Hand in hand for tomorrow

Product data sheet

Universal gripper PZN-plus 380

Reliable. Robust. Flexible.

Universal gripper PZN-plus

Universal 3-finger centric gripper with high gripping force and maximum moments due to multi-tooth guidance

Field of application

multi- purpose thanks to a diverse range of accessories. Can also be used in fields of application with special requirements to the gripper (temperature, chemical resistance, dirt, and many more).

Advantages – Your benefits

Robust multi-tooth guidance for precise handling

High maximum moments possible suitable for using long gripper fingers

Wedge-hook design for high power transmission and synchronized gripping

Air supply via hose-free direct connection or screw connections for flexible pressure supply in all automated systems

Comprehensive sensor accessory program for versatile querying possibilities and stroke position monitoring

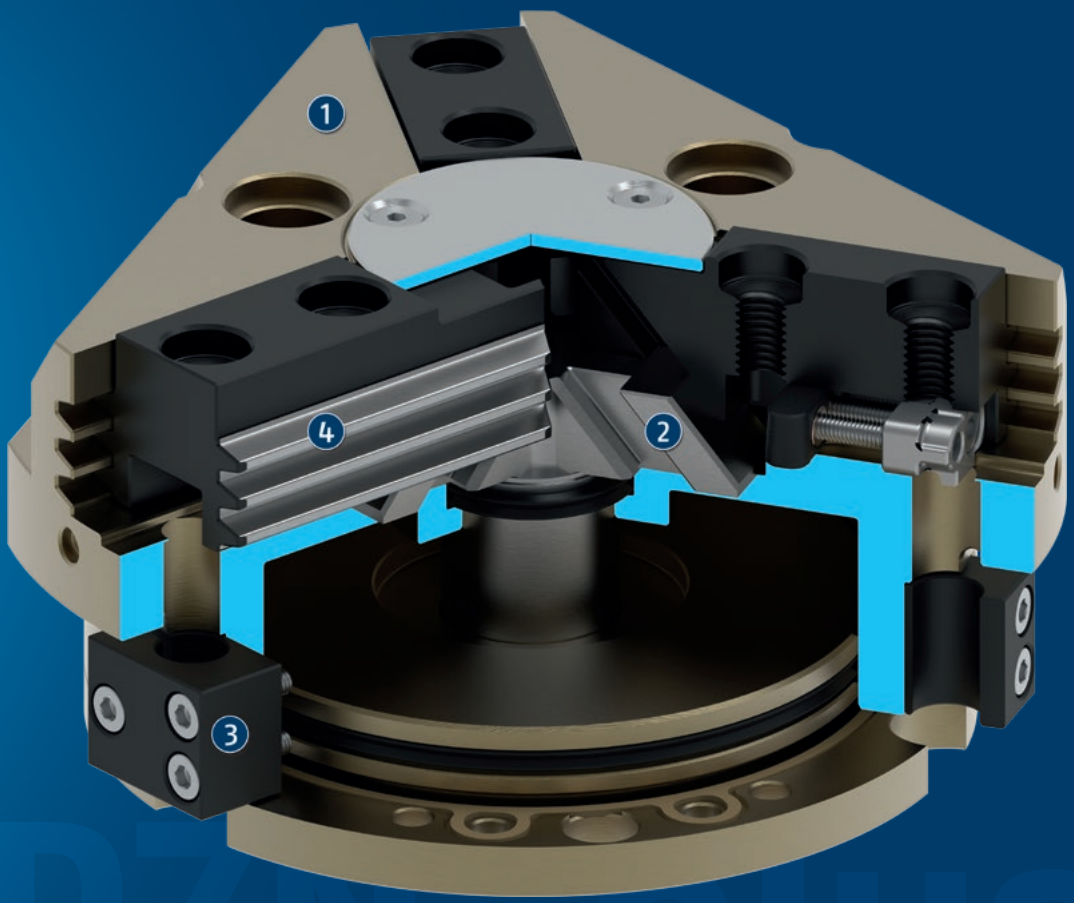
Manifold options for special optimization for your specific case of application (dustproof, high-temperature, corrosion-protected, etc.)

