

Refrigeration & Heating Circulators

Precision heating and cooling circulators, low-temperature cooling pumps, and constant-temperature reaction baths — reliable temperature control from -20°C to 200°C for reactors, distillation, and process workflows.

GDHX SERIES

DL SERIES

JBXH SERIES

DWXH SERIES

DHFY SERIES



GDHX REFRIGERATION & HEATING CIRCULATOR

Configure the right temperature system for your process →

UltraPurMat Group Co., Ltd.
High-purity materials & laboratory equipment

PRODUCT LINE OVERVIEW

One Partner for Every Temperature

The ULPMAT refrigeration and heating series covers the complete temperature-control chain of the modern laboratory: heating circulators for elevated-temperature work, refrigeration and heating circulators for combined thermal cycling, benchtop cooling units for compact setups, low-temperature cooling liquid pumps for external cold sources, and constant-temperature reaction baths for temperature-critical synthesis. Every unit shares the same engineering principles — closed thermal systems, high-efficiency heat exchangers, and multi-stage safety protection.

R

Refrigeration & Heating Circulator

GDXH series, $-20\text{ }^{\circ}\text{C}$ to $200\text{ }^{\circ}\text{C}$. Closed-system heating and cooling for reactors and glassware, with explosion-proof options.

B

Benchtop Cooling Circulator

DL series, $-20\text{ }^{\circ}\text{C}$ to RT. Compact benchtop unit providing a continuous cold source for small apparatus.

H

Heating Circulator

JBXH / FBXH / FRXH series, $\text{RT}+10\text{ }^{\circ}\text{C}$ to $200\text{ }^{\circ}\text{C}$. Standard, sealed, and explosion-proof types up to 18 kW.

P

Low-temp Cooling Liquid Circulating Pump

DWXH series, $-120\text{ }^{\circ}\text{C}$ to RT. 5–100 L reservoirs delivering a stable low-temperature cold source.

T

Constant-temperature Reaction Bath

DHFY series, $-120\text{ }^{\circ}\text{C}$ to $99\text{ }^{\circ}\text{C}$. Integrated stirring and flask clamping for low-temperature synthesis.

+

Customization

Water-cooled refrigeration and explosion-proof configurations can be customized to your requirements.

Typical Applications

Fine Chemistry

Temperature control for spherical reactors, jacketed vessels, and synthesis workflows.

Pharmaceuticals

Crystallization, distillation, and extraction under precise thermal conditions.

Semiconductors

Stable low-temperature circulation for electronic testing and process equipment.

Biopharmaceuticals

Gentle, reproducible temperature profiles for biotech and life-science processes.

New Materials

Polymerization, materials synthesis, and bioengineering of new materials.

Petrochemical & Research

Routine cold and heat sources for scientific research institutions and pilot plants.

GDHX SERIES

Refrigeration and Heating Circulator

This equipment is driven by a circulating pump with a single circulation heat transfer medium, which passes through the heater and refrigeration heat exchanger for heat and cold exchange to reach the desired temperature. With closed pipeline design and high-efficiency heat exchanger, it reduces the demand of heat transfer fluid while improving the heat utilization rate of the system, achieving rapid temperature rise and fall. It is used to support other instruments and equipment that need heat/cold sources, and is an ideal production equipment for modern fine chemistry, pharmaceuticals, and biosynthesis of new materials.

- The heat transfer medium is in a closed system with an expansion vessel — at high or low temperature the medium does not participate in the circulation, reducing the risk of tank moisture absorption and volatilizing fumes at room temperature ($\leq 95^{\circ}\text{C}$).
- Continuous temperature rise and fall from cooling to heating saves resources and improves efficiency; full-welded plate heat exchanger occupies little space with high exchange efficiency.
- Circulating pump adopts a high-temperature resistant oil pump featuring high temperature resistance, low noise, and large flow rate.
- Multiple protection functions — delay, leakage, over-temperature, phase sequence, and phase loss protection — improve equipment safety.
- Water-cooled refrigeration systems and explosion-proof models can be customized.



