ultra low temperature stirring bath for chemical reaction

Ultra low temperature stirring bath is a precision temperature control reaction system, suitable for -80°C to +99°C wide temperature zone regulation, can realize the reaction system at a specific temperature stable stirring, cooling and heating control.

Ultra Low Temperature Stirring Bath

The ultra low temperature stirring bath integrates compressor refrigeration, constant temperature heating, powerful circulation, and intelligent control. It is a temperature control device for experimental and pilot processes in chemistry, pharmaceuticals, new materials, and more. Air-cooled design ensures energy saving, environmental protection, and suitability for long-term use in laboratories and clean rooms.

Main Features

1. **Wide Temperature Control Range:** Accurate control from -80°C to +99°C for ultra-low temperature reactions, heat-sensitive operations, and thermostatic testing.
2. **Air-cooled, Energy-saving Design:** Air-cooled condenser eliminates the need for external cooling water, simplifying operation.

3. **Modular Structure:** Integrated refrigeration, heating, circulation, and control modules in a compact, stable system.
4. **All Stainless Steel Liquid Parts:** Liquid tank, evaporator, pipelines, and pump made of 304 stainless steel for corrosion resistance and ultra-low temperature adaptability.
5. **High-performance Compressor:** Taikang sealed piston compressor ensures stable and efficient refrigeration.
6. **Intelligent Program Temperature Control:** Supports multi-stage program settings and flexible temperature strategies for complex profiles.
7. **LCD Operating Panel:** Color display with clear parameter visibility and user-friendly operation.
8. **Comprehensive Safety Protection:** Overload, over-temperature, and delayed start mechanisms keep operation safe and reliable.

Working Principle Analysis

1. **Refrigeration Mechanism:** Compressor compresses refrigerant, which is condensed, expanded, and evaporated to quickly cool the coolant; evaporator submerged in liquid tank ensures rapid temperature balance.
2. **Heating Mechanism:** Stainless steel tubular electric heater enables rapid, uniform warming and precise temperature rise rates.
3. **Circulation System:** Ultra-low temperature pump circulates coolant or thermostatic liquid to reaction vessels/jackets, maintaining a stable, uniform temperature environment.
4. **Control System:** PID adaptive algorithm and multi-segment program editing enable complex temperature change controls (constant, cooling curve, heating platform) for process simulation and research.

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Model	**RB20-5**
Bath volume	5L
Temperature range	-80°C to +99°C
Temperature stability	±0.2°C

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Model	**RB20-5**
Heater rating power	1500W
Overall power	3260W
Cooling method	air cooling
refrigerants	R404A, R23
cooling power	350W at -40°C, 260W at -60°C, 80W at -80°C
Circulation pump Flow rate	20L per minute
Circulation pump Pressure	0.4bar
Environmental temperature	5°C to 35°C
protection class	IP20
Power supply	220 to 240Vac, 50Hz
Outer Circulation Interface	RC1/2

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Model	**RB20-5**
Bath opening size	diameter 210mm
Bath size	diameter 250x160mm
Flask volume	2L
contamination level	2
Overall dimensions	455Wx585Dx1025H mm
Weight	100kg