ESD

ESD Lab Supplies Co., Ltd

Water bath -Oil bath

Temperature RT+5- 200°C

Cooling bath – Circulating bath

Temperature 5- 80°C

Liquid-based temperature control systems for heating, cooling, and circulation applications

Desired accuracy can be selected by order

Precision Thermal Solutions

Laboratory / Medical / Industrial Applications

Certified ISO 13485:2016

Quality Management System : ISO 13485

Refrigeration & Incubation *Applications Temp 2-40 °C*
Liquid-based temperature control systems for heating, cooling, and circulation applications.

Hotplate & Heating Systems *Operating Range RT+5 -650 °C*
Surface heating systems for laboratory, testing, and industrial heating applications.

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Laboratory Water bath Series

Water Bath is a laboratory temperature control system designed for heating, cooling, and maintaining samples at stable and uniform temperatures using water as the thermal transfer medium. Compared with direct heating methods, Water Bath systems help minimize localized overheating or overcooling, making them suitable for applications requiring gentle and consistent temperature control.

Water Bath systems are widely used in educational laboratories, research facilities, hospitals, quality control (QC) processes, pharmaceutical production, food processing, chemical industries, and general industrial applications where stable thermal conditions are required.

Applications can generally be categorized by operating temperature range and process requirements:

- Low Temperature / Cooling Applications (Approx. 5 – 25 °C)
  Suitable for biological analysis, sample preservation, stability testing, and laboratory processes requiring temperatures below ambient conditions.
- General Warming Applications (Approx. 25 – 60 °C)
  Commonly used for reagent warming, sample preparation, chemical dissolution, and routine laboratory heating applications.
- Incubation & Biological Applications (Approx. 30 – 45 °C)
  Ideal for microbiology, enzyme reactions, biochemical testing, and medical or biological incubation processes requiring stable long-term temperature control.
- High Temperature Testing Applications (Approx. 40 – 100 °C)
  Used for quality control, material testing, evaporation, chemical reactions, and laboratory procedures requiring elevated and consistent temperatures.
- High Temperature Oil Bath Applications (>100 °C)
  For processes requiring temperatures above the boiling point of water, Oil Bath systems are used for chemical synthesis, distillation, and high-temperature laboratory operations.

Water Bath systems are available in various configurations including General Water Bath, Circulating Water Bath, Refrigerated Water Bath, and Shaking Water Bath to support applications ranging from routine laboratory use to precision research and industrial temperature control processes.

Temperature Controller

Match Precision to Your Purpose

Choose from our comprehensive Water Bath line-up, featuring three distinct control architectures designed to support different applications and budget requirements.
Select the Analog Model for basic heating and extraction applications, the Digital Model for routine laboratory and general-purpose operation, or the high-performance PID Model for Medical, Analytical, and R&D applications requiring superior temperature stability and precision.
Find the ideal balance of performance, accuracy, and operational efficiency for your laboratory today.

Temperature Control Methods

ON-OFF Analog Control

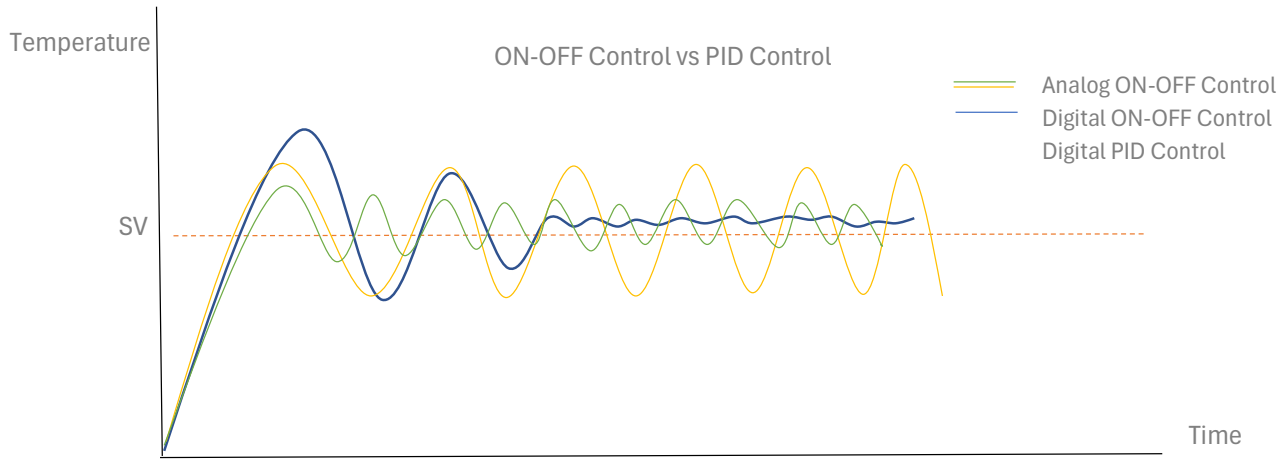
A simple and reliable mechanical temperature control system using thermostat-based ON-OFF operation. Suitable for general heating, routine laboratory work, and industrial applications where ease of operation and cost efficiency are preferred.

