Bus Capable. Flexible. High Performance Density.

PG Universal Gripper

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

Field of Application

All-purpose, ultra-flexible gripper for great part variety and sensitive components in clean environments

Advantages – Your benefit

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

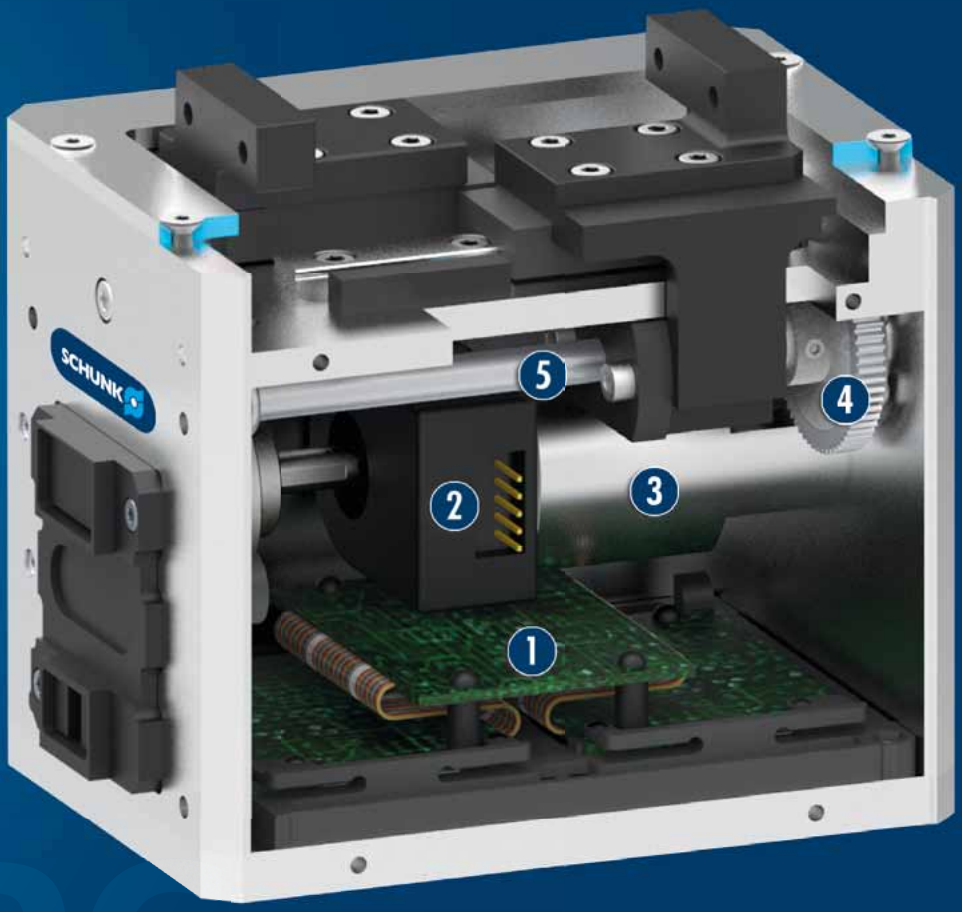
Versatile actuation options for simple integration into existing servo-controlled concepts via Profibus-DP, or CAN bus

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

Sizes	Weight	Gripping force	Stroke per jaw	Workpiece weight
Quantity: 1	1.4 kg	200 N	34 mm	1 kg

Functional Description

The brushless servo motor 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 actuation of the servomotor

② **Encoder**
for gripper positioning and position evaluation

③ **Drive**
Brushless DC servomotor

④ **Gear mechanism**
Force transmission from the servomotor to the drive spindle

⑤ **Spindle**
Transforms the rotational movement into a linear movement

CAD data, operating manuals and other current product documents are available at **www.schunk.com**

General Notes about the Series

Operating principle: Spindle drive

Housingmaterial: Aluminum alloy, coated

Base jaw material: Aluminum alloy, anodized

Actuation: servo-electric, via brushless DC servomotor

Warranty: 24 months (details, general terms and conditions and operating manuals can be downloaded at www.schunk.com)

Scope of delivery: Enclosed pack 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 or MMI electric cap is required for operation of the gripper. This is not included in the scope of delivery and must be ordered separately.

Gripping force: is the arithmetic total of the gripping force applied to each gripper jaw at distance P (see illustration).

