

PZN-plus

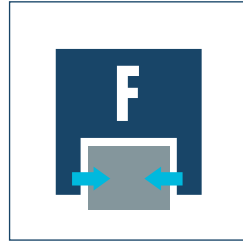
Pneumatic • 3-Finger Centric Gripper • Universal Gripper



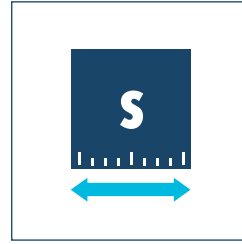
Sizes
40 ... 300



Weight
0.13 kg ... 46 kg



Gripping force
255 N ... 35500 N

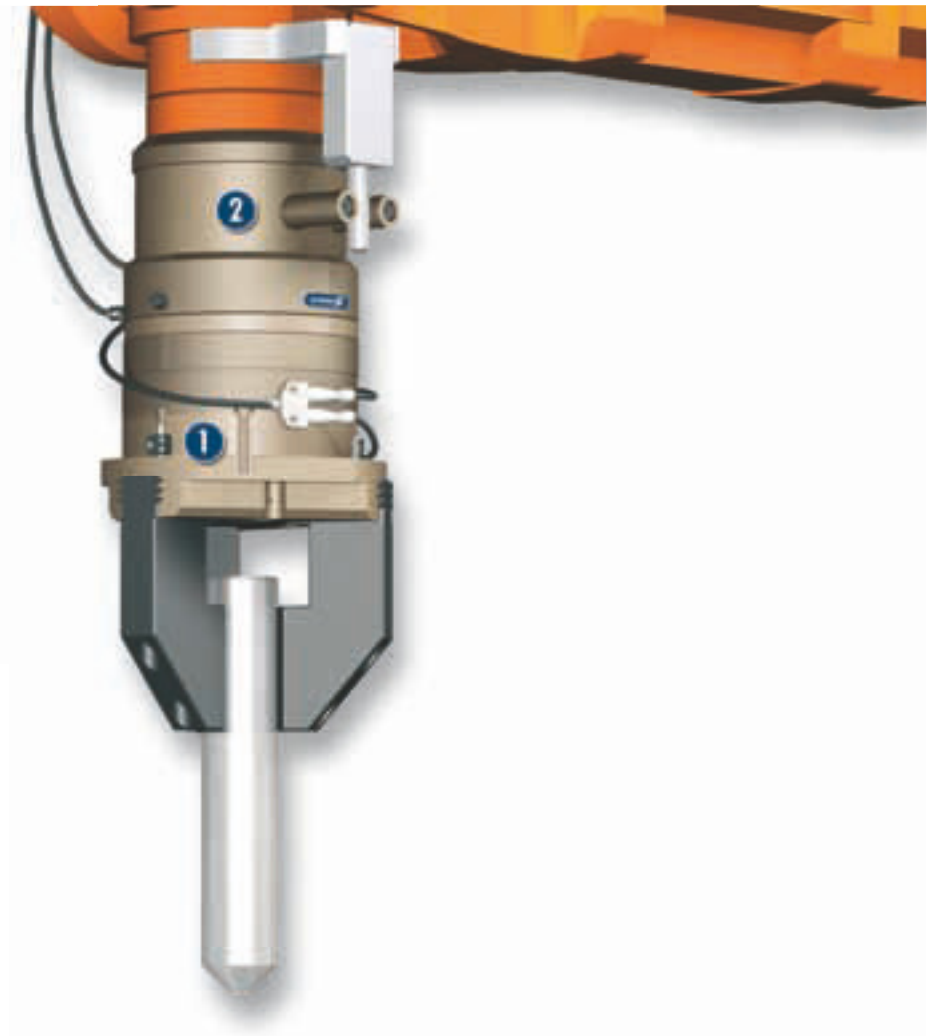


Stroke per finger
2 mm ... 35 mm



Workpiece weight
1.3 kg ... 127.5 kg

Application example



Insertion tool for assembling small to medium-sized axles. Thanks to the rotary feed-through, the axles can be turned several times to an unlimited extent ($> 360^\circ$). Slip ring contacts integrated in the rotary feed-through reliably supply the gripper with power.

- 1 3-Finger Centric Gripper PZN-plus
- 2 Rotary feed-through DDF

Universal Gripper

universal Concentric Gripper with high gripping force and maximum moments thanks to multi-tooth guidance

Field of application

Multi-purpose thanks to the 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).

