Superior Clamping and Gripping

Product Information

Universal gripper PGN-plus-P 50

Reliable. Robust. Flexible.

Universal gripper PGN-plus-P

Universal electric 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 mult-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

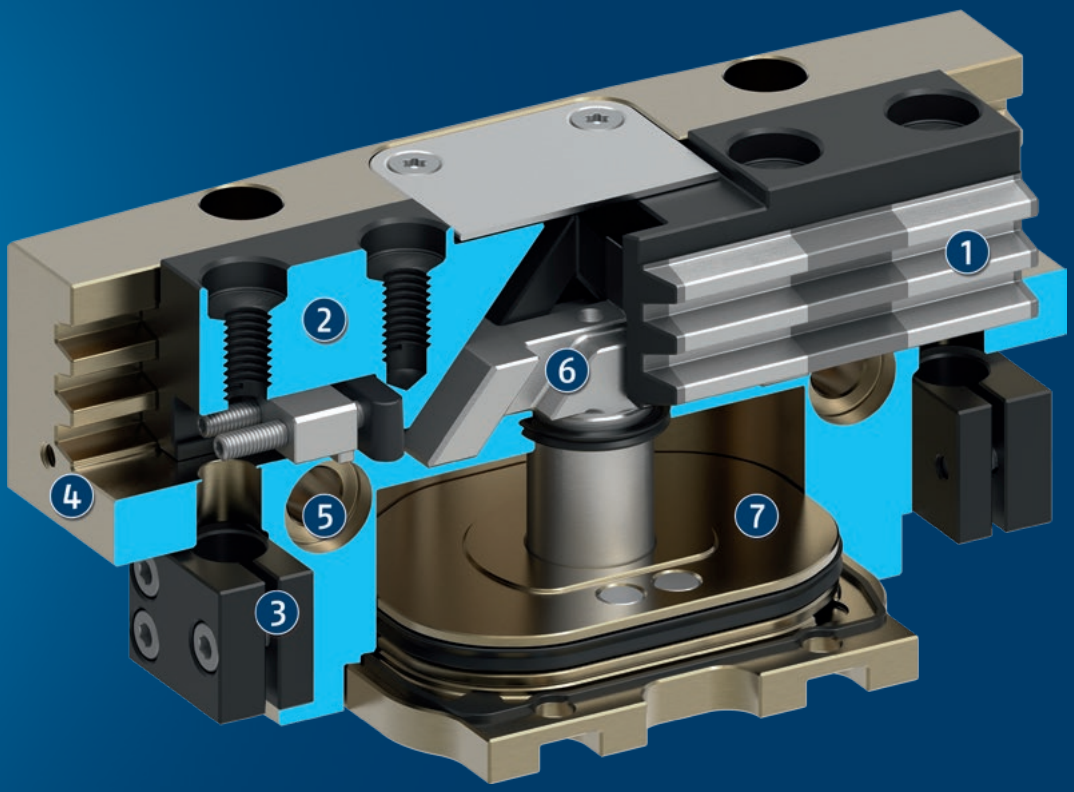
Comprehensive sensor accessory program for versatile querying possibilities and stroke position monitoring

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

Sizes	Weight	Gripping force	Stroke per jaw	Workpiece weight
Quantity: 11	0.08 .. 39.8 kg	180 .. 26100 N	2 .. 45 mm	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

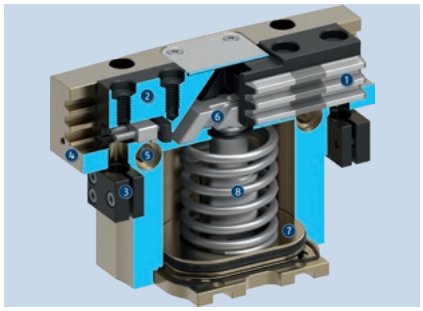
⑦ **Piston**
Maximum force through maximum surface of drive piston

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.

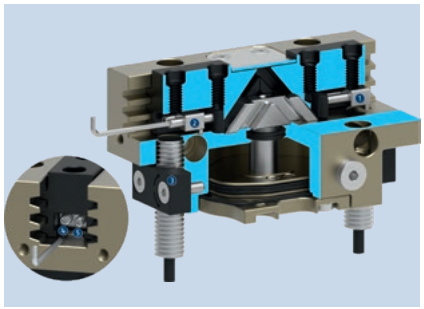
Gripping force maintenance version AS/IS



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.

1. Multi-tooth guidance
2. Base Jaw
3. Bracket for sensors
4. Housing
5. Centering and mounting possibilities
6. Wedge-hook design
7. Piston
8. Gripping force maintenance device

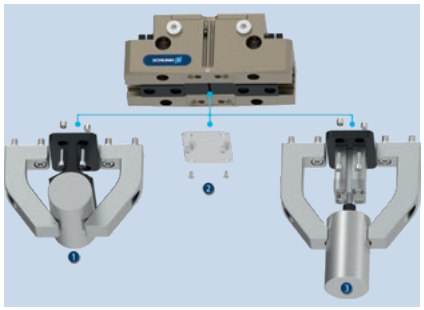
Settings of the control cams during monitoring with inductive proximity switches



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.

1. Control cam preset for "gripper closed" position
2. Control cam preset for "gripper open" position
3. Holder with clamping screw for fixing the sensor
4. Clamping screw for process-reliable fixing of the adjusted switching point
5. 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.

1. Additional centering or support of the workpiece
2. The cover plate (can be removed)
3. 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

Longlife: 30 years functional warranty (details can be found online)

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 device: possible by using the version with mechanical gripping force maintenance or pressure maintenance valve SDV-P

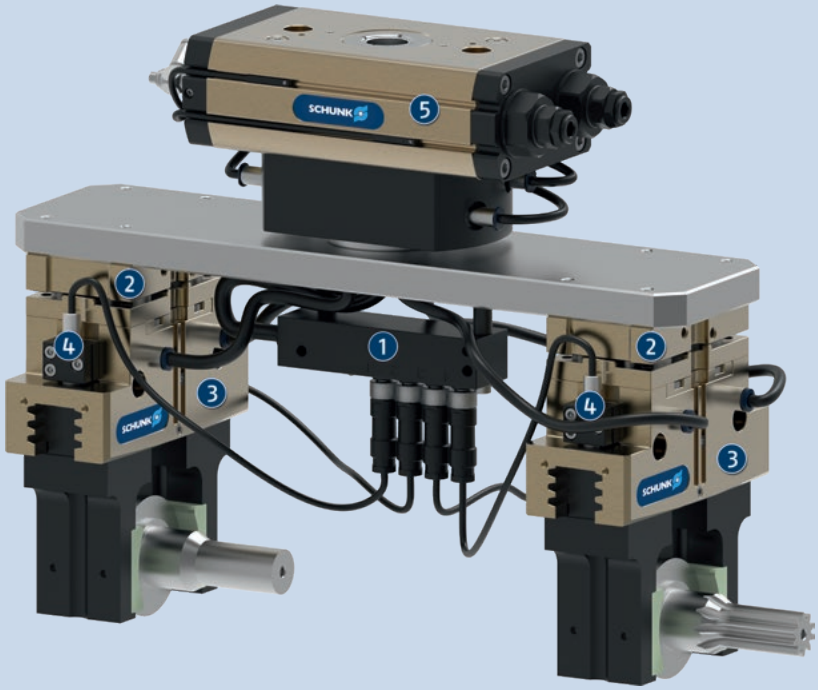
Gripping force: is the arithmetic sum of the individual force applied to each jaw at distance P (see illustration).

