

AIR CONDITIONING SYSTEMS

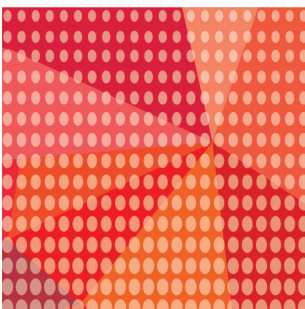
HYBRID
CITY MULTI



DATA BOOK

MODEL

CMH-WM-V-A



CMH-WM-V-A

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1. SPECIFICATIONS

Hydro unit

Hydro unit

Model name			CMH-WM250V-A			
Power source			1-phase 220-230-240 V			
			50 Hz		60 Hz	
Power input (220/230/240)	Cooling	kW	0.74/0.74/0.74		0.74/0.74/0.74	
	Heating	kW	0.74/0.74/0.74		0.74/0.74/0.74	
Current input (220/230/240)	Cooling	A	3.84/3.67/3.52		3.84/3.67/3.52	
	Heating	A	3.84/3.67/3.52		3.84/3.67/3.52	
Sound pressure level (measured in anechoic room)		dB <A>	60			
Applicable temperature range of installation site		°C (D.B.)	-5~52			
External finish			Pre-coated galvanized steel sheets (Lower part drain pan: Pre-coated galvanized sheets + powder coating)			
Connectable outdoor/heat source unit capacity			(E)M200~250			
External dimension H x W x D		mm	660 x 920 x 740			
		in.	25-63/64 x 36-7/32 x 29-9/64			
Refrigerant piping diameter	To outdoor/heat source unit		Connectable outdoor/heat source unit capacity			
			M200	M250	EM200	EM250
	Liquid pipe	mm (in.) O.D.	9.52 (3/8)	9.52 (3/8)	9.52 (3/8)	9.52 (3/8)
			Brazed	Brazed	Brazed	Brazed
	Gas pipe	mm (in.) O.D.	22.2 (7/8)	22.2 (7/8)	22.2 (7/8)	22.2 (7/8)
			Brazed	Brazed	Brazed	Brazed
Water piping diameter (To Indoor unit)						
Connection size	Inlet	mm (in.) I.D.	40 (1-1/2) housing joint			
	Outlet	mm (in.) I.D.	40 (1-1/2) housing joint			
Field pipe size	Inlet	mm (in.) I.D.	40 (1-1/2)			
	Outlet	mm (in.) I.D.	40 (1-1/2)			
Net weight		kg (lbs)	112 (247) [119 (263) with water]			
Standard attachment	Document	-				
	Accessories	Y-type strainer, Auto air vent valve, Joint, Elbow, Pipe				
Optional parts			Drain pan (PAC-SH01DP-E)			
Note						
<p>1.Works not included: Installation/foundation work, electrical connection work, duct work, insulation work, power source switch, and other items are not specified in this specifications.</p> <p>2.The equipment is for R32 refrigerant.</p> <p>3.Install this product in a location where noise (refrigerant noise) emitted by the unit will not disturb the neighbors. (For use in quiet environments with low background noise, position the Hydro unit at least 5 m away from any indoor units.)</p> <p>4.Please install the Hydro unit in a place where noise will not be an issue.</p> <p>5.Please attach an expansion vessel (field supply).</p> <p>6.Use copper, plastic, steel, or stainless steel pipes for the water circuit. Furthermore, when using copper pipe-work use a non-oxidative brazing method. Oxidation of the pipe-work will reduce the pump life.</p> <p>7.When brazing the pipes, be sure to braze, after covering a wet cloth to the insulation pipes of the units in order to prevent it from burning and shrinking by heat.</p> <p>8.Please install an air purge valve where air will gather in the water circuit.</p> <p>9.Please install a pressure reducing valve and a strainer on the water supply to the Hydro unit.</p> <p>10.Please refer to the databook or the installation manual for the specified water quality.</p> <p>11.Please always make water circulate or pull out the circulation water completely when not using it. *Please do not use it as a drinking water.</p> <p>12.Please do not use ground water and well water.</p> <p>13.When installing the Hydro unit in an environment which may drop below 0 °C, please add antifreeze to the circulating water. (Refer to the data-book and the installation manual).</p> <p>14.R32 is flammable, and certain restrictions apply to the installation of units. When installing new units, moving the existing units, or changing the layout of the room, ensure that installation restrictions are observed. For detail, refer to the section in the Databook on installation restrictions.</p> <p>15.Drain or condensation water will be discharged from hydro units during test run. If this will be a problem, install a separately sold drain pan.</p> <p>16.Do not install the unit where it could be salt-damaged.</p>						

