



Superior Clamping and Gripping



Product Information

Compact drive PDU

Bus capable. Precise. Robust.

Drive PDU

Servo-electric drive with angle of rotation $> 360^\circ$, precision gear and integrated electronics

Field of application

Servo-drive for linear, rotary or CNC-axes; axis motor for applications in the field of measuring and testing



Advantages – Your benefits

Brushless DC servomotor for flexible use by controlled position, velocity, and torque

High torque, velocity, and precision for fast acceleration and short cycle times at a high precision

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: 3



Weight
1.6 .. 5.5 kg



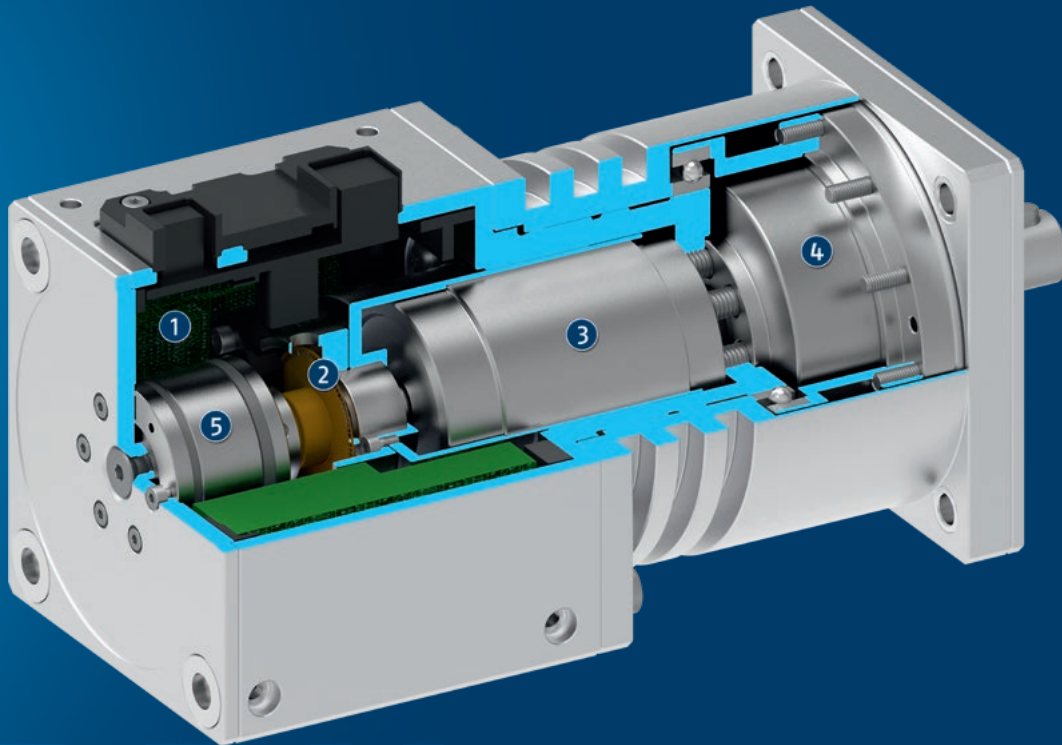
Torque
3.6 .. 88 Nm



Repeat accuracy
0.03 .. 0.08°

Functional description

The motor shaft is driven via a Harmonic Drive® gear unit by the brushless DC servomotor.



- ① **Control electronics**
integrated control and power electronics
- ② **Encoder**
for position evaluation
- ③ **Motor**
Brushless DC servomotor for maximum torques
- ④ **Harmonic Drive® gears**
for different gear ratios and high rigidity
- ⑤ **Brake**
for maintaining position on shutdown and power failure

General notes about the series

Housing material: Aluminum alloy, coated

Actuation: servo-electric, via brushless DC servomotor and incremental encoder for controlling position and velocity.

Operating principle: Harmonic drive® gear driven directly via brushless DC servomotor

Scope of delivery: DVD with SCHUNK software and commissioning assistant, includes assembly and operating manual, declaration of incorporation, functional module for control via Siemens S7.

Warranty: 24 months

Swiveling times: are purely the times of the module to rotate from rest position to rest position. Relay switching times or PLC reaction times are not included in the above times and must be taken into consideration when determining cycle times. Load-dependent rest periods may have to be included in the cycle time.

Repeat accuracy: Is defined as the spread of the target position after 100 consecutive positioning cycles.

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 installed, electric holding brake serves to fix and hold the position in case of power failure up to the rated torque. It cannot cover any complete safety functions.

Peak torque: The peak torques serve as short-term drive reserves when accelerating and delaying.



Application example

Line gantry for loading and unloading different sensitive components

- | | |
|--------------------------------------|--|
| ① Servo electric drive PSM | ④ Beta belt-driven axes |
| ② Servo electric drive with gear PDU | ⑤ PEH servo-electric 2-finger parallel gripper |
| ③ PLS spindle linear module | |

SCHUNK offers more ...

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



Connection cap DMI



Power- / and data cable



Linear module



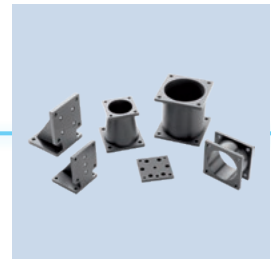
Servo-electric rotary pan tilt actuator PW



Servo-electric 2-finger parallel gripper PG



PEH servo-electric 2-finger parallel gripper



Connecting elements PAM

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 PDU 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 easy integration into existing control concepts. For transmission of power supply and data communications, we offer various cables.

IP protection class: The indicated protection class can only be achieved in conjunction with a connection cap DMI.

Technological functions: Pseudo absolute encoder function, freely programmable sequences, and directly controllable via digital I/O or fieldbus interface using the SCHUNK Motion Protocol (SMP)

Control types: Position control, rotational speed control, power control

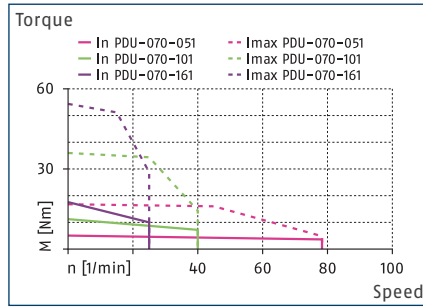
Monitoring functions: I²t monitoring, current monitoring, power failure detection, contouring error monitoring, software end position monitoring, position monitoring

PDU 70

Compact drive

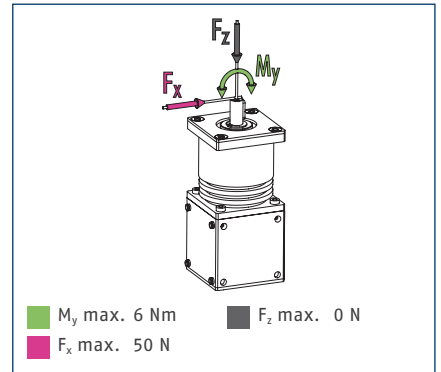


Torque characteristic



① The diagram is only valid for applications with vertical swivel axes or horizontal swivel axes with even mass distribution and without the effects of gravity.

Max. loads



① Moments and forces may occur simultaneously.