Control Panel · Liquid Level Window · Liquid Inlet · Drain Valve · Swivel Caster

TECHNICAL PARAMETERS

Refrigeration and Heating Circulator (−20 °C)

Models: GDXH-5/20-200 · GDXH-10/20-200 · GDXH-20/20-200 · GDXH-30/20-200 · GDXH-50/20-200 · GDXH-100/20-200

Parameter	GDXH-5/20-200	GDXH-10/20-200	GDXH-20/20-200	GDXH-30/20-200	GDXH-50/20-200	GDXH-100/20-200
Adaptable Device Capacity	1–5 L	5–10 L	10–20 L	10–30 L	10–50 L	50–100 L
Temperature Range	-20 ~ 160 °C (no-load temperature)		-20 ~ 180 °C (no-load temperature)			
Temperature Accuracy	PID control, ±1 °C					
Heating Power	2 kW	3 kW	4 kW	5 kW	6 kW	9 kW
Compressor Power	935 W	885 W	1230 W	2340 W	2555 W	4540 W
Condenser / Refrigerant	Finned Condenser · R22					
Recirculation Flow	20 L/min (DN15 pipe diameter)		30 L/min (DN20 pipe diameter)			
Maximum Head	6 m		12 m			
External Circulation Inlet / Outlet	DN15					
Net Weight	120 kg	120 kg	126 kg	144 kg	164 kg	215 kg
Power Supply	220 V / 16 A	220 V / 50 Hz, single-phase	220 V (air switch)	380 V / 50 Hz (air switch: TN-S, ≥25 A)		380 V / 50 Hz (air switch: TN-S, ≥40 A)

Temperature Range Variants

−30 °C Series — GDXH 5/30 to 100/30-200

−30 ~ 200 °C (no-load) · heating 2.5–9 kW · cascade cooling with finned condenser, R22.

−40 °C Series — GDXH 5/40 to 100/40-200

−40 ~ 200 °C (no-load) · heating 2–6 kW · finned condenser, R404A refrigerant.

−60 °C Series — GDXH 5/60 to 100/60-200

−60 ~ 180 / 200 °C (no-load) · heating 2–9 kW · finned condenser, R404A.

−80 °C Series — GDXH 5/80 to 100/80-200

−80 ~ 180 / 200 °C (no-load) · heating 1.3–9 kW · rotary / scroll compressor cascade, R404A / mixed refrigerants.

−120 °C Series — GDXH-50/120-100 · GDXH-100/120-100

−100 ~ 200 °C (no-load) · heating 6 / 9 kW · cascade piston compressor R22/R23 hybrid · 30 L/min flow, 20 m head · 380V/50Hz three-phase.

Explosion-proof Series (GDXH-EX)

Explosion-proof grades available for all temperature variants from −20 °C to 200 °C — explosion-proof motor, controller, and switch with three-phase five-wire power system.

Full parameter tables for every temperature variant are available on request.

DL SERIES

Benchtop Cooling Circulator



The benchtop cooling circulator utilizes compressor refrigeration and heat exchange of the heat-conducting medium in the reservoir to deliver a cold source for other instruments or equipment. It is widely used in vertical reactors, distillation and condensation systems, semiconductor and electrical testing, chemistry, pharmaceuticals, petrochemicals, and biochemical fields.

- Compact footprint — can be placed directly on the laboratory bench for unlimited operating space.
- Air-cooled condenser uses red copper tubes and a finned heat exchanger for high heat transfer efficiency, easy cleaning, and convenient maintenance.
- Digital display control system for simple, convenient operation; smart PID control with PT100 sensor.
- Stainless-steel coil evaporator installed in the liquid storage tank — the evaporator will not be damaged when the heat-conducting medium freezes.
- Micro-pump circulation with low noise, large flow rate, and long service life.

Technical Parameters

Models: DL-450 · DL-700

Parameter	DL-450	DL-700
Operating Temperature Range	-20 ~ RT °C	-20 ~ RT °C
Cooling Power @ 20 °C	450 W	700 W
Cooling Power @ 0 °C	270 W	520 W
Cooling Power @ -20 °C	70 W	200 W
Temperature Accuracy	±0.1 °C · LCD display, resolution 0.1 °C	
Temperature Control Method	Smart PID · PT100 internal sensor · LCD display, 0.1 °C resolution	
Pump Type	Brushless DC Pump (submersible)	
Pump Input Power	30 W	48 W
Maximum Pump Flow Rate	10 L/min	20 L/min
Maximum Pump Head	9 m	11 m
Overall Dimensions (W×D×H)	250 × 405 × 510 mm	
Allowable Ambient Temperature	5 ~ 32 °C · relative humidity ≤80% · 100% continuous operation	
Power Supply	220V 50Hz	

