

Robot Peripheral Components



C O N T E N T S

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Automatic exchange unit for robot end-of-arm tooling that greatly reduces changeover time

Attach the body side to the robot, prepare tool adapter sides according to the number of workpieces, and attach tools such as hand chucks. When the body side and tool adapter side are connected, air ports and electrodes (optional) are also connected, eliminating the need to change air piping or electrical wiring during changeover. Since the changer can be included/detached simply by switching the connection air, automatic exchange is possible, greatly reducing changeover time.



Automatically exchange hand chucks according to the workpiece

Maintains high rigidity

The connecting force between the body and adapter is high, achieving high rigidity.

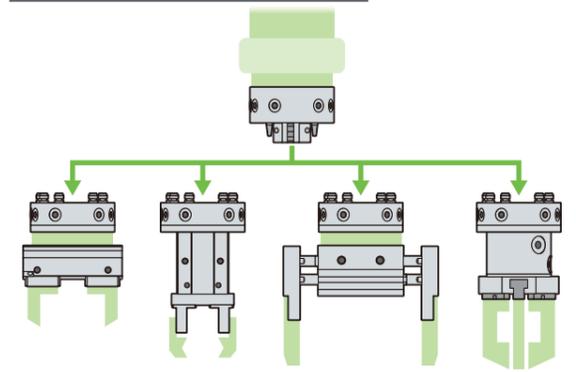
Equipped with a drop prevention mechanism

Even if the drive source is cut off, the tool is prevented from falling.

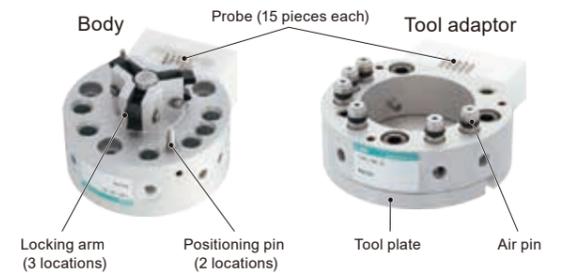
Options can be selected

Options with highly reliable electrode blocks or with check valves are available.

Image of connecting to hand chuck



Interface structure



Operation Overview

Connection Preparation

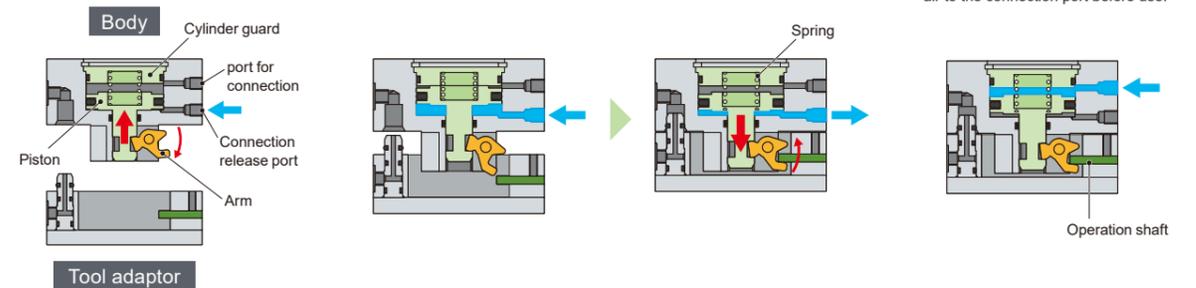
When air is supplied to the connection release port of the body, the piston moves to the cylinder cover side and the arm tilts in the direction of the arrow.

During Connection Operation

Fit the body into the tool adapter. When air is exhausted from the connection release port, the spring force pushes the piston out and the arm returns to its original state.

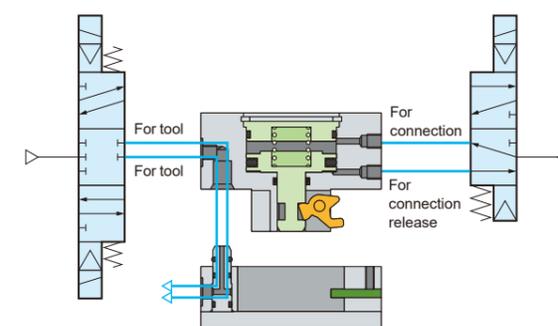
Connection Maintained

The arm is held by catching on the operating shaft. (Drop prevention structure)
* When external force is applied, supply air to the connection port before use.

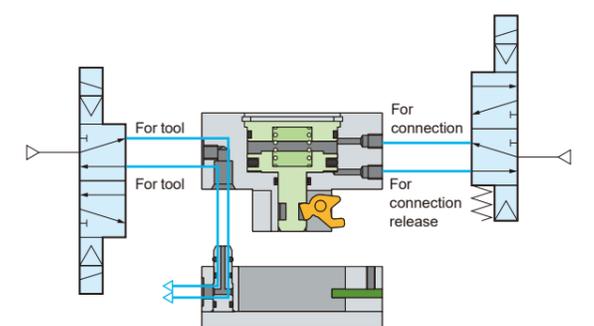


Circuit Example

Recommended circuit



Recommended circuit when check valve option (B) is selected





Auto Gripper Changer

CHC Series

- Connected axial force: 78, 245, 676, 1087 N



CHC Series

Electrode Block Single Item Model No.

Electrode Block Single Item Model No. *If adding an electrode block later, order the parts below.

