

Superior Clamping and Gripping



Product Information

Universal gripper PZN-plus 50

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













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.



- Housing
 is weight-optimized due to the use of high-strength
 aluminum alloy
- Wedge-hook design for high force transmission and centric gripping
- Sensor system
 Brackets for proximity switches and adjustable control cams in the housing
- 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

Scope of delivery: Brackets for proximity switches, centering sleeves, 0-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

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 proportio-

Repeat accuracy: is defined as a distribution of the end Position for 100 consecutive strokes.

nally to the nominal operating pressure.

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.

Cleanroom class ISO 14644-1:1999: 5

Application example

pressure maintenance valve SDV-P

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.

- Rotary feed-through DDF 2
- Quick-change system SWS
- 3 -finger centric gripper PZN-plus



Finger blank

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.

Inductive proximity switches

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

Magnetic switches

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

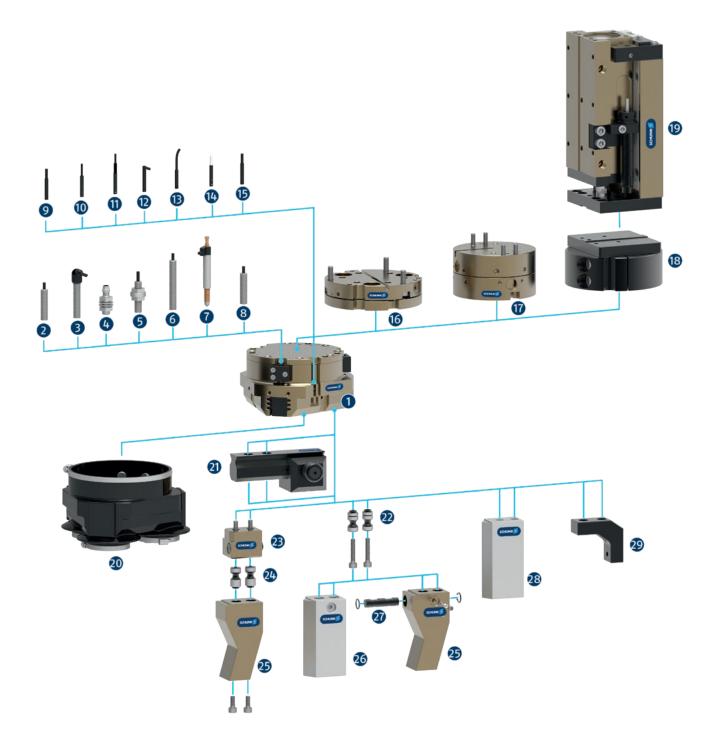
Additional versions: Various options can be combined with each other. **H1G compliant grease:** for use in the food and pharmaceutical industries

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

5

SCHUNK gripper PZN-plus

Overview Accessories



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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

IN ...-SA

Inductive proximity switch with molded cable and laberal cable outlet

4 IN-C 80

Inductive proximity switch, directly pluggable

G 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

APS-M1S

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

RMS

Reed switch in round version

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

1 MMS 22-PI1-HD

MMS 22-PI1 in robust design

MMS 22-PI2-HD

MMS 22-PI2 in robust design

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

B MMS-P

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

MMS 22-A

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

B 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

⊕ AGE

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

ASG

Adapter plate for combining various automation components in the modular system

™ CIM

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

4 HUE

Sleeve for protection against dirt

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/SBR

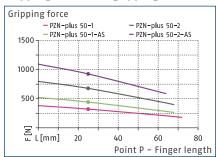
Finger blanks made of steel or aluminum with standardized screw connection diagram

ZBA

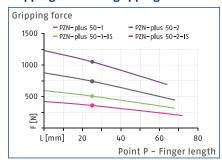
Intermediate jaws for reorientation of the mounting surface



