

Air Source Screw Type Hot Water Unit / Heat Pump



H.Stars (Guangzhou) Refrigerating Equipment Group Ltd.



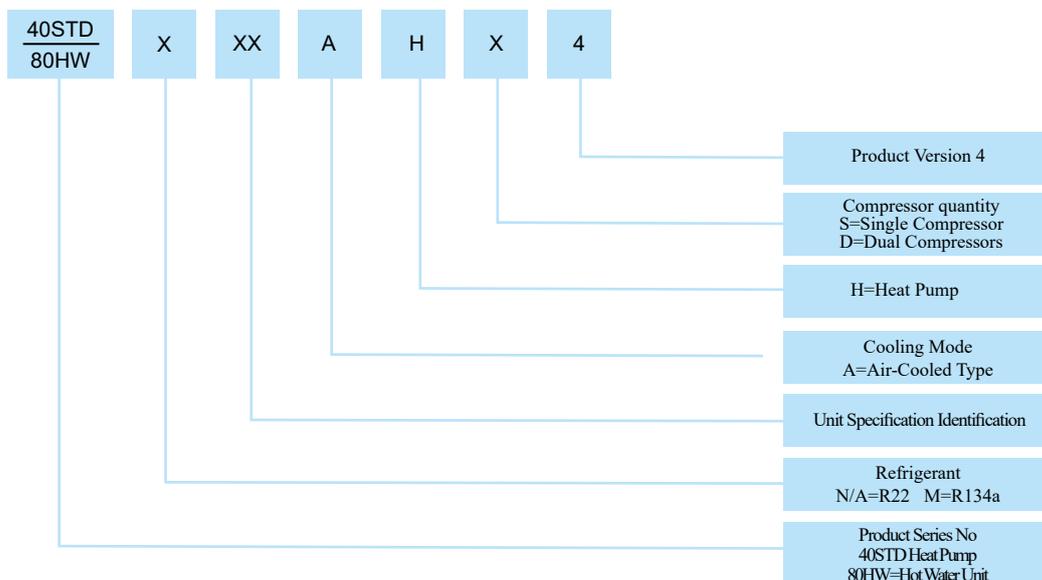
Hot Water Unit

Hot water unit is a device that transfers low-grade heat energy to high grade heat energy. It replaces the boiler and become a more energy-saving and environment-friendly hot water supply device , and it is also a new energy technology that attracts much attention all over the world. Low-grade heat energy is obtained from air or geothermal hot water, and with the electricity supply to transfer into high grade heat energy which can be supplied to end users with above 50°C of hot water. It is suitable for indoor swimming pools, hotels, villas, Sauna, factories and farms and all other places that need hot water. In the process of heating ,H.Stars patented technology of cold recovery unit is available to supply cold water for cooling required places.

Heat Pump Unit

H.Stars heat pump includes both cooling and heating function, cooling in summer and heating in winter or hot water in transition seasons, one unit has multi-functions. With more than 20 years experiences of manufacturing heat pump and hot water units, H.Stars Group has focused on R&D and successfully supplied various types of heat pump and hot water units to the society.

Model Nomenclature



Cooling Capacity/Heating Capacity Range

120kW-1000kW

Intelligent Control

Automatic microcomputer control, no need for manual monitoring. The chiller can be control/centralized monitor to save management costs. Available to connect to the user's central control system to monitor operation of the chiller at any time.

Reliable Operation

The chiller has been strictly tested and is suitable to be used in subtropical climate environment. It's equipped with multiple protection systems ,such as high and low voltage protection , overload protection, etc., to ensure the chiller operation safety.

Low-sound Level Design (For special use)

The chiller adopting low-sound fan and the compressor is equipped with a special protective cover. The whole unit is made into a box structure , which can further reduce the sound from the chiller and satisfy client's low sound level requirement.

Cold Recovery Unit

Optional cold recovery unit can be designed into the system according to project requirement. In the process of providing hot water, cold recovery unit will recover the cold water and supply to the users with zero cost.

Operating Ambient Temperature Range

Ambient Temperature Range(Cooling): 20°C ~ 43°C

Ambient Temperature Range(Heating): -10°C ~ 43°C

Outlet Water Temperature Adjustment Range

Hot water temperature adjustment range: 45°C~ 55°C

Chilled water temperature adjustment range: 5°C~ 20°C

Air conditioning hot water temperature adjustment range: 45°C ~ 50°C

Green to Environment

The operating principle of the chiller is a mechanical device that applies human technology to convert low-grade energy into high-grade energy to achieve cooling/heating effect. There is no harm to the environment, eco-friendly heat pump.

Intelligent Defrost

The chiller adopts four-way reversing valve to defrost. The microcomputer controllers automatically enable defrost function according to the setting conditions. Manual defrost also available for setting according to the actual situation.



Compressor

Adopting the world famous screw type compressor with high efficiency, stable performance, multistage energy regulation, accurate matching with chiller load change, low sound level, low vibration. Adopting specialized motor for hot water unit and heat pump systems.



Oil Separator

The secondary external oil separator is designed for screw compressor, adopting sealed steel structure oil return system, the internal is equipped with mechanical float valve. With reliable needle valve closing system to make the oil return system efficient and simple, which can easily control the refrigerant oil to return to the compressor in time and ensure the compressor oil level maintain at normal range.



Fin Type Heat Exchanger

Adopting fin type evaporator at air-side and the fin is made of hydrophilic corrugated aluminum material to strengthen the function of defrosting and drainage. V-shaped fin structure improves the heat transfer efficiency and reduces fan noise.



Fan

Adopting external rotor axial fan with compact structure, easy installation, reliable operation, low sound level, energy saving and high efficiency. The fan is with IP54 protection standard, fully meet all kinds of extreme outdoor conditions.



Shell and Tube Type Condenser

Shell and tube condenser is designed with simple structure, convenient maintenance and high heat exchange performance with single circuit, double circuits or even multi-circuits.

The subcooler is located at the bottom of the condenser,

effectively supercooling the liquid refrigerant and improving system efficiency. The exhaust gas is reflected by the tube sheet to prevent the gas from directly impacting the tube bundle at a high speed, and the flow rate of the refrigerant gas can be reasonably distributed to maximize the heat exchange efficiency.



Characteristics 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 cap User connection interface is reserved to provide cloud services.

Control Center

With plastic shell and installed standard mounting.

Integrated electronic expansion valve with module drive into one control system.

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

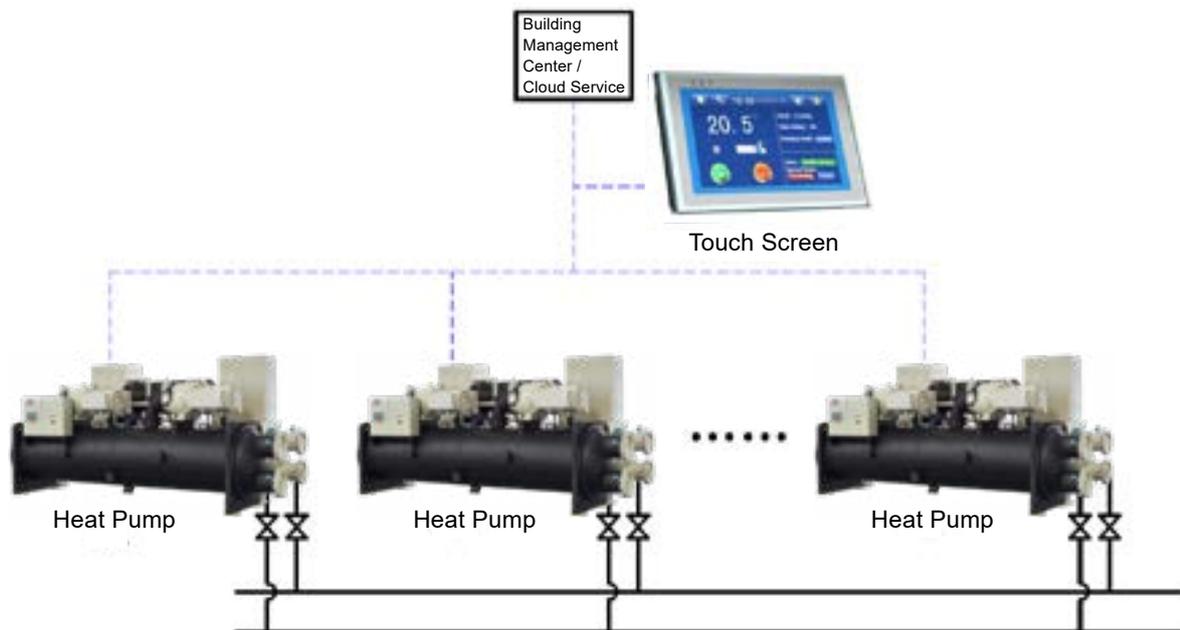
Mainboard can be networked, group control and single control free switching.