Technical data

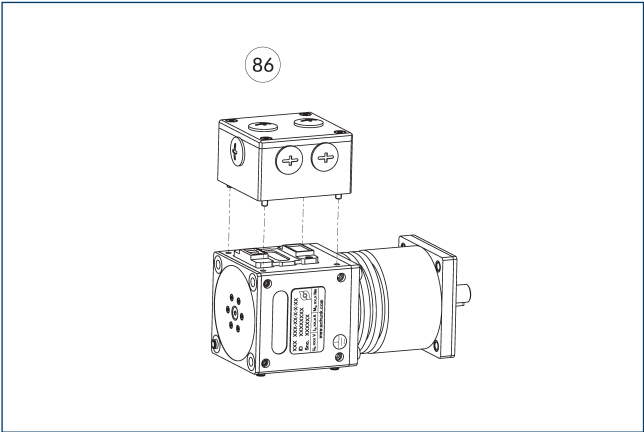
Characterization		PDU 070-051-B	PDU 070-101-B	PDU 070-161-B
ID		0307354	0307352	0307350
Mechanical operating data				
Nominal torque	[Nm]	3.6	7.2	10
Max. torque	[Nm]	16	34.4	51.2
Max. RPM	[1/min]	78	40	25
Repeat accuracy	[°]	0.08	0.04	0.03
Transmission		51:1	101:1	161:1
General operating data				
Brake		yes	yes	yes
Weight	[kg]	1.6	1.6	1.6
Min./max. ambient temperature	[°C]	5/55	5/55	5/55
IP protection class		40	40	40
Electrical operating data				
Nominal voltage	[V]	24	24	24
Nominal current	[A]	4.4	4.4	4.4
Max. current	[A]	12.4	12.4	12.4
Integrated control electronics				
Power supply	[V]	24	24	24
Encoder system		Encoder (incremental)	Encoder (incremental)	Encoder (incremental)
Interface		PROFIBUS, CAN, 4/4 digital I/O, RS232	PROFIBUS, CAN, 4/4 digital I/O, RS232	PROFIBUS, CAN, 4/4 digital I/O, RS232
PROFIBUS interface	[Mbit/s]	1.5	1.5	1.5

[illegible]

① Connection swivel unit	⑦② Fit for centering sleeves
② Attachment connection	⑦⑧ Fit for centering
⑤⑩ Electrical connection	⑧⑩ Depth of the centering sleeve hole in the counter part

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. The DMI connection cap is optionally available with digital I/O (D), with either PROFIBUS (PB) or CAN (CN) interface.

Connection caps

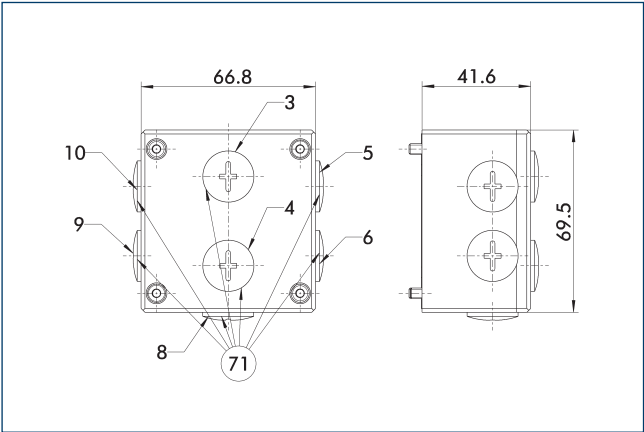


86 Connection cap DMI

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. The DMI connection cap is optionally available with digital I/O (D), with either PROFIBUS (PB) or CAN (CN) interface.

Characterization	ID	
Connection cap		
DMI 070-V05-B	0307732	

Connection cap DMI

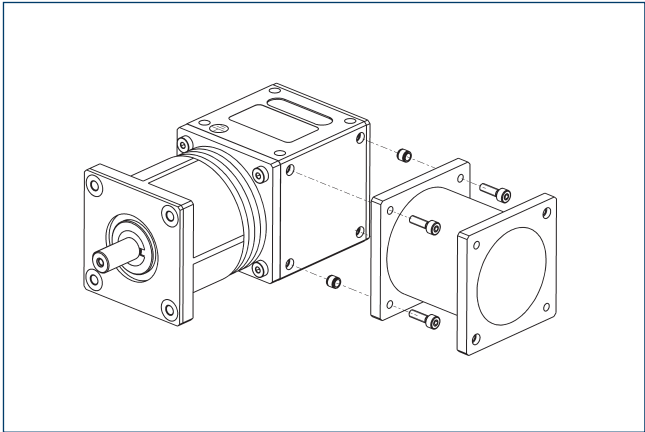


71 M16x1.5 for cable guide penetrating screw connection

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	

Connecting element – straight

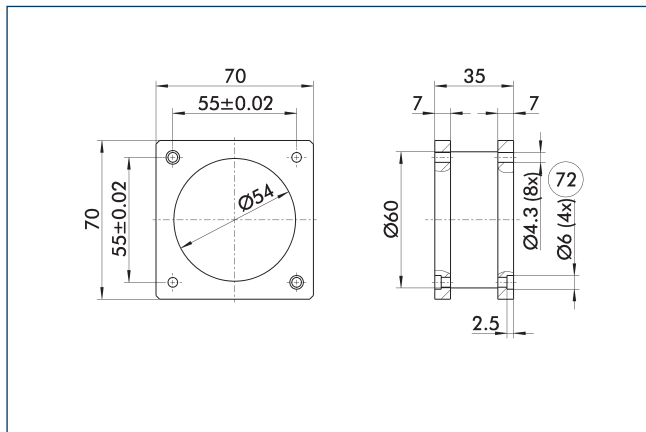


Straight standard element for connection of PowerCube modules with repeat accuracy

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.

PAM 101 – straight



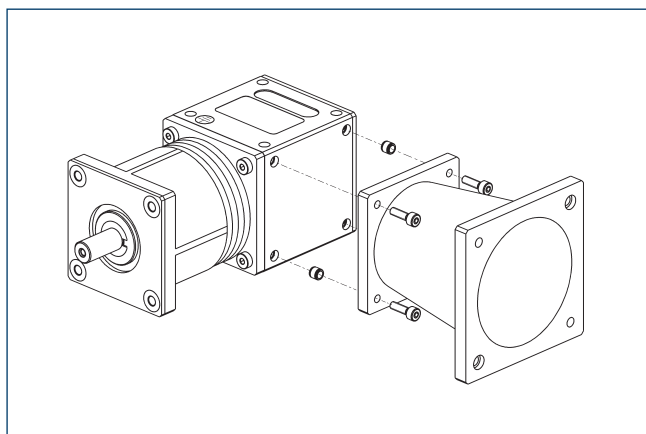
⑦2 Fit for centering sleeves

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 100	0307800	70x70/35/70x70 mm

