



Superior Clamping and Gripping



Product Information

Universal gripper PG

Bus capable. Flexible. High Performance Density.

Universal gripper PG

Servo-electric 2-finger parallel gripper with sensitive gripping force control and long stroke

Field of application

Versatile, highly flexible gripper for great part variety and sensitive components in clean environments

Advantages – Your benefits

Electrically controlled gripper force adjustment for the delicate gripping of sensitive workpieces

Long stroke of 68 mm for flexible workpiece handling

Fully integrated control and power electronics for creating a decentralized control system

Versatile actuation options for simple integration into existing control concepts via PROFIBUS-DP, or CAN

Standard connecting elements and integrated control concept for extensive combination possibilities with other mechatronic modules



Sizes
Quantity: 1



Weight
1.4 kg



Gripping force
200 N



Stroke per jaw
34 mm



Workpiece weight
1 kg

Functional description

The brushless servomotor drives the ball screw via a toothed belt drive.

The rotational movement is transformed into the linear movement of the base jaw by base jaws mounted on the

spindle nuts.



- ① **Control electronics**
Integrated control and power electronics for decentralized control of the servomotor
- ② **Encoder**
for gripper positioning and position evaluation
- ③ **Drive**
Brushless DC servomotor

- ④ **Electrical brake**
for maintaining position on shutdown and power failure
- ⑤ **Gear mechanism**
Force transmission from the servomotor to the drive spindle
- ⑥ **Spindle**
Transforms the rotational movement into a linear movement

General notes about the series

Operating principle: Spindle drive

Housing material: Aluminum alloy, coated

Base jaw material: Aluminum alloy, anodized

Actuation: servo-electric, via brushless DC servomotor

Warranty: 24 months

Scope of delivery: Accessory kit with centering sleeves, assembly and operating manual with declaration of incorporation, DVD with SCHUNK software and commissioning assistant, functional module for control via Siemens S7-300/400. A DMI electrical connection cap is required to operate the gripper. It is not included in the scope of delivery and has to be ordered separately.

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.

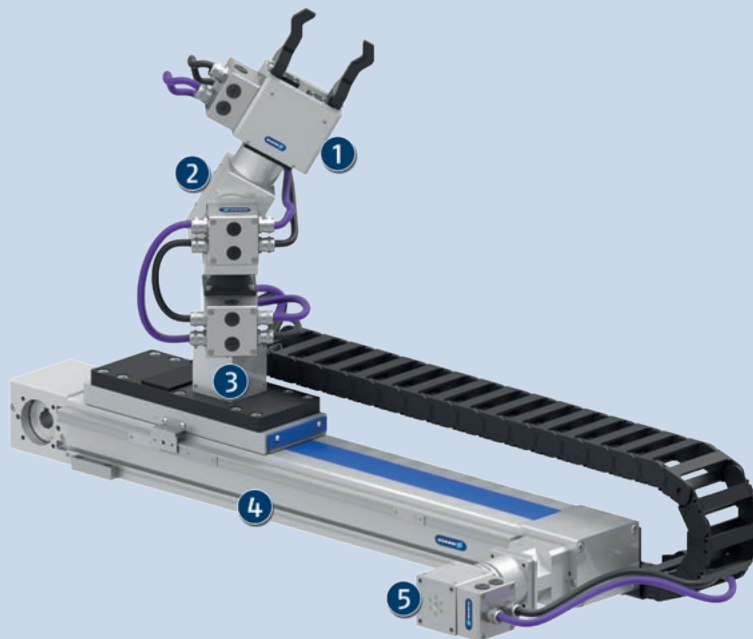
Repeat accuracy: is defined as a distribution of the end Position for 100 consecutive strokes.

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: Minimum closing and opening times are merely the movement times of the base jaws or fingers at max. speed, max. acceleration, without current limitation (maximum current), and observance of the maximum permissible mass per finger.

Nominal currents: can be permanently actuated. With regard to all the currents which are ranging above the nominal current up to the maximum current, the notes of the individual product documentation has to be respected.

Electrical brake: The built-in, electric holding brake is used for fixing and holding the position of the gripper jaws in the event of a power failure. It cannot cover all of the security or gripping force maintenance functions.



