Technical specifications COOLING ONLY MODEL

MODEL		SET	EACV-M1500YCL(-N)(-BS)	EACV-M1800YCL(-N)(-BS)
Power source			3-phase 4-wire 380-400-415V 50/60Hz	
Cooling capacity *1		kW	150.00	180.00
		kcal/h	129,000	154,800
		BTU/h	511,800	614,160
	Power input	kW	44.73	57.02
	EER		3.35	3.16
	IPLV *4		6.42	6.31
	Water flow rate	m^3/h	25.8	31.0
Cooling capacity(EN14511) *2		kW	149.18	178.80
		kcal/h	128,295	153,768
		BTU/h	509,002	610,066
	Power input	kW	45.55	58.22
	EER		3.28	3.07
	Eurovent efficiency class		A	B
	SEER		5.52	5.36
	Water flow rate	m^3/h	25.8	31.0
Current input	Cooling current 380-400-415V *1	A	76 - 72 - 69	96 - 91 - 88
	Maximum current	A	120	
Water pressure drop *1		kPa	55	78
Temp range	Cooling	°C	Outlet water 5~30 *5	
		°F	Outlet water 41~86 *5	
	Outdoor	°C	-15~52 *5	
		°F	5~125.6 *5	
Circulating water volume range		m^3/h	12.9~34.0	
Sound pressure level (measured in anechoic room) at 1m *1		dB (A)	65	67
Sound power level (measured in anechoic room) *1		dB (A)	83	85
Diameter of water pipe (Standard piping)	Inlet	mm (in)	65A (2 1/2B) housing type joint	
	Outlet	mm (in)	65A (2 1/2B) housing type joint	
Diameter of water pipe (Inside header piping)	Inlet	mm (in)	150A (6B) housing type joint	
	Outlet	mm (in)	150A (6B) housing type joint	
External finish			Polyester powder coating steel plate	
External dimension HxWxD		mm	2350 x 3400 x 1080	
Net weight	Standard piping	kg (lbs)	1039 (2291)	
	Inside header piping	kg (lbs)	1067 (2352)	
Design pressure	R410A	MPa	4.15	
	Water	MPa	1.0	
Heat exchanger	Water side		Stainless steel plate and copper brazing	
	Air side		Salt-resistant corrugated fin & aluminium micro channel	
Compressor	Type		Inverter scroll hermetic compressor	
	Maker		MITSUBISHI ELECTRIC CORPORATION	
	Starting method		Inverter	
	Quantity		4	
	Motor output	kW	11.7 x 4	
	Lubricant		MEL46EH	
Fan	Air flow rate	m^3/min	270 x 4	
		L/s	4500 x 4	
		cfm	9534 x 4	
	Type, Quantity		Propeller fan x 4	
	Starting method		Inverter	
	Motor output	kW	0.92 x 4	
Protection	High pressure protection		High pres.Sensor & High pres.Switch at 4.15MPa (601psi)	
	Inverter circuit		Over-heat protection, Over current protection	
	Compressor		Over-heat protection	
Refrigerant *3	Type x charge		R32 x 4.7 (kg) x 4 *3	
	Control		LEV	

*1 Under normal cooling conditions at outdoor temp 35°C DB / 24°C WB (95°F DB / 75.2°F WB) outlet water temp 7°C (44.6°F) inlet water temp 12°C (53.6°F). Pump input is not included in cooling capacity and power input.
*2 Under normal cooling conditions at outdoor temp 35°C DB / 24°C WB (95°F DB / 75.2°F WB) outlet water temp 7°C (44.6°F) inlet water temp 12°C (53.6°F). Pump input is included in cooling capacity and power input based on EN14511.
*3 Amount of factory-charged refrigerant is 3 (kg) x 4. Please add the refrigerant at the field.
*4 IPLV is calculated in accordance with AHRI 550-590.
*Please don't use the steel material for the water piping.
*Please always make water circulate, or pull the circulation water out completely when not in use.
*Please do not use groundwater or well water directly.
*The water circuit must be closed circuit.
*Due to continuous improvement, the above specifications may be subject to change without notice.
*This model is not equipped with a pump.