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

PAM 110 – conical



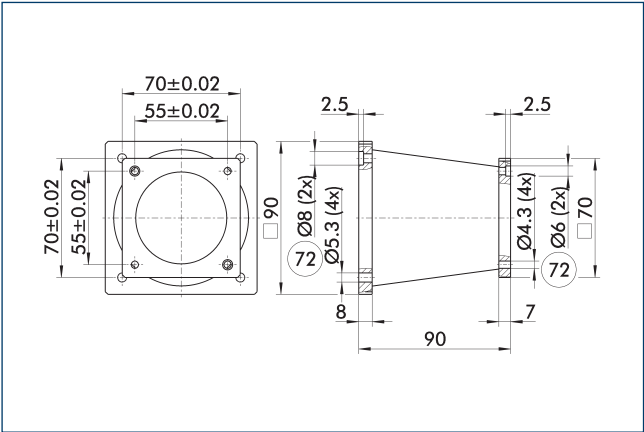
⑦② Fit for centering sleeves

Characterization	ID	
Connecting element		
PAM 110	0307810	
PAM 111	0307811	

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

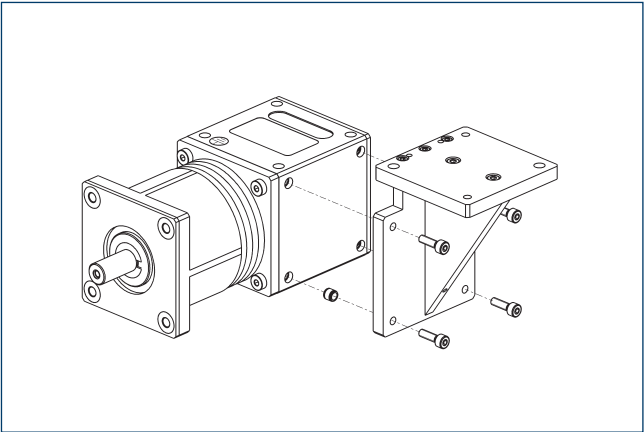


72 Fit for centering sleeves

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	

Connectiing element – angle

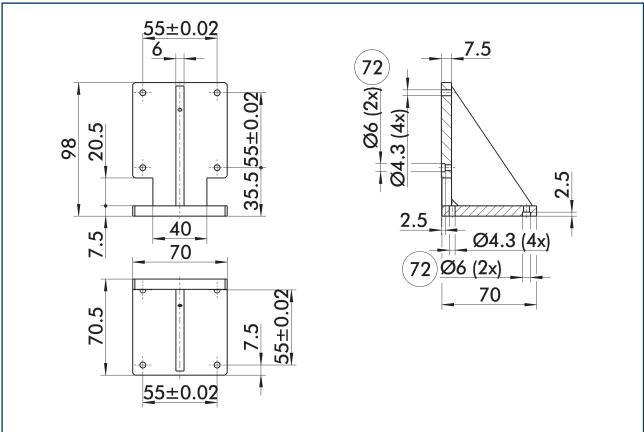


Angular standard element for connection of PowerCube modules with repeat accuracy

Characterization	ID	
Connecting element		
PAM 120	0307820	

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

PAM 120 – angle



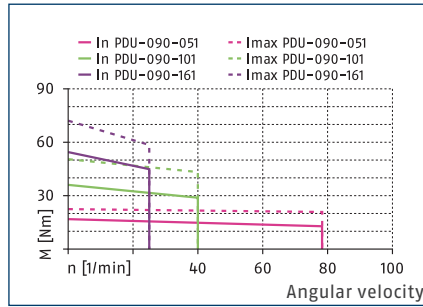
72 Fit for centering sleeves

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	

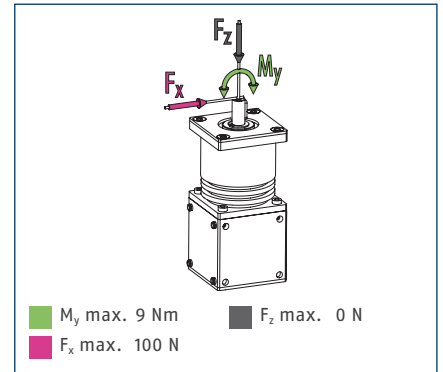


Torque characteristic



① The diagram is only valid for applications with vertical swivel axes or horizontal swivel axes with even mass distribution and without the effects of gravity.

Max. loads

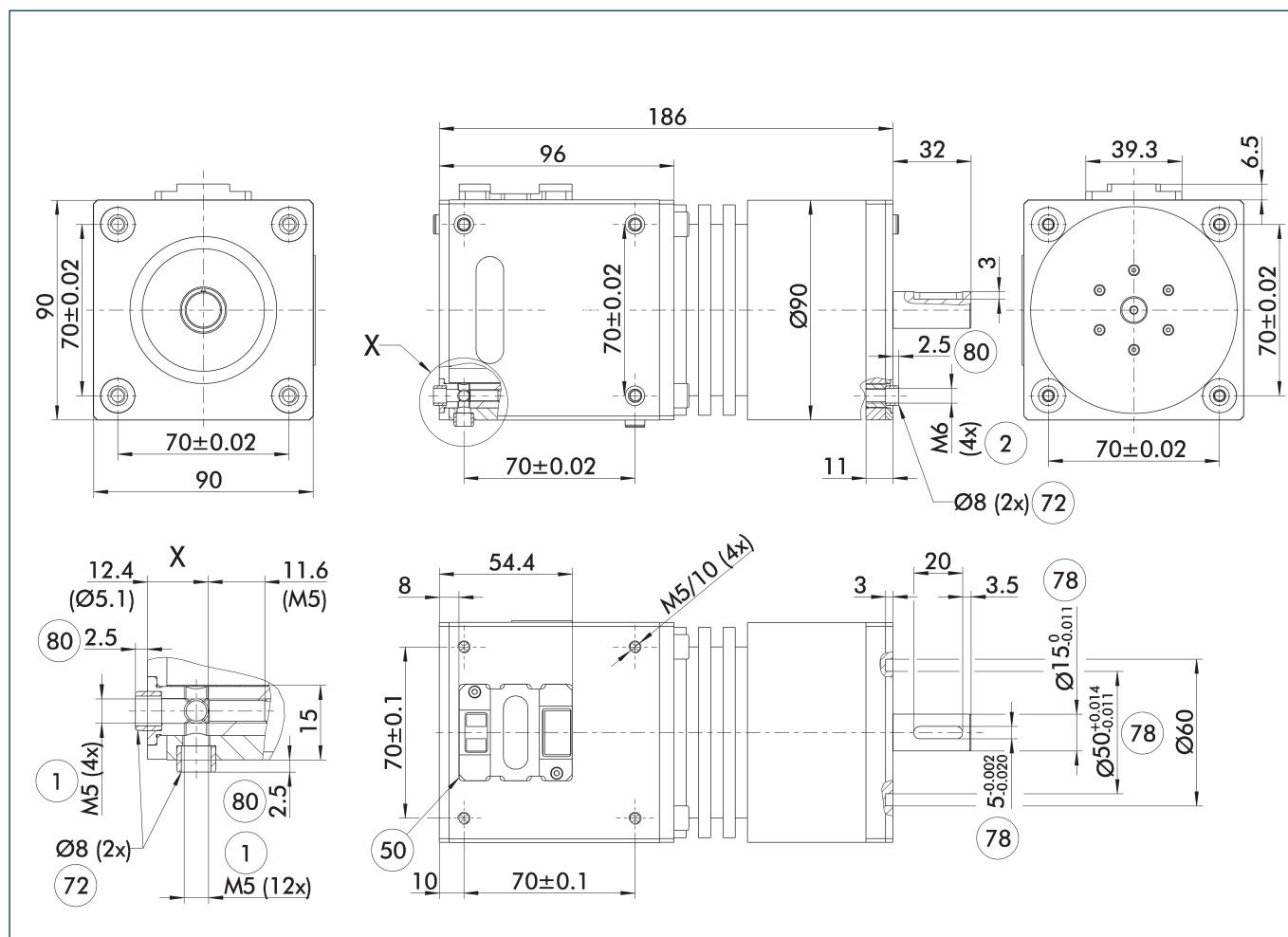


① Moments and forces may occur simultaneously.

