



CHILLERS

HRS SERIES

DATASHEET



HRS 018 - A - 10

Cooling capacity

Symbol	Option
012	Cooling capacity 1100/1300 W (50/60 Hz)
018	Cooling capacity 1500/1700 W (50/60 Hz)

Note) UL standards: Applicable to 60 Hz only

Cooling method

Symbol	Option
A	Air-cooled refrigeration
W	Water-cooled refrigeration

Pipe thread type

Symbol	Option
Nil	Rc
F	G (with PT-G conversion fitting set)
N	NPT (with PT-NPT conversion fitting set)

Option

Symbol	Option
Nil	None
B	With earth leakage breaker
J	With automatic water supply function
M	Applicable to DI water (deionized water) piping

• When multiple options are combined, indicate symbols in alphabetical order.

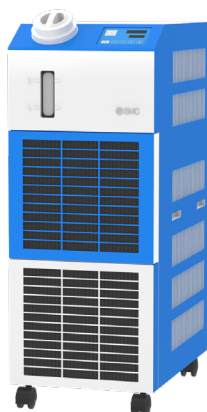
Power supply

Symbol	Power supply
10	Single-phase 100 VAC (50/60 Hz) 115 VAC (60 Hz)

Note) UL standards: Applicable to 60 Hz only

SMC MODEL		HRS012-A□-10	HRS012-W□-10	HRS018-A□-10	HRS018-W□-10
Cooling method		Air-cooled refrigeration	Water-cooled refrigeration	Air-cooled refrigeration	Water-cooled refrigeration
Refrigerant		R407C (HFC)			
Control method		PID control			
Ambient temperature/humidity		Temperature: 5 to 40°C, Humidity: 30 to 70%			
Circulating fluid system	Circulating fluid	Clear water, 15% ethylene glycol aqueous solution			
	Temperature range setting (°C)	5 to 40			
	Cooling capacity (50/60 Hz) (W)	1100/1300		1500/1700	
	Temperature stability (°C)	±0.1			
	Pump capacity (50/60 Hz) (MPa)	0.13/0.18 (at 7 L/min)			
	Rated flow (50/60 Hz) (L/min)	7/7			
	Tank capacity (L)	Approx. 5			
	Port size	Rc1/2			
	Wetted parts material	Stainless steel, Copper (Heat exchanger brazing), Bronze, Alumina ceramic, Carbon, Polypropylene, PE, POM, FKM, EPDM, PVC			
Facility water system	Temperature range (°C)	-	5 to 40	-	5 to 40
	Pressure range (MPa)	-	0.3 to 0.5	-	0.3 to 0.5
	Required flow rate (50/60 Hz)(L/min)	-	8	-	12
	Inlet-outlet pressure differential of facility water (MPa)	-	0.3 or more	-	0.3 or more
	Port size	Rc3/8			
	Wetted parts material	Stainless steel, Copper (Heat exchanger brazing), Bronze, Synthetic rubber			
Electrical system	Power supply	Single-phase 100 VAC (50/60 Hz), 115 VAC (60 Hz). Allowable voltage			
	Circuit protector (A)	15			
	Applicable earth leakage breaker	15			
	Rated operating current (50/60 Hz) (A)	7.5/8.3		7.7/8.4	
	Rated power consumption (50/60 Hz) (kVA)	0.7/0.8		0.8/0.8	
Noise level (50/60 Hz) (dB)		58/55			
Accessories		Fitting (for drain outlet) 1 pc., Input/output signal connector 1 pc., Power supply connector 1 pc., Operation manual (for installation/operation) 1, Quick manual (with a clear case) 1, Alarm code list sticker 1, Ferritic core (for communication) 1 pc.			
Weight Note (kg)		40			

HRS 018 - A - 20



Cooling capacity

		CE/UL
012	Cooling capacity 1100/1300 W (50/60 Hz)	●
018	Cooling capacity 1700/1900 W (50/60 Hz)	●
024	Cooling capacity 2100/2400 W (50/60 Hz)	●
050	Cooling capacity 4700/5100 W (50/60 Hz)	Scheduled for 2011

Note) UL standards: Applicable to 60 Hz only

Cooling method

Symbol	Cooling method	Applicable model			
		HRS012	HRS018	HRS024	HRS050
A	Air-cooled refrigeration	●	●	●	●
W	Water-cooled refrigeration	●	●	●	Scheduled for 2011

Pipe thread type

NII	Rc
F	G (with PT-G conversion fitting set)
N	NPT (with PT-NPT conversion fitting set)

Option

Symbol	Option
NII	None
B	With earth leakage breaker
J	With automatic water supply function
M	Applicable to DI water (deionized water) piping
T	High-lift pump ^{Note 1)}
G	High-temperature environment specifications ^{Note 2)}

• When multiple options are combined, indicate symbols in alphabetical order.

Note 1) The cooling capacity reduces about 300 W from the value in the catalog.

For HRS050, high-lift pump is available as standard.

Note 2) Air-cooled 200 V types, HRS012/018/024 only
Not UL-compliant (scheduled for 2011)

Power supply ^{Note)}

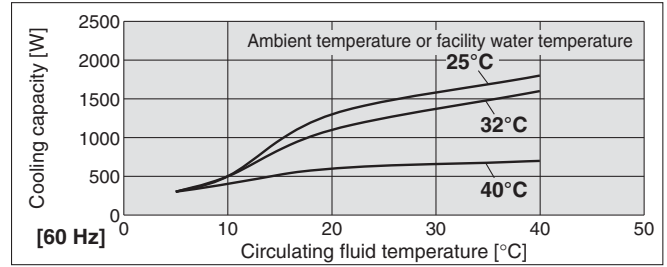
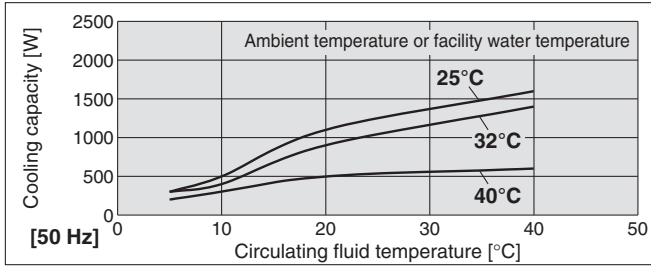
Symbol	Power supply
20	Single-phase 200 to 230 VAC (50/60 Hz)

