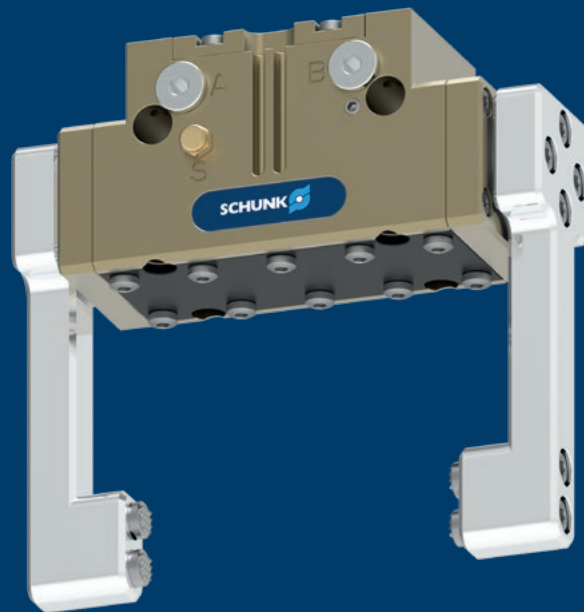




Hand in hand for tomorrow



Product data sheet

Sealed universal gripper DPG-plus 50

DPG-plus

Sealed universal gripper

Reliable. Fully encapsulated. Loadable.

Sealed DPG-plus gripper

Dense 2-finger parallel gripper that meets the requirements of IP67 and does not allow substances to enter the working environment

Field of application

The gripper is ideally suitable for handling of rough or dirty workpieces. Its field of application extends from the loading and unloading of machines, such as in the case of sanitary blocks, grinding machines, lathes or milling machines, to handling tasks in painting plants, in powder-processing or underwater.

Advantages – Your benefits

Robust interior multi-tooth guidance for the precise handling of different workpieces

Lip seal at the outside round guidance for permanent, secure gripper sealing

High maximum moments possible suitable for using long gripper fingers

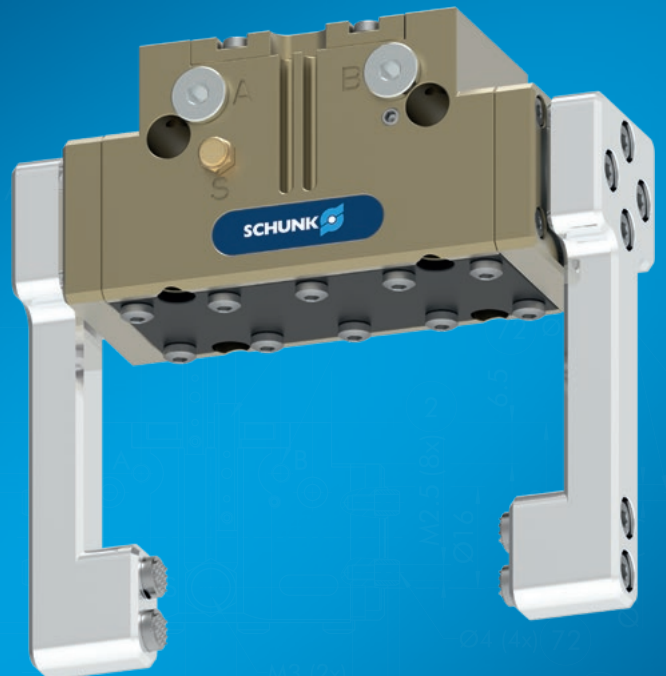
Sealed 2-Finger Parallel Gripper complies to IP67 requirements despite a high moment load

Drive concept oval piston 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 flexible pressure supply in all automated systems