Your advantages and 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 the flexible supply of compressed air in all automation systems

Comprehensive sensor accessory program

for versatile interrogation possibilities and control of stroke position

Manifold options

for perfect adaption to your case of application (dust protection, high temperature, anti-corrosion and many more)



General note to the series

Principle of function

Wedge-hook kinematics

Housing material

Aluminum alloy, hard-anodized

Base jaw material

Steel

Actuation

pneumatic, with filtered compressed air (10 microns): dry, lubricated or non-lubricated

Pressure medium: Required quality class of compressed air according to

DIN ISO 8573-1: 6 4 4

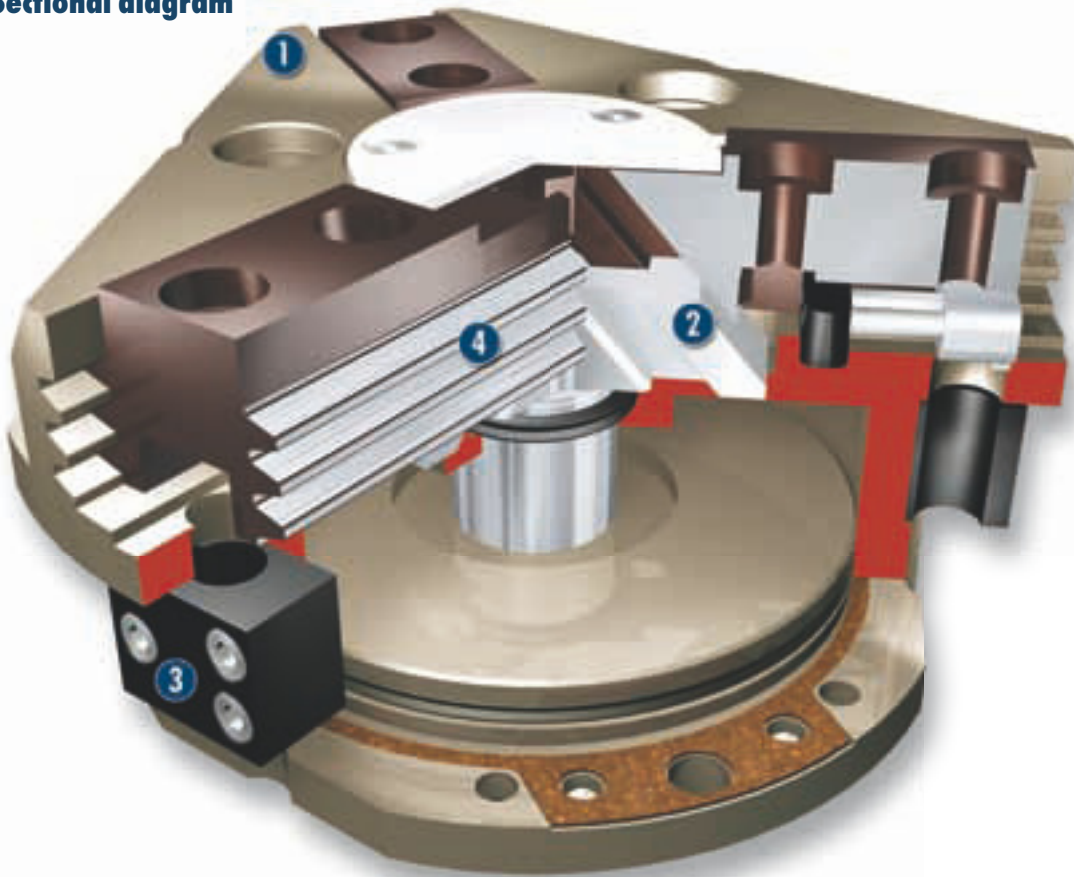
Warranty

36 months (details, general terms and conditions and operation manuals can be downloaded under www.schunk.com)

Scope of delivery

Brackets for proximity switches, centering sleeves, O-rings for direct connection, assembly and operating manual with manufacturer's declaration

Sectional diagram



- 1 Housing**
weight-optimized through application of hard-anodized, high-strength aluminum alloy
- 2 Wedge-hook design**
for high power transmission and centric gripping

- 3 Sensor system**
Brackets for proximity switches and adjustable control cams in the housing
- 4 Multiple-tooth guidance**
precise gripping through base jaw guidance with a high load capacity and a minimum play

Functional description

The piston is moved up and down by compressed air. Through its angled active surfaces, the wedge hook transforms this movement into the lateral, synchronous gripping movement of both base jaws.

