

Hi-Mod

AIR-COOLED CHILLER WITH SPIRAL COMPRESSOR

The new generation of Hi-Mod series air-cooled modular chillers with scroll compressors includes a range of models with full functionality and various technical characteristics. Modules of the same type can be freely connected to each other to meet the individual needs of the customer.

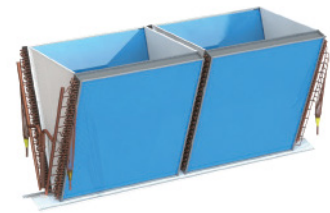


HIGH QUALITY

CAREFULLY SELECTED COMPONENTS

DUAL-CIRCUIT SMART SYSTEM, ADAPTIVE CONTROL

Innovative V-shaped heat exchangers with high-efficiency fins of a dual-circuit system are used in the Hi-Mod series. Both circuits are independent, which eliminates the problem of interdependence between the two systems during operation.



HIGH-PRECISION ELECTRONIC EXPANSION VALVE

- High-precision electronic expansion valves are used for heating and cooling to dynamically control valve opening according to changes in the environment and water temperature, minimizing pressure fluctuations in the system and temperatures, ensuring stable operation.
- The system is equipped with a dynamic overheat protection function to precisely regulate the refrigerant flow and prevent liquid refrigerant residue after evaporation.
- Precise control with 480-step control.



THREE-PHASE FAN MOTOR WITH IP55 PROTECTION

- The fan motor in the air circuit is a hermetically sealed three-phase motor with a squirrel cage rotor equipped with overheating protection.
- Complies with IP55 standard.

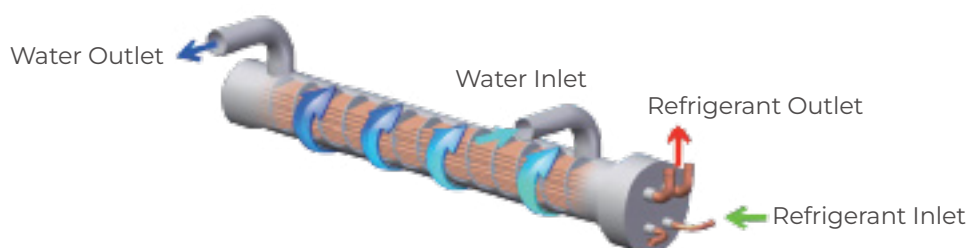


DOUBLE DIRECT FLOW ENSURES RELIABILITY AND SAFETY

A conventional electronic expansion valve works in such a way that the refrigerant moves forward during cooling and in the opposite direction during heating. In our product, a special one-way valve is built into the refrigerant pipeline. Refrigerant flows in both cooling and heating modes are directed only forward, which effectively solves the problem of low ERV resistance to reverse pressure, preventing the risk of excess pressure in the ERV during reverse flow and ensuring more reliable operation.

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.