Compact dimensions for minimal interfering contours in handling



Sizes
Quantity: 11



Weight
0.12 .. 52 kg



Gripping force
110 .. 11250 N



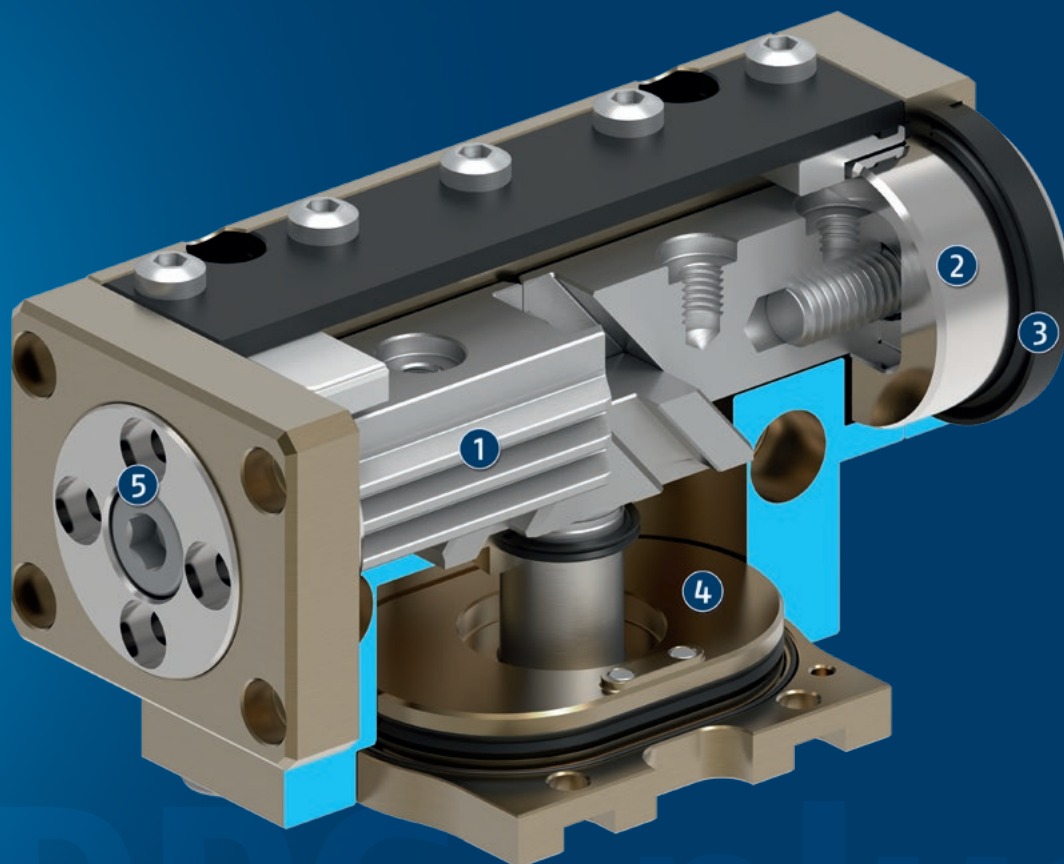
Stroke per jaw
2 .. 45 mm



Workpiece weight
0.55 .. 46.35 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 **Inner base jaw with multi-tooth guidance**
for high moment loads

② **External round base jaw**
providing a sealable, round surface

③ **Lip seal**
for permanent, secure gripper sealing

④ **Oval piston with rod and wedge-hook**
for power generation and transmission

⑤ **Centering and mounting possibilities**
for universal assembly of the gripper

General notes about the series

Operating principle: Wedge-hook kinematics

Housing material: Aluminum alloy, anodized

Base jaw material: Steel

Actuation: pneumatic, with filtered compressed air as per ISO 8573-1:2010 [7:4:4].

Warranty: 36 months

Service life characteristics: on request

Scope of delivery: Centering sleeves, O-rings for direct connection, assembly instructions (operating manual with declaration of incorporation is available online)

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

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.

Note – tightness: Please note that to achieve an IP 67 protection class, the gripper requires an additional hose for ventilation or a switchable air purge connection. For detailed information, please refer to the assembly and operating manual. Alternatively, a sinter filter (supplied) mounted on the air purge connection can prevent the penetration of dirt particles > 0.12 mm. However, this reduces the protection class to IP 54.

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

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

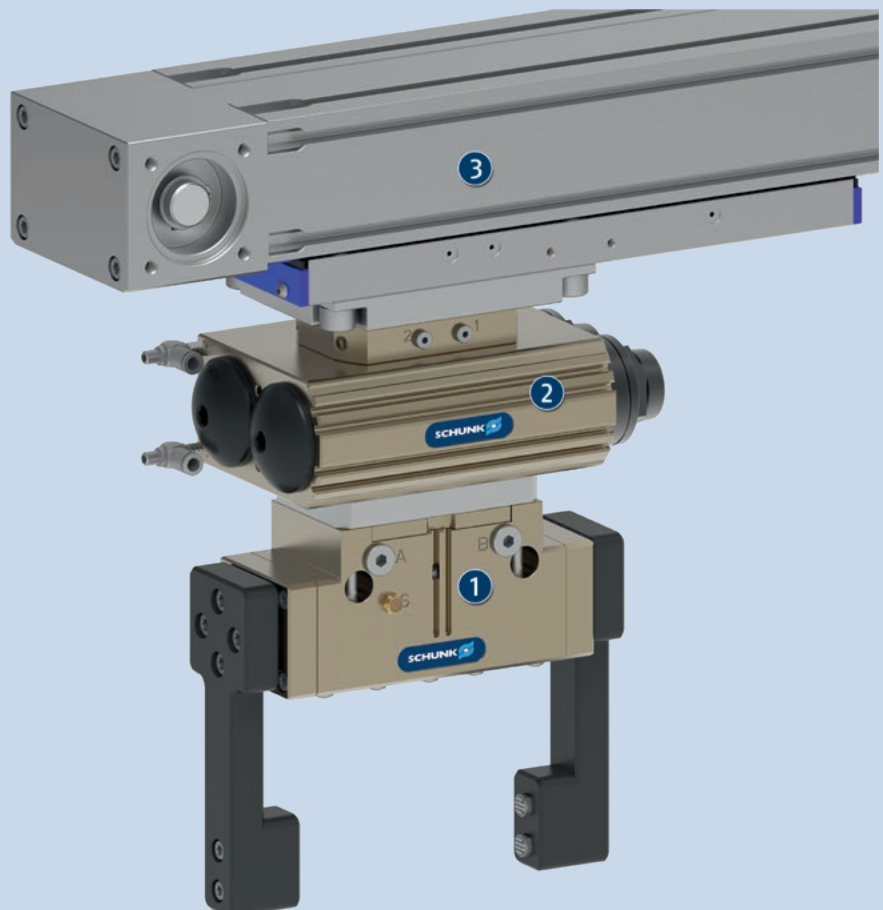
Workpiece weight: is calculated for force-fit gripping with a coefficient of static friction of 0.1 and a safety factor of 2 against workpiece slippage at acceleration due to gravity g. For form-fit or capture gripping, there are significantly higher permissible workpiece weights.

