



Hand in hand for tomorrow



Product data sheet

Universal gripper PGN-plus 300

PGN-plus

Universal gripper

Reliable. Robust. Flexible.

Universal gripper PGN-plus

Universal 2-finger parallel gripper with a high gripping force and high maximum moments due to the use of a multi-tooth guidance

Field of application

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

Advantages – Your 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 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 querying possibilities and stroke position monitoring

Compact dimensions for minimal interfering contours in handling

Manifold options for special optimization for your specific case of application (dustproof, high-temperature, corrosion-protected, etc.)



Sizes
Quantity: 11



Weight
0.08 .. 39.5 kg



Gripping force
123 .. 21150 N



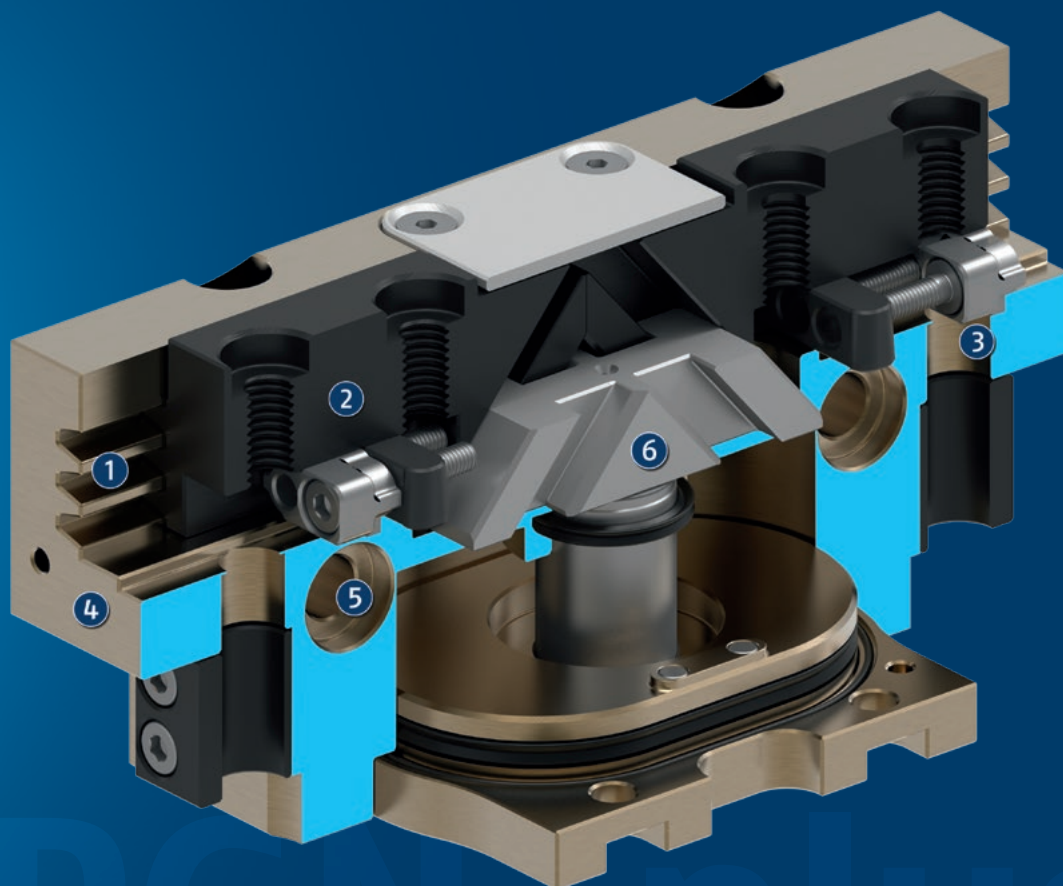
Stroke per jaw
2 .. 45 mm



Workpiece weight
0.62 .. 80.5 kg

Functional description

The oval piston is moved up or down by compressed air. The angled active surfaces of the wedge-hook produce a synchronized, parallel jaw motion.



- ① **Multi-tooth guidance**
highly loadable, nearly backlash-free base jaw guidance for long finger lengths
- 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**
is weight-optimized due to the use of high-strength aluminum alloy
- ⑤ **Centering and mounting possibilities**
for universal assembly of the gripper
- ⑥ **Wedge-hook design**
for high force transmission and centric gripping

General notes about the series

Operating principle: Wedge gear with surface power transmission

Housing material: Aluminum

Base jaw material: Steel

Actuation: pneumatic, with filtered compressed air as per ISO 8573-1:2010 [7:4:4].

Warranty: 36 months

Service life characteristics: on request

Scope of delivery: Gripper in the ordered variant, accessory kit (centering sleeves, O-rings for direct connection/detailed contents see operating manual) and safety information. Product-specific instructions can be downloaded at schunk.com/downloads-manuals.

Gripping force maintenance: 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.

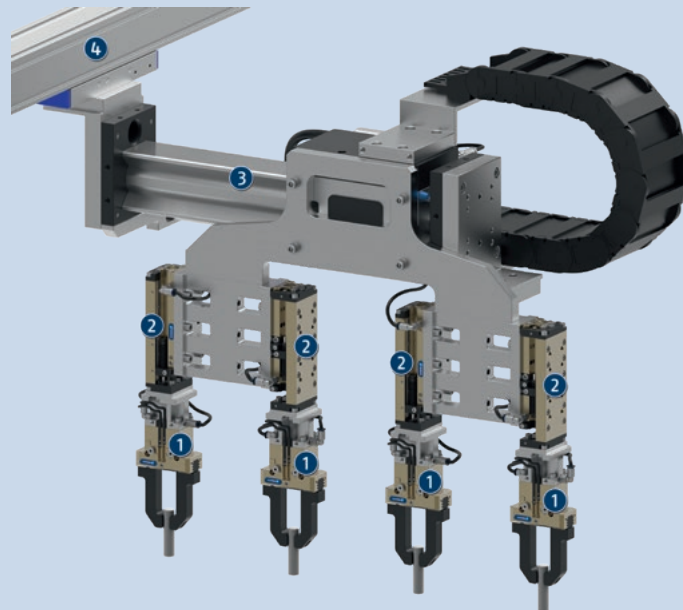
The maximum permissible finger length applies until the nominal operating pressure is achieved. With higher pressures, the finger length must be reduced proportionally to the nominal operating pressure.

