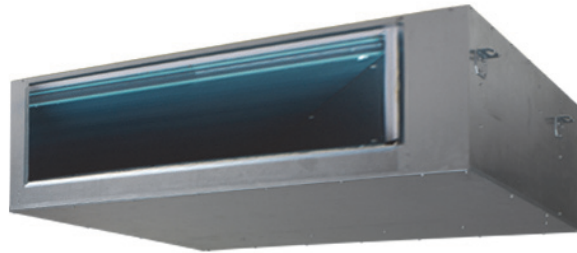




Air Conditioning Technical Data

VRV IV heat pump for indoor installation



EEDEN16-206

SB.RKXYQ-T

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SB.RKXYQ-T

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1 Features

The invisible VRV

- Unique VRV heat pump for indoor installation
- Unrivalled flexibility because the unit is split up into two elements: the heat exchanger and the compressor
- Highly suited to densely populated areas thanks to the low operation sound and seamless integration into surrounding architecture as only the grille is visible
- Incorporates VRV IV standards & technologies: Variable Refrigerant Temperature, VRV configurator, full inverter compressors and refrigerant cooled PCB
- Covers all thermal needs of a building via a single point of contact: accurate temperature control, ventilation, air handling units and Biddle air curtains
- Customize your VRV for best seasonal efficiency & comfort with the weather dependant Variable Refrigerant Temperature function. Increased seasonal efficiency with up to 28%. No more cold draft by supply of high outblow temperatures
- VRV configurator software for the fastest and most accurate commissioning, configuration and customisation
- Lightweight units (max. 97kg) can be installed by two people
- Unique V-shape heat exchanger results in compact dimensions (h/e unit only 400mm high) allowing false ceiling installation, while ensuring top efficiency
- Super efficient centrifugal fans (over 50% efficiency increase compared to sirocco fan)
- Small footprint compressor unit (600 x 550 mm) maximizing useable floor space
- Connectable to all VRV control systems
- Keep your system in top condition via our i-Net service: 24/7 monitoring for maximum efficiency, extended lifetime, immediate service support thanks to failure prediction and a clear understanding of operability and usage



Inverter

2 Specifications

2-1 Technical Specifications					SB.RKXYQ5T
System	Compressor unit				RKXYQ5T
	Heat exchanger unit				RDXYQ5T
Capacity range				HP	5
Cooling capacity	Nom.	35°CDB		kW	14.0 (1)
	Heating capacity	Nom.	6°CWB		kW
Heating capacity	Max.	6°CWB		kW	16.0 (2)
	Power input - 50Hz	Cooling	Nom.	35°CDB	kW
Heating			Nom.	6°CWB	kW
Max.		6°CWB	kW	4.71 (2)	
EER				kW	3.20
COP at nominal capacity				kW	3.80
COP at maximum capacity				kW	3.40
Capacity control	Method				Inverter controlled
Maximum number of connectable indoor units					10 (3)
Indoor index connection	Min.				62.5
	Nom.				-
	Max.				162.5
Fan	External static pressure	Max.	Pa		150
		Nom.	Pa		60
Operation range	Cooling	Min.~Max.		°CDB	-5~46
		Min.~Max.		°CWB	-20~15.5
	Temperature around casing	Min.		°CDB	5
		Max.		°CDB	35
Refrigerant	Type				R-410A
Refrigerant oil	Type				Synthetic (ether) oil
Piping connections	Between Compressor module (CM) and heat exchanger module (HM)	Liquid	Type		Braze connection
			OD	mm	12.7
		Gas	Type		Braze connection
			OD	mm	19.1
	Between Compressor module (CM) and indoor units (IU)	Liquid	Type		Braze connection
			OD	mm	9.5
		Gas	Type		Braze connection
			OD	mm	15.9
	Liquid	OD		mm	-
	Total piping length	System	Actual	m	
Defrost method					Reversed cycle

Standard Accessories : Installation and operation manual;

Standard Accessories : Drain hose;

2-2 Electrical Specifications					SB.RKXYQ5T
Current - 50Hz	Zmax	List			No requirements
Wiring connections - 50Hz	For connection with indoor			Quantity	2
				Remark	F1,F2
Power supply intake					Bottom

2 Specifications

Notes

(1) 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 air flow rate, ESP 30 Pa.

(2) 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. Nominal air flow rate, ESP 30 Pa.

(3) Actual number of units depends on the indoor unit type (VRV DX indoor, etc.) and the connection ratio restriction for the system (being; $50\% \leq CR \leq 130\%$).

(4) Refer to refrigerant pipe selection or installation manual

Sound power level is an absolute value that a sound generates. Nominal air flow rate, ESP 60 Pa.

Sound pressure level is a relative value, depending on the distance and acoustic environment. For more details, please refer to sound level drawings. Nominal air flow rate, ESP 60 Pa.

Sound values are measured in a semi-anechoic room.

For detailed contents of standard accessories, see installation/operation manual

RLA is based on following conditions: COOLING indoor temperature: 27°CDB / 19°CWB, outdoor temperature: 35°CDB. Nominal air flow rate, ESP 30 Pa.

MSC means the maximum current during start up of the compressor. VRV IV uses only inverter compressors. Starting current is always \leq max. running current.

MCA must be used to select the correct field wiring size. The MCA can be regarded as the maximum running current.

MFA is used to select the circuit breaker and the ground fault circuit interrupter (earth leakage circuit breaker).

TOCA means the total value of each OC set.

FLA means the nominal running current of the fan

Voltage range: units are suitable for use on electrical systems where voltage supplied to unit terminal is not below or above listed range limits.

Maximum allowable voltage range variation between phases is 2%.

Contains fluorinated greenhouse gases

2-3 Technical Specifications				RKXYQ5T	RDXYQ5T
Dimensions	Unit	Height	mm	701	397
		Width	mm	600	1,456
		Depth	mm	554	1,044
	Packed unit	Height	mm	838	1,245
		Width	mm	720	1,604
		Depth	mm	660	470
Weight	Unit		kg	77	97
	Packed unit		kg	86	117
Packing	Material			Carton	
	Weight		kg	2.1	4.9
Packing 2	Material			Wood	
	Weight		kg	6.9	14.0
Packing 3	Material			Plastic	
	Weight		kg	0.30	-
Casing	Colour			Daikin White	
	Material			Painted galvanized steel plate	
Heat exchanger	Type			-	
	Fin	Treatment		-	
Compressor	Quantity			1	
	Type			Hermetically sealed swing inverter compressor	
Fan	Type			-	
	Quantity			-	
	Air flow rate	Cooling	Nom. m ³ /min	-	
	Discharge direction			-	
Fan motor	Quantity			-	
	Model			-	
	Output		W	-	
Sound pressure level	Cooling	Nom.	dB(A)	47	
Refrigerant	Type			R-410A	
	Charge		kg	2	-

