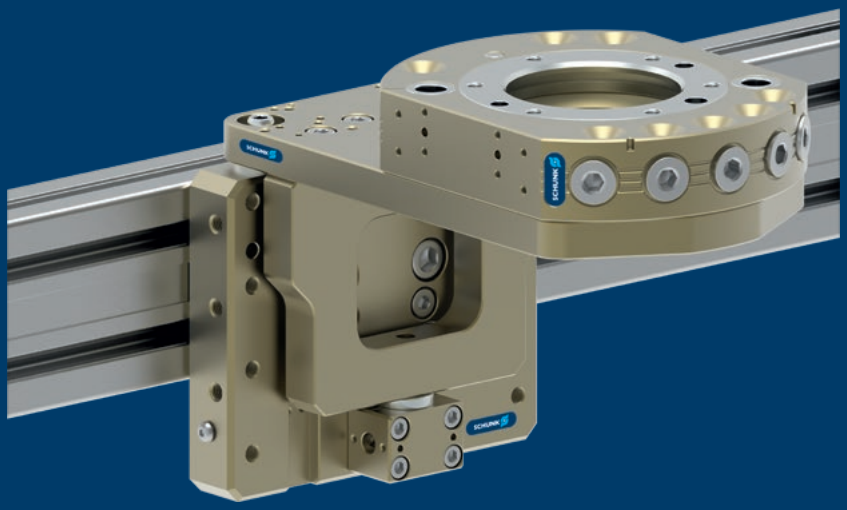


Hand in hand for tomorrow

# Product data sheet

Storage module CTS P-050

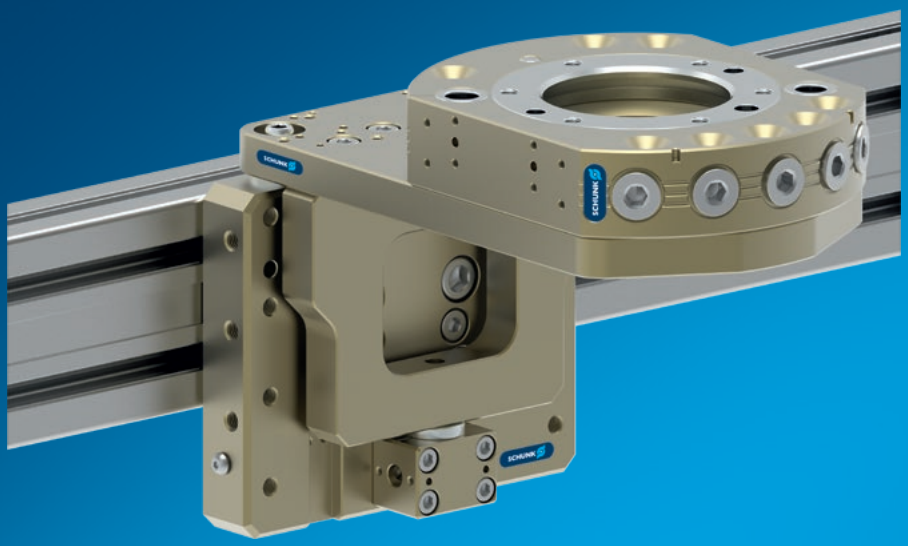
# Compact. Reliable. Versatile.

# Storage rack

Storage racks for the automatic tool changers CPS and CPB

## Field of application

SCHUNK storage systems CTS are optimally adapted to SCHUNK tool changers CPS and CPB and provide stability, flexibility, and a long service life.