JBXH / FBXH / FRXH SERIES

Heating Circulator

This equipment drives the heat-conducting medium via a circulating pump, which passes through an electric heating tank for heat exchange to reach the requested temperature. It rapidly improves the heat utilization of the system and shortens the time of rapid warming. It is used for supporting other instruments and equipment that need to provide a heat source — the ideal production equipment for modern fine chemistry, biopharmaceuticals, and the synthesis of new materials.

- The thermally conductive medium is in a closed system with an expansion vessel. The heat-conducting medium in the expansion vessel does not participate in the circulation at high temperature, reducing the risk of tank moisture absorption and volatilization ($\leq 85^{\circ}\text{C}$ / $\leq 95^{\circ}\text{C}$ depending on model).
- Circulating pump adopts a high-temperature resistant shield pump or vortex pump with the advantages of high temperature resistance, low noise, and large flow rate.
- Low noise, no oil smoke pollution, leakage protection, phase sequence protection, and other protections improve the safety of the equipment.
- Explosion-proof models can be customized according to user requirements.



General Technical Specifications

Parameter	JBXH — Standard	FBXH — Sealed	FRXH — Explosion-proof
Temperature Range	RT+15 to 180 °C; selected models up to 200 °C	RT+10 to 180 °C; selected models up to 200 °C	RT+10 to 180 / 200 °C, by model (Ex d IIB T4)
Reservoir / Tank Capacity	5 L – 200 L	Filling / expansion tank 6 – 20 L	Confirm by selected model
Heating Power	1.5 – 18 kW	2 – 12 kW	1.5 – 18 kW (explosion-proof rated)
Temperature Control	Digital control, $\pm 0.5^{\circ}\text{C}$	PID digital control, $\pm 1^{\circ}\text{C}$	Confirm by selected model
Circulation Flow	12 / 30 / 42 L/min, by model	12 – 42 L/min	Confirm by selected model
Pump Head	6 – 22 M	6 – 22 M	Confirm by selected model
Power Supply	220 V or 380 V, by model	Confirm by selected model	Three-phase five-wire, as specified

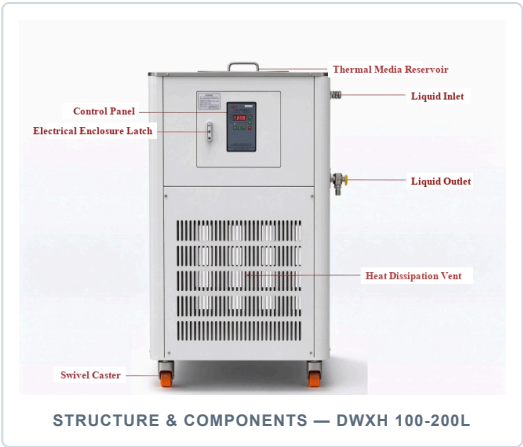
Full parameter tables for all models (JBXH-5L to JBXH-200L and explosion-proof equivalents) are available on request.

DWXH SERIES

Low-temperature Cooling Liquid Circulating Pump

The low-temperature cooling circulator utilizes compressor refrigeration and heat exchange of the heat-conducting medium in the reservoir tank, and transports the heat-conducting medium via a circulating pump to provide a cold source for other instruments and equipment. It can also accommodate containers in the reservoir tank for chemical reactions or storage of materials at ultra-low temperature. Suitable for chemical reactions, distillation or extraction systems, scientific research institutions, semiconductors, electronic testing, chemical, pharmaceutical, petrochemical, and biochemical fields.

- Totally enclosed compressor — small size, smooth operation, low noise, high energy efficiency.
- Air-cooled condenser adopts red copper tubes and a finned heat exchanger for high heat exchange efficiency, easy cleaning, and convenient maintenance.
- Stainless-steel or red copper tube coil evaporator with high heat exchange efficiency, installed in the liquid storage tank — undamaged when the medium freezes.
- Circulating pump adopts a magnetic pump: low noise, large flow rate, and strong durability.
- Water-cooled refrigeration systems and explosion-proof models can be customized according to user requirements.



