

Hisense

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HCAC-CA-AMC02

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Hi-Mod Series
**AIR-COOLED
MODULAR CHILLER**
Hisense Central Air-conditioning

Hi-Mod

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Hi-Mod Series

The new generation of air-cooled modular chiller Hi-Mod series has a series of products with full function and various specifications, including standard type A series, low temperature and strong heating type E series and ultra-low temperature and strong heating type H series. Modulares of the same type can be connected freely, meeting the customized demands.

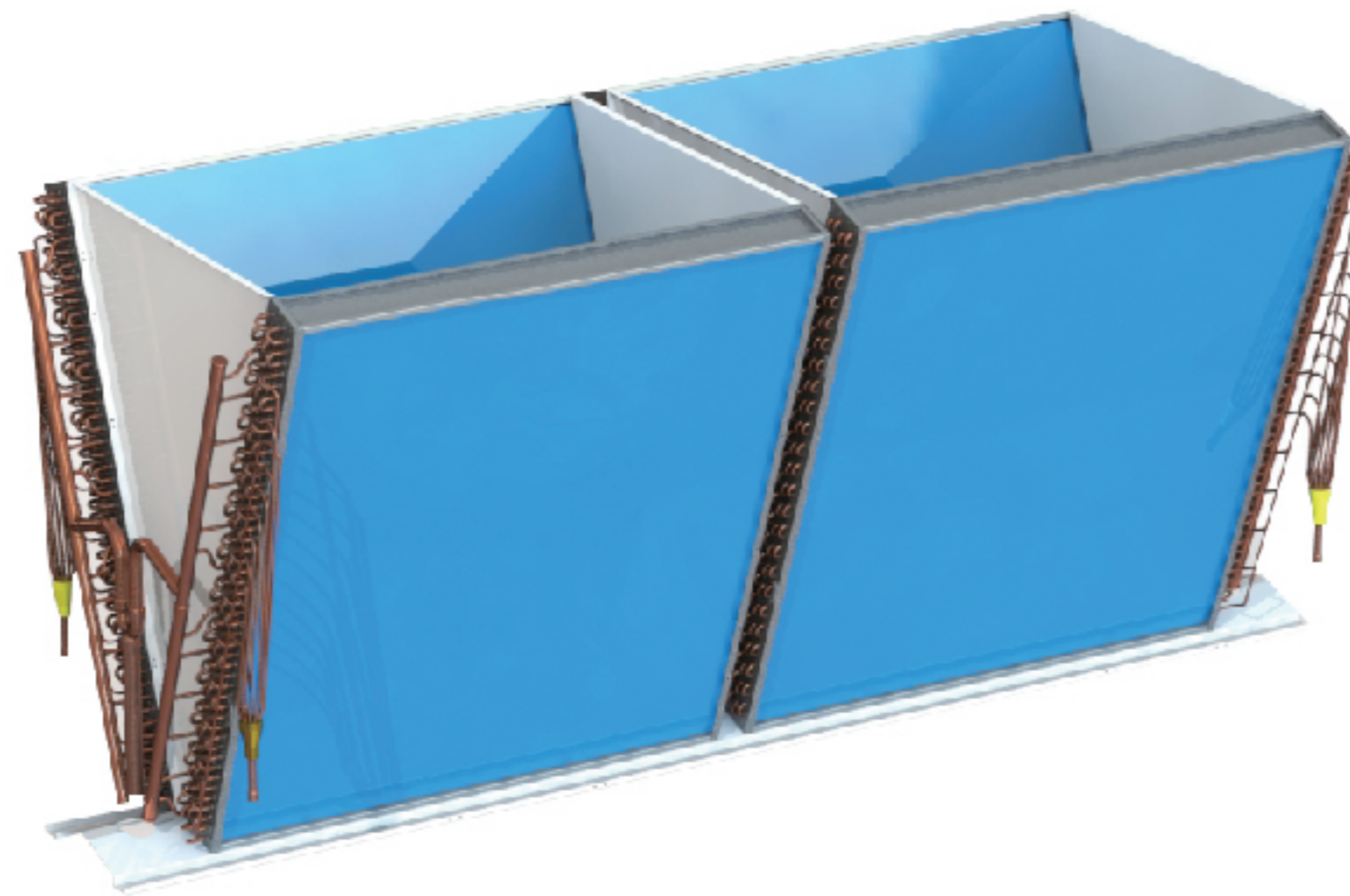


HIGH QUALITY

Components screened strictly

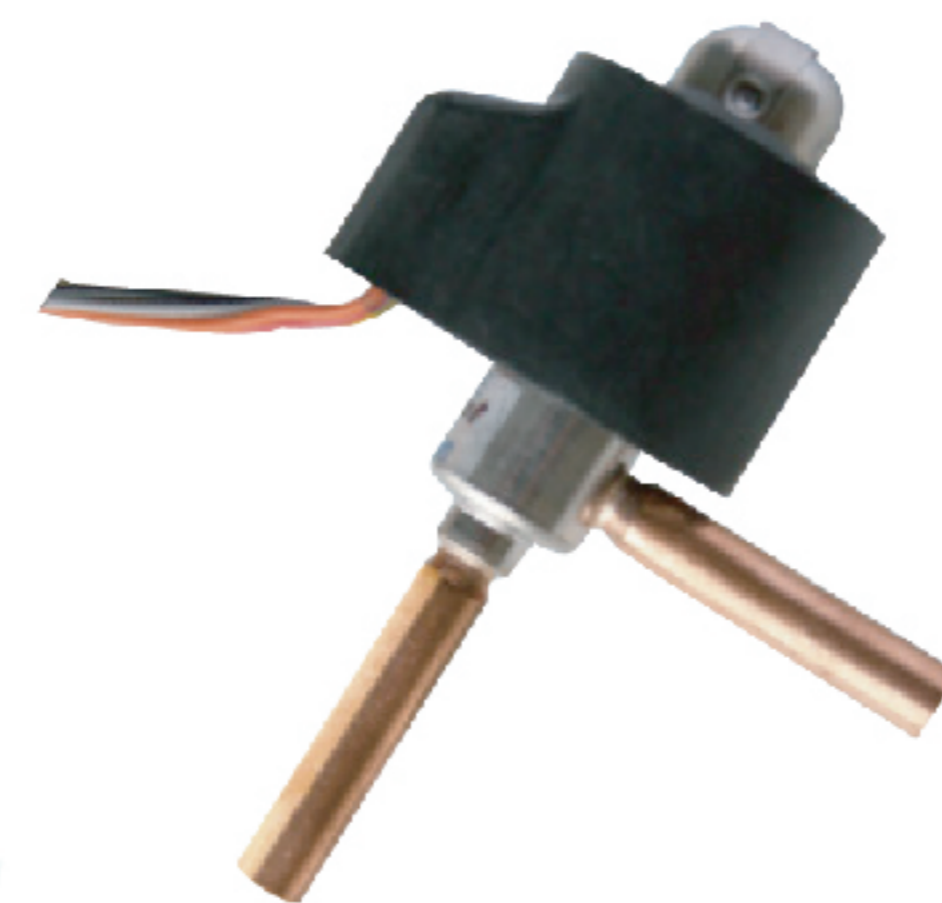
Smart Dual System, Flexible Operation

The innovative dual-system V-shaped high efficiency fin-type heat exchangers are applied in Hi-Mod series, and the two systems are independent, which could solve the problems related to the dependency of two-system operation.



High-accuracy Electric Expansion Valve

- ▶ High-accuracy electric expansion valves are used for heating and cooling to dynamically control the opening of the valve according to the changes of environment and water temperature, minimizing the fluctuations of system pressure and temperature and ensuring stable operation.
- ▶ The system has dynamic over-heat control function to accurately control the flow of refrigerant and ensures no remaining liquid refrigerant after evaporation.
- ▶ Control accurately with 480-step control.



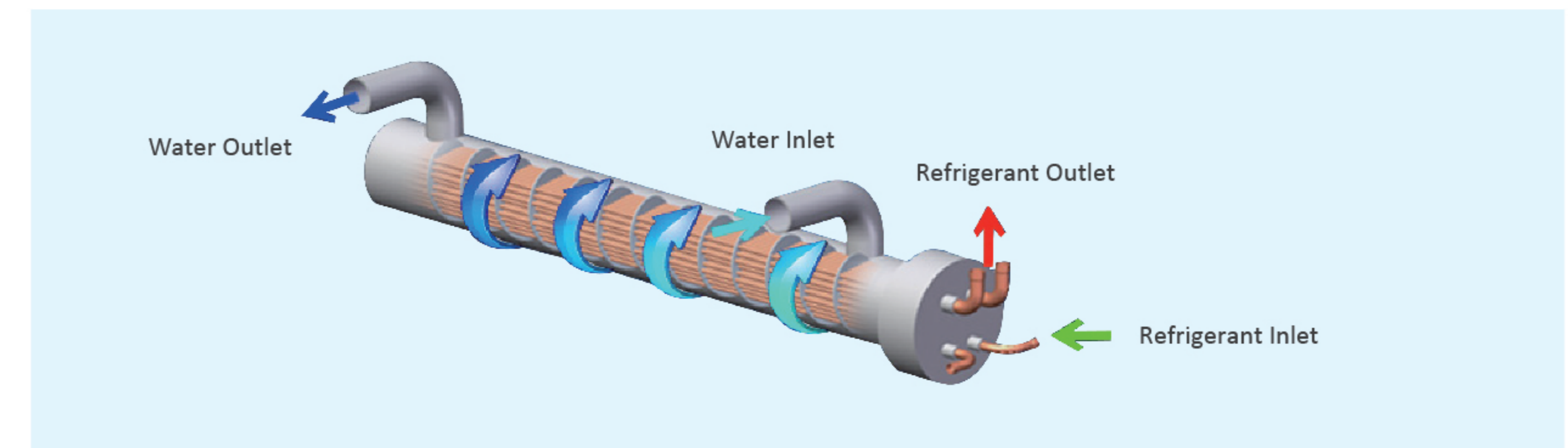
IP55-class Three-phase Fan Motor

- ▶ The fan motor in the airside is hermetically-sealed air-cooled squirrel cage three-phase fan motor, equipped with overheating protection function.
- ▶ Satisfy the IP55.



High-efficiency Shell-and-Tube Evaporator

- ▶ High-efficiency inner-screw shell-and-tube heat exchanger is applied in the water side.
- ▶ A stable heat exchange performance is ensured with less requirements for water quality and not easy to be blocked by mineral or impurities.
- ▶ Much more reliable than the plate heat exchanger thanks to its great anti-freezing ability.
- ▶ Target flow switch is standard, which can shut down the unit in case of water supply failure, ensuring safety.
- ▶ With built-in screw-type baffle plates, the flowing resistance and the energy consumption of pump both are largely reduced.



Dual Forward Flowing, Ensuring Reliability and Safety

Common electronic expansion valve always works like refrigerant forward flow for cooling and reverse flow for heating. For this product, a one-way valve is built in the pipeline of the refrigerant. The refrigerant flow for cooling and heating are both forward, which avoids the problems caused by the low pressure endurance, eliminating the over-pressure of expansion valve during backward flowing, ensuring a more reliable system.