Application example

Electrically powered gripper solution with linear axis and rotary modules for the handling of sensitive workpieces

- ① Universal gripper PG
- ② Pan-Tilt Actuator PW
- ③ Rotary module PR, electric

- ④ Beta belt-driven axes
- ⑤ Drive PDU

SCHUNK offers more ...

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



Rotation unit



Pan-tilt actuator



Linear module



Drive



Power cable



Connection cap



Force/torque sensor



Quick change system



Communication cables

① For more information on these products can be found on the following product pages or at schunk.com. Please contact us: SCHUNK technical hotline +49-7133-103-2696

Options and special information

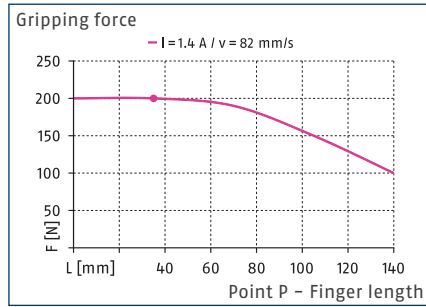
Integrated electronics: The electrical control of the gripper is carried out by the fully integrated control and power electronics. Hence, the module does not require any additional external control units.

Easy integration: There is a varied range of interfaces available, such as PROFIBUS DP or CAN as types of communication. This enables the assembly of industrial bus networks and ensures simple integration into existing control concepts.

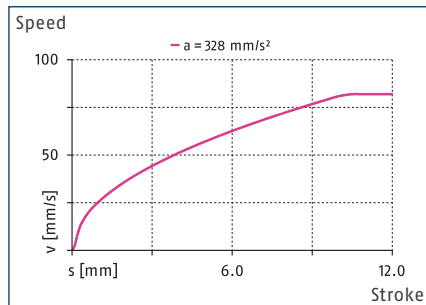
Connection cap DMI: The DMI connection cap is available for connecting the gripper to the voltage supply or higher-level control unit. It is not included in the scope of delivery and has to be ordered separately.



