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Built for Lab Precision.

Lab Chillers: Precision Cooling for Modern Labs



Cooling Specialist



Compact, Energy-Efficient Precision Cooling for Modern Laboratories

RIGID lab chillers provide precise, stable temperature control for a wide range of laboratory and industrial applications. Designed for reliability and efficiency, these systems use advanced compressor-based refrigeration to deliver consistent cooling performance, even under demanding conditions. Their compact structure allows easy installation on benchtops or within confined spaces, making them ideal for modern labs and integrated equipment setups.

Equipped with intelligent temperature control, liquid chillers maintain tight stability to protect sensitive processes and ensure repeatable results. The built-in circulation pump automatically adjusts flow and pressure to match system demand, improving performance while reducing wear and maintenance. Flexible operation modes allow users to run cooling and circulation independently or simultaneously, adapting to different application needs.

Safety is a core feature, with multiple protections including over-temperature, overcurrent, and system fault alarms, supported by clear visual and audible alerts for quick troubleshooting. High-quality, corrosion-resistant materials ensure long-term durability and compatibility with various heat transfer fluids.

Additionally, remote communication interfaces enable seamless integration into automated systems for monitoring and control.



From Lab to Production: Compact Chillers Powering Precision Cooling Solutions.



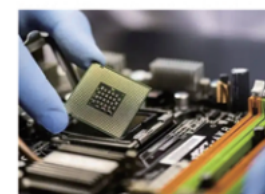
Petrochemical Industry

Provides stable temperature control for reaction vessels and distillation equipment, ensuring safe and efficient chemical production.



Biomedical field

Supporting the temperature environment for key processes such as cell culture and vaccine development, thus contributing to breakthroughs in life sciences.



Electronic semiconductor industry

Providing precise temperature control for chip testing and device aging experiments, safeguarding high-end manufacturing.



University research and quality inspection institutions

Become a reliable partner for experiments and product testing in disciplines such as physics, chemistry, and materials science.

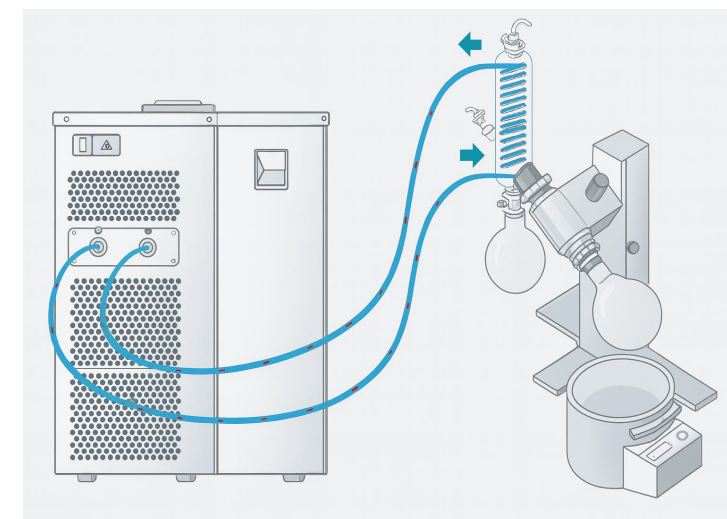


Light industry and food sector

Ensuring temperature compliance during food processing and storage is crucial for safeguarding food safety.

Typical Applications

- * Coal quality analyzers
- * Calorimeters
- * Rotary evaporators
- * Kjeldahl apparatus
- * Distillation systems
- * Electrophoresis equipment
- * Analytical instruments
- * Small molecular pumps
- * General laboratory equipment



Explanation of core terms

Temperature accuracy



Temperature accuracy refers to the degree of closeness between the temperature value displayed by a temperature measurement or control device and the actual temperature value, typically expressed as an error range, such as $\pm 0.1^\circ\text{C}$ or $\pm 1^\circ\text{C}$. This indicator reflects the accuracy of the device in measuring or controlling temperature. The higher the accuracy, the closer the temperature value displayed by the device is to the true temperature.

Temperature fluctuation



It refers to the amplitude of fluctuation, above and below the set point, of the temperature value displayed by a temperature measurement or control device over a specified period of time. It is typically expressed as half the difference between the maximum and minimum temperature values. This indicator reflects the stability of temperature variation over time.

