



Aqua thermal Max series

R32 Inverter Air Cooled Scroll Heat Pump

55/65/75/100/105/110 RT



R32

ENERGY SAVING

Enhanced Vapor Injection (EVI) Compressor

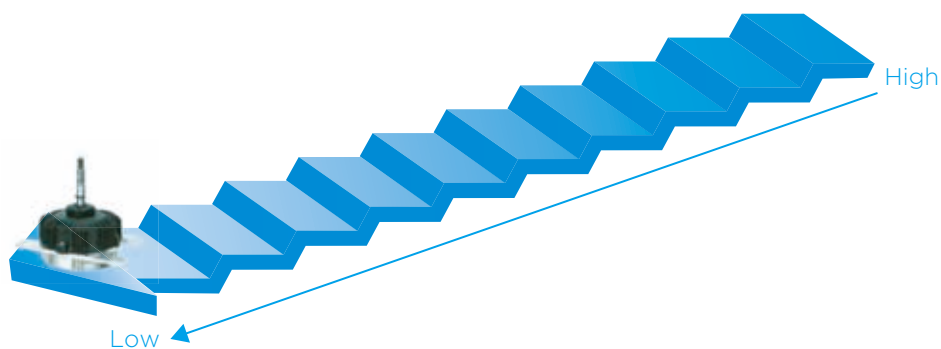
Thanks to the vapor injection DC inverter compressor, unit can run heating mode stably down to -30°C , and the heating capacity can be improved greatly.



EVI compressor

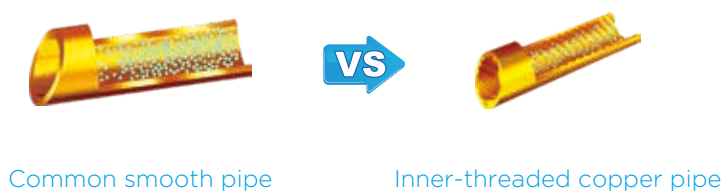
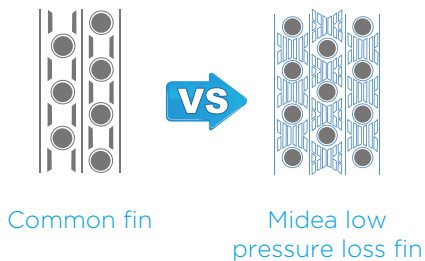
DC Fan Motors

32 fan speed adjustments. Fan speed is controlled according to the system pressure and system load, reducing power consumption.



High Efficiency Air Side Heat Exchanger

- Annular air inlet structure, face area of heat exchanger increases by 30%.
- High efficiency inner-threaded copper pipes and hydrophilic aluminum fins greatly enhance heat exchange.
- The distribution method and the use of simulation flow optimization design, greatly improved heat exchange efficiency.



ENERGY SAVING

High Efficiency Plate Heat Exchanger

Plate heat exchanger uses metal plates to transfer heat between refrigerant and water. The fluids are exposed to a much larger surface area because the fluids spread out over the plates, so both heat transfer efficiency and heat exchange speed are greatly improved.

