



HRW*- $\frac{1}{2}$ -Y**
DI control kit (optional)
Operation Manual
Applicable model: Series HRW
(Thermo Chiller)

Introduction

Thank you very much for purchasing DI control kit for our Thermo Chiller, Series HRW. This manual is for operators who have enough knowledge for general industrial equipment and devices, and should 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 HRW 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 burner.

Safety instruction

- Understand the meaning of the following signs 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 HRW. 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-K003) 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 in or after exhausting all the circulating fluid in Thermo Chiller. The circulating fluid should be exhausted after 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.

Things to prepare

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

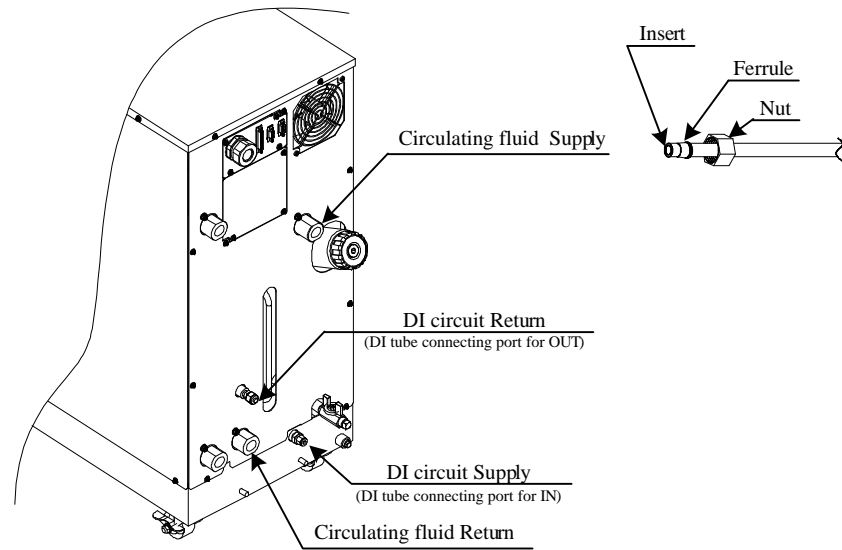


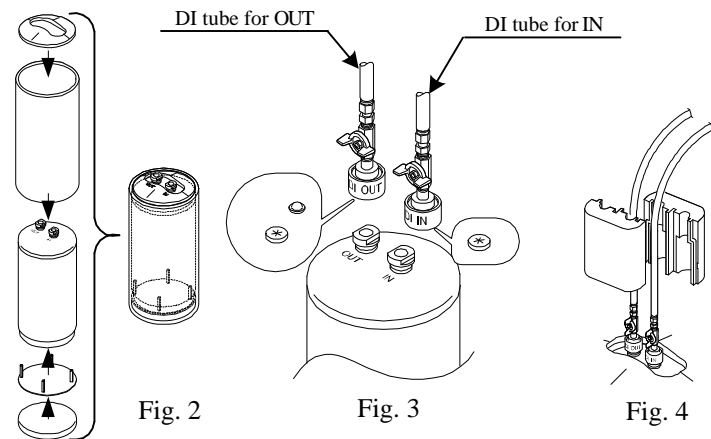
Fig. 1

Procedure 1

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

Procedure 2

Confirm that a nut, a ferrule, and an insert are installed at the end of the DI tube for OUT (Fig. 1). 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, (3) and (4), not to rotate the self-align fitting. Turn the hand-tightened nut by 1/4 rotation.



Procedure 3

Mount a thermal insulator for DI filter as shown at Fig. 2, and set it in the drain pan (only for the customers who purchase it).

Procedure 4

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

Procedure 5

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. 3).

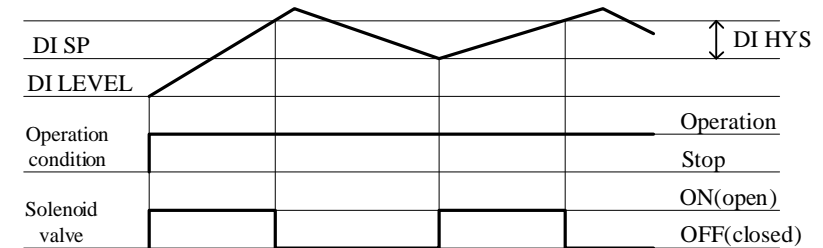
Procedure 6

Perform trial operation in accordance with Thermo Chiller operation manual, HRX-OM-K003. 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 insulator to a ball valve connected to the DI tube, and fix it with a band (Refer to Fig. 4).