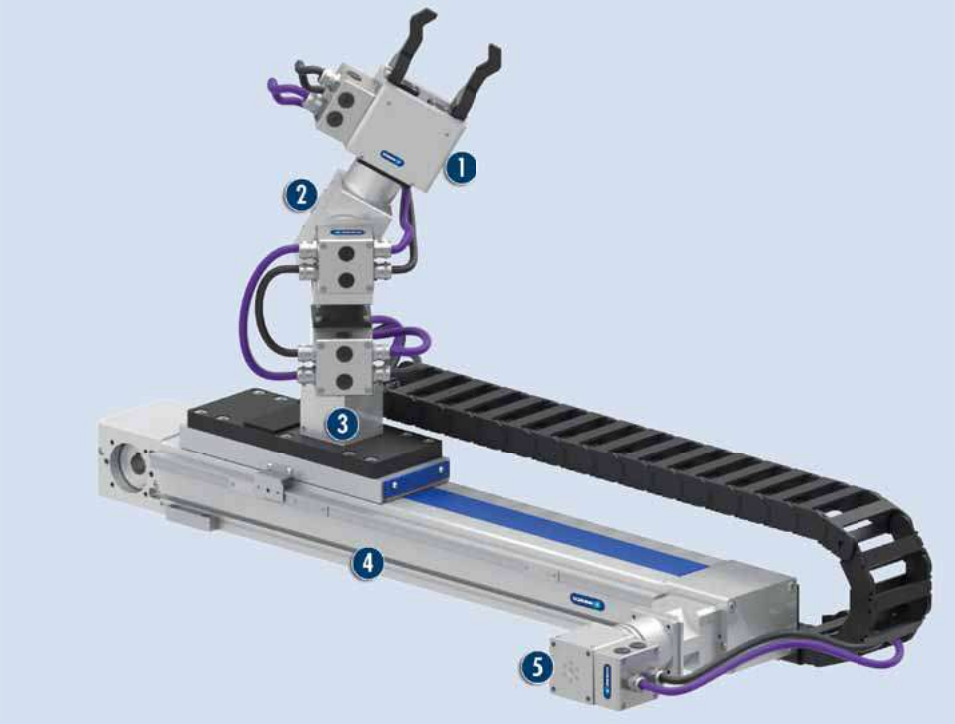
Finger length: is measured from the upper edge of the gripper housing in the direction of the main axis. The breach of the max. permitted finger length can bring higher abrasion.

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

Workpiece weight: is calculated for a force-fit 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: Minimum closing and opening times are only the movement times of the base jaws at max. speed, max. acceleration without electrical restrictions (maximum current) and observance of the maximum permissible mass per finger.

Nominal currents: may be permanently applied. The information in the respective product documentation must be observed for all current levels beyond the rated current up to the maximum current.



Application example

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

1. PG Universal Gripper
2. PW Pan-Tilt Actuator
3. PR Rotary Unit electric
4. HSB Beta Belt-driven Axis
5. PDU Drive

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.


MMI Connection Cap


DMI Connection Cap


Power- / and Data Cable


Centering Sleeves


Beta electrical Linear Module


PRH Rotary Actuator


Finger Blanks


ERS Rotary Actuator


ERD Rotary Actuator


PW electrical Rotary Pan-Tilt Actuator


PR Rotary Unit electric


PDU Rotary Unit electric

ⓘ Further information regarding the products can be found on the following product pages or at www.schunk.com. Please contact us for further information: SCHUNK technical hotline +49-7133-103-2696

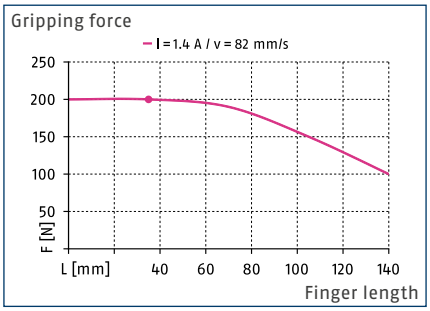
Options and special Information

Integrated electronics: The electrical control of the gripper takes place via the fully integrated control and power electronics. Therefore, no additional external control units are required for the module.
Easy integration: There is a varied range of interfaces available, such as Profibus-DP or CAN bus as methods of communication. This enables the assembly of industrial bus networks and ensures easy integration into existing control systems.
Connection caps DMI and MMI: The DMI or MMI connection caps are available for connection of the gripper to the voltage supply or superordinate control unit. They are not included in the scope of delivery and must be ordered separately.

