



Hand in hand for tomorrow



Product data sheet

Universal gripper PGN-plus-P 380

Reliable. Robust. Flexible.

Universal gripper PGN-plus-P

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

Field of application

Pneumatic universal gripper for handling of workpieces in universal applications. 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

Lubricant pockets in the multi-tooth guidance ensure process reliability and extended maintenance intervals

Maximum piston surface area 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

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



Sizes
Quantity: 11



Weight
0.08 .. 39.8 kg



Gripping force
180 .. 26100 N



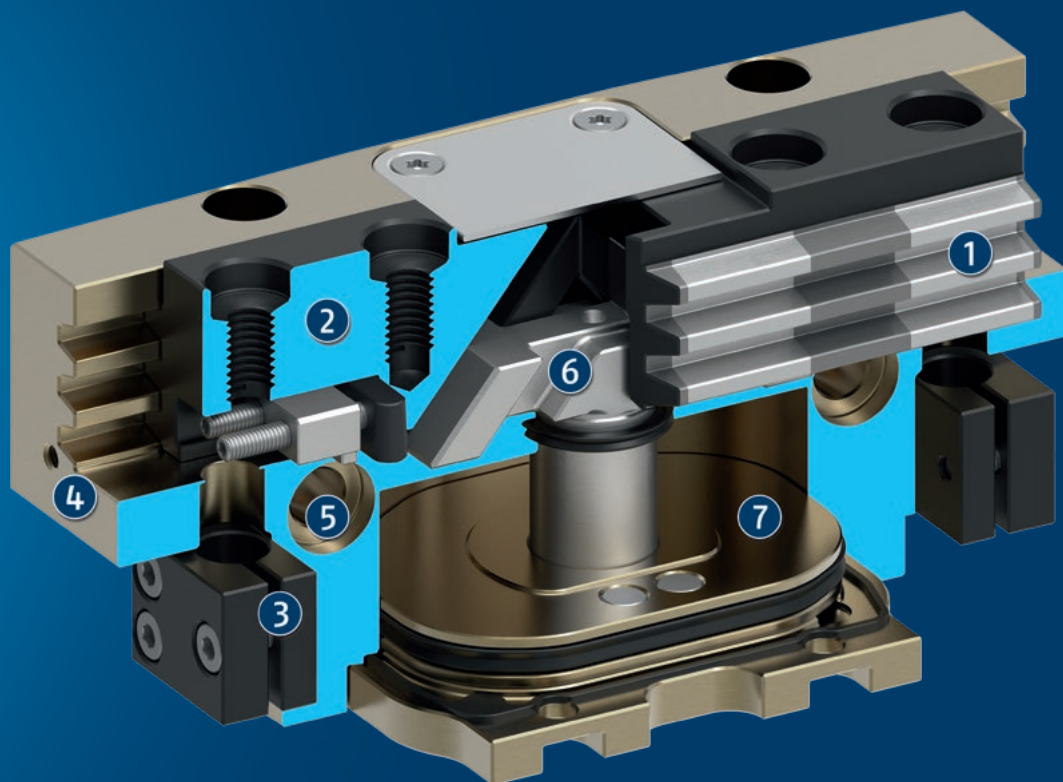
Stroke per jaw
2 .. 45 mm



Workpiece weight
0.9 .. 97.5 kg

Functional description

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



① **Multi-tooth guidance**

Maximum service life due to lubricant pockets in the robust multi-tooth guidance, and absorption of high forces and torques by means of the large guidance support

② **Base jaw**

with standardized screw connection diagram for the connection of the workpiece-specific gripper fingers

③ **Bracket for sensors**

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 power transmission and minimal wear as a result of larger diagonal pull surfaces

⑦ **Piston**

Maximum force through maximum surface of drive piston

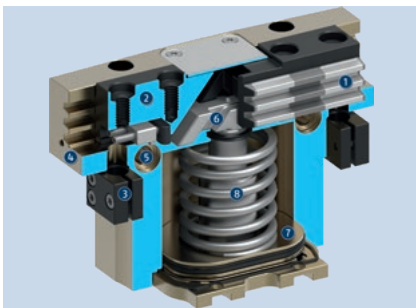
Detailed functional description

Dustproof version SD



The "dustproof" option increases the degree of protection against penetrating substances. This can either be ordered in a ready-mounted gripper version or else retrofitted to the gripper using the "SAD PGN-plus-P" retrofit kit.

