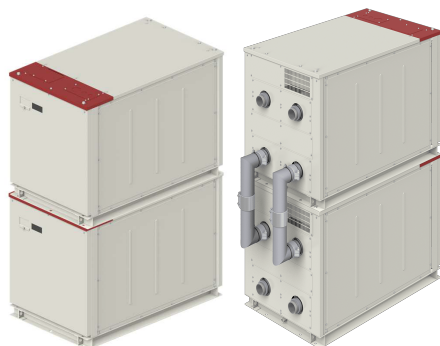


Job Name:

System Reference:

Date:

415V Water to Water Heat Pump (Double Stack)

*R32 LOW GWP
Water to Water
Heat Pump For
Cooling or
Heating Load
Application*

UNIT OPTION
☒ Standard Model.....ERCV-M900YA(X2)
ACCESSORIES
☒ Top-Bottom Joining Kit.....ER-01RK
☐ Remote Sens. (Requires 2 w/ Sys Leader).....TW-TH16-E
☐ Remote Controller.....PAR-W31MAA

Specification Unit Type			System ERCV-M900YA × 2			
When using water as evaporation side fluid (SW6-10: OFF Water setting)						
Capacity change mode			Capacity priority		Efficiency priority	
Power source			3-phase 4-wire 380-400-415V 50/60Hz			
Cooling capacity *1			kW	180.00	90.00	
			kcal/h	154,800	77,400	
			BTU/h	614,160	307,080	
	Power input	kW	33.07	15.24		
	EER		5.44	5.91		
	IPLV *5		8.61	-		
	Evaporation side water flow rate	m ³ /h	31.0	15.5		
	Condensation side water flow rate	m ³ /h	35.9	17.5		
Cooling capacity (EN14511) *2			kW	178.71	89.66	
			kcal/h	153,691	77,108	
			BTU/h	609,759	305,920	
	Power input	kW	35.54	15.87		
	EER		5.03	5.65		
	Evaporation side water flow rate	m ³ /h	31.0	15.5		
	Condensation side water flow rate	m ³ /h	35.9	17.5		
Heating capacity *3			kW	180.00	90.00	
			kcal/h	154,800	77,400	
			BTU/h	614,160	307,080	
	Power input	kW	37.22	18.39		
	COP		4.84	4.89		
	Condensation side water flow rate	m ³ /h	31.0	15.5		
	Evaporation side water flow rate	m ³ /h	42.7	21.7		
Heating capacity (EN14511) *4			kW	180.87	90.23	
			kcal/h	155,548	77,598	
			BTU/h	617,128	307,865	
	Power input	kW	40.90	19.26		
	COP		4.42	4.68		
	Condensation side water flow rate	m ³ /h	31.0	15.5		
	Evaporation side water flow rate	m ³ /h	42.7	21.7		
Current input	Cooling current 380-400-415V *1	A	54 - 51 - 49	25 - 24 - 23		
	Heating current 380-400-415V *3	A	61 - 58 - 56	30 - 29 - 28		
	Maximum current	A	120			
Water pressure drop *1	Evaporation side	kPa	85	25		
	Condensation side	kPa	66	18		
Temperature range (Cooling) *6	Evaporation side water outlet	°C	4~30			
		°F	39~86			
	Condensation side water inlet	°C	9~50			
		°F	48~122			

Specification Unit Type			System ERCV-M900YA × 2	
When using water as evaporation side fluid (SW6-10: OFF Water setting)				
Temperature range (Heating) *7	Condensation side water outlet	°C	20~55	
		°F	68~131	
	Evaporation side water inlet	°C	9~35	
		°F	48~95	
Circulating water volume range	Evaporation side	m ³ /h	15.4~50.0	
	Condensation side	m ³ /h	9.0~50.0 *8	
Sound pressure level (measured in anechoic room) at 1m *1		dB (A)	56	51
Sound power level (measured in anechoic room) *1		dB (A)	75	69
Diameter of water pipe (Evaporation side)	Inlet	mm (in)	65A (2 1/2B) housing type joint	
	Outlet	mm (in)	65A (2 1/2B) housing type joint	
Diameter of water pipe (Condensation side)	Inlet	mm (in)	65A (2 1/2B) housing type joint	
	Outlet	mm (in)	65A (2 1/2B) housing type joint	
External finish			Polyester powder coating steel plate	
External dimension H × W × D		mm	1836 × 780 × 1350	
Net weight		kg (lbs)	863 (1903)	
Design pressure	R32	MPa	4.15	
	Water	MPa	1.0	
Heat exchanger	Evaporation side		Stainless steel plate and copper brazing	
	Condensation side		Stainless steel plate and copper brazing	
Compressor	Type		Inverter scroll hermetic compressor	
	Maker		MITSUBISHI ELECTRIC CORPORATION	
	Starting method		Inverter	
	Quantity		4	
	Motor output	kW	8.3 × 4	
	Lubricant		MEL46EH	
Protection	High pressure protection		High pressure Switch at 4.15MPa (601psi)	
	Inverter circuit		Over-heat protection, Over current protection	
	Compressor		Over-heat protection	
Refrigerant	Type × charge		R32 × 5.2(kg) × 4	
	Control		LEV	