Options and special information

Dust-protection version

Absolutely sealed, increased degree of protection against the ingress of materials, for use in dusty environments

Anti-corrosion version

for use in corrosion-inducing atmospheres

High-temperature version

for use in hot environments

Force intensified version

if higher gripping forces are required

Accessories

Accessories from SCHUNK – the suitable supplement for maximum functionality, reliability and performance of all automation modules.

Sensor system



Fittings



Universal intermediate jaw



Compensation unit



Protection cover



Sensor cables



Quick-change Jaw System



Sensor Distributor



Pressure maintenance valve



Finger blanks



Force measuring jaws



Analog position sensor



Flexible Position Sensor



① For the exact size of the required accessories, availability of this size and the designation and ID, please refer to the additional views at the end of the size in question. You will find more detailed information on our accessory range in the "Accessories" catalog section.

General note to the series

Gripping force

is the arithmetic total of the gripping force applied to each finger at distance P (see illustration) measured from the upper edge of the gripper.

Finger length

The finger length is measured from the upper edge of the gripper housing in the direction of the main axis.

Repeat accuracy

is defined as the spread of the limit position after 100 consecutive strokes.

Workpiece weight

The recommended workpiece weight is calculated for a force-type connection with a coefficient of friction of 0.1 and a safety factor of 2 against slippage of the workpiece on acceleration due to gravity g. Considerably heavier workpiece weights are permitted with form-fit gripping.

Closing and opening times

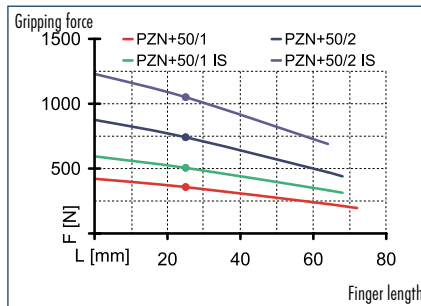
Closing and opening times are purely the times that the base jaws or fingers are in motion. Valve switching times, hose filling times or PLC reaction times are not included in the above times and must be taken into consideration when determining cycle times.

PZN-plus 50

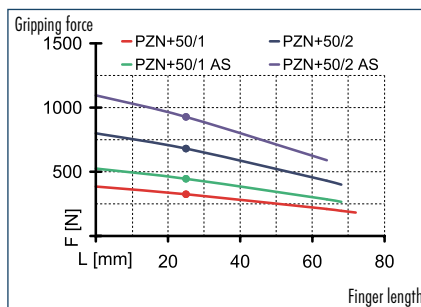
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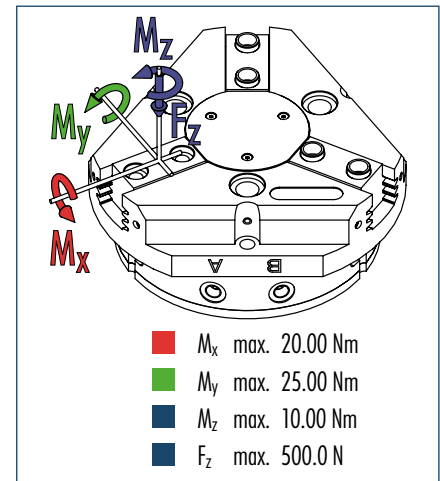
Gripping force, I.D. gripping



Gripping force, O.D. gripping



Finger load



① The indicated moments and forces are static values, apply per base jaw and may occur simultaneously. M_y may arise in addition to the moment generated by the gripping force itself. If the max. permitted finger weight is exceeded, it is imperative to throttle the air pressure so that the jaw movement occurs without any hitting or bouncing. Service life may be reduced.

