

Medium-power Low Temp. Circulator CA-2600 • 2600S



Refrigerating unit	Air cooling, R407C, 1.1kW
Operation temp. range	-10°C-35°C (without heater)
Cooling capacity	300W (2580kcal/hr) at liquid temp. 20°C
Pump max. external flow	23.5/27L/min (50/60Hz)
Pump head pressure	9.5/13m (50/60Hz)

Operation panel Emergency stop button (CA-2600S)



Built-in bypass valve External signal outlet



Features

- Thanks to the big cooling capacity of 3000W, the unit implements wide application. In addition to its main application, cooling laboratory equipment like 10L rotary evaporator, the unit can be used in various fields where heat generating components are used; industrial, analytical, measuring equipment and semiconductor manufacturing equipment.
- Equipped with various functions like external temperature sensor terminal, temperature recorder output, alarm output, auto start and auto stop.
- Various terminals and alarm functions are equipped as standard to allow wide range of applications.

Specifications

Product Name	Medium-power Low Temp. Circulator (Cool Ace)	
Model	CA-2600	CA-2600S
Cat.No.	197110	199410
Circulation method	Closed loop	
Temperature range	-10 -35°C (without heater)	
Temperature accuracy	±2°C	
Cooling Capacity	3000W (2580kcal/hr) (at liquid temp. 20°C) 2500W (2150kcal/hr) (at liquid temp. 10°C)	
Pump max flow & head pressure	Max.flow discharge 23.5/27L/min. max. head pressure 9.5/13m (50/60Hz)	
Temperature control	Capillary tube volume change +refrigerator ON-OFF control	
Temperature sensor	Thermistor	
Cooling coil materials	Copper with nickel coating	
Temp. setting & display	Sheet key input, digital display, minimum display scale 1°C Elcb, Overcurrent breaker, Self-diagnostic temp. control, Thermal sensor failure, Refrigerator overload relap, High-pressure switch, Refrigerator protection timer, Circulation pump thermal protector, Circulation water pressure deviation alarm (option), Circulation water flow decrease alarm (option)	
Safety functions	External temperature sensor terminal, Temperature recorder output terminal, alarm output terminal	
External output	Remote-controlled output NA with output terminal	
Emergency stop button	NA Yes	
Additional functions	Flow volume adjustment, Bypass valve, Flow volume adjustment valve	
Refrigerator, refrigerant	Air cooling type, R407, 1.1k W	
Circulation pump	Magnetically driven pump, power supply output 41/59W (50/60Hz)	
External circulation nozzle	Inlet and outlet connection, OD 16mm (Rc1/2" female)	
Bath inner material & volume	SUS304, ø280*270H, 16.5L (water volume 14L)	
Ambient temperature	5-35°C	
Overall dimensions (mm)	450 (555)W*515D*1010 (1025)H	
Net weight	84kg	
Power source utility	AC200V, single phase, 20A, 50/60Hz	
Input power	2kVA	

Optional accessories

High pressure pump HPP



The same discharge pressure as tap water is obtained: 10L/min, 196kPa (2kg/cm) When standard pump is not strong enough due to high pressure loss in flow process, the unit is recommended.

HPP-1100:Cat.No.158750
HPP-2100:Cat.No.158770

Sealed lid



Used with an open circulation system.
Cat. No.112780

Output lead line ROL-100



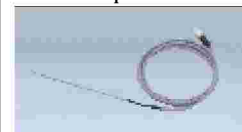
Lead wire for both temperature and alarm output.
Cat.No.114230

Remote control lead line
It is a lead line for the remote control of the refrigerator switch, circulating pump switch, and power switch.
Cat.No.201610

Pressure switch CA-PS4
When abnormal pressure conditions are detected like abnormally high exhaust back pressure of blocked piping, all the control is stopped, the alarm lamp is lit and an alarm output signal is given
cat.No.199420

Flow volume switch CA-FS2
When the flow volume decreases by exhaust back pressure in the piping or by water leakage, all the control is stopped, the alarm lamp is lit and an alarm output signal is given
Cat.No.199430

External temperature Sensor STP-300



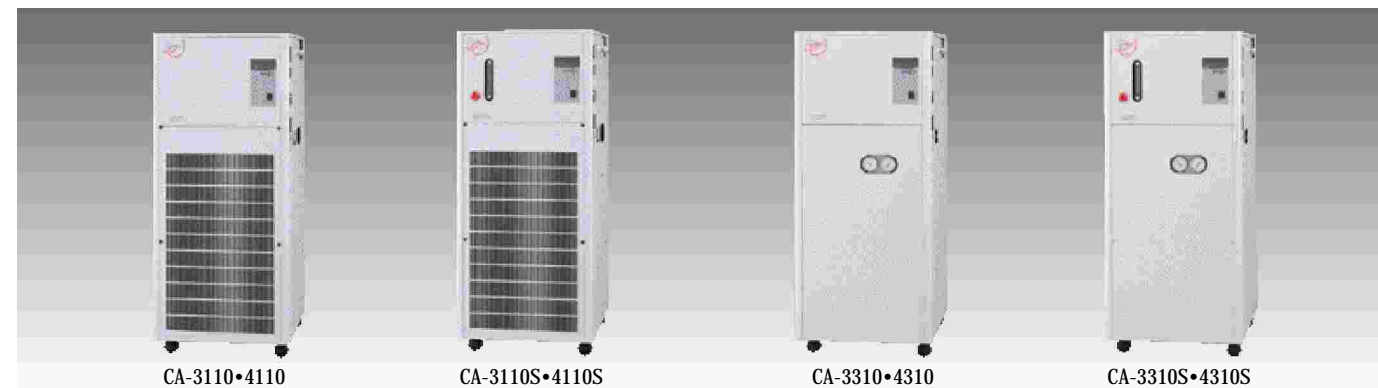
The bath temperature can be controlled responding to the external circulation temp.
Cat.No.196730

