



Superior Clamping and Gripping



## Product Information

Gripper for small components MPZ 38

# MPZ

Gripper for small components

## Precise. Compact. Reliable.

# Gripper for small components MPZ

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 benefits

**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

**Compact dimensions** for minimal interfering contours in handling



Sizes  
Quantity: 6



Weight  
0.01 .. 0.29 kg



Gripping force  
20 .. 310 N



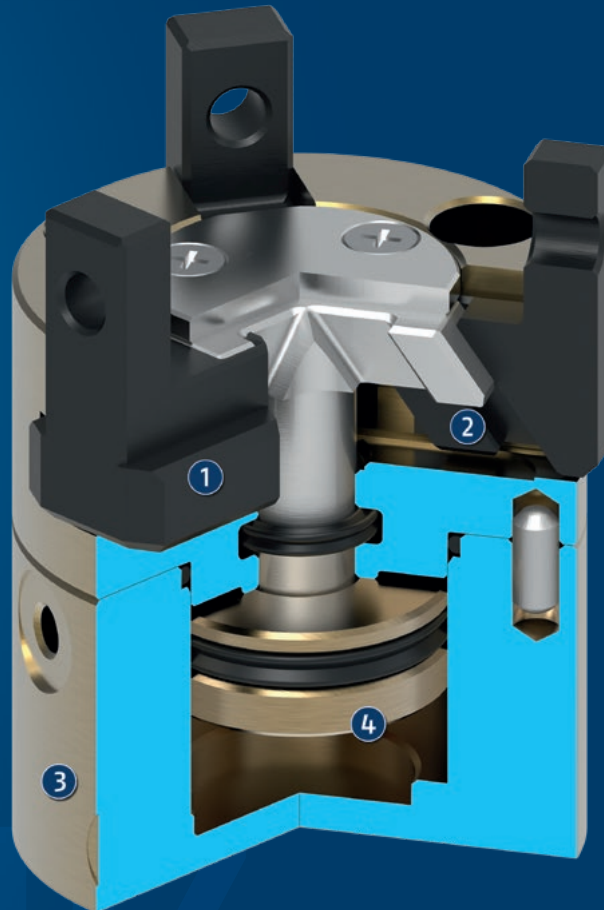
Stroke per jaw  
1 .. 5 mm



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 force transmission and centric gripping

- ③ **Housing**  
is weight-optimized due to the use of high-strength aluminum alloy
- ④ **Drive**  
pneumatic, efficient, and easy to handle

## 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:** Centering sleeves, centering pins, 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).

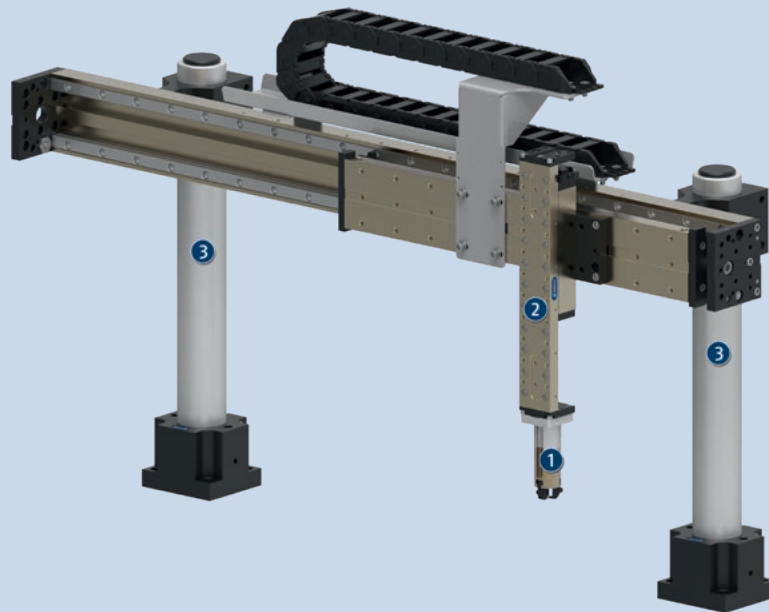
**Finger length:** is measured from the reference surface as the distance P in direction to the main axis.