Technical Parameters (Regular Type, -20 °C)

Models: DWXH-5/20 · DWXH-10/20 · DWXH-20/20 · DWXH-30/20 · DWXH-50/20 · DWXH-100/20

Parameter	DWXH-5/20	DWXH-10/20	DWXH-20/20	DWXH-30/20	DWXH-50/20	DWXH-100/20
Reservoir Capacity	5 L	10 L	20 L	30 L	50 L	100 L
Temperature Range	-20 °C to room temperature (no-load)					
Heat Exchanger / Refrigerant	Nickel-plated copper tubes; finned condenser; R22					
Compressor Power	580 W	935 W	1195 W	1750 W	2580 W	4540 W
Rated Cooling Capacity	1688 W	2805 W	3580 W	5574 W	8150 W	14500 W
Rated Circulating Flow	30 L/min (DN15 pipe diameter)			35 L/min (DN15 pipe diameter)		30 L/min (DN20 pipe diameter)
Pump Head	4 m		5 m	12 m		
Total Rated Power	780 W	1120 W	1400 W	2000 W	2830 W	4900 W
Power Supply	220V/10A one three-hole socket			220V/16A one three-hole socket		380V/50Hz (air switch: TN-S, ≥25 A)

Temperature Range Variants

Regular type available at -40 °C, -80 °C and -120 °C (cascade R22/R23 hybrid refrigeration on -80 / -120 °C models, 5–100 L reservoirs) · Closed type DWXH 100-200L · Explosion-proof grades available.

DHfy Series

Low-temperature Constant-temperature Reaction Bath



The low-temperature constant-temperature reaction bath utilizes compressor refrigeration, electric heating tube heating, and balanced temperature control. Heat exchange occurs in the storage tank through the thermal conductive medium, and it is equipped with magnetic stirring at the bottom (1 L–20 L capacity). It is mainly used for glazing containers in the reactor tank to carry out thermostatic reaction storage operations on materials under constant temperature and closed conditions. It can also be directly used as a low-temperature thermostatic tank or provide a low-temperature cold source for other instruments and equipment.

- Totally enclosed compressor — small size, smooth operation, low noise, high energy efficiency.
- Air-cooled condenser adopts red copper tubes and a finned heat exchanger for high heat exchange efficiency, easy cleaning, and convenient maintenance.
- Control system digital display, high-precision temperature control, simple and convenient operation.
- Magnetic stirring function, speed adjustable — especially suitable for low-temperature combined reaction.
- Stainless-steel or red copper tube coil evaporator, undamaged when the heat-conducting medium freezes.
- Water-cooled refrigeration systems and explosion-proof models can be customized according to user requirements.

Technical Parameters (Low-temperature Type, -20 °C)

Models: DHFY-5/20 · DHFY-10/20 · DHFY-20/20 · DHFY-30/20 · DHFY-50/20 · DHFY-100/20

Parameter	DHfy-5/20	DHfy-10/20	DHfy-20/20	DHfy-30/20	DHfy-50/20	DHfy-100/20
Reservoir Volume	5 L	10 L	20 L	30 L	50 L	100 L
Actual Applicable Temperature Range	-20 °C ~ 99 °C					
Temperature Control Precision	±0.5 °C					
Magnetic Stirring	Power 5 W	Power 25 W	/			
Heating Power	1500 W	2000 W	3000 W	4000 W	5000 W	6000 W
Refrigerant	R22					
Maximum Flow Rate	20 L/min (DN15 pipe diameter)					30 L/min (DN20 pipe diameter)
Accessories	Silicone hose + insulation (2 × 2 m) · Stainless-Steel Riser φ16 mm					

Temperature Range Variants

Available at -30 °C, -40 °C, -80 °C and -120 °C (no-load ranges down to -120 ~ -99 °C, applicable down to -120 °C; R22/R23 hybrid cascade refrigeration on deep-cooling models) · explosion-proof grades available.

Full parameter tables for every temperature variant are available on request.

Let's Build Your Temperature Workflow

From -20°C deep-cooling circulation to 200°C heating, the ULPMAT refrigeration and heating series delivers precise, reliable, and safe temperature control for your laboratory and production line. Our engineers help you select the right model, refrigeration system, and explosion-proof configuration for your process.

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