



Industry temp control solutions High precision temp control system

LINEYA THERMO REFRIGERATION CO.,LTD.

Our success comes from assiduously to help customers improve productivity

Company profile

Lneya is a high-end equipment manufacturing enterprise integrating research and development, production and sales. The main products include refrigeration and heating control system, low temperature chiller, TCU temperature control unit, semiconductor temperature control device chiller, new energy test water cooler and other special equipments. The products are widely used in pharmaceutical chemical, semiconductor, new energy, aerospace and other industries.

We have a number of high-quality professional designers with rich experience in ultra-low temperature, high and low temperature development. At present, the company is at the advanced level of the industry in the research and development of single-machine cascade refrigeration technology and at the international advanced level in the research of high and low temperature rapid rise and cooling technology. The research on temperature control of single medium in the reactor is at an advanced level and the continuous controllable temperature range is -90°C~+250°C, which can realize accurate linear control of the material temperature of the reactor. The product temperature range can be extended to -180°C~+360°C.



Name of enterprise	LNEYA Thermo Refrigeration Co.,Ltd.	The registered capital	60 million RMB
Plant area	12,000 square meters (Guanya Refrigeration) 25,000 square meters (Guanya Intelligent)	The establishment time of the enterprise	2010-11-8
Company staff	400+	R&D personnel	80+
The turnover	More than 350 million RMB		
Patents	130+	Enterprise credit rating	AAA
Qualification and Honor	High and new technology enterprise Province specialized special new small and medium-sized enterprises Province gazelle enterprise Provincial Engineering and Technology Center Second prize of 2022 Science and technology Jiangsu Innovation and Entrepreneurship Competition Intelligent manufacturing benchmark enterprise City Technology Center Siemens ICP partner		
Development platform software	Siemens integrated collaborative design and development management platform and tool software -- Teamcenter+UG+AD	Production management software	MES ERP SRM
Quality system	ISO9001-2018	R&d investment	About 7% of turnover



Business license



CE



ISO



Siemens Partner



Explosion-proof Equipment Installation Qualification Certificate



High-tech enterprise



Second prize of 2022 Science and technology Jiangsu Innovation and Entrepreneurship Competition



Gazella Company



Province specialized special new small and medium-sized enterprises



Joint Research Center for Cryogenic Refrigeration Systems and Key Technologies, University of Shanghai for Science and Technology



Boiler Certificate



Industrial Pipeline Installation Certificate



Invention patent

- 2006 ● LNEYA Constant Temperature Refrigeration and Heating Constant Temperature System Equipment Studio was established
- 2007 ● Launched refrigeration heating circulator, and registered enterprise LNEYA brand trademark
- 2008 ● Launched refrigeration heating dynamic temperature control system and industrial low temperature freezer
- 2010 ● LNEYA registered in 2010. launched the second generation of refrigeration heating dynamic temperature control system and industrial low temperature refrigerator, the products are sold worldwide.
- 2011 ● Upgrade the second generation of refrigeration heating temperature control system, testing low temperature freeze. Launched the single-compressor multi-stage cascade technology.
- 2012 ● LNEYA launched low temperature freezer, single compressor multi-stage overlapping technology applied to SUNDI series, LT series.
- 2013 ● LNEYA launched a multi-cooling heating temperature control system (the third generation). temperature control equipment host can control the corresponding multiple reaction devices, test larger refrigeration capacity ultra-low temperature freezer, circulating air refrigeration heating temperature control system
- 2014 ● LNEYA launched the ultra-low temperature refrigerator with large refrigeration capacity and the circulating air refrigeration heating temperature control system, and upgraded the low temperature freeze.
- 2015 ● New energy vehicle component test temperature control system and VOCs condensation recovery system were developed
- 2017 ● LNEYA launched the new energy automobile component test temperature control system and VOCs condensation recovery device, Testing semiconductor temperature control devices
- 2019 ● LNEYA launched the semiconductor temperature control device Chiller, the second generation of new energy vehicle parts test temperature control system and jet high and low temperature impact test machine.
- 2020 ● The second generation of VOCs condensation recovery device will be launched, and the jet flow high low temperature impact tester will be upgraded
- 2021 ● Launched direct-cooling low-temperature refrigerators and direct-cooling ultra-low-temperature refrigerators and waste liquid distillation capture and recovery devices; invested a total of 10 million yuan to upgrade Ximenzi PLM+UG+AD automated system design system and integrate it with the existing ERP system; LNEYA was established as a subsidiary, and acquired a production base for the subsidiary.
- 2022 ● Upgraded the control algorithm and adopted electronic expansion valve control for the full low-temperature series; Launched the second-generation semiconductor temperature control device Chiller and jet-type high-low temperature shock testing machine.
- 2023 ● Upgraded the control algorithm and fully implemented energy-saving and emission-reducing refrigeration systems; Launched power battery thermal cycling chambers and high-efficiency heat exchange temperature control units; In June, the 25,000 square meter factory of LYENA Intelligent was put into production and operation
- 2024 ● Launched the Panel Series Chiller and Rapid Temperature Change Control Chuck for semiconductor aging testing multi-layer thermal chambers and semiconductor thermoelectric coolers; Acquired LYENA Constant Temperature's headquarters production base.
- 2025 ● Launched semiconductor aging test multi-layer thermal chambers and semiconductor thermoelectric coolers; Upgraded the high-efficiency heat exchange temperature control units for universities.
- 2026 ● The headquarters production base of LYENA Constant Temperature is expected to be put into operation in March, with a construction area of 68,000 square meters



Our Mission :

Focus on solving customers' wide temperature cooling and heating temperature control problems and reducing energy consumption of cooling and heating systems;
Provide competitive system solutions and services, continue to create greater value for customers;

Our vision:

Become the industry benchmark;

Our values:

Results: Customer first, quality first;
Work: teamwork, teaching and learning;
Life: integrity, passion, dedication, gratitude;
Our success comes from our relentless efforts to help our customers improve their productivity.

Products Catalogue

CHILLER refrigerated circulator

LT Fixed frequency series(Desktop style)	07
LT Series Fixed Frequency Series	08~11
LTZ Variable Frequency Series	12~15

CHILLER screw refrigeration units

LG Screw Unit Series	16~19
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CHILLER small refrigeration units

LTZ Inverter M Series	20
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CHILLER

Hydrogen high-efficiency heat exchange refrigeration unit	21
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Cooling and heating temp control system

SUNDI Series	22~36
SUNDIZ Inverter Series	37~39
Micro channel Series	40~42
SUNDIQ Economy Series	43~44

CHILLER Temp, Flow and Pressure Control System

KRY Series	45~53
KRY variable frequency series	54~56
Oil cooling and temp control for motor testing	57
KRY direct cooling and heating series	58

CHILLER Direct cooling temp control unit

ZLJ Series	59
ZLTZ Series	60~61

CHILLER Cold and hot dual channel temperature control unit

TCU Heat exchange and temp control system

SR ZLF Series	63~66
Large System Series	67~68

Heating circulator

UST Series	69~70
UC/LY Series	71~72

Chamber

FREEZER Low Temperature Box

GX/GY Series	79~80
Low temperature freezer	81~82

Chiller's important information such as exhaust&suction temperature (pressure), condensing temperature, cooling water temperature (pressure), inlet and outlet liquid (gas) temperature (pressure), power consumption, component current, voltage, water tank level, etc. are all connected to the control system through sensors for comprehensive management, monitoring and recording.



CHILLER REFRIGERATED CIRCULATOR

LT Fixed frequency series(Desktop style) | LT Fixed frequency series(Refrigerator) | LTZ variable frequency series

The heating method within 40°C adopts compressor hot air heating.
Chiller circulation system is fully enclosed and the circulating pump is magnetically driven.
Chiller 100% helium test, 100% safety test to ensure system safety and reliability.
Chiller 100% after 24 hours continuous operation of the copying machine.

Condenser: Microchannel heat exchanger (air cooled)
Plate heat exchanger (water cooled)

Evaporator: Plate heat exchanger

Throttle equipment: Electronic expansion valve

Control system: PLC programmable controller

Communication: RS485 interface Modbus RTU protocol
Ethernet interface TCP/IP protocol

Operation interface: Wuxi Guanya custom 7-inch color touch screen, temperature curve display \EXCEL data export



PC remote control



Circulation system: The whole system is a fully closed system, low temperature does not absorb the water in the air, no volatile thermal media, low temperature automatically supplement the thermal media into the circulation system.

Case material: Cold-rolled plate spray RAL7035
Inside the pipeline contains: SUS304, copper, ceramic, silicon carbide, silicone sealant, PTFE

CHILLER refrigerated circulator

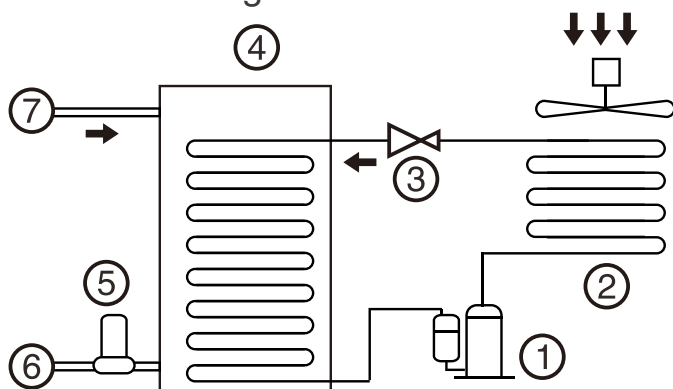
LT Fixed frequency series

Desktop style

LNEYA circulating chiller LT-800 is designed for small laboratory rotary evaporator with a scale of 0.5L to 2L. Featuring small footprint, it can be placed on a bench or on the floor.

It is widely used in low temperature conditions for chemical, biological and physical experiments that need to be carried out at low temperatures.

Schematic diagram



1. Compressor 2. Condenser 3. Expansion valve 4. Evaporator
5. Circulating water pump 6. Cooling water outlet 7. Cooling water inlet



Model		LT-800
Temp range		-18°C ~ +30°C
Temp control		ASET multifunctional controller, control temperature of water tank, Liquid crystal display panel
Temp feedback		Temperature feedback PT100
Cooling capacity	20°C	0.9kW
	10°C	0.75kW
	-10°C	0.35kW
Circulation Pump Flow		10L/min 0.6bar
Capacity of liquid storage		3.5L
Compressor		Piston compressor
Evaporator		Plate Heat Exchanger
Operation panel		Display set temperature and measured temperature, touch key to operate input temperature
Safety Protection		Self-diagnosis function; freezer overload protection; high and low pressure protection; overload relay, thermal protection device etc. security protection function
Connection Size		ZG1/2
Product size		23*42*50
Weight		35kg
Power		AC220V 0.6kW
Shell Material		Cold rolled steel plate with plastic spraying (RAL7035)

1. Rated test conditions: Dry-bulb temperature: 20°C; wet bulb temperature: 16°C. Water inlet temperature: 20°C; water outlet temperature: 25°C.

2. The data in this table is provided for reference only in the selection process. If there are any updates to the sample booklet, we will not notify you separately. Please rely mainly on the parameters marked on the unit's nameplate.

3. If you need customized special non-standard products, please contact our company.

4. The water-cooling equipment requires closed cooling towers or water chillers for water supply. If an open cooling tower is used, a filter must be added. The water supply pressure is 1.5 bar ~ 4 bar.

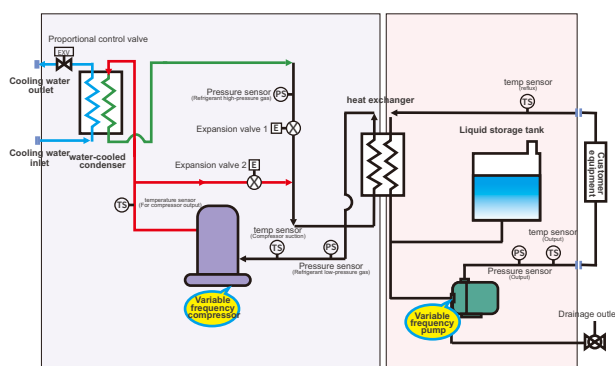
CHILLER refrigerated circulator LT Fixed frequency series

Refrigerator

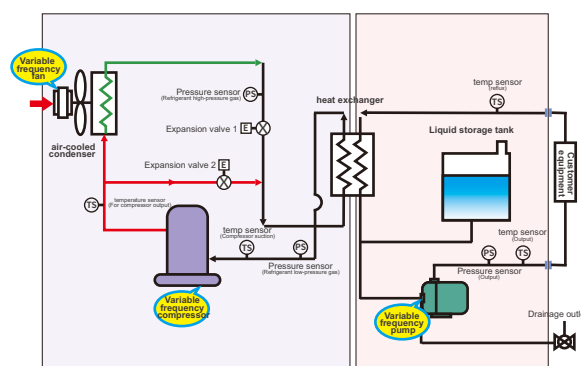
- Temperature ranges from $-80^{\circ}\text{C} \sim +30^{\circ}\text{C}$;
- Adopt using secondary sub cooling technology, rapid cooling and low temp limit;
- Adopt famous brand semi-closed piston compressor, semi-closed bipolar piston compressor, semi-hermetic screw compressor; plate heat exchanger, small volume, high efficiency;
- Generator cooling water circuit use intermediate heat exchanger, improve system reliability and safety;
- 4.3-inch/7-inch color touch screen, automatic control, temperature curve display, temp record U disk, fault alarm;
- Offer machine installation and system test, users only need to finish the installation of refrigerant and cooling water;
- Factory testing: each refrigerating unit is on load test of not less than 12 hours in the factory.



Water-cooled



Air-cooled



Freezing circuit

The compressor compresses the refrigerant gas and discharges it as a high-temp, high-pressure gas. Gas is cooled and liquefied through an air-cooled condenser in air-cooled machines. Water cooling is cooled and liquefied by a water-cooled condenser. The high-pressure refrigerant gas after liquefaction expands and lowers its temp. when passing through expansion valve 1. In the evaporator, it evaporates after obtaining the heat of the circulating liquid. The evaporated refrigerant gas is sucked in and compressed again by the compressor. When heating the circulating liquid, high-temp. and high-pressure refrigerant gas flows into the evaporator through the bypass circuit through expansion valve 2 to heat the circulating liquid.

Circulating liquid circuit

The circulating liquid flowing out of the pump is heated or cooled by the customer's equipment before returning to the temperature controller. The circulating liquid reaches the set temperature through the freezing circuit and is then output to the customer's device side through a temperature controller.

LT-S series

Model	LT-1S	LT-1.5S LT-1.5WS	LT-2S LT-2WS	LT-3S LT-2WS	LT-5S LT-5WS
Temperature range	+10°C ~ +30°C				
Temperature control	Multifunctional controller 4.3-inch color touch screen				
Temp control accuracy	±0.1°C (Equipment outlet temperature)				
Temperature feedback	Temperature feedback PT100 (Inlet temperature, outlet temperature)				
Cooling capacity 20°C	2kW	3kW	6kW	8kW	11kW
Circulation Pump Flow MAX	8L/min	8L/min	20L/min	20L/min	50L/min
	1.6bar	1.6bar	2.5bar	2.5bar	2.5bar
Compressor	Piston/rotor/scroll compressor				
Evaporator	Plate Heat Exchanger				
Operation panel	4.3-inch color touch screen displays set temp and measured temp, records temp curve, and exports data in Excel format				
Safety protection	Self-diagnosis function; freezer overload protection; high and low pressure protection, overload relay, thermal protection device and various security protection functions.				
Interface size	ZG1/2	ZG1/2	ZG3/4	ZG3/4	ZG3/4
Power supply	Single-phase 220V/50Hz, 3-phase 380V/50Hz				
Shell material	Cold rolled steel plate with plastic spraying (RAL7035)				
Communication protocol	MODBUS RTU protocol RS485 interface				

LT series

Model	LT-1 LT-1W	LT-1.5 LT-1.5W	LT-2 LT-2W	LT-3 LT-3W	LT-5 LT-5W
Temperature range	10℃ ~ 30℃ (Below 10℃, use ethylene glycol water solution)				
Temperature control	ASET multifunctional controller 4.3-inch color touch screen		ASET multifunctional controller 7-inch color touch screen		
Temp control accuracy	±0.5℃				
Temperature feedback	Temperature feedback PT100 (inlet temperature, outlet temperature)				
Cooling capacity 15℃	2kW	3kW	6kW	8kW	14kW
Circulation Pump Flow MAX	30L/min	30L/min	30L/min	30L/min	50L/min
	1.6bar	1.6bar	1.6bar	1.6bar	2bar
Compressor	Rotor compressor/Scroll compressor				
Evaporator	Plate Heat Exchanger				
Operation panel	Color touch screen displays set temp and measured temp, records temp curve, and exports data in Excel format				
Safety protection	Self-diagnosis function; freezer overload protection; high and low pressure protection, overload relay, thermal protection device and various security protection functions.				
Interface size	ZG1/2	ZG1/2	ZG3/4	ZG3/4	ZG1
Dimensions(A) cm	30*60*71.8	30*60*71.8	45*70*160	45*70*160	55*110*170
Dimensions(W) cm	30*60*71.8	30*60*71.8	45*70*130	45*70*130	40*90*165
Cooling water flow rate / diameter (≤ 32℃)	0.8m³/h ZG1/2	0.8m³/h ZG1/2	1.3m³/h ZG1/2	2m³/h ZG3/4	4m³/h ZG1
Power supply	Single-phase 220V/50Hz 1.3kW Max	Single-phase 220V/50Hz 1.5kW Max	Single-phase 220V/50Hz 2.2kW Max	3-phase 380V/50Hz 5kW Max	3-phase 380V/50Hz 7.5kW Max
Weight	110kg	145kg	180kg	225kg	290kg
Shell material	Cold rolled sheet (RAL7035)				
Communication protocol	MODBUS RTU protocol,RS485 interface				

Model	LT2-1 LT2-1W	LT2-1.5 LT2-1.5W	LT2-2 LT2-2W	LT2-3 LT2-3W	LT2-5 LT2-5W
Temperature range	-25℃ ~ +30℃				
Temperature control	ASET multifunctional controller 4.3-inch color touch screen		ASET multifunctional controller 7-inch color touch screen		
Temp control accuracy	±0.5℃				
Temperature feedback	Temperature feedback PT100 (Inlet temperature, outlet temperature)				
Cooling capacity 15℃	0.7kW	1.3kW	2kW	3kW	5kW
Circulation Pump Flow MAX	30L/min	30L/min	30L/min	30L/min	30L/min
	1.6bar	1.6bar	1.6bar	1.6bar	1.6bar
Compressor	Rotor compressor/Scroll compressor				
Evaporator	Plate Heat Exchanger				
Operation panel	Color touch screen displays set temp and measured temp, records temp curve, and exports data in Excel format				
Safety protection	Self-diagnosis function; freezer overload protection; high and low pressure protection, overload relay, thermal protection device and various security protection functions.				
Interface size	ZG1/2	ZG1/2	ZG3/4	ZG3/4	ZG3/4
Dimensions(A) cm	30*60*71.8	30*60*71.8	45*70*160	45*70*160	55*110*170
Dimensions(W) cm	30*60*71.8	30*60*71.8	45*70*130	45*70*130	40*90*165
Cooling water flow rate / diameter (≤ 32℃)	0.6m³/h ZG1/2	0.6m³/h ZG1/2	1.9m³/h ZG3/4	2.1m³/h ZG3/4	4.2m³/h ZG1
Power supply	Single-phase 220V/ 50Hz 1.3kW Max	Single-phase 220V/ 50Hz 1.7kW Max	Single-phase 220V/ 50Hz 3.2kW Max	3-phase 380V/50Hz 4.5kW Max	3-phase 380V/50Hz 8kW Max
Weight	120kg	140kg	160kg	170kg	220kg
Shell material	Cold rolled sheet (RAL7035)				
Communication protocol	MODBUS RTU protocol,RS485 interface				

Model		LT4-1.5 LT4-1.5W	LT4-2 LT4-2W	LT4-3 LT4-3W	LT4-5 LT4-5W
Temperature range		-37℃ ~ +30℃		-45℃ ~ +30℃	
Temperature control		4.3-inch touch screen	ASET multifunctional controller,7-inch touch screen		
Temp control accuracy		±0.5℃			
Temperature feedback		Temperature feedback PT100 (inlet temperature, outlet temperature)			
Cooling capacity	-20℃	1.1kW	1.6kW	2.5kW	4.8kW
	-35℃	/	0.6kW	1.4kW	2.4kW
Circulation Pump Flow MAX		20L/min	20L/min	30L/min	30L/min
		0.7bar	0.7bar	1.6bar	1.6bar
Compressor		Rotor compressor/Scroll compressor			
Evaporator		Plate Heat Exchanger			
Operation panel		Color touch screen displays set temp and measured temp, records temp curve, and exports data in Excel format			
Safety protection		Self-diagnosis function; freezer overload protection; high and low pressure protection, overload relay, thermal protection device and various security protection functions.			
Interface size		ZG1/2	ZG3/4	ZG3/4	ZG3/4
Dimensions(A) cm		30*60*71.8	45*70*160	45*70*160	55*110*170
Dimensions(W) cm		30*60*71.8	45*70*130	45*70*130	40*90*165
Cooling water flow rate / diameter (≤ 32℃)		1.3m³/h ZG1/2	1.9m³/h ZG1/2	2.1m³/h ZG3/4	4m³/h ZG3/4
Power supply		Single-phase 220V/50Hz 2.1kW Max	Single-phase 220V/50Hz 2.7kW Max	3-phase 380V/50Hz 5kW Max	3-phase 380V/50Hz 6.2kW Max
Weight		140kg	185kg	230kg	270kg
Shell material		Cold rolled sheet (RAL7035)			
Communication protocol		MODBUS RTU protocol,RS485 interface			

Model		LT6-1.5 LT6-1.5W	LT6-2 LT6-2W	LT6-3 LT6-3W	LT6-5 LT6-5W
Temperature range		-60°C ~ -30°C			
Temperature control		PLC controller, 7-inch touch screen			
Temp control accuracy		±0.5°C			
Temperature feedback		Temperature feedback PT100 (inlet temperature, outlet temperature)			
Cooling capacity	-40°C	0.8kW	1.4kW	2.2kW	3.8kW
	-55°C	0.5kW	0.8kW	1.3kW	2.2kW
Circulation Pump Flow MAX		20L/min	20L/min	35L/min	35L/min
		0.7bar	0.7bar	1bar	1bar
Compressor		Piston/rotor compressor			
Evaporator		Plate Heat Exchanger			
Operation panel		Color touch screen displays set temp and measured temp, records temp curve, and exports data in Excel format			
Safety protection		Self-diagnosis function; freezer overload protection; high and low pressure protection, overload relay, thermal protection device and various security protection functions.			
Interface size		ZG3/4	ZG3/4	ZG3/4	ZG3/4
Dimensions(A) cm		55*70*175	55*70*175	65*85*185	70*85*185
Dimensions(W) cm		55*70*175	55*70*175	65*85*185	70*85*185
Cooling water flow rate/diameter		1.5m³/h ZG3/4	2.5m³/h ZG3/4	2.9m³/h ZG1	4.5m³/h ZG1 1/4
Power supply		Single-phase 220V/50Hz 3.5kW Max	3-phase 380V/50Hz 7kW Max	3-phase 380V/50Hz 8kW Max	3-phase 380V/50Hz 13kW Max
Weight		185kg	230kg	275kg	340kg
Shell material		Cold rolled sheet (RAL7035)			
Communication protocol		MODBUS RTU protocol, RS485 interface			

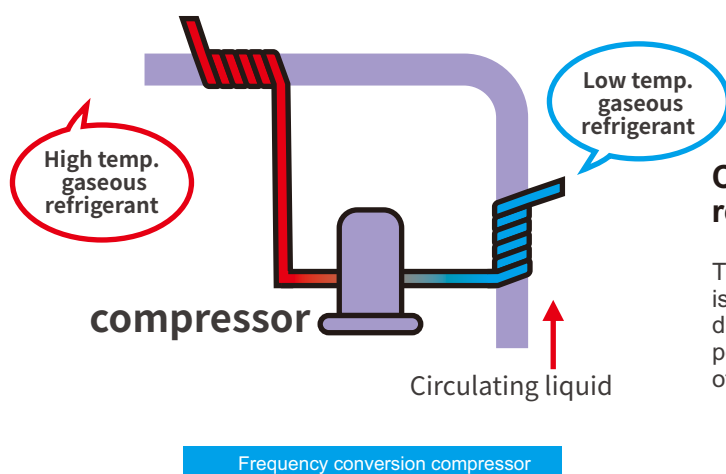
Model		LT8-1.5 LT8-1.5W	LT8-2 LT8-2W	LT8-3 LT8-3W	LT8-5 LT8-5W
Temperature range		-75°C ~ -40°C	-80°C ~ -40°C		
Temperature control		PLC controller,7-inch touch screen			
Temp control accuracy		±0.5°C			
Temperature feedback		Temperature feedback PT100 (inlet temperature, outlet temperature)			
Cooling capacity	-60°C	0.5kW	0.8kW	1.4kW	2kW
	-70°C	0.3kW	0.6kW	0.85kW	1.3kW
Circulation Pump Flow MAX		20L/min	20L/min	35L/min	35L/min
		0.7bar	0.7bar	1bar	1bar
Compressor		Piston/rotor/scroll compressor			
Evaporator		Plate Heat Exchanger			
Operation panel		Color touch screen displays set temp and measured temp, records temp curve, and exports data in Excel format			
Safety protection		Self-diagnosis function; freezer overload protection; high and low pressure protection, overload relay, thermal protection device and various security protection functions.			
Interface size		ZG3/4	ZG3/4	ZG3/4	ZG3/4
Dimensions(A) cm		55*70*175	65*85*185	65*85*185	70*85*185
Dimensions(W) cm		55*70*175	65*85*185	65*85*185	70*85*185
Cooling water flow rate/diameter		1.5m³/h ZG3/4	2.5m³/h ZG3/4	2.9m³/h ZG1	4.5m³/h ZG1 1/4
Power supply		Single-phase 220V/50Hz 3.5kW Max	3-phase 380V/50Hz 7kW Max	3-phase 380V/50Hz 8kW Max	3-phase 380V/50Hz 13kW Max
Weight		185kg	230kg	275kg	340kg
Shell material		Cold rolled sheet (RAL7035)			
Communication protocol		MODBUS RTU protocol,RS485 interface			

CHILLER Low Temp Circulator LTZ variable frequency series

- Efficient and energy-saving: The variable frequency compressor unit changes the operating speed of the DC compressor at any time according to the user's cold and hot load requirements through a built-in variable frequency device, maintaining the stable working state of the unit and achieving energy-saving effects.
- Fast cooling: The frequency conversion unit adopts advanced frequency conversion technology to accurately control the operating speed of the compressor and fan.
- Ultra low noise: The variable frequency unit adopts a variable frequency vortex or dual rotor compressor, greatly reducing the imbalance of the rotation and making the vibration of the unit very small.
- High environmental adaptability: The variable frequency unit adopts low-frequency starting, with a small starting current. Strong adaptability to voltage.
- Long lifespan: The variable frequency unit will not start and stop frequently, effectively reducing losses during unit start and stop and extending unit lifespan.



What are the advantages of the variable frequency series compared to the fixed frequency series?



Cooling water: up to 60% reduction (compared with our company standard models)

Through separate control, the expansion valve is given the most appropriate control, the heat discharge of cooling water is reused and the power consumption is reduced, so the demand of cooling water is reduced.

Model	LTZ-2H LTZ-2WH	LTZ-4H LTZ-4WH	LTZ-6H LTZ-6WH	LTZ-10H LTZ-10WH
Temp range	+5°C ~ +90°C (Ethylene glycol aqueous solution)			
Temp control	PLC controller, control the water tank outlet temperature, 7-inch touch screen			
Temp control accuracy	±0.3°C			
Temp feedback	Temperature feedback PT100 (inlet temperature, outlet temperature)			
Heating power	3.5kW	5.5kW	7.5kW	15kW
Cooling capacity 10°C	4kW	8kW	12kW	20kW
Circulation Pump Max	20L/min 2bar	35L/min 2bar	50L/min 2bar	100L/min 2bar
Compressor	Piston/rotor/scroll compressor (Variable frequency control)			
Evaporator	Plate Heat Exchanger			
Operation panel	7-inch color touch screen displays set temp and measured temp, records temp curve, and exports data in Excel format			
Safety protection	Self-diagnosis function; Refrigerator overload protection; High and low pressure protection, Thermal protection devices and other safety protection functions.			
Interface size	ZG3/4	ZG3/4	ZG1	ZG1
Dimensions cm (A)	40*90*165	55*110*170	55*110*170	100*150*195
Dimensions cm (W)	40*90*165	40*90*165	40*90*165	95*145*185
Power supply Max	3-phase 380V/50Hz 7kW	3-phase 380V/50Hz 12kW	3-phase 380V/50Hz 17kW	3-phase 380V/50Hz 29kW
Weight	270kg	320kg	360kg	600kg

Model	LTZ4-2H LTZ4-2WH	LTZ4-4H LTZ4-4WH	LTZ4-6H LTZ4-6WH	LTZ4-10H LTZ4-10WH
Temp range	-40°C ~ +90°C			
Temp control	PLC controller, control the water tank outlet temperature, 7-inch touch screen			
Temp control accuracy	±0.3°C			
Temp feedback	Temperature feedback PT100 (inlet temperature, outlet temperature)			
Heating power	2.5kW	5.5kW	7.5kW	10kW
Cooling capacity -15°C	2kW	4.5kW	7kW	11.5kW
-35°C	0.7kW	1.5kW	2.3kW	3.8kW
Circulation Pump Max	20L/min 2bar	35L/min 2bar	50L/min 2bar	100L/min 2bar
Compressor	Piston/rotor/scroll compressor (Variable frequency control)			
Evaporator	Plate Heat Exchanger			
Operation panel	7-inch color touch screen displays set temp and measured temp, records temp curve, and exports data in Excel format			
Safety protection	Self-diagnosis function; Refrigerator overload protection; High and low pressure protection, Thermal protection devices and other safety protection functions.			
Interface size	ZG3/4	ZG3/4	ZG1	ZG1
Dimensions cm (A)	40*90*165	55*70*175	65*85*185	70*85*185
Dimensions cm (W)	40*90*165	55*70*175	65*85*185	70*85*185
Power supply Max	3-phase 380V/50Hz 6kW	3-phase 380V/50Hz 11.5kW	3-phase 380V/50Hz 15kW	3-phase 380V/50Hz 25kW
Weight	180kg	260kg	320kg	390kg

Model	LTZ-6 LTZ-6W	LTZ-10 LTZ-10W	LTZ-15 LTZ-15W	LTZ-20W	LTZ-30W	LTZ-40W
Temp range	+10°C ~ +30°C (Ethylene glycol solution extends operating range to +5°C ~ +30°C)					
Temp control	PLC controller, control the water tank outlet temperature, 7-inch touch screen					
Temp control accuracy	±0.5°C					
Temp feedback	Temperature feedback PT100 (inlet temperature, outlet temperature)					
Cooling capacity 20°C	23kW	35kW	58kW	79kW	110kW	155kW
Circulation Pump Max	5m³/h 2bar	5m³/h 2bar	11m³/h 2bar	14m³/h 2bar	19m³/h 2bar	28m³/h 2bar
Compressor	Piston/rotor/scroll compressor (Variable frequency control)					
Evaporator	Plate Heat Exchanger					
Operation panel	7-inch color touch screen displays set temp and measured temp, records temp curve, and exports data in Excel format					
Safety protection	Self-diagnosis function; Refrigerator overload protection; High and low pressure protection, Thermal protection devices and other safety protection functions.					
Interface size	DN25	DN32	DN40	DN50	DN50	DN65
Dimensions cm (A)	55*110*170	100*175*180	145*245*225	145*245*225	/	/
Dimensions cm (W)	40*90*165	95*145*185	100*150*185	200*145*205	250*145*225	250*145*225
Power supply Max	380V 3PH 9kW	380V 3PH 14kW	380V 3PH 22kW	380V 3PH 26kW	380V 3PH 38kW	380V 3PH 48kW
Weight	360kg	600kg	800kg	950kg	1100kg	1350kg