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

Pneumatically driven 2-axis line gantry with centric gripper for gripping and repositioning small round workpieces.

- ① 3-finger centric gripper MPZ
- ② Linear module LM

- ③ Pillar assembly system SAS

## SCHUNK offers more ...

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



Miniature swivel unit



Linear module



Pick & Place Unit



Quick change system



Flexible position sensor



Micro valve



Pressure maintenance valve



Finger blank



Magnetic switches

① For more information on these products can be found on the following product pages or at [schunk.com](http://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.

**Version FPS for flexible position sensor:** This version is prepared for the use with the flexible position sensor FPS, and allows monitoring of several gripping positions.

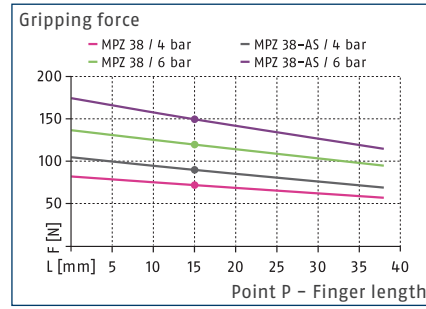
**NEW: H1 grease version H1G:** with H1 compliant lubrication as a solution for easy entry into medical technology, lab automation, the pharmaceutical industry and food industry