Note) UL standards: Applicable to 60 Hz only

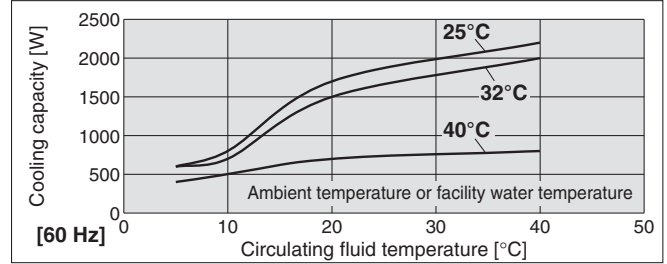
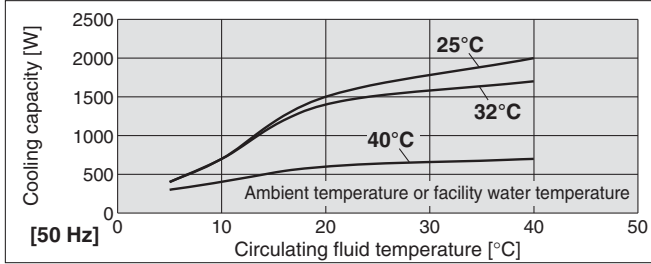
SMC MODEL		HRS012-A□-20	HRS012-W□-20	HRS018-A□-20	HRS018-W□-20	HRS024-A□-20	HRS024-W□-20	HRS050-A□-20
Cooling method		Air-cooled refrigeration	Water-cooled refrigeration	Air-cooled refrigeration	Water-cooled refrigeration	Air-cooled refrigeration	Water-cooled refrigeration	Air-cooled refrigeration
Refrigerant		R407C (HFC)						R410A
Control method		PID control						
Ambient temperature/humidity		Temperature: 5 to 40°C, High-temperature environment specifications						
Circulating fluid system	Circulating fluid	Clear water, 15% ethylene glycol aqueous solution						
	Temperature range setting (°C)	5 to 40						
	Cooling capacity (50/60 Hz) (W)	1100/1300		1500/1700		2100/2400		4700/5100
	Temperature stability (°C)	±0.1						
	Pump capacity (50/60 Hz) (MPa)	0.13/0.18 (at 7 L/min)						0.24 (at 23 L/min) 0.32 (at 28 L/min)
	Rated flow (50/60 Hz) (L/min)	7/7						23/28
	Tank capacity (L)	Approx. 5						
	Port size	Rc1/2						
	Wetted parts material	Stainless steel, Copper (Heat exchanger brazing), Bronze, Alumina ceramic, Carbon, Polypropylene, PE, POM, FKM, EPDM, PVC						
Facility water system	Temperature range (°C)	-	5 to 40	-	5 to 40	-	5 to 40	-
	Pressure range (MPa)	-	0.3 to 0.5	-	0.3 to 0.5	-	0.3 to 0.5	-
	Required flow rate (50/60 Hz) (L/min)	-	8	-	12	-	14	-
	Inlet-outlet pressure differential of facility water (MPa)	-	0.3 or more	-	0.3 or more	-	0.3 or more	-
	Port size	Rc3/8						-
	Wetted parts material	Stainless steel, Copper (Heat exchanger brazing), Bronze, Synthetic rubber						-
Electrical system	Power supply	Single-phase 100 VAC (50/60 Hz), 115 VAC (60 Hz). Allowable voltage range ±10%						
	Circuit protector (A)	10						20
	Applicable earth leakage breaker	10						20
	Rated operating current (50/60 Hz) (A)	4.6/5.1		4.7/5.2		5.1/5.9		8/11
	Rated power consumption (50/60 Hz) (kVA)	0.9/1.0		0.9/1.0		1.0/1.2		1.7/2.2
Noise level (50/60 Hz) (dB)		60/61						65/68
Accessories		Fitting (for drain outlet) 1 pc. Note 13), Input/output signal connector 1 pc., Power supply connector 1 pc., Operation manual (for installation/operation) 1, Quick manual (with a clear case) 1, Alarm code list sticker 1, Ferritic core (for communication) 1 pc.						
Weight Note (kg)		43						69

Cooling Capacity

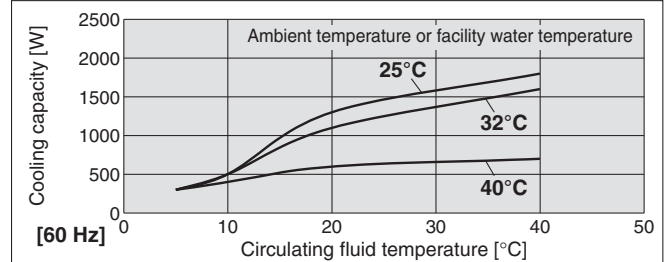
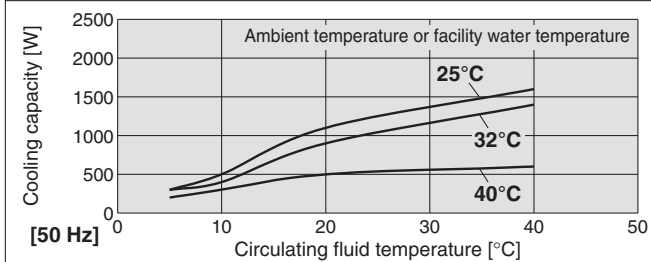
HRS012-A-10/HRS012-W-10 (Single-phase 100/115 VAC)



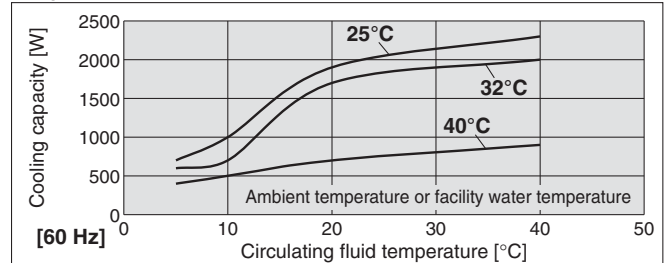
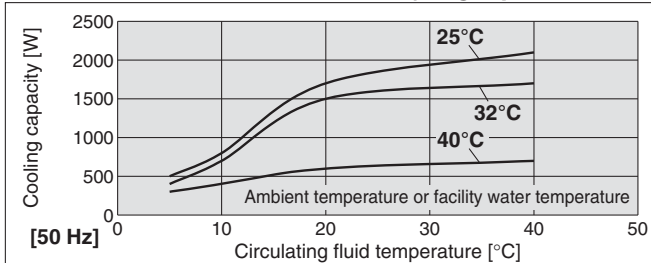
HRS018-A-10/HRS018-W-10 (Single-phase 100/115 VAC)