Part Name	Payload: kg	Model No.	Content
Body Side Electrode Block	1	CHC-1RS-D1	Solder type
	5	CHC-5RS-D1	Solder type
		CHC-5RS-D3	D-sub connector (socket)
	10	CHC-10RS-D1	Solder type
		CHC-10RS-D3	D-sub connector (socket)
	20	CHC-20RS-D1	Solder type
CHC-20RS-D3		D-sub connector (socket)	
Tool Adapter Side Electrode Block	1	CHC-1HS-D	Solder type
	5	CHC-5HS-D	Solder type
		CHC-5HS-D3	D-sub connector (socket)
	10	CHC-10HS-D	Solder type
		CHC-10HS-D3	D-sub connector (socket)
	20	CHC-20HS-D	Solder type
CHC-20HS-D3		D-sub connector (socket)	

[Overview]

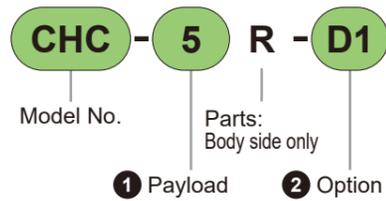
The CHC series auto gripper changer is an automatic exchange unit for robot end-of-arm tooling. Attach the body side to the robot, prepare tool adapter sides according to the number of workpieces, and attach tools such as hand chucks. When the body side and tool adapter side are connected, air ports and electrodes (optional) are also connected, eliminating the need to change air piping or electrical wiring during changeover. Since the changer can be included/detached simply by switching the connection air, automatic exchange is possible, greatly reducing changeover time.

[Main Features]

- High connecting force between body and adapter maintains high rigidity
- Equipped with a drop prevention mechanism that prevents the tool from falling even if the drive source is cut off
- Abundant options such as D-sub connectors are available

Model No. Notation Method

· CHC Body Side



1 Payload (kg)

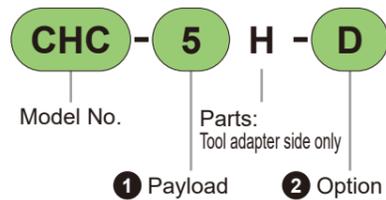
Code	Content
1	1 kg
5	5 kg
10	10 kg
20	20 kg

2 Option

Code	Content
Blank	Standard
D1	Electrode block Solder type
D3	Electrode block D-sub connector (socket)
B	Check Valve

Note) 1 Payload "1" cannot be selected.

· Tool adapter side



1 Payload (kg)

Code	Content
1	1 kg
5	5 kg
10	10 kg
20	20 kg

2 Option

Code	Content
Blank	Standard
D	Electrode block Solder type
D3	Electrode block D-sub connector (socket)

Note) 1 Payload "1" cannot be selected.

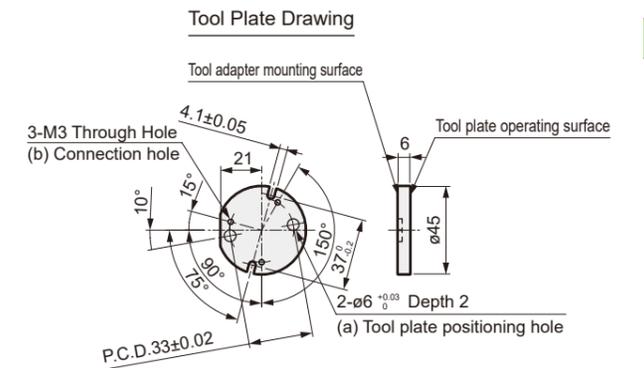
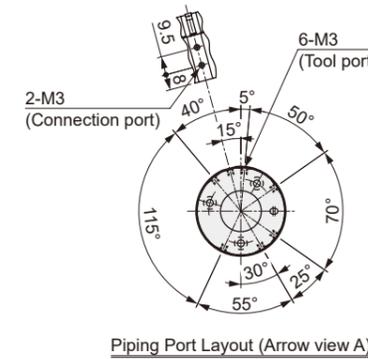
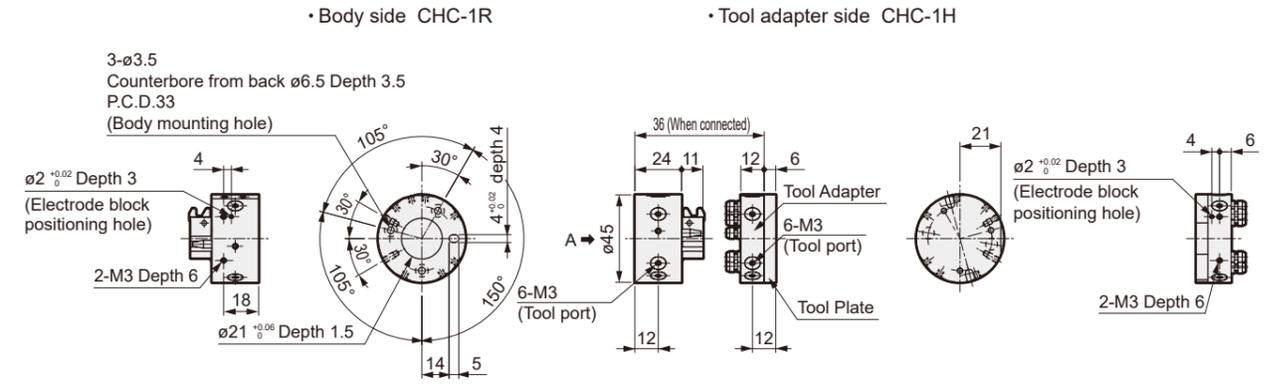
Specifications

Item	CHC				
Payload	kg	1	5	10	20
External Dimensions	mm	ø45	ø64	ø78	ø88
Overall Length when Connected	mm	36	43	49	56
Operating Fluid	Compressed Air				
Max. Working Pressure	MPa	0.7			
Min. Operating Pressure	MPa	0.3			
Ambient Temperature	°C	5 to 60			
Repeatability	mm	±0.01			
Connection Axial Force	N	78	245	676	1087
Moment when Connected	N·m	3.1	11.8	34.3	76.6
Torque when Connected	N·m	8.6	12.8	16	18.9
Weight	kg	0.187	0.35	0.65	0.9
Connection Port Diameter		M3	M5		
Air Interface	Number of Ports *1	6			
	Port Connection Diameter	M3	M5		
Electrical Interface	Contact	15 pins, contact probe type			
	Contact Capacity	2 A/pin			
	Wire Connection	D1/D: Specifications with solder D3:D-sub-connector (15-pin)			

*1: Usable pressure range -100 kPa to 0.7 MPa, however, vacuum cannot be maintained.
*2: The electrode block for the electrical interface can be retrofitted.

