TICA

TICA
More Than
What You See

Air-cooled Scroll Chiller (Heat Pump)

R410A

Lower Life Cycle Cost

TAS

TICA®

Mission

To improve the quality of life with scientific innovations, and keep creating maximum value for clients with the aim of making environment.

Vision

To grow up into a globally leading system integrator and service provider in environment and thermal energy utilization.

About us

TICA is a national high-tech enterprise, a single leading enterprise cultivated by the Ministry of industry and nformation Technology. a national brand cultivation enterprise of the Ministry of Industry and Information Technology. and a vice chairman member of China Refrigeration and Air-conditioning Industry Associationt has a national-recognized enterprise technoloqy center, an enterprise academician workstation, and a post-doctoral research workstation. Its projects cover Beijing Bird's Nest Stadium, Water Cube, Wukesong indoor Stadium, Petro China, Sinopec, State Grid. Naniing Panda, Hangzhou Xiaoshan international Airport, Hainan Airlines GroupShanari-La HoteManila Ocean Park, Abu Dhabi AlMuneera, SM City in Philiopines and Unileveretc.

TICA is also the outstanding provider of central air conditioners for China’ s subway networks and has successfully serveo nearly 60 key subwav lines in maior cities such as Beilina. Shanahai. Guanazhou. Shenzhen. Chenadu. Suzhou. Hanazhou and Tianjin. TICA is a professional supplier and service provider in China that specializes in system integration of clean environment While for microelectronics. hospital operating rooms, biopharmaceutical industry and other professional purification areas. our market share has achieved over 40% in each.

Rail /Transportation FOR 80+

Electronics /Chip FOR 3000+

Biotechnology Pharmaceuticals FOR 5000+

Medical/ Diagnostics FOR 7000+

CONTENTS

Product Overview

Air-cooled scroll chiller (heat pump) unit is a central air-conditioning unit that takes air as the cold and heat source and water as the secondary refrigerant. It can form a centralized air conditioning system with various terminal devices such as fan coil units and air handling units.
The air-cooled scroll chiller (heat pump) unit adopts internationally renowned brand refrigeration components and control components, combined with an advanced intelligent control scheme. After long-term stable operation verification, it has the characteristics of high efficiency, energy saving, green environmental protection, stability and reliability. It has various specifications and complete functions, can realize the joint control of 8 units, and can be connected with the building control system (BAS), easily meeting the air conditioning needs of different occasions.

The air-cooled scroll chiller (heat pump) unit has many advantages such as no cooling water system, simple pipeline, flexible installation, moderate investment, short construction period, and the ability to make phased investment. It is widely applicable to various comfortable and process occasions such as villas, hotels, hospitals, office buildings, restaurants, supermarkets, and theaters.

Model Nomenclature

TAS 165 A H

- H: Feature code: C - Cooling only; H - Heat pump; E-Low temperature; F:4-Pipe
- A: Design code: A, B...
- 165: Specification code: 165,260,300,340,460,500
- TAS: Air-cooled Scroll Chiller

Features

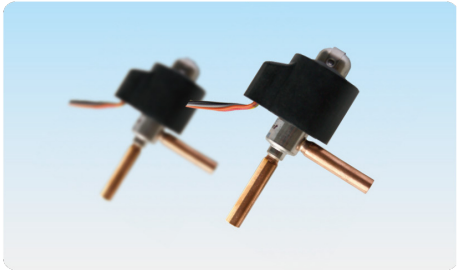
High-end configuration

Efficient flexible scroll compressor

The unit adopts a new generation of high-efficiency and large-capacity scroll compressor of international famous brand, and the compressor has its own intelligent protection module to form multiple protection and further improve the reliability.

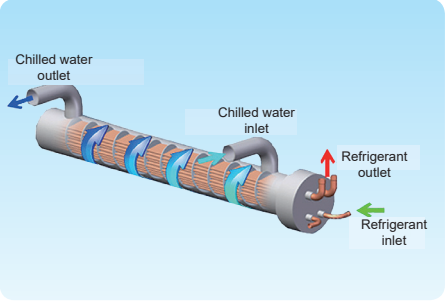
High-precision electronic expansion valve

The unit adopts the 500-step electronic expansion valve of premium brand for precise adjustment of refrigerant flow. And with TICA's patented control technology, refrigerant in the system is dynamically adjusted to suit the load demands in a fast and accurate way, to greatly improve the unit energy efficiency.
(Patent No.: ZL 2013 2 0345187.X)



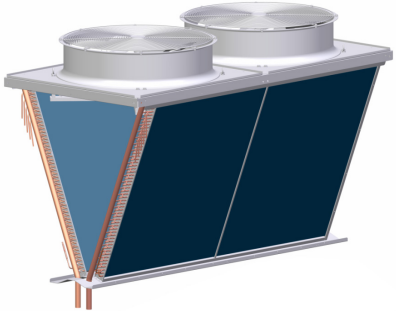
Efficient water-side shell-and-tube heat exchanger

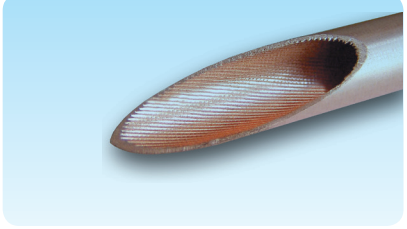
The water-side heat exchanger employs the efficient shell-and-tube heat exchanger. Compared with the plate heat exchanger, the shell-and-tube heat exchanger provides wider water-side channels and produces less water resistance and scale, with less possibility of being blocked by impurity. Therefore the shell-and-tube heat exchanger raises lower requirements for water quality and is equipped with more powerful anti-freezing capability.

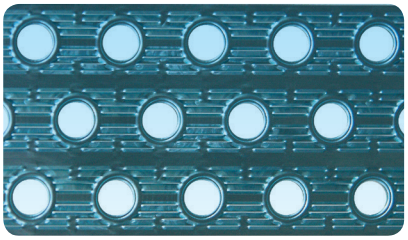


High efficient air side heat exchanger

The unit uses the well-known hermetic efficient scroll compressor and the optimized scroll and sealing ring so that the refrigerant compressor features axial and radial flexibility. This not only effectively reduces refrigerant leakage, but also raises the volumetric efficiency of the compressor. Moreover, each compressor is equipped with a unidirectional discharge valve to avoid backflow of the refrigerant and ensure that the compressor can run stably in the full operating condition.