Indication on the operation display panel

Indication	Set range	When shipped from factory	Description
DI PV	-	-	DI level at the circulating fluid Supply, measured by the DI sensor
DI SP	0 to 20Mohm	0.5Mohm	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	0.3Mohm	Refer to "DI HYS" below.
LOW DI	0 to 20Mohm	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 4", 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.

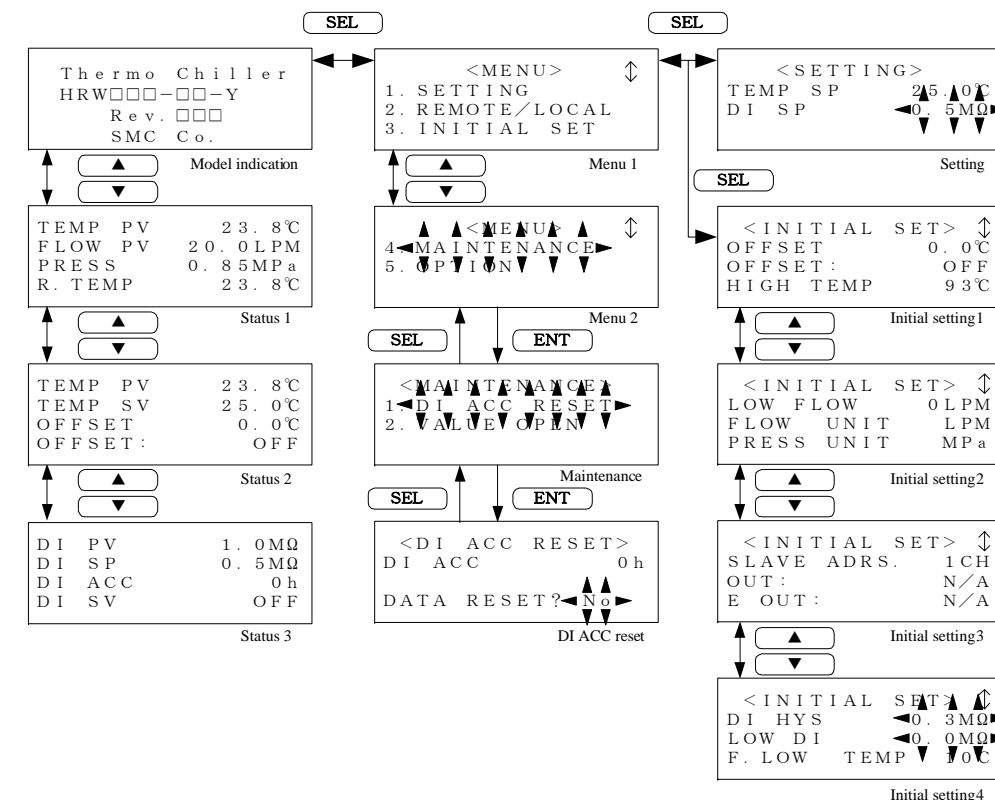
(5) Status of DI circuit

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

External communication

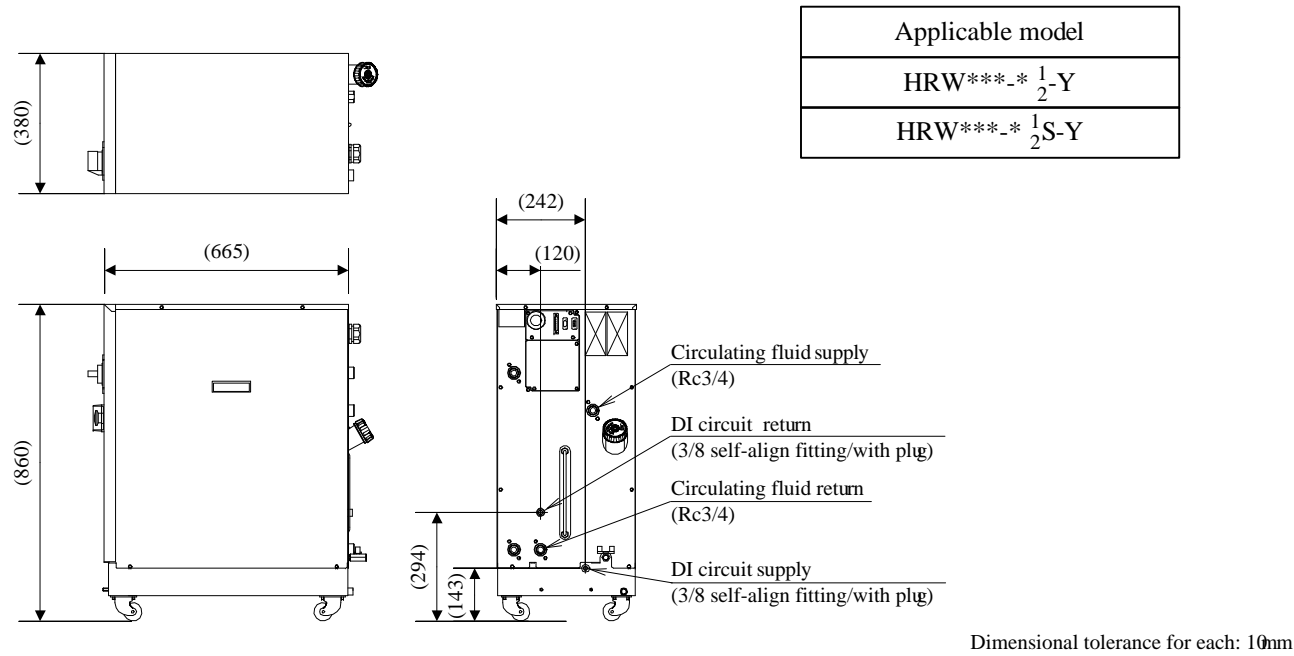
Only DI PV can be output by external communication (serial RS-485). Refer to the separate manual "Communication Specification/HRX-PS-K005", for detail. If analog communication (option) is used, refer to "Communication Specification/HRX-PS-K018".