# MPZ 38

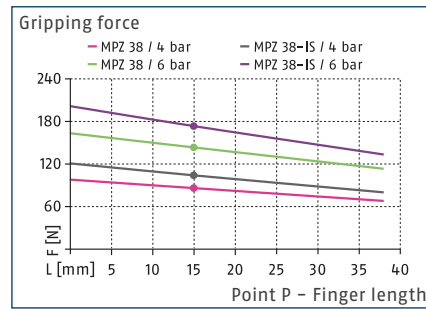
Gripper for small components



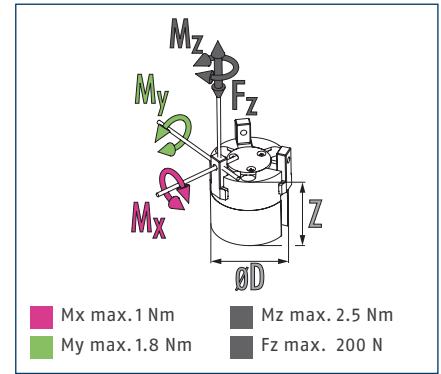
## Gripping force O.D. gripping



## Gripping force I.D. gripping



## Dimensions and maximum loads



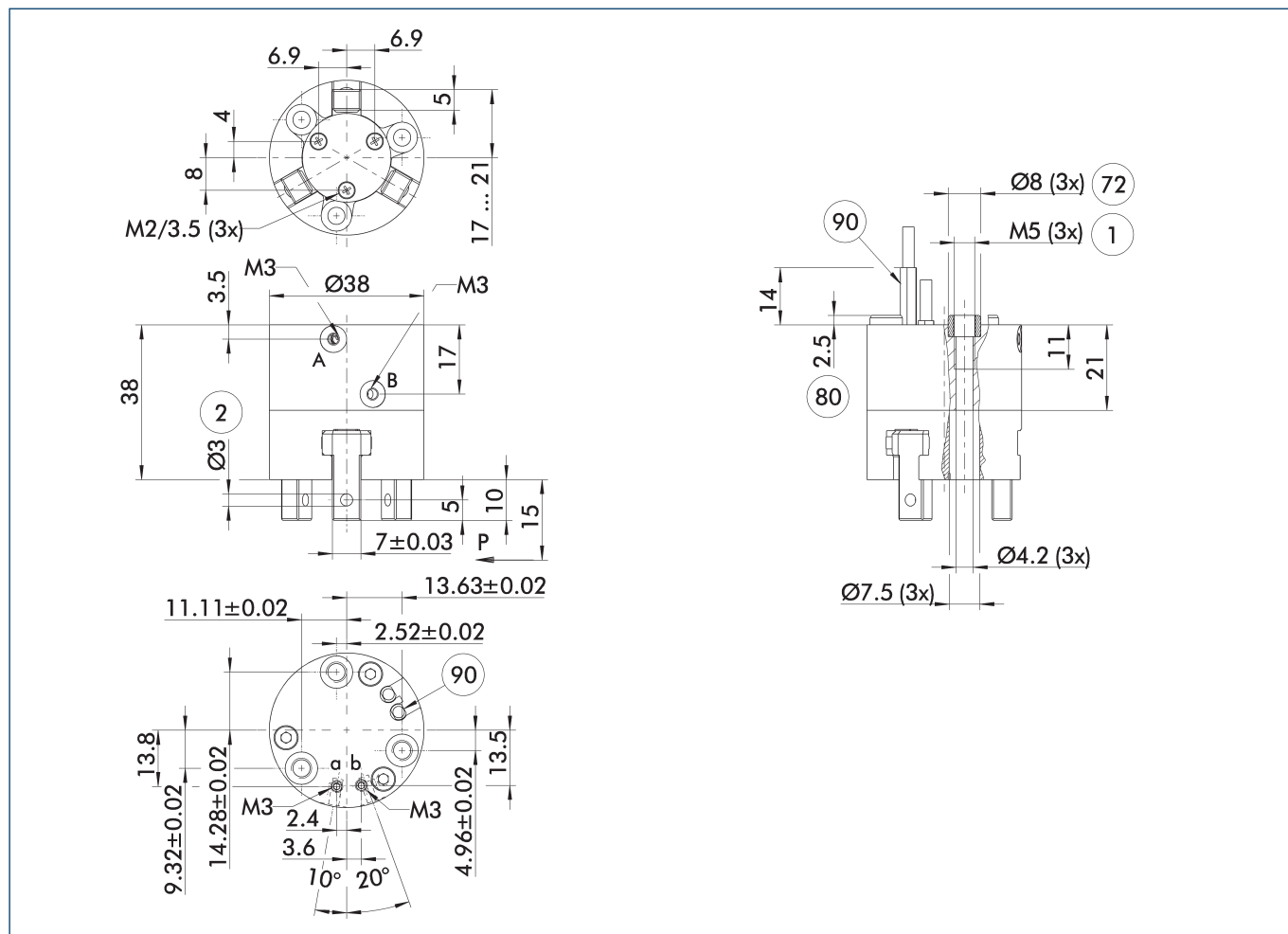
ⓘ The indicated moments and forces are static values, apply for each base jaw and may appear simultaneously. Loads may additionally occur to the moment produced by the gripping force itself.

## Technical data

| Description                              |                    | MPZ 38    | MPZ 38-FPS | MPZ 38-AS | MPZ 38-IS |
|--|--------------------|-----------|------------|-----------|-----------|
| ID                                       |                    | 0340520   | 0340523    | 0340521   | 0340522   |
| Stroke per jaw                           | [mm]               | 4         | 4          | 4         | 4         |
| Closing/opening force                    | [N]                | 120/140   | 120/140    | 150/-     | -/180     |
| Min. spring force                        | [N]                |           |            | 30        | 40        |
| Weight                                   | [kg]               | 0.14      | 0.19       | 0.19      | 0.19      |
| Recommended workpiece weight             | [kg]               | 0.6       | 0.6        | 0.6       | 0.6       |
| Fluid consumption double stroke          | [cm <sup>3</sup> ] | 3.5       | 3.5        | 10.3      | 8.4       |
| Min./nom./max. operating pressure        | [bar]              | 2/6/8     | 2/6/8      | 4/6/6.5   | 4/6/6.5   |
| Closing/opening time                     | [s]                | 0.02/0.02 | 0.02/0.02  | 0.02/0.04 | 0.04/0.02 |
| Closing/opening time with spring         | [s]                |           |            | 0.20      | 0.20      |
| Max. permissible finger length           | [mm]               | 38        | 38         | 38        | 38        |
| Max. permissible mass per finger         | [kg]               | 0.05      | 0.05       | 0.05      | 0.05      |
| IP protection 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 14644-1:1999         |                    | 5         | 5          | 5         | 5         |
| Dimensions Ø D x Z                       | [mm]               | 38 x 38   | 38 x 53    | 38 x 59   | 38 x 59   |
| <b>Options and their characteristics</b> |                    |           |            |           |           |
| H1 grease version                        |                    | 30046783  | 1475823    | 1441506   | 30047905  |

ⓘ 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.