2 Specifications

2-3 Technical Specifications				RKXYQ5T	RDXYQ5T
Refrigerant oil	Type			Synthetic (ether) oil	
	Charged volume	l		1.75	-
Piping connections	Drain	OD	mm	-	32
2-4 Electrical Specifications				RKXYQ5T	RDXYQ5T
Power supply	Name			Y1	V1
	Phase			3N~	1N~
	Frequency	Hz		50	
	Voltage	V		380-415	220-240
Voltage range	Min.	%		-10	
	Max.	%		10	
Current	Nominal running current (RLA) - 50Hz	Cooling	A	5.8	1.8
Current - 50Hz	Minimum circuit amps (MCA)		A	13.5	4.6
	Maximum fuse amps (MFA)		A	16	10
	Total overcurrent amps (TOCA)		A	13.5	4.6
	Full load amps (FLA)	Fan motor	A	-	2.2
		Fan motor 2	A	-	2.2
Wiring connections - 50Hz	For power supply	Quantity		5G	3G

3 Options

3 - 1 Options

3

SB.RKXYQ-T

Nr.	Item	SB.RKXYQ5T	
		Heat exchanger unit	Compressor unit
I.	Refnet header	KHRQ22M29H	
II.	Refnet joint	KHRQ22M20T	
1a.	Cool/heat selector (switch)	-	KRC19-26
1b.	Cool/heat selector (fixing box)	-	KJB111A
1c.	Cool/heat selector (cable)	-	EKCHSC
2.	VRV configurator	-	EKPCCAB*
3.	Demand PCB	DTA104A61/62*	
4.	Drain pan heater	EKDPH1RDX	-

Notes

1. All options are kits
2. To mount option 1a, option 1b is required.
3. To operate the cool/heat selector function, options 1a and 1c are both required.

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4 Combination table

4 - 1 Combination Table

SB.RKXYQ-T

System pattern	Capacity [%]	DX [%]	AHU [%]	FXMQ*MF [%]
VRV DX indoor unit	50 - 130	50 - 130	-	-
RA indoor unit	-	-	-	-
Hydrobox unit	-	-	-	-
DX + AHU See note 1.	50 - 110	50 - 110	0 - 110	-
Air handling unit only See note 1.	90 - 110	-	90 - 110	-
FXMQ*MF	50 - 100	-	-	50 - 100

AHU: Air handling unit (AHU)

Notes

1. AHU = CVV (biddle) air curtain OR EKE XV + EKEQM

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5 Capacity tables

5 - 1 Capacity Table Legend

5

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.

→ <http://extranet.daikineurope.com/captab>

- E-data app: gives a complete overview of the Daikin products available in your country, with all engineering data and commercial info in your own language. Download the app now!

→ <https://itunes.apple.com/us/app/daikin-e-data/id565955746?mt=8>



- Selection software: allows you to do load calculations, equipment selections and energy simulations for our VRV, Daikin Altherma, refrigeration and applied systems products.

→ <http://extranet.daikineurope.com/en/software/downloads/default.jsp>

5 Capacity tables

5 - 2 Integrated Heating Capacity Correction Factor

SB.RKXYQ-T

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:

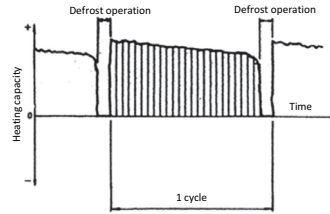
Formula

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

$A = B \cdot C$

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
5 HP	0,88	0,86	0,80	0,75	0,76	0,82	1,00



Notes

1. The figure shows the integrated heating capacity for a single cycle (from one defrost operation to the next).

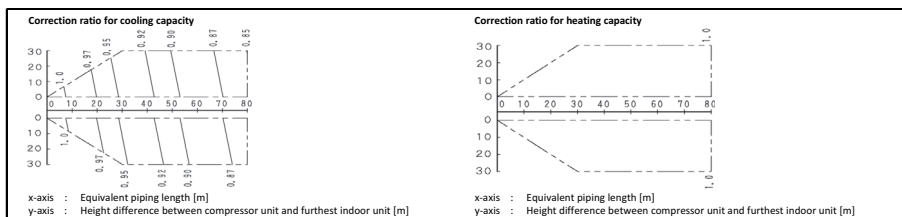
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5 Capacity tables

5 - 3 Capacity Correction Factor

5

SB.RKXYQ-T



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 VRV4-i system, 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 delivered by the compressor unit plus the heat exchanger unit, whichever is less.

Indoor connection ratio ≤ 100%

$$\text{Maximum capacity of outdoor units} = \text{Capacity from capacity table at 100\% connection ratio} \times \text{Correction ratio of piping to furthest indoor unit}$$

Indoor connection ratio > 100%

$$\text{Maximum capacity of outdoor units} = \text{Capacity from capacity table at installed connection ratio} \times \text{Correction ratio of piping to furthest indoor unit}$$

4. If the equivalent pipe length between the heat exchanger unit and the furthest indoor unit is ≥ 90m, it is recommended to increase the size of the main gas pipe (between compressor unit and first refrigerant branch kit). If the recommended gas pipe (with increased size) is not available, you must use the standard size (which might result in a small capacity decrease).

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

5. Overall equivalent length

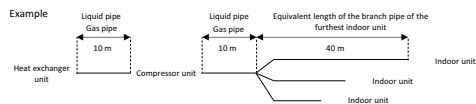
$$\text{Overall equivalent length} = \text{Equivalent length of the main pipe} \times \text{Correction factor} + \text{Equivalent length of the branch pipes}$$

Choose the correction factor from the following table.

When calculating the cooling capacity: gas pipe size

When calculating the heating capacity: liquid pipe size

	Standard size	Size increase
Cooling (gas pipe)	1,0	0,5
Heating (liquid pipe)	1,0	



Overall equivalent length

- Cooling mode = 10 m + 10 m x 1 + 40 m = 60 m
- Heating mode = 10 m + 10 m x 1 + 40 m = 60 m

Capacity correction ratio (height difference = 0)

- Cooling mode = 0,89
- Heating mode = 1,00

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6 Dimensional drawings

6 - 1 Dimensional Drawings

RDXYQ5T7Y1B

1	Hook	
2	Service door	
3	Air discharge side	
4	Air suction side	
5	Wiring intake (low voltage wiring)	Transmission wiring connection
6	Wiring intake (high voltage wiring)	Power supply connection
7	Drain outlet	VP25
8	Gas pipe connection port	Ø 19.1 brazing connection
9	Liquid pipe connection port	Ø 12.7 brazing connection
No.	Part name	Remark

2D098826

RKXYQ5T7Y1B

8	Handle	
7	Pipe routing hole	Knockout hole.
6	Wiring intake (low voltage wiring)	Transmission wiring connection
5	Wiring intake (high voltage wiring)	Power supply connection
4	Gas pipe connection port	Ø 15.9 brazing connection
3	Liquid pipe connection port	Ø 9.5 brazing connection
2	Gas pipe connection port	Ø 19.1 brazing connection
1	Liquid pipe connection port	Ø 12.7 brazing connection
No.	Part name	Remark