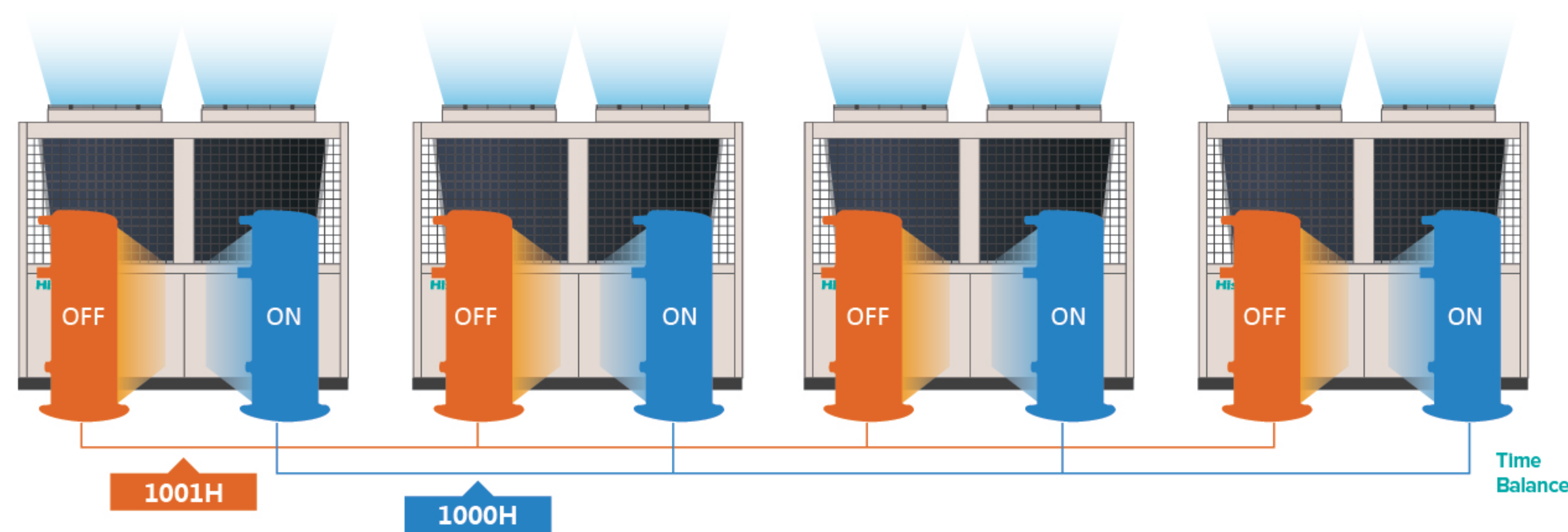
Hi-Mod

HIGH RELIABILITY

Stable operation, reliable and efficient

Rotational Operation of Compressors

The control system can record the working condition and accumulated working time of each compressor, and balance the allocation of the running time of each compressor intelligently. The compressor with short accumulated running time is firstly started when loading, while the compressor with long accumulated running time is firstly stopped when unloading, so as to extend the overall system's lifetime.



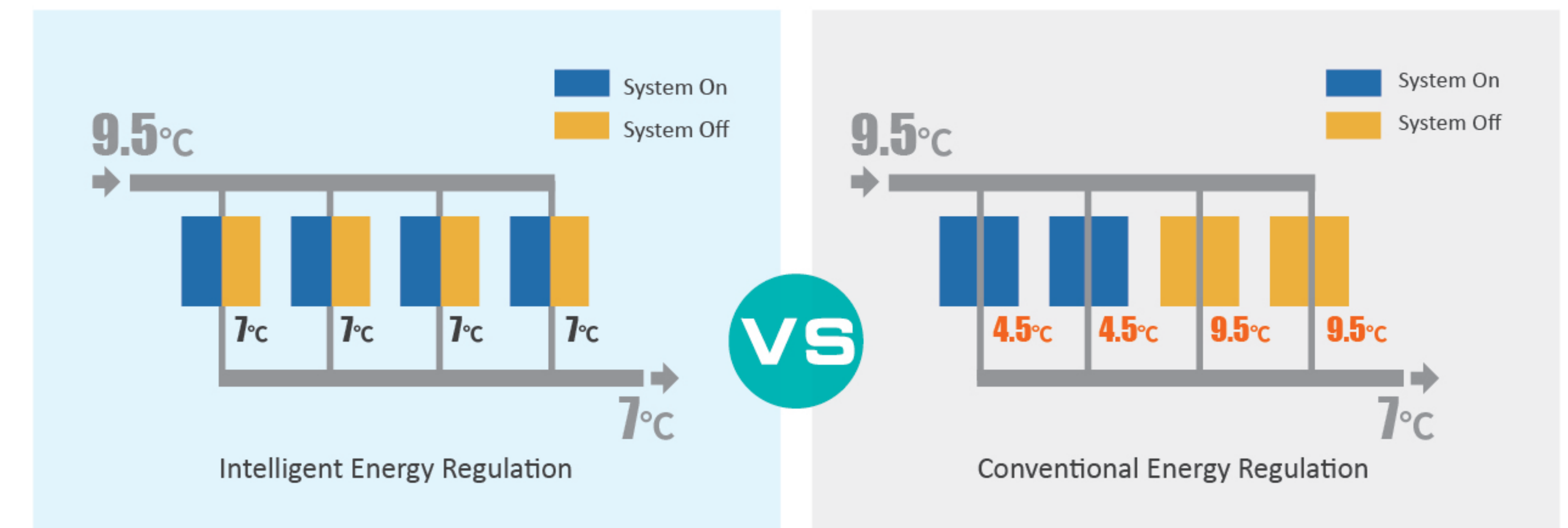
Anti Liquid Slugging Technology

There are electrical heating elements covering the crankcase of the compressor, which makes sure that the compressor is in a good lubrication state when standby in winter. The liquid refrigerant can be evaporated fully, preventing liquid slugging to the compressor on starting.



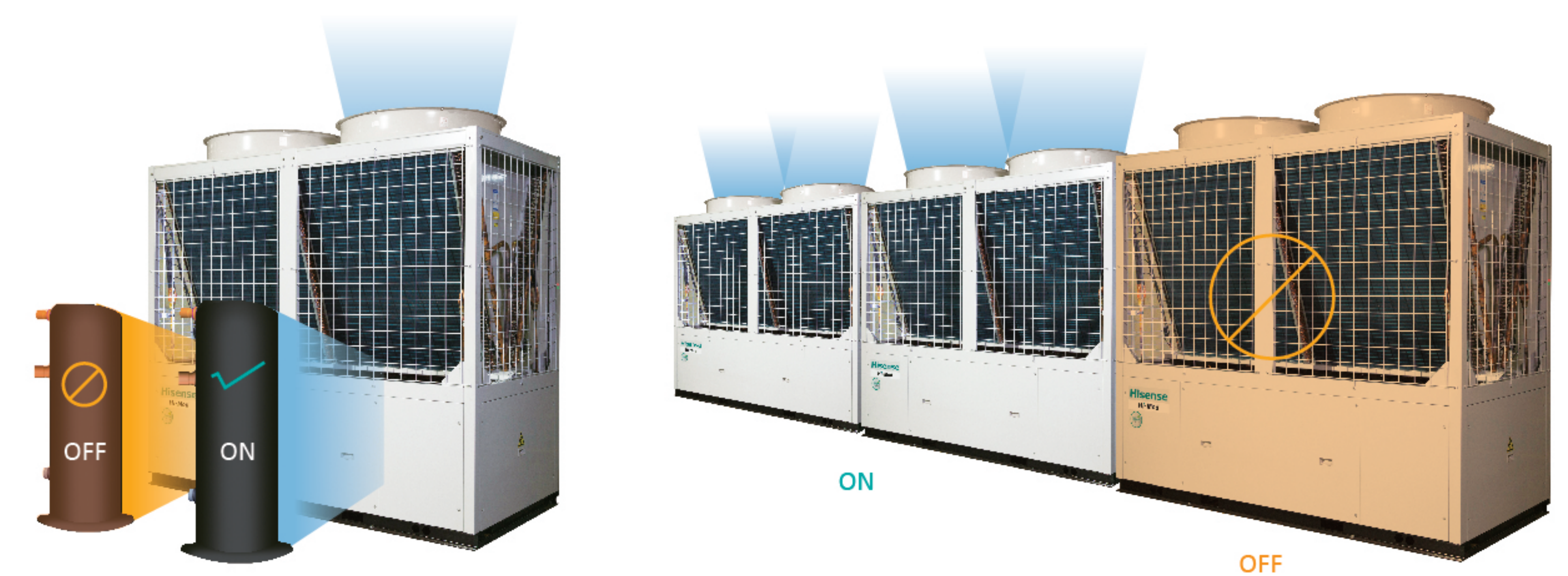
Intelligent Energy Regulation Technology

The technology always ensures that each module has at least one system working for multi-module combined unit, which can balance and adjust the temperature difference between inlet and outlet water for each module under partial load, avoiding much larger temperature difference and improving the system efficiency under partial load. Besides, temperature sensors are set on the inlet and outlet water pipes, which can monitor the real-time water temperature and control the on-off of the compressor according to the load changing.



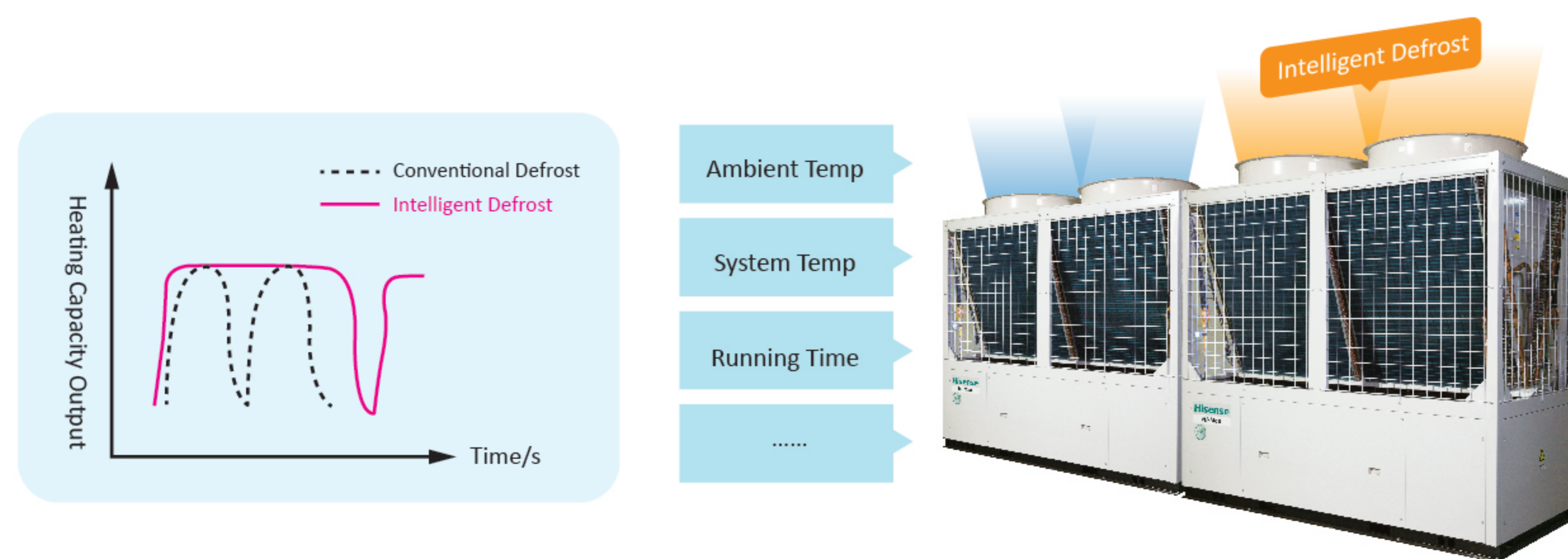
Fault Emergency and Backup Function

- ▶ Independent refrigerant loops in each module can realize emergency standby operation.
- ▶ The modules in one multi-module unit can realize emergency standby operation.



