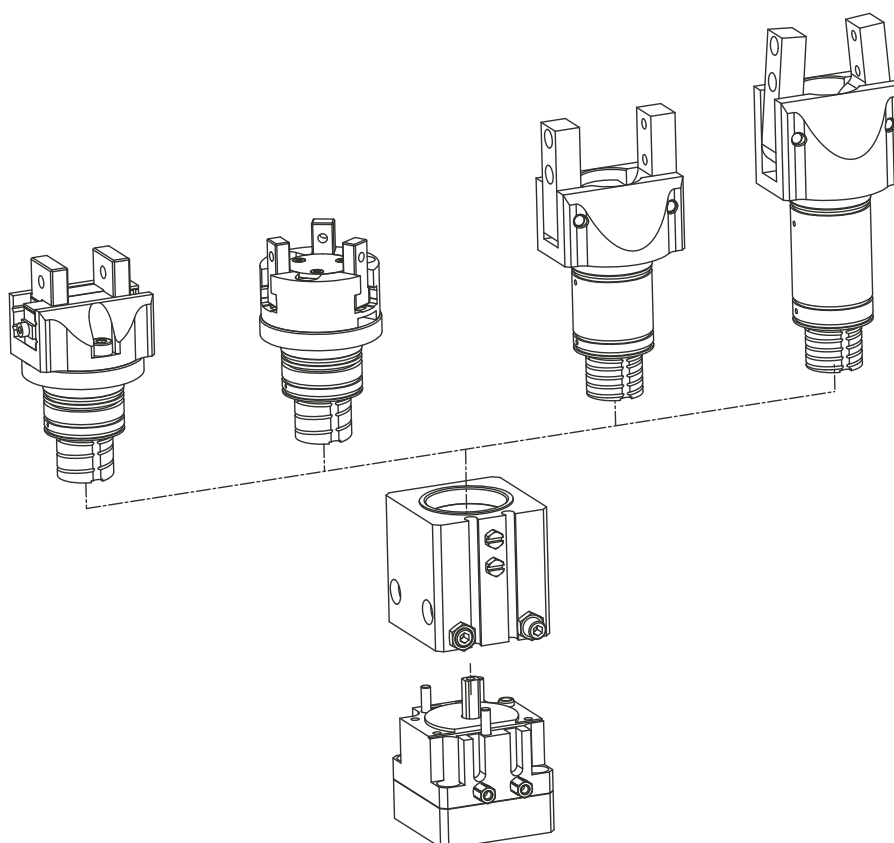


### Modular Design



### Versions of the series

Type

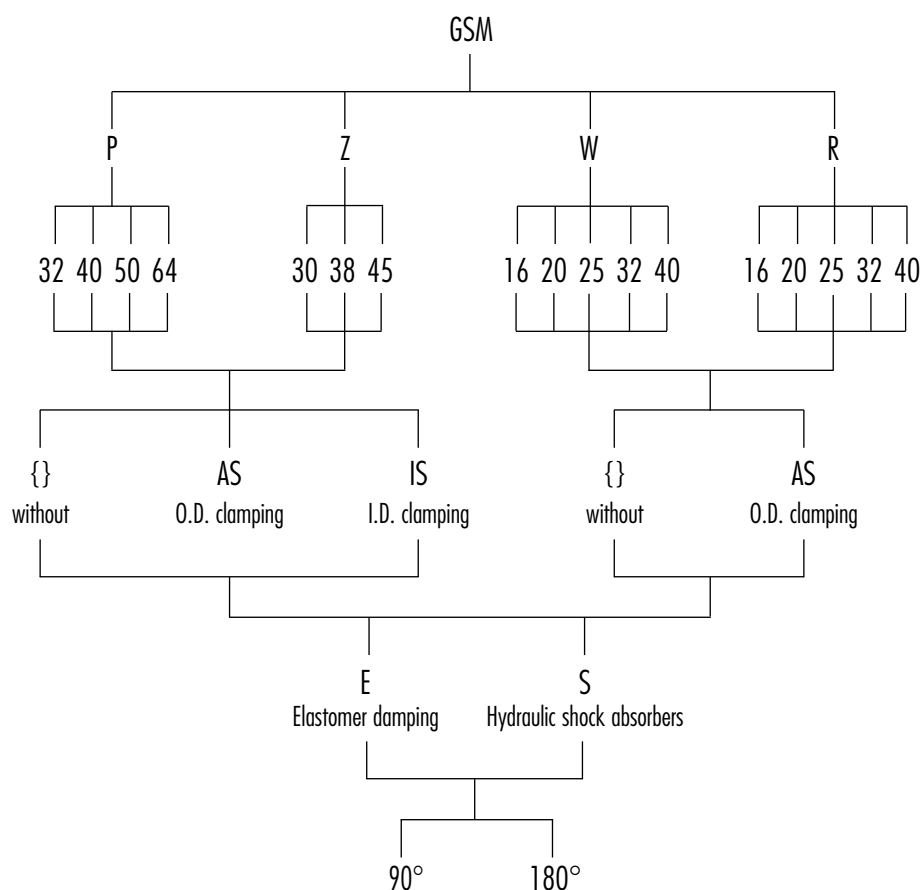
Gripper type

Size

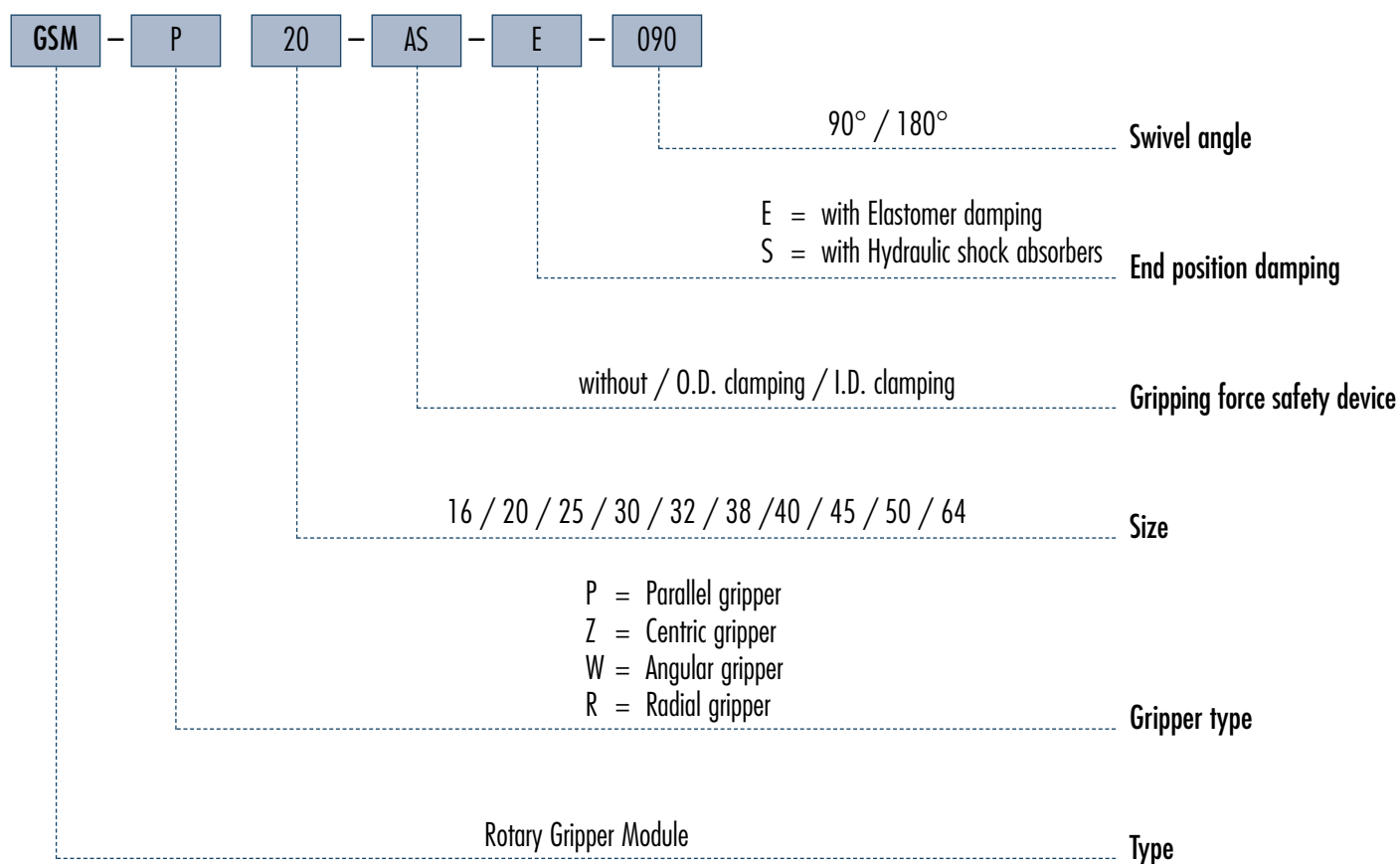
Gripping force safety device

End position damping

Swivel angle

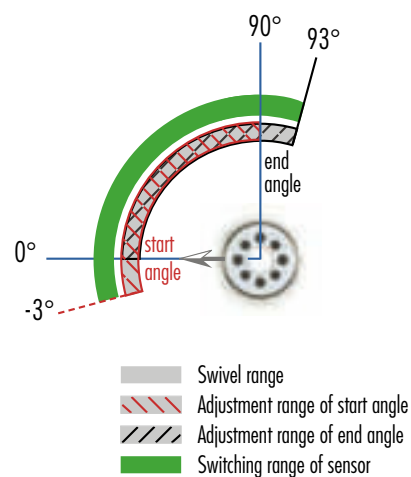


### How to order

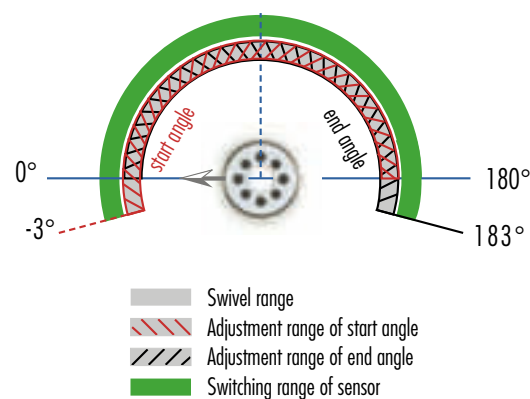


### End stop adjustability and switching angle of sensor

- in the case of 90° units



- in the case of 180° units

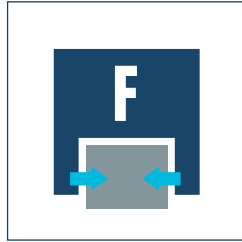




**Sizes**  
30 ... 45



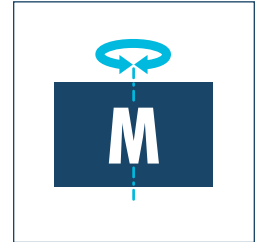
**Weight**  
0.35 kg ... 1.32 kg



**Gripping force**  
55 N ... 310 N



**Stroke per finger**  
3 mm ... 5 mm



**Torque**  
0.3 Nm ... 2.7 Nm

## Application example



Compact, economical linear rotary gripper unit  
for mounting a suspension device

1 GSM-Z Gripper Swivel Module

2 Linear Module KLM

3 Linear Module KLM

### Concentric Gripper Swivel Module

compact rotary gripping combination, consisting of a powerful rotor drive, an end-position and damping device and a 3-finger concentric gripper

### Field of application

gripping and rotating combined in a single compact module, for automated assembly in places with a restricted amount of available space