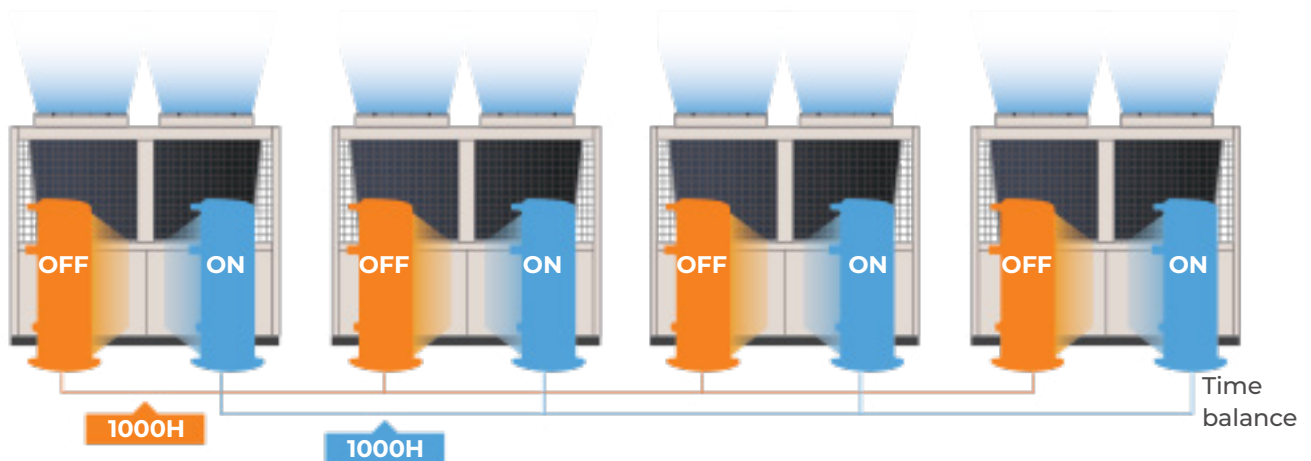


HIGH RELIABILITY

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.



