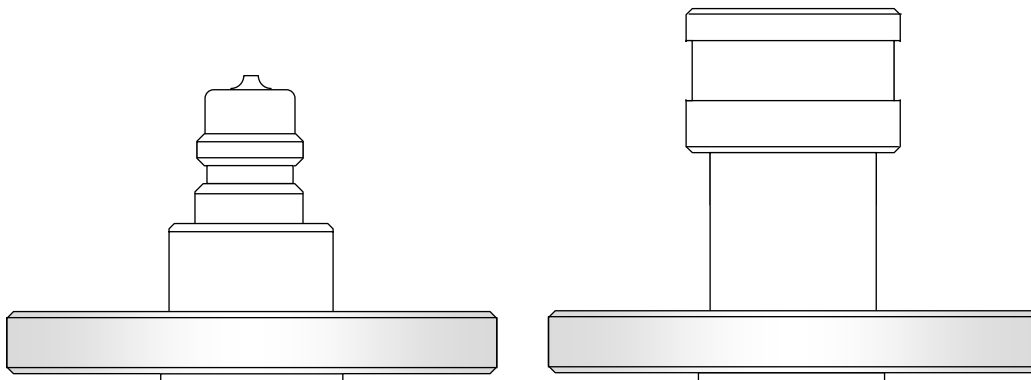

Fluoropolymers

Quick Connector

QCH-F

Plug/Socket

Operation Manual



Before you use, carefully read this manual for an appropriate handling of this product. And, keep this manual close at hand for quick reference if necessary.

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Before You Use

WARNING

Before use of this product, carefully read this manual so that you can be familiar with its information.

Keep this operation manual close at hand for quick reference if necessary.

For safety operation, obey the primary usage of product or the mounting procedure specified in this manual.

Comply with the statements of warnings described in this manual.

The above instructions are mandatory. Neglect of instructions may result in personal injury or accidents.

< Description of Operation Manual and Warning Labels >

The information described in this manual is subject to change without prior notice, due to improvements of product in performance and/or functionality.

The simplified QCH-ANSI-F Quick Connector Operation Manual (printed on one sheet of A4-sized paper) that is packed in each connector package must be stored close to the connector-mounted place for quick reference as it needed.

The WARNING label instructing handling of socket must be labeled on an easily visible spot close to the socket-mounted place.

No parts of Operation Manual may be reproduced or utilized in any form or by any means.

Please call Surpass Industry if you lose Operation Manual.

Every effort was made to ensure that all information included in Operation Manual were complete and accurate at the time of printing. However, if you have any point of doubt, errors, and omissions, please contact Surpass Industry.

<Call to:>



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○ Important Safety Instructions





Description of Marks Used in This Manual

This manual provides the marks including **DANGER**, **WARNING**, and **CAUTION**, used to avoid personal injury or property damage accidents.

The meanings of marks are described as follows.

Before reading this manual, completely understand the meanings of these marks and obey the instructions described in this manual.

In particular, completely understand and obey the statement of **DANGER** mark.

 DANGER	Indicates an imminently hazardous situation that, if not avoided, could result in user death or serious injury.
 WARNING	Indicates a potentially hazardous situation that, if not avoided, could result in user death or serious injury.
 CAUTION	Indicates a potentially hazardous situation that, if not avoided, could result in user injury or property damage accidents.
	Indicates the notes including key instructions to correctly operate the product.

DANGER and WARNING Statements

Before use of this product, carefully read the statements of DANGER and WARNING marks and comply with them.

General Instructions on Mounting



DANGER This is Mandatory Rule.

Whenever using this product for hazardous chemical fluids or solvents, wear anti-chemical protective gear (protective gloves, protective mask, and protective clothing) that completely protects your body. Exposure of chemical fluids may result in personal injury.



WARNING

Use the flange in the specified usage and connecting procedures. Connection of flanges in the wrong usage or procedure may result in personal injury due to leakage of chemical fluids.

Instructions on Handling



WARNING

Do not damage the connecting part (wound with seal-tape) of plug and socket. Damage of product may result in personal injury due to leakage of chemical fluids.

Do not contact the connector to any rigid materials because it is made of resin materials. Damage of product caused by contact may result in personal injury due to leakage of chemical fluids.

Instructions on Mounting



DANGER

This is Mandatory Rule.

Connect or disconnect the connector to the tube whose internal pressure is not pressurized. A pressurized condition may result in personal injury due to exposure of chemical fluids.

Whenever connecting or disconnecting the connector, wear anti-chemical protective gear (protective gloves, protective mask, and protective clothing) that completely protects your body. A touch of chemical fluids may result in personal injury.

Connect or disconnect the connector in a cleanly place with no dust. Lower tackiness caused by dust may result in personal injury due to leakage of chemical fluids.