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 movement times of the base jaws only, without application-specific gripper fingers. Valve switching times, hose fill times, or PLC reaction times are not included, and are to be considered when cycle times are calculated.

Cleanroom class ISO 14644-1:1999: 5



Application example

Handling gantry with multiple grippers for simultaneous removal of several workpieces

① 2-finger parallel gripper PGN-plus

② Linear module CLM

③ Universal linear module LDN

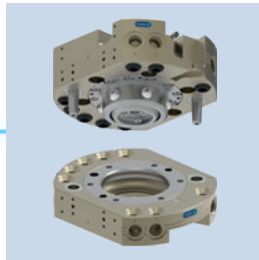
④ Universal linear module Beta

SCHUNK offers more ...

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



Linear module



Tool changer



Universal swivel unit



Compensation unit



Jaw quick-change system



Universal intermediate jaw



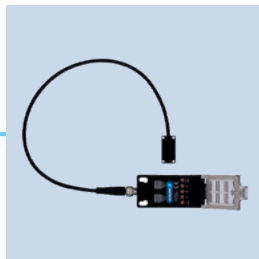
Pressure maintenance valve



Manual change system



Finger blank



Flexible position sensor



Magnetic switches



Inductive proximity switch

① For more information on these products can be found on the following product pages or at [schunk.com](https://www.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/IS version this acts as a closing force, in the IS version as an opening force.

Anti-corrosion version K: for use in corrosion-inducing atmospheres

High-temperature version VHT: for use in hot environments

Power booster version KVZ: if higher gripping forces are required

Precision version P: for the highest accuracy

ATEX version EX: for explosive environments

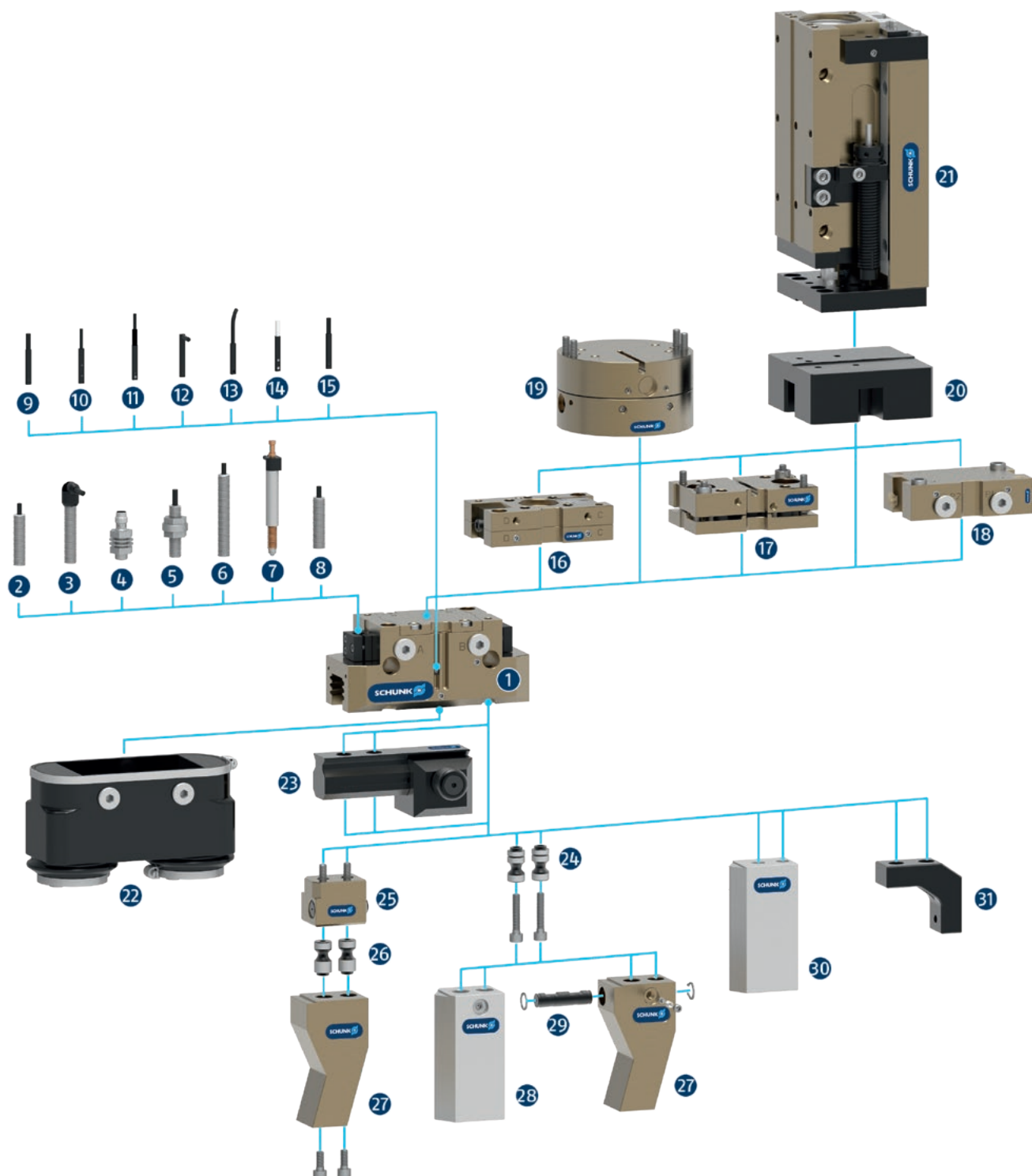
Dustproof version SD: absolutely dustproof, increased degree of protection against ingress of materials.