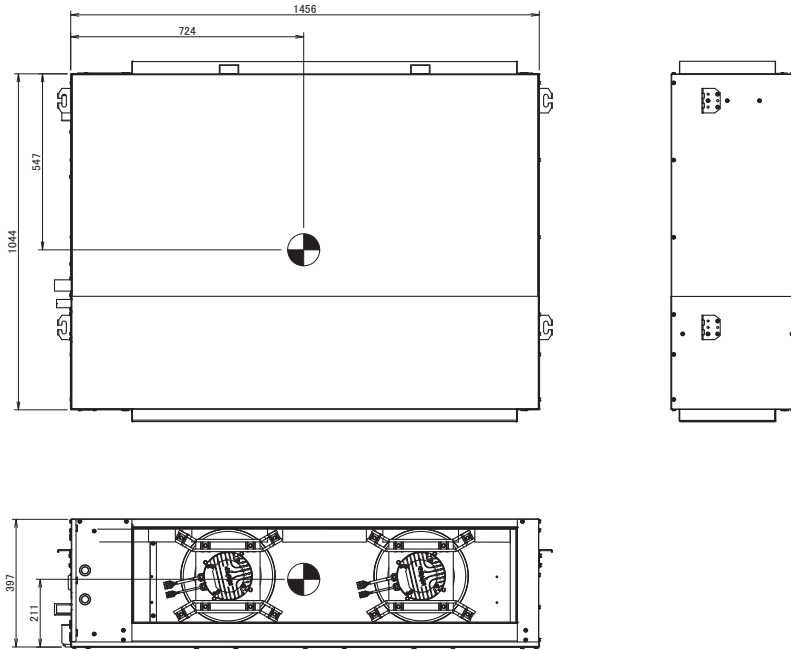
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7 Centre of gravity