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

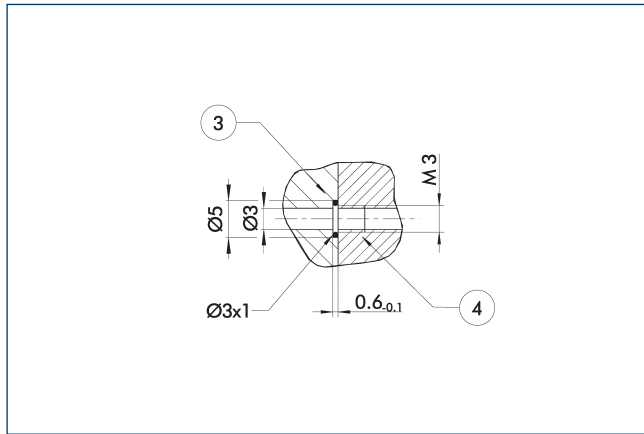
⑧ Depth of the centering sleeve hole in the counter part

⑨ Sensor MMS 22..

# MPZ 38

Gripper for small components

## Hose-free direct connection M3

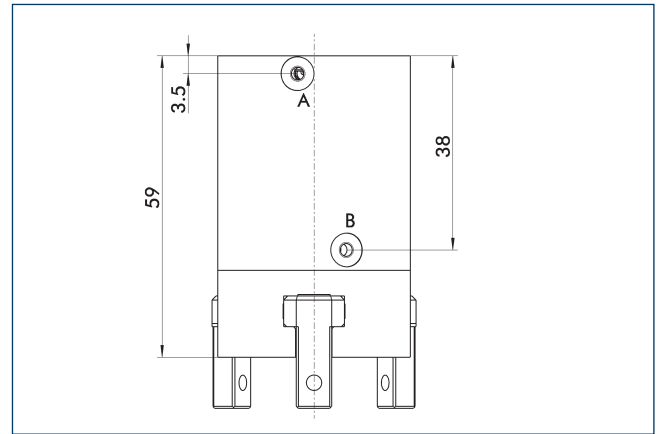


③ Adapter

④ Grippers

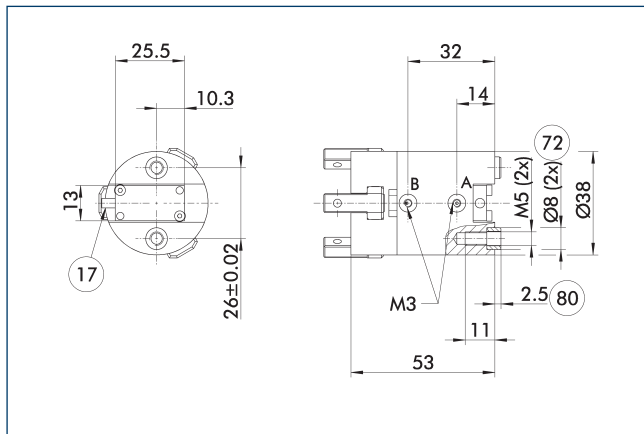
The direct connection is used for supplying compressed air without hoses. Instead, the pressure medium is fed through bore-holes in the mounting plate.

## Gripping force maintenance device AS / IS



The mechanical gripping force maintenance device ensures that a minimum clamping force will be applied even if there is a drop in pressure. This acts as closing force in the AS / S version, and as opening force in the IS version. Besides this, the gripping force maintenance device can be used to increase the gripping force or for single actuated gripping.