Additional versions: Various options can be combined with each other.

Food-grade lubrication: The product contains food-compliant lubricants as standard. The requirements of EN 1672-2:2020 are not fully met. The relevant NSF certificates are available at <https://info.nsf.org/USDA/Listings.asp> using the lubricant information in the operating manual.

SCHUNK gripper PGN-plus

Overview Accessories



- 1 **PGN-plus**
Universal 2-finger parallel gripper with a high gripping force and high maximum moments due to the use of a multi-tooth guidance

Sensor system

- 2 **IN ...**
Inductive proximity switch with molded cable and straight cable outlet
- 3 **IN ...-SA**
Inductive proximity switch with molded cable and lateral cable outlet
- 4 **IN-C 80**
Inductive proximity switch, directly pluggable
- 5 **FPS**
Flexible position sensor for monitoring up to five different, freely selectable positions
- 6 **APS-Z80**
Inductive position sensor for precise position detection of the gripper jaws with analog output
- 7 **APS-M15**
Mechanical measuring system for precise position detection of the gripper jaw with analog output
- 8 **RMS 80**
Reed switch in round version
- 9 **MMS 22**
Magnetic switch with straight cable outlet for monitoring a position

MMS 22-PI1
Magnetic switch with straight cable outlet for monitoring a freely programmable position
- 10 **MMS 22-PI2**
Magnetic switch with straight cable outlet for monitoring two freely programmable positions
- 11 **MMS 22-PI1-HD**
MMS 22-PI1 in robust design

MMS 22-PI2-HD
MMS 22-PI2 in robust design
- 12 **MMS 22-SA**
Magnetic switch with lateral cable outlet for monitoring a position

MMS 22-PI1-SA
Magnetic switch with side cable outlet for monitoring a freely programmable position
- 13 **MMS-P**
Magnetic switch with straight cable outlet for monitoring two freely programmable positions
- 14 **MMS 22-A**
Analog magnetic switch with straight cable outlet for measuring the gripper jaw position with analog output and teach function

- 15 **RMS 22**
Reed switch for direct assembly in the C-slot

Complementary products

- 16 **CWS**
Manual change system with integrated air feed-through for simple exchange of the handling components
- 17 **TCU**
Tolerance compensation unit for compensating small tolerances in the plane
- 18 **SDV-P-E-P**
Pressure maintenance valve for temporary force and position maintenance
- 19 **AGE**
Compensation unit for compensation of large tolerances along the X and Y axes
- 20 **ASG**
Adapter plate for combining various automation components in the modular system
- 21 **CLM**
Linear module with pneumatic drive and scope-free pre-loaded junction rollers
- 22 **HUE**
Sleeve for protection against dirt

Finger Accessories

- 23 **UZB**
The universal intermediate jaw allows fast tool-free and reliable plugging and shifting of top jaws at the gripper.
- 24 **BSWS-AR**
Adapter pin of the jaw quick-change system for fast, manual change of top jaws
- 25 **BSWS-B**
Locking mechanism of the jaw quick-change system for fast, manual exchange of top jaws
- 26 **BSWS-A**
Adapter pin of the jaw quick-change system for adaptation to the customized finger
- 27 **Customized fingers**
- 28 **BSWS-ABR**
Finger blank made of aluminum with interface to the jaw quick-change system

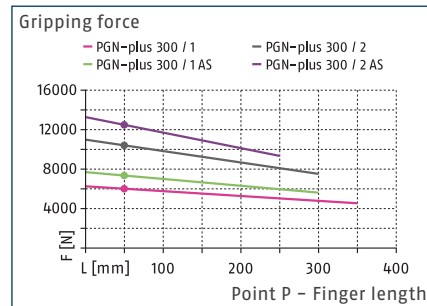
BSWS-SBR
Finger blank made of steel with interface to the jaw quick-change system
- 29 **BSWS-UR**
Locking mechanism for the integration of the jaw quick-change system into customized fingers
- 30 **ABR/SBR**
Finger blanks made of steel or aluminum with standardized screw connection diagram
- 31 **ZBA**
Intermediate jaws for reorientation of the mounting surface

