

Air Conditioning
Technical Data

RZAG-LV1



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RZAG-LV1

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1 Features

Industry leading technology with R-32 delivering optimal efficiency and comfort for commercial applications

- Choosing for an R-32 product, reduces the environmental impact with 68% compared to R-410A, leads directly to lower energy consumption thanks to its high energy efficiency and has a 10% lower refrigerant charge
- Reduces maintenance costs as no yearly refrigerant containment check is required thanks to the low GWP levels
- The perfect balance in efficiency and comfort thanks to Variable Refrigerant Temperature: top seasonal efficiency throughout most of the year and quick reaction speed on the hottest days.
- Replace existing R-22 or R-407C systems without having to replace the piping
- Extended operation range down to -20°C in heating and down to -15°C in cooling



Inverter



Swing
compressor



Auto cooling-
heating
changeover



Night quiet
mode

2 Specifications

2-1 Capacity and Power input				FCAHG71F/RZAG71LV1	FCAHG100F/ RZAG100LV1	FCAHG125F/ RZAG125LV1	FCAHG140F/ RZAG140LV1
Cooling capacity	Nom.		kW	6.8	9.5	12.0	13.4
Heating capacity	Nom.		kW	7.5	10.8	13.5	15.5
Power input	Cooling	Nom.	kW	1.66	2.15	3.00	4.00
	Heating	Nom.	kW	1.56	2.16	3.07	3.77
Seasonal efficiency (according to EN14825)	Cooling	Energy label		A++			-
		Pdesign	kW	6.80	9.50	12.00	-
		SEER		7.35 (1)		6.94 (1)	-
		Annual energy consumption		kWh	324	452	605
		A Condition (35°C - 27/19)	Pdc	kW	6.80	9.50	12.00
			EERd		4.38	4.61	4.10
			power input	kW	1.55	2.06	2.93
		B Condition (30°C - 27/19)	Pdc	kW	5.01	7.00	8.90
			EERd		6.12	5.95	5.40
			power input	kW	0.82	1.18	1.65
		C Condition (25°C - 27/19)	Pdc	kW	3.57	4.70	5.80
			EERd		9.30	8.25	8.40
			power input	kW	0.38	0.57	0.69
		D Condition (20°C - 27/19)	Pdc	kW	3.38	3.60	2.60
			EERd		12.10	13.15	9.80
			power input	kW	0.28	0.27	
	Heating (Average climate)	Energy label		A+	A++		-
		Pdesign	kW	5.65	9.13	9.52	-
		SCOP/A		4.54 (1)	4.64 (1)	4.63 (1)	-
		SCOPnet/A		4.55	4.67	4.64	-
		Pdh Heating capacity at -10°		5	8	9	-
		Annual energy consumption		kWh	1,743	2,753	2,879
		Required back up heating cap at design conditions		kW	0.21	0.86	0.21
		TOL	Tol (temperature operating limit)	°C	-15		
			Pdh (declared heating cap)	kW	6.19	8.60	10.80
			COPd (declared COP)		2.05	2.11	1.87
			Power input	kW	3.02	4.07	5.78

2 Specifications

2

2-1 Capacity and Power input					FCAHG71F/RZAG71LV1	FCAHG100F/ RZAG100LV1	FCAHG125F/ RZAG125LV1	FCAHG140F/ RZAG140LV1	
		TBivalent	Tbiv (bivalent temperatu re)	°C	-7			-	
			Pdh (declared heating cap)	kW	5.00	8.08	8.42	-	
			COPd (declared COP)		2.50	2.93	2.85	-	
			Power input	kW	2.00	2.76	2.95	-	
		A Condition (-7°C)	Pdh (declared heating cap)	kW	5.00	8.08	8.42	-	
			COPd (declared COP)		2.50	2.93	2.85	-	
			Power input	kW	2.00	2.76	2.95	-	
		B Condition (2°C)	Pdh (declared heating cap)	kW	3.04	5.06	5.13	-	
			COPd (declared COP)		4.70	4.76	4.74	-	
			Power input	kW	0.65	1.06	1.08	-	
		C Condition (7°C)	Pdh (declared heating cap)	kW	2.63	4.38	3.95	-	
			COPd (declared COP)		6.41	6.12	5.97	-	
			Power input	kW	0.41	0.72	0.66	-	
		D Condition (12°C)	Pdh (declared heating cap)	kW	2.77	4.85	4.20	-	
			COPd (declared COP)		7.39	7.57	7.50	-	
			Power input	kW	0.37	0.64	0.56	-	
		Pto (Thermostat off)				W	8.0	11.0	-
		Cooling	Psb (Standby mode cooling)			W	9.0	10.0	-
			Cdc (Degradation cooling)				0.25		-
		Heating	Psb (Standby mode heating)			W	9.0	10.0	-
Cdh (Degradation heating)				0.25		-			
Pck (Crankcase heater mode)				W	0.0		-		
Poff (Off mode)				W	0.0		-		
Cooling function included					Yes		-		
Heating function included					Yes		-		
Average climate included					Yes		-		
Cold season included					No		-		
Warm season included					No		-		
Ecolabel logo					No		-		
Eurovent	Sound power level outdoor	Cooling	Nom.	dBA	64		66	-	
	Sound power level indoor	Cooling	Nom.	dBA	53	61		-	

2 Specifications

2-1 Capacity and Power input			FCAHG71F/RZAG71LV1	FCAHG100F/ RZAG100LV1	FCAHG125F/ RZAG125LV1	FCAHG140F/ RZAG140LV1
Nominal efficiency	EER		4.09	4.42	4.00	3.35
	COP		4.80	4.99	4.40	4.12
	Annual energy consumption kWh		830	1,075	1,500	2,000
	Energy label	Cooling	A			
		Heating	A			

Notes

(1) EER/COP according to Eurovent 2012, for use outside EU only

Nominal efficiency: cooling at 35°/27° nominal load, heating at 7°/20° nominal load

Annual energy consumption is according to Energy labeling directive 2002/31/EC

SEER and SCOP are according to EN 14825

2-2 Technical Specifications					RZAG71LV1	RZAG100LV1	RZAG125LV1	RZAG140LV1
Capacity control	Method				Inverter controlled			
Casing	Colour				Ivory white			
	Material				Painted galvanized steel plate			
Dimensions	Unit	Height	mm		990	1,430		
		Width	mm		940			
		Depth	mm		320			
	Packed unit	Height	mm		1,170	1,610		
		Width	mm		1,015			
		Depth	mm		422			
Weight	Unit		kg	67	93			
	Packed unit		kg	79	105			
Packing	Weight		kg	12				
Heat exchanger	Fin	Type			WF fin			
		Treatment			Anti-corrosion treatment (PE)			
Compressor	Quantity				1			
	Type				Hermetically sealed swing compressor			
	Starting method				Inverter driven			
Fan	Type				Propeller			
	Discharge direction				Horizontal			
	Quantity				1	2		
	Air flow rate	Cooling	Nom.	m³/min	59	70		
			Super low	m³/min cfm	-			
		Heating	Nom.	m³/min	49	62		
	Super low		m³/min cfm	-				
			-					
	Fan motor	Quantity				1	2	
Model				Brushless DC motor				
Output			W	94				
Drive				Direct drive				
Speed		Cooling	Super low	rpm	-			
		Heating	Super low	rpm	-			
Sound power level		Cooling			dBA	64		66
	Heating			dBA	-			
Sound pressure level	Cooling	Nom.		dBA	48	49	51	52
	Heating	Nom.		dBA	50	51	52	
	Night quiet mode	Level 1		dBA	43	45		
Operation range	Cooling	Ambien t	Min.	°CDB	-15			
			Max.	°CDB	50			
	Heating	Ambien t	Min.	°CWB	-20			
			Max.	°CWB	15.5			

2 Specifications

2-2 Technical Specifications				RZAG71LV1	RZAG100LV1	RZAG125LV1	RZAG140LV1	
Refrigerant	Type			R-32				
	Charge		kg	2.6	3.4			
			TCO _{2eq}	1.8	2.3			
	Control			Expansion valve (electronic type)				
	GWP			675				
	Circuits	Quantity		1				
Piping connections	Liquid	Quantity		1				
		Type		Flare connection				
		OD	mm	9.52				
	Gas	Quantity		1				
		Type		Flare connection				
		OD	mm	15.9				
	Drain	Quantity		5				
		Type		Hole				
		ID	mm	-				
		OD	mm	26.0				
	Piping length	OU - IU	Min.	m	3			
			Max.	m	55	85		
		System	Equivalent	m	75	100		
			Chargel ess	m	30			
	Additional refrigerant charge			kg/m	See installation manual			
	Level difference	IU - OU	Max.	m	30.0			
		IU - IU	Max.	m	0.5			
Heat insulation			Both liquid and gas pipes					
Refrigerant oil	Type			FW68DA				
	Charged volume		l	0.9	1.35			
Defrost method				Reversed cycle				
Defrost control				Sensor for outdoor heat exchanger temperature				
Safety devices	Item	01		High pressure switch				
		02		Low pressure switch				
		03		Fan driver overload protector				
		04		Fuse				

Standard Accessories : Tie-wraps; Quantity : 2;

Standard Accessories : Installation manual; Quantity : 1;

2-3 Electrical Specifications				RZAG71LV1	RZAG100LV1	RZAG125LV1	RZAG140LV1
Power supply	Name			V1			
	Phase			1~			
	Frequency		Hz	50/60			
	Voltage		V	220-240			
	Voltage range	Min.	%	198			
		Max.	%	264			
Current - 50Hz	Maximum fuse amps (MFA)		A	-			
Current	Zmax	List	Complies to EN61000-3-11				
	Minimum Ssc value		kVa	Equipment complying with EN / IEC 61000-3-12			
	Recommended fuses		A	20	32		
Current - 60Hz	Maximum fuse amps (MFA)		A	-			
Wiring connections	For power supply	Remark	See installation manual outdoor unit				
	For connection with indoor	Remark	See installation manual outdoor unit				
Power supply intake				Outdoor unit only			

2 Specifications

Notes

Contains fluorinated greenhouse gases

Nominal cooling capacities are based on: indoor temperature: 27°CDB, 19°CWB, outdoor temperature: 35°CDB, equivalent refrigerant piping: 5m, level difference: 0m. Data for standard efficiency series

Nominal heating capacities are based on: indoor temperature: 20°CDB, outdoor temperature: 7°CDB, 6°CWB, equivalent refrigerant piping: 5m, level difference: 0m. Data for standard efficiency series

See separate drawing for electrical data

3 Electrical data

3 - 1 Electrical Data

RZAG-LV1

Indoor	Outdoor	Power supply	Voltage range		MCA	TOCA	MFA	Compressor		OFM		IFM	
								MSC	RLA	kW	FLA	kW	FLA
FCAHG71FVEB	RZAG71L9V1B	50Hz ~ 220-240V	Minimum: 198 V	Maximum: 264 V	18.2	—	20	—	15.6	0.094	0.4	0.091	0.5
FCAHG100FVEB	RZAG100L9V1B				29.1	—	32	—	24.2	0.094+0.094	0.4+0.4	0.221	1.3
FCAHG125FVEB	RZAG125L9V1B				29.3	—	32	—	24.2	0.094+0.094	0.4+0.4	0.244	1.4
FCAHG140FVEB	RZAG140L9V1B				29.3	—	32	—	24.2	0.094+0.094	0.4+0.4	0.244	1.4

Symbols

MCA: Minimum Circuit Ampere [A]
 TOCA: Total overcurrent amps [A]
 MFA: Maximum Fuse Ampere [A]
 MSC: Maximum current of the starting compressor [A]
 RLA: Rated load amps [A]
 OFM: Outdoor fan motor
 IFM: Indoor fan motor
 FLA: Full Load Ampere [A]
 KW: Fan motor rated output [kW]

Notes

- The RLA is based on the following conditions.
 Cooling
 Indoor temperature 27.0°C DB / 19.0°C WB
 Outdoor temperature 35.0°C DB
 Heating
 Indoor temperature 20.0°C DB
 Outdoor temperature 7.0°C DB / 6.0°C WB
- TOCA is the total value of each overcurrent set.
- Voltage range
 The units are suitable for use with electrical systems in which the voltage supplied to the unit terminals is not below or above the listed range limits.
- The maximum allowable voltage that is unbalanced between phases is 2%.
- MCA is the maximum input current.
 The capacity of the MFA must be greater than that of the MCA.
 Select the MFA according to the table.
- Select the wire size according to the MCA.
- MFA is used to select the circuit breaker and the ground fault circuit interruptor.
 Earth leakage circuit breaker

