ecoV™

Heat Recovery Ventilator with DX Coil

0CED0-01C(Replaces: 0CED0-01B)

LG TOTAL HVAC SOLUTION PROVIDER

ENGINEERING PRODUCT DATA BOOK

LG

Life's Good

ecoV™

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Heat Recovery Ventilator with DX Coil

1. External Appearance

1.1 Heat Recovery

LZ-H050GXN0
LZ-H080GXN0
LZ-H100GXN0
LZ-H050GXH0
LZ-H080GXH0
LZ-H100GXH0

2. Models List

2.1 Total Heat Recovery Ventilator

Nominal Capacity CMH(CFM)	Model Name	Power Supply Phase,V,Hz
500(294)	LZ-H050GXN0, LZ-H050GXH0	1 ph, 220-240 V, 50 Hz 1 ph, 220 V, 60 Hz
800(471)	LZ-H080GXN0, LZ-H080GXH0	
1000(589)	LZ-H100GXN0, LZ-H100GXH0	

3. Model Number Nomenclature

Development Sequence

Function
H : With Humidifier
N : Without Humidifier

Model Type
X : DX-Coil

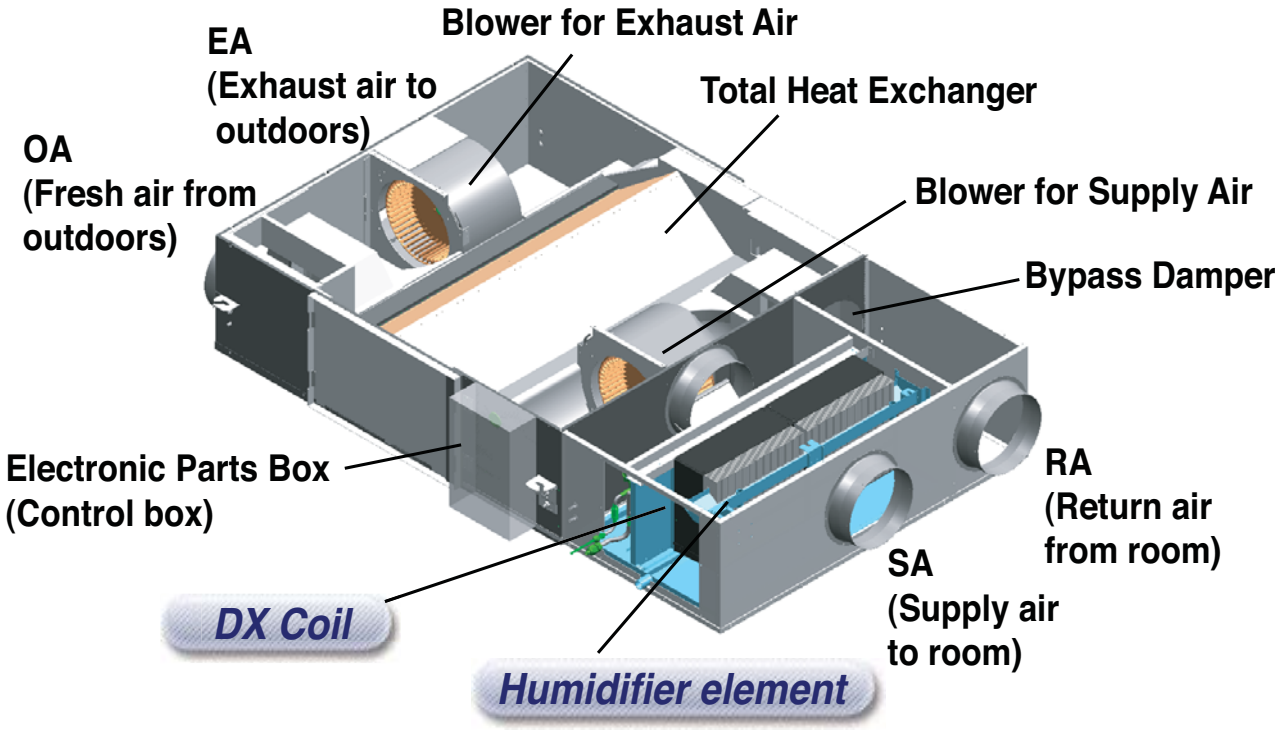
Electric Standard (Volts , Freq. , Phase)
220-240 V, 50 Hz, 1 ph / 220 V, 60 Hz, 1 ph

Capacity
Ex) 080 -> 800 CMH 100 -> 1,000 CMH

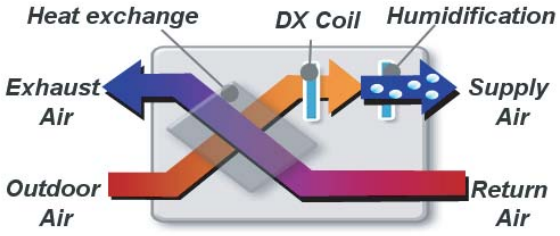
Heat Exchange Type
H : Total Heat Recovery

Indicates that this is LG's ecoV™ system

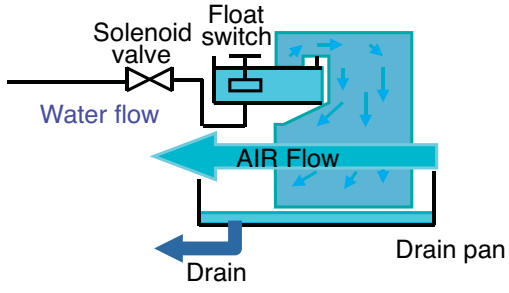
4. Structures



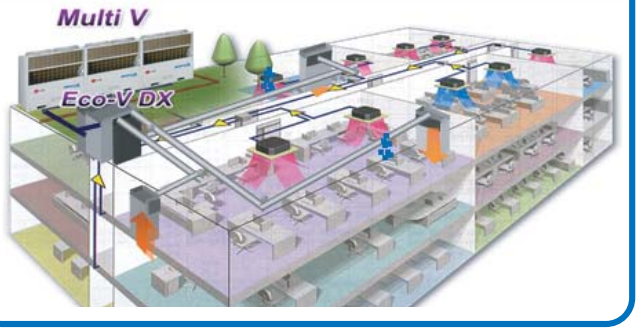
First. Total Air conditioning solution



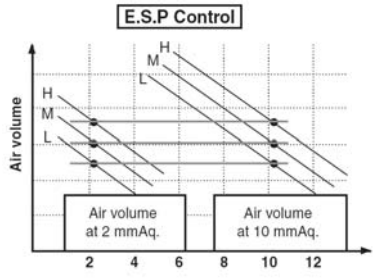
Second. Antibacterial Humidification



Third. Interlocking with Multi-V



Forth. ESP control (BLDC motor)



5. Specifications

5.1 Guide Specifications

General

Units shall be completely factory assembled including fan motors, filters, heat exchanger element and so on. in a sheet metal casing.

Casing

Unit casing shall be constructed of zinc coated, heavy gauge galvanized steel. All panels in the casing shall be cleaned with permanent, fire retardant, odorless material. Knockouts shall be provided for unit electrical power and piping connections. Panels shall be fastened by screws.

Heat Exchanger Element

The heat exchanger element shall be assembled without moving parts for higher durability and reliability. The material is flame-retardant for safety. The supply air passage and the exhaust air passage are arranged in right angle the prevent the supply and exhaust air from getting mixed.

Fan Motor

The fan motors shall be of permanently lubricated type with internal thermal protection as standard. The shaft shall be protected against rusting. The fan motors shall be resilient mounted to minimize vibration and noise. All fans shall be statically and dynamically balanced for quiet operation.

Filters

Filters shall be easily accessible from the side of the unit. Filters shall be fabricated from synthetic media and shall be of washable type.

Controls

Wired control shall be available as standard. The controls shall be microprocessor based and provide for a user interface.

Humidifier Element

Utilizing the principle of capillary action, water is permeated throughout the humidifier element. The heated air from the DX-Coil goes through the humidifier element and absorbs the moisture. Humidifier element is consist of porosity plates.

DX-Coil (Direct Expansion Coil)

Coils shall be constructed of cooper tube and aluminum fins. Fins shall be bonded to the tubing and pressure and leak tested at the factory at 450psig (30kg/cm^2 G). The condensate drain pan shall be constructed of powder coated galvanized iron.

5. Specifications

5.2 With DX_coil

TECHNICAL SPECIFICATIONS				LZ-H050GXN0	LZ-H080GXN0	LZ-H100GXN0
Refrigerant				R410A		
Power Supply	Phase			1	1	1
	Frequency		Hz	50 / 60	50 / 60	50 / 60
	Voltage		V	220-240 / 220		
Dimensions	Height x Width x Depth		mm	365 x 1,667 x 1,140	365 x 1,667 x 1,140	365 x 1,667 x 1,140
Fresh air conditioning load	Cooling(Note 2)		kW	4.93 (1.23)	7.46(1.84)	9.12(2.53)
	Heating(Note 3)		kW	6.73 (2.53)	9.80 (3.68)	11.72 (4.32)
Power input (normal)	Heat exchange mode	Super-high	kW	0.25	0.42	0.48
		High	kW	0.20	0.35	0.42
		Low	kW	0.15	0.25	0.27
	Bypass mode	Super-high	kW	0.25	0.42	0.48
		High	kW	0.20	0.35	0.42
		Low	kW	0.15	0.25	0.27
Casing	Material			Galvanized steel plate		
Weight		Net	kg	98	98	98
Fan	Type			Sirocco fan		
Air flow rate (Note 5)	Heat exchange Mode	Super-high	CMH	500	800	1,000
		High	CMH	500	800	1,000
		Low	CMH	440	640	820
	Bypass mode	Super-high	CMH	500	800	1,000
		High	CMH	500	800	1,000
		Low	CMH	440	640	820
Fan	External static pressure	Super-high	Pa	180	170	150
		High	Pa	150	120	100
		Low	Pa	110	80	70
	Motor	Quantity	EA	2	2	2
		Output	W	195	195	195
Temperature exchange efficiency		Super-high	%	86	84	82
		High	%	86	84	82
		Low	%	87	86	84
Enthalpy exchange efficiency	Cooling	Super-high	%	68	64	60
		High	%	68	64	60
		Low	%	69	66	63
	Heating	Super-high	%	76	74	71
		High	%	76	74	71
		Low	%	77	76	73
Operation Range	Outdoor air Temperature		°C	-15 ~ 45	-15 ~ 45	-15 ~ 45
Sound Pressure (Note 4)	Heat Exchange mode	Super-high	dB(A)	39	41	41
		High	dB(A)	37	38	39
		Low	dB(A)	35	36	36
	Bypass mode	Super-high	dB(A)	39	41	41
		High	dB(A)	37	38	39
		Low	dB(A)	35	36	36
Piping connection	Liquid	Type		Flare connection		
		Diameter(Ø)	mm	6.35	6.35	6.35
	Gas	Type		Flare connection		
		Diameter(Ø)	mm	12.7	12.7	12.7
	Water	Type		-		
		Diameter(Ø)	mm	-	-	-
	Drain (Outer diameter)		mm	25.4		
Nominal Running current (RLA)	Heat Exchange mode	Super-high	A	1.5	2.5	3.6
		High	A	1.3	2.0	3.2
		Low	A	1.0	1.5	2.3
	Bypass mode	Super-high	A	1.5	2.5	3.6
		High	A	1.3	2.0	3.2
		Low	A	1.0	1.5	2.3
Refrigerant control				Electronic expansion valve		
Insulation material				Self-extinguishable urethane foam		
Heat exchange system				Air to air cross flow total heat (sensible + latent heat) exchange		
Heat exchange element				Specially processed non-flammable paper		
Air Filter				Multidirectional fibrous fleeces		
Connection duct diameter(Ø)			mm	250	250	250
Operation mode				Heat exchange mode, Bypass mode, Auto mode		

Notes:

1. Cooling and heating capacities are based on the following conditions.
   Fan is based on High and Super-high. The figures in the parenthesis indicate the heat reclaimed from the heat recovery ventilator.
2. Cooling Capacity Test condition :
   Indoor temperature : 27°C DB, 19°C WB, Outdoor temperature : 35°C DB
3. Heating Capacity Test condition :
   Indoor temperature : 20°C DB, Outdoor temperature : 7°C DB, 6°C WB
4. The operating sound measured at the point 1.5 m below the center of the unit is converted to that measured at an anechoic chamber built in accordance with the KS B 6879 conditions. The actual operating sound varies depending on the surrounding conditions(near running unit's sound, reflected sound and so on) and is normally higher than this value.
   For operation in a quiet room, it is required to take measures to lower the sound.
5. Air flow rate can be changed over to low mode or high mode.
6. Normal Amp., input, efficiency depend on the other above conditions.
7. The specifications, designs and information here are subject to change without notice.
8. Temperature exchange efficiency is the higher value of both cooling and heating.
9. In heating operation, freezing of the outdoor unit's coil increases.Heating capability decreases and the system goes into defrost operation. During defrost operation, the fans of the unit continues driving (factory setting). The purpose of this is to maintain the amount of ventilation and humidifying.

5. Specifications

5.3 With DX_coil & Humidifier

TECHNICAL SPECIFICATIONS				LZ-H050GXH0	LZ-H080GXH0	LZ-H100GXH0
Refrigerant				R410A		
Power Supply	Phase			1	1	1
	Frequency		Hz	50 / 60	50 / 60	50 / 60
	Voltage		V	220-240 / 220		
Dimensions	Height x Width x Depth		mm	365 x 1,667 x 1,140	365 x 1,667 x 1,140	365 x 1,667 x 1,140
Fresh air conditioning load	Cooling(Note 2)		kW	4.93 (1.23)	7.46(1.84)	9.12(2.53)
	Heating(Note 3)		kW	6.73 (2.53)	9.80 (3.68)	11.72 (4.32)
Power input (normal)	Heat exchange mode	Super-high	kW	0.25	0.42	0.48
		High	kW	0.20	0.35	0.42
		Low	kW	0.15	0.25	0.27
	Bypass mode	Super-high	kW	0.25	0.42	0.48
		High	kW	0.20	0.35	0.42
		Low	kW	0.15	0.25	0.27
Casing	Material			Galvanized steel plate		
Weight		Net	kg	105	105	105
		Gross(Note 8)	kg	115	115	115
Fan	Type			Sirocco fan		
Air flow rate (Note 6)	Heat exchange Mode	Super-high	CMH	500	800	1,000
		High	CMH	500	800	1,000
		Low	CMH	440	640	820
	Bypass mode	Super-high	CMH	500	800	1,000
		High	CMH	500	800	1,000
		Low	CMH	440	640	820
Fan	External static pressure	Super-high	Pa	160	140	110
		High	Pa	120	90	70
		Low	Pa	100	70	60
	Motor	Quantity	EA	2	2	2
		Output	W	195	195	195
Temperature exchange efficiency		Super-high	%	86	84	82
		High	%	86	84	82
		Low	%	87	86	84
Enthalpy exchange efficiency	Cooling	Super-high	%	68	64	60
		High	%	68	64	60
		Low	%	69	66	63
	Heating	Super-high	%	76	74	71
		High	%	76	74	71
		Low	%	77	76	73
Operation Range	Outdoor air Temperature		°C	-15 ~ 45	-15 ~ 45	-15 ~ 45
Humidifier	System			Natural evaporating Type		
	Amount(Note 4)		kg/h	2.70	4.00	5.40
	Pressure Feed Water		MPa	0.02~0.49		
	N			2	2	2
Sound Pressure (Note 5)	Heat Exchange mode	Super-high	dB(A)	38	39	40
		High	dB(A)	36	37	38
		Low	dB(A)	33	34	35
	Bypass mode	Super-high	dB(A)	39	40	40
		High	dB(A)	37	38	38
		Low	dB(A)	34	35	35
Piping connection	Liquid	Type		Flare connection		
		Diameter(Ø)	mm	6.35	6.35	6.35
	Gas	Type		Flare connection		
		Diameter(Ø)	mm	12.7	12.7	12.7
	Water	Type		Flare connection		
		Diameter(Ø)	mm	6.35	6.35	6.35
	Drain (Outer diameter)		mm	25.4		
Nominal Running current (RLA)	Heat Exchange mode	Super-high	A	1.5	2.5	3.6
		High	A	1.3	2.0	3.2
		Low	A	1.0	1.5	2.3
	Bypass mode	Super-high	A	1.5	2.5	3.6
		High	A	1.3	2.0	3.2
		Low	A	1.0	1.5	2.3
Refrigerant control				Electronic expansion valve		
Insulation material				Self-extinguishable urethane foam		
Heat exchange system				Air to air cross flow total heat (sensible + latent heat) exchange		
Heat exchange element				Specially processed non-flammable paper		
Air Filter				Multidirectional fibrous fleeces		
Connection duct diameter(Ø)			mm	250	250	250
Operation mode				Heat exchange mode, Bypass mode, Auto mode		

Notes:

1. Cooling and heating capacities are based on the following conditions.
   Fan is based on High and Super-high. The figures in the parenthesis indicate the heat reclaimed from the heat recovery ventilator.
2. Cooling Capacity Test condition :
   Indoor temperature : 27°C DB, 19°C WB, Outdoor temperature : 35°C DB
3. Heating Capacity Test condition :
   Indoor temperature : 20°C DB, Outdoor temperature : 7°CDB, 6°C WB
4. Humidifying capacity is based on the following conditions :
   Indoor temperature : 20°C DB, 15°C WB, Outdoor temperature : 7°C DB, 6°C WB
5. The operating sound measured at the point 1.5 m below the center of the unit is converted to that measured at an anechoic chamber built in accordance with the KS B 6879 conditions.
   The actual operating sound varies depending on the surrounding conditions (near running unit's sound, reflected sound and so on) and is normally higher than this value.
   For operation in a quiet room, it is required to take measures to lower the sound.
6. Air flow rate can be changed over to low mode or high mode.
7. Normal Amp., input, efficiency depend on the other above conditions.
8. In case of holding full water in humidifier.
9. The specifications, designs and information here are subject to change without notice.
10. Temperature exchange efficiency is the higher value of both cooling and heating.
11. In heating operation, freezing of the outdoor unit's coil increases.
    Heating capability decreases and the system goes into defrost operation.
    During defrost operation, the fans of the unit continues driving (factory setting).
    The purpose of this is to maintain the amount of ventilation and humidifying.

5. Specifications

5.4 Humidifier

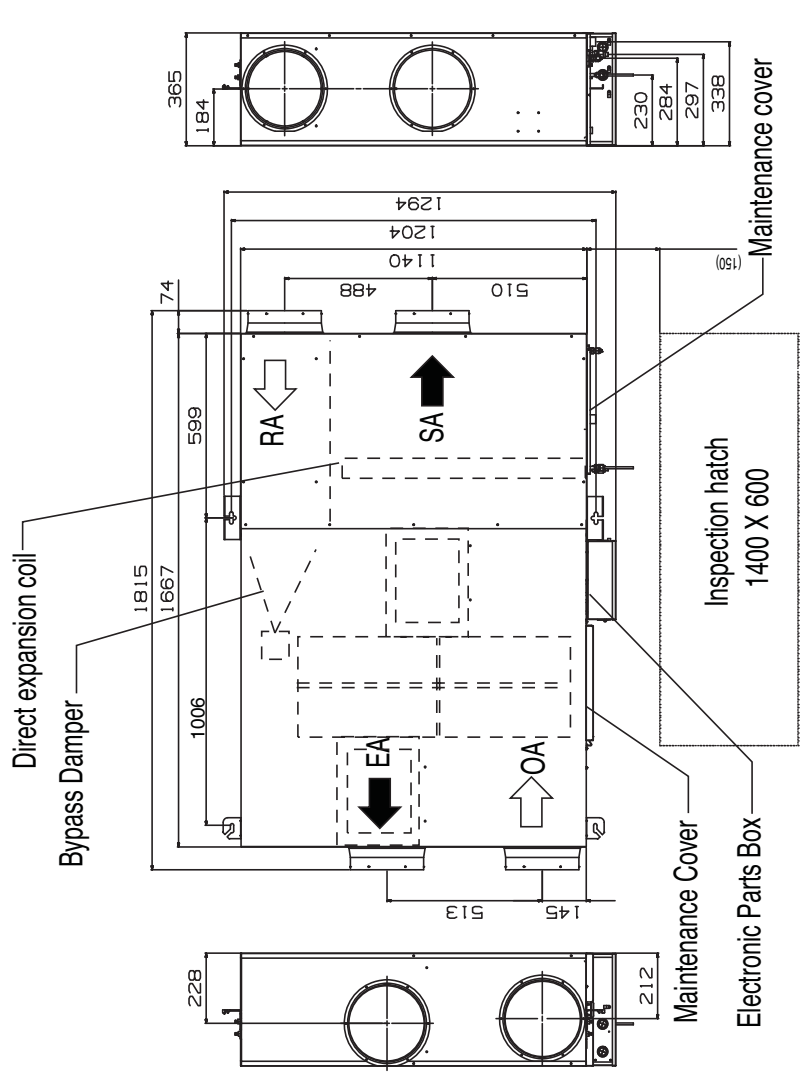
	LZ-H050GXH0	LZ-H080GXH0	LZ-H100GXH0
Humidifier type	Natural evaporating type humidifier		
Wetted element	Porosity plate 120pcs. (60x2pcs.)	Porosity plate 120pcs. (60x2pcs.)	Porosity plate 120pcs. (60x2pcs.)
Supply water pressure(kg/cm^2)	0.2(Min.)~5.0(Max.)		

