

# PGN-plus

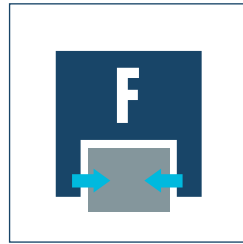
Pneumatic • 2-Finger Parallel Gripper • Universal Gripper



**Sizes**  
40 ... 380



**Weight**  
0.08 kg ... 39.5 kg



**Gripping force**  
123 N ... 21150 N

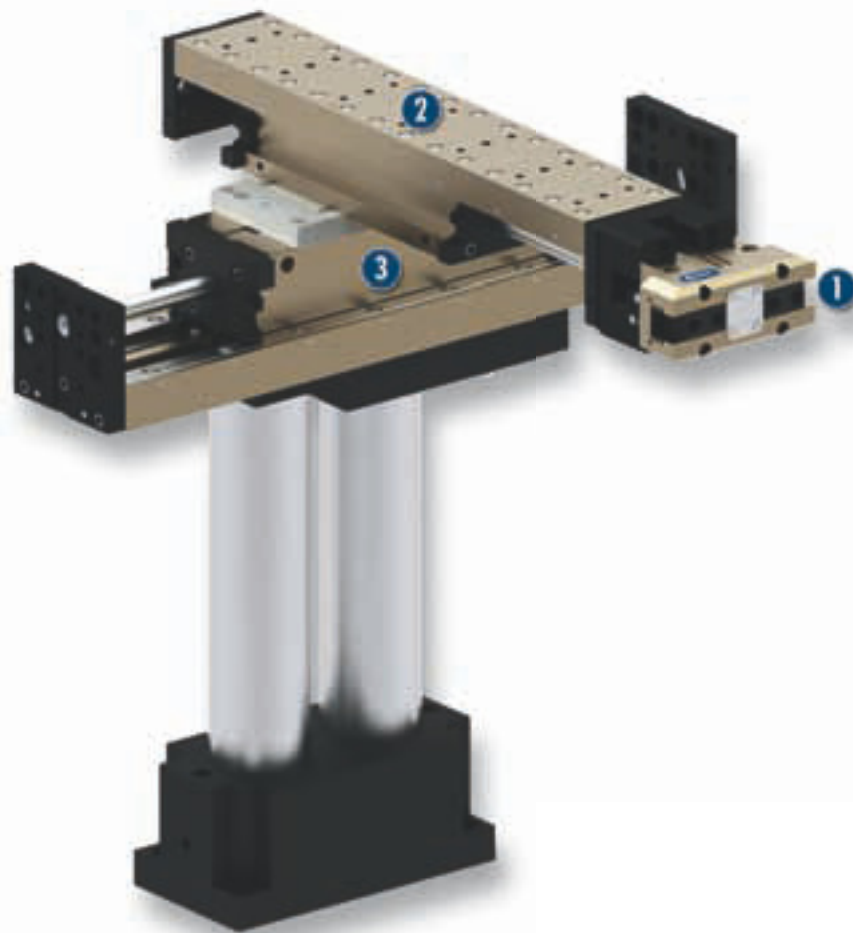


**Stroke per finger**  
2 mm ... 45 mm



**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](http://www.schunk.com))

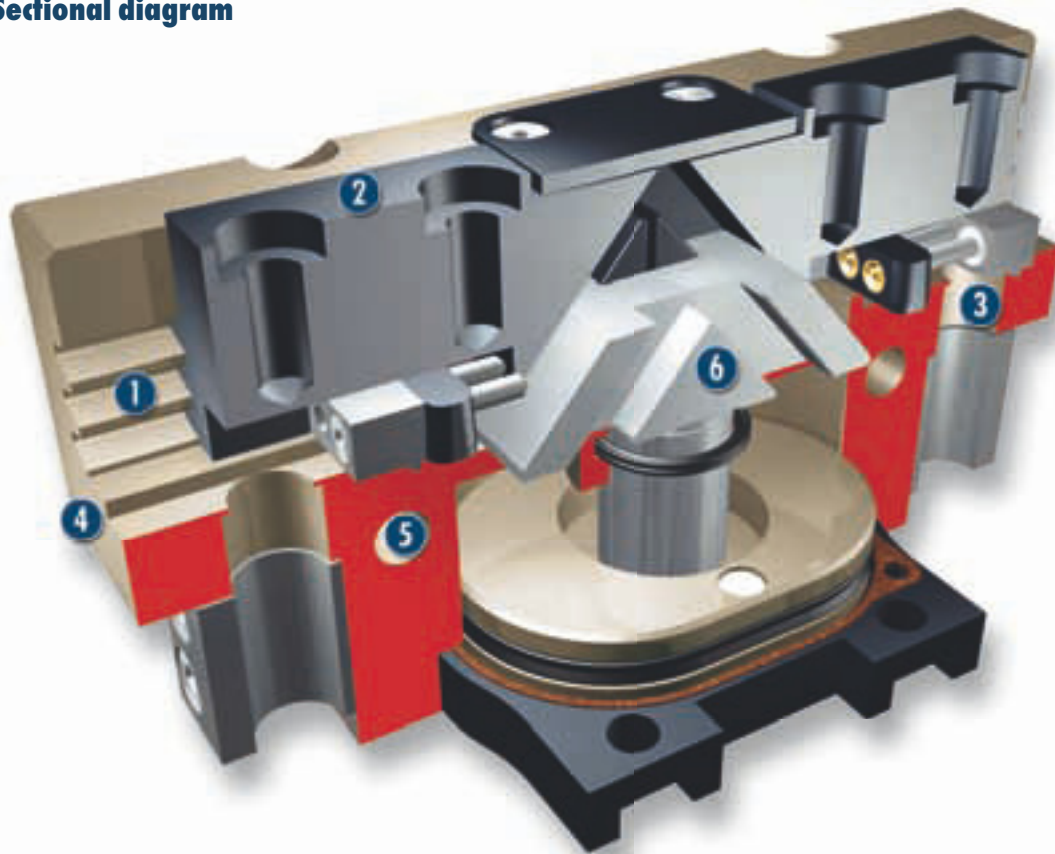
#### Scope of delivery

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

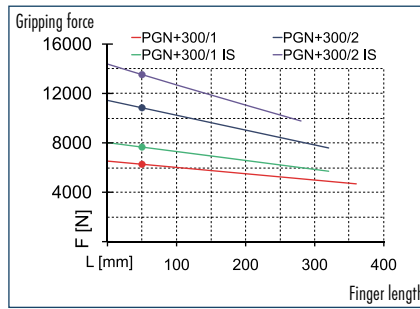
Closing and opening times are purely the times that the base jaws or fingers are in motion. Valve switching times, hose filling times or PLC reaction times are not included in the above times and must be taken into consideration when determining cycle times.

# PGN-plus 300

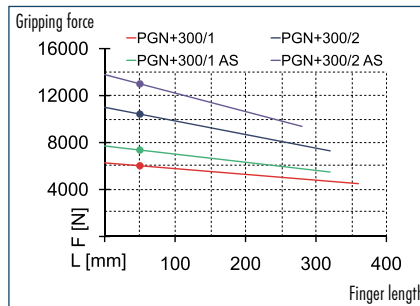
Pneumatic • 2-Finger Parallel Gripper • Universal Gripper