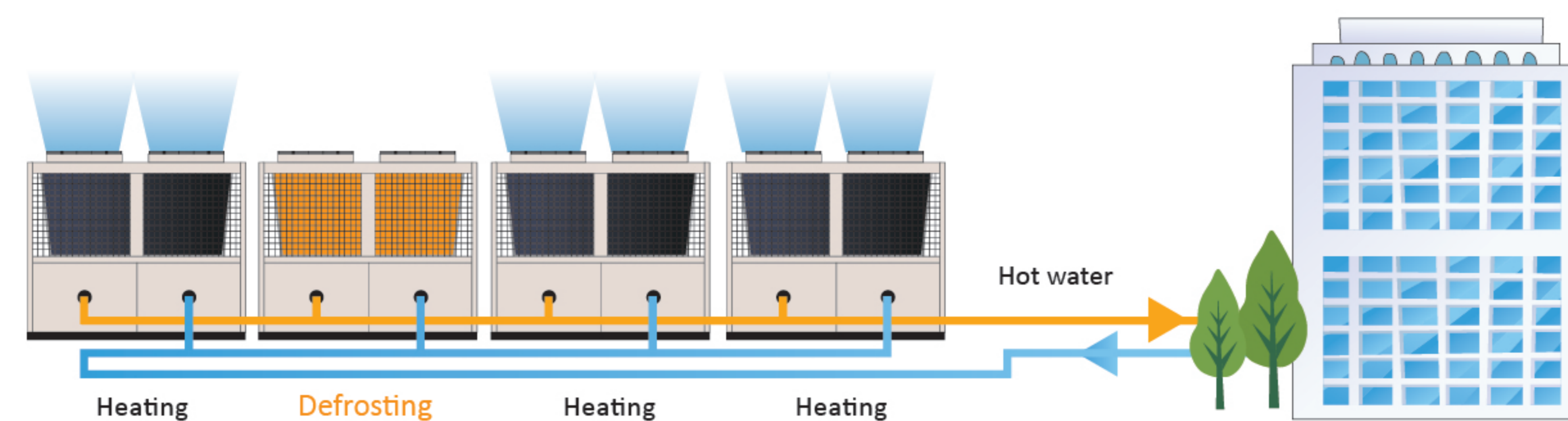
Intelligent Defrost

- ▶ The defrosting time is more accurate thanks to the innovative dual heat exchanger system.
- ▶ The left and right coils of the heat exchanger are respectively equipped with temperature sensors, and the defrosting can be accurately controlled according to the sensor values together with ambient temperature and running time.
- ▶ Defrosting time can be automatically adjusted, avoiding ineffective defrosting and prolonging the defrosting interval. The efficiency under heating is largely improved.
- ▶ Rotational defrosting can be achieved for module combination unit, fully guaranteeing the heating effect.



Consecutive Heating Ensuring High Efficient Operation

The two systems of each unit are independent of each other. When one system defrosts, the other system can work normally, effectively reducing the fluctuation of water temperature and improving the users' comfort. When the module-combined units work, the control system will balance the defrosting time of each module, so as to prevent every module from entering defrosting at the same time. The modules without defrosting will continue to work normally, ensuring a consecutive heating.



Hi-Mod

Defrost Can Be Performed Manually, Responding to Harsh Environment

In case of heavy snow cover, thick frost layer formed due to high humidity in the environment or ice formed due to severe low temperature, the defrosting can be performed compulsively by human, ensuring the lasting and reliable heating operation.



Multiple Protections Ensuring Safety and Stability

- ▶ Various protections for compressors, fan motor, water flow, high and low refrigerant pressure, water temp, power supply, current and communication are fully considered and designed ahead.
- ▶ Water flow switch is standard part, and there are multiple anti-freeze protections, protecting against freezing and setting off.
- ▶ Anti-freezing function will be automatically conducted according to the ambient temperature and inlet and outlet water temperature, to prevent the water system from freezing during standby state.
- ▶ There is a minimum operation time for the compressor, to prevent the compressor from damage due to frequent starts and stops.

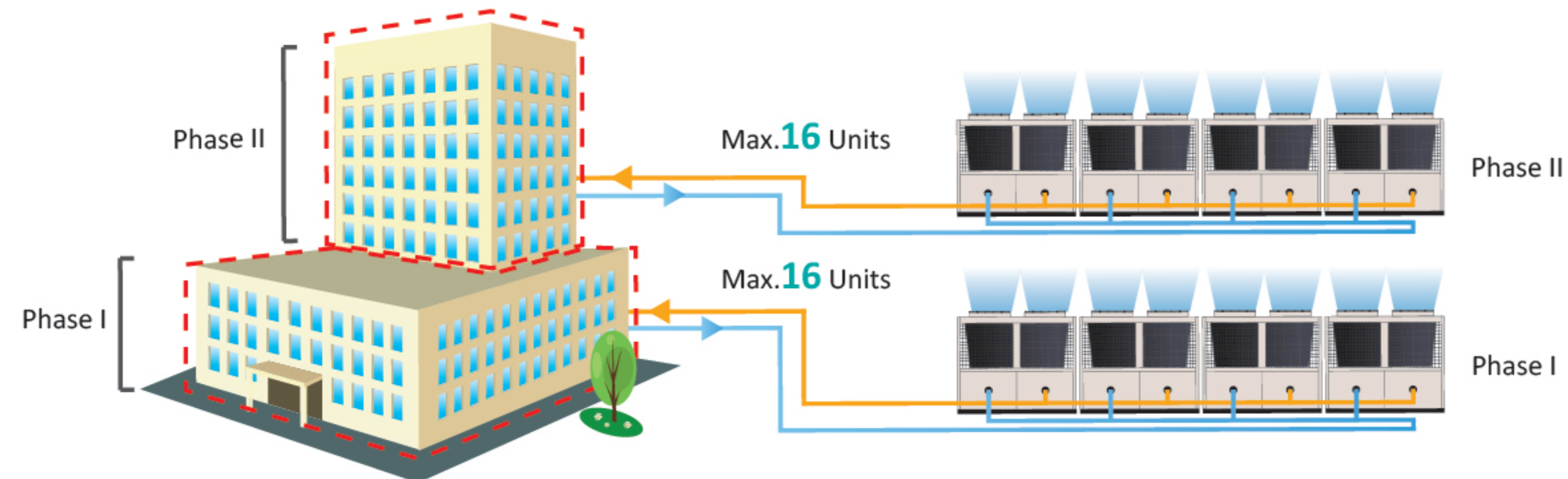


HIGH FLEXIBILITY

Flexible installation and convenient transportation

Module Design, More Convenient for Installation and Transportation

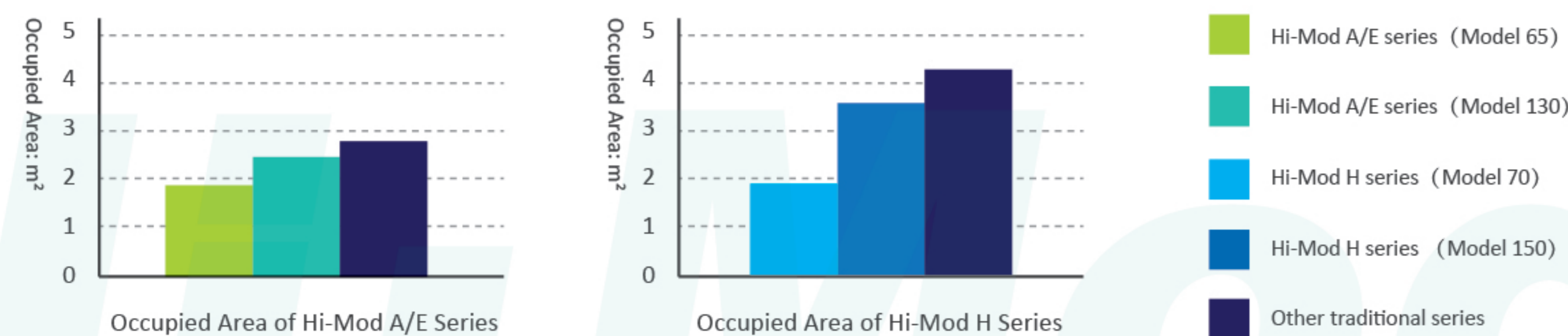
- ▶ The main and sub units are designed without difference, and any unit can be set as the main unit, which makes the combination and installation more convenient.
- ▶ Unit with different specifications of the same series can be connected freely to achieving large capacity output, and one controller can control up to 16 units, which is convenient to satisfy the various capacity cases.



* Hi-Mod A series has two base module, which can achieving capacity combination between 65kW and 2080kW.
 Hi-Mod E series has two base module, which can achieving capacity combination between 65kW and 2080kW.
 Hi-Mod H series has two base module, which can achieving heating capacity combination between 72kW and 2576kW.

Compact Body, Flexible and Convenient Installation

- ▶ The integral structure design effectively reduces the unit volume and occupied area, greatly saving space and cost of installation.
- ▶ The minimum occupied area is only 1.89 m², decreased by more than 42% compared with other traditional modules in the industry.



HIGH INTELLIGENCE

Intelligent control, smart and convenient

Intelligent Controller



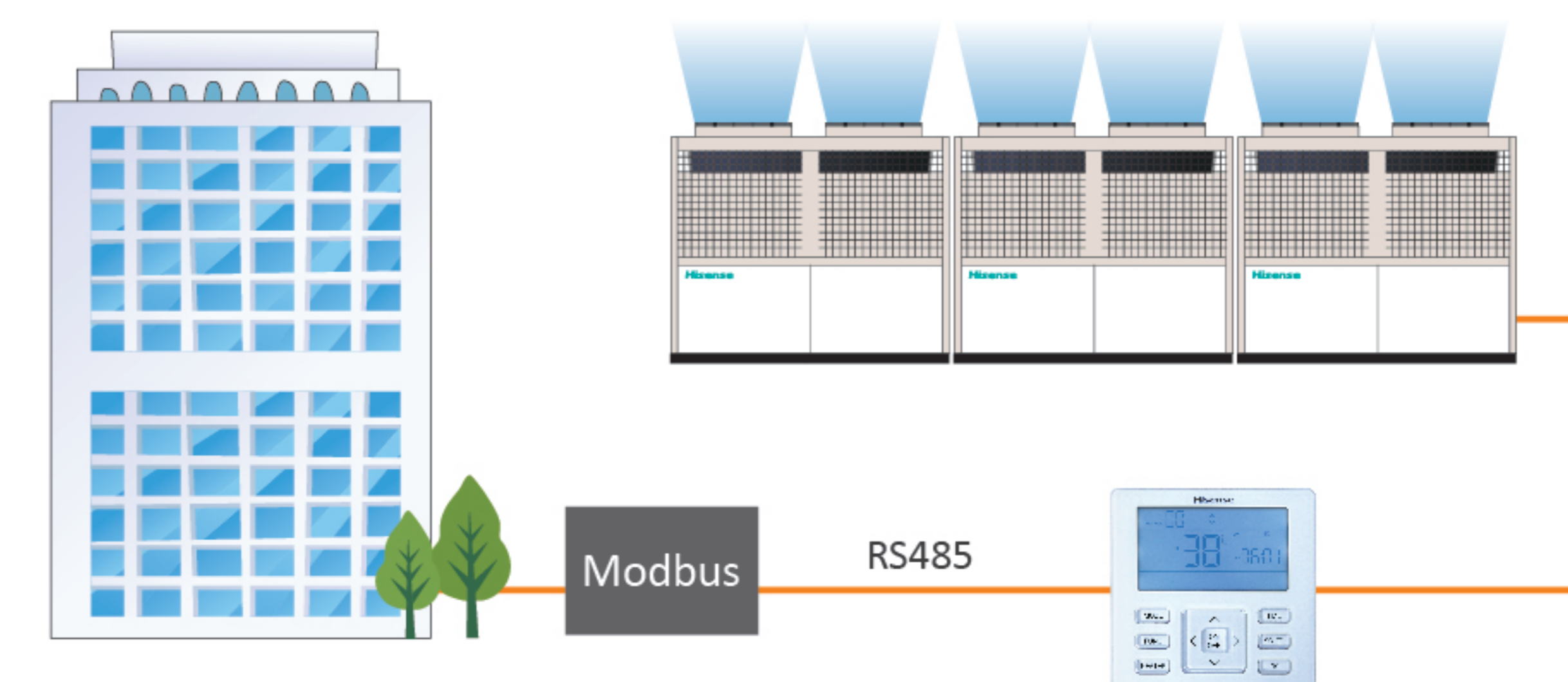
Dedicated Controller for Hi-Mod HSXC-FA01M

Comprehensive information display, easy to understand

- ▶ Work Mode setting
- ▶ Inlet and outlet water temperature setting
- ▶ Compressor, pump, heater and defrost state control
- ▶ Malfunction information display
- ▶ Time setting
- ▶ Schedule setting
- ▶ Central control

Connected to BMS

RS-485 signal interface is built in the controller, through which the unit can be connected to BMS. The interconnection of centralized control system realizes the networking group control and remote control.



