



HRZ*- 1/2 -Y**
DI control kit (optional)

Operation Manual
Applicable model: Series HRZ
(Thermo-chiller)

Introduction

Thank you very much for purchasing DI control kit for our Thermo-chiller, Series HRZ. This manual is for operators who have enough knowledge for general industrial equipment and devices, and also thoroughly understand assembling, handling, and maintenance of them. Before assembling, handling, and maintenance, read and understand this manual and the one for Thermo-chiller, Series HRZ carefully. Installing of accessories has to be performed by a customer according to this manual. Refer to the operation manual for Thermo-chiller for warranty. This manual is subject to change without prior notice.

Summary of option

- It is possible to control the electric resistance of circulating fluid as you like by using an ion exchange resin filter (hereafter DI filter) and electric resistance meter (hereafter DI sensor).
- DI filter is not attached. Purchase our HRZ-DF001 separately if you need. If the DI filter is used at temperature out of the range, 20 to 40degC, also purchase a thermal insulator, HRZ-DF002, to prevent frostbite and a burn.

Safety instruction

- Understand the meaning of the following sign before reading the body of this manual, and keep the instruction.

Indication	Meaning
Warning	Operator error could result in serious injury or loss of life.
Caution	Operator error could result in injury or equipment damage.

Warning

- Before using, understand the specification range thoroughly.

This product is designed as an option for Thermo-chiller, Series HRZ. Do not use this product for the other purpose, or outside of the specification range.

- Understand the contents of this manual and the working procedure thoroughly.

Understand this manual and the one for Thermo-chiller (Document no: HRX-OM-1028) thoroughly. Keep this operation manual so that you can refer whenever necessary.

- Do not perform installation work while power is on.

Perform lock-out and tag-out of the power securely. Otherwise, Thermo-chiller may operate unexpectedly.

- Perform installation work without any circulating fluid in Thermo-chiller.

Perform the work before supplying circulating fluid or after exhausting all the circulating fluid from Thermo-chiller. When the circulating fluid is exhausted, be sure that the fluid gets to be ambient temperature. Otherwise, an operator may get a burn or frostbite.

Caution

- Do not disassemble or modify.

Otherwise it may cause leakage and operation failure.

- Confirm there is no leakage or condensation after installation.

Confirm there is no leakage or condensation with Thermo-chiller operated. If leakage is found, stop Thermo-chiller immediately.

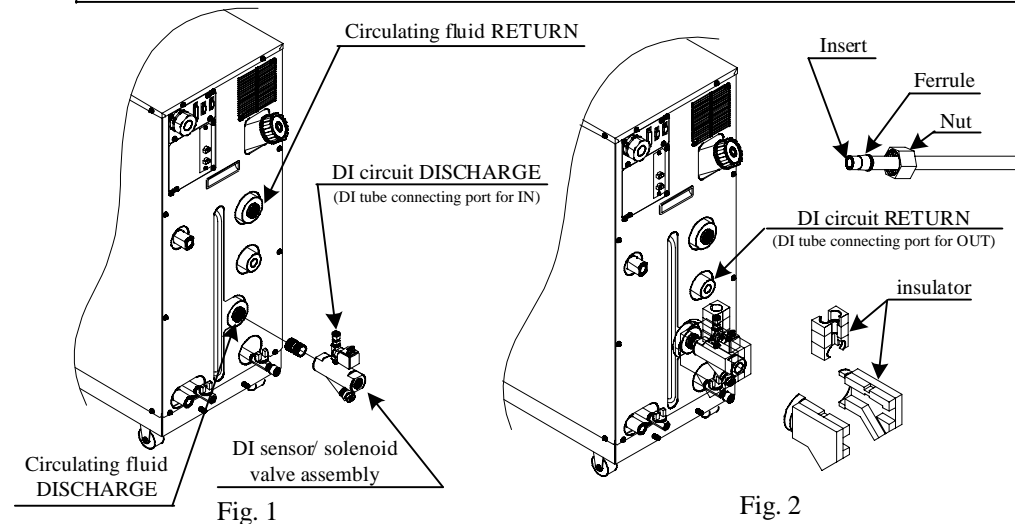
- Use silicone sealant (our part no: HRZ-S0003) for the sealing material. The sealing material is not attached, so purchase it separately.

