



LNEYA®



Address: No. 55, Hanlin Road, Xishan District, Wuxi City
Zip code: 214000
TEL: +86-15251521128
Overseas sales: info@lneya.com
Overseas after-sales: services@lneya.com
<https://www.lneya.com>

Semiconductor Industry temperature control solutions High precision temp control system

version: LNEYA(EN)-EXP-2025IC CHILLER

- * Due to the need for continuous improvement of products, so the appearance and specification of products contained here shall be a little different from practicality. Please understand.
- * As the brief introduction of the product is presswork, so the products' color shall be a little different from practicality. Please understand.
- * The brand mentioned in catalogue, LNEYA is the brand of wuxi guanya refrigeration technology co., ltd. Other trademarks are hold by brand company.

LNEYA THERMO REFRIGERATION CO.,LTD.

Our success comes from assiduously to help customers improve productivity

Company profile

LENYA is a high-end equipment manufacturing enterprise that integrates research and development, production, and sales. Its main products include semiconductor temperature control devices (Chillers), thermoelectric Chillers, gas temperature control Chillers, contact-type high and low temperature testers, direct cooling machines, and aging test chambers. These specialized devices are widely used in fields such as semiconductors, LEDs, LCDs, and solar photovoltaics 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. The temperature control accuracy is as high as ±0.002°C



Name of enterprise	LNEYA Thermo Refrigeration Co.,Ltd.	The registered capital	60 million RMB
Plant area	12000 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



Rhine certification



Explosion-proof Equipment Installation Qualification Certificate



High-tech enterprise



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



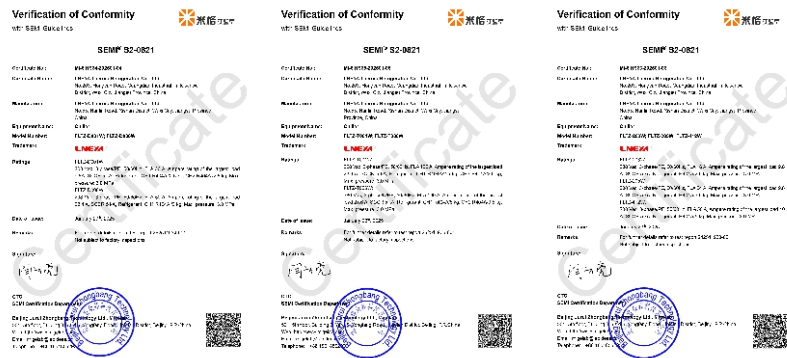
Gazella Company



Province specialized special new small and medium-sized enterprises



High Quality Development Award



Partial models obtained SEMI S2/S23/F47 certification



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; LENEY 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

FLTZ Variable Frequency Series06~12

FLTZ Variable Frequency Multi Channel Series13~16

Dual-Channel High-Temperature Chiller17

LT Series Fixed Frequency Series18~21

LTZ Variable Frequency Series22~25

CHILLER small refrigeration units

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Thermoelectric Type CHILLER

27~28

CHILLER DI refrigeration unit

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CHILLER Gas refrigeration

LQ Series30

AI Series31

AES Series32

AET Series33

CHILLER Precision Constant temperature and Humidity Unit

34~35

Contact-type high-low temperature tester

36

CHILLER Direct cooling temp control unit

ZLJ Series37

ZLTZ High-efficiency Heat exchange and temperature Control unit38~39

Vacuum-Temperature Controlled Chuck40

Compressed Gas Dryer

41

Burn-in Test Chamber

42

Negative-Pressure Temperature Control System

43

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

FLTZ Variable Frequency Series | FLTZ Variable Frequency Multi Channel Series | LT Series Fixed Frequency Series | 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)

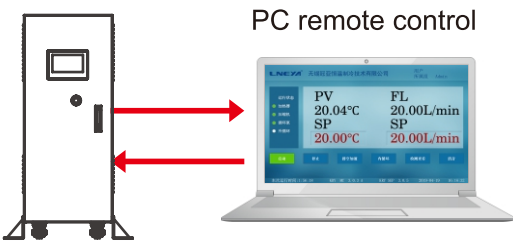
Evaporator: Plate heat exchanger

Throttle equipment: Electronic expansion valve

Control system: PLC programmable controller

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

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

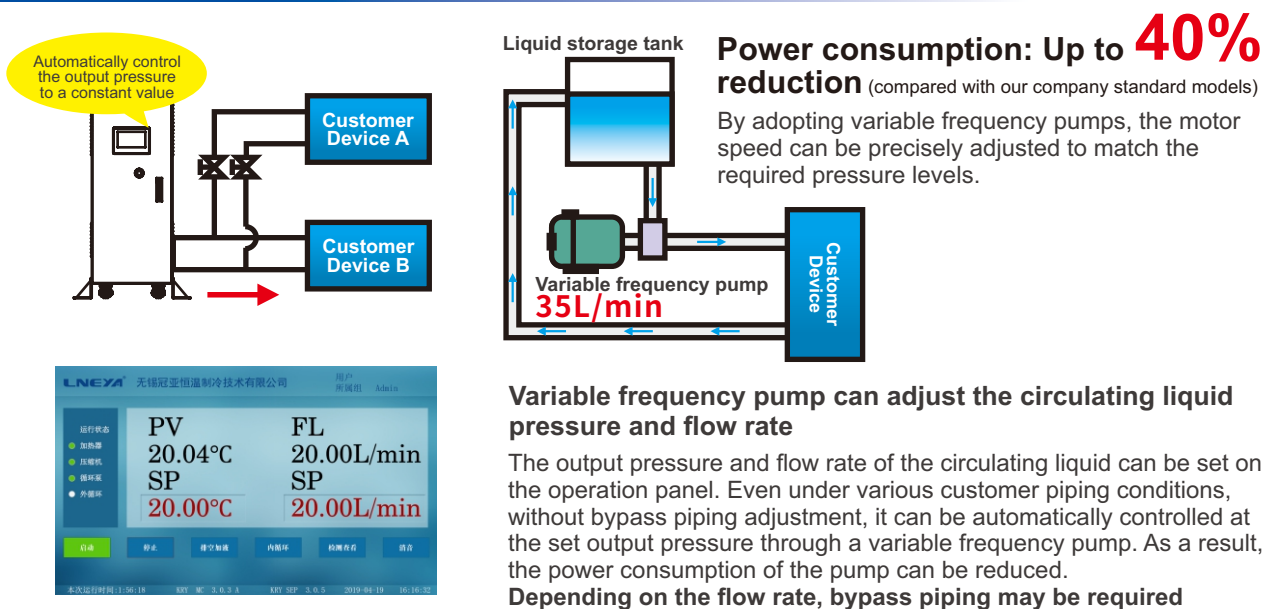


Circulation system: The whole system is a fully closed system, low temperature does not absorb the water in the air, no volatile thermal media, low temperature automatically supplement the thermal media into the circulation system.

Case material: Cold-rolled plate spray RAL7035

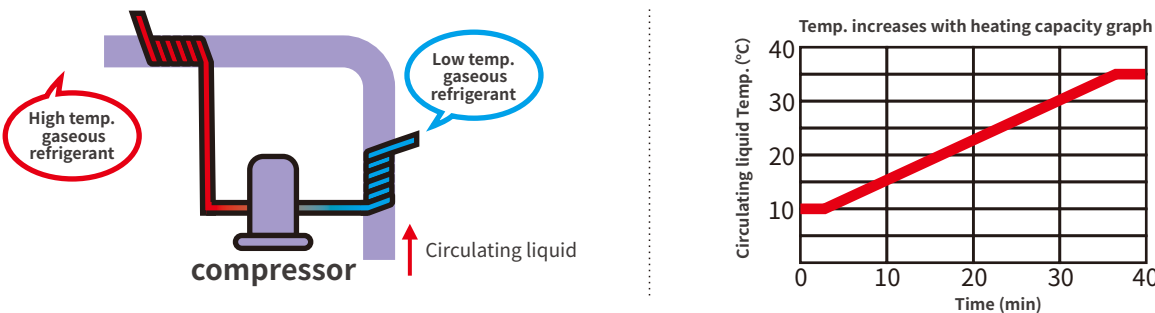
Inside the pipeline contains: SUS304, copper, ceramic, silicon carbide, silicone sealant, PTFE

Frequency conversion energy conservation



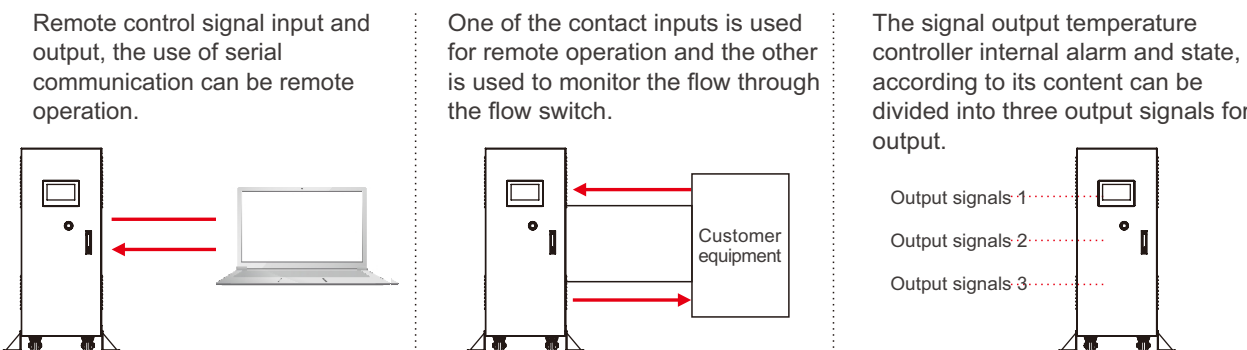
Heating function

Due to the use of heat generated during heating, circulating heating can be achieved without the need for a heater

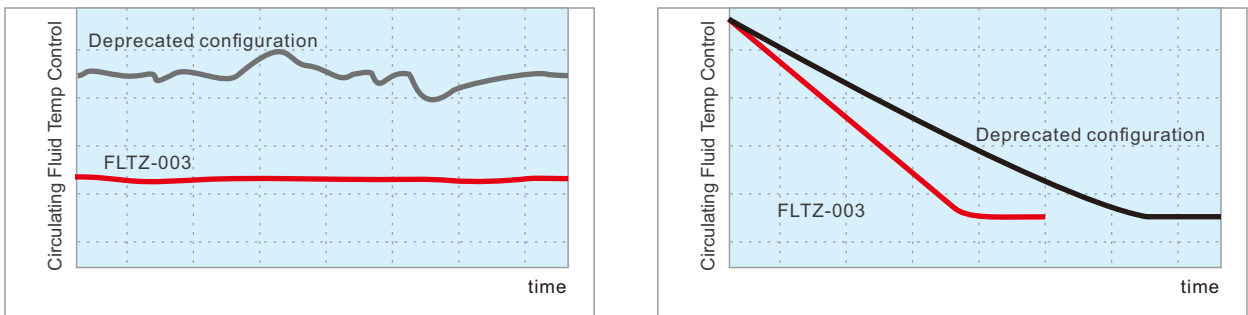
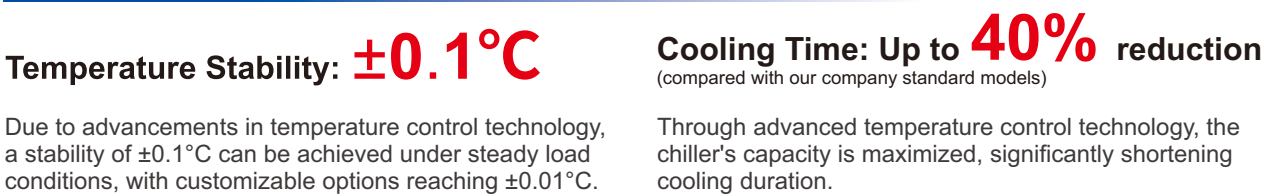


Communication function

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.