Hi-Mod A Series

Standard type

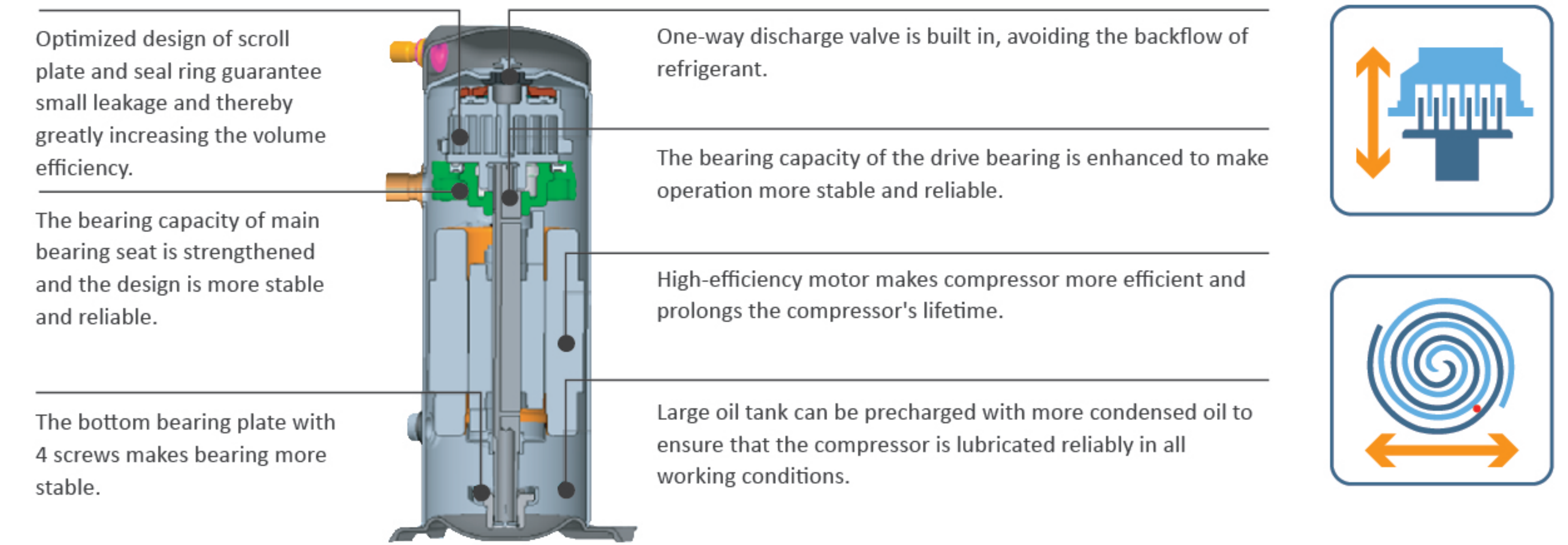
Hi-Mod A series can realize free combination between 16 modules, and the maximum combined capacity is 2080kW, which can be applied in large space.



- ▶ High Efficient Scroll Compressor
Efficiency, reliability and strong capacity output
- ▶ Environment-friendly Refrigerant R410A

Efficient Scroll Compressor

Hi-Mod A series adopts the high efficient hermetic scroll compressor, ensuring an efficient, reliable and low noise operation. What's more, the scroll compressor has small vibration and long lifetime.



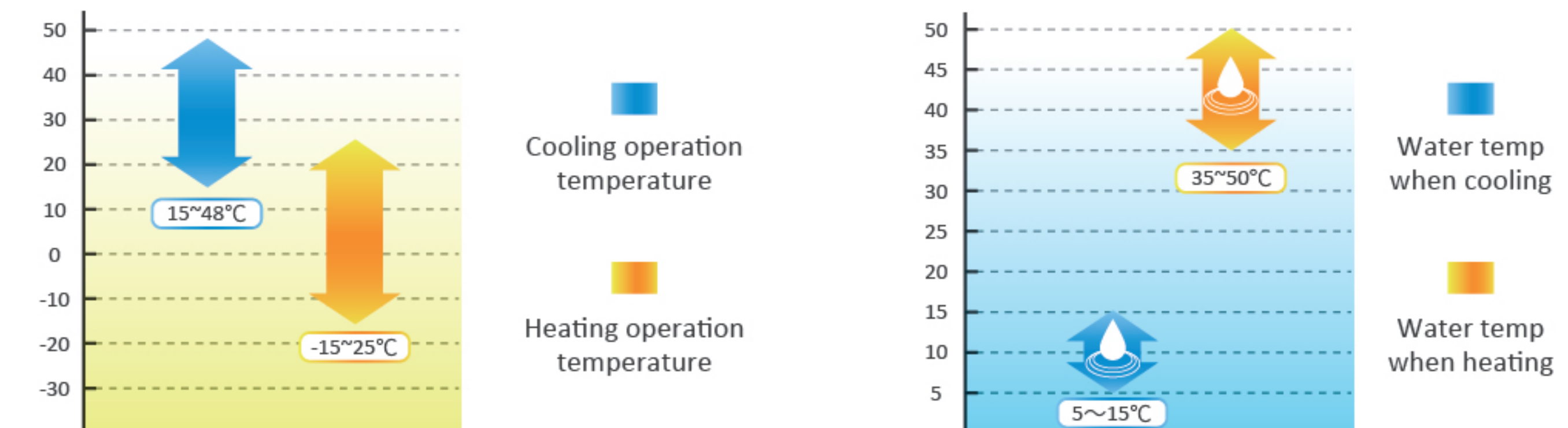
High Energy Efficiency and Environment-friendly Refrigerant R410A

- ▶ COP as high as 3.39.
- ▶ Energy-saving, effectively reduces the operation cost.
- ▶ R410A environmentally friendly refrigerant is without any damage to the ozonosphere.
- ▶ Meet the requirements of the RoHS directive for environmental protection, health and no-pollution.



Wide Operation Temperature

- ▶ Cooling operation temperature range: 15~48°C, Heating operation temperature range: -15~25°C.
- ▶ The cooled water outlet temperature is 5~15°C, while heated outlet temperature is 35~50°C. It can meet the comfort requirements of air conditioning in different seasons.



Hi-Mod A Series (Standard type)

Model		HFR-65W/A2F	HFR-130W/A2F	
Cooling Capacity	kW	65	130	
Heating Capacity	kW	70	140	
Rated Power Input of Cooling	kW	19.2	38.5	
Cooling Current	A	40	81.5	
Rated Power Input of Heating	kW	21	42	
Rated Heating Current	A	42.5	83.5	
Max. Consumption Power	kW	30.2	60.4	
Max. Current	A	52	104	
Single Unit Capacity Regulation	—	0-50%-100%	0-25%-50%-75%-100%	
Power Supply	—	AC 3Φ, 380V/50Hz	AC 3Φ, 380V/50Hz	
Water Flow	m ³ /h	11.2	22.4	
Water Resistance	kPa	45	50	
Water Inlet/Outlet Pipe Diameter	DN	DN65 Flange Connection	DN65 Flange Connection	
Max. Pressure Resistance of Water-side Heat Exchanger	MPa	1.0	1.0	
Running Mode	—	Automatic Operation Controlled By Microcomputer	Automatic Operation Controlled By Microcomputer	
Compressor Type	—	Hermetic Scroll Compressor	Hermetic Scroll Compressor	
Quantity of Compressors	PC	2	4	
Fan	Type	Axial Flow with Low-noise Large Blades		
	Air Volume	m ³ /h	26000	47000
	Quantity	PC	2	2
Refrigerant	Type	R410A		
	Precharged Amount	kg	2×6.0	2×11.5
Dimensions	Length	mm	2200	2300
	Width	mm	860	1100
	Height	mm	1910	2200
Weight	Net Weight	kg	620	1030
	Running Weight	kg	660	1130

Combined Capacity Parameter List

Model	HFR-65W/A2F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Cooling Capacity	kW	65	130	195	260	325	390	455	520	585	650	715	780	845	910	975	1040
Heating Capacity	kW	70	140	210	280	350	420	490	560	630	700	770	840	910	980	1050	1120
Water Flow	m ³ /h	11.2	22.4	33.6	44.8	56.0	67.2	78.4	89.6	100.8	112.0	123.2	134.4	145.6	156.8	168.0	179.2

Model	HFR-130W/A2F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Cooling Capacity	kW	130	260	390	520	650	780	910	1040	1170	1300	1430	1560	1690	1820	1950	2080
Heating Capacity	kW	140	280	420	560	700	840	980	1120	1260	1400	1540	1680	1820	1960	2100	2240
Water Flow	m ³ /h	22.4	44.8	67.2	89.6	112.0	134.4	156.8	179.2	201.6	224.0	246.4	268.8	291.2	313.6	336.0	358.4

Note:

- Rated cooling capacity and heating capacity are tested in the following conditions:
Cooling conditions: Outdoor ambient temperature is 35°C DB, and water outlet temperature is 7°C under the rated water flow.
Heating conditions: Outdoor ambient temperature is 7°C DB/6°C WB, and water outlet temperature is 45°C under the rated water flow.
- During the actual application, 6% loss of the capacity should be considered due to the pipeline, water pumps, various valves, dirt and so on.
- Hi-Mod A series should not work at the temperature lower than 15°C when cooling and lower than -15°C when heating.
- The specifications subject to change without notice in accordance with our policy of continuous product improvement.

Hi-Mod E Series

Low temperature and strong heating type

Hi-Mod E series adopts advanced EVI compression technology, and further optimizes the system design, effectively improving the heating capacity and efficiency under low-temperature conditions, and the lowest ambient temperature for heating operation can be as low as -26°C. Also it can provide a wide range of hot water temperature, with the highest water temperature of 55°C, meeting the needs of heating and domestic hot water.



- ▶ EVI Compressor
Greatly improve the heating capacity and energy efficiency
- ▶ Environment-friendly Refrigerant R410A



EVI Compression Technology, Strong Heating under Low Temperature

EVI compression technology overcomes the shortcomings of traditional air source heat pump units under low ambient temperature, such as capacity decreasing and low efficiency, greatly enhancing the low temperature heating capacity and improving the capacity and efficiency of the whole system.

- ▶ Heating capacity is increased by 7%~20%
- ▶ The highest outlet water temperature is 55°C

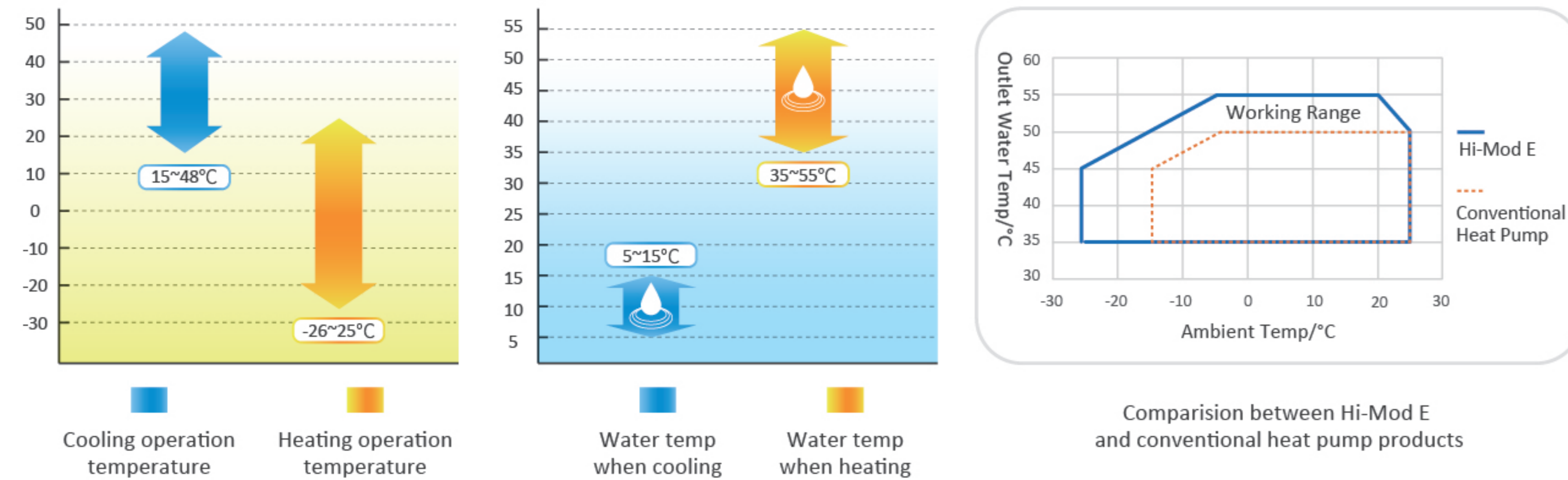
High Energy Efficiency and Environment-friendly Refrigerant R410A

The system has great performance under low ambient temperature. The nominal heating efficiency can separately reach to 2.6(HFR-65W/E2F) and 2.52(HFR-130W/E2F). Meanwhile, it adopts environment-friendly refrigerant R410A, which is non-toxic to human and doesn't damage the earth's ozone layer.