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4

Options

4 - 1

Options

RZAG-LV1

Available options for RZAG models

Option	Option kit			
	RZAG71L7V1B	RZAG100L7V1B	RZAG125L7V1B	RZAG140L7V1B
Bottom plate heater	EKBPH140L7			
Demand adaptor kit	SB.KRP58M51			

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5 Combination table

5 - 1 Combination Table

5

RZAG-LV1

Possible combinations

P= Pair	71	100	125	140
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Sky Air	High Cassette			
Model	FCAHG71FVEB	FCAHG100FVEB	FCAHG125FVEB	FCAHG140FVEB
RZAG71L7V1B	P			
RZAG100L7V1B		P		
RZAG125L7V1B			P	
RZAG140L7V1B				P

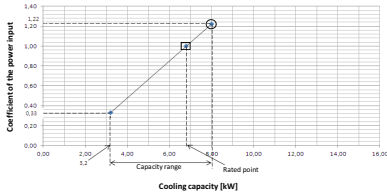
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6 Capacity tables

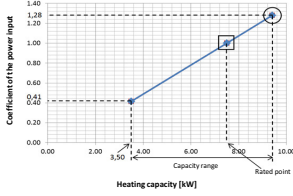
6 - 1 Cooling/Heating Capacity Tables

RZAG71LV1

Cooling



Heating



Symbols

AFR: Air flow rate [m³/min]
 BF: Bypass factor
 EWB: Entering wet-bulb temperature (°C WB)
 EDB: Entering dry-bulb temperature (°C DB)
 TC: Maximum total cooling/heating capacity [kW]
 SHC: Sensible heat capacity [kW]
 CPI: Coefficient of the power input
 PI: Power input [kW]
 compressor + indoor and outdoor fan motors

Indoor		Outdoor temperature (°C DB)											
		25			30			35			40		
°CWB	°CDB	T/C	SHC	CPI	T/C	SHC	CPI	T/C	SHC	CPI	T/C	SHC	CPI
16.0	22	8.09	5.45	1.00	7.76	5.32	1.11	7.48	5.20	1.21	7.21	5.06	1.32
18.0	25	8.40	5.45	1.00	8.11	5.32	1.11	7.83	5.19	1.22	7.54	5.05	1.33
19.0	27	8.59	5.44	1.01	8.30	5.32	1.12	8.00	5.18	1.22	7.70	5.05	1.33
19.5	27	8.68	5.43	1.01	8.39	5.31	1.12	8.09	5.17	1.22	7.79	5.05	1.33
22.0	30	9.15	5.38	1.01	8.84	5.25	1.12	8.52	5.13	1.23	8.21	4.99	1.34
24.0	32	9.53	5.31	1.03	9.20	5.19	1.13	8.87	5.06	1.25	8.54	4.92	1.35

		Outdoor temperature (°C WB)											
		-15.0			-10.0			5.0			0.0		
°CDB	°CWB	T/C	SHC	CPI	T/C	SHC	CPI	T/C	SHC	CPI	T/C	SHC	CPI
16	6.73	0.98	7.40	1.04	7.89	1.07	8.34	1.11	8.40	1.18	10.14	1.24	1.34
18	6.72	1.02	7.39	1.08	7.88	1.12	8.33	1.16	8.40	1.23	10.14	1.30	1.35
20	6.70	1.06	7.39	1.13	7.87	1.17	8.32	1.20	8.40	1.28	10.14	1.35	1.35
21	6.70	1.08	7.38	1.14	7.86	1.19	8.31	1.22	8.40	1.31	10.14	1.37	1.37
22	6.70	1.10	7.38	1.16	7.86	1.20	8.31	1.25	8.40	1.33	10.14	1.40	1.40
24	6.69	1.15	7.37	1.21	7.85	1.26	8.30	1.29	8.40	1.38	10.10	1.45	1.45

Notes

- The ratings shown are net capacities which include a deduction for indoor fan motor heat.
- = Maximum at standard conditions
 □ = Rated capacity and rated coefficient of the power input
 The maximum capacity is not guaranteed except at standard conditions.
- SHC is based on indoor units EWB & EDB.
 SHC for other dry-bulb temperatures = SHC + SHC*
 SHC* = SHC correction for other dry-bulb temperatures
 = 0.02 x AFR (m³/min) x (1.8°F - EDB)
- The capacities are based on the following conditions:
 Outdoor air: 85% RH
 However, the outdoor ambient condition of the rated capacity during heating operation is 7°C DB / 6°C WB.
 Corresponding refrigerant piping length: 5.0 m
 Level difference: 0m
- CPI is a percentage value compared to the rated value which is 1.00.
- The error rate for this value is less than 5% and depends on the indoor unit type.
- The heating performance takes into account the drop that occurs during defrost operation.
- The air flow rate and bypass factor are mentioned in the table.

Pair	
AFR	21.2
BF	(0.2)

- The rated power input for each model is mentioned in the table below.

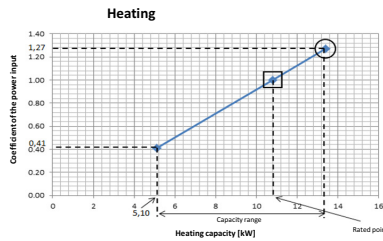
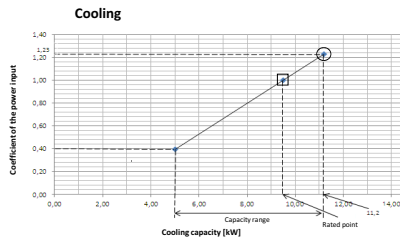
Pair	
Cooling	1.66
Heating	1.56

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6 Capacity tables

6 - 1 Cooling/Heating Capacity Tables

RZAG100LV1



Symbols
 AFR: Air flow rate (m³/min)
 BF: Bypass factor
 EWB: Entering wet-bulb temperature (°C DB)
 EDB: Entering dry-bulb temperature (°C DB)
 TC: Maximum total cooling/heating capacity (kW)
 SHC: Sensible heat capacity (kW)
 CPI: Coefficient of the power input
 PI: Power input (kW)
 compressor + indoor and outdoor fan motors

Indoor		Outdoor temperature (°C DB)											
		25			30			35			40		
		TC	SHC	CPI	TC	SHC	CPI	TC	SHC	CPI	TC	SHC	CPI
°CWB	°CDB	kW	kW	—	kW	kW	—	kW	kW	—	kW	kW	—
16.0	22	11.20	7.61	1.01	10.85	7.44	1.11	10.50	7.29	1.22	10.11	7.09	1.32
18.0	25	11.80	7.59	1.01	11.37	7.49	1.12	11.00	7.27	1.23	10.55	7.09	1.33
19.0	27	12.00	7.57	1.02	11.62	7.44	1.12	11.20	7.25	1.23	10.80	7.04	1.33
19.5	27	12.15	7.59	1.02	11.74	7.37	1.13	11.43	7.34	1.23	10.91	7.04	1.34
22.0	30	12.80	7.52	1.02	12.37	7.36	1.13	11.90	7.16	1.24	11.52	7.03	1.35
24.0	32	13.30	7.42	1.03	12.88	7.27	1.14	12.40	7.06	1.25	11.97	6.91	1.36

		Outdoor temperature (°C WB)											
		-15.0			-10.0			5.0			10.0		
		TC	SHC	CPI	TC	SHC	CPI	TC	SHC	CPI	TC	SHC	CPI
°CDB	kW	—	—	—	—	—	—	—	—	—	—	—	—
16	8.96	0.97	9.89	1.03	10.53	1.07	10.89	1.10	13.40	1.17	14.45	1.23	—
18	8.97	1.00	9.88	1.07	10.50	1.11	10.83	1.15	13.40	1.22	14.45	1.29	—
20	8.96	1.05	9.87	1.12	10.50	1.16	10.83	1.19	13.40	1.27	14.45	1.34	—
21	8.96	1.07	9.86	1.13	10.50	1.18	10.83	1.21	13.40	1.30	14.45	1.36	—
22	8.95	1.09	9.86	1.15	10.49	1.19	10.83	1.23	13.40	1.32	14.45	1.39	—
24	8.94	1.14	9.85	1.20	10.49	1.25	10.83	1.28	13.40	1.37	14.45	1.44	—

Notes

- The ratings shown are net capacities which include a deduction for indoor fan motor heat.
- = Maximum at standard conditions
 □ = Rated capacity and rated coefficient of the power input
 The maximum capacity is not guaranteed except at standard conditions.
- SHC is based on indoor units EWB & EDB.
 SHC for other dry-bulb temperatures = SHC + SHC*
 SHC* = SHC correction for other dry-bulb temperatures
 = 0.02 x AFR (m³/min) x (1-BF) x (DB* - EDB)
- The capacities are based on the following conditions:
 Outdoor air: 85% RH
 However, the outdoor ambient condition of the rated capacity during heating operation is 7°C DB / 6°C WB.
 Corresponding refrigerant piping length: 5.0 m
 Level difference: 0m
- CPI is a percentage value compared to the rated value which is 1.00.
- The error rate for this value is less than 5% and depends on the indoor unit type.
- The heating performance takes into account the drop that occurs during defrost operation.
- The air flow rate and bypass factor are mentioned in the table.

Pair		FCAG100P
AFR (BF)	32.3 (0.17)	

- The rated power input for each model is mentioned in the table below.

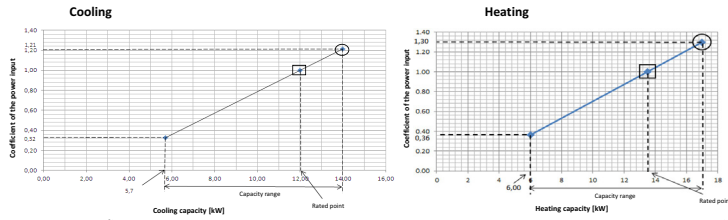
Pair		FCAG100P
Cooling	2.15	
Heating	2.16	

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6 Capacity tables

6 - 1 Cooling/Heating Capacity Tables

RZAG125LV1



Symbols
 AFR: Air flow rate [m³/min]
 BF: Bypass factor
 EWB: Entering wet-bulb temperature [°C WB]
 EDB: Entering dry-bulb temperature [°C DB]
 TC: Maximum total cooling/heating capacity [kW]
 SHC: Sensible heat capacity [kW]
 CPI: Coefficient of the power input
 PI: Power input [kW]
 compressor + indoor and outdoor fan motors

Indoor		Outdoor temperature [°C DB]											
		25			30			35			40		
		TC	SHC	CPI	TC	SHC	CPI	TC	SHC	CPI	TC	SHC	CPI
16.0	22	14.10	9.54	1.00	13.60	9.30	1.10	13.10	9.12	1.20	12.60	8.78	1.31
18.0	25	14.70	9.50	1.00	14.20	9.32	1.10	13.70	9.09	1.21	13.20	8.63	1.32
19.0	27	15.00	9.52	1.01	14.50	9.34	1.11	14.00	9.06	1.21	13.50	8.67	1.32
19.5	27	15.21	9.52	1.01	14.68	9.26	1.12	14.15	9.08	1.21	13.64	8.81	1.32
22.0	30	16.00	9.39	1.01	15.47	9.14	1.12	14.90	8.95	1.23	14.38	8.74	1.33
24.0	32	16.70	9.31	1.02	16.10	9.09	1.13	15.50	8.83	1.24	14.97	8.63	1.34

		Outdoor temperature [°C WB]											
		-15.0			-10.0			-5.0			0.0		
		TC	SHC	CPI	TC	SHC	CPI	TC	SHC	CPI	TC	SHC	CPI
16	11.50	0.99	12.70	1.06	13.50	1.09	13.90	1.12	17.00	1.20	18.36	1.26	
18	11.50	1.04	12.70	1.09	13.50	1.14	13.90	1.17	17.00	1.25	18.36	1.32	
20	11.50	1.08	12.63	1.14	13.50	1.19	13.90	1.21	17.00	1.30	18.36	1.37	
21	11.50	1.10	12.63	1.16	13.48	1.21	13.90	1.24	17.00	1.33	18.36	1.39	
22	11.50	1.12	12.63	1.18	13.47	1.22	13.90	1.26	17.00	1.35	18.36	1.42	
24	11.50	1.16	12.63	1.23	13.47	1.27	13.90	1.31	17.00	1.40	18.36	1.47	

- Notes**
- The ratings shown are net capacities which include a deduction for indoor fan motor heat.
 - = Maximum at standard conditions
 □ = Rated capacity and rated coefficient of the power input
 The maximum capacity is not guaranteed except at standard conditions.
 - SHC is based on indoor units EWB & EDB.
 SHC for other dry-bulb temperatures = SHC + SHC*
 SHC* = SHC correction for other dry-bulb temperatures
 = 0.02 x AFR (m³/min) x (1.85) x (DB* - EDB)
 - The capacities are based on the following conditions:
 Outdoor air: 85% RH
 However, the outdoor ambient condition of the rated capacity during heating operation is 7°C DB / 6°C WB.
 Corresponding refrigerant piping length: 5.0 m
 Level difference: 0m
 - CPI is a percentage value compared to the rated value which is 1.00.
 - The error rate for this value is less than 5% and depends on the indoor unit type.
 - The heating performance takes into account the drop that occurs during defrost operation.
 - The air flow rate and bypass factor are mentioned in the table.

