



# HRZ\*\*\*-\*\*-Z

## Automatic Circulating fluid collector(Optional) Operation Manual Applicable model : HRZ series (Thermo chiller)

### Introduction

This operation manual is for personnel with adequate knowledge of general industrial equipment and device, and also the knowledge of assembly, operation, and maintenance of them. Do not start assembly, operation, maintenance before thoroughly reading and understanding of this operation manual and the manual for Thermo chiller, HRZ series.

Connecting purge gas and mounting of accessories are performed by customers referring this manual.

Please refer the operation manual of Thermo chiller for the guarantee.

This manual is subject to change without prior notice.

### Summary of option

- Circulating fluid collector is to collect circulating fluid in the system of customer side (including piping) to the tank in Thermo chiller automatically. Supply after collection starts automatically, too.

### Safety caution

- Please read through after understanding display and symbols.

Display	Meaning
<b>Warning</b>	Incorrect operation leads to cause loss of life or serious injury of operator.
<b>Caution</b>	Incorrect operation leads to cause injury or damage or failure to the product, facility and equipment.

### Warning

#### Confirm the specification range

This product is designed as a part of the set of Automatic circulating fluid collector ("Collector", hereafter) for Thermo chiller, HRZ series. Do not use this for application other than that in specification range.

#### Operation manual and procedure shall be fully understood

Read Thermo chiller operation manual (HRX-OM-I028) thoroughly to understand the content. Keep the manual so that it is accessible any time.

#### Do not supply power during mounting

Ensure lock out and tag out of the power supply. Otherwise, Thermo chiller may start by mistake.

#### Mount parts with Thermo chiller piping empty.

Start mounting before supplying Circulating fluid or discharge all Circulating fluid in Thermo chiller. Circulating fluid temperature shall be back to room temperature before discharge to avoid burn and bite.

### Caution

#### Do not disassemble nor remode to avoid fluid leakage and operation failure

Fluid leakage and operation failure are led to cause.

#### Ensure no fluid leakage and dew formation after mounting.

Operate the Thermo chiller and ensure no fluid leakage nor dew formation. If fluid leak, stop operation immediately.

#### Use silicon sealant (SMC part no.:HRZ-S0003) for sealing material . Sealing material is not equipped. Please purchase separately.

HRZ-S0003 takes approx. 8 hours to be completely dried. If other material is used fluid may leak.

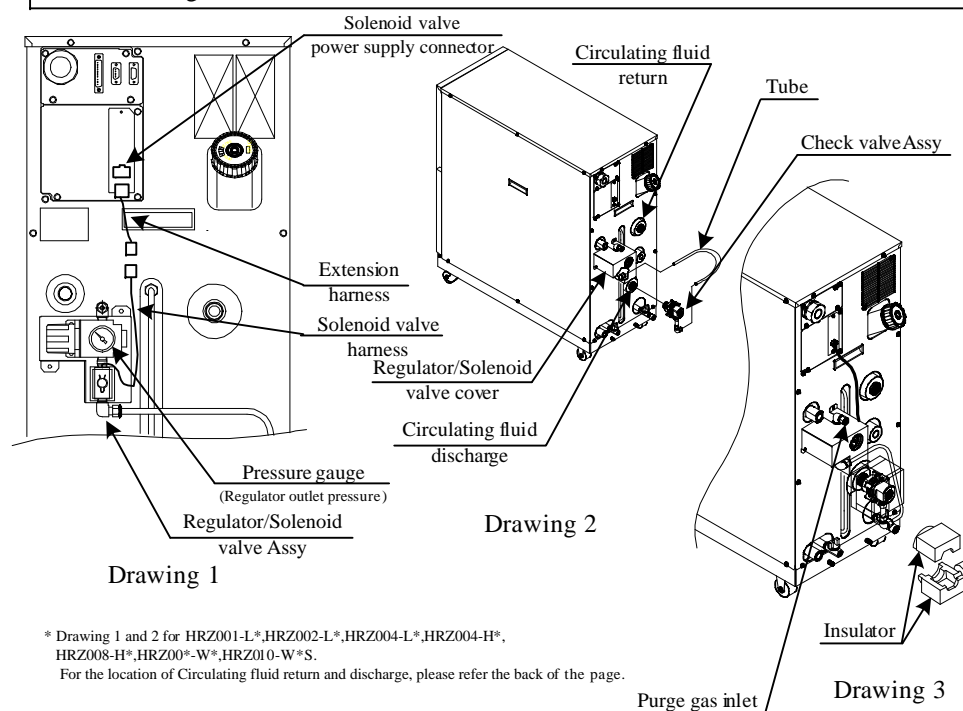
#### The regulator for purge gas uses the bleed type