Do not apply the connector to rotary joint or other rotary application. Lower tackiness caused by the wrong application may result in personal injury due to leakage of chemical fluids.

Instructions on Inspection and Maintenance



WARNING

Replace O-Ring in the specified replacing procedures. A replacement work in the wrong procedures may result in personal injury due to leakage of chemical fluids or unexpected accidents.

1. Description

Fluoropolymers Quick Connector Series are the "one-touch" (instant lock) typed connectors for high-purity chemicals used in semi-conductor manufacturing process. These connectors have proven their reliability and convenience over many years. Also, repeated efforts to improve chemical-resistance, leak-resistance, and particle reduction for higher quality allow our connectors to be applied to various type chemicals.

2. Application

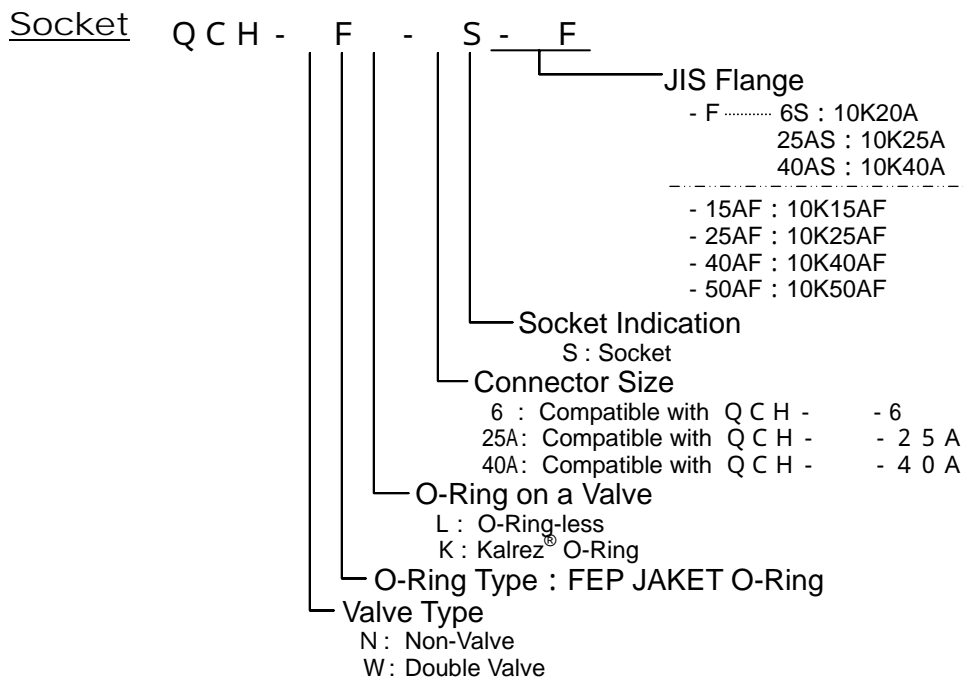
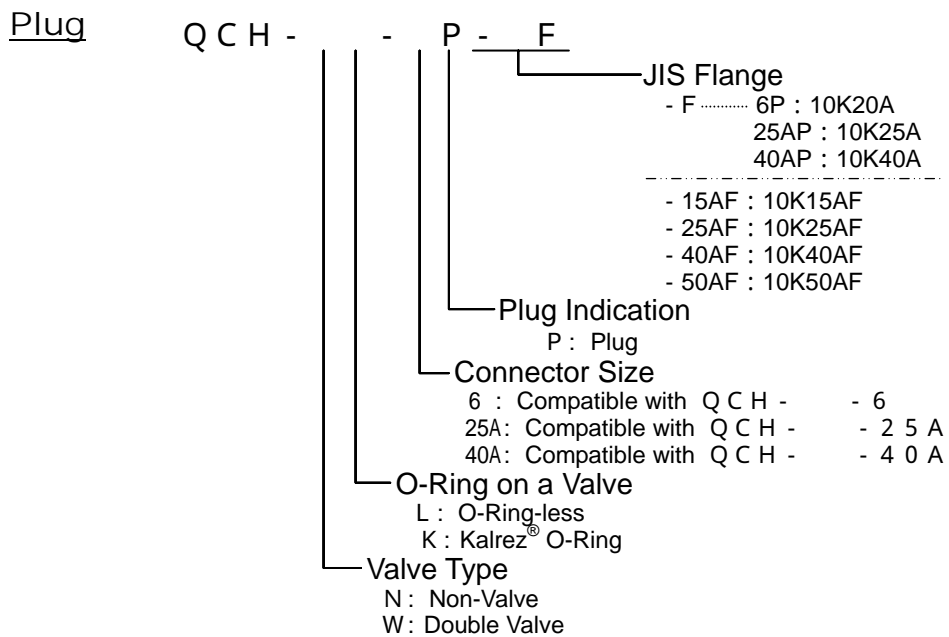
Containers for high-purity semi-conductor chemicals
Semi-conductor manufacturing equipment
Biochemistry, physics and chemistry equipment
Pure water equipment
Medical equipment
Environmental equipment



- Do not use the connector for slurry liquids or liquids containing foreign substances.