Wide Operation Temperature

- ▶ Cooling operation temperature range:15~48°C, heating operation temperature range:-26~25°C.
- ▶ The cooled water outlet temperature is 5~15°C, while heated outlet temperature is 35~55°C. It greatly satisfies the various requirements.



Hi-Mod E Series (Low temperature and strong heating type)

Model		HFR-65W/E2F	HFR-130W/E2F
Heating Capacity (7°C)	kW	70.0	140.0
Power Input of Heating (7°C)	kW	19.6	39.6
Heating Capacity (-12°C)	kW	45.0	90.0
Power Input of Heating (-12°C)	kW	17.3	35.7
Cooling Capacity	kW	65.0	130.0
Power Input of Cooling	kW	19.0	38.1
COPc/COPh (-12°C)	kW/kW	3.42/2.6	3.41/2.52
Current of Heating (7°C)	A	42.0	84.5
Current of Low Temp. Heating (-12°C)	A	36.9	76
Current of Cooling	A	40.5	81.5
Max. Power Consumption	kW	30.0	60.0
Max. Current	A	52.0	104.0
Single Unit Capacity Regulation	—	0-50%-100%	0-50%-100%
Power Supply	—	AC 3Φ, 380V/50Hz	AC 3Φ, 380V/50Hz
Water Flow	m³/h	11.2	22.4
Water Resistance	kPa	50	50
Water Inlet/Outlet Pipe Diameter	DN	DN65 Flange Connection	DN65 Flange Connection
Max. Pressure Resistance of Water-side Heat Exchanger	MPa	1.0	1.0
Running Mode	—	Automatic Operation Controlled By Microcomputer	Automatic Operation Controlled By Microcomputer
Compressor Type	—	Hermetic Scroll Compressor	Hermetic Scroll Compressor
Quantity of Compressors	PC	2	2
Fan	Type	—	Axial Flow with Low-noise Large Blades
	Air Volume	m³/h	26000
	Quantity	PC	2
Refrigerant	Type	—	R410A
	Precharged Amount	kg	2×7.0
Dimensions	Length	mm	2200
	Width	mm	860
	Height	mm	1910
Weight	Net Weight	kg	665
	Running Weight	kg	710

Combined Capacity Parameter List

Model	HFR-65W/E2F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Cooling Capacity	kW	65	130	195	260	325	390	455	520	585	650	715	780	845	910	975	1040
Heating Capacity*	kW	70	140	210	280	350	420	490	560	630	700	770	840	910	980	1050	1120
Water Flow	m³/h	11.2	22.4	33.6	44.8	56.0	67.2	78.4	89.6	100.8	112.0	123.2	134.4	145.6	156.8	168.0	179.2

Model	HFR-130W/E2F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Cooling Capacity	kW	130	260	390	520	650	780	910	1040	1170	1300	1430	1560	1690	1820	1950	2080
Heating Capacity*	kW	140	280	420	560	700	840	980	1120	1260	1400	1540	1680	1820	1960	2100	2240
Water Flow	m³/h	22.4	44.8	67.2	89.6	112.0	134.4	156.8	179.2	201.6	224.0	246.4	268.8	291.2	313.6	336.0	358.4

Note:

- Rated cooling capacity and heating capacity are tested in the following conditions:
Cooling conditions: Outdoor ambient temperature is 35°C DB, and water outlet temperature is 7°C under the rated water flow.
Heating conditions(7°C): Outdoor ambient temperature is 7°C DB/6°C WB, and water outlet temperature is 45°C under the rated water flow.
Heating conditions(-12°C): Outdoor ambient temperature is -12°C DB/-14°C WB, and water outlet temperature is 41°C under the rated water flow.
- During the actual application, 6% loss of the capacity should be considered due to the pipeline, water pumps, various valves, dirt and so on.
- Hi-Mod E series should not work at the temperature lower than 15°C when cooling and lower than -26°C when heating.
- The specifications subject to change without notice in accordance with our policy of continuous product improvement.
- The heat capacity noted with * is tested when outdoor ambient temperature is 7°C DB/6°C WB, and water outlet temperature is 45°C under the rated water flow.



- ▶ Ultra low temperature and strong heating
Strong capacity under extreme low ambient temperature
Outlet water temperature as high as 60°C
- ▶ EVI Compressor
Efficiency and reliable

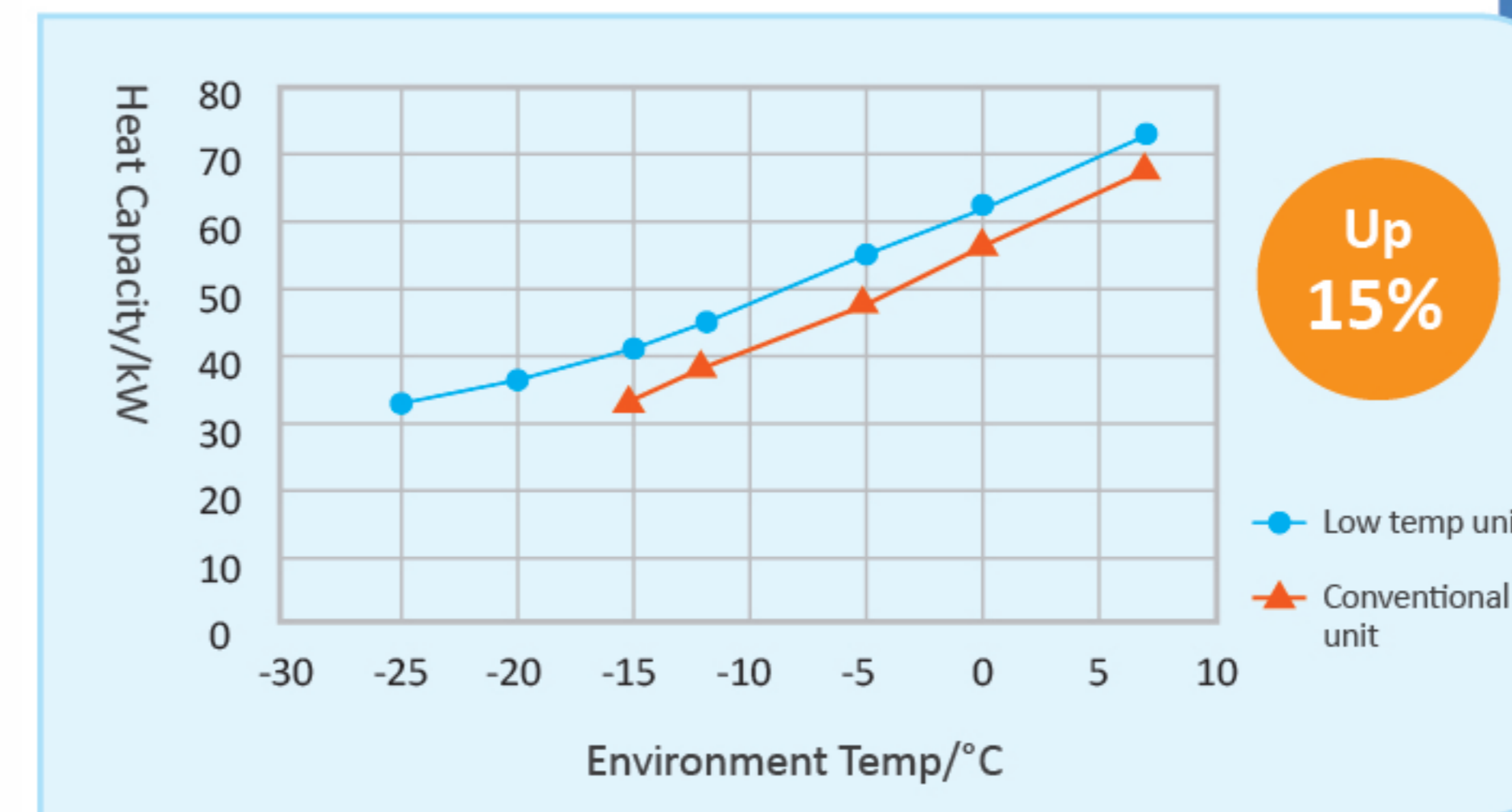
Hi-Mod H Series

Ultra-low temperature and strong heating type

The highest outlet water temperature as high as 60°C, which better meets the water temp. demand of heat radiator. Meanwhile, it has strong heating capacity under very extremely ambient temperature as low as -26°C, and the COP under heating operation exceeds 2.0 at -20°C, more efficient. Thus, Hi-Mod H series can be widely applied in extremely cold districts.

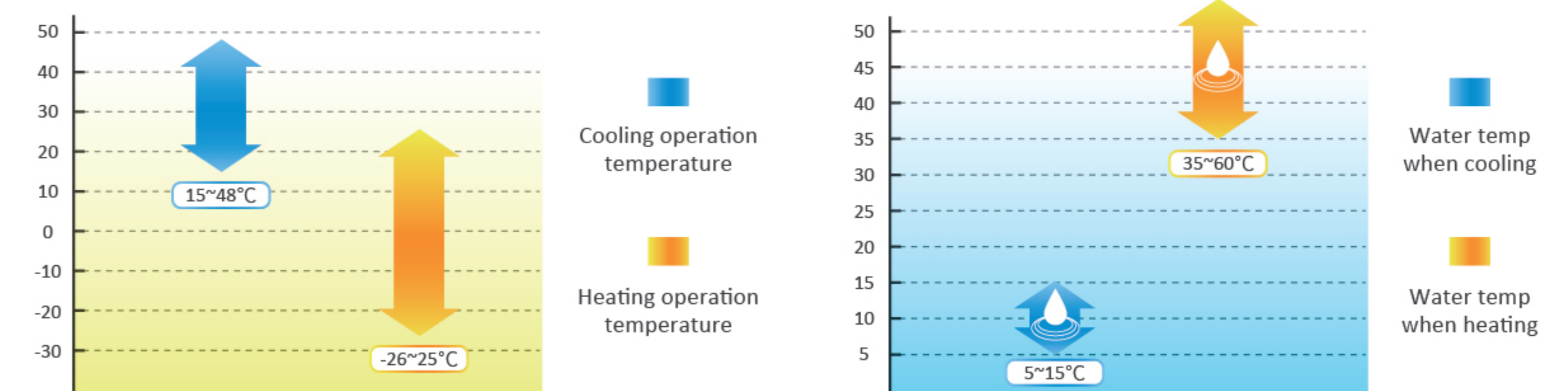
Excellent Heating Capacity at Low Temperature

- ▶ Under the ambient temp -12°C, the heating capacity with 41°C hot water outlet can reach more than 62.5% of the rated heating capacity.
- ▶ Under the ambient temp -20°C, when the temp of hot water outlet is 45°C, the COP of the system can exceed 2.0.
- ▶ Compared with the conventional R410A units on the market, Hi-Mod H series can increase the heat capacity as high as 15% at ultra low temperature.