Notes:

- *1 Under normal cooling conditions at evaporation side water inlet temp 12°C (53.6°F) outlet temp 7°C (44.6°F) condensation side water inlet temp 30°C (86°F) outlet temp 35°C (95°F). Pump input is not included in cooling capacity and power input.
- *2 Under normal cooling conditions at evaporation side water inlet temp 12°C (53.6°F) outlet temp 7°C (44.6°F) condensation side water inlet temp 30°C (86°F) outlet temp 35°C (95°F). Pump input is included in cooling capacity and power input based on EN14511.
- *3 Under normal heating conditions at condensation side water inlet temp 40°C (104°F) outlet temp 45°C (113°F) evaporation side water inlet temp 10°C (50°F) outlet temp 7°C (44.6°F). Pump input is not included in cooling capacity and power input.
- *4 Under normal heating conditions at condensation side water inlet temp 40°C (104°F) outlet temp 45°C (113°F) evaporation side water inlet temp 10°C (50°F) outlet temp 7°C (44.6°F). Pump input is included in cooling capacity and power input based on EN14511.
- *5 IPLV is calculated in accordance with AHRI 551-591.
- *6 Please refer to 2-1-6 Operation temperature range.
- *7 Please refer to 2-1-6 Operation temperature range.
- *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 in direct.
- *The water circuit must be closed circuit.
- *Due to continuous improvement, the above specifications may be subject to change without notice.
- *This model doesn't equip with a pump
- *8 Set the minimum water flow rate on the condensation side water to 16.0m³/h when the evaporation side water inlet temperature during operation is 15°C (59°F) or higher.

Specification Unit Type			System ERCV-M900YA × 2
When using brine as evaporation side fluid (SW6-10: ON Brine setting)			
Power source			3-phase 4-wire 380-400-415V 50/60Hz
Cooling capacity *1*5		kW	180.00
		kcal/h	154,800
		BTU/h	614,160
	Power input	kW	33.07
	EER		5.44
	Evaporation side brine flow rate	m ³ /h	34.5
	Condensation side water flow rate	m ³ /h	35.9
Cooling capacity (EN14511) *2*5		kW	177.72
		kcal/h	152,839
		BTU/h	606,381
	Power input	kW	36.53
	EER		4.87
	Evaporation side brine flow rate	m ³ /h	34.5
	Condensation side water flow rate	m ³ /h	35.9
Heating capacity *3*5		kW	160.00
		kcal/h	137,600
		BTU/h	545,920
	Power input	kW	43.39
	COP		3.69
	Condensation side water flow rate	m ³ /h	27.5
	Evaporation side brine flow rate	m ³ /h	38.4
Heating capacity (EN14511) *4*5		kW	160.69
		kcal/h	138,193
		BTU/h	548,274
	Power input	kW	47.29
	COP		3.40
	Condensation side water flow rate	m ³ /h	27.5
	Evaporation side brine flow rate	m ³ /h	38.4
Current input *5	Cooling current 380-400-415V *1	A	54 - 51 - 49
	Heating current 380-400-415V *3	A	71 - 67 - 65
	Maximum current	A	120
Brine/Water pressure drop *1*5	Evaporation side brine	kPa	149
	Condensation side water	kPa	66
Temperature range (Cooling) *5*6	Evaporation side brine outlet	°C	-10~30
		°F	14~86
	Condensation side water inlet	°C	9~50
		°F	48~122
Temperature range (Heating) *5*7	Condensation side water outlet	°C	20~55
		°F	68~131
	Evaporation side brine inlet	°C	-7~35
		°F	19~95
Circulating brine/water volume range	Evaporation side brine	m ³ /h	15.4~50.0
	Condensation side water	m ³ /h	9.0~50.0 *8
Sound pressure level (measured in anechoic room) at 1m *1		dB (A)	56
Sound power level (measured in anechoic room) *1		dB (A)	75

Specification			System
Unit Type		ERCV-M900YA × 2	
When using brine as evaporation side fluid (SW6-10: ON Brine setting)			
Diameter of water pipe (Evaporation side)	Inlet	mm (in)	65A (2 1/2B) housing type joint
	Outlet	mm (in)	65A (2 1/2B) housing type joint
Diameter of water pipe (Condensation side)	Inlet	mm (in)	65A (2 1/2B) housing type joint
	Outlet	mm (in)	65A (2 1/2B) housing type joint
External finish		Polyester powder coating steel plate	
External dimension H × W × D		mm	1836 × 780 × 1350
Net weight		kg (lbs)	863 (1903)
Design pressure	R32	MPa	4.15
	Water	MPa	1.0
Heat exchanger	Evaporation side		Stainless steel plate and copper brazing
	Condensation side		Stainless steel plate and copper brazing
Compressor	Type		Inverter scroll hermetic compressor
	Maker		MITSUBISHI ELECTRIC CORPORATION
	Starting method		Inverter
	Quantity		4
	Motor output	kW	8.3 × 4
	Lubricant		MEL46EH
Protection	High pressure protection		High pressure Switch at 4.15MPa (601psi)
	Inverter circuit		Over-heat protection, Over current protection
	Compressor		Over-heat protection
Refrigerant	Type × charge		R32 × 5.2(kg) × 4
	Control		LEV

Notes:

*1 Under normal cooling conditions at evaporation side brine inlet temp 12°C (53.6°F) outlet temp 7°C (44.6°F) condensation side water inlet temp 30°C (86°F) outlet temp 35°C (95°F). Pump input is not included in cooling capacity and power input.