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 purely the times that the base jaws or fingers are in motion. Valve switching times, hose fill times, or PLC reaction times are not included, and are to be considered when cycle times are calculated.



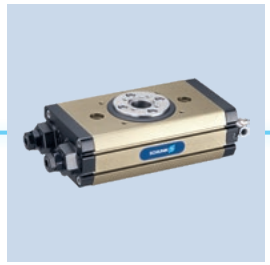
Application example

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 PGN-plus-P even more productive – the suitable addition for the highest functionality, flexibility, reliability, and controlled production.


Rotary unit


Quick change system


Compensation unit

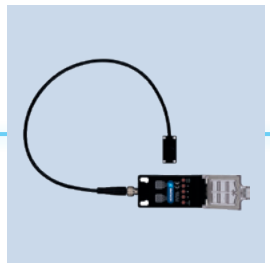

Linear module


Jaw quick-change system


Finger blank


Pressure maintenance valve


Universal intermediate jaw


Flexible position sensor


Analog position sensor


Magnetic switches


Inductive proximity switches

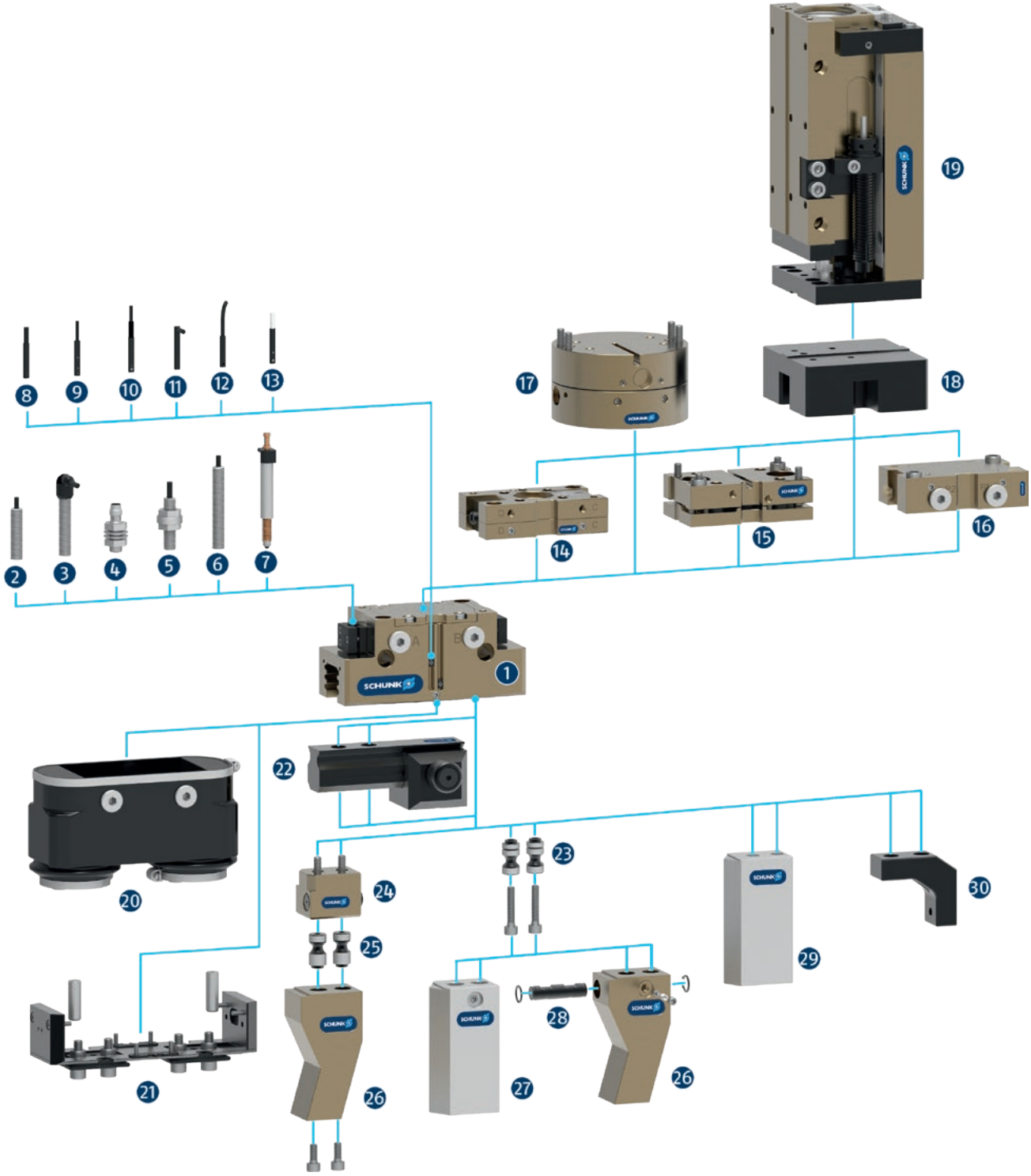
ⓘ For more information on these products can be found on the following product pages or at schunk.com. Please contact us: SCHUNK technical hotline +49-7133-103-2696

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.
Additional versions: Various options can be combined with each other.
Integrated air purge connection: impedes the ingress of dirt into the inside of the gripper

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 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 **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 position

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 position

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

20 **HUE**
Sleeve for protection against dirt

21 **SAD**
Dustproof version, retrofit kit

Fingerzubehör

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 coupling of 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 coupling 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

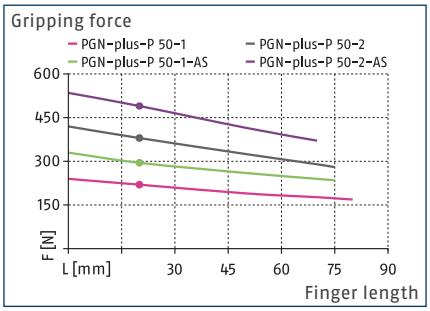
29 **ABR/SBR**
Finger blanks made of steel or aluminum with standardized screw connection diagram