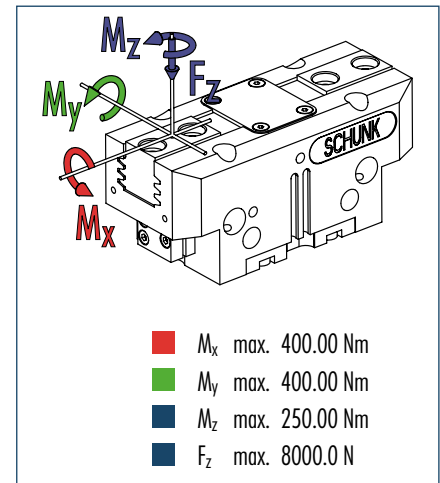
## Gripping force, I.D. gripping



## 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.

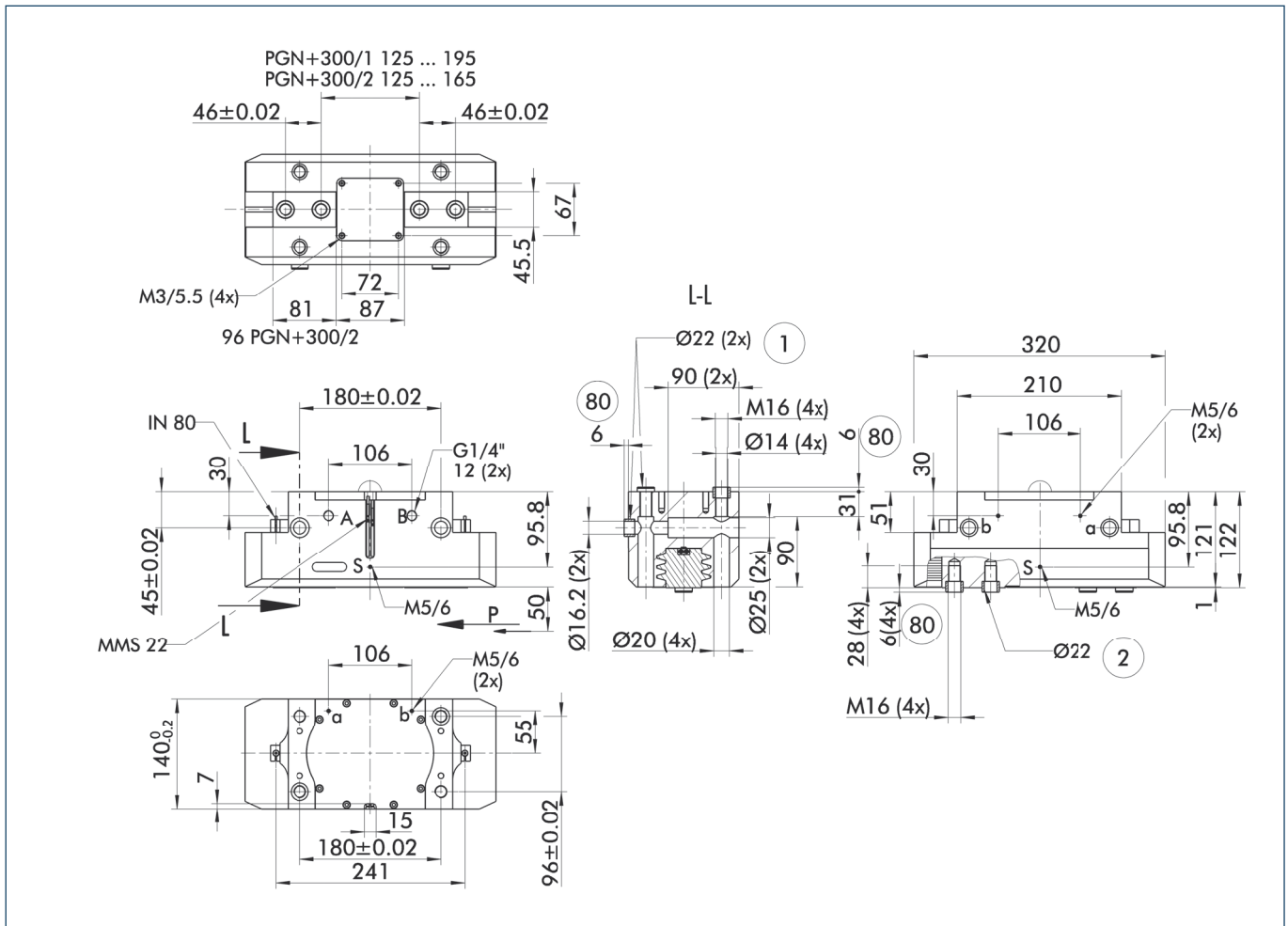
## Technical data

Description	PGN-plus 300-1	PGN-plus 300-2	PGN-plus 300-1-AS	PGN-plus 300-2-AS	PGN-plus 300-1-IS	PGN-plus 300-2-IS
ID	0371106	0371156	0371406	0371456	0371466	0371476
Stroke per finger [mm]	35	20	35	20	35	20
Closing force [N]	6000	10300	7400	12500		
Opening force [N]	6260	10800			7660	13000
Min. spring force [N]			1400	2200	1400	2200
Weight [kg]	13.9	13.9	17.2	17.2	17.2	17.2
Recommended workpiece weight [kg]	30	51.5	30	51.5	30	51.5
Air consumption per double stroke [cm <sup>3</sup> ]	1030	1030	1585	1585	1585	1585
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]	0.5/0.5	0.5/0.5	0.4/0.7	0.4/0.7	0.7/0.4	0.7/0.4