*2 Under normal cooling conditions at evaporation side brine inlet temp 12°C (53.6°F) outlet temp 7°C (44.6°F) condensation side water inlet temp 30°C (86°F) outlet temp 35°C (95°F). Pump input is included in cooling capacity and power input based on EN14511.

*3 Under normal heating conditions at condensation side water inlet temp 40°C (104°F) outlet temp 45°C (113°F) evaporation side brine inlet temp 0°C (32°F) outlet temp -3°C (26.6°F). Pump input is not included in cooling capacity and power input.

*4 Under normal heating conditions at condensation side water inlet temp 40°C (104°F) outlet temp 45°C (113°F) evaporation side brine inlet temp 0°C (32°F) outlet temp -3°C (26.6°F). Pump input is included in cooling capacity and power input based on EN14511.

*5 When using brine (ethylene glycol 35wt%) as evaporation side fluid.

*6 Please refer to 2-1-6 Operation temperature range.

*7 Please refer to 2-1-6 Operation temperature range.

*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 in direct.

*The water circuit must be closed circuit.

*Due to continuous improvement, the above specifications may be subject to change without notice.

*This model doesn't equip with a pump.

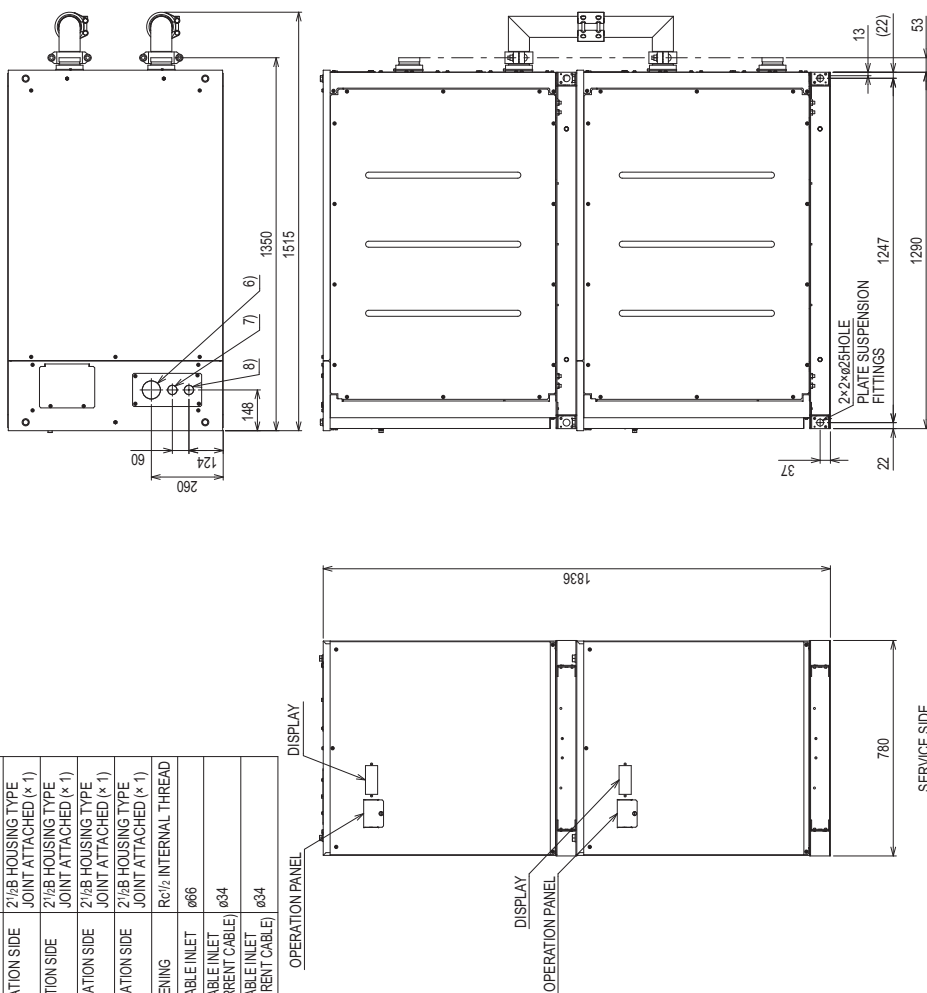
*8 Set the minimum water flow rate on the condensation side water to 16.0m³/h when the evaporation side brine inlet temperature during operation is 15°C (59°F) or higher.

