MITSUBISHI ELECTRIC

Changes for the Better

AIR CONDITIONING SYSTEMS

HYBRID CITY MULTI

DATA BOOK

MODEL

PURY-M200-500YNW-A1 (-BS)

PURY-EM200-500YNW-A1 (-BS)

GENERAL LINE-UP

Heat Recovery R2-Series

PURY-M200YNW-A1(-BS) PURY-M250YNW-A1(-BS)
PURY-M300YNW-A1(-BS)

8, 10, 12HP

PURY-M350YNW-A1(-BS) PURY-M400YNW-A1(-BS)
PURY-M450YNW-A1(-BS)

14, 16, 18HP

PURY-M500YNW-A1(-BS)

20HP

Heat Recovery High efficiency R2-Series

PURY-EM200YNW-A1(-BS) PURY-EM250YNW-A1(-BS)
PURY-EM300YNW-A1(-BS)

8, 10, 12HP

PURY-EM350YNW-A1(-BS) PURY-EM400YNW-A1(-BS)
PURY-EM450YNW-A1(-BS)

14, 16, 18HP

PURY-EM500YNW-A1(-BS)

20HP

PURY-M-YNW-A1, PURY-EM-YNW-A1

1. SPECIFICATIONS

Model			PURY-M200YNW-A1 (-BS)
Power source			3-phase 4-wire 380-400-415 V 50/60 Hz
Cooling capacity *1 (Nominal)		kW	22.4
		BTU/h	76,400
	Power input	kW	5.53
	Current input	A	9.3-8.8-8.5
	EER	kW/kW	4.05
Temp. range of cooling *3	Indoor	W.B.	15.0~24.0°C (59~75°F)
	Outdoor	D.B.	-5.0~52.0°C (23~126°F)
Heating capacity *2 (Nominal)		kW	25.0
		BTU/h	85,300
	Power input	kW	6.39
	Current input	A	10.7-10.2-9.8
	COP	kW/kW	3.91
Temp. range of heating *3	Indoor	D.B.	15.0~27.0°C (59~81°F)
	Outdoor	W.B.	-20.0~15.5°C (-4~60°F)
Indoor unit connectable	Total capacity		50~150% of outdoor unit capacity
	Model/Quantity		W/WP/WL10~125/1~30
Sound pressure level (measured in anechoic room) *4		dB <A>	59.0/59.0
Sound power level (measured in anechoic room) *4		dB <A>	76.0/78.0
Refrigerant piping diameter	High pressure	mm (in.)	15.88 (5/8) Brazed
	Low pressure	mm (in.)	19.05 (3/4) Brazed
FAN	Type x Quantity		Propeller fan x 1
	Air flow rate	m^3/min	170
		L/s	2,833
		cfm	6,003
	Control, Driving mechanism		Inverter-control, Direct-driven by motor
	Motor output	kW	0.92 x 1
*5	External static press.		0 Pa (0 mmH_2O)
Compressor	Type		Inverter scroll hermetic compressor
	Manufacture		AC&R Works, MITSUBISHI ELECTRIC CORPORATION
	Starting method		Inverter
	Motor output	kW	4.6
	Case heater	kW	- (- V)
	Lubricant		MEL46EH
External finish			Pre-coated galvanized steel sheets (+powder coating for -BS type) <MUNSELL 5Y 8/1 or similar>
External dimension H x W x D		mm	1,858 (1,798 without legs) x 920 x 740
		in.	73-3/16 (70-13/16 without legs) x 36-1/4 x 29-3/16
Protection devices	High pressure protection		High pressure sensor, High pressure switch at 4.15 MPa (601 psi)
	Inverter circuit (COMP./FAN)		Over-heat protection, Over-current protection
	Compressor		-
	Fan motor		-
Refrigerant	Type x original charge		R32 x 5.2 kg (12 lbs)
	Control		HBC
Net weight		kg (lbs)	227 (501)
Heat exchanger			Salt-resistant cross fin & copper tube
HIC circuit (HIC: Heat Inter-Changer)			-
Defrosting method			Auto-defrost mode (Reversed refrigerant cycle, Hot gas)
Drawing	External		WKL94T598
	Wiring		WKE94G770
Standard attachment	Document		Installation Manual
	Accessory		-
Optional parts			Main-HBC: CMB-WM108,1016V-AA, CMB-WM350F-AA Sub-HBC: CMB-WM108,1016V-BB
Remarks			Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. Due to continuing improvement, above specifications may be subject to change without notice.

Notes:

1.Nominal cooling conditions (subject to JIS B8615-2)
Indoor: 27°CD.B./19°CW.B. (81°FD.B./66°FW.B.), Outdoor: 35°CD.B./24°CW.B. (95°FD.B./75°FW.B.)
Pipe length: 7.5 m (24-9/16 ft.), Level difference: 0 m (0 ft.)
2.Nominal heating conditions (subject to JIS B8615-2)
Indoor: 20°CD.B. (68°FD.B.), Outdoor: 7°CD.B./6°CW.B. (45°FD.B./43°FW.B.)
Pipe length: 7.5 m (24-9/16 ft.), Level difference: 0 m (0 ft.)
3.-5°CD.B. (23°FD.B.)/-6°CW.B. (21°FW.B.) to 21°CD.B. (70°FD.B.)/15.5°CW.B. (60°FW.B.)
with cooling/heating mixed operation.
4.Cooling mode/Heating mode
5.External static pressure option is available (30 Pa, 60 Pa, 80 Pa/3.1 mmH_2O, 6.1 mmH_2O, 8.2 mmH_2O).
Consult your dealer about the specification when setting External static pressure option.
6.R32 is flammable, and certain restrictions apply to the installation of units.
When installing new units, moving the existing units, or changing the layout of the room, ensure that installation restrictions are observed.
For detail, refer to the section in the Databook on installation restrictions.

Unit converter	
BTU/h	=kW x 3,412
cfm	=m^3/min x 35.31
lbs	=kg/0.4536

*Above specification data is subject to rounding variation.

1. SPECIFICATIONS

Model			PURY-M250YNW-A1 (-BS)
Power source			3-phase 4-wire 380-400-415 V 50/60 Hz
Cooling capacity *1 (Nominal)		kW	28.0
		BTU/h	95,500
	Power input	kW	8.40
	Current input	A	14.1-13.4-12.9
	EER	kW/kW	3.33
Temp. range of cooling *3	Indoor	W.B.	15.0~24.0°C (59~75°F)
	Outdoor	D.B.	-5.0~52.0°C (23~126°F)
Heating capacity *2 (Nominal)		kW	31.5
		BTU/h	107,500
	Power input	kW	9.15
	Current input	A	15.4-14.6-14.1
	COP	kW/kW	3.44
Temp. range of heating *3	Indoor	D.B.	15.0~27.0°C (59~81°F)
	Outdoor	W.B.	-20.0~15.5°C (-4~60°F)
Indoor unit connectable	Total capacity		50~150% of outdoor unit capacity
	Model/Quantity		W/WP/WL10~125/1~37
Sound pressure level (measured in anechoic room) *4		dB <A>	60.5/61.0
Sound power level (measured in anechoic room) *4		dB <A>	78.5/80.0
Refrigerant piping diameter	High pressure	mm (in.)	15.88 (5/8) Brazed
	Low pressure	mm (in.)	22.2 (7/8) Brazed
FAN	Type x Quantity		Propeller fan x 1
	Air flow rate	m^3/min	185
		L/s	3,083
		cfm	6,532
	Control, Driving mechanism		Inverter-control, Direct-driven by motor
	Motor output	kW	0.92 x 1
*5	External static press.		0 Pa (0 mmH_2O)
Compressor	Type		Inverter scroll hermetic compressor
	Manufacture		AC&R Works, MITSUBISHI ELECTRIC CORPORATION
	Starting method		Inverter
	Motor output	kW	7.0
	Case heater	kW	- (- V)
	Lubricant		MEL46EH
External finish			Pre-coated galvanized steel sheets (+powder coating for -BS type) <MUNSELL 5Y 8/1 or similar>
External dimension H x W x D		mm	1,858 (1,798 without legs) x 920 x 740
		in.	73-3/16 (70-13/16 without legs) x 36-1/4 x 29-3/16
Protection devices	High pressure protection		High pressure sensor, High pressure switch at 4.15 MPa (601 psi)
	Inverter circuit (COMP./FAN)		Over-heat protection, Over-current protection
	Compressor		-
	Fan motor		-
Refrigerant	Type x original charge		R32 x 5.2 kg (12 lbs)
	Control		HBC
Net weight		kg (lbs)	227 (501)
Heat exchanger			Salt-resistant cross fin & copper tube
HIC circuit (HIC: Heat Inter-Changer)			-
Defrosting method			Auto-defrost mode (Reversed refrigerant cycle, Hot gas)
Drawing	External		WKL94T598
	Wiring		WKE94G770
Standard attachment	Document		Installation Manual
	Accessory		-
Optional parts			Main-HBC: CMB-WM108,1016V-AA, CMB-WM350F-AA Sub-HBC: CMB-WM108,1016V-BB
Remarks			Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. Due to continuing improvement, above specifications may be subject to change without notice.

Notes:

1.Nominal cooling conditions (subject to JIS B8615-2)
Indoor: 27°CD.B./19°CW.B. (81°FD.B./66°FW.B.), Outdoor: 35°CD.B./24°CW.B. (95°FD.B./75°FW.B.)
Pipe length: 7.5 m (24-9/16 ft.), Level difference: 0 m (0 ft.)
2.Nominal heating conditions (subject to JIS B8615-2)
Indoor: 20°CD.B. (68°FD.B.), Outdoor: 7°CD.B./6°CW.B. (45°FD.B./43°FW.B.)
Pipe length: 7.5 m (24-9/16 ft.), Level difference: 0 m (0 ft.)
3.-5°CD.B. (23°FD.B.)/-6°CW.B. (21°FW.B.) to 21°CD.B. (70°FD.B.)/15.5°CW.B. (60°FW.B.)
with cooling/heating mixed operation.
4.Cooling mode/Heating mode
5.External static pressure option is available (30 Pa, 60 Pa, 80 Pa/3.1 mmH_2O, 6.1 mmH_2O, 8.2 mmH_2O).
Consult your dealer about the specification when setting External static pressure option.
6.R32 is flammable, and certain restrictions apply to the installation of units.
When installing new units, moving the existing units, or changing the layout of the room, ensure that installation restrictions are observed.
For detail, refer to the section in the Databook on installation restrictions.

Unit converter	
BTU/h	=kW x 3,412
cfm	=m^3/min x 35.31
lbs	=kg/0.4536

*Above specification data is subject to rounding variation.

Model			PURY-M300YNW-A1 (-BS)	
Number of HBC			Single HBC (Horizontal type)	Double HBC (Horizontal type)/Single HBC (Vertical type)
Power source			3-phase 4-wire 380-400-415 V 50/60 Hz	
Cooling capacity *1 (Nominal)		kW	33.5	
		BTU/h	114,300	
	Power input	kW	11.65	9.88
	Current input	A	19.6-18.6-18.0	16.6-15.8-15.2
	EER	kW/kW	2.87	3.39
Temp. range of cooling *3	Indoor	W.B.	15.0~24.0°C (59~75°F)	
	Outdoor	D.B.	-5.0~52.0°C (23~126°F)	
Heating capacity *2 (Nominal)		kW	37.5	
		BTU/h	128,000	
	Power input	kW	11.00	10.33
	Current input	A	18.5-17.6-17.0	17.4-16.5-15.9
	COP	kW/kW	3.40	3.63
Temp. range of heating *3	Indoor	D.B.	15.0~27.0°C (59~81°F)	
	Outdoor	W.B.	-20.0~15.5°C (-4~60°F)	
Indoor unit connectable	Total capacity		50~150% of outdoor unit capacity	
	Model/Quantity		W/WP/WL10~125/2~45	
Sound pressure level (measured in anechoic room) *4		dB <A>	61.0/67.0	
Sound power level (measured in anechoic room) *4		dB <A>	80.0/86.5	
Refrigerant piping diameter	High pressure	mm (in.)	15.88 (5/8) Brazed	
	Low pressure	mm (in.)	22.2 (7/8) Brazed	
FAN	Type x Quantity		Propeller fan x 1	
	Air flow rate	m^3/min	240	
		L/s	4,000	
		cfm	8,474	
	Control, Driving mechanism		Inverter-control, Direct-driven by motor	
	Motor output	kW	0.92 x 1	
*5	External static press.		0 Pa (0 mmH_2O)	
Compressor	Type		Inverter scroll hermetic compressor	
	Manufacture		AC&R Works, MITSUBISHI ELECTRIC CORPORATION	
	Starting method		Inverter	
	Motor output	kW	8.0	
	Case heater	kW	- (- V)	
	Lubricant		MEL46EH	
External finish			Pre-coated galvanized steel sheets (+powder coating for -BS type) <MUNSELL 5Y 8/1 or similar>	
External dimension H x W x D		mm	1,858 (1,798 without legs) x 920 x 740	
		in.	73-3/16 (70-13/16 without legs) x 36-1/4 x 29-3/16	
Protection devices	High pressure protection		High pressure sensor, High pressure switch at 4.15 MPa (601 psi)	
	Inverter circuit (COMP./FAN)		Over-heat protection, Over-current protection	
	Compressor		-	
	Fan motor		-	
Refrigerant	Type x original charge		R32 x 5.2 kg (12 lbs)	
	Control		HBC	
Net weight		kg (lbs)	227 (501)	
Heat exchanger			Salt-resistant cross fin & copper tube	
HIC circuit (HIC: Heat Inter-Changer)			-	
Defrosting method			Auto-defrost mode (Reversed refrigerant cycle, Hot gas)	
Drawing	External		WKL94T598	
	Wiring		WKE94G770	
Standard attachment	Document		Installation Manual	
	Accessory		-	
Optional parts			Main-HBC: CMB-WM108,1016V-AA, CMB-WM350F-AA Sub-HBC: CMB-WM108,1016V-BB	
Remarks			Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. Due to continuing improvement, above specifications may be subject to change without notice.	

Notes:

1.Nominal cooling conditions (subject to JIS B8615-2)
Indoor: 27°CD.B./19°CW.B. (81°FD.B./66°FW.B.), Outdoor: 35°CD.B./24°CW.B. (95°FD.B./75°FW.B.)
Pipe length: 7.5 m (24-9/16 ft.), Level difference: 0 m (0 ft.)
2.Nominal heating conditions (subject to JIS B8615-2)
Indoor: 20°CD.B. (68°FD.B.), Outdoor: 7°CD.B./6°CW.B. (45°FD.B./43°FW.B.)
Pipe length: 7.5 m (24-9/16 ft.), Level difference: 0 m (0 ft.)
3.-5°CD.B. (23°FD.B.)/-6°CW.B. (21°FW.B.) to 21°CD.B. (70°FD.B.)/15.5°CW.B. (60°FW.B.)
with cooling/heating mixed operation.
4.Cooling mode/Heating mode
5.External static pressure option is available (30 Pa, 60 Pa, 80 Pa/3.1 mmH_2O, 6.1 mmH_2O, 8.2 mmH_2O).
Consult your dealer about the specification when setting External static pressure option.
6.R32 is flammable, and certain restrictions apply to the installation of units.
When installing new units, moving the existing units, or changing the layout of the room, ensure that installation restrictions are observed.
For detail, refer to the section in the Databook on installation restrictions.

Unit converter	
BTU/h	=kW x 3,412
cfm	=m^3/min x 35.31
lbs	=kg/0.4536

*Above specification data is subject to rounding variation.

1. SPECIFICATIONS

Model			PURY-M350YNW-A1 (-BS)	
Number of HBC			Single HBC (Horizontal type)	Double HBC (Horizontal type)/Single HBC (Vertical type)
Power source			3-phase 4-wire 380-400-415 V 50/60 Hz	
Cooling capacity (Nominal)	*1	kW	40.0	
		BTU/h	136,500	
	Power input	kW	14.93	12.15
	Current input	A	25.2-23.9-23.0	20.5-19.4-18.7
	EER	kW/kW	2.67	3.29
Temp. range of cooling	Indoor	W.B.	15.0~24.0°C (59~75°F)	
*3	Outdoor	D.B.	-5.0~52.0°C (23~126°F)	
Heating capacity (Nominal)	*2	kW	45.0	
		BTU/h	153,500	
	Power input	kW	13.14	12.16
	Current input	A	22.1-21.0-20.3	20.5-19.5-18.7
	COP	kW/kW	3.42	3.70
Temp. range of heating	Indoor	D.B.	15.0~27.0°C (59~81°F)	
*3	Outdoor	W.B.	-20.0~15.5°C (-4~60°F)	
Indoor unit connectable	Total capacity		50~150% of outdoor unit capacity	
	Model/Quantity		W/WP/WL10~125/1~35	
Sound pressure level (measured in anechoic room) *4		dB <A>	62.5/64.0	
Sound power level (measured in anechoic room) *4		dB <A>	81.0/83.0	
Refrigerant piping diameter	High pressure	mm (in.)	15.88 (5/8) Brazed	
	Low pressure	mm (in.)	28.58 (1-1/8) Brazed	
FAN	Type x Quantity		Propeller fan x 2	
	Air flow rate	m^3/min	250	
		L/s	4,167	
		cfm	8,828	
	Control, Driving mechanism		Inverter-control, Direct-driven by motor	
	Motor output	kW	0.46 x 2	
*5	External static press.		0 Pa (0 mmH_2O)	
Compressor	Type		Inverter scroll hermetic compressor	
	Manufacture		AC&R Works, MITSUBISHI ELECTRIC CORPORATION	
	Starting method		Inverter	
	Motor output	kW	9.6	
	Case heater	kW	- (- V)	
	Lubricant		MEL46EH	
External finish			Pre-coated galvanized steel sheets (+powder coating for -BS type) <MUNSELL 5Y 8/1 or similar>	
External dimension H x W x D		mm	1,858 (1,798 without legs) x 1,240 x 740	
		in.	73-3/16 (70-13/16 without legs) x 48-7/8 x 29-3/16	
Protection devices	High pressure protection		High pressure sensor, High pressure switch at 4.15 MPa (601 psi)	
	Inverter circuit (COMP./FAN)		Over-heat protection, Over-current protection	
	Compressor		-	
	Fan motor		-	
Refrigerant	Type x original charge		R32 x 8.0 kg (18 lbs)	
	Control		HBC	
Net weight		kg (lbs)	270 (596)	
Heat exchanger			Salt-resistant cross fin & copper tube	
HIC circuit (HIC: Heat Inter-Changer)			-	
Defrosting method			Auto-defrost mode (Reversed refrigerant cycle)	
Drawing	External		WKL94T599	
	Wiring		WKE94G771	
Standard attachment	Document		Installation Manual	
	Accessory		-	
Optional parts			Main-HBC: CMB-WM108,1016V-AA, CMB-WM350F-AA Sub-HBC: CMB-WM108,1016V-BB	
Remarks			Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. Due to continuing improvement, above specifications may be subject to change without notice.	

Notes:

1.Nominal cooling conditions (subject to JIS B8615-2)
Indoor: 27°CD.B./19°CW.B. (81°FD.B./66°FW.B.), Outdoor: 35°CD.B./24°CW.B. (95°FD.B./75°FW.B.)
Pipe length: 7.5 m (24-9/16 ft.), Level difference: 0 m (0 ft.)
2.Nominal heating conditions (subject to JIS B8615-2)
Indoor: 20°CD.B. (68°FD.B.), Outdoor: 7°CD.B./6°CW.B. (45°FD.B./43°FW.B.)
Pipe length: 7.5 m (24-9/16 ft.), Level difference: 0 m (0 ft.)
3.-5°CD.B. (23°FD.B.)/-6°CW.B. (21°FW.B.) to 21°CD.B. (70°FD.B.)/15.5°CW.B. (60°FW.B.)
with cooling/heating mixed operation.
4.Cooling mode/Heating mode
5.External static pressure option is available (30 Pa, 60 Pa, 80 Pa/3.1 mmH_2O, 6.1 mmH_2O, 8.2 mmH_2O).
Consult your dealer about the specification when setting External static pressure option.
6.R32 is flammable, and certain restrictions apply to the installation of units.
When installing new units, moving the existing units, or changing the layout of the room, ensure that installation restrictions are observed.
For detail, refer to the section in the Databook on installation restrictions.

Unit converter

BTU/h	=kW x 3,412
cfm	=m^3/min x 35.31
lbs	=kg/0.4536

*Above specification data is subject to rounding variation.

Model			PURY-M400YNW-A1 (-BS)
Power source			3-phase 4-wire 380-400-415 V 50/60 Hz
Cooling capacity *1 (Nominal)		kW	45.0
		BTU/h	153,500
	Power input	kW	15.15
	Current input	A	25.5-24.2-23.4
	EER	kW/kW	2.97
Temp. range of cooling *3	Indoor	W.B.	15.0~24.0°C (59~75°F)
	Outdoor	D.B.	-5.0~52.0°C (23~126°F)
Heating capacity *2 (Nominal)		kW	50.0
		BTU/h	170,600
	Power input	kW	14.08
	Current input	A	23.7-22.5-21.7
	COP	kW/kW	3.55
Temp. range of heating *3	Indoor	D.B.	15.0~27.0°C (59~81°F)
	Outdoor	W.B.	-20.0~15.5°C (-4~60°F)
Indoor unit connectable	Total capacity		50~150% of outdoor unit capacity
	Model/Quantity		W/WP/WL10~125/1~40
Sound pressure level (measured in anechoic room) *4		dB <A>	65.0/69.0
Sound power level (measured in anechoic room) *4		dB <A>	83.0/88.0
Refrigerant piping diameter	High pressure	mm (in.)	19.05 (3/4) Brazed
	Low pressure	mm (in.)	28.58 (1-1/8) Brazed
FAN	Type x Quantity		Propeller fan x 2
	Air flow rate	m^3/min	315
		L/s	5,250
		cfm	11,123
	Control, Driving mechanism		Inverter-control, Direct-driven by motor
	Motor output	kW	0.46 x 2
*5	External static press.		0 Pa (0 mmH_2O)
Compressor	Type		Inverter scroll hermetic compressor
	Manufacture		AC&R Works, MITSUBISHI ELECTRIC CORPORATION
	Starting method		Inverter
	Motor output	kW	12.2
	Case heater	kW	- (- V)
	Lubricant		MEL46EH
External finish			Pre-coated galvanized steel sheets (+powder coating for -BS type) <MUNSELL 5Y 8/1 or similar>
External dimension H x W x D		mm	1,858 (1,798 without legs) x 1,240 x 740
		in.	73-3/16 (70-13/16 without legs) x 48-7/8 x 29-3/16
Protection devices	High pressure protection		High pressure sensor, High pressure switch at 4.15 MPa (601 psi)
	Inverter circuit (COMP./FAN)		Over-heat protection, Over-current protection
	Compressor		-
	Fan motor		-
Refrigerant	Type x original charge		R32 x 8.0 kg (18 lbs)
	Control		HBC
Net weight		kg (lbs)	273 (602)
Heat exchanger			Salt-resistant cross fin & copper tube
HIC circuit (HIC: Heat Inter-Changer)			-
Defrosting method			Auto-defrost mode (Reversed refrigerant cycle)
Drawing	External		WKL94T599
	Wiring		WKE94G771
Standard attachment	Document		Installation Manual
	Accessory		-
Optional parts			Main-HBC: CMB-WM108,1016V-AA, CMB-WM500F-AA Sub-HBC: CMB-WM108,1016V-BB
Remarks			Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. Due to continuing improvement, above specifications may be subject to change without notice.

Notes:

1.Nominal cooling conditions (subject to JIS B8615-2)
Indoor: 27°CD.B./19°CW.B. (81°FD.B./66°FW.B.), Outdoor: 35°CD.B./24°CW.B. (95°FD.B./75°FW.B.)
Pipe length: 7.5 m (24-9/16 ft.), Level difference: 0 m (0 ft.)
2.Nominal heating conditions (subject to JIS B8615-2)
Indoor: 20°CD.B. (68°FD.B.), Outdoor: 7°CD.B./6°CW.B. (45°FD.B./43°FW.B.)
Pipe length: 7.5 m (24-9/16 ft.), Level difference: 0 m (0 ft.)
3.-5°CD.B. (23°FD.B.)/-6°CW.B. (21°FW.B.) to 21°CD.B. (70°FD.B.)/15.5°CW.B. (60°FW.B.)
with cooling/heating mixed operation.
4.Cooling mode/Heating mode
5.External static pressure option is available (30 Pa, 60 Pa, 80 Pa/3.1 mmH_2O, 6.1 mmH_2O, 8.2 mmH_2O).
Consult your dealer about the specification when setting External static pressure option.
6.R32 is flammable, and certain restrictions apply to the installation of units.
When installing new units, moving the existing units, or changing the layout of the room, ensure that installation restrictions are observed.
For detail, refer to the section in the Databook on installation restrictions.

Unit converter	
BTU/h	=kW x 3,412
cfm	=m^3/min x 35.31
lbs	=kg/0.4536

*Above specification data is subject to rounding variation.

1. SPECIFICATIONS

Model			PURY-M450YNW-A1 (-BS)
Power source			3-phase 4-wire 380-400-415 V 50/60 Hz
Cooling capacity *1 (Nominal)		kW	50.0
		BTU/h	170,600
	Power input	kW	15.47
	Current input	A	26.1-24.8-23.9
	EER	kW/kW	3.23
Temp. range of cooling *3	Indoor	W.B.	15.0~24.0°C (59~75°F)
	Outdoor	D.B.	-5.0~52.0°C (23~126°F)
Heating capacity *2 (Nominal)		kW	56.0
		BTU/h	191,100
	Power input	kW	16.18
	Current input	A	27.3-25.9-25.0
	COP	kW/kW	3.46
Temp. range of heating *3	Indoor	D.B.	15.0~27.0°C (59~81°F)
	Outdoor	W.B.	-20.0~15.5°C (-4~60°F)
Indoor unit connectable	Total capacity		50~150% of outdoor unit capacity
	Model/Quantity		W/WP/WL10~125/1~45
Sound pressure level (measured in anechoic room) *4		dB <A>	65.5/70.0
Sound power level (measured in anechoic room) *4		dB <A>	83.0/89.0
Refrigerant piping diameter	High pressure	mm (in.)	19.05 (3/4) Brazed
	Low pressure	mm (in.)	28.58 (1-1/8) Brazed
FAN	Type x Quantity		Propeller fan x 2
	Air flow rate	m^3/min	317
		L/s	5,283
		cfm	11,193
	Control, Driving mechanism		Inverter-control, Direct-driven by motor
	Motor output	kW	0.46 x 2
*5	External static press.		0 Pa (0 mmH_2O)
Compressor	Type		Inverter scroll hermetic compressor
	Manufacture		AC&R Works, MITSUBISHI ELECTRIC CORPORATION
	Starting method		Inverter
	Motor output	kW	13.1
	Case heater	kW	- (- V)
	Lubricant		MEL46EH
External finish			Pre-coated galvanized steel sheets (+powder coating for -BS type) <MUNSELL 5Y 8/1 or similar>
External dimension H x W x D		mm	1,858 (1,798 without legs) x 1,240 x 740
		in.	73-3/16 (70-13/16 without legs) x 48-7/8 x 29-3/16
Protection devices	High pressure protection		High pressure sensor, High pressure switch at 4.15 MPa (601 psi)
	Inverter circuit (COMP./FAN)		Over-heat protection, Over-current protection
	Compressor		-
	Fan motor		-
Refrigerant	Type x original charge		R32 x 10.8 kg (24 lbs)
	Control		HBC
Net weight		kg (lbs)	293 (646)
Heat exchanger			Salt-resistant cross fin & copper tube
HIC circuit (HIC: Heat Inter-Changer)			-
Defrosting method			Auto-defrost mode (Reversed refrigerant cycle)
Drawing	External		WKL94T599
	Wiring		WKE94G771
Standard attachment	Document		Installation Manual
	Accessory		-
Optional parts			Main-HBC: CMB-WM108,1016V-AA, CMB-WM500F-AA Sub-HBC: CMB-WM108,1016V-BB
Remarks			Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. Due to continuing improvement, above specifications may be subject to change without notice.

Notes:

1.Nominal cooling conditions (subject to JIS B8615-2)
Indoor: 27°CD.B./19°CW.B. (81°FD.B./66°FW.B.), Outdoor: 35°CD.B./24°CW.B. (95°FD.B./75°FW.B.)
Pipe length: 7.5 m (24-9/16 ft.), Level difference: 0 m (0 ft.)
2.Nominal heating conditions (subject to JIS B8615-2)
Indoor: 20°CD.B. (68°FD.B.), Outdoor: 7°CD.B./6°CW.B. (45°FD.B./43°FW.B.)
Pipe length: 7.5 m (24-9/16 ft.), Level difference: 0 m (0 ft.)
3.-5°CD.B. (23°FD.B.)/-6°CW.B. (21°FW.B.) to 21°CD.B. (70°FD.B.)/15.5°CW.B. (60°FW.B.)
with cooling/heating mixed operation.
4.Cooling mode/Heating mode
5.External static pressure option is available (30 Pa, 60 Pa, 80 Pa/3.1 mmH_2O, 6.1 mmH_2O, 8.2 mmH_2O).
Consult your dealer about the specification when setting External static pressure option.
6.R32 is flammable, and certain restrictions apply to the installation of units.
When installing new units, moving the existing units, or changing the layout of the room, ensure that installation restrictions are observed.
For detail, refer to the section in the Databook on installation restrictions.

Unit converter	
BTU/h	=kW x 3,412
cfm	=m^3/min x 35.31
lbs	=kg/0.4536

*Above specification data is subject to rounding variation.

Model			PURY-M500YNW-A1 (-BS)
Power source			3-phase 4-wire 380-400-415 V 50/60 Hz
Cooling capacity *1		kW	56.0
(Nominal)		BTU/h	191,100
	Power input	kW	22.25
	Current input	A	37.5-35.6-34.3
	EER	kW/kW	2.51
Temp. range of	Indoor	W.B.	15.0~24.0°C (59~75°F)
cooling *3	Outdoor	D.B.	-5.0~52.0°C (23~126°F)
Heating capacity *2		kW	63.0
(Nominal)		BTU/h	215,000
	Power input	kW	18.26
	Current input	A	30.8-29.2-28.2
	COP	kW/kW	3.45
Temp. range of	Indoor	D.B.	15.0~27.0°C (59~81°F)
heating *3	Outdoor	W.B.	-20.0~15.5°C (-4~60°F)
Indoor unit	Total capacity		50~150% of outdoor unit capacity
connectable	Model/Quantity		W/WP/WL10~125/1~50
Sound pressure level (measured in anechoic room) *4		dB <A>	63.5/64.5
Sound power level (measured in anechoic room) *4		dB <A>	82.0/84.0
Refrigerant	High pressure	mm (in.)	19.05 (3/4) Brazed
piping diameter	Low pressure	mm (in.)	28.58 (1-1/8) Brazed
FAN	Type x Quantity		Propeller fan x 2
	Air flow rate	m^3/min	295
		L/s	4,917
		cfm	10,416
	Control, Driving mechanism		Inverter-control, Direct-driven by motor
	Motor output	kW	0.92 x 2
*5	External static press.		0 Pa (0 mmH_2O)
Compressor	Type		Inverter scroll hermetic compressor
	Manufacture		AC&R Works, MITSUBISHI ELECTRIC CORPORATION
	Starting method		Inverter
	Motor output	kW	17.4
	Case heater	kW	- (- V)
	Lubricant		MEL46EH
External finish			Pre-coated galvanized steel sheets (+powder coating for -BS type) <MUNSELL 5Y 8/1 or similar>
External dimension H x W x D		mm	1,858 (1,798 without legs) x 1,750 x 740
		in.	73-3/16 (70-13/16 without legs) x 68-15/16 x 29-3/16
Protection devices	High pressure protection		High pressure sensor, High pressure switch at 4.15 MPa (601 psi)
	Inverter circuit (COMP./FAN)		Over-heat protection, Over-current protection
	Compressor		-
	Fan motor		-
Refrigerant	Type x original charge		R32 x 10.8 kg (24 lbs)
	Control		HBC
Net weight		kg (lbs)	337 (743)
Heat exchanger			Salt-resistant cross fin & copper tube
HIC circuit (HIC: Heat Inter-Changer)			-
Defrosting method			Auto-defrost mode (Reversed refrigerant cycle)
Drawing	External		WKL94T600
	Wiring		WKE94G769
Standard attachment	Document		Installation Manual
	Accessory		-
Optional parts			Main-HBC: CMB-WM108,1016V-AA, CMB-WM500F-AA Sub-HBC: CMB-WM108,1016V-BB
Remarks			Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. Due to continuing improvement, above specifications may be subject to change without notice.

Notes:

1.Nominal cooling conditions (subject to JIS B8615-2)
Indoor: 27°CD.B./19°CW.B. (81°FD.B./66°FW.B.), Outdoor: 35°CD.B./24°CW.B. (95°FD.B./75°FW.B.)
Pipe length: 7.5 m (24-9/16 ft.), Level difference: 0 m (0 ft.)
2.Nominal heating conditions (subject to JIS B8615-2)
Indoor: 20°CD.B. (68°FD.B.), Outdoor: 7°CD.B./6°CW.B. (45°FD.B./43°FW.B.)
Pipe length: 7.5 m (24-9/16 ft.), Level difference: 0 m (0 ft.)
3.-5°CD.B. (23°FD.B.)/-6°CW.B. (21°FW.B.) to 21°CD.B. (70°FD.B.)/15.5°CW.B. (60°FW.B.)
with cooling/heating mixed operation.
4.Cooling mode/Heating mode
5.External static pressure option is available (30 Pa, 60 Pa, 80 Pa/3.1 mmH_2O, 6.1 mmH_2O, 8.2 mmH_2O).
Consult your dealer about the specification when setting External static pressure option.
6.R32 is flammable, and certain restrictions apply to the installation of units.
When installing new units, moving the existing units, or changing the layout of the room, ensure that installation restrictions are observed.
For detail, refer to the section in the Databook on installation restrictions.

Unit converter	
BTU/h	=kW x 3,412
cfm	=m^3/min x 35.31
lbs	=kg/0.4536

*Above specification data is subject to rounding variation.

1. SPECIFICATIONS

Model			PURY-EM200YNW-A1 (-BS)
Power source			3-phase 4-wire 380-400-415 V 50/60 Hz
Cooling capacity *1 (Nominal)		kW	22.4
		BTU/h	76,400
	Power input	kW	5.13
	Current input	A	8.6-8.2-7.9
	EER	kW/kW	4.36
Temp. range of cooling *3	Indoor	W.B.	15.0~24.0°C (59~75°F)
	Outdoor	D.B.	-5.0~52.0°C (23~126°F)
Heating capacity *2 (Nominal)		kW	25.0
		BTU/h	85,300
	Power input	kW	6.23
	Current input	A	10.5-9.9-9.6
	COP	kW/kW	4.01
Temp. range of heating *3	Indoor	D.B.	15.0~27.0°C (59~81°F)
	Outdoor	W.B.	-20.0~15.5°C (-4~60°F)
Indoor unit connectable	Total capacity		50~150% of outdoor unit capacity
	Model/Quantity		W/WP/WL10~125/1~30
Sound pressure level (measured in anechoic room) *4		dB <A>	59.0/59.0
Sound power level (measured in anechoic room) *4		dB <A>	76.0/78.0
Refrigerant piping diameter	High pressure	mm (in.)	15.88 (5/8) Brazed
	Low pressure	mm (in.)	19.05 (3/4) Brazed
FAN	Type x Quantity		Propeller fan x 1
	Air flow rate	m^3/min	170
		L/s	2,833
		cfm	6,003
	Control, Driving mechanism		Inverter-control, Direct-driven by motor
	Motor output	kW	0.92 x 1
*5	External static press.		0 Pa (0 mmH_2O)
Compressor	Type		Inverter scroll hermetic compressor
	Manufacture		AC&R Works, MITSUBISHI ELECTRIC CORPORATION
	Starting method		Inverter
	Motor output	kW	4.5
	Case heater	kW	- (- V)
	Lubricant		MEL46EH
External finish			Pre-coated galvanized steel sheets (+powder coating for -BS type) <MUNSELL 5Y 8/1 or similar>
External dimension H x W x D		mm	1,858 (1,798 without legs) x 920 x 740
		in.	73-3/16 (70-13/16 without legs) x 36-1/4 x 29-3/16
Protection devices	High pressure protection		High pressure sensor, High pressure switch at 4.15 MPa (601 psi)
	Inverter circuit (COMP./FAN)		Over-heat protection, Over-current protection
	Compressor		-
	Fan motor		-
Refrigerant	Type x original charge		R32 x 5.2 kg (12 lbs)
	Control		HBC
Net weight		kg (lbs)	231 (510)
Heat exchanger			Salt-resistant cross fin & aluminium tube
HIC circuit (HIC: Heat Inter-Changer)			-
Defrosting method			Auto-defrost mode (Reversed refrigerant cycle, Hot gas)
Drawing	External		WKL94T601
	Wiring		WKE94G770
Standard attachment	Document		Installation Manual
	Accessory		-
Optional parts			Main-HBC: CMB-WM108,1016V-AA, CMB-WM350F-AA Sub-HBC: CMB-WM108,1016V-BB
Remarks			Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. Due to continuing improvement, above specifications may be subject to change without notice.

Notes:

1.Nominal cooling conditions (subject to JIS B8615-2)
Indoor: 27°CD.B./19°CW.B. (81°FD.B./66°FW.B.), Outdoor: 35°CD.B./24°CW.B. (95°FD.B./75°FW.B.)
Pipe length: 7.5 m (24-9/16 ft.), Level difference: 0 m (0 ft.)
2.Nominal heating conditions (subject to JIS B8615-2)
Indoor: 20°CD.B. (68°FD.B.), Outdoor: 7°CD.B./6°CW.B. (45°FD.B./43°FW.B.)
Pipe length: 7.5 m (24-9/16 ft.), Level difference: 0 m (0 ft.)
3.-5°CD.B. (23°FD.B.)/-6°CW.B. (21°FW.B.) to 21°CD.B. (70°FD.B.)/15.5°CW.B. (60°FW.B.)
with cooling/heating mixed operation.
4.Cooling mode/Heating mode
5.External static pressure option is available (30 Pa, 60 Pa, 80 Pa/3.1 mmH_2O, 6.1 mmH_2O, 8.2 mmH_2O).
Consult your dealer about the specification when setting External static pressure option.
6.R32 is flammable, and certain restrictions apply to the installation of units.
When installing new units, moving the existing units, or changing the layout of the room, ensure that installation restrictions are observed.
For detail, refer to the section in the Databook on installation restrictions.

Unit converter	
BTU/h	=kW x 3,412
cfm	=m^3/min x 35.31
lbs	=kg/0.4536

*Above specification data is subject to rounding variation.

Model			PURY-EM250YNW-A1 (-BS)
Power source			3-phase 4-wire 380-400-415 V 50/60 Hz
Cooling capacity *1 (Nominal)		kW	28.0
		BTU/h	95,500
	Power input	kW	7.69
	Current input	A	12.9-12.3-11.8
	EER	kW/kW	3.64
Temp. range of cooling *3	Indoor	W.B.	15.0~24.0°C (59~75°F)
	Outdoor	D.B.	-5.0~52.0°C (23~126°F)
Heating capacity *2 (Nominal)		kW	31.5
		BTU/h	107,500
	Power input	kW	8.84
	Current input	A	14.9-14.1-13.6
	COP	kW/kW	3.56
Temp. range of heating *3	Indoor	D.B.	15.0~27.0°C (59~81°F)
	Outdoor	W.B.	-20.0~15.5°C (-4~60°F)
Indoor unit connectable	Total capacity		50~150% of outdoor unit capacity
	Model/Quantity		W/WP/WL10~125/1~37
Sound pressure level (measured in anechoic room) *4		dB <A>	60.5/61.0
Sound power level (measured in anechoic room) *4		dB <A>	78.5/80.0
Refrigerant piping diameter	High pressure	mm (in.)	15.88 (5/8) Brazed
	Low pressure	mm (in.)	22.2 (7/8) Brazed
FAN	Type x Quantity		Propeller fan x 1
	Air flow rate	m^3/min	185
		L/s	3,083
		cfm	6,532
	Control, Driving mechanism		Inverter-control, Direct-driven by motor
	Motor output	kW	0.92 x 1
*5	External static press.		0 Pa (0 mmH_2O)
Compressor	Type		Inverter scroll hermetic compressor
	Manufacture		AC&R Works, MITSUBISHI ELECTRIC CORPORATION
	Starting method		Inverter
	Motor output	kW	6.7
	Case heater	kW	- (- V)
	Lubricant		MEL46EH
External finish			Pre-coated galvanized steel sheets (+powder coating for -BS type) <MUNSELL 5Y 8/1 or similar>
External dimension H x W x D		mm	1,858 (1,798 without legs) x 920 x 740
		in.	73-3/16 (70-13/16 without legs) x 36-1/4 x 29-3/16
Protection devices	High pressure protection		High pressure sensor, High pressure switch at 4.15 MPa (601 psi)
	Inverter circuit (COMP./FAN)		Over-heat protection, Over-current protection
	Compressor		-
	Fan motor		-
Refrigerant	Type x original charge		R32 x 5.2 kg (12 lbs)
	Control		HBC
Net weight		kg (lbs)	231 (510)
Heat exchanger			Salt-resistant cross fin & aluminium tube
HIC circuit (HIC: Heat Inter-Changer)			-
Defrosting method			Auto-defrost mode (Reversed refrigerant cycle, Hot gas)
Drawing	External		WKL94T601
	Wiring		WKE94G770
Standard attachment	Document		Installation Manual
	Accessory		-
Optional parts			Main-HBC: CMB-WM108,1016V-AA, CMB-WM350F-AA Sub-HBC: CMB-WM108,1016V-BB
Remarks			Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. Due to continuing improvement, above specifications may be subject to change without notice.

Notes:

1.Nominal cooling conditions (subject to JIS B8615-2)
Indoor: 27°CD.B./19°CW.B. (81°FD.B./66°FW.B.), Outdoor: 35°CD.B./24°CW.B. (95°FD.B./75°FW.B.)
Pipe length: 7.5 m (24-9/16 ft.), Level difference: 0 m (0 ft.)
2.Nominal heating conditions (subject to JIS B8615-2)
Indoor: 20°CD.B. (68°FD.B.), Outdoor: 7°CD.B./6°CW.B. (45°FD.B./43°FW.B.)
Pipe length: 7.5 m (24-9/16 ft.), Level difference: 0 m (0 ft.)
3.-5°CD.B. (23°FD.B.)/-6°CW.B. (21°FW.B.) to 21°CD.B. (70°FD.B.)/15.5°CW.B. (60°FW.B.)
with cooling/heating mixed operation.
4.Cooling mode/Heating mode
5.External static pressure option is available (30 Pa, 60 Pa, 80 Pa/3.1 mmH_2O, 6.1 mmH_2O, 8.2 mmH_2O).
Consult your dealer about the specification when setting External static pressure option.
6.R32 is flammable, and certain restrictions apply to the installation of units.
When installing new units, moving the existing units, or changing the layout of the room, ensure that installation restrictions are observed.
For detail, refer to the section in the Databook on installation restrictions.

Unit converter	
BTU/h	=kW x 3,412
cfm	=m^3/min x 35.31
lbs	=kg/0.4536

*Above specification data is subject to rounding variation.

Model			PURY-EM300YNW-A1 (-BS)	
Number of HBC			Single HBC (Horizontal type)	Double HBC (Horizontal type)/Single HBC (Vertical type)
Power source			3-phase 4-wire 380-400-415 V 50/60 Hz	
Cooling capacity *1 (Nominal)		kW	33.5	
		BTU/h	114,300	
	Power input	kW	10.03	8.52
	Current input	A	16.9-16.0-15.5	14.3-13.6-13.1
	EER	kW/kW	3.33	3.93
Temp. range of cooling *3	Indoor	W.B.	15.0~24.0°C (59~75°F)	
	Outdoor	D.B.	-5.0~52.0°C (23~126°F)	
Heating capacity *2 (Nominal)		kW	37.5	
		BTU/h	128,000	
	Power input	kW	10.46	9.93
	Current input	A	17.6-16.7-16.1	16.7-15.9-15.3
	COP	kW/kW	3.58	3.77
Temp. range of heating *3	Indoor	D.B.	15.0~27.0°C (59~81°F)	
	Outdoor	W.B.	-20.0~15.5°C (-4~60°F)	
Indoor unit connectable	Total capacity		50~150% of outdoor unit capacity	
	Model/Quantity		W/WP/WL10~125/2~45	
Sound pressure level (measured in anechoic room) *4		dB <A>	61.0/67.0	
Sound power level (measured in anechoic room) *4		dB <A>	80.0/86.5	
Refrigerant piping diameter	High pressure	mm (in.)	15.88 (5/8) Brazed	
	Low pressure	mm (in.)	22.2 (7/8) Brazed	
FAN	Type x Quantity		Propeller fan x 1	
	Air flow rate	m^3/min	240	
		L/s	4,000	
		cfm	8,474	
	Control, Driving mechanism		Inverter-control, Direct-driven by motor	
	Motor output	kW	0.92 x 1	
*5	External static press.		0 Pa (0 mmH_2O)	
Compressor	Type		Inverter scroll hermetic compressor	
	Manufacture		AC&R Works, MITSUBISHI ELECTRIC CORPORATION	
	Starting method		Inverter	
	Motor output	kW	7.7	
	Case heater	kW	- (- V)	
	Lubricant		MEL46EH	
External finish			Pre-coated galvanized steel sheets (+powder coating for -BS type) <MUNSELL 5Y 8/1 or similar>	
External dimension H x W x D		mm	1,858 (1,798 without legs) x 920 x 740	
		in.	73-3/16 (70-13/16 without legs) x 36-1/4 x 29-3/16	
Protection devices	High pressure protection		High pressure sensor, High pressure switch at 4.15 MPa (601 psi)	
	Inverter circuit (COMP./FAN)		Over-heat protection, Over-current protection	
	Compressor		-	
	Fan motor		-	
Refrigerant	Type x original charge		R32 x 5.2 kg (12 lbs)	
	Control		HBC	
Net weight		kg (lbs)	231 (510)	
Heat exchanger			Salt-resistant cross fin & aluminium tube	
HIC circuit (HIC: Heat Inter-Changer)			-	
Defrosting method			Auto-defrost mode (Reversed refrigerant cycle, Hot gas)	
Drawing	External		WKL94T601	
	Wiring		WKE94G770	
Standard attachment	Document		Installation Manual	
	Accessory		-	
Optional parts			Main-HBC: CMB-WM108,1016V-AA, CMB-WM350F-AA Sub-HBC: CMB-WM108,1016V-BB	
Remarks			Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. Due to continuing improvement, above specifications may be subject to change without notice.	

Notes:

1.Nominal cooling conditions (subject to JIS B8615-2)
Indoor: 27°CD.B./19°CW.B. (81°FD.B./66°FW.B.), Outdoor: 35°CD.B./24°CW.B. (95°FD.B./75°FW.B.)
Pipe length: 7.5 m (24-9/16 ft.), Level difference: 0 m (0 ft.)
2.Nominal heating conditions (subject to JIS B8615-2)
Indoor: 20°CD.B. (68°FD.B.), Outdoor: 7°CD.B./6°CW.B. (45°FD.B./43°FW.B.)
Pipe length: 7.5 m (24-9/16 ft.), Level difference: 0 m (0 ft.)
3.-5°CD.B. (23°FD.B.)/-6°CW.B. (21°FW.B.) to 21°CD.B. (70°FD.B.)/15.5°CW.B. (60°FW.B.)
with cooling/heating mixed operation.
4.Cooling mode/Heating mode
5.External static pressure option is available (30 Pa, 60 Pa, 80 Pa/3.1 mmH_2O, 6.1 mmH_2O, 8.2 mmH_2O).
Consult your dealer about the specification when setting External static pressure option.
6.R32 is flammable, and certain restrictions apply to the installation of units.
When installing new units, moving the existing units, or changing the layout of the room, ensure that installation restrictions are observed.
For detail, refer to the section in the Databook on installation restrictions.

Unit converter

BTU/h	=kW x 3,412
cfm	=m^3/min x 35.31
lbs	=kg/0.4536

*Above specification data is subject to rounding variation.

Model			PURY-EM350YNW-A1 (-BS)	
Number of HBC			Single HBC (Horizontal type)	Double HBC (Horizontal type)/Single HBC (Vertical type)
Power source			3-phase 4-wire 380-400-415 V 50/60 Hz	
Cooling capacity *1 (Nominal)		kW	40.0	
		BTU/h	136,500	
	Power input	kW	13.91	11.33
	Current input	A	23.4-22.3-21.5	19.1-18.1-17.5
	EER	kW/kW	2.87	3.53
Temp. range of cooling *3	Indoor	W.B.	15.0~24.0°C (59~75°F)	
	Outdoor	D.B.	-5.0~52.0°C (23~126°F)	
Heating capacity *2 (Nominal)		kW	45.0	
		BTU/h	153,500	
	Power input	kW	13.10	12.16
	Current input	A	22.1-21.0-20.2	20.5-19.5-18.7
	COP	kW/kW	3.43	3.70
Temp. range of heating *3	Indoor	D.B.	15.0~27.0°C (59~81°F)	
	Outdoor	W.B.	-20.0~15.5°C (-4~60°F)	
Indoor unit connectable	Total capacity		50~150% of outdoor unit capacity	
	Model/Quantity		W/WP/WL10~125/1~35	
Sound pressure level (measured in anechoic room) *4		dB <A>	62.5/64.0	
Sound power level (measured in anechoic room) *4		dB <A>	81.0/83.0	
Refrigerant piping diameter	High pressure	mm (in.)	15.88 (5/8) Brazed	
	Low pressure	mm (in.)	28.58 (1-1/8) Brazed	
FAN	Type x Quantity		Propeller fan x 2	
	Air flow rate	m^3/min	250	
		L/s	4,167	
		cfm	8,828	
	Control, Driving mechanism		Inverter-control, Direct-driven by motor	
	Motor output	kW	0.46 x 2	
*5	External static press.		0 Pa (0 mmH_2O)	
Compressor	Type		Inverter scroll hermetic compressor	
	Manufacture		AC&R Works, MITSUBISHI ELECTRIC CORPORATION	
	Starting method		Inverter	
	Motor output	kW	9.6	
	Case heater	kW	- (- V)	
	Lubricant		MEL46EH	
External finish			Pre-coated galvanized steel sheets (+powder coating for -BS type) <MUNSELL 5Y 8/1 or similar>	
External dimension H x W x D		mm	1,858 (1,798 without legs) x 1,240 x 740	
		in.	73-3/16 (70-13/16 without legs) x 48-7/8 x 29-3/16	
Protection devices	High pressure protection		High pressure sensor, High pressure switch at 4.15 MPa (601 psi)	
	Inverter circuit (COMP./FAN)		Over-heat protection, Over-current protection	
	Compressor		-	
	Fan motor		-	
Refrigerant	Type x original charge		R32 x 8.0 kg (18 lbs)	
	Control		HBC	
Net weight		kg (lbs)	276 (609)	
Heat exchanger			Salt-resistant cross fin & aluminium tube	
HIC circuit (HIC: Heat Inter-Changer)			-	
Defrosting method			Auto-defrost mode (Reversed refrigerant cycle, Hot gas)	
Drawing	External		WKL94T602	
	Wiring		WKE94G771	
Standard attachment	Document		Installation Manual	
	Accessory		-	
Optional parts			Main-HBC: CMB-WM108,1016V-AA, CMB-WM350F-AA Sub-HBC: CMB-WM108,1016V-BB	
Remarks			Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. Due to continuing improvement, above specifications may be subject to change without notice.	

Notes:

1.Nominal cooling conditions (subject to JIS B8615-2)
Indoor: 27°CD.B./19°CW.B. (81°FD.B./66°FW.B.), Outdoor: 35°CD.B./24°CW.B. (95°FD.B./75°FW.B.)
Pipe length: 7.5 m (24-9/16 ft.), Level difference: 0 m (0 ft.)
2.Nominal heating conditions (subject to JIS B8615-2)
Indoor: 20°CD.B. (68°FD.B.), Outdoor: 7°CD.B./6°CW.B. (45°FD.B./43°FW.B.)
Pipe length: 7.5 m (24-9/16 ft.), Level difference: 0 m (0 ft.)
3.-5°CD.B. (23°FD.B.)/-6°CW.B. (21°FW.B.) to 21°CD.B. (70°FD.B.)/15.5°CW.B. (60°FW.B.)
with cooling/heating mixed operation.
4.Cooling mode/Heating mode
5.External static pressure option is available (30 Pa, 60 Pa, 80 Pa/3.1 mmH_2O, 6.1 mmH_2O, 8.2 mmH_2O).
Consult your dealer about the specification when setting External static pressure option.
6.R32 is flammable, and certain restrictions apply to the installation of units.
When installing new units, moving the existing units, or changing the layout of the room, ensure that installation restrictions are observed.
For detail, refer to the section in the Databook on installation restrictions.

Unit converter

BTU/h =kW x 3,412
cfm =m^3/min x 35.31
lbs =kg/0.4536

*Above specification data is subject to rounding variation.

Model			PURY-EM400YNW-A1 (-BS)
Power source			3-phase 4-wire 380-400-415 V 50/60 Hz
Cooling capacity *1 (Nominal)		kW	45.0
		BTU/h	153,500
	Power input	kW	13.84
	Current input	A	23.3-22.1-21.3
	EER	kW/kW	3.25
Temp. range of cooling *3	Indoor	W.B.	15.0~24.0°C (59~75°F)
	Outdoor	D.B.	-5.0~52.0°C (23~126°F)
Heating capacity *2 (Nominal)		kW	50.0
		BTU/h	170,600
	Power input	kW	13.88
	Current input	A	23.4-22.2-21.4
	COP	kW/kW	3.60
Temp. range of heating *3	Indoor	D.B.	15.0~27.0°C (59~81°F)
	Outdoor	W.B.	-20.0~15.5°C (-4~60°F)
Indoor unit connectable	Total capacity		50~150% of outdoor unit capacity
	Model/Quantity		W/WP/WL10~125/1~40
Sound pressure level (measured in anechoic room) *4		dB <A>	65.0/69.0
Sound power level (measured in anechoic room) *4		dB <A>	83.0/88.0
Refrigerant piping diameter	High pressure	mm (in.)	19.05 (3/4) Brazed
	Low pressure	mm (in.)	28.58 (1-1/8) Brazed
FAN	Type x Quantity		Propeller fan x 2
	Air flow rate	m^3/min	315
		L/s	5,250
		cfm	11,123
	Control, Driving mechanism		Inverter-control, Direct-driven by motor
	Motor output	kW	0.46 x 2
*5	External static press.		0 Pa (0 mmH_2O)
Compressor	Type		Inverter scroll hermetic compressor
	Manufacture		AC&R Works, MITSUBISHI ELECTRIC CORPORATION
	Starting method		Inverter
	Motor output	kW	11.1
	Case heater	kW	- (- V)
	Lubricant		MEL46EH
External finish			Pre-coated galvanized steel sheets (+powder coating for -BS type) <MUNSELL 5Y 8/1 or similar>
External dimension H x W x D		mm	1,858 (1,798 without legs) x 1,240 x 740
		in.	73-3/16 (70-13/16 without legs) x 48-7/8 x 29-3/16
Protection devices	High pressure protection		High pressure sensor, High pressure switch at 4.15 MPa (601 psi)
	Inverter circuit (COMP./FAN)		Over-heat protection, Over-current protection
	Compressor		-
	Fan motor		-
Refrigerant	Type x original charge		R32 x 8.0 kg (18 lbs)
	Control		HBC
Net weight		kg (lbs)	280 (618)
Heat exchanger			Salt-resistant cross fin & aluminium tube
HIC circuit (HIC: Heat Inter-Changer)			-
Defrosting method			Auto-defrost mode (Reversed refrigerant cycle)
Drawing	External		WKL94T602
	Wiring		WKE94G771
Standard attachment	Document		Installation Manual
	Accessory		-
Optional parts			Main-HBC: CMB-WM108,1016V-AA, CMB-WM500F-AA Sub-HBC: CMB-WM108,1016V-BB
Remarks			Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. Due to continuing improvement, above specifications may be subject to change without notice.

Notes:

1.Nominal cooling conditions (subject to JIS B8615-2)
Indoor: 27°CD.B./19°CW.B. (81°FD.B./66°FW.B.), Outdoor: 35°CD.B./24°CW.B. (95°FD.B./75°FW.B.)
Pipe length: 7.5 m (24-9/16 ft.), Level difference: 0 m (0 ft.)
2.Nominal heating conditions (subject to JIS B8615-2)
Indoor: 20°CD.B. (68°FD.B.), Outdoor: 7°CD.B./6°CW.B. (45°FD.B./43°FW.B.)
Pipe length: 7.5 m (24-9/16 ft.), Level difference: 0 m (0 ft.)
3.-5°CD.B. (23°FD.B.)/-6°CW.B. (21°FW.B.) to 21°CD.B. (70°FD.B.)/15.5°CW.B. (60°FW.B.)
with cooling/heating mixed operation.
4.Cooling mode/Heating mode
5.External static pressure option is available (30 Pa, 60 Pa, 80 Pa/3.1 mmH_2O, 6.1 mmH_2O, 8.2 mmH_2O).
Consult your dealer about the specification when setting External static pressure option.
6.R32 is flammable, and certain restrictions apply to the installation of units.
When installing new units, moving the existing units, or changing the layout of the room, ensure that installation restrictions are observed.
For detail, refer to the section in the Databook on installation restrictions.

Unit converter	
BTU/h	=kW x 3,412
cfm	=m^3/min x 35.31
lbs	=kg/0.4536

*Above specification data is subject to rounding variation.

Model			PURY-EM450YNW-A1 (-BS)
Power source			3-phase 4-wire 380-400-415 V 50/60 Hz
Cooling capacity *1		kW	50.0
(Nominal)		BTU/h	170,600
	Power input	kW	15.24
	Current input	A	25.7-24.4-23.5
	EER	kW/kW	3.28
Temp. range of	Indoor	W.B.	15.0~24.0°C (59~75°F)
cooling *3	Outdoor	D.B.	-5.0~52.0°C (23~126°F)
Heating capacity *2		kW	56.0
(Nominal)		BTU/h	191,100
	Power input	kW	15.77
	Current input	A	26.6-25.2-24.3
	COP	kW/kW	3.55
Temp. range of	Indoor	D.B.	15.0~27.0°C (59~81°F)
heating *3	Outdoor	W.B.	-20.0~15.5°C (-4~60°F)
Indoor unit	Total capacity		50~150% of outdoor unit capacity
connectable	Model/Quantity		W/WP/WL10~125/1~45
Sound pressure level (measured in anechoic room) *4		dB <A>	65.5/70.0
Sound power level (measured in anechoic room) *4		dB <A>	83.0/89.0
Refrigerant	High pressure	mm (in.)	19.05 (3/4) Brazed
piping diameter	Low pressure	mm (in.)	28.58 (1-1/8) Brazed
FAN	Type x Quantity		Propeller fan x 2
	Air flow rate	m^3/min	315
		L/s	5,250
		cfm	11,123
	Control, Driving mechanism		Inverter-control, Direct-driven by motor
	Motor output	kW	0.46 x 2
*5	External static press.		0 Pa (0 mmH_2O)
Compressor	Type		Inverter scroll hermetic compressor
	Manufacture		AC&R Works, MITSUBISHI ELECTRIC CORPORATION
	Starting method		Inverter
	Motor output	kW	12.7
	Case heater	kW	- (- V)
	Lubricant		MEL46EH
External finish			Pre-coated galvanized steel sheets (+powder coating for -BS type) <MUNSELL 5Y 8/1 or similar>
External dimension H x W x D		mm	1,858 (1,798 without legs) x 1,240 x 740
		in.	73-3/16 (70-13/16 without legs) x 48-7/8 x 29-3/16
Protection devices	High pressure protection		High pressure sensor, High pressure switch at 4.15 MPa (601 psi)
	Inverter circuit (COMP./FAN)		Over-heat protection, Over-current protection
	Compressor		-
	Fan motor		-
Refrigerant	Type x original charge		R32 x 10.8 kg (24 lbs)
	Control		HBC
Net weight		kg (lbs)	305 (673)
Heat exchanger			Salt-resistant cross fin & aluminium tube
HIC circuit (HIC: Heat Inter-Changer)			-
Defrosting method			Auto-defrost mode (Reversed refrigerant cycle)
Drawing	External		WKL94T602
	Wiring		WKE94G771
Standard attachment	Document		Installation Manual
	Accessory		-
Optional parts			Main-HBC: CMB-WM108,1016V-AA, CMB-WM500F-AA Sub-HBC: CMB-WM108,1016V-BB
Remarks			Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. Due to continuing improvement, above specifications may be subject to change without notice.

Notes:

1.Nominal cooling conditions (subject to JIS B8615-2)
Indoor: 27°CD.B./19°CW.B. (81°FD.B./66°FW.B.), Outdoor: 35°CD.B./24°CW.B. (95°FD.B./75°FW.B.)
Pipe length: 7.5 m (24-9/16 ft.), Level difference: 0 m (0 ft.)
2.Nominal heating conditions (subject to JIS B8615-2)
Indoor: 20°CD.B. (68°FD.B.), Outdoor: 7°CD.B./6°CW.B. (45°FD.B./43°FW.B.)
Pipe length: 7.5 m (24-9/16 ft.), Level difference: 0 m (0 ft.)
3.-5°CD.B. (23°FD.B.)/-6°CW.B. (21°FW.B.) to 21°CD.B. (70°FD.B.)/15.5°CW.B. (60°FW.B.)
with cooling/heating mixed operation.
4.Cooling mode/Heating mode
5.External static pressure option is available (30 Pa, 60 Pa, 80 Pa/3.1 mmH_2O, 6.1 mmH_2O, 8.2 mmH_2O).
Consult your dealer about the specification when setting External static pressure option.
6.R32 is flammable, and certain restrictions apply to the installation of units.
When installing new units, moving the existing units, or changing the layout of the room, ensure that installation restrictions are observed.
For detail, refer to the section in the Databook on installation restrictions.

Unit converter	
BTU/h	=kW x 3,412
cfm	=m^3/min x 35.31
lbs	=kg/0.4536

*Above specification data is subject to rounding variation.

1. SPECIFICATIONS

Model			PURY-EM500YNW-A1 (-BS)
Power source			3-phase 4-wire 380-400-415 V 50/60 Hz
Cooling capacity (Nominal) *1		kW	56.0
		BTU/h	191,100
	Power input	kW	18.06
	Current input	A	30.4-28.9-27.9
	EER	kW/kW	3.10
Temp. range of cooling *3	Indoor	W.B.	15.0~24.0°C (59~75°F)
	Outdoor	D.B.	-5.0~52.0°C (23~126°F)
Heating capacity (Nominal) *2		kW	63.0
		BTU/h	215,000
	Power input	kW	17.45
	Current input	A	29.4-27.9-26.9
	COP	kW/kW	3.61
Temp. range of heating *3	Indoor	D.B.	15.0~27.0°C (59~81°F)
	Outdoor	W.B.	-20.0~15.5°C (-4~60°F)
Indoor unit connectable	Total capacity		50~150% of outdoor unit capacity
	Model/Quantity		W/WP/WL10~125/1~50
Sound pressure level (measured in anechoic room) *4		dB <A>	63.5/64.5
Sound power level (measured in anechoic room) *4		dB <A>	82.0/84.0
Refrigerant piping diameter	High pressure	mm (in.)	19.05 (3/4) Brazed
	Low pressure	mm (in.)	28.58 (1-1/8) Brazed
FAN	Type x Quantity		Propeller fan x 2
	Air flow rate	m^3/min	295
		L/s	4,917
		cfm	10,416
	Control, Driving mechanism		Inverter-control, Direct-driven by motor
	Motor output	kW	0.92 x 2
*5	External static press.		0 Pa (0 mmH_2O)
Compressor	Type		Inverter scroll hermetic compressor
	Manufacture		AC&R Works, MITSUBISHI ELECTRIC CORPORATION
	Starting method		Inverter
	Motor output	kW	13.8
	Case heater	kW	- (- V)
	Lubricant		MEL46EH
External finish			Pre-coated galvanized steel sheets (+powder coating for -BS type) <MUNSELL 5Y 8/1 or similar>
External dimension H x W x D		mm	1,858 (1,798 without legs) x 1,750 x 740
		in.	73-3/16 (70-13/16 without legs) x 68-15/16 x 29-3/16
Protection devices	High pressure protection		High pressure sensor, High pressure switch at 4.15 MPa (601 psi)
	Inverter circuit (COMP./FAN)		Over-heat protection, Over-current protection
	Compressor		-
	Fan motor		-
Refrigerant	Type x original charge		R32 x 10.8 kg (24 lbs)
	Control		HBC
Net weight		kg (lbs)	348 (768)
Heat exchanger			Salt-resistant cross fin & aluminium tube
HIC circuit (HIC: Heat Inter-Changer)			-
Defrosting method			Auto-defrost mode (Reversed refrigerant cycle)
Drawing	External		WKL94T603
	Wiring		WKE94G769
Standard attachment	Document		Installation Manual
	Accessory		-
Optional parts			Main-HBC: CMB-WM108,1016V-AA, CMB-WM500F-AA Sub-HBC: CMB-WM108,1016V-BB
Remarks			Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. Due to continuing improvement, above specifications may be subject to change without notice.

Notes:

1.Nominal cooling conditions (subject to JIS B8615-2)
Indoor: 27°CD.B./19°CW.B. (81°FD.B./66°FW.B.), Outdoor: 35°CD.B./24°CW.B. (95°FD.B./75°FW.B.)
Pipe length: 7.5 m (24-9/16 ft.), Level difference: 0 m (0 ft.)
2.Nominal heating conditions (subject to JIS B8615-2)
Indoor: 20°CD.B. (68°FD.B.), Outdoor: 7°CD.B./6°CW.B. (45°FD.B./43°FW.B.)
Pipe length: 7.5 m (24-9/16 ft.), Level difference: 0 m (0 ft.)
3.-5°CD.B. (23°FD.B.)/-6°CW.B. (21°FW.B.) to 21°CD.B. (70°FD.B.)/15.5°CW.B. (60°FW.B.)
with cooling/heating mixed operation.
4.Cooling mode/Heating mode
5.External static pressure option is available (30 Pa, 60 Pa, 80 Pa/3.1 mmH_2O, 6.1 mmH_2O, 8.2 mmH_2O).
Consult your dealer about the specification when setting External static pressure option.
6.R32 is flammable, and certain restrictions apply to the installation of units.
When installing new units, moving the existing units, or changing the layout of the room, ensure that installation restrictions are observed.
For detail, refer to the section in the Databook on installation restrictions.

Unit converter	
BTU/h	=kW x 3,412
cfm	=m^3/min x 35.31
lbs	=kg/0.4536

*Above specification data is subject to rounding variation.