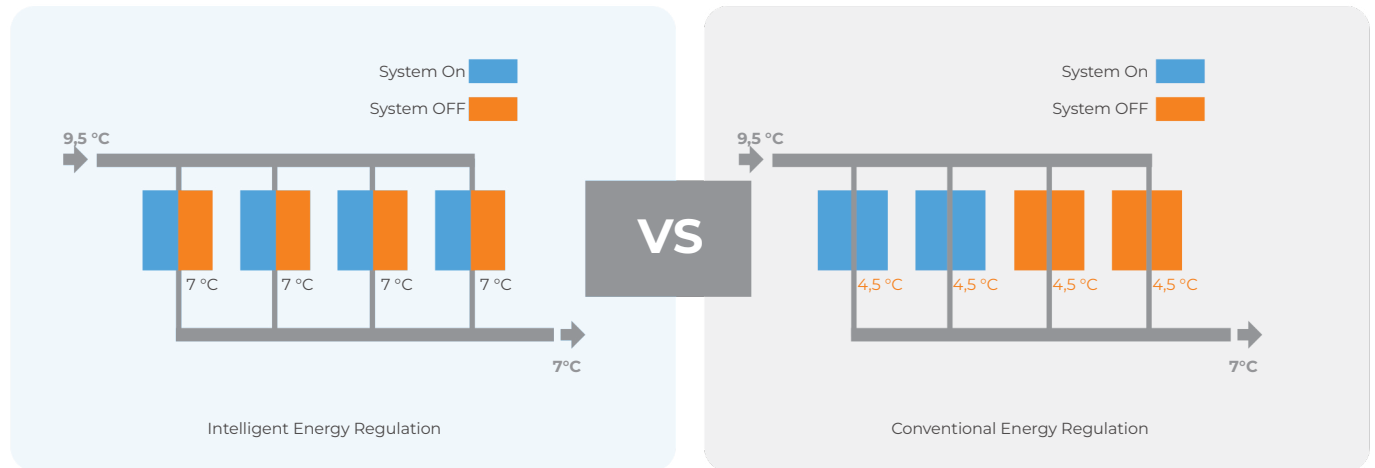
**COMPRESSOR
BOTTOM HEATING**

Refrigerant separated from the lubrication oil fully



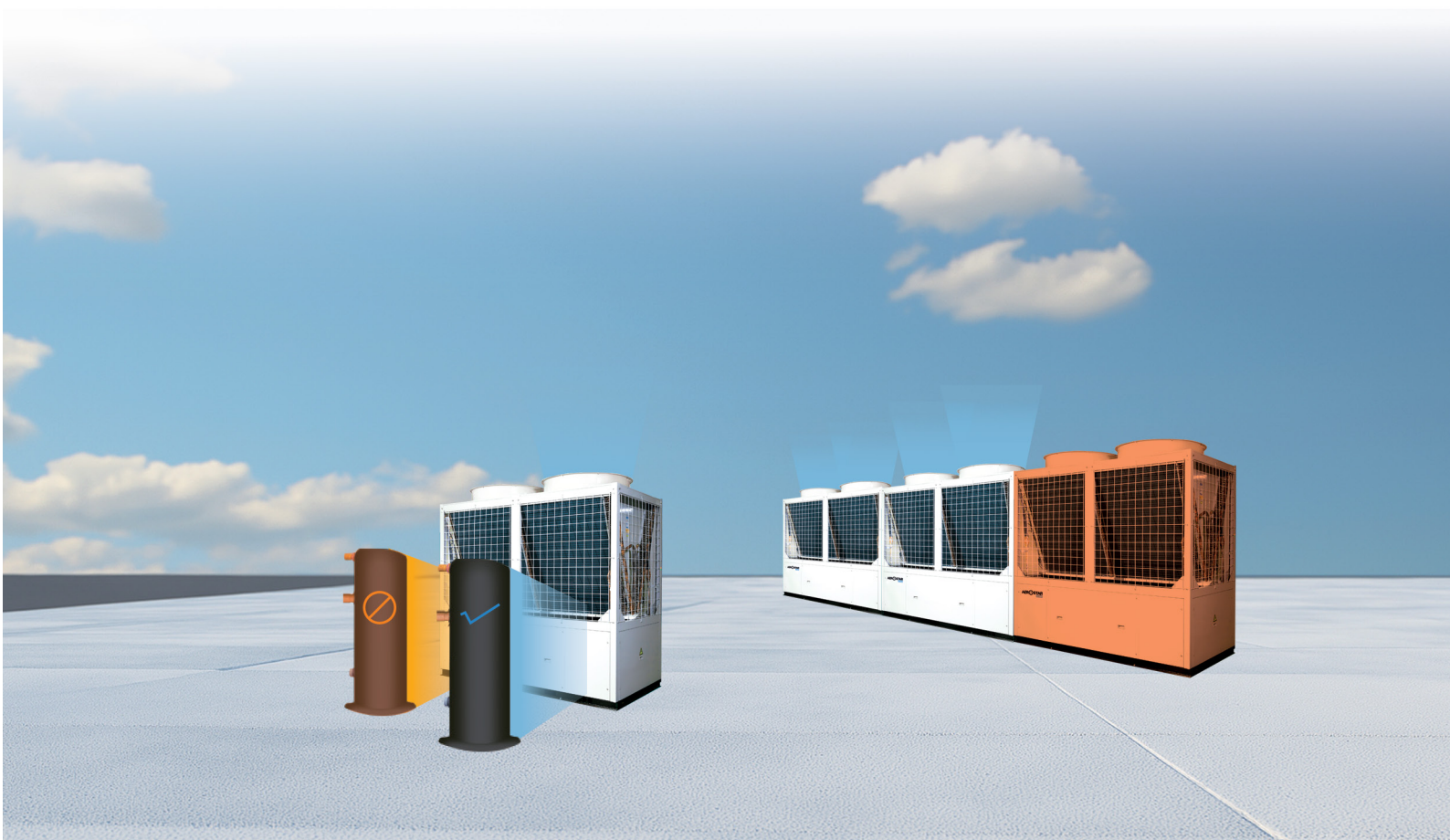
INTELLIGENT ENERGY REGULATION TECHNOLOGY

The technology ensures that at least one system in a multi-module unit is always operating in each module, which stabilizes the temperature difference between the inlet and outlet water for each module under partial loads, avoiding excessive temperature differences and increasing the efficiency of the system. In addition, temperature sensors are installed on the inlet and outlet water pipes to monitor the water temperature in real time and control the compressor on/off according to load changes.



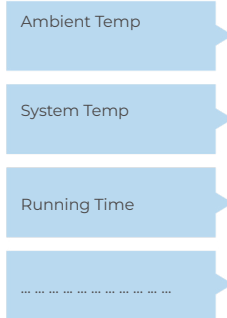
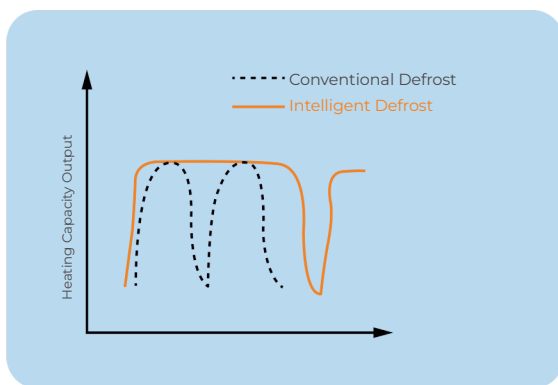
BACKUP OPERATION

- Independent refrigerant circuits in each module ensure emergency backup operation.
- Modules within a single multi-module unit can operate in emergency backup mode.