Operation panel sequence

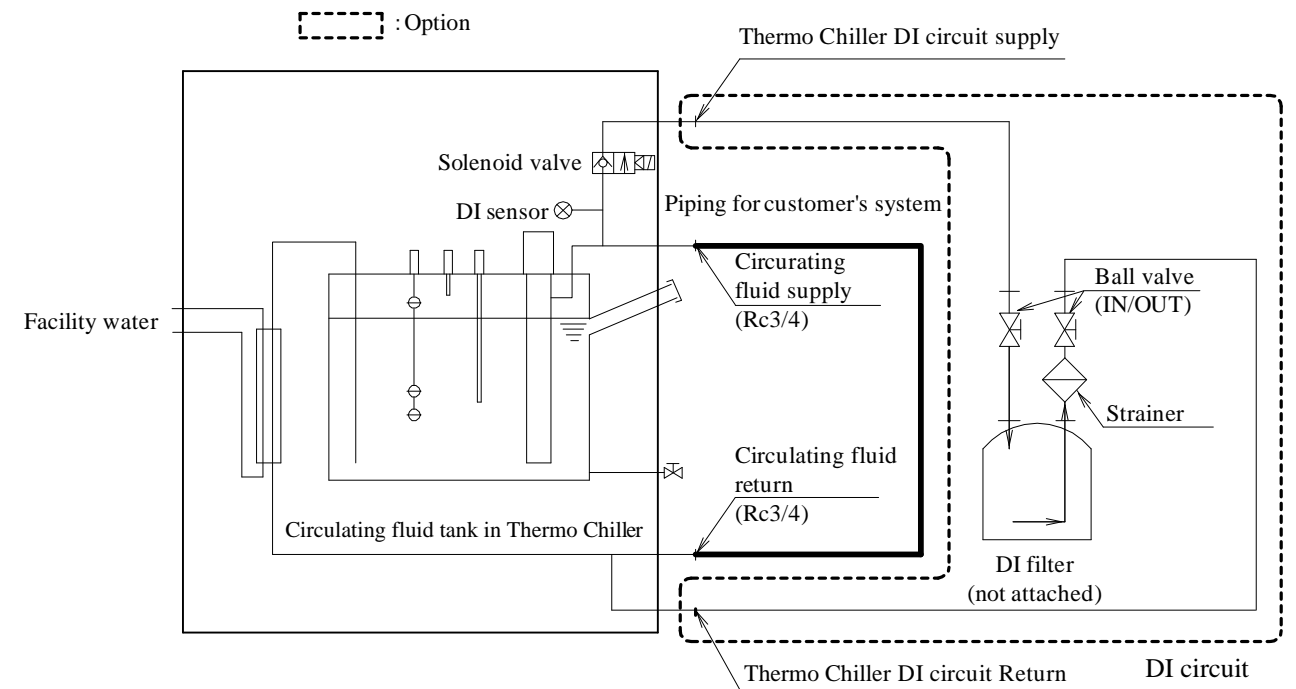


HRW***- $\frac{1}{2}$ -Y

Material for DI control kit (optional)

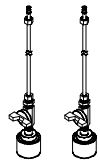


Flowchart

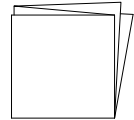


*This option does not have DI filter.
For details, please refer to specification table and notes.

Accessories



DI tube for IN/OUT
(with a insulator) x 1pc for each



Operation manual (this document)
[document no:HRX-OM-K018]Jpn x 1 copy, Eng x 1 copy

Specification Table

Applicable model	-	HRW***-H1-Y/HRW***-H1S-Y	HRW***-H2-Y/HRW***-H2S-Y
Available circulating fluid for DI circuit	-	60% Ethylene glycol solvent	DI water
DI level indication range	MΩ · cm		0~20*2
DI level setting range	MΩ · cm		0~20*1
Control solenoid valve hystereis	MΩ · cm		0~0.9
DI level lowering alarm setting range	MΩ · cm		0~20

*1: DI filter (Part no.: HRZ-DF001) is necessary to control DI level. This optional product does not have DI filter, 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-DF002) to avoid frostbite and burn.

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

Note: Temperature stability at supply of circulating fluid in the Thermo Chiller could be out of +/-0.3degC depending on DI filter replacement and operating conditions.

Note

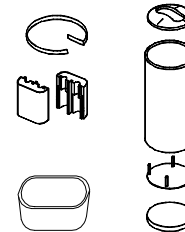
- 1.This product is designed as an option for Thermo chiller, Series HRW. Do not use this product for the other purpose, or outside of the specification range.
- 2.Installation of accessories has to be performed by a customer according to the operation manual.
- 3.Supply circulating fluid from IN side of the DI filter to exhaust air. Continue to supply until OUT side is filled with circulating fluid.
- 4.The DI filter has water inside. 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 %.

DI filter/ Thermal insulator for DI filter

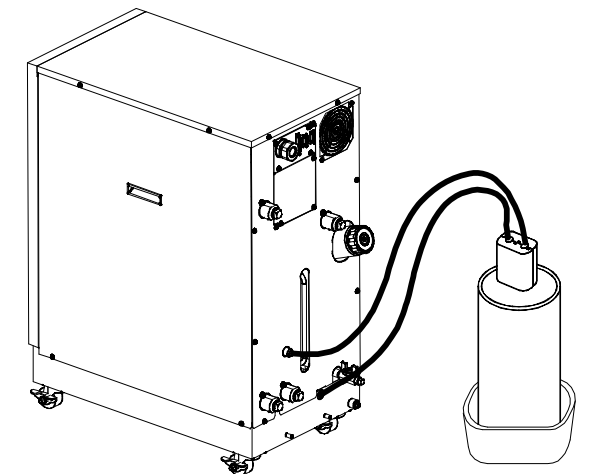
(This option does not have DI filter and Thermal insulator.)



DI filter
Part No.: HRZ-DF001



Thermal insulator for DI filter
Part No.:HRZ-DF002



DI filter/ insulator for DI filter
mounted condition