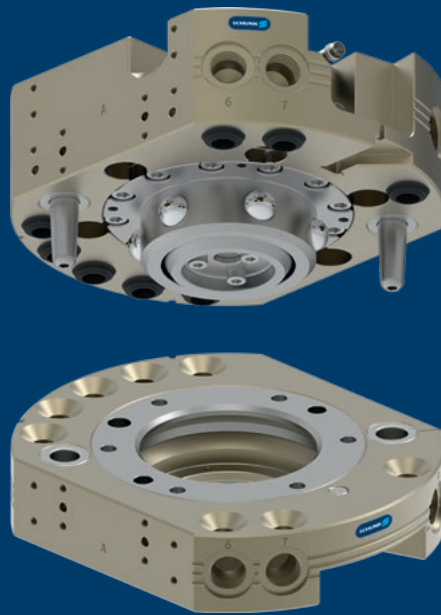




Hand in hand for tomorrow



Product data sheet

Automatic tool changers CPS 021

Modular. Robust. Flexible.

Automatic tool changers CPS

Pneumatically actuated tool changer with self-retaining function in the event of a loss of compressed air, the integrated piston spring ensures that gap formation is minimized.

Field of application

Universally applicable (e.g., for handling tasks or machine loading) with short change-over times between an end effector such as a gripper or a customer's tool.

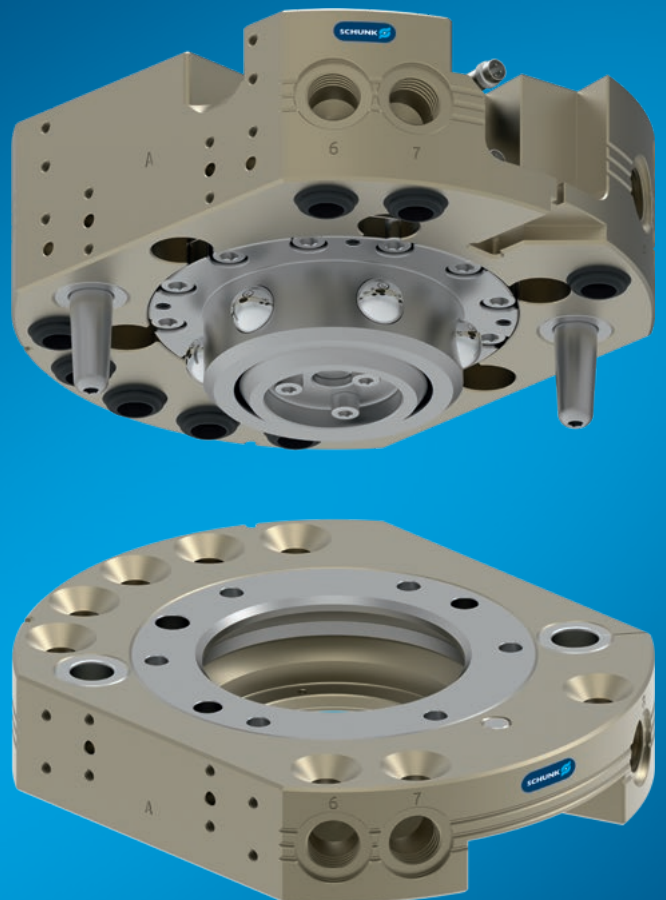
Advantages – Your benefits

Wide range of sizes with 18 sizes, the CPS enables an optimal selection for every application

Versatile media transmission extensive range of optional modules for feed-through of electrical and fluidic media extends the application possibilities of the tool change system

Durability The use of hardened and stainless steel in all functional parts increases the bearing load capacity and extends the service life

Easy assembly Installation is quick and easy using standardized adapter plates or directly on the mechanical interface