1. SPECIFICATIONS

Model name			CMH-WM350V-A			
Power source			1-phase 220-230-240 V			
			50 Hz		60 Hz	
Power input (220/230/240)	Cooling	kW	0.90/0.90/0.90		0.90/0.90/0.90	
	Heating	kW	0.90/0.90/0.90		0.90/0.90/0.90	
Current input (220/230/240)	Cooling	A	4.69/4.48/4.30		4.69/4.48/4.30	
	Heating	A	4.69/4.48/4.30		4.69/4.48/4.30	
Sound pressure level (measured in anechoic room)		dB <A>	60			
Applicable temperature range of installation site		°C (D.B.)	-5~52			
External finish			Pre-coated galvanized steel sheets (Lower part drain pan: Pre-coated galvanized sheets + powder coating)			
Connectable outdoor/heat source unit capacity			(E)M300~350			
External dimension H x W x D		mm	660 x 920 x 740			
		in.	25-63/64 x 36-7/32 x 29-9/64			
Refrigerant piping diameter	To outdoor/heat source unit		Connectable outdoor/heat source unit capacity			
			M300	M350	EM300	EM350
	Liquid pipe	mm (in.) O.D.	9.52 (3/8)	12.7 (1/2)	9.52 (3/8)	12.7 (1/2)
			Brazed	Brazed	Brazed	Brazed
	Gas pipe	mm (in.) O.D.	22.2 (7/8)	28.58 (1-1/8)	28.58 (1-1/8)	28.58 (1-1/8)
			Brazed	Brazed	Brazed	Brazed
Water piping diameter (To Indoor unit)						
Connection size	Inlet	mm (in.) I.D.	40 (1-1/2) housing joint			
	Outlet	mm (in.) I.D.	40 (1-1/2) housing joint			
Field pipe size	Inlet	mm (in.) I.D.	40 (1-1/2)			
	Outlet	mm (in.) I.D.	40 (1-1/2)			
Net weight		kg (lbs)	117 (258) [126 (278) with water]			
Standard attachment	Document		-			
	Accessories		Y-type strainer, Auto air vent valve, Joint, Elbow, Pipe			
Optional parts			Drain pan (PAC-SH01DP-E)			
Note						
<p>1.Works not included: Installation/foundation work, electrical connection work, duct work, insulation work, power source switch, and other items are not specified in this specifications.</p> <p>2.The equipment is for R32 refrigerant.</p> <p>3.Install this product in a location where noise (refrigerant noise) emitted by the unit will not disturb the neighbors. (For use in quiet environments with low background noise, position the Hydro unit at least 5 m away from any indoor units.)</p> <p>4.Please install the Hydro unit in a place where noise will not be an issue.</p> <p>5.Please attach an expansion vessel (field supply).</p> <p>6.Use copper, plastic, steel, or stainless steel pipes for the water circuit. Furthermore, when using copper pipe-work use a non-oxidative brazing method. Oxidation of the pipe-work will reduce the pump life.</p> <p>7.When brazing the pipes, be sure to braze, after covering a wet cloth to the insulation pipes of the units in order to prevent it from burning and shrinking by heat.</p> <p>8.Please install an air purge valve where air will gather in the water circuit.</p> <p>9.Please install a pressure reducing valve and a strainer on the water supply to the Hydro unit.</p> <p>10.Please refer to the databook or the installation manual for the specified water quality.</p> <p>11.Please always make water circulate or pull out the circulation water completely when not using it. *Please do not use it as a drinking water.</p> <p>12.Please do not use ground water and well water.</p> <p>13.When installing the Hydro unit in an environment which may drop below 0 °C, please add antifreeze to the circulating water. (Refer to the data-book and the installation manual).</p> <p>14.R32 is flammable, and certain restrictions apply to the installation of units. When installing new units, moving the existing units, or changing the layout of the room, ensure that installation restrictions are observed. For detail, refer to the section in the Databook on installation restrictions.</p> <p>15.Drain or condensation water will be discharged from hydro units during test run. If this will be a problem, install a separately sold drain pan.</p> <p>16.Do not install the unit where it could be salt-damaged.</p>						