Max. permitted finger length [mm]	350	300	300	250	300	250
Max. permitted weight per finger [kg]	11.5	11.5	11.5	11.5	11.5	11.5
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

	37371106	37371156	37371406	37371456	37371466	37371476
Dust-protection version	37371106	37371156	37371406	37371456	37371466	37371476
IP class	64	64	64	64	64	64
Weight [kg]	17.6	17.6	21.3	21.3	21.3	21.3
Anti-corrosion version	38371106	38371156	38371406	38371456	38371466	38371476
High-temperature version	39371106	39371156	39371406	39371456	39371466	39371476
Min./max. ambient temperature [°C]	-10/130	-10/130	-10/130	-10/130	-10/130	-10/130
Precision version	0371129	0371179	0371429	0371444		

## Main view



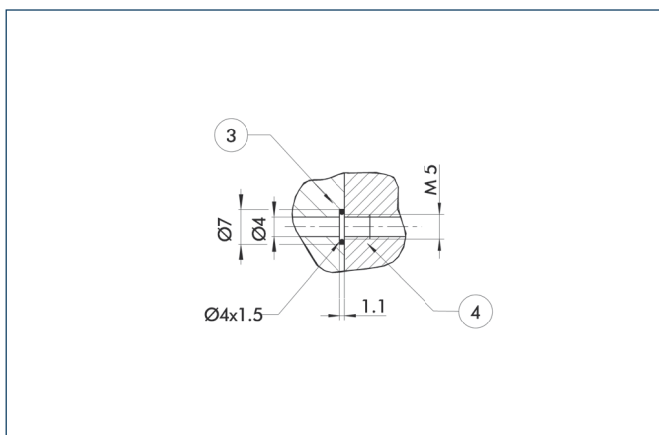
The drawing shows the gripper in the basic version with closed jaws, the dimensions do not include the options described below.