INTELLIGENT DEFROST

- Defrosting time is more accurate thanks to the innovative dual heat exchanger system.
- The left and right sections of the heat exchanger are equipped with temperature sensors, enabling precise control of the defrosting process based on sensor readings, ambient temperature, and operating time.
- The defrosting time can be automatically adjusted, preventing inefficient defrosting and extending the interval between cycles. Heating efficiency has been significantly improved.
- In a multi-module unit, staged (rotational) defrosting is implemented, fully ensuring heating efficiency.



CONSECUTIVE HEATING ENSURING HIGH EFFICIENT OPERATION

The two circuits of each unit are independent of each other. When one circuit is in defrost mode, the other can continue operating normally, effectively reducing water temperature fluctuations and improving user comfort. During operation of a multi-module system, the control system balances the defrosting time of each module to prevent simultaneous defrosting of all modules. Modules that are not in defrost mode continue to operate normally, ensuring continuous heating.



DEFROSTING CAN BE PERFORMED MANUALLY IN DIFFICULT OPERATING CONDITIONS.

In the event of heavy snow cover, the formation of a thick frost layer due to high ambient humidity, or ice formation caused by extremely low temperatures, defrosting can be manually initiated by the user to ensure long-term and reliable operation in heating mode.



MULTIPLE PROTECTIONS ENSURING SAFETY AND STABILITY

- Various levels of protection are provided for compressors, fans, water flow, high and low refrigerant pressure, water temperature, power supply, current, and communication.
- A water flow switch is included as standard, and several anti-freeze functions are implemented to prevent freezing and emergency shutdowns.
- The anti-freeze function is automatically activated according to the ambient temperature and inlet/outlet water temperature to prevent the water system from freezing in standby mode.
- A minimum compressor operating time is set to prevent damage due to frequent starts and stops.