1. SPECIFICATIONS

Hydro unit

Hydro unit

Model name			CMH-WM500V-A			
Power source			1-phase 220-230-240 V			
			50 Hz		60 Hz	
Power input (220/230/240)	Cooling	kW	1.06/1.06/1.06		1.06/1.06/1.06	
	Heating	kW	1.06/1.06/1.06		1.06/1.06/1.06	
Current input (220/230/240)	Cooling	A	5.47/5.23/5.02		5.47/5.23/5.02	
	Heating	A	5.47/5.23/5.02		5.47/5.23/5.02	
Sound pressure level (measured in anechoic room)		dB <A>	60			
Applicable temperature range of installation site		°C (D.B.)	-5~52			
External finish			Pre-coated galvanized steel sheets (Lower part drain pan: Pre-coated galvanized sheets + powder coating)			
Connectable outdoor/heat source unit capacity			(E)M400~500			
External dimension H x W x D		mm	660 x 920 x 740			
		in.	25-63/64 x 36-7/32 x 29-9/64			
Refrigerant piping diameter	To outdoor/heat source unit		Connectable outdoor/heat source unit capacity			
			M400	M450/500	EM400	EM450/500
	Liquid pipe	mm (in.) O.D.	12.7 (1/2)	15.88 (5/8)	12.7 (1/2)	15.88 (5/8)
			Brazed	Brazed	Brazed	Brazed
	Gas pipe	mm (in.) O.D.	28.58 (1-1/8)	28.58 (1-1/8)	28.58 (1-1/8)	28.58 (1-1/8)
			Brazed	Brazed	Brazed	Brazed
Water piping diameter (To Indoor unit)						
Connection size	Inlet	mm (in.) I.D.	50 (2) housing joint			
	Outlet	mm (in.) I.D.	50 (2) housing joint			
Field pipe size	Inlet	mm (in.) I.D.	50 (2)			
	Outlet	mm (in.) I.D.	50 (2)			
Net weight		kg (lbs)	143 (316) [157 (347) with water]			
Standard attachment	Document	-				
	Accessories	Y-type strainer, Auto air vent valve, Joint, Elbow, Pipe				
Optional parts			Drain pan (PAC-SH01DP-E)			
Note	<p>1.Works not included: Installation/foundation work, electrical connection work, duct work, insulation work, power source switch, and other items are not specified in this specifications.</p> <p>2.The equipment is for R32 refrigerant.</p> <p>3.Install this product in a location where noise (refrigerant noise) emitted by the unit will not disturb the neighbors. (For use in quiet environments with low background noise, position the Hydro unit at least 5 m away from any indoor units.)</p> <p>4.Please install the Hydro unit in a place where noise will not be an issue.</p> <p>5.Please attach an expansion vessel (field supply).</p> <p>6.Use copper, plastic, steel, or stainless steel pipes for the water circuit. Furthermore, when using copper pipe-work use a non-oxidative brazing method. Oxidation of the pipe-work will reduce the pump life.</p> <p>7.When brazing the pipes, be sure to braze, after covering a wet cloth to the insulation pipes of the units in order to prevent it from burning and shrinking by heat.</p> <p>8.Please install an air purge valve where air will gather in the water circuit.</p> <p>9.Please install a pressure reducing valve and a strainer on the water supply to the Hydro unit.</p> <p>10.Please refer to the databook or the installation manual for the specified water quality.</p> <p>11.Please always make water circulate or pull out the circulation water completely when not using it. *Please do not use it as a drinking water.</p> <p>12.Please do not use ground water and well water.</p> <p>13.When installing the Hydro unit in an environment which may drop below 0 °C, please add antifreeze to the circulating water. (Refer to the data-book and the installation manual).</p> <p>14.R32 is flammable, and certain restrictions apply to the installation of units. When installing new units, moving the existing units, or changing the layout of the room, ensure that installation restrictions are observed. For detail, refer to the section in the Databook on installation restrictions.</p> <p>15.Drain or condensation water will be discharged from hydro units during test run. If this will be a problem, install a separately sold drain pan.</p> <p>16.Do not install the unit where it could be salt-damaged.</p>					

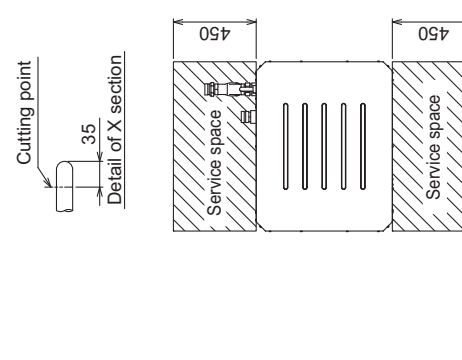
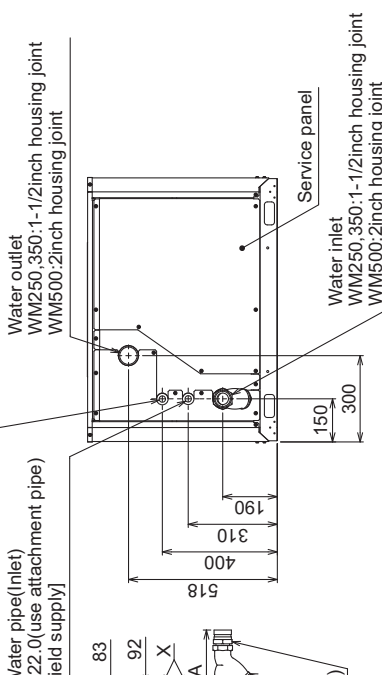
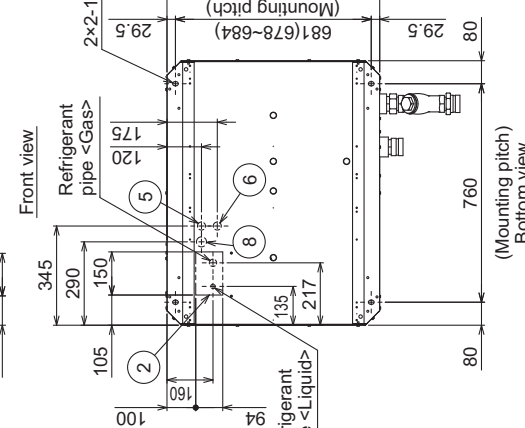
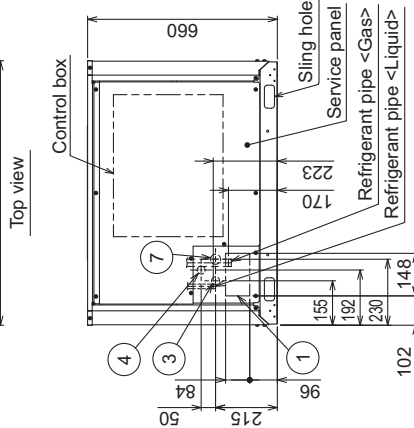
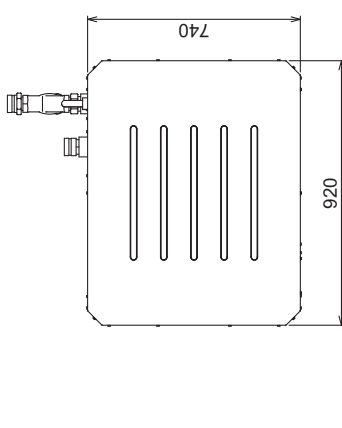
CMH-WM250, 350, 500V-A