## Advantages – Your benefits

**Compact design** for minimal interfering contours on storage station and tool

**Comprehensive range of variants** for flexible use in various application areas

**Standardized adapter plates** available for all CPS and CPB sizes

**Stainless, hardened contact surfaces** for a long service life

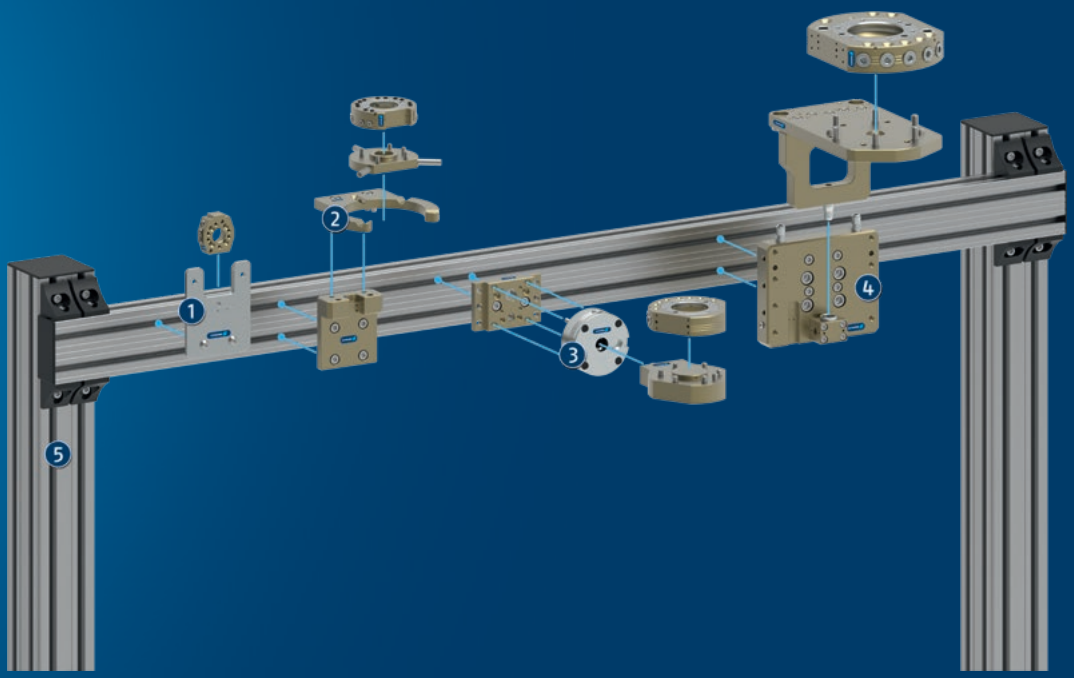
**Sensor monitoring** optionally available

**Easy integration** in customized solutions

**Sizes**
**Quantity: 10**

## Functional description

Automatic change of the end effector (e.g. gripper, etc.) increases the flexibility of your robot. In addition to a an automatic tool changer (CPS/CPB), a tool storage rack is required for a change operation. For placing a tool, the robot inserts the tool into the storage connecting member of the storage rack. At least one of the four different storage types is available for all CPS and CPB sizes. This means that the CTS systems can be used both in simple cost-sensitive applications as well as in applications with the greatest requirements and flexibility in the orientation and position of the storage rack.




① **Tool stand CTS T**
Variable horizontal and vertical mounting possible

② **Storage module CTS C**
offers the option of using free pneumatic connections on the CPS-A, alternatively an adapter plate can be used

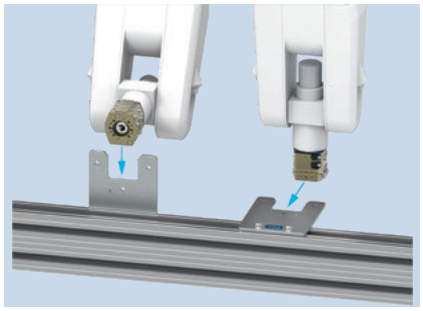
③ **Storage module CTS B**
Compact design, minimal interfering contour and high compatibility between variants

④ **Storage module CTS P**
Precise positioning thanks to 3-point support

⑤ **Aluminum profile**
Can be optimally adapted to customized applications thanks to their combinability

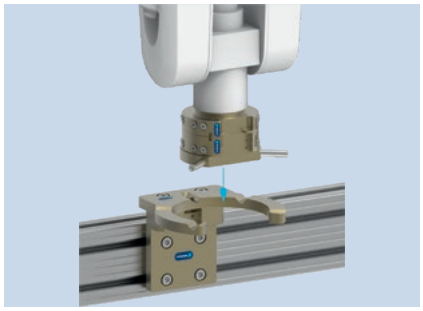
## Detailed functional description

### Storage process CTS T



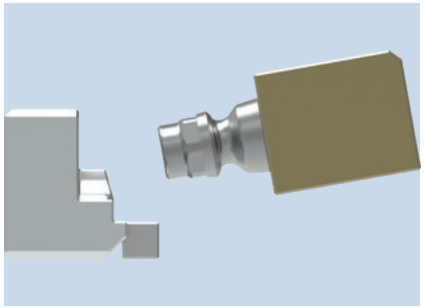
A special feature of the tray storage system is the variable mounting of the metal tray. The tray can be installed horizontally, vertically or laterally on a horizontal profile section. To store the CPS-A in the storage plate, the existing groove in the CPS-A is pushed onto the plate and the CPS-A is held in storage position by means of a locking device.

### Storage process CTS C



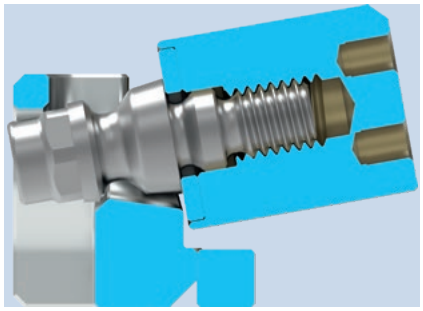
In the bolt storage system, the tool is deposited in the storage system from above. The workpiece stops are positioned in the provided grooves. Position adapters allow up to four tools to be deposited per profile. The extension adapter. allows increasing the distance to the profile. This also allows large-sized tools to be deposited. The screw-on pattern of the CPS-A is already integrated into the intermediate plate and is therefore easy to mount.

