



ORIGINAL INSTRUCTIONS

Instruction Manual



Refer to Declaration of Conformity for relevant Directives.

Thermo-chiller

HRSE012/018/024 Series

1 Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of “Caution,” “Warning” or “Danger.” They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC)^{*)}, and other safety regulations.
*) ISO 4414: Pneumatic fluid power - General rules relating to systems.
ISO 4413: Hydraulic fluid power - General rules relating to systems.
IEC 60204-1: Safety of machinery - Electrical equipment of machines. (Part 1: General requirements)
ISO 10218-1: Manipulating industrial robots -Safety.etc.

This manual contains essential information for the protection of users and others from possible injury and/or equipment damage.
• Read this manual before using the product, to ensure correct handling, and read the manuals of related apparatus before use.
• Keep this manual in a safe place for future reference.
• To ensure safety of personnel and equipment the safety instructions in this manual must be observed, along with other relevant safety practices.

	Caution	Caution indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.
	Warning	Warning indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.
	Danger	Danger indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

Warning

- **The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.**
- Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalogue information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.
- **Only personnel with appropriate training should operate machinery and equipment.**
The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.
- **Do not service or attempt to remove product and machinery/equipment until safety is confirmed.**
1) The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
2) When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
3) Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.
- **Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.**
1) Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.

1 Safety Instructions (continue)

- 2) Installation on equipment in conjunction with atomic energy, railways, air navigation, space, shipping, vehicles, military, medical treatment, combustions and recreation, or equipment in contact with food and beverages, emergency stop circuits, clutch and brake circuits in press applications, safety equipment or other applications unsuitable for the standard specification described in the product catalogue.
- 3) An application which could have negative effects on people, property, or animals requiring special safety analysis.
- 4) Use in an interlock circuit, which requires the provision of double interlock for possible failure by using a mechanical protective function, and periodical checks to confirm proper operation.

- **Always ensure compliance with relevant safety laws and standards.** All electrical work must be carried out in a safe manner by a qualified person in compliance with applicable national regulations.

Caution

- **The product is provided for use in manufacturing industries.** The product herein described is basically provided for peaceful use in manufacturing industries. If considering using the product in other industries, consult SMC beforehand and exchange specifications or a contract if necessary. If anything is unclear, contact your nearest sales branch

2 Specifications

2.1 General description and intended use

This product used a built-in pump to circulate a liquid such as water, adjusted to a constant temperature by the refrigeration circuit. This circulating liquid cools parts of customer's machine that generate heat.

2.2 Product specifications

HRSE * * *-A *-23-Options

Model		HRSE012-A *-23-(T)	HRSE018-A *-23-(T)	HRSE024-A *-23-(T)
Cooling method		Air-cooled refrigerated		
Refrigerant		R407C(HFC), (GWP:1774)		
Quantity of refrigerant	kg	0.32	0.33	0.34
Control method		Compressor ON/OFF		
Ambient temperature and humidity ^{*)}		Temperature: 5 to 40°C ; Humidity: 30 to 70%		
Circulating fluid system	Circulating fluid ^{*)2}	Tap water, Ethylene glycol aqueous solution 15%		
	Operating temp. range ^{*)1}	10 to 30 °C		
	Cooling Capacity ^{*)3} (50/60Hz)	1000/1200 For option -T: 900/1100	1400/1600 For option -T:1300/1500	1900/2200 For option -T: 1800/2100
	Temperature stability ^{*)4}	±2 °C		
	Pump capacity ^{*)5} (50/60Hz)	0.08(at 7L/min)/0.11(at 7L/min) For option -T: 0.13 (at 7L/min)/0.18(at 7L/min)		
	Rated flow ^{*)6} (50/60Hz)	7/7 L/min		
Tank capacity		Approx. 5 L		
Port size		Rc1/2		
Wetted material		Stainless steel, Copper (Heat exchanger brazing), Bronze Brass, Ceramic, Carbon, PP, PE, POM, EPDM, PVC		
Electric system	Power supply	1-phase AC230V 50/60Hz Allowable voltage fluctuation ±10%		
	Fuse	A 15		
	Power supply cable diameter ^{*)10}	3 cores x 14 AWG (2.0 mm ²), 3m		
	Applicable earth leakage breaker capacity ^{*)7}	A 15		
	Rated operating current ^{*)3} (50/60Hz)	4.1/5.0 For option -T 4.5/5.4	4.2/5.3 For option -T 4.6/5.7	4.3/5.4 For option -T 4.7/5.8
	Rated power consumption ^{*)8} (50/60Hz)	0.58/0.74 For option -T 0.66/0.82	0.73/0.86 For option -T 0.81/0.94	0.87/1.04 For option -T 0.93/1.10
Dimensions ^{*)8}		W377 x D435 x H615 For option -T: W377 x D500 x H615		
Accessory		Fitting (for drain port) 1pc, Operation manual (Installation Operation (English)) 1pc		
Weight ^{*)9}		35 kg For option -T: 42		

Notes:
*) 1 Use the product in conditions where freezing will not occur. Consult with SMC if using in a season or region where the ambient temperature will fall below zero.

2 Specifications (continue)

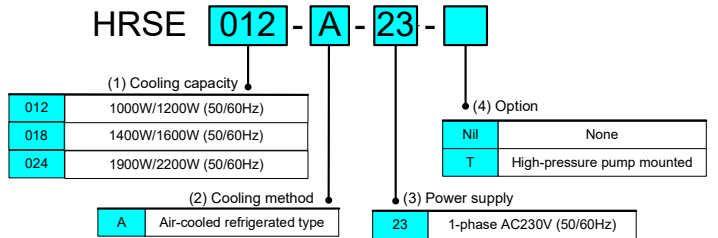
- * 2 If tap water is used, use water which satisfies the standard of The Japan Refrigeration And Air Conditioning Industry Association (JRA GL-02-1994/Cooling water system - circulation type - make-up water).
- * 3 (1) Operating ambient temp.: 25°C, (2)Circulating fluid temp.: 20°C, (3)Circulating fluid rated flow, (4) Circulating fluid : Tap water
The cooling capacity will be reduced by 100W when option T [High-head pump] is selected.
- * 4 Outlet temperature when the circulating fluid flow is rated flow, and the circulating fluid outlet and the return are directly connected. Installation environment and power supply are within specification range and stable.
- * 5 The capacity at the thermo-chiller outlet when the circulating fluid temp. is 20°C.
- * 6 Fluid flow to maintain the cooling capacity and the temperature stability.
The specification of the cooling capacity and the temperature stability may not be satisfied if the flow rate is lower than the rated flow.
- * 7 To be prepared by the customer. Use an earth leakage breaker with sensitivity of 30mA/230V in power supply specification.
- * 8 Dimension between panels. Projection is not included.
- * 9 Weight when the circulating fluid is not included.
- * 10 The end parts of all three lead wires of the cable are untreated (bare cut).