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

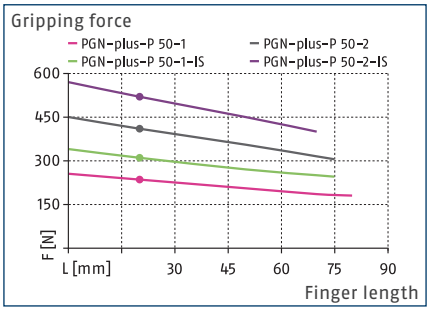
PGN-plus-P 50

Universal gripper

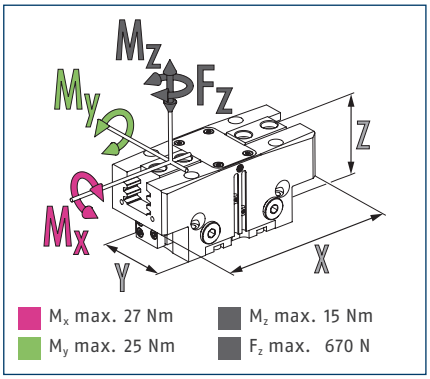
Gripping force O.D. gripping



Gripping force I.D. gripping



Dimensions and maximum loads



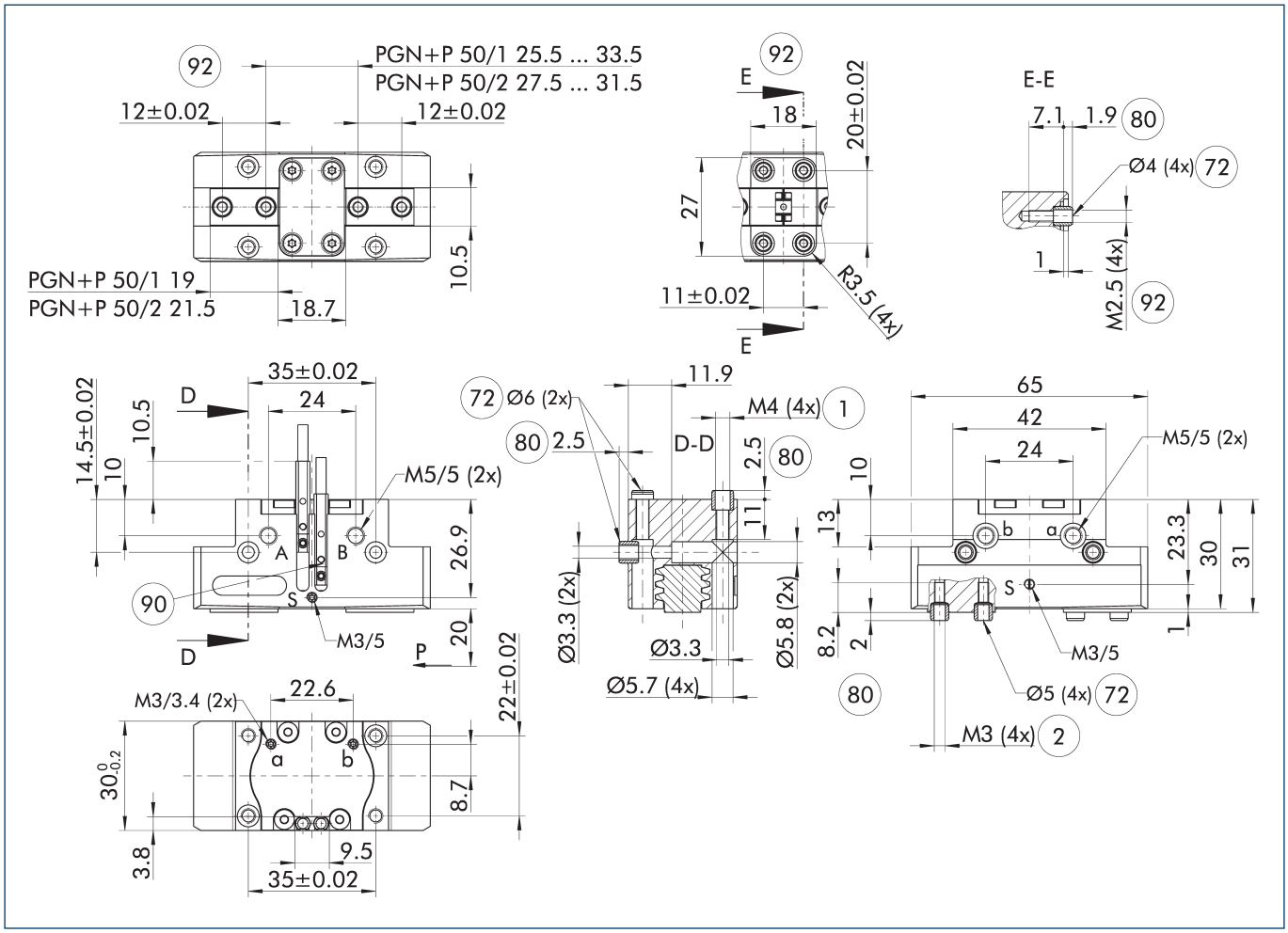
ⓘ The indicated moments and forces are statical values, apply for each base jaw and should not appear simultaneously. Loads may additionally occur to the moment produced by the gripping force itself.

Technical data

Characterization		PGN-plus-P 50-1	PGN-plus-P 50-2	PGN-plus-P 50-1-AS	PGN-plus-P 50-2-AS	PGN-plus-P 50-1-IS	PGN-plus-P 50-2-IS
ID		0318472	0318473	0318474	0318475	0318476	0318477
Stroke per jaw	[mm]	4	2	4	2	4	2
Closing/opening force	[N]	220/235	380/410	295/-	490/-	-/300	-/520
Min. spring force	[N]			75	110	65	110
Weight	[kg]	0.17	0.17	0.2	0.2	0.2	0.2
Recommended workpiece weight	[kg]	1.1	1.9	1.1	1.9	1.1	1.9
Fluid consumption double stroke	[cm³]	6	6	10	10	12	12
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]	0.015/0.015	0.015/0.015	0.015/0.025	0.015/0.025	0.025/0.015	0.025/0.015
Closing/opening time with spring	[s]			0.03	0.03	0.03	0.03
Max. permissible finger length	[mm]	80	75	75	70	75	70
Max. permissible mass per finger	[kg]	0.2	0.2	0.2	0.2	0.2	0.2
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]	0.01	0.01	0.01	0.01	0.01	0.01
Dimensions X x Y x Z	[mm]	65 x 30 x 31	65 x 30 x 31	65 x 30 x 47	65 x 30 x 47	65 x 30 x 47	65 x 30 x 47
Options and their characteristics							
Dustproof version		1317516	1317527	1317531	1317534	1317539	1317541
IP protection class		64	64	64	64	64	64
Weight	[kg]	0.21	0.21	0.24	0.24	0.24	0.24
Corrosion-protected version		38318472	38318473	38318474	38318475	38318476	38318477
High-temperature version		39318472	39318473	39318474	39318475	39318476	39318477
Min./max. ambient temperature	[°C]	5/130	5/130	5/130	5/130	5/130	5/130
Precision version		0318478	0318479	0318480	0318481		

ⓘ It may take a few 100 gripping cycles until the full gripping force (as indicated in the data table) will be available.