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



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.

HMI (Human Machine Interface)

Adopts 10 inch / 8 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 showing a lot of useful information and easy to operate. Designed with USB interface to upgrade the system.



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	Enable,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	Disable	Enable,Disable	
External circulation temperature of cooling	/	-30 ~ 100	
External circulation temperature of heating	/	-30 ~ 100	
* External circulation temperature difference controls	/	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	

Fault display

System fault				
Fault No.	Fault Name	Testing condition	Alarm action	Fault resolution
1	External alarm	Power-on detection	Shut down	Check the [External Alarm] switch signal
2	A/C pump overload	Power-on detection	Shut down	Check [A/C pump overload] switch signal
3	Insufficient AC Water flow	The pump is power on and the water flow is established	Shut down	Check the water flow switch signal
		"Please refer to "Water circuit Protection"		Please refer to "Water circuit Protection"
4	Water source pump overload	Power-on detection	Shut down	Check [water source pump overload] switch signal
5	Insufficient Water flow	The pump is power on and the water flow is established	Shut down	Check the water flow switch signal
		"Please refer to "Water circuit Protection"		Please refer to "Water circuit Protection"
6	System power failure	Power-on detection	Shut down	Check the [system power failure] switch signal
7	External circulation pump overload	Power-on detection	Shut down	Check the [outer circulation pump overload] switch signal
8	External circulation Insufficient water flow	The pump is power on and the water flow is established	Shut down	Check [external circulation water flow is insufficient] switch signal
9	Cooling tower fan overload	Power-on detection	Shut down	Check [cooling tower fan overload] switch signal
10	Hot water pump overload	Power-on detection	Shut down	Check the [hot water pump overload] switch signal
11	Insufficient hot water flow	The pump is power on and the water flow is established	Shut down	Check [hot water flow is insufficient] switch signal
16	The system water and return water temperature difference is too large	Unit operation test	Shut down	Check waterway Sensor
17	System evaporation return temperature fault	Power-on detection	Alarm during one fault, Unit shut down when both faults happened	Check the corresponding temperature Sensor
18	System evaporation outlet temperature failure	Power-on detection		
19	System condensation return temperature fault	Power-on detection	Alarm during one fault, Unit shut down when both faults happened	
20	System condensation outlet temperature failure	Power-on detection		
21	Environmental temperature probe failure	Power-on detection	Only Alarm	
22	External circulation temperature failure	Power-on detection	Only Alarm	
23	Temperature of A/C side is too low	Unit operation detection	Shut down	Detect whether the corresponding temperature is in the normal range
24	Temperature of A/C side is too high	Unit operation detection	Shut down	check the corresponding temperature Sensor
25	Water source side temperature is too low	Unit operation detection	Shut down	
26	Water source side temperature is too high	Unit operation detection	Shut down	
27	Heat recovery temperature sensor failure	Power-on detection	Alarm and shut down hot water pump	Check the corresponding temperature sensor
28	Waterway switching failure	Antifreeze detection	Stop anti-freeze	Check the waterway state after the compressor is running antifreeze operation
33	EEPROM data error	Power-on detection	Unit shut down	Initializing the parameters, then reconnect the power
34	n# unit communication failure	Power-on detection	Stop corresponding compressor	Test corresponding communication connection
35	1#EX board communication failure	Power-on detection	Stop corresponding compressor	Test corresponding communication connection
36	2#EX board communication failure	Power-on detection	Stop corresponding compressor	Test corresponding communication connection
37	3#EX board communication failure	Power-on detection	Stop corresponding compressor	Test corresponding communication connection
38	4#EX board communication failure	Power-on detection	Stop corresponding compressor	Test corresponding communication connection
39	S-EE board communication failure (RLAN)	Power-on detection		
40	S-EE board communication failure (FBUS)	Power-on detection		

Screw type air source hot water unit technical parameters

Refrigerant: R22 Power supply: 380V-3N-50Hz

Model	Nominal heating capacity		Compressor Input Power	Capacity control %	Refrigerant charge kg	Condenser				Evaporator/Fan		Running noise dB(A)	Shipping weight kg	Running weight kg	
	kW	USRT				Condenser Inlet outlet pipe diameter in	Cooling Water flowm ³ /h	Water Side Max. Pressure Mpa	Water pressure drop KPa	Quantity	Air volume m ³ /h				Power kW
80HW-330S4	344	98	65	10 50 100	57	3"	59	1	53	6	93000	7.2	75	1850	1990
80HW-420S4	440	125	83		62	3"	76	1	52	6	120600	12	75	1930	2085
80HW-480S4	509	145	91	0 50 75 100	68	4"	88	1	50	8	115200	9.6	75	2010	2180
80HW-580S4	609	173	115		85	4"	105	1	50	8	160800	16	75	2440	2780
80HW-720D4	753	214	140		120	5"	130	1	52	12	172800	14.4	75	3410	3700
80HW-840D4	880	250	165		124	3"*2	151	1	52	12	241200	24	75	3840	4160
80HW-960D4	1018	289	183		136	4"*2	175	1	50	16	230400	19.2	75	4010	4330
80HW-1050D4	1104	314	210		153	4"*2	190	1	50	16	321600	32	75	4460	4920
80HW-1160D4	1217	346	230		170	4"*2	209	1	51	16	321600	32	75	4860	5510

Note:

- Nominal working conditions: Air DB/WB temperature 20°C/15°C, hot water inlet and outlet water temperature 50°C/ 55°C; fouling factor 0.088 m² .°C/ KW;
- Ambient temperature range: -10°C~ 43°C, if the ambient temperature is lower than -10°C, please contact the H.Stars Group;
- Specifications and dimensions will be subject to improvement without notice.

Screw type air source heat pump technical parameters

Refrigerant: R22 Power supply: 380V-3N-50Hz

Model	Nominal heating capacity		Compressor Input Power kW	Nominal heating capacity		Compressor Input Power kW	Capacity control %	Refrigerant charge kg	Evaporator				Evaporator/Fan		Running noise dB(A)	Shipping weight kg	Running weight kg	
	kW	USRT		kW	USRT				condenser Inlet outlet pipe diameter in	Cooling Water flow m ³ /h	Water Side Max. Pressure Mpa	Water pressure dropKPa	Quantity	Air volumem ³ /h				Power kW
40STE-110AHS4	113	32	37	110	32	37	0.66	30	2-1/2"	20	1	28	4	57600	4.8	68	1550	1660
40STE-160AHS4	160	45	52	156	44	51	0 50 75 100	42	3"	28	1	33	4	80400	8	68	1960	2140
40STE-210AHS4	214	61	67	209	59	66		56	3"	37	1	48	6	86400	7.2	68	2940	3160
40STE-240AHS4	252	72	76	246	70	74		68	3"	43	1	55	6	120600	12	68	3120	3340
40STE-280AHS4	297	84	88	289	82	86		78	4"	51	1	61	8	160800	16	72	3300	3550
40STE-310AHS4	319	91	95	311	89	93		84	4"	55	1	64	8	160800	16	72	3480	3730
40STE-340AHS4	347	99	105	339	96	103		93	4"	60	1	66	8	160800	16	72	3660	3980
40STE-380AHD4	397	113	123	387	110	120		104	4"	68	1	42	12	172800	14.4	72	5620	6040
40STE-420AHD4	427	122	134	417	119	132		112	4"	74	1	54	12	172800	14.4	72	5800	6280
40STE-480AHD4	504	143	152	491	140	148	136	4"	87	1	44	12	241200	24	72	6240	6680	
40STE-520AHD4	532	151	161	518	149	157	142	4"	92	1	52	12	321600	24	72	6430	6850	
40STE-560AHD4	593	169	176	578	164	172	156	5"	102	1	54	16	321600	32	75	6600	7100	
40STE-620AHD4	639	182	191	622	177	187	168	5"	110	1	55	16	321600	32	75	6960	7460	
40STE-680AHD4	694	198	210	677	193	206	186	5"	119	1	65	16	321600	32	75	7320	7960	