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  
 ① Gripper connection

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

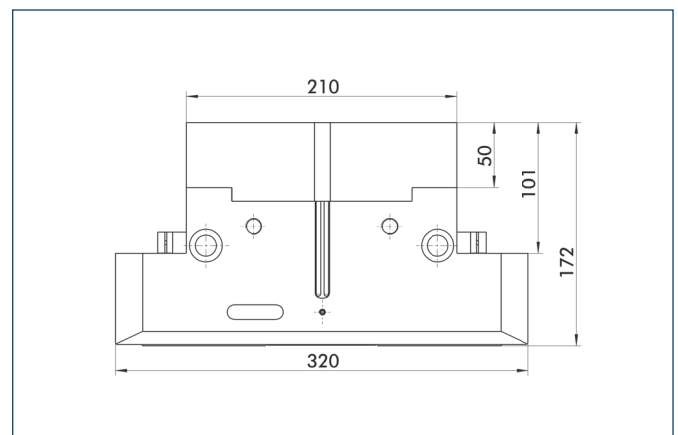
## Hose-free direct connection



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

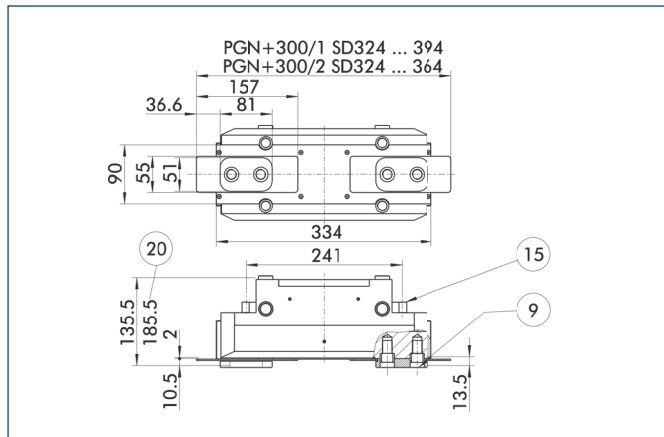


The mechanical gripping force maintenance device ensures a minimum gripping force even in case of pressure drop. This acts as closing force in the AS version, and as opening force in the IS version. In addition, the gripping force maintenance device can also be used for increasing the gripping force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

# PGN-plus 300

Pneumatic • 2-Finger Parallel Gripper • Universal Gripper

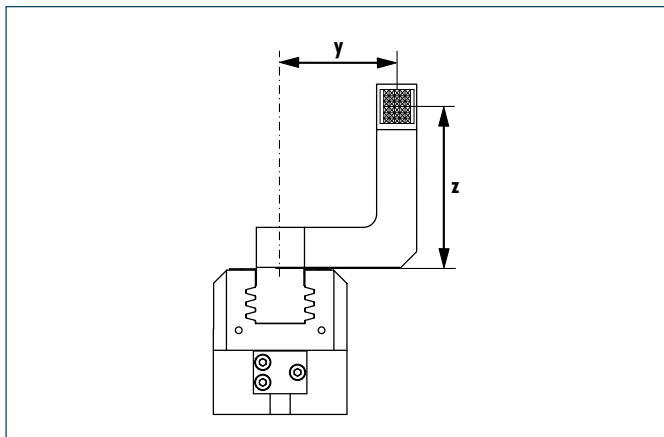
## Dust-protection version



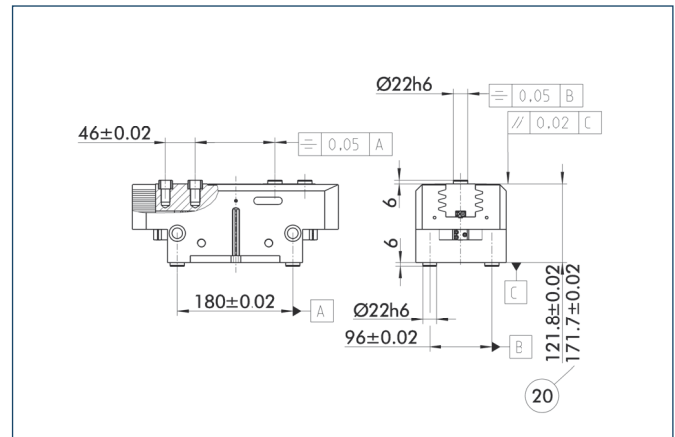
- ⑨ For mounting screw connection diagram, see basic version
- ⑮ Sealing bolt
- ⑳ For AS / IS version