Main view

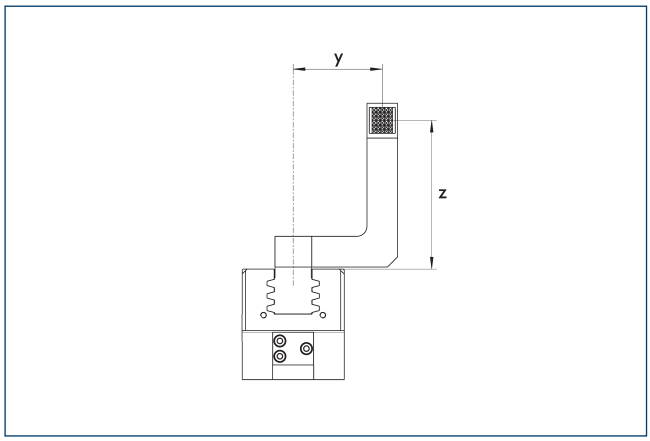


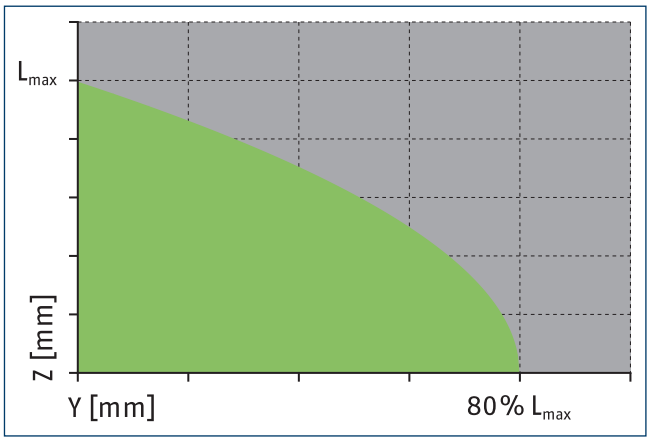
The drawing shows the gripper in the basic version with closed jaws, without dimensional consideration of the options described below.

ⓘ 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 catalog section on accessories).

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

Maximum permitted finger projection



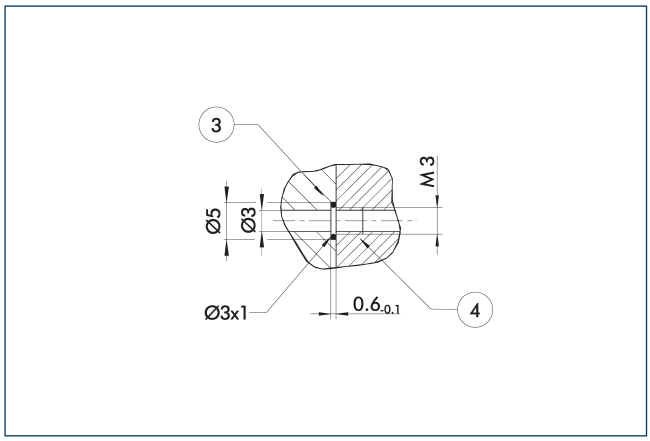


Permitted range

Inadmissible range

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

Hose-free direct connection M3

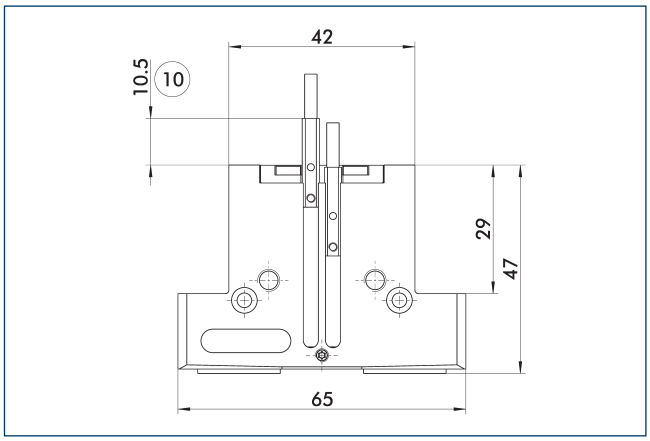


(3) Adapter

(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.

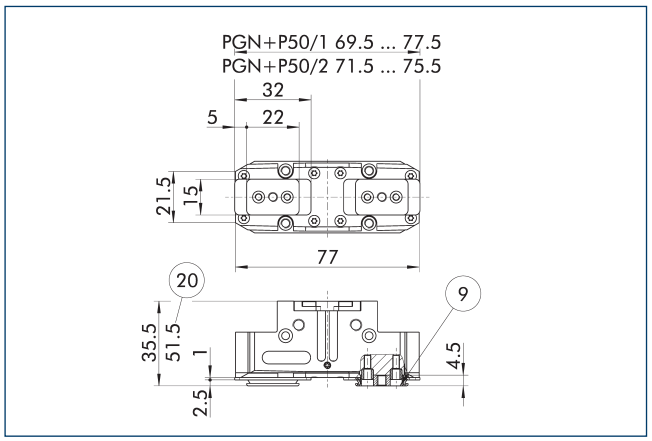
Gripping force maintenance device AS / IS



(10) Projection applies only for AS version

The mechanical gripping force maintenance device ensures that a minimum clamping force will be applied even if there is a drop in pressure. This acts as closing force in the AS / S version, and as opening force in the IS version. Besides this, the gripping force maintenance device can be used to increase the gripping force or for single actuated gripping.

Dustproof version



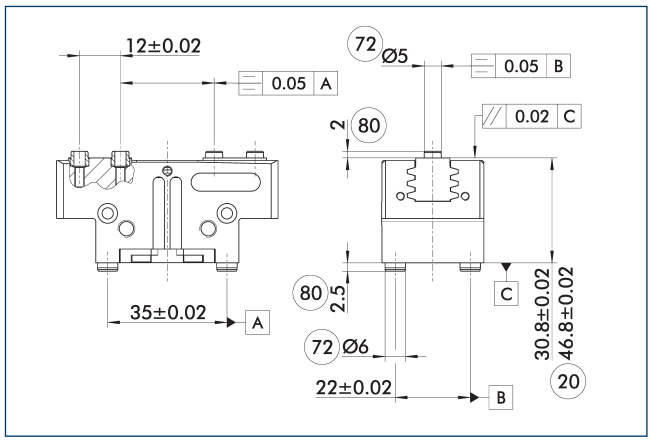
(9) For mounting screw connection diagram, see basic version
(20) For AS / IS version

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.

Characterization	ID	
Dust cover		
SAD PGN-plus-P 50	1347474	

ⓘ The "dustproof" option can either be ordered as a pre-mounted gripper version or can be retrofitted to the gripper using the "SAD PGN-plus-P" retrofit kit.

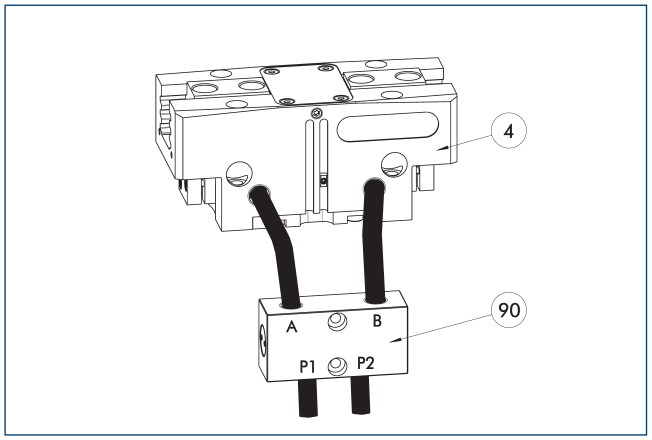
Precision version



(20) For AS / IS version
(72) Fit for centering sleeves
(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



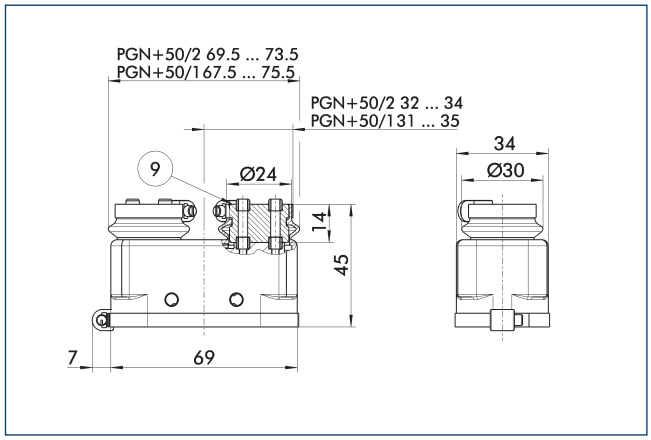
(4) Grippers
(90) SDV-P pressure maintenance valve

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.

