

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

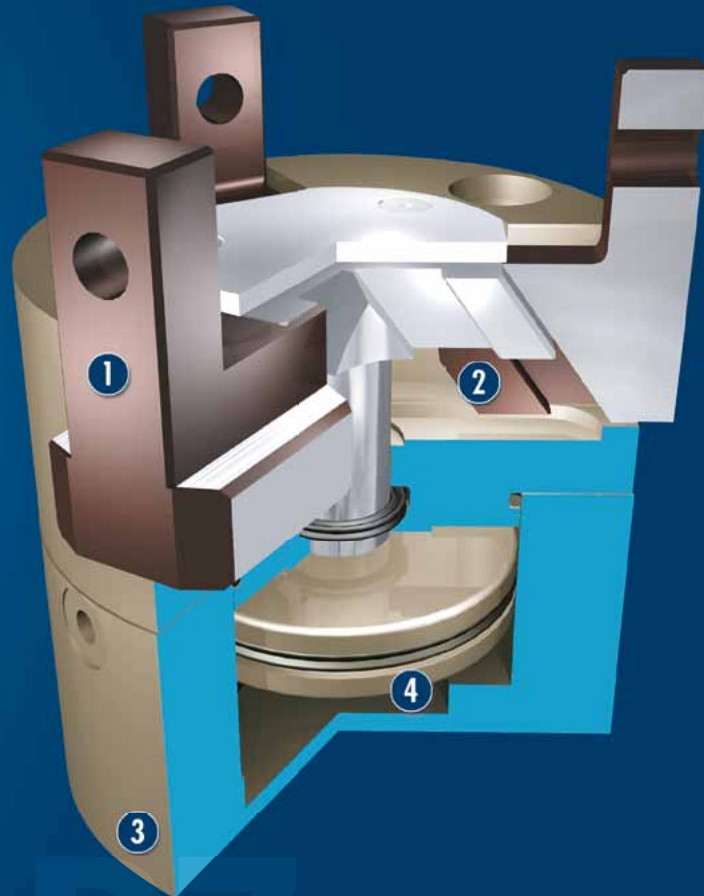


Workpiece weight
0.05 .. 1.15 kg



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.

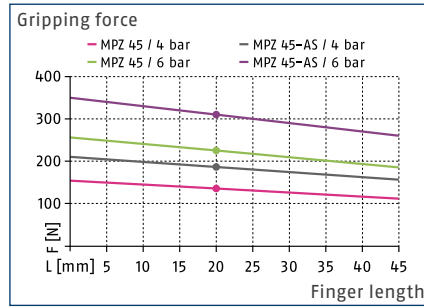
Small and compact 3-finger centric gripper for fast gripping applications. Monitoring of the smallest differences in stroke possible via FPS system.

MPZ 45

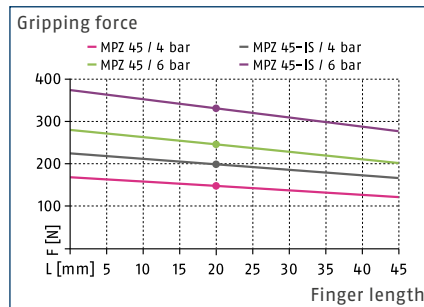
SCHUNK Grippers pneumatic | 3-Finger Centric Grippers | Small Components Gripper



