VRV 5 S-series Air Conditioning Technical Data

RXYSA-AY1

RXYSA4A7Y1B
RXYSA5A7Y1B
RXYSA6A7Y1B

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TABLE OF CONTENTS

RXYSA-AY1

1 Features

1 - 1 RXYSA-AY1

Lower CO2 equivalent and market-leading flexibility

- Reduced CO2 equivalent thanks to the use of lower GWP R-32 refrigerant and lower refrigerant charge
- Top sustainability over the entire lifecycle, thanks to market leading real-life seasonal efficiency
- Compact (870mm high) and lightweight single fan design makes the unit unobtrusive, saves space and is easy to install
- Easy to transport thanks to lightweight and compact design
- Market-leading serviceability and handling, thanks to wide access area, 7-segment display and additional handle
- Tackle small room applications without any additional measures, thanks to Shîrudo technology
- Specially designed indoor units for R-32, ensuring low sound and maximum efficiency

INVERTER
Inverter

2 Specifications

1 - 1 RXYSA-AY1

Technical Specifications					RXYSA4AY1	RXYSA5AY1	RXYSA6AY1
Recommended combination					3 x FXSA25A2VEB + 1 x FXSA32A2VEB	4 x FXSA32A2VEB	2 x FXSA32A2VEB + 2 x FXSA40A2VEB
Cooling capacity	Prated,c			kW	12.1 (1)	14.0 (1)	15.5 (1)
Heating capacity	Nom.	6°CWB		kW	12.1 (2)	14.0 (2)	15.5 (2)
	Prated,h			kW	12.1 (2)	14.0 (2)	15.5 (2)
	Max.	6°CWB		kW	14.2 (2)	16.0 (2)	18.0 (2)
Power input - 50Hz	Heating	Nom.	6°CWB	kW	2.69 (2)	3.33 (2)	3.78 (2)
COP at nom. capacity	6°CWB			kW/kW	4.49	4.20	4.10
SCOP					4.9	4.5	
SEER					7.9	7.4	7.3
ηs,c				%	312.5	294.8	289.9
ηs,h				%	193.1	178.8	176.8
Space cooling	A Condition (35°C - 27/19)	EERd			3.4	3.1	3.0
		Pdc		kW	12.1	14.0	15.5
	B Condition (30°C - 27/19)	EERd			5.6	5.1	4.8
		Pdc		kW	8.9	10.3	11.4
	C Condition (25°C - 27/19)	EERd			10.4	9.5	9.3
		Pdc		kW	5.7	6.6	7.3
	D Condition (20°C - 27/19)	EERd			17.5		17.9
		Pdc		kW	4.9	4.5	4.9
Space heating (Average climate)	TBivalent	COPd (declared COP)			2.7	2.5	2.4
		Pdh (declared heating cap)		kW	8.4	9.7	10.7
		Tbiv (bivalent temperature)		°C	-10		
	TOL	COPd (declared COP)			2.7	2.5	2.4
		Pdh (declared heating cap)		kW	8.4	9.7	10.7
		Tol (temperature operating limit)		°C	-10		
	A Condition (-7°C)	COPd (declared COP)			3.3	2.8	
		Pdh (declared heating cap)		kW	7.4	8.5	9.5
	B Condition (2°C)	COPd (declared COP)			4.7	4.3	4.1
		Pdh (declared heating cap)		kW	4.5	5.2	5.8
	C Condition (7°C)	COPd (declared COP)			6.8	6.5	
		Pdh (declared heating cap)		kW	3.3		3.7
	D Condition (12°C)	COPd (declared COP)			8.6	8.4	8.7
		Pdh (declared heating cap)		kW	3.9		4.0
Capacity range				HP	4	5	6
PED	Category				Category III		
	Most critical part	Name			Accumulator		
PED	Most critical part	Ps*V		Bar*l	257		
Maximum number of connectable indoor units					13 (3)	16 (3)	18 (3)
Indoor index connection	Min.				50.0	62.5	70.0
	Nom.				100	125	140
	Max.				130.0	162.5	182.0
Dimensions	Unit	Height		mm	869		
		Width		mm	1,100		
		Depth		mm	460		
	Packed unit	Height		mm	1,050		
		Width		mm	1,205		
		Depth		mm	569		
Weight	Unit			kg	102		
	Packed unit			kg	115		
Packing	Material				Carton		
	Weight			kg	4		
Packing 2	Material				Wood		
	Weight			kg	6		
Packing 3	Material				Plastic		
	Weight			kg	1		
Casing	Colour				Ivory white		
	Material				Painted galvanized steel plate		

2 Specifications

1 - 1 RXYSA-AY1

Technical Specifications					RXYSA4AY1	RXYSA5AY1	RXYSA6AY1
Heat exchanger	Type				Cross fin coil		
	Indoor side				Air		
	Outdoor side				Air		
	Air flow rate	Cooling	Rated	m^3/h	5,342		
		Heating	Rated	m^3/h	5,519	6,204	
Fan	Quantity				1		
	External static pressure	Max.		Pa	45		
Fan motor	Quantity				1		
	Type				DC motor		
	Output			W	234		
Compressor	Quantity				1		
	Type				Hermetically sealed swing compressor		
	Crankcase heater			W	33		
Operation range	Cooling	Min.		°CDB	-5		
		Max.		°CDB	46		
	Heating	Min.		°CWB	-20		
Operation range	Heating	Max.		°CWB	16		
Sound power level	Cooling	Nom.		dBA	67.0 (4)	68.1 (4)	69.0 (4)
	Heating	Nom.		dBA	68.0 (4)	69.2 (4)	70.0 (4)
Sound pressure level	Cooling	Nom.		dBA	49.0 (6)	51.0 (6)	
	Heating			dBA	50.0 (6)	52.0 (6)	
Refrigerant	Type				R-32		
	GWP				675.0		
	Charge			TCO2Eq	2.30		
	Charge			kg	3.40		
Refrigerant oil	Type				FW68DE		
	Charged volume			l	1.9		
Piping connections	Liquid	Type			Braze connection		
		OD		mm	10		
	Gas	Type			Braze connection		
		OD		mm	15.9		
	Total piping length	System	Actual	m	300 (7)		
	Level difference	OU - IU	Outdoor unit in highest position	m	50		
			Indoor unit in highest position	m	40		
Capacity control	Method				Inverter controlled		
Indication if the heater is equipped with a supplementary heater					no		
Supplementary heater	Back-up capacity	Heating	elbu	kW	0.000		
Power consumption in other than active mode	Crankcase heater mode	Cooling	PCK	kW	0.000		
		Heating	PCK	kW	0.031		
	Off mode	Cooling	POFF	kW	0.038		
		Heating	POFF	kW	0.013		
	Standby mode	Cooling	PSB	kW	0.038		
		Heating	PSB	kW	0.013		
	Thermostat-off mode	Cooling	PTO	kW	0.006		
		Heating	PTO	kW	0.049		
Cooling	Cdc (Degradation cooling)				0.25		
Heating	Cdh (Degradation heating)				0.25		
Safety devices	Item	03			Inverter overload protector		
		04			Compressor motor thermal protector		
		05			Fan driver overload protector		
		06			PC board fuse		
		07			High pressure switch (automatic)		
		08			High pressure switch (manual)		

Standard accessories: Installation and operation manual; Quantity: 1;

Standard accessories: General safety precautions; Quantity: 1;

Standard accessories: Peel off F-gas label; Quantity: 1;

Standard accessories: Refrigerant label for F-gas regulation; Quantity: 1;

Standard accessories: Tie-wraps; Quantity: 2;

Standard accessories: Auxiliary piping set; Quantity: 1;

Standard accessories: Caution label; Quantity: 1;

2 Specifications

1 - 1 RXYSA-AY1

Electrical Specifications				RXYSA4AY1	RXYSA5AY1	RXYSA6AY1
Power supply	Name			Y1		
	Phase			3N~		
	Frequency		Hz	50		
	Voltage		V	380-415		
Power supply intake				Both indoor and outdoor unit		
Voltage range	Min.		%	-10		
	Max.		%	10		
Current - 50Hz	Nominal running current (RLA)	Combination A	Cooling	-		
		Combination B	Cooling	-		
	Starting current (MSC) - remark			See note 9		
	Zmax	List		No requirements		
	Minimum circuit amps (MCA)		A	13.6 (11)		
	Maximum fuse amps (MFA)		A	16 (12)		
	Total overcurrent amps (TOCA)		A	13.6 (13)		
	Full load amps (FLA)	Total	A	1.3 (14)		
Power Performance	Power factor	Combination B	35°C ISO - Full load	-		
			46°C ISO - Full load	-		
Wiring connections - 50Hz	For power supply	Quantity		5G		
	For connection with indoor	Quantity		2		
		Remark		F1,F2		

(1)Cooling: indoor temp. 27°CDB, 19°CWB; outdoor temp. 35°CDB; equivalent piping length: 7.5m; level difference: 0m |
(2)Heating: indoor temp. 20°CDB; outdoor temp. 7°CDB, 6°CWB; equivalent refrigerant piping: 7.5m; level difference: 0m |
(3)The actual number of units depends on the connection ratio (CR) and the restrictions for the system. |
(4)Sound power level is an absolute value that a sound source generates. |
(5)According to ENER Lot 21 |
(6)Sound pressure level is a relative value, depending on the distance and acoustic environment. For more details, please refer to the sound level drawings. |
(7)Refer to refrigerant pipe selection or installation manual |
(8)RLA is based on following conditions: indoor temp. 27°CDB, 19°CWB; outdoor temp. 35°CDB |
(9)MSC means the maximum current during start up of the compressor. This unit uses only inverter compressors. Starting current is always ≤ max. running current. |
(10)In accordance with EN/IEC 61000-3-12, it may be necessary to consult the distribution network operator to ensure that the equipment is connected only to a supply wih Ssc ≥ minimum Ssc value
(11)MCA must be used to select the correct field wiring size. The MCA can be regarded as the maximum running current. |
(12)MFA is used to select the circuit breaker and the ground fault circuit interrupter (earth leakage circuit breaker). |
(13)TOCA means the total value of each OC set. |
(14)FLA means the nominal running current of the fan |

3 Options

3 - 1 Options

RXYSA-AV1
RXYSA-AY1

VRV5-S Heat pump
Option list

Nr.	Item	RXYSA4~6A7V1B	RXYSA4~6A7Y1B
1	Refnet header	KHRQ22M29H	KHRQ22M29H
2	Refnet joint	KHRQ22M20TA	KHRQ22M20TA
3a	Cool/heat selector (switch)	KRC19-26	KRC19-26
3b	Cool/heat selector (fixing box)	KJB111A	KJB111A
4	VRV configurator	EKPCCAB4	EKPCCAB4
5	Bottom plate heater	EKBPH250D	EKBPH250D
6	Sound reduction enclosure	EKLN140A1	EKLN140A1

Notes
1 All options are kits
2 Cool/Heat selector PCB is standard in unit.
3 To mount option ·3a·, option ·3b· is required.

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4 Combination table

4 - 1 Combination Table

RXYSA-AV1
RXYSA-AY1

4

VRV5-S Heat pump

Indoor unit combination restrictions

Combination table	RXYSA4~6A7V1B	RXYSA4~6A7Y1B
·VRV* R32 DX· indoor unit	O	O
·RA DX· indoor unit	X	X
Hydrobox unit	X	X
Air handling unit (AHU)	X	X

O : Allowed
X : Not allowed

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RXYSA-AV1
RXYSA-AY1

Unit combination restrictions: ·VRV5· outdoor units (all models) + ·15·-class indoor units

Units in scope: ·FXZA15A· and ·FXAA15A·.