### Storage process CTS B, passive variant – Step 1: Inserting the tool into the storage module



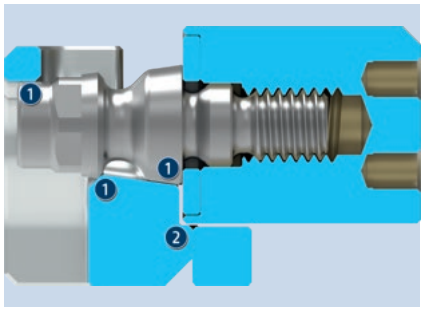
To store the tool in the storage module, the storage system must be approached at an angle of 10°.

### Storage process CTS B, passive variant – Step 2: Lowering the tool

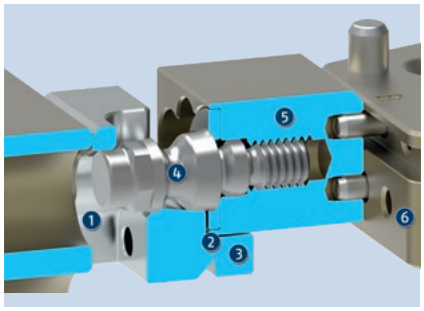


Before the tool is lowered into the horizontal storage position, the bolt must be briefly moved beyond the rear side of the storage module. Therefore, a hole must be provided behind the bore hole on the rear side of the storage module. This hole is already present in the mounting plate that is provided as an accessory.

## Storage process CTS B, passive variant – Step 3: Stored tool

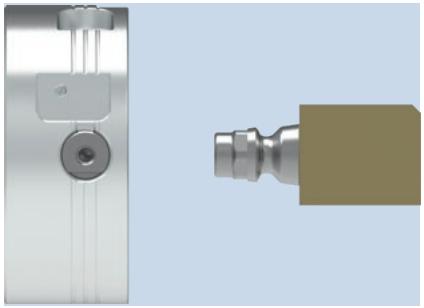



1. When in the stored position, the bolt rests on the storage module at three points.
2. In addition, when the center of gravity of the tool is off-center, the adapter plate also rests on the storage module, thereby preventing it from tipping.



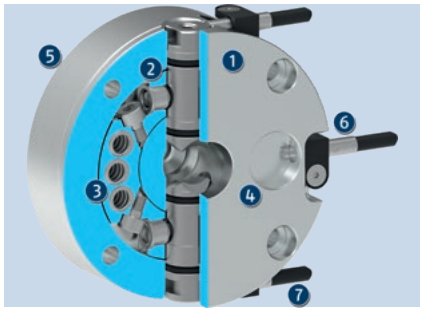

1. Base body
   made of vacuum-hardened stainless steel for maximum service life
2. Anti-rotation protection
   for storing tools with a decentralized center of gravity
3. Sensor monitoring
   optional, for the process-reliable monitoring of tool presence
4. Storage pins
   hardened for maximum wear resistance
5. Adapter plate for tool change adapter
   available as intermediate plate or for side mounting (shown here) depending on size
6. Automatic tool changer
   for a safe, automated tool change

## Storage process CTS B, active variant



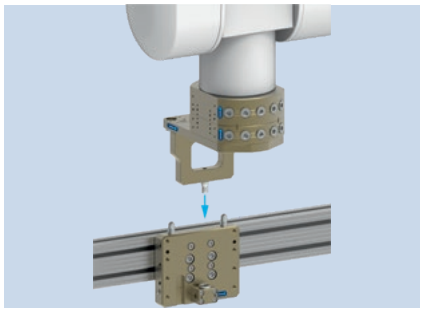
When storing the active variant, the bolt attached to the tool change adapter CPS-A or CPB-A is inserted linearly into the storage module. After the CTS B -V has been locked, the change system can be unlocked, allowing the tool to be stored.

## Sectional diagram of function, active variant (with locking)




1. Base body
   made of vacuum-hardened stainless steel for maximum service life
2. Locking
   via pistons with patented rapid stroke and clamping stroke
3. Piston drive via spring assembly and pneumatics
   Opening by pneumatics, closing by spring – for secure locking, even in the event of compressed air failure
4. Anti-rotation protection
   for storing tools with a decentralized center of gravity
5. Centering sleeves
   for repeatable mounting
6. Monitoring of tool presence
   optional, for higher process reliability
7. Monitoring of locking status
   optional, for the positions "storage module open" and "storage module locked"

## Storage process CTS P



The pin & bushing storage rack offers the option of precisely positioning tools using a 3-point support. Pins and bolts are integrated in the storage module and in the adapter plates for this purpose. The adapter plates for storage are available in horizontal or vertical variants. The horizontal intermediate plate is fitted bottom-sided onto the CPS-A, and the vertical intermediate plate is firmly bolted onto the side using the bolting pattern of the optional modules. The vertical intermediate plates are also available without an integrated drilling pattern for customized solutions.