Technical specifications HEATPUMP MODEL

MODEL		SET	EAHV-M1500YCL(-N)(-BS)	EAHV-M1800YCL(-N)(-BS)
Power source			3-phase 4-wire 380-400-415V 50/60Hz	
Cooling capacity *1		kW	150.00	180.00
		kcal/h	129,000	154,800
		BTU/h	511,800	614,160
	Power input	kW	44.73	57.02
	EER		3.35	3.16
	IPLV *6		6.42	6.31
	Water flow rate	m^3/h	25.8	31.0
Cooling capacity(EN14511) *2		kW	149.18	178.80
		kcal/h	128,295	153,768
		BTU/h	509,002	610,066
	Power input	kW	45.55	58.22
	EER		3.28	3.07
	Eurovent efficiency class		A	B
	SEER		5.52	5.36
	Water flow rate	m^3/h	25.8	31.0
Heating capacity *3		kW	150.00	180.00
		kcal/h	129,000	154,800
		BTU/h	511,800	614,160
	Power input	kW	42.61	53.09
	COP		3.52	3.39
	Water flow rate	m^3/h	25.8	31.0
Heating capacity(EN14511) *4		kW	150.82	181.20
		kcal/h	129,705	155,832
		BTU/h	514,598	618,254
	Power input	kW	43.43	54.29
	COP		3.47	3.34
	SCOP Low temp. application/Medium temp. applic.		3.31 / 2.88	
	Water flow rate	m^3/h	25.8	31.0
Current input	Cooling current 380-400-415V *1	A	76 - 72 - 69	96 - 91 - 88
	Heating current 380-400-415V *3	A	72 - 68 - 66	90 - 85 - 82
	Maximum current	A	120	
Water pressure drop *1		kPa	55	78
Temp range	Cooling	°C	Outlet water 4~30 *7	
		°F	Outlet water 39.2~86 *7	
	Heating	°C	Outlet water 25~55 *7	
		°F	Outlet water 77~131 *7	
	Outdoor (Cooling)	°C	-15~52 *7	
		°F	5~125.6 *7	
	Outdoor (Heating)	°C	-20~43 *7	
		°F	-4~109.4 *7	
Circulating water volume range		m^3/h	12.9~34.0	
Sound pressure level (measured in anechoic room) at 1m *1		dB (A)	65	67
Sound power level (measured in anechoic room) *1		dB (A)	83	85
Diameter of water pipe (Standard piping)	Inlet	mm (in)	65A (2 1/2B) housing type joint	
	Outlet	mm (in)	65A (2 1/2B) housing type joint	
Diameter of water pipe (Inside header piping)	Inlet	mm (in)	150A (6B) housing type joint	
	Outlet	mm (in)	150A (6B) housing type joint	
External finish			Polyester powder coating steel plate	
External dimension HxWxD		mm	2350 x 3400 x 1080	
Net weight	Standard piping	kg (lbs)	1280 (2822)	
	Inside header piping	kg (lbs)	1307 (2881)	
Design pressure	R410A	MPa	4.15	
	Water	MPa	1.0	
Heat exchanger	Water side		Stainless steel plate and copper brazing	
	Air side		Plate fin and copper tube	
Compressor	Type		Inverter scroll hermetic compressor	
	Maker		MITSUBISHI ELECTRIC CORPORATION	
	Starting method		Inverter	
	Quantity		4	
	Motor output	kW	11.5 x 4	
	Lubricant		MEL46EH	
Fan	Air flow rate	m^3/min	270 x 4	
		L/s	4500 x 4	
		cfm	9534 x 4	
	Type, Quantity		Propeller fan x 4	
	Starting method		Inverter	
	Motor output	kW	0.92 x 4	
	External static press.	Pa	20	
Protection	High pressure protection		High pres.Sensor & High pres.Switch at 4.15MPa (601psi)	
	Inverter circuit		Over-heat protection, Over current protection	
	Compressor		Over-heat protection	
Refrigerant *5	Type x charge		R32 x 11.5 (kg) x 4 *5	
	Control		LEV	