Wide Operation Temperature for Broad Applications

- ▶ Heating operation temperature range: -26~25°C, Cooling operation temperature range: 15~48°C.
- ▶ The heated water outlet temperature is 35~60°C, and the cooled water outlet temperature is 5~15°C.
- ▶ With wide range of water temperature, it covers hot water temperature needs of the old cast iron radiator, new copper and aluminum composite radiator, fan coil, floor heating and other heating equipments. Also it can be used to make domestic hot water ensuring a quality life anytime and anywhere.



Old Type Radiator
(Hot water 50~65°C)



New Type Radiator
(Hot water 45~55°C)



Fan Coil
(Hot water 40~50°C)



Floor Heating
(Hot water 35~45°C)

Hi-Mod H Series (Ultra-low temperature and strong heating type)

Model		HFR-70W/H1F	HFR-150W/H1F	
Heating Capacity(7°C)	kW	72	161.0	
Power Input of Heating(7°C)	kW	21	45.1	
Heating Capacity(-12°C)	kW	45	104.0	
Power Input of Heating(-12°C)	kW	18	41.6	
Cooling Capacity	kW	66	150.0	
Power Input of Cooling	kW	19.8	45.2	
Current of Heating	A	42.5	89.6	
Current of Low Temp. Heating	A	36.5	82.8	
Current of Cooling	A	41	90.0	
Max. Power Consumption	kW	30	66	
Max. Current	A	54	116	
Single Unit Capacity Regulation	—	0-50%-100%	0-50%-100%	
Power Supply	—	AC 3Φ, 380V/50Hz	AC 3Φ, 380V/50Hz	
Water Flow	m³/h	11.35	25.80	
Water Resistance	kPa	50	50	
Water Inlet/Outlet Pipe Diameter	DN	DN65 Flange Connection	DN65 Flange Connection	
Max. Pressure Resistance of Water-side Heat Exchanger	MPa	1.0	1.0	
Running Mode	—	Automatic Operation Controlled By Microcomputer	Automatic Operation Controlled By Microcomputer	
Compressor Type	—	Hermetic Scroll Compressor	Hermetic Scroll Compressor	
Quantity of Compressors	PC	2	2	
Fan	Type	Axial Flow with Low-noise Large Blades		
	Air Volume	m³/h	26000	60000
	Quantity	PC	2	4
Refrigerant	Type	R410A		
	Precharged Amount	kg	2×8.5	2×16.0
Dimensions	Length	mm	2200	2200
	Width	mm	860	1780
	Height	mm	2010	2100
Weight	Net Weight	kg	710	1240
	Running Weight	kg	760	1300

Combined Capacity Parameter List

Model	HFR-70W/H1F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Cooling Capacity	kW	66	132	198	264	330	396	462	528	594	660	726	792	858	924	990	1056
Heating Capacity*	kW	72	144	216	288	360	432	504	576	648	720	792	864	936	1008	1080	1152
Water Flow	m³/h	11.36	22.72	34.08	45.44	56.80	68.16	79.52	90.88	102.24	113.60	124.96	136.32	147.68	159.04	170.40	181.76

Model	HFR-150W/H1F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Cooling Capacity	kW	150	300	450	600	750	900	1050	1200	1350	1500	1650	1800	1950	2100	2250	2400
Heating Capacity*	kW	161	322	483	644	805	966	1127	1288	1449	1610	1771	1932	2093	2254	2415	2576
Water Flow	m³/h	25.8	51.6	77.4	103.2	129	154.8	180.6	206.4	232.2	258	283.8	309.6	335.4	361.2	387	412.8

Note:

- Rated cooling capacity and heating capacity are tested in the following conditions:
 Cooling conditions: Outdoor ambient temperature is 35°C DB, and water outlet temperature is 7°C under the rated water flow.
 Heating conditions(7°C): Outdoor ambient temperature is 7°C DB/6°C WB, and water outlet temperature is 45°C under the rated water flow.
 Heating conditions(-12°C): Outdoor ambient temperature is -12°C DB/-14°C WB, and water outlet temperature is 41°C under the rated water flow
- During the actual application, 6% loss of the capacity should be considered due to the pipeline, water pumps, various valves, dirt and so on.
- Hi-Mod H series should not work at the temperature lower than 15°C when cooling and lower than -26°C when heating.
- The specifications subject to change without notice in accordance with our policy of continuous product improvement.
- The heat capacity noted with * is tested when outdoor ambient temperature is 7°C DB/6°C WB, and water outlet temperature is 45°C under the rated water flow.

Capacity Correction Factor

Correction factors of cooling performance

Water Outlet Temperature °C	Environment Temperature °C											
	20		25		30		35		40		45	
	Cooling Capacity	Power Input	Cooling Capacity	Power Input	Cooling Capacity	Power Input	Cooling Capacity	Power Input	Cooling Capacity	Power Input	Cooling Capacity	Power Input
5	1.113	0.776	1.056	0.858	1.000	0.928	0.943	0.990	0.868	1.069	0.792	1.135
7	1.180	0.783	1.120	0.867	1.060	0.938	1.000	1.000	0.920	1.080	0.840	1.147
9	1.254	0.791	1.191	0.875	1.127	0.947	1.063	1.010	0.978	1.091	0.893	1.158
11	1.337	0.799	1.269	0.884	1.201	0.956	1.133	1.020	1.042	1.102	0.952	1.170
13	1.410	0.807	1.338	0.893	1.267	0.966	1.195	1.030	1.099	1.112	1.004	1.181
15	1.475	0.815	1.400	0.901	1.325	0.975	1.250	1.040	1.150	1.123	1.050	1.193

Note:The above correction factors are applied for these models: HFR-65W/A2F, HFR-130W/A2F, HFR-65W/E2F, HFR-130W/E2F, HFR-70W/H1F, HFR-150W/H1F.

Correction factors of heating performance

Water Outlet Temperature °C	Environment Temperature °C													
	-15		-10		-5		0		7		15		21	
	Heating Capacity	Power Input	Heating Capacity	Power Input	Heating Capacity	Power Input	Heating Capacity	Power Input	Heating Capacity	Power Input	Heating Capacity	Power Input	Heating Capacity	Power Input
35	0.546	0.802	0.642	0.818	0.749	0.834	0.870	0.850	1.070	0.890	1.220	0.930	1.284	0.954
40	0.525	0.836	0.618	0.862	0.721	0.888	0.838	0.910	1.030	0.950	1.174	0.990	1.236	1.014
45	0.510	0.900	0.600	0.919	0.700	0.938	0.814	0.960	1.000	1.000	1.140	1.043	1.200	1.074
50	—	—	0.582	0.983	0.679	1.003	0.790	1.025	0.970	1.055	1.106	1.105	1.164	1.134

Note:The above correction factors are applied for these models: HFR-65W/A2F, HFR-130W/A2F.

Water Outlet Temperature °C	Environment Temperature °C																	
	-25		-20		-15		-12		-5		0		7		15		21	
	Heating Capacity	Power Input	Heating Capacity	Power Input	Heating Capacity	Power Input	Heating Capacity	Power Input	Heating Capacity	Power Input	Heating Capacity	Power Input	Heating Capacity	Power Input	Heating Capacity	Power Input	Heating Capacity	Power Input
35	0.477	0.821	0.538	0.826	0.612	0.832	0.664	0.835	0.793	0.851	0.886	0.860	1.060	0.886	1.197	0.913	1.297	0.937
40	0.464	0.851	0.524	0.859	0.595	0.867	0.646	0.871	0.771	0.894	0.861	0.907	1.030	0.939	1.163	0.966	1.260	0.989
45	0.451	0.905	0.511	0.914	0.582	0.923	0.632	0.929	0.752	0.952	0.838	0.966	1.000	1.000	1.129	1.026	1.222	1.049
50	—	—	—	—	0.563	1.001	0.611	1.008	0.726	1.025	0.809	1.034	0.965	1.060	1.089	1.086	1.179	1.108
55	—	—	—	—	—	—	—	—	0.703	1.086	0.781	1.094	0.930	1.119	1.049	1.143	1.136	1.164

Note:The above correction factors are applied for HFR-65W/E2F.

Water Outlet Temperature °C	Environment Temperature °C																	
	-25		-20		-15		-12		-5		0		7		15		21	
	Heating Capacity	Power Input	Heating Capacity	Power Input	Heating Capacity	Power Input	Heating Capacity	Power Input	Heating Capacity	Power Input	Heating Capacity	Power Input	Heating Capacity	Power Input	Heating Capacity	Power Input	Heating Capacity	Power Input
35	0.477	0.831	0.538	0.837	0.612	0.847	0.664	0.853	0.793	0.861	0.886	0.870	1.060	0.886	1.197	0.919	1.297	0.943
40	0.464	0.862	0.524	0.870	0.595	0.882	0.646	0.890	0.771	0.904	0.861	0.917	1.030	0.939	1.163	0.972	1.260	0.995
45	0.451	0.917	0.511	0.926	0.582	0.940	0.632	0.948	0.752	0.963	0.838	0.977	1.000	1.000	1.129	1.032	1.222	1.055
50	—	—	—	—	0.563	1.019	0.611	1.029	0.726	1.038	0.809	1.047	0.965	1.060	1.089	1.094	1.179	1.117
55	—	—	—	—	—	—	—	—	0.703	1.100	0.781	1.108	0.930	1.119	1.049	1.152	1.136	1.173

Note:The above correction factors are applied for HFR-130W/E2F.

Water Outlet Temperature °C	Environment Temperature °C																	
	-25		-20		-15		-12		-5		0		7		15		21	
	Heating Capacity	Power Input	Heating Capacity	Power Input	Heating Capacity	Power Input	Heating Capacity	Power Input	Heating Capacity	Power Input	Heating Capacity	Power Input	Heating Capacity	Power Input	Heating Capacity	Power Input	Heating Capacity	Power Input
35	0.466	0.788	0.536	0.798	0.605	0.809	0.647	0.815	0.783	0.841	0.886	0.860	1.060	0.886	1.219	0.924	1.325	0.953
40	0.453	0.818	0.521	0.831	0.588	0.844	0.628	0.851	0.761	0.884	0.861	0.907	1.030	0.939	1.185	0.977	1.288	1.005
45	0.440	0.872	0.507	0.886	0.575	0.900	0.615	0.909	0.742	0.942	0.838	0.966	1.000	1.000	1.150	1.037	1.250	1.065
50	0.425	0.945	0.490	0.962	0.555	0.978	0.593	0.988	0.716	1.015	0.809	1.034	0.965	1.060	1.110	1.097	1.206	1.124
55	—	—	0.474	1.029	0.538	1.043	0.577	1.052	0.693	1.076	0.781	1.094	0.930	1.119	1.070	1.154	1.163	1.180
60	—	—	—	—	0.515	1.101	0.552	1.106	0.663	1.138	0.747	1.160	0.890	1.192	1.024	1.226	1.113	1.252