## General notes about the series

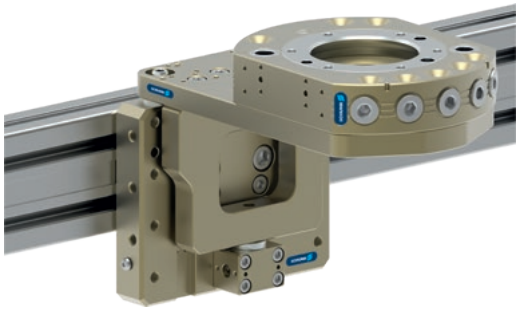
**Harsh environmental conditions:** Please note that use under harsh environmental conditions (e.g. in the coolant area, cast and grinding dust) can considerably reduce the service life of the units, and we will not take over any warranty. However, in many cases we can find a solution. Please contact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

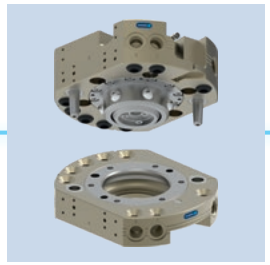
## Application example

1. Automatic tool changers CPS
2. Optional modules COS
3. Modular storage rack CTS
4. Universal gripper EGU
5. 2-finger parallel gripper JGP-P

## SCHUNK offers more ...

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





Automatic tool changer

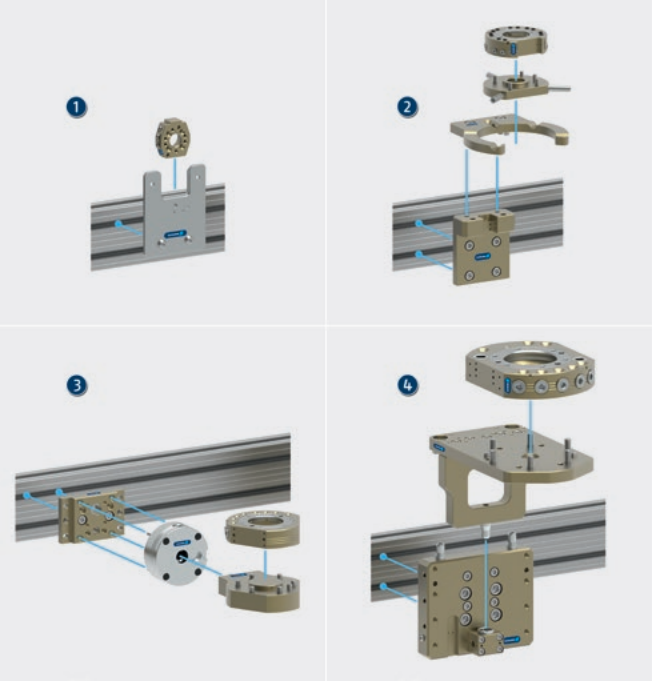
Inductive proximity switch

SAS

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

## Overview of modular storage systems CTS

SCHUNK storage racks CTS are optimally adapted to SCHUNK tool changers and provide stability, flexibility, and a long service life. The modularity of the storage module, adapter plates, stand profiles, and sensor systems enables the compact assembly of a complete package tailored to customized requirements.  If you have already found the right tool changer for your application, you will find an overview of our storage modules for your system on the following page. The matching extruded upright profiles can be found after the storage modules.




1. Tool stand CTS T
2. Storage module CTS C
3. Storage module CTS B
4. Storage module CTS P

| | CTS T-001 | CTS T-016 | CTS C-016 | CTS C-025 | CTS B-016 | CTS B-100 | CTS B-300 | CTS P-050 | CTS P-150 | CTS P-500 |
|---|---|---|---|---|---|---|---|---|---|---|
| CPS 001 | x | | | | | | | | | |
| CPS 007 | | x | | | x | | | x | | |
| CPS 011 | | | x | | x | | | | | |
| CPS 020 | | | | x | | x | | x | | |
| CPS 021 | | | | x | | x | | x | | |
| CPS 029 | | | | | | x | | x | | |
| CPS 040 | | | | | | x | | x | | |
| CPS 041 | | | | | | x | | x | | |
| CPS 046 | | | | | | x | | x | | |
| CPS 060 | | | | | | x | | | x | |
| CPS 071 | | | | | | x | | | x | |
| CPS 076 | | | | | | x | | | x | |
| CPS 110 | | | | | | | x | | x | |
| CPS 160 | | | | | | | x | | | x |
| CPS 210 | | | | | | | x | | | x |
| CPS 310 | | | | | | | | | | x |
| CPS 510 | | | | | | | | | | |

| | CTS B-016 | CTS B-100 | CTS B-300 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| CPB 040 | x | | | | | | | | | |
| CPB 050 | x | | | | | | | | | |
| CPB 063 | | x | | | | | | | | |
| CPB 080 | | x | | | | | | | | |
| CPB 100 | | x | | | | | | | | |
| CPB 125 | | | x | | | | | | | |
| CPB 160 | | | x | | | | | | | |

