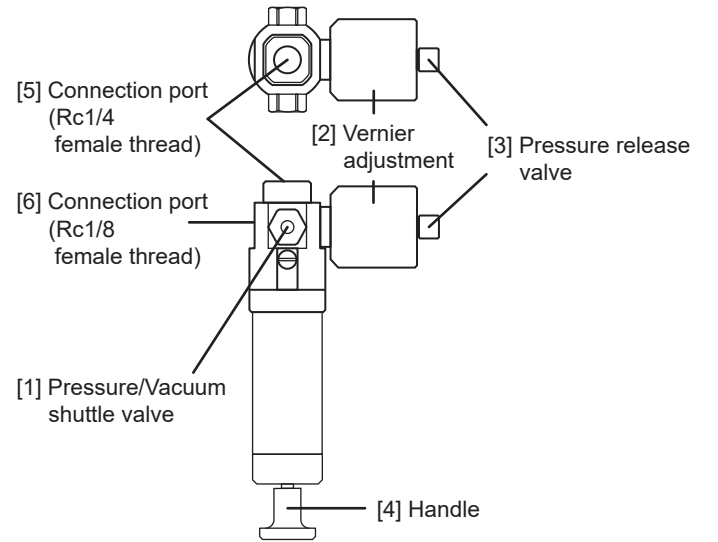


2. Components

2.1 Names and Functions

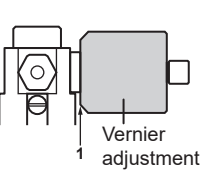
Name	Description
[1] Pressure/Vacuum shuttle valve	Press the shuttle valve (or return it) to switch between pressure and vacuum. Pressure: PRESSURE Vacuum: VACUUM
[2] Vernier adjustment	Pressure can be fine-tuned by turning the knob. See section 2.2, “Vernier Adjustment.”
[3] Pressure release valve	Close when generating pressure. (Turn clockwise.) Open to release pressure. (Turn counterclockwise.)
[4] Handle	Operate (push) the handle to generate pressure.
[5] Connection port (Rc1/4 female thread)	Port for outputting pressure. Connect the calibration target (connector) and the like to this port.
[6] Connection port (Rc1/8 female thread)	Port for outputting pressure. Connect the standard pressure meter (hose) and the like. If you are not using this port, close it with the Rc1/8 sealing cap.



2.2 Vernier Adjustment

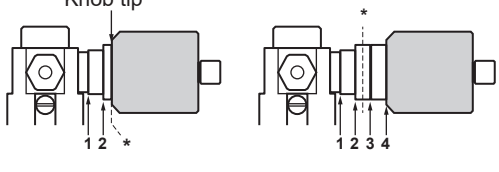
Pressure can be fine-tuned by turning the vernier adjustment knob. On the inside of the vernier adjustment knob, there is a division scale (4 equally spaced positions) for the entire adjustment range.

Fully closed



1. 1st position (0%)

Fully open



1. 1st position (0%)
2. 2nd position (33%)
*: Approximate middle position
1. 1st position (0%)
2. 2nd position (33%)
3. 3rd position (66%)
4. 4th position (100%)

If the knob tip is between the 2nd and 3rd positions, it is approximately in the middle* of the adjustable range and can be used as a guide to the adjustable range.

3. Operating Instructions

3.1 Handling Precautions

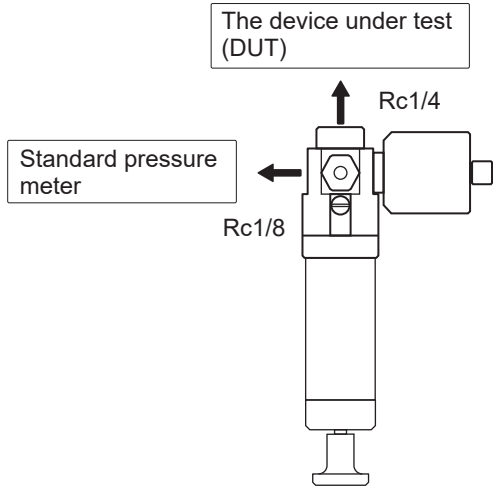
Be sure to check the operating environment (safety). Before use, be sure to check that connectors are secure, that there are no intrusion of foreign substances, and that there are no damages. In addition, use the same thread specifications for all connectors. Perform preliminary pressure tests on tubing and other parts of the system. If you are applying pressure using a hand pump, be sure to monitor the pressure with a standard pressure gauge (monitor). When transporting or handling this instrument, do not drop or otherwise subject it to shock.

3.2 Connecting Connectors

⚠ CAUTION

- Use connectors compatible with the thread specifications of the device under test (DUT) and tubing. Otherwise, leakage and damage to threads may result.
- Apply appropriate seal tape to the connecting surface of the connector.