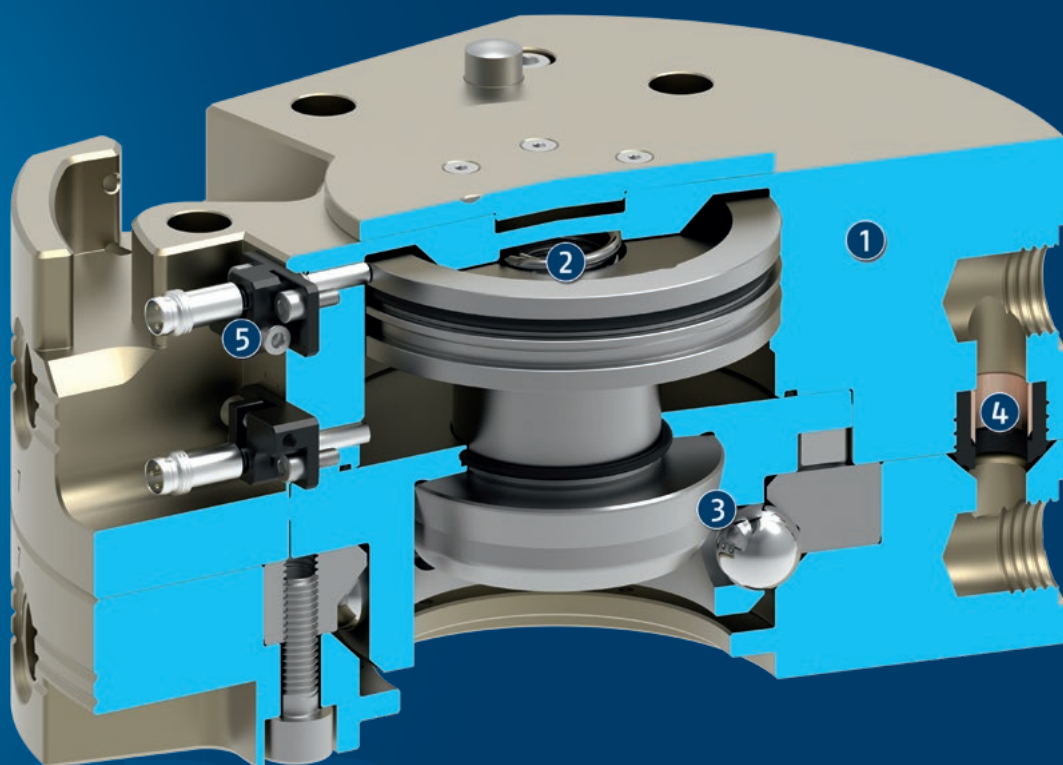


Sizes
Quantity: 18

Functional description

The automatic tool changer CPS consists of a change master (CPS-K) and a change adapter (CPS-A). The CPS-K that is mounted on the robot couples and decouples the CPS-A which is mounted on the tool. The pneumatically

actuated locking piston ensures a reliable connection. Suitable option modules supply the coupled tool.



- ① **Housing**
Weight-optimized due to the use of high-strength, hard-coated aluminum alloy
- ② **Piston**
Pneumatically driven, ensures locking/unlocking of the system
- ③ **Locking mechanism**
Functional parts are made of hardened stainless steel. Locking balls ensure a quick and secure connection. Self-retaining during compressed air drop. Integrated spring prevents gap formation between master and adapter.
- ④ **Integrated pneumatic feed-throughs**
Minimization of the interfering contour. Also suitable for transferring vacuum.
- ⑤ **Sensor monitoring of the locking device**
Optional, for monitoring in a reliable process

General notes about the series

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

Operating principle: piston-actuated balls with integrated spring (to support the locked piston position)

Media transmission: variable via attachment feed-through modules, depending on the unit size

Housing: The housing consists of high-strength, hard-coated aluminum alloy. The functional components are made of hardened corrosion free steel.

Warranty: 24 months

Service life characteristics: on request

Harsh environmental conditions: Please note that use under harsh environmental conditions (e.g. in the coolant area, cast and grinding dust) can considerably reduce the service life of the units, and we will not take over any warranty. However, in many cases we can find a solution. Please contact us for assistance.