Characterization	ID	Recommended hose diameter
		[mm]
Pressure maintenance valve		
SDV-P 04	0403130	6
Pressure maintenance valve with air bleed screw		
SDV-P 04-E	0300120	6

ⓘ 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.

Protective cover HUE PGN-plus 50



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

The HUE protective cover fully protects the gripper against external influences. The cover is suitable for applications of up to IP65 if an additional sealing of the cover bottom is provided. For detailed information, please see the HUE series. The connection diagram shifts by the height of the intermediate jaw.

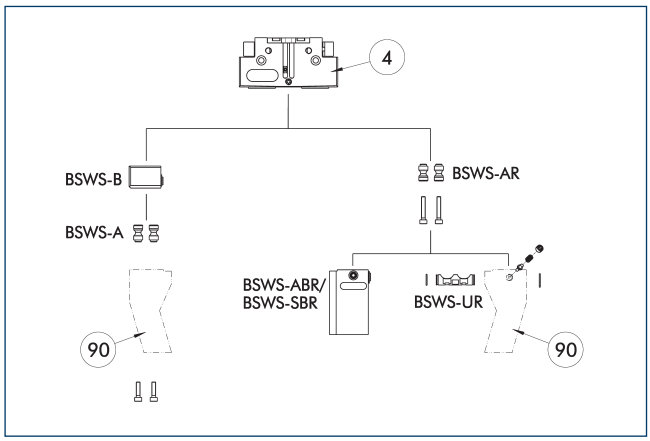
Characterization	ID	IP protection class
Protection cover		
HUE PGN-plus 50	0371479	65

ⓘ The HUE protective cover is not suitable for use on grippers with gripping force maintenance. An inductive monitoring of the gripper in connection with the HUE protective cover is not possible. SCHUNK recommends the use of magnetic sensors that are approved for the respective gripper variant.

PGN-plus-P 50

Universal gripper

BSWS jaw quick-change jaw systems



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.

Characterization	ID	Scope of delivery
Jaw quick-change system adapter plate		
BSWS-A 50	0303020	2
BSWS-AR 50	0300091	2
Quick-change jaw system base		
BSWS-B 50	0303021	1
Jaw quick-change system finger blank		
BSWS-ABR-PGZN-plus 50	0300071	1
BSWS-SBR-PGZN-plus 50	0300081	1
Jaw quick-change system locking mechanism		
BSWS-UR 50	0302990	1

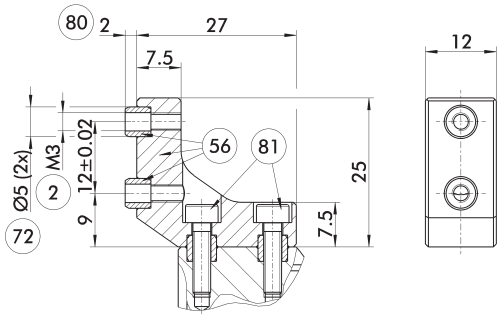
ⓘ Only systems that are listed in the table, can be used.

Fields of application

Series	Size	Variant	Suitability
PGN-plus-P	50	-1 (6 bar)	■■■■
PGN-plus-P	50	-1-AS / -1-IS (6 bar)	■■■■
PGN-plus-P	50	-2 (6 bar)	■■■■
PGN-plus-P	50	-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.
If the operating pressure is higher than 6 bar, suitability for use above the application limits must be checked.

ZBA-L-plus 50 intermediate jaws



② Finger connection

⑤⑥ Included in the scope of delivery

⑦② Fit for centering sleeves

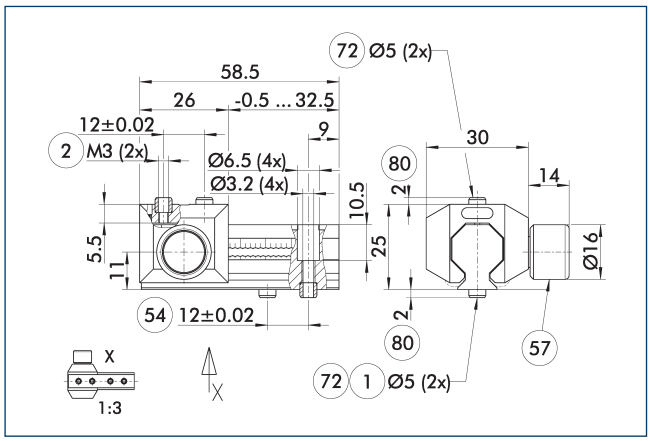
⑧⓪ Depth of the centering sleeve hole in the counter part

⑧① Not included in the scope of delivery

The optional ZBA-L-plus intermediate jaws allow the screw connection diagram of the top jaws to be rotated by 90°. This makes it easier to design and produce top jaws (particularly for long versions) because no deep through-bores are required.

Characterization	ID	Material	Finger interface	Scope of delivery
Intermediate jaw				
ZBA-L-plus 50	0311712	Aluminum	PGN-plus 50	1

UZB 50 universal intermediate jaw



(1) Gripper connection
(2) Finger connection
(54) Optional right or left connection
(57) Locking
(72) Fit for centering sleeves
(80) Depth of the centering sleeve hole in the counter part

The drawing shows the UZB universal intermediate jaw.

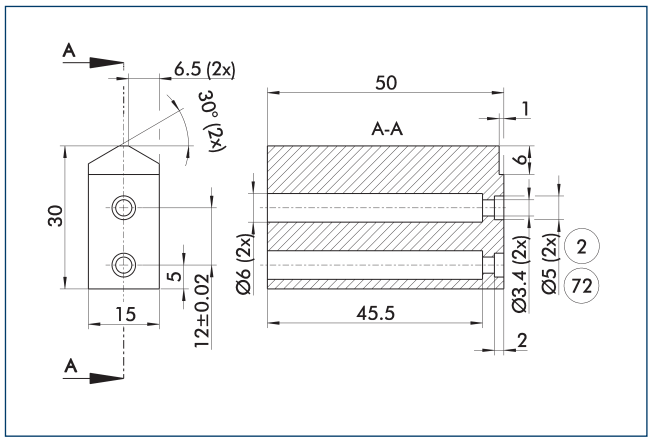
Characterization	ID	Grid dimension
		[mm]
Universal intermediate jaw		
UZB 50	0300041	1.5
Finger blank		
ABR-PGZN-plus 50	0300009	
SBR-PGZN-plus 50	0300019	

Fields of application

Series	Size	Variant	Suitability
PGN-plus-P	50	-1 (6 bar)	■■■■
PGN-plus-P	50	-1-AS / -1-IS (6 bar)	■■□□
PGN-plus-P	50	-2 (6 bar)	■■□□
PGN-plus-P	50	-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.
If the operating pressure is higher than 6 bar, suitability for use above the application limits must be checked.