Technical data

Characterization		PDU 090-051-B	PDU 090-101-B	PDU 090-161-B
ID		0307364	0307362	0307360
Mechanical operating data				
Nominal torque	[Nm]	12.8	28.8	44.8
Max. torque	[Nm]	20.8	43.2	58.4
Max. RPM	[1/min]	78	40	25
Repeat accuracy	[°]	0.08	0.04	0.03
Transmission		51:1	101:1	161:1
General operating data				
Brake		yes	yes	yes
Weight	[kg]	3.1	3.1	3.1
Min./max. ambient temperature	[°C]	5/55	5/55	5/55
IP protection class		40	40	40
Electrical operating data				
Nominal voltage	[V]	24	24	24
Nominal current	[A]	15	15	15
Max. current	[A]	20	20	20
Integrated control electronics				
Power supply	[V]	24	24	24
Encoder system		Encoder (incremental)	Encoder (incremental)	Encoder (incremental)
Interface		PROFIBUS, CAN, 4/4 digital I/O, RS232	PROFIBUS, CAN, 4/4 digital I/O, RS232	PROFIBUS, CAN, 4/4 digital I/O, RS232
PROFIBUS interface	[Mbit/s]	1.5	1.5	1.5

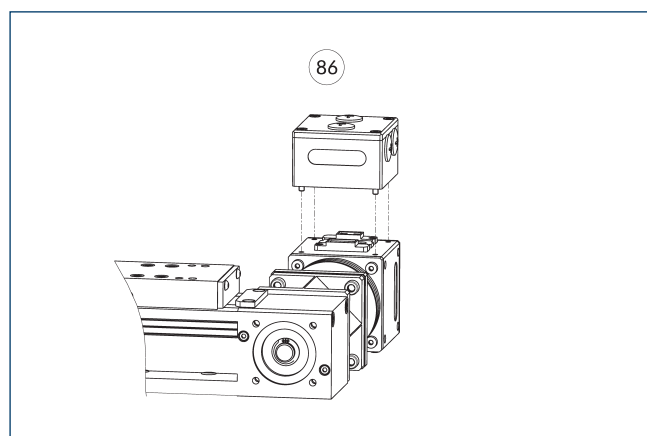
Main view



The drawing shows the basic design of the module without the connection cap without dimensional consideration of the options described below.

- ① Connection swivel unit
- ② Attachment connection
- ⑤ Electrical connection
- ⑦ Fit for centering sleeves
- ⑧ Fit for centering
- ⑨ Depth of the centering sleeve hole in the counter part

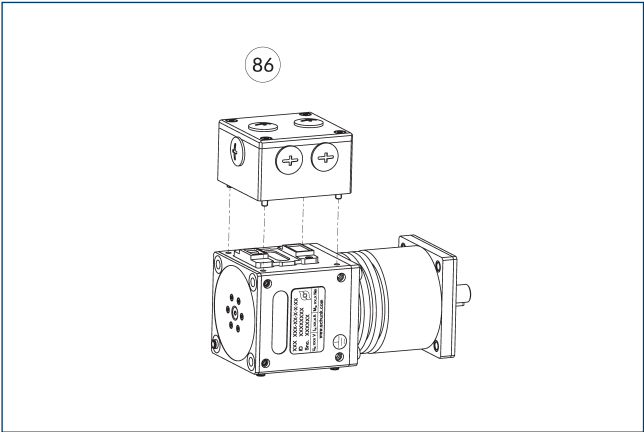
Connection caps



⑧ 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. The DMI connection cap is optionally available with digital I/O (D), with either PROFIBUS (PB) or CAN (CN) interface.

Connection caps

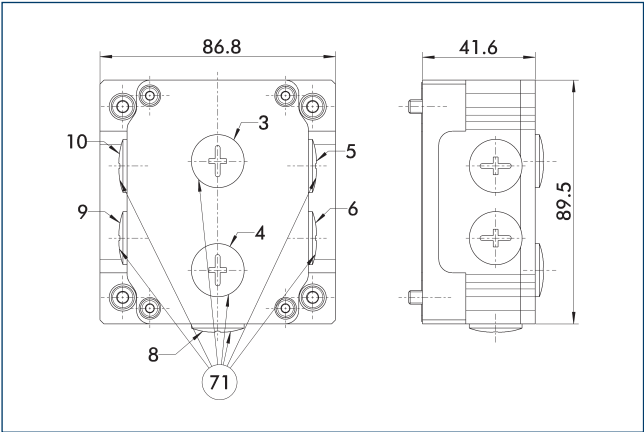


86 Connection cap DMI

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. The DMI connection cap is optionally available with digital I/O (D), with either PROFIBUS (PB) or CAN (CN) interface.

Characterization	ID	
Connection cap		
DMI 090-V05-B	0307733	

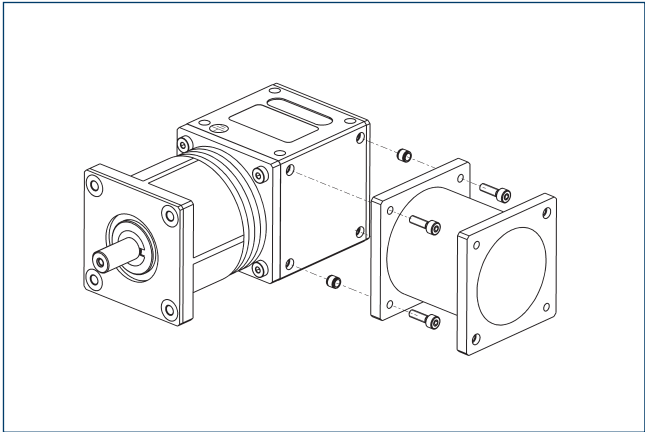
Connection cap DMI



71 M16x1.5 for cable guide penetrating screw connection

Characterization	ID	
Connection cap		
DMI 090-V05-B	0307733	

Connecting element – straight

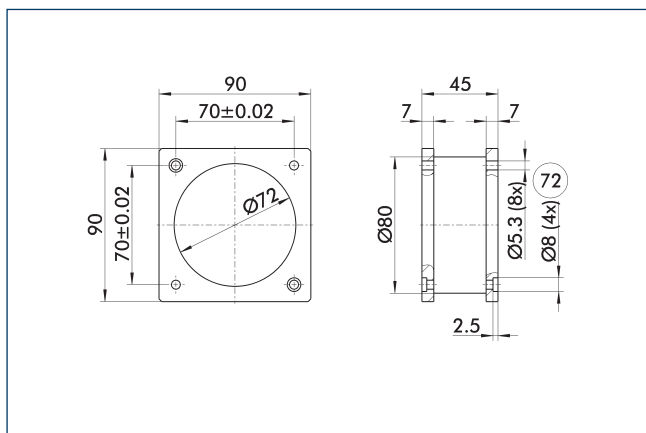


Straight standard element for connection of PowerCube modules with repeat accuracy