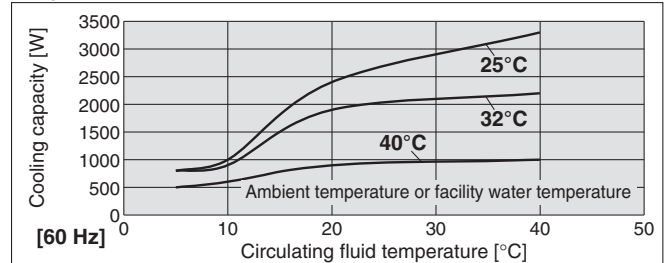
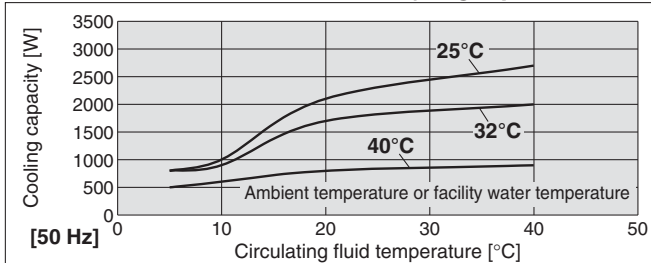
HRS012-A-20/HRS012-W-20 (Single-phase 200 to 230 VAC)



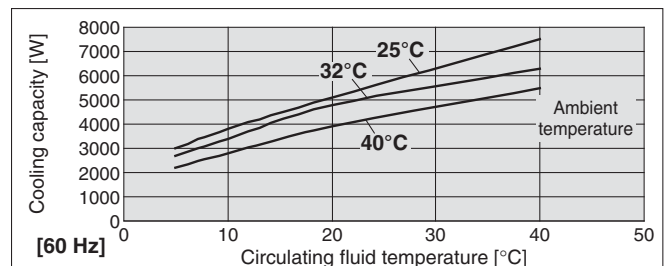
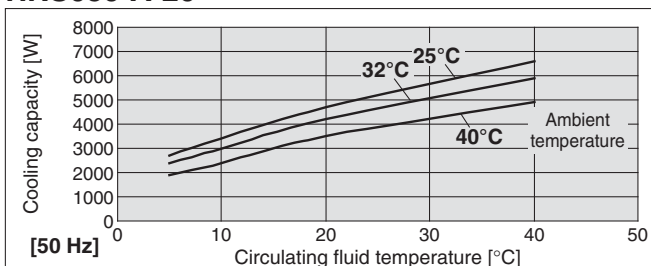
HRS018-A-20/HRS018-W-20 (Single-phase 200 to 230 VAC)



HRS024-A-20/HRS024-W-20 (Single-phase 200 to 230 VAC)

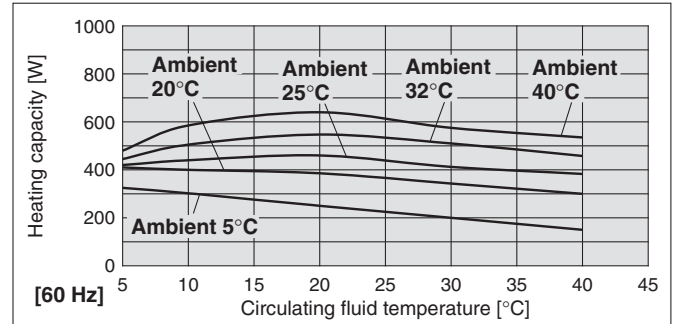
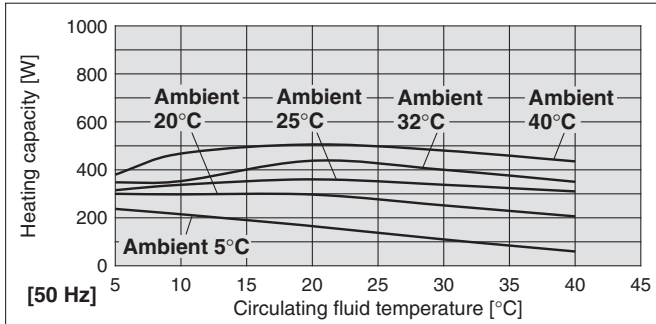


HRS050-A-20

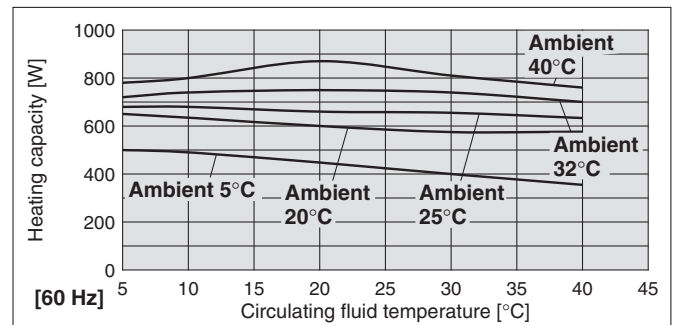
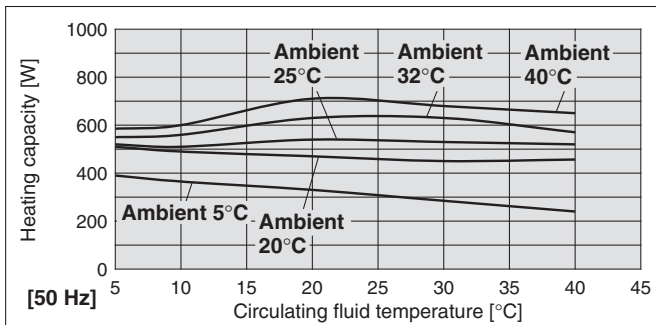