External Dimensions (CHC-1)

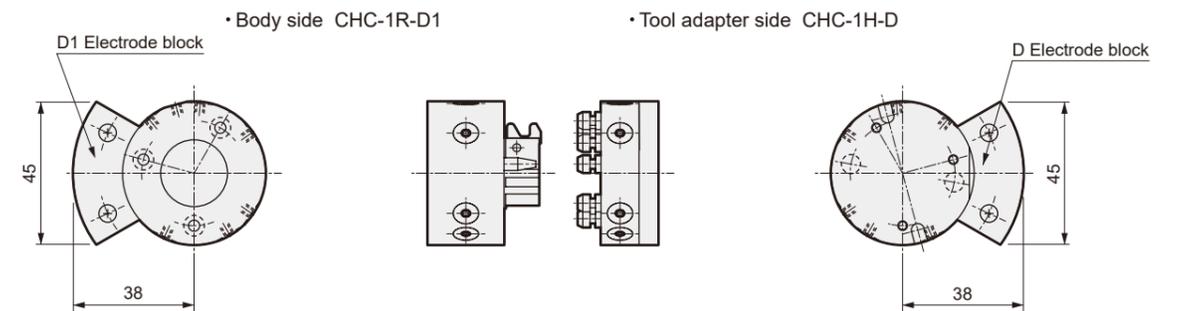
● CHC-1



Note1) When attaching a hand, etc., to the tool adapter side, remove the tool plate and perform additional machining on the tool plate operating surface before attaching. Avoid machining on (a) tool plate positioning hole and (b) connecting hole. If mounting on a different tool plate, drill (a) and (b) holes on the plate.
Note2) Holes (a) and (b) in the tool plate are for fixing the tool adapter and cannot be used.

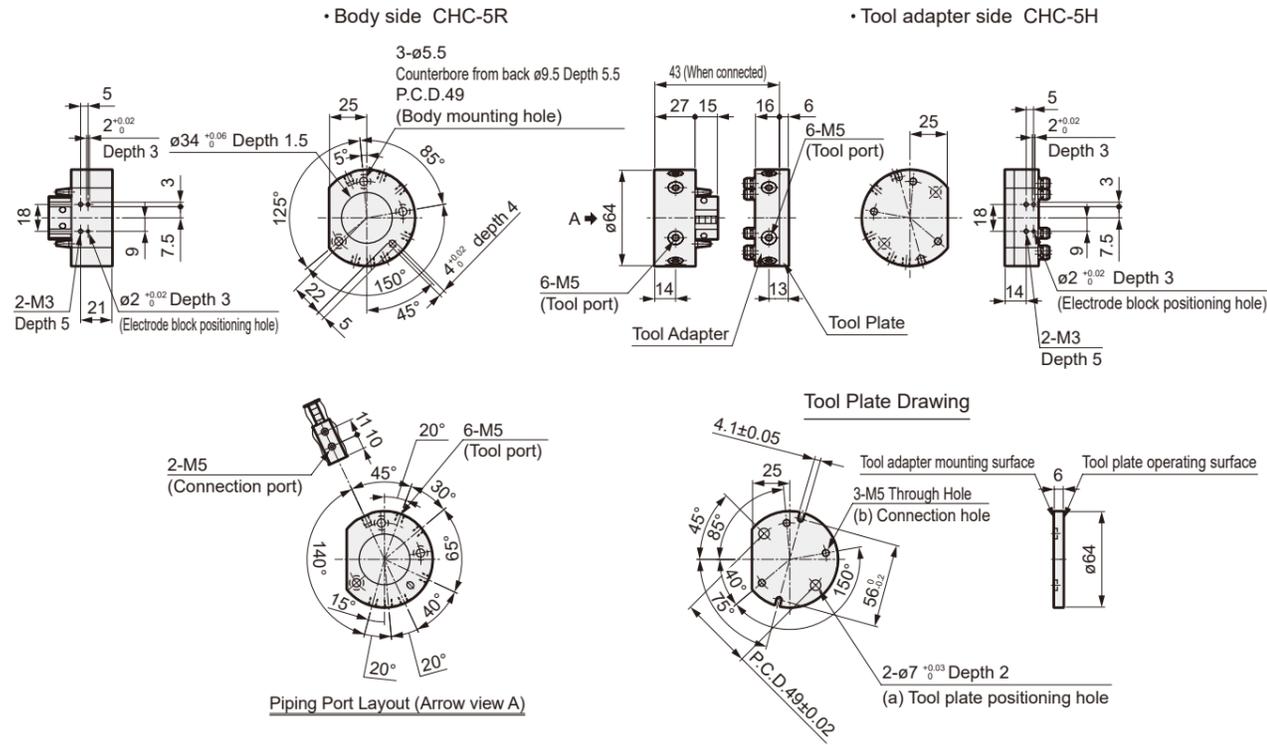
Outer Dimensions Diagram with Option

● With Electrode Block



External Dimensions (CHC-5)

