Circulating Fluid Temperature Controller

Refrigerated Dual Thermo-chiller

Series HRZD

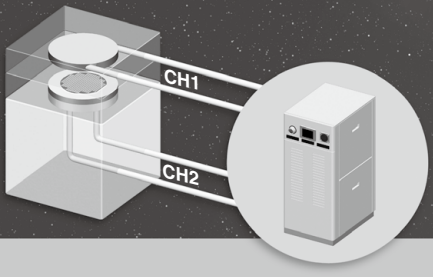
(Double inverter type)

CE

SEMI Standard
S2-0706, S8-0308, F47-0706

Temperature for two systems can be controlled separately by one chiller.

Example
Temperature control of chamber electrode



Energy-saving

Double inverter type

More effective energy-saving is achieved through use of a **DC inverter compressor** and an **inverver** pump.

Power consumption:

Reduced by 84%
2.2 kWh/h
(Existing model: 13.8 kWh/h)

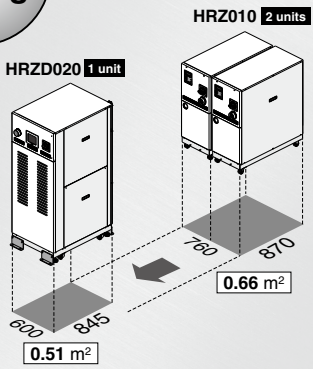
Facility water consumption:

Reduced by 90%
4 L/min (Existing model: 40 L/min)

Conditions: Circulating fluid temperature –10°C, Galden® HT135 x 20 L/min, Piping 3/4 inch x 4 m, Idling 50%, Process 50% operation with 2 kW customer load, 60 Hz

Space-saving

Footprint reduced by 23%



Reduced wiring, piping and labor

Single power cable, single facility water piping system

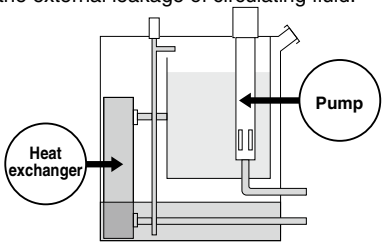
Switchover from the existing model is also possible.

- Temperature range setting: **–30 to 90°C** (Fluorinated fluid)
- Temperature stability: **±0.1°C**
- Circulating fluid flow range: **10 to 40 L/min**
- Cooling capacity: **Max. 10 kW x 2 ch**
- Type of circulating fluid:
  Galden® Fluorinert™
  Ethylene glycol aqueous solution
- Communications: (Standard equipment) Contact input/output
  Serial RS-485/RS-232C
  Analog communication
  (Selectable on the touch panel)

Leakless

All in Tank

Accommodation of a pump and a heat exchanger inside the tank can eliminate the external leakage of circulating fluid.



Specifications (Fluorinated Fluid Type)

Model	HRZD020-WS-WS	
Channel	1	2
Cooling method	Water-cooled refrigeration	
Cooling capacity Note 1) **(kW)**	9.5 (Circulating fluid temperature at 20°C)	9.5 (Circulating fluid temperature at 20°C)
Temperature range setting (°C)	–30 to 90	–30 to 90
Temperature stability (°C)	±0.1 Note 2)	±0.1 Note 2)
Circulating fluid flow range Note 3) **(L/min)**	10 to 40	10 to 40
Circulating fluid	–30 to 40°C: Galden® HT135 Note 4) Fluorinert™ FC-3283 Note 4) 20 to 90°C: Galden® HT200 Note 4) Fluorinert™ FC-40 Note 4)	
Refrigerant	R404A (HFC)	R404A (HFC)
Pump capacity Note 5) **(MPa)**	Max. 0.72 (at 20 L/min) With flow control function by inverter	Max. 0.72 (at 20 L/min) With flow control function by inverter
Main tank capacity Note 6) **(L)**	Approx.15	Approx.15
Sub-tank capacity Note 7) **(L)**	Approx.16	Approx.16
Circulating fluid connection port size (Outlet/Return port)	Rc3/4	Rc3/4
Facility water (°C/MPa)	10 to 35/0.3 to 0.7	
Facility water required flow rate Note 8) **(L/min)**	15 (Facility water temperature at 25°C)	15 (Facility water temperature at 25°C)
Facility water connection port size (Inlet/Outlet)	Rc1/2 (Single system for Channel 1, 2)	
Power supply	3-phase, 50/60 Hz, 200/200 to 208 VAC ±10%	
Main breaker capacity (A)	60	
Dimensions Note 9) **(mm)**	W600 x D845 x H1525	
Weight Note 10) **(kg)**	380	
Communications	Serial RS-485/RS-232C (D-sub 9 pin), Contact input/output, Analog input/output (D-sub 25 pin)	

Note 1) Values of facility water at 25°C, circulating fluid flow rate 20 L/min. Values when the heat generation source is directly connected to the circulating fluid circuit in this product. Common for 50/60 Hz.
Note 2) Values may go beyond the specified range depending on the operating condition.
Note 3) Depending on the piping specifications of the customer system, it may not be controlled by the set value.
Note 4) Galden® is a registered trademark of Solvay Solexis, Inc. Fluorinert™ is a trademark of 3M.
Note 5) Circulating fluid temperature at 20°C, Capacity at the outlet on this product. Common for 50/60 Hz.
Note 6) Minimum volume required for operating this product only. (Circulating fluid temperature at 20°C, including volume for the piping and the heat exchanger inside this product)
Note 7) Preliminary space volume without main tank capacity. Use for collecting circulating fluid inside the external piping or for preliminary injection.
Note 8) Required flow rate during the temperature drop. Possible to operate this product at approx. 1 to 2 L/min when there is no load.
Note 9) Dimensions between panels, not including the dimensions of protrusion such as a breaker handle.
Note 10) Weight in the dry state without circulating fluids

Dimensions