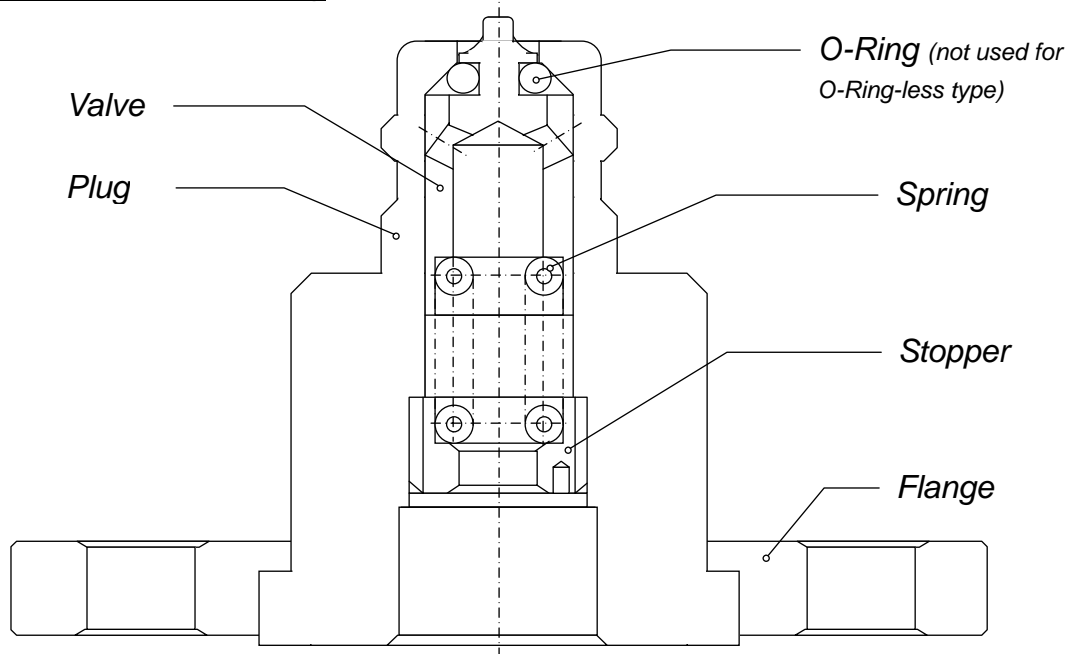
3. Specification

Operating Pressure	: Max. 450 kPa (65.2 psi)
Operating Temperature Range	: 5 ° C ~ 70 ° C (41 ° F ~ 158 ° F)
Materials of Parts in Contact with Liquid	: PCTFE, PTFE, PFA
Model Type	: Refer to the figure as below.