Fastening at one gripper side in two screw directions for universal and flexible gripper assembly

Sizes	Weight	Gripping force	Stroke per jaw	Workpiece weight
Quantity: 11	0.13 .. 80 kg	255 .. 57300 N	2 .. 45 mm	1.3 .. 227 kg

Functional description

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



① **Housing**
is weight-optimized due to the use of high-strength aluminum alloy

② **Wedge-hook design**
for high force transmission and centric gripping

③ **Sensor system**
Brackets for proximity switches and adjustable control cams in the housing

④ **Multi-tooth guidance**
precise gripping through base jaw guidance with a high load capacity and a minimum Play

General notes about the series

Operating principle: Wedge-hook kinematics

Housing material: Aluminum alloy, anodized

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

Insertion tool for assembly of small to medium-sized axes. Due to the rotary feed-through, the axes can be rotated several times infinitely (> 360°) during the assembly process. Slip ring contacts integrated in the rotary feed-through reliably supply the gripper with power.

1. Rotary feed-through DDF 2
2. Automatic tool changers CPS
3. 3-finger centric gripper PZN-plus

SCHUNK offers more ...

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

Compensation unit

Universal intermediate jaw

Jaw quick-change system

Pressure maintenance valve

Inductive proximity switch

Magnetic switches

Finger blank

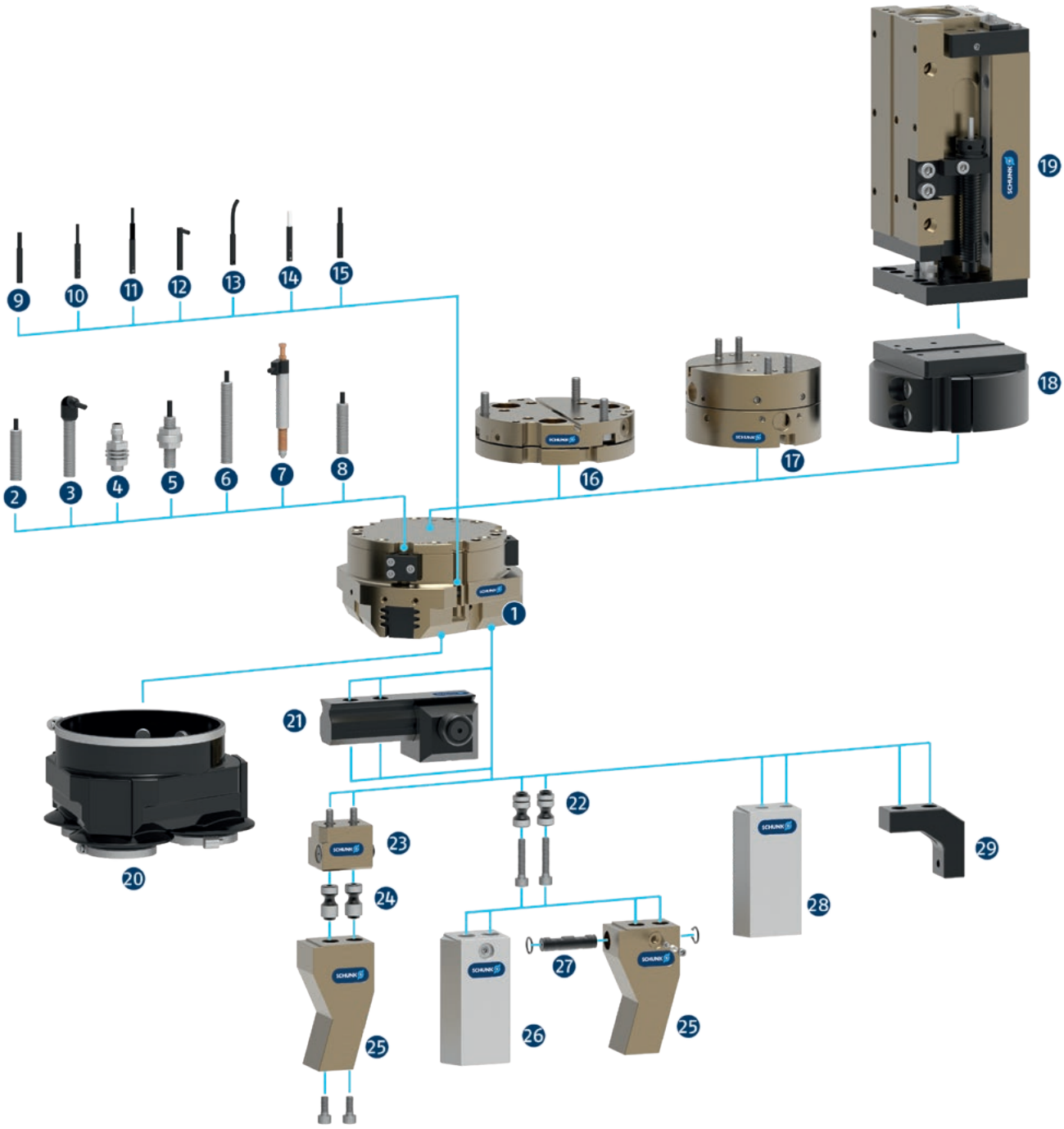
ⓘ For more information on these products can be found on the following product pages or at schunk.com.