## Flexible position sensor



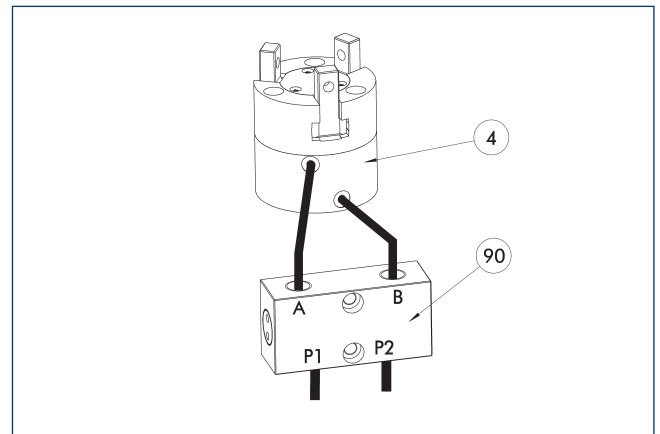
①⑦ Cable outlet

①⑦② Fit for centering sleeves

①⑧① Depth of the centering sleeve hole in the counter part

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

## SDV-P pressure maintenance valve



④ Grippers

①⑨① SDV-P pressure maintenance valve

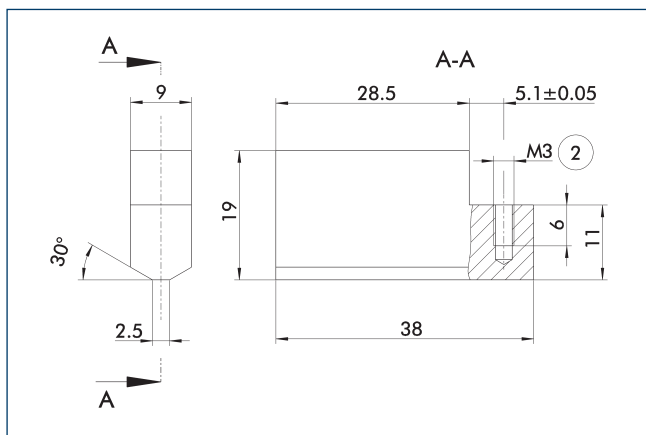
The SDV-P pressure maintenance valve ensures in emergency STOP situations that the pressure in the piston chamber of pneumatic gripper, swivel, linear, and quick-change modules is temporarily maintained.

| Description                                     | ID      | Recommended hose diameter [mm] |
|---|---------|--------------------------------|
| Pressure maintenance valve                      |         |                                |
| SDV-P 04  | 0403130 | 6                              |
| Pressure maintenance valve with air bleed screw |         |                                |
| SDV-P 04-E                                      | 0300120 | 6                              |

① 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](http://schunk.com).



Finger blanks ABR-MPZ 38

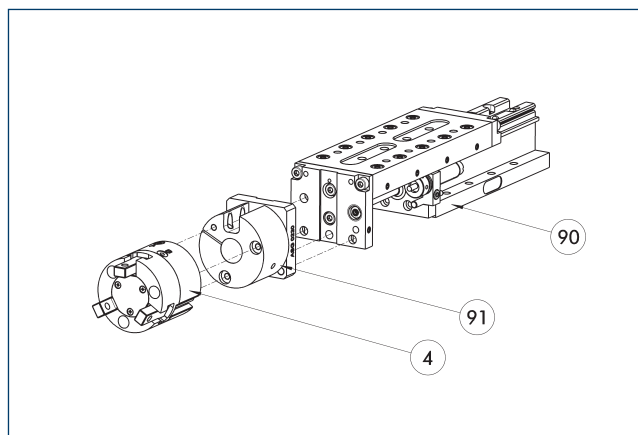


② Finger connection

The drawing shows the finger blank which can be reworked by the customer.

| Description  | ID      | Material | Scope of delivery |
|--------------|---------|----------|-------------------|
| Finger blank |         |          |                   |
| ABR-MPZ 38   | 0340529 | Aluminum | 3                 |

Modular Assembly Automation



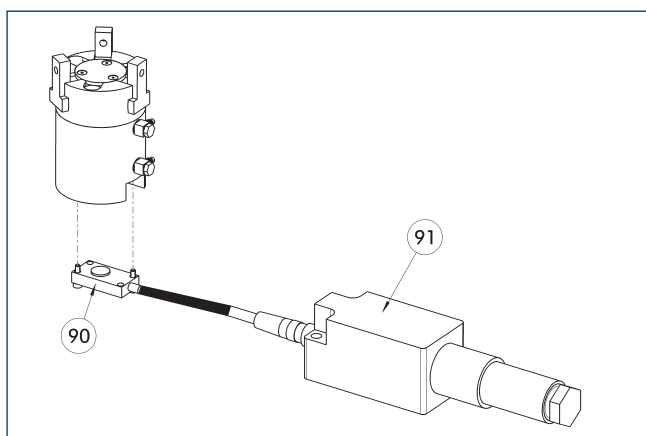
④ Grippers

⑨① ASG adapter plate

⑨② CLM/KLM/LM/ELP/ELM/ELS/HLM linear modules

Grippers and linear modules can be combined with standard adapter plates from the modular assembly system. For more information see our main catalog "Modular Assembly Automation".