Characterization	ID	Dimensions
Connecting element		
PAM 102	0307802	90x90/45/90x90 mm
PAM 103	0307803	90x90/90/90x90 mm

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

PAM 102 – straight

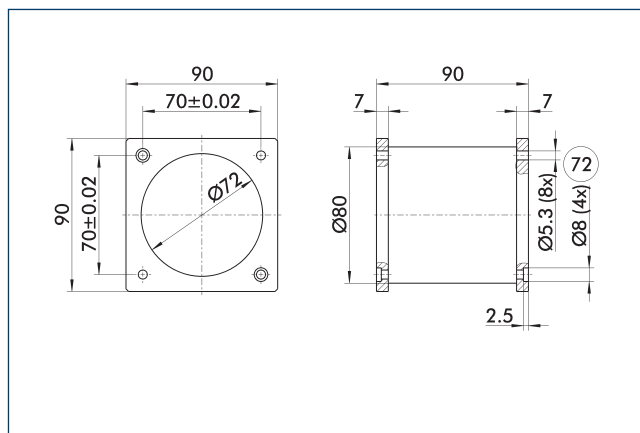


72 Fit for centering sleeves

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

Characterization	ID	Dimensions
Connecting element		
PAM 102	0307802	90x90/45/90x90 mm

PAM 103 – straight

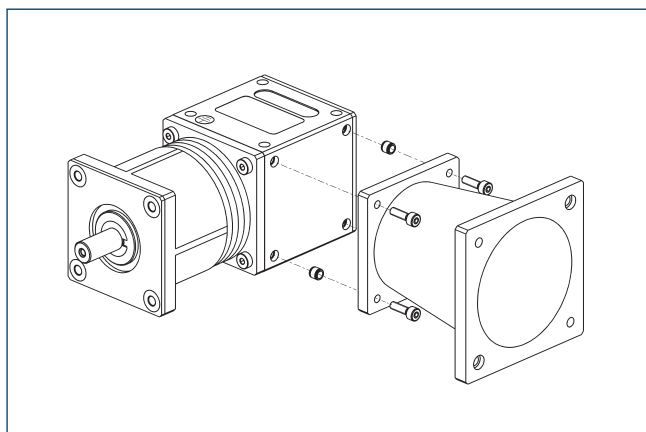


72 Fit for centering sleeves

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

Characterization	ID	Dimensions
Connecting element		
PAM 103	0307803	90x90/90/90x90 mm

Connecting element – conical

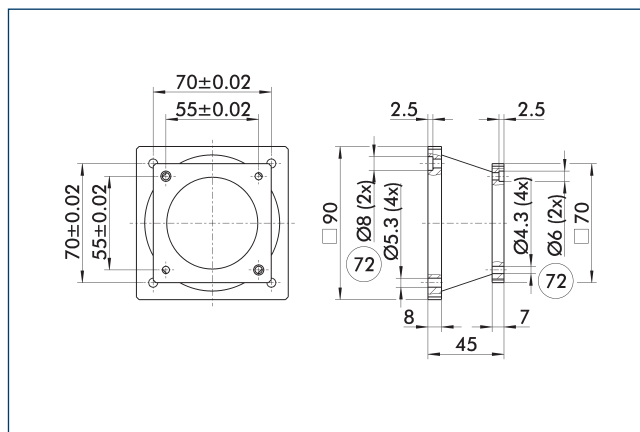


Conical standard element for connection of PowerCube modules with repeat accuracy

Characterization	ID	
Connecting element		
PAM 110	0307810	
PAM 111	0307811	
PAM 112	0307812	
PAM 113	0307813	

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

PAM 110 – conical

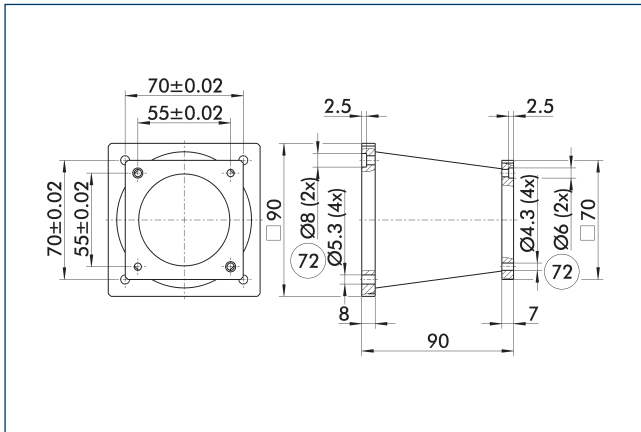


72 Fit for centering sleeves

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

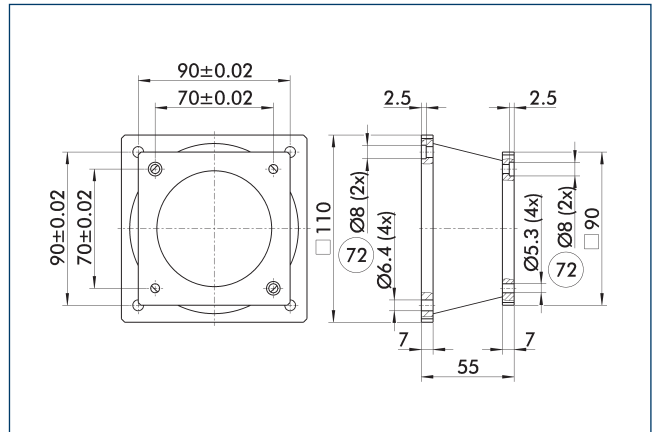


Fit for centering sleeves

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	

PAM 112 – conical

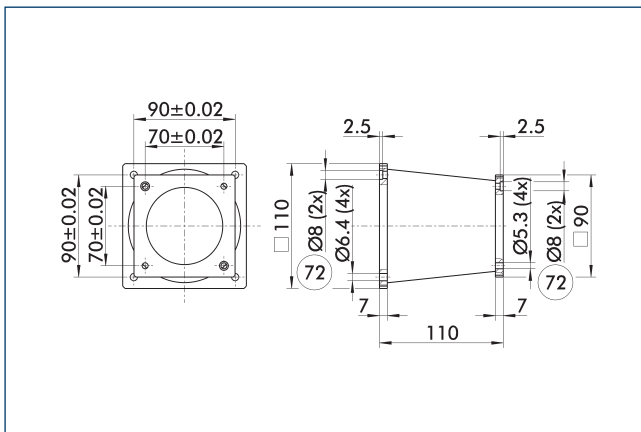


Fit for centering sleeves

Suitable for the mechatronic modules PW-V5, PW-V6, PR, PR2, PDU, PDU2, PSM and PSM2 of the sizes 90/110.

