

H.Stars Centrifugal Chiller/ Heat Pump Unit



H.Stars (Guangzhou) Refrigerating Equipment Group Ltd.

H.Stars 50STD Centrifugal Chiller has two series: “Centrifugal Water-Cooled Chiller” & “Centrifugal Water Source Heat Pump Unit”. 14 standard specifications with cooling capacity range from 600RT

to 2800RT, and lowest outlet chilled water temperature is 5°C. Customized service available base on client requirement, such as anti-corrosion, sea water chiller with different Power Supply.

Two Stage Centrifugal Compressor

Surge avoidance two stage centrifugal compressor system; Economizer supply gas refrigerant for two stage centrifugal compressor, to increase cooling capacity up to 10%.

Intelligent identify surge area, adjust the rotate speed and IGV in time to avoid surge, more stable and reliable than normal centrifugal chiller.

The higher speed gear driven at , the smaller impeller in size. Small motor starting torque and short downtime.

The motor integrated with the compressor to keep low sound level and no risk of leakage.

The motor cooled by liquid refrigerant to keep low operating temperature and high efficiency.

Adopts high-strength ball bearing or roller bearings to prevent compressors from emergency shutdown.

Great Compressor Oil System

Adopt independent oil return system (ejection oil pump) to guarantee the oil return in time under any load.

Built in oil cooler , chilled by refrigerant to maintain safety and reliability.

Oil pump install into compressor oil sump, eliminating the risk of oil pump leakage.

Integrated Control

Fully automatic microcomputer control system with touch screen, clearly displays various operational data and timely feedback on various maintenance information, no full-time operators are needed. Control system available to be connected to the user's central control system for engineers to monitor and operate the chiller freely.

Falling Film Heat Exchanger

Adopt self-developed high efficiency Falling Film Type Heat Exchanger. Electronic expansion valve and liquid level sensor to control the liquid refrigerant level to ensure the evaporator always in the high efficiency heat exchange state.

Condenser adopts liquid droplet distribution technology to ensure the condenser heat exchange tubes highly efficient and sufficient to heat transfer.

COP upto 6.3

Heat Recovery System

Own heat recovery patent. The waste heat generated during the refrigeration process is recovered by adopting our own patented heat recovery unit. When the chiller is adopted heat recovery system, the chiller not only provides chilled water but also a large amount of free hot water.

Refrigerant

Adpot current world's mainstream environmentally friendly refrigerant R134a, the Ozone Depletion Potential (ODP) is 0.

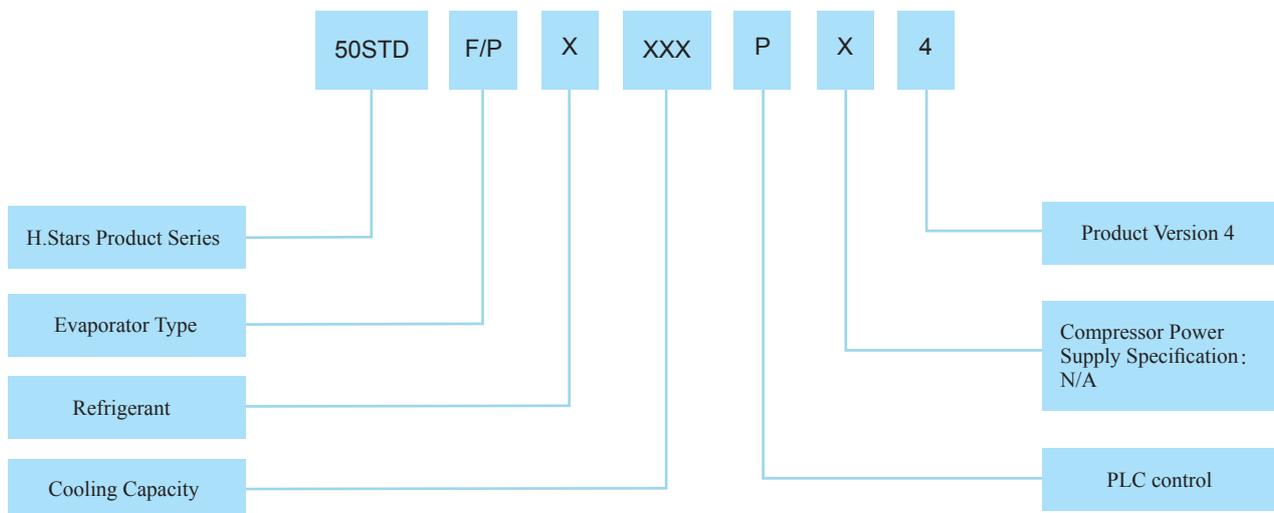
Positive pressure refrigerant to prevent air entering the system.

The machine room only needs a general ventilation equipment for cost saving.

Unique Throttling Technology

Adpot self-developed multi-stage throttling devices with self-adaptive function to adjust the refrigerant supply timely under variable load and working conditions to maintain the chiller unit staying at the highest efficiency stage.

Model Nomenclature



Water Cooled Centrifugal Chiller

Standard Configuration

Compressor	Hanbell Centrifugal Compressor
Evaporator	Self-produced high efficiency falling film type evaporator
Condenser	Self-produced high efficiency condenser
Controller	Microcomputer/PLC
Oil cooler	Self-produced
Economizer	Self-produced
Throttling Device	Multistage orifice plate
Compressor Oil	Synthetic oil
Starting mode	Star delta start/Soft start/Direct start
Power Supply	380V-3N-50Hz / 460V-3N-60Hz
Insulation Material	Anti-corrosion, water-proof, mesh insulation
Packaging	Reinforced Shrink-wrap covering ,industrial-grade
Oil Paint	High strength matt paint
Water Pipe Connection	Flange



Centrifugal Water-Cooled Chiller, adopt two stage centrifugal compressor, equipped with self-developed high-efficiency falling film evaporator, COP up to 6.3 with R134a refrigerant. Suitable for larger industrial and

commercial use. Cooling capacity: 2000kW~10000kW, chilled water outlet temperature range: 5°C-20°C. Optional voltage systems :380V/6kV/6.6kV/10kV.

Water Source Centrifugal Heat Pump Unit

Standard Configuration

Compressor	Hanbell Centrifugal Compressor
Evaporator	Self-produced high efficiency falling film type evaporator
Condenser	Self-produced high efficiency condenser
Controller	Microcomputer/PLC
Oil cooler	Self-produced
Economizer	Self-produced
Throttling Device	Multistage orifice plate
Compressor Oil	Synthetic oil
Starting mode	Star delta start/Soft start/Direct start
Power Supply	380V-3N-50Hz / 460V-3N-60Hz
Insulation Material	Anti-corrosion, water-proof, mesh insulation
Packaging	Reinforced Shrink-wrap covering ,industrial-grade
Oil Paint	High strength matt paint
Water Pipe Connection	Flange



Centrifugal Water-Cooled Chiller, adopting special heat pump centrifugal compressor, equipped with self-developed high-efficiency falling film type evaporator, Cooling COP can reach 7.7 and Heating COP can reach 6.0 by using R134a refrigerant. Suitable for larger

industrial and commercial premises.Cooling capacity range: 2000kw~7000kw, heating capacity range: 2000kW-7000kW. The lowest chilled water outlet temperature: 5 °C , highest hot water outlet temperature:50 C . 4 voltage systems:380V, 6kV, 6.6kV, 10kV.

Compressor

Two-stage compression centrifugal compressor, internal adopts high-strength alloy spindle and high-strength aluminum alloy material enclosed impeller and high-precision gear, with high-strength ball / roller bearing to prevent compressors from emergency shutdown. Startup interval shortened to 10 minutes, bearing life up to 80,000 hours.



Falling Film Evaporator

The refrigerant enters the evaporator spraying downward from the upper side of the heat exchange tube array, and the liquid refrigerant forms a film flowing downward on the tube. Since only a layer of liquid refrigerant film is coated on the surface of the heat exchange tube, the heat transfer effect is excellent.

The shell is made of Q345R steel, the heat exchange copper tube is double-sided enhanced high-efficiency tube with optional variable tube materials and thicknesses. The spray tray is made of stainless steel and is produced by self-owned CNC machine to ensure the quality of liquid distributor structure of falling film evaporator.

It only needs a small amount of liquid refrigerant at the bottom of evaporator, so the refrigerant charging capacity of the unit is small and meets environmental protection requirements.

The refrigerant vapor does not need to be superheated, and the evaporation temperature can be greatly improved.

After the refrigerant evaporates and returns to the compressor, the compressor oil will always flow downward and gather at the bottom of the evaporator to easily return oil.