Closing and opening times: are movement times of the base jaws only, without application-specific gripper fingers. Valve switching times, hose fill times, or PLC reaction times are not included, and are to be considered when cycle times are calculated.

Application example

Sealed and extremely robust swivel gripper combination for the use in harsh environments such as foundries, grinding shops or forges.

- ❶ 2-finger parallel gripper with top fingers equipped with carbide clamping inserts DPG-plus
- ❷ Swivel Unit SRU-plus in tight IP67 standard version
- ❸ Universal linear module Beta

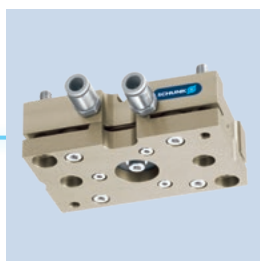


SCHUNK offers more ...

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



Compensation unit



Tolerance compensation unit



Manual change system



Pressure maintenance valve



Magnetic switches



Jaw quick-change system



Intermediate jaw



Universal intermediate jaw

① For more information on these products can be found on the following product pages or at [schunk.com](https://www.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/IS version this acts as a closing force, in the IS version as an opening force.

Power booster version KVZ: if higher gripping forces are required

ATEX version EX: for explosive environments

Additional versions: Various options can be combined with each other. Numerous additional options are also available – just tell us what your task is!

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

Please note that to achieve an IP 67 protection class, the gripper requires an additional hose for ventilation or a switchable air purge connection. For detailed information, please refer to the assembly and operating manual. Alternatively, a sinter filter (supplied) mounted on the air purge connection can prevent the penetration of dirt particles > 0.12 mm. However, this reduces the protection class to IP 54.

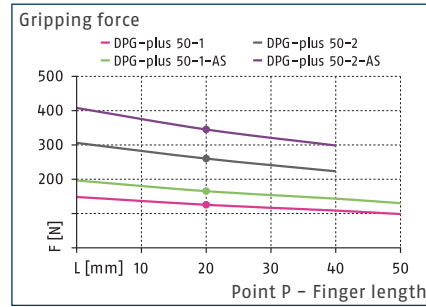
Food-grade lubrication: The product contains food-compliant lubricants as standard. The requirements of EN 1672-2:2020 are not fully met. The relevant NSF certificates are available at <https://info.nsf.org/USDA/Listings.asp> using the lubricant information in the operating manual.

DPG-plus 50

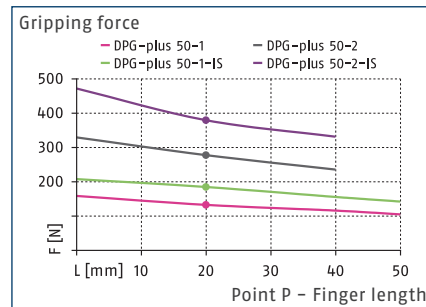
Sealed universal gripper



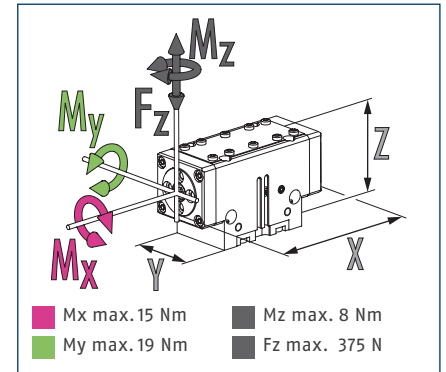
Gripping force O.D. gripping



Gripping force I.D. gripping



Dimensions and maximum loads



① The indicated moments and forces are static values, apply for each base jaw and may appear simultaneously. Loads may additionally occur to the moment produced by the gripping force itself.