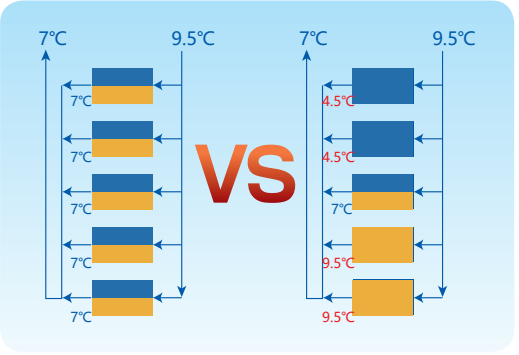
High-performance fan

The air cooled scroll chiller (heat pump) is installed with IP54-rated (or higher) fan motor, to ensure safe and reliable running in the most severe weather conditions.

Professional design

Unique energy regulation

When TlCA air cooled scroll chiller (heat pump) is deployed in a modular system, the energy control part employs TlCA's patented smart energy regulation technology, and based on which, the first system of each modular unit is loaded before loading the corresponding second system.In this way, the inlet and outlet water temperature difference of the modular unit at part load can be effectively balanced with less water temperature fluctuation, to raise the energy efficiency ratio of the modular unit at part load and enhance the anti-freezing capability of the water-side heat exchanger in winter, making the multi-modular unit a compact and easy-to-use system that features high efficiency and automatic energy regulation. (Patent No.:ZL 2013 2 0344732.3)



Smart air flow regulation

With the common air system, the new-generation air cooled scroll chiller (heat pump) implements hierarchical control of fans. The unit with a single module can automatically adjust the number of active fans based on the ambient temperature so that the air flow change of the unit best matches the load change without frequently powering on or off fans. Therefore, the pressure of the system is stable with small water temperature fluctuation and the modular unit can run more reliably. Moreover, the common air system and hierarchical fan control design greatly increases the temperature ranges of the unit in cooling and heating modes.

Reliable running

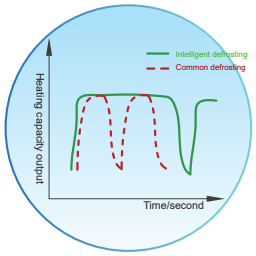
Three guarantee

With three patented technologies resolving specific problems, the defrosting feature of air cooled scroll chiller (heat pump) is further improved to guarantee efficient defrosting in winter and excellent heating capacity of the unit.

First guarantee

With the patented defrosting technology, the system determines the defrosting conditions according to the ambient temperature, evaporation temperature, and running time in heating mode. Meanwhile, the patented defrosting technology ensures that the unit can be efficiently defrosted when there is frost, and stably supply heat when there is no frost. The running efficiency of the unit in heating mode is more than 90%. The EER in heating mode significantly increases.

1



Second guarantee

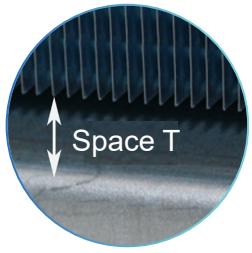
The patented unidirectional valve technology refers to deploying a unidirectional valve at the last refrigerant loop at the bottom of the heat exchanger to prevent the refrigerant at low temperature in heating mode from entering the last loop at the bottom, without blocking the flow of the refrigerant at high temperature during defrosting. This technology not only prevents frost, but also greatly reduces the risk of being frosted and frozen at the bottom.

2

Third guarantee

The suspended bottom design refers to reserving space between the bottom of the fin heat exchanger and the horizontal plate sheet without affecting water flow after defrosting. Therefore, water can more easily drain and the possibility of water accumulation and freezing is reduced.

3



Improved protection functions

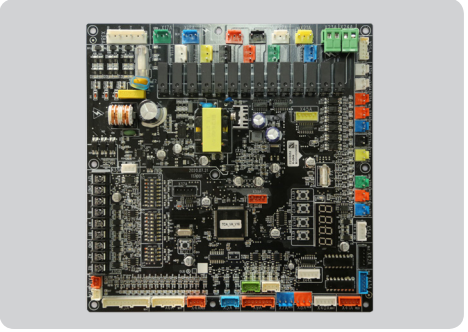
The unit programs have multiple protection functions to guarantee stable and reliable running. TiCA air cooled scroll chiler (heat pump) is equipped with a water fow switch, which does not need to be installed and debugged during instalation. This makes the unit running safer, simpllies the installation process, and reduces the costs, thus providing a cost-efective and convenient solution to customers.

Communication failure protection	Sensor fault protection
Protection of too high air discharge temperature	Frequent startup protection Balancing wear during
Compressor high-current protectior	Balancing wear during hardware usage
Compressor low-current protection	High pressure protection
Protection of too low outlet water temperature	Low voltage protection
Protection of too high outlet water temperature	Fan overload protection
Phase sequence protection	Protection against insufficient water flow
Automatic anti-freezing protection	External interlocking protection

Intelligent control

Microcomputer control system

Air cooled scroll chiller (heat pump) employs the third-generation microcomputer control system and wired controllers that are upgraded. The third-generation microcomputer control panel integrates phase sequence detection and current detection features and provides more USB ports to facilitate subsequent maintenance and upgrade of TlCA self-developed control program.
Moreover, the unit supports modular control, and up to 8 modules can be combined in parallel mode. When the unit is deployed in a modular system, the master and slave units can be set on demand. A faulty master unit can be easily replaced without affecting monitoring and running of the entire system.



Diversified control functions

Circulating water pump interlocking + Auxiliary electric heater interlocking + Fan coil interlocking

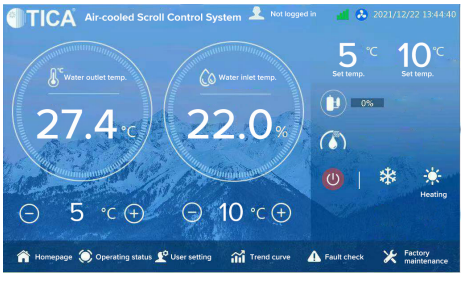
The control panel of the unit reserves the water pump interlocking control interface, auxiliary electric heater interlocking control interface, and the externa interlocking interface. The unit supports interlocking control of the master water pump to prevent the unit from being damaged due to asynchronous startup of the water pump and unit. in winter, when the unit runs in heating mode, the switch of the auxiliary electric heater is controlled based on the load demand and the unit running status. The unit supports interlocking control of fan coil, controls unit power-on/power-off and loading/unloading according to the usage of the air side devices,thus enabling automatic running.