PURY-M200, 250, 300YNW-A1(-BS)

Unit: mm

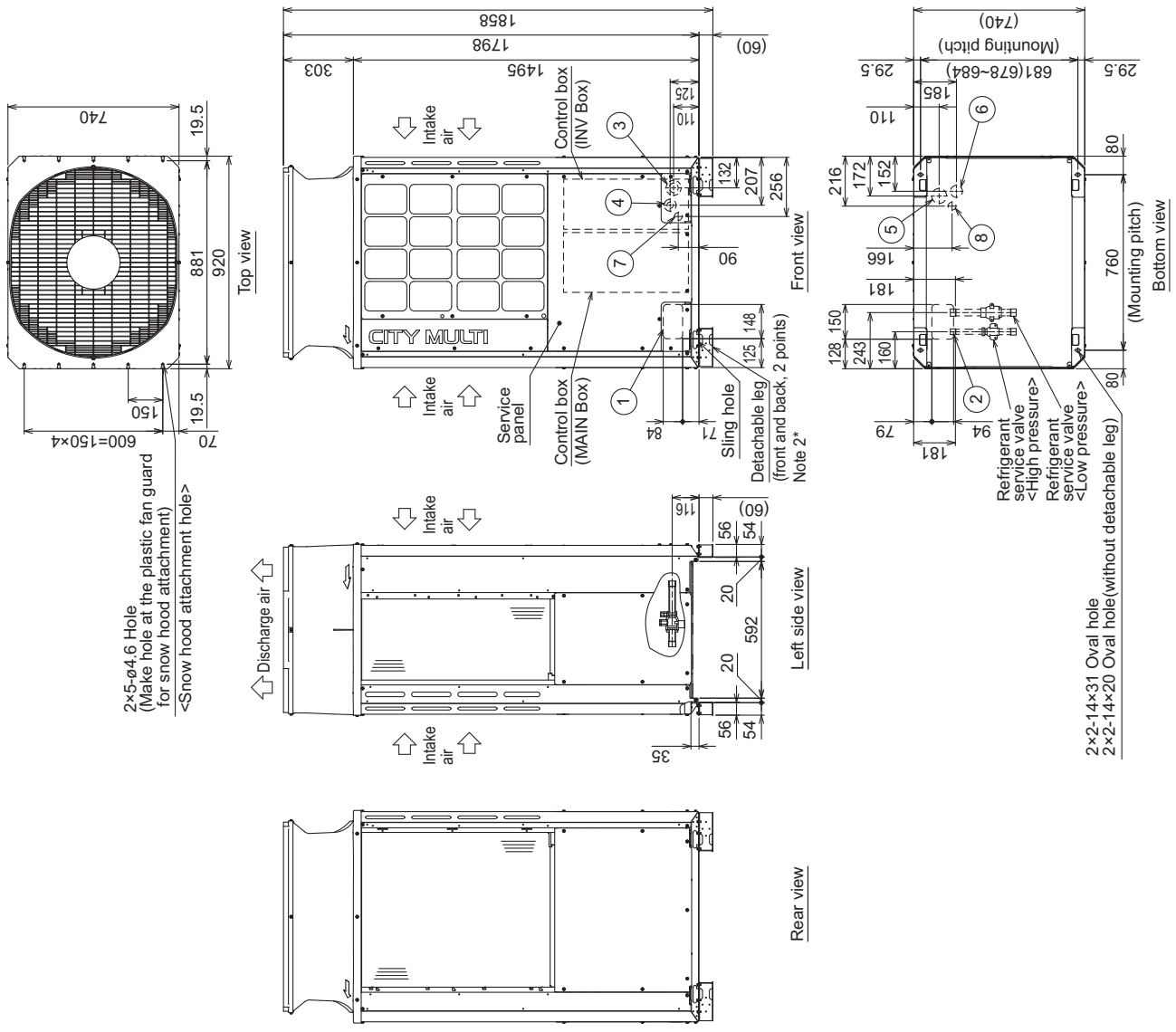
Note 1. Please refer to the next page for information regarding necessary spacing around the unit and foundation work.
2. The detachable leg can be removed at site.
3. At brazing of pipes, wrap the refrigerant service valve with wet cloth and keep the temperature of refrigerant service valve under 120°C.
4. This unit has restrictions for the safety, so refer to SAFETY HANDLING FOR R32 or the Installation Manual.

Connecting pipe specifications

Model	Diameter			
	Refrigerant pipe		Service valve	
	High pressure	Low pressure	High pressure	Low pressure
M200	ø15.88 Brazed *1	ø19.05 Brazed *1	ø22.2	ø28.58
M250		ø22.2 Brazed *1		
M300				

*1 Connect the refrigerant pipe to the service valve according to the Installation Manual.

NO.	Usage		Specifications
①	For pipes	Front through hole	148 × 84 Knockout hole
②		Bottom through hole	150 × 94 Knockout hole
③	For wires	Front through hole	ø65 or ø40 Knockout hole
④		Front through hole	ø52 or ø27 Knockout hole
⑤		Bottom through hole	ø65 Knockout hole
⑥		Bottom through hole	ø52 Knockout hole
⑦	For transmission cables	Front through hole	ø34 Knockout hole
⑧		Bottom through hole	ø34 Knockout hole

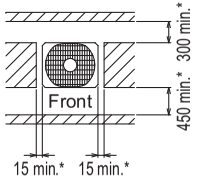


1. Required space around the unit

●In case of single installation

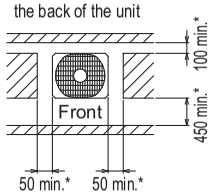
① Secure enough space around the unit as shown in the figure below.

· With a space of at least 300mm to the wall on the back of the unit



<Top view>

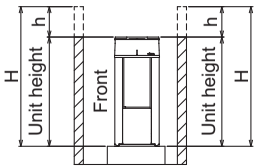
· With a space of at least 100mm to the wall on the back of the unit



<Top view>

<Unit:mm>

② When the height of the walls on the front, back or on the sides<H> exceeds the wall height limit as defined below add the height that exceeds the height limit <h> to the figures that are marked with an asterisk.



<Side view>

<Wall height limit> Front :Up to the unit height
Back :Up to the unit height
Side :Up to the unit height

2. Foundation work

① Take into consideration the surface strength, water drainage route, piping route, and wiring route when preparing the installation site. <Note that the drain water comes out of the unit during operation.>

② Build the foundation in such way that the corner of the installation leg is securely supported as shown in the right figure.(Fig.A,B) When using a rubber isolating cushion, please ensure it is large enough to cover the entire width of each of the unit's legs.

③ The protrusion length of the anchor bolt must not exceed 30mm.(Fig.A,B)

④ Use four fixing plates as shown in the right figure <field supply required> when using M12 hole-in anchor bolts <field supply required>.(Fig.C,D)

⑤ To prevent small animals and water and snow from entering the unit and damaging its parts, close the gap around the edges of through holes for pipes and wires with filler plates <field supply required>.

⑥ When the pipes or cables are routed at the bottom of the unit, make sure that the through hole at the base of the unit does not get blocked with the installation base.

⑦ Refer to the Installation Manual when installing units on an installation base.

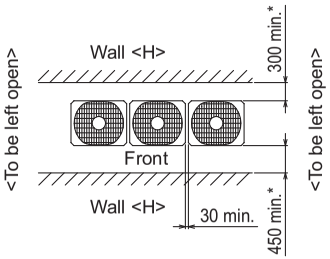
●In case of collective installation

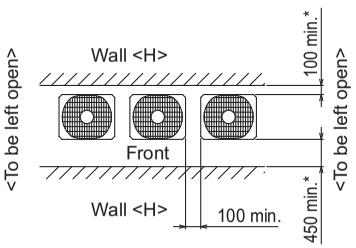
① When multiple units are installed adjacent to each other, secure enough space to allow for air circulation and walkway between groups of units as shown in the figures below.

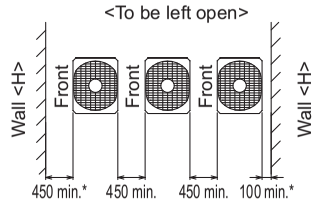
② At least two sides must be left open.

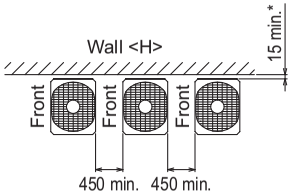
③ As with the single installation, add the height that exceeds the height limit<h> to the figures that are marked with an asterisk.

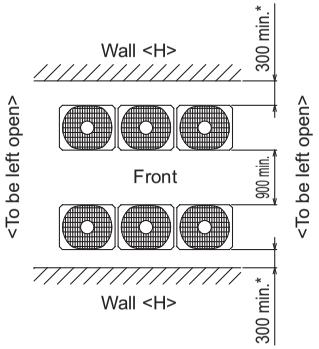
④ If there is a wall at both the front and the rear of the unit, install up to six units consecutively in the side direction and provide a space of 1000mm or more as inlet space/ passage space for each six units.

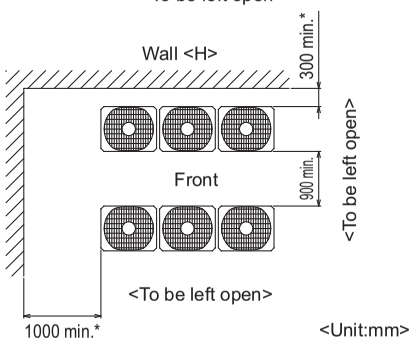












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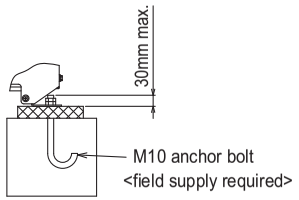


Fig.A (without detachable legs)

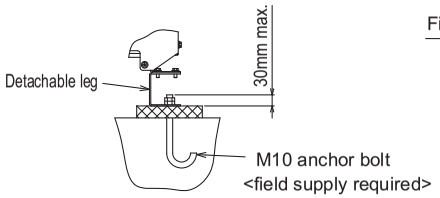


Fig.B (with detachable legs)

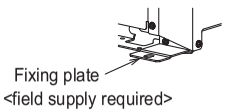


Fig.C (without detachable legs)

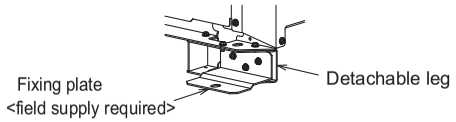


Fig.D (with detachable legs)

Unit: mm

PURY-M350,400,450YNW-A1(-BS)

Unit: mm

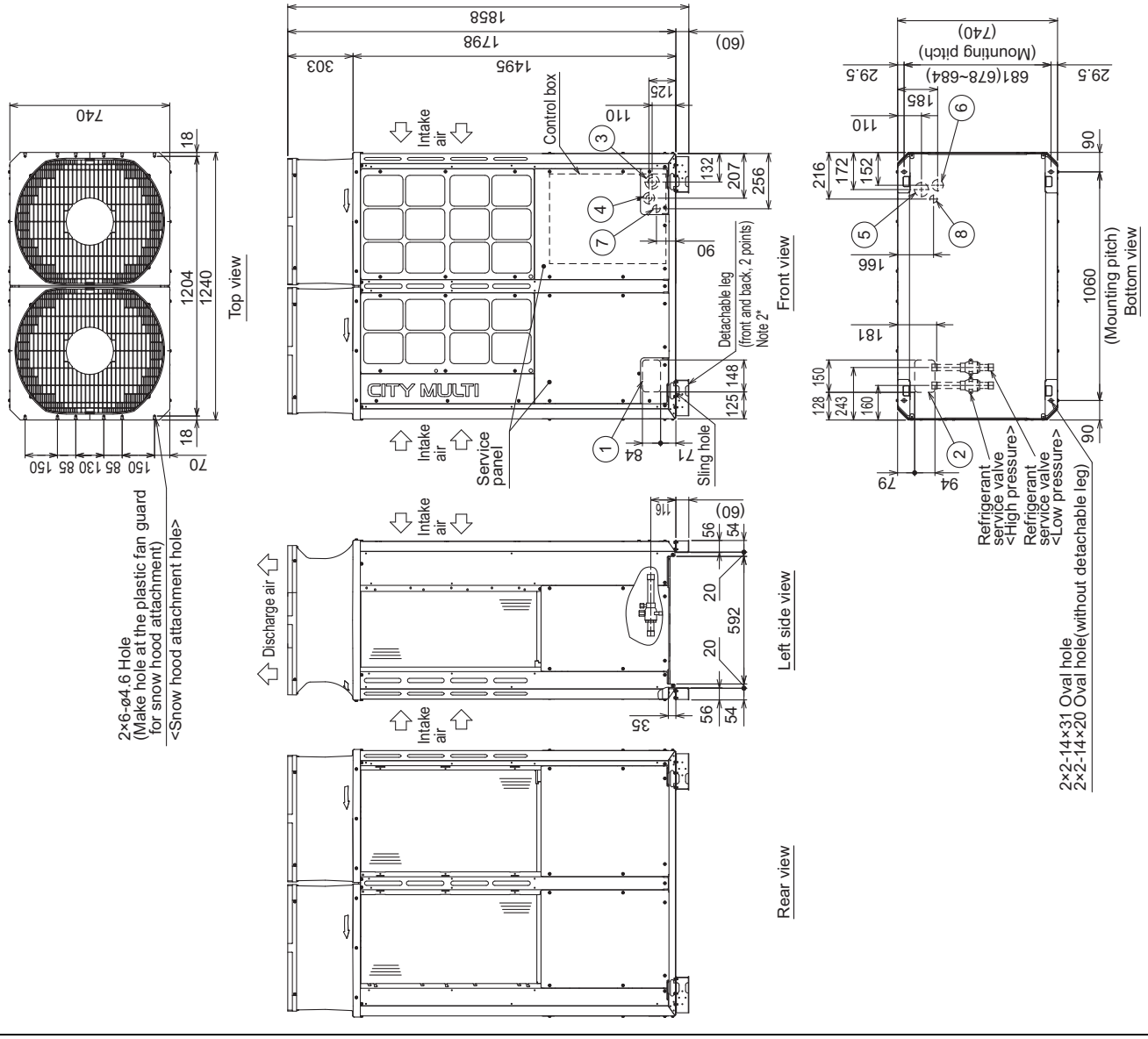
Note 1.Please refer to the next page for information regarding necessary spacing around the unit and foundation work.
2.The detachable leg can be removed at site.
3.At brazing of pipes, wrap the refrigerant service valve with wet cloth and keep the temperature of refrigerant service valve under 120°C.
4.This unit has restrictions for the safety, so refer to SAFETY HANDLING FOR R32 or the Installation Manual.

Connecting pipe specifications

Model	Diameter			
	Refrigerant pipe		Service valve	
	High pressure	Low pressure	High pressure	Low pressure
M350	ø15.88 Brazed *1	ø28.58 Brazed	ø28.58	ø28.58
M400	ø19.05 Brazed *1			
M450				

*1 Connect the refrigerant pipe to the service valve according to the Installation Manual.

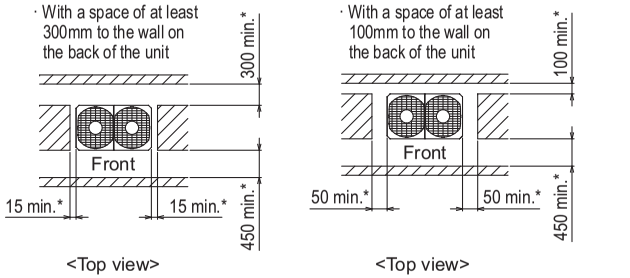
NO.	Usage		Specifications
①	For pipes	Front through hole	148 × 84 Knockout hole
②		Bottom through hole	150 × 94 Knockout hole
③	For wires	Front through hole	ø65 or ø40 Knockout hole
④		Front through hole	ø52 or ø27 Knockout hole
⑤		Bottom through hole	ø65 Knockout hole
⑥		Bottom through hole	ø52 Knockout hole
⑦	For transmission cables	Front through hole	ø34 Knockout hole
⑧		Bottom through hole	ø34 Knockout hole



1. Required space around the unit

●In case of single installation

① Secure enough space around the unit as shown in the figure below.



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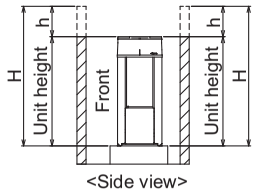
② When the height of the walls on the front, back or on the sides<H> exceeds the wall height limit as defined below add the height that exceeds the height limit <h> to the figures that are marked with an asterisk.



<Wall height limit> Front :Up to the unit height
Back :Up to the unit height
Side :Up to the unit height

2. Foundation work

① Take into consideration the surface strength, water drainage route, piping route, and wiring route when preparing the installation site.
<Note that the drain water comes out of the unit during operation.>

② Build the foundation in such way that the corner of the installation leg is securely supported as shown in the right figure.(Fig.A,B)
When using a rubber isolating cushion, please ensure it is large enough to cover the entire width of each of the unit's legs.

③ The protrusion length of the anchor bolt must not exceed 30mm.(Fig.A,B)

④ Use four fixing plates as shown in the right figure <field supply required> when using M12 hole-in anchor bolts <field supply required>.(Fig.C,D)

⑤ To prevent small animals and water and snow from entering the unit and damaging its parts, close the gap around the edges of through holes for pipes and wires with filler plates <field supply required>.

⑥ When the pipes or cables are routed at the bottom of the unit, make sure that the through hole at the base of the unit does not get blocked with the installation base.

⑦ Refer to the Installation Manual when installing units on an installation base.

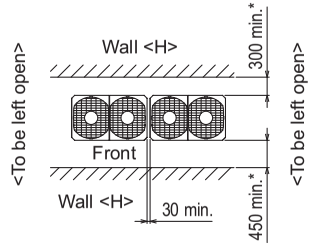
●In case of collective installation

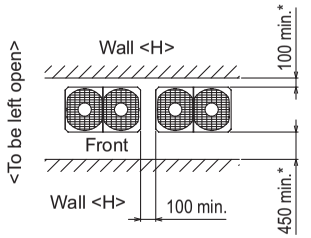
① When multiple units are installed adjacent to each other, secure enough space to allow for air circulation and walkway between groups of units as shown in the figures below.

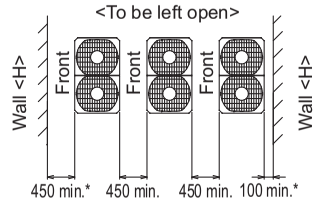
② At least two sides must be left open.

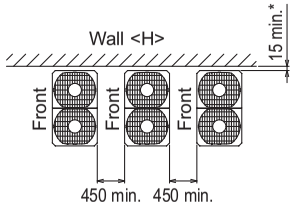
③ As with the single installation, add the height that exceeds the height limit<h> to the figures that are marked with an asterisk.

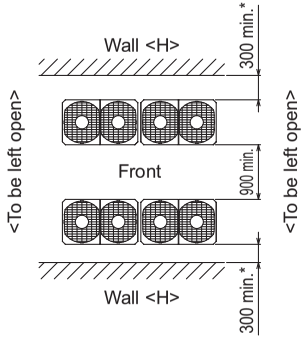
④ If there is a wall at both the front and the rear of the unit, install up to six units consecutively in the side direction and provide a space of 1000mm or more as inlet space/ passage space for each six units.

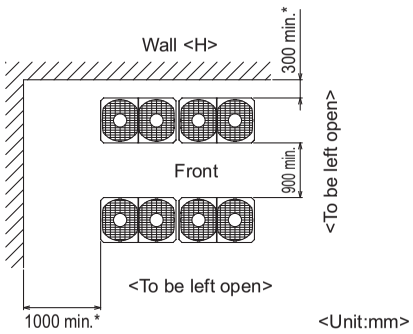












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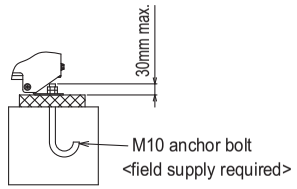


Fig.A (without detachable legs)

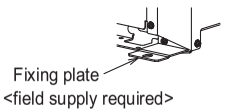


Fig.C (without detachable legs)

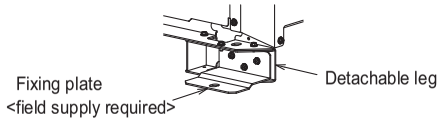


Fig.D (with detachable legs)

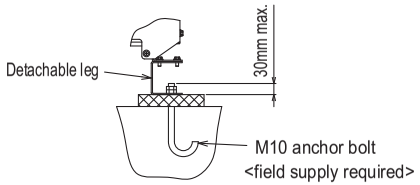


Fig.B (with detachable legs)

Unit: mm

PURY-M500YNW-A1(-BS)

Unit: mm

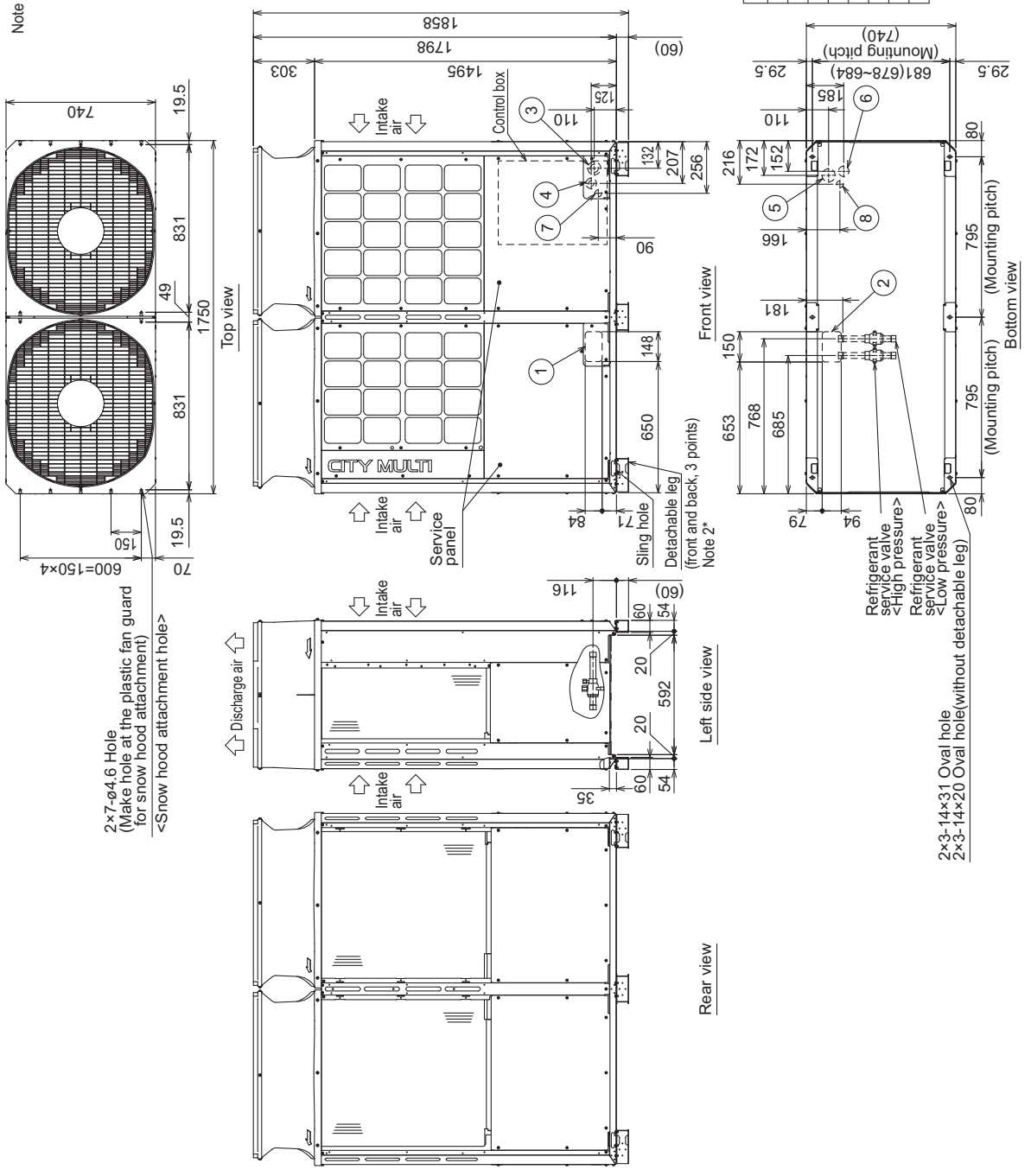
Note 1.Please refer to the next page for information regarding necessary spacing around the unit and foundation work.
2.The detachable leg can be removed at site.
3.At brazing of pipes, wrap the refrigerant service valve with wet cloth and keep the temperature of refrigerant service valve under 120°C.
4.This unit has restrictions for the safety, so refer to SAFETY HANDLING FOR R32 or the Installation Manual.

Connecting pipe specifications

Model	Diameter			
	Refrigerant pipe		Service valve	
	High pressure	Low pressure	High pressure	Low pressure
M500	ø19.05 Brazed *1	ø28.58 Brazed	ø28.58	ø28.58

*1 Connect the refrigerant pipe to the service valve according to the Installation Manual.

NO.	Usage		Specifications
①	For pipes	Front through hole	148 × 84 Knockout hole
②		Bottom through hole	150 × 94 Knockout hole
③	For wires	Front through hole	ø65 or ø40 Knockout hole
④		Front through hole	ø52 or ø27 Knockout hole
⑤		Bottom through hole	ø65 Knockout hole
⑥		Bottom through hole	ø52 Knockout hole
⑦	For transmission cables	Front through hole	ø34 Knockout hole
⑧		Bottom through hole	ø34 Knockout hole

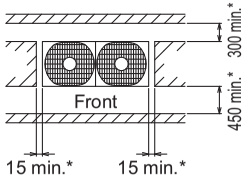


1. Required space around the unit

●In case of single installation

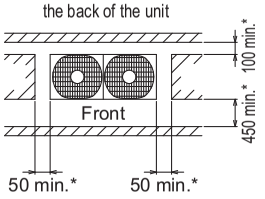
① Secure enough space around the unit as shown in the figure below.

· With a space of at least 300mm to the wall on the back of the unit



<Top view>

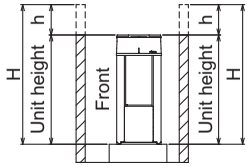
· With a space of at least 100mm to the wall on the back of the unit



<Top view>

<Unit:mm>

② When the height of the walls on the front, back or on the sides<H> exceeds the wall height limit as defined below add the height that exceeds the height limit <h> to the figures that are marked with an asterisk.



<Side view>

<Wall height limit> Front :Up to the unit height
Back :Up to the unit height
Side :Up to the unit height

2. Foundation work

① Take into consideration the surface strength, water drainage route, piping route, and wiring route when preparing the installation site.
<Note that the drain water comes out of the unit during operation.>

② Build the foundation in such way that the corner of the installation leg is securely supported as shown in the right figure.(Fig.A,B)
When using a rubber isolating cushion, please ensure it is large enough to cover the entire width of each of the unit's legs.

③ The protrusion length of the anchor bolt must not exceed 30mm.(Fig.A,B)

④ Use six fixing plates as shown in the right figure <field supply required> when using M12 hole-in anchor bolts <field supply required>.(Fig.C,D)

⑤ To prevent small animals and water and snow from entering the unit and damaging its parts, close the gap around the edges of through holes for pipes and wires with filler plates <field supply required>.

⑥ When the pipes or cables are routed at the bottom of the unit, make sure that the through hole at the base of the unit does not get blocked with the installation base.

⑦ Refer to the Installation Manual when installing units on an installation base.

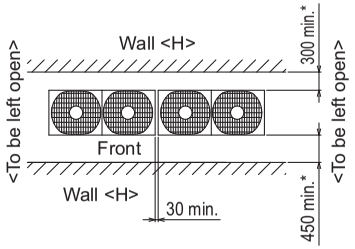
●In case of collective installation

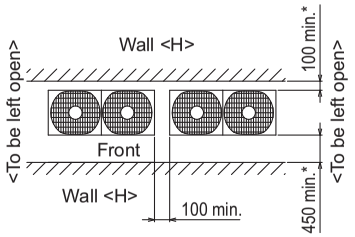
① When multiple units are installed adjacent to each other, secure enough space to allow for air circulation and walkway between groups of units as shown in the figures below.

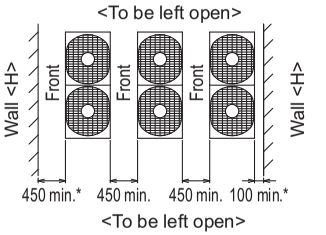
② At least two sides must be left open.

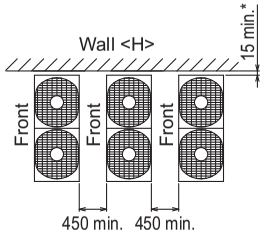
③ As with the single installation, add the height that exceeds the height limit<h> to the figures that are marked with an asterisk.

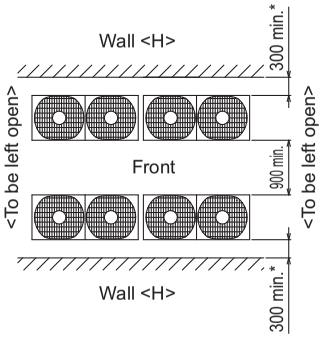
④ If there is a wall at both the front and the rear of the unit, install up to three units consecutively in the side direction and provide a space of 1000mm or more as inlet space/ passage space for each three units.

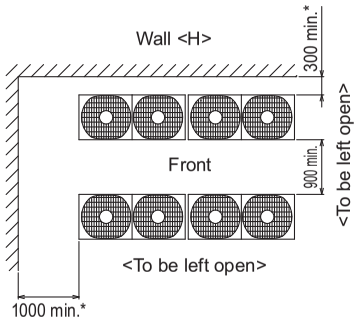












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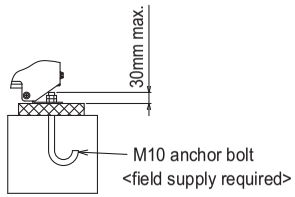


Fig.A (without detachable legs)

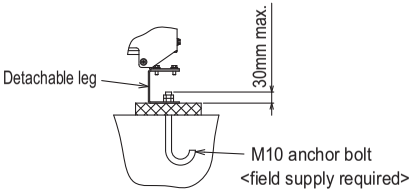


Fig.B (with detachable legs)

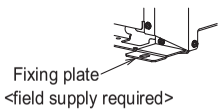


Fig.C (without detachable legs)

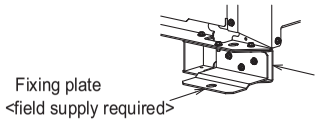


Fig.D (with detachable legs)

PURY-EM200, 250, 300YNW-A1(-BS)

Unit: mm

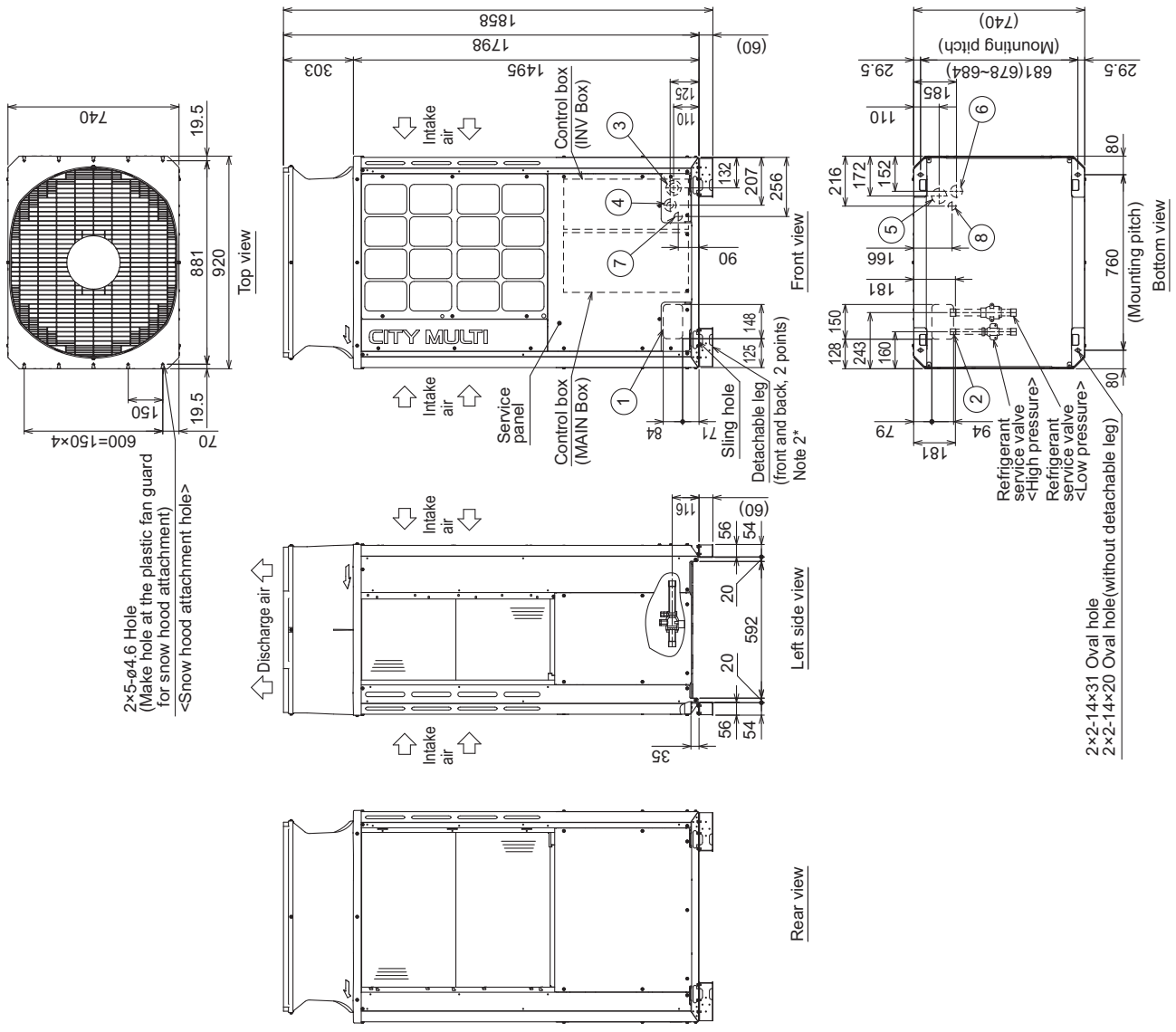
Note 1. Please refer to the next page for information regarding necessary spacing around the unit and foundation work.
2. The detachable leg can be removed at site.
3. At brazing of pipes, wrap the refrigerant service valve with wet cloth and keep the temperature of refrigerant service valve under 120°C.
4. This unit has restrictions for the safety, so refer to SAFETY HANDLING FOR R32 or the Installation Manual.

Connecting pipe specifications

Model	Diameter			
	Refrigerant pipe		Service valve	
	High pressure	Low pressure	High pressure	Low pressure
EM200	ø15.88 Brazed *1	ø19.05 Brazed *1	ø22.2	ø28.58
EM250		ø22.2 Brazed *1		
EM300				

*1 Connect the refrigerant pipe to the service valve according to the Installation Manual.

NO.	Usage		Specifications
①	For pipes	Front through hole	148 × 84 Knockout hole
②		Bottom through hole	150 × 94 Knockout hole
③	For wires	Front through hole	ø65 or ø40 Knockout hole
④		Front through hole	ø52 or ø27 Knockout hole
⑤		Bottom through hole	ø65 Knockout hole
⑥		Bottom through hole	ø52 Knockout hole
⑦	For transmission cables	Front through hole	ø34 Knockout hole
⑧		Bottom through hole	ø34 Knockout hole

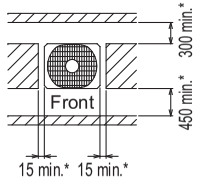


1. Required space around the unit

●In case of single installation

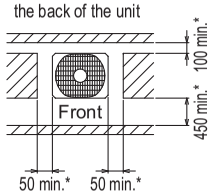
① Secure enough space around the unit as shown in the figure below.

· With a space of at least 300mm to the wall on the back of the unit



<Top view>

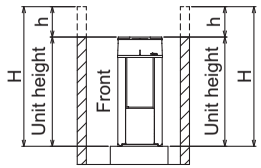
· With a space of at least 100mm to the wall on the back of the unit



<Top view>

<Unit:mm>

② When the height of the walls on the front, back or on the sides<H> exceeds the wall height limit as defined below add the height that exceeds the height limit <h> to the figures that are marked with an asterisk.



<Side view>

<Wall height limit> Front :Up to the unit height
Back :Up to the unit height
Side :Up to the unit height

2. Foundation work

① Take into consideration the surface strength, water drainage route, piping route, and wiring route when preparing the installation site.
<Note that the drain water comes out of the unit during operation.>

② Build the foundation in such way that the corner of the installation leg is securely supported as shown in the right figure.(Fig.A,B)
When using a rubber isolating cushion, please ensure it is large enough to cover the entire width of each of the unit's legs.

③ The protrusion length of the anchor bolt must not exceed 30mm.(Fig.A,B)

④ Use four fixing plates as shown in the right figure <field supply required> when using M12 hole-in anchor bolts <field supply required>.(Fig.C,D)

⑤ To prevent small animals and water and snow from entering the unit and damaging its parts, close the gap around the edges of through holes for pipes and wires with filler plates <field supply required>.

⑥ When the pipes or cables are routed at the bottom of the unit, make sure that the through hole at the base of the unit does not get blocked with the installation base.

⑦ Refer to the Installation Manual when installing units on an installation base.

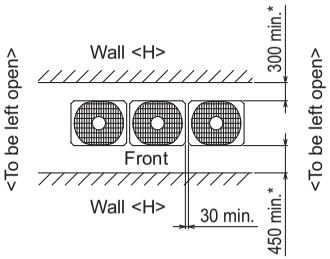
●In case of collective installation

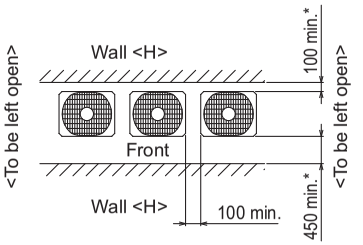
① When multiple units are installed adjacent to each other, secure enough space to allow for air circulation and walkway between groups of units as shown in the figures below.

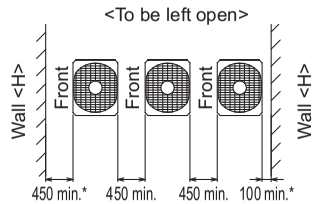
② At least two sides must be left open.

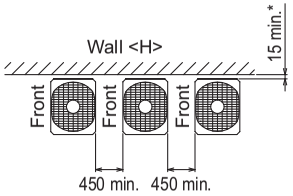
③ As with the single installation, add the height that exceeds the height limit<h> to the figures that are marked with an asterisk.

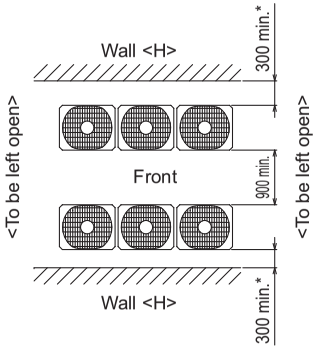
④ If there is a wall at both the front and the rear of the unit, install up to six units consecutively in the side direction and provide a space of 1000mm or more as inlet space/ passage space for each six units.

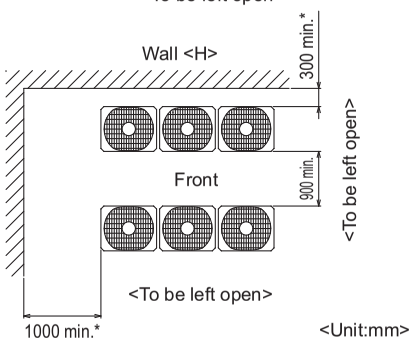












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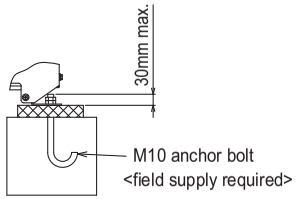


Fig.A (without detachable legs)

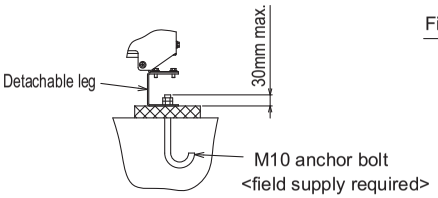


Fig.B (with detachable legs)

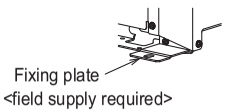


Fig.C (without detachable legs)

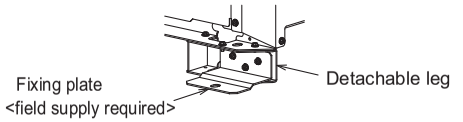


Fig.D (with detachable legs)

Unit: mm

PURY-EM350,400,450YNW-A1(-BS)

Unit: mm

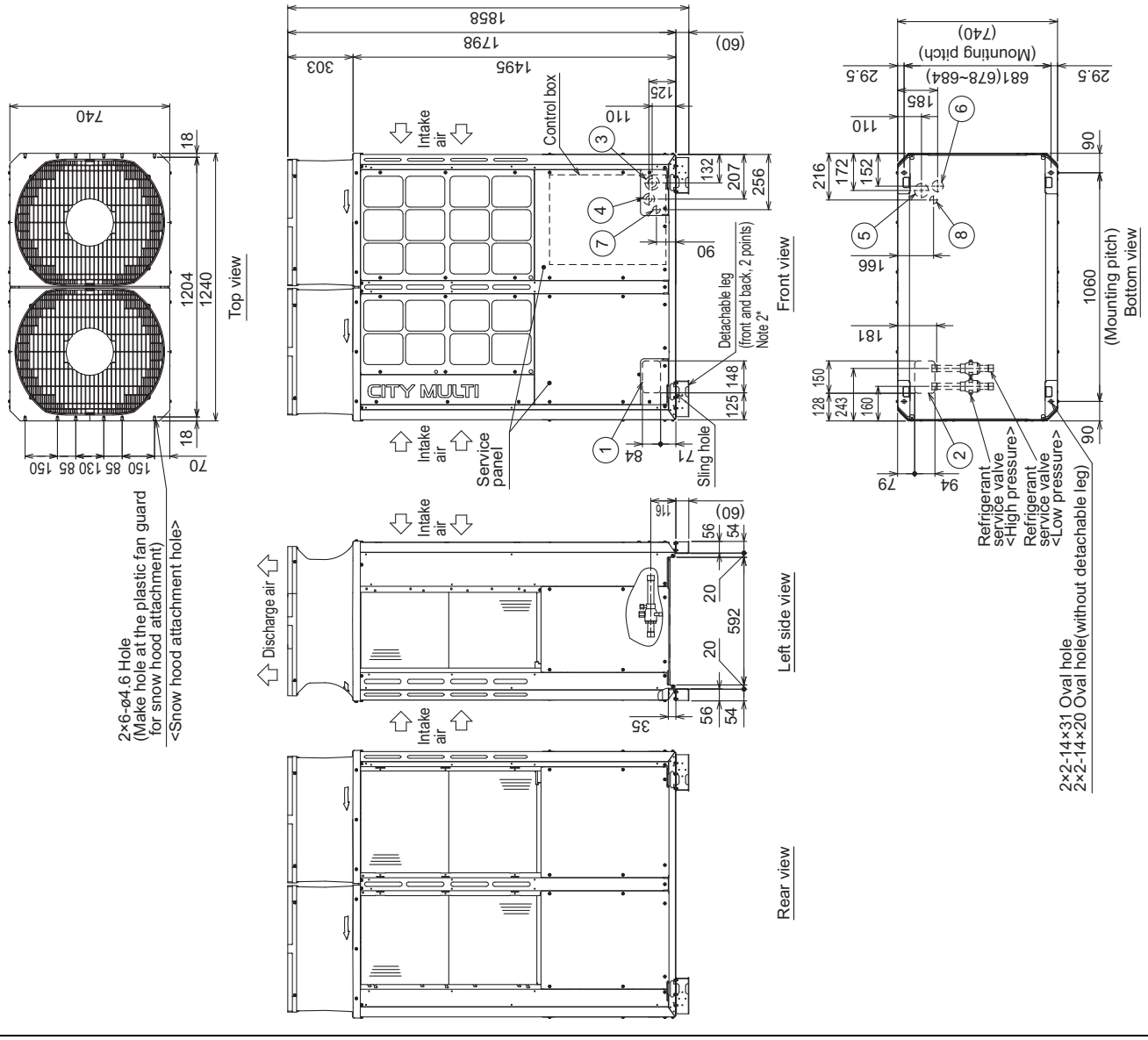
Note 1.Please refer to the next page for information regarding necessary spacing around the unit and foundation work.
2.The detachable leg can be removed at site.
3.At brazing of pipes, wrap the refrigerant service valve with wet cloth and keep the temperature of refrigerant service valve under 120°C.
4.This unit has restrictions for the safety, so refer to SAFETY HANDLING FOR R32 or the Installation Manual.

Connecting pipe specifications

Model	Diameter			
	Refrigerant pipe		Service valve	
	High pressure	Low pressure	High pressure	Low pressure
EM350	ø15.88 Brazed *1	ø28.58 Brazed	ø28.58	ø28.58
EM400	ø19.05 Brazed *1			
EM450				

*1 Connect the refrigerant pipe to the service valve according to the Installation Manual.

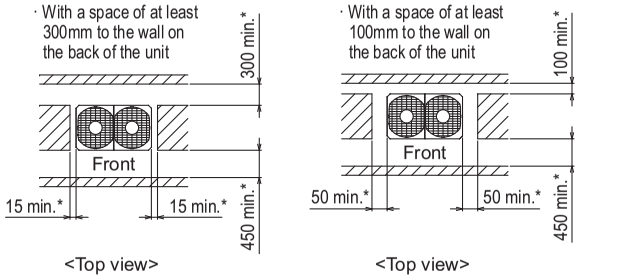
NO.	Usage	Specifications
①	For pipes	Front through hole: 148 × 84 Knockout hole
②		Bottom through hole: 150 × 94 Knockout hole
③	For wires	Front through hole: ø65 or ø40 Knockout hole
④		Front through hole: ø52 or ø27 Knockout hole
⑤		Bottom through hole: ø65 Knockout hole
⑥		Bottom through hole: ø52 Knockout hole
⑦	For transmission cables	Front through hole: ø34 Knockout hole
⑧		Bottom through hole: ø34 Knockout hole



1. Required space around the unit

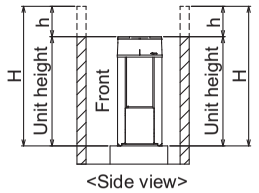
●In case of single installation

① Secure enough space around the unit as shown in the figure below.



<Unit:mm>

② When the height of the walls on the front, back or on the sides<H> exceeds the wall height limit as defined below add the height that exceeds the height limit <h> to the figures that are marked with an asterisk.



<Wall height limit> Front :Up to the unit height
Back :Up to the unit height
Side :Up to the unit height

2. Foundation work

① Take into consideration the surface strength, water drainage route, piping route, and wiring route when preparing the installation site.
<Note that the drain water comes out of the unit during operation.>

② Build the foundation in such way that the corner of the installation leg is securely supported as shown in the right figure.(Fig.A,B)
When using a rubber isolating cushion, please ensure it is large enough to cover the entire width of each of the unit's legs.

③ The protrusion length of the anchor bolt must not exceed 30mm.(Fig.A,B)

④ Use four fixing plates as shown in the right figure <field supply required> when using M12 hole-in anchor bolts <field supply required>.(Fig.C,D)

⑤ To prevent small animals and water and snow from entering the unit and damaging its parts, close the gap around the edges of through holes for pipes and wires with filler plates <field supply required>.

⑥ When the pipes or cables are routed at the bottom of the unit, make sure that the through hole at the base of the unit does not get blocked with the installation base.

⑦ Refer to the Installation Manual when installing units on an installation base.

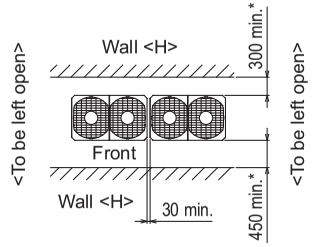
●In case of collective installation

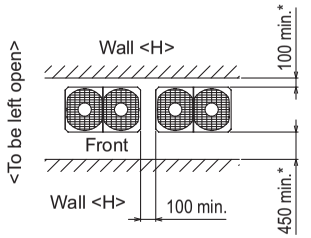
① When multiple units are installed adjacent to each other, secure enough space to allow for air circulation and walkway between groups of units as shown in the figures below.

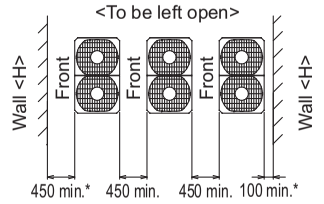
② At least two sides must be left open.

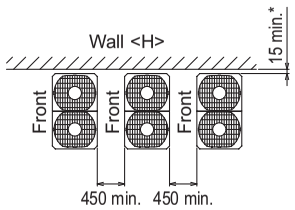
③ As with the single installation, add the height that exceeds the height limit<h> to the figures that are marked with an asterisk.

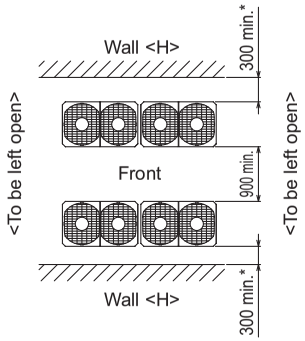
④ If there is a wall at both the front and the rear of the unit, install up to six units consecutively in the side direction and provide a space of 1000mm or more as inlet space/ passage space for each six units.

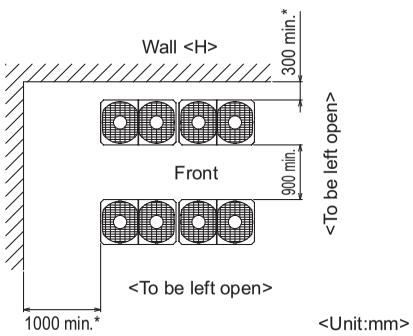












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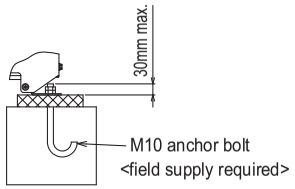


Fig.A (without detachable legs)

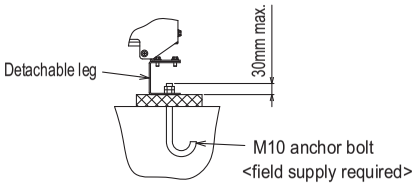


Fig.B (with detachable legs)

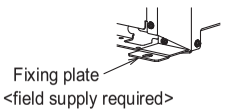


Fig.C (without detachable legs)

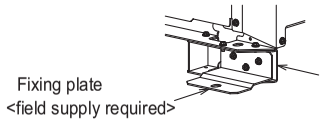


Fig.D (with detachable legs)

Unit: mm

PURY-EM500YNW-A1(-BS)

Unit: mm

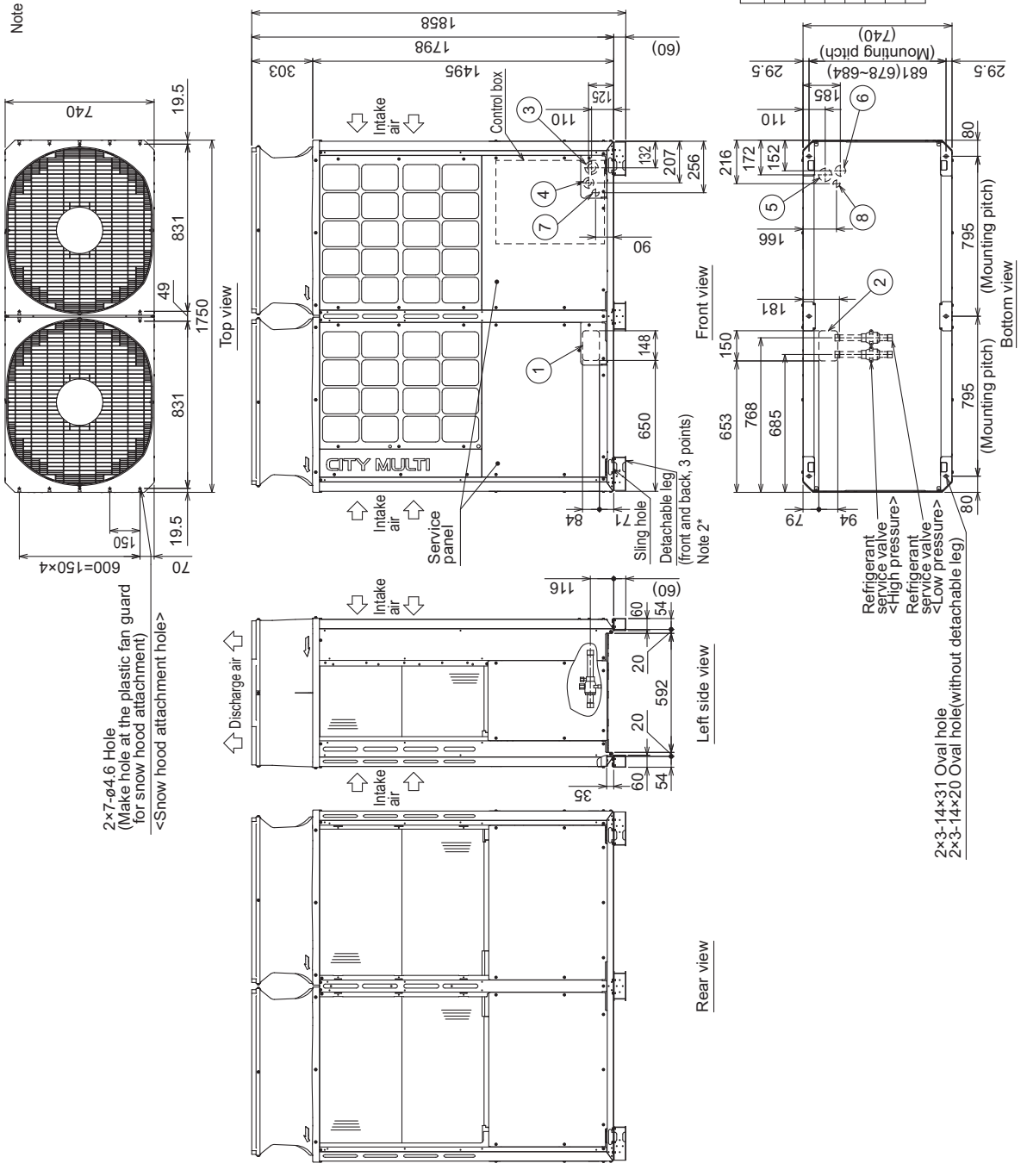
Note 1.Please refer to the next page for information regarding necessary spacing around the unit and foundation work.
2.The detachable leg can be removed at site.
3.At brazing of pipes, wrap the refrigerant service valve with wet cloth and keep the temperature of refrigerant service valve under 120°C.
4.This unit has restrictions for the safety, so refer to SAFETY HANDLING FOR R32 or the Installation Manual.

Connecting pipe specifications

Model	Diameter			
	Refrigerant pipe		Service valve	
	High pressure	Low pressure	High pressure	Low pressure
EM500	ø19.05 Brazed *1	ø28.58 Brazed	ø28.58	ø28.58

*1 Connect the refrigerant pipe to the service valve according to the Installation Manual.

NO.	Usage	Specifications
①	For pipes	Front through hole: 148 × 84 Knockout hole
②		Bottom through hole: 150 × 94 Knockout hole
③	For wires	Front through hole: ø65 or ø40 Knockout hole
④		Front through hole: ø52 or ø27 Knockout hole
⑤		Bottom through hole: ø65 Knockout hole
⑥		Bottom through hole: ø52 Knockout hole
⑦	For transmission cables	Front through hole: ø34 Knockout hole
⑧		Bottom through hole: ø34 Knockout hole

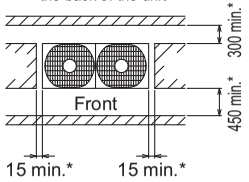


1. Required space around the unit

●In case of single installation

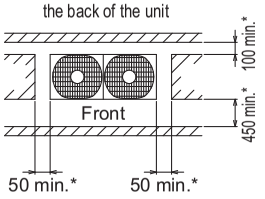
① Secure enough space around the unit as shown in the figure below.

· With a space of at least 300mm to the wall on the back of the unit



<Top view>

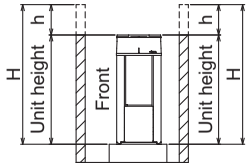
· With a space of at least 100mm to the wall on the back of the unit



<Top view>

<Unit:mm>

② When the height of the walls on the front, back or on the sides<H> exceeds the wall height limit as defined below add the height that exceeds the height limit <h> to the figures that are marked with an asterisk.



<Side view>

<Wall height limit> Front :Up to the unit height
Back :Up to the unit height
Side :Up to the unit height

2. Foundation work

① Take into consideration the surface strength, water drainage route, piping route, and wiring route when preparing the installation site.
<Note that the drain water comes out of the unit during operation.>

② Build the foundation in such way that the corner of the installation leg is securely supported as shown in the right figure.(Fig.A,B)
When using a rubber isolating cushion, please ensure it is large enough to cover the entire width of each of the unit's legs.

③ The protrusion length of the anchor bolt must not exceed 30mm.(Fig.A,B)

④ Use six fixing plates as shown in the right figure <field supply required> when using M12 hole-in anchor bolts <field supply required>.(Fig.C,D)

⑤ To prevent small animals and water and snow from entering the unit and damaging its parts, close the gap around the edges of through holes for pipes and wires with filler plates <field supply required>.

⑥ When the pipes or cables are routed at the bottom of the unit, make sure that the through hole at the base of the unit does not get blocked with the installation base.

⑦ Refer to the Installation Manual when installing units on an installation base.

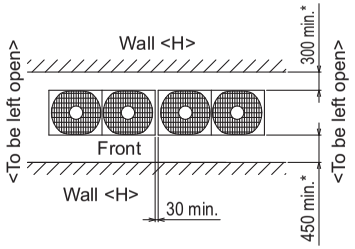
●In case of collective installation

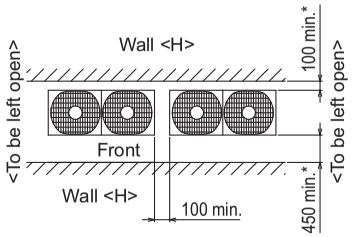
① When multiple units are installed adjacent to each other, secure enough space to allow for air circulation and walkway between groups of units as shown in the figures below.

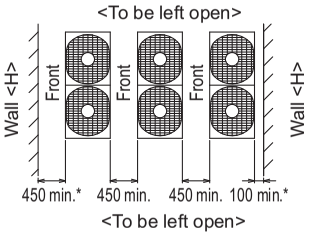
② At least two sides must be left open.

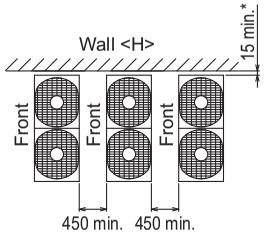
③ As with the single installation, add the height that exceeds the height limit<h> to the figures that are marked with an asterisk.

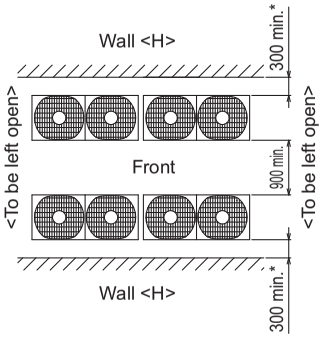
④ If there is a wall at both the front and the rear of the unit, install up to three units consecutively in the side direction and provide a space of 1000mm or more as inlet space/ passage space for each three units.

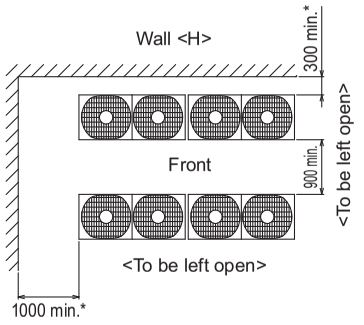












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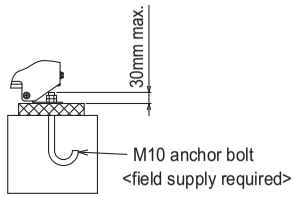


Fig.A (without detachable legs)

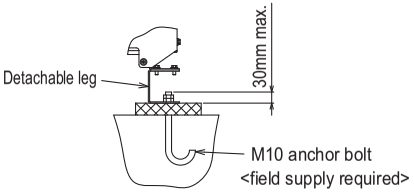


Fig.B (with detachable legs)

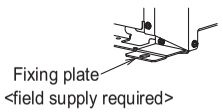


Fig.C (without detachable legs)

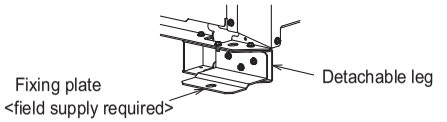
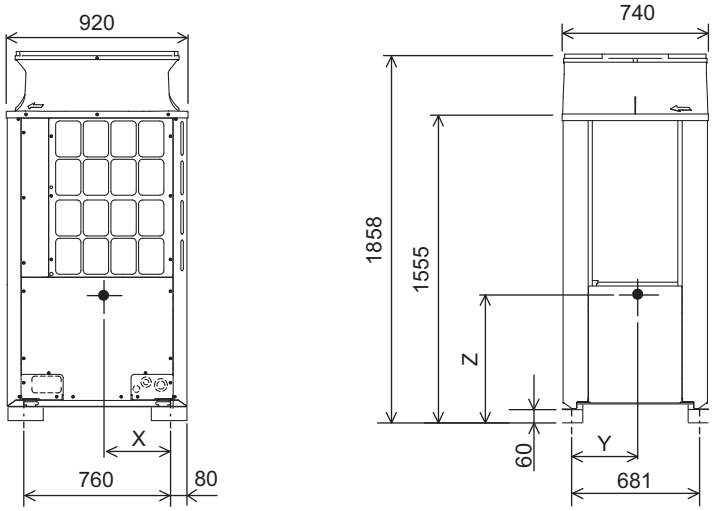


Fig.D (with detachable legs)

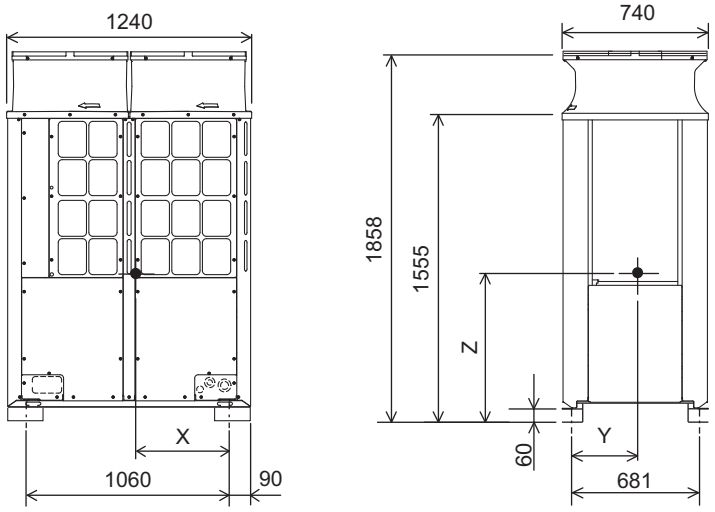
PURY-M200, 250, 300YNW-A1 (-BS)



Unit: mm

Model	X	Y	Z
PURY-M200YNW-A1(-BS)	357	338	664
PURY-M250YNW-A1(-BS)	357	338	664
PURY-M300YNW-A1(-BS)	357	338	664

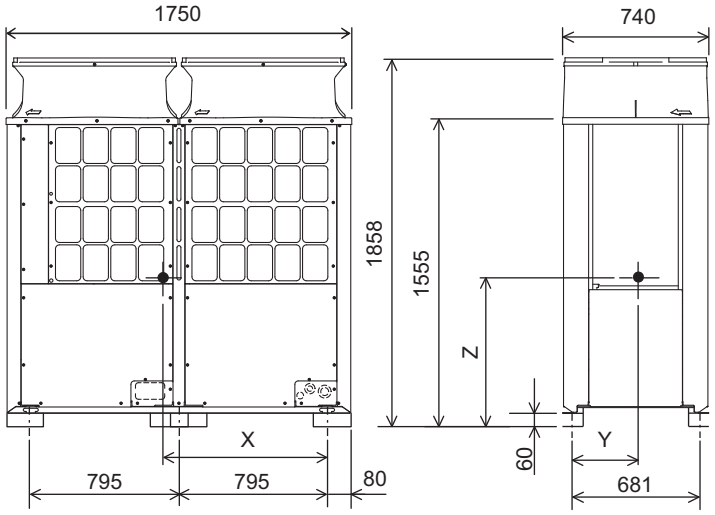
PURY-M350, 400, 450YNW-A1 (-BS)



Unit: mm

Model	X	Y	Z
PURY-M350YNW-A1(-BS)	502	344	714
PURY-M400YNW-A1(-BS)	502	344	714
PURY-M450YNW-A1(-BS)	501	345	741

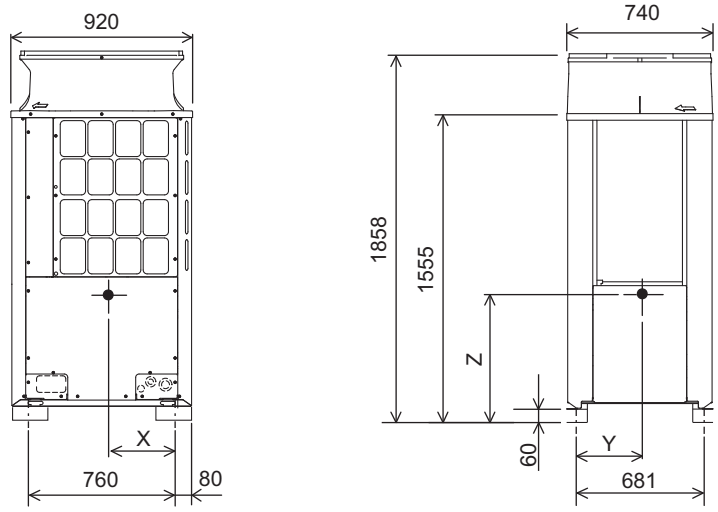
PURY-M500YNW-A1 (-BS)



Unit: mm

Model	X	Y	Z
PURY-M500YNW-A1(-BS)	871	305	720

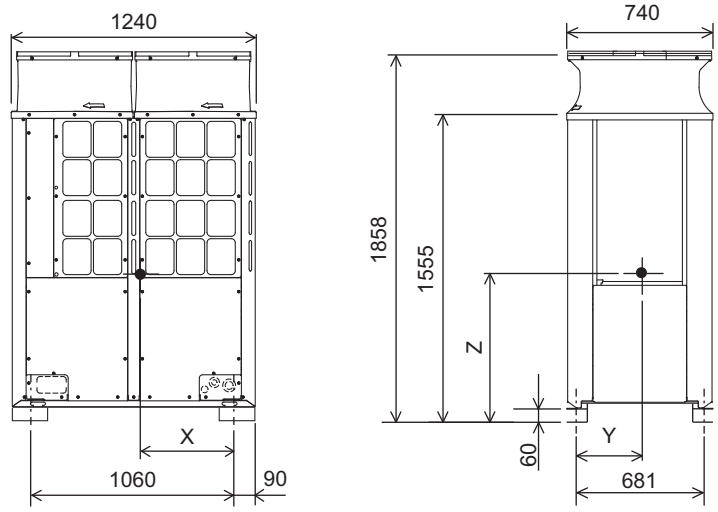
PURY-EM200, 250, 300YNW-A1 (-BS)



Unit: mm

Model	X	Y	Z
PURY-EM200YNW-A1(-BS)	355	339	678
PURY-EM250YNW-A1(-BS)	355	339	678
PURY-EM300YNW-A1(-BS)	355	339	678

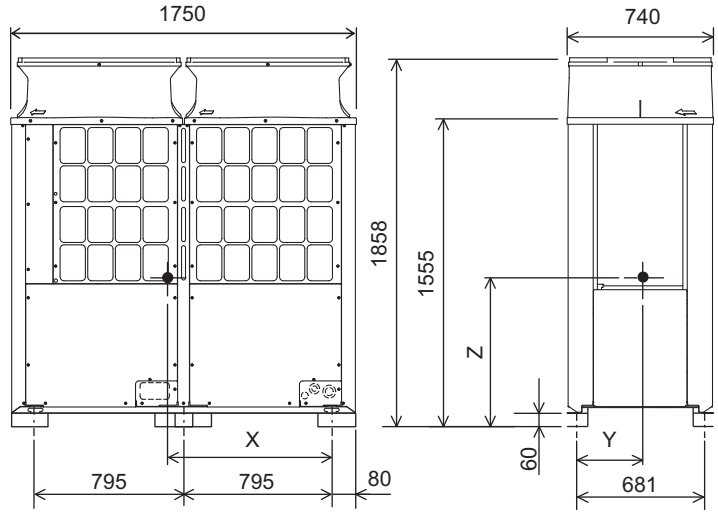
PURY-EM350, 400, 450YNW-A1 (-BS)



Unit: mm

Model	X	Y	Z
PURY-EM350YNW-A1(-BS)	501	344	729
PURY-EM400YNW-A1(-BS)	502	346	727
PURY-EM450YNW-A1(-BS)	503	346	755

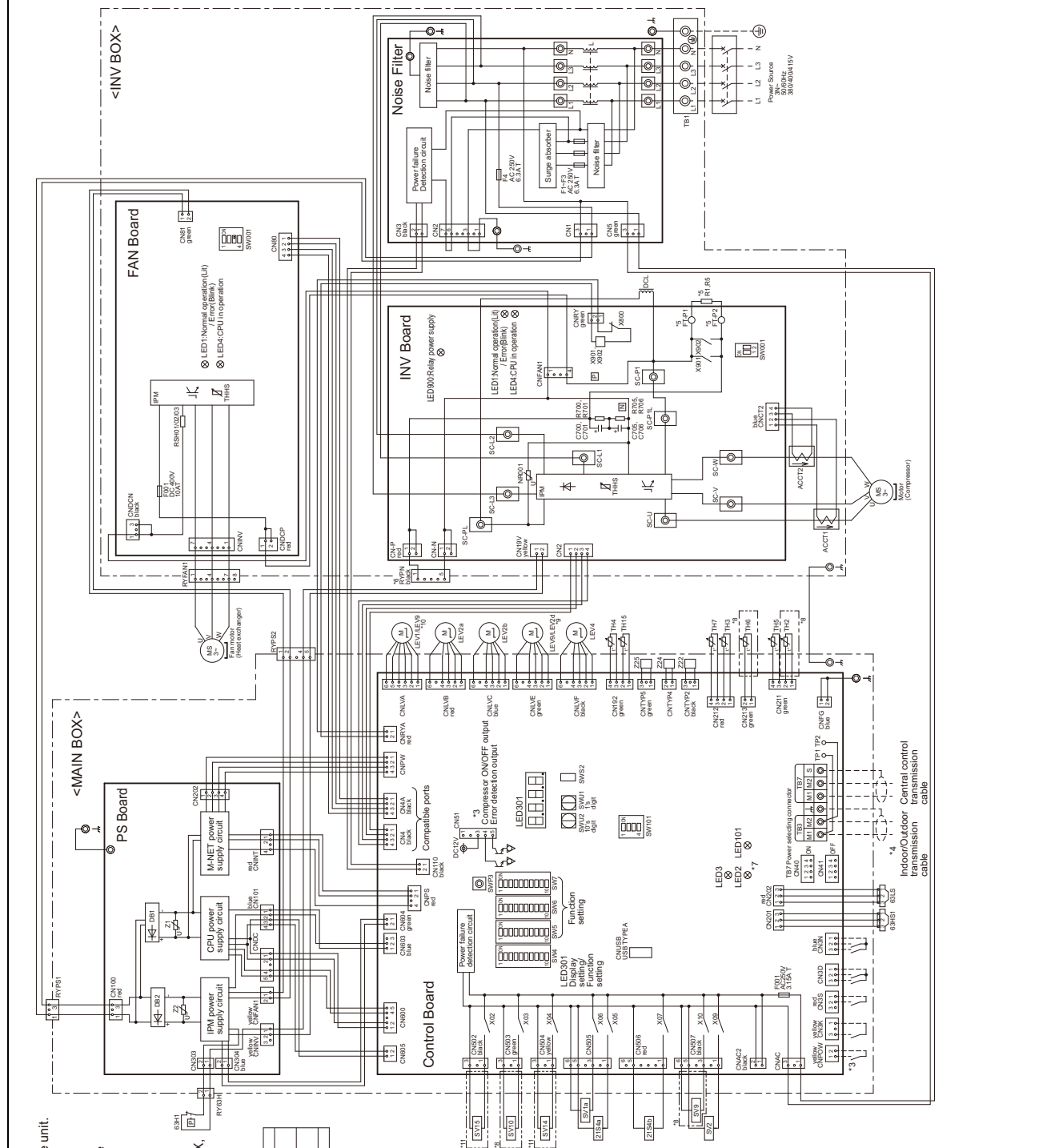
PURY-EM500YNW-A1 (-BS)



Unit: mm

Model	X	Y	Z
PURY-EM500YNW-A1(-BS)	867	307	730

PURY-(E)M200, 250, 300YNW-A1(-BS)



*1.Single-dotted lines indicate wiring not supplied with the unit.
*2.Dot-dash lines indicate the control box boundaries.
*3.Refer to the Data book for connecting input/output signal connectors.
*4.Daisy-chain terminals (TB3) on the outdoor units in the same refrigerant system together.
*5.Faston terminals have a locking function.
Make sure the terminals are securely locked in place after insertion. Press the tab on the terminals to removed them.
*6.Control box houses high-voltage parts.
Before inspecting the inside of the MAIN BOX or INV BOX, turn off the power,keep the unit off for at least 10 minutes, and confirm that the voltage of the connector RYPN on INV BOX has dropped to DC20V or less.
*7.Control board LED display.