Note:

1. Feed clean water (city water, tap water or equivalent) Dirty water may clog the valve or cause dirt deposits in the water container, resulting in poor humidifier performance.
   (Never use any cooling tower water and heating - purpose water.)
   Also, if the supply water is hard water, use a water softener because of short life.
   Life of humidifying element is about 3 years (4,000 hours), under the supply water conditions of hardness: 150 mg/l. (Life of humidifying element is about 1 year (1,500 hours) under the supply water conditions of hardness: 400 mg/l.)
   Annual operating hours: 10 hours / day x 26 days / month x 5 month = 1,300 hours
2. Maintain the supply water temperature at 5 ~ 50°C and its pressure at 20 ~ 490 kPa (0.2 ~ 5.0 kg/cm^2). If the water pressure is above 490 kPa (5.0 kg/cm^2), add pressure reducing valve in between the kit and the supply water shut - off valve.
3. The supply water line cannot be directly connected with a utility water tap.
   To unavoidably take water from such line, employ a CISTERN (gotten configuration authorization).
4. Be sure to provide thermal insulation around the indoor piping as well as the shut - off valves.
5. In order to prevent harmful bacteria from generating, do maintenance on humidifying unit portion at the beginning and the end of the heating season according to the installation manual.

6. Dimensions

LZ-H050GXN0
LZ-H080GXN0
LZ-H100GXN0

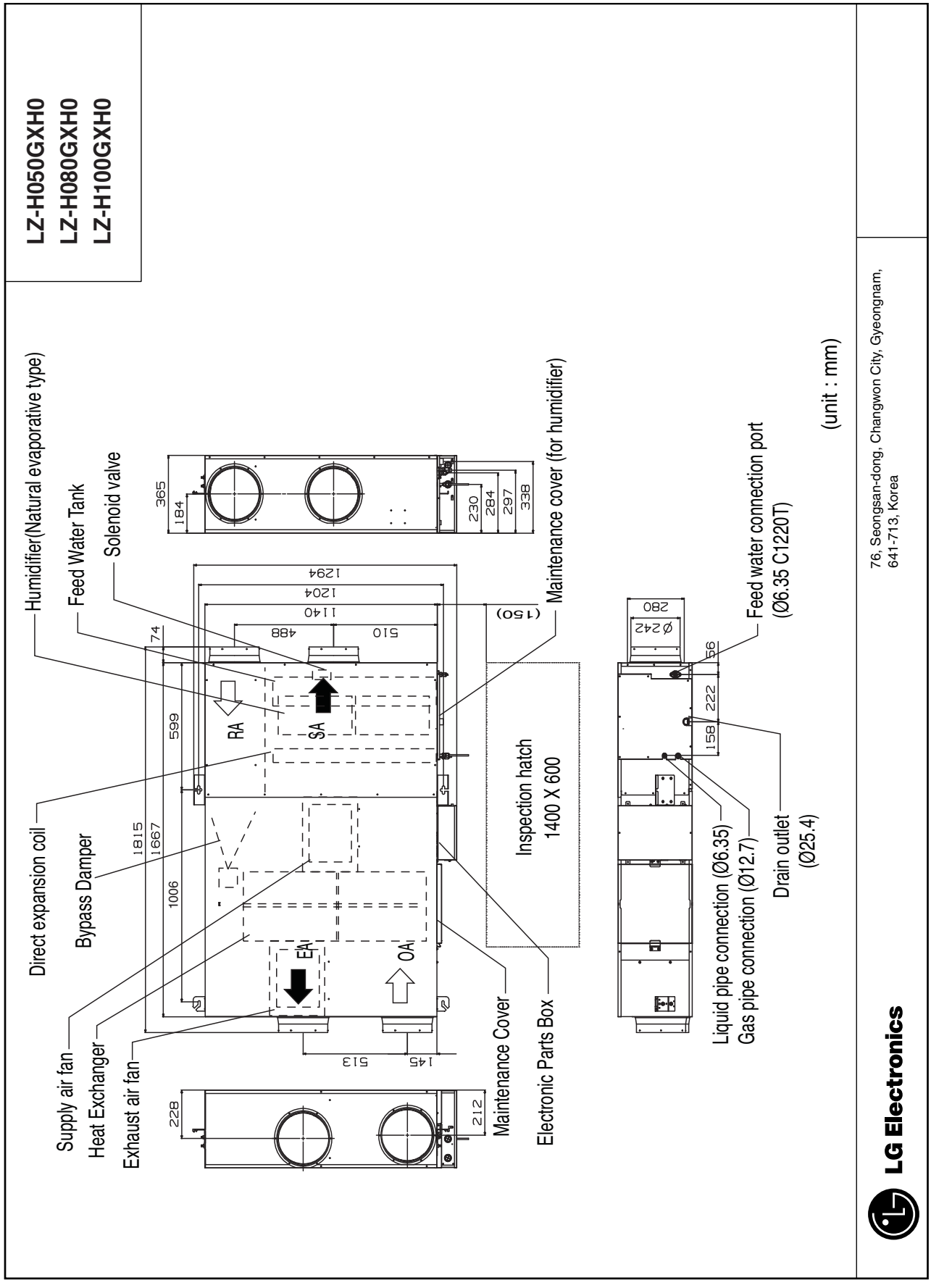


(unit : mm)

LG Electronics

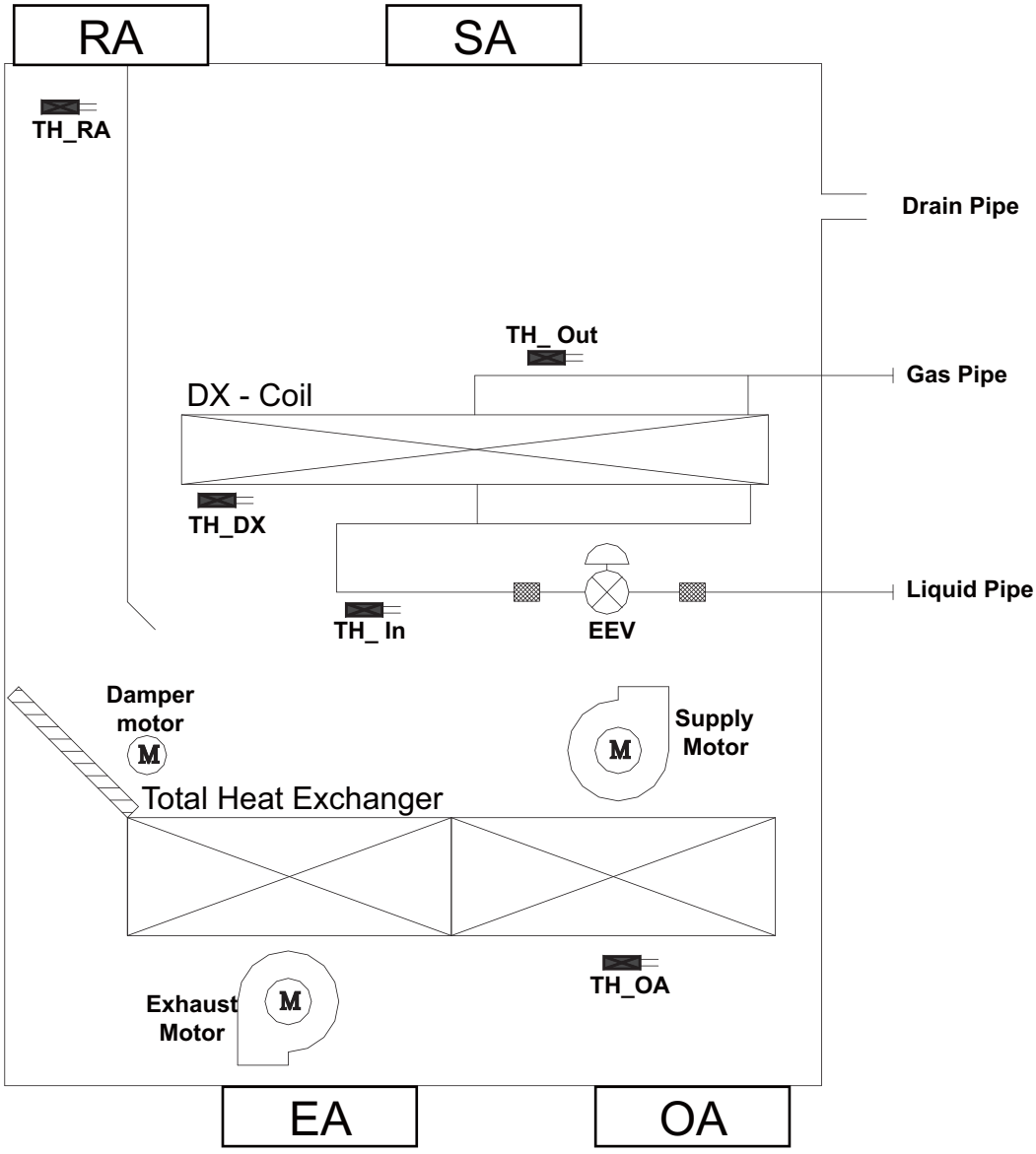
76, Seongsan-dong, Changwon City, Gyeongnam,
641-713, Korea

6. Dimensions



7. Piping Diagrams

7.1 LZ-H050GXN0 / LZ-H080GXN0 / LZ-H100GXN0



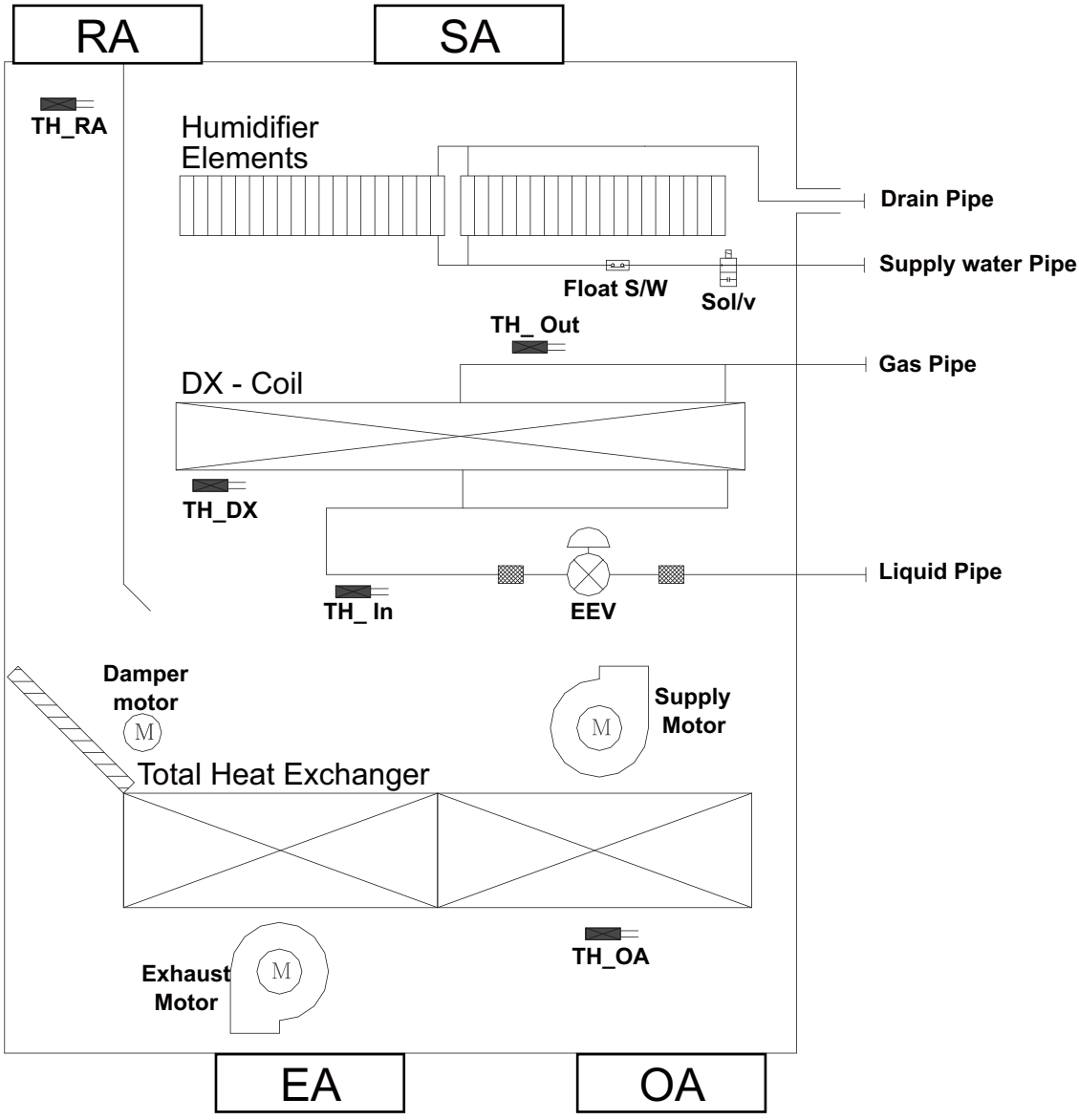
EEV : Electric Expansion Valve (Active/Inactive)

Supply Motor : Motor for supply
Exhaust Motor : Motor for Exhaust
Damper Motor : Synchronous motor for Bypass Damper

TH_DX : Temperature sensor in back of DX-Coil
TH_RA : Temperature sensor for Return (Room) Air
TH_OA : Temperature sensor for Outdoor Air
TH_ In : Temperature sensor for Liquid pipe
TH_ Out : Temperature sensor for Gas pipe

7. Piping Diagrams

7.2 LZ-H050GXH0 / LZ-H080GXH0 / LZ-H100GXH0



Sol/v #1 : Solenoid valve for water supply (Active/Inactive)
Float S/W #1 : Float switch for water supply (Open/Short)

EEV : Electric Expansion Valve (Active/Inactive)

Supply Motor : Motor for supply
Exhaust Motor : Motor for Exhaust
Damper Motor : Synchronous motor for Bypass Damper

TH_DX : Temperature sensor in back of DX-Coil
TH_RA : Temperature sensor for Return (Room) Air
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TH_ In : Temperature sensor for Liquid pipe
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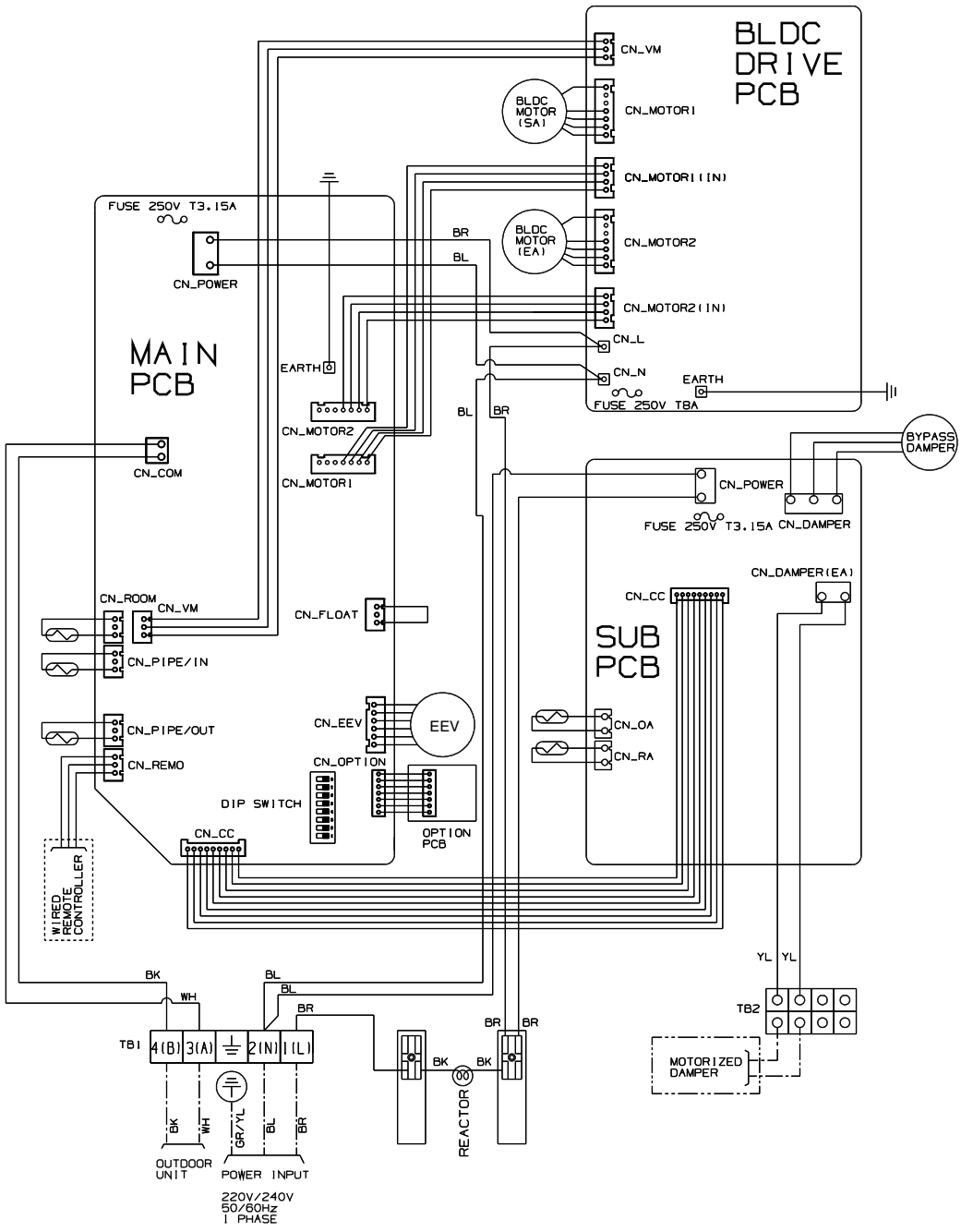
8. Wiring Diagrams

8.1 LZ-H050GXN0 / LZ-H080GXN0 / LZ-H100GXN0



⚠ WARNING

- There is risk of electric shock due to failure or electric leakage.
- Always ground the product.
- You can install the product by refering to owner's manual.

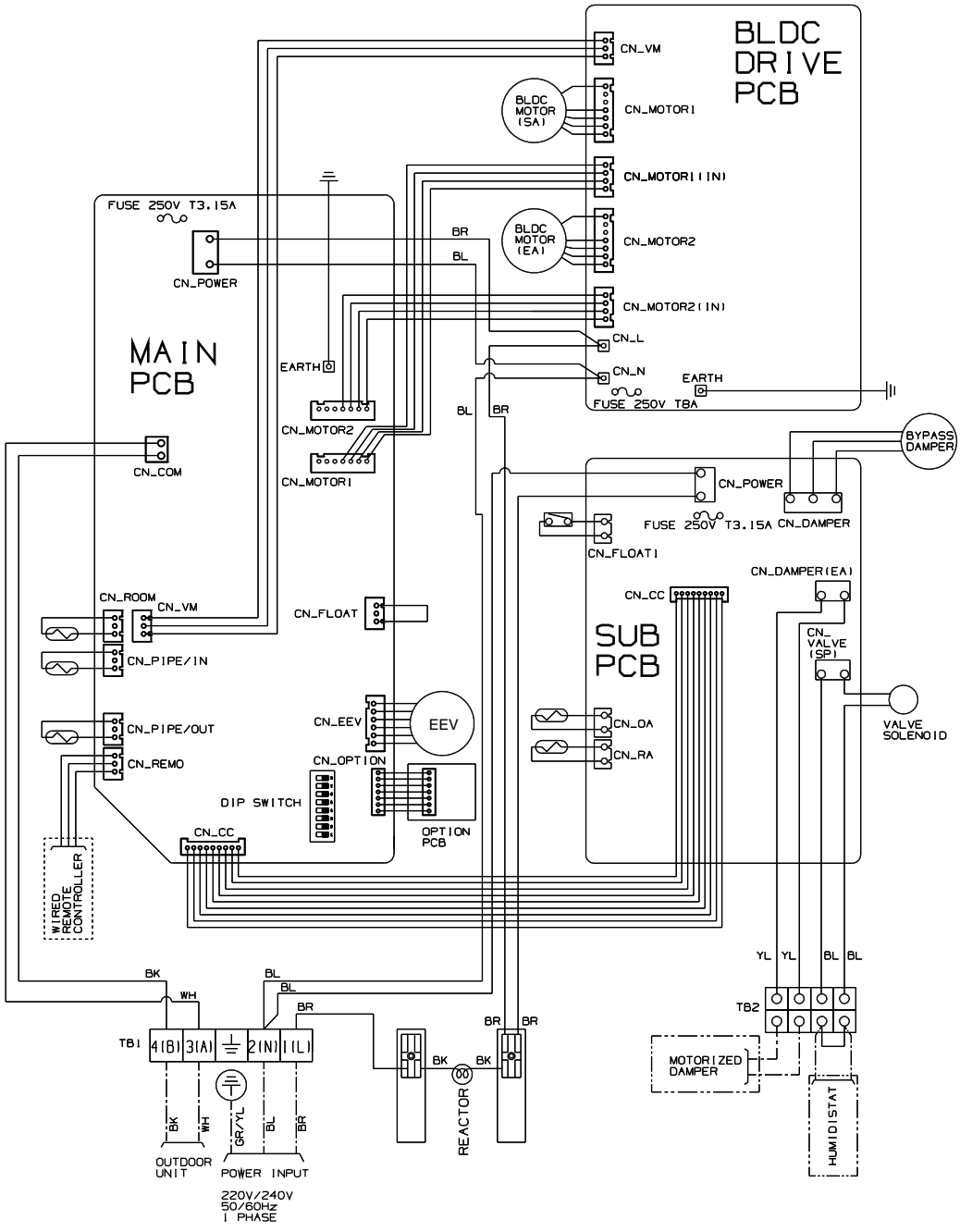
INFORMATION`

- You need to buy a dedicated circuit separately
- Field wiring
- Accessory
- Locally procured