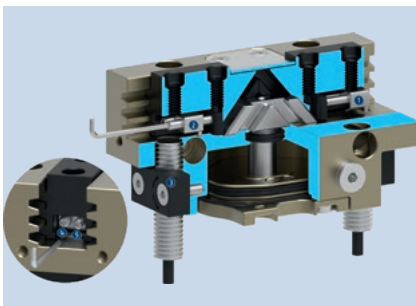
Gripping force maintenance version AS/IS



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 version this acts as a closing force, and in the IS version as an opening force. The image shows the AS version. The gripping force maintenance can also be used to increase the gripping force or for one-way gripping.

- ❶ Multi-tooth guidance
- ❷ Base jaw
- ❸ Bracket for sensors
- ❹ Housing
- ❺ Centering and mounting possibilities
- ❻ Wedge-hook design
- ❼ Piston
- ❽ Gripping force maintenance

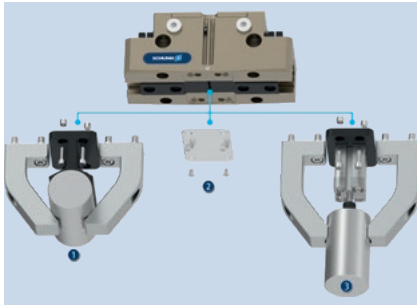
Settings of the control cams during monitoring with inductive proximity switches



Monitoring with inductive proximity switch can be performed as standard from size 64. In delivery state, the positions "gripper open" and "gripper closed" are preset with the control cams. The inductive sensors must be ordered separately and are slid into the housing up to the stop and clamped. In order to monitor any other position, such as "workpiece gripped" for example, both control cams can be individually set in the respective base jaws.

- ❶ Control cam preset for "gripper closed" position
- ❷ Control cam preset for "gripper open" position
- ❸ Holder with clamping screw for fixing the sensor
- ❹ Clamping screw for process-reliable fixing of the adjusted switching point
- ❺ Adjusting screw for setting any switching point

Optional mounting possibility under the cover sheet for customer-specific additional structure



In delivery state, a cover sheet is mounted to the gripper. This can be removed if necessary. Under the cover sheet are threads and fittings for mounting customer-specific designs for implementing additional functions.

- ❶ Additional centering or support of the workpiece
- ❷ The cover plate (can be removed)
- ❸ Ejector with external cylinder attached to the gripper

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: Brackets for proximity switches, centering sleeves, O-rings for direct connection, assembly instructions (operating manual with declaration of incorporation is available online)

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).

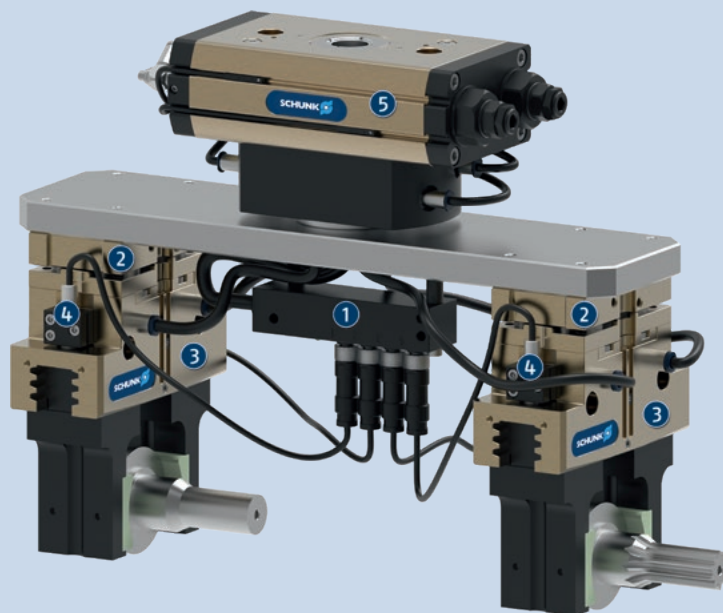
Finger length: is measured from the reference surface as the distance P in direction to the main axis.

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.



Application example

Handling tool for loading and unloading raw and finished parts and compensation of inaccurate position. A sensor distributor is used for routing signals through a cable.

① Sensor distributor V4

② Tolerance compensation unit TCU-Z

③ Universal gripper PGN-plus-P

④ IN sensors

⑤ Universal rotary actuator SRM

SCHUNK offers more ...

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



Rotary unit



Tool changer



Compensation unit



Linear axis



Jaw quick-change system



Finger blank



Pressure maintenance valve



Universal intermediate jaw



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/S version this acts as a closing force, in the IS version as an opening force.