LED2	Normal operation(Lit)/Error(Blink)	
LED3	SW6-10 is OFF and SW4-1~10 are OFF	In operation(Lit)/In stop(Unit)
	SW6-10 is ON	Function setting by SW4 enable(Lit)/disable(Unit)
LED1(01)	Normal operation(Lit)/IC Error(Unit)	

*8.Difference of appliance.

Model name	Appliance
PUHY	*8 exist
PURY	*8 do not exist

*9.Difference of appliance.

Model name	Appliance
PUHY	LEV9
PURY	LEV2d

*10.Difference of appliance.

Model name	Appliance
PUHY	LEV9
PURY	LEV9

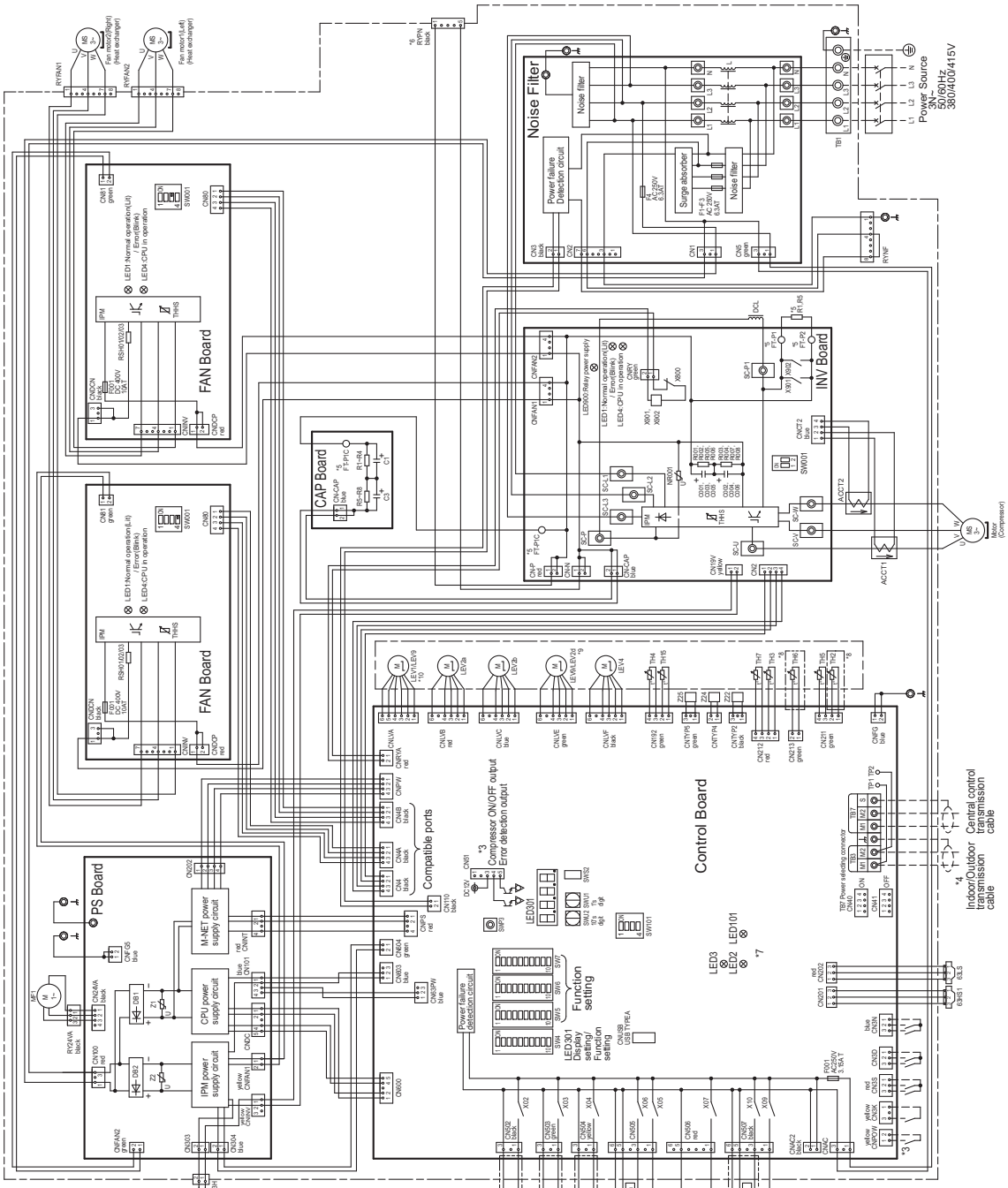
*11.Difference of appliance.

Model name	Appliance
PUHY-M,PURY	*11 do not exist
PUHY-EM	*11 exist

<Symbol explanation>

Symbol		Explanation
21S4a	4-way valve	Cooling/Heating switching
21S4b		Heat exchanger capacity control(only PUHY model)
63H1	Pressure switch	Cooling/heating switching High pressure protection for the outdoor unit
63HS1	Pressure sensor	Discharge pressure
63LS		Low pressure
ACCT1,ACCT2	Current sensor(AC)	
C700,C701, C705,C706	Capacitor(inverter main circuit)	
DCL	DC reactor	
L	Choke coil (for high frequency noise reduction)	
LEV1 *10	Linear expansion valve	HIC bypass,Controls refrigerant flow in HIC circuit
LEV2a,b		Pressure control,Refrigerant flow rate control
LEV2d *9		Pressure control,Refrigerant flow rate control
LEV4		For opening/closing the injection circuit
LEV9 *9,10		Heat exchanger for inverter
R1,5	Resistor	For inrush current prevention
RSH01/02/03		For current detection
SV1a	Solenoid valve	For opening/closing the bypass circuit under the O/S
SV2		For opening/closing the discharge suction bypass
SV9 *8		For opening/closing the bypass circuit
SV10 *8		For continuous heating
SV14,15 *11		For changing refrigerant flow (cooling/heating)
TB1	Terminal	Power supply
TB3	block	Indoor/Outdoor transmission line
TB7		Central control transmission line
TH2 *8	Thermistor	Subcool bypass outlet temperature
TH3		Pipe temperature
TH4		Discharge pipe temperature
TH5		ACC inlet pipe temperature
TH6 *8		Subcooled liquid refrigerant temperature
TH7		OA temperature
TH15		Compressor shell bottom temperature
THHS		IPM temperature
X901,902	Magnetic relay(Inverter main circuit)	
Z22,24,25	Function setting connector	

PURY-(E)M350, 400, 450YNW-A1(-BS)



*1.Single-dotted lines indicate wiring not supplied with the unit.
*2.Dot-dash lines indicate the control box boundaries.
*3.Refer to the Data book for connecting input/output signal connectors.
*4.Daisy-chain terminals (TB3) on the outdoor units in the same refrigerant system together.
*5.Faston terminals have a locking function.
Make sure the terminals are securely locked in place after insertion. Press the tab on the terminals to removed them.
*6.Control box houses high-voltage parts.
Before inspecting the inside of the control box,turn off the power,keep the unit off for at least 10 minutes, and confirm that the voltage of the connector RYPN has dropped to DC20V or less.
*7.Control board LED display.

LED2	Normal operation(Lit)/Error(Blink)	
LED3	SW6-10 is OFF and SW4-1~10 are OFF	In operation(Lit)/In stop(Unlit)
	SW6-10 is ON	Function setting by SW4 enable(Lit)/disable(Unlit)
LED101	Normal operation(Lit)/IC Error(Unlit)	

*8.Difference of appliance.

Model name	Appliance
PUHY	*9 exist
PURY	*9 do not exist

*9.Difference of appliance.

Model name	Appliance
PUHY	LEV9
PURY	LEV20

*10.Difference of appliance.

Model name	Appliance
PUHY	LEV1
PURY	LEV9

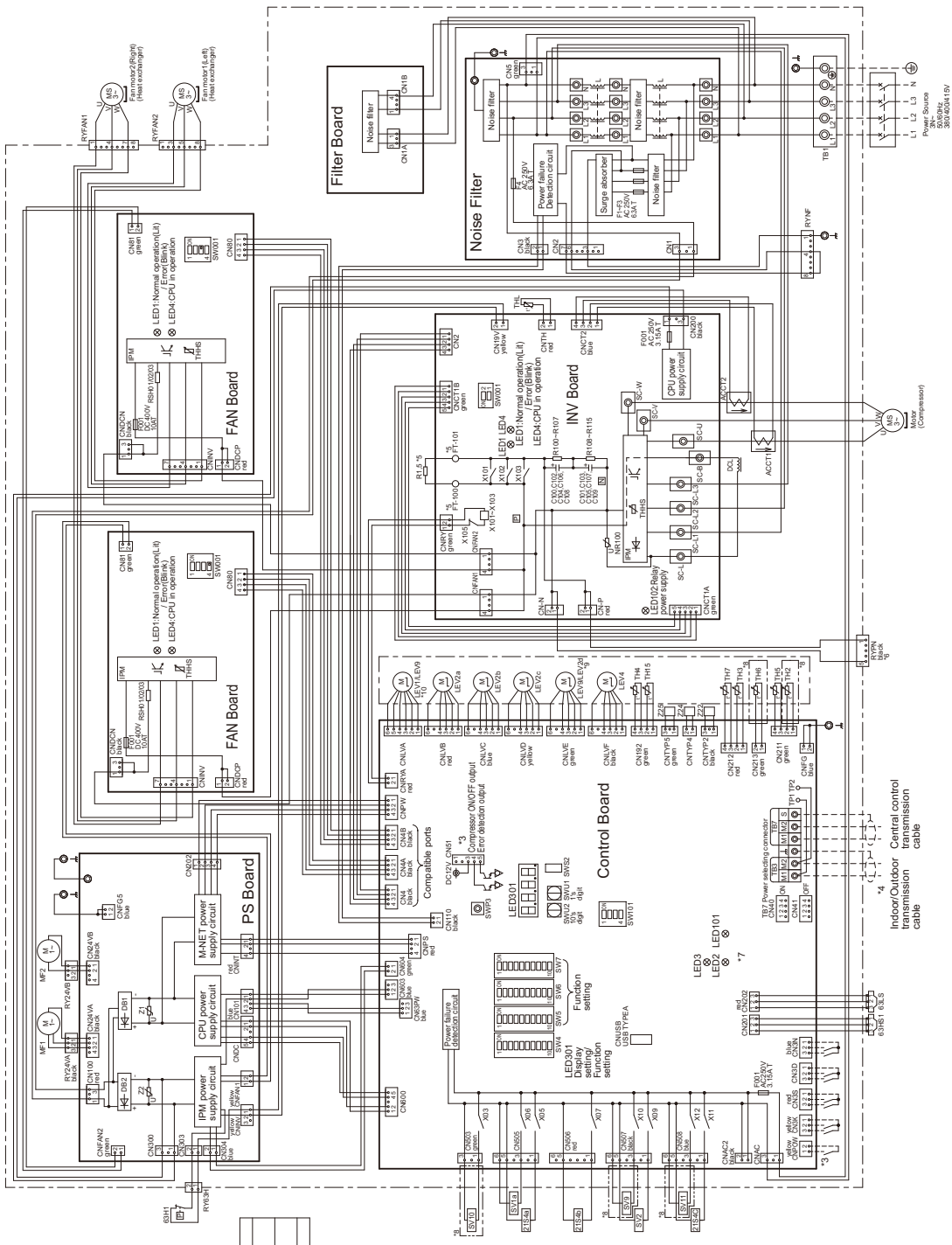
*11.Difference of appliance.

Model name	Appliance
PURY-M,PURY	*11 do not exist
PURY-EM	*11 exist

<Symbol explanation>

Symbol		Explanation
21S4a	4-way valve	Cooling/Heating switching
21S4b		Heat exchanger capacity control(only PUHY model)
63H1	Pressure switch	Cooling/Heating switching High pressure protection for the outdoor unit
63HS1	Pressure sensor	Discharge pressure
63LS		Low pressure
ACCT1,ACCT2	Current sensor(AC)	
C1,C3, C001~C006	Capacitor (inverter main circuit)	
DCL	DC reactor	
L	Choke coil (for high frequency noise reduction)	
LEV1 *10	Linear expansion valve	HIC bypass,Controls refrigerant flow in HIC circuit
LEV2a,b		Pressure control,Refrigerant flow rate control
LEV2d *9		Pressure control,Refrigerant flow rate control
LEV4		For opening/closing the injection circuit
LEV9 *9,10		Heat exchanger for inverter
MF1	Fan motor(for cooling in control box)	
R1,5	Resistor	For inrush current prevention
RSH0102/03		For current detection
SV1a	Solenoid valve	For opening/closing the bypass circuit under the CS
SV2		For opening/closing the discharge suction bypass
SV9 *8		For opening/closing the bypass circuit
SV10 *8		For continuous heating
SV14,15 *11		For changing refrigerant flow (cooling/heating)
TB1	Terminal block	Power supply
TB3		Indoor/Outdoor transmission line
TB7		Central control transmission line
TH2 *8	Thermistor	Subcool bypass outlet temperature
TH3		Pipe temperature
TH4		Discharge pipe temperature
TH5		ACC inlet pipe temperature
TH6 *8		Subcooled liquid refigerant temperature
TH7		OA temperature
TH15		Compressor shell bottom temperature
THHS		IPM temperature
X901,X902	Magnetic relay(inverter main circuit)	
Z22,24,25	Function setting connector	

PURY-(E)M500YNW-A1(-BS)



*1. Single-dotted lines indicate wiring not supplied with the unit.
*2. Dot-dash lines indicate the control box boundaries.
*3. Refer to the Data book for connecting input/output signal connectors.
*4. Daisy-chain terminals (TB3) on the outdoor units in the same refrigerant system together.
*5. Faston terminals have a locking function.
Make sure the terminals are securely locked in place after insertion. Press the tab on the terminals to removed them.
*6. Control box houses high-voltage parts.
Before inspecting the inside of the control box,turn off the power,keep the unit off for at least 10 minutes, and confirm that the voltage of the connector RYPN has dropped to DC20V or less.
*7. Control board LED display.

LED2	Normal operation(Lit)/Error(Blink)	
LED3	SW6-10 is OFF and SW4-1~10 are OFF	In operation(Lit)/In stop(Unit)
	SW6-10 is ON	Function setting by SW4 enable(Lit)/disable(Unit)
LED101	Normal operation(Lit)/IC Error(Unit)	

*8. Difference of appliance.

Model name	Appliance
PUHY	*8 exist
PURY	*8 do not exist

*9. Difference of appliance.

Model name	Appliance
PUHY	LEV9
PURY	LEV2d

*10. Difference of appliance.

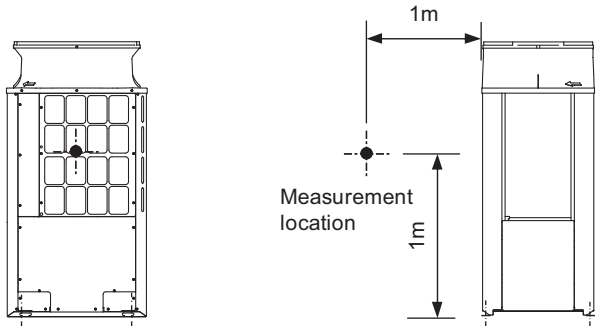
Model name	Appliance
PUHY	LEV1
PURY	LEV9

<Symbol explanation>

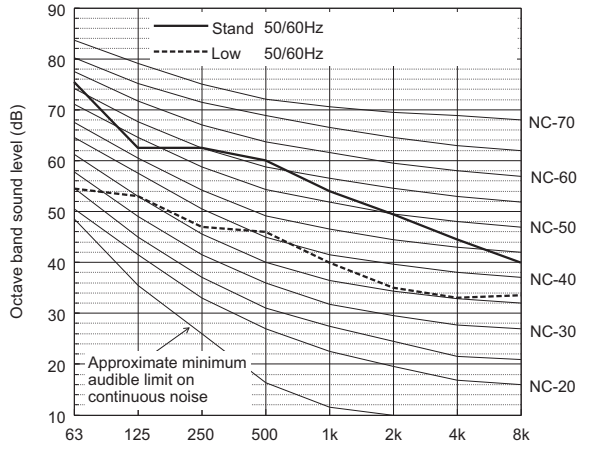
Symbol		Explanation
21S4a	4-way valve	Cooling/Heating switching
21S4b,c		Heat exchanger capacity control(only PUHY model)
63H1	Pressure switch	Cooling/heating switching High pressure protection for the outdoor unit
63HS1	Pressure sensor	Discharge pressure
63LS		Low pressure
ACCT1,ACCT2	Current sensor(AC)	
C100~C109	Capacitor (inverter main circuit)	
DCL	DC reactor	
L	Choke coil (for high frequency noise reduction)	
LEV1 *10	Linear expansion valve	HIC bypass,Controls refrigerant flow in HIC circuit
LEV2a,b,c		Pressure control,Refrigerant flow rate control
LEV2d *9		Pressure control,Refrigerant flow rate control
LEV4		For opening/closing the injection circuit
LEV9 *9,10		Heat exchanger for inverter
MF1,2	Fan motor(for cooling in control box)	
R1,5	Resistor	For inrush current prevention
RSH0102/03		For current detection
SV1a	Solenoid valve	For opening/closing the bypass circuit under the O/S
SV2		For opening/closing the discharge suction bypass
SV9 *8		For opening/closing the bypass circuit
SV10,11 *8		For continuous heating
TB1	Terminal block	Power supply
TB3		Indoor/Outdoor transmission line
TB7		Central control transmission line
TH2 *8	Thermistor	Subcool bypass outlet temperature
TH3		Pipe temperature
TH4		Discharge pipe temperature
TH5		ACC inlet pipe temperature
TH6 *8		Subcooled liquid refrigerant temperature
TH7		OA temperature
TH15		Compressor shell bottom temperature
THHS		IPM temperature
X101~X103	Magnetic relay(inverter main circuit)	
Z22,24,25	Function setting connector	

5-1. Sound levels in cooling mode

Measurement condition
PURY-M200, 250, 300YNW-A1(-BS)



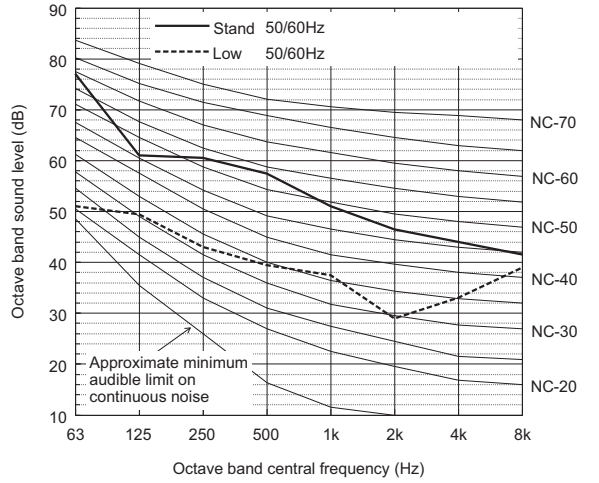
Sound level of PURY-M300YNW-A1(-BS)



		63	125	250	500	1k	2k	4k	8k	dB(A)
Standard	50/60Hz	75.5	62.5	62.5	60.0	54.0	49.5	44.5	40.0	61.0
Low noise mode	50/60Hz	54.5	53.0	47.0	46.0	40.0	35.0	33.0	33.5	47.0

When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

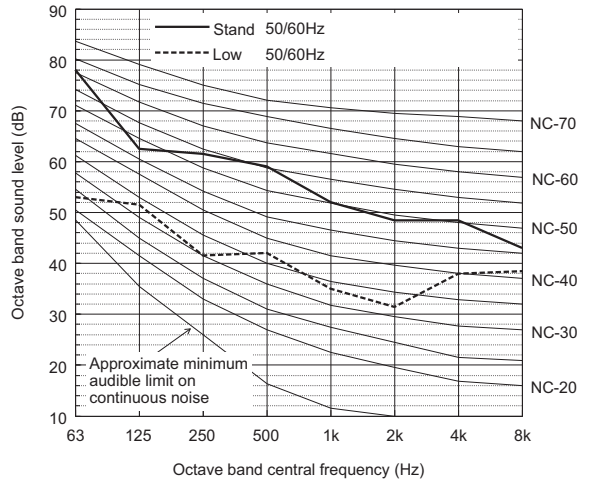
Sound level of PURY-M200YNW-A1(-BS)



		63	125	250	500	1k	2k	4k	8k	dB(A)
Standard Cooling	50/60Hz	77.0	61.0	60.5	57.5	51.0	46.5	44.0	41.5	59.0
Low noise mode	50/60Hz	51.0	49.5	43.0	39.5	37.5	29.0	33.0	39.0	44.0

When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

Sound level of PURY-M250YNW-A1(-BS)

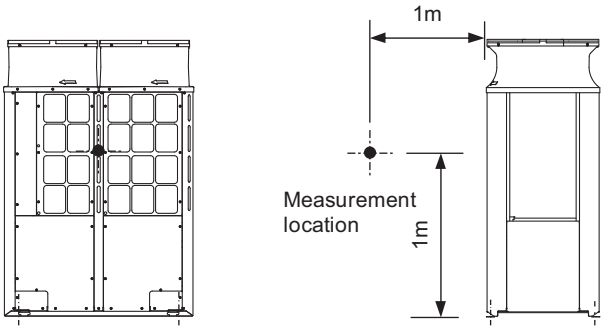


		63	125	250	500	1k	2k	4k	8k	dB(A)
Standard Cooling	50/60Hz	78.0	62.5	61.5	59.0	52.0	48.5	48.5	43.0	60.5
Low noise mode	50/60Hz	53.0	51.5	41.5	42.0	35.0	31.5	38.0	38.5	45.0

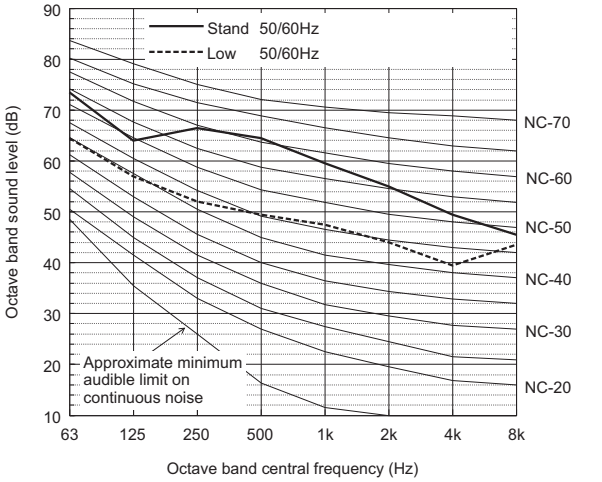
When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

- Depending on the operation conditions, the unit generates noise caused by valve actuation, refrigerant flow, and pressure changes when operating normally. Please consider to avoid location where quietness is required.

Measurement condition
PURY-M350, 400, 450YNW-A1(-BS)



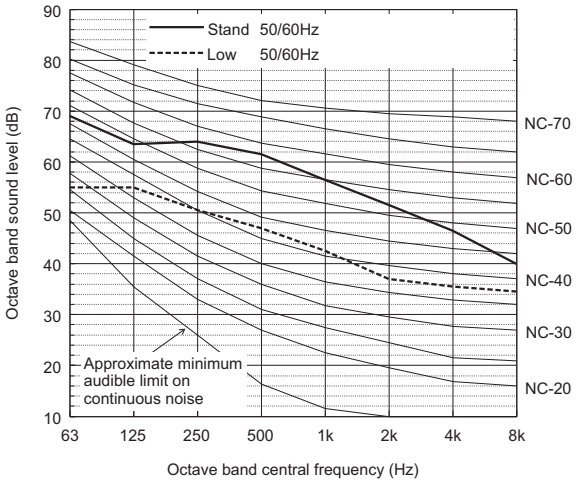
Sound level of PURY-M450YNW-A1(-BS)



		63	125	250	500	1k	2k	4k	8k	dB(A)
Standard	50/60Hz	73.5	64.0	66.5	64.5	59.5	55.0	49.5	45.5	65.5
Low noise mode	50/60Hz	64.5	57.0	52.0	49.5	47.5	44.0	39.5	43.5	53.0

When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

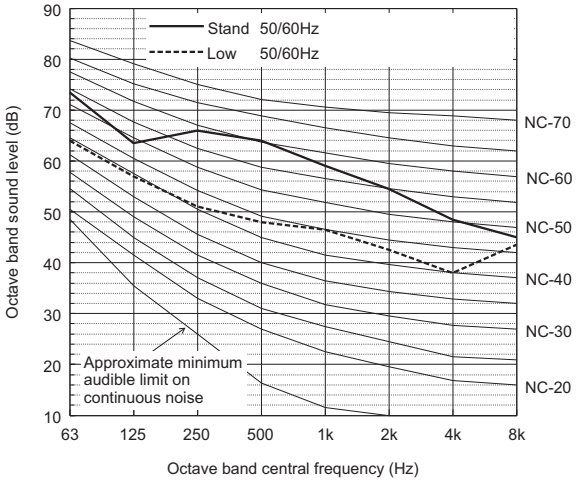
Sound level of PURY-M350YNW-A1(-BS)



		63	125	250	500	1k	2k	4k	8k	dB(A)
Standard	50/60Hz	69.0	63.5	64.0	61.5	56.5	51.5	46.5	40.0	62.5
Low noise mode	50/60Hz	55.0	55.0	50.5	47.0	42.5	37.0	35.5	34.5	49.0

When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

Sound level of PURY-M400YNW-A1(-BS)

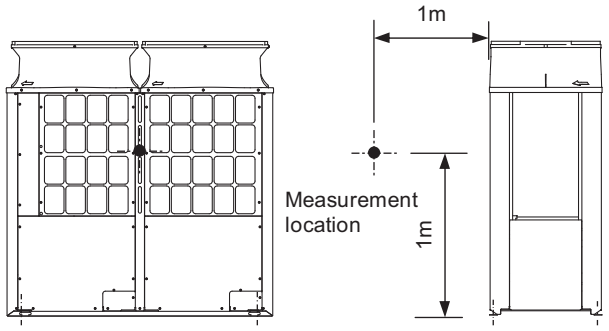


		63	125	250	500	1k	2k	4k	8k	dB(A)
Standard	50/60Hz	73.5	63.5	66.0	64.0	59.0	54.5	48.5	45.0	65.0
Low noise mode	50/60Hz	64.0	57.0	51.0	48.0	46.5	42.5	38.0	43.5	52.0

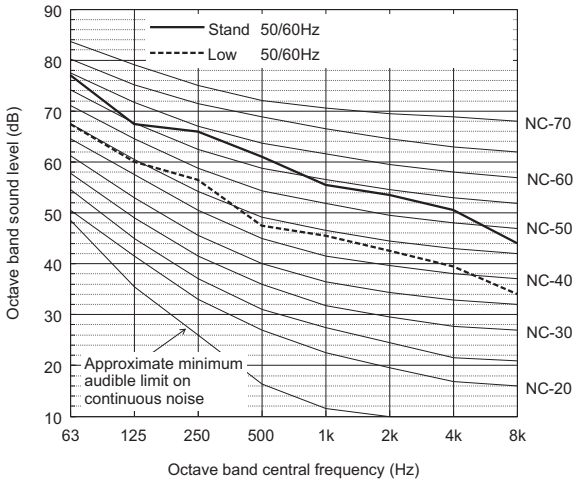
When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

- Depending on the operation conditions, the unit generates noise caused by valve actuation, refrigerant flow, and pressure changes when operating normally. Please consider to avoid location where quietness is required.

Measurement condition
PURY-M500YNW-A1(-BS)



Sound level of PURY-M500YNW-A1(-BS)

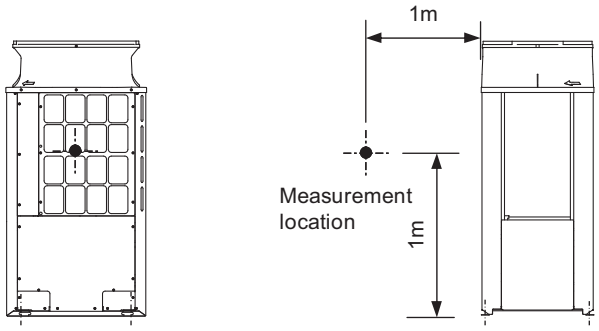


		63	125	250	500	1k	2k	4k	8k	dB(A)
Standard	50/60Hz	77.0	67.5	66.0	61.0	55.5	53.5	50.5	44.0	63.5
Low noise mode	50/60Hz	67.5	60.0	56.5	47.5	45.5	42.5	39.5	34.0	53.0

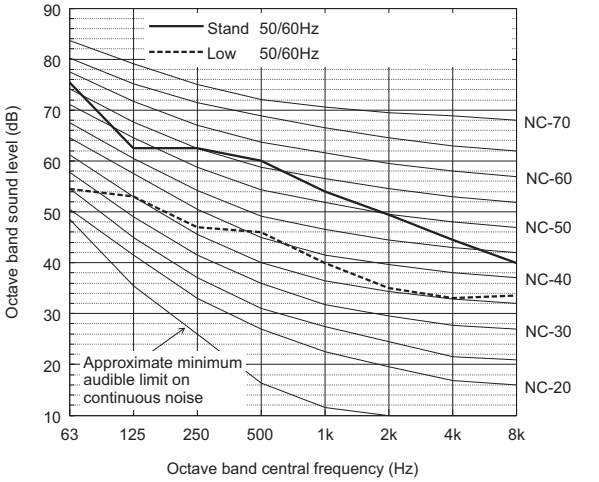
When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

- Depending on the operation conditions, the unit generates noise caused by valve actuation, refrigerant flow, and pressure changes when operating normally. Please consider to avoid location where quietness is required.

Measurement condition
PURY-EM200, 250, 300YNW-A1(-BS)



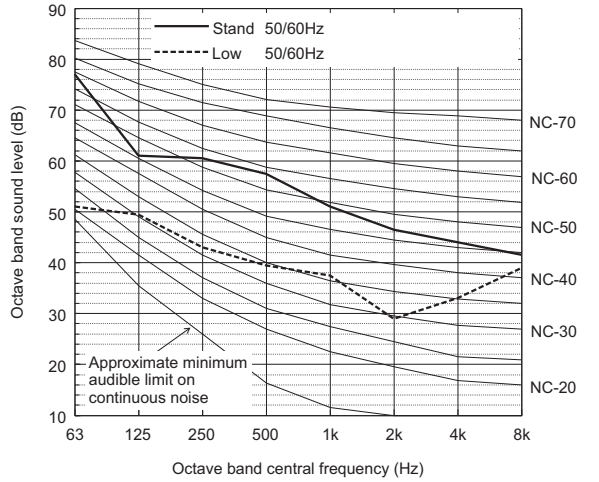
Sound level of PURY-EM300YNW-A1(-BS)



		63	125	250	500	1k	2k	4k	8k	dB(A)
Standard Cooling	50/60Hz	75.5	62.5	62.5	60.0	54.0	49.5	44.5	40.0	61.0
Low noise mode	50/60Hz	54.5	53.0	47.0	46.0	40.0	35.0	33.0	33.5	47.0

When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

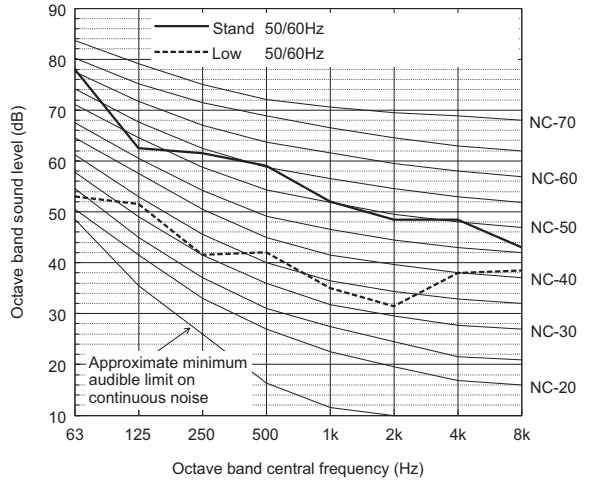
Sound level of PURY-EM200YNW-A1(-BS)



		63	125	250	500	1k	2k	4k	8k	dB(A)
Standard	50/60Hz	77.0	61.0	60.5	57.5	51.0	46.5	44.0	41.5	59.0
Low noise mode	50/60Hz	51.0	49.5	43.0	39.5	37.5	29.0	33.0	39.0	44.0

When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

Sound level of PURY-EM250YNW-A1(-BS)

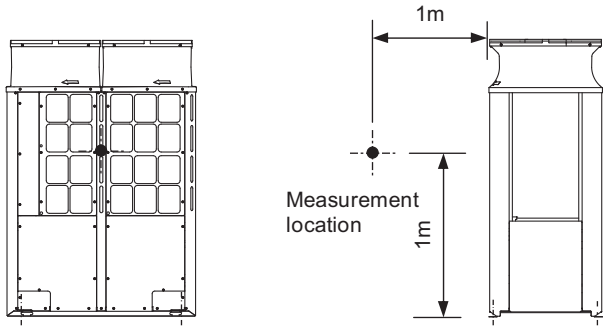


		63	125	250	500	1k	2k	4k	8k	dB(A)
Standard	50/60Hz	78.0	62.5	61.5	59.0	52.0	48.5	48.5	43.0	60.5
Low noise mode	50/60Hz	53.0	51.5	41.5	42.0	35.0	31.5	38.0	38.5	45.0

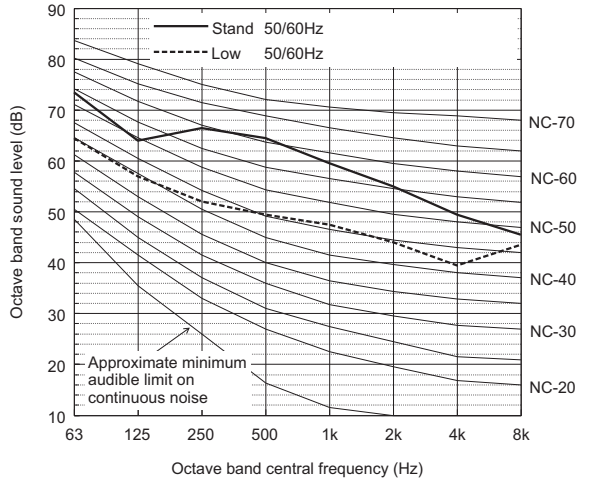
When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

- Depending on the operation conditions, the unit generates noise caused by valve actuation, refrigerant flow, and pressure changes when operating normally. Please consider to avoid location where quietness is required.

Measurement condition
PURY-EM350, 400, 450YNW-A1(-BS)



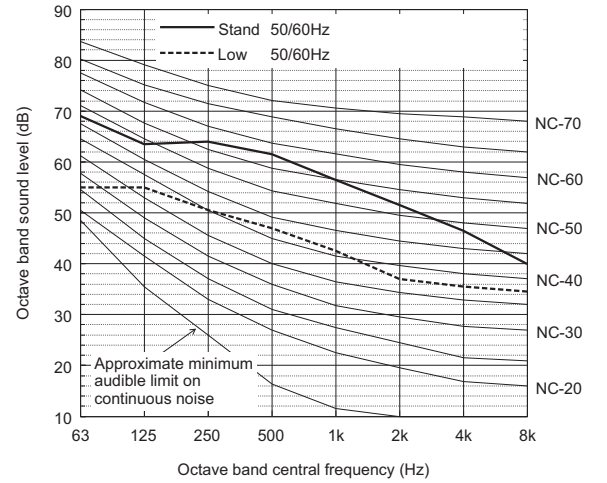
Sound level of PURY-EM450YNW-A1(-BS)



		63	125	250	500	1k	2k	4k	8k	dB(A)
Standard Cooling	50/60Hz	73.5	64.0	66.5	64.5	59.5	55.0	49.5	45.5	65.5
Low noise mode	50/60Hz	64.5	57.0	52.0	49.5	47.5	44.0	39.5	43.5	53.0

When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

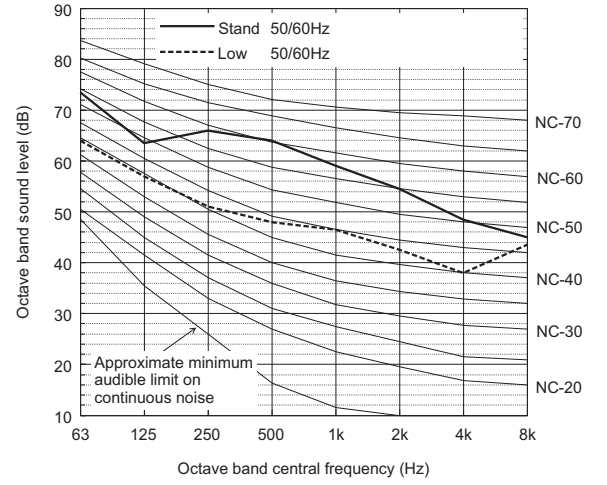
Sound level of PURY-EM350YNW-A1(-BS)



		63	125	250	500	1k	2k	4k	8k	dB(A)
Standard Cooling	50/60Hz	69.0	63.5	64.0	61.5	56.5	51.5	46.5	40.0	62.5
Low noise mode	50/60Hz	55.0	55.0	50.5	47.0	42.5	37.0	35.5	34.5	49.0

When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

Sound level of PURY-EM400YNW-A1(-BS)

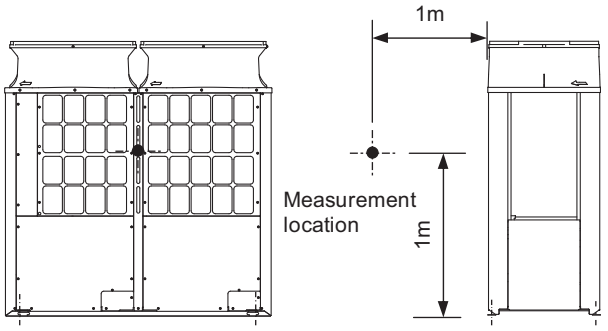


		63	125	250	500	1k	2k	4k	8k	dB(A)
Standard Cooling	50/60Hz	73.5	63.5	66.0	64.0	59.0	54.5	48.5	45.0	65.0
Low noise mode	50/60Hz	64.0	57.0	51.0	48.0	46.5	42.5	38.0	43.5	52.0

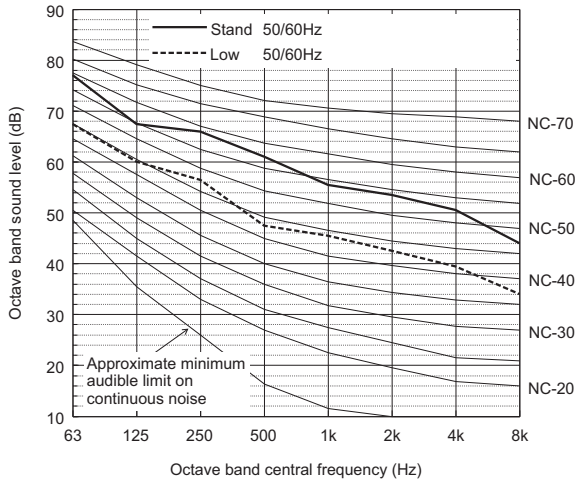
When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

- Depending on the operation conditions, the unit generates noise caused by valve actuation, refrigerant flow, and pressure changes when operating normally. Please consider to avoid location where quietness is required.

Measurement condition
PURY-EM500YNW-A1(-BS)



Sound level of PURY-EM500YNW-A1(-BS)



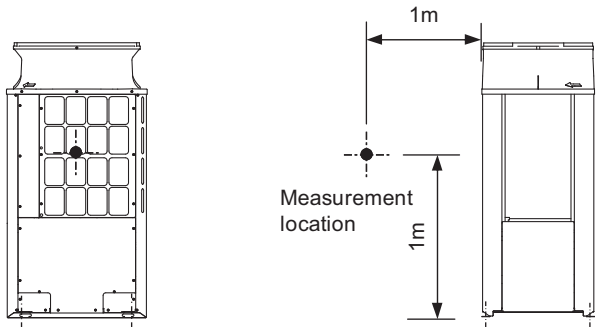
		63	125	250	500	1k	2k	4k	8k	dB(A)
Standard Cooling	50/60Hz	77.0	67.5	66.0	61.0	55.5	53.5	50.5	44.0	63.5
Low noise mode	50/60Hz	67.5	60.0	56.5	47.5	45.5	42.5	39.5	34.0	53.0

When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

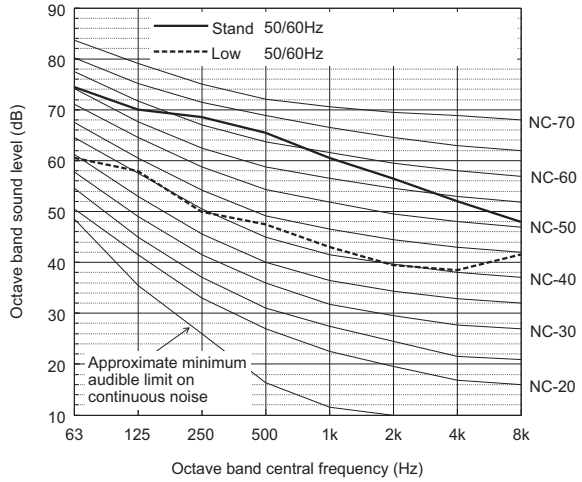
- Depending on the operation conditions, the unit generates noise caused by valve actuation, refrigerant flow, and pressure changes when operating normally. Please consider to avoid location where quietness is required.

5-2. Sound levels in heating mode

Measurement condition
PURY-M200, 250, 300YNW-A1(-BS)



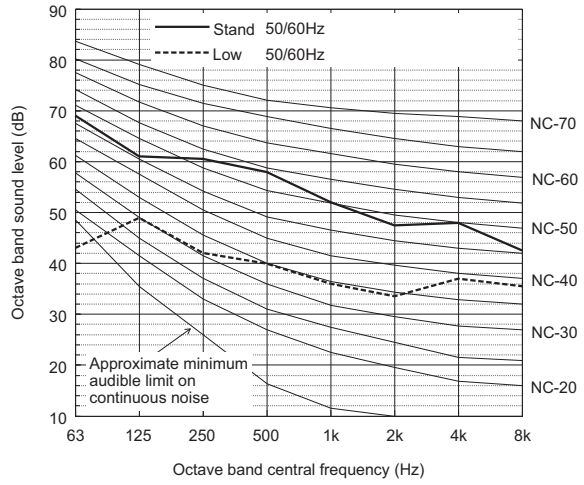
Sound level of PURY-M300YNW-A1(-BS)



		63	125	250	500	1k	2k	4k	8k	dB(A)
Standard Heating	50/60Hz	74.5	70.0	68.5	65.5	60.5	56.5	52.0	48.0	67.0
Low noise mode	50/60Hz	60.5	58.0	50.0	47.5	43.0	39.5	38.5	41.5	50.5

When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

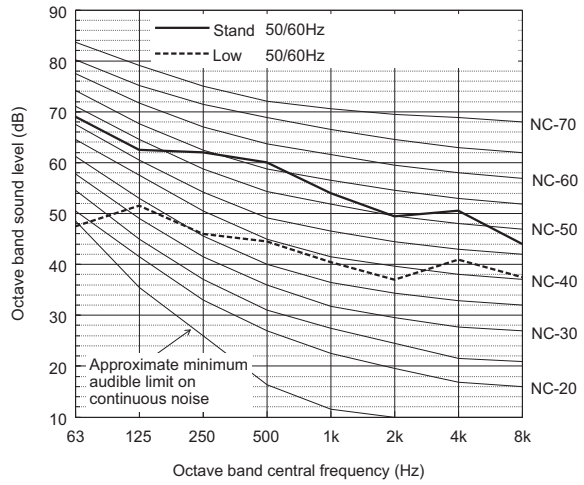
Sound level of PURY-M200YNW-A1(-BS)



		63	125	250	500	1k	2k	4k	8k	dB(A)
Standard Heating	50/60Hz	69.0	61.0	60.5	58.0	52.0	47.5	48.0	42.5	59.0
Low noise mode	50/60Hz	43.0	49.0	42.0	40.0	36.0	33.5	37.0	35.5	44.0

When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

Sound level of PURY-M250YNW-A1(-BS)

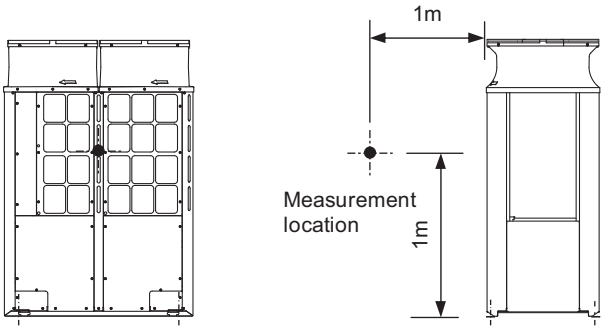


		63	125	250	500	1k	2k	4k	8k	dB(A)
Standard Heating	50/60Hz	69.0	62.5	62.0	60.0	54.0	49.5	50.5	44.0	61.0
Low noise mode	50/60Hz	47.5	51.5	46.0	44.5	40.5	37.0	41.0	37.5	48.0

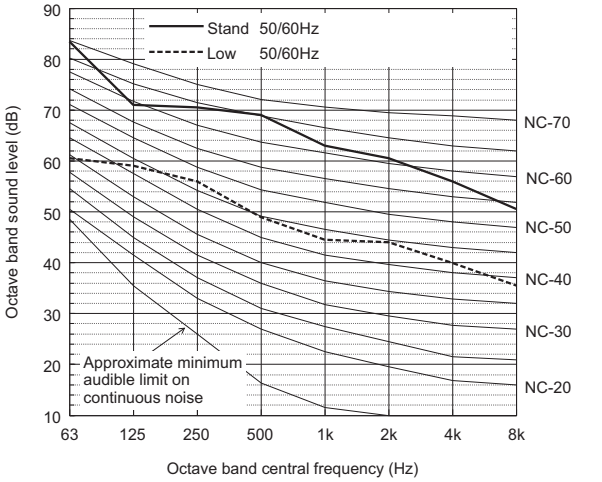
When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

- Depending on the operation conditions, the unit generates noise caused by valve actuation, refrigerant flow, and pressure changes when operating normally. Please consider to avoid location where quietness is required.

Measurement condition
PURY-M350, 400, 450YNW-A1(-BS)



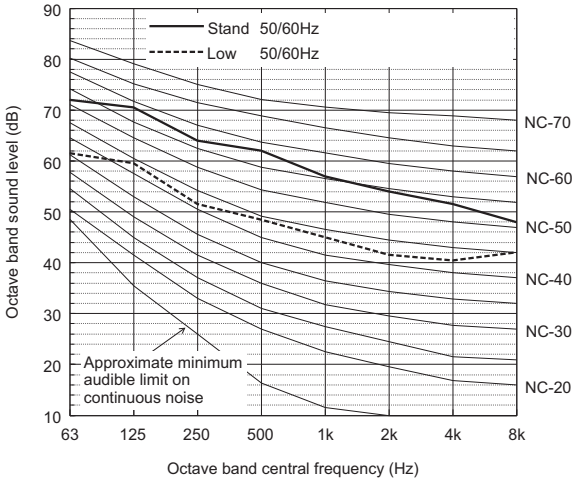
Sound level of PURY-M450YNW-A1(-BS)



		63	125	250	500	1k	2k	4k	8k	dB(A)
Standard Heating	50/60Hz	83.5	71.0	70.5	69.0	63.0	60.5	56.0	50.5	70.0
Low noise mode	50/60Hz	60.5	59.0	56.0	49.0	44.5	44.0	40.0	35.5	53.0

When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

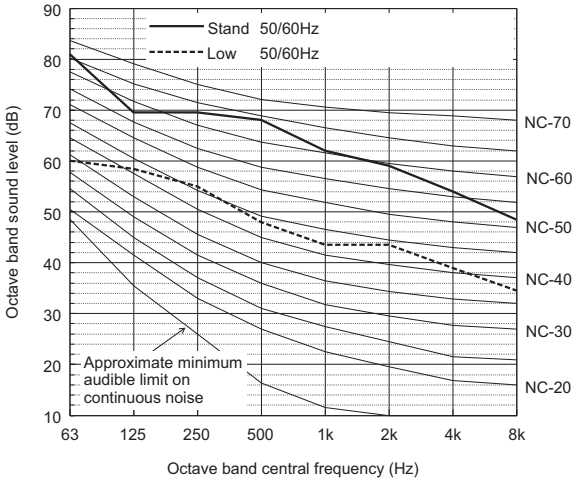
Sound level of PURY-M350YNW-A1(-BS)



		63	125	250	500	1k	2k	4k	8k	dB(A)
Standard Heating	50/60Hz	72.0	70.5	64.0	62.0	57.0	54.0	51.5	48.0	64.0
Low noise mode	50/60Hz	61.5	59.5	51.5	48.5	45.0	41.5	40.5	42.0	52.0

When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

Sound level of PURY-M400YNW-A1(-BS)

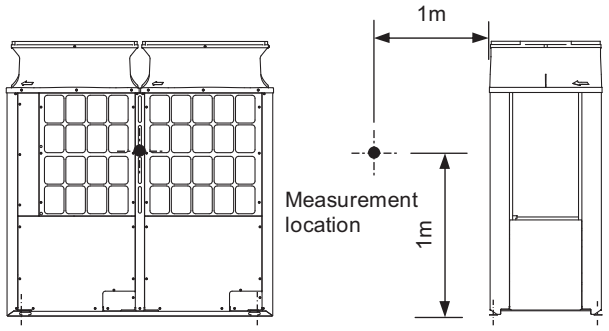


		63	125	250	500	1k	2k	4k	8k	dB(A)
Standard Heating	50/60Hz	81.0	69.5	69.5	68.0	62.0	59.0	54.0	48.5	69.0
Low noise mode	50/60Hz	60.0	58.5	55.0	48.0	43.5	43.5	39.0	34.5	52.0

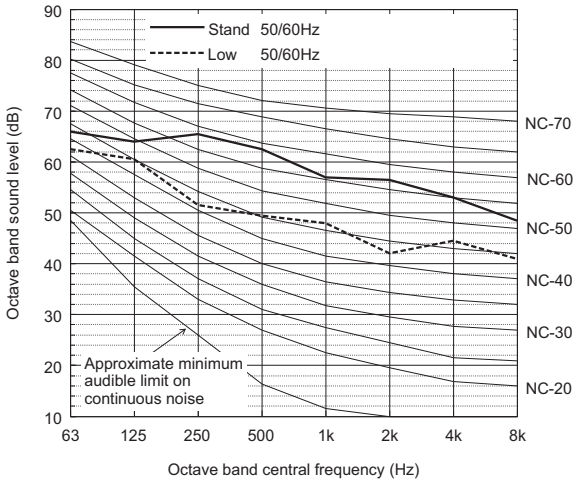
When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

- Depending on the operation conditions, the unit generates noise caused by valve actuation, refrigerant flow, and pressure changes when operating normally. Please consider to avoid location where quietness is required.

Measurement condition
PURY-M500YNW-A1(-BS)



Sound level of PURY-M500YNW-A1(-BS)

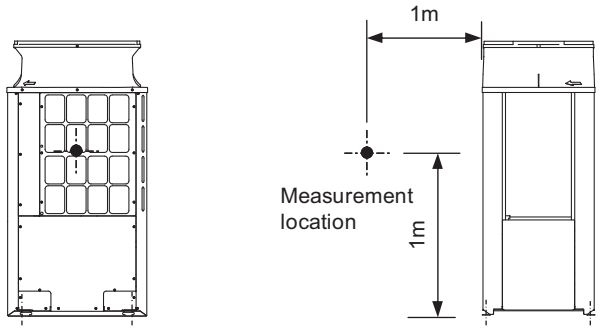


		63	125	250	500	1k	2k	4k	8k	dB(A)
Standard Heating	50/60Hz	66.0	64.0	65.5	62.5	57.0	56.5	53.0	48.5	64.5
Low noise mode	50/60Hz	62.5	60.5	51.5	49.5	48.0	42.0	44.5	41.0	53.5

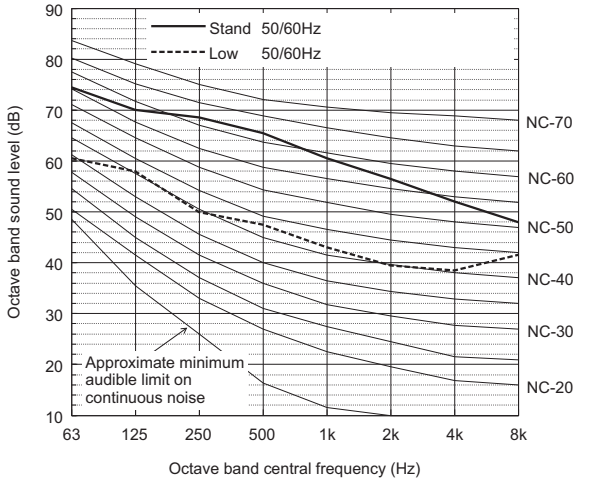
When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

- Depending on the operation conditions, the unit generates noise caused by valve actuation, refrigerant flow, and pressure changes when operating normally. Please consider to avoid location where quietness is required.

Measurement condition
PURY-EM200, 250, 300YNW-A1(-BS)



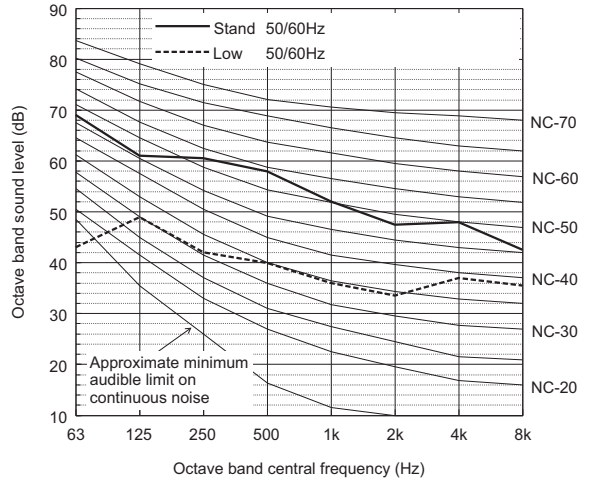
Sound level of PURY-EM300YNW-A1(-BS)



		63	125	250	500	1k	2k	4k	8k	dB(A)
Standard Heating	50/60Hz	74.5	70.0	68.5	65.5	60.5	56.5	52.0	48.0	67.0
Low noise mode	50/60Hz	60.5	58.0	50.0	47.5	43.0	39.5	38.5	41.5	50.5

When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

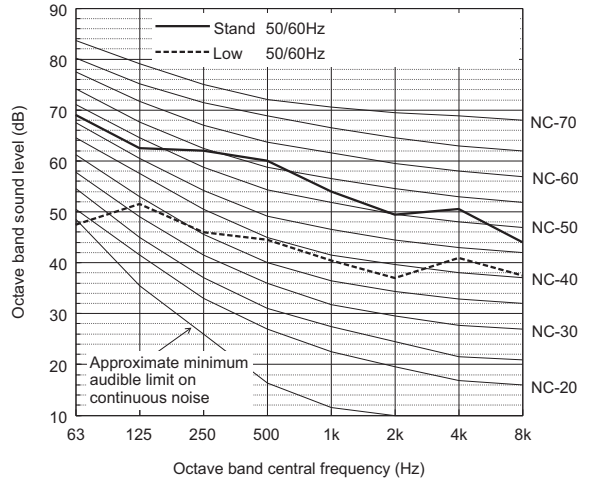
Sound level of PURY-EM200YNW-A1(-BS)



		63	125	250	500	1k	2k	4k	8k	dB(A)
Standard Heating	50/60Hz	69.0	61.0	60.5	58.0	52.0	47.5	48.0	42.5	59.0
Low noise mode	50/60Hz	43.0	49.0	42.0	40.0	36.0	33.5	37.0	35.5	44.0

When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

Sound level of PURY-EM250YNW-A1(-BS)

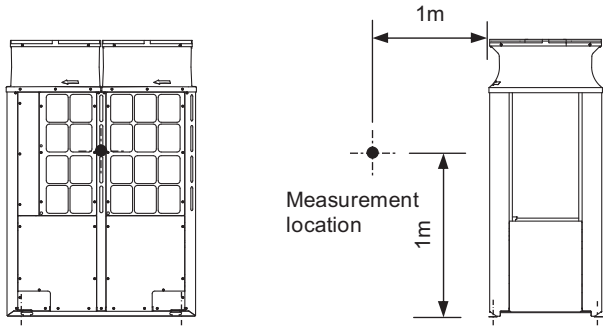


		63	125	250	500	1k	2k	4k	8k	dB(A)
Standard Heating	50/60Hz	69.0	62.5	62.0	60.0	54.0	49.5	50.5	44.0	61.0
Low noise mode	50/60Hz	47.5	51.5	46.0	44.5	40.5	37.0	41.0	37.5	48.0

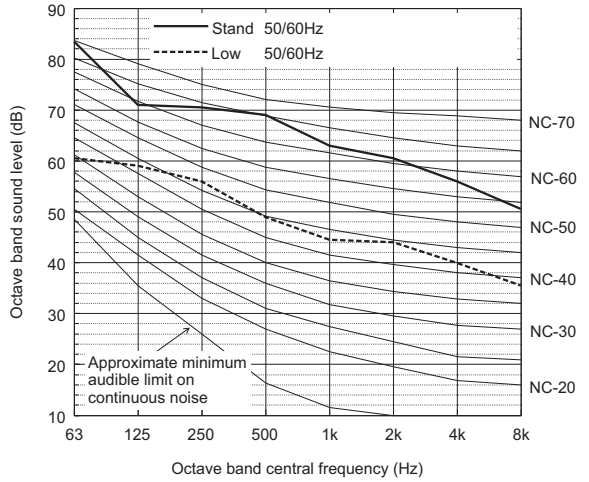
When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

- Depending on the operation conditions, the unit generates noise caused by valve actuation, refrigerant flow, and pressure changes when operating normally. Please consider to avoid location where quietness is required.

Measurement condition
PURY-EM350, 400, 450YNW-A1(-BS)



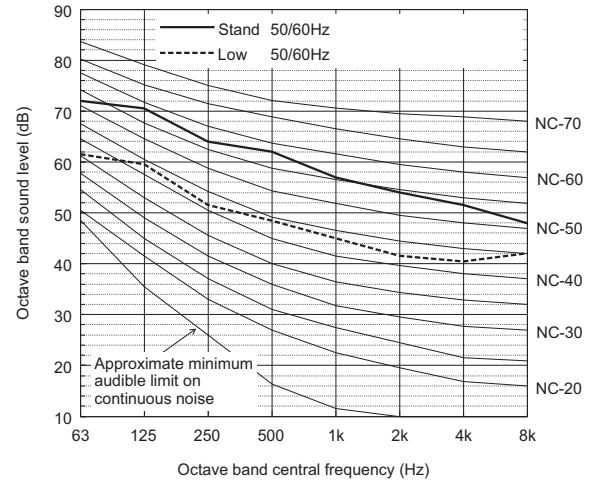
Sound level of PURY-EM450YNW-A1(-BS)



		63	125	250	500	1k	2k	4k	8k	dB(A)
Standard Heating	50/60Hz	83.5	71.0	70.5	69.0	63.0	60.5	56.0	50.5	70.0
Low noise mode	50/60Hz	60.5	59.0	56.0	49.0	44.5	44.0	40.0	35.5	53.0

When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

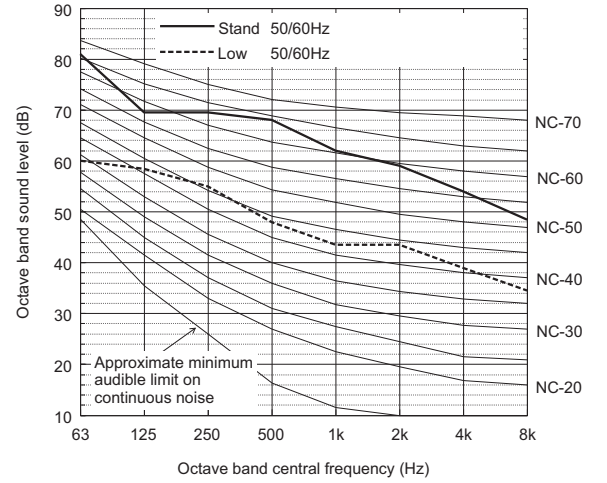
Sound level of PURY-EM350YNW-A1(-BS)



		63	125	250	500	1k	2k	4k	8k	dB(A)
Standard Heating	50/60Hz	72.0	70.5	64.0	62.0	57.0	54.0	51.5	48.0	64.0
Low noise mode	50/60Hz	61.5	59.5	51.5	48.5	45.0	41.5	40.5	42.0	52.0

When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

Sound level of PURY-EM400YNW-A1(-BS)

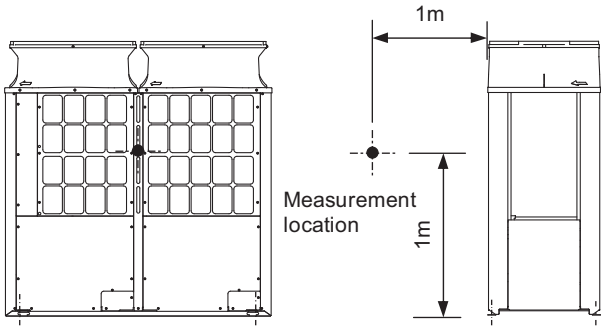


		63	125	250	500	1k	2k	4k	8k	dB(A)
Standard Heating	50/60Hz	81.0	69.5	69.5	68.0	62.0	59.0	54.0	48.5	69.0
Low noise mode	50/60Hz	60.0	58.5	55.0	48.0	43.5	43.5	39.0	34.5	52.0

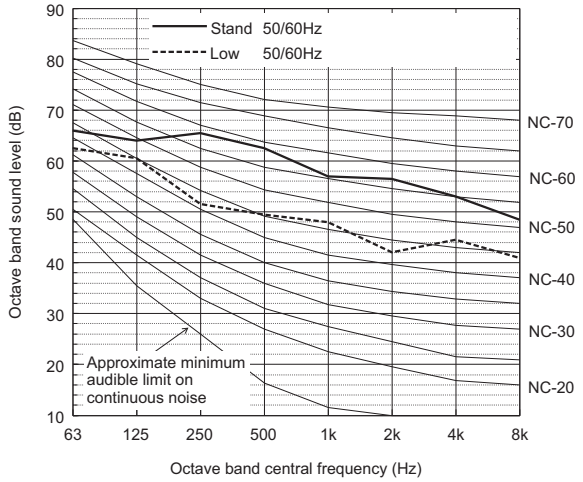
When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

- Depending on the operation conditions, the unit generates noise caused by valve actuation, refrigerant flow, and pressure changes when operating normally. Please consider to avoid location where quietness is required.