Characterization	ID	
Connecting element		
PAM 112	0307812	

PAM 113 – conical

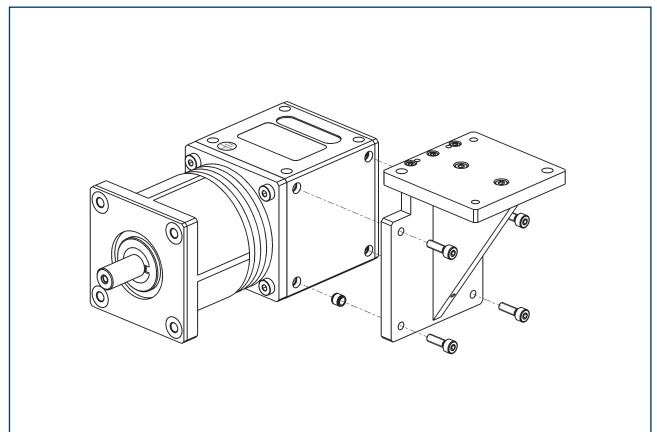


Fit for centering sleeves

Suitable for the mechatronic modules PW-V5, PW-V6, PR, PR2, PDU, PDU2, PSM and PSM2 of the sizes 90/110.

Characterization	ID	
Connecting element		
PAM 113	0307813	

Connectiing element – angle

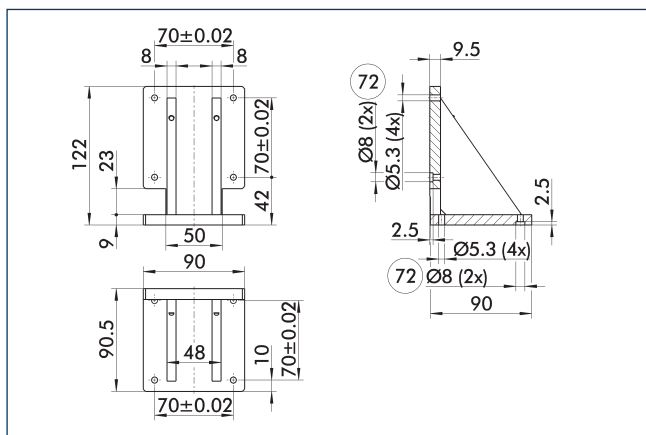


Angular standard element for connection of PowerCube modules with repeat accuracy

Characterization	ID	
Connecting element		
PAM 121	0307821	

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

PAM 121 - angle



72 Fit for centering sleeves

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

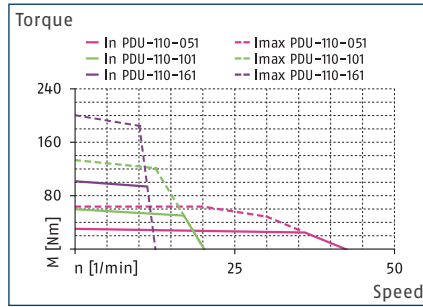
Characterization	ID	
Connecting element		
PAM 121	0307821	

PDU 110

Compact drive

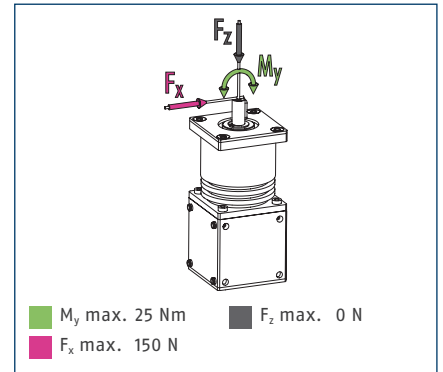


Torque characteristic



① The diagram is only valid for applications with vertical swivel axes or horizontal swivel axes with even mass distribution and without the effects of gravity.

Max. loads

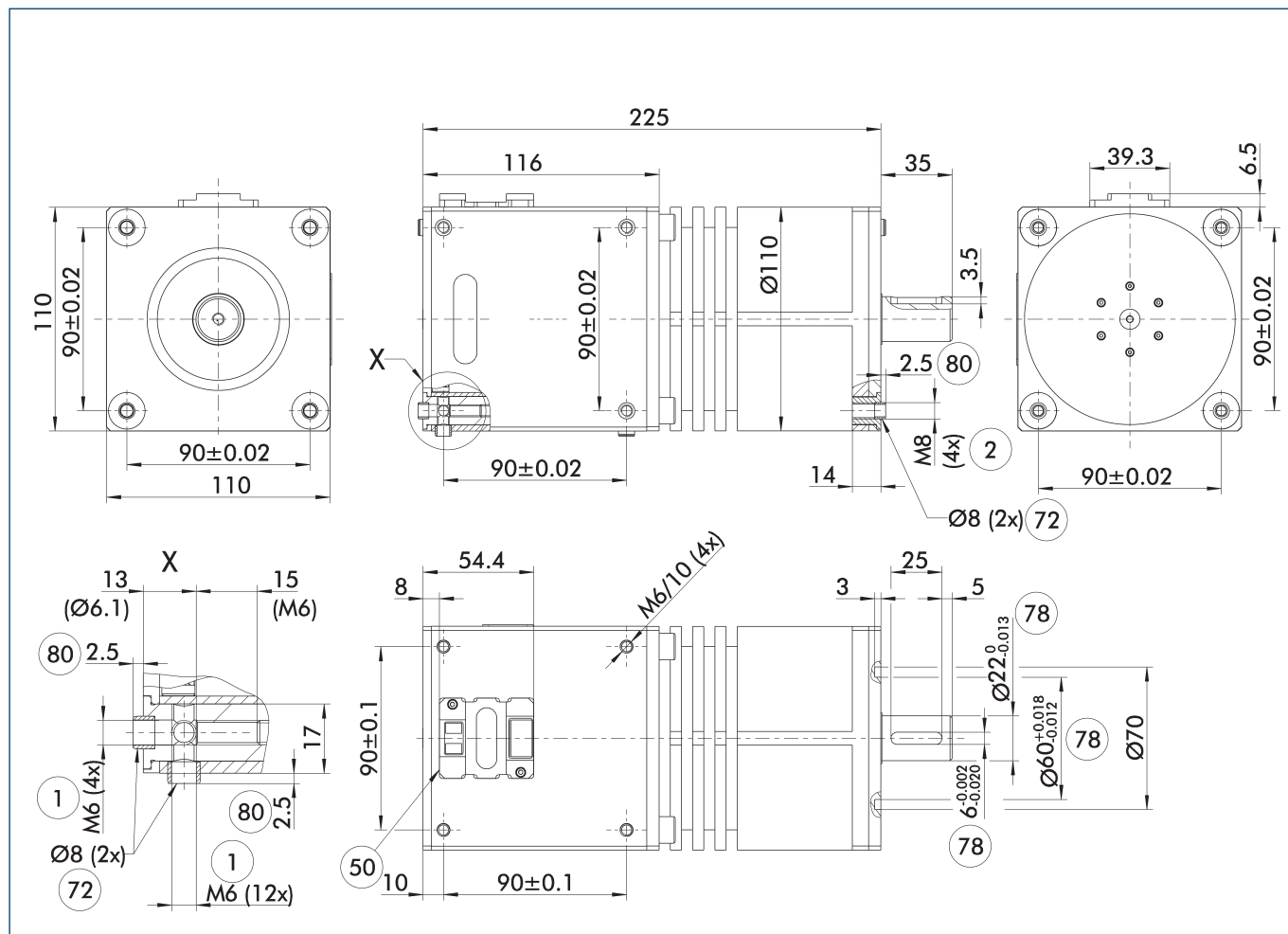


① Moments and forces may occur simultaneously.