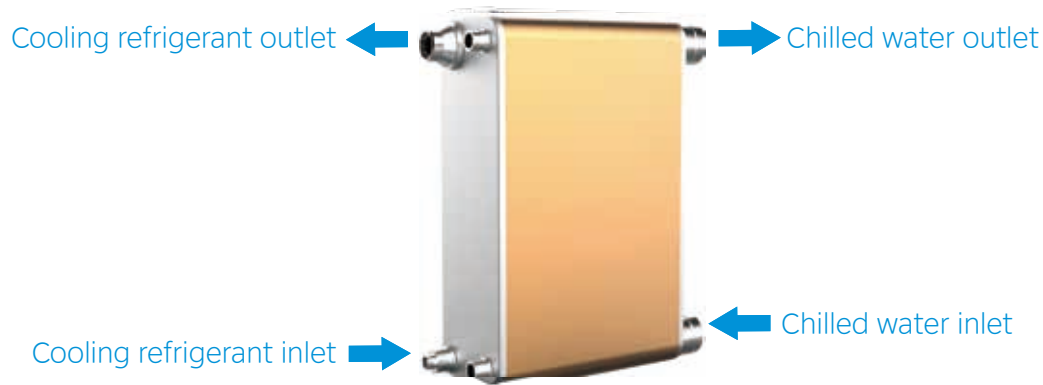
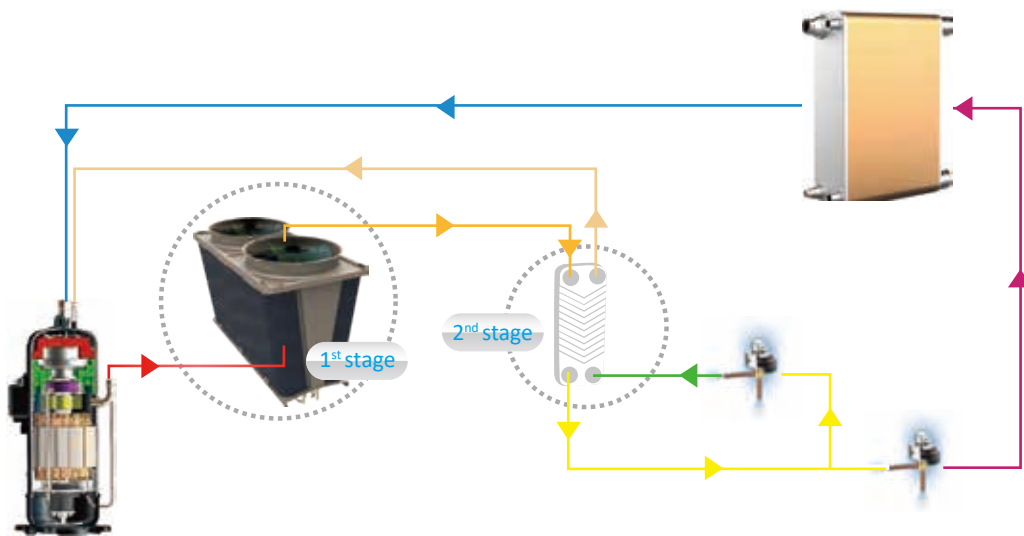


Plate Heat Exchanger Subcooling

Plate Heat Exchanger as a secondary intercooler boosts up refrigerant subcooling and improves 10% energy efficiency.



Precise Flow Control

Patented liquid distribution components maximize performance and minimize impact of defrosting operation. 500-step EXV allows stable and accurate gas flow control. Fast response results in higher efficiency and improved reliability.



ENERGY SAVING

7 Levels Of Energy Management

For projects with temporary electricity supply restrictions, the outdoor unit supports 7 levels of energy management which can be set to output 40-100% capacity. It prevents tripping during electricity supply restriction conditions and remains system continue to operate.



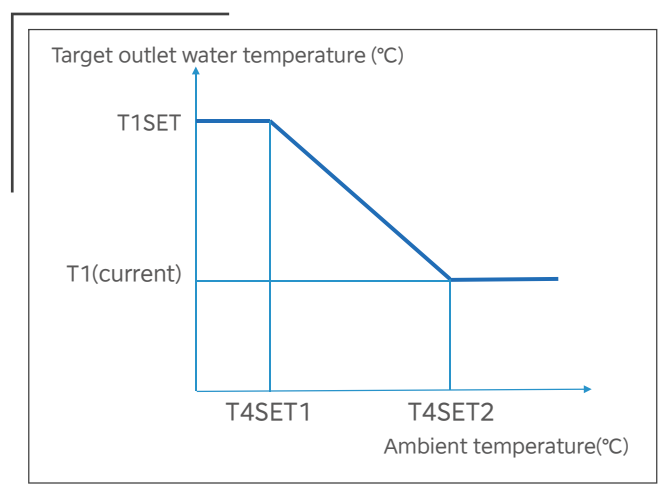
7 Levels of capacity output



100% output
90% output
80% output
70% output
60% output
50% output
40% output

Weather Temperature Curve

With the help of Weather temperature curve function, water temperature will automatically change as outside air temperature changes. When outdoor air temperature increases/decreases, the heating load will decrease/increase and water temperature will decrease/increase automatically. When outdoor air temperature decreases/increases, the cooling load will decrease/increase and water temperature will increase/decrease automatically.