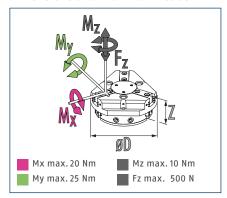
Gripping force O.D. gripping



Gripping force I.D. gripping



Dimensions and maximum loads



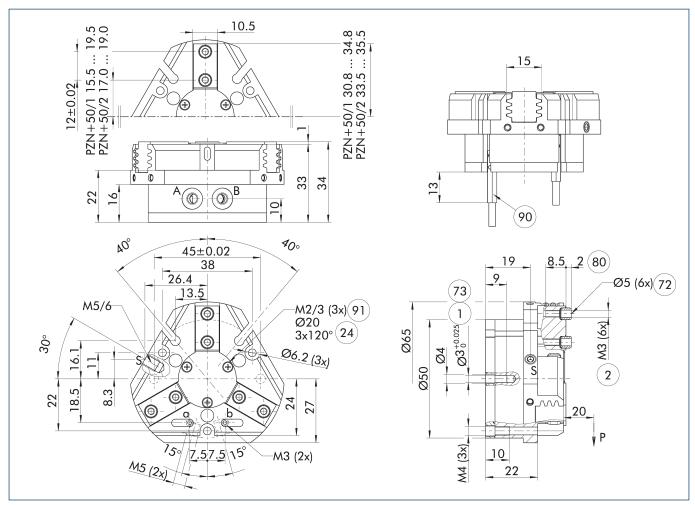
The indicated moments and forces are statical values, apply for each base jaw and may appear simultaneously. Loads may additionally occur to the moment produced by the gripping force itself.

Technical data

Description		PZN-plus 50-1	PZN-plus 50-2	PZN-plus 50-1-AS	PZN-plus 50-2-AS	PZN-plus 50-1-IS	PZN-plus 50-2-IS
ID		0303309	0303409	0303509	0303609	0303539	0303639
Stroke per jaw	[mm]	4	2	4	2	4	2
Closing/opening force	[N]	325/355	680/740	445/-	925/-	-/505	-/1050
Min. spring force	[N]			120	245	150	310
Weight	[kg]	0.27	0.27	0.35	0.35	0.35	0.35
Recommended workpiece weight	[kg]	1.65	3.4	1.65	3.4	1.65	3.4
Fluid consumption double stroke	[cm³]	9	9	18	18	18	18
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]	0.03/0.03	0.03/0.03	0.02/0.04	0.02/0.04	0.04/0.02	0.04/0.02
Closing/opening time with spring	[s]			0.08	0.08	0.08	0.08
Max. permissible finger length	[mm]	72	68	68	64	68	64
Max. permissible mass per finger	[kg]	0.18	0.18	0.18	0.18	0.18	0.18
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 Ø D x Z	[mm]	65 x 34	65 x 34	65 x 44.5	65 x 44.5	65 x 44.5	65 x 44.5
Options and their characteristics							
Dustproof version		37303309	37303409	37303509	37303609	37303539	37303639
IP protection class		64	64	64	64	64	64
Weight	[kg]	0.33	0.33	0.41	0.41	0.41	0.41
Corrosion-protected version		38303309	38303409	38303509	38303609	38303539	38303639
High-temperature version		39303309	39303409	39303509	39303609	39303539	39303639
Min./max. ambient temperature	[°C]	5/130	5/130	5/130	5/130	5/130	5/130
Power booster version		0372200	0372210	0372220		0372240	
Closing/opening force	[N]	460/505	970/1050	560/-		-/631	
Weight	[kg]	0.38	0.38	0.46		0.46	
Maximum pressure	[bar]	6	6	6		6	
Max. permissible finger length	[mm]	64	50	50		50	
Precision version		0303339	0303439	0303489	0303589		

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

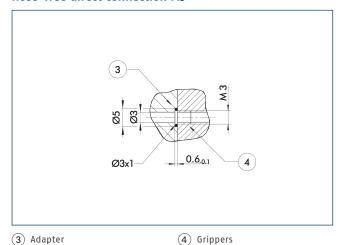


The drawing shows the gripper in the basic version with closed jaws, without dimensional consideration of the options described below.