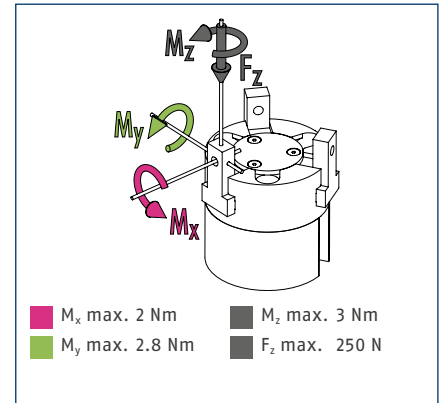
Gripping force, O.D. gripping



Gripping force, I.D. gripping



Finger load

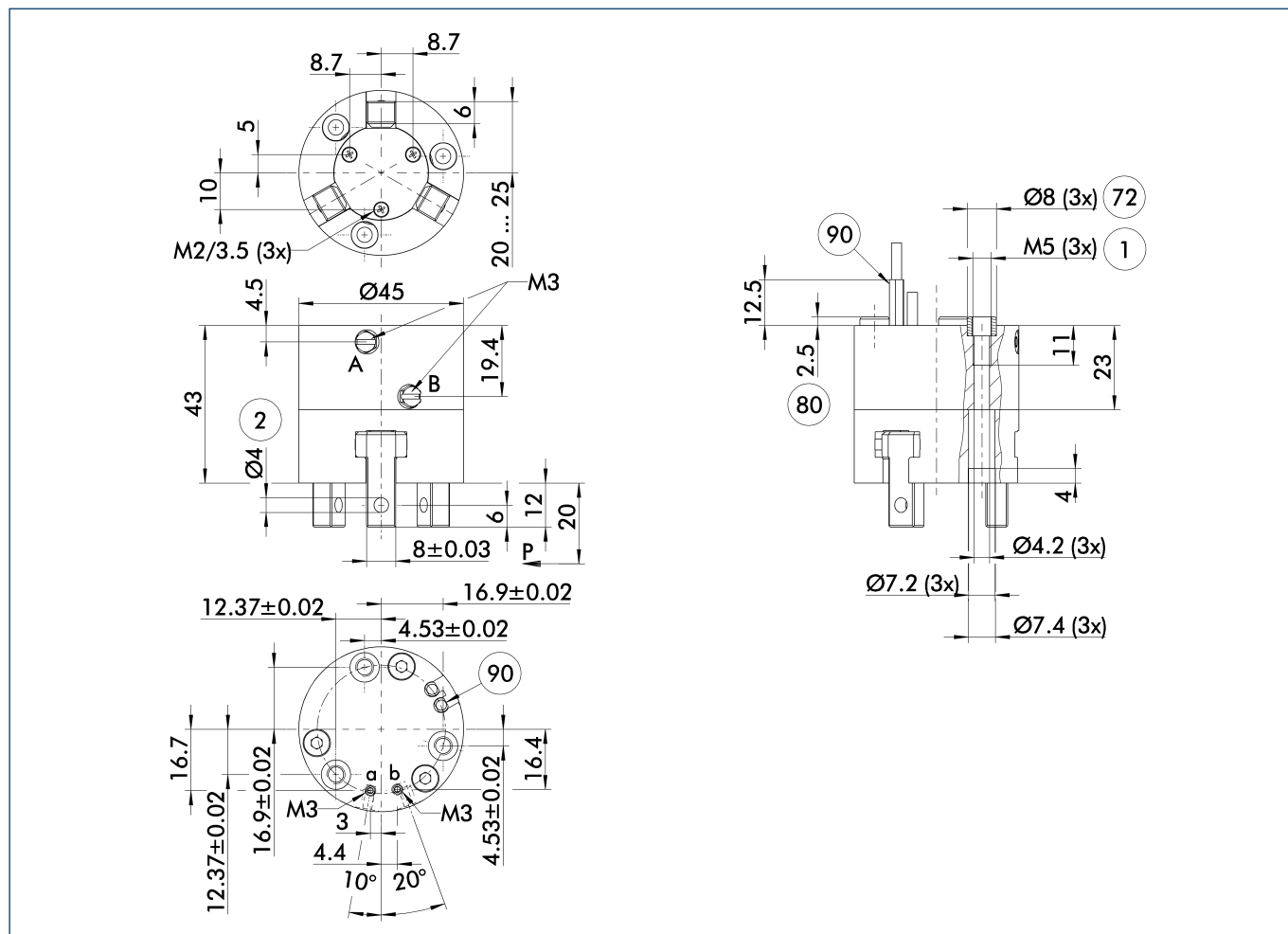


① The indicated moments and forces are static values, apply per base jaw and may occur simultaneously. M_y may arise in addition to the moment generated by the gripping force itself. If the max. permitted finger weight is exceeded, it is impreative to throttle the air supply so that the jaw movement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