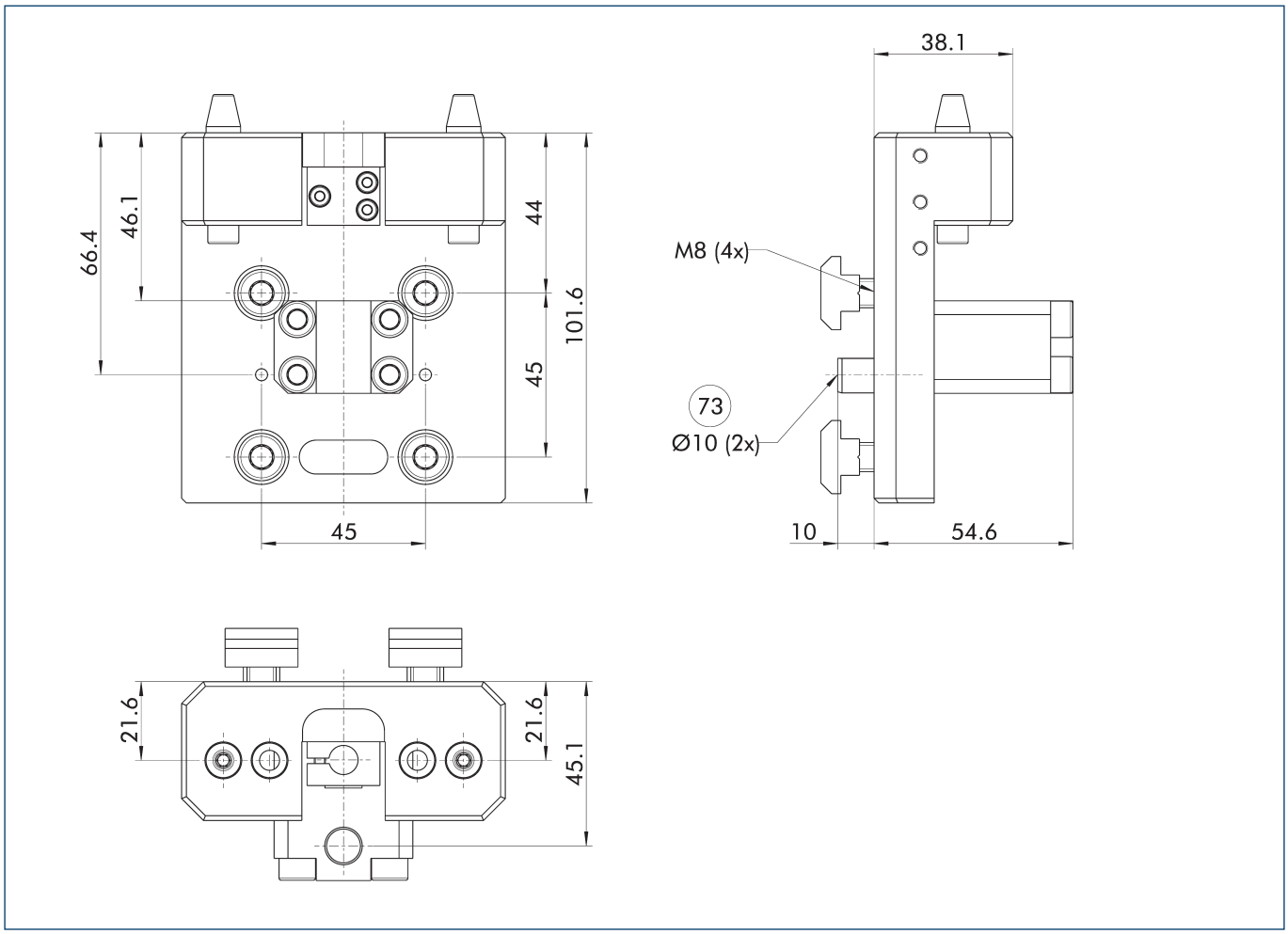
# CTS P-050

Storage module

## Technical data

| Description | | CTS P-050-MM |
|---|---|---|
| ID | | 1594545 |
| Recommended CPS size | | 007, 020, 021, 029, 040, 041, 046 |
| max. load capacity | [kg] | 50 |
| Installation position | | horizontal |
| Tool presence monitoring | | optional |
| Min./max. ambient temperature | [°C] | 5/60 |
| Weight | [kg] | 0.875 |

