

PGN-plus

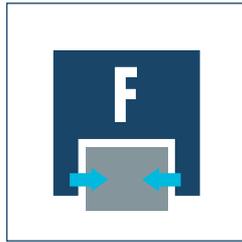
Pneumatic • 2-Finger Parallel Gripper • Universal Gripper



Sizes
40 ... 380



Weight
0.08 kg ... 39.5 kg



Gripping force
123 N ... 21150 N

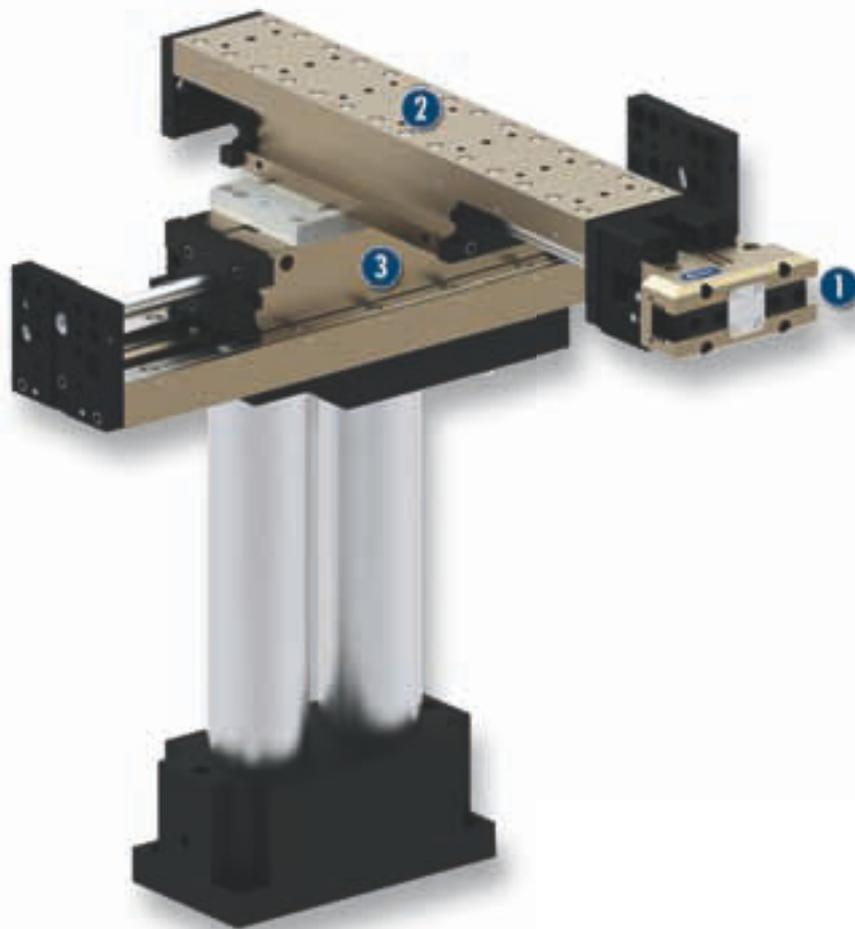


Stroke per finger
2 mm ... 45 mm



Workpiece weight
0.62 kg ... 80.5 kg

Application example



Pick-and-place unit for light to medium-weight components

1 2-Finger Parallel Gripper PGN-plus

2 Linear module LM

3 Linear module LM

Universal Gripper

Universal 2-finger parallel gripper with large gripping force and high maximum moments thanks to multi-tooth guidance.

Field of application

Ideal standard solution for numerous fields of application. For universal use in clean to slightly dirty environments. Special versions available for dirty environments.

Your advantages and benefits

Robust multi-tooth guidance

for precise handling

High maximum moments possible

suitable for using long gripper fingers

Drive concept oval piston

for maximum gripping forces

Mounting from two sides in three screw directions possible

for universal and flexible gripper assembly

Air supply via hose-free direct connection or screw connections

for universal and flexible gripper assembly

Comprehensive sensor accessory program

for versatile interrogation possibilities and control of stroke position

Compact dimensions

for minimal interfering contours in handling

Manifold options

for perfect adaption to your case of application (dust protection, high temperature, anti-corrosion and many more)



General note to the series

Principle of function

Wedge-hook kinematics

Housing material

Aluminum

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

36 months (details, general terms and conditions and operation manuals can be downloaded under www.schunk.com)