It will take about 8 hours for HRZ-0003 to dry up completely. If the other sealing material is used, it may cause leakage.

Things to prepare

Spanner (width across flats: (1) 36mm, (2) 9/16 inch, (3) 1/2 inch, (4) 5/8 inch, (5) 11/16 inch

Accessory installation



Introduction

Refer to the accessory list on the back, and confirm the number of the accessory. In addition, confirm the model no. plate on the body has "-Y" indication, which is symbol for this option.

Procedure 1

Apply the sealing material to the both sides of a ball nipple. Screw DI sensor/ solenoid valve assembly into the circulating fluid DISCHARGE so that DI sensor ca face downward (spanner width across flat: 36mm, recommended torque: 28 to 30Nm). It will take about 8 hours for the sealing material to dry up in ambient temperature. Do not operate Thermo-chiller while drying is in progress.

Apply the sealing material around a ridge of the screw, which is apart from the end of the screw by 1 ridge (the bold part).

* If the sealing material is applied too much, it may also cause fluid leakage.

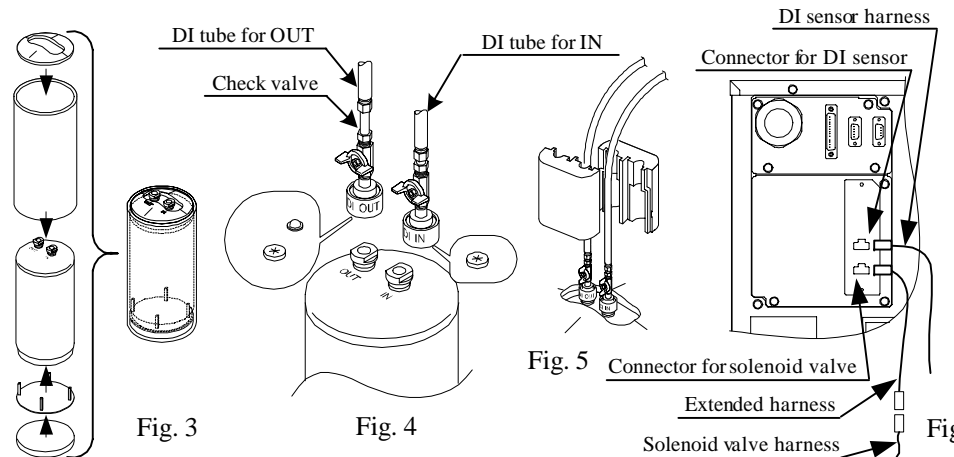


Procedure 2

Confirm that a nut, a ferrule, and an insert are installed at the end of the DI tube for IN (Fig. 2). Insert the DI tube for IN to the end of the DI circuit DISCHARGE, and tighten the nut by hand. At that time, use two spanners, (2) and (3), not to rotate the self-align fitting. Turn the hand-tightened nut by 1 rotation.

Procedure 3

Confirm that a nut, a ferrule, and an insert are installed at the end of the DI tube (with a check valve) for OUT (Fig. 2). Insert the DI tube for OUT to the end of the DI circuit RETURN, and tighten the nut by hand. At that time, use two spanners, (4) and (5), not to rotate the self-align fitting. Turn the hand-tightened nut by 1 rotation.



Procedure 4

Mount a thermal insulator for DI filter as shown at Fig. 3 and set it in the drain pan (only for the customers who purchased it).

Procedure 5

Supply circulating fluid from IN side of the DI filter to exhaust air. Continue to supply until OUT side is filled with circulating fluid.

Procedure 6

Connect the DI tube for OUT and DI tube for IN to OUT side and IN side of the DI filter respectively. As the DI tube has a strainer and a packing at the DI filter connection part, be careful not to drop them. Refer to Fig. 4.

Procedure 7

Perform trial operation in accordance with Thermo-chiller operation manual, HRX-OM-1028. Initially, the DI filter has water. If ethylene glycol solvent is used, the concentration may be decreased. Confirm the concentration after the trial operation. The proper concentration of ethylene glycol is 60%. If no leakage is found, install a insulator to a ball valve connected to the DI tube, and fix it with a band. Refer to Fig. 5.