1. In case the system contains these indoor units and the total connection ratio (·CR·) ≤ ·100·%: no special restrictions.
   Follow the restrictions that apply to regular ·VRV DX· indoor units.

2. In case the system contains these indoor units and the total connection ratio (·CR·) > ·100·%: special restrictions apply.
   A. When the connection ratio (·CR1·) of the sum of all ·FXZA15A· and/or ·FXAA15A· units in the system ≤ ·70·%, and ALL other ·VRV DX· indoor units have an individual capacity class > ·50·: no special restrictions.

   B. When the connection ratio (·CR1·) of the sum of all ·FXZA15A· and/or ·FXAA15A· units in the system ≤ ·70·%, and NOT ALL other ·VRV DX· indoor units have an individual capacity class > ·50·: the restrictions below apply.

   ° 100% < CR ≤ 105% -> ·CR1· of the sum of all ·FXZA15A· and/or ·FXAA15A· indoor units in the system must be ≤ ·70·%.
   ° 105% < CR ≤ 110% -> ·CR1· of the sum of all ·FXZA15A· and/or ·FXAA15A· indoor units in the system must be ≤ ·60·%.
   ° 110% < CR ≤ 115% -> ·CR1· of the sum of all ·FXZA15A· and/or ·FXAA15A· indoor units in the system must be ≤ ·40·%.
   ° 115% < CR ≤ 120% -> ·CR1· of the sum of all ·FXZA15A· and/or ·FXAA15A· indoor units in the system must be ≤ ·25·%.
   ° 120% < CR ≤ 125% -> ·CR1· of the sum of all ·FXZA15A· and/or ·FXAA15A· indoor units in the system must be ≤ ·10·%.
   ° 125% < CR ≤ 130% -> ·FXZA15A· and ·FXAA15A· cannot be used.

Remark

Only the ·15·-class indoor units explicitly mentioned on this page are in scope. Other indoor units follow the rules that apply to regular ·VRV DX· indoor units.

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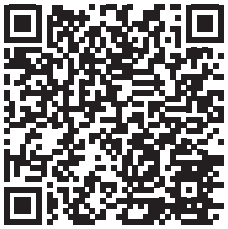
5 Capacity tables

5 - 1 Capacity Table Legend

In order to fulfill more your requirements on quick access of data in the format you require, we have developed a tool to consult capacity tables.

Below you can find the link to the capacity table database and an overview of all the tools we have to help you select the correct product:

- **Capacity table database:** lets you find back and export quickly the capacity information you are looking for based upon unit model, refrigerant temperature and connection ratio.
- You can access the capacity table viewer here:
  https://my.daikin.eu/content/denv/en_US/home/applications/software-finder/capacity-table-viewer.html



- An overview of **all software tools** that we offer can be found here:
  https://my.daikin.eu/denv/en_US/home/applications/software-finder.html

5 Capacity tables

5 - 2 Capacity Correction Factor

RXYSA-AV1
RXYSA-AY1

VRV5-S Heat pump

Integrated heating capacity coefficient

The heating capacity tables do not take into account the capacity reduction in case of frost accumulation or defrost operation.
The capacity values that take these factors into account, or in other words, the integrated heating capacity values, can be calculated as follows:

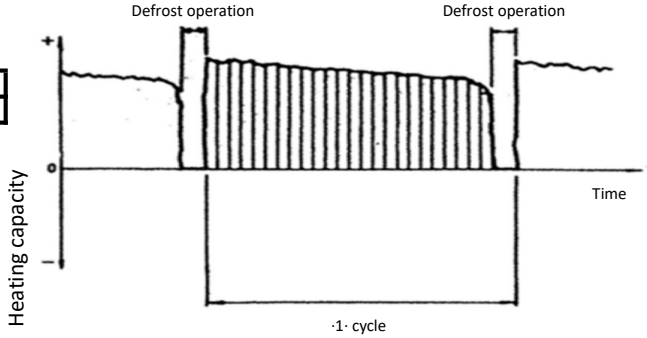
Formula

A = Integrated heating capacity
B = Capacity characteristics value
C = Integrated correction factor for frost accumulation (see table)

A = B * C

Inlet air temperature of heat exchanger

[°CDB/°CWB]	-7/-7.6	-5/-5.6	-3/-3.7	0/-0.7	3/2.2	5/4.1	7/6
RXYSA4A7V1B	0,79	0,74	0,73	0,72	0,73	0,74	1,00



Notes

1. The figure shows the integrated heating capacity for a single cycle (from one defrost operation to the next).
2. When there is an accumulation of snow against the outdoor unit heat exchanger, there will always be a temporary reduction in capacity depending on the outdoor temperature (°C DB), relative humidity (RH) and the amount of frosting which occurs.

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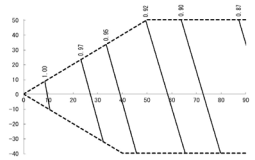
RXYSA4AV1
RXYSA4AY1

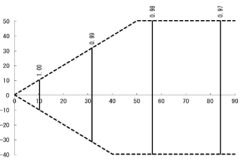
RXYSA4A7(V/Y)1B

Correction ratio for cooling capacity



x-axis : Equivalent length of the main pipe [m]
y-axis : Height difference between outdoor unit and furthest indoor unit [m]

Correction ratio for heating capacity



x-axis : Equivalent length of the main pipe [m]
y-axis : Height difference between outdoor unit and furthest indoor unit [m]

Notes

1. These figures illustrate the capacity correction factor due to the piping length for a standard indoor unit system at maximum load (with the thermostat set to maximum), under standard conditions.
   Moreover, under partial load conditions, there is only a minor deviation for the capacity correction ratio, as shown in the above figures.
2. With this outdoor unit, the following control is used:- in case of cooling: constant evaporating pressure control- in case of heating: constant condensing pressure control
3. Method of calculating the capacity of the outdoor units.
   The maximum capacity of the system will be either the total capacity of the indoor units or the maximum capacity of the outdoor units as mentioned below, whichever is less.

Indoor connection ratio ≤ 100%.
Maximum capacity of outdoor units = Capacity of outdoor units from capacity table at 100% connection ratio. x [Correction factor for main pipe - (Longest branch length / 40 m) x 0,02]

Indoor connection ratio > 100%.
Maximum capacity of outdoor units = Capacity of outdoor units from capacity table at installed connection ratio. x [Correction factor for main pipe - (Longest branch length / 40 m) x 0,02]

The correction factor for the main pipe can be found in graphs above.
The correction factor for the longest branch is calculated separately. The maximum allowed branch length of ·40· m corresponds with correction factor ·0,02·.

4. If the equivalent piping length between the outdoor unit and the furthest indoor unit is ≥ ·90· m, the size of the main gas pipe (between outdoor unit and first refrigerant branch kit) must be increased.
   For the new diameters, see below.

Model	Standard liquid side Ø	Increased liquid side Ø	Standard gas side Ø	Increased gas side Ø
RXYSA4A7V1B	9,5	Not increased	15,9	19,1
RXYSA4A7Y1B				

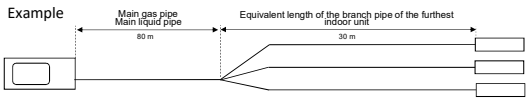
5. Equivalent length of the main pipe

Equivalent length of the main pipe = Equivalent length of the main pipe x Correction factor

Choose the correction factor from the following table.

	Standard size	Size increase
Cooling	1,0	0,5
Heating	1,0	1,0

Example



Equivalent length of the main pipe
- Cooling mode = 80 m x 0,5 = 40 m
- Heating mode = 80 m x 1,0 = 80 m

Capacity correction ratio (height difference = 0)
- Cooling mode = 0,95 - (30/40) x 0,02 = 0,935
- Heating mode = 0,972 - (30/40) x 0,02 = 0,957

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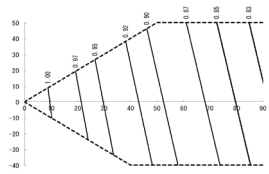
5 Capacity tables

5 - 2 Capacity Correction Factor

RXYSA5AV1
RXYSA5AY1

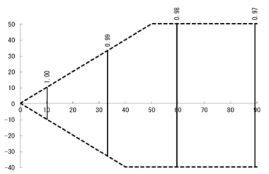
RXYSA5A7(V/Y)1B

Correction ratio for cooling capacity



x-axis : Equivalent length of the main pipe [m]
y-axis : Height difference between outdoor unit and furthest indoor unit [m]

Correction ratio for heating capacity



x-axis : Equivalent length of the main pipe [m]
y-axis : Height difference between outdoor unit and furthest indoor unit [m]

Notes

1. These figures illustrate the capacity correction factor due to the piping length for a standard indoor unit system at maximum load (with the thermostat set to maximum), under standard conditions. Moreover, under partial load conditions, there is only a minor deviation for the capacity correction ratio, as shown in the above figures.
2. With this outdoor unit, the following control is used:- in case of cooling: constant evaporating pressure control- in case of heating: constant condensing pressure control
3. Method of calculating the capacity of the outdoor units.
   The maximum capacity of the system will be either the total capacity of the indoor units or the maximum capacity of the outdoor units as mentioned below, whichever is less.

Indoor connection ratio ≤ 100%.

Maximum capacity of outdoor units = Capacity of outdoor units from capacity table at 100% connection ratio. x [Correction factor for main pipe - (Longest branch length / 40 m) x 0,02]

Indoor connection ratio > 100%.

Maximum capacity of outdoor units = Capacity of outdoor units from capacity table at installed connection ratio. x [Correction factor for main pipe - (Longest branch length / 40 m) x 0,02]

The correction factor for the main pipe can be found in graphs above.
The correction factor for the longest branch is calculated separately. The maximum allowed branch length of ·40· m corresponds with correction factor ·0,02·.

4. If the equivalent piping length between the outdoor unit and the furthest indoor unit is ≥ ·90· m, the size of the main gas pipe (between outdoor unit and first refrigerant branch kit) must be increased.
   For the new diameters, see below.

Model	Standard liquid side Ø	Increased liquid side Ø	Standard gas side Ø	Increased gas side Ø
RXYSA5A7V1B RXYSA5A7Y1B	9,5	Not increased	15,9	19,1

5. Equivalent length of the main pipe

Equivalent length of the main pipe = Equivalent length of the main pipe x Correction factor

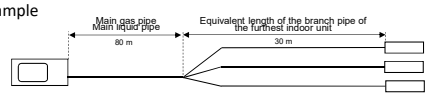
Choose the correction factor from the following table.

