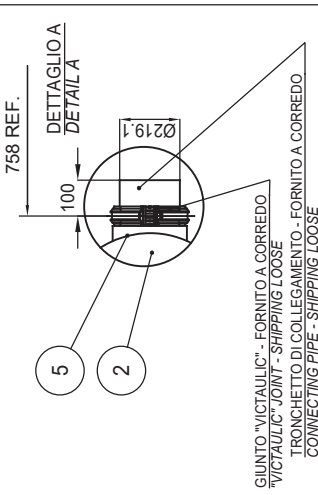
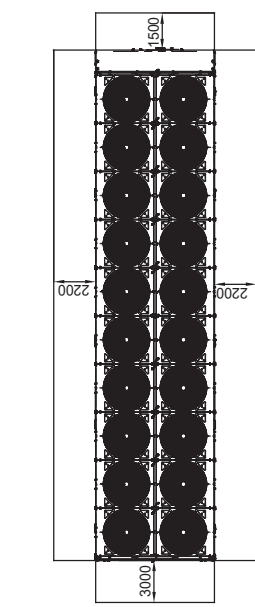
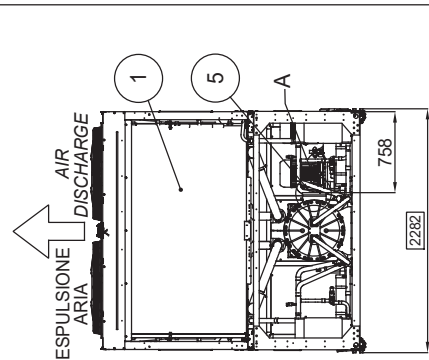




MISTA LATERALE / SIDE VIEW		MISTA DALL'ALTO / TOP VIEW									
VERSIONE VERSION	TIPO CONDENSATORE CONDENSER TYPE	PESO / WEIGHT KG		CARICHI ANTIVIBRANTI KG ISOLATOR LOADS KG							
		SPEDIZIONE SHIPPING	FUNZIONAMENTO OPERATING	A	B	C	D	E	F	G	H
XS XL	ALLUMINIO / ALUMINUM ACRYLIC COATED	7279	7729	1207	1207	1243	1183	1038	883	484	484
XR	ALLUMINIO / ALUMINUM ACRYLIC COATED	7539	7989	1272	1272	1308	1248	1038	883	484	484
	ANTIVIBRANTI IN GOMMA RUBBER ISOLATORS	MODELLO (Q.1à) / TYPE (Q.1y)		91226 (8Pz.)							
	ANTIVIBRANTI A MOLLA SPRING ISOLATORS	MODELLO (Q.1à) / TYPE (Q.1y)		91238 (4Pz.)				91235 (2Pz.)		91232 (2Pz.)	

DISEGNATO AL CAD - VIETATO APPORTARE MODIFICHE A MANO. / DRAWING BY CAD - DO NOT MANUALLY MODIFY THIS DRAWING.



EWAH430TZXR2



- > Air cooled chiller
- > Inverter Driven Single Screw compressor
- > High efficiency version
- > Reduced sound configuration
- > R1234ze refrigerant

- ➔ **Unit description:** Daikin air-cooled chiller with inverter driven screw compressor and R1234ze refrigerant. Color: Ivory White (Munsell code 5Y7.5/1) (±RAL7044).
- ➔ **Compressor:** Latest design Daikin single screw compressor enjoying Variable Volume Ratio (VVR) technology for optimized unit performances at any load and operating condition. Daikin design refrigerant cooled inverter integrated within compressor casing. Sophisticated unit control logic allows the inverter to modulate compressor speed minimizing power consumption and noise emission at any load condition.
- ➔ **Evaporator:** New generation shell and tube (dual compressor models) or plate heat type (single compressor models) assuring optimal heat transfer and minimized water pressure drops.
- ➔ **Condenser:** Full body Aluminum "Long Life Alloy" Microchannel coils providing superior resistance to corrosion compared to standard aluminum alloy. Coils' layout designed to guarantee optimized heat transfer allowing maximized performances and reduced turbulence for low noise emission.
- ➔ **Condenser coil fans:** The condenser fans are propeller type with high efficiency design blades to maximize performances. The material of the blades is glass-reinforced resin and each fan is protected by a guard. Fan motors are internally protected from over temperature and are IP54.
- ➔ **Refrigerant circuit:** Each unit has one or two independent refrigerant circuits and each one includes: Compressor Inverter driven with integrated oil separator, Electronic expansion valve, Discharge line shut off valve, Liquid line shut off valve, Sight glass with moisture indicator, Filter drier, Charging valves, High pressure switch, High pressure transducers, Low pressure transducers, Oil pressure transducer, Suction temperature sensor.
- ➔ **Electrical:** Control and power sections are located in the main panel that is manufactured to ensure protection against all weather conditions. The electrical panel is IP54 and internally protected against possible accidental contact with live parts. The main panel is fitted with a main switch interlocked door that shuts off power supply when opening.
- ➔ **Controller:** Latest generation MicroTech 4 controller provides an easy to use control environmental. The control logic is designed to provide maximum efficiency, to continue operation in unusual operating conditions and to provide a history of unit operation. Sophisticated software with adaptive logic selects the most energy efficient combination of compressor load, electronic expansion valve position and condenser fans to keep stable operating conditions and maximize chiller efficiency and reliability. One of the greatest benefits is the easy interface with LonWorks, Bacnet, Ethernet TCP/IP or Modbus communications.



EWAH430TZXR2

Performances calculated according to EN14511-3:2013



Cooling mode performances

Cooling capacity	419.5 kW	Evaporator water IN/OUT	12.00 °C / 6.00 °C
Power input	124.7 kW	Evaporator water flow	16.69 l/s
EER Cooling Efficiency	3.364 kW / kW	Evaporator pressure drops	23.8 kPa
		Ambient temperature	35.0 °C
IPLV.IP	5.890 kW / kW	Lw / Lp @ 10m	92 dB(A) / 60 dB(A)
SEER / ηs	5.14 / 202.6%	Evaporator fluid	Water
SEPR	6.34	Evaporator fouling factor	0.000 m²°C/W

SEER declared according to EN14825, fan coil application 12/7°C (inlet/outlet) water temperatures. SEPR declared according to EN14825:2018, high temperature process cooling application. Sound power level according to ISO 9614-1. IPLV.IP and seasonal efficiency data generally refer to standard unit without options

Unit information

Compressor type	Inverter Driven Single Screw	Refrigerant type	R1234ze
Capacity control	Stepless	Condenser type	Microchannel
Compressor N°	2	Condenser fans N°	14
Circuit N°	2	Condenser fans control	VFD
Refrigerant charge	84.6 kg	Altitude	0 MSL
Nominal air flow	59709 l/s	Evaporator type	Shell & Tubes

Actual refrigerant charge depends on the final unit construction, refer to unit nameplate.

Electrical information

Power supply	400 V / 50.0 Hz / 3 Ph	Max. inrush current	0 A
Running current	208.89 A	Compressor starting method	Inverter
Max. Running current	309 A		
Max. current wires sizing	340.39 A		

Voltage tolerance ± 10%. Phase Voltage unbalance ± 3%. Electrical data referred to standard unit without options, refer to unit name plate data.



EWAH430TZXR2

Performances calculated according to EN14511-3:2013

Acoustic information

Sound pressure level at 1 m from the unit (rif. 2 x 10⁻⁵ Pa)

63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	db(A)
77.0	71.0	70.0	68.0	68.0	60.0	57.0	58.0	71.1

Acoustic information

Sound pressure level at 10 m from the unit (rif. 2 x 10⁻⁵ Pa)

63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	db(A)
64.5	59.5	57.5	55.5	54.5	51.5	45.5	45.5	59.1

Values referred to Evap. IN/OUT 12/7°C and 35°C Amb., full load operation, standard unit configuration without options. Sound pressure level calculated from sound power level. Sound pressure in octave band is for information only and not considered binding.

Physical information

Evap. connections size **168.3 mm**

Length **6786 mm**

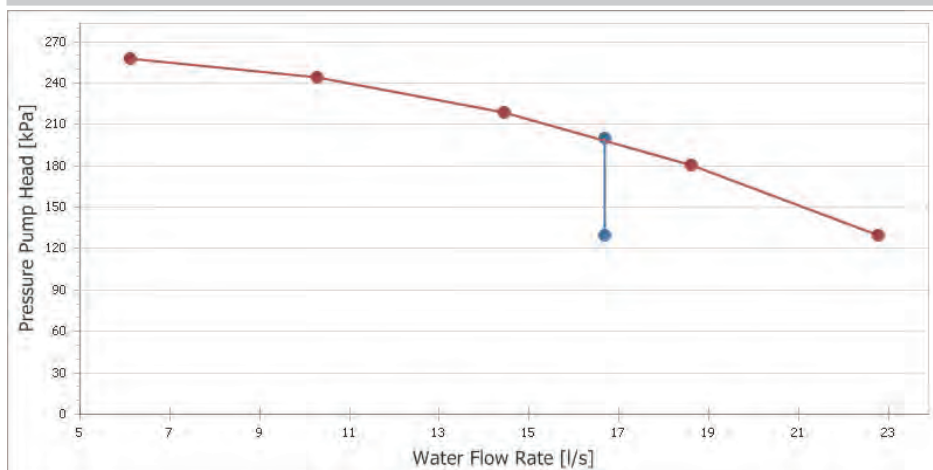
Width **2282 mm**

Weight shipping/operating **5278 kg / 5541 kg**

Height **2540 mm**

Information referred to standard unit configuration without options, refer to certified unit drawing.

Pump curve



Water flow rate [l/s] *	16.69
Evaporator pressure drop [kPa] *	23.8
Pump water head [kPa] *	200
Pump motor power input [kW]	5.5
Pump motor current [A]	10.4
Power supply [V/Ph/Hz]	400/3/50
PN	16
Motor protection	IP55
Insulation class	F

* @working conditions





EWAH430TZXR2

Performances calculated according to EN14511-3:2013

Technical Data Sheet



Certification notes



Certified in accordance with Eurovent Certification Program: Liquid Chilling Packages and Heat Pumps (LCP-HP). Standard ratings are specified in the section "Rating requirements" of the Rating Standards. All standard ratings are verified by tests conducted in accordance with the following standards: EN 14511-3:2013 (performance testing) and ISO 9614 (acoustic testing).