2.3 Production Serial Number Code

The production serial number code printed on the label indicates the month and year of production as per the following table:

Year	2017	2018	2019	...	2021	2022	2023	...
Month	V	W	X	...	Z	A	B	...
Jan	o	Vo	Wo	Xo	...	Zo	Ao	Bo
Feb	P	VP	WP	XP	...	ZP	AP	BP
Mar	Q	VQ	WQ	XQ	...	ZQ	AQ	BQ
Apr	R	VR	WR	XR	...	ZR	AR	BR
May	S	VS	WS	XS	...	ZS	AS	BS
Jun	T	VT	WT	XT	...	ZT	AT	BT
Jul	U	VU	WU	XU	...	ZU	AU	BU
Aug	V	VV	WV	XV	...	ZV	AV	BV
Sep	W	VW	WW	XW	...	ZW	AW	BW
Oct	X	VX	WX	XX	...	ZX	AX	BX
Nov	y	Vy	Wy	Xy	...	Zy	Ay	By
Dec	Z	VZ	WZ	XZ	...	ZZ	AZ	BZ

3 How to Order



4 Name of Parts and Accessories

4.1 Accessories

- Check the enclosed accessories with the delivered thermo-chiller.

1	Operation Manual		1
2	Fitting (for drain port)*		1

*These accessories are not explained in this manual. For details, read the Operation Manual attached.

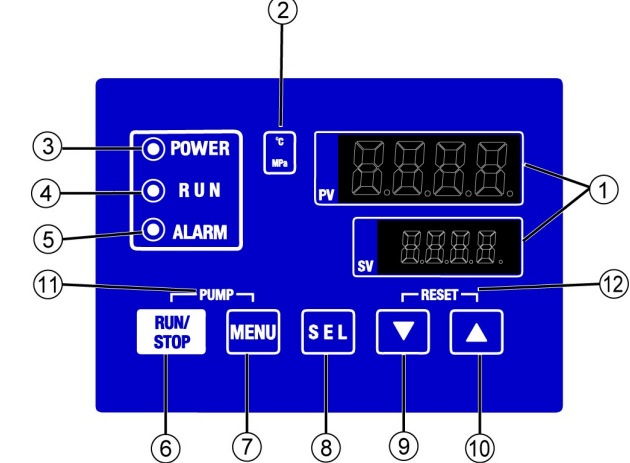
4.2 Function of parts

- The names of parts used in this manual are as follows:

Name	Function
Operation display panel	Runs and stops the product and performs settings such as the circulating fluid temperature.
Power supply cable	Power supply of 230 V specifications, connect the plug to the breaker (recommended size: 15 A) of the user's equipment.
Model Label	Shows the part number of the product.
Circulating fluid outlet port	The circulating fluid flows out from the outlet port.
Circulating fluid return port	The circulating fluid returns to the return port.
Drain port	This drain port to drain the circulating fluid out of the tank.

4 Name of Parts and Accessories (continue)

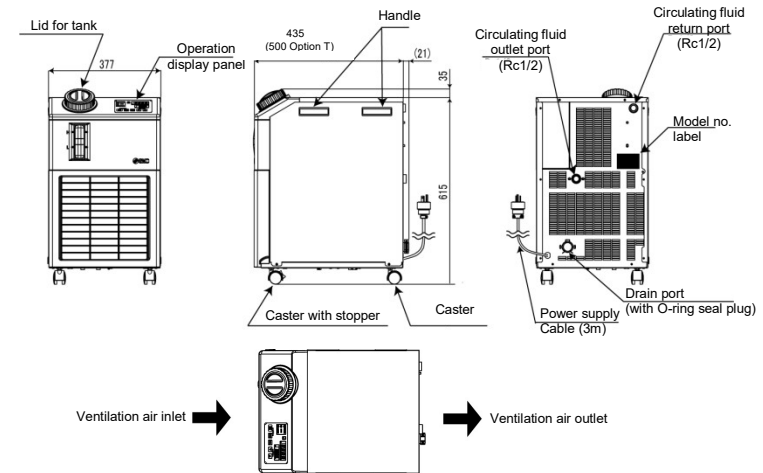
4.3 Operation display panel



No	Description	Function	
1	Digital display (7-segment, 4 digits)	PV	Displays the temperature and pressure of the circulating fluid and alarm codes.
		SV	Displays the set temperature of the circulating fluid and the set values of other menus.
2	[°C] [MPa] lamp	[°C] light is turned on when temperature is displayed on the digital display. [MPa] light is turned on when pressure is displayed on the digital display.	
3	[POWER] lamp	Turns on when the power is being supplied	
4	[RUN] lamp	Lights up when the product is started and in operation. Goes off when the product is stopped. Flashes during stand-by for stop or anti-freezing function, or independent operation of the pump.	
5	[ALARM] lamp	Flashes with buzzer when alarm occurs.	

