.

Technical data

Description		PGF 125	PGF 125-AS	PGF 125-IS
ID		0340390	0340391	0340392
Stroke per jaw	[mm]	31.5	31.5	31.5
Closing/opening force	[N]	1420/1490	1900/-	-/1970
Min. spring force	[N]		480	480
Weight	[kg]	5	5.3	5.3
Recommended workpiece weight	[kg]	7.1	7.1	7.1
Fluid consumption double stroke	[cm³]	300	300	300
Min./nom./max. operating pressure	[bar]	3.5/6/8	4/6/6.5	4/6/6.5
Closing/opening time	[s]	0.25/0.25	0.22/0.4	0.4/0.22
Closing/opening time with spring	[s]		0.80	0.80
Max. permissible finger length	[mm]	125	125	125
Max. permissible mass per finger	[kg]	2.4	2.4	2.4
IP protection class		40	40	40
Min./max. ambient temperature	[°C]	5/90	5/90	5/90
Repeat accuracy	[mm]	0.03	0.03	0.03
Dimensions X x Y x Z	[mm]	191.5 x 80 x 156	191.5 x 80 x 156	191.5 x 80 x 156

ⓘ It may take a few 100 gripping cycles until the full gripping force (as indicated in the data table) will be available.

Main view



The drawing shows the gripper in the basic version with closed jaws, without dimensional consideration of the options described below.

ⓘ The SDV-P pressure maintenance valve can also be used for I.D. or O.D. gripping alternatively or in addition to the spring-loaded, mechanical gripping force maintenance device (see catalog section on accessories).

A, a Main / direct connection, gripper opening

B, b Main / direct connection, gripper closing

(1) Gripper connection

(2) Finger connection

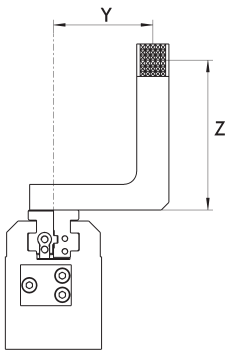
(6) Lubricating nipple connection

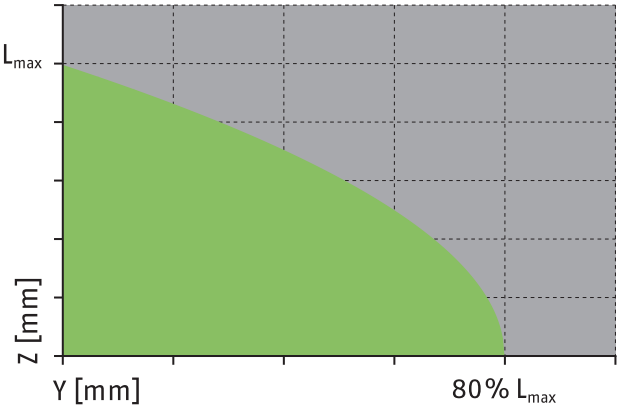
(72) Fit for centering sleeves

(80) Depth of the centering sleeve hole in the counter part

(90) Sensor IN ...

Maximum permitted finger projection



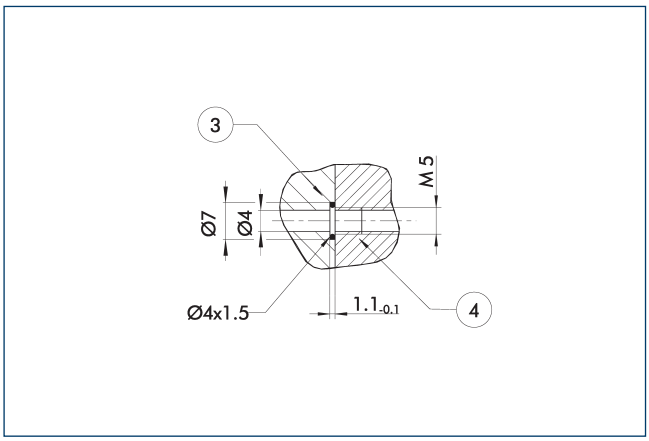


Permitted range

Inadmissible range

Lmax is equivalent to the maximum permitted finger length, see the technical data table.