Temperature uniformity



Temperature uniformity refers to the degree of consistency of temperature at various positions within a specific space. If the temperature difference between various points in the space is small, it indicates good temperature uniformity. Taking an oven as an example, temperatures at different positions may vary, and temperature uniformity is precisely the key indicator for measuring these temperature differences between positions.

Temperature Range



Temperature range refers to the temperature interval that the equipment itself can achieve under conditions of no external heat exchange. For single-heating devices, it typically starts from room temperature plus 8°C ; devices equipped with cooling units can maintain temperatures around room temperature; for single-refrigeration devices, the maximum temperature is the operational temperature of the refrigeration system, and the minimum temperature is what the device itself can reach without heat exchange.

Cooling Capacity



Refrigeration capacity is the total amount of heat removed by a refrigeration unit per unit of time (unit: W or kW). It is a key indicator for measuring cooling capability. The larger the value, the faster the cooling speed (e.g., a 3500W air conditioner absorbs 3500 joules of heat from the indoor environment per hour).

Heating Power



Heating power refers to the thermal energy converted from electrical energy consumed by a heating device per unit of time (unit: W or kW). The greater the power, the more heat is generated and the faster the temperature rises in the same amount of time (e.g., a 2000W electric heater converts 2000 joules of electrical energy into thermal energy per second).

Pump Pressure



Pump head refers to the energy added by the pump per unit weight of fluid (unit: Pa, kPa, MPa, mH_2O , etc.). It is used to overcome resistance during fluid transport, ensuring that the fluid is conveyed as required (e.g., a pump with a head of 50 meters of water column can lift water to a height of 50 meters).

Pump Flowrate



Flow rate refers to the volume or mass of fluid conveyed by a pump per unit of time (volume units: m^3/s , L/s, m^3/h , etc.; mass units: kg/s, tons/hour, etc.). For example, $80 \text{ m}^3/\text{h}$ indicates that 80 cubic meters of fluid are conveyed per hour.

Calculation of cooling/heating power



Calculation Formula / Formula:
 $P = (M \times c \times T) / t$

Where:

P: Refrigeration/Heating Power (kW)

M: Total Mass of Liquid or Material (kg, including the contents of the thermostatic bath, within the pipelines, jacket and interior of the reaction vessel, etc.)

c: Specific Heat (e.g., 4.2 for water, 2.5 for alcohol, 1.8 for silicone oil)

T: Temperature Change ($^\circ\text{C}$)

t: Refrigeration/Heating Time Required (seconds)

Note: The calculation does not account for power losses due to factors such as bath solution mass, pipeline length and diameter, insulation performance, reactor material and thickness, ambient temperature, and openings in the thermostatic bath. It is recommended to incorporate a redundancy of 20% to 30% for refrigeration capacity loss in actual calculations.

Product Applications



University and Research Institute Laboratories

In the research and development field, temperature control plays a uniquely important and typical role in sample preparation and quality control. As part of the sample preparation process, many applications require thermal treatment of the samples in advance.

Life Sciences Laboratory

In the field of life science research, temperature control is widely applied in temperature-sensitive biological experiments. Temperature plays a decisive role in typical applications such as certain pharmaceutical research, biological experiments, and nucleic acid studies. The constant temperature control of bioreactors is crucial for successful bioreactor production. As a component of sample preparation, many samples require reliable temperature control.



Chemical Engineering Laboratory

In many reaction processes in the chemical engineering field, temperature control plays a crucial role in process research and reaction control. Chemical reactions, synthesis, production of basic pharmaceutical components, polymerization, and crystallization all take place in temperature-controlled reactors.

Pharmaceutical industry

In the pharmaceutical industry, temperature control is essential in both research and production scale-up. To obtain high-quality reaction products, the temperature control system needs to provide stable and reliable process temperature control for the external reaction vessel.



Semiconductor Industry

In semiconductor manufacturing and the testing of electronic devices, processes requiring precise temperature control are ubiquitous. This includes, for instance, its application in the Metal-Organic Chemical Vapor Deposition (MOCVD) process for producing LED wafers. Other typical applications in the semiconductor industry include functional stress testing and load testing, environmental condition simulation, and online integrated circuit performance testing..