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 finger [mm]	4	2	4	2	4	2
Closing force [N]	325	680	445	925		
Opening force [N]	355	740			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
Air consumption per double stroke [cm ³]	9	9	18	18	18	18
Min./max. operating pressure [bar]	2/8	2/8	4/6.5	4/6.5	4/6.5	4/6.5
Nominal operating pressure [bar]	6	6	6	6	6	6
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
Max. permitted finger length [mm]	72	68	68	68	64	64
Max. permitted weight per finger [kg]	0.18	0.18	0.18	0.18	0.18	0.18
IP class	40	40	40	40	40	40
Min./max. ambient temperature [°C]	-10/90	-10/90	-10/90	-10/90	-10/90	-10/90
Repeat accuracy [mm]	0.01	0.01	0.01	0.01	0.01	0.01
Cleanroom class						
ISO-classification 14644-1	5	5	5	5	5	5

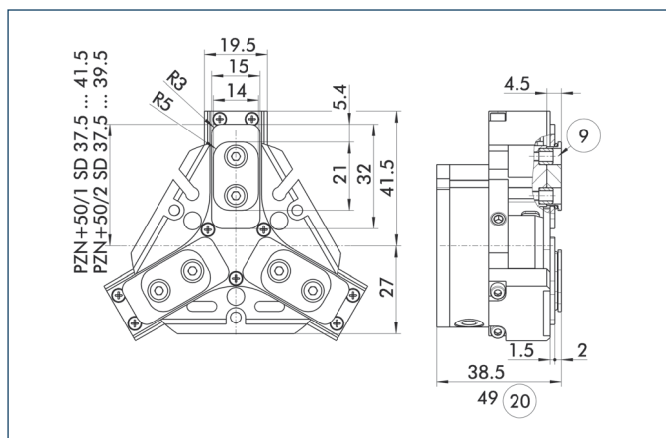
OPTIONS and their characteristics

Dust-protection version	37303309	37303409	37303509	37303609	37303539	37303639
IP class	64	64	64	64	64	64
Weight [kg]	0.33	0.33	0.41	0.41	0.41	0.41
Anti-corrosion version	38303309	38303409	38303509	38303609	38303539	38303639
High-temperature version	39303309	39303409	39303509	39303609	39303539	39303639
Min./max. ambient temperature [°C]	-10/130	-10/130	-10/130	-10/130	-10/130	-10/130
Force intensified version	PZN-plus 50-1-KVZ	PZN-plus 50-2-KVZ	PZN-plus 50-1-AS-KVZ		PZN-plus 50-1-IS-KVZ	
ID	0372200	0372210	0372220		0372240	
Closing force [N]	520	1090	640			
Opening force [N]	570	1185			720	
Weight [kg]	0.38	0.38	0.46		0.46	
Maximum pressure [bar]	8	8	6		6	
Max. permitted finger length [mm]	64	50	50		50	
Precision version	0303339	0303439	0303489	0303589		

PZN-plus 50

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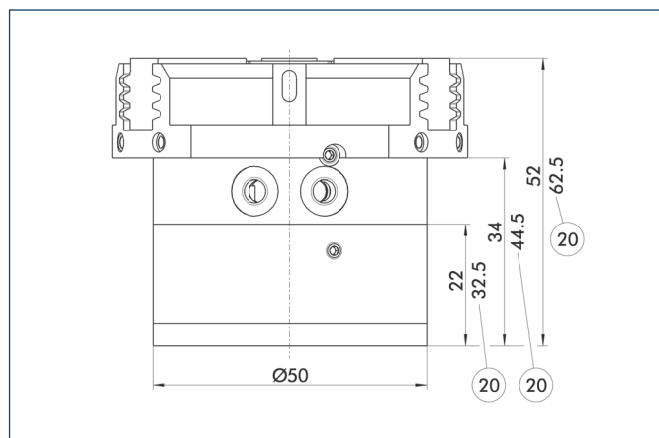
Dust-protection version



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

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

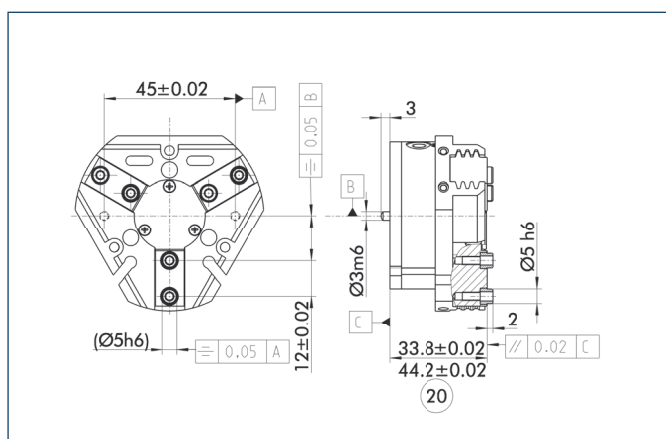
Force intensified version



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. The full gripping force shown in the data table is sometimes only reached after a few hundred gripping cycles. Please consider that grippers which are equipped with a gripping force maintenance device (AS / IS) are higher.

