

Superior Clamping and Gripping



# **Product Information**

Universal gripper PGN-plus-P 200

# 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 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.)







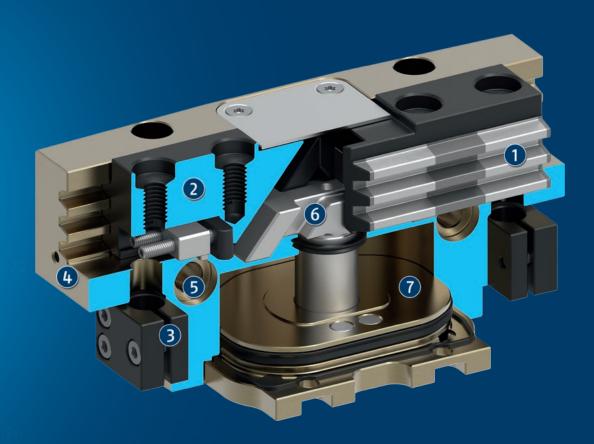






# **Functional description**

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

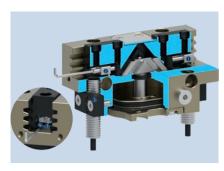


The mechanical gripping force maintenance device ensures that a minimum clamping force will be applied even if there is a drop in pressure. In the AS version this acts as a closing force, and in the IS version as an opening force. The image shows the AS version. The gripping force maintenance can also be used to increase the gripping force or for one-way gripping.

- Multi-tooth guidance
- 2 Base Jaw
- 3 Bracket for sensors
- 4 Housing

- Centering and mounting possibilities
- 6 Wedge-hook design
- Piston
- 6 Gripping force maintenance device

# Settings of the control cams during monitoring with inductive proximity switches

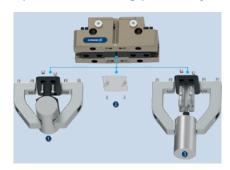


Monitoring with inductive proximity switch can be performed as standard from size 64. In delivery state, the positions "gripper open" and "gripper closed" are preset with the control cams. The inductive sensors must be ordered separately and are slid into the housing up to the stop and clamped.

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.

- Control cam preset for "gripper closed" position
- Control cam preset for "gripper open" position
- Holder with clamping screw for fixing the sensor
- 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.

- 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

 $\textbf{Operating principle:} \ \mathsf{Wedge} \ \mathsf{gear} \ \mathsf{with} \ \mathsf{surface} \ \mathsf{power}$ 

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

**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.

- Sensor distributor V4
- Tolerance compensation unit TCU-Z
- Universal gripper PGN-plus-P
- 4 IN sensors
- 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.



① 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.

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.

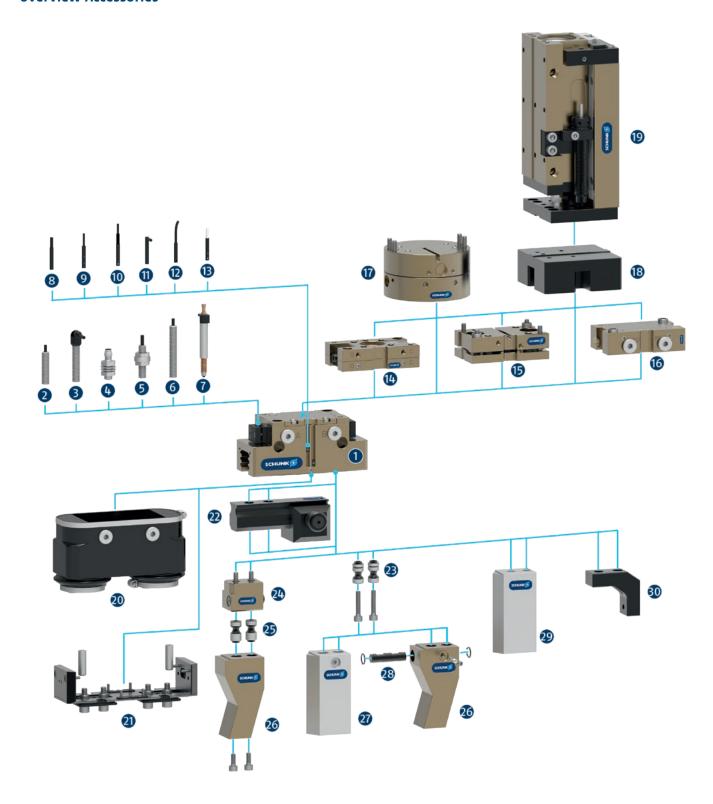
Additional versions: Various options can be combined with each other.