Flexible position sensor



⑨② FPS-S sensor

⑨① FPS-F5 evaluation electronic

Flexible position monitoring of up to five positions.

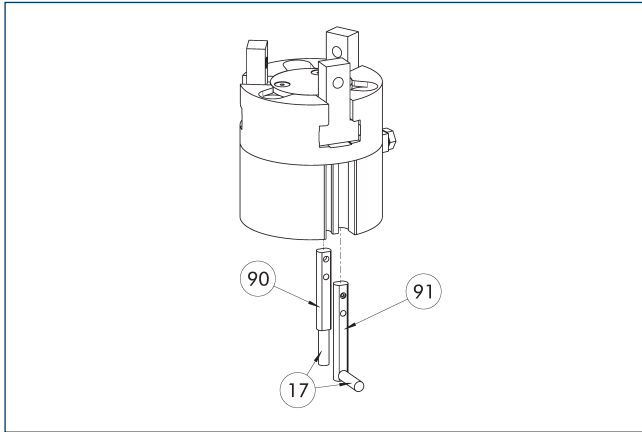
| Description            | ID      | Often combined |
|------------------------|---------|----------------|
| Sensor                 |         |                |
| FPS-S 13               | 0301705 |                |
| Evaluation electronics |         |                |
| FPS-F5                 | 0301805 | ●              |
| Cable extension        |         |                |
| KV BG08-SG08 3P-0050   | 0301598 |                |
| KV BG08-SG08 3P-0100   | 0301599 |                |
| Connection cables      |         |                |
| KA BG16-L 12P-1000     | 0301801 |                |
| clip for plug/socket   |         |                |
| CLI-M8                 | 0301463 |                |

① When using an FPS system, an FPS sensor (FPS-S) as well as an electronic processor (FPS-F5 / F5 T) are required for each gripper as well as a mounting kit (AS), if listed. Cable extensions (KV) are optionally available – see catalog chapter "Accessories."

# MPZ 38

Gripper for small components

## Electronic magnetic switch MMS



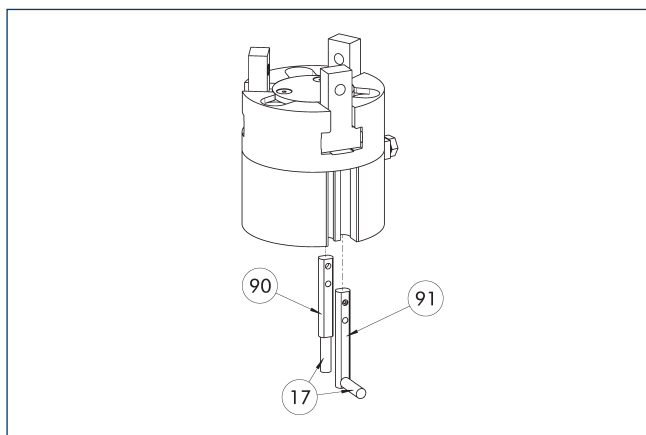
- ①⑦ Cable outlet
- ①⑨ Sensor MMS 22...-SA
- ①⑩ Sensor MMS 22..