Model		LTZ2-6 LTZ2-6W	LTZ2-10 LTZ2-10W	LTZ2-15 LTZ2-15W	LTZ2-20W	LTZ2-30W	LTZ2-40W
Temp range		-25°C ~ +30°C					
Temp control		PLC controller, control the water tank outlet temperature,7-inch touch screen					
Temp control accuracy		±0.5°C					
Temp feedback		Temperature feedback PT100 (inlet temperature, outlet temperature)					
Cooling capacity	-5°C	10.2kW	18kW	26.5kW	28.4kW	58.5kW	64.5kW
	-15°C	7kW	11kW	16.2kW	18.2kW	39.6kW	43.32kW
Circulation Pump Max		2.5m³/h 2bar	4.2m³/h 2bar	6m³/h 2bar	6.7m³/h 2bar	15m³/h 2bar	15m³/h 2bar
Compressor		Piston/rotor/scroll compressor (Variable frequency control)					
Evaporator		Plate Heat Exchanger					
Operation panel		7-inch color touch screen displays set temp and measured temp, records temp curve, and exports data in Excel format					
Safety protection		Self-diagnosis function; Refrigerator overload protection; High and low pressure protection, Thermal protection devices and other safety protection functions.					
Interface size		DN20	DN25	DN32	DN32	DN50	DN50
Dimensions cm (A)		55*110*170	100*150*195	100*150*215	/	/	/
Dimensions cm (W)		40*90*165	95*145*185	100*150*185	100*150*185	200*145*205	200*145*205
Power supply Max		380V 3PH 9kW	380V 3PH 14kW	380V 3PH 22kW	380V 3PH 25kW	380V 3PH 40kW	380V 3PH 45kW
Weight		360kg	600kg	800kg	950kg	1100kg	1350kg

Model		LTZ4-6 LTZ4-6W	LTZ4-10 LTZ4-10W	LTZ4-15 LTZ4-15W	LTZ4-20W	LTZ4-30W	LTZ4-40W
Temp range		-45°C ~ +20°C					
Temp control		PLC controller, control the water tank outlet temperature,7-inch touch screen					
Temp control accuracy		±0.5°C					
Temp feedback		Temperature feedback PT100 (inlet temperature, outlet temperature)					
Cooling capacity	-20°C	5.7kW	9.9kW	14.8kW	18.5kW	28.1kW	32.4kW
	-35°C	2.85kW	5.03kW	7.7kW	10.8kW	14.5kW	17.4kW
Circulation Pump Max		1.5m³/h 2bar	2.4m³/h 2bar	3.5m³/h 2bar	4.5m³/h 2bar	6.8m³/h 2bar	7.7m³/h 2bar
Compressor		Piston/rotor/scroll compressor (Variable frequency control)					
Evaporator		Plate Heat Exchanger					
Operation panel		7-inch color touch screen displays set temp and measured temp, records temp curve, and exports data in Excel format					
Safety protection		Self-diagnosis function; Refrigerator overload protection; High and low pressure protection, Thermal protection devices and other safety protection functions.					
Interface size		DN15	DN20	DN25	DN25	DN32	DN40
Dimensions cm (A)		55*110*170	80*120*185	100*175*180	/	/	/
Dimensions cm (W)		40*90*165	80*120*185	100*150*185	100*150*185	200*145*205	200*145*205
Power supply Max		380V 3PH 7.5kW	380V 3PH 14kW	380V 3PH 15kW	380V 3PH 23kW	380V 3PH 35kW	380V 3PH 38kW
Weight		340kg	650kg	800kg	950kg	1100kg	1350kg

Model		LTZ6-6 LTZ6-6W	LTZ6-10 LTZ6-10W	LTZ6-15 LTZ6-15W	LTZ6-20W	LTZ6-30W	LTZ6-40W
Temp range		-60℃ ~ -30℃					
Temp control		PLC controller, control the water tank outlet temperature,7-inch touch screen					
Temp control accuracy		±0.5℃					
Temp feedback		Temperature feedback PT100 (inlet temperature, outlet temperature)					
Cooling capacity	-40℃	6.2kW	9.1kW	12.8kW	17.5kW	28kW	31.7kW
	-55℃	4.9kW	7.2kW	10kW	13.8kW	22.1kW	25.1kW
Circulation Pump Max		2.4m³/h 2bar	3.8m³/h 2bar	5.3m³/h 2bar	7m³/h 2bar	10m³/h 2bar	12.1m³/h 2bar
Compressor		Piston/rotor/scroll compressor (Variable frequency control)					
Evaporator		Plate Heat Exchanger					
Operation panel		7-inch color touch screen displays set temp and measured temp, records temp curve, and exports data in Excel format					
Safety protection		Self-diagnosis function; Refrigerator overload protection; High and low pressure protection, Thermal protection devices and other safety protection functions.					
Interface size		DN20	DN25	DN32	DN32	DN40	DN40
Dimensions cm (A)		70*100*185	100*150*185	145*250*225	/	/	/
Dimensions cm (W)		70*100*175	100*150*185	100*150*185	200*145*205	250*145*225	250*145*225
Power supply Max		380V 3PH 13.5kW	380V 3PH 21kW	380V 3PH 28kW	380V 3PH 43kW	380V 3PH 63kW	380V 3PH 73kW
Weight		450kg	850kg	1000kg	1200kg	1600kg	2000kg

Model	LTZ8-6 LTZ8-6W	LTZ8-10 LTZ8-10W	LTZ8-15 LTZ8-15W	LTZ8-20W	LTZ8-30W	LTZ8-40W
Temp range	-80°C ~ -50°C					
Temp control	PLC controller, control the water tank outlet temperature, 7-inch touch screen					
Temp control accuracy	±0.5°C					
Temp feedback	Temperature feedback PT100 (inlet temperature, outlet temperature)					
Cooling capacity	-60°C	5.8kW	8.6kW	12kW	16.5kW	26.6kW
	-70°C	3.7kW	5.5kW	7.7kW	10.6kW	17kW
Circulation Pump MAX	2.3m³/h 2bar	3.4m³/h 2bar	4.6m³/h 2bar	6.5m³/h 2bar	11m³/h 2bar	12m³/h 2bar
Compressor	Piston/rotor/scroll compressor (Variable frequency control)					
Evaporator	Plate Heat Exchanger					
Operation panel	7-inch color touch screen displays set temp and measured temp, records temp curve, and exports data in Excel format					
Safety protection	Self-diagnosis function; Refrigerator overload protection; High and low pressure protection, Thermal protection devices and other safety protection functions.					
Interface size	DN20	DN25	DN25	DN32	DN40	DN40
Dimensions cm (A)	70*100*185	100*150*185	145*250*225	/	/	/
Dimensions cm (W)	70*100*175	100*150*185	100*150*185	200*145*205	250*145*225	250*145*225
Power supply Max	380V 3PH 13.5kW	380V 3PH 21kW	380V 3PH 28kW	380V 3PH 43kW	380V 3PH 63kW	380V 3PH 73kW
Weight	450kg	850kg	1000kg	1200kg	1600kg	2000kg

Model		LTZ10-4W	LTZ10-6W	LTZ10-10W	LTZ11-6W	LTZ11-10W	LTZ11-15W
Temp range		-100℃ ~ -65℃			-115℃ ~ -80℃		
Temp control		PLC controller, control the water tank outlet temperature,7-inch touch screen					
Temp feedback		Temperature feedback PT100 (inlet temperature, outlet temperature)					
Cooling capacity	-80℃	0.8kW	1.4kW	2.1kW			
	-90℃	0.6kW	1.1kW	1.7kW	1.1kW	1.7kW	2.8kW
	-100℃				0.8kW	1.2kW	2kW
Circulation Pump MAX		20L/min 2bar	20L/min 2bar	30L/min 2bar	20L/min 2bar	30L/min 2bar	40L/min 2bar
Compressor		Piston/rotor/scroll compressor (Variable frequency control)					
Evaporator		Plate Heat Exchanger					
Operation panel		7-inch color touch screen displays set temp and measured temp, records temp curve, and exports data in Excel format					
Safety protection		Self-diagnosis function; Refrigerator overload protection; High and low pressure protection, Thermal protection devices and other safety protection functions.					
Interface size		ZG3/4	ZG3/4	ZG3/4	ZG3/4	ZG3/4	ZG3/4
Dimensions cm		55*100*175	70*100*175	100*150*185	70*100*175	100*150*185	100*150*185
Power supply Max		380V 3PH 6kW	380V 3PH 8.5kW	380V 3PH 17kW	380V 3PH 8.5kW	380V 3PH 17kW	380V 3PH 23kW
Weight		200kg	250kg	450kg	250kg	450kg	600kg

1. Rated test conditions: Dry-bulb temperature: 20°C; wet bulb temperature: 16°C. Water inlet temperature: 20°C; water outlet temperature: 25°C.

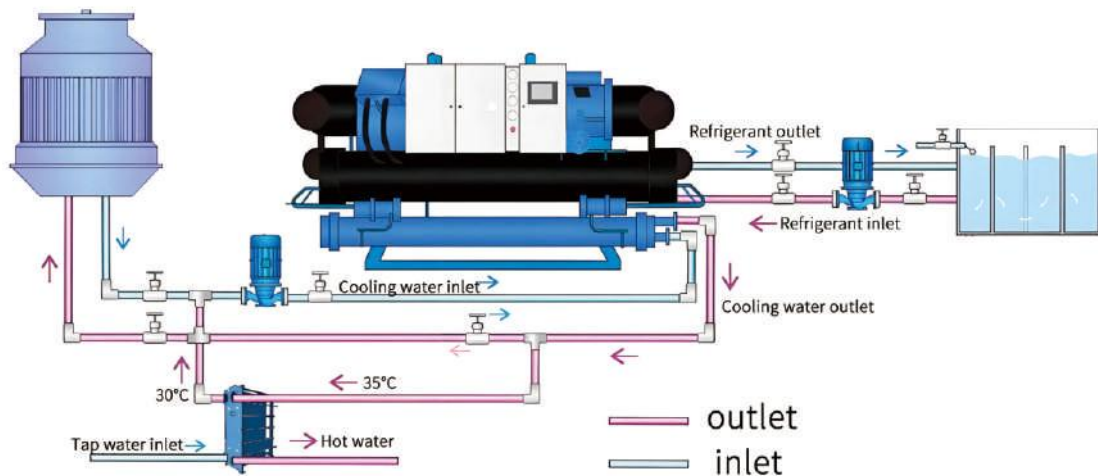
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3. If you need customized special non-standard products, please contact our company.

4. The water-cooling equipment requires closed cooling towers or water chillers for water supply. If an open cooling tower is used, a filter must be added. The water supply pressure is 1.5 bar ~ 4 bar.

CHILLER screw refrigeration units

LG Screw Unit Series



These units are suitable for use in the chemical, pharmaceutical, and mechanical industries, as well as in the production of refrigeration mediums ranging from -110°C to 30°C . They can be used as ice storage, low-temperature convectors and as a source of refrigeration for other production processes. The units can be specially designed to meet the requirements of users.

The units use advanced semi-hermetic screw compressors that are low carbon, energy-saving and environmentally friendly; they have good performance, low noise levels and can operate without failure for more than 100,000 hours; they can be controlled with either stepwise energy regulation or stepless energy regulation. Depending on the heat load required for production, the outlet temperature of coolant is used as the control point and commands are sent from the control center to regulate the movement of the energy-regulating slide valves to adjust the load on the compressor unit, thereby achieving real energy savings.

Model		LG1-75W	LG1-100W	LG1-140W	LG1-180W	LG1-230W	LG1-280W
Temperature range		+5°C ~ +30°C					
Cooling capacity at 7°C	kW	231.3	334	475.3	618.4	775.3	951.5
	Kcal/hr*10 ³	198.9	287.2	408.8	531.8	666.8	818.3
Power supply		3-phase 380V~400V/50HZ					
Refrigeration input power at 7°C		57.7	82.7	118.6	152.8	187.9	231.6
Compressor	Form	semi-closed double screw compressor					
	Heat control range	25% to 100%					
Chilled water	Form	Plate type, dry type, full liquid type or falling film type heat exchangers					
	Chilled water volume m³/h	40	56	80	104	131	160
	Water pressure drop	40 ~ 80					
	Connection size	DN80	DN100		DN125	DN150	
Cooling water flow rate / diameter (≤ 32°C)	Form	Closed shell and tube					
	Chilled water volume m³/h	50	71	102	132	165	203
	Water pressure drop	40 ~ 80					
	Connection size	DN80	DN100		DN150		DN200
Security device		High and low voltage protection, anti-icing, heat dissipation protection, safety valve, overload protection, phase loss, phase inversion, under-voltage, over-voltage, water flow protection, etc.					
Refrigerant	Charge Kg	49	56	69	115	133	180
Dimension	Length cm	296	296	314	328	330	350
	Width cm	110	110	125	135	145	145
	Height cm	210	210	210	210	220	220
Unit weight	Kg	1740	2480	2870	3400	3600	4050
Operating Weight	Kg	1890	2580	3120	3700	3900	4350

Model		LG2-75W	LG2-100W	LG2-140W	LG2-180W	LG2-230W	LG2-280W
Temperature range		-25℃ ~ +5℃					
Cooling capacity at -20℃	kW	86.7	129.4	158	239.6	300.4	368.6
	Kcal/hr*10 ³	74.6	111.3	135.9	206.1	258.3	317.0
Power supply		3-phase 380V~400V/50HZ					
Refrigeration input power at -20℃		53.2	76	105	136	172	212.8
Compressor	Form	semi-closed double screw compressor					
	Heat control range	25% to 100%					
Chilled water	Form	Plate type, dry type, full liquid type or falling film type heat exchangers					
	Chilled water volume m³/h	24	32	46	59	75	92
	Water pressure drop	40 ~ 80					
	Connection size	DN65	DN80	DN100		DN125	
Cooling water flow rate / diameter (≤ 32℃)	Form	Closed shell and tube					
	Chilled water volume m³/h	26	35	50	65	80	99
	Water pressure drop	40 ~ 80					
	Connection size	DN80	DN100		DN125		DN150
Security device		High and low voltage protection, anti-icing, heat dissipation protection, safety valve, overload protection, phase loss, phase inversion, under-voltage, over-voltage, water flow protection, etc.					
Refrigerant	Charge Kg	60	81	113	146	184	222
Dimension	Length cm	300	310	320	330	340	350
	Width cm	160	160	170	180	180	180
	Height cm	225	225	235	235	245	245
Unit weight	Kg	2400	2600	2700	2800	3000	3100
Operating Weight	Kg	2550	2750	2850	3000	3200	3350

1. Rated test conditions: Dry-bulb temperature: 20°C; wet bulb temperature: 16°C.

Water inlet temperature: 20°C; water outlet temperature: 25°C."

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3. If you need customized special non-standard products, please contact our company.

4. The water-cooling equipment requires closed cooling towers or water chillers for water supply. If an open cooling tower is used, a filter must be added. The water supply pressure is 1.5 bar ~ 4 bar.

Model		LG4-75W	LG4-100W	LG4-140W	LG4-180W	LG4-230W	LG4-280W
Temperature range		-35℃ ~ -10℃					
Cooling capacity at -40℃	kW	45.6	63.2	75.8	92.9	126.8	178.6
	Kcal/hr*10 ³	39.2	54.4	65.2	79.9	109.0	153.6
Power supply		3-phase 380V~400V/50HZ					
Refrigeration input power at -40℃		40.1	62.0	62.7	83.9	113.0	145.0
Compressor	Form	semi-closed double screw compressor					
	Heat control range	25% to 100%					
Chilled water	Form	Plate type, dry type, full liquid type or falling film type heat exchangers					
	Chilled water volume m³/h	21	30	36	44	60	83
	Water pressure drop	40 ~ 80					
	Connection size	DN65	DN80			DN100	DN125
Cooling water flow rate / diameter (≤ 32℃)	Form	Closed shell and tube					
	Chilled water volume m³/h	17	20	30	36	46	60
	Water pressure drop	40 ~ 80					
	Connection size	DN65		DN80		DN100	DN125
Security device		High and low voltage protection, anti-icing, heat dissipation protection, safety valve, overload protection, phase loss, phase inversion, under-voltage, over-voltage, water flow protection, etc.					
Refrigerant	Charge Kg	56	81	113	146	184	222
Dimension	Length cm	310	320	330	340	350	350
	Width cm	160	170	180	180	180	180
	Height cm	225	235	235	245	245	245
Unit weight	Kg	2600	2700	2800	3000	3100	3350
Operating Weight	Kg	2750	2850	3000	3200	3350	3600

Model		LG6-75W	LG6-100W	LG6-150W	LG6-180W	LG6-230W	LG6-280W
Temperature range		-60℃ ~ -10℃					
Cooling capacity at -55℃	kW	66	87	121	178	202	238
	Kcal/hr*10 ³	56.7	74.8	135.8	173.7	204.6	204.6
Power supply		3-phase 380V~400V/50HZ					
Refrigeration input power at -55℃		103	129	206	256	300	354
Compressor	Form	semi-closed double screw compressor					
	Heat control range	25% to 100%					
Chilled water	Form	Plate type, dry type, full liquid type or falling film type heat exchangers					
	Chilled water volume m³/h	36	45	79	100	112	131
	Water pressure drop	40 ~ 80					
	Connection size	DN80		DN100	DN125		DN150
Cooling water flow rate / diameter (≤ 32℃)	Form	Closed shell and tube					
	Chilled water volume m³/h	26	34	54	68	79	94
	Water pressure drop	40 ~ 80					
	Connection size	DN80		DN125		DN150	
Security device		High and low voltage protection, anti-icing, heat dissipation protection, safety valve, overload protection, phase loss, phase inversion, under-voltage, over-voltage, water flow protection, etc.					
Refrigerant	Charge Kg	37/22	50/29	75/54	89/69	105/82	115/86
Dimension	Length cm	300	350	380	450	650	650
	Width cm	200	220	225	230	245	245
	Height cm	230	240	250	255	255	255
Unit weight	Kg	4500	4900	5300	5500	5600	5800
Operating Weight	Kg	4750	5150	5700	5900	6000	6250

1. Rated test conditions: Dry-bulb temperature: 20°C; wet bulb temperature: 16°C.

Water inlet temperature: 20°C; water outlet temperature: 25°C."

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4. The water-cooling equipment requires closed cooling towers or water chillers for water supply. If an open cooling tower is used, a filter must be added. The water supply pressure is 1.5 bar ~ 4 bar.

Model		LG8-75W	LG8-100W	LG8-150W	LG8-180W	LG8-230W	LG8-280W
Temperature range		-80°C ~ -30°C					
Cooling capacity at -75°C	kW	32.8	45	67	86	109	131
	Kcal/hr*10 ³	28.2	38.7	57.6	74.0	93.7	112.7
Power supply		3-phase 380V~400V/50HZ					
Refrigeration input power at -75°C		79	124	170	210	254	308
Compressor	Form	semi-closed double screw compressor					
	Heat control range	25% to 100%					
Chilled water	Form	Plate type, dry type, full liquid type or falling film type heat exchangers					
	Chilled water volume m³/h	18	25	34	55	70	82
	Water pressure drop	40 ~ 80					
	Connection size	DN65		DN80		DN100	
Cooling water flow rate / diameter (≤ 32°C)	Form	Closed shell and tube					
	Chilled water volume m³/h	26	34	54	68	79	94
	Water pressure drop	40 ~ 80					
	Connection size	DN65	DN80	DN100		DN125	
Security device		High and low voltage protection, anti-icing, heat dissipation protection, safety valve, overload protection, phase loss, phase inversion, under-voltage, over-voltage, water flow protection, etc.					
Refrigerant	Charge Kg	37/22	50/29	75/54	89/69	105/82	115/86
Dimension	Length cm	300	350	380	450	650	650
	Width cm	200	220	225	230	245	245
	Height cm	230	240	250	255	255	255
Unit weight	Kg	4500	4900	5300	5500	5600	5800
Operating Weight	Kg	4750	5150	5700	5900	6000	6250

Model		LG11-75W	LG11-100W	LG11-140W	LG11-180W	LG11-230W	LG11-280W
Temperature range		-110°C~ -50°C					
Cooling capacity at -105°C	kW	9	12	17.5	22	28	32
	Kcal/hr*10 ³	7.7	10.3	13.8	18.9	24.1	27.5
Power supply		3-phase 380V~400V/50HZ					
Refrigeration input power at -105°C		74.6	98.3	134	173	224	248
Compressor	Form	semi-closed double screw compressor					
	Heat control range	25% to 100%					
Chilled water	Form	Plate type, dry type, full liquid type or falling film type heat exchangers					
	Chilled water volume m³/h	5	9	12	15	18	25
	Water pressure drop	40 ~ 80					
	Connection size	DN40		DN50		DN65	
Cooling water flow rate / diameter (≤ 32°C)	Form	Closed shell and tube					
	Chilled water volume m³/h	15	25	28	36	58	64
	Water pressure drop	40 ~ 80					
	Connection size	DN65	DN80			DN100	
Security device		High and low voltage protection, anti-icing, heat dissipation protection, safety valve, overload protection, phase loss, phase inversion, under-voltage, over-voltage, water flow protection, etc.					
Dimension	Length cm	350	350	450	520	650	650
	Width cm	200	200	200	245	245	245
	Height cm	245	245	255	255	265	265
Unit weight	Kg	3500	4000	4500	5300	5600	6200
Operating Weight	Kg	3850	4300	4850	5650	6000	6600

1. Rated test conditions: Dry-bulb temperature: 20°C; wet bulb temperature: 16°C.

Water inlet temperature: 20°C; water outlet temperature: 25°C."

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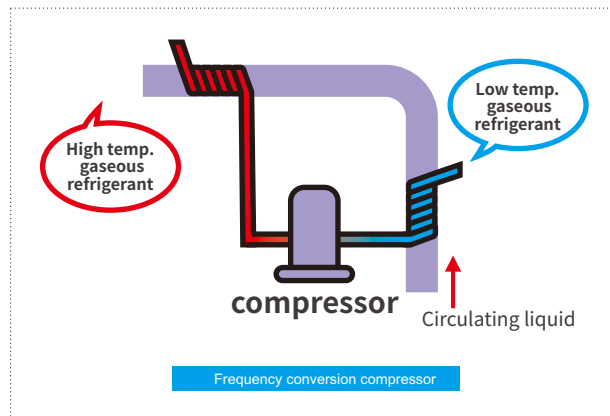
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4. The water-cooling equipment requires closed cooling towers or water chillers for water supply. If an open cooling tower is used, a filter must be added. The water supply pressure is 1.5 bar ~ 4 bar.

CHILLER small refrigeration units

LTZ Inverter M Series

Suitable for applications where the target temperature control object already has a cold storage tank and a circulation pump. The circulation pump delivers the medium into the LTZ M Series refrigeration temperature control unit, forming a closed-loop refrigeration system.



Model	LTZ-1 M	LTZ-3M LTZ-3WM	LTZ-6M LTZ-6WM	LTZ-15M LTZ-15WM	LTZ-25WM
Temp range	10℃ ~ 30℃ （ Use glycol water below 10℃ ）				
Temp control accuracy	±0.5℃				
Temp feedback	Temperature feedback PT100 (Inlet temperature, outlet temperature)				
Cooling capacity	3kW At 20℃	10.5kW At 20℃	21kW At 20℃	52kW At 20℃	87kW At 20℃
Compressor	Piston/rotor/scroll compressor (Variable frequency control)				
Throttling method	Thermal expansion valve	Electronic expansion valve			
Heat exchanger	Plate Heat Exchanger				
Operation panel	4.3-inch touch screen	7-inch color touch screen\PLC controller			
Controller	Multifunctional controller、 PLC				
Security protection	Self-diagnosis function; refrigerator overload protection; high and low pressure protection, overload relay, thermal protection device, exhaust and suction temperature protection, sensor fault protection and other safety protection functions.				
Communication protocol	Modbus RTU protocol RS485 interface				
Interface size	ZG1/2	ZG3/4	ZG3/4	DN40	DN50
Water-cooled @ 20℃	600L/H	1800L/H ZG3/4	3600L/H ZG1	9000L/H DN32 PN10	15000L/H DN40 PN10
Condenser	Air-cooled/Water-cooled heat exchanger				Water-cooled heat exchanger
power supply	380V 50HZ optional 3-phase 220V 460V				
Contact pipe material	SUS304				
Shell material	Cold rolled steel plate with plastic spraying (RAL7035)				

1. Rated test conditions: Dry-bulb temperature: 20°C; wet bulb temperature: 16°C.
Water inlet temperature: 20°C; water outlet temperature: 25°C."

2. The data in this table is provided for reference only in the selection process. If there are any updates to the sample booklet, we will not notify you separately. Please rely mainly on the parameters marked on the unit's nameplate.

3. If you need customized special non-standard products, please contact our company.

4. The water-cooling equipment requires closed cooling towers or water chillers for water supply. If an open cooling tower is used, a filter must be added. The water supply pressure is 1.5 bar ~ 4 bar.



Dynamic cooling and heating temp control systems

SUNDI Series, SUNDI Z Inverter Series, Micro channel Series, HR/HRT Economy Series

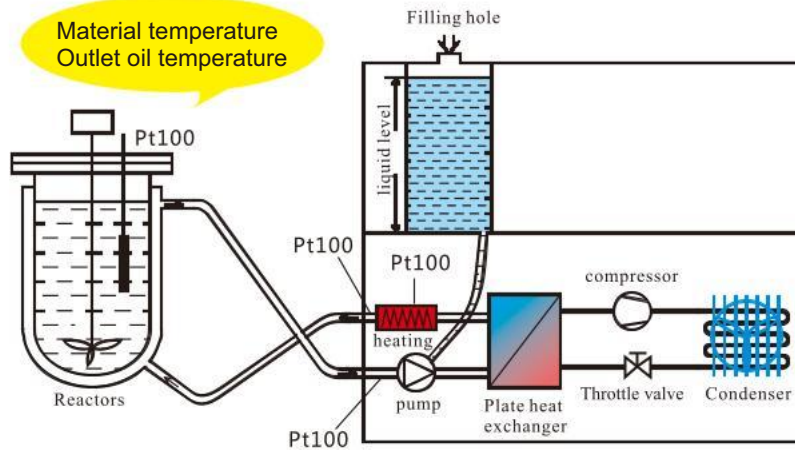
Typical Applications

Reactor System Autoclaves
Pilot System
Mini Plant System
Scale up for Operational Development
Double wall reactors
Advanced-Flow Reactors
Distillation System
Material Testing
Combinational Chemistry
Semiconductor Industry
Vacuum Chambers

Advantages & Functions

- Working temperatures from -120°C to $+350^{\circ}\text{C}$
- Previously unachievable performance
- Intelligent temperature control
- Maximum process stability and reproducibility
- Adopting a plate heat exchanger and a pipeline heater to enhance the heating and cooling response rates
- High cooling power from 0.5 to 1200kW
- Large temperature range without fluid change
- Closed system, extend thermal fluid lifetime
- Incredibly compact
- 7-inch, 10-inch color TFT touch screen display
- Comprehensive warning and safety functions
- Rapid cooling down from high temperature (from $+300^{\circ}\text{C}$)
- Use magnetic drive pump, solve the circulation pump leakage

Structure design

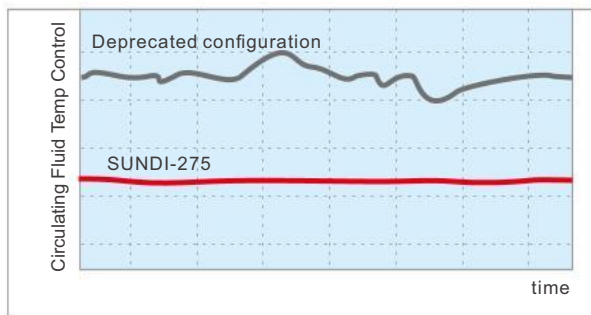


- The heat conduction medium gets in contact with oxygen in air only in the expansion container, which has a temperature ranging from room temperature to +60°C.
- The system prevents evaporation of the heat transfer medium at high temperatures, eliminating the need for replacement.
- Continuous control of the temp of the below range can be done without rising the pressure: -90°C~+195°C, -70°C~+220°C, -55°C~+250°C, -25°C~+300°C.

High-Precision Temperature Control

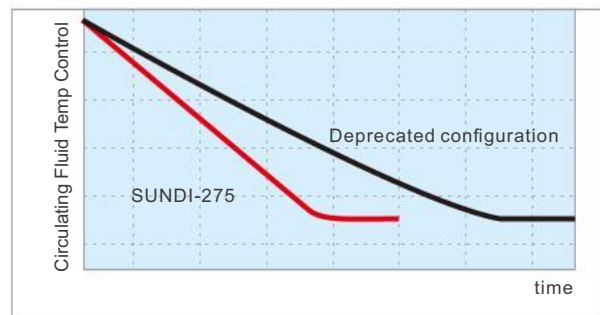
Temperature Stability: $\pm 0.5^{\circ}\text{C}$

Due to advancements in temperature control technology, When the load is stable, it can achieve a temperature control accuracy of $\pm 0.5^{\circ}\text{C}$ for the medium



Cooling Time: Up to 40% reduction
(compared with our company standard models)

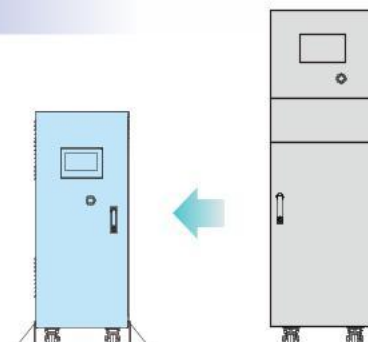
Through advanced temperature control technology, the chiller's capacity is maximized, significantly shortening cooling duration.



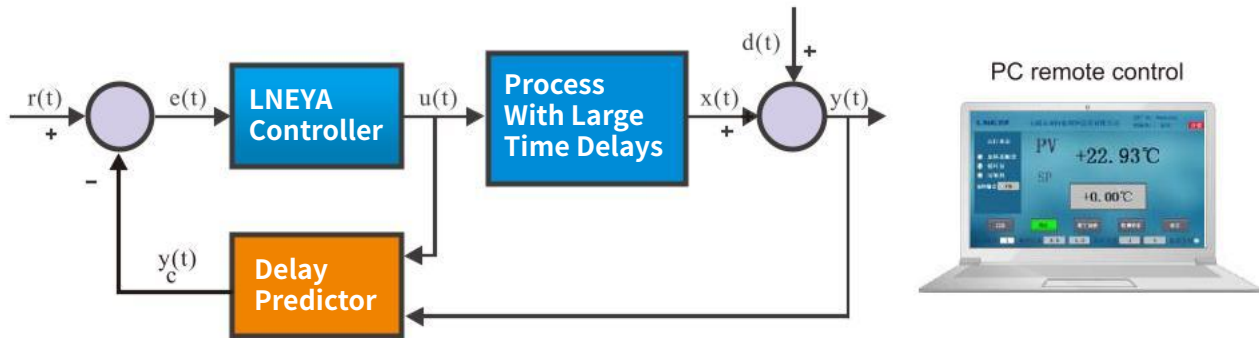
Space Optimization

Installation Area: Maximum 29% reduction
(compared with our company standard models)

By forcibly exhausting internal valve heat through the rear panel, this design eliminates the need for side venting ports, enabling compact installation.



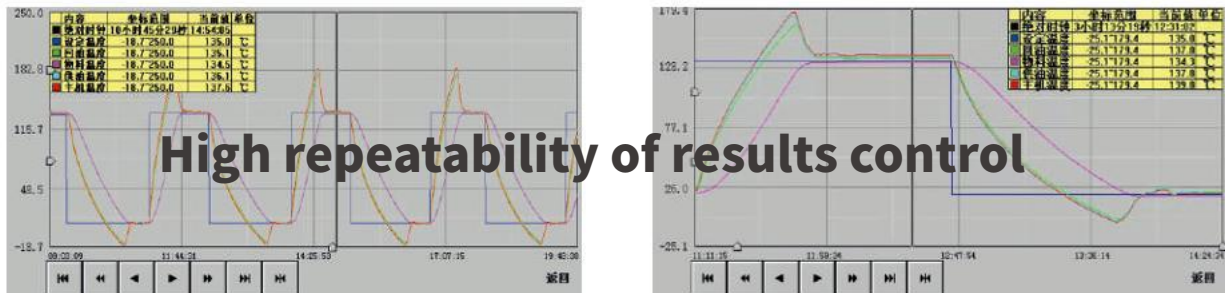
Process control principle



The method of altering the control setpoint can promptly respond to the system lag in the process, resulting in reduced system overshoot.