Within the scope of AHRI Air-Cooled Water-Chilling Packages Certification Program. AHRI Certified performance may be obtained from the manufacturer's representative

General notes

For more information about the above selected product, please go to <http://www.daikineurope.com/industrial/>. Unit performances are reproducible in laboratory test environment only in accordance to recognized industry standards. This technical data sheet is generated by Daikin Applied Tool software designed and distributed by Daikin Applied Europe S.p.A. The present software does not constitute an offer binding upon Daikin Applied Europe S.p.A who compiled the content of this software to the best of its knowledge. No express or implied warranty is given for the completeness, accuracy, reliability or fitness for particular purpose of its content and the products and services presented therein. Specifications are subject to change without prior notice. Product images are indicative only and are intended for illustrative purposes only; pictures may be differed from the ordered product and are subject to change without prior notice. Daikin Applied Europe S.p.A. explicitly rejects any liability for any direct or indirect damage, in the broadest sense, arising from or related to the use and/or interpretation of this document. All content is copyrighted by Daikin Applied Europe S.p.A.





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Denominazione / Identification
EWAH430TZX-B2_DPK7

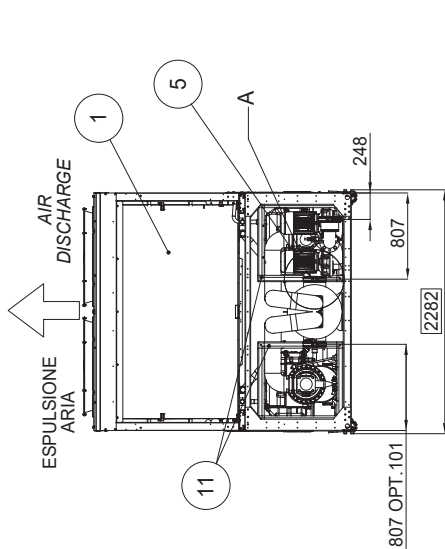
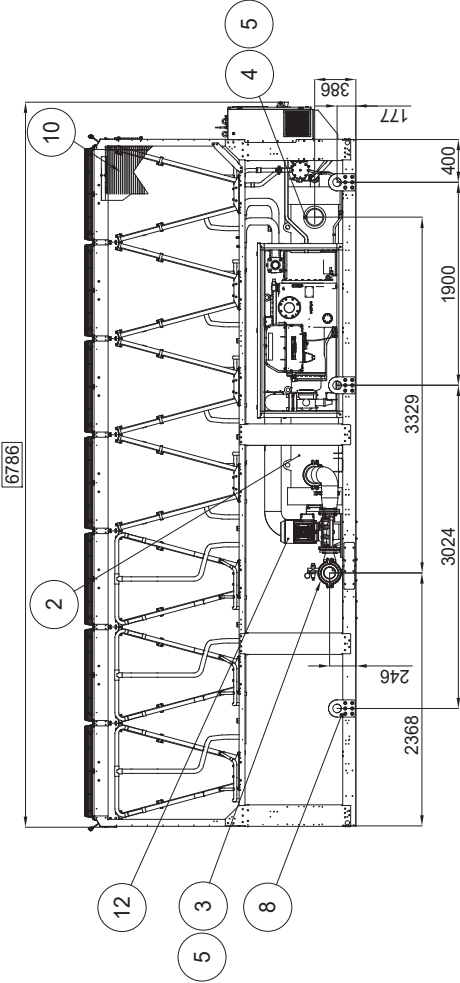
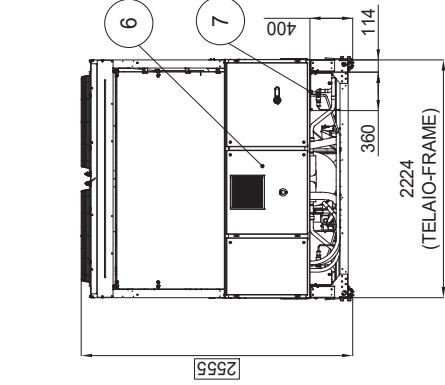
Dis. Dwg.
F. Vannoli
Ver. Check
P. Cicoli
Apr. Passed
A. Consorti

Codice / Part No.
EWAH430TZX-B2_DPK7



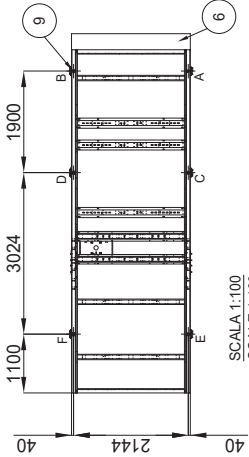
Tolleranza generale
General Tolerance

±20mm

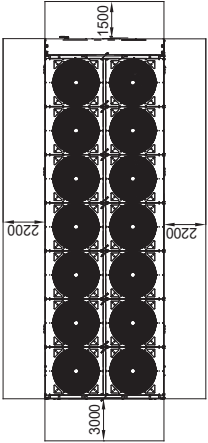


LEGENDA - LEGEND

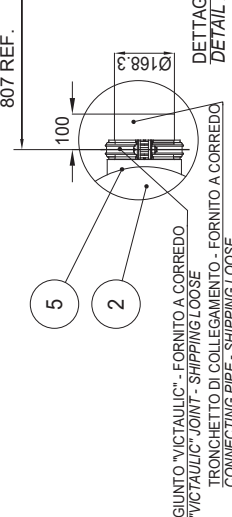
1. BATTERIA CONDENSANTE
CONDENSER COIL
2. EVAPORATORE
EVAPORATOR
3. ENTRATA ACQUA EVAPORATORE
EVAPORATOR WATER INLET
4. USCITA ACQUA EVAPORATORE
EVAPORATOR WATER OUTLET
5. CONNESSIONI EVAPORATORE/POMPE VICTAULIC Ø168.3
VICTAULIC EVAPORATOR/PUMPS CONNECTIONS Ø168.3
6. PANNELLO DI COMANDO E CONTROLLO
OPERATING AND CONTROL PANEL
7. ASOLA 320x210 INGRESSO ALIM. PANNELLO COMANDO E CONTROLLO
320x210 SLOT FOR POWER AND CONTROL PANEL CONNECTION
8. PIASTRE PER SOLLEVAMENTO UNITA'
RAISING PLATE
9. FORI Ø25 mm PER MONTAGGIO ANTIVIBRANTI
ISOLATOR MOUNTING HOLES Ø25 mm
10. GRIGLIE PROTEZIONE BATTERIE (OPTIONAL)
COIL PROTECTION GUARDS (OPTIONAL)
11. CABINA INSONORIZZANTE COMPRESSORE (OPTIONAL)
COMPRESSOR SOUND ENCLOSURE (OPTIONAL)
12. BOX INVERTER POMPE (OPTIONAL)
PUMPS BOX INVERTER (OPTIONAL)



SCALA 1:100
SCALE 1:100
DISPOSIZIONE ANTIVIBRANTI (VISTA DAL BASSO)
ISOLATOR LOCATION (BOTTOM VIEW)



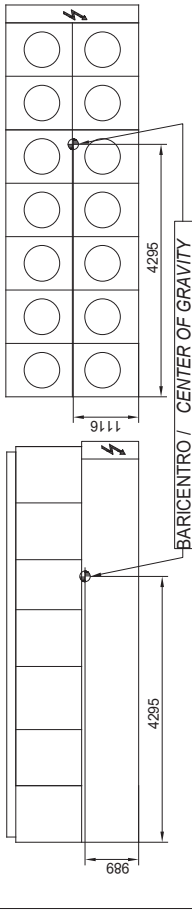
SCALA 1:100
SCALE 1:100
SPAZIO MINIMO NECESSARIO MANUTENZIONE
MINIMUM REQUIRED MAINTENANCE



GIUNTO "VICTAULIC" - FORNITO A CORREDO
"VICTAULIC" JOINT - SHIPPING LOOSE
TRONCHETTO DI COLLEGAMENTO - FORNITO A CORREDO
CONNECTING PIPE - SHIPPING LOOSE
DETTAGLIO A
DETAIL A

VISTA DALL'ALTO / TOP VIEW

VISTA LATERALE / SIDE VIEW



VERSIONE VERSION	TIPO CONDENSATORE CONDENSER TYPE	PESO / WEIGHT KG		CARICHI ANTIVIBRANTI KG ISOLATOR LOADS KG					
		SPEDIZIONE SHIPPING	FUNZIONAMENTO OPERATING	A	B	C	D	E	F
XS	ALLUMINIO / ALUMINUM	5478	5741	670	567	1576	1726	553	649
XL	ACRYLIC COATED								
XR	ALLUMINIO / ALUMINUM	5678	5941	720	617	1626	1776	553	649
	ACRYLIC COATED								
	ANTIVIBRANTI IN GOMMA RUBBER ISOLATORS	MODELLO (Q.tà) / TYPE (Q.ty)							
	ANTIVIBRANTI A MOLLA SPRING ISOLATORS	MODELLO (Q.tà) / TYPE (Q.ty)		91233 (2Pz.)		91240 (2Pz.)		91233 (2Pz.)	

Christie Paterson Redevelopment

Process Chillers Technical Submission

8th October 2021

PRP-IES-ZZZ-ZZ-TS-M-0030

Compiled	Checked	Revision	Date	Notes
AL	AM	P01	16/07/2021	First Issue
AL	AM	P02	08/10/21	SPL at 10m added, confirmation of twin pump

Paterson Redevelopment Project

Equipment:	Ref:	Date:
Process Chillers	PRP-IES-ZZZ-ZZ-TS-M-0030 P02	08/10/2021

Drawing Ref:	Specification Ref:
N/A	PRP-ARUP-Z01-ZZ-SP-M-0003 Cooling

The Information Enclosed Within This Technical Submission Is Issued for:

Tender	Information	Comment	Procurement	Construction
☐	☒	☒	☐	☐

Issued to (where applicable):

Main Contractor	BMS Specialist	Drawing Coordinator	O&M Technical Author	ARUP	Other.....
☒	☐	☐	☐	☒	☐

Information provided encompasses the following elements (where applicable)

Building Work Requirements	Drainage Requirements	Electrical Requirements	Mechanical Requirements	BMS Requirements	Asset Register / Maintenance Required
☐	☐	☒	☒	☒	☒
Sample	Install Info	Co-ordination Info	O&M Info	Acoustic Info	Other.....
☐	☐	☒	☒	☒	☐

Technical Submission:

Daikin selection for PCS01 & integral single head pumps with spare and PCS02 including integral twin pumps

Please provide your comments on the following proposals:

Documents 'Enclosed':

Daikin EWAT032CZN (PCS01) EWAH240TZSRB1 (PCS02) technical selection.

Compliance/VE statement(s):

Add / delete as required

The equipment 'detailed' above is specification/ER's compliant and there are no cost (£nil) implications associated with this proposal.