Minimum pressure: The minimum pressure is the required minimum pressure to lock the system. This pressure must be continuously present during operation.

Self-retaining: The automatic tool changer has a self-retaining feature that prevents the tool from falling off in case of the pressure drop. The change master and change adapter can be separated by pneumatically actuating the piston.

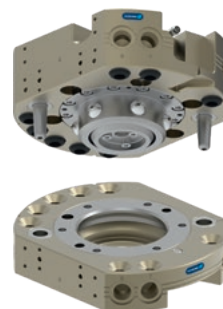


Application example

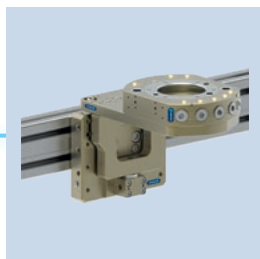
- | | |
|-------------------------------|-----------------------------------|
| ❶ Automatic tool changers CPS | ❹ Universal gripper EGU |
| ❷ Optional modules COS | ❺ 2-finger parallel gripper JGP-P |
| ❸ Modular storage rack CTS | |

SCHUNK offers more ...

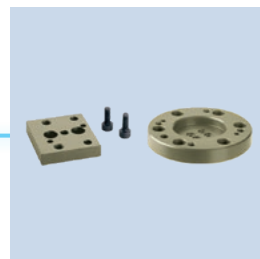
The following components make the product even more productive – the suitable addition for the highest functionality, flexibility, reliability, and controlled production.



Optional modules COS



Modular storage rack CTS



Adapter plates

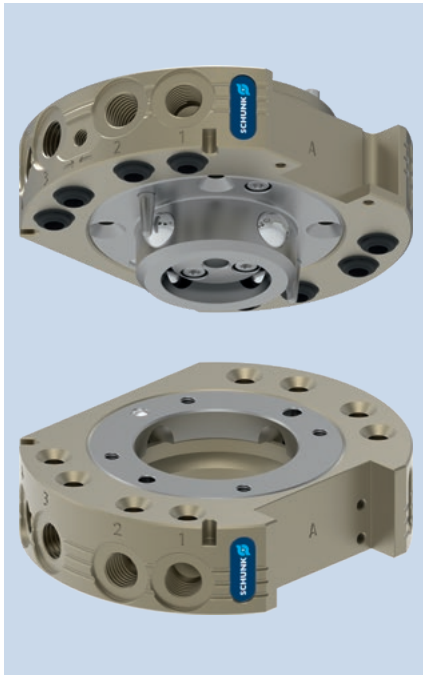


Universal gripper

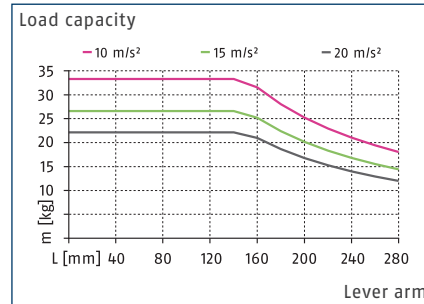


Proximity switch

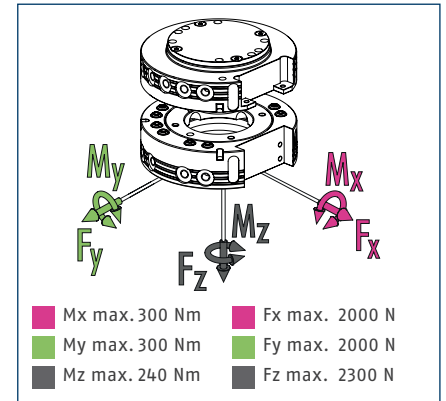
① For more information on these products can be found on the following product pages or at schunk.com.