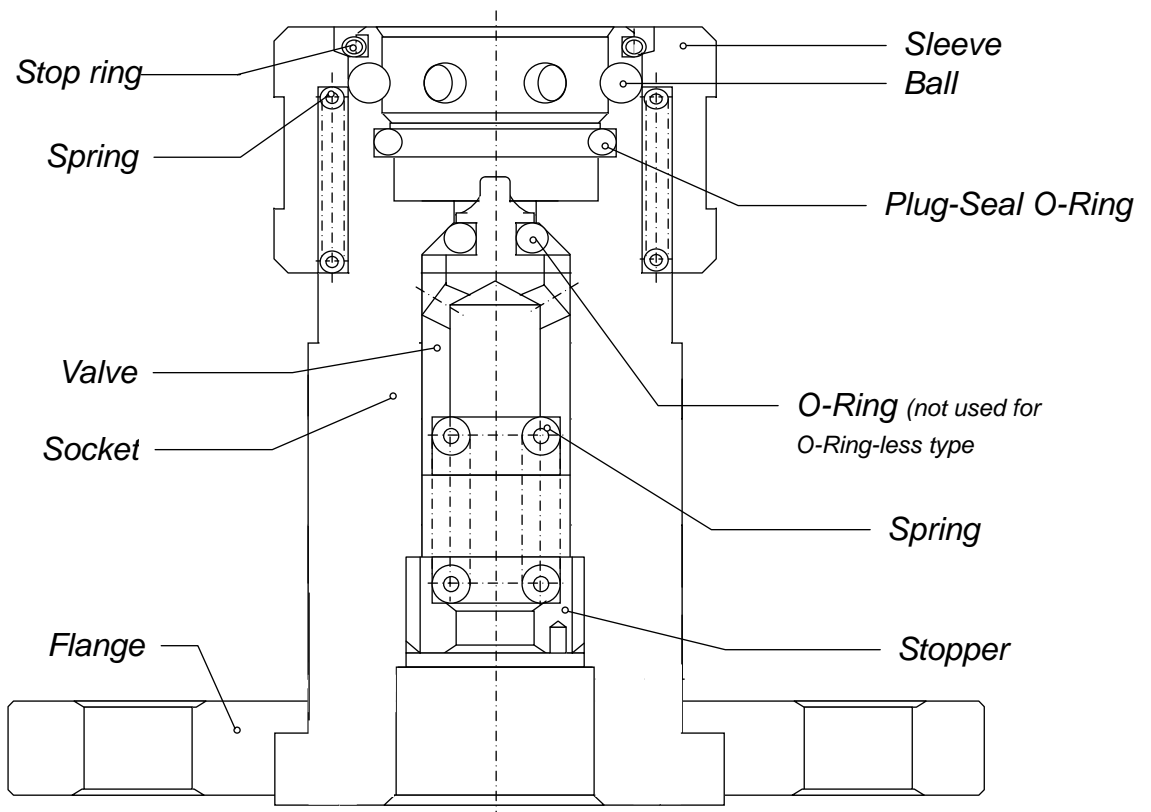


4. Destinations of Parts

Sectional View of Plug



Sectional View of Socket



5. Mounting



DANGER

This is Mandatory Rule.

Whenever using this product for hazardous chemical fluids or solvents, wear anti-chemical protective gear (protective gloves, protective mask, and protective clothing) that completely protects your body. Exposure of chemical fluids may result in personal injury.

5-1 Unpacking

Carefully unpack the package not to damage the plug and socket.

5-2 Where to Mount

Mount the connector in the place where the bending or tensile stress can not be produced.

Mount the connector in the place where excessive vibration or shock can not be produced.

5-3 Attaching Flange



WARNING

Use the flange in the specified usage and the attaching procedures. Attach of flanges in the wrong usage or procedures may result in personal injury due to leakage of chemical fluids.

Select the gasket that is made of any materials suitable for your usage.

Remove any foreign particle or dirt from the surface of attaching part.

Insert the gasket into the attaching part and tighten the nut.



- When tightening the nut, screw the bolts in crosswise order so that the flange can be evenly tightened.
- For tightening torque of nut, refer to the table "Tightening Torque of Flange Nut (Reference Value)".

Refer to the table as below and tighten the flange.

Tightening Torque of Flange Nut (Reference Value)

Flange Size	Nut Tightening Torque Reference Value
20A	$8.0 \pm 2.0 \text{ N}\cdot\text{m}$
25A	$14.0 \pm 4.0 \text{ N}\cdot\text{m}$
40A	$29.0 \pm 6.0 \text{ N}\cdot\text{m}$

Make sure that there is no leakage from the attaching part of flange.

6. Mounting Procedures



DANGER

This is Mandatory Rule.

Connect or disconnect the connector to the tube whose internal pressure is not pressurized. A pressurized condition may result in personal injury due to exposure of chemical fluids.

Whenever connecting or disconnecting the connector, wear anti-chemical protective gear (protective gloves, protective mask, and protective clothing) that completely protects your body. A touch of chemical fluids may result in personal injury.

Connect or disconnect the connector in a cleanly place with no dust. Lower tackiness caused by dust may result in personal injury due to leakage of chemical fluids.

Do not apply the connector to rotary joint or other rotary application. Lower tackiness caused by the wrong application may result in personal injury due to leakage of chemical fluids.

6-1 Connecting Procedures

Before connecting the connector, make sure that the pressure in tube is not pressurized.



DANGER

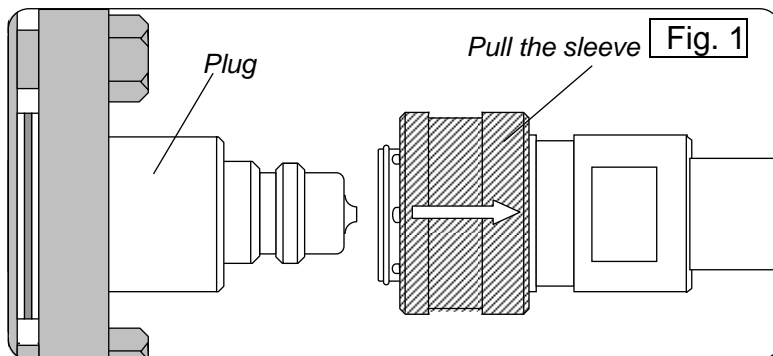
This is Mandatory Rule.

A pressurized condition may result in personal injury due to exposure of chemical fluids. Connect or disconnect the connector to the tube whose internal pressure is not pressurized.

Pull the socket sleeve by hand. (See Fig. 1 and photo.)