Pair		
AFR	33.5	
BF	(0.18)	

9. The rated power input for each model is mentioned in the table below.

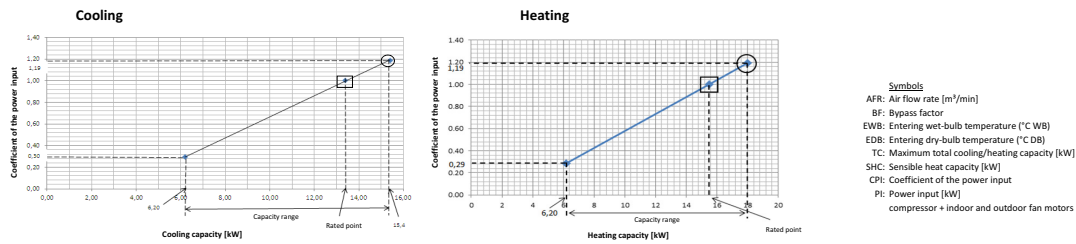
Pair		
Cooling	3.05	
Heating	3.07	

3D102076

6 Capacity tables

6 - 1 Cooling/Heating Capacity Tables

RZAG140LV1



Indoor		Outdoor temperature (°C DB)											
		25			30			35			40		
°CWB	°CDB	TC	SHC	CPI	TC	SHC	CPI	TC	SHC	CPI	TC	SHC	CPI
16.0	22	15.50	10.47	0.98	14.93	10.25	1.08	14.44	10.03	1.18	13.86	9.69	1.28
18.0	25	16.17	10.55	0.98	15.62	10.21	1.09	15.11	10.01	1.19	14.52	9.71	1.30
19.0	27	16.56	10.43	0.99	15.96	10.18	1.09	15.40	9.98	1.19	14.83	9.76	1.30
19.5	27	16.74	10.49	0.99	16.14	10.16	1.10	15.57	10.00	1.19	14.98	9.66	1.30
22.0	30	17.61	10.37	0.99	17.01	10.16	1.10	16.36	9.83	1.21	15.76	9.60	1.31
24.0	32	18.35	10.20	1.00	17.72	10.00	1.11	17.04	9.67	1.22	16.43	9.47	1.32

Indoor		Outdoor temperature (°C WB)											
		-15.0			-10.0			-5.0			0.0		
°CDB	°CWB	TC	SHC	CPI	TC	SHC	CPI	TC	SHC	CPI	TC	SHC	CPI
16	11.56	0.91	12.72	0.97	13.56	1.00	13.94	1.03	18.00	1.09	19.40	1.16	1.16
18	11.56	0.95	12.72	1.00	13.56	1.04	13.94	1.07	18.00	1.14	19.40	1.21	1.21
20	11.56	0.99	12.70	1.05	13.53	1.09	13.94	1.11	18.00	1.19	19.40	1.25	1.25
21	11.52	1.00	12.70	1.06	13.50	1.11	13.94	1.13	18.00	1.21	19.40	1.28	1.28
22	11.48	1.02	12.70	1.08	13.46	1.12	13.94	1.16	18.00	1.24	19.40	1.30	1.30
24	11.48	1.07	12.62	1.12	13.46	1.17	13.94	1.20	18.00	1.29	19.40	1.35	1.35

Notes

- The ratings shown are net capacities which include a deduction for indoor fan motor heat.
- = Maximum at standard conditions
□ = Rated capacity and rated coefficient of the power input
The maximum capacity is not guaranteed except at standard conditions.
- SHC is based on indoor units EWB & EDB.
SHC for other dry-bulb temperatures = SHC + SHC*
SHC* = SHC correction for other dry-bulb temperatures
= $0.02 \times \text{AFR} (\text{m}^3/\text{min}) \times (1.8\text{F} - \text{EDB})$
- The capacities are based on the following conditions:
Outdoor air: 85% RH
However, the outdoor ambient condition of the rated capacity during heating operation is 7°C DB / 6°C WB.
Corresponding refrigerant piping length: 5.0 m
Level difference: 0m
- CPI is a percentage value compared to the rated value which is 1.00.
- The error rate for this value is less than 5% and depends on the indoor unit type.
- The heating performance takes into account the drop that occurs during defrost operation.
- The air flow rate and bypass factor are mentioned in the table.

Pair		FCAG140F
AFR	(BF)	33.5 (0.15)

- The rated power input for each model is mentioned in the table below.

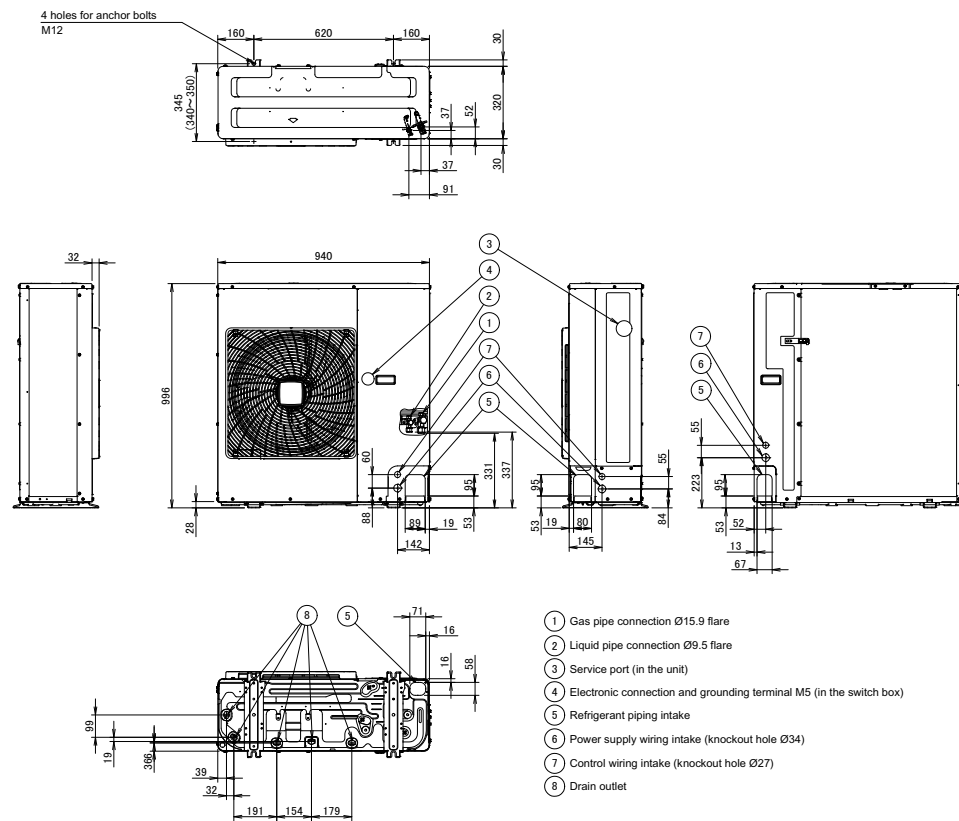
Pair		FCAG140F
Cooling		4.00
Heating		3.77