<Note>
RD : RED
BR : BROWN
BL : BLUE
BK : BLACK
OR : ORANGE
YL : YELLOW
GN/YL : GREEN/YELLOW

8. Wiring Diagrams

8.2 LZ-H050GXH0 / LZ-H080GXH0 / LZ-H100GXH0



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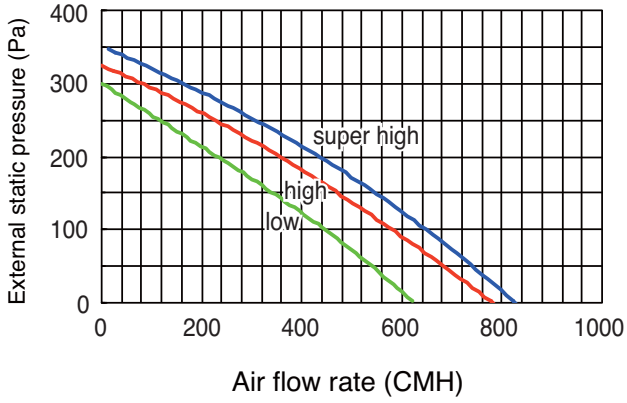
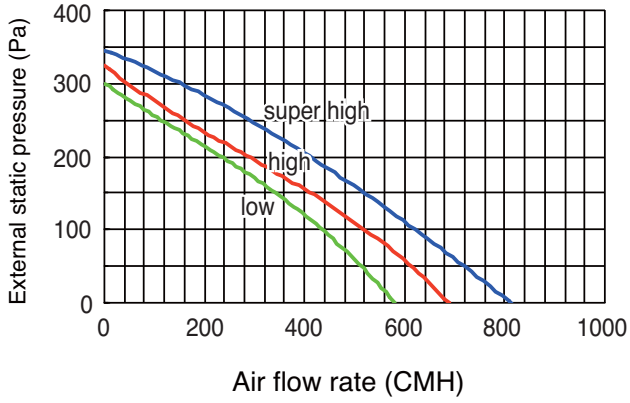
9. Fan Performance

9.1 Fan Performance

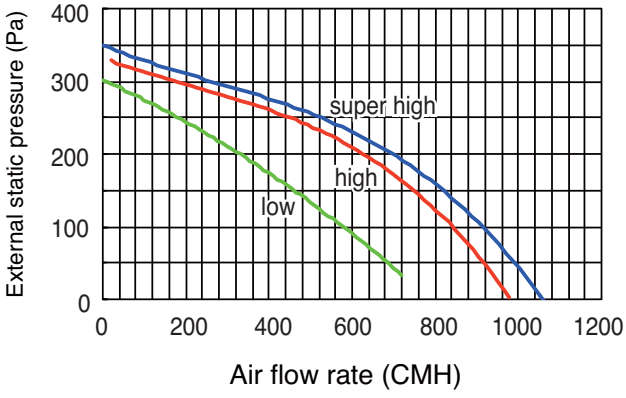
LZ-H050GXN0



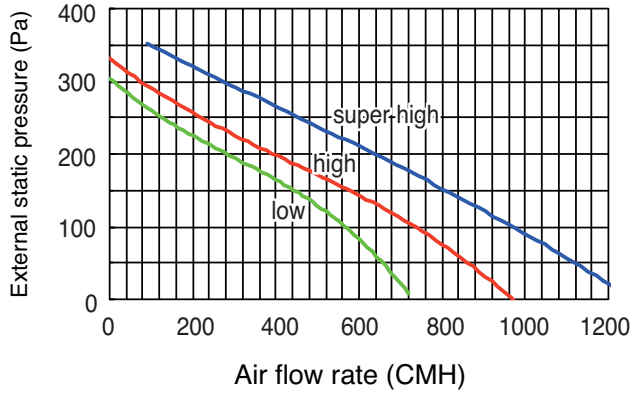
LZ-H050GXH0



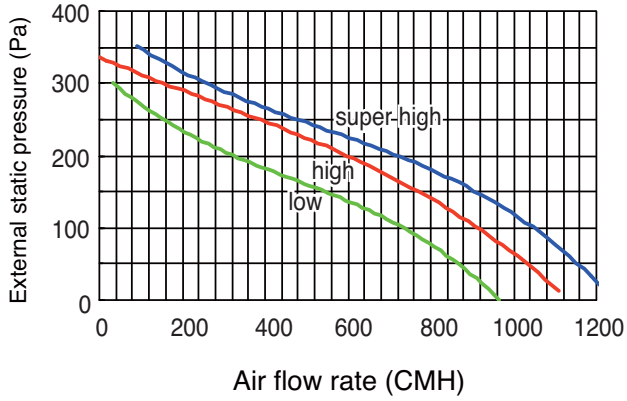
LZ-H080GXN0



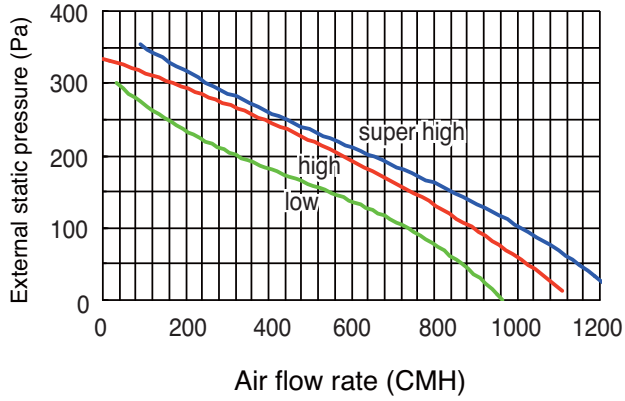
LZ-H080GXH0



LZ-H100GXN0



LZ-H100GXH0



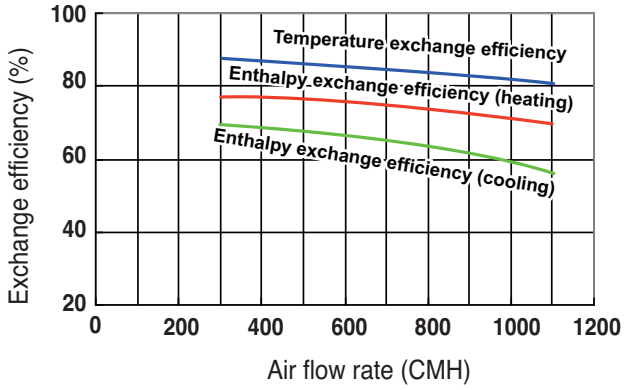
Note

1. Operating conditions:
   - Power source: Single phase 50Hz 230V
   - Ventilation mode: Total heat exchange

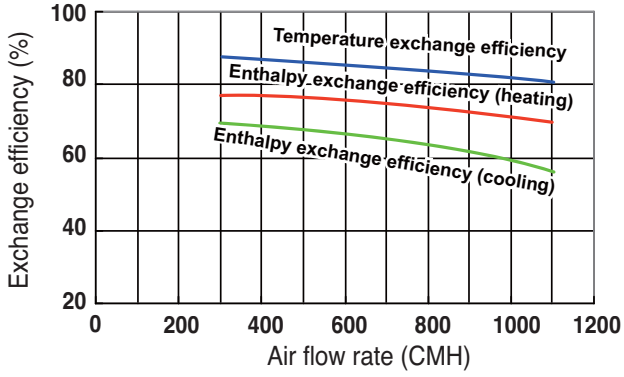
9. Fan Performance

9.2 The correction ratio of exchange efficiency

LZ-H050GXN0, LZ-H050GXH0



LZ-H080GXN0, LZ-H080GXH0



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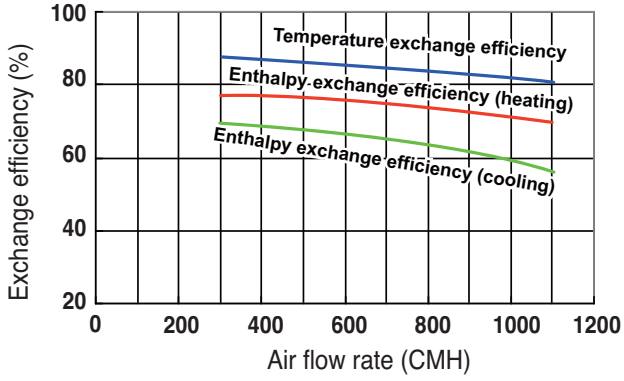


Note

1. Heat exchanger individual test.
2. Test condition
   - Winter : Indoor (DB 20°C,WB 14°C), Outdoor (DB 5°C,WB 2°C)
   - Summer: Indoor (DB 27°C,WB 20°C), Outdoor (DB 35°C,WB 29°C)

10. Capacity Tables

10.1 Cooling

Model	Indoor Unit Capacity Index	Outdoor Temp. (°C)DB	Coil inlet air temp. (°C)													
			14 WB		16 WB		18 WB		19 WB		20 WB		22 WB		24 WB	
			20 DB		23 DB		26 DB		27 DB		28 DB		30 DB		32 DB	
			TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
LZ-H050GX*0	3.6	10	2.6	2.1	3.0	2.4	3.4	2.6	3.7	2.6	3.9	2.6	4.4	2.8	4.5	2.8
		12	2.6	2.1	3.0	2.4	3.4	2.6	3.7	2.6	3.9	2.6	4.4	2.8	4.5	2.8
		14	2.6	2.1	3.0	2.4	3.4	2.6	3.7	2.6	3.9	2.6	4.4	2.8	4.4	2.8
		16	2.6	2.1	3.0	2.3	3.4	2.6	3.7	2.6	3.9	2.6	4.4	2.8	4.4	2.8
		18	2.6	2.1	3.0	2.3	3.4	2.6	3.7	2.6	3.9	2.6	4.4	2.8	4.4	2.8
		20	2.6	2.1	3.0	2.3	3.4	2.6	3.7	2.6	3.9	2.6	4.4	2.8	4.4	2.8
		21	2.6	2.1	3.0	2.3	3.4	2.6	3.7	2.6	3.9	2.6	4.4	2.8	4.4	2.8
		23	2.6	2.1	3.0	2.3	3.4	2.6	3.7	2.6	3.9	2.6	4.4	2.8	4.4	2.8
		25	2.6	2.1	3.0	2.3	3.4	2.6	3.7	2.6	3.9	2.6	4.4	2.8	4.4	2.8
		27	2.6	2.1	3.0	2.3	3.4	2.6	3.7	2.6	3.9	2.6	4.3	2.8	4.4	2.8
		29	2.6	2.1	3.0	2.3	3.4	2.6	3.7	2.6	3.9	2.6	4.2	2.6	4.4	2.8
		31	2.6	2.1	3.0	2.3	3.4	2.6	3.7	2.6	3.9	2.6	4.2	2.6	4.4	2.8
		33	-	-	3.0	2.3	3.4	2.6	3.7	2.6	3.9	2.6	4.1	2.6	4.4	2.8
		35	-	-	3.0	2.3	3.4	2.7	3.7	2.7	3.8	2.7	4.1	2.7	4.3	2.7
		37	-	-	3.0	2.3	3.4	2.6	3.7	2.6	3.8	2.6	4.0	2.5	4.2	2.6
		39	-	-	3.0	2.3	3.4	2.6	3.7	2.6	3.7	2.6	3.9	2.5	4.2	2.6
LZ-H080GX*0	5.6	10	4.0	3.4	4.5	3.7	5.1	4.1	5.6	4.1	5.9	4.3	6.6	4.3	6.8	4.3
		12	4.0	3.4	4.5	3.7	5.1	4.1	5.6	4.1	5.9	4.3	6.6	4.3	6.8	4.3
		14	4.0	3.4	4.5	3.7	5.1	4.1	5.6	4.1	5.9	4.3	6.6	4.3	6.8	4.3
		16	4.0	3.4	4.5	3.7	5.1	4.1	5.6	4.1	5.9	4.3	6.6	4.3	6.8	4.3
		18	4.0	3.4	4.5	3.7	5.1	4.1	5.6	4.1	5.9	4.3	6.6	4.3	6.6	4.1
		20	4.0	3.4	4.5	3.7	5.1	4.1	5.6	4.1	5.9	4.3	6.6	4.3	6.6	4.1
		21	4.0	3.4	4.5	3.7	5.1	4.1	5.6	4.1	5.9	4.3	6.6	4.3	6.6	4.1
		23	4.0	3.4	4.5	3.7	5.1	4.1	5.6	4.1	5.9	4.3	6.6	4.3	6.6	4.1
		25	4.0	3.4	4.5	3.7	5.1	4.1	5.6	4.1	5.9	4.3	6.6	4.3	6.6	4.1
		27	4.0	3.4	4.5	3.7	5.1	4.1	5.6	4.1	5.9	4.3	6.5	4.3	6.6	4.1
		29	4.0	3.4	4.5	3.7	5.1	4.1	5.6	4.1	5.9	4.3	6.4	4.2	6.6	4.1
		31	4.0	3.4	4.5	3.7	5.1	4.1	5.6	4.1	5.9	4.3	6.3	4.2	6.6	4.1
		33	-	-	4.5	3.7	5.1	4.1	5.6	4.1	5.9	4.3	6.2	4.1	6.6	4.1
		35	-	-	4.5	3.7	5.1	4.1	5.6	4.2	5.8	4.2	6.1	4.1	6.5	4.1
		37	-	-	4.5	3.7	5.1	4.1	5.6	4.1	5.7	4.2	6.0	4.0	6.4	4.0
		39	-	-	4.5	3.7	5.1	4.1	5.6	4.1	5.6	4.2	5.9	4.0	6.3	4.0
LZ-H100GX*0	7.1	10	4.7	4.0	5.3	4.4	6.0	4.8	6.6	4.8	7.0	5.1	7.8	5.1	7.9	5.0
		12	4.7	4.0	5.3	4.4	6.0	4.8	6.6	4.8	7.0	5.1	7.8	5.1	7.9	5.0
		14	4.7	4.0	5.3	4.4	6.0	4.8	6.6	4.8	7.0	5.1	7.8	5.1	7.9	5.0
		16	4.7	4.0	5.3	4.4	6.0	4.8	6.6	4.8	7.0	5.1	7.8	5.1	7.9	5.0
		18	4.7	4.0	5.3	4.4	6.0	4.8	6.6	4.8	7.0	5.1	7.8	5.1	7.9	5.0
		20	4.8	3.9	5.3	4.4	6.0	4.8	6.6	4.8	7.0	5.1	7.8	5.1	7.9	5.0
		21	4.8	3.9	5.3	4.4	6.0	4.8	6.6	4.8	7.0	5.1	7.8	5.1	7.8	4.8
		23	4.8	3.9	5.3	4.4	6.0	4.8	6.6	4.8	7.0	5.1	7.8	5.1	7.8	4.8
		25	4.8	3.9	5.3	4.4	6.0	4.8	6.6	4.8	7.0	5.1	7.8	5.1	7.8	4.8
		27	4.8	3.9	5.3	4.4	6.0	4.8	6.6	4.8	7.0	5.1	7.7	5.1	7.8	4.8
		29	4.8	3.9	5.3	4.4	6.0	4.8	6.6	4.8	7.0	5.1	7.6	5.0	7.8	4.8
		31	4.8	3.9	5.3	4.3	6.0	4.8	6.6	4.8	7.0	5.1	7.4	5.0	7.8	4.8
		33	-	-	5.3	4.3	6.0	4.8	6.6	4.8	7.0	5.1	7.3	4.8	7.8	4.8
		35	-	-	5.3	4.3	6.1	4.8	6.6	4.9	6.9	4.9	7.2	4.9	7.7	4.8
		37	-	-	5.3	4.3	6.0	4.8	6.6	4.8	6.7	5.0	7.1	4.7	7.5	4.7
		39	-	-	5.3	4.3	6.0	4.8	6.6	4.8	6.6	5.0	7.0	4.7	7.4	4.7

TC : Total Capacity (kW)
SHC : Sensible Heat Capacity (kW)
Note : Cooling capacity is based on the following conditions.
Fan is based on High and Super-High.
: Bypass ventilation mode condition

10. Capacity Tables

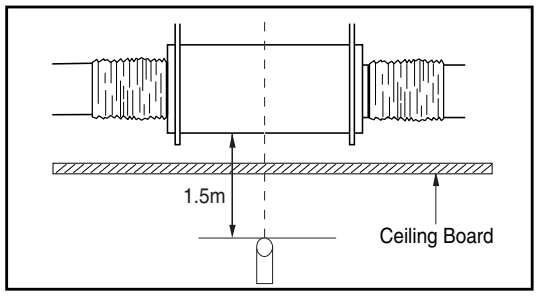
10.2 Heating

Model	Indoor Unit Capacity Index	Outdoor Temp. (°C)		Coil inlet air temp. (°C)					
		DB	WB	16	18	20	21	22	24
LZ-H050GX*0	3.6	-14.7	-15.0	2.9	2.9	3.2	3.1	3.2	-
		-12.6	-13.0	3.0	3.0	3.2	3.3	3.5	-
		-10.5	-11.0	3.1	3.1	3.3	3.5	3.5	3.5
		-9.5	-10.0	3.3	3.1	3.6	3.5	3.6	3.6
		-8.5	-9.1	3.3	3.3	3.7	3.6	3.8	3.8
		-7.0	-7.6	3.4	3.5	3.8	3.7	3.9	3.8
		-5.0	-5.6	3.5	3.5	4.0	3.8	4.0	4.0
		-3.0	-3.7	3.6	3.6	4.0	4.0	4.2	4.2
		0.0	-0.7	3.9	3.9	4.1	4.1	4.2	4.2
		3.0	2.2	4.0	4.0	4.2	4.1	4.2	4.2
		5.0	4.1	4.3	4.2	4.2	4.1	4.2	4.2
		7.0	6.0	4.5	4.3	4.2	4.1	4.2	4.2
		9.0	7.9	4.6	4.3	4.2	4.1	4.2	4.0
		11.0	9.8	4.7	4.3	4.2	4.1	4.2	4.0
		13.0	9.8	4.7	4.3	4.2	4.1	4.2	3.8
		15.0	13.7	4.7	4.3	4.2	4.1	4.2	3.8
LZ-H080GX*0	5.6	-14.7	-15.0	4.2	4.2	4.8	4.9	5.4	-
		-12.6	-13.0	4.4	4.4	5.0	5.3	5.6	-
		-10.5	-11.0	4.5	4.5	5.0	5.3	5.6	5.6
		-9.5	-10.0	4.7	4.5	5.0	5.3	5.6	5.6
		-8.5	-9.1	4.7	4.7	5.2	5.6	5.9	5.6
		-7.0	-7.6	4.9	5.0	5.2	5.6	5.9	5.6
		-5.0	-5.6	5.1	5.1	5.2	5.6	5.9	5.7
		-3.0	-3.7	5.3	5.3	5.8	5.8	5.9	5.7
		0.0	-0.7	5.7	5.7	5.9	5.9	5.9	5.7
		3.0	2.2	5.8	5.8	6.1	5.9	6.1	5.7
		5.0	4.1	6.3	6.0	6.1	5.9	6.1	5.7
		7.0	6.0	6.5	6.3	6.1	5.9	6.1	5.7
		9.0	7.9	6.7	6.3	6.1	5.9	6.1	5.7
		11.0	9.8	6.8	6.3	6.1	5.9	6.1	5.8
		13.0	9.8	6.9	6.3	6.1	5.9	6.1	5.9
		15.0	13.7	6.9	6.3	6.1	5.9	6.1	5.9
LZ-H100GX*0	7.1	-14.7	-15.0	5.1	5.1	5.9	5.9	6.2	-
		-12.6	-13.0	5.3	5.3	6.1	6.1	6.4	-
		-10.5	-11.0	5.5	5.5	6.3	6.3	6.6	6.4
		-9.5	-10.0	5.7	5.5	6.3	6.3	6.8	6.6
		-8.5	-9.1	5.7	5.7	6.5	6.5	6.8	6.6
		-7.0	-7.6	6.0	6.1	6.8	6.5	6.8	6.6
		-5.0	-5.6	6.2	6.2	6.8	6.8	7.1	6.9
		-3.0	-3.7	6.4	6.4	7.0	7.0	7.1	6.9
		0.0	-0.7	6.9	6.9	7.2	7.2	7.1	7.0
		3.0	2.2	7.1	7.1	7.4	7.2	7.3	7.0
		5.0	4.1	7.7	7.3	7.4	7.2	7.3	7.0
		7.0	6.0	7.9	7.6	7.4	7.2	7.4	7.0
		9.0	7.9	8.1	7.7	7.4	7.2	7.3	7.0
		11.0	9.8	8.3	7.7	7.4	7.2	7.3	7.0
		13.0	9.8	8.3	7.7	7.4	7.2	7.3	7.1
		15.0	13.7	8.3	7.7	7.4	7.2	7.3	7.1

TC : Total Capacity (kW)
SHC : Sensible Heat Capacity (kW)
Note : Heating capacity is based on the following conditions.
Fan is based on High and Super-High.