Aviation Field

Temperature simulation and material temperature testing are critical components in the aerospace field. Cyclic temperature stress testing ensures that the components used are free from any faults.

Temperature control products can simulate certain extreme space temperature environments on earth.



Medical Technology

In the field of medical technology, temperature control is primarily applied in laboratory sample preparation, as well as in medical equipment within pharmaceutical and medical laboratories, such as imaging devices, medical lasers, or other instruments.

Automotive Sector

The automotive industry's requirements for temperature control typically arise during test bench operations and material testing. All automotive components are subjected to conditions with significant temperature fluctuations. Test benches designed for specific components are particularly important.



CATALOGUE

Circulating Cooler

Minicool Serial

Midicool Serial

Megacool Serial

Integrated precision chiller

Split-type precision chiller

Cooling circulator accessories

Water Bath

Heated water bath

Heating and cooling water bath

Thermostatic bath

Heating Thermostatic bath

Heating and cooling Thermostatic bath

Reaction Bath

Desktop reaction bath

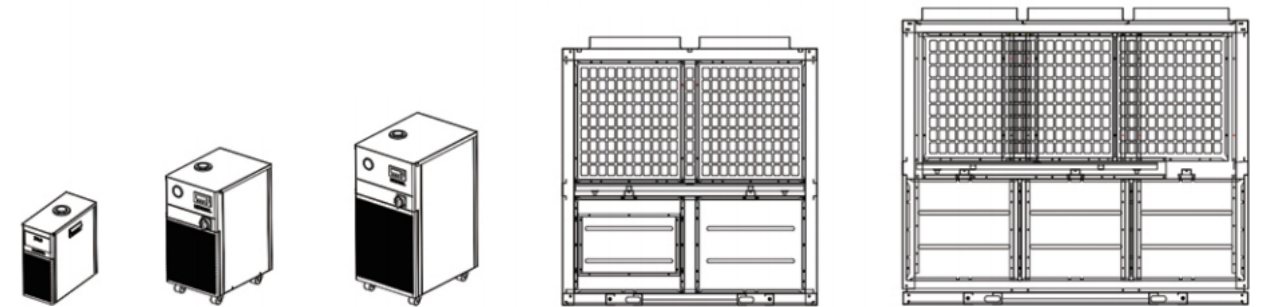
Floor-standing reaction bath

Closed-loop temperature control system

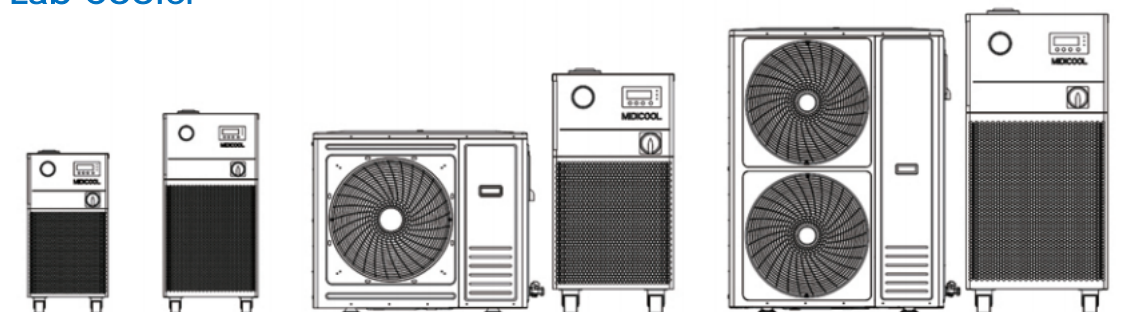
Sealed heating control system

Closed heating and cooling temperature control system

Circulating Cooler



Precision Lab Cooler



Features:

Compact Design: Small footprint fits on a desktop or inside a fume hood.

Energy-Efficient: Self-adaptive temperature control uses regenerative temperature difference for smarter refrigeration.

Durable Pump: Maintenance-free pressure pump adjusts flow and pressure automatically, protecting against damage.

Flexible Circulation: Circulation can run independently or with cooling.

Liquid Level Monitoring: Glass gauge allows real-time tracking and resists aging.

Reliable System: High-quality components ensure stable performance.