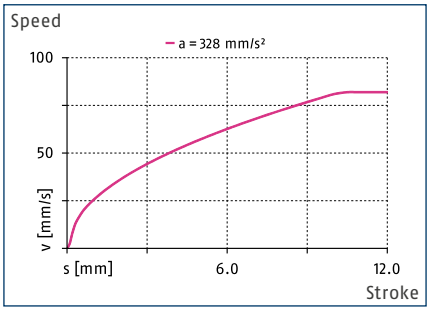
PG 70

SCHUNK Grippers electric | 2-Finger Parallel Grippers | Universal Gripper

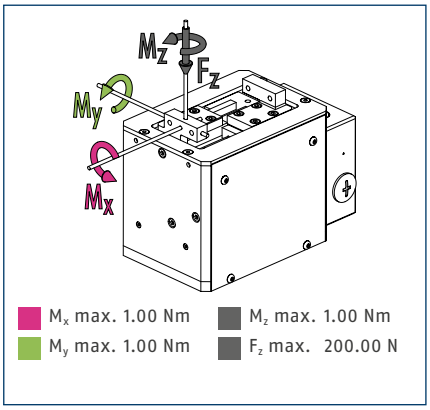
Gripping force



Speed



Finger load

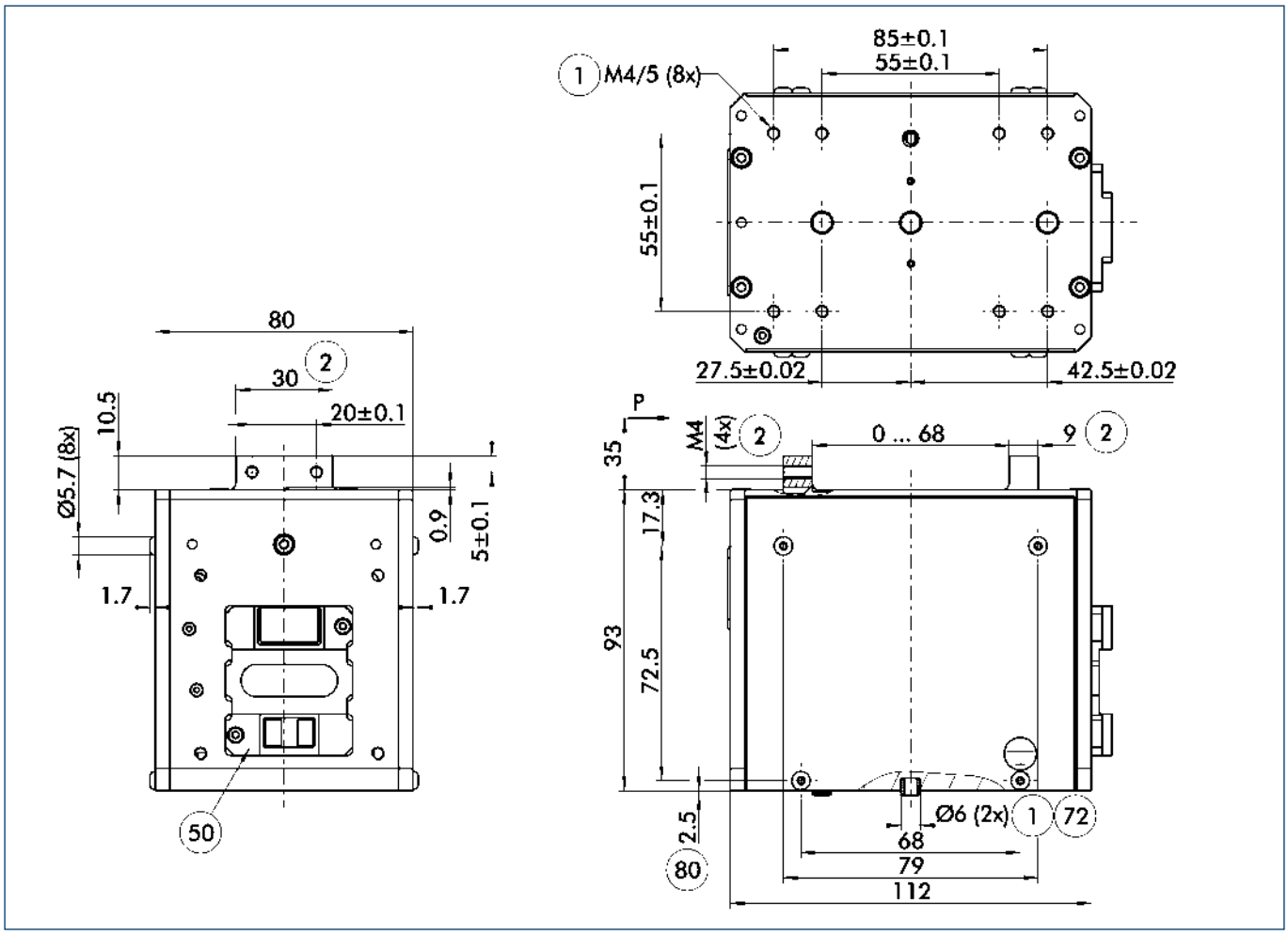


ⓘ The specified torques and forces are static values, apply for each base jaw, and may occur simultaneously. M_y may occur in addition to the torque generated by the gripping force.