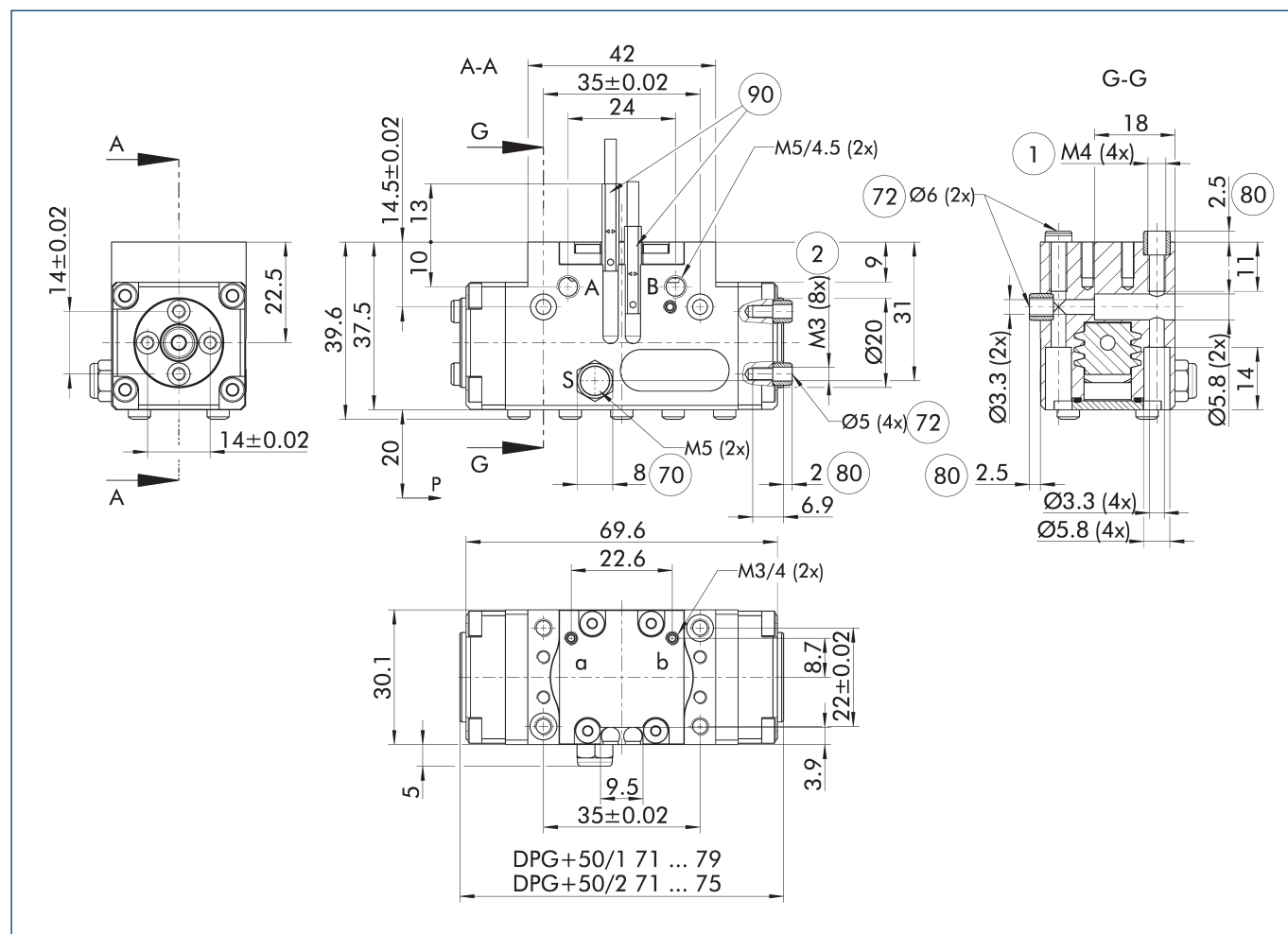
Technical data

Description		DPG-plus 50-1	DPG-plus 50-2	DPG-plus 50-1-AS	DPG-plus 50-2-AS	DPG-plus 50-1-IS	DPG-plus 50-2-IS
ID		1315879	1315955	1315958	1315960	1315961	1315966
Stroke per jaw	[mm]	4	2	4	2	4	2
Closing/opening force	[N]	125/130	260/275	165/-	345/-	-/170	-/360
Min. spring force	[N]			40	85	40	85
Weight	[kg]	0.25	0.25	0.3	0.3	0.3	0.3
Recommended workpiece weight	[kg]	0.6	1.3	0.6	1.3	0.6	1.3
Cylinder volume per double stroke	[cm³]	5	5	8.5	8.5	11	11
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]	0.2/0.5	0.2/0.5	0.2/0.5	0.2/0.5	0.2/0.5	0.2/0.5
Closing/opening time	[s]	0.03/0.03	0.03/0.03	0.03/0.05	0.03/0.05	0.05/0.03	0.05/0.03
Max. permissible finger length	[mm]	50	40	50	40	50	40
Max. permissible weight per finger	[kg]	0.15	0.15	0.15	0.15	0.15	0.15
IP protection class		67	67	67	67	67	67
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
Cleanroom class ISO 14644-1		5	5	5	5	5	5
Dimensions X x Y x Z	[mm]	71 x 30.1 x 37.5	71 x 30.1 x 37.5	71 x 30.1 x 53.5	71 x 30.1 x 53.5	71 x 30.1 x 53.5	71 x 30.1 x 53.5
Options and their characteristics							
High-temperature version		1321189	1321190	1321192	1321193	1321194	1321195
Min./max. ambient temperature	[°C]	5/130	5/130	5/130	5/130	5/130	5/130
Power booster version		1315952	1315957	1315959		1315965	
Closing/opening force	[N]	202/209	424/453	234/-		-/252	
Weight	[kg]	0.29	0.29	0.34		0.34	
Maximum pressure	[bar]	6	6	6		6	
Max. permissible finger length	[mm]	40	30	30		30	

① Please note that to achieve an IP 67 protection class, the gripper requires an additional hose for ventilation or a switchable air purge connection. For detailed information, please refer to the assembly and operating manual. Alternatively, a sinter filter (supplied) mounted on the air purge connection can prevent the penetration of dirt particles > 0.12 mm. However, this reduces the protection class to IP 54.

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

Main view



① The SDV-P pressure maintenance valve can be used as a gripping force maintenance device (see catalog section on accessories).

