

# User's Manual 91051 Low Pressure Pump

Thank you for purchasing the 91051 Low pressure pump. This user's manual primarily explains the handling precautions and basic operations of the 91051. To ensure correct use, please read this manual thoroughly before beginning operation.

Store this manual in an easily accessible place for quick reference.

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**YOKOGAWA**  
Yokogawa Test & Measurement Corporation

IM 91051-01EN  
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Contact information of Yokogawa offices worldwide is provided on the following sheet.

PIM 113-01Z2: Inquiries List of worldwide contacts

## Notice Regarding This Manual

- The contents of this manual are subject to change without prior notice as a result of continuing improvements to the instrument's performance and functionality. The figures given in this manual may differ from the actual indication.
- Every effect has been made in the preparation of this manual to ensure the accuracy of its contents. However, should you have any questions or find any errors, please contact your nearest YOKOGAWA dealer.
- Copying or reproducing all or any part of the contents of this manual without the permission of YOKOGAWA is strictly prohibited.

## Sales in Each Country or Region

### Authorized Representative in the EEA

Yokogawa Europe B.V. is the authorized representative of Yokogawa Test & Measurement Corporation for this product in the EEA. (EEA: European Economic Area)  
To contact Yokogawa Europe B.V., see the separate list of worldwide contacts, PIM 113-01Z2.

### Safety Precautions

This product is designed to be used by a person with specialized knowledge.

The general safety precautions described herein must be observed during all phases of operation. If the instrument is used in a manner not specified in this manual, the protection provided by the instrument may be impaired.

This manual is an essential part of the product; keep it a safe place for future reference.

YOKOGAWA assumes no liability for the customer's failure to comply with these requirements.

### The following symbols are used on this instrument and in this manual.

-  Handle with Care. Refer to the user's manual or service manual. This symbol appears on dangerous locations on the instrument which require special instructions for proper handling or use.

### WARNING

Calls attention to actions or conditions that could cause serious or fatal injury to the user, and precautions that can be taken to prevent such occurrences.

### CAUTION

Calls attention to actions or conditions that could cause light injury to the user, or cause damage to the instrument or user's data, and precautions that can be taken to prevent such occurrences.

### Note

Calls attention to information that is important for the proper operation of the instrument.

## Be Sure to Read the Pressure Meter User's Manual

If you are going to use this product in combination with a pressure meter (standard pressure meter/monitor), be sure to read the pressure meter user's manual, and use the instruments correctly.

## Check the Operating Environment

### WARNING

- This product is a pump for the pressure calibrator. Do not use for any other purpose.
- Do not use the product if there is a problem with its physical appearance.
- This product is manufactured in accordance with Sound Engineering Practice (SEP).
- Be sure to check the measurement environment and conditions. If you are using the product in an environment in which supervision by a certified person is required by law or other ordinance, be sure to perform measurements in accordance with appropriate safety management standards.
- Use tubing (connector, hose, etc.) that can withstand the pressure to be generated.
- Make sure that air does not leak from the tubing (connector, hose, etc.) connections. If a connection comes loose or if air leaks under high pressure, it can endanger the user or the surrounding instruments.
- Do not apply pressure exceeding the maximum allowable pressure of the device under test (DUT). Do not generate pressure exceeding the maximum working pressure (M.W.P).
- Removing tubing when there is remaining pressure is extremely dangerous. Safely release the pressure before removing tubing (connector, hose, etc.) from the pressure pump.
- This instrument is **not** explosion-proof. Do not use the instrument in the presence of flammable gases or vapors. Doing so is extremely dangerous.

### Do use the product in:

- In direct sunlight or near heat sources
- In an environment that is subject to large levels of mechanical vibration
- Near noise sources, such as high-voltage equipment or power source
- Near strong magnetic field sources
- In an environment with excessive amounts of soot, grease, dust, or corrosive gas
- In an environment where ignition or explosion may occur, such as where flammable gas is present

### Note

After use, store the pressure pump in the hand pump case or in a safe place.

## 1. Specifications

### Model 91051: Low Pressure Pump

Pressurized media	Air
Pressure generation range	-83 kPa to 700 kPa
M. W. P (Maximum working pressure)	1000 kPa

Operating temperature range: 0 to 50°C  
Port: 1/8" FNPT  
Weight: Approx. 300 g  
Dimensions: Approx. 159×112×34 mm

Name	Model	Note
Low pressure pump kit	91050	Hand pump (91051), Connector set (91052), Case (93052)
Low pressure pump	91051	-83 kPa to 700 kPa
Connector set (low pressure pump)	91052	Connector set for the 91051 (Quick adapter*1, Pressure conversion adapter, Flexible hose*2, and Sealing tape)
Case (for 91051)	93052	Case for the 91051 and 91052

\*1: The maximum working pressure (M.W.P) of the quick adapter is 2 MPa.