Finger blank ABR- / SBR-PGZN-plus 50



(2) Finger connection
(72) Fit for centering sleeves

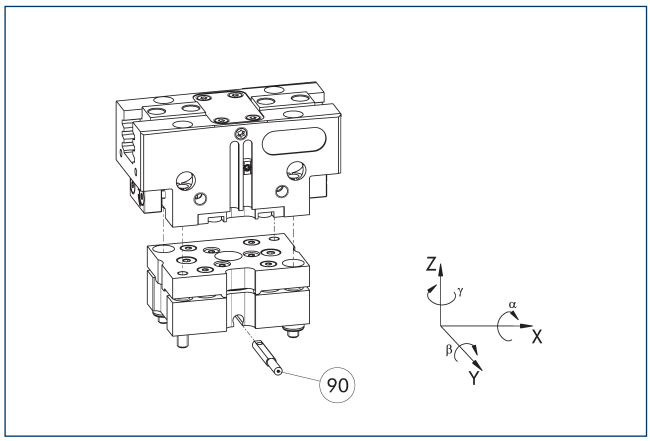
The drawing shows the finger blank which can be reworked by the customer.

Characterization	ID	Material	Scope of delivery
Finger blank			
ABR-PGZN-plus 50	0300009	Aluminum	1
SBR-PGZN-plus 50	0300019	Steel	1

PGN-plus-P 50

Universal gripper

Tolerance compensation unit TCU

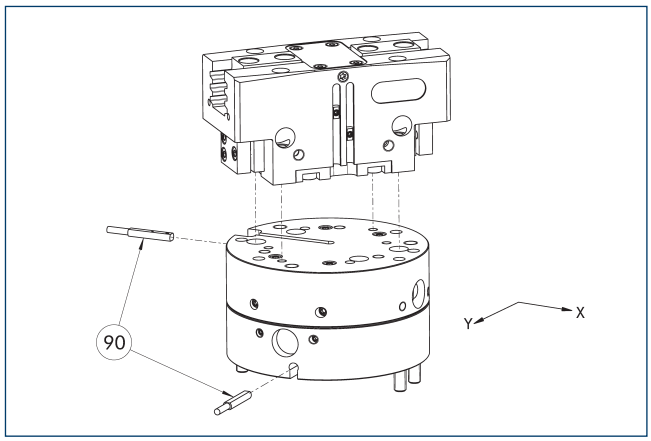


(90) Monitoring of locking

Grippers can be directly mounted without an adapter plate. Tolerance compensation unit and gripper have an identical screw connection diagram. Therefore the tolerance compensation units can be assembled later. Please consider the additional assembly height of the tolerance compensation unit. For details please refer to our catalog robot accessories.

Characterization	ID	Locking	Deflection
Compensation unit			
TCU-P-050-3-0V	0324757	no	±1°/±1°/±1,5°

Compensation unit AGE-F



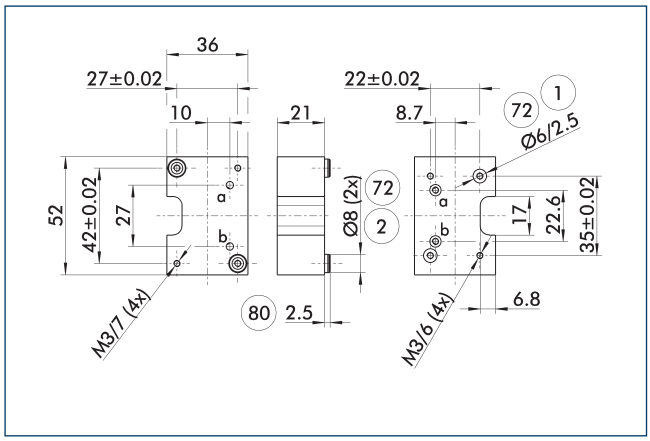
(90) Monitoring

The unit has direct connection possibilities for different grippers of the PGN-plus, PGN-plus-P and PZN-plus series. For more detailed information, please refer to the main view.

Characterization	ID	Compensation XY	Reset force	Often combined
		[mm]	[N]	
Compensation unit				
AGE-F-XY-040-1	0324920	± 2	3	
AGE-F-XY-040-2	0324921	± 2	4	
AGE-F-XY-040-3	0324922	± 2	4.5	●

ⓘ Due to the interfering contour, monitoring of the gripper is not possible.

Adapter plate for PGN-plus 50

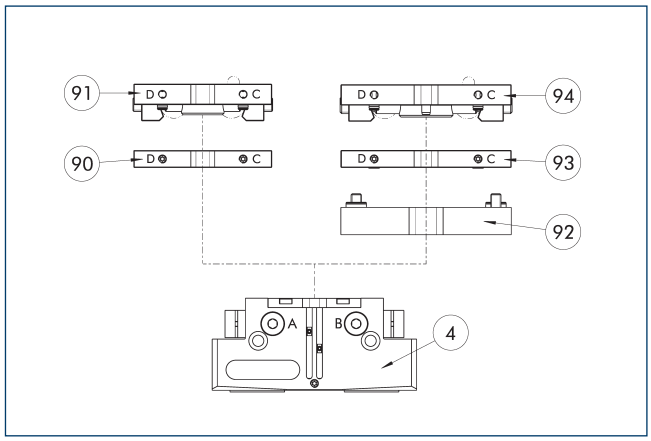


(1) Robot-side connection
(2) Tool-side connection
(72) Fit for centering sleeves
(80) Depth of the centering sleeve hole in the counter part

The adapter plate has integrated air feed-throughs in order to be able to use the hose-free direct connection of the appropriate gripper.

Characterization	ID	
Tool side		
A-CWA-064-050-P	0305768	

Compact change system for grippers

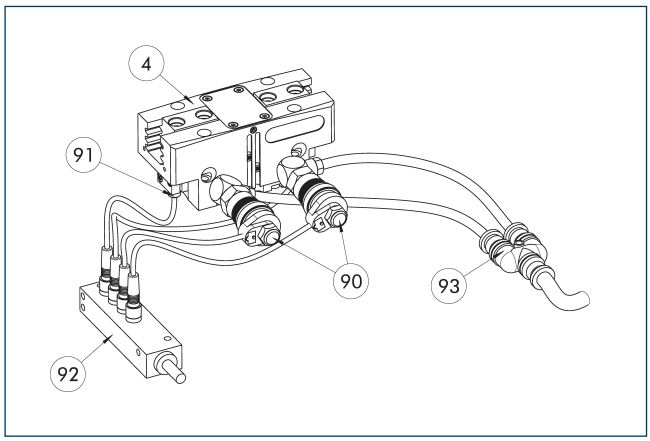


(4) Grippers
(90) CWA compact change adapter
(91) CWK compact change master
(92) A-CWA adapter plate
(93) CWA compact change adapter
(94) CWK compact change master

Grippers can be directly mounted without an adapter plate. For details see our catalog Gripping or Robot Accessories.