High Efficiency Condenser

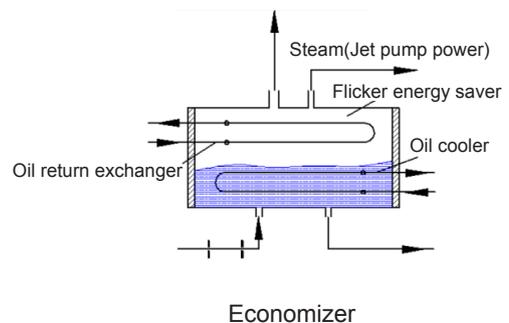
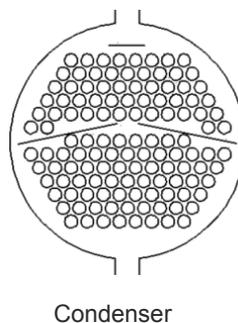
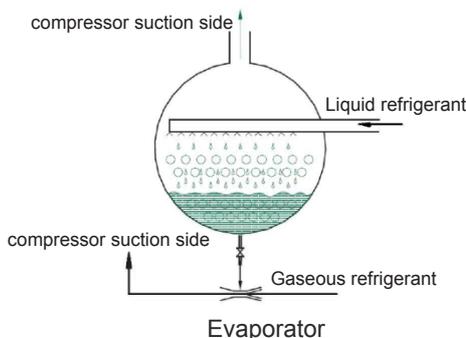
The shell is made of Q345R steel and the heat exchange copper tube is double-sided enhanced high-efficiency tube used to condense the high-temperature and high-pressure refrigerant in the refrigeration system into liquid, with certain degree of sub-cooling, to improve the efficiency of the chiller.

The built-in liquid refrigerant distributor device ensures the liquid refrigerant after condensation automatically separated from the heat exchange tube, ensuring sufficient contact between the heat exchange tube and the gaseous refrigerant, and greatly improving the heat exchange efficiency of the copper tube. For large capacity chiller units, this technology is very effective, reducing the condensation temperature 1 °C.



Economizer

The shell is made of Q345R steel and the heat exchange copper tube adopts internal grooved copper tubes also known as "micro fin tube" to facilitate more efficient heat transfer than smooth coils. Adopt part of refrigerant from evaporation to cool the liquid refrigerant after condensing to increase the effect of super cooling and make it more efficient and energy saving.



Product Features and Functions

Adopts high-integration single-chip microcomputer greatly improves the anti-interference ability of the system.

The HMI directly displays the fault content to cooperate with the simple operation interface to timely feedback various maintenance information.

The control system can be connected to the user's central control system (BMS) to monitor the chiller running situation freely.

Protection control on the external power supply system with Over-voltage, under-voltage, three-phase unbalance, and lack-phase protection.

And the chiller has built in more than 30 protection functions to provide comprehensive protection for the safe operation of the unit.

The chiller has advanced multi-anti-surge function, which combines prevention, control and alarm to guarantee the unit meet the customer's cooling capacity within the safe operation range.

Reserve user connection interface to provide cloud services.

Control center

Equipped with 10-inch touch panel.

Built-in electronic expansion valve drive module to ensure accurate liquid supply.

Three-phase voltage and current are displayed and highly integrated with the controller.

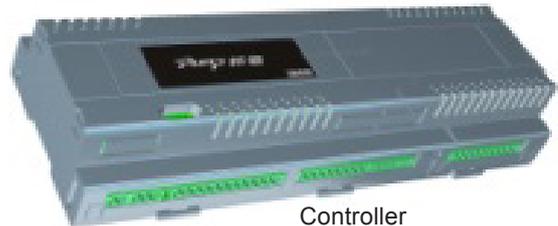
The unit can be connected to each other to form module control, group control or single control, it is freely switch to each control mode.

Accurately detect the operating current of the compressor and keep abreast of the operating status of the unit.

The control logic changes to different operating strategies based on the detected information to ensure stable operation of the unit.

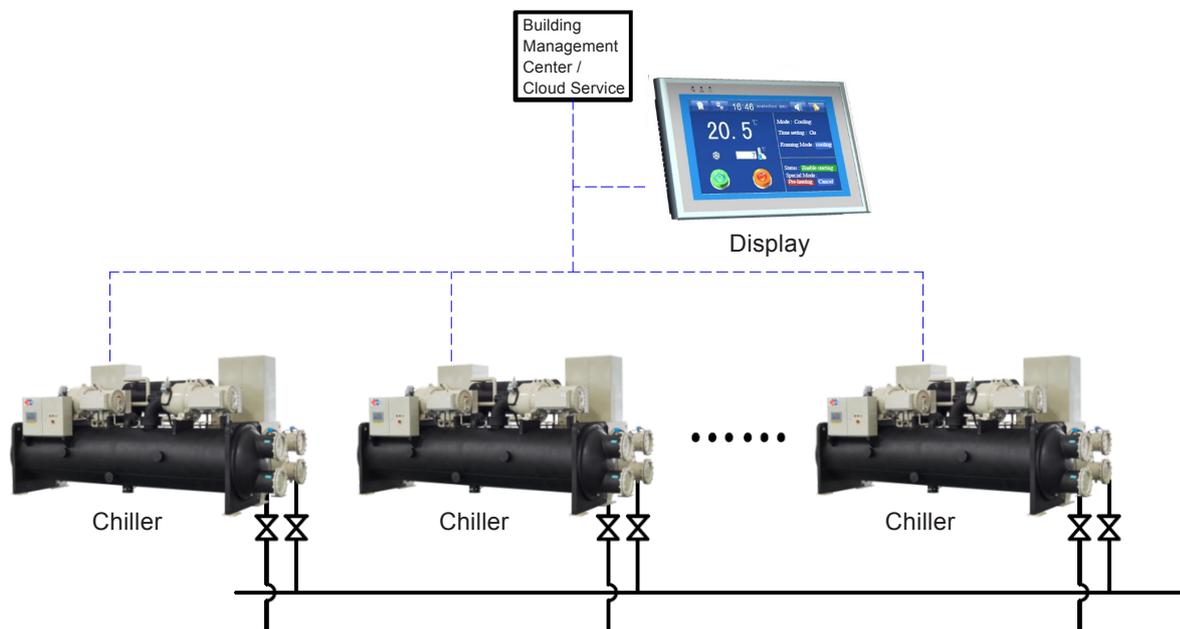
The high-precision temperature and pressure detecting device has a temperature detection accuracy at 0.01 °C and a pressure accuracy at 0.001 MPa.

Integrated communication interface for access to cloud servers.



Controller

Network of Multiple Units (Module Systems)



Standard MODBUS interface, compatible with various engineering building control systems.

Innovative LAN interface enables multiple unit to be connected into a network to optimize unit operation and extend the life of the chiller .

R_LAN IP address knob is adopted, different module IP addresses are easier to change through the knob at the site.

The wire controller can achieve switching without stopping the chiller which is more flexible.

English/Spanish/French or other language display available , and it displays the content of unit operation, fault conditions, built-in operating instructions ,etc. to facilitate the use of the unit.

Optional hydraulic module control for engineers , easy to operate and use friendly.

Controller interface

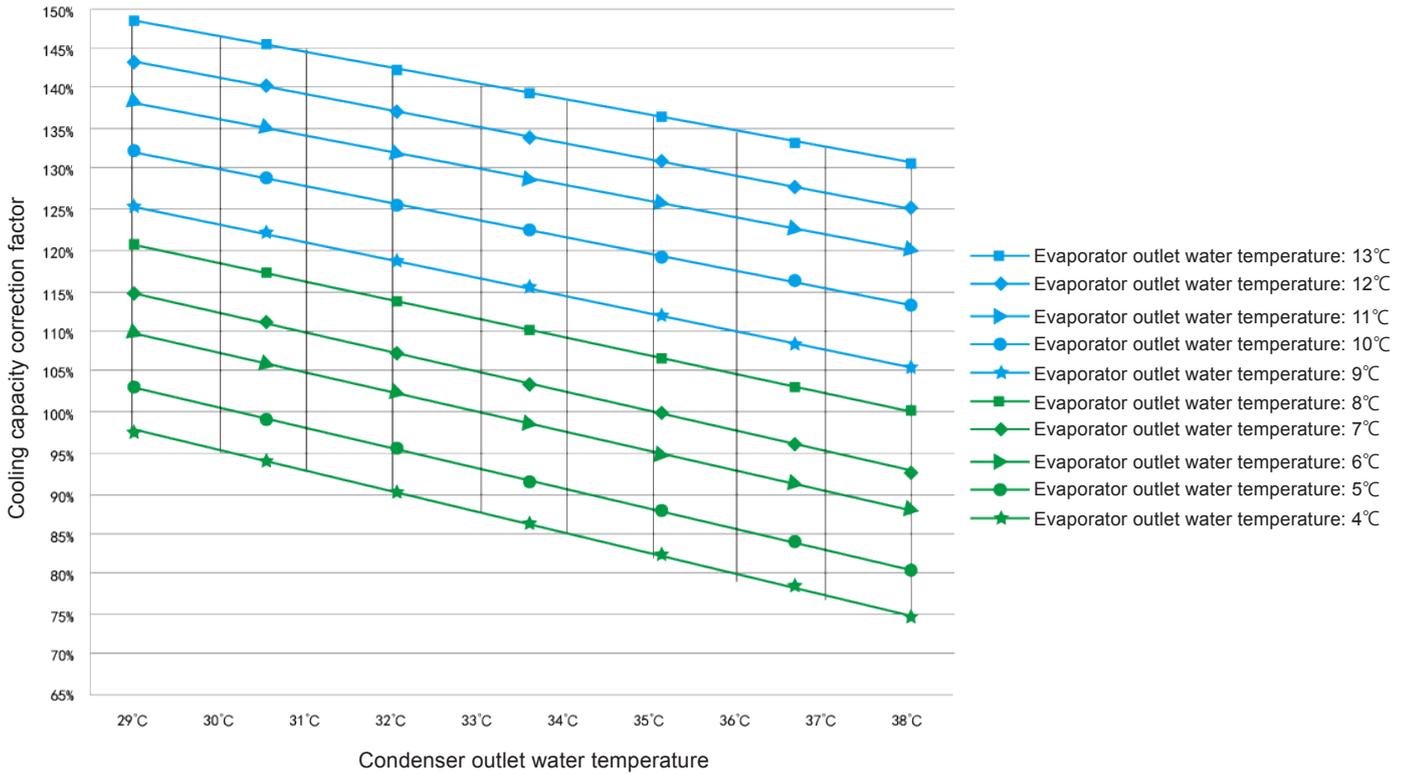
Adopts 10 inch touch screen, the display with a large screen and true color quality is more delicate and clear for operators to use. The operation screen is simple and exquisite, showing a large amount of information and easy to operate. And it's designed with USB interface, easy to upgrade or download the chiller history running data chart.