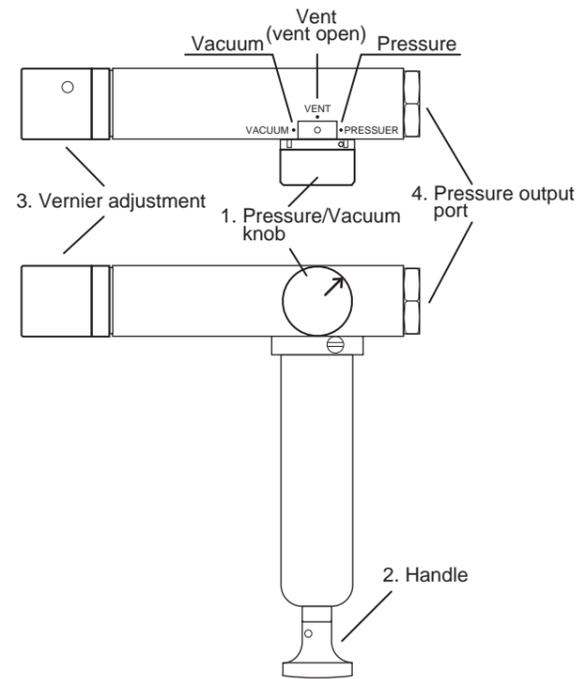
\*2: The maximum working pressure of the flexible hose is 3.5 MPa.

### Note

If you require high airtightness or high withstand pressure, use a connector with a ferrule or sleeve, not the supplied quick adapter or the flexible hose. Use a hose that can withstand the pressure that you will generate.

## 2. Components

Name	Description
1. Pressure/Vacuum knob	Turn the knob to switch between <b>Pressure</b> , <b>Vacuum</b> , and <b>Vent</b> open.
2. Handle	Operate (push) the handle to generate pressure.
3. Vernier adjustment	Used to "fine tune" the pressure to the target value.
4. Pressure output port 1/8" NPT	Port for outputting pressure. Connect a standard pressure meter, calibration target (connector), and so on to this port.



## 3. Operating Instructions

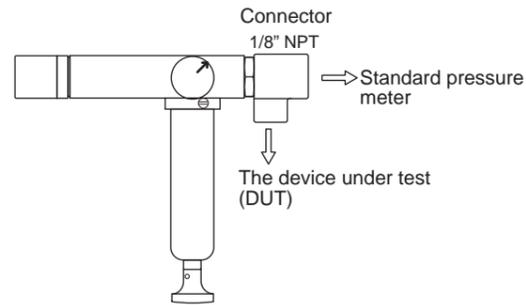
### 3.1 Handling Precautions

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 meter (monitor).

### 3.2 Connecting Connectors

#### ⚠ CAUTION

- Use connectors appropriate for 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 leakage, you must tighten the connector or quick adapter firmly. 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 meter.)

### 3.3 Generating Pressure

#### ⚠ WARNING

- Remove tubing and wiring from the the device under test (DUT) before carrying out the procedure.
- Only connect to this pressure pump. Do not connect to another high pressure source.
- Be sure to observe all safety precautions to avoid injury and damage to the DUT.

#### ⚠ CAUTION

Use connectors and hoses appropriate for the source pressure value.

#### [ Procedure ]

- (1) Connect the standard pressure meter and the DUT.
- (2) Use **the Pressure/Vacuum knob** to select pressure or vacuum.
- (3) Push **the handle** to apply pressure near the target pressure (operate the handle while checking the standard pressure meter).
- (5) Turn **the vernier adjustment** to "fine tune" the pressure to the target value.
  - Increase: Turn clockwise
  - Decrease: Turn counterclockwise

#### Note

The vernier adjustment can be turned about 20 times counterclockwise (decreasing pressure) from the maximum position. If the adjuster 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 the pressure) before removing the connector and hose.

After generating pressure, carefully turn **the pressure/vacuum knob** to the vent (vent open) position to release the pressure.

#### Note

After use, store the pressure pump in the hand pump case or in a safe place.

## 4. Troubleshooting

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

- Check the pressure/vacuum knob position.
- Check the thread specifications of the connection port. Check that the connection is secure (use seal tape or other measures).

#### ⚠ CAUTION

If you cannot determine the cause, continuing with the procedure is dangerous. Stop immediately. If the product does not work properly, contact your nearest YOKOGAWA dealer.