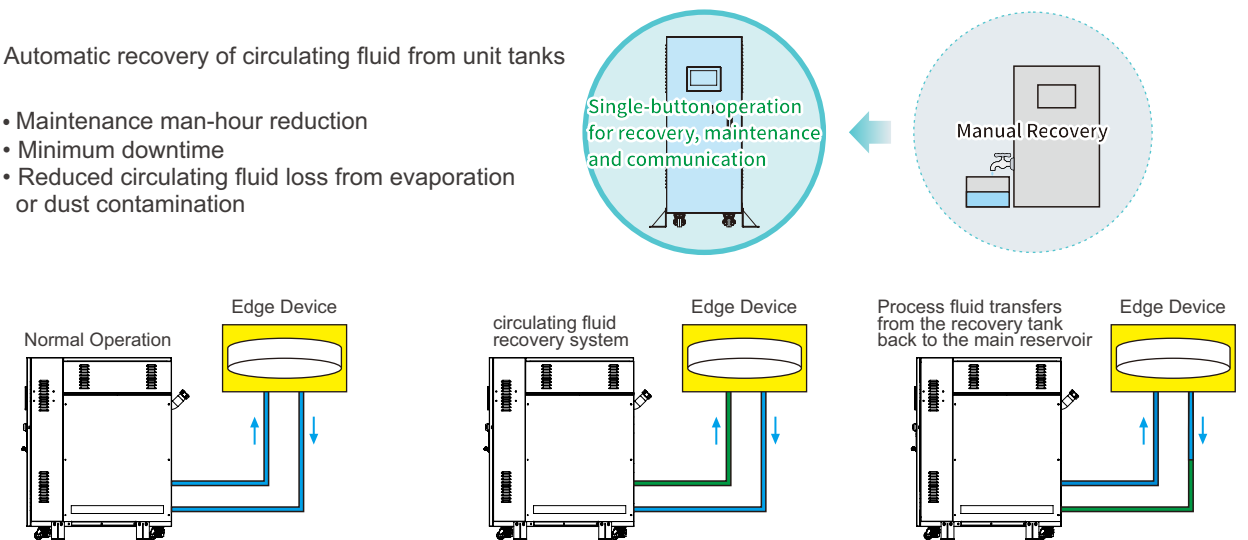
High-Precision Temperature Control



Circulating Fluid Purge & Recovery System

Automatic recovery of circulating fluid from unit tanks

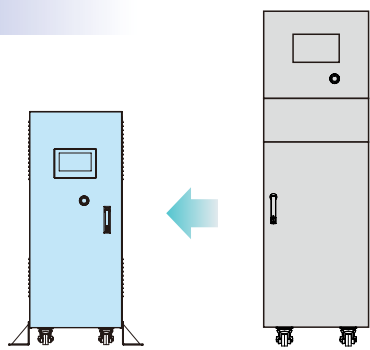
- Maintenance man-hour reduction
- Minimum downtime
- Reduced circulating fluid loss from evaporation or dust contamination



Space Optimization

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

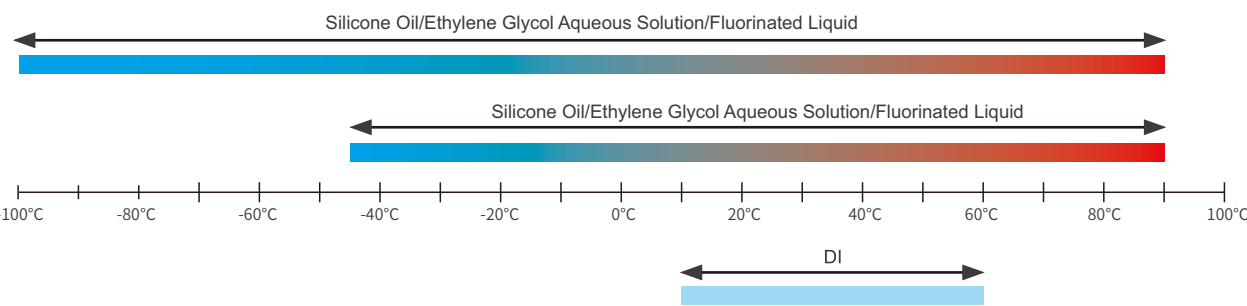
By forcibly exhausting internal valve heat through the rear panel, this design eliminates the need for side venting ports, enabling compact installation.



Circulating Fluid Selection

Which process chemical meets our recirculation requirements?

The selection of circulating fluids for chillers is determined by the customer's required temperature range.



Fluoride liquid

※ The following values are reference values. For details, please consult the manufacturer of circulating liquid.

Parameter Temperature	Density	Specific heat	
	kg/m³	J/(kg.k)	Kcal/(kg.°C)
-10°C	1.87*10³	0.87*10³	(0.21)
+20°C	1.80*10³	0.96*10³	(0.23)
+50°C	1.74*10³	1.05*10³	(0.25)
+80°C	1.67*10³	1.14*10³	(0.27)

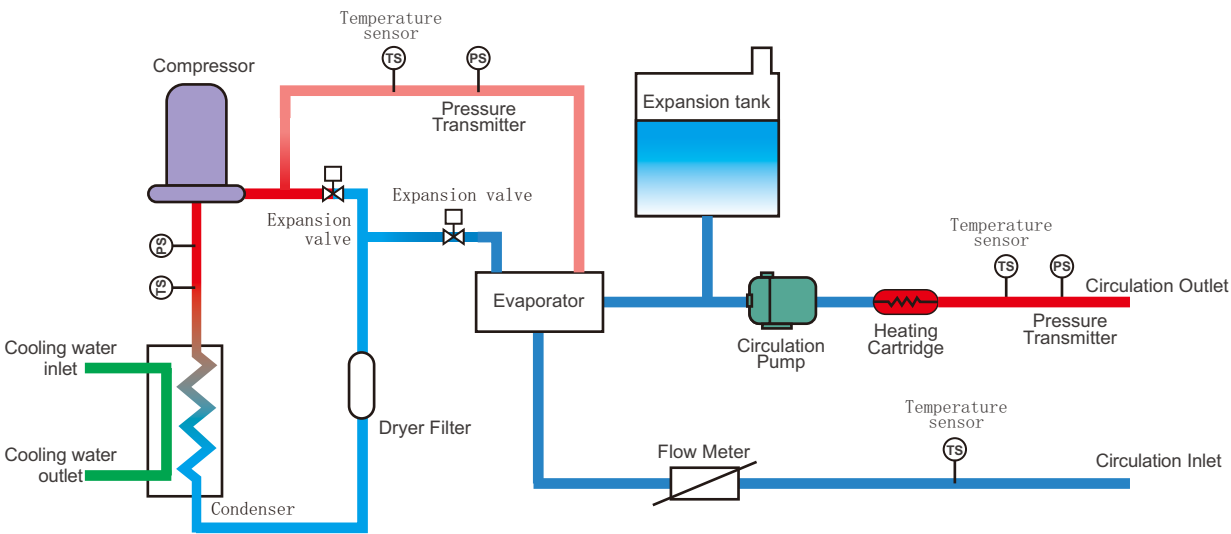
Ethylene glycol aqueous solution

Parameter Temperature	Density	Specific heat	
	kg/m³	J/(kg.k)	Kcal/(kg.°C)
-10°C	1.10*10³	3.02*10³	(0.72)
+20°C	1.08*10³	3.15*10³	(0.75)
+50°C	1.06*10³	3.27*10³	(0.78)
+80°C	1.04*10³	3.40*10³	(0.81)

DI

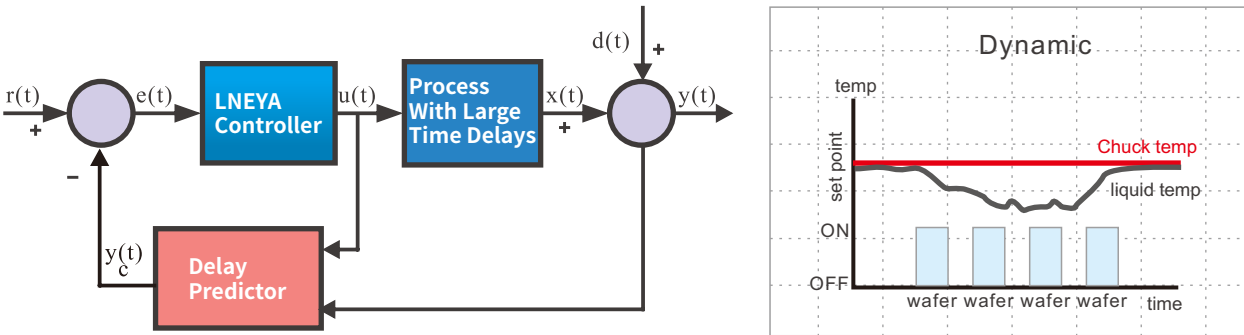
Density:1x10³[kg/m³] Specific heat:4.2x10³[J/(kg.k)] (1.0 [Kcal/(kg.°C)])

Cycle process



The circulating fluid is delivered to the client-side equipment via the circulation pump in the fluid loop, and after completing thermal exchange with the client equipment, it returns to the main reservoir through the heat exchanger. Under normal operation, the auxiliary tank remains inactive and is only utilized during fluid recovery from client equipment or when transferring fluid from the auxiliary tank to the main reservoir using the internal transfer pump. In the refrigeration circuit, when the circulating fluid temp exceeds the setpoint, the expansion valve opens to introduce low-temp refrigerant gas into the heat exchanger, thereby cooling the circulating fluid. Conversely, when the circulating fluid temp falls below the setpoint, the expansion valve opens to direct high-temp refrigerant gas that bypasses the water-cooled condenser into the heat exchanger, consequently heating the circulating fluid.

Dynamic Temperature Control Principle



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

Precise dynamic control of fluid temperature

- Stage temperature stability
- Reduced first wafer effect
- Improved wafer-to-wafer stability
- Improved critical dimension (CD) deviation
- Small sidewall angle deviation in etch profile

Model	FLTZ-001S	FLTZ-002S FLTZ-002WS	FLTZ-003S FLTZ-003WS	FLTZ-004S FLTZ-004WS	FLTZ-006S FLTZ-006WS	FLTZ-008WS	FLTZ-010WS
Temperature range	15℃ ~ 25℃						
Temp control accuracy	±0.005℃ Temperature control accuracy at the equipment outlet						
Flow Rate	7L/min 3bar	15L/min 4bar		30L/min 4bar		75L/min 4bar	
Heating Power	Technology of using compressor heating to prevent condenser frosting						
Cooling capacity @20℃	3kW	7kW	10.5kW	14kW	21kW	28kW	35kW
Expansion tank volume	8L	15L	20L	30L	50L	60L	80L
Refrigerant	R1234fa (ODP=0 GWP=4)						
Refrigerating medium	Purified Water						
Controller	PLC , Fuzzy PID control algorithm with cascade control algorithm						
Temp Control Mode	Temperature control mode of heat transfer medium outlet: PT100 External temperature sensor: (PT100, 4–20mA, or communication setting) Control mode (cascade control)						
Process temp control	The remote target temperature can be controlled by combining the self created model free self built tree algorithm and cascade algorithm (dynamic temperature control)						
System Leak Detection	Refrigeration system: 100% helium leak tested before delivery,Circulation system: 100% helium leak tested before delivery						
Connection size	Rc1/2	Rc3/4	Rc3/4	Rc3/4	Rc3/4	Rc1	Rc1
Cooling water connection size	Rc1/2	Rc1/2	Rc3/4	Rc3/4	Rc3/4	Rc1	Rc1

Model	FLTZ-002 FLTZ-002W	FLTZ-003 FLTZ-003W	FLTZ-004 FLTZ-004W	FLTZ-006 FLTZ-006W	FLTZ-008 FLTZ-008W	FLTZ-010 FLTZ-010W	FLTZ-015 FLTZ-015W
Temperature range	5°C ~ 90°C						
Temperature control accuracy	±0.1°C (±0.01°Cavailable on request)						
Cooling capacity @10°C	6kW	8kW	10kW	15kW	20kW	25kW	40kW
Internal circulating fluid volume	4L	5L	6L	8L	10L	12L	20L
Expansion tank volume	10L	10L	15L	15L	20L	25L	35L
Refrigerant	R410A						
Refrigerating medium	Silicone oil, fluorinated liquid, polyol aqueous solution, Purified Water, etc.						
Connection size	Rc1/2	Rc1/2	Rc3/4	Rc3/4	Rc3/4	Rc1	Rc1
Cooling water connection size	Rc1/2	Rc1/2	Rc3/4	Rc1	Rc1	Rc1	Rc1 1/8
Cooling water flow @20°C	1.5m³/H	2m³/H	2.5m³/H	4m³/H	4.5m³/H	5.6m³/H	9m³/H
Process temperature control	The remote target temperature can be controlled by combining the self created model free self built tree algorithm and cascade algorithm (dynamic temperature control)						
Dimension cm	97*40*108	97*40*108	97*40*108	105*43*140	105*43*140	108*60*150	108*60*150

Model	FLTZ-202 FLTZ-202W	FLTZ-203 FLTZ-203W	FLTZ-204 FLTZ-204W	FLTZ-206 FLTZ-206W	FLTZ-208 FLTZ-208W	FLTZ-210 FLTZ-210W	FLTZ-215 FLTZ-215W
Temperature range	-25°C ~ 90°C						
Temperature control accuracy	±0.1°C (±0.01°Cavailable on request)						
Flow control Max	10 ~ 25L/min		15 ~ 45L/min			25 ~ 75L/min	
Cooling capacity @-15°C	2kW	3kW	3.8kW	6kW	7.6kW	10kW	15kW
Internal circulating fluid volume	4L	5L	6L	8L	10L	12L	20L
Expansion tank volume	10L	10L	15L	15L	20L	25L	35L
Refrigerant	R454C/R290						
Refrigerating medium	Silicone oil, fluorinated liquid, glycol solution etc.						
Connection size	Rc1/2	Rc1/2	Rc3/4	Rc3/4	Rc3/4	Rc1	Rc1
Cooling water connection size	Rc1/2	Rc1/2	Rc3/4	Rc3/4	Rc1	Rc1	Rc1 1/8
Cooling water flow @20°C	1.2m³/H	1.6m³/H	2.6m³/H	3.6m³/H	5.5m³/H	7m³/H	10.2m³/H
Process temperature control	The remote target temperature can be controlled by combining the self created model free self built tree algorithm and cascade algorithm (dynamic temperature control)						
Dimension cm	90*45*113	90*45*113	90*45*113	105*50*140	105*50*140	108*60*150	108*60*150