Technical data

Characterization		PDU 110-051-B	PDU 110-101-B	PDU 110-161-B
ID		0307374	0307372	0307370
Mechanical operating data				
Nominal torque	[Nm]	22.4	40.8	88
Max. torque	[Nm]	61.6	120	184
Max. RPM	[1/min]	78	40	25
Repeat accuracy	[°]	0.08	0.04	0.03
Transmission		51:1	101:1	161:1
General operating data				
Brake		yes	yes	yes
Weight	[kg]	5.5	5.5	5.5
Min./max. ambient temperature	[°C]	5/55	5/55	5/55
IP protection class		40	40	40
Electrical operating data				
Nominal voltage	[V]	24	24	24
Nominal current	[A]	10	10	10
Max. current	[A]	20	20	20
Integrated control electronics				
Power supply	[V]	24	24	24
Encoder system		Encoder (incremental)	Encoder (incremental)	Encoder (incremental)
Interface		PROFIBUS, CAN, 4/4 digital I/O, RS232	PROFIBUS, CAN, 4/4 digital I/O, RS232	PROFIBUS, CAN, 4/4 digital I/O, RS232
PROFIBUS interface	[Mbit/s]	1.5	1.5	1.5

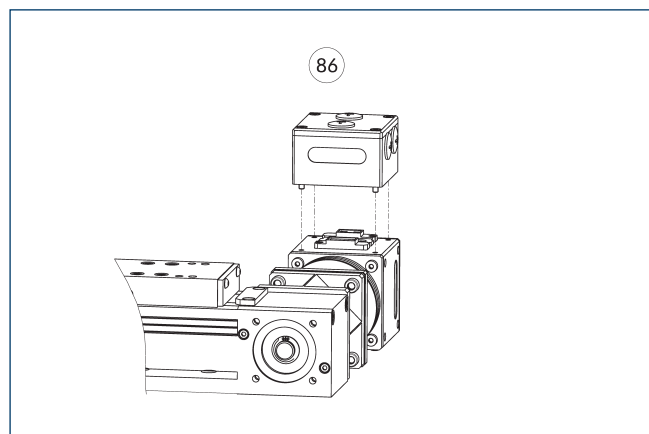
Main view



The drawing shows the basic design of the module without the connection cap without dimensional consideration of the options described below.

- ① Connection swivel unit
- ② Attachment connection
- ⑤ Electrical connection
- ⑦ Fit for centering sleeves
- ⑧ Fit for centering
- ⑨ Depth of the centering sleeve hole in the counter part

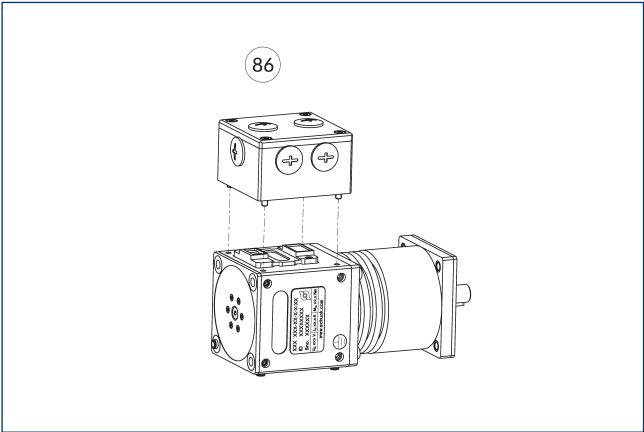
Connection caps



⑧ 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. The DMI connection cap is optionally available with digital I/O (D), with either PROFIBUS (PB) or CAN (CN) interface.

Connection caps

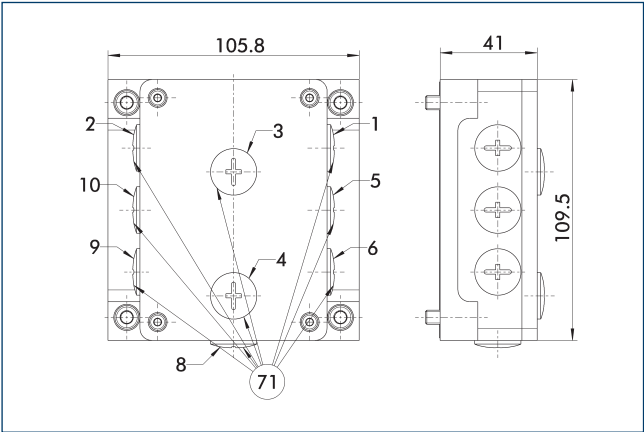


86 Connection cap DMI

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. The DMI connection cap is optionally available with digital I/O (D), with either PROFIBUS (PB) or CAN (CN) interface.

Characterization	ID	
Connection cap		
DMI 110-V05-B	0307734	

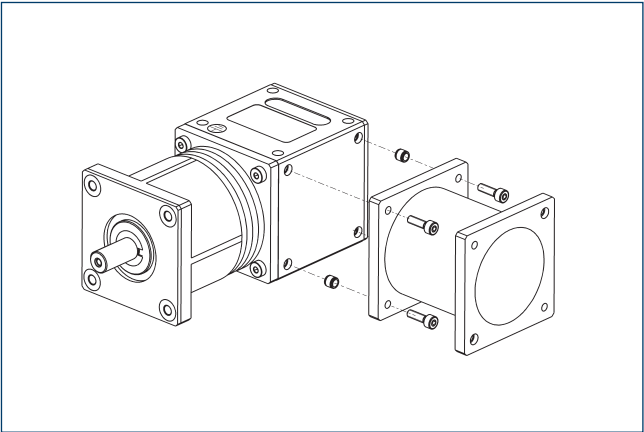
Connection cap DMI



71 M16x1.5 for cable guide penetrating screw connection

Characterization	ID	
Connection cap		
DMI 110-V05-B	0307734	

Connecting element – straight

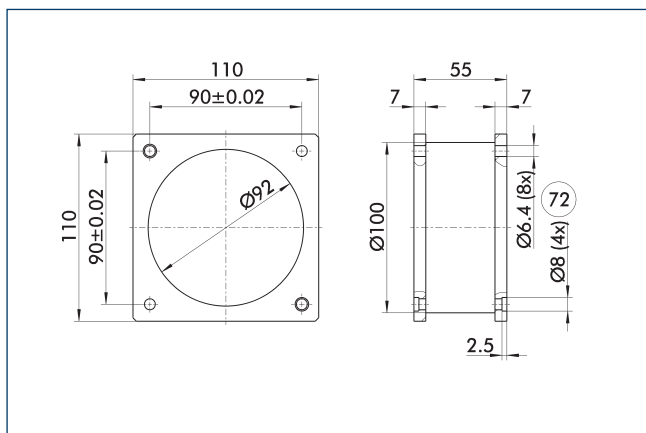


Straight standard element for connection of PowerCube modules with repeat accuracy

Characterization	ID	Dimensions
Connecting element		
PAM 104	0307804	110x110/55/110x110 mm
PAM 105	0307805	110x110/110/110x110 mm

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

PAM 104 – straight

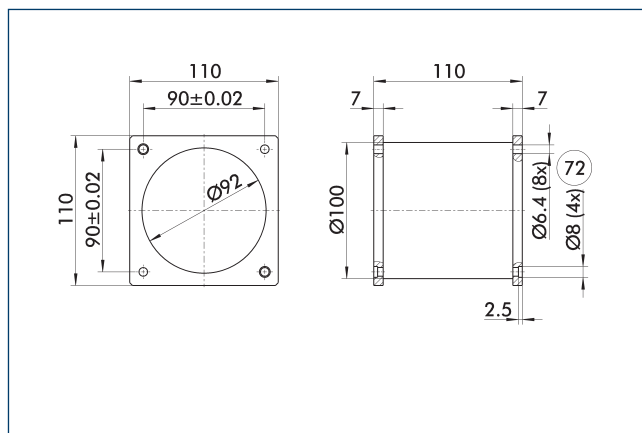


72 Fit for centering sleeves

Suitable for the mechatronic modules PW-V5, PW-V6, PR, PR2, PDU, PDU2, PSM and PSM2 of the sizes 110.