Remote power-on/power-off/mode switchover + Remote centralized control+Building automatic control

The control panel of the unit reserves the remote wired control switch/mode switchover interlocking interface. By adjusting the DlP switch, enable remote power-on/power-off/mode switchover. The reserved remote communicatior interface of the unit helps enable remote monitoring of the unit running and switch control. The unit is equipped with an RS485 communication interface that supports Modbus protocol. The unit supports building automatic control (BAS) system to enable centralized control and smart management of multiple modules.

User-friendly control

The unit is equipped with a perfect control program, providing the following functions: balanced running of the compressor, standby operation, smart anti freezing running, manual defrosting, automatic fault judgment, automatic fault handling, and automatic alarm display. Additionally, the control part can use a multi-functional centralized controller (with keys/7" touch screen). The centralized controller can be customized to provide multiple functions, such as scheduled power-on/power-off,running on weekends/in holidays, memory upon power-off, and multi-level passwords.



Specifications

Model			TAS165AH	TAS260AH	TAS260BCA	TAS340BH/A	TAS460BH/A
Capacity	Cooling	kW	165	260	260	340	460
	Heating	kW	180	280	/	370	485
Power Input	Cooling	kW	50	78	78	105	141.9
	Heating	kW	54	84	/	111	145.6
Running Current	Cooling	A	100.8	158.7	158.7	190.3	256.6
	Heating	A	102.67	165.11	/	201.4	272
Power supply		V/N/HZ	380-3-50				
Maximum Input Power		kW	73.2	123.4	123.4	145.8	197.8
Maximum Input Current		A	135	220	220	255	340
Starting Current		A	203	274	274	319	417
Energy Regulation		%	0-25-50-75-100			"0-33.3-66.7-100"	0-25-50-75-100
Water Side Heat Exchanger	Type	-	High efficient shell&Tube heat exchanger				
	Water flow	m^3/h	28.4	44.8	44.8	58.5	75.7
	Pressure drop	kPa	45	45	62	52	56
	Inlet/Outlet DN	DN	80	100	80	125	125
	Connection method	-	Victaulic connection				
Compressor	Brand	-	Danfoss			Copeland	
	Type	-	Scroll				
	Quantity	-	4	4	4	3	4
Fan	Type	-	Axial fan				
	Air flow	m^3/h	66000	112000	103000	123000	164000
	Quantity	-	4	4	4	6	8
Refrigerant	Type	-	R410A				
Unit Dimensions (L*W*H)		mm	2200x1720x2000	2200x2400x2235	2200x2400x2235	3500x2250x2450	4700x2250x2520
Packaging Dimensions (L*W*H)		mm	2260x1780x2000	2260x2460x2235	2260x2460x2235	3560x2310x2450	4760x2310x2520
Net weight		kg	1460	2050	1800	3100	3700
Running weight		kg	1590	2250	2000	3550	4200
Sound Level		dB	72	75	75	74	74

Remarks:

1.The nominal cooling capacity and nominal cooling input power are tested at the rated water fow, water outlet temperature of 7° C, and outdoor dry-bulb temperature of 35° C. The nominal heating capacity is tested at the rated water fow, water outlet temperature of 45° C, outdoor dry-bulb temperature of 7° C or outdoor wet-bulb temperature of 6° C.

2.About 6% loss caused by system pipelines, water pumps, valves, and dirt after unit installation shall be considered for the cooling (heating) capacity in actual application.

3.Cooling temperature range: 5° C-48° C (TAS165AH/260AH/340BH/460BH)
-15° C-48° C (TAS260BCA/340BHA/460BHA)
Heating temperature range: -10° C-48° C (TAS165AH/260AH)
-15° C-48° C (TAS340BH/460BH/340BHA/460BHA).

4.The specifcations above are based on a single module. Multiple modules can be used in combination. A maximum of 8 modules can be combined.

5.As a separate item, control accessory box contains a wired controller, a wired controller communication cable, user manual, and temperature sensor.

The confguration is subject to changes, so please refer to actual unit upon delivery.

T-FLAME ULTRA-LOW AMBIENT TEMPERATURE AIR SOURCE HEAT PUMP

The ultra-low temperature air source heat pump heating unit optimizes the system design on the basis of the original type, and adopts EVI compressor the cooling COP reaches 3.4, the minimum ambient temperature for heating operation can be as low as -32℃ , and the maximum heating outlet temperature is 60℃ .

V-shaped heat exchanger

·Independent air duct design
·Defrost non-stop

Low noise fan motor

·Large impeller fan
·Low noise motor

Danfoss compressor

·Special for heat pump
·EVI technology

Intelligent control

·New generation control board
·Ten years data stored

Seamless docking

·Saving the installation area

Specifications

Model				TAS300BHE			TAS500BHE		
Heating	Heating 1	Unit Type	/	Floor radiation type	Fan coil type	Radiator type	Floor radiation type	Fan coil type	Radiator type
		Water Outlet Temp.	℃	35	41	55	35	41	55
		Nominal Heating capacity	kW	220	220	220	340	340	340
		Heating Power Input	kW	74.6	84.6	115.8	115.3	130.8	178.9
		Heating COP	/	2.95	2.60	1.90	2.95	2.6	1.9
		IPLV(Heating)	/	3.36	2.90	2.10	3.36	2.9	2.1
	Heating 2	Nominal Heating capacity	kW	330			540		
		Heating Power Input	kW	89.9			147.1		
		Heating COP	/	3.67			3.67		
	HSPF		/	3.00			3.00		
Cooling	Nominal cooling capacity		kW	300			500		
	Cooling Power Input		kW	88.20			147.06		
	COP		/	3.40			3.40		
	PLV(C)		/	3.7			3.8		
	SEER		/	-			3.92		
APF			/	3.15			3.15		
Energy regulation			%	0-25-50-75-100			0-25-50-75-100		
Maximum Operating Current			A	260			400		
Power supply			/	380V3N-50Hz			380V3N-50Hz		
Water Flow			m^3/h	52			86		
Water Resistance			kPa	60			56		
Connection pipe dimension			/	DN100 Clamp connection			DN125 Clamp connection		
Compressor	Type		—	Hermetic scroll compressor			Hermetic scroll compressor		
	Qty		—	4			4		
Fan	Type			Axial fan			Axial fan		
	Qty		—	4			8		
	Air volume		m^3/h	92000			164000		
Refrigerant Charge			kg	R410A/10*4			R410A/24.5*4		
Unit dimensions(L*W*H)			mm	2500×2250×2360			4825×2250×2530		
Net weight			kg	1980			3900		
Operating weight			kg	2000			4200		
Sound Level(Cooling/Heating)			dB(A)	71/72.5			74/76		