Heating Capacity

HRS⁰¹²₀₁₈-A_W-10 (Single-phase 100/115 VAC)
024

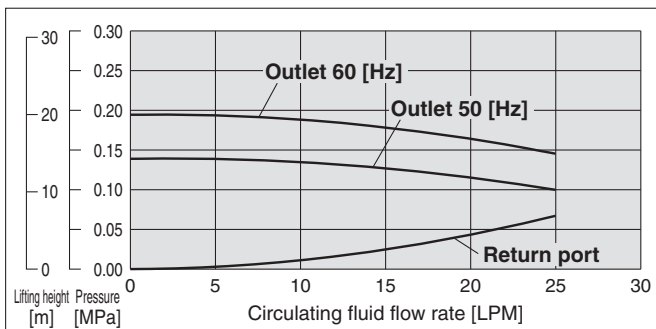


HRS⁰¹²₀₁₈-A_W-20 (Single-phase 200 to 230 VAC)
024

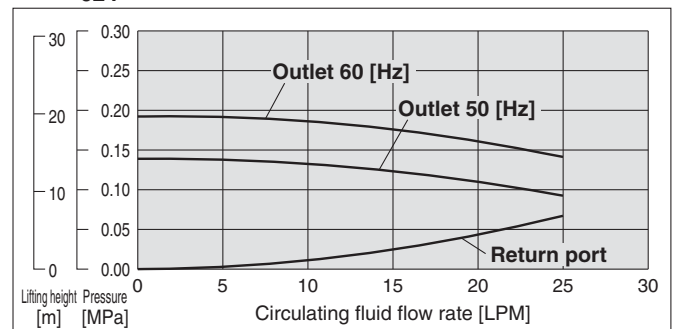


Pump Capacity

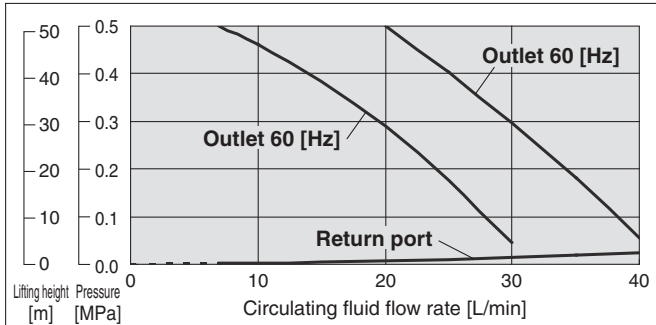
HRS⁰¹²₀₁₈-A_W-10 (Single-phase 100/115 VAC)



HRS⁰¹²₀₁₈-A_W-20 (Single-phase 200 to 230 VAC)
024

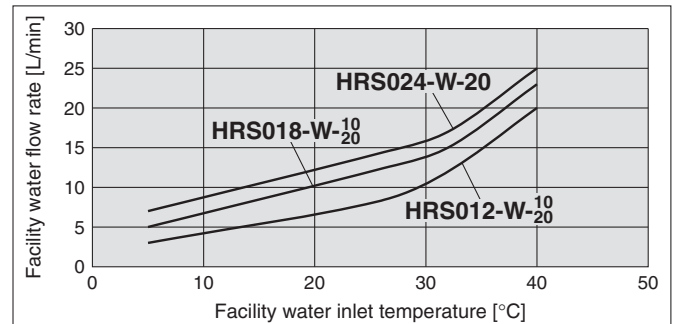


HRS050-A-20 (Single-phase 200 to 230 VAC)



Required Facility Water Flow Rate

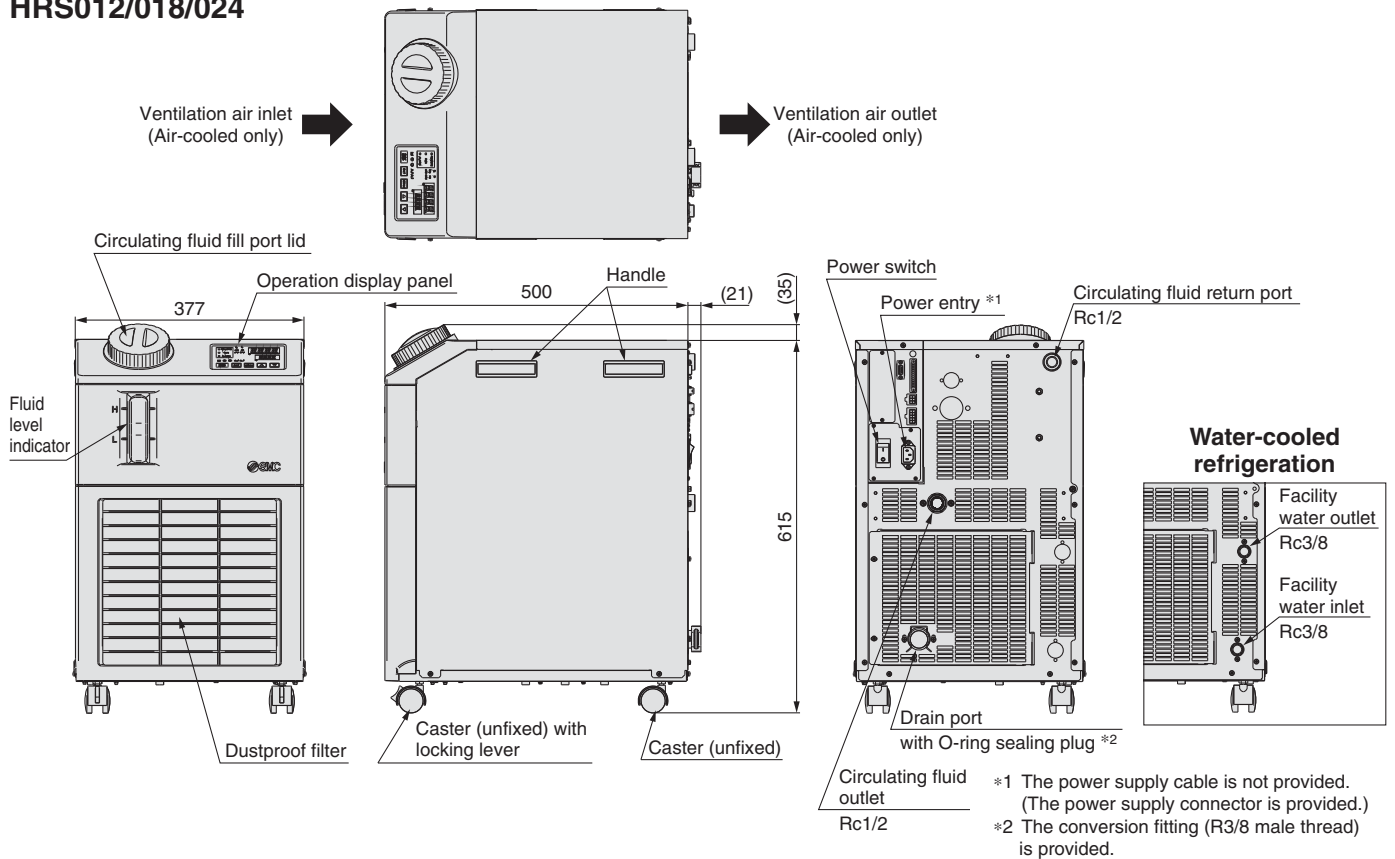
HRS012-W-¹⁰₂₀, HRS018-W-¹⁰₂₀, HRS024-W-20