### Your advantages and benefits

#### Space-saving

as the rotary drive, end-position damping unit and gripper are merged in one compact module

#### Economical

since adapter plates are not needed, there will be costs for project planning and engineering design

#### T-slot guidance

for precise gripping at high moment loads

#### Flexible

through several mounting options, infinitely adjustable rotating angle and numerous product versions

#### Process reliability

as moving cables and hoses are replaced by integrated feed-throughs

#### Mounting from three sides in three screw directions possible

for universal and flexible assembly of the rotary gripper module

#### Air supply via hose-free direct connection or screw connections

for the connection of exactly the right rotary gripper module in all automation solutions

#### Comprehensive accessories

through the use of existing gripper components



### General note to the series

#### Principle of function

Combined rotor and piston drive

#### Housing material

Aluminum alloy, hard-anodized

#### Base jaw material

Steel

#### Actuation

pneumatic, with filtered compressed air (10 microns): dry, lubricated or non-lubricated  
Pressure medium: Required quality class of compressed air according to DIN ISO 8573-1: 6 4 4

#### Warranty

24 months (details, general terms and conditions and operation manuals can be downloaded under [www.schunk.com](http://www.schunk.com))

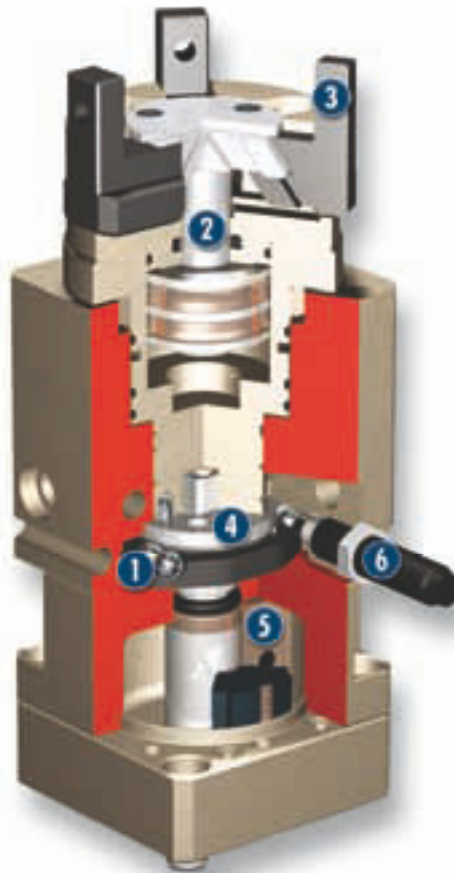
#### Scope of delivery

Centering sleeves, O-rings for direct connection, screws for lateral fastening, steel balls for adjustment of the swiveling angle, assembly and operation manual with declaration of incorporation

#### Gripping force maintenance device

with either mechanical gripping force maintenance or SDV-P pressure maintenance valve

## Sectional diagram



- |   |  |   |
|---|--|---|
| <p><b>1</b> <b>Preset of rotating angle</b><br/>using steel balls for any desired angle of rotation</p> | <p><b>3</b> <b>Base jaw</b><br/>for mounting the top fingers</p>                                 | <p><b>5</b> <b>Rotor</b><br/>as a compact, powerful drive</p>                           |
| <p><b>2</b> <b>Gripper drive</b><br/>double-acting piston drive system with wedge hook</p>              | <p><b>4</b> <b>End-position damping assembly</b><br/>for end-position adjustment and damping</p> | <p><b>6</b> <b>Hydraulic shock absorber</b><br/>to increase the damping performance</p> |

## Functional description

As its rotor is actuated with pressure, the drive rotates the integrated gripping module. The module itself is driven by its own piston. The piston motion is subsequently transformed into a synchronized gripping motion.