WIDE OPERATION RANGE

- **Ambient Temperature**

Heating mode: -30 °C to 43 °C

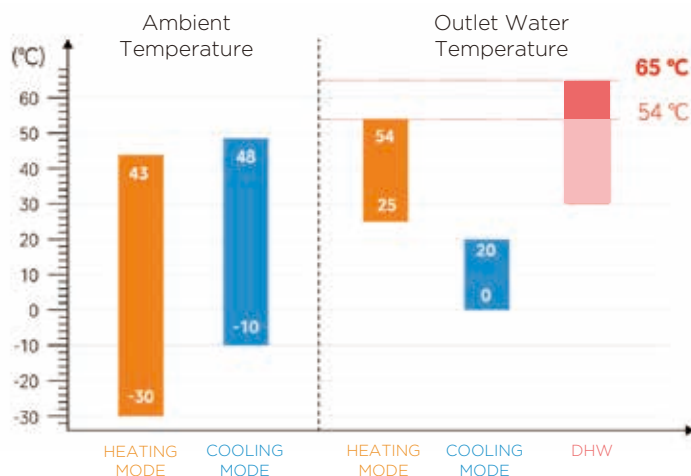
Cooling mode: -10 °C to 48 °C

- **Outlet Water Temperature**

Heating mode: 25 °C to 54 °C

Cooling mode: 0 °C to 20 °C

DHW: Up to 54 °C (65 °C can be customized)

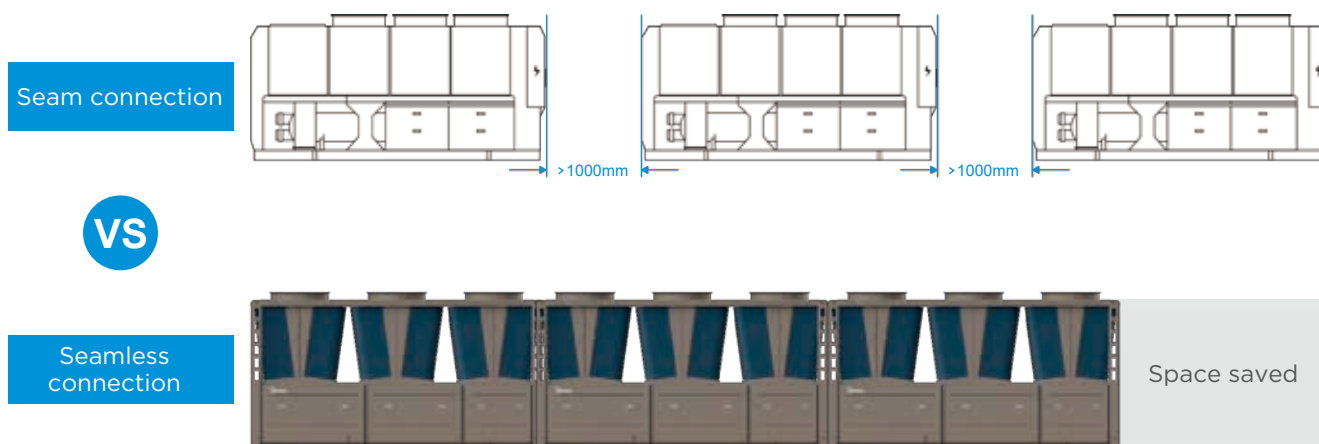


20% FOOTPRINT SPACE SAVING

Modular Design, Seamless Connection

Modular design, maximum 16 units can be combined. Free combination to meet different capacity requirements. Possible to increase capacity in the future expansion.

The trapezoid module design allows lateral ventilation and heat exchange. Multiple modules can be seamlessly connected to reduce the installation area.

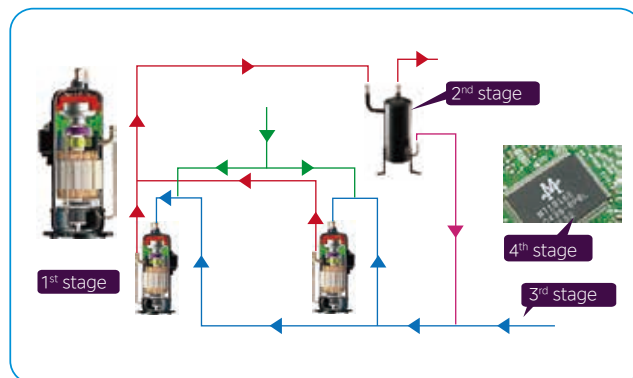


STABLE AND RELIABLE

Precise Oil Control Technology

Four stages of oil control technology ensure all outdoor compressor oil is always kept at a safe level, eliminating any compressor oil shortage problems.