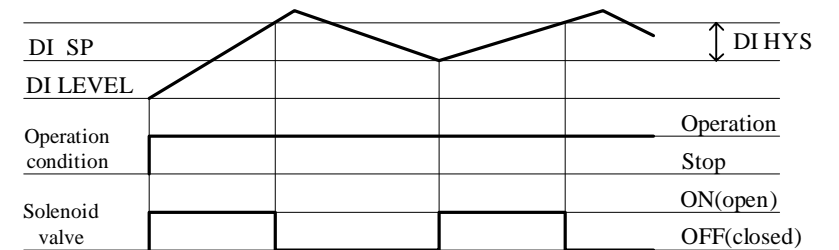
Procedure 8

Connect the solenoid valve harness to the extended harness, and connect the extended harness and the DI sensor harness to the connectors at the Thermo-chiller respectively as shown at Fig. 6.

Indication on the operation display panel

Indication	Set range	When shipped from factory	Description
DI PV	-	-	DI level at the circulating fluid DISCHARGE, measured by the DI sensor
DI SP	0 to 2.0Mohm	0.0Mohm	Setting for DI level
DI ACC	Yes/No	No	Accumulated ON time of the solenoid valve (accumulated fluid-running time through the DI filter)
DI SV	ON/OFF	-	Status of the solenoid valve (ON=open, OFF=closed)
DI HYS	0 to 0.9Mohm	0.0Mohm	Refer to "DI HYS" below.
LOW DI	0 to 2.0Mohm	0.0Mohm	When the DI level gets lower than the setting, an indication "DI LOW LEVEL WRN" will be shown, and a buzzer will be given off. If the setting has "0.0", no alarm will be given off.

DI HYS



Operation with operation display panel

(1) Setting of DI SP

Place a cursor on "DI SP" on the screen "Setting", and press [ENT] key. Set the value to the one you desire with [▲], [▼], and [▶] keys. After setting the value, press [ENT] key.

(2) Setting of DI HYS

Set a cursor on "DI HYS" on the screen "Initial setting 3" and press [ENT] key. Set the value to the one you desire with [▲], [▼], and [▶] keys. After setting the value, press [ENT] key.

(3) Setting of DI level lowering alarm (LOW DI)

Set a cursor on "LOW DI" on the screen "Initial setting 4", and press [ENT] key. Set the value to the one you desire with [▲], [▼], and [▶] keys. After setting the value, press [ENT] key.

(4) Reset of DI ACC

Press [▲] and [▼] keys while the screen "DI ACC reset" is shown, and select [YES]. Then, press [ENT] key.