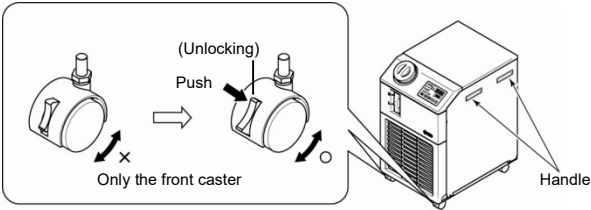
No	Description	Function
6	[RUN/STOP] key	Makes the product start or stop.
7	[MENU] key	Shifts the main menu (display screen of temperature) and the other menu (entry of set values and monitor screen).
8	[SEL] key	Changes the item in menu and enters the set value.
9	[▼] key	Decreases the set value.
10	[▲] key	Increases the set value.
11	[PUMP] key	Keep the [MENU] and [RUN/STOP] keys pressed down simultaneously. The pump starts running independently to make the product ready for start-up (release the air).
12	[RESET] key	Keep the [▼] and [▲] keys pressed down simultaneously. This will stop the alarm buzzer and reset the [ALARM] lamp.

4.3.1 Outline Dimensions



5 Transportation, Transfer and Moving

- 1) Be sure to unlock the caster (only at the front wheel).
- 2) There is no lock function with the rear casters.
- 3) Push the left and right panels with the handle and move.
- 4) Use corners when pushing the front or rear panel. Pushing at the centre can deform the panel.



6 Installation

6.1 Installation

Warning

- Do not install the product unless the safety instructions have been read and understood.

6.2 Types of Hazard Labels

Warning

- The product has various potential hazards and they are marked with warning labels.

Warning related to Electricity



This symbol stands for a possible risk of electric shock.

Warning related to High Temperatures



This symbol stands for a possible risk of hot surface and burns.

Warning related to Rotating Objects



This symbol stands for a possible risk of cutting fingers or hand, or entanglement by rotating fan (For air-cooled type).

Warning related to other General Dangers



This symbol stands for general danger.

6.3 Environment

Warning

- Do not use in an environment where corrosive gases, chemicals, salt water or steam are present.
- Do not use the product in an area of high temperature and humidity which cannot be exhausted, or where it is exposed to corrosive substances. Cooling failure can result.
- Do not use the product outdoors. If the product is subjected to rain or water splash it may cause electrical shock, fire or failure.
- Do not use in an explosive atmosphere.
- Do not expose to direct sunlight. Use a suitable protective cover.
- Do not mount in a location exposed to radiant heat.
- Do not install in a location subject to vibration or impact. Check the product specifications.
- Do not use in locations at altitudes of 3000m or higher (except for product storage and transport), refer to the Operation Manual.

6 Installation (continue)

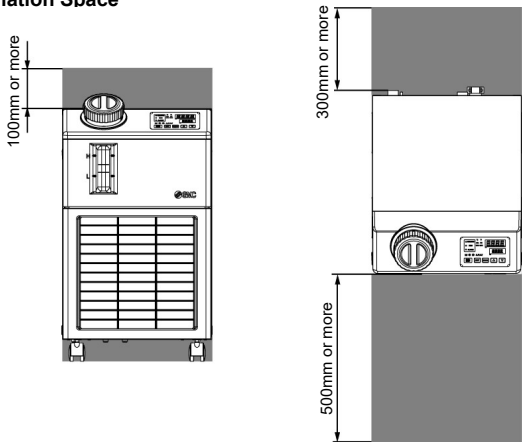
6.4 Mounting

Warning

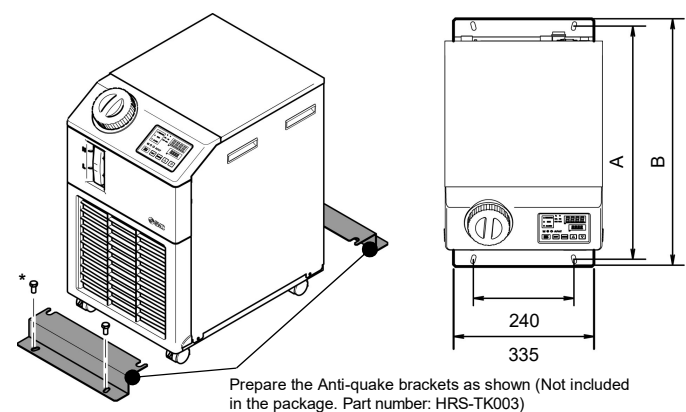
- The Installer / End User is responsible for carrying out a noise risk assessment on the equipment after installation and taking appropriate measures as required.

- 1) Select a hard flat and level surface suitable to support the weight of the product and which will reduce the effect of vibration.
- 2) Install the product so the operation panel is easily visible and accessible, electrical and fluid connections can be easily made at the rear of the product and the air inlet and outlet vents are clear of obstructions. After moving into position, lock the front caster wheels again.
- 3) Fix the product to the floor or base using the anti-quake bracket (prepared separately).

6.4.1 Installation Space



6.4.2 Anti-quake brackets



*4 (four) M8 foundation bolts must be prepared by the end user.

Applicable model	Dimension [mm]	
	A	B
HRSE0 * *-A-23	505	540
HRSE0 * *-A-23-T	550	590

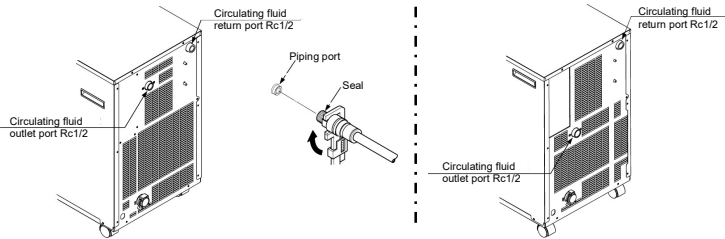
6.5 Piping

Caution

- Before piping make sure to clean up chips, cutting oil, dust etc.
- When installing piping or fittings, ensure sealant material does not enter inside the port. When using seal tape, leave 1.5 to 2 threads exposed on the end of the pipe/fitting.
- Tighten fittings to the specified tightening torque.