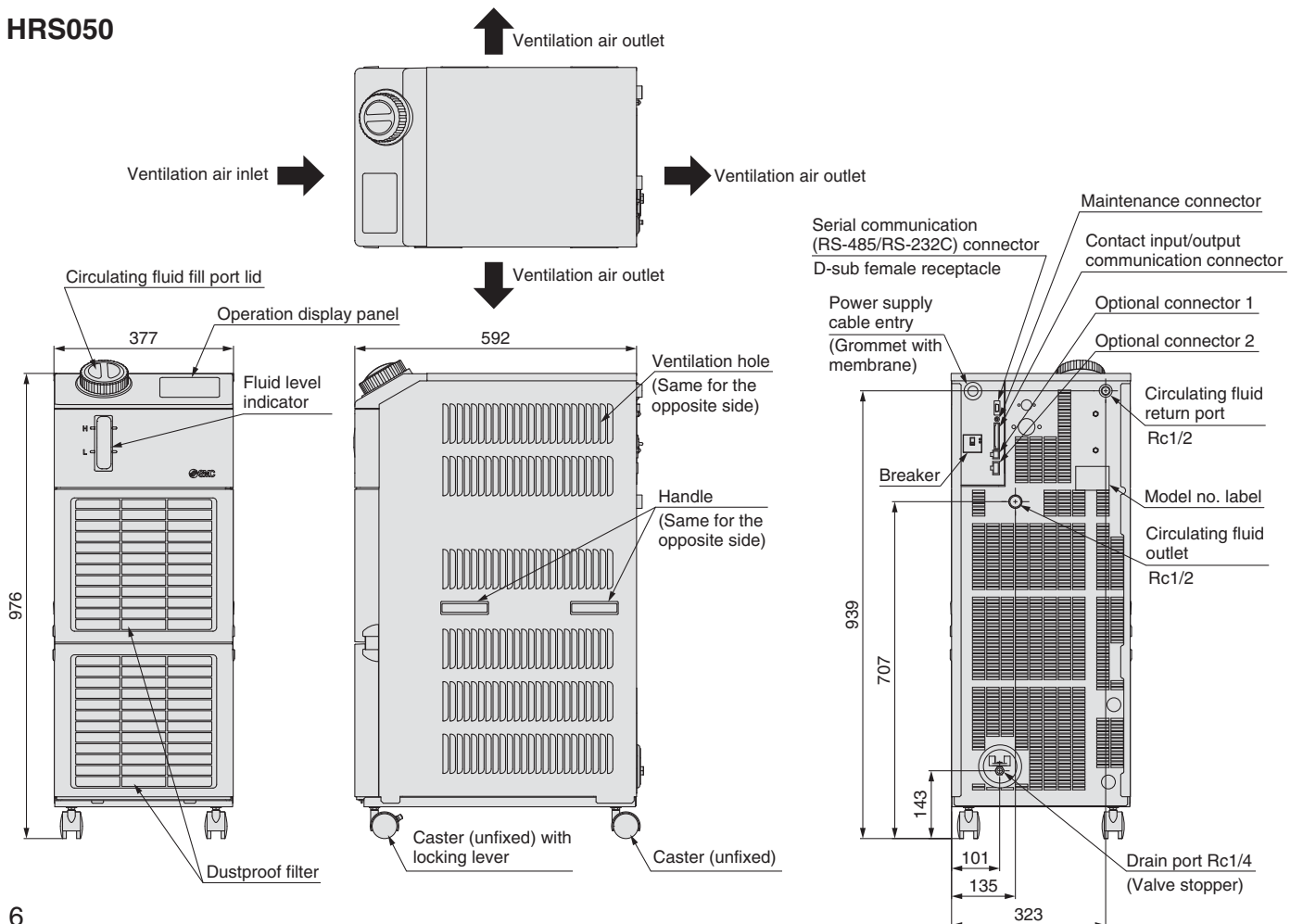
* This is the facility water flow rate at the circulating fluid rated flow rate and the cooling capacity listed in the "Cooling Capacity" specifications.

Dimensions

HRS012/018/024



HRS050





HRS 090 - A - 20 -

Cooling capacity

090	9 kW
-----	------

Cooling method

A	Air-cooled refrigeration
---	--------------------------

Pipe thread type

Nil	Rc
F	G (with Rc-G conversion fitting)
N	NPT (with Rc-NPT conversion fitting)

Option

Nil	None
B	With earth leakage breaker

Power supply

20	3-phase 200 VAC (50 Hz) 3-phase 200 to 230 VAC (60 Hz)
----	---

SMC MODEL		HRS090-A-20-
Cooling method		Air-cooled refrigeration
Refrigerant		R410A (HFC)
Control method		PID control
Ambient temperature °C		5 to 45
Circulating fluid system	Circulating fluid	Tap water, 15% ethylene glycol aqueous solution, Deionized water
	Set temperature range °C	5 to 35
	Cooling capacity 50/60 Hz kW	8.0/9.0
	Heating capacity 50/60 Hz kW	-1.7/2.2
	Temperature stability °C	±0.5
	Rated flow 50/60 Hz (Outlet) L/min	29/45
	Maximum flow rate 50/60 Hz L/min	55/68
	Maximum pump head m	50
	Minimum operating flow rate 50/60 Hz L/min	29/45
	Tank capacity L	18
	Circulating fluid outlet, return port	Rc1 (G1, NPT1)
	Tank drain port	Rc1/4 (G1/4, NPT1/4)
	Fluid contact material	Stainless steel, Copper (heat exchanger brazing), Brass, Bronze, PTFE, FKM, EPDM, PVC, NBR, POM, PE, PP, Carbon, Ceramic
Electrical system	Power supply	3-phase 200 VAC (50 Hz), 3-phase 200 to 230 VAC (60 Hz), Allowable ±10%
	Applicable earth leakage breaker A	30
	Sensitivity of leak current mA	30
	Rated operating current 50/60 Hz A	16/18
	Rated power consumption 50/60 Hz kW (kVA)	4.3/5.4 (5.5/6.0)
	Noise level (Front 1 m / Height 1 m) dB(A)	73
Accessories		Alarm code list stickers (EN/JP), Manuals (EN/JP), Y-strainer 25A, Barrel nipple 25A, Anchor bolts
Weight (dry state) kg		Approx. 136

