

Midea R410A T1 50Hz Split Type Full DC Inverter Side-discharge Series Technical Service Manual

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Part. 1 General information

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1. Model Names of Indoor/Outdoor Units

Type	Indoor unit		Outdoor unit	
	Model	Power supply	Model	Power supply
Hi-static pressure duct type	MHC-96HWD1N1(A)	220-240V~, 1Ph, 50Hz	MOUA-96HD1N1-R	380-415V~, 3Ph, 50Hz

2. External Appearance

2.1 Indoor units

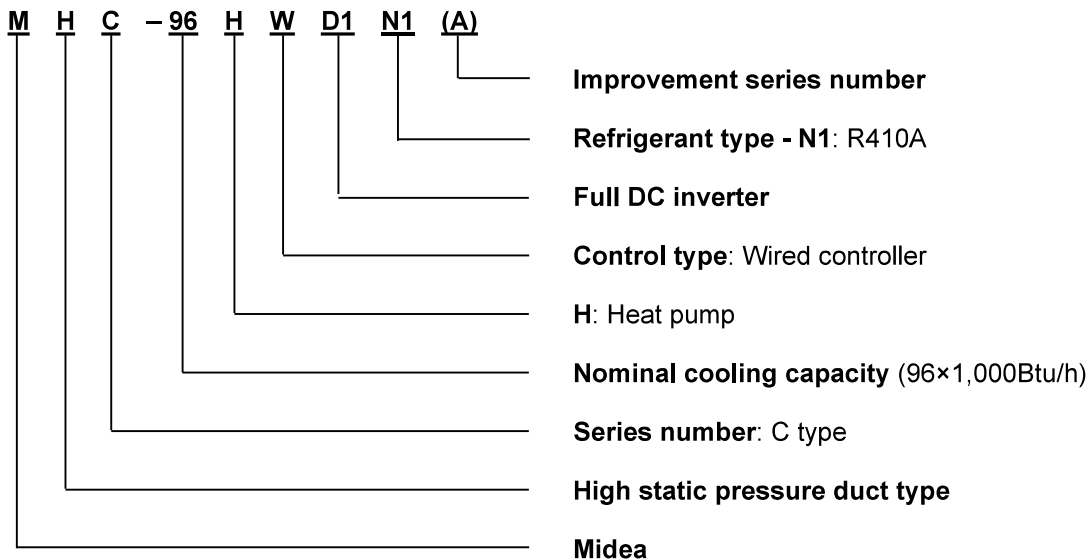


2.2 Outdoor unit

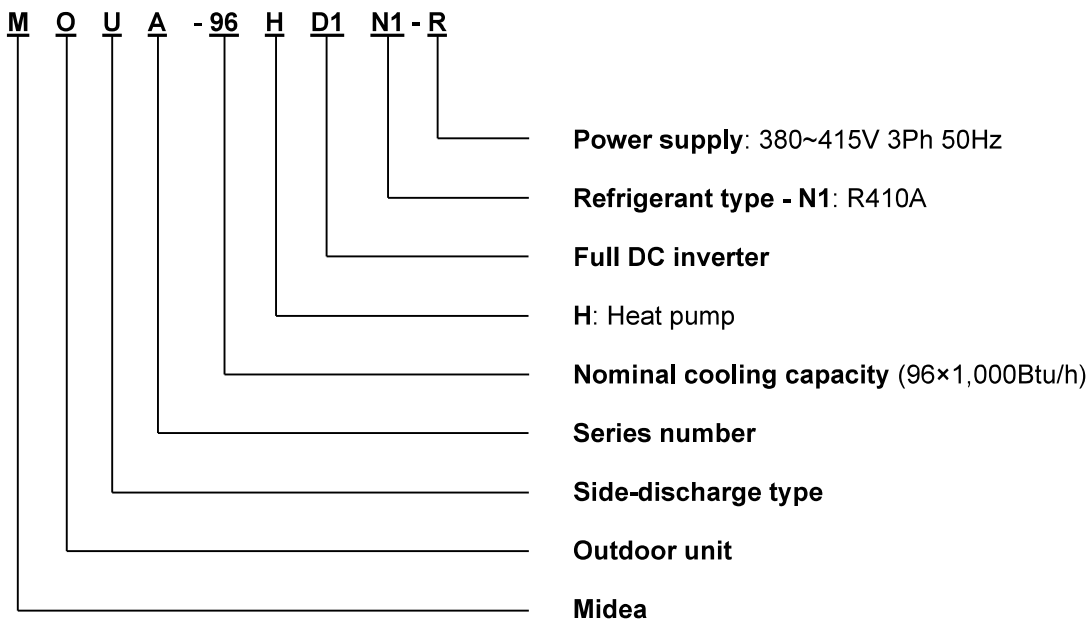


3. Nomenclature

3.1 Indoor unit



3.2 Outdoor unit



Part. 2 Outdoor Unit

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1. Specifications

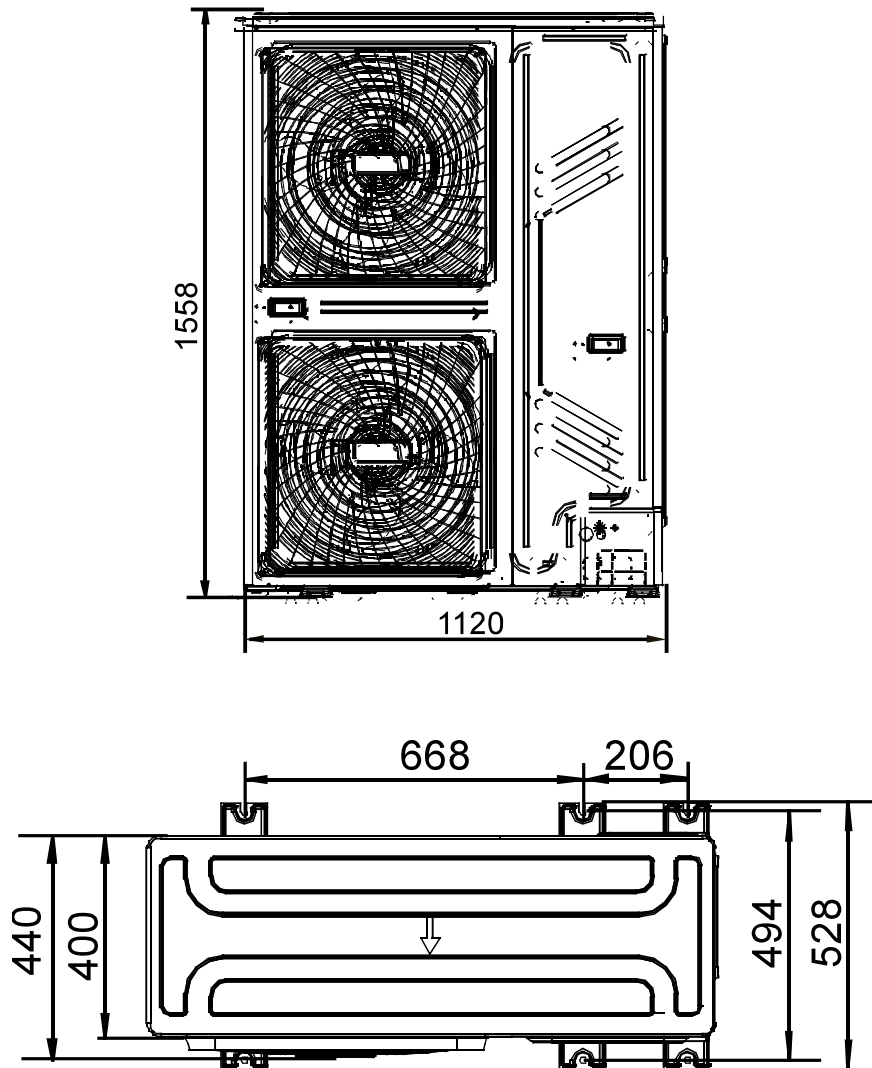
Model		\	MOUA-96HD1N1-R
Power supply		V, Ph, Hz	380-415V~, 3Ph, 50Hz
Ambient temp in cooling		°C	-15~48
Ambient temp in heating		°C	-15~24
Rated input (Whole units)		W	11,700
Rated current (Whole units)		A	16
Compressor	Model	\	LNB53FCAMC
	Type	\	Rotary
	Brand	\	MITSUBISHI
	Quantity	\	1
	Capacity	kW	16.86
	Input	kW	5.2
	Crankcase heater	W	25
	Refrigerant oil type	\	FV50S
	Refrigerant oil charge	mL	1700 + 1500
Outdoor fan motor	Model	\	WZDK170-38G-1
	Type	\	DC
	Quantity	\	2
	Brand	\	Panasonic
	Insulation class	\	E
	Safe class	\	IP × 4
	Input	W	250(up)/185(down)
	Output	W	200(up)/150(down)
	Rated current	A	1.7(up)/1.4(down)
Outdoor fan	Material	\	Plastic
	Type	\	Axial fan
	Quantity	\	2
	Diameter	mm	560
	Height	mm	170
Outdoor coil	Number of rows	\	2
	Tube pitch(a)×row pitch(b)	mm	21 × 19.4
	Fin spacing	mm	1.5
	Fin type	\	Hydrophilic fin
	Tube outside diameter	mm	Φ7
	Tube type	\	Inner groove tube
	Length × height	mm	1080 × 756
	Number of circuits	\	18
Outdoor air flow		m ³ /h	9800
Sound pressure level		dB(A)	59
Outdoor unit	Net dimension(W×D×H)	mm	1120×1558×528
	Packing dimension(W×D×H)	mm	1270×1720×565
	Net/Gross weight	kg	147/163

Specification:

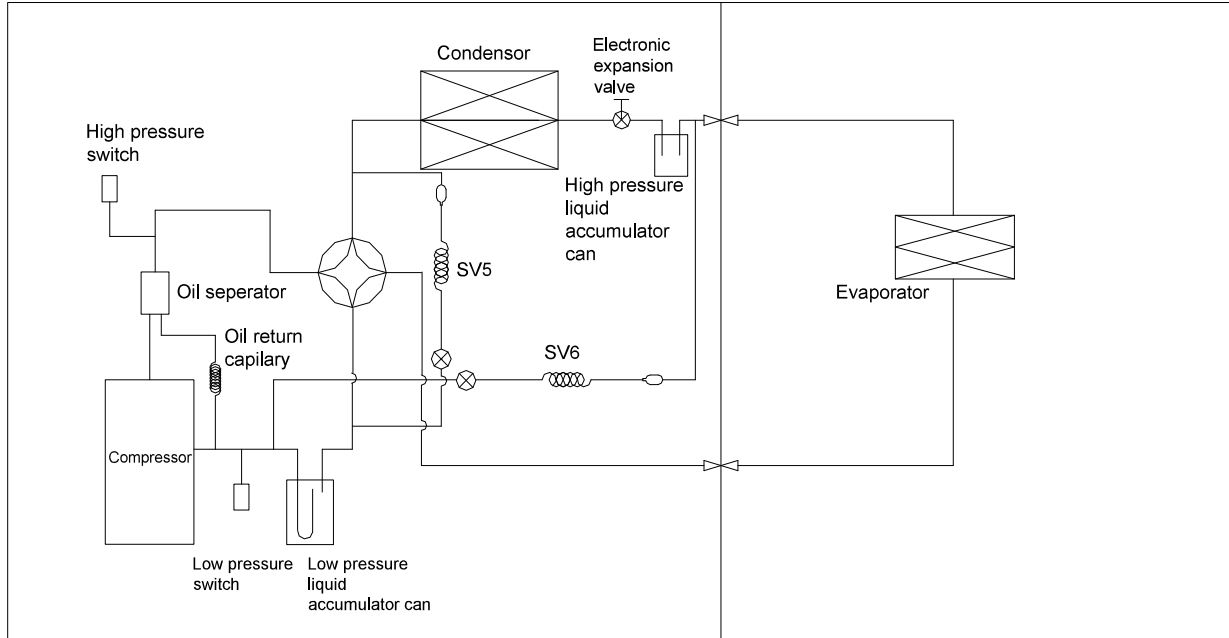
Refrigerant	Type	\	R410a
	Factory charged	kg	7.2
Throttle type		\	Electronic expansion valve
Design pressure (Hi/Lo)		MPa	4.4/2.6
Refrigerant piping	Liquid pipe	mm	Φ9.53
	Gas pipe	mm	Φ25.4

Note:

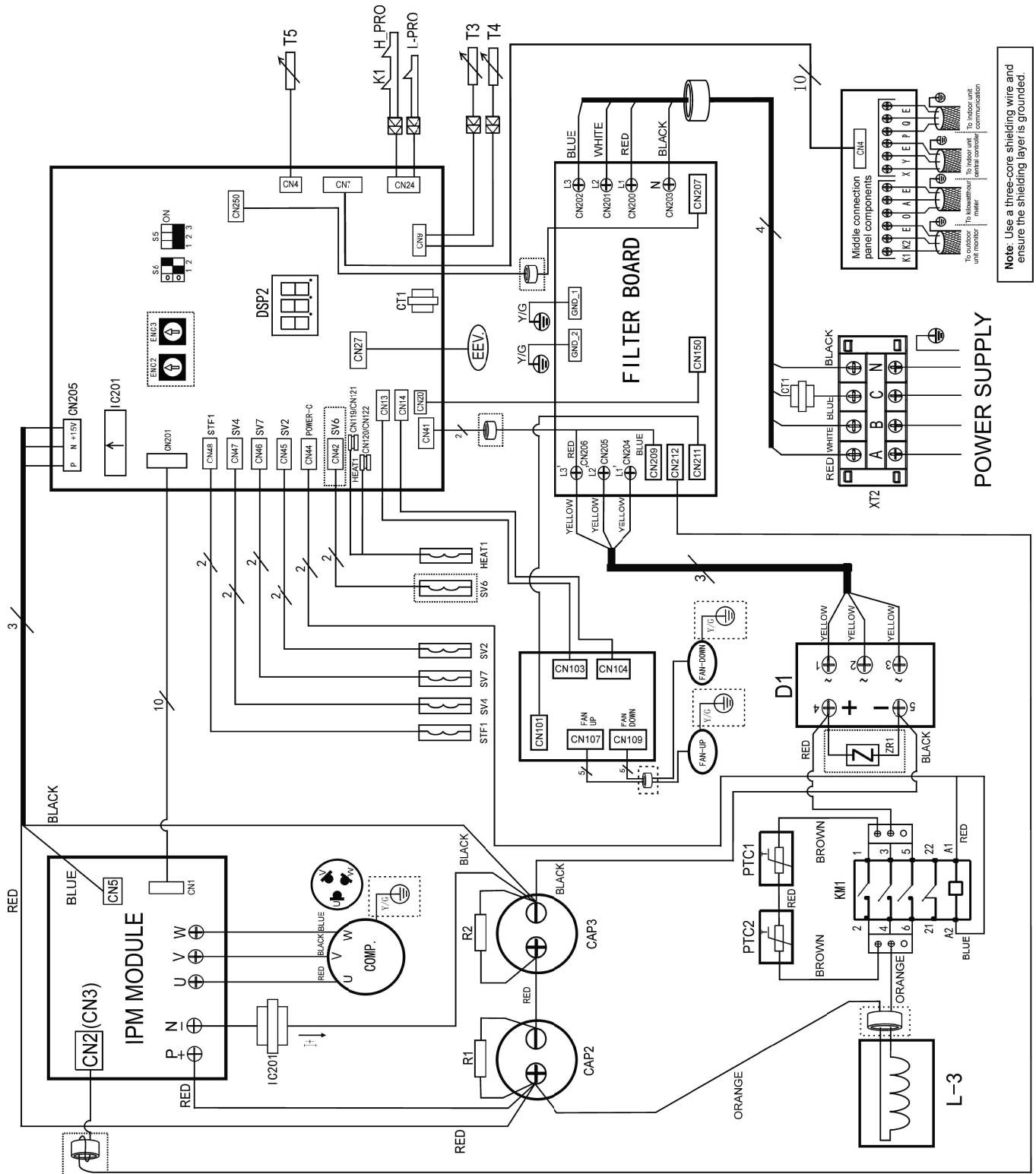
1. The nominal cooling capacity is based on the following conditions: Indoor temperature, 27°C DB, 19°C WB; Outdoor temperature, 35°C DB, 24°C WB.
2. The nominal heating capacity is based on the following conditions: Indoor temperature, 20°C DB, 15°C WB; Outdoor temperature, 7°C DB, 6°C WB
3. The noise is measured in the semi noise suppression lab.
4. Specifications are subject to change without prior notice for product improvement.

2. Dimension (Unit: mm)

3. Refrigerant circuit



4. Wiring Diagrams



Dial-up function definition

S5 function definition		S6 function definition	
	Heating priority mode (set by factory default)		Automatic addressing
	Cooling priority mode		Non-automatic addressing (set by factory default)
	Initial-start priority mode		Clear indoor unit address
	Heating only mode		
	Cooling only mode		

ENC2 function definition (Dial-up cannot be changed)		ENC3 function definition	
	Indoor unit capacity dial-up		Outdoor unit network address dial-up
	0: 8HP (25.2kW/26kW) 1: 10HP (28kW) F: 7HP (22.4kW)		0-F indicates 0-15

Code	Name	Code	Name
COMP.	Inverter compressor	T5	Inverter compressor discharge temperature sensor
FAN-UP, FAN-DOWN	Fan motor	KM(B)	Contactator
STF1	4-way valve	E1, E2	Filter capacity
SV(2,4,5,6,7)	Solenoid valve	R1, R2	Cement resistor
EEV	Electric expansion valve	PTC	Thermal resistor
HEAT1	Crankcase heating	XT2	Big 4-phase terminal
L-PRO	Pipeline low pressure switch	L-3	Reactor
H-PRO	Pipeline high pressure switch	CT1, IC201	Current instrument transformer
K1	Discharge temperature switch	BD-1	Bridge rectifier
XS1-XS2, XP1-XP2	Middle terminal	ZR10	Varistor
T3	Piping temperature sensor	C1, C2	Ferrite core
T4	Outdoor ambient temperature sensor		

Contents displayed by DSP2

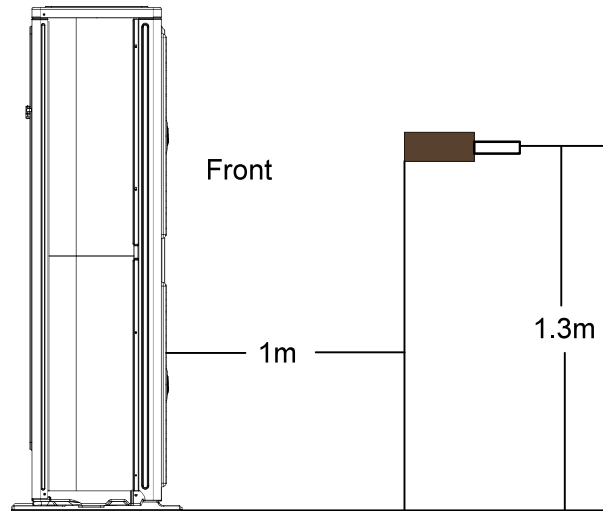
H0	COMM. Fault between IR341 and main chip.
H1	COMM. Fault between communication chip and main chip.
H4	3 times of P6 protection in 30 minutes.
H5	3 times of P2 protection in 30 minutes.
H7	The number of indoor units decreases.
H8	Reserved.
HF	M-HOME for the indoor and outdoor units does not match.
E1	Reserved.
E2	Communication fault between the outdoor and indoor units.
E4	T3 & T4 temperature sensor fault.
E5	Voltage protection fault or a leak of Phase B, Phase N.
E6	DC fan motor fault.
E7	Discharge temperature sensor fault.
EA	A fan in the A region run for more than 5 minutes in Heating mode.
Eb	2 times of E6 protection in 10 minutes.
P0	Inverter compressor top high temperature protection.
P1	High pressure protection.
P2	Low pressure protection.
P3	Outdoor input current protection.
P4	Compressor discharge high temperature protection.
P5	Outdoor condenser high temperature protection.
P6	Inverter module protection.
P8	Typhoon protection.
PE	Evaporator high temperature protection.