The regulator for purge gas uses the bleed type, the leakage from the regulator is not abnormal. Mount a valve on the supply source of nitrogen gas if necessary.

### Preparation

- Spanner (Across flat: 16mm, 18mm, 40mm),
- Plus driver (suitable to rotate M5)
- Piping to supply nitrogen and compressed air (O.D.: 8mm)

### Parts mounting



\* Drawing 1 and 2 for HRZ001-L\*, HRZ002-L\*, HRZ004-L\*, HRZ004-H\*, HRZ008-H\*, HRZ00\*-W\*, HRZ010-W\*S.  
For the location of Circulating fluid return and discharge, please refer the back of the page.

### Before mounting

Confirm all accessories at the back of this manual. Confirm optional part number symbol "-Z" in the model number plate.

#### Step 1.

Settle the regulator/solenoid valve Ass'y to Thermo chiller using M5 thread (accessory), and mount the regulator/solenoid valve harness from the hole out the side of the cover.

#### Step 2.

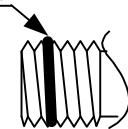
Insert the extension harness to the solenoid valve harness. Connect the other end of the extension harness to the solenoid valve power supply connector in drawing 1.

#### Step 3.

Apply sealing material to the check valve Ass'y, and screw the Ass'y in Circulating fluid discharge as in drawing 2 (spanner across flat : 36mm, recommended torque: 28 to 30Nm). It takes approx. 8 hours for sealing material to be completely dried. Do not operate the Thermo chiller while drying.

Apply sealing material to the part one thread apart from the end the thread (allround)

\*Too much sealing material may leak.



#### Step 4.

Ensure the inserts are inserted to the both tube ends. Insert the tube to the Thermo chiller and the check valve Ass'y till the end as in drawing 2. Tighten the nut manually, then tighten one turn with the spanner across flat: 18 mm). Use two spanners (across flat: 16mm, 18mm) so that the flareless fitting does not rotate.

#### Step 5.

Connect nitrogen or compressed air piping to the purge gas inlet. Insert the piping with O.D. 8mm of diameter to the end, and tighten the nut one turn manually. Supply pressure of purge gas is 0.4 to 0.7 MPa. This described in the label on the regulator/solenoid valve cover.

#### Step 6.

Supply purge gas to the regulator to ensure the outlet pressure is 0.15 to 0.3MPa. If the range is not proper, remove the cover of the regulator/solenoid valve and make adjustment with the adjustment handle of the regulator. Supply pressure is described on the label on the regulator/solenoid valve cover.

#### Step 7.

Perform running test referring the operation manual of the Thermo chiller (HRX-OM-I051).

#### Step 8.

Ensure no leakage of Circulating fluid, and mount the insulator to the check valve Ass'y which is mounted to the Thermo chiller.

\*:In case of using bypass piping kit(HRZ-BP\*\*\*), remove the mesh part of insulator.

### Operation by the control panel

#### Step 1.

Adjust Circulating fluid temp. in 10 to 30 centigrade (recommended temp. 20 centigrade), and stop operation. Temp. out of specified range is displayed as [TEMP OUT] in [Purge mode screen 1], and collection does not start.

#### Step 2.

Adjust the amount of Circulating fluid in the sub tank before collection shall be at specified level or lower. Collectable amount depends on the model. Confirm with the spec. table on the back. If collected amount is more than specified Circulating fluid level, the fluid overflows from the tank.