High-temperature version V/HT: for use in hot environments

Precision version P: for the highest accuracy

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

ATEX version EX: for explosive environments

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

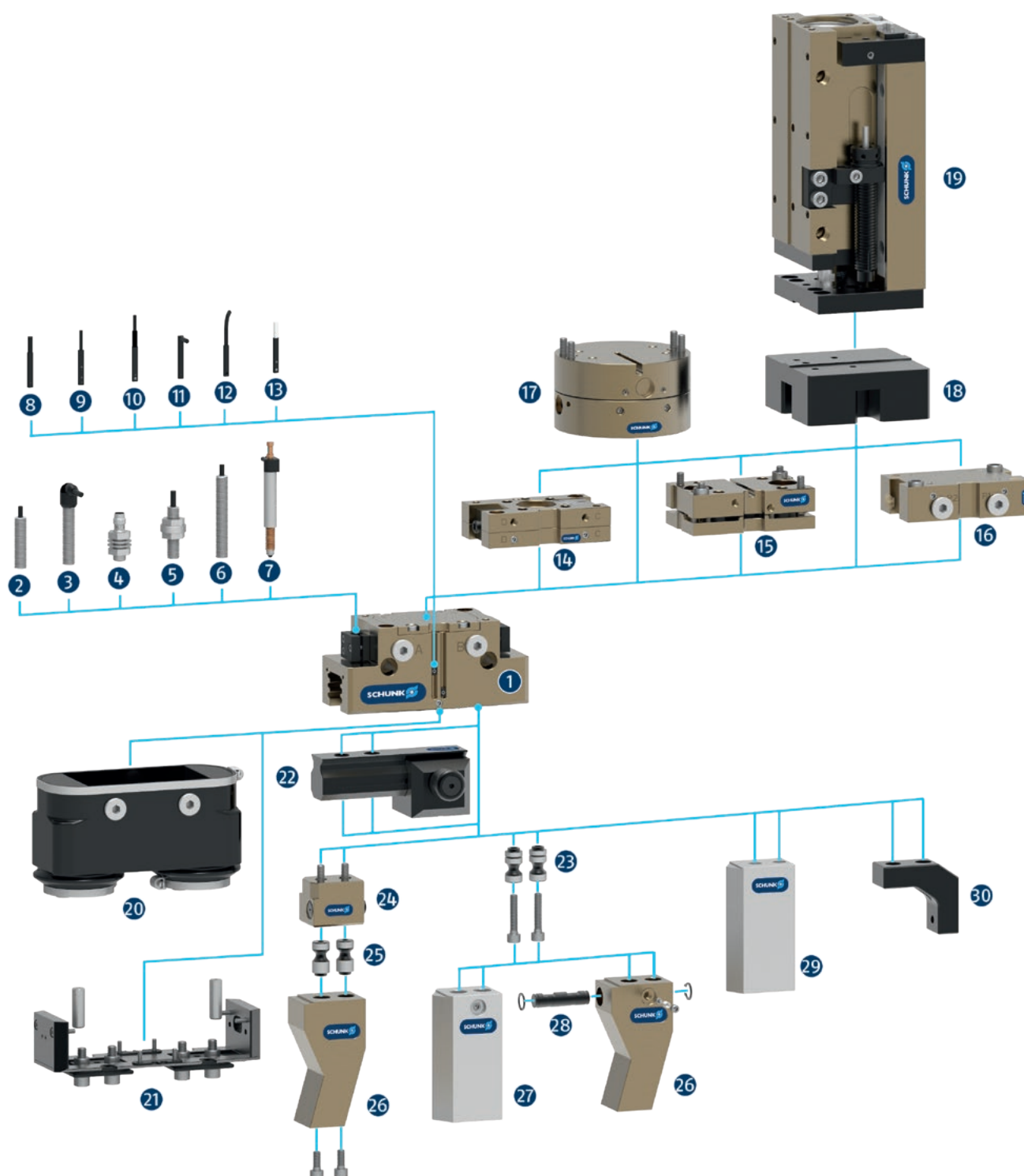
Integrated air purge connection: impedes the ingress of dirt into the inside of the gripper

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.

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

SCHUNK gripper PGN-plus-P

Overview Accessories



1 PGN-plus-P

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 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

9 MMS 22-PI2

Magnetic switch with straight cable outlet for monitoring two freely programmable positions

10 MMS 22-PI1-HD

MMS 22-PI1 in robust design

MMS 22-PI2-HD

MMS 22-PI2 in robust design

11 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

12 MMS-P

Magnetic switch with straight cable outlet for monitoring two freely programmable positions

13 MMS-A

Analog magnetic switch with straight cable outlet for measuring the gripper jaw position with analog output and teach function

Complementary products

14 CWS

Manual change system with integrated air feed-through for simple exchange of the handling components

15 TCU

Tolerance compensation unit for compensating small tolerances in the plane

16 SDV-P-E-P

Pressure maintenance valve for temporary force and position maintenance

17 AGE

Compensation unit for compensation of large tolerances along the X and Y axes

18 ASG

Adapter plate for combining various automation components in the modular system

19 CLM

Linear axis with pneumatic drive and play-free pre-loaded crossed roller bearings

20 HUE

Sleeve for protection against dirt

21 SAD

Dustproof version, retrofit kit

Finger Accessories

22 UZB

The universal intermediate jaw allows fast tool-free and reliable plugging and shifting of top jaws at the gripper.