Remarks: 1. The nominal cooling capacity and nominal cooling input power are tested at the rated water flow, water outlet temperature of 7℃ ,and outdoor dry-bulbtemperature of 35℃ .
Nominal heating capacity and nominal heating input power 1 are tested at the outdoor dry/wet bulb temperature is -12/-14℃ .
Nominal heating capacity and nominal heating input power 2 are tested at the outdoor dry/wet bulb temperature is 7/6℃ , water outlet temperature of 45℃ .
2. Cooling temperature range: 5℃ -48℃ Heating temperature range: -32℃ -48℃ .
3. The unit can allow constant flow and large temperature difference operation during heating operation, and the allowable minimum water flow is 43 m3/h
4. About 6% loss caused by system pipelines, water pumps, valves, and dirt after unit installation shall be considered for the cooling (heating) capacity in actual application.
5. The specifcations above are based on a single module. Multiple modules can be used in combination. A maximum of 8 modules can be combined.
6. As a separate item, control accessory box contains a wired controller, a wired controller communication cable, user manual, and temperature sensor. The confguration is subject to changes, so please refer to actual unit upon delivery

4-pipe Air-cooled Heat Pump

Overview

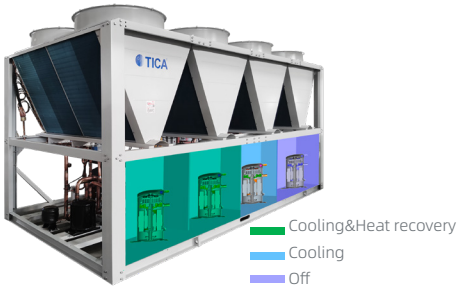
TICA 4-pipe air-cooled heat pump adopt R410A environmental refrigerant, integrating the cooling mode, heating mode and simultaneous cooling and heating mode. The product can automatically optimize and switch the operation mode according to the needs of cold and heat. The unit only needs to input one energy source, and can obtain cold water and free hot water at the same time, with a comprehensive energy efficiency more than twice of the ordinary unit, efficient and energy-saving.

The unit can be widely used in hospitals, art galleries, industrial clean workshops and other places with constant temperature and humidity. While supplying chilled water for dehumidification, the unit provides free reheating heat source to replace electric heating, greatly reducing reheating energy consumption.

Features

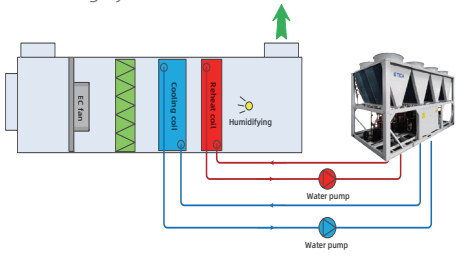
Four-system intelligent adjustment, water temperature accuracy up to ± 0.5 ℃

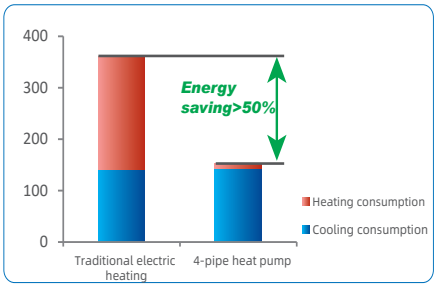
The TAS460BHF consists of four independent systems. The unit can respond quickly and automatically adjust the operation mode between the four systems according to the cold and heat requirements, accurately output cold heat, and the water outlet accuracy is as high as ± 0.5 ℃.



Cooling&Heating auto-balance, energy saving rate of more than 50%

In the air conditioning system that supplies cooling and heating at the same time,TICA 4-pipe air-cooled heat pump system scheme has an auto-balancing of cooling and heating, and the energy saving rate during operation is more than 50% higher than that of the traditional electric heating system.

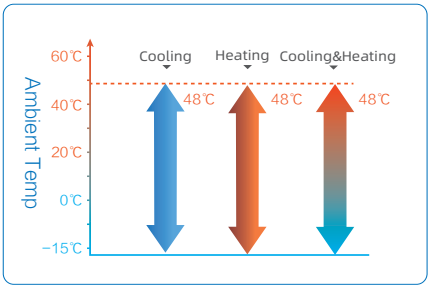




Traditional electric heating solution: TCAV065BHE 65kW * 7 + electric heating
4-pipe heat pump: 4-pipe air-cooled heat pump 460kW+water pump

Multi-level intelligent adjustment of air volume, -15 ℃ ~ 48 ℃ ultra-wide range operation

TICA 4-pipe air-cooled heat pump uses an international brand of low-noise axial fan to achieve intelligent air volume adjustment, enabling it to quickly match load changes, effectively avoiding frequent fan starts and stops, ensuring stable and efficient operation of the system, and enabling the unit to break through the industry's 4-pipe air-cooled heat pump operating range limit. It can operate stably at an annular temperature of -15~48℃



Operating range

Specifications

Model			TAS340BHF	TAS460BHF
Cooling Mode	Cooling capacity	kW	340	460
	Cooling power input	kW	104.9	141.9
	Performance factor	W/W	3.24	3.24
	Cooling mode water flow	m^3/h	58.5	79.1
Heating Mode	Heating capacity	kW	356	475
	Heating power input	kW	106.9	142.6
	Heating mode water flow	m^3/h	72.1	97.5
Cooling&Heat Recovery	Mixture mode cooling capacity	kW	330	440
	Mixture mode heating capacity	kW	425	567
	Mixture mode power input	kW	95.5	127.4
Power Supply		–	380V 3N-50Hz	
Energy regulation		%	0-33-66-100	0-25-50-75-100
Water pressure	Water pressure drop（cooling）	kPa	40	40
	Water pressure drop（heating）	kPa	60	60
Water pipe	Water pipe（cooling）	–	DN125	DN125
	Water pipe（heating）	–	DN125	DN125
Compressor	Type	–	Hermetic scroll compressor	
	Qty	–	3	4
Fan	Type	–	Low noise axial fan	
	Qty	–	6	8
	Air flow	m^3/h	129000	164000
Refrigerant Type		–	R410A	
Net weight		kg	3450	4850
Operating weight		kg	3865	5450
Dimensions	Length	mm	3500	4700
	Width	mm	2250	2250
	Height	mm	2520	2520