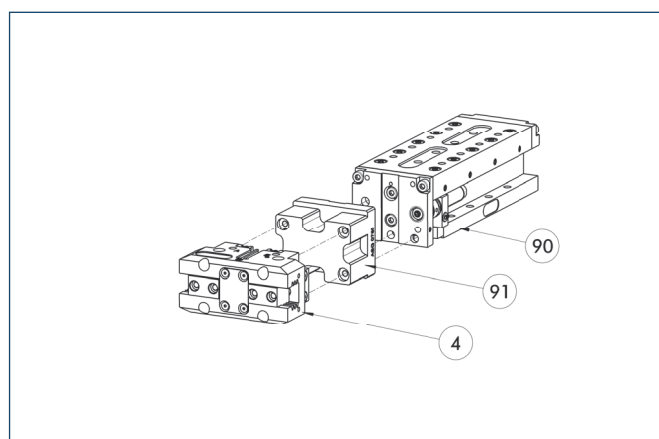
Precision version



⑳ For AS / IS version

The indicated tolerances just refer to the types of precision versions shown in the chart of technical specifications. All other types of precision versions are available on request.

Modular Assembly Automation

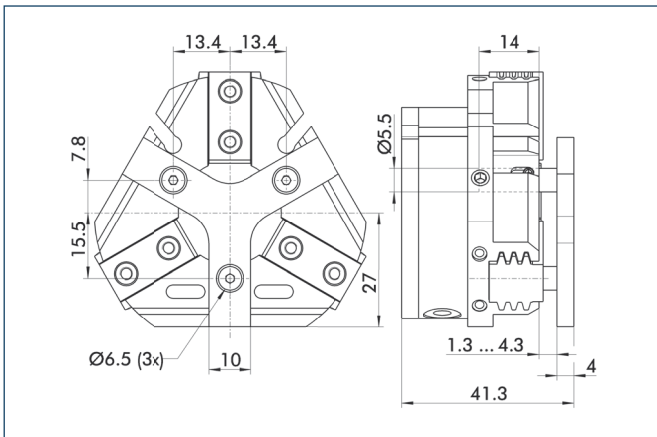


④ Gripper
⑨⑩ CLM

⑨① ASG

This gripper can be combined with the standard linear modules LM, KLM, CLM and ELM of the GEMOTEC modular system. For more information see our main catalog "Modular Assembly Automation".

Spring-loaded pressure piece

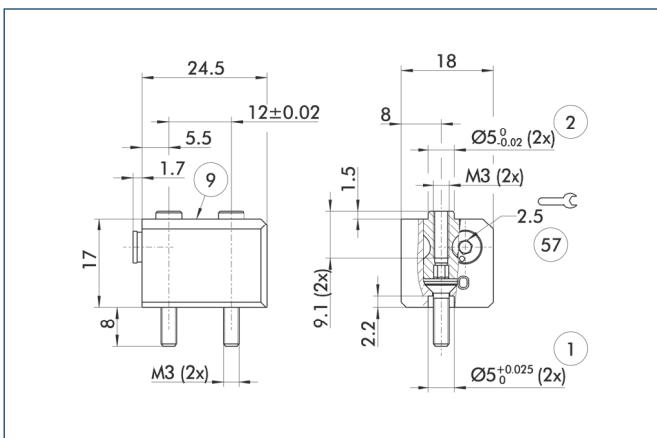


For spring-supported positioning of the workpiece against a stop after the gripper has opened. Especially developed for loading machines.

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

① The pressure piece cannot be combined with the dust-protection version. Please contact us if you require a special pressure piece.