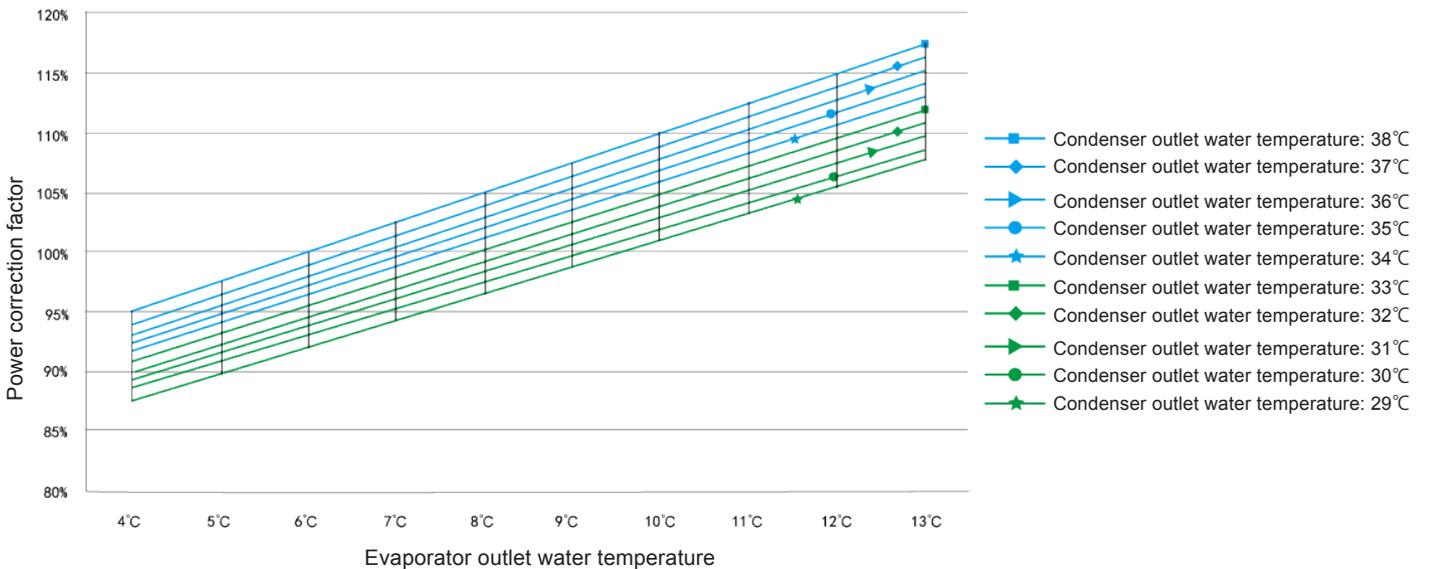
Function Display

Parameter	Default	Setting Range	Remark
Operating Mode	Cooling	Cooling, Heating, Auto	With "*" is an uncommon parameter; Parameters with default value of "/" can only be displayed when the device has corresponding functions, please take the actual situation of the device as the criterion
Setting Temperature(Cooling)	12.0°C	Cooling minimum ~ 30.0	
Setting Temperature(Heating)	40.0°C	10.0`Heating maximum	
Setting Temperature(Hot water)	/	10.0 ~ 60.0	
* Temperature of chiller start-up deviation(cooling)	2.0°C	0.5 ~ 10.0	
* Temperature of chiller discharge deviation(cooling)	2.0°C	0.5 ~ 10.0	
* Temperature of chiller start-up deviation(heating)	2.0°C	0.5 ~ 10.0	
* Temperature of chiller discharge deviation(heating)	2.0°C	0.5 ~ 10.0	
* Hot water temperature deviation	/	0.5 ~ 10.0	
* Auto start Settings	Forbidden	Forbidden, Starting, Keeping	
* 1#Compressor Operate Settings	Enable	Enable, Disable	
* 2#Compressor Operate Settings	Enable	Enable, Disable	
* 3#Compressor Operate Settings	Enable	Enable, Disable	
* 4#Compressor Operate Settings	Enable	Enable, Disable	
Timing Setting	Enable	Enable, Disable	
External circulation temperature of cooling	/	-30 ~ 100	
External circulation temperature of heating controls	/	-30 ~ 100	
* External circulation temperature difference	/	0.5 ~ 10.0	
Remote control of cooling and heating setting	/	Enable, Disable	
Priority selection	/	Heating , Cooling	
Chilled water setting temperature	/	0.0 ~ 40.0	
* Chilled water temperature deviation	/	0.5 ~ 10.0	