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

**NEW:** H1 grease version H1G: with H1 compliant lubrication as a solution for easy entry into medical technology, lab automation, the pharmaceutical industry and food industry

# **SCHUNK gripper PGN-plus-P**

# **Overview Accessories**



8

#### 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

Inductive proximity switch with molded cable and laberal cable outlet

IN-C 80

Inductive proximity switch, directly pluggable

FPS

Flexible position sensor for monitoring up to five different, freely selectable positions

APS-Z80

Inductive position sensor for precise position detection of the gripper jaws with analog output

APS-M1S

Mechanical measuring system for precise position detaction of the gripper jaw with analog output

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

**1** 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

MMS-P

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

B MMS-A

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

#### **Complementary products**

**@** CWS

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

🚯 TCU

Tolerance compensation unit for compensating small tolerances in the plane

6 SDV-P-E-P

Pressure maintenance valve for temporary force and position maintenance

**⚠** AGE

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

B ASG

Adapter plate for combining various automation components in the modular system

📵 CLM

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

**4** HUE

Sleeve for protection against dirt

SAD

Dustproof version, retrofit kit

# **Finger Accessories**

UZB

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

BSWS-AR

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

BSWS-B

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

BSWS-A

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

- Customized fingers
- 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

BSWS-UR

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

ABR/SBF

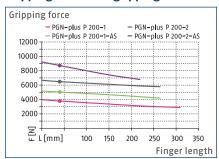
Finger blanks made of steel or aluminum with standardized screw connection diagram

30 ZBA

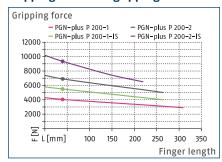
Intermediate jaws for reorientation of the mounting surface



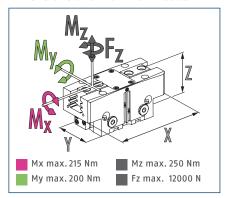
# Gripping force O.D. gripping



# **Gripping force I.D. gripping**



#### **Dimensions and maximum loads**



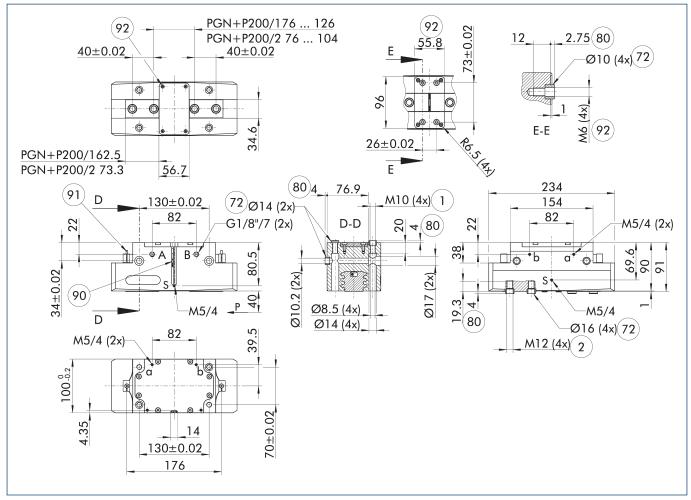
The indicated moments and forces are statical values, apply for each base jaw and may appear simultaneously. Loads may additionally occur to the moment produced by the gripping force itself.