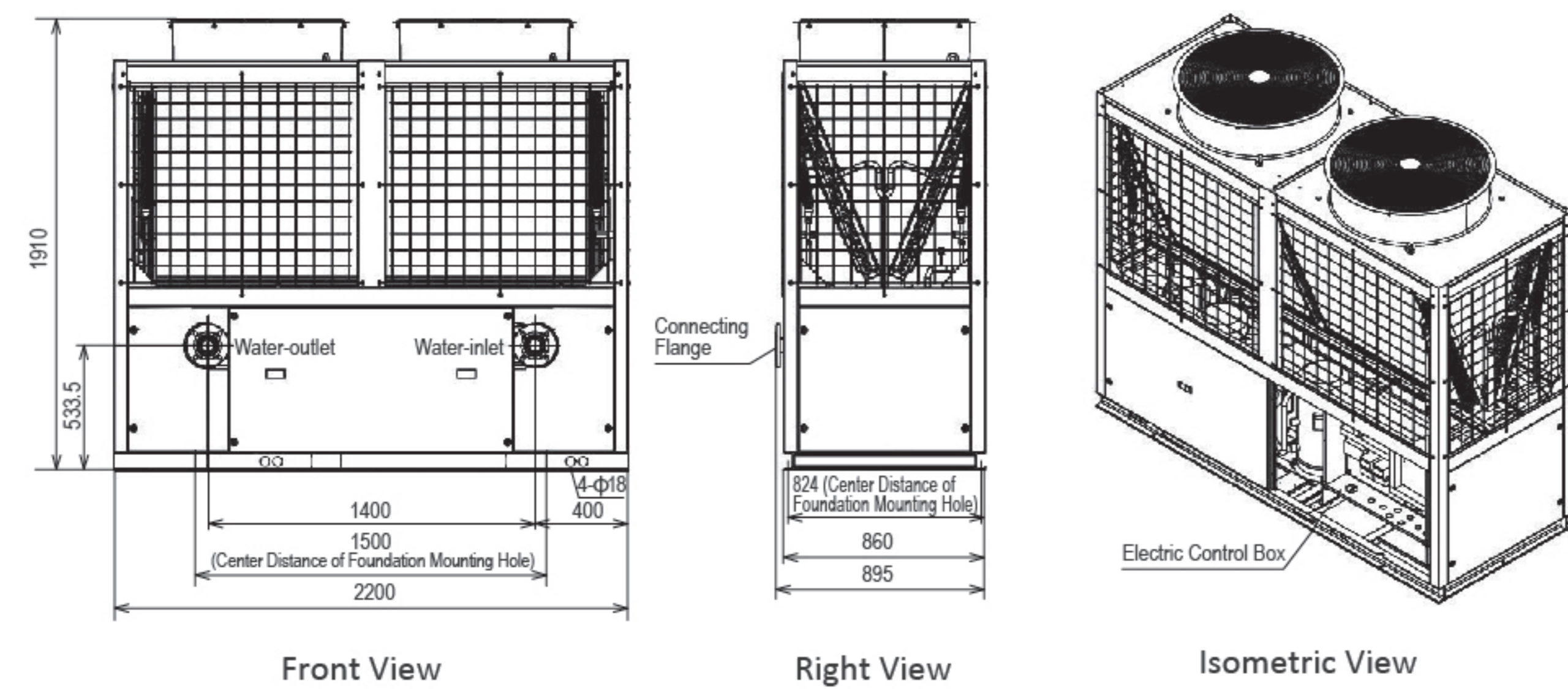
Note: The above correction factors are applied for HFR-70W/H1F.

Water Outlet Temperature °C	Environment Temperature °C																	
	-25		-20		-15		-12		-5		0		7		15		21	
	Heating Capacity	Power Input	Heating Capacity	Power Input	Heating Capacity	Power Input	Heating Capacity	Power Input	Heating Capacity	Power Input	Heating Capacity	Power Input	Heating Capacity	Power Input	Heating Capacity	Power Input	Heating Capacity	Power Input
35	0.472	0.831	0.528	0.837	0.612	0.855	0.667	0.869	0.793	0.876	0.886	0.885	1.060	0.893	1.197	0.919	1.297	0.943
40	0.460	0.862	0.514	0.870	0.595	0.892	0.649	0.910	0.771	0.919	0.861	0.927	1.030	0.939	1.163	0.972	1.260	0.995
45	0.446	0.917	0.501	0.926	0.582	0.950	0.635	0.968	0.752	0.978	0.838	0.987	1.000	1.000	1.129	1.032	1.222	1.055
50	—	—	0.488	0.982	0.563	1.010	0.614	1.033	0.726	1.044	0.809	1.051	0.965	1.063	1.089	1.094	1.179	1.117
55	—	—	—	—	0.543	1.069	0.593	1.098	0.703	1.108	0.781	1.118	0.930	1.127	1.049	1.152	1.136	1.173
60	—	—	—	—	—	—	—	0.680	1.172	0.753	1.179	0.895	1.186	1.009	1.209	—	—	—

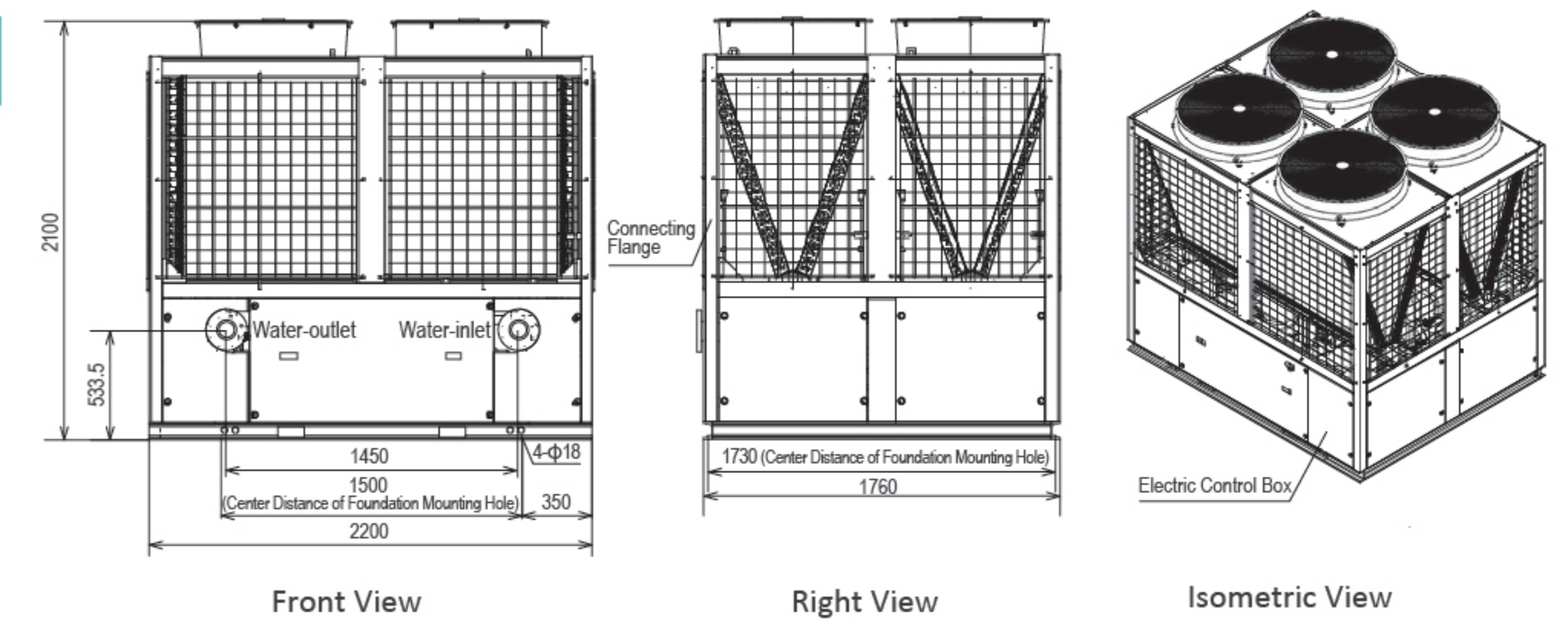
Note: The above correction factors are applied for HFR-150W/H1F.