#### Step 3.

Press [SEL] key on [Model display screen] or [Status screen] to display [Menu screen 1]. Move cursor to [4. MAINTENANCE] by [▲] or [▼] key, and press [ENT] to display [Maintenance screen].

#### Step 4.

Move cursor to [1. PURGE MODE] and press [ENT]. [Purge mode screen 1] is displayed.

#### Step 5.

Press [▲] or [▼] Collection starts and [PURGE START] is displayed. Collection is automatically stopped when it is completed. [FINISH] is displayed.

#### Step 6.

Press [▲] or [▼] during collection stops collection. Press [▲] or [▼] to restart. Collection stops with following conditions.

- Collection correctly progressed and the completion is detected. [MSG : TIME OUT]
- Time from collection started exceeds the set value. [MSG : TIME OUT]
- Returning circulating fluid temp. exceeds 10 to 30 centigrade. [MSG TEMP OUT]
- Sub tank fluid level is maximum. [MSG : ALARM]. There is a buzzer.
- If any alarm go, [MSG : ALARM] is displayed and buzzer goes.

#### Step 7.

If [RESET] key is pressed while collection completed and "FINISH" is displayed, [MSG] changes to [READY] and return to waiting status for collection.

### How to change the time for Time-out

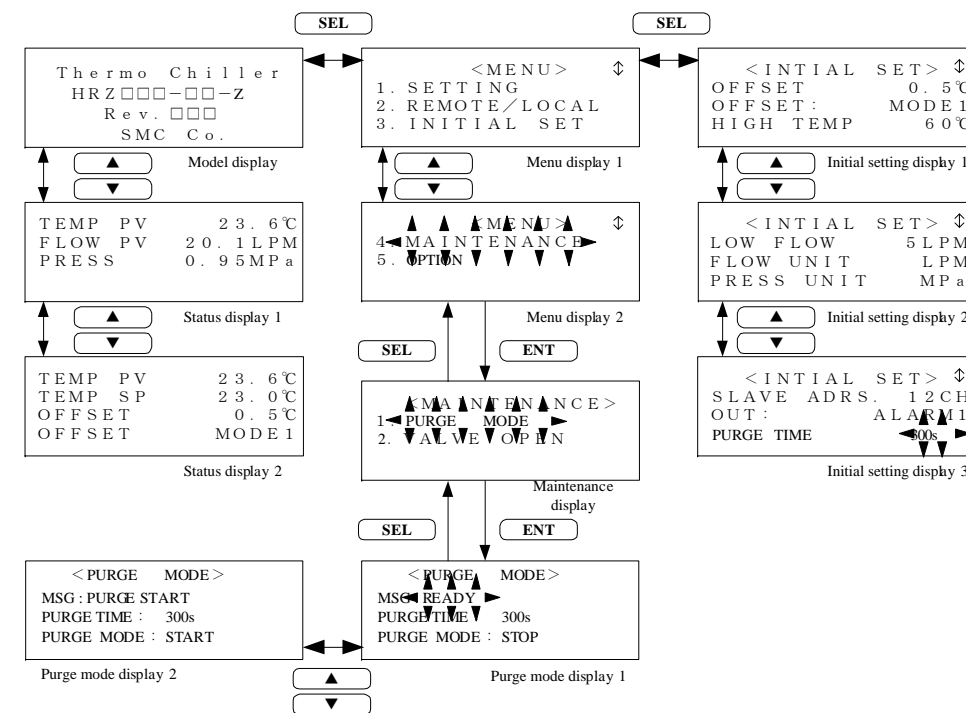
Move cursor to [3. Initial SET] on [Menu screen 1] and press [ENT]. Initial screen is displayed.

- Press [▲] or [▼] to move cursor to [PURGE TIME] and press [ENT].
- Press [▲], [▼] or [▶] key to change to desired time. After setting, press [ENT].