Note:

- Nominal cooling conditions: Air DB/WB temperature 35°C/24°C, chilled water inlet and outlet water temperature 12°C/7°C; fouling factor 0.088 m² .°C/ KW;
- Nominal heating conditions: Air DB/WB temperature 7°C/6°C, hot water inlet and outlet water temperature 40°C/45°C;
- Chilled water temperature range: 5-20°C;
- Hot water temperature range: 45-50°C;
- Ambient temperature range in cooling condition: 20~43°C; Ambient temperature in heating conditionrange: -10~43°C;
- Specifications and dimensions will be subject to improvement without notice.

Screw Type Air Source Heat Pump / 50Hz

H.Stars Air Source Screw Type Hot Water Unit / Heat Pump

Screw Type Air Source Hot Water Unit

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

Model	Nominal heating capacity		Compressor Input Power kW	Capacity control %	Refrigerant charge kg	Condenser				Evaporator/Fan			Running noise dB(A)	Shipping weight kg	Running weight kg
	kW	USRT				Condenser Inlet outlet pipe diameter in	Cooling Water flowm ³ /h	Water Side Max. Pressure Mpa	Water pressure drop KPa	Quantity	Air volume m ³ /h	Power kW			
80HW-M330S4	202	58	53	0	57	3"	35	1	53	4	80400	8	75	1500	1750
80HW-M420S4	244	69	62	50	62	3"	42	1	52	4	80400	8	75	1850	2050
80HW-M480S4	282	80	71	100	68	4"	49	1	50	6	86400	7.2	75	2010	2180
80HW-M580S4	341	97	86		85	4"	59	1	50	6	120600	12	75	2440	2780
80HW-M720D4	416	118	108	0	120	5"	72	1	52	8	160800	16	75	3410	3700
80HW-M840D4	488	139	123	50	124	3"*2	84	1	52	8	160800	16	75	3840	4160
80HW-M960D4	564	160	142	75	136	4"*2	97	1	50	12	172800	14.4	75	4010	4330
80HW-M1050D4	621	177	153	100	153	4"*2	107	1	50	12	172800	14.4	75	4460	4920
80HW-M1160D4	832	237	216		170	4"*2	143	1	51	12	241200	24	75	4860	5510

Note:

- Nominal working conditions: Air DB/WB temperature 20°C /15°C, hot water inlet and outlet water temperature 50°C/ 55°C; fouling factor 0.088m².°C / KW;
- Ambient temperature range: -10°C~ 43°C, if the ambient temperature is lower than -10°C, please contact the H.Stars Group;
- Specifications and dimensions will be subject to improvement without notice.

Screw Type Air Heat Pump

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

Model	Nominal heating capacity		Compressor Input Power kW	Nominal heating capacity		Compressor Input Power kW	Capacity control %	Refrigerant charge kg	Evaporator				Evaporator/Fan			Running noise dB(A)	Shipping weight kg	Running weight kg
	kW	USRT		kW	USRT				Condenser Inlet outlet pipe diameter in	Cooling Water flow m ³ /h	Water Side Max. Pressure Mpa	Water pressure drop KPa	Quantity	Air volume m ³ /h	Power kW			
40STE-M110AHS4	75	21	23	78	22	22	0	30	2-1/2"	13	1	28	2	40200	4	68	1550	1660
40STE-M160AHS4	107	30	32	111	32	31	50	42	3"	18	1	33	2	57600	4.8	68	1960	2140
40STE-M210AHS4	143	41	43	147	42	41	75	56	3"	25	1	48	4	80400	8	68	2940	3160
40STE-M240AHS4	169	48	49	173	49	47	100	68	3"	29	1	55	4	80400	8	68	3120	3340
40STE-M280AHS4	195	56	56	199	57	54		78	4"	34	1	61	6	86400	7.2	72	3300	3550
40STE-M310AHS4	217	62	60	220	62	59		84	4"	37	1	64	6	120600	12	72	3480	3730
40STE-M340AHS4	236	67	68	241	69	66		93	4"	41	1	66	6	120600	12	72	3660	3980
40STE-M380AHD4	277	79	83	286	81	80	0	104	4"	48	1	42	8	160800	16	72	5620	6040
40STE-M420AHD4	285	81	85	295	84	82	25	112	4"	49	1	54	8	160800	16	72	5800	6280
40STE-M480AHD4	337	96	97	345	98	94	37.5	136	4"	58	1	44	8	160800	16	72	6240	6680
40STE-M520AHD4	358	102	104	367	104	101	50	142	4"	62	1	52	12	172800	14.4	72	6430	6850
40STE-M560AHD4	390	111	112	399	113	109	62.5	156	5"	67	1	54	12	172800	14.4	75	6600	7100
40STE-M620AHD4	433	123	121	439	125	117	75	168	5"	75	1	55	12	241200	24	75	6960	7460
40STE-M680AHD4	472	134	135	482	137	131	87.5	186	5"	81	1	65	12	241200	24	75	7320	7960

Note:

- Nominal cooling conditions: Air DB/WB temperature 35°C/24°C, chilled water inlet and outlet water temperature 12°C/7°C; fouling factor 0.088m².°C / KW;
- Nominal heating conditions: Air DB/WB temperature 7°C/6°C hot water inlet and outlet water temperature 40°C/45°C;
- Chilled water temperature range: 5°C -20°C;
- Hot water temperature range: 45°C -50°C;
- Ambient temperature range in cooling condition: 20 °C ~ 43°C; Ambient temperature in heating conditionrange: -10 °C ~ 43°C;
- Specifications and dimensions will be subject to improvement without notice.

Screw type air source hot water unit technical parameters

Refrigerant: R22 Power supply: 460V-3N-60Hz

Model	Nominal heating capacity		Compressor Input Power	Capacity control %	Refrigerant charge kg	Condenser				Evaporator/Fan		Running noise dB(A)	Shipping weight kg	Running weight kg	
	kW	USRT				Condenser Inlet outlet pipe diameter in	Cooling Water flow m ³ /h	Water Side Max. Pressure Mpa	Water pressure drop KPa	Quantity	Air volume m ³ /h				Power kW
80HW-330S4	340	97	89	10 50 100	57	3"	58	1	53	6	111600	9	75	2035	2189
80HW-420S4	429	122	111		62	3"	74	1	52	6	144720	14	75	2123	2294
80HW-480S4	503	143	128		68	4"	86	1	50	8	138240	12	75	2211	2398
80HW-580S4	592	168	153	0 50 75 100	85	4"	102	1	50	8	192960	19	75	2684	3058
80HW-720D4	734	209	195		120	5"	126	1	52	12	207360	17	75	3751	4070
80HW-840D4	858	244	221		124	3"*2	147	1	52	12	289440	29	75	4224	4576
80HW-960D4	1005	286	256		136	4"*2	173	1	50	16	276480	23	75	4411	4763
80HW-1050D4	1085	308	278		153	4"*2	187	1	50	16	385920	38	75	4906	5412
80HW-1160D4	1183	336	306		170	4"*2	203	1	51	16	385920	38	75	5346	6061

Note:

- Nominal working conditions: Air DB/WB temperature 20°C/15°C, hot water inlet and outlet water temperature 50°C/ 55°C; fouling factor 0.088 m² .°C/ KW;
- Ambient temperature range: -10°C~ 43°C, if the ambient temperature is lower than -10°C, please contact the H.Stars Group;
- Specifications and dimensions will be subject to improvement without notice.