ON-OFF Digital Control

A digital temperature control system with electronic sensing and display for improved temperature monitoring and adjustment accuracy. Ideal for routine laboratory applications requiring better usability and more stable temperature control than conventional analog systems.

PID Control

A high-precision temperature control system that continuously adjusts heating output to maintain highly stable and accurate temperature conditions. Recommended for Medical, Analytical, Research, and critical laboratory applications where temperature stability is essential.



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Thermal Source System

Heating System

The heating system utilizes SUS Coil Heaters with heating power, size, and coil configuration carefully selected to match the bath dimensions and operating volume for improved heating uniformity and thermal efficiency.

SUS304 Heater
Suitable for general laboratory applications, offering reliable corrosion resistance for water and standard laboratory solutions.

SUS316 Heater
Provides enhanced chemical and corrosion resistance for demanding chemical, pharmaceutical, and high-corrosion laboratory applications.

Compressor Cooling System

The cooling system utilizes a compressor in combination with a cooling coil to remove heat from the water and reduce the operating temperature below ambient conditions.
Refrigerant continuously circulates through compression, condensation, expansion, and evaporation stages to create continuous heat transfer within the system.
The cooling coil absorbs thermal energy from the water and transfers the heat back into the refrigeration cycle.
The system is designed for continuous operation, providing stable temperature control and consistent cooling performance.



Safety Control System

Over-Temperature Protection Thermostat
Equipped with an independent over-temperature protection thermostat to help prevent overheating during operation. Automatically disconnects the heating circuit when the temperature exceeds the preset safety limit, helping protect both the equipment and the user.

Fuse Protection
Integrated electrical fuse protection helps reduce the risk of damage caused by abnormal current or electrical faults during operation.

Heat-Resistant Wiring System
Internal wiring utilizes heat-resistant silicone cables designed to withstand elevated operating temperatures and improve long-term reliability in laboratory and industrial environments.

Circulation System

The circulation system utilizes a water pump to maintain uniform temperature distribution throughout the bath and reduce temperature variation between different areas.

Pump flow rate and performance are carefully selected to match bath volume, application requirements, and temperature stability conditions.

Pump materials and construction are designed to withstand the intended operating temperature range for reliable long-term operation.

Key Factors for Precise Temperature Control

Accurate and stable temperature control depends on several factors including the control system, heating and cooling capacity, circulation performance, and operating environment.

Temperature Control System

The temperature controller is a critical component for maintaining stable operating conditions. PID Control systems continuously adjust heating or cooling output to minimize temperature overshoot and improve stability compared with conventional ON-OFF control systems.

Proper Heating and Cooling Capacity Selection

Temperature control performance depends on selecting appropriate heating and cooling capacity based on bath volume, sample load, application requirements, and ambient conditions. Improper capacity selection may result in temperature fluctuation or slower stabilization performance.

Circulation System

The use of a circulation pump helps maintain uniform water flow throughout the bath, reducing temperature variation between different areas and improving overall temperature uniformity.