PGN-plus 300

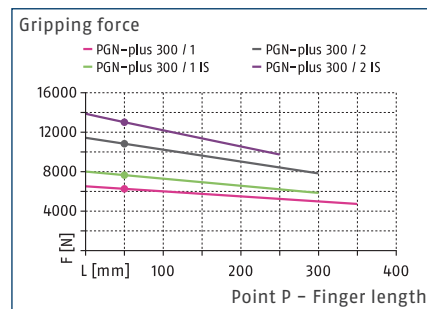
Universal gripper



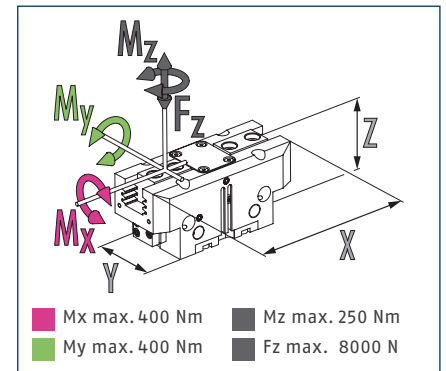
Gripping force O.D. gripping



Gripping force I.D. gripping



Dimensions and maximum loads



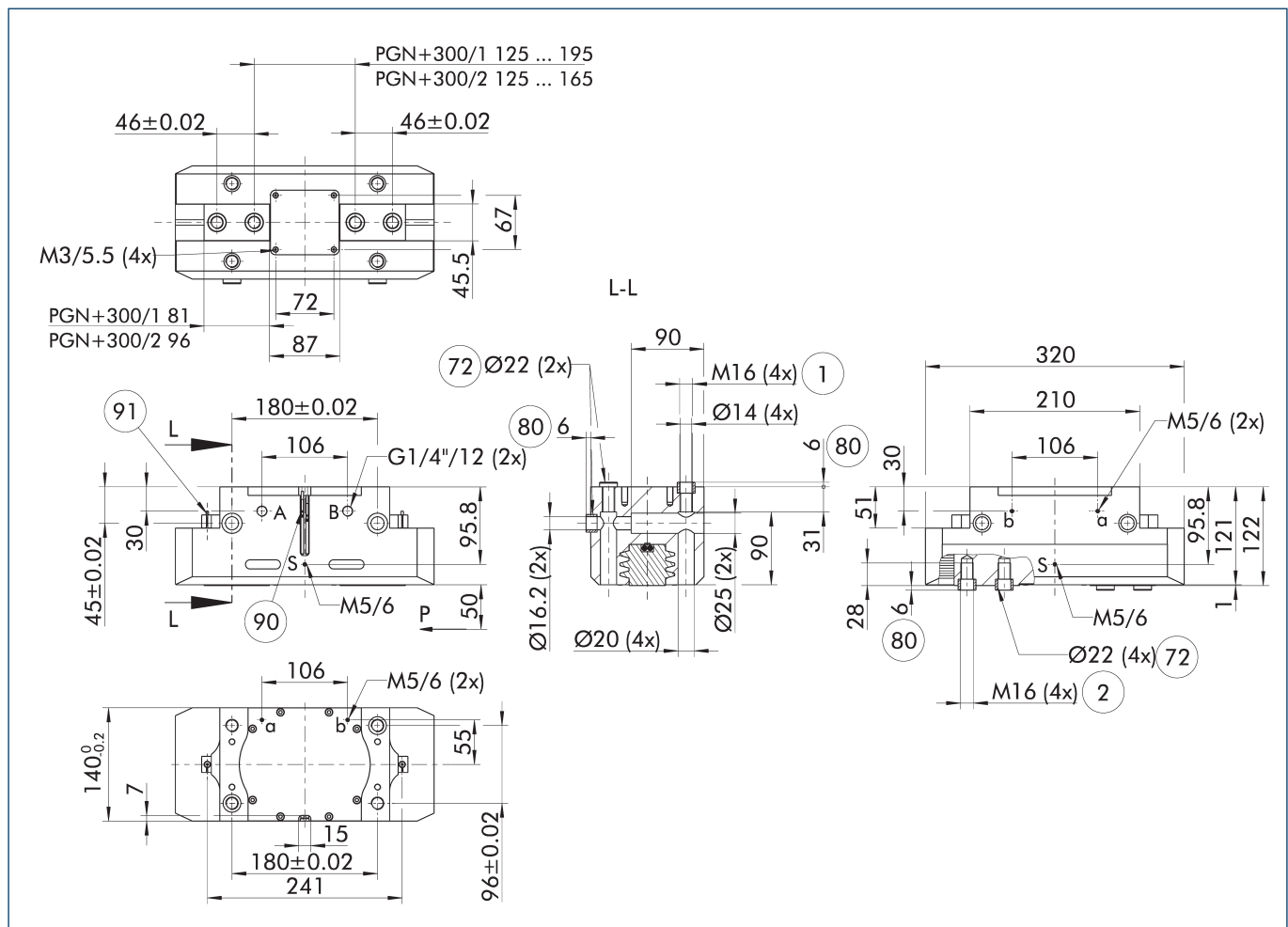
① The indicated moments and forces are static values, apply for each base jaw and may appear simultaneously. Loads may additionally occur to the moment produced by the gripping force itself.

Technical data

Description		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 jaw	[mm]	35	20	35	20	35	20
Closing/opening force	[N]	6000/6260	10300/10800	7400/-	12500/-	-17660	-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
Cylinder volume per double stroke	[cm³]	1040	1040	1295	1295	1560	1560
Min./nom./max. operating pressure	[bar]	2.5/6/8	2.5/6/8	4/6/6.5	4/6/6.5	4/6/6.5	4/6/6.5
Min./max. air purge pressure	[bar]	0.5/1	0.5/1	0.5/1	0.5/1	0.5/1	0.5/1
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
Closing/opening time with spring	[s]			0.60	0.60	0.60	0.60
Max. permissible finger length	[mm]	350	300	300	250	300	250
Max. permissible weight per finger	[kg]	11.5	11.5	11.5	11.5	11.5	11.5
IP protection class		40	40	40	40	40	40
Min./max. ambient temperature	[°C]	5/90	5/90	5/90	5/90	5/90	5/90
Repeat accuracy	[mm]	0.05	0.05	0.05	0.05	0.05	0.05
Dimensions X x Y x Z	[mm]	320 x 140 x 122	320 x 140 x 122	320 x 140 x 172	320 x 140 x 172	320 x 140 x 172	320 x 140 x 172
Options and their characteristics							
Dustproof version		37371106	37371156	37371406	37371456	37371466	37371476
IP protection class		64	64	64	64	64	64
Weight	[kg]	14.9	14.9	18.2	18.2	18.2	18.2
Corrosion-protected version		38371106	38371156	38371406	38371456	38371466	38371476
High-temperature version		39371106	39371156	39371406	39371456	39371466	39371476
Min./max. ambient temperature	[°C]	5/130	5/130	5/130	5/130	5/130	5/130
Precision version		0371129	0371179	0371429	0371444		

① 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 As an alternative/in addition to spring-assisted mechanical gripping force maintenance, the SDV-P pressure maintenance valve can be used for I.D. and O.D. gripping (see "Accessories" section of catalog).