HRS 090 - W - 20 -

Cooling capacity

090	9 kW
-----	------

Cooling method

W	Water-cooled refrigeration
---	----------------------------

Pipe thread type

Nil	Rc
F	G (with Rc-G conversion fitting)
N	NPT (with Rc-NPT conversion fitting)

Option

Nil	None
B	With earth leakage breaker

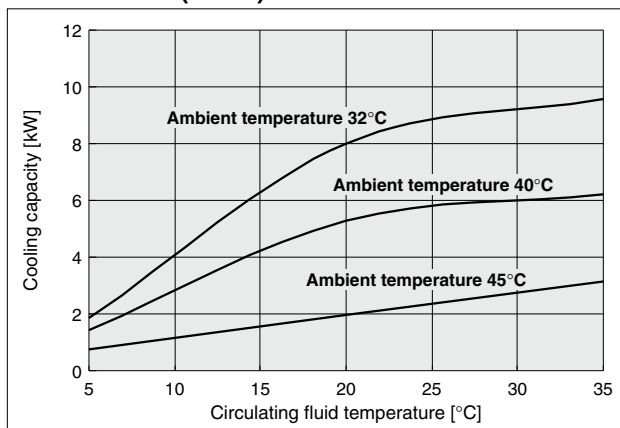
Power supply

20	3-phase 200 VAC (50 Hz) 3-phase 200 to 230 VAC (60 Hz)
----	---

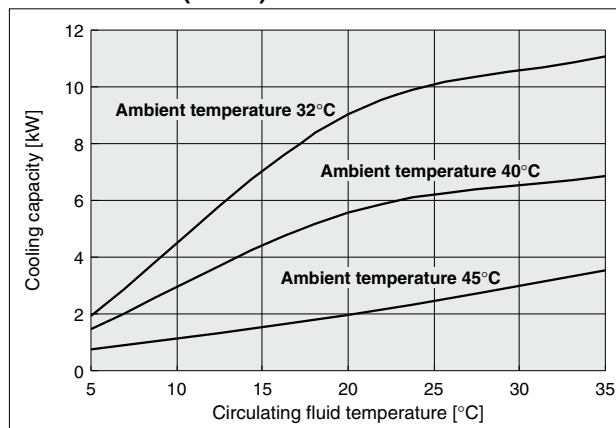
SMC MODEL		HRS090-W-20-
Cooling method		Water-cooled refrigeration
Refrigerant		R410A (HFC)
Control method		PID control
Ambient temperature °C		5 to 45
Circulating fluid system	Circulating fluid	Tap water, 15% ethylene glycol aqueous solution, Deionized water
	Set temperature range °C	5 to 35
	Cooling capacity 50/60 Hz kW	9.0/10.5
	Heating capacity 50/60 Hz kW	1.7/2.2
	Temperature stability °C	±0.5
	Rated flow 50/60 Hz (Outlet) L/min	29/45
	Maximum flow rate 50/60 Hz L/min	55/68
	Maximum pump head m	50
	Minimum operating flow rate 50/60 Hz L/min	29/45
	Tank capacity L	18
	Circulating fluid outlet, return port	Rc1 (G1, NPT1)
	Tank drain port	Rc1/4 (G1/4, NPT1/4)
	Fluid contact material	Stainless steel, Copper (Heat exchanger brazing), Brass, Bronze, PTFE, FKM, EPDM, PVC, NBR, POM, PE, PP, Carbon, Ceramic
Facility water system	Temperature range °C	5 to 40
	Pressure range Mpa	0.3 to 0.5
	Required flow 50/60 Hz L/min	25/25
	Facility water pressure differential Mpa	0.3 or more
	Facility water inlet/outlet	Rc1/2 (G1/2, NPT1/2)
	Fluid contact material	Stainless steel, Copper (Heat exchanger brazing), Bronze, Brass, PTFE, NBR, EPDM
Electrical system	Power supply	3-phase 200 VAC (50 Hz), 3-phase 200 to 230 VAC (60 Hz), Allowable ±10%
	Applicable earth leakage breaker A	30
	Sensitivity of leak current mA	30
	Rated operating current 50/60 Hz A	13/14
	Rated power consumption 50/60 Hz kW (kVA)	3.3/4.2 (4.4/4.9)
	Noise level (Front 1 m / Height 1 m) dB(A)	65
Accessories		Alarm code list stickers (EN/JP), Manuals (EN/JP), Y-strainer 25A, Barrel nipple 25A, Anchor bolts
Weight (dry state) kg		Approx. 124

Cooling Capacity

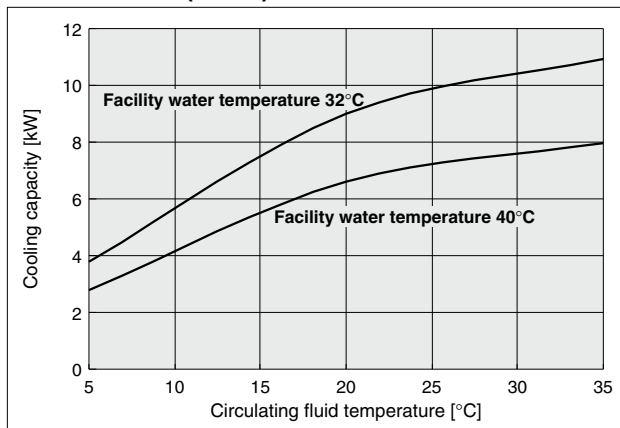
HRS090-A-20 (50 Hz)



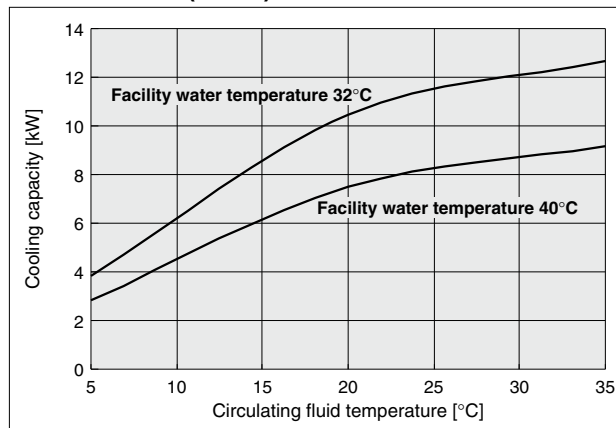
HRS090-A-20 (60 Hz)



