

Superior Clamping and Gripping



Product Information

Compensation unit PCFC

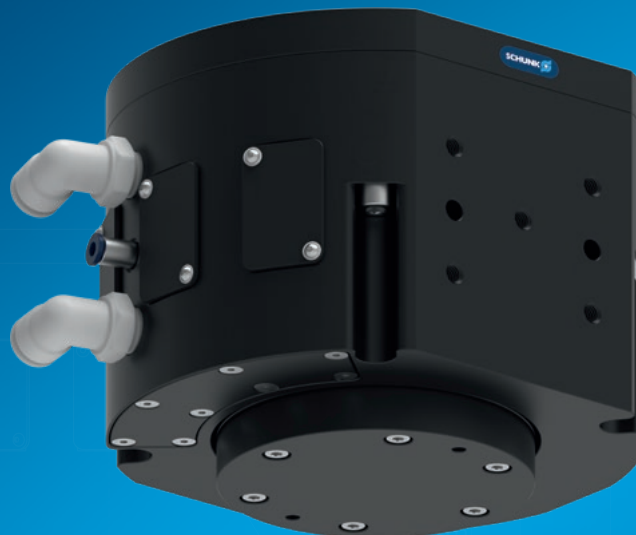
Compliant. Flexible. Compact.

Pneumatic Z-compensation unit

Pneumatic, axial compensation unit for flexible adjustment of compensation or contact forces

Field of application

Flexible use in the automation of machining processes, as different tools such as a saw, a grinding support, a belt or angle grinder, a screwdriver, riveting pliers or other tools can be attached to the tool-side adapter plate or within the large central bore. The integrated measurement of the current position and a constantly adjustable pressure force ensure a stable process and reproducible results.



Advantages – Your benefits

Flexibility in axial direction for a simplified robot programming

Integrated path-measuring system for monitoring and control of the process

Integrated weight force compensation for constant pressure forces independent of the orientation of the tool, especially in robot-guided applications

Compensation can be adjusted by means of a double-action pneumatic cylinder for a constant contact force

Simple extension of the force range by adjusting the piston configuration

Versatile in use due to the option of screwing customer tools onto the adapter plate or into a through-bore