Technical data

Description		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. permitted 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/s²]	328
Weight	[kg]	1.4
min. / max. ambient temperature	[°C]	5/55
IP class		20
Electrical operating data		
Controller electronics		integrated
Nominal voltage	[V DC]	24
Nominal current	[A]	1.4
max. power supply	[A]	1.8
Communication interface		Profibus, CAN bus, Digital I/O
Profibus interface	[Mbit/s]	1.5
CAN interface	[Mbit/s]	1
Number of digital inputs/outputs		4/4
Parametrized interface		RS232

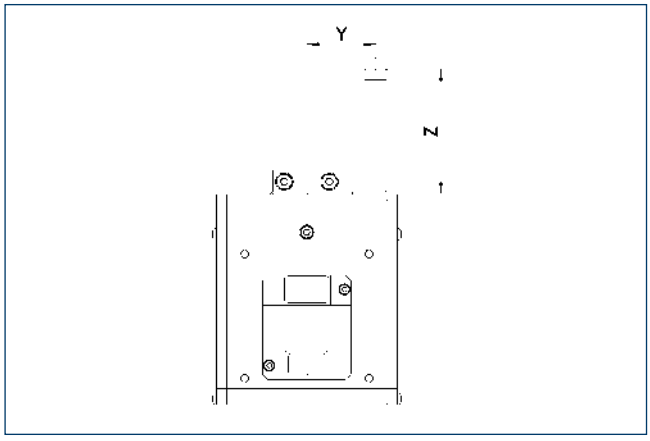
Main view

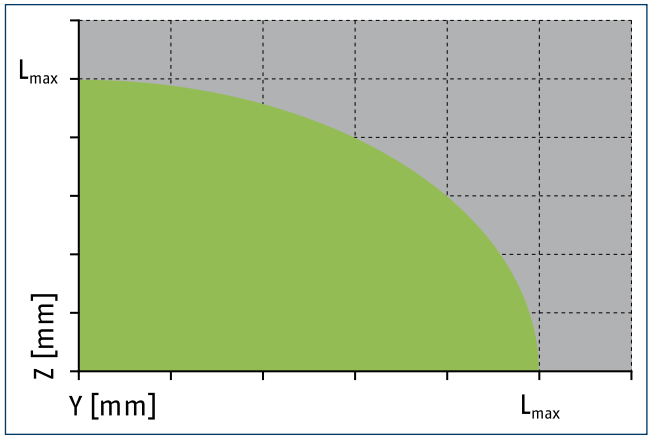


The drawing shows the basic version of the gripper with open jaws, without dimensional consideration of the options described below.

1 Gripper connection
2 Finger connection
50 Electrical connection
72 Fit for centering sleeves
80 Depth of the centering sleeve hole in the mating part

Maximum permitted finger projection

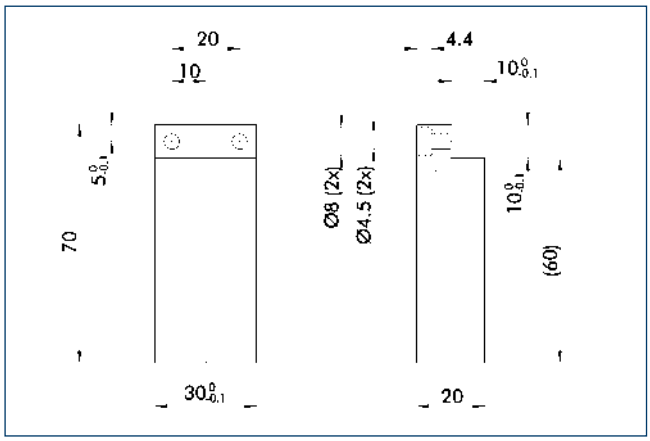




Permitted range
Inadmissible range

L_{max} is equivalent to the maximum permitted finger length, see the chart of technical specifications.

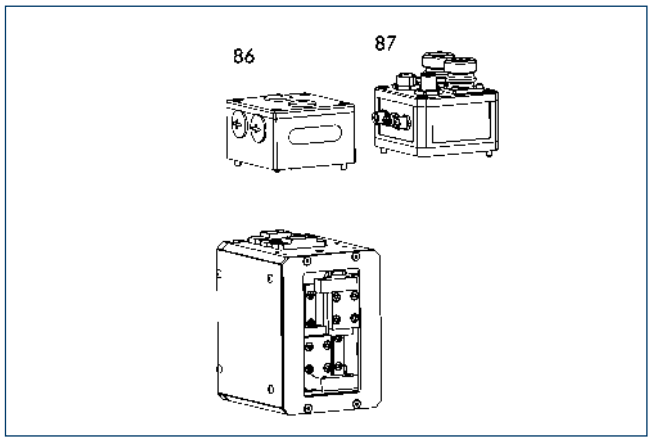
ABR-MPG-plus 70 finger blanks



Finger blanks for customized subsequent machining.