	Standard size	Size increase
Cooling	1,0	0,5
Heating	1,0	1,0

Equivalent length of the main pipe
- Cooling mode = 80 m x 0,5 = 40 m
- Heating mode = 80 m x 1,0 = 80 m

Capacity correction ratio (height difference = 0)
- Cooling mode = 0,928 - (30/40) x 0,02 = 0,913
- Heating mode = 0,973 - (30/40) x 0,02 = 0,958

Example



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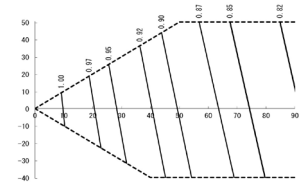
RXYSA6AV1
RXYSA6AY1

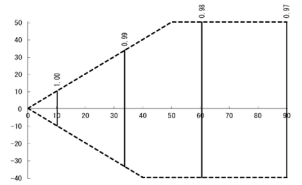
RXYSA6A7(V/Y)1B

Correction ratio for cooling capacity



x-axis : Equivalent length of the main pipe [m]
y-axis : Height difference between outdoor unit and furthest indoor unit [m]

Correction ratio for heating capacity



x-axis : Equivalent length of the main pipe [m]
y-axis : Height difference between outdoor unit and furthest indoor unit [m]

Notes

1. These figures illustrate the capacity correction factor due to the piping length for a standard indoor unit system at maximum load (with the thermostat set to maximum), under standard conditions. Moreover, under partial load conditions, there is only a minor deviation for the capacity correction ratio, as shown in the above figures.
2. With this outdoor unit, the following control is used:- in case of cooling: constant evaporating pressure control- in case of heating: constant condensing pressure control
3. Method of calculating the capacity of the outdoor units.
   The maximum capacity of the system will be either the total capacity of the indoor units or the maximum capacity of the outdoor units as mentioned below, whichever is less.

Indoor connection ratio ≤ 100%.

Maximum capacity of outdoor units = Capacity of outdoor units from capacity table at 100% connection ratio. x [Correction factor for main pipe - (Longest branch length / 40 m) x 0,02]

Indoor connection ratio > 100%.

Maximum capacity of outdoor units = Capacity of outdoor units from capacity table at installed connection ratio. x [Correction factor for main pipe - (Longest branch length / 40 m) x 0,02]

The correction factor for the main pipe can be found in graphs above.
The correction factor for the longest branch is calculated separately. The maximum allowed branch length of ·40· m corresponds with correction factor ·0,02·.

4. If the equivalent piping length between the outdoor unit and the furthest indoor unit is ≥ ·90· m, the size of the main gas pipe (between outdoor unit and first refrigerant branch kit) must be increased.
   For the new diameters, see below.

Model	Standard liquid side Ø	Increased liquid side Ø	Standard gas side Ø	Increased gas side Ø
RXYSA6A7V1B RXYSA6A7Y1B	9,5	Not increased	15,9	19,1

5. Equivalent length of the main pipe

Equivalent length of the main pipe = Equivalent length of the main pipe x Correction factor

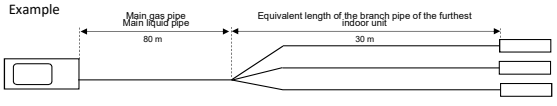
Choose the correction factor from the following table.

	Standard size	Size increase
Cooling	1,0	0,5
Heating	1,0	1,0

Equivalent length of the main pipe
- Cooling mode = 80 m x 0,5 = 40 m
- Heating mode = 80 m x 1,0 = 80 m

Capacity correction ratio (height difference = 0)
- Cooling mode = 0,92 - (30/40) x 0,02 = 0,905
- Heating mode = 0,973 - (30/40) x 0,02 = 0,958

Example



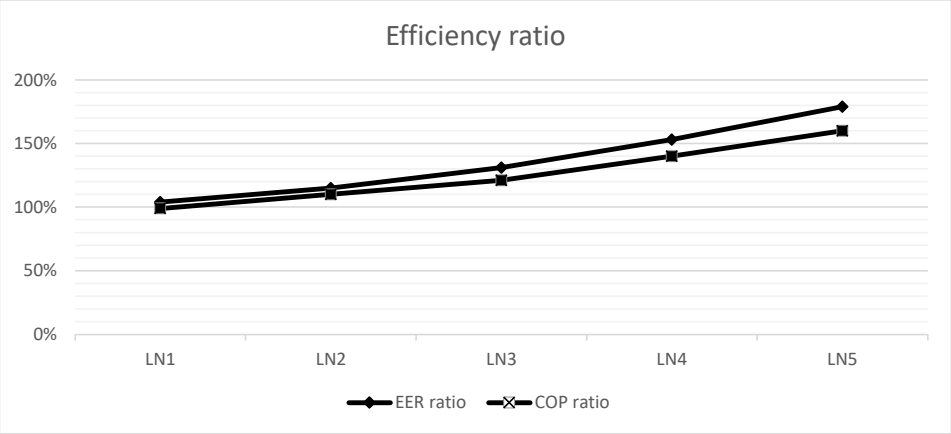
4D127880

6 Exchange efficiency

6 - 1 Exchange efficiency

RXYSA-AV1
RXYSA-AY1

VRV5-S
Heat pump
Low noise operation performance specifications



The capacity and efficiency ratios are calculated with reference to the nominal operation specifications.

LN1: Low noise level ·1·
LN2: Low noise level ·2·
LN3: Low noise level ·3·
LN4: Low noise level ·4·
LN5: Low noise level ·5·

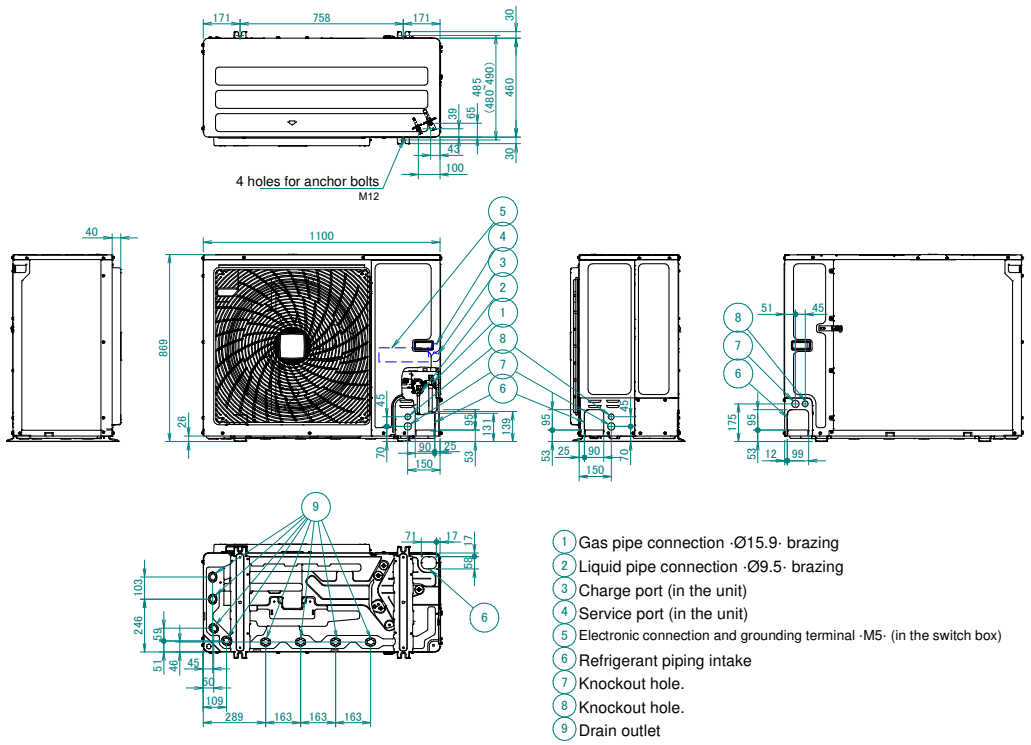
	Capacity ratio
LN1	90%
LN2	75%
LN3	60%
LN4	45%
LN5	30%

4D127867

7 Dimensional drawings

7 - 1 Dimensional Drawings

RXYSA-AV1
RXYSA-AY1



1. Gas pipe connection ·Ø15.9· brazing
2. Liquid pipe connection ·Ø9.5· brazing
3. Charge port (in the unit)
4. Service port (in the unit)
5. Electronic connection and grounding terminal ·M5· (in the switch box)
6. Refrigerant piping intake
7. Knockout hole.
8. Knockout hole.
9. Drain outlet

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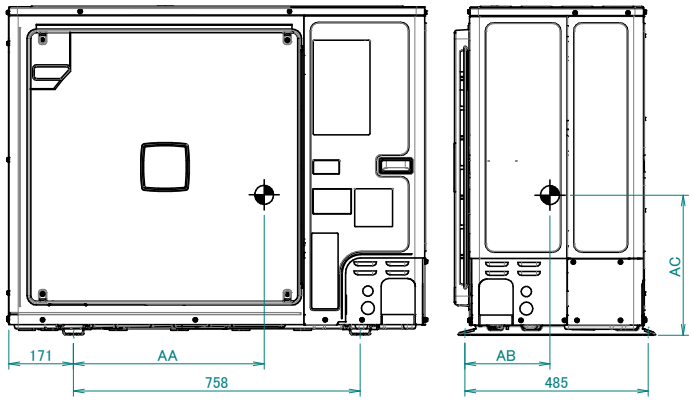
8 Centre of gravity

8 - 1 Centre of Gravity

RXYSA-AV1
RXYSA-AY1



Model	AA	AB	AC
RZAG71N7V1B	520.3	238.7	357.8
RZAG71N7Y1B	525.9	224.7	359.8
RZAG100N7V1B	499.7	239.3	367.6
RZAG100N7Y1B	511.2	223.5	362.5
RZAG125/140N7V1B	486.3	229.2	371.8
RZAG125/140N7Y1B	493.4	215.8	372.2
RXYSA4/5/6A7V1B RXYSA4/5/6A7Y1B	530.4	249.9	389.0

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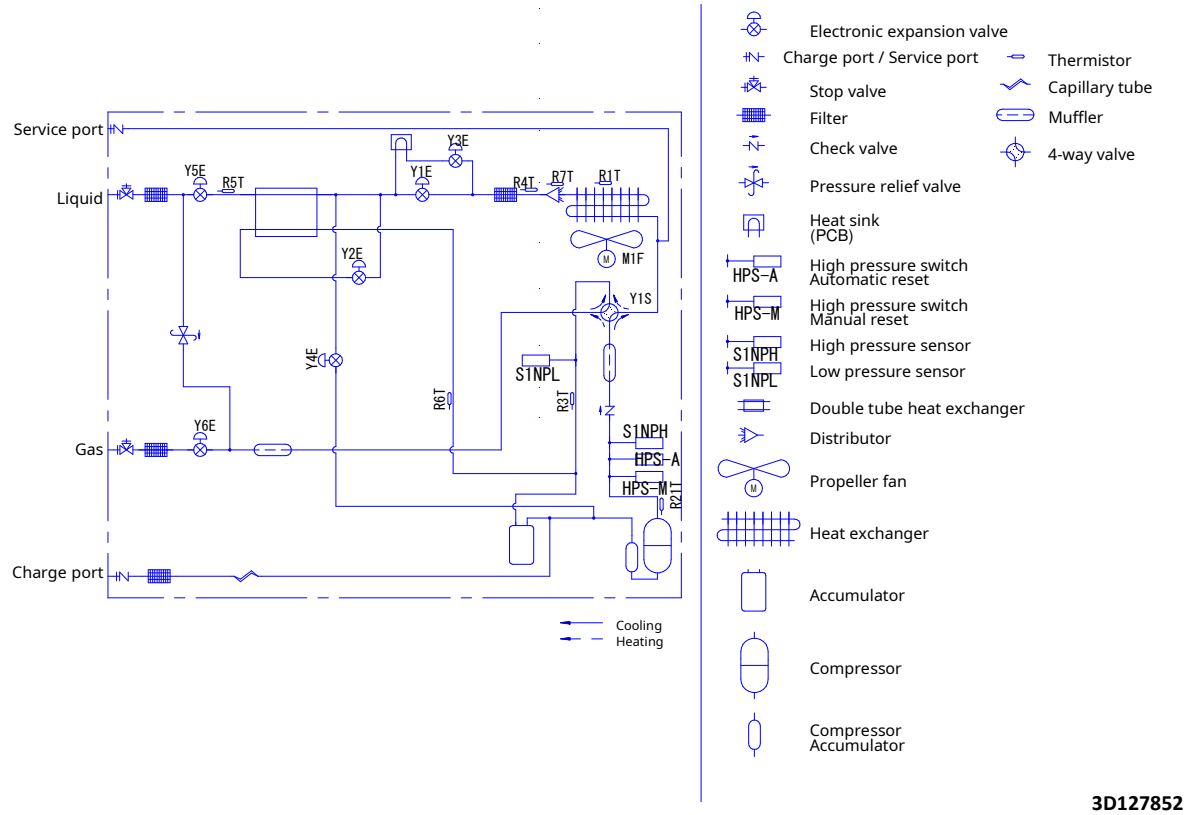
9 Piping diagrams