Controlled by two PID (Each PID group is variable, known as the two sets of control loops: the master loop and auxiliary loop. The control output of the master loop serves as the setpoint of the auxiliary loop).

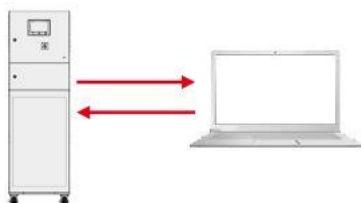
System with feedforward with PV, the master PID loop operation results of the PV output and feedforward signals as the composite of the settings from the control loop, through such control of the temperature gradient to ensure the accuracy of temperature control system.



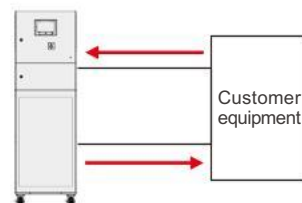
Communication function

Standard serial communication (RS232C, RS485) and contact input/output (3 points output, 2 points input). Depending on the purpose, you can communicate with customer devices or build systems. In addition, there is also a DC24V output, which can be used when setting the flow switch, etc.

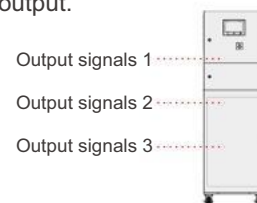
Remote control signal input and output, the use of serial communication can be remote operation.



One of the contact inputs is used for remote operation and the other is used to monitor the flow through the flow switch.

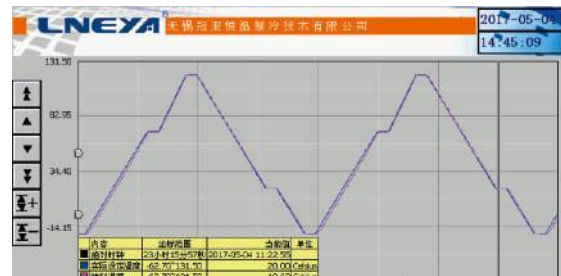
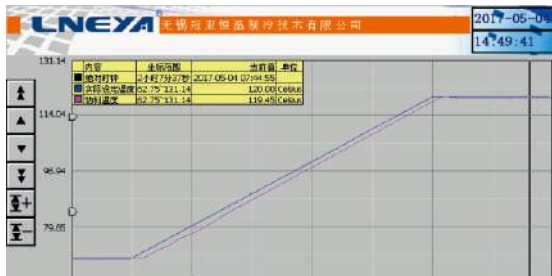


The signal output temperature controller internal alarm and state, according to its content can be divided into three output signals for output.



Reactor material temp slope control effect

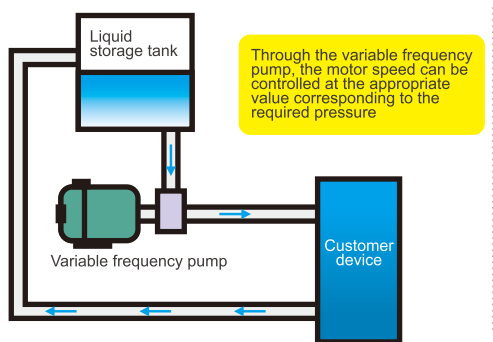
For every curve temperature control the temperature difference (ΔT) between the inlet temperature of heat conduction oil and material can be set and controlled



Circulation Pump

Adopting high and low temperature resistant magnetic drive pump without leakage, reduce the risk of system leakage. At the same time the system has the advantages of low noise and high flow rate.

Equipped with thermal-conductivity medium inlet/outlet ports and cooling water inlet/outlet ports for small instruments/equipment.



Electronic expansion valve/ Thermal expansion valve

Emerson electronic expansion valve with wide temp. range, it can monitor steps into motor, precise control refrigerant amount from the refrigerant, improve control accuracy.

Thermal expansion valve: use famous brands like Danfoss, Emerson and so on.



Data interface and software



Standard configuration:

1. PT100 Temperature sensor input interface
2. USB Export data interface
3. RS485 communication interface (MODBUS protocol)
4. Alarm output

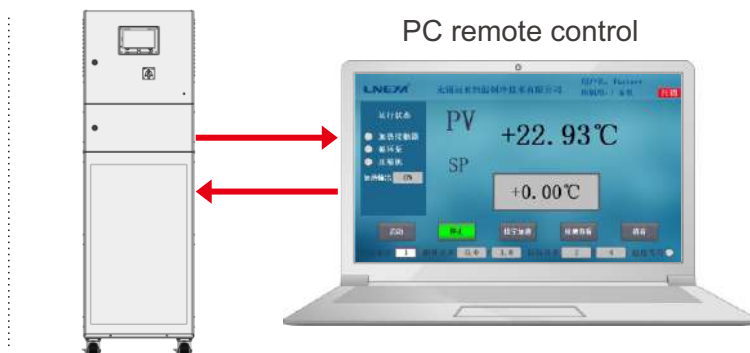
Optional

1. 4~20mA Input interface for temp. measurement
2. 4~20mA Input interface for setting temperature
3. Ethernet interface
4. RS232 communication interface (MODBUS protocol)
5. Profibus-DP interface
6. Computer operation software (optional Ethernet interface)

Configuration Software(Optional)

All dynamic temperature control system SUNDI-Series can be connected with the computer. You can install and record the picture of display on the computer via the configuration software.

- ※ Communication distance less than 200m.
- ※ Easily temperature setting
- ※ Real time control screen
- ※ Curve Records
- ※ Program selection
- ※ Alarm screen recording



Connecting Pipe

Items	Temperature Range	Interface Dimensions					
Fluorine rubber hose	-30°C~200°C	Φ12*16	Φ16*22	Φ20*26			
Metal Thermal Insulation Pipe	-60°C~250°C	DN15	DN20	DN25	M24*1.5	M30*1.5	M38*1.5



Metal Thermal Insulation Pipe



Fluorine rubber hose

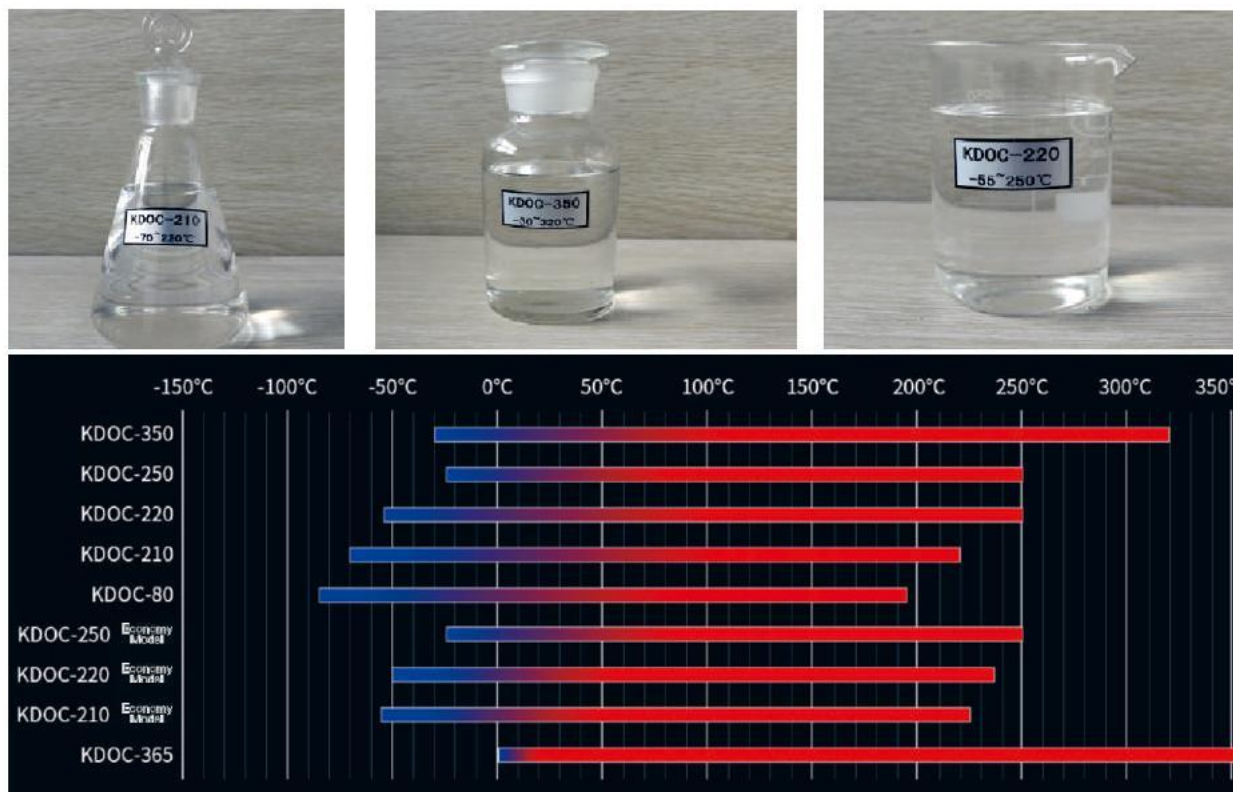
LNEYA Dynamic Temp Control systems in practice

In comparison to other thermal control systems, Dynamic Temperature Control systems differ considerably in their thermodynamic characteristics. In practice Dynamic Temperature Control systems offer definite advantages in your work: noticeable shorter heating and cooling time, better stability and reproducibility through the entire process chain, greater safety for expensive glass reactors and the contained substances, together with simple and easy operation.



Heat Conduction Medium

It is important to choose the suitable heat conduction medium, to make sure that system works stably. To choose the suitable medium according to the working temperature of the system is essential. The package kinds of LNEYA heat conduction medium are 10L, 25L, 30L, 200L.



Model	KDOC-350	KDOC-250	KDOC-220	KDOC-210	KDOC-80	KDOC-250 Economy Version	KDOC-220 Economy Version	KDOC-210 Economy Version	KDOC-365
Temp range °C	-30~+320	-25~+250	-55~+250	-70~+220	-85~+195	-25~+250	-50~+235	-55~+225	0~+365
viscosity	50	50	10	5	2	50	10	5	45
Color	Colorless	Colorless	Colorless	Colorless	Colorless	Colorless	Colorless	Colorless	Colorless/light yellow
Odor	None	None	None	None	None	None	None	None	None
Density (kg/m ³)	1000	1000	935	880	820	/	955	950	1045
Pour point °C	-60	-60	-90	-100	-110	/	-90	-100	-28
Flash point °C	+280	+200	+211	+134	+87	/	+211	+134	+207
Boiling point °C	+330	+260	+255	+230	+200	/	+250	+240	+380
Ingredients	Dimethyl silicone oil								Dibenzyltoluene
Harmfulness	Non hazardous								
Toxic effect	No harmful effects on aquatic organisms								
Personal protection	Avoid oral ingestion and eye contact: If in contact with eyes, rinse repeatedly with clean water								
skin	Proper cleaning before meals and after work								
Fire extinguishing medium	It is applicable to dry chemicals, foam or water mist in case of fire; Using carbon dioxide, dry chemicals, and water mist for small fires								
Chemical reaction	A harmless gathering reaction that can react with strong oxidants								

CHILLER Cooling and heating temp control system

SUNDI series

Special attention:

In water-cooled Sundi series with heating power ≤15kW, condenser adopts plate heat exchanger, therefore clean factory water is required. It is recommended to use **water chiller or closed cooling tower water supply**



SUNDI series -30°C~+180°C

Model		SUNDI3-1 SUNDI3-1W
Medium temp range		-30°C ~ +180°C
Control Mode		Feedback PID + Our special dynamic control calculation, PLC controller
Temp Control		process temperature control and equipment outlet temperature control modes.
Differential temp control		The temp difference between the equipment outlet tempe and the process temp is controllable and adjustable.
communication protocol		MODBUS RTU protocol RS 485 interface
External temp input		PT100 or 4 ~ 20mA or communication setpoint (default PT100)
Temp feedback		The temp of 3 points: equipment inlet and outlet, reactor material temperature (external temp sensor)
Medium temp accuracy		±0.5°C
Material temp accuracy		±1°C
Heating power		2kW
Cooling capacity	180°C	1.5kW
	-15°C	0.4kW
Flow/Pressure MAX		Max10L/min 0.7Bar
Compressor		Rotary compressor / Piston compressor
Operation Pane		4.3-inch color touch screen , temperature curve display and logging
Safety protection		Self-diagnosis function; Refrigerator overload protection; High and low pressure protection, Thermal protection devices and other safety protection functions.
Connection size		ZG1/2
Dimensions mm		300*600*718
weight kg		50kg
Standard power supply		AC 220V 50HZ 3.2kW (max)
Case materia		Cold rolled steel powder coating (standard color 7035)

1. Rated test conditions: dry-bulb temperature 20 °C; wet-bulb temperature 16 °C; inlet water temperature 20 °C; outlet water temperature 25 °C.

2. The data in this table is for selection reference only. Specifications are subject to change without prior notice; please refer to the unit nameplate for final parameters.

3.For special non-standard customization, please contact us.

4.Water-cooled equipment requires a closed cooling tower or chiller water supply. If an open cooling tower is used, a filter must be installed. Water supply pressure: 1.5~4 bar.

SUNDI series -10°C~+150°C



Model		SUNDI1-2 SUNDI1-2W	SUNDI1-2.5 SUNDI1-2.5W	SUNDI1-3 SUNDI1-3W	SUNDI1-4 SUNDI1-4W	SUNDI1-6 SUNDI1-6W
Temp range		-10°C ~ +150°C				
Control Mode		Feedback PID + Our special dynamic control calculation, PLC controller				
Temp control		process temperature control and equipment outlet temperature control modes.				
Differential temp control		The temp difference between the equipment outlet tempe and the process temp is controllable and adjustable.				
Communication Protocol		MODBUS RTU protocol RS 485 interface				
Material temp feedback		PT100 or 4 ~ 20mA or communication setpoint (default PT100)				
Temp feedback		The temp of 3 points: equipment inlet and outlet, reactor material temperature (external temp sensor)				
Medium temp accuracy		±0.5°C				
Material temp accuracy		±1°C				
Heating power		3.5kW	5.5kW	7.5kW	10kW	15kW
Cooling capacity	150°C	3.5kW	5.5kW	7.5kW	10kW	15kW
	-5°C	2.1kW	3.3kW	4.2kW	6kW	9kW
Flow/pressure Max L/min bar		35L/min	35L/min	50L/min	50L/min	75L/min
		1bar	1bar	1.2bar	1.2bar	1.2bar
Compressor		Rotary / Piston / Scroll compressor				
Operation Panel		7-inch touch screen , show temp curve\EXCEL data output				
Safety protection		Equipped with self-diagnostic function; multiple safety protections including compressor overload protection, high/low pressure protection, overload relays, and thermal protection.				
Connection size		ZG3/4	ZG3/4	ZG1	ZG1	ZG1
Cooling water flow/ interface (≤32°C)		1000L/H ZG1/2	1200L/H ZG1/2	1200L/H ZG1/2	2400L/H ZG3/4	3000L/H ZG1
Dimension(A) cm		45*70*160	45*70*160	45*70*160	55*110*170	55*110*170
Dimension(W) cm		45*70*130	45*70*130	45*70*130	40*90*165	70*80*185
Weight kg		165	185	235	280	300
Power supply 380V/50Hz		6.7kW	9.5kW	12kW	15.5kW	23kW

1. Rated test conditions: dry-bulb temperature 20 °C; wet-bulb temperature 16 °C; inlet water temperature 20 °C; outlet water temperature 25 °C.
2. The data in this table is for selection reference only. Specifications are subject to change without prior notice; please refer to the unit nameplate for final parameters.
3. For special non-standard customization, please contact us.
4. Water-cooled equipment requires a closed cooling tower or chiller water supply. If an open cooling tower is used, a filter must be installed. Water supply pressure: 1.5-4 bar.

SUNDI series -25°C~+200°C



Model		SUNDI2-2 SUNDI2-2W	SUNDI2-3 SUNDI2-3W	SUNDI2-5 SUNDI2-5W	SUNDI2-6 SUNDI2-6W	SUNDI2-8 SUNDI2-8W	SUNDI2-15 SUNDI2-15W	SUNDI2-16 SUNDI2-16W	SUNDI2-23 SUNDI2-23W	SUNDI2 -33W	SUNDI2 -38W	SUNDI2 -70W
Temp range		-25℃~-+200℃ (Can be extended to -25 ℃~-+300 ℃)										
Control Mode		Feedback PID + Our special dynamic control calculation, PLC controller										
Temp control		process temperature control and equipment outlet temperature control modes.										
Differential temp control		The temp difference between the equipment outlet tempe and the process temp is controllable and adjustable.										
Communication Protocol		MODBUS RTU protocol RS 485 interface										
Material temp feedback		PT100 or 4 ~ 20mA or communication setpoint (default PT100)										
Temp feedback		The temp of 3 points: equipment inlet and outlet, reactor material temperature (external temp sensor)										
Medium temp accuracy		±0.5℃										
Material temp accuracy		±1℃										
Heating power		3.5kW	5.5kW	7.5kW	10kW	15kW	25kW	38kW	60kW	95kW	130kW	200kW
Cooling capacity	200℃	3.5kW	5.5kW	7.5kW	10kW	15kW	25kW	38kW	60kW	95kW	130kW	200kW
	-15℃	1.8kW	2.8kW	3.8kW	4.6kW	7kW	12kW	16kW	22kW	32kW	43kW	65kW
Flow/pressure Max L/min bar		35L/min	35L/min	50L/min	60L/min	110L/min	150L/min	200L/min	250L/min	400L/min	400L/min	600L/min
		1.2bar	1.2bar	1.2bar	1.2bar	1.5bar	1.5bar	1.5bar	2.5bar	2.5bar	2.5bar	2.5bar
Compressor		Rotary / Piston / Scroll / Screw compressor										
Operation Panel		7-inch touch screen , show temp curve\EXCEL data output										
Safety protection		Equipped with self-diagnostic function; multiple safety protections including compressor overload protection, high/low pressure protection, overload relays, and thermal protection.										
Connection size		ZG3/4	ZG3/4	ZG1	ZG1	ZG1	DN32	DN40	DN50	DN65	DN65	DN80
Cooling water flow/interface (≤32℃)		1000L/H ZG1/2	1200L/H ZG1/2	2000L/H ZG3/4	2400L/H ZG3/4	3000L/H ZG1	6m³/H DN32	8m³/H DN40	12m³/H DN50	18m³/H DN65	24m³/H DN65	36m³/H DN80
Dimension(A) cm		45*70 *160	45*70 *160	55*110 *170	55*110 *170	55*110 *170	95*180 *190	95*180 *190	120*200 *230	/	/	/
Dimension(W) cm		45*70 *130	45*70 *130	40*90 *165	40*90 *165	60*110 *175	80*120 *185	100*150 *185	120*180 *185	145*200 *205	145*245 *225	175*350 *245
Weight kg		165	185	230	280	300	550	750	1000	1250	1580	2150
Standard power 380V/50Hz		6.7kW	9.5kW	15kW	16kW	27kW	48kW	55kW	81kW	126kW	175kW	260kW

1. Rated test conditions: dry-bulb temperature 20 °C; wet-bulb temperature 16 °C; inlet water temperature 20 °C; outlet water temperature 25 °C.

2. The data in this table is for selection reference only. Specifications are subject to change without prior notice; please refer to the unit nameplate for final parameters.

3. For special non-standard customization, please contact us.

4. Water-cooled equipment requires a closed cooling tower or chiller water supply. If an open cooling tower is used, a filter must be installed. Water supply pressure: 1.5~4 bar.

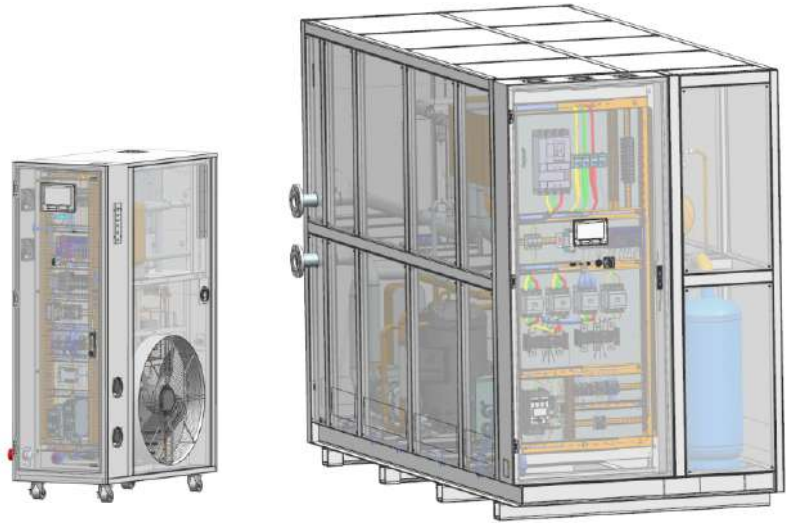
SUNDI series -45°C~+250°C



Model		SUNDI5-1.5 SUNDI5-1.5W	SUNDI5-3 SUNDI5-3W	SUNDI5-4 SUNDI5-4W	SUNDI5-5 SUNDI5-5W	SUNDI5-6 SUNDI5-6W	SUNDI5-8 SUNDI5-8W	SUNDI4-16 SUNDI4-16W	SUNDI4-19 SUNDI4-19W	SUNDI4 -26W	SUNDI4 -36W	SUNDI4 -55W	SUNDI4 -80W
Temp range		-45℃ ~ +250℃											
Control Mode		Feedback PID + Our special dynamic control calculation, PLC controller											
Temp control		process temperature control and equipment outlet temperature control modes.											
Differential temp control		The temp difference between the equipment outlet tempe and the process temp is controllable and adjustable.											
Communication Protocol		MODBUS RTU protocol RS 485 interface											
Material temp feedback		PT100 or 4 ~ 20mA or communication setpoint (default PT100)											
Temp feedback		The temp of 3 points: equipment inlet and outlet, reactor material temperature (external temp sensor)											
Medium temp accuracy		±0.5℃											
Material temp accuracy		±1℃											
Heating power		2.5kW	3.5kW	5.5kW	7.5kW	10kW	15kW	25kW	38kW	60kW	95kW	130kW	200kW
Cooling capacity	250℃	2.5kW	3.5kW	5.5kW	7.5kW	10kW	15kW	25kW	38kW	60kW	95kW	130kW	200kW
	-35℃	0.25kW	0.45kW	0.9kW	1.5kW	2kW	3.8kW	4.7kW	9kW	12kW	18kW	24kW	43kW
Flow/pressure Max L/min bar		20L/min	35L/min	35L/min	50L/min	60L/min	110L/min	150L/min	200L/min	250L/min	400L/min	400L/min	600L/min
		1.2bar	1.2bar	1.2bar	1.2bar	1.5bar	1.5bar	1.5bar	1.5bar	2.5bar	2.5bar	2.5bar	2.5bar
Circulation pump		Magnetic drive pump											
Compressor		Rotary / Piston / Scroll / Screw compressor											
Operation Panel		7-inch touch screen , show temp curve\EXCEL data output											
Safety protection		Equipped with self-diagnostic function; multiple safety protections including compressor overload protection, high/low pressure protection, overload relays, and thermal protection.											
Connection size		ZG1/2	ZG3/4	ZG3/4	ZG3/4	ZG1	ZG1	DN32	DN50	DN50	DN65	DN65	DN65
Cooling water flow/interface (≤32℃)		900L/H ZG1/2	1200L/H ZG1/2	1500L/H ZG3/4	1800L/H ZG3/4	2400L/H ZG3/4	3000L/H ZG1	6m³/H DN40	10m³/H DN40	14m³/H DN50	20m³/H DN65	32m³/H DN80	46m³/H DN100
Dimension(A) cm		40*70 *130	45*70 *160	45*70 *160	55*110 *170	55*110 *170	80*120 *185	95*180 *190	95*180 *190	/	/	/	/
Dimension(W) cm		40*70 *115	45*70 *130	45*70 *130	40*90 *165	40*90 *165	70*85 *185	80*120 *185	100*150 *185	120*180 *185	145*200 *205	145*245 *225	175*350 *245
Weight kg		160	180	195	260	320	390	620	820	1100	1350	1680	2250
Standard power 380V/50Hz		AC220V 4kW	7kW	9kW	13kW	16kW	26kW	42kW	57kW	82kW	136kW	183kW	309kW

1. Rated test conditions: dry-bulb temperature 20 °C; wet-bulb temperature 16 °C; inlet water temperature 20 °C; outlet water temperature 25 °C.
2. The data in this table is for selection reference only. Specifications are subject to change without prior notice; please refer to the unit nameplate for final parameters.
3. For special non-standard customization, please contact us.
4. Water-cooled equipment requires a closed cooling tower or chiller water supply. If an open cooling tower is used, a filter must be installed. Water supply pressure: 1.5-4 bar.

SUNDI series -60°C~+250°C



Model	SUNDI6-1.5 SUNDI6-1.5W	SUNDI6-2 SUNDI6-2W	SUNDI6-3 SUNDI6-3W	SUNDI6-3.5 SUNDI6-3.5W	SUNDI6-5 SUNDI6-5W	SUNDI6 -6W	SUNDI6 -12W	SUNDI6 -15W	SUNDI6 -20W
Temp range	-60°C ~ +250°C								
Control Mode	Feedback PID + Our special dynamic control calculation, PLC controller								
Temp control	process temperature control and equipment outlet temperature control modes.								
Differential temp control	The temp difference between the equipment outlet temp and the process temp is controllable and adjustable.								
Communication Protocol	MODBUS RTU protocol RS 485 interface								
Material temp feedback	PT100 or 4 ~ 20mA or communication setpoint (default PT100)								
Temp feedback	The temp of 3 points: equipment inlet and outlet, reactor material temperature (external temp sensor)								
Medium temp accuracy	±0.5°C								
Material temp accuracy	±1°C								
Heating power	2.5kW	3.5kW	5.5kW	7.5kW	10kW	15kW	25kW	38kW	60kW
Cooling capacity	250°C	2.5kW	3.5kW	5.5kW	7.5kW	10kW	15kW	25kW	38kW
	-55°C	0.25kW	0.5kW	0.75kW	0.9kW	1.5kW	2.8kW	6kW	8kW
Flow/pressure Max L/min bar	20L/min	35L/min	35L/min	50L/min	60L/min	110L/min	150L/min	200L/min	250L/min
	1.2bar	1.2bar	1.2bar	1.2bar	1.5bar	1.5bar	1.5bar	1.5bar	2.5bar
Circulation pump	Magnetic drive pump								
Compressor	Rotary / Piston / Scroll / Screw compressor								
Operation Panel	7-inch touch screen , show temp curve\EXCEL data output								
Safety protection	Equipped with self-diagnostic function; multiple safety protections including compressor overload protection, high/low pressure protection, overload relays, and thermal protection.								
Connection size	ZG1/2	ZG3/4	ZG3/4	ZG1	ZG1	ZG1	DN32	DN40	DN50
Cooling water flow/interface (≤32°C)	600L/H ZG1/2	1200L/H ZG3/4	1800L/H ZG3/4	2100L/H ZG3/4	3000L/H ZG1	3600L/H ZG1	8.5m³/H DN40	14m³/H DN50	20m³/H DN65
Dimension cm	55*70*175	55*70*175	55*70*175	65*85*185	65*85*185	80*120*185	120*180*185	145*200*205	145*200*205
Weight kg	205	225	300	340	380	380	980	1350	1580
Standard power 380V/50Hz	5kW	10kW	12kW	18kW	22kW	28kW	56kW	73kW	110kW

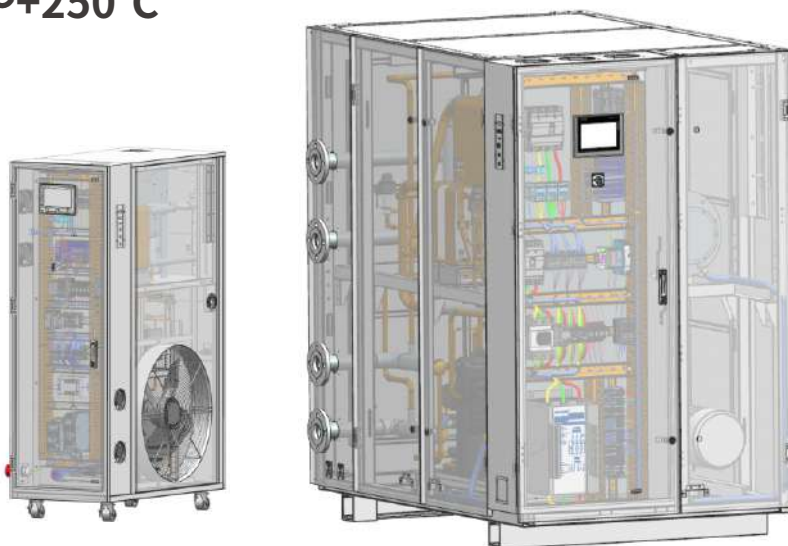
1. Rated test conditions: dry-bulb temperature 20 °C; wet-bulb temperature 16 °C; inlet water temperature 20 °C; outlet water temperature 25 °C.

2. The data in this table is for selection reference only. Specifications are subject to change without prior notice; please refer to the unit nameplate for final parameters.

3. For special non-standard customization, please contact us.

4. Water-cooled equipment requires a closed cooling tower or chiller water supply. If an open cooling tower is used, a filter must be installed. Water supply pressure: 1.5~4 bar.

SUNDI series -80°C~+250°C



Model		SUNDI8-2 SUNDI8-2W	SUNDI8-3 SUNDI8-3W	SUNDI8-4 SUNDI8-4W	SUNDI8-5 SUNDI8-5W	SUNDI8-6 SUNDI8-6W	SUNDI8 -8W	SUNDI8 -15W	SUNDI8 -25W	SUNDI8 -40W	SUNDI8 -50W
Temp range		-80°C ~ +250°C									
Control Mode		Feedback PID + Our special dynamic control calculation, PLC controller									
Temp control		process temperature control and equipment outlet temperature control modes.									
Differential temp control		The temp difference between the equipment outlet tempe and the process temp is controllable and adjustable.									
Communication Protocol		MODBUS RTU protocol RS 485 interface									
Material temp feedback		PT100 or 4 ~ 20mA or communication setpoint (default PT100)									
Temp feedback		The temp of 3 points: equipment inlet and outlet, reactor material temperature (external temp sensor)									
Medium temp accuracy		±0.5°C									
Material temp accuracy		±1°C									
Heating power		3kW	3.5kW	5.5kW	7.5kW	10kW	15kW	25kW	38kW	60kW	80kW
Cooling capacity	250°C	2.5kW	3.5kW	5.5kW	7.5kW	10kW	15kW	25kW	38kW	60kW	80kW
	-75°C	0.3kW	0.42kW	0.7kW	1.3kW	1.5kW	2.4kW	5kW	8kW	11kW	16kW
Flow/pressure Max L/min bar	20L/min	35L/min	35L/min	50L/min	60L/min	110L/min	150L/min	250L/min	400L/min	400L/min	
	1.2bar	1.2bar	1.2bar	1.2bar	1.5bar	1.5bar	1.5bar	1.5bar	2.5bar	2.5bar	
Circulation pump		Magnetic drive pump									
Compressor		Rotary / Piston / Scroll / Screw compressor									
Operation Panel		7-inch touch screen , show temp curve\EXCEL data output									
Safety protection		Equipped with self-diagnostic function; multiple safety protections including compressor overload protection, high/low pressure protection, overload relays, and thermal protection.									
Connection size		ZG1/2	ZG3/4	ZG3/4	ZG1	ZG1	ZG1	DN32	DN40	DN65	DN65
Cooling water flow/interface (≤32°C)		900L/H ZG1/2	1200L/H ZG3/4	2400L/H ZG3/4	3000L/H ZG1	3600L/H ZG1	4800L/H DN32	9m³/H DN40	15m³/H DN50	24m³/H DN65	30m³/H DN80
Dimension cm		55*70 *175	55*70 *175	65*85 *185	70*85 *185	70*85 *185	80*120 *185	120*180 *185	145*200 *205	170*245 *225	175*350 *245
Weight kg		240	285	345	500	600	950	1300	1550	2200	2850
Standard power 380V/50Hz		9.5kW	11kW	17kW	20kW	26kW	36kW	59kW	98kW	135kW	177kW

1. Rated test conditions: dry-bulb temperature 20 °C; wet-bulb temperature 16 °C; inlet water temperature 20 °C; outlet water temperature 25 °C.
2. The data in this table is for selection reference only. Specifications are subject to change without prior notice; please refer to the unit nameplate for final parameters.
3. For special non-standard customization, please contact us.
4. Water-cooled equipment requires a closed cooling tower or chiller water supply. If an open cooling tower is used, a filter must be installed. Water supply pressure: 1.5-4 bar.