ERCV-M900YA × 2

Unit: mm

NOTE 1. CONNECT EVAPORATION SIDE PIPES AND CONDENSATION SIDE PIPES WHILE MAKING SURE OF CONNECTING THE INLETS AND OUTLETS CORRECTLY.
 NOTE 2. INTRUSION OF FOREIGN MATERIALS INTO THE HEAT EXCHANGER MAY CAUSE PERFORMANCE DEGRADATION OR FREEZING.
 BE SURE TO INSTALL CLEANABLE STRAINER (20 MESH MIN.) TO THE HEAT EXCHANGER INLET.
 NOTE 3. FOR HOW TO DRAW IN POWER CABLES OR CONNECT EVAPORATION SIDE PIPES AND CONDENSATION SIDE PIPES, REFER TO THE SEPARATE DOCUMENT.
 NOTE 4. THE HOUSING TYPE JOINTS FOR CONNECTING A EVAPORATION SIDE AND CONDENSATION SIDE INLET AND OUTLET SHOULD BE PREPARED ON SITE.

NO.	NAME	DESCRIPTION
1)	EVAPORATION SIDE INLET	2 1/8" HOUSING TYPE JOINT ATTACHED (× 1)
2)	EVAPORATION SIDE OUTLET	2 1/8" HOUSING TYPE JOINT ATTACHED (× 1)
3)	CONDENSATION SIDE INLET	2 1/8" HOUSING TYPE JOINT ATTACHED (× 1)
4)	CONDENSATION SIDE OUTLET	2 1/8" HOUSING TYPE JOINT ATTACHED (× 1)
5)	DRAIN OPENING	Rc 1/2" INTERNAL THREAD
6)	POWER CABLE INLET	ø66
7)	SIGNAL CABLE INLET (HIGH CURRENT CABLE)	ø34
8)	SIGNAL CABLE INLET (LOW CURRENT CABLE)	ø34



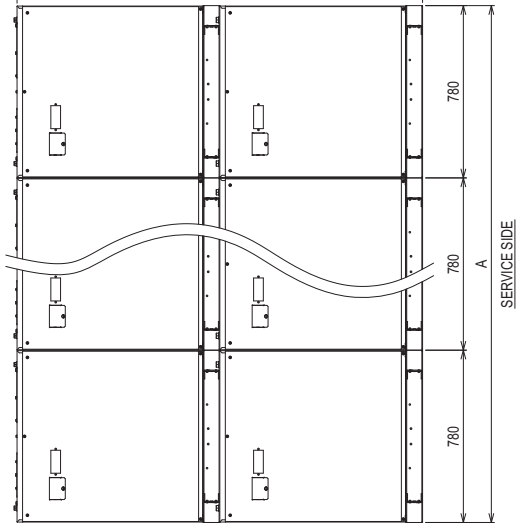
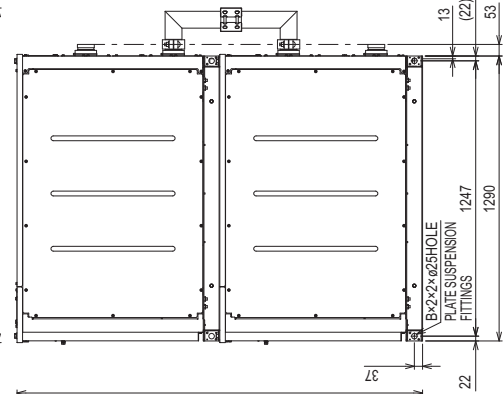
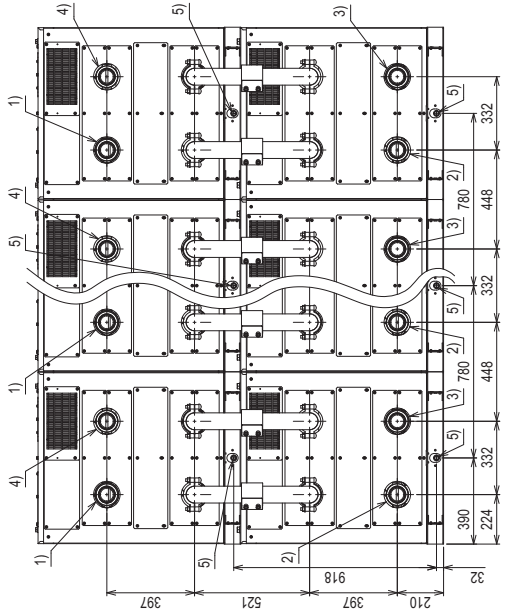
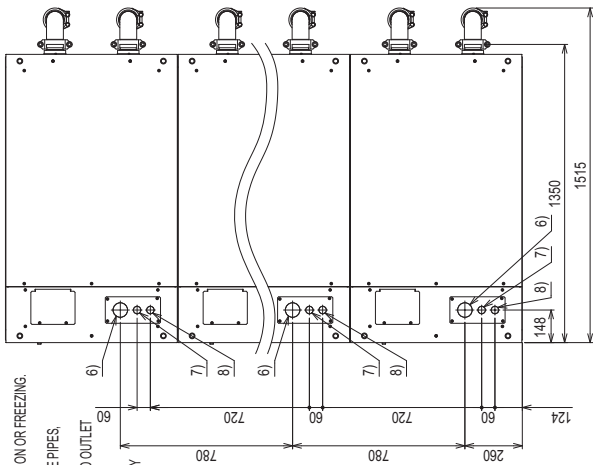
ERCV-M900YA × 2