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.
Anti-corrosion version K: for use in corrosion-inducing atmospheres
High-temperature version V/HT: for use in hot environments
Power booster version KVZ: if higher gripping forces are required
Dustproof version SD: absolutely dustproof, increased degree of protection against ingress of materials.
Precision version P: for the highest accuracy
ATEX version EX: for explosive environments
H1G compliant grease: for use in the food and pharmaceutical industries
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 PZN-plus

Overview Accessories



1 **PZN-plus**
Universal 3-finger centric gripper with high gripping force and maximum moments due to 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 laberal 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-M1S**
Mechanical measuring system for precise position detaction of the gripper jaw with analog output

8 **RMS**
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 position

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 position

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 **TCU**
Tolerance compensation unit for compensating small tolerances in the plane

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 module with pneumatic drive and scope-free pre-loaded junction rollers

20 **HUE**
Sleeve for protection against dirt

Finger Accessories

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

22 **BSWS-AR**
Adapter pin of the jaw quick-change system for fast, manual change of top jaws

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

24 **BSWS-A**
Adapter pin of the jaw quick-change system for adaptation to the customized finger

25 **Customized fingers**

26 **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

27 **BSWS-UR**
Locking mechanism for the integration of the jaw quick-change system into customized fingers

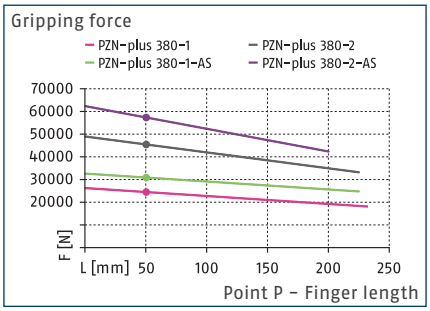
28 **ABR/SBR**
Finger blanks made of steel or aluminum with standardized screw connection diagram