~~The equipment 'detailed' above is specification/ER's compliant and is proposed on a 'Imtech Engineering Services North preferred supplier basis' ONLY. There are no cost (£nil) implications associated with this proposal.~~

~~The equipment 'detailed' above is proposed, in lieu of that 'specified', on an ER compliant/Design Development/'preferred' alternative supplier basis and there are no cost (£nil) implications associated with this proposal.~~

~~The equipment 'detailed' above is proposed as a Change from the ER's/Original Design and is submitted as a VE item. Please refer to our separate VE correspondence ref: _____, dated the _____ for information.~~

Notes:

- Please be advised that in the absence of a response by the 'due date' stated below, it is our intention to proceed with the ordering/installation of the materials/equipment/systems in accordance with the enclosed technical details/quotation(s)/drawings/catalogue pages/sample(s).
- We believe that we have provided sufficient information for you to fully appraise our proposal(s), however, should you require anything further or would like to meet to discuss/review the enclosed details then please contact us.

Response required by:	23/07/2021	Andy Lawrence
-----------------------	------------	---------------

Response: (Please Feel Free To Mark Up Drawings With Any Comments)

A) No Comments	B) Minor Comments, Proceed	C) Rejected
☐	☐	☐

Response Date:	Completed By:	Signed:

Project title	Paterson Redevelopment Project			Job number
				263083
Client	Integrated Health Projects (IHP)	Name of person commenting	Adam Ellis	File reference
				7-02-07
Copies to	IHP			Date
				09 Aug 2021

Document number	Comment
	This Submission has been examined for adherence with the engineering design intent. This does not relieve the Contractor from their responsibility to execute the works in full compliance with the Contract Documents.
PRP-IES-ZZZ-ZZ-TS-M-0030 – Process Chiller technical Submission	STATUS B: - The sound data is different to that in the schedule. We assume this is the information that has been provided to the acoustician. - Presume there will be a separate issue for the PCS-01 primary pump as there isn't one within this selection. - There appears to be multiple units highlighted in the brochure for PCS-01, presume the unit is the EWAT032CZP-A1 that comes with the specific data. - Can you confirm the Chillers are provided with Duty/Standby pumps - The max current on PCS-02 is marginally higher, Will this impact the electrical provision?
	Imtech Rev P02 Response
	- Sound data now updated to reflect SPL at 10m as per Arup schedule. - PCS01 primary pump selection now included. - Brochure information now removed due to generic nature. Specifics were highlighted in yellow. - Due to the limited footprint of PCS01 it will be provided with a single pump with a spare supplied. PCS02 will be provided with twin pumps. -



Job Title: Paterson Redevelopment Project

Job No: 263083

Date: Mar-21

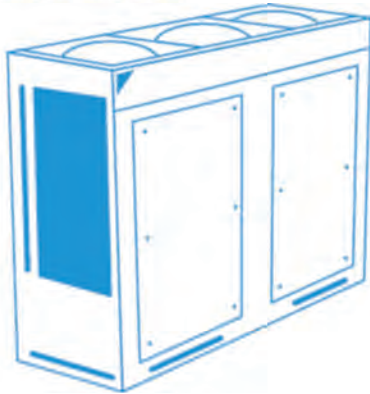
Rev: P04

Mechanical Equipment Data Sheet
Process Chillers

Chiller Reference	Chiller Location	Serving	Qty	Duty (kW)	Duty/Standby Arrangement	Type	Flow Temperature (°C)	Return Temperature (°C)	Flow Rate (kg/s)	EER	Chiller Pressure Drop (kPa)	Maximum Working Pressure (bar)	Dimensions (mm)			Nominal Running Current (A)	Max Start Current (A)	Sound pressure value @ 1m (dB)	Refrigerant	Notes
													Width	Height	Depth					
PCS01	Level 5 External Plant Area	Lab Applications	2	30	Duty / Standby	Air cooled scroll chiller	10	15	1.04	3.40	25.0	6.0	1310	2450	2500	27.0	91.0	42.0	R32	Cooling fluid to be 100% water
PCS02	Level 5 External Plant Area	PHC Server Cooling	2	295.5	Duty / Standby	Air cooled screw chiller	14	20	10.73	4.27	94.8	6.0	2200	2800	4880	196	48	55	R1234ze	Cooling fluid to be 20% glycol / water mix

Notes

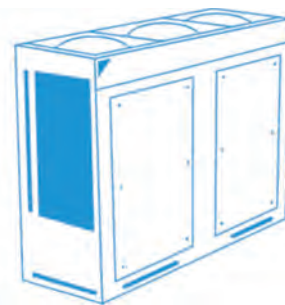
- This datasheet should be read in conjunction with all other datasheets, drawings and documentation.
- Chillers to be Airside range or equivalent
- Chillers shall be selected to operate at 100% duty with an outside external temperature of 35°C db and 27°C wb
- All Chillers shall be mounted on vibration isolation as necessary to comply with the vibration and acoustic specifications.
- Each Chiller to be supplied complete with run and standby primary pumps

**EWAT032CZP-A1**

- > Air cooled chiller
- > Scroll compressor
- > Brushless fans
- > High Efficiency
- > R-32 refrigerant

- ➔ **Unit description:** Daikin air cooled chiller with inverter driven hermetic scroll compressors and R32 refrigerant. Unit colour: Daikin White.
- ➔ **Compressor:** Inverter driven hermetic orbiting scroll are combined on each unit. Inverter compressors continuously adjust compressor speed to actual demand. Fewer power-consuming starts and stops result in decreased energy consumption and more stable temperatures. Compressors are equipped with oil heaters that keeps the oil from being diluted by the refrigerant when the chiller is not running.
- ➔ **Evaporator:** The unit is equipped with a direct expansion plate to plate type evaporator. This heat exchanger is made of stainless steel brazed plates and covered with nitrile rubber based elastomeric foam. Unit is equipped with the necessary devices for plant integration, such as: flow switch, treated water connections, air purge and drain valves, safety valve, shut off valve.
- ➔ **Condenser:** Fins and tubes air cooled coil. Fins are designed with non-symmetric waffle louvres to enhance the heat exchange and improve the efficiency and compactness of the unit. The presence of hydrophylic and anti-corrosion treatment on the coil fins enhances the resistance to the aggressive environments.
- ➔ **Condenser coil fans:** Unit fans are axial type equipped with Brushless DC motor to maximize performances. The material of the blades is glass reinforced resin and each fan is protected by a guard. Fans offer an available external static pressure equal to allow a ducted installation.
- ➔ **Refrigerant circuit:** Each refrigerant circuit includes: Compressors, Refrigerant, Air Cooled Condenser, Electronic expansion valve, Oil separator, High pressure switch, refrigerant stop valves (liquid and gas).





Cooling mode performances

Cooling capacity	35.37 kW	Evaporator water IN/OUT	15.00 °C / 10.00 °C
Power input	10.55 kW	Evaporator water flow	1.690 l/s
EER Cooling Efficiency	3.351 kW / kW	Evaporator pressure drops	22.6 kPa
		Ambient temperature	35.0 °C
IPLV.IP	6.240 kW / kW	Lw / Lp @ 1m	79 dB(A) / 62 dB(A)
SEER / ηs	5.21 / 205.4%	Evaporator fluid	Water
		Evaporator fouling factor	0.000 m²°C/W

SEER declared according to EN14825, fan coil application 12/7°C (inlet/outlet) water temperatures. Sound power level according to ISO 9614-1. SEER and IPLV.IP refer to standard unit without options

Unit information

Compressor type	Scroll	Refrigerant type	R32
Capacity control	Inverter Controlled	Condenser type	Tube type
Compressor N°	1	Condenser fans N°	2
Circuit N°	1	Condenser fans control	VFD
Refrigerant charge	7 kg	Altitude	0 MSL
Nominal air flow	5080 l/s	Evaporator type	Brazed plate

Actual refrigerant charge depends on the final unit construction, refer to unit nameplate.

Electrical information

Power supply	400 V / 50.0 Hz / 3 Ph	Max. inrush current	0 A
Running current	25.56 A	Compressor starting method	Variable Frequency Drive
Max. Running current	37.4 A		
Max. current wires sizing	41.14 A		

Voltage tolerance ± 10%. Phase Voltage unbalance ± 3%. Electrical data referred to standard unit without options, refer to unit name plate data.



EWAT032CZP-A1

Performances calculated according to EN14511-3:2013

Acoustic information**Sound pressure level at 1 m from the unit (rif. 2 x 10⁻⁵ Pa)**

63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	db(A)
68.5	62.6	59.5	58.2	57.9	55.1	49.1	33.8	62.2

Values referred to Evap. IN/OUT 12/7°C and 35°C Amb., full load operation, standard unit configuration without options. Sound pressure level calculated from sound power level. Sound pressure in octave band is for information only and not considered binding.

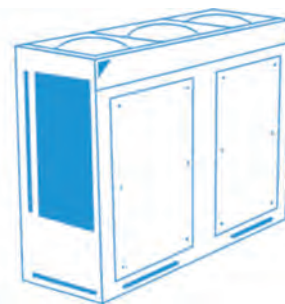
Physical informationEvap. connections size **1"1/4 (female) mm**Length **810 mm**Width **1753 mm**Weight shipping/operating **424 kg / 426.35 kg**Height **1878 mm**

Information referred to standard unit configuration without options, refer to certified unit drawing.



EWAT032CZP-A1

Performances calculated according to EN14511-3:2013

**Certification notes**

Outside the scope of AHRI Air-Cooled Water-Chilling Packages Certification Program or not optionally certified, but is rated in accordance with AHRI Standard 550/590 (I-P) and AHRI Standard 551/591 (SI).

General notes

For more information about the above selected product, please go to <http://www.daikineurope.com/industrial/>. Unit performances are reproducible in laboratory test environment only in accordance to recognized industry standards. This technical data sheet is generated by Daikin Applied Tool software designed and distributed by Daikin Applied Europe S.p.A. The present software does not constitute an offer binding upon Daikin Applied Europe S.p.A who compiled the content of this software to the best of its knowledge. No express or implied warranty is given for the completeness, accuracy, reliability or fitness for particular purpose of its content and the products and services presented therein. Specifications are subject to change without prior notice. Product images are indicative only and are intended for illustrative purposes only; pictures may be differed from the ordered product and are subject to change without prior notice. Daikin Applied Europe S.p.A. explicitly rejects any liability for any direct or indirect damage, in the broadest sense, arising from or related to the use and/or interpretation of this document. All content is copyrighted by Daikin Applied Europe S.p.A.