Compact design for minimum installation height



Sizes
Quantity: 1



Compensation Z
12 mm



Max. extension
compensation force
85 .. 240 N

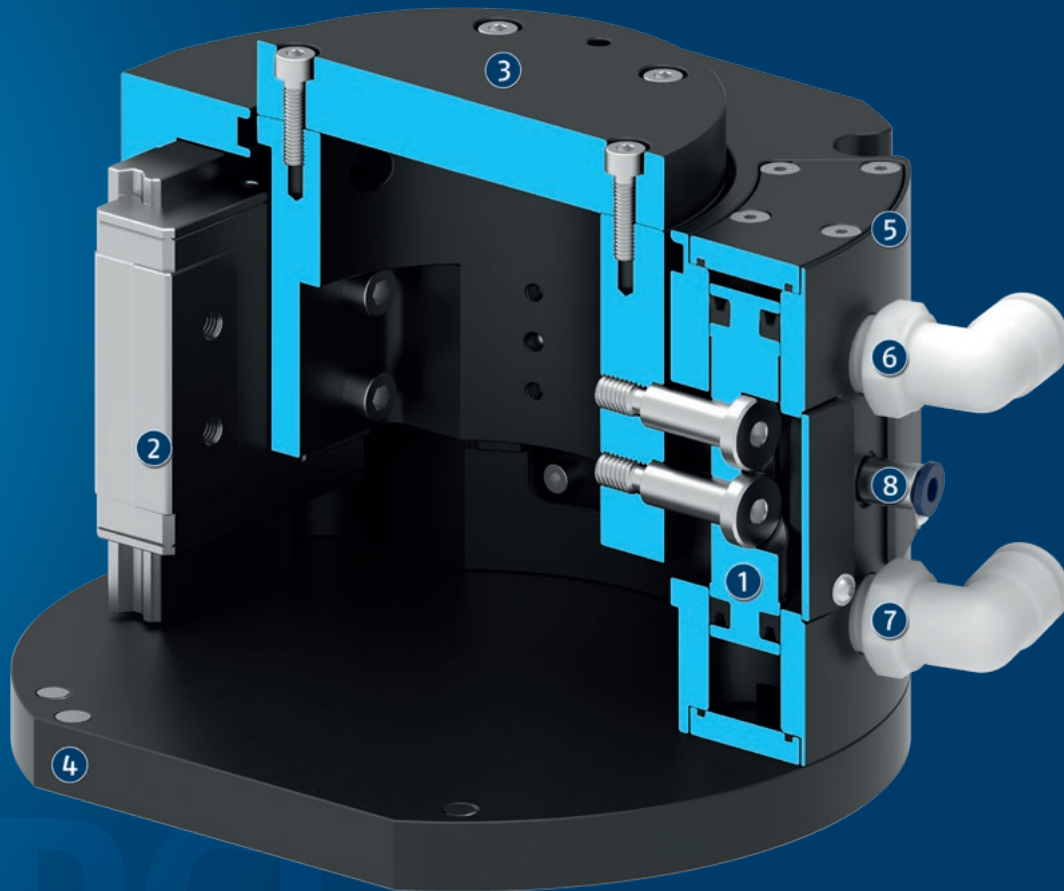


Max. retraction
compensation force
18 .. 49 N

Functional description

The compensation unit is operated by a double-acting pneumatic cylinder. The unit has a compensation stroke and is axially flexible. The compensation pressure is adjusted with dry and filtered air to ensure a constant compensation contact force. The contact force can be controlled separately in two directions (retracting and

extending) via two air connections. Depending on the piston configuration, a variable pressure force can be achieved. Due to the integrated path measuring system, the position of the compensation unit is confirmed via an analog signal and can be used for further process control.



① Piston

② Linear guide

③ Mounting
for tool provided by customer

④ Robot-side connection

⑤ Integrated path-measuring system

⑥ Retract air connection compensation

⑦ Extend air connection compensation

⑧ Air purge connection

General notes about the series

Mounting: on the robot arm or as a stationary unit

Actuation: pneumatic, via filtered ($< 5 \mu\text{m}$, dry) and unoiled compressed air

Warranty: 24 months

Ambient conditions: Please note that the unit is not suitable for use in an area where coolants or cutting fluids are present.



Application example

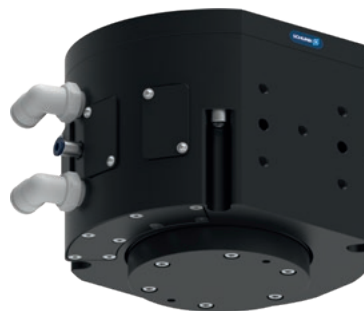
Clean processing of edges of a lasered workpiece with constant pressure force, independent of the orientation of the robot. Also suitable for stationary use.

① Passive Compliant Force Control Tool PCFC with customer's mini grinder

② Passive Compliant Force Control Tool PCFC for stationary use with customer's bench grinder
③ Universal gripper PGN-plus-P
④ Workpiece

SCHUNK offers more ...

