

## Thermo-chillers (Circulating Fluid Temperature Controllers)

### Thermo-chiller/Standard Type HRS



- With this chiller, cooling water can be obtained anywhere it is necessary because of easy installation and easy operation.
- For a wide range of applications, such as laser machine tools, analytical equipment, LCD manufacturing equipment, mold temperature control, etc.
- Compact: W 377 x H 615 x D 500 mm, 40 kg (HRS012/018/024)
- Timer function, Low liquid level protection, Power failure auto-restart, Anti-freezing function, etc.
- Self diagnosis function
- Ideal for overseas models (Single-phase 200 to 230 VAC, Single-phase 100, 115 VAC)
- Compliant with UL Standards, CE-marking

Series	Set temperature range	Cooling capacity	Temperature stability	Cooling method	Circulating fluid
HRS012 to 060	5 to 40°C	1.3 kW, 1.9 kW 2.4 kW, 3.2 kW 5.1 kW, 5.9 kW (60 Hz)	±0.1°C	Air-cooled refrigeration Water-cooled refrigeration	Tap water Deionized water Ethylene glycol aqueous solution (15%)

### Thermo-chiller/Standard Type HRS090



- Lightweight and compact
- Cooling capacity: 9 kW
- Temperature stability: ±0.5°C
- Set temperature range: 5 to 35°C
- Max. ambient temperature: 45°C
- Power supply: 3-phase 200 to 230 VAC, 380 to 415 VAC

Series	Set temperature range	Cooling capacity	Temperature stability	Cooling method	Circulating fluid
HRS090	5 to 35°C	9 kW (60 Hz)	±0.5°C	Air-cooled refrigeration Water-cooled refrigeration	Tap water Deionized water Ethylene glycol aqueous solution (15%)

### Thermo-chiller/Standard Type HRS100/150



- No heater is required, as the circulating fluid is heated using only the heat exhausted by the refrigerating circuit.
- Compatible with power supplies in Europe, Asia, Oceania, North, Central, and South America
- Low-noise design: 70 dB (A)
- Outdoor installation: IPX4
- Compact, Space saving

Series	Set temperature range	Cooling capacity	Temperature stability	Cooling method	Circulating fluid
HRS100 HRS150	5 to 35°C	9.5 kW, 14.5 kW (60 Hz)	±1.0°C	Air-cooled refrigeration Water-cooled refrigeration	Tap water Deionized water Ethylene glycol aqueous solution (15%)

### Thermo-chiller/Inverter Type HRSH090



- Power consumption reduced by 53%  
Complete with energy-saving triple inverter!
- Cooling capacity: 9.5 kW (Air-cooled), 11.0 kW (Water-cooled)
- Temperature stability: ±0.1°C
- Set temperature range: 5°C to 40°C

Series	Set temperature range	Cooling capacity	Temperature stability	Cooling method	Circulating fluid
HRSH090	5 to 40°C	9.5 kW	±0.1°C	Air-cooled refrigeration Water-cooled refrigeration	Tap water Deionized water Ethylene glycol aqueous solution (15%)

## Thermo-chillers (Circulating Fluid Temperature Controllers)

### Thermo-chiller/Inverter Type **HRSH**



- Complete with energy-saving triple inverter!
- Outdoor installation, Splashproof type (IPX4)
- Max. ambient temperature: 45°C
- Temperature stability:  $\pm 0.1^\circ\text{C}$  (When a load is stable)
- Space saving and lightweight: 280 kg (25 kW type)
- Compliant with UL Standards, CE-marking

Series	Set temperature range	Cooling capacity	Temperature stability	Cooling method	Circulating fluid
HRSH	5 to 35°C	10 kW, 15 kW 20 kW, 25 kW 28 kW	$\pm 0.1^\circ\text{C}$	Air-cooled refrigeration Water-cooled refrigeration	Tap water Deionized water Ethylene glycol aqueous solution (15%)

### Thermo-chiller/Basic Type **HRSE**



- Complete with energy-saving triple control!  
Reduces power consumption by 33%
- Compact and lightweight: 32 kg (100 VAC)
- Maintenance-free: Magnet pump
- Low-noise design: 55 dB (A)

Series	Set temperature range	Cooling capacity	Temperature stability	Cooling method	Circulating fluid
HRSE	10 to 30°C	1.2 kW, 1.6 kW 2.2 kW (60 Hz)	$\pm 2.0^\circ\text{C}$	Air-cooled refrigeration	Tap water Ethylene glycol aqueous solution (15%)

### Thermo-chiller/High-performance Type **HRZ**



- Suitable for semiconductor processing equipment with a wide variety of features, such as high-temperature stability, a wide temperature range, failure diagnosis, external communication, etc.
- Compliant with various safety standards
- Compliant with UL Standards, SEMI Standards, CE-marking

Series	Set temperature range	Cooling capacity	Temperature stability	Cooling method	Circulating fluid
HRZ	-20 to 40°C 20 to 90°C -20 to 90°C	1 kW, 2 kW 4 kW, 8 kW	$\pm 0.1^\circ\text{C}$	Water-cooled refrigeration	Fluorinated fluid Tap water Deionized water Ethylene glycol aqueous solution (60%)