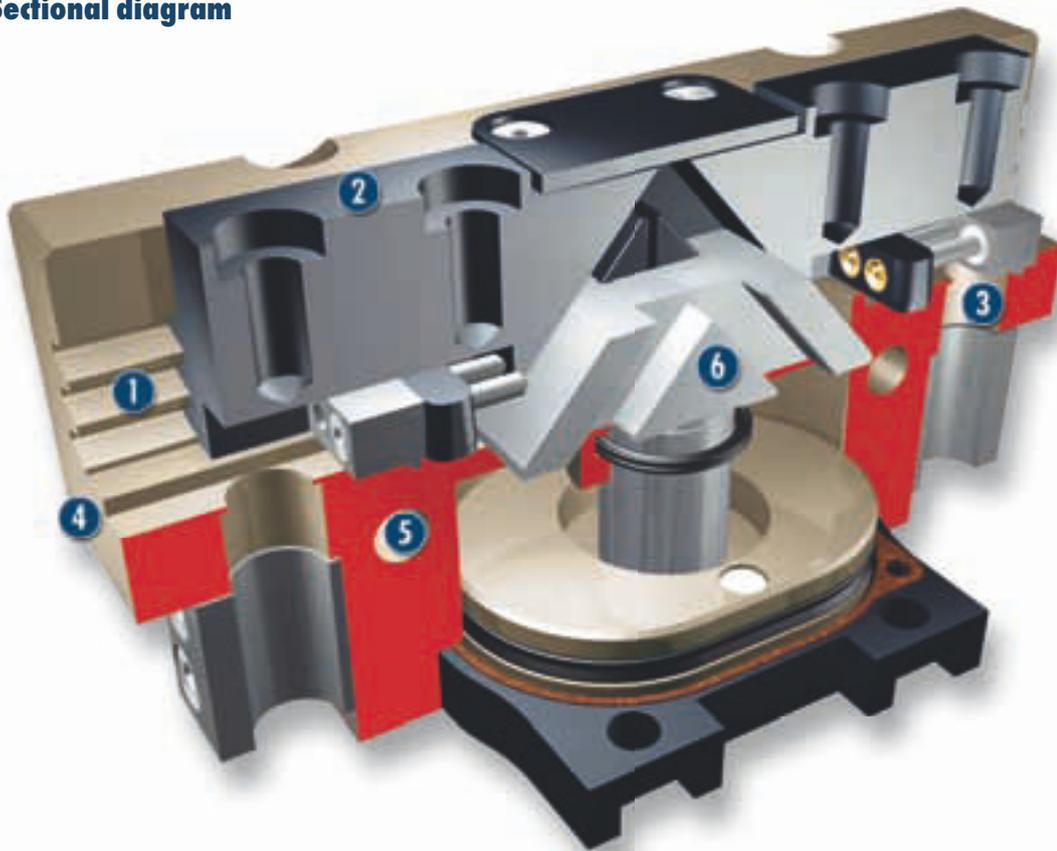
Scope of delivery

Brackets for proximity switches, centering sleeves, O-rings for direct connection, assembly and operating manual with manufacturer's declaration

Gripping force maintenance device

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

Sectional diagram



- 1 Multiple-tooth guidance**
high-loadable base jaw guidance with minimum play for long fingers
- 2 Base jaw**
for the connection of workpiece-specific gripper fingers
- 3 Sensor system**
Brackets for proximity switches and adjustable control cams in the housing
- 4 Housing**
weight-optimized through application of hard-anodized, high-strength aluminum alloy
- 5 Centering and mounting possibilities**
for universal assembly of the gripper
- 6 Wedge-hook design**
for high power transmission and centric gripping

Functional description

The oval piston is moved up or down by means of compressed air. Through its angled active surfaces, the wedge hook transforms this movement into the lateral, synchronous gripping movement of both base jaws.

Options and special information

Dust-protection version

Absolutely sealed, increased degree of protection against the ingress of materials, for use in dusty environments

Anti-corrosion version

for use in corrosion-inducing atmospheres

High-temperature version

for use in hot environments

Force intensified version

if higher gripping forces are required

Precision version

for a higher accuracy

Accessories

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

Sensor system



Fittings



Universal intermediate jaw



Compensation unit



Protection cover



Sensor cables



Quick-change Jaw System



Sensor Distributor



Pressure maintenance valve



Finger blanks



Force measuring jaws



Analog position sensor



Flexible Position Sensor



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.