Characterization	ID	
Tool side		
A-CWA-064-050-P	0305768	
CWA compact change adapter		
CWA-050-P	0305751	
CWK compact change master		
CWK-050-P	0305750	

Attachment valves



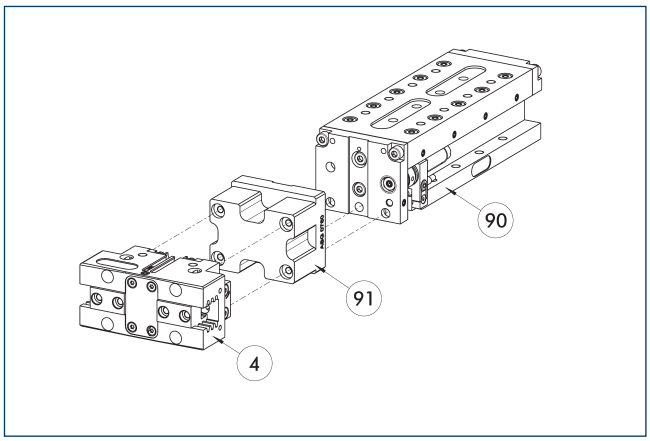
(4) Grippers
(90) Micro valves
(91) Sensor
(92) Sensor distributor
(93) Y distributor

The set of attachment valves reduces the compressed air consumption as there is no need to ventilate or bleed the supply lines. This can also reduce cycle time. The hose-free direct assembly of the micro valves reduces the hosing effort for the gripper. To further simplify electrical connection of the valves and sensors, their signals can be bundled via an optional distributor.

Characterization	ID	Often combined
Attachment valve		
ABV-MV15-M5	0303323	
ABV-MV15-M5-V2-M8	0303386	
ABV-MV15-M5-V4-M8	0303356	●
ABV-MV15-M5-V8-M8	0303357	

ⓘ A set of attachment valves ABV is required per actuator. The ABV set contains two 3/2 micro valves, an Y-distributor for compressed air supply and optionally a sensor distributor with two, four or eight inputs or outputs. Sensors for monitoring the gripper need to be ordered separately. Pneumatic hoses are not included in the scope of delivery.

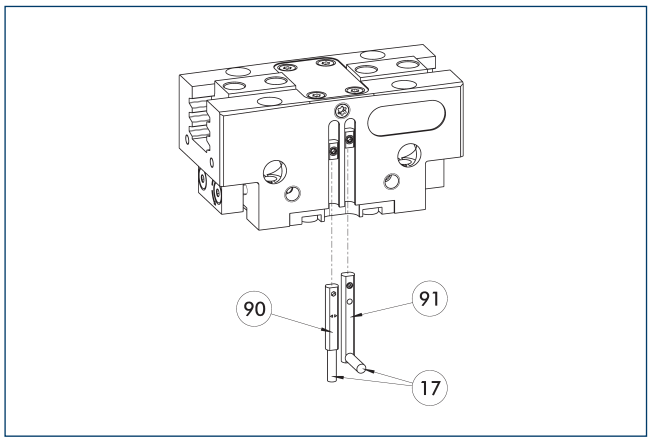
Modular Assembly Automation



(4) Grippers
(90) CLM/KLM/LM/ELP/ELM/ELS/HLM linear modules
(91) ASG adapter plate

Grippers and linear modules can be combined with standard adapter plates from the modular assembly system. For more information see our main catalog "Modular Assembly Automation".

Electronic magnetic switch MMS



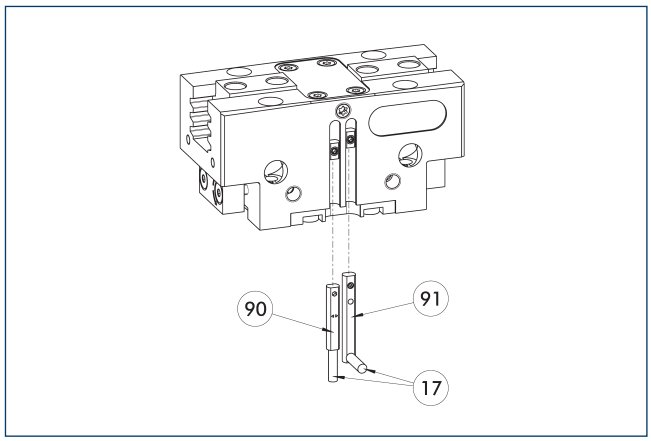
(17) Cable outlet
(91) Sensor MMS 22 ..-PI1-...-SA
(90) Sensor MMS 22 PI1-...

End position monitoring for mounting in the C-slot.

Characterization	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	
Cable extension		
KV BW08-SG08 3P-0030-PNP	0301495	
KV BW08-SG08 3P-0100-PNP	0301496	
KV BW08-SG08 3P-0200-PNP	0301497	●
clip for plug/socket		
CLI-M8	0301463	
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	
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



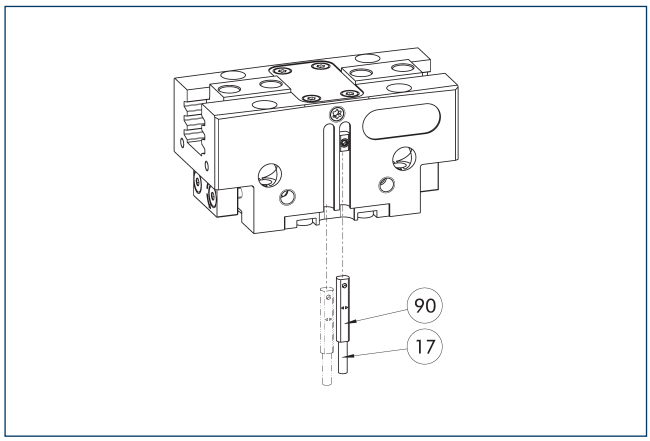
(17) Cable outlet
(91) Sensor MMS 22 ..-PI1-...-SA
(90) Sensor MMS 22 PI1-...

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) 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.

Characterization	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.

Programmable magnetic switch MMS 22-PI2



(17) Cable outlet

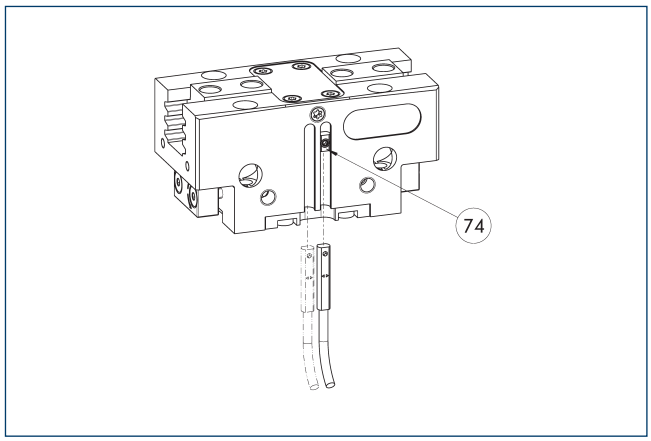
(90) MMS 22...-PI2-... sensor

Position monitoring with two programmable positions per sensor and electronics built into the sensor. Can be programmed using MT magnetic teaching tool (included in the scope of delivery) 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.