3D102077

7 Dimensional drawings

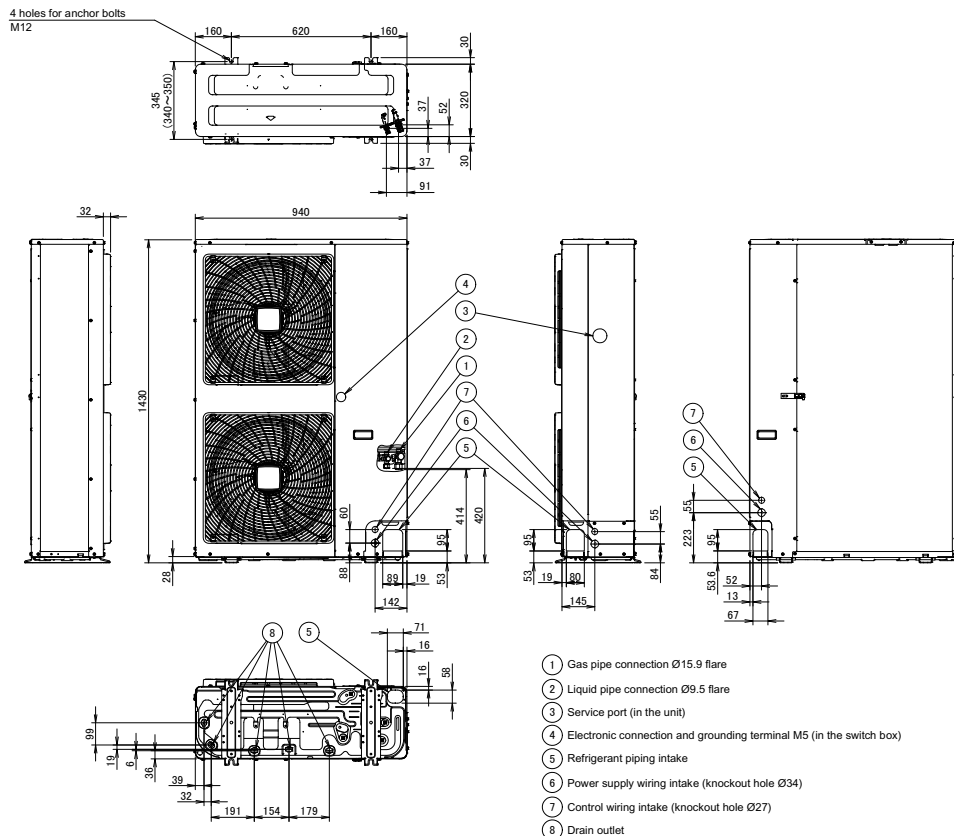
7 - 1 Dimensional Drawings

RZAG71LV1



3D103893

RZAG100-140LV1

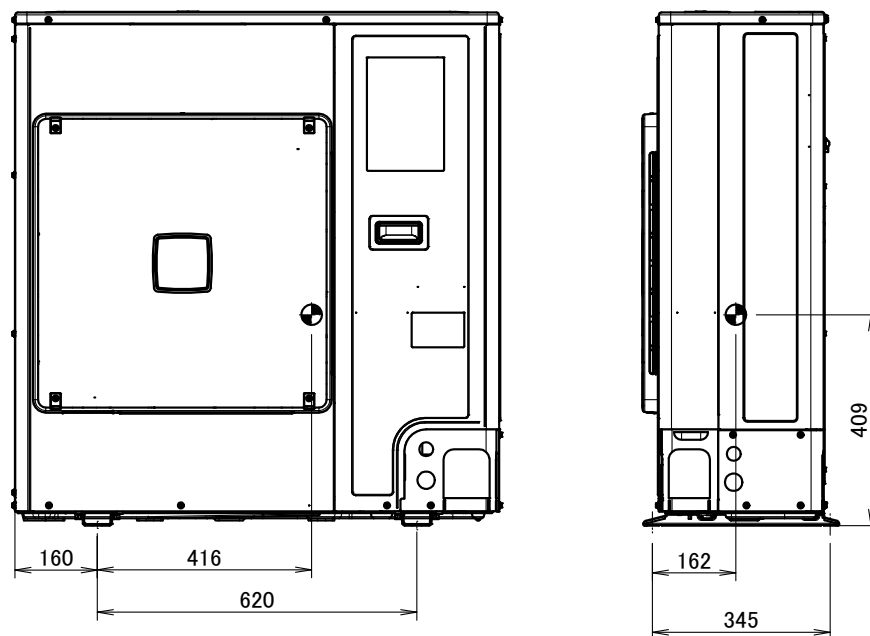


3D103894

8 Centre of gravity

8 - 1 Centre of Gravity

RZAG71LV

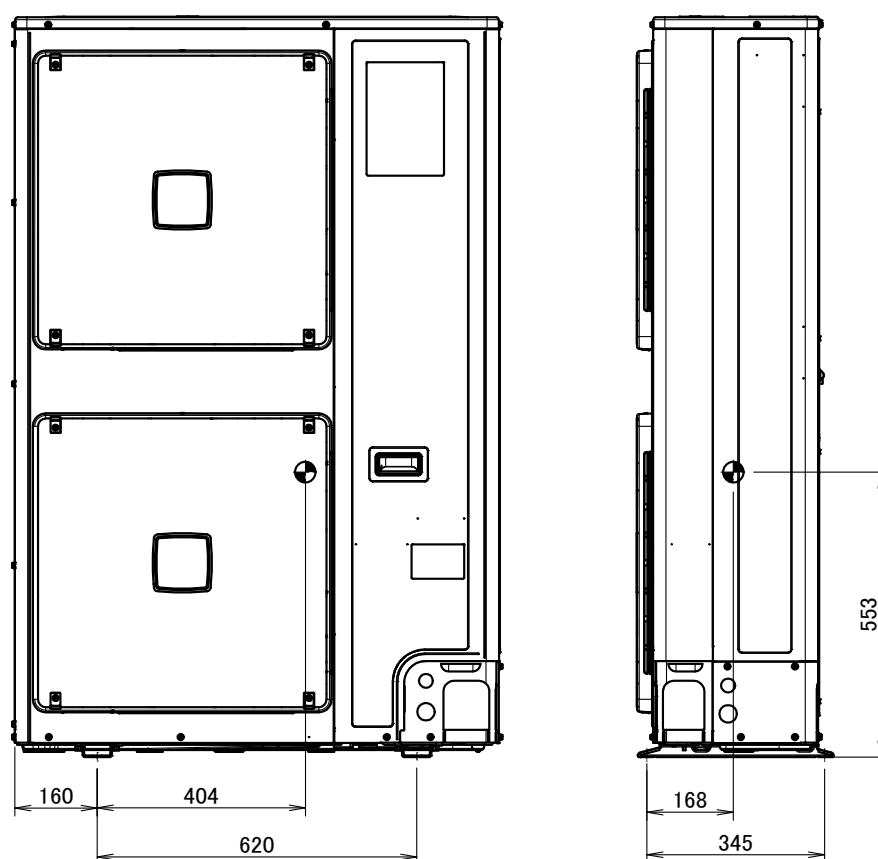


4D099155

8 Centre of gravity

8 - 1 Centre of Gravity

RZAG100-140LV1

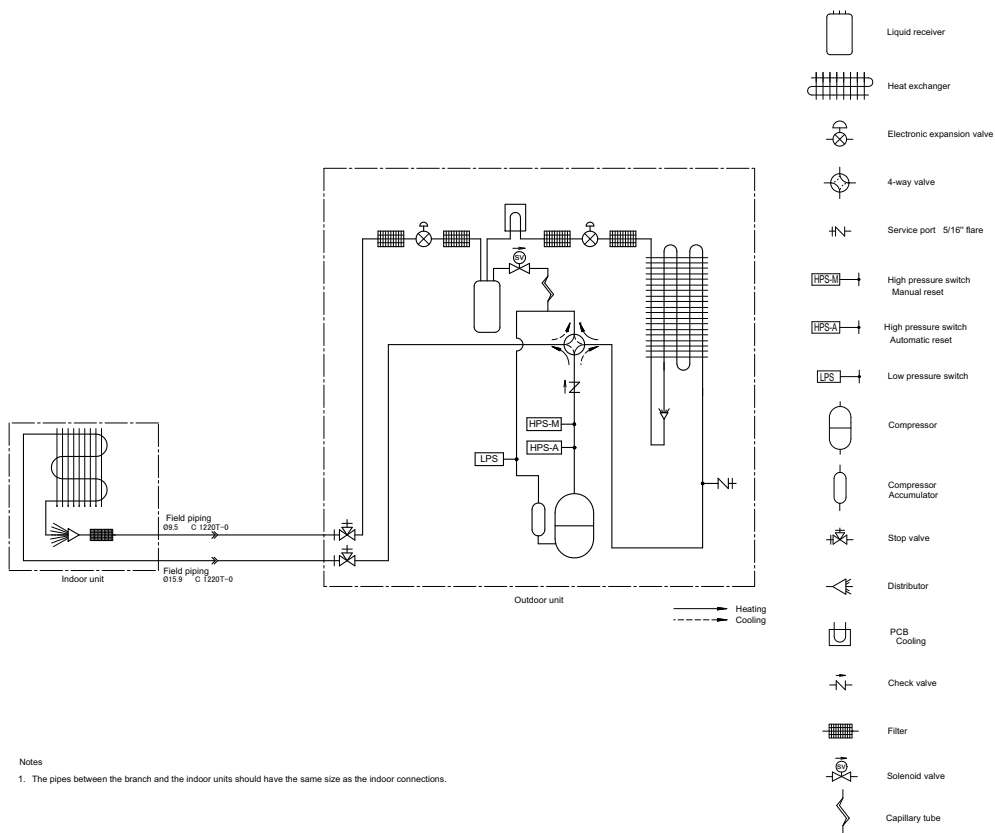


4D099156

9 Piping diagrams

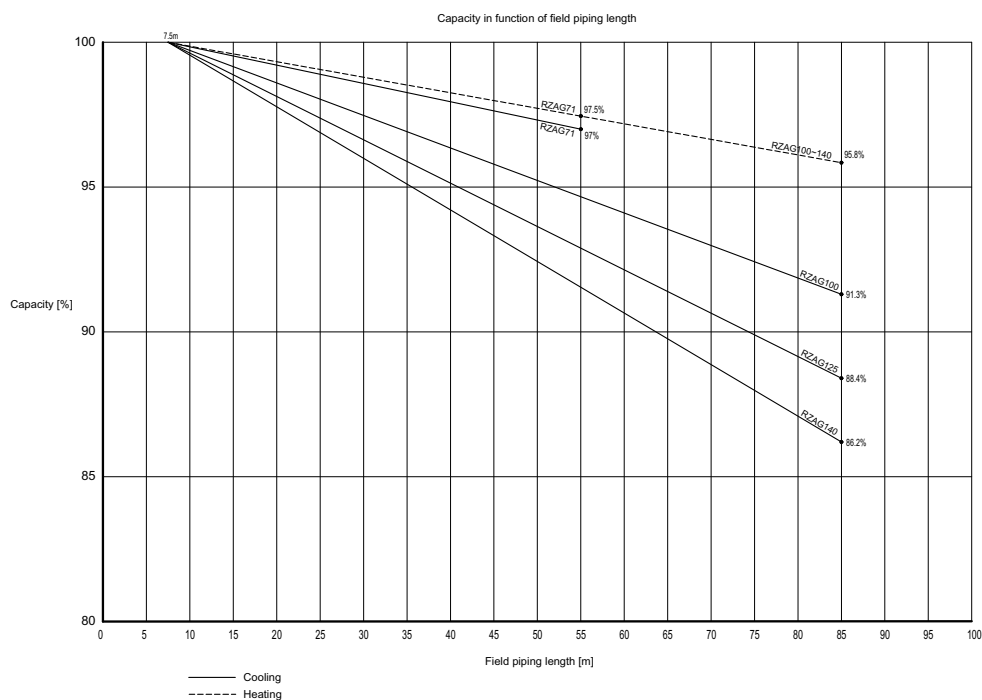
9 - 1 Piping Diagrams

RZAG-LV1



3D099154

RZAG-LV1

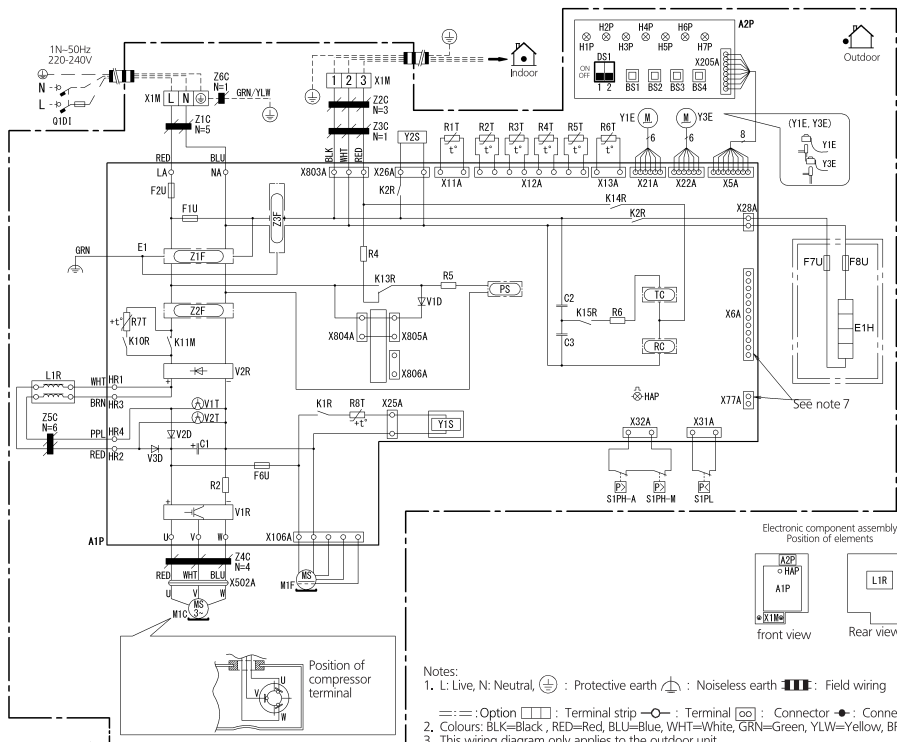


3D099159

10 Wiring diagrams

10 - 1 Wiring Diagrams - Single Phase

RZAG71LV1

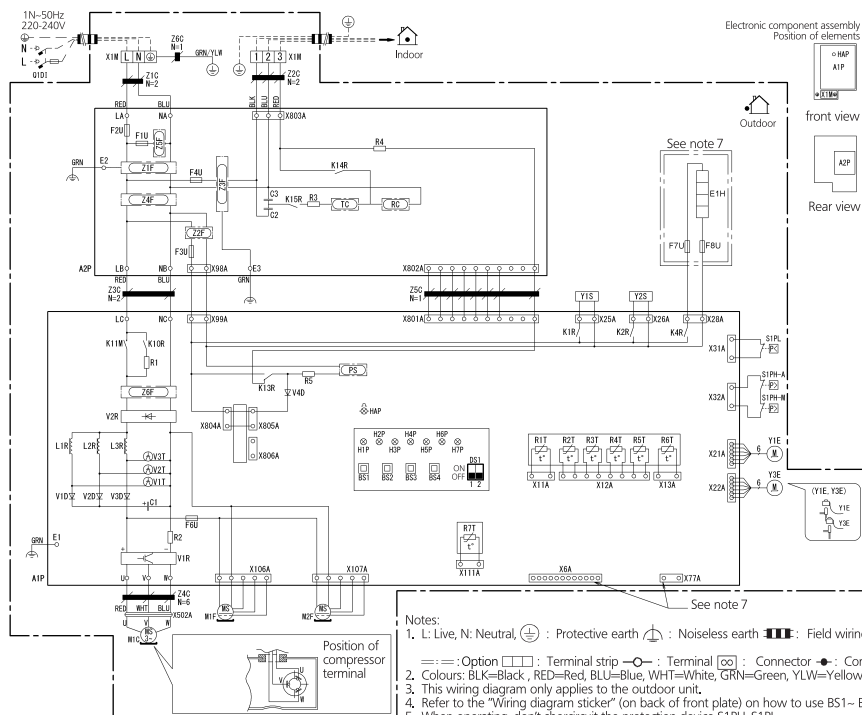


- A1P : Printed circuit board (Main)
- A2P : Printed circuit board
- BS1-BS4 : Push button switch
- C1-C3 : Capacitor
- E1H : Dip switch
- F1U - F2U : Fuse
- F6U : Fuse (T 5.0A / 250V)
- F7U - F8U : Fuse (T 1.0A / 250V)
- H1P - H7P : Light emitting diode (service monitor orange)
- H4P : Light emitting diode (service monitor green)
- K1R : Magnetic relay (Y15)
- K2R : Magnetic relay (Y25)
- K10R : Magnetic relay
- K11M : Magnetic relay
- K13R - K15R : Magnetic relay
- L1R : Reactor
- M1C : Motor (compressor)
- M1F : Motor (fan)
- P5 : Switching power supply
- Q1D : Earth leakage circuit breaker (30mA)
- R2, R5, R6 : Resistor
- R1T : Thermistor (air)
- R2T : Thermistor (discharge)
- R3T : Thermistor (suction)
- R4T : Thermistor (heat exchanger)
- R5T : Thermistor (heat exchanger middle)
- R6T : Thermistor (liquid)
- R7T - R8T : See note 8
- RC : Signal receiver circuit
- S1PH-A : Automatic high pressure switch
- S1PH-M : Manual high pressure switch
- S1PL : Low pressure switch
- TC : Signal transmission circuit
- V1D - V3D : Diode
- V1R : IGBT Power module
- V2R : Diode module
- V1T - V2T : Insulated gate bipolar transistor (IGBT)
- X11M : Terminal strip
- Y1E : Electronic expansion valve
- Y3E : Electronic expansion valve
- Y15 : Solenoid valve (4 way valve)
- Y25 : Solenoid valve
- Z1C - Z6C : Noise filter (ferrite core)
- Z1F - Z3F : Noise filter

