

MPZ

SCHUNK Grippers pneumatic | 3-Finger Centric Grippers | Small Components Gripper

Precise. Compact. Reliable.

MPZ Small Components Gripper

Small 3-finger centric gripper with base jaws guided on T-slots

Field of Application

For universal use in clean to slightly dirty working environments, especially suitable for gripping small workpieces

Advantages – Your benefit

T-slot guidance for precise gripping at high moment loads

Finger position monitoring also possible via FPS

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



Sizes

Quantity: 6



Weight

0.01 .. 0.29 kg



Gripping force

20 .. 310 N



Stroke per jaw

1 .. 5 mm



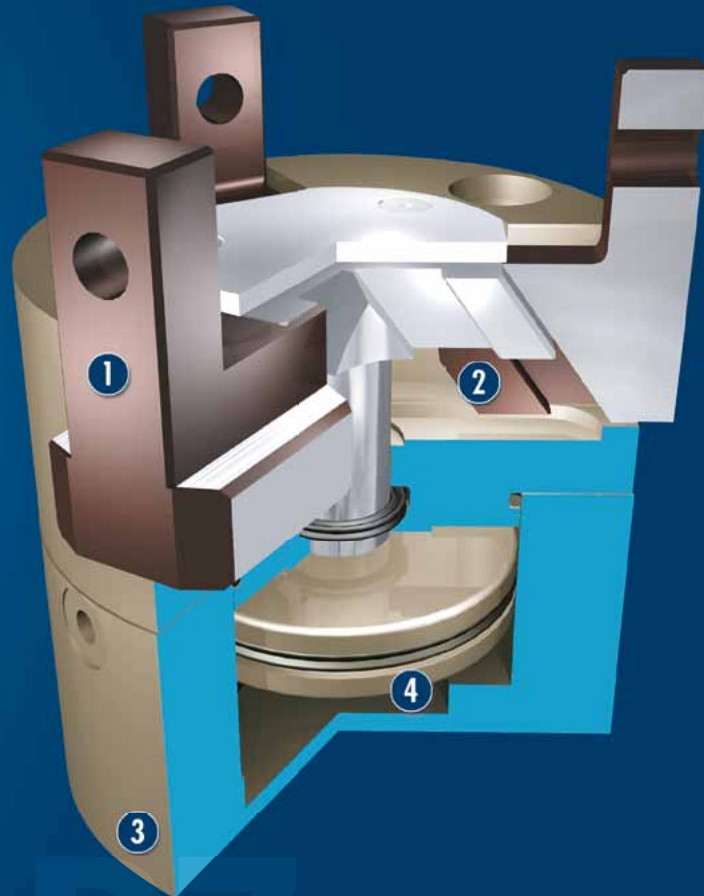
Workpiece weight

0.05 .. 1.15 kg



Functional Description

The piston is moved up and down by compressed air. The angled active surfaces of the wedge-hook produce a synchronized, centric jaw movement.



- ① **T-slot guidance**
for precise gripping with high moment loads
- ② **Wedge-hook design**
for high power transmission and centric gripping
- ③ **Housing**
Weight-optimized through application of high-strength aluminum alloy
- ④ **Drive**
Pneumatic and efficient

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

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: Centering sleeves, centering pins, O-rings for direct connection, assembly and operating manual with manufacturer's declaration

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

Handling device with possibility of direct mounting on a robot for screwing in plugs

- ① MPZ 3-Finger Centric Gripper
- ② DDF 2 Rotary Feed-through



SCHUNK offers more ...

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



Centering Sleeves



Fittings



Magnetic Switches



Sensor Cables



Flexible Position Sensor



Gripper Pads



Sensor Distributor



Plastic Inserts



SDV-P Pressure Maintenance Valve



Finger Blanks

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.

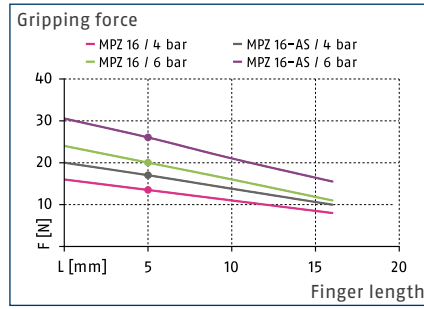
Small and compact 3-finger centric gripper for fast gripping applications. Monitoring of the smallest differences in stroke possible via FPS system.