9 - 1 Piping Diagrams

RXYSA-AV1
RXYSA-AY1



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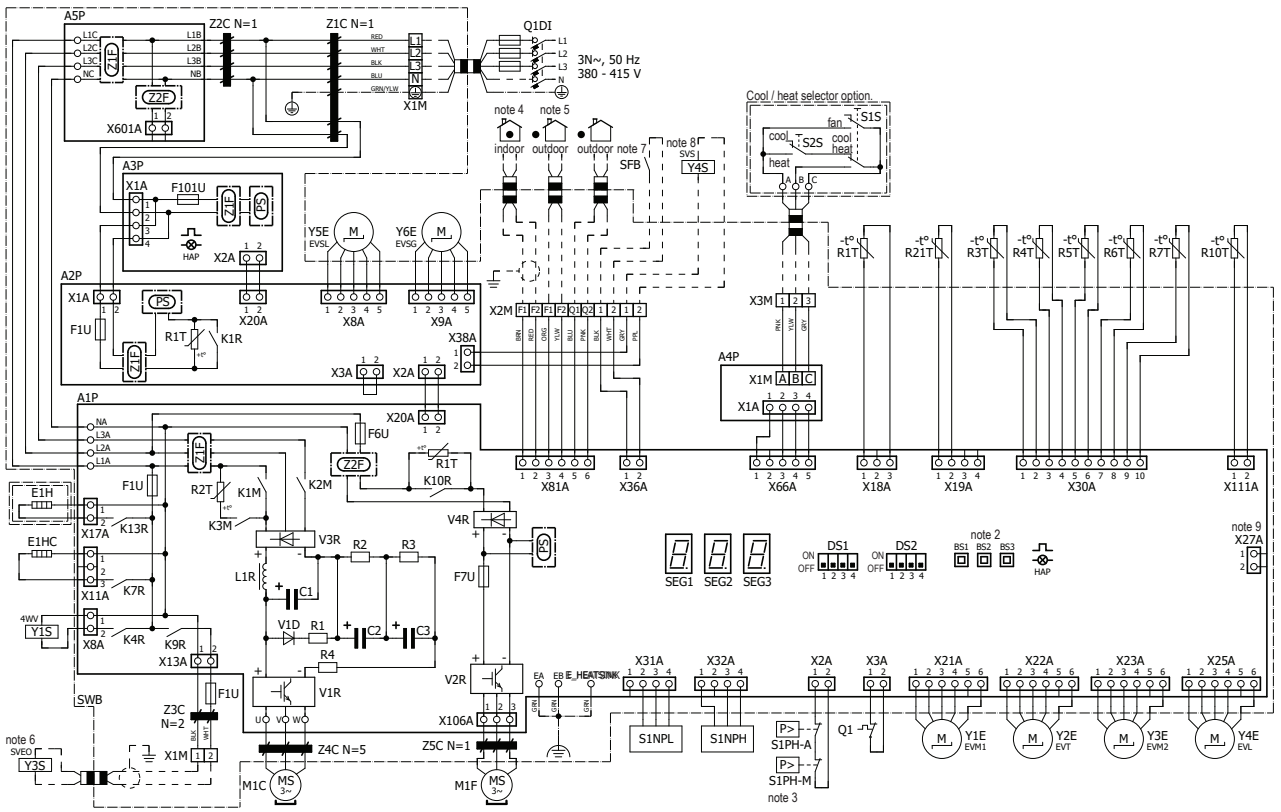
10 Wiring diagrams

10 - 1 Wiring Diagrams - Three Phase

RXYSA-AY1



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10 Wiring diagrams

10 - 2 Notes & Legend

RXYSA-AY1

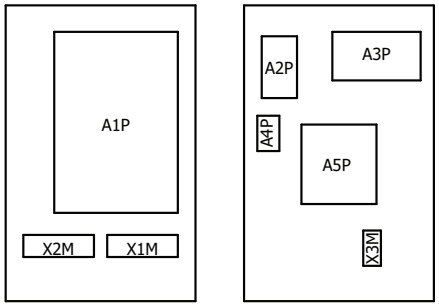
NOTES to go through before starting the unit

1. Symbols

X1M : Main terminal
: Earth wiring
15 : Wire number 15
: Field wire
: Field cable
: Screened conductor
(1) : Several wiring possibilities
: Option
: Wiring depending on model
: Not mounted in switch box
: PCB

2. Refer to the installation or service manual on how to use BS1 ~ BS3 push buttons and DS1-1 ~ DS1-2 DIP switches.
3. Do not operate the unit by short-circuiting protection device S1PH. S1PH-A automatically resets after high pressure has been exceeded, S1PH-M has to be manually reset after high pressure has been exceeded.
4. Refer to the installation manual for indoor-outdoor transmission F1-F2 wiring.
5. When using the central control system, connect outdoor-outdoor transmission F1-F2.
6. The capacity of the contact is 220~240V AC - 0,5A (Rush current needs 3A or less).
7. Use dry contact for micro-current (1 mA or less 12V DC).
8. Digital output: max 40V DC - 0,025A. Refer to installation manual for how to use this output.
9. For X27A refer to the installation manual of the option.

POSITION IN SWITCH BOX



Front side

Back side

LEGEND

Part n°		Description
A1P		main PCB
A2P		sub PCB
A3P		back up PCB
A4P		cool / heat selector PCB
A5P		noise filter PCB
BS* (A1P)		push button switch
C* (A1P)		capacitors
DS* (A1P)		dipswitch
E1H	*	bottom plate heater
E1HC		crank case heater
F1U (A1P)		fuse T 6.3 A 250 V
F1U (A2P)		fuse T 3.15 A 250 V
F1U		fuse T 1.0 A 250 V
F6U (A1P)		fuse T 6.3 A 250 V
F7U (A1P)		fuse T 5 A 250 V
F101U (A3P)		fuse T 2.0 A 250 V
HAP (A1P,A3P)		running LED (service monitor-green)
K*M (A1P)		contactor on PCB
K*R (A*P)		relay on PCB
L1R (A1P)		reactor
M1C		motor (compressor)
M1F		motor (fan)
PS* (A*P)		switching power supply
Q1		overload switch
Q1DI	#	earth leakage circuit breaker
R* (A1P)		resistor
R1T		thermistor (ambient)
R3T		thermistor (suction)
R4T		thermistor (liquid)
R5T		thermistor (subcool)
R6T		thermistor (superheat)
R7T		thermistor (heat exchanger)
R10T		thermistor (fin)
R21T		thermistor (discharge)
R*T (A*P)		PTC thermistor
S1NPH		high pressure sensor

Part n°		Description
S1NPL		low pressure sensor
S1PH*		high pressure switch
S1S	*	air control switch
S2S	*	cool / heat switch
SEG* (A1P)		7-segment display
SFB	#	mechanical ventilation error input
V*D		diode
V1R, V2R (A1P)		IGBT power module
V3R, V4R (A1P)		diode module
X*A		PCB connector
X*M		terminal strip
X*Y		connector
Y1E		electronic exp. valve (main - EVM1)
Y2E		electronic exp. valve (EVT)
Y3E		electronic exp. valve (main - EVM2)
Y4E		electronic exp. valve (EVL)
Y5E		electronic exp. valve (EVSL)
Y6E		electronic exp. valve (EVSG)
Y1S		solenoïd valve (4-way valve)
Y3S	#	error operation output (SVEO)
Y4S	#	leak sensor output (SVS)
Z*C		noise filter (ferrite core)
Z*F (A*P)		noise filter

* : optional # : field supply

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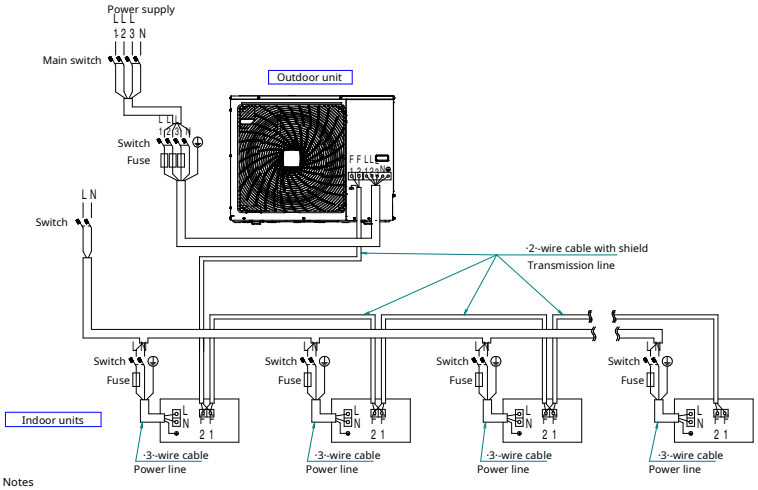
11 External connection diagrams

11 - 1 External Connection Diagrams

RXYSA-AY1

External connection diagram

·VRV· indoor unit



Notes

1. All wiring, components and materials to be procured on-site must comply with the applicable legislation.
2. Use copper conductors only
3. For more details, refer to the wiring diagram of the unit.
4. Install a circuit breaker for safety.
5. All field wiring and components must be provided by an authorised electrician.
6. Unit has to be grounded in compliance with the applicable legislation.
7. The wiring shown is a general points-of-connection guide and is not intended to include all details for a specific installation.
8. Make sure to install the switch and the fuse to the power line of each equipement.
9. Install a main to switch to (if necessary) immediately interrupt all the system's power sources.
10. If there exists the possibility of reversed phase, loose phase or momentary blackout, or if the power goes on and off while the product is operating, attach a reversed phase protection circuit locally. Running the product in reversed phase may break the compressor and other parts.
11. Install an earth leakage circuit breaker.
12. To ensure proper earthing, connect the shields of the incoming and outgoing transmission wiring of each indoor unit to each other.
13. The unit is equipped with a refrigerant leak detection system for safety. To be effective, the unit MUST be electrically powered at all times after installation, except for maintenance.