- Compressor internal oil separation.
- High-efficiency centrifugal oil separator (with separation efficiency of up to 99%) ensures that oil is separated from the discharge gas and returned to the compressors in a timely fashion.
- Oil balance pipe ensures oil distribution to keep compressors running normally.
- Auto oil return program monitors the running time and system status to ensure reliable oil return.



Refrigerant-cooled PCB Technology

The unit uses refrigerant-cooled technology to cool the electric control box. Refrigerant-cooled technology reduces electric control heating under harsh working conditions, effectively reduce the temperature of electronic control components, ensure the stable and safe operation of the unit control system.



Auto Snow-Removal Function

An innovative snow-removal function automatically blows off accumulated snow.

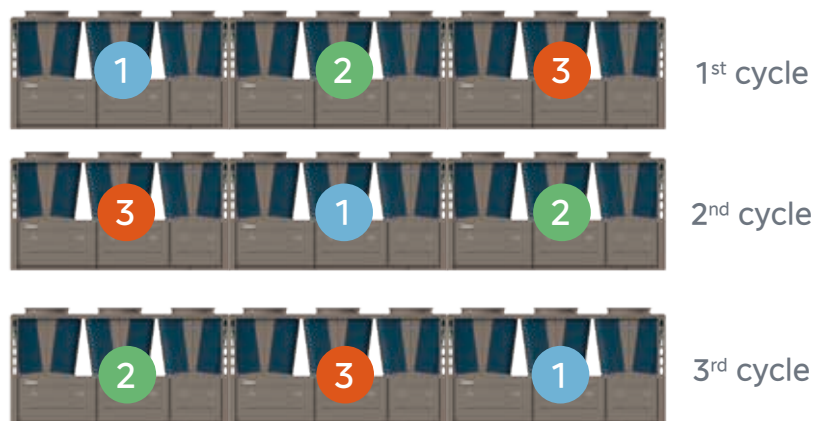


* This function needs to be enabled by setting on the wired controller.

STABLE AND RELIABLE

Alternate Cycle Duty Operation

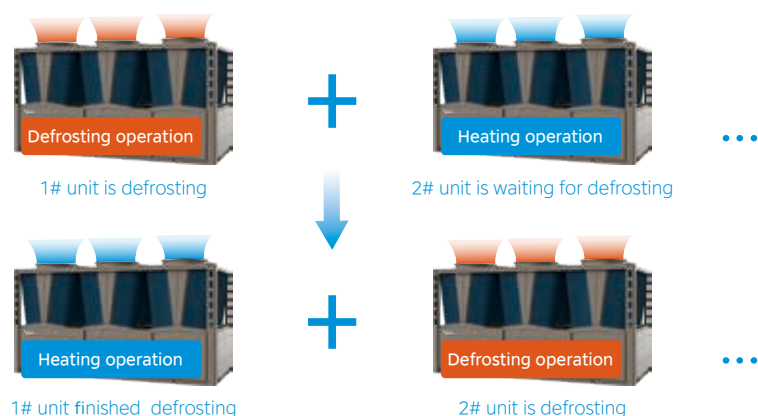
In one combination system, all units operate as alternative in cycle duty to keep equal running time, realize higher stability, better reliability and longer lifespan.



*The duty cycling sequence shown is for reference only. Actual duty cycling order may vary.

Continuous Heating During Defrost Mode

Normally, it is necessary to stop the heating operation during defrosting. However, the continuous heating operation method makes it possible to perform defrosting while the heating operation continues. With the combination model, units perform defrosting alternately. While one unit is performing defrosting, the other continues heating. The intelligent defrosting program calculates the time required for defrosting according to the actual system status, eliminating heat losses from unnecessary defrosting.



Backup Operation

In a combination system, if one unit failed, other units can be back-up instead of the failed one for continuing operation.