Load chart



Max. loads

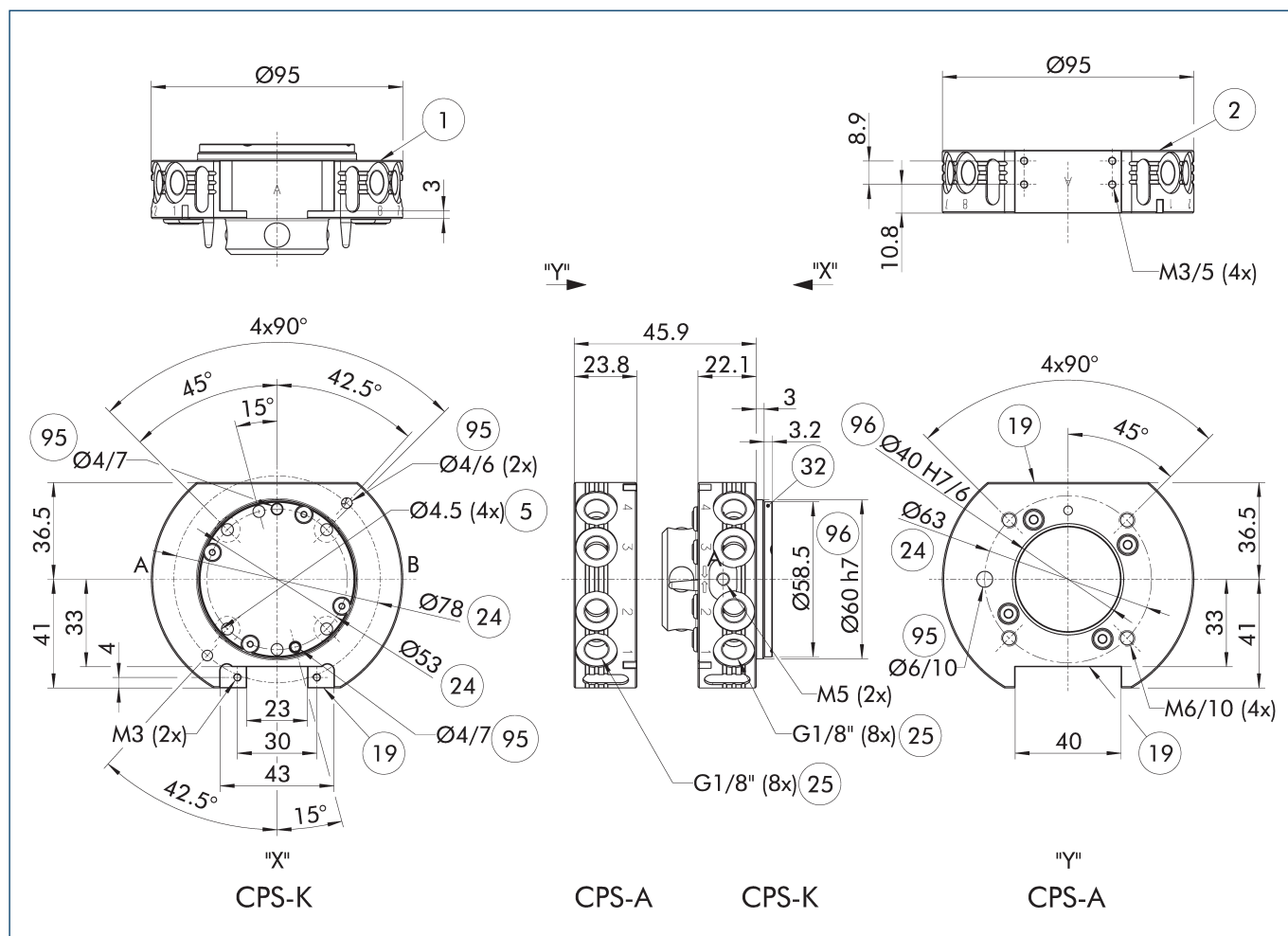


① This is the sum of all static loads that are permitted to act on the tool changer.