● CHC-5



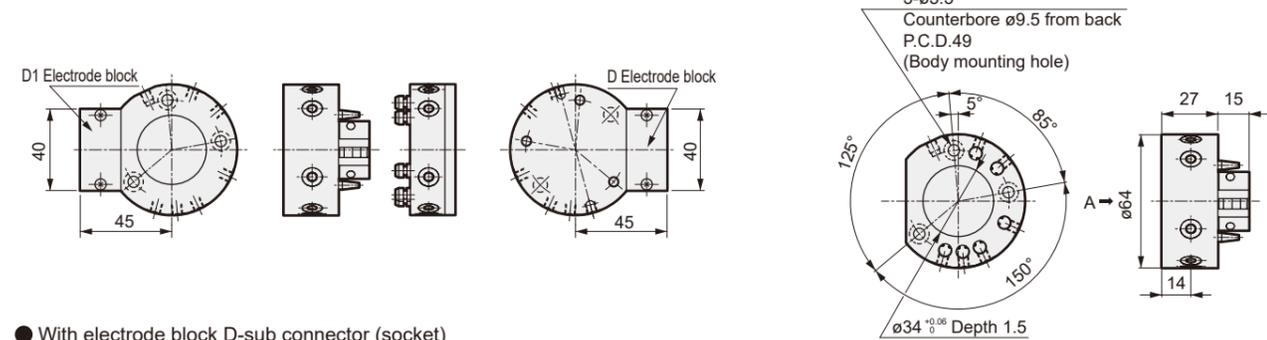
Note1) When attaching a hand, etc., to the tool adapter side, remove the tool plate and perform additional machining on the tool plate operating surface before attaching. Avoid machining on (a) tool plate positioning hole and (b) connecting hole. If mounting on a different tool plate, drill (a) and (b) holes on the plate.

Note2) Holes (a) and (b) in the tool plate are for fixing the tool adapter and cannot be used.

Outer Dimensions Diagram with Option

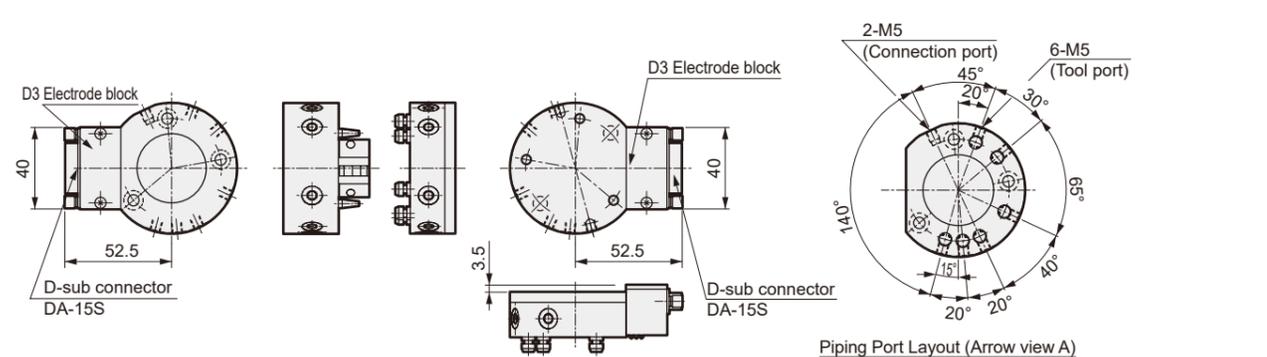
● With Electrode Block

• Body side CHC-5R-D1 • Tool adapter side CHC-5H-D



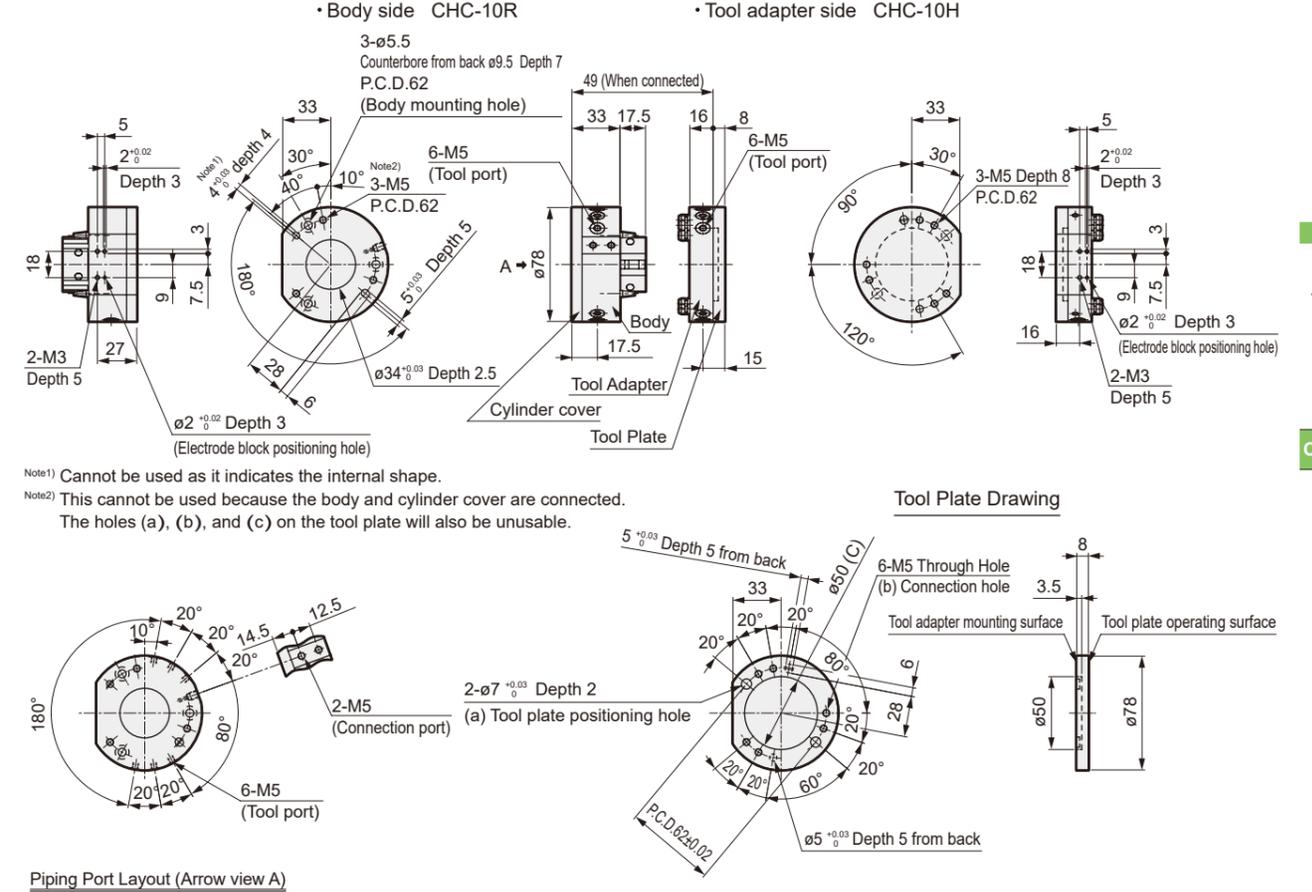
● With electrode block D-sub connector (socket)