29 **ZBA**
Intermediate jaws for reorientation of the mounting surface

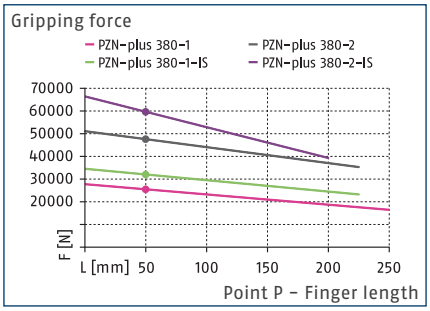
PZN-plus 380

Universal gripper

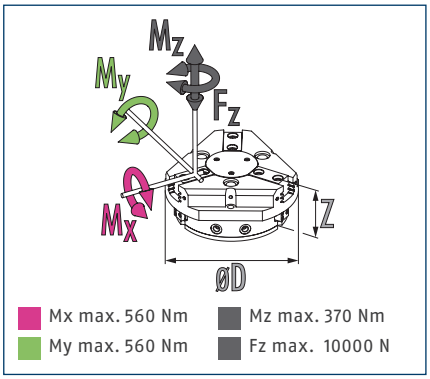
Gripping force O.D. gripping



Gripping force I.D. gripping



Dimensions and maximum loads



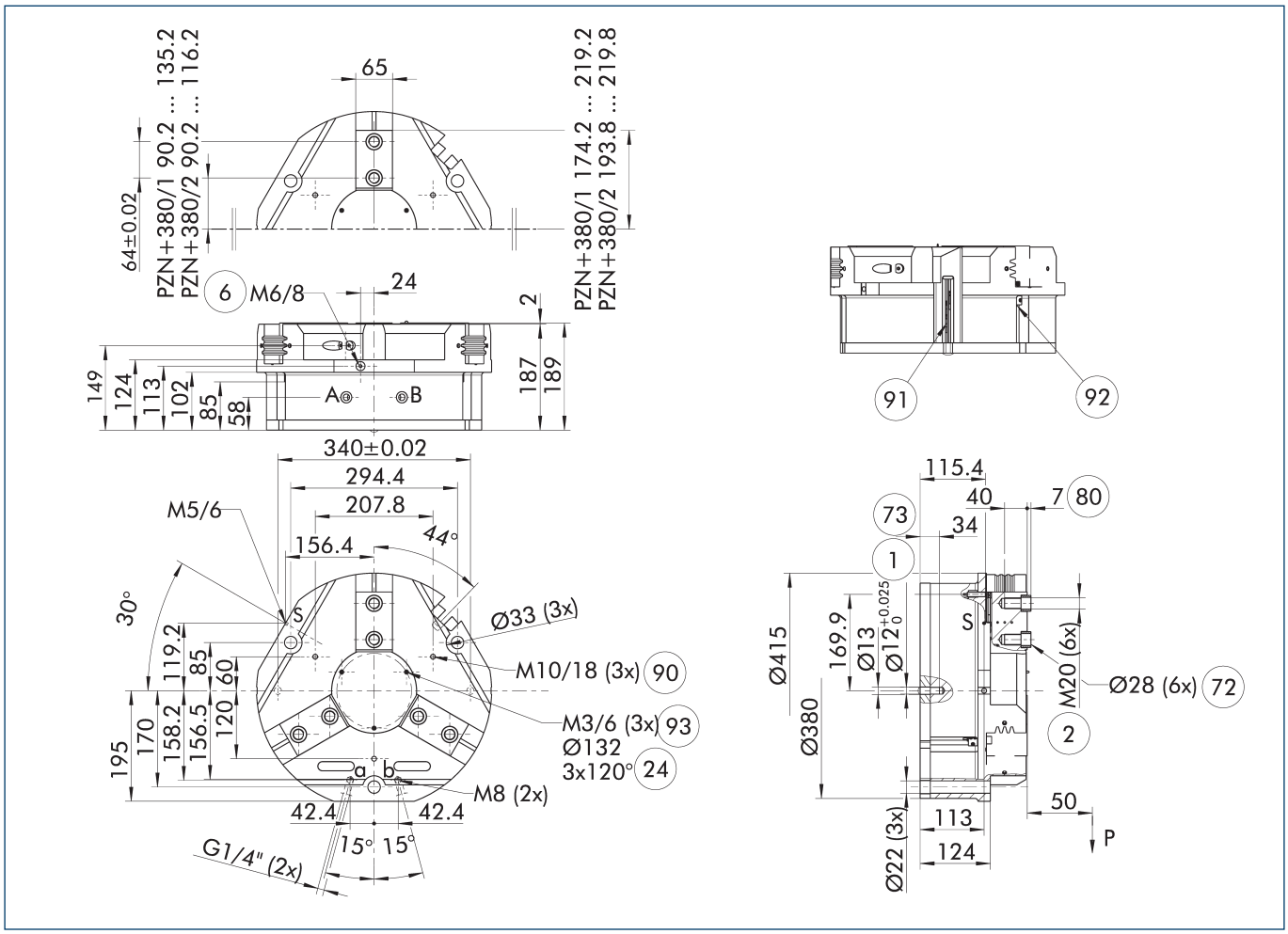
ⓘ The indicated moments and forces are statical values, apply for each base jaw and may appear simultaneously. Loads may additionally occur to the moment produced by the gripping force itself.