Unit: mm

- Note 1. Please refer to the next page for information regarding necessary foundation work.
- Take notice of service space as follows. (Please give attention not to occupy service space by letting ducts and pipes through.)
 - At brazing of pipes, wrap the pipe with wet cloth and keep the temperature of pipe under 120°C.
 - If dew condensation water dropping from holes on the unit base is concerned, please install the drain pan.
 - Install this product in a location where noise emitted by the unit will not disturb the neighbors.

- <Accessories>
- Y-type strainer(Rc1-1/4) ... WM250,350 1pc.
 - Y-type strainer(Rc1-1/2) ... WM500 1pc.
 - Joint(From Rc1-1/4 to 1-1/2inch housing joint) ... WM250,350 1pc.
 - Joint(From Rc1-1/2 to 2inch housing joint) ... WM500 1pc.
 - Elbow(IDø25.4xODø25.4) ... WM350,500 1pc.
 - Pipe (IDø25.4xODø28.6) ... WM350,500 1pc.
 - Auto air vent valve(G3/8) ... 1pc.

- <Accessories>
- Water pipe(EXP.Vessel) ø22.0(use attachment pipe)
 - Water pipe(Inlet) ø22.0(use attachment pipe) [field supply]
 - Y-type strainer(Accessory) Joint(Accessory)



NO.	Usage	Specifications		
			For pipes	For wires
①	Front through hole	148 x 84 Knockout hole		
②	Bottom through hole	150 x 94 Knockout hole		
③	Front through hole	ø28 Knockout hole		
④	Bottom through hole	ø28 Knockout hole		
⑤	Front through hole	ø28 Knockout hole		
⑥	Bottom through hole	ø28 Knockout hole		
⑦	Front through hole	ø35 Knockout hole		
⑧	Bottom through hole	ø35 Knockout hole		

Model	A	Connecting pipe specifications	
		Refrigerant pipe Liquid	Gas
WM250	256	ø9.52 Braze	ø22.2 Braze
WM350	256	ø12.7 Braze	ø25.4 Braze
WM500	281	ø15.88 Braze	ø28.6 Braze ^{*1}

*1 Using difference diameter pipe joint.
 *2 Connect the refrigerant pipe according to the Installation Manual.
 *3 Indicates dimensions and connection specifications in the case the unit is used in combination with other outdoor units.

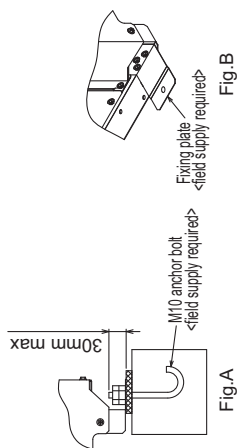
THE SPECIFICATION OF THE PRODUCT IS FOR THE IMPROVEMENT A PREVIOUS NOTICE AND MIGHT CHANGE.

CMH-WM250, 350, 500V-A

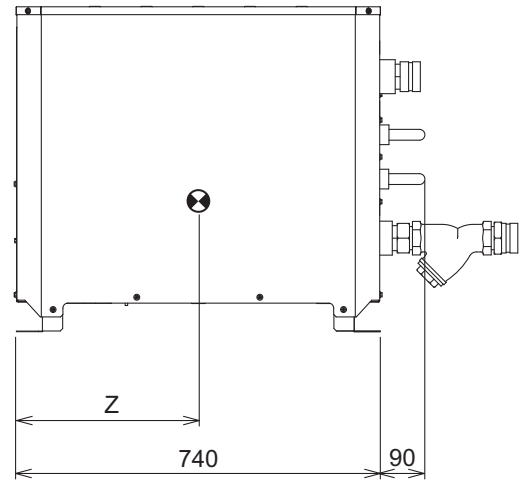
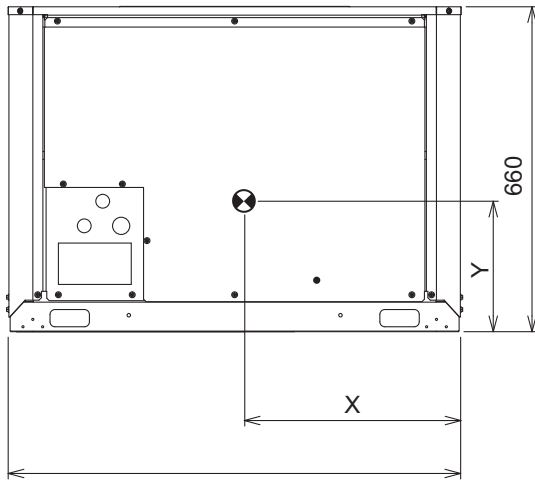
Unit: mm