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



Quick change system



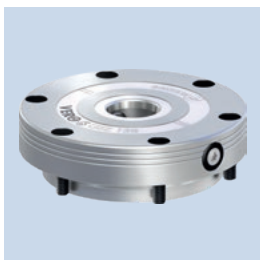
Manual change system



Force/torque sensor



2-finger parallel gripper



Quick-change Pallet System



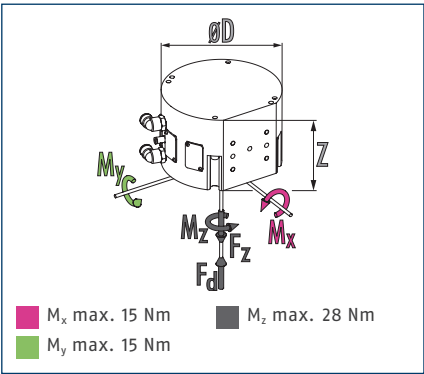
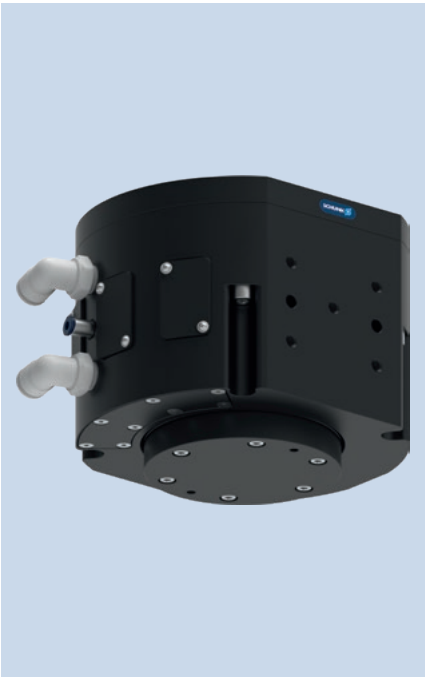
Clamping force block