Technical data

Description		PZN-plus 380-1	PZN-plus 380-2	PZN-plus 380-1-AS	PZN-plus 380-2-AS	PZN-plus 380-1-IS	PZN-plus 380-2-IS
ID		0303318	0303418	0303518	0303618	0303548	0303648
Stroke per jaw	[mm]	45	26	45	26	45	26
Closing/opening force	[N]	24400/25500	45400/47500	30800/-	57300/-	-/32000	-/59500
Min. spring force	[N]			6400	11900	6500	12000
Weight	[kg]	64	66	75	77	75	77
Recommended workpiece weight	[kg]	122	227	122	227	122	227
Cylinder volume per double stroke	[cm³]	7200	7200	9300	9300	11500	11500
Min./nom./max. operating pressure	[bar]	2/6/8	2/6/8	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]	2.2/2.2	2.2/2.2	1.9/3	1.9/3	4.6/1.9	4.6/1.9
Closing/opening time with spring	[s]			2.60	2.60	2.20	2.20
Max. permissible finger length	[mm]	250	225	225	200	225	200
Max. permissible weight per finger	[kg]	13.5	13.5	13.5	13.5	13.5	13.5
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 Ø D x Z	[mm]	415 x 189	415 x 189	415 x 251	415 x 251	415 x 251	415 x 251
Options and their characteristics							
Dustproof version		37303318	37303418	37303518	37303618	37303548	37303648
IP protection class		64	64	64	64	64	64
Weight	[kg]	67	69	78	80	78	80
Corrosion-protected version		38303318	38303418	38303518	38303618	38303548	38303648
High-temperature version		39303318	39303418	39303518	39303618	39303548	39303648
Min./max. ambient temperature	[°C]	5/130	5/130	5/130	5/130	5/130	5/130
Precision version		0303348	0303437	0303498	0303598		

ⓘ 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.

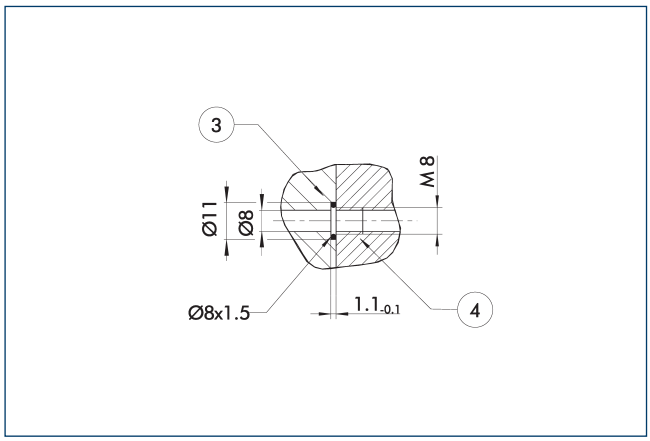
ⓘ As an alternative/in addition to spring-assisted mechanical gripping force maintenance, the SDV-P pressure maintenance valve can be used for I.D. and O.D. gripping (see "Accessories" section of catalog).