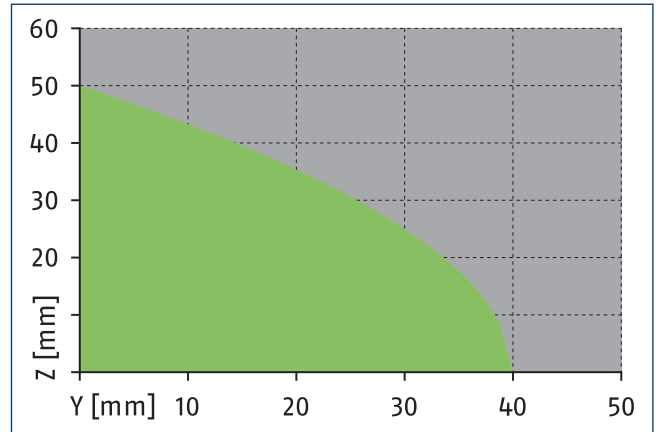
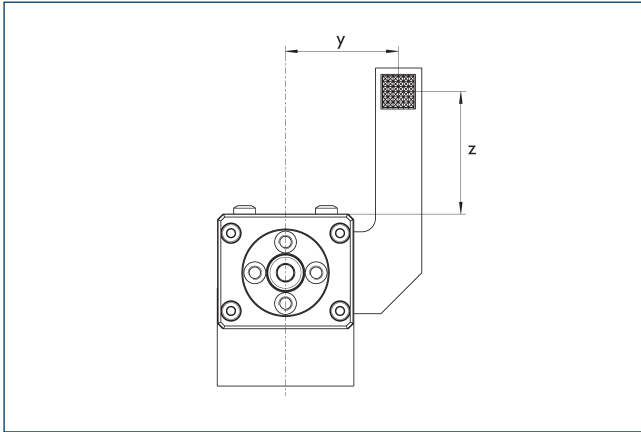
- A, a Main / direct connection, gripper opening
- B, b Main / direct connection, gripper closing
- S, E Air purge connection, or deaeration bore
- ① Gripper connection

- ② Finger connection
- ⑦0 Wrench size
- ⑦2 Fit for centering sleeves
- ⑧0 Depth of the centering sleeve hole in the counter part
- ⑨0 Sensor MMS 22..

DPG-plus 50

Sealed universal gripper

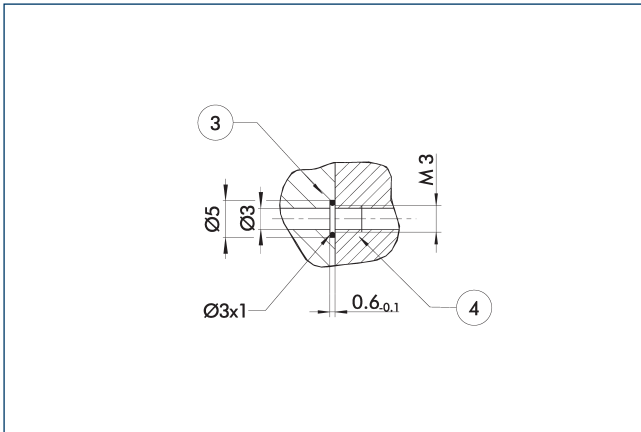
Maximum permitted finger projection



■ Permitted range ■ Inadmissible range

The curve applies for stroke version 1. For other versions, the curve must be parallelly off-set to the max. permissible finger length.

Hose-free direct connection M3

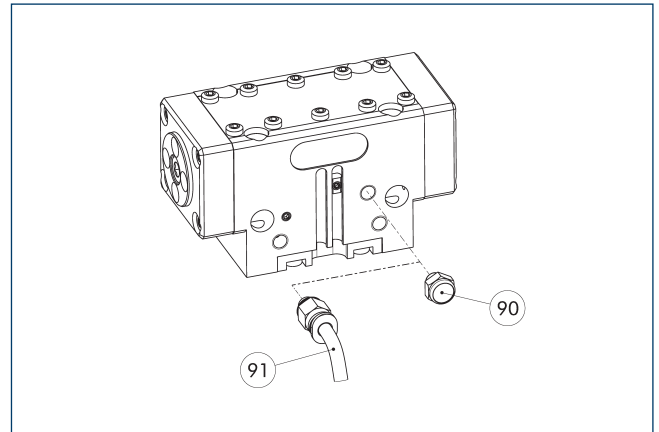


③ Adapter

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.

Connect the air purge connection

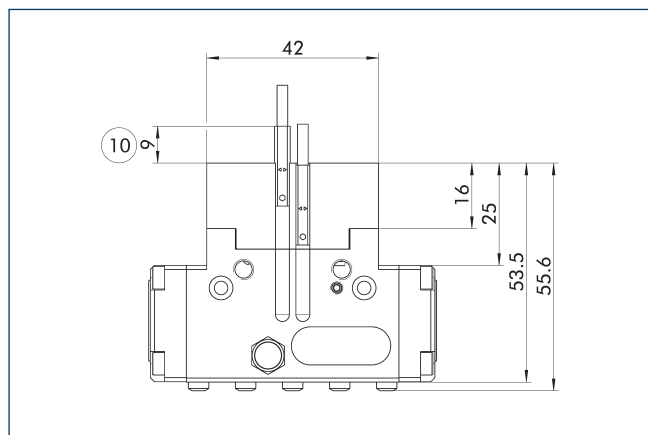


90 Sinter filter

91 Hose for ventilation or air purge connection

Please note that to achieve an IP 67 protection class, the gripper requires an additional hose for ventilation or a switchable air purge connection. For detailed information, please refer to the assembly and operating manual. Alternatively, a sinter filter (supplied) mounted on the air purge connection can prevent the penetration of dirt particles > 0.12 mm. However, this reduces the protection class to IP 54.