7 - 1 Centre of Gravity

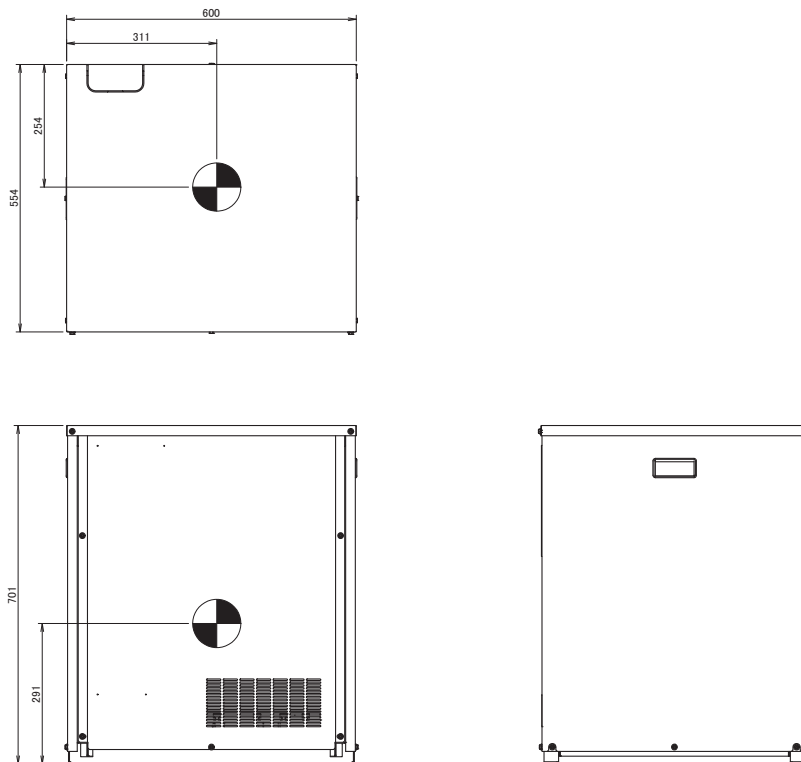
7

RDXYQ5T7V1B



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RKXYQ5T7Y1B

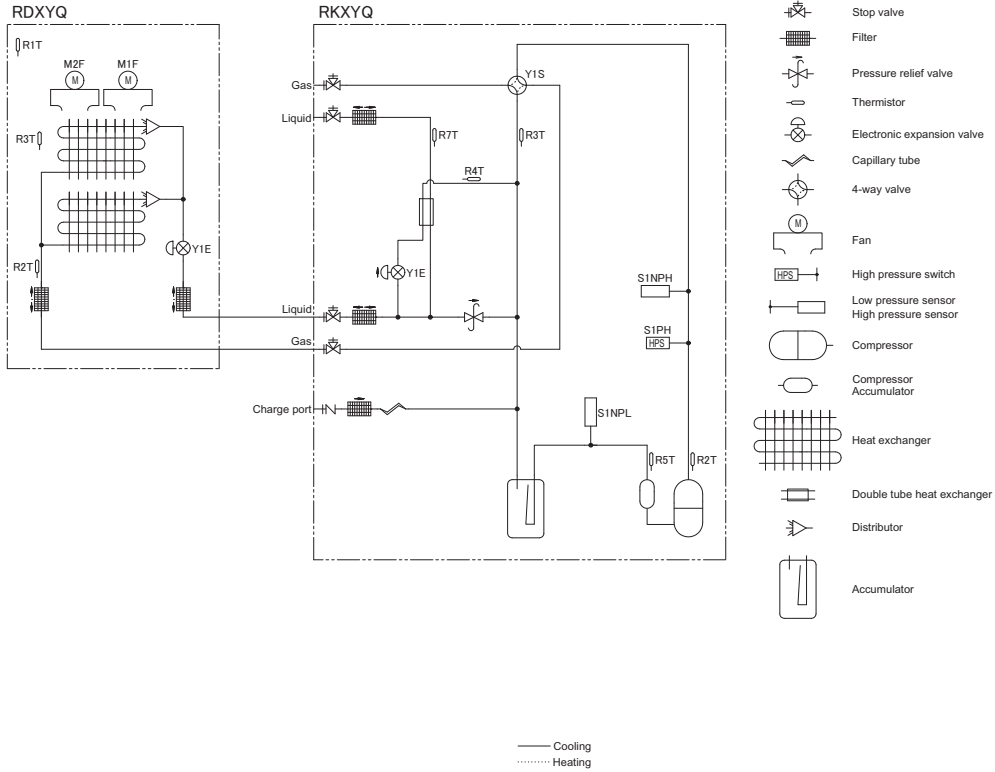


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8 Piping diagrams

8 - 1 Piping Diagrams

SB.RKXYQ-T



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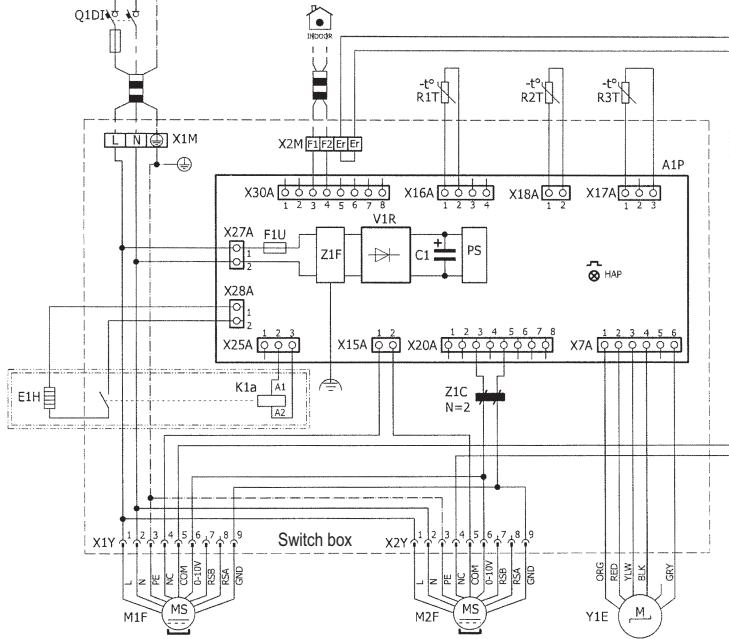
9 Wiring diagrams

9 - 1 Wiring Diagrams - Single Phase

9

RDXYQ5T7V1B

1~220-240V, 50Hz



NOTES TO GO THROUGH BEFORE STARTING THE UNIT:

X1M: Main terminal

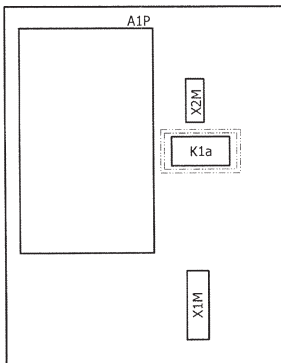
- : Earth wiring
- : Wire number 15
- : Field wire
- : Field cable
- : Connection ** continues on page 12 column 2
- : Several wiring possibilities
- : Option
- : Wiring depending on model
- : Not mounted in switch box
- : PCB

LEGEND:

Part n°	Description
A1P	Main PCB
C1 (A1P)	Capacitor
E1H	* Drain pan heater
F1U (A1P)	Fuse (T, 6.3A, 250V) for PCB
HAP (A1P)	Running LED (service monitor-green)
K1a	* Auxiliary relay
M ^F	Motor (fan)
Q1DI	Earth leakage circuit breaker
PS (A1P)	Switching power supply
R1T	Thermistor air
R2T	Thermistor gas
R3T	Thermistor coil
V1R (A1P)	Diode module
X1M	Main terminal
X2M	Field wiring terminal
X ^M	Terminal strip
X ^Y	Connector
Y1E	Electronic expansion valve
Z1C	Ferrite core
Z1F (A1P)	Noise filter

*: Optional
#: Field supply

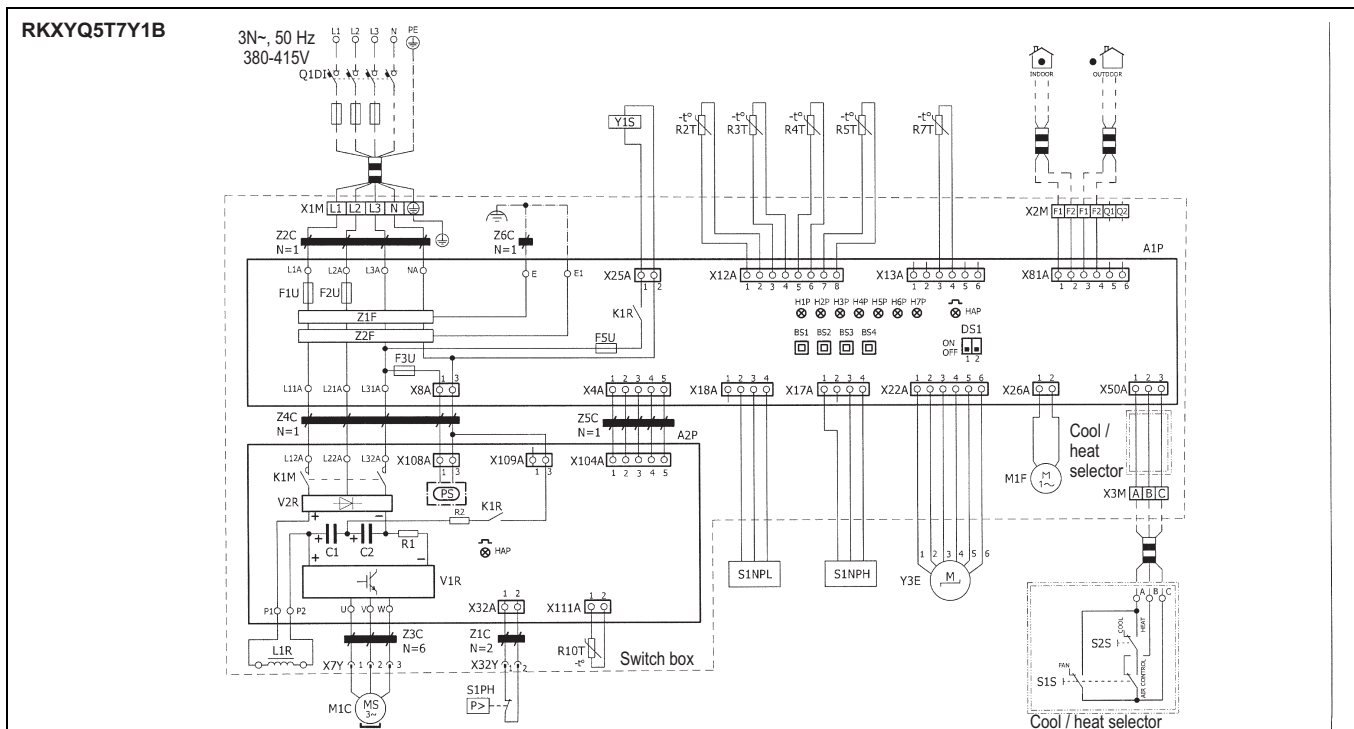
POSITION IN SWITCH BOX:



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9 Wiring diagrams

9 - 2 Wiring Diagrams - Three Phase



NOTES TO GO THROUGH BEFORE STARTING THE UNIT:

X1M: Main terminal

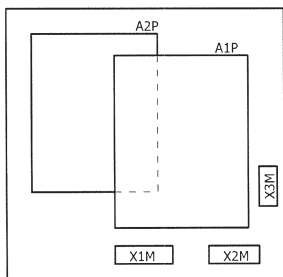
- : Earth wiring
- : Wire number 15
- : Field wire
- : Field cable
- : Connection ** continues on page 12 column 2
- : Several wiring possibilities
- : Option
- : Wiring depending on model
- : Not mounted in switch box
- : PCB