1. Foundation work

- ① Take into consideration the surface strength, water drainage route, piping route, and wiring route when preparing the installation site.
<Note that the drain water comes out of the unit during operation.>
- ② Build the foundation in such way that the corner of the installation leg is securely supported as shown in the right figure.(Fig.A)
When using a rubber isolating cushion, please ensure it is large enough to cover the entire width of each of the unit's legs.
- ③ The protrusion length of the anchor bolt must not exceed 30mm.(Fig.A)
- ④ Use four fixing plates as shown in the right figure <field supply required> when using post-installed anchor bolts.(Fig.B)
- ⑤ To prevent small animals and water and snow from entering the unit and damaging its parts, close the gap around the edges of through holes for pipes and wires with filler plates <field supply required>.
- ⑥ When the pipes or cables are routed at the bottom of the unit, make sure that the through hole at the base of the unit does not get blocked with the installation base.
- ⑦ Refer to the Installation Manual when installing units on an installation base.



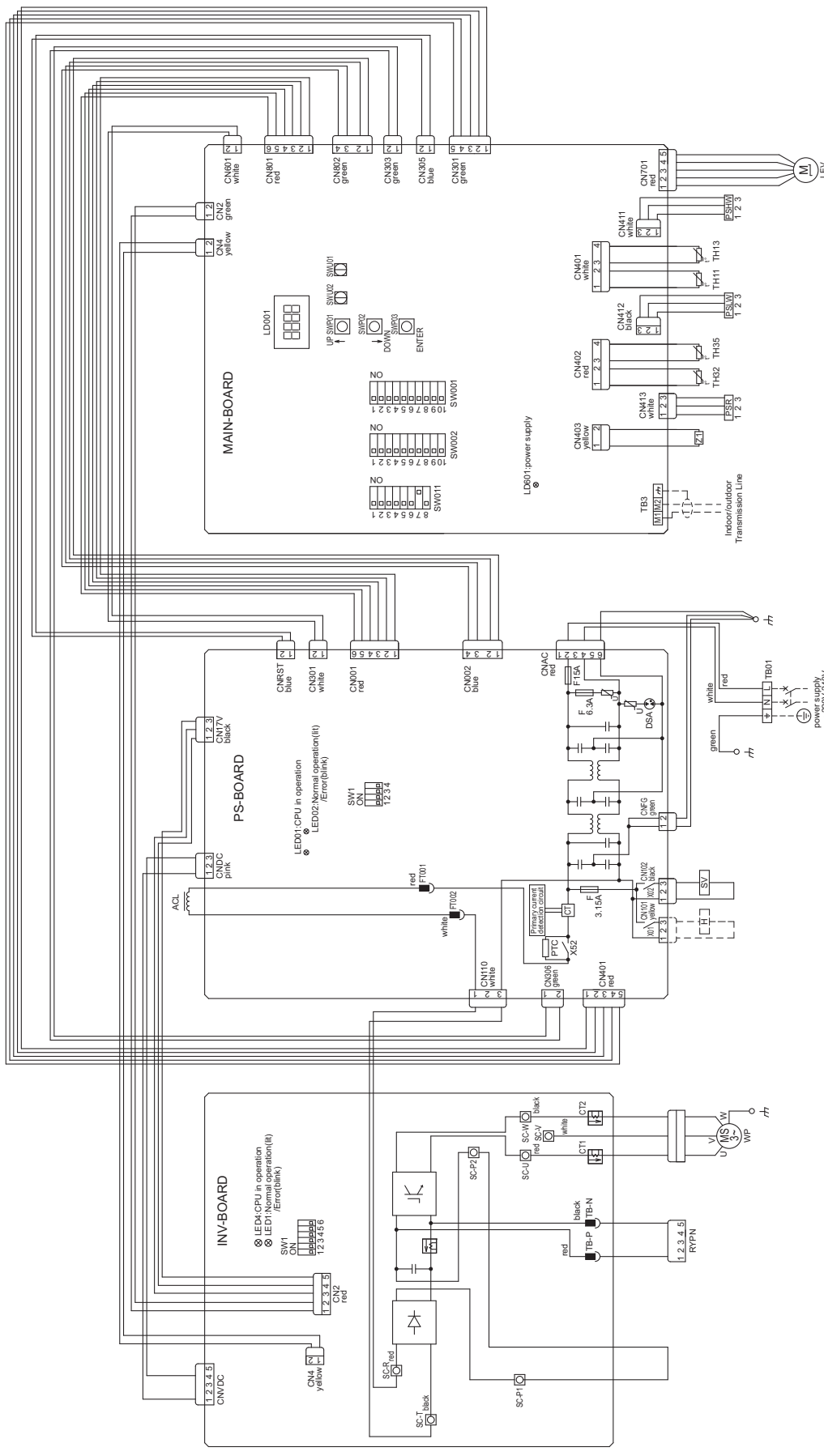
CMH-WM250, 350, 500V-A



Unit: mm

Model	X	Y	Z
CMH-WM250V-A	443	256	398
CMH-WM350V-A	433	256	394
CMH-WM500V-A	392	260	406

CMH-WM250, 350, 500V-A



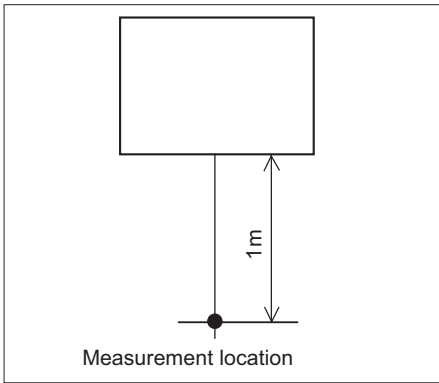