- 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
- 24) Bolt circle

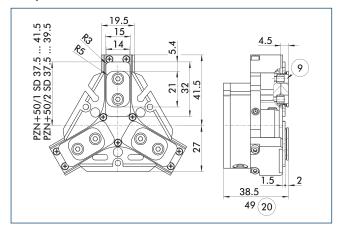
- (72) Fit for centering sleeves
- (73) Fit for centering pins
- 80 Depth of the centering sleeve hole in the counter part
- 90 Sensor MMS 22...
- (91) Thread below the cover for fastening external attachments

Hose-free direct connection M3



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

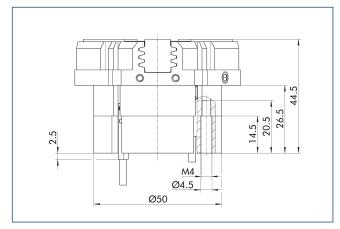
Dustproof version



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

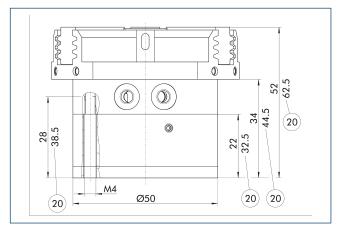
The "dustproof" option increases the degree of protection against penetrating substances. The assembly diagram shifts by the height of the intermediate jaw. The finger length is still measured from the upper edge of the gripper housing.

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.

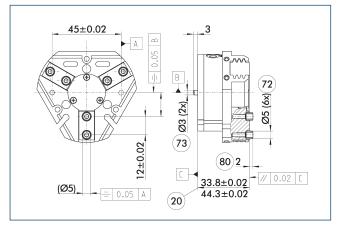
Power booster version



20 For AS / IS version

The KVZ cylinder increases the gripping forces during opening and closing. A second, in series-connected piston also increases the force on the wedge hook. Please consider that grippers which are equipped with a gripping force maintenance device are higher.

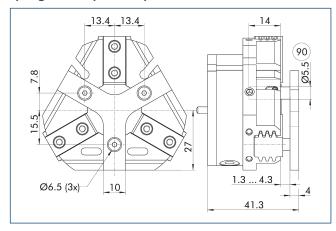
Precision version



- 20 For AS / IS version
- (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.

Spring-loaded pressure piece



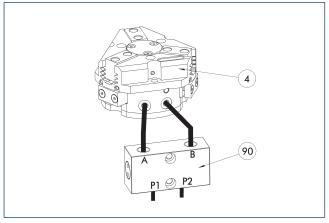
90 Guide pin

For spring-supported positioning of the workpiece against a stop after the gripper has opened. Especially developed for loading machines.

Description	ID	Stroke	Min. force	
		[mm]	[N]	
Spring-loaded pressure piece				
A-PZN-plus 50	0303719	3	12	

The pressure piece cannot be combined with the dustproof option. Please contact us if you require a customized pressure piece.

SDV-P pressure maintenance valve



(4) Grippers

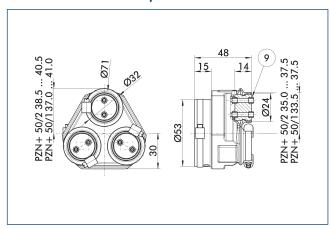
90 SDV-P pressure maintenance

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 04	0403130	6		
Pressure maintenance valve with air bleed screw				
SDV-P 04-E	0300120	6		

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.

Protective cocer HUE PZN-plus 50

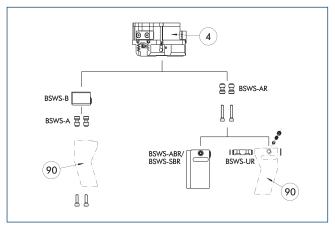


9 For mounting screw connection diagram, see basic version

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.