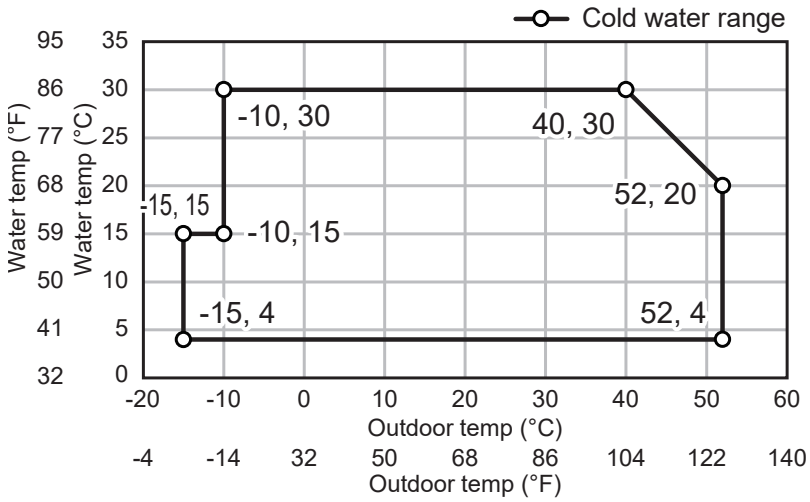
*1 Under normal cooling conditions at outdoor temp 35°C DB / 24°C WB (95°F DB / 75.2°F WB) outlet water temp 7°C (44.6°F) inlet water temp 12°C (53.6°F). Pump input is not included in cooling capacity and power input.
*2 Under normal cooling conditions at outdoor temp 35°C DB / 24°C WB (95°F DB / 75.2°F WB) outlet water temp 7°C (44.6°F) inlet water temp 12°C (53.6°F). Pump input is included in cooling capacity and power input based on EN14511.
*3 Under normal heating conditions at outdoor temp 7°C DB / 6°C WB (44.6°F DB / 42.8°F WB) outlet water temp 45°C (113°F) inlet water temp 40°C (104°F). Pump input is not included in heating capacity and power input.
*4 Under normal heating conditions at outdoor temp 7°C DB / 6°C WB (44.6°F DB / 42.8°F WB) outlet water temp 45°C (113°F) inlet water temp 40°C (104°F). Pump input is included in heating capacity and power input based on EN14511.
*5 Amount of factory-charged refrigerant is 3 (kg) x 4. Please add the refrigerant at the field.
*6 IPLV is calculated in accordance with AHRI 550-590.
*Please don't use the steel material for the water piping.
*Please always make water circulate, or pull the circulation water out completely when not in use.
*Please do not use groundwater or well water directly.
*The water circuit must be closed circuit.
*Due to continuous improvement, the above specifications may be subject to change without notice.
*This model is not equipped with a pump.

Operating limits

COOLING ONLY

Operable in cooling mode at an intake air temperature of up to 52°C.

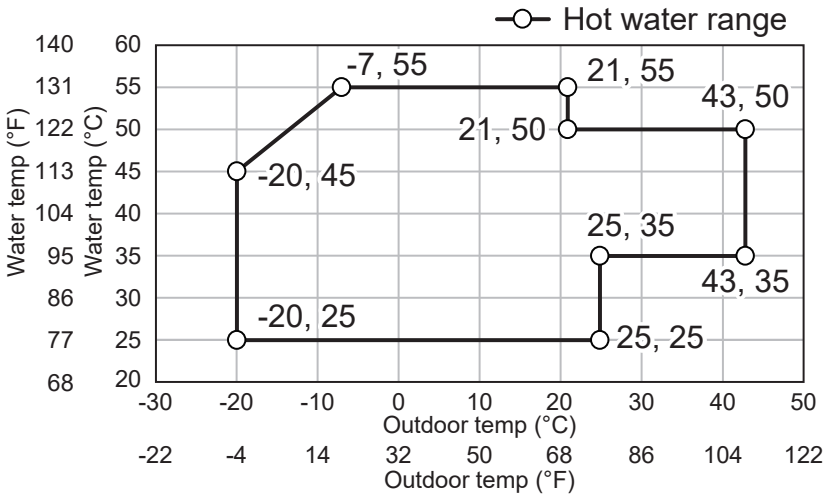
The use of the flat tube heat exchanger has made it possible to increase the maximum intake air temperature from 43°C to 52°C in cooling mode, extending the cooling performance of the units in intense heat and in collective installation.

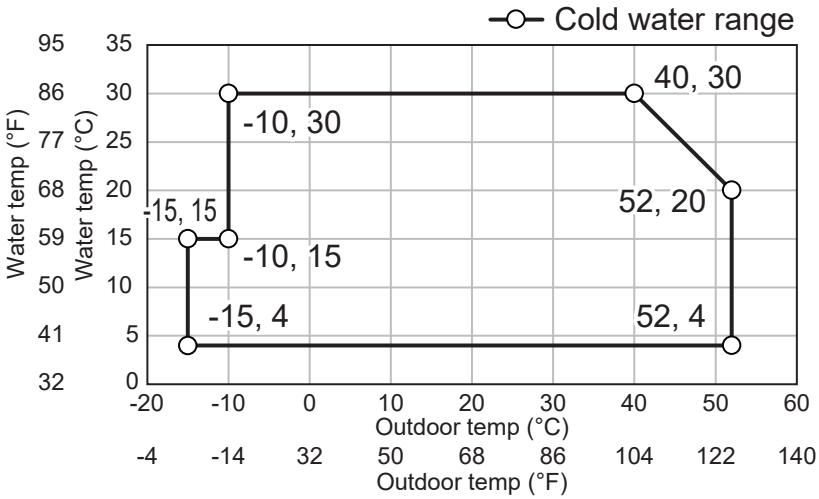


REVERSIBLE HEAT PUMP

Operable in heating mode at an intake air temperature of down to -20°C.