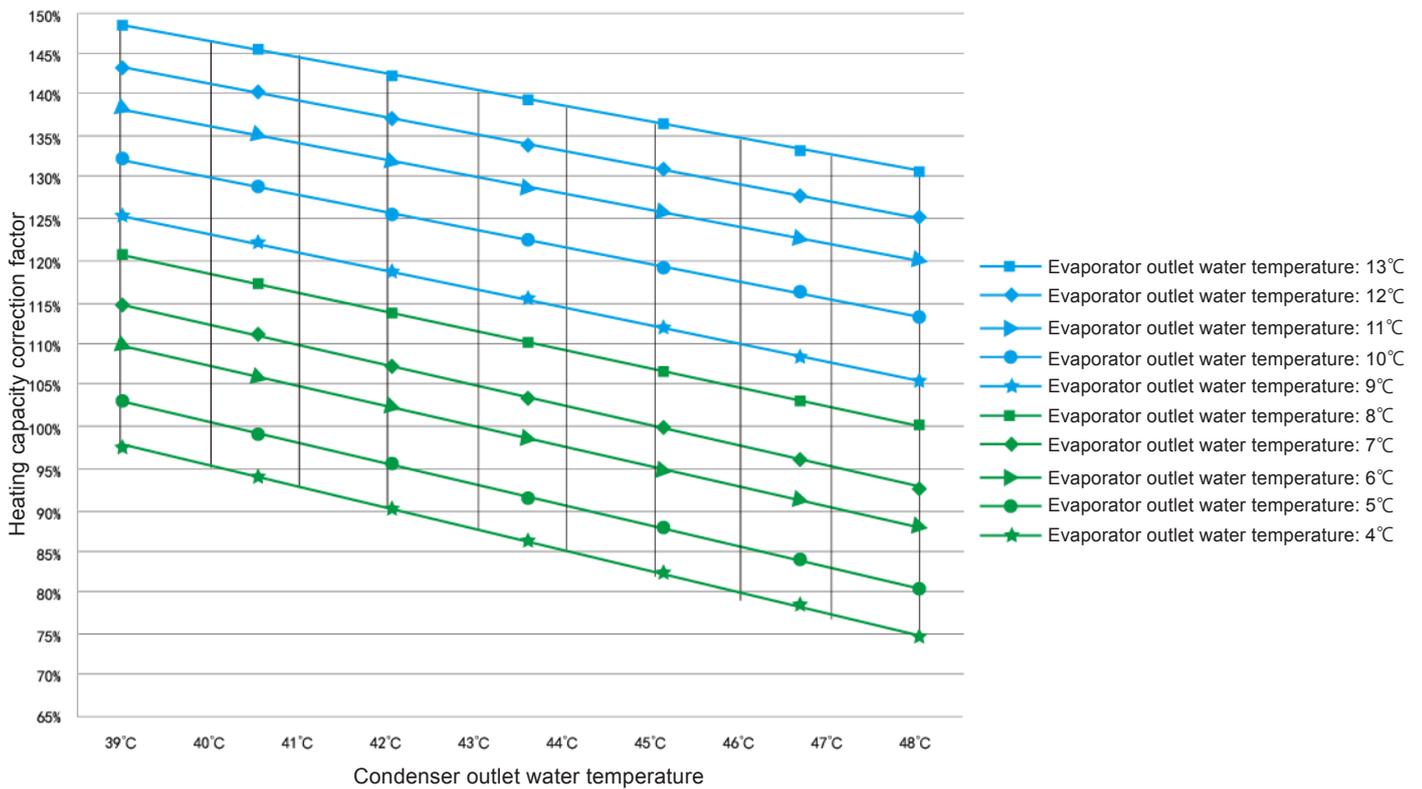
Cooling Capacity Curve



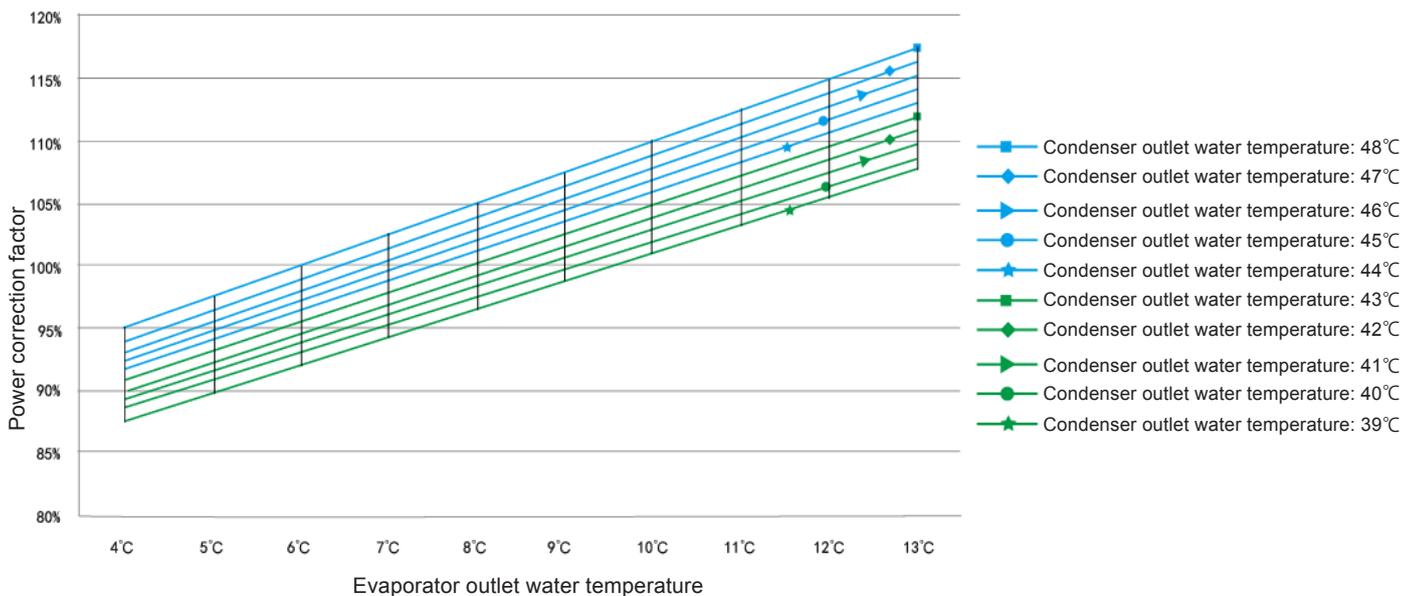
Power Supply Curve



Heating Capacity Curve



Power Supply Curve



50STD Series Standard Centrifugal Chiller Technical Parameters

Refrigerant: R134a Power supply: 380V-3N-50Hz

Model	Nominal cooling capacity		Compressor Input Power kW	Capacity control %	Refrigerant charge kg	Condenser				Evaporator				Running noise dB(A)	Shipping weight kg	Running weight kg
	kW	USRT				Inlet pipe diameter in	Water flow m ³ /h	Water Side Max. Pressure Mpa	Water pressure drop KPa	Inlet pipe diameter in	Water flow m ³ /h	Water Side Max. Pressure Mpa	Water pressure drop KPa			
50STD-600W2	2088	594	340	25%~100%	700	8"	418	1	74	8"	359	1	74	82	12000	12500
50STD-700W2	2320	660	385		800	10"	465	1	74	10"	399	1	74	84	13000	13500
50STD-800W2	2785	792	448		950	10"	556	1	76	10"	479	1	76	85	14000	14500
50STD-900W2	3200	910	525		1100	12"	641	1	78	12"	550	1	78	86	15000	15500
50STD-1000W2	3550	1009	582		1200	12"	711	1	80	12"	610	1	80	87	16000	16500
50STD-1200W2	4175	1187	672		1400	12"	834	1	82	12"	718	1	82	88	18000	18500
50STD-1300W2	4570	1299	732		1500	14"	912	1	82	14"	786	1	82	89	19000	19500
50STD-1400W2	4777	1358	769		1600	14"	954	1	84	14"	821	1	84	90	20000	20500
50STD-2000W2	7100	2019	1164		2400	16"	1421	1	84	16"	1221	1	84	92	30000	30500
50STD-2800W2	9554	2717	1538		3200	18"	1907	1	84	18"	1643	1	84	94	38000	38500

Note:

1. Nominal cooling capacity reference: evaporator inlet and outlet water temperature 12°C/ 7°C, condenser inlet and outlet water temperature 30°C/ 35°C; fouling factor 0.88m².°C/ KW;
2. Chilled water temperature range: 5-20°C
3. Cooling water temperature range: 15-40°C
4. Specifications and dimensions will be subject to change without notice.

50STD series Centrifugal Water Source Heat Pump Technical Parameters

Refrigerant: R134a Power supply: 380V-3N-50Hz

Model	Nominal cooling capacity		Compressor Input Power kW	Nominal heating capacity		Compressor Input Power kW	Capacity control %	Refrigerant charge kg	Condenser				Evaporator				Running noise dB(A)	Shipping weight kg	Running weight kg
	kW	USRT		kW	USRT				Water flow m ³ /h	Water pressure drop KPa	Water Side Max. Pressure Mpa	Inlet pipe diameter	Water flow m ³ /h	Water pressure drop KPa	Water Side Max. Pressure Mpa	Inlet pipe diameter			
50STD-600H2	2360	671	307	2280	648	385	25%~100%	800	406	74	1	10"	231	50	1	10"	83	10100	10600
50STD-900H2	3368	958	458	3280	933	575		1200	579	74	1	12"	330	60	1	12"	87	12500	13000
50STD-1200H2	4653	1323	606	4500	1279	760		1600	800	76	1	14"	456	70	1	14"	90	15500	16000
50STD-1800H2	6736	1915	916	6560	1865	1150		2400	1159	76	1	16"	660	75	1	16"	95	23000	23500

Note:

1. Nominal cooling capacity reference: inlet and outlet underground water temperature 18°C/29°C, inlet and outlet cooling water temperature 12°C/7°C; fouling factor 0.88m².°C/ KW;
2. In cooling condition, the minimum chilled water temperature is 5 °C
3. Nominal heating capacity reference: underground inlet water temperature 15°C, inlet heating water temperature 40°C, outlet water temperature is determined by the water flow in nominal refrigeration condition;
4. In heating condition, the maximum heating water temperature is 50 °C
5. Specifications and dimensions will be subject to change without notice.

50STD Series Standard Centrifugal Chiller Technical Parameters

Model		Nominal cooling capacity		Compressor Input Power		Capacity control %	Refrigerant charge kg	Condenser				Evaporator				Running noise dB(A)	Shipping weight kg	Running weight kg
		kW	USRT	kW	kW			Inlet pipe diameter in	Water flow m ³ /h	Water Side Max. Pressure Mpa	Water pressure drop KPa	Inlet pipe diameter in	Water flow m ³ /h	Water Side Max. Pressure Mpa	Water pressure drop KPa			
50STD-600W2	2506	712	408	25%~100%	700	8"	501	1	74	8"	431	1	74	82	13200	13750		
50STD-700W2	2784	792	462		800	10"	558	1	74	10"	479	1	74	84	14300	14850		
50STD-800W2	3342	950	538		950	10"	667	1	76	10"	575	1	76	85	15400	15950		
50STD-900W2	3840	1092	630		1100	12"	769	1	78	12"	660	1	78	86	16500	17050		
50STD-1000W2	4260	1211	698		1200	12"	853	1	80	12"	733	1	80	87	17600	18150		
50STD-1200W2	5010	1425	806		1400	12"	1000	1	82	12"	862	1	82	88	19800	20350		
50STD-1300W2	5484	1559	878		1500	14"	1094	1	82	14"	943	1	82	89	20900	21450		
50STD-1400W2	5732	1630	923		1600	14"	1144	1	84	14"	986	1	84	90	22000	22550		
50STD-2000W2	8520	2423	1397		2400	16"	1705	1	84	16"	1465	1	84	92	33000	33550		
50STD-2800W2	11465	3260	1846		3200	18"	2289	1	84	18"	1972	1	84	94	41800	42350		

Note:

1. Nominal cooling capacity reference: evaporator inlet and outlet water temperature 12°C/ 7°C, condenser inlet and outlet water temperature 30°C/ 35°C; fouling factor 0.88m².°C/ KW;
2. Chilled water temperature range: 5-20°C
3. Cooling water temperature range: 15-40°C
4. Specifications and dimensions will be subject to change without notice.