Remarks:

1. Cooling mode: water outlet temperature 7 ℃ , ambient DB temperature 35 ℃ .
2. Heating mode: water outlet temperature 45 ℃ , ambient DB temperature 7 ℃ ,WB temperature 6 ℃ .
3. Cooling&heating mode: chilled water outlet temperature 7 ℃ , hot water outlet temperature 45 ℃ .
4. Operating range: -15 ℃ ~48 ℃ . （Cooling,Heating,Cooling&Heating)
5. About 6% loss caused by system pipelines, water pumps, valves, and dirt after unit installation shall be considered for the cooling (heating) capacity in actual application.
6. The specifcations above are based on a single module. Multiple modules can be used in combination. TAS340BHF can combine up to 5 modules, TAS460BHF can combine up to 4 modules.
7. As a separate item, control accessory box contains a wired controller, a wired controller communication cable, user manual, and temperature sensor. The confguration is subject to changes, so please refer to actual unit upon delivery.

Specifications under Variable Operating Condition

Cooling correction Table

Water outlet temperature ℃	Ambient temperature ℃																	
	5		10		15		20		25		30		35		40		48	
	Cooling	Input Power	Cooling	Input Power	Cooling	Input Power	Cooling	Input Power	Cooling	Input Power	Cooling	Input Power	Cooling	Input Power	Cooling	Input Power	Cooling	Input Power
5	1.06	0.72	1.08	0.73	1.09	0.71	1.09	0.78	1.04	0.84	0.99	0.90	0.93	0.97	0.87	1.01	0.80	1.08
7	1.14	0.75	1.16	0.76	1.17	0.74	1.16	0.81	1.11	0.87	1.06	0.93	1.00	1.00	0.94	1.04	0.87	1.11
9	1.21	0.78	1.23	0.79	1.24	0.77	1.23	0.84	1.18	0.90	1.13	0.96	1.07	1.03	1.01	1.07	0.94	1.14
12	1.28	0.81	1.30	0.82	1.31	0.80	1.30	0.87	1.25	0.93	1.20	0.99	1.14	1.06	1.08	1.10	1.01	1.17
15	1.35	0.84	1.37	0.85	1.38	0.83	1.37	0.90	1.32	0.96	1.27	1.02	1.21	1.09	1.15	1.13	1.08	1.20
20	1.40	0.88	1.43	0.89	1.44	0.87	1.42	0.94	1.38	1.00	1.32	1.06	1.26	1.13	1.20	1.17	1.13	1.24

Remarks: Remarks: 1. The above correction factor applies to TAS165/260AH /TAS340BH/TAS460BH

Water outlet temperature ℃	Ambient temperature ℃																							
	-15		-10		-5		0		5		10		15		20		25		30		35		40		48	
	Cooling	Input Power	Cooling	Input Power	Cooling	Input Power	Cooling	Input Power	Cooling	Input Power	Cooling	Input Power	Cooling	Input Power	Cooling	Input Power	Cooling	Input Power	Cooling	Input Power	Cooling	Input Power	Cooling	Input Power	Cooling	Input Power
5	1.12	0.49	1.09	0.57	1.06	0.63	1.09	0.66	1.06	0.72	1.08	0.73	1.09	0.71	1.09	0.78	1.04	0.84	0.99	0.90	0.93	0.97	0.87	1.01	0.80	1.08
7	1.18	0.50	1.16	0.58	1.14	0.66	1.17	0.69	1.14	0.75	1.16	0.76	1.17	0.74	1.16	0.81	1.11	0.87	1.06	0.93	1.00	1.00	0.94	1.04	0.87	1.11
9	1.23	0.51	1.22	0.59	1.21	0.69	1.24	0.72	1.21	0.78	1.23	0.79	1.24	0.77	1.23	0.84	1.18	0.90	1.13	0.96	1.07	1.03	1.01	1.07	0.94	1.14
12	1.27	0.52	1.27	0.60	1.28	0.72	1.31	0.75	1.28	0.81	1.30	0.82	1.31	0.80	1.30	0.87	1.25	0.93	1.20	0.99	1.14	1.06	1.08	1.10	1.01	1.17
15	1.33	0.53	1.33	0.60	1.35	0.75	1.38	0.78	1.35	0.84	1.37	0.85	1.38	0.83	1.37	0.90	1.32	0.96	1.27	1.02	1.21	1.09	1.15	1.13	1.08	1.20
20	1.35	0.55	1.35	0.62	1.39	0.78	1.43	0.81	1.38	0.86	1.41	0.88	1.43	0.85	1.42	0.92	1.37	0.99	1.34	1.04	1.27	1.12	1.21	1.15	1.14	1.23

Remarks: Remarks: 1.The above correction factor applies to TAS260BCA/TAS340BHA/TAS460BHA

Cooling correction Table(For TAS-BHE)

Water outlet temperature ℃	Ambient temperature ℃																	
	5		10		15		20		25		30		35		40		48	
	Cooling	Input Power	Cooling	Input Power	Cooling	Input Power	Cooling	Input Power	Cooling	Input Power	Cooling	Input Power	Cooling	Input Power	Cooling	Input Power	Cooling	Input Power
5	1.07	0.71	1.09	0.72	1.10	0.77	1.10	0.77	1.08	0.84	1.00	0.90	0.94	0.97	0.87	1.01	0.81	1.08
7	1.15	0.74	1.17	0.75	1.18	0.80	1.17	0.80	1.14	0.87	1.06	0.93	1.00	1.00	0.94	1.04	0.86	1.11
9	1.22	0.77	1.24	0.78	1.25	0.83	1.24	0.83	1.19	0.90	1.12	0.96	1.07	1.03	1.01	1.07	0.92	1.14
12	1.30	0.80	1.32	0.81	1.33	0.86	1.32	0.86	1.26	0.93	1.20	0.99	1.14	1.06	1.08	1.10	0.96	1.17
15	1.37	0.83	1.39	0.84	1.40	0.89	1.39	0.90	1.32	0.96	1.26	1.02	1.21	1.09	1.15	1.13	1.03	1.20
20	1.42	0.86	1.45	0.87	1.46	0.92	1.44	0.93	1.42	0.99	1.35	1.05	1.31	1.13	1.25	1.15	1.13	1.22