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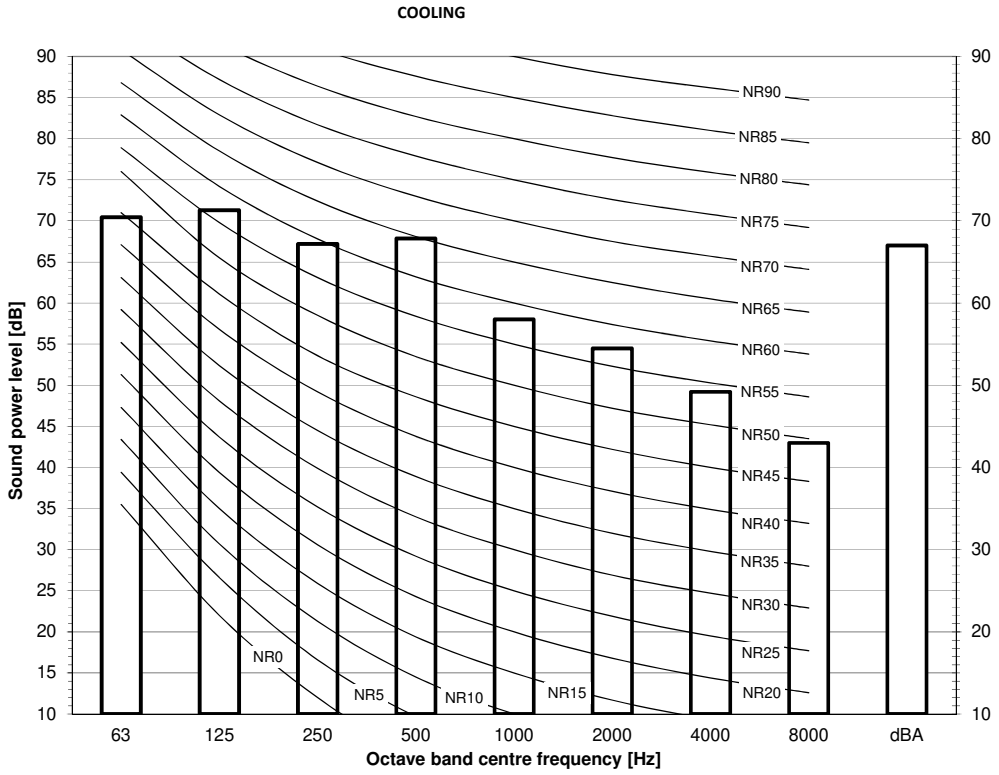
12 Sound data

12 - 1 Sound Power Spectrum

RXYSA4AV1
RXYSA4AY1



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

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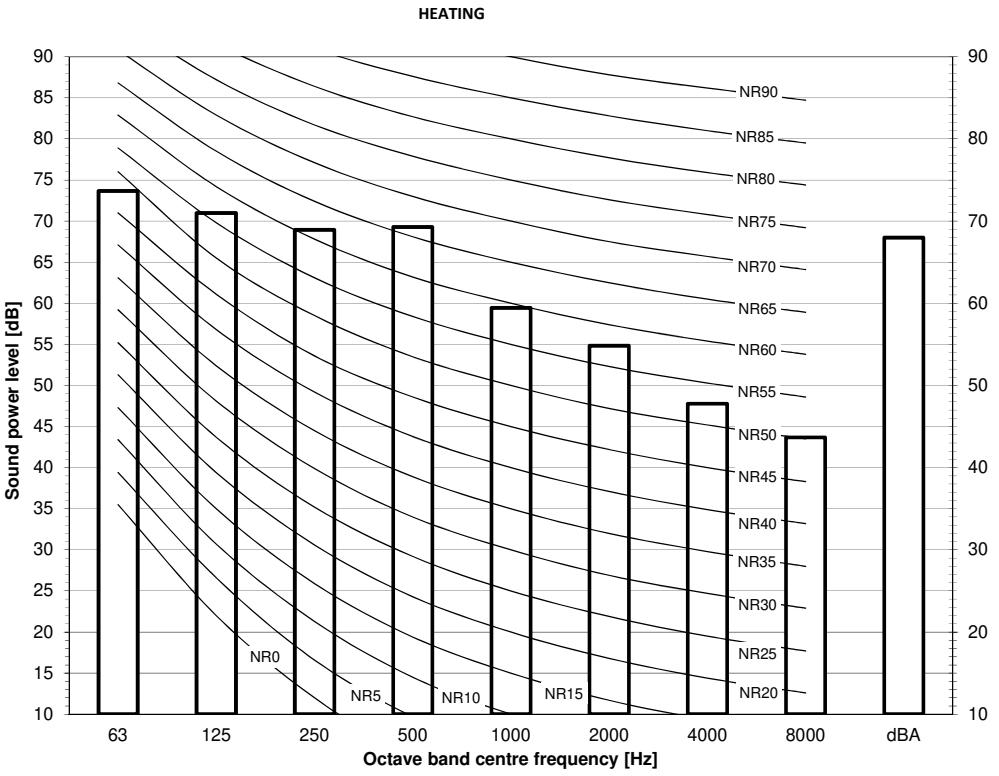
RXYSA4AV1
RXYSA4AY1



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

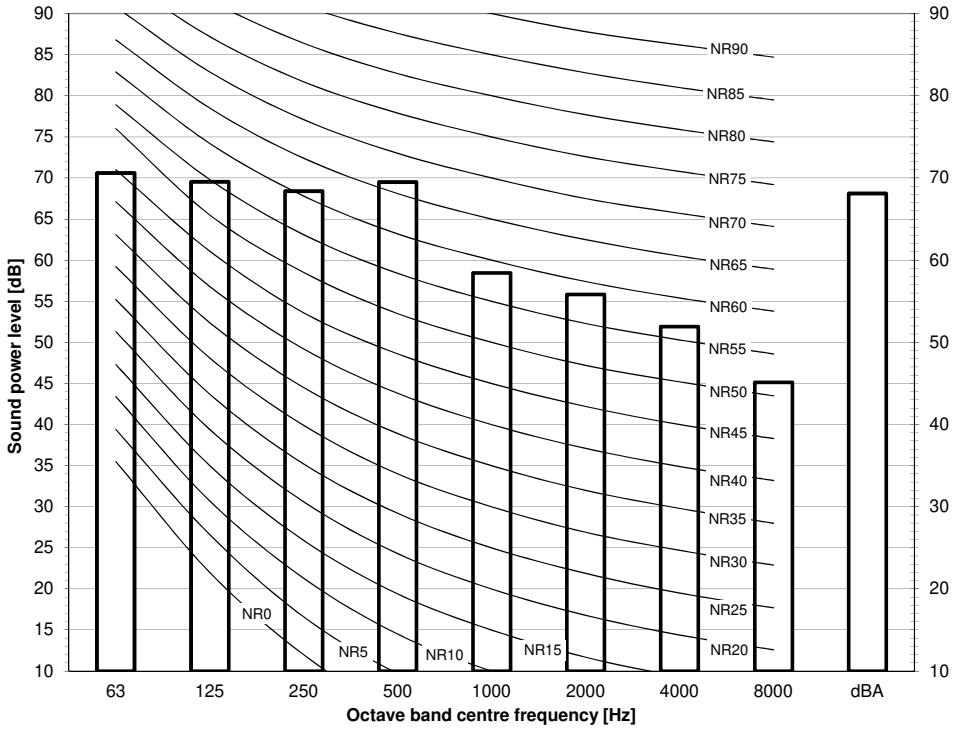
4D127857

12 Sound data

12 - 1 Sound Power Spectrum

RXYSA5AV1
RXYSA5AY1

COOLING

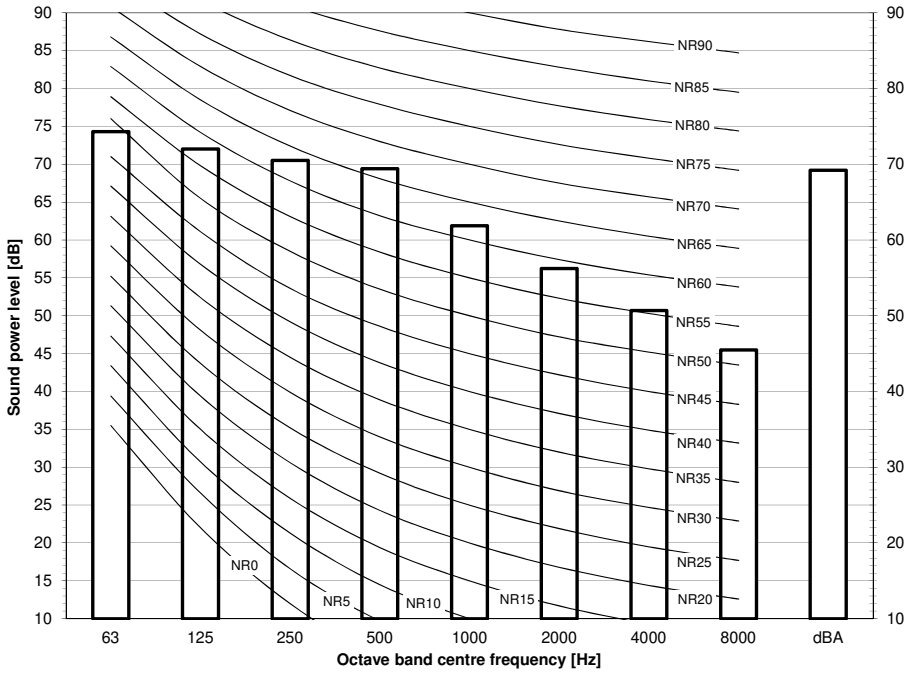


Notes
- dBA = A-weighted sound power level (A scale according to IEC).
- Reference acoustic intensity 0dB = ·10E-6µW/m²·
- Measured according to ISO 3744