Repeat accuracy

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

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.

Closing and opening times

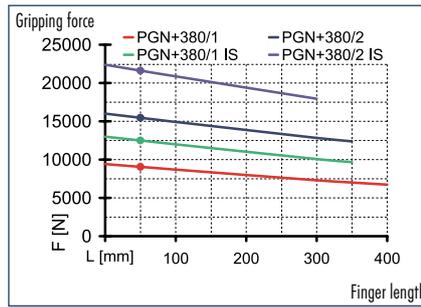
Closing and opening times are purely the times that the base jaws or fingers are in motion. Valve switching times, hose filling times or PLC reaction times are not included in the above times and must be taken into consideration when determining cycle times.

PGN-plus 380

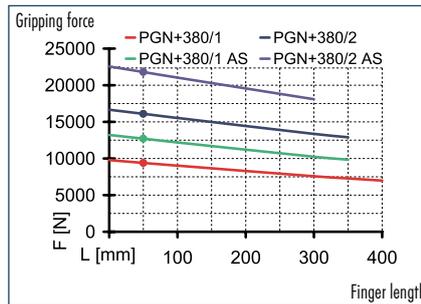
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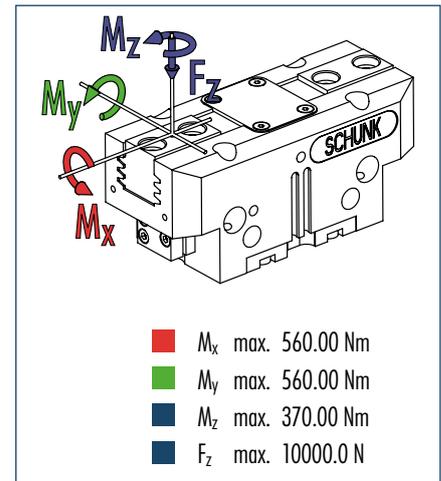
Gripping force, I.D. gripping



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.