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

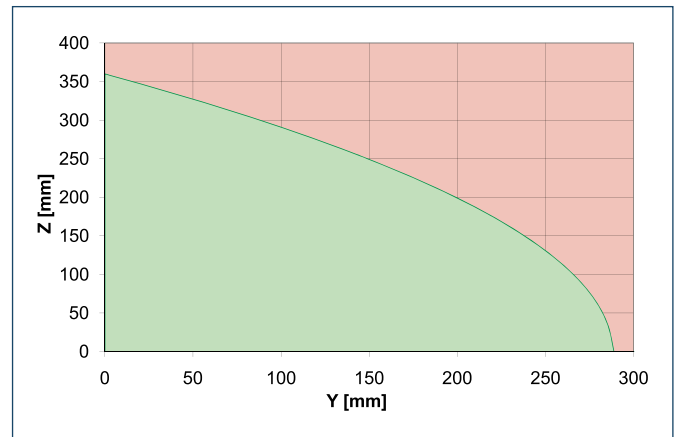


## Precision version



- ⑳ For AS / IS version

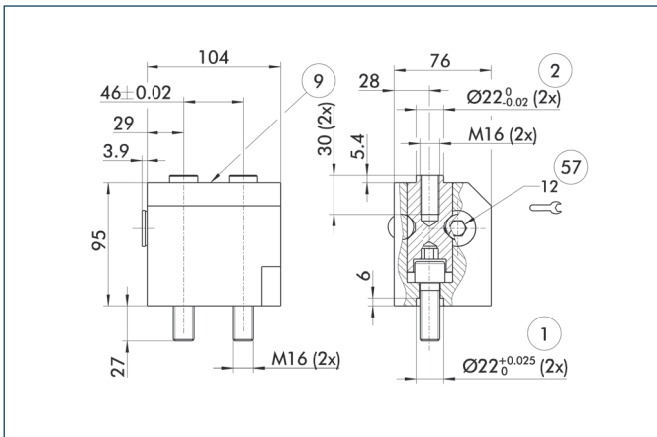
The indicated tolerances just refer to the types of precision versions shown in the chart of technical specifications. All other types of precision versions are available on request.



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.



### Quick-change Jaw System



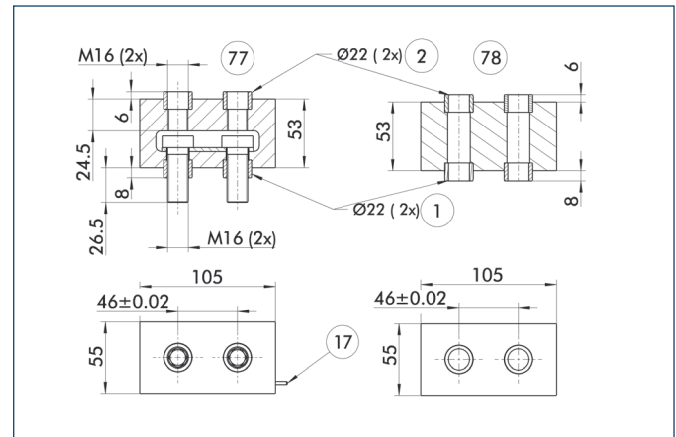
- ① Gripper connection
- ② Finger connection
- ⑨ For mounting screw connection diagram, see basic version
- ⑤⑦ Locking

The BSWs quick-change jaw system enables top jaws to be changed on the gripper manually and rapidly. An adapter (BSWS-A) and a base (BSWS-B) are required for each gripper jaw.

For a reverse assembly without height set-up, one adapter (BSWS-A) and a kit (BSWS-U) per gripper jaw are required. Another effect of the BSWS-U, is that there are no disturbing fastening bores in the finger contour.

Description	ID
Quick-change Jaw System adapter	
BSWS-A 300	0303036
Quick-change Jaw System base	
BSWS-B 300	0303037
Quick-change Jaw System reversed	
BSWS-U 300	0303048

### Force measuring jaws

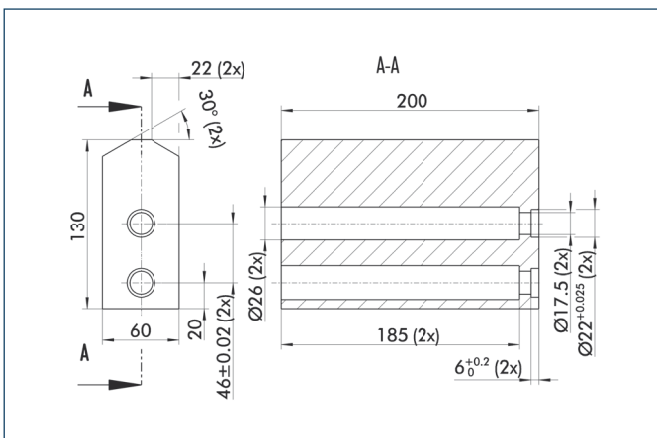


- ① Gripper connection
- ② Finger connection
- ①⑦ Cable outlet
- ⑦⑦ Active intermediate jaws
- ⑦⑧ Passive intermediate jaws