Technical data

Description		MPZ 45	MPZ 45 FPS	MPZ 45-AS	MPZ 45-IS
ID		0340530	0340533	0340531	0340532
Stroke per jaw	[mm]	5	5	5	5
Closing- / opening force	[N]	225/245	225/245	310/-	-/340
min. spring force	[N]			85	95
Weight	[kg]	0.22	0.29	0.28	0.28
Recommended workpiece weight	[kg]	1.15	1.15	1.15	1.15
Fluid consumption per double stroke	[cm ³]	8.9	8.9	18.4	15.2
min. / max. operating pressure	[bar]	2/8	2/8	4/6.5	4/6.5
Nominal operating pressure	[bar]	6	6	6	6
Closing- / opening time	[s]	0.05/0.05	0.05/0.05	0.05/0.06	0.06/0.05
Closing- / opening time only with spring	[s]			0.30	0.30
max. permitted finger length	[mm]	45	45	45	45
max. permitted weight per finger	[kg]	0.08	0.08	0.08	0.08
IP class		40	40	40	40
min. / max. ambient temperature	[°C]	5/90	5/90	5/90	5/90
Repeat accuracy	[mm]	0.01	0.01	0.01	0.01
Cleanroom class ISO 14644-1		5	5	5	5

Main view



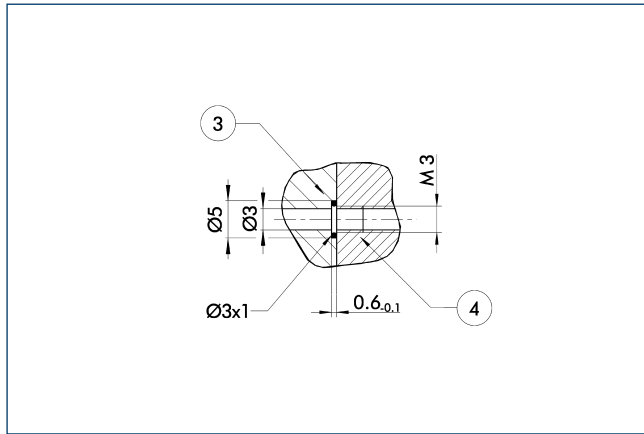
The drawing shows the gripper in the basic version with closed jaws, without dimensional consideration of the options described below.

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
 ⑦ Fit for centering sleeves
 ⑧ Depth of the centering sleeve hole in the mating part
 ⑨ MMS 22... sensor

Hose-free direct connection M3

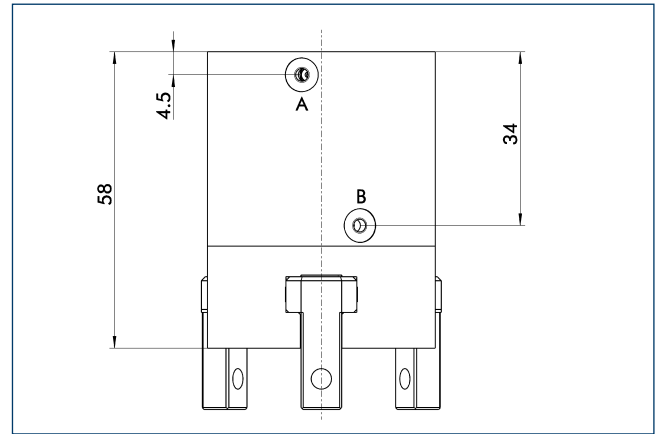


③ Adapter

④ Gripper

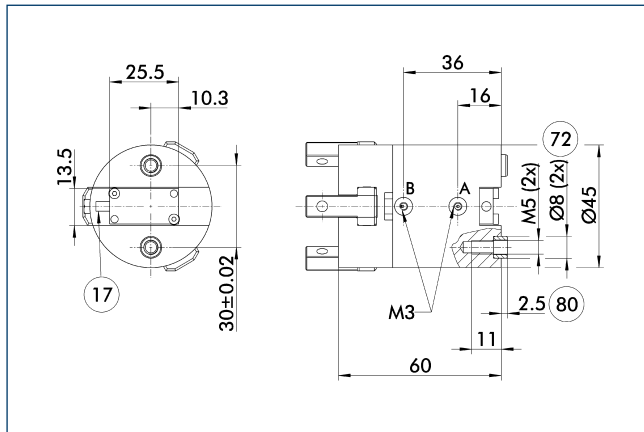
The direct connection is used for supplying compressed air without hoses. Instead, the pressure medium is fed through bore-holes in the mounting plate.