A, a Main / direct connection, gripper opening
B, b Main / direct connection, gripper closing
S Air purge connection
(1) Gripper connection
(2) Finger connection
(6) Lubricating nipple connection
(24) Bolt circle
(72) Fit for centering sleeves
(73) Fit for centering pins
(80) Depth of the centering sleeve hole in the counter part
(90) Transport thread
(91) Sensor MMS 22..
(92) Sensor IN ...
(93) Thread below the cover for fastening external attachments

PZN-plus 380

Universal gripper

Hose-free direct connection M8

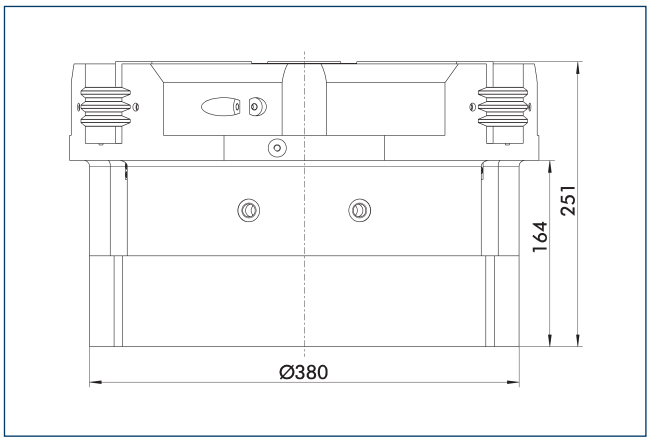


(3) Adapter

(4) Grippers

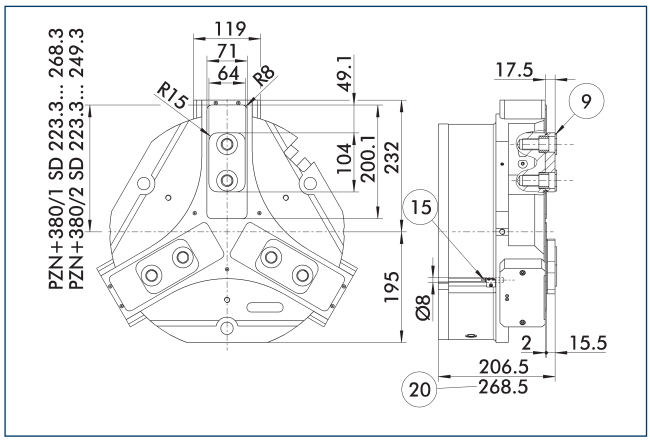
The direct connection is used for supplying compressed air without hoses. Instead, the pressure medium is fed through bore-holes in the mounting plate.

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



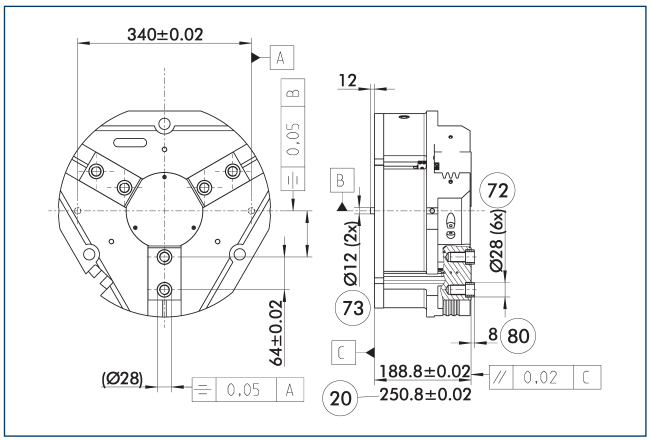
(9) For mounting screw connection diagram, see basic version