Screw type air source heat pump technical parameters

Refrigerant: R22 Power supply: 460V-3N-60Hz

Model	Nominal heating capacity		Compressor Input Power kW	Nominal heating capacity		Compressor Input Power kW	Capacity control %	Refrigerant charge kg	Evaporator				Evaporator/Fan		Running noise dB(A)	Shipping weight kg	Running weight kg	
	kW	USRT		kW	USRT				condenser Inlet outlet pipe diameter in	Cooling Water flow m ³ /h	Water Side Max. Pressure Mpa	Water pressure drop KPa	Quantity	Air volume m ³ /h				Power kW
40STE-110AHS4	113	32	37	110	32	37	0.66	30	2-1/2"	20	1	28	4	57600	4.8	68	1550	1660
40STE-160AHS4	160	45	52	156	44	51	0 50 75 100	42	3"	28	1	33	4	80400	8	68	1960	2140
40STE-210AHS4	214	61	67	209	59	66		56	3"	37	1	48	6	86400	7.2	68	2940	3160
40STE-240AHS4	252	72	76	246	70	74		68	3"	43	1	55	6	120600	12	68	3120	3340
40STE-280AHS4	297	84	88	289	82	86		78	4"	51	1	61	8	160800	16	72	3300	3550
40STE-310AHS4	319	91	95	311	89	93		84	4"	55	1	64	8	160800	16	72	3480	3730
40STE-340AHS4	347	99	105	339	96	103		93	4"	60	1	66	8	160800	16	72	3660	3980
40STE-380AHD4	397	113	123	387	110	120		104	4"	68	1	42	12	172800	14.4	72	5620	6040
40STE-420AHD4	427	122	134	417	119	132	0 25 37.5 50 62.5 75 87.5 100	112	4"	74	1	54	12	172800	14.4	72	5800	6280
40STE-480AHD4	504	143	152	491	140	148		136	4"	87	1	44	12	241200	24	72	6240	6680
40STE-520AHD4	532	151	161	518	149	157		142	4"	92	1	52	12	321600	24	72	6430	6850
40STE-560AHD4	593	169	176	578	164	172		156	5"	102	1	54	16	321600	32	75	6600	7100
40STE-620AHD4	639	182	191	622	177	187		168	5"	110	1	55	16	321600	32	75	6960	7460
40STE-680AHD4	694	198	210	677	193	206		186	5"	119	1	65	16	321600	32	75	7320	7960

Note:

- Nominal cooling conditions: Air DB/WB temperature 35°C/24°C, chilled water inlet and outlet water temperature 12°C/7°C; fouling factor 0.088 m² .°C/ KW;
- Nominal heating conditions: Air DB/WB temperature 7°C/6°C, hot water inlet and outlet water temperature 40°C/45°C;
- Chilled water temperature range: 5-20°C;
- Hot water temperature range: 45-50°C;
- Ambient temperature range in cooling condition: 20 ~ 43°C; Ambient temperature in heating condition range: -10 ~ 43°C;
- Specifications and dimensions will be subject to improvement without notice.

Screw Type Air Source Heat Pump / 60Hz

H.Stars Air Source Screw Type Hot Water Unit / Heat Pump

Screw Type Air Source Hot Water Unit

Refrigerant: R134a Power supply: 460V-3N-60Hz

Model	Nominal heating capacity		Compressor Input Power kW	Capacity control %	Refrigerant charge kg	Condenser				Evaporator/Fan			Running noise dB(A)	Shipping weight kg	Running weight kg
	kW	USRT				Condenser Inlet outlet pipe diameter in	Cooling Water flowm ³ /h	Water Side Max. Pressure Mpa	Water pressure drop KPa	Quantity	Air volume m ³ /h	Power kW			
80HW-M330S4	243	69	63	10	57	3"	42	1	53	4	96480	10	75	1650	1925
80HW-M420S4	293	83	74	50	62	3"	50	1	52	4	96480	10	75	2035	2255
80HW-M480S4	338	96	85	100	68	4"	58	1	50	6	103680	9	75	2211	2398
80HW-M580S4	409	116	103	0	85	4"	70	1	50	6	144720	14	75	2684	3058
80HW-M720D4	499	142	129	50	120	5"	86	1	52	8	192960	19	75	3751	4070
80HW-M840D4	586	167	148	75	124	3"*2	101	1	52	8	192960	19	75	4224	4576
80HW-M960D4	676	192	170	100	136	4"*2	116	1	50	12	207360	17	75	4411	4763
80HW-M1050D4	746	212	184		153	4"*2	128	1	50	12	207360	17	75	4906	5412
80HW-M1160D4	818	232	205		170	4"*2	141	1	51	12	289440	29	75	5346	6061

Note:

- Nominal working conditions: Air DB/WB temperature 20°C /15°C, hot water inlet and outlet water temperature 50°C/ 55°C; fouling factor 0.088m².°C / KW;
- Ambient temperature range: -10°C~ 43°C, if the ambient temperature is lower than -10°C, please contact the H.Stars Group;
- Specifications and dimensions will be subject to improvement without notice.

Screw Type Air Heat Pump

Refrigerant: R134a Power supply: 460V-3N-60Hz

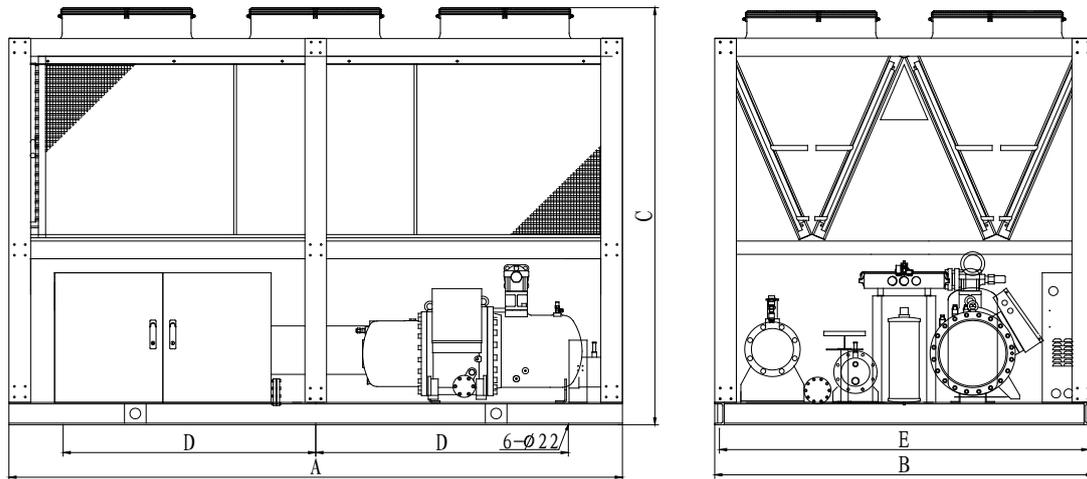
Model	Nominal heating capacity		Compressor Input Power kW	Nominal heating capacity		Compressor Input Power kW	Capacity control %	Refrigerant charge kg	Evaporator				Evaporator/Fan			Running noise dB(A)	Shipping weight kg	Running weight kg
	kW	USRT		kW	USRT				Condenser Inlet outlet pipe diameter in	Cooling Water flow m ³ /h	Water Side Max. Pressure Mpa	Water pressure drop KPa	Quantity	Air volume m ³ /h	Power kW			
40STE-M110AHS4	75	21	23	78	22	22	0.66	30	2-1/2"	13	1	28	2	40200	4	68	1550	1660
40STE-M160AHS4	107	30	32	111	32	31	0	42	3"	18	1	33	2	57600	4.8	68	1960	2140
40STE-M210AHS4	143	41	43	147	42	41	50	56	3"	25	1	48	4	80400	8	68	2940	3160
40STE-M240AHS4	169	48	49	173	49	47	75	68	3"	29	1	55	4	80400	8	68	3120	3340
40STE-M280AHS4	195	56	56	199	57	54	100	78	4"	34	1	61	6	86400	7.2	72	3300	3550
40STE-M310AHS4	217	62	60	220	62	59		84	4"	37	1	64	6	120600	12	72	3480	3730
40STE-M340AHS4	236	67	68	241	69	66	0	93	4"	41	1	66	6	120600	12	72	3660	3980
40STE-M380AHD4	277	79	83	286	81	80	25	104	4"	48	1	42	8	160800	16	72	5620	6040
40STE-M420AHD4	285	81	85	295	84	82	37.5	112	4"	49	1	54	8	160800	16	72	5800	6280
40STE-M480AHD4	337	96	97	345	98	94	50	136	4"	58	1	44	8	160800	16	72	6240	6680
40STE-M520AHD4	358	102	104	367	104	101	62.5	142	4"	62	1	52	12	172800	14.4	72	6430	6850
40STE-M560AHD4	390	111	112	399	113	109	75	156	5"	67	1	54	12	172800	14.4	75	6600	7100
40STE-M620AHD4	433	123	121	439	125	117	87.5	168	5"	75	1	55	12	241200	24	75	6960	7460
40STE-M680AHD4	472	134	135	482	137	131	100	186	5"	81	1	65	12	241200	24	75	7320	7960