3-Finger Centric Gripper

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

Dimensions and maximum loads

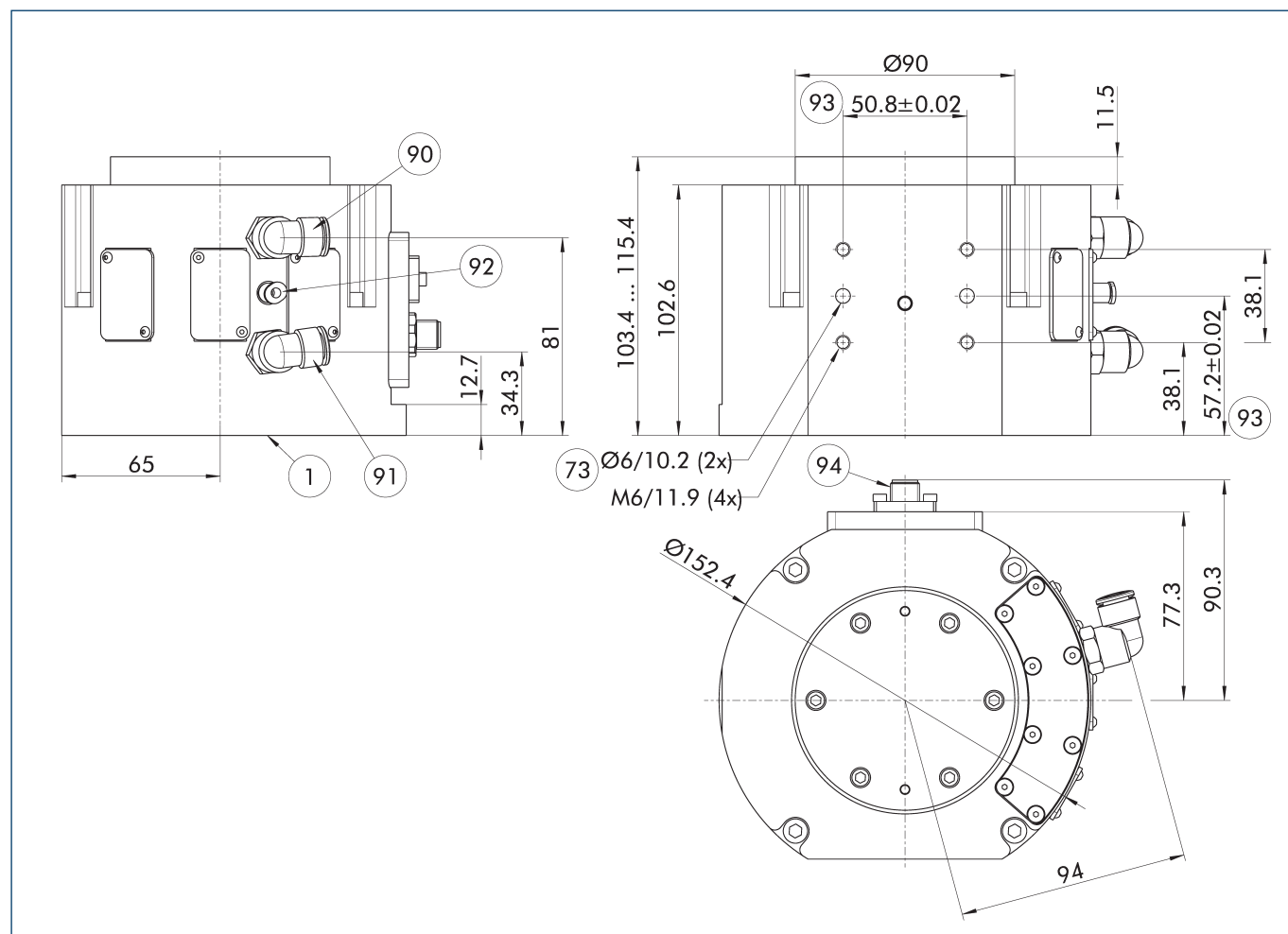


Technical data

Description		PCFC-12-A	PCFC-12-B	PCFC-12-C
ID		1453546	1453552	1453555
Compensation Z	[mm]	12	12	12
Min./max. compensation force	[N]	18/85	44/170	49/240
Weight	[kg]	3.54	3.58	3.63
Min./max. compensation pressure	[bar]	1/4.1	1/4.1	1/4.1
Weight force compensation		integrated	integrated	integrated
Retract air connection compensation		10 mm	10 mm	10 mm
Air purge connection		10 mm	10 mm	10 mm
Communication interface		RS-485	RS-485	RS-485
Min./max. ambient temperature	[°C]	5/35	5/35	5/35
Dimensions $\varnothing D \times Z$	[mm]	152.4 x 115.4	152.4 x 115.4	152.4 x 115.4
Forces F_z max./ F_d max.	[N]	85/18	170/44	240/49

① The additionally required proportional control valves for gripping force compensation are available as SCHUNK accessories.

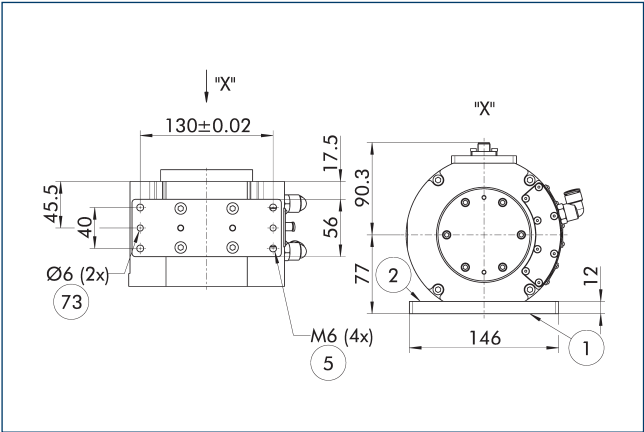
Main view



The main view shows the unit in its basic version.

- | | |
|--|--|
| ① Robot-side connection | ⑨② Air purge connection, hose screw connection for 4 mm hose |
| ⑦③ Fit for centering pins | ⑨③ radial mounting option |
| ⑨① Extend air connection compensation, hose screw connection for 10 mm hose | ⑨④ Sensor connection |
| ⑨① Retract air connection compensation, hose screw connection for 10 mm hose | |

Adapter plates, radial



- ① Robot-side connection
- ② Tool-side connection
- ⑤ Through hole for connection with screws
- ⑦③ Fit for centering pins

Description	ID	
Adapter plate		
A-PCFC-Radial	1453559	

SCHUNK GmbH & Co. KG
Spann- und Greiftechnik

Bahnhofstr. 106 - 134
D-74348 Lauffen/Neckar
Tel. +49-7133-103-0
Fax +49-7133-103-2399
info@de.schunk.com
schunk.com

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J. Lehmann

Jens Lehmann, German goalkeeper legend, SCHUNK brand ambassador since 2012 for
safe, precise gripping and holding.
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