Measurement condition
PURY-EM500YNW-A1(-BS)



Sound level of PURY-EM500YNW-A1(-BS)



		63	125	250	500	1k	2k	4k	8k	dB(A)
Standard Heating	50/60Hz	66.0	64.0	65.5	62.5	57.0	56.5	53.0	48.5	64.5
Low noise mode	50/60Hz	62.5	60.5	51.5	49.5	48.0	42.0	44.5	41.0	53.5

When Low noise mode is set,the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

- Depending on the operation conditions, the unit generates noise caused by valve actuation, refrigerant flow, and pressure changes when operating normally. Please consider to avoid location where quietness is required.

[PURY-M200-500YNW, PURY-EM200-500YNW]

Measurement condition

Measurement frequency: 1 Hz-80 Hz

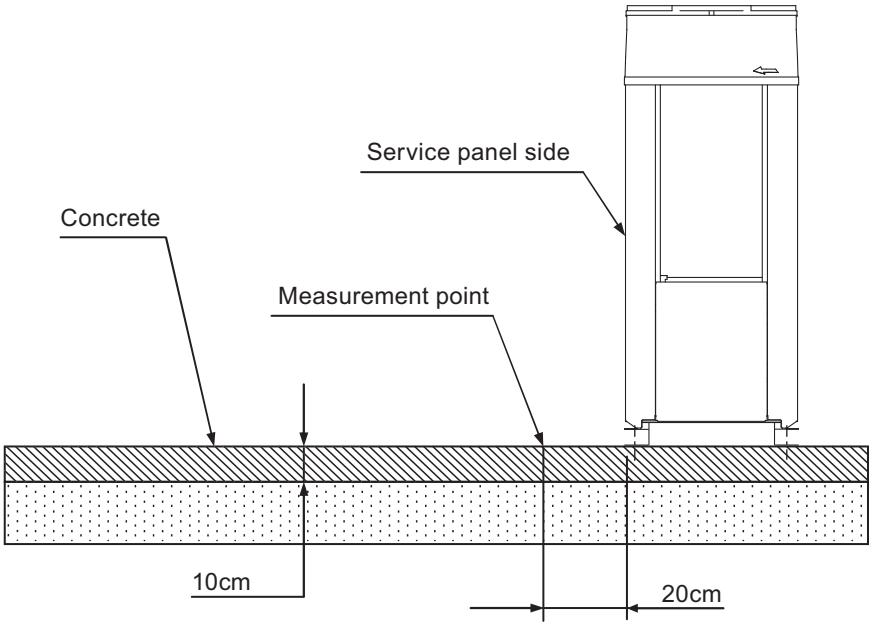
Measurement point: Ground surface 20 cm away from the unit leg

Installation condition: Direct installation on the concrete floor

Power source: 3-phase 4-wire 380-400-415 V 50/60 Hz

Operation condition: JIS condition (cooling, heating)

Measurement device: Vibration level meter for vibration pollution VM-1220C (JIS-compliant product)

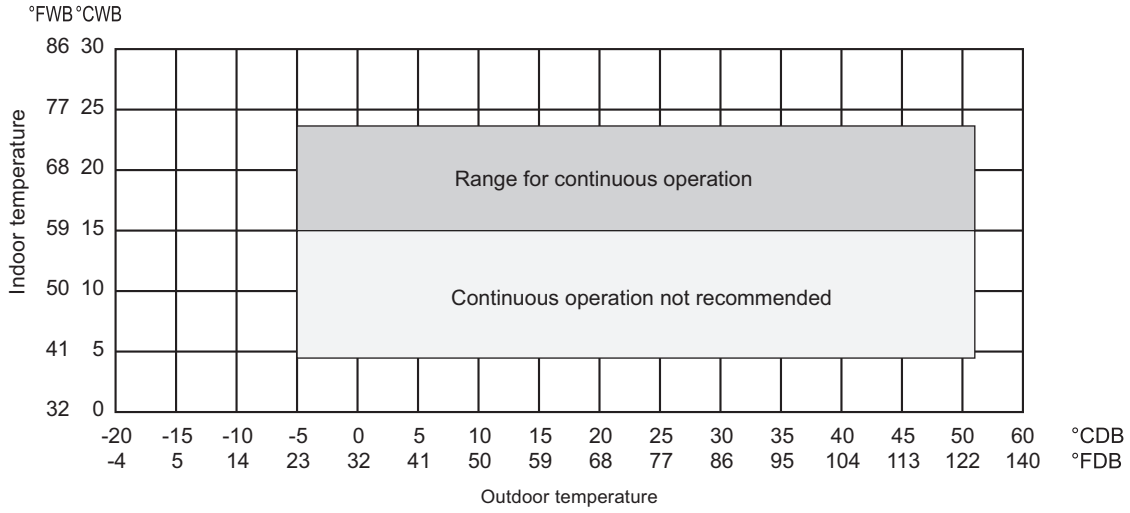


Vibration level

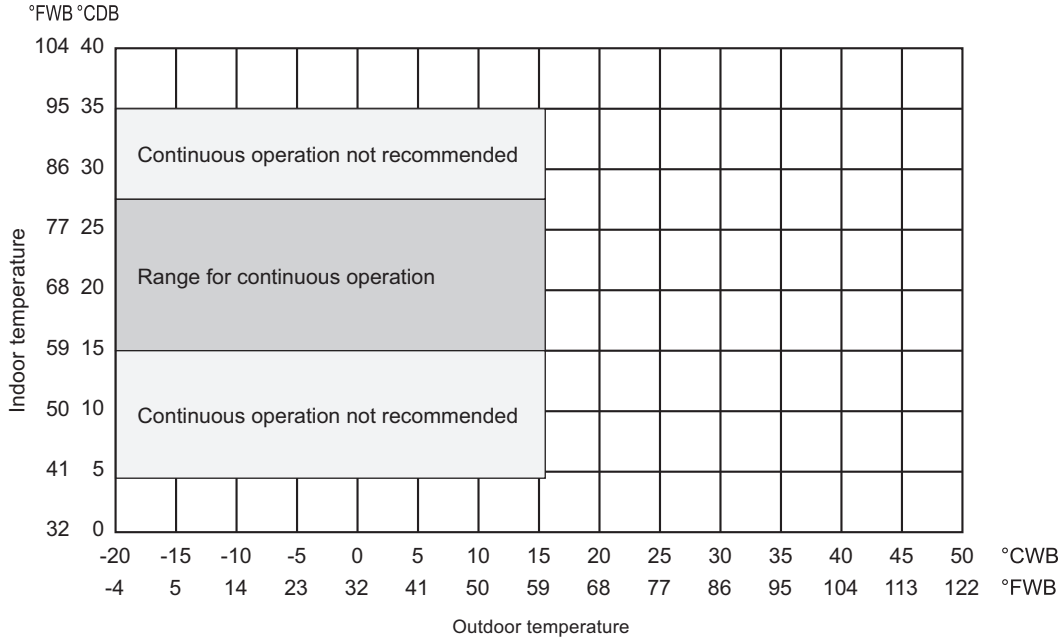
Model	Vibration level (dB)
PURY-M200YNW-A1 (-BS)	45
PURY-M250YNW-A1 (-BS)	46
PURY-M300YNW-A1 (-BS)	47
PURY-M350YNW-A1 (-BS)	47
PURY-M400YNW-A1 (-BS)	47
PURY-M450YNW-A1 (-BS)	47
PURY-M500YNW-A1 (-BS)	48
PURY-EM200YNW-A1 (-BS)	45
PURY-EM250YNW-A1 (-BS)	46
PURY-EM300YNW-A1 (-BS)	47
PURY-EM350YNW-A1 (-BS)	47
PURY-EM400YNW-A1 (-BS)	47
PURY-EM450YNW-A1 (-BS)	47
PURY-EM500YNW-A1 (-BS)	48

* Vibration level varies depending on the conditions of actual installation site.

• **Cooling only**



• **Heating only**



• **Combination of cooling/heating operation (Cooling main or Heating main)**

Outdoor temperature	Indoor temperature	
	Cooling	Heating
-10 to 21˚CDB (14 to 70˚FDB)	——	15 to 27˚CDB (59 to 81˚FDB)
-11 to 15.5˚CWB (12.2 to 60˚FWB)	15 to 24˚CWB (59 to 75˚FWB)	——

*During cooling operation, there is a risk in freezing water at HBC when the outdoor temperature is below the lower limit.

Section 8-1.
Shows an example of how to select the indoor and outdoor units according to the required heating/cooling load.

Section 8-2. through 8-5.
Show the actual correction data of indoor and outdoor units.

8-1. Correction by temperature

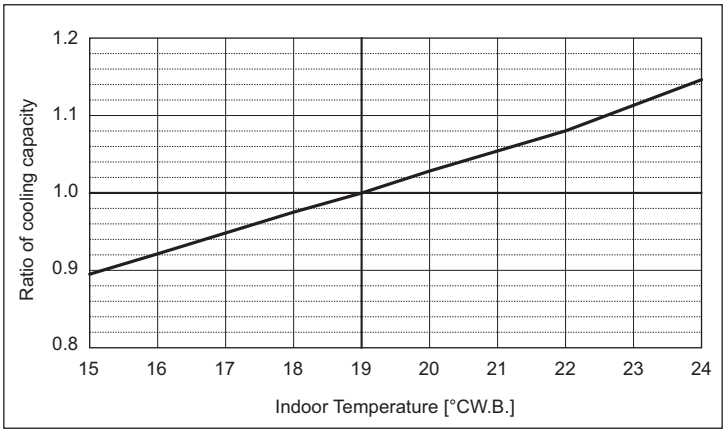
HYBRID CITY MULTI could have varied capacity at different designing temperature. Using the nominal cooling/heating capacity value and the ratio below, the capacity can be observed at various temperature.

PURY-		M200YNW-A1	M250YNW-A1
Nominal Cooling Capacity	kW	22.4	28.0
	BTU/h	76,400	95,500
Input	kW	5.53	8.40

PURY-		EM200YNW-A1	EM250YNW-A1
Nominal Cooling Capacity	kW	22.4	28.0
	BTU/h	76,400	95,500
Input	kW	5.13	7.69

Indoor unit temperature correction

To be used to correct indoor unit capacity only

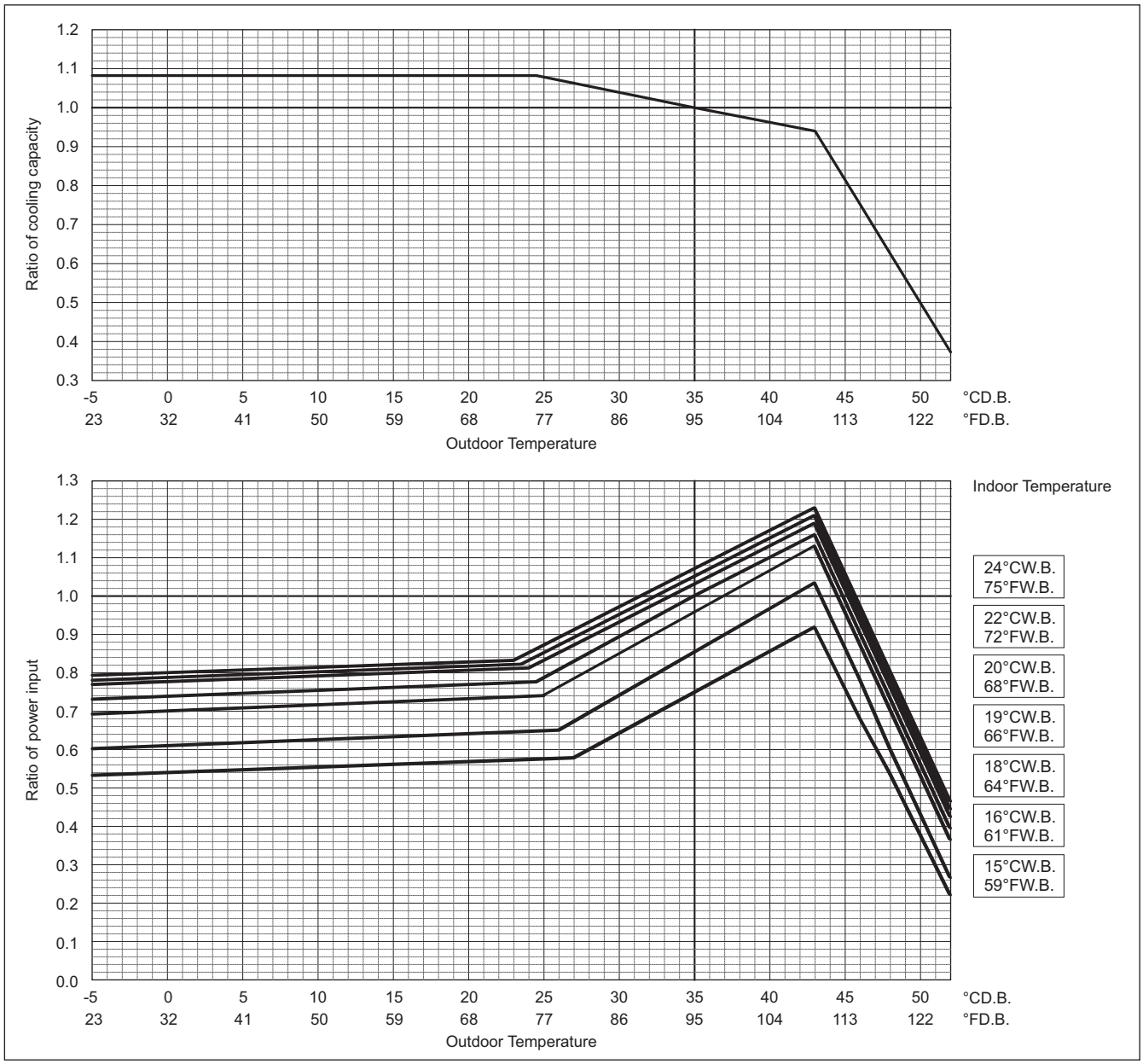


Outdoor unit temperature correction

To be used to correct outdoor unit only

Outdoor unit capacity is NOT affected by the indoor temperature.

Outdoor unit power input is affected by the indoor and outdoor temperatures. Please consult the sales office for details.

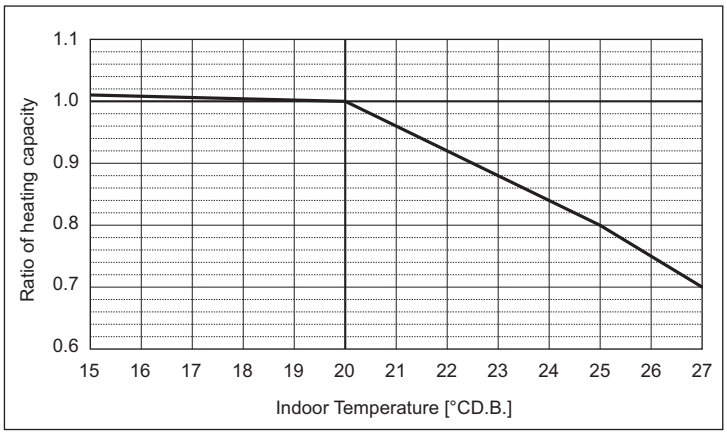


PURY-		M200YNW-A1	M250YNW-A1
Nominal Heating Capacity	kW	25.0	31.5
	BTU/h	85,300	107,500
Input	kW	6.39	9.15

PURY-		EM200YNW-A1	EM250YNW-A1
Nominal Heating Capacity	kW	25.0	31.5
	BTU/h	85,300	107,500
Input	kW	6.23	8.84

Indoor unit temperature correction

To be used to correct indoor unit capacity only

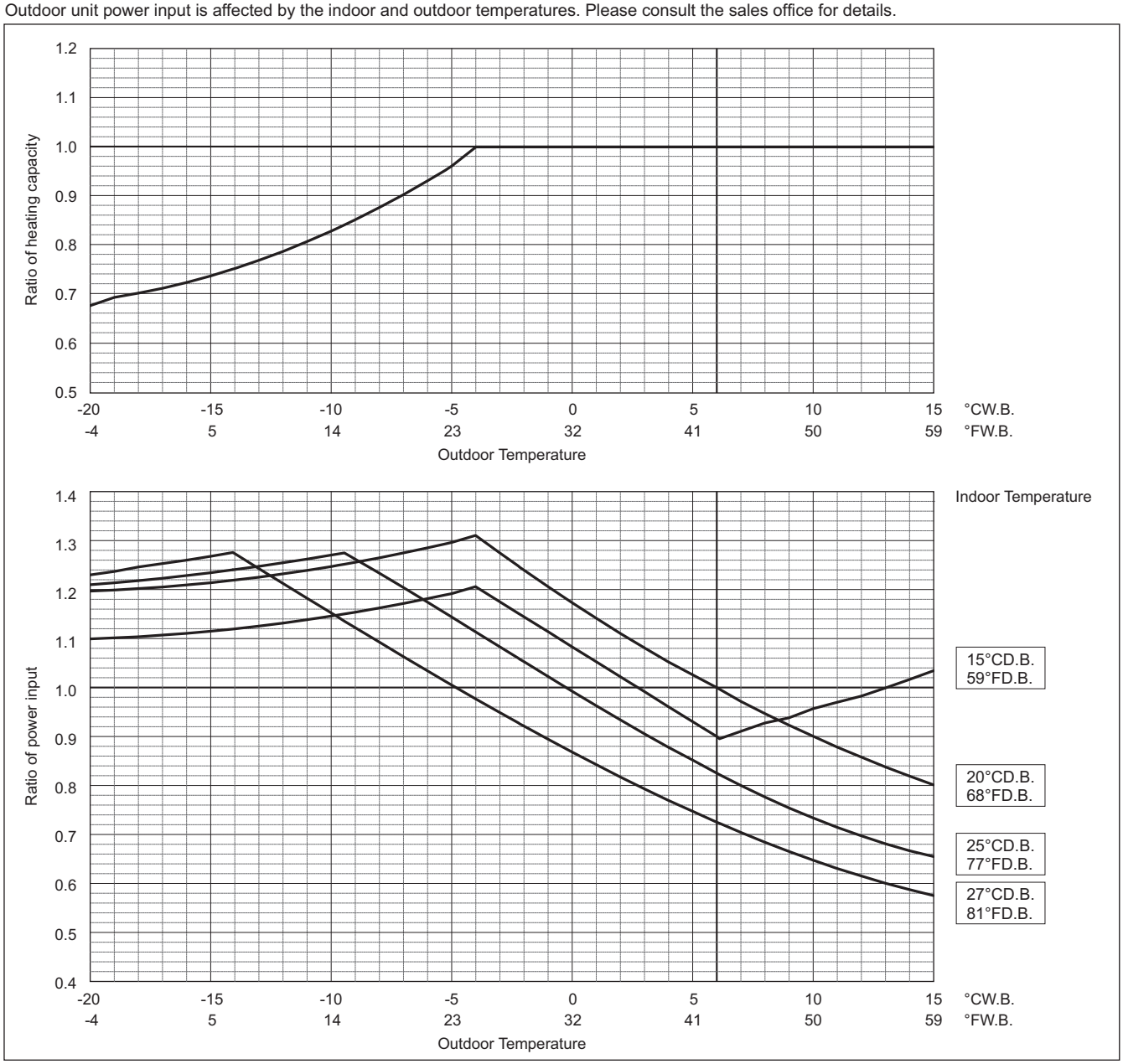


Outdoor unit temperature correction

To be used to correct outdoor unit only

Outdoor unit capacity is NOT affected by the indoor temperature.

Outdoor unit power input is affected by the indoor and outdoor temperatures. Please consult the sales office for details.

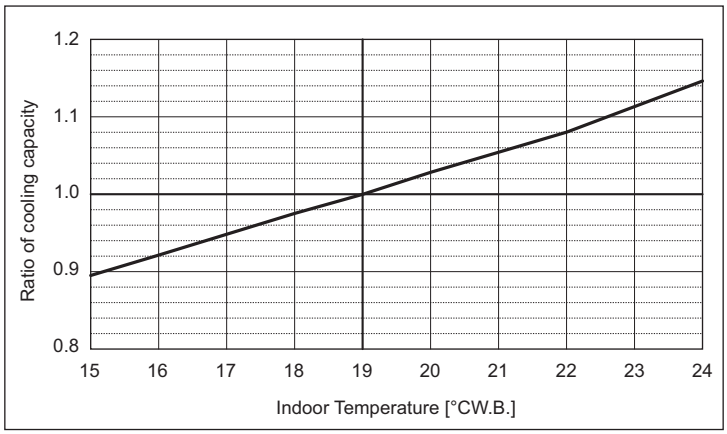


PURY-		M300YNW-A1	M350YNW-A1
Nominal Cooling Capacity	kW	33.5	40.0
	BTU/h	114,300	136,500
Input	kW	11.65	14.93

PURY-		EM300YNW-A1	EM350YNW-A1
Nominal Cooling Capacity	kW	33.5	40.0
	BTU/h	114,300	136,500
Input	kW	10.03	13.91

Indoor unit temperature correction

To be used to correct indoor unit capacity only

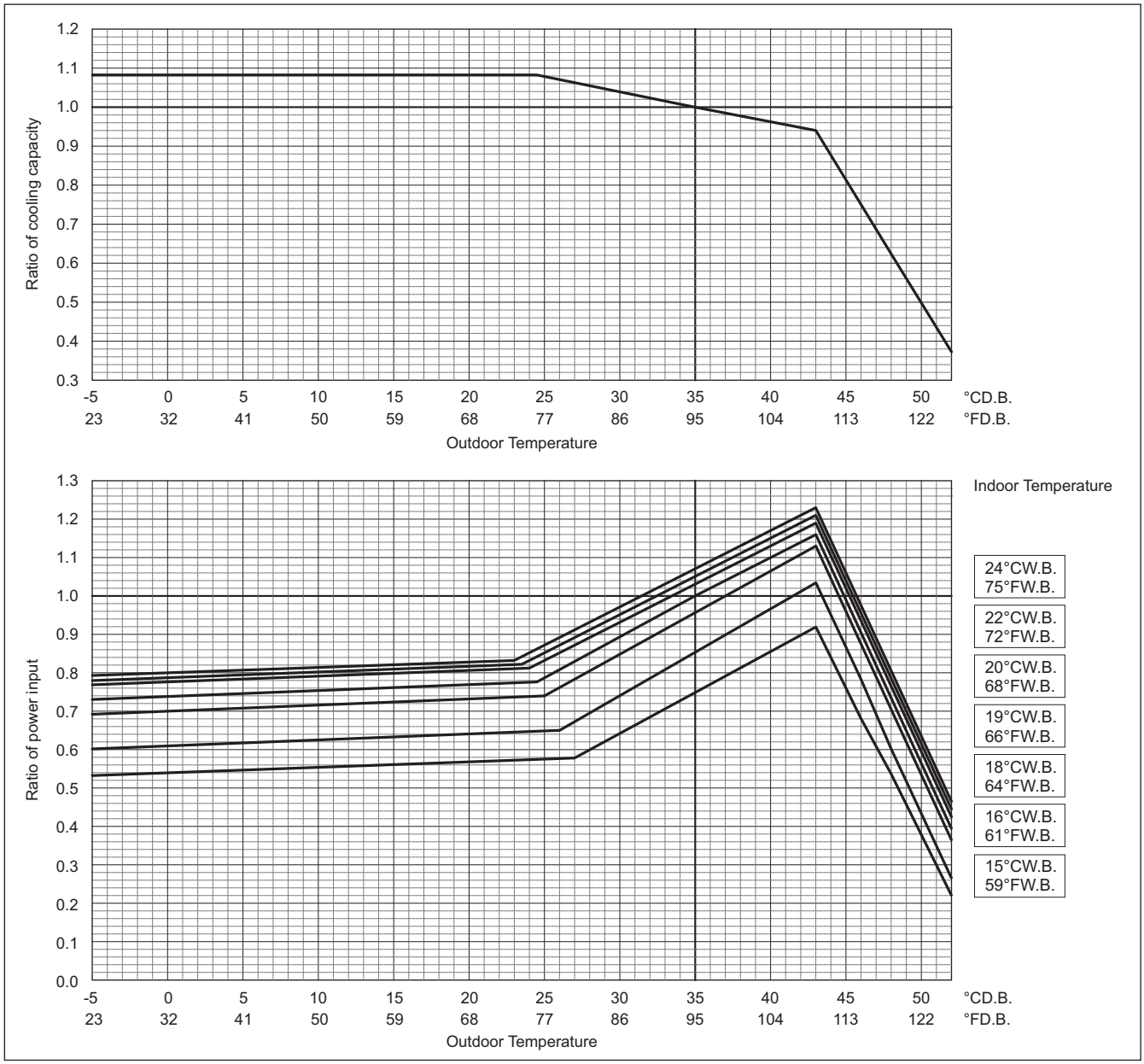


Outdoor unit temperature correction

To be used to correct outdoor unit only

Outdoor unit capacity is NOT affected by the indoor temperature.

Outdoor unit power input is affected by the indoor and outdoor temperatures. Please consult the sales office for details.

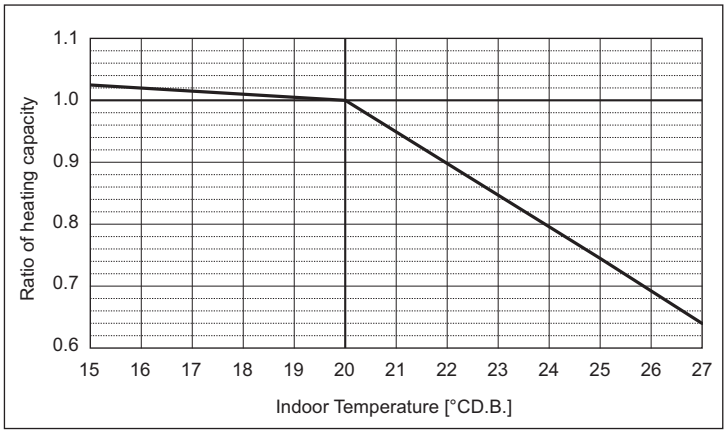


PURY-		M300YNW-A1	M350YNW-A1
Nominal Heating Capacity	kW	37.5	45.0
	BTU/h	128,000	153,500
Input	kW	11.00	13.14

PURY-		EM300YNW-A1	EM350YNW-A1
Nominal Heating Capacity	kW	37.5	45.0
	BTU/h	128,000	153,500
Input	kW	10.46	13.10

Indoor unit temperature correction

To be used to correct indoor unit capacity only

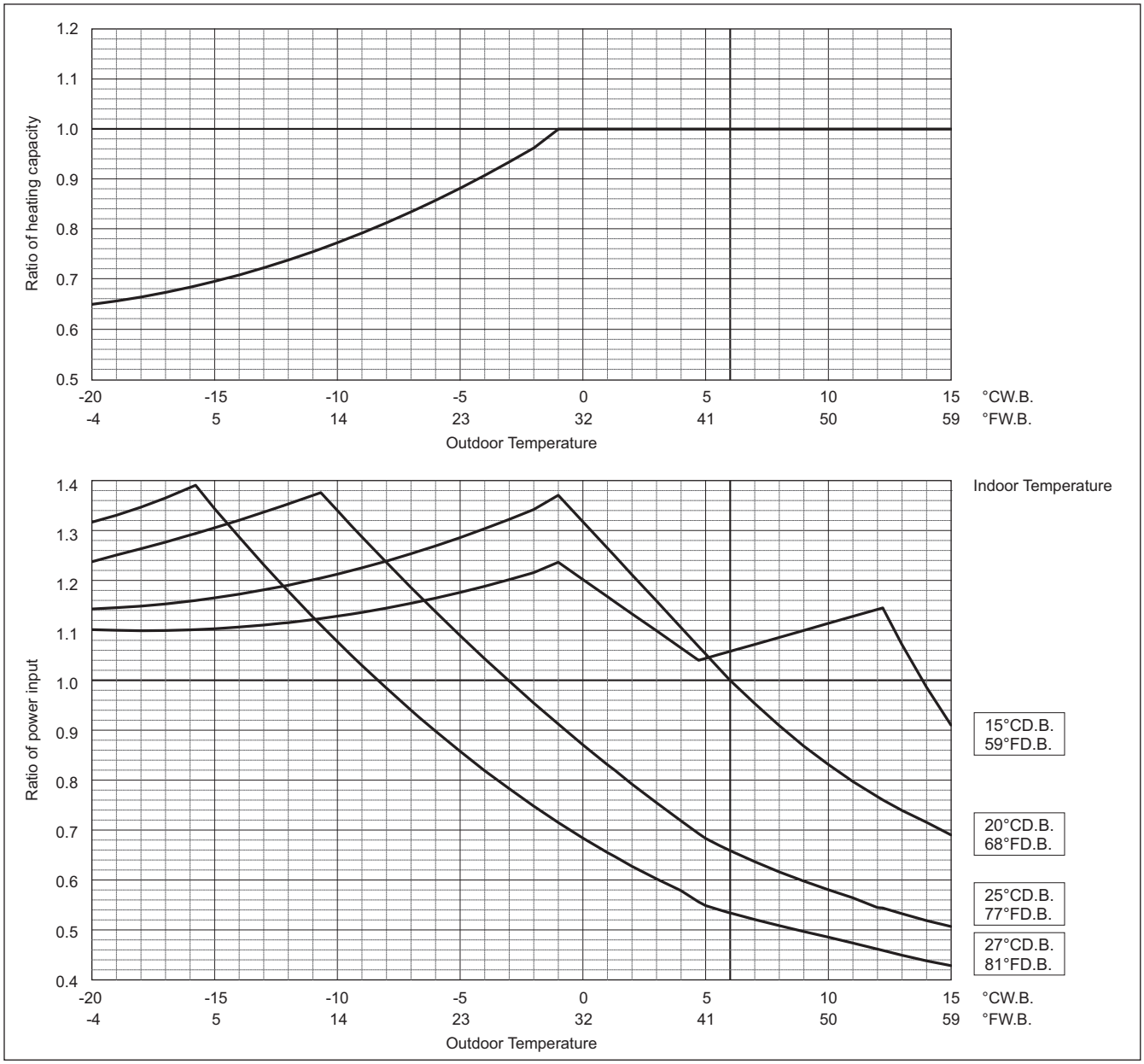


Outdoor unit temperature correction

To be used to correct outdoor unit only

Outdoor unit capacity is NOT affected by the indoor temperature.

Outdoor unit power input is affected by the indoor and outdoor temperatures. Please consult the sales office for details.

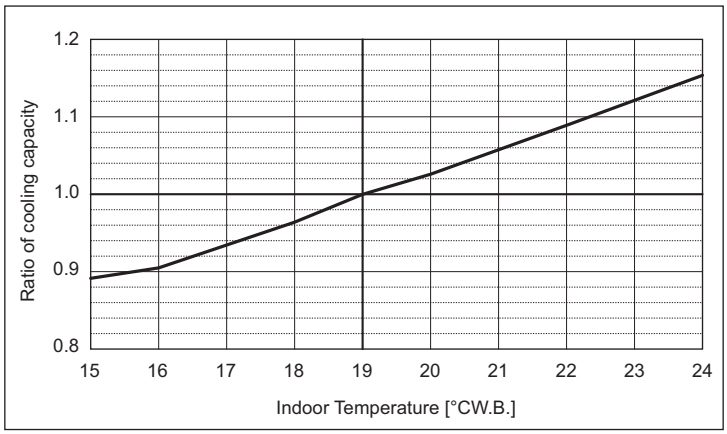


PURY-		M400YNW-A1	M450YNW-A1	M500YNW-A1
Nominal Cooling Capacity	kW	45.0	50.0	56.0
	BTU/h	153,500	170,600	191,100
Input	kW	15.15	15.47	22.25

PURY-		EM400YNW-A1	EM450YNW-A1	EM500YNW-A1
Nominal Cooling Capacity	kW	45.0	50.0	56.0
	BTU/h	153,500	170,600	191,100
Input	kW	13.84	15.24	18.06

Indoor unit temperature correction

To be used to correct indoor unit capacity only

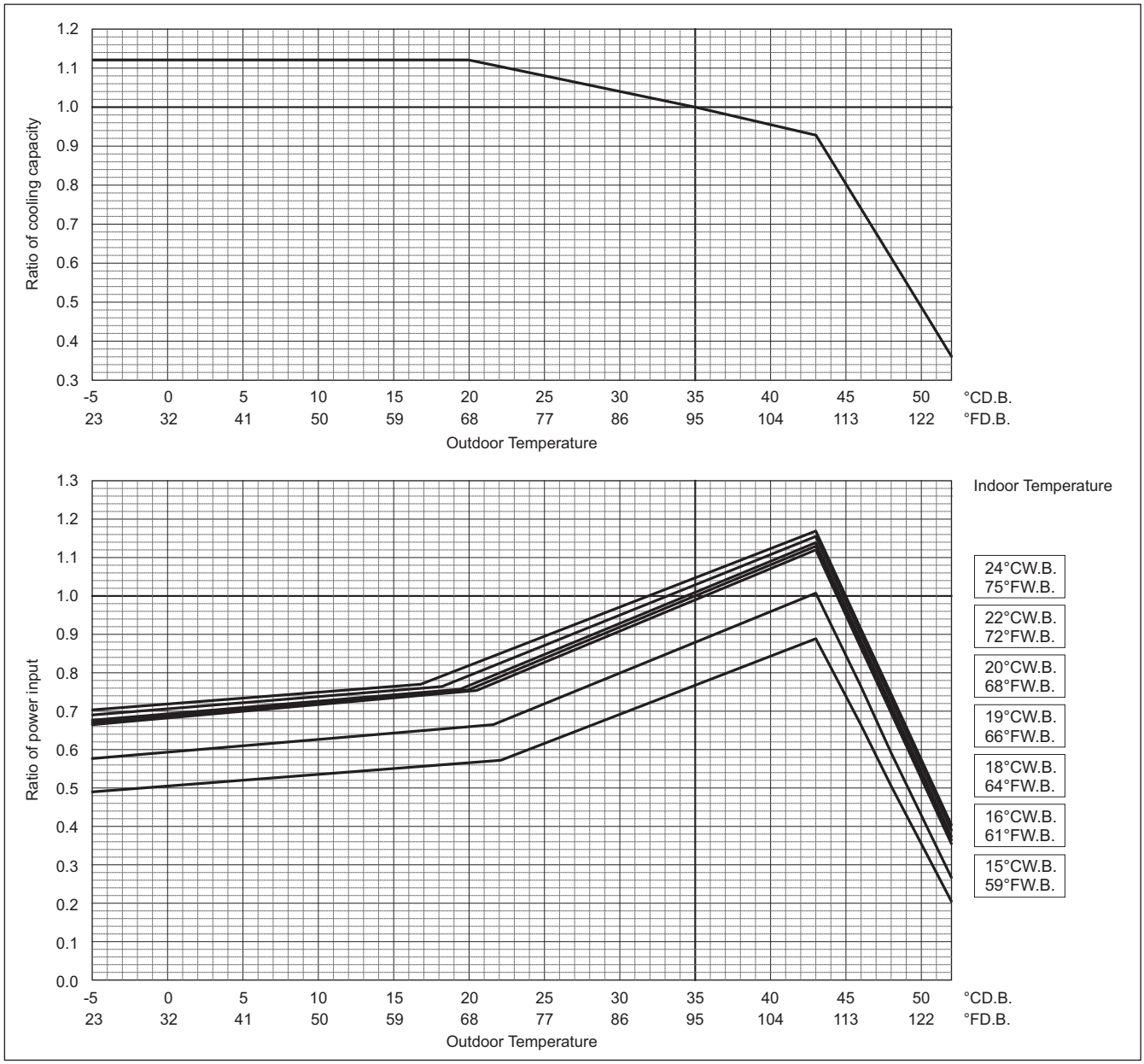


Outdoor unit temperature correction

To be used to correct outdoor unit only

Outdoor unit capacity is NOT affected by the indoor temperature.

Outdoor unit power input is affected by the indoor and outdoor temperatures. Please consult the sales office for details.

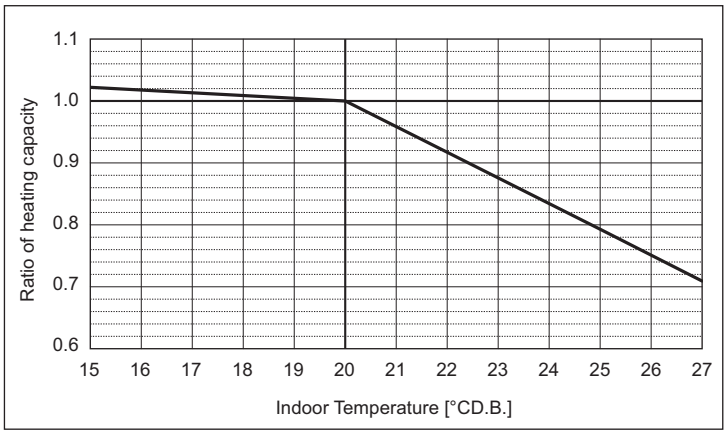


PURY-		M400YNW-A1	M450YNW-A1	M500YNW-A1
Nominal Heating Capacity	kW	50.0	56.0	63.0
	BTU/h	170,600	191,100	215,000
Input	kW	14.08	16.18	18.26

PURY-		EM400YNW-A1	EM450YNW-A1	EM500YNW-A1
Nominal Heating Capacity	kW	50.0	56.0	63.0
	BTU/h	170,600	191,100	215,000
Input	kW	13.88	15.77	17.45

Indoor unit temperature correction

To be used to correct indoor unit capacity only

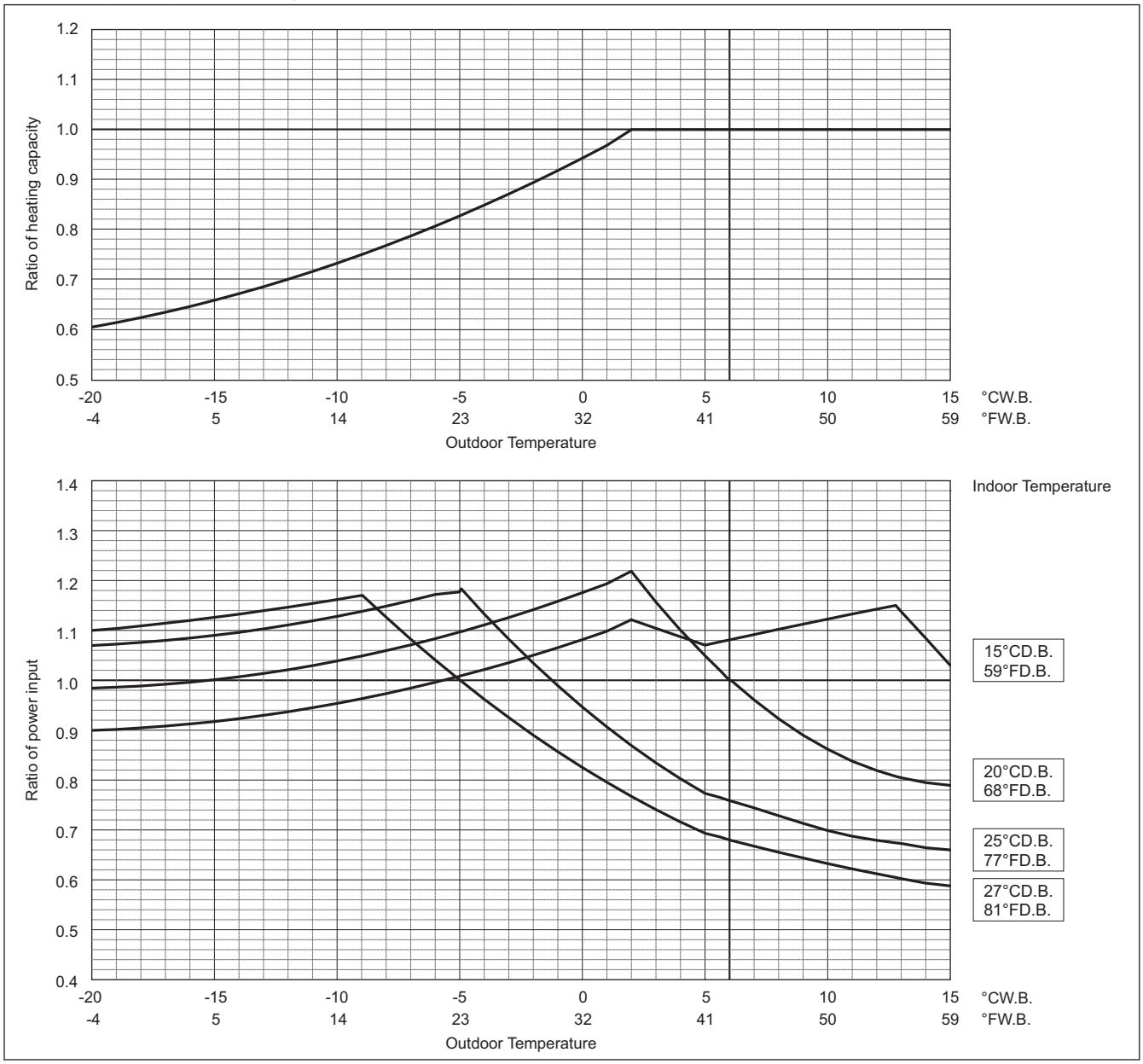


Outdoor unit temperature correction

To be used to correct outdoor unit only

Outdoor unit capacity is NOT affected by the indoor temperature.

Outdoor unit power input is affected by the indoor and outdoor temperatures. Please consult the sales office for details.



Correction by temperature (COP Priority Mode)

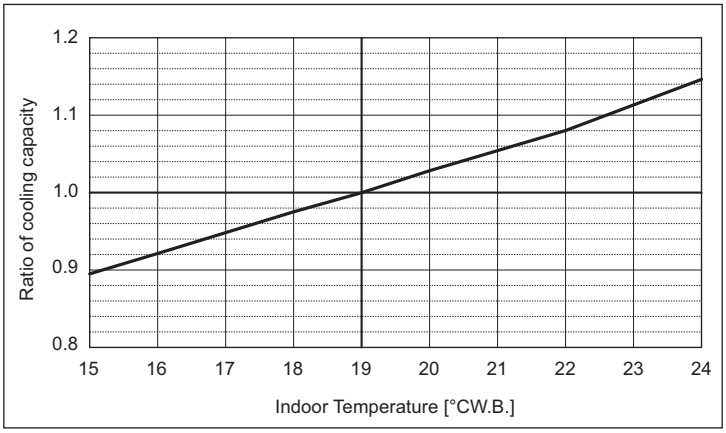
HYBRID CITY MULTI could have various capacities at different designing temperatures. Using the nominal cooling/heating capacity values and the ratios below, the capacity can be found for various temperatures.
To select COP priority mode, SW4 (935) must be set to ON.

PURY-		M200YNW-A1	M250YNW-A1
Nominal Cooling Capacity	kW	22.4	28.0
	BTU/h	76,400	95,500
Input	kW	5.53	8.40

PURY-		EM200YNW-A1	EM250YNW-A1
Nominal Cooling Capacity	kW	22.4	28.0
	BTU/h	76,400	95,500
Input	kW	5.13	7.69

Indoor unit temperature correction

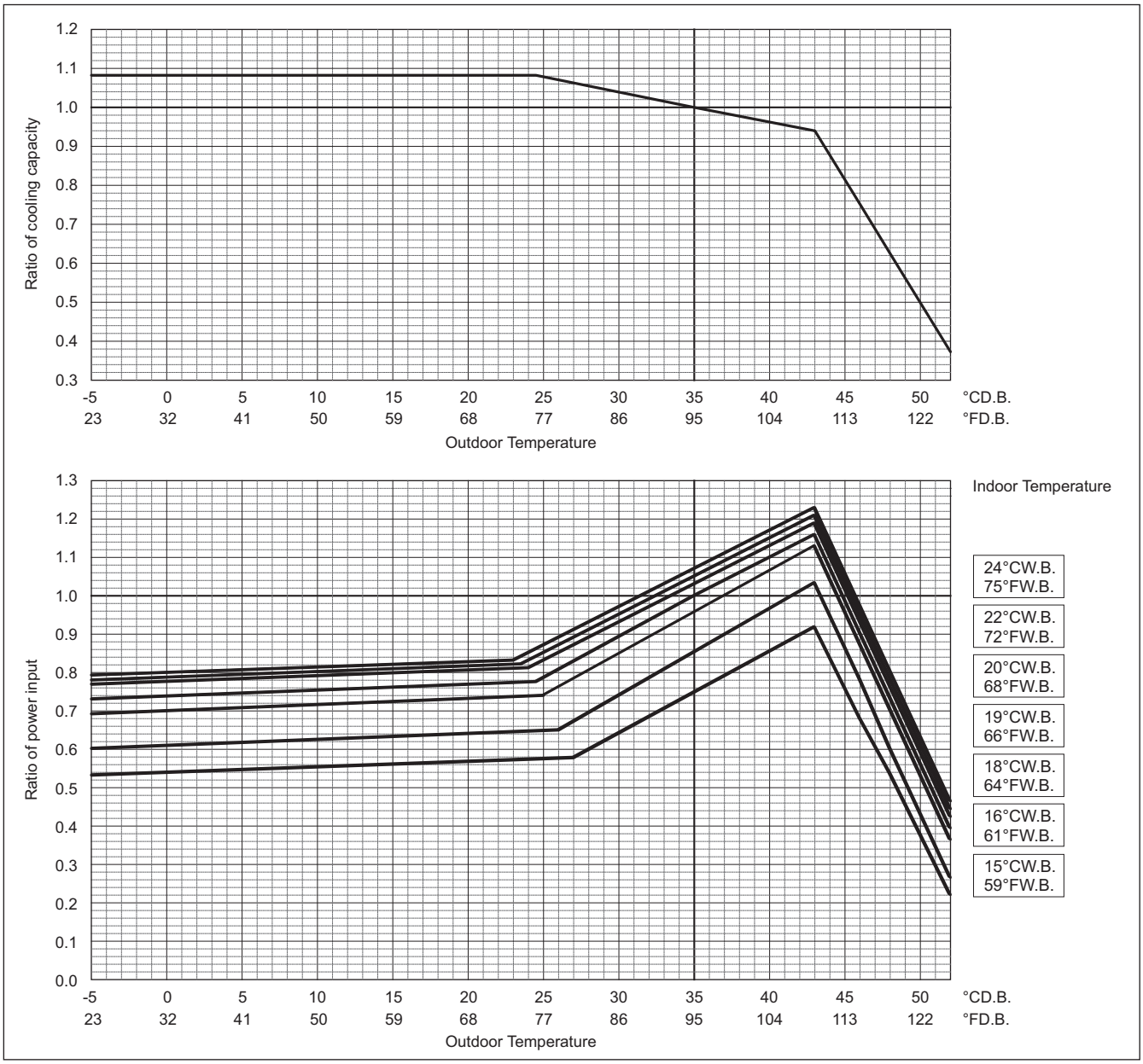
To be used to correct indoor unit capacity only



Outdoor unit temperature correction

To be used to correct outdoor unit only

Outdoor unit capacity is NOT affected by the indoor temperature.
Outdoor unit power input is affected by the indoor and outdoor temperatures. Please consult the sales office for details.



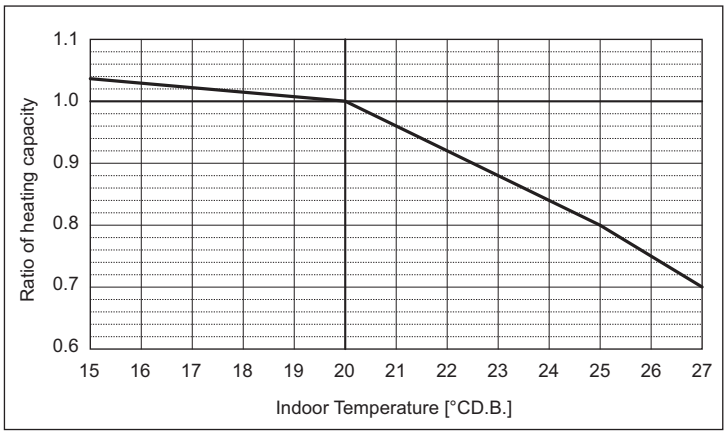
COP Priority Mode

PURY-		M200YNW-A1	M250YNW-A1
Nominal Heating Capacity	kW	25.0	31.5
	BTU/h	85,300	107,500
Input	kW	6.39	9.15

PURY-		EM200YNW-A1	EM250YNW-A1
Nominal Heating Capacity	kW	25.0	31.5
	BTU/h	85,300	107,500
Input	kW	6.23	8.84

Indoor unit temperature correction

To be used to correct indoor unit capacity only

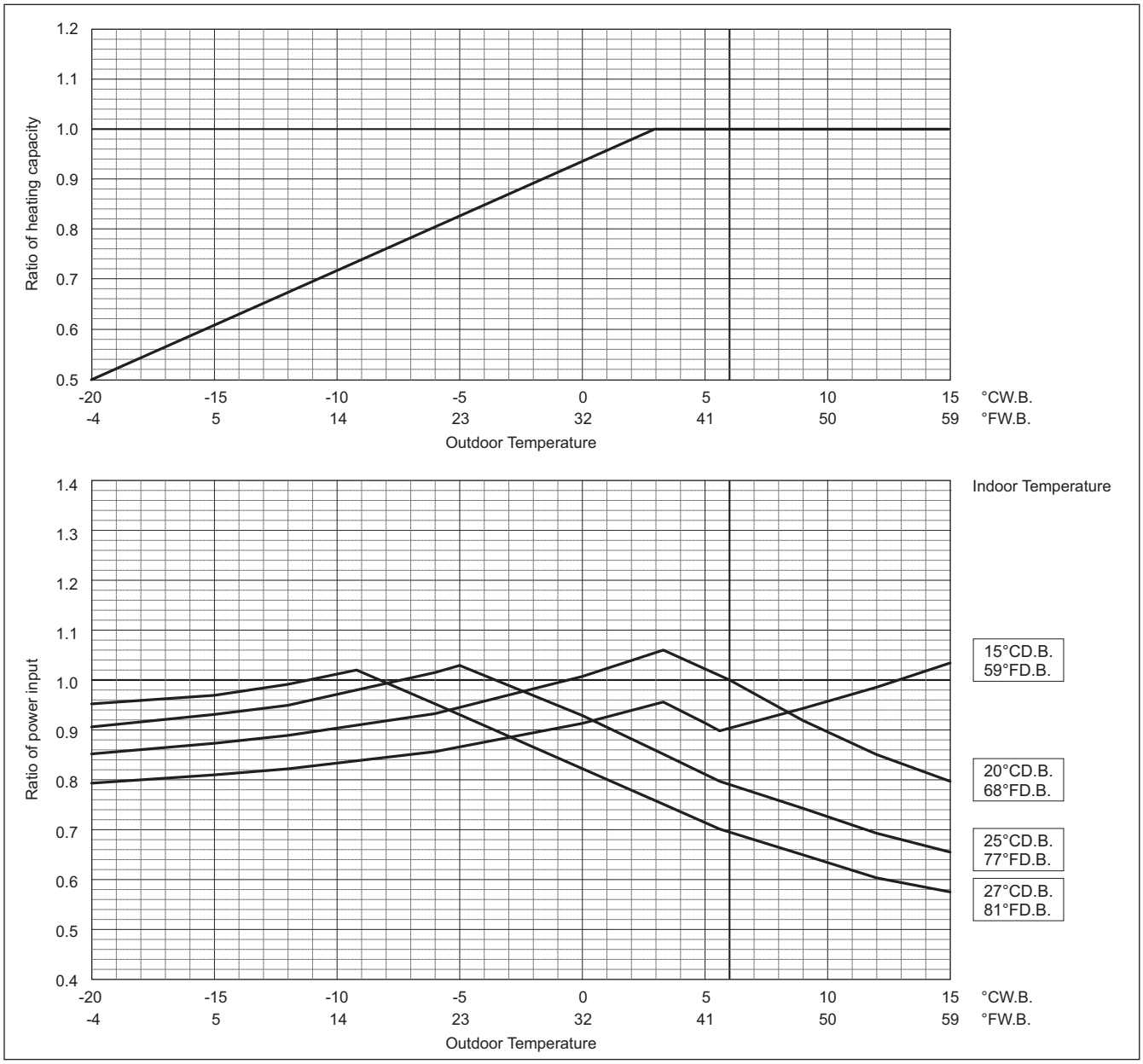


Outdoor unit temperature correction

To be used to correct outdoor unit only

Outdoor unit capacity is NOT affected by the indoor temperature.

Outdoor unit power input is affected by the indoor and outdoor temperatures. Please consult the sales office for details.

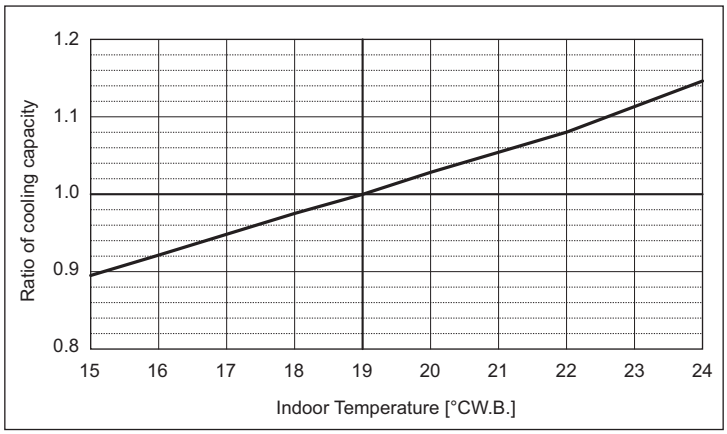


PURY-		M300YNW-A1	M350YNW-A1
Nominal Cooling Capacity	kW	33.5	40.0
	BTU/h	114,300	136,500
Input	kW	11.65	14.93

PURY-		EM300YNW-A1	EM350YNW-A1
Nominal Cooling Capacity	kW	33.5	40.0
	BTU/h	114,300	136,500
Input	kW	10.03	13.91

Indoor unit temperature correction

To be used to correct indoor unit capacity only

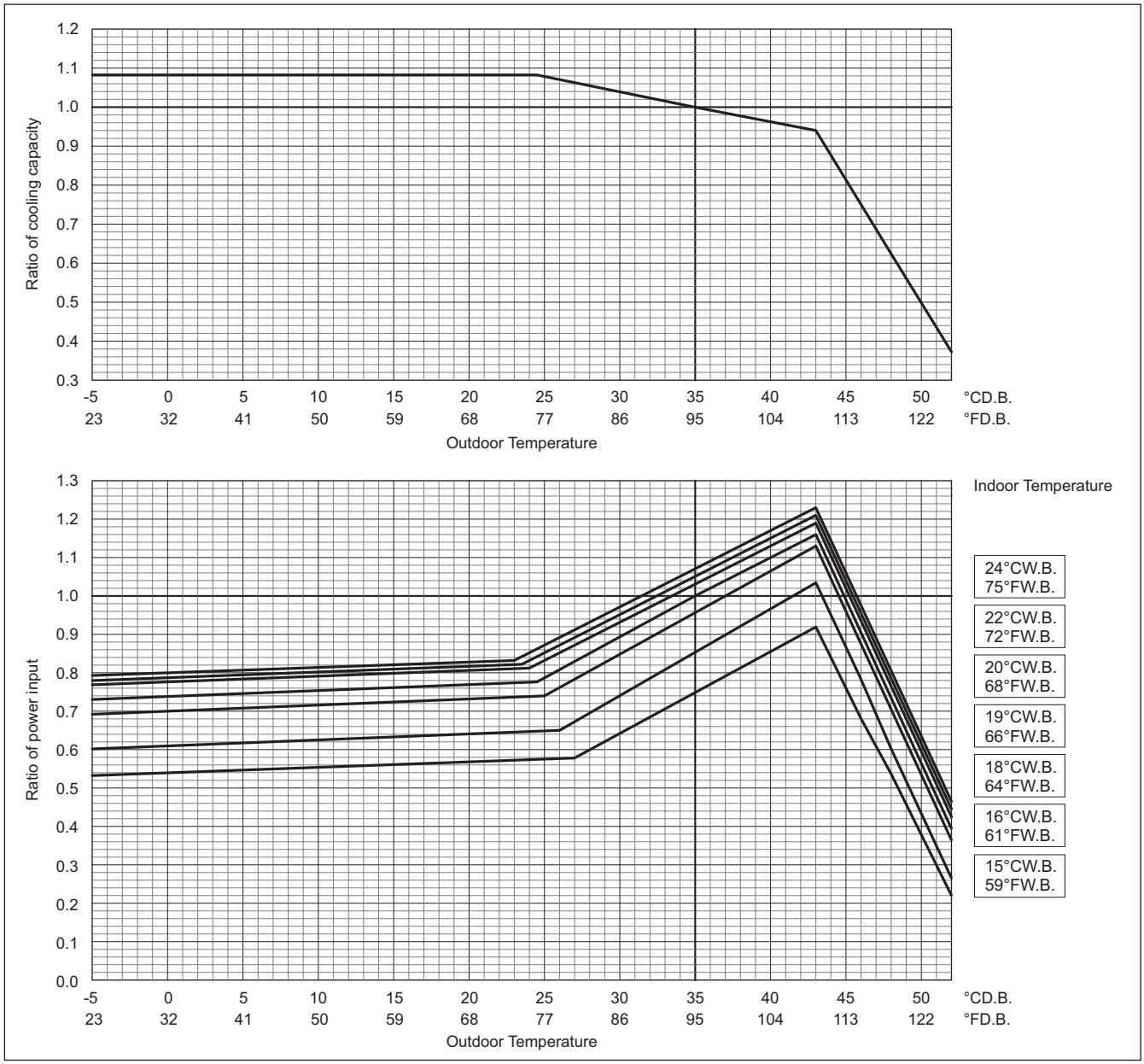


Outdoor unit temperature correction

To be used to correct outdoor unit only

Outdoor unit capacity is NOT affected by the indoor temperature.

Outdoor unit power input is affected by the indoor and outdoor temperatures. Please consult the sales office for details.



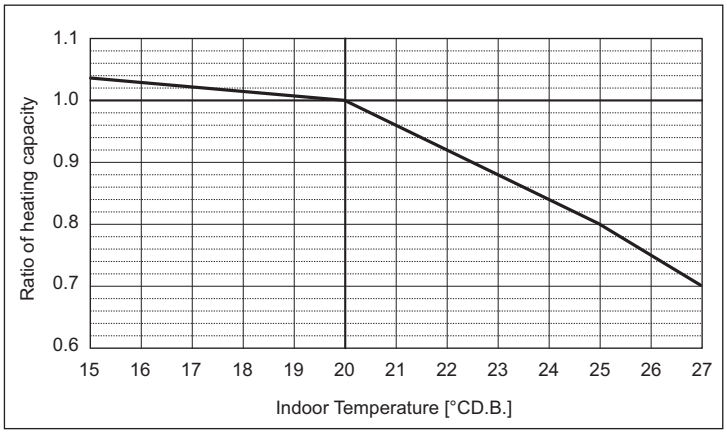
COP Priority Mode

PURY-		M300YNW-A1	M350YNW-A1
Nominal Heating Capacity	kW	37.5	45.0
	BTU/h	128,000	153,500
Input	kW	11.00	13.14

PURY-		EM300YNW-A1	EM350YNW-A1
Nominal Heating Capacity	kW	37.5	45.0
	BTU/h	128,000	153,500
Input	kW	10.46	13.10

Indoor unit temperature correction

To be used to correct indoor unit capacity only

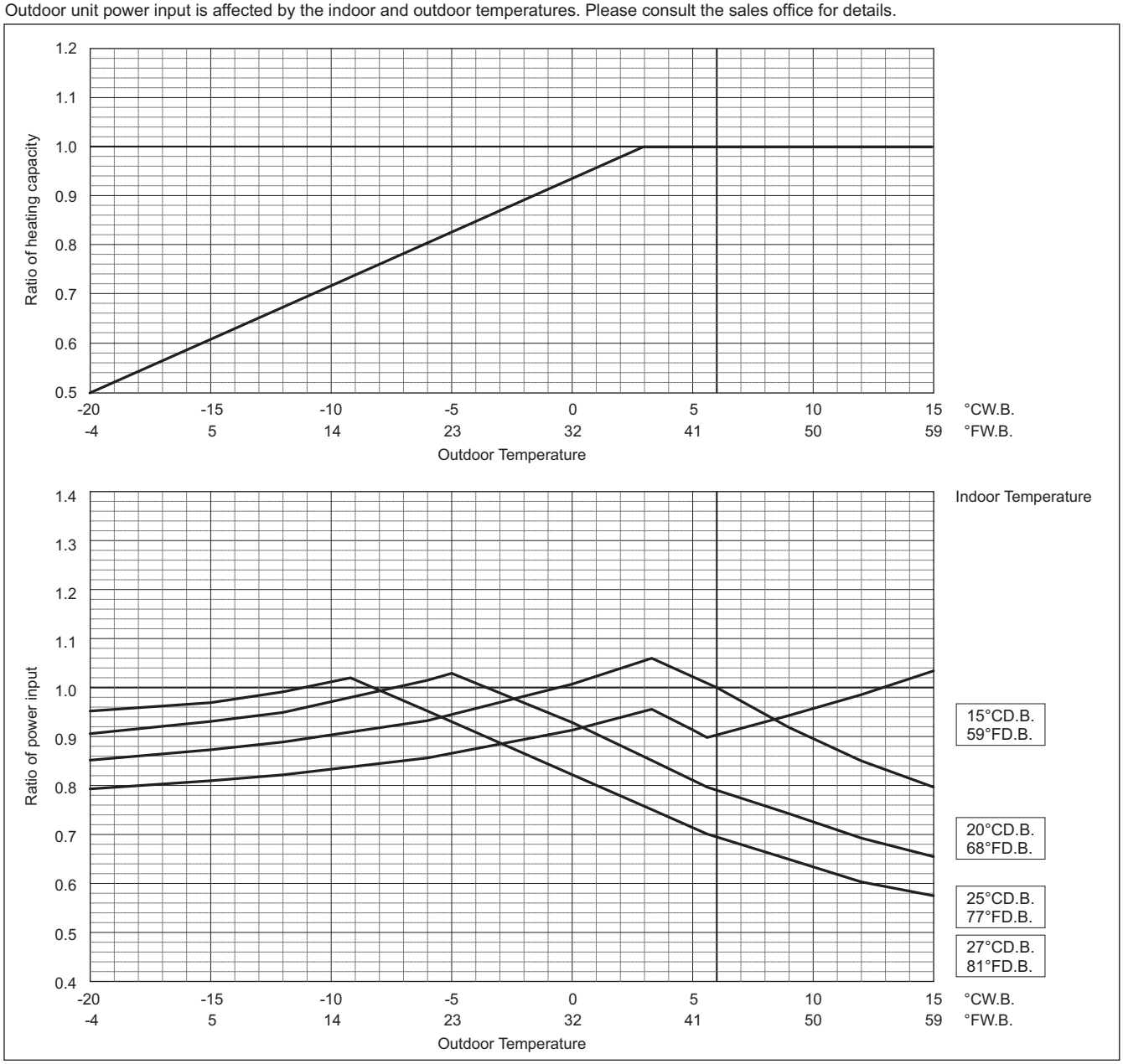


Outdoor unit temperature correction

To be used to correct outdoor unit only

Outdoor unit capacity is NOT affected by the indoor temperature.

Outdoor unit power input is affected by the indoor and outdoor temperatures. Please consult the sales office for details.

