



Hand in hand for tomorrow



Product data sheet

Automatic tool changers CPS 310

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.

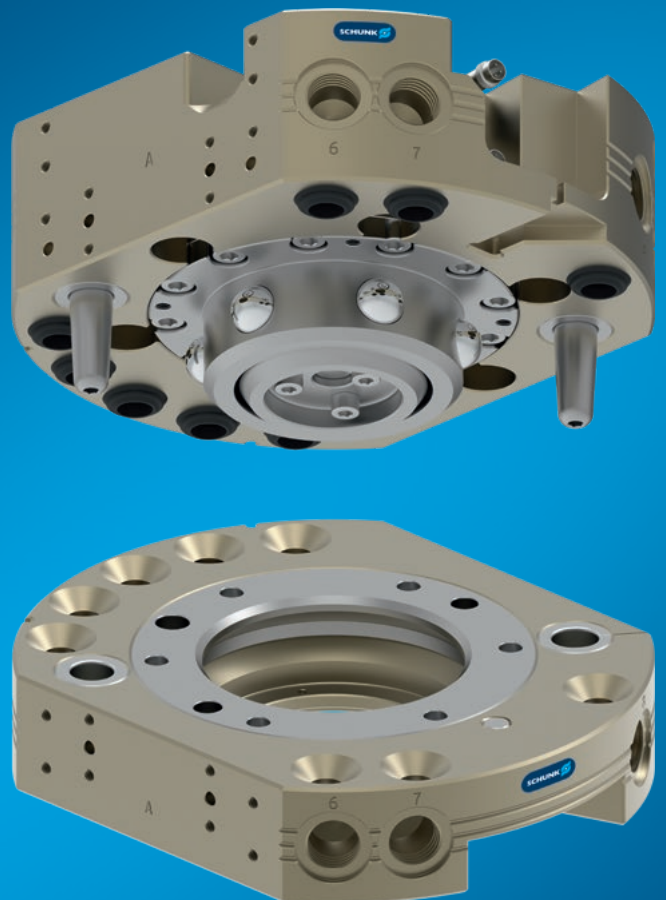
Advantages – Your benefits

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

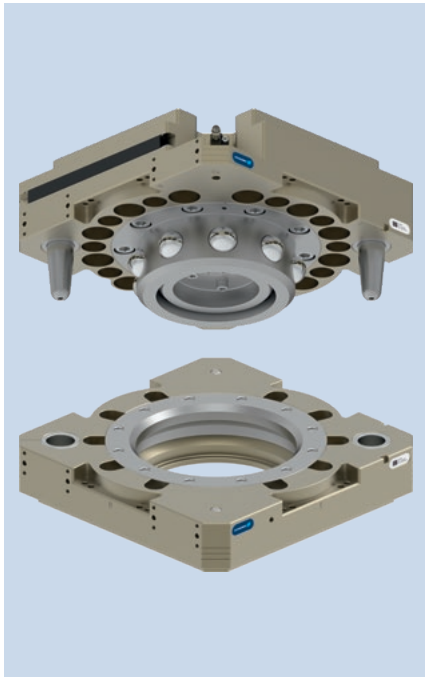


Universal gripper

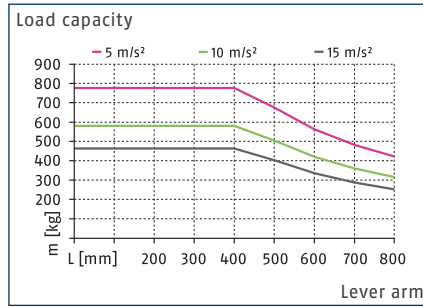


Proximity switch

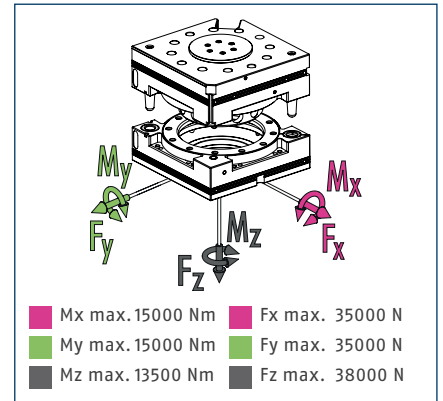
① For more information on these products can be found on the following product pages or at [schunk.com](https://www.schunk.com).