Safety Protections: Includes temperature and overcurrent safeguards with light and sound alarms.

Clear Alarm Display: Error codes show instantly for easy troubleshooting.

Accurate Sensors: NTC temperature sensor supports single-point calibration.

Multiple Modes: Auto-recovery after power outages ensures continuous operation.

Remote Control: RS485 interface with MODBUS RTU protocol for remote operation.

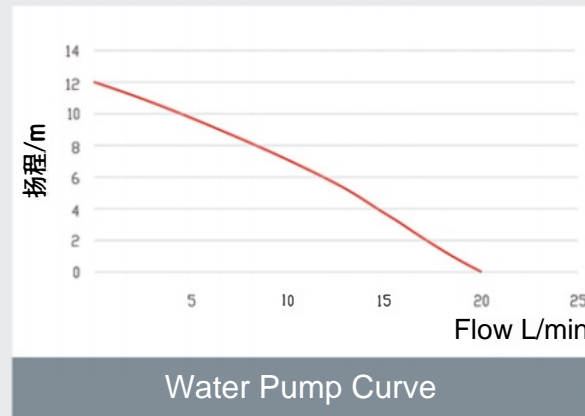
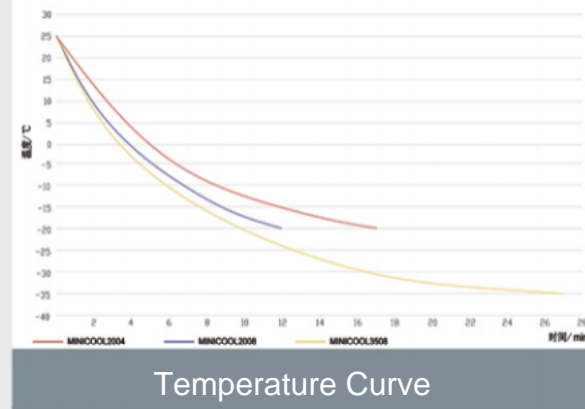
Durable Display: Waterproof control panel with bright LED ensures clear visuals even in wet environments.

MiniCool Serial Liquid Chiller

The MiniCool series uses compressor-based refrigeration to provide precise, low-temp circulation for chemistry, biology, and physics laboratories. It meets the cooling and temperature control needs of a wide range of experimental instruments.

- * High cost-performance with fast return on investment;
- * Eco-friendly and cost-effective constant-temperature cooling;
- * Compact, quiet design fits on a benchtop or inside a fume hood;
- * Versatile applications: rotary evaporators, ultrasonic disruptors, bioreactors, high-speed dispersers, and electron microscopes;

MiniCool delivers efficient, reliable cooling in a small footprint, perfect for modern laboratories.



Model	Temperature [°C]	volatility (K)	Cooling Capacity [Kw]	Flow Rate L/min	Pump Pressure (Bar)	Tank Volume (L)	Dimension W*D*H mm
Minicool-450	-20.. RT	±2	0.45	20	1.2	4	200X430X450
Minicool-800	-20 RT	±2	0.8	20	1.2	4	200X430X450
Minicool-1000	-35 .. RT(±2	0.85	20	1.2	4	200X430X450

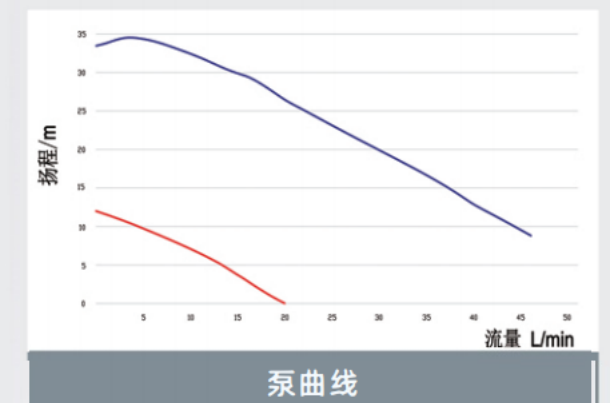
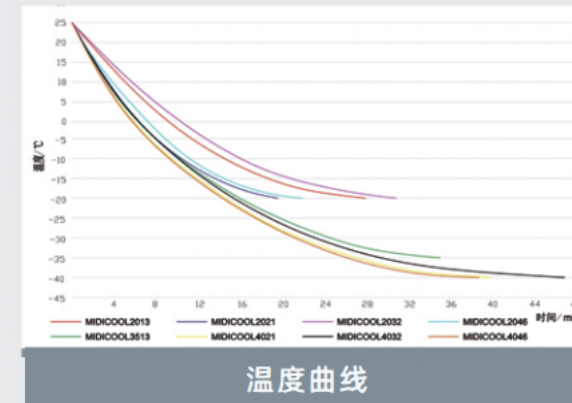
* RT = Room temperature