Model	FLTZ-402 FLTZ-402W	FLTZ-403 FLTZ-403W	FLTZ-404 FLTZ-404W	FLTZ-406 FLTZ-406W	FLTZ-408 FLTZ-408W	FLTZ-410 FLTZ-410W	FLTZ-415 FLTZ-415W
Temperature range	-45°C ~ 90°C						
Temperature control accuracy	±0.1°C (±0.01°Cavailable on request)						
Flow control Max	10 ~ 25L/min 5bar		15 ~ 45L/min 5bar			25 ~ 75L/min 5bar	
Heating	Using compressor heating, prevent condenser frosting technology						
Cooling capacity @-35°C	1kW	1.4kW	1.8kW	2.5kW	3.3kW	5kW	8kW
Internal circulating fluid volume	4L	5L	6L	8L	10L	12L	20L
Expansion tank volume	10L	10L	15L	15L	20L	25L	35L
Refrigerant	R454C/R290						
Refrigerating medium	Silicone oil, fluorinated liquid, glycol solution etc.						
Connection size	Rc1/2	Rc1/2	Rc3/4	Rc3/4	Rc3/4	Rc1	Rc1
Cooling water connection size	Rc1/2	Rc3/4	Rc3/4	Rc1	Rc1	Rc1	Rc1 1/8
Cooling water flow @20°C	1.5m³/H	2.4m³/H	3.5m³/H	5m³/H	5.5m³/H	6m³/H	8m³/H
Process temperature control	The remote target temperature can be controlled by combining the self created model free self built tree algorithm and cascade algorithm (dynamic temperature control)						
Dimension cm	90*45*113	90*45*113	90*45*113	105*50*140	105*50*140	108*50*150	108*50*150

Chiller Low temperature cascade refrigeration series

Model	FLTZ-803W	FLTZ-805W	FLTZ-806W	FLTZ-808W	FLTZ-8010W
Temperature range	-80°C ~ 90°C				
Temperature control accuracy	±0.1°C (±0.01°Cavailable on request)				
Flow control Max	7 ~ 25L/min 5bar		12 ~ 45L/min 6bar		
Heating capacity	2kW	2kW	2kW	3.5kW	3.5kW
Cooling capacity @-70°C	0.6kW	1kW	1.5kW	2kW	3kW
Internal circulating fluid volume	4L	5L	6L	8L	10L
Expansion tank volume	10L	10L	15L	15L	20L
Heat-conduction medium	Fluorinated liquid				
Connection size	Rc1/2	Rc1/2	Rc3/4	Rc3/4	Rc3/4
Cooling water connection size	Rc3/4	Rc3/4	Rc3/4	Rc1	Rc1
Cooling water@20°C	1.8m³/H	2.5m³/H	3m³/H	5m³/H	6m³/H
Circuit breaker	25A	25A	32A	40A	50A
Process temperature control	The remote target temperature can be controlled by combining the self created model free self built tree algorithm and cascade algorithm (dynamic temperature control)				

Model	FLTZ-1002W	FLTZ-1004W
Temperature range	-100°C ~ 90°C	
Temperature control accuracy	±0.1°C (±0.01°Cavailable on request)	
Flow control Max	7 ~ 25L/min	12 ~ 45L/min
Heating capacity	3.5kW	5.5kW
Cooling capacity @-90°C	1.5kW	3kW
Internal circulating fluid volume	5L	8L
Expansion tank volume	10L	15L
Heat-conduction medium	Fluorinated liquid	
Connection size	Rc3/4	Rc3/4
Cooling water connection size	Rc3/4	Rc1
Cooling water@20°C	50L/min 2bar~7bar	100L/min 2bar~7bar
Circuit breaker	32A	63A
Process temperature control	The remote target temperature can be controlled by combining the self created model free self built tree algorithm and cascade algorithm (dynamic temperature control)	

CHILLER refrigerated circulator FLTZ-Multi channel

Multi channel independent temperature control, which can have a separate temperature range, cooling and heating capacity, thermal conductivity medium flow rate, etc., adopts two independent systems. According to the required temperature range, steam compression refrigeration or ETCU non compressor heat exchange system can be selected. The system can be used for universal expansion tanks, condensers, cooling water systems, etc., which can effectively reduce equipment size and operation steps.



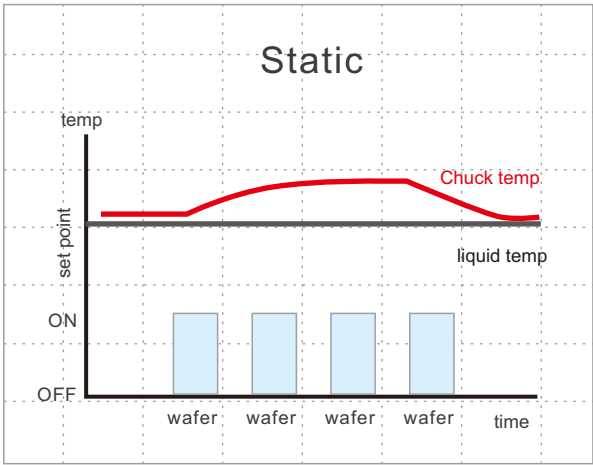
A power Supply System for multi-channel temperature control with reduced wiring complexity

Active thermal control

Comparison Between Dynamic and Static Temp Control

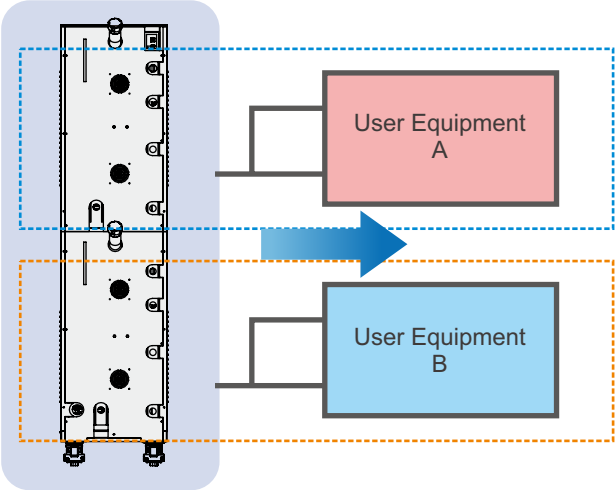
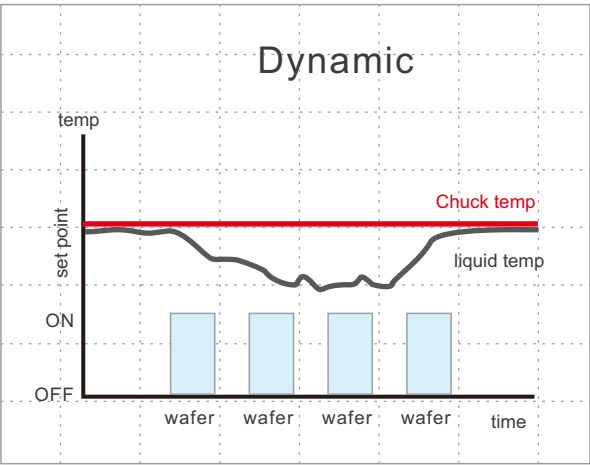
Temperature drift

- Sidewall Passivation Failure
- Wafer-to-wafer temperature instability
- Constant liquid reservoir temperature
- Stage temperature fluctuation
- Etch rate instability



Precise dynamic control of fluid temp

- Stage temperature stability
- Reduced first wafer effect
- Improved wafer-to-wafer stability
- Improved critical dimension (CD) deviation
- Small sidewall angle deviation in etch profile



Control mode example

In the case of dual channels, the equipment is equipped with 2 sets of independent systems that maintain the same size as a single channel chiller and individually control the temperature of the 2 fluid channel systems.

User devices A and B can be set to the same temp range, or they can be different. Independent temp control is not affected by each other. Similarly, 3 channels are 3 sets of independent systems.

Triple-Channel Series

All models support customizable dual-channel, triple-channel, and quad-channel configurations, with varying power levels for each channel.

Model	FLTZ-203W/ETCU-008W		
Pipeline	channel 1	channel 2	channel 3
Temperature range	-10°C ~ +60°C	+30°C ~ +80°C	-10°C ~ +80°C
Temperature control accuracy	±0.1°C (±0.01°Cavailable on request)		
Cooling capacity	4kW@-10°C / 21kW@+20°C	6 kW@+30°C	3kW@-10°C
Heating capacity	4kW	4.5+6kW	3kW
Heat conducting medium flow rate	17L/min@0.7MPa	17L/min@0.7MPa	17L/min@0.7MPa
Heat conducting medium connection size	Rc3/4	Rc3/4	Rc3/4
Ambient temperature	10 ~ 35°C	10 ~ 35°C	10 ~ 35°C
Ambient humidity	30 ~ 70%	30 ~ 70%	30 ~ 70%
Cooling water temperature	15 ~ 20°C	15 ~ 20°C	15 ~ 20°C
Cooling water flow rate	30L/min@15~20°C	15L/min@15~20°C	15L/min@15~20°C
Dimension cm	60*100*110		
Process temperature control	The remote target temperature can be controlled by combining the self created model free self built tree algorithm and cascade algorithm (dynamic temperature control)		
Weight	600kg		

Model	FLTZ-215W/ETCU-015W/ETCU-008W		
Pipeline	channel 1	channel 2	channel 3
Temperature range	-20°C ~ +50°C	+30°C ~ +100°C	+30°C ~ +40°C
Temperature control accuracy	±0.1°C (±0.01°Cavailable on request)		
Cooling capacity	15kW@-10°C	13kW@PCW+15°C	8kW@PCW+10°C
Heating capacity	2kW	6kW	Pump Heat Loss
Heat conducting medium flow rate	30L/min@0.85MPa	30L/min@0.85MPa	20L/min@0.8MPa
Heat conducting medium connection size	Rc3/4	Rc3/4	Rc3/4
Ambient temperature	10 ~ 35°C	10 ~ 35°C	10 ~ 35°C
Ambient humidity	30 ~ 70%	30 ~ 70%	30 ~ 70%
Cooling water temperature	15 ~ 20°C	15 ~ 20°C	15 ~ 20°C
Cooling water flow rate	30L/min@15~20°C	15L/min@15~20°C	15L/min@15~20°C
Dimension cm	60*100*170		
Process temperature control	The remote target temperature can be controlled by combining the self created model free self built tree algorithm and cascade algorithm (dynamic temperature control)		
Weight	600kg		

Dual-Channel Series

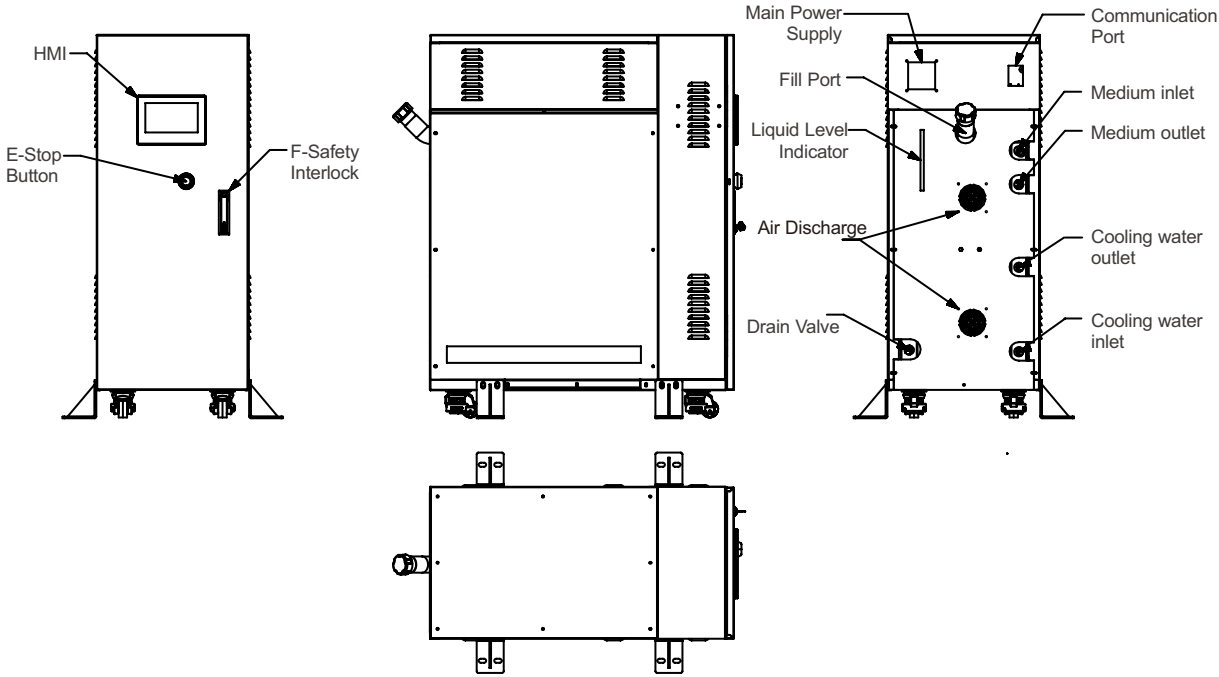
All models support customizable dual-channel, triple-channel, and quad-channel configurations, with varying power levels for each channel.