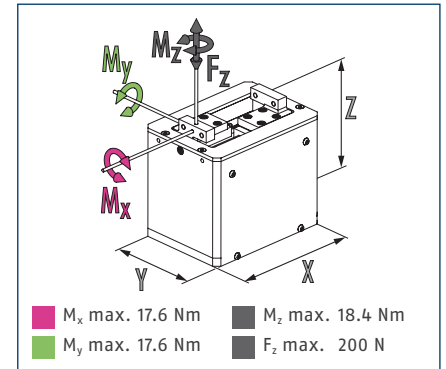
Gripping force



Speed



Dimensions and maximum loads

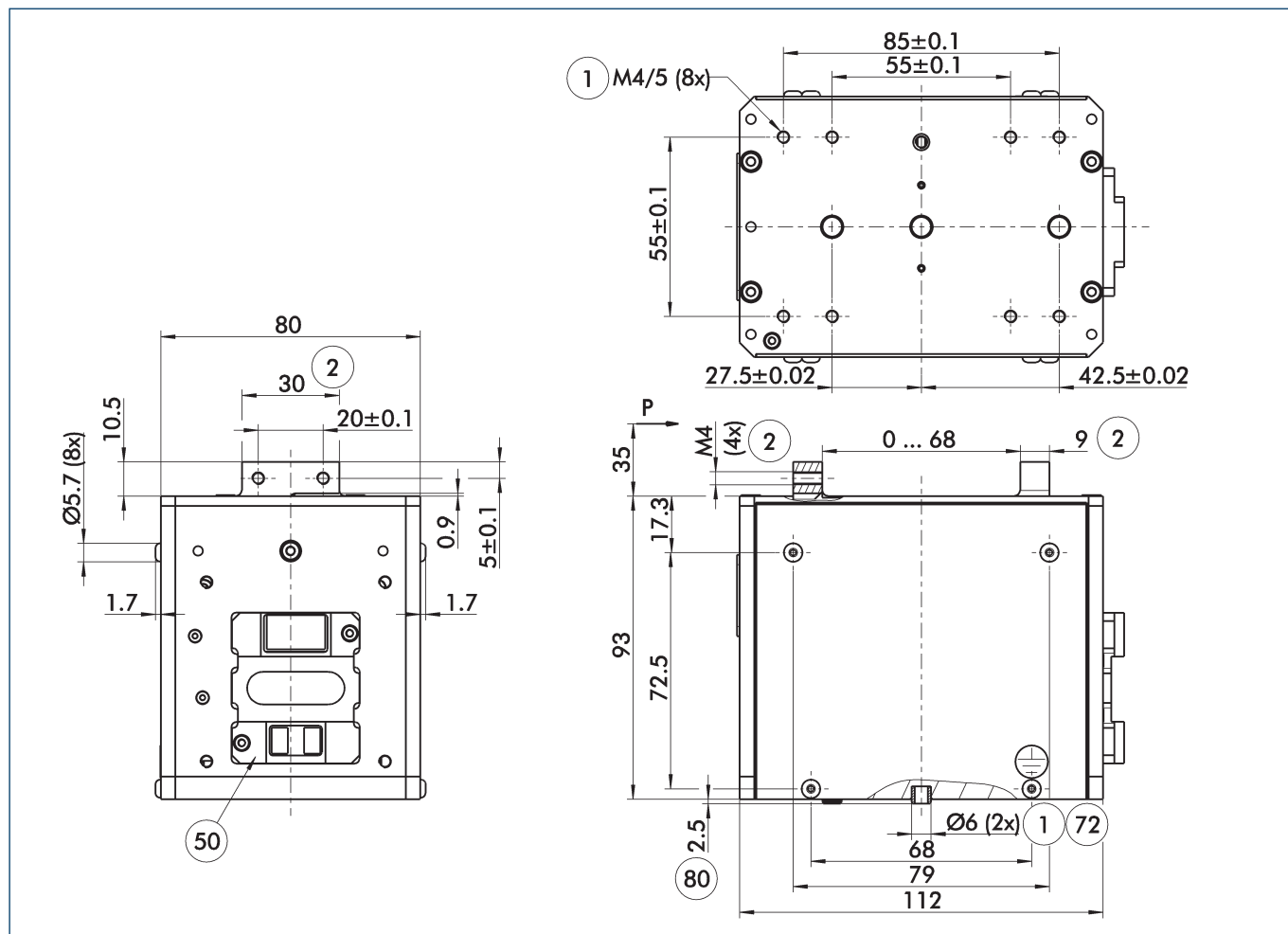


① The indicated moments and forces are static values, apply for each base jaw and should not appear simultaneously. Loads may additionally occur to the moment produced by the gripping force itself.

Technical data

Characterization		PG 70
ID		0306095
General operating data		
Stroke per jaw	[mm]	34
Min./max. gripping force	[N]	30/200
Recommended workpiece weight	[kg]	1
Max. permissible finger length	[mm]	140
Repeat accuracy	[mm]	0.05
Closing/opening time	[s]	1.1/1.1
Max. speed	[mm/s]	82
Max. acceleration	[mm/s ²]	328
Weight	[kg]	1.4
Min./max. ambient temperature	[°C]	5/55
IP protection class		20
Dimensions X x Y x Z	[mm]	112 x 80 x 93
Electrical operating data		
Nominal voltage	[V DC]	24
Nominal current	[A]	1.4
Max. current	[A]	1.8
Controller electronics		integrated
Communication interface		PROFIBUS, CAN, digital I/O
Data rate	[Mbit/s]	1.5
Data rate	[Mbit/s]	1
Number of digital I/O		4/4
Parametrized interface		RS232