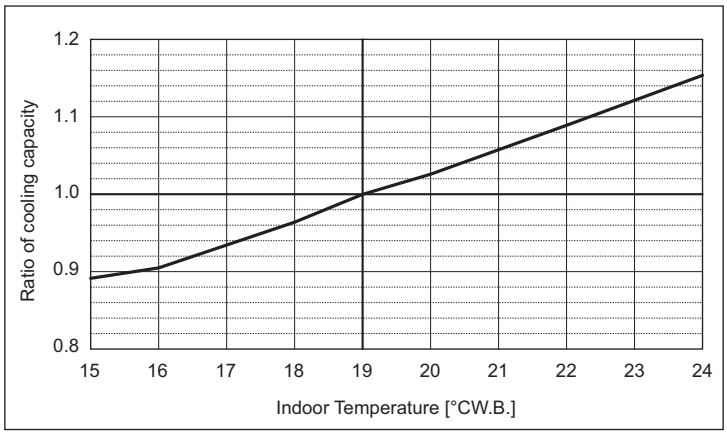


PURY-		M400YNW-A1	M450YNW-A1	M500YNW-A1
Nominal Cooling Capacity	kW	45.0	50.0	56.0
	BTU/h	153,500	170,600	191,100
Input	kW	15.15	15.47	22.25

PURY-		EM400YNW-A1	EM450YNW-A1	EM500YNW-A1
Nominal Cooling Capacity	kW	45.0	50.0	56.0
	BTU/h	153,500	170,600	191,100
Input	kW	13.84	15.24	18.06

Indoor unit temperature correction

To be used to correct indoor unit capacity only

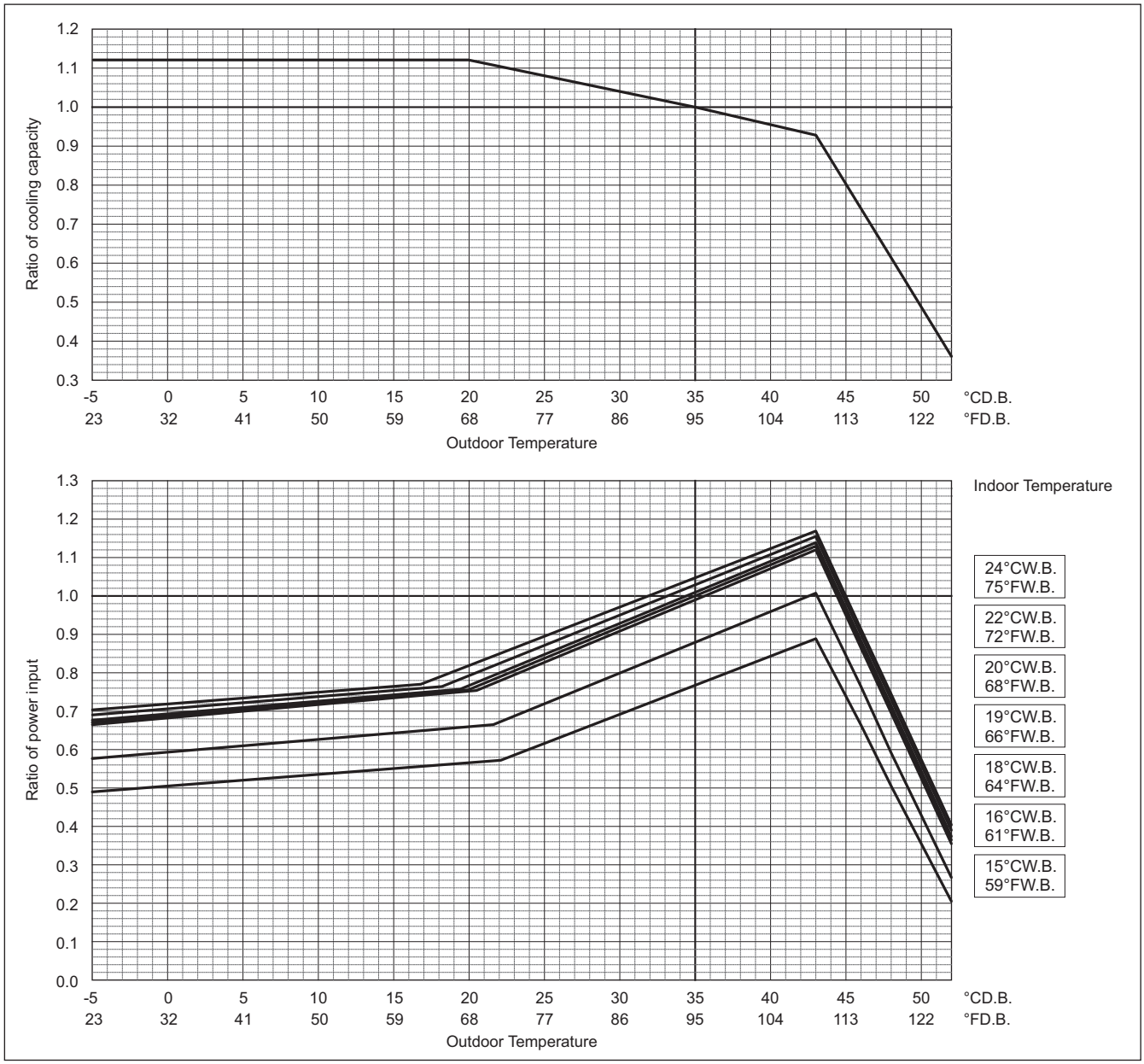


Outdoor unit temperature correction

To be used to correct outdoor unit only

Outdoor unit capacity is NOT affected by the indoor temperature.

Outdoor unit power input is affected by the indoor and outdoor temperatures. Please consult the sales office for details.



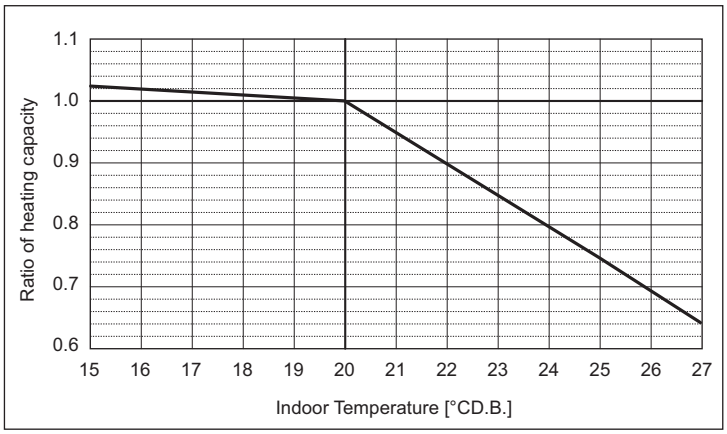
COP Priority Mode

PURY-		M400YNW-A1	M450YNW-A1	M500YNW-A1
Nominal Heating Capacity	kW	50.0	56.0	63.0
	BTU/h	170,600	191,100	215,000
Input	kW	14.08	16.18	18.26

PURY-		EM400YNW-A1	EM450YNW-A1	EM500YNW-A1
Nominal Heating Capacity	kW	50.0	56.0	63.0
	BTU/h	170,600	191,100	215,000
Input	kW	13.88	15.77	17.45

Indoor unit temperature correction

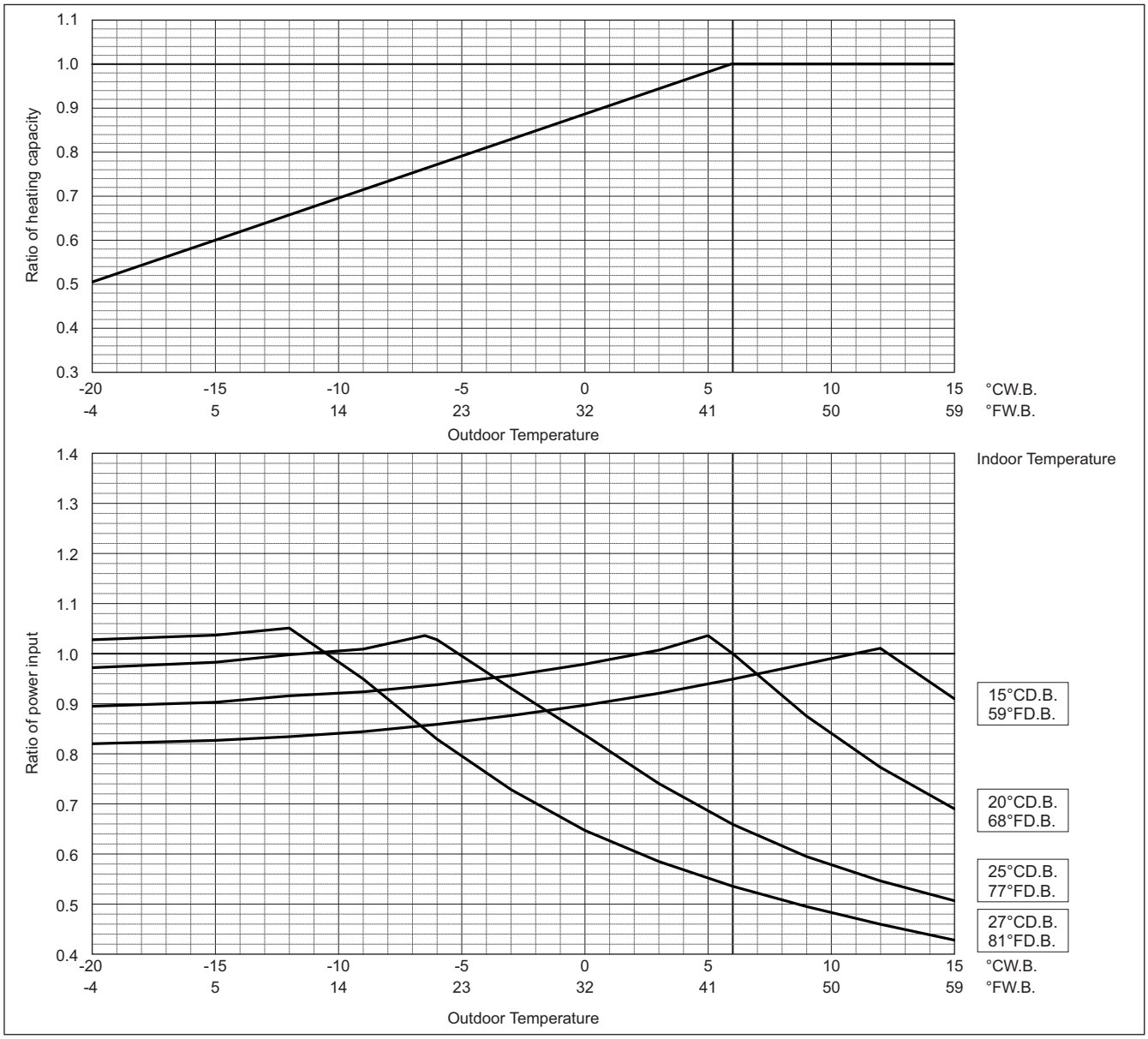
To be used to correct indoor unit capacity only



Outdoor unit temperature correction

To be used to correct outdoor unit only

Outdoor unit capacity is NOT affected by the indoor temperature.
Outdoor unit power input is affected by the indoor and outdoor temperatures. Please consult the sales office for details.



8-2. Correction by total indoor

HYBRID CITY MULTI system has different capacities and inputs when many combinations of indoor units with different total capacities are connected. Using following tables, the maximum capacity can be found to ensure the system is installed with enough capacity for a particular application.

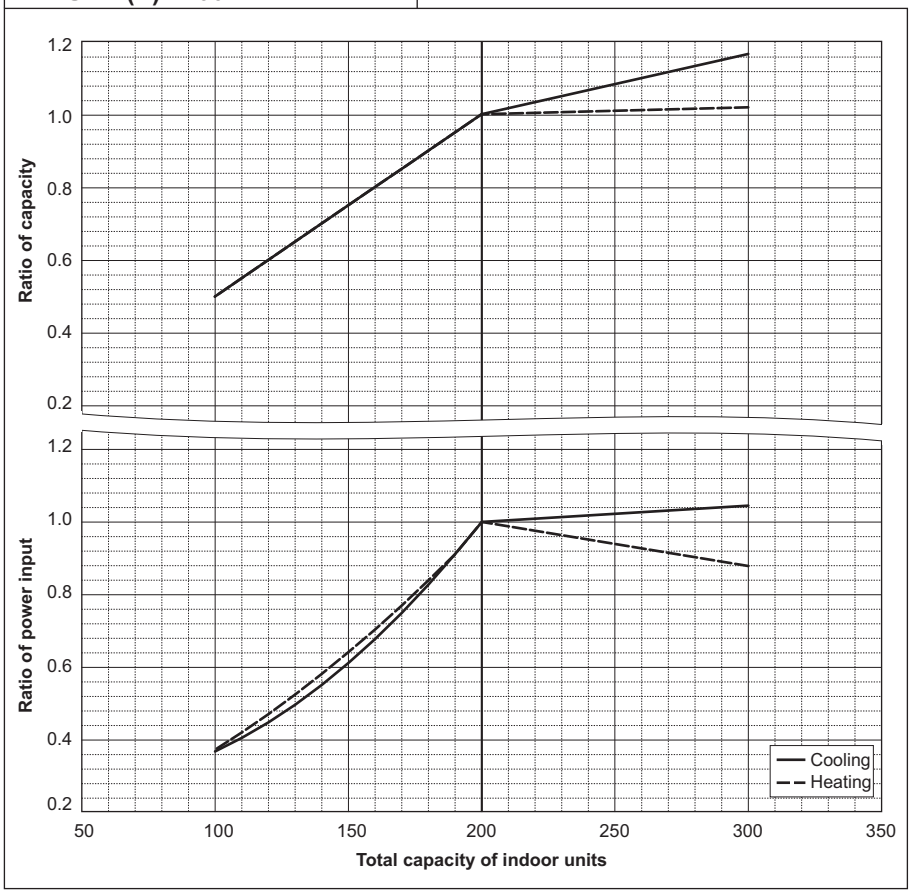
PURY-M200YNW-A1		
Nominal Cooling Capacity	kW	22.4
	BTU/h	76,400
Input	kW	5.53

PURY-M200YNW-A1		
Nominal Heating Capacity	kW	25.0
	BTU/h	85,300
Input	kW	6.39

PURY-EM200YNW-A1		
Nominal Cooling Capacity	kW	22.4
	BTU/h	76,400
Input	kW	5.13

PURY-EM200YNW-A1		
Nominal Heating Capacity	kW	25.0
	BTU/h	85,300
Input	kW	6.23

PURY-(E)M200YNW-A1



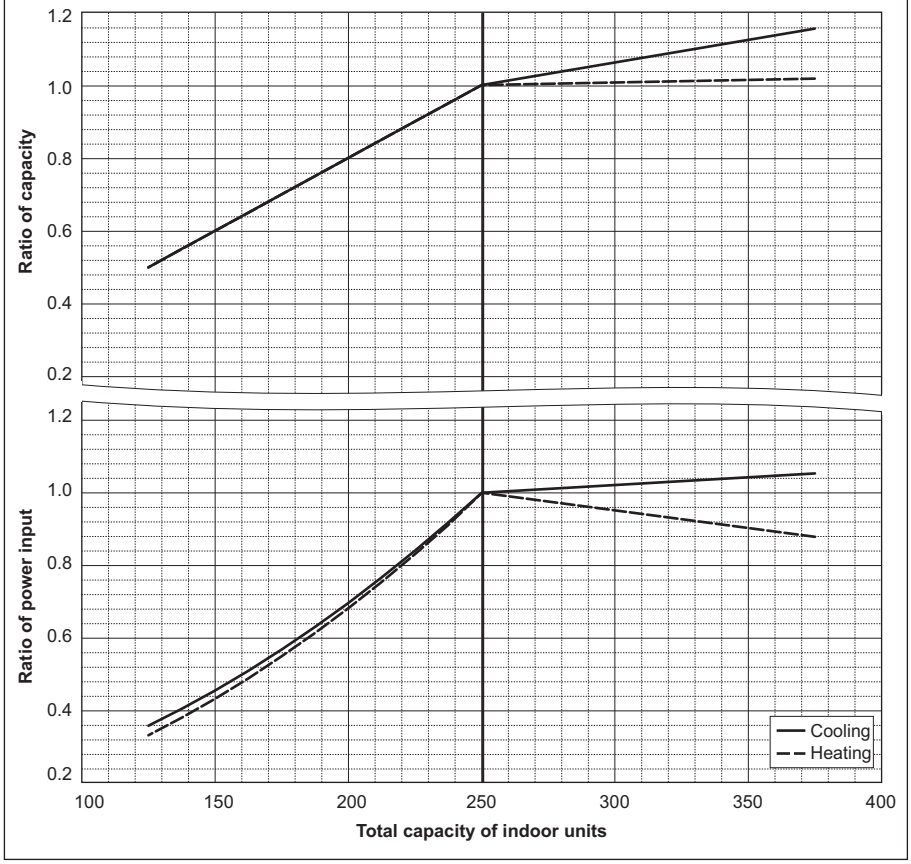
PURY-M250YNW-A1		
Nominal Cooling Capacity	kW	28.0
	BTU/h	95,500
Input	kW	8.40

PURY-M250YNW-A1		
Nominal Heating Capacity	kW	31.5
	BTU/h	107,500
Input	kW	9.15

PURY-EM250YNW-A1		
Nominal Cooling Capacity	kW	28.0
	BTU/h	95,500
Input	kW	7.69

PURY-EM250YNW-A1		
Nominal Heating Capacity	kW	31.5
	BTU/h	107,500
Input	kW	8.84

PURY-(E)M250YNW-A1



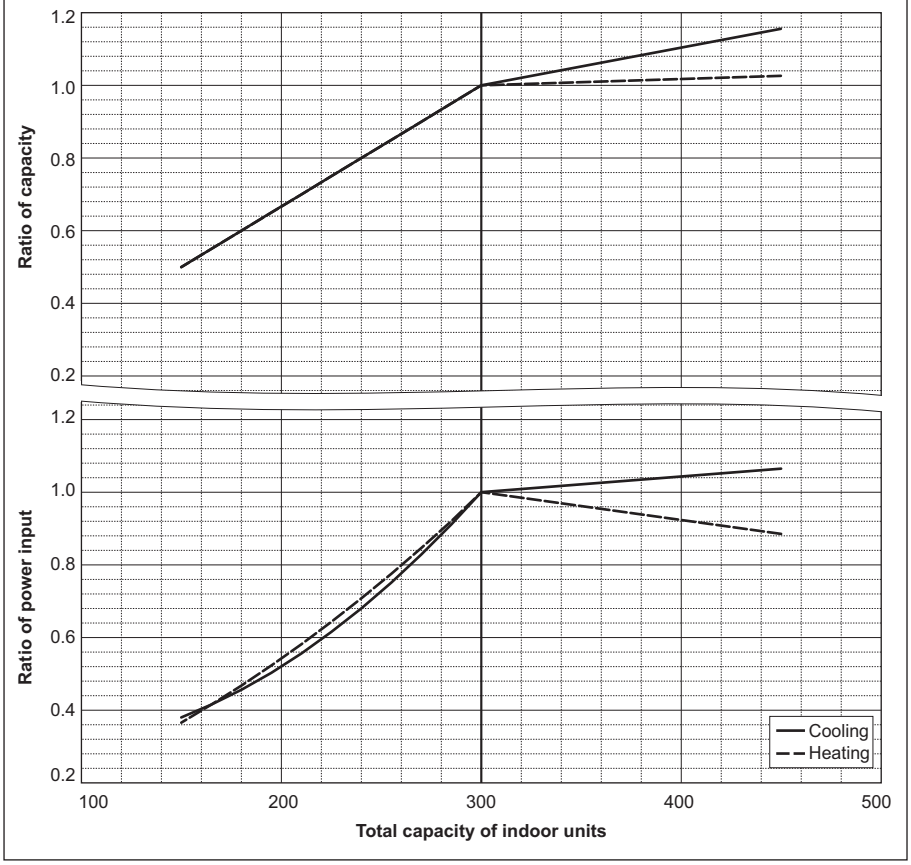
PURY-M300YNW-A1		
Nominal Cooling Capacity	kW	33.5
	BTU/h	114,300
Input	kW	11.65

PURY-M300YNW-A1		
Nominal Heating Capacity	kW	37.5
	BTU/h	128,000
Input	kW	11.00

PURY-EM300YNW-A1		
Nominal Cooling Capacity	kW	33.5
	BTU/h	114,300
Input	kW	10.03

PURY-EM300YNW-A1		
Nominal Heating Capacity	kW	37.5
	BTU/h	128,000
Input	kW	10.46

PURY-(E)M300YNW-A1



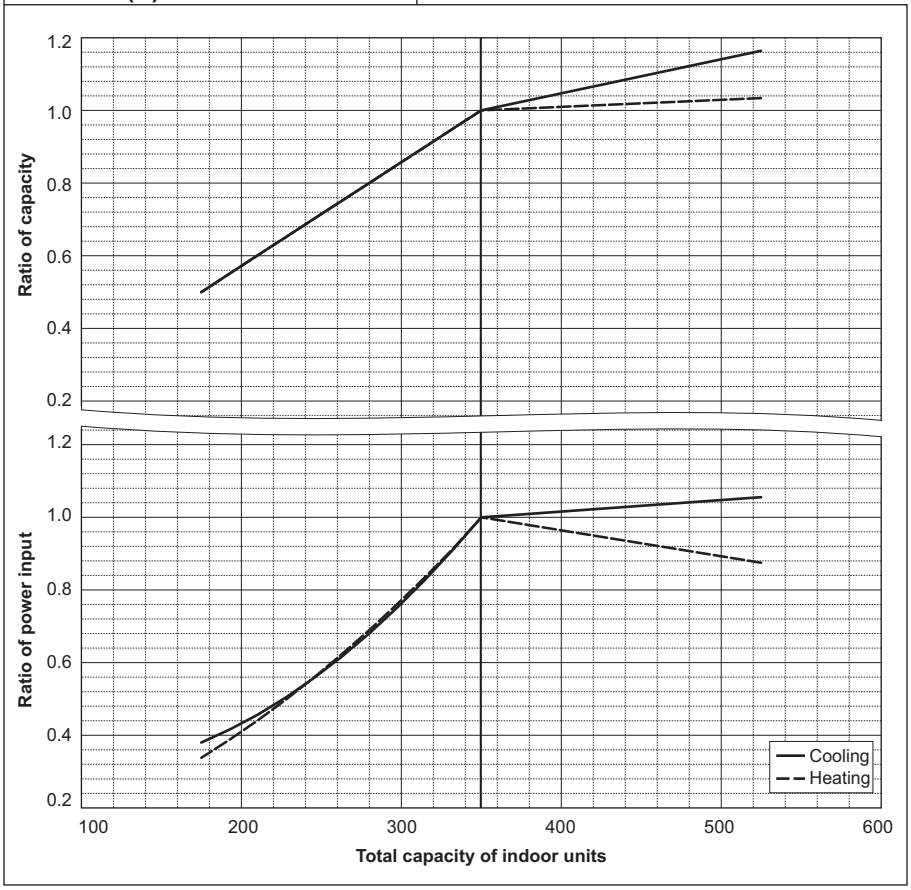
PURY-M350YNW-A1		
Nominal Cooling Capacity	kW	40.0
	BTU/h	136,500
Input	kW	14.93

PURY-M350YNW-A1		
Nominal Heating Capacity	kW	45.0
	BTU/h	153,500
Input	kW	13.14

PURY-EM350YNW-A1		
Nominal Cooling Capacity	kW	40.0
	BTU/h	136,500
Input	kW	13.91

PURY-EM350YNW-A1		
Nominal Heating Capacity	kW	45.0
	BTU/h	153,500
Input	kW	13.10

PURY-(E)M350YNW-A1



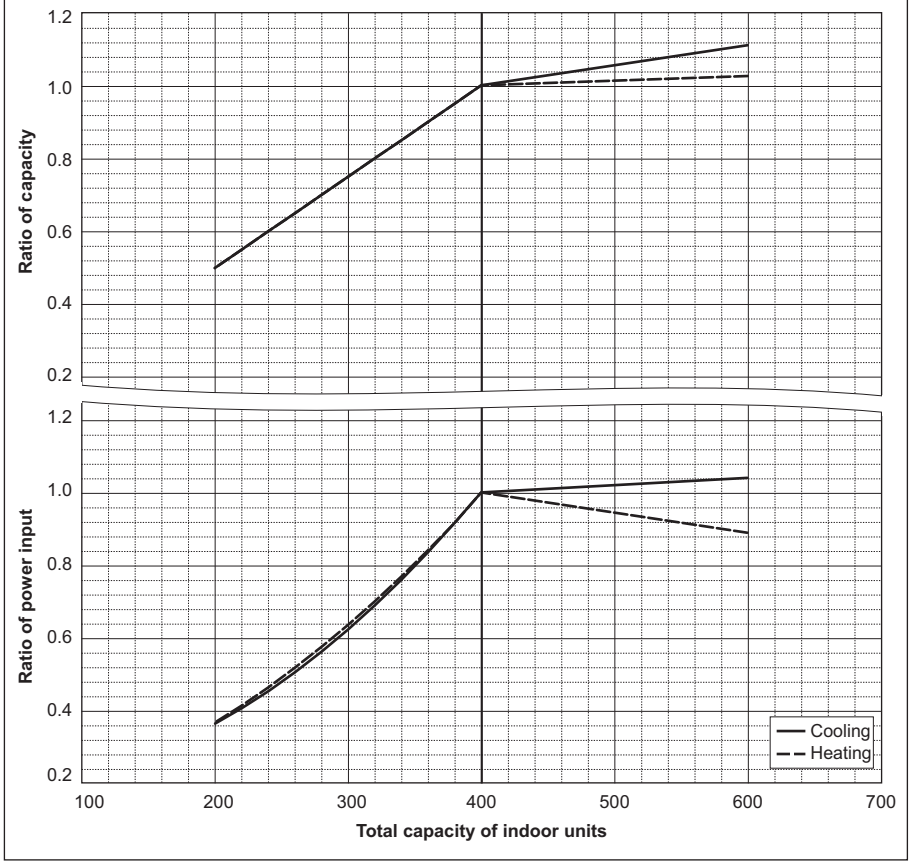
PURY-M400YNW-A1		
Nominal Cooling Capacity	kW	45.0
	BTU/h	153,500
Input	kW	15.15

PURY-M400YNW-A1		
Nominal Heating Capacity	kW	50.0
	BTU/h	170,600
Input	kW	14.08

PURY-EM400YNW-A1		
Nominal Cooling Capacity	kW	45.0
	BTU/h	153,500
Input	kW	13.84

PURY-EM400YNW-A1		
Nominal Heating Capacity	kW	50.0
	BTU/h	170,600
Input	kW	13.88

PURY-(E)M400YNW-A1



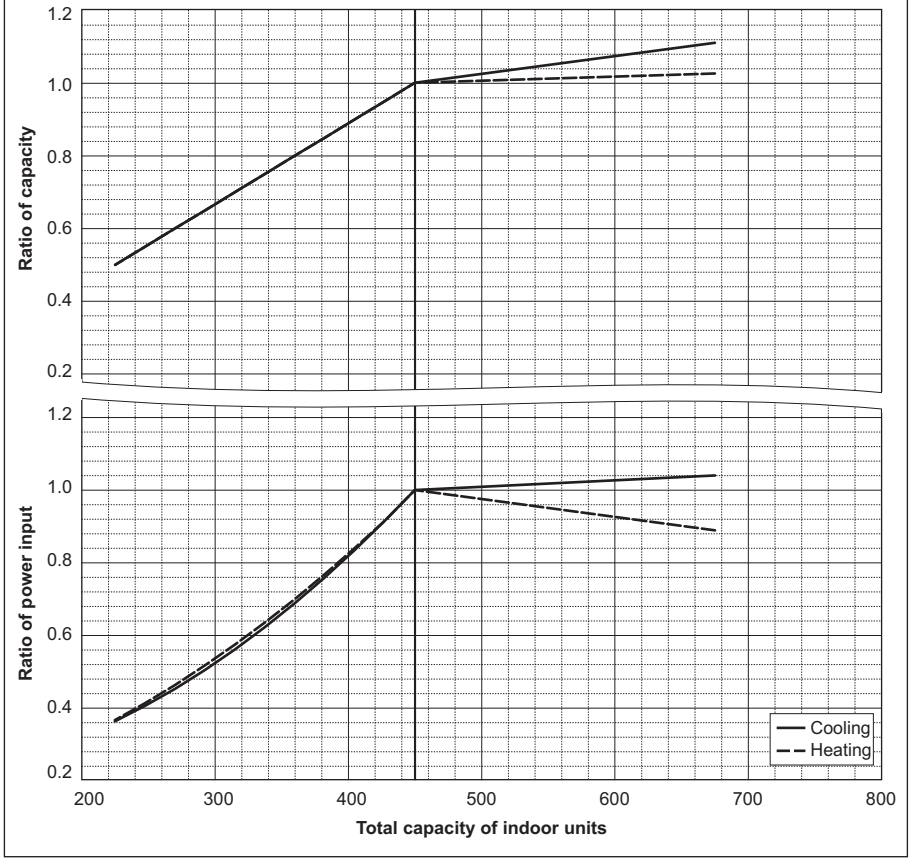
PURY-M450YNW-A1		
Nominal Cooling Capacity	kW	50.0
	BTU/h	170,600
Input	kW	15.47

PURY-M450YNW-A1		
Nominal Heating Capacity	kW	56.0
	BTU/h	191,100
Input	kW	16.18

PURY-EM450YNW-A1		
Nominal Cooling Capacity	kW	50.0
	BTU/h	170,600
Input	kW	15.24

PURY-EM450YNW-A1		
Nominal Heating Capacity	kW	56.0
	BTU/h	191,100
Input	kW	15.77

PURY-(E)M450YNW-A1



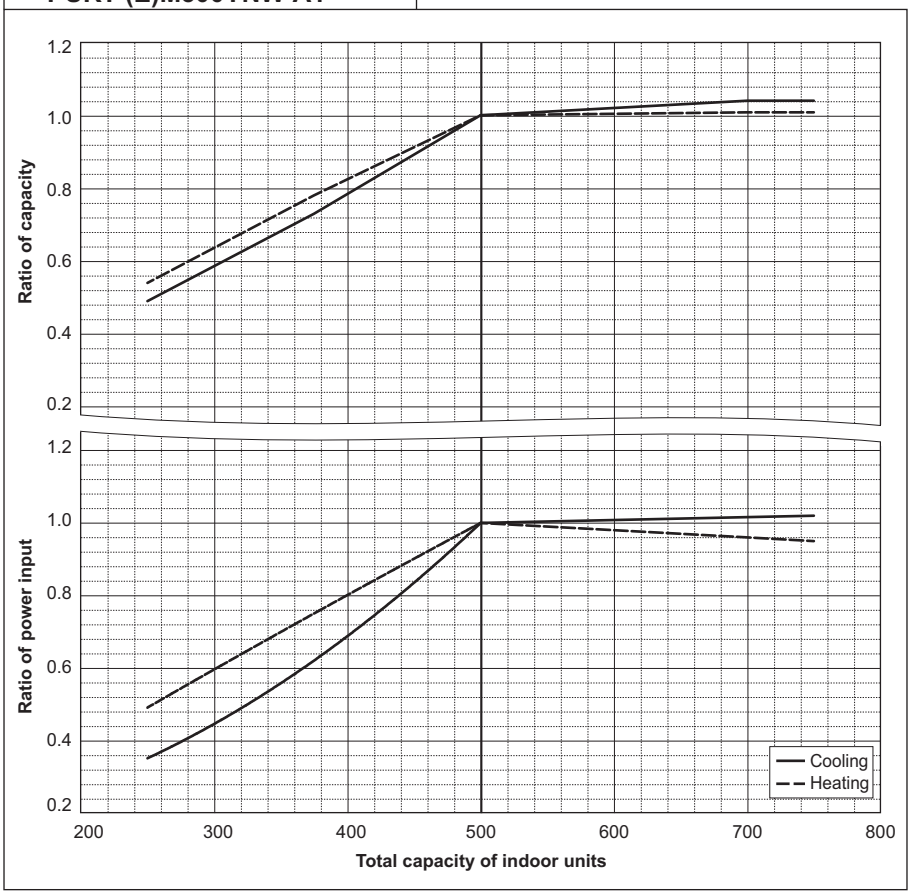
PURY-M500YNW-A1		
Nominal Cooling Capacity	kW	56.0
	BTU/h	191,100
Input	kW	22.25

PURY-M500YNW-A1		
Nominal Heating Capacity	kW	63.0
	BTU/h	215,000
Input	kW	18.26

PURY-EM500YNW-A1		
Nominal Cooling Capacity	kW	56.0
	BTU/h	191,100
Input	kW	18.06

PURY-EM500YNW-A1		
Nominal Heating Capacity	kW	63.0
	BTU/h	215,000
Input	kW	17.45

PURY-(E)M500YNW-A1

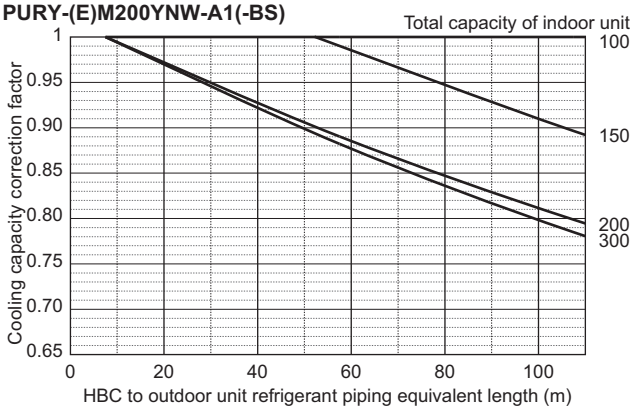


8-3. Correction by piping length

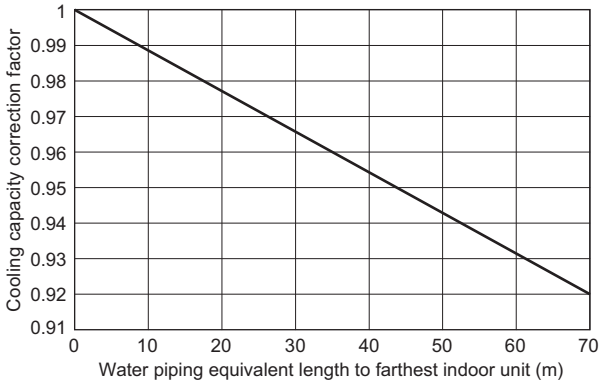
A decrease in cooling/heating capacity will occur due to piping length increase. Using the following correction factors according to the equivalent length of the piping shown at 8-3-1 and 8-3-2 the capacity can be calculated. 8-3-3 shows how to obtain the equivalent length of piping. Refrigerant piping and water piping have separate correction factors.

8-3-1. Cooling capacity correction

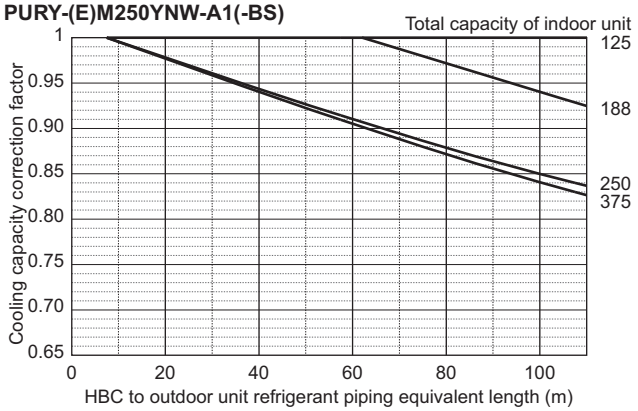
PURY-(E)M200YNW-A1(-BS)



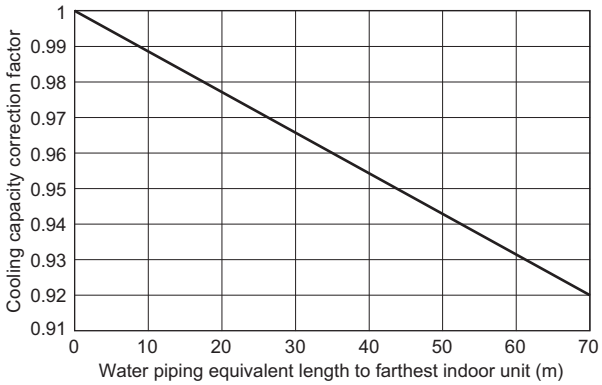
PURY-(E)M200YNW-A1(-BS)



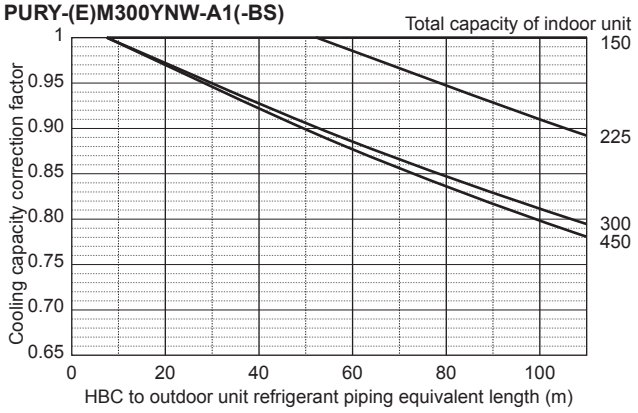
PURY-(E)M250YNW-A1(-BS)



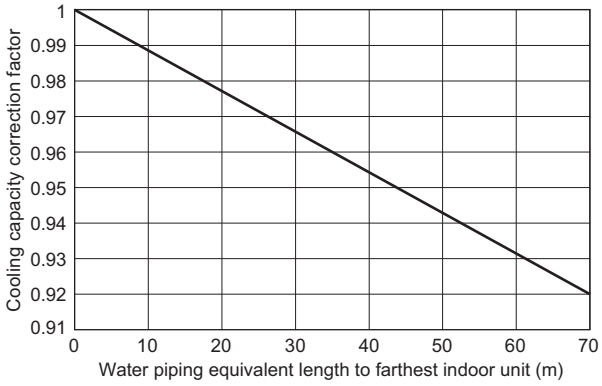
PURY-(E)M250YNW-A1(-BS)



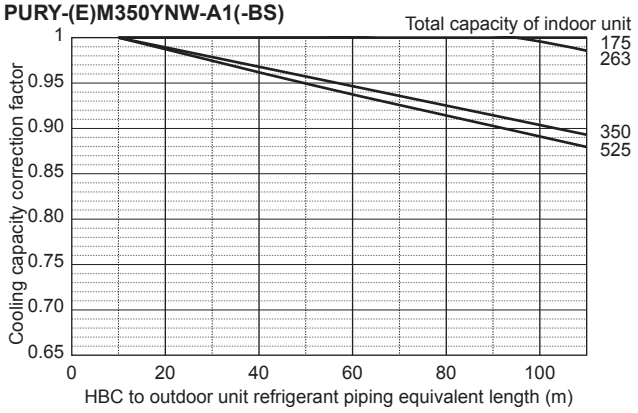
PURY-(E)M300YNW-A1(-BS)



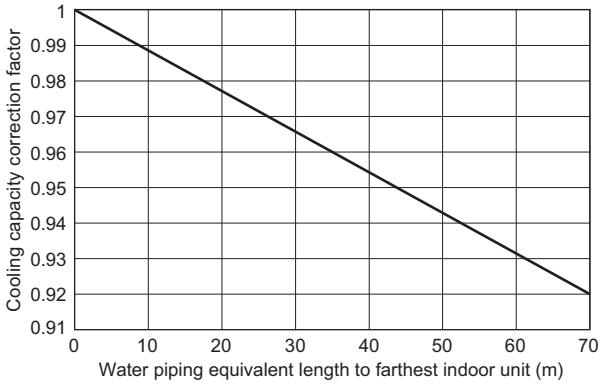
PURY-(E)M300YNW-A1(-BS)



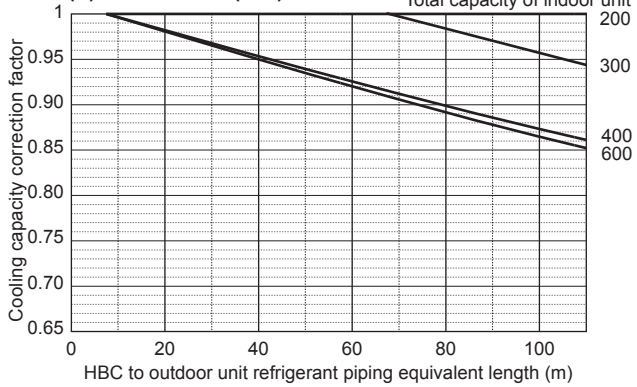
PURY-(E)M350YNW-A1(-BS)



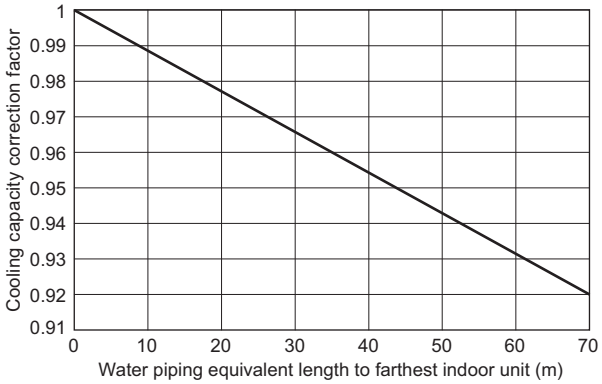
PURY-(E)M350YNW-A1(-BS)



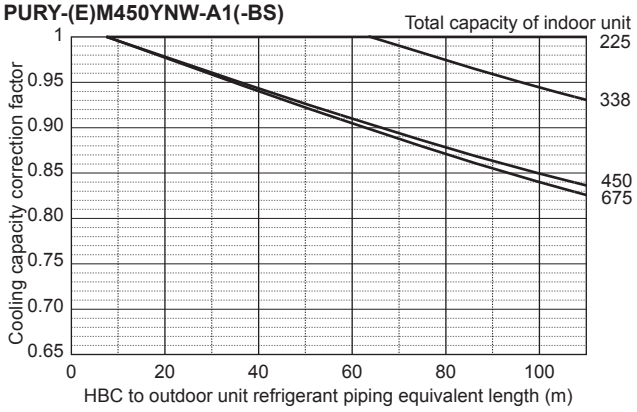
PURY-(E)M400YNW-A1(-BS)



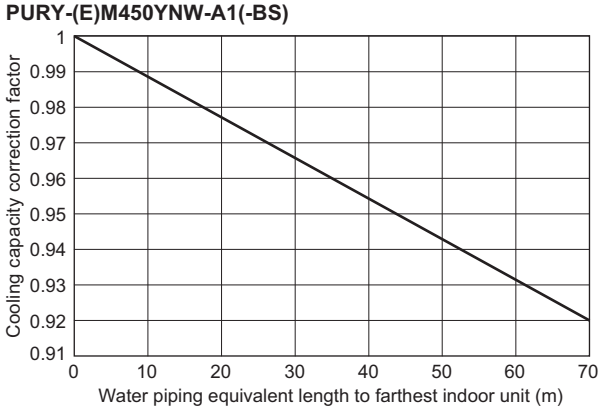
PURY-(E)M400YNW-A1(-BS)



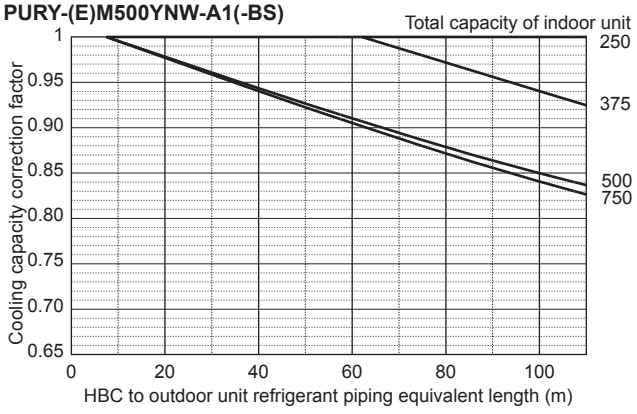
PURY-(E)M450YNW-A1(-BS)



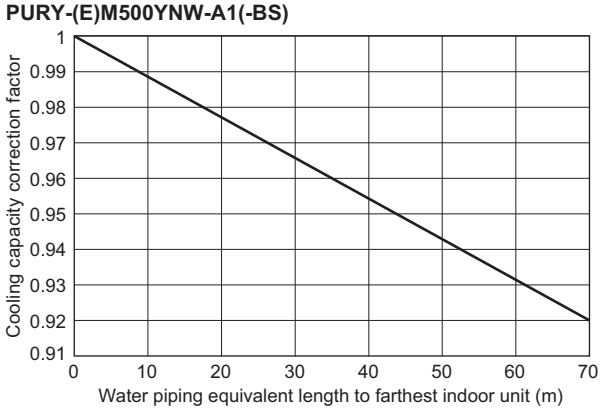
PURY-(E)M450YNW-A1(-BS)



PURY-(E)M500YNW-A1(-BS)

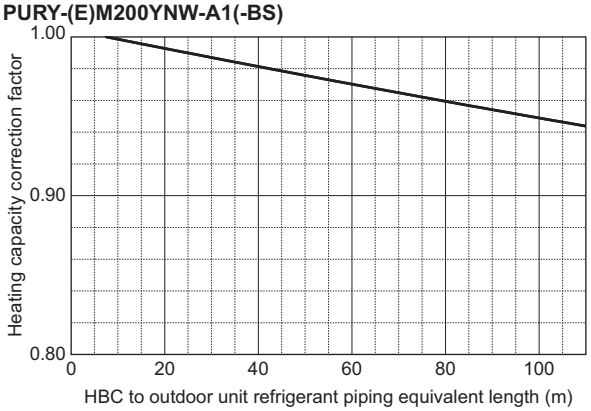


PURY-(E)M500YNW-A1(-BS)

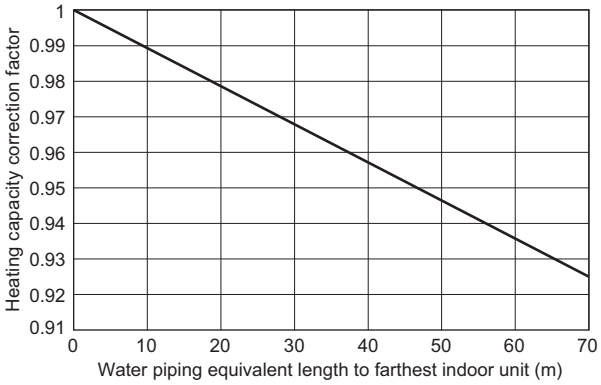


8-3-2. Heating capacity correction

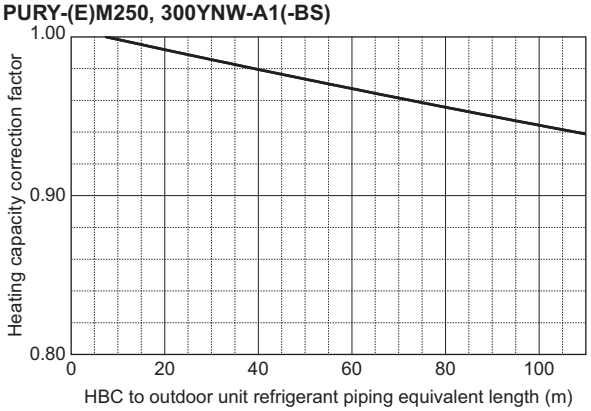
PURY-(E)M200YNW-A1(-BS)



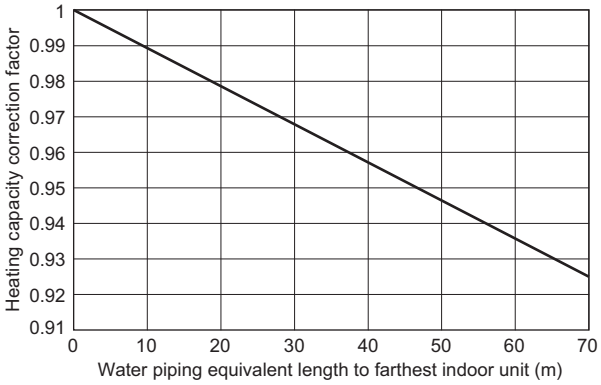
PURY-(E)M200YNW-A1(-BS)



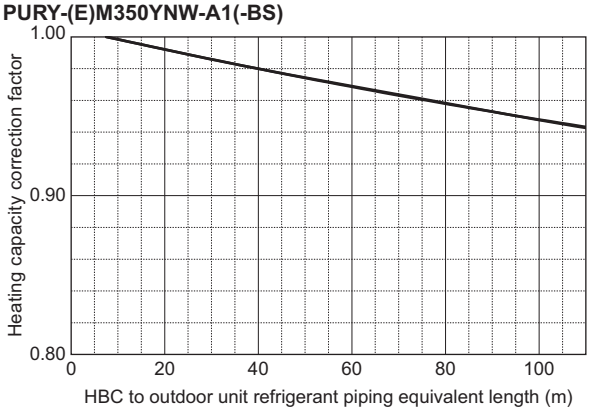
PURY-(E)M250, 300YNW-A1(-BS)



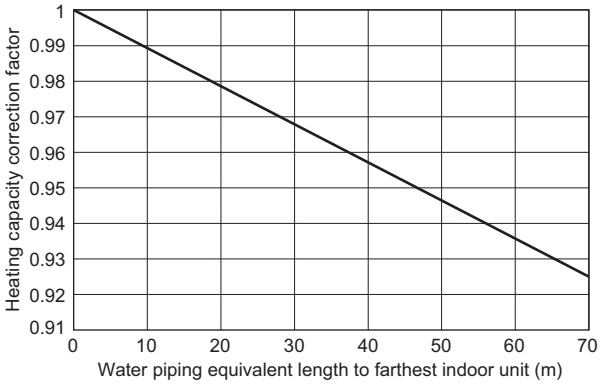
PURY-(E)M250, 300YNW-A1(-BS)



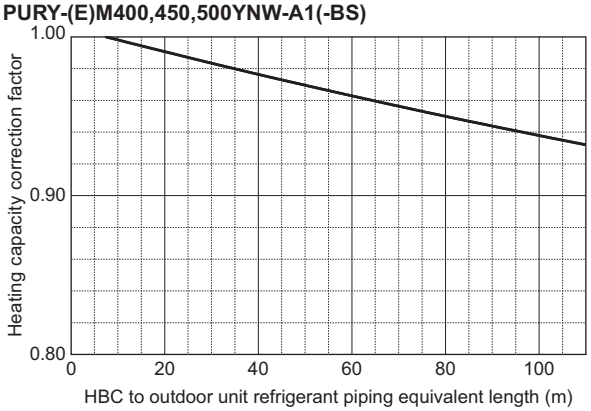
PURY-(E)M350YNW-A1(-BS)



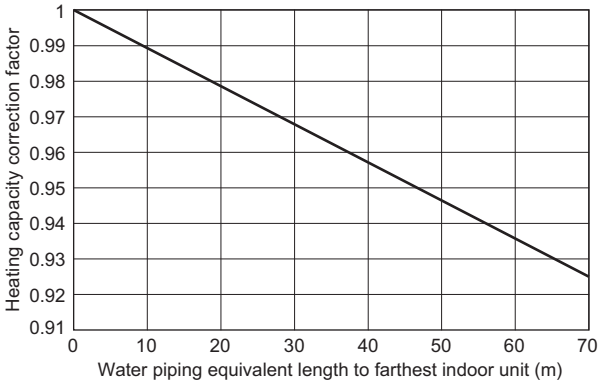
PURY-(E)M350YNW-A1(-BS)



PURY-(E)M400,450,500YNW-A1(-BS)



PURY-(E)M400,450,500YNW-A1(-BS)



8-3-3. How to obtain the equivalent piping length

Refrigerant pipe

1. PURY-(E)M200YNW-A1(-BS)

Equivalent length = (Actual piping length to the farthest indoor unit) + (0.35 × number of bends in the piping) [m]

2. PURY-(E)M250, 300YNW-A1(-BS)

Equivalent length = (Actual piping length to the farthest indoor unit) + (0.42 × number of bends in the piping) [m]

3. PURY-(E)M350YNW-A1(-BS)

Equivalent length = (Actual piping length to the farthest indoor unit) + (0.47 × number of bends in the piping) [m]

4. PURY-(E)M400, 450, 500YNW-A1(-BS)

Equivalent length = (Actual piping length to the farthest indoor unit) + (0.50 × number of bends in the piping) [m]

Water pipe

Equivalent length = (Actual piping length to the farthest indoor unit) + (0.55 × number of bends in the piping) [m]

8-4. Correction at frost and defrost

Due to frost at the outdoor heat exchanger and the automatic defrost operation, the heating capacity of the outdoor unit can be calculated by multiplying the correction factor shown in the table below.

Table of correction factor at frost and defrost [Horizontal type HBC connection]

Outdoor inlet air temp. °CWB	6	4	2	1	0	-2	-4	-6	-8	-10	-20
Outdoor inlet air temp. °FWB	43	39	36	34	32	28	25	21	18	14	-4
PURY-(E)M200YNW-A1(-BS)	1.00	0.95	0.84	0.83	0.83	0.87	0.90	0.95	0.95	0.95	0.95
PURY-(E)M250YNW-A1(-BS)	1.00	0.95	0.84	0.83	0.83	0.87	0.90	0.95	0.95	0.95	0.95
PURY-(E)M300YNW-A1(-BS)	1.00	0.93	0.82	0.80	0.82	0.86	0.90	0.90	0.95	0.95	0.95
PURY-(E)M350YNW-A1(-BS)	1.00	0.93	0.85	0.83	0.84	0.86	0.90	0.90	0.95	0.95	0.95
PURY-(E)M400YNW-A1(-BS)	1.00	0.95	0.90	0.87	0.88	0.89	0.90	0.95	0.95	0.95	0.95
PURY-(E)M450YNW-A1(-BS)	1.00	0.98	0.89	0.87	0.89	0.90	0.92	0.95	0.95	0.95	0.95
PURY-(E)M500YNW-A1(-BS)	1.00	0.98	0.89	0.86	0.89	0.90	0.92	0.95	0.95	0.95	0.95

Note

- The high humidity condition (e.g., a foggy atmosphere) which causes frost forming on the heat exchanger will worsen the heating performance of the unit.
- The snow blowing to the heat exchanger will worsen the heating performance of the unit. Install a snow hood as a preventive measure.

Table of correction factor at frost and defrost [Vertical type HBC connection]

Outdoor inlet air temp. °CWB	6	4	2	1	0	-2	-4	-6	-8	-10	-20
Outdoor inlet air temp. °FWB	43	39	36	34	32	28	25	21	18	14	-4
PURY-(E)M200YNW-A1(-BS)	1.00	0.95	0.84	0.83	0.83	0.87	0.90	0.95	0.95	0.95	0.95
PURY-(E)M250YNW-A1(-BS)	1.00	0.95	0.84	0.83	0.83	0.87	0.90	0.95	0.95	0.95	0.95
PURY-(E)M300YNW-A1(-BS)	1.00	0.93	0.82	0.80	0.82	0.86	0.90	0.90	0.95	0.95	0.95
PURY-(E)M350YNW-A1(-BS)	1.00	0.81	0.74	0.72	0.73	0.75	0.78	0.78	0.95	0.95	0.95
PURY-(E)M400YNW-A1(-BS)	1.00	0.82	0.78	0.75	0.76	0.77	0.78	0.95	0.95	0.95	0.95
PURY-(E)M450YNW-A1(-BS)	1.00	0.75	0.69	0.67	0.69	0.69	0.71	0.95	0.95	0.95	0.95
PURY-(E)M500YNW-A1(-BS)	1.00	0.96	0.87	0.84	0.87	0.88	0.90	0.95	0.95	0.95	0.95

Note

- The high humidity condition (e.g., a foggy atmosphere) which causes frost forming on the heat exchanger will worsen the heating performance of the unit.
- The snow blowing to the heat exchanger will worsen the heating performance of the unit. Install a snow hood as a preventive measure.
- During the heating operation which requires defrost operation, the operating sound of outdoor unit may increase.

8-5. Correction by antifreeze solution concentration

In HYBRID CITY MULTI system, antifreeze solution should be used to prevent the system from freezing. Refer to the following graphs for the capacity correction by antifreeze solution. Refer to 8-5-1 for antifreeze solution concentration, 8-5-2 and 8-5-3 for capacity correction by antifreeze solution concentration.

8-5-1. Antifreeze solution concentration

Use propylene glycol solution for antifreeze.
Refer to the following graph to estimate the antifreeze solution concentration required for freeze protection.
DipSW setting (SW5-4 and 5-5) is required in HBC unit depending on the antifreeze solution concentration.
Refer the table A for the setting.

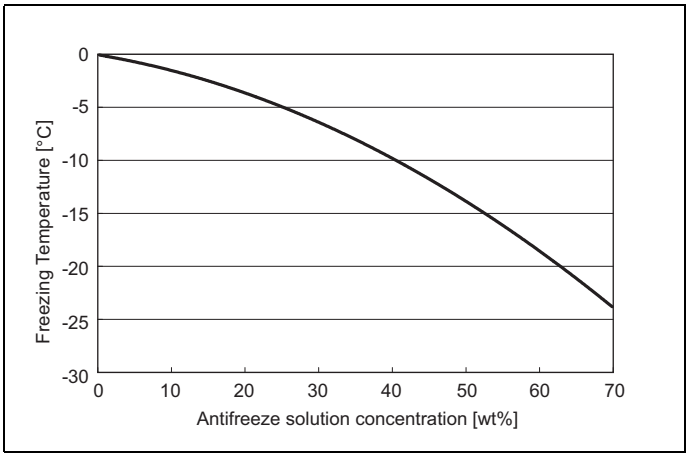
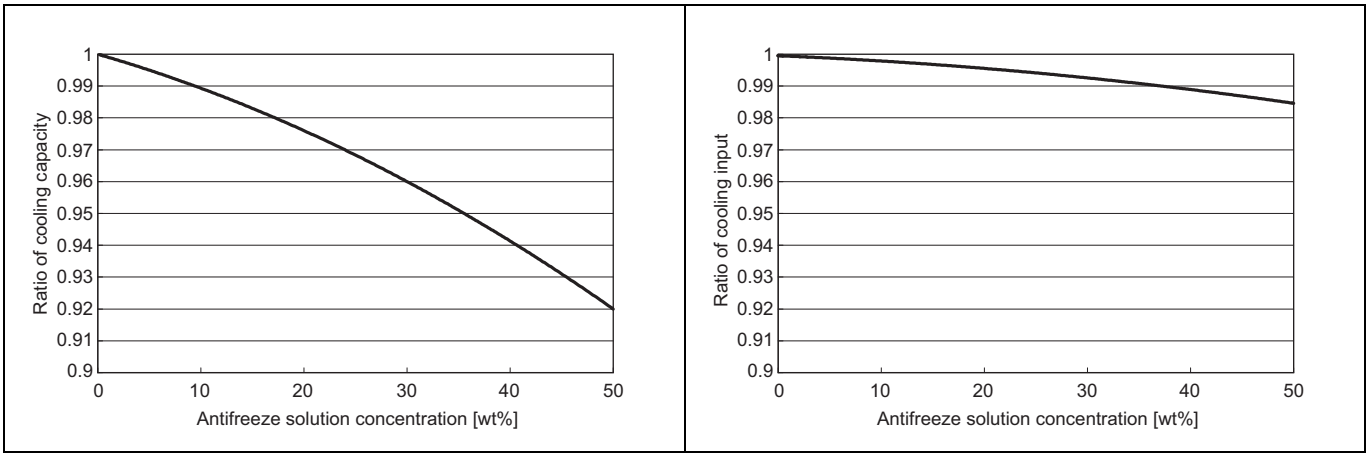


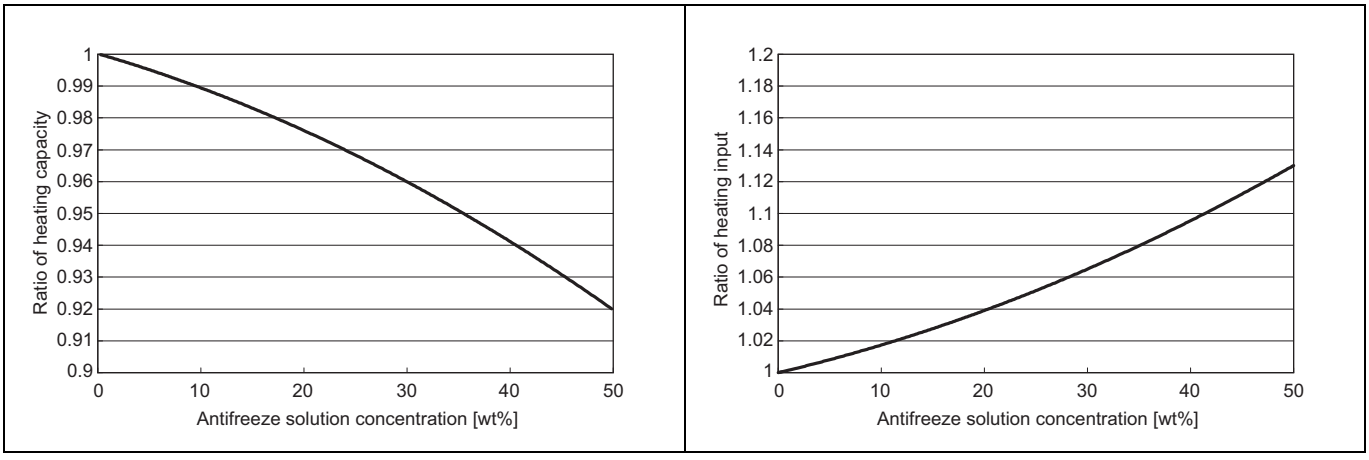
Table A

Brine concentration [%]		0 to 29%	30 to 49%	50 to 59%	60 to 70%
DipSW5-4		OFF	OFF	ON	ON
DipSW5-5		OFF	ON	OFF	ON
7seg LED	LD2	OFF	OFF	1	1
	LD3	OFF	1	OFF	1

8-5-2. Capacity correction by antifreeze solution concentration (cooling)



8-5-3. Capacity correction by antifreeze solution concentration (heating)



9-1. Power supply for Outdoor unit

9-1-1. Electrical characteristics of the outdoor unit in cooling mode

Symbols: MCA: Max Circuit Amps
RLA: Rated Load Amps SC: Starting Current

PURY-M-YNW-A1	Unit Combination	Units			Power supply	Compressor		FAN	RLA (A) (50/60Hz)	
		Hz	Volts	Voltage range	MCA (A)	Output (kW)	SC (A)	Output (kW)	Cooling	Heating
PURY-M200YNW-A1(-BS)	-	50/60	380 400 415	Max:456V Min:342V	16.1	4.6	8	0.92	9.3/8.8/8.5	10.7/10.2/9.8
PURY-M250YNW-A1(-BS)	-				22.5	7.0	8	0.92	14.1/13.4/12.9	15.4/14.6/14.1
PURY-M300YNW-A1(-BS)	-				25.6	8.0	8	0.92	16.6/15.8/15.2	17.4/16.5/15.9
PURY-M350YNW-A1(-BS)	-				31.6	9.6	8	0.46+0.46	20.5/19.4/18.7	20.5/19.5/18.7
PURY-M400YNW-A1(-BS)	-				39.3	12.2	8	0.46+0.46	25.5/24.2/23.4	23.7/22.5/21.7
PURY-M450YNW-A1(-BS)	-				40.2	13.1	8	0.46+0.46	26.1/24.8/23.9	27.3/25.9/25.0
PURY-M500YNW-A1(-BS)	-				56.6	17.4	8	0.92+0.92	37.5/35.6/34.3	30.8/29.2/28.2

PURY-EM-YNW-A1	Unit Combination	Units			Power supply	Compressor		FAN	RLA (A) (50/60Hz)	
		Hz	Volts	Voltage range	MCA (A)	Output (kW)	SC (A)	Output (kW)	Cooling	Heating
PURY-EM200YNW-A1(-BS)	-	50/60	380 400 415	Max:456V Min:342V	16.1	4.5	8	0.92	8.6/8.2/7.9	10.5/9.9/9.6
PURY-EM250YNW-A1(-BS)	-				21.8	6.7	8	0.92	12.9/12.3/11.8	14.9/14.1/13.6
PURY-EM300YNW-A1(-BS)	-				23.9	7.7	8	0.92	14.3/13.6/13.1	16.7/15.9/15.3
PURY-EM350YNW-A1(-BS)	-				30.0	9.6	8	0.46+0.46	19.1/18.1/17.5	20.5/19.5/18.7
PURY-EM400YNW-A1(-BS)	-				35.9	11.1	8	0.46+0.46	23.3/22.1/21.3	23.4/22.2/21.4
PURY-EM450YNW-A1(-BS)	-				36.9	12.7	8	0.46+0.46	25.7/24.4/23.5	26.6/25.2/24.3
PURY-EM500YNW-A1(-BS)	-				46.9	13.8	8	0.92+0.92	30.4/28.9/27.9	29.4/27.9/26.9

9-2. Power cable specifications

Thickness of wire for main power supply, capacities of the switch and system impedance

	Model	Minimum wire thickness (mm^2)			Ground-fault interrupter *1	Local switch (A)		Breaker for wiring (A) (Non-fuse breaker)	Max. Permissive System Impedance
		Main cable	Branch	Ground		Capacity	Fuse		
Outdoor unit	PURY-(E)M200YNW-A1	4.0	-	4.0	30A 100mA 0.1sec. or less	25	25	30	*2
	PURY-(E)M250YNW-A1	4.0	-	4.0	30A 100mA 0.1sec. or less	32	32	30	*2
	PURY-(E)M300YNW-A1	4.0	-	4.0	30A 100mA 0.1sec. or less	32	32	30	*2
	PURY-(E)M350YNW-A1	6.0	-	6.0	40A 100mA 0.1sec. or less	40	40	40	0.26Ω
	PURY-(E)M400YNW-A1	10.0	-	10.0	60A 100mA 0.1sec. or less	63	63	60	0.20Ω
	PURY-(E)M450YNW-A1	10.0	-	10.0	60A 100mA 0.1sec. or less	63	63	60	0.19Ω
	PURY-(E)M500YNW-A1	10.0	-	10.0	60A 100mA 0.1sec. or less	63	63	60	0.16Ω

*1 The Ground-fault interrupter should support Inverter circuit. The Ground-fault interrupter should combine using of local switch or wiring breaker.

*2 Meet technical requirements of IEC61000-3-3

1. Use dedicated power supplies for the outdoor unit and indoor unit. Ensure OC and OS are wired individually.
2. Bear in mind ambient conditions (ambient temperature, direct sunlight, rain water, etc.) when proceeding with the wiring and connections.
3. The wire size is the minimum value for metal conduit wiring. If the voltage drops, use a wire that is one rank thicker in diameter. Make sure the power-supply voltage does not drop more than 10%. Make sure that the voltage imbalance between the phases is 2% or less.
4. Specific wiring requirements should adhere to the wiring regulations of the region.
5. Power supply cords of parts of appliances for outdoor use shall not be lighter than polychloroprene sheathed flexible cord (design 60245 IEC57). For example, use wiring such as YZW.
6. A switch with at least 3 mm contact separation in each pole shall be provided when the Air Conditioner is installed.
7. For details on indoor unit wiring and breaker for current leakage, refer to the indoor unit Instruction Book and Installation Manual.

⚠WARNING

- Be sure to use specified wires for connections and ensure no external force is imparted to terminal connections. If connections are not fixed firmly, heating or fire may result.
- Be sure to use the appropriate type of overcurrent protection switch. Note that generated overcurrent may include some amount of direct current.

⚠CAUTION

- The breakers for current leakage should support Inverter circuit. (e.g. Mitsubishi Electric's NV-S-Series or equivalent). If no earth leakage breaker is installed, it may cause an electric shock.
- Breakers for current leakage should combine using of switch.
- Do not use anything other than a breaker with the correct capacity. Using a breaker of too large capacity may cause malfunction or fire.
- If a large electric current flows due to malfunction or faulty wiring, earth-leakage breakers on the unit side and on the upstream side of the power supply system may both operate. Depending on the importance of the system, separate the power supply system or take protective coordination of breakers.