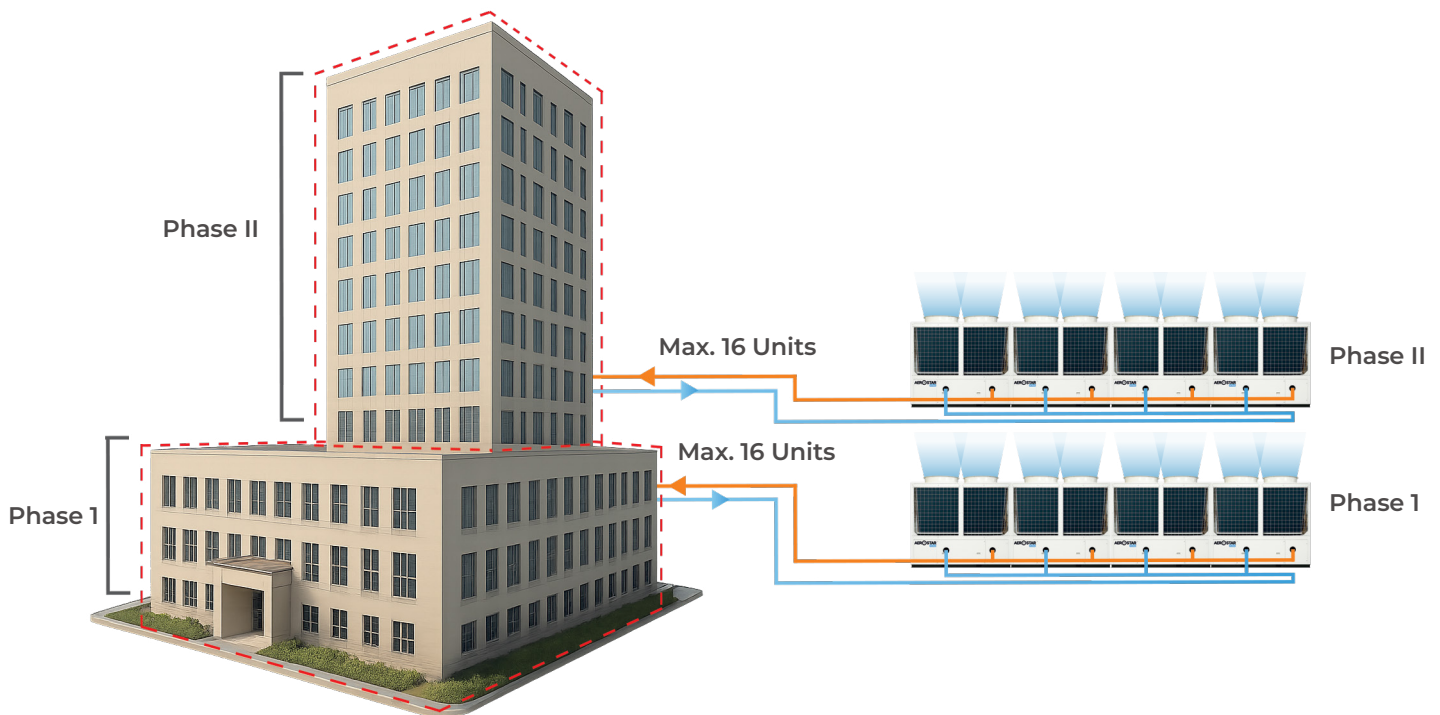


HIGH FLEXIBILITY

FLEXIBLE INSTALLATION AND CONVENIENT TRANSPORTATION

MODULE DESIGN, MORE CONVENIENT FOR INSTALLATION AND TRANSPORTATION

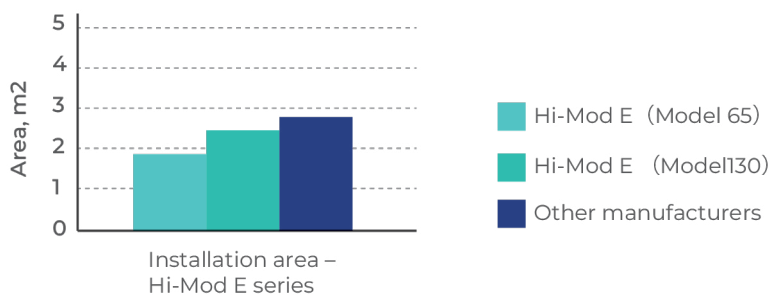
- The main and sub units are designed without difference, and any unit can be set as the main unit, which makes the combination and installation more convenient.
- Unit with different specifications of the same series can be connected freely to achieving large capacity output, and one controller can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



The Hi-Mod E series has two basic configurations, allowing capacity combinations ranging from 65 kW to 2080 kW.

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 1.89m², decreased by more than 42% compared with other traditional modules in the industry.