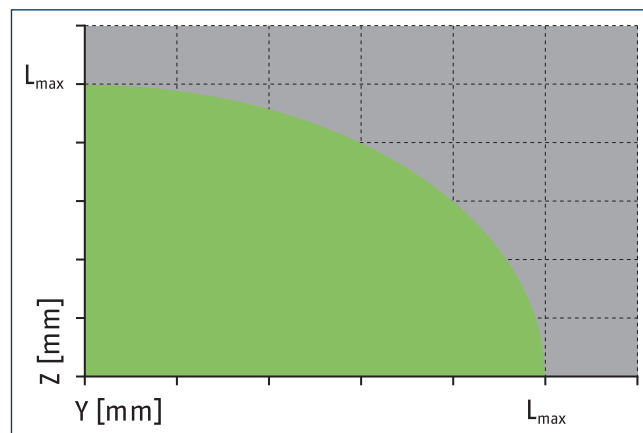
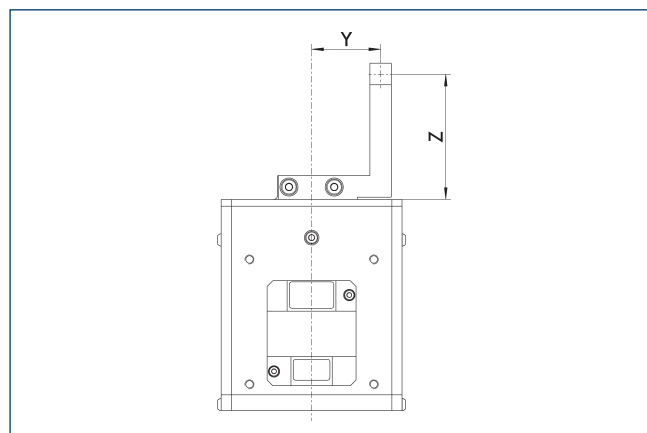
Main view



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

- ① Gripper connection
- ② Finger connection
- ⑤ Electrical connection
- ⑦ Fit for centering sleeves
- ⑧ Depth of the centering sleeve hole in the counter part

Maximum permitted finger projection



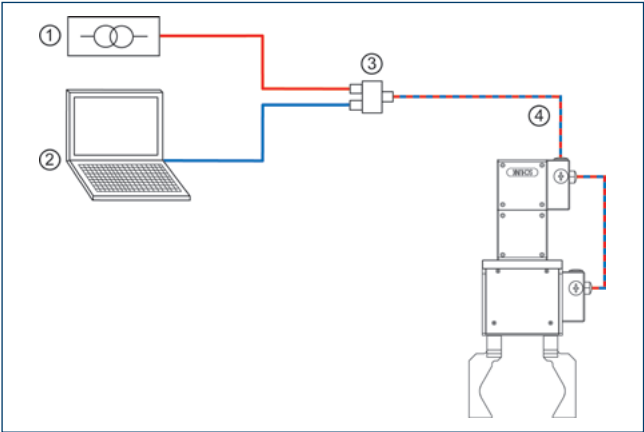
■ Permitted range ■ Inadmissible range

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

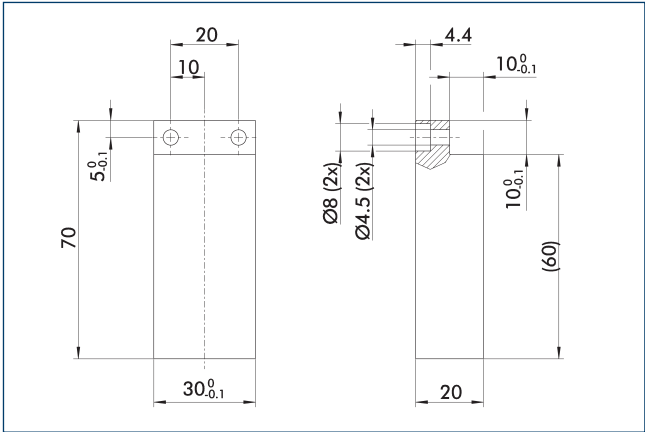
PG 70

Universal gripper

Actuation



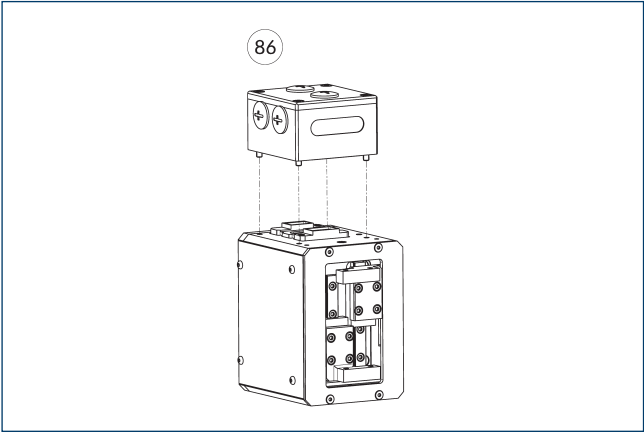
Finger blanks ABR-PG 70



Finger blanks for customized remachining.