EWAH240TZSRB1



- > Air cooled chiller
- > Inverter Driven Single Screw compressor
- > Standard efficiency version
- > Reduced sound configuration
- > R1234ze refrigerant

- ➔ **Unit description:** Daikin air-cooled chiller with inverter driven screw compressor and R1234ze refrigerant. Color: Ivory White (Munsell code 5Y7.5/1) (±RAL7044).
- ➔ **Compressor:** Latest design Daikin single screw compressor enjoying Variable Volume Ratio (VVR) technology for optimized unit performances at any load and operating condition. Daikin design refrigerant cooled inverter integrated within compressor casing. Sophisticated unit control logic allows the inverter to modulate compressor speed minimizing power consumption and noise emission at any load condition.
- ➔ **Evaporator:** New generation shell and tube (dual compressor models) or plate heat type (single compressor models) assuring optimal heat transfer and minimized water pressure drops.
- ➔ **Condenser:** Full body Aluminum "Long Life Alloy" Microchannel coils providing superior resistance to corrosion compared to standard aluminum alloy. Coils' layout designed to guarantee optimized heat transfer allowing maximized performances and reduced turbulence for low noise emission.
- ➔ **Condenser coil fans:** The condenser fans are propeller type with high efficiency design blades to maximize performances. The material of the blades is glass-reinforced resin and each fan is protected by a guard. Fan motors are internally protected from over temperature and are IP54.
- ➔ **Refrigerant circuit:** Each unit has one or two independent refrigerant circuits and each one includes: Compressor Inverter driven with integrated oil separator, Electronic expansion valve, Discharge line shut off valve, Liquid line shut off valve, Sight glass with moisture indicator, Filter drier, Charging valves, High pressure switch, High pressure transducers, Low pressure transducers, Oil pressure transducer, Suction temperature sensor.
- ➔ **Electrical:** Control and power sections are located in the main panel that is manufactured to ensure protection against all weather conditions. The electrical panel is IP54 and internally protected against possible accidental contact with live parts. The main panel is fitted with a main switch interlocked door that shuts off power supply when opening.
- ➔ **Controller:** Latest generation MicroTech 4 controller provides an easy to use control environmental. The control logic is designed to provide maximum efficiency, to continue operation in unusual operating conditions and to provide a history of unit operation. Sophisticated software with adaptive logic selects the most energy efficient combination of compressor load, electronic expansion valve position and condenser fans to keep stable operating conditions and maximize chiller efficiency and reliability. One of the greatest benefits is the easy interface with LonWorks, Bacnet, Ethernet TCP/IP or Modbus communications.



EWAH240TZSRB1

Performances calculated according to EN14511-3:2013



Cooling mode performances

Cooling capacity	304.6 kW	Evaporator water IN/OUT	20.00 °C / 14.00 °C
Power input	90.68 kW	Evaporator water flow	12.79 l/s
EER Cooling Efficiency	3.360 kW / kW	Evaporator pressure drops	22.8 kPa
		Ambient temperature	35.0 °C
IPLV.IP	5.530 kW / kW	Lw / Lp @ 10m	90 dB(A) / 58 dB(A)
SEER / ηs	4.57 / 179.8%	Evaporator fluid	Ethylene glycol 20%
SEPR	5.72	Evaporator fouling factor	0.000 m²C/W

SEER declared according to EN14825, fan coil application 12/7°C (inlet/outlet) water temperatures. SEPR declared according to EN14825:2018, high temperature process cooling application. Sound power level according to ISO 9614-1. IPLV.IP and seasonal efficiency data generally refer to standard unit without options

Unit information

Compressor type	Inverter Driven Single Screw	Refrigerant type	R1234ze
Capacity control	Stepless	Condenser type	Microchannel
Compressor N°	1	Condenser fans N°	6
Circuit N°	1	Condenser fans control	On/Off
Refrigerant charge	41.4 kg	Altitude	0 MSL
Nominal air flow	26172 l/s	Evaporator type	Plated Heat Exchanger

Actual refrigerant charge depends on the final unit construction, refer to unit nameplate.

Electrical information

Power supply	400 V / 50.0 Hz / 3 Ph	Max. inrush current	0 A
Running current	148.03 A	Compressor starting method	Inverter
Max. Running current	216 A		
Max. current wires sizing	237.29 A		

Voltage tolerance ± 10%. Phase Voltage unbalance ± 3%. Electrical data referred to standard unit without options, refer to unit name plate data.



EWAH240TZSRB1

Performances calculated according to EN14511-3:2013

Acoustic information

Sound pressure level at 1 m from the unit (rif. 2 x 10⁻⁵ Pa)

63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	db(A)
76.0	71.0	69.0	67.0	66.0	63.0	57.0	57.0	70.8

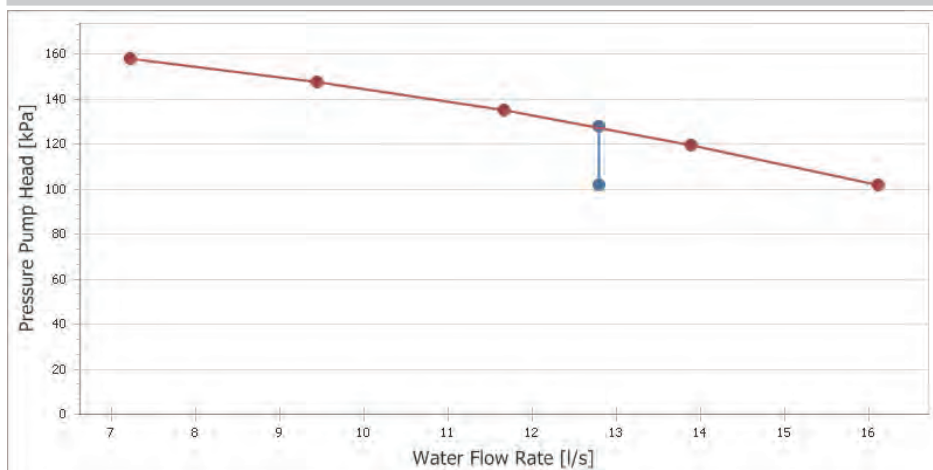
Values referred to Evap. IN/OUT 12/7°C and 35°C Amb., full load operation, standard unit configuration without options. Sound pressure level calculated from sound power level. Sound pressure in octave band is for information only and not considered binding.

Physical information

Evap. connections size	114.3 mm	Length	3230 mm
		Width	2282 mm
Weight shipping/operating	2514 kg / 2554 kg	Height	2540 mm

Information referred to standard unit configuration without options, refer to certified unit drawing.

Pump curve



Water flow rate [l/s] *	12.79
Evaporator pressure drop [kPa] *	22.8
Pump water head [kPa] *	127.8
Pump motor power input [kW]	3
Pump motor current [A]	6.33
Power supply [V/Ph/Hz]	400/3/50
PN	16
Motor protection	IP55
Insulation class	F

* @working conditions



EWAH240TZSRB1

Performances calculated according to EN14511-3:2013

**Certification notes**

Certified in accordance with Eurovent Certification Program: Liquid Chilling Packages and Heat Pumps (LCP-HP). Standard ratings are specified in the section "Rating requirements" of the Rating Standards. All standard ratings are verified by tests conducted in accordance with the following standards: EN 14511-3:2013 (performance testing) and ISO 9614 (acoustic testing).

Within the scope of AHRI Air-Cooled Water-Chilling Packages Certification Program. AHRI Certified performance may be obtained from the manufacturer's representative

General notes

For more information about the above selected product, please go to <http://www.daikineurope.com/industrial/>. Unit performances are reproducible in laboratory test environment only in accordance to recognized industry standards. This technical data sheet is generated by Daikin Applied Tool software designed and distributed by Daikin Applied Europe S.p.A. The present software does not constitute an offer binding upon Daikin Applied Europe S.p.A who compiled the content of this software to the best of its knowledge. No express or implied warranty is given for the completeness, accuracy, reliability or fitness for particular purpose of its content and the products and services presented therein. Specifications are subject to change without prior notice. Product images are indicative only and are intended for illustrative purposes only; pictures may be differed from the ordered product and are subject to change without prior notice. Daikin Applied Europe S.p.A. explicitly rejects any liability for any direct or indirect damage, in the broadest sense, arising from or related to the use and/or interpretation of this document. All content is copyrighted by Daikin Applied Europe S.p.A.





Christie Paterson Redevelopment

Air Source Heat Pump Technical Submission

19th July 2021

PRP-IES-ZZZ-ZZ-TS-M-0031

Compiled	Checked	Revision	Date	Notes
AL	AM	P01	19/07/2021	First Issue

Technical Submittal

Paterson Redevelopment Project

Equipment:	Ref:	Date:
Air Source Heat Pumps	PRP-IES-ZZZ-ZZ-TS-M-0031	19/07/2021

Drawing Ref:	Specification Ref:
N/A	PRP-ARUP-Z01-ZZ-SP-M-0002 Heating

The Information Enclosed Within This Technical Submission Is Issued for:

	Tender	Information	Comment	Procurement	Construction
1	☐	☒	☒	☐	☐

Issued to (where applicable):

Main Contractor	BMS Specialist	Drawing Coordinator	O&M Technical Author	ARUP	Other.....
☒	☐	☐	☐	☒	☐

Information provided encompasses the following elements (where applicable)

Building Work Requirements	Drainage Requirements	Electrical Requirements	Mechanical Requirements	BMS Requirements	Asset Register / Maintenance Required
☐	☐	☒	☒	☒	☒
Sample	Install Info	Co-ordination Info	O&M Info	Acoustic Info	Other.....
☐	☐	☒	☒	☒	☐

Technical Submission:

Daikin selection for ASHP01 including integral pumps

Please provide your comments on the following proposals:

Documents 'Enclosed':

Daikin EWYT490B-SRA2+OP204 technical selection.

Compliance/VE statement(s):

Add / delete as required

The equipment 'detailed' above is specification/ER's compliant and there are no cost (£nil) implications associated with this proposal.

The equipment 'detailed' above is specification/ER's compliant and is proposed on a 'Imtech Engineering Services North preferred supplier basis's ONLY. There are no cost (£nil) implications associated with this proposal.

The equipment 'detailed' above is proposed, in lieu of that 'specified', on an ER compliant/Design-Development/'preferred' alternative supplier basis and there are no cost (£nil) implications associated with this proposal.

The equipment 'detailed' above is proposed as a Change from the ER's/Original Design and is submitted as a VE item. Please refer to our separate VE correspondence ref: _____, dated the _____ for information.

Notes:

1. Please be advised that in the absence of a response by the 'due date' stated below, it is our intention to proceed with the ordering/installation of the materials/equipment/systems in accordance with the enclosed technical details/quotation(s)/drawings/catalogue pages/sample(s).
2. We believe that we have provided sufficient information for you to fully appraise our proposal(s), however, should you require anything further or would like to meet to discuss/review the enclosed details then please contact us.