• Body side CHC-5R-D3 • Tool adapter side CHC-5H-D3



External Dimensions (CHC-10)

● CHC-10



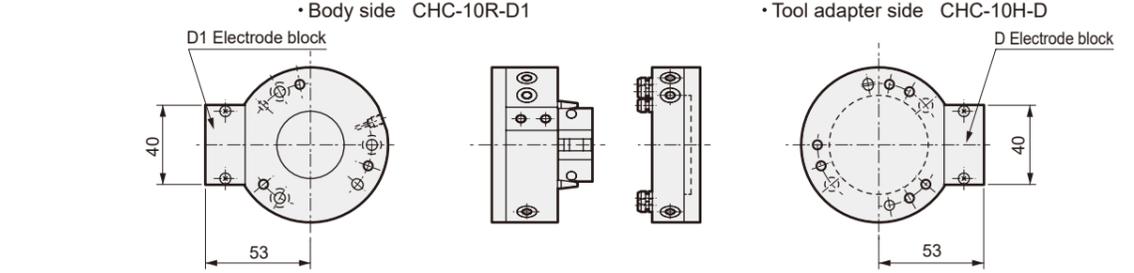
Note1) Cannot be used as it indicates the internal shape.

Note2) This cannot be used because the body and cylinder cover are connected. The holes (a), (b), and (c) on the tool plate will also be unusable.

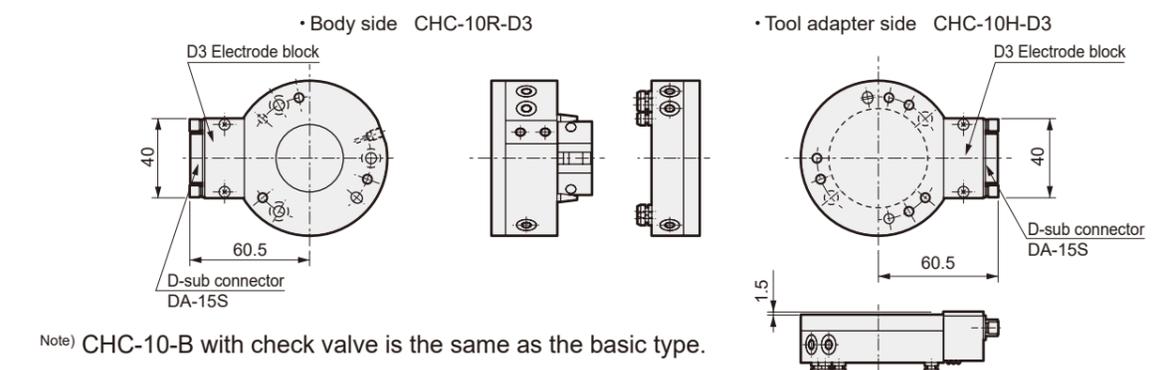
Note) If attaching a hand to the tool adaptor side, remove the tool plate and machine the tool plate application surface before attaching the hand. Avoid machining on (a) tool plate positioning hole and (b) connecting hole. In addition, (c) is a necessary space for operation of the arm when the body side grasps the tool adaptor unit. When attaching a different tool plate, create holes (a), (b), and (c) in that plate.

Outer Dimensions Diagram with Option

● With Electrode Block

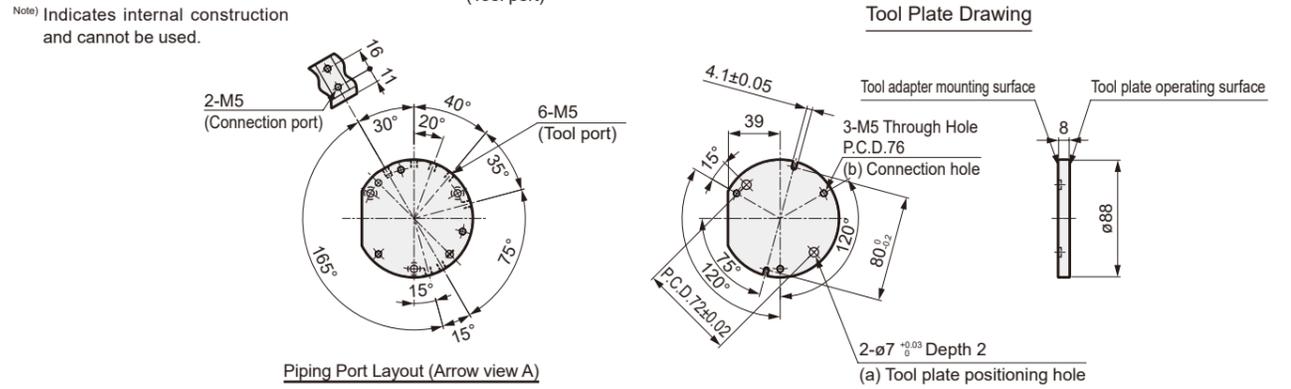
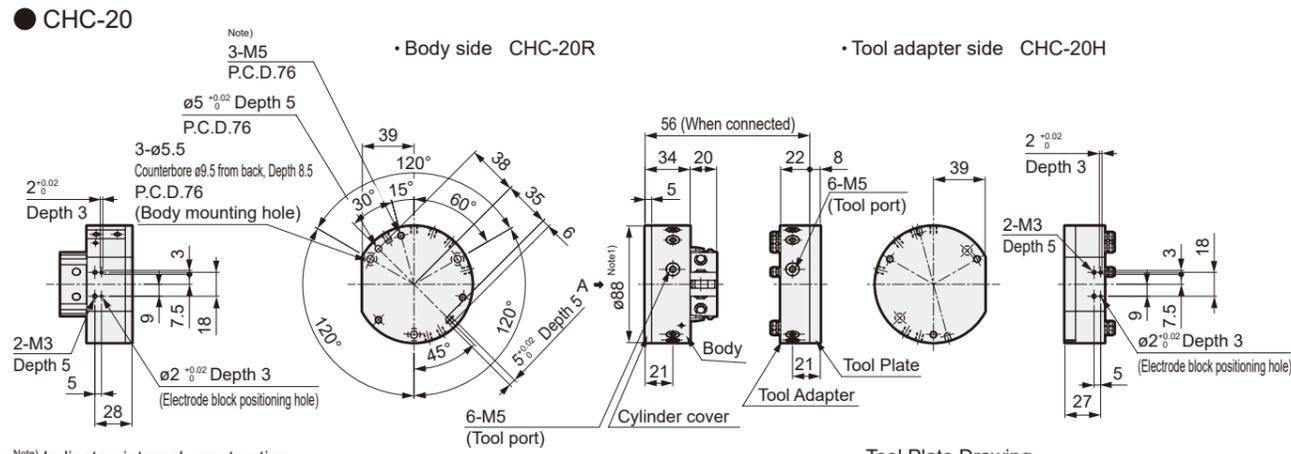