MPZ 16

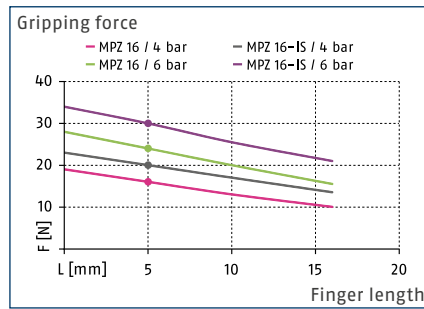
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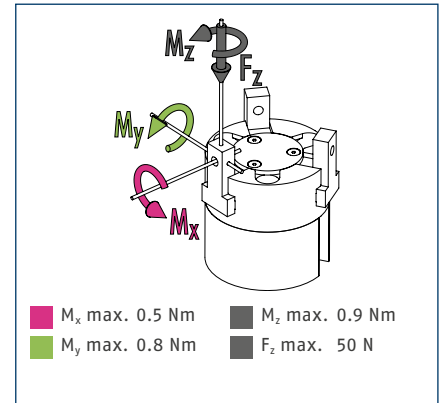
Gripping force, O.D. gripping



Gripping force, I.D. gripping



Finger load

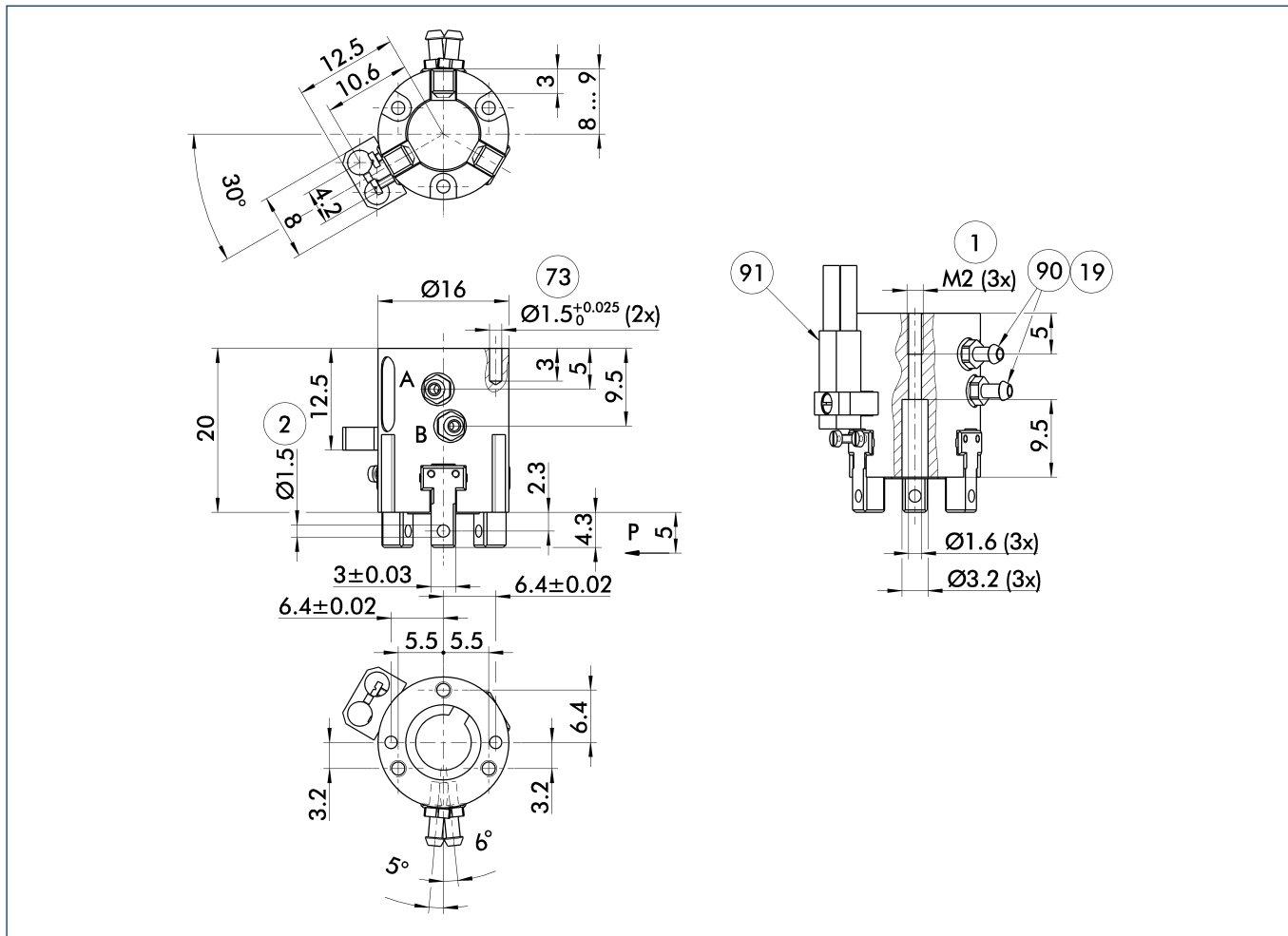


① The indicated moments and forces are static values, apply per base jaw and may occur simultaneously. M_y may arise in addition to the moment generated by the gripping force itself. If the max. permitted finger weight is exceeded, it is impreative to throttle the air supply so that the jaw movement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