Load chart



Max. loads

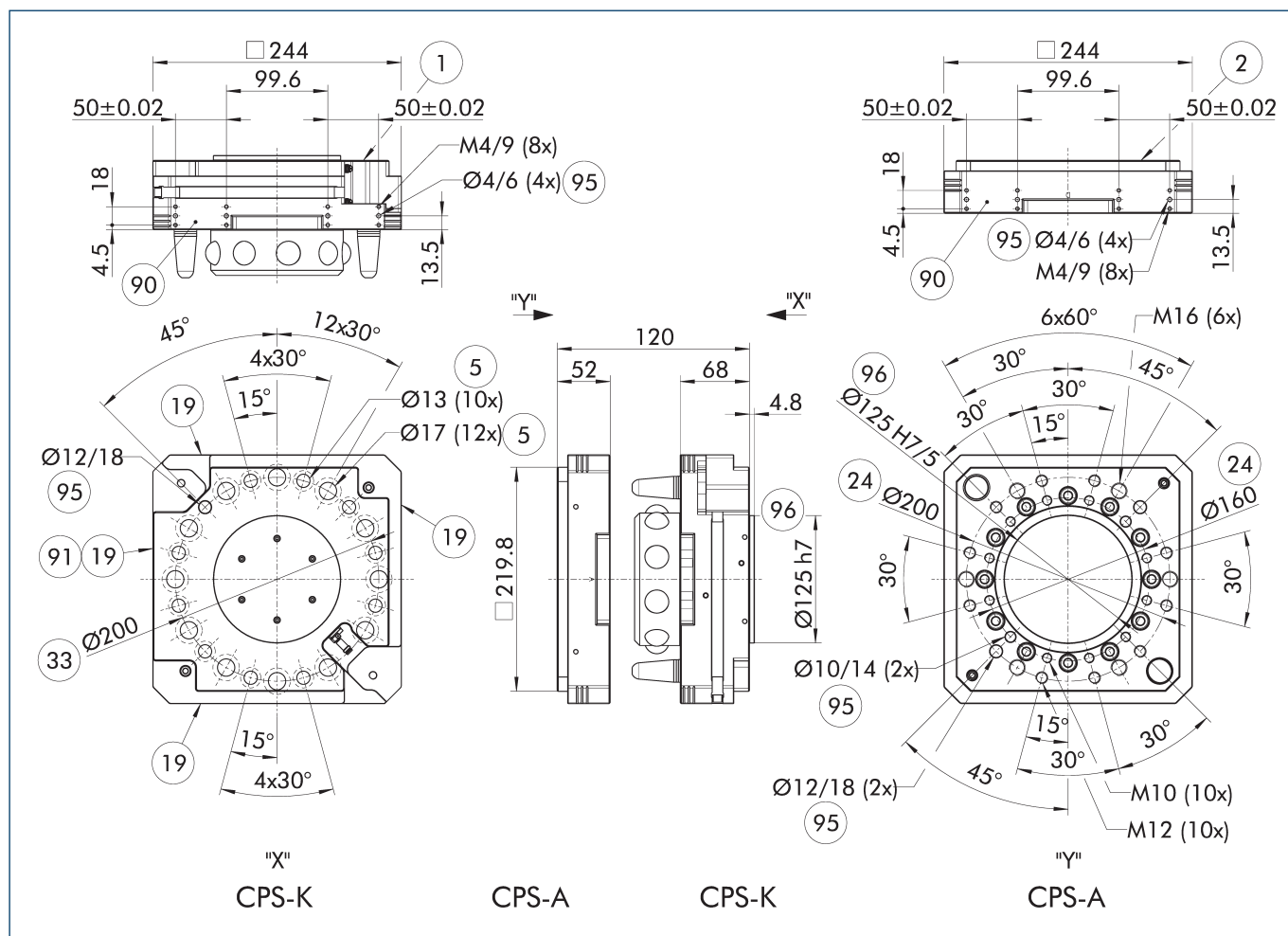


① This is the sum of all static loads that are permitted to act on the tool changer.

Technical data

Description		CPS 310-K-S	CPS 310-A
		Change head	Tool
ID		1613305	1590996
Lock sensing		integrated	
Locking force	[N]	38000	
Locking force provided by spring force	[N]	574	
Repeat accuracy	[mm]	0.015	
Weight	[kg]	13.4	7.3
Max. distance when locking	[mm]	2.5	
Max. permissible XY axis offset	[mm]	±2	±2
Max. permissible angular offset XY	[°]	±0.7	±0.7
Max. permissible angular offset Z	[°]	±1	±1
Robot-side connection		ISO 9409-1-200-6-M12	
Tool-side connection			ISO 9409-1-200-6-M12
Min./max. ambient temperature	[°C]	5/60	5/60
Nominal operating pressure	[bar]	6	6
Min./max. operating pressure	[bar]	5/7	5/7
Screw connection diagram		L2 side A, L side B/C/D, 2 x J side B/D	L side A/B/C/D, 2 x J side B/D
Mounting surface control module		Side A	Side A
Opening/closing time	[s]	0.5/0.5	
Cylinder volume per double stroke	[cm³]	581	
Max. dynamic moment Mx	[Nm]	5000	5000
Max. dynamic moment My	[Nm]	5000	5000
Max. dynamic moment Mz	[Nm]	4500	4500
Force Fx max. dynamic	[N]	11500	11500
Force Fy max. dynamic	[N]	11500	11500
Force Fz max. dynamic	[N]	12500	12500