Note

- This device is intended for the connection to a power supply system with a maximum permissible system impedance shown in the above table at the interface point (power service box) of the user's supply.
- The user must ensure that this device is connected only to a power supply system which fulfils the requirement above. If necessary, the user can ask the public power supply company for the system impedance at the interface point.
- This equipment complies with IEC 61000-3-12 provided that the short-circuit power Ssc is greater than or equal to Ssc (*2) at the interface point between the user's supply and the public system. It is the responsibility of the installer or user of the equipment to ensure, by consultation with the distribution network operator if necessary, that the equipment is connected only to a supply with a short-circuit power Ssc greater than or equal to Ssc (*2).

Ssc(*2)

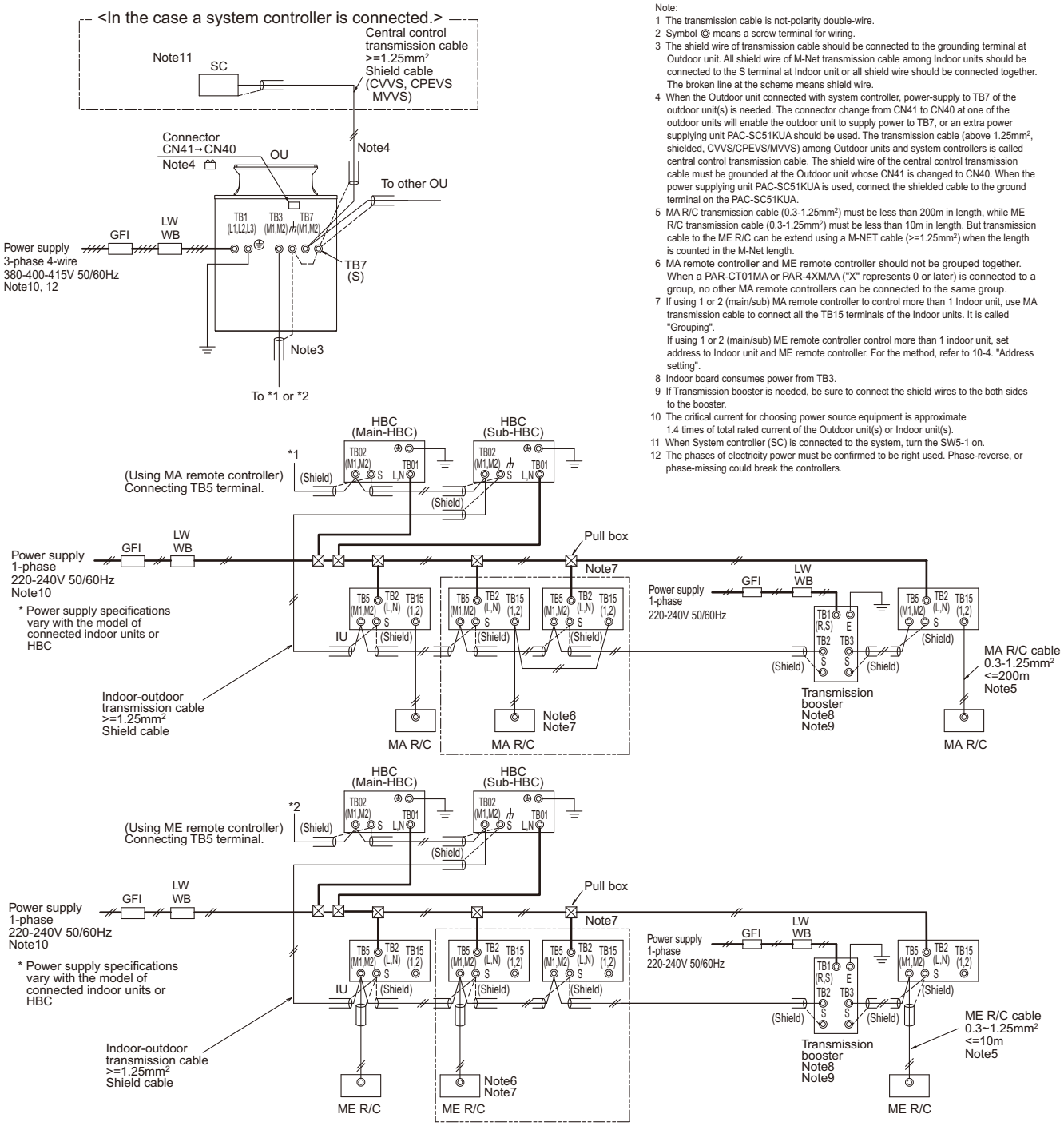
Model	Ssc (MVA)
PURY-M200YNW-A1	1.25
PURY-M250YNW-A1	1.38
PURY-M300YNW-A1	1.76
PURY-M350YNW-A1	2.14
PURY-M400YNW-A1	2.72
PURY-M450YNW-A1	2.88
PURY-M500YNW-A1	3.35

Model	Ssc (MVA)
PURY-EM200YNW-A1	1.25
PURY-EM250YNW-A1	1.32
PURY-EM300YNW-A1	1.58
PURY-EM350YNW-A1	1.89
PURY-EM400YNW-A1	2.38
PURY-EM450YNW-A1	2.69
PURY-EM500YNW-A1	3.13

9-3. Power supply examples (Horizontal type Main-HBC connection)

The local standards and/or regulations is applicable at a higher priority.

PURY-(E)M200, 250, 300, 350, 400, 450, 500YNW-A1



Note:
1 The transmission cable is not-polarity double-wire.
2 Symbol ◎ means a screw terminal for wiring.
3 The shield wire of transmission cable should be connected to the grounding terminal at Outdoor unit. All shield wire of M-Net transmission cable among Indoor units should be connected to the S terminal at Indoor unit or all shield wire should be connected together. The broken line at the scheme means shield wire.
4 When the Outdoor unit connected with system controller, power-supply to TB7 of the outdoor unit(s) is needed. The connector change from CN41 to CN40 at one of the outdoor units will enable the outdoor unit to supply power to TB7, or an extra power supplying unit PAC-SC51KUA should be used. The transmission cable (above 1.25mm², shielded, CVVS/CPEVS/MVVS) among Outdoor units and system controllers is called central control transmission cable. The shield wire of the central control transmission cable must be grounded at the Outdoor unit whose CN41 is changed to CN40. When the power supplying unit PAC-SC51KUA is used, connect the shielded cable to the ground terminal on the PAC-SC51KUA.
5 MA R/C transmission cable (0.3-1.25mm²) must be less than 200m in length, while ME R/C transmission cable (0.3-1.25mm²) must be less than 10m in length. But transmission cable to the ME R/C can be extend using a M-NET cable (>=1.25mm²) when the length is counted in the M-Net length.
6 MA remote controller and ME remote controller should not be grouped together. When a PAR-CT01MA or PAR-4XMAA ("X" represents 0 or later) is connected to a group, no other MA remote controllers can be connected to the same group.
7 If using 1 or 2 (main/sub) MA remote controller to control more than 1 Indoor unit, use MA transmission cable to connect all the TB15 terminals of the Indoor units. It is called "Grouping".
If using 1 or 2 (main/sub) ME remote controller control more than 1 indoor unit, set address to Indoor unit and ME remote controller. For the method, refer to 10-4. "Address setting".
8 Indoor board consumes power from TB3.
9 If Transmission booster is needed, be sure to connect the shield wires to the both sides to the booster.
10 The critical current for choosing power source equipment is approximate 1.4 times of total rated current of the Outdoor unit(s) or Indoor unit(s).
11 When System controller (SC) is connected to the system, turn the SW5-1 on.
12 The phases of electricity power must be confirmed to be right used. Phase-reverse, or phase-missing could break the controllers.

Symbol	
GFI	Ground-fault interrupter
LW	Local switch
BKC	Breaker capacity
OCP	Over-current protector
WB	Wiring breaker
NFB	Non-fuse breaker
OU	Outdoor unit
IU	Indoor unit
SC	System controller
MA R/C	MA remote controller
ME R/C	ME remote controller

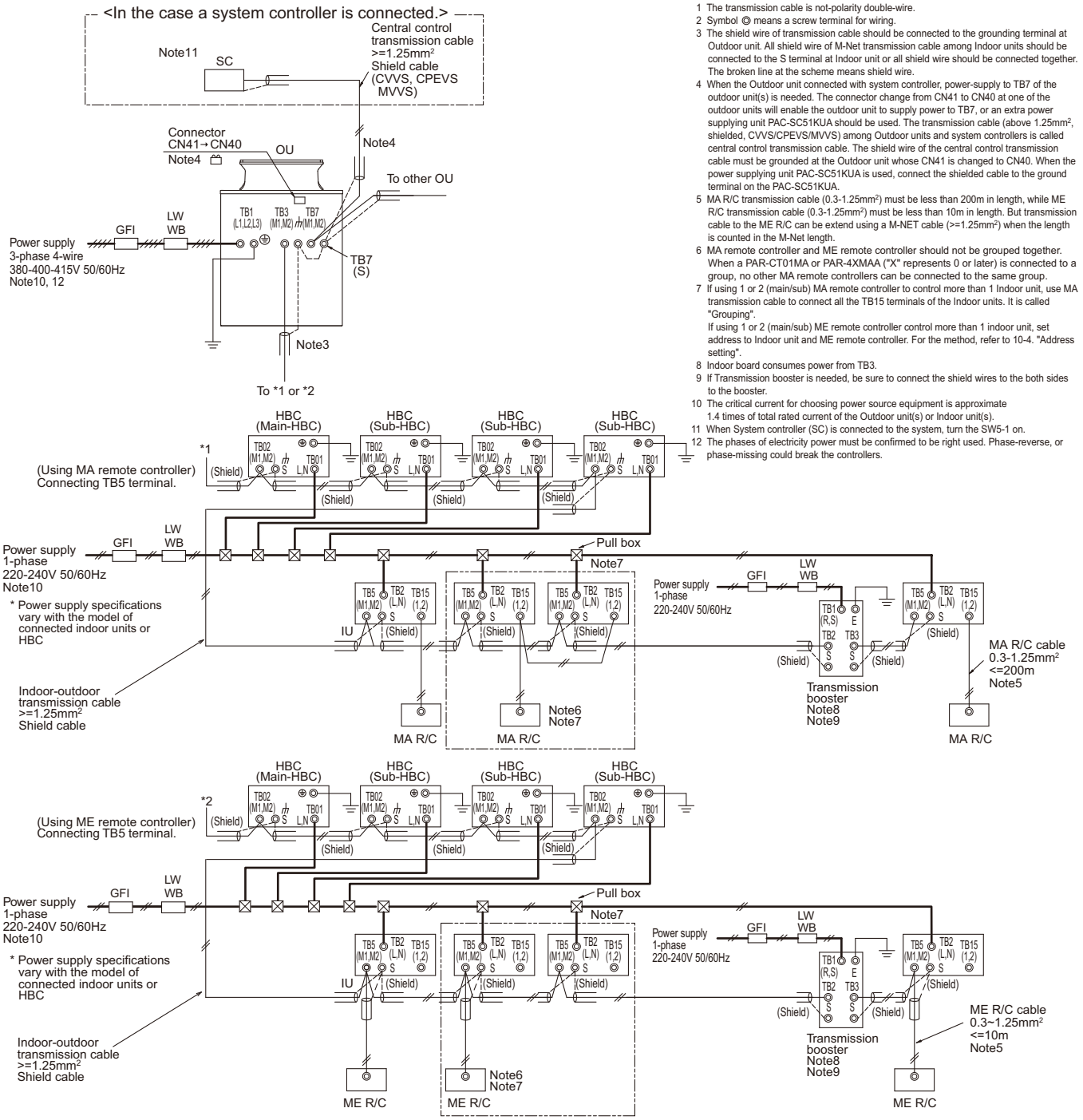
Model	Ground-fault interrupter *1, *2, *4	Local switch BKC <A>	Local switch OCP*3, *4 <A>	Wiring breaker *4 (NFB) <A>	Minimum Wire thickness Power wire <mm²>	Minimum Wire thickness Earth wire <mm²>
PURY-(E)M200YNW-A1	30A 100mA 0.1sec. or less	25	25	30	4	4
PURY-(E)M250YNW-A1	30A 100mA 0.1sec. or less	32	32	30	4	4
PURY-(E)M300YNW-A1	30A 100mA 0.1sec. or less	32	32	30	4	4
PURY-(E)M350YNW-A1	40A 100mA 0.1sec. or less	40	40	40	6	6
PURY-(E)M400YNW-A1	60A 100mA 0.1sec. or less	63	63	60	10	10
PURY-(E)M450YNW-A1	60A 100mA 0.1sec. or less	63	63	60	10	10
PURY-(E)M500YNW-A1	60A 100mA 0.1sec. or less	63	63	60	10	10

*1 The Ground-fault interrupter should support Inverter circuit. (e.g. Mitsubishi Electric's NV-S-Series or equivalent).
*2 Ground-fault interrupter should combine using of local switch or wiring breaker.
*3 It shows data for B-type fuse of the breaker for current leakage.
*4 If a large electric current flows due to malfunction or faulty wiring, earth-leakage breakers on the unit side and on the centralized controller side may both operate.
Depending on the importance of the system, separate the power supply system or take protective coordination of breakers.

9-4. Power supply examples (Vertical type Main-HBC connection)

The local standards and/or regulations is applicable at a higher priority.

PURY-(E)M200, 250, 300, 350, 400, 450, 500YNW-A1



Note:
1 The transmission cable is not-polarity double-wire.
2 Symbol ◎ means a screw terminal for wiring.
3 The shield wire of transmission cable should be connected to the grounding terminal at Outdoor unit. All shield wire of M-Net transmission cable among Indoor units should be connected to the S terminal at Indoor unit or all shield wire should be connected together. The broken line at the scheme means shield wire.
4 When the Outdoor unit connected with system controller, power-supply to TB7 of the outdoor unit(s) is needed. The connector change from CN41 to CN40 at one of the outdoor units will enable the outdoor unit to supply power to TB7, or an extra power supplying unit PAC-SC51KUA should be used. The transmission cable (above 1.25mm², shielded, CVVS/CPEVS/MVVS) among Outdoor units and system controllers is called central control transmission cable. The shield wire of the central control transmission cable must be grounded at the Outdoor unit whose CN41 is changed to CN40. When the power supplying unit PAC-SC51KUA is used, connect the shielded cable to the ground terminal on the PAC-SC51KUA.
5 MA R/C transmission cable (0.3-1.25mm²) must be less than 200m in length, while ME R/C transmission cable (0.3-1.25mm²) must be less than 10m in length. But transmission cable to the ME R/C can be extend using a M-NET cable (>=1.25mm²) when the length is counted in the M-Net length.
6 MA remote controller and ME remote controller should not be grouped together. When a PAR-CT01MA or PAR-4XMAA ("X" represents 0 or later) is connected to a group, no other MA remote controllers can be connected to the same group.
7 If using 1 or 2 (main/sub) MA remote controller to control more than 1 Indoor unit, use MA transmission cable to connect all the TB15 terminals of the Indoor units. It is called "Grouping".
If using 1 or 2 (main/sub) ME remote controller control more than 1 indoor unit, set address to Indoor unit and ME remote controller. For the method, refer to 10-4. "Address setting".
8 Indoor board consumes power from TB3.
9 If Transmission booster is needed, be sure to connect the shield wires to the both sides to the booster.
10 The critical current for choosing power source equipment is approximate 1.4 times of total rated current of the Outdoor unit(s) or Indoor unit(s).
11 When System controller (SC) is connected to the system, turn the SW5-1 on.
12 The phases of electricity power must be confirmed to be right used. Phase-reverse, or phase-missing could break the controllers.

Symbol	
GFI	Ground-fault interrupter
LW	Local switch
BKC	Breaker capacity
OCP	Over-current protector
WB	Wiring breaker
NFB	Non-fuse breaker
OU	Outdoor unit
IU	Indoor unit
SC	System controller
MA R/C	MA remote controller
ME R/C	ME remote controller

Model	Ground-fault interrupter *1, *2, *4	Local switch BKC <A>	Local switch OCP*3, *4 <A>	Wiring breaker *4 (NFB) <A>	Minimum Wire thickness Power wire <mm²>	Minimum Wire thickness Earth wire <mm²>
PURY-(E)M200YNW-A1	30A 100mA 0.1sec. or less	25	25	30	4	4
PURY-(E)M250YNW-A1	30A 100mA 0.1sec. or less	32	32	30	4	4
PURY-(E)M300YNW-A1	30A 100mA 0.1sec. or less	32	32	30	4	4
PURY-(E)M350YNW-A1	40A 100mA 0.1sec. or less	40	40	40	6	6
PURY-(E)M400YNW-A1	60A 100mA 0.1sec. or less	63	63	60	10	10
PURY-(E)M450YNW-A1	60A 100mA 0.1sec. or less	63	63	60	10	10
PURY-(E)M500YNW-A1	60A 100mA 0.1sec. or less	63	63	60	10	10

*1 The Ground-fault interrupter should support Inverter circuit. (e.g. Mitsubishi Electric's NV-S-Series or equivalent).
*2 Ground-fault interrupter should combine using of local switch or wiring breaker.
*3 It shows data for B-type fuse of the breaker for current leakage.
*4 If a large electric current flows due to malfunction or faulty wiring, earth-leakage breakers on the unit side and on the centralized controller side may both operate.
Depending on the importance of the system, separate the power supply system or take protective coordination of breakers.

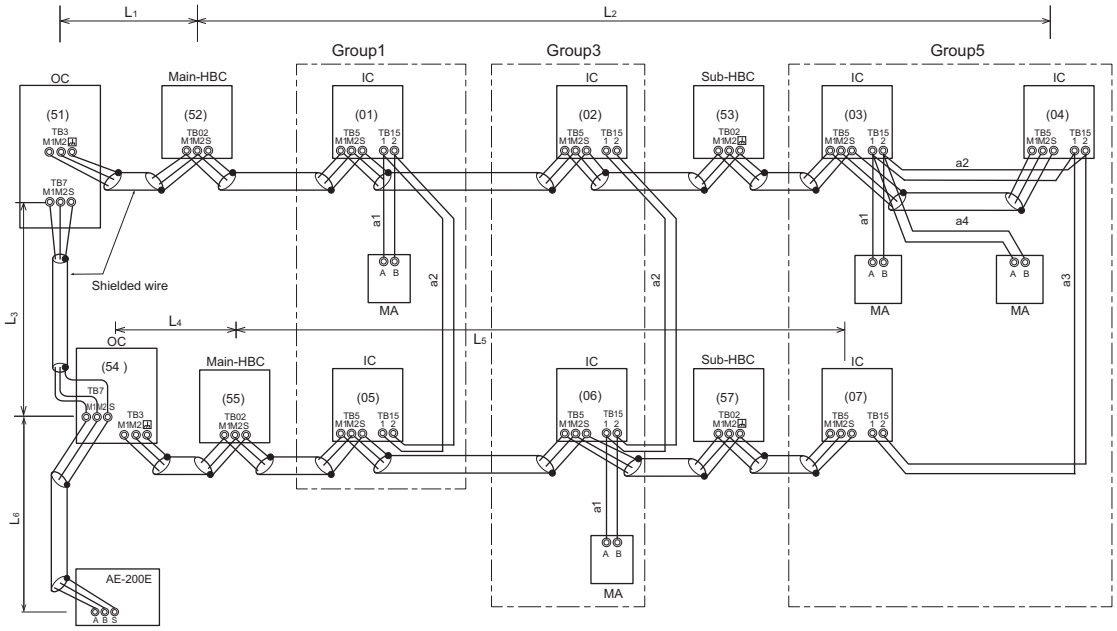
10-1. Transmission cable length limitation (Horizontal type Main-HBC connection)

10-1-1. Using MA Remote controller

Long transmission cable causes voltage down, therefore, the length limitation should be obeyed to secure proper transmission.

Max. length via Outdoor (M-NET cable)	L1+L2+L3+L4+L5, L1+L2+L3+L6, L4+L5+L6	<=500m(1000m*1)[1640ft.(3280ft.*1)]	1.25mm^2 [AWG16] or thicker
Max. length to Outdoor (M-NET cable)	L1+L2, L4+L5, L3+L6	<=200m[656ft.]	1.25mm^2 [AWG16] or thicker
Max. length from MA to Indoor for each group	a1+a2, a1+a2+a3+a4	<=200m[656ft.]	0.3-1.25 mm^2 [AWG22-16]

*1 When the wiring length exceeds 500 m (1640 ft), consult the sales office.



OC: Outdoor unit controller; IC: Indoor unit controller; MA: MA remote controller

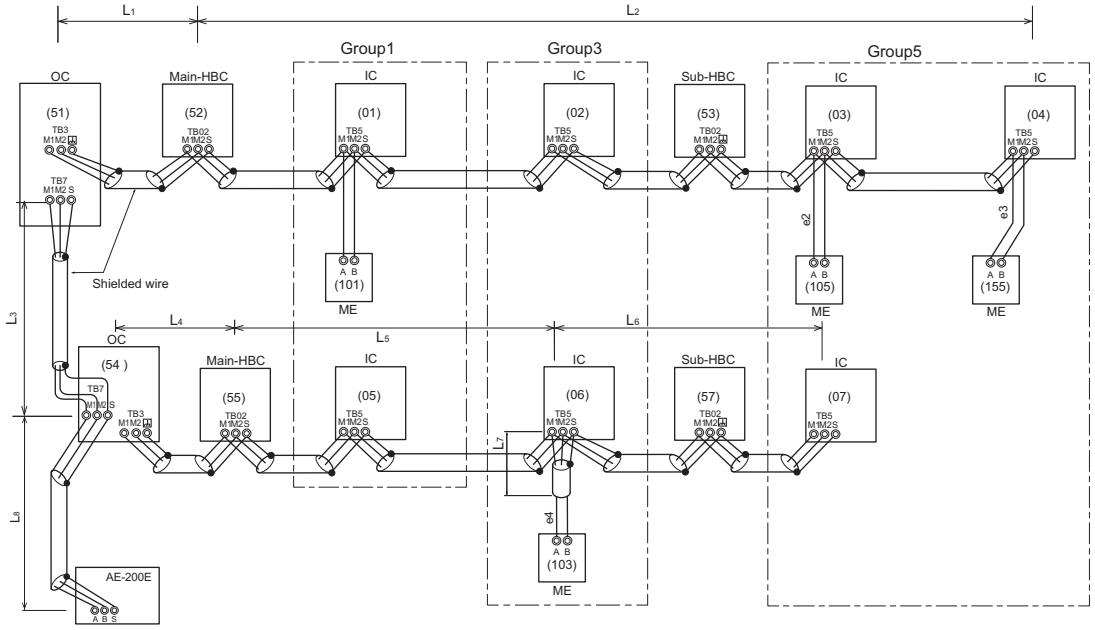
10-1-2. Using ME Remote controller

Long transmission cable causes voltage down, therefore, the length limitation should be obeyed to secure proper transmission.

Max. length via Outdoor (M-NET cable)	L1+L2+L3+L4+L5+L6+L7, L1+L2+L3+L8, L4+L5+L6+L8, L4+L5+L7+L8	<=500m(1000m*1)[1640ft.(3280ft.*1)]	1.25mm^2 [AWG16] or thicker
Max. length to Outdoor (M-NET cable)	L1+L2, L4+L5+L6, L3+L8	<=200m[656ft.]	1.25mm^2 [AWG16] or thicker
Max. length from ME to Indoor	e1, e2, e3, e4	<=10m[32ft.]*2	0.3-1.25 mm^2 [AWG22-16] *2

*1 When the wiring length exceeds 500 m (1640 ft), consult the sales office.

*2. If the length from ME to Indoor exceed 10m, use 1.25 mm^2 [AWG16] shielded cable, but the total length should be counted into Max. length via Outdoor.



OC: Outdoor unit controller; IC: Indoor unit controller; ME: ME remote controller

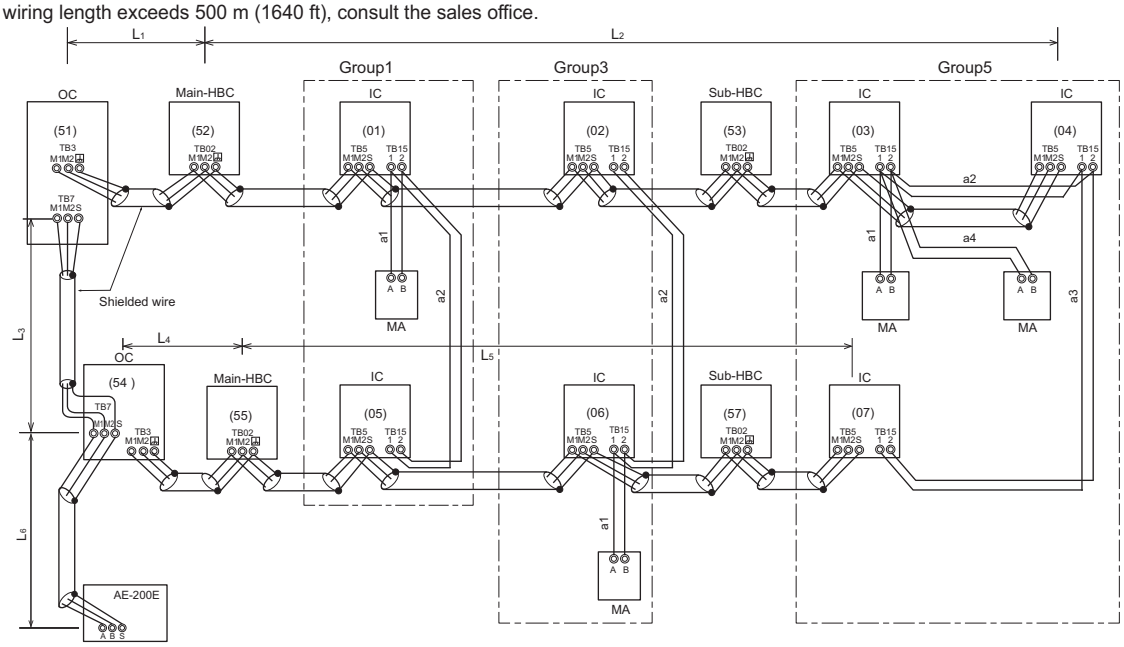
10-2. Transmission cable length limitation (Vertical type Main-HBC connection)

10-2-1. Using MA Remote controller

Long transmission cable causes voltage down, therefore, the length limitation should be obeyed to secure proper transmission.

Max. length via Outdoor (M-NET cable)	L1+L2+L3+L4+L5, L1+L2+L3+L6, L4+L5+L6	<=500m(1000m*1)[1640ft.(3280ft.*1)]	1.25mm^2 [AWG16] or thicker
Max. length from Outdoor to Main-HBC (M-NET cable)	L1, L4	<=150m[492ft.]	1.25mm^2 [AWG16] or thicker
Max. length to Outdoor (M-NET cable)	L1+L2, L4+L5, L3+L6	<=200m[656ft.]	1.25mm^2 [AWG16] or thicker
Max. length from MA to Indoor for each group	a1+a2, a1+a2+a3+a4	<=200m[656ft.]	0.3-1.25 mm^2 [AWG22-16]

*1 When the wiring length exceeds 500 m (1640 ft), consult the sales office.



OC: Outdoor unit controller; IC: Indoor unit controller; MA: MA remote controller

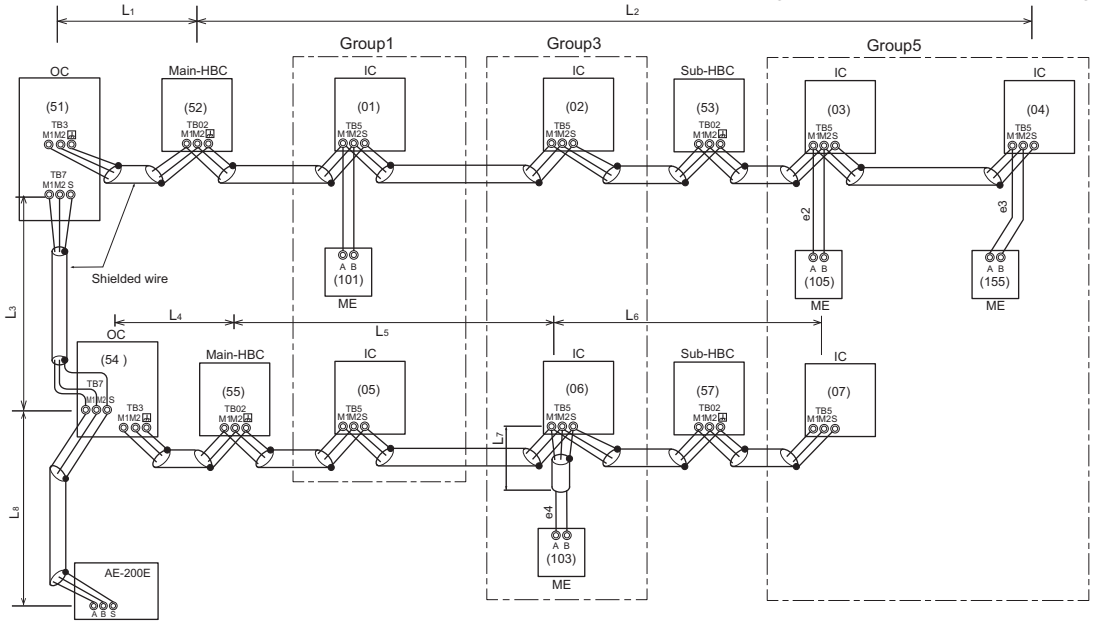
10-2-2. Using ME Remote controller

Long transmission cable causes voltage down, therefore, the length limitation should be obeyed to secure proper transmission.

Max. length via Outdoor (M-NET cable)	L1+L2+L3+L4+L5+L6+L7, L1+L2+L3+L8, L4+L5+L6+L8, L4+L5+L7+L8	<=500m(1000m*1)[1640ft.(3280ft.*1)]	1.25mm^2 [AWG16] or thicker
Max. length from Outdoor to Main-HBC (M-NET cable)	L1, L4	<=150m[492ft.]	1.25mm^2 [AWG16] or thicker
Max. length to Outdoor (M-NET cable)	L1+L2, L4+L5+L6, L3+L8	<=200m[656ft.]	1.25mm^2 [AWG16] or thicker
Max. length from ME to Indoor	e1, e2, e3, e4	<=10m[32ft.]*2	0.3-1.25 mm^2 [AWG22-16] *2

*1 When the wiring length exceeds 500 m (1640 ft), consult the sales office.

*2. If the length from ME to Indoor exceed 10m, use 1.25 mm^2 [AWG16] shielded cable, but the total length should be counted into Max. length via Outdoor.



OC: Outdoor unit controller; IC: Indoor unit controller; ME: ME remote controller

10-3. System configuration restrictions

10-3-1. Common restrictions for the CITY MULTI system

For each Outdoor/Heat source unit, the maximum connectable quantity of Indoor unit is specified at its Specifications table.

A) 1 Group of Indoor units can have 1-16 Indoor units;
*OA processing unit GUF-RD(H) is considered as Indoor unit.

B) Maximum 2 remote controllers for 1 group;
*MA/ME remote controllers cannot be present together in 1group.
*When a PAR-CT01MA or PAR-4XMAA ("X" represents 0 or later) is connected to a group, no other MA remote controllers can be connected to the same group.

C) 1 Lossnay unit can interlock maximum 16 Indoor units; 1 Indoor unit can interlock only 1 Lossnay unit.

D) Maximum 3 System controllers are connectable when connecting to TB3 of the Outdoor/Heat source unit.

E) A maximum of 6 system controller are connectable to TB3 and TB7 of Outdoor/Heat source unit.

F) 4 System controllers or more are connectable when connecting to TB7 of the Outdoor/Heat source unit, if the transmission power is supplied by the power supply unit PAC-SC51KUA.
*System controller connected as described in D) would have a risk that the failure of connected Outdoor/Heat source unit would stop power supply to the System controller.

10-3-2. Ensuring proper communication power and the number of connected units for M-NET

In order to ensure proper communication among Outdoor/Heat source unit, Indoor unit, Lossnay, OA processing unit GUF-RD(H), and Controllers, the transmission power situation for the M-NET should be observed. In some cases, Transmission booster should be used. Taking the power consumption of Indoor unit as 1, the equivalent power consumption or supply of others are listed at Table 1 and Table 2.

Both the transmission line for centralized controller and indoor-outdoor transmission line must meet the conditions listed below. (Both conditions a) and b) must be met.)

a) [Total equivalent power consumption] ≤ [The equivalent power supply]

b) [Total equivalent number of units (Table 1)] ≤ [40]

Table 1 The equivalent power consumption and the equivalent number of units

Category	Model	The equivalent power consumption	The equivalent number of units
CITY MULTI indoor unit OA unit CITY MULTI connection kit Air handling unit controller	Except for the models indicated by *2 PEFY-AF2500, 3000, 4000, 5000, 6000MH GUF-50, 100 PAC-LV11M-J PAC-AH125, 140, 250, 500M-J	1	1
CITY MULTI indoor unit *2	PDFY-P100VM-E-RE	2	2
BC controller	CMB-P/M	2	1
HBC	CMB-WP CMB-WM-V-AA/AB	2	1
	CMB-WM-F-AA CMB-WM-V-BB	2	2
Hydro unit	CMH-WM-V-A	2	1
PWFY *1	P100VM-E-BU	6	1
	P200VM-E1-AU P200VM-E2-AU	5	1
	(E)P100VM-E1-AU (E)P100VM-E2-AU P140VM-E1-AU P140VM-E2-AU	1	1
PFAV	P250, 300, 500, 600VM-E(-F)	1	1
	P750, 900VM-E(-F)	2	2
PFV, PEV	P200, 250, 400, 500YM-A	1	1
MA remote controller/Lossnay	PAR-CT01MA PAR-21, 31, 32, 33, 40, 41MA PAC-YT52CRA PAR-FA32MA LGH PZ-60, 61, 62DR-E PZ-43SMF-E	0	0
ME remote controller	PAR-U02MEDA	0.5	1
	PZ-52SF	0.25	1
System controller	AE-200E/AE-50E/EW-50E LM-AP	0	0
	AG-150A EB-50GU-J PAC-IF01AHC-J	0.5	1
	AT-50B	1.5	5
	PAC-YG60MCA PAC-YG66DCA PAC-YG63MCA	0.25	1
ON/OFF controller	PAC-YT40ANRA	1	1
MN converter	CMS-MNG-E	2	1
Outdoor/Heat source unit	TB7 power consumption	0	0
System control interface	MAC-333IF-E	0	0
A-M converter	PAC-SF83MA-E		

*1 PWFY cannot be connected to PUMY model.

Table 2 The equivalent power supply

Category	Model	The equivalent power supply		
Transmission Booster	PAC-SF46EPA-G	25 *1		
Power supply unit	PAC-SC51KUA	5		
Expansion controller	PAC-YG50ECA	6		
BM ADAPTER	BAC-HD150	6		
System controller	AE-200E/AE-50E	0.75		
	EW-50E	1.5		
	LM-AP	0		
Outdoor/Heat source unit		TB3 and TB7 total	TB7 only	TB3 only
	Outdoor unit except S-Series and TKA *2	32 *1	6	32 *1-equivalent power supplied to TB7
	S-Series outdoor unit	12 *1	0	12 *1
	TKA outdoor unit	32 *1	- *3	32 *1

*1 When one or more indoor units listed below is connected, subtract 3 from the equivalent power supply.

Table 3

Category	Model
Indoor unit	Sized P200/P250 PEFY-AF4000/5000/6000MH, PFFY-P400/500YM-E, PFFY-P400/500YMH-C PFFY-P300/600YM-E-F, PFFY-P300/600YM-C-F, PDFY-P100VM-E-RE
Air handling unit controller	PAC-AH250/500M-J
PFAV	PFAV-P500/600/750/900VM-E(-F)
PFV	PFV-P400/500YM-A
PEV	PEV-P400/500YM-A

*2 If PAC-SC51KUA is used to supply power at TB7 side, no power supply need from Outdoor/Heat source unit at TB7, Connector TB3 itself will therefore have 32.
*3 Do not supply power to TB7 from TKA outdoor units.
Use PAC-SC51KUA or PAC-SF46EPA-G when connecting an M-NET device to TB7.

With the equivalent power consumption values and the equivalent number of units in Table 1 and Table 2, PAC-SF46EPA-G can be designed into the air-conditioner system to ensure proper system communication according to (A), (B), (C).

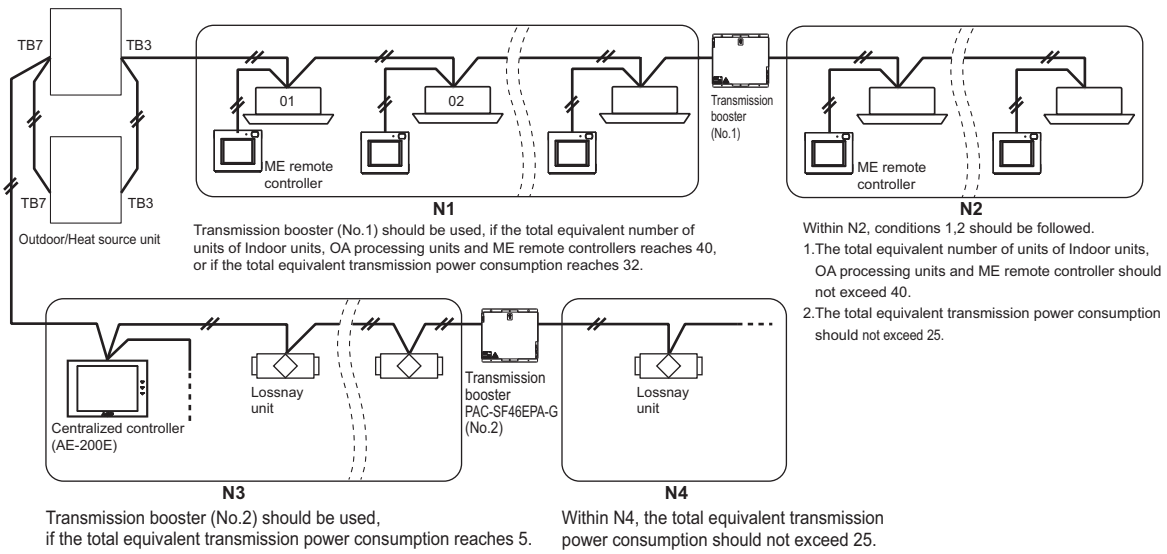
(A) Firstly, count from TB3 at TB3 side the total equivalent number of units of Indoor units, OA processing units, ME remote controller, and System controllers. If the total equivalent number of units reaches 40, a PAC-SF46EPA-G should be set.

(B) Secondly, count from TB7 side to TB3 side the total transmission power consumption. If the total equivalent power supply reaches 32, a PAC-SF46EPA-G should be set. Yet, if a PAC-SC51KUA or another controller with a built-in power supply, such as PAC-YG50ECA, is used to supply power at TB7 side, count from TB3 side only.

(C) Thirdly, count from TB7 at TB7 side the total transmission power consumption, If the total equivalent power supply for only TB7 reaches 6, a PAC-SF46EPA-G should be set. Also, count from TB7 at TB7 side the total equivalent number of units of System controllers, and so on. If the total equivalent number of units reaches 40, a PAC-SF46EPA-G should be set.

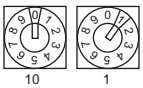
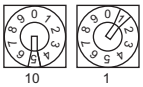
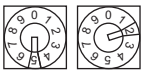
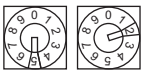
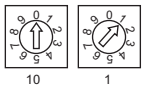
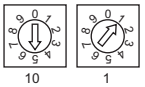
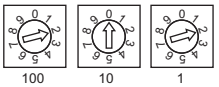
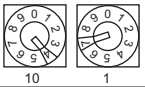
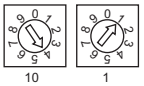
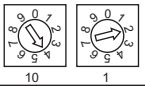
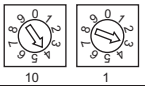
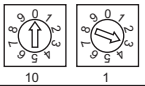
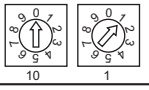
* The equivalent power supply of S-Series outdoor unit is 12.
* When one or more indoor units listed in Table 3 is connected, subtract 3 from the equivalent power supply.

■ System example



10-4. Address setting

10-4-1. Rule of setting address

Unit		Address setting	Example	Note
Indoor unit		01 ~ 50		Use the most recent address within the same group of indoor units.
Outdoor unit		51 ~ 99, 100 (Note1)		The smallest address of indoor unit in same refrigerant system + 50 Assign sequential address numbers to the outdoor units in one refrigerant circuit system. OC, OS1 and OS2 are automatically detected. (Note 2) * Please reset one of them to an address between 51 and 99 when two addresses overlap. * The address automatically becomes "100" if it is set as "01~ 50"
Hydro unit		52 ~ 99, 100		The address of the smallest address of outdoor unit connected to the hydro unit +50 * Please reset one of them to an address between 52 and 99 when two addresses overlap. * The address automatically becomes "100" if it is set as "01~ 50"
HBC		52 ~ 99, 100		The address of the smallest address of indoor unit connected to the HBC +50 * Please reset one of them to an address between 52 and 99 when two addresses overlap. * The address automatically becomes "100" if it is set as "01~ 50"
Local remote controller	ME Remote controller (Main)	101 ~ 150	1 Fixed 	The smallest address of indoor unit in the group + 100 * The place of "100" is fixed to "1"
	ME Remote controller (Sub)	151 ~ 199, 200	1 Fixed 	The address of main remote controller + 50 * The address automatically becomes "200" if it is set as "00"
System controller	ON/OFF remote controller	201 ~ 250		The smallest group No. to be managed + 200 * The smallest group No. to be managed is changeable.
	AE-200E/AE-50E AG-150A EW-50E AT-50B	000, 201 ~ 250	0,2 0~5 0~9 100 10 1	* AT-50B cannot be set to "000".
	PAC-YG50ECA	000, 201 ~ 250	0,2 0~5 0~9 100 10 1	* Settings are made on the initial screen of AG-150A.
	BAC-HD150	000, 201 ~ 250	0,2 0~5 0~9 100 10 1	* Settings are made with setting tool of BM ADAPTER.
	LMAP04-E	201 ~ 250	2 Fixed 	
PI, AI, DIDO	PAC-YG60MCA	01 ~ 50		
	PAC-YG63MCA	01 ~ 50		
	PAC-YG66DCA	01 ~ 50		
Lossnay, OA processing unit		01 ~ 50		After setting the addresses of all the indoor units, assign an arbitrary address.
PAC-IF01AHC		201 ~ 250	2 Fixed 	

Note1: To set the address to "100", set it to "50"
Note2: Outdoor units OC, OS1 and OS2 in one refrigerant circuit system are automatically detected. OC, OS1 and OS2 are ranked in descending order of capacity. If units are the same capacity, they are ranked in ascending order of their address.

11-1. R32 Piping material

Refrigerant pipe for HYBRID CITY MULTI shall be made of phosphorus deoxidized copper, and has two types.
A. Type-O: Soft copper pipe (annealed copper pipe), can be easily bent with human's hand.
B. Type-1/2H pipe: Hard copper pipe (Straight pipe), being stronger than Type-O pipe of the same radical thickness.

The maximum operation pressure of R32 air conditioner is 4.30 MPa [623psi]. The refrigerant piping should ensure the safety under the maximum operation pressure. MITSUBISHI ELECTRIC recommends pipe size as Table 1, or You shall follow the local industrial standard. Pipes of radical thickness 0.7mm or less shall not be used.

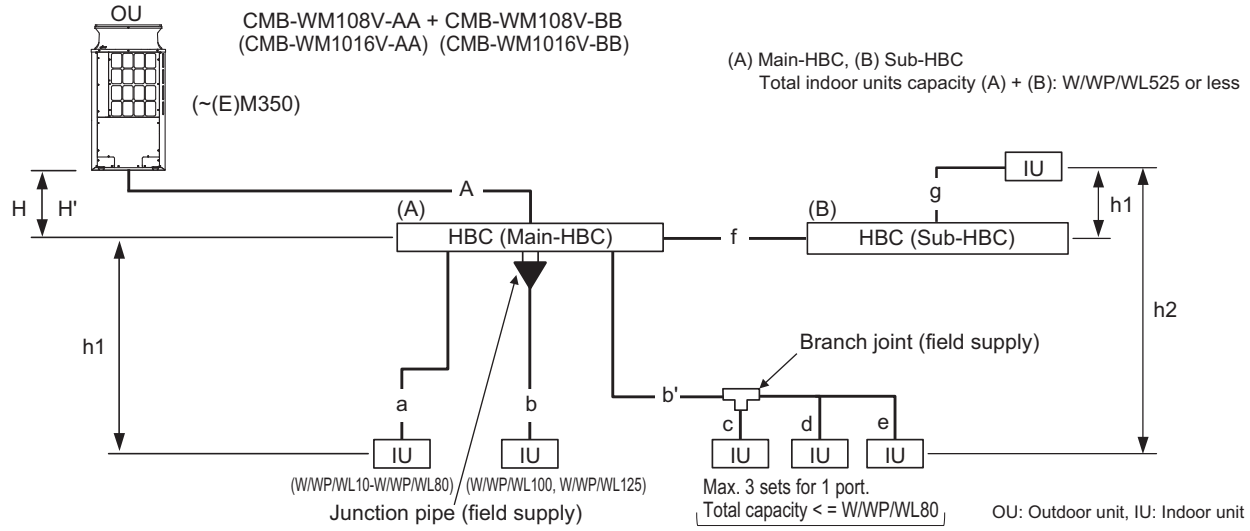
Table 1. Copper pipe size and radial thickness for R32 HYBRID CITY MULTI.

Size (mm)	Size (inch)	Radial thickness (mm)	Radial thickness (mil)	Pipe type
ø6.35	ø1/4"	0.8	[32]	Type-O
ø9.52	ø3/8"	0.8	[32]	Type-O
ø12.7	ø1/2"	0.8	[32]	Type-O
ø15.88	ø5/8"	1.0	[40]	Type-O
ø19.05	ø3/4"	1.2	[48]	Type-O
ø19.05	ø3/4"	1.0	[40]	Type-1/2H or H
ø22.2	ø7/8"	1.0	[40]	Type-1/2H or H
ø25.4	ø1"	1.0	[40]	Type-1/2H or H
ø28.58	ø1-1/8"	1.0	[40]	Type-1/2H or H
ø31.75	ø1-1/4"	1.1	[44]	Type-1/2H or H
ø34.93	ø1-3/8"	1.2	[48]	Type-1/2H or H
ø41.28	ø1-5/8"	1.4	[56]	Type-1/2H or H

* For pipe sized ø19.05 (3/4") for R32 air conditioner, choice of pipe type is up to you.
* The figures in the radial thickness column are based on the Japanese standards and provided only as a reference. Use pipes that meet the local standards.

11-2. Piping Design (Horizontal type Main-HBC connection)

11-2-1. Restrictions on pipe length



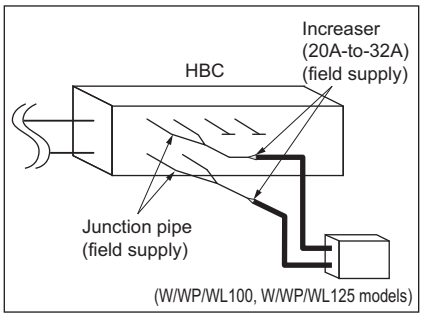
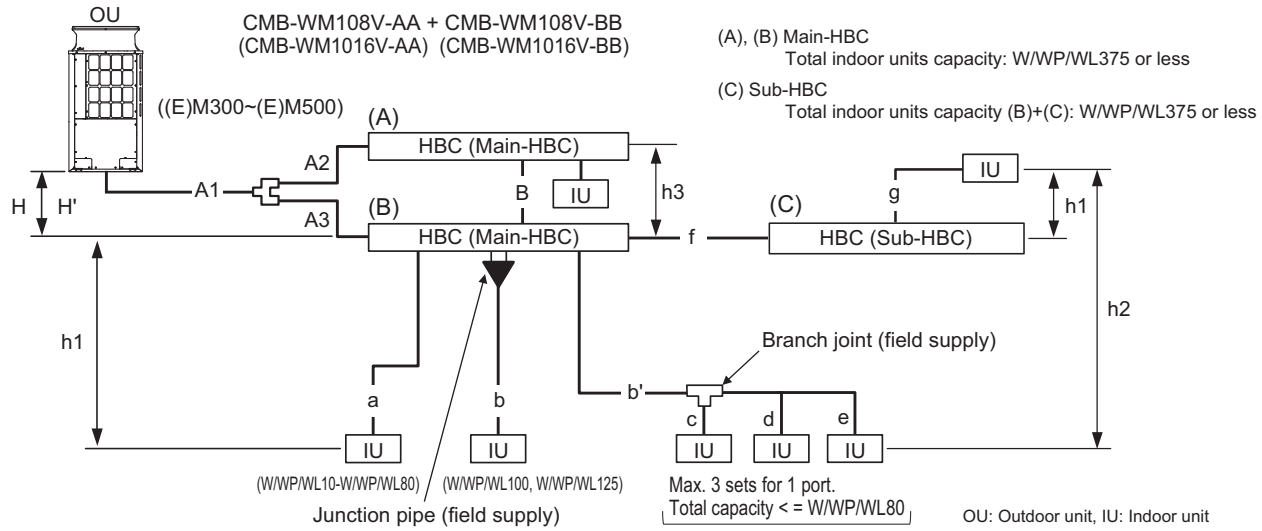


Fig. 11-2-1A

(Unit: m)

	Item		Piping portion	Allowable value
Pipe Lengths	Between outdoor unit and HBC (refrigerant pipework)		A	110 or less
	Water pipework between indoor units and HBC		f + g	60 or less
Height difference	Between HBC and outdoor units	Outdoor unit above HBC	H	50 or less*1
		Outdoor unit below HBC	H'	40 or less*2
	Between indoor units and HBC		h1	15(10) or less*3
	Between indoor units		h2	15(10) or less*3

*1. 90 m is available depending on the model and installation conditions. For more detailed information, contact your local distributor.
*2. 60 m is available depending on the model and installation conditions. For more detailed information, contact your local distributor.
*3. Values in ( ) are applied when indoor total capacity exceeds 130% of outdoor unit capacity



(Unit: m)

	Item		Piping portion	Allowable value
Pipe Lengths	Between outdoor unit and HBC (refrigerant pipework)		A1 + A2 + A3	110 or less
	Water pipework between indoor units and HBC		f + g	60 or less
	Between HBC		B	40 or less
Height difference	Between HBC and outdoor units	Outdoor unit above HBC	H	50 or less*1
		Outdoor unit below HBC	H'	40 or less*2
	Between indoor units and HBC		h1	15(10) or less*3
	Between indoor units		h2	15(10) or less*3
	Between HBC		h3	15(10) or less*3

*1. 90 m is available depending on the model and installation conditions. For more detailed information, contact your local distributor.
*2. 60 m is available depending on the model and installation conditions. For more detailed information, contact your local distributor.
*3. Values in ( ) are applied when indoor total capacity exceeds 130% of outdoor unit capacity

♦Indoor units with valves (W-type) and indoor units without valves (WP-type) may not coexist in the same system.

1. Refrigerant and water pipe size

(1) Refrigerant pipe between outdoor unit and HBC (Part A, A1, A2, and A3)

Use of one HBC

Unit model		HBC		
		Model name	High pressure side	Low pressure side
Outdoor unit side	PURY-(E)M200	CMB-WM108V-AA CMB-WM1016V-AA	ø15.88 (Brazed)	ø19.05 (Brazed)
	PURY-(E)M250			ø22.2 (Brazed)
	PURY-(E)M300			
	PURY-(E)M350			ø28.58 (Brazed)

Use of two HBC

Unit model		HBC			
		Model name	Between outdoor unit and twinning pipe		Between twinning pipe and HBC	
			High pressure side	Low pressure side	High pressure side	Low pressure side
Outdoor unit side	PURY-(E)M300	CMB-WM108V-AA CMB-WM1016V-AA	ø15.88 (Brazed)	ø22.2 (Brazed)	ø15.88 (Brazed) for each HBC	ø19.05 (Brazed) for each HBC
	PURY-(E)M350			ø28.58 (Brazed)		
	PURY-(E)M400		ø19.05 (Brazed)			ø22.2 (Brazed) for each HBC
	PURY-(E)M450					
	PURY-(E)M500					

***1. PURY-(E)P400YNW model or larger requires a connection of two Main-HBC in parallel.**

(2) Water pipe between HBC and indoor units (Sections a, b, c, d, e, and g)

Indoor unit	Connection size		Field pipe size	
	Water inlet	Water outlet	Water return	Water out
PEFY-W20-50VMA-A	O.D. 22.0 mm	O.D. 22.0 mm	I.D. 20 mm	I.D. 20 mm

* For other indoor units, refer to the indoor unit's DATA BOOK.
* The pipe diameter depends on the capacity of indoor units.
Refer to the indoor unit's DATA BOOK for details.

(3) Water pipe between HBC and Sub-HBC (Section f)

	Inlet pipe size	Outlet pipe size
Cold-water side	20A	20A
Hot-water side	20A	20A

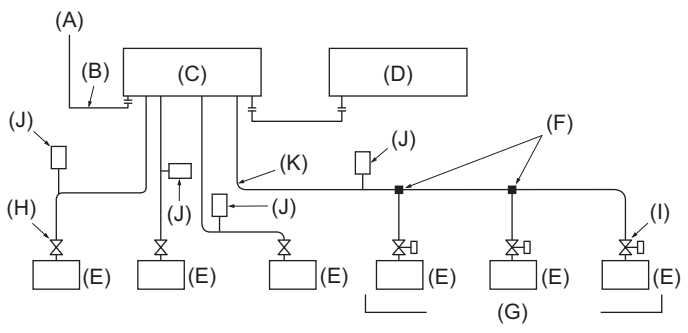
(4) Refrigerant pipe between HBC and HBC (Section B)

Unit: mm [inch]

ø15.88 [5/8"] (Brazed connection)

2. Connecting the HBC

(1) Size of the pipe that fits the standard HBC ports



(A) To outdoor unit
(B) End connection (brazing)
(C) Main-HBC
(D) Sub-HBC
(E) Indoor unit
(F) Branch joint (field supply)
(G) Up to three units for 1 branch hole; total capacity: below 80 (but in same mode, cooling/heating)
(H) Shutoff valve (field supply)
(I) Pressure control valve (field supply)
(J) Auto air vent valve (Highest point on the water pipe for each branch) (field supply)
(K) Water pipework

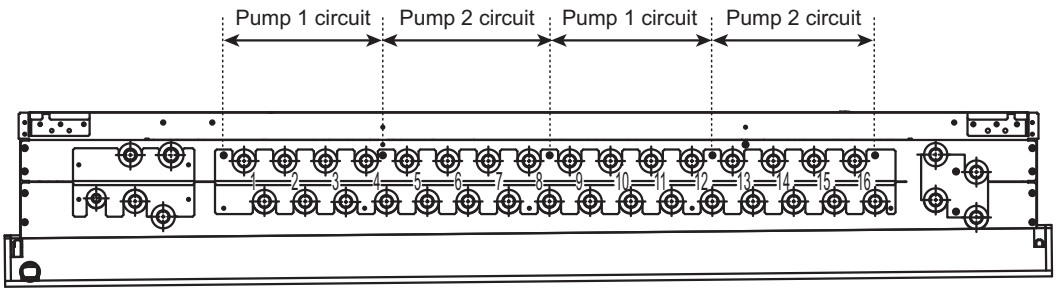


Fig. 11-2-1B

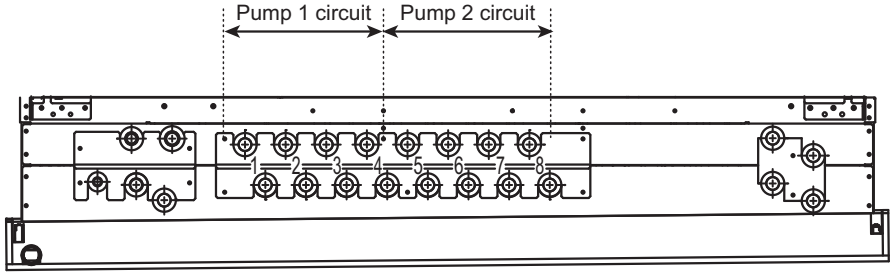


Fig. 11-2-1C

Note: 1

To connect multiple indoor units to a port

- Maximum total capacity of connected indoor units: W/WP/WL80
- Maximum number of connectable indoor units: 3 units
- Branch joints are field-supplied.
- All the indoor units that are connected to the same port must be in the same group and perform the Thermo-ON/OFF operation simultaneously.
- The room temperatures of all the indoor units in the group need to be monitored via the connected remote controller.
- When connecting a W/WP/WL71 through 125 model indoor unit to an HBC, the pipes that connect the unit to the same set of HBC ports cannot be branched out to connect additional units.
- Selection of water piping
  Select the size according to the total capacity of indoor units to be installed downstream.
- Do not connect multiple indoor units to the same port when operating each of them in different modes (cooling, heating, stop, and thermo-OFF). The indoor units connected to the same port must be set to operate in the same mode. Set them to the same group to make them run/stop in the same mode all together. Alternatively, enable the thermo setting on the remote controller, or set the common thermostat (optional) to run/stop the units in the same mode based on the representative temperature.
- When multiple indoor units are connected to a single port, install a pressure control valve in the pipe to equalize the pressure of all indoor units.
- Pressure control valves are required for the “WP-type” and “WL-type without the optional valve kit” indoor units only, and not for the “W-type” and “WL-type with the optional valve kit” indoor units.

Note: 2

Connecting W/WP/WL100 or 125 indoor units to an HBC

- When connecting W/WP/WL100 or 125 indoor units to an HBC, connect each unit to two sets of two ports on the HBC, using two junction pipes (Y-joints). (See Fig. 11-2-1A.)
- Connect an increaser (20A-to-32A) to the merged side of each junction pipe. (See Fig. 11-2-1A.)
- When the junction pipes are connected to 16 HBC ports, the branched sides of the junction pipes cannot be connected to the ports "4 and 5," "8 and 9," or "12 and 13" at the same time. (See Fig. 11-2-1B.)
- When the junction pipes are connected to 8 HBC ports, the branched sides of the junction pipes cannot be connected to the ports "4 and 5" at the same time. (See Fig. 11-2-1C.)
- When a W/WP/WL100 or a 125 model indoor unit is connected to an HBC, the pipes that connect the unit to the same set of HBC ports cannot be branched out to connect additional units.

Note: 3

Maximum capacity of indoor units connectable to an HBC for obtaining the rated performance

- An HBC has two pumps. Each pump can accommodate the capacity equivalent to W/WP/WL188 indoor units.
- When connecting the pipe to 16 HBC ports, make sure that the total capacity of the indoor units connected to ports "1 through 4 and 9 through 12" or "5 through 8 and 13 through 16" will not exceed W/WP/WL188 and will be equal as much as possible. (See Fig. 11-2-1B.)
  When connecting the pipe to 8 HBC ports, make sure that the total capacity of the indoor units connected to ports "1 through 4" or "5 through 8" will not exceed W/WP/WL188 and will be equal as much as possible. (See Fig. 11-2-1C.)
  If the total capacity exceeds W/WP/WL188, the performance will be degraded.

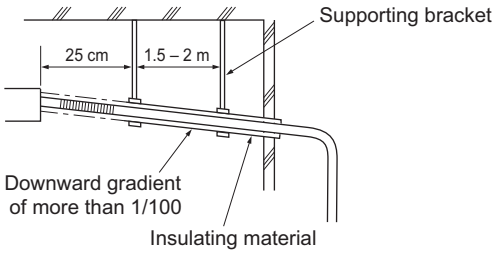
11-2-2. Drain piping work

1. Drain piping work

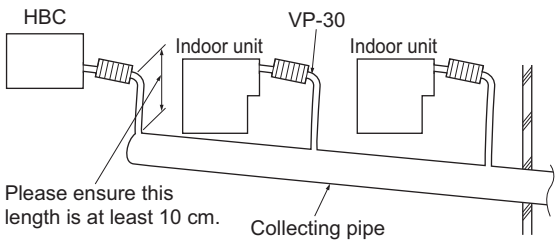
For Main-HBC and Sub-HBC

- Ensure that the drain piping is sloped downward (sloped gradient of more than 1/100) toward the discharge side. If it is impossible to take any downward pitch, use an optionally available drain pump to obtain a downward pitch of more than 1/100.
- Ensure that any horizontal drain piping sections that are longer than 20 m are supported with metal brackets to prevent it from bending, warping, or vibrating.
- Do not use any odor trap around the discharge port.
- As shown in 2, install a collecting pipe about 10 cm below the drain ports and give it a downward pitch of more than 1/100. This collecting pipe should be of VP-30.
- Set the end of drain piping in a place without any risk of odor generation.
- Do not put the end of the drain piping into any drain where ionic gases are generated.
- Drain piping may be installed in any direction. However, please be sure to observe the above instructions.

1



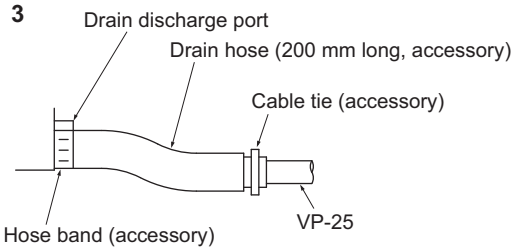
2



For Main-HBC

- Connect the supplied drain hose to the discharge port on the unit. Use hardvinyl chloride pipes VP-25 (ø32). Tighten the supplied drain hose onto the discharge port using the supplied hose band. (For this, do not use any adhesive because the drain hose will need to be removed for servicing at a later date.)

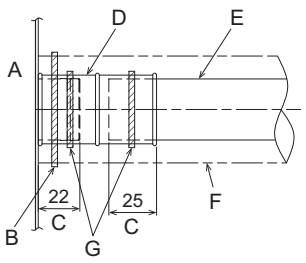
3



For Sub-HBC

- For Sub-HBC, connect the drain pipe by following the steps described below.
  1. Insert the drain hose (accessory) into the drain port (insertion margin: 32 mm). (The drain hose must not be bent more than 45° to prevent the hose from breaking or clogging.) (Attach the hose with glue, and fix it with the band (small, accessory).)
  2. Attach the drain pipe (O.D. ø32 PVC TUBE PV-25, field supply). (Attach the pipe with glue, and fix it with the band (small, accessory).)
  3. Perform insulation work on the drain pipe (O.D. ø32 PVC TUBE PV-25) and on the socket (including elbow).
  4. Check the drainage.
  5. Attach the insulating material, and fix it with the band (large, accessory) to insulate the drain port.

4



A: Sub-HBC
B: Tie band (accessory)
C: Insertion margin
D: Drain hose (accessory)
E: Drain pipe (O.D. ø32 PVC TUBE, field supply)
F: Insulating material (field supply)
G: Tie band (accessory)

2. Discharge test

After completing drain piping work, open the HBC panel, and test drain discharge using a small amount of water. Also, check to see that there is no water leakage from the connections.

3. Insulating drain pipes

Provide sufficient insulation to the drain pipes just as for refrigerant pipes.

⚠CAUTION

Be sure to provide drain piping with heat insulation in order to prevent excess condensation. Without drain piping, water may leak from the unit causing damage to your property.

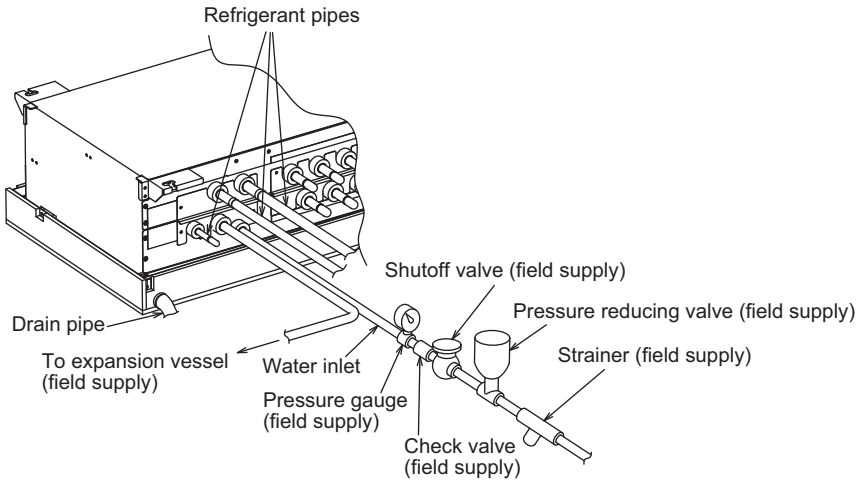
11-2-3. Connecting water pipe work

Please observe the following precautions during installation.

11-2-3-1 Important notes on water pipework installation

- The design pressure of the HBC water system is 0.6MPa.
- Use water pipe-work with a design pressure of at least 1.0MPa.
- When performing a water leak check, please do not allow the water pressure to go above 0.3MPa.
- Please connect the water pipework of each indoor unit to the correct port on the HBC. Failure to do so will result in incorrect running.
- Please list the indoor units on the naming plate in the HBC unit with addresses and end connection numbers.
- If the number of indoor units are less than the number of ports on the HBC, the unused ports must be capped. Without a cap, water will leak.
- Use the reverse-return method to insure proper pipe resistance to each unit.
- Provide some joints and valves around inlet/outlet of each unit for easy maintenance, checkup, and replacement.
- Install a suitable air vent on the water pipe. After flowing water through the pipe, vent any excess air.
- Secure the pipes with metal fittings, positioning them in locations to protect pipes against breakage and bending.
- Do not confuse the water intake and outlet piping. (Error code 5102 will appear on the remote controller if a test run is performed with the pipe-work installed incorrectly (inlet connected to outlet and vice versa).)
- This unit doesn't include a heater to prevent freezing within the pipe work. If the system is stopped for an extended period during low ambient conditions, drain the water out.
- The unused knockout holes should be closed and the refrigerant pipes, water pipes, power source and transmission wires access holes should be filled with putty.
- Install water pipe so that the water flow rate will be maintained.
- Wrap sealing tape as follows.
  1. Wrap the joint with sealing tape following the direction of the threads (clockwise), do not wrap the tape over the edge.
  2. Overlap the sealing tape by two-thirds to three-fourths of its width on each turn. Press the tape with your fingers so that it is tight against each thread.
  3. Do not wrap the 1.5th through 2nd farthest threads away from the pipe end.
- Hold the pipe on the unit side in place with a spanner when installing the pipes or strainer. Tighten screws to a torque of 40 N·m.
- If there is a risk of freezing, take precautions to prevent this happening.
- When connecting the HBC unit water piping and on site water piping, apply liquid sealing material for water piping over the sealing tape before connection.
- Please use copper or plastic pipes for the water circuit. Do not use steel or stainless steel pipework. Furthermore, when using copper pipe-work, use a non-oxidative brazing method. Oxidation of the pipe-work will reduce the pump life.

Example of heat source unit installation (using left piping)

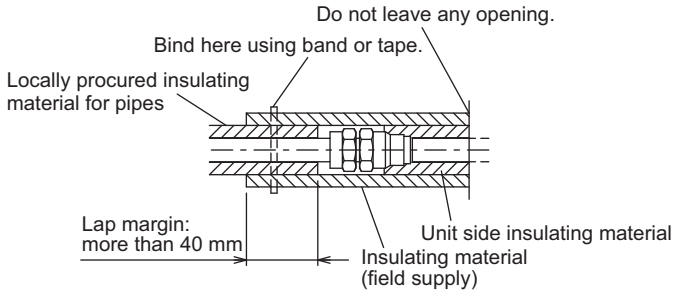


HBC sample installation (*1)

*1. Connect the pipes to the water pipes according to the local regulations.