Combined Heating and Cooling Control

For operating temperatures close to ambient conditions, typically around 25 – 35 °C, temperature stability may be affected by room temperature and environmental changes. Coordinated control between both heating and cooling systems can significantly improve temperature accuracy and reduce fluctuation.

Environmental and Load Conditions

Ambient temperature, ventilation, sample volume, frequent lid opening, and the introduction of samples at different temperatures can all affect temperature stability. These factors should be considered when selecting and designing a temperature control system for laboratory or industrial applications.

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Water bath RT+ 5 - 100 °C

Temperature-Controlled Water Baths provide precise and stable temperature control for laboratory research, analytical testing, quality control, and industrial applications.

Designed for excellent temperature uniformity and dependable long-term operation, they are available in various capacities with Analog, Digital, and PID control options to meet diverse application requirements and accuracy demands.

Water bath RT+5 -100°C Model		WTT-D10	WA-D16	WTT-D16	WD-D16	WA-D32	WTT-D32	WD-D30P
Technical data								
Heating	Power	1500 W)	2000W			2500W		2200W
	Material	SUS 304	SUS 304	SUS 304	SUS 316	SUS 304	SUS 304	SUS 304
Controller	Accuracy °C	+/-1	+/-2	+/-0.5	+-/-0.1	+/-2	+/-0.5	+/-1
	Controller	Digital on/off	Analog	Digital on/off	PID	Analog	Digital on/off	PID
	Display	LED	-	LED	LED	-	LED	LED
	Set Acc °C	0.1	-	0.1	0.1	-	0.1	0.1
Material	Internal	SUS 304						Polycarbonate
	External	Epoxy Powder Coated Steel						SUS304
Size	Internal (cm)	25x30x15	30x35x16	30x35x16	30x35x16	30x70x16	30x70x16	25x32x40
Cover / Drain		Flat / No Drain	Flat / Slope Cove and Drain				Flat / No Drain	Flat /Drain
Volume (Lite)		10	16			32		30
Special Order	Material	Inside-Out side SUS304 Polycarbonate bath / Clear bath						
	Circulating	Water pump SUS 316 (resistant high temperature)						
	Basket	Rack / Basket Made to order						

Desired accuracy can be selected by order (ISO17025)

M shape Heater : SUS304

IEC 60601
ISO 13485

Model : WA-D10

Microprocessor PID control

Digital on/off control with Timer

Model : WD-D16

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Oil bath *RT+ 5 - 200 °C*

Temperature-Controlled Oil Baths provide precise and stable heating for applications requiring temperatures above 100°C. They are ideal for laboratory research, chemical processing, material testing, and industrial heating applications where uniform and reliable temperature control is essential.

Common applications include temperature control of samples and chemicals, chemical reactions, distillation, material compatibility testing, and heat transfer processes. Designed for excellent temperature uniformity and dependable long-term operation, these oil baths deliver consistent performance across a wide range of high-temperature applications.

Oil bath RT+5 -220°C Model		*WO-3L with lift*	*WO-5L with lift*
Technical data			
	Power	1000 W	1500W
	Material	SUS 304	
Controller	Accuracy °C	+/-1	
	Controller	PID	
	Display	LED	
	Set Acc °C	0.1	
Material	Internal	SUS 304	
	External	Epoxy Powder Coated Steel	
Size	Internal	Dia 26 x15 cm	Dia 28 x17 cm
	External		
Volume (Lite)		3	5
Weight (kg)		7	8

Control lift

Heater : SUS304

Model : WO-3L

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Cooling bath RT-5°C - 100 °C

Cooling Baths provide precise and reliable temperature control for laboratory, research, and industrial applications requiring cooling and temperature stabilization.

Suitable for exothermic reaction cooling, external fluid circulation, incubation and testing processes, and temperature control of samples, chemicals, and laboratory equipment. Designed for excellent temperature uniformity and dependable long-term operation, they deliver consistent performance across a wide range of cooling applications.