11. Sound Level

11.1 Overall Sound Level

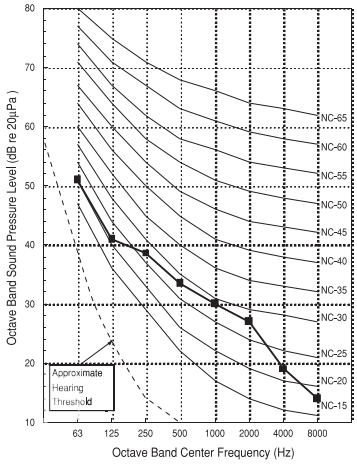


Note

1. Operating conditions:
   - Power source: Single phase 50Hz 230V
   - Ventilation mode: Total heat exchange
2. Measuring place:
   - Operation noise is measured in an anechoic chamber.
   - The operation noise level becomes greater than this value depending on the operation conditions, reflected sound, and peripheral noise.
   - Operation noise differs with operation and ambient conditions.
   - S-H: Super-high, H: high, L: low
3. Operation noise differs with operation and ambient conditions.

Model	Sound Levels [dB(A)]		
	SH	H	L
LZ-H050GXN0	39	37	35
LZ-H080GXN0	41	38	36
LZ-H100GXN0	41	39	36
LZ-H050GXH0	38	36	33
LZ-H080GXH0	39	37	34
LZ-H100GXH0	40	38	35

LZ-H050GXN0



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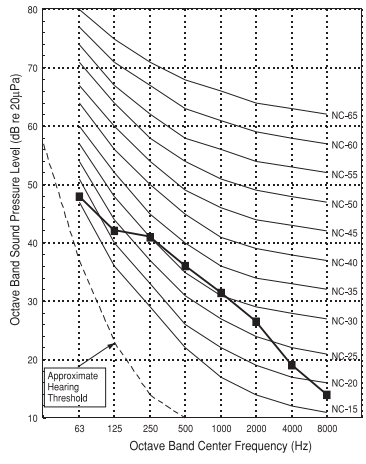

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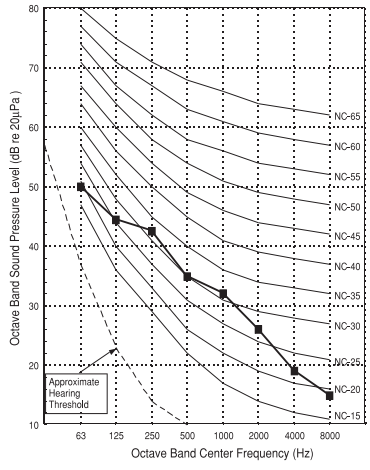

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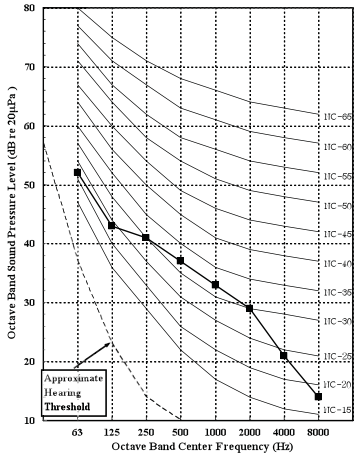

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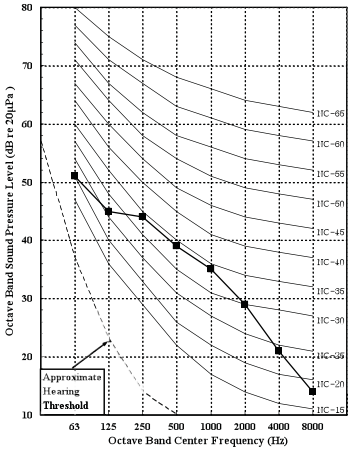

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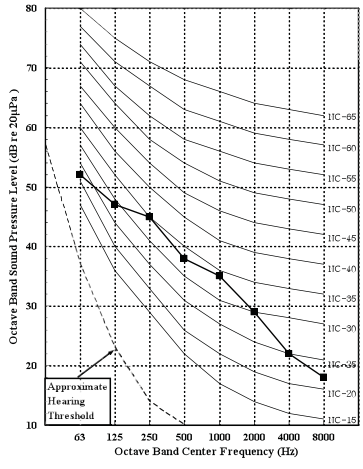
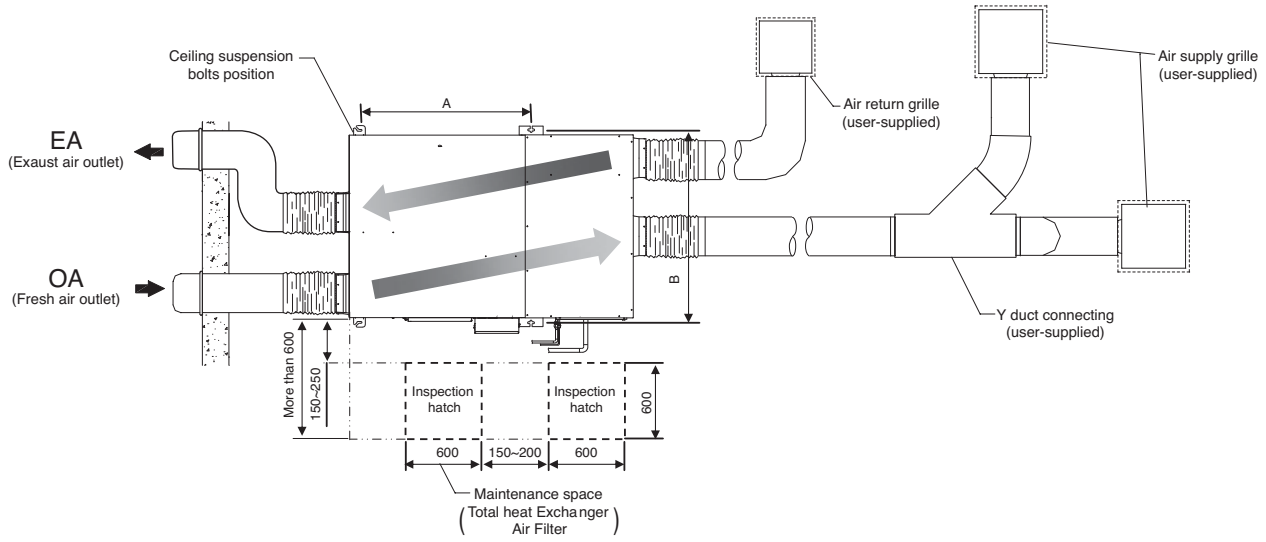
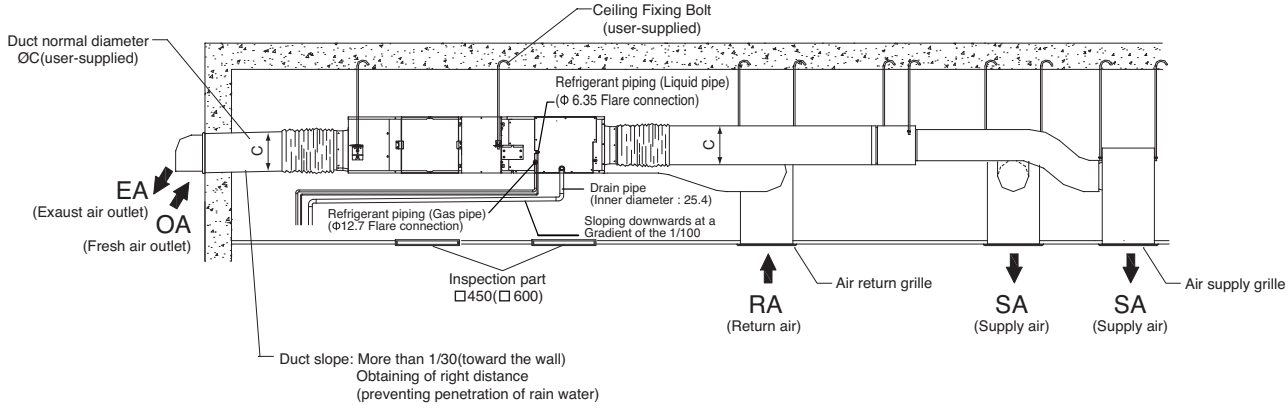


12. Standard Drawing of Installation

12.1 LZ-H050GXN0 / LZ-H080GXN0 / LZ-H100GXN0



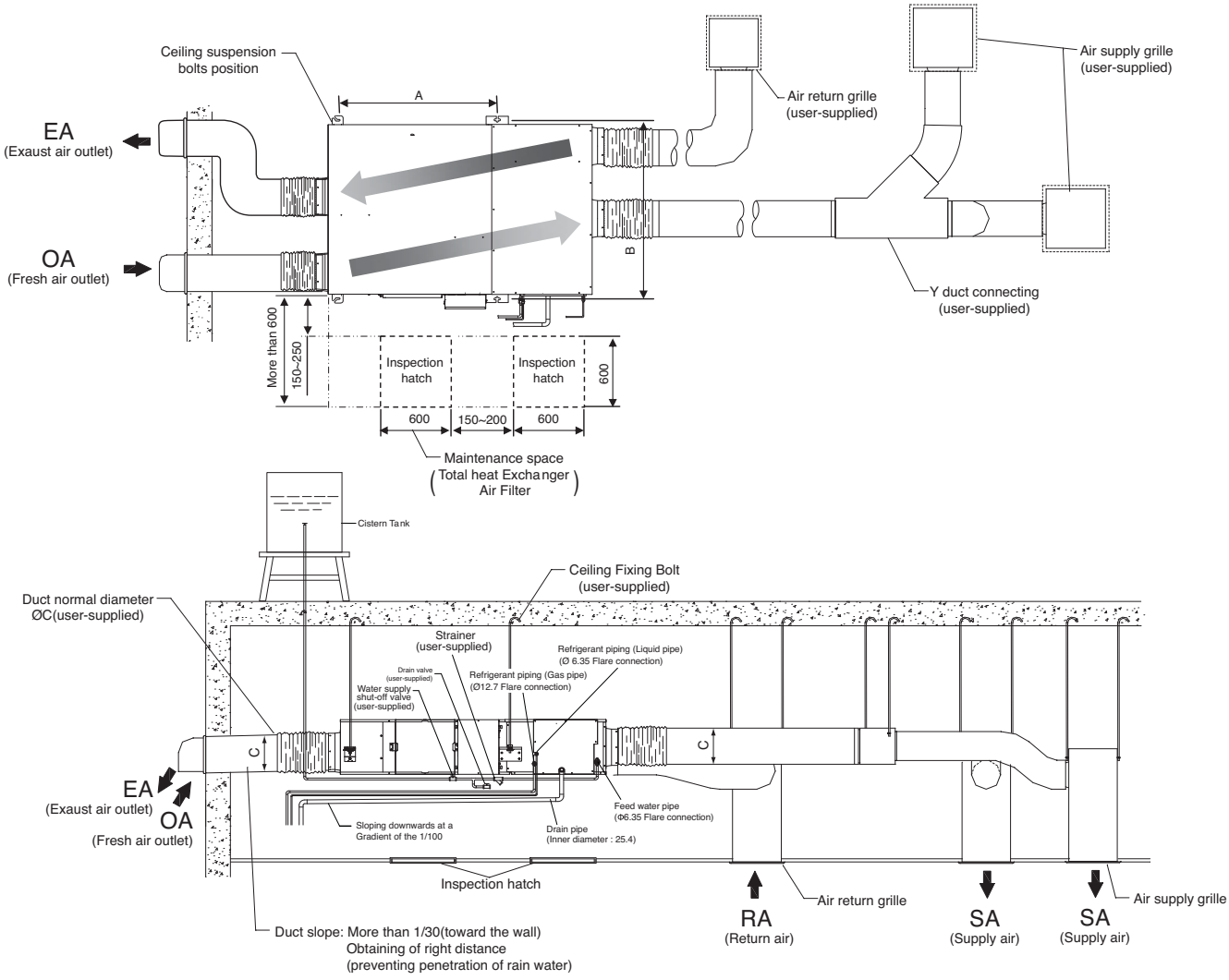


[Unit : mm]

Model	A	B	C
LZ-H050GXN0 LZ-H080GXN0 LZ-H100GXN0	1006	1204	250

12. Standard Drawing of Installation

12.2 LZ-H050GXH0 / LZ-H080GXH0 / LZ-H100GXH0

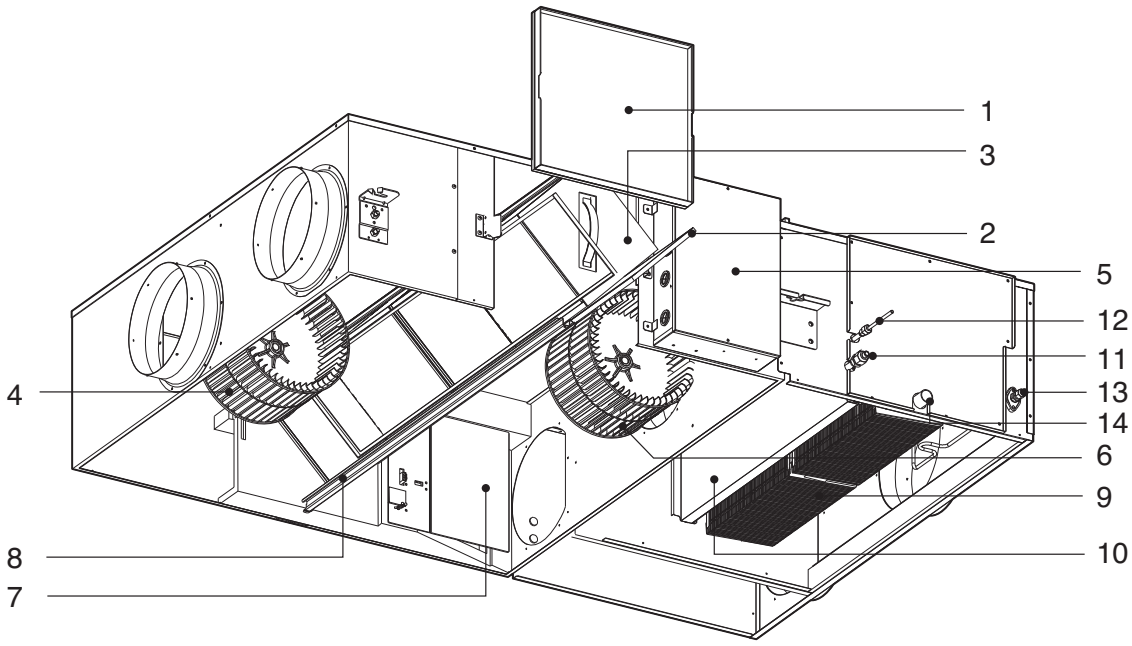


[Unit : mm]

Model	A	B	C
LZ-H050GXH0 LZ-H080GXH0 LZ-H100GXH0	1006	1204	250

13. Operation

13.1 Introduction



1. Maintenance cover

2. Air Filter
Prevents clogging of the Total heat exchanger due to dust.

3. Total Heat Exchanger
Exchanges temperature and moisture between supply air and exhaust air.

4. Blower for Exhaust Air
A blower for draining polluted air outside.

5. Electronic Parts Box (Control box)

6. Blower for Supply Air
A blower for induction outside air.

7. Bypass Damper
Converts the ventilation via Total heat exchange to the normal ventilation.

8. Holder for Total Heat Exchanger
Used for installation guide of the Total heat exchanger.

9. Humidifier Element

10. Direct expansion coil (DX Coil)

11. Gas pipe connection (Ø12.7)

12. Liquid pipe connection (Ø6.35)

13. Feed water connection port (Ø6.35)

14. Drain outlet (Ø25.4)

13. Operation

13.2 Prior to Operation

13.2.1 Preparing for operation

1. Contact an installation specialist for installation.
2. Plug in the power plug properly.
3. Use a dedicated circuit.
4. Do not use an extension cord.
5. Do not start/stop operation by plugging/unplugging the power cord.
6. If the cord/plug is damaged, replace it with only an authorized replacement part.

13.2.2 Usage

1. Being exposed to direct airflow for an extended period of time could be hazardous to your health. Do not expose occupants, pets, or plants to direct airflow for extended periods of time.
2. Due to the possibility of oxygen deficiency, ventilate the room when used together with stoves or other heating devices.
3. Do not use this ventilator for non-specified special purposes (e.g. preserving precision devices, food, pets, plants, and art objects). Such usage could damage the items.
4. This unit cannot control room temperature.
   If this is needed, do not install the ventilation unit alone, but rather install another indoor unit.

13.2.3 Cleaning and maintenance

1. Do not touch the metal parts of the unit when removing the filter. Injuries can occur when handling sharp metal edges.
2. Do not use water to clean inside the ventilator. Exposure to water can destroy the insulation, leading to possible electric shock.
3. When cleaning the unit, first make sure that the power and breaker are turned off. The fan rotates at a very high speed during operation. There is a possibility of injury if the unit's power is accidentally triggered on while cleaning inner parts of the unit.

13.2.4 Service

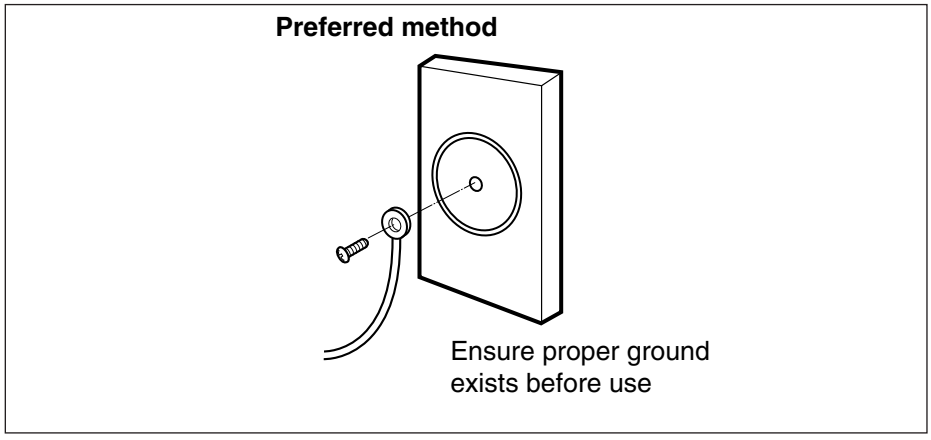
For repair and maintenance, contact your authorized service dealer.

13. Operation

13.3 Electrical Safety

WARNING: This appliance must be properly grounded.

To minimize the risk of electric shock, you must always plug into a grounded outlet.



WARNING: Do not cut or remove the grounding prong from the power wire.

WARNING: Attaching the adapter ground terminal to the wall receptacle cover screw does not ground the appliance unless the cover screw is metal and not insulated, and the wall receptacle is grounded through the house wiring.

WARNING: If you have any doubt whether the ventilator is properly grounded, have the wall receptacle and circuit checked by a qualified electrician.

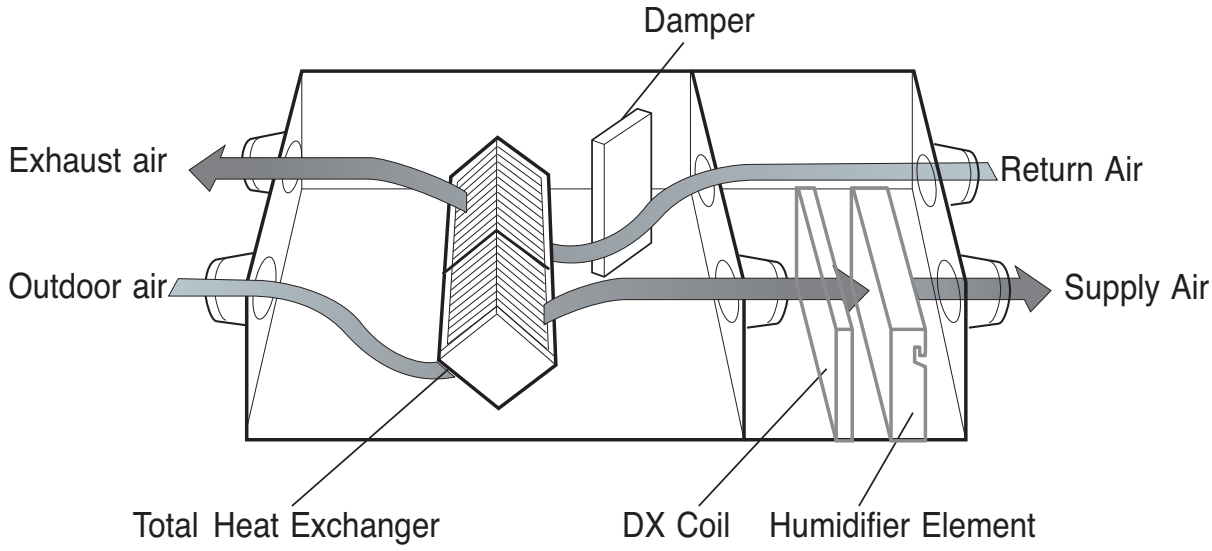
13. Operation

13.4 Characteristics

13.4.1 Ventilation via Total Heat Exchanger

Exhausts indoor air via the Total Heat Exchanger outdoor.