Unit: mm

MODULE COUNT	A	B (HANGING HOLE COUNT)	C (FOUNDATION HOLE COUNT)
1 MODULE	780	1	1
2 MODULES	1560	2	2
3 MODULES	2340	3	3
4 MODULES	3120	4	4
5 MODULES	3900	5	5
6 MODULES	4680	6	6

NOTE 1. CONNECT EVAPORATION SIDE PIPES AND CONDENSATION SIDE PIPES WHILE MAKING SURE OF CONNECTING THE INLETS AND OUTLETS CORRECTLY.
NOTE 2. INTRUSION OF FOREIGN MATERIALS INTO THE HEAT EXCHANGER MAY CAUSE PERFORMANCE DEGRADATION OR FREEZING. BE SURE TO INSTALL CLEANABLE STRAINER (20 MESH MIN.) TO THE HEAT EXCHANGER INLET.
NOTE 3. FOR HOW TO DRAW IN POWER CABLES OR CONNECT EVAPORATION SIDE PIPES AND CONDENSATION SIDE PIPES, REFER TO THE SEPARATE DOCUMENT.
NOTE 4. THE HOUSING TYPE JOINTS FOR CONNECTING A EVAPORATION SIDE AND CONDENSATION SIDE INLET AND OUTLET SHOULD BE PREPARED ON SITE.
NOTE 5. "1 MODULE" IN THE JOINED-TOP-BOTTOM-UNITS SPECIFICATION IS IN THE STATE AS SHOWN IN THE FIGURE BELOW, WHICH SHOWS THE TOP AND BOTTOM UNITS JOINED TOGETHER WITH A SEPARATELY SOLD PART "ER-41RK TOP-BOTTOM UNIT JOINING KIT".

NO.	NAME	DESCRIPTION
1)	EVAPORATION SIDE INLET	2 1/8" HOUSING TYPE JOINT ATTACHED (× 1)
2)	EVAPORATION SIDE OUTLET	2 1/8" HOUSING TYPE JOINT ATTACHED (× 1)
3)	CONDENSATION SIDE INLET	2 1/8" HOUSING TYPE JOINT ATTACHED (× 1)
4)	CONDENSATION SIDE OUTLET	2 1/8" HOUSING TYPE JOINT ATTACHED (× 1)
5)	DRAIN OPENING	Rc 1/2" INTERNAL THREAD
6)	POWER CABLE INLET	ø66
7)	SIGNAL CABLE INLET (HIGH CURRENT CABLE)	ø34
8)	SIGNAL CABLE INLET (LOW CURRENT CABLE)	ø34



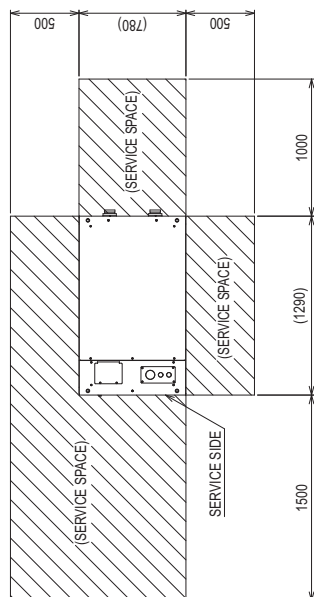
ERCV-M900YA × 2

Unit: mm

SERVICE SPACES AROUND THE UNIT

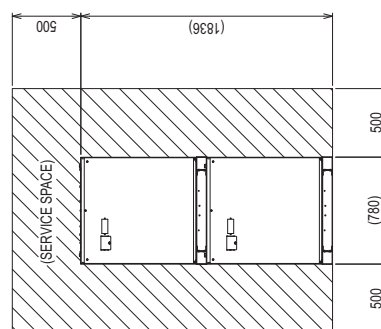
1. WHEN INSTALLING THE UNIT, BE SURE TO LEAVE A SERVICE SPACE FOR MAINTENANCE AND INSPECTION AROUND THE UNIT.
2. ENSURE THAT THERE ARE NOT ANY WALLS OR OTHER OBJECTS AROUND THE UNIT THAT PREVENT THE UNIT FROM DRAWING IN AIR.

SERVICE SPACE



TOP VIEW

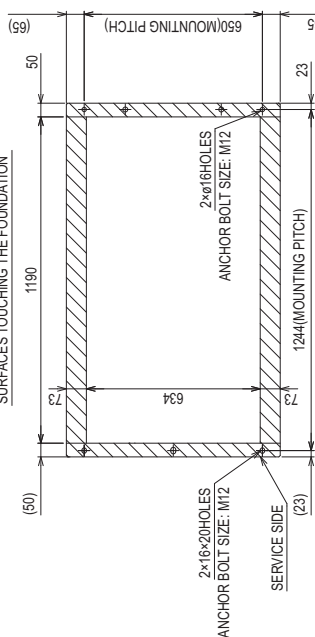
FRONT VIEW



INSTALLATION ON FOUNDATION

1. SECURELY FIX THE UNIT WITH BOLTS TO KEEP THE UNIT FROM FALLING DOWN DURING EARTHQUAKES.
2. INSTALL THE UNIT ON A FOUNDATION MADE OF CONCRETE OR IRON.
3. NOISE AND VIBRATIONS FROM THE UNIT MAY BE TRANSMITTED THROUGH THE FLOOR AND WALLS. PROVIDE ADEQUATE PROTECTION AGAINST NOISE AND VIBRATION.
4. ANCHOR BOLTS SHOULD BE PREPARED ON SITE.
5. WHEN BUILDING THE FOUNDATION, TAKE THE FLOOR STRENGTH, AND PIPING AND WIRING ROUTES INTO ACCOUNT.