Description	ID	Material	Scope of delivery
Finger blanks			
ABR-PG 70	0307850	Aluminum	1

Connection caps



(86) DMI connection cap

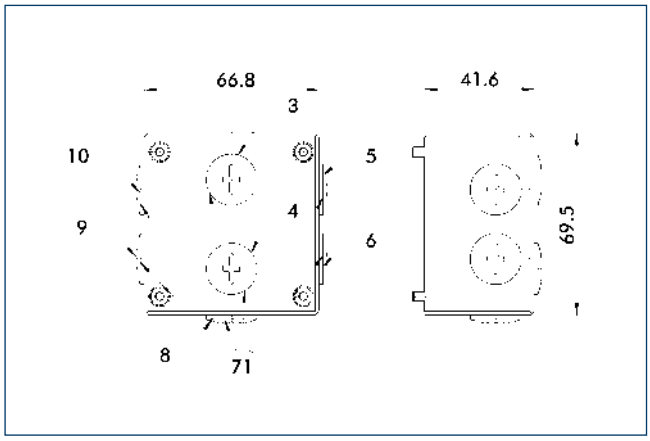
(87) MMI connection cap

The DMI or MMI connection caps are required for connection of the modules to the voltage supply or superordinate control unit. For the DMI the connection of the cable wires takes place via connection terminals. The MMI enables convenient connection via plug connector.

Description	ID	
Connection caps		
DMI 070-V05-B	0307732	
MMI 070-V05-E-CN	0307500	
MMI 070-V05-D-CN	0307501	
MMI 070-V05-E-PB	0307502	
MMI 070-V05-D-PB	0307503	

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

DMI connection cap

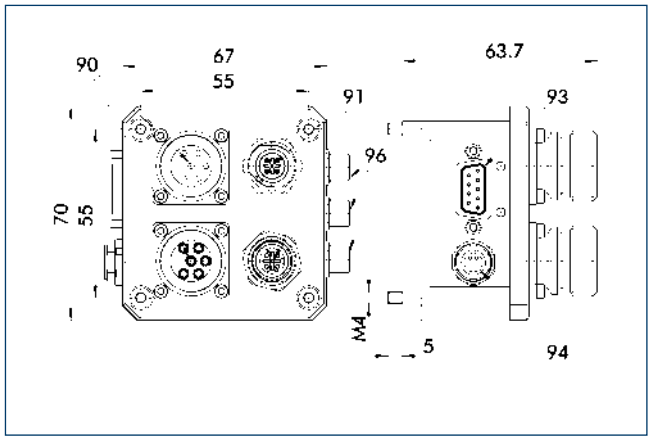


(71) M16x1.5 for cable guide penetrating screw connection

For the DMI the connection of the cable wires takes place via connection terminals. The DMI is prepared for Profibus and CAN bus communication interfaces.

Description	ID	
Connection caps		
DMI 070-V05-B	0307732	

MMI connection cap



(90) Connection power supply (logic / load)

(91) Connection fieldbus M12

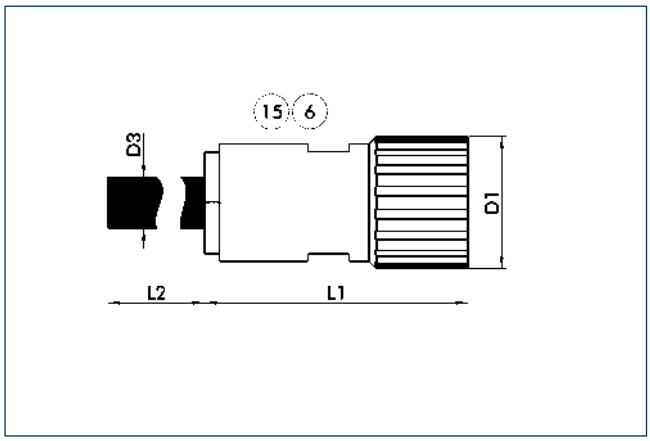
(93) Parametrized interface RS232

(94) Connection power supply service box (SSB)

(96) Connection ext. M8 limit switch or digital I/Os

Description	ID	
Connection caps		
MMI 070-V05-E-CN	0307500	
MMI 070-V05-D-CN	0307501	
MMI 070-V05-E-PB	0307502	
MMI 070-V05-D-PB	0307503	