## Main view CTS P-050-MM



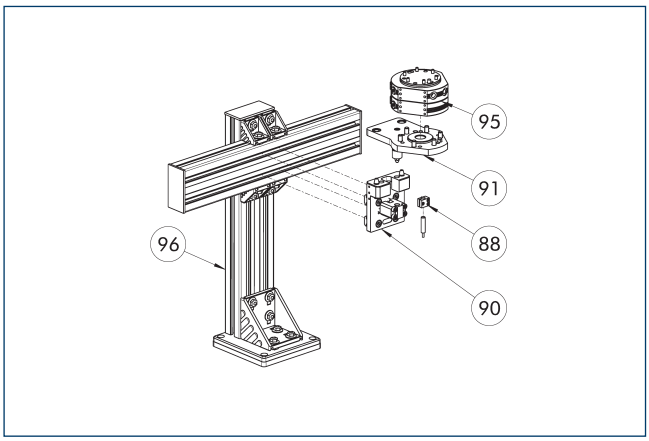

The drawing shows the storage module in the basic version.

73 Fit for centering pins

# CTS P-050

Storage module

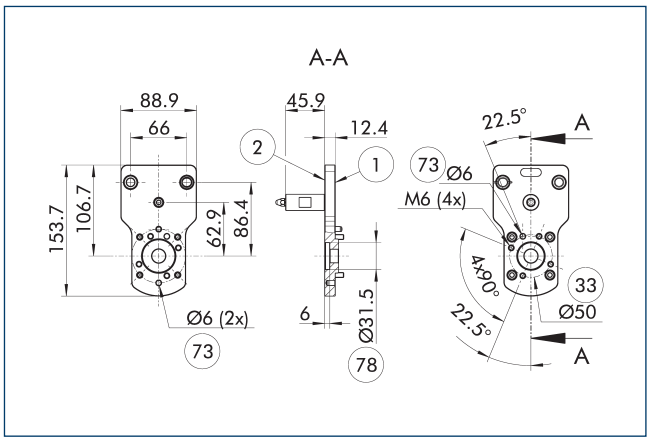
## Modular storage rack CTS P




(88) Sensor system
(90) Storage module
(91) Adapter plate
(95) Tool changer
(96) Profile structure CTS

| Description | ID | |
|---|---|---|
| Adapter plates | | |
| CTS P-050-AH-CPS020-021/ISO050 | 1594592 | |
| CTS P-050-AH-CPS029/ISO050 | 1594594 | |
| CTS P-050-AH-CPS040/ISO080 | 1594598 | |
| CTS P-050-AH-CPS041/ISO080 | 1594601 | |
| CTS P-050-AH-CPS046/ISO100 | 1594603 | |
| CTS P-050-AV-J | 1594590 | |
| CTS P-050-AV-S7 | 1594578 | |

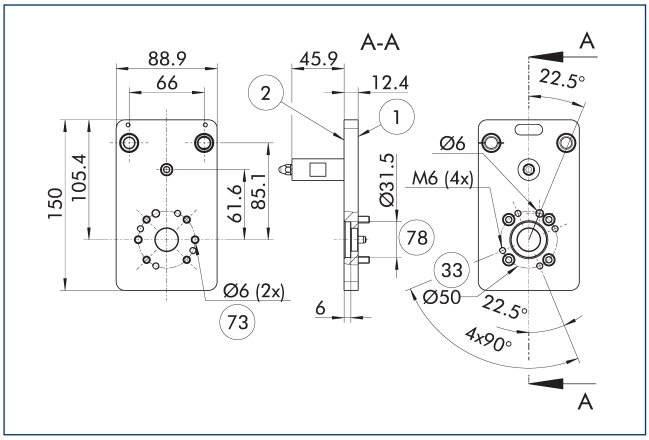
## Adapter plate CTS P-050-AH-CPS020-021/ISO050




(1) Robot-side connection
(2) Tool-side connection
(33) DIN ISO-9409 bolt circle
(73) Fit for centering pins
(78) Fit for centering

| Description | ID | |
|---|---|---|
| Adapter plates | | |
| CTS P-050-AH-CPS020-021/ISO050 | 1594592 | |

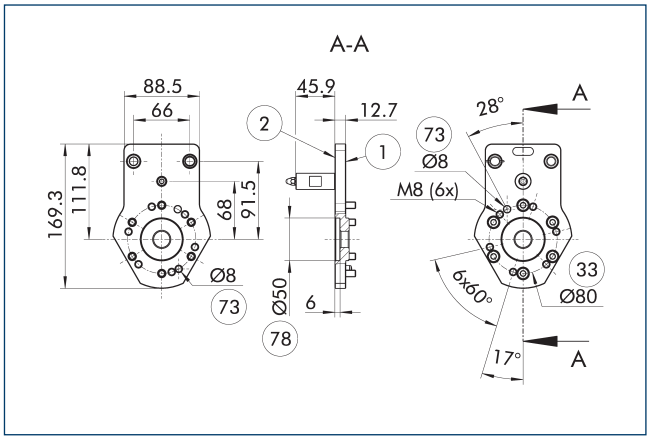
## Adapter plate CTS P-050-AH-CPS029/ISO050