SURFACES TOUCHING THE FOUNDATION



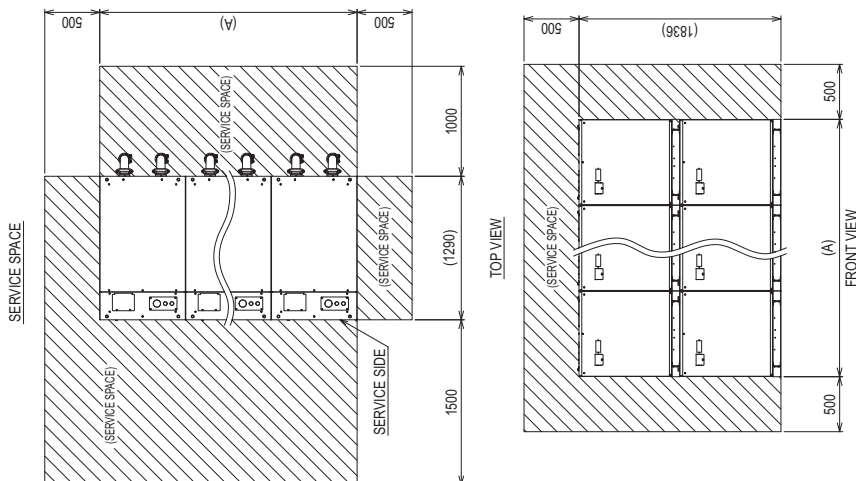
* SECTION SHOWS THE UNIT SURFACE TOUCHING THE FOUNDATION.

ERCv-M900YA × 2

Unit: mm

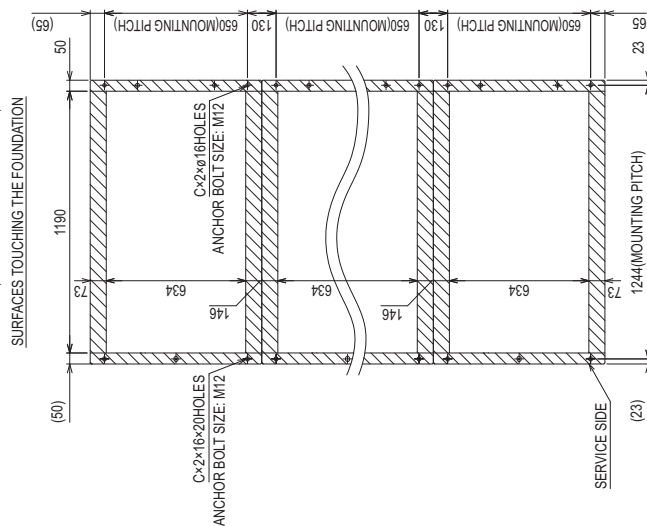
SERVICE SPACES AROUND THE UNIT

1. WHEN INSTALLING THE UNIT, BE SURE TO LEAVE A SERVICE SPACE FOR MAINTENANCE AND INSPECTION AROUND THE UNIT.
2. ENSURE THAT THERE ARE NOT ANY WALLS OR OTHER OBJECTS AROUND THE UNIT THAT PREVENT THE UNIT FROM DRAWING IN AIR.