- Note: 1. The broken lines indicate the field-supplied parts, and field work.
 2. TB3 is transmission terminal block.
 3. Never connect power line to it.
 4. Control box houses high-voltage parts.
 Before inspecting the inside of the control box, turn off the power, keep the unit off for at least 10 minutes, and confirm that the voltage of the connector RYPN on INV-BOARD has dropped to DC20V or less.
 5. The initial set values of switch on MAIN BOARD are as follows.
 SWU001:0
 SWU002:0

(Symbol explanation)

Symbol	Name	Symbol	Name
ACL	AC reactor	TB01	Terminal block (for power source)
F	Fuse	TB3	Terminal block (for Transmission)
H	Electric heater (Anti-freeze)	TH11, TH12, TH32, TH35	Thermister sensor
LEV	Expansion valve	WP	Pump
PSHW, PSLW	Pressure sensor (water)	Z1	Function setting connector
PSR	Pressure sensor (refrigerant)		
SV	Solenoid valve		

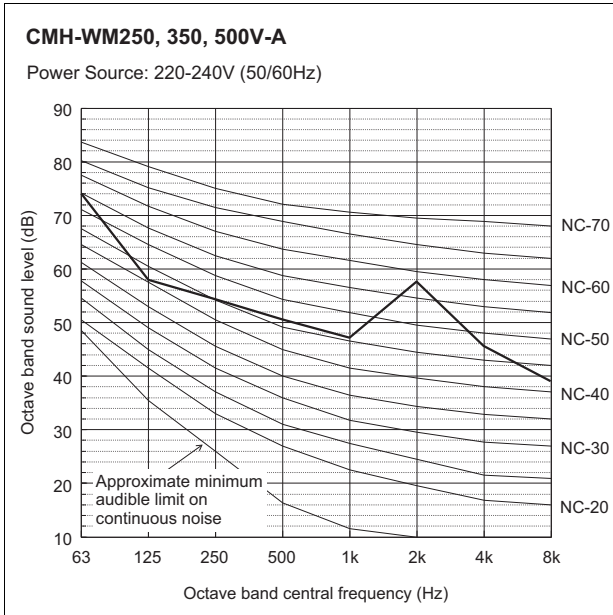
5-1. Sound levels

(Measured point)



*Measured in anechoic room.

5-2. NC curves



6. ELECTRICAL CHARACTERISTICS

Hydro unit

Symbols: MCA: Max. Circuit Amps, MFA: Max. Fuse Amps, RLA: Rated Load Amps

Hydro unit	Power supply					RLA(A)
	Hz	Volts	Range+/-10%	MCA(A)	MFA(A)	
CMH-WM250V-A	50/60	220	Max.: 264V Min.: 198V	4.40	15	3.84
		230				3.67
		240				3.52
CMH-WM350V-A	50/60	220	Max.: 264V Min.: 198V	5.38	15	4.69
		230				4.48
		240				4.30
CMH-WM500V-A	50/60	220	Max.: 264V Min.: 198V	6.28	15	5.47
		230				5.23
		240				5.02