MidiCool Serial Liquid Chiller

MidiCool Series – Reliable Medium-Scale Cooling.

The MidiCool series features medium-sized low-temperature circulation pumps that combine advanced compressor refrigeration with intelligent temperature control. Designed for medium-scale experiments and equipment in chemical engineering, biopharmaceuticals, and materials research.

MidiCool meets the strict cooling and temperature control requirements of applications such as rotary evaporator clusters and large bioreactors.



Model	Temperature ()	Volatility (K)	Cooling Capacity (KW)	Flow Rate [L/min]	Pump Pressure (Bar)	Tank Volume(L)	Dimension W*H*D mm
Midicool-2013	-20 ..RT	±2	1.3	20	1.2	11	525*365*700
Midicool-2021	-20 ..RT	±2	2.1	20	1.2	11	525*365*700
Midicool-2032	-20 ..RT	±2	3.2	20	1.2	25	600*425*880
Midicool-2046	-20 ..RT	±2	4.6	20	1.2	25	600*425*880
Midicool-3513	-35 ..RT	±2	1.3	20	1.2	11	525*365*700
Midicool-4021	-40 ..RT	±2	2.1	20	1.2	11	525*365*700
Midicool-4032	-40 ..RT	±2	3.2	20	1.2	25	600*425*880
Midicool-4046	-40 ..RT	±2	4.6	20	1.2	25	600*425*880

* RT = Room temperature

MegaCool Powerful Liquid Chiller



The MegaCool series delivers industrial-grade cooling for large labs, production platforms, and high-end research facilities. Equipped with advanced compressors and intelligent temperature control, it provides stable, precise, and energy-efficient cooling.

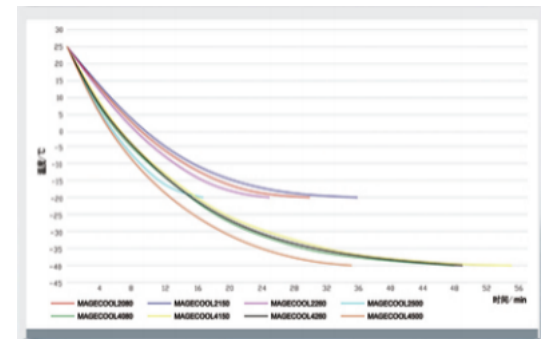
Features & Advantages:

- * Scalable and reliable for complex experiments;
- * Compact footprint, low noise, and long-term durability;
- * Handles multiple instruments or large reaction vessels simultaneously.

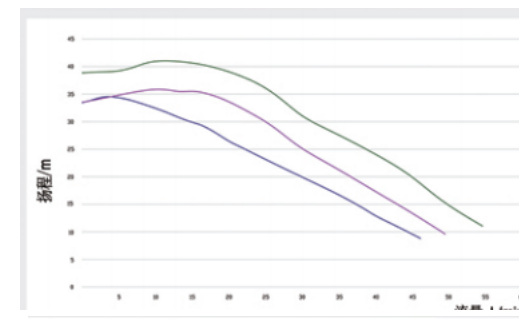
MegaCool – Large-Scale Precision Cooling.