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.

Flexible position sensor



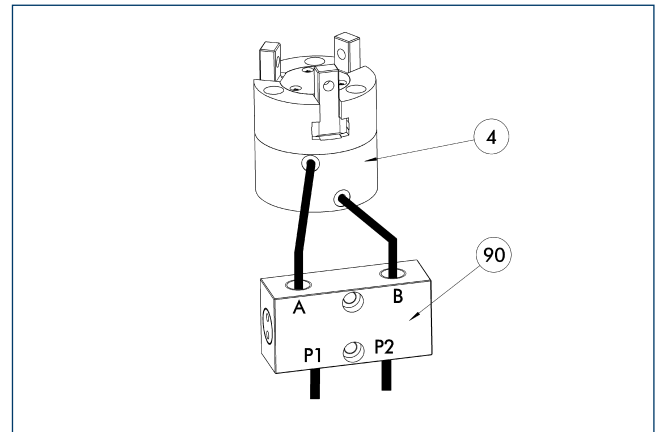
①7 Cable outlet

⑦2 Fit for centering sleeves

⑧0 Depth of the centering sleeve hole in the mating part

The following FPS position sensor can differentiate between five programmable areas and/or switching points for the stroke of a gripper, and can be used in combination with a PC as a measuring system.

SDV-P pressure maintenance valve



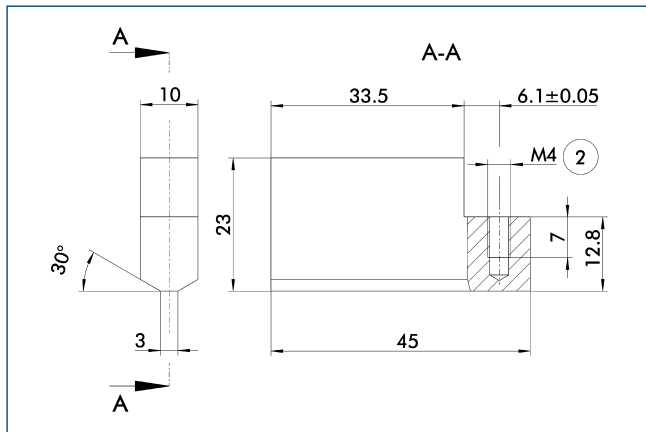
④ Gripper

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

ABR-MPZ 45 finger blanks

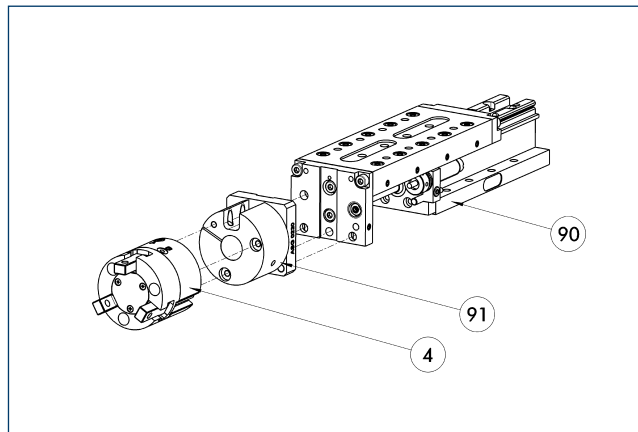


② Finger connection

Finger blanks for customized subsequent machining.

Description	ID	Material	Scope of delivery
Finger blanks			
ABR-MPZ 45	0340539	Aluminum	3

Modular assembly automation



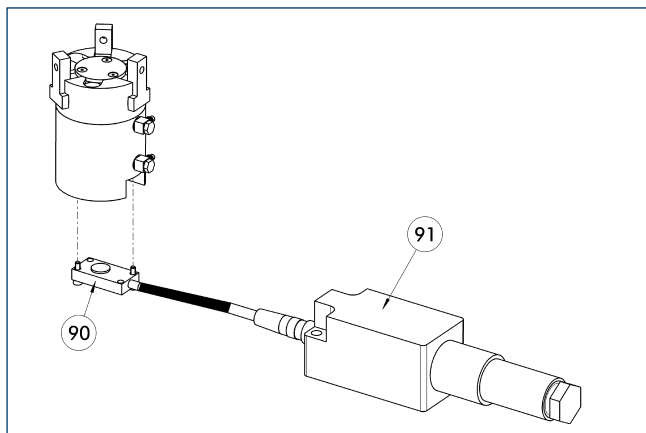
④ Gripper

⑨① ASG adapter plate

⑨② CLM / KLM / LM / ELM / ELS / HLM linear module

Gripper and linear modules can be combined with standard adapters out of the modular assembly system. For more information see our catalog "Modular Assembly Automation".