Tread	Tightening Torque (N.m)	Recommend Proof Pressure for Piping
Rc 1/2	28 to 30	0.3MPa Option 'T' (High-head pump) 0.4MPa

6 Installation (continue)

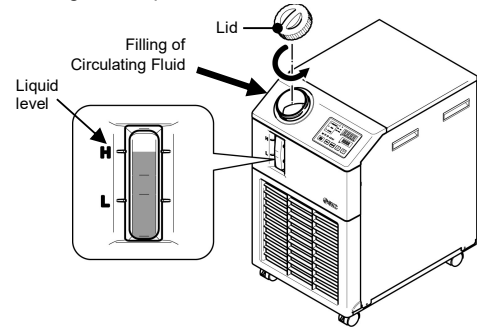


6.6 Filling of Circulating Fluid

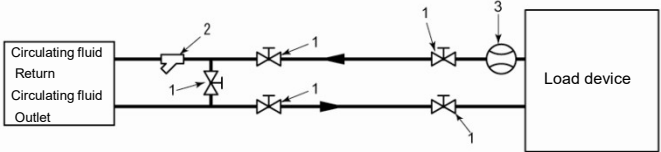
Caution

- When the temperature of the circulating fluid is set to 10°C, use a 15% aqueous solution of Ethylene Glycol. Tap water may freeze in the Thermo-chiller, leading to malfunction.
- If using Ethylene Glycol, refer to the suppliers Material Safety Data Sheet (MSDS) and wear Personal Protective Equipment (PPE) as appropriate.
- If the fluid level in the tank becomes lower than the 'L' level or the circulating fluid flow is 4 L/min the Thermo-chiller stops operating.

1. Check the drain port is plugged or closed by the valve to prevent the supplied circulating fluid from draining out.
2. Turn the lid for the circulating fluid fill port counter clockwise to open, and fill the circulating fluid up to "H" of the level indicator scale.
3. After filling to the specified level, turn the lid clockwise to close.



6.7 Recommended piping circuit



No.	Name	Size
1	Valve	Rc 1/2
2	Y-shaped strainer or filter	Rc 1/2 (#40) Rc 1/2 (500µm)
3	Flow meter	0 ~ 30 L/min
--	Others (Pipe, hose, etc.)	I.DØ 15 more

6.8 Wiring of the power supply

Warning

- The electrical facilities should be installed and wired in accordance with local laws and regulations of each country and by the person who has knowledge and experience.
- Check the power supply. Operation with voltages, capacities, frequencies and cable sizes other than those specified can cause heat, fire and electrical shock.
- Wire with an applicable cable size and terminal.
- Be sure to shut off the user's power supply.

Caution

- Use an individual earth leakage breaker.
- Be sure to provide grounding. Incomplete grounding can cause failure and electrical shock.

6.8.1 Preliminary preparation for wiring:

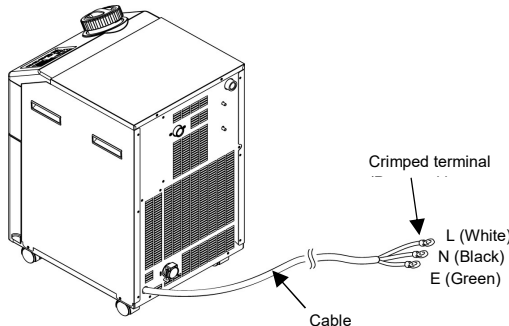
- 1) Prepare the individual earth leakage breaker shown in the table below.

6 Installation (continue)

- 2) Strip the sheath from the cable of the product.
- 3) Connect the other end of the cable to a crimped terminal that is connectable to the secondary side of the earth leakage breaker

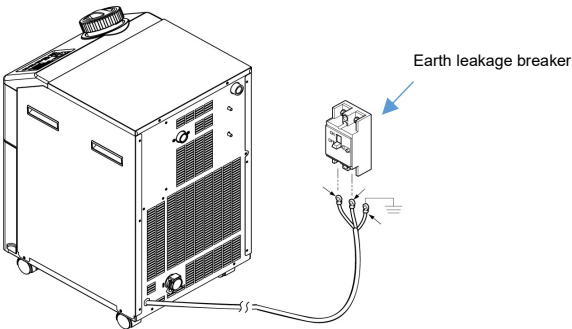
Power supply cable and Earth Leakage Breaker (Recommended)

Model	Power supply	Power supply cable specification			Earth leakage breaker		
	Spec.	Size	Rated current	Terminal configuration (connect to the user's equipment)	Rated Voltage	Current	Sensitivity of leak current
HRSE0 * *-A-23 HRSE0 * *-A-23-T	1-phase 230V AC (50/60Hz)	3 cores x 14AWG (3 cores x 2.0mm²) Including ground	15A	Lead wire end not treated (bare cut) Live (L): White Neutral (N): Black Earth (E): Green	230V	15A	30mA



6.9 Wiring of Power Supply

- 1) Connect the crimped terminal to the secondary side of the earth leakage breaker and grounding.
- 2) Turn on the breaker, etc. of the facility power supply and energize the product.



7 Start, Stop and Temperature Settings

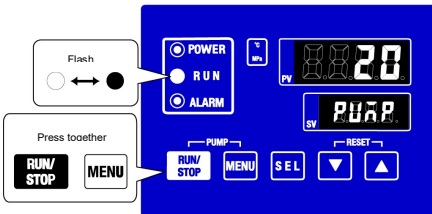
7.1 Preliminary preparation for start-up:

7.1.1 Supply of Power

- 1) Turn on the power switch.
⇒ The initial screen (HELLO screen) is displayed for approx. 8 seconds on the operation display panel. Then the display changes to the main screen, which displays the circulating fluid outlet temperature.

7.1.2 Preparation of circulating fluid

- 1) Press the [PUMP] key ([RUN/STOP] key and [MENU] key simultaneously). The [RUN] lamp flashes and only the pump continue to operate. This operation allows the discharge of the circulating fluid, and enables checking leakage from the piping and air release.