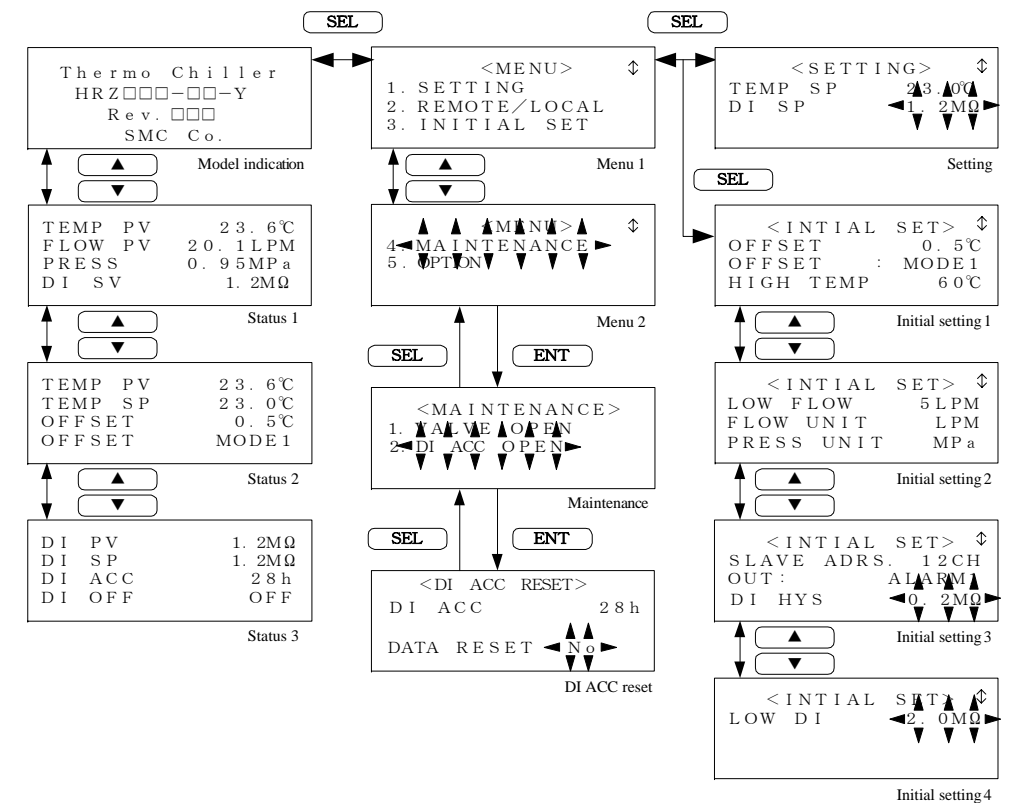
(5) Status of DI circuit

You can confirm it on the picture "Status 3".

External communication

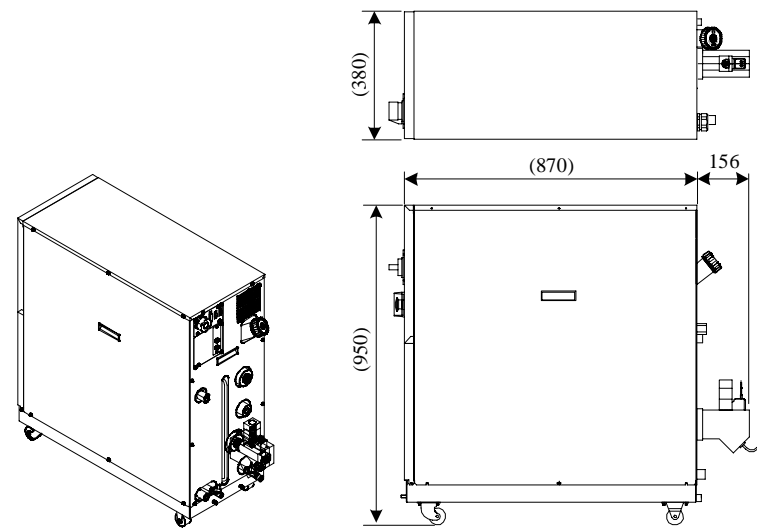
Only DI PV can be output by external communication (serial RS-485). Refer to the separate manual, "Communication Specification/ HRX-PS-I039", for details. If analogue communication (option) is used, refer to "HRX-PS-I079".

Operation panel sequence

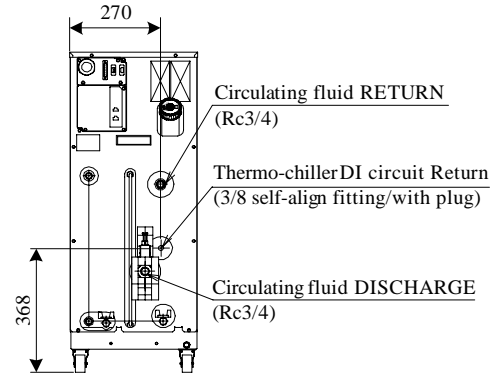


HRZ***-¹/₂-Y

Material for DI control kit (optional)

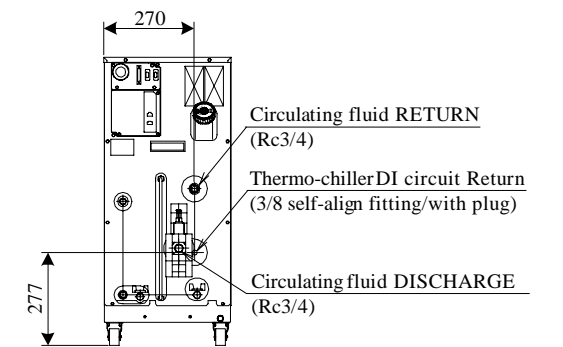
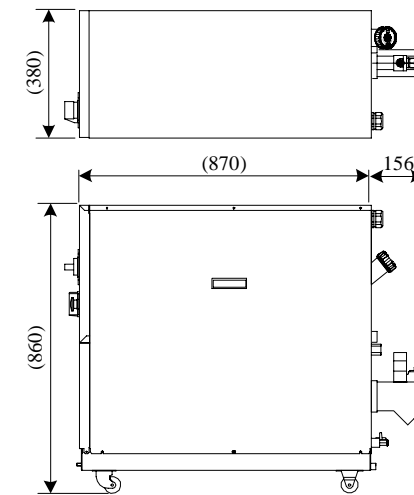