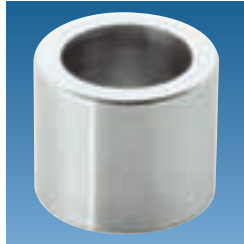
## Options and special information

Despite the many options and versions already available as standard, SCHUNK also designs and produces customized versions on request.

### Accessories

Accessories from SCHUNK — the suitable supplement for maximum functionality, reliability and performance of all automation modules.

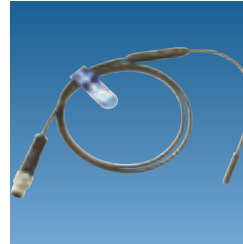
#### Centering sleeves



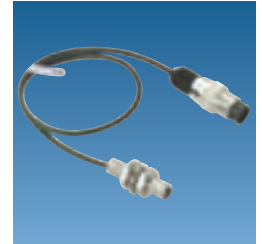
#### Fittings



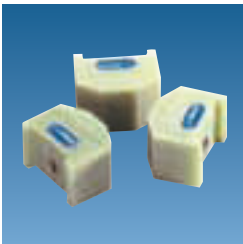
#### Programmable magnetic switch



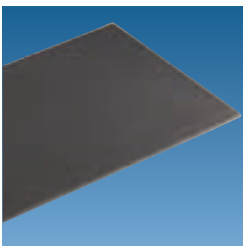
#### Inductive proximity switches



#### Plastic inserts



#### Gripper pads



#### Pressure maintenance valve



#### Finger blanks



#### Sensor cables



#### Sensor Distributor



① For the exact size of the required accessories, availability of this size and the designation and ID, please refer to the additional views at the end of the size in question. You will find more detailed information on our accessory range in the "Accessories" catalog section.

### General note to the series

#### Gripping force

is the arithmetic total of the gripping force applied to each finger at distance P (see illustration) measured from the upper edge of the gripper.

#### Finger length

The finger length is measured from the upper edge of the gripper housing in the direction of the main axis.

#### Workpiece weight

The recommended workpiece weight is calculated for a force-type 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.

#### Repeat accuracy

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

#### Closing and opening times, cycle times

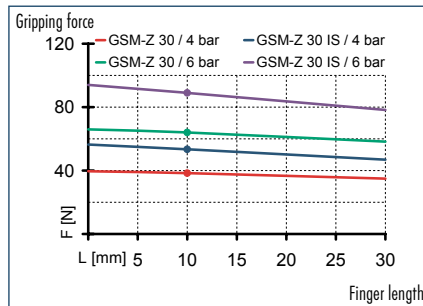
Closing and opening times are purely the times that the base jaws or fingers are in motion. Cycle times are purely the times that the rotating part (mostly the pinion) is in motion. Valve switching times, hose filling times or PLC reaction times are not included in the above times and must be taken into consideration when determining cycle times.

#### Middle attached load

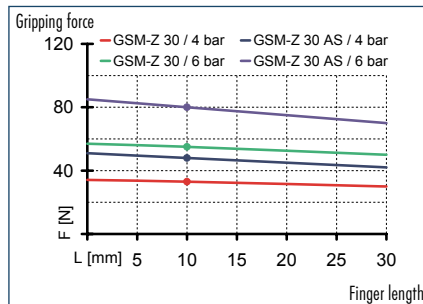
The middle attached load should constitute a typical load. It is defined as the half of the max. possible mass moment of inertia that can be swiveled without restriction, bouncing or hitting, with a centric load and a vertical rotating axis.



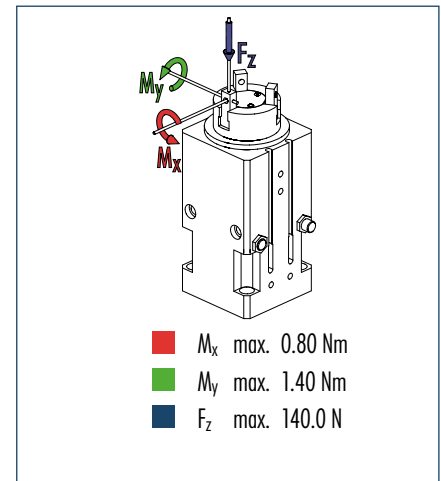
### Gripping force, I.D. gripping



### Gripping force, O.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 imperative to throttle the air pressure so that the jaw movement occurs without any hitting or bouncing. Service life may be reduced.