The new model has a greater heating capacity range due to the flat tube heat exchanger and the suction chamber injection mechanism of the compressor. It is operable at the minimum intake air temperature of -20°C and the minimum outlet water temperature of 25°C. The new model is suitable for use in manufacturing lines requiring heating throughout the year.



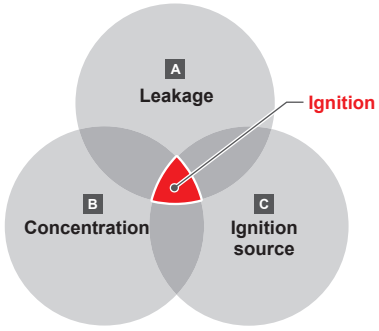


R32 refrigerant properties

Under the conditions shown below, there is a possibility that R32 could burn.

	R32	R410	R22
Chemical formula	CH_2F_2	CH_2F_2/CHF_2CF_3	$CHClF_2$
Composition (blend ratio wt. %)	Single composition	R32/R125 (50/50 wt %)	Single composition
Ozone depletion potential (ODP)	0	0	0.055
Global warming potential (GWP) *1	675	2088	1810
LFL(vol.%) *2	13.3	-	-
UFL(vol.%) *3	29.3	-	-
Flammability *4	Lower flammability (2L)	No flame propagation (1)	No flame propagation (1)

*1 IPCC 4th assessment report
*2 LFL: Lower flammable limit
*3 UFL: Upper flammable limit
*4 ISO 817:2014
*5 R32 consistency is higher than LFL*2 and lower than UFL*3.

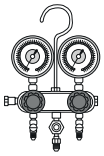
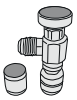
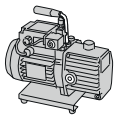
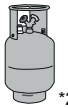


A **Do not leak refrigerant.**
<Installation> • Vacuum drying should be done.
Do not release refrigerant into the atmosphere unnecessarily.
• Follow "Installation points of charging refrigerant."
<Repair/Removal> • Refrigerant should be recovered.

B **Prevent concentration.**
• Follow "Installation restrictions".

C **Keep ignition sources away from the unit.**
• Do not braze pipes that contain refrigerant. Before brazing, refrigerant should be recovered.
• Do not install the unit while electricity is on. Turn off electricity and check using a tester.
• Do not smoke during work and transportation.

Note: Both R32 / R410A emit toxic gas when exposed to naked flame.

TOOLS	Gauge manifold	Charge hose	Electronic weight scales	Charge valve	Electric leak tester (Gas leak detector)	Vacuum pump	Vacuum pump adapter	Refrigerant recovery equipment	Refrigerant recovery cylinder
								 *1	 *2
R32	Shareable *3	Shareable *3	Shareable *3	Shareable *3	Shareable *3	Shareable *3	Shareable *3	Shareable *3	EXCLUSIVE
R410									EXCLUSIVE

NOTE: Be sure to confirm with the manufacturers that the electric leak tester, vacuum pump and refrigerant recovery equipment are compliant with R32.
*1 Refer to catalogs provided by the manufacturers of the tools above to ensure that the tools are usable with R32.
*2 Do not use R32 and R410A in combination in the same refrigerant recovery cylinder.
*3 The types of tools required for R32 units and R410A units are the same. Each tool must be used only with either R32 units or R410A units.

PROCEDURE FOR CHARGING REFRIGERANT

Before work	Confirmation of refrigerant type	Confirm the spec label.
Work	Confirmation of installation restrictions	Be sure to follow "Installation restrictions".
	Charging of additional refrigerant	Use a gauge manifold, charge hose and charge valve compliant with R32.
	Gas leak inspection	Use a leak tester compliant with R32.

Installation restrictions

Do not install the unit where combustible gas may leak
- If combustible gas accumulates around the unit, fire or explosion may result.