HRS090-W-20 (50 Hz)

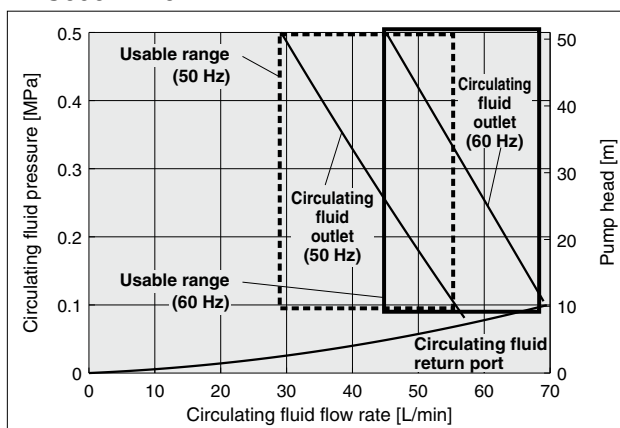


HRS090-W-20 (60 Hz)



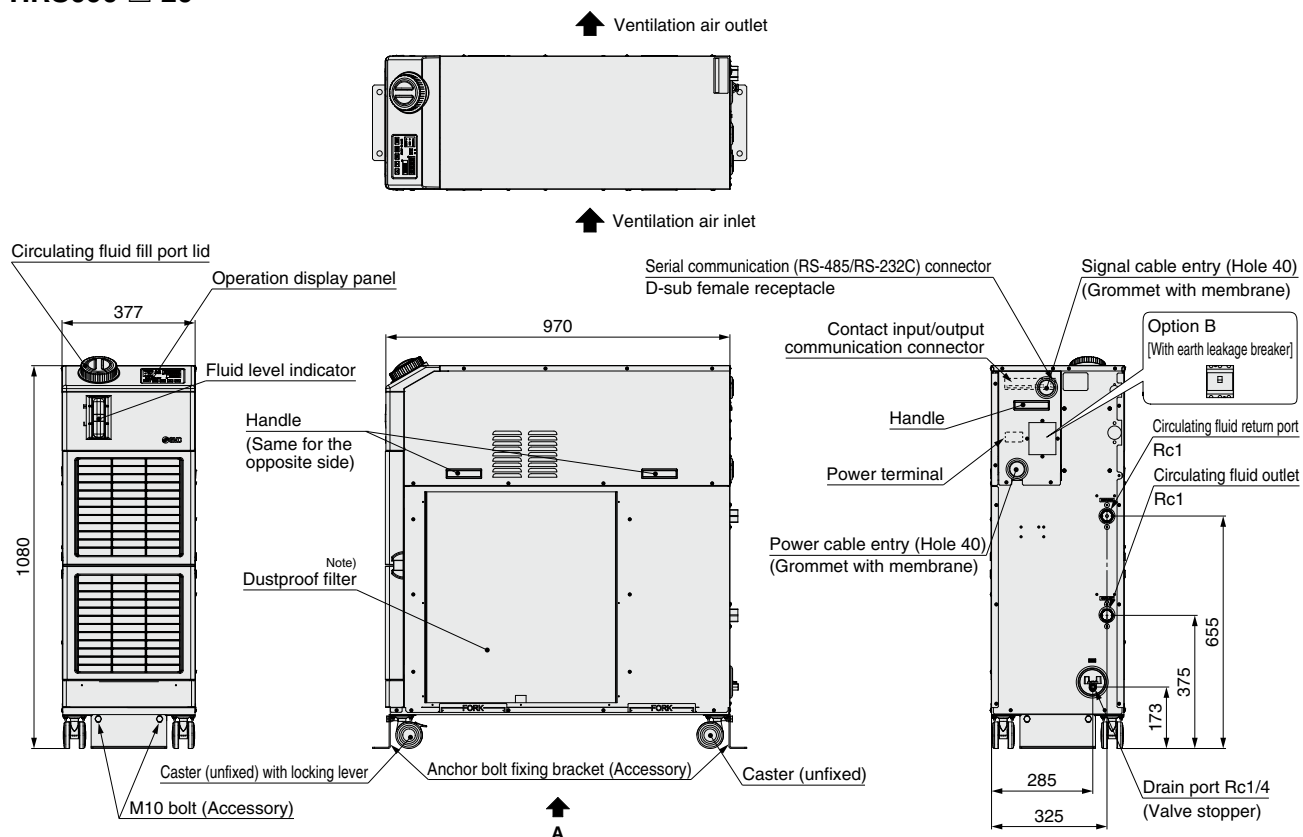
Pump Capacity

**HRS090-A-20
HRS090-W-20**



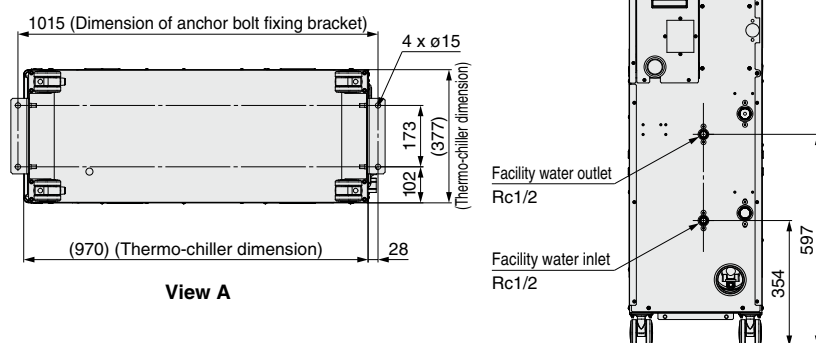
Dimensions

HRS090-□-20



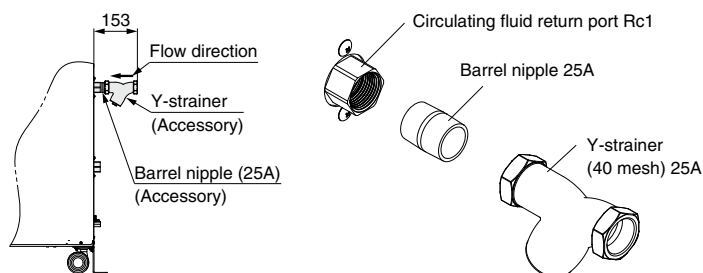
Note) The water-cooled type is not equipped with a dustproof filter.