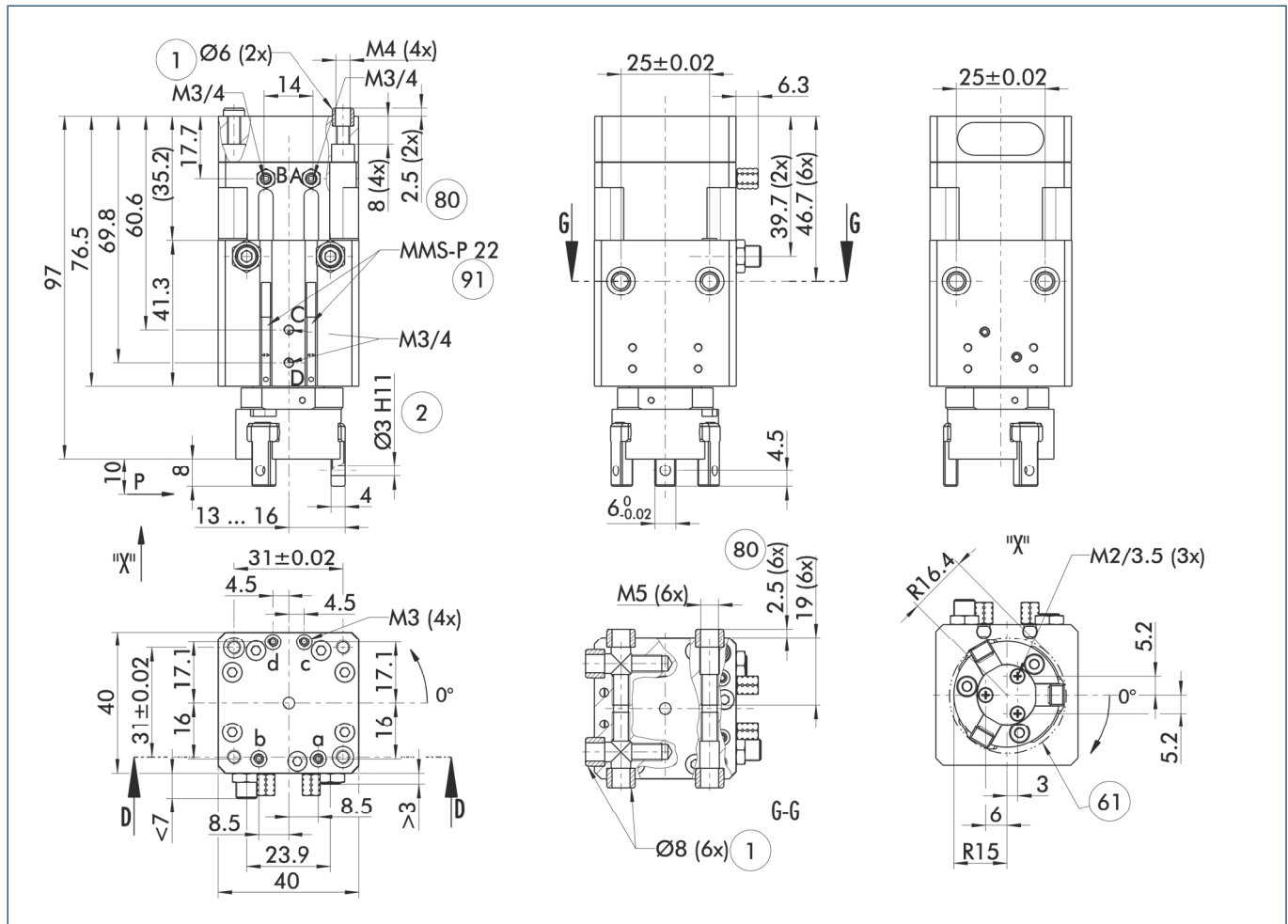
## Technical data

| Description                              |       | GSM-Z 30-E-090    | GSM-Z 30-S-090        | GSM-Z 30-AS-E-090 | GSM-Z 30-AS-S-090     | GSM-Z 30-IS-E-090 | GSM-Z 30-IS-S-090     |
|--|-------|-------------------|-----------------------|-------------------|-----------------------|-------------------|-----------------------|
| ID                                       |       | 0304633           | 0304733               | 0304634           | 0304734               | 0304635           | 0304735               |
| End position adjustability               | [°]   | 90                | 90                    | 90                | 90                    | 90                | 90                    |
| Stroke per finger                        | [mm]  | 3                 | 3                     | 3                 | 3                     | 3                 | 3                     |
| Closing/Opening force                    | [N]   | 55/65             | 55/65                 | 80/-              | 80/-                  | -/90              | -/90                  |
| Min. spring force                        | [N]   |                   |                       | 25                | 25                    | 25                | 25                    |
| Torque                                   | [Nm]  | 0.35              | 0.35                  | 0.35              | 0.35                  | 0.35              | 0.35                  |
| Damping for rotation                     |       | Elastomer damping | hydr. shock absorbers | Elastomer damping | hydr. shock absorbers | Elastomer damping | hydr. shock absorbers |
| Recommended workpiece weight             | [kg]  | 0.25              | 0.25                  | 0.25              | 0.25                  | 0.25              | 0.25                  |
| Air consumption for gripping             | [cm³] | 4.51              | 4.51                  | 4.51              | 4.51                  | 4.51              | 4.51                  |
| Air consumption for swiveling            | [cm³] | 9                 | 9                     | 9                 | 9                     | 9                 | 9                     |
| Weight                                   | [kg]  | 0.35              | 0.35                  | 0.4               | 0.4                   | 0.4               | 0.4                   |
| Nominal operating pressure               | [bar] | 6                 | 6                     | 6                 | 6                     | 6                 | 6                     |
| Max. operating pressure                  | [bar] | 6.5               | 6.5                   | 6.5               | 6.5                   | 6.5               | 6.5                   |
| Minimum operating pressure for gripping  | [bar] | 2                 | 2                     | 4                 | 4                     | 4                 | 4                     |
| Minimum operating pressure for swiveling | [bar] | 3.5               | 3.5                   | 3.5               | 3.5                   | 3.5               | 3.5                   |
| Closing/opening time                     | [s]   | 0.02/0.02         | 0.02/0.02             | 0.02/0.04         | 0.02/0.04             | 0.04/0.02         | 0.04/0.02             |
| Swiveling time with middle attached load | [s]   | 0.06              | 0.12                  | 0.12              | 0.12                  | 0.12              | 0.12                  |
| Max. permitted finger length             | [mm]  | 30                | 30                    | 30                | 30                    | 30                | 30                    |
| Max. permitted weight per finger         | [kg]  | 0.03              | 0.03                  | 0.03              | 0.03                  | 0.03              | 0.03                  |
| IP class                                 |       | 40                | 40                    | 40                | 40                    | 40                | 40                    |
| Min./max. ambient temperature            | [°C]  | -10/90            | 5/60                  | -10/90            | 5/60                  | -10/90            | 5/60                  |
| Repeat accuracy for gripping             | [mm]  | 0.01              | 0.01                  | 0.01              | 0.01                  | 0.01              | 0.01                  |
| Repeat accuracy for swiveling            | [°]   | 0.1               | 0.1                   | 0.1               | 0.1                   | 0.1               | 0.1                   |