Technical data

Description		CPS 021-K	CPS 021-A
		Change head	Tool
ID		1619570	1619572
Lock sensing		optional	
Locking force	[N]	2300	
Locking force provided by spring force	[N]	68	
Repeat accuracy	[mm]	0.015	
Weight	[kg]	0.51	0.35
Max. distance when locking	[mm]	2	
Number of pneumatic feed-throughs		8x G1/8"	8x G1/8"
Lock/unlock main connection		M5	
Max. permissible XY axis offset	[mm]	±1	±1
Max. permissible angular offset XY	[°]	±0.8	±0.8
Max. permissible angular offset Z	[°]	±2	±2
Min./max. ambient temperature	[°C]	5/60	5/60
Nominal operating pressure	[bar]	6	6
Min./max. operating pressure	[bar]	4.5/7	4.5/7
Screw connection diagram		K side A, K or J via adapter plate side B	K side A, K or J via adapter plate side B
Opening/closing time	[s]	0.1/0.1	
Cylinder volume per double stroke	[cm³]	24	
Flow rate at 6 bar (per feed-through)		650 l/min (G1/8")	650 l/min (G1/8")
Max. dynamic moment Mx	[Nm]	100	100
Max. dynamic moment My	[Nm]	100	100
Max. dynamic moment Mz	[Nm]	80	80
Force Fx max. dynamic	[N]	660	660
Force Fy max. dynamic	[N]	660	660
Force Fz max. dynamic	[N]	760	760

Main view



The drawing shows the basic version of the tool changer without taking account of the dimensions of the options described below.

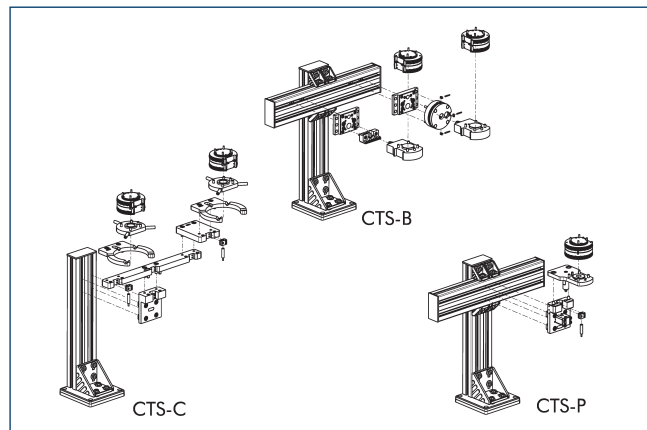
① The robot-side plate mounted on the CPS-K is a cover for the piston chamber. It is essential that it is supported by the adapter plate. See the further product information for a note on how to design this adapter plate.

A, a Air connection locked
B, b Air connection unlocked

① Robot-side connection
② Tool-side connection
⑤ Through hole for connection with screws

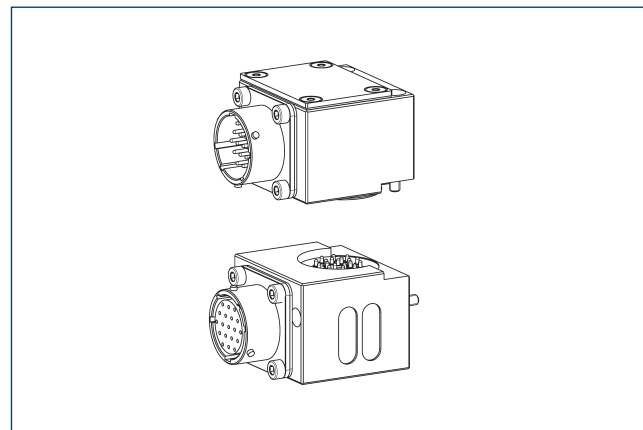
①9 Mounting surface for options
②4 Bolt circle
②5 Pneumatic feed-throughs
③2 Cover
⑨5 Fit for centering pins
⑨6 Fit for centering