4D127855

RXYSA5AV1
RXYSA5AY1

HEATING



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

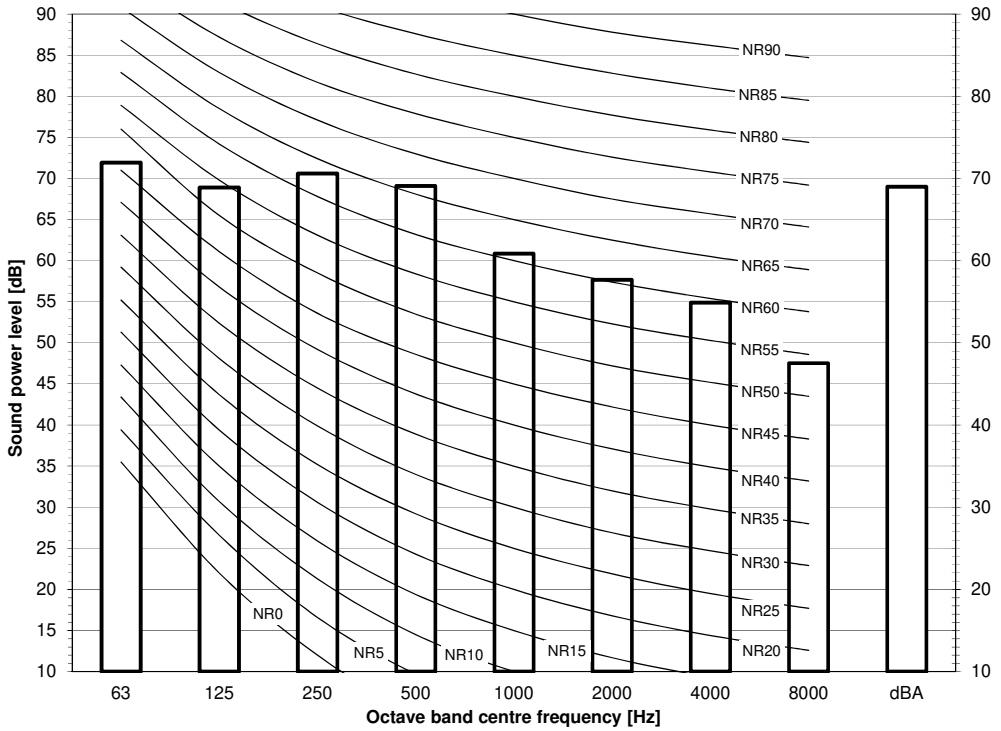
4D127858

12 Sound data

12 - 1 Sound Power Spectrum

RXYSA6AV1
RXYSA6AY1

COOLING

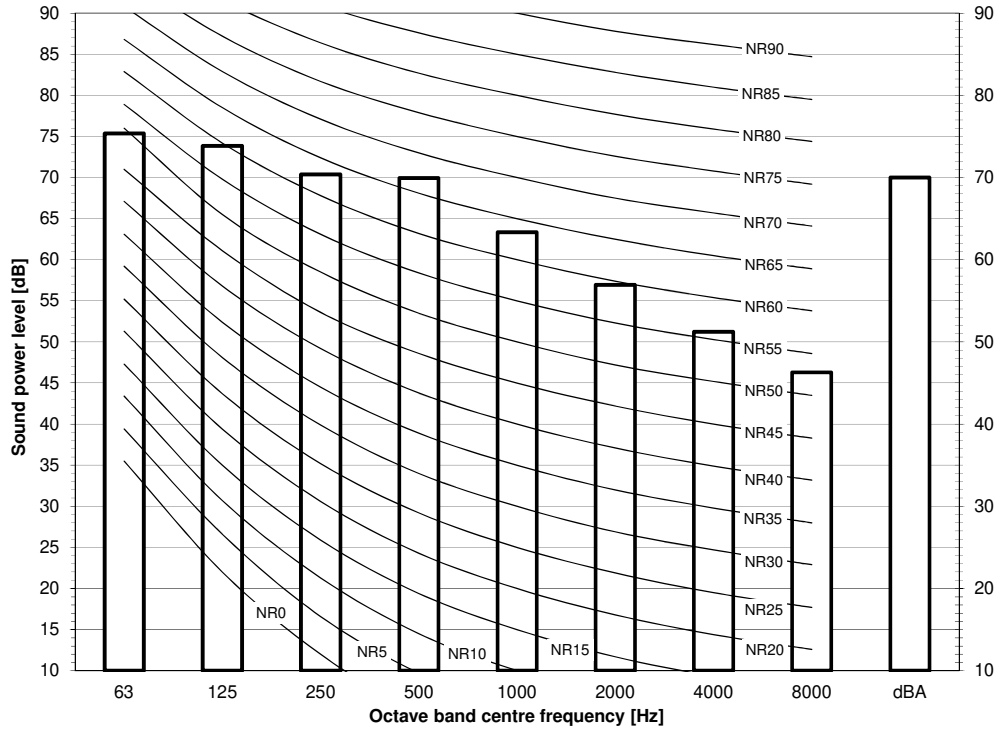


Notes
- dBA = A-weighted sound power level (A scale according to IEC).
- Reference acoustic intensity 0dB = ·10E-6µW/m²·
- Measured according to ISO 3744

4D127856

RXYSA6AV1
RXYSA6AY1

HEATING



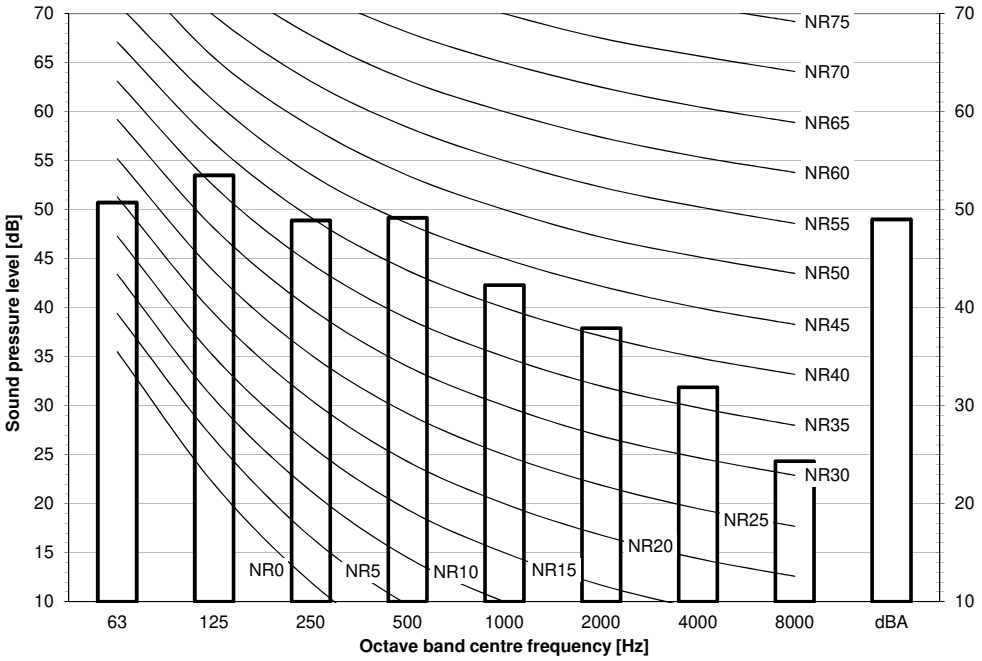
Notes
- dBA = A-weighted sound power level (A scale according to IEC).
- Reference acoustic intensity 0dB = ·10E-6µW/m²·
- Measured according to ISO 3744

4D127859

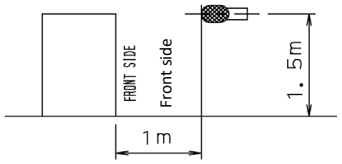
12 Sound data

12 - 2 Sound Pressure Spectrum - Cooling

RXYSA4AV1
RXYSA4AY1



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



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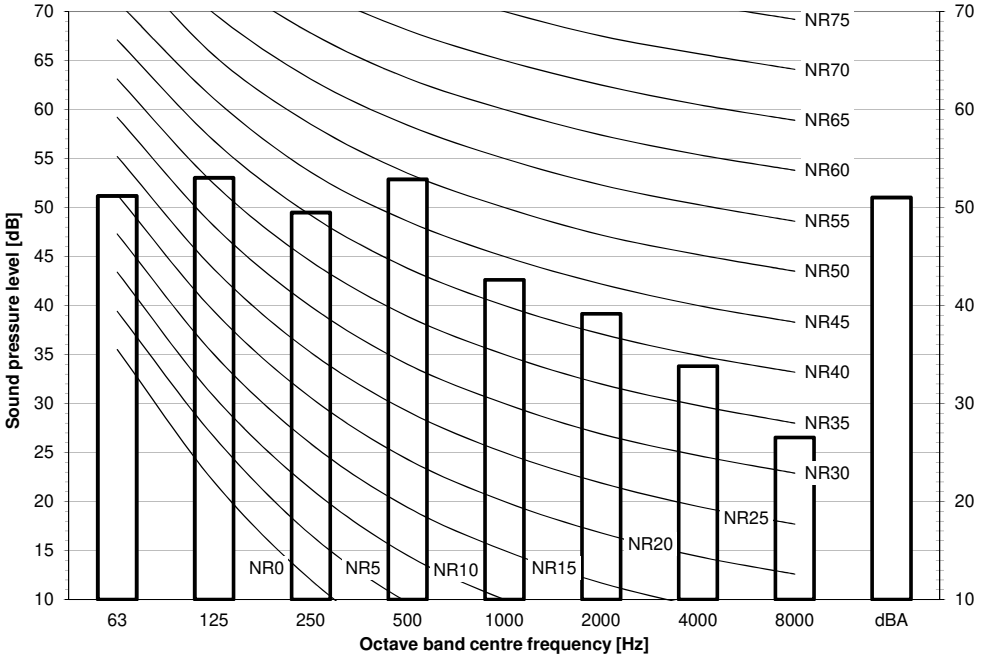
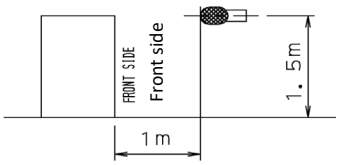
RXYSA5AV1
RXYSA5AY1



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

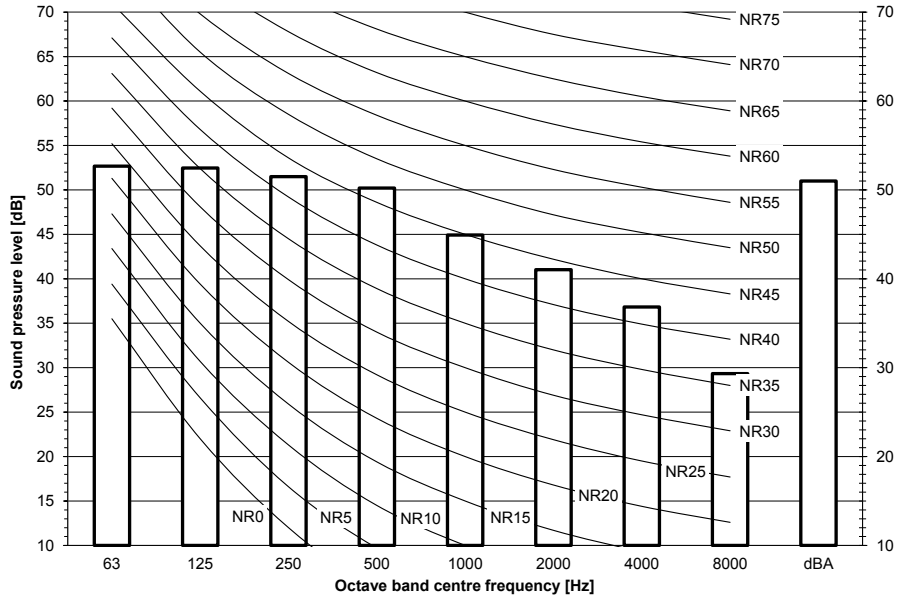


4D127861

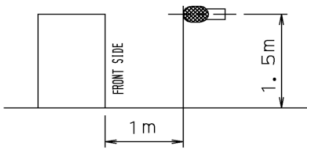
12 Sound data

12 - 2 Sound Pressure Spectrum - Cooling

RXYSA6AV1
RXYSA6AY1



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



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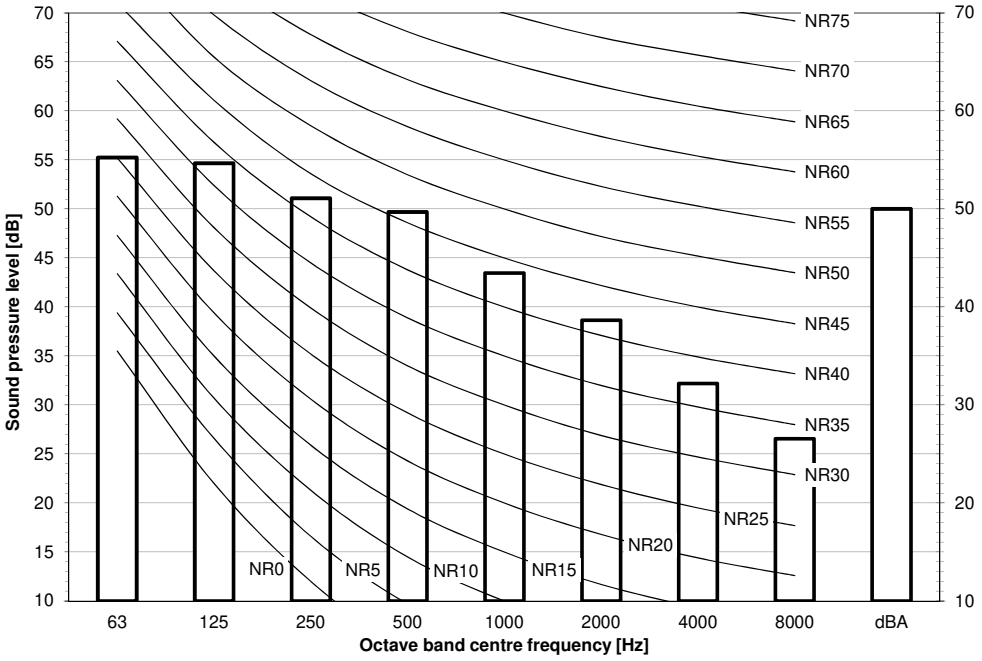
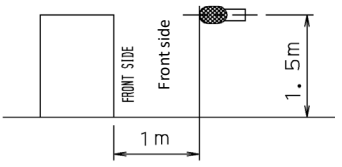
12 Sound data