### OPTIONS and their characteristics

| Description                              |       | GSM-Z 30-E-180 | GSM-Z 30-S-180 | GSM-Z 30-AS-E-180 | GSM-Z 30-AS-S-180 | GSM-Z 30-IS-E-180 | GSM-Z 30-IS-S-180 |
|--|-------|----------------|----------------|-------------------|-------------------|-------------------|-------------------|
| ID                                       |       | 0303833        | 0303933        | 0303834           | 0303934           | 0303835           | 0303935           |
| End position adjustability               | [°]   | 180            | 180            | 180               | 180               | 180               | 180               |
| Air consumption for swiveling            | [cm³] | 15             | 15             | 15                | 15                | 15                | 15                |
| Swiveling time with middle attached load | [s]   | 0.18           | 0.18           | 0.18              | 0.18              | 0.18              | 0.18              |

## Main view



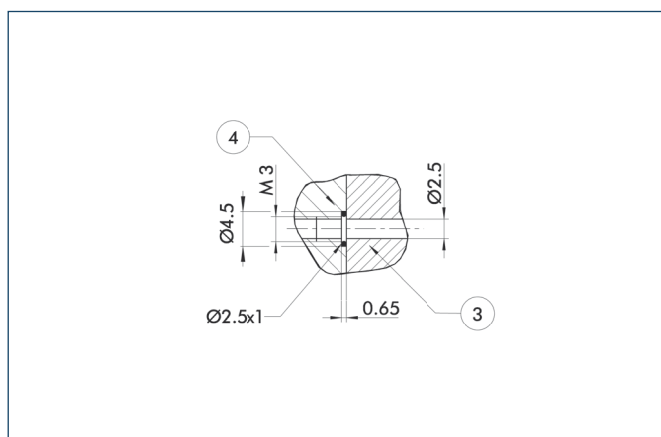
The drawing shows the gripper in the basic version with opened jaws without considering the dimensions of the described options below.

- i** 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 "Accessories" catalog section).

- |      |  |    |   |
|------|--|----|---|
| A, a | Main/direct connection, rotary actuator clockwise turning      | ①  | Connection gripper-rotary actuator                      |
| B, b | Main/direct connection, rotary actuator anti-clockwise turning | ②  | Finger connection                                       |
| C, c | Main/direct connection, gripper opening                        | ⑥1 | Interfering contour during swiveling                    |
| D, d | Main/direct connection, gripper closing                        | ⑧0 | Depth of the centering sleeve hole in the matching part |
|      |  | ⑨1 | Monitoring of gripping and swiveling                    |