### Thermo-chiller/High-performance Inverter Type **HRZ**



- In addition to the state-of-the-art functions of the HRZ series, these models employ a DC inverter compressor to achieve better energy efficiency.
- A wide temperature range and cooling capacity range are covered by one unit.
- Suited to the short innovation cycle of semiconductor equipment, Capable of responding flexibly to changes in the process conditions
- Compliant with UL Standards, SEMI Standards, CE-marking

Series	Set temperature range	Cooling capacity	Temperature stability	Cooling method	Circulating fluid
HRZ	-20 to 90°C 10 to 60°C	10 kW	$\pm 0.1^\circ\text{C}$	Water-cooled refrigeration	Fluorinated fluid, Tap water, Deionized water, Ethylene glycol aqueous solution (60%)

### Dual Thermo-chiller/High-performance Inverter Type **HRZD**



- Temperatures for 2 systems can be controlled separately by one chiller.
- Double inverter type: Substantially more energy is saved by using a DC inverter refrigerator and inverter pump.
- Space saving: Footprint reduced by 23%
- Reduced wiring, piping, and labor: Single power cable, Single facility-water piping system
- Compliant with SEMI Standards, CE-marking

Series	Set temperature range	Cooling capacity	Temperature stability	Cooling method	Circulating fluid
HRZD	-30 to 90°C	9.5 kW x 2	$\pm 0.1^\circ\text{C}$	Water-cooled refrigeration	Fluorinated fluid Ethylene glycol aqueous solution (60%)

## Thermo-chillers (Circulating Fluid Temperature Controllers)

### Water-cooled Thermo-chiller/High-performance Type **HRW**



- Direct heat exchanger for in-plant circulating fluid
- Can control the temperature over a wide range since a compressor is not required.
- Suitable for semiconductor processing equipment with a wide variety of features, such as high-temperature stability, a wide temperature range, failure diagnosis, external communication, etc.
- Compliant with UL Standards, SEMI Standards, CE-marking
- It is possible to select the inverter type.

Series	Set temperature range	Cooling capacity	Temperature stability	Cooling method	Circulating fluid
HRW	20 to 90°C	2 kW, 8 kW 15 kW, 30 kW	±0.3°C	Water-cooled type (Without compressor)	Fluorinated fluid, Tap water, Deionized water, Ethylene glycol aqueous solution (60%)

## Thermo-cons/Thermoelectric Baths (Peltier-Type Temperature Control Equipment)

### Peltier-Type Thermo-con/Rack Mount Type **HECR**



- Good space utilization: Mountable in a 19-inch rack  
Saves space by allowing multiple pieces of equipment to be mounted together in a rack.
- Temperature stability: ±0.01°C to 0.03°C
- Set temperature range: 10°C to 60°C
- Cooling capacity: 200 W, 400 W, 510 W, 800 W, 1 kW
- Power consumption: 200 W, 400 W

Series	Set temperature range	Cooling capacity	Temperature stability	Cooling method
HECR002	10 to 60°C	200 W	±0.01 to 0.03°C	Peltier-type air-cooled
HECR004	10 to 60°C	400 W	±0.01 to 0.03°C	Peltier-type air-cooled
HECR006	10 to 60°C	510 W	±0.01 to 0.03°C	Peltier-type air-cooled
HECR008	10 to 60°C	800 W	±0.01 to 0.03°C	Peltier-type air-cooled
HECR010	10 to 60°C	1 kW	±0.01 to 0.03°C	Peltier-type air-cooled

### Peltier-Type Thermo-con **HEC**

High-precision chiller



- For applications requiring high-precision temperature control
- High-precision, refrigerant-free temperature control equipment that uses a Peltier device
- Simple structure and high reliability
- Can easily be built into equipment due to its compact and low-vibration design
- Compatible with a wide range of power supply voltages
- Compliant with UL Standards, CE-marking

Series	Set temperature range	Cooling capacity	Temperature stability	Cooling method	Circulating fluid
HEC	10 to 60°C	230 W 600 W	±0.01 to 0.03°C	Peltier-type air-cooled	Tap water
HEC	10 to 60°C	140 W 320 W	±0.01 to 0.03°C	Peltier-type water-cooled	Tap water Ethylene glycol aqueous solution (20%)
HEC	10 to 60°C	600 W 1200 W	±0.01 to 0.03°C	Peltier-type water-cooled	Tap water Fluorinated fluid

### Peltier-Type Thermoelectric Bath **HEB**

High-precision thermoelectric bath



- High-precision temperature control bath that uses a Peltier device
- Compact and low noise
- Minimal up-down temperature distribution by a unique agitation method

Series	Set temperature range	Max. cooling capacity	Temperature stability	Cooling method	Circulating fluid
HEB	-15 to 60°C	140 W 280 W	0.01°C	Round type Peltier-type water-cooled	Tap water, Fluorinated fluid