Modular storage rack CTS



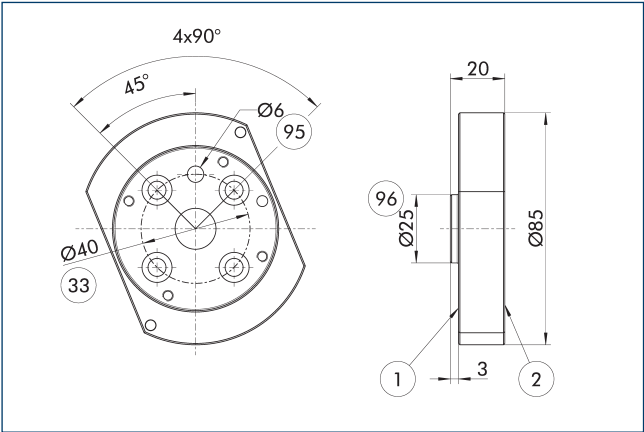
① For detailed information, see the "CTS" chapter in the catalog, or visit schunk.com.

Optional modules COS



① For detailed information and suitable cable connectors, see the "COS" chapter in the catalog, or visit schunk.com.

Adapter plate ISO-A40-R

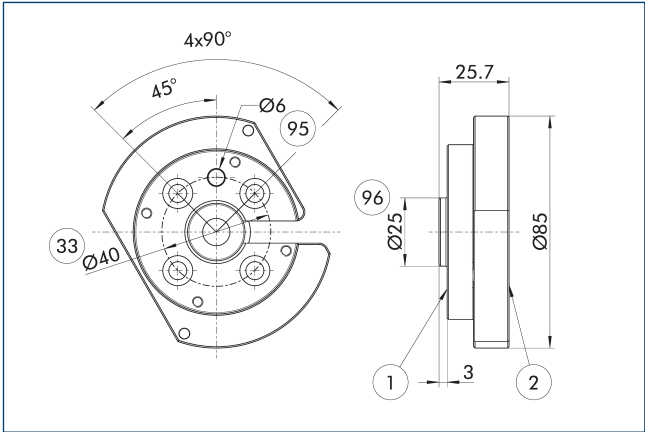


- ① Robot-side connection
- ② Tool-side connection
- ③③ DIN ISO-9409 bolt circle
- ⑨⑤ Fit for centering pins
- ⑨⑥ Fit for centering

Robot side adapter plate

Description	ID	
Adapter plate		
A-IS0040/CPS020-021	1581668	

Adapter plate ISO-A40-SIP-R

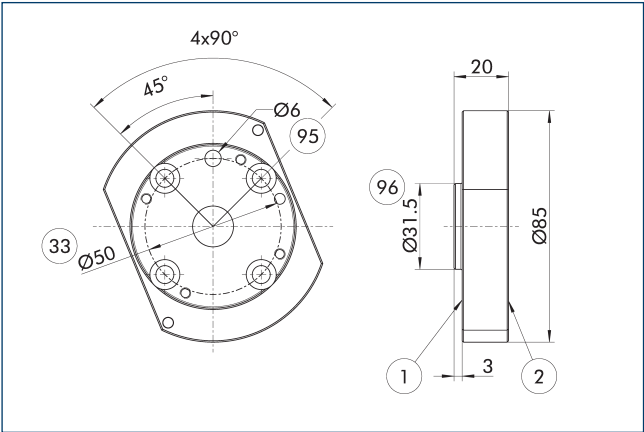


- ① Robot-side connection
- ② Tool-side connection
- ③③ DIN ISO-9409 bolt circle
- ⑨⑤ Fit for centering pins
- ⑨⑥ Fit for centering