Force measuring jaws measure gripping forces, but can also determine workpiece weights or dimensional deviations. There are active and passive intermediate jaws (FMS-ZBA or FMS-ZBP). At least one active force measuring jaw is required per gripper, the rest can be passive. For each active jaw, a FMS-A1 control unit and a FMS-A connection cable are required.

Description	ID
Active intermediate jaws	
FMS-ZBA 300	0301846
Passive intermediate jaws	
FMS-ZBP 300	0301847
Electronic Processor	
FMS-A2	0301811
Connection cables	
FMS-AK0200	0301820
FMS-AK0500	0301821
FMS-AK1000	0301822
FMS-AK2000	0301823

### Finger blanks



Finger blanks for customized subsequent machining

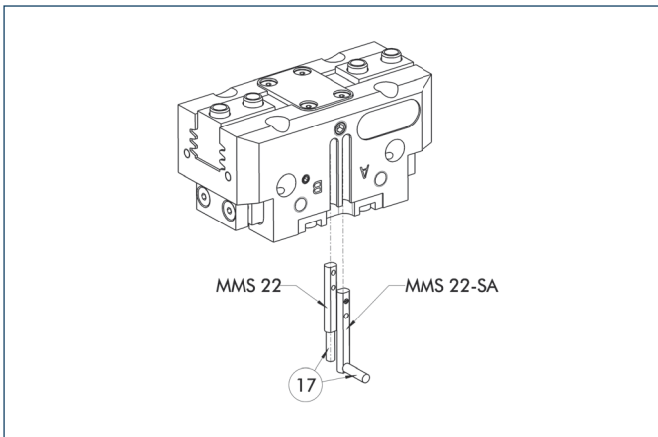
Description	ID	Material	Scope of delivery
Finger blanks			
ABR-plus 300	0300016	Aluminum	1
SBR-plus 300	0300026	16 MnCr 5	1



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



### Electronic magnetic switches



⑰ Cable outlet

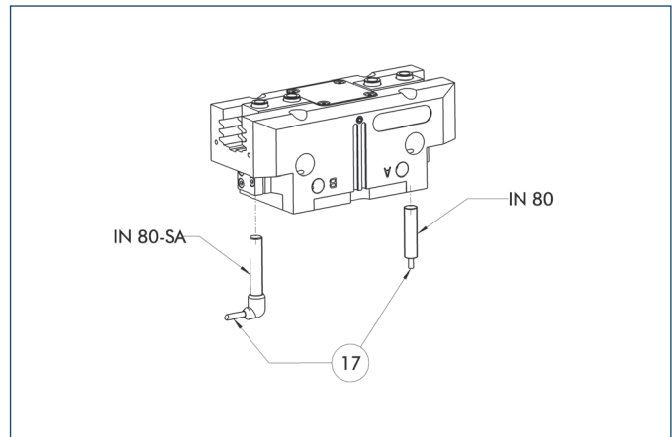
End position monitoring for mounting in the C-slot

Description	ID	Recommended product
<b>Electronic magnetic switches</b>		
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	
<b>Electronic magnetic switches with lateral cable outlet</b>		
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	
<b>Reed Switches</b>		
RMS 22-S-M8	0377720	•
<b>Connection cables</b>		
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	
<b>Cable extensions</b>		
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