Note:

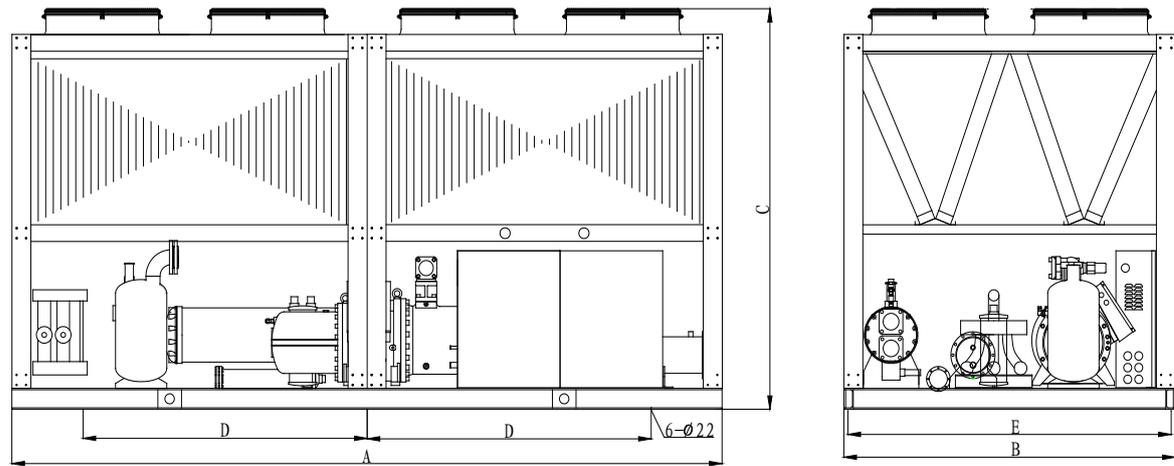
- Nominal cooling conditions: Air DB/WB temperature 35°C/24°C, chilled water inlet and outlet water temperature 12°C/7°C; fouling factor 0.088m².°C / KW;
- Nominal heating conditions: Air DB/WB temperature 7°C/6°C hot water inlet and outlet water temperature 40°C/45°C;
- Chilled water temperature range: 5°C -20°C;
- Hot water temperature range: 45°C -50°C;
- Ambient temperature range in cooling condition: 20 °C ~ 43°C; Ambient temperature in heating condition range: -10 °C ~ 43°C;
- Specifications and dimensions will be subject to improvement without notice.

Standard Unit Dimensions (mm)

H.Stars Air Source Screw Type Hot Water Unit / Heat Pump



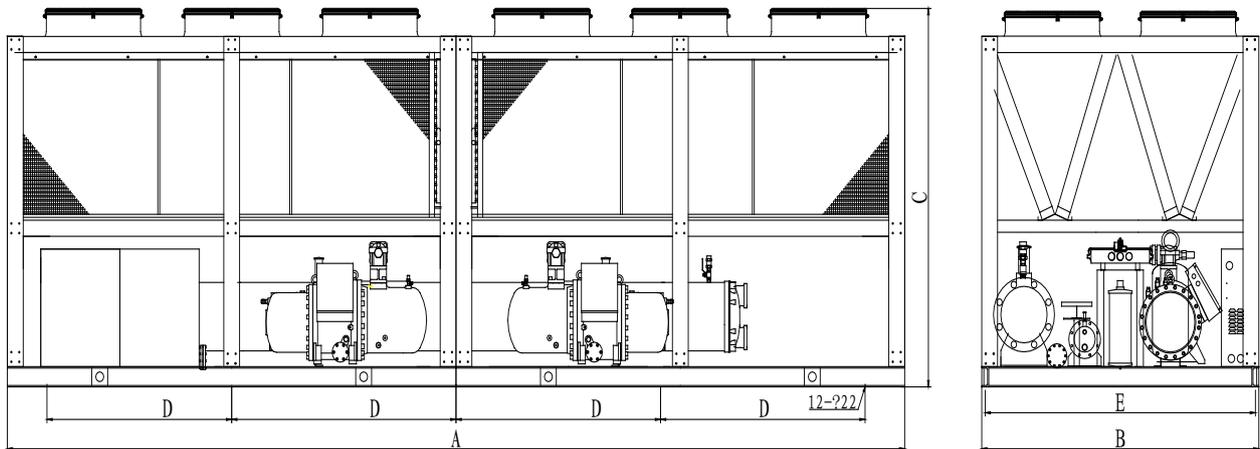
Model	A	B	C	D	E
40STE-110AHS4	2250	2100	2400	1800	2050
40STE-160AHS4	2250	2100	2400	1800	2050
40STE-210AHS4/80HW-330S4	3400	2100	2400	1400	2050
40STE-240AHS4/80HW-420S4	3400	2100	2400	1400	2050



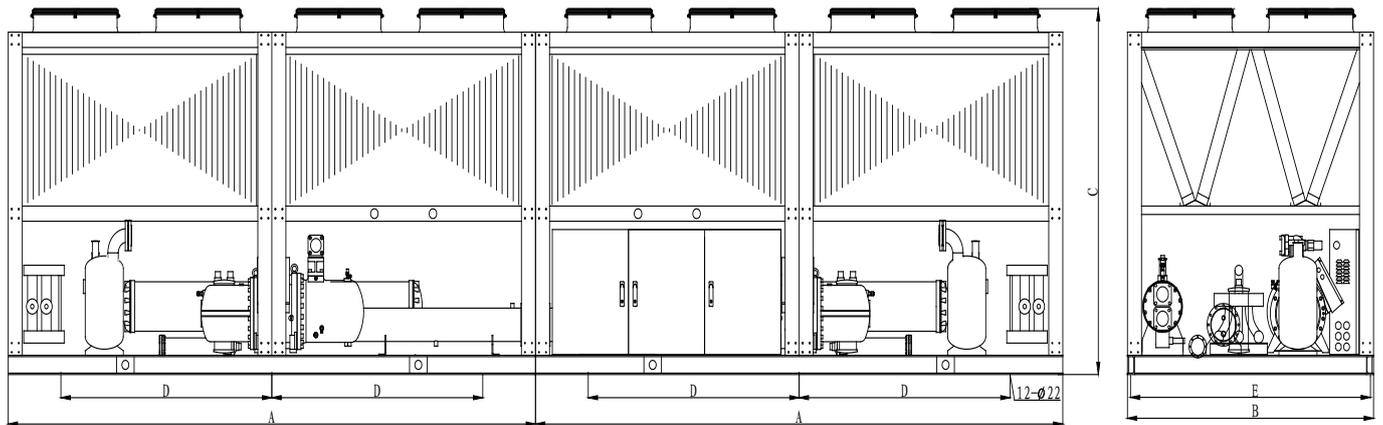
Model	A	B	C	D	E
40STE-280AHS4	4500	2100	2400	1800	2050
40STE-310AHS4/80HW-480S4	4500	2100	2400	1800	2050
40STE-340AHS4/80HW-580S4	4500	2100	2400	1800	2050