(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

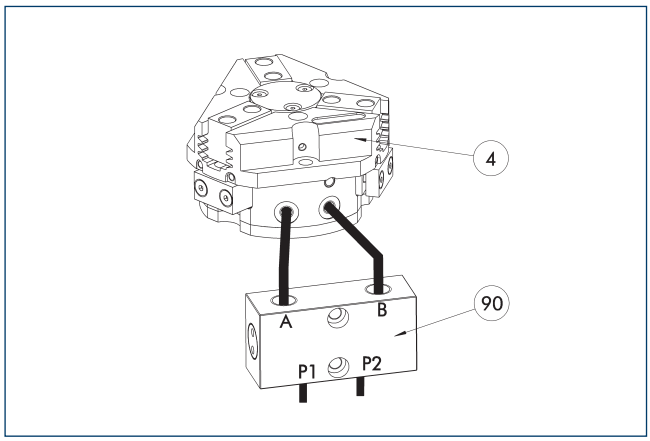
(72) Fit for centering sleeves

(73) Fit for centering pins

(80) 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

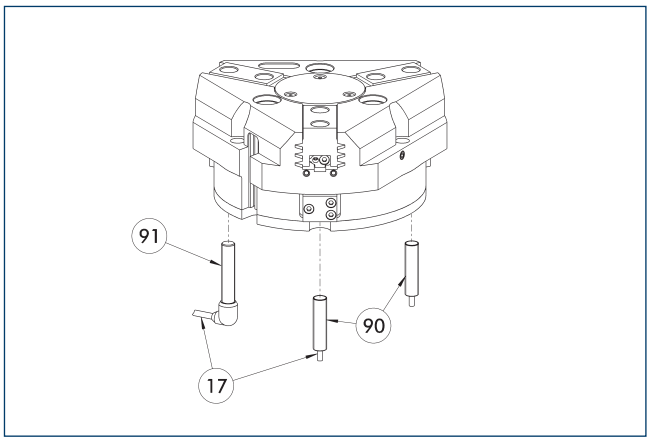
(90) SDV-P pressure maintenance valve

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 with air bleed screw		
SDV-P 10-E	0300109	10

ⓘ 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.

Inductive proximity switches



(17) Cable outlet

(90) Sensor IN ...

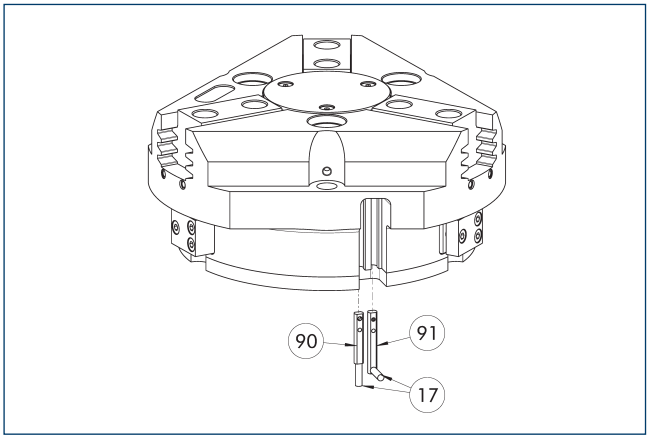
(91) Sensor IN..-SA

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	

ⓘ 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.

Electronic magnetic switch MMS



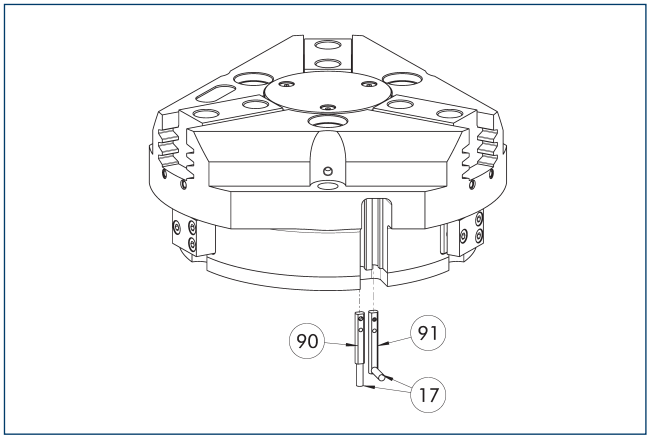
(17) Cable outlet
(91) Sensor MMS 22...-SA
(90) Sensor MMS 22..

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	

ⓘ 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



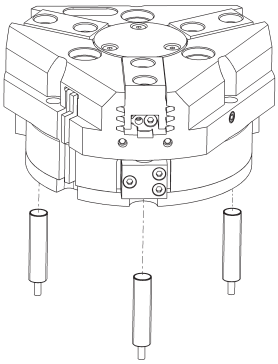
(17) Cable outlet
(91) Sensor MMS 22 ..-PI1-...-SA
(90) Sensor MMS 22 PI1-...

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	

ⓘ 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.

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	

ⓘ 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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