11-2-3-2 Water pipe insulation

1. Connect the water pipes of each indoor unit to the same (correct) end connection numbers as indicated on the indoor unit connection section of each HBC. If connected to wrong end connection numbers, there will be no normal operation.
2. List indoor unit model names in the name plate on the HBC control box (for identification purposes), and HBC end connection numbers and address numbers in the name plate on the indoor unit side.
   Seal unused end connections using cover caps (field supply, dezincification resistant brass (DZR) or bronze only). Not replacing the rubber end caps will lead to water leakage.
3. Be sure to add insulation work to water piping by covering water pipework separately with enough thickness heat-resistant polyethylene, so that no gap is observed in the joint between indoor unit and insulating material, and insulating materials themselves. When insulation work is insufficient, there is a possibility of condensation, etc. Pay special attention to insulation work in the ceiling plenum.



• Insulation materials for the pipes to be added on site must meet the following specifications:

HBC to indoor unit	20 mm or more
Main-HBC to Sub-HBC	20 mm or more

• This specification is based on copper for water piping. When using plastic pipework, choose a thickness based on the plastic pipe performance.
• Installation of pipes in a high-temperature high-humidity environment, such as the top floor of a building, may require the use of insulation materials thicker than the ones specified in the chart above.
• When certain specifications presented by the client must be met, ensure that they also meet the specifications on the chart above.

4. Expansion vessel
• Install an expansion tank to accommodate expanded water.

Expansion vessel selection criteria:

Water containment volume of the HBC
• Refer to the relevant indoor unit specifications for information on the water volume.

(Unit: L)

Unit model	Water volume
CMB-WM108V-AA	10
CMB-WM1016V-AA	13
CMB-WM108V-BB	5
CMB-WM1016V-BB	9

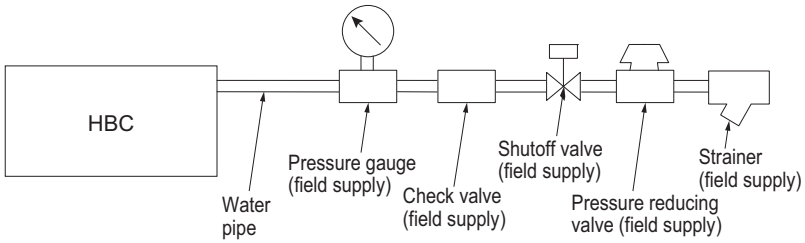
• The maximum water temperature is 60°C.
• The minimum water temperature is 5°C.
• The circuit protection valve set pressure is 370-490kPa.
• The circulation pump head pressure is 0.24MPa.

5. Leakproof the water pipework, valves and drain pipework. Leakproof all the way to, and include pipe ends so that condensation cannot enter the insulated pipework.
6. Apply caulking around the ends of the insulation to prevent condensation getting between the pipework and insulation.
7. Add a drain valve so that the unit and pipework can be drained.
8. Ensure there are no gaps in the pipework insulation. Insulate the pipework right up to the unit.
9. Ensure that the gradient of the drain pan pipework is such that discharge can only flow out.
10. HBC water pipe connection sizes and pipe sizes.

Indoor unit	Connection size		Field pipe size	
	Water inlet	Water outlet	Water return	Water out
PEFY-W20-50VMA-A	O.D. 22.0 mm	O.D. 22.0 mm	I.D. 20 mm	I.D. 20 mm

* For other indoor units, refer to the indoor unit's DATA BOOK.
* The pipe diameter depends on the capacity of indoor units.
Refer to the indoor unit's DATA BOOK for details.

11. Please refer to the figure below when connecting the water supply.



12. Use formula 0.1 ≤ 0.01 + 0.01 × A ≤ 0.16 for the supply pressure range to be used.
(A: Height difference (m) between the HBC and the highest indoor unit)
If the supply pressure is greater than 0.16 MPa, use a pressure reducing valve to keep the pressure within the range.
If the head pressure is unknown, set it to 0.16 MPa.
13. Install a shut off valve and strainer in a place that is easy to operate and makes maintenance work easy.
14. Apply insulation to the indoor unit pipework, strainer, shut off valve, and pressure reducing valve.
15. Please do not use a corrosion inhibitor in the water system.
16. When installing the HBC unit in an environment which may drop below 0°C, please add antifreeze (Propylene Glycol only) to the circulating water. For the brine selection, refer to 8-5. "Correction by antifreeze solution concentration".

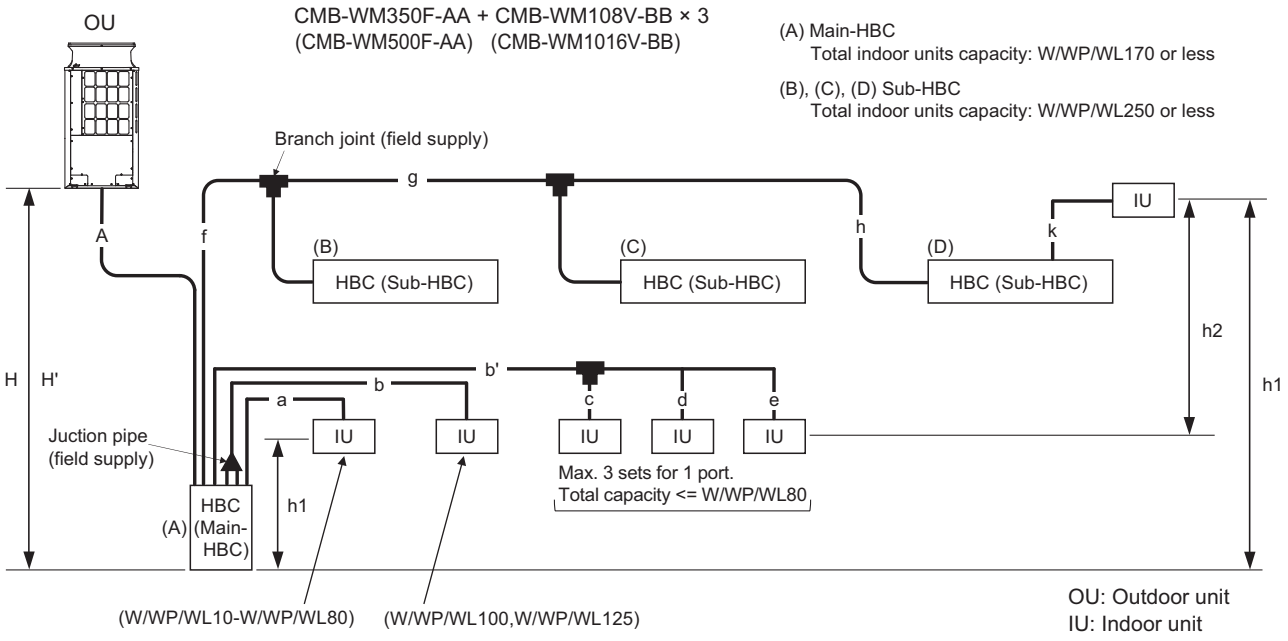
11-2-3-3 Water treatment and quality control

To preserve water quality, use the closed type of water circuit. When the circulating water quality is poor, the water heat exchanger can develop scale, leading to a reduction in heat-exchange power and possible corrosion. Pay careful attention to water processing and water quality control when installing the water circulation system.

- Removing of foreign objects or impurities within the pipes.
During installation, make sure that foreign objects, such as welding fragments, sealant particles, or rust, do not enter the pipes.
- Water Quality Processing
Depending on the quality of the cold-temperature water used in the airconditioner, the copper piping of the heat exchanger may corrode. Regular water quality processing is recommended. If a water supply tank is installed, keep air contact to a minimum, and keep the level of dissolved oxygen in the water no higher than 1mg/ℓ.

11-3. Piping Design (Vertical type Main-HBC connection)

11-3-1. Restrictions on pipe length



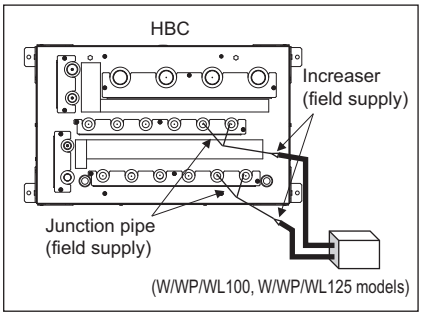


Fig. 11-3-1A

(Unit: m)

	Item		Piping portion	Allowable value
Pipe Lengths	Between outdoor unit and HBC (refrigerant pipework)		A	110 or less
	Water pipework between indoor units and HBC		f + g + h + k	60 or less
Height difference	Between HBC and outdoor units	Outdoor unit above HBC	H	50 or less*1
		Outdoor unit below HBC	H'	40 or less*2
	Between indoor units and HBC		h1	15(10) or less*3
	Between indoor units		h2	15(10) or less*3

*1. 90 m is available depending on the model and installation conditions. For more detailed information, contact your local distributor.
*2. 60 m is available depending on the model and installation conditions. For more detailed information, contact your local distributor.
*3. Values in ( ) are applied when indoor total capacity exceeds 130% of outdoor unit capacity

1. Refrigerant and water pipe size

(1) Refrigerant pipe between outdoor unit and HBC (Part A)

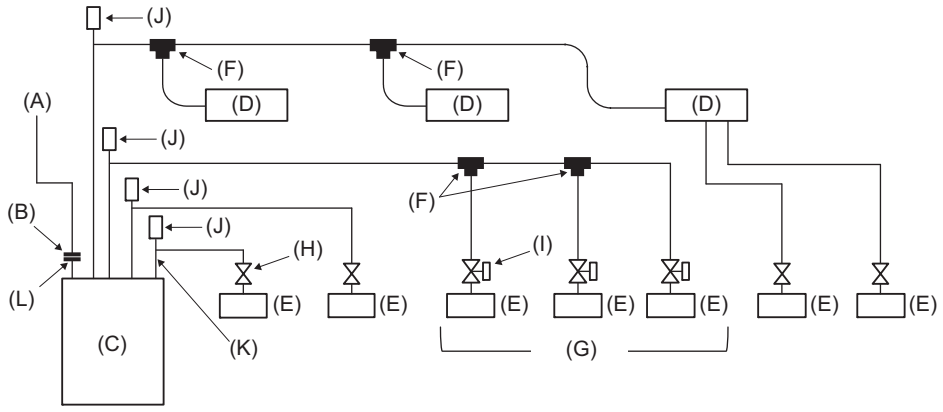
Unit model		HBC		
		Model name	High pressure side	Low pressure side
Outdoor unit side	PURY-(E)M200	(HBC) CMB-WM350F-AA	ø15.88 (Brazing)	ø19.05 (Brazing)
	PURY-(E)M250		ø15.88 (Brazing)	ø22.2 (Brazing)
	PURY-(E)M300		ø15.88 (Brazing)	ø22.2 (Brazing)
	PURY-(E)M350		ø15.88 (Brazing)	ø28.58 (Brazing)
	PURY-(E)M400	(HBC) CMB-WM500F-AA	ø19.05 (Brazing)	ø28.58 (Brazing)
	PURY-(E)M450		ø19.05 (Brazing)	ø28.58 (Brazing)
	PURY-(E)M500		ø19.05 (Brazing)	ø28.58 (Brazing)

Total down-stream indoor unit capacity	Pipe size between Main-HBC and Sub-HBC *1 Pipe size between Main-HBC and indoor unit *1 Pipe size between Sub-HBC and indoor unit *1		
	Max 20 m *2	Max 40 m *2	Max 60 m *2
W/WP/WL10	I.D. ≥ 12 mm	I.D. ≥ 12 mm	I.D. ≥ 12 mm
W/WP/WL11 - W/WP/WL15	I.D. ≥ 12 mm	I.D. ≥ 12 mm	I.D. ≥ 15.5 mm
W/WP/WL16 - W/WP/WL25	I.D. ≥ 15.5 mm	I.D. ≥ 15.5 mm	I.D. ≥ 15.5 mm
W/WP/WL26 - W/WP/WL32	I.D. ≥ 15.5 mm	I.D. ≥ 19.9 mm	I.D. ≥ 19.9 mm
W/WP/WL33 - W/WP/WL50	I.D. ≥ 19.9 mm	I.D. ≥ 19.9 mm	I.D. ≥ 19.9 mm
W/WP/WL51 - W/WP/WL63	I.D. ≥ 19.9 mm	I.D. ≥ 25.2 mm	I.D. ≥ 25.2 mm
W/WP/WL64 - W/WP/WL80	I.D. ≥ 25.2 mm	I.D. ≥ 25.2 mm	I.D. ≥ 25.2 mm
W/WP/WL81 - W/WP/WL100	I.D. ≥ 25.2 mm	I.D. ≥ 25.2 mm	I.D. ≥ 32.6 mm
W/WP/WL101 - W/WP/WL150	I.D. ≥ 32.6 mm	I.D. ≥ 32.6 mm	I.D. ≥ 32.6 mm
W/WP/WL151 - W/WP/WL250	I.D. ≥ 32.6 mm	I.D. ≥ 32.6 mm	I.D. ≥ 39.6 mm
W/WP/WL251 - W/WP/WL300	I.D. ≥ 32.6 mm	I.D. ≥ 39.6 mm	I.D. ≥ 50.8 mm
W/WP/WL301 - W/WP/WL750	I.D. ≥ 50.8 mm	I.D. ≥ 50.8 mm	I.D. ≥ 50.8 mm

*1 When connecting CMB-WM108/1016V-AA and CMB-WM108/1016V-BB, refer to the installation manual for CMB-WM108/1016V-AA about pipe size.
*2 Piping length from Main-HBC to the farthest indoor unit

2. Connecting the HBC

(1) Size of the pipe that fits the standard HBC ports



(A) To outdoor unit
(B) End connection (brazing)
(C) Main-HBC
(D) Sub-HBC
(E) Indoor unit
(F) Branch joint (field supply)
(G) Up to three units for 1 branch hole; total capacity: below 80 (but in same mode, cooling/heating)
(H) Shutoff valve (field supply)
(I) Pressure control valve (field supply)
(J) Auto air vent valve (Highest point on the water pipe for each branch) (field supply)
(K) Water pipework
(L) Joint (field supply)

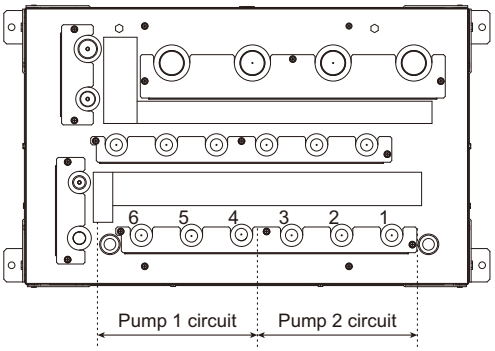


Fig. 11-3-1B

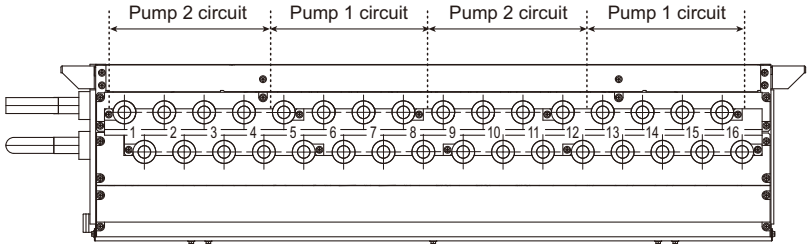


Fig. 11-3-1C

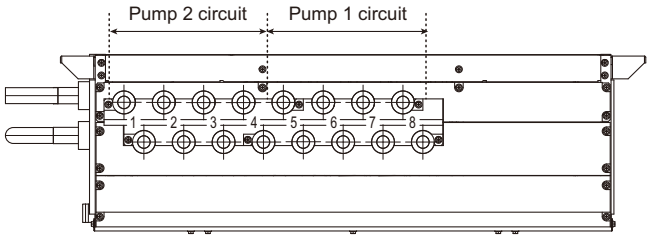


Fig. 11-3-1D

Note: 1

To connect multiple indoor units to a port

- Maximum total capacity of connected indoor units: W/WP/WL80
- Maximum number of connectable indoor units: 3 units
- Branch joints are field-supplied.
- All the indoor units that are connected to the same port must be in the same group and perform the Thermo-ON/OFF operation simultaneously.
- The room temperatures of all the indoor units in the group need to be monitored via the connected remote controller.
- When connecting a W/WP/WL71 through 125 model indoor unit to an HBC, the pipes that connect the unit to the same set of HBC ports cannot be branched out to connect additional units.
- Selection of water piping
  Select the size according to the total capacity of indoor units to be installed downstream.
- Do not connect multiple indoor units to the same port when operating each of them in different modes (cooling, heating, stop, and thermo-OFF). The indoor units connected to the same port must be set to operate in the same mode. Set them to the same group to make them run/stop in the same mode all together. Alternatively, enable the thermo setting on the remote controller, or set the common thermostat (optional) to run/stop the units in the same mode based on the representative temperature.
- When multiple indoor units are connected to a single port, install a pressure control valve in the pipe to equalize the pressure of all indoor units.
- Pressure control valves are required for the “WP-type” and “WL-type without the optional valve kit” indoor units only, and not for the “W-type” and “WL-type with the optional valve kit” indoor units.

Note: 2

Connecting W/WP/WL100 or 125 indoor units to an HBC

- When connecting W/WP/WL100 or 125 indoor units to an HBC, connect each unit to two sets of two ports on the HBC, using two junction pipes (Y-joints).
- Connect an increaser (20A-to-32A) to the merged side of each junction pipe.
- When the junction pipes are connected to Main-HBC, the branched sides of the junction pipes cannot be connected to the ports "3 and 4" at the same time. (See Fig. 11-3-1B.)
- When the junction pipes are connected to 16 Sub-HBC ports, the branched sides of the junction pipes cannot be connected to the ports "4 and 5," "8 and 9," or "12 and 13" at the same time. (See Fig. 11-3-1C.)
- When the junction pipes are connected to 8 Sub-HBC ports, the branched sides of the junction pipes cannot be connected to the ports "4 and 5" at the same time. (See Fig. 11-3-1D.)
- When a W/WP/WL100 or a 125 model indoor unit is connected to an HBC, the pipes that connect the unit to the same set of HBC ports cannot be branched out to connect additional units.

Note: 3

Selecting the port for indoor unit connection

- The table below shows the ports for connecting the units that belong to Group 1 and Group 2.

	Group 1	Group 2
CMB-WM350/500F-AA	Ports from 1 to 3	Ports from 4 to 6
CMB-WM108V-BB	Ports from 1 to 4	Ports from 5 to 8
CMB-WM1016V-BB	Ports from 1 to 4	Ports from 5 to 8
	Ports from 9 to 12	Ports from 13 to 16

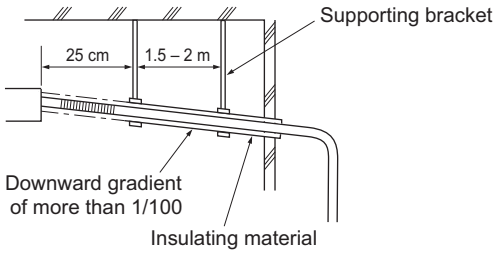
11-3-2. Drain piping work

1. Drain piping work

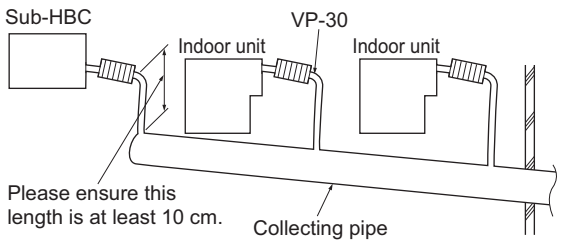
For Main-HBC and Sub-HBC

- Ensure that the drain piping is sloped downward (sloped gradient of more than 1/100) toward the discharge side. If it is impossible to take any downward pitch, use an optionally available drain pump to obtain a downward pitch of more than 1/100.
- Ensure that any horizontal drain piping sections that are longer than 20 m are supported with metal brackets to prevent it from bending, warping, or vibrating.
- Do not use any odor trap around the discharge port.
- As shown in 2, install a collecting pipe about 10 cm below the drain ports and give it a downward pitch of more than 1/100. This collecting pipe should be of VP-30.
- Set the end of drain piping in a place without any risk of odor generation.
- Do not put the end of the drain piping into any drain where ionic gases are generated.
- Drain piping may be installed in any direction. However, please be sure to observe the above instructions.

1



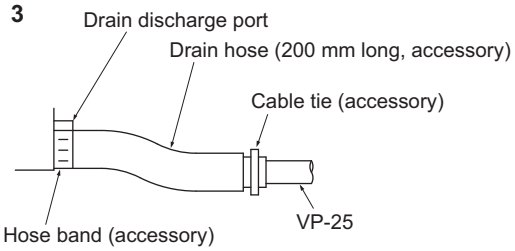
2



For Main-HBC

- Connect the supplied drain hose to the discharge port on the unit. Use hardvinyl chloride pipes VP-25 (ø32). Tighten the supplied drain hose onto the discharge port using the supplied hose band. (For this, do not use any adhesive because the drain hose will need to be removed for servicing at a later date.)

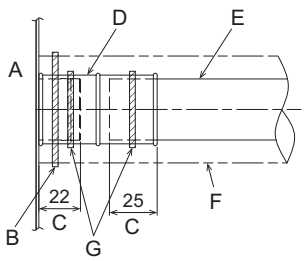
3



For Sub-HBC

- For Sub-HBC, connect the drain pipe by following the steps described below.
  1. Insert the drain hose (accessory) into the drain port (insertion margin: 32 mm).
     (The drain hose must not be bent more than 45° to prevent the hose from breaking or clogging.)
     (Attach the hose with glue, and fix it with the band (small, accessory).)
  2. Attach the drain pipe (O.D. ø32 PVC TUBE PV-25, field supply).
     (Attach the pipe with glue, and fix it with the band (small, accessory).)
  3. Perform insulation work on the drain pipe (O.D. ø32 PVC TUBE PV-25) and on the socket (including elbow).
  4. Check the drainage.
  5. Attach the insulating material, and fix it with the band (large, accessory) to insulate the drain port.

4



A: Sub-HBC
B: Tie band (accessory)
C: Insertion margin
D: Drain hose (accessory)
E: Drain pipe (O.D. ø32 PVC TUBE, field supply)
F: Insulating material (field supply)
G: Tie band (accessory)

2. Discharge test

After completing drain piping work, open the HBC panel, and test drain discharge using a small amount of water. Also, check to see that there is no water leakage from the connections.

3. Insulating drain pipes

Provide sufficient insulation to the drain pipes just as for refrigerant pipes.

⚠CAUTION

Be sure to provide drain piping with heat insulation in order to prevent excess condensation. Without drain piping, water may leak from the unit causing damage to your property.

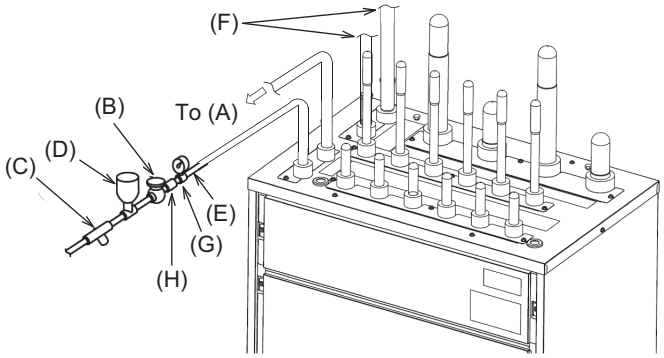
11-3-3. Connecting water pipe work

Please observe the following precautions during installation.

11-3-3-1 Important notes on water pipework installation

- The design pressure of the HBC water system is 0.6MPa.
- Use water pipe-work with a design pressure of at least 1.0MPa.
- When performing a water leak check, please do not allow the water pressure to go above 0.3MPa.
- Please connect the water pipework of each indoor unit to the correct port on the HBC. Failure to do so will result in incorrect running.
- Please list the indoor units on the naming plate in the HBC unit with addresses and end connection numbers.
- If the number of indoor units are less than the number of ports on the HBC, the unused ports must be capped. Without a cap, water will leak.
- Use the reverse-return method to insure proper pipe resistance to each unit.
- Provide some joints and valves around inlet/outlet of each unit for easy maintenance, checkup, and replacement.
- Install a suitable air vent on the water pipe. After flowing water through the pipe, vent any excess air.
- Secure the pipes with metal fittings, positioning them in locations to protect pipes against breakage and bending.
- Do not confuse the water intake and outlet piping. (Error code 5102 will appear on the remote controller if a test run is performed with the pipe-work installed incorrectly (inlet connected to outlet and vice versa).)
- This unit doesn't include a heater to prevent freezing within the pipe work. If the system is stopped for an extended period during low ambient conditions, drain the water out.
- The unused knockout holes should be closed and the refrigerant pipes, water pipes, power source and transmission wires access holes should be filled with putty.
- Install water pipe so that the water flow rate will be maintained.
- Wrap sealing tape as follows.
  1. Wrap the joint with sealing tape following the direction of the threads (clockwise), do not wrap the tape over the edge.
  2. Overlap the sealing tape by two-thirds to three-fourths of its width on each turn. Press the tape with your fingers so that it is tight against each thread.
  3. Do not wrap the 1.5th through 2nd farthest threads away from the pipe end.
- Hold the pipe on the unit side in place with a spanner when installing the pipes or strainer. Tighten screws to a torque of 40 N·m.
- If there is a risk of freezing, take precautions to prevent this happening.
- When connecting the HBC unit water piping and on site water piping, apply liquid sealing material for water piping over the sealing tape before connection.
- Please use copper or plastic pipes for the water circuit. Do not use steel or stainless steel pipework. Furthermore, when using copper pipe-work, use a non-oxidative brazing method. Oxidation of the pipe-work will reduce the pump life.

Example of heat source unit installation (using left piping)



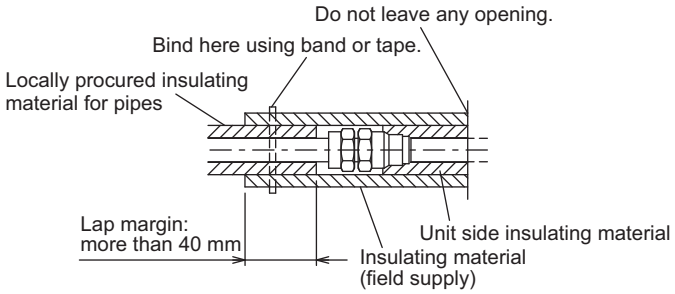
Example of HBC installation (*1)

(A) Expansion vessel (field supply)
(B) Shutoff valve (field supply)
(C) Strainer (field supply)
(D) Pressure reducing valve (field supply)
(E) Water inlet
(F) Refrigerant pipes
(G) Pressure gauge (field supply)
(H) Check valve (field supply)

Note:
***1. Connect the pipes to the water pipes according to the local regulations.**
***2. Remove the water pipes on the point of outside shutoff valve after finishing supply water.**

11-3-3-2 Water pipe insulation

1. Connect the water pipes of each indoor unit to the same (correct) end connection numbers as indicated on the indoor unit connection section of each HBC. If connected to wrong end connection numbers, there will be no normal operation.
2. List indoor unit model names in the name plate on the HBC control box (for identification purposes), and HBC end connection numbers and address numbers in the name plate on the indoor unit side.
   Seal unused end connections using cover caps (field supply, dezincification resistant brass (DZR) or bronze only). Not replacing the rubber end caps will lead to water leakage.
3. Be sure to add insulation work to water piping by covering water pipework separately with enough thickness heat-resistant polyethylene, so that no gap is observed in the joint between indoor unit and insulating material, and insulating materials themselves. When insulation work is insufficient, there is a possibility of condensation, etc. Pay special attention to insulation work in the ceiling plenum.



• Insulation materials for the pipes to be added on site must meet the following specifications:

HBC to indoor unit	20 mm or more
Main-HBC to Sub-HBC	20 mm or more

• This specification is based on copper for water piping. When using plastic pipework, choose a thickness based on the plastic pipe performance.
• Installation of pipes in a high-temperature high-humidity environment, such as the top floor of a building, may require the use of insulation materials thicker than the ones specified in the chart above.
• When certain specifications presented by the client must be met, ensure that they also meet the specifications on the chart above.

4. Expansion vessel
• Install an expansion tank to accommodate expanded water.

Expansion vessel selection criteria:

Water containment volume of the HBC
• Refer to the relevant indoor unit specifications for information on the water volume.

(Unit: L)

Unit model	Water volume
CMB-WM350F-AA	20
CMB-WM500F-AA	24
CMB-WM108V-BB	5
CMB-WM1016V-BB	9

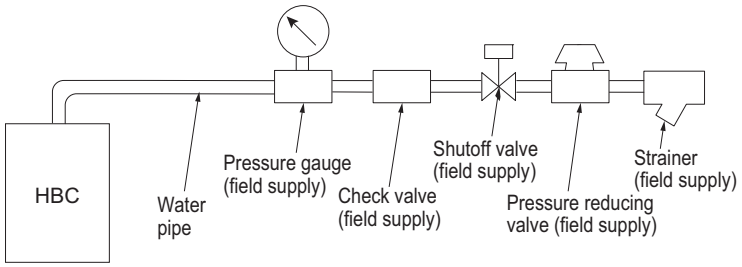
• The maximum water temperature is 60°C.
• The minimum water temperature is 5°C.
• The circuit protection valve set pressure is 370-490kPa.
• The circulation pump head pressure is 0.24MPa.

5. Leakproof the water pipework, valves and drain pipework. Leakproof all the way to, and include pipe ends so that condensation cannot enter the insulated pipework.
6. Apply caulking around the ends of the insulation to prevent condensation getting between the pipework and insulation.
7. Add a drain valve so that the unit and pipework can be drained.
8. Ensure there are no gaps in the pipework insulation. Insulate the pipework right up to the unit.
9. Ensure that the gradient of the drain pan pipework is such that discharge can only flow out.
10. HBC water pipe connection sizes and pipe sizes.

Total down-stream indoor unit capacity	Pipe size between Main-HBC and Sub-HBC *1 Pipe size between Main-HBC and indoor unit *1 Pipe size between Sub-HBC and indoor unit *1		
	Max 20 m *2	Max 40 m *2	Max 60 m *2
W/WP/WL10	I.D. ≥ 12 mm	I.D. ≥ 12 mm	I.D. ≥ 12 mm
W/WP/WL11 - W/WP/WL15	I.D. ≥ 12 mm	I.D. ≥ 12 mm	I.D. ≥ 15.5 mm
W/WP/WL16 - W/WP/WL25	I.D. ≥ 15.5 mm	I.D. ≥ 15.5 mm	I.D. ≥ 15.5 mm
W/WP/WL26 - W/WP/WL32	I.D. ≥ 15.5 mm	I.D. ≥ 19.9 mm	I.D. ≥ 19.9 mm
W/WP/WL33 - W/WP/WL50	I.D. ≥ 19.9 mm	I.D. ≥ 19.9 mm	I.D. ≥ 19.9 mm
W/WP/WL51 - W/WP/WL63	I.D. ≥ 19.9 mm	I.D. ≥ 25.2 mm	I.D. ≥ 25.2 mm
W/WP/WL64 - W/WP/WL80	I.D. ≥ 25.2 mm	I.D. ≥ 25.2 mm	I.D. ≥ 25.2 mm
W/WP/WL81 - W/WP/WL100	I.D. ≥ 25.2 mm	I.D. ≥ 25.2 mm	I.D. ≥ 32.6 mm
W/WP/WL101 - W/WP/WL150	I.D. ≥ 32.6 mm	I.D. ≥ 32.6 mm	I.D. ≥ 32.6 mm
W/WP/WL151 - W/WP/WL250	I.D. ≥ 32.6 mm	I.D. ≥ 32.6 mm	I.D. ≥ 39.6 mm
W/WP/WL251 - W/WP/WL300	I.D. ≥ 32.6 mm	I.D. ≥ 39.6 mm	I.D. ≥ 50.8 mm
W/WP/WL301 - W/WP/WL750	I.D. ≥ 50.8 mm	I.D. ≥ 50.8 mm	I.D. ≥ 50.8 mm

*1 When connecting CMB-WM108/1016V-AA and CMB-WM108/1016V-BB, refer to the installation manual for CMB-WM108/1016V-AA about pipe size.
*2 Piping length from Main-HBC to the farthest indoor unit

11. Please refer to the figure below when connecting the water supply.



12. Use formula 0.1 ≤ 0.01 + 0.01 × A ≤ 0.16 for the supply pressure range to be used.
(A: Height difference (m) between the HBC and the highest indoor unit)
If the supply pressure is greater than 0.16 MPa, use a pressure reducing valve to keep the pressure within the range.
If the head pressure is unknown, set it to 0.16 MPa.
13. Install a shut off valve and strainer in a place that is easy to operate and makes maintenance work easy.
14. Apply insulation to the indoor unit pipework, strainer, shut off valve, and pressure reducing valve.
15. Please do not use a corrosion inhibitor in the water system.
16. When installing the HBC unit in an environment which may drop below 0°C, please add antifreeze (Propylene Glycol only) to the circulating water. For the brine selection, refer to 8-5. "Correction by antifreeze solution concentration".

11-3-3-3 Water treatment and quality control

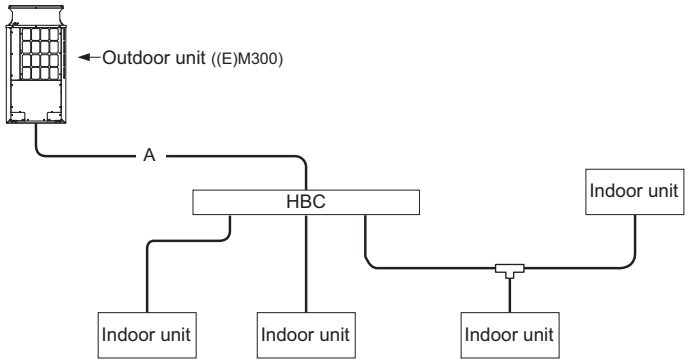
To preserve water quality, use the closed type of water circuit. When the circulating water quality is poor, the water heat exchanger can develop scale, leading to a reduction in heat-exchange power and possible corrosion. Pay careful attention to water processing and water quality control when installing the water circulation system.

- Removing of foreign objects or impurities within the pipes.
  During installation, make sure that foreign objects, such as welding fragments, sealant particles, or rust, do not enter the pipes.
- Water Quality Processing
  Depending on the quality of the cold-temperature water used in the airconditioner, the copper piping of the heat exchanger may corrode. Regular water quality processing is recommended. If a water supply tank is installed, keep air contact to a minimum, and keep the level of dissolved oxygen in the water no higher than 1mg/ℓ.

11-4. Refrigerant charging calculation

1. Horizontal type Main-HBC connection

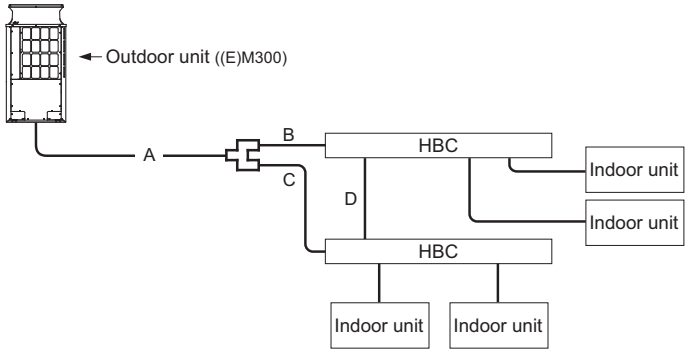
Example



■ Sample calculation

Indoor 1: 50 A: ø15.88 42 m
2: 50
3: 50
4: 40
Outdoor M250

The total length of each liquid line is as follows:
ø15.88: A = 42 m, $\alpha_1 = 2.8$
Therefore,
<Calculation example>
Additional refrigerant charge
= 42 × 0.09 + 2.8
= 6.58 kg
≒ 6.6 kg
* All pipe work except A is water pipe work.



Indoor 1: 50 A:ø15.88 18 m
2: 50 B:ø15.88 5 m
3: 50 C:ø15.88 10 m
4: 50 D:ø15.88 8 m
Outdoor M300

The total length of each liquid line is as follows:
ø15.88: A = 18 m, ø15.88: B + C + D = 23m, $\alpha_1 = 2.8 \times 2$
Therefore,
<Calculation example>
Additional refrigerant charge
= 18 × 0.09 + (5 + 10 + 8) × 0.09 + 2.8 × 2
= 9.29 kg
≒ 9.3 kg
* All pipe work except A, B, C, D is water pipe work.

<Amount of refrigerant to be added>

The amount of refrigerant that is shown in the table below is factory-charged to the outdoor units.
The amount necessary for extended pipe (field piping) is not included and must be added on site.

Outdoor unit model	Amount of pre-charged refrigerant in the outdoor unit (kg)
M200YNW	5.2
M250YNW	5.2
M300YNW	5.2
M350YNW	8.0
M400YNW	8.0
M450YNW	10.8
M500YNW	10.8

Outdoor unit model	Amount of pre-charged refrigerant in the outdoor unit (kg)
EM200YNW	5.2
EM250YNW	5.2
EM300YNW	5.2
EM350YNW	8.0
EM400YNW	8.0
EM450YNW	10.8
EM500YNW	10.8

■ Calculation formula

- The amount of refrigerant to be added depends on the size and the total length of the high-pressure piping and liquid piping.
- Calculate the amount of refrigerant to be charged according to the formula below.
- Round up the calculation result to the nearest 0.1 kg (Example: 18.04 kg to 18.1 kg).
- The refrigerant does not need to be added for the indoor units in a Hybrid City Multi system.

<Formula>

- When the piping length from the outdoor unit to the farthest HBC is 10 m or shorter

Amount of additional charge (kg)	=	High-pressure pipe ø22.2 total length × 0.23 (kg/m)	+	High-pressure pipe ø19.05 total length × 0.16 (kg/m)	+	High-pressure pipe ø15.88 total length × 0.11 (kg/m)

	Outdoor unit model	Amount (kg)		HBC model	Amount (kg/unit)
	(E)M200	1.0	+	CMB-WM108V-AA	2.8
	(E)M250	1.0		CMB-WM1016V-AA	2.8
+	(E)M300	0			
	(E)M350	0			
	(E)M400	0			
	(E)M450	0			
	(E)M500	0			

* Amount of refrigerant to be charged for single-module units

* When connecting PEFY-W50/63/71/80/100/125VMA2-A units, add 0.25 kg of refrigerant for each of these units.

・When the piping length from the outdoor unit to the farthest HBC is longer than 10 m

Amount of additional charge (kg) = High-pressure pipe ø22.2 total length × 0.19 (kg/m) + High-pressure pipe ø19.05 total length × 0.13 (kg/m) + High-pressure pipe ø15.88 total length × 0.09 (kg/m)

+

Outdoor unit model	Amount (kg)
(E)M200	1.0
(E)M250	1.0
(E)M300	0
(E)M350	0
(E)M400	0
(E)M450	0
(E)M500	0

* Amount of refrigerant to be charged for single-module units

+

HBC model	Amount (kg/unit)
CMB-WM108V-AA	2.8
CMB-WM1016V-AA	2.8

* When connecting PEFY-W50/63/71/80/100/125VMA2-A units, add 0.25 kg of refrigerant for each of these units.

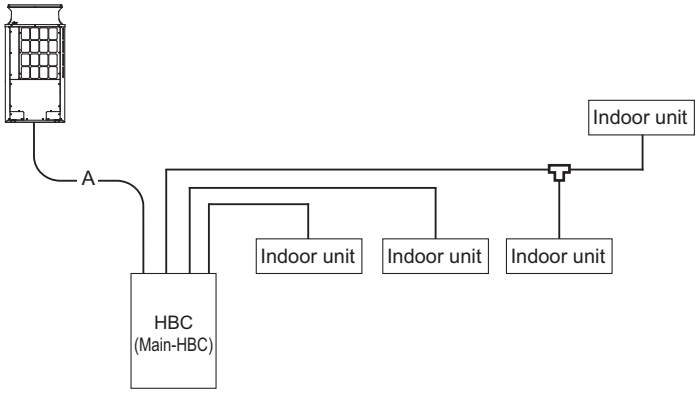
■ Limitation of the amount of refrigerant to be charged

The above calculation result of the amount of refrigerant to be charged must become below the value in the table below.

Total index of the outdoor units			M200 YNW	M250 YNW	M300 YNW	M350 YNW	M400 YNW	M450 YNW	M500 YNW	EM200 YNW	EM250 YNW	EM300 YNW	M350 YNW	EM400 YNW	EM450 YNW	EM500 YNW
Maximum refrigerant charge	Factory charged	kg	5.2	5.2	5.2	8.0	8.0	10.8	10.8	5.2	5.2	5.2	8.0	8.0	10.8	10.8
	Charged on site	kg	13.5	13.5	15.5	15.5	19.5	19.5	19.5	13.5	13.5	15.5	15.5	19.5	19.5	19.5
	Total for system	kg	18.7	18.7	20.7	23.5	27.5	30.3	30.3	18.7	18.7	20.7	23.5	27.5	30.3	30.3

2. Vertical type Main-HBC connection

Example



■ Sample calculation

Indoor 1: 50 A: ø15.88 42 m
2: 50
3: 50
4: 40
Outdoor M250

The total length of each liquid line is as follows:
ø15.88: A = 42 m, α1 = 5.6
Therefore,
<Calculation example>
Additional refrigerant charge
= 42 × 0.09 + 5.6
= 9.38 kg
≒ 9.4 kg
* All pipe work except A is water pipe work.

<Amount of refrigerant to be added>

The amount of refrigerant that is shown in the table below is factory-charged to the outdoor units.
The amount necessary for extended pipe (field piping) is not included and must be added on site.

Outdoor unit model	Amount of pre-charged refrigerant in the outdoor unit (kg)
M200YNW	5.2
M250YNW	5.2
M300YNW	5.2
M350YNW	8.0
M400YNW	8.0
M450YNW	10.8
M500YNW	10.8

Outdoor unit model	Amount of pre-charged refrigerant in the outdoor unit (kg)
EM200YNW	5.2
EM250YNW	5.2
EM300YNW	5.2
EM350YNW	8.0
EM400YNW	8.0
EM450YNW	10.8
EM500YNW	10.8

■ Calculation formula

- The amount of refrigerant to be added depends on the size and the total length of the high-pressure piping and liquid piping.
- Calculate the amount of refrigerant to be charged according to the formula below.
- Round up the calculation result to the nearest 0.1 kg (Example: 18.04 kg to 18.1 kg).
- The refrigerant does not need to be added for the indoor units in a Hybrid City Multi system.

<Formula>

• When the piping length from the outdoor unit to HBC is 10 m or shorter

Amount of additional charge (kg) = High-pressure pipe ø22.2 total length × 0.23 (kg/m) + High-pressure pipe ø19.05 total length × 0.16 (kg/m) + High-pressure pipe ø15.88 total length × 0.11 (kg/m)

Outdoor unit model	Amount (kg)
(E)M200	1.0
(E)M250	1.0
(E)M300	0
(E)M350	0
(E)M400	0
(E)M450	0
(E)M500	0

+

HBC model	Amount (kg)
350F	5.6
500F	5.6

* Amount of refrigerant to be charged for single-module units

・When the piping length from the outdoor unit to HBC is longer than 10 m

Amount of additional charge (kg)	=	High-pressure pipe ø22.2 total length × 0.19 (kg/m)	+	High-pressure pipe ø19.05 total length × 0.13 (kg/m)	+	High-pressure pipe ø15.88 total length × 0.09 (kg/m)

+

Outdoor unit model	Amount (kg)
(E)M200	1.0
(E)M250	1.0
(E)M300	0
(E)M350	0
(E)M400	0
(E)M450	0
(E)M500	0

* Amount of refrigerant to be charged for single-module units

+

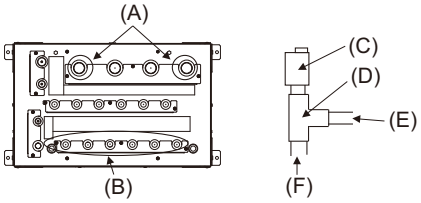
HBC model	Amount (kg)
350F	5.6
500F	5.6

11-5. Water piping

11-5-1. Precautions for water piping

Consider the following when installing a water piping system.

1. Design pressure of the water piping
   Use a water pipe that is strong enough to withstand the design pressure (1.0 MPa).
2. Water pipe type
   Use of plastic pipe is recommended.
   When using copper pipes, be sure to braze the pipes under a nitrogen purge. (Oxidation during may shorten the life of the pump.)
3. Expansion vessel
   Install an expansion vessel to accommodate expanded water.
4. Drain piping
   Install the drain pipe with a downward inclination of between 1/100 and 1/200. To prevent drain water from freezing in winter, install the drain pipe as steep an angle as practically possible and minimize the straight line. For cold climate installation, take an appropriate measure (e.g., drain heater) to prevent the drain water from freezing.
5. Insulation
   Cover the water pipe with insulating materials with the specified thickness or more to prevent thermal loss or condensation from collecting.
6. Air vent valve
   Install air vent valves to the highest places where air can accumulate. (Horizontal type Main-HBC connection)
   Install air vent valves to the highest places where air can accumulate and inlet of Main-HBC.
   (Vertical type Main-HBC connection)



(A) Connection pipe from Sub-HBC
(B) Connection pipe from indoor unit
(C) Auto air vent
(D) T-joint
(E) Piping for Sub-HBC or indoor unit side
(F) Piping for Main-HBC side

7. Maintenance valve
   It is recommended to install valves on the inlet/outlet for each HBC branch for maintenance.
8. Water pressure gauge
   Install a water pressure gauge to check the charged pressure.

11-5-2. Notes on corrosion

1. Water quality
   It is important to check the water quality beforehand. See table below (Circulating water/Makeup Water Quality Standards).

Items			Lower mid-range temperature water system		Tendency	
			Recirculating water [20<T<60°C] [68<T<140°F]	Make-up water	Corrosive	Scale-forming
Standard items	pH (25°C[77°F])		7.0 ~ 8.0	7.0 ~ 8.0	○	○
	Electric conductivity	(mS/m) (25°C[77°F])	30 or less	30 or less	○	○
		(μS/cm) (25°C[77°F])	[300 or less]	[300 or less]		
	Chloride ion	(mg Cl^-/ ℓ)	50 or less	50 or less	○	
	Sulfate ion	(mg SO_4^{2-}/ ℓ)	50 or less	50 or less	○	
	Acid consumption (pH4.8)	(mg $CaCO_3$/ ℓ)	50 or less	50 or less		○
	Total hardness	(mg $CaCO_3$/ ℓ)	70 or less	70 or less		○
	Calcium hardness	(mg $CaCO_3$/ ℓ)	50 or less	50 or less		○
	Ionic silica	(mg SiO_2/ ℓ)	30 or less	30 or less		○
Reference items	Iron	(mg Fe/ ℓ)	1.0 or less	0.3 or less	○	○
	Copper	(mg Cu/ ℓ)	1.0 or less	0.1 or less	○	
	Sulfide ion	(mg S^{2-}/ ℓ)	not to be detected	not to be detected	○	
	Ammonium ion	(mg NH_4^+/ ℓ)	0.3 or less	0.1 or less	○	
	Residual chlorine	(mg Cl/ ℓ)	0.25 or less	0.3 or less	○	
	Free carbon dioxide	(mg CO_2/ ℓ)	0.4 or less	4.0 or less	○	
	Ryzner stability index		–	–	○	○

Reference : Guideline of Water Quality for Refrigeration and Air Conditioning Equipment. (JRA GL02E-1994)

2. Debris in the water
   Sand, pebbles, suspended solids, and corrosion products in water can damage the metal pipe and heat exchanger on the HBC and may cause corrosion. When installing, prevent debris from entering the water. If there is debris in the water, perform debris removal operation after test run by cleaning the strainers inside the HBC.
3. Connecting pipes made of different materials
   Connecting pipes used for HBC and indoor unit are copper alloy pipes. If steel pipes are connected to the pipes, the contact surface will corrode. Do not use steel pipes to avoid corrosion.
4. Residual air
   Residual air in the pipe results in water pump malfunction, noise, or water pipe corrosion in the water circuit. Ensure air is purged before use.

11-6. Compatibility

<Horizontal type Main-HBC connection>

Outdoor/Heat source unit	Main 1	Sub 1	Main 2	Sub 2	Compatibility
PURY-(E)M-YNW	WM-V-AA type	–	–	–	Compatible
	WP type	–	–	–	Not compatible
	WM-V-AA type	WM-V-BB type	–	–	Compatible
	WM-V-AA type	WM-V-AB type	–	–	Compatible
	WM-V-AA type	WP type	–	–	Not compatible
	WP type	WM-V-BB type	–	–	Not compatible
	WP type	WM-V-AB type	–	–	Not compatible
	WP type	WP type	–	–	Not compatible
	WM-V-AA type	–	WM-V-AA type	–	Compatible
	WM-V-AA type	–	WP type	–	Not compatible
	WP type	–	WM-V-AA type	–	Not compatible
	WP type	–	WP type	–	Not compatible
	WM-V-AA type	WM-V-BB type	WM-V-AA type	–	Compatible
	WM-V-AA type	WM-V-BB type	WP type		Not compatible
	WM-V-AA type	WM-V-AB type	WM-V-AA type		Compatible
	WM-V-AA type	WM-V-AB type	WP type		Not compatible
	WM-V-AA type	WP type	WM-V-AA type		Not compatible
	WM-V-AA type	WP type	WP type		Not compatible
	WP type	WM-V-BB type	WM-V-AA type		Not compatible
	WP type	WM-V-BB type	WP type		Not compatible
	WP type	WM-V-AB type	WM-V-AA type		Not compatible
	WP type	WM-V-AB type	WP type		Not compatible
	WP type	WP type	WM-V-AA type		Not compatible
	WP type	WP type	WP type		Not compatible
	WM-V-AA type	–	WM-V-AA type	WM-V-BB type	Compatible
	WM-V-AA type	–	WM-V-AA type	WM-V-AB type	Compatible
	WM-V-AA type	–	WM-V-AA type	WP type	Not compatible
	WM-V-AA type	–	WP type	WM-V-BB type	Not compatible
	WM-V-AA type	–	WP type	WM-V-AB type	Not compatible
	WM-V-AA type	–	WP type	WP type	Not compatible
	WP type	–	WM-V-AA type	WM-V-BB type	Not compatible
	WP type	–	WM-V-AA type	WM-V-AB type	Not compatible
	WP type	–	WM-V-AA type	WP type	Not compatible
	WP type	–	WP type	WM-V-BB type	Not compatible
	WP type	–	WP type	WM-V-AB type	Not compatible
	WP type	–	WP type	WP type	Not compatible
	WM-V-AA type	WM-V-BB type	WM-V-AA type	WM-V-BB type	Compatible
	WM-V-AA type	WM-V-BB type	WM-V-AA type	WM-V-AB type	Compatible
	WM-V-AA type	WM-V-BB type	WM-V-AA type	WP type	Not compatible
	WM-V-AA type	WM-V-BB type	WP type	WM-V-BB type	Not compatible
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	WM-V-AA type	WM-V-BB type	WP type	WP type	Not compatible
	WM-V-AA type	WM-V-AB type	WM-V-AA type	WM-V-BB type	Compatible
	WM-V-AA type	WM-V-AB type	WM-V-AA type	WM-V-AB type	Compatible
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	WM-V-AA type	WM-V-AB type	WP type	WM-V-BB type	Not compatible
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	WM-V-AA type	WP type	WM-V-AA type	WP type	Not compatible
	WM-V-AA type	WP type	WP type	WM-V-BB type	Not compatible
	WM-V-AA type	WP type	WP type	WM-V-AB type	Not compatible
	WM-V-AA type	WP type	WP type	WP type	Not compatible
	WP type	WM-V-BB type	WM-V-AA type	WM-V-BB type	Not compatible
	WP type	WM-V-BB type	WM-V-AA type	WM-V-AB type	Not compatible
	WP type	WM-V-BB type	WM-V-AA type	WP type	Not compatible
	WP type	WM-V-BB type	WP type	WM-V-BB type	Not compatible
	WP type	WM-V-BB type	WP type	WM-V-AB type	Not compatible
	WP type	WM-V-BB type	WP type	WP type	Not compatible
	WP type	WM-V-AB type	WM-V-AA type	WM-V-BB type	Not compatible
	WP type	WM-V-AB type	WM-V-AA type	WM-V-AB type	Not compatible
	WP type	WM-V-AB type	WM-V-AA type	WP type	Not compatible
	WP type	WM-V-AB type	WP type	WM-V-BB type	Not compatible
	WP type	WM-V-AB type	WP type	WM-V-AB type	Not compatible
	WP type	WM-V-AB type	WP type	WP type	Not compatible
	WP type	WP type	WM-V-AA type	WM-V-BB type	Not compatible
	WP type	WP type	WM-V-AA type	WM-V-AB type	Not compatible
	WP type	WP type	WM-V-AA type	WP type	Not compatible
	WP type	WP type	WP type	WM-V-BB type	Not compatible
	WP type	WP type	WP type	WM-V-AB type	Not compatible
	WP type	WP type	WP type	WP type	Not compatible

<Vertical type Main-HBC connection>

Outdoor/Heat source unit	Main 1	Sub 1	Sub 2	Sub 3	Compatibility
PURY-(E)M-YNW-A1	WM-F-AA type	–	–	–	Compatible
	WM-F-AA type	WM-V-BB type	–	–	Compatible
	WM-F-AA type	WM-V-AB type	–	–	Not compatible
	WM-F-AA type	WP type	–	–	Not compatible
	WM-F-AA type	WM-V-BB type	WM-V-BB type	–	Compatible
	WM-F-AA type	WM-V-BB type	WM-V-AB type	–	Not compatible
	WM-F-AA type	WM-V-BB type	WP type	–	Not compatible
	WM-F-AA type	WM-V-AB type	WM-V-BB type	–	Not compatible
	WM-F-AA type	WM-V-AB type	WM-V-AB type	–	Not compatible
	WM-F-AA type	WM-V-AB type	WP type	–	Not compatible
	WM-F-AA type	WP type	WM-V-BB type	–	Not compatible
	WM-F-AA type	WP type	WM-V-AB type	–	Not compatible
	WM-F-AA type	WP type	WP type	–	Not compatible
	WM-F-AA type	WM-V-BB type	WM-V-BB type	WM-V-BB type	Compatible
	WM-F-AA type	WM-V-BB type	WM-V-BB type	WM-V-AB type	Not compatible
	WM-F-AA type	WM-V-BB type	WM-V-BB type	WP type	Not compatible
	WM-F-AA type	WM-V-BB type	WM-V-AB type	WM-V-BB type	Not compatible
	WM-F-AA type	WM-V-BB type	WM-V-AB type	WM-V-AB type	Not compatible
	WM-F-AA type	WM-V-BB type	WM-V-AB type	WP type	Not compatible
	WM-F-AA type	WM-V-BB type	WP type	WM-V-BB type	Not compatible
	WM-F-AA type	WM-V-BB type	WP type	WM-V-AB type	Not compatible
	WM-F-AA type	WM-V-BB type	WP type	WP type	Not compatible
	WM-F-AA type	WM-V-AB type	WM-V-BB type	WM-V-BB type	Not compatible
	WM-F-AA type	WM-V-AB type	WM-V-BB type	WM-V-AB type	Not compatible
	WM-F-AA type	WM-V-AB type	WM-V-BB type	WP type	Not compatible
	WM-F-AA type	WM-V-AB type	WM-V-AB type	WM-V-BB type	Not compatible
	WM-F-AA type	WM-V-AB type	WM-V-AB type	WM-V-AB type	Not compatible
	WM-F-AA type	WM-V-AB type	WM-V-AB type	WP type	Not compatible
	WM-F-AA type	WM-V-AB type	WP type	WM-V-BB type	Not compatible
	WM-F-AA type	WM-V-AB type	WP type	WM-V-AB type	Not compatible
	WM-F-AA type	WM-V-AB type	WP type	WP type	Not compatible
	WM-F-AA type	WP type	WM-V-BB type	WM-V-BB type	Not compatible
	WM-F-AA type	WP type	WM-V-BB type	WM-V-AB type	Not compatible
	WM-F-AA type	WP type	WM-V-BB type	WP type	Not compatible
	WM-F-AA type	WP type	WM-V-AB type	WM-V-BB type	Not compatible
	WM-F-AA type	WP type	WM-V-AB type	WM-V-AB type	Not compatible
	WM-F-AA type	WP type	WM-V-AB type	WP type	Not compatible
	WM-F-AA type	WP type	WP type	WM-V-BB type	Not compatible
	WM-F-AA type	WP type	WP type	WM-V-AB type	Not compatible
	WM-F-AA type	WP type	WP type	WP type	Not compatible

Installation information

* Refer to the enclosed Installation Manual for details on installation. Arrange to have an expert install the system correctly.

1-1. General precautions

1-1-1. Usage

- The air-conditioning system described in this DATA BOOK is designed for human comfort.
- This product is not designed to assist in the preservation of food, provide conditions to maintain plants or animals, or stabilize environments for the preservation of precision equipment or art objects. To prevent loss of quality, do not use the product for purposes other than those it is designed for.
- To reduce the risk of water leakage and electric shock, do not use the product for air-conditioning vehicles or vessels.

1-1-2. Installation environment

- Do not install any unit other than the dedicated unit in an area where the voltage changes significantly, large amounts of mineral oil (e.g., cutting oil) are present, cooking oil may splash, or a large quantity of steam can be generated, such as a kitchen.
- Do not install the unit in acidic or alkaline environments.
- Installation should not be performed in locations exposed to chlorine or other corrosive gases. Avoid installation near sewers.
- To reduce the risk of fire, do not install the unit in an area where flammable gas may leak or flammable material is present.
- This air-conditioning unit has a built-in microcomputer. The effects of noise should be taken into consideration when deciding on the installation position. It is recommended that the air-conditioning unit be installed in a position away from antennas or electronic devices.
- Install the unit on a solid foundation in accordance with local safety measures against typhoons, wind gusts, and earthquakes to prevent the unit from being damaged, toppling over, or falling.

1-1-3. Backup system

- In regions in which the malfunctioning of the air conditioner may have a critical effect, it is recommended to have two or more systems made up of single outdoor/heat source units and multiple indoor units.

1-1-4. Unit characteristics

- The heat pump efficiency of the outdoor unit depends on the outdoor temperature. In heating mode, performance drops as the outside air temperature drops. In cold climates, performance can be poor. Warm air will continue to be trapped near the ceiling and the floor level will remain cold. In such cases, heat pumps require a supplemental heating system or air circulator. Before purchasing, consult your local distributor for assistance in selecting the unit and system.
- When the outdoor temperature is low and the humidity is high, the heat exchanger on the outdoor/heat source unit side tends to collect frost, which reduces its heating performance. The Auto-defrost function will be activated in order to remove the frost, and the heating mode will temporarily stop for 3-10 minutes. Heating mode will automatically resume upon completion of the defrost process.
- An air conditioner with a heat pump requires time to warm up the whole room after the heating operation begins, because the system circulates warm air in order to warm up the whole room.
- Sound levels were obtained in an anechoic room. Sound levels during actual operation are usually higher than the simulated values due to ambient noise and echoes. Refer to the section on "SOUND LEVELS" in the DATA BOOK for the measurement location.
- Depending on the operating conditions, the unit generates noise caused by valve actuation, refrigerant flow, and pressure changes even when operating normally. Try to avoid positioning the air conditioner in locations where quietness is required. With regard to the BC/HBC controller, it is recommended that the unit be installed in areas such as corridor ceilings, restrooms and plant rooms.
- The total capacity of the connected indoor units can be greater than the capacity of the outdoor/heat source unit. However, when the connected indoor units operate simultaneously, each unit's capacity may become smaller than the rated capacity.
- When the unit is started up for the first time within 12 hours after the power comes on, i.e. after a power failure, it performs initial startup operation (capacity control operation) to prevent damage to the compressor. The initial startup operation requires a maximum of 90 minutes to complete, depending on the operating load.

1-1-5. Related equipment

- Use an earth leakage breaker (ELB) with medium sensitivity, and an activation speed of 0.1 second or less.
- Consult your local distributor or a qualified technician when installing an earth leakage breaker.
- If the unit is an inverter type, select an earth leakage breaker able to respond to high harmonic waves and surges.
- Leakage current is generated not only through the air-conditioning unit but also through the power wires. The leakage current of the main power supply is therefore greater than the total leakage current of each unit. Take the capacity of the earth leakage breaker or leakage alarm into consideration when installing one at the main power supply. To measure the leakage current simply on site, use a measurement tool equipped with a filter, and clamp all the four power wires together. The leakage current measured on the ground wire may not be accurate because the leakage current from other systems may be included in the measurement value.
- Do not install a phase-advancing capacitor on a unit connected to the same power system as an inverter-type unit and its related equipment.
- If a large current flows due to the malfunctioning of the product or faulty wiring, both the earth leakage breaker on the product side and the upstream overcurrent breaker may trip almost at the same time. Separate the power system or coordinate all the breakers depending on the system's priority level.

1-1-6. Unit installation

- Your local distributor or a qualified technician must read the Installation Manual that is provided with each unit carefully before performing installation work.
- Consult your local distributor or a qualified technician when installing the unit. Improper installation by an unqualified person may result in water leakage, electric shock, or fire.
- Ensure that there is enough space around each unit.

1-1-7. Optional accessories

- Only use accessories recommended by Mitsubishi Electric. Consult your local distributor or a qualified technician when installing them. Improper installation by an unqualified person may result in water leakage, power leakage, system breakdown, or fire.
- Some optional accessories may not be compatible for use with the air-conditioning unit or may not be suitable for the installation conditions. Check the compatibility when considering any accessories.
- Note that some optional accessories may affect the air conditioner's external form, appearance, weight, operating sound, and other characteristics.

1-1-8. Operation/Maintenance

- Read the Instruction Book that is provided with each unit carefully prior to use.
- Maintenance or cleaning of each unit may be risky and require expertise. Read the Instruction Book to ensure safety. Consult your local distributor or a qualified technician when special expertise is required, such as when the indoor unit needs to be cleaned.

1-2. Precautions for Indoor unit, Hydro unit, and HBC controller

1-2-1. Operating environment

- If the refrigerant leaks, the oxygen level may drop to harmful levels. If the air conditioner is installed in a small room, measures must be taken to prevent the refrigerant concentration from exceeding the safety limit even if the refrigerant leaks.
- If the units operate in cooling mode at a humidity above 80%, condensation may collect and drip from the indoor units.
- Regular checking and cleaning of the drain drainage paths, such as the drain pan or the drain pump, is recommended to prevent clogging. The neglect of a clogged drain pump may trigger the water-leakage protection function which stops operation of the entire system.

1-2-2. Unit characteristics

- The return air temperature display on the remote controller may differ from the displays on the other thermometers.
- The clock on the remote controller may be displayed with a time lag of approximately one minute every month.
- The temperature measured by the built-in temperature sensor on the remote controller may differ from the actual room temperature due to the effect of the wall temperature.
- Use the built-in thermostat on the remote controller or a separately-sold thermostat when indoor units installed on or in the ceiling operate the automatic cooling/heating switchover.
- The room temperature may rise drastically due to Thermo OFF in areas where the air-conditioning load is large, such as computer rooms.
- Be sure to use a regular filter. If an irregular filter is installed, the unit may not operate properly, and operating noise may increase.
- The room temperature may increase above the preset temperature in environments in which the heating or airconditioning load is small.

1-2-3. Unit installation

- The insulation for the gas pipe between the hydro unit and the outdoor unit or the insulation for the low-pressure pipe between the HBC controller and the outdoor/heat source unit must be at least 20 mm thick. If the unit is installed on the top floor or in a high-temperature, high-humidity environment, thicker insulation may be necessary.
- Do not have any branching points on the downstream of the refrigerant pipe header.
- When a field-supplied external thermistor is installed or when a device for demand control is used, the unit may stop abnormally or damage may occur to the electromagnetic contactor. Consult your local distributor for details.
- Do not install the unit above the cooking or food processing area.

1-2-4. Noise level (Sound pressure level)

- The sound pressure level is a value measured in an anechoic room in accordance with the conventional method in JIS standard. The sound pressure level actually measured at the installation site is usually higher than the value indicated in this DATA BOOK due to the influence of ambient noise and echoes.

1-3. Precautions for outdoor unit/heat source unit

1-3-1. Installation environment

- The outdoor unit with the salt-resistant specification is recommended for use in an area in which it will be exposed to salt air.
- Even when the unit with the salt-resistant specification is used, it is not completely protected against corrosion. Be sure to follow the directions or precautions described in the Instruction Book and Installation Manual for installation and maintenance. The salt-resistant specification is referred to in the guidelines published by JRAIA (JRA9002).
- Install the unit in an area where the flow of discharge air is not obstructed. If the flow of discharge air is obstructed, short-cycling of discharge air may occur.
- Provide proper drainage around the base of the units; condensation may collect and drip from outdoor units. Provide water-proofing protection to the floor when installing the unit on the rooftop.
- In regions where snowfall can be expected, install the unit so that the outlet faces away from the direction of the wind, and install a snow guard to protect the unit from snow. Install the unit on a base approximately 50 cm higher than the expected snowfall. Close the openings for pipes and wiring, because the ingress of water and small animals may cause equipment damage. If a SUS snow guard is used, refer to the Installation Manual that comes with the snow guard and be careful with the installation to avoid the risk of corrosion.
- When the unit is expected to operate continuously for a long period of time at outside air temperatures of below 0ºC, take appropriate measures, such as the use of a unit base heater, to prevent ice forming on the unit base.
- Install the snow guard so that the outlet/inlet faces away from the direction of the wind.
- When approximately 50 cm or more of snow accumulates on the snow guard, remove the snow from the guard. Install a roof that is strong enough to withstand loads caused by snow in areas where snow accumulates.
- Provide proper protection around the outdoor units in places such as schools to avoid the risk of injury.
- A cooling tower and heat source water circuit should be a closed circuit so that water is not exposed to the atmosphere. When a tank is installed to ensure that the circuit has enough water, minimize the contact with outside air to ensure that the oxygen dissolved in the water is 1 mg/L or less.
- Install a strainer (50 mesh or more recommended) on the water pipe inlet on the heat source unit.
- Interlock the heat source unit and water circuit pump.
- Note the following to prevent the freezing and bursting of pipes when the heat source unit is installed in an area where the ambient temperature can be 0ºC or below.
  - Keep the water circulating to prevent it from freezing when the ambient temperature is 0ºC or below.
  - Before a long period of non-use, be sure to purge the water from the unit.
- The salt-resistant unit is resistant to salt corrosion, but not salt-proof.

Please note the following when installing and maintaining outdoor units in a marine environment.