- Notes:
1. L: Live, N: Neutral, ⊕ : Protective earth, ⊕ : Noiseless earth, ■■■ : Field wiring
 2. Colours: BLK=Black, RED=Red, BLU=Blue, WHT=White, GRN=Green, YLW=Yellow, BRN=Brown, PPL=purple
 3. This wiring diagram only applies to the outdoor unit.
 4. Refer to the "Wiring diagram sticker" (on back of front plate) on how to use BS1- BS4 and DS1 switch.
 5. When operating, don't shortcircuit the protection device S1PH, S1PL.
 6. Refer to the service manual for instructions on how to set the selector switch (DS1). The factory setting of all switches is OFF.
 7. Refer to the combination table and option manual, for connecting wiring to X6A, X28A and X77A.
 8. Thermistor (Positive Temperature Coefficient)

2D099152

RZAG100-140LV1



- A1P : Printed circuit board (Main)
- A2P : Printed circuit board
- BS1-BS4 : Push button switch
- C1-C3 : Capacitor
- E1H : Dip switch
- F1U - F4U : Fuse
- F6U : Fuse (T 5.0A / 250V)
- F7U - F8U : Fuse (T 1.0A / 250V)
- H1P - H7P : Light emitting diode (service monitor orange)
- H4P : Light emitting diode (service monitor green)
- K1R : Magnetic relay (Y15)
- K2R : Magnetic relay (Y25)
- K10R : Magnetic relay
- K11M : Magnetic relay
- K13R - K15R : Magnetic relay
- K4R : Magnetic relay E1H (Option)
- L1R - L3R : Reactor
- M1C : Motor (compressor)
- M1F : Motor (fan) (upper)
- M2F : Motor (fan) (lower)
- P5 : Switching power supply
- Q1D : Earth leakage circuit breaker (30mA)
- R1 - R5 : Resistor
- R1T : Thermistor (air)
- R2T : Thermistor (discharge)
- R3T : Thermistor (suction)
- R4T : Thermistor (heat exchanger)
- R5T : Thermistor (heat exchanger middle)
- R6T : Thermistor (liquid)
- R7T : Thermistor (lin)
- RC : Signal receiver circuit
- S1PH-A : Automatic high pressure switch
- S1PH-M : Manual high pressure switch
- S1PL : Low pressure switch
- TC : Signal transmission circuit
- V1D - V4D : Diode
- V1R : IGBT Power module
- V2R : Diode module
- V1T - V3T : Insulated gate bipolar transistor (IGBT)
- X11M : Terminal strip
- Y1E : Electronic expansion valve
- Y3E : Electronic expansion valve
- Y15 : Solenoid valve (4 way valve)
- Y25 : Solenoid valve
- Z1C - Z6C : Noise filter (ferrite core)
- Z1F - Z6F : Noise filter

- Notes:
1. L: Live, N: Neutral, ⊕ : Protective earth, ⊕ : Noiseless earth, ■■■ : Field wiring
 2. Colours: BLK=Black, RED=Red, BLU=Blue, WHT=White, GRN=Green, YLW=Yellow
 3. This wiring diagram only applies to the outdoor unit.
 4. Refer to the "Wiring diagram sticker" (on back of front plate) on how to use BS1- BS4 and DS1 switch.
 5. When operating, don't shortcircuit the protection device S1PH, S1PL.
 6. Refer to the service manual for instructions on how to set the selector switch (DS1). The factory setting of all switches is OFF.
 7. Refer to the combination table and option manual, for connecting wiring to X6A, X28A and X77A.

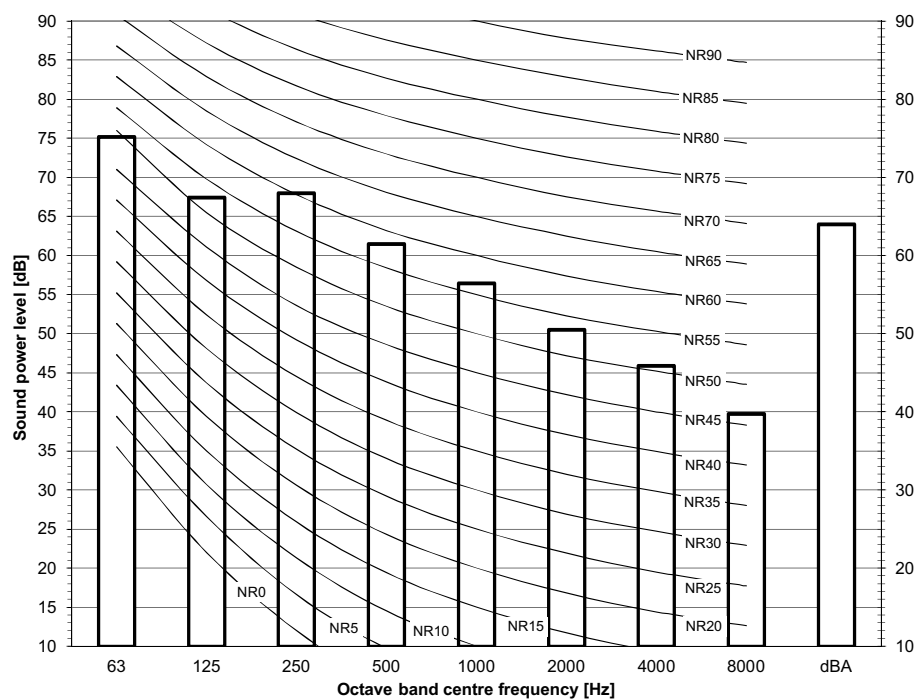
2D099153

11 Sound data

11 - 1 Sound Power Spectrum

11

RZAG71LV1

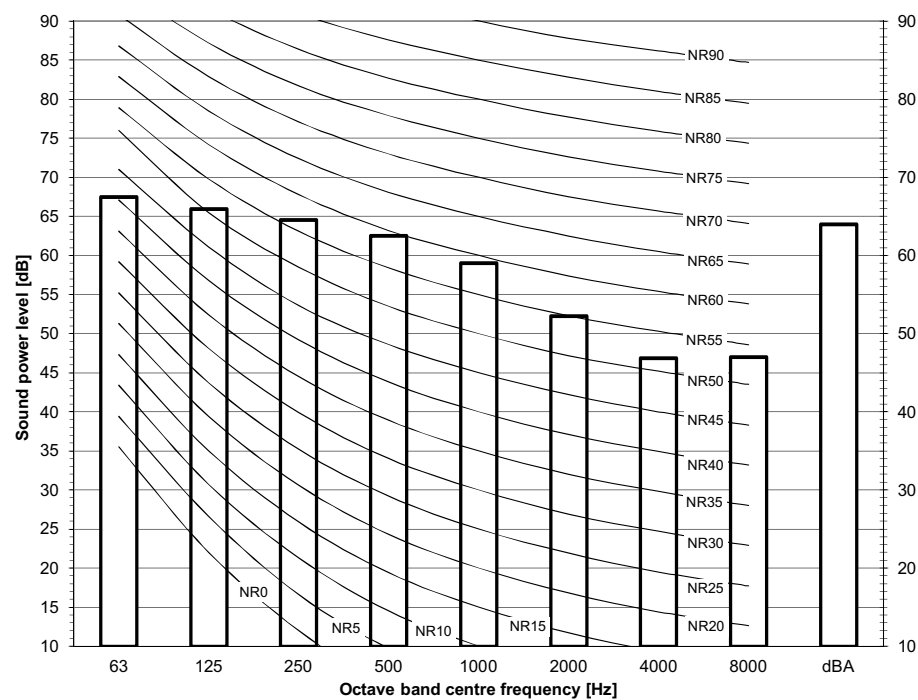


Notes
 - dBA = A-weighted sound power level (A scale according to IEC).
 - Reference acoustic intensity $0 \text{ dB} = 10^{-6} \text{ W/m}^2$
 - Measured according to ISO 3744

3D099162

11 Sound data
11 - 1 Sound Power Spectrum

RZAG100LV1



Notes
- dBA = A-weighted sound power level (A scale according to IEC).
- Reference acoustic intensity 0dB = 10E-6μW/m²
- Measured according to ISO 3744

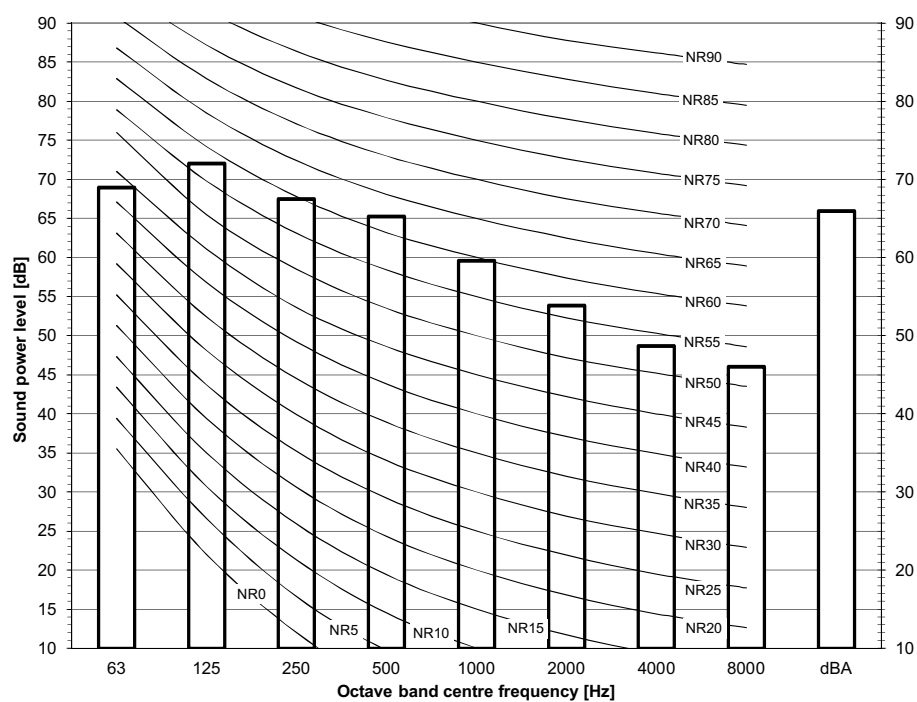
3D099163

11 Sound data

11 - 1 Sound Power Spectrum

11

RZAG12SLV1



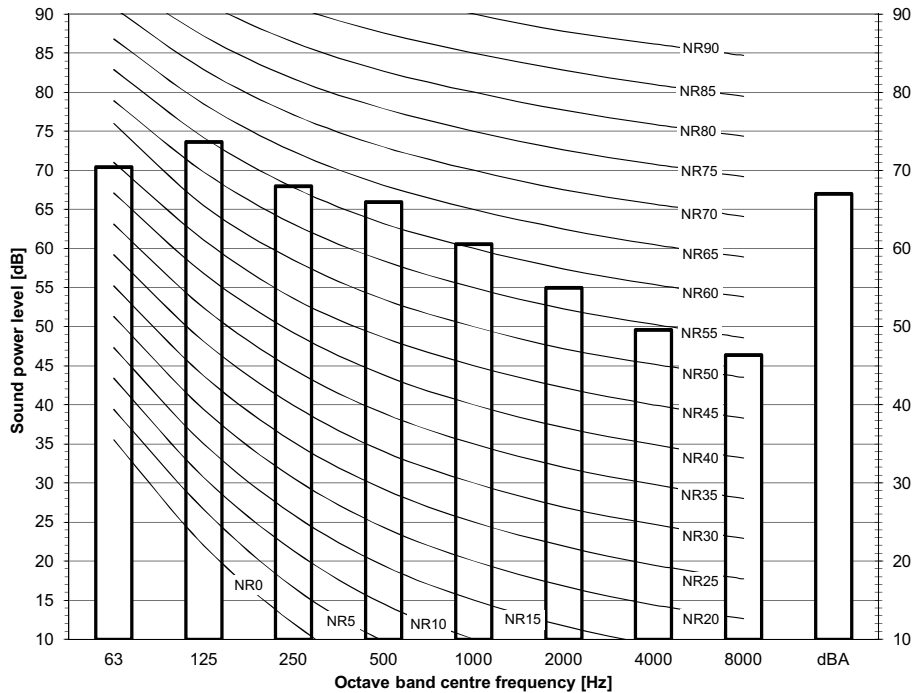
Notes
 - dBA = A-weighted sound power level (A scale according to IEC).
 - Reference acoustic intensity $0\text{dB} = 10^{-6}\text{W/m}^2$
 - Measured according to ISO 3744