Response required by:	26/07/2021
------------------------------	------------

Andy Lawrence

Response: (Please Feel Free To Mark Up Drawings With Any Comments)

A) No Comments ☐ B) Minor Comments, Proceed ☐ C) Rejected ☐

Response Date:

Completed By:

Signed:

Bookmark Summary

[Arup ASHP Schedule](#)

[Daikin ASHP Selection](#)



Job Title: Paterson Redevelopment Project

Job No: 263083

Mechanical Equipment Data Sheet
Air Source Heat Pumps

Date:

Mar-21

Rev:

P05

Heat Pump Reference	Heat Pump Location	Serving	Qty	Minimum COP	Minimum SCOP	Duty per Unit (kW)	Flow Rate (kg/s)	Max Heat Pump Pressure Drop (kPa)	System Working Pressure	Dimensions (mm)			Electrical Supply (V/Ph/Hz)	Max Running Current (A)	Max Start Current (A)	Noise Criteria Sound Pressure Level at 1m)	Notes
ASHP01	Level 9 External Plant Area	BRU AHUs and VAV Reheat Batteries	2	3.3	3.75	350.7	8.39	25.0	6 Bar	Width	Height	Depth	400/3/50	274	606	64.0 dB(A)	45/35 Flow/Return

Notes

- Heat pump to be Daikin EWT range or equivalent
- This datasheet should be read in conjunction with all other datasheets, drawings and documentation.
- The heating fluid will be water.
- Heat pumps shall be mounted on vibration isolation as necessary to comply with the vibration and acoustic specifications.
- The working refrigerant shall be R32

EWYT490B-SRA2+OP204

- > Air to water reversible heat pump
- > Scroll compressor
- > Standard efficiency version
- > Reduced sound configuration
- > R-32 refrigerant



- ➔ **Unit description:** Daikin air to water reversible heat pump with hermetic scroll compressors and R32 refrigerant. Unit colour is ivory White (Munsell code 5Y7.5/1) (±RAL7044).
- ➔ **Compressors:** Hermetic orbiting scroll designed for R32 operation and complete with motor over-temperature and over-current protection devices. Each compressor is equipped with an oil heater that keeps the oil from being diluted by the refrigerant when the chiller is not running. The compressors are connected in Tandem or Trio configuration on each refrigerant circuit. Each compressor is mounted on rubber antivibration mounts for a quiet operation. Unit is delivered with complete oil charge.
- ➔ **Water side Heat Exchanger:** The unit is equipped with a direct expansion plate to plate heat exchanger. This heat exchanger is made of stainless-steel brazed plates and covered with a 20mm closed cell insulation material. The exchanger is equipped with an electric heater for protection against freezing. Water connections are provided with Victaulic kit.
- ➔ **Air side Heat Exchanger:** The air side heat exchanger is manufactured with internally enhanced seamless copper tubes arranged in a staggered row pattern and mechanically expanded into lanced and rippled aluminum fins with full fin collars. An integral sub-cooler circuit provides sub-cooling to effectively eliminate liquid flashing and increase cooling capacity without increasing the power input.
- ➔ **Air side Heat Exchanger fans:** The fans are propeller type with high efficiency design blades to maximize performances. Fan blades are made of glass reinforced resin and each fan is protected by a guard. Parallel Coil units are equipped as standard with fan speed modulation (phase cut). Double V Coil units (standard and low sound versions) are equipped with on/off fans and inverter drive is available as an option. Double V Coil units reduced noise versions are equipped with inverter driven fans as standard.
- ➔ **Refrigerant circuit:** Each unit has one or two independent refrigerant circuits and each one includes: Compressors, Refrigerant, Water Side Heat Exchanger, Air Side Heat Exchanger, Electronic expansion valve, 4-way valve, Sight glass with moisture indicator, Filter drier, Charging valves, High pressure switch, High pressure transducers, Low pressure transducers, Oil pressure transducer and Suction temperature sensor.
- ➔ **Electrical panel:** Power and control are in the main panel that is manufactured to ensure protection against all weather conditions. It is IP54 and internally protected against possible accidental contact with live parts when the doors are open. The main panel is fitted with interlocked main switch door that interrupts power supply when opening.
- ➔ **Controller:** Latest generation MicroTech 4 controller provides an easy to use control environmental. The control logic is designed to provide maximum efficiency, to continue operation in unusual operating conditions and to provide a history of unit operation. Sophisticated software with adaptive logic selects the most energy efficient combination of compressor load, electronic expansion valve position and fans to keep stable operating conditions and maximize chiller efficiency and reliability. One of the greatest benefits is the easy interface with LonWorks, Bacnet, Ethernet TCP/IP or Modbus communications.



EWYT490B-SRA2+OP204

Performances calculated according to EN14511-3:2013



Cooling mode performances

Cooling capacity	423.8 kW	Chilled water IN/OUT	12.00 °C / 7.00 °C
Power input	172.5 kW	Chilled water flow	20.22 l/s
EER Cooling Efficiency	2.457 kW / kW	Water heat exchanger pressure drops	56.4 kPa
		Ambient temperature	35.0 °C
		Lw / Lp @ 1m	89 dB(A) / 69 dB(A)
SEER / ηs	4.49 / 176.6%	Fluid	Water
		Water heat exchanger fouling factor	0.000 m²°C/W

SEER declared according to EN14825, fan coil application 12/7°C (inlet/outlet) water temperatures. Sound power level according to ISO 9614-1. SEER and IPLV/IP refer to standard unit without options

Heating mode performances

Heating capacity	370.2 kW	Heated water IN/OUT	35.00 °C / 45.00 °C
Power input	148.1 kW	Heated water flow	8.860 l/s
COP Heating Efficiency	2.500 kW / kW	Water heat exchanger pressure drops	12.7 kPa
SCOP / ηs	3.650 / 143.0%	Ambient dry bulb temperature	-3.6 °C

SCOP declared according to EN14825, average climate, low temperature application Heating performances calculated with defrost effect

Unit information

Compressor type	Scroll	Refrigerant type	R32
Capacity control	STEP	Air heat exchanger type	HFP
Compressor N°	5	Air heat exchanger fans N°	8
Circuit N°	2	Air heat exchanger fans control	VFD
Refrigerant charge	71 kg	Altitude	000 MSL
		Water heat exchanger type	Plated Heat Exchanger

Actual refrigerant charge depends on the final unit construction, refer to unit nameplate.

Electrical information

Power supply	400 V / 50.0 Hz / 3 Ph	Max. inrush current	712 A
Running current	291.81 A	Compressor starting method	Direct on line
Max. Running current	379 A		
Max. current wires sizing	416.9 A		

Voltage tolerance ± 10%. Phase Voltage unbalance ± 3%. Electrical data referred to standard unit without options, refer to unit name plate data.



EWYT490B-SRA2+OP204

Performances calculated according to EN14511-3:2013

Acoustic information

Sound pressure level at 1 m from the unit (rif. 2 x 10⁻⁵ Pa)

63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	db(A)
76.0	71.0	69.0	66.0	64.0	61.0	57.0	57.0	69.4

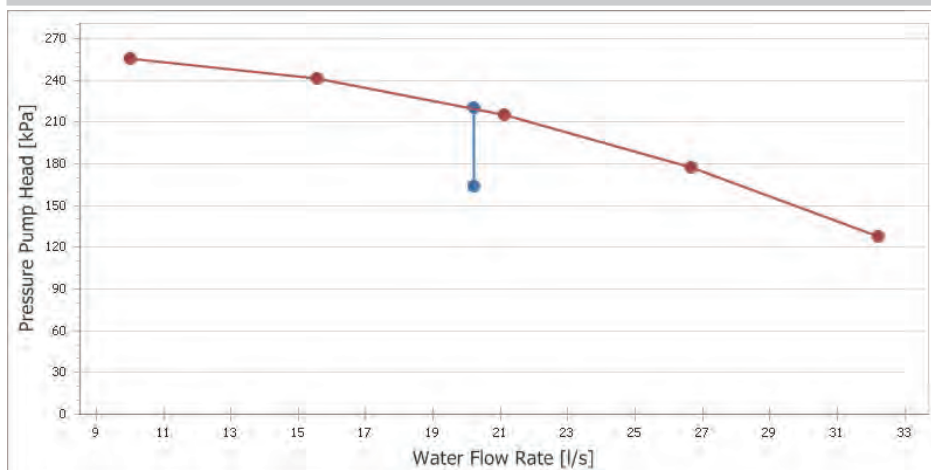
Values referred to Evap. IN/OUT 12/7°C and 35°C Amb., full load operation, standard unit configuration without options. Sound pressure level calculated from sound power level. Sound pressure in octave band is for information only and not considered binding.

Physical information

Evap. connections size	88.9 mm	Length	4125 mm
		Width	2282 mm
Weight shipping/operating	3340 kg / 3367 kg	Height	2514 mm

Information referred to standard unit configuration without options, refer to certified unit drawing.

Pump curve



Water flow rate [l/s] *	20.22
Evaporator pressure drop [kPa] *	56.4
Pump water head [kPa] *	220
Pump motor power input [kW]	7.5
Pump motor current [A]	14.1
Power supply [V/Ph/Hz]	400/3/50
PN	16
Motor protection	IP55
Insulation class	F

* @working conditions



EWYT490B-SRA2+OP204

Performances calculated according to EN14511-3:2013

**Certification notes**

Certified in accordance with Eurovent Certification Program: Liquid Chilling Packages and Heat Pumps (LCP-HP). Standard ratings are specified in the section "Rating requirements" of the Rating Standards. All standard ratings are verified by tests conducted in accordance with the following standards: EN 14511-3:2013 (performance testing) and ISO 9614 (acoustic testing).

Outside the scope of AHRI Air-Cooled Water-Chilling Packages Certification Program or not optionally certified, but is rated in accordance with AHRI Standard 550/590 (I-P) and AHRI Standard 551/591 (SI).

General notes

For more information about the above selected product, please go to <http://www.daikineurope.com/industrial/>. Unit performances are reproducible in laboratory test environment only in accordance to recognized industry standards. This technical data sheet is generated by Daikin Applied Tool software designed and distributed by Daikin Applied Europe S.p.A. The present software does not constitute an offer binding upon Daikin Applied Europe S.p.A who compiled the content of this software to the best of its knowledge. No express or implied warranty is given for the completeness, accuracy, reliability or fitness for particular purpose of its content and the products and services presented therein. Specifications are subject to change without prior notice. Product images are indicative only and are intended for illustrative purposes only; pictures may be differed from the ordered product and are subject to change without prior notice. Daikin Applied Europe S.p.A. explicitly rejects any liability for any direct or indirect damage, in the broadest sense, arising from or related to the use and/or interpretation of this document. All content is copyrighted by Daikin Applied Europe S.p.A.