Hydro unit

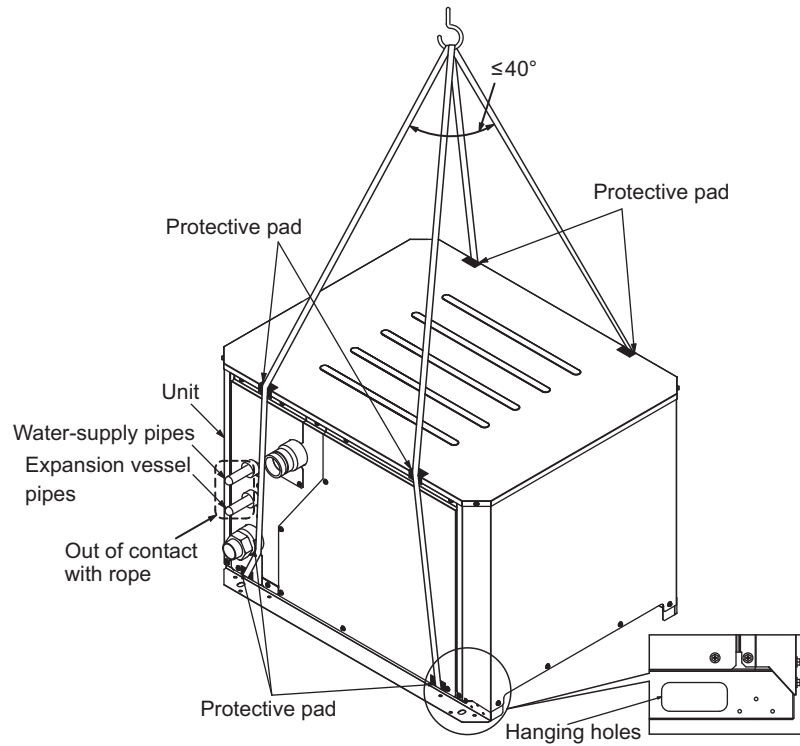
7-1. Lifting method

When hanging the unit for transportation

- Use hanging holes to hang the unit.

⚠ WARNING

- Keep the ropes from coming into contact with the water supply and expansion vessel pipes while the unit is being hung.

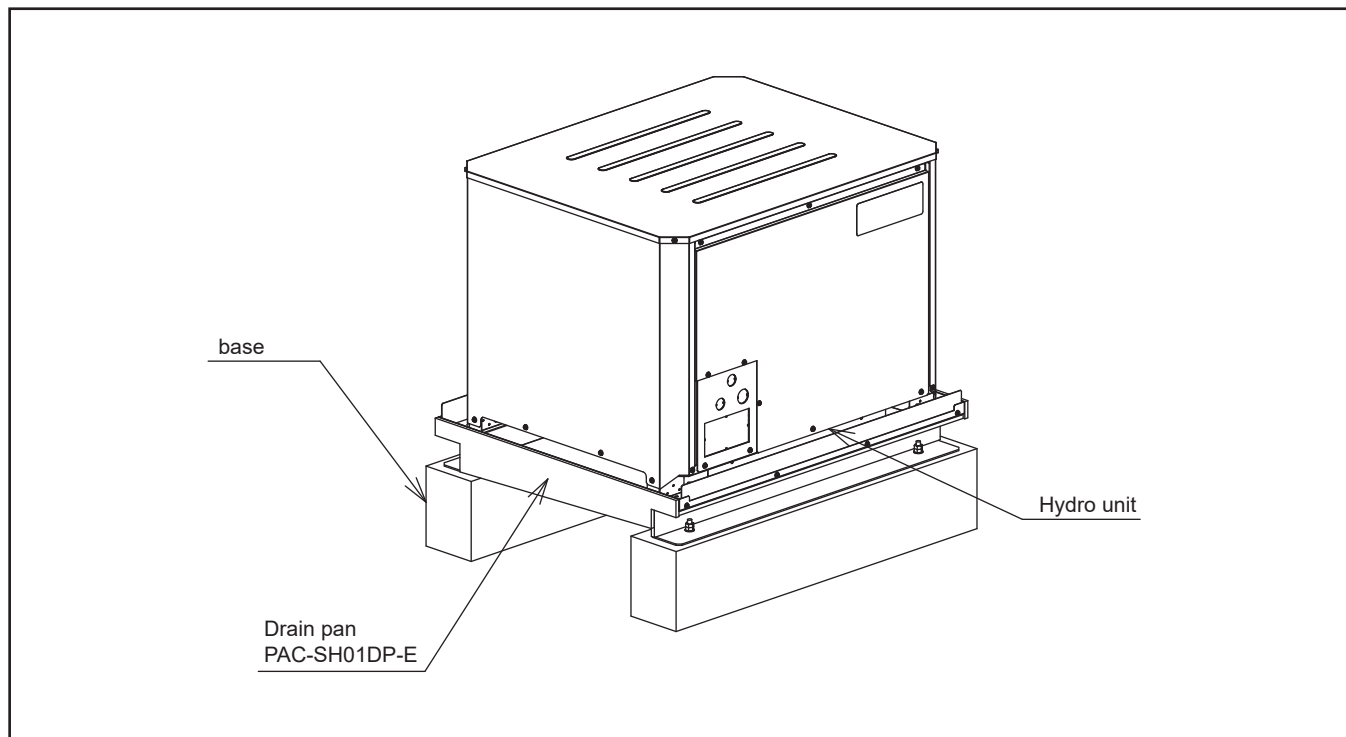


8-1. Drain pan

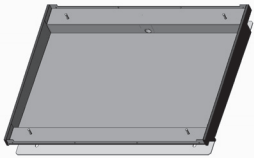

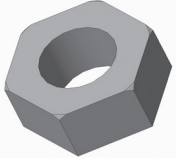

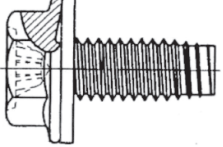
	Drain pan
CMH-WM250, 350, 500V-A	PAC-SH01DP-E