Anchor bolt fixing position



Accessory: Y-strainer mounting view

* Mount it by yourself on the circulating fluid return port.



For water-cooled type



LAB CHILLER CIRCULATOR

MODEL: KC-05100 / KC-20100 / KC-30100

REFRIGERATION SYSTEM

Low-noise, air-cooled, fully enclosed compressor unit ensuring rapid cooling performance and excellent temperature stability.

CONTROL SYSTEM

Advanced proprietary temperature control technology with in-house developed software. Equipped with high-precision PT100 sensors and high-quality imported electronic components.

CIRCULATION SYSTEM

Dual circulation system with internal and external modes:

- **External circulation:** allows the thermostatic fluid to be delivered outside the unit, creating a secondary temperature-controlled environment or serving as a cooling source for external applications.
- **Internal circulation:** ensures highly uniform and stable temperature distribution within the tank.

PROTECTION SYSTEM

Comprehensive safety features including over-temperature and over-current protection. The system includes configurable high/low temperature alarms and automatically disconnects the load in case of temperature deviations beyond set limits.

USER INTERFACE & CONTROL

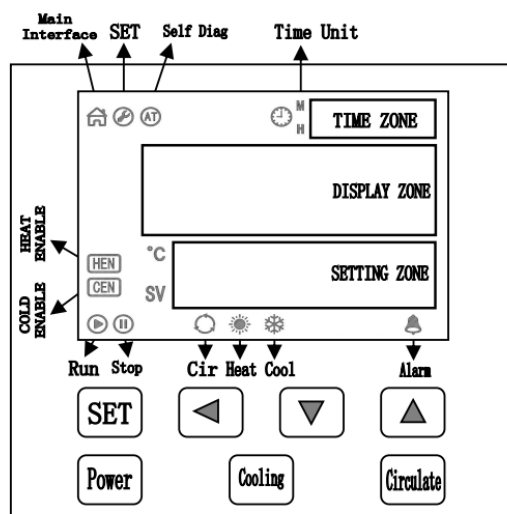
High-end LCD controller with intuitive operation. Advanced PID control supports both automatic tuning and manual adjustment for optimal performance.

TEMPERATURE PERFORMANCE

High-precision temperature calibration up to 0.01°C. Temperature stability up to ± 0.02 – 0.05°C (depending on model).

MODEL	KC-05100	KC-20100	KC-30100
Temperature range ($^{\circ}\text{C}$)	-5~100	-20~100	-30~100
Temperature fluctuation ($\pm^{\circ}\text{C}$)	0.03	0.03	0.03
Groove depth (mm)	150	150	150
Power (W)	120V~ 60Hz 1000W	120V~60Hz 1000W	20V~60Hz950W
	230V~ 50Hz 800W	230V~50Hz 900W	230V~50Hz1050W

DISPLAY DESCRIPTION



ICON	NAME	BUTTON DESCRIPTION
	Set Key	Click to set the temperature or long- press this key to enter the temperature parameter setting state.
	Shift Key	In the setting state, click this key to make the set value shift and blink for modification; in the main interface display state, long - press this key for 6 seconds to enter the temperature self - calibration selection and self - calibration value setting state.
	Decrease Key	In the setting state, click or long - press this key to decrease the set value.
	Increase Key	In the setting state, click or long - press this key to increase the set value.
	Power Key	Turn off or turn on the controller.
	Cooling Key	Click to allow or prohibit cooling
	Cycle Key	Click to turn on or turn off the cycle output.
	Overtemperature Alarm	The difference between the set temperature and the actual temperature exceeds 30°C
	Timer Function	• 0000 means no timer is set and the device works all the time; • 0001 - 9999min means the operable total running time after the device reaches the set temperature point. • When the time is up, the device stops running and the character "END" appears
E-02	Alarm	Phase Sequence Alarm
E-01	Alarm	Liquid Level Alarm

Description of instrument keys:

Set function key **shift** key ▼ decrease key ▲ increase key

Setting of temperature parameters:

Press the setting function key "set" to enter the setting state of the temperature setting value. At this time, the last value of the setting temperature "SV" on the display screen flashes.



Setting of temperature parameters:

First, press the shift key, then press the plus or minus key to set the working temperature you need, and then press the setting function key "set" once. At this time, the last value of the timed shutdown time (min) "0000" on the upper right corner of the display screen flashes. If it is not necessary to keep the default "0000" regularly, press the setting function key "set" again to exit the parameter setting and save the parameter setting value (PV). At this time, the display "PV" shows the temperature of the liquid medium in the current tank.



After the temperature parameter setting is completed, first open the "circulate" button on the operation panel, and then open the "refrigeration" button (Note: when the working temperature exceeds 40 °C, the compressor automatically enters the protection, and the refrigeration does not start), and then the microcomputer enters the automatic control state.



APPLICATION:

Depending on the bioprocess scale and specific requirements, you can select:

- **Laboratory Chillers (Thermo Chillers):** Compact and quiet units, ideal for benchtop bioreactors and small-scale instrumentation.
- **Process Temperature Control Systems:** High-power units (up to 10 kW or more) designed for pilot plants or industrial production, featuring high heat exchange capacity.
- **Recirculating Coolers:** Standardized solutions for maintaining a constant temperature in closed-loop circuits.

BENCHTOP BIOREACTORS

Glass & Inox 316

Total volume: 0,5 L – 12 L

TEMPERATURE CONTROL SYSTEM

- 10 °C	- 5 °C	+ 0,5 °C	+ 5 °C	+ 10 °C	+ 20 °C	+ 50 °C	+ 60 °C	+ 80 °C	+ 121 °C
Chiller - 30 °C 1050 watt	Chiller - 20 °C 900 watt	Chiller - 5 °C 800 watt	Chiller - 5 °C 800 watt	Thermochiller: • 500 watt • 1000 watt • 2000 watt	Tap water or Thermochiller: • 500 watt • 1000 watt	Thermochiller: • 500 watt • 1000 watt • 2000 watt	Heater Mantle: 150 to 500 watt. Or Heater Wet: 1000 watt	Heater Wet: 1000 watt	Steam Wet: 2000 watt



Specifications subject to change without notice.
© 2025 Vinci Life Science Applied Italia Srl – All rights reserved.