Christie Paterson Redevelopment

Fans Technical Submission

8th October 2021
PRP-IES-ZZZ-ZZ-TS-M-0056

Compiled	Checked	Revision	Date	Notes
GT	SD	P01	08/10/21	First Issue

Paterson Redevelopment Project

Equipment:	Ref:	Date:
Fans	PRP-IES-ZZZ-ZZ-TS-M-0056	08/10/2021

Drawing Ref:	Specification Ref:
N/A	PRP-ARUP-Z01-ZZ-SP-M-0001

The Information Enclosed Within This Technical Submission Is Issued for:

Tender	Information	Comment	Procurement	Construction
☐	☒	☒	☐	☒

Issued to (where applicable):

Main Contractor	BMS Specialist	Drawing Coordinator	O&M Technical Author	ARUP	Other.....
☒	☐	☐	☐	☒	☐

Information provided encompasses the following elements (where applicable)

Building Work Requirements	Drainage Requirements	Electrical Requirements	Mechanical Requirements	BMS Requirements	Asset Register / Maintenance Required
☐	☐	☐	☐	☐	☐
Sample	Install Info	Co-ordination Info	O&M Info	Acoustic Info	Other.....
☐	☒	☐	☒	☐	☐

Technical Submission:

Introduction:

Fans

Proposed product list:

Please provide your comments on the following proposals:

Documents 'Enclosed':

Fans technical submission.

Compliance/VE statement(s):

Add / delete as required

The equipment 'detailed' above is specification/ER's compliant and there are no cost (£nil) implications associated with this proposal.

Notes:

1. Please be advised that in the absence of a response by the 'due date' stated below, it is our intention to proceed with the ordering/installation of the materials/equipment/systems in accordance with the enclosed technical details/quotation(s)/drawings/catalogue pages/sample(s).
2. We believe that we have provided sufficient information for you to fully appraise our proposal(s), however, should you require anything further or would like to meet to discuss/review the enclosed details then please contact us.

Response required by:	15/10/2021	Raised By:	Calum Martin
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Response: (Please Feel Free To Mark Up Drawings With Any Comments)

A) No Comments	B) Minor Comments, Proceed	C) Rejected
☐	☐	☐

Response Date:	Completed By:	Signed:

Technical Submission Register



Description	System	Location	Manufacturer	Product Reference
EF04	Nitrogen Store Extract Fan	Liquid Nitrogen Store 54-00-079	FlaktGroup	56JM/20/4/6/16
TEF01	Toilet Extract Fan	Plant 54-08-011	FlaktGroup	ACON-02793590



Fläkt Woods Limited

Technical Data Sheet

JM Aerofoil



Quotation Number : Q120132458B03
 Project Name : Q120132458B03 - Paterson Fans
 Item Reference: : EF04

Project Code : BO-2561-18
 Customer : Imtech
 Date: : Monday, March 1, 2021

Fan Code 56JM/20/4/6/16
 Fan Diameter / Size 560 Size / mm
 Blades 6
 Fan Speed 1339 rpm (Speed Controlled)
 Max / Min Motor Speed 1814 rpm (64Hz) / 558 rpm (20Hz)
 Velocity 6.6 m/s
 Blade Angle 16°
 Installation Type / Form of Running D / B (Horizontal)
 Fan Casing Long

Design Duty. 1.48m³/s @ 110 Pa (static)
 Selection Duty inc Margins. 1.63m³/s @ 133 Pa (static)
 Outlet Dynamic Pressure 26 Pa

Duty Shaft Power 0.341 kW
 Max Shaft Power 0.387 kW

Motor Frame 90S [Class F]
 Motor Rating 1.32 kW [IE2] 3 Ph
 Full Load Current 2.84 A
 Starting Current 15.6 A
 Inverter Frequency 47.14 Hz
 Motor Mounting Pad
 Electrical Supply 380-420 Volts 50 Hz 3 Phase
 Start Type DOL
 Speed Control IDDXF66 - 3/3 - Inverter
 Motor Winding Standard
 Enclosure Standard All

ErP [FMEG] Rating N 64 (ErP Compliant 2015)
 ErP [FMEG] Target N 64
 FMEG Blade Angle [Range] 28° [10° - 32°]
 Measurement Category D (Total)
 VSD Y
 Motor Input Power (ErP) 0.833 kW

SFP value 0.28 W/(l/s) @ Requested Duty
 Power from mains 0.46 kW

Air Density 1.2 kg/m³ / 20 °C / 0 m / 50% RH
 Smoke Venting Non Smoke Venting
 Product Number EJ591478

SUITABLE FOR INTERNAL/EXTERNAL MOUNTING

UNIT CONTROLS SUPPLIED LOOSE FOR WIRING ON SITE (SUITABLE FOR EXTERNAL MOUNTING)

THE SELECTION INCLUDES THE RELEVANT 110% ON FLOW RATE & 121% ON PRESSURE

	Sound Spectrum (Hz)								Overall	
	63	125	250	500	1k	2k	4k	8k	Lw*	LpA @ 3m**
Inlet*	66	76	73	72	71	66	64	59	80	55
Outlet*	68	77	74	72	71	66	64	60	81	55
Breakout*	58	56	48	47	46	39	45	36	61	31

* Lw dB re 10-12W ** dBA re 2x10-5 Pa
 Sound data at requested duty.

Description	Qty
Fan	
56JM/20/4/6/16	1
Accessories	
897722 - Set of Mounting Feet (2)	1
AS035471 - Rubber Anti Vibration Mounts (set)	1
501355 - Matching Flange	2
414901 - Flex connector c/w 2 clips (less Flanges)	2
Controllers & Sensors	
EA901073 - IDDXF66 - 3/3 - Inverter	1
Estimated Despatch : 4 Weeks	

Website: www.flaktwoods.co.uk/woods

Email: andy.window@flaktgroup.com

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Selection Engine: 3.1.3.45p-x(1)(UK.3.6.0)

Tel: 07801 723212 Fax: 0161 969 4612

Printed on 01 March 2021



Fläkt Woods Limited

Speed Controller Sheet

JM Aerofoil



Quotation Number : Q120132458B03
Project Name : Q120132458B03 - Paterson Fans
Item Reference: : EF04

Project Code : BO-2561-18
Customer : Imtech
Date: : Monday, March 1, 2021

Selection

94%

Percentage compared to 50/60 Hz 94 %
Frequency Hz 47.14 Hz
Fan Speed rpm 1339 rpm
Velocity m/s 6.6 m/s
Speed Ratio 94 %
Actual Duty m³/s / Pa (static) 1.63 @ 133
Outlet Dynamic Pressure Pa 26
Duty Shaft Power kW 0.341
SFP W(l/s) 0.28

Power Consumption and Emissions

Energy Consumption kW/h 1393
Running Cost / Year £167
Co2 Emissions (Tonnes) 794 kg

Savings

Power Savings kWh 196
Co2 Savings (Tonnes) 112 kg

Sound Levels Hz

Inlet Outlet

63	66	68
125	76	77
250	73	74
500	72	72
1k	71	71
2k	66	66
4k	64	64
8k	59	60
Lw	80	80
LpA @ 3m	55	55

Fan Details

Fan Code 56JM/20/4/6/16
Diameter / Size 560 Size / mm
Blades 6
Blade Angle 16°
Form of Running B
Fan Casing Long

Inverter Drive

Inverter Type IDDXF66 - 3/3 - Inverter
Inverter Power 1.50 kW
Inverter Current 3.70 Amps
Inverter FW Order Code EA901073

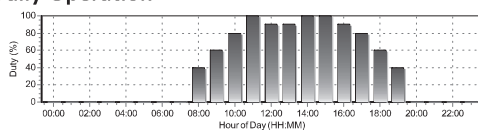
Motor Details

Motor Frame 90S
Motor Efficiency IE2
Motor Rating 1.32 kW
Full Load Current 2.84 A
Starting Current 15.6 A
Electrical Supply 380-420 Volts 50 Hz 3 Phase

Savings and Operation

Annual Savings £72
Life Cost (12 Years) £5263
Payback Period 19.4 years
Co2 per Year 562 kg

Daily Operation



Website: www.flaktwoods.co.uk/woods

Email: andy.window@flaktgroup.com

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Selection Engine: 3.1.3.45p-x(1)(UK.3.6.0)

Tel: 07801 723212 Fax: 0161 969 4612

Printed on 01 March 2021

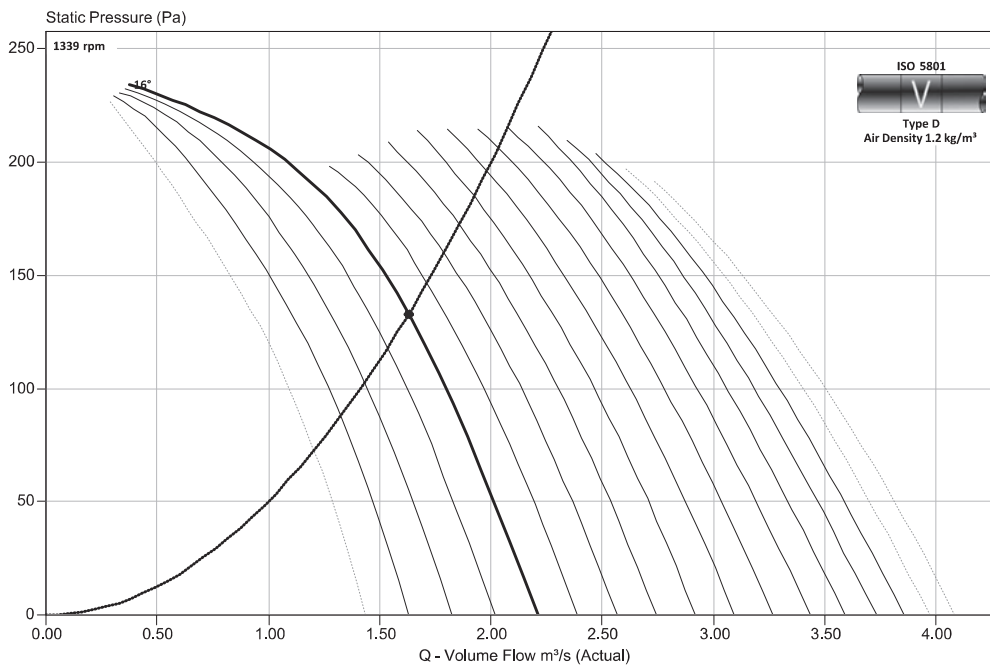
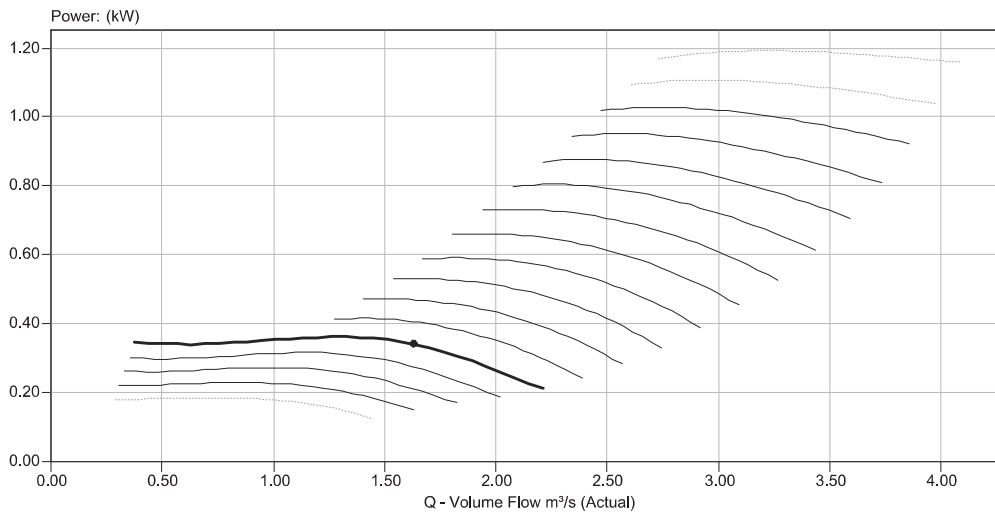