Characterization	ID	Material	Scope of delivery
Finger blank			
ABR-PG 70	0307850	Aluminum	1

Connection caps



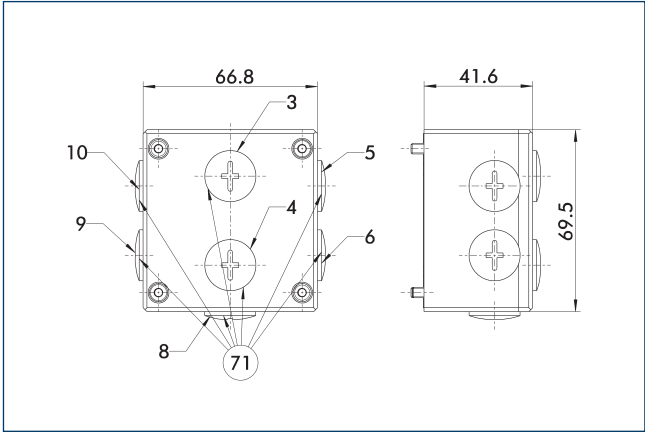
86 Connection cap DMI

The DMI connection cap is required to connect the modules to the voltage supply or higher-level control unit. The wire strands are connected via connection terminals.

Characterization	ID	
Connection cap		
DMI 070-V05-B	0307732	

1 Further information and accessories can be found in the following displays.

Connection cap DMI

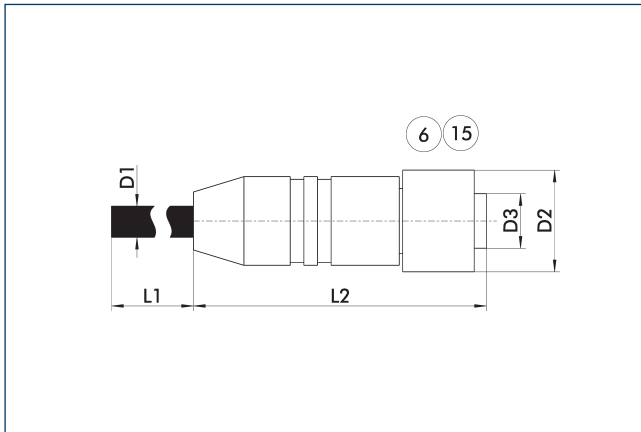


71 M16x1.5 for cable guide penetrating screw connection

The DMI's wire strands are connected via connection terminals. The DMI is prepared for PROFIBUS and CAN communication interfaces.

Characterization	ID	
Connection cap		
DMI 070-V05-B	0307732	

PROFIBUS communication cables



⑥ Connection module side

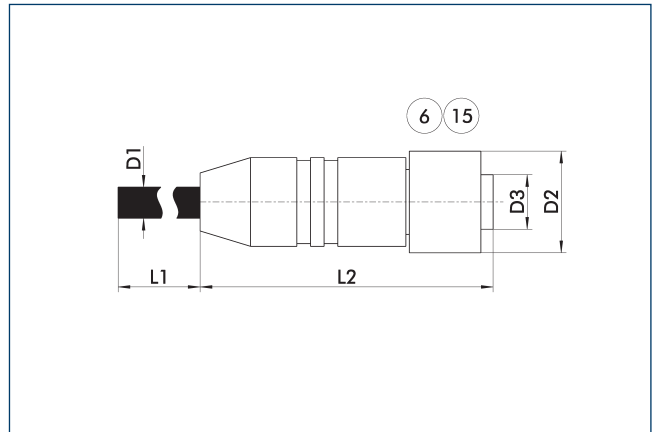
⑮ Socket

The communication cables are ready for use for the mechatronic SCHUNK products. They have M12 connectors on both sides.