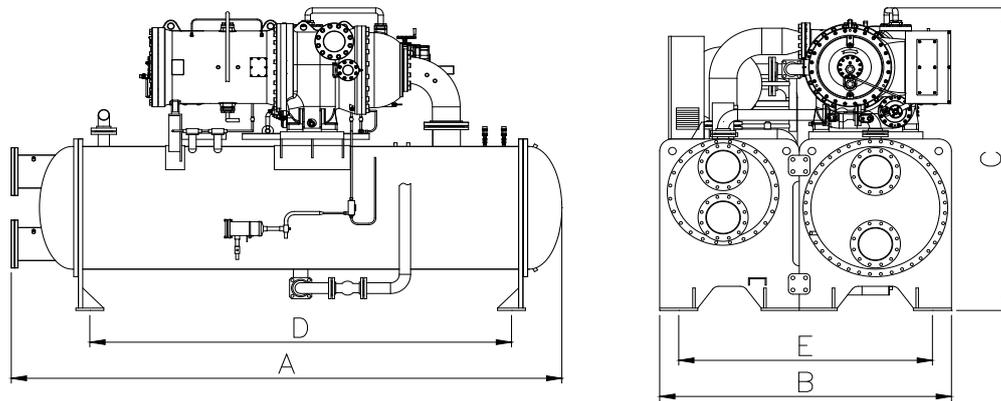
50STD series Centrifugal Water Source Heat Pump Technical Parameters

Model		Nominal cooling capacity		Nominal heating capacity		Capacity control %	Refrigerant charge kg	Condenser				Evaporator				Running noise dB(A)	Shipping weight kg	Running weight kg		
		kW	USRT	Compressor Input Power kW	kW			USRT	Compressor Input Power kW	Water flow m ³ /h	Water pressure drop KPa	Water Side Max. Pressure Mpa	Inlet pipe diameter	Water flow m ³ /h	Water pressure drop KPa				Water Side Max. Pressure Mpa	Inlet pipe diameter
50STD-600H2	2832	805	368	2736	778	462	25%~100%	800	406	74	1	10"	231	50	1	10"	83	11110	11660	
50STD-900H2	4042	1149	550	3936	1119	690		1200	579	74	1	12"	330	60	1	12"	87	13750	14300	
50STD-1200H2	5584	1588	727	5400	1535	912		1600	800	76	1	14"	456	70	1	14"	90	17050	17600	
50STD-1800H2	8083	2298	1099	7872	2238	1380		2400	1159	76	1	16"	660	75	1	16"	95	25300	25850	

Note:

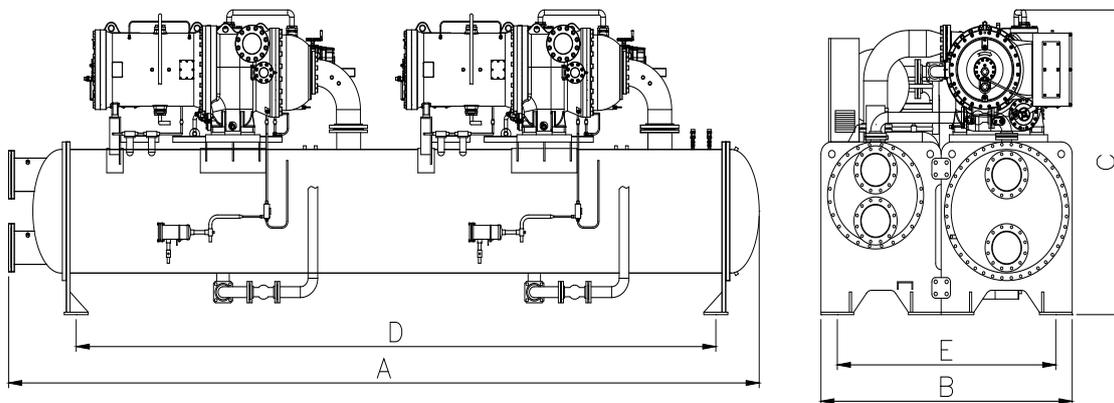
1. Nominal cooling capacity reference: inlet and outlet underground water temperature 18°C/29°C, inlet and outlet cooling water temperature 12°C/7°C; fouling factor 0.88m².°C/ KW;
2. In cooling condition, the minimum chilled water temperature is 5 °C
3. Nominal heating capacity reference: underground inlet water temperature 15°C, inlet heating water temperature 40°C, outlet water temperature is determined by the water flow in nominal refrigeration condition;
4. In heating condition, the maximum heating water temperature is 50 °C
5. Specifications and dimensions will be subject to change without notice.

Single Compressor Unit



Model	A	B	C	D	E
50STD-600W2	4100	2400	2500	3100	1800
50STD-700W2	4100	2400	2500	3100	1800
50STD-800W2	4600	2550	2900	3400	2000
50STD-900W2	4600	2550	2900	3400	2000
50STD-1000W2	4600	2550	2900	3400	2000
50STD-1200W2	4800	2800	2950	3400	2300
50STD-1300W2	4800	2800	2950	3400	2300
50STD-1400W2	4800	2800	2950	3400	2300
50STD-2000W2	9000	2800	2950	6800	2300
50STD-2800W2	10000	2800	2950	6800	2300
50STD-600H2	4200	2500	2500	3200	1800
50STD-900H2	4600	2650	2900	3400	2000
50STD-1200H2	5500	2800	2950	3400	2300
50STD-1800H2	9000	2800	2950	6800	2300

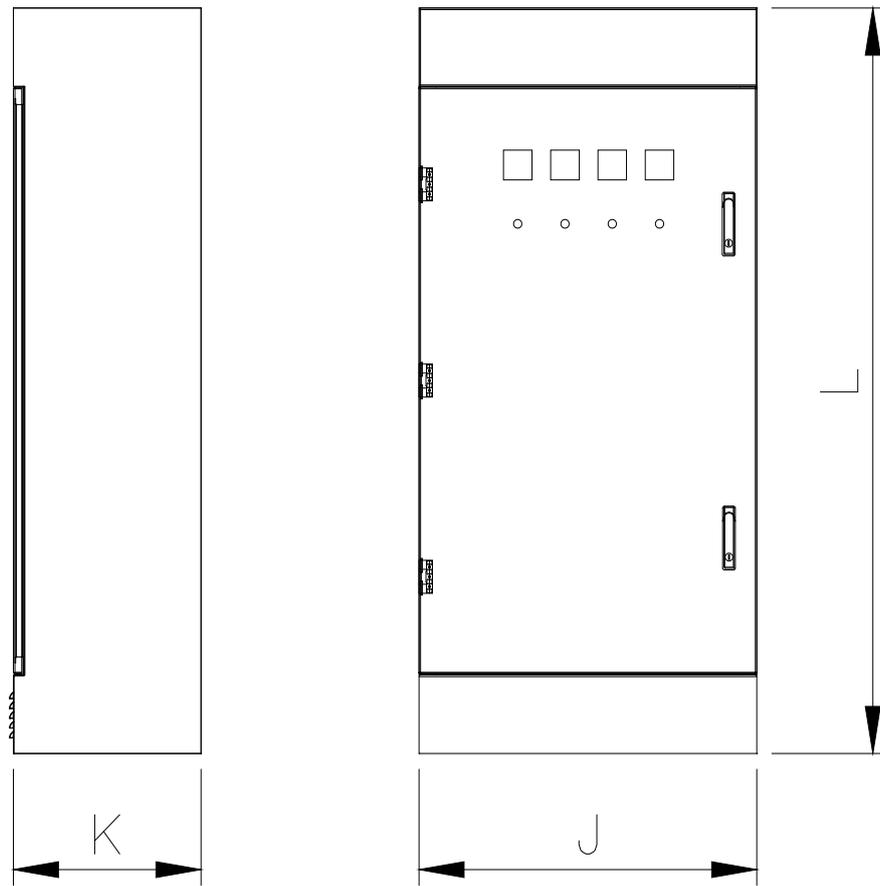
Double Compressor Unit



Model	A	B	C	D	E
50STD-2000W2	9000	2800	2950	6800	2300
50STD-2800W2	10000	2800	2950	6800	2300
50STD-1800H2	9000	2800	2950	6800	2300

Unit:mm

Electrical Cabinet Control



Model	J	K	L
50STD-900W2	1200	500	1900
50STD-1000W2	1200	500	1900
50STD-1200W2	1600	800	1900
50STD-1300W2	1600	800	1900
50STD-1400W2	1600	800	1900
50STD-2000W2	2000	1000	2200
50STD-2800W2	2000	1000	2200
50STD-900H2	1200	500	1900
50STD-1200H2	1600	800	1900
50STD-1800H2	2000	1000	2200