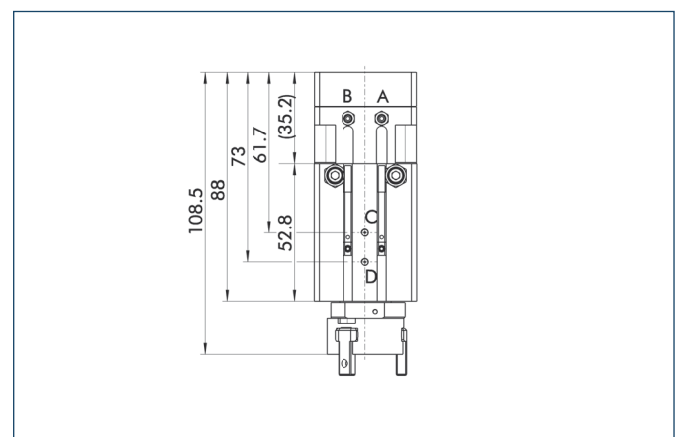
## Hose-free direct connection



- ③ Adapter
- ④ Gripper swivel module

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

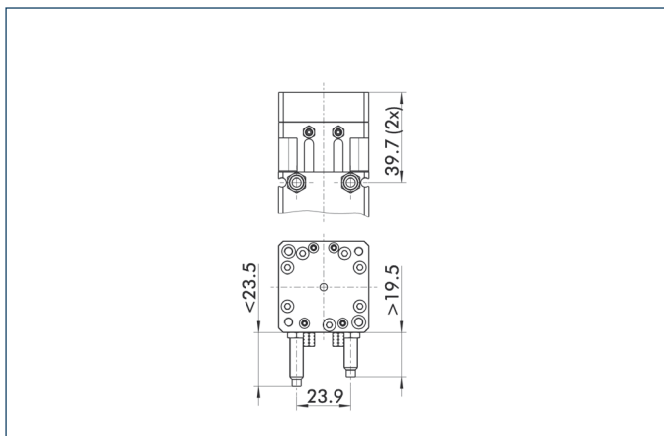
## AS/IS gripping force maintenance device



The mechanical gripping force maintenance device ensures a minimum gripping force even in case of pressure drop. This acts as closing force in the AS version, and as opening force in the IS version. In addition, the gripping force maintenance device can also be used for increasing the gripping force or for single-acting gripping.

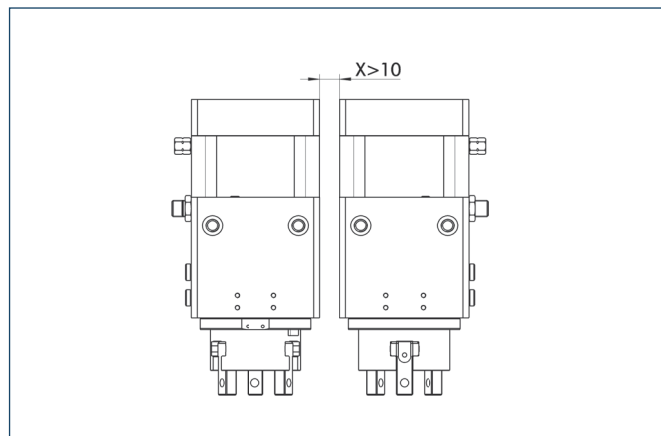


### Version with shock absorbers



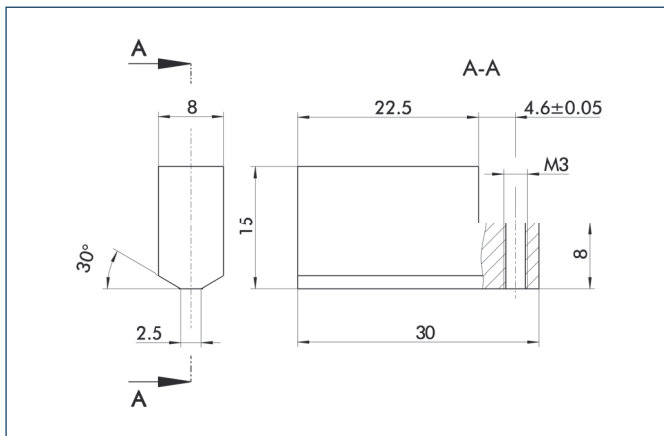
The drawing shows changes in dimensions of the shock absorber versions, compared to the elastomer versions shown on the main view.

### Stacked arrangement



CAUTION: Monitoring is carried out by magnetic switches, and in case of side-by-side assembly of several units, a minimum distance of X mm between the units must be maintained.

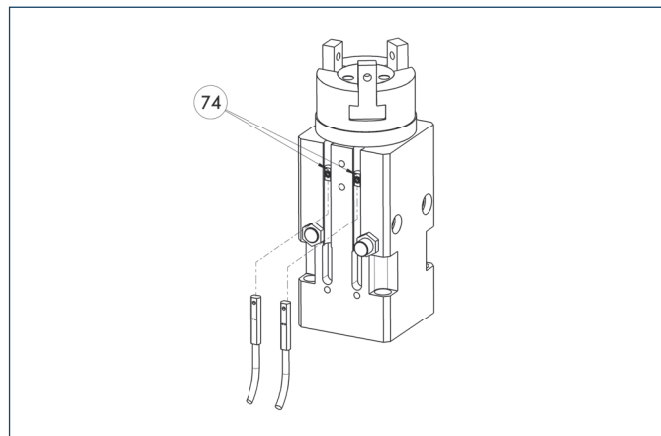
### Finger blanks



Finger blanks for customized subsequent machining

| Description   | ID      | Material | Scope of delivery |
|---------------|---------|----------|-------------------|
| Finger blanks |         |          |                   |
| ABR 30        | 0340519 | Aluminum | 3                 |