Model	FLTZ-203W-2T	
Pipeline	channel 1	channel 2
Temperature range	-20°C ~ +90°C	-20°C ~ +90°C
Temperature control accuracy	±0.1°C (±0.01°Cavailable on request)	
Cooling capacity	4kW@-10°C	4kW@-10°C
Heating capacity	2kW	2kW
Heat conducting medium flow rate	20L/min@0.5MPa	20L/min@0.5MPa
Heat conducting medium connection size	Rc3/4	Rc3/4
Ambient temperature	10 ~ 35°C	10 ~ 35°C
Ambient humidity	30 ~ 70%	30 ~ 70%
Cooling water temperature	15 ~ 20°C	15 ~ 20°C
Cooling water flow rate	20L/min	20L/min
Dimension cm	50*90*160	
Process temperature control	The remote target temperature can be controlled by combining the self created model free self built tree algorithm and cascade algorithm (dynamic temperature control)	
Weight	400kg	

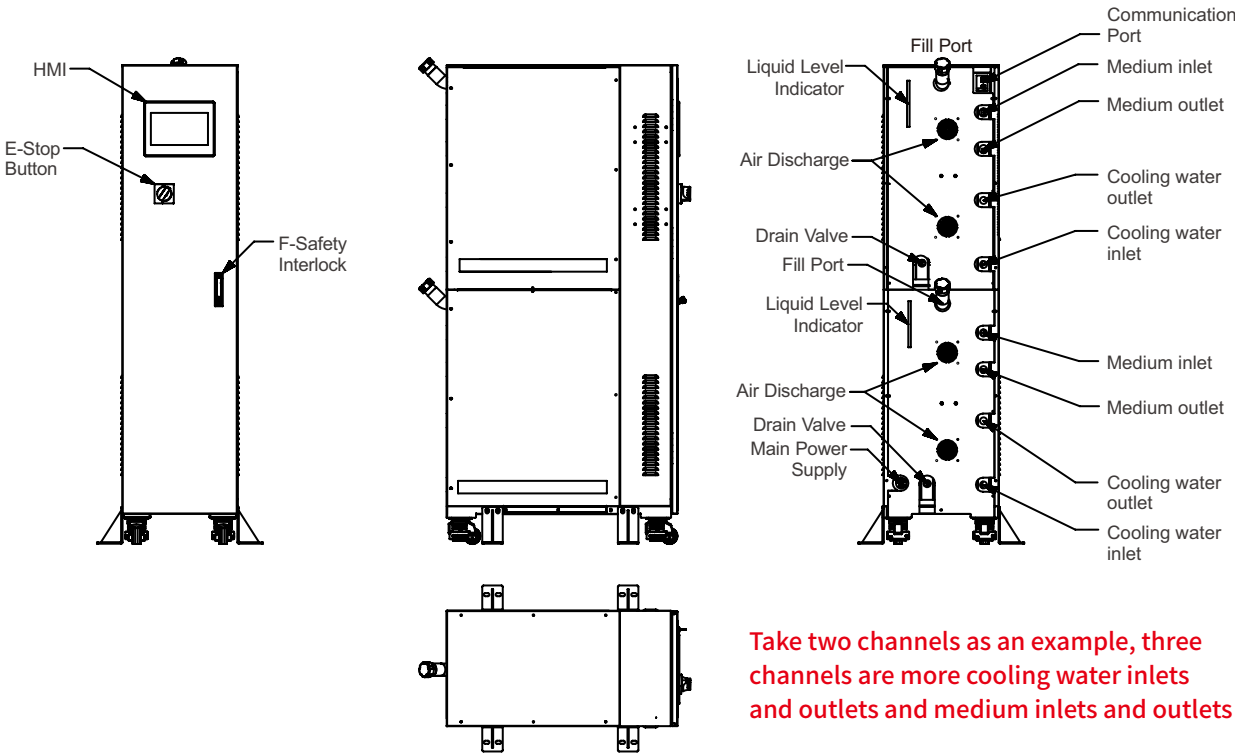
Model	FLTZ-406W/ETCU-015W	
Pipeline	channel 1	channel 2
Temperature range	-45°C ~ +40°C	+10°C ~ +80°C
Temperature control accuracy	±0.1°C (±0.01°Cavailable on request)	
Cooling capacity	11kW@-20°C 5kW@-40°C	13kW@+10°C
Heating capacity	2kW	6kW
Heat conducting medium flow rate	17L/min@0.7MPa	17L/min@0.7MPa
Heat conducting medium connection size	Rc3/4	Rc3/4
Ambient temperature	10 ~ 35°C	10 ~ 35°C
Ambient humidity	30 ~ 70%	30 ~ 70%
Cooling water temperature	15 ~ 20°C	15 ~ 20°C
Cooling water flow rate	40L/min	20L/min
Dimension cm	60*100*185	
Process temperature control	The remote target temperature can be controlled by combining the self created model free self built tree algorithm and cascade algorithm (dynamic temperature control)	
Weight	550kg	

Model	FLTZ-203W/2T dual system		FLTZ-305W/2T dual system		FLTZ-406W/2T dual system	
Temperature range	-20℃ ~ 90℃		-30℃ ~ 90℃		-45℃ ~ 90℃	
Temperature control accuracy	±0.1℃ (±0.01℃available on request)					
Heat conducting medium flow rate	15 ~ 45L/min,6bar Max					
Heating capacity	2.5kW	2.5kW	2.5kW	2.5kW	3.5kW	3.5kW
Cooling capacity	3kW at-15℃	3kW at-15℃	5kW at-15℃	5kW at-15℃	2.5kW at-35℃	2.5kW at-35℃
Internal circulation fluid volume	5L	5L	8L	8L	8L	8L
Expansion tank volume	15L	15L	25L	25L	25L	25L
Heat-conducting medium	Fluorinated liquid, antifreeze, thermal conductive silicone oil, etc					
Heat-conducting medium interface	Rc3/4					
Cooling water interface	Rc3/4					
Cooling water	50L/min at20℃		60L/min @20℃		50L/min at20℃	
Power	Three phase 220V/Three phase 400V/Three phase 460V					
Process temperature control	The remote target temperature can be controlled by combining the self created model free self built tree algorithm and cascade algorithm (dynamic temperature control)					

Single-channel framework



Cycle process



Take two channels as an example, three channels are more cooling water inlets and outlets and medium inlets and outlets

CHILLER refrigerated circulator

Dual channel high temperature chiller

The development objective of this equipment is to design a dedicated high-temperature temperature-controlled Chiller, specifically tailored to meet the high-temperature testing requirements of semiconductors.

Innovations:

The medium temperature can reach up to 250°C; A special process method ensures temperature control accuracy under high-temperature operating conditions



Model		FLTZH-5W/2T	
Medium Temp Range		40°C ~ +250°C	
Control system		PLC Controller	
Temp Control Point Control Mode		Temp Control Mode for Main Body Liquid Outlet,Temp Control Mode for Main Body Liquid Inlet CHUCK Inlet Temp Control Mode (Communication),CHUCK Return Port Temp Control Mode (Communication) CHUCK Body Temperature Control Mode (Communication)	
Temp Difference Control		Allows setting the temp difference between the control target temp point and the main body liquid outlet temp	
Communication Protocol		MODBUS RTU protocol RS 485 interface , Ethernet Interface	
External Temp Feedback Access		Via Communication	
Medium Outlet Temp Control Accuracy		±0.1°C	
CHUCK Temp Control Accuracy		±0.5°C	
Heating Power		5.5kW	5.5kW
Cooling Capacity kW AT	250°C	5.5kW	5.5kW
	150°C	5kW	5kW
	100°C	4kW	4kW
	50°C	2kW	2kW
Flow/Pressure		8L/min 4bar	8L/min 4bar
Operation Panel		7-inch touch screen	
Safety Protection		It has self-diagnosis function; Phase Sequence and Phase Loss Protector, current monitoring, water leakage alarm, triple protection for heating system, pressure monitoring for liquid inlet and outlet, and flow-off protection.	
Closed Loop System		The entire system is fully sealed, ensuring no oil mist is generated at high temperatures and no moisture is absorbed from the air at low temperatures. The system's pressure does not rise due to high temperatures during operation, and it automatically replenishes the heat transfer medium at low temperatures.	
Interface Size		G1/2	G1/2
Cooling Water Interface		Rc1/2	
Cooling Water Flow		10L/min max at 25°C	
Heat Transfer Medium		Fluorinated liquid	
Dimension cm		45*85*145 (customizable)	
Weight kg		About 40KG	
Power Supply		220V Three-phase four-wire system 32A	
Shell Material		Cold rolled steel plate with plastic spraying RAL7035	

