circulation chiller for sample cooling and temp control

Circulation chiller is a kind of temperature control device integrating cooling, constant temperature and heating functions. It conveys heat-carrying medium through closed circulation system to provide stable and adjustable temperature environment for various external equipment or reaction system.

Circulation Chiller

The circulation chiller features modular design, integrating compressor refrigeration, heat carrier circulation, and intelligent control. It is widely used for precise instrument cooling, reaction kettle temperature control, laser equipment cooling, and electronic component testing.

Features

1. **Triple Temperature Control Modes:** Supports cooling, constant temperature, and heating modes for flexible adaptation to varying process needs.
2. **High-Efficiency Compact Refrigeration:** Imported hermetic piston compressor delivers low vibration, high energy efficiency, and quiet operation.

3. **Micro-channel Condenser Technology:** Efficient heat transfer design ensures rapid dissipation and compact equipment size.
4. **Electronic & Capillary Double Throttle:** Combines fast response with precise regulation for stable system operation.
5. **Anti-freeze Crack Stainless Steel Evaporator:** Coil structure submerged in liquid tank offers excellent thermal conductivity, safety, and durability.
6. **Corrosion-Resistant Circulatory System:** Pumps and pipelines use corrosion-resistant materials, suitable for various chemical and heat transfer media.
7. **Real-time Liquid Level Monitoring:** Visualized interface for easy replenishment and discharge operations.
8. **Intelligent Touch Operation:** 4.3-inch color touch screen supports temperature calibration, historical data viewing, and multi-parameter settings.
9. **High-Precision Temperature Control:** PID algorithm regulates the electronic expansion valve for ±0.5 °C stability.
10. **Industrial Communication Interface:** RS-485 port with Modbus RTU protocol for easy integration with host computers and DCS systems.

Working Principle

1. **Refrigeration & Heating Mechanism:** Compressor and expansion valve control cooling; heating unit raises the temperature as needed. Evaporator submerged in stainless steel tank ensures rapid coolant temperature changes.
2. **Circulation & Conveyance:** Brushless DC pump delivers heat carrier to external equipment (reaction vessels, analytical instruments, laser heads, etc.) with stable and clean operation.
3. **Control System:** Integrated PID algorithm enables real-time monitoring and adjustment; touch screen and remote communication allow user and system-level control.

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Model	**CH10-9**
Temperature range	-20°C to +40°C
Environmental temperature	5°C to 35°C
Environmental relative humidity	⩽70%
Temperature display method	digital
Temperature stability	±0.5°C

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Model	**CH10-9**
Temperature sensor	pt100
safety protection	Time delay, overheating, overcurrent protection, high voltage protection
Rated power	1000W
cooling power	900W at 0°C, 1150W at 10°C, 1300W at 20°C
Cooling method	air cooling
refrigerants	R404A
Circulation pump Flow rate	23L per minute
Circulation pump Pressure	1.2bar
Bath volume	9L
protection class	IP20
contamination level	2

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Model	**CH10-9**
Inlet and outlet interface	G1/2
connection hose	Silicone rubber hose, diameter 13x9 mm