Characterization	ID	L1	D1	L2	D2	D3
		[m]	[mm]	[mm]	[mm]	
PROFIBUS communication cable – drag chain suitable						
KA GGN1204-PB-00150-A	0349750	1.5	8	47	15	M12
KA GGN1204-PB-00300-A	0349751	3	8	47	15	M12
KA GGN1204-PB-00500-A	0349752	5	8	47	15	M12
KA GGN1204-PB-01000-A	0349753	10	8	47	15	M12

① Please observe the min. bending radius for cable track-compatible cables or the max. torsion angle for torsion-compatible cables. These are generally 10 times the cable diameter or $\pm 180^\circ/\text{m}$.

CAN communication cables



⑥ Connection module side

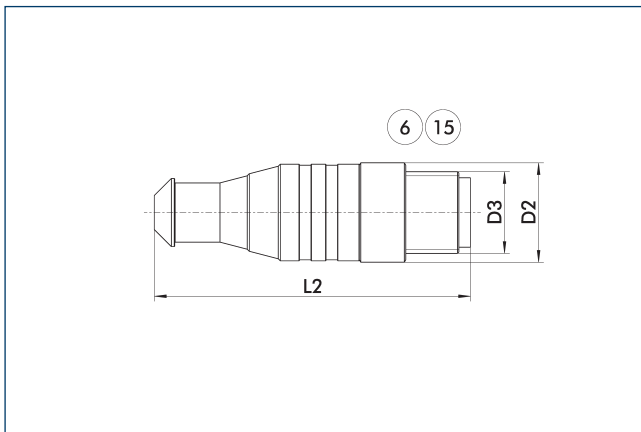
⑮ Socket

The communication cables are ready for use for the mechatronic SCHUNK products. They have M12 connectors on both sides.

Characterization	ID	L1	D1	L2	D2	D3
		[m]	[mm]	[mm]	[mm]	
CAN communication cable – drag chain suitable						
KA GGN1204-CN-00150-A	0349770	1.5	7	47	15	M12
KA GGN1204-CN-00300-A	0349771	3	7	47	15	M12
KA GGN1204-CN-00500-A	0349772	5	7	47	15	M12
KA GGN1204-CN-01000-A	0349773	10	7	47	15	M12

① Please observe the min. bending radius for cable track-compatible cables or the max. torsion angle for torsion-compatible cables. These are generally 10 times the cable diameter or $\pm 180^\circ/\text{m}$.

Termination resistor



⑥ Connection module side

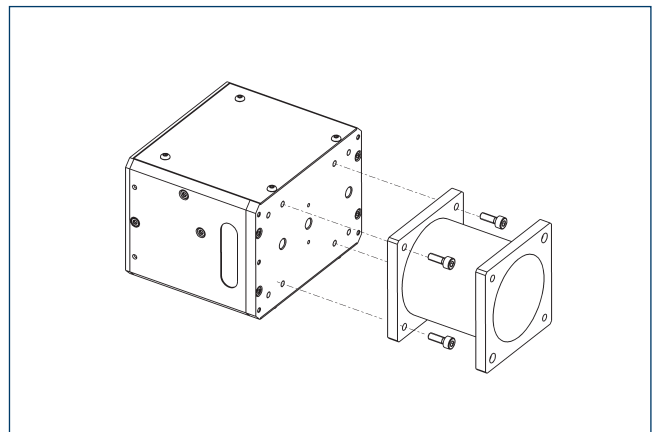
⑮ Socket

The terminating resistors are provided for terminating the bus string directly at the SCHUNK module.

Characterization	ID	L2	D2	D3
		[mm]	[mm]	
Termination resistor – CAN				
ST SG1204-CN-A-A	0349660	47	15	M12
Termination resistor – PROFIBUS				
ST SG1204-PB-A-A	0349650	47	15	M12

① An appropriate terminating resistor must be installed on the last module in the CAN or PROFIBUS string.

Connecting element – straight



Straight standard element for connecting the mechatronic modules PG, PR, PDU, and PSM in unit size 70.