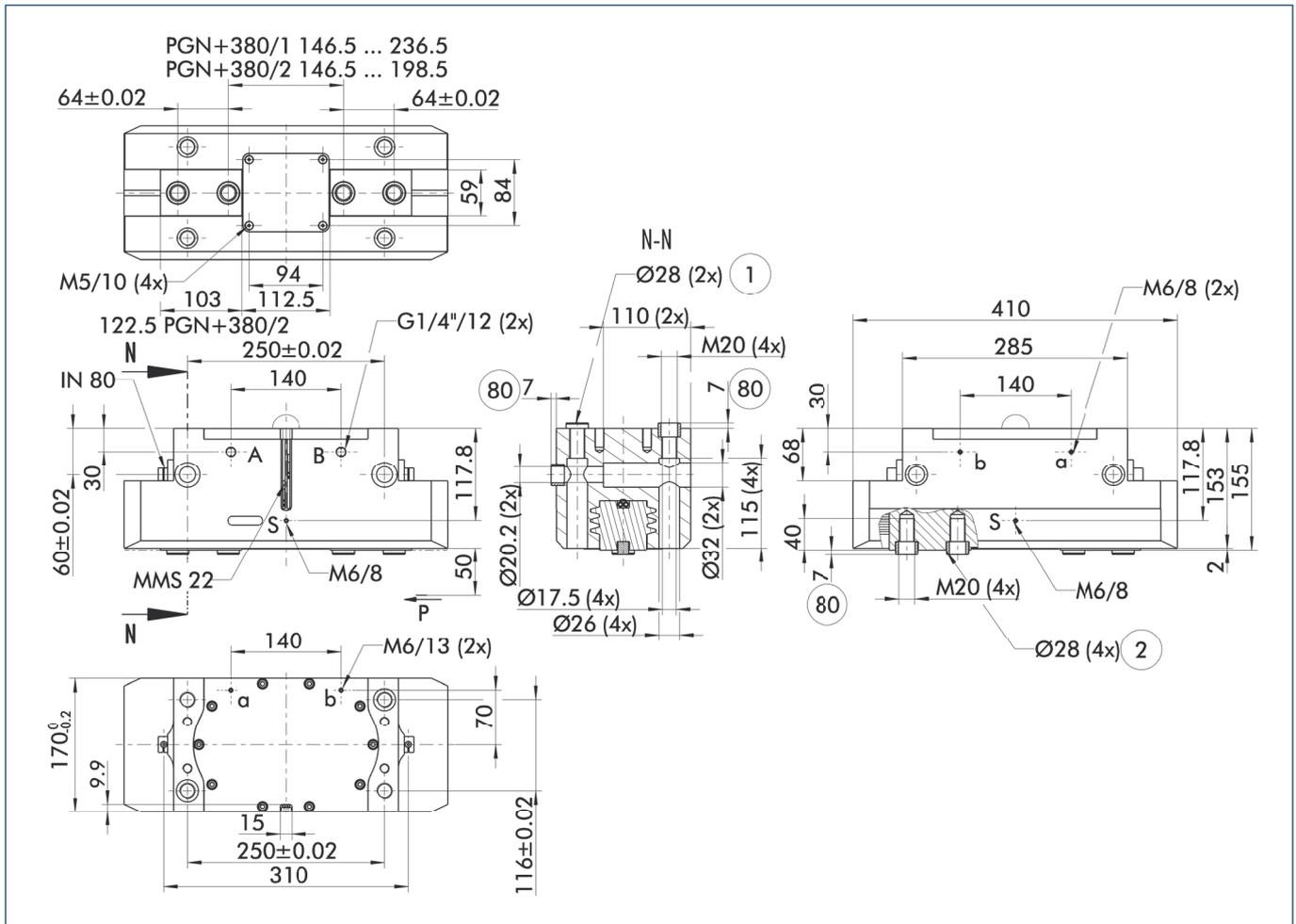
Technical data

| Description | PGN-plus 380-1 | PGN-plus 380-2 | PGN-plus 380-1-AS | PGN-plus 380-2-AS | PGN-plus 380-1-IS | PGN-plus 380-2-IS |
|--|----------------|----------------|-------------------|-------------------|-------------------|-------------------|
| ID | 0371107 | 0371157 | 0371407 | 0371457 | 0371467 | 0371477 |
| Stroke per finger [mm] | 45 | 26 | 45 | 26 | 45 | 26 |
| Closing force [N] | 9050 | 15450 | 12350 | 21150 | | |
| Opening force [N] | 9400 | 16100 | | | 12700 | 21800 |
| Min. spring force [N] | | | 3300 | 5700 | 3300 | 5700 |
| Weight [kg] | 28 | 29 | 36.5 | 37.5 | 36.5 | 37.5 |
| Recommended workpiece weight [kg] | 47 | 80.5 | 47 | 80.5 | 47 | 80.5 |
| Air consumption per double stroke [cm ³] | 1714 | 1714 | 1714 | 1714 | 1714 | 1714 |
| Min./max. operating pressure [bar] | 2.5/8 | 2.5/8 | 4/6.5 | 4/6.5 | 4/6.5 | 4/6.5 |
| Nominal operating pressure [bar] | 6 | 6 | 6 | 6 | 6 | 6 |
| Closing/opening time [s] | 0.6/0.6 | 0.6/0.6 | 0.5/0.8 | 0.5/0.8 | 0.8/0.5 | 0.8/0.5 |
| Max. permitted finger length [mm] | 400 | 350 | 350 | 300 | 350 | 300 |
| Max. permitted weight per finger [kg] | 17 | 17 | 17 | 17 | 17 | 17 |
| IP class | 40 | 40 | 40 | 40 | 40 | 40 |
| Min./max. ambient temperature [°C] | -10/90 | -10/90 | -10/90 | -10/90 | -10/90 | -10/90 |
| Repeat accuracy [mm] | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| Cleanroom class | | | | | | |
| ISO-classification 14644-1 | 5 | 5 | 5 | 5 | 5 | 5 |

OPTIONS and their characteristics

| | | | | | | |
|------------------------------------|----------|----------|----------|----------|----------|----------|
| Dust-protection version | 37371107 | 37371157 | 37371407 | 37371457 | 37371467 | 37371477 |
| IP class | 64 | 64 | 64 | 64 | 64 | 64 |
| Weight [kg] | 30 | 31 | 38.5 | 39.5 | 38.5 | 39.5 |
| Anti-corrosion version | 38371107 | 38371157 | 38371407 | 38371457 | 38371467 | 38371477 |
| High-temperature version | 39371107 | 39371157 | 39371407 | 39371457 | 39371467 | 39371477 |
| Min./max. ambient temperature [°C] | -10/130 | -10/130 | -10/130 | -10/130 | -10/130 | -10/130 |
| Precision version | 0371130 | 0371180 | 0371430 | 0371445 | | |

Main view



The drawing shows the gripper in the basic version with closed jaws, the dimensions do not include the options described below.