End position monitoring for mounting in the C-slot.

| Description   | ID      | Often combined |
|---|---------|----------------|
| <b>Electronic magnetic switch</b>                             |         |                |
| MMS 22-S-M8-PNP   | 0301032 | ●              |
| MMSK 22-S-PNP   | 0301034 |                |
| <b>Electronic magnetic switches with lateral cable outlet</b> |         |                |
| MMS 22-S-M8-PNP-SA  | 0301042 | ●              |
| MMSK 22-S-PNP-SA  | 0301044 |                |
| <b>Connection cables</b>                                      |         |                |
| 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 |                |
| <b>clip for plug/socket</b>                                   |         |                |
| CLI-M8  | 0301463 |                |
| <b>Cable extension</b>  |         |                |
| KV BW08-SG08 3P-0030-PNP                                      | 0301495 |                |
| KV BW08-SG08 3P-0100-PNP                                      | 0301496 |                |
| KV BW08-SG08 3P-0200-PNP                                      | 0301497 | ●              |
| <b>Sensor distributor</b>                                     |         |                |
| V2-M8   | 0301775 | ●              |
| V4-M8   | 0301746 |                |
| V8-M8   | 0301751 |                |

- ① 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.

**Programmable magnetic switch MMS 22-PI1**



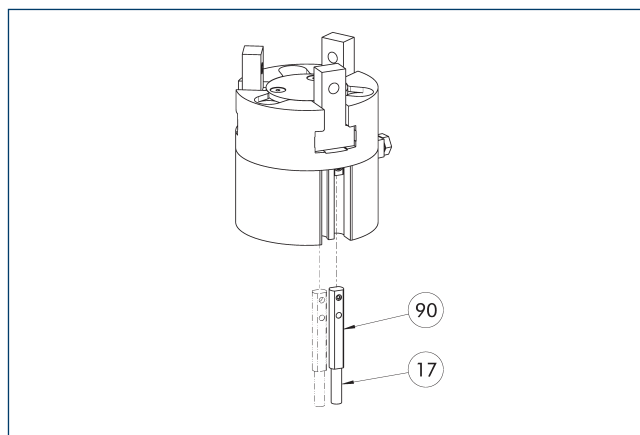
- ⑰ Cable outlet
- ⑲① Sensor MMS 22 ..-PI1-...-SA
- ⑲② Sensor MMS 22 PI1-...

Position monitoring with one programmable position per sensor and integrated electronic system in the sensor. Can be programmed using MT magnetic teaching tool (included in the scope of delivery) or ST plug teaching tool (optional). End position monitoring for mounting in the C-slot. If the ST plug teaching tools are listed in the table provided, teaching is only possible with the ST teaching tools.

| Description  | ID      | Often combined |
|--|---------|----------------|
| <b>Programmable magnetic switch</b>                              |         |                |
| MMS 22-PI1-S-M8-PNP  | 0301160 | ●              |
| MMSK 22-PI1-S-PNP  | 0301162 |                |
| <b>Programmable magnetic switch with lateral cable outlet</b>    |         |                |
| MMS 22-PI1-S-M8-PNP-SA   | 0301166 | ●              |
| MMSK 22-PI1-S-PNP-SA   | 0301168 |                |
| <b>Programmable magnetic switch with stainless steel housing</b> |         |                |
| MMS 22-PI1-S-M8-PNP-HD   | 0301110 | ●              |
| MMSK 22-PI1-S-PNP-HD   | 0301112 |                |

⑰ 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.

**Programmable magnetic switch MMS 22-PI2**



- ⑰ Cable outlet
- ⑲② MMS 22...-PI2-... sensor

Position monitoring with two programmable positions per sensor and electronics built into the sensor. Can be programmed using MT magnetic teaching tool (included in the scope of delivery) or ST plug teaching tool (optional). End position monitoring for mounting in the C-slot. If the ST plug teaching tools are listed in the table provided, teaching is only possible with the ST teaching tools.