3D099164

11 Sound data

11 - 1 Sound Power Spectrum

RZAG140LV1



Notes
- dBA = A-weighted sound power level (A scale according to IEC).
- Reference acoustic intensity 0dB = 10E-6µW/m²
- Measured according to ISO 3744

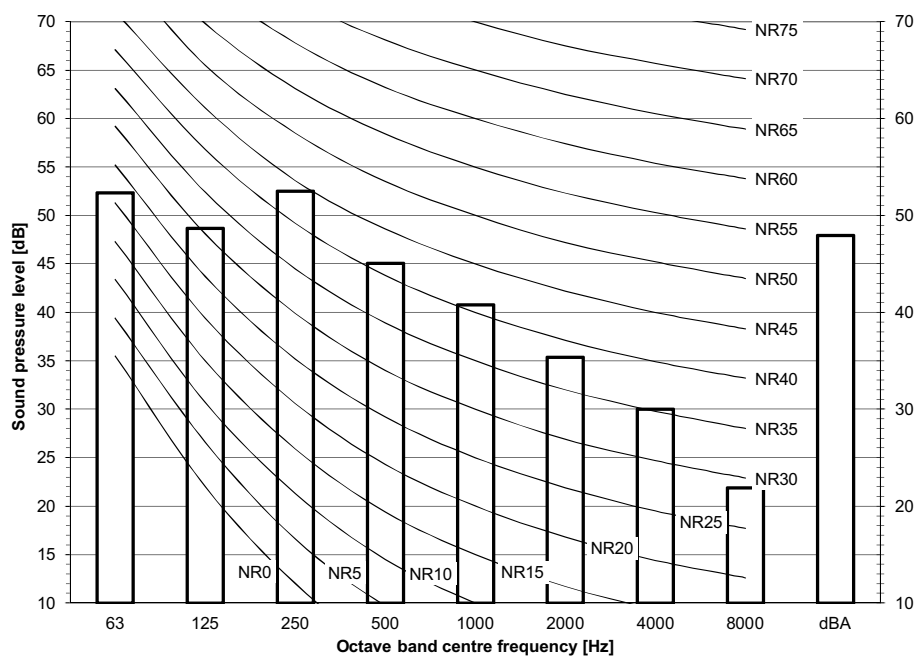
3D099165

11 Sound data

11 - 2 Sound Pressure Spectrum - Cooling

11

RZAG71LV1



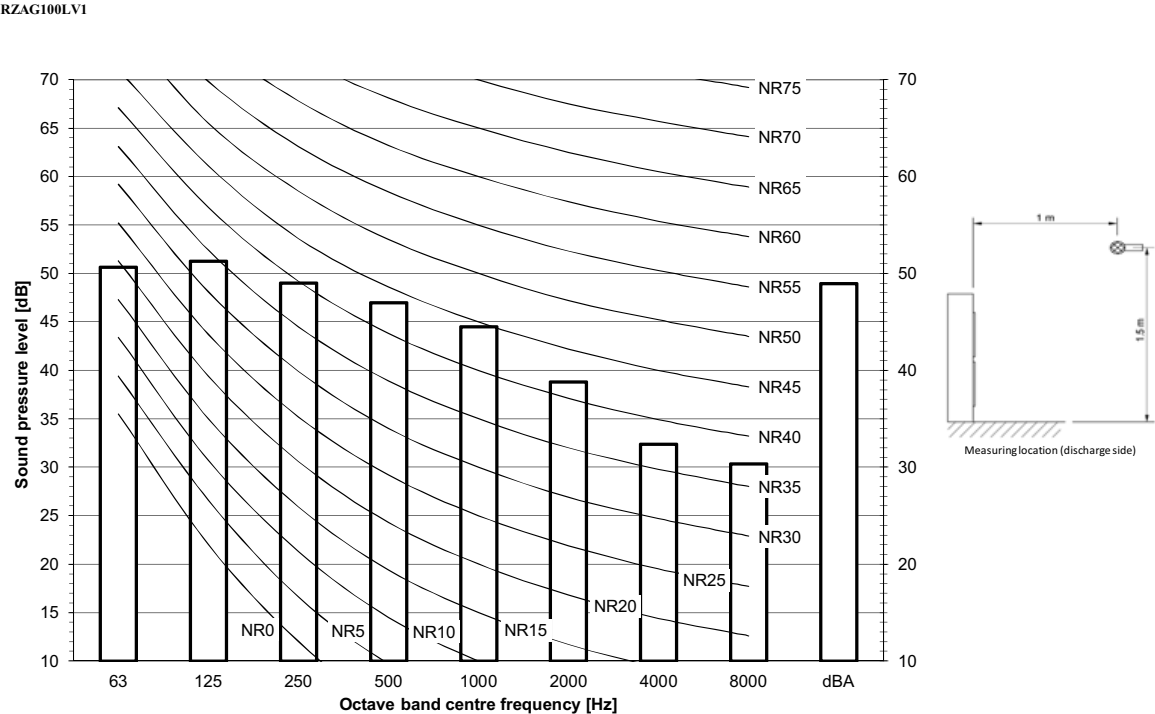
Notes

- Data is valid at free field condition.
- Data is valid at nominal operation condition.
- dBA = A-weighted sound pressure level (A scale according to IEC).
- Reference acoustic pressure 0 dB = 20 μ Pa

3D102070

11 Sound data

11 - 2 Sound Pressure Spectrum - Cooling



Notes

- Data is valid at free field condition.
- Data is valid at nominal operation condition.
- dBA = A-weighted sound pressure level (A scale according to IEC).
- Reference acoustic pressure 0 dB = 20 µPa

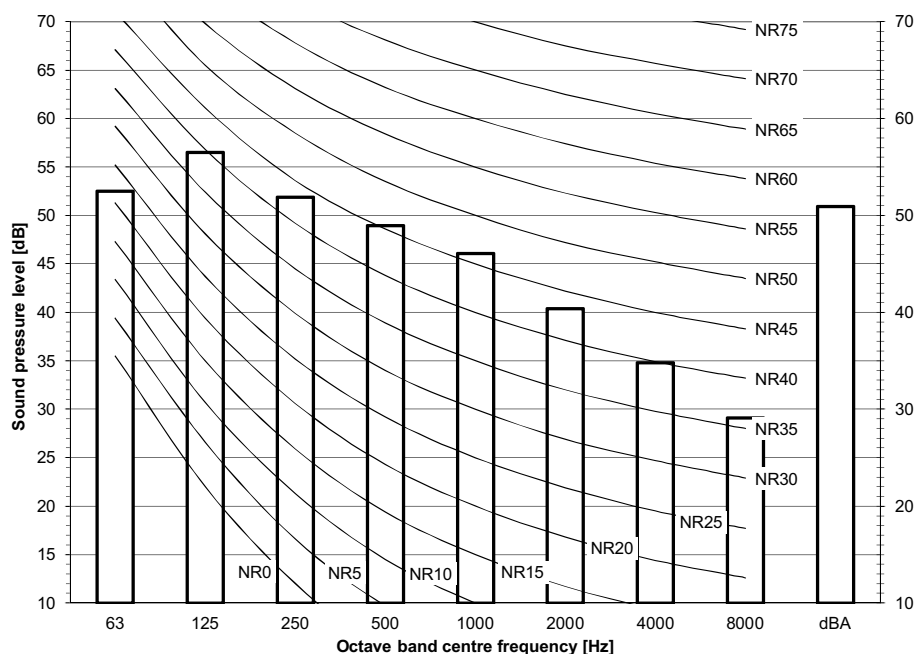
3D102071

11 Sound data

11 - 2 Sound Pressure Spectrum - Cooling

11

RZAG125LV1



Notes

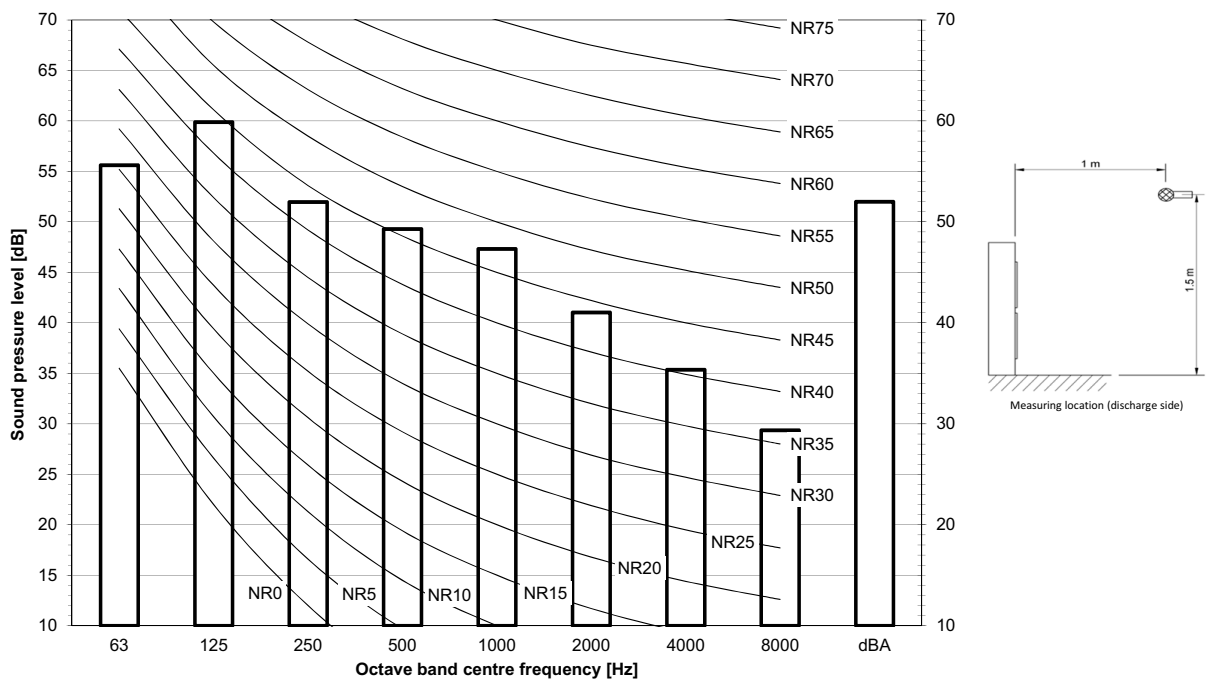
- Data is valid at free field condition.
- Data is valid at nominal operation condition.
- dBA = A-weighted sound pressure level (A scale according to IEC).
- Reference acoustic pressure 0 dB = 20 μ Pa

3D102072

11 Sound data

11 - 2 Sound Pressure Spectrum - Cooling

RZAG140LV1



- Notes**
- Data is valid at free field condition.
 - Data is valid at nominal operation condition.
 - dBA = A-weighted sound pressure level (A scale according to IEC).
 - Reference acoustic pressure 0 dB = 20 μ Pa