23 BSWS-AR

Adapter pin of the jaw quick-change system for fast, manual change of top jaws

24 BSWS-B

Locking mechanism of the jaw quick-change system for fast, manual exchange of top jaws

25 BSWS-A

Adapter pin of the jaw quick-change system for adaptation to the customized finger

26 Customized fingers

27 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

28 BSWS-UR

Locking mechanism for the integration of the jaw quick-change system into customized fingers

29 ABR/SBR

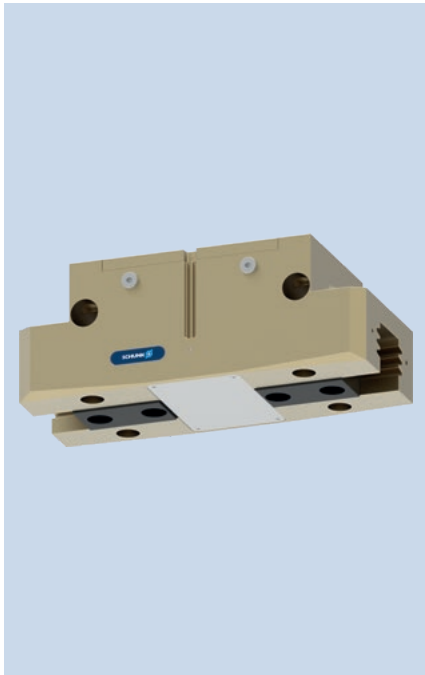
Finger blanks made of steel or aluminum with standardized screw connection diagram

30 ZBA

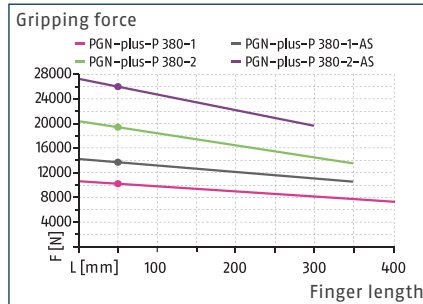
Intermediate jaws for reorientation of the mounting surface