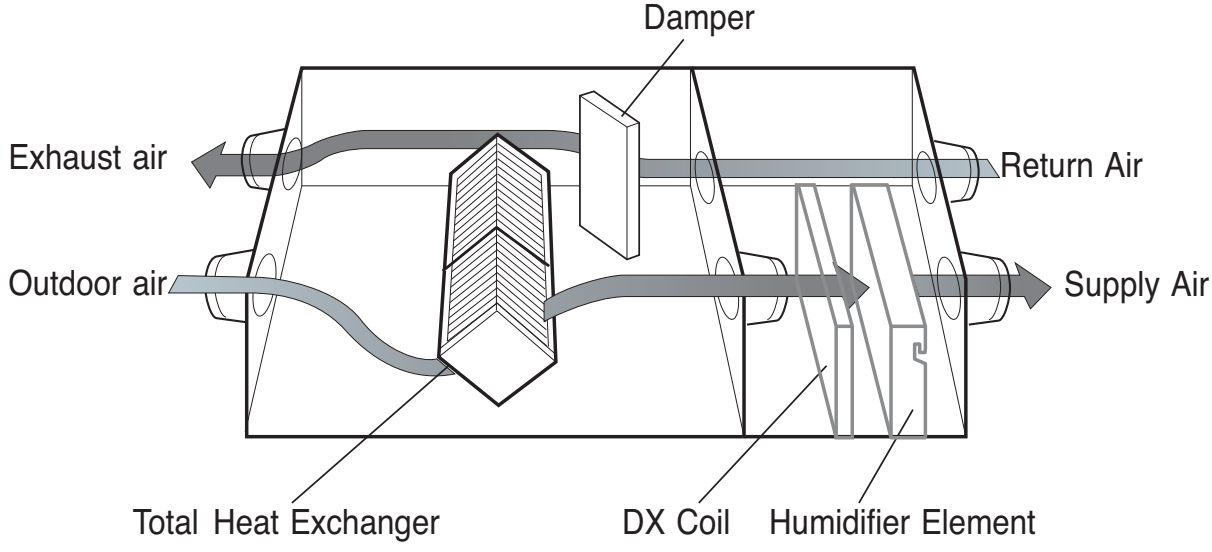
• The outdoor air heat exchanged is supplied to indoor. Operate the ventilator in the **Ventilation via Total heat exchanger** in summer/winter when cool/heat operation is done.



13.4.2 Normal Ventilation

Exhausts the polluted indoor-air directly without via the Total Heat Exchanger.

• Operate the ventilator in the **Normal Ventilation** in spring/autumn when the Total heat exchanger is not required.

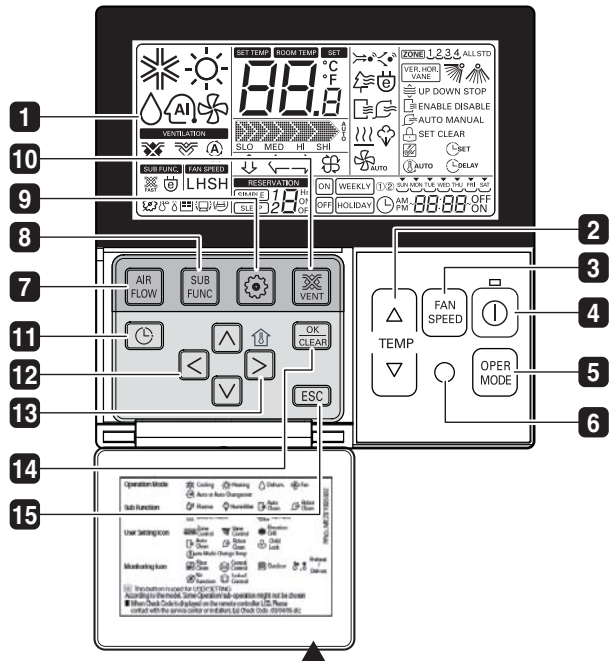


CAUTION: In case of high outdoor pollution degree like yellow sand please pause the ventilator.

13. Operation

13.5 Operating Instructions (Accessory)

Name and Function of Remote Controller



Models : PQRCVSL0
PQRCVSL0QW

Please attach the inform label inside of the door.
Please choose proper language depend on your country.

1. **OPERATION INDICATION SCREEN**
2. **SET TEMPERATURE BUTTON**
3. **FAN SPEED BUTTON**
4. **ON/OFF BUTTON**
5. **OPERATION MODE SELECTION BUTTON**
6. **WIRELESS REMOTE(*) CONTROLLER RECEIVER**
   - Some products don't receive the wireless signals.
7. **AIR FLOW BUTTON(*)**
8. **SUBFUNCTION BUTTON**
9. **FUNCTION SETTING BUTTON**
10. **VENTILATION BUTTON**
11. **RESERVATION**
12. **UP,DOWN,LEFT,RIGHT BUTTON**
13. **ROOM TEMPERATURE BUTTON(*)**
14. **SETTING/CANCEL BUTTON**
15. **EXIT BUTTON**

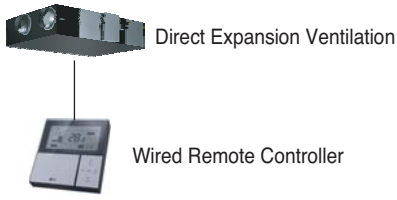
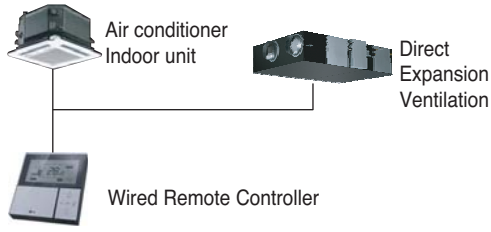
※ Some functions may not be operated and displayed depending on the product type.
Refer to remote controller in order to know detail functions.

※ (*) : Functions for air conditioner.

13. Operation

13.5.1 Ventilation operating scene and ventilation operating method

This unit's remote controller can be installed with two types; Single Operation & Interlinked Operation

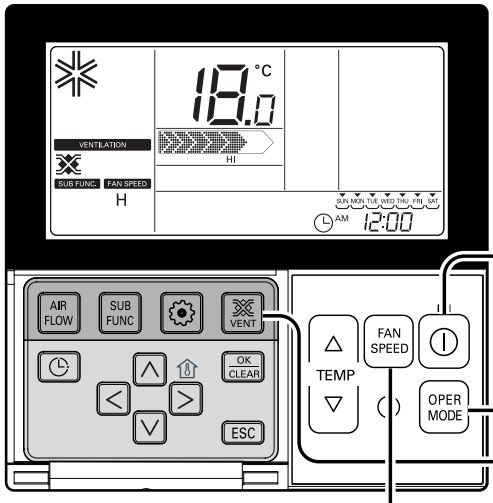
	Single Operation	Interlinked Operation
Direct Expansion Ventilation		

❉ Connecting wires is the same as air conditioner user manual. (Refer to page about Group control)

13. Operation

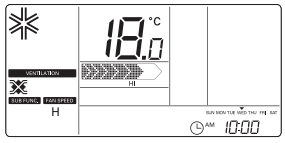
13.5.2 Single operation control

Pressing It performs ventilation operation with cooling or heating at the same time using the heat exchanger inside the direct expansion type ventilation product.



Direct expansion type ventilation single operation

1 button on the remote controller. It displays as the figure right side in the direct expansion type ventilation single operation.



2 Pressing VENT button will change the ventilation mode.
Pressing the button converts from 'Heat exchange → Normal → Automatic'.

Ventilation mode	Remote Controller Display	Contents
Heat exchange	HE	Mode that supply/exhaust air via Total heat exchanger. Appropriate for use in summer/winter when temperature difference between indoor/outdoor air is severe.
Normal	NO	Mode that exhaust the air without the Total heat exchange method. Appropriate for use in spring/autumn or in case of the high indoor pollution degree.
Automatic	AU	Automatically operates in the optimum ventilation mode by measuring the indoor/outdoor air temperature of the ventilation system. ❊ Searches the optimum status by operation mode or setting temperature of ventilator as well as by indoor/outdoor temperature of the ventilation system if linked to Multi-V system.(Only for some models)

❊ The 88 segment display above is only displayed when it is in direct expansion type ventilation single operation and the air conditioner is stopped.

3 Pressing OPER MODE button will change operation mode.
- Pressing the button will convert from 'Cooling → Heating → Automatic → Stop'.

4 Pressing FAN SPEED button in ventilation mode changes the strength of wind.
- Pressing the button can select from 'Low → High → Super High'.

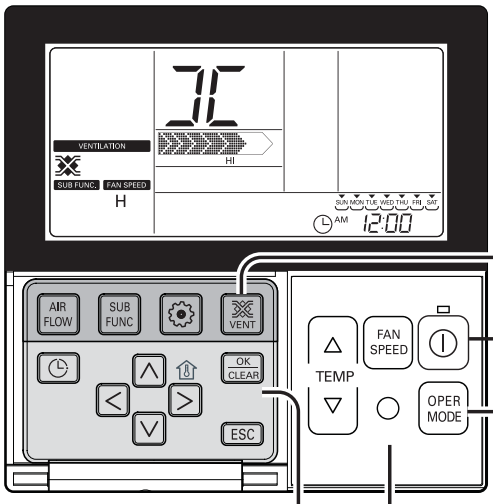
❊ Cooling/heating operation selection and the desired temperature can be adjusted in direct expansion type ventilation single operation.

❊ Refer to the basic operation - temperature adjustment for changing desired temperature.

13. Operation

13.5.3 Interlinked operation control

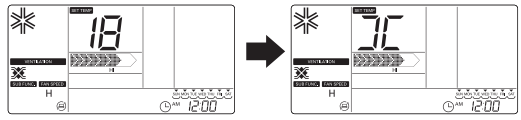
It can only be used when the air conditioner is interlinked with direct expansion ventilation product.



Interlinked Operation with Direct Expansion Ventilation

1 Press VENT button on the remote controller.
- It is used only when air conditioner and the ventilation product are interlinked. ('Interlinked operation' displayed on the remote controller display)

- Press 'Ventilation' button on the wired remote controller and enter Ventilation control mode to check the operation of ventilation product.



Air conditioner mode **Ventilation mode**

- To convert back to air conditioner mode, press 'Ventilation' button at the ventilation mode.

* If no button pressed for 15 seconds or more at ventilation mode, it automatically converts back to air conditioner mode.

* Ventilation product represent general ventilation product and direct expansion ventilation product.

2 Pressing ⏻ button in ventilation mode starts ventilation.

3 Pressing OPER MODE button in ventilation mode will change the ventilation mode.
- Every time the button is pressed, it changes from 'Heat exchange ' Normal ' Automatic'.

❉ The display on the remote controller displays only when it is in ventilation mode, and when it converts to air conditioner mode, it displays the desired temperature.

4 Pressing FAN SPEED button in ventilation mode changes the strength of wind.
- Pressing the button can select from 'Low ' High ' Super High'.

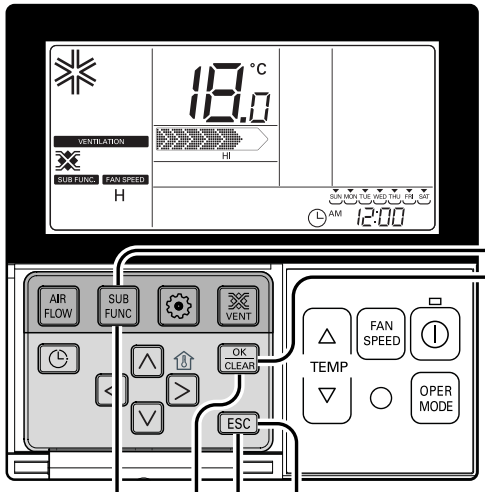
5 Changing back to air conditioner mode
1) Automatic Conversion : when no button is pressed for 15 seconds or longer, it automatically converts back to air conditioner mode.
2) Manual Conversion : Pressing VENT button in ventilation mode will manually convert.

13. Operation

13.6 Additional Function

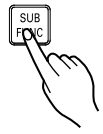
13.6.1 Fast/Energy saving ventilation mode

It is a function to operate ventilation function more efficiently through the ventilation additional functions, fast / energy saving settings.

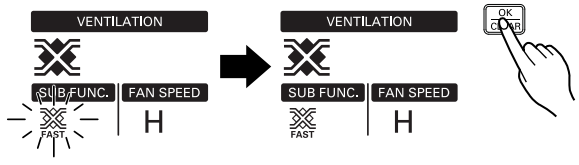


Fast : ventilates fast

1 Press [SUB FUNC] button in ventilation mode.
- It converts in the order of 'Fast → Energy saving' in ventilation mode.



2 'Fast' is blinking on the display, and pressing [OK CLEAR] button will stabilize 'Fast' icon, and the function is set.

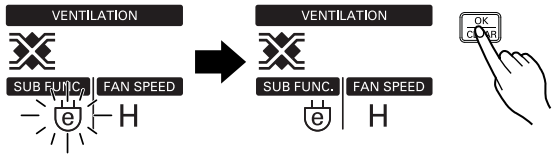


3 Pressing [ESC] button will exit the settings.

Energy Saving : efficiently ventilates and performs energy savings.

1 Press [SUB FUNC] button in ventilation mode.
- It converts in the order of 'Fast → Energy saving' in ventilation mode.

2 'Energy Saving' is blinking on the display, and pressing [OK CLEAR] button will stabilize 'Energy Saving' icon, and the function is set.



3 Pressing [ESC] button will exit the settings.

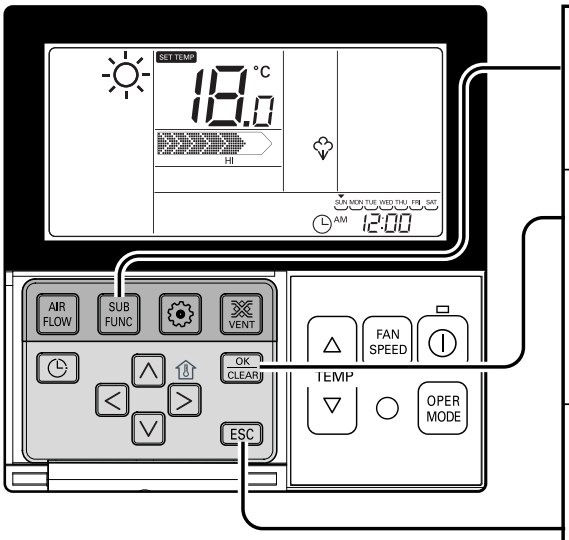
❉ General ventilation and direct expansion ventilation have the same additional functions.

❉ Ventilation/Heater/Humidifier additional function settings are the same as air conditioner.

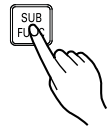
13. Operation

13.6.2 Humidification operating mode

Only products with humidifying function can use this.



1 Repeatedly pressing SUB FUNC button until icon flash.



2 Turn on/off HUMIDIFIER by pressing OK CLEAR button (The icon will be displayed in case of SETTING option and disappear in reverse case .)

3 Press ESC button to exit.

❉ After setup, it automatically gets out of setup mode if there is no button input for 25 seconds.

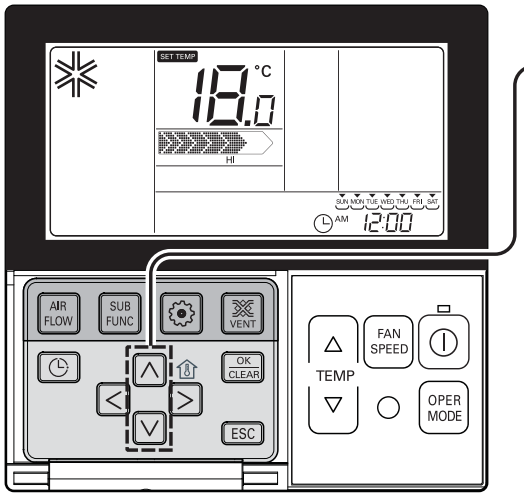
❉ When exiting without pressing set button, the manipulated value is not

NOTICE

- Humidification function might not be operated at the partial product.
- When you choose heating operating mode, humidity mode is automatically selected.
- In case of interlinked operating, control Humidification operating mode refer to above chart on ventilation mode, though pushing the VENT button.

13. Operation

13.6.3 Temperature setting/Room Temperature check



Temperature Setting

1 We can simply adjust the desired temperature.

- Press the ∧ ∨ buttons to adjust the desired temperature.

∧ : Increase 1˚C or 2˚F per one time pressing

∨ : Decrease 1˚C or 2˚F per one time pressing

- Room temp: not display in single operation.
- Set temp: Indicate the temperature that user want to set.

❊ Depend on what kind of controller, the desired temperature can be adjusted at 0.5˚C or 1˚F.

Cooling operation:

- The cooling mode doesn't work if desired temperature is higher than room temperature Please lower the set temperature.

Heating operation:

- The heating mode doesn't work if set temperature is lower than room temperature Please increase the set temperature.

- For air-cooling drive, from 18°C to 30°C, and for heating drive, from 16°C to 30°C, you can select desired temperature.
- 5°C is proper for the difference between room and outside temperature.
- Ventilation unit can't make room temperature reach to the set temperature because the air is supplied from outdoor.
- This unit cannot control room temperature. If this is needed, do not install the ventilation unit alone, but rather install another indoor unit.

13. Operation

13.7 Maintenance and Service

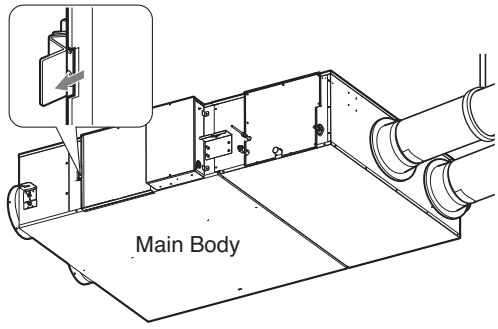
13.7.1 Handling and Cleaning

To prevent function of the ventilator deteriorating, clean dust adhered to the air filter and total heat exchanger regularly.

Method to take each part out(Air filter, Total heat exchanger)

1. Remove the maintenance cover.

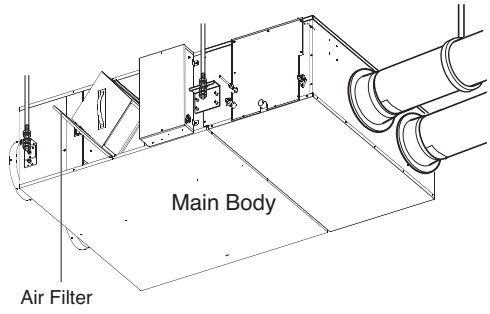
Put the hands inside of the ceiling from the maintenance cover, and pull the maintenance cover up.
(Looser the hinge and detach the maintenance cover.)



2. Take the air filter out.

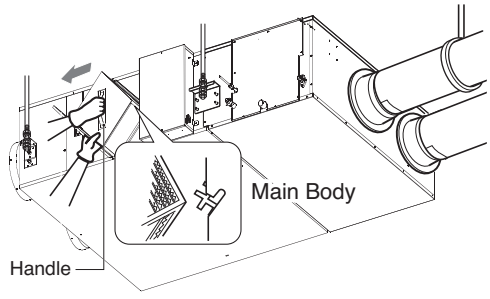
Take the air filter with each contained to the left/right downside of the Total heat exchanger.

CAUTION: Take care to ensure that you could not damage when taking the air filter out since there is a sharp part on it.



3. Take the Total heat exchanger out.

Catch the handle and then take the Total heat exchanger (2EA) out from the main body.



WARNING: Turn the breaker off when cleaning the product.

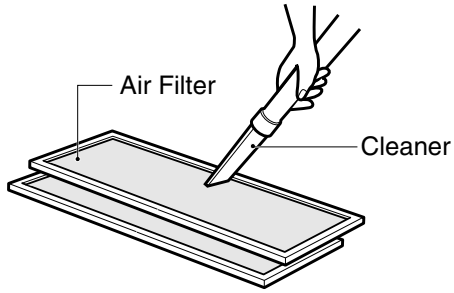
CAUTION: Gloves should be worn when doing the maintenance work.

13.7.2 Method to Clean and Replace Each Part

1. Cleaning of Air Filter

Clean once every 6 months.

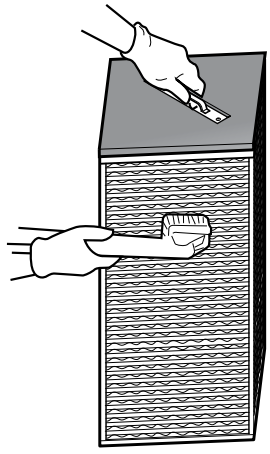
- Clean dirt from the air filter using a vacuum cleaner or wash with water.
  (If dirt is conspicuous, wash with a neutral detergent in lukewarm water)
- After washing with water, dry well in the shade.
  (Do not expose the air filter to direct sunlight or heat from a fire when drying it)
- If the air filter is damaged, purchase it from the service center or professional agent.



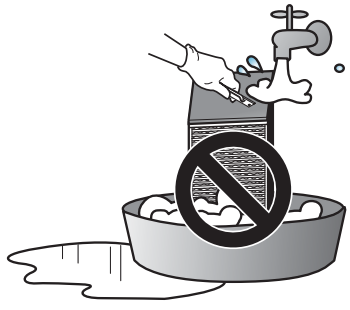
2. Cleaning of Total Heat Exchanger

Suck dusts adhered to the surface of the Total heat exchanger with a cleaner.

- Use the cleaner that attached to brush at its nozzle, and use a soft brush.
- Do not use a hard nozzle on the cleaner.
  (Otherwise, surface of the Total heat exchanger may be damaged.)
- Never wash the Total heat exchanger with water.
- Replacement expenses are for a consideration after 2 years from the purchasing date.
- Expenses are for a consideration when you will contact the service center even within 2 years from the purchasing date.
- For service, always contact the dealer or an Authorized Service Center.