A, a Main / direct connection, gripper opening

B, b Main / direct connection, gripper closing

S Air purge connection

① Gripper connection

② Finger connection

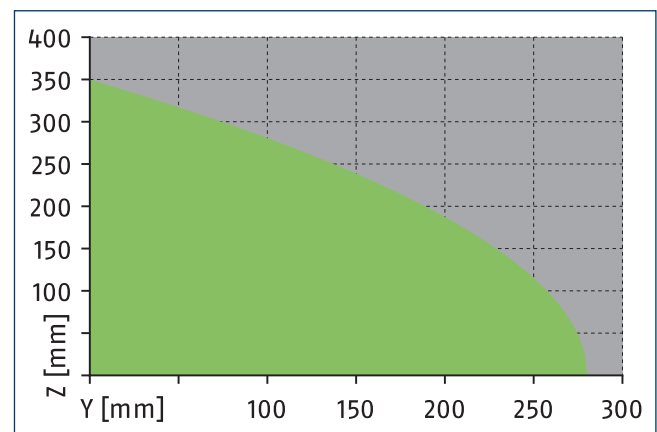
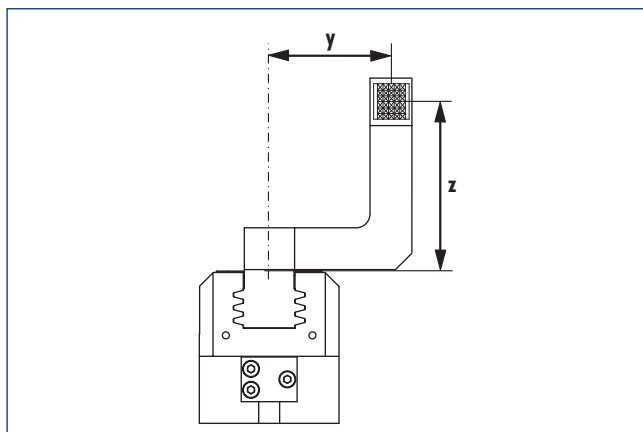
72 Fit for centering sleeves

80 Depth of the centering sleeve hole in the counter part

90 Sensor MMS 22..

91 Sensor IN ...

Maximum permitted finger projection

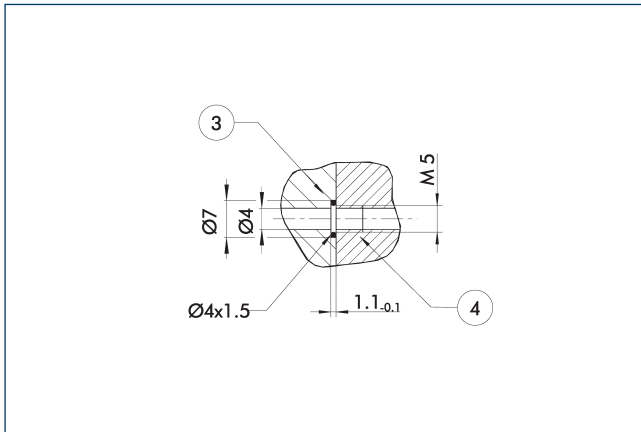


Permitted range

Inadmissible range

The curve applies for stroke version 1. For other versions, the curve must be parallelly off-set to the max. permissible finger length.

Hose-free direct connection M5

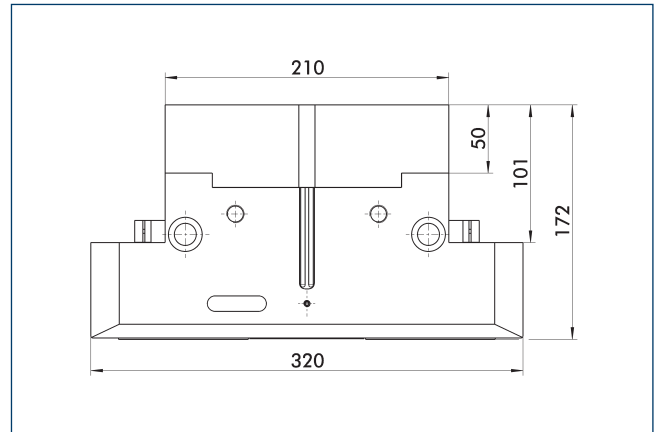


③ Adapter

④ Grippers

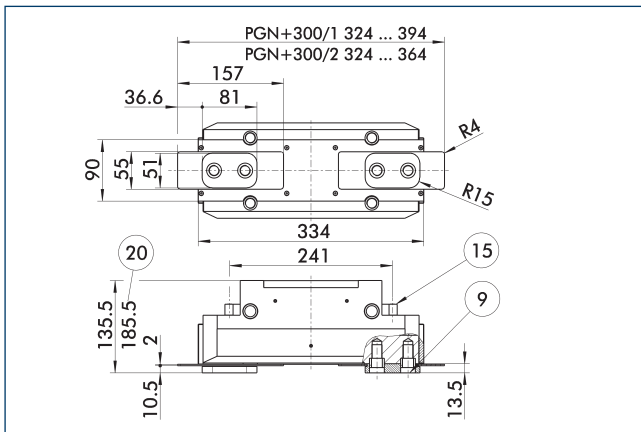
The direct connection is used for supplying compressed air without hoses. Instead, the pressure medium is fed through bore-holes in the mounting plate.