PGN-plus-P 380

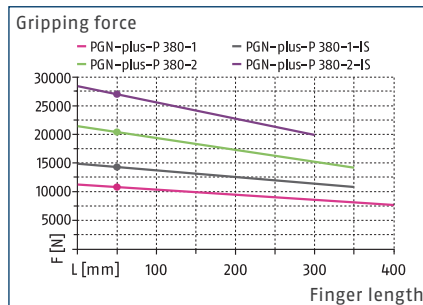
Universal gripper



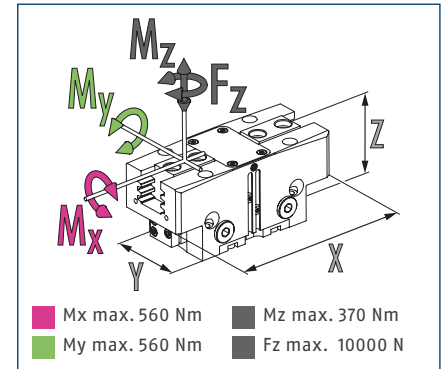
Gripping force O.D. gripping



Gripping force I.D. gripping



Dimensions and maximum loads



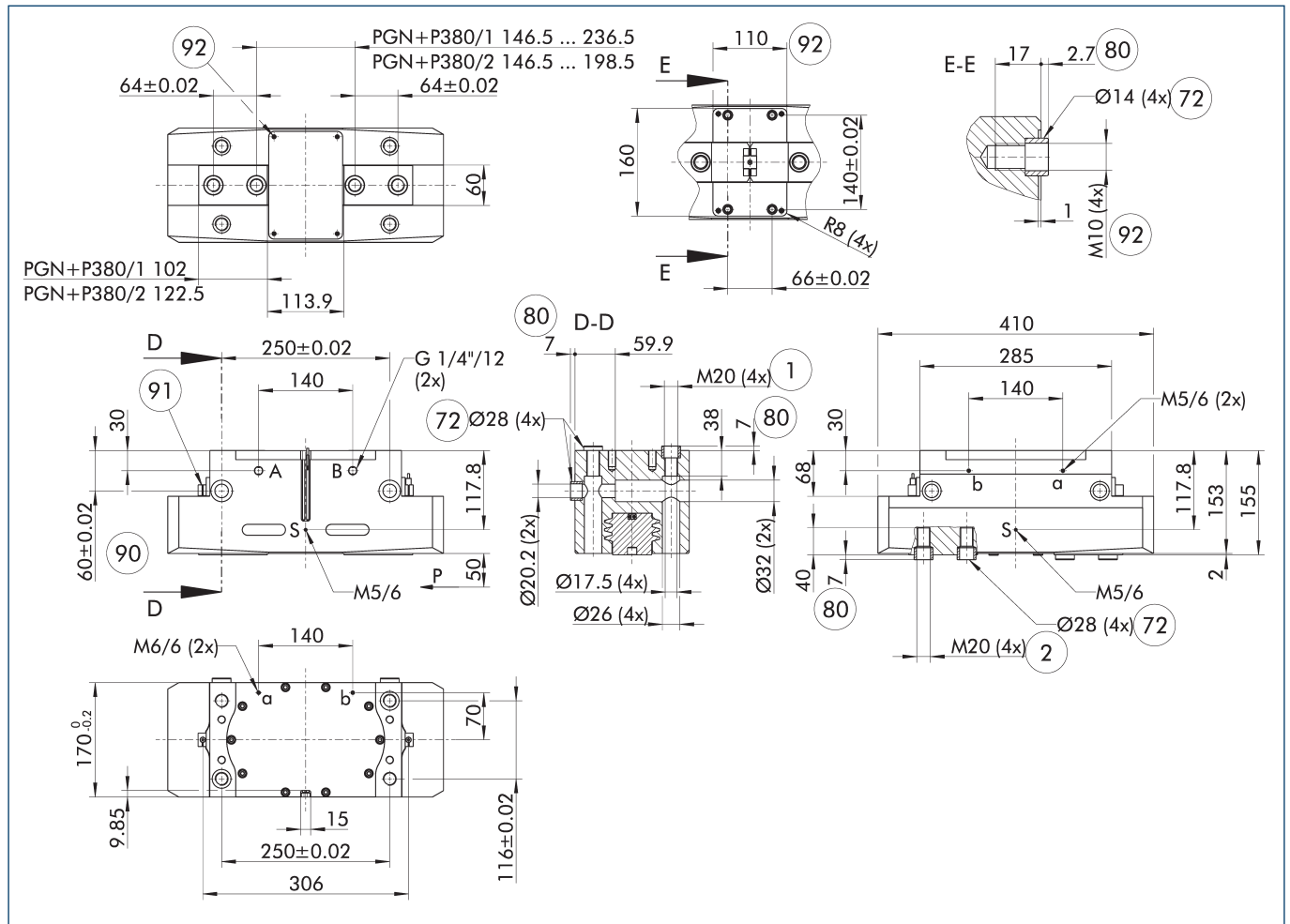
① The indicated moments and forces are static values, apply for each base jaw and may appear simultaneously. Loads may additionally occur to the moment produced by the gripping force itself.

Technical data

Description		PGN-plus-P 380-1	PGN-plus-P 380-2	PGN-plus-P 380-1-AS	PGN-plus-P 380-2-AS	PGN-plus-P 380-1-IS	PGN-plus-P 380-2-IS
ID		1378012	1378019	1378022	1378029	1378035	1378037
Stroke per jaw	[mm]	45	26	45	26	45	26
Closing/opening force	[N]	10300/10800	19500/20400	13800/-	26100/-	-/14300	-/27000
Min. spring force	[N]			3500	6600	3500	6600
Weight	[kg]	26.5	27.5	36	37	36	37
Recommended workpiece weight	[kg]	51.5	97.5	51.5	97.5	51.5	97.5
Cylinder volume per double stroke	[cm³]	2275	2275	2705	2705	3175	3175
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]	0.6/0.6	0.6/0.6	0.5/0.8	0.5/0.8	0.8/0.5	0.8/0.5
Closing/opening time with spring	[s]			0.80	0.80	0.80	0.80
Max. permissible finger length	[mm]	400	350	350	300	350	300
Max. permissible weight per finger	[kg]	17	17	17	17	17	17
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]	410 x 170 x 155	410 x 170 x 155	410 x 170 x 226.5	410 x 170 x 226.5	410 x 170 x 226.5	410 x 170 x 226.5
Options and their characteristics							
Dustproof version		1378074	1378108	1378110	1378111	1378114	1378118
IP protection class		64	64	64	64	64	64
Weight	[kg]	29.3	30.3	38.8	39.8	38.8	39.8
Corrosion-protected version		1378059	1378061	1378064	1378066	1378070	1378072
High-temperature version		1378038	1378042	1378047	1378048	1378050	1378056
Min./max. ambient temperature	[°C]	5/130	5/130	5/130	5/130	5/130	5/130
Precision version		1378120	1378124	1378128	1378130		