With 10L Rotary evaporator



High-power Low Temp. Circulator

CA-3100 • 3110S • 4110 • 4110S • 3310 • 3310S • 4310 • 4310S



Features

- Highly powerful cooling capacity makes the unit recommendable for use at production sites where the air-conditioning at the summer time is not effective.
- Also suitable as built-in unit in machinery for general industry, manufacturing of semiconductors. The alarm output terminal, the external temperature recording output and the external temperature sensor terminal are equipped as standard.
- The S type is equipped with an emergency stop button, remote operation output terminal, liquid side meter, and also a high and low refrigerant pressure gauge.

- Various usages are possible such as cooling the condenser of large scale rotary evaporators, the power supply and the heat generating parts in electron microscopes, and as the secondary cooling of helium compressors.
- Water-cooled freezer type is also available for the constant temperature room, clean room, etc.
- Optional model includes the unit with heater + P.I.D. control to obtain a high temperature adjustment accuracy of ±0.1°C to ±0.5°C.

Specifications

Product Name	High-power Low Temp. Circulator (Cool Ace)							
Model	CA-3110	CA-3110S	CA-3310	CA-3310S	CA-4110	CA-4110S	CA-4310	CA-4310S
Cat.No.	199760	200080	199770	200090	199780	200100	199790	200110
Circulation method	Closed loop							
Temperature range & accuracy	5 -25°C (without heater) ±2°C							
Cooling capacity	4500W (3870kcal/h) at liquid temp. 20°C 3500W (3010kcal/h) at liquid temp.10°C		5600W (4816kcal/h) at liquid temp. 20°C 4400W (3784kcal/h) at liquid temp.10°C		6000W (5160kcal/h) at liquid temp. 20°C 4800W (4128kcal/h) at liquid temp.10°C		7800W (3870kcal/h) at liquid temp. 20°C 6400W (3010kcal/h) at liquid temp.10°C	
Pump max.flow & head pressure	Max.flow discharge 37/44L/min. max. head pressure 52/55m(50/60Hz)							
Temperature control	Capillary tube volume change +refrigerator ON-OFF control							
Temperaturesensor	Thermistor							
Cooling coil materials	Copper with nickel coating							
Temp.setting & display	Sheet key input, digital display, minimum display scale 0.1°C							
Safety functions	ELCB, Overcurrent breaker, self-diagnostic temp. control, Thermal sensor failure, Refrigerator overload relay, High-pressure switch, Refrigerator protection timer, Recorder output terminal(DC 1V to 4V), external temperature sensor terminal, Alarm output terminal (no-voltage A contact) output AC250V/DC30V 3A Max.							
Output terminal	Flow volume adjustment, Relief valve, Flowing volume adjustment valve.							
Additional functions	Flow volume adjustment, Relief valve, Flowing volume adjustment valve.							
Refrigerator,refrigerant	Air cooling, R407C, output 1.5kW		Water cooling, R407C, output 1.5kW		Air cooling, R407C, output 2.2kW		Water cooling, R407C, output 2.2kW	
Circulation pump	Cascade pump, 400W, pump speed 11L/min at lift height 45m							
Emergency stop switch	NA	Yes	NA	Yes	NA	Yes	NA	Yes
High & low pressure gauge for refrigerant	NA	Yes	Yes	Yes	NA	Yes	Yes	Yes
Remote-control output	NA	Refrigerator switch, pump switch, power switch remote operation	NA	Refrigerator switch, pump switch, power switch remote operation	NA	Refrigerator switch, pump switch, power switch remote operation	NA	Refrigerator switch, pump switch, power switch remote operation
Inlet & outlet connection	Inlet and outlet connection diameter Rc1/2"							
Cooling water for refrigerator	No		12L/min (watersupply at 25°C) 25L/min (cooling tower water at 34°C) supply water entrance & exit diameter		No		14L/min (watersupply at 25°C) 35L/min (cooling tower water at 34°C) supply water entrance & exit diameter	
Bath inner material & volume	SUS304, 390W*390D*400H (mm), 60L (liquid volume 50L)							
Ambient temperature	5-40°C							
Overall dimensions(mm)	600 (680)W*750 (825)D*1400H				600 (680)W*750 (825)D*1400H			
Weight	150kg				150kg			
Power source utility	AC200V, 20A, 50/60Hz		AC200V, 20A, 50/60Hz		AC200V, 30A, 50/60Hz		AC200V, 30A, 50/60Hz	
Input power	Three-phase 10A 3.5kVA		Three-phase 8A 2.8kVA		Three-phase 15A 5.2kVA		Three-phase 13A 4.5kVA	