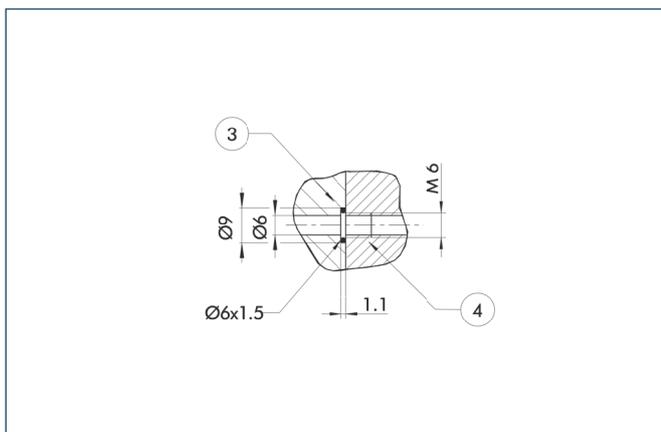
① The SDV-P pressure maintenance valve can also be used for I.D. or O.D. gripping alternatively or in addition to the spring-loaded, mechanical gripping force maintenance device (see "Accessories" catalog section).

A, a Main/direct connection, gripper opening
B, b Main/direct connection, gripper closing
S Air purge connection

② Finger connection
⊘ Depth of the centering sleeve hole in the matching part

① Gripper connection

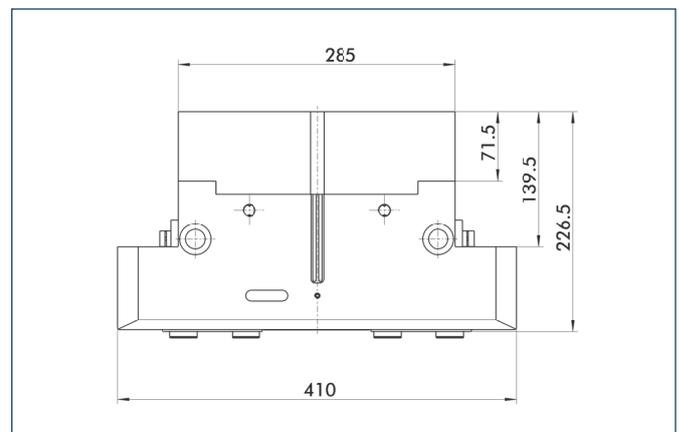
Hose-free direct connection



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.

AS/IS gripping force maintenance device

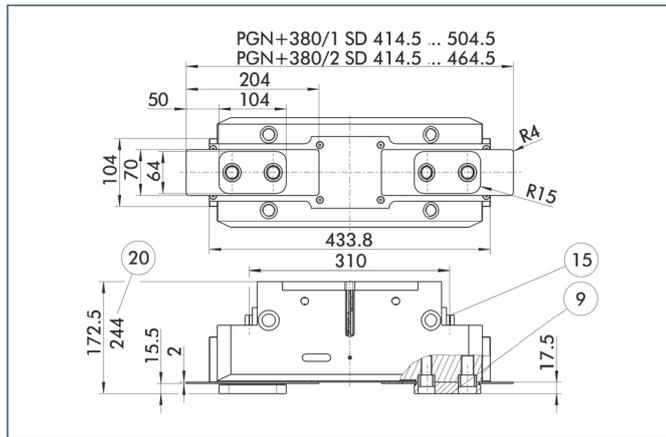


The mechanical gripping force maintenance device ensures a minimum gripping force even in case of pressure drop. This acts as closing force in the AS version, and as opening force in the IS version. In addition, the gripping force maintenance device can also be used for increasing the gripping force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