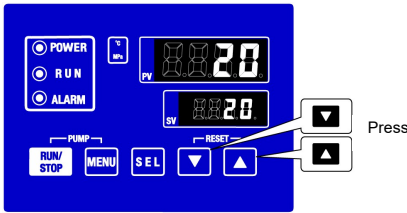


7 Start, Stop and Temperature Settings

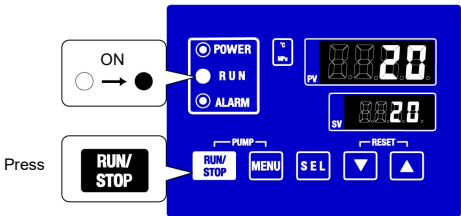
- 2) When the fluid level in the tank drops below the "L" level, stop the operation of the pump. Add some circulating fluid into the tank. Repeat the same sequence after adding the fluid until the fluid level in the tank stops decreasing. When the liquid level in the tank stops decreasing, it means that the circulating fluid is filled completely in the piping of the user's facility.

7.2 Temperature Setting

- 1) Press the [▼] and [▲] keys to change the SV to the required value.



7.3 Starting the Product



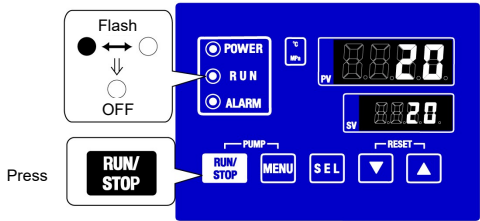
- 1) Press the [RUN/STOP] key on the operation panel.
- ⇒The [RUN] lamp flashes (in green) and the product starts running.

The circulating discharge temperature (PV) is controlled to the set temperature (SV).

7.4 Stopping the Product

- 1) Press the [RUN/STOP] key on the operation panel.

⇒ The [RUN] lamp on the operation panel flashes green at 1 second intervals, and continues operation to prepare to stop. After approx. 15 seconds, the [RUN] lamp goes off and the product stops.



7.5 Check the Product after Starting

Warning

When an Alarm appears, press the [STOP] button and then turn off the power supply switch to stop the product, and turn off the breaker of the user's power supply to isolate the product.

- There is no leakage from piping.
- There is no draining of circulating fluid from the drain port.
- The tank level is within the specified range.

7.6 Adjustment of Circulating Fluid

- Flow adjustment
 - If the flow rate is less than 4 L/min it will not be able to achieve the specified cooling capacity.

7 Start, Stop and Temperature Settings (continue)

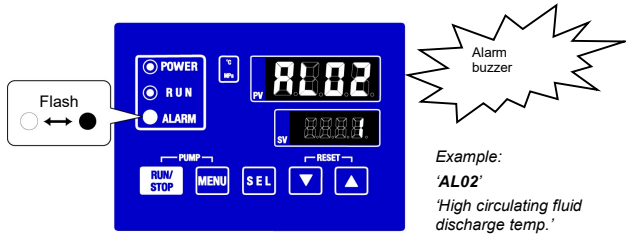
- The adjustment of flow rate should be performed using a manual bypass valve and monitoring the pressure or flow rate in the customer's device, referring to section 6.7 recommended piping circuit, until the required value is reached.
- When the flow rate of the circulating fluid becomes 4 L/min or lower, a protective device of the thermo chiller will be activated to stop operation ("AL07" alarm will be generated.).
- Please reconsider the piping of the equipment that the product is connected to, or consider using the "Bypass piping set; HRS-BP001" available as an option.

8 Reset Alarms

8.1 Alarm Display

Caution

- Should some errors occur, the [ALARM] lamp flashes (in red) and the buzzer sounds to inform the user of the 'Error'.
- The alarm code will be displayed on the operation panel so that the cause can be checked on "see Troubleshooting".

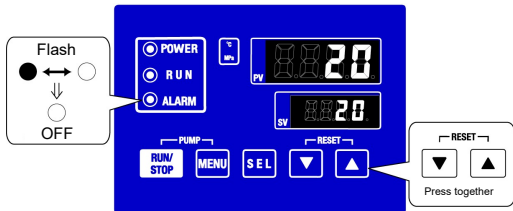


- Before resetting the alarm, read the "Causes and Remedies" of "Troubleshooting" and eliminate the cause explained there. Otherwise, the same alarm may be repeated.

8.2 Resetting Alarms

- 1) Press the [RESET] key ([▼] and [▲] keys simultaneously).

⇒The buzzer and then [ALARM] lamp (red) go off.



9 Troubleshooting

9.1 Troubleshooting

The troubleshooting method depends on which alarm has been generated. Refer to " Alarm code list and Troubleshooting".

Warning

In the event of an unexpected problem or malfunction, switch off the product and investigate the cause. If the cause of the problem cannot be determined, do not use the product, but contact SMC for assistance.

Alarm code list and Troubleshooting

Code	Description	Operation	Cause / Remedy (Press the reset key after eliminating the cause.)
AL02	High circulating fluid discharge temp.	Stop	- Reduce the ambient temperature or heat load.
AL03	Circulating fluid discharge temp. rise	Continued *1	- Check that the ventilation port is not closed.
AL04	Circulating fluid discharge temp. drop	Continued *1	Check the ambient temperature condition and the temperature of supplied circulating fluid.

9 Troubleshooting (continue)

Code	Description	Operation	Cause / Remedy (Press the reset key after eliminating the cause)
AL07	Abnormal pump operation	Stop	- Flow rate of the circulating fluid is 4L/min. or less. Improve the piping to increase the flow rate to more than 4L/min. - Check the piping and the pump to make sure that no foreign matter in the circulating fluid is clogged in them.
AL15	Refrigerant circuit pressure (high pressure side) drop	Stop	- Check the ambient temperature is within the specified range. - It is possible that refrigerant is leaking. Ask for the service.
AL20	Memory error	Stop	Written data is different from read data. Ask for the service of RAM.
AL22	Circulating fluid discharge temp. sensor failure	Stop	- The temperature sensor is short-circuited or opened. - Ask for the service of the temperature sensor.
AL24	Compressor intake temp. sensor failure	Stop	
AL26	Compressor discharge pressure sensor failure	Stop	- The pressure sensor is short-circuited or opened. - Ask for the service of the pressure sensor.
AL27	Heat exchanger inlet temp. sensor failure	Stop	- The temperature sensor is short-circuited or opened. - Ask for the service of the temperature sensor.
AL28	Maintenance of pump	Continued	The timing of a periodical check is informed.
AL29	Maintenance of fan motor	Continued	Recommended to ask for the check and service of the pump, fan motor and compressor.
AL30	Maintenance of compressor	Continued	

*1: "Stop" or "Continued" are default settings. The user can change them to "Continued" and "Stop". For details, refer to operation manual.