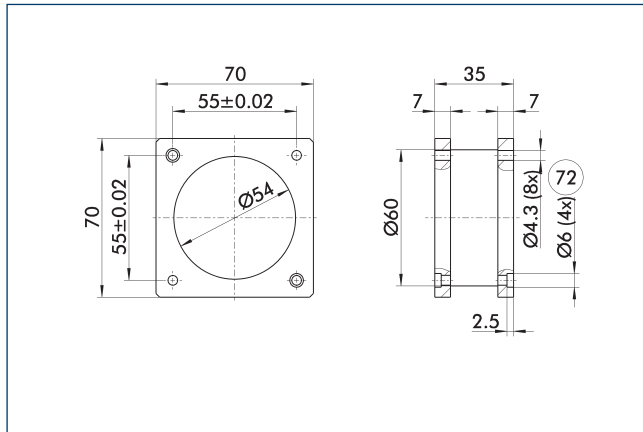
Characterization	ID	Dimensions
Connecting element		
PAM 100	0307800	70x70/35/70x70 mm
PAM 101	0307801	70x70/70/70x70 mm

① Application-specific sizes are available upon request. Please contact us for assistance.

PG 70

Universal gripper

PAM 100 – straight

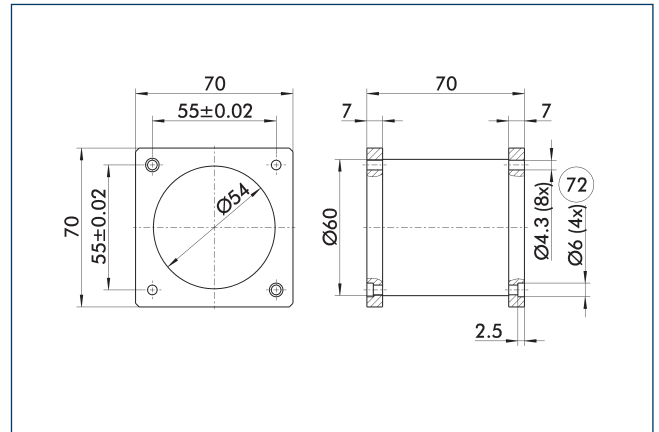


72 Fit for centering sleeves

Suitable for the mechatronic modules PG, PW-V5, PW-V6, PR, PR2, PDU, PDU2, PSM and PSM2 of the size 70

Characterization	ID	Dimensions
Connecting element		
PAM 100	0307800	70x70/35/70x70 mm

PAM 101 – straight

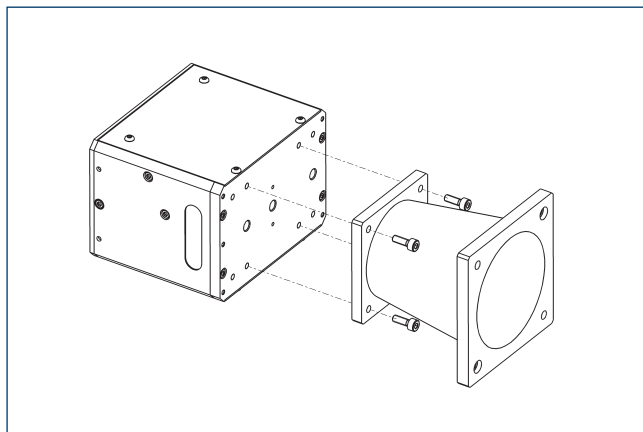


72 Fit for centering sleeves

Suitable for the mechatronic modules PG, PW-V5, PW-V6, PR, PR2, PDU, PDU2, PSM and PSM2 of the size 70

Characterization	ID	Dimensions
Connecting element		
PAM 101	0307801	70x70/70/70x70 mm

Connecting element – conical

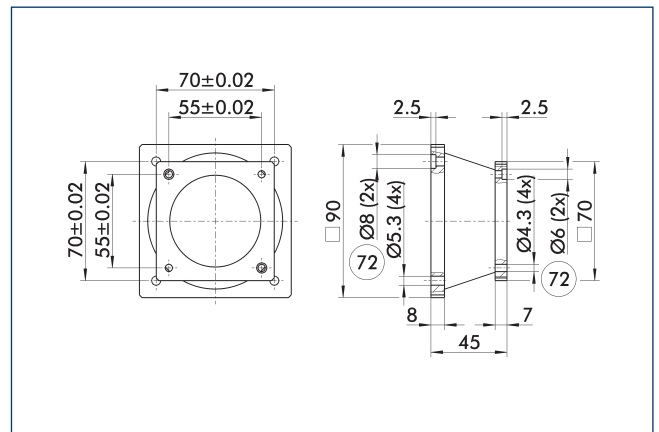


Straight standard element for connection the mechatronic modules PG, PR, PDU, and PSM in unit size 70/90.