12 - 3 Sound Pressure Spectrum - Heating

RXYSA4AV1
RXYSA4AY1



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



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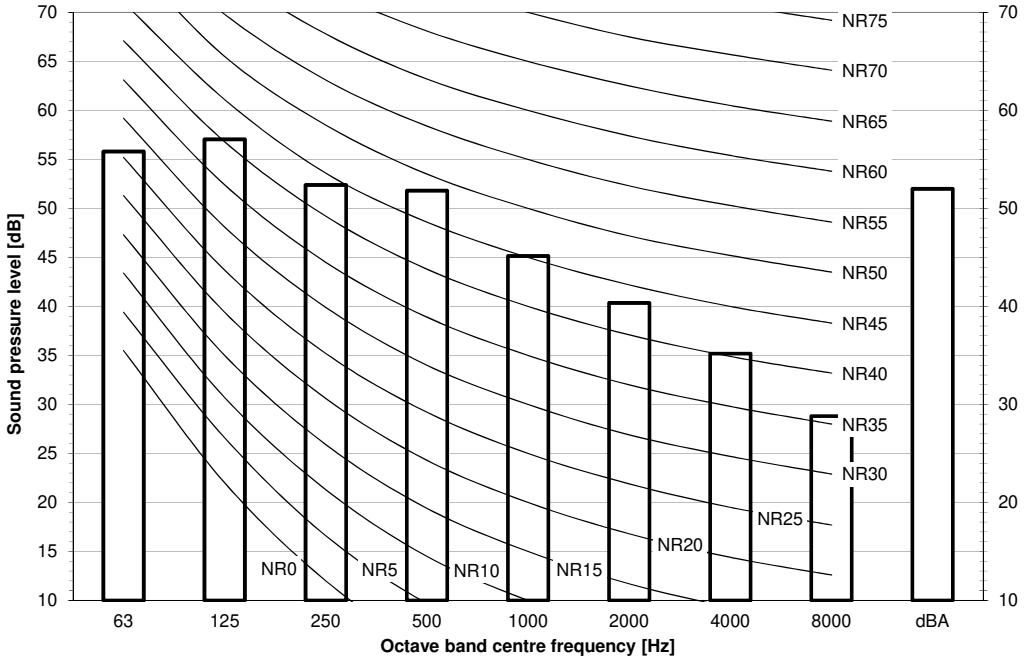
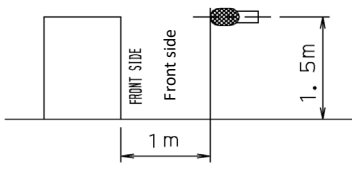
RXYSA5AV1
RXYSA5AY1



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



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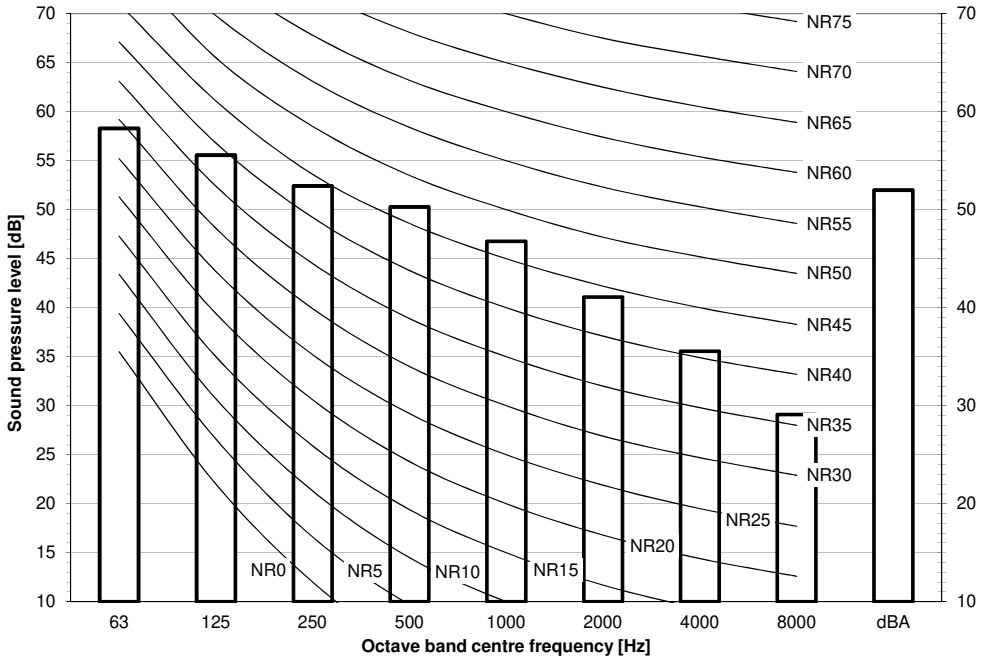
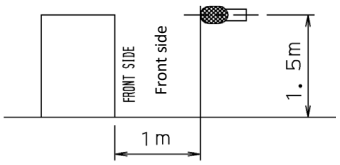
12 Sound data

12 - 3 Sound Pressure Spectrum - Heating

RXYSA6AV1
RXYSA6AY1



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



4D127865

12 Sound data

12 - 4 Sound power spectrum at high ESP

RXYSA-AV1
RXYSA-AY1

VRV5-S Heat pump
High ESP

4HP	Cooling	Heating
	Sound power [dBA]	Sound power [dBA]
ESP1	70	72
ESP2	75	77

6HP	Cooling	Heating
	Sound power [dBA]	Sound power [dBA]
ESP1	71	78
ESP2	75	78

5HP	Cooling	Heating
	Sound power [dBA]	Sound power [dBA]
ESP1	71	76
ESP2	75	77

Sound power is measured on a freestanding unit.
Actual sound is depending on the installation of the duct.

4D127882

12 Sound data

12 - 5 Sound level data Quiet mode

RXYSA-AV1
RXYSA-AY1

VRV5-S Heat pump
Low noise data (level ·1-5·)

4HP	Cooling		Heating	
	Sound pressure [dBa]	Sound power [dBA]	Sound pressure [dBa]	Sound power [dBA]
LN1	47	65	48	66
LN2	45	64	46	64
LN3	43	62	44	62
LN4	41	59	42	60
LN5	39	57	40	58

5HP	Cooling		Heating	
	Sound pressure [dBa]	Sound power [dBA]	Sound pressure [dBa]	Sound power [dBA]
LN1	48	66	51	68
LN2	46	64	48	66
LN3	44	62	46	64
LN4	42	60	44	62
LN5	40	58	42	60

6HP	Cooling		Heating	
	Sound pressure [dBa]	Sound power [dBA]	Sound pressure [dBa]	Sound power [dBA]
LN1	49	67	51	69
LN2	47	65	49	67
LN3	45	63	47	65
LN4	43	61	45	63
LN5	41	59	43	61

	Capacity ratio
LN1	90%
LN2	75%
LN3	60%
LN4	45%
LN5	30%

LN1: Low noise level ·1·
LN2: Low noise level ·2·
LN3: Low noise level ·3·
LN4: Low noise level ·4·
LN5: Low noise level ·5·

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13 Installation

13 - 1 Installation Method

RXYSA-AV1
RXYSA-AY1

Single unit (■) | Single row of units (■■■)

Suction side

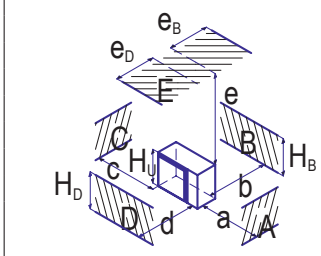
In the illustration below, the service space at the suction side is based on 35°C DB and cooling operation. Foresee more space in the following cases:

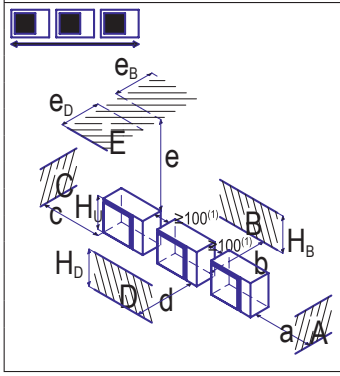
- When the suction side temperature regularly exceeds this temperature.
- When the heat load of the outdoor units is expected to regularly exceed the maximum operating capacity.

Discharge side

Take refrigerant piping work into account when positioning the units. If your lay out does not match with any of the layouts below, contact your dealer.

Single unit (■) | Single row of units (■■■)





A~E	Hb Hd Hu		(mm) a	b	c	d	e	e_B	e_D	
B	-			≥ 100						
A,B,C	-		≥ 100(1)	≥ 100	≥ 100					
B,E	-			≥ 100			≥ 1000		≤500	
A,B,C,E	-		≥ 150(1)	≥ 150	≥ 150		≥ 1000		≤500	
D	-					≥ 500				
D,E	-					≥ 500	≥ 1000	≤500		
B,D	Hd>Hu			≥ 100		≥ 500				
	Hd≤Hu			≥ 100		≥ 500				
B,D,E	Hd>Hu	Hb≤½Hu		≥ 250		≥ 750	≥ 1000	≤500		1
		½Hu>Hb≤Hu		≥ 250		≥ 1000	≥ 1000	≤500		
		Hb>Hu	⊘							
	Hd≤Hu	Hd≤½Hu		≥ 100		≥ 1000	≥ 1000		≤500	
		½Hu<Hd≤Hu		≥ 200		≥ 1000	≥ 1000		≤500	
		Hd>Hu	⊘							
A,B,C	-		≥ 200(1)	≥ 300 ≥	1000					
A,B,C,E	-		≥ 200(1)	≥ 300	≥ 1000		≥ 1000		≤500	
D	-					≥ 1000				
D,E	-					≥ 1000	≥ 1000	≤500		
B,D	Hd>Hu			≥ 300		≥ 1000				
	Hd≤Hu	Hd≤½Hu		≥ 250		≥ 1500				
		½Hu<Hd≤Hu		≥ 300		≥ 1500				
B,D,E	Hd>Hu	Hb≤½Hu		≥ 300		≥ 1000	≥ 1000	≤500		
		½Hu<Hb≤Hu		≥ 300		≥ 1250	≥ 1000	≤500		
		Hb>Hu	⊘							
	Hd≤Hu	Hd≤½Hu		≥ 250		≥ 1500	≥ 1000		≤500	1+2
		½Hu<Hd≤Hu		≥ 300		≥ 1500	≥ 1000		≤500	
		Hd>Hu	⊘							