Robot side adapter plate

Description	ID	
Adapter plate		
A-IS0040/CPS020-021-SIP	1581676	

Adapter plate ISO-A50-R

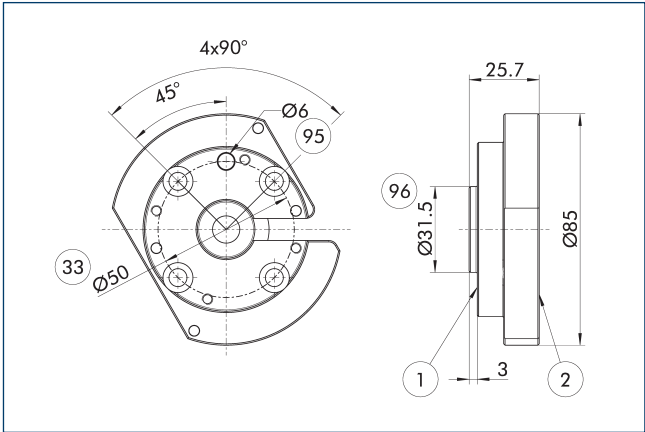


- ① Robot-side connection
- ② Tool-side connection
- ③③ DIN ISO-9409 bolt circle
- ⑨⑤ Fit for centering pins
- ⑨⑥ Fit for centering

Robot side adapter plate

Description	ID	
Adapter plate		
A-IS0050/CPS020-021	1581683	

Adapter plate ISO-A50-SIP-R

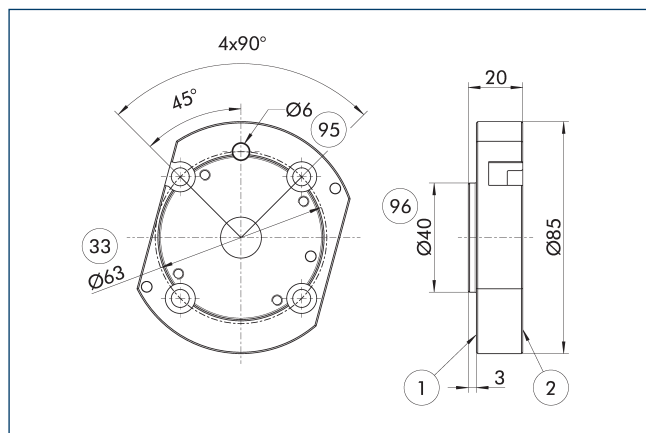


- ① Robot-side connection
- ② Tool-side connection
- ③③ DIN ISO-9409 bolt circle
- ⑨⑤ Fit for centering pins
- ⑨⑥ Fit for centering

Robot side adapter plate

Description	ID	
Adapter plate		
A-IS0050/CPS020-021-SIP	1581686	

Adapter plate ISO-A63-R

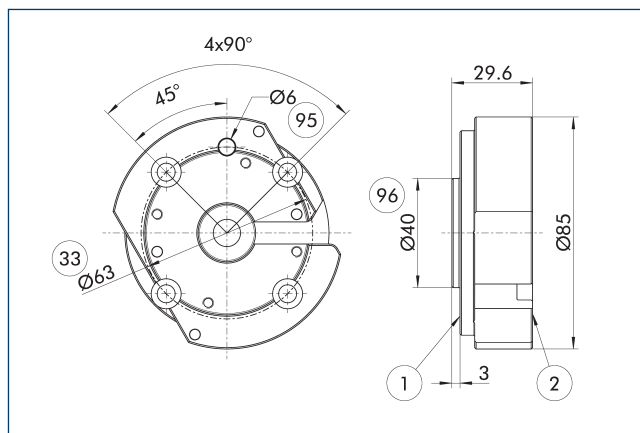


- ① Robot-side connection
- ② Tool-side connection
- ③③ DIN ISO-9409 bolt circle
- ⑨⑤ Fit for centering pins
- ⑨⑥ Fit for centering