# **Technical data**

Description		PGN-plus-P 200-1	PGN-plus-P 200-2	PGN-plus-P 200-1-AS	PGN-plus-P 200-2-AS	PGN-plus-P 200-1-IS	PGN-plus-P 200-2-IS
ID		0318616	0318617	0318618	0318619	0318620	0318621
Stroke per jaw	[mm]	25	14	25	14	25	14
Closing/opening force	[N]	3800/4050	6500/6900	5050/-	8750/-	-/5500	-/9350
Min. spring force	[N]			1250	2250	1450	2450
Weight	[kg]	5.4	5.4	7	7	6.8	6.8
Recommended workpiece weight	[kg]	19	32.5	19	32.5	19	32.5
Fluid consumption double stroke	[cm³]	510	510	810	810	890	890
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]	0.28/0.28	0.28/0.28	0.24/0.55	0.24/0.55	0.55/0.24	0.55/0.24
Closing/opening time with spring	[s]			0.40	0.40	0.40	0.40
Max. permissible finger length	[mm]	310	265	265	220	265	220
Max. permissible mass per finger	[kg]	6.5	6.5	6.5	6.5	6.5	6.5
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]	0.02	0.02	0.02	0.02	0.02	0.02
Dimensions X x Y x Z	[mm]	234 x 100 x 91	234 x 100 x 91	234 x 100 x 141			
Options and their characteristics							
Dustproof version		1317683	1317691	1317695	1317696	1317701	1317703
IP protection class		64	64	64	64	64	64
Weight	[kg]	6	6	7.6	7.6	7.4	7.4
Corrosion-protected version		1317675	1317676	1317678	1317679	1317680	1317681
High-temperature version		1317663	1317665	1317666	1317667	1317670	1317674
Min./max. ambient temperature	[°C]	5/130	5/130	5/130	5/130	5/130	5/130
Precision version		1317705	1317706	1317708	1317710		

① It may take a few 100 gripping cycles until the full gripping force (as indicated in the data table) will be available.

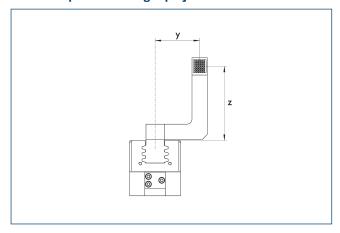
#### Main view

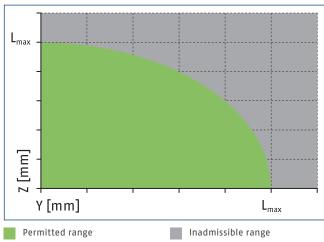


The drawing shows the gripper in the basic version with closed jaws, without dimensional consideration of the options described below.

- ① The SDV-P pressure maintenance valve can also be used for I.D. or 0.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..
- **91**) Sensor IN ...
- (92) Screw connection with centering for customized mounting (these centering sleeves are not included in the scope of delivery)

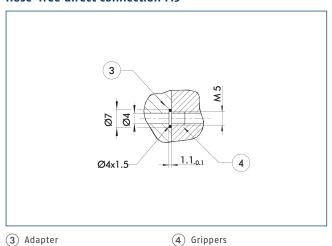
# Maximum permitted finger projection





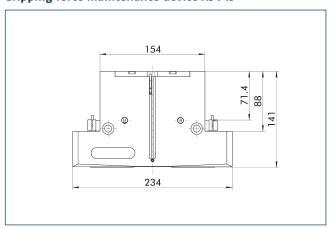
Lmax is equivalent to the maximum permitted finger length, see the technical data table.

# Hose-free direct connection M5



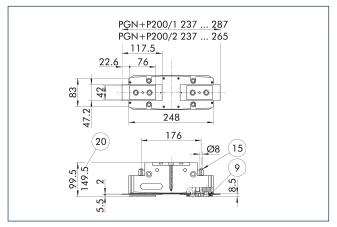
The direct connection is used for supplying compressed air without hoses. Instead, the pressure medium is fed through bore-holes in the mounting plate.

# Gripping force maintenance device AS / IS



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**



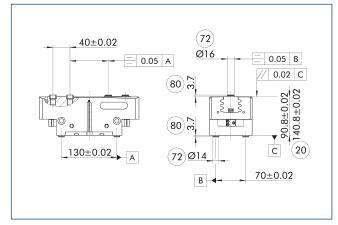
- 9 For mounting screw connection diagram, see basic version
- 15) Sealing bolt
- 20 For AS / IS version

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.

Description	ID
Dust cover	-
Dust cover	
SAD PGN-plus-P 200	1347583

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.

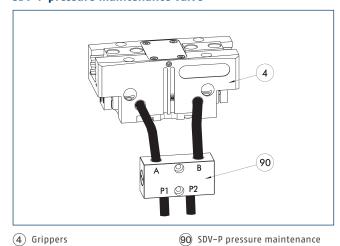
# **Precision version**



- 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

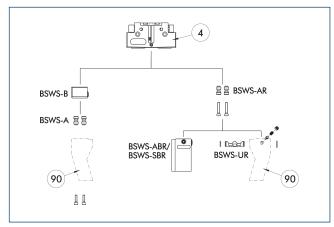


The SDV-P pressure maintenance valve ensures in emergency STOP situations that the pressure in the piston chamber of pneumatic gripper, swivel, linear, and quick-change modules is temporarily maintained.