### Programmable magnetic switch



74 Stop for MMS-P

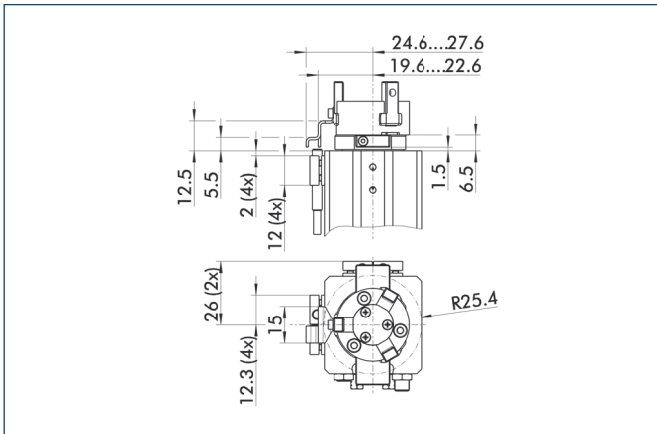
Position monitoring with two programmable positions per sensor. The end position monitoring is mounted in the C-slot.

| Description                  | ID      | Recommended product |
|------------------------------|---------|---------------------|
| Programmable magnetic switch |         |                     |
| MMS-P 22-S-M8-PNP            | 0301370 | •                   |
| MMSK-P 22-S-PNP              | 0301371 |                     |
| 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 Please note the minimum permitted bending radii for the sensor cables, which are generally 35 mm.

① Per each GSM two sensors MMS-P are required. If standard extension cables (M8-3P) are used, the sensor distributor can be applied.

### Mounting kit for proximity switches – angle of rotation 90°

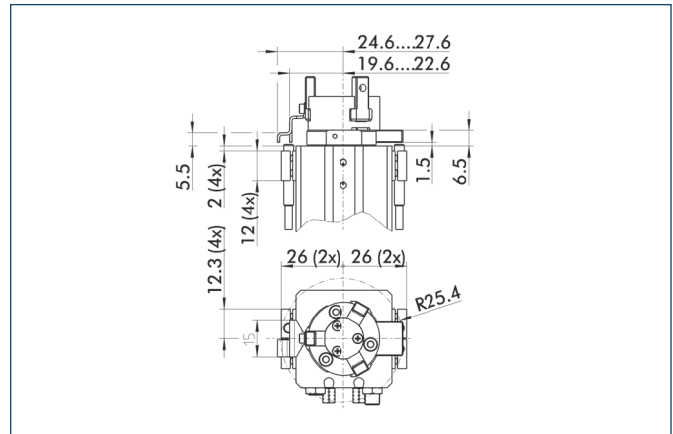


The mounting kits for the 90° and 180° GSM versions are identical, only the mounting is different. The mounting kit consists of two switch cams, two operating cams and small components. The proximity switches must be ordered separately.

| Description                       | ID      |
|-----------------------------------|---------|
| Mounting kit for proximity switch |         |
| AS-GSM-Z 30                       | 0304944 |

① This mounting kit needs to be ordered optionally as an accessory.

### Mounting kit for proximity switches – angle of rotation 180°

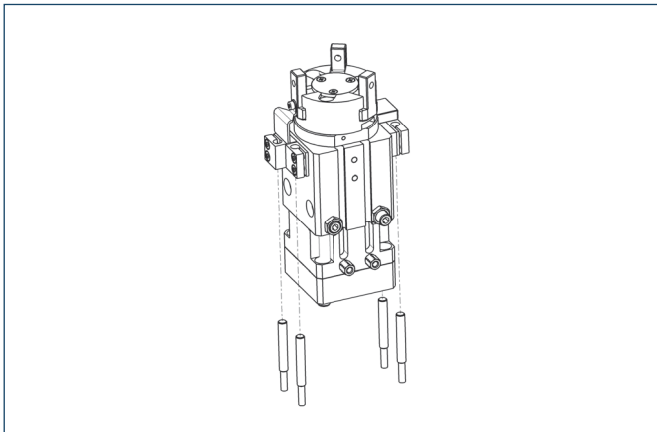


The mounting kits for the 90° and 180° GSM versions are identical, only the mounting is different. The mounting kit consists of two switch cams, two operating cams (only one needs to be fitted, see operating manual), four sensor brackets and small components. The proximity switches must be ordered separately.

| Description                       | ID      |
|-----------------------------------|---------|
| Mounting kit for proximity switch |         |
| AS-GSM-Z 30                       | 0304944 |

① This mounting kit needs to be ordered optionally as an accessory.

### Inductive proximity switches



End position monitoring mounted with mounting kit

| Description                       | ID      | Recommended product |
|-----------------------------------|---------|---------------------|
| Mounting kit for proximity switch |         |                     |
| AS-GSM-Z 30                       | 0304944 |                     |
| Inductive proximity switches      |         |                     |
| IN 40-S-M8                        | 0301474 | •                   |
| IN 40-S-M12                       | 0301574 |                     |
| INK 40-S                          | 0301555 |                     |

① Per each GSM four sensors (closer/NO) are required, optionally also an extension cable. The conditions of the swivelling or gripping processes are evaluated of the control unit by logic evaluation of the four sensor signals. If inductive proximity switches should be used, please take care that the switching positions cannot be adjusted.

① This mounting kit needs to be ordered optionally as an accessory.

① Please note the minimum permitted bending radii for the sensor cables, which are generally 35 mm.



You can find more detailed information and individual parts of the above-mentioned accessories in the “Accessories” catalog section.