CHILLER refrigerated circulator

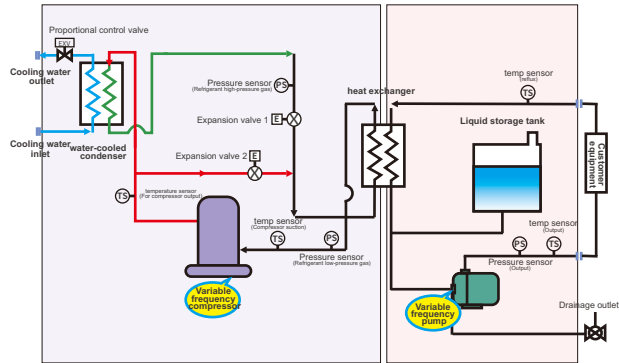
LT Fixed frequency series

Refrigerator

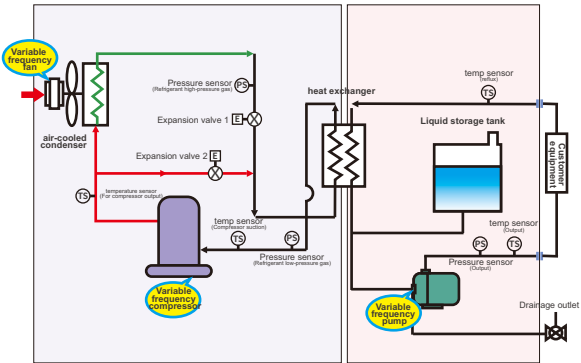
- Temperature ranges from -80°C~+30°C;
- Adopt using secondary sub cooling technology, rapid cooling and low temp Limit;
- Adopt famous brand semi-closed piston compressor, semi-closed bipolar piston compressor, semi-hermetic screw compressor; plate heat exchanger, small volume, high efficiency;
- Generator cooling water circuit use intermediate heat exchanger, improve system reliability and safety;
- 4.3-inch 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 refrigerant gas exports high-temp. and high-pressure refrigerant gas. Gas is cooled and liquefied through an air-cooled condenser in air-cooled situations. 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	ASET controller 4.3-inch touch screen				
Temp control accuracy	±0.1°C (outlet temperature)				
Temp 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	Highly, Mitsubishi, Panasonic and other compressors				
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; refrigerator overload protection; high and low pressure sensors, overload relays, thermal protection devices and other safety protection functions.				
Refrigerant	R-134A/R407C				
Interface size	Rc1/2	Rc1/2	Rc3/4	Rc3/4	Rc3/4
Power 50Hz Max	AC220V				
Shell material	Cold rolled steel plate with plastic spraying RAL7035				
Communication protocol	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℃(Ethylene glycol solution extends operating range to 5℃~30℃)				
Temperature control	ASET controller 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 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	Highly, Mitsubishi, Panasonic and other compressors				
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; refrigerator overload protection; high and low pressure sensors, overload relays, thermal protection devices and other safety protection functions.				
Refrigerant	R-410A/R407C				
Interface size	Rc1/2	Rc1/2	Rc3/4	Rc3/4	Rc1
Dimensions cm (A)	30*60*71.8	30*60*71.8	45*70*160	45*70*160	55*110*170
Dimensions cm (W)	30*60*71.8	30*60*71.8	45*70*130	45*70*130	40*90*165
Cooling water	0.8m³/h Rc1/2	0.8m³/h Rc1/2	1.3m³/h Rc1/2	2m³/h Rc3/4	4m³/h Rc1
Power 50Hz Max	220V 1PH 1.3kW	220V 1PH 1.5kW	220V 1PH 2.2kW	380V 3PH 5kW	380V 3PH 7.5kW
Weight	110kg	145kg	180kg	225kg	290kg
Shell material	Cold rolled steel plate with plastic spraying RAL7035				
Communication protocol	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°C ~ 30°C				
Temperature control	ASET controller 4.3-inch touch screen		ASET multifunctional controller 7-inch touch screen		
Temp control accuracy	±0.5°C				
Temperature feedback	Temperature feedback PT100 (inlet temperature, outlet temperature)				
Cooling capacity -15°C	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	Highly, Emerson Valley Wheel and other compressors				
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; refrigerator overload protection; high and low pressure sensors, overload relays, thermal protection devices and other safety protection functions.				
Refrigerant	R454C/R290/R507C				
Interface size	Rc1/2	Rc1/2	Rc3/4	Rc3/4	Rc3/4
Dimensions cm (A)	30*60*71.8	30*60*71.8	45*70*160	45*70*160	55*110*170
Dimensions cm (W)	30*60*71.8	30*60*71.8	45*70*130	45*70*130	40*90*165
Cooling water	0.6m³/h Rc1/2	0.6m³/h Rc1/2	1.9m³/h Rc3/4	2.1m³/h Rc3/4	4.2m³/h Rc1
Power 50Hz Max	220V 1PH 1.3kW	220V 1PH 1.7kW	220V 1PH 3.2kW	380V 3PH 4.5kW	380V 3PH 8kW
Weight	120kg	140kg	160kg	170kg	220kg
Shell material	Cold rolled steel plate with plastic spraying RAL7035				
Communication protocol	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°C ~ 30°C	-45°C ~ 30°C		
Temperature control		4.3-inch touch screen	ASET multifunctional controller 7-inch touch screen		
Temp control accuracy		±0.5°C			
Temperature feedback		Temperature feedback PT100 (inlet temperature, outlet temperature)			
Cooling capacity	-20°C	1.1kW	1.6kW	2.5kW	4.8kW
	-35°C	/	0.6kW	1.4kW	2.4kW
Circulation Pump Flow Max		30L/min	30L/min	30L/min	30L/min
		0.8BAR	1.6BAR	1.6BAR	1.6BAR
Compressor		highly, Emerson Valley Wheel and other compressors			
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; refrigerator overload protection; high and low pressure sensors, overload relays, thermal protection devices and other safety protection functions.			
Refrigerant		R454C/R290/R507			
Interface size		Rc3/4	Rc3/4	Rc3/4	Rc3/4
Dimensions cm (A)		30*60*71.8	45*70*160	45*70*160	55*110*170
Dimensions cm (W)		30*60*71.8	45*70*130	45*70*130	40*90*165
Cooling water		1.3m³/h Rc1/2	1.9m³/h Rc3/4	2.1m³/h Rc3/4	4m³/h Rc1
Power 50Hz Max		220V 1PH 2.1kW	380V 3PH 2.7kW	380V 3PH 5kW	380V 3PH 6.2kW
Weight		140kg	185kg	230kg	270kg
Shell material		Cold rolled steel plate with plastic spraying RAL7035			
Communication protocol		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℃ ~ -30℃			
Temperature control		ASET multifunctional controller 4.3-inch touch screen			
Temp control accuracy		±0.5℃			
Temperature feedback		Temperature feedback PT100 (inlet temperature, outlet temperature)			
Cooling capacity	-40℃	1.3kW	1.8kW	2.5kW	4.8kW
	-55℃	0.7kW	1kW	1.4kW	2.5kW
Circulation Pump Flow Max		30L/min	30L/min	30L/min	30L/min
		1.6BAR	1.6BAR	1.6BAR	1.6BAR
Compressor		Tecumseh, Emerson Valley Wheel and other compressors			
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; refrigerator overload protection; high and low pressure sensors, overload relays, thermal protection devices and other safety protection functions.			
Refrigerant		R454C/R290/R23			
Interface size		Rc3/4	Rc3/4	Rc3/4	Rc3/4
Dimensions cm (A)		55*70*175	55*70*175	65*85*185	70*85*185
Dimensions cm (W)		55*70*175	55*70*175	65*85*185	70*85*185
Cooling water		1.5m³/h Rc3/4	2.5m³/h Rc3/4	2.9m³/h Rc1	4.5m³/h Rc1 1/4
Power 50Hz Max		220V 3.5kW	380V 7kW	380V 8kW	380V 13kW
Weight		185kg	230kg	275kg	340kg
Shell material		Cold rolled steel plate with plastic spraying RAL7035			
Communication protocol		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℃ ~ -40℃	-80℃ ~ -40℃		
Temperature control		PLC controller 7-inch touch screen			
Temp control accuracy		±0.5℃			
Temperature feedback		Temperature feedback PT100 (inlet temperature, outlet temperature)			
Cooling capacity	-60℃	0.7kW	1kW	1.4kW	2.5kW
	-70℃	0.4kW	0.6kW	0.85kW	1.5kW
Circulation Pump Flow Max		30L/min	30L/min	30L/min	30L/min
		1.6BAR	1.6BAR	1.6BAR	1.6BAR
Compressor		Tecumseh, Emerson Valley Wheel and other compressors			
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 sensors, overload relays, thermal protection devices and other safety protection functions.			
Refrigerant		R454C/R290/R508B			
Interface size		Rc3/4	Rc3/4	Rc3/4	Rc3/4
Dimensions cm (A)		55*70*175	65*85*185	65*85*185	70*85*185
Dimensions cm (W)		55*70*175	65*85*185	65*85*185	70*85*185
Cooling water		1.5m³/h Rc3/4	2.5m³/h Rc3/4	2.9m³/h Rc1	4.5m³/h Rc1 1/4
Power 50Hz Max		220V 1PH 3.5kW	380V 3PH 7kW	380V 3PH 8kW	380V 3PH 13kW
Weight		185kg	230kg	275kg	340kg
Shell material		Cold rolled steel plate with plastic spraying RAL7035			
Communication protocol		Communication protocol MODBUS RTU protocol RS485 interface			

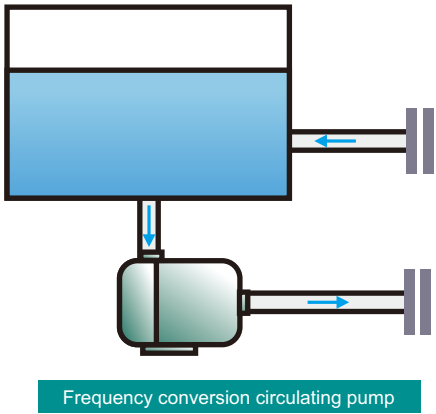
CHILLER Low Temp Circulator LTZ variable frequency series

- 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.



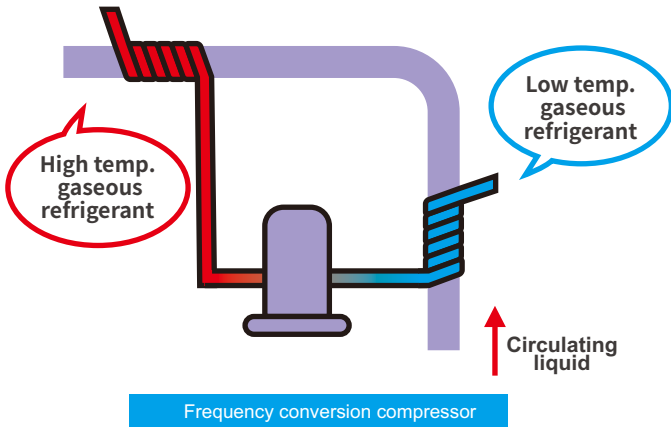
3PH 7kW

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



Power consumption: up to **40%** lower (compared with our company standard models)

Through the variable frequency pump, the motor speed can be controlled at the appropriate value corresponding to the required pressure.



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.

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			
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	Brand compressor(Inverter)			
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 sensors, overload relays, thermal protection devices and other safety protection functions.			
Refrigerant	R407C			
Interface size	Rc3/4	Rc3/4	Rc1	Rc1
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 50Hz Max	380V 3PH 7kW	380V 3PH 12kW	380V 3PH 17kW	380V 3PH 29kW

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 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	Brand compressor(Inverter)			
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 sensors, overload relays, thermal protection devices and other safety protection functions.			
Refrigerant	R454C/R290/R507A			
Interface size	Rc3/4	Rc3/4	Rc1	Rc1
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 50Hz Max	380V 3PH 6kW	380V 3PH 11.5kW	380V 3PH 15kW	380V 3PH 25kW

Model	LTZ-6 LTZ-6W	LTZ-10 LTZ-10W	LTZ-15 LTZ-15W	LTZ-20W	LTZ-30W	LTZ-40W
Temp range	10℃ ~ 30℃(Ethylene glycol solution extends operating range to 5℃~30℃)					
Temp control	PLC controller, control the water tank outlet temperature screen					
Temp control accuracy	±0.5℃					
Temp feedback	Temperature feedback PT100 (inlet temperature, outlet temperature)					
Cooling capacity 20℃	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	Brand compressor(Inverter)				Brand compressor	
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 sensors, overload relays, thermal protection devices and other safety protection functions.					
Refrigerant	R407C			R410A		
Interface size	DN25	DN32	DN40	DN50	DN50	DN65
Dimensions cm (A)	55*110*170	100*150*195	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 50Hz Max	380V 3PH 9kW	380V 3PH 14kW	380V 3PH 22kW	380V 3PH 26kW	380V 3PH 38kW	380V 3PH 48kW

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 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	Brand compressor(Inverter)					
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 sensors, overload relays, thermal protection devices and other safety protection functions.					
Refrigerant	R454C/R290/R507A					
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 50Hz Max	380V 3PH 9kW	380V 3PH 14kW	380V 3PH 22kW	380V 3PH 25kW	380V 3PH 40kW	380V 3PH 45kW

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 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	Brand compressor(Inverter)					
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 sensors, overload relays, thermal protection devices and other safety protection functions.					
Refrigerant	R454C/R290					
Interface size	DN15	DN20	DN25	DN25	DN32	DN40
Dimensions cm (A)	55*110*170	80*120*185	100*150*185	/	/	/
Dimensions cm (W)	40*90*165	80*120*185	100*150*185	100*150*185	200*145*205	200*145*205
Power 50Hz Max	380V 3PH 7.5kW	380V 3PH 14kW	380V 3PH 15kW	380V 3PH 23kW	380V 3PH 35kW	380V 3PH 38kW

Model	LTZ6-6 LTZ6-6W	LTZ6-10 LTZ6-10W	LTZ6-15 LTZ6-15W	LTZ6-20W	LTZ6-30W	LTZ6-40W
Temp range	-60°C ~ -30°C					
Temp control	PLC controller, control the water tank outlet temperature screen					
Temp control accuracy	±0.5°C					
Temp feedback	Temperature feedback PT100 (inlet temperature, outlet temperature)					
Cooling capacity	-40°C 6.2kW	9.1kW	12.8kW	17.5kW	28kW	31.7kW
	-55°C 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	Brand compressor(Inverter)					
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 sensors, overload relays, thermal protection devices and other safety protection functions.					
Refrigerant	R454C/R290/R23					
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 50Hz Max	380V 3PH 13.5kW	380V 3PH 21kW	380V 3PH 28kW	380V 3PH 43kW	380V 3PH 63kW	380V 3PH 73kW

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 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	30kW
	-70°C	3.7kW	5.5kW	7.7kW	10.6kW	17kW	19.2kW
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		Brand compressor(Inverter)					
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 sensors, overload relays, thermal protection devices and other safety protection functions.					
Refrigerant		R454C/R290/R508B/R23					
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 50Hz Max		380V 3PH 13.5kW	380V 3PH 21kW	380V 3PH 28kW	380V 3PH 43kW	380V 3PH 63kW	380V 3PH 73kW

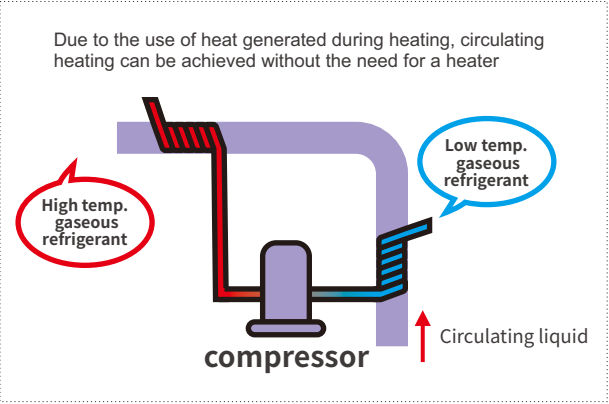
Model		LTZ10-4W	LTZ10-6W	LTZ10-10W	LTZ11-6W	LTZ11-10W	LTZ11-15W
Temp range		-100℃ ~ -65℃			-115℃ ~ -80℃		
Temp control		PLC controller, control the water tank outlet temperature screen					
Temp feedback		Temperature feedback PT100 (inlet temperature, outlet temperature)					
Cooling capacity	-80℃	0.8kW	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		Tecumseh, Emerson Copeland, Carrier					
Evaporator		Plate Heat Exchanger					
Frequency converter		ABB					
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 sensors, overload relays, thermal protection devices and other safety protection functions.					
Refrigerant		Mixed refrigerant 1			Mixed refrigerant2		
Interface size		Rc3/4	Rc3/4	Rc3/4	Rc3/4	Rc3/4	Rc3/4
Dimensions cm		55*100*175	70*100*175	100*150*185	70*100*175	100*150*185	100*150*185
Power 50Hz Max		380V 3PH 6kW	380V 3PH 8.5kW	380V 3PH 17kW	380V 3PH 8.5kW	380V 3PH 17kW	380V 3PH 23kW

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 small refrigeration units

LTZ Inverter M Series

The target temperature control object is already available which has a cold storage tank, a circulation pump, and a circulating pump to transfer the medium to the LTZM series refrigeration temperature control unit. The medium is transported by the circulation pump into the LTZM series refrigeration and temperature control unit, forming a closed cycle refrigeration system. The circulating pumps transport the refrigerant to the LTZM series refrigerating temperature control units, forming a closed-cycle refrigeration system.