Unit:mm

Non-standard Voltage unit

High Voltage Unit Electrical Parameters

Model	Compressor Input Power (kW)	6 kV Power Supply			10 kV Power Supply		
		Maximum operating current (A)	Starting current (A)	Cable	Maximum operating current (A)	Starting current (A)	Wiring
50STD-600W2	348	47	244	3*XLPE-16	28	147	3*XLPE-16
50STD-700W2	406	55	284	3*XLPE-16	33	170	3*XLPE-16
50STD-800W2	467	63	323	3*XLPE-25	38	194	3*XLPE-16
50STD-900W2	526	71	374	3*XLPE-25	42	225	3*XLPE-16
50STD-1000W2	586	77	410	3*XLPE-25	46	246	3*XLPE-16
50STD-1200W2	704	105	536	3*XLPE-50	63	321	3*XLPE-25
50STD-1300W2	761	105	567	3*XLPE-50	63	340	3*XLPE-25
50STD-1400W2	805	105	567	3*XLPE-50	63	340	3*XLPE-25
50STD-2000W2	1172	154	820	3*XLPE-95	92	492	3*XLPE-50
50STD-2800W2	1610	210	1134	3*XLPE-150	126	680	3*XLPE-95

Note:

- Above wiring diameter according to the chiller standard working conditions under ambient temperature 35 °C; Cable working temperature at 65 °C, erect surface wiring.
- Cable material has to be copper cable. When the working condition or environment changes, the copper cable should be properly enlarged.
- High-voltage chiller cable should comply with ICE183 and DL401 of High-voltage cable selection guidelines standard.
- Above electrical parameters are theoretical calculation values; Please refer to the actual parameters.
- Grounding resistance <8Ω

Non-standard Voltage unit



High voltage wiring instructions

- (1) Cable 1 is the power supply cable (three-phase four-wire) from the customer's high-voltage power distribution cabinet to the power cabinet. For the cable specifications and cable diameter requirements, please refer to the electrical parameter table.
- (2) Cable 2 is the power cable from the power cabinet to the main motor of the centrifugal unit. For the cable specifications and cable diameter requirements, please refer to the electrical parameter table.
- (3) Cable 3 is the power cord (three-phase five-wire) from the client to the centrifugal unit control cabinet. It is required to be a five-core sheathed wire with a cable diameter of 2.5 mm².

Note: The control cabinet power supply is provided by the customer.

(4) Cable 4 is the signal control line from the power cabinet to the main control cabinet of the centrifugal unit. It is required to be a shielded wire or twisted pair with a wire diameter of 1.0mm² or more.

(5) Cable 5 is a signal control line from the main control cabinet of the centrifuge to the water pump control cabinet and remote switchgear. It is required to be a shielded wire or twisted pair with a wire diameter of 1.0mm² or more.

Note: The pump control cabinet is provided by the customer.

- (6) The power cable and power lead must be configured separately with signal control cable and must not place in the same cable duct.
- (7) The power cabinet wiring should be in and our from the top.
- (8) All the above wiring is provided by the customer.

(VFD) Variable Frequency Driver centrifugal unit

VFD Centrifugal chiller adopts a variable frequency driver motor to achieve variable frequency operation of the compressor. Significantly improves the energy efficiency of the chiller at partial load. The unit can

Energy Efficient

Adopt international brand variable frequency drive technology, integrated part load value (IPLV) up to 10.

Stable and Reliable

The VFD centrifugal unit adopts the motor speed to control the output to achieve true stepless control to improve compressor reliability. Liquid cooling VFD runs at low temperature, more stable.

Small starting current

VFD water chiller with soft starting to reduce the impact of starting current;

The VFD has its own DC reactor to minimize harmonic interference;

Optional low-harmonic filter. VFD input power meets the IEEE-519 specification for harmonic distortion with harmonic filter over-temperature protection and capacitance switching.

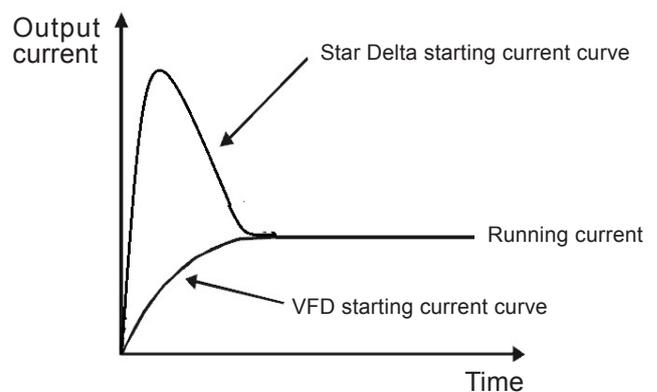
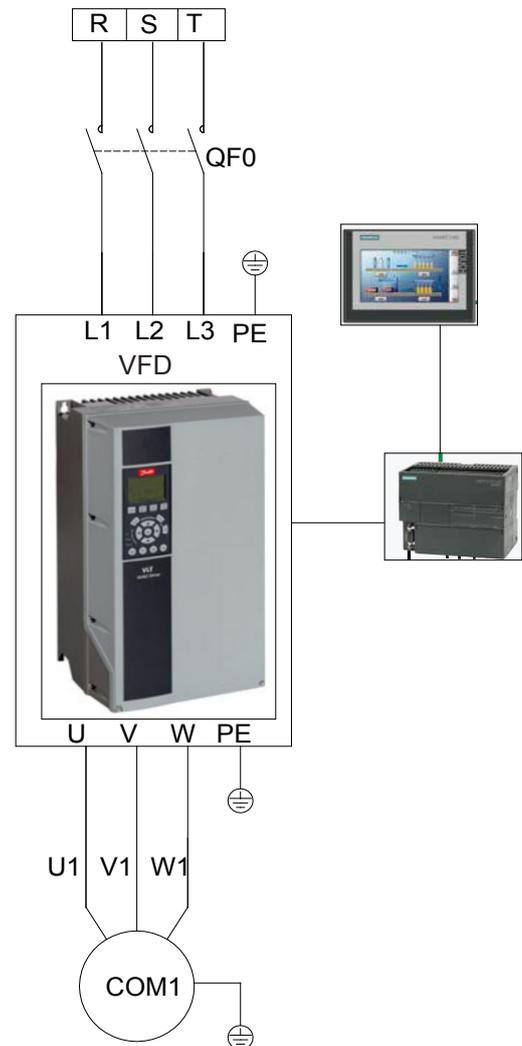
Precise temperature control

The water temperature control within $\pm 0.3^{\circ}\text{C}$ to maintain a high-precision temperature control standard.

VFD parameters

Model	Power (kW)	Maximum operating current (A)	Starting current (A)
50STD-600W2	348	702	606
50STD-700W2	406	811	704
50STD-800W2	467	945	801
50STD-900W2	526	1088	928
50STD-1000W2	586	1177	1016
50STD-1200W2	704	1375	1098
50STD-1300W2	761	1375	1163
50STD-1400W2	805	1375	1163
50STD-2000W2	1172	2354	2193
50STD-2800W2	1610	2750	2538

reach a higher value at both full load coefficient of performance (COP) and integrated part load value (IPLV)



Starting current curve comparison between VFD and Star Delta

Heat Recovery Unit

Heat recovery technology, is to recycle part of or all of the heat capacity produced during the refrigeration process by heat recovery unit, to provide customers free hot water from 45 °C to 55 °C , suitable for hotels, hospitals, schools and other places of large public institutions.

Green to environment and energy saving.

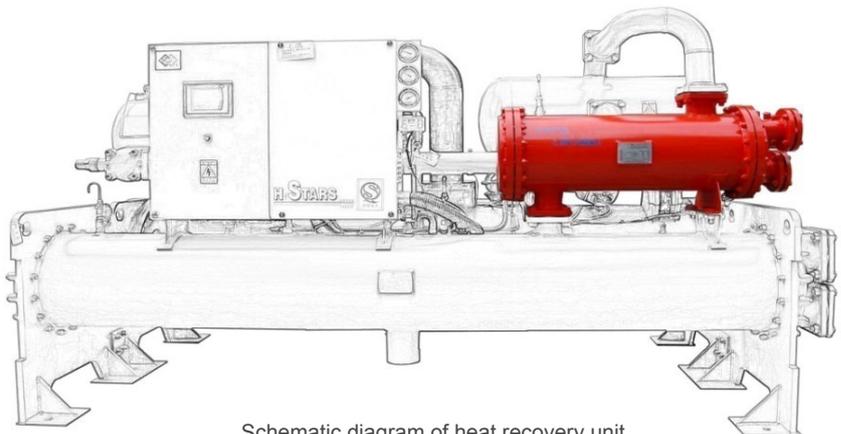


Heat recovery unit , patent number : ZL03223588.7

Heat Recovery technology

H.Stars Group has been engaged in research and practice of heat recovery technology and application for a long time and has accumulated a lot of experience in heat recovery and obtained a national patent of heat recovery.

Free hot water supplied all year around , cost and energy saving, it not only reduces the heat pollution to the environment caused by condensation heat from the chiller ,but also decreases the running cost and the noise from the cooling tower.