Gripping force maintenance version 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. In the AS/S variant this acts as a closing force, in the IS variant as an opening force. Besides this, gripping force maintenance can be used to increase gripping force or for single actuated gripping.

Dustproof version

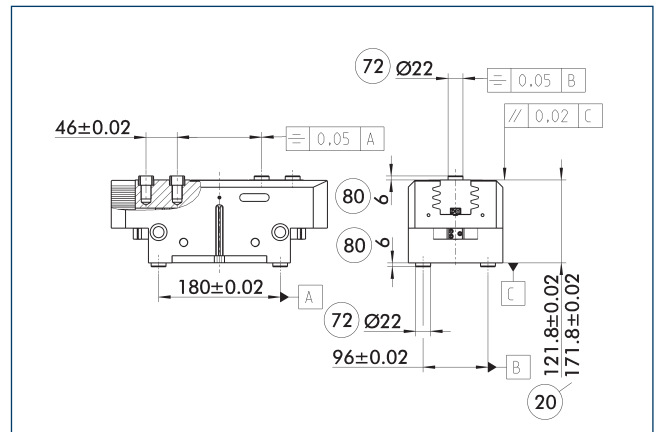


⑨ For mounting screw connection
diagram, see basic version

⑮ Sealing bolt
⑳ For version AS/IS

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

Precision version



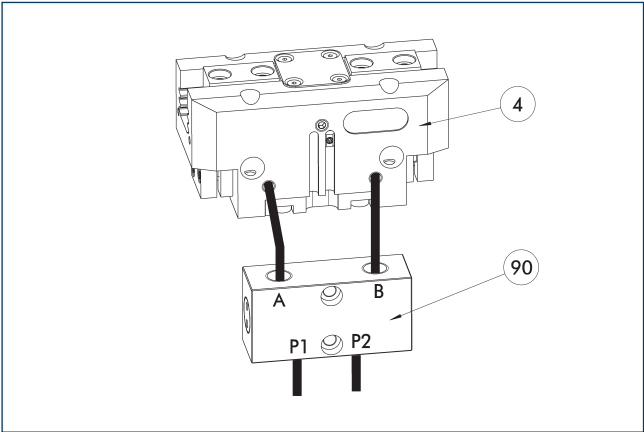
⑳ For version AS/IS

⑦② Fit for centering sleeves

⑧① Depth of the centering sleeve
hole in the counter part

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

SDV-P pressure maintenance valve



④ Grippers

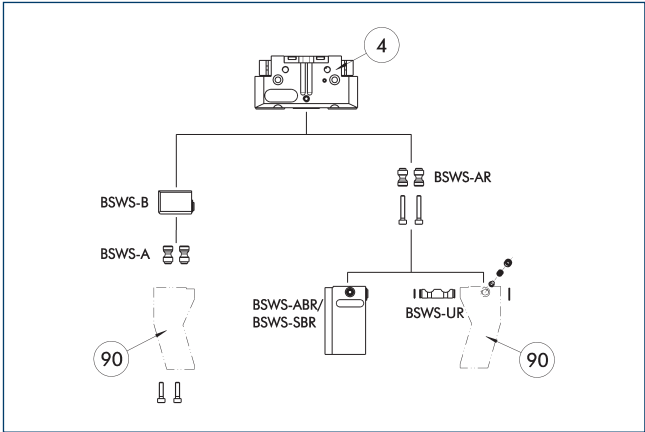
⑨ SDV-P pressure maintenance valve

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 07	0403131	8
Pressure maintenance valve with air bleed screw		
SDV-P 07-E	0300121	8
SDV-P 10-E	0300109	10

- 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.

BSWS jaw quick-change jaw systems



④ Grippers

⑨ Customized gripper fingers

There are various jaw quick-change systems available for the gripper. For detailed information, please refer to the corresponding product.

Description	ID	Scope of delivery
Jaw quick-change system adapter pin		
BSWS-A 300	0303036	2
BSWS-AR 300	1453343	2
Quick-change jaw system base		
BSWS-B 300	0303037	1
Jaw quick-change system		
BSWS-ABR-PGZN-plus 300	1453349	1
BSWS-UR 300	1451608	1

- ① If the operating pressure is higher than 6 bar, suitability for use beyond the application limits must be checked. Only systems that are listed in the table, can be used.

Fields of application

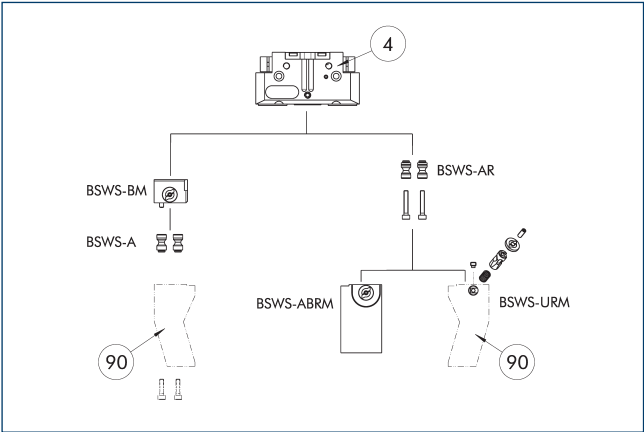
Series	Size	Variant	Suitability
PGN-plus	300	-1 (6 bar)	■■■■
PGN-plus	300	-1-AS/1-IS (6 bar)	■■■■
PGN-plus	300	-2 (6 bar)	■■■■
PGN-plus	300	-2-AS/2-IS (6 bar)	■■■■
Legend			
■■■■			Can be combined without restrictions
■■□□			Use with restrictions (see loading limits)
□□□□			cannot be combined

The load limits for describing the application limits can be found in the catalog chapter of the corresponding accessories.