SUNDI series -90°C~+250°C



Model	SUNDI9-6W	SUNDI9-8W	SUNDI9-10W	SUNDI9-15W	SUNDI9-26W	SUNDI9-32W	SUNDI9-50W	SUNDI9-75W
Temp range	-90°C ~ +250°C							
Control Mode	Feedback PID + Our special dynamic control calculation, PLC controller							
Temp control	process temperature control and equipment outlet temperature control modes.							
Differential temp control	The temp difference between the equipment outlet tempe and the process temp is controllable and adjustable.							
Communication Protocol	MODBUS RTU protocol RS 485 interface							
Material temp feedback	PT100 or 4 ~ 20mA or communication setpoint (default PT100)							
Temp feedback	The temp of 3 points: equipment inlet and outlet, reactor material temperature (external temp sensor)							
Medium temp accuracy	±0.5°C							
Material temp accuracy	±1°C							
Heating power	5.5kW	7.5kW	10kW	15kW	25kW	38kW	60kW	80kW
Cooling capacity	250°C	5.5kW	7.5kW	10kW	15kW	25kW	38kW	60kW
	-85°C	0.5kW	0.7kW	0.85kW	1.3kW	1.9kW	3.5kW	6kW
Flow/pressure Max L/min bar	35L/min	50L/min	60L/min	110L/min	150L/min	250L/min	400L/min	400L/min
	1.2bar	1.2bar	1.5bar	1.5bar	1.5bar	1.5bar	2.5bar	2.5bar
Circulation pump	Magnetic drive pump							
Compressor	Rotary / Piston / Scroll / Screw compressor							
Operation Panel	7-inch touch screen , show temp curve\EXCEL data output							
Safety protection	Equipped with self-diagnostic function; multiple safety protections including compressor overload protection, high/low pressure protection, overload relays, and thermal protection.							
Connection size	ZG3/4	ZG1	ZG1	ZG1	DN32	DN40	DN65	DN65
Cooling water flow/interface (≤32°C)	2000L/H ZG3/4	2800L/H ZG1	3800L/H ZG1	5.8m³/H DN32	8m³/H DN40	14m³/H DN50	24m³/H DN65	34m³/H DN80
Dimension cm	80*120*185	80*120*185	80*120*185	150*100*185	145*200*205	145*200*205	170*245*225	175*350*245
Weight kg	365	570	680	950	1400	1750	2400	3150
Standard power 380V/50Hz	16kW	27kW	30kW	42kW	59kW	83kW	130kW	188kW

1. Rated test conditions: dry-bulb temperature 20 °C; wet-bulb temperature 16 °C; inlet water temperature 20 °C; outlet water temperature 25 °C.
2. The data in this table is for selection reference only. Specifications are subject to change without prior notice; please refer to the unit nameplate for final parameters.
3. For special non-standard customization, please contact us.
4. Water-cooled equipment requires a closed cooling tower or chiller water supply. If an open cooling tower is used, a filter must be installed. Water supply pressure: 1.5–4 bar.

SUNDI series -100°C~+100°C



Model	SUNDI10 -8W	SUNDI10 -13W	SUNDI10 -20W	SUNDI10 -26W	SUNDI10 -40W	SUNDI10 -50W	SUNDI10 -75W	SUNDI10 -100W
Temp range	-100°C ~ +100°C							
Control Mode	Feedback PID + Our special dynamic control calculation, PLC controller							
Temp control	process temperature control and equipment outlet temperature control modes.							
Differential temp control	The temp difference between the equipment outlet tempe and the process temp is controllable and adjustable.							
Communication Protocol	MODBUS RTU protocol RS 485 interface							
Material temp feedback	PT100 or 4 ~ 20mA or communication setpoint (default PT100)							
Temp feedback	The temp of 3 points: equipment inlet and outlet, reactor material temperature (external temp sensor)							
Medium temp accuracy	±0.5°C							
Material temp accuracy	±1°C							
Heating power	5.5kW	7.5kW	10kW	15kW	25kW	38kW	60kW	80kW
Cooling capacity	100°C	5.5kW	7.5kW	10kW	15kW	25kW	38kW	60kW
	-95°C	0.7kW	0.9kW	1.2kW	1.8kW	2.9kW	4.5kW	7.2kW
Flow/pressure Max L/min bar	35L/min	50L/min	60L/min	110L/min	150L/min	250L/min	400L/min	400L/min
	1.2bar	1.2bar	1.5bar	1.5bar	1.5bar	1.5bar	2.5bar	2.5bar
Circulation pump	Magnetic drive pump							
Compressor	Rotary / Piston / Scroll / Screw compressor							
Operation Panel	7-inch touch screen , show temp curve\EXCEL data output							
Safety protection	Equipped with self-diagnostic function; multiple safety protections including compressor overload protection, high/low pressure protection, overload relays, and thermal protection.							
Connection size	ZG3/4	ZG1	ZG1	DN32	DN32	DN40	DN65	DN65
Cooling water flow/interface (≤32°C)	2800L/H ZG1	4800L/H DN32	6000L/H DN32	8m³/H DN40	20m³/H DN65	24m³/H DN65	34m³/H DN80	50m³/H DN100
Dimension cm	80*120*185	150*100*185	150*100*185	145*200*205	145*200*205	170*245*225	175*350*245	200*350*245
Weight kg	565	705	890	1250	1600	2100	2950	3350
Standard power 380V/50Hz	26kW	28kW	37kW	49kW	69kW	82kW	170kW	200kW

1. Rated test conditions: dry-bulb temperature 20 °C; wet-bulb temperature 16 °C; inlet water temperature 20 °C; outlet water temperature 25 °C.

2. The data in this table is for selection reference only. Specifications are subject to change without prior notice; please refer to the unit nameplate for final parameters.

3. For special non-standard customization, please contact us.

4. Water-cooled equipment requires a closed cooling tower or chiller water supply. If an open cooling tower is used, a filter must be installed. Water supply pressure: 1.5-4 bar.

CHILLER Cooling and heating temp control system **SUNDI Z variable frequency series**

Inverter Control for Refrigeration System

It adopts dynamic frequency adjustment technology, which automatically matches the optimal compressor power based on real-time temperature difference.

Energy saving of over 20%: avoids continuous full-load operation and reduces ineffective energy consumption.

Improved cooling rate: rapidly enhances refrigeration power in high-frequency mode, shortening the response time for temperature adjustment.

Inverter Control for Circulation Pump

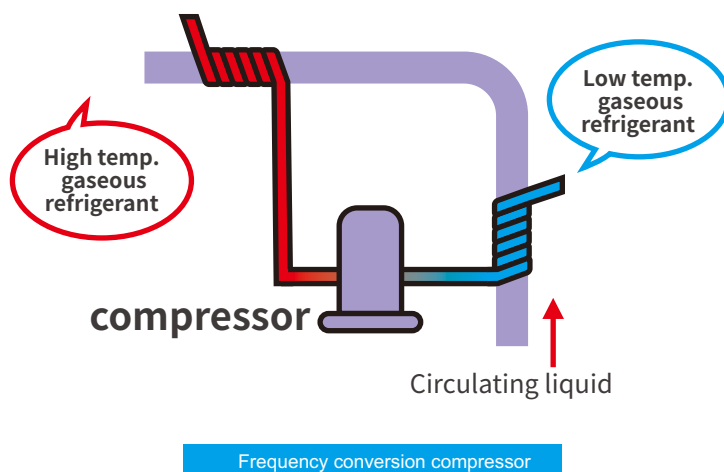
Intelligent flow regulation: supports a wide range of 35~400L/min. Through the inverter pump, the motor speed can be controlled at an appropriate value corresponding to the required pressure, preventing overload circulation.

Cooperates with the PID algorithm to achieve a temperature control accuracy of $\pm 0.1^{\circ}\text{C}$ for the heat transfer medium.

The inverter compressor and pump set reduces mechanical impact noise by more than 5 decibels and feature low starting current. They are suitable for laboratory and closed workshop environments.



What are the advantages of the variable frequency series compared to the fixed frequency series?



By increasing the frequency, increasing the cooling power, and improving the cooling rate

Cooling water: up to 60% reduction (compared with our company standard models)

Through separate control, the expansion valve is given the most appropriate control and the heat discharge of cooling water is reused and the power consumption is reduced, so the demand of cooling water is reduced.

SUNDI Z variable frequency series -45°C~+250°C

Model		SUNDIZ4-3 SUNDIZ4-3W	SUNDIZ4-5 SUNDIZ4-5W	SUNDIZ4-10 SUNDIZ4-10W	SUNDIZ4-15W	SUNDIZ4-20W	SUNDIZ4-30W
Temperature range		-45°C ~ +250°C					
Heating power		5.5kW	7.5kW	15kW	25kW	38kW	60kW
Cooling capacity kW	250°C	5.5kW	7.5kW	15kW	25kW	38kW	60kW
	20°C	5.5kW	7.5kW	15kW	25kW	38kW	60kW
	-15°C	2.3kW	3.6kW	7.5kW	11kW	15kW	33kW
	-35°C	0.9kW	1.5kW	3.3kW	5kW	6.5kW	10kW
Medium temp control accuracy		±0.1°C	±0.1°C	±0.1°C	±0.1°C	±0.1°C	±0.1°C
Process temp control accuracy		±0.3°C	±0.3°C	±0.3°C	±0.3°C	±0.3°C	±0.3°C
Flow/Pressure MAX		40L/min 2bar	40L/min 2bar	100L/min 2bar	150L/min 2.5bar	250L/min 2.5bar	400L/min 2.5bar
Interface size		ZG3/4	ZG3/4	ZG1	DN32 PN10	DN40 PN10	DN50 PN10
Control Mode		7-inch color touch screen , temperature curve display and logging					
Controller		Feedback PID + Our special dynamic control calculation, PLC controller					
Temp Control		Process temperature control and equipment outlet temperature control modes					
Program Editor		10 programs, each program can edit 40 steps					
Communication Protocol		MODBUS RTU protocol RS 485 interface					
External temp input		Pt100 or 4 ~ 20mA or communication setpoint					
Cascade Control Mode		The temp difference between the heat transfer oil outlet and an external temp sensor is adjustable and controllable; The temp difference between the equipment liquid inlet and outlet is adjustable and controllable (to ensure system safety).					
Closed Circulation System		The entire system is fully enclosed, preventing oil mist at high temp and absorbing no moisture from the air at low temp During operation, pressure does not rise due to high temp, and heat transfer medium is automatically replenished at low temp					
Heating		Refers to the maximum heating output power of the system (according to each model) The heater has triple protection and an independent temperature limiter to ensure the safety of the heating system Using a voltage regulator to control the heating output and reduce the output current of the heater during process temp control					
Cooling capacity		It refers to the ability to take away heat at different temperatures. In actual working conditions, environmental heat dissipation needs to be considered. Please enlarge it appropriately and take good insulation measures.					
External Circulation Pump Flow/Pressure		Magnetic drive pump					
Compressor		Piston/Rotary/Scroll Compressor (VF Control)					
Safety protection		Built-in self-diagnostic function; multiple safety protections including phase sequence/phase loss protection, chiller overload protection, overload relay, and thermal protection.					
Condenser		Air-cooled / water-cooled heat exchanger					
Case materia		Cold rolled steel powder coating(RAL7035)					
Standard power supply		380V 50HZ					

1. Rated test conditions: dry-bulb temperature 20 °C; wet-bulb temperature 16 °C; inlet water temperature 20 °C; outlet water temperature 25 °C.

2. The data in this table is for selection reference only. Specifications are subject to change without prior notice; please refer to the unit nameplate for final parameters.

3. For special non-standard customization, please contact us.

4. Water-cooled equipment requires a closed cooling tower or chiller water supply. If an open cooling tower is used, a filter must be installed. Water supply pressure: 1.5-4 bar.

SUNDI Z variable frequency series -80°C~+250°C

Model		SUNDIZ8-3W	SUNDIZ8-4W	SUNDIZ8-6W	SUNDIZ8-10W	SUNDIZ8-15W
Temperature range		-80°C ~ +250°C				
Heating power		3.5kW	5.5kW	7.5kW	10kW	15kW
Cooling capacity kW	250°C	3.5kW	5.5kW	7.5kW	15kW	20kW
	20°C	3.5kW	5.5kW	7.5 kW	15kW	20kW
	-60°C	1.3kW	1.8kW	3 kW	5.5kW	8kW
	-75°C	0.4kW	0.6kW	1 kW	1.8kW	2.7kW
Medium temp control accuracy		±0.1°C	±0.1°C	±0.1°C	±0.1°C	±0.1°C
Process temp control accuracy		±0.3°C	±0.3°C	±0.3°C	±0.3°C	±0.3°C
Flow/Pressure MAX		35L/min 2bar	50L/min 2bar	100L/min 2bar	150L/min 2.5bar	250L/min 2.5bar
Interface size		ZG3/4	ZG3/4	ZG1	DN32 PN10	DN40 PN10
Control Mode		7-inch color touch screen , temperature curve display and logging				
Controller		Feedback PID + Our special dynamic control calculation, PLC controller				
Temp Control		Process temperature control and equipment outlet temperature control modes				
Program Editor		10 programs, each program can edit 40 steps				
Communication Protocol		MODBUS RTU protocol RS 485 interface				
External temp input		Pt100 or 4 ~ 20mA or communication setpoint				
Cascade Control Mode		The temp difference between the heat transfer oil outlet and an external temp sensor is adjustable and controllable; The temp difference between the equipment liquid inlet and outlet is adjustable and controllable (to ensure system safety).				
Closed Circulation System		The entire system is fully enclosed, preventing oil mist at high temp and absorbing no moisture from the air at low temp During operation, pressure does not rise due to high temp, and heat transfer medium is automatically replenished at low temp				
Heating		Refers to the maximum heating output power of the system (according to each model) The heater has triple protection and an independent temperature limiter to ensure the safety of the heating system Using a voltage regulator to control the heating output and reduce the output current of the heater during process temp control				
Cooling capacity		It refers to the ability to take away heat at different temperatures. In actual working conditions, environmental heat dissipation needs to be considered. Please enlarge it appropriately and take good insulation measures.				
External Circulation Pump Flow/Pressure		Magnetic drive pump				
Compressor		Piston/Rotary/Scroll Compressor (VF Control)				
Safety protection		Built-in self-diagnostic function; multiple safety protections including phase sequence/phase loss protection, chiller overload protection, overload relay, and thermal protection.				
Condenser		Air-cooled / water-cooled heat exchanger				
Case materia		Cold rolled steel powder coating(RAL7035)				
Standard power supply		380V 50HZ				

1. Rated test conditions: dry-bulb temperature 20 °C; wet-bulb temperature 16 °C; inlet water temperature 20 °C; outlet water temperature 25 °C.

2. The data in this table is for selection reference only. Specifications are subject to change without prior notice; please refer to the unit nameplate for final parameters.

3.For special non-standard customization, please contact us.

4.Water-cooled equipment requires a closed cooling tower or chiller water supply. If an open cooling tower is used, a filter must be installed. Water supply pressure: 1.5~4 bar.

CHILLER Cooling and heating temp control system

Micro channel Series

Specialized design for micro channel (Small liquid holding capacity, strong heat exchange capacity, circulation system high pressure drop)

- Optimize temperature sampling and response speed, specially designed control algorithm, can quickly respond to the temperature control stability.
- Enhance the circulating pump capacity design to meet the requirements of reactor high pressure drop.
- Continuous high temperature cooling technology, to meet the high temperature exothermic reaction, the need for hot and cold constant temperature control of stable operation.



Model	SUNDIW-120	SUNDIW2-3 SUNDIW2-3W	SUNDIW5-4 SUNDIW5-4W	SUNDIW7-3 SUNDIW7-3W	SUNDIW2-3V SUNDIW2-3WV
Temperature Range	-5°C ~ +120°C	-25°C ~ +200°C	-45°C ~ +250°C	-70°C ~ +200°C	-20°C ~ +300°C
Control Mode	Feedback PID + Our special dynamic control calculation, PLC controller				
Temp Control	process temperature control and equipment outlet temperature control modes				
Differential temp control	The temp difference between the equipment outlet temp and the process temp is controllable and adjustable.				
communication protocol	MODBUS RTU protocol RS 485 interface				
External temp input	PT100 or 4 ~ 20mA or communication setpoint (default PT100)				
Temperature feedback	The temp of 3 points: equipment inlet and outlet, reactor material temperature (external temp sensor)				
Medium temp accuracy	±0.3°C				
Material temp accuracy	±1°C				
Heating Power kW	2kW	5.5kW	5.5kW	5.5kW	7.5kW
Cooling capacity	300°C				7.5kW
	200°C		5.5kW	5.5kW	7.5kW
	100°C	1.5kW	5.5kW	5kW	7.5kW
	20°C	1kW	5.5kW	5kW	5.5kW
	-15°C		2.5kW	4kW	2.5kW
	-35°C			1.5kW	3kW
	-60°C			1.1kW	
Flow/Pressure MAX	7L/min 2.5bar	25L/min 3bar	25L/min 3bar	25L/min 3bar	25L/min 3bar
Compressor	Piston/Rotary/Scroll Compressor				
Operational panel	7-inch color touch screen , temperature curve display and logging				
Safety protection	Features self-diagnostic function and multiple safety protections including refrigeration unit overload protection, high/low pressure protection, overload relay, and thermal protection device.				
Interface	ZG1/2	ZG3/4	ZG3/4	ZG3/4	ZG3/4
Cooling Method	Air-cooled	Air-cooled+Water-cooled/Water-cooled			
Cooling water flow/ interface (≤32°C)	/	1200L/H ZG3/4	1500L/H ZG3/4	1800L/H ZG3/4	1200L/H ZG3/4
Dimensions(A)cm	35*56*75	55*70*175	55*70*175	55*80*175	55*70*175
Dimensions(W)cm	/	45*70*160	45*70*130	55*80*175	45*70*160
Weight kg	82kg	195kg	205kg	325kg	245kg
Standard power supply 380V/50Hz	Single-phase 220V 3.1kW	9.5kW MAX	10kW MAX	12kW MAX	15kW MAX

SUNDIW Double Temp series -45°C~+250°C

Model		SUNDIW2-3-2T Double Temp range SUNDIW2-3W-2T Double Temp range		SUNDIW5-4-2T Double Temp range SUNDIW5-4W-2T Double Temp range	
Temperature Range		-25°C ~ 200°C		-45°C ~ +250°C	
Control Mode		Feedback PID + Our special dynamic control calculation, PLC controller			
Temp Control		process temperature control and equipment outlet temperature control modes			
Differential temp control		The temp difference between the equipment outlet temp and the process temp is controllable and adjustable.			
communication protocol		MODBUS RTU protocol RS 485 interface			
External temp input		PT100 or 4 ~ 20mA or communication setpoint (default PT100)			
Temperature feedback		The temp of 3 points: equipment inlet and outlet, reactor material temperature (external temp sensor)			
Medium temp accuracy		±0.3°C			
Material temp accuracy		±1°C			
Heating Power kW		5.5kW	5.5kW	5.5kW	5.5kW
Cooling capacity	300°C			5.5kW	5.5kW
	200°C	5.5kW	5.5kW	5.5kW	5.5kW
	100°C	5kW	5kW	5kW	5kW
	20°C	5kW	5kW	5kW	5kW
	-15°C	2 kW	2 kW	4kW	4kW
	-35°C			1.5kW	1.5kW
Flow/Pressure MAX		25L/min 3bar	25L/min 3bar	25L/min 3bar	25L/min 3bar
Compressor		Piston/Rotary/Scroll Compressor			
Operational panel		7-inch color touch screen , temperature curve display and logging			
Safety protection		Features self-diagnostic function and multiple safety protections including refrigeration unit overload protection, high/low pressure protection, overload relay, and thermal protection device.			
Interface		ZG3/4	ZG3/4	ZG3/4	ZG3/4
Cooling Method		Air-cooled+Water-cooled/Water-cooled		Air-cooled+Water-cooled/Water-cooled	
Cooling water flow/ interface (≤32°C)		2400L/H ZG1		3000L/H ZG1	
Dimensions(A)cm		70*100*175		70*100*175	
Dimensions(W)cm		70*85*175		70*85*175	
Weight kg		325kg		365kg	
Standard power supply 380V/50Hz		19kW MAX		20kW MAX	

1. Rated test conditions: dry-bulb temperature 20 °C; wet-bulb temperature 16 °C; inlet water temperature 20 °C; outlet water temperature 25 °C.
2. The data in this table is for selection reference only. Specifications are subject to change without prior notice; please refer to the unit nameplate for final parameters.
3. For special non-standard customization, please contact us.
4. Water-cooled equipment requires a closed cooling tower or chiller water supply. If an open cooling tower is used, a filter must be installed. Water supply pressure: 1.5~4 bar.



SUNDIW series -70°C~+200°C

Model		SUNDIW2-16W-2TExp		SUNDIW4-20W-2TExp		SUNDIW7-25WExp
Temperature Range		-25°C ~ 200°C	-25°C ~ 200°C	-45°C ~ 200°C	-45°C ~ 200°C	-70°C ~ 200°C
Control Mode		Feedback PID + Our special dynamic control calculation, PLC controller				
Temp Control		process temperature control and equipment outlet temperature control modes				
Differential temp control		The temp difference between the equipment outlet temp and the process temp is controllable and adjustable.				
communication protocol		MODBUS RTU protocol RS 485 interface				
External temp input		PT100 or 4 ~ 20mA or communication setpoint (default PT100)				
Temperature feedback		The temp of 3 points: equipment inlet and outlet, reactor material temperature (external temp sensor)				
Medium temp accuracy		±0.3°C				
Material temp accuracy		±1°C				
Heating Power kW		38kW	5.5kW	38kW	38kW	50kW
Cooling capacity	200°C	38kW		38kW	38kW	50kW
	100°C	38kW	5.5kW	38kW	38kW	50kW
	20°C	38kW	5.5kW	38kW	38kW	50kW
	-15°C	15kW	5.5kW	20kW	20kW	40kW
	-35°C		2.5kW	11kW	11kW	25kW
	-60°C					12kW
Flow/Pressure MAX		250L/min 2.5bar	250L/min 3bar	250L/min 3bar	250L/min 3bar	250L/min 3bar
Compressor		Piston/Rotary/Scroll Compressor				
Operational panel		7-inch color touch screen , temperature curve display and logging				
Safety protection		Features self-diagnostic function and multiple safety protections including refrigeration unit overload protection, high/low pressure protection, overload relay, and thermal protection device.				
Interface		DN50	DN50	DN50	DN50	DN50
Cooling water flow/ interface (≤32°C)		20m³/H DN65		24m³/H DN65		24m³/H DN65
Dimensions cm		250*200*220		250*200*220		250*200*220
Weight kg		2500kg		2600kg		2600kg
Standard power supply 380V/50Hz		110kW MAX		125kW MAX		120kW MAX

1. Rated test conditions: dry-bulb temperature 20 °C; wet-bulb temperature 16 °C; inlet water temperature 20 °C; outlet water temperature 25 °C.

2. The data in this table is for selection reference only. Specifications are subject to change without prior notice; please refer to the unit nameplate for final parameters.

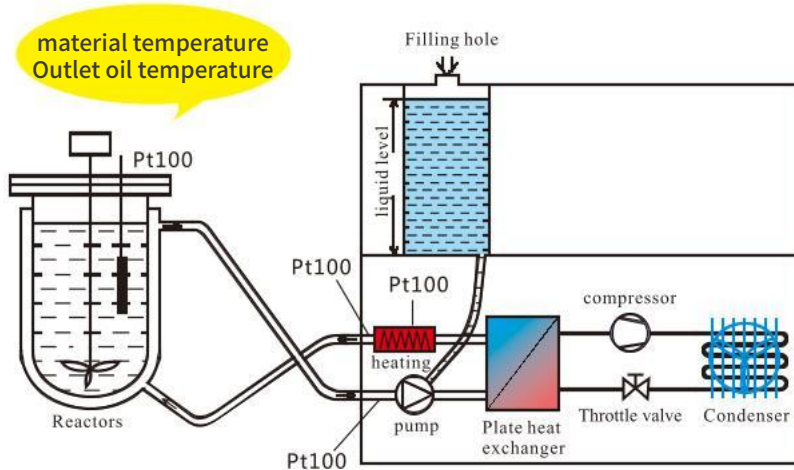
3. For special non-standard customization, please contact us.

4. Water-cooled equipment requires a closed cooling tower or chiller water supply. If an open cooling tower is used, a filter must be installed. Water supply pressure: 1.5–4 bar.

CHILLER Cooling and heating temp control system

Refrigerated Heating Circulator

- ✦ Wide working temperature range with cooling and heating function, temperature range: $-45^{\circ}\text{C} \sim +250^{\circ}\text{C}$.
- ✦ With 7 inch color TFT touch screen, can show the setting temp. & actual value, and alarm value for over temperature.
- ✦ Efficient fast, simple topping up liquid.
- ✦ Ensure fast cooling at high temperature and can achieve $+250^{\circ}\text{C} \sim -45^{\circ}\text{C}$ temperature control continuously.
- ✦ The cycle system is closed, there is no oil mist and water vapor happened, so as to assure the lab safety and heat transfer fluid lifetime.
- ✦ Use Copeland brand compressor, circulation pump, stable performance and reliable quality.
- ✦ Self-diagnosis function; freezer overload protection; high pressure switch, overload relay, thermal protection device, liquid low level protection, high temperature protection and temp. fault protection.
- ✦ Use the same kind of heat conducting in the whole heating-cooling cycle when control heat conducting medium temperature.
- ✦ High-lift design and meet the long-distance transportation of heat conducting medium.



- The heat conduction medium gets in contact with oxygen in air only in the expansion container, which has a temperature ranging from room temperature to $+60^{\circ}\text{C}$.
- The system prevents evaporation of the heat transfer medium at high temperatures, eliminating the need for replacement.
- Continuous control of the temp of the below range can be done without rising the pressure: $-90^{\circ}\text{C} \sim +195^{\circ}\text{C}$, $-70^{\circ}\text{C} \sim +220^{\circ}\text{C}$, $-55^{\circ}\text{C} \sim +250^{\circ}\text{C}$, $-25^{\circ}\text{C} \sim +300^{\circ}\text{C}$.

SUNDIQ series -25°C~+200°C

Model	SUNDIQ2-2	SUNDIQ2-3	SUNDIQ2-5	SUNDIQ2-6	SUNDIQ2-8
Temp range	-25°C~+200°C				
Controller	Single machine/ASET multifunctional controller, controlling the temperature of the water tank				PLC controller
Temp control	Thermal medium outlet temperature control				
Temp feedback	Heat-conducting medium Temperature feedback PT100 (Measure inlet temperature, outlet temperature)				
Temp accuracy	±0.5°C				
Heating power	3.5kW	5.5kW	7kW	10kW	15kW
Cooling Capacity	200°C	3.5kW	5.5kW	7kW	10kW
	100°C	3.5kW	5.5kW	7kW	10kW
	20°C	3.5kW	5.5kW	7kW	10kW
	-5°C	3kW	4.5kW	6.6kW	8kW
	-15°C	1.8kW	2.8kW	3.8kW	4.6kW
Flow/Pressure MAX	Max35L/min	Max35L/min	Max50L/min	Max60L/min	Max110L/min
	1.2BAR	1.2BAR	1.2BAR	1.5BAR	1.5BAR
Compressor	Piston/rotor/scroll compressor				
Evaporator	Plate heat exchanger				
Operation panel	7-inch color touch screen displays the set temperature and the measured temperature, records the temperature curve, and the data can be exported in Excel format.				
Safety Protection	Self-diagnosis function; freezer overload protection; High and low pressure protection; overload relay; thermal protection device and other safety protection.				
Closed Circulation System	The whole system is full closed circulation, there is no oil mist at high temp. and no water vapor at low temp., pressure do not rise up when system is running. The system will supplement oil automatically at low temperature.				
Connection size	ZG3/4	ZG3/4	ZG3/4	ZG1	ZG1
Dimension cm	45*70*160	45*70*160	55*110*170	55*110*170	70*85*185
Weight	165kg	235kg	265kg	290kg	320kg
Power supply	3-phase 380V/50Hz 6.5kW MAX	3-phase 380V/50Hz 8kW MAX	3-phase 380V/50Hz 13kW MAX	3-phase 380V/50Hz 18kW MAX	3-phase 380V/50Hz 26kW MAX

SUNDIQ series -45°C~+250°C

Model	SUNDIQ4-3	SUNDIQ4-4	SUNDIQ4-5	SUNDIQ4-6	SUNDIQ4-8
Temp range	-45°C~+250°C				
Controller	Single machine/ASET multifunctional controller, controlling the temperature of the water tank				PLC controller
Temp control	Heat-conducting medium outlet temp control				
Temp feedback	Heat-conducting medium temperature feedback PT100 (measure inlet temperature and outlet temperature)				
Temp accuracy	±0.5°C				
Heating power	3.5	5.5	7.5	10	15
Cooling Capacity	250°C	3.5	5.5	7.5	10
	100°C	3.5	5	7	10
	20°C	3.5	5	7	10
	0°C	3	5	7	10
	-15°C	1.5	2.8	4	5.5
	-35°C	0.45	0.9	1.5	2
Flow/Pressure MAX	Max35L/min	Max35L/min	Max50L/min	Max65L/min	Max110L/min
	1.2BAR	1.2BAR	1.2BAR	1.5BAR	1.5BAR
Compressor	Piston/rotor/scroll compressor				
Evaporator	Plate heat exchanger				
Operation panel	7-inch color touch screen displays the set temperature and the measured temperature, records the temperature curve, and the data can be exported in Excel format.				
Safety Protection	Self-diagnosis function; freezer overload protection; High and low pressure protection; overload relay; thermal protection device and other safety protection.				
Closed Circulation System	The whole system is full closed circulation, there is no oil mist at high temp. and no water vapor at low temp., pressure do not rise up when system is running. The system will supplement oil automatically at low temperature.				
Connection size	ZG3/4	ZG3/4	ZG3/4	ZG1	ZG1
Dimension cm	45*70*160	55*70*175	55*70*175	65*85*185	70*85*185
Weight	185kg	245kg	245kg	320kg	360kg
Power supply	3-phase 380V/50Hz 6.2kW MAX	3-phase 380V/50Hz 9kW MAX	3-phase 380V/50Hz 14kW MAX	3-phase 380V/50Hz 16kW MAX	3-phase 380V/50Hz 23kW MAX



Temp control in the testing process of new energy vehicle components

Cooling and Heating machine - temp&flow control system(motor vehicle antifreeze fluid)

The testing object is connected to a testing adapter Components cooling and heating test is conducted by ethylene glycol aqueous.

The test unit needs to go through a specific temperature change curve and record the temperature change. The temperature usually ranges from -40°C to 100°C (can be extended up to 150°C). The tolerance test is usually done in an infinite loop.

Condenser: Microchannel heat exchanger (air cooled)
Plate heat exchanger (water cooled)

Evaporator: Plate heat exchanger

Throttle equipment: Electronic expansion valve

Control system: PLC programmable controller

Communication: RS485 interface Modbus RTU protocol
Ethernet interface TCP/IP protocol

Operation interface: Wuxi Guanya custom 7-inch color touch screen, temperature curve display \EXCEL data export

PC remote control



Circulation system: The whole system is a fully closed system, low temperature does not absorb the water in the air, no volatile thermal media, low temperature automatically supplement the thermal media into the circulation system.