9.2 Other Errors

The causes and remedies for failures that are not indicated by alarm numbers as shown in 'Alarm code list and Troubleshooting' table.

Causes and remedies for failures without alarm numbers

Content of Failure	Cause	Remedy
The operation panel displays nothing	No power supply	- Turn ON the electrical leakage breaker of the original power supply (the breaker of the user's equipment), and supply power to the thermo chiller. - Connect the plug of the power supply cable to an outlet to supply power.
	Blown fuse	Overcurrent has been caused due to short-circuit, etc. The blown fuse needs to be replaced, and causes of the overcurrent must be removed.
The [RUN] LED does not light up even when the [RUN/STOP] switch is pressed.	Failure of the [RUN] LED	Replace the display.
	Failure of the [RUN/STOP] switch.	

10 Maintenance

10.1 General Maintenance

Warning

- Do not operate switches, etc. with wet hands and do not touch the electrical parts such as the power supply plug. It might cause electric shock.
- Do not splash water directly on the product and do not wash with water. It might cause electric shock and fire, etc.
- Do not touch the fins directly when cleaning the dustproof filter. It might cause injury.
- Remount all panels removed for inspection or cleaning. This might cause injury or electric shock if the product is operated without the panels.
- Shut off the power supply.

10 Maintenance (continue)

Caution

- Not following proper maintenance procedures could cause the product to malfunction and lead to equipment damage.
- If any electrical connections are disturbed during maintenance, ensure they are reconnected correctly and safety checks are carried out as required to ensure continued compliance with applicable national regulations.
- Do not make any modification to the product.
- Do not disassemble the product, unless required by installation or maintenance instructions.

10.2 Control of Circulating Fluid Quality

Warning

Use specified circulating fluids only. If other fluids are used, they may damage the product or result in dangerous hazards.

Caution

Clean the tank, circulating fluid circuit, and change the circulating fluid in the tank if any problems are found during the regular check. Even if no problems are found, it is recommended to change the fluid once every 3 months in case evaporation of the fluid causes concentration of impurities

10.3 Daily check

Caution

Check each item of "Daily checklist", and if any error is seen, stop the operation of the product and turn off the user's power supply, and service the product.

Daily checklist

Item	Description of checking	
Installation condition	Check the installation conditions of the product.	There is no heavy object on the product or excessive force on the piping.
		Temperature and humidity are within the specified range of the product.
Fluid leakage	Check the connected part of piping	There is no circulating fluid leakage from the connected part of piping.
Fluid amount	Check the liquid level indicator.	The circulating fluid must enter the scales of "H".
Operation panel	Check the display.	The numbers on the display are clear.
	Check the function.	The [RUN/STOP] and [MENU]. [SEL]. [▼]. [▲] buttons operate properly.
Circulating fluid temperature	Check on the operation panel.	There is no problem for use.
Operating conditions	Check the operation condition.	There is no abnormal noise, vibration, smell and smoke.

10.4 Monthly Check

10.4.1 Cleaning of air vent

Caution

- If the fins of the air-condenser become clogged with dust or debris, heat radiation performance reduces. This results in the reduction of cooling performance, and may stop the operation because the safety device is trigger. Shut off the power supply of the product when performing cleaning, maintenance or inspection. Otherwise, it might cause electric shock, injury or burn, etc.
- Replace all panels removed for inspection or cleaning. It might cause injury or electric shock if it is operated with the panel removed or opened.

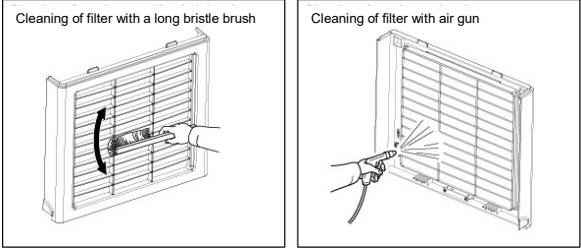
10 Maintenance (continue)

10.4.2 Removal of the Dustproof Filter

- 1) The dustproof filter is installed at the lower part of the front face of the thermo-chiller. It is mounted with a magnet. Pull out the lower part of the side surface of the dustproof filter.
- 2) When the magnet comes off, pull the dustproof filter downwards to remove. Care should be taken not to deform or scratch the air-cooled condenser.

10.4.3 Cleaning of filter

- 1) Use a long bristle brush or air gun to clean the filter.



- 2) Insert the collar in reverse order of removal, then mount the dustproof filter. The magnet clicks when mounted.

10.5 Inspection every 3 months

10.5.1 Replacement of circulating fluid

- Clean the tank and replace the circulating fluid (clean water).

10.6 Inspection for winter season

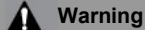


Warning

Use caution not to allow the circulating fluid to freeze due to the influence of the ambient environment. Freezing of the circulating fluid may cause a breakdown of the Thermo-chiller.

- When operation of the Thermo-chiller is stopped, take preventative measures against the freezing of the circulating fluid, such as removing the circulating fluid from the Thermo-chiller.

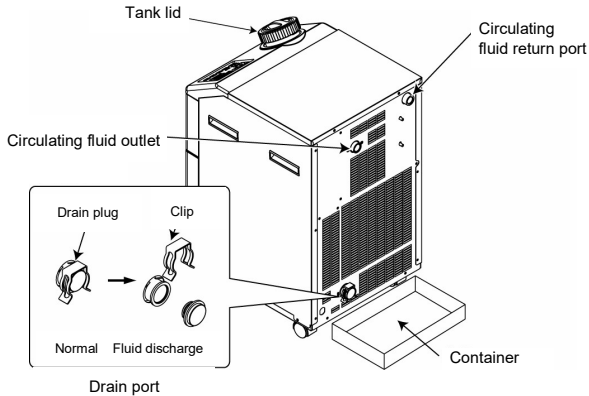
10.7 Discharge of the Circulating Fluid



Warning

- Stop the customer device and release the residual pressure before discharging the circulating fluid.