Unit Dimensions

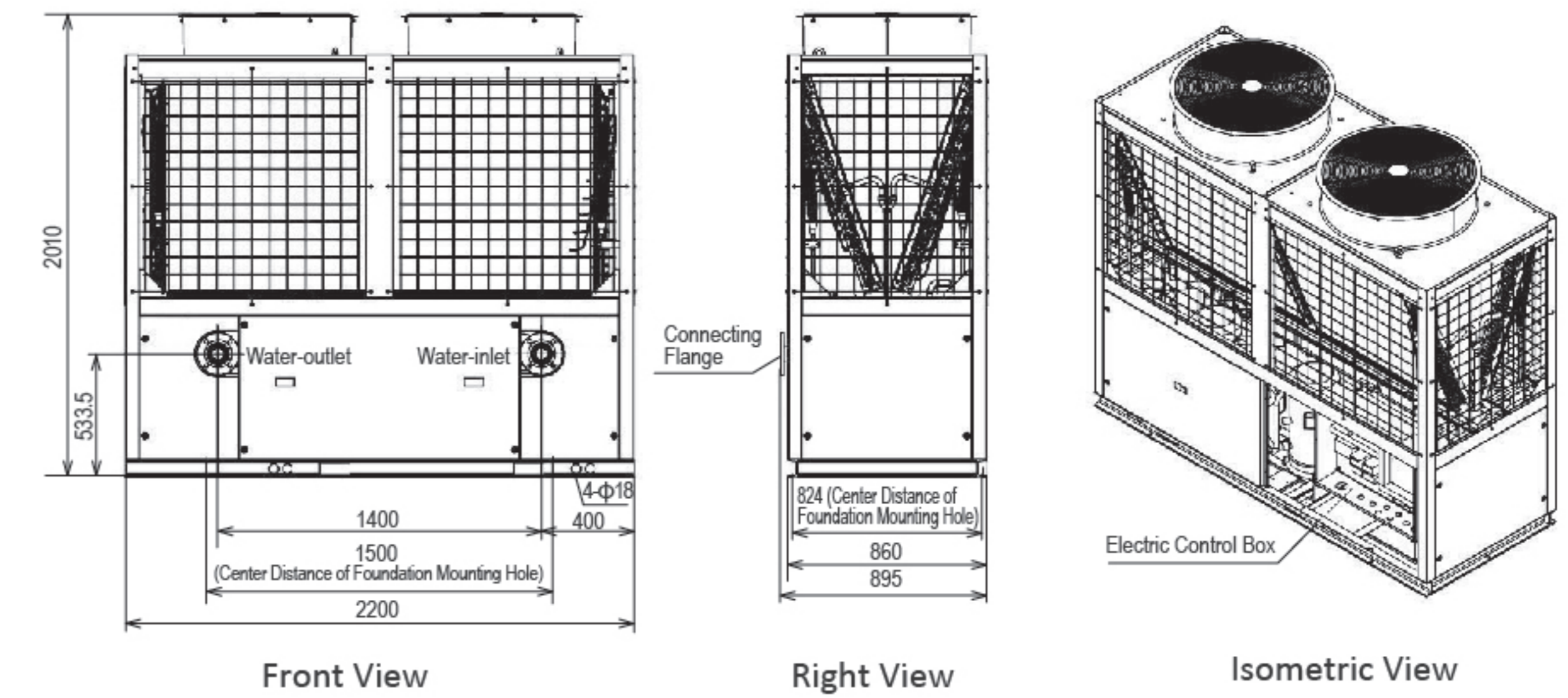
HFR-65W/A2F
HFR-65W/E2F



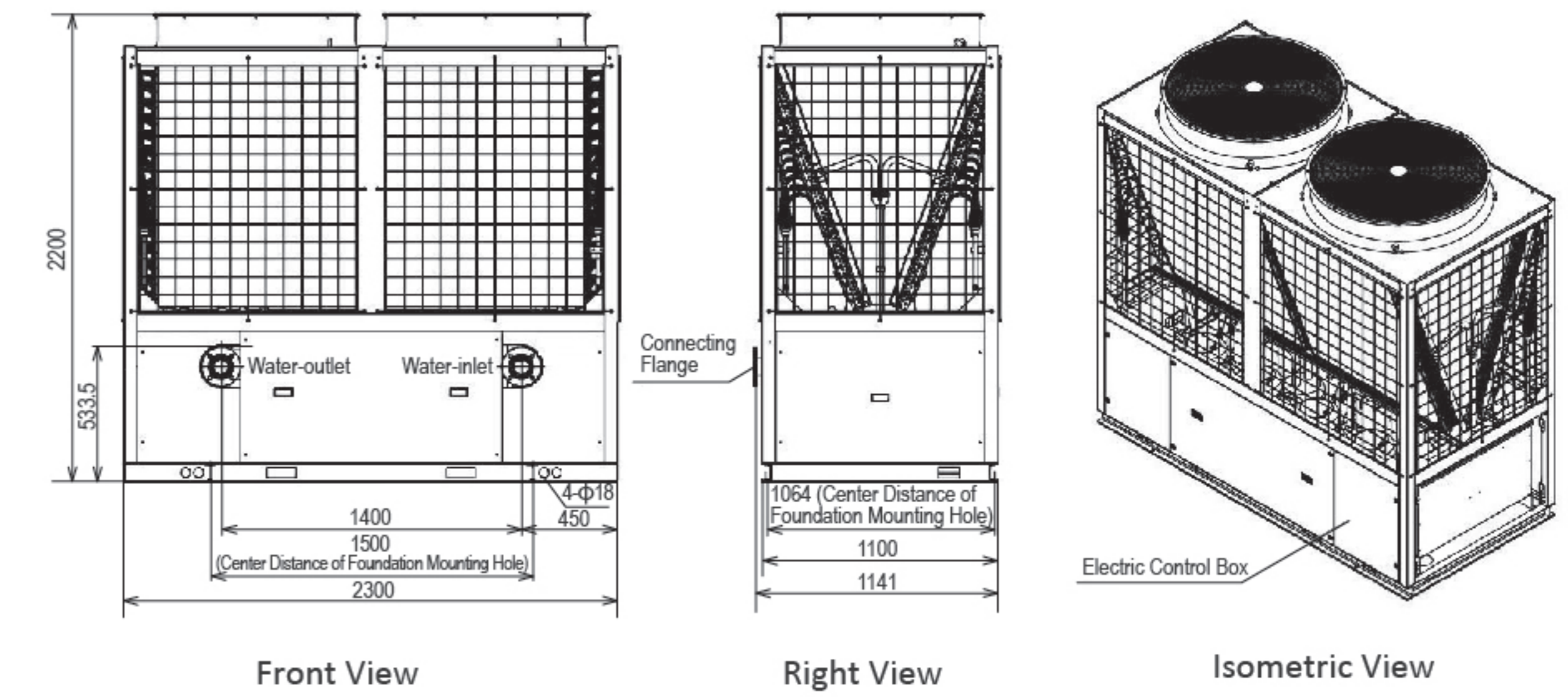
HFR-150W/H1F



HFR-70W/H1F

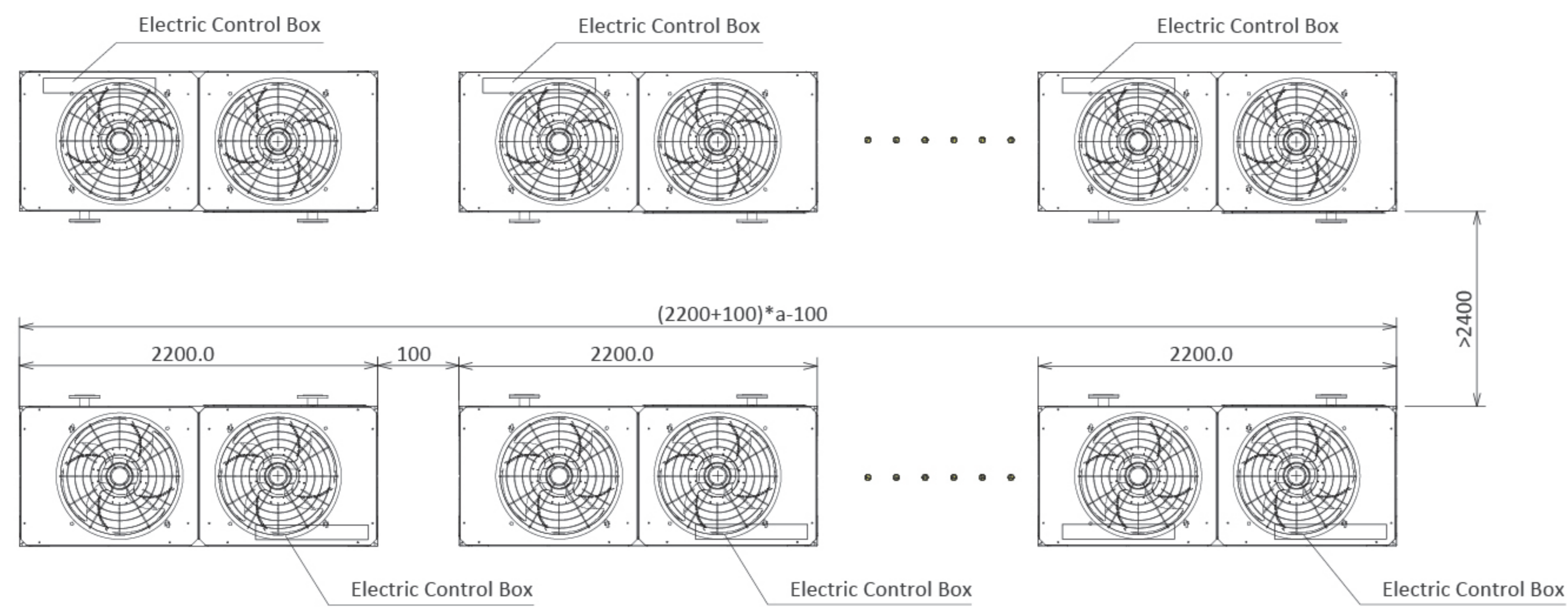


HFR-130W/A2F
HFR-130W/E2F

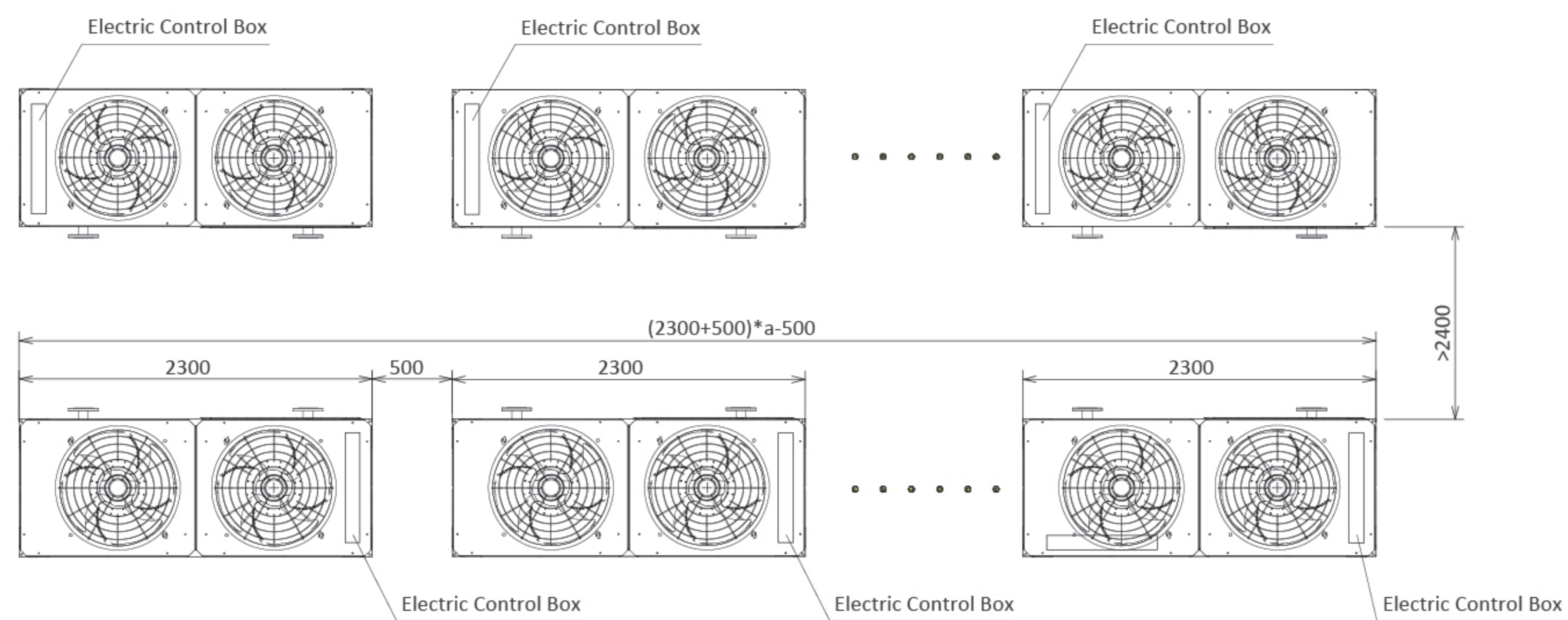


Installation Demand

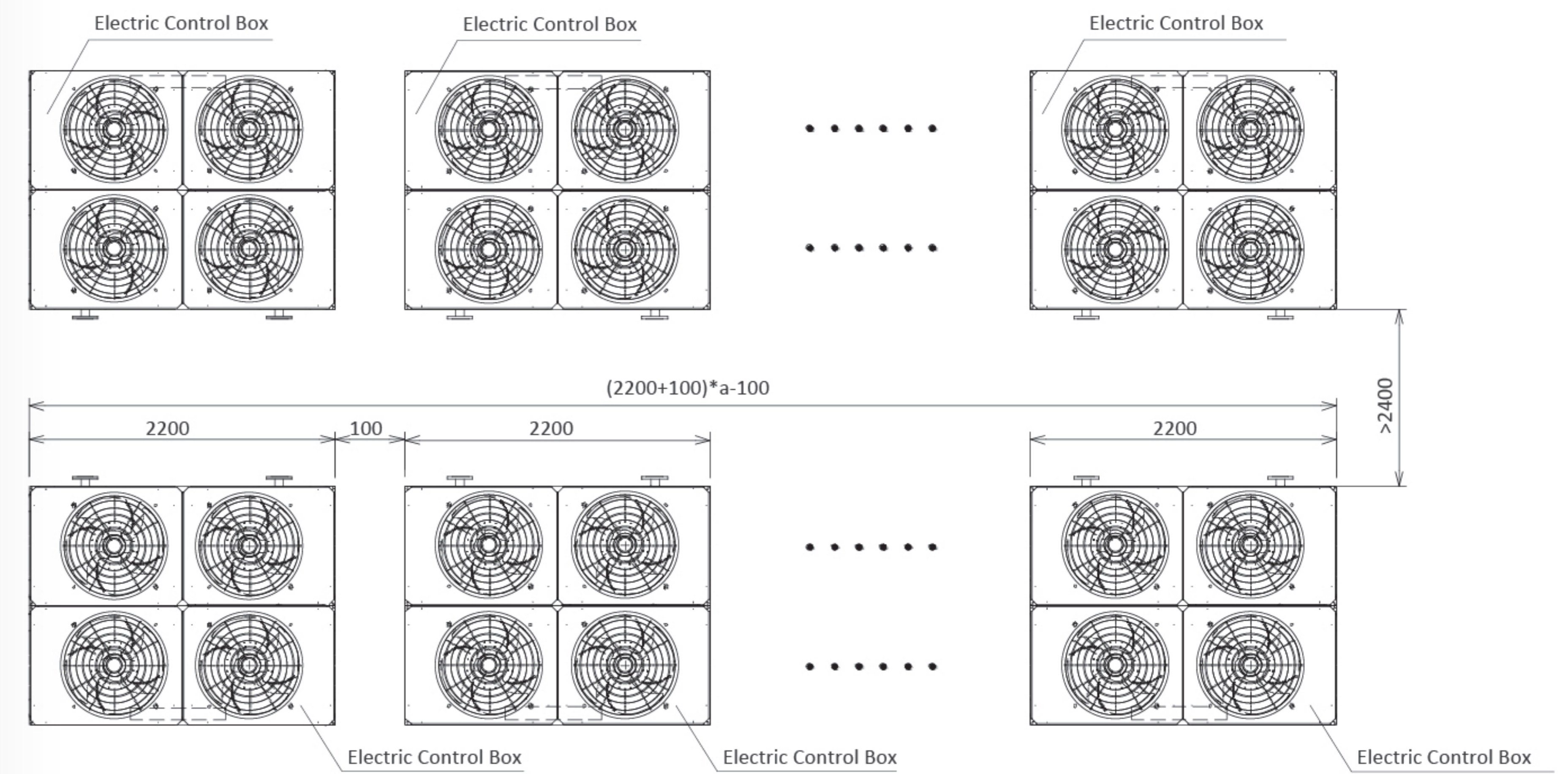
HFR-65W/A2F, HFR-65W/E2F, HFR-70W/H1F



HFR-130W/A2F, HFR-130W/E2F



HFR-150W/H1F



Note: The letter "a" means the quantity of modules.

Hi-Mod