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 MMS 22 sensor

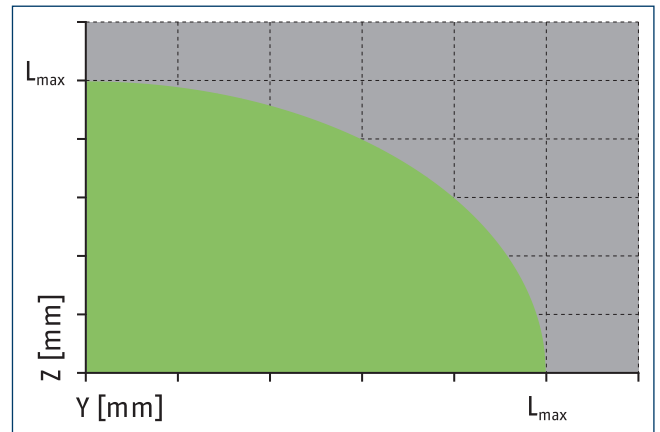
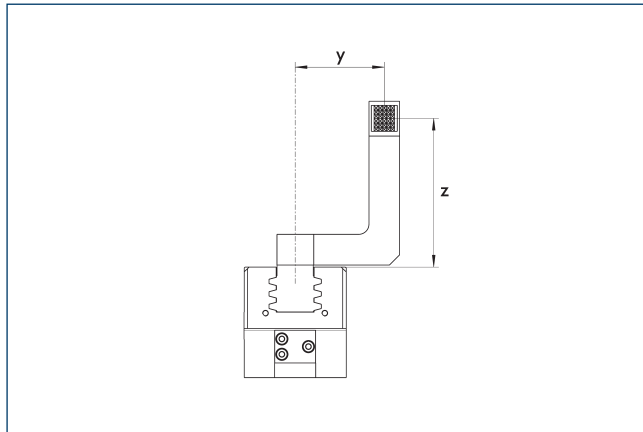
91 Sensor IN ...

92 Screw connection with centering for customized mounting (these centering sleeves are not included in the scope of delivery)

PGN-plus-P 380

Universal gripper

Maximum permitted finger projection

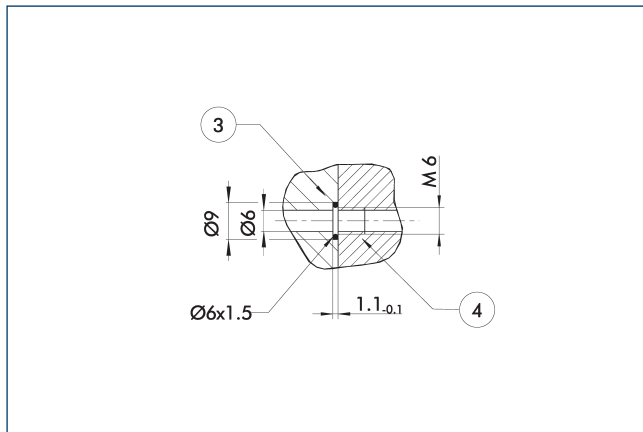


■ Permitted range

■ Inadmissible range

L_{max} is equivalent to the maximum permitted finger length, see the technical data table.

Hose-free direct connection M6

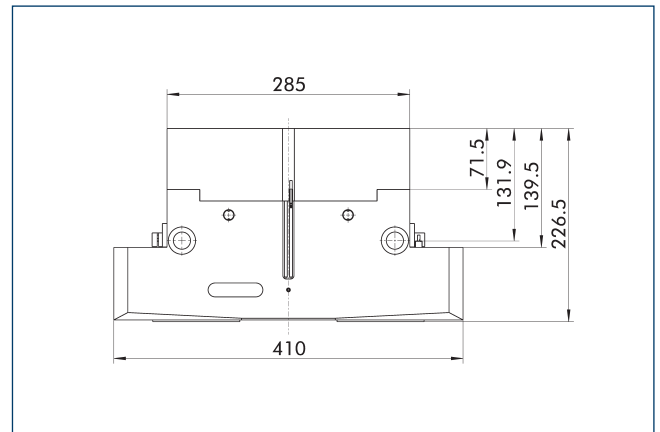


③ Adapter

④ Grippers

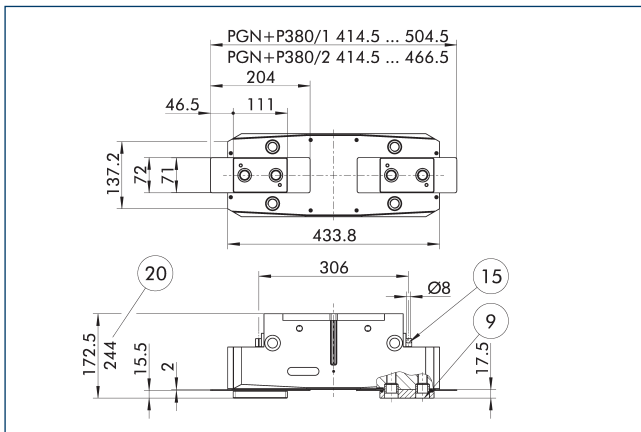
The direct connection is used for supplying compressed air without hoses. Instead, the pressure medium is fed through bore-holes in the mounting plate.