[Connection example]



■ Using Two Wrenches

To prevent leaks, the thread adapter or quick adapter must be securely fastened. Using a wrench only on the connector side may break the pressure pump. Use two wrenches to prevent force from being applied to the pressure pump. (The same applies when you connect a connector to the standard pressure gauge.)

3.3 Generating Pressure

⚠ WARNING

- Remove tubing and wiring from the DUT before carrying out the procedure.
- Do not connect to any pressure source other than this instrument.
- Be sure to observe all safety precautions to avoid injury and damage to the DUT.

⚠ CAUTION

- To prevent damage to this pressure pump, use your hand to tighten the pressure release valve.
- Use connectors and hoses appropriate for the source pressure.
- Operate the Pressure/vacuum shuttle valve when releasing to atmosphere.

[Procedure]

- Connect the standard pressure meter and the DUT.
- Turn the **pressure release valve** [3] clockwise to close it.
- Using a small screwdriver or other tool, push the **pressure/vacuum shuttle valve** [1] to specify pressure or vacuum.
- Push the **handle** [4] (operate the handle) to apply pressure near the target pressure. (Operate the handle while monitoring the standard pressure meter.)
- Turn the **vernier adjustment** [2] to “fine tune” the pressure to the target value.
When pressure is being generated:
Turn clockwise to increase; turn counterclockwise to decrease
When vacuum is being generated:
Turn counterclockwise to decrease (toward vacuum)
- To decrease (release) pressure, turn the **pressure release valve** [3] counterclockwise.

Note

The vernier adjustment can be turned about 20 times counterclockwise (decreasing pressure) from the maximum position. If it feels heavy to turn, stop turning it. Turning it by force can cause damage.

3.4 Releasing Pressure

⚠ WARNING

To prevent accidents, safely return the pressure to zero (release to atmosphere) before removing the connector and hose.

After use, turn the **pressure release valve** [3] counterclockwise to release (release to atmosphere) the pressure.

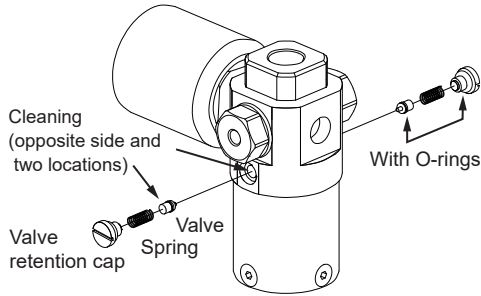
Note

- After use, store the pressure pump in the hand pump case or in a safe place.
- To prevent misplacing the Rc1/8 sealing cap, we recommend that you attach the cap when storing the pressure pump.

4. Cleaning the Valve

Malfunctions in hand pump operation may be caused by contamination of the hand pump or internal valve assembly. When cleaning the valve assembly, follow the procedure below to clean and check the valve assembly.

If the valve does not operate properly after cleaning, or if it needs to be replaced due to deterioration of the O-ring or spring, we recommend purchasing a replacement valve set (91045), which is sold separately. Contact your nearest YOKOGAWA dealer.



[Cleaning procedure]

- Use a flat-blade screwdriver (tip thickness 0.7 mm or less) to remove the valve retention caps located under the pressure/ vacuum shuttle valve (two locations).
- Remove the springs and valves (with O-rings).
- Clean the valve and the area that contained the valve using a cotton swab dipped in alcohol or similar solution. (Repeat the cleaning process several times with a new cotton swab until the dirt is gone. Keep it clean until installation.)
- Operate the handle several times to check for contamination.
- Clean O-rings (both for retaining caps and valves) with alcohol or similar.
- Check that the springs are in proper condition. (Normally, the spring length in the released state is about 8.6 mm.)
- Install the cleaned valves O-rings (with the cleaned O-rings facing inward) and then the springs.
- Place the retaining caps (with O-rings attached) on the hand pump (in two places) and tighten the retaining caps. (The proper tightening torque is 0.7 N·m.)
- Close the pressure release valve, and operate the hand pump to at least 50% of its generating capacity.
- Repeat the operation in step 9 several times while releasing the pressure and confirming normal operation.

⚠ CAUTION

It is dangerous to continue work if the cause cannot be determined. Stop immediately.

If the product does not work properly, contact your nearest YOKOGAWA dealer.

5. Troubleshooting

If you cannot increase the pressure with the hand pump (if the pressure decreases), check the following.

- Check that the pressure release valve is closed.
- Check that the position of the pressure/vacuum shuttle valve is proper.
- Make sure that the connector and connection port thread specifications match. Check that the connection is secure (properly use seal tape or other measures).
- Ensure that cleaning is properly carried out according to the above procedure.