Power cable for SCHUNK MMI



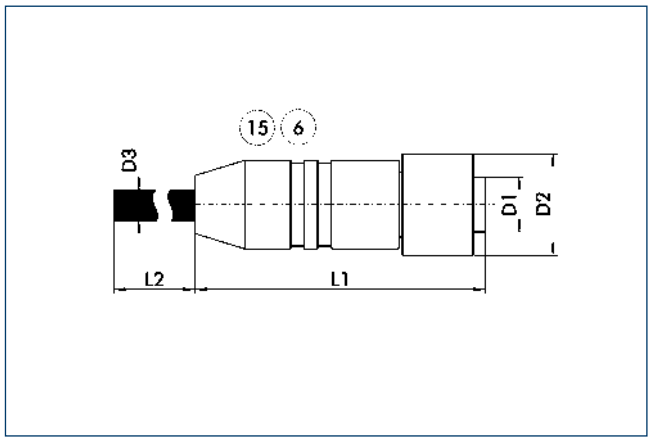
(6) Connection module side (15) Socket

The power cable for the MMI connection cab is available in various lengths (L2). The power cable has an M23 connection plug on the module side. The cable can be optionally fitted with a matching mating plug (GG) or open wires (GL) on the other side.

Description	ID	L_2 [m]	D_1
Power cable for SCHUNK MMI			
KA GGN2304-LK-00150-H	0349874	1.5	M23
KA GGN2304-LK-00300-H	0349875	3	M23
KA GGN2304-LK-00500-H	0349876	5	M23
KA GGN2304-LK-01000-H	0349877	10	M23
KA GLN2304-LK-00150-H	0349870	1.5	M23
KA GLN2304-LK-00300-H	0349871	3	M23
KA GLN2304-LK-00500-H	0349872	0.5	M23
KA GLN2304-LK-01000-H	0349873	1	M23

ⓘ Please observe the bending radius (7.5 times the cable diameter).

CAN bus cable



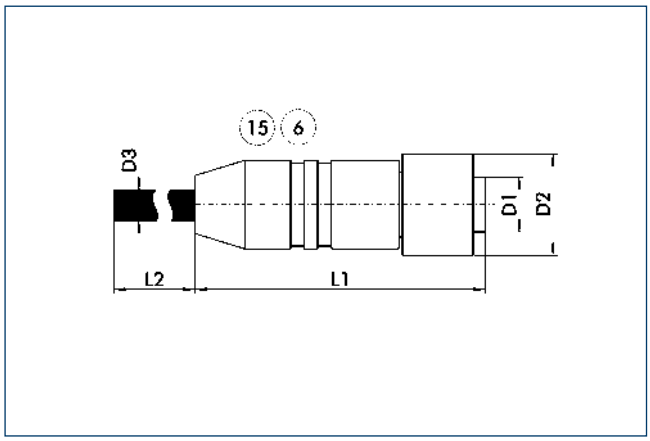
(6) Connection module side (15) Socket

The CAN bus cable is pre-assembled for our mechatronic modules with MMI connection cap and the RPH rotary module. It has an M12 connector plug on both sides.

Description	ID	L_2 [m]	D_1
CAN bus cable			
KA GGN1204-CN-00150-A	0349770	1.5	M12
KA GGN1204-CN-00300-A	0349771	3	M12
KA GGN1204-CN-00500-A	0349772	5	M12
KA GGN1204-CN-01000-A	0349773	10	M12

ⓘ Please observe the bending radius (7.5 times the cable diameter).

Profibus cable



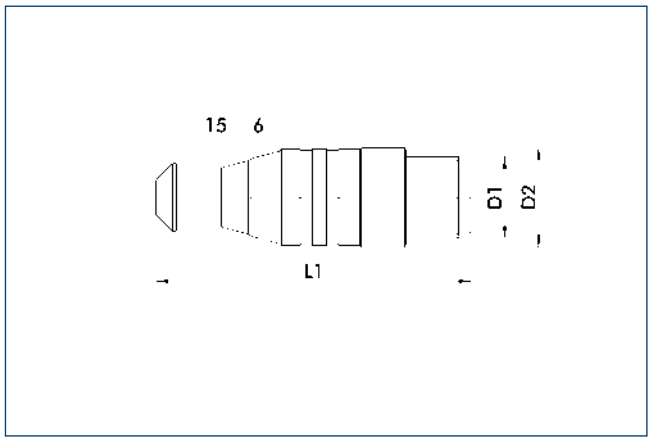
⑥ Connection module side ⑮ Socket

The Profibus cable is pre-assembled for our mechatronic modules with MMI connection cap and PRH rotary module. It has an M12 connector plug on both sides.

Description	ID	L_2 [m]	D_1
Profibus cable			
KA GGN1204-PB-00150-A	0349750	1.5	M12
KA GGN1204-PB-00300-A	0349751	3	M12
KA GGN1204-PB-00500-A	0349752	5	M12
KA GGN1204-PB-01000-A	0349753	10	M12

ⓘ Please observe the bending radius (7.5 times the cable diameter).