Applicable model		
HRZ001-L1-Y	HRZ002-W1-Y	HRZ001-L2-Y
HRZ002-L1-Y	HRZ008-W1-Y	HRZ002-L2-Y
HRZ004-L1-Y	HRZ010-W1S-Y	HRZ004-L2-Y
HRZ004-H1-Y	HRZ010-W2S-Y	HRZ008-L2-Y
HRZ008-H1-Y		



Dimensional tolerance for each: 10mm

Applicable model	
HRZ001-H1-Y	HRZ002-H1-Y



Dimensional tolerance for each: 10mm

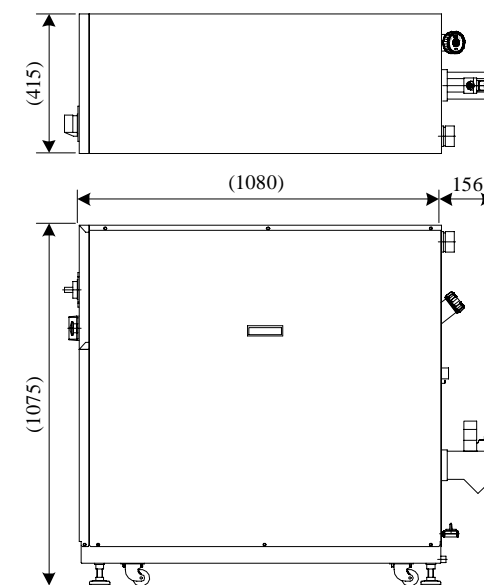
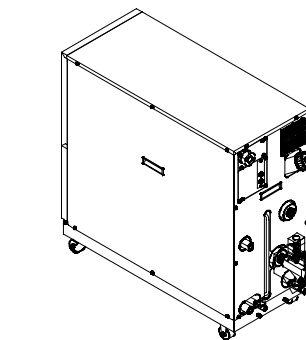
Specification Table

Applicable model	-	HRZ00*-L1-Y / HRZ00*-H1-Y / HRZ00*-W1-Y / HRZ00-W1S-Y	HRZ00*-L2-Y / HRZ010-W2S-Y
Available circulating fluid for DI circuit	-	60% Ethylene glycol solvent	DI water
DI level indication range	Mohm*cm	0 to 2.0* ²	
DI level setting range	Mohm*cm	0 to 2.0* ¹	
DI level lowering alarm setting range	Mohm*cm	0 to 2.0	
DI circuit rated flow rate	L/min	Approx. 1.5 (when circulating fluid's flow rate to the system of customer side is 20L/min)	

*1: DI filter (our part no.: HRZ-DF001) is necessary to control DI level. This product does not have it, so purchase it separately. If this product is used out of the range of 20 to 40degC, also purchase a thermal insulator for DI filter (our part no.: HRX-F002) to avoid frostbite and a burn.