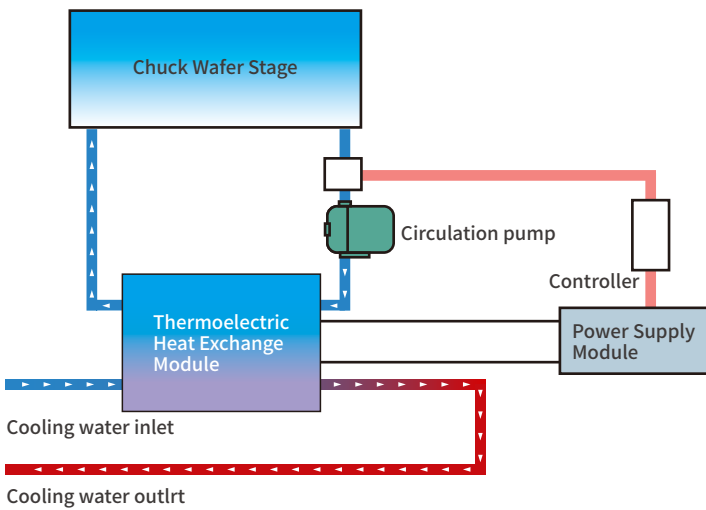
Model	LTZ-1 M	LTZ-3M LTZ-3WM	LTZ-6M LTZ-6WM	LTZ-15M LTZ-15WM	LTZ-25WM
Temp range	5℃ ~ 30℃ (Use glycol water below 10℃)				
Temp control accuracy	±0.5℃				
Temp feedback	Pt100				
Cooling capacity	3kW At 20℃	10.5kW At 20℃	21kW At 20℃	52kW At 20℃	87kW At 20℃
Compressor	Mitsubishi, Highly	Brand compressor(Inverter)			
Throttling method	Thermal Expansion Valve	Electronic expansion valve			
DI heat exchanger	Plate Heat Exchanger				
Input, Display	4.3-inch touch screen	7-inch color touch screen\PLC controller			
Communication	Modbus RTU protocol RS485 interface				
Security protection	Self-diagnosis function; refrigerator overload protection; high and low voltage protection, overload relay, thermal protection device, exhaust and suction temperature protection, sensor fault protection and other safety protection functions.				
Refrigerant	R407C				
Interface size	Rc1/2	Rc3/4	Rc3/4	/	/
Water-cooled @ 20℃	600L/H	1800L/H Rc3/4	3600L/H Rc1	9000L/H DN32 PN10	15000L/H DN40 PN10
Water-cooled condenser	Water-cooling equipment adopts plate heat exchanger and requires closed cooling tower to supply water.				
Air-cooled condenser	Microchannel Heat Exchanger				
power supply	380V 50HZ, optional 220V ; 460V ; 3PH				
Contact pipe material	SUS304				
Shell material	Cold rolled steel plate with plastic spraying RAL7035				

Thermoelectric Type CHILLER TEC Series

- High reliability and low operating cost.
- Small industrial space footprint.
- Extremely low thermal conductive fluid filling volume.
- Low energy consumption, no compressor and no refrigerant in the system, while only outputting when loaded, drastically reducing energy consumption.
- When heating or cooling, the hot and cold components do not directly contact the thermal conductive fluid.
- Dynamic temperature control for precise process temperature regulation and fast response.
- The temperature drift protection function stabilizes the etching profile.
- Improves wafer-to-wafer stability.
- Modular components make maintenance more convenient.
- Uses perfluorinated liquids.



Dynamic Temperature Control Schematic Diagram



Temperature control solution, the process uniformity between wafer batches and chambers is significantly improved.

Working Principle: Real-time monitoring of the reflux liquid temperature in the chamber, and dynamic adjustment of the supply liquid temperature to compensate for thermal load variations during the process.

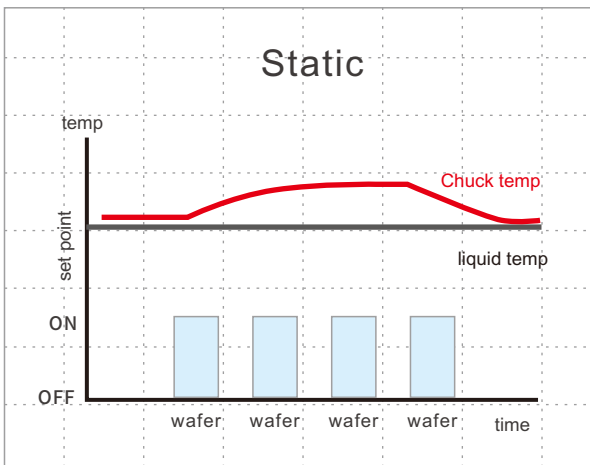
- *On-site Temperature Control System
- *Rapid Temperature Ramp Rate – **Significantly improves chamber productivity**
- *Compressor-free POU System – **Energy consumption reduced by approximately 50%**

The thermoelectric chiller, with a temperature range of -20°C to 90°C, is tailor-made for the semiconductor industry to enable rapid and precise temperature control within this range, meeting any demanding process requirements. Based on the validated thermoelectric heat conduction principle, its temperature control system delivers repeatable temperature control for plasma etching applications, while the dynamic temperature management for electrostatic chucks (ESC) makes it applicable to all types of etching processes. Additionally, it features energy efficiency, space-saving design, and stable temperature control, providing reliable and precise temperature assurance for wafer etching processes

Comparison Between Dynamic and Static Temperature Control

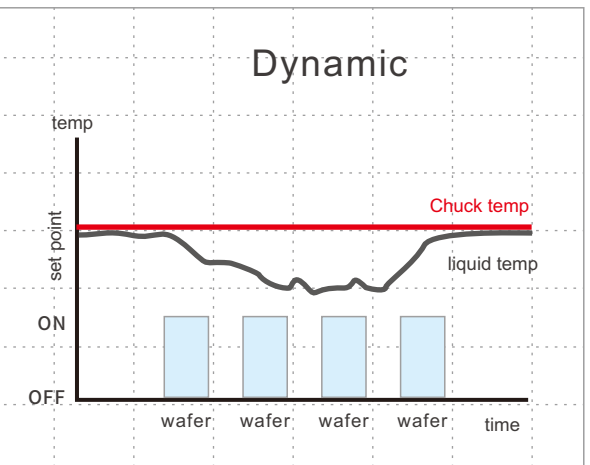
Temperature drift

- Sidewall Passivation Failure
- Wafer-to-wafer temperature instability
- Constant liquid reservoir temperature
- Stage temperature fluctuation
- Etch rate instability



Precise dynamic control of fluid temp

- Stage temperature stability
- Reduced first wafer effect
- Improved wafer-to-wafer stability
- Improved critical dimension (CD) deviation
- Small sidewall angle deviation in etch profile



Active thermal control

Model	TEC-1200W	TEC-2500W	TEC-4500W
Temp Range	-20°C~90°C	-20°C~90°C	-20°C~90°C
Temp Control Accuracy	±0.1°C		
Cooling Capacity	20°C	1200W	2450W
	10°C	900W	1925W
	0°C	600W	1400W
	-10°C	350W	875W
	-20°C	80W	350W
Heating Power	> 3000W	> 6000W	> 12000W
Pump type	DC magnetic pump	DC magnetic pump	DC magnetic pump
Pressure (bar)	≤4	≤4	≤4
Flow	15L/min at 2bar	15L/min at 2bar	15L/min at 2bar
Fluid	Galden HT135	Galden HT135	Galden HT135
Cooling Water Temp	DI < 20°C	DI < 20°C	DI < 20°C
Cooling Water Flow	≥12L/min	≥20L/min	≥32L/min
CDA activation temperature	< 30°C	< 30°C	< 30°C
CDA Pressure	0.5-0.8bar	0.5-0.8bar	0.5-0.8bar
CDA Flow	2-3m³/h	2-3m³/h	2-3m³/h
CDA Dew point temperature	≤30°C	≤30°C	≤30°C
Power supply voltage	AC208V three-phase		

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 DI refrigeration unit

2 centigrade Pure water DI refrigeration temperature control unit

Suitable for situations where DI water is required from 2°C to 5°C in the manufacturing process. Normal temperature DI water into the temperature control unit, and then demand target temperature DI Water is Present, solve the problem of freezing easily when water temperature is controlled within 5°C.

The equipment automatically adjusts the temperature and cooling capacity of the refrigeration system according to the different water inputs and temperatures to reach the DI temperature required by the target.

The use of variable frequency control allows the output to be well regulated even when the water flow rate is unstable, thus achieving a high degree of temperature control accuracy.



Model	L TZ-3DI L TZ-3WDI	L TZ-6DI L TZ-6WDI	L TZ-15WDI
DI temp range	2°C ~ +20°C	2°C ~ +20°C	2°C ~ +20°C
Temp control accuracy	±0.5°C	±0.5°C	±0.5°C
Temp feedback	Temperature feedback PT100 (inlet temperature, outlet temperature)		
Cooling capacity 3°C	5kW	10kW	25kW
Compressor	Inverter compressor		
Throttling method	Electronic expansion valve		
DI heat exchanger	Plate Heat Exchanger		
Input, Display	7-inch color touch screen\PLC controller		
Communication	Modbus RTU protocol RS485 interface, Ethernet TCP/IP protocol		
Security protection	Self-diagnosis function; refrigerator overload protection; high and low voltage protection, overload relay, thermal protection device, exhaust and suction temperature protection, sensor fault protection and other safety protection functions. Anti-icing technology.		
Refrigerant	R134A		
Interface size	Rc1/2	Rc3/4	Rc3/4
Water-cooled @ 20 °C	1500L/H Rc1/2	3000L/H Rc3/4	4500L/H Rc3/4
Water-cooled condenser	The condenser of the water-cooled equipment adopts a plate heat exchanger, which requires water supply from a chiller or a closed cooling tower		
Air-cooled condenser	Microchannel Heat Exchanger	Microchannel Heat Exchanger	Microchannel Heat Exchanger
Power supply	380V 50HZ, optional three-phase 220V 460V		
Pipe material	SUS304		
Shell material	Cold rolled steel plate with plastic spraying RAL7035		

CHILLER Gas refrigeration

LQ Series

The use of gas (non-corrosive) cooling: such as dry compressed air, nitrogen, argon and other normal temperature gas into the LQ series equipment, the gas can reach the target low temperature, supply the demand test components or heat exchangers



Model	LQ-4015 LQ-4015W	LQ-4030 LQ-4030W	LQ-4060 LQ-4060W	LQ-40100 LQ-40100W	LQ-7515 LQ-7515W	LQ-7530 LQ-7530W	LQ-7560 LQ-7560W	LQ-75100 LQ-75100W
Gas flow	15m³/h	30m³/h	60m³/h	100m³/h	15m³/h	30m³/h	60m³/h	100m³/h
Lowest temperature	-40°C	-40°C	-40°C	-40°C	-75°C	-75°C	-75°C	-75°C
Air inlet & outlet size	Rc3/8	Rc3/8	Rc1/2	DN50	Rc3/8	Rc3/8	Rc1/2	DN50
Control system	Programmable controller and module							
Display and record	7 inch color touch screen, record curve temperature and alarm							
Compressor	Tecumseh, Emerson Copeland							
Process temperature control	The remote target temperature can be controlled by combining the self created model free self built tree algorithm and cascade algorithm							
Dimension cm	54*67*135	55*75*155	65*85*175	75*95*185	54*67*135	55*75*155	65*85*175	75*95*175
Circuit breaker	10A	10A	10A	16A	10A	16A	16A	25A

Model	LQ-A1015W	LQ-A1030W	LQ-A1060W	LQ-A10100W
Gas flow	15m³/h	30m³/h	60m³/h	100m³/h
Lowest temperature	-110°C	-110°C	-110°C	-110°C
Heat exchanger material	SUS304 contains small amount of copper			
Air inlet & outlet size	Rc3/8	Rc1/2	Rc1	DN50
Control system	Programmable controller and module			
Display and record	7 inch color touch screen, record curve temperature and alarm			
Compressor	Tecumseh, Emerson Copeland			
Process temperature control	The remote target temperature can be controlled by combining the self created model free self built tree algorithm and cascade algorithm			
Dimension cm	75*95*175	80*120*175	100*125*185	115*150*195

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 Gas refrigeration

AI Series

- ✧ Used in high and low temp testing of semiconductor equipment
- ✧ Electronic equipment high temperature and low temperature thermostat testing cold and heat sources
- ✧ Independent refrigeration circulating air units
- ✧ Can work continuously for a long time, automatic defrost, it will not affect the storage temperature during defrosting
- ✧ Modular design, easy replacement of standby machine
- ✧ Solve the problem of frequent opening and closing, and frosting of evaporation system; Evaporation is not affected during the defrosting
- ✧ It is simple to build a set of high and low temp constant temp room



Model		AI-6535/AI-6535W	AI-8035W	AI-1055W
Temperature range		-65°C ~ 125°C	-80°C ~ 125°C	-105°C ~ 125°C
Control mode		PID Adaptive controller		
Communication protocol		MODBUS RTU Protocol, RS 485 Interface		
Temperature feedback		Temperature feedback PT100 (inlet temperature, outlet temperature)		
Operation panel		7-inch touch screen, show temp curve/ EXCEL date output		
Temperature accuracy		±0.1°C (Steady state outlet temperature)		
Heating power		3.5kW	3.5kW	3.5kW
Cooling capacity	125°C	3.5kW	3.5kW	3.5kW
	0°C	3.5kW	3.5kW	3.5kW
	-20°C	3kW	3.5kW	3.5kW
	-40°C	2.1kW	2.5kW	3.5kW
	-60°C	1kW	2.1kW	3kW
	-75°C		1kW	2kW
	-95°C			1kW
Circulating air flow		550m³/h	550m³/h	550m³/h
Inlet and outlet air interface		DN125	DN125	DN125
Compressor		Emerson Copeland scroll flexible compressor		
Safety protection		Self-diagnosis function; Phase sequence protection. freezer overload protection; high pressure switch. overload relay. thermal protection device.		
Defrosting device		There are installed defrosting device and condensate drain inside		
Continuous running		Running continuously		
Timing operation		Can set timed start and stop time		
Refrigerant		R454C/R290/R23	R454C/R290/R508B	R454C/R290/R23/R14
Water-cooled		1200L/H 1.5bar~4bar	1600L/H 1.5bar~4bar	2600L/H 1.5bar~4bar
Dimension cm		55*100*175	55*100*175	70*100*175
Weight		280kg	300kg	360kg
Shell material		Cold rolled steel plate with plastic spraying RAL7035		

CHILLER Gas refrigeration

AES Series

The jet flow high and low temperature impact tester provides precise and rapid ambient temperature for chips, modules, integrated circuit boards, electronic components, etc. It is an indispensable instrument for electrical performance test, failure analysis and reliability evaluation of products.