1. Install the salt-resistant unit in an area in which it is not directly exposed to sea breezes, and minimize exposure to salt water mist.
2. Avoid installing a sun shade over the outdoor unit, so that rain will wash away salt deposits off the unit.
3. Install the unit horizontally to ensure proper water drainage from the base of the unit. Accumulation of water in the base of the outdoor unit will significantly accelerate corrosion.
4. Periodically wash salt deposits off the unit, especially when the unit is installed in a coastal area.
5. Repair all noticeable scratches after installation and during maintenance.
6. Periodically check the unit, and apply an anti-rust agent and replace corroded parts as necessary.

1-3-2. Circulating water

- Regularly check the quality of the water in the heat source unit, following the guidelines published by JRAIA (JRA-GL02-1994).
- A cooling tower and heat source water circuit should be a closed circuit so that water is not exposed to the atmosphere. When a tank is installed to ensure that the circuit has enough water, minimize the contact with outside air to ensure that the oxygen dissolved in the water is 1 mg/L or less.

1-3-3. Unit characteristics

- When the Thermo ON and OFF is frequently repeated on the indoor unit, the operating status of outdoor/heat source units may become unstable.

1-3-4. Related equipment

- Provide grounding in accordance with the local regulations.

1-3-5. Noise level (Sound pressure level)

- The sound pressure level is a value measured in an anechoic room in accordance with the conventional method in JIS standard. The sound pressure level actually measured at the installation site is usually higher than the value indicated in this DATA BOOK due to the influence of ambient noise and echoes.
  Valve operation noise and refrigerant flow noise may occur from inside the outdoor unit/heat-source unit.

1-4. Precautions for control-related items

1-4-1. Product specification

- To introduce the MELANS system, a consultation with us is required in advance. Especially to introduce the electricity charge-apportioning function or energy save function, further detailed consultation is required. Consult your local distributor for details.
- Billing calculation for AE-200E/AE-50E/EW-50E, or the billing calculation unit is unique and based on our original method. (Backup operation is included.) It is not based on the metering method, and do not use it for official business purposes. It is not the method that the amount of electric power consumption (input) by air conditioner is calculated. Note that the electric power consumption by air conditioner is apportioned by using the ratio corresponding to the operation status (output) for each air conditioner (indoor unit) in this method.
- In the apportioned billing function for AE-200E/AE-50E and EW-50E, separate watt-hour meters should be used for A-control units, K-control units, and CITY MULTI packaged air conditioners. It is recommended that an individual watt-hour meter should be used for large-capacity indoor units (with two or more addresses).
- When using the peak cut function on the AE-200E/AE-50E or EW-50E, note that the control is performed once every minute and it takes time to obtain the effect of the control. Take appropriate measures such as lowering the criterion value. Power consumption may exceed the limits if the AE-200E/AE-50E or EW-50E malfunctions or stops. Provide a back-up remedy as necessary.
- The controllers cannot operate while the indoor unit is OFF. (No error)
  Turn ON the power to the indoor unit when operating the controllers.
- When using the interlocked control function on the AE-200E/AE-50E/EW-50E/PAC-YG66DCA or PAC-YG63MCA, do not use the control for fire prevention or security. (This function should never be used in a way that would put people's lives at risk.) Employ any methods or circuits that allow ON/OFF operation using an external switch in case of failure.

1-4-2. Installation environment

- Surge protection may be required for the transmission line in areas where lightning strikes occur frequently.
- The receiver for a wireless remote controller may not work properly due to the effect of general lighting. Leave a space of at least 1 m between the general lighting and the receiver.
- When the auto-elevating panel is used and the system is operated using a wired remote controller, install the wired remote controller in a place where all the air conditioners being controlled (at least the bottom part of them) can be seen from the wired remote controller. If not, the descending panel may cause damage or injury; be sure to use a wireless remote controller designed for use with the elevating panel (sold separately).
- Install the wired remote controller (switch box) in a place where the following conditions are met.
  - Where the installation surface is flat
  - Where the remote controller can detect an accurate room temperature
    The temperature sensors that detect the room temperature are installed both in the remote controller and in the indoor unit.
    When the room temperature is detected using the sensor in the remote controller, the main remote controller is used to detect the room temperature. In this case, follow the instructions below.
    - Install the controller in a place where it is not affected by a heat source.
      (If the remote controller faces direct sunlight or the direction of the supply air flow, the remote controller cannot detect the accurate room temperature.)
    - Install the controller in a place where the average room temperature can be detected.
    - Install the controller in a place where no other wires are present around the temperature sensor.
      (If other wires are present, the remote controller cannot detect an accurate room temperature.)
- To prevent unauthorized access, always use a security device such as a VPN router when connecting the AE-200E/AE-50E or EW-50E to the Internet.

CONTENTS

Safety handling for R32

1. Caution for refrigerant leakage

The installer and/or air conditioning system specialist shall secure safety against refrigerant leakage according to local regulations or standards.
The following standard may be applicable if no local regulation or standard is available.

1-1. Refrigerant property

R32 refrigerant has lower flammability (A2L refrigerant: ISO817, 2014). The R32 is heavier than the indoor air in density.
Leakage of the refrigerant in a room has possibility to lead to a hypoxia situation and fire. Therefore, the critical concentration specified below shall not be exceeded even if the leakage happens.

- **Critical concentration**

  Critical concentration hereby is the refrigerant concentration in which no human body would be hurt if immediate measures can be taken when refrigerant leakage happens.

  Critical concentration of R32: 0.063kg/m^3
  (The weight of refrigeration gas per 1 m^3 air conditioning space.);
  * The Critical concentration is subject to ISO5149 (2014), EN378-1 (2016).

For the HYBRID CITY MULTI/CITY MULTI system, the concentration of refrigerant leaked should not have a chance to exceed the critical concentration in any situation.

1-2. Confirm the Critical concentration and take countermeasure

The maximum refrigerant leakage concentration (Rmax) is defined as the result of the possible maximum refrigerant weight (Wmax) leaked into a room divided by its room capacity (V). The refrigerant of Outdoor unit here includes its original charge and additional charge at the site.
The additional charge is calculated according to the refrigerant charging calculation of each kind of Outdoor unit, and shall not be over charged at the site. Procedure 1-2-1~3 tells how to confirm maximum refrigerant leakage concentration (Rmax) and how to take countermeasures against a possible leakage.

1-2-1. Find the possible maximum leakage (Wmax) in the room. If a room has HBC/BC(s) or indoor unit(s) from more than 1 Outdoor unit, add up the refrigerant of the Outdoor units.
1-2-2. Divide (Wmax) by (V) to get the maximum refrigerant leakage concentration (Rmax).
1-2-3. Find if there is any room in which the maximum refrigerant leakage concentration (Rmax) is over 0.063kg/m^3.
If no, then the HYBRID CITY MULTI/CITY MULTI is safe against refrigerant leakage.
If yes, following countermeasure is recommended to do at site.
Countermeasure 1: Smaller total charge (making Wmax smaller)
e.g.Avoid connecting more than 1 Outdoor unit to one room.
e.g.Using smaller model size but more Outdoor units.
e.g.Shorten the refrigerant piping as much as possible.

Note 1. In principle, MITSUBISHI ELECTRIC requires proper piping design, installation and air-tight testing after installation to avoid leakage happening.
In the area should earthquake happen, anti-vibration measures should be fully considered.
The piping should consider the extension due to the temperature variation.

Observe the following restrictions that apply to the installation of units.

2-1. General restrictions

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

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

2-2. Restrictions by product type

Product type	Installation place	Restriction
Outdoor unit *1	Outside of building	Please see the article “2-3.”
Hydro unit	Outside of building	Please see the article “2-3.”
	Inside of building	Please see the article “2-4.”
HBC/BC	Inside of building	Please see the article “2-4.”
Indoor unit (for VRF only) *2	Inside of building	Please see the article “2-4.”

*1 Do not install the outdoor unit at the inside of building such as a basement or machinery room, where the refrigerant stagnates.
*2 Refrigerant does not circulate in the indoor unit for HVRF. Indoor units for HVRF where water is circulated are not subject to restrictions.

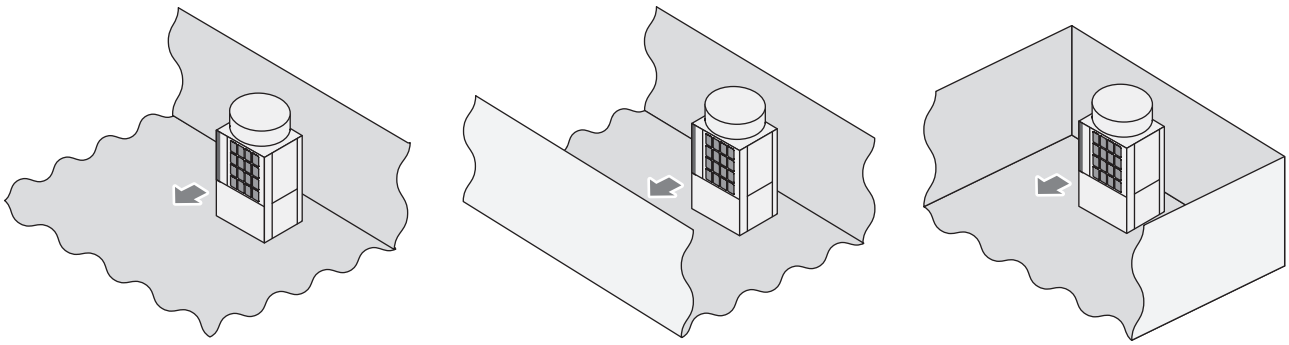
2-3. Installation at the outside of building (Outdoor unit and hydro unit)

- Install the unit in a place where at least one of four side is open.

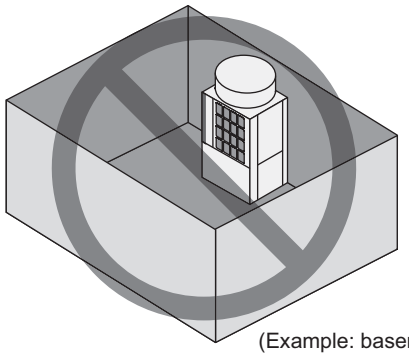
*The figure shows an outdoor unit as an example.

Figure 1

Correct installation



Wrong installation



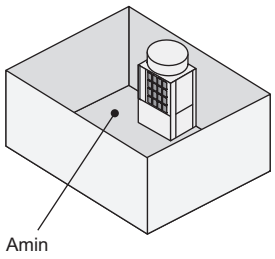
(Example: basement)

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

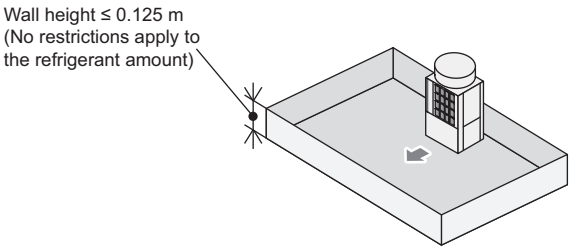
A Secure sufficient installation space (minimum installation area: Amin).

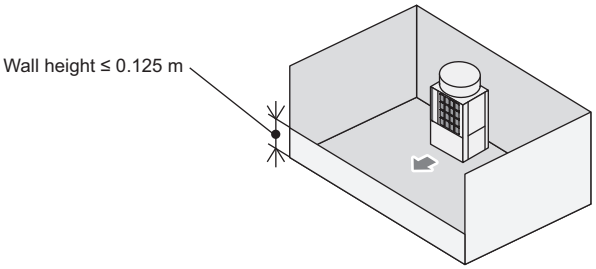
Install the unit in a space with an installation area of Amin or more, corresponding to the refrigerant amount (M).
(M = factory-charged refrigerant + refrigerant to be added on site)

M [kg]	Amin [m^2]
10	112
20	223
30	334
40	445
50	556
60	667

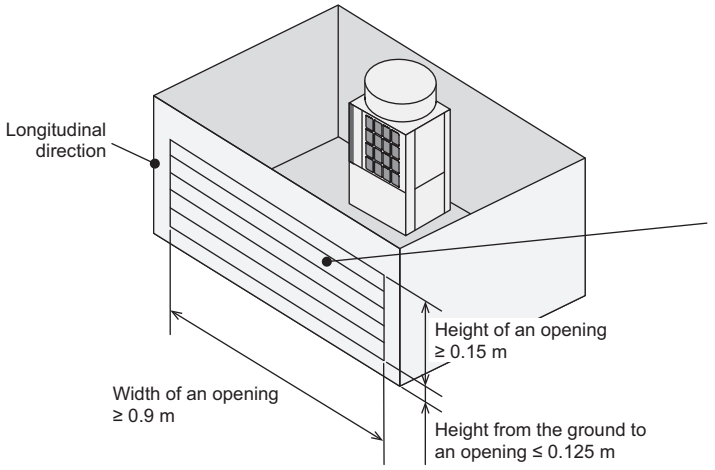


B Install the unit in a space with a wall height of ≤ 0.125 m.





C Create an appropriate ventilation open area.



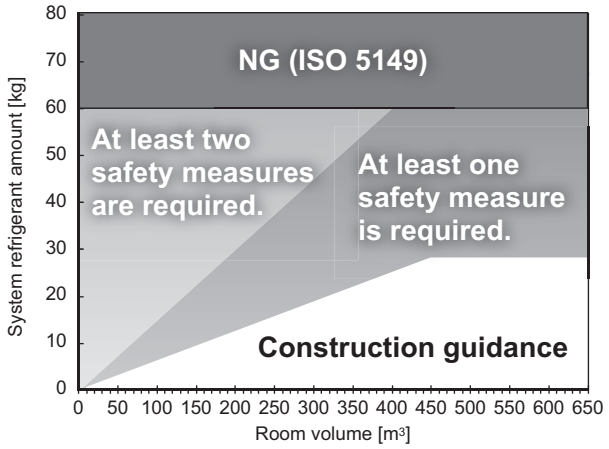
Opening:
- Must occupy 80% of the longitudinal side of a space.
- Must have an opening ratio of 75% or higher.

(Example: space with a louver)

2-4. Installation at the inside of building (Hydro unit, HBC/BC, indoor unit for VRF)

- **Do not place any ignition sources where the unit is installed, such as in machinery rooms, basements, and ceiling space. Examples: Lighters, combustion boilers, and other devices that generate a flame**
- **Take safety measures in accordance with the European Standard, based on the system refrigerant amount and the room volume as shown in the figure 2. (Make sure that the installation restrictions are satisfied based on the flowchart.)**

Figure 2 Refrigerant concentration and required quantity of safety measures



- Room volume calculation area for each product type

Product type					Room volume calculation area	Note
Series		Relay device		Indoor unit (IU)		
			Installation place			
HVRF	Y	Hydro unit	Machinery room/basement	-	Machinery room/basement area	
	R2	HBC	Machinery room/basement	-	Machinery room/basement area	
		HBC	Ceiling space	-	Shared-ceiling area *1	Please see figure3.
VRF	Y	-	-	Ceiling concealed	Shared-ceiling area *1, each room	Please see figure3, 5.
		-	-	4-way airflow	Shared-ceiling area *1, each room	Please see figure3, 6.
	R2	BC	Machinery room/basement	Ceiling concealed	Machinery room/basement area, shared-ceiling area*1, each room	Please see figure3, 5.
		BC	Machinery room/basement	4-way airflow		Please see figure3, 6.
		BC	Ceiling space	Ceiling concealed	Shared-ceiling area *1, each room	Please see figure3, 5.
		BC	Ceiling space	4-way airflow	Shared-ceiling area *1, each room	Please see figure3, 6.

(1) Calculate the room volume of each area listed under "Room volume calculation area" in the table above, depending on the type and installation place of the unit.

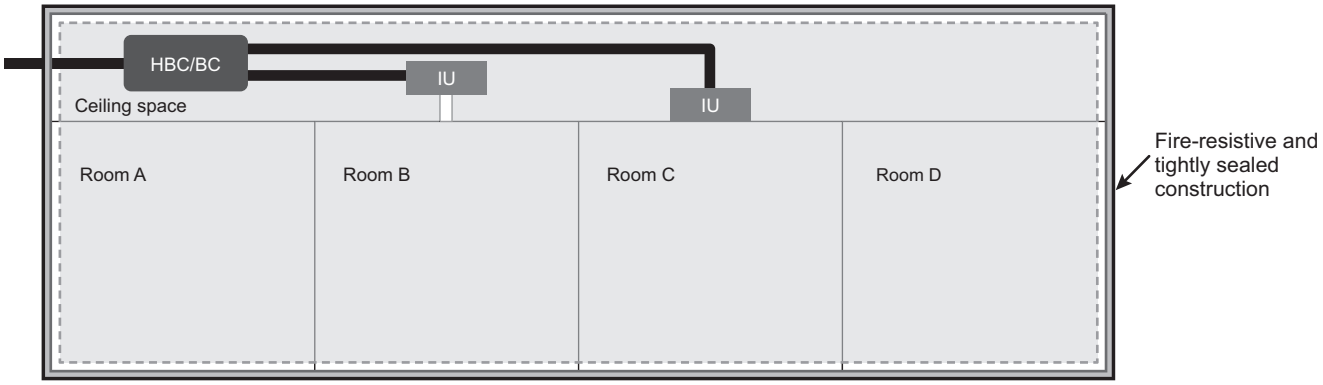
(2) When the hydro unit or the HBC/BC is installed in a machine room or a basement, use the volume of the machine room or the basement to calculate the room volume.

(3) When the unit in which refrigerant flows is installed in a ceiling space, refrigerant may leak from the unit or the refrigerant pipe in the ceiling space to adjacent rooms where a unit is not installed. In such a case, calculate room volume by adding the volumes of spaces that share the ceiling space as shown in Figure 3.

*1 Avoid using breathable ceiling materials (e.g., mesh ceiling). If such materials are used, calculate the room volume based only on the volume of the room located directly below the HBC/BC as shown in Figure 4, because refrigerant is most likely to leak to the room located directly below than to adjacent rooms.

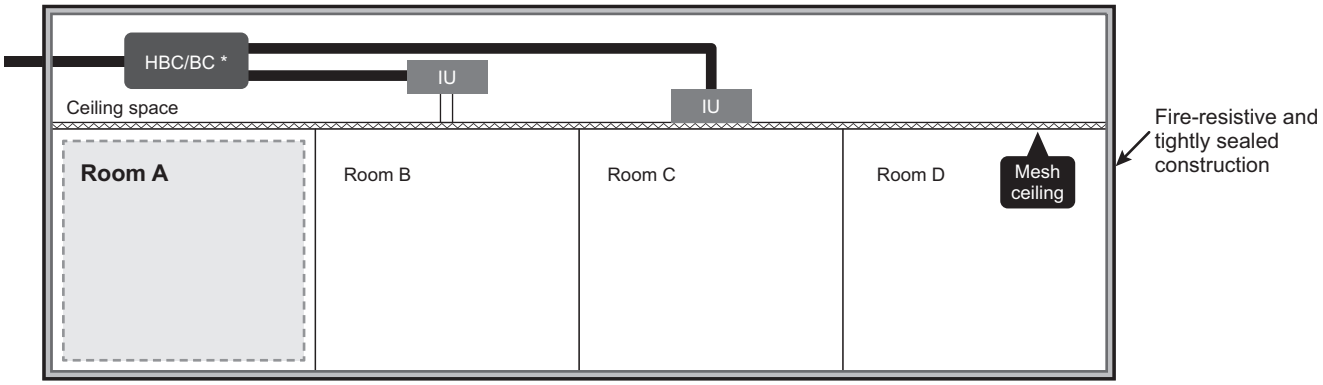
(4) For the VRF system, calculate the room volume of each room where indoor unit is installed and each room connected to the indoor unit with a duct as shown in Figure 5 or 6.

Figure 3 Shared-ceiling area (room volume = area)



*** Since the refrigerant may leak not only from the unit but also to rooms that are not directly connected to the duct (e.g. Room A or Room D), calculate the entire shared-ceiling space.**

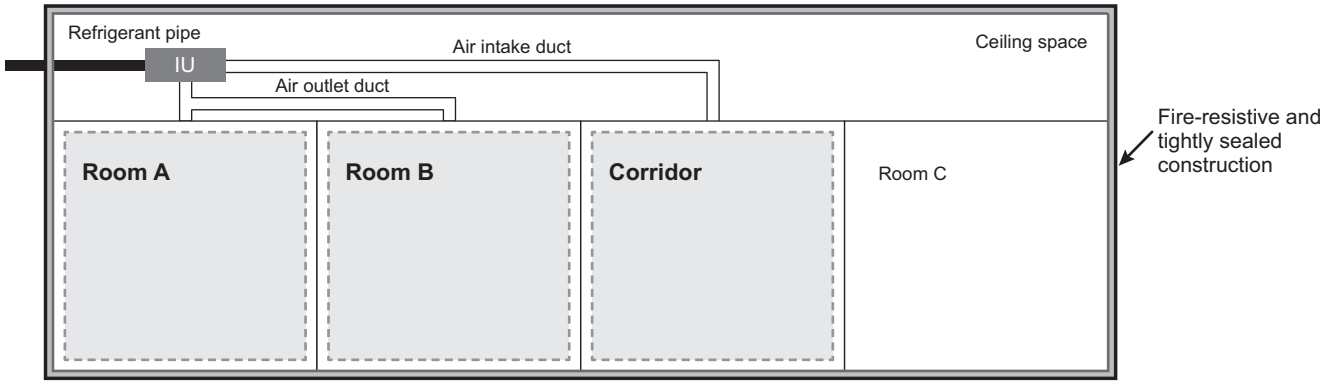
Figure 4 Using breathable ceiling materials (room volume = area)



*** In a system with a BC, refrigerant pipes run above the rooms. Calculate the volume of each of the rooms with connections to indoor units by referring to Figures 5 and 6.**

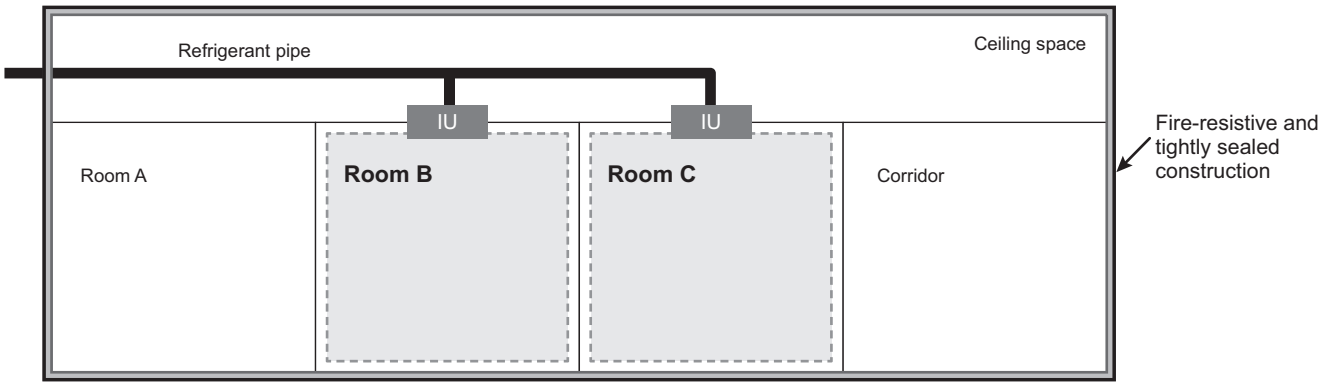
♦ When the unit is installed in a ceiling space, calculate the room volume of the room located directly below the unit.

Figure 5 Each room (for ceiling concealed type indoor units, room volume = area)



♦ Calculate the room volume of "each" room connected to the indoor unit with a duct.

Figure 6 Each room (for 4-way airflow type indoor unit, room volume = [ ] area)

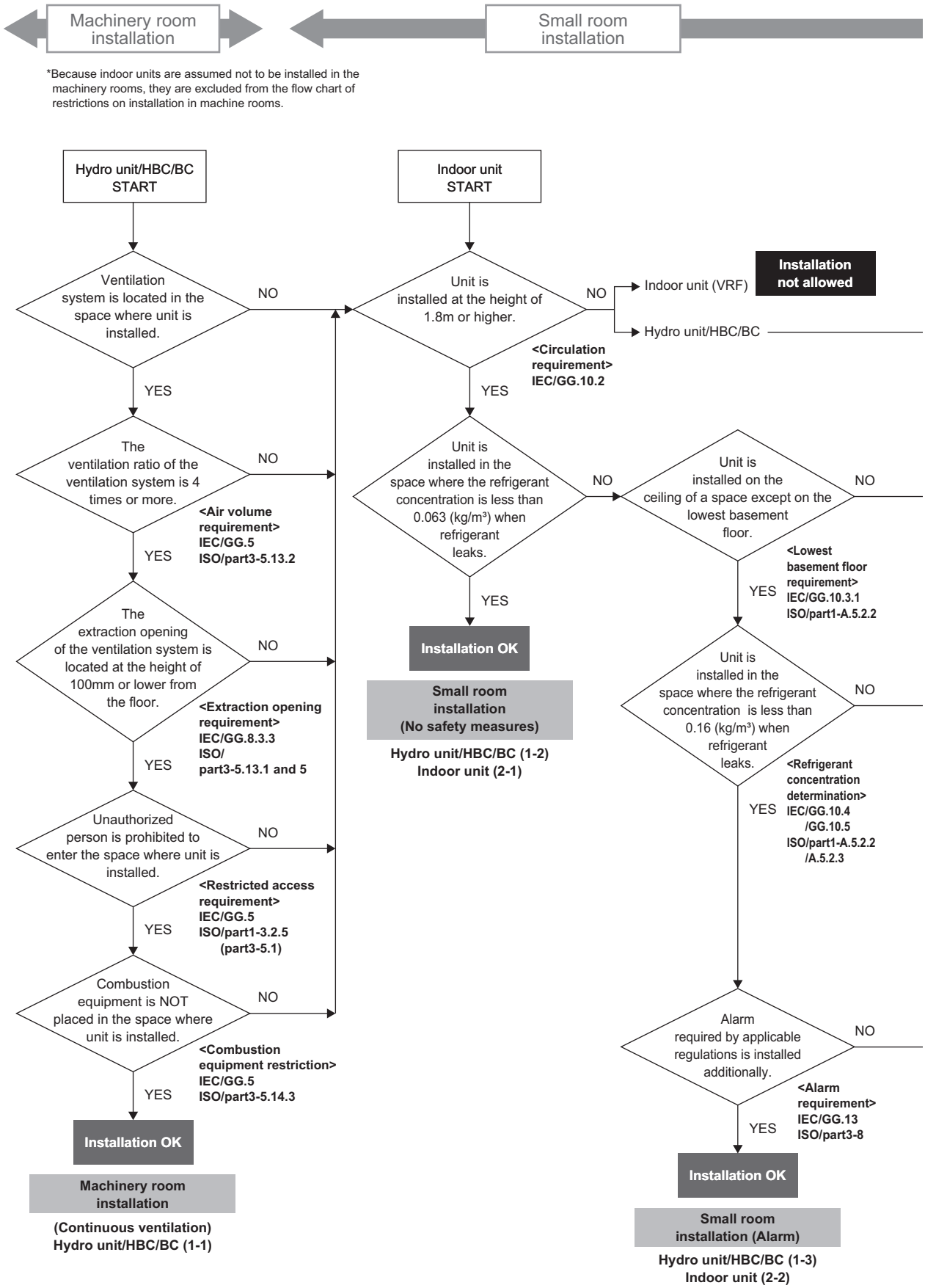


- **Calculate the room volume of "each" room where indoor unit is installed.**
- **Install the indoor units at a height of 1.8 meters or higher from the floor.**
- **Braze the refrigerant pipe properly to prevent refrigerant leakage.**

Using the flowchart, make sure the installation restrictions that apply to R32 HVRF/VRF models are met. Even if "Installation OK" is reached in the flowchart, see "Installation chart annex".

*This flow chart was created based on IEC60335-2-40 (Edition 6.0) and ISO5149 (2014).

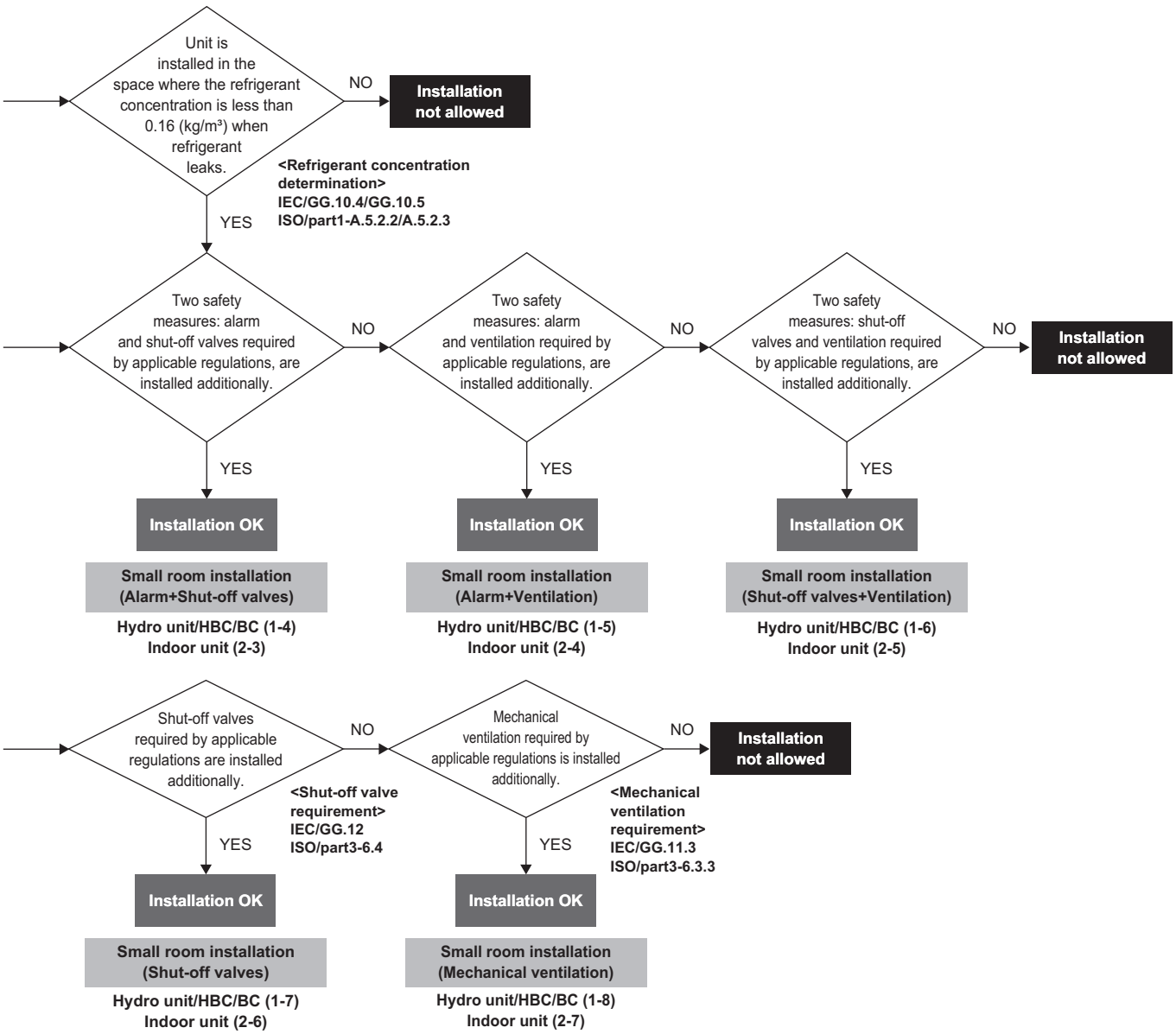
*Please refer to 5. regarding regulatory requirements for safety measures.

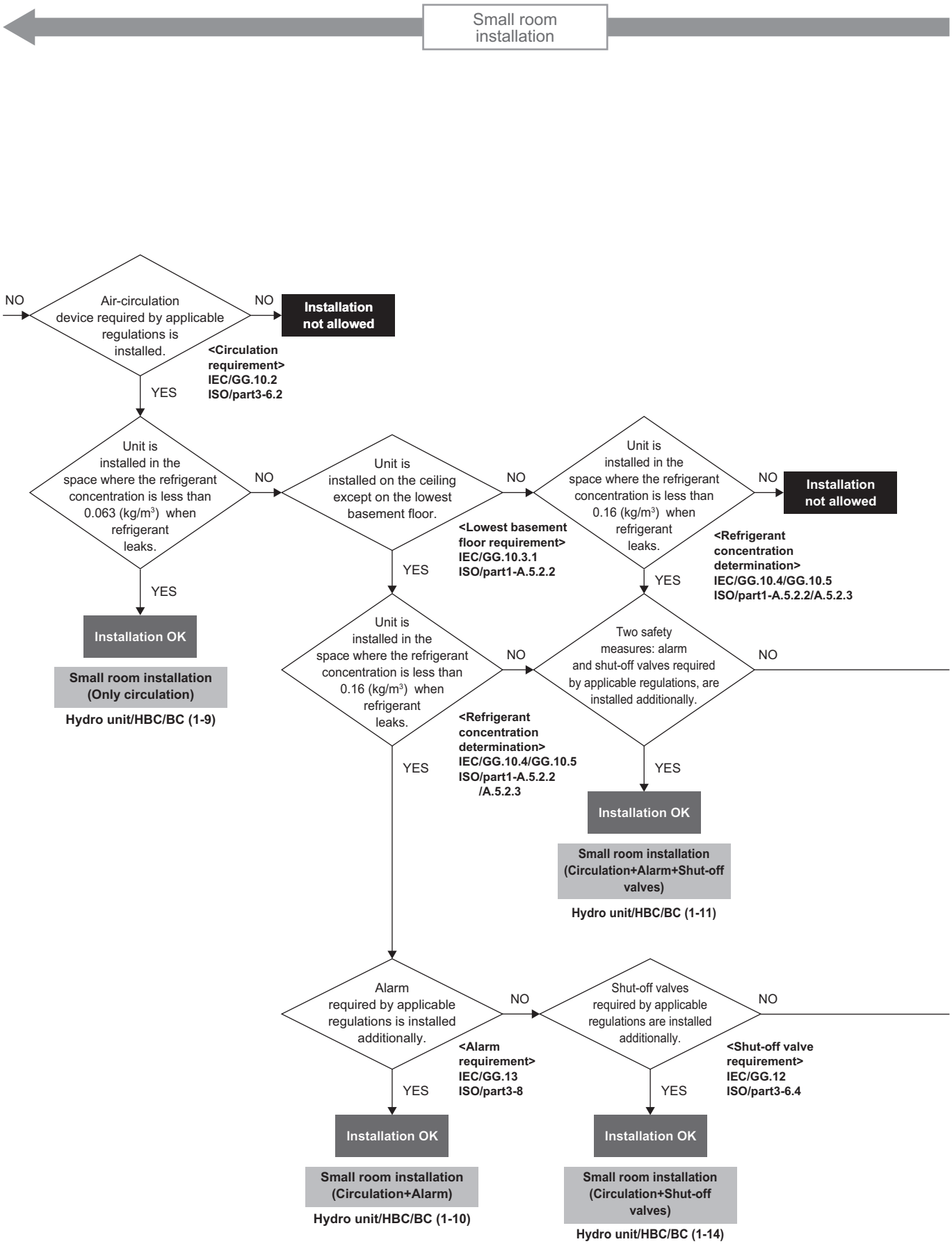


3. Installation flow chart

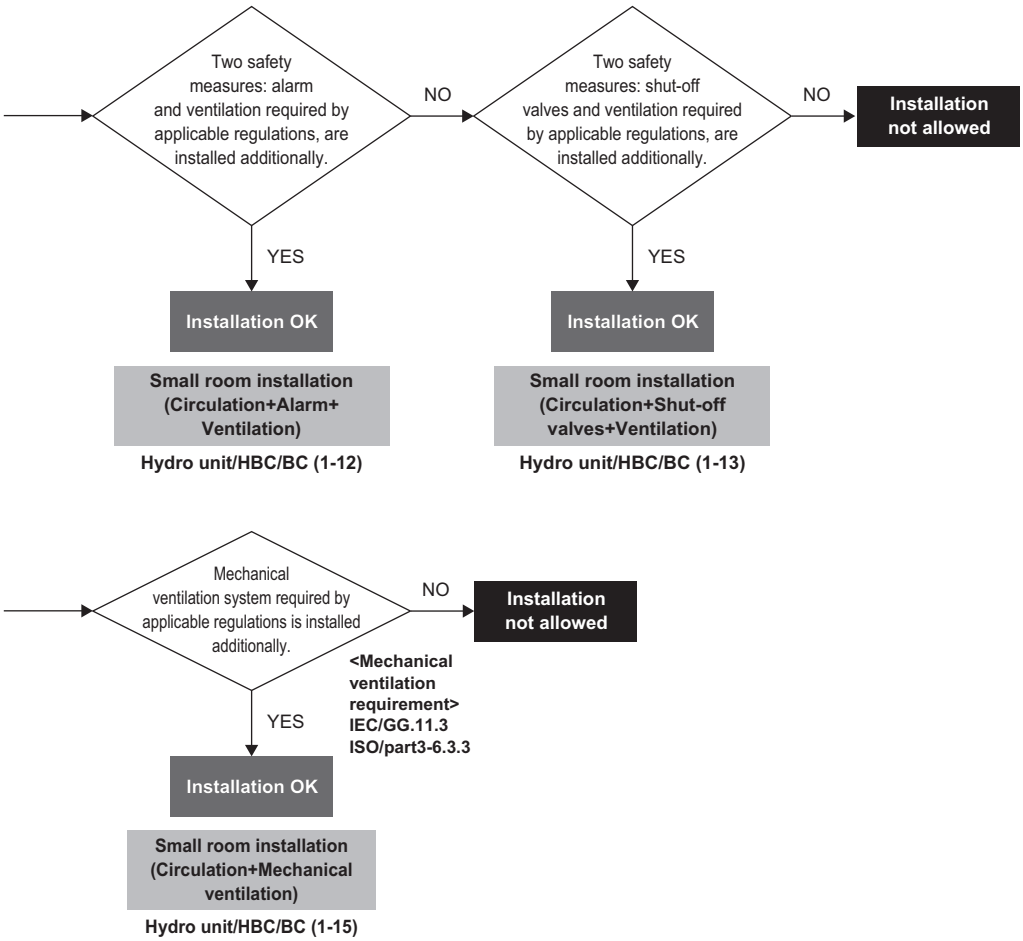
Small room installation

NEXT PAGE




Small room installation
Air-circulation device required by applicable regulations is installed.
NO
NO
Installation not allowed
<Circulation requirement>
IEC/GG.10.2
ISO/part3-6.2
YES
Unit is installed in the space where the refrigerant concentration is less than 0.063 (kg/m3) when refrigerant leaks.
NO
Unit is installed on the ceiling except on the lowest basement floor.
NO
<Lowest basement floor requirement>
IEC/GG.10.3.1
ISO/part1-A.5.2.2
Unit is installed in the space where the refrigerant concentration is less than 0.16 (kg/m3) when refrigerant leaks.
NO
Installation not allowed
<Refrigerant concentration determination>
IEC/GG.10.4/GG.10.5
ISO/part1-A.5.2.2/A.5.2.3
YES
YES
YES
Installation OK
Small room installation (Only circulation)
Hydro unit/HBC/BC (1-9)
Unit is installed in the space where the refrigerant concentration is less than 0.16 (kg/m3) when refrigerant leaks.
NO
Two safety measures: alarm and shut-off valves required by applicable regulations, are installed additionally.
NO
<Refrigerant concentration determination>
IEC/GG.10.4/GG.10.5
ISO/part1-A.5.2.2
/A.5.2.3
YES
YES
Installation OK
Small room installation (Circulation+Alarm+Shut-off valves)
Hydro unit/HBC/BC (1-11)
Alarm required by applicable regulations is installed additionally.
NO
Shut-off valves required by applicable regulations are installed additionally.
NO
<Alarm requirement>
IEC/GG.13
ISO/part3-8
<Shut-off valve requirement>
IEC/GG.12
ISO/part3-6.4
YES
YES
Installation OK
Installation OK
Small room installation (Circulation+Alarm)
Hydro unit/HBC/BC (1-10)
Small room installation (Circulation+Shut-off valves)
Hydro unit/HBC/BC (1-14)


Small room installation

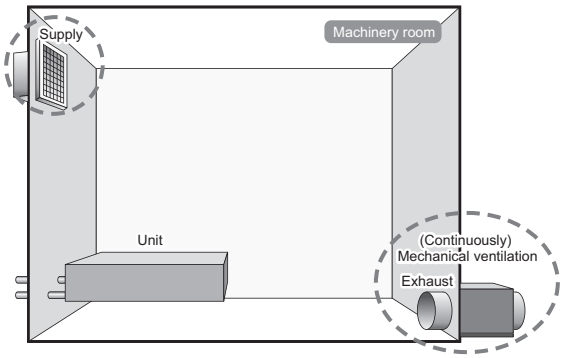

Two safety measures: alarm and ventilation required by applicable regulations, are installed additionally.
NO
Two safety measures: shut-off valves and ventilation required by applicable regulations, are installed additionally.
NO
Installation not allowed
YES
Installation OK
Small room installation (Circulation+Alarm+ Ventilation)
Hydro unit/HBC/BC (1-12)
YES
Installation OK
Small room installation (Circulation+Shut-off valves+Ventilation)
Hydro unit/HBC/BC (1-13)
Mechanical ventilation system required by applicable regulations is installed additionally.
NO
Installation not allowed
<Mechanical ventilation requirement>
IEC/GG.11.3
ISO/part3-6.3.3
YES
Installation OK
Small room installation (Circulation+Mechanical ventilation)
Hydro unit/HBC/BC (1-15)

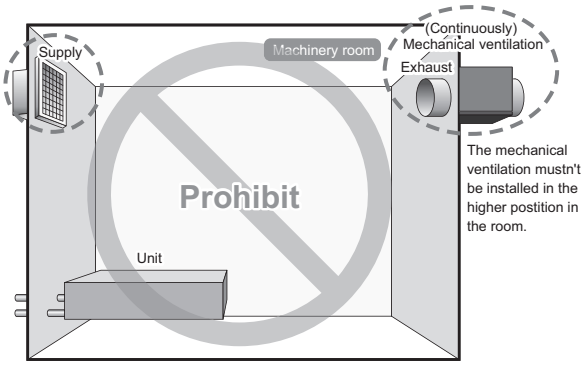
4-1. Hydro unit/HBC/BC

<Installation example of safety measures>

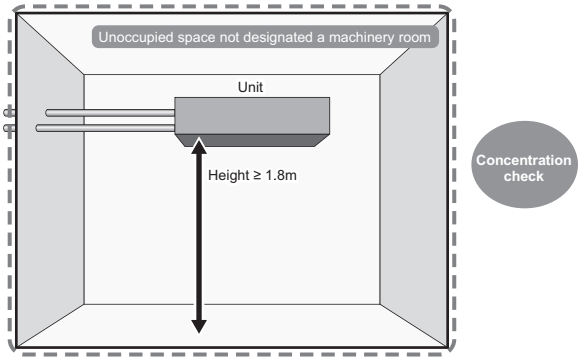
* The alarm shall warn audibly and visibly such as both a loud buzzer and flashing light.
* Refer to the installation manual of each unit for installation instructions.

(1-1) Machinery room installation (Continuous ventilation)

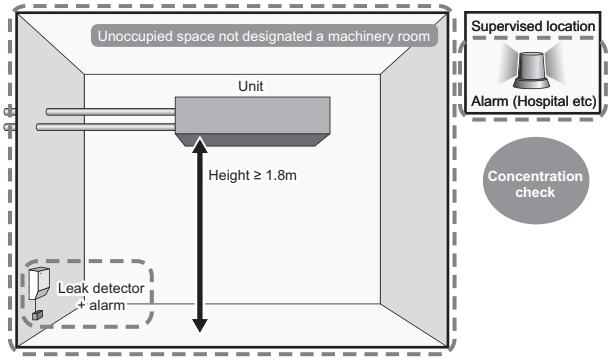




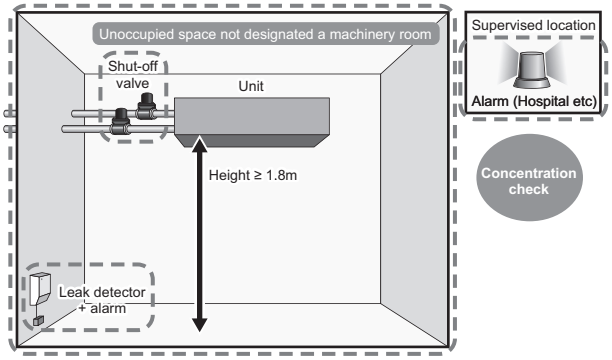
(1-2) Small room installation (No safety measures)



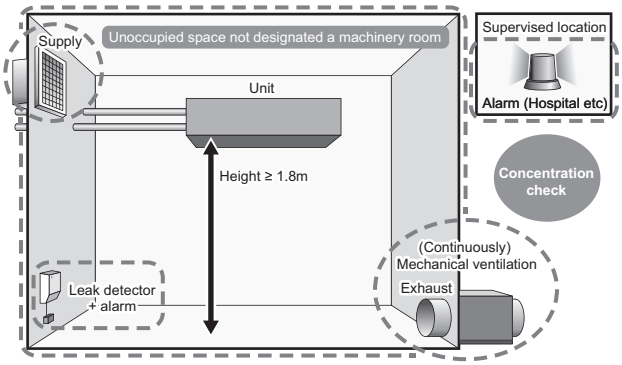
(1-3) Small room installation (Alarm)



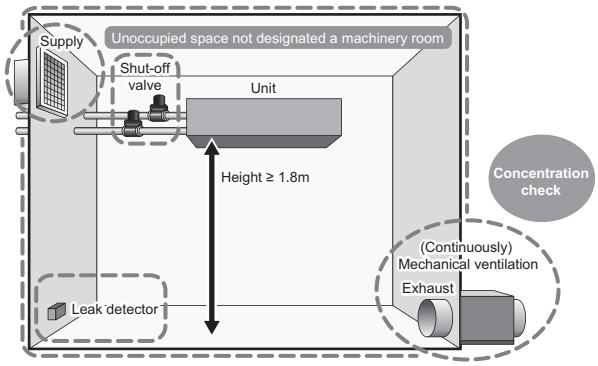
(1-4) Small room installation (Alarm + Shut-off valves)



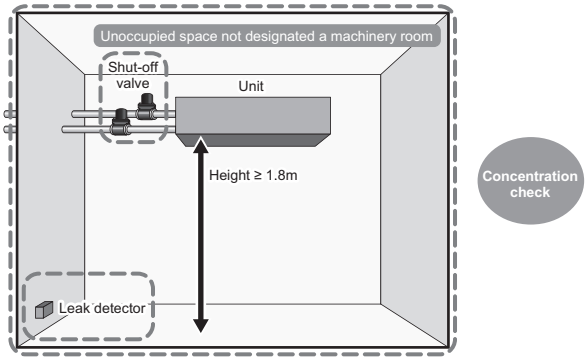
(1-5) Small room installation (Alarm + Ventilation)



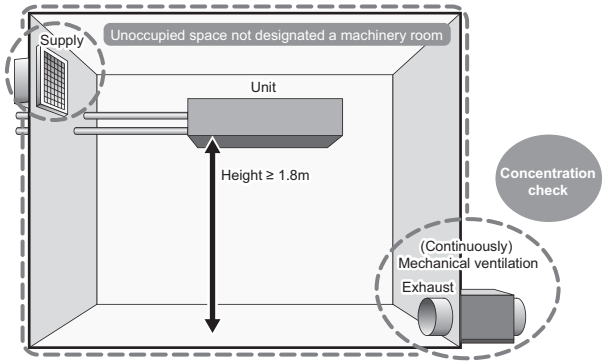
(1-6) Small room installation (Shut-off valves + Ventilation)



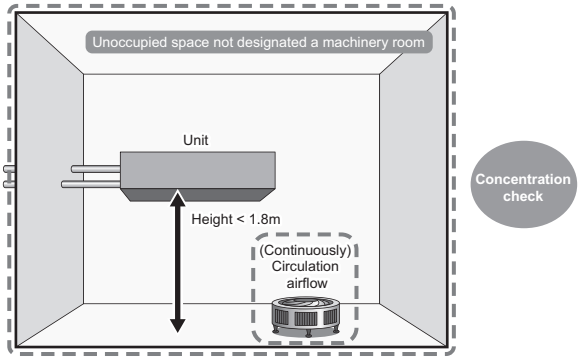
(1-7) Small room installation (Shut-off valves)



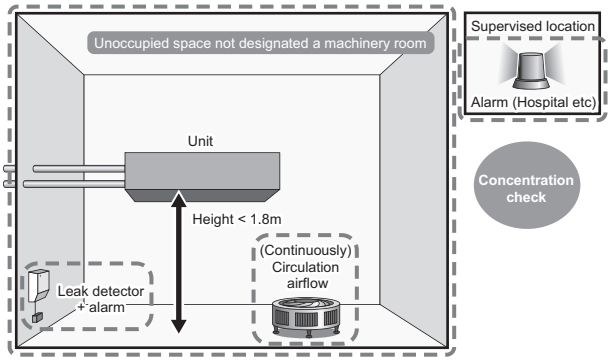
(1-8) Small room installation (Mechanical ventilation)



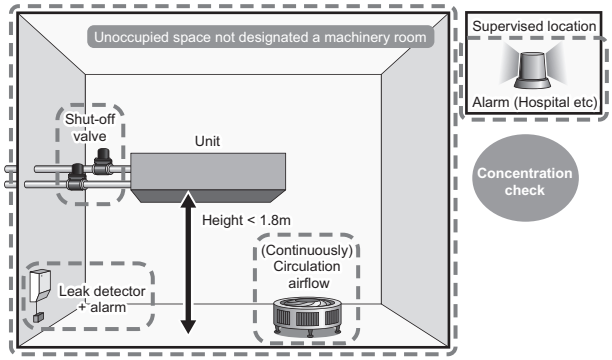
(1-9) Small room installation (Only circulation)



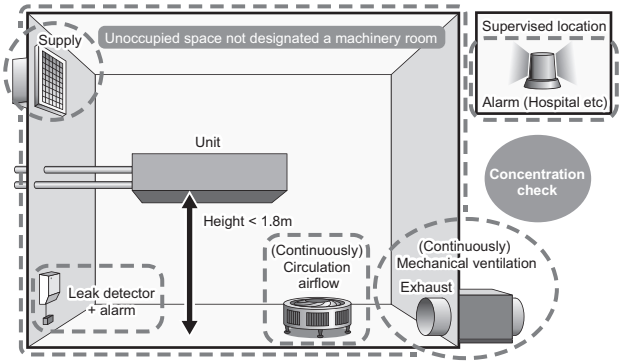
(1-10) Small room installation (Circulation + Alarm)



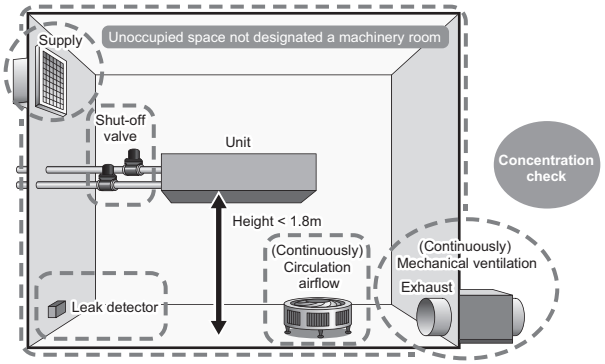
(1-11) Small room installation (Circulation + Alarm + Shut-off valves)



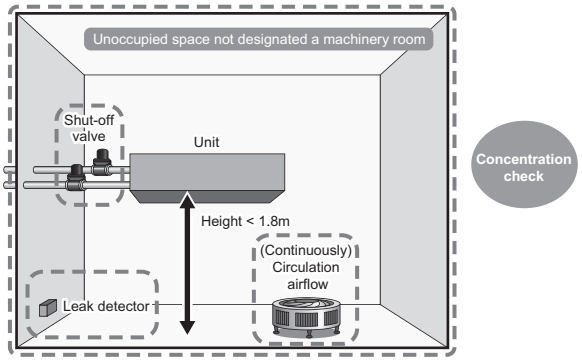
(1-12) Small room installation (Circulation + Alarm + Ventilation)



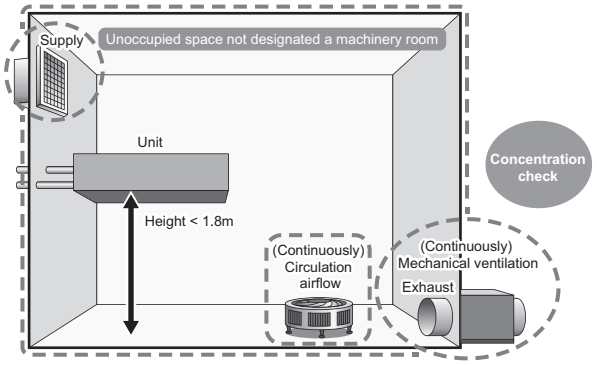
(1-13) Small room installation (Circulation + Shut-off valves + Ventilation)



(1-14) Small room installation (Circulation + Shut-off valves)



(1-15) Small room installation (Circulation + Mechanical ventilation)

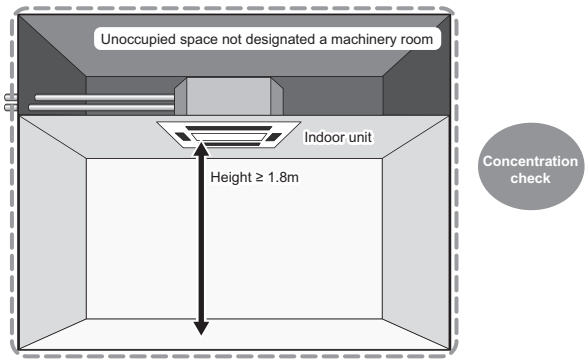


4-2. Indoor unit (VRF)

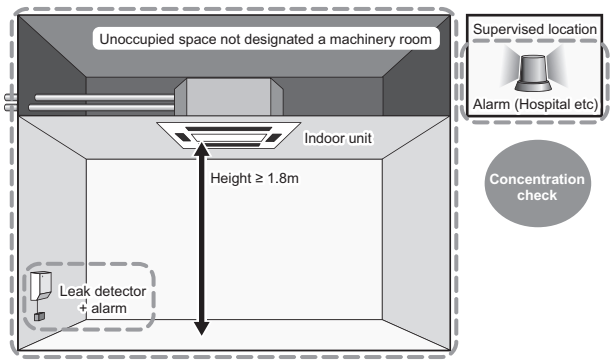
<Installation example of safety measures>

* The alarm shall warn audibly and visibly such as both a loud buzzer and flashing light.
* Refer to the installation manual of each unit for installation instructions.

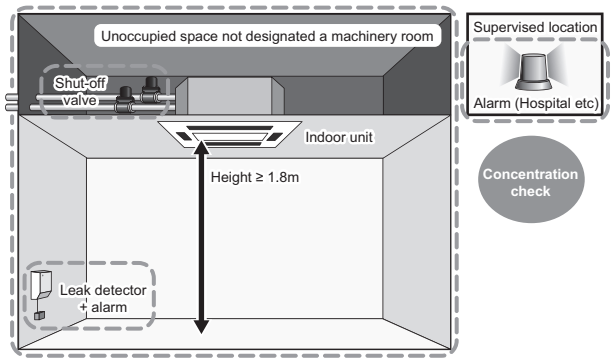
(2-1) Small room installation (No safety measures)



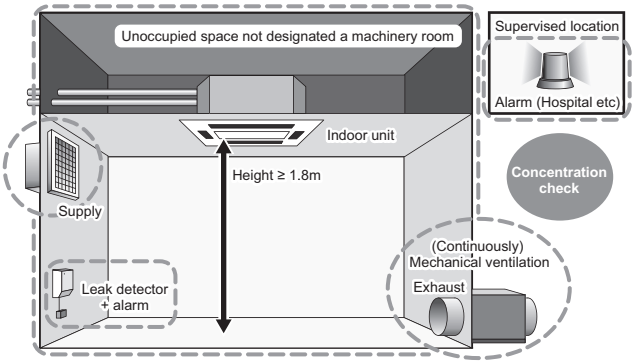
(2-2) Small room installation (Alarm)



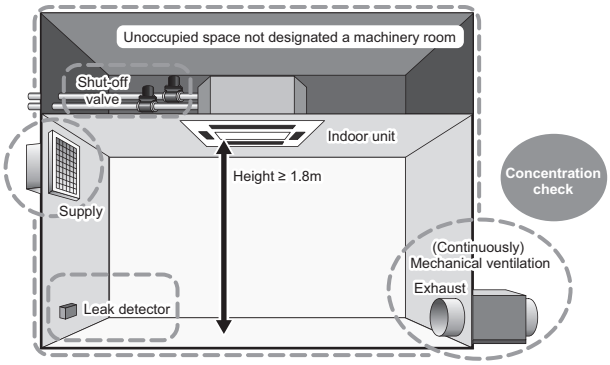
(2-3) Small room installation (Alarm + Shut-off valves)



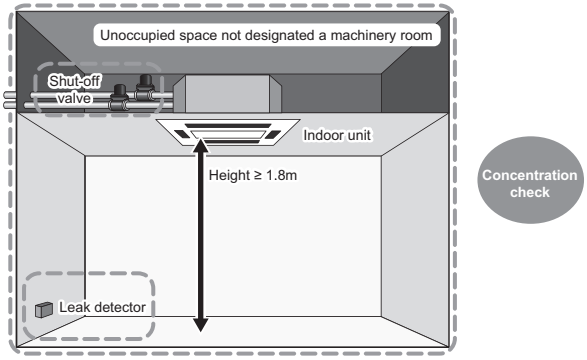
(2-4) Small room installation (Alarm + Ventilation)



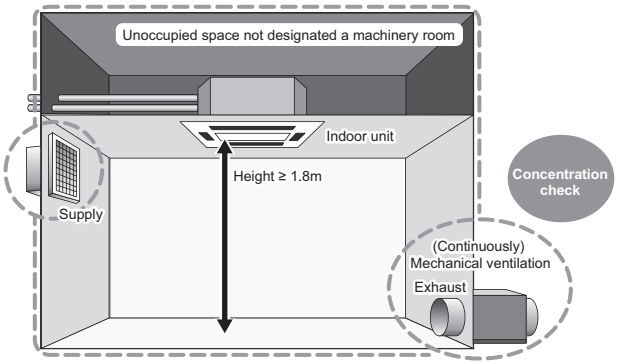
(2-5) Small room installation (Shut-off valves + Ventilation)



(2-6) Small room installation (Shut-off valves)



(2-7) Small room installation (Mechanical ventilation)



See below for information on installing a safety device on the HVRF/VRF R32 system.

*Safety devices shall be regularly inspected, maintained, and replaced in accordance with the relevant laws, regulations, and the instructions of the manufacturers.

*The requirements listed below were established based on IEC60335-2-40 (Edition 6.0) and ISO5149 (2014). See the original standards for further information on selecting a safety device.

<Regulatory requirements for alarm>

1) For hospitals, hotels and other buildings, the alarm system shall be required in monitoring room in addition to the living room. <IEC/GG.10.1/GG.13.2.2> <ISO-1/A.5.2.1> <ISO-3/8.3.2>
2) The alarm shall be turned on by the signal from the refrigerant detection system. <IEC/GG.13.1> <ISO-1/A.5.2.1>
3) The alarm shall also alert an authorized person to take appropriate action. <IEC/GG.13.1> <ISO-3/8.1>
4) The alarm system shall warn audibly and visibly such as both a loud buzzer (15 dBA above the background level) and flashing light. <IEC/GG.13.2.1> <ISO-3/8.3.1>
5) The air conditioner and alarm shall use different electrical power supply. <ISO-3/7.2 and 8.2>
6) The alarm system shall comply with the requirements of the fire alarms. <ISO-3/8.2>

<Regulatory requirements for safety shut-off valve>

1) Safety shut-off valves shall be located outside or in a space with a room volume large enough so that refrigerant concentration is lower than LFL/4 and LFL/2. <IEC/GG.12.1>
2) Safety shut-off valves shall be positioned to enable access for maintenance by an authorized person. <IEC/GG.12.1> <ISO-3/6.4.2>
3) Safety shut-off valves shall be designed to close in the event of an electric power failure. <IEC/GG.12.2> <ISO-3/6.4.3>
4) Safety shut-off value shall be installed in the place where the amount of refrigerant leaked into the occupied space is less than QLMV (<LFL/2). <IEC/GG.12.2> <ISO-3/6.4.1>
5) Safety shut-off valve shall shut off the refrigerant under the control of refrigerant leakage detector. <ISO-1/A.5.2.1, ISO-3/6.4.1>
6) The air conditioner and safety shut-off valve shall use different electrical power supply. <ISO-3/7.2>
7) When the shut-off valve is used as a safety measure, natural ventilation (example: a gap under a door through ventilation openings) is required because slow leak occurs at the time of opening and closing of the shut-off valve. <Mitsubishi Electric requirements>

*Note that units may come to an abnormal stop due to pressure error when safety shut-off valves are tripped.

<Regulatory requirements for mechanical ventilation>

1) Mechanical ventilation shall be operated continuously or be switched on by the refrigerant detection system. <IEC/GG.11.3.4> <ISO-3/6.3.3.3>
2) During the continuous operation of the fan, the airflow shall be detected or monitored continuously. If the airflow is reduced, the unit operation (in heating mode) shall be stopped, or alarm shall be turned on. <IEC/GG.8.3.1>
3) When the ventilation system is interlocked with the sensor, even if the detcted value of concentration becomes lower than the one for alert, the ventilation system shall continue to operate more than 5 minutes after the detection and air conditioning unit shall stop operation. (in heating mode) <IEC/GG.8.3.1>
4) Air volume of ventilation <ISO-3/6.3.3.1>
   Q = 10/RCL (Refrigerant Concentration Limit) ≈ 164 m^3/h
5) The position of the mechanical ventilation openings <IEC/GG.11.3.3><ISO-3/5.13.1><ISO-3/5.13.5> <ISO-3/6.3.3.2>
   The upper edge of the ventilation opening shall be located equal or below the refrigerant release point.
   For floor standing units, the lower edge of the opening shall be more than 100 mm above the floor.
   The exhaust ventilation openings shall be located a sufficient distance from intake openings to prevent re-circulation to the occupied space.
6) (For machinery room) Ventilation route shall be designed to avoid leakage of refrigerant to the neighbouring rooms, corridors and so on. <ISO-3/5.2>
7) (For machinery room) Exterior openings shall not be situated within 2 m of building emergency exit staircases or other building openings, e.g. windows, doors, ventilation inlets, etc. <ISO-3/5.7>
8) (For machinery room) The ventilation system shall be independent of any other ventilation system. <ISO-3/5.13.1>
9) The air conditioner and mechanical ventilation shall use different electrical power supply. <ISO-3/7.2 and 8.2>

<Regulatory requirements for refrigerant leakage detector>

1) Alarm threshold shall be set to be activated before the refrigerant concentration reaches 25% of the LFL. The LFL shall be taken at WCF (Worst Case Formulation) as defined in ISO 817. <IEC/LL.1> <ISO-3/9.4.2>
2) Refrigerant detection system shall make output signal to activate the safety measures within 30 seconds at the refrigerant concentration of 25% of LFL or lower. <IEC/LL.2 and 3>
   The delay of the detector shall be 30s or less at a concentration of 1.6 times the pre-set value. <ISO-3/9.4.1>
3) The refrigerant detection system, including the sensors, shall comply with the above requirements over the full range of operating temperature and humidity as specified by the appliance manufacturer. <IEC/LL.3>
   The sensitivity tolerance of the detector shall be considered to ensure that the output signal is triggered at or below the pre-set value. The tolerance of the detector shall take into account the ±10% of power line voltage tolerance. <ISO-3/9.4.1>
4) The refrigerant detection system shall be pre-set and calibrated (with an accuracy of ±20%) from the factory for the refrigerant used. <IEC/LL.4>
   The pre-set value for the refrigerant detector at 30˚C or 0˚C, whichever is more critical, shall be half or less of the RCL (Refrigerant Concentration Limit) concentration as given in ISO 817. <ISO-3/9.4.1>
5) Vibration requests <IEC/LL.6>
   If vibration operating parameters are not established by the manufacturer, then a sample of the sensor shall be subject to the requirements defined below.
   - frequency 10 Hz-31.5 Hz, total amplitude 1.0 mm, and
   - frequency 31.5 Hz-150 Hz, maximum acceleration 2G
   The samples shall be vibrated over the specified frequency range, displacement and acceleration for a period of 1 hour in each of the three mutually perpendicular planes (X-Y-Z). The change rate shall not exceed 10 Hz/min. After the samples are vibrate, they shall be tested to verify they still sense refrigerant at 25% of LFL or lower.
6) The sensor shall include a means for self-testing, and the test shall be run at least every hour and if a failure is detected, an alarm shall be activated. <IEC/LL.7>
7) If the sensor has a defined life and requires replacement after a given period, the detection system shall initiate an alarm or indication that replacement is required. If sensor becomes more sensitive with aging to generate false alarm, the end of life alarm can be omitted. <IEC/LL.7>
8) The sensors shall be marked with name of manufacturer (or responsible vendor) and model (or type) reference. <IEC/LL.8>
9) The detector shall be located where the refrigerant from the leak will concentrate. <ISO-3/9.2>
10) At least one detector shall be installed in each machinery room and/or at the lowest underground room. <ISO-3/9.2>
11) The detector shall continue to activate the alarm signal if the concentration exceeds the threshold. <ISO-3/9.4.2>
12) The installation of the detector shall allow access for checking, repair, or replacement by an authorized person. <ISO-3/9.5.1>
13) The detector shall be protected to prevent tampering or unauthorized resetting of the pre-set value. <ISO-3/9.5.2>
14) The air conditioner and refrigerant leakage detector shall use different electrical power supply. <ISO-3/7.2 and 8.2>

<Regulatory requirements for circulation airflow>

1) The circulation shall operate continuously or be turned on by refrigerant detection systems. <IEC/GG.10.2.1>
2) Minimum airflow = 240 m^3/h <IEC/GG.10.2.1>
3) Minimum air velocity
   $vmin = (–4.0 \times 10^{-5} \times M^2 + 0.0108 \times M + 1.42) / \sin ø$ <IEC/GG.10.2.1>
   * Because of R32 Molecular weight = 52.0 g/mol, vmin ≈ 1.87 m/s
   * Reduction of the area due to the outlet grill (= air speed up) is not considered.
4) Where the continuous operation of the fan, the airflow shall be monitored. If the airflow is reduced, the unit operation shall be stopped, or alarm shall be turned on. <IEC/GG.10.2.2>
5) Where ventilation is activated being interlocked with refrigerant detection system, after the detected value of concentration reached lower than the pre-set alarm concentration, circulation fan shall continue to run for at least 5 min (at the time of heating operation) and the unit shall be stopped. <IEC/GG.10.2.3>

⚠Warning

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

■ Our air conditioning equipment and heat pumps contain a fluorinated greenhouse gas, R32.

MITSUBISHI ELECTRIC CORPORATION

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