● With electrode block D-sub connector (socket)



Note) CHC-10-B with check valve is the same as the basic type.

External Dimensions (CHC-20)

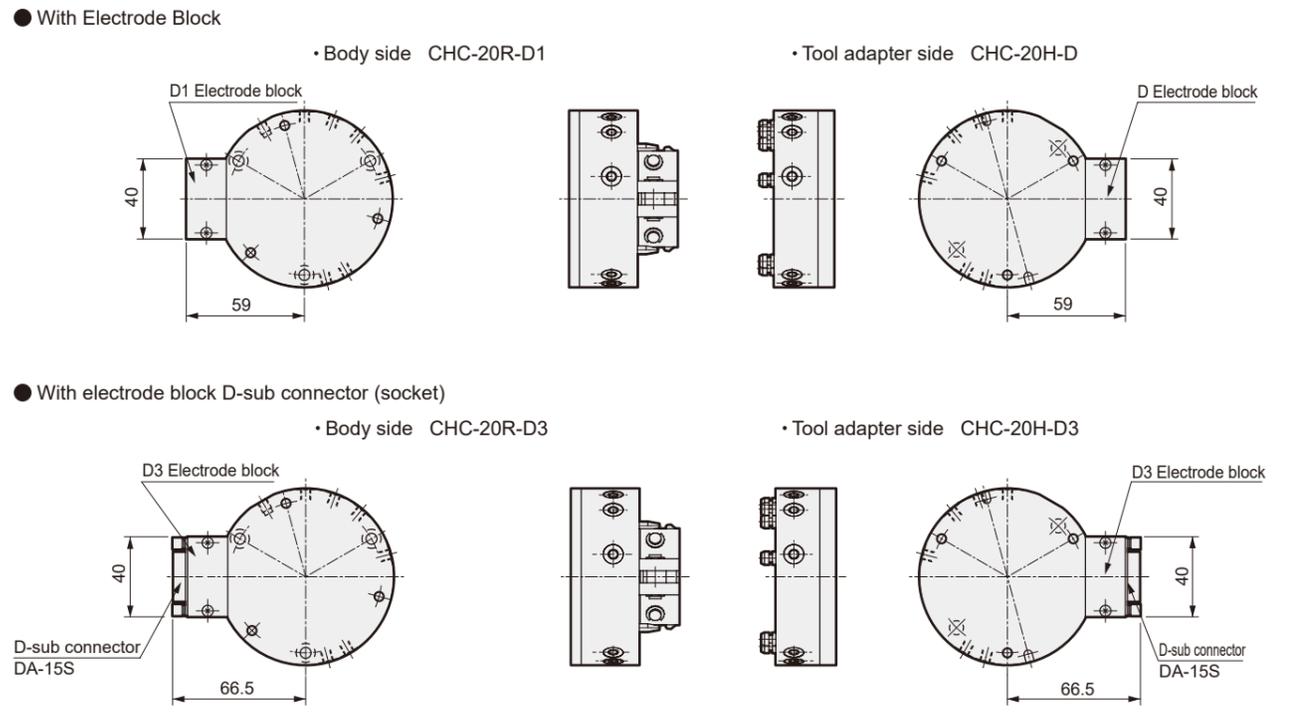


Note1) Cylinder cover section only ø88_{0.1}.

Note2) When attaching a hand, etc., to the tool adapter side, remove the tool plate and perform additional machining on the tool plate operating surface before attaching. Avoid machining on (a) tool plate positioning hole and (b) connecting hole. If mounting on a different tool plate, drill (a) and (b) holes on the plate.

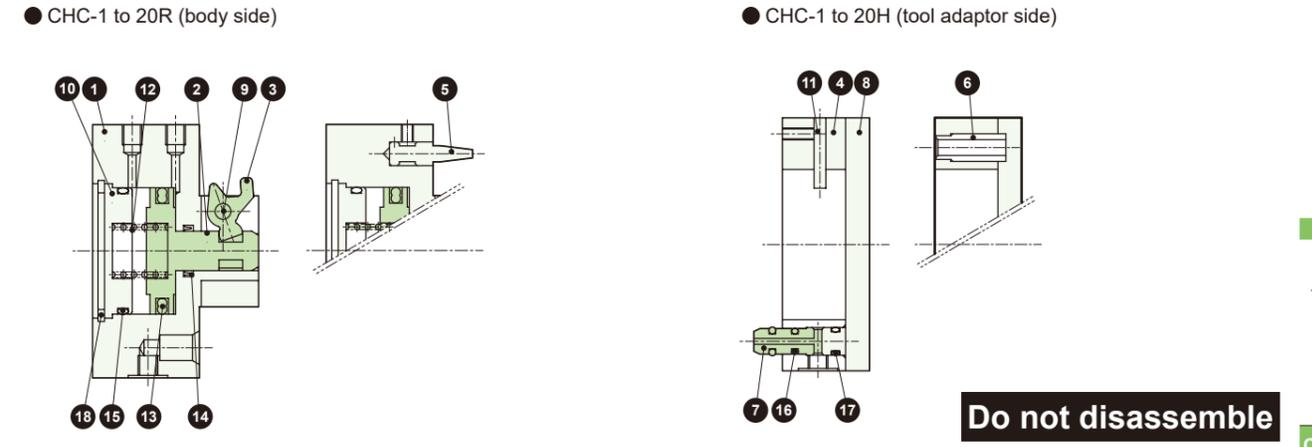
Note3) Holes (a) and (b) in the tool plate are for fixing the tool adapter and cannot be used.