Quick-change Jaw System



- ① Gripper connection
- ② Finger connection
- ⑨ For mounting screw connection diagram, see basic version
- ⑤7 Locking

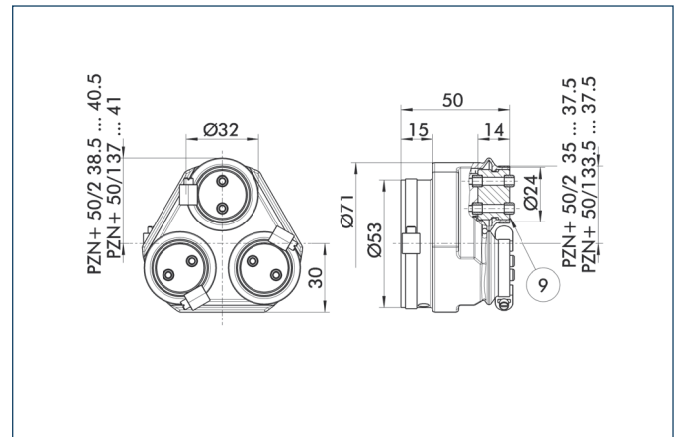
The BSWs quick-change jaw system enables top jaws to be changed on the gripper manually and rapidly. An adapter (BSWS-A) and a base (BSWS-B) are required for each gripper jaw.

For a reverse assembly without height set-up, one adapter (BSWS-A) and a kit (BSWS-U) per gripper jaw are required. Another effect of the BSWS-U is, that there are no disturbing fastening bores in the finger contour.

Description	ID
Quick-change Jaw System adapter	
BSWS-A 50	0303020
Quick-change Jaw System base	
BSWS-B 50	0303021
Quick-change Jaw System reversed	
BSWS-U 50	0303040

You can find more detailed information and individual parts of the above-mentioned accessories in the "Accessories" catalog section.

Protection cover

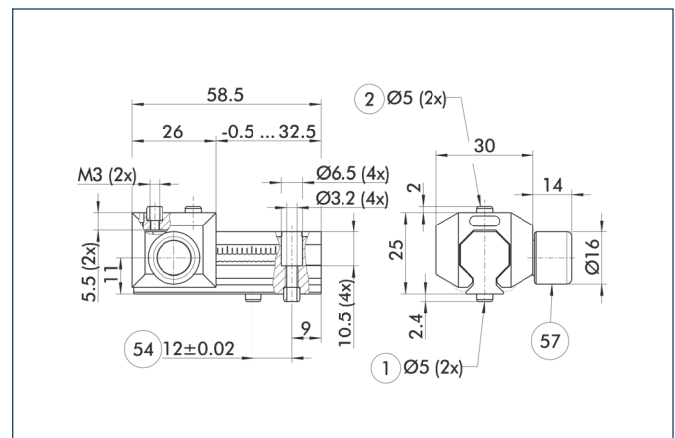


⑨ For mounting screw connection diagram, see basic version

The HUE protective cover completely protects the gripper against external influences up to IP65 if an additional sealing of the cover bottom is provided as part of the application. The mounting diagram shifts by the height of the intermediate jaw.

Description	ID	Cleanroom class ISO-classification 14644-1
Protection cover		
HUE PZN-plus 50	0303479	2

Universal intermediate jaw



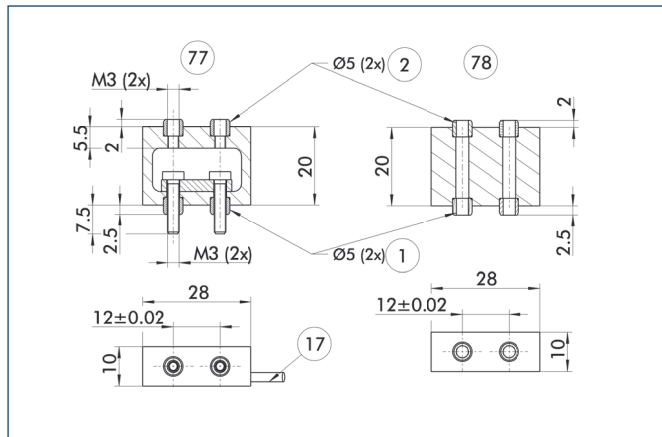
- ① Gripper connection
- ② Finger connection
- ⑤4 Optional right or left connection
- ⑤7 Locking

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

Description	ID	Grid dimension
Universal intermediate jaw		
UZB 50	0300041	1.5 mm

① The slide UZB-S can be removed completely and has to be ordered separately. Moreover, it allows a fast jaw change.