Case material: Cold-rolled plate spray RAL7035
Inside the pipeline contains: SUS304, copper, ceramic, silicon carbide, silicone sealant, PTFE

CHILLER Temperature, Flow and Pressure Control System KRY series

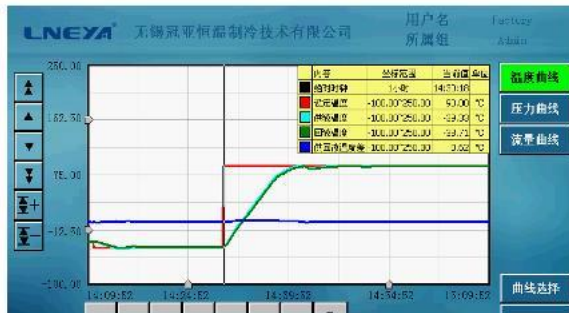
Multi channel temperature control



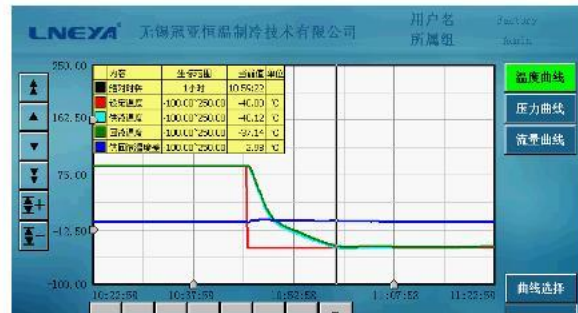
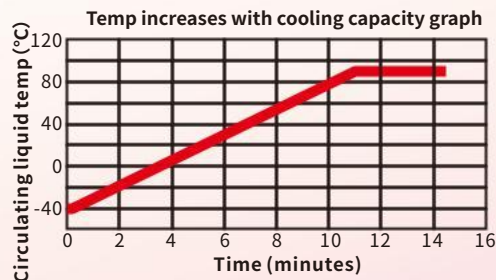
LNEYA PLC, Multi channel independent temp control

The system adopts LNEYA PLC control, simple menu navigation, a 7-inch color large screen, comprehensive and multifunctional image display of important data information (such as data, lines and annotations). The newly added security measures ensure continuous unattended operation. All relevant operational status data is continuously monitored and visualized on the touch screen. Support independent control of one to multiple flow channels, each group can be independently set.

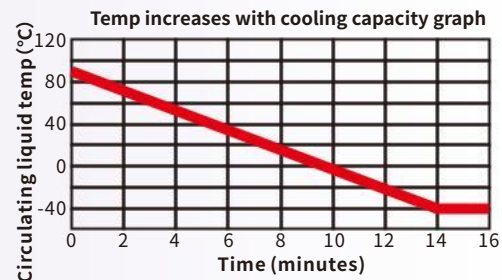
KRY-4A38W Heating and cooling rate



Thermal conductive medium: automotive antifreeze
Heating up: starting temp -40°C, target temp 90°C,
Heating time 11 minutes, average heating rate 11.82
Temperature control accuracy: $\pm 0.5^{\circ}\text{C}$
Flow accuracy: $\pm 0.2\text{L/min}$



Thermal conductive medium: automotive antifreeze
Cooling: starting temp 90°C, target temp -40°C
Cooling time 14 minutes, average cooling rate 9.28
Temperature control accuracy: $\pm 0.5^{\circ}\text{C}$
Flow accuracy: $\pm 0.2\text{L/min}$



- ◆ The temp of antifreeze ranges from -40°C ~+100°C (can be extended up to +150°C), with a very steep temp gradient
- ◆ The temperature control equipment can be flexibly connected to other testing platforms

Low temperature series -20°C~+100°C

Model		KRY-255 KRY-255W	KRY-275 KRY-275W	KRY-2A10 KRY-2A10W	KRY-2A15 KRY-2A15W	KRY-2A25 KRY-2A25W	KRY-2A38W
Temperature Range		-20℃ ~ +100℃					
Temp control accuracy		±0.3℃	±0.3℃	±0.3℃	±0.3℃	±0.3℃	±0.3℃
Temperature feedback		Pt100	Pt100	Pt100	Pt100	Pt100	Pt100
Temperature display		0.01k	0.01k	0.01k	0.01k	0.01k	0.01k
Flow rate output		1 ~ 15 L/min	1 ~ 25 L/min	1 ~ 30 L/min	1 ~ 40 L/min	1 ~ 40 L/min	1 ~ 40 L/min
Flow rate accuracy		±0.2 L/min	±0.2 L/min	±0.2 L/min	±0.2 L/min	±0.2 L/min	±0.2 L/min
Pressure display		Using a pressure sensor, the pressure is displayed on the touch screen and can be controlled and adjusted from 0.2~2.5 bar					
Heating capacity		5.5kW	7.5kW	10kW	15kW	25kW	38kW
Cooling capacity	100℃	5.5kW	7.5kW	10kW	15kW	25kW	38kW
	20℃	5.5kW	7.5kW	10kW	15kW	25kW	38kW
	0℃	5.5kW	7.5kW	10kW	15kW	25kW	38kW
	-15℃	2.8kW	3.8kW	4.6kW	7kW	12kW	16kW
Connection size		ZG3/4	ZG3/4	ZG3/4	ZG3/4	ZG3/4	ZG3/4
Cooling water flow rate/diameter(≤32℃)		1900L/H ZG3/4	2500L/H ZG3/4	3000L/H ZG1	4000L/H ZG1	6000L/H DN32	9000L/H DN40
Power supply		3-phase 380V/50Hz 11kW MAX	3-phase 380V/50Hz 14kW MAX	3-phase 380V/50Hz 19kW MAX	3-phase 380V/50Hz 23kW MAX	3-phase 380V/50Hz 31kW MAX	3-phase 380V/50Hz 45kW MAX
Dimension(cm)		55*100*175	55*100*175	70*100*175	80*120*185	100*150*185	100*150*185
Weight(w)		230kg	250kg	300kg	320kg	570kg	830kg

Low temperature series -40°C~+100°C

Model		KRY-455 KRY-455W	KRY-475 KRY-475W	KRY-4A10 KRY-4A10W	KRY-4A15 KRY-4A15W	KRY-4A25 KRY-4A25W	KRY-4A38W	KRY-4A60W
Temperature Range		-40℃ ~ +100℃						
Temp control accuracy		±0.3℃	±0.3℃	±0.3℃	±0.3℃	±0.3℃	±0.3℃	±0.3℃
Temperature feedback		Pt100	Pt100	Pt100	Pt100	Pt100	Pt100	Pt100
Temperature display		0.01k	0.01k	0.01k	0.01k	0.01k	0.01k	0.01k
Flow rate output		1 ~ 25L/min	1 ~ 25L/min	1 ~ 25L/min	1 ~ 40L/min	1 ~ 40L/min	1 ~ 40L/min	1 ~ 40L/min
Flow rate accuracy		±0.2L/min	±0.2L/min	±0.2L/min	±0.2L/min	±0.2L/min	±0.2L/min	±0.2L/min
Traffic Description		When the temperature control is below -30 ℃, the flow control is within 80% of the maximum value						
Pressure display		Using a pressure sensor, the pressure is displayed on the touch screen and can be controlled and adjusted from 0.2~2.5 bar						
Heating capacity		5.5kW	7.5kW	10kW	15kW	25kW	38kW	60kW
Cooling capacity	100℃	5.5kW	7.5kW	10kW	15kW	25kW	38kW	60kW
	20℃	5.5kW	7.5kW	10kW	15kW	25kW	38kW	60kW
	0℃	5.5kW	7.5kW	10kW	15kW	25kW	38kW	60kW
	-20℃	2.8kW	4.5kW	6kW	10kW	16kW	25kW	35kW
	-35℃	1.2kW	1.8kW	2.5kW	4kW	6.5kW	10kW	15kW
Connection size		ZG3/4	ZG3/4	ZG3/4	ZG3/4	ZG3/4	ZG3/4	ZG3/4
Cooling water flow rate/diameter(≤32℃)		1900L/H ZG3/4	2500L/H ZG3/4	3000L/H ZG1	4000L/H ZG1	6000L/H DN32	9000L/H DN40	15000L/H DN50
Power supply		3-phase 380V/ 50Hz 10kW	3-phase 380V/ 50Hz 14kW	3-phase 380V/ 50Hz 17kW	3-phase 380V/ 50Hz 25kW	3-phase 380V/ 50Hz 38kW	3-phase 380V/ 50Hz 58kW	3-phase 380V/ 50Hz 84kW
Dimension(cm)		55*100*175	55*100*175	70*100*175	80*120*185	100*150*185	100*150*185	200*145*205
Weight(w)		250kg	280kg	320kg	360kg	620kg	890kg	1300kg

One machine for two groups control -40°C~+100°C

Temperature/pressure/flow can be independently controlled

Model		KRY-475/2T KRY-475W/2T	KRY-4A15W/2T	KRY-4A25W/2T	KRY-4A38W/2T	KRY-4A60W/2T
Temperature Range		-40°C ~ +100°C				
Temp control accuracy		±0.3°C	±0.3°C	±0.3°C	±0.3°C	±0.3°C
Temperature feedback		Pt100	Pt100	Pt100	Pt100	Pt100
Temperature display		0.01k	0.01k	0.01k	0.01k	0.01k
Flow control/Group		1 ~ 25 L/min	1 ~ 40 L/min	1 ~ 40 L/min	1 ~ 40 L/min	1 ~ 40 L/min
Flow control accuracy/Group		±0.2L/min	±0.2L/min	±0.2L/min	±0.2L/min	±0.2L/min
Number of fluid output groups		2groups	2groups	2groups	2groups	2groups
Pressure control/group		0.2bar ~ 2.5bar	0.2bar ~ 2.5bar	0.2bar ~ 2.5bar	0.2bar ~ 2.5bar	0.2bar ~ 2.5bar
Flow pressure description		The equipment can control the flow independently, and it can also control the pressure independently. If simultaneous control is required, different solutions (which need to be customized) should be adopted.				
Heating power		7.5kW*2	10kW*2	15kW*2	25kW*2	38kW*2
Cooling capacity	100°C	7.5kW*2	15kW*2	25kW*2	38kW*2	60kW*2
	20°C	7.5kW*2	15kW*2	25kW*2	38kW*2	60kW*2
	0°C	7.5kW*2	15kW*2	25kW*2	38kW*2	60kW*2
	-20°C	4.5kW*2	8.5kW*2	14kW*2	22kW*2	35kW*2
	-35°C	1.8kW*2	4kW*2	6.5kW*2	10kW*2	15kW*2
Compressor		Piston/rotor/scroll compressor				
Throttle type		Electronic expansion valve				
Evaporator		Plate heat exchanger				
Circulating pump		Magnetic drive pmup				
Flow rate, pressure		Thermal expansion valve				
Operation panel		7-inch color touch screen displays the set temperature and the measured temperature, records the temperature curve, and the data can be exported in Excel format.				
Communication protocol		Modbus RTU protocol RS485 interface, optional CAN communication bus, Ethernet interface TCP/IP protocol				
Safety protection		With self-diagnosis function; Refrigerator overload protection; High pressure switch, overload relay, thermal protection device, high temperature protection, sensor fault protection and other safety functions				
Closed circulation system		The whole system is a fully closed system, there will be no oil mist at high temperature, the system in operation will not because of high temperature pressure rise, low temperature automatically add heat conduction medium.				

Connection size	There are two groups of inlet and outlet, ZG3/4				
Cooling water flow rate/diameter(≤32°C)	4000L/H ZG1	8000L/H DN32	12000L/H DN40	20000L/H DN50	30000L/H DN65
Condenser(W)	Condenser adopts plate heat exchanger, so please use chiller to provide cooling water or low hardness tap water				
Power supply	28kW	45kW	70kW	108kW	158kW
Dimension cm	80*120*185	100*150*185	200*145*205	200*145*205	250*145*225
Weight	660kg	850kg	1350kg	1800kg	2600kg
Optional	220V 60HZ Three phase 400V 50HZ Three phase 460V 60HZ Three phase , Extend to -40~+135°C				
Optional	The size external circulation pipe line is DN15 or DN20, do not throttle, which will increase the circulation pump load, pipe need to be insulated, and adopt rubber and plastic insulation pipe which can afford high temp. liquid low level protection				
Optional	Temp accuracy (± 0.1 °C), flow accuracy (± 0.1L/min), pressure accuracy, lower flow limit: (0.2L/min) customization required				

One machine for six groups control -20°C~+100°C

Temperature six groups are consistent, pressure/flow rate is independently controlled

Model		KRY-2A25W/6S	KRY-2A38W/6S	KRY-2A60W/6S
Temperature Range		-20°C ~ +100°C		
Temp control accuracy		±0.3°C	±0.3°C	±0.3°C
Temperature feedback		Pt100	Pt100	Pt100
Temperature display		0.01k	0.01k	0.01k
Flow control/Group		1 ~ 25 L/min	1 ~ 25 L/min	1 ~ 40 L/min
Flow control accuracy/Group		±0.2L/min	±0.2L/min	±0.2L/min
Number of fluid output groups		6 groups	6 groups	6 groups
Pressure control/group		0.2bar ~ 2.5bar	0.2bar ~ 2.5bar	0.2bar ~ 2.5bar
Flow pressure description		The unit can control the flow individually or separately. Need to control different solutions at the same time (customized)		
Heating power		15kW	25kW	38kW
Cooling capacity	100°C	25kW	38kW	60kW
	20°C	25kW	38kW	60kW
	0°C	25kW	38kW	60kW
	-15°C	10kW	15kW	24kW
Compressor		Piston/rotor/scroll compressor		
Throttle type		Electronic expansion valve		
Oil separator		Emerson/GUANYA		
Dry filter		Danfoss		
Evaporator		Plate heat exchanger		
Circulation pump		Magnetic driven pump		
Flow pressure		The pump speed is regulated by frequency converter		
Input display		7-inch color touch screen \ PLC controller		
Communication		Modbus RTU protocol RS485 interface, optional CAN communication bus, Ethernet interface TCP/IP protocol		
Safety protection		With self-diagnosis function; Refrigerator overload protection; High pressure switch, overload relay, thermal protection device, high temperature protection, sensor fault protection and other safety functions		
Closed circulation system		The whole system is a fully closed system, there will be no oil mist at high temperature, the system in operation will not because of high temperature pressure rise, low temperature automatically add heat conduction medium.		
Refrigerant		R454C/R290/R507		
Connection size		There are six groups of inlet and outlet, ZG3/4		
Cooling water flow rate/diameter(≤32°C) Condenser(W)		8000L/H DN40	12000L/H DN50	20000L/H DN50
Condenser(A)		Shenshi tube type heat exchanger		
Power 380V50HZ		Optional air-cooled equipment, upward wind, the equipment size will increase		
Dimension cm		36kW max	51kW max	75kW max
Weight		200*145*205	200*145*205	200*145*205
Optional		900kg	1100kg	1750kg
Optional		220V 60HZ Three phase 400V 50HZ Three phase 440V 60HZ Three phase Extend to -40~+135°C		
Optional		The size external circulation pipe line is DN15 or DN20, do not throttle, which will increase the circulation pump load, pipe need to be insulated, and adopt rubber and plastic insulation pipe which can afford high temp, liquid low level protection		
Optional		When the temp. is lower than the normal temp., the refrigeration system uses the cooling PID to adjust the cooling capacity, and does not adopt the heating countermeasure mode to achieve energy saving purposes.		
Optional		Temp accuracy (± 0.1 °C), flow accuracy (± 0.1L/min), pressure accuracy, lower flow limit: (0.2L/min) customization required		

One machine for six groups control -40°C~+100°C

Temperature six groups are consistent, pressure/flow rate is independently controlled

Model		KRY-4A25W/6S	KRY-4A38W/6S	KRY-4A60W/6S
Temperature Range		-40°C ~ +100°C		
Temp control accuracy		±0.3°C	±0.3°C	±0.3°C
Temperature feedback		Pt100	Pt100	Pt100
Temperature display		0.01k	0.01k	0.01k
Flow control/Group		1 ~ 25 L/min	1 ~ 25 L/min	1 ~ 40 L/min
Flow control accuracy/Group		±0.2L/min	±0.2L/min	±0.2L/min
Number of fluid output groups		6 groups	6 groups	6 groups
Pressure control/group		0.2bar ~ 2.5bar	0.2bar ~ 2.5bar	0.2bar ~ 2.5bar
Flow description		When the temperature control is lower than -30 degrees, the flow rate is controlled within 80% of the maximum value		
Flow pressure description		The unit can control the flow individually or separately. Need to control different solutions at the same time (customized)		
Heating power		15kW	25kW	38kW
Cooling capacity	100°C	25kW	38kW	60kW
	20°C	25kW	38kW	60kW
	0°C	25kW	38kW	60kW
	-20°C	14kW	22kW	35kW
	-35°C	5kW	8kW	13kW
Compressor		Piston/rotor/scroll compressor		
Throttle type		Electronic expansion valve		
Oil separator		Emerson/GUANYA		
Dry filter		Danfoss		
Evaporator		Plate heat exchanger		
Circulation pump		Magnetic driven pump		
Flow regulation mode		The pump speed is regulated by frequency converter		
Flow pressure		Electromagnetic flowmeter, pressure value 4~20mA		
Input display		7-inch color touch screen \ PLC controller		
Communication		Modbus RTU protocol RS485 interface, optional CAN communication bus, Ethernet interface TCP/IP protocol		
Safety protection		With self-diagnosis function; Refrigerator overload protection; High pressure switch, overload relay, thermal protection device, high temperature protection, sensor fault protection and other safety functions		
Closed circulation system		The whole system is a fully closed system, there will be no oil mist at high temperature, the system in operation will not because of high temperature pressure rise, low temperature automatically add heat conduction medium.		
Refrigerant		R454C/R290/R507/R125/N40		
Connection size		There are six groups of inlet and outlet, ZG3/4		
Cooling water flow rate/diameter(≤32°C) Condenser(W)		8000L/H DN40	12000L/H DN50	18000L/H DN65
		Shenshi tube type heat exchanger		
Power 380V/50HZ		38kW max	55kW max	82kW max
Dimension cm		200*145*205	200*145*205	200*145*205
Weight		900kg	1200kg	1950kg
Optional		220V 60HZ Three phase 400V 50HZ Three phase 440V 60HZ Three phase Extend to -40~+135°C		
Optional		The size external circulation pipe line is DN15 or DN20, do not throttle, which will increase the circulation pump load, pipe need to be insulated, and adopt rubber and plastic insulation pipe which can afford high temp, liquid low level protection		
Optional		Temp accuracy (± 0.1 °C), flow accuracy (± 0.1L/min), pressure accuracy, lower flow limit: (0.2L/min) customization required		

Ordinary temperature 0°C~+100°C

Model		KRY-25	KRY-55	KRY-75	KRY-A10	KRY-A15 KRY-A15W	KRY-A25 KRY-A25W	KRY-A38W	KRY-A60W
Temperature Range		0°C ~ +100°C							
Temp control accuracy		±0.3°C	±0.3°C	±0.3°C	±0.3°C	±0.3°C	±0.3°C	±0.3°C	±0.3°C
Temperature feedback		Pt100	Pt100	Pt100	Pt100	Pt100	Pt100	Pt100	Pt100
Temperature display		0.01k	0.01k	0.01k	0.01k	0.01k	0.01k	0.01k	0.01k
Flow rate output		2 ~ 20 L/min	2 ~ 25 L/min					5~50 L/min	
Flow rate accuracy		±0.2 L/min							
Pressure display		Using a pressure sensor, the pressure is displayed on the touch screen and can be controlled and adjusted from 0.2~2.5 bar							
Heating power		2.5kW	5.5kW	7.5kW	10kW	15kW	15kW	25kW	38kW
Cooling capacity	100°C	2.5kW	5.5kW	7.5kW	10kW	15kW	25kW	38kW	60kW
	20°C	2.5kW	5.5kW	7.5kW	10kW	15kW	25kW	38kW	60kW
	5°C	1.8kW	3.8kW	5.2kW	7kW	11kW	18kW	27kW	42kW
Compressor		Piston/rotor/scroll compressor							
Throttle type		Electronic expansion valve							
Oil separator		Emerson/GUANYA							
Dry filter		Danfoss							
Evaporator		Plate heat exchanger							
Input display		7-inch color touch screen \ PLC controller							
Program Editor		5 programs, each program can edit 40 steps							
Communication		Modbus RTU protocol RS485 interface, optional CAN communication bus, Ethernet interface TCP/IP protocol							
Safety protection		With self-diagnosis function; Refrigerator overload protection; High pressure switch, overload relay, thermal protection device, high temperature protection, sensor fault protection and other safety functions							
Closed circulation system		The whole system is a fully closed system, there will be no oil mist at high temperature, the system in operation will not because of high temperature pressure rise, low temperature automatically add heat conduction medium.							
Refrigerant		R410A							
Flow sensor		Brand flow sensor							
Connection size		ZG3/4	ZG3/4	ZG3/4	ZG3/4	ZG3/4	ZG3/4	ZG3/4	ZG3/4
Cooling water flow rate/diameter(≤32°C)						3200L/H ZG1	6000L/H ZG1 1/4	9000L/H DN40	15000L/H DN50
Condenser(W)		Paris/Shenshi tube type heat exchanger							
Condenser(A)		Optional air-cooled equipment, upward wind, the equipment size will increase							
Power 380V50HZ		4.5kW 220V	8.5kW	11.5kW	16kW	18kW	28kW	40kW	61kW
Dimension cm		50*85 *145	55*100 *175	55*100 *175	70*100 *175	80*120 *185	100*150 *185	100*150 *185	100*150 *185
Weight		220kg	250kg	280kg	320kg	360kg	620kg	890kg	1300KG
Optional		220V 60HZ three-phase 460V 60HZ three-phase							
Optional		Higher precision control of temperature, flow rate, and pressure							
Optional		Automatic antifreeze system, automatic liquid recovery system							
Optional		Temp accuracy (± 0.1 °C), flow accuracy (± 0.1L/min), pressure accuracy, lower flow limit: (0.2L/min) customization required							
Case material		Cold rolled sheet (RAL7035)							

One machine for two groups control 0°C~+100°C

Temperature/pressure/flow can be independently controlled

Model		KRY-25 /2T	KRY-55 /2T	KRY-75 /2T	KRY-A10 /2T	KRY-A15W /2T	KRY-A25W /2T	KRY-A38W /2T	KRY-A60W /2T
Temp Range		0°C ~ +100°C							
Temp control accuracy		±0.3°C	±0.3°C	±0.3°C	±0.3°C	±0.3°C	±0.3°C	±0.3°C	±0.3°C
Temp feedback		Pt100	Pt100	Pt100	Pt100	Pt100	Pt100	Pt100	Pt100
Temp display		0.01k	0.01k	0.01k	0.01k	0.01k	0.01k	0.01k	0.01k
Flow rate output		2 ~ 20L/min	2 ~ 25L/min					5 ~ 50L/min	
Flow rate accuracy		±0.2L/min							
Pressure display		Using a pressure sensor, the pressure is displayed on the touch screen and can be controlled and adjusted from 0.2~2 bar							
Heating power		2.5kW*2	5.5kW*2	7.5kW*2	10kW*2	15kW*2	15kW*2	25kW*2	38kW*2
Cooling capacity	100°C	2.5kW*2	5.5kW*2	7.5kW*2	10kW*2	15kW*2	25kW*2	38kW*2	60kW*2
	20°C	2.5kW*2	5.5kW*2	7.5kW*2	10kW*2	15kW*2	25kW*2	38kW*2	60kW*2
	5°C	1.8kW*2	3.8kW*2	5.2kW*2	7kW*2	11kW*2	18kW*2	27kW*2	42kW*2
Compressor		Piston/rotor/scroll compressor							
Throttle type		Electronic expansion valve							
Oil separator		Emerson/GUANYA							
Dry filter		Danfoss							
Evaporator		Plate heat exchanger							
Input display		7-inch color touch screen \ PLC controller							
Program Editor		5 programs, each program can edit 40 steps							
Communication		Modbus RTU protocol RS485 interface, optional CAN communication bus, Ethernet interface TCP/IP protocol							
Safety protection		With self-diagnosis function; Refrigerator overload protection; High pressure switch, overload relay, thermal protection device, high temperature protection, sensor fault protection and other safety functions							
Closed circulation system		The whole system is a fully closed system, there will be no oil mist at high temperature, the system in operation will not because of high temperature pressure rise, low temperature automatically add heat conduction medium.							
Refrigerant		R454C/R290/R507							
Flow sensor		Brand flow sensor							
Connection size		ZG3/4	ZG3/4	ZG3/4	ZG3/4	ZG3/4	ZG3/4	ZG3/4	ZG3/4
Cooling water flow rate/diameter(≤32°C)						5600L/H ZG1 1/8	10000L/H DN40	17000L/H DN50	24000L/H DN65
Condenser(W)		Paris/Shenshi tube type heat exchanger							
Condenser(A)		Optional air-cooled equipment, upward wind, the equipment size will increase							
Power 380V50HZ		9kW	19kW	23kW	29KW	34kW	52kW	80kW	120kW
Dimension cm		55*100 *175	70*100 *175	80*120 *185	100*150 *185	100*150 *185	200*145 *205	200*145 *205	250*145 *225
Weight		260kg	320kg	400kg	580kg	750kg	1250kg	1600kg	2400kg
Optional		220V 60HZ three-phase 460V 60HZ three-phase							
Optional		Higher precision control of temperature, flow rate, and pressure							
Optional		Automatic antifreeze system, automatic liquid recovery system							
Optional		Temp accuracy (± 0.1 °C), flow accuracy (± 0.1L/min), pressure accuracy, lower flow limit: (0.2L/min) customization required							
Case material		Cold rolled sheet (RAL7035)							

One machine for six groups control 0°C~+100°C

Temperature six groups are consistent, pressure/flow rate is independently controlled

Model		KRY-A25W/6S	KRY-A38W/6S	KRY-A60W/6S
Temperature Range		0°C ~ +100°C		
Temp control accuracy		±0.3°C	±0.3°C	±0.3°C
Temperature feedback		Pt100	Pt100	Pt100
Temperature display		0.01k	0.01k	0.01k
Flow control/Group		2 ~ 25 L/min	2 ~ 25 L/min	2 ~ 25 L/min
Flow control accuracy/Group		±0.2L/min	±0.2L/min	±0.2L/min
Number of fluid output groups		6 groups	6 groups	6 groups
Pressure control/group		0.2bar ~ 2.5bar	0.2bar ~ 2.5bar	0.2bar ~ 2.5bar
Flow pressure description		The unit can control the flow individually or separately. Need to control different solutions at the same time (customized)		
Heating power		15kW	25kW	38kW
Cooling capacity	100°C	25kW	38kW	60kW
	20°C	25kW	38kW	60kW
	5°C	18kW	27kW	42kW
Compressor		Piston/rotor/scroll compressor		
Throttle type		Electronic expansion valve		
Oil separator		Emerson/GUANYA		
Dry filter		Danfoss		
Evaporator		Plate heat exchanger		
Circulation pump		Centrifugal pump, optional magnetic drive pump		
Flow pressure		The pump speed is regulated by frequency converter		
Input display		7-inch color touch screen \ PLC controller		
Communication		Modbus RTU protocol RS485 interface, optional CAN communication bus, Ethernet interface TCP/IP protocol		
Safety protection		With self-diagnosis function; Refrigerator overload protection; High pressure switch, overload relay, thermal protection device, high temperature protection, sensor fault protection and other safety functions		
Closed circulation system		The whole system is a fully closed system, there will be no oil mist at high temperature, the system in operation will not because of high temperature pressure rise, low temperature automatically add heat conduction medium.		
Refrigerant		R454C/R290/R507/R125/N40		
Connection size		There are six groups of inlet and outlet, ZG3/4		
Cooling water flow rate/diameter(≤32°C) Condenser(W)		6000L/H DN32	9000L/H DN40	15000L/H DN50
		Shenshi tube type heat exchanger		
Power 380V50HZ		38kW max	55kW max	82kW max
Dimension cm		200*145*205	200*145*205	200*145*205
Weight		900kg	1200kg	1950kg
Optional		The size external circulation pipe line is DN15 or DN20, do not throttle, which will increase the circulation pump load, pipe need to be insulated, and adopt rubber and plastic insulation pipe which can afford high temp, liquid low level protection		
Optional		When the temp is lower than the normal temp., the refrigeration system uses the cooling PID to adjust the cooling capacity, and does not adopt the heating countermeasure mode to achieve energy saving purposes.		
Optional		Temp accuracy (± 0.1 °C), flow accuracy (± 0.1L/min), pressure accuracy, lower flow limit: (0.2L/min) customization required		
Case material		Cold rolled sheet (RAL7035)		

CHILLER Temperature, Flow, and Pressure Control System **KRY variable frequency series**

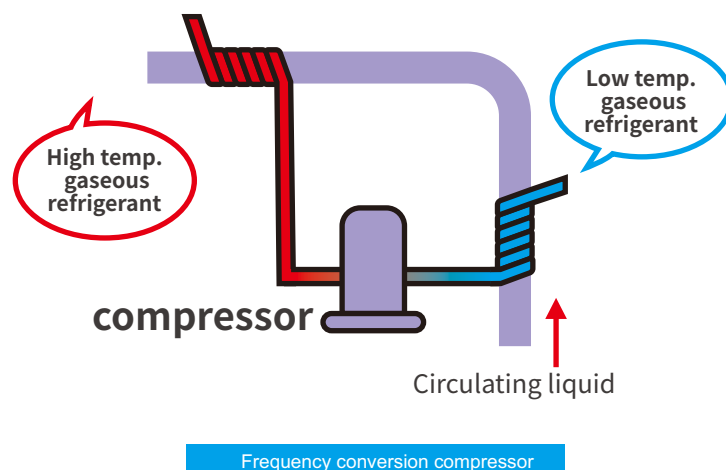
Adopting a variable frequency vortex compressor, the operating speed is automatically adjusted according to actual needs, providing the required cooling capacity. Compared with traditional fixed frequency compressors, it significantly reduces energy consumption and improves energy efficiency performance.

Constant power output function for both hot and cold, maintaining stable performance within the temperature range of -40°C to 100°C, especially suitable for extreme working conditions

A power system is used for temperature control of multiple channels, with shorter wiring operation time



What are the advantages of the variable frequency series compared to the fixed frequency series?



By increasing the frequency, increasing the cooling power, and improving the cooling rate

Cooling water: up to 60% reduction (compared with our company standard models)

Through separate control, the expansion valve is given the most appropriate control, and the heat discharge of cooling water is reused and the power consumption is reduced, so the demand of cooling water is reduced.

KRY variable frequency series -40°C~+100°C

Model		KRYZ-475/KRYZ-475W	KRYZ-4A15W	KRYZ-4A25W
Temperature Range		-40°C ~ +100°C	-40°C ~ +100°C	-40°C ~ +100°C
Temp control accuracy		±0.1°C	±0.1°C	±0.1°C
Temperature feedback		Pt100	Pt100	Pt100
Temperature display		0.01k	0.01k	0.01k
Flow rate output		1 ~ 25 L/min	1 ~ 25 L/min	1 ~ 25 L/min
Traffic description		When the temperature is below -30 degrees, the flow control is within 80% of the maximum value		
Flow rate accuracy		±0.1 L/min	±0.1 L/min	±0.1 L/min
Pressure display		The unit can control the flow individually or separately. Need to control different solutions at the same time (customized)		
Heating power		7.5kW	15kW	25kW
Cooling capacity	100°C	7.5kW	15kW	25kW
	20°C	7.5kW	15kW	25kW
	0°C	7.5kW	15kW	25kW
	-20°C	4.5kW	10kW	16kW
	-35°C	1.8kW	4kW	6.5kW
Compressor		Brand compressor(Inverter)		
Throttle type		Electronic expansion valve		
Oil separator		Emerson		
Dry filter		Danfoss		
Evaporator		Plate heat exchanger		
Circulation pump		Magnetic driven pump		
Input display		7-inch color touch screen \ PLC controller		
Program Editor		5 programs, each program can edit 40 steps		
Communication		Modbus RTU protocol RS485 interface, optional CAN communication bus, Ethernet interface TCP/IP protocol		
Safety protection		With self-diagnosis function; Refrigerator overload protection; High and low pressure protection, overload relay, thermal protection device, high temperature protection, sensor fault protection and other safety functions		
Closed circulation system		The whole system is a fully closed system, there will be no oil mist at high temperature, the system in operation will not because of high temperature pressure rise, low temperature automatically add heat conduction medium.		
Refrigerant		R454C/R290/ R507		
Connection size		ZG3/4	ZG3/4	ZG3/4
Water-cooled At20°C		2500L/H ZG3/4	4000L/H ZG1	6000L/H DN32
Condenser(W)		Special attention should be paid to the use of plate heat exchangers in the water circuit equipment condenser of this series of products. Water supply from a chiller or low hardness tap water requires a water purification filter		
Condenser(A)		Microchannel heat exchanger	/	/
Power 380V50HZ		14kW	25kW	38kW
Dimension cm		55*85*175	70*100*175	80*120*185
Weight		280kg	360kg	620kg
Standard		Automatic antifreeze system, automatic liquid recovery system		
Optional		220V 60HZ three-phase 460V 60HZ three-phase temperature, extended to -40 °C~+135 °C		
Optional		The size external circulation pipe line is DN15 or DN20, do not throttle, which will increase the circulation pump load, pipe need to be insulated, and adopt rubber and plastic insulation pipe which can afford high temp, liquid low level protection		
Case material		Cold rolled sheet (RAL7035)		

1. Rated test conditions: dry bulb temperature: 20 °C; Wet bulb temperature: 16 °C. Inlet water temperature: 20 °C; Outlet temperature: 25 °C
- 2.. The data in this table is for reference only, please focus on the parameters on the unit nameplate.
3. If you need customized special non-standard products, please contact our company.