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

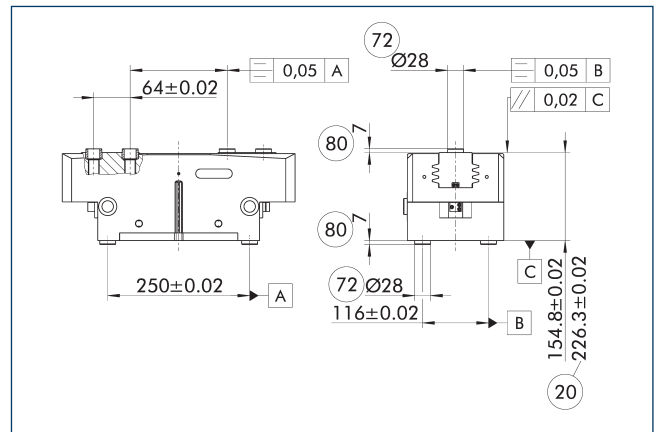


- ⑨ For mounting screw connection diagram, see basic version
 ⑮ Sealing bolt
 ⑳ For version AS/IS

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.

Description	ID
Dust cover	
SAD PGN-plus-P 380	1347597

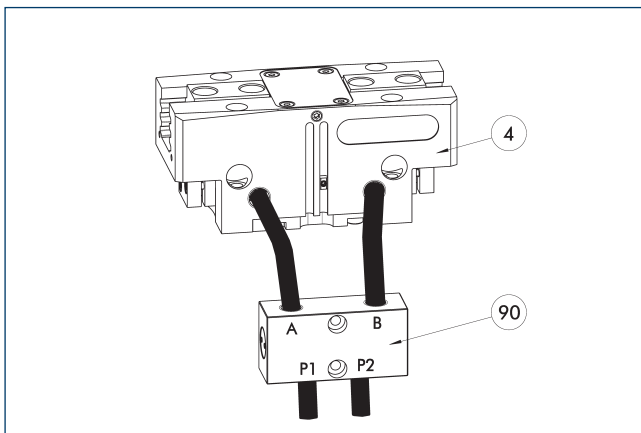
Precision version



- ⑳ For version AS/IS
 ㉓ Fit for centering sleeves
 ㉔ 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
 ㉑ SDV-P pressure maintenance valve

The SDV-P pressure maintenance valves ensure in emergency stop situations that the pressure in the piston chamber of pneumatic gripper, swivel, and quick-change modules as well as in linear axes is temporarily maintained.

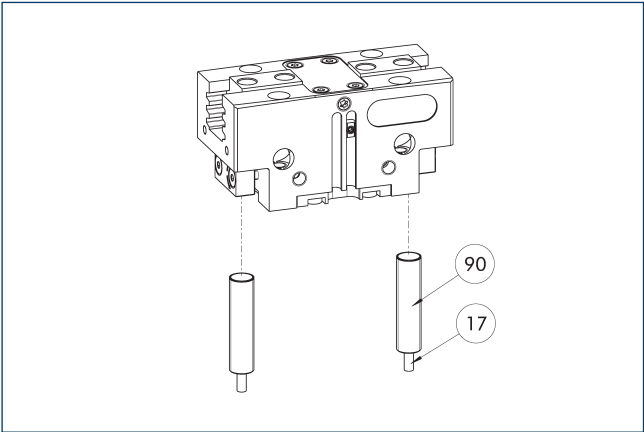
Description	ID	Recommended hose diameter
		[mm]
Pressure maintenance valve with air bleed screw		
SDV-P 10-E	0300109	10

- 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.