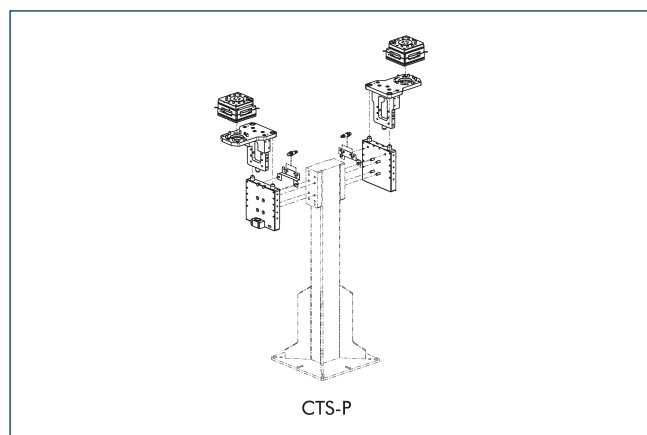
Main view



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

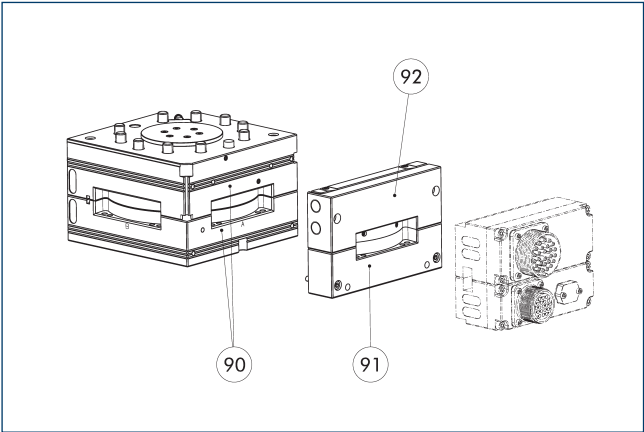
- ① Robot-side connection
- ② Tool-side connection
- ⑤ Through hole for connection with screws
- ⑨ Mounting surface for options
- ⑭ Bolt circle
- ③③ DIN ISO-9409 bolt circle
- ⑨⑨ Screw connection diagram also on the opposite side
- ⑨① Mounting surface A for control modules
- ⑨⑤ Fit for centering pins
- ⑨⑥ Fit for centering

Modular storage rack CTS



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

Pneumatic control module

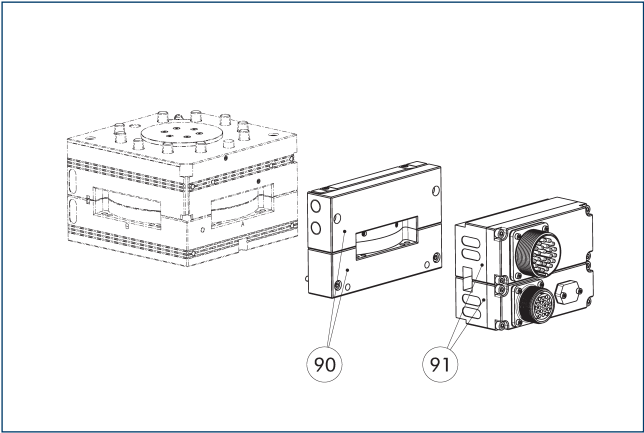


- 90 Mounting surface A for control modules
- 91 Distance plate
- 92 Pneumatic control module

An additional pneumatic control module is required on the CPS-K for locking and unlocking, which is available in different versions. The simple version includes 2 air connections for locking and unlocking, and a customer-side pneumatic valve is required. The other variant already includes a pneumatic valve in the module, which is connected to the piston chamber of the CPS-K and locks and unlocks the tool changer.

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

Optional modules COS

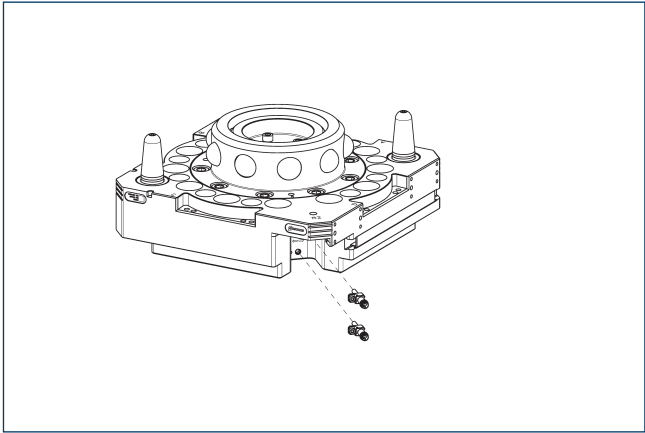


- 90 Pneumatic control module and spacer plate
- 91 Optional module COS

It is possible to screw additional COS option modules onto the pneumatic control module and the distance plate.

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

Assembly situation of the locking monitoring



- 90 Attachment kit for lock/unlock monitoring (bracket and sensor)

The drawing shows the installation situation with the prepared locking monitoring.

Description	ID	
Attachment kit for proximity switch		
AS-CPS-310	1610162	

The K-S variants of the CPS-K already have lock monitoring integrated, so there is no need to order an additional attachment kit. The scope of delivery of each attachment kit contains one preset sensor with bracket, meaning that two attachment kits are required per CPS-K.



SCHUNK SE & Co. KG

Spanntechnik

Greiftechnik

Automatisierungstechnik

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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