- 1) Place a container with a capacity of approx. 10L underneath the drain outlet

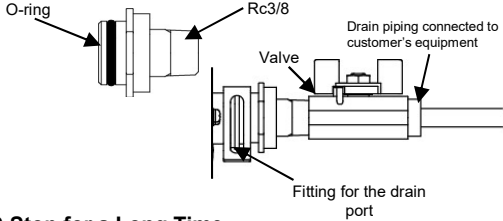


- 2) Remove the tank lid.
- 3) Remove the drain plug on the drain port on the piping to discharge the fluid.
- 4) An 'O' ring is used for the drain plug. Take care not to damage the 'O' ring.
- 5) Confirm that a sufficient amount of the circulating fluid has been drained from the user's machine and piping, and apply air purge from the circulating fluid return port.
- 6) After discharging the circulating fluid in the tank, refit the drain plug, clip and close the tank lid.

10 Maintenance (continue)

10.8 Fitting for the Drain Port (Accessory)

- The Thermo-chiller includes the fitting for the drain port shown in Section 4.1 Accessories.
- Discharging of the drain will be easier if end user prepares a valve. The valve has to be connected to the drain port fitting. If the valve is connected far away from the drain port fitting, it causes an air trap.



10.9 Stop for a Long Time

If there is a concern that the product will not be operated for a long period of time or there is a risk of freezing, conduct the following actions: -



- 1) Turn off the user's power supply.
- 2) Drain the circulating fluid of the product completely. (Refer to 11.6)
- 3) After draining, cover the product with vinyl, etc. and store.

10.10 Consumable parts

Description	Part No.	Remarks
Dustproof filter	HRS-S0001	For spare

11 Declaration of Conformity

Below is a sample Declaration of Conformity (DoC) used for this product. An actual DoC will be supplied with each product.



Doc. No. Sample

EU DECLARATION OF CONFORMITY

Original declaration

SMC Corporation
4-14-1 Soto-Kanda, Chiyoda-ku, Tokyo 101-0021 Japan

declares under its sole responsibility, that the following equipment:

Thermo Chiller
HRSE Series
Serial No.: WR0001 to WR9999

is in conformity with the relevant Union harmonisation legislation and has been demonstrated to fulfil the requirements with reference to the harmonised standard(s) as listed below.

Directive	Requirements	Harmonised standards
Machinery Directive 2006/42/EC	All applicable Essential Health and Safety Requirements of Annex I	EN / ISO12100:2010 EN 60204-1:2006 +A1:2009 EN 61000-6-2:2005 EN 61000-6-4:2007 + A1:2011 EN 61000-3-2:2007 + A1:2009 EN 61000-3-3:2008
EMC 2014/30/EU	Essential requirements set out in Annex I	EN 61000-6-2:2005 EN 61000-6-4:2007 + A1:2011 EN 61000-3-2:2007 + A1:2009 EN 61000-3-3:2008

Name and address of the person authorised to compile the technical file:
Mr. G. Berakotvea, Executive Officer, SMC European Zone,
SMC España, S.A., Zuazobidea 14, 01015 Vitoria, Spain

Importer/Distributor in EU and EFTA:

Country	Company	Telephone	Address
Austria	SMC Pneumatik GmbH (Austria)	(43) 2262-62266	Girakstrasse 8, AT-2100 Korneuburg
Belgium	SMC Pneumatics N.V./S.A.	(32) 3-262-1444	Nieuweheidstraat 20, B-2160 Wommelgem
Bulgaria	SMC Industrial Automation Bulgaria EOOD	(359) 2 9744492	Business Park Sofia, Building 8-8th Floor, BG-1118 Sofia
Croatia	SMC Industrijska Automatizacija d.o.o.	(385) 1 319 79 58	Zagrebčka cesta 10, 10 000 Zagreb
Czech Republic	SMC Industrial Automation spol.s r.o.	(420) 541-424-411	Hudcova 78a, CZ-61200 Brno
Denmark	SMC Pneumatik A/S	(45) 70 25 29 00	Egeskovvej 1, DK-8700 Horsens
España	SMC Pneumatics España OU	(34) 91 65 14 00	Laki 12, EE-10621 Tallinn
Finland	SMC Pneumatika Finland Oy	(358) 207 812 813	PL72, Tiistinniityntie 4, SF-02031 Espoo
France	SMC Pneumatik S.A.	(33) 1-6476-1000	1, Boulevard de Strasbourg, Parc Gustave Eiffel, Bussy Saint Georges, F-77607 Marne La Vallée Cedex 3
Germany	SMC Pneumatik GmbH	(49) 6103-9200	Boschring 13-15, D-63329 Egelsbach
Greece	SMC Hellas S.P.A.	(30) 512511795	Ademenniseos 7-9, P.C. 14342, N. Philadelphia, Athens
Hungary	SMC Hungary Ipari Automatizációs Kft.	(36) 23-511-350	Törbágy u. 19, HU-2045 Törökbálint
Italy	SMC Pneumatics (Italy) Ltd.	(39) 1-463-9000	20090 Citywest Business Campus, Viale Road, Saggart, Co. Dublin
Latvia	SMC Italia S.p.A.	(39) 02-2921-1	Via Garibaldi, 62, I-20061 Carugate, Milano
Lithuania	SMC Pneumatika Lietuva UAB	(370) 5-364-8126	Oslo g. 1, LT-04123 Vilnius
Netherlands	SMC Pneumatics B.V.	(31) 20-531-9888	De Ruyterkade 125, NL-1011 AB Amsterdam
Norway	SMC Pneumatics Norway AS	(47) 67-32-20-20	GranfosNæringspark, N-1366 Lysaker
Poland	SMC Industrial Automation Polska Sp. z o.o.	(48) 22 211 96 00	ul. Poloneza 89, PL-02-826 Warszawa
Portugal	SMC Sucursal Portugal, S.A.	(351) 145-10-100	Rua De Eng Ferrerira Dias 452 4100-246, Porto
Romania	SMC Romania S.R.L.	(40) 21-3405111	Str. Frunzei 29, Sector 2, Bucharest
Slovakia	SMC Pneumatika Automatizácia spol.s r.o.	(421) 41-301-011	Vinohradská 1223, Teplickanadvahom, 01301
Slovenia	SMC Industrijska Avtomatikad.o.o.	(386) 1-398-5412	Vinjska cesta 7, SLO-8210 Trebnje
Spain	SMC España, S.A.	(34) 945-184-100	Zuazobidea 14, 01015 Vitoria
Sweden	SMC Pneumatics Sweden AB	(46) 2-565-151-00	Ekshagsvägen 29-31, SE-141 71 Segeltorp
Switzerland	SMC Pneumatik AG	(41) 052-396-3131	Dorfstrasse 7, Postfach 117, CH-8484 Weisslingen
United Kingdom	SMC Pneumatics (U.K.) Ltd.	(44) 1999-563088	Vincent Avenue, Crownhill, Milton Keynes, Bucks MK8 0AN