Hose-free direct connection M5

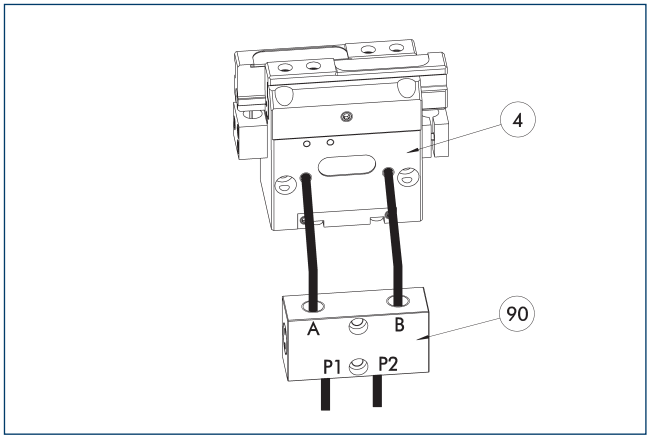


(3) Adapter

(4) Grippers

The direct connection is used for supplying compressed air without hoses. Instead, the pressure medium is fed through bore-holes in the mounting plate.

SDV-P pressure maintenance valve



(4) Grippers

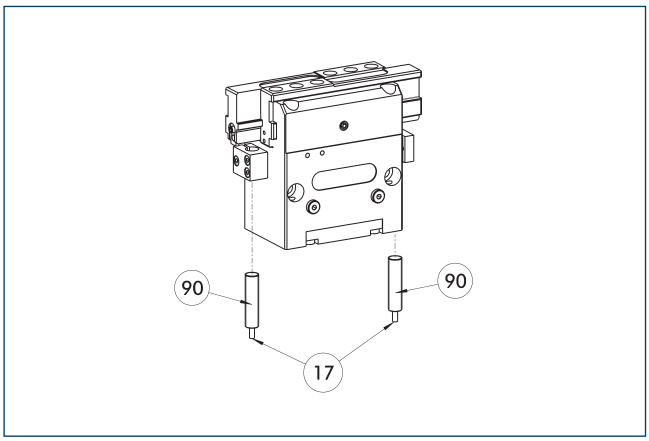
(90) SDV-P pressure maintenance valve

The SDV-P pressure maintenance valve ensures in emergency STOP situations that the pressure in the piston chamber of pneumatic gripper, swivel, linear, and quick-change modules is temporarily maintained.

Description	ID	Recommended hose diameter
		[mm]
Pressure maintenance valve		
SDV-P 07	0403131	8
Pressure maintenance valve with air bleed screw		
SDV-P 07-E	0300121	8

ⓘ In order to achieve the specified closing and opening time for each gripper variant, the recommended hose diameter must be used. The direct allocation of the respective variant of the gripper for the respective SDV-P can be found at schunk.com.

Inductive Proximity Switches



(17) Cable outlet (90) Sensor IN ...

Directly mounted end position monitoring.

Description	ID	Often combined
Inductive proximity switches		
IN 80-S-M12	0301578	
IN 80-S-M8	0301478	●
IN-C 80-S-M8-PNP	0301475	
INK 80-S	0301550	
Connection cables		
KA BG08-L 3P-0300-PNP	0301622	●
KA BG08-L 3P-0500-PNP	0301623	
KA BG12-L 3P-0500-PNP	30016369	
KA BW08-L 3P-0300-PNP	0301594	
KA BW08-L 3P-0500-PNP	0301502	
KA BW12-L 3P-0300-PNP	0301503	
KA BW12-L 3P-0500-PNP	0301507	
clip for plug/socket		
CLI-M12	0301464	
CLI-M8	0301463	
Cable extension		
KV BG12-SG12 3P-0030-PNP	0301999	
KV BG12-SG12 3P-0060-PNP	0301998	
KV BW08-SG08 3P-0030-PNP	0301495	
KV BW08-SG08 3P-0100-PNP	0301496	
KV BW08-SG08 3P-0200-PNP	0301497	●
KV BW12-SG12 3P-0030-PNP	0301595	
KV BW12-SG12 3P-0100-PNP	0301596	
KV BW12-SG12 3P-0200-PNP	0301597	
Sensor distributor		
V2-M12	0301776	●
V2-M8	0301775	●
V4-M8	0301746	
V8-M8	0301751	

ⓘ Two sensors are required per unit for monitoring two positions. On option, extension cables and sensor distributors are available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor system.

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