Force measuring jaws

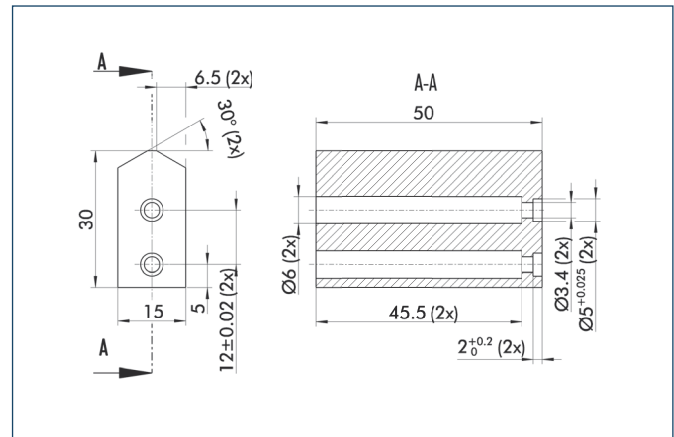


- ① Gripper connection
- ② Finger connection
- ⑦ Active intermediate jaws
- ⑧ Passive intermediate jaws
- ⑰ Cable outlet

Force measuring jaws measure gripping forces, but can also determine workpiece weights or dimensional deviations. There are active and passive intermediate jaws (FMS-ZBA or FMS-ZBP). At least one active force measuring jaw is required per gripper, the rest can be passive. For each active jaw, a FMS-A1 control unit and a FMS-A connection cable are required.

Description	ID
Active intermediate jaws	
FMS-ZBA 50	0301830
Passive intermediate jaws	
FMS-ZBP 50	0301831
Electronic Processor	
FMS-A1	0301810
Connection cables	
FMS-AK0200	0301820
FMS-AK0500	0301821
FMS-AK1000	0301822
FMS-AK2000	0301823

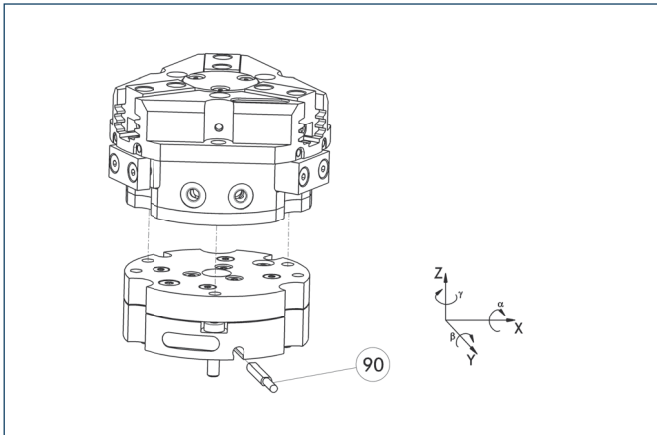
Finger blanks



Finger blanks for customized subsequent machining

Description	ID	Material	Scope of delivery
Finger blanks			
ABR-plus 50	0300009	Aluminum	1
SBR-plus 50	0300019	16 MnCr 5	1

Tolerance compensation unit

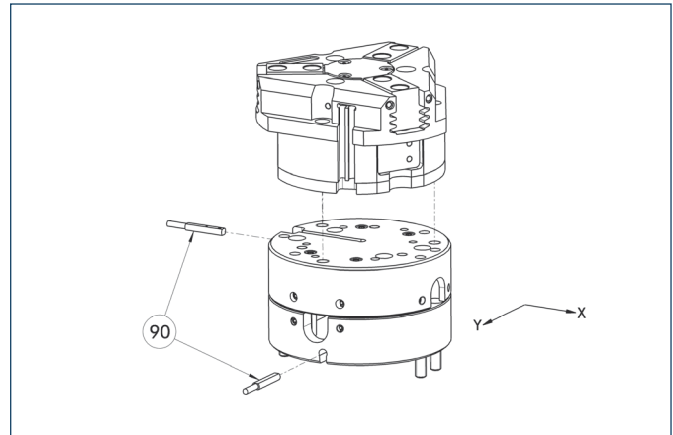


90 Monitoring of locking

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 see catalog "Robot Accessories".