Hydro unit

CMH-WM-V-A



PAC-SH01DP-E

Item	Drain pan	Additional panel	Nut M10
Quantity	1	2	10 (Spare included)
Shape			
Item	Washer M10	Screw 5 × 10 KNURLED	
Quantity	5 (Spare included)	12 (Spare included)	
Shape			

Detailed installation information should be referred to its Installation Manual.

9-1. Water pipe size

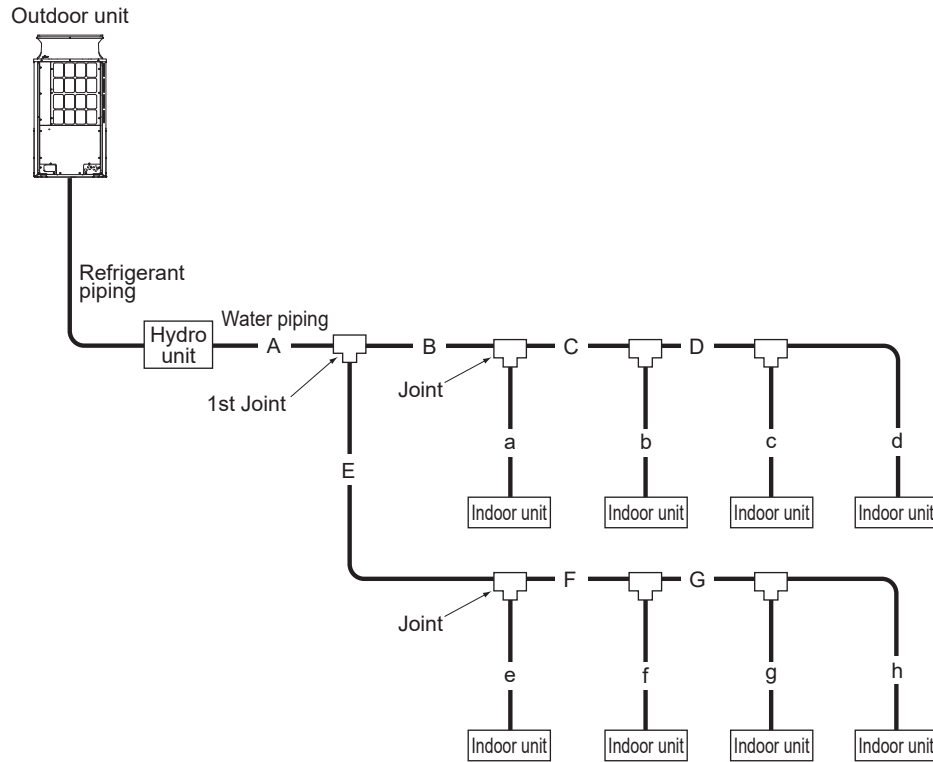


Table 1 Piping “A” size selection rule

Hydro unit	Water pipe size (I.D.)
CMH-WM250V-A	40A
CMH-WM350V-A	40A
CMH-WM500V-A	50A

Table 2 Piping “B”, “C”, “D”, “E”, “F”, “G” size selection rule

Total down-stream indoor capacity	Water pipe size (I.D.)
~ W(L)50	20A
W(L)51 ~ W(L)150	32A
W(L)151 ~ W(L)350	40A
W(L)351 ~	50A

Table 3 Piping “a”, “b”, “c”, “d”, “e”, “f”, “g”, “h” size selection rule

Indoor unit size	Water pipe size (I.D.)
W(L)10 ~ W(L)50	20A
W(L)63 ~ W(L)140	32A

9-2. Water pipe length

The equivalent piping length may vary depending on the system configuration, such as the pipe length, pipe diameter, number of pipe bends, number of joints, and capacities of indoor units, based on which the pressure loss in the pipes is calculated.

Use the Design Tool to design the piping system, and ensure that the equivalent piping length of the system is within the allowable range. If an error occurs on the Design Tool, review the piping length and piping routes to solve the system error.

⚠ Warning

- Do not use refrigerant other than the type indicated in the manuals provided with the unit and on the nameplate.
 - Doing so may cause the unit or pipes to burst, or result in explosion or fire during use, repair, or at the time of disposal of the unit.
 - It may also be in violation of applicable laws.
 - MITSUBISHI ELECTRIC CORPORATION cannot be held responsible for malfunctions or accidents resulting from the use of the wrong type of refrigerant.
- Our air conditioning equipment and heat pumps contain a fluorinated greenhouse gas, R32.

MITSUBISHI ELECTRIC CORPORATION

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