Air Filter

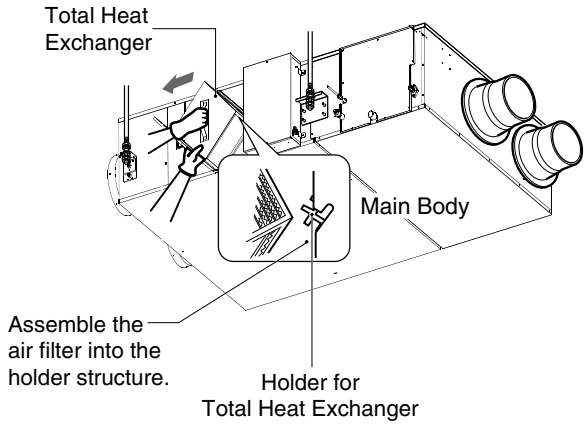


Total Heat Exchnger

13.7.3 Assembly and Check after Maintenance

1. Assembly of Total heat exchanger

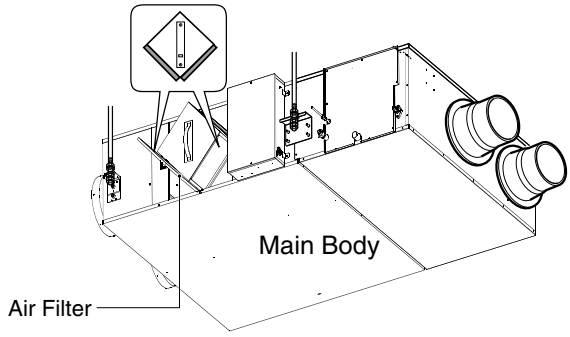
Securely put the corner parts (4 or 6 parts) of the Total heat exchanger into the holder for assembly and slide them into the inside of the main body.



2. Assembly of air filter

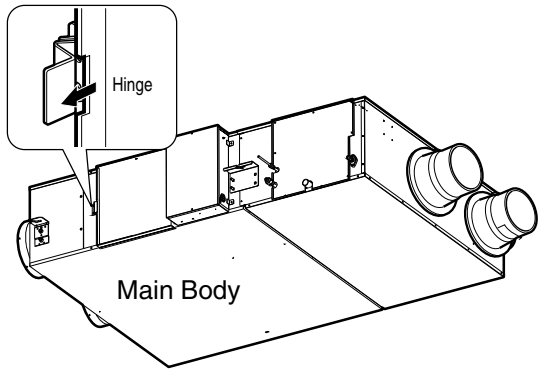
Assemble the air filter into the holder structure of the Total heat exchanger.

- Take care to ensure that surface of the Total heat exchanger could not be damaged.
- Dusts adhered to the Total heat exchanger may cause deterioration of Air volume.



3. Assembly of maintenance cover

Fix the cover to the right hinge and fix it to the left side. (A nameplate is adhered toward the reading direction).



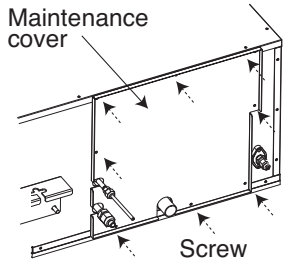
WARNING: Turn the breaker off when cleaning the product.

CAUTION: Gloves should be worn when doing the maintenance work.

13.7.4 Replacement of the Humidifier

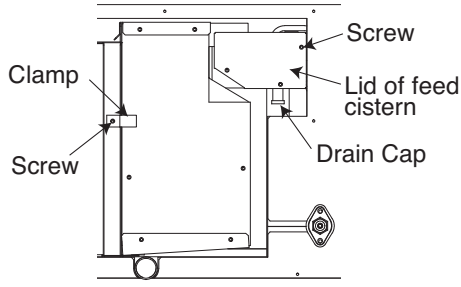
1. Remove the maintenance cover.

Loosen the screw (8EA) and detach the maintenance cover.



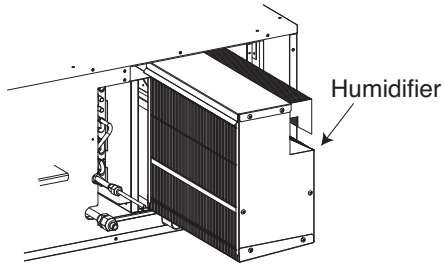
2. Prepare to replace the Humidifier.

- Uncork the Drain Cap to drain the remaining water in the feed cistern.
- Loosen the screw (3EA) and detach the lid of feed cistern.
- Loosen the screw (1EA) and Detach the clamp.



3. Pull out the Humidifier (2EA)

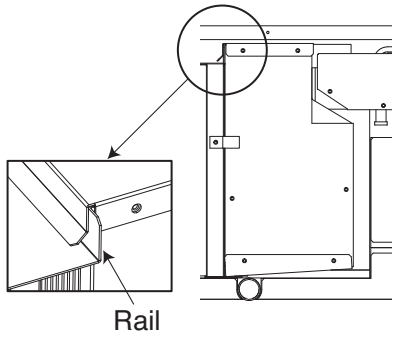
- Uncork the Drain Cap to drain the remaining water in the feed cistern.
- Loosen the screw (3EA) and detach the lid of feed cistern.
- Loosen the screw (1EA) and Detach the clamp.



4. Insert the new Humidifier (2EA)

Confirm that the edge of top panel of humidifier element has been hooked securely on the rail.

And assemble the clamp, rid of cistern and drain cap.



WARNING: Turn the breaker off when cleaning the product.

CAUTION: Gloves should be worn when doing the maintenance work.

13. Operation

13.8 Humidifier Maintenance

13.8.1 Inspection and Maintenance of the Humidifier

- **Have your dealer do the following inspections in order to get the longest use.**
- **In order to prevent harmful bacteria from generating, ask your dealer to do maintenance on humidifying unit portion at the beginning or the end of the heating season.**

Inspected part	Content of maintenance		Problems if maintenance is not carried out
	Items to be inspected	Solution	
Feed water tank	Check for operation of float switch	Clean if it does not work properly due to build-up.	Insufficient humidifying. Overflowed feed water tank.
	Check for dirt	Clean if very dirty.	Weak fan strength. Reduced humidifying capacity.
Solenoid valve	Check for shutting and opening. Check in a similar fashion when checking the float switch operation.	Replace if it doesn't work.	Insufficient humidifying. Overflowed feed water tank. (Increased tap water consumption.)

13.8.2 Replacing the Humidifier element

1. The humidifier element should in general be replaced once every three years when supply water is soft water, but outside factors (water quality, operating times) may shorten its productive life.
2. Contact your dealer if you have any questions.

NOTICE

This note is only applied to model that there is humidity function.

When humidifying fails, the remote controller does not display any error code.

(just twinkle the icon of Humidification " ♨ " for 30 minutes and disappeared)

Usage under that status will lead to insufficient humidification and increased tap water consumption.

The solenoid valve and float switch should be checked at the beginning of heating season.

13. Operation

13.8.3 Maintenance Cycle

• **Recommended maintenance cycle of each part.**

Name of Part	Inspection cycle (Cleaning cycle)	Replacement Cycle
Air filter	0.5 year	3 years
Total Heat Exchanger	1 year	10 years
Humidifier Element	1 year	1~3 years

•This table indicates main parts.

• See the maintenance and inspection contract for details.

• This maintenance cycle indicates recommended lengths of time until the need arises for maintenance work, in order to ensure the product is operational as long as possible.

• Use for appropriate maintenance design (budgeting maintenance and inspection fees, etc.).

• Life of humidifier element is about 3 years (4,000 hours), under the supply water conditions of hardness ; 150mg/l.

• Life of humidifier element is about 1 year (1,500 hours), under the supply water conditions of hardness ; 400mg/l.

• Annual operating hours : 10 hours/day x 26 days / month x 5 month = 1,300 hours.

• The cycle is not the same as the warranty period.

14. Installation

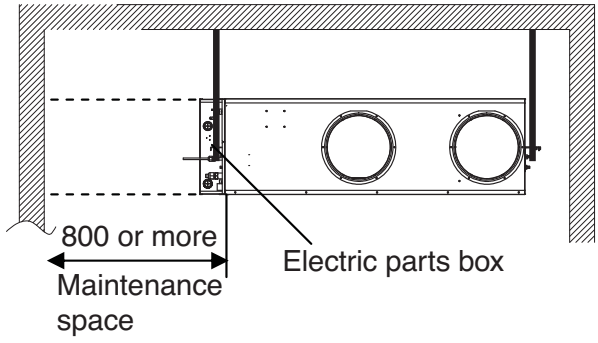
Read completely, then follow step by step.

14.1 Selection of the best location

Install the ventilator in the location that satisfies the following conditions.

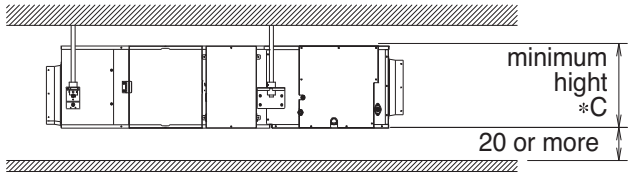
- The place shall easily bear a load exceeding four times the indoor unit's weight.
- The place shall be able to inspect the unit as the figure.
- The place where the unit shall be leveled.
- The place shall allow easy water drainage.(Suitable dimension "*C" is necessary to get a slope to drain as figure.)
- The place shall easily connect with the outdoor unit.
- The place where the unit is not affected by an electrical noise.
- The place where air circulation in the room will be good .
- There should not be any heat source or steam near the unit.

Front view



Unit (mm)

Side view



CAUTION

In case that the unit is installed near the sea, the installation parts may be corroded by salt, The installation parts (and the unit) should be taken appropriate anti-corrosion measures.

14. Installation

14.2 Ceiling dimension and hanging bolt location

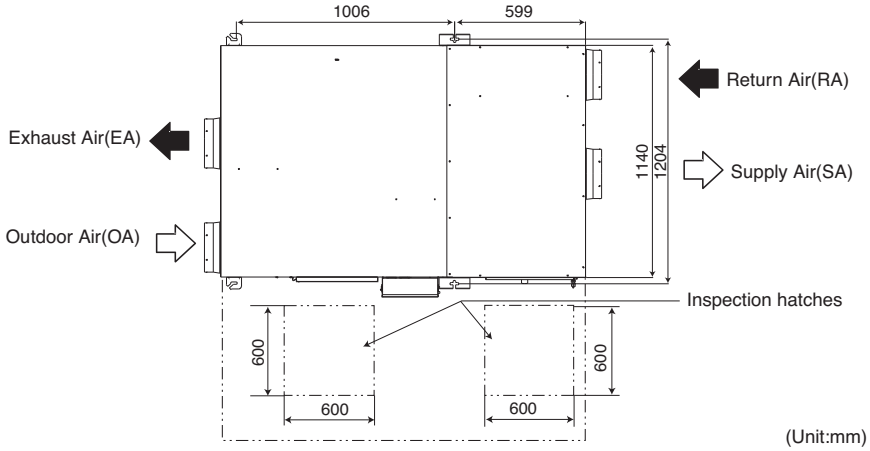
■ **Installation of Unit**

Install the unit above the ceiling correctly.

CASE 1

POSITION OF SUSPENSION BOLT

• Apply a Flexible duct between the unit and duct to absorb unnecessary vibration.

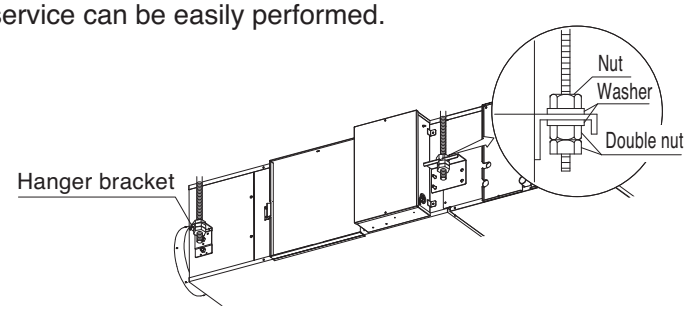


CASE 2

• Install the unit leaning to a drainage hole side as a figure for easy water drainage.

POSITION OF CONSOLE BOLT

• A place where the unit will be leveled and that can support the weight of the unit.
• A place where the unit can withstand its vibration.
• A place where service can be easily performed.

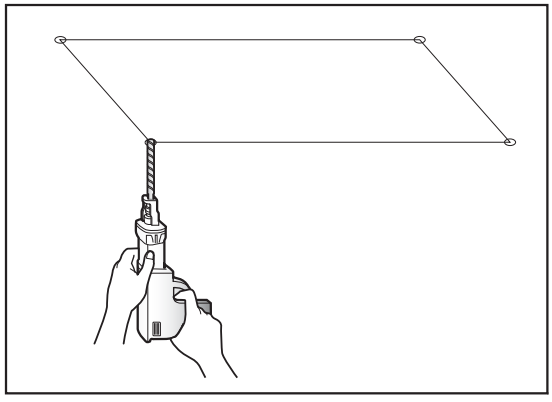


1. Avoid installing air conditioner in such circumstances where cutting oil mist or iron powder is in suspension in factories, etc.
2. Avoid places where inflammable gas is generated, flows in, is stored or vented.
3. Avoid places where sulfurous acid gas or corrosive gas is generated.
4. Avoid places near high frequency generators.

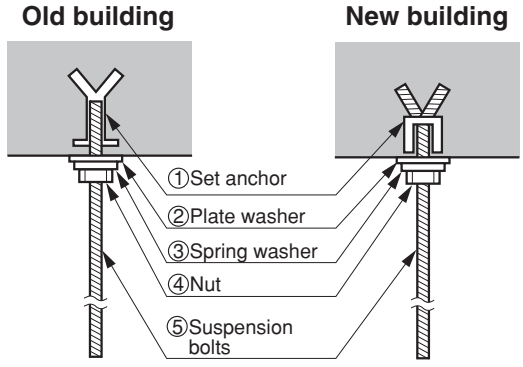
14. Installation

14.3 Install the fixing bolts.

- Select and mark the position for fixing bolts.
- Drill the hole for set anchor on the face of ceiling.



- Insert the set anchor and washer onto the suspension bolts for locking the suspension bolts on the ceiling.
- Mount the suspension bolts to the set anchor firmly.
- Secure the installation plates onto the suspension bolts (adjust level roughly) using nuts, washers and spring washers.



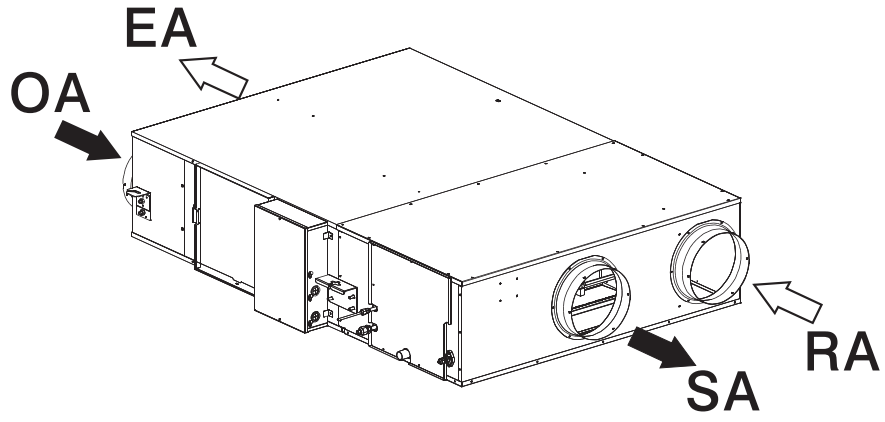
⚠ CAUTION

Tighten the nut and bolt to prevent unit falling.

14. Installation

14.4 Method of Installation

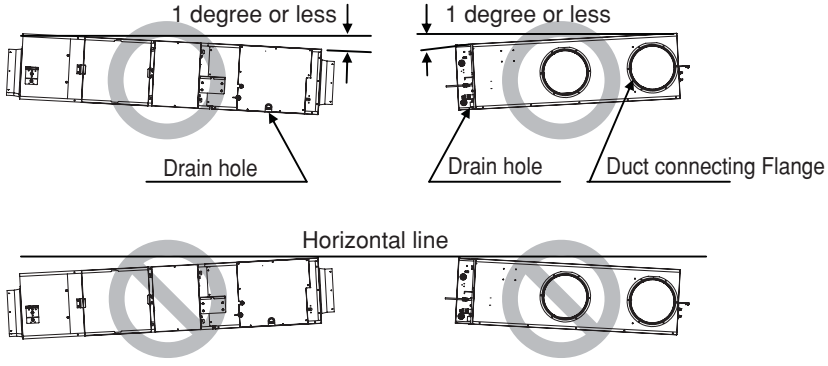
- Attach the hanger bracket to the suspension bolt. Be sure to fix it securely by using nuts and washers (locally procured) from the upper and lower sides of the hanger bracket.
- Install the unit after checking the indoor (SA/RA) and outdoor (EA/OA) in accordance with the figure duct direction label.



- Adjust the height of the unit. (Tighten the double nuts securely.)
- Check the unit is horizontally level.

⚠ WARNING

- Install declination of the ventilation unit with DX coil is very important for the drain
- Minimum thickness of the insulation for the connecting pipe shall be 10mm.



- Tighten the upper nut.

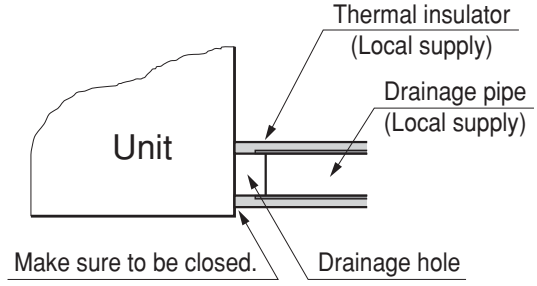
⚠ CAUTION

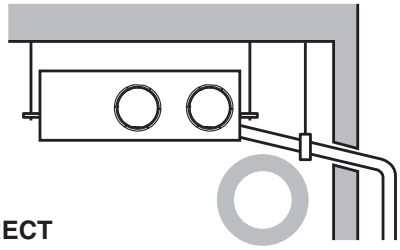
Use a level instrument to make sure that the unit is level and that the tilt (down slope) to the drain piping connection is within 1 degree. (Refer to above figures.)
One thing to watch out for in particular is if it is installed so that the slope is not in the Direction of the drain piping, as this might cause leaking.)

14. Installation

14.5 Drain Piping and Water Supply Work

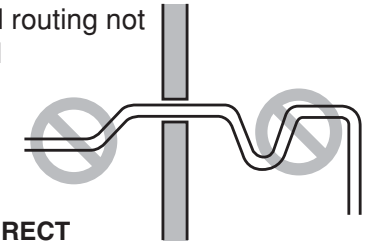
- Always lay the drain with downward inclination (1/100 to 1/50). Prevent any upward flow or reverse flow in any part.
- 10mm or thicker formed thermal insulator shall always be provided for the drain pipe.





CORRECT

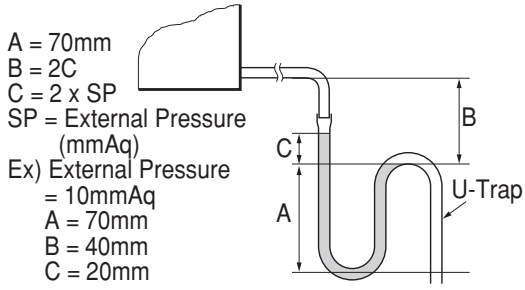
- Upward routing not allowed



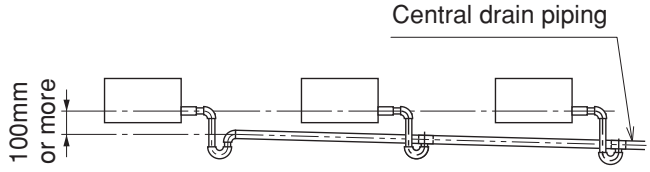
INCORRECT

- Install the P-Trap (or U-Trap) to prevent a water leakage caused by the blocking of intake air filter.

Applied U-Trap Dimension



- Keep the drain pipe short and sloping downwards at a gradient of at least 1/100 to prevent air pockets from forming.
- If converging multiple drain pipes, install according to the procedure shown below. (Install a drain trap for each indoor unit.)



(Install with a downward slope of at least 1/100)

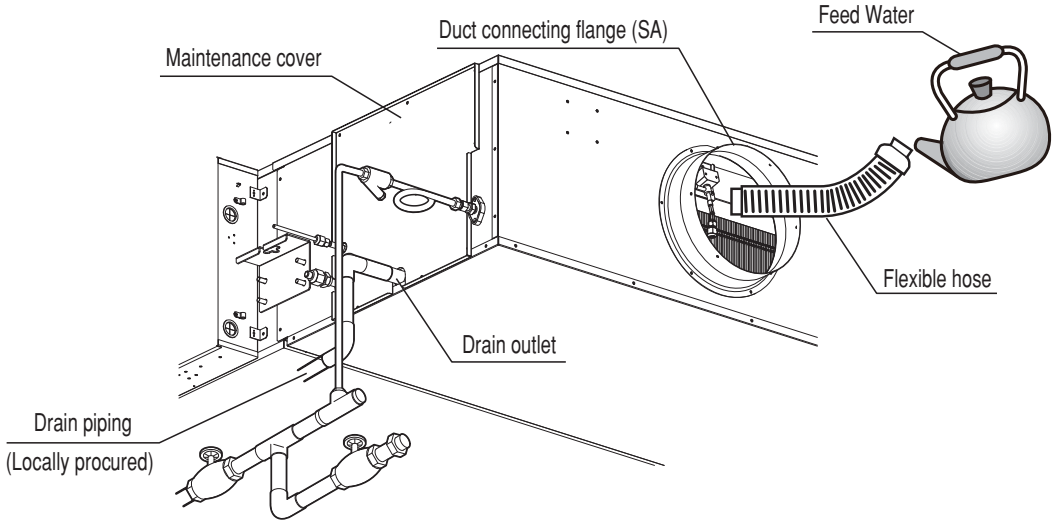
⚠ CAUTION

Water accumulating in the drain piping can cause the drain to clog.