HIGH INTELLIGENCE

INTELLIGENT CONTROL, SMART AND CONVENIENT

INTELLIGENT CONTROLLER

Comprehensive information display, easy to understand

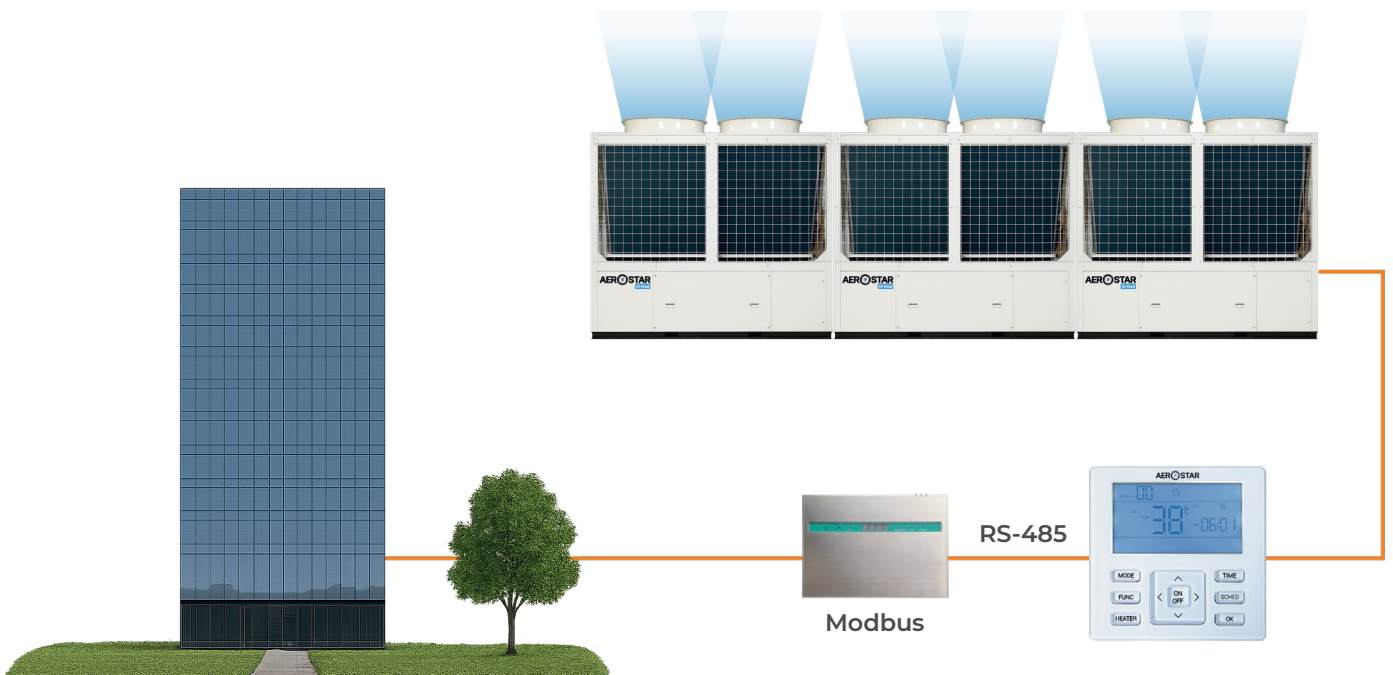
- Mode setting
- Inlet and outlet water temperature setting
- Compressor, pump, heater and defrost state control
- Malfunction information display
- Time setting
- Schedule setting
- Central control



Dedicated Controller for
Hi-Mod – WRC-FA01M

BMS CONNECTIVITY

The RS-485 communication interface is integrated into the controller, allowing the unit to be connected to a BMS. The centralized control system enables networked group management and remote monitoring.



Hi-Mod E series

ULTRA-LOW TEMPERATURE AND STRONG HEATING TYPE

The Hi-Mod E series utilizes advanced EVI compression technology and further optimizes the system design, effectively increasing heating capacity and efficiency in low-temperature conditions. The minimum ambient temperature for heating operation is -26°C . In addition, the system provides a wide hot water temperature range, with a maximum temperature of up to 55°C , meeting both heating and domestic hot water requirements.

EVI COMPRESSOR

Significantly increases thermal power and energy efficiency

ENVIRONMENTALLY FRIENDLY REFRIGERANT R410A



EVI COMPRESSION TECHNOLOGY – POWERFUL HEATING AT LOW TEMPERATURES

EVI technology overcomes the limitations of conventional air-to-water heat pumps under low ambient temperature conditions, such as reduced capacity and low efficiency.

It significantly increases system capacity and efficiency at low temperatures.

✓ Heating capacity increases by 7%–20%.

✓ Maximum outlet water temperature – 55°C .