### Operation with Remote communication

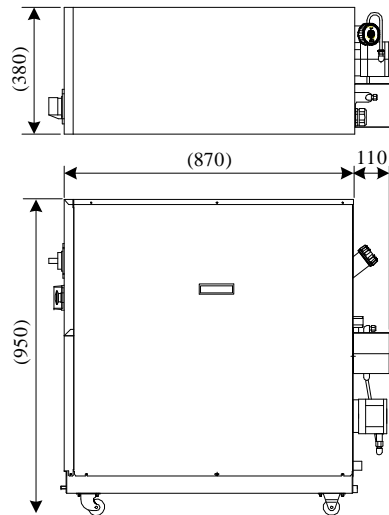
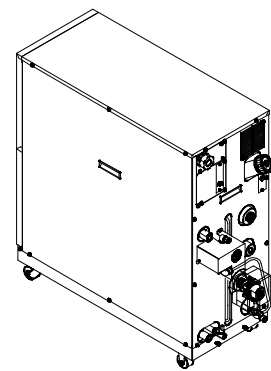
Collection using serial RS-485 or contact input/output is available. See "Communication specification/HRX-PS-I069" (extra volume) for details. In case of analog communication (option), see RX-PS-J010.

### Operation screen flow

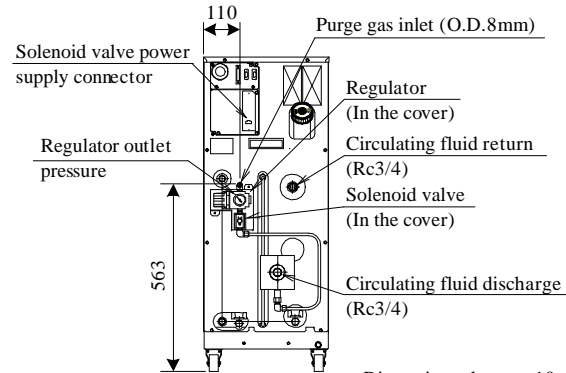


# HRZ\*\*\*-\*\*-Z

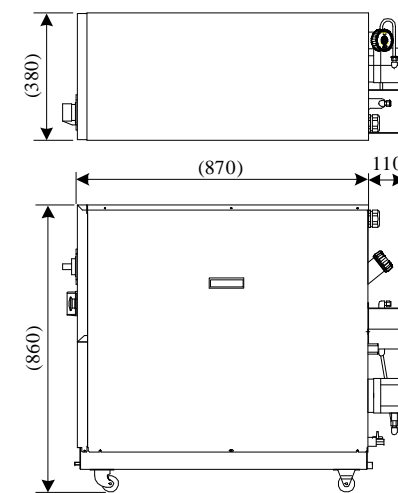
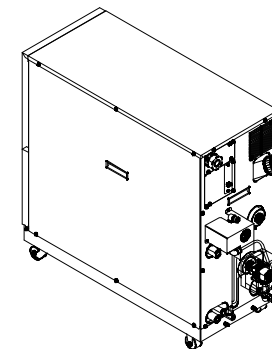
## Automatic Circulating fluid collector(Optional) Document



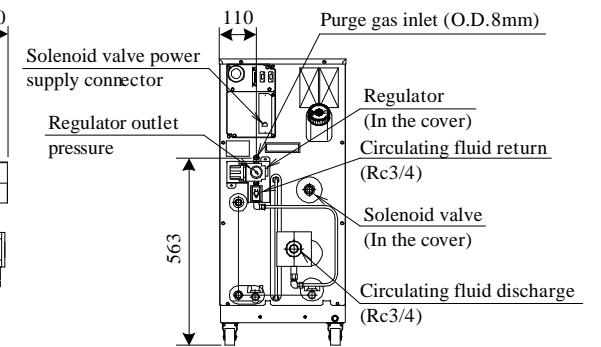
Applicable model		
HRZ001-L-Z	HRZ001-L1-Z	HRZ001-L2-Z
HRZ002-L-Z	HRZ002-L1-Z	HRZ002-L2-Z
HRZ004-L-Z	HRZ004-L1-Z	HRZ004-L2-Z
HRZ004-H-Z	HRZ004-H1-Z	HRZ008-L2-Z
HRZ008-H-Z	HRZ008-H1-Z	HRZ002-W-Z
HRZ002-W1-Z	HRZ008-W-Z	HRZ008-W1-Z
HRZ010-WS-Z	HRZ010-W1S-Z	HRZ010-W2S-Z