LEGEND:

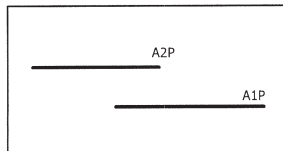
Part n°	Description
A1P	Main PCB
A2P	Inverter PCB (INV)
BS* (A1P)	Push button
C* (A2P)	Capacitor
DS1 (A1P)	Dipswitch
F1U (A1P)	Fuse (T, 31.5A, 250V) for PCB
F2U (A1P)	Fuse (T, 31.5A, 250V) for PCB
F3U (A1P)	Fuse (T, 6.3A, 250V) for PCB
F5U (A1P)	Fuse (T, 6.3A, 250V) for PCB
H*P (A1P)	LED (service monitor-orange)
HAP (A*P)	Running LED (service monitor-green)
K1M (A2P)	Magnetic contactor
K1R (A*P)	Magnetic relay
L1R	Reactor
M1C	Motor (compressor)
M1F	Motor (fan)
PS (A2P)	Switching power supply
Q1DI	Earth leakage circuit breaker
R* (A2P)	Resistor
R2T	Thermistor (discharge)
R3T	Thermistor (suction accumulator)
R4T	Thermistor (subcool HE gas)
R5T	Thermistor (suction compressor)
R7T	Thermistor (liquid)
R10T	Thermistor (fin)
S1NPL	Pressure sensor (low)
S1NPH	Pressure sensor (high)
S1PH	High pressure switch
S*S	* Switch cool/heat selector
V1R (A2P)	IGBT power module
V2R (A2P)	Diode module
X1M	Terminal strip (power supply)
X2M	Terminal strip (low voltage)
X3M	Terminal strip (cool/heat selector)
X*Y	Connector
Y3E	Electronic expansion valve
Y1S	Solenoid valve (4 way valve)
Z*C	Noise filter (ferrite core)
Z*F (A1P)	Noise filter

*: Optional
#: Field supply

POSITION IN SWITCH BOX:



Front side



Upper side

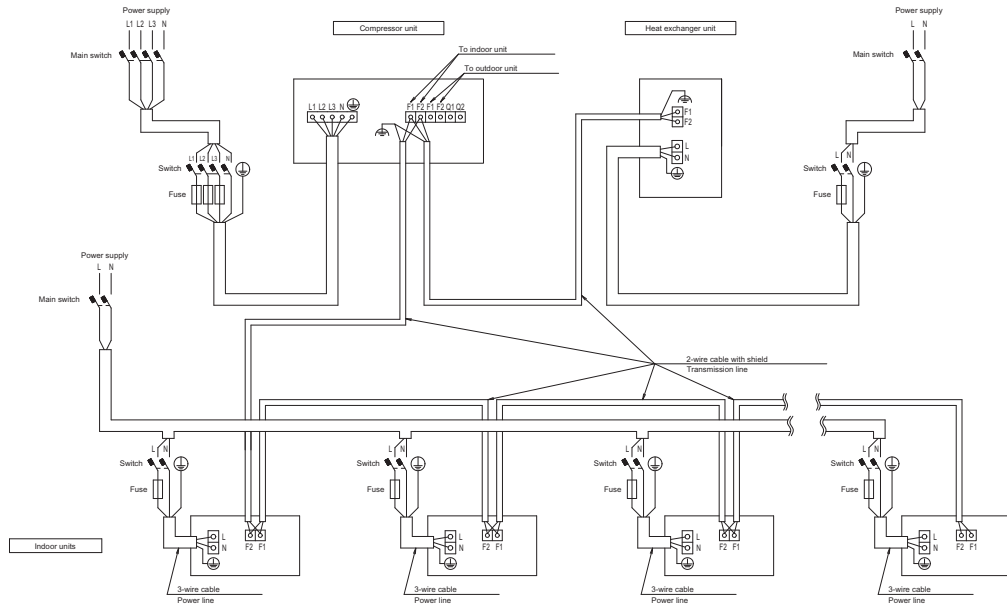
10 External connection diagrams

10 - 1 External Connection Diagrams

10

SB.RKXYQ-T

External connection diagram



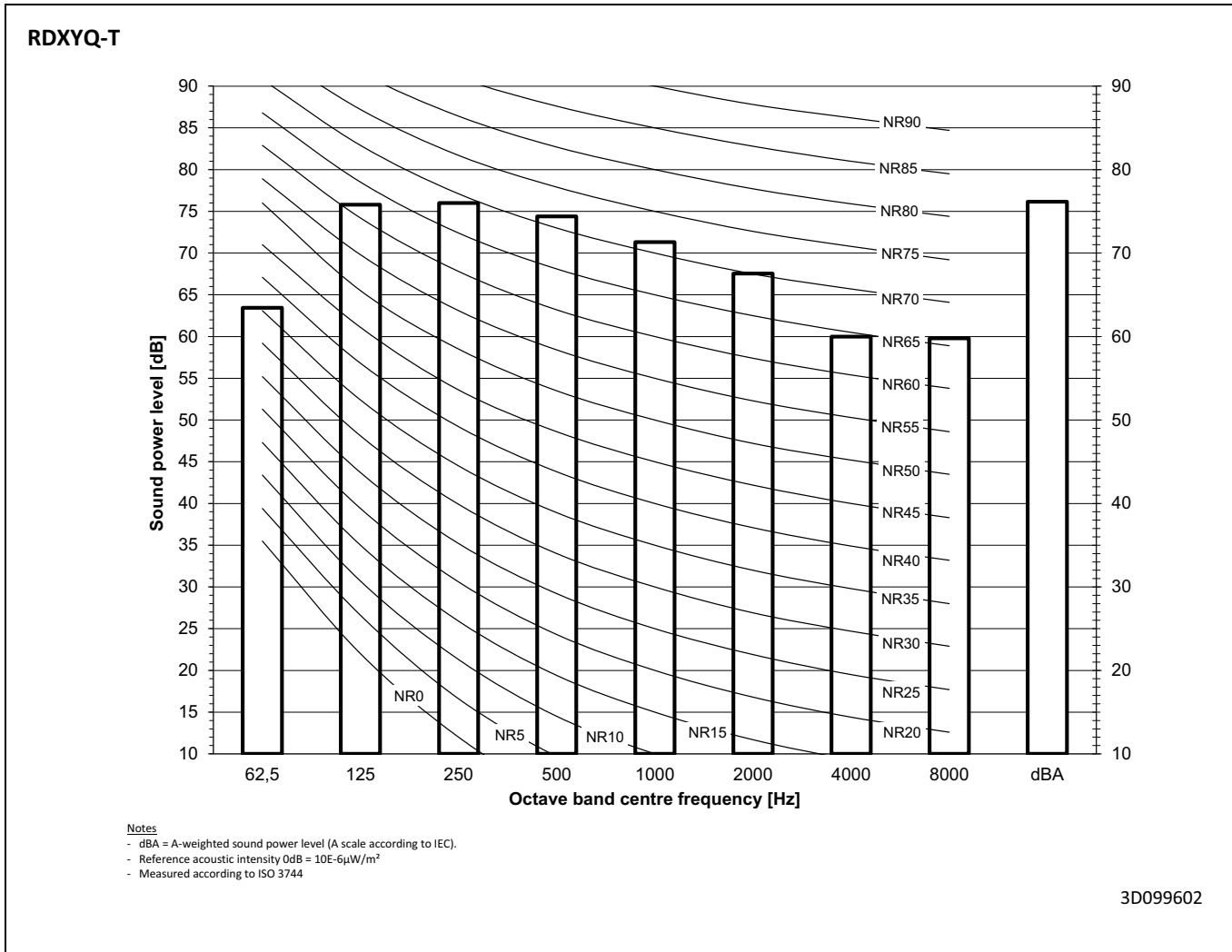
Notes

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 equipment.
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.