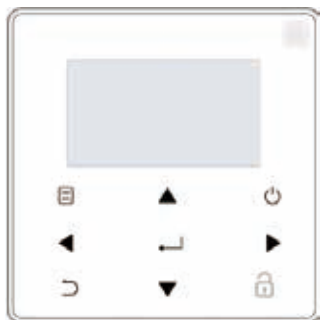


Note: Alternate Cycle Duty Operation, Continuous Heating During Defrost Mode and Backup Operation are also available between/among systems in a single unit.

CONVENIENT CONTROL

Wired Controller

Touch key wired controller as standard accessory to control the chillers. One wired controller can connect maximum 16 units.

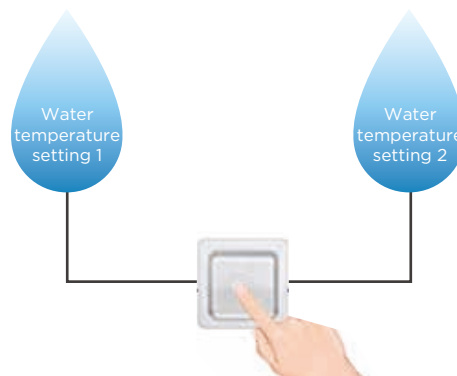


- Touch key operation
- Address setting
- Parameter setting and LCD display
- Parallel function
- Real-time clock function
- Buzzer prompt tone and alarm functions
- Multiple timer
- Weekly schedule
- Power-off memory function
- Double set point function
- Modbus
- Energy saving function

Remote alarm, on/off control, cooling/heating control.



One-touch water temperature switching:
For cooling and heating mode, different water temperatures can be switched just by one-touch.



7-inch Color Touch Screen (Optional)

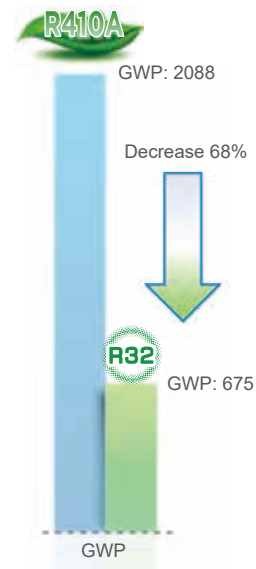


- Real-time operating parameters (temperature, pressure etc.) display
- Detailed fault information record
- Power-off memory function
- Timed ON/OFF
- Three-level password setting to prevent misoperation
- Master & Slave, Back-up, Duty cycling
- Compatible with QuickView, Midea Intelligent Chiller Plant Management (iCPM), BMS

ENVIRONMENTAL-FRIENDLY

R32 Refrigerant

- **Friendly environment**
Lower GWP 675 (Global Warming Potential)
Zero impact on the ozone layer
Less carbon emission
- **Higher heat transfer coefficient**
Better performance in poor conditions
Less pressure loss
Less carbon emission
- **Less cost**
Easier to get
Less charged volume



Quiet Operation

Different silent modes enable noise reduction to suit time of day and ambient noise levels.



Standard mode

Super silent mode

Silent mode

Night silent mode

EASY MAINTENANCE

Four Sides Detachable

Four sides of the unit can be detachable, easy for maintenance.



Convenient Program Upgrade

No need to carry any other heavy equipments but only USB can realize program upgrade.