PGN-plus 380

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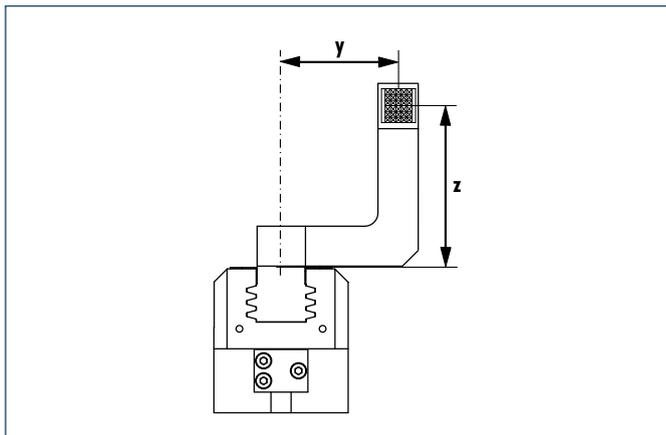
Dust-protection version



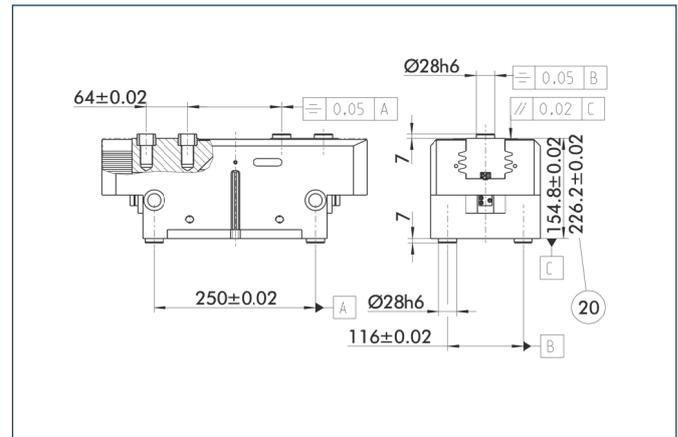
- ⑨ For mounting screw connection diagram, see basic version
- ⑮ Sealing bolt
- ⑳ For AS / IS version

The "dust-protection" option increases the degree of protection against penetrating substances. The screw connection diagram shifts by the height of the intermediate jaw. The finger length is still measured from the upper edge of the gripper housing.

Maximum permitted finger projection

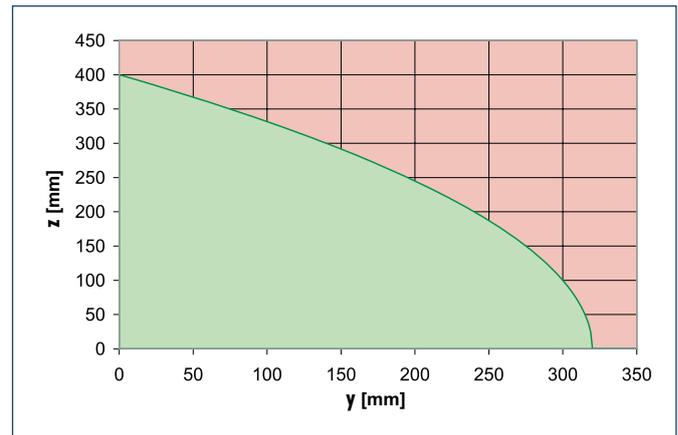


Precision version



- ⑳ For AS / IS version

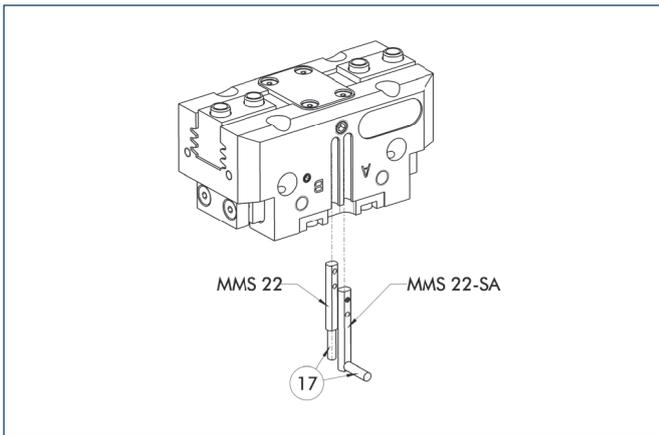
The indicated tolerances just refer to the types of precision versions shown in the chart of technical specifications. All other types of precision versions are available on request.



- Permitted range
- Inadmissible range

The curve applies to the basic version (stroke-1). For other versions, the curve will be parallel but offset in line with the max. permitted finger length.