(1) Robot-side connection
(2) Tool-side connection
(33) DIN ISO-9409 bolt circle
(73) Fit for centering pins

| Description | ID | |
|---|---|---|
| Adapter plates | | |
| CTS P-050-AH-CPS029/ISO050 | 1594594 | |

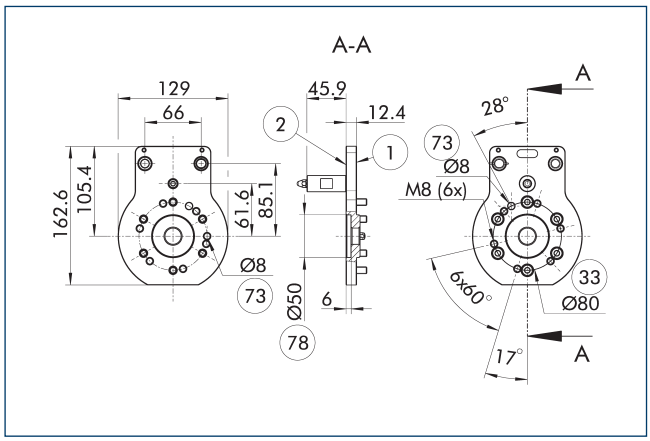
## Adapter plate CTS P-050-AH-CPS040/ISO080




(1) Robot-side connection
(2) Tool-side connection
(33) DIN ISO-9409 bolt circle
(73) Fit for centering pins
(78) Fit for centering

| Description | ID | |
|---|---|---|
| Adapter plates | | |
| CTS P-050-AH-CPS040/ISO080 | 1594598 | |

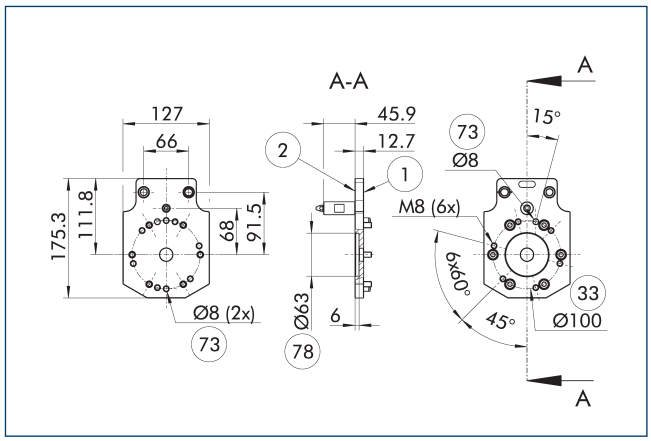
## Adapter plate CTS P-050-AH-CPS041/ISO080




(1) Robot-side connection
(2) Tool-side connection
(33) DIN ISO-9409 bolt circle
(73) Fit for centering pins
(78) Fit for centering

| Description | ID | |
|---|---|---|
| Adapter plates | | |
| CTS P-050-AH-CPS041/ISO080 | 1594601 | |

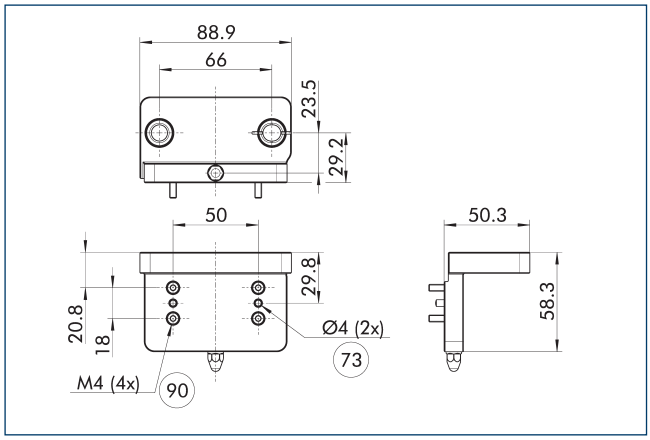
## Adapter plate CTS P-050-AH-CPS046/ISO100




(1) Robot-side connection
(2) Tool-side connection
(33) DIN ISO-9409 bolt circle
(73) Fit for centering pins

| Description | ID | |
|---|---|---|
| Adapter plates | | |
| CTS P-050-AH-CPS046/ISO100 | 1594603 | |