5. Electric Characteristics

Model	Outdoor Unit				Power Supply			Compressor		OFM	
	Hz	Voltage	Min.	Max.	MCA	TOCA	MFA	MSC	RLA	KW	FLA
MOUA-96HD1N1-R	50	380-415V	342V	440V	/	23	40	/	15.4	0.17	1.7

Note:**MCA: Min. Current Amps. (A)****MFA: Max. Fuse Amps. (A)****RLA: Rated Locked Amps. (A)****FLA: Full Load Amps. (A)****TOCA: Total Over-current Amps. (A)****MSC: Max. Starting Amps. (A)****OFM: Outdoor Fan Motor****KW: Rated Motor Output (kW)**

6. Sound Levels



Unit Number	Model	Noise level under three speeds of fan (dB(A))
1	MOUA-96HD1N1-R	59

7. Accessories

Accessory name of outdoor unit	Qty.	Purpose
Connection pipe	1	Connecting pipe of system
Curved connection pipe	1	

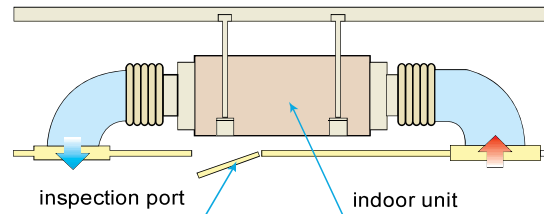
Part. 3 Indoor Unit

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1. Features

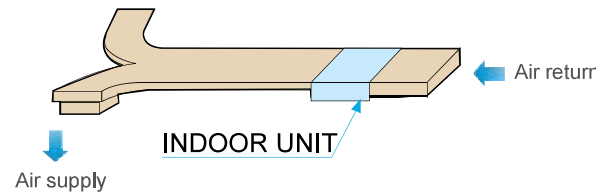
1.1 Compact design & convenient installation

- ✧ Convenient installation, hidden in the ceiling, unit installation is not hindered by the location of lighting fixtures or room structure.
- ✧ Air inlet and outlet flanges are standard and easy for duct connection.



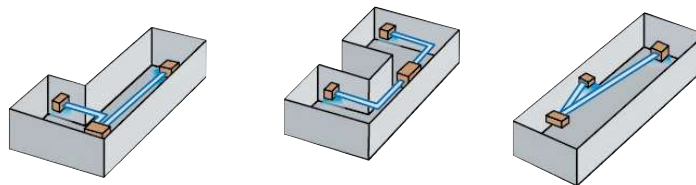
1.2 External static pressure

- ✧ Three speed fan motor.
- ✧ External static pressure is up to 150Pa.
- ✧ The indoor air flow is up to 4800m³/h.



1.3 Flexible duct design for different room styles

- ✧ Multi diffusers from one indoor unit supply airflow to multi rooms at the same time. The unit is suitable for various applications, such as restaurants, connect halls and hotels.



1.4 High efficient DC fan motor

- ✧ High energy efficient thanks to the DC fan motor.
- ✧ Contrast with the AC fan motor, the power consumption of DC fan motor can reduce up to 50%.



1.5 Optimized electronic control board

- ✧ Equipped with remote ON/OFF and remote Alarm connection terminal.
- ✧ Compatible with central controller CCM03/CCM30.
- ✧ Equipped with a fresh air fan motor joint control terminal.



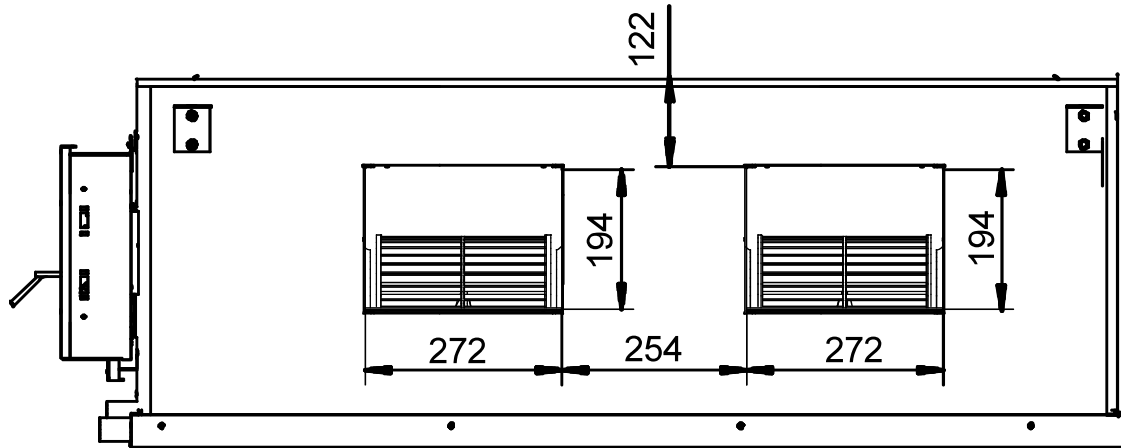
2. Specifications

Model			MHC-96HWD1N1(A)
Power supply		V, Ph, Hz	220~240V, 1Ph, 50Hz
Cooling	Capacity	W	28,000
	Input	W	9,000
	EER	W/W	3.11
Heating	Capacity	W	31,500
	Input	W	8,500
	COP	W/W	3.71
Rated input		W	850
Rated current		A	4.5
Indoor fan motor	Model	\	WZDK750-38GS-W
	Brand	\	Panasonic
	Quantity	\	1
	Speed	r/min	1200/1160/1090
Indoor coil	Number of rows	\	4
	Tube pitch(a)×row pitch(b)	mm	25.4×22
	Fin spacing	mm	1.5
	Fin type	\	Hydrophilic aluminum fin
	Tube size	mm	Φ9.52
	Tube type	\	Inner grooved copper pipe
	Coil(W×H)	mm	1,202×457.2
	Number of circuits	\	18
Indoor air flow		m ³ /h	3000~4800
External static pressure		Pa	0~150
Indoor noise level		dB(A)	49~52
Refrigerant		\	R410A
Design pressure		MPa	4.4/2.6
Refrigerant pipe	Liquid side / Gas side	mm	Φ9.52/Φ25.4
	Max. refrigerant pipe length	m	50
	Max. difference in level (Outdoor upper)	m	25
	Max. difference in level (Outdoor lower)	m	30
Connection wire	Power wire	\	5×4.0mm ² (outdoor), 3×2.5mm ² (indoor)
	Signal wire	\	3×0.75mm ²
Drain pipe size (OD)		mm	Φ31(outdoor), Φ33(indoor)
Controller		\	KJR-29B1/BK-E (Wired controller)
Operation temperature		°C	17~30
Indoor unit	Dimension (W x H x D)	mm	1,470×512×775
	Packing (W x H x D)	mm	1,555×545×875
	Net/Gross weight	kg	83/92

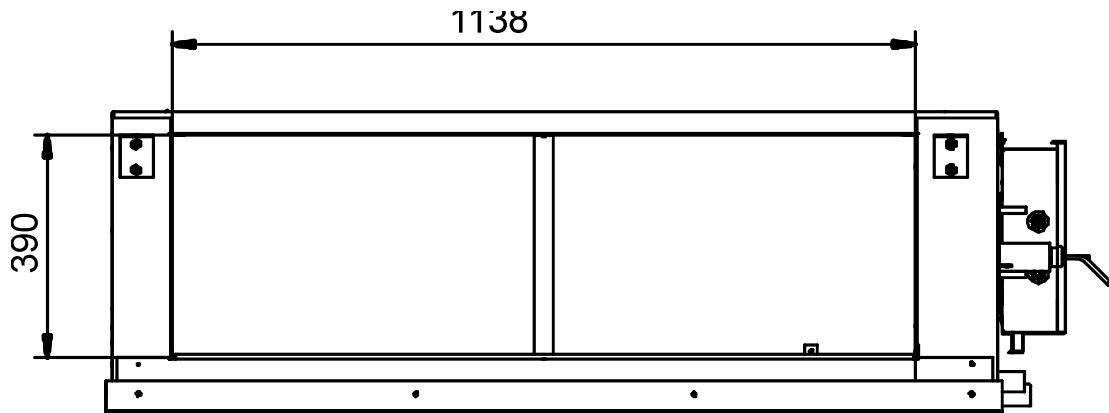
Note:

- The nominal cooling capacity is based on the following conditions.
Indoor temperature: 27°C DB, 19°C WB; Outdoor temperature: 35°C DB, 24°C WB.
- The nominal heating capacity is based on the following conditions.
Indoor temperature: 20°C DB, 15°C WB; Outdoor temperature: 7°C DB, 6°C WB
- The noise is measured in the semi noise suppression lab.
- Specifications are subject to change without prior notice for product improvement.