Applications:

- * Large-scale chemical synthesis
- * Bioreactors & fermentation tanks
- * Material testing and lab instruments
- * Parallel operation of multiple precision devices



Cooling Temperature Curve



Water Pump Curve

Model	Temperature (°C)	Volatility (K)	Cooling Capacity (KW)	Flow Rate (L/min)	Pump Pressure (Bar)	Tank Volume (L)	Dimension W*D*H mm
Megacool-2080	-20 .. RT	±2	8	47	34	60	1500X900X1540
Megacool-2150	-20 ..RT	±2	15	47	34	120	1500X900X1540
Megacool-2260	-20 ..RT	±2	26	50	36	150	1750X1060X1865
Megacool-2500	-20.. RT	±2	50	56	42	200	2250X1100X1965
Megacool-4080	-40 ..RT	±2	8	47	34	60	1500X900X1540
Megacool-4150	-40 ..RT	±2	15	47	34	120	1500X900X1540
Megacool-4260	-40 ..RT	±2	26	50	36	150	1750X1060X1865
Megacool-4500	-40 ..RT	±2	50	56	42	200	2250X1100X1965

* RT = Room temperature

Integrated Precision Chiller

The Chiller Series integrates high-precision temperature control with an intelligent adaptive system, providing stable, reliable cooling for small-to-medium laboratory instruments. Utilizing a high-efficiency compressor and microcomputer-controlled PID regulation, it delivers accurate and consistent low-temperature performance.

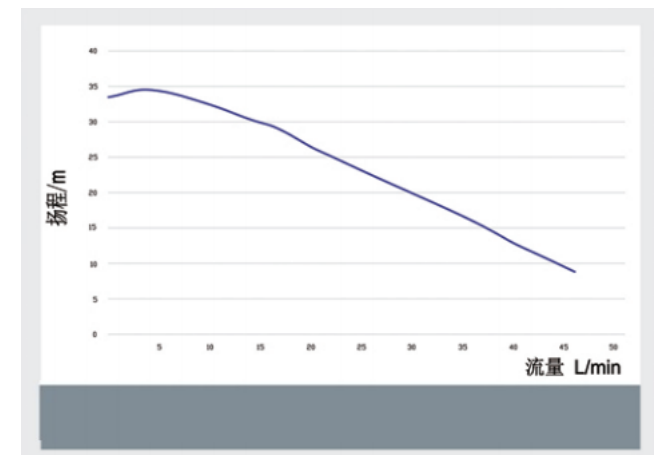
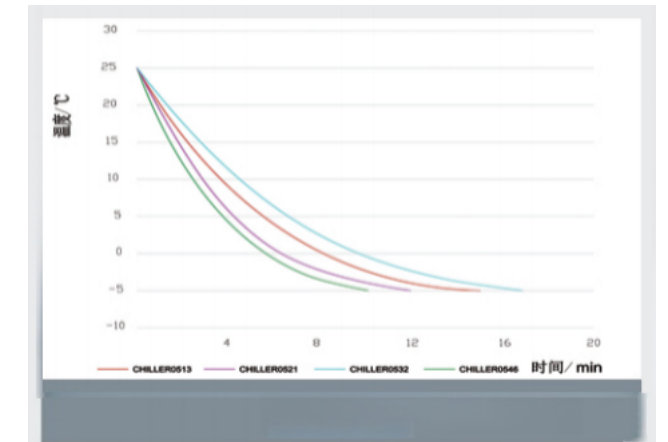
Key Features & Advantages:

Compact design, space-saving, low noise, advanced safety protections, and long-term reliability.

Applications:

AA, ICP, and ICP-MS spectroscopy, small-scale reaction apparatuses, and diagnostic equipment.

With exceptional adaptability and precise temperature control, the Chiller Series is the ideal solution for modern laboratories seeking efficient, dependable, and high-performance cooling.



Model	Temperature (°C)	Volatility (K)	Cooling Capacity (KW)	Flow Rate (L/min)	Pump Pressure (Bar)	Tank Volume (L)	Dimension W*D*H mm
Chiller-0513	-5 ..RT	±2	1.3	47	3.5	11	525*365*700
Chiller-0521	-5 ..RT	±2	2.1	47	3.5	1	525*365*700
Chiller-0532	-5 . RT	±2	3.2	47	3.5	25	600*425*880
Chiller-0546	-5 . RT	±2	4.6	47	3.5	25	600*425*880