PGN-plus 300

Universal gripper

Jaw quick-change system BSWS-M



④ Grippers

⑨0 Customized gripper fingers

There are various jaw quick-change systems available for the gripper. For detailed information, please refer to the corresponding product.

Description	ID	Scope of delivery
Jaw quick-change system		
BSWS-BM 300	1462015	1
Jaw quick-change system adapter pin		
BSWS-A 300	0303036	2

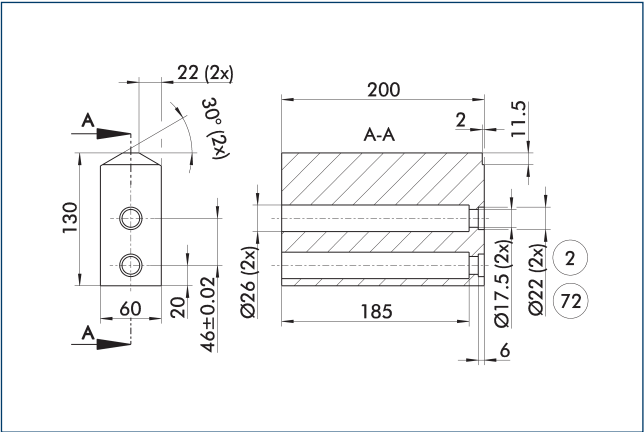
① If the operating pressure is higher than 6 bar, suitability for use beyond the application limits must be checked. Only systems that are listed in the table, can be used.

Fields of application

Series	Size	Variant	Suitability
PGN-plus	300	-1 (6 bar)	■■■■
PGN-plus	300	-1-AS/1-IS (6 bar)	■■■■
PGN-plus	300	-2 (6 bar)	■■■■
PGN-plus	300	-2-AS/2-IS (6 bar)	■■■■
Legend			
■■■■	Can be combined without restrictions		
■■□□	Use with restrictions (see loading limits)		
□□□□	cannot be combined		

The load limits for describing the application limits can be found in the catalog chapter of the corresponding accessories.

Finger blanks ABR/SBR-PGZN-plus 300



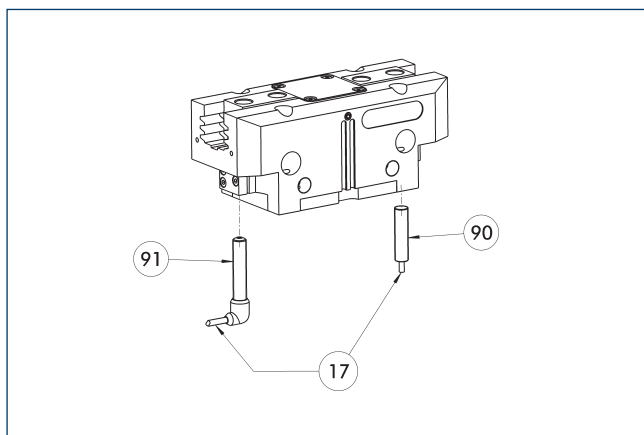
② Finger connection

⑦2 Fit for centering sleeves

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

Description	ID	Material	Scope of delivery
Finger blank			
ABR-PGZN-plus 300	0300016	Aluminum (3.4365)	1
SBR-PGZN-plus 300	0300026	Steel (1.7131)	1

Inductive proximity switches



17 Cable outlet

90 Sensor IN...-SA

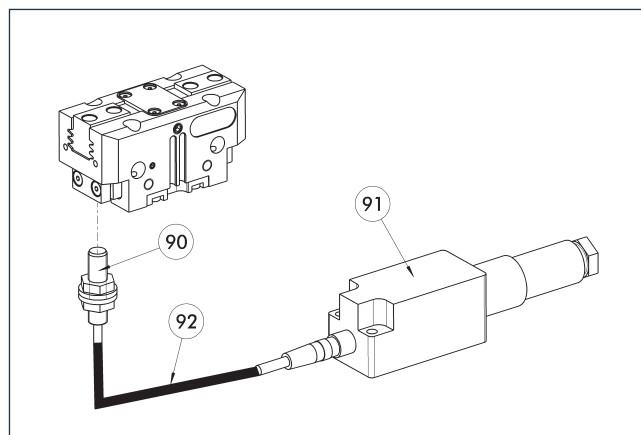
90 Sensor IN ...

Directly mounted end position monitoring.

Description	ID	Often combined
Inductive proximity switch		
IN 80-S-M12	0301578	
IN 80-S-M8	0301478	●
INK 80-S	0301550	
Inductive proximity switch with lateral cable outlet		
IN 80-S-M12-SA	0301587	
IN 80-S-M8-SA	0301483	●
INK 80-S-SA	0301566	
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	
Clip for connector/socket		
CLI-M12	0301464	
CLI-M8	0301463	
Cable extension		
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	
Sensor distributor		
V2-M12	0301776	●
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.

Flexible position sensor



90 FPS-S sensor

92 Cable extension

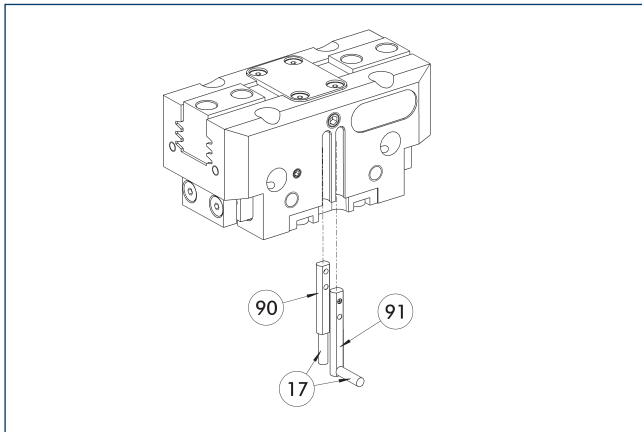
91 FPS-F5 evaluation electronic

Flexible position monitoring of up to five positions.