PGN-plus-P 380

Universal gripper

Inductive proximity switches



17 Cable outlet

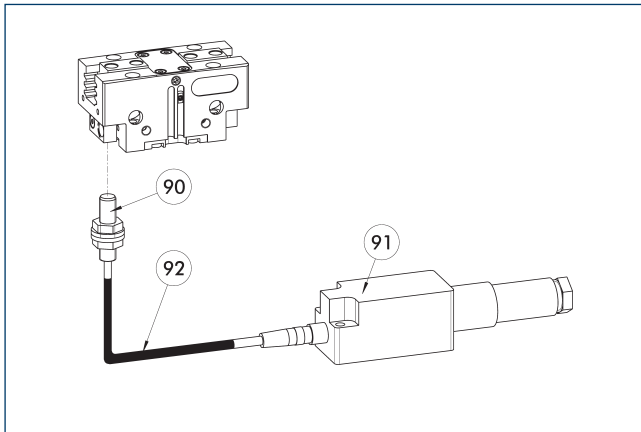
90 Sensor IN ...

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	
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



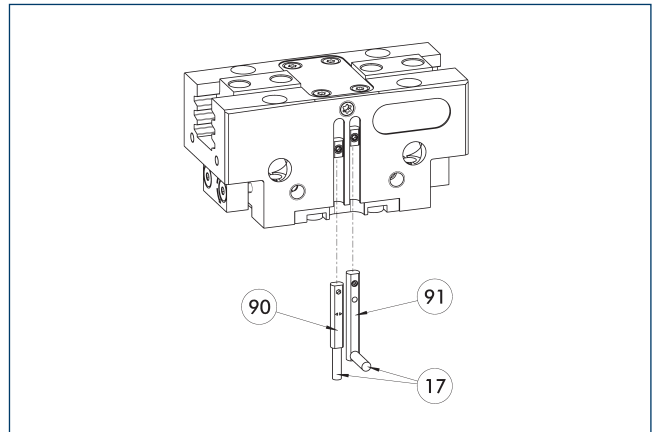
- 90 FPS-S sensor
91 FPS-F5 evaluation electronic
92 Cable extension

Flexible position monitoring of up to five positions.

Description	ID	
Attachment kit for FPS		
AS-FPS-PGN-plus-P 380-2	1395872	
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
90 Sensor MMS 22..
91 Sensor MMS 22...-SA

End position monitoring for mounting in the C-slot.

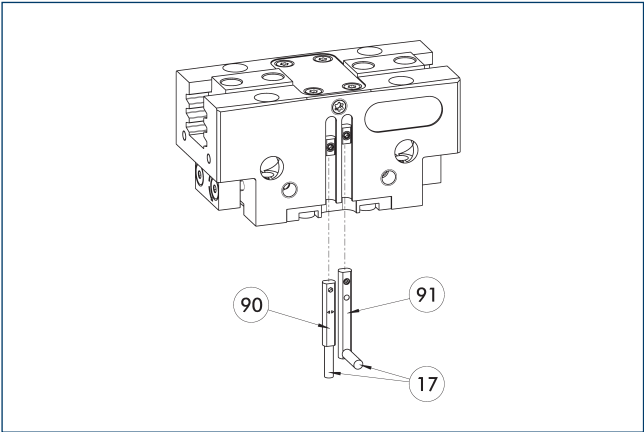
Description	ID	Often combined
Electronic magnetic switch		
MMS 22-S-M8-PNP	0301032	●
MMSK 22-S-PNP	0301034	
Electronic magnetic switches with lateral cable outlet		
MMS 22-S-M8-PNP-SA	0301042	●
MMSK 22-S-PNP-SA	0301044	
Connection cables		
KA BG08-L 3P-0300-PNP	0301622	●
KA BG08-L 3P-0500-PNP	0301623	
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.

PGN-plus-P 380

Universal gripper

Programmable magnetic switch MMS 22-PI1



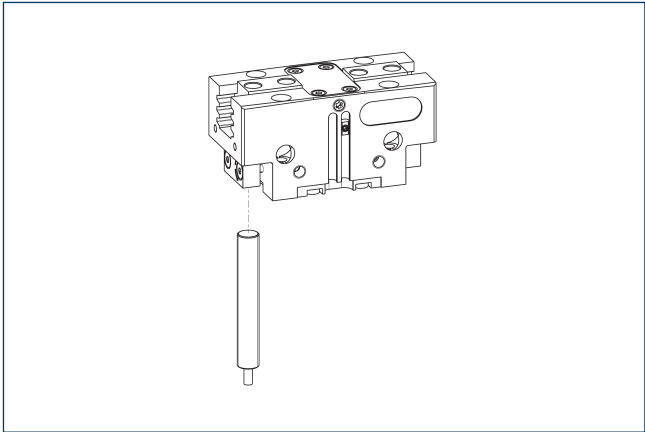
- 17 Cable outlet
90 Sensor MMS 22 PI1-...
91 Sensor MMS 22 ..-PI1-...-SA

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
Attachment kit for position sensor		
AS-APS-Z80-PGN-plus-P 380-1	1395900	
AS-APS-Z80-PGN-plus-P 380-2	1395903	
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.



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