Robot side adapter plate

Description	ID	
Adapter plate		
A-IS0063/CPS020-021	1581689	

Adapter plate ISO-A63-SIP-R

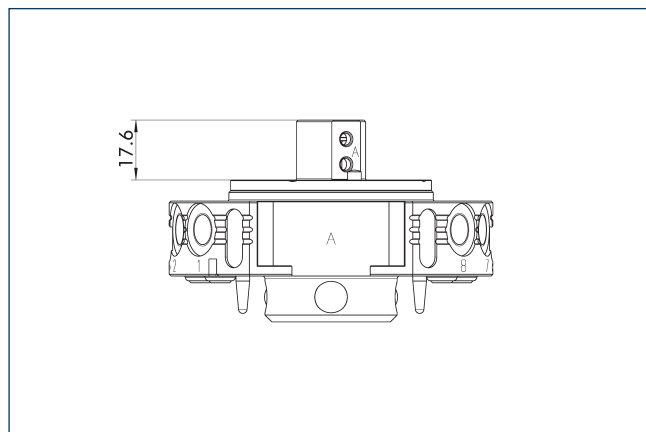


- ① Robot-side connection
- ② Tool-side connection
- ③③ DIN ISO-9409 bolt circle
- ⑨⑤ Fit for centering pins
- ⑨⑥ Fit for centering

Robot side adapter plate

Description	ID	
Adapter plate		
A-IS0063/CPS020-021-SIP	1581694	

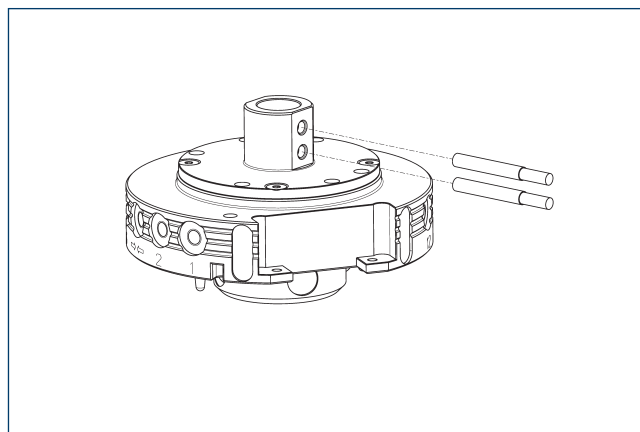
Lock sensing



The drawing shows the minimum height of the adapter plate required for installing locking monitoring.

Description	ID	
Lock sensing		
AS-CPS-021-SIP-IN00	1596406	

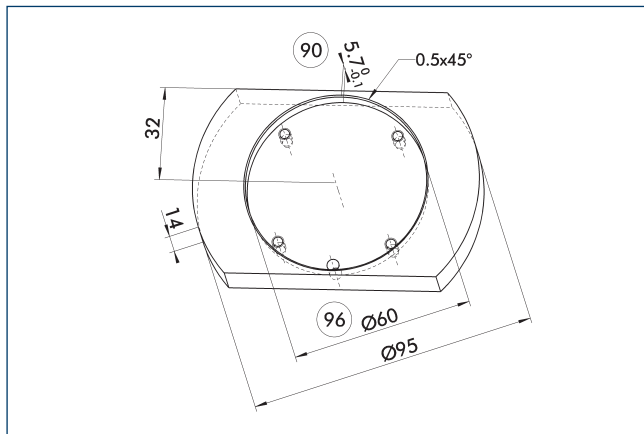
Lock sensing



Description	ID	Often combined
Inductive proximity switch		
IN 41-S-M8-PNP	1325755	
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	

- ① Per unit two sensors (closer/S) are required for each unit, as well as extension cables on option. Please consider the minimum permissible bending radii for sensor cables. These are generally 35 mm.

Adapter plate design



- ⑨⑩ Recommended adapter plate depth ⑨⑥ Fit for centering depth

Recommendation for the design of the adapter plate.



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