KRY variable frequency dual-channel series -40°C~+100°C

Model	KRYZ-475W/2T	KRYZ-4A15W/2T	KRYZ-4A25W/2T
Temperature Range	-40°C ~ +100°C	-40°C ~ +100°C	-40°C ~ +100°C
Temp control accuracy	±0.1°C	±0.1°C	±0.1°C
Temperature feedback	Pt100	Pt100	Pt100
Temperature display	0.01k	0.01k	0.01k
Flow rate output	1 ~ 25 L/min	1 ~ 25 L/min	1 ~ 25 L/min
Traffic description	When the temperature is below -30 degrees, the flow control is within 80% of the maximum value		
Flow control accuracy/Group	±0.1 L/min	±0.1 L/min	±0.1 L/min
Number of fluid output groups	2 groups	2 groups	2 groups
Pressure control/group	0.2bar ~ 2.5bar	0.2bar ~ 2.5bar	0.2bar ~ 2.5bar
Flow pressure description	The unit can control the flow individually or separately. Need to control different solutions at the same time (customized)		
Heating power	7.5kW*2	10kW*2	15kW*2
Cooling capacity	100°C	7.5kW*2	15kW*2
	20°C	7.5kW*2	15kW*2
	0°C	7.5kW*2	15kW*2
	-20°C	4.5kW*2	8.5kW*2
	-35°C	1.8kW*2	4kW*2
Compressor	Brand compressor(Inverter)		
Throttle type	Electronic expansion valve		
Oil separator	Emerson		
Dry filter	Danfoss		
Evaporator	Plate heat exchanger		
Circulation pump	Magnetic driven pump		
Input display	7-inch color touch screen \ PLC controller		
Program Editor	5 programs, each program can edit 40 steps		
Communication	Modbus RTU protocol RS485 interface, optional CAN communication bus, Ethernet interface TCP/IP protocol		
Safety protection	With self-diagnosis function; Refrigerator overload protection; High and low pressure protection, overload relay, thermal protection device, high temperature protection, sensor fault protection and other safety functions		
Closed circulation system	The whole system is a fully closed system, there will be no oil mist at high temperature, the system in operation will not because of high temperature pressure rise, low temperature automatically add heat conduction medium.		
Refrigerant	R454C/R290/R507/R125/N40		
Connection size	There are two groups of inlet and outlet, ZG3/4		
Water-cooled At20°C	4000L/H ZG1	8000L/H DN32	12000L/H DN40
Condenser(W)	Special attention should be paid to the use of plate heat exchangers in the water circuit equipment condenser of this series of products. Water supply from a chiller or low hardness tap water requires a water purification filter		
Power 380V50HZ	80*120*185	100*150*185	200*145*205
Dimension cm	28kW	45kW	70kW
Weight	660kg	850kg	1350kg
Standard	Automatic antifreeze system, automatic liquid recovery system		
Optional	220V 60HZ three-phase 460V 60HZ three-phase temperature, extended to -40 °C~+135 °C		

Hourly power consumption kWh	-40°C	-10°C	20°C
KRY-475	5	6.2	8.4
KRYZ-475	2.2	4	4.8
Frequency conversion saves power consumption	56%	35%	43%
explain	1. Empty load test data; 2. The test condition is an ambient temperature of 20 °C; 3. Flow rate 15L/min		

CHILLER Temperature, Flow, and Pressure Control System

KRY direct cooling and heating series

The equipment can meet the requirements of direct cooling/direct heating for battery pack and vehicle testing and testing. This device is mainly used for testing cooling capacity and heating capacity. It adopts a variable frequency compressor with adjustable output; Adopting variable frequency fan with adjustable speed and heat dissipation capacity; Combined with high-precision temperature, pressure, and flow sensors, as well as built-in software, it can calculate heat transfer capacity in real time and automatically recover and add refrigerant. Can accommodate battery packs of different sizes.



Model	KRYZ-5W-ZLH KRYZ-5-ZLH	KRYZ-5W-ZL KRYZ-5-ZL
Cooling capacity	0.5kw~10kw	0.5kw~10kw
Heating capacity	0.5kw~10kw	
Undercooling degree	Refrigeration 0k~8K Heating at 0k~6k in low-temp environment, 6k~20k	Refrigeration 0k~8K
Overheating degree	Refrigeration 2k~20k Heating 2k~10k	Refrigeration 2k~20k
Condensation pressure control accuracy	Better than $\pm 50\text{kpa}$	Better than $\pm 50\text{kpa}$
Suction pressure	300kpa~650kpa $\pm 10\text{kpa}$	300kpa~650kpa $\pm 10\text{kpa}$
Battery pack testing environment Temp	-40°C~+50°C	-40°C~+50°C
Refrigerant flow metering	Flowmeter	Flowmeter
Refrigerant	R134A or R1234yf	R134A or R1234yf
Cooling method (Air cooling)	Variable frequency fan	Variable frequency fan
Cooling method (Water cooling)	20°C 3m³/h	20°C 1.8m³/h
Compressor	Brand variable frequency compressor	Brand variable frequency compressor
10 inch touch screen display	Real time display of various temperatures, subcooling, superheat, and cooling Heat transfer capacity, pressure, flow rate, current, voltage, Key parameter curve recording	
Controller	Programmable PLC	Programmable PLC
Communication	CAN	CAN
Power supply	380V 50HZ or 460V 60HZ	380V 50HZ or 460V 60HZ

1. Rated test conditions: dry bulb temperature: 20 °C; Wet bulb temperature: 16 °C. Inlet water temperature: 20 °C; Outlet temperature: 25 °C
- 2.. The data in this table is for reference only, please focus on the parameters on the unit nameplate.
3. If you need customized special non-standard products, please contact our company.

CHILLER Temperature, Flow, and Pressure Control System

Oil cooling and temp control for motor testing

This closed-loop cooling system is specifically designed for testing high-efficiency motors, generators, or variable-frequency equipment. It adopts a dynamic closed-loop control algorithm to monitor the inlet and outlet temperatures of the cooling fluid in real time, automatically adjust the flow rate and heat dissipation intensity, and dynamically regulate the oil pump speed based on the test load. Compared with fixed-frequency pumps, it saves more than 20% energy.



Model		KRYO-A15W	KRYO-A25W	KRYO-A38W	KRYO-A15W2S	KRYO-A25W2S	KRYO-A38W2S
Temp Range		0℃ ~ +160℃ Different viscosity oils have different temperature ranges					
Temp control accuracy		±0.3℃					
Temp feedback		Pt100					
Flow control		2L/min~20L/min One in, one outAccess control linkage			2L/min~15L/min Two outputs, one input flow control linkage		
Flow rate accuracy		±0.2L/min					
Pressure control		0.2bar~2.5bar					
Heating power		15kW	25kW	38kW	15kW	25kW	38kW
Cooling capacity	125℃	15kW	25kW	38kW	15kW	25kW	38kW
	20℃	12kW	20kW	30kW	12kW	20kW	30kW
Compressor		Copeland,Bsonyo and other compressors					
Throttle type		Electronic expansion valve					
Evaporator		Plate heat exchanger					
Circulation pump		Gear pump					
Flow regulation		Variable frequency drive vector adjustment					
Input display		7-inch color touch screen \ PLC controller					
Communication		CAN communication bus					
Refrigerant		R410A					
Heat conducting medium		Oil					
Connection size		ZG3/4					
Water-cooled At20℃		3000L/H	4200L/H	6200L/H	3000L/H	4200L/H	6200L/H
Connection size		ZG3/4	ZG3/4	ZG1	ZG3/4	ZG3/4	ZG1
Power 380V50HZ		380V 50HZ Three-phase five-wire system					
Circuit breaker		50A	80A	125A	50A	80A	125A
External tooling		External oil return fixture size 600 × 850 × 600 The selected external oil return fixture needs to be installed under the test motor					

CHILLER Direct cooling temp control unit ZLJ Series

The refrigerant in the refrigeration system is directly output and evaporated into the target control element (heat exchanger) for heat exchange, so as to cool the target control object. The heat exchange capacity is higher than that of the fluid (gas) transported into the heat exchanger, which is especially suitable for the application of the heat exchanger with a small heat exchange area, but a large heat exchange. It can also be used as a gas trap, the refrigerant is directly evaporated into the trap, and the gas in the space is rapidly captured through the condensation effect on the surface of the trap.



Model	ZLJ-41 ZLJ-41W	ZLJ-43 ZLJ-43W	ZLJ-46 ZLJ-46W
Temp range	-40°C ~ -15°C		
Temp control accuracy	±1°C (Steady state outlet temperature)		
Cooling capacity@-35°C	0.5kW	1.6kW	3.2kW
High temp cooling	With high temp. 150°Cdirect cooling technology, to meet the goal of rapid cooling in high temp. operation		
Refrigerant	R454C/R290 Optional R507		
Dimension cm	32*40*60	80*70*60	45*70*135
Circuit breaker	6A	6A	16A

Model	ZLJ-81.0 ZLJ-81.0W	ZLJ-83 ZLJ-83W	ZLJ-86 ZLJ-86W
Temp range	-80°C ~ -50°C		
Temp control accuracy	±1°C (Steady state outlet temperature)		
Cooling capacity@-70°C	0.4kW	1.3kW	2.5kW
Refrigerant	R454C/R290/R508B		
High temp cooling	With high temp. 150°Cdirect cooling technology, to meet the goal of rapid cooling in high temp. operation		
Dimension cm	32*63*65	95*100*80	55*100*175
Circuit breaker	10A	16A	25A

Model	SLJ-3W	SLJ-4W	SLJ-6W	SLJ-11W
Temp range	-150°C ~ -110°C			
Cooling capacity@-120°C	3kW	4kW	6kW	11kW
Cooling capacity@-135°C	2.5kW	3.3kW	5kW	9kW
Refrigerant	LNEYA -150 mixed refrigerant			
Dimension cm	75*75*175	75*75*175	95*100*205	130*200*350
Circuit breaker	40A	55A	65A	100A

Chiller direct cooling temperature control unit **ZLTZ Series**

The ZLTZ is suitable for temperature control scenarios that require a small heat exchange area, large cooling capacity, and small temperature difference, such as microchannel reactors, plate heat exchangers, cold plates, heat sink plates, and tubular reactors; the equipment can automatically recover the heat transfer medium.

When the ZLTZ unit is combined with a microchannel reactor, it can be used for temperature control in high heat release applications. Under the same flow rate condition, its heat transfer efficiency is more than 5 times that of temperature control systems using heat transfer oil for heat exchange. At the same time, it has a small temperature difference between the inlet and outlet and high temperature field uniformity, making it particularly suitable for heat exchange and temperature control in high heat output scenarios.

The ZLTZ can be combined with cold plates and heat sink plates for temperature control applications requiring high heat absorption and high uniformity.

When the ZLTZ unit is combined with ESC chucks, vacuum chucks, etc., it can achieve a temperature control range of -70°C to 200°C . Additionally, one ZLTZ temperature control unit can support multiple Chucks to control different temperatures simultaneously.



High heat transfer capacity

Ideal for high heat-load temperature control applications, this system delivers over 5 times the heat transfer efficiency of thermal oil heat exchange under the same flow conditions. With minimal inlet-outlet temperature differential and highly uniform temperature distribution, it is particularly suited for large-scale heat exchange and precision temperature control.

ESC Chuck

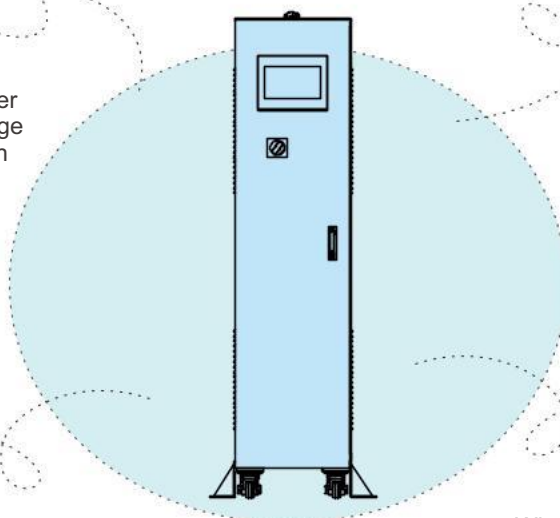
One ZLTZ temperature control unit drives multiple ESC chucks at independent temperatures

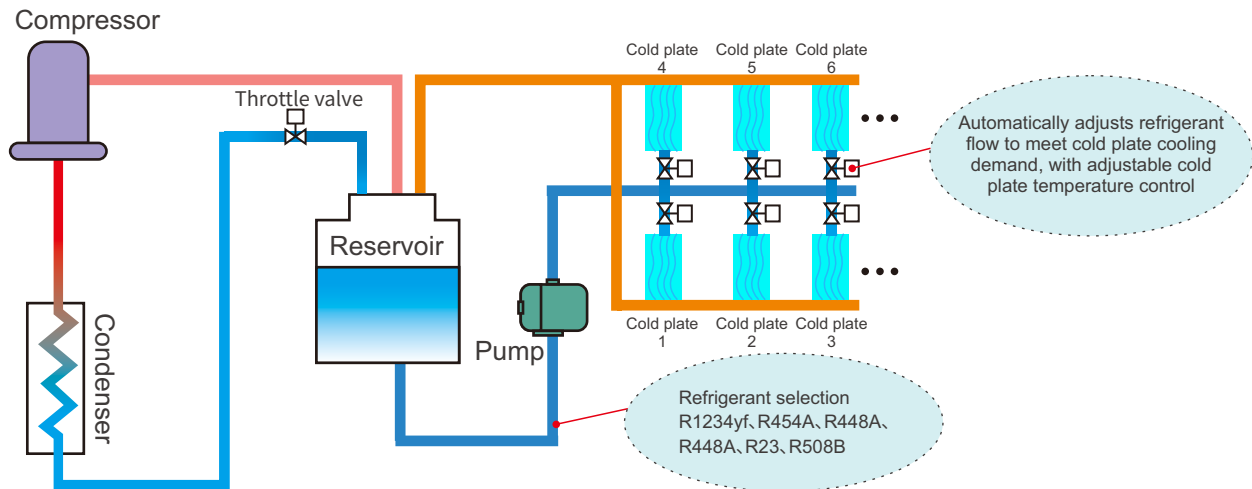
Cold Plate / Heat Sink Plate

Designed for high heat absorption and ultra-uniform temperature control applications, with automatic refrigerant recovery during cold plate replacement.

High-Temp Cooling Capacity

When maintaining the chuck at a constant 200°C , the refrigeration system provides continuous cooling capacity to ensure prolonged stable operation of the equipment





Model		ZLTZ-3 ZLTZ-3W	ZLTZ-6 ZLTZ-6W	ZLTZ-10 ZLTZ-10W	ZLTZ-15W
Temperature Range		-10°C~+25°C			
Cooling Capacity	0°C	8.1kW	16.25kW	28.5kW	40.2kW
	-10°C	5.48kW	11kW	19.35kW	26.6kW
Interface size	Outlet	φ12	φ12	φ28	φ28
	Inlet	φ20	φ20	φ35	φ35
Water-cooling	at 25°C	2m³/h	4m³/h	6.2m³/h	10m³/h
Cooling water interface		ZG3/4	ZG3/4	ZG1	ZG1 1/4

Model		ZLTZ4-3 ZLTZ4-3W	ZLTZ4-6 ZLTZ4-6W	ZLTZ4-10 ZLTZ4-10W	ZLTZ4-15W
Temperature Range		-40°C~+20°C			
Cooling Capacity	-10°C	5.2kW	11.15kW	18.4kW	26.3kW
	-20°C	3.47kW	7.41kW	12.3kW	18.35kW
	-30°C	2.24kW	4.81kW	7.92kW	11.8kW
	-40°C	1.36kW	2.95kW	4.7kW	5.83kW
Interface size	Outlet	φ12	φ12	φ16	φ22
	Inlet	φ22	φ22	φ35	φ35
Water-cooling	at 25°C	2m³/h	4.2m³/h	5.3m³/h	6.2m³/h
Cooling water interface		ZG3/4	ZG3/4	ZG3/4	ZG1

Model		ZLTZ8-3 ZLTZ8-3W	ZLTZ8-6 ZLTZ8-6W	ZLTZ8-10 ZLTZ8-10W	ZLTZ8-15W
Temperature Range		-80°C~-30°C			
Cooling Capacity	-40°C	6.9kW	14.8kW	24.4kw	36.7kW
	-60°C	3.3kW	7.1kW	12kW	17.4kW
	-75°C	1.65kW	3.55kW	6kW	8.7kW
Interface size	Outlet	φ12	φ12	φ16	φ22
	Inlet	φ22	φ22	φ35	φ35
Water-cooling	at 25°C	2.7m³/h	5.3m³/h	6.68m³/h	9.3m³/h
Cooling water interface		ZG3/4	ZG3/4	ZG1	ZG1 1/4

Chiller Cold and hot dual channel temperature control unit

Cold and hot dual output temp control unit

It is used for high-temperature heating and drying at 120°C on one side, and cooling and trapping at 25°C on the other side. It can easily build a waste liquid recovery system composed of (jacketed tank + condenser + negative pressure system) for waste liquid recovery and sublimation temperature control. The overall energy efficiency of the 25°C condensation and trapping on the other side is better than 4.5.

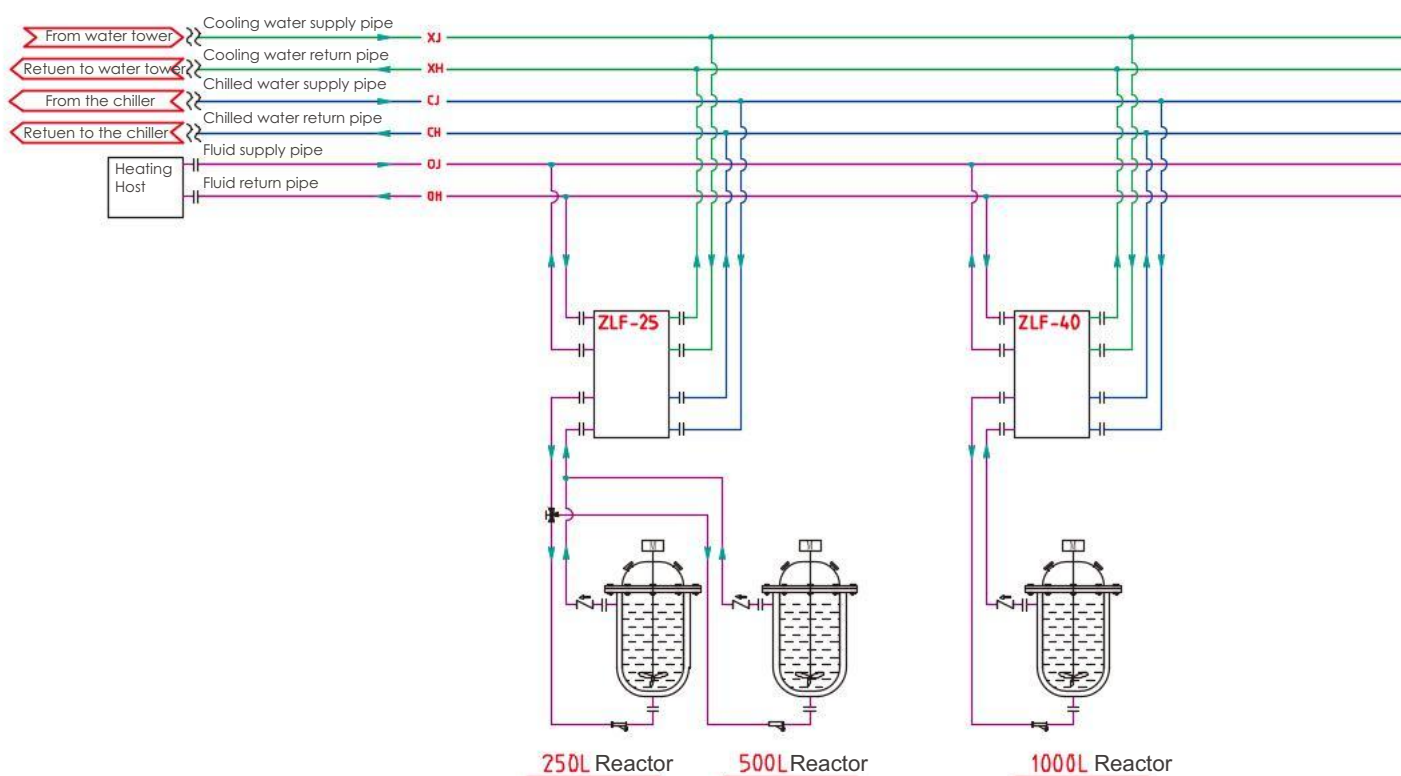


Model	LTH-25	
Temperature range	Hot side 80°C~+125°C	Cool side -15°C~+30°C
Temp control accuracy	±0.5°C	
Heating capacity	60kW @120°C	35kW @10°C
Controller	Programmable PLC	
Frequency converter	ABB inverter	
Compressor	Scroll compressor	
Input and display	7-inch color touch screen/PLC controller	
Communication	Modbus RTU protocol RS485 interface, Ethernet TCP/IP protocol	
Heat exchanger	Plate heat exchanger	
System media	Ethylene glycol aqueous solution	
Interface dimensions	DN40 PN16	
Safety protection	Having self diagnostic function; Refrigerator overload protection; High and low pressure protection, overload relay, thermal protection deviceSafety assurance functions such as exhaust temperature protection and sensor fault protection.	
Power	380V 50HZ circuit breaker 63A	

1. Rated test conditions: dry bulb temperature: 20 °C; Wet bulb temperature: 16 °C. Inlet water temperature: 20 °C; Outlet temperature: 25 °C
- 2.. The data in this table is for reference only, please focus on the parameters on the unit nameplate.
3. If you need customized special non-standard products, please contact our company.

SR\ZLF Series

The TCU temperature control system uses existing thermal energy (such as steam, cooling water, and cryogenic liquids - the "primary system") infrastructure to be integrated into a single fluid system or secondary circuit used to control the temperature of the process equipment. This completes the flow of only one heat transfer liquid into the jacket of the reaction vessel (rather than directly into steam, cooling water or cryogenic liquid). The entire reaction process temperature is controlled by calculation.



The use of a single fluid heat transfer temperature control system has the following advantages:

- A. the user can get a closed, repeatable temperature control in a wide temperature range, can achieve -120 degrees to 300 degrees temperature control;
- B. Avoid the replacement of traditional equipment and facilities and the maintenance of jacket; the small fluid volume also ensures the rapid response of the control loop and the thermal reaction delay is small;
- C. Built-in electric heating heat transfer oil auxiliary system, which can automatically turn on the auxiliary heating system according to the demand to reduce the steam use pressure;
- D. It can achieve accurate energy saving by accurately matching the heat demand with fast operation;
- E. Control the temperature of the whole reaction process through precise and fast calculation, and perform rapid response control for the exothermic and endothermic reactions in the whole reaction process;
- F. Reserve a standardized interface, which can increase the heat source heat exchange module according to actual needs;
- G. optionally controlling the reaction process temperature and the single fluid temperature, and the temperature difference between the reaction process temperature and the thermal single fluid temperature is settable and controllable;
- H. can carry out recipe management and production process records;

- A. Fully enclosed pipe design.
- B. Open the Angle of the electric regulating valve according to the instructions given by the system PLC, and control the flow of low-temperature liquid into the jacket of the reactor, so as to achieve energy saving and efficiency. All signals fed back to the process are based on temperature
- C. Ensure the safe operation of the system, and the electric valve can be fully opened manually

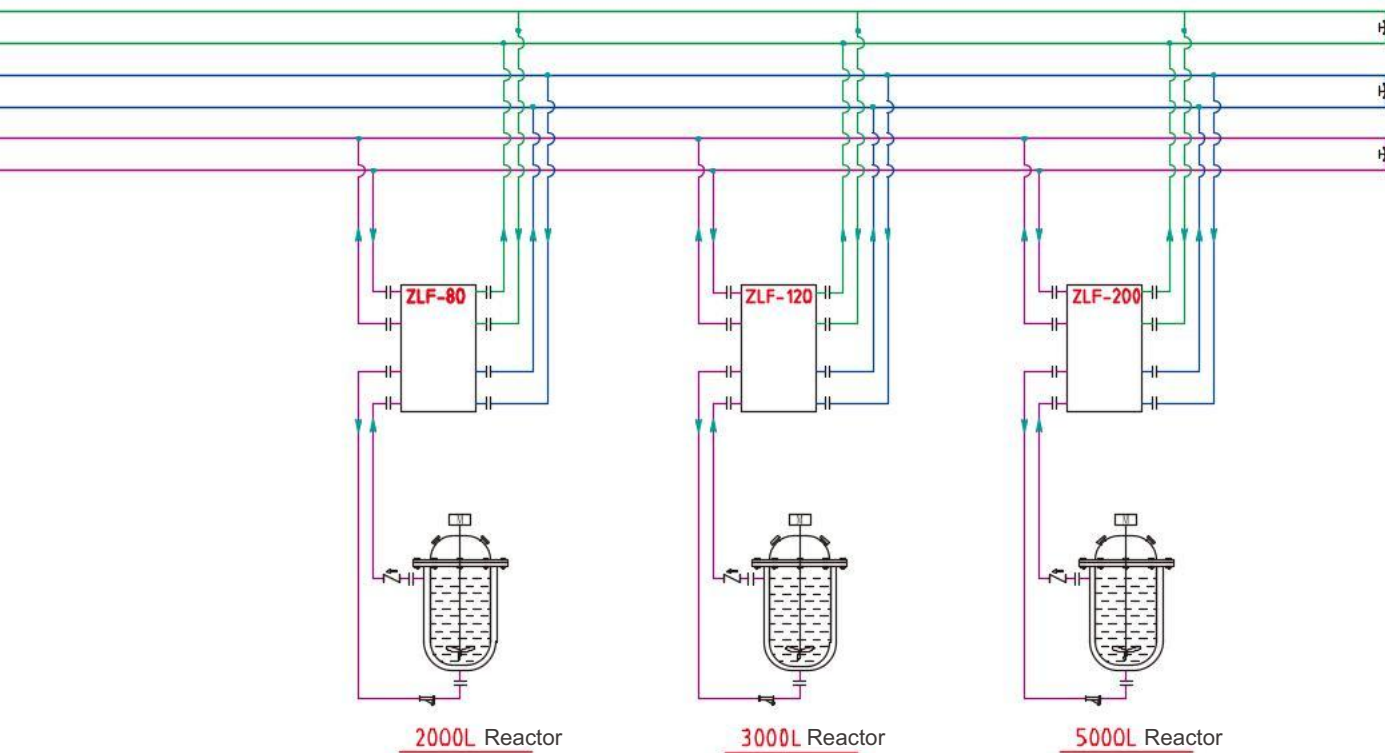
Heating the main unit (using the user's existing heating system):

1. electric heating system host

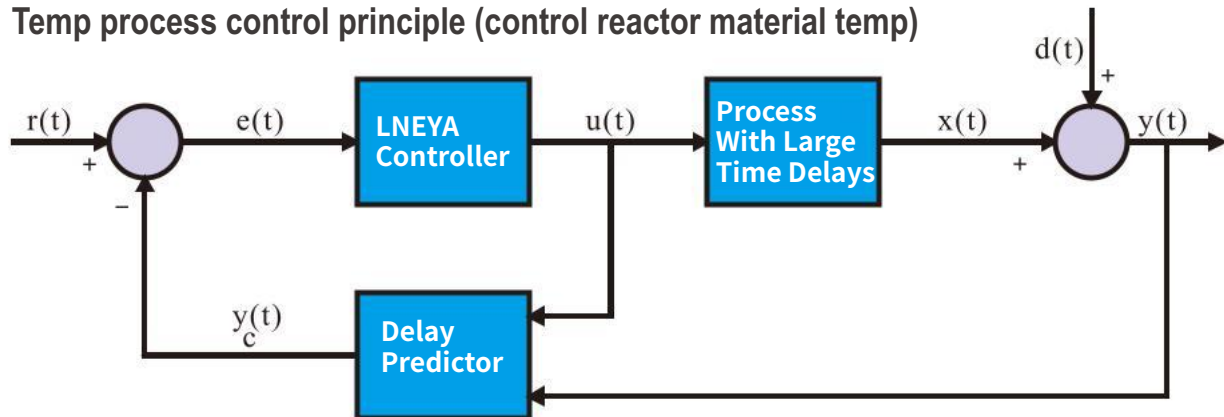
Schematic diagram see example

According to the system needs heating power and jacket volume, heat storage volume design power 50kW~1000kW

2. Using steam as a power source



Temp process control principle (control reactor material temp)



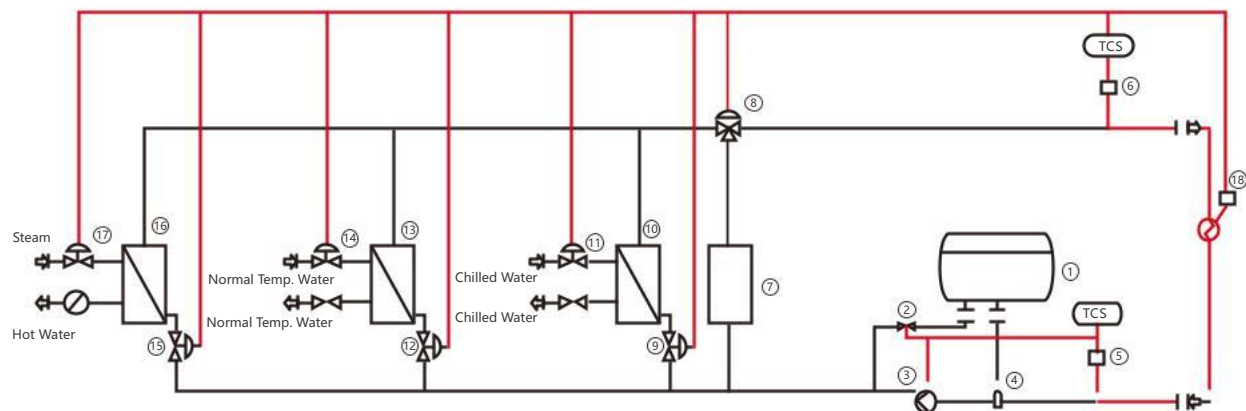
Change the control settings of the method, the response as soon as possible in the process of the system lags behind, be the smallest system overshoot.

Controlled by two PID(PID is a variable in each group control loop structure, known as the two sets of control loops: the master loop and auxiliary loop. The control output of the master loop serves as the setpoint of the auxiliary loop. System with feedforward with PV, the master PID loop operation results of the PV output and feedforward signals as the composite of the settings from the control loop, through such control of the temperature gradient to ensure the accuracy of temperature control system.