Electronic magnetic switches



17 Cable outlet

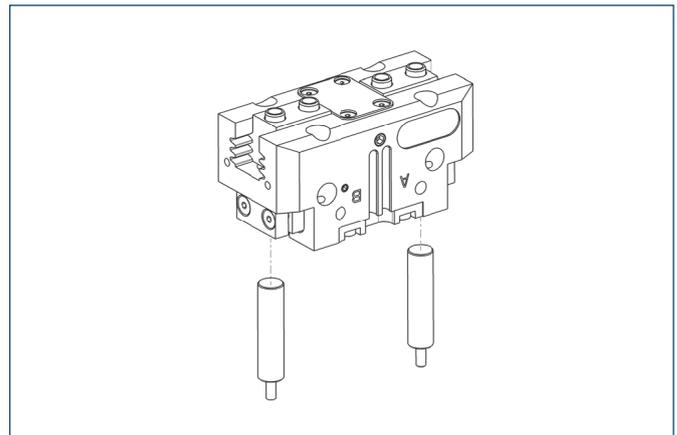
End position monitoring for mounting in the C-slot

| Description | ID | Recommended product |
|---|---------|---------------------|
| Electronic magnetic switches | | |
| MMS 22-S-M5-PNP | 0301438 | |
| MMS 22-S-M5-NPN | 0301439 | |
| MMS 22-S-M8-PNP | 0301432 | • |
| MMS 22-S-M8-NPN | 0301433 | |
| MMSK 22-S-PNP | 0301434 | |
| MMSK 22-S-NPN | 0301435 | |
| Electronic magnetic switches with lateral cable outlet | | |
| MMS 22-S-M5-PNP-SA | 0301448 | |
| MMS 22-S-M5-NPN-SA | 0301449 | |
| MMS 22-S-M8-PNP-SA | 0301442 | • |
| MMS 22-S-M8-NPN-SA | 0301443 | |
| MMSK 22-S-PNP-SA | 0301444 | |
| MMSK 22-S-NPN-SA | 0301445 | |
| Reed Switches | | |
| RMS 22-S-M8 | 0377720 | • |
| Connection cables | | |
| KA BG05-L 3P-0300 | 0301652 | |
| KA BG08-L 3P-0300-PNP | 0301622 | |
| KA BG08-L 3P-0500-PNP | 0301623 | |
| KA BW05-L 3P-0300 | 0301650 | |
| KA BW08-L 3P-0300-NPN | 0301602 | |
| KA BW08-L 3P-0300-PNP | 0301594 | |
| KA BW08-L 3P-0500-NPN | 9641116 | |
| 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/NO) are required for each gripper, plus extension cables as an option.

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

Inductive proximity switches



End position monitoring for direct mounting

| Description | ID | Recommended product |
|-------------------------------------|----------|---------------------|
| Inductive proximity switches | | |
| IN 80-S-M8 | 0301478 | • |
| IN 80-S-M12 | 0301578 | |
| INK 80-S | 0301550 | |
| Connection cables | | |
| KA BG08-L 3P-0300-PNP | 0301622 | |
| KA BG08-L 3P-0500-PNP | 0301623 | |
| KA BG12-L 3P-0500-PNP | 30016369 | |
| KA BW08-L 3P-0300-PNP | 0301594 | |
| KA BW08-L 3P-0500-PNP | 0301502 | |
| KA BW12-L 3P-0300-PNP | 0301503 | |
| KA BW12-L 3P-0500-PNP | 0301507 | |
| Cable extensions | | |
| KV BG12-SG12 3P-0030-PNP | 0301999 | |
| KV BG12-SG12 3P-0060-PNP | 0301998 | |
| KV BW08-SG08 3P-0030-PNP | 0301495 | |
| KV BW08-SG08 3P-0100-PNP | 0301496 | |
| KV BW08-SG08 3P-0200-PNP | 0301497 | |
| KV BW12-SG12 3P-0030-PNP | 0301595 | |
| KV BW12-SG12 3P-0100-PNP | 0301596 | |
| KV BW12-SG12 3P-0200-PNP | 0301597 | |

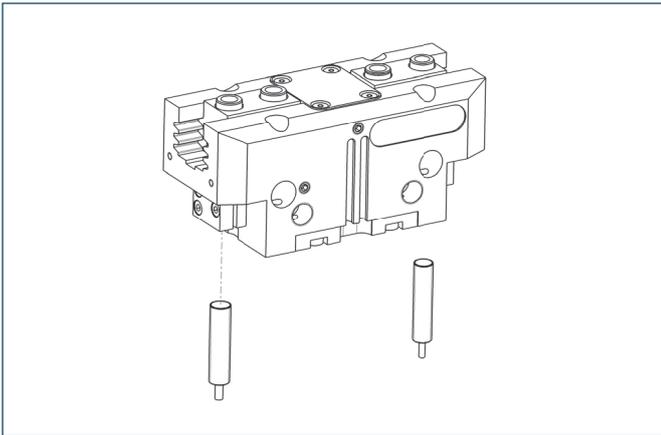
① Two sensors (closer/NO) are required for each gripper, plus extension cables as an option.