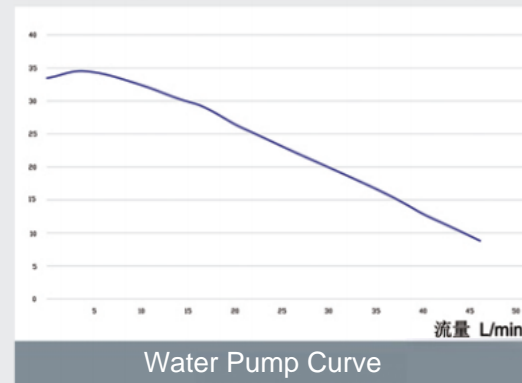
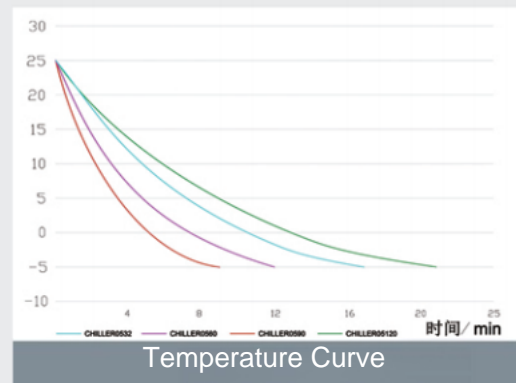
* RT = Room temperature

Split-type Precision Liquid Chiller

Split-type Chiller – Powerful, Flexible Cooling.

The Split-Type Chiller uses a high-efficiency split-system refrigeration cycle and intelligent dynamic balancing to deliver stable, high-flow, constant-temperature cooling. Its flexible design allows the main unit to be installed remotely from the evaporator, accommodating complex layouts and enabling future expansion or upgrades.

With an optimized heat dissipation structure and multiple redundant protection features, the system ensures long-term reliability even under high-intensity operation. Ideal for environments sensitive to noise or temperature fluctuations, the Split-Type Chiller provides a high-performance, adaptable solution for medium-to-large-scale cooling applications.



Model	Temp. (°C)	Volatility (K)	Cooling (KW)	Pump (L/min)	Pump Pressure (Bar)	Water Tank (L)	Indoor Unit (W*D*H mm)	Outdoor Unit (W*D*H mm)
Chiller-0532	-5 ..RT	±2	6	47	3.5	25	600*425*880	765*268*550
Chiller-0560	-5 ..RT	±2	6	47	3.5	45	600*425*880	845*285*606
Chiller-0590	-5 ..RT	±2	12	47	3.5	45	600*425*880	960*370*810
Chiller-05120	-5 ..RT	±2	16	47	3.5	60	600*425*880	1060*380*928

Accessories

Specification	Material	Temp.	Resistance
Inner D6/8/10/12/16mm	Silicon	-60~100	0.2mpa
Out D6/8/10/12/16mm	Rubber	-10~70	1mpa
ThreadG1/2\G3/4\G1	Stainless St.	-120~300	1mpa



SPEC	Model	Temp.	Material
Threaded to Barbed Fitting	G1/2 to OD 6mm	-120~300	304
	G1/2 to OD 8mm	-120~300	304
	G1/2 to OD 12mm	-120~300	304
	G1/2 to OD 16mm	-120~300	304
Male to Male Threaded Fitting	G1/2 to G1/4	-120~300	304
	G1/2 to G1/2	-120~300	304
	G1/2 to G3/4	-120~300	304
	G1/2 to 1	-120~300	304
Male to Female Threaded Fitting	G1/2 to G1/4	-120~300	304
	G1/2 to G1/2	-120~300	304
	G1/2 to G3/4	-120~300	304
	G1/2 to 1	-120~300	304
Male Thread to Air Hose Fitting	G1/2 to 6mm(OD)	5~45	304+Nylon
	G1/2 to 8mm(OD)	5~45	304+Nylon
	G1/2 to 10mm(OD)	5~45	304+Nylon
	G1/2 to 12mm(OD)	5~45	304+Nylon
	G1/2 to 14mm(OD)	5~45	304+Nylon
Male Thread to Push-in Fitting	G1/2 to 6X4mm	-120~300	304
	G1/2 to 8X5mm	-120~300	304
	G1/2 to 10X6.5mm	-120~300	304
	G1/2 to 12X8mm	-120~300	304
	G1/2 to 14X10mm	-120~300	304
	G1/2 to 16X14mm	-120~300	304