Technical data

Description		MPZ 16	MPZ 16-AS	MPZ 16-IS
ID		0340480	0340481	0340482
Stroke per jaw	[mm]	1	1	1
Closing- / opening force	[N]	20/24	26/-	-/30
min. spring force	[N]		6	6
Weight	[kg]	0.01	0.02	0.02
Recommended workpiece weight	[kg]	0.05	0.05	0.05
Fluid consumption per double stroke	[cm ³]	0.15	0.4	0.4
min. / max. operating pressure	[bar]	2/8	4/6.5	4/6.5
Nominal operating pressure	[bar]	6	6	6
Closing- / opening time	[s]	0.02/0.02	0.02/0.04	0.04/0.02
Closing- / opening time only with spring	[s]		0.20	0.20
max. permitted finger length	[mm]	16	16	16
max. permitted weight per finger	[kg]	0.02	0.02	0.02
IP class		40	40	40
min. / max. ambient temperature	[°C]	5/90	5/90	5/90
Repeat accuracy	[mm]	0.01	0.01	0.01
Cleanroom class ISO 14644-1		5	5	5

Main view



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

① 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

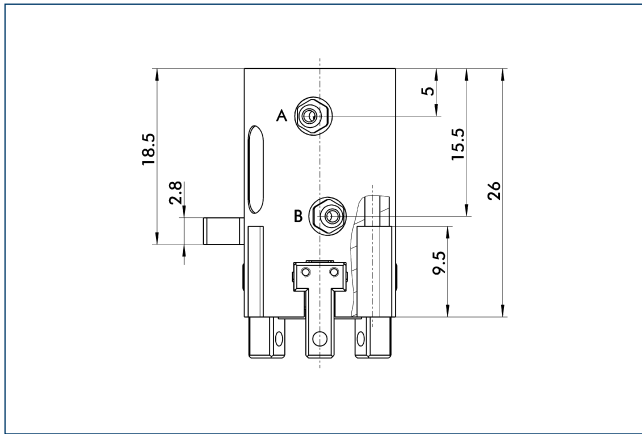
①⑨ Air connection

⑦③ Fit for centering pins

⑨⑩ Bosch-Rexroth compressed air hose, TU1-S (Ø 3.0 – 0.6) series, Order no.: 1820712066 (-67/-68/-69)

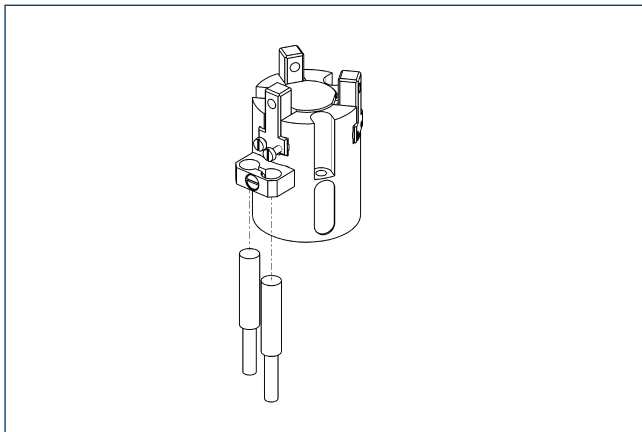
⑨① IN ... sensor

Gripping force maintenance device AS / IS



The mechanical maintenance of gripping force also assures a minimum gripping force in the case of a loss of pressure. With the AS / S variant, this acts as a closing force, and as an opening force for the IS variant. The maintenance of gripping force element can also be used as a means for increasing gripping force or for single actuated gripping.

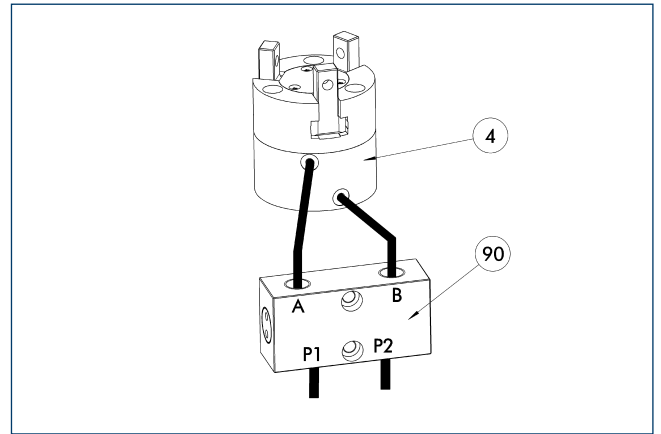
Inductive proximity switches



Directly mounted limit position monitor.

Description	ID	Often combined
Inductive proximity switches		
IN 3-S-M8-PNP	0301466	
Cable extensions		
KV BW08-SG08 3P-0030-PNP	0301495	
KV BW08-SG08 3P-0100-PNP	0301496	
KV BW08-SG08 3P-0200-PNP	0301497	●
Clip for plug / socket		
CLI-M8	0301463	
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	
Sensor distributor		
V2-M8	0301775	●
V4-M8	0301746	

SDV-P pressure maintenance valve



④ Gripper

⑨⑩ 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	