Dimension tolerance:10mm



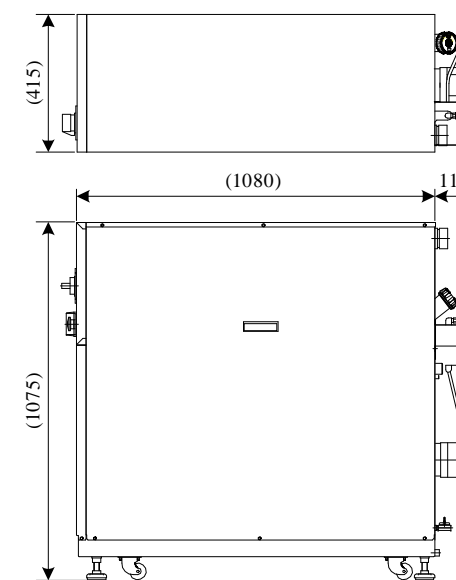
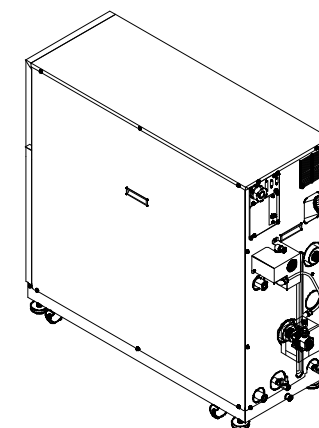
Applicable model	
HRZ001-H-Z	HRZ001-H1-Z
HRZ002-H-Z	HRZ002-H1-Z



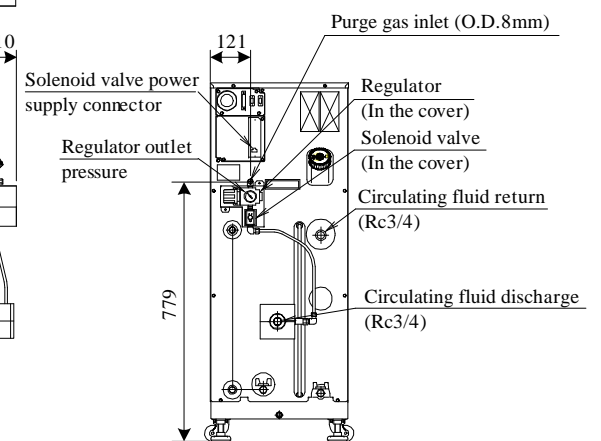
Dimension tolerance:10mm

### Specification Table

Applicable model		HRZ001-H-Z HRZ001-H1-Z HRZ002-H-Z HRZ002-H1-Z	HRZ001-L-Z , HRZ002-L-Z , HRZ004-L-Z , HRZ004-H-Z , HRZ008-H-Z , HRZ001-L2-Z , HRZ002-L2-Z , HRZ004-L2-Z , HRZ008-L2-Z , HRZ002-W-Z , HRZ002-W1-Z , HRZ008-W-Z , HRZ008-W1-Z , HRZ010-WS-Z , HRZ010-W1S-Z , HRZ010-W2S-Z	HRZ001-L1-Z HRZ002-L1-Z HRZ004-L1-Z HRZ004-H1-Z HRZ008-H1-Z HRZ001-L2-Z HRZ002-L2-Z HRZ004-L2-Z HRZ008-L2-Z HRZ002-W-Z HRZ002-W1-Z HRZ008-W1-Z	HRZ008-L-Z HRZ008-L1-Z
Fluid collection tank capacity*1	L	15	16	17	
Purge gas	-	Nitrogen gas, compressed air *2			
Purge gas inlet	-	For O.D. 8, flareless fitting *3			
Purge gas supply pressure	MPa	0.4~0.7			
Purge gas filtration	μm	0.01 or less			
Regulator set pressure	MPa	0.15~0.3*4			
Collectable circulating fluid temp.	°C	10~30			
Collection start/stop	-	Start : Serial RS-485, contact input/output or control panel Stop : Automatic *5			
Time-out error	Sec.	Timer from the collection start to the end. Stop collection at the time set by the timer. Settable time range : 60 to 300, When shipped from factory : 300			
Height difference from customer's system	m	10 or less			