⑰ Cable outlet

End position monitoring for direct mounting

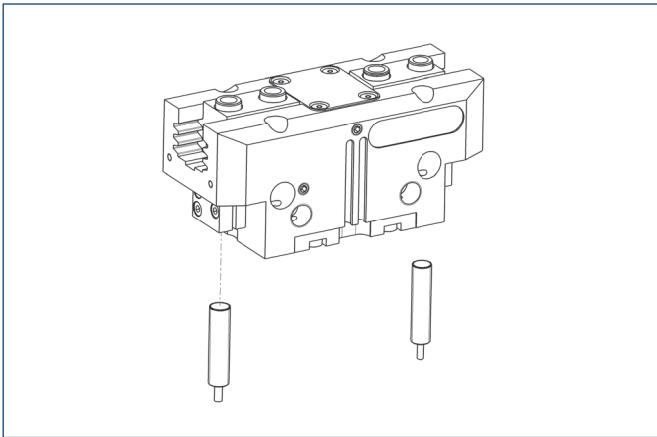
Description	ID	Recommended product
<b>Inductive proximity switches</b>		
IN 80-S-M8	0301478	•
IN 80-S-M12	0301578	
INK 80-S	0301550	
<b>Inductive proximity switch with lateral outlet</b>		
IN 80-S-M12-SA	0301587	
IN 80-S-M8-SA	0301483	•
INK 80-S-SA	0301566	
<b>Connection cables</b>		
KA BG08-L 3P-0300-PNP	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	
<b>Cable extensions</b>		
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

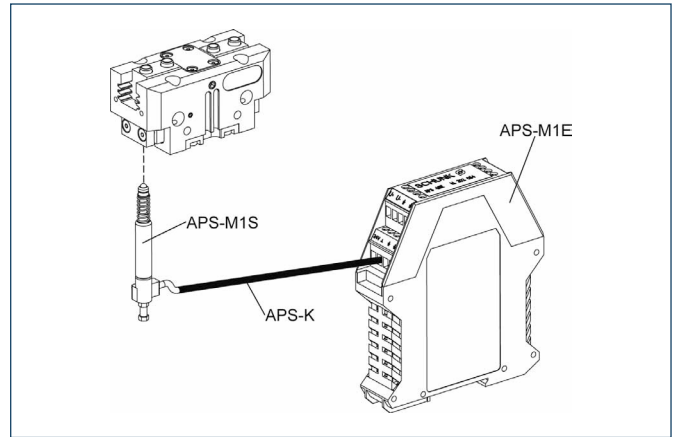


End position monitoring mounted with mounting kit

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

- 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

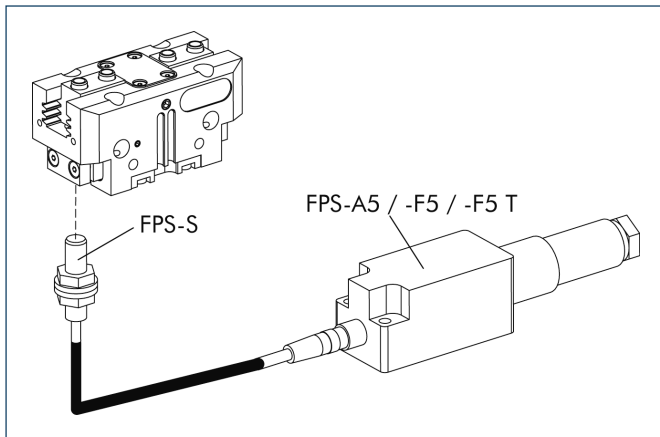
Description	ID
Mounting kit	
AS-APS-M1-300/1	<b>0302088</b>
AS-APS-M1-300/2	<b>0302089</b>
Connection cables	
APS-K0200	<b>0302066</b>
APS-K0700	<b>0302068</b>
Electronic Processor	
APS-M1E	<b>0302064</b>
Sensor	
APS-M1S	<b>0302062</b>

- 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.



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

## Flexible Position Sensor



Flexible position monitoring of up to five positions

Description	ID
Mounting kit for FPS	
AS-PGN/PZN-plus 300-2	0301642
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.