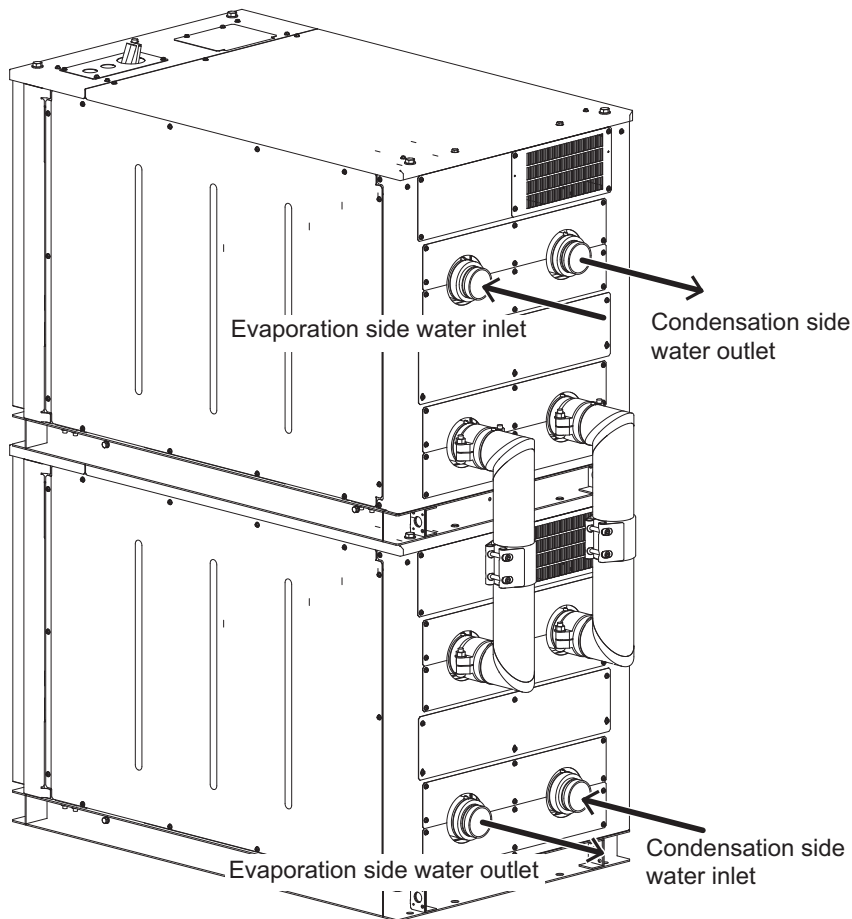
INSTALLATION ON FOUNDATION

1. SECURELY FIX THE UNIT WITH BOLTS TO KEEP THE UNIT FROM FALLING DOWN DURING EARTHQUAKES.
2. INSTALL THE UNIT ON A FOUNDATION MADE OF CONCRETE OR IRON.
3. NOISE AND VIBRATIONS FROM THE UNIT MAY BE TRANSMITTED THROUGH THE FLOOR AND WALLS.
4. PROVIDE ADEQUATE PROTECTION AGAINST NOISE AND VIBRATION.
5. ANCHOR BOLT'S SHOULD BE PREPARED ON SITE.
6. WHEN BUILDING THE FOUNDATION, TAKE THE FLOOR STRENGTH, AND PIPING AND WIRING ROUTES INTO CONSIDERATION.

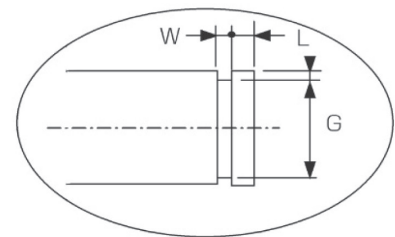


* SECTION SHOWS THE UNIT SURFACE TOUCHING THE FOUNDATION.

ERCV-M900YA × 2

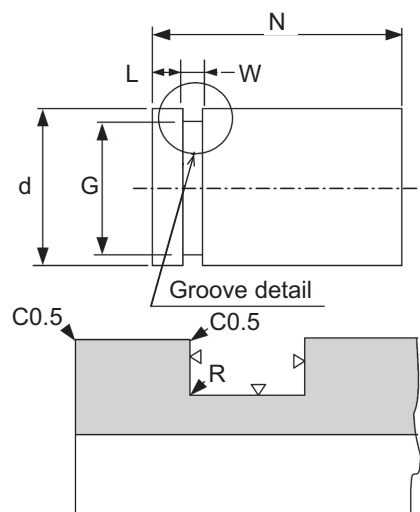


<Opposite side of service side>



The dimension of the groove pipe at the chiller side

Victaulic standard groove specifications



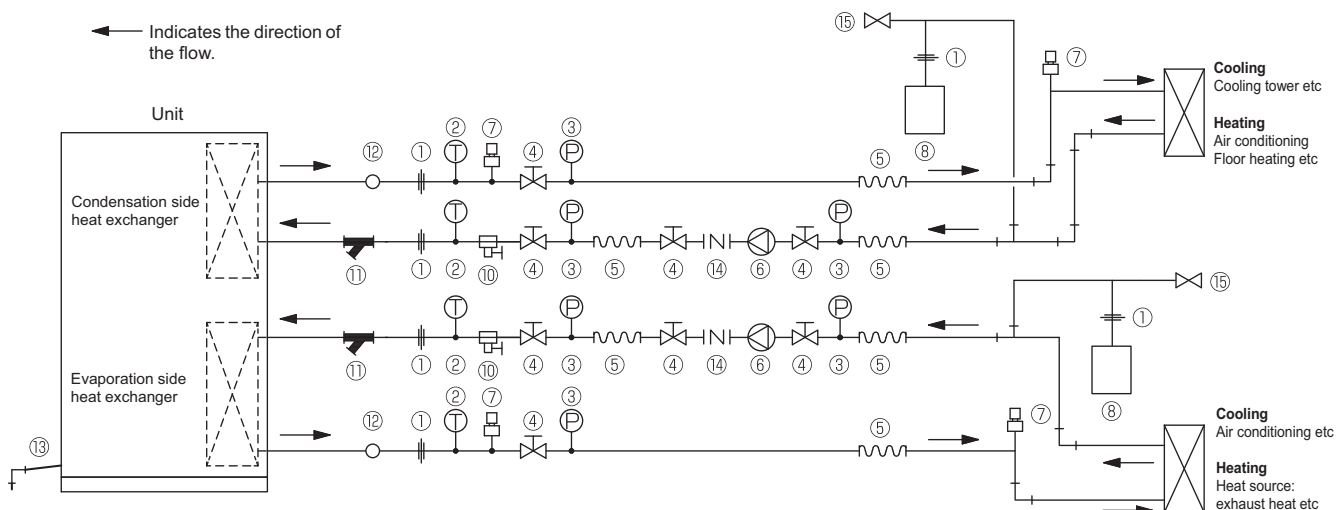
(Unit: mm)

	Pipe size
	2-1/2B (65A)
d	ø76.1
G	ø72.2 ⁺⁰ _{-0.4}
W	8.7 ⁺⁰ _{-0.7}
L	15.88 ⁺⁰ _{-0.7}
N	50
R	1.0

<1> Water circuit

Please build the condensation side and evaporation side water circuits so that it is a closed system.