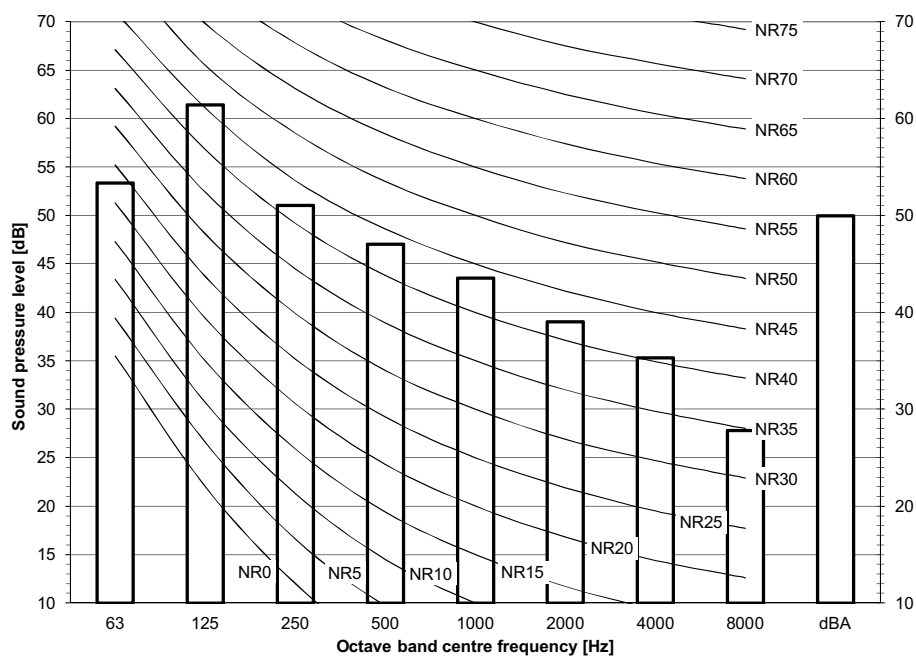
3D102073

11 Sound data

11 - 3 Sound Pressure Spectrum - Heating

11

RZAG71LV1



Notes

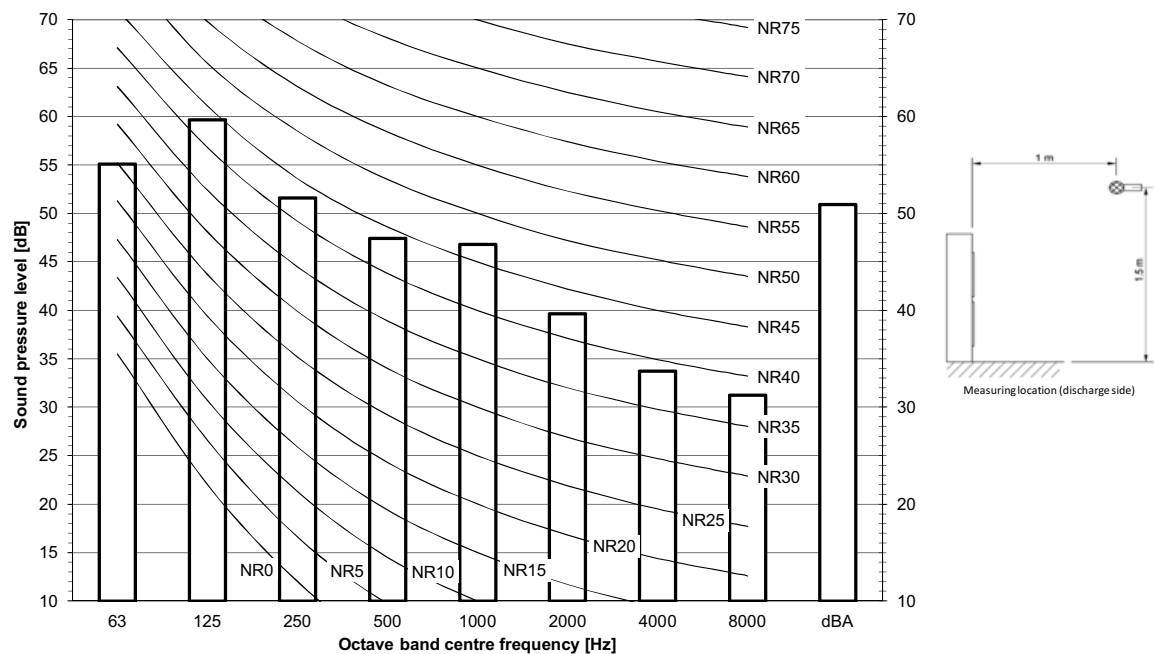
- Data is valid at free field condition.
- Data is valid at nominal operation condition.
- dBA = A-weighted sound pressure level (A scale according to IEC).
- Reference acoustic pressure 0 dB = 20 μ Pa

3D102066

11 Sound data

11 - 3 Sound Pressure Spectrum - Heating

RZAG100LV1



Notes

- Data is valid at free field condition.
- Data is valid at nominal operation condition.
- dBA = A-weighted sound pressure level (A scale according to IEC).
- Reference acoustic pressure 0 dB = 20 µPa

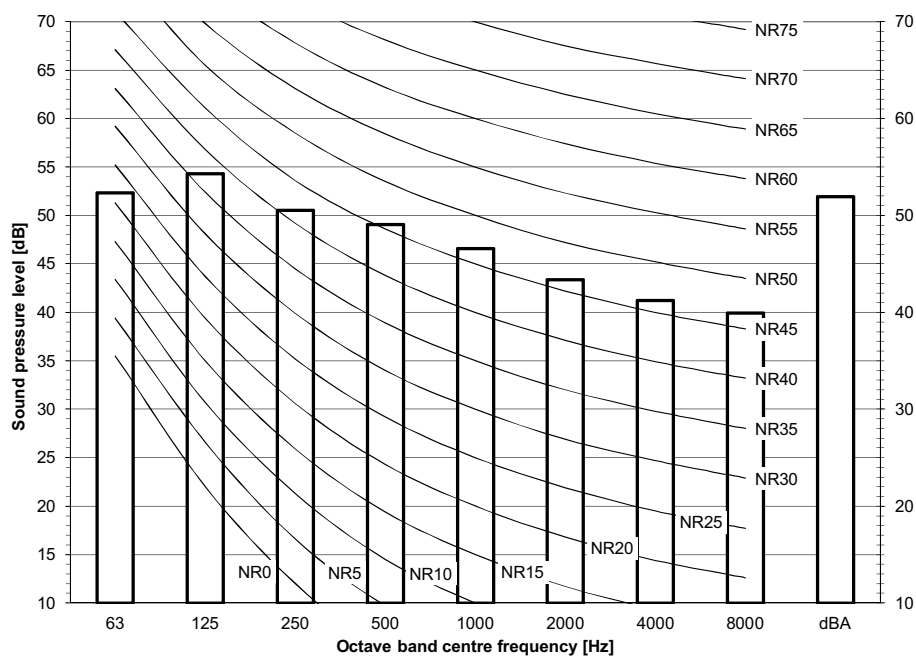
3D102067

11 Sound data

11 - 3 Sound Pressure Spectrum - Heating

11

RZAG125LV1



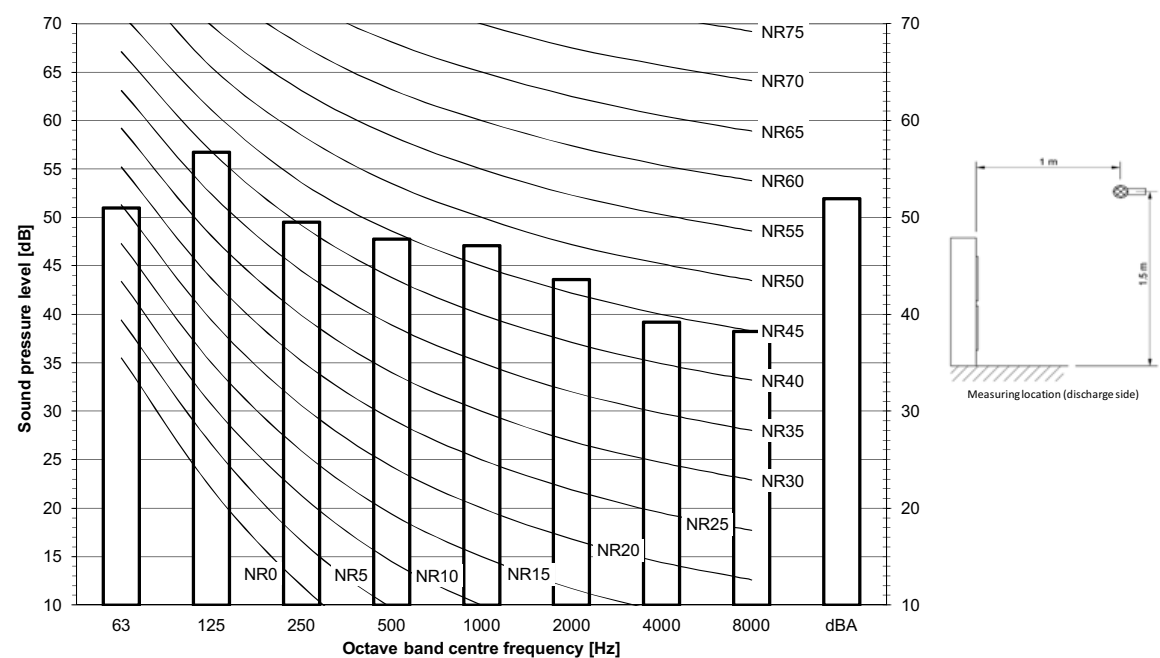
Notes

- Data is valid at free field condition.
- Data is valid at nominal operation condition.
- dBA = A-weighted sound pressure level (A scale according to IEC).
- Reference acoustic pressure 0 dB = 20 μ Pa

3D102068

11 Sound data
11 - 3 Sound Pressure Spectrum - Heating

RZAG140LV1



Notes

- Data is valid at free field condition.
- Data is valid at nominal operation condition.
- dBA = A-weighted sound pressure level (A scale according to IEC).
- Reference acoustic pressure 0 dB = 20 µPa

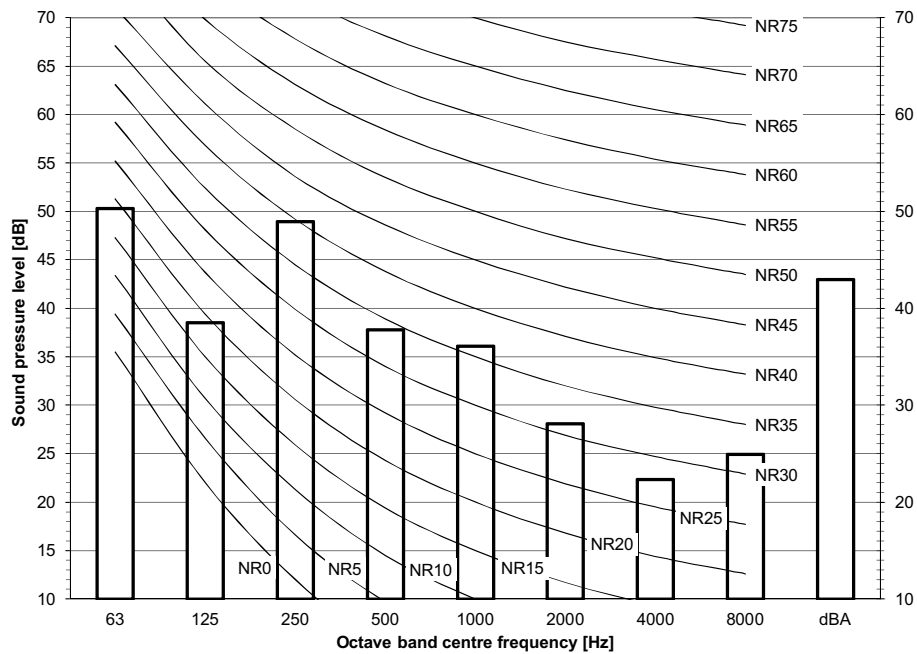
3D102069

11 Sound data

11 - 4 Sound Pressure Spectrum Quiet Mode

11

RZAG71LV1



Notes

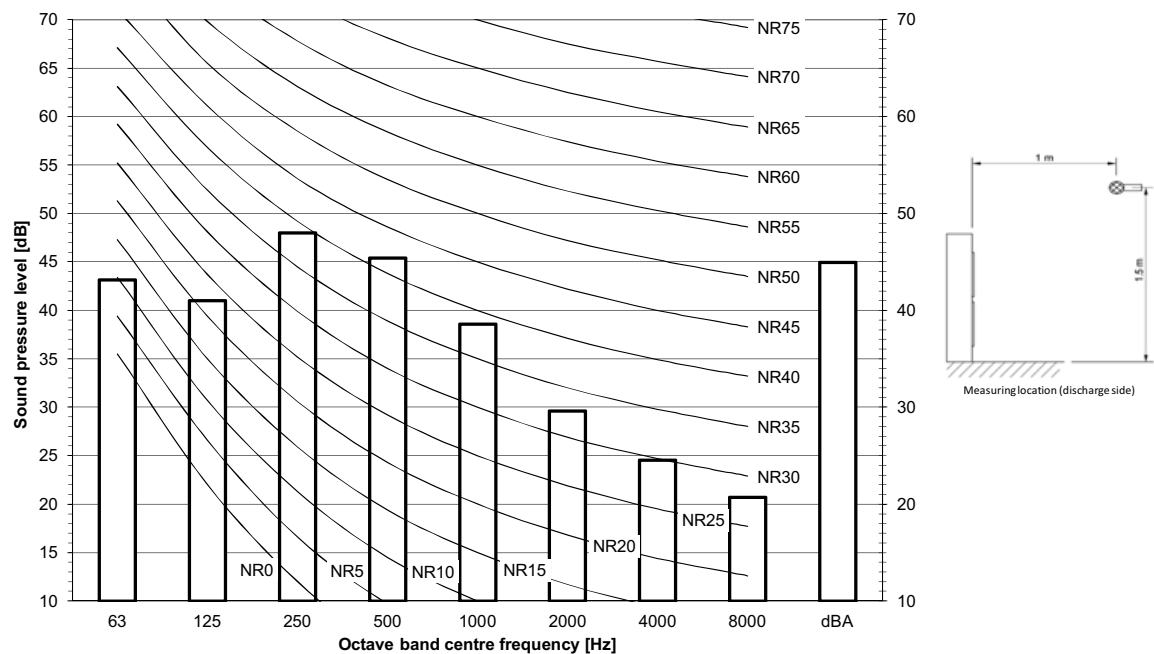
- Data is valid at free field condition.
- Data is valid at nominal operation condition.
- dBA = A-weighted sound pressure level (A scale according to IEC).
- Reference acoustic pressure 0 dB = 20 μ Pa

3D102062

11 Sound data

11 - 4 Sound Pressure Spectrum Quiet Mode

RZAG100-140LV1



Notes

- Data is valid at free field condition.
- Data is valid at nominal operation condition.
- dBA = A-weighted sound pressure level (A scale according to IEC).
- Reference acoustic pressure 0 dB = 20 µPa

3D102063

12 Installation

12 - 1 Installation Method

RZAG-LV1

Installation service space

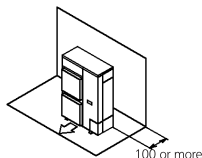
The measure of these values is "mm".