Schematic diagram of heat recovery unit

China machinery industry science and technology award



China machinery industry science and technology award

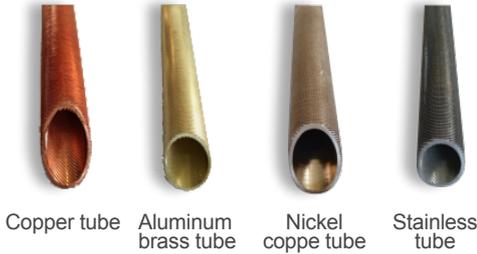
Heat recovery chart

Model	30%Heat recovery		100%Heat recovery	
	Model of heat recovery unit	Heat recovery capacity (kW)	Model of heat recovery unit	Heat recovery capacity (kW)
50STD-600W2	UHR180A	600	UHR600A	2100
50STD-700W2	UHR210A	700	UHR700A	2500
50STD-800W2	UHR240A	800	UHR800A	2800
50STD-900W2	UHR270A	900	UHR900A	3200
50STD-1000W2	UHR300A	1000	UHR1000A	3500
50STD-1200W2	UHR360A	1200	UHR1200A	4200
50STD-1300W2	UHR390A	1300	UHR1300A	4600
50STD-1400W2	UHR420A	1400	UHR1400A	4900
50STD-2000W2	UHR600A	2000	UHR2000A	7000
50STD-2800W2	UHR840A	2800	UHR2800A	9800
50STD-600H2	UHR180A	600	UHR600A	2100
50STD-900H2	UHR270A	900	UHR900A	3200
50STD-1200H2	UHR360A	1200	UHR1200A	4200
50STD-1800H2	UHR540A	1800	UHR1800A	6300

Heat recovery chart

Heat Exchanger Tube

Condenser Heat Exchanger Tube



Condenser heat exchange tube Specification sheet

Heat exchange tube material	Copper Tube	Aluminum Brass Tube	Nickel Copper Tube	Stainless Tube
Tube thickness option 1 (mm)	1	1.2	1	1
Tube thickness option 2 (mm)	1.1	1.3	1.1	1.15
Tube thickness option 3 (mm)	1.2	1.4	1.2	1.2
Tube thickness option 4 (mm)	1.3	1.5	1.3	1.35
Suitable for water quality	Standard non-corrosive neutral water	seawater	Alkaline water	Acid water

Evaporator Heat Exchanger Tube



Evaporator heat exchange tube specification sheet

Heat exchange tube material	Copper Tube	Aluminum Brass Tube	Nickel Copper Tube	Stainless Tube
Tube thickness option 1 (mm)	1	1.2	1	1
Tube thickness option 2 (mm)	1.1	1.3	1.1	1.15
Tube thickness option 3 (mm)	1.2	1.4	1.2	1.2
Tube thickness option 4 (mm)	1.3	1.5	1.3	1.35
Suitable for water quality	Standard non-corrosive neutral water	seawater	Alkaline water	Acid water

Important Notice:

Heat exchanger is the key components of the chiller unit, its manufacturing technology directly affects the quality of the product. Also, the heat exchange tube, which is the only component of the heat exchanger in contact with the ambient, closely affects the life of the

unit. The thickness and material of the heat exchange tube are very important. Customers can choose the suitable material and thickness of heat exchanger tube according to the air and water quality.

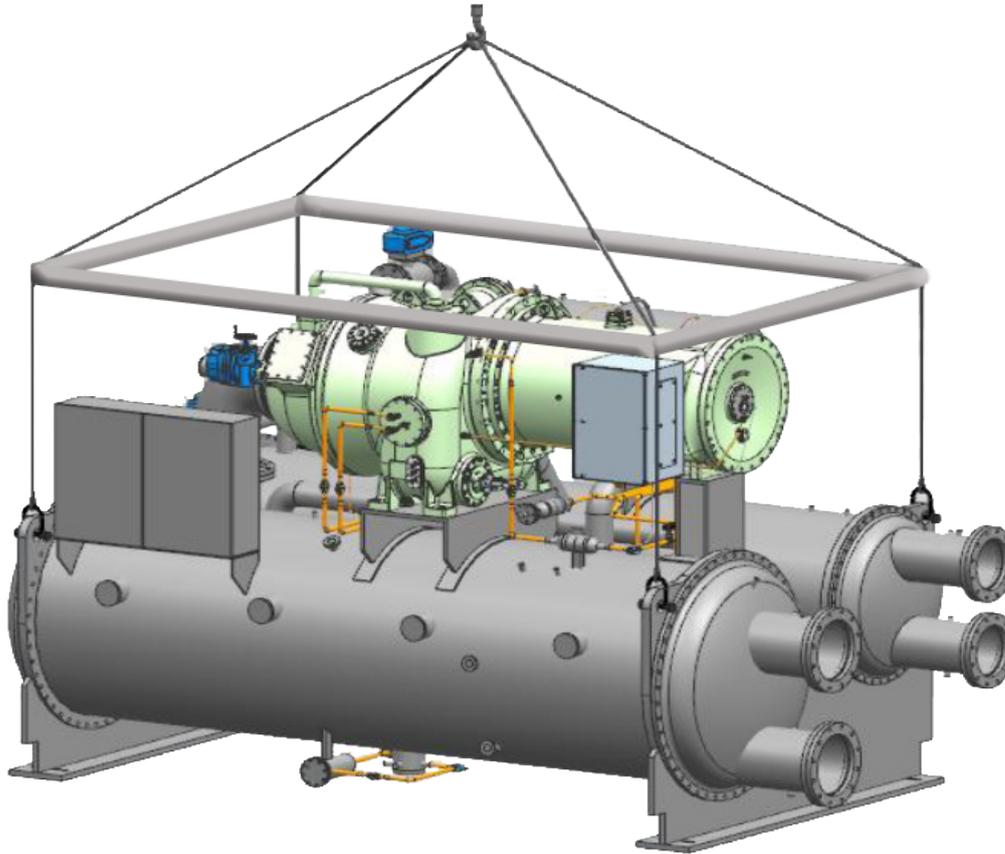
Cloud service (remote monitoring)

Central A/C cloud service system



Cloud service value:

- Remote control adjustment
- Remote monitoring
- Remote upgrade
- Fault warning
- Remote diagnosis
- Product distribution management
- Historical data analysis

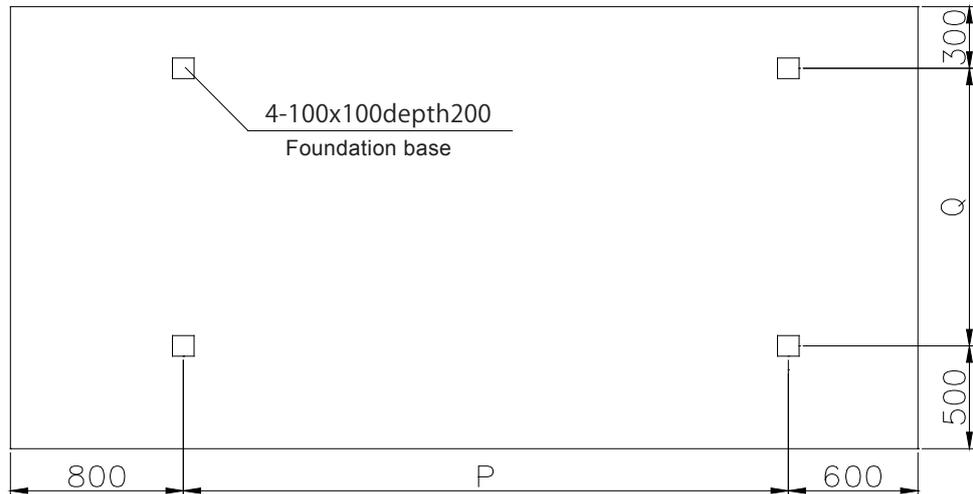
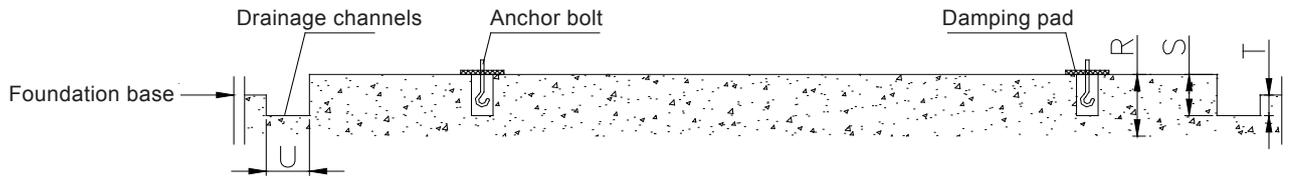


Model 50STD-	600W2	700W2	800W2	900W2	1000W2	1200W2	1300W2	1400W2	2000W2	2800W2
Total Weight (kg)	12000	13000	14000	15000	16000	18000	19000	20000	30000	38000