Characterization	ID	Dimensions
Connecting element		
PAM 104	0307804	110x110/55/110x110 mm

PAM 105 – straight

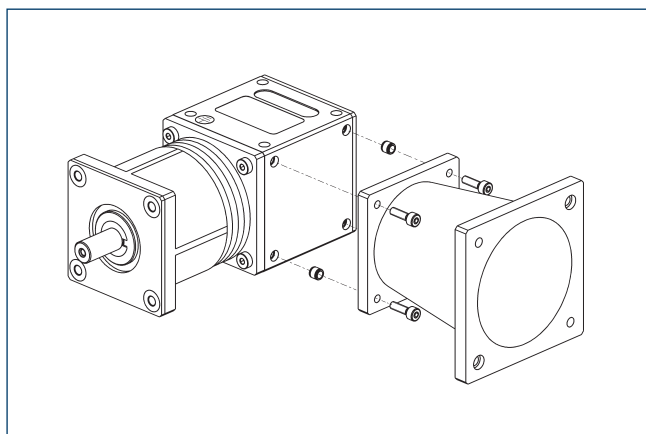


72 Fit for centering sleeves

Suitable for the mechatronic modules PW-V5, PW-V6, PR, PR2, PDU, PDU2, PSM and PSM2 of the sizes 110.

Characterization	ID	Dimensions
Connecting element		
PAM 105	0307805	110x110/110/110x110 mm

Connecting element – conical

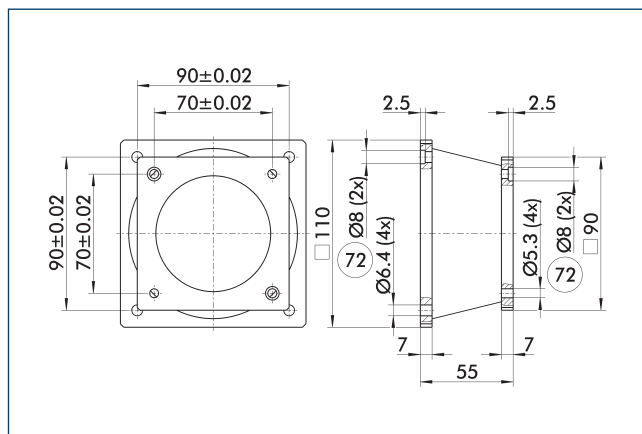


Conical standard element for connection of PowerCube modules with repeat accuracy

Characterization	ID	
Connecting element		
PAM 112	0307812	
PAM 113	0307813	

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

PAM 112 – conical

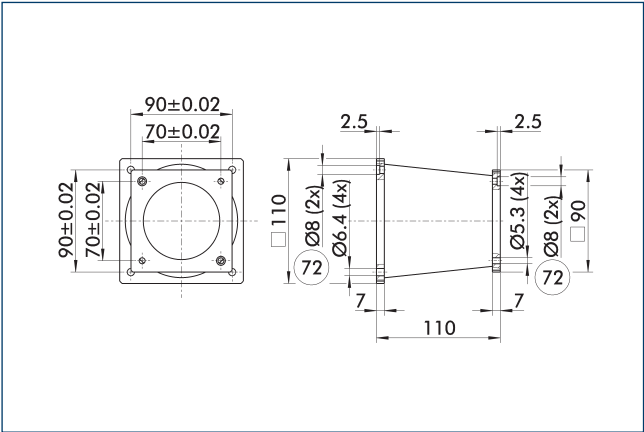


72 Fit for centering sleeves

Suitable for the mechatronic modules PW-V5, PW-V6, PR, PR2, PDU, PDU2, PSM and PSM2 of the sizes 90/110.

Characterization	ID	
Connecting element		
PAM 112	0307812	

PAM 113 - conical

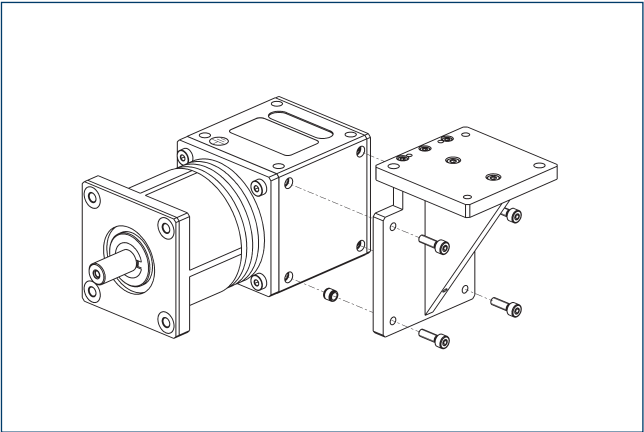


72 Fit for centering sleeves

Suitable for the mechatronic modules PW-V5, PW-V6, PR, PR2, PDU, PDU2, PSM and PSM2 of the sizes 90/110.

Characterization	ID	
Connecting element		
PAM 113	0307813	

Connectiing element - angle

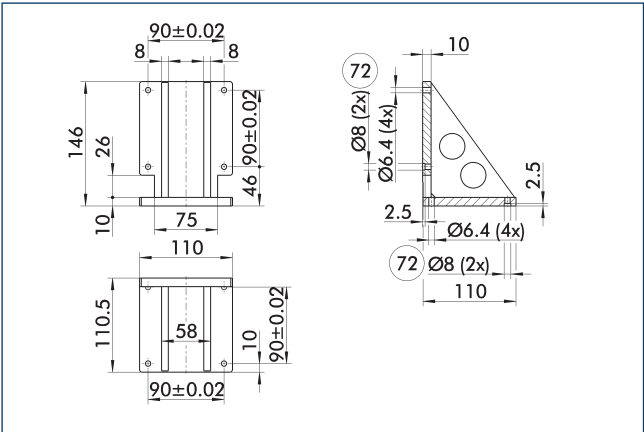


Angular standard element for connection of PowerCube modules with repeat accuracy

Characterization	ID	
Connecting element		
PAM 122	0307822	

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

PAM 122 - angle



72 Fit for centering sleeves

Suitable for the mechatronic modules PW-V5, PW-V6, PR, PR2, PDU, PDU2, PSM and PSM2 of the sizes 110.

Characterization	ID	
Connecting element		
PAM 122	0307822	

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