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11 Sound data

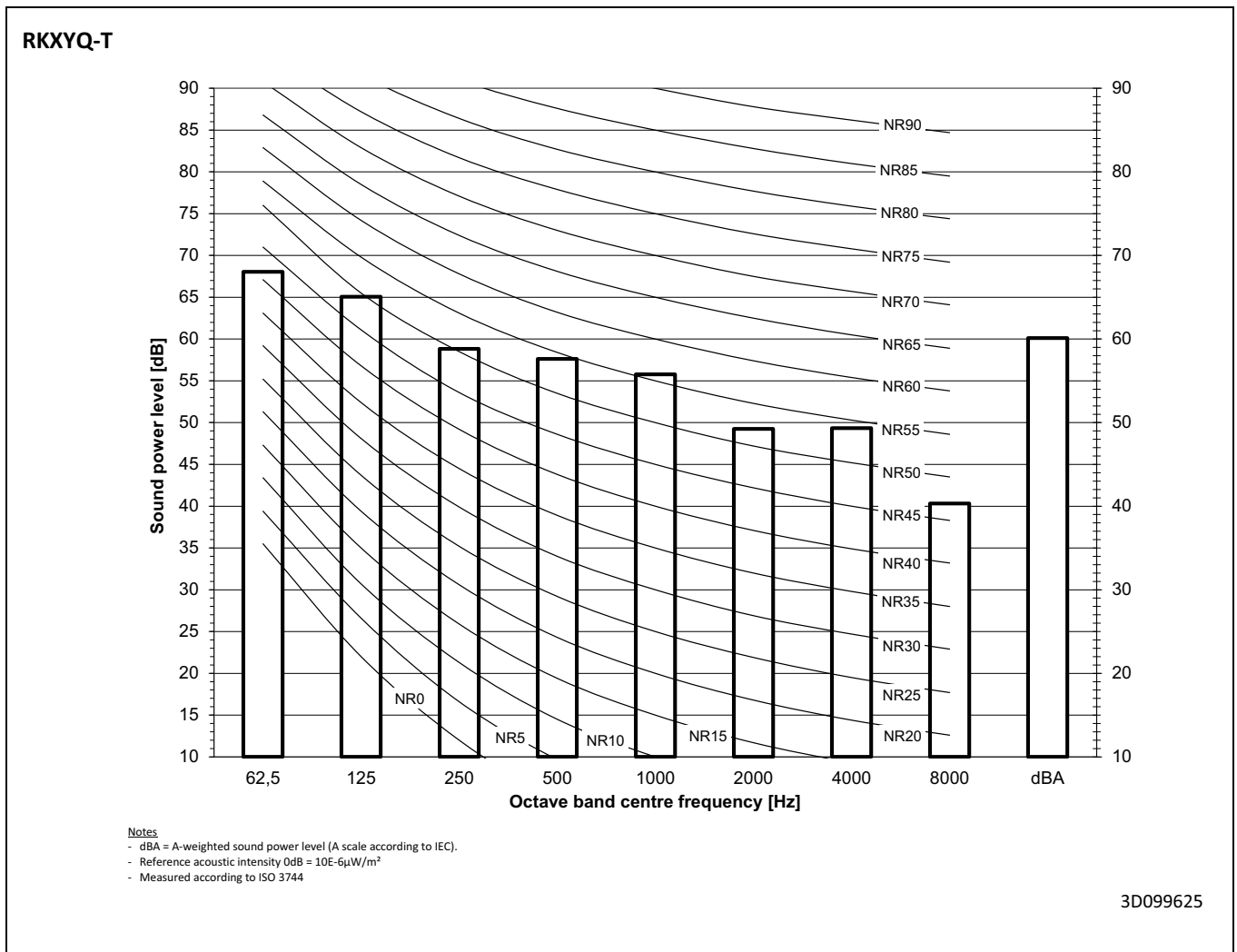
11 - 1 Sound Power Spectrum



11 Sound data

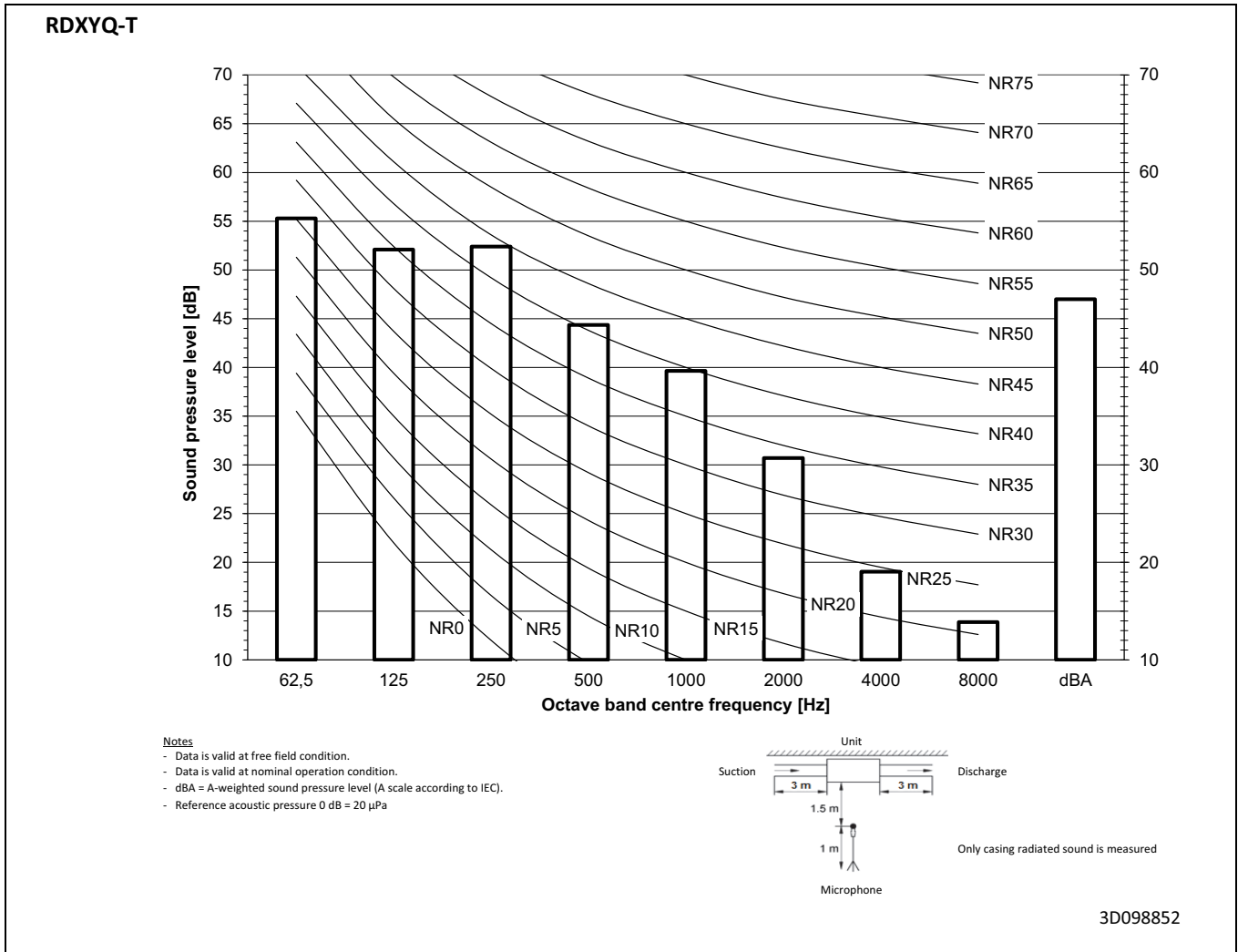
11 - 1 Sound Power Spectrum

11



11 Sound data

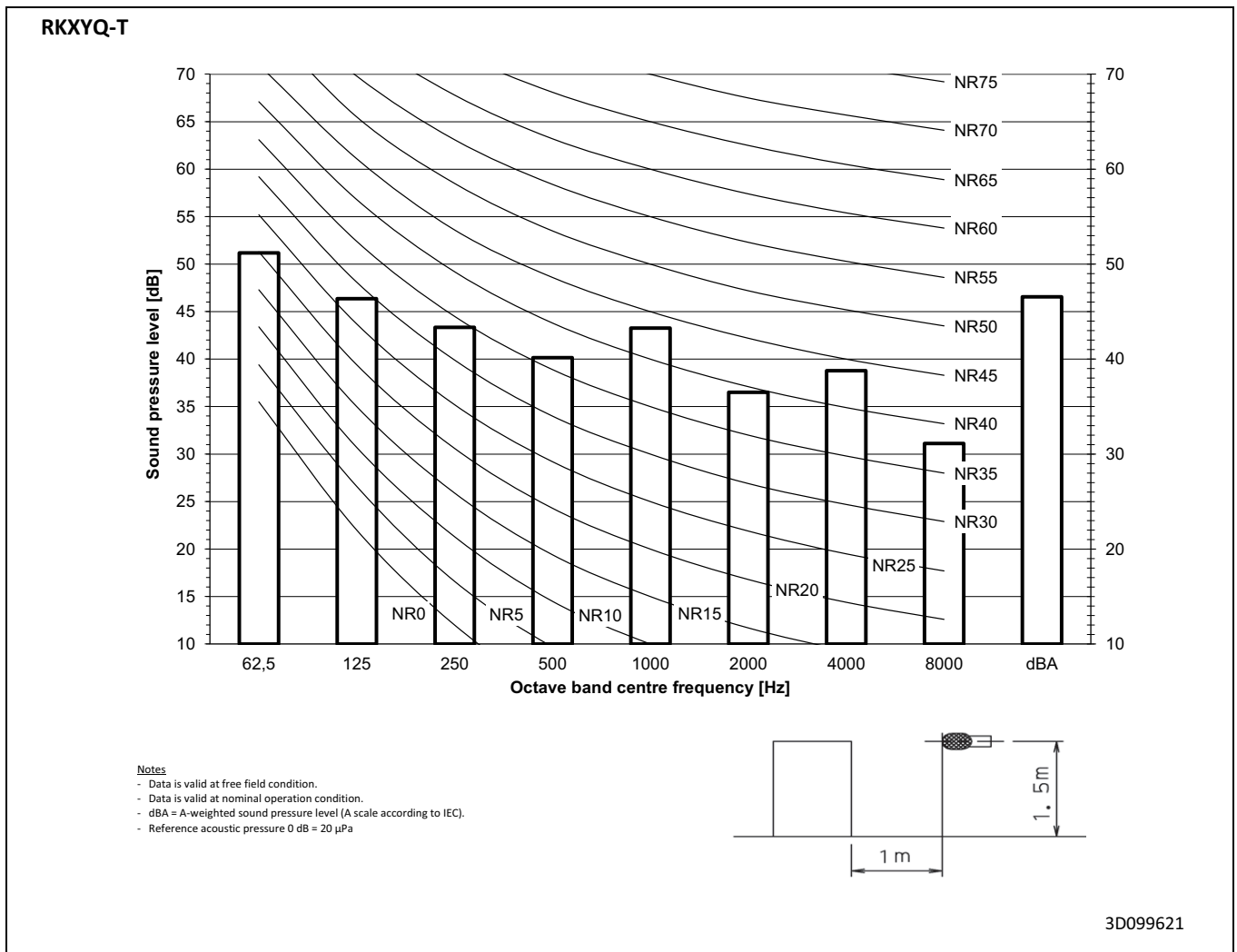
11 - 2 Sound Pressure Spectrum



11 Sound data

11 - 2 Sound Pressure Spectrum

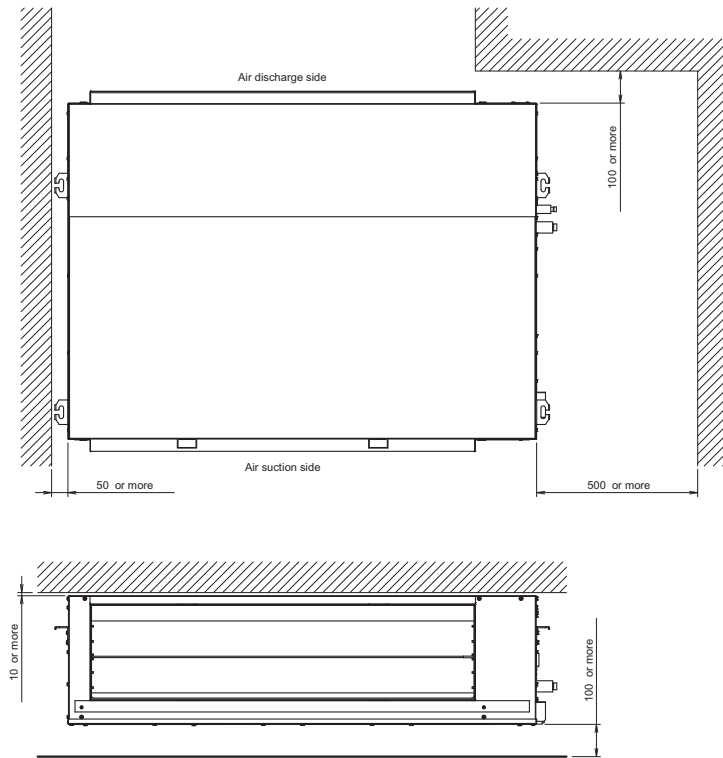
11



12 Installation

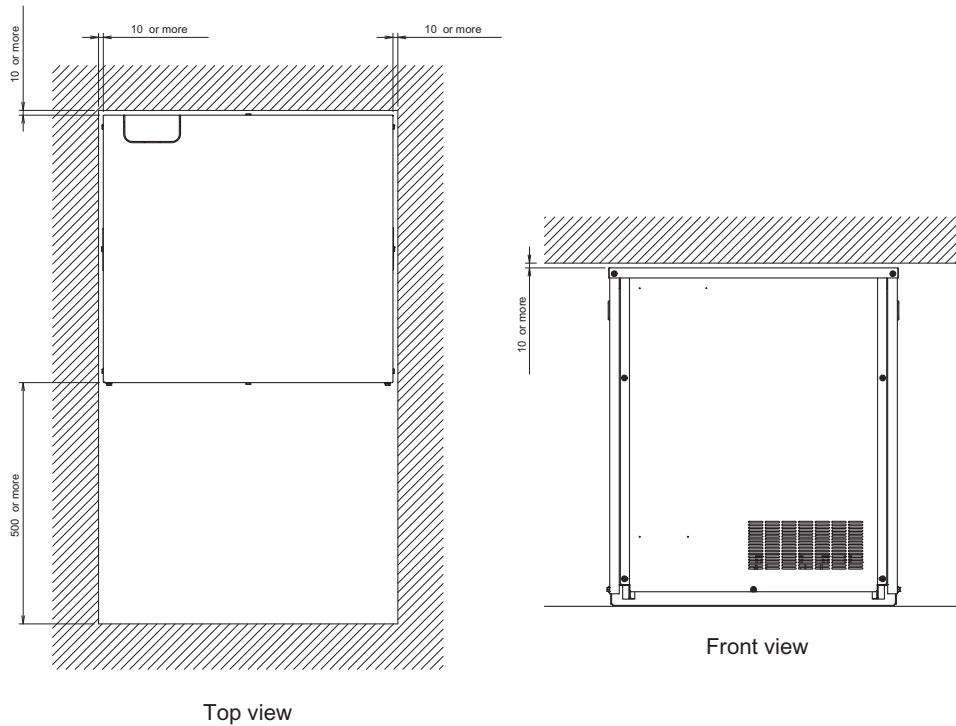
12 - 1 Installation Method

RDXYQ5T7V1B



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RKXYQ5T7Y1B



Front view

Top view

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12 Installation

12 - 2 Refrigerant Pipe Selection

12

SB.RKXYQ-T

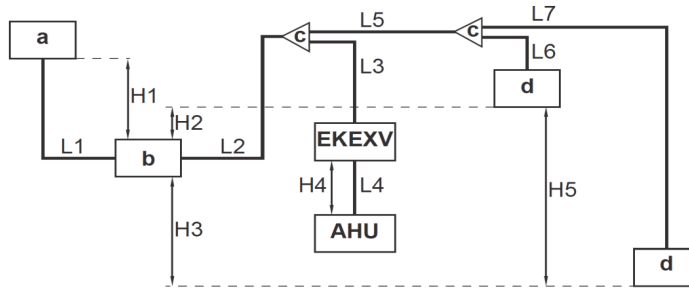
Maximum piping length [m]							
Longest pipe				After first branch		EKEXV ↔ AHU	
Actual		Actual / (Equivalent)		Actual			
a ↔ b		b ↔ d		c ↔ d/AHU			
L1	30	L2+L3+L4	70/(90)	L3+L4	40	L4	5
		L2+L5+L6	70/(90)	L5+L6	40		
		L2+L5+L7	70/(90)	L5+L7	40		

See note 1.

- a: Heat exchanger unit
- b: Compressor unit
- c: Refrigerant branch kit
- d: VRV DX indoor unit
- EKEXV: Expansion valve kit
- AHU: Air handling unit (AHU)
- H1-H5: Height difference
- L1-L7: Piping length

Maximum height difference [m]					
a ↔ b		b ↔ d		d ↔ d	