14. Installation

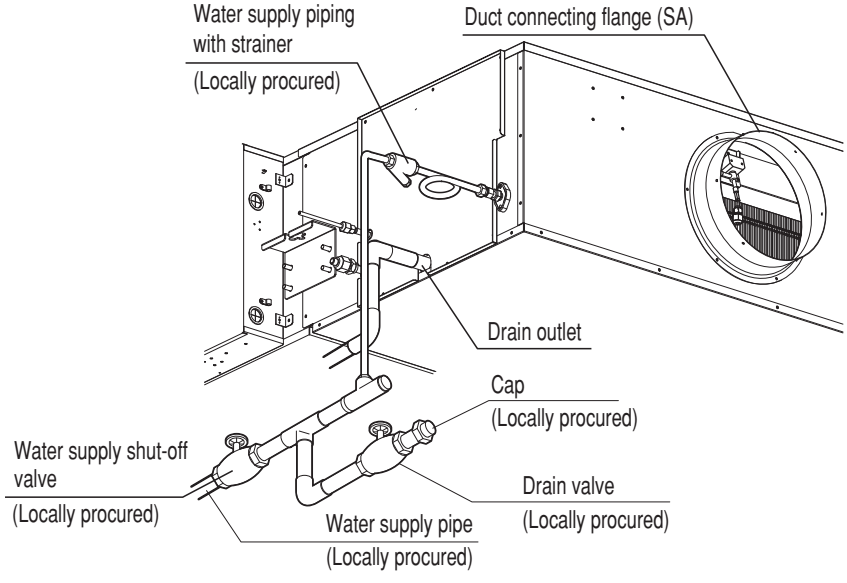
14.5.1 Check the drainage

- Test the drainage by pouring 1000cc of water into the drain pan through the inspection hole by removing the maintenance cover (8 screws) or through the outlet duct joint of supply air to room (SA).
- Make sure that heat insulation work is executed on the Indoor drain piping and Drain outlet to prevent any possibility water leakage due to dew condensation.



14.5.2 Install the water supply piping

- Connect the water supply with strainer, other pipes and valves (locally procured) to the indoor unit as shown in the figure at below.

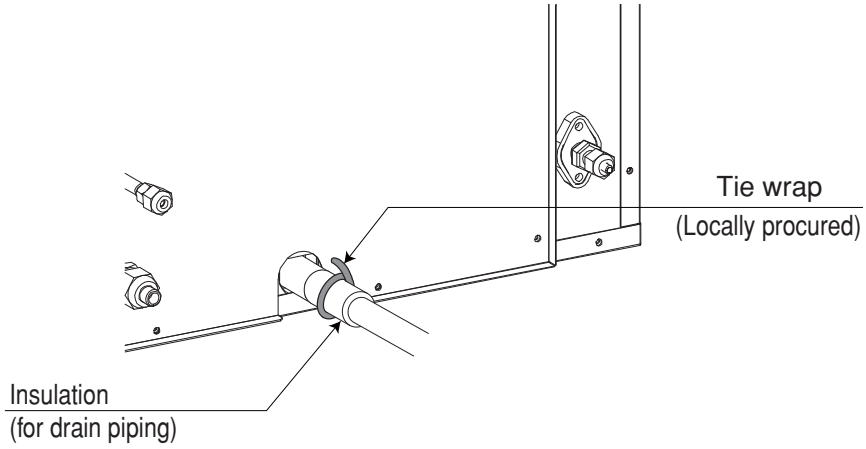


CAUTION

When installing the water supply piping, wash the pipes with tap water so that all dirt is removed from them or install a drain valve somewhere along the piping and drain the pipes thoroughly until the water flowing through them is clear. Make sure no cutting oils or detergents get into the pipes.

14.5.3 Insulate all piping that passes indoors

- After checking that the drain piping connections do no leakage, insulate them using the insulation. (Tighten with a clamp material)
- Wrap the drain piping with insulation to prevent condensation from forming.



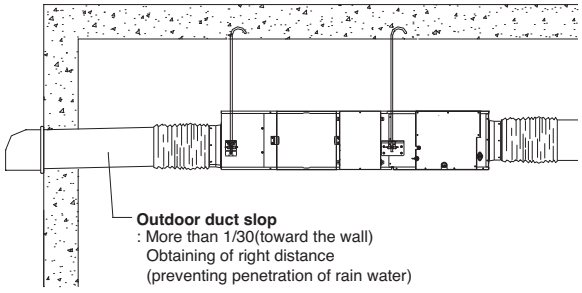
CAUTION

When installing the water supply piping, wash the pipes with tap water so that all dirt is removed from them or install a drain valve somewhere along the piping and drain the pipes thoroughly until the water flowing through them is clear. Make sure no cutting oils or detergents get into the pipes.

14. Installation

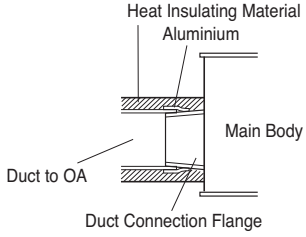
14.6 Duct Connection

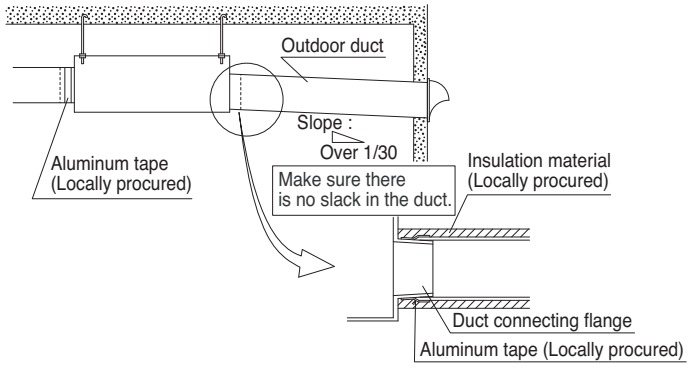
- After securely connect the duct with the duct connection flange, wrap it with a commercial aluminium tape so that air cannot be leaked.
- Adjust the duct from the ceiling so that no force is applied to the main body of the ventilation system.
- Always use two ducts at the outdoor with the heat insulating material for prevention of dewing.



CAUTION

- Check that there are no foreign materials (paper, vinyl, etc) or cutoff powders in the duct before connecting the duct.
- Take care so that shock may not be applied to the damper plate within the main body when performing the duct connection work.
- It is recommended to perform adiabatic treatment even to the duct pipe at the indoor side where ambient temperature is expected when the main body of the ventilation system for cooling in summer.
- Take care so that work may not be performed as in the left figure. Otherwise, it may cause reduction of air volume or abnormal noise.





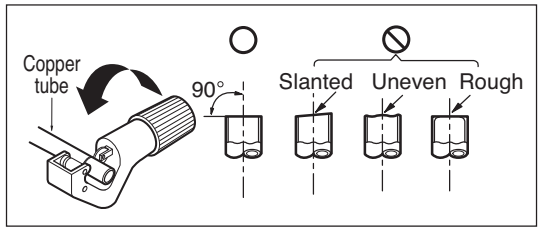
- The change of air discharge grill's location should be examined when the cold draft from air discharge grill is feared. The fan is driving while defrost operation, and the cold air is often blowing.

14. Installation

14.7 Connecting Pipes

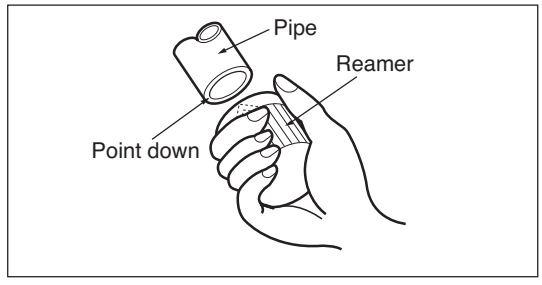
14.7.1 Preparation of Piping

Main cause of gas leakage is defect in flaring work. Carry out correct flaring work in the following procedure.



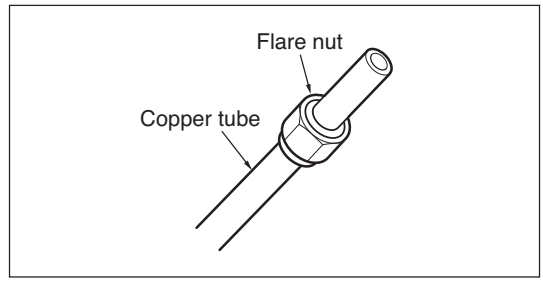
Cut the pipes and the cable.

- Use the accessory piping kit or the pipes purchased locally.
- Measure the distance between the indoor and the outdoor unit.
- Cut the pipes a little longer than measured distance.
- Cut the cable 1.5m longer than the pipe length.



Burrs removal

- Completely remove all burrs from the cut cross section of pipe/tube.
- Put the end of the copper tube/pipe to downward direction as you remove burrs in order to avoid to let burrs drop in the tubing.



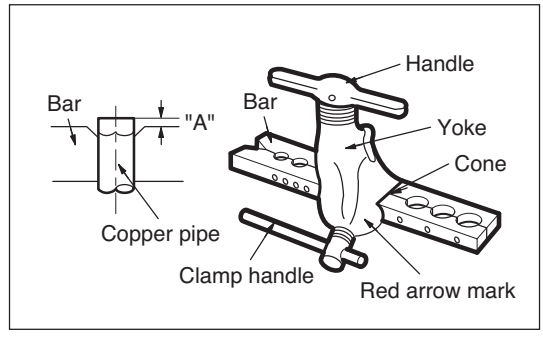
Putting nut on

- Remove flare nuts attached to indoor and outdoor units, than put them on pipe/tube having completed burr removal.
  (Not possible to put them on after flaring work)

Flaring work

- Carry out flaring work using dedicated flaring tool for R410A as shown below.

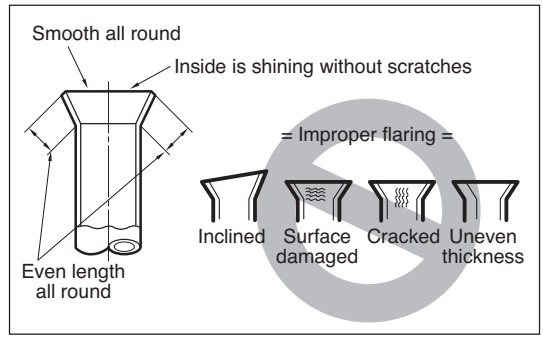
Outside diameter		"A"
mm	inch	mm
Ø6.35	1/4	1.1~1.3
Ø9.52	3/8	1.5~1.7
Ø12.7	1/2	1.6~1.8
Ø15.88	5/8	1.6~1.8
Ø19.05	3/4	1.9~2.1



Firmly hold copper tube in a bar(or die) as indicated dimension in the table above.

Check

- Compare the flared work with figure below.
- If flare is noted to be defective, cut off the flared section and do flaring work again.



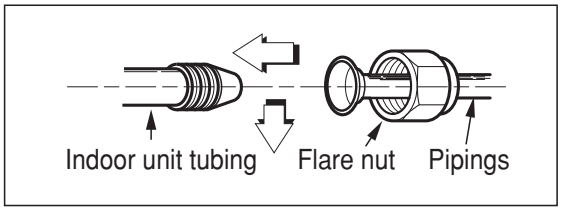
14. Installation

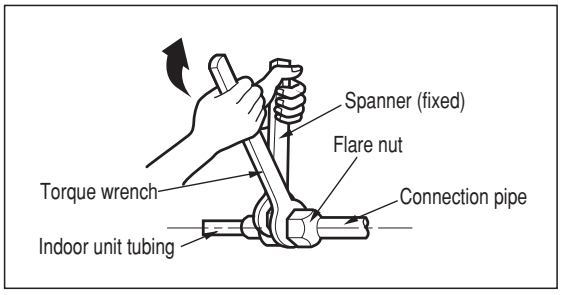
14.7.2 Connecting the pipings to the indoor unit and drain hose to drain pipe

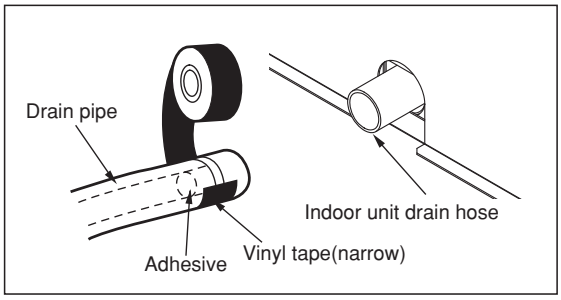
- Align the center of the pipings and sufficiently tighten the flare nut by hand.
- Tighten the flare nut with a wrench.

Outside diameter		Torque
mm	inch	kg·m
Ø6.35	1/4	1.8~2.5
Ø9.52	3/8	3.4~4.2
Ø12.7	1/2	5.5~6.6
Ø15.88	5/8	6.6~8.2
Ø19.05	3/4	9.9~12.1

- When extending the drain hose at the indoor unit, install the drain pipe.



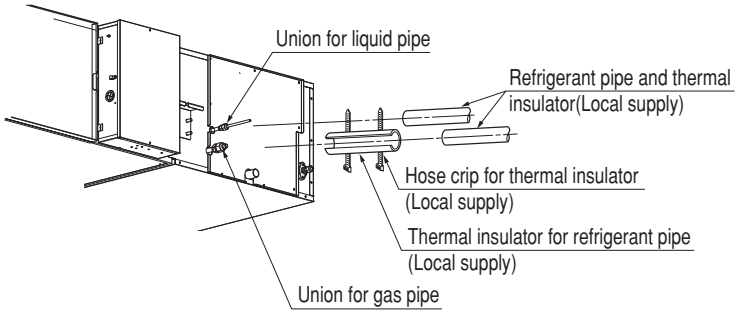


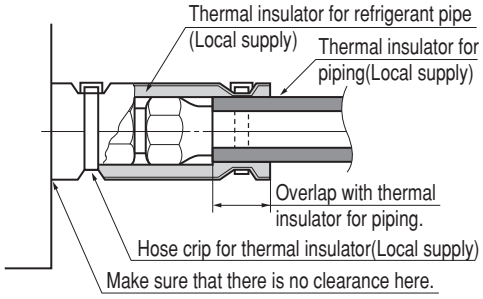


14.7.3 Insulation, Others

THERMAL INSULATION All thermal insulation must comply with local requirement.

- Insulate the joint and tubes completely





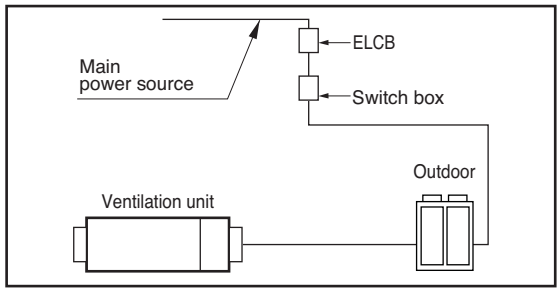
14. Installation

14.8 Wiring Connection

14.8.1 Electrical Wiring

Perform the electrical wiring work according to the electrical wiring connection.

- All wiring must comply with local requirements.
- Select a power source that is capable of supplying the current required by the ventilator.
- Use a recognized ELCB(Electric Leakage Circuit Breaker) between the power source and the unit. A disconnection device to adequately disconnect all supply lines must be fitted.
- Model of circuit breaker recommended by authorized personnel only

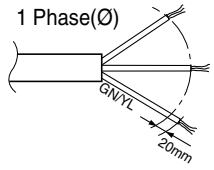


Ventilation unit				Power supply		Fan motor	
Capacity	Hz	Volts	Voltage range	MCA	MOP	kW	FLA
500CMH	50 / 60	220-240 V / 220 V	Max. 264V Min. 198V	2.8	8	0.2x2	1.25x2
800CMH				2.8	8	0.2x2	1.25x2
1000CMH				2.8	8	0.2x2	1.25x2

MCA : Min. Circuit Amps (A) ; MOP : Maximum Over current Protection
kW : Fan Motor Rated Output (kW) ; FLA : Full Load Amps (A)

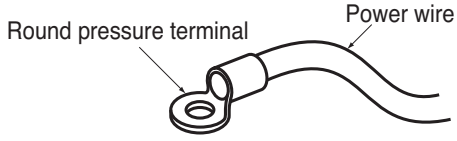
Wire Specification

Power Cable Specification : The power cord connected to the outdoor unit should be complied with IEC 60245 or HD 22.4 S4(Rubber insulated cord, type 60245 IEC 66 or H07RN-F)



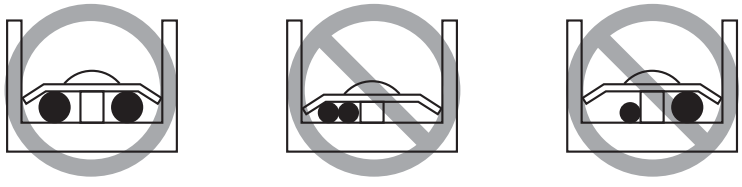
Precautions when laying power wiring

Use round pressure terminals for connections to the power terminal block.



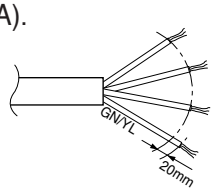
When none are available, follow the instructions below.

- Do not connect wiring of different thicknesses to the power terminal block. (Slack in the power wiring may cause abnormal heat.)
- When connecting wiring which is the same thickness, do as shown in the figure below.



14. Installation

Connecting Cable Specification : The connecting cable, being used to connect the indoor unit and outdoor unit, should be complied with IEC 60335-1 standard (Rubber insulation, type H07RN-F approved by HAR or SAA).



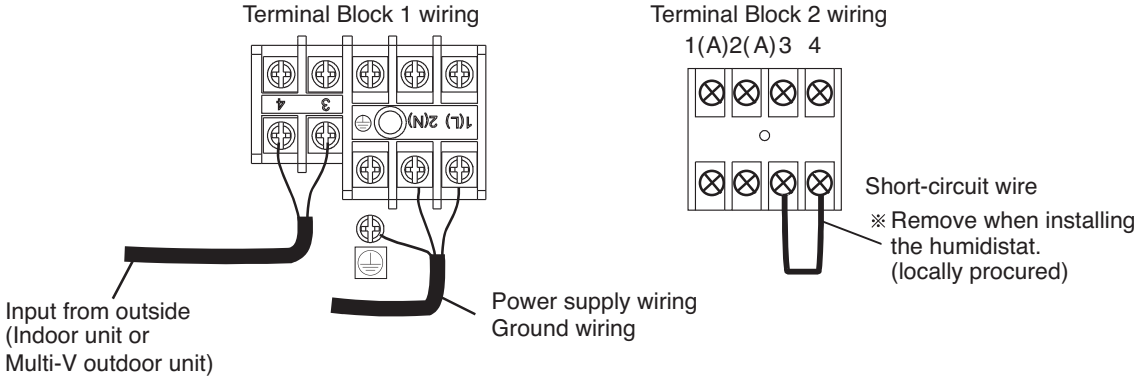
If the supply cable is damaged, it must be replaced by a special cable or assembly available from the manufacturer or its service agent.

WARNING

Make sure that the screws of the terminal are free from looseness.

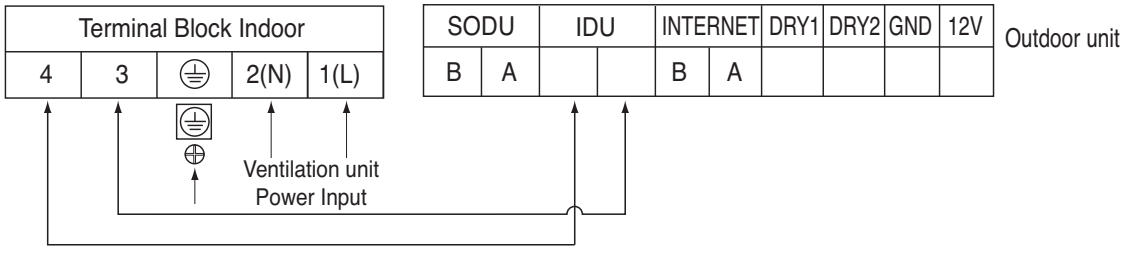
14.8.2 Method to Connect Wiring

- Pass the power supply wiring and the ground wiring through the wiring through-hole into the electrical parts box and secure with the included clamping material after connecting the wires to terminal blocks.



Connect the wires to the terminals on the control board individually according to the outdoor unit connection.

- Ensure that the color of the wires of outdoor unit and the terminal No. are the same as those of indoor unit respectively.



WARNING

Make sure that the screws of the terminal are free from looseness.