Standard Unit Dimensions (Continued) (mm)

H.Stars Air Source Screw Type Hot Water Unit / Heat Pump



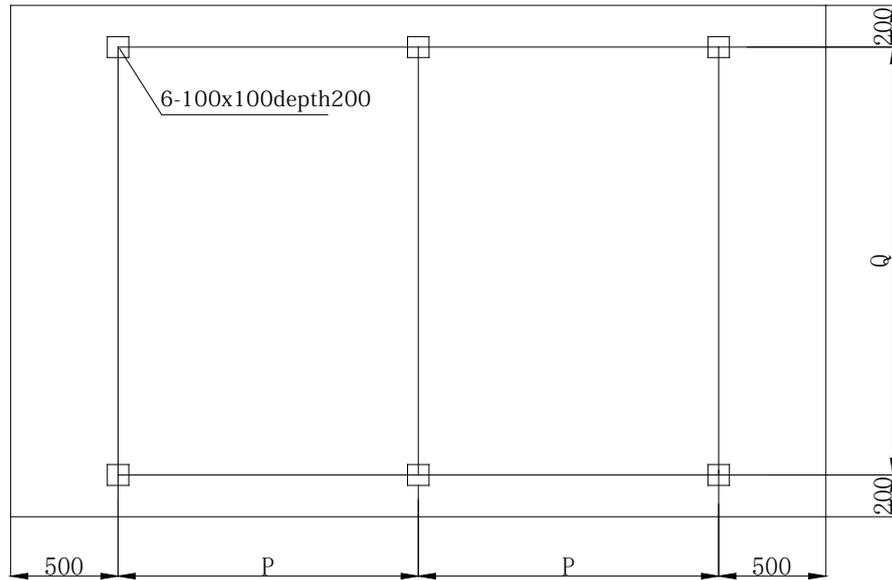
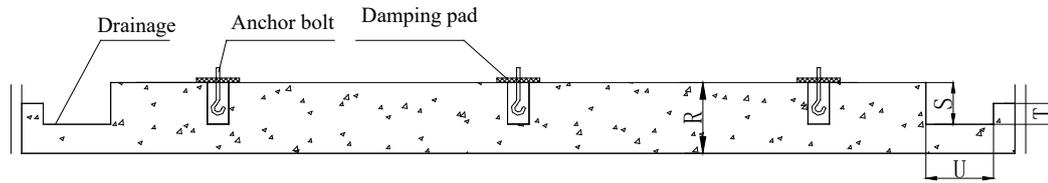
Model	A	B	C	D	E
40STE-380AHD4/80HW-660D4	6800	2100	2400	1550	2050
40STE-420AHD4/80HW-840D4	6800	2100	2400	1550	2050
40STE-480AHD4	6800	2100	2400	1550	2050



Model	A	B	C	D	E
40STE-520AHD4/80HW-960D4	4500	2100	2400	1800	2050
40STE-560AHD4/80HW-1050D4	4500	2100	2400	1800	2050
40STE-680AHD4/80HW-1160D4	4500	2100	2400	1800	2050

Foundation Base Diagram (mm)

H.Stars Air Source Screw Type Hot Water Unit / Heat Pump



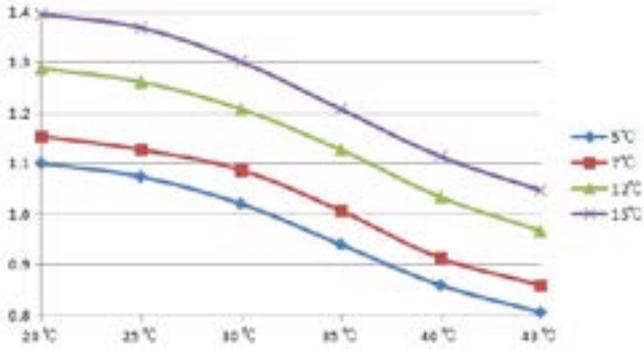
Model	P	Q	R	S	T	U
40STE-110AHS4	1800	2050	300	200	100	200
40STE-160AHS4	1800	2050	300	200	100	200
40STE-210AHS4/80HW-330S4	1400	2050	300	200	100	200
40STE-240AHS4/80HW-420S4	1400	2050	300	200	100	200
40STE-280AHS4	1800	2050	300	200	100	200
40STE-310AHS4/80HW-480S4	1800	2050	300	200	100	200
40STE-340AHS4/80HW-580S4	1800	2050	300	200	100	200
40STE-380AHD4	1550	2050	300	200	100	200
40STE-420AHD4/80HW-660D4	1550	2050	300	200	100	200
40STE-480AHD4/80HW-840D4	1550	2050	300	200	100	200
40STE-520AHD4/80HW-960D4	1800	2050	300	200	100	200
40STE-560AHD4/80HW-1050D4	1800	2050	300	200	100	200
40STE-680AHD4/80HW-1160D4	1800	2050	300	200	100	200

Variable Working Condition Curve

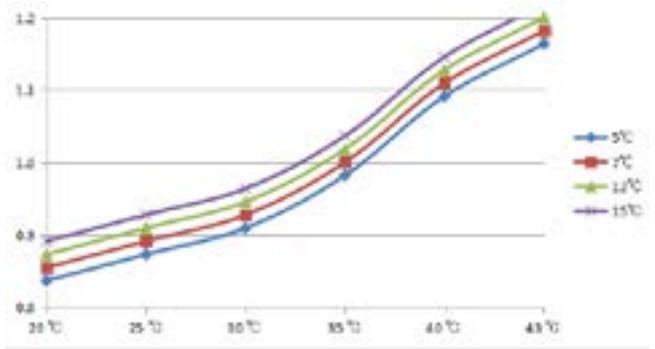
H.Stars Air Source Screw Type Hot Water Unit / Heat Pump

Cooling Capacity Curve

Cooling Capacity Variable Curve

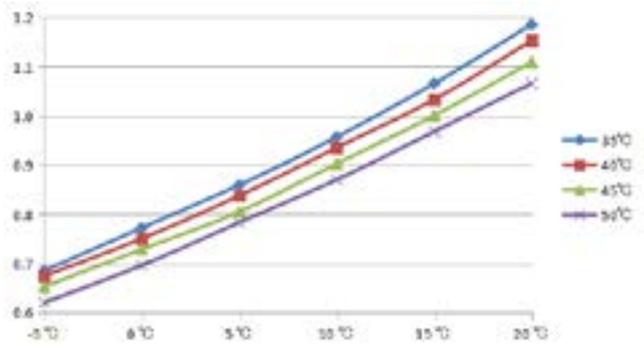


Power Variable Curve

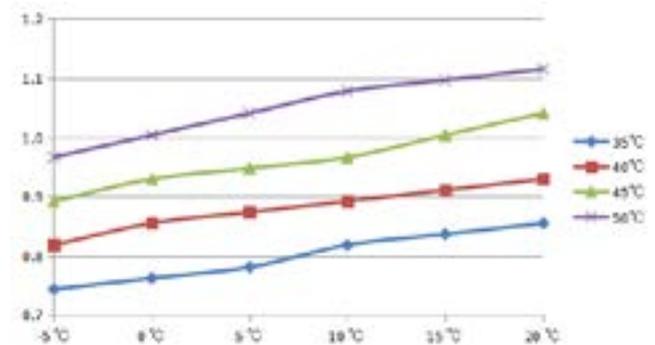


Heating Capacity Curve

Heating Capacity Variable Curve



Power Variable Curve



VFD Heat Pump

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

Energy Efficient

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

Stable and Reliable

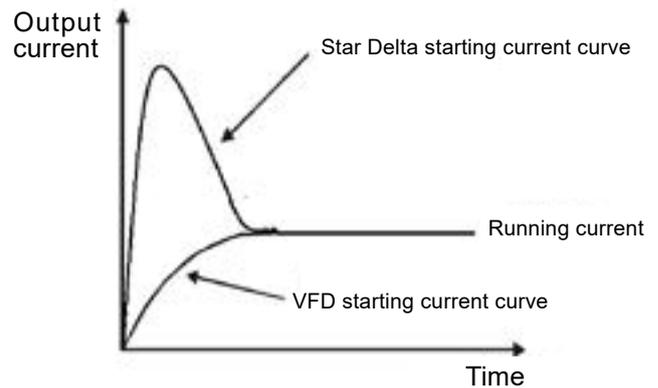
The VFD heat pump unit adopts the motor speed controller to control the output load to achieve true stepless control to improve compressor reliability. Independent cooling VFD fan tunnel, it runs at low temperature, and operates stable.