ZLF series - Direct Flow Control

Model	ZLF-35N/35NS /35NH/35NSH	ZLF-50N/50NS /50NH/50NSH	ZLF-80N/80NS /80NH/80NSH	ZLF-125N/125NS /125NH/125NSH	ZLF-200N/200NS /200NH/200NSH
Temp. range °C	-45~+250 (the max Temp is determined by the heat and cold source supplied by the user) -40~+135(The maximum temperature range can be operated by using glycol water formula solution)				
ZLF- N	The main cold source or main heat source is used to regulate the flow of the system through proportional regulation system, and control the heat of the clamping of the reaction tank, and a set of heat exchanger for heating or cooling is controlled or cooled				
ZLF- NS	Besides ZLF- N function, add one set heater used to reduce high temp				
ZLF- NH	Besides ZLF- N function, add electrical heating function				
ZLF- NSH	Besides ZLF- N function, add one set heater used to reduce high temp and electrical heating function				
Heat exchanger area	3.5m ²	5m ²	8m ²	12.5m ²	20m ²
Electric heating function H	25kW	35kW	50kW	65kW	80kW
Control mode	Feed forward PID + Our special dynamic control calculation, LNEYA PLC controller				
Communication protocol	MODBUS RTU protocol, RS485 interface, optional Ethernet interface/R232 interface				
Temp. control selection	Process temp control				
Temp. feedback	The temp of three points: the inlet and outlet of heat-conducting medium, material in reactor(External temp), PT100 sensor				
Process temp. feedback	Raw material process feedback:PT100 or 4~20mA or communication given				
Temp. accuracy	±1°C	±1°C	±1°C	±1°C	±1°C
Circulation pump	150L/min 2.5BAR	200L/min 2.5BAR	400L/min 2.5BAR	500L/min 2.5BAR	750L/min 2.5BAR
Input and display	7-inch color touch screen, temperature graph display				
Safety protection	Self-diagnosis function; freezer overload protection; high pressure switch; overload relay; thermal protection device; high temp Protection and temp fault protection				
Perform valve piece	Proportional control valve control signal 4~20mA				
Case material	Cold rolled steel powder coating (standard color 7035)				
Connection size	DN40	DN40	DN50	DN65	DN80
Dimension cm	150*120*185	180*120*210	180*120*210	225*120*240	225*120*240
Power	AC380V 50HZ 2.3kW (max)	AC380V 50HZ 3.5kW (max)	AC380V 50HZ 4.5kW (max)	AC380V 50HZ 8kW (max)	AC380V 50HZ 10.5kW (max)
With H power	AC380V 50HZ 27.3kW (max)	AC380V 50HZ 38.5kW (max)	AC380V 50HZ 54.5kW (max)	AC380V 50HZ 73kW (max)	AC380V 50HZ 90.5kW (max)

SR Series Schematic:



1. Expansion tank
2. Vent-off valve
3. Circulating pump
4. Air/Gas separator
5. Temperature probe "Return"

6. Temperature "Outflow"
7. Electric heater control
8. Three-way valve
9. Valve "Chilling"
10. Heat exchanger "Chilling"

11. Valve "Chilling"
12. Valve "Cooling"
13. Heat exchanger "Cooling"
14. Valve "Cooling"
15. Valve "Heating"

16. Heat exchanger "Heating"
17. Valve "Heating"
18. Temperature probe "Consumer"

SR series - Secondary Heat Transfer

Model	SR-35N/35NS /35NH/35NSH	SR-50N/50NS /50NH/50NSH	SR-80N/80NS /80NH/80NSH	SR-125N/125NS /125NH/125NSH	SR-200N/200NS /200NH/200NSH
Temp. range °C	-120~+250 (the max. Temp is determined by the heat and cold source supplied by the user) -40~+135(The maximum temperature range can be operated by using glycol water formula solution)				
SR- N	A set of cooling heat exchanger, heat exchanger, through proportional adjusting valve control cold heat into the heat exchanger, then through the uniform medium input to the reactor jacketed to do heat exchange and temp. Control, system has inside expansion tank				
SR- NS	Besides SR- N function, add one set heater used to reduce high temp				
SR- NH	Besides SR- N function, add electrical heating function				
SR- NSH	Besides SR- N function, add one set heater used to reduce high temp and electrical heating function				
Expansion tank	100L	200L	280L	390L	500L
Heat exchanger area	3.5m ²	5m ²	8m ²	12.5m ²	20m ²
Electric heating function H	25kW	35kW	50kW	65kW	80kW
	With 'H' has heating function				
Control mode	Feed forward PID + Our special dynamic control calculation, LNEYA PLC controller				
Communication protocol	MODBUS RTU protocol, RS485 interface, optional Ethernet interface/R232 interface				
Temp. control selection	Material control temp				
Temp. feedback	The temperature of 3 points: the inlet and outlet of heat-conducting medium, material in reactor(External temperature sensor), PT100 sensor				
Process temp. feedback	Material temp. feedback: PT100 or 4~20mA or communication given, Temp.feedback: PT100				
Temp. accuracy	±1°C	±1°C	±1°C	±1°C	±1°C
Circulation pump	200L/min 2.5BAR	250L/min 2.5BAR	400L/min 2.5BAR	500L/min 2.5BAR	750L/min 2.5BAR
Input and display	7-inch color touch screen,temperature graph display				
Safety protection	Freezer overload protection; high pressure switch; overload relay; thermal protection device;high temp Protection and temp fault protection				
Perform valve piece	Proportional control valve control signal 4~20mA				
Case material	Cold rolled steel powder coating (standard color 7035)				
Connection size	DN40	DN40	DN50	DN65	DN80
Dimension cm	150*120*185	180*140*240	180*140*240	220*180*265	220*180*265
Power	AC380V 50HZ 2.3kW (max)	AC380V 50HZ 3.5kW (max)	AC380V 50HZ 4.5kW (max)	AC380V 50HZ 8kW (max)	AC380V 50HZ 10.5kW (max)
With H power	AC380V 50HZ 27.3kW (max)	AC380V 50HZ 38.5kW (max)	AC380V 50HZ 54.5kW (max)	AC380V 50HZ 73kW (max)	AC380V 50HZ 90.5kW (max)

Large System Series

1 Advanced design concept

This project is based on the world's leading process control system SIMATIC PCS 7. This design refers to the advanced concept of real-time release testing and implementation of product life cycle proposed by ISPE in the new version of GMP drug production quality management standard, establishes the quality monitoring system of the whole process of pharmaceutical production, realizes the whole process quality management from raw materials to finished products, and makes the drug production process digital, standardized, accurate, and has data Traceability function and early warning function can comprehensively improve the quality control level of pharmaceutical production.

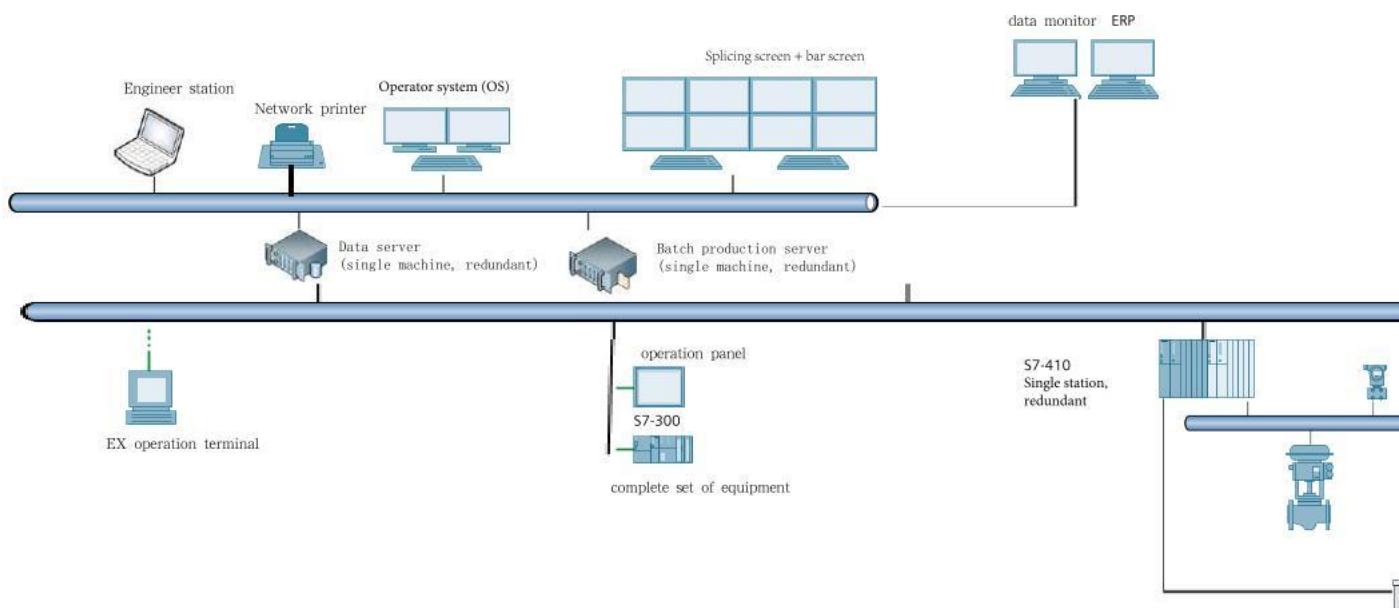
2 Rich experience in pharmaceutical automation construction

Our company has complete process research department, design and technology department, engineering implementation department and professional engineering installation department. We have a professional engineering service team. The employees have many years of pharmaceutical industry design and construction experience. Our design and implementation personnel have participated in more than 100 pharmaceutical automation projects. With sufficient design and implementation experience, we can provide users with the most professional engineering services.

3 A complete new version of GMP computer certification solutions and experience

Our company has a complete solution and a complete set of verification documents for computer verification in GMP. And according to the guiding principles of international society of pharmaceutical engineering GAMP5 (production automation management specification), we have developed a computer system verification (CSV) template based on risk assessment (RA). We have helped many enterprises pass the relevant verification, and we can provide full assistance in the later GMP certification process of your company.

Combined with our design experience and user requirements, the whole process automatic control of various monomer equipment in Pharmaceutical Workshop is realized, and the control system architecture network design, process flow design, control scheme and process control design are completed. The control program is fully in line with the single line operation of the product process. The modular design is carried out of in each process. The logical relationship of each control module and the principle of real-time release are defined between each process to realize the whole production line. Improve the stability of drug production process, realize continuous production, meet GMP requirements in the production process, ensure the integrity of drug production data, improve production management level and production efficiency, save labor costs, save energy and reduce consumption, and improve product quality.



System features

Modularization: the application software, control software and hardware equipment provided by the system are configured in strict accordance with the modularization structure. Software system function modularization, template extension and configuration function enable it to be combined flexibly according to different requirements. Hardware equipment is reconfigurable, and new function modules and control logic can be composed by users according to their needs and control logic, or related hardware equipment can be increased or decreased by users themselves. The integrated system is hierarchical, which meets the requirements of engineering distribution implementation and facilitates the gradual increase, change and expansion of software and hardware configuration.

Maintainability: the system shall be of good maintainability with a long-term and stable supply of spare parts for computers and templates and various sensors and actuators to be used. After our company training, the enterprise can maintain by itself.

scalability: the system is an open system, providing standard TCP/IP data communication interface protocol, interface software and application software interface, with good flexibility and scalability, to meet the requirements of increasing production scale for measurement and control ability.

Security: this system has the authority mechanism, realizes the multi-level authority management, divides five different levels to the operation user, different levels of user operation authority is also different. The control system is a relatively closed network, and the system network and enterprise LAN or external network between the configuration of a firewall, can effectively prevent viruses and network attacks, for the system to operate to create a secure environment.

Improve the stability of batches: according to the technological requirement of batch production, establish the appropriate production model and strengthen the management of batches. Through the production batch production plan designation, production plan distribution and tracking management module, the realization of pharmaceutical production batch management.

Ensure that the integrity of the production data: by applying the computer management system in conformity with the GMP standard and automatic control system, realize the production of fully automatic data acquisition and monitoring, efficient, accurate and complete by the computer system of collecting and analyzing data processing, are prone to avoid the traditional manual recording of lagging production data, missing and error.

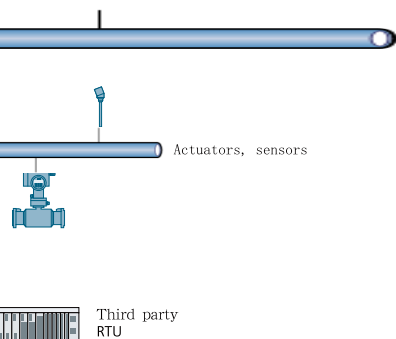
Improve traceability of production records: traceability is GMP pharmaceutical production data, the FDA and other necessary content of medical industry certification, application of the pharmaceutical and pharmaceutical production automation control system intelligent manufacturing quality information management system software, the batch number, goods name, time, equipment, operators and other pharmaceutical production data in real time, complete and accurate records, and implement reverse retrieval process of the production data, can restore all the production status, production enables producers to analyse the causes of defects of the quality of the products, at the same time through data trace function enables producers to have a better understanding of actual production status, provide data basis for improve the production.

Energy saving and environmental protection: the application of production process and information management system to pharmaceutical production has a significant effect of energy saving, at the same time reduce the intermediate link of pharmaceutical production, eliminate the waste of products in the production flow link.

Design principles

The application of computer control technology in the automatic control system of this project can make the process operation and parameters of pharmaceutical production be monitored and controlled scientifically, effectively and strictly, and realize the continuous and automation of pharmaceutical production.

- The overall design needs to consider the overall structure of the intelligent workshop. On the basis of doing a good job in the process design, equipment selection control and production control, fully consider the strategic requirements of informatization, based on the reserved communication interface, consider the Standard docking of the up and down levels on the SDN Controller, Preparing the corresponding data docking in advance.
- The design of the production line of control system starts from the process, in understanding the overall production process, the design of the overall automatic production line, ensuring that the software design of the automation system is based on the process production.
- The design must reflect advanced, modular, easy to operate and easy to maintain.
- All design and material selection must conform to the principles of rationality, applicability, reliability, durability, economy, advanced, safe and easy to operate.
- The design unit shall prepare the validation scheme and validation report, which shall meet the requirements of GMP validation and assist in passing GMP verification.



Heating circulator

UST Series (with water cooling)

- UST-series is the heating circulator without compressor, but with the cooling capacity from cooling water with the function of direct cooling from + 360°C.
- Equipped with heating and cooling system, large heat exchange area, rapid speed of heating-cooling, the small demand for heat conducting medium.
- Can offer heating and cooling continuously.
- Due to closed system there is also no oil mist or evaporation of heat conducting medium at high temperature.
- The whole system is a closed liquid circulation system with the expansion tank. Fluid in expansion tank is adiabatic to fluid in the circulation, it does not participate in liquid circulation and thermal transfer, only mechanical connection presented. The tank temp does not exceed +60°C regardless of the temp in the circulation.
- With internal temperature sensor PT100 to adjust internal circulation temperature.
- Allow fill in 15 cooling water, to enlarge temperature range of 25 to 360.



Model		UST-7536W	UST-A1036W	UST-A1536W	UST-A2536W	UST-A3836W	UST-A6036W	UST-A9536W
Temperature range		With water cooling +10℃~+360℃						
Control Mode		Feedback PID + Our special dynamic control calculation, PLC controller						
Temperature control		Process temp control and jacket temp control model						
Temperature difference		Set or control the temperature difference between jacket oil and raw material process						
Program Editor		5 programs, each program can edit 40 steps						
Communication protocol		MODBUS RTU Protocol,RS485 interface						
Material temp feedback		PT100 OR 4~20mA or communication(normal: PT100)						
Temperature feedback		The temp of three points: the inlet and outlet of equipment, reactor material temperature(external temp sensor)						
Medium temp accuracy		±0.5℃					±1℃	
Material temp accuracy		±1℃						
Heating power		7.5kW	10kW	15kW	25kW	38kW	60kW	95kW
Cooling capacity	300℃	7.5kW	10kW	15kW	25kW	38kW	60kW	95kW
	200℃	7.5kW	10kW	15kW	25kW	38kW	60kW	95kW
	100℃	5kW	7kW	12kW	20kW	30kW	48kW	76kW
	65℃	2.2kW	3kW	5kW	8.5kW	12kW	19kW	30kW
Circulation pump max L/min bar		50L/min	50L/min	110L/min	150L/min	200L/min	250L/min	400L/min
		2bar	2bar	2.5bar	2.5bar	2.5bar	2.5bar	2.5bar
Operation Panel		7-inch touch screen, show temp curve\EXCEL data output						
Safety protection		Self-diagnosis function; freezer overload protection; High and low pressure protection, overload relay, thermal protection device, high temperature protection and temp fault protection						
Closed circulation system		The whole system is full closed circulation, there is no oil mist at high temp and no water vapor at low temp, pressure do not rise up when system is running. The system will supply oil automatically at low temperature						
Connection size(medium port)		ZG3/4	ZG3/4	ZG1	DN32	DN40	DN40	DN50
Connection size(water port)		ZG1/2	ZG1/2	ZG3/4	DN20	DN25	DN32	DN40
Dimension cm		45*70*160	45*70*160	70*100*175	70*100*175	80*120*185	150*100*185	200*145*205
Weight kg		120	160	195	265	395	615	950
Power MAX 380V 50HZ		9kW	12kW	17kW	28kW	41kW	65kW	96kW

Model	UST-5530 UST-5530W	UST-7530 UST-7530W	UST-A1030 UST-A1030W	UST-A1530W	UST-A2530W	UST-A3830W	UST-A6030W	UST-A9530W	
Temperature range	RT +10℃~+300℃								
Control Mode	Feedback PID + Our special dynamic control calculation, PLC controller								
Temperature control	Process temp control and jacket temp control model								
Temperature difference	Set or control the temperature difference between jacket oil and raw material process								
Program Editor	5 programs, each program can edit 40 steps								
Communication protocol	MODBUS RTU Protocol,RS485 interface								
Material temp feedback	PT100 OR 4~20mA or communication(normal: PT100)								
Temperature feedback	The temp of three points: the inlet and outlet of equipment, reactor material temperature(external temp sensor)								
Medium temp accuracy	±0.5℃						±1℃		
Material temp accuracy	±1℃								
Heating power kW	5.5kW	7.5kW	10kW	15kW	25kW	38kW	60kW	95kW	
Cooling capacity	300℃	5.5kW	7.5kW	10kW	15kW	25kW	38kW	60kW	95kW
	200℃	5.5kW	7.5kW	10kW	15kW	25kW	38kW	60kW	95kW
	100℃	4kW	5kW	7kW	12kW	20kW	30kW	48kW	76kW
	65℃	1.8kW	2.2kW	3kW	5kW	8.5kW	12kW	19kW	30kW
Circulation pump max L/min bar	35L/min	50L/min	50L/min	110L/min	150L/min	200L/min	250L/min	400L/min	
	2bar	2bar	2bar	2.5bar	2.5bar	2.5bar	2.5bar	2.5bar	
Operation Panel	7-inch touch screen, show temp curveEXCEL data output								
Safety protection	Self-diagnosis function; freezer overload protection; High and low pressure protection, overload relay, thermal protection device, high temperature protection and temp fault protection								
Closed circulation system	The whole system is full closed circulation, there is no oil mist at high temp and no water vapor at low temp, pressure do not rise up when system is running. The system will supply oil automatically at low temperature								
Connection size(medium port)	ZG3/4	ZG3/4	ZG3/4	ZG1	DN32	DN40	DN40	DN50	
Connection size(water port)	ZG1/2	ZG1/2	ZG1/2	ZG3/4	DN20	DN25	DN32	DN40	
Dimension cm	40*70 *130	45*70 *160	45*70 *160	70*100 *175	70*100 *175	80*120 *185	150*100 *185	200*145 *205	
Weight kg	110	120	160	195	265	395	615	950	
Power MAX 380V 50HZ	7kW	9kW	12kW	17kW	28kW	41kW	65kW	96kW	
Shell material	Cold rolled sheet spray coating (RAL7035)								
optional	Optional Ethernet interface and computer operating software configuration								
optional	Optional external touch screen controller, communication cable distance of 10M								
Optional power supply	100V 50HZ 1PH , 110V 60HZ 1PH , 230V 60HZ 1PH , 220V 60HZ 3PH , 440V~460V 60HZ 3PH								

Heating circulator **UC/LY Series**

- UC series with the function of direct cooling from high temperature +300°C down to +50°C.
- Equipped with heating cooling container, with large heat transfer area, fast heat-up and cool-down, small heat transfer oil demand.
- Can heat-up and cool-down continuously.
- Due to closed system there is also no oil mist or evaporation of heat conducting medium at high temperature.
- The whole system is a closed liquid circulation system with the expansion tank. Fluid in expansion tank is adiabatic to fluid in the circulation, it does not participate in liquid circulation and thermal transfer, only mechanical connection presented. The tank temp does not exceed +60°C regardless of the temp in the circulation.



LY/UC series +10°C~+170°C

Model	LY-5020	LY-A020	UC-5020	UC-A1020	UC-A1520
Temp range	+10°C~+170°C				
Controller	PID adaptive controller				
Temp control	Heat-conducting medium outlet temperature control				
Temp feedback	Heat-conducting medium temperature feedback Pt100				
Temp accuracy	±0.5°C				
Heating power	5.5kW	10kW	5.5kW	10kW	15kW
Cooling Capacity	200°C		5.5kW	10kW	15kW
	100°C		4kW	8kW	12kW
	65°C		1.8kW	3.4kW	5kW
Circulation pump flow	35L/min 1.5bar	50L/min 1.5bar	35L/min 1.5bar	50L/min 1.5bar	50L/min 1.5bar
Heater	Flanged pipe electric heater				
Independent temp. limite	Rainbow temperature protector				
Cooler	Copper Tube Aluminum Fin air-cooled Condenser				Plate heat exchanger
Operation panel	Display set temperature and measured temperature , key operation input temperature				
Safety Protection	overload relay、 variety of security features such as thermal protection devices				
Closed Circulation System	The whole system is a full closed circulation, there is No oil mist at high temperature, pressure do not rise up when system is running. The system will supplement oil automatically at low temperature.				
Connection size	ZG3/4	ZG3/4	ZG3/4	ZG3/4	ZG1
Dimension cm	40*70*130	40*70*130	40*70*130	40*70*130	70*100*175
Weight kg	70kg	80kg	78kg	128kg	170kg
Power max AC 380V 50HZ	6kW	11kW	6kW	11kW	16kW
Case material	Cold rolled sheet (RAL7035)				
Optional	Optional 7-inch color touch screen , recording temperature curve , data export using excel format				
Optional	SUS304 shell				
Optional Power	220V 60HZ three phase , 440V ~ 460V 60HZ three phase				

UC series +10°C~+300°C



Model		UC-5530 UC-5530W	UC-7530 UC-7530W	UC-A1030 UC-A1030W	UC- A1530W	UC- A2530W	UC- A3830W	UC- A6030W	UC- A9530W	UC- A13030W
Temp range		+10℃~+300℃								
Controller		PID adaptive controller								
Temp control		Heat-conducting medium outlet temperature control								
Display/Record		7-inch color touch screen , recording temperature curve , data export using excel format								
Temp feedback		Heat-conducting medium temperature feedback Pt100								
Temp accuracy		±0.5℃								
Heating power		5.5kW	7.5kW	10kW	15kW	25kW	38kW	60kW	95kW	130kW
Cooling Capacity	300℃	5.5kW	7.5kW	10kW	15kW	25kW	38kW	60kW	95kW	130kW
	200℃	5.5kW	7.5kW	10kW	15kW	25kW	38kW	60kW	95kW	130kW
	100℃	4kW	5kW	7kW	12kW	20kW	30kW	48kW	76kW	100kW
	65℃	1.8kW	2.2kW	3kW	5kW	8.5kW	12kW	19kW	30kW	40kW
Circulation pump flow MAX		35L/min 1.2bar	50L/min 1.2bar	50L/min 1.2bar	110L/min 1.5bar	150L/min 1.5bar	200L/min 1.5bar	250L/min 2.5bar	400L/min 2.5bar	400L/min 2.5bar
Heater		Flanged pipe electric heater								
Independent temp limite		Lneya								
Cooler		Copper Tube Aluminum Fin air-cooled Condenser			Plate heat exchanger/Tube heat exchanger					
Operation panel		Display set temperature and measured temperature , key operation input temperature								
Safety Protection		Self-diagnosis function; freezer overload protection; high pressure switch; overload relay; thermal protection device and other safety protection.								
Closed Circulation System		The whole system is full closed circulation, there is no oil mist at high temp. and no water vapor at low temp., pressure do not rise up when system is running. The system will supplement oil automatically at low temperature.								
Connection size		ZG3/4	ZG1	ZG1	ZG1	DN32	DN40	DN40	DN50	DN50
Dimension cm		40*70 *130	45*70 *160	45*70 *160	70*100 *175	70*100 *175	80*120 *185	150*100 *185	200*145 *205	200*145 *205
Weight kg		110kg	120kg	160kg	195kg	265kg	395kg	615kg	1220kg	1400kg
Power max AC 380V 50HZ		7kW	9kW	12kW	17kW	28kW	41kW	65kW	101kW	136kW
Case material		Cold rolled sheet (RAL7035)								
Optional Power		220V 60HZ three phase , 440V ~ 460V 60HZ three phase								

Chamber Test Chamber

Left and right multi-layer test chamber



The integrated system provides high temp, low temp, flow and pressure control requirements for new energy power battery samples.

The double-layer high and low temperature box is used as a high and low temperature testing device for power battery samples, mainly applied in the new energy battery industry. It can directly complete high and low temperature charging and discharging of battery cells or modules, PACK in the test box, or high and low temperature storage functions. In the event of battery failure during testing, explosion-proof pressure relief and fire extinguishing devices are added.

1. Adopting a double-layer box design, the box contains an antifreeze battery cooling system, and the control and testing systems of the two boxes operate completely independently;
2. Explosion proof chains are installed on both the box door and the pressure relief port;
3. The insulation layer of the box is designed with a thickness of 100mm and is composed of insulation materials with low thermal conductivity and high-temperature resistant materials, which can meet the long-term high and low temperature impact requirements from -40 to 100°C;
4. Install explosion-proof pressure relief ports on each box surface, which automatically release pressure when sensing over pressure;
5. The refrigeration system of this device adopts frequency conversion control, combined with hot gas and electric heating control algorithms, for efficient operation and energy saving of more than 20%.



Antifreeze temp reaches -40~100°C
Antifreeze flow control 1-25L/min
The environmental chamber provides -45~100°C

Model		GD-9M-2-B-KRYCH		GD-1000-B-KRYCH	
Temperature range		-40℃ ~ 100℃ Antifreeze	-40℃ ~ 100℃ Chamber	-40℃ ~ 100℃ Antifreeze	-40℃ ~ 100℃ Chamber
Antifreeze flow control		1~40L/min		1~10L/min	
		±0.2L/min		±0.2L/min	
Antifreeze pressure		Measure and display the inlet and outlet pressure, as well as the pressure displayed on the touch screen			
Chamber (W*H*D) cm	Upper cavity	220*322*120		Single cavity 100*100*100	
	Lower cavity	220*322*110			
Heating power		15kW	14kW	7.5kW	6kW
Cooling capacity Antifreeze	135℃	15kW		7.5kW	
	20℃	15kW		7.5kW	
	0℃	15kW		7.5kW	
	-20℃	10kW		4.5kW	
	-35℃	4kW		1.8kW	
Chamber	Heating rate	25 ~ +100℃≥±2℃/Min (No load, average throughout the entire process) (Customizable at 5~25℃)			
	Cooling rate	25 ~ -40℃≥1℃/Min (No load, average throughout the entire process) (Customizable at 5~25℃)			
Antifreeze temp control accuracy		±0.1℃			
Temperature uniformity		≤±1℃ (No load)			
Circulating air volume		5000m³/h		2500m³/h	
Control mode		Segmented Fuzzy PID Algorithm Control			
Communication protocol		CAN/TCP/RS485			
Temperature feedback		Internal temperature of equipment enclosure, condensation temperature of refrigeration system, suction temperature of compressor, cooling water temperature (for water-cooled equipment)			
High temp cooling module		Can cool down from a high temperature of 100 °C			
Circulating pump		Magnetic drive pump			
Compressor		Brand variable frequency compressor			
Evaporator		Plate/fin heat exchanger			
Refrigeration accessories		Emerson/Danfoss brand dry filters, oil separators, etc			
Throttle method		Electronic expansion valve			
Refrigerant		R125/R404A			
Safety protection		Phase sequence failure protector, freezer overload protection; High pressure switch, overload relay, thermal protection device and other safety protection functions.			
water-cooled condenser		Shell and tube heat exchanger			
Operation panel		10 inch color touch screen		7 inch color touch screen	
Antifreeze interface		ZG3/4		ZG3/8	
Cooling water 20℃		20m³/H		7m³/H	
Dimensions mm		240*560*285		120*205*205	
Load-bearing		1500kg		120kg	

Chamber Test Chamber

Constant temp and humidity test chamber

This series of test chambers can simulate various temperature and humidity environments, suitable for conducting high and low temperature tests, wet heat tests, etc. on products. This test chamber has an extremely wide temperature and humidity range and high control accuracy. Can meet the national standards GB and IEC related testing standards. The programmable constant temperature and humidity test chamber is used to test the heat resistance, cold resistance, dry resistance, and moisture resistance of various materials. Suitable for quality testing of electronic, electrical, communication, instrument, vehicle, plastic products, metal, food, chemical, building materials, medical, aerospace and other products.



Model	GD-300-B-2-WS	GD-340-B-WS(RH)	GD-600-B-WS(RH)	GD-1000-B-WS(RH)
Inner box size (W*H*D) cm	Above: 85*60*60 Below: 85*60*60	60*750*750	85*90*75	100*100*100
Temperature range	-40~+150℃			
Heating rate	-40~+150℃ 2℃/min			
Cooling rate	+150~-40℃ 2℃/min			
Temperature uniformity	≤±1℃(unloaded)			
Temperature fluctuation	≤±1℃			
Temperature accuracy	≤±1℃			
humidity range		+10℃~+90℃ 10%~98%RH		
dew point temperature	+4℃~+88℃			
Humidity accuracy		≤±2.0%RH		
Inner box material	SUS304 stainless steel			
Outer box material	Cold rolled steel plate+spray coating			
Insulation material	Glass fiber cotton&polyurethane			
Window size cm	30*45	30*45	45*49	45*49
cryogen	R404A/R23			
Test hole	φ100mm×1			
Heater	Electric heating			
Air-cooled condenser	Finned heat exchanger			
Water-cooled condenser	Plate/sleeve/shell and tube heat exchanger			
Air circulation	Extended shaft motor, stainless steel centrifugal fan blades			
Cooling method	Cascade refrigeration			
Compressor	Brand variable frequency compressor			
Control method	Segmented Fuzzy PID Algorithm Control			
Communication protocol interface	TCP/RS485 (CAN customizable)			
Operation panel	7-inch color touch screen, temperature curve display \ EXCEL data export			
Sensors	PT100 A-grade platinum resistor			
Protector	Heater dual temp protection, refrigeration system protection, and electrical overcurrent and overload protection, etc			
Power Supply	380V±10% 50HZ			
Outer box size (W * H * D) cm	115*217*185	115*217*185	115*217*185	125*237*230

Chamber Test Chamber

Rapid temperature test Chamber

This test chamber is suitable for environmental stress screening tests. By conducting environmental stress screening on products, it accelerates the discovery of design defects and improves product reliability. Many industrial fields have recognized that high-speed temperature cycling tests can identify unreliable systems that have entered the production testing phase. It has become a standard method for improving quality, effectively extending the normal working life of products.



Model	GD-500-C-KS(RH)	GD-1000-C-KS(RH)
Temperature range	-80°C~+150°C	
Inner box size (W*H*D) cm	90*90*65	100*100*100
Heating rate	(+20~+150°C)A : 5°C/min (Customizable at 15~25°C) ,5°C/min Adjustable nonlinearity	
Cooling rate	(+150~-70°C)10°C/min (15~25°C(customizable)	
Temperature uniformity	≤±1°C (unloaded)	
Temperature fluctuation	≤±0.5°C	
Humidity accuracy	±3.0%RH(>75%RH);±5.0%RH(≤75%RH)	
temperature accuracy	±±0.1°C	
temperature range	+10°C~+90°C 10%~98%RH	
Humidity accuracy	≤±2.0%RH	
Window size cm	30*45	45*49
Cryogen	R404A/R23	
Test hole	φ100mm×1	
Heater	Electric heating	
Condenser	Air cooling: finned heat exchanger Water cooling: plate/sleeve/shell and tube heat exchanger	
Air circulation	Extended shaft motor, stainless steel centrifugal fan blades	
Cooling method	Cascade refrigeration	
compressor	Brand variable frequency compressor	
Control method	Segmented Fuzzy PID Algorithm Control	
Communication protocol interface	TCP/RS485 (CAN customizable)	
Operation panel	7-inch color touch screen, temperature curve display \ EXCEL data export	
Sensors	PT100 A-grade platinum resistor	
Protector	Heater dual temp protection, refrigeration system protection, and electrical over current and over load protection, etc	
Outer box size (W*H*D) cm	115*212.5*217	125*260*227
Power Supply	380V 50HZ	
Texture of material	Insulation material: glass fiber cotton&polyurethane; Inner box material: SUS304 stainless steel; Outer box material: cold-rolled steel plate+spray coating	

Chamber Test Chamber

Double-chamber impact test chamber

The test basket of the double-chamber cooling and heating shock test chamber is mobile when conducting high and low temperature shock tests. The high and low temperature shock conversion is mainly completed by moving the test basket up and down in the high temperature zone and the low temperature zone. The impact recovery time of the double-chamber type is shorter than that of the three-chamber type.