Description	ID	Locking	Deflection
Compensation unit			
TCU-050-3-0V-Z	0324749	No	

Compensation unit with spring reset

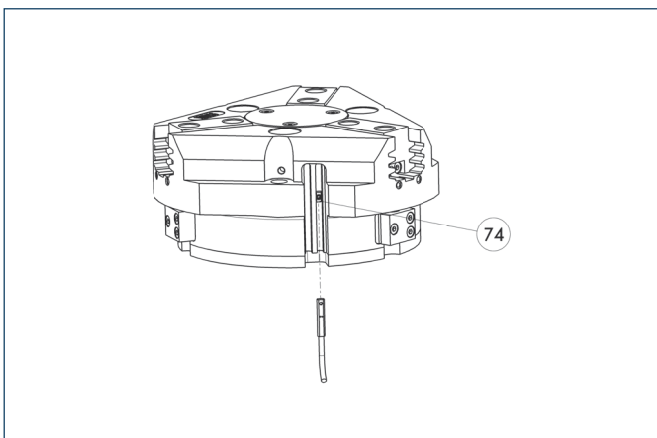


90 Monitoring

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

Description	ID	Compensation travel	Reset force
Compensation unit			
AGE-F-XY-040-1	0324920	±2 mm	1 N
AGE-F-XY-040-2	0324921	±2 mm	2.5 N
AGE-F-XY-040-3	0324922	±2 mm	3.3 N

Programmable magnetic switch



74 Stop for MMS-P

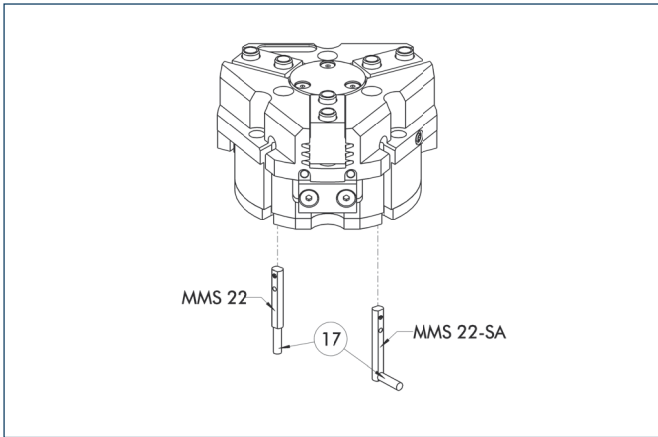
Position monitoring with two programmable positions per sensor. The end position monitoring is mounted in the C-slot.

Description	ID	Recommended product
Programmable magnetic switch		
MMS-P 22-S-M8-PNP	0301370	•
MMSK-P 22-S-PNP	0301371	
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	

① Please note the minimum permitted bending radii for the sensor cables, which are generally 35 mm.

① Per gripper one sensor (closer/NO) is required, optionally a cable extension.

Electronic magnetic switches



17 Cable outlet

End position monitoring for mounting in the C-slot

Description	ID	Recommended product
Electronic magnetic switches		
MMS 22-S-M5-PNP	0301438	
MMS 22-S-M5-NPN	0301439	
MMS 22-S-M8-PNP	0301432	•
MMS 22-S-M8-NPN	0301433	
MMSK 22-S-PNP	0301434	
MMSK 22-S-NPN	0301435	
Electronic magnetic switches with lateral cable outlet		
MMS 22-S-M5-PNP-SA	0301448	
MMS 22-S-M5-NPN-SA	0301449	
MMS 22-S-M8-PNP-SA	0301442	•
MMS 22-S-M8-NPN-SA	0301443	
MMSK 22-S-PNP-SA	0301444	
MMSK 22-S-NPN-SA	0301445	
Connection cables		
KA BG05-L 3P-0300	0301652	
KA BG08-L 3P-0300-PNP	0301622	
KA BG08-L 3P-0500-PNP	0301623	
KA BW05-L 3P-0300	0301650	
KA BW08-L 3P-0300-NPN	0301602	
KA BW08-L 3P-0300-PNP	0301594	
KA BW08-L 3P-0500-NPN	9641116	
KA BW08-L 3P-0500-PNP	0301502	
Cable extensions		
KV BW08-SG08 3P-0030-PNP	0301495	
KV BW08-SG08 3P-0100-PNP	0301496	
KV BW08-SG08 3P-0200-PNP	0301497	

① Two sensors (closer/NO) are required for each gripper, plus extension cables as an option.

① Please note the minimum permitted bending radii for the sensor cables, which are generally 35 mm.

You can find more detailed information and individual parts of the above-mentioned accessories in the "Accessories" catalog section.