HIGH ENERGY EFFICIENCY AND ENVIRONMENTALLY FRIENDLY REFRIGERANT R410A

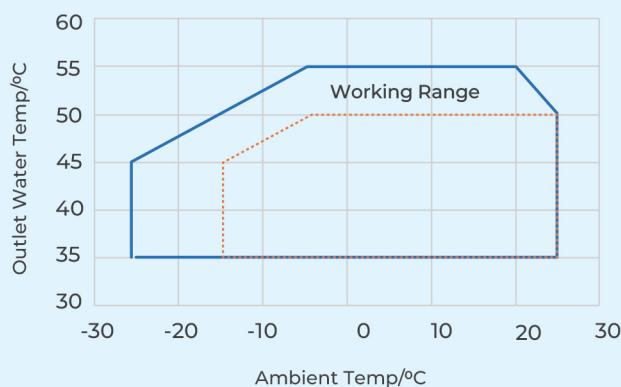
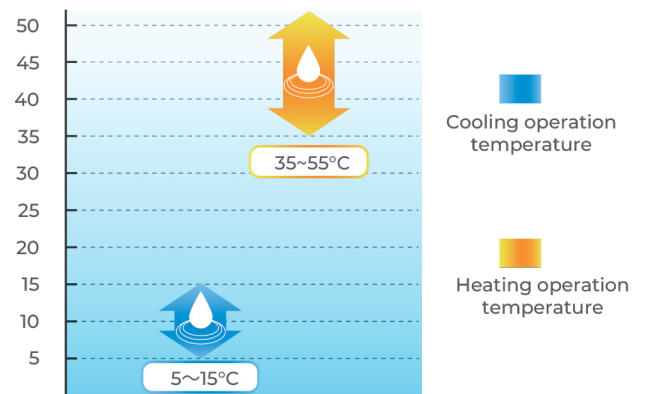
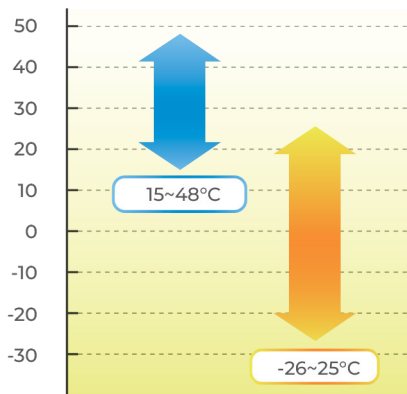
The system demonstrates excellent performance at low ambient temperatures. The nominal heating efficiency (COP) reaches 2.6 for the AER-CHM65W/E2F model and 2.52 for the AER-CHM130W/E2F model.

An environmentally friendly refrigerant, R410A, is used, which is non-toxic to humans and does not deplete the ozone layer.



WIDE OPERATING RANGE

- ✓ Temperature range for cooling mode: 15–48 °C; for heating mode: –26–25 °C
- ✓ Water outlet temperature: 5–15 °C in cooling mode; 35–55 °C in heating mode. This fully meets the requirements of various applications.



Comparison between Hi-Mod E and conventional heat pump products

HI-MOD E SERIES

Low temperature and strong heating type

MODEL			AER-CHM65W/E2F	AER-CHM130W/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		3.42/2.60	3.41/2.52
Current of Heating (7°C)	A		42.0	84.5
Current of Low Temp. Heating(-12°C)	A		36.9	76.0
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
Noise	dB(A)		68	78
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	Axial Flow with Low-noise Large Blades
	Air Volume	m³/h	26000	47000
	Quantity	PC	2	2
Refrigerant	Type	—	R410A	R410A
	Precharged Amount	kg	2×7.0	2×10.5
Dimensions	Length	mm	2200	2300
	Width	mm	860	1100
	Height	mm	1910	2200
Weight	Net Weight	kg	665	1030
	Running Weight	kg	710	1130

Combined Capacity Parameter List

MODEL	AER-CHM65W/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

Модель	AER-CHM130W/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:

- 1. Rated cooling and heating values were tested under the following conditions:
 - Cooling conditions: ambient air temperature 35 °C DB, water outlet temperature 7 °C at nominal water flow.
 - Heating conditions (7 °C): air temperature 7 °C DB / 6 °C WB, water outlet temperature 45 °C at nominal water flow.
 - Heating conditions (-12 °C): air temperature -12 °C DB / -14 °C WB, water outlet temperature 41 °C at nominal water flow.
- 2. In actual operating conditions, performance losses (approximately 6%) should be considered due to piping, pumps, valves, fouling, etc.
- 3. The Hi-Mod E series should not operate below 15 °C in cooling mode and below -26 °C in heating mode.
- 4. Specifications are subject to change without notice in accordance with the continuous product improvement policy.
- 5. Heating capacity marked with * is measured at 7 °C DB / 6 °C WB air temperature, 45 °C water outlet temperature, and nominal water flow.