Characterization	ID	
Connecting element		
PAM 110	0307810	
PAM 111	0307811	

① Application-specific sizes are available upon request. Please contact us for assistance.

PAM 110 – conical

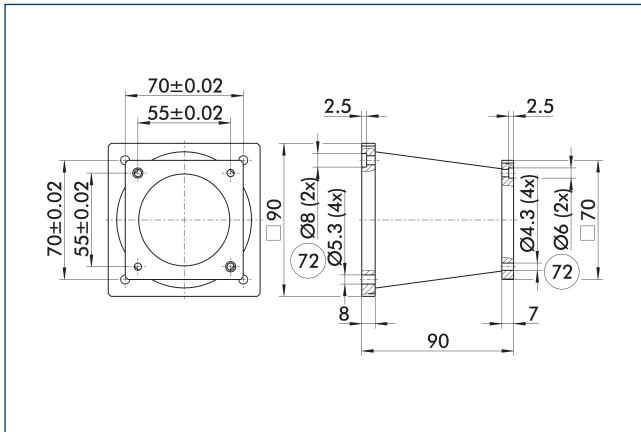


72 Fit for centering sleeves

Suitable for the mechatronic modules PG, PW-V5, PW-V6, PR, PR2, PDU, PDU2, PSM and PSM2 of the sizes 70/90.

Characterization	ID	
Connecting element		
PAM 110	0307810	

PAM 111 – conical

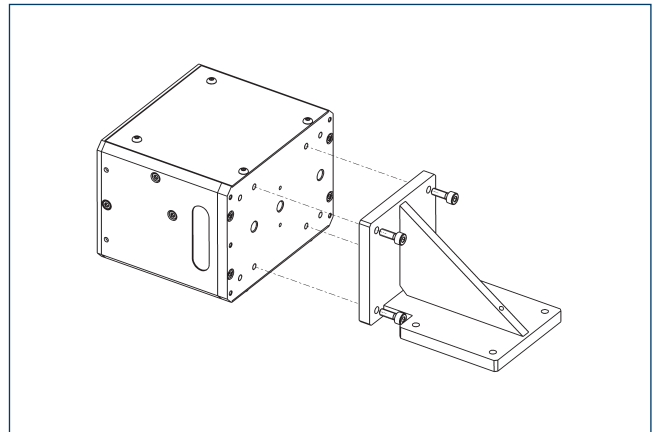


72 Fit for centering sleeves

Suitable for the mechatronic modules PG, PW-V5, PW-V6, PR, PR2, PDU, PDU2, PSM and PSM2 of the sizes 70/90.

Characterization	ID	
Connecting element		
PAM 111	0307811	

Connecting element – angle

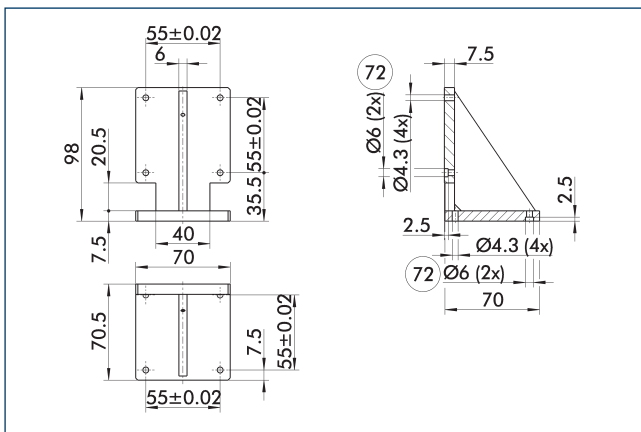


Angled standard element for connection of the mechatronic modules PG, PR, PDU, and PSM in unit size 70.

Characterization	ID	
Connecting element		
PAM 120	0307820	

① Application-specific sizes are available upon request. Please contact us for assistance.

PAM 120 – angle



72 Fit for centering sleeves

Suitable for the mechatronic modules PG, PW-V5, PW-V6, PR, PR2, PDU, PDU2, PSM and PSM2 of the size 70

Characterization	ID	
Connecting element		
PAM 120	0307820	

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