## Adapter plate CTS P-050-AV-J

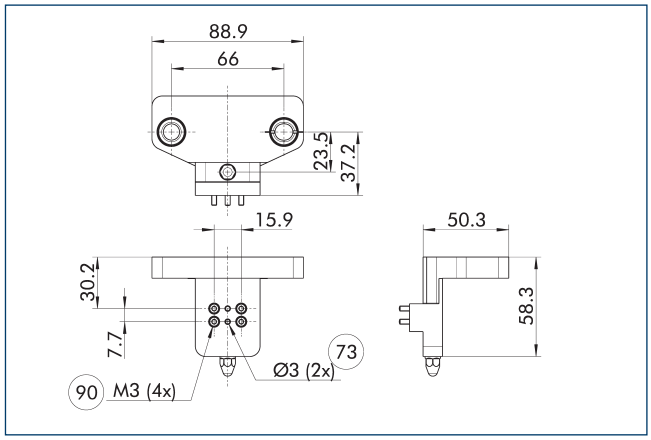



(73) Fit for centering pins
(90) Tool changer position

| Description | ID | |
|---|---|---|
| Adapter plates | | |
| CTS P-050-AV-J | 1594590 | |

ⓘ Adapter plate for direct mounting on the J-interface of the CPS-A

## Adapter plate CTS P-050-AV-S7




(73) Fit for centering pins
(90) Tool changer position

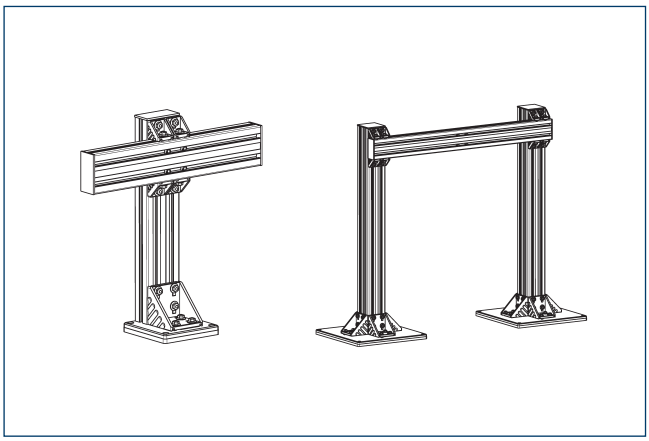
| Description | ID | |
|---|---|---|
| Adapter plates | | |
| CTS P-050-AV-S7 | 1594578 | |

ⓘ Adapter plate for direct mounting on the S7-interface of the CPS-A

# CTS P-050

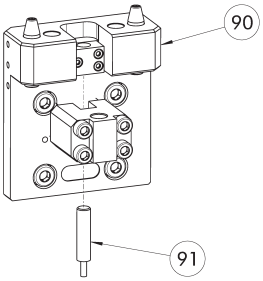
Storage module

## Profile



| Description | ID | |
|---|---|---|
| Mounting bracket | | |
| CTS MB-45x45 | 1332525 | |
| Base plate | | |
| CTS BP-45x90 | 0302580 | |
| CTS BP-90x90 | 1604713 | |
| Cross profile 45 x 90 mm | | |
| CTS PH-45x90-1200 | 1356073 | |
| CTS PH-45x90-1500 | 1496166 | |
| CTS PH-45x90-300 | 1564976 | |
| CTS PH-45x90-460 | 0303229 | |
| CTS PH-45x90-610 | 1419762 | |
| CTS PH-45x90-920 | 0303228 | |
| Stand profile section 45 x 90 mm | | |
| CTS PV-45x90-1300 | 30070338 | |
| CTS PV-45x90-300 | 30077021 | |
| CTS PV-45x90-460 | 1564977 | |
| CTS PV-45x90-610 | 0302586 | |
| CTS PV-45x90-890 | 30046674 | |
| Stand profile section 90 x 90 mm | | |
| CTS PV-90x90-1220 | 1564972 | |
| CTS PV-90x90-1830 | 1564974 | |
| CTS PV-90x90-650 | 1564970 | |
| CTS PV-90x90-920 | 1564971 | |
| Attachment bracket | | |
| CTS BB-90x90 | 0302581 | |

## Tool presence monitoring CTS P




(90) Storage module (91) Sensor

| Description | ID | Often combined |
|---|---|---|
| Inductive proximity switch | | |
| IN 80-S-M8 | 0301478 | |
| 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 | |
| Cable extension | | |
| KV BW08-SG08 3P-0030-PNP | 0301495 | |
| KV BW08-SG08 3P-0100-PNP | 0301496 | |
| KV BW08-SG08 3P-0200-PNP | 0301497 | ● |
| Sensor distributor | | |
| V2-M8 | 0301775 | ● |
| V4-M8 | 0301746 | |
| V8-M8 | 0301751 | |

ⓘ The proximity switches must be ordered separately.

**SCHUNK SE & Co. KG**
**Spanntechnik**
**Greiftechnik**
**Automatisierungstechnik**

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