Compared to the traditional thermostat, there are several features:

- ✧ Temperature range :-120°C~225°C
- ✧ The rising and cooling rate is very fast, 150°C~-55°C < 10 seconds
- ✧ Maximum atmospheric discharge :30m³/h
- ✧ Real-time monitoring of the measured IC real temperature, closed-loop feedback, real-time adjustment of gas temperature
- ✧ Controllable rise and fall time, programmed operation, manual touch, remote control
- ✧ Test conditions: ambient temperature 20°C, 30m³/h, 5Bar, compressed air or ammonia gas
- ✧ The 100m³/h gas flow rapid impact tester can be customized to meet the requirements of large test power



Model	AES-4535 AES-4535W	AES-6035 AES-6035W	AES-8035 AES-8035W	AES-A1035W	AES-A1235W
Temperature range	-40°C ~ 225°C	-60°C ~ 225°C	-80°C ~ 225°C	-100°C ~ 225°C	-120°C ~ 225°C
Temperature accuracy	±0.1°C (Steady state outlet temperature)				
Air requirements	Air filter < 5um air oil content < 0.1um air temp and humidity : 5°C-32°C 0-50%RH				
Air treatment capacity	10m³/h-30m³/h Pressure 5bar-7.6bar				
Throttling method	Electronic expansion valve				
Controller	PLC programmable controller, standard support for ModbusRTU protocol, RS485 interface, Optional other communication protocols				
Display and record	The pressure of the circulation system is detected by a pressure sensor and displayed on the touch screen.				
Main components	Danfoss drying filter, Casto solenoid valve, Danfoss pressure controller, EBM fan (air-cooled), Danfoss / Emerson oil separator, SMC filter, Emerson electronic expansion valve, Johnson pressure sensor				
Compressor	Tecumseh, Dorin				
High temp cooling	Possess high-temperature 225°C direct cooling technology to meet the target and quickly cool down during high-temperature operation.				
Process control	The remote target temperature can be controlled by combining the self created model free self built tree algorithm and cascade algorithm				
Dimension cm	54*69*132	54*69*132	54*69*132	80*120*175	100*150*185

CHILLER Gas refrigeration
AET Series

Compressed air enters the gas rapid temperature change testing machine, which is equipped with a dryer. The gas is pre dried to a dew point temperature of -70 Celsius or below, and then cooled, heated, and controlled to output stable flow, pressure, and constant temperature gas. The temperature of the target object is controlled (such as various temperature control chucks, chamber environments, heat support plates, material shuttles, chambers, electronic components, etc.), and the temperature of the process can be controlled according to the temperature sensor on the remote chuck, and the temperature of the output gas can be automatically adjusted.



Model	AET-4025 AET-4025C	AET-4050 AET-4050C	AET-4095W AET-4095WC	AET-7025 AET-7025C	AET-7050W AET-7050WC	AET-7095 AET-7095WC
Temperature range	-40°C ~ 250°C	-40°C ~ 250°C	-40°C ~ 250°C	-75°C ~ 250°C	-75°C ~ 250°C	-75°C ~ 250°C
Temperature accuracy	Gas outlet temperature ± 0.1°C, remote process temperature precision ± 0.5°C Optional gas temperature for mouth making and process target temperature					
Upgrade temp rate	The temperature rise and fall rate of the gas outlet of the equipment is greater than 30°C/min, and gradient temperature rise and fall can be performed					
Air requirements	Air filter < 5um, air oil content < 0.1um, air temperature and humidity: 5°C~32°C 0-50% RH pressure 4bar~8bar					
Air handing	22m³/h	50m³/h	95m³/h	22m³/h	50m³/h	95m³/h
Throttling method	Refrigeration system adopts electronic expansion valve throttling to precisely control the cooling capacity					
Controller	PLC programmable controller, standard support for ModbusRTU protocol, RS485 interface, Optional other communication protocols					
Display Records	7-inch color touch screen, display gas temperature, pressure, flow rate, refrigeration system pressure and temperature					
Process temp control	The remote target temperature can be controlled by combining the self created model free self built tree algorithm and cascade algorithm					
Dimension cm	43*46*112	52*57*132	60*63*160	54*69*112	65*85*132	75*95*160
Remarks	The suffix W represents water cooling The suffix c represents gas recycling					

CHILLER Precision Constant Temp and Humidity Unit
**Precision Constant Temperature
and Humidity Unit**

This precision constant temperature and humidity unit is an air conditioning equipment that can accurately control environmental temperature and humidity, and is suitable for places or enclosed spaces with strict environmental requirements. The unit is typically used in premises with high cleanliness and strict temperature/ humidity requirements, such as pharmaceutical factories, hospitals, laboratories, and semiconductor manufacturing fields, maintaining temperature and humidity within a set range with minimal fluctuation. It adopts high-quality clean fans, clean cabinets, and processes to avoid secondary environmental pollution. It can be adapted to partial fresh air functions, conveniently meeting the HVAC requirements of special use environments while satisfying process requirements. With year-round operation, it offers higher reliability



Model	LW-0090-BW01	LWX-0090-BW01	LW-0100-BW01	LWX-0100-BW01
Rated Airflow	8000 ~ 9000m³/h		9000 ~ 10000m³/h	
Adjustable Temp & Humidity Range	22 ~ 24°C;45%RH	22 ~ 23;45% ~ 60%RH	22 ~ 24°C	22 ~ 24;45% ~ 60%RH
Temp Control Accuracy	±0.1°C (±0.01°C available on request)			
Humidity Control Accuracy	/	±1%RH	/	±1%RH
Max Cooling Capacity	20kW @25°C		16kW @26°C	
Max Humidification Capacity	/	5Kg/h	/	2.3Kg/h
Outdoor Air Ratio	20%	20%	/	/
Equipment Outdoor Air Temp & Humidity Range	23±2°C ; 45% ~ 60%±2%RH		250 ; 45% ~ 60%±2%RH	
Equipment Return Air Temp & Humidity Range	230.1 ; 45%RH ±2%RH		/	
Max External Static Pressure of Supply Air	300 ~ 400		0 ~ 200	
Supply Air Outlet Connection Diameter	φ500		φ500	
Humidification Water Supply Temp Range	/	10°C ~ 40°C	/	10°C ~ 40°C
Humidification Makeup Water Pipe Connection	/	Rc1/2	/	Rc1/2
Humidification Makeup Water Pressure	/	1 ~ 4bar	/	1 ~ 4bar
Water Quality Requirement	/	*Conductivity75~1250µs/cm *Water hardness not exceeding 40°F *Free of organic compounds	/	*Conductivity75~1250µs/cm *Water hardness not exceeding 40°F *Free of organic compounds
Cooling Water Temperature	18°C ~ 22°C		18°C ~ 22°C	
Cooling Water Connection	Rc1"		Rc1"	
Power Supply	3 ~ 380V ±10%;50Hz±5Hz Three-phase five-wire system			
Unit Rated Input Power	12.5kW	12.5kW	4kW	4kW
Maximum Operating Current of Unit	23A	23A	7A	7A
Unit Noise Level	≤80dB(A)		≤75dB(A)	
Maximum Input Power of Unit	15kWA		8kWA	
Refrigerant/Charge Quantity	R410A/5Kg		R410A/4Kg	
Safety Protection Functions	Power overvoltage and undervoltage protection; phase reversal and loss protection; motor overheat and overload protection; compressor discharge temperature overheat protection; system high pressure protection; system low pressure protection; temperature module fault protection; adjustable over-temperature protection; fan motor overheat protection, etc.			
Dimensions cm	213*100*200		120*120*195	

CHILLER Precision Constant Temp and Humidity Unit

Mini Precision Constant Temperature and Humidity Unit (Air-Cooled)

In the production facilities for semiconductors, liquid crystals, solar panels, and other devices, the equipment, production processes, inspection processes, and spaces require highly precise and stable air handling. Fullarea air handling to meet these needs incurs extremely high related costs and maintenance expenses. The Miniature Precision Constant Temperature and Humidity Unit is specifically designed to provide high-precision air handling systems for local high-quality spaces, minimizing energy consumption.



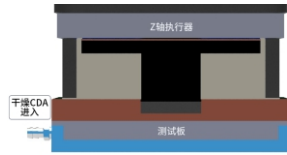
Model	LMW-01BS	LMWX-01BS	LMW-03BT	LMWX-03BT
Rated Airflow	0.7 ~ 1.0m³/min		2.0 ~ 4.0m³/min	
Adjustable Temp & Humidity Range	21 ~ 26°C	21 ~ 26;45% ~ 60%RH	21 ~ 26°C	21 ~ 26 ; 45% ~ 60%RH
Temp Control Accuracy	±0.1°C (±0.01°C available on request)			
Humidity Control Accuracy	/	±1.0%RH	/	±1%RH
Maximum Cooling Capacity(50/60Hz)	0.2/0.25kW	0.37/0.45kW	1.3kW	1.3kW
Reheating Capacity(50/60Hz)	0.1/0.13kW	0.4kW	0.5kW	0.7kW
Maximum Humidification Capacity	/	0.8Kg/h	/	2.3Kg/h
Humidification Water Supply Temp Range	/	10 ~ 40°C	/	10 ~ 40°C
Humidification Makeup Water Pipe Connection	/	Rc1/2	/	Rc1/2
Humidification Makeup Water Pressure	/	0.3 ~ 2bar	/	0.3 ~ 2bar
Water Quality Requirement	/	*Conductivity75~1250µs/cm *Water hardness not exceeding 40°f *Free of organic compounds	/	*Conductivity75~1250µs/cm *Water hardness not exceeding 40°f *Free of organic compounds
Max External Static Pressure of Supply Air	120/130Pa	120/160Pa	110/150Pa	110/150Pa
Supply Air Outlet Connection Diameter	φ75mm	φ100mm	φ100mm	φ100mm
Equipment Ambient Temperature	20 ~ 26°C ; 45%RH ~ 60%RH			
Ambient Temp Accuracy Range	±1°C ; ±5%RH			
Power Supply	1 ~ 220V ±10%; 50/60Hz±5Hz		3 ~ 380V ±15%; 50/60Hz±5Hz	
Unit Rated Input Power	0.32/0.34kW	1.2/1.2kW	0.75kW	2.7kW
Max Operating Current of Unit	1.7/1.82A	6.4/6.4A	1.35A	4.8A
Unit Noise Level(50/60Hz)	54/56dB(A)	58/60dB(A)	65dB(A)	66dB(A)
Max Input Power of Unit	0.34/0.38kWA	1.5/1.5kWA	1.4kWA	4kWA
Refrigerant/Charge Quantity	R134A/0.13Kg	R407C/0.3Kg	R410A/0.4Kg	R410A/0.48Kg
Unit Overall Dimensions mm	500*412*346	630*390*765	590*480*1070	680*520*1350

CHILLER Contact-Type High and Low Temperature Tester

Contact-Type High and Low Temperature Testing Machine

The equipment has an operating temperature range of -75 to 200°C, supporting rapid heating and cooling from extremely low to high temperatures. The maximum rate can reach 75°C per minute. It can precisely control the temperature, with an error typically within ±0.2°C.

Applied in chip R&D: Verifying the performance of chips under different temperatures during the design phase.
Quality Control: During the chip manufacturing process, conduct reliability testing to ensure products meet the standards.
Failure Analysis: Through high and low temp testing, analyze the failure modes of chips under extreme temperatures



The test head is designed with a dry airflow channel layout to supply low dew point gas, enabling the DUT and test head to remain in a stable dry environment without condensation



Test head Z-axis actuator
Can apply 70~300kgf to the
DUT (Device Under Test)
Enables stable pressure
adjustment

Sensors are installed on the plunger module for faster temp response.The equipment is equipped with an external sensor receiving port for direct measurement of the tested component. Switching to workpiece mode enables direct control of the tested component's temperature.



Active thermal control

Model	KSD-705-A	KSD-705-B	KSD-710
Temperature Range	-70°C~200°C	-75°C~200°C	-75°C~200°C
Temperature Accuracy	±0.2°C	±0.2°C	±0.2°C
Temperature ramp rate	Up to 75°C/min	Up to 75°C/min	Up to 75°C/min
Cooling Capacity	0°C	0.8kW	1kW
	-40°C	0.5kW	0.8kW
	-55°C	0.3kW	0.45kW
Test probe specifications	75*75mm	75*75mm	120*120mm
Temperature monitoring type	T type/K type/PT100	T type/K type/PT100	T type/K type/PT100
Temp control point location	Plunger surface temperature	Plunger surface temperature	Plunger surface temperature
Control panel	7-inch touch screen	7-inch touch screen	7-inch touch screen
Controller	PLC programmable controller		
Power Supply	200V~230V 50HZ/60HZ		
Product Dimension mm	465*600*365	500*600*400	550*750*550
Force adjustment for test specimen	Equipped with Z-axis pneumatic actuator		External cylinder of test stand
CDA Requirments	Equipped with LNEYA Dryer gas dryer series		
Communication	Modbus RTU /TCP 、 Profibus DP 、 CAN 、 Profinet		

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/R507C		
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 new direct cooling machine is suitable for semiconductor, data center,new energy and other industries that need efficient, compact, reliable and accurate heat dissipation, especially in the field of high power density,limited space and temperature sensitive areas with significant advantages.