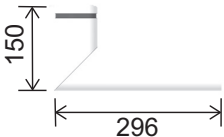
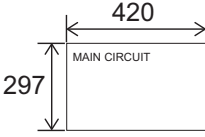
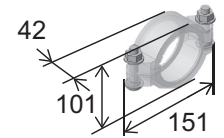
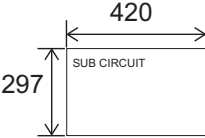
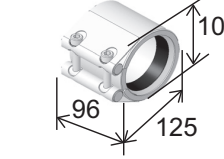
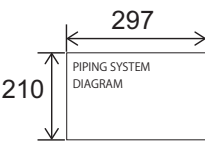
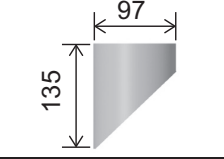
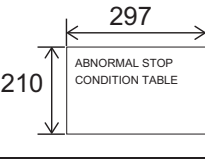
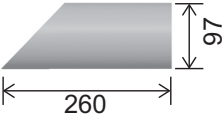
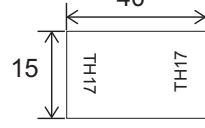
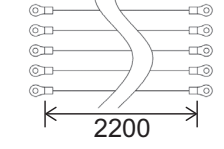
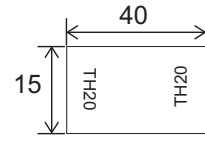
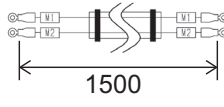
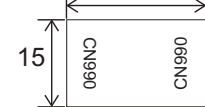
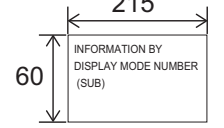
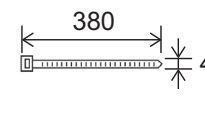
Do not use water directly for showers or other applications.
Do not allow other heat source water to mix with the water circuit.
Build a water circuit as inlet water temperature fluctuation is within 5°C/10 minutes.



① Union joints/flange joints	Required to allow for a replacement of equipment.
② Thermometer	Required to check the performance and monitor the operation of the units.
③ Water pressure gauge	Recommended for checking the operation status.
④ Valve	Required to allow for a replacement or cleaning of the flow adjuster.
⑤ Flexible joint	Recommended to prevent the noise and vibration from the pump from being transmitted.
⑥ Pump	Use a pump that is large enough to compensate for the total water pressure loss and supply sufficient water to the unit.
⑦ Automatic air vent valve	Install automatic air vent valves where air accumulates. Even in the case of a failure of the water-side heat exchanger in the unit, the refrigerant may leak from the automatic air vent valve. To prevent accidents resulted from refrigerant leakage, install the unit where leaked refrigerant will not accumulate, such as outdoors.
⑧ Closed expansion tank	Install a closed expansion tank to accommodate expanded water and to supply water.
⑨ Water pipe	Use pipes that allow for easy air purging, and provide adequate insulation.
⑩ Drain valve	Install drain valves so that water can be drained for servicing.
⑪ Strainer	Install a strainer near the unit to keep foreign materials from entering the water-side head exchanger.
⑫ Flow switch	Required to protect the unit.
⑬ Drain pipe	Install the drain pipe with a downward inclination of between 1/100 and 1/200. To prevent drain water from freezing in winter, install the drain pipe as steep an angle as practically possible and minimize the straight line. For cold climate installation, take an appropriate measure (e.g., drain heater) to prevent the drain water from freezing.
⑭ Check valve	Required to prevent the backward flow.
⑮ Safety valve	Install a safety valve near the closed expansion tank. Even in the case of a failure of the water-side heat exchanger in the unit, the refrigerant may leak from the safety valve. To prevent accidents resulted from refrigerant leakage, install the unit where leaked refrigerant will not accumulate, such as outdoors.

Top-Bottom unit Joining Kit ER-01RK

Refer to Installation/Instructions Manual.

No.	Parts	Shape/Size (Unit: mm)	Quantity	No.	Parts	Shape/Size (Unit: mm)	Quantity
1	Coupling water pipe		4	9	Electrical wiring diagram nameplate 1		1
2	Housing joint		4	10	Electrical wiring diagram nameplate 2		1
3	Straub joint		2	11	Refrigerant circuit diagram nameplate		2
4	Pipe cover 1 (10 mm thick)		4	12	Error code		2
5	Pipe cover 2 (10 mm thick)		4	13	Thermistor label (TH17)		1
6	Power wire		1	14	Thermistor label (TH20)		1
7	M-NET wire		1	15	Connector label (CN990)		1
8	LED indicator nameplate (Sub unit only)		1	16	Tie band		26 (Spare: 12)