Small starting current

VFD water chillers include soft starting to reduce 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.

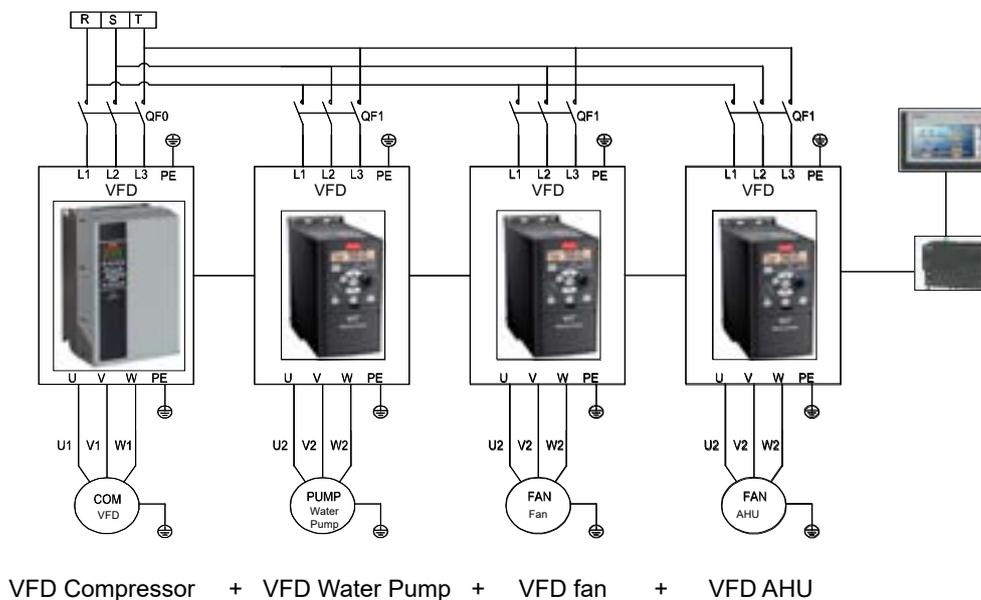


Comparison starting current curve between VFD and Star Delta

Precise temperature control

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

VFD diagram



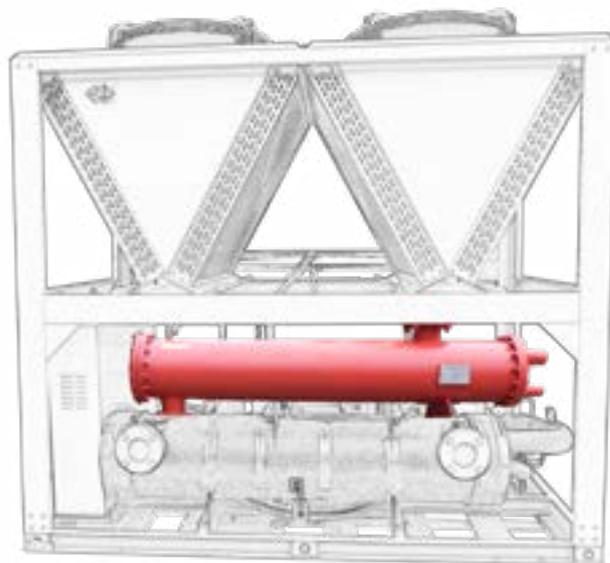
Heat Recovery Technology

Features

While the chiller is operating, it will continuously release heat through the condenser (water source or air source) to generate waste heat pollution, meanwhile , if the chiller designed with a H.Stars heat recovery unit to recycle this part of waste heat to produce free hot water .

Energy saving and green to environmental ,the unit uses waste heat from the compressor to produce hot water which not consume energy at all.

Energy and cost saving, the hot water temperature up to 70°C, besides, it also increases the operating efficiency of the unit by 5% and save the operating cost.



China Machinery Industry Science and Technology Award

H.Stars Group is the first manufacturer to develop the heat recovery technology with Patent No.: ZL03223588.7, and has obtained China machinery industry science and technology award Second Prize.



China machinery industry science and technology award

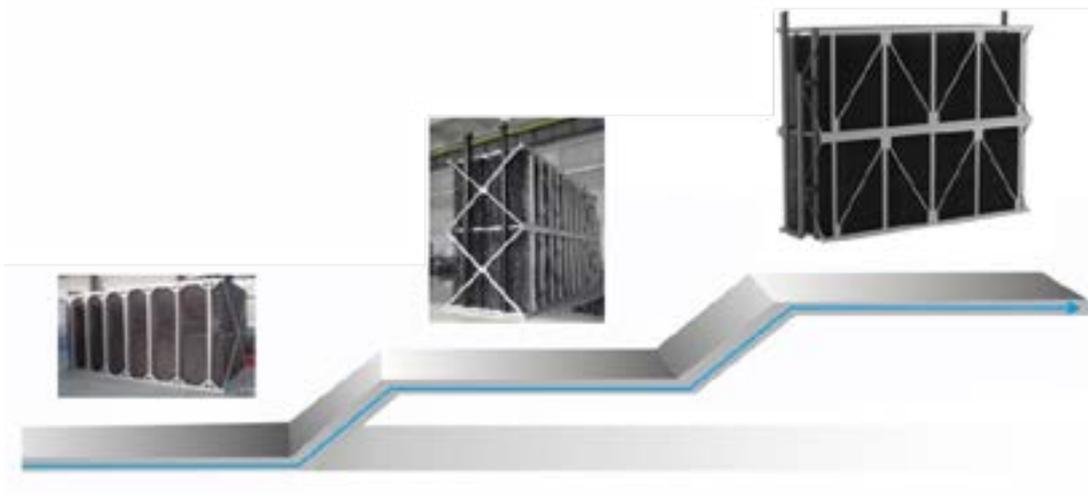
Heat Recovery Chart

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)
40STE-110AHSB4	UHR010A	40	UHR030A	110
40STE-160AHSB4	UHR012A	60	UHR042A	160
40STE-210AHSB4	UHR017A	80	UHR058A	220
40STE-240AHSB4	UHR020A	100	UHR070A	260
40STE-280AHSB4	UHR023A	110	UHR078A	265
40STE-310AHSB4	UHR024A	120	UHR090A	330
40STE-340AHSB4	UHR026A	130	UHR092A	360
40STE-380AHDB4	UHR030B	140	UHR105B	390
40STE-420AHDB4	UHR034B	160	UHR114B	420
40STE-480AHDB4	UHR040B	180	UHR130B	500
40STE-520AHDB4	UHR042B	200	UHR130B	534
40STE-560AHDB4	UHR046B	230	UHR160B	620
40STE-620AHDB4	UHR048B	250	UHR180B	670
40STE-680AHDB4	UHR052B	270	UHR184B	730

Cloud service (remote monitoring)

Features

1. Centralized real-time remote monitoring unit.
2. Convenient for manufacturer to remote analyze the operation and fault conditions of the unit.
3. Unit notified timely with warning and alarm information.
4. Convenient to check history data.
5. Unattended machine room.