Fläkt Woods Limited
Performance Chart
JM Aerofoil



Quotation Number : Q120132458B03
Project Name : Q120132458B03 - Paterson Fans
Item Reference: : EF04

Project Code : BO-2561-18
Customer : Imtech
Date: : Monday, March 1, 2021
Fan Code : 56JM/20/4/6/16



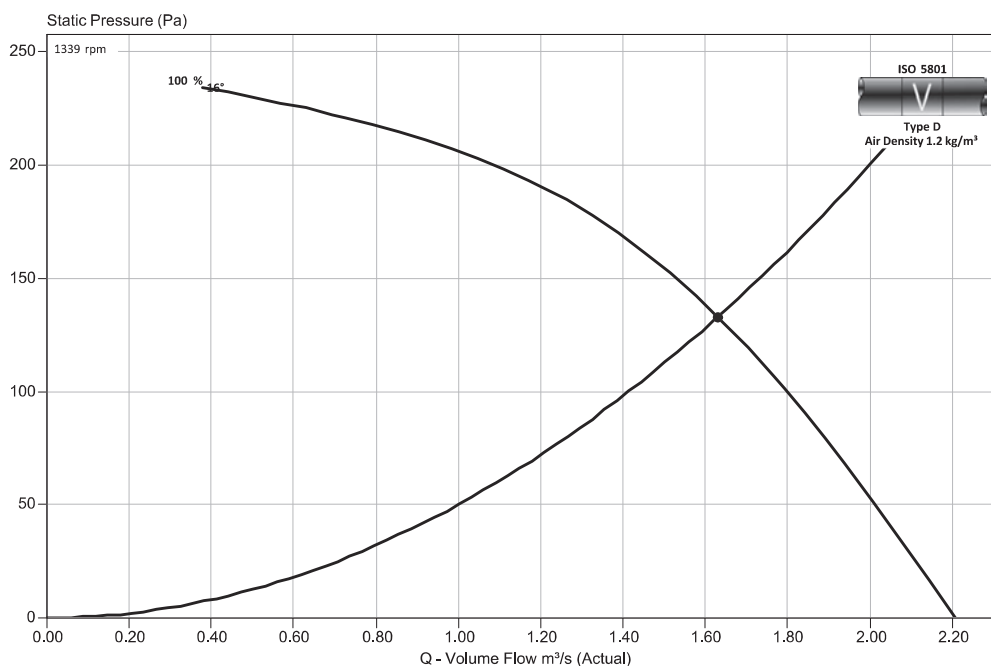
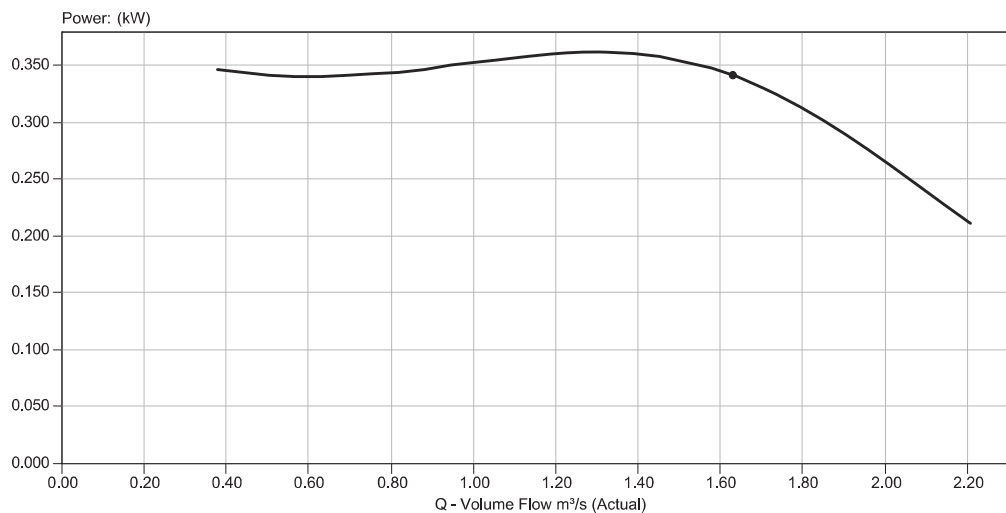


Fläkt Woods Limited
Speed Control Chart
JM Aerofoil



Quotation Number : Q120132458B03
Project Name : Q120132458B03 - Paterson Fans
Item Reference: : EF04

Project Code : BO-2561-18
Customer : Imtech
Date: : Monday, March 1, 2021
Fan Code : 56JM/20/4/6/16





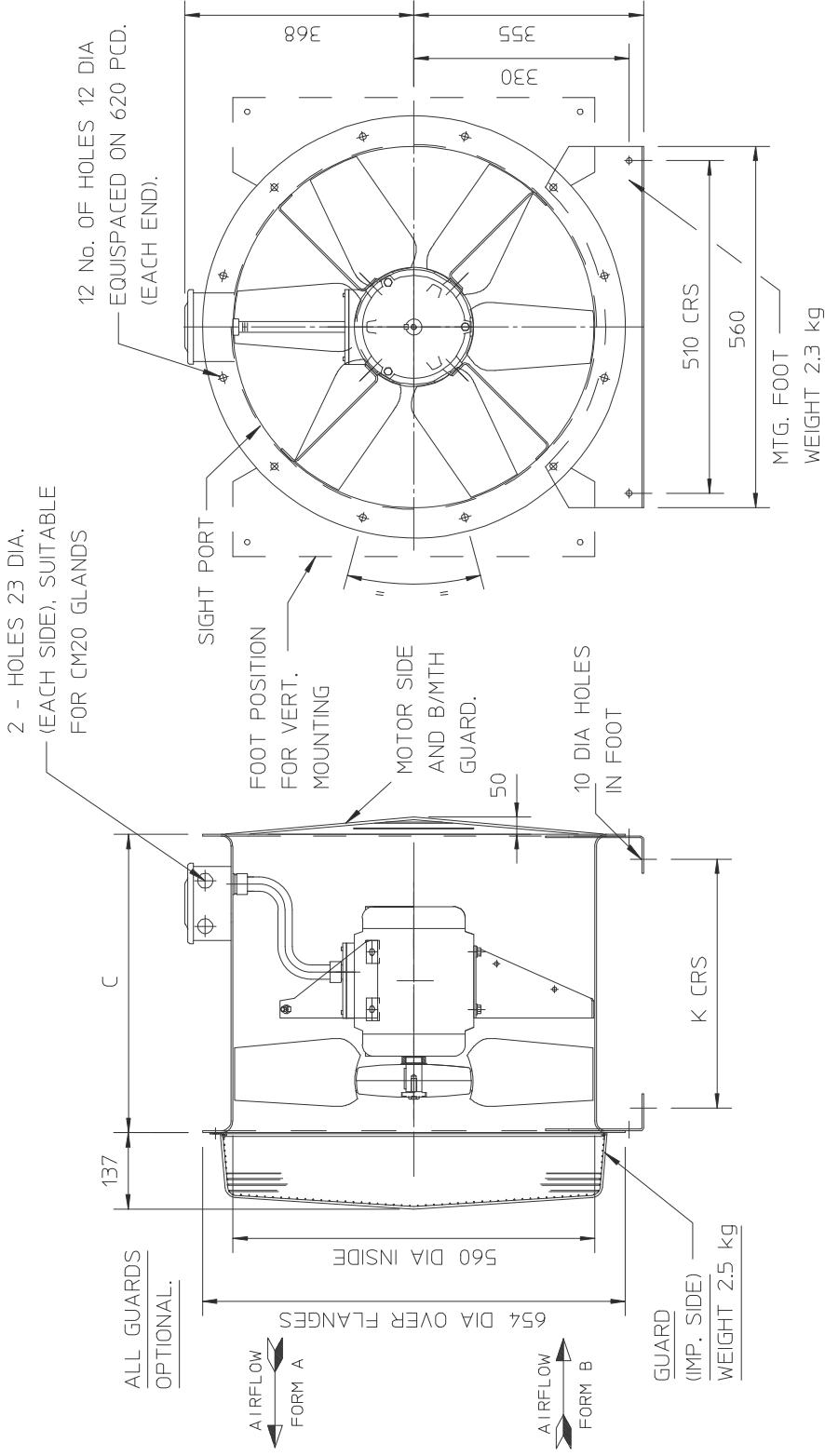
Fläkt Woods Limited
Drawing and Dimensions
JM Aerofoil



Quotation Number : Q120132458B03
Project Name : Q120132458B03 - Paterson Fans
Item Reference: : EF04