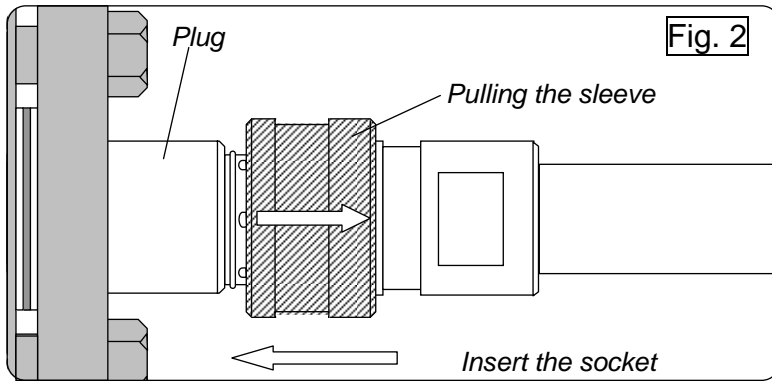


- Whenever connecting the socket, pull the sleeve by hand. Pulling sleeve allows socket connection.



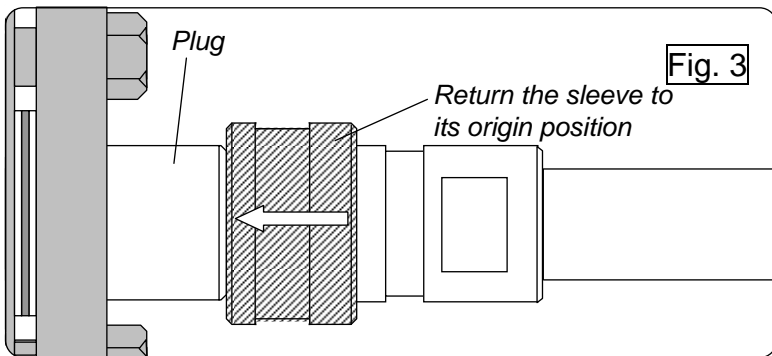
Insert the socket into the plug by pulling the socket sleeve until the head of socket reaches the plug.

(See Fig. 2 and photo.)

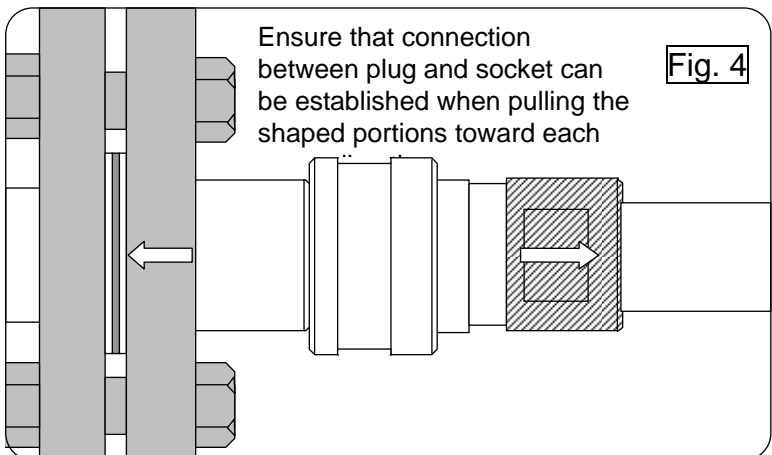


Return the socket sleeve to its origin position.

(See Fig. 3 and photo.)



Make sure that the socket has been securely connected to the plug. (See Fig. 4 and photo.)




6-2 Fluid Transport

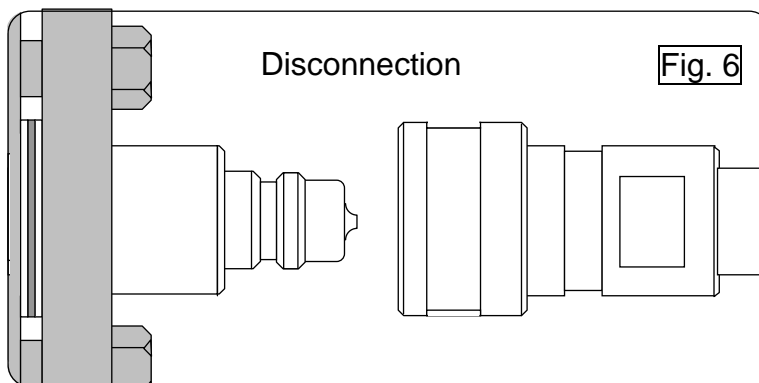
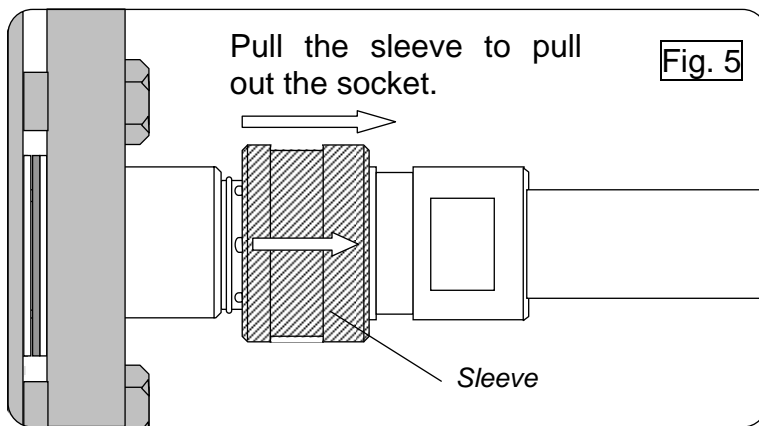
Before fluid transport operation, make sure that connection between plug and socket has been successfully completed.