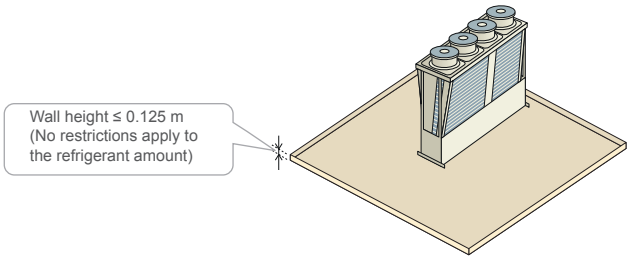
- Provide sufficient space around the unit for effective operation, efficient air movement, and ease of access for maintenance.
- All restrictions mentioned in this manual apply not only to new installations but also to relocations and layout changes.
- Refer to the Installation manual for other precautions on installation

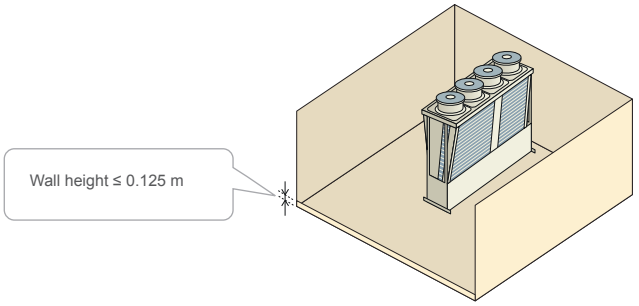
Installation space requirement
- Do not install the unit inside a building such as the basement or machine room, where the refrigerant may stagnate.
- Install the unit in a place where at least one of four sides is open.

CORRECT INSTALLATION

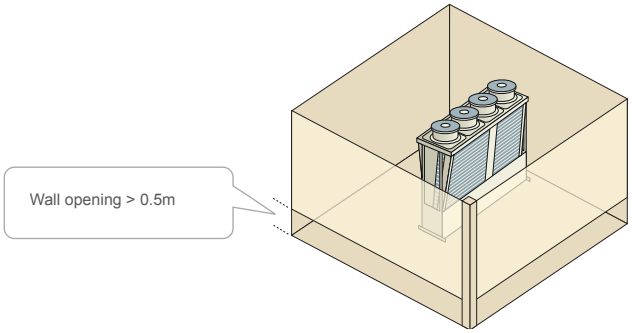
If the unit needs to be installed in a space where all four sides are blocked, confirm that one of the following situations (A or B) is satisfied.

A Install the unit in a space with a wall height of ≤ 0.125 m.

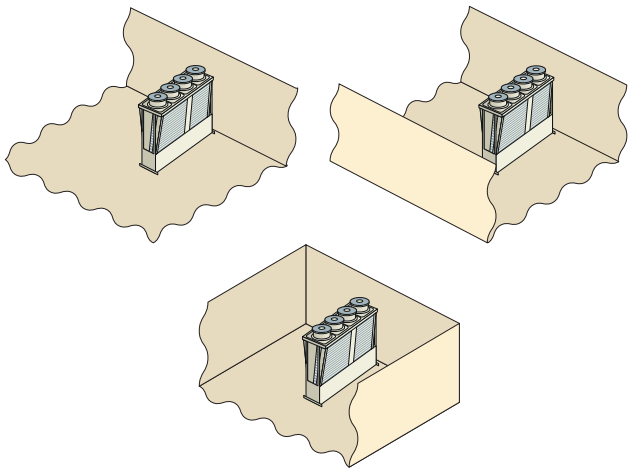




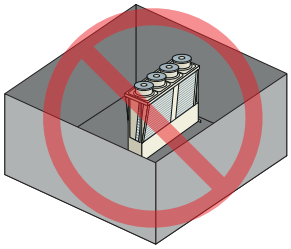
B Create an appropriate ventilation opening.



CORRECT INSTALLATION



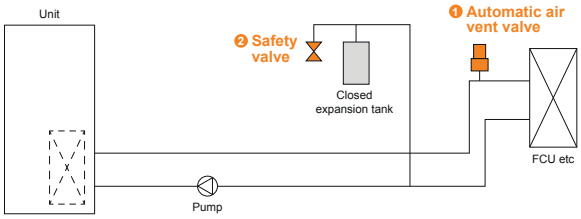
INCORRECT INSTALLATION



Regulatory requirements for safety

See below for information on installing a safety device on the air cooled chilling unit system

* Safety devices shall be regularly inspected, maintained, and replaced in accordance with relevant laws, regulations, and the instructions of the manufacturers.
* The requirements listed below were established based on IEC60 335-2-40 (Edition 5.0) G.G.6. See the original standards for fu rther information on selecting a safety device.



Required items	Note
Automatic air vent valve	* In the event of a failure of the waterside heat exchanger in the unit, the refrigerant may leak from the automatic air vent valve, so install it in a place where the refrigerant will not accumulate, such as outdoors.
Safety valve	* In the event of a failure of the waterside heat exchanger in the unit, the refrigerant may leak from the safety valve, so install it in a place where the refrigerant will not accumulate, such as outdoors.