The new direct cooling machine has no secondary heat transfer, which reduces the heat transfer loss caused by secondary heat transfer and improves energy efficiency by more than 30% compared with traditional liquid cooling equipment.

The new direct cooling machine can provide pure liquid heat transfer medium. Compared with the gas-liquid two-phase mixed heat transfer medium of the traditional direct cooling machine, the new direct cooling machine makes full use of the latent heat transfer of the refrigerant, greatly improves the heat transfer density, reduces the required heat transfer area, and can meet the high power density requirements of semiconductor and other industries.

The new direct cooling machine has the ability of multi-channel liquid supply, and can accurately control the refrigeration capacity of each branch to meet the temperature control requirements of each branch.



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 emperature distribution, it is particularly suited for large-scale heat exchange and precision temperature control.

ESC Chuck

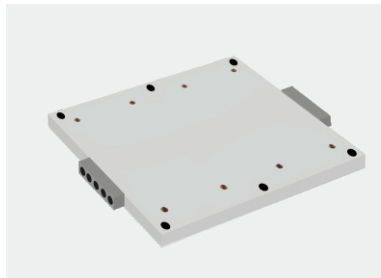
One ZLTZ temperature control unit drives multiple ESC chucks at independent temperatures

Cold Plate / Heat Sink Plate

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

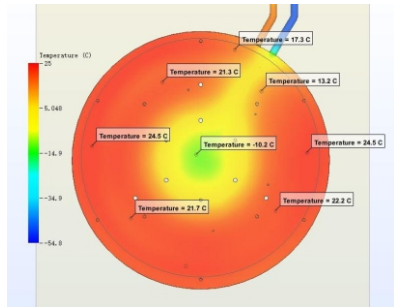
High-Temp Cooling Capacity

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



Square chuck
size:Non standard customization

Temp-controlled chuck with ZLTZ temp control system effect display:



Full-load 4kW
Real-time monitoring of cooling rate

Model	Chuck
Temperature range	-70℃~200℃
Temperature homogeneity	±0.5℃
Heating rate	- 55 ℃ to +25℃: 12 min, - 40 ℃ to +25℃: 10 min +25 ℃ to +150 ℃: 20 min, +25 ℃ to +200 ℃: 28 min+25 ℃ to +300 ℃: 40 min
Rate of cooling	+150 ℃ to +25 ℃: 25 min +200 ℃ to +25 ℃: 30 min +300 ℃ to +25 ℃: 40 min +25 ℃ to 0 ℃: 15 min +25 ℃ to -40 ℃: 35 min +25 ℃ to -55 ℃: 65 min
Cooling-down method	Direct Expansion Cooling System
Temperature control method	Built-in multi-point temperature Sensors,Multi-zone temperature control,precision PID (Flow-Induced Dynamic) temperature regulation
Wafer carrier	Nickel-plated (gold/non-conductive coating) with flexible chuck connection for easy carrier plate replacement, ensuring surface flatness within 3μm<10μm
Wafer adsorption type	Vacuum Chuck System
Power supply 220V 50HZ	200~230VA 50/60HZ max
Communication mode	Modbus RTU Protocol with RS485 Interface, Optional CAI Communication Bus and Ethernet TCP/IP Interface.

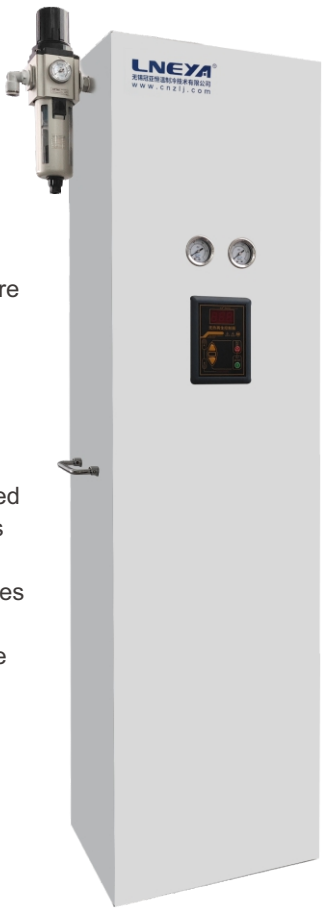
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Dryer
DR Series

Distributed gas sources used in sensors, semiconductor manufacturing, film and packaging material licensing, powder material transportation, spraying systems, food industry, pharmaceutical industry, etc. that require -80°C low dew point drying and cleaning.

Additional filtration of oil and particulate matter, with airflow passing through a filtration level of 0.01 μm, the pre filter prevents the desiccant from being contaminated by dust and oil (which greatly shortens the lifespan of the desiccant)

The compressed air dryer consists of multiple sets of filter cartridges filled with desiccants. The compressed air in the form of mist alternately flows through multiple sets of filter elements, and the moisture in the air will accumulate on the surface of the dryer. After the filtration process reaches a predetermined duration, the airflow will switch to other filter elements, and a portion of the airflow (discharge airflow) will be used to regenerate the dryer of the first filter element. The flushing airflow will be released into the atmosphere. The service life of desiccants is approximately 15000 working hours.



Model	DR-500	DR-1000	DR-2000
Pressure range	0.6 ~ 1.0Mpa		
Dew point temperature	-70°C		
Gas processing capacity	650L/min	1300L/min	2500L/min
Finished gas volume	500L/min	1000L/min	2000L/min
Connection Size	Rc1/2	Rc3/4	Rc1
Power	220V 15W		
Dimension cm	35*22*132	35*58*132	70*120*132

Chamber Test Chamber
Chip Burn-in Test Chamber

A Chip Burn-in Test Chamber is a device specifically designed to simulate the operating conditions of chips under extreme environments. By precisely controlling environmental parameters such as temperature and humidity, it replicates extreme conditions like high temperature, high humidity, and high-stress that chips may encounter in actual use, accelerating the chip aging process. This method enables the screening of early-failure chips within a short period, optimizing design schemes, improving product yield, and ensuring the stability and reliability of chips in long-term use



Model	GD-518-A-DC	GD-518-A-2-DC	GD-518-B1-DC	GD-518-B-DC	GD-518-B-2-DC
Inner Chamber Dimensions (W*H*D)	60*138*65	Left 60*138*65	60*138*65	60*138*65	Left 60*138*65
		Right 60*138*65			Right 60*138*65
Temp Range	RT+10℃~+150℃		-20℃~+150℃	-40℃~+150℃	-40℃~+150℃
Heating Rate	RT+10℃~+125℃ Linear 2℃/ min		-20℃~+125℃ Linear 2℃/ min	-40℃~+125℃ Linear 2℃/ min	
Cooling Rate	+125℃~RT+10℃ Linear 2℃/ min		+125℃~20℃ Linear 2℃/ min	+125℃~ -40℃ Linear 2℃/ min	
Load	24 layers (10kW, number of layers customizable)				
Temp Fluctuation	Temperature control accuracy of air outlet ≤±0.2℃				
Temp Uniformity	≤1℃ （No-load ）				
	≤±3℃ （Full-load 10kW ）				
Refrigerant	R454C/R290	R454C/R290	R454C/R290	R454C/R290/R23	R454C/R290/R23
Viewing Window	300*117				
Heater	Electric heating				
Water-cooled Condenser	Plate Heat Exchanger				
Air Circulation	Extended shaft motor, stainless steel centrifugal fan blade				
Refrigeration Mode	Single-Stage Refrigeration	Single-Stage Refrigeration	Single-Stage Refrigeration	Cascade Refrigeration	Cascade Refrigeration
Compressor	Branded Inverter Compressor				
Control Mode	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 Class A Platinum Resistor				
Protection Devices	Heater dual-temperature protection, refrigeration system protection, electrical overcurrent and overload protection, etc.				
Dimensions cm	228*210*200	456*210*200	228*210*200	228*210*200	456*210*200
Power Supply	380V 50HZ				
Thermal Insulation Material	Glass fiber wool & polyurethane				
Inner Chamber Material	SUS304 stainless steel				
Outer Case Material	Cold rolled steel plate with plastic spraying RAL7035				
Compliance Standards	GB/T 2423.1;GB/T 2423.2;GB/T 2423.3;GB/T 2423.4;GB/T 5170.2;GB/T 5170.5;GB/T 11158; GB/T 10589;GB/T 10592; GB/T 10586;IEC 60068-3-5				

Negative Pressure Type Temperature Control System

Negative Pressure Type Temp Control System

The negative pressure type temperature control system achieves precise temperature control through fluid circulation in a negative pressure environment. Principle: The negative pressure generator drives the circulation of heat-conducting media (water/oil), avoiding leakage risks, and is suitable for cooling various types of boards

Leakage Prevention Design

The pipeline remains under negative pressure during system operation. Even if the pipeline ruptures, high-temperature media will not leak, ensuring high safety.

High Efficiency and Energy Saving

Fully enclosed cycle and closed-loop circulation reduce heat energy loss.

Precise Temperature Control

Using PID algorithm or PLC control to achieve temperature fluctuation $\leq \pm 0.3^{\circ}\text{C}$, suitable for precision manufacturing scenarios

Multi-Scene Adaptability

Supports various media such as pure water, fluorinated liquid, ethylene glycol aqueous solution, etc., with a temperature control range from ambient temperature to 80°C



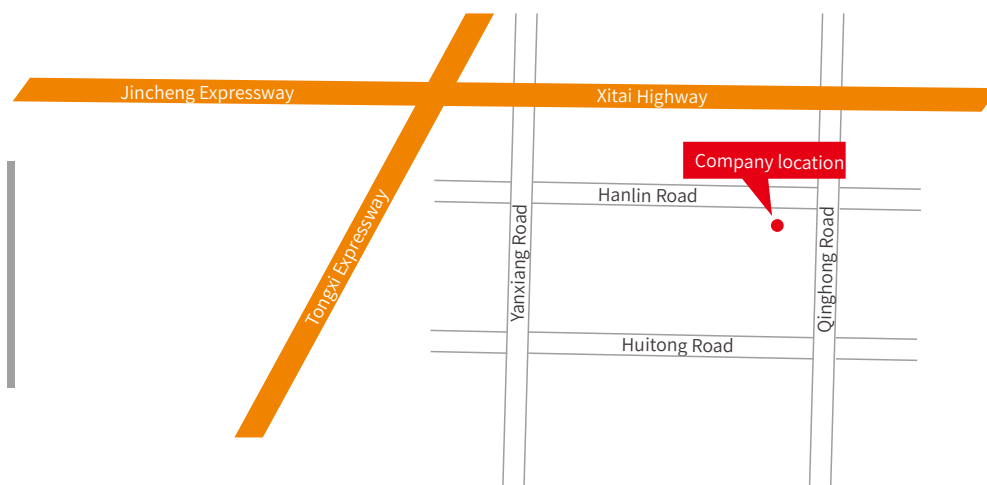
Ineya Headquarters factory
Expected to enter service in **March 2026**
68000 square meters of construction area



Model		ZLQ-80
Rated Heat Exchange Capacity		80kW
Primary Side (Medium Side)	Working Medium	Pure water, fluorinated liquid, ethylene glycol aqueous solution, etc.
	Rated Flow Rate	300L/min
	Liquid Storage Volume	120L
	Supply and Return Liquid Temp	25/35°C
	Temp Control Accuracy	±0.1°C
	Vacuum Pump Air Extraction Capacity	130m³/h
	Negative Pressure Head	70KPA
	Internal Circulation Pump Configuration	1+1 Redundancy
Secondary Side (Cooling Side)	Interface Size	Rc1 1/4
	Cooling Medium	PCW
	Cooling Flow Rate	6m³/h
	Filtration Accuracy	50um
Interface Size		Rc1
Control System		PLC Controller, Feedforward Control + Lag-Compensated PID Algorithm
Communication Protocol		RS485 Serial Port MODBUS RTU Protocol / Ethernet Interface TCP/IP Protocol
Liquid Supply Leakage Rate		Negative Pressure Circulating Leak-free System
Safety Protection		Equipped with self-diagnosis function, equipment overload protection, low liquid level protection, etc.
Other Functions		Functions including automatic leak detection, automatic liquid discharge, automatic liquid replenishment, etc.
Power Supply		AC220V/50HZ 8A(max)
Overall Dimensions cm		130(L)*70(W)*185(H)

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 (10% of equipment price extend to 24 month warranty)
- 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 will provide remote technical support via email/phone call
 - C. If remote supporting not work well, Lneya will send technician to go to Buyer's side to fix, but Buyer need to bear travelling expenses and accommodation fee.
- After the warranty period:
 - A. All technical questions Lneya could answer through phone call or email immediately.
 - 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 need to replace the parts, Buyer could purchase from Lneya or use similar type after consulting/confirming with Lneya.



 **Customer Service Hotline**
+86 15251521128