Flexible position sensor



⑨② FPS-S sensor

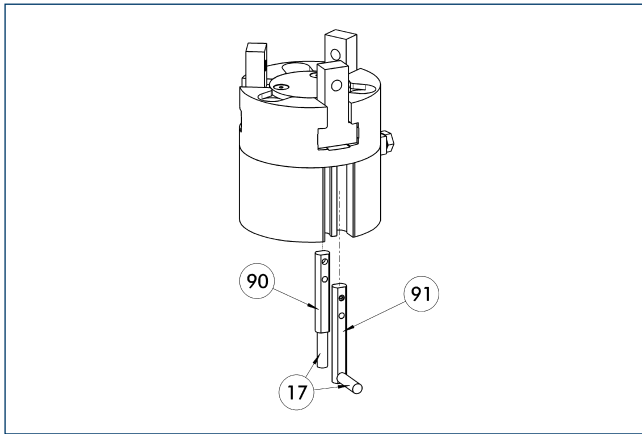
⑨① FPS-F5 / -F5 T electronic processor

Flexible position monitoring of up to five positions.

Description	ID	Often combined
Sensor		
FPS-S 13	0301705	
Electronic processor		
FPS-F5	0301805	●
FPS-F5 T	0301807	

① When using a FPS system, a FPS sensor (FPS-S) and a control unit (FPS-F5 / F5 T) are required for each gripper as well as a mounting kit (AS), if listed. Cable extensions (KV) are available as options in the "Accessories" catalog section.

MMS electronic magnetic switches



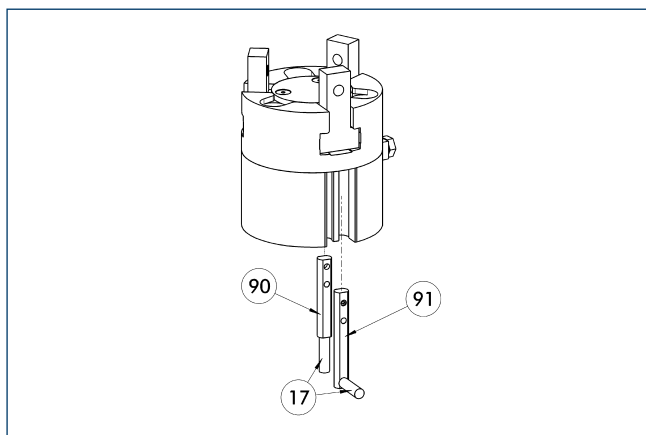
- ⑰ Cable outlet
- ⑨① MMS 22...-SA sensor
- ⑨② MMS 22... sensor

End position monitoring for mounting in the C-slot.

Description	ID	Often combined
MMS electronic magnetic switches		
MMS 22-S-M8-PNP	0301032	●
MMSK 22-S-PNP	0301034	
MMS electronic magnetic switches with lateral cable outlet		
MMS 22-S-M8-PNP-SA	0301042	●
MMSK 22-S-PNP-SA	0301044	
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	
V8-M8	0301751	

- 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.

MMS PI1 programmable magnetic switches



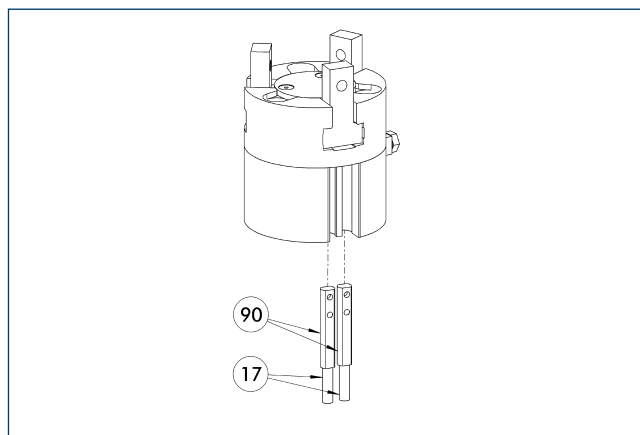
⑰ Cable outlet
 ⑨① MMS 22...-PI1-...-SA sensor
 ⑨② MMS 22...-PI1-... sensor