Remarks: 1. The above correction factor applies to TAS300/500BHE
2. Correction based on the capacity and power under the condition of -12 ℃ ring temperature and 41 ℃ outlet

Cooling correction Table(For TAS-BHF)

Water outlet temperature ℃	Ambient temperature℃											
	-15		-10		-5		0		5		10	
	Cooling	Power Input	Cooling	Power Input	Cooling	Power Input	Cooling	Power Input	Cooling	Power Input	Cooling	Power Input
5	1.12	0.49	1.09	0.57	1.06	0.63	1.09	0.66	1.06	0.72	1.08	0.73
7	1.18	0.50	1.16	0.58	1.14	0.66	1.17	0.69	1.14	0.75	1.16	0.76
9	1.23	0.51	1.22	0.59	1.21	0.69	1.24	0.72	1.21	0.78	1.23	0.79
12	1.27	0.52	1.27	0.60	1.28	0.72	1.31	0.75	1.28	0.81	1.30	0.82
15	1.33	0.53	1.33	0.60	1.35	0.75	1.38	0.78	1.35	0.84	1.37	0.85
20	1.35	0.55	1.35	0.62	1.39	0.78	1.43	0.81	1.38	0.86	1.41	0.88

Water outlet temperature ℃	Ambient temperature℃													
	15		20		25		30		35		40		48	
	Cooling	Power Input	Cooling	Power Input	Cooling	Power Input	Cooling	Power Input	Cooling	Power Input	Cooling	Power Input	Cooling	Power Input
5	1.09	0.71	1.09	0.78	1.04	0.84	0.99	0.90	0.93	0.97	0.87	1.01	0.80	1.08
7	1.17	0.74	1.16	0.81	1.11	0.87	1.06	0.93	1.00	1.00	0.94	1.04	0.87	1.11
9	1.24	0.77	1.23	0.84	1.18	0.90	1.13	0.96	1.07	1.03	1.01	1.07	0.94	1.14
12	1.31	0.80	1.30	0.87	1.25	0.93	1.20	0.99	1.14	1.06	1.08	1.10	1.01	1.17
15	1.38	0.83	1.37	0.90	1.32	0.96	1.27	1.02	1.21	1.09	1.15	1.13	1.08	1.20
20	1.43	0.85	1.42	0.92	1.37	0.99	1.34	1.04	1.27	1.12	1.21	1.15	1.14	1.23

Heating correction Table

Water outlet temperature ℃	Ambient temperature ℃																					
	-15*		-10		-5		0		7		10		15		20		25		35		48	
	Heating	Input Power	Heating	Input Power	Heating	Input Power	Heating	Input Power	Heating	Input Power	Heating	Input Power	Heating	Input Power	Heating	Input Power	Heating	Input Power	Heating	Input Power	Heating	Input Power
30	0.59	0.71	0.65	0.72	0.76	0.73	0.89	0.79	1.05	0.83	1.12	0.85	1.20	0.87	1.30	0.89	1.37	0.91	1.42	0.93	1.58	0.97
35	0.57	0.77	0.63	0.78	0.74	0.79	0.87	0.85	1.03	0.89	1.10	0.91	1.18	0.93	1.28	0.95	1.35	0.97	1.40	0.99	1.56	1.03
40	0.55	0.83	0.61	0.84	0.72	0.85	0.85	0.91	1.01	0.95	1.06	0.97	1.14	0.99	1.24	1.01	1.31	1.03	1.36	1.05	1.52	1.09
45	-	-	0.60	0.89	0.71	0.90	0.84	0.96	1.00	1.00	1.03	1.03	1.11	1.05	1.21	1.07	1.28	1.09	1.33	1.10	1.49	1.13
50	-	-	-	-	0.68	0.96	0.81	1.02	0.97	1.06	1.00	1.09	1.08	1.11	1.18	1.13	1.25	1.15	1.30	1.16	1.46	1.19

Remarks: 1. The above correction factor applies to TAS165/260AH /TAS340BH/TAS460BH/TAS340BHA/TAS460BHA *Only applies to TAS340BH/TAS460BH/TAS340BHA/TAS460BHA

Heating correction Table(For TAS-BHE)

Water outlet temperature ℃	Ambient temperature ℃																							
	-30		-25		-20		-15		-12		-5		0		5		15		20		25		35		48	
	Heating	Input Power	Heating	Input Power	Heating	Input Power	Heating	Input Power	Heating	Input Power	Heating	Input Power	Heating	Input Power	Heating	Input Power	Heating	Input Power	Heating	Input Power	Heating	Input Power	Heating	Input Power	Heating	Input Power
30	0.64	0.74	0.75	0.74	0.82	0.80	0.97	0.83	1.00	0.81	1.24	0.78	1.33	0.84	1.58	0.85	1.78	0.86	1.82	0.92	1.86	0.96	2.12	0.97	2.16	0.97
35	0.64	0.85	0.75	0.84	0.82	0.90	0.97	0.93	1.00	0.88	1.24	0.89	1.34	0.94	1.58	0.98	1.78	1.01	1.82	1.02	1.85	1.06	2.11	1.07	2.16	1.04
41	0.64	0.96	0.76	0.95	0.82	0.97	0.96	1.01	1.00	1.00	1.23	1.03	1.34	1.04	1.58	1.10	1.76	1.10	1.82	1.11	1.84	1.12	2.11	1.13	2.15	1.12
45	0.65	1.11	0.77	1.06	0.83	1.04	0.95	1.09	1.00	1.10	1.23	1.12	1.35	1.14	1.58	1.12	1.74	1.16	1.81	1.15	1.84	1.19	2.10	1.20	2.15	1.18
50	0.65	1.20	0.78	1.16	0.83	1.12	0.95	1.19	1.00	1.21	1.23	1.25	1.35	1.24	1.58	1.21	1.72	1.24	1.80	1.22	1.84	1.26	2.09	1.28	2.15	1.23
55	/	/	/	/	0.84	1.29	0.95	1.24	1.00	1.36	1.22	1.35	1.35	1.33	1.58	1.31	1.70	1.33	1.79	1.32	1.83	1.35	2.08	1.36	2.13	1.32
60	/	/	/	/	/	/	/	/	1.00	1.42	1.21	1.44	1.33	1.44	1.54	1.44	1.68	1.44	1.74	1.45	1.80	1.43	2.06	1.44	2.13	1.46