Model 50STD-	600H2	900H2	1200H2	1800H2
Total Weight (kg)	10100	12500	15500	23000

Installation Environment

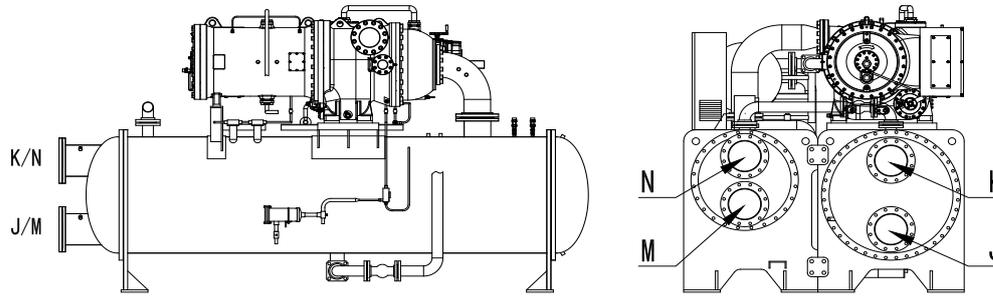
- 1.The unit should avoid access to sources of ignition and flammable materials. If it is installed together with a heating element such as a boiler, pay a great attention to the influence of heat radiation.
- 2.It is best to install in a well-ventilated room which temperature below 45°C and the relative humidity of the environment should be below 90%. Installed or stored outdoors in the open air are strictly prohibited.
- 3.Install in a place with less dust (dust is the cause of Electrical fault).
- 4.The installation site should be well lit for easy maintenance and inspection.
- 5.In order to meet the need to maintain, overhaul and clean the evaporator-condenser heat exchange tubes, a sufficient space around the unit are very necessary.
- 6.In order to facilitate the lifting and overhaul of the machine, a crane or a jib crane should be installed and make sure that the machine room is of sufficient height.
- 7.There should be a good drainage system around the unit and throughout the machine room.
- 8.Avoid direct sunlight.



Model	P	Q	R	S	T	U
50STD-600W2	3100	1800	400	200	100	200
50STD-700W2	3100	1800	400	200	100	200
50STD-800W2	3400	2000	400	200	100	200
50STD-900W2	3400	2000	400	200	100	200
50STD-1000W2	3400	2000	400	200	100	200
50STD-1200W2	3400	2300	400	200	100	200
50STD-1300W2	3400	2300	400	200	100	200
50STD-1400W2	3400	2300	400	200	100	200
50STD-2000W2	6800	2300	400	200	100	200
50STD-2800W2	6800	2300	400	200	100	200
50STD-600H2	3200	1800	400	200	100	200
50STD-900H2	3400	2000	400	200	100	200
50STD-1200H2	3400	2300	400	200	100	200
50STD-1800H2	6800	2300	400	200	100	200

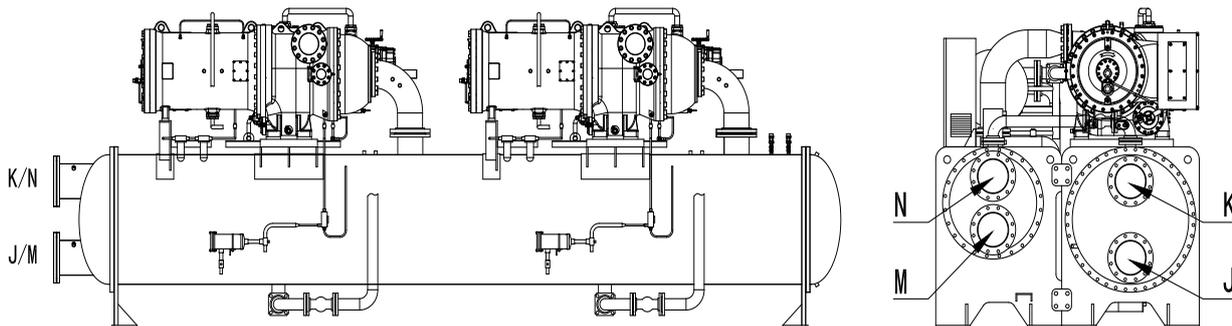
Unit:mm

Single Compressor chiller Connection Diagram



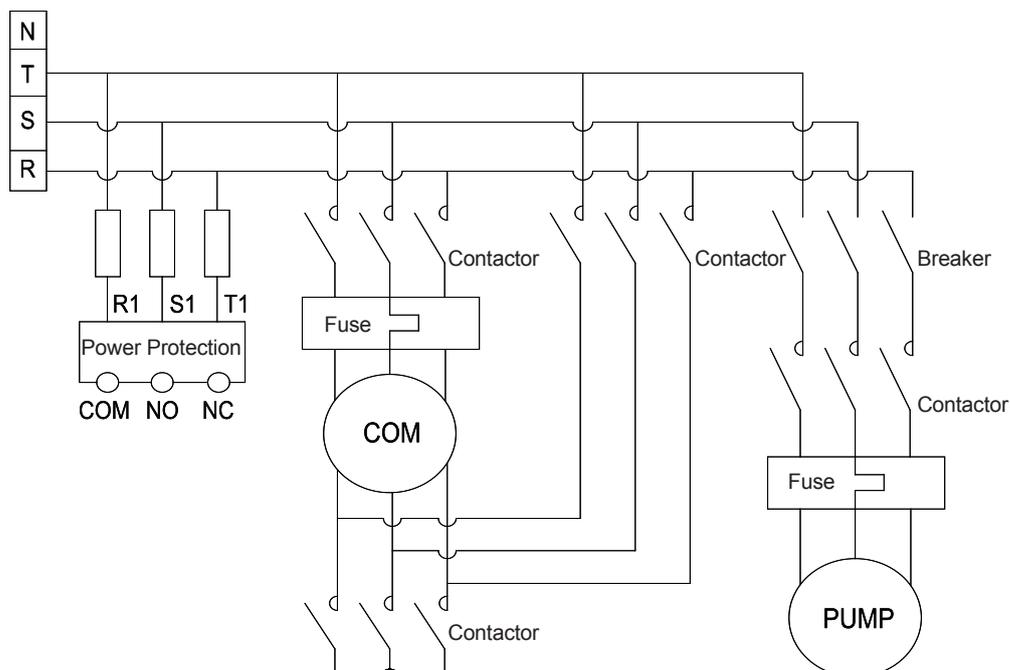
Code	J	K	M	N
Connection	Evaporator Water Inlet	Evaporator Water Outlet	Condenser Water Inlet	Condenser Water Outlet

Double Compressor Chiller Connection Diagram



Code	J	K	M	N
Connection	Evaporator Water Inlet	Evaporator Water Outlet	Condenser Water Inlet	Condenser Water Outlet

Wiring Diagram





H.Stars Group

H.Stars (Guangzhou) Refrigerating Equipment Group Ltd., established in 1992, in Economic & Technological Development Zone of Guangzhou, China, composed of 8 subsidiaries to provide one-stop solution to HVAC customers, specializing in R&D, production, design and installation. As the company grows, H.Stars group expands its business globally and has sold to 53 different countries. H.Stars Group is awarded with "New and High Technology Enterprise in Guangzhou" and has become the training base of many universities both in China and abroad via technology cooperation.

H.Stars Group supplies an extensive line of Commercial and Industrial Energy Saving HVAC products including: Air Cooled Chiller, Water Cooled Chiller, Industrial Chiller, Centrifugal Chiller, Magnetic oil free centrifugal chiller, Multi-function Chiller, Hot Water Unit, Heat Recovery Unit, Heat Pump Unit, Condensing Unit, Glycol Chiller, Shell and Tube Heat Exchanger, Air Handling Unit, Fan Coil Unit, Cooling Tower, etc. all type of HVAC products.

H.Stars Group has been dedicated in quality and innovation and is technically strong in commercial and industrial application as a HVAC manufacturer. Apart from obtaining plenty of energy-saving product patents, H.Stars Group has achieved CE certifications for Pressure Vessel and standard chillers, BR1, ASME, ISO9001:2000, ISO14001:2004 and other certifications.

A good reputation of H.Stars Group has been built and delivers a full HVAC service to customers worldwide. Our products are widely applied in industries for cooling of Laser generators, Welding electrodes, Cutting machines, Electric spark machines, Extrusion process, Hydraulic System, Electroplating, Ultrasonic Cleaning, Ion Plating film, Electronic facility, Electrical appliance components, Compressed Gas Dehumidification, Dairy and Beverage Cooling processing, Pharmaceutical and Biological products, Medical equipment, Glass Coating, Tempered Glass and Cultivation Sea Food.

H.Stars Group will continue to develop energy saving and environmental friendly equipment to create "The Efficiency Planet" as our obligation. By focusing on customers' needs and wants in order to contribute more our potentials, from now on, H.Stars Group will hand in hand with you to be a shining star in the foreseeable future.



H.Stars (Guangzhou) Refrigerating Equipment Group Ltd

Address: No.1 Guoyuan 4th Road, Guangzhou Economic & Technological Development Zone, HuangPu District, Guangzhou,China Zip Code 510530

Email: sales@hstars.com.cn

Tel: +862062266755 ext. 886

Fax: +862082266081

Website: www.hstarschiller.com

Facebook: www.facebook.com/Hstarsgroup

LinkedIn: www.linkedin.com/company/hstarsgroup

Twitter: twitter.com/HStarsGroup

Instagram: www.instagram.com/hstars_chiller_maker