Description	ID	IP protection class
Protection cover		
HUE PZN-plus 50	0303479	65

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				
Jaw quick-change system ada	Jaw quick-change system adapter pin					
BSWS-A 50	0303020	2				
BSWS-AR 50	0300091	2				
Quick-change jaw system base	9					
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				

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

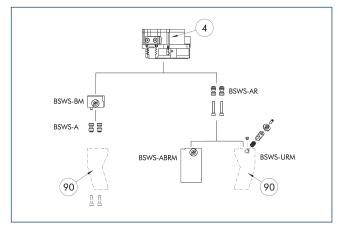
Fields of application

Series	Size	Variant	Suitability		
PZN-plus	50	-1 (6 bar)			
PZN-plus	50	-1-AS / -1-IS (6 bar)			
PZN-plus	50	-2 (6 bar)			
PZN-plus	50	-2-AS / -2-IS (6 bar)			
PZN-plus	50	KVZ (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				
Jaw quick-change system adapter pin						
BSWS-A 50	0303020	2				
BSWS-AR 50	0300091	2				
Quick-change jaw system base						
BSWS-BM 50	1313899	1				
Jaw quick-change system finger blank						
BSWS-ABRM-PGZN-plus 50	1420850	1				
Jaw quick-change system locking mechanism						
BSWS-URM 50	1380614	1				

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

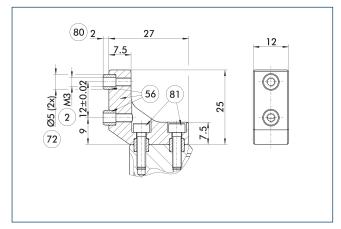
Fields of application

Series	Size	Variant	Suitability		
PZN-plus	50	-1 (6 bar)			
PZN-plus	50	-1-AS / -1-IS (6 bar)			
PZN-plus	50	-2 (6 bar)			
PZN-plus	50	-2-AS / -2-IS (6 bar)			
PZN-plus	50	KVZ (6 bar)			
Legend					
	Can be combined without restrictions				
	Use with restrictions (see loading limits)				
0000	cannot be combine	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

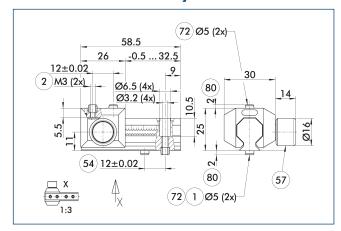


- 2 Finger connection
- (56) Included in the scope of delivery
- 72) Fit for centering sleeves
- 80 Depth of the centering sleeve hole in the counter part
- 81) Not included in the scope of delivery

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.

Description	ID		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.

3				
Description ID		Grid dimension		
		[mm]		
Universal intermediate	jaw			
UZB 50	0300041	1.5		
Finger blank				
ABR-PGZN-plus 50	0300009			
SBR-PGZN-plus 50	0300019			

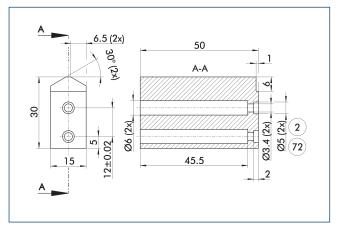
Fields of application

Series	Size	Variant	Suitability		
PZN-plus	50	-1 (6 bar)			
PZN-plus	50	-1-AS / -1-IS (6 bar)			
PZN-plus	50	-2 (6 bar)	0000		
PZN-plus	50	-2-AS / -2-IS (6 bar)	0000		
PZN-plus	50	KVZ (6 bar)	0000		
Legend					
	Can be com	Can be combined without restrictions			
	Use with res	Use with restrictions (see loading limits)			
0000	cannot be c	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



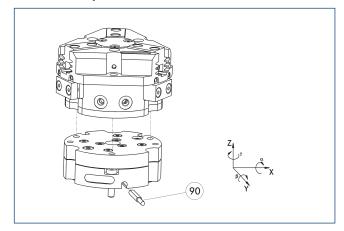
(2) Finger connection

72) Fit for centering sleeves

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

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

Tolerance compensation unit TCU

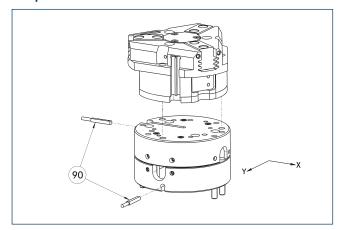


90 Monitoring of locking

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
Compensation unit			
TCU-Z-050-3-0V	0324749	no	±1°/±1°/±1,5°