Description	ID	
Attachment kit for FPS		
AS-FPS-PGZN-plus 300-2	0301642	
Sensor		
FPS-S M8	0301704	
Evaluation electronics		
FPS-F5	0301805	
Cable extension		
KV BG08-SG08 3P-0050	0301598	
KV BG08-SG08 3P-0100	0301599	

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."

Electronic magnetic switch MMS



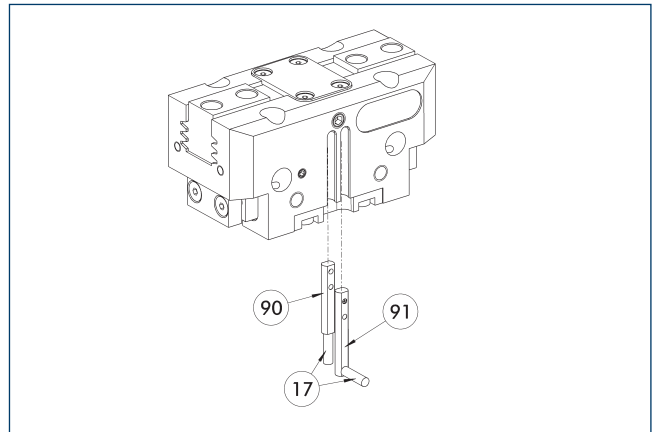
- ①⑦ Cable outlet
⑨① Sensor MMS 22...-SA
⑨① Sensor MMS 22..

End position monitoring for mounting in the C-slot.

Description	ID	Often combined
Electronic magnetic switch		
MMS 22-S-M8-PNP	0301032	●
MMSK 22-S-PNP	0301034	
Electronic magnetic switches with lateral cable outlet		
MMS 22-S-M8-PNP-SA	0301042	●
MMSK 22-S-PNP-SA	0301044	
Reed Switches		
RMS 22-S-M8	0377720	●
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	
Clip for connector/socket		
CLI-M8	0301463	
Cable extension		
KV BW08-SG08 3P-0030-PNP	0301495	
KV BW08-SG08 3P-0100-PNP	0301496	
KV BW08-SG08 3P-0200-PNP	0301497	●
Sensor distributor		
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



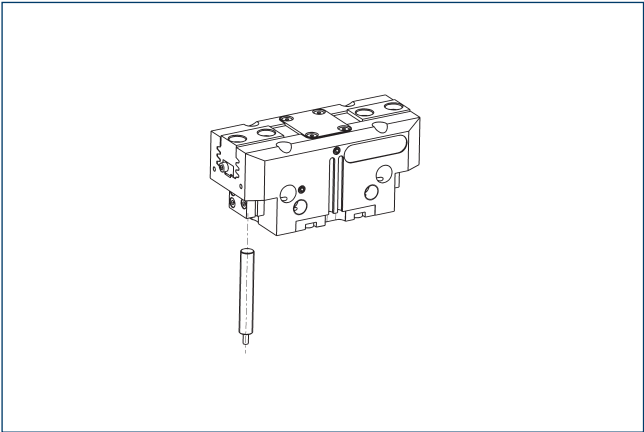
- ①⑦ Cable outlet
⑨① Sensor MMS 22 ..-PI1-...-SA
⑨① Sensor MMS 22 PI1-...

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, ID 0301030) 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
Programmable magnetic switch		
MMS 22-PI1-S-M8-PNP	0301160	●
MMSK 22-PI1-S-PNP	0301162	
Programmable magnetic switch with lateral cable outlet		
MMS 22-PI1-S-M8-PNP-SA	0301166	●
MMSK 22-PI1-S-PNP-SA	0301168	
Programmable magnetic switch with stainless steel housing		
MMS 22-PI1-S-M8-PNP-HD	0301110	●
MMSK 22-PI1-S-PNP-HD	0301112	

- 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.

APS-Z80 analog position sensor

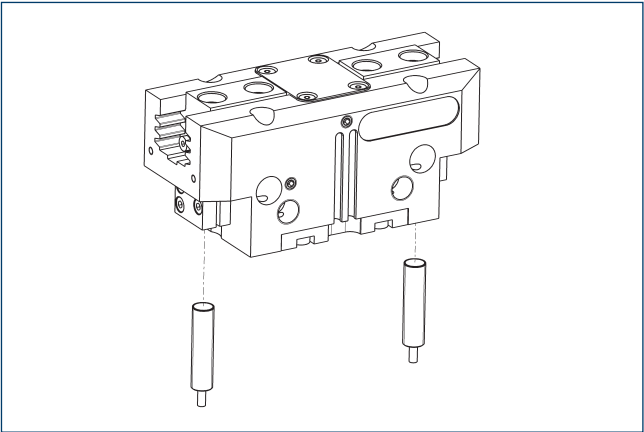


Non-contact measuring, analog multi-position monitoring for any number of positions.

Description	ID	Often combined
Mounting kit for APS-Z80		
AS-APS-Z80-PGZN-plus 300-1	0302117	
AS-APS-Z80-PGZN-plus 300-2	0302118	
Analog position sensor		
APS-Z80-K	0302072	
APS-Z80-M8	0302070	●

- ① When using an APS system, one mounting kit (AS-APS-Z80) and one APS-Z80 sensor is required per gripper. The resolution of the sensor can be lower in the peripheral areas of the gripper. You can find further information on the product in the operating manual.

Cylindrical reed switches



End position monitoring can be mounted with an attachment kit.

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

- ① Two sensors (closer/S) are required for each unit and extension cables are available as an option. This attachment kit needs to be ordered optionally as an accessory. Two mounting kits are required for each gripper. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.



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