Terminators



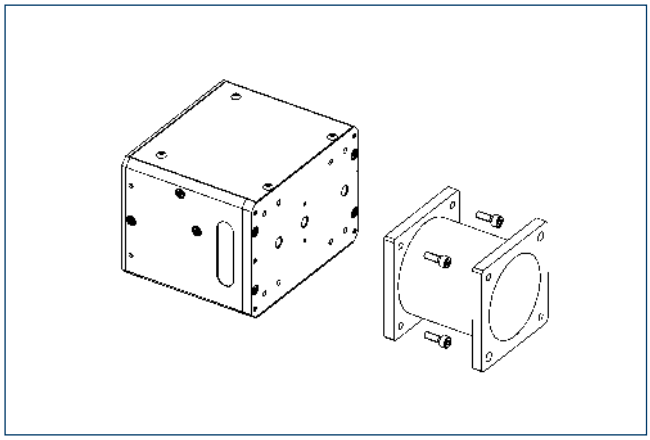
⑥ Connection module side ⑮ Socket

The ST terminating resistors are provided for the termination of the bus string directly at the SCHUNK module. The terminating resistors are available for the Profibus (RB) or CAN bus (CN) bus systems.

Description	ID	D_1
Terminators		
ST SG1204-CN-A-A	0349660	M12
ST SG1204-PB-A-A	0349650	M12

ⓘ A suitable terminator must be mounted on the last module in the CAN or Profibus line.

Connecting element - straight

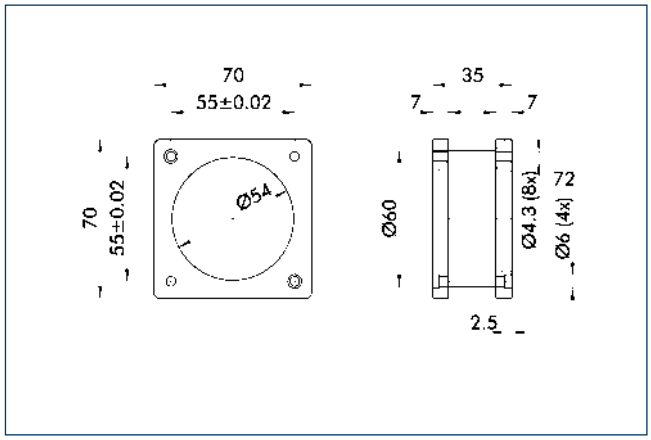


Straight standard element for connection of mechatronic modules PG, PR, PDU, and PSM in size 70.

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

ⓘ Special lengths are available on request. Please contact us.

PAM 100 - straight

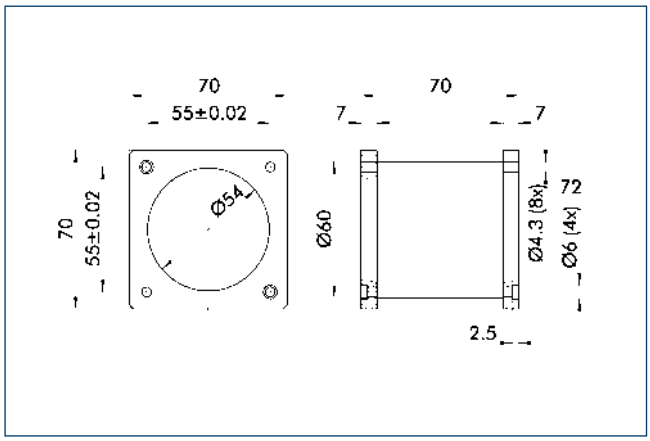


⑦② Fit for centering sleeves

Suitable for mechatronic modules PG, PR, PDU, and PSM in size 70.

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

PAM 101 – straight

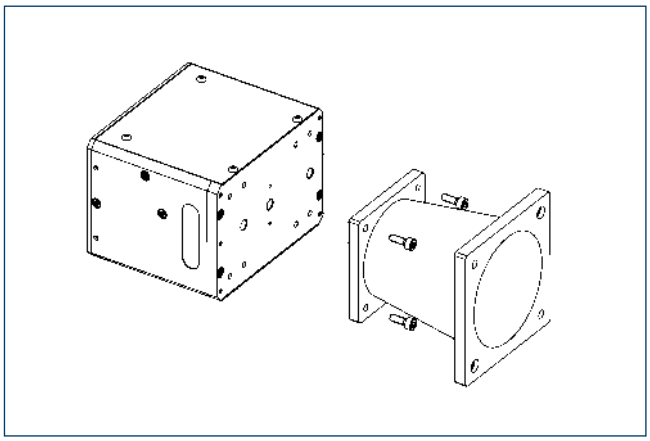


(72) Fit for centering sleeves

Suitable for mechatronic modules PG, PR, PDU, and PSM in size 70.