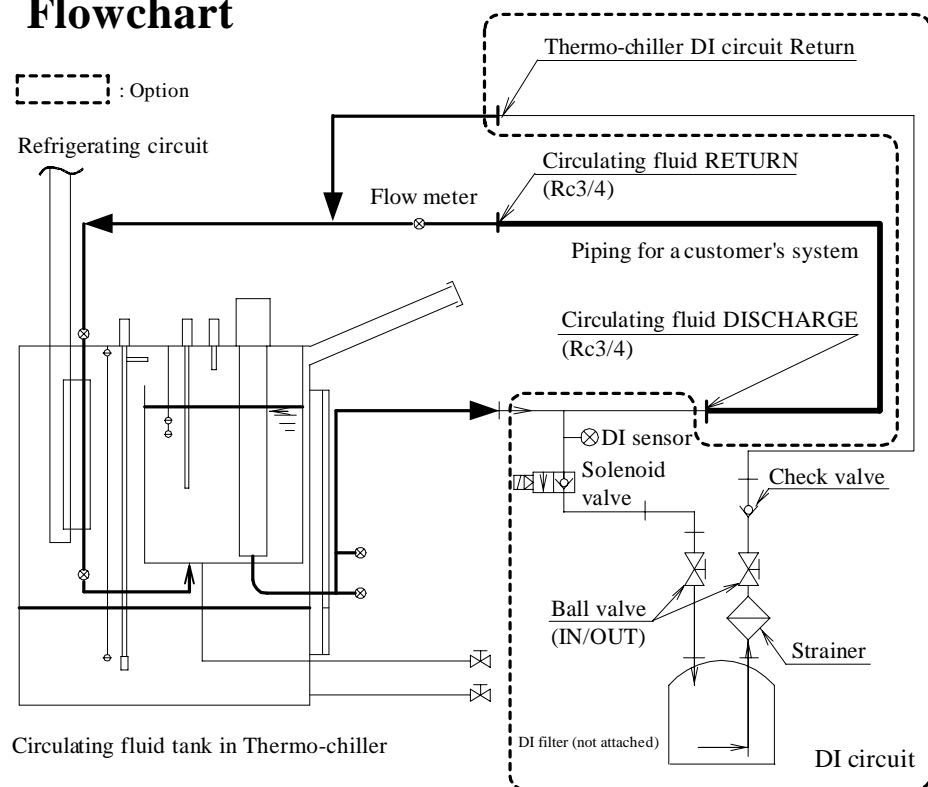
*2: Temperature correction is not applied to the DI level indication value.

Note: Temperature stability at discharge of circulating fluid in the Thermo-chiller could be out side of +/-1.0degC depending on replaced DI filter and operating conditions.

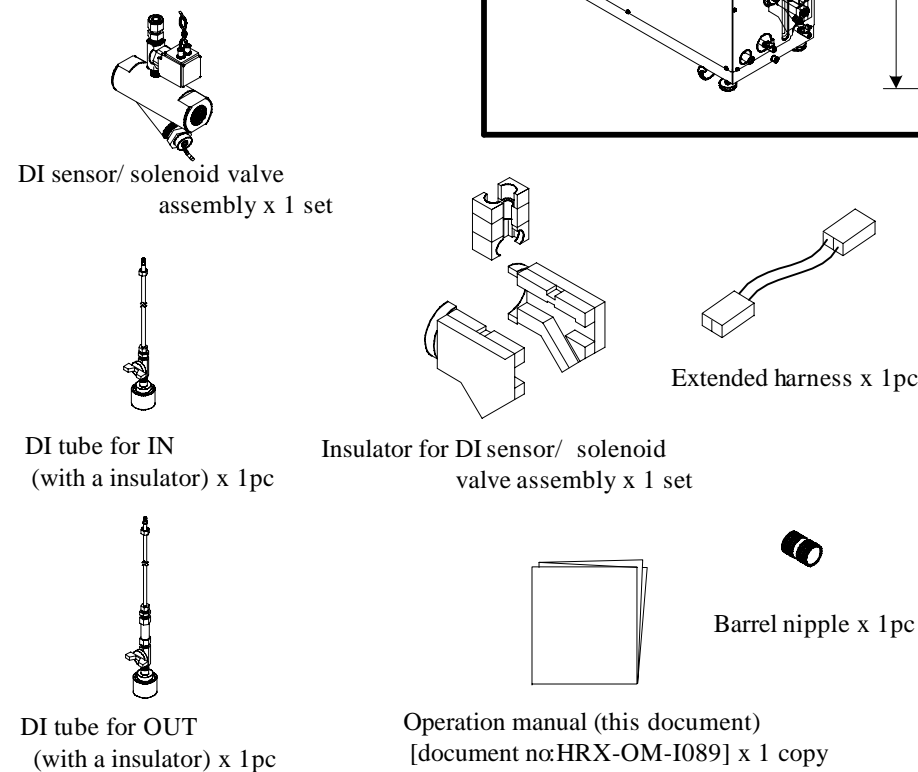


Dimensional tolerance for each: 10mm

Flowchart



Accessories



DI filter/ Thermal insulator for DI filter

(This option does not have DI filter and Thermal insulator.)