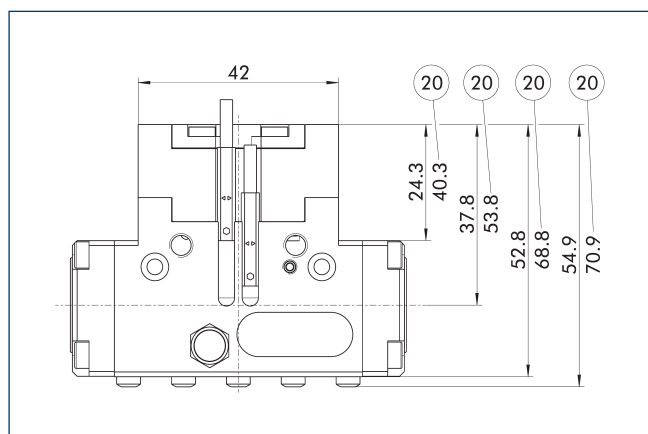
Gripping force maintenance version AS/IS



- 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. In the AS/IS variant this acts as a closing force, in the IS variant as an opening force. Besides this, gripping force maintenance can be used to increase gripping force or for single actuated gripping.

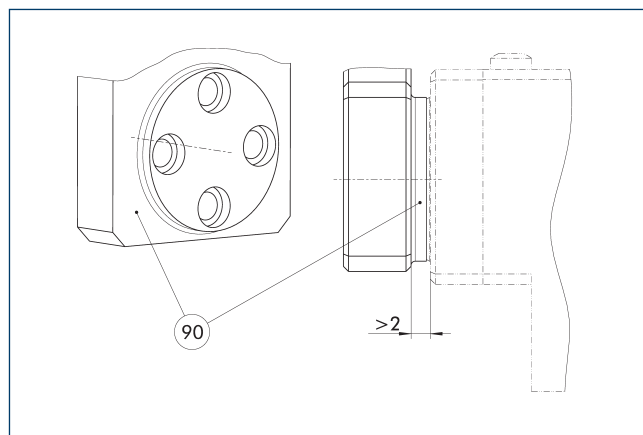
Power booster version



- ②① For version AS/IS

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.

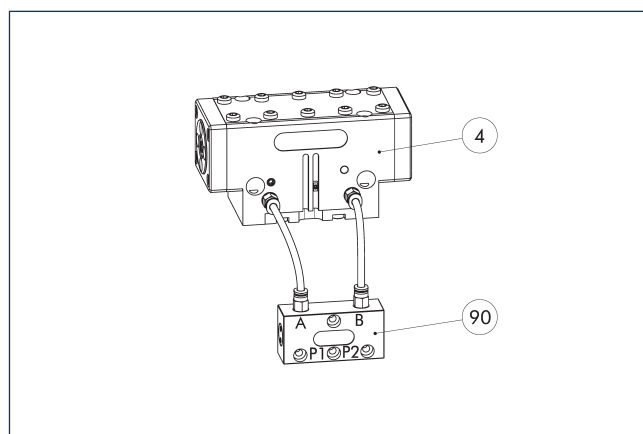
Proposed jaw design



- ⑨① Step

In order to avoid impairment of the stroke due to contamination or chips, there should be a sufficient distance between the top jaws and the gripper.

SDV-P pressure maintenance valve



- ④ Grippers

- ⑨① 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.

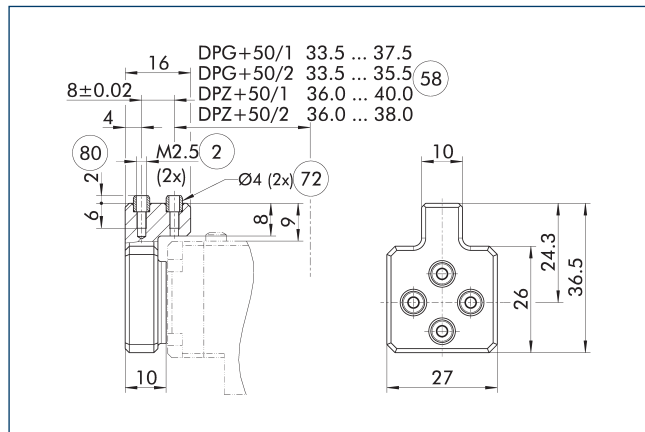
Description	ID	Recommended hose diameter [mm]
Pressure maintenance valve		
SDV-P 04	0403130	6
Pressure maintenance valve with air bleed screw		
SDV-P 04-E	0300120	6

- 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.

DPG-plus 50

Sealed universal gripper

ZBA DPG-plus/DPZ-plus 50-40 intermediate jaw

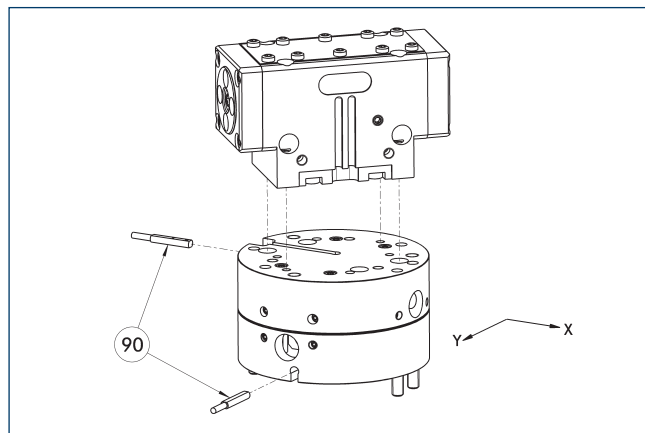


- | | |
|------------------------------------|---|
| ② Finger connection | ⑦② Fit for centering sleeves |
| ⑤⑧ Distance from center of gripper | ⑧① Depth of the centering sleeve hole in the counter part |