Outer Dimensions Diagram with Option



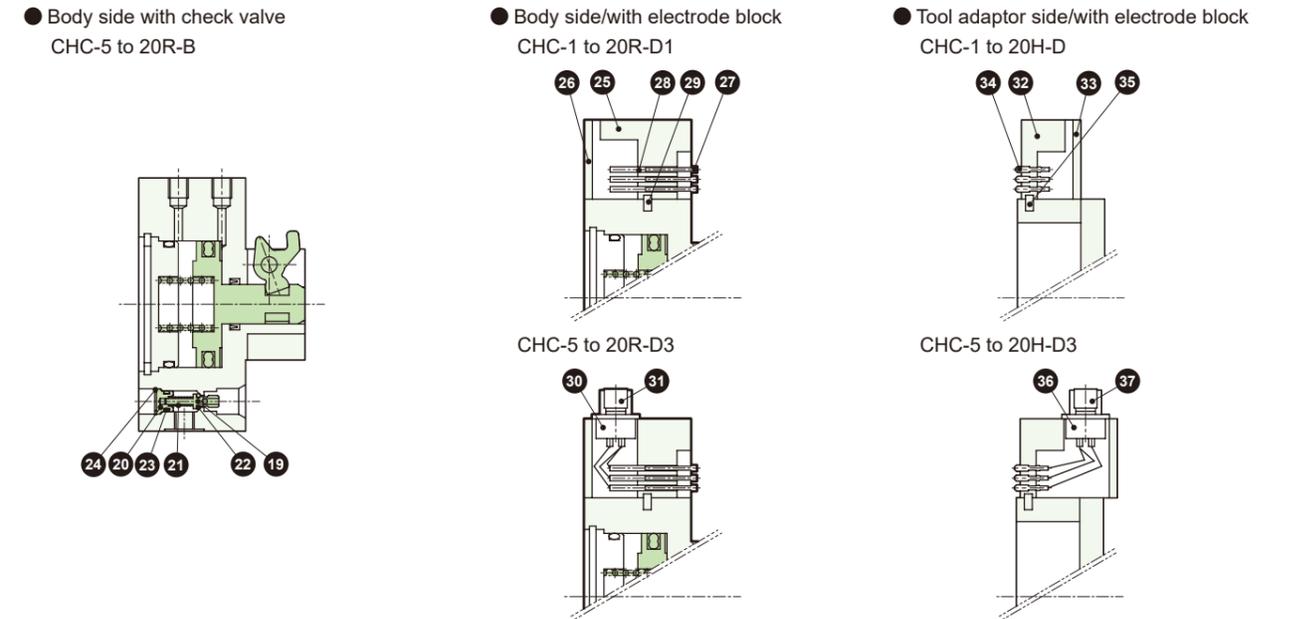
Note) CHC-20-B with check valve is the same as the basic type.

Internal Structure Diagram/Material



Part No.	Part Name	Material	Part No.	Part Name	Material
1	Body	Aluminum Alloy	10	Cover	Aluminum Alloy
2	Piston	Stainless Steel	11	Operating Shaft	Alloy Steel
3	Arm	Stainless Steel	12	Coil Spring	Stainless Steel
4	Tool Adapter	Aluminum Alloy	13	Piston seal	Nitrile Rubber
5	Positioning pin	Stainless Steel	14	Rod seal	Nitrile Rubber
6	Positioning hole	Stainless Steel	15	Cylinder seal	Nitrile Rubber
7	Air Bin	Stainless Steel	16	Air Pin Seal	Nitrile Rubber
8	Tool Plate	Aluminum Alloy	17	Air Pin Seal	Nitrile Rubber
9	Pivot Shaft	Steel	18	C-type retaining ring	Stainless steel (1R, 5R only)

Internal Structure Diagram/Material with Options



Part No.	Part Name	Material	Part No.	Part Name	Material	Part No.	Part Name	Material
19	Spool	Stainless Steel	25	Electrode Base	Resin	32	Electrode Base	Resin
20	Spool Retainer	Aluminum Alloy	26	Base Cover	Resin	33	Base Cover	Resin
21	Spring	Stainless Steel	27	Probe		34	Electrode Pin	
22	Check valve seal 1	Nitrile Rubber	28	Receptacle		35	Positioning pin	Alloy Steel
23	Check valve seal 2	Nitrile Rubber	29	Positioning pin	Alloy Steel	36	D-sub connector	
24	C-type retaining ring	Stainless Steel	30	D-sub connector		37	Mating fixing base	
			31	Mating fixing base				