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.

Cylindrical Reed Switches

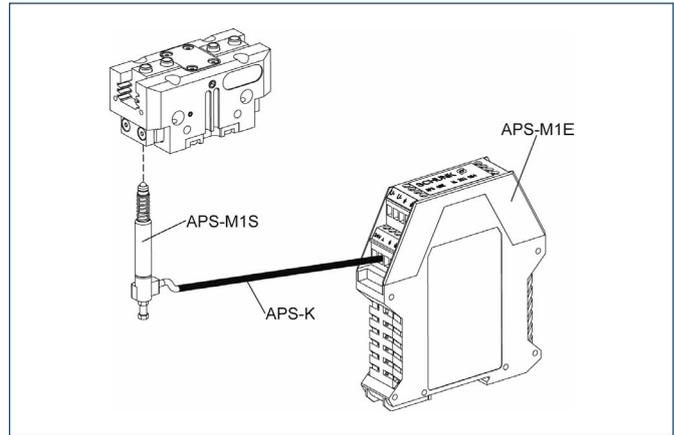


End position monitoring mounted with mounting kit

| Description | ID |
|-----------------------------------|----------------|
| Mounting kit for proximity switch | |
| AS-RMS 80 PGN/PZN-plus 160-380 | 0377727 |
| Reed Switches | |
| RMS 80-S-M8 | 0377721 |

- ① Two sensors (closer/NO) are required for each gripper, plus extension cables as an option.
- 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.

Analog position sensor

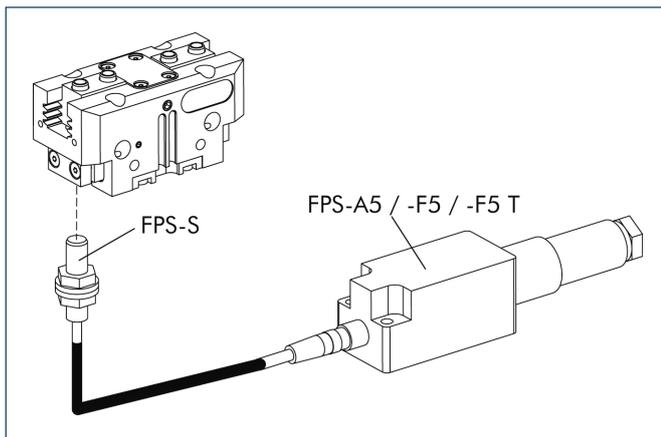


Analog multi position monitoring for any desired positions

| Description | ID |
|---------------------------|----------------|
| Mounting kit | |
| AS-APS-M1-200/1 and 380/2 | 0302085 |
| AS-APS-M1-380/1 | 0302090 |
| Connection cables | |
| APS-K0200 | 0302066 |
| APS-K0700 | 0302068 |
| Electronic Processor | |
| APS-M1E | 0302064 |
| Sensor | |
| APS-M1S | 0302062 |

- ① When using an APS system, for each gripper a mounting kit (AS-APS), an APS sensor (APS-M1S, incl. 3 m cable) as well as an electronics (APS-M1E) are required.
- ① An extension cable (APS-K) can be connected between the sensor and the electronics as an option. The max. cable length between the sensor and the electronics is 10 m, between the electronics and their control unit (PLC) it is max. 1 m.

Flexible Position Sensor



Flexible position monitoring of up to five positions

| Description | ID |
|----------------------|---------|
| Mounting kit for FPS | |
| AS-PGN-plus 380-2 | 0301645 |
| Electronic Processor | |
| FPS-F5 | 0301805 |
| FPS-F5 T | 0301807 |
| Sensor | |
| FPS-S M8 | 0301704 |

- ① When using a FPS system, a FPS sensor (FPS-S) and a control unit (FPS-F5 / F5 T or A5) 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.



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