SPECIFICATIONS

Model			RHAH55HVK	RHAH65HVK	RHAH75HVK	RHAH100HVK	RHAH105HVK	RHAH110HVK
Power supply			380 V 3~ 50 Hz	380 V 3~ 50 Hz	380 V 3~ 50 Hz	380 V 3~ 50 Hz	380 V 3~ 50 Hz	380 V 3~ 50 Hz
Cooling	Capacity	kW	193.3	231.5	265.5	350.0	375.0	398.2
	Rated input	kW	66.4	83.1	101.7	128.2	142.6	152.5
	EER	kW/kW	2.91	2.78	2.61	2.73	2.63	2.61
	SEER	kW/kW	4.61	4.56	4.51	4.61	4.56	4.51
	η s,c	%	181	179	177	181	179	177
Heating	Capacity	kW	223.7	263.8	301.0	400.0	428.0	451.5
	Rated input	kW	62.2	77.9	94.1	118.7	130.9	141.1
	COP	kW/kW	3.60	3.39	3.20	3.37	3.27	3.20
	SCOP	kW/kW	4.33	4.29	4.25	4.33	4.29	4.25
	η s,h	%	170	168	166	170	168	166
Compressor	Type	/	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
	Quantity	System 1	/	2	2	2	2	2
		System 2	/	2	2	2	2	2
		System 3	/	0	0	2	2	2
Throttle	Type	/	EXV	EXV	EXV	EXV	EXV	EXV
Refrigerant	Type	/	R32	R32	R32	R32	R32	R32
	Charge amount	kg	23/23	23/23	23/23	23/23/23	23/23/23	23/23/23
Maximum operating current		A	212	212	212	318	318	318
Air side heat exchanger	Type	/	Fin-coil	Fin-coil	Fin-coil	Fin-coil	Fin-coil	Fin-coil
	Type of fan motor	/	DC motor	DC motor	DC motor	DC motor	DC motor	DC motor
	Quantity of fan motor	/	4	4	4	6	6	6
Water side heat exchanger	Type	/	Plate	Plate	Plate	Plate	Plate	Plate
	Water flow rate	m³/h	33.25	39.82	45.66	60.20	64.50	68.50
	Pressure drop	kPa	54.50	54.50	54.50	50.50	52.50	54.50
	Water pipe connection	mm	DN100	DN100	DN100	DN100	DN100	DN100
	Maximum working pressure	MPa	1.0	1.0	1.0	1.0	1.0	1.0
	Fouling factor		0.018	0.018	0.018	0.018	0.018	0.018
Ambient temperature range	Cooling	°C	-10 to 48	-10 to 48	-10 to 48	-10 to 48	-10 to 48	-10 to 48
	Heating	°C	-30 to 43	-30 to 43	-30 to 43	-30 to 43	-30 to 43	-30 to 43
	DHW (Customization)	°C	-30 to 43	-30 to 43	-30 to 43	-30 to 43	-30 to 43	-30 to 43
LWT setting range	Cooling	°C	0 to 20	0 to 20	0 to 20	0 to 20	0 to 20	0 to 20
	Heating	°C	25 to 54	25 to 54	25 to 54	25 to 54	25 to 54	25 to 54
	DHW (Customization)	°C	30 to 54	30 to 54	30 to 54	30 to 54	30 to 54	30 to 54
Sound power level		dB	92	93	94	93	94	95
Unit dimensions	Length	mm	3520	3520	3520	4650	4650	4650
	Width	mm	2280	2280	2280	2280	2280	2280
	Height	mm	2500	2500	2500	2500	2500	2500
Unit weight		kg	1880	1880	1880	2780	2780	2780
Operating weight		kg	1940	1940	1940	2925	2925	2925

Notes:

1. Cooling: water inlet/outlet temperature 12/7°C; outdoor ambient temperature 35°C DB.
2. Heating: water inlet/outlet temperature 40/45°C; outdoor ambient temperature 7°C DB/6°C WB.
3. Capacity and efficiency data calculated in accordance with EN14511, EN14825.
4. The unit is not charged with refrigerant before delivery.
5. For cooling mode, if outlet water temperature is less than 5°C, anti-freeze liquid is needed.
6. DHW LWT up to 65 °C can be customized.
7. Sound power level test standard: EN12102-1. Outdoor ambient temperature 35°C DB. EWT 12°C, LWT 7°C.

OPTIONS

Items	Standard	Optional
Power supply	380 V 3~ 50 Hz	50 Hz: 400V, 415V; 60 Hz: 380V, 400V, 415V
Anti-corrosion treatment	×	✓
Communication protocol	Modbus-RTU (RS485 port)	BACnet IP, BACnet MS/TP (RJ-45 port)
Water pipe connection	Victaulic	Flange
Spring isolator	×	✓
Water flow switch	✓	/
Air side heat exchanger protection net	×	✓
Smart meter	×	✓
Insulation	20mm	40mm
Hot water function	×	✓
Built-in hydraulic module	×	✓
Wired controller	✓	/
Color touch screen	×	✓
Remote control panel	×	✓
Midea Intelligent Chiller Plant Management (iCPM)	×	✓
QuickView	×	✓

Note: For other options, please contact a Midea engineer.

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