Characterization	ID	Often combined
Programmable magnetic switch		
MMS 22-PI2-S-M8-PNP	0301180	●
MMSK 22-PI2-S-PNP	0301182	
Programmable magnetic switch with lateral cable outlet		
MMS 22-PI2-S-M8-PNP-SA	0301186	●
MMSK 22-PI2-S-PNP-SA	0301188	
Programmable magnetic switch with stainless steel housing		
MMS 22-PI2-S-M8-PNP-HD	0301130	●
MMSK 22-PI2-S-PNP-HD	0301132	

ⓘ One sensor is required per unit for monitoring two positions. Extension cables and sensor distributors are optionally available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor systems.

MMS-P programmable magnetic switch



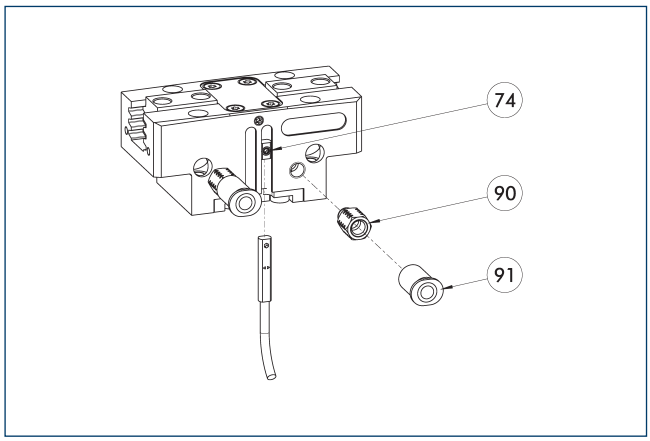
(74) Limit stop for sensor

Position monitoring with two programmable positions per sensor. End position monitoring for mounting in the C-slot.

Characterization	ID	Often combined
Programmable magnetic switch		
MMSK-P 22-S-PNP	0301371	
MMS-P 22-S-M8-PNP	0301370	●
clip for plug/socket		
CLI-M8	0301463	
Connection cables		
KA BG08-L 4P-0500	0307767	●
KA BG08-L 4P-1000	0307768	
KA BW08-L 4P-0500	0307765	
KA BW08-L 4P-1000	0307766	
Sensor distributor		
V2-M8-4P-2XM8-3P	0301380	

ⓘ One sensor is required per unit for monitoring two positions. Extension cables and sensor distributors are optionally available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor systems.

MMS-A analog position sensor



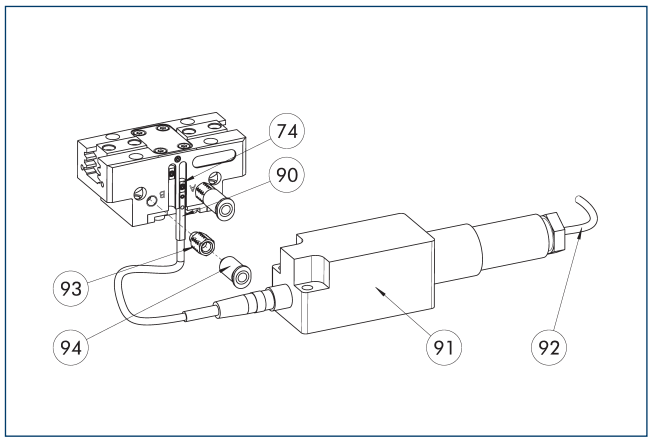
74 Limit stop for sensor
90 Flow control coupling, Ø 0.8 mm, for teaching process (ID 9953035 / not included in the scope of delivery)
91 Air connection (not included in the scope of delivery)

Multi-position monitoring with no-contact measuring analog sensor, can be mounted directly in the C-slot. The electronics are built into the sensor. Programmed using the MT magnetic teaching tool (included in the scope of delivery) or ST plug teaching tool (to be ordered separately).

Characterization	ID	
Analog position sensor		
MMS 22-A-10V-M08	0315825	
MMS 22-A-10V-M12	0315828	

ⓘ One sensor is required per unit. The output voltage of the sensor differs according to the unit and is typically between 0.3 and 10 V. For teaching the sensor, a flow control coupling is required to reduce the speed during the teaching process. The resolution of the sensor can be smaller in the peripheral areas of the gripper. For further information on the product, see operating manual.

Flexible position sensor with MMS-A



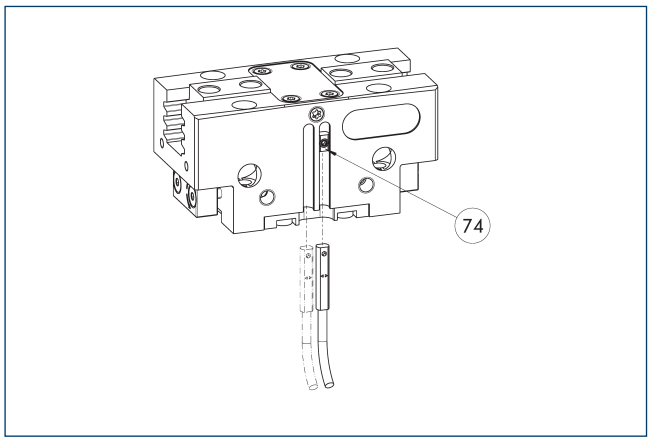
74 Limit stop for sensor
90 MMS 22-A-... sensor
91 FPS-F5 evaluation electronic
92 Connection cables
93 Flow control coupling, Ø 0.8 mm, for teaching process (ID 9953035 / not included in the scope of delivery)
94 Air connection (not included in the scope of delivery)

Flexible position monitoring of up to five positions.

Characterization	ID	
Analog position sensor		
MMS 22-A-05V-M08	0315805	
Evaluation electronics		
FPS-F5	0301805	
Connection cables		
KA BG16-L 12P-1000	0301801	

ⓘ When using an FPS system, an MMS 22-A-05V, and evaluation electronics (FPS-F5) are required for each gripper. For teaching the sensor, a flow control coupling is required to reduce the speed during the teaching process. The resolution of the sensor can be smaller in the peripheral areas of the gripper. For further information on the product, see operating manual.

Programmable magnetic switch MMS-IO-Link



74 Limit stop for sensor

Sensor for multi-position monitoring through detection of the complete gripper stroke. The sensor is mounted directly in the C-slot of the gripper. Sensor programming on the gripper takes place via the IO-Link interface or the MT magnetic teach tool (included in scope of delivery). An IO-Link master is required for operation.

Characterization	ID	
Programmable magnetic switch		
MMS 22-IOL-M08	0315830	
MMS 22-IOL-M12	0315835	

ⓘ One sensor is required for each gripper. No additional mounting kit is required – the gripper is equipped for use of the sensor by default. Further information and technical data can be found in the catalog chapter sensor systems.

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