6-3 Disconnecting Procedures

Keep the pressure in tube non-pressurized (not pressurized condition).

	DANGER	This is Mandatory Rule.
A pressurized condition may result in personal injury due to exposure of chemical fluids. Connect or disconnect the connector to the tube whose internal pressure is not pressurized.		

Pull out the socket by pulling the socket sleeve.
(See Fig. 5, Fig. 6 and photo.)



7. Inspection and Maintenance



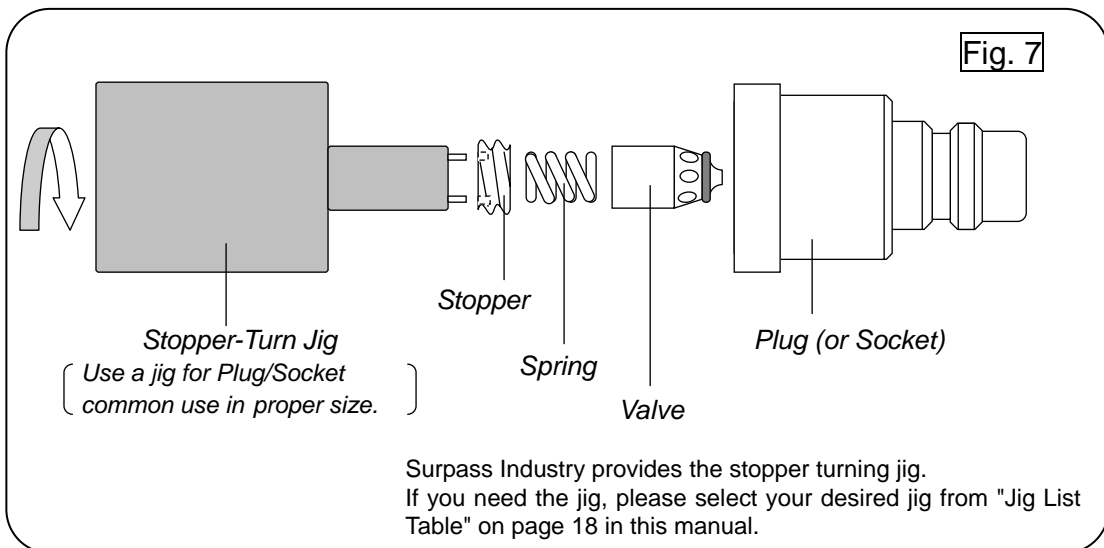
- Surpass Industry is not be liable to any failure or leakage of the product due to O-Ring replacement and/or disassembly performed by any parties other than Surpass Industry.
- If you are not confident of success in maintenance work, please call Surpass Industry.

7-1 Periodic Inspection

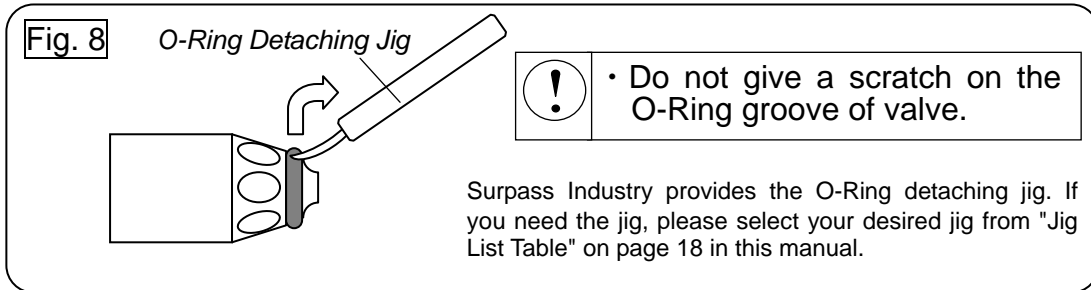
You are recommended to appropriately perform the periodic inspections depending on your product usage (at least once a year). If you find any deterioration of products, please call Surpass Industry. As for O-Ring maintenance, you can replace the O-Ring with new one in the following procedures. If you are not confident of success in O-Ring maintenance work, please call Surpass Industry.