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-DPG-DPZ-plus 50-40	0300191	Aluminum	PGN-plus 40	1

Compensation unit AGE-F

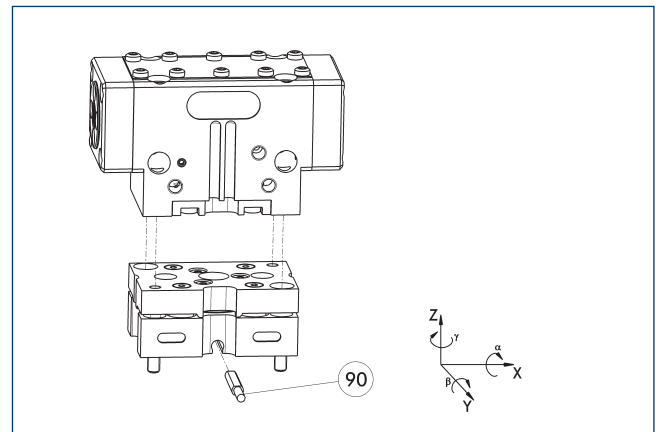


- ## 90 Monitoring

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	●

Tolerance compensation unit TCU

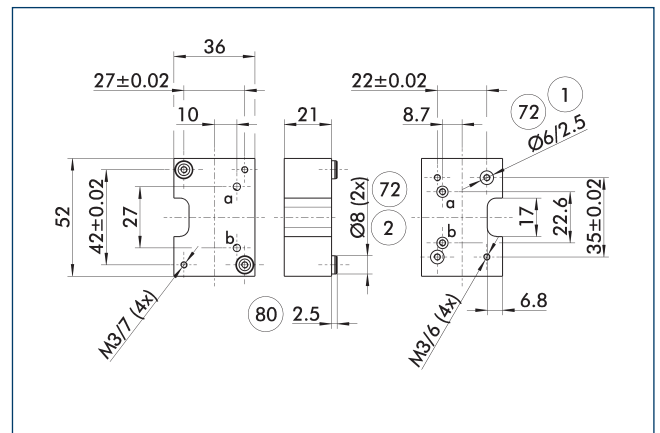


- 90 Monitoring of locking

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-P-050-3-0V	0324757	no	$\pm 1^\circ / \pm 1^\circ / \pm 1,5^\circ$

Adapter plate for PGN-plus 50

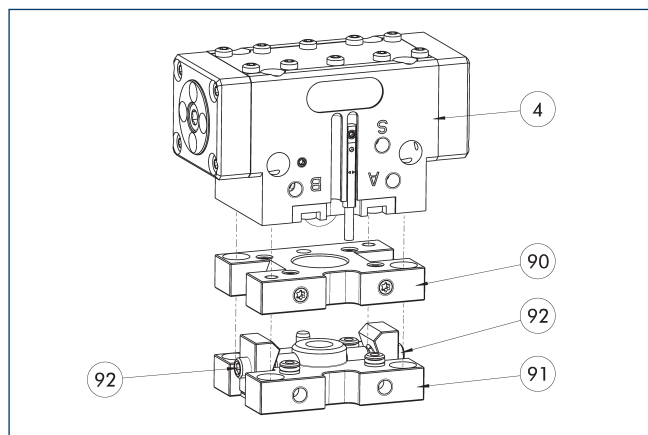


- | | |
|-------------------------|---|
| ① Robot-side connection | ⑦② Fit for centering sleeves |
| ② Tool-side connection | ⑧① Depth of the centering sleeve hole in the counter part |

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

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

Compact change system for grippers

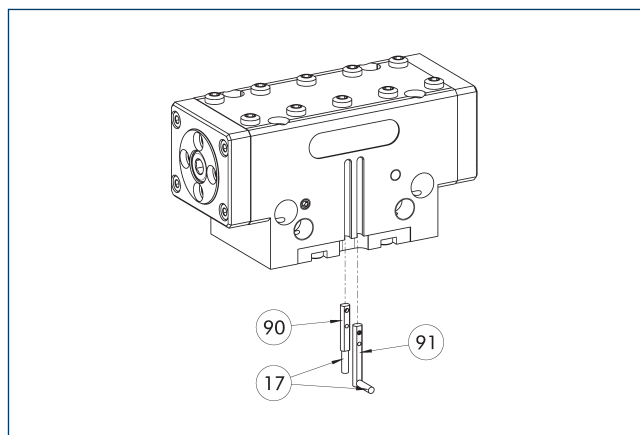


- ④ Grippers
- ⑨① CWK compact change master
- ⑨① CWA compact change adapter
- ⑨② Locking mechanism

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

Description	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	

Electronic magnetic switch MMS



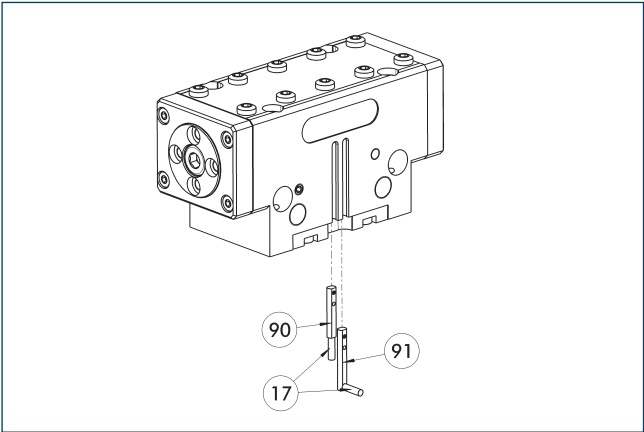
- ①⑦ Cable outlet
- ⑨① Sensor MMS 22...-SA
- ⑨① Sensor MMS 22..