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

**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		
Quick-change jaw system base				
BSWS-B 200	0303033	1		
Jaw quick-change system adapter pin				
BSWS-A 200	0303032	2		

① Only systems that are listed in the table, can be used.

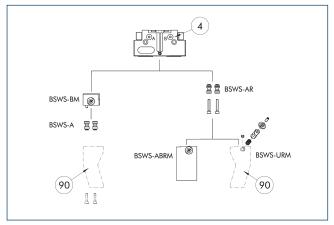
#### Fields of application

Series	Size	Variant	Suitability			
PGN-plus-P	200	-1 (6 bar)				
PGN-plus-P	200	-1-AS / -1-IS (6 bar)				
PGN-plus-P	200	-2 (6 bar)				
PGN-plus-P	200	-2-AS / -2-IS (6 bar)				
Legend						
	Can be combined without restrictions					
	Use with restrictions (see loading limits)					
0000	cannot be combine	d				

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.

# 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		
Quick-change ja	aw system bas	e		
BSWS-BM 200	1419306	1		
Jaw quick-change system adapter pin				
BSWS-A 200	0303032	2		

① Only systems that are listed in the table, can be used.

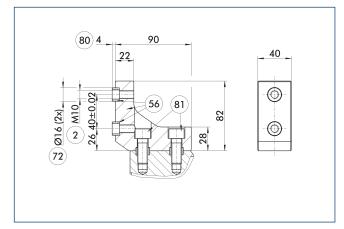
#### Fields of application

Series	Size	Variant	Suitability			
PGN-plus-P	200	-1 (6 bar)				
PGN-plus-P	200	-1-AS / -1-IS (6 bar)				
PGN-plus-P	200	-2 (6 bar)				
PGN-plus-P	200	-2-AS / -2-IS (6 bar)				
Legend						
	Can be com	Can be combined without restrictions				
	Use with re	Use with restrictions (see loading limits)				
0000	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 200 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

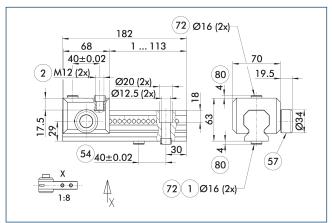
Optionally intermediate jaws can be used, enabling direct connection and alignment of top jaws and various standard accessories in Z-direction.

Description	ID	Material	Finger interface	Scope of delivery
Intermediate jaw				
ZBA-L-plus 200	0311772	Aluminum	PGN-plus 200	1

# PGN-plus-P 200

Universal gripper

# UZB 200 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. The fully removable UZB-S slide (can also be ordered separately) allows for a quick jaw change.

Description	ID	Grid dimension		
		[mm]		
Universal intermediate j	aw			
UZB 200	0300047	7		
Finger blank				
ABR-PGZN-plus 200	0300015			
SBR-PGZN-plus 200	0300025			
Slide for universal intermediate jaw				
UZB-S 200	5518275	7		

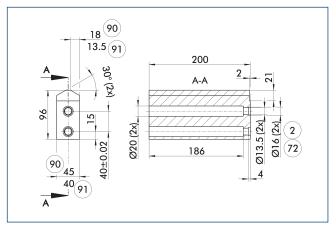
# Fields of application

Series	Size	Variant	Suitability			
PGN-plus-P	200	-1 (6 bar)				
PGN-plus-P	200	-1-AS / -1-IS (6 bar)				
PGN-plus-P	200	-2 (6 bar)				
PGN-plus-P	200	-2-AS / -2-IS (6 bar)	0000			
Legend						
	Can be combined without restrictions					
	Use with restrictions (see loading limits)					
	cannot be combine	d				

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 blanks ABR- / SBR-PGZN-plus 200

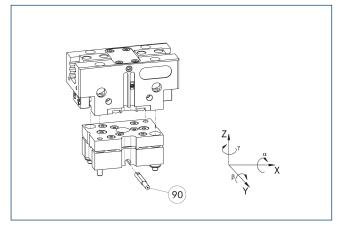


- 2 Finger connection
- 90 ABR-PGZN-plus
- 72) Fit for centering sleeves
- 91) SBR-PGZN-plus