(A) When there are obstacles on suction sides.

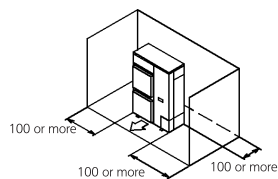
• No obstacle above

① Stand-alone installation

- Obstacle on the suction side only

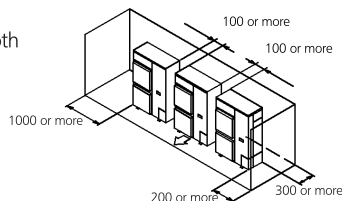


- Obstacle on both sides and suction side, too



② Series installation (2 or more) (Note 1)

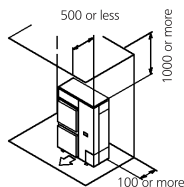
- Obstacle on the suction side and both sides



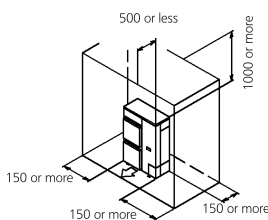
• Obstacle above, too.

① Stand-alone installation

- Obstacle on the suction side, too

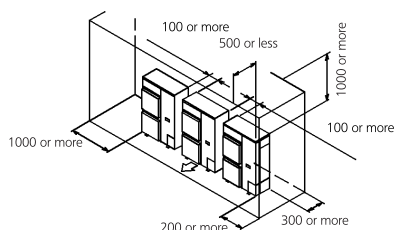


- Obstacle on both sides and suction side, too



② Series installation (2 or more) (Note 1)

- Obstacle on the suction side and both sides

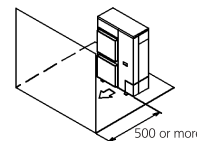


(B) When there are obstacles on discharge sides.

• No obstacle above

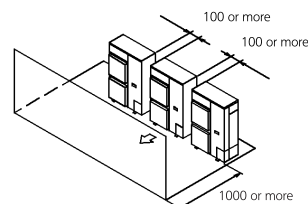
① Stand-alone installation

- Obstacle on the discharge side only



② Series installation (2 or more) (Note 1)

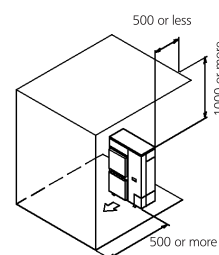
- Obstacle on the discharge side only



• Obstacle above, too

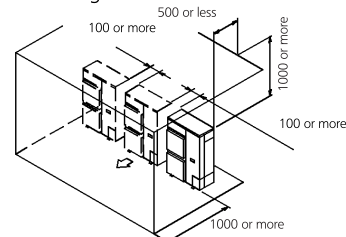
① Stand-alone installation

- Obstacle on the discharge side only, too



② Series installation (2 or more) (Note 1)

- Obstacle on the discharge side



(C) When there are obstacles on both suction and discharge sides.:

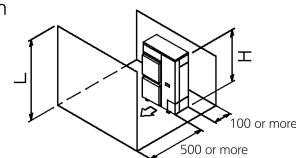
Pattern 1

When the obstacles on the discharge side is higher than the unit. ($L > H$)
(There is no limit for the height of obstructions on the suction side.)

• No obstacle above

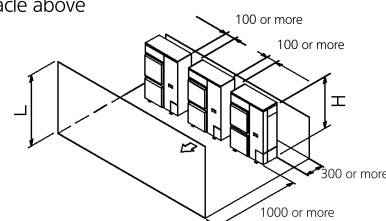
① Stand-alone installation

- No obstacle above



② Series installation (2 or more) (Note 1)

- No obstacle above



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12 Installation

12 - 1 Installation Method

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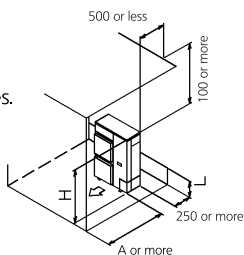
● Obstacle above, too

① Stand-alone installation (Note 2)

- When there are obstacles on suction, discharge and top sides.

The relations between H, A and L are as follows.

	L	A
$L \leq H$	$L \leq 1/2 H$ $1/2 H < L \leq H$	750 or more 1000 or more
$L > H$	Set the stand as : $L \leq H$ Refer to the column of $L \leq H$ for A	



② Series installation (2 or more) (Note 1, 2)

- When there are obstacles on suction, discharge and top sides.

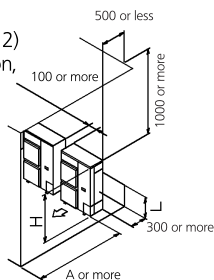
The relations between H, A and L are as follows.

	L	A
$L \leq H$	$L \leq 1/2 H$ $1/2 H < L \leq H$	1000 or more 1250 or more
$L > H$	Set the stand as : $L \leq H$ Refer to the column of $L \leq H$ for A	

Limit of series installation is 2 units.

Pattern 2

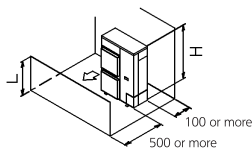
When the obstacle on the discharge side is lower than the unit ($L \leq H$)
(There is no limit for the height of obstructions on the suction side.)



● No obstacle above

① Stand-alone installation

- No obstacle above

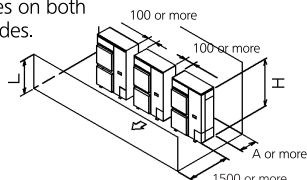


② Series installation (2 or more) (Note 1, 2)

- When there are obstacles on both suction and discharge sides.

The relations between H, A and L are as follows.

	L	A
$L \leq H$	$L \leq 1/2 H$ $1/2 H < L \leq H$	250 or more 300 or more



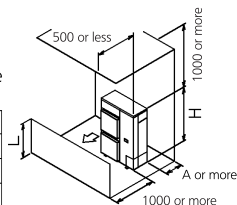
● obstacle above

① Stand-alone installation (Note 2)

- When there are obstacles on suction, discharge and top sides.

The relations between H, A and L are as follows.

	L	A
$L \leq H$	$L \leq 1/2 H$ $1/2 H < L \leq H$	100 or more 200 or more
$L > H$	Set the stand as : $L \leq H$ Refer to the column of $L \leq H$ for A	



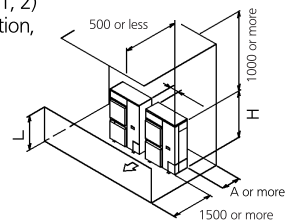
② Series installation (2 or more) (Note 1, 2)

- When there are obstacles on suction, discharge and top sides.

The relations between H, A and L are as follows.

	L	A
$L \leq H$	$L \leq 1/2 H$ $1/2 H < L \leq H$	250 or more 300 or more
$L > H$	Set the stand as : $L \leq H$ Refer to the column of $L \leq H$ for A	

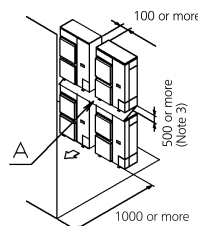
Limit of series installation is 2 units.



(D) Double-decker installation

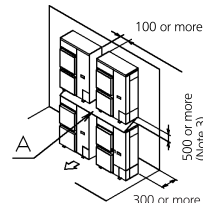
① Obstacle on the discharge side. (1)

- Do not exceed two levels for stacked installation.
- Install a roof cover similar to A (field supply), as outdoor units with downward drainage are prone to dripping and freezing.
- Install the upper-level outdoor unit so that its bottom plate is a sufficient height above the roof cover. This is to prevent the buildup of ice on the underside of the bottom plate.



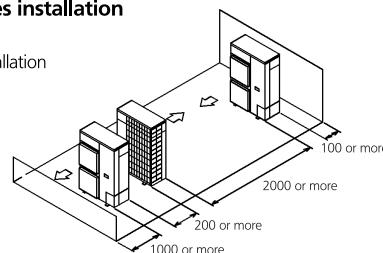
② Obstacle on the suction side. (1)

- Do not exceed two levels for stacked installation.
- Install a roof cover similar to A (field supply), as outdoor units with downward drainage are prone to dripping and freezing.
- Install the upper-level outdoor unit so that its bottom plate is a sufficient height above the roof cover. This is to prevent the buildup of ice on the underside of the bottom plate.



(E) Multiple rows of series installation (on the rooftop, etc.)

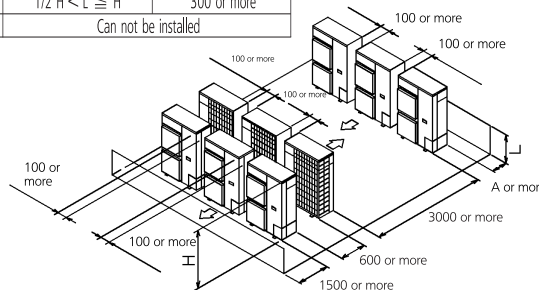
① One row of stand-alone installation



② Rows of series installation (2 or more)

The relations between H, A and L are as follows.

	L	A
$L \leq H$	$L \leq 1/2 H$ $1/2 H < L \leq H$	250 or more 300 or more
$L > H$	Can not be installed	



NOTES

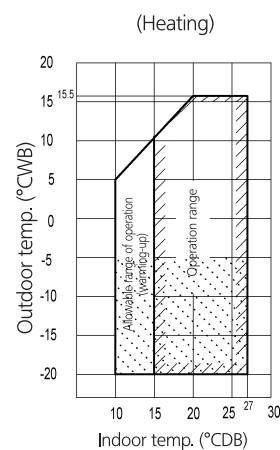
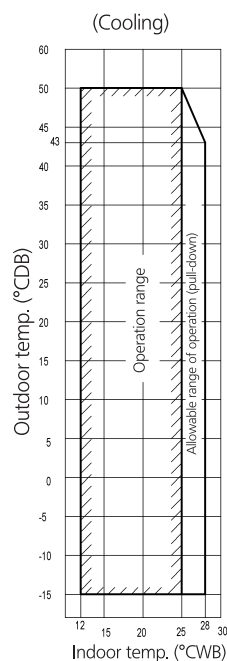
- In case of the sideways's piping, make a 100mm gap between the unit above.
- Close the bottom of the installation frame to prevent the discharged air from being bypassed.
- It is not necessary to install a roof cover if there is no danger of drainage dripping and freezing. In this case, the space between the upper and lower outdoor units should be at least 100mm. Close off the gap between the upper and lower units so there is no re intake of discharged air.

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13 Operation range

13 - 1 Operation Range

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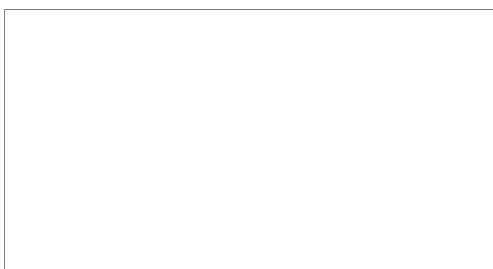


Notes:

- 1 Depending on operation and installation conditions, the indoor unit can change over to freeze-up operation (indoor de-icing).
- 2 To reduce the freeze-up operation (indoor de-icing) frequency, it is recommended to install the outdoor unit in a location not exposed to wind.
- 3 If the unit has to operate for 5 days in this  operation range with 100% humidity, it is advisable to install the optional bottom plate heater.

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