Position query with one programmable position per sensor and electronics integrated in sensor. Programmable via MT magnet teaching tool (included in the scope of delivery) or ST plug teaching tool (optional). Limit position query mounted in C-groove. If the ST plug teaching tools are listed in the table, teaching can only take place with the ST plug teaching tools.

Description	ID	Often combined
MMS PI1 programmable magnetic switches		
MMS 22-PI1-S-M8-PNP	0301160	●
MMSK 22-PI1-S-PNP	0301162	
MMS PI1-HD programmable magnetic switches with stainless steel housing		
MMS 22-PI1-S-M8-PNP-HD	0301110	●
MMSK 22-PI1-S-PNP-HD	0301112	
MMS PI1 programmable magnetic switches with lateral cable outlet		
MMS 22-PI1-S-M8-PNP-SA	0301166	●
MMSK 22-PI1-S-PNP-SA	0301168	

- 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. Connection cable, cable extensions, and sensor distributors can be found in the table for the MMS 22.

MMS PI2 programmable magnetic switches



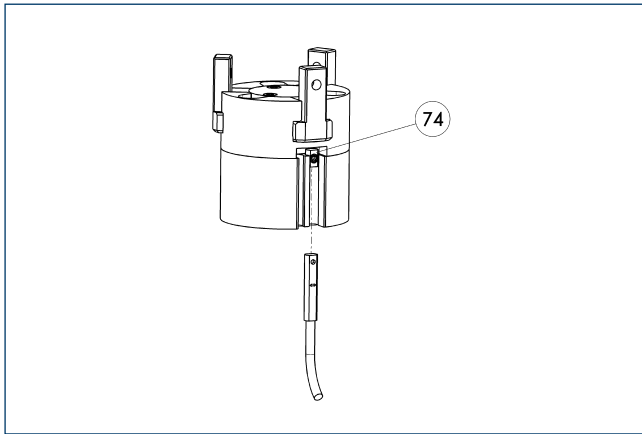
⑰ Cable outlet
 ⑨③ MMS 22...-PI2-... sensor

Position query with two programmable positions per sensor and electronics integrated in sensor. Programmable via MT magnet teaching tool (included in the scope of delivery) or ST plug teaching tool (optional). Limit position query mounted in C-groove. If the ST plug teaching tools are listed in the table, teaching can only take place with the ST plug teaching tools.

Description	ID	Often combined
MMS PI2 programmable magnetic switches		
MMS 22-PI2-S-M8-PNP	0301180	●
MMSK 22-PI2-S-PNP	0301182	
MMS PI2-HD programmable magnetic switches with stainless steel housing		
MMS 22-PI2-S-M8-PNP-HD	0301130	●
MMSK 22-PI2-S-PNP-HD	0301132	

- ① Per unit one sensor (closer/S) is required, optionally a cable extension. Please note the minimum permitted bending radii for the sensor cables, which are generally 35 mm. Connection cable, cable extensions, and sensor distributors can be found in the table for the MMS-P 22.

MMS-P programmable magnetic switches



74 Stop for MMS-P

Position monitoring with two programmable positions per sensor. The end position monitoring is mounted in the C-slot.

Description	ID	Often combined
MMS-P programmable magnetic switches		
MMSK-P 22-S-PNP	0301371	
MMS-P 22-S-M8-PNP	0301370	●
Clip for plug / socket		
CLI-M8	0301463	
Connection cables		
KA BG08-L 4P-0500	0307767	●
KA BG08-L 4P-1000	0307768	
KA BW08-L 4P-0500	0307765	
KA BW08-L 4P-1000	0307766	
Sensor distributor		
V2-M8-4P-2XM8-3P	0301380	

① Per unit one sensor (closer/S) is required, optionally a cable extension. Please note the minimum permitted bending radii for the sensor cables, which are generally 35 mm.