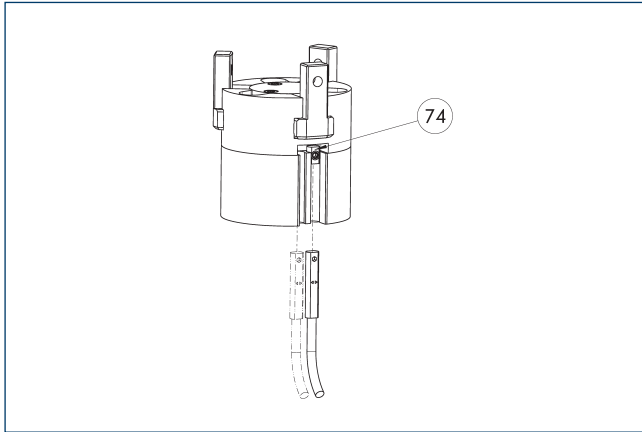
| Description  | ID      | Often combined |
|--|---------|----------------|
| <b>Programmable magnetic switch</b>                              |         |                |
| MMS 22-PI2-S-M8-PNP  | 0301180 | ●              |
| MMSK 22-PI2-S-PNP  | 0301182 |                |
| <b>Programmable magnetic switch with lateral cable outlet</b>    |         |                |
| MMS 22-PI2-S-M8-PNP-SA   | 0301186 | ●              |
| MMSK 22-PI2-S-PNP-SA   | 0301188 |                |
| <b>Programmable magnetic switch with stainless steel housing</b> |         |                |
| MMS 22-PI2-S-M8-PNP-HD   | 0301130 | ●              |
| MMSK 22-PI2-S-PNP-HD   | 0301132 |                |

⑰ One sensor is required per unit for monitoring two positions. Extension cables and sensor distributors are optionally available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor systems.

# MPZ 38

Gripper for small components

## MMS-P programmable magnetic switch



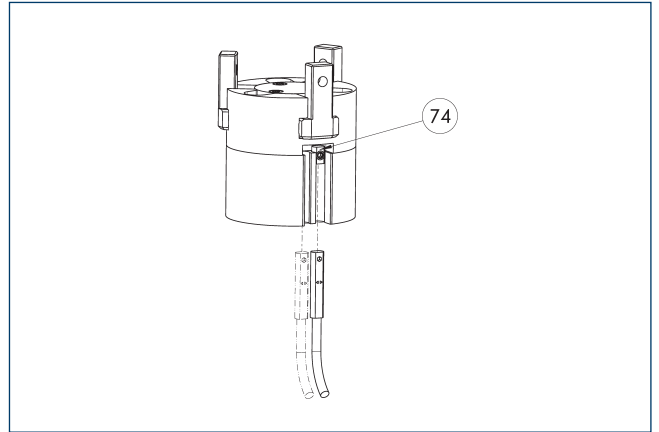
74 Limit stop for sensor

Position monitoring with two programmable positions per sensor. End position monitoring for mounting in the C-slot.

| Description                  | ID      | Often combined |
|------------------------------|---------|----------------|
| Programmable magnetic switch |         |                |
| MMSK-P 22-S-PNP              | 0301371 |                |
| MMS-P 22-S-M8-PNP            | 0301370 | ●              |
| Connection cables            |         |                |
| KA GLN0804-LK-00500-A        | 0307767 | ●              |
| KA GLN0804-LK-01000-A        | 0307768 |                |
| KA WLN0804-LK-00500-A        | 0307765 |                |
| KA WLN0804-LK-01000-A        | 0307766 |                |
| clip for plug/socket         |         |                |
| CLI-M8                       | 0301463 |                |
| Sensor distributor           |         |                |
| V2-M8-4P-2XM8-3P             | 0301380 |                |

① One sensor is required per unit for monitoring two positions. Extension cables and sensor distributors are optionally available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor systems.

## Programmable magnetic switch MMS-IO-Link



74 Limit stop for sensor

Sensor for multi-position monitoring through detection of the complete gripper stroke. The sensor is mounted directly in the C-slot of the gripper. Sensor programming on the gripper takes place via the IO-Link interface or the MT magnetic teach tool (included in scope of delivery). An IO-Link master is required for operation.

| Description                  | ID      |  |
|------------------------------|---------|--|
| Programmable magnetic switch |         |  |
| MMS 22-IO-L-M08              | 0315830 |  |
| MMS 22-IO-L-M12              | 0315835 |  |

① One sensor is required for each gripper. No additional mounting kit is required – the gripper is equipped for use of the sensor by default. Further information and technical data can be found in the catalog chapter sensor systems.





**SCHUNK GmbH & Co. KG**  
**Spann- und Greiftechnik**

Bahnhofstr. 106 - 134  
D-74348 Lauffen/Neckar  
Tel. +49-7133-103-0  
Fax +49-7133-103-2399  
info@de.schunk.com  
schunk.com

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