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

Description	ID	Material	Scope of delivery
Finger blank			
ABR-PGZN-plus 200	0300015	Aluminum	1
SBR-PG7N-nlus 200	0300025	Steel	1

# Tolerance compensation unit TCU

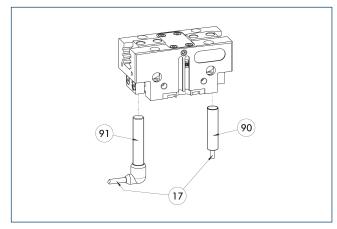


90 Monitoring of locking

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.

Description	ID	Locking	Deflection	Often combined
Compensation unit				
TCU-P-200-3-MV	0324864	yes	±1°/±2°/±1,5°	•
TCU-P-200-3-0V	0324865	no	±1°/±2°/±1,5°	

# **Inductive Proximity Switches**



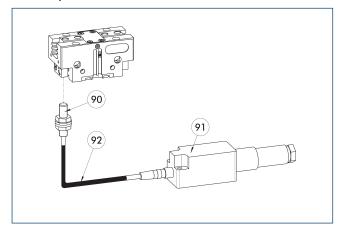
- 17) Cable outlet
- 91) Sensor IN..-SA
- 90 Sensor IN ...

Directly mounted end position monitoring.

Description	ID	Often combined
Inductive proximity switches		
IN 80-S-M12	0301578	
IN 80-S-M8	0301478	•
INK 80-S	0301550	
Inductive proximity switch with la	ateral cable ou	tlet
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 plug/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.

# Flexible position sensor



90 FPS-S sensor

92 Cable extension

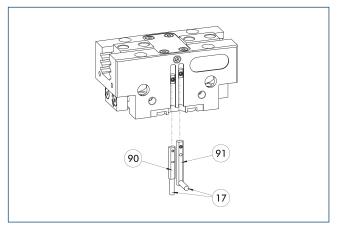
(91) FPS-F5 evaluation electronic

Flexible position monitoring of up to five positions.

Description	ID
Attachment kit for FPS	
AS-FPS-PGN-plus-P 200-1	1388827
AS-FPS-PGN-plus-P 200-2	1388829
Sensor	
FPS-S M8	0301704
Evaluation electronics	
FPS-F5	0301805
Cable extension	
KV BG08-SG08 3P-0050	0301598
KV BG08-SG08 3P-0100	0301599

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 ..-PI1-...-SA

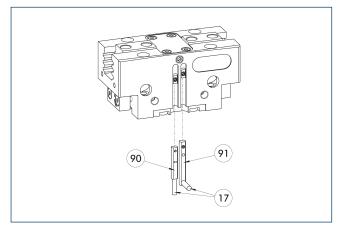
90 Sensor MMS 22 PI1-...

End position monitoring for mounting in the C-slot.

. 1		
Description	ID	Often combined
Electronic magnetic switch		
MMS 22-S-M8-PNP	0301032	•
MMSK 22-S-PNP	0301034	
Electronic magnetic switches with	lateral cable o	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 plug/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

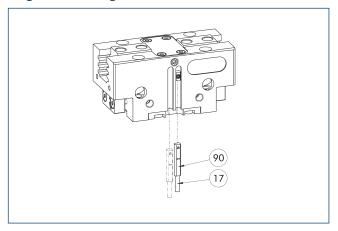
90 Sensor MMS 22 PI1-...

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) 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 c	able outlet
MMS 22-PI1-S-M8-PNP-SA	0301166	•
MMSK 22-PI1-S-PNP-SA	0301168	
Programmable magnetic switch	with stainles	s 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

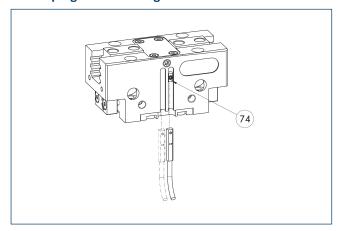
90 MMS 22...-PI2-... sensor

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.