CAUTION

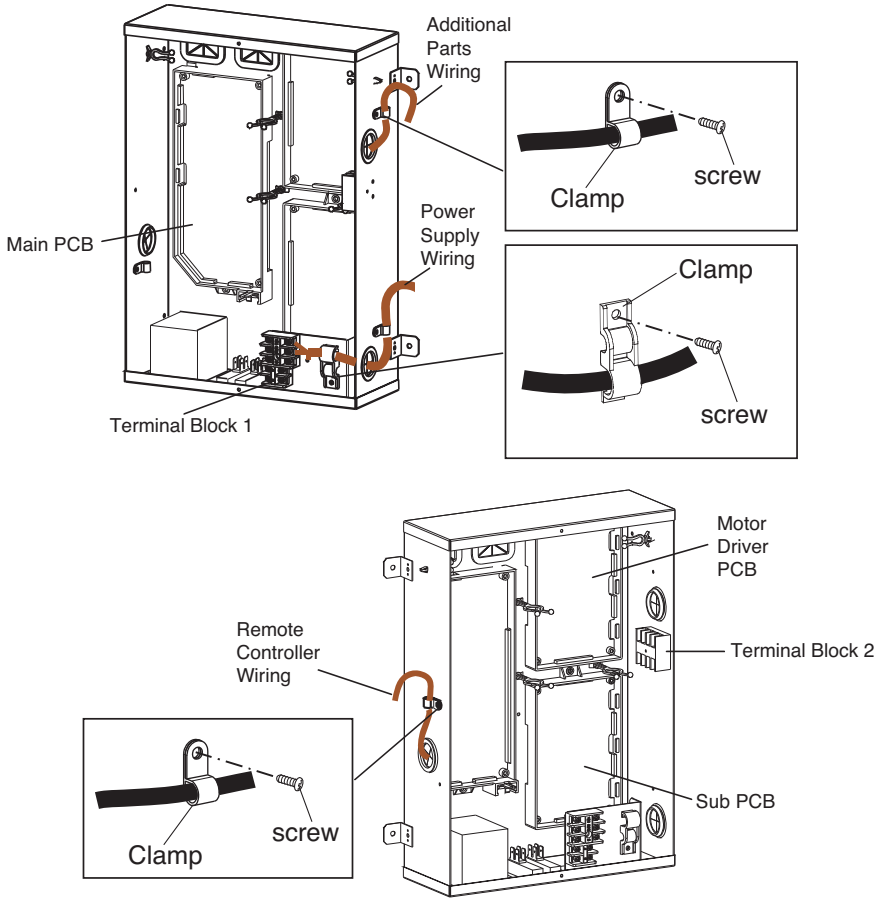
- When this ventilation unit is combined with Multi V Plus 2 Series, sometimes the system does not cooling operate for self protection in low ambient temperature when the capacity of IDU, which is connected to ventilation unit, is less than or equal to 10% of total capacity of all IDUs. In this case, the capacity of the IDU connected to ventilation unit should be higher than 10% of total capacity of all IDUs.

14. Installation

Clamping of cables

1) Arrange 2 power cables on the control panel.

2) First, fasten the Plastic clamp with screw to the inner boss of control panel.



CAUTION

- See “Label Circuit” on the backside of the cover of control box for electric wiring work.
- Be sure to attach the sealing material or putty (locally procured) to hole of wiring to prevent the infiltration of water as well as any insects and other small creatures from outside. Otherwise a short-circuit may occur inside the control box.
- When clamping the wires, be sure no pressure is applied to the wire connections by using the included clamping material to make appropriate clamps. Also, when wiring, make sure the lid on the control box fits snugly by arranging the wires neatly and attaching the control box cover firmly. When attaching the cover of control box, make sure no wires get caught in the edges. Pass wiring through the wiring through holes to prevent damage to them.
- Make sure the remote controller wiring, the wiring between the units, and other electrical wiring do not pass through the same locations outside of the unit, separating them by at least 50mm, otherwise electrical noise (external static) could cause mistaken operation or breakage.

14. Installation

14.8.3 Wiring for the Humidity Regulator (Locally Procured)

<LZ-H*GXH series only>**

1. Pass into the electric parts box together with the power wire through the power wiring through-hole.
2. Remove the short-circuit wires (3 and 4) on the TB 2 terminal block and connect the wiring for the humidity regulator.
3. Secure with cramping material together with the power wire.

Wiring specifications	Sheathed wire (2 wire)
Size	0.75 - 1.25mm^2
Length	MAX. 100m
External contact specifications	Normally closed contact (Current tolerance 10mA - 0.5A)

⚠ CAUTION

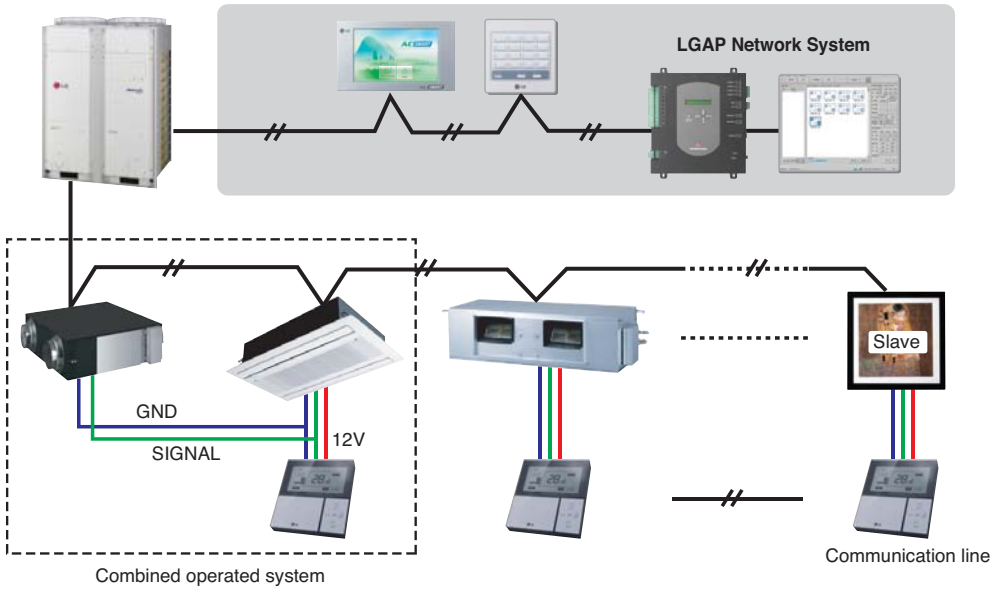
- If using humidistat, install one per ventilation unit.
  Controlling more than one ventilation unit with a single humidity controller may prevent normal humidity operation and cause water leakage, etc.

14. Installation

14.8.4 Wiring Example

- This unit can be used as part of the combined operation system used together with indoor units (Multi-V system air conditioners), or as an independent system for processing outside air.
- PI 485 should be connected for operating Eco V Unit only. (except Eco V Models with DX coil)

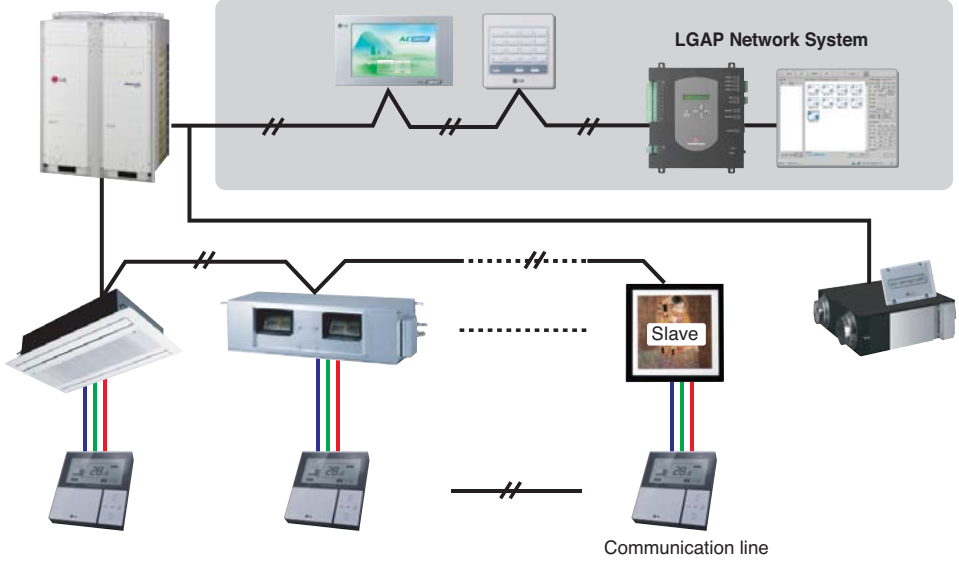
<Combined operation system with Multi-V system(connected with ventilation units and standard indoor units in a single refrigerant circuit)>



CAUTION:

When this ventilation unit is combined with Multi V Plus 2 Series, sometimes the system does not cooling operate for self protection in low ambient temperature when the capacity of IDU, which is connected to ventilation unit, is less than or equal to 10% of total capacity of all IDUs. In this case, the capacity of the IDU connected to ventilation unit should be higher than 10% of total capacity of all IDUs.

<Independent system (connected only with a ventilation unit in a single refrigerant circuit)>



14. Installation

14.9 Field Setting and Test Run

14.9.1 Perform field setting with the remote controller

1. Function Explanation

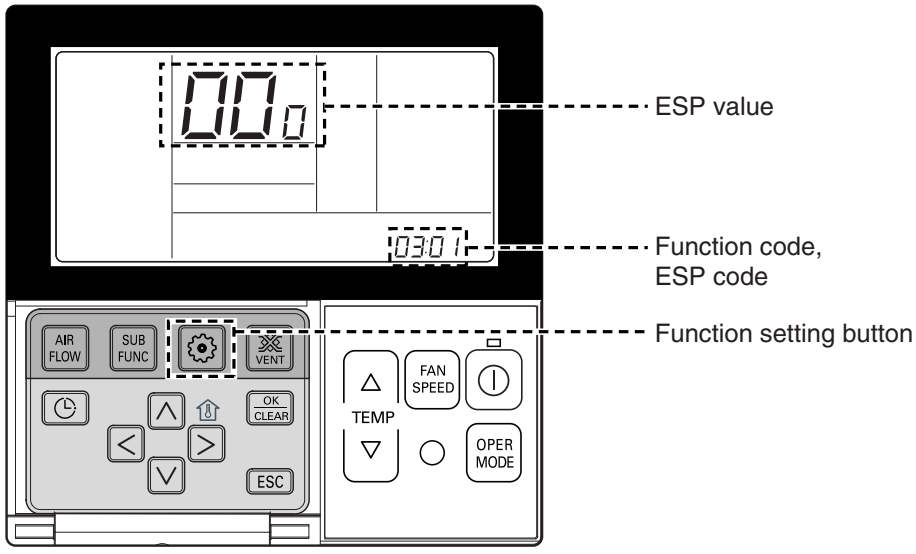
- After installation by the installer, it performs the function for product setting.

2. Setting

1) Function entry

1.1) Input the Function setting button for 3 seconds to enter the installer setting mode.

1.2) When entering, LCD other than relevant LCD is not appeared.



2) Function operation

2.1) When pressing Function selecting button, it follows the sequence specified below.
01: Test run → 02: Address setting → 03: Supply Air ESP → 04: Exhaust Air ESP →
05: Product Direction → 06: Quick refresh priority → 07: Master setting →
08: Override setting → 09: DryContact Auto → 10: Release of 3minute delay →
11: Zone stats → 12: Selecting °C or F → 13: Humidification for singular ventilation →
14: Humidification for Heat Mode Ventilation
※ Functions that are not contained in product do not appear.

2.2) Selected item LCD seg flickering (it keeps being flickering until set/cancel is pressed.)

2.3) Operation selection, wind strength, wind direction, extra operation, ventilation, reservation button is inputted, it is ignored.

3) Function operation and setting

3.1) Setting for each function, refer to the details for code.

3.2) When setting/cancel button is inputted, it is set and Seg flickering stops.

4) Function End

4.1) After 26 seconds without any input of relevant button (However, if relevant button (function setting, up/down/right,light button, setting/cancel...) is inputted, it lasts for 25 seconds.)

4.2) Exit button.

14. Installation

14.9.2 ESP setting value

Model	Mode		External Static Pressure Pa (in.wg)			
			50 (0.2)	100 (0.4)	150 (0.6)	200 (0.8)
LZ-H050GXN0	Super High	SA	90	100	110	124
		EA	90	100	110	122
	High	SA	90	100	110	124
		EA	90	100	110	122
	Low	SA	84	96	106	118
		EA	84	90	106	116
LZ-H080GXN0	Super High	SA	110	122	136	-
		EA	98	114	128	-
	High	SA	110	122	138	-
		EA	98	114	128	-
	Low	SA	102	116	128	134
		EA	92	106	116	128
LZ-H100GXN0	Super High	SA	122	134	140	-
		EA	114	126	136	-
	High	SA	122	134	140	-
		EA	114	126	136	-
	Low	SA	112	122	136	-
		EA	100	114	130	-
LZ-H050GXH0	Super High	SA	94	106	116	128
		EA	92	100	110	122
	High	SA	94	106	116	128
		EA	92	100	110	122
	Low	SA	92	98	110	120
		EA	86	90	106	116
LZ-H080GXH0	Super High	SA	112	130	140	-
		EA	98	116	128	-
	High	SA	112	130	140	-
		EA	98	116	128	-
	Low	SA	106	117	130	134
		EA	92	106	116	130
LZ-H100GXH0	Super High	SA	128	138	-	-
		EA	116	126	-	-
	High	SA	128	138	-	-
		EA	116	126	-	-
	Low	SA	114	130	140	-
		EA	100	116	130	-

14. Installation

14.9.3 Installer Setting Code and Value Table

No.	Function	Code	Available Product	Value
1	Test run	01	DX	01: Test run setting
2	Setting Address of Central Control	02	General/DX	00~FF : Address of central control
3	Supply ESP	03	General/DX	Value1 – Step(01:low, 02:high, 03:super high)
4	Exhaust ESP	04		Value2 – ESP value(0~255)
5	Product direction	05	General	01:Normal, 02:Reverse
6	Quick Refresh Priority	06	General/DX	01:Supply air first, 02:Exhaust air first
7	Master setting	07	General/DX	00:Slave, 01:Master
8	Override setting	08	DX	00:Slave, 01:Master
9	Dry Contact Auto	09	General/DX	00:OFF, 01:ON
10	Release of 3Min. Delay	10	General/DX	01:Set
11	Zone State	11	DX	01:Variable, 02:Fixed
12	Selecting °C or F	12	DX	00:Celsius , 01:Fahrenheit
13	Humidification for Singlar Ventilation	13	DX	00 : Not in use 01 : Use
14	Humidification for Heat Mode Ventilation	14	DX	01:Automatic, 02:Manual

※ DX : Direct expansion ventilation
General : General ventilation

1. Test Run

1) Function explanation: when installing the product, test operation for checking the installation status

2) When setting test operation, LCD Display

2.1) Cooling, normal, super-high mode, temperature setting 88Seg 'LO', extra operation.

2.2) When setting test operation, after test operating for 18 minutes, auto cancellation.

2.3) During test operation, extra operation control available. (including ventilation KIT)

2. Setting Address of Central Control

1) Function explanation: when connecting central control, it sets the address of central control address of indoor unit.

2) Function control and setting

2.1) Select the address code with inputting the up-down button. (0~F)

2.2) Change the items with inputting the right-left button.
(Group address↔indoor unit address)

2.3) Set the address with inputting Setting/Cancel button.(Indoor data send)

14. Installation

3. Supply/Exhaust ESP setting

1) Function explanation: Set the E.S.P(RPM) value of air conditioner indoor unit.

2) Function control and setting(Refer to the explanation at prior page about function entry)

2.1) Select the wind strength with inputting up-down button.
* 01:low, 02:high, 03:very high(Seg flickering)

2.2) Move the setting items with inputting the right-left button.
* Wind strength selection ↔ RPM value selection(Seg of selected item is flickering)

2.3) Select the RPM value of wind strength with inputting up-down button.
*0~255(Seg selecting)

2.4) Complete the RPM setting with inputting Setting/Cancel button. (Send RPM setting data of indoor unit)

2.5) Set the Exhaust Air ESP with conducting the 2.1)~2.4) process of installer by inputting function setting button and changing installer code 04.

4. Production Direction

1) Function Explanation: Set the installation direction of ventilation indoor unit.

2) Function control and setting

2.1) Select the direction value with inputting the up-down button.
*01: normal direction, 02:opposite direction

2.2) Complete the setting with inputting Setting/Cancel button. (Stop flickering and send the data to indoor unit)

5. Override Setting

1) Function explanation: Set the Override condition by setting the Mode Master/Slave of indoor unit.

2) Function control and setting

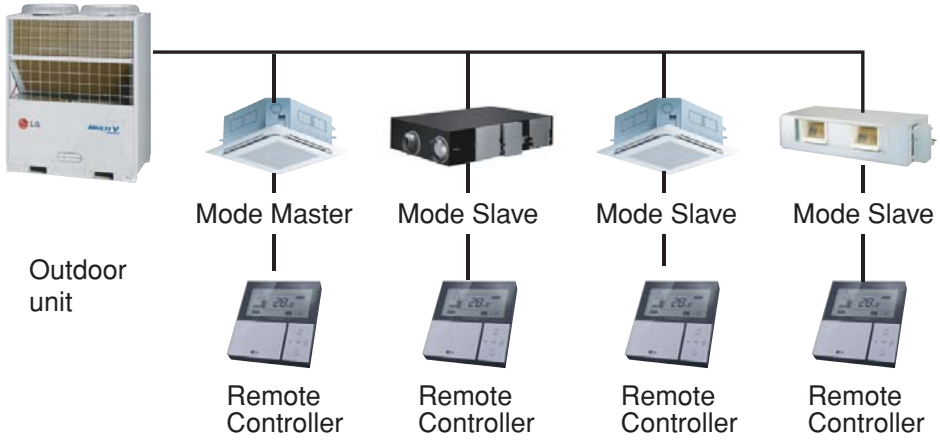
2.1) Set the Master/Slave value with inputting the up-down button.
*00: Slave, 01: Master

2.2) Complete the setting with inputting Setting/Cancel button.

3) Operation wired remote control after Slave setting

3.1) When changing operation mode of wired remote control connected to Mode Slave, it only can change to cycle operation mode.

ex) Outdoor unit cooling : Among wired remote control dehumidification mode, when inputting Operation Mode Selection button, indicating HL, it goes back to dehumidification mode.
If you input it again, it changes to Artificial intelligence mode



<Override connecting Scene>

14. Installation

6. Zone Stats

1) Function explanation: Set the wind strength option of indoor unit as Variable or fixed.

2) Function control and setting
   2.1) Select the wind strength option value with inputting the up-down button.
      *01: Variable, 02: Fixed
   2.2) Complete the setting with inputting Setting/Cancel button.(Send setting data to indoor unit)
   ❊ when selecting wind strength as fixed, ESP is not changeable.

7. Selecting Celsius or Fahrenheit

1) Function explanation: Control the temperature control unit by changing it Celsius ↔ Fahrenheit.
   (only set for export wired remote control)

2) Function control and setting
   2.1) Select the Celsius or Fahrenheit with inputting the up-down button.
      *00: Celsius (℃), 01: Fahrenheit(°F)
   2.2) Complete the setting with inputting Setting/Cancel button. (Send setting date to indoor unit)
      - Save the Celsius/Fahrenheit at EEPROM

8. Humidification for Singlar Ventilation

1) Function Explanation: Set the power supply to humidification When operating Singular ventilation of Direct Expansion or General Ventilation unit.

2) Function control and setting
   2.1) Select the Humidification for Singular Ventilation with inputting the up-down button.
      *00 : Not in use
      *01 : Use
   2.2) Complete the setting with inputting Setting/Cancel button.(Stop filckering)

3) Function Performance

   3.1) When Humidification for ventilation is set
      - In case of connection with General Ventilation : When operation is On, you can control the humidification
      - In case of connection with Direct Expansion Ventilation: When ventilation is operated only, you can control the humidification. (When operating DX Coil, impossible to control humidification)

   3.2) When Ventilation humidification function is not set

      - When operating only ventilation, impossible to control humidification.

9. Humidification for Heat Mode Ventilation

1) Function explanation: Set the Humidification for Heat mode of direct expansion ventilation as automatic setting or manual setting.

2) Function control and setting
   2.1) Select the humidification for heat mode with inputting the up-down button.
      *01 : Automatic
      *02 : Manual
   2.2) Complete the setting with inputting Setting/Cancel button.(Stop flickering)

3) Function performance
   3.1) Automatic setting
      - If air conditioner operation mode is set as heat, it automatically switches on the humidification.
   3.2) Manual setting
      - If air conditioner operation mode is set as heat, you could turn on the humidification manually. (When it is set as heat mode, even the humidification is on, you cannot turn it off manually.)
   3.3) Humidification cancellation
      - In case of the cancellation of heating operation, the product is off.
   3.4) Power failure compensation
      - When power failure compensation, receive the automatic/manual data from the indoor unit to set the Value.

14.9.4 Run the humidifier

<LZ-H*GXH series only>**

(1) Check that the water supply piping is connected securely.

(2) Open the water supply shut-off valve. (No water will be supplied at this time.)

(3) Run the eco-V unit in heating mode. (See the operating manual included with the indoor unit for details on how to run the unit in heating mode.) The water supply will start and the humidifier will begin operation.

(4) After starting heating (humidifying), the sound of the water supply solenoid valve will be heard at intervals of several minutes (a clicking sound), so listening for that clicking sound let the unit run for 30 minutes to make sure that humidifying operation is normal.

⚠ CAUTION:

If carpentry work is not completed when a test run is finished, tell the customer not to run the humidifier for the protection of indoor unit and eco-V until it is completed.
If the humidifier is run, paint, particles generated from adhesive and other materials used for carpentry work may cause eco-V to get dirty, causing splash or leakage of water.

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