Remarks: 1. The above correction factor applies to TAS300/500BHE
2. Correction based on the capacity and power under the condition of -12 ℃ ring temperature and 41 ℃ outlet

Heating correction Table(For TAS-BHF)

Water outlet temperature ℃	Ambient temperature ℃																					
	-15		-10		-5		0		7		10		15		20		25		35		48	
	Heating	Power Input	Heating	Power Input	Heating	Power Input	Heating	Power Input	Heating	Power Input	Heating	Power Input	Heating	Power Input	Heating	Power Input	Heating	Power Input	Heating	Power Input	Heating	Power Input
30	0.50	0.71	0.65	0.72	0.76	0.73	0.89	0.79	1.05	0.83	1.12	0.85	1.20	0.87	1.30	0.89	1.37	0.91	1.42	0.93	1.58	0.97
35	0.48	0.77	0.63	0.78	0.74	0.79	0.87	0.85	1.03	0.89	1.10	0.91	1.18	0.93	1.28	0.95	1.35	0.97	1.40	0.99	1.56	1.03
40	0.46	0.83	0.61	0.84	0.72	0.85	0.85	0.91	1.01	0.95	1.06	0.97	1.14	0.99	1.24	1.01	1.31	1.03	1.36	1.05	1.52	1.09
45	–	–	0.60	0.89	0.71	0.90	0.84	0.96	1.00	1.00	1.03	1.03	1.11	1.05	1.21	1.07	1.28	1.09	1.33	1.10	1.49	1.13
50	–	–	–	–	0.68	0.96	0.81	1.02	0.97	1.06	1.00	1.09	1.08	1.11	1.18	1.13	1.25	1.15	1.30	1.16	1.46	1.19
55	–	–	–	–	–	–	–	–	–	–	–	–	1.05	1.13	1.10	1.14	1.20	1.15	1.33	1.18	1.47	1.20

Cooling&Heating correction Table(For TAS-BHF)

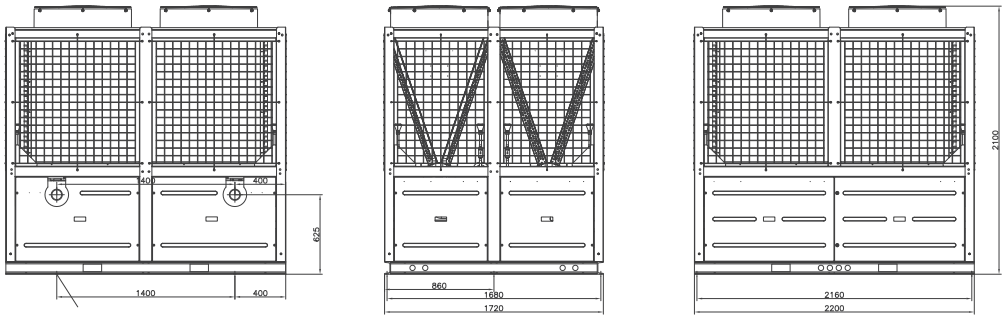
Heat recovery side water temp.℃	Water outlet temperature℃																	
	5			7			9			12			15			20		
	Cooling	Heating	Power Input	Cooling	Heating	Power Input	Cooling	Heating	Power Input	Cooling	Heating	Power Input	Cooling	Heating	Power Input	Cooling	Heating	Power Input
35	1.01	0.96	0.79	1.08	1.02	0.81	1.15	1.03	0.82	1.25	1.16	0.84	1.36	1.25	0.85	1.38	1.28	0.86
40	0.97	0.95	0.89	1.04	1.01	0.90	1.11	1.07	0.91	1.21	1.15	0.93	1.32	1.24	0.95	1.35	1.28	0.97
45	0.94	0.94	0.98	1.00	1.00	1.00	1.07	1.06	1.02	1.17	1.14	1.04	1.24	1.22	1.06	1.33	1.27	1.06
50	0.90	0.94	1.10	0.96	0.99	1.12	1.02	1.05	1.14	1.12	1.13	1.16	1.22	1.21	1.18	1.31	1.27	1.18
55	0.85	0.90	1.12	0.93	0.99	1.13	0.99	1.02	1.15	1.08	1.12	1.17	1.20	1.19	1.22	1.29	1.27	1.22

Operating Range

Model			TAS165AH	TAS260AH	TAS340BH	TAS460BH	TAS260BCA	TAS340BHA	TAS460BHA	TAS300BHE	TAS500BHE
Cooling	Chilled water outlet temperature	℃	5~20								
	Ambient temperature	℃	5~48				-15~48			5~48	
Heating	Hot water outlet temperature	℃	30~50				/	30~50		30~60	30~60
	Ambient temperature	℃	-10~48		-15~48		/	-15~48		-32~48	-32~48
Water flow		m^3/h	28.4	44.8	58.5	79.1	44.8	58.5	79.1	52	86
Water pressure drop		kPa	45	45	52	56	62	52	56	60	56
Maximum pressure on water side		Mpa	1								

Unit Dimensions

TAS165AH



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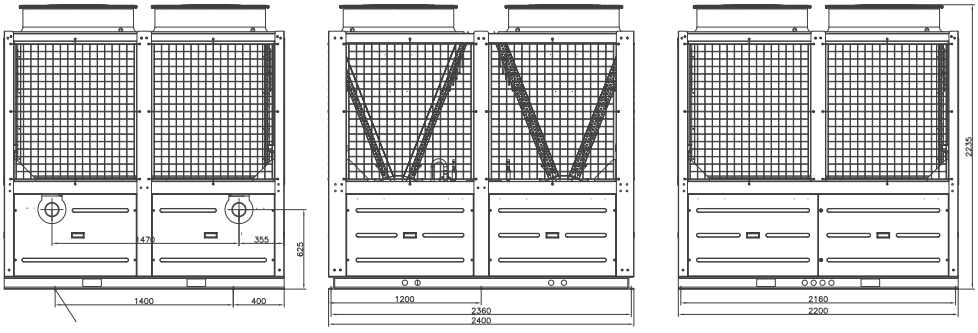