Fan Code : 56JM/20/4/6/16
Customer : Imtech
Date: : Monday, March 1, 2021

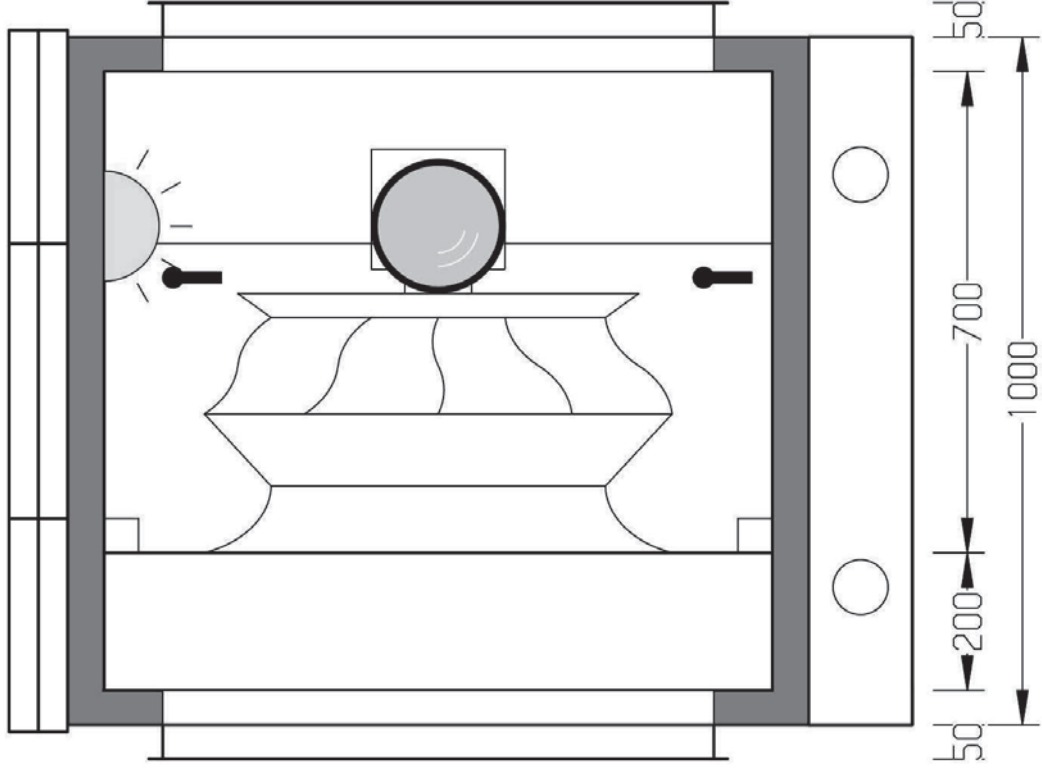
C 520
K 424
Weight (kg) 55



Notes : Dimensions shown in mm / Weight in kg
This drawing shows dimensions that should be used as a guide only and are subject to change. Certified drawings are available on request.

Reference :D275256

1076×1400
150
800×1100
138



800×1100
138

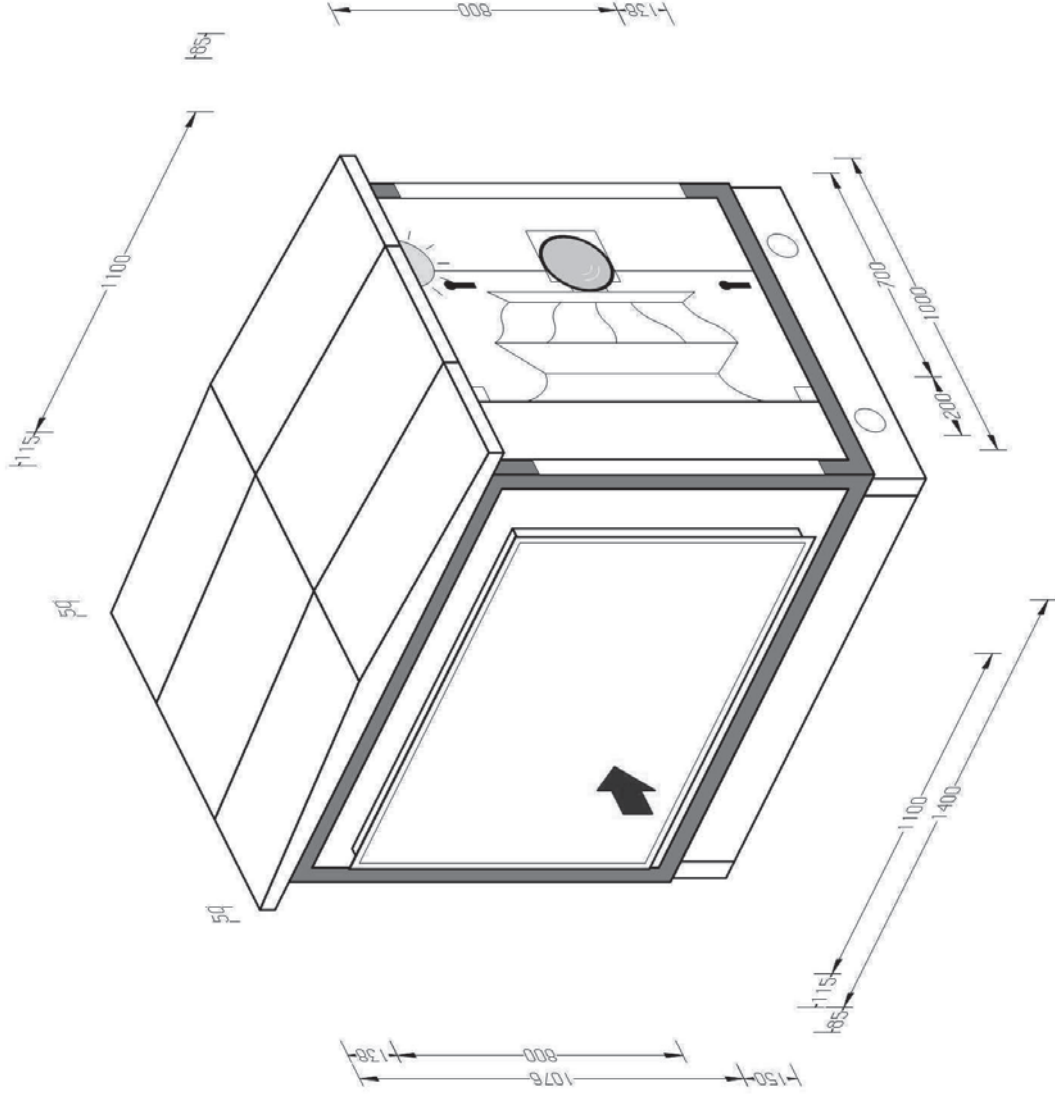


Customer id
69028
Project
781
Unit
337
AOC
ACON-02793490

Project name
Unit name
Supply air
Exhaust air

eQ-027

Paterson Labs AHU
TEF01 (Option 2)
2.08 m³/sec



Customer id Project 69028 Unit 781 AOC 337 ACON-02793490	Project name Unit name Supply air Exhaust air	Paterson Labs AHU TEF01 (Option 2) 2.08 m³/sec eQ-027
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Project	781 () / Paterson Labs AHU	Acon 2.55.47452
AOC	ACON-02793490	
Unit	337 () / TEF01 (Option 2)	2021-04-13
Size		Page 3/8
Customer	Arup / Imtech	
Customers ref.		
Our ref.	Andy Window / Steve Dunleavy	
Supply air volume flow rate	0.00 m³/sec	Exhaust air volume flow rate 2.08 m³/sec
External static pressure	0 Pa	External static pressure 450 Pa
Mains electricity	3x400VAC±10%+N+PE, 50Hz	Weight 262 kg
Specific el. power demand (SFPv)	0.67 kW/(m³/s)	Dimensioned for wet condition
Ref. density	1.2 kg/m³	Ref. altitude above sea level 0 m

SUMMARY TECHNICAL SPEC.

Unit

		Installation	Outdoor horizontal
		Material	AlZn sheet steel
		Thermal insulation	T3
Exhaust air volume flow rate	2.08 m³/sec	Condensation insulation	TB3
External static pressure	450 Pa	Leakage class	L1(M) / L2(R)*
Internal static pressure	1 Pa	Casing strength	D1(M)
Design outdoor temperature summer	28 °C		
Dim. humidity summer	20.4 °C wb		
Design outdoor temperature winter	-5 °C		
Dim. humidity winter	-5.2 °C wb		
Temperature in, supply air, summer	15 °C	Temperature in, extract air, summer	22 °C
Air humidity in, supply air, summer	9.7 °C wb	Air humidity in, extract air, summer	14.7 °C wb
Temperature in, supply air, winter	20 °C	Temperature in, extract air, winter	22 °C
Air humidity in, supply air, winter	12.4 °C wb	Air humidity in, extract air, winter	14.7 °C wb
Mixing ratio at winter design temperature	0 %		
Temperature efficiency (EN308)	0.0 %	Heat recovery capacity	0.00 kW
Total dry weight	262 kg		
SFPv exhaust air inlet	0.67 kW/(m³/s)		
SFPv total sum	0.67 kW/(m³/s)	Heaviest block	262 kg

ErP (according to (EU) directive 1253/2014)



Approved according to requirements 2018

Unit type: NRVU UVU

SFPint (2016: 250 W/(m³/s), 2018: 230 W/(m³/s))

External leakage rate

31 W/(m³/s)

0.2 %

	Supply air	Extract air	Unit
Filter energy classification			
Filter pressure drop, start		21	Pa
Filter area		1.3	m²
Filter cross section air velocity		1.6	m/s
Air flow		2.08	m³/sec
Total pressure rise		451	Pa
Fan fan system effect		0	Pa
Fan total efficiency		68.1	%
Fan system input power (absorbed electrical power) according to SFP		1.41	kW

Fan system effect is taken into account in fan performance

Fan power supply data

Voltage, extract flow	3x400VAC+PE, 50Hz
Power, extract flow	2 x 2.1 kW

AIR HANDLING UNIT eQ

Project	781 () / Paterson Labs AHU	Acon 2.55.47452
AOC	ACON-02793490	
Unit	337 () / TEF01 (Option 2)	2021-04-13
Size		Page 4/8
Customer	Arup / Imtech	
Customers ref.		
Our ref.	Andy Window / Steve Dunleavy	
Supply air volume flow rate	0.00 m³/sec	Exhaust air volume flow rate 2.08 m³/sec
External static pressure	0 Pa	External static pressure 450 Pa
Mains electricity	3x400VAC±10%+N+PE, 50Hz	Weight 262 kg
Specific el. power demand (SFPv)	0.67 kW/(m³/s)	Dimensioned for wet condition
Ref. density	1.2 kg/m³	Ref. altitude above sea level 0 m
Current, full load, extract flow	2 x 2.7 A	

SOUND POWER LEVELS

(standard: EN13053 ISO/CD 13347-2)

Octave band (Hz)	Lw per octave band (dB)								LwA
	63	125	250	500	1k	2k	4k	8k	dB(A)
Extract connection	64	76	69	68	63	61	58	54	70
Exhaust connection	67	82	74	76	74	69	65	60	78
To surroundings	52	60	47	39	34	34	30	30	46

*Flakt Group eQ AHUs are leakage class L2 real unit as certified by Eurovent.

CAL class @-400Pa and @+700Pa. For units where the casing has; (i) a customised or special design that differs from standard module box, (ii) nonstandard components penetrating the casing that is non-standard for a real unit, and (iii) where holes or penetrations are made in casing after delivery to site, the leakage class cannot be guaranteed. This also includes damage to the unit from handling and transportation.

Project 781 () / Paterson Labs AHU
 AOC ACON-02793490
 Unit 337 () / TEF01 (Option 2)
 Size

Acon 2.55.47452

2021-04-13

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TECHNICAL SPECIFICATION (components listed in direction of air flow)

EXHAUST AIR

End connection frame

Pressure drop, dimensioning

1 Pa