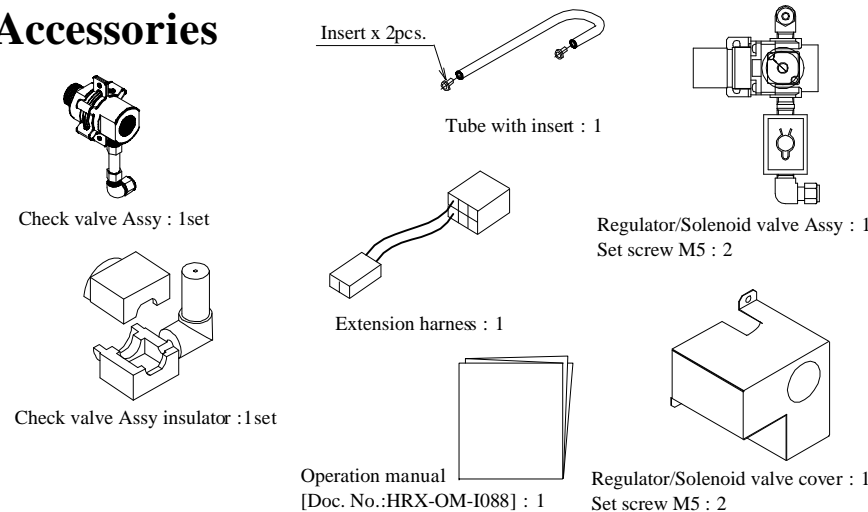


Applicable model	
HRZ008-L-Z	HRZ008-L1-Z

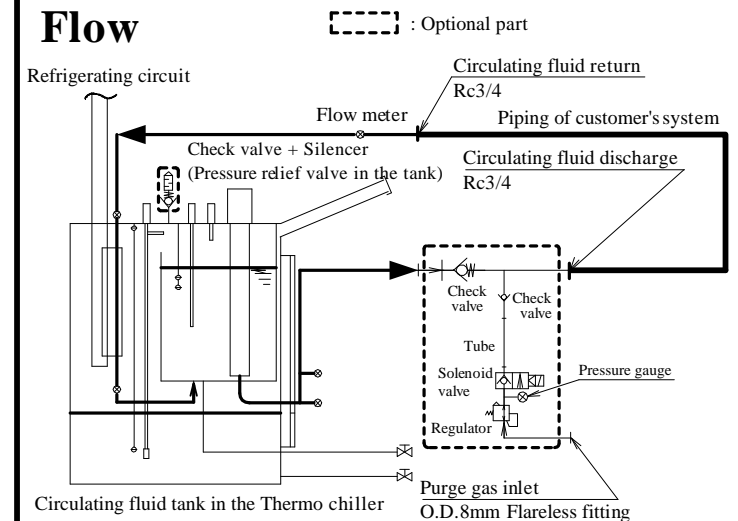


Dimension tolerance:10mm

### Accessories



### Flow



- \*1 : Space volume when the fluid level in the tank is within the level of circulating fluid specified on the label. Roughly, 80% of the tank volume is collectable fluid amount.
- \*2 : Use compressed air which dew point is -30 degC or less. Compressed air which dew point is high generates dew drop water which lead to cause cooling failure.  
Ensure that compressed air does not contain chemicals, synthetic oil containing organic solvent, salinity, nor corrosive gas. Do not use the lubricator at compressed air supply side. It clogs bleed holes of the regulator and lead to cause operation failure.
- \*3 : Before connecting, clean piping with air blow. Use piping with no particles which is cleaned by purge gas. When the resin tube is used, use the insert so that the tube is not deformed when connecting the flareless fitting.
- \*4 : Set at 0.2MPa when shipped from factory.
- \*5 : See Communication specification HRX-PS-I069 details. In case of analog communication(option), see HRX-PS-J010.