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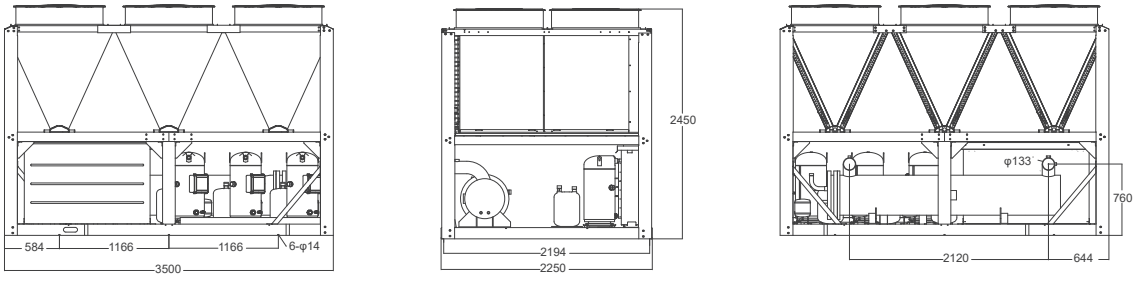

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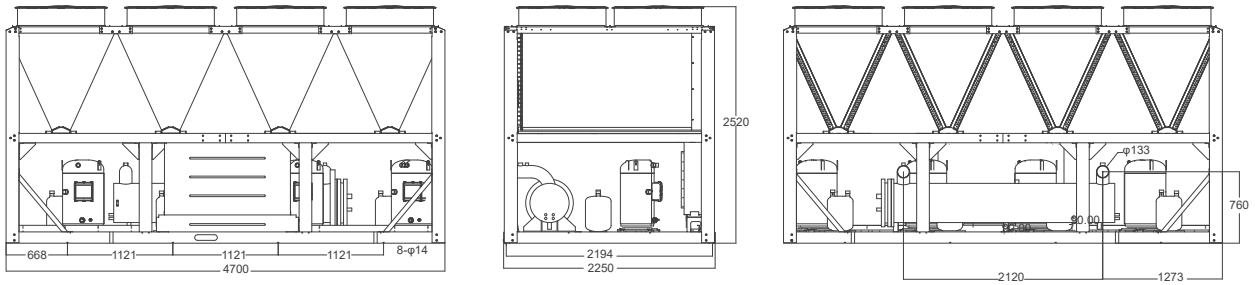

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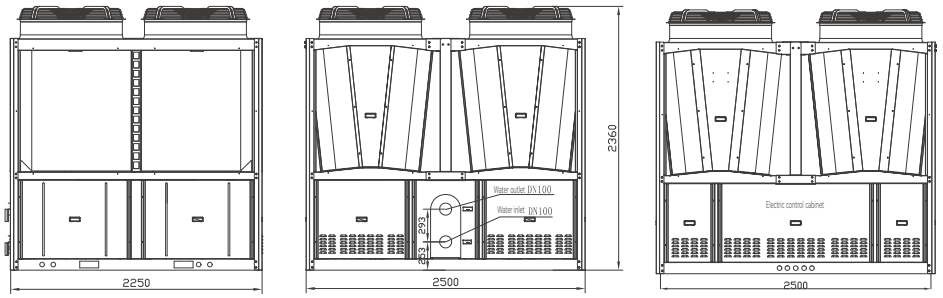

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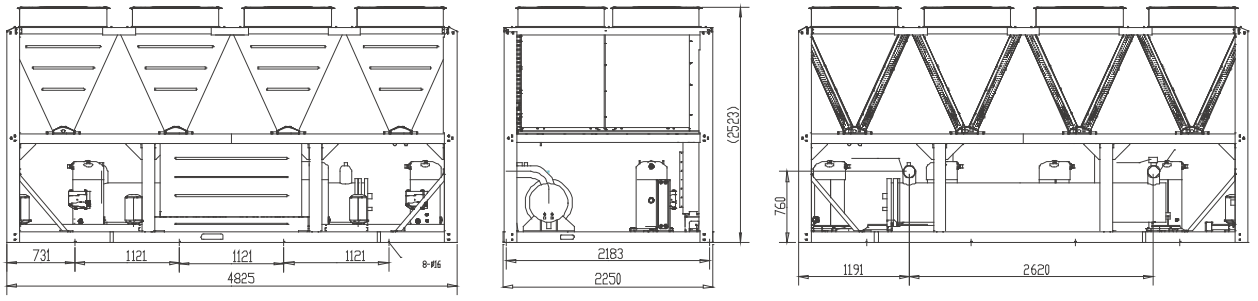

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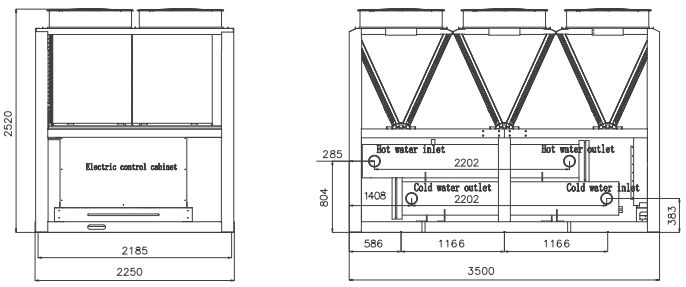

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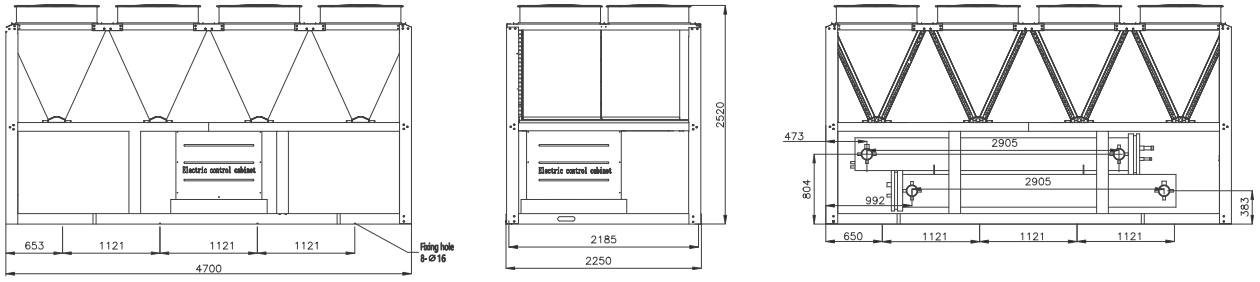

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