The system mainly adopts the cloud service and cloud analysis method to remote monitor the unit . The central service platform collects the fault information of the unit in time, so that the engineer can analyze the

fault immediately and accurately. Collect unit operating status to analysis and prediction of possible failures.

Optional Parts

Protective grid

To better protect the fins, a protective grid can be added.

Snow blocker

Mainly used in the country with snow, effectively preventing the effect of snow to protect various components of the unit.

Air circuit breaker

Provide addition protection, failure protection, auto-reclosing, charge protection, dead zone protection, inconsistent three-phase protection, and instantaneous follow-up jump.

Protective panels

Mainly to increase the protection of the unit parts such as compressor to prevent other items from entering.

Pump unit

Water pump can be installed on the unit to become a customized design all-in-one unit, which include the electric control part of the pump. The original unit electric cabinet is transferred to an engineering electric cabinet.

Electric heater

When the fault or extreme working condition is encountered, the water temperature can not reach the setting temperature, the electric heater automatically activated to keep the unit running normally, and it will turn off when the unit will back to normal .

Split type unit

Design features and functions

Generally, it is determined by the special environment if the components needs to be separated to an indoor unit and an outdoor unit, which are installed indoors and outdoors, and both units are connected with pipes

Indoor Unit

Description: Main components including compressor, condenser, four-way valve and electric cabinet are generally installed in the machine room, which is more convenient for operation and maintenance.



and cables which do not affect each other and are flexible to install.

Outdoor Unit

Description: Fin type heat exchangers, fans and other components as outdoor units. The exterior is more compact than the integrated one. The installation is more flexible, and it is generally installed in the roof, outdoor and other places.



Important notes

1. Pipe support spacing should be less than 1.5meters;
2. Smooth incision and no burrs;
3. The pipe shall be polished and blown clean with nitrogen gas before welding;
4. Nitrogen gas should be filled in the pipeline during welding;
5. When the steel pipe is welded, argon arc welding shall be used before electric welding;
6. When the copper pipe is welded, it should bewelded from the bottom or side, and try not to weldfrom the top;

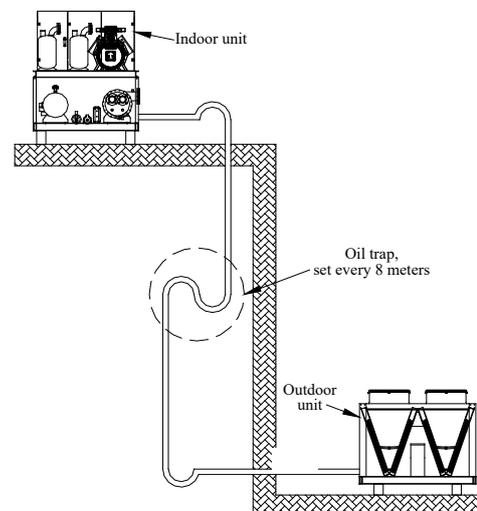
7. No water, dirt or dust should enter the pipe during the whole construction process;
8. The total length of refrigerant pipeline shall not exceed 300 meters;
9. When the outdoor unit is above the indoor unit, the maximum height difference is not more than 80 meters;
10. When the outdoor unit is under the indoor unit, the maximum height difference is no more than 50 meters.

Design scheme for return oil trap of refrigerant pipeline

Standard configuration

When main unit higher than outdoor unit (evaporator), it has a riser between evaporator and main compressor suction inlet, since compressor oil will not evaporate in evaporator and it will be accumulated at the bottom. When Oil trap is installed at the bottom of the evaporator, oil accumulation at the bottom of the evaporator will be significant reduce. As long as the oil trap is blocked, the pressure difference of both sides is built, once the pressure is big enough, pressure different "pump" compressor oil up, until it reach the horizontal suction pipe, the compressor oil is easy to go back to compressor.

If you are concerned that the riser is too long to reach the top of the pump, you should consider setting a S shape oil trap for the riser suction pipe at every certain height difference (say 8meters) to allow the compressor oil return to the main unit.



Cooling and Heating Unit (three functions at same time)

Design features, functions

One machine, three functions.

Microcomputer control, automatic switching between heating and cooling conditions.

Increase modular design and reduce initial investment and equipment maintenance costs.

Compact structure and easy installation.

Energy-saving, high-efficiency, cooling condition COP upto 5.0.

Free hot water supplied while cooling.

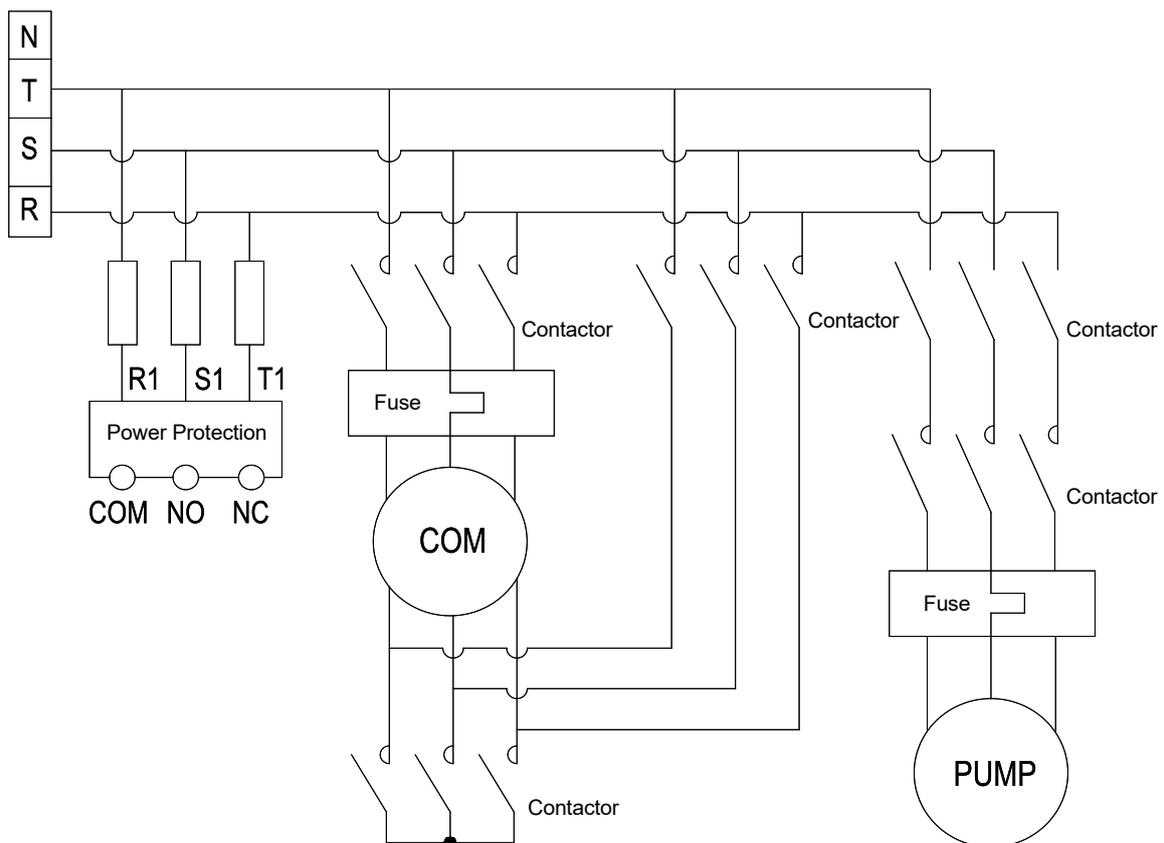


Application range and value

The unit has three working conditions: cooling, heating and free hot water supplying. The hot water can be obtained at the same time while cooling or heating, or it can be cooling or heating independently. When the cooling and heating are not needed in spring and autumn, the unit can separately provide hot water. The

three operating conditions are fully automatic switched according to the ambient temperature and hot water demand. The unit is energy-saving, environmentally friendly and efficient, and has no pollution. It is suitable for hotels, villas, hospitals, commercial and residential communities, large and medium-sized offices and other places.

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

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