7-1-1 Replacing Valve O-Rings

Remove the stopper by turning it counterclockwise with an "stopper turning jig" as shown in Fig. 7, and take out the spring and the valve from the plug or socket. (See Fig. 7.)



Remove the valve O-Ring by sticking it with O-Ring detaching jig. (See Fig. 8.)



Attach a new O-Ring to the O-Ring groove of valve and adjust it by your fingers until it can be fitted to the groove.

As shown in Fig. 9, attach the stopper to the valve the by turning it clockwise with "stopper turning jig." Then, as shown in Fig. 10 and 11, insert the valve into the plug or socket and securely tighten the stopper with "surface-alignment checking jig" until the valve can be aligned with Surface-A of Plug/Socket. (See Fig. 9, 10 and 11.)

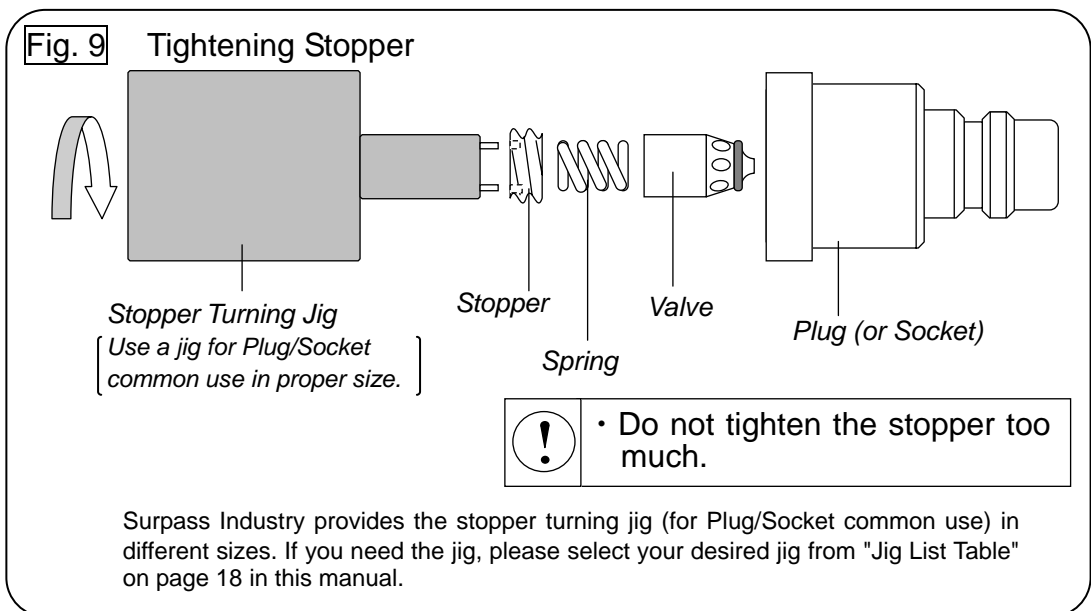
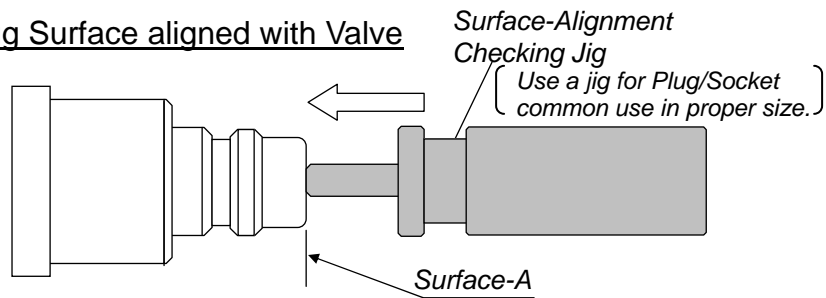


Fig. 10

Plug Surface aligned with Valve

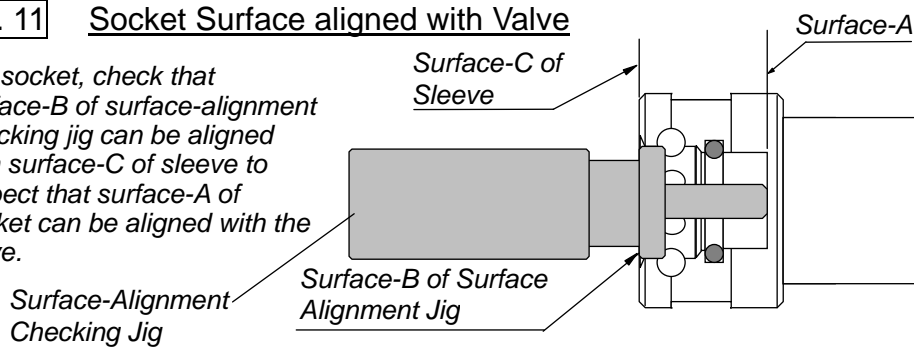


Surpass Industry provides the surface-alignment checking jig in different sizes. If you need the jig, please select your desired jig from "Jig List Table" on page 18 in this manual.