Model	GD-200-2-C-CJ	GD-400-2-C-CJ
Basket size (W * H * D) cm	60*60*60	90*65*70
Impact temperature range	Low temperature : -40°C~0°C ; High temperature : +60°C~+150°C	
Heating rate of preheating zone	(No load) 5 °C/min (customizable for 10-25 °C)	
Cooling rate of pre cooling zone	(No load) 2 °C/min (customizable for 5-25 °C)	
Pre cooling area Pre cooling range	-10°C~-55°C	
Preheating area preheating range	+60°C~+180°C	
Residence time	≥30min	
Recovery time	≤ 5 minutes to recover to within ± 2 °C	
Temperature fluctuation	≤1°C	
Residence time	≥30min	
Basket conversion time	≤10S	
Window size cm	300*450	
Cryogen	R404A/R23	
Heater	Electric heating	
Condenser	Air cooling: finned heat exchanger Water cooling: plate/sleeve/shell and tube heat exchanger	
Air circulation	Extended shaft motor, stainless steel centrifugal fan blades	
Cooling method	Cascade refrigeration	
Compressor	Brand variable frequency compressor	
Control method	Segmented Fuzzy PID Algorithm Control	
Communication protocol interface	TCP/RS485 (CAN customizable)	
Operation panel	7-inch color touch screen, temperature curve display \ EXCEL data export	
Sensors	PT100 A-grade platinum resistor	
Protector	Heater dual temp protection, refrigeration system protection, and electrical overcurrent and overload protection, etc	
Dimensions (W * H * D) cm	149*219*257	179*239*257
Power Supply	380V 50HZ	
Texture of material	Insulation material: glass fiber cotton&polyurethane; Inner box material: SUS304 stainless steel; Outer box material: cold-rolled steel plate+spray coating	
Execution standards	GB/T 2423.1、GB/T 2423.2、GJB 150.3A、GJB 150.4A、GB/T 5170	

Chamber Test Chamber

Walk in test chamber

This test chamber is suitable for low temperature, high temperature, high and low temperature changes, constant humidity and heat, high and low temperature alternating humidity and heat tests of the whole machine or large components. The size and function of the studio can be changed according to user requirements, using a modular box with a beautiful and elegant appearance. The scientific air duct design can meet the needs of different customers.



Model	GD-6M-C-BR(RH)	GD-6M-C-BR(RH)	GD-12M-C-BR(RH)
Inner box capacity	6cubic meters	6cubic meters	12cubic meters
Inner box size (W*H*D) cm	190*180*180	190*180*180	200*200*300
Outer box size (W*H*D) cm	220*242*330	220*242*330	230*267*445
Temperature range	-80~+150°C		
Temperature uniformity	≤±1°C (no-load)		
Temperature fluctuation	≤1°C		
Temperature accuracy	≤±0.1°C		
Heating rate	2°C/min Adjustable nonlinearity;		
Cooling rate	2°C/min Adjustable nonlinearity;		
Humidity range	+10°C~+90°C 10%~98%RH		
Dew point temperature (optional)	+4°C ~+88°C		
Humidity accuracy	≤±3.0%RH		
Refrigerant	R404A/R23		
Test hole	φ100mm×1		
Heater	Electric heating		
Window size cm	450*490 (2个)		
Air-cooled condenser	Finned heat exchanger		
Water-cooled condenser	Shell and tube heat exchanger		
Air circulation	Extended shaft motor, stainless steel centrifugal fan blades		
Cooling method	cascade refrigeration		
Compressor	Brand Compressor (Variable Frequency)		
Control method	Segmented Fuzzy PID Algorithm Control		
Communication protocol interface	TCP/RS485 (CAN customizable)		
Control panel	7-inch color touch screen, temperature curve display \ EXCEL data export		
Sensor	PT100 A-grade platinum resistor		
Protective device	Heater dual temperature protection, refrigeration system protection, and electrical overcurrent and overload protection, etc		
Power supply	380V 50HZ		

FREEZER Low Temperature Box

GX/GY Series

It is mainly used in industrial refrigeration to produce uniform, fine and dispersed carbides on the metal structure matrix. The precipitation of such carbides will significantly improve the wear resistance and friction performance of the metal, increase the hardness, and directly increase the life of the wear parts. It is an ideal product to replace liquid nitrogen.

Used for cold shrinkage of copper sleeves, bearings, etc., and widely used in precision machinery assembly. Used in ultra-low temperature testing of large equipment.



Model	GX-60A11N GX-60A11WN	GX-80A11N GX-80A11WN	GX-A0A11N GX-A0A11WN	GX-A2A11N GX-A2A11WN	GX-A5A11N GX-A5A11WN
Effective volume	1100L	1100L	1100L	1100L	1100L
Inner container size	90*100*125	90*100*125	90*100*125	90*100*125	90*100*125
Temperature range	-65°C ~ -35°C	-80°C ~ -50°C	-100°C ~ -70°C	-120°C ~ -90°C	-150°C ~ -110°C
Temp control accuracy	Within the controllable temperature range of ± 0.5 °C				
Bearing capacity	350kg can be customized with other load-bearing capacities				
Cooling capacity	No load, cool down to 25 degrees Celsius at room temperature (minimum temperature setting+10 °C) for about 1 hour				
Temp uniformity	Within ± 2 °C				
Opening method	Side opening door, double layered interior and exterior door design, opening the exterior door automatically closes the circulating fan				
Evaporator	Electrophoretic copper tube with aluminum fins				
Compressor	Emerson Valley Wheel Vortex Compressor, Carlisle Semi Enclosed Piston Compressor				
Controller	Programmable PLC controller, 7-inch touch screen				
Safety protection	Having self diagnostic function; Refrigerator overload protection; Multiple safety protection functions such as high and low pressure sensors, overload relays, and thermal protection devices; Pressure balanced design ensures smooth door opening				
Data recording	Temperature curve recording, USB data export in Excel format, fault record				
Defrosting function	Can set timed defrosting function				
Insulation layer	150mm	150mm	150mm	200mm	200mm
	Polyurethane foam secondary foaming+FIR board				
Refrigerant	R454C/R290/R23	R454C/R290/R23	Mixed refrigerant 1	Mixed refrigerant 2	Mixed refrigerant 3
Material	Inner liner SUS304 ,Cold rolled shell coated with RAL7035 plastic coating				
Refrigeration components	Famous brands are used for condenser, plate heat exchanger, oil separator, pressure sensor, temperature sensor, drying filter, electronic expansion valve, gas-liquid separator, sight glass, frequency converter, etc				
Dimensions	120*235*170	120*235*170	120*235*170	130*250*180	130*250*180
Power	400V 50HZ				
	Other sizes and load-bearing capacity can be customized				

Model	GY-8028N	GY-A528N	GY-80A16N	GY-A5A16N	GY-80A11N	GY-A5A11N
Effective volume	280L	280L	1600L	1600L	1100L	1100L
Inner container size	80*60*60	80*60*60	200*90*90	200*90*90	90*125*100	90*125*100
Temperature range	-80℃ ~ -40℃	-150℃ ~ -80℃	-80℃ ~ -40℃	-150℃ ~ -80℃	-80℃ ~ -40℃	-150℃ ~ -80℃
Temp accuracy	Within the controllable temperature range of $\pm 0.5^{\circ}\text{C}$					
Bearing capacity	150kg	150kg	650kg	650kg	350kg	350kg
Cooling capacity	No load, cool down to 25 degrees Celsius at room temperature (minimum temperature setting+10 °C) for about 1 hour					
Temp uniformity	Within $\pm 2^{\circ}\text{C}$					
Opening method	Open the upper door, with a double layered design of inner and outer doors. The circulating fan automatically closes when the outer door is opened					
Evaporator	Electrophoretic copper tube with aluminum fins					
Compressor	Emerson Valley Wheel Vortex Compressor, Carlisle Semi Enclosed Piston Compressor					
Controller	Programmable PLC controller, 7-inch touch screen					
Safety protection	Having self diagnostic function; Refrigerator overload protection; Multiple safety protection functions such as high and low pressure sensors, overload relays, and thermal protection devices; Pressure balanced design ensures smooth door opening					
Data recording	Temperature curve recording, USB data export in Excel format, fault record					
Defrosting function	Can set timed defrosting function					
Insulation layer	150mm	200mm	150mm	200mm	150mm	200mm
	Polyurethane foam secondary foaming+FIR board					
Refrigerant	R454C/R290/R23	Mixed refrigerant	R454C/R290/R23	Mixed refrigerant	R454C/R290/R23	Mixed refrigerant
Material	Inner liner SUS304 ,Cold rolled shell coated with RAL7035 plastic coating					
Refrigeration components	Famous brands are used for condenser, plate heat exchanger, oil separator, pressure sensor, temperature sensor, drying filter, electronic expansion valve, gas-liquid separator, sight glass, frequency converter, etc					
Dimensions	220*130*120	240*130*120	400*148*155	480*145*200	120*170*235	130*180*250
Power	400V 50HZ					
	Other sizes and load-bearing capacity can be customized					



FREEZER Low Temperature Chamber

Low temperature freezer

1

Product Introduction

Our company's main business: ultra-low temperature freezer design, ultra-low temperature freezer installation, ultra-low temperature freezer construction. We strictly abide by the relevant regulations and standards of the Food and Drug Administration on ultra-low temperature freezer, and build freezer projects related to the pharmaceutical industry with high quality and high standards, in line with the GSP and GMP standards of the Food and Drug Administration.

For pharmaceutical manufacturers, the medical freezer designed and built by our company is energy-efficient, environmentally friendly and highly flame-retardant. In the later use process, the maintenance cost of the pharmaceutical freezer is reduced to an ultra-low level.

2

Ultra-low temp freezer engineering technical parameters within 100 cubic meters

1、Ultra-low temperature freezer temperature range (°C)

Low temperature insulation warehouse: -20°C~-50°C to store plasma, biological materials, vaccines, reagents, etc.

Ultra-low temperature storage: -50°C~-100°C can be used to store placenta, semen, stem cells, plasma, bone marrow, biological samples, etc.

2. Performance and parameters of polyurethane insulation board

2.1. Thermal insulation performance of freezer insulation materials:

The first requirement of polyurethane insulation materials is thermal insulation performance, but the quality of thermal insulation performance cannot be observed with eyes before it is actually put into use. By the time the difference in power consumption is observed, it is too late. The company has carried out a large number of experimental tests and strictly controlled the selection of materials in order to achieve this proposal:

- ① Use structural amine ether to reduce thermal conductivity and improve thermal insulation effect;
- ② Try to reduce the water content in various raw materials and formulas to avoid water foaming and deterioration of thermal insulation performance;
- ③ Main material polyether: Select products from large factories that have undergone strict post-treatment (such as Jinling Petrochemical Company, etc.). Compared with polyether from small factories that have not undergone post-treatment, its foam pores are more uniform and the pore walls are thinner, and its thermal insulation performance is significantly better than ordinary foam with thick walls and large pores;
- ④ The use of effective odorless amine catalysts effectively adjusts the balance of foaming-gelling reaction, making the surface between spray layers thinner, which is conducive to the performance of freezer insulation materials
- ⑤ Do not use ordinary polyester polyols. These control measures have achieved quite good results. In a comparison of several freezers at a customer in Jining, the freezer using its white material consumed significantly less electricity than the freezer using white material from other manufacturers.

2.2. Dimensional stability of polyurethane insulation foam:

The polyurethane foam material of the freezer will change in size (usually shrink) when the temperature changes drastically or it is at a low temperature for a long time. The change in size is often reflected in the cracking or shedding of the foam, which will inevitably affect the normal use of the freezer. In addition to regular simulation performance testing, more attention is paid to the control of selecting high-quality materials:

- ① The use of special high-functionality polyether compounding makes the foam form a three-dimensional network structure, which greatly improves the low-temperature resistance of the foam. The 4110 polyether commonly used in spray coatings currently contains a large number of difunctional components. The large number of linear molecular structures formed after the reaction are difficult to stabilize at low temperatures:
- ② The use of high-functionality cross-linking agents also greatly improves the dimensional stability of the foam;

③ The polyether selected is catalyzed by strong base in the production stage, and the reaction is thorough, so that the polyether maintains a high reaction rate (that is, it can react more completely when in contact with black material); some manufacturers add open-cell components to the foaming material in order to achieve the effect of no deformation of the foam surface, which reduces the closed-cell rate of the foam and achieves the effect of stabilizing the size, but this sacrifices the thermal insulation performance of the polyurethane freezer insulation material foam.

2.3. Service life of polyurethane freezer insulation foam:

In addition to the basic performance of polyurethane foam at the beginning, the performance degradation of the foam is also a very important indicator. When preparing the white material, the use of certain polyester materials on the surface makes the foam have good toughness and impact resistance, but after a period of use in the freezer, it will become brittle and no longer resistant to impact and collision; in addition, the poor hydrolysis resistance of some polyester structure foams will also affect the service life of the foam; its polyether structure is slightly brittle at the beginning, but generally the brittleness disappears after a few days, and then the stable performance of the freezer insulation material is maintained for a long time.

2.4. Main technical performance indicators of polyurethane

project	Standard requirements	Actual measurement results
Density (kg/m)	40~50	42~52
Thermal conductivity (w/m °C)	≤0.022	0.020
Compressive strength (Mpa2)	≥0.2	0.3
Bending strength (Mpa2)	≥0.25	0.45
Water absorption rate (kg/m)	≤0.3	0.15
Time from ignition to self extinguishing (s)	≤7	1.5

3. Electronic control part

The external electric control box of the ultra-low temperature freezer has the function of automatic switching of dual control circuits, usually referring to conventional power supply and backup power supply;

Control the main compressor and auxiliary compressor to switch automatically, Siemens PLC, 7-color touch screen, with automatic monitoring, control, display, temperature upper and lower limit alarm functions. Record temperature, use ultra-advanced temperature and humidity recorder, remote SMS alarm.

4. Refrigeration part

freezer refrigeration equipment: mainly the selection of freezer compressors and evaporators. Ultra-low temperature freezer uses Italian Duling semi-hermetic compressors, copper tube aluminum fin heat exchangers, and main refrigeration accessories are all from well-known brands such as Emerson, Danfoss, and Castor.

Positive Pressure Explosion-proof Cabinet

Note: All water-cooled type model in the catalogue
can be produced EXPXdmb II BT4 / EXPXdmb II CT4

It is designed and examined according to the national standard GB3836.5-2004 Electrical equipments positive pressure "P" used in explosive gas environment. Can be widely used in petroleum, chemical industry, medicine etc. in which dangerous area with explosive gas and dust. Ex-mark is ExpXdmbIICT4.

Certification: GYB091118

The P XK positive pressure enclosure utilizes the intelligent control system and pressure control system within the explosion-proof control cabinet to introduce clean and safe compressed air into the positive pressure chamber, thereby creating and maintaining a micro-positive pressure environment. This effectively prevents the ingress of external hazardous gases and dust, achieving the goal of explosion protection.. This product has the function of intelligent centralized control, LCD text display, automatic ventilation, automatic delay power-up, air supply for pressure loss, fault alarm and automatically cut off power supply in danger, etc

Structure Description

Positive pressure cabinet is composed of positive pressure cavity and control cavity; Positive pressure cavity is used for installing various of instrument or electronics which with non-explosion-proof. The control cavity has explosion-proof control box and pressure control system. The case material of positive pressure cabinet has 2~3 mm cold rolled steel sheet welding and the Air-duct with galvanized steel pipe; adopt bulkhead connector and tightening device for in&out of the cable. There is a glass display in the front of door and display the information of instrument and indicator light.

Safety Instruction

1. P XK value >280Pa, automatic vent
2. 50pa <P XK value <80pa, automatic alarm
3. P XK value <50Pa, automatically power off

Operation Principle

Please press the "Start Button" after applying the external 220V AC power supply to the explosion-proof control box. This will energize solenoid valve, opening the air intake. Compressed air will then enter the positive pressure chamber after being filtered and regulated. hazardous gases inside the chamber are purged through exhaust valve. Once the concentration of hazardous gas in the chamber reaches a safe level, the purge cycle completes, and the interlock contact closes automatically. At this point, the electrical appliances and instruments within the positive pressure chamber are permitted to start operation.

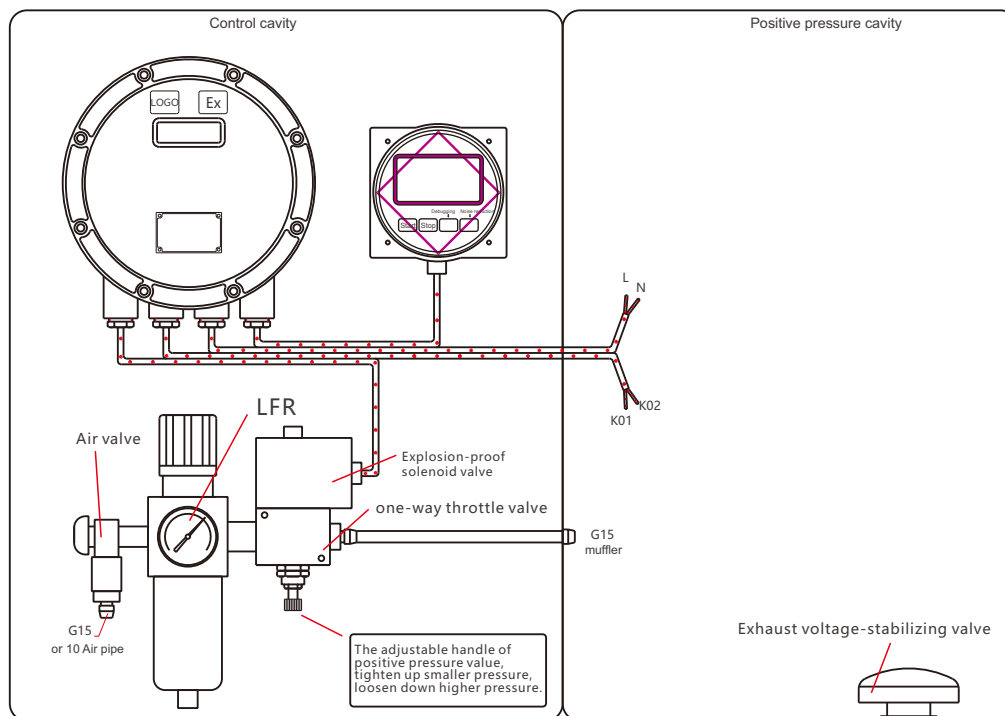


The adjustment for positive pressure values

Adjust the bottom of positive pressure value by regulating of the handle of one-way throttle valve, PXK value will be higher by clockwise and lower by counterclockwise. It is reasonable to adjust the PXK value to be 250Pa, if the pressure is low and cannot reach to this fine pressure, please kindly check whether the air inlet valve is open totally or not and if the positive pressure chamber is sealed from the outside.

Interlock Function Selection

PXK is used in the dangerous area 1, if PXK value < 50Pa, interlocking contact must be off; if operating in the dangerous area 2, PXK value < 50Pa, interlocking contact can be open; however, the pressure must be promptly restored to > 50 Pa.



PXK Constant-temperature Cooling System

In auto control mode the cooling water flows into the internal heat exchanger of system to remove the heat of PXK. This ensures the constant temperature for the internal system and provides safety for every part.



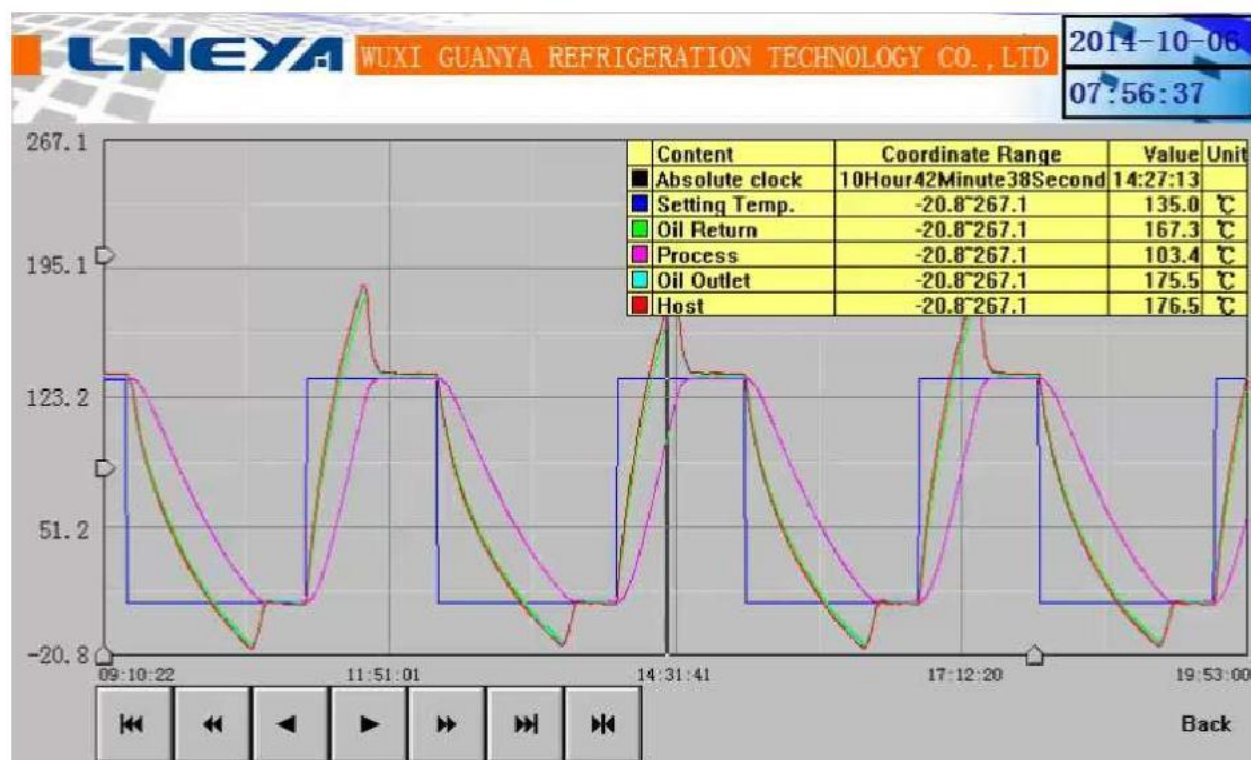
Isolated explosion proof (EXdIIBT4)

1. Electrical cabinet (adopt Isolated explosion proof)
 - A. Separate wiring chamber.
 - B. Heating power >7.5KW, with independent heat dissipation aluminum fins explosion-proof cabinet.
 - C. Electric cabinet adopts whole aluminum mold.
 - D. Equipped with explosion-proof mouse to operate 7-inch touch screen (optional Siemens explosion-proof touch screen - 7 inch, 12 inch).
2. Compressor
 - A. Using isolated explosion proof.
 - B. Adopt Terminal block packaging process (Intrinsically safe)
3. Circulating fan
 - A. Using isolated explosion proof
 - B. Aluminum fin
4. Circulating pump adopts isolated explosion proof motor
5. Heater adopts flameproof type (heating power per unit area<3W)
6. Temp. sensor adopts flameproof type
7. Pressure sensor adopts flameproof type
8. Various protection areas are installed in flameproof boxes



Application Example Graph

Application 1



SUNDI-270 is applied to SENCO 50 Liter Jacketed Glass Reactors, we made a typical 10°C~135°C cycle control, this graph shows the reproducibility of the result control, each cycle curve slope is consistent and greatly improve the consistency of the production thermostatically controlled environment. There is no overshoot occurred for reaction material, Sundi performs fast and stable in the whole process.

Test Condition

Temperature Range: -25~200°C

Cooling Capacity: 7KW 200°C.....0°C
3.8KW -20°C

Heat Conducting Medium: KDOC-250 38L

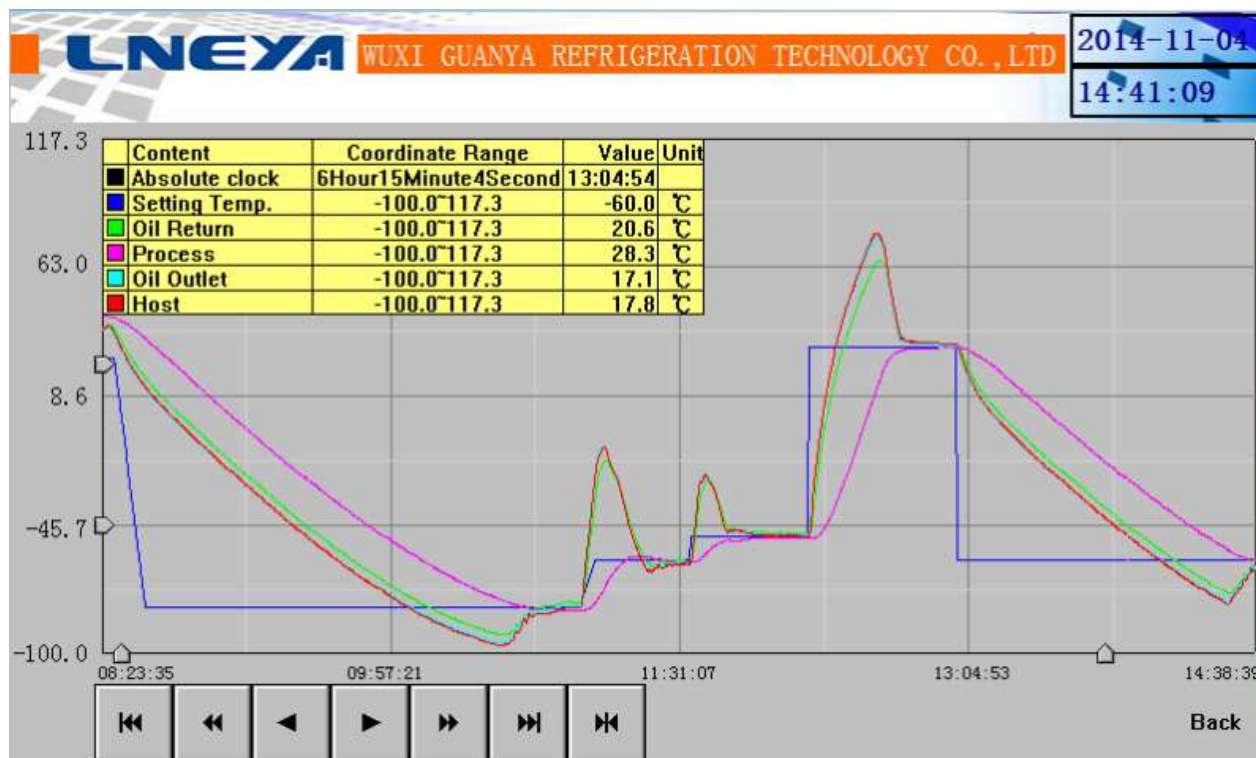
Reactor: SENCO 50 Liter Jacketed Glass Reactors

Stirring rate: 155R/min

Heat preservation: simple insulation

Please visit our website www.lneya.com to see the application examples and the video of controlling effect.

Application Example Graph Application 2



SUNDI-10A10W is applied to 100L stainless steel reactors, this graph shows the cooling ramp from +42.4°C down to -80°C done in 130 min. It can be seen that the jacket temperature reached -95.8°C. Therefore, the cooling process is fast and also there is no overshoot phenomenon of the process (material) from the dynamic display of adaptive control. The whole process needs 15 mins to heat up from -80°C to +60°C. As can be seen the jacket temperature reached to -12.2°C. The lowest temperature of heat conducting medium can go down to -100°C. There is no overshoot occurred for reaction material in the whole process and the heat conducting medium needs 65 mins to cool from +30°C down to -60°C

Test Condition

Temperature Range: -100~100°C
Cooling Capacity: 10kW 100°C.....-40°C

8kW -60°C

1.2kW -100°C

Heat Conducting Medium: Absolute ethyl alcohol 80L

Reactor: 100L stainless steel reactors

Stirring rate: 95R/min

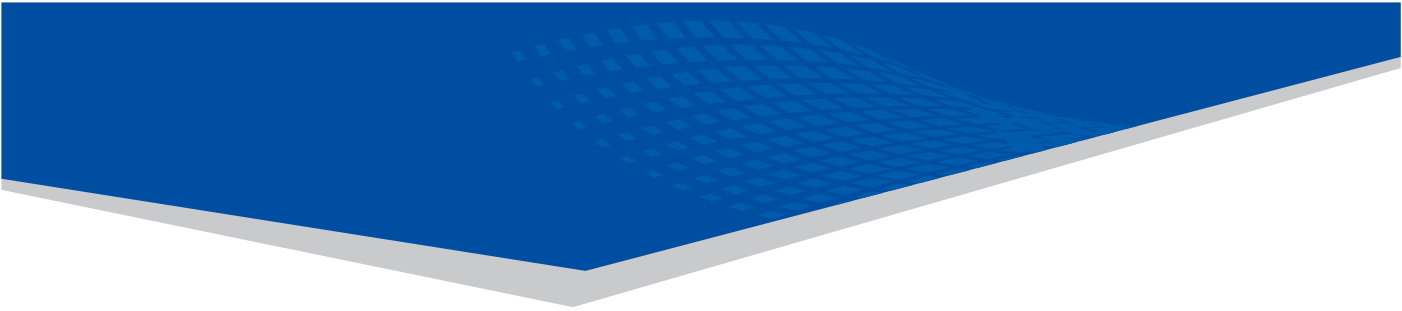
Heat preservation: 6cm Rubber insulation

Please visit our website www.lneya.com to see the application examples and the video of controlling effect.



LNEYA headquarters factory is expected to put in production in **August 2026 with 68000m²** of construction area





Warranty

The equipment warranty period is 13 months from the factory date (human factors. damage caused by natural disasters are not covered by the warranty).

Extended warranty period (with 10% increase of equipment price the warranty can be extended to 24 months).

During the warranty period:

- A. Lneya will provide replacement parts for free if something is irreversible damaged (not caused by improper personnel operations).
- B. Lneya can provide remote technical support via email / phone call directly or with assistance of local distributor.
- C. If remote support does not solve the issue, then Lneya will authorize a local distributor to provide service support on site, the Buyer then bears the traveling costs and accomodation fee.

After the warranty period:

- A. All technical questions will be answered by Lneya directly or by local partner via phone call or email immediatly.
- B. While local maintenance/service is necessary, Lneya could arrange technician to provide on-site service. Buyer need to support travelling expenses and accommodation fee. (Lneya bear cost of labor).
- C. If local maintenance/servie is necessary, Lneya could arrange a technician to provide on-site service.



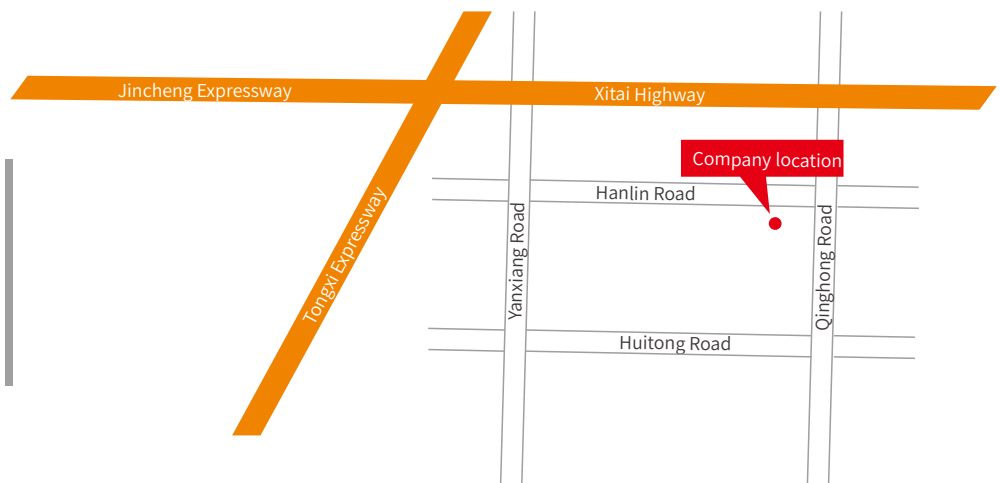
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