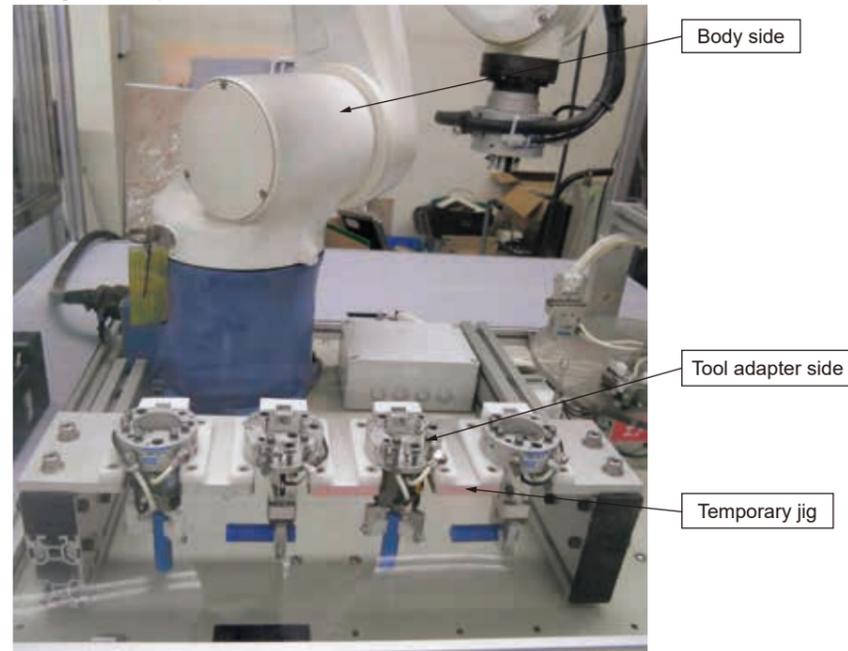
Note) Check valve cannot be retrofitted.

Positioning (Customer's machine - body side, Tool adapter side - Customer's temporary jig)

Body side			Usage Example	
CHC-1	CHC-5	CHC-10	CHC-20	
Positioning is done by the pilot bore of $\phi 21^{+0.06}$ in the drawing. (The above diagram is for CHC-1.)			Positioning is done by the outer circumference of $\phi 88_{-0.1}$ in the drawing.	Attach to the body side using the positioning location in the left drawing.

Tool adapter side			Usage Example	
CHC-1	CHC-5	CHC-20	CHC-10	
Positioning is done by the notch of $\phi 4.1 \pm 0.05$ in the drawing. (The above diagram is for CHC-1.)			Positioning is done by the elongated hole of $\phi 5^{+0.03}$ Depth 5 and the hole of $\phi 5^{+0.03}$ Depth 5 P.C.D. 62 in the drawing.	Create a positioning pin on the temporary jig and position with the hole on the tool adapter side in the left drawing.

Usage Example



Pneumatic Equipment

To Use This Product Safely

Be sure to read this before use.

For general cylinder information, see Intro 39, and for cylinder switches, see P. 628.

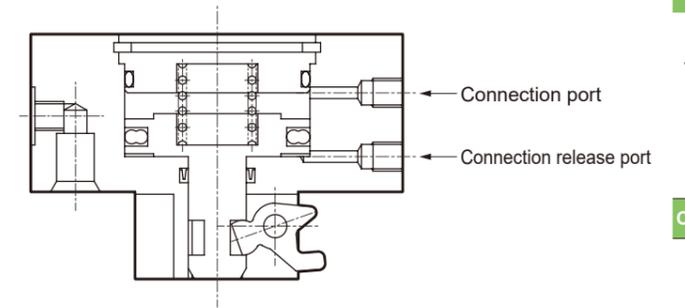
Individual Precautions: Auto Hand Changer CHC Series

During Design / Selection

Caution

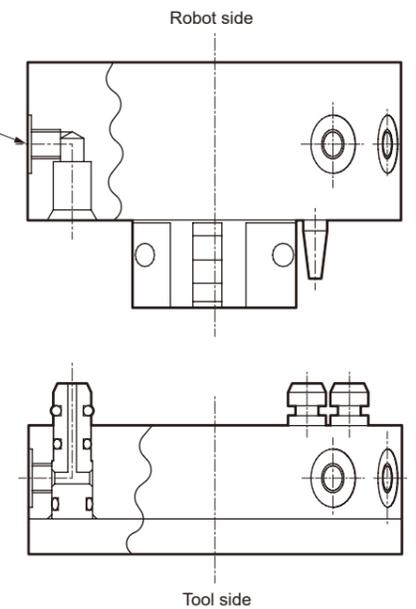
■ Piping for body side connection port

The spring is for drop prevention and cannot be used to support external force. When external force is applied during connection, such as during equipment operation, supply air to the connection port before use.



■ Compressed air supply to tool port

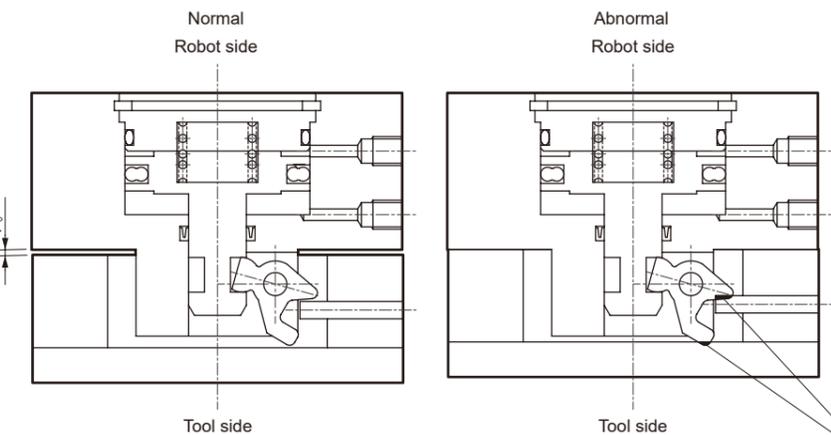
Since the tool port is in an open state, use a 3-position all-port block type directional control valve. Do not supply compressed air when separated.



■ Connection Method

Set the clearance between the robot side and the tool side to 1 mm. When air is supplied, the arm pulls in the tool side and the 1 mm clearance disappears.

If it is 1 mm or less, it will hit the tool side ejecting part.



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CHC

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Cylinder Switch Ending

Cylinder Switch Ending