Cooling Bath 4 -100°C Model		WC-D15	WC-D20	WCH-D20
Technical data				
	Cooling	Compress 1/3Hp	Compress 1/3Hp	Compress 1/3Hp
	Heater	-		2000W
Controller	Accuracy °C	+/-2	+/-2	+-/-1
	Controller	Digital on-off Control	Digital on- off Control	Digital PID Control
	Display	LED	LED	LED
	Set Acc °C	0.1	0.1	0.1
	Circulating	Closed-Loop system	-	-
	Flow rate	20 L /min	-	-
Material	Internal	SUS 304		
	External	Epoxy Powder Coated Steel		
Size	Internal	Dia. 30 x 26 cm	Dia. 30 x 30 cm	Dia. 30 x 30 cm
	External	41x45x85 cm	41x45x85 cm	41x45x85 cm
Volume (Lite)		15	20	20

Ex. Rack for Bottom

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Circulation Heater *RT+5-60 °C*

Circulation Heaters are designed for precise temperature control and continuous fluid circulation in laboratory, research, and industrial applications.

Featuring a compact control unit and a separate heating reservoir, they provide flexible installation and efficient temperature management for a variety of liquid heating processes. System capacity and reservoir size can be customized to meet specific application requirements.

Designed for excellent temperature stability, dependable long-term operation, and consistent performance, circulation heaters deliver reliable thermal control across a wide range of applications.

Circulation Heater +5 -60°C Model		***RH-D60***
Technical data		
	Heater Power	1500 W
	Material	SUS 304
Controller	Accuracy °C	+/-1
	Controller	PID
	Display	LED
	Set Acc °C	0.1
Material	Internal	Tube SUS 304
	External	Epoxy Powder Coated Steel
Size	External	30x40x22 cm
Circulation	Flow Rate	20 L/ min

Example usage illustration.

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Test Bath (Polycarbonate Tank) *RT+5-60 °C*

Polycarbonate Test Baths feature a transparent tank design that allows clear observation of samples and testing processes during operation. They are ideal for quality control, research, laboratory testing, and industrial inspection applications requiring visual monitoring under controlled temperature conditions.

Suitable for leak testing, product evaluation, and other applications where direct observation of the test specimen is essential. The transparent construction enables operators to monitor changes, detect defects, and verify test results without interrupting the testing process.

Designed for excellent temperature stability and reliable operation, Polycarbonate Test Baths provide an effective solution for both routine quality control and specialized testing applications.

Aerosol Can Leak Testing

Polycarbonate Test Baths are widely used for leak testing of filled and sealed aerosol cans. During testing, aerosol cans are immersed in heated water, allowing leaks to be easily detected by observing escaping gas bubbles through the transparent bath walls.

An optional aerosol can basket is available to securely hold and organize multiple cans during testing, improving inspection efficiency and operator convenience.

Test bath +5 -60° C Model		*WDD-30P*
Technical data		
	Heater Power	1800 W
Controller	Accuracy °C	+/-1
	Controller	PID
	Display	LED
	Set Acc °C	0.1
Material	Internal	Polycarbonate 10 mm
	External	SUS 304
Size	Internal	25x32x40
	External	28x48x40
Volume (Lite)		30

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Multi – Purpose Heating Bath *RT+10-120 °C*

Multi-Purpose Heating Baths provide a flexible heating platform for laboratory, research, and industrial applications. Designed to support a variety of heat transfer media, they can be adapted to meet the specific requirements of different heating and temperature control processes.

Common applications include wax melting, sand baths, dry heating, and temperature-controlled processing of samples, materials, and specialized products. Optional internal and external temperature sensors are available to support different monitoring and control requirements.

Engineered for dependable operation, temperature stability, and application flexibility, these systems offer a practical solution for both standard and custom thermal processing applications.

Test bath +5 -120°C Model		**HBD-30**
Technical data	Heater Power	2200 W
	Controller	PID
	Display	LED
	Set Acc °C	0.1
Material	Internal	SUS304
	External	Epoxy Powder Coated Steel
Size	Internal	30x50x20cm
	External	48x58x45cm
Volume (Lite)		30 L
Weight (kg)		16 kg