Compensation unit AGE-F

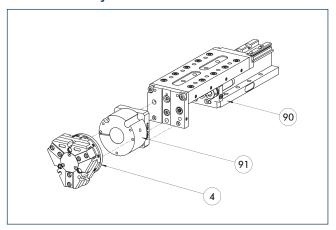


90 Monitoring

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

Description	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	•

Modular Assembly Automation



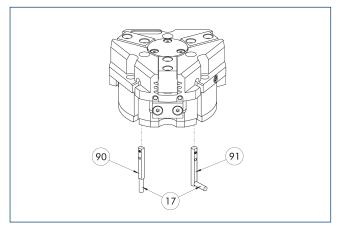
(4) Grippers

(91) ASG adapter plate

90 CLM/KLM/LM/ELP/ELM/ELS/HLM linear modules

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



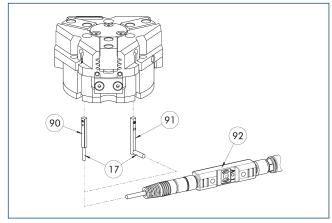
- (17) Cable outlet
- 91) Sensor MMS 22...-SA
- 90 Sensor MMS 22..

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 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



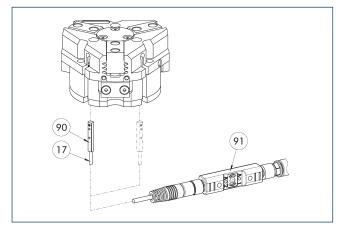
- (17) Cable outlet
- 91) Sensor MMS 22 ..-PI1-...-SA
- 90 Sensor MMS 22 PI1-...
- 92 Connector teaching tool ST

Position monitoring with one programmable switching point per sensor, directly mountable in the C-slot. The electronics are built into the sensor. The cable outlet can be located either axially or laterally (MMS 22...-SA). Programmed using the plug teaching tool ST (to be ordered separately).

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		
Plug teaching tool			
ST-MMS 22-PI1-PNP	0301025		

 $\ensuremath{\textcircled{\textcircled{\P}}}$ Two sensors (closer/S) are required for each unit and extension cables are available as an option.

Programmable magnetic switch MMS 22-PI2



17 Cable outlet

(91) Connector teaching tool ST

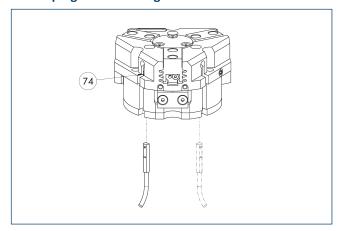
90 MMS 22...-PI2-... sensor

Position monitoring with two programmable switching points per sensor, mountable directly in the C-slot. The electronics are built into the sensor. Programmed using the plug teaching tool ST (to be ordered separately).

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 stainless	s steel housing	
MMS 22-PI2-S-M8-PNP-HD	0301130	•	
MMSK 22-PI2-S-PNP-HD	0301132		
Plug teaching tool			
ST-MMS 22-PI2-PNP	0301026		

Per unit, at least one sensor (closer/S) and an optional cable extension are required. A maximum of one sensor per C-slot or sensor bracket can be mounted.

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.

Description	ID	Often combined
Programmable magnetic switc	h	
MMSK-P 22-S-PNP	0301371	
MMS-P 22-S-M8-PNP	0301370	•
Connection cables		
KA GLN0804-LK-00500-A	0307767	•
KA GLN0804-LK-01000-A	0307768	
KA WLN0804-LK-00500-A	0307765	
KA WLN0804-LK-01000-A	0307766	
clip for plug/socket		
CLI-M8	0301463	
Sensor distributor		
V2-M8-4P-2XM8-3P	0301380	

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.

Universal gripper



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