(1) For better serviceability, use a distance ≥250 mm
A,B,C,D Obstacles (walls/baffle plates)
E Obstacle (roof)
a,b,c,d,e Minimum service space between the unit and obstacles A, B, C, D and E
e_B Maximum distance between the unit and the edge of obstacle E, in the direction of obstacle B
e_D Maximum distance between the unit and the edge of obstacle E, in the direction of obstacle D
Hu Height of the unit
Hb,Hd Height of obstacles B and D
1 Seal the bottom of the installation frame to prevent discharged air from flowing back to the suction side through the bottom of the unit.
2 Maximum two units can be installed.
⊘ Not allowed

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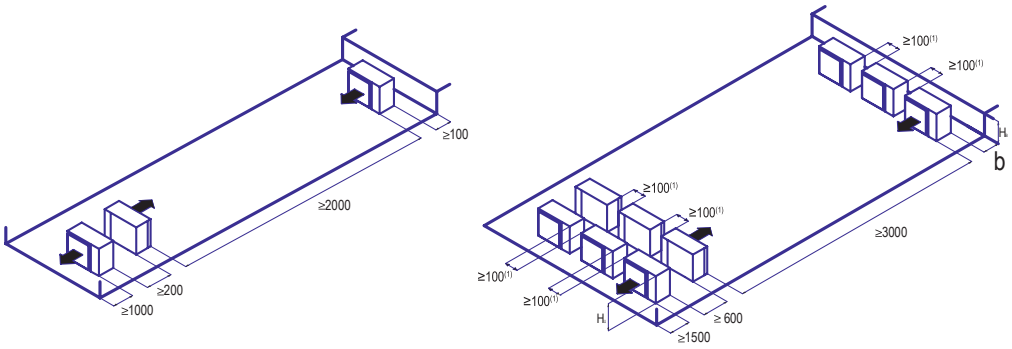
13 Installation

13 - 1 Installation Method

RXYSA-AV1
RXYSA-AY1

Multiple rows of units ( )

Multiple rows of units ( )



Hb Hu	b (mm)
Hb≤½Hu	b≥250
½Hu<Hb≤Hu	b≥ 300
Hb>Hu	⃠

(1) For better serviceability, use a distance ≥250 mm
⃠ Not allowed

1D128513

13 Installation

13 - 1 Installation Method

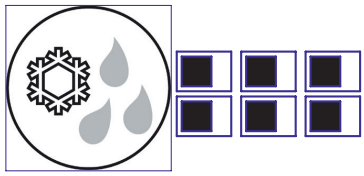
RXYSA-AV1
RXYSA-AY1

13

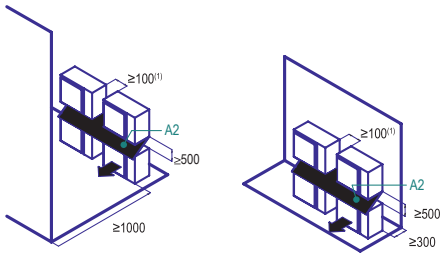
Stacked units (max.2 levels) ( )

Stacked units (max.2 levels) ( )

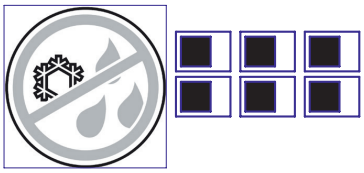
A1



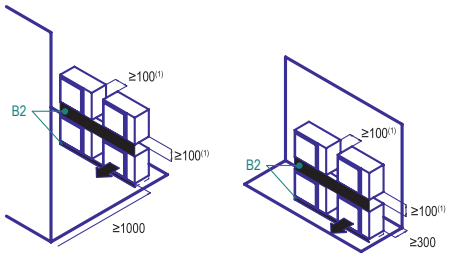
A2



B1



B2



(1) For better serviceability, use a distance ≥250 mm

A1=>A2 (A1) If there is danger of drainage dripping and freezing between the upper and lower units…
(A2) Then install a roof between the upper and lower units. Install the upper unit high enough above the lower unit to prevent ice buildup at the upper unit's bottom plate.

B1=>B2 (B1) If there is no danger of drainage dripping and freezing between the upper and lower units…
(B2) Then it is not required to install a roof, but seal the gap between the upper and lower units to prevent discharged air from flowing back to the suction side through the bottom of the unit.

1D128513

13 Installation

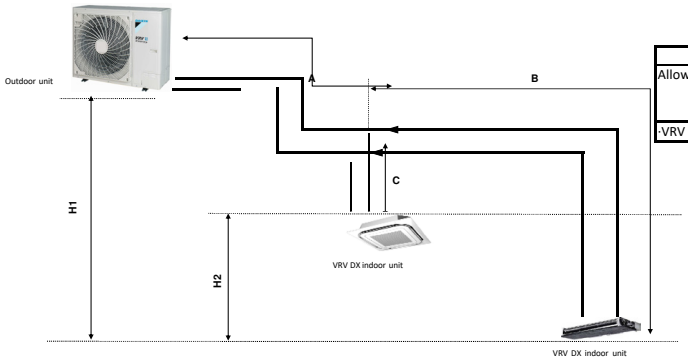
13 - 2 Refrigerant Pipe Selection

RXYSA-AV1
RXYSA-AY1

VRV5-S Heat pump
Piping restrictions ·1/2·

		Maximum piping length		Maximum height difference		Total piping length
		Longest pipe (A+B) Actual / (Equivalent) See note ·1·.	After first branch (B, C) Actual	Indoor-to-outdoor (H1) Outdoor above indoor / (indoor above outdoor)	Indoor-to-indoor (H2)	See note ·2·.
VRV DX indoor unit	RXYSA4~6A7V1B	120/(150)m	40m	50/(40)m	15m	300m
	RXYSA4~6A7Y1B					

Notes
1. Assume equivalent piping length of refnet joint = ·0.5· m and refnet header = ·1· m (for calculation purposes of equivalent piping length, not for refrigerant charge calculations).
2. Maximum total piping length also depends on refrigerant charge limitations. See ·4D128599·.



System pattern	Allowed capacity
Allowed connection ratio (CR)	VRV DX indoor unit
·VRV DX· indoor units only	50~130%

Notes
1. Schematic indication
   Illustrations may differ from the actual appearance of the unit.
2. This is only to illustrate piping length limitations.
   Refer to combination table ·3D127866· for details about the allowed combinations.

4D127886

RXYSA-AV1
RXYSA-AY1

VRV5-S
Heat pump
Piping restrictions ·2/2·

System pattern	Allowed capacity
Allowed connection ratio (CR)	VRV DX indoor unit
·VRV DX· indoor units only	50~130%

4D127886

13 Installation

13 - 2 Refrigerant Pipe Selection

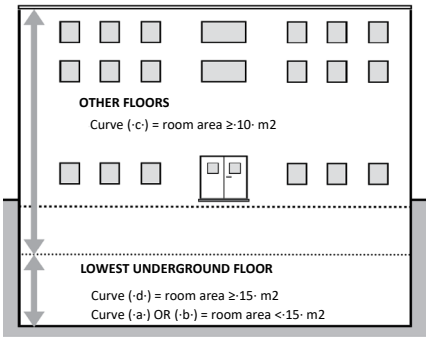
RXYSA-AV1 RXYSA-AY1 Refrigerant charge restrictions

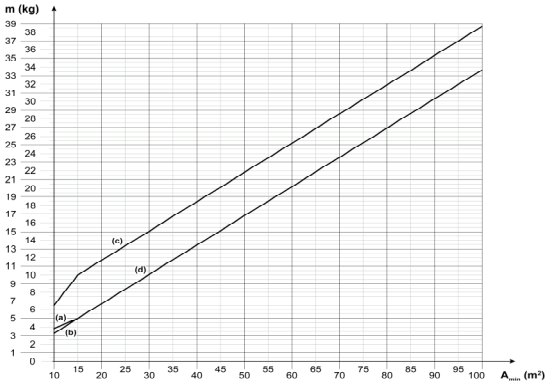
The total amount of refrigerant in the system shall be less than or equal to the maximum allowed total refrigerant amount.

For more information, refer to the installation manual.

Step ·1·
Determine the area of the smallest room in order to derive the total refrigerant charge limit in the system.
Step ·2·
Depending on the installation height of the indoor units, different values may be used in the next step IF:
- Installation height is ·1.8·≤x<·2.2· m, then use the charge limit of the graph for wall-mounted units.
- Installation height is ≥·2.2· m, then use the charge limit of the graph for ceiling-mounted units.

Step ·3·
Use the graph or table to determine the total refrigerant charge limit in the system.
In case there are any underground floors in the building, there are special requirements for the maximum allowable charge.
- The maximum allowable charge is determined by using graph (·a·), (·b·) or (·d·) for room with the smallest area on the lowest underground floor.
- The maximum allowable charge has to be assessed for the room with the smallest room area in both the lowest underground floor and the other floors.
- The lowest maximum allowable charge of both MUST be used.





(a) Ceiling-mounted
(b) Wall-mounted
(c) Smallest room not in underground floor
(d) Smallest room in underground floor

4D128599

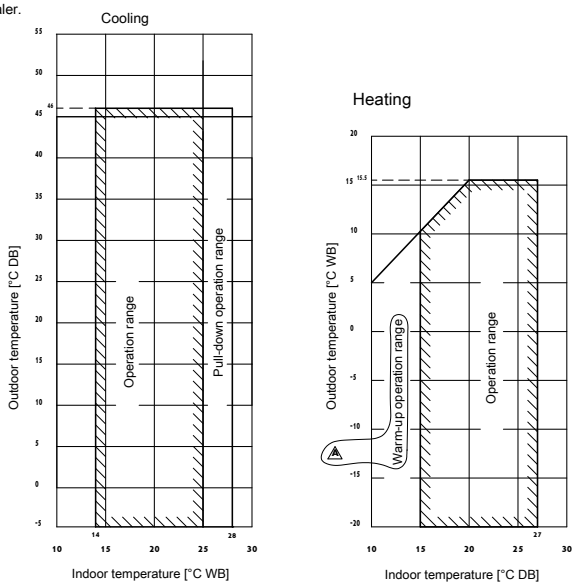
14 Operation range

14 - 1 Operation Range

RXYSA-AV1
RXYSA-AY1

Notes

1. These figures assume the following operation conditions
   Indoor and outdoor units
   Equivalent piping length: 5m
   Level difference: 0m
2. Depending on operation and installation conditions, the indoor unit can change over to freeze-up operation (indoor de-icing).
3. 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.
4. Operation range is valid in case direct expansion indoor units are used.
   If other indoor units are used, refer to the documentation of the respective indoor units.
5. If the unit is selected to operate at ambient temperatures <-5°C for 5 days or more, with relative humidity levels >95%, it is recommended to apply a Daikin range specifically designed for such application.
   For more information, contact your dealer.



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15 Appropriate Indoors

15 - 1 Appropriate Indoors

RXYSA-AV1
RXYSA-AY1

Recommended indoor units for ·RXYSA*A*· outdoor units

·· HP	4	5	6
	3xFXSA25 1xFXSA32	4xFXSA32	2xFXSA32 2xFXSA40

For details about the allowed combinations, see the engineering databook.

Appropriate indoor units for ·RXYSA*A*· outdoor units

Covered by ·ENER LOT21·

FXFA20-25-32-40-50-63-80-100-125
FXZA15-20-25-32-40-50
FXDA10-15-20-25-32-40-50-63
FXSA15-20-25-32-40-50-63-80-100-125-140
FXAA15-20-25-32-40-50-63

4D127887

Daikin Europe N.V. Naamloze Vennootschap · Zandvoordestraat 300 · 8400 Oostende · Belgium · www.daikin.eu · BE 0412 120 336 · RPR Oostende (Responsible Editor)

EEDEN22 12/2021

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