H1	±10	H2	±30	H5	±15
		H3	±30		
		H4	±5		

Total piping length [m]	
a ↔ b	a ↔ b + b ↔ d
L1	L1+L2+L3+L4+L5+L6+L7
30	115
25	120
20	125
15	130
10	135
5	140



Notes

1. If the equivalent pipe length between the heat exchanger unit and the furthest indoor unit is ≥90m, it is recommended to increase the size of the main gas pipe (between compressor unit and first refrigerant branch kit).
If the recommended gas pipe (with increased size) is not available, you must use the standard size (which might result in a small capacity decrease).

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13 Operation range

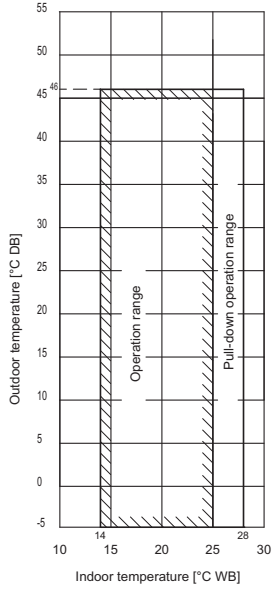
13 - 1 Operation Range

SB. RKXYQ-T

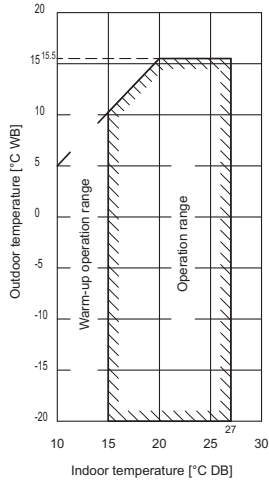
Notes

- These figures assume the following operation conditions
 Equivalent piping length: 10m
 Level difference: 0m
- Depending on operation and installation conditions, the indoor unit can change over to freeze-up operation (indoor de-icing).
- To reduce the freeze-up operation (indoor de-icing) frequency, it is recommended to install the heat exchanger unit in a location not exposed to wind.

Cooling



Heating



3D098833



These products are not within the scope of the Eurovent certification program

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