Description	ID	Often combined
Programmable magnetic switch		
MMS 22-PI2-S-M8-PNP	0301180	•
MMSK 22-PI2-S-PNP	0301182	
Programmable magnetic switch	with lateral c	able outlet
MMS 22-PI2-S-M8-PNP-SA	0301186	•
MMSK 22-PI2-S-PNP-SA	0301188	
Programmable magnetic switch	with stainles	s steel housing
MMS 22-PI2-S-M8-PNP-HD	0301130	•
MMSK 22-PI2-S-PNP-HD	0301132	

① 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



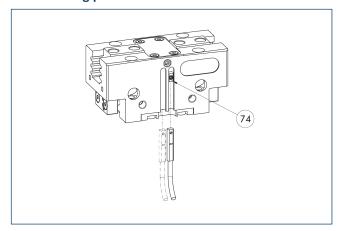
(74) Limit stop for sensor

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

ID	Often combined
h	
0301371	
0301370	•
0307767	•
0307768	
0307765	
0307766	
0301463	
0301380	
	h 0301371 0301370 0307767 0307768 0307765 0307766

① 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



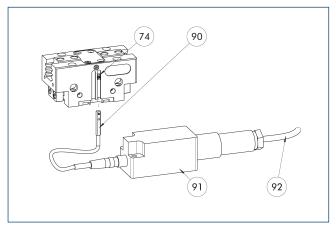
74 Limit stop for sensor

No-contact measuring, analog multi-position monitoring for any number of positions.

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

① 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. 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



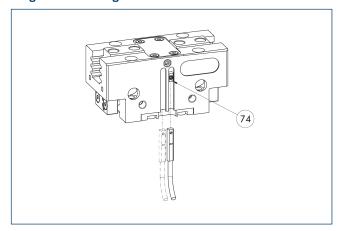
- (74) Limit stop for sensor
- (91) FPS-F5 evaluation electronic
- 90 MMS 22-A-... sensor
- **92** Connection cables

Flexible position monitoring of up to five positions.

Description	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, one MMS 22-A-05V as well as one evaluation electronics (FPS-F5) are required per each gripper, as well as an attachment kit (AS), if listed. On option, cable extensions (KV) are available – see catalog chapter "Accessories." The resolution of the sensor can be lower in the peripheral areas of the gripper. For further information on the product, see operating manual.

# Programmable magnetic switch MMS-I0-Link



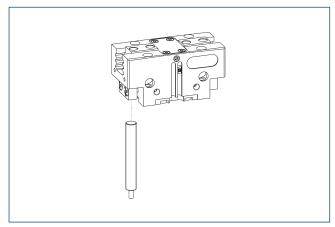
74) Limit stop for sensor

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.

Description	ID
Programmable mag	netic switch
MMS 22-I0L-M08	0315830
MMS 22-I0L-M12	0315835

① 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.

# APS-Z80 analog position sensor

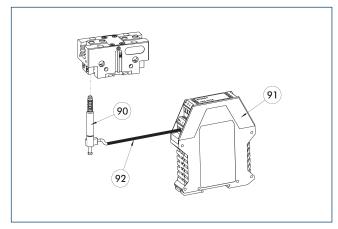


No–contact measuring, analog multi–position monitoring for any number of positions.

Description	ID	Often combined
Mounting kit for APS-Z80		
AS-APS-Z80-PGN-plus-P 200-1	1374183	
AS-APS-Z80-PGN-plus-P 200-2	1374184	
Analog position sensor		
APS-Z80-K	0302072	
APS-Z80-M8	0302070	•

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.

# APS-M1 analog position sensor



- 90 APS-M1S sensor
- **92** APS-K extension cable
- (91) APS-M1E electronic processor

Analog multi position monitoring for any desired positions

Description	ID
Mounting kit for APS-M1	
AS-APS-M1-PGN-plus-P 200-1	1374166
AS-APS-M1-PGN-plus-P 200-2	1374175
Analog position sensor	
APS-M1S	0302062
Connection cables	
APS-K0200	0302066
APS-K0700	0302068
Evaluation electronics	
APS-M1E	0302064

When using an APS system, for each gripper an attachment kit (AS-APS-M1), an APS-M1S sensor (incl. 3 m cable) as well as an electronics (APS-M1e) are required. An extension cable (APS-K) can be connected between the sensor and the electronics as an option. The max. cable length between the sensor and the electronics is 10 m, between the electronics and their control unit (PLC) it is max. 1 m.

Universal gripper



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