Fig. 11

Socket Surface aligned with Valve

For socket, check that surface-B of surface-alignment checking jig can be aligned with surface-C of sleeve to inspect that surface-A of socket can be aligned with the valve.



Before starting operation, perform the conduct leakage inspections to check that no abnormality can be detected.



- You are recommended to perform the conduct leakage inspections in two different stages, low-pressure [20 - 30k Pa (2.9 - 4.3 psi)] condition and high-pressure condition [400k Pa (58.0 psi)].

7-1-2 Replacing Plug-Seal O-Rings

Remove the plug-seal O-Ring by sticking it with O-Ring detaching jig. (See Fig. 12.)

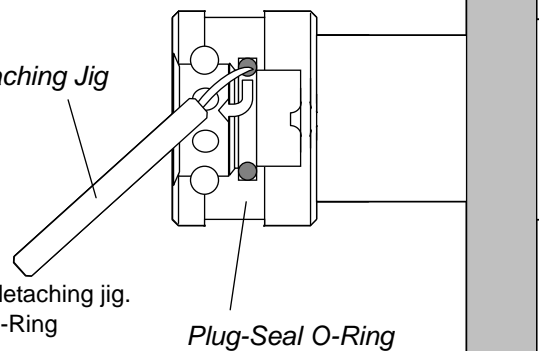
Fig. 12



- Do not give a scratch on the O-Ring groove of valve.


Surpass Industry provides the O-Ring detaching jig. If you need the jig, please select the "O-Ring detaching jig Q030-003."

O-Ring Detaching Jig



Attach a new O-Ring to the O-Ring groove of valve and adjust it until it can be fitted to the groove.

Before starting operation, perform the conduct leakage inspections to check that no abnormality can be detected.

- | | |
|---|---|
|  | <ul style="list-style-type: none"> You are recommended to perform the conduct leakage inspections in two different stages, low-pressure 20 - 30k Pa (2.9 – 4.3Psi) condition and high-pressure condition 400k Pa(58.0Psi). |
|---|---|

Jig List Table

Model Type Jig Name	QCH-6P/6S	QCH-25AP/25AS	QCH-40AP/40AS
Stopper turning jig	<i>Specify the jig name, connector size, and plug-use or socket-use (e.g., for 6P plug, specify "stopper turning jig for flange-type 6P plug").</i>		
Surface-alignment checking jig	<i>SI-1385</i>	<i>SI-1386</i>	<i>SI-1387</i>
O-Ring detaching jig	<i>Specify "Q030-003."</i>		

7-2 Daily Inspections

Before starting operation and after completing operation, perform the daily inspections checking the following points against product. Whenever any abnormalities detected, you must take an appropriate correcting action.

Can you see any foreign particles, dust, or dirt on the product?

Can you find any leakage from tubes or connector joints?

8. Troubleshooting

Trouble Condition	Checking Points	Correcting Action
Fails to connect.	Do you pull the socket sleeve pulled? Are the plug and the socket matched in size? Is the valve aligned with Face-A?	Connect the socket by pulling the sleeve. (See page 12.) Use the plug and the socket in same size. Tighten the stopper again so that the valve can be aligned with Face-A. (See page 17.)
Flow fails to fluids.	Is the socket securely connected? Is the pressure in tube pressurized?	Push the socket into the innermost part of the plug. (See page 13.) Pressurize the pressure in tube appropriately.
Fails to disconnect.	Is the pressure in tube pressurized? Do you pull the socket sleeve by hand?	Keep the pressure in tube to non-pressurized. Pull the socket by pulling the sleeve. (See page 14.)

9. Product Warranty

Surpass Industry products are warranted to be free from latently defective in performance and material for a period of one (1) year from the date of delivery by Surpass Industry Co.,Ltd.. Surpass Industry Co.,Ltd. will replace the product that is permitted in writing by us to be latently defective in design or workmanship within this time.

This warranty shall not be applied to any defects caused by misuse, alteration, mishandling, and neglect of our instructions.

And, Surpass Industry Co.,Ltd. are not be liable to any direct or consequential loss, damage, and personal injury due to improper mounting such as single or combination with other type products and unauthorized usage such as usage of product under condition exceeding its specifications. Our product warranty shall be limited to replacement of product.

Replacement with expense to the purchaser shall be applied to the followings:

- Any defective products due to usage not included in Operation Manual.

- Any defective products due to mishandling.

- Any defective products due to decomposition, alteration, and improper adjustment or repair.

- Any defective products due to acts of God including natural disaster or fires.

- Consumables and accessories.

- memo -

<Call to:>

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