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

Connecting element – conical

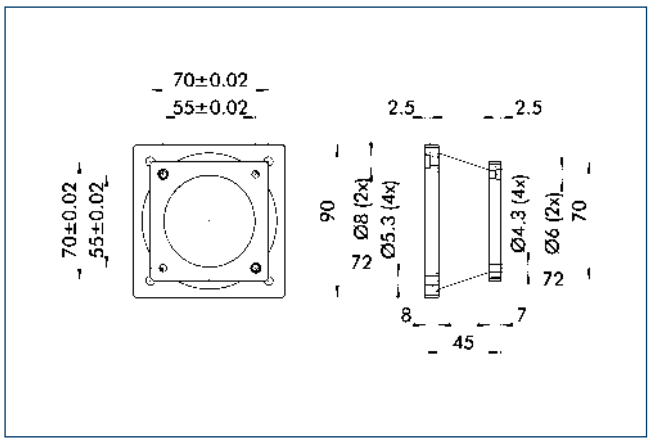


Straight standard element for connection of mechatronic modules PG, PR, PDU, and PSM in size 70/90.

Description	ID	
Connecting element		
PAM 110	0307810	
PAM 111	0307811	

ⓘ Special lengths are available on request. Please contact us.

PAM 110 – conical

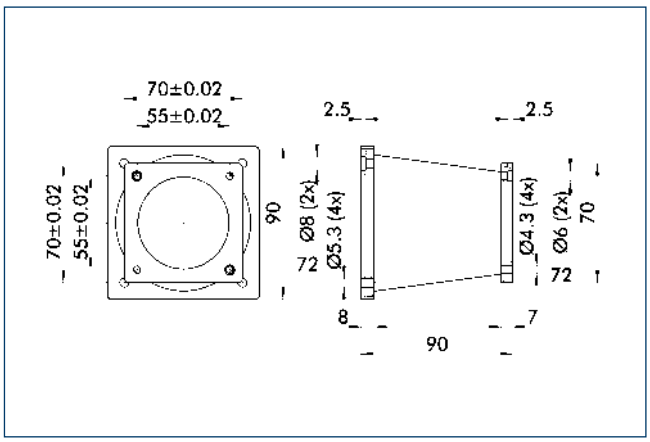


(72) Fit for centering sleeves

Suitable for mechatronic modules PG, PR, PDU, and PSM in size 70/90.

Description	ID	
Connecting element		
PAM 110	0307810	

PAM 111 – conical

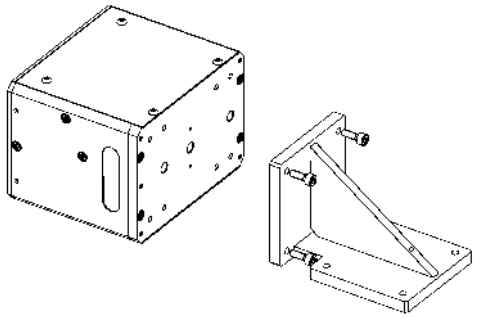


(72) Fit for centering sleeves

Suitable for mechatronic modules PG, PR, PDU, and PSM in size 70/90.

Description	ID	
Connecting element		
PAM 111	0307811	

Connecting element – angle

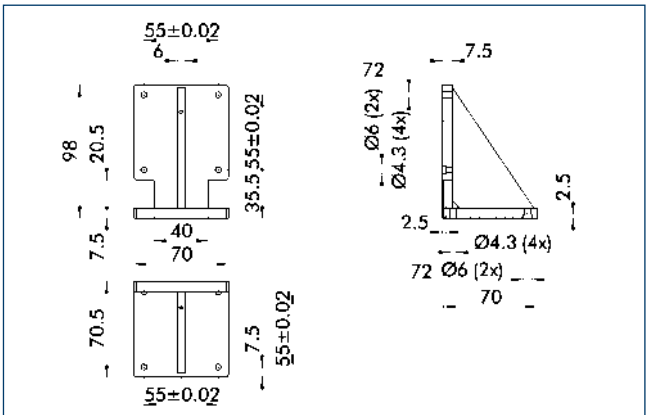


Angled standard element for connection of mechatronic modules PG, PR, PDU, and PSM in size 70.

Description	ID	
Connecting element		
PAM 120	0307820	

ⓘ Special lengths are available on request. Please contact us.

PAM 120 – angle



(72) Fit for centering sleeves

Suitable for mechatronic modules PG, PR, PDU, and PSM in size 70.

Description	ID	
Connecting element		
PAM 120	0307820	

Notes