End position monitoring for mounting in the C-slot.

Description	ID	Often combined
Electronic magnetic switch		
MMS 22-S-M8-PNP	0301032	●
MMSK 22-S-PNP	0301034	
Electronic magnetic switches with lateral cable outlet		
MMS 22-S-M8-PNP-SA	0301042	●
MMSK 22-S-PNP-SA	0301044	
Connection cables		
KA BG08-L 3P-0300-PNP	0301622	●
KA BG08-L 3P-0500-PNP	0301623	
KA BW08-L 3P-0300-PNP	0301594	
KA BW08-L 3P-0500-PNP	0301502	
Clip for connector/socket		
CLI-M8	0301463	
Cable extension		
KV BW08-SG08 3P-0030-PNP	0301495	
KV BW08-SG08 3P-0100-PNP	0301496	
KV BW08-SG08 3P-0200-PNP	0301497	●
Sensor distributor		
V2-M8	0301775	●
V4-M8	0301746	
V8-M8	0301751	

- ① Two sensors are required per unit for monitoring two positions. On option, extension cables and sensor distributors are available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor system.

Programmable magnetic switch MMS 22-PI1



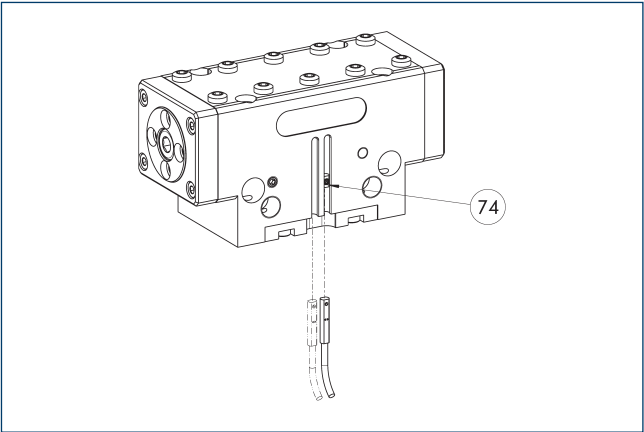
- 17 Cable outlet
- 91 Sensor MMS 22 ..-PI1-...-SA
- 90 Sensor MMS 22 PI1-...

Position monitoring with one programmable position per sensor and integrated electronic system in the sensor. Can be programmed using MT magnetic teaching tool (included in the scope of delivery, ID 0301030) or ST plug teaching tool (optional). End position monitoring for mounting in the C-slot. If the ST plug teaching tools are listed in the table provided, teaching is only possible with the ST teaching tools.

Description	ID	Often combined
Programmable magnetic switch		
MMS 22-PI1-S-M8-PNP	0301160	●
MMSK 22-PI1-S-PNP	0301162	
Programmable magnetic switch with lateral cable outlet		
MMS 22-PI1-S-M8-PNP-SA	0301166	●
MMSK 22-PI1-S-PNP-SA	0301168	
Programmable magnetic switch with stainless steel housing		
MMS 22-PI1-S-M8-PNP-HD	0301110	●
MMSK 22-PI1-S-PNP-HD	0301112	

- ① 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.

MMS-P programmable magnetic switch



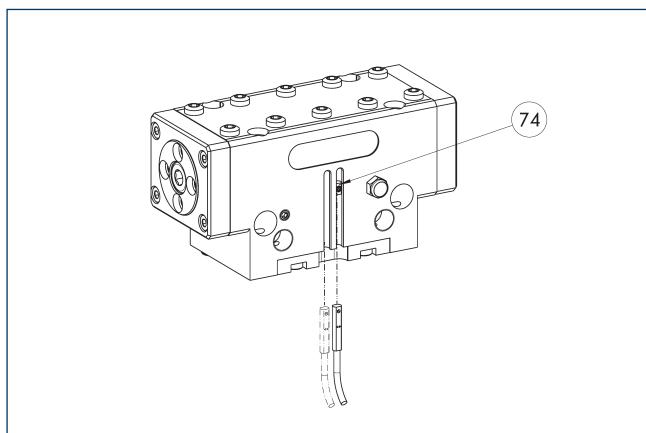
- 74 Limit stop for sensor

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

Description	ID	Often combined
Programmable magnetic switch		
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 connector/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.

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. The sensor is programmed for the gripper via the IO-Link interface, Magnet teaching tool MT (included in scope of delivery; ID 0301030) or the ST plug teaching tool (not included in scope of delivery; ID 0301026). An IO-Link master is required for operation.

Description	ID	
Programmable magnetic switch		
MMS 22-IO-L-M08	0315830	
MMS 22-IO-L-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.



SCHUNK SE & Co. KG

Spanntechnik

Greiftechnik

Automatisierungstechnik

Bahnhofstr. 106 - 134

D-74348 Lauffen/Neckar

Tel. +49-7133-103-0

Fax +49-7133-103-2399

info@de.schunk.com

schunk.com

Folgen Sie uns | *Follow us*