Tokyo, 20 April 2018

Hiroyuki Sakama
General Manager
Product Development Division - VI

12 Limitations of Use

12.1 Limited warranty and Disclaimer/Compliance Requirements

- **The product used is subject to the following “Limited warranty and Disclaimer” and “Compliance Requirements”. Read and accept them before using the product.**

- **Limited warranty and Disclaimer:**

- 1) The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, whichever is first ⁽¹⁾. Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.
- 2) For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided.
- 3) Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalogue for the particular products.

⁽¹⁾ Vacuum pads are excluded from this 1 year warranty. A vacuum pad is a consumable part, so it is warranted for a year after it is delivered. Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty.

- **Compliance Requirements**

- 1) The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.
- 2) The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.



Caution

- **SMC products are not intended for use as instruments for legal metrology.** Measurement instruments that SMC manufactures or sells have not been qualified by type approval tests relevant to the metrology (measurement) laws of each country. Therefore, SMC products cannot be used for business or certification ordained by the metrology (measurement) laws of each country.

---*---

13 Contacts

AUSTRIA	SMC Pneumatik GmbH,Girakstrasse 8, AT-2100 Korneuburg
BELGIUM	SMC Pneumatics N.V./S.A. Nijverheidsstraat 20, B-2160 Wommelgem
BULGARIA	SMC Industrial Automation Bulgaria EOOD, Business Park Sofia, Building 8-6th floor, BG-1715 Sofia
CROATIA	SMC IndustrijskaAutomatikad.o.o. ZagrebačkaAvenija 104,10 000 Zagreb
CZECH REP.	SMC Industrial Automation CZ s.r.o. Hudcova 78a, CZ-61200 Brno
DENMARK	SMC Pneumatik A/S,Egeskovvej 1, DK-8700 Horsens
ESTONIA	SMC Pneumatics Estonia Oü,Laki 12, EE-10621 Tallinn
FINLAND	SMC Automation Oy, PL72, Tiistinniityntie 4, SF-02031 Espoo
FRANCE	SMC France, 1, Boulevard de Strasbourg, Parc Gustave Eiffel, Bussy Saint Georges, F-77607 Marne La ValléeCedex 3
GERMANY	SMC Deutschland GmbH, Boschring 13-15, 63329 Egelsbach
GREECE	SMC Italia Hellas Branch, Anagenniseos 7-9-P.C. 14342 N.Philadelphia, Athens
HUNGARY	SMC Hungary IpariAutomatizálásiKft.Törbágy u. 19, HU-2045 Törökbálint
IRELAND	SMC Pneumatics (Ireland) Ltd.2002 Citywest Business Campus, Naas Road, Saggart, Co. Dublin
ITALY	SMC Italia S.p.A.Via Garibaldi 62, I-20061Carugate, (Milano)
LATVIA	SMC Pneumatics Latvia SIA, Dzelzavas str. 120g, Riga, LV-1021,
LITHUANIA	UAB “SMC Pneumatics”, Oslo g. 1, LT-04123 Vilnius
NETHERLANDS	SMC Pneumatics B.V.De Ruyterkade 120, NL-1011 AB Amsterdam
NORWAY	SMC Pneumatics Norway AS, Vollsveien 13 C, GranfosNæringspark, N-1366 Lysaker
POLAND	SMC Industrial Automation, Polska Sp z o.o. 02-826 Warszawa, ul. Poloneza 89
PORTUGAL	SMC Sucursal Portugal, S.A.Rua De Eng Ferrerira Dias 452 4100-246, Porto
ROMANIA	SMC Romania S.r.l. StrFrunzei 29, Sector 2, Bucharest
RUSSIA	SMC Pneumatik LLC. Business centre, building 3, 15 Kondratjevskij prospect, St.Petersburg, 195197
SLOVAKIA	SMC PriemyselnáAutomatizáciaSpols.r.o. Fantranská 1223, Teplickanadvahom, 01301
SLOVENIA	SMC IndustrijskaAvtomatikad.o.o. Mirnskecesta 7, SLO-8210 Trebnje
SPAIN	SMC España S.A. Zuazobidea 14, 01015 Vitoria

SWEDEN	SMC Pneumatics Sweden AB,Ekhagsvägen 29-31, SE-141 71 Segeltorp
SWITZERLAND	SMC Schweiz AG,Dorfstrasse 7, Postfach, 8484 Weisslingen,
TURKEY	SMC PnömatrikSanayiTicaretveServis A.Ş. GülbaharCaddesi, Aydin Plaza, No: 9/4 Güneşli – 34212 , Istanbul
UK	SMC Pneumatics (U.K.) Ltd. Vincent Avenue, Crownhill, Milton Keynes, Buckinghamshire MK8 0AN

SMC Corporation

URL : http// www.smcworld.com (Global) http// www.smceu.com (Europe)
'SMC Corporation, Akihabara UDX15F, 4-14-1, Sotokanda, Chiyoda-ku, Tokyo 101 0021
Specifications are subject to change without prior notice from the manufacturer.
© 2018 SMC Corporation All Rights Reserved.
Template DKP50047-F-085G