3. Dimensions (Unit: mm)

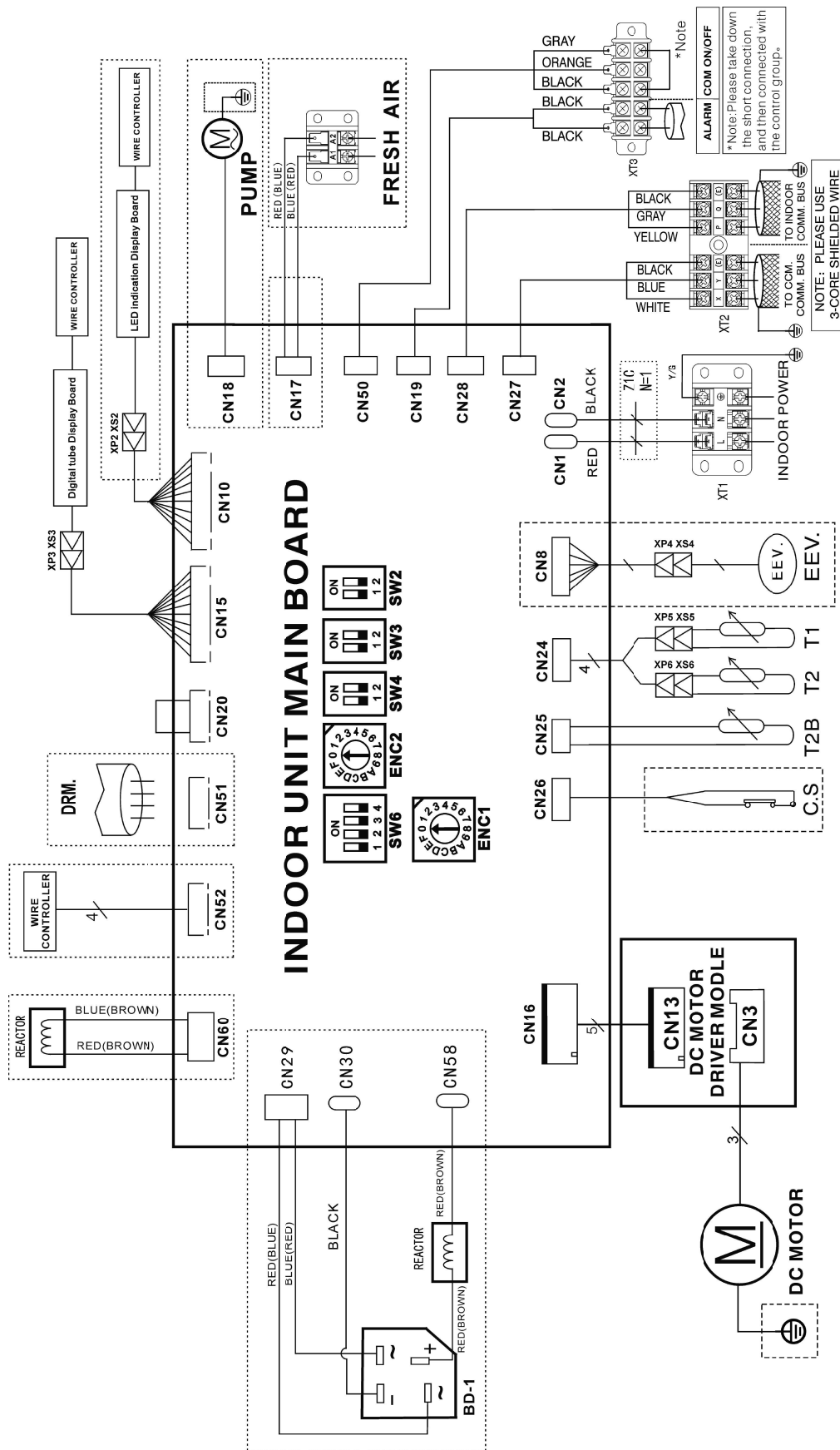


Air outlet duct connection screw hole location diagram



Return air duct rivet screw hole location diagram

4. Wiring Diagrams


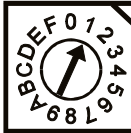
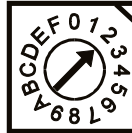
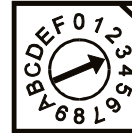

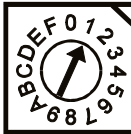
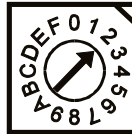
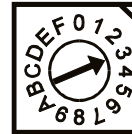


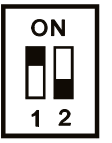
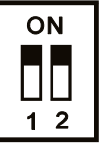


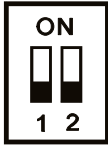



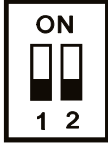


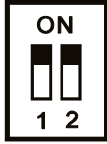
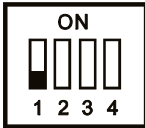
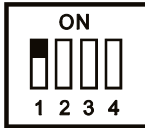
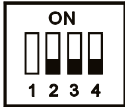




Error Code & Indication

Mode Conflict	Defrost_LED Flash or Show [E0]
Communication Error Between Indoor and Outdoor Unit	Time_LED Flash or Show [E1]
Temp. sensor (T1) Error	Run_LED Flash or Show [E2]
Temp. sensor (T2) Error	Run_LED Flash or Show [E3]
Temp. sensor (T2B) Error	Run_LED Flash or Show [E4]
Fan Protection	Time_LED Flash Slowly or Show [E6]
EEprom Error	Defrost_LED Flash Slowly or Show [E7]
Outdoor Unit Error	Alarm_LED Flash Slowly or Show [Ed]
Water Level Error	Alarm_LED Flash or Show [EE]

CODE	TITLE
C.S	WATER LEVEL SWITCH
EEV.	EXPANSION VALVE
T1	ROOM TEMP.
T2B	OUTER PIPE TEMP.
T2	MIDDLE PIPE TEMP.
PUMP	PUMP MOTOR
XP2-6	CONNECTOR
XS2-6	CONNECTOR
XT1-3	TERMINAL
BD-1	BRIDGE RECTIFIER

Function setting indication

For Setting Power				
ENC1				
Code	0	1	2	3
POWER	8HP	10HP	12HP	14HP
Factory setting	According to related model			
For Setting Static Pressure				
ENC2				
Code	0	1	2	3
POWER	0~50	51~80	81~120	121~150
Factory setting	✓			
For Setting Anti Cold Air Mode				
SW2				
TYPE	15°C	20°C	24°C	26°C
Factory Setting	✓			

For Setting TERMINAL Fan ON/OFF Interval				
SW3				
TYPE	2min	4min	6min	Fan Running
Factory Setting	✓			
For Heat Mode Temp. Compensation				
SW4				
TYPE	6°C	2°C	4°C	0°C
Factory Setting	✓			
SW6-1				
TYPE	Digital Tube Display Board (New Display Board)		LED Indication Display Board (Old Display Board)	
Factory Setting	✓			
SW6-2 SW6-3 SW6-4				
TYPE	RESERVED			
Factory Setting	✓			
For Setting Auto-Restart				
J1				
Mode	Auto		Non-auto	
Factory Setting	✓			
For Setting Auto-Restart				
J2				
Mode	One for One		Multi Split	
Factory Setting	✓			

5. Capacity Table

Cooling mode:

Indoor temperature			Outdoor temperature (DB °C)						
DB (°C)	WB (°C)		21.0	28.0	35.0	43.0	46.0	52.0	54.0
21.0	15.0	TC(kW)	28.84	27.44	26.04	24.92	24.08	22.68	21.00
		SC(kW)	21.34	21.13	20.83	20.93	20.47	19.96	18.90
		S/T	0.74	0.77	0.80	0.84	0.85	0.88	0.90
		PW(kW)	7.47	8.10	8.46	8.73	9.09	9.72	10.17
24.0	17.0	TC(kW)	29.68	28.28	26.88	25.20	24.64	23.24	21.84
		SC(kW)	22.26	22.06	21.77	21.17	20.94	20.45	19.66
		S/T	0.75	0.78	0.81	0.84	0.85	0.88	0.90
		PW(kW)	7.92	8.46	8.82	9.27	9.63	10.17	10.62
27.0	19.0	TC(kW)	30.24	28.84	28.00	26.04	25.48	24.08	22.68
		SC(kW)	22.38	22.21	21.84	21.35	21.15	20.71	19.73
		S/T	0.74	0.77	0.78	0.82	0.83	0.86	0.87
		PW(kW)	8.10	8.55	9.00	9.45	9.81	10.08	10.80
29.0	19.0	TC(kW)	30.52	29.12	28.56	26.32	25.62	24.36	22.96
		SC(kW)	25.64	24.75	24.56	23.95	24.08	23.39	22.27
		S/T	0.84	0.85	0.86	0.91	0.94	0.96	0.97
		PW(kW)	8.28	8.73	9.09	9.63	10.17	10.62	11.07
32.0	23.0	TC(kW)	30.80	29.68	29.12	26.88	26.04	25.20	23.52
		SC(kW)	26.18	25.82	25.63	25.00	25.00	24.44	23.28
		S/T	0.85	0.87	0.88	0.93	0.96	0.97	0.99
		PW(kW)	8.46	8.82	9.45	9.81	10.35	11.07	11.34

Notes:

1. DB = Dry Bulb Temperature (°C), WB = Wet Bulb Temperature (°C)
2. TC = Total Capacity (kW)
3. SC = Sensible Capacity (kW)

Heat pump mode:

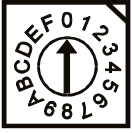
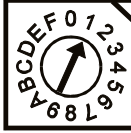
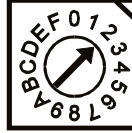
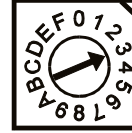
Indoor temperature	Outdoor temperature (DB °C / WB °C)									
	24/18		7/6		2/1		-5/-6		-7/-8	
DB (°C)	TC(kW)	PW(kW)	TC(kW)	PW(kW)	TC(kW)	PW(kW)	TC(kW)	PW(kW)	TC(kW)	PW(kW)
15	40.95	9.18	33.08	7.91	27.09	6.80	24.57	6.38	23.00	6.04
20	39.69	10.03	31.50	8.50	25.52	7.48	23.94	6.89	22.05	6.46
27	37.17	10.63	29.61	9.18	23.94	8.08	23.31	7.48	20.79	6.97

Notes:

1. DB = Dry Bulb Temperature (°C)
2. TC = Total Capacity (kW)
3. SC = Sensible Capacity (kW)

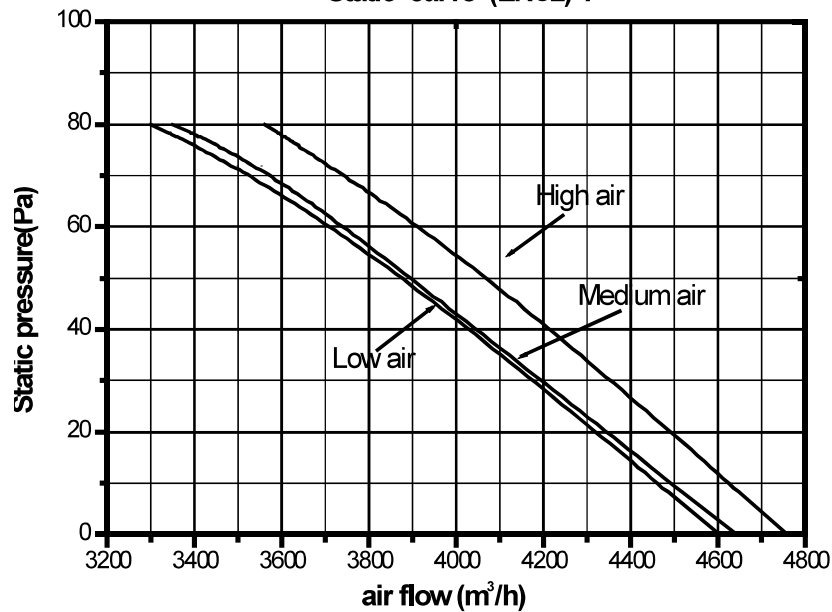
6. Static Pressure Curve

The corresponding table of electronic control dial code and static pressure range is shown below.

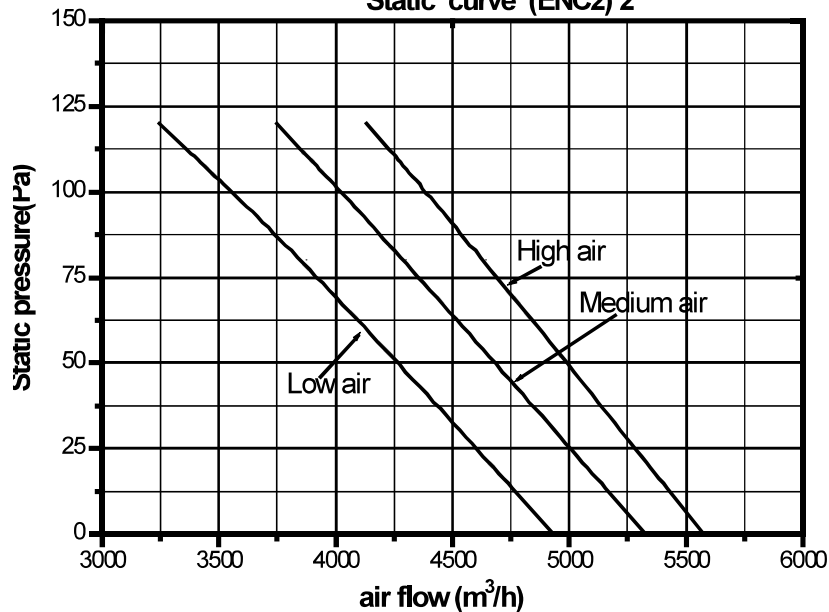
For Setting Static Pressure				
ENC2				
Code	0	1	2	3
POWER	0~50	51~80	81~120	121~150
Factory setting	✓			

Before starting the operation, the installer must set the electronic control dial code based on the actual value of the static pressure of the product .Otherwise, there will be problems.

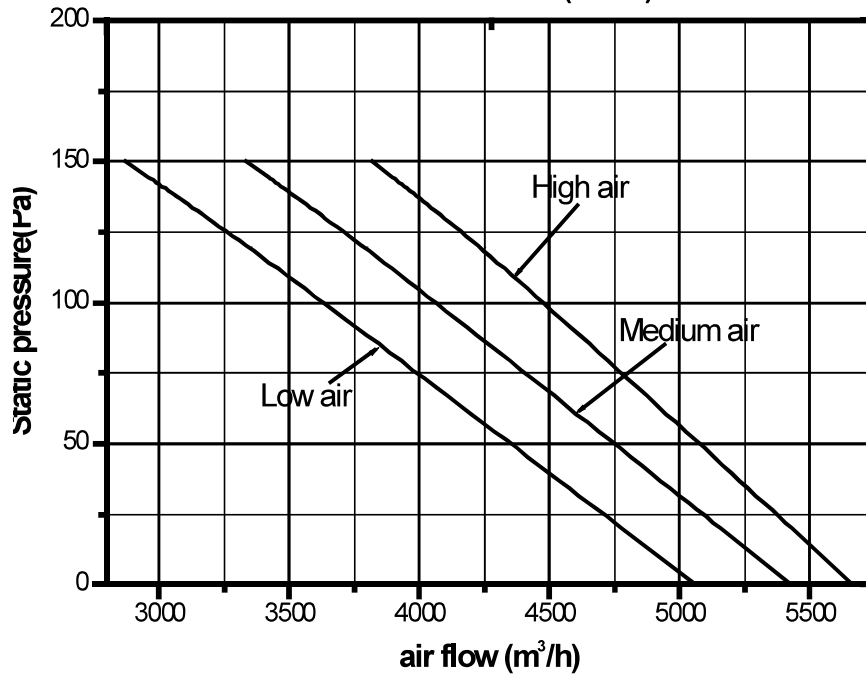
Static curve (ENC2) 1



Static curve (ENC2) 2



Static curve (ENC2) 3



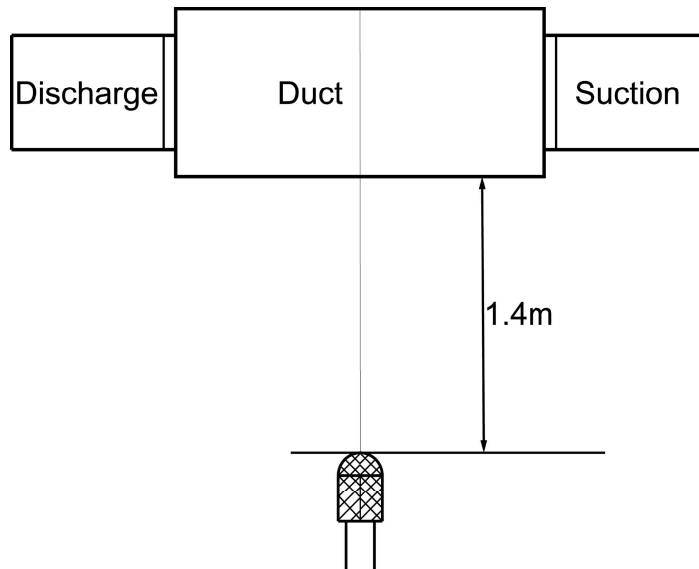
7. Electric Characteristics

Model	Indoor Unit				Power Supply		IFM	
	Hz	Voltage	Min.	Max.	MCA	MFA	kW	FLA
MHC-96HWD1N1(A)	50	220-240V	198V	254V	/	15	0.75	5.1

Note:

- MCA:** Min. Current Amps. (A)
- MFA:** Max. Fuse Amps. (A)
- IFM:** Indoor Fan Motor
- kW:** Fan Motor Rated Output (kW)
- FLA:** Full Load Amps. (A)

8. Sound Levels



Unit Number	Model	Noise level under three speeds of fan (dB(A))
1	MHC-96HWD1N1(A)	49~52

9. Accessories

Accessory name of indoor unit	Qty.	Purpose
Owner' manual	1	
Installation manual	1	
Sealing tape	1	Sealed tube interface
Water connective pipe	1	Connect to water drainage pipe
Protective sleeve for refrigerant inlet and outlet pipes	2	
Wired controller	1	
Copper nut	1	Connect to liquid-side pipe
Water outlet connection pipe	1	Centralized drainage
Straight screwdriver	1	Inspection and DIP
Sealing ring	1	Centralized drainage
Waterproof chassis cover	2	Chassis auxiliary drainage plug

Part. 4 Installation & Troubleshooting

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1. Notes

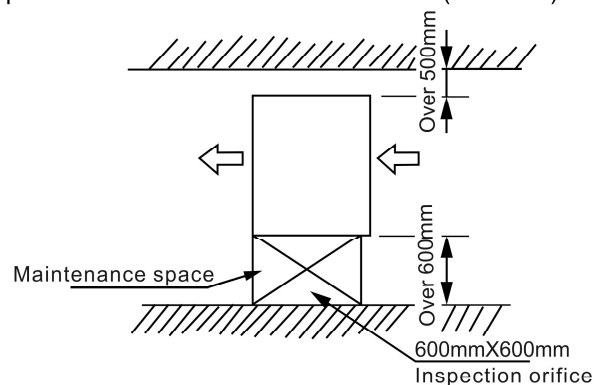
CAUTION:

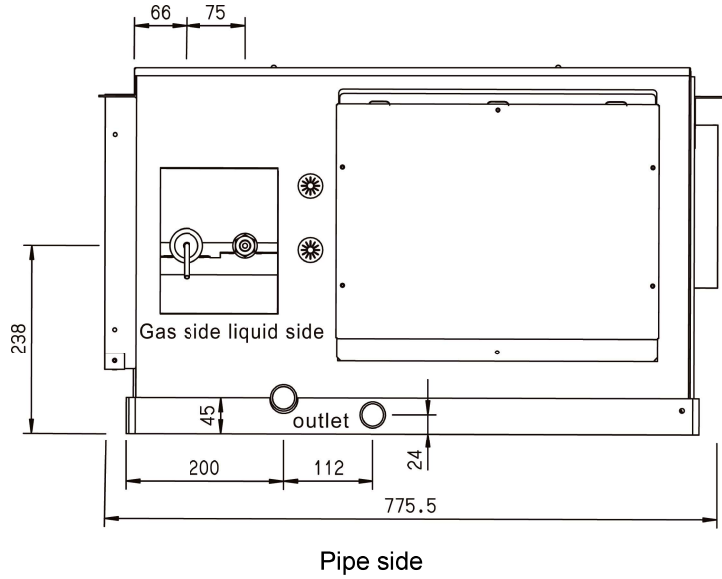
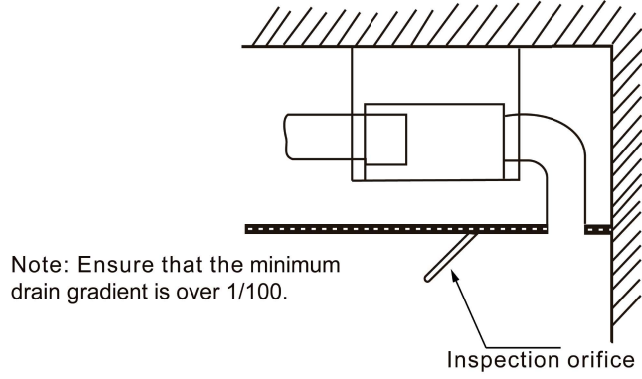
- Install the unit where enough space of installation and maintenance is available.
- Install the unit where the air inlet and outlet are not baffled and the least affected by external air.
- Install the unit where the supply air flow can be sent to all parts in the room.
- Install the unit where no heat is emitted from a heat source directly.
- Installing the equipment in any of the following places may lead to faults of the equipment (if that is inevitable, consult the supplier):
 - ✓ The site contains mineral oils such as cutting lubricant.
 - ✓ Seaside where the air contains much salt.
 - ✓ Hot ring area where corrosive gases exist, e.g., sulfide gas.
 - ✓ Factories where the supply voltage fluctuates seriously.
 - ✓ Inside a car or cabin.
 - ✓ Place like kitchen where oil permeates.
 - ✓ Place where strong electromagnetic waves exist.
 - ✓ Place where flammable gases or materials exist.
 - ✓ Place where acid or alkali gases evaporate, or other special environments.
 - ✓ Other special environments.
- Install the unit where the air inlet and air outlet are free from obstacles and strong wind.
- Install the unit in a dry and well ventilated place.
- Install the unit where the bearing surface is level and can bear weight of the unit, and is suitable for installing the unit horizontally without increasing noise or vibration.
- Install the unit where the operation noise and the expelling of air do not affect neighbors.
- Install the unit where no flammable gas is leaked.
- Install the unit where it is convenient for pipe connection and electric connection.

2. Installation of Duct Type Indoor Units

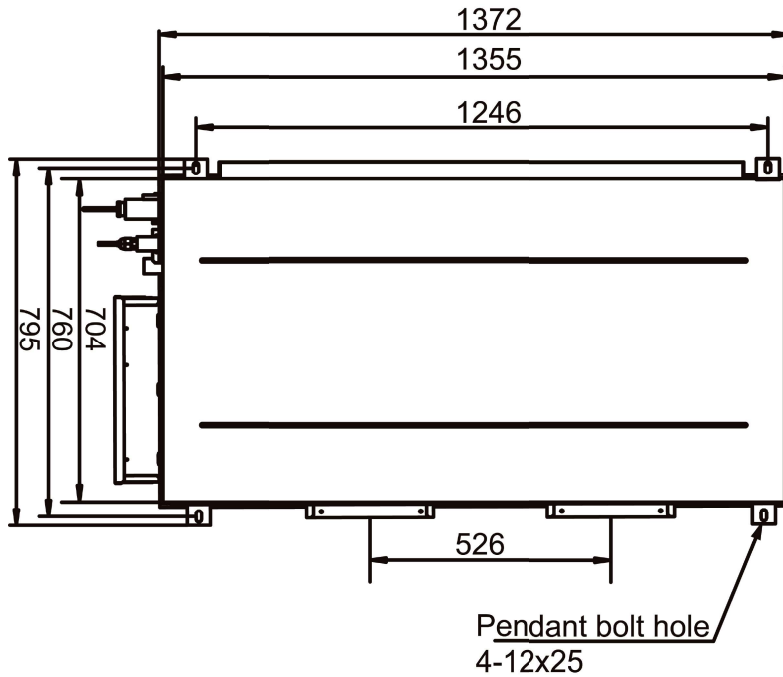
2.1 Installing space

Ensure enough space required for installation and maintenance. (Unit: mm)





2.2 Install $\Phi 10$ pendant bolts or ground bolts

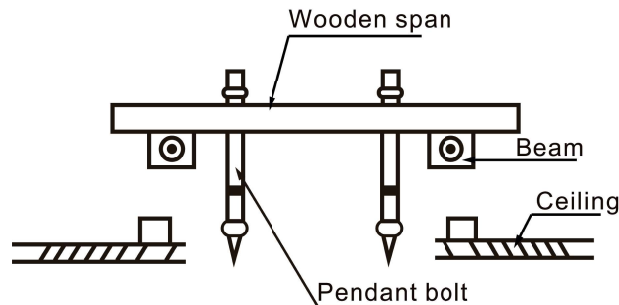


- Use $\Phi 10$ or bigger screws. The screw material is high-quality carbon steel (whose surface is zinc plated or undergoes other rustproof treatment) or stainless steel.

- The treatment of the ceiling varies between buildings. For detailed measures, consult with the fitting-out staff.
- Fix the pendant bolts firmly and reliably in light of the specific situation.
- Installation of the pendant bolt in different environments.

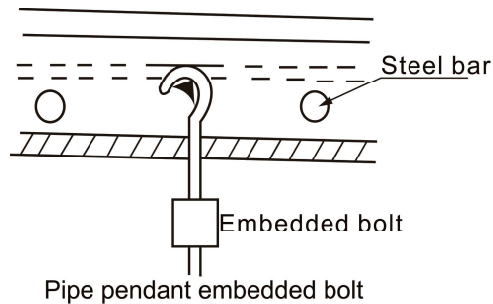
A. Wooden structure

Put rectangular sticks across the beams, and set pendant bolts.



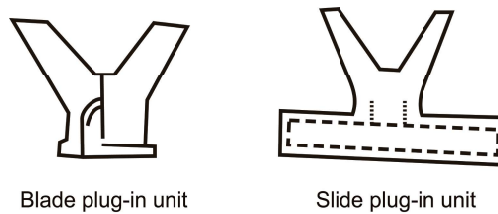
B. New concrete roughcast

Use embedded bolts, embedded pulling plugs, and embedded stick harness.



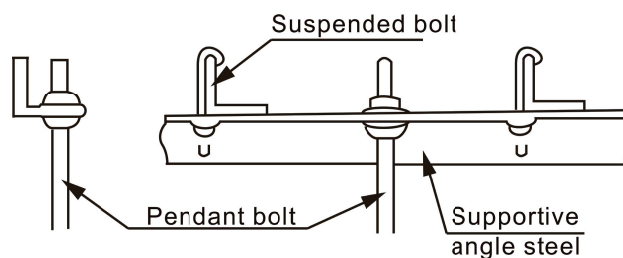
C. New concrete roughcast

Set it with embedded bushes or embedded bolts.



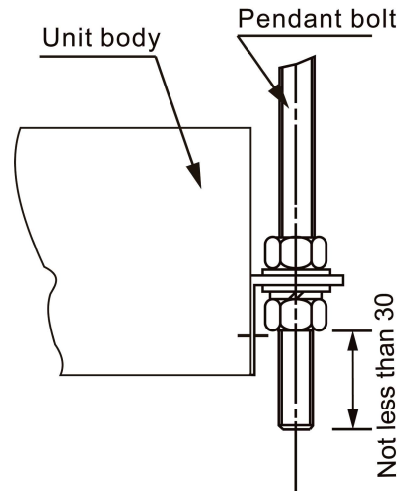
D. Steel beam and girder structure

Set and use supportive angle steel.



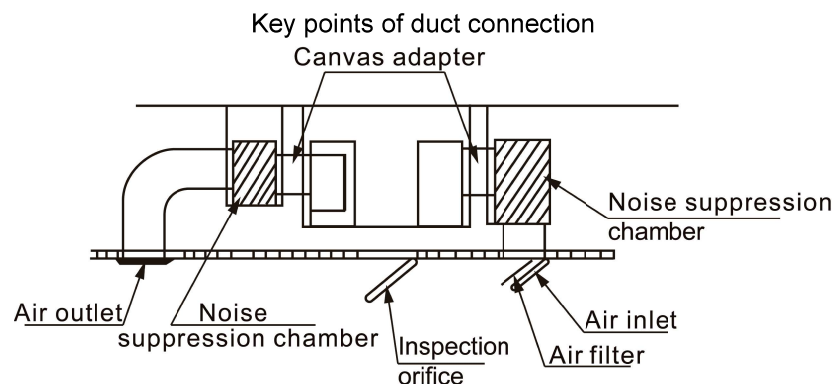
2.3 Suspending the indoor unit

Use a hoisting device to hoist the indoor unit, align it with the installation screw, adjust the horizontality and then tighten it.



2.4 Design and connection of duct

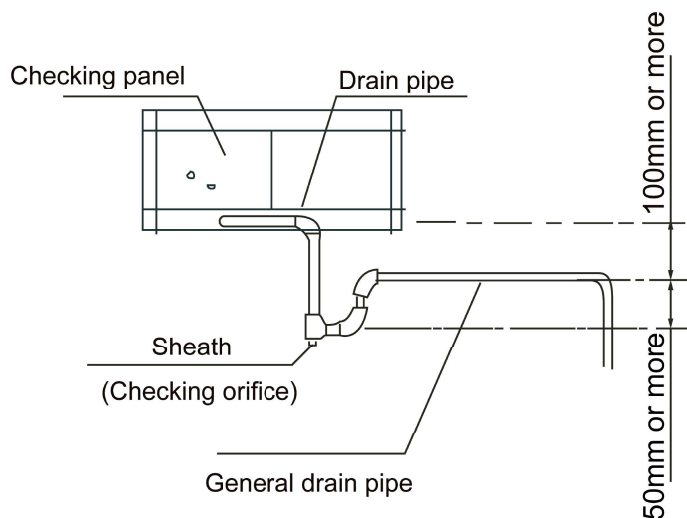
- The duct design must comply with the national heating air conditioner pipeline design specifications.
- The duct accessories and materials must be produced by professional manufacturers.
- In order to prevent air flow shorting, do not keep the air inlet pipe near the air outlet pipe.
- Install a filter at an easy-to-maintain place such as intake pipe. (Otherwise, the duct will gather on the air heat exchanger and lead to fault and water leak of the air conditioner.)
- In order to suppress noise effectively, install noise suppression and sound insulation devices, especially in the noise-sensitive spaces such as meeting rooms.
- For connection of the flange plane, use non-flammable canvas adapter to prevent transmission of vibration. For its size, see the indoor unit outline diagram. Use M6X20 screws (configured on site) for connection.
- All pipelines must be connected closely and soundly without leak of air. The pipelines must be adiabatic and free from condensation.



2.5 Install the drainpipe

1. Install the indoor unit drainpipe

- Install a drain stream trap in the drainpipe to prevent water from overflowing. (The drainpipe absorbs the odor. When the outside static pressure is high (especially the air inlet), it is difficult to drain the water.)
- Drainage should be natural. When constructing, the outside pipe of outdoor unit should be inclined (1/50~1/100).
- The bending part of drainpipe should be fewer than 2. Furthermore, to reduce the depositing dust, avoid bending the pipe as possible as you can.
- Make sure there is no dust or rubbish falling into indoor unit drain elbow and drainpipe.
- After installation, remove the checking panel, pour some water in the drain elbow to see whether it drains smoothly.



Caution: Rubbish is easy to accumulate at drain stream trap. Make sure to install a plug or other things which is easy to clean.

2. Test draining

Open the clapboard of indoor unit, pour the water in to see whether it drain smoothly and whether there is water leakage.

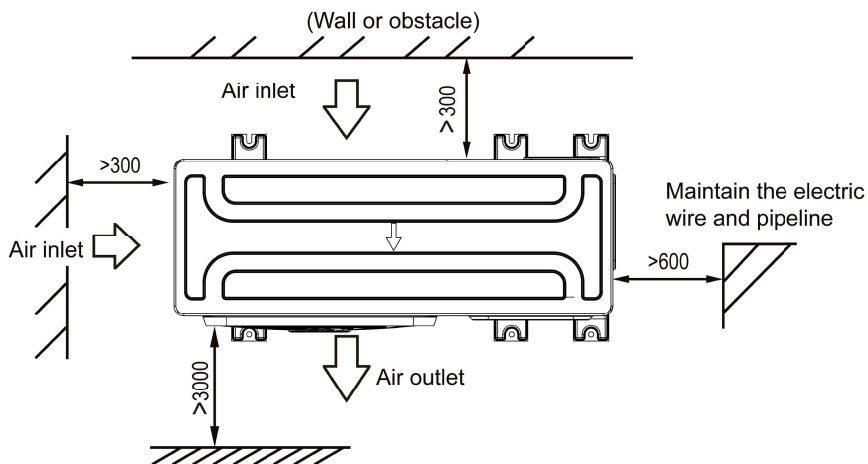
3. Heat insulation

After confirming that drainage is smoothly and there is no leakage, wrap the drainpipe with insulation material, or there will be condensed water.

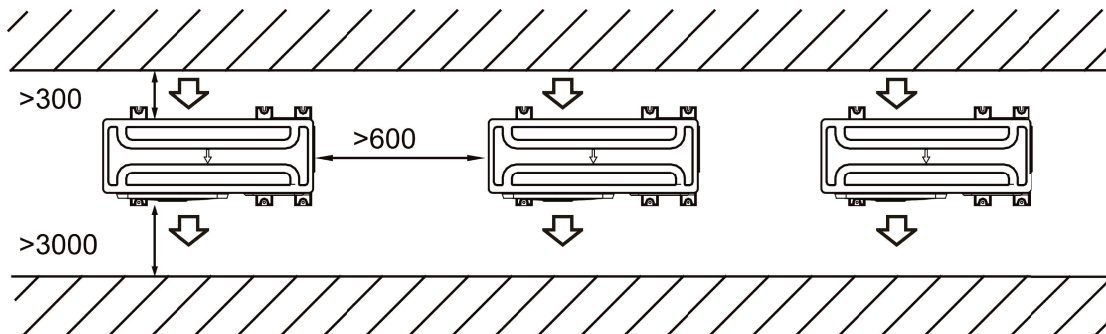
3. Installation of Outdoor Units

3.1 Installing space

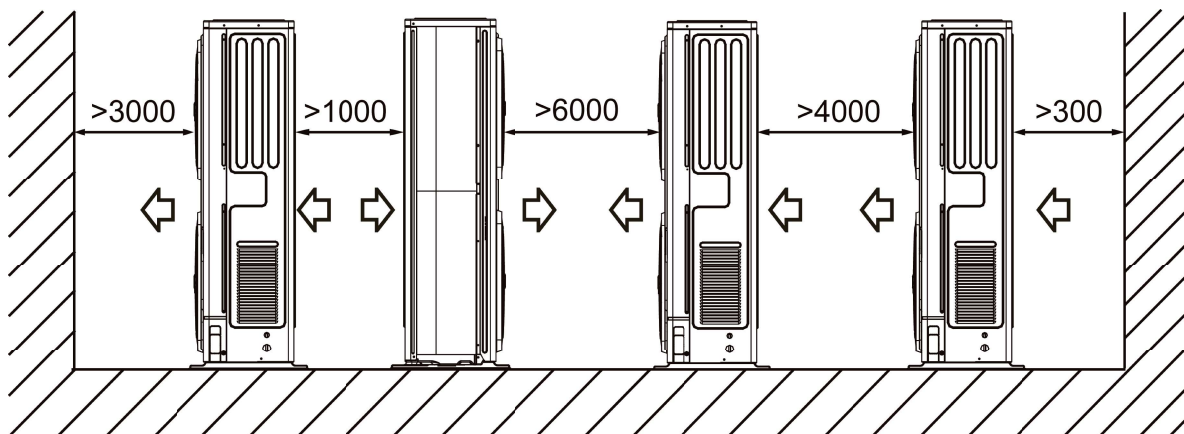
Single unit installation



Parallel connect the two units or above

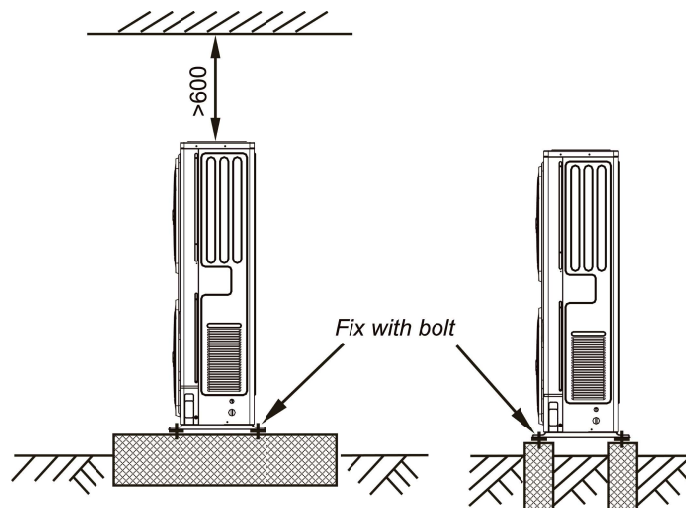


Parallel connect the front with rear sides



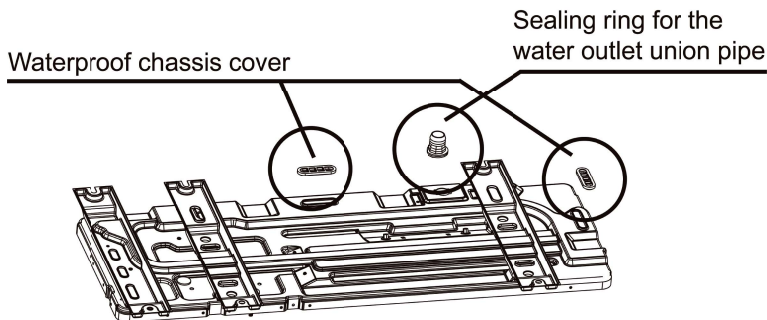
3.2 Moving and installation

- Since the gravity center of the unit is not at its physical center, so please be careful when lifting it with a sling.
- Never hold the inlet of the outdoor unit to prevent it from deforming.
- Do not touch the fan with hands or other objects.
- Do not lean it more than 45°, and do not lay it sidelong.
- Make concrete foundation according to the specifications of the outdoor units.(refer to Fig.4-6)
- Fasten the feet of this unit with bolts firmly to prevent it from collapsing in case of earthquake or strong wind.



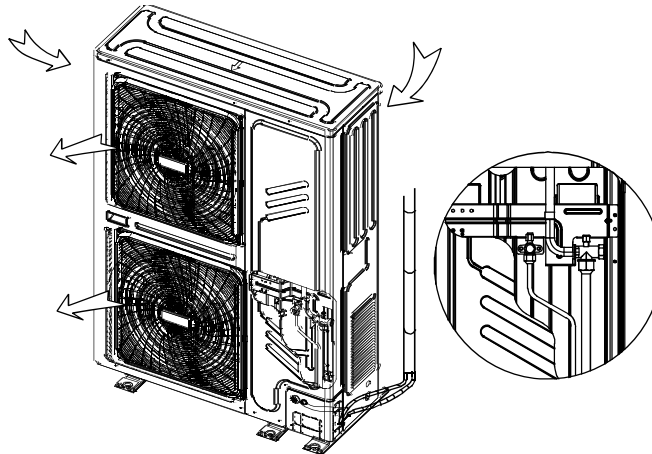
3.3 Centralized chassis drainage

When the outdoor unit requires centralized drainage, install the chassis and two waterproof covers for the chassis. Install the water outlet union pipe and sealing ring on the chassis, and then connect the drainage pipe to complete centralized drainage installation.



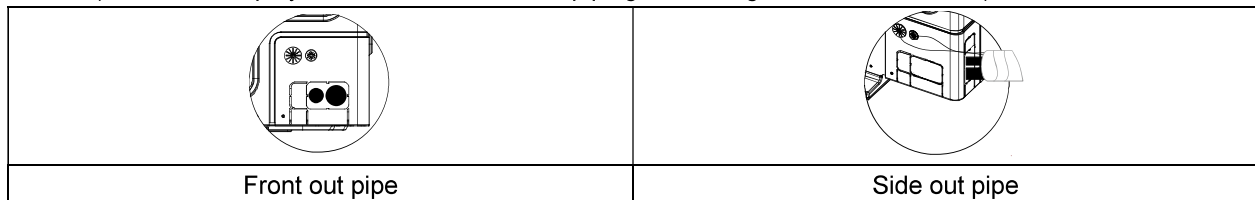
3.4 Install the connecting pipe of outdoor

Check whether the height drop between the indoor unit and outdoor unit, the length of refrigerant pipe, and the number of the bends meet the following requirements:



The indoor and outdoor connecting pipe interface and power line outlet

Various piping and patterns can be selected, such as out from the front, the back, the side, and undersurface, etc. (The follow display the locations of several piping and wiring knock-off interfaces)



3.5 Leak Detection

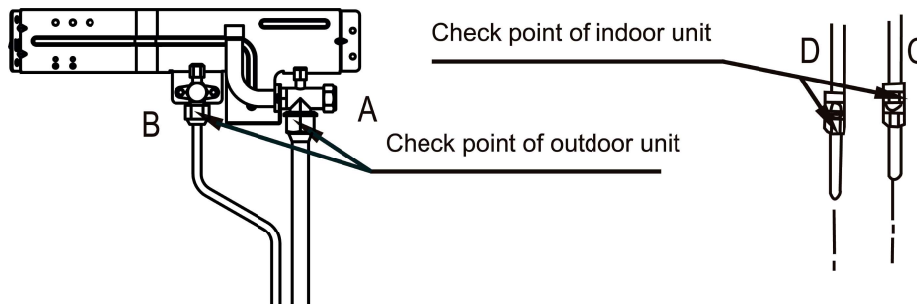
Use soap water or leak detector to check every joint whether leak or not.

Notes:

A is low pressure side stop valve

B is high pressure side stop valve

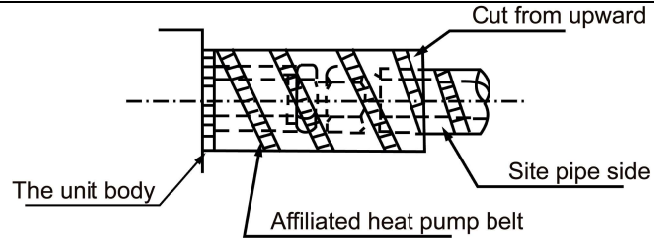
C and D is connecting pipes interface of indoor and outdoor units



3.6 Heat Insulation

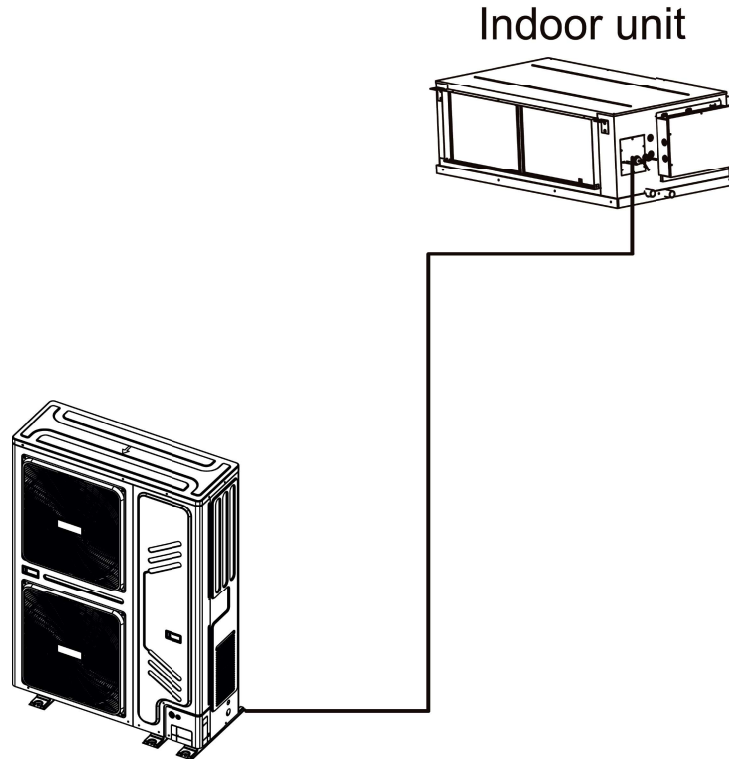
Do the heat insulation to the pipes of air side and liquid side separately. The temperature of the pipes of air side and liquid side when cooling, for avoiding condensation please do the heat insulation fully.

- The air side pipe should use closed cell foamed insulation material, which the fire-retardant is B1 grade and the heat resistance over 120°C.
- When the external diameter of copper pipe $\leq \Phi 12.7\text{mm}$, the thickness of the insulating layer at least more than 15mm;
- When the external diameter of copper pipe $\geq \Phi 15.9\text{mm}$, the thickness of the insulating layer at least more than 20mm.
- Please use attached heat-insulating materials do the heat insulation without clearance for the connecting parts of the indoor unit pipes.



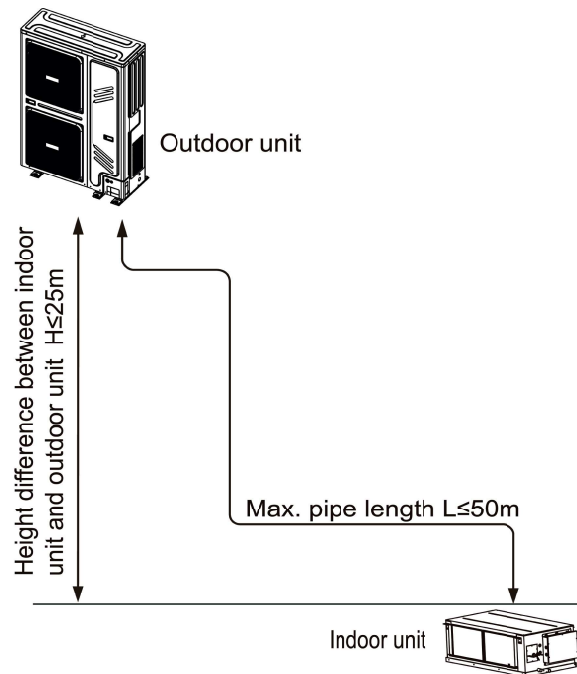
4. Connection of Refrigerant Pipe

4.1 Size of outdoor unit pipes and piping methods



Model	Gas side	Liquid side
MOUA-96HD1N1-R	Φ25.4mm	Φ9.5mm
MHC-96HWD1N1(A)	Φ25.4mm	Φ9.5mm

4.2 Allowed length of refrigerant pipe and height difference



			Allowed value
Max. actual length of pipe (L)			50m
Max. height difference	Height difference between indoor unit and out door unit (H)	Outdoor (upper)	25m
		Outdoor (lower)	30m

4.3 Refrigerant Replenishment Quantity

- For one-way pipe whose length is no longer than 5m, please refer to nameplate for refrigerant filling amount.No extra refrigerant is needed.
- One-way pipe whose length is longer than 5m, additional refrigerant quantity should be calculated by pipe diameter and length of outdoor and indoor unit liquid side pipe.For details, please refer to table below.

Diameter of liquid-side pipe	Refrigerant replenishment quantity	Remarks
Φ9.5mm	$0.030 \times (L-5)$ kg	L is the length of one-way pipe.

5. Electric Connection

5.1 Caution

- Use special power supply for the air conditioner. Design power supplies specific to the indoor unit and outdoor unit. The supply voltage must comply with the nominal voltage.
- The external supply circuit of the air conditioner must have a ground wire, and the power supply ground wire of the indoor unit must be connected with the external ground wire firmly.
- The wiring must be performed by professional technicians according to the circuit diagram labels.
- Distribute the wires according to the relevant electric technical standards promulgated by the State, and set the Residual Current-operated Circuit Breaker (RCCB) properly.
- The power wire and the signal wire shall be laid out neatly and properly, without mutual interference or contacting the connection pipe or valve.
- No power cable is attached to this equipment. The user can select the power cable by reference to the stipulated power supply specifications. No joint of wires is allowed.
- Upon completion of wire connection, double check it and then connect the power supply.
- An all-pole disconnection device which has at least 3mm separation distance in all pole and a residual

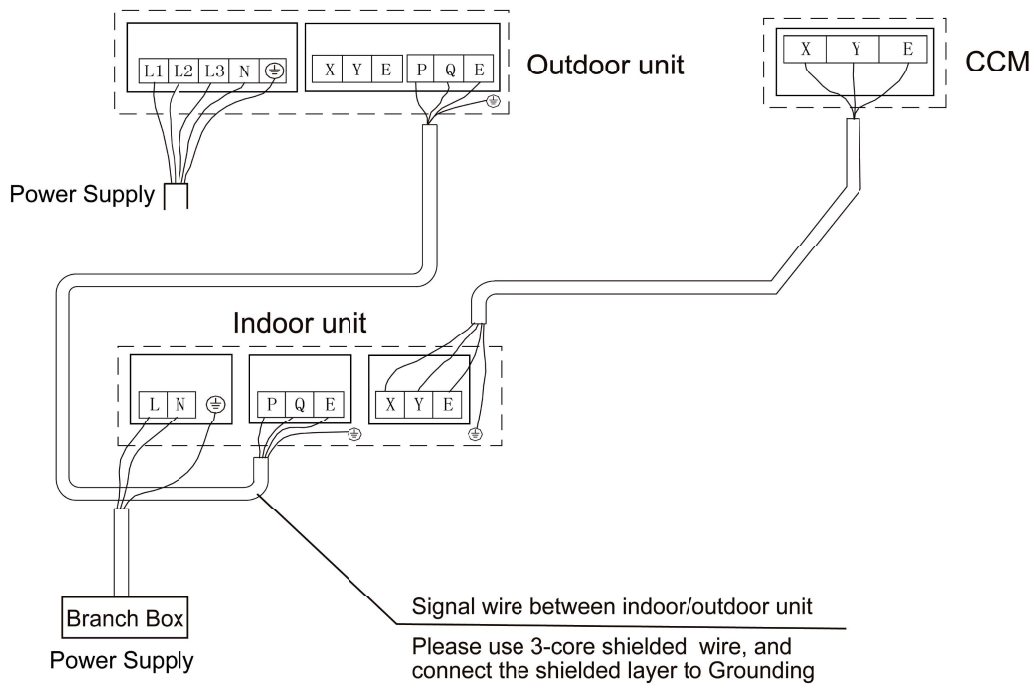
current device (RCD) with the rating of above 10mA shall be incorporated in the fixed wiring according to the national rule.

- The appliance shall be installed in accordance with national wiring regulations.

5.2 Specifications of power supply

Model	MHC-96HWD1N1(A)	MOUA-96HD1N1-R
Power	220-240V~50Hz	380-415V 3N~50Hz
Switch capacity of the main power supply / Fuse(A)	16/16	40/40
Indoor unit power cable	3×2.5mm ² (Includes grounded wire)	/
Outdoor unit power cable	\	5×6.0mm ² (Includes grounded wire)
Indoor Unit /Outdoor Unit Signal Wire (mm ²) (Weak electric signal)	3-core shielded wire 3×0.75	

5.3 Schematic diagram



Power (380-415V~ 50Hz 3-Phase)

