

Precise. Compact. Reliable.

MPG Miniature Parallel Gripper

2-finger parallel gripper with smooth running base jaws guided on roller bearings

Field of Application

Gripping and moving of small to medium-sized workpieces in low contaminated environments, such as assembly, testing, laboratory, and pharmaceutical industry

Advantages – Your benefit

Cross roller guidance for precise gripping through base jaw guidance with minimum play

Base jaws guided on double roller bearings ensuring low friction and smooth running actuation

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



Sizes
Quantity: 9



Weight
0.01 .. 0.7 kg



Gripping force
7 .. 270 N



Stroke per jaw
1 .. 10 mm



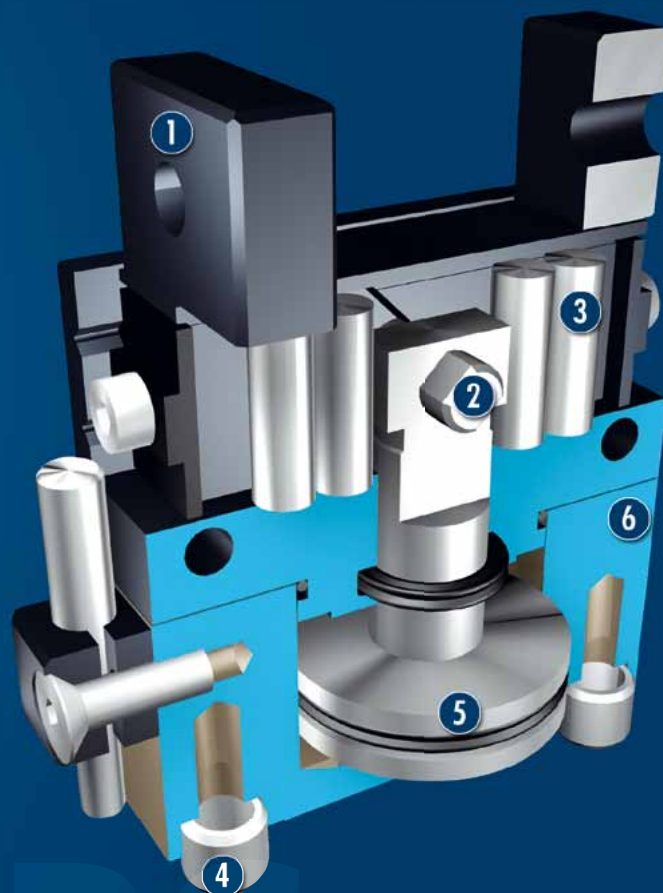
Workpiece weight
0.05 .. 1.0 kg



Functional Description

The piston is moved up or down by compressed air. The side hooks at the upper end of the piston rod guide in the angular slots of both base jaws, and thus transform

this movement into the synchronized opening or closing of the base fingers.



- ① **Base jaw**
for the connection of workpiece-specific gripper fingers
- ② **Wedge-hook design**
for high power transmission and centric gripping
- ③ **Cross roller guidance**
Precise gripping through base jaw guide with minimum play
- ④ **Centering and mounting possibilities**
for assembly of the gripper to a base area and at the long side
- ⑤ **Drive**
Double-acting piston drive system
- ⑥ **Housing**
Weight-optimized through application of high-strength aluminum alloy

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

General Notes about the Series

Operating principle: Wedge-hook kinematics

Housing material: Aluminum alloy, anodized

Cover material: Steel

Base jaw material: Steel

Actuation: pneumatic, with filtered compressed air as per DIN ISO 8573-1: 7 4 4

Warranty: 24 months (details, general terms and conditions and operating manuals can be downloaded at www.schunk.com)

Scope of delivery: Mount for proximity switch, centering sleeves, O-rings for direct connection, assembly and operating manual with declaration of incorporation.

Gripping force maintenance device: possible with variants with mechanical maintenance of gripping force or SDV-P pressure maintenance valve

Gripping force: is the arithmetic total of the gripping force applied to each gripper jaw at distance P (see illustration).

Finger length: is measured from the upper edge of the gripper housing in the direction of the main axis. The breach of the max. permitted finger length can bring higher abrasion. The maximum permissible finger length applies up to the nominal operating pressure. With higher pressures, the finger length must be reduced proportionally to the nominal operating pressure.

Repeat accuracy: is defined as the spread of the limit position after 100 consecutive strokes.

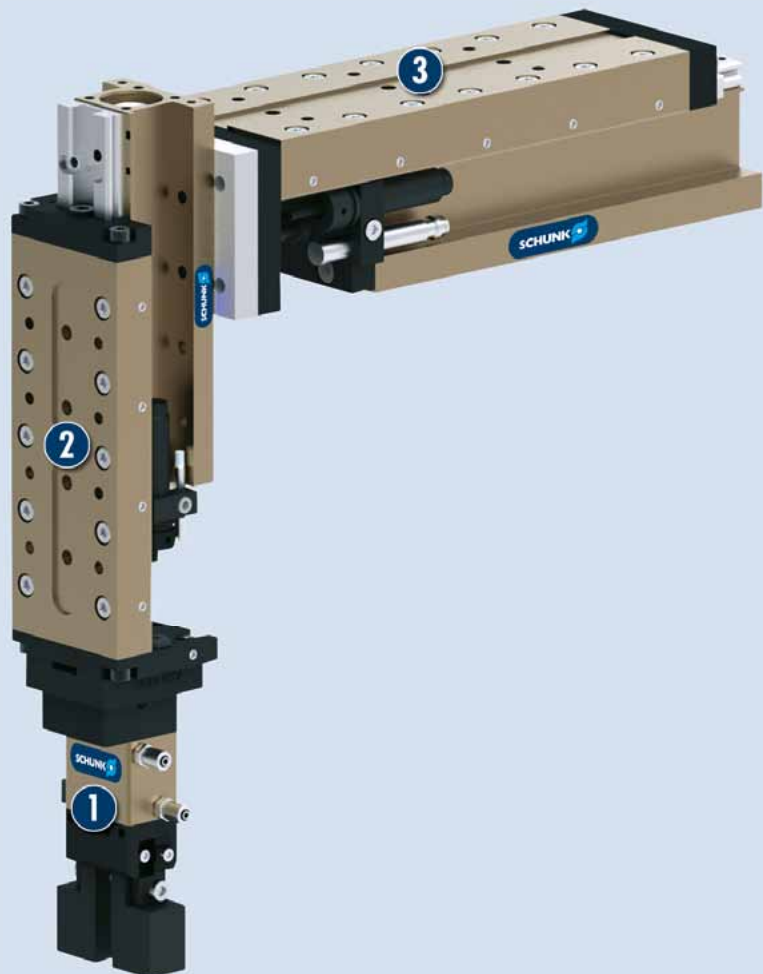
Workpiece weight: is calculated for a force-fit connection with a coefficient of friction of 0.1 and a safety factor of 2 against slippage of the workpiece on acceleration due to gravity g. Considerably heavier workpiece weights are permitted with form-fit gripping.

Closing and opening times: are purely the times that the base jaws or fingers are in motion. Valve switching times, hose filling times or PLC reaction times are not included in the above times and must be taken into consideration when determining cycle times.

Application example

Pneumatically driven, two axis assembly machine for small components

- ① MPG 2-Finger Parallel Gripper with standard finger blanks
- ② CLM Mini-slide for vertical movement
- ③ CLM Mini-slide for horizontal movement



SCHUNK offers more ...

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



Sensor System



Sensor Cables



Sensor Distributor



Flexible Position Sensor



Fittings



SDV-P Pressure Maintenance Valve



Finger Blanks



Switching Valve



Gripper Pads



Carbide Clamping Inserts



Plastic Inserts



Centering Sleeves

① Further 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

Gripping force maintenance version AS / IS: The mechanical gripping force maintenance version ensures a minimum gripping force also in the case of a drop in pressure. In the AS / S version this has the effect of a closing force, in the IS version of an opening force.

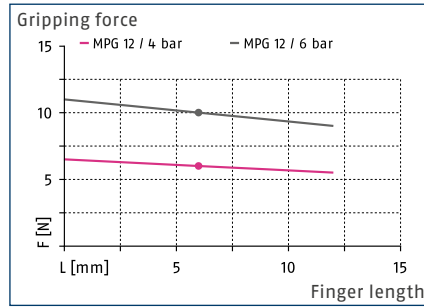
Additional mounting bores: for centering the fingers via sleeves, instead of normal mounting surfaces. Special versions on request.

MPG 12

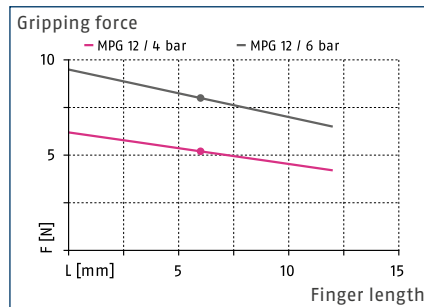
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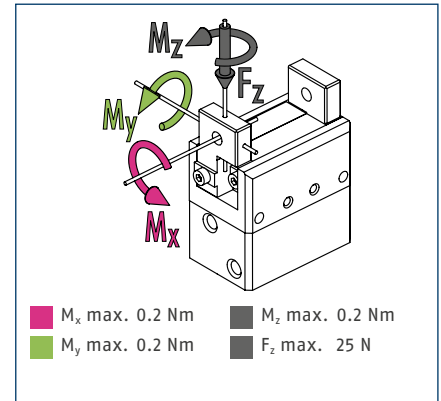
Gripping force, O.D. gripping



Gripping force, I.D. gripping



Finger load



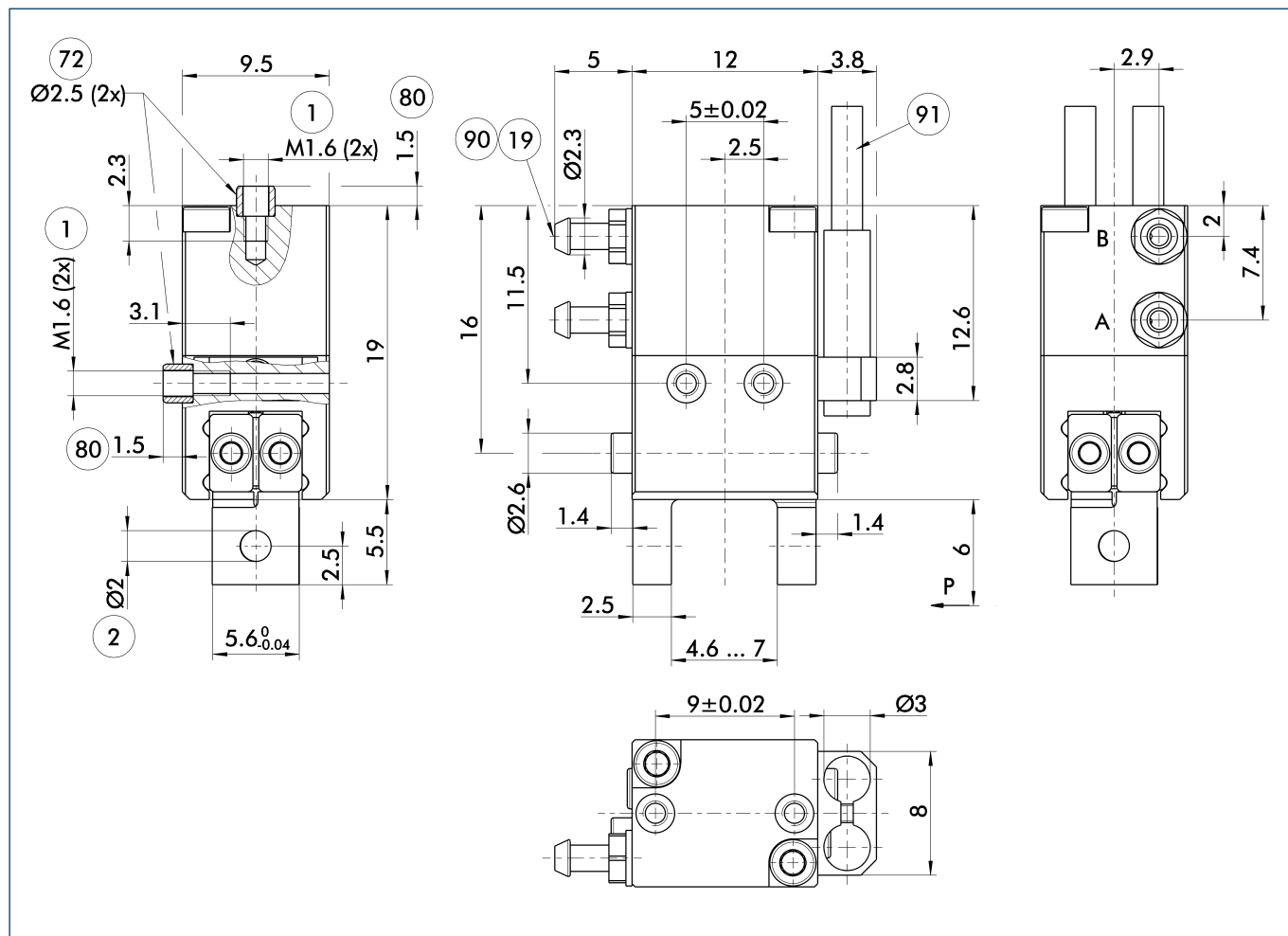
① The indicated moments and forces are static values, apply per base jaw and may occur simultaneously. M_y may arise in addition to the moment generated by the gripping force itself. If the max. permitted finger weight is exceeded, it is impreative to throttle the air supply so that the jaw movement occurs without any hitting or bouncing. Service life may be reduced.

Technical data

Description		MPG 12
ID		0340007
Stroke per jaw	[mm]	1.2
Closing- / opening force	[N]	10/8
Weight	[kg]	0.01
Recommended workpiece weight	[kg]	0.05
Fluid consumption per double stroke	[cm ³]	0.17
min. / max. operating pressure	[bar]	3/6
Nominal operating pressure	[bar]	6
Closing- / opening time	[s]	0.01/0.01
max. permitted finger length	[mm]	12
max. permitted weight per finger	[kg]	0.01
IP class		30
min. / max. ambient temperature	[°C]	5/90
Repeat accuracy	[mm]	0.02
Cleanroom class ISO 14644-1		5



Main view



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

① The SDV-P pressure maintenance valve can be used as a 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

⑱ Air connection

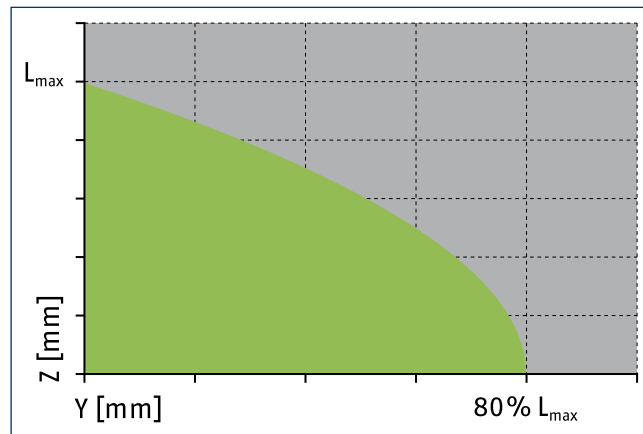
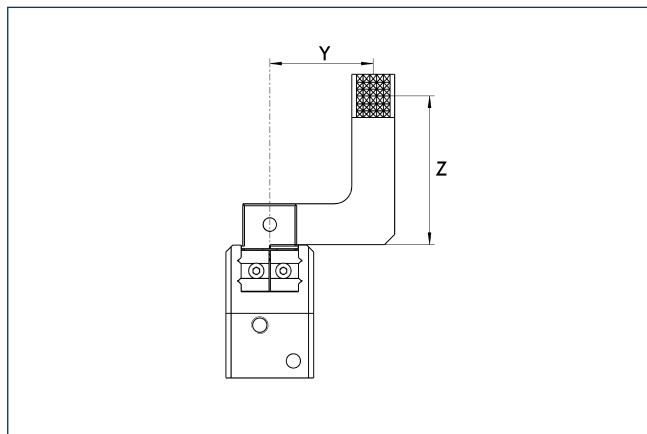
⑦② Fit for centering sleeves

⑧① Depth of the centering sleeve hole in the mating part

⑨① Bosch-Rexroth compressed air hose, TU1-S (Ø 3.0 – 0.6) series, Order no.: 1820712066 (-67/-68/-69)

⑨① IN ... sensor

Maximum permitted finger projection



■ Permitted range

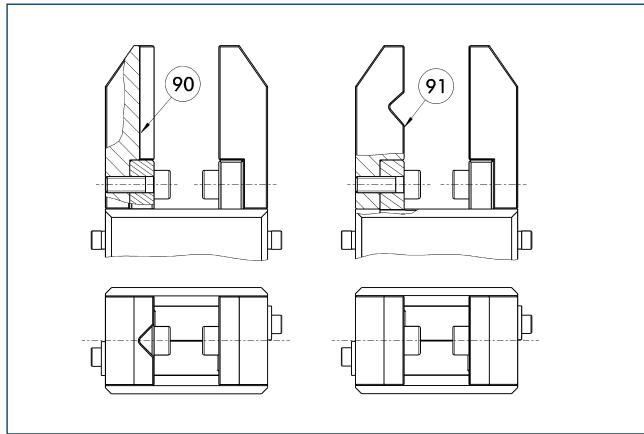
■ Inadmissible range

L_{max} is equivalent to the maximum permitted finger length, see the chart of technical specifications.

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Jaw design

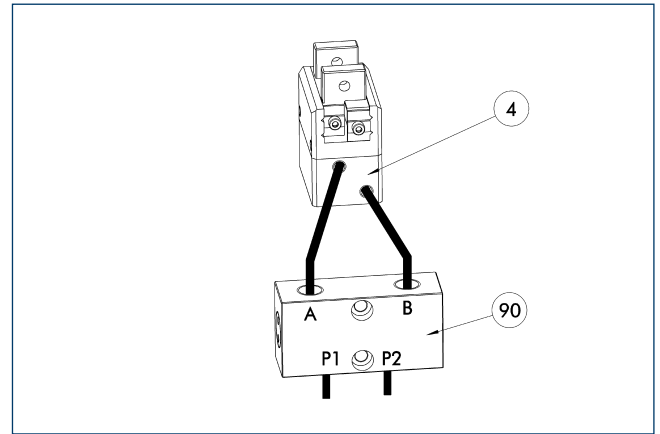


90 Vertical prism

91 Horizontal prism

A three-point support of the gripped workpiece is beneficial for gripping the workpiece with repeat accuracy and process reliability. More than three support points lead to a redundancy of the system. The drawing shows two alternative recommendations for the jaw design for coaxial and radial gripping of a cylindrical part.

SDV-P pressure maintenance valve



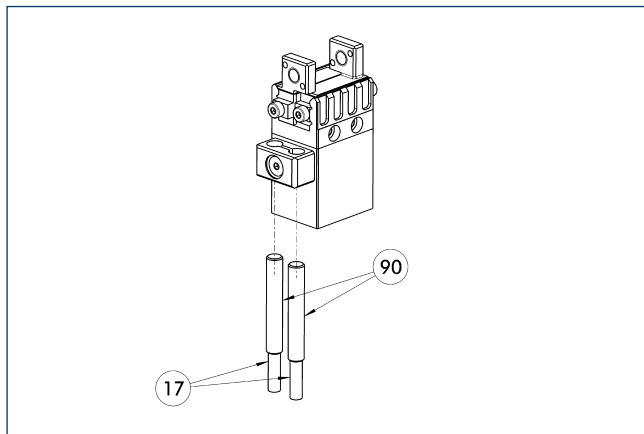
4 Gripper

90 SDV-P pressure maintenance valve

The SDV-P pressure maintenance valves ensure that the pressure in the piston chamber of pneumatic gripping, rotary, linear, and quick-change modules is maintained temporarily during an emergency stop.

Description	ID	
Pressure maintenance valve		
SDV-P 04	0403130	

IN 3 inductive proximity switches



17 Cable outlet

90 IN ... sensor

Description	ID	Often combined
Inductive proximity switches		
IN 3-S-M8-PNP	0301466	●
Connection cables		
KA BG08-L 3P-0300-PNP	0301622	
KA BG08-L 3P-0500-PNP	0301623	
KA BW08-L 3P-0300-PNP	0301594	
KA BW08-L 3P-0500-PNP	0301502	
Cable extensions		
KV BW08-SG08 3P-0030-PNP	0301495	
KV BW08-SG08 3P-0100-PNP	0301496	
KV BW08-SG08 3P-0200-PNP	0301497	

① Two sensors (closer/S) are required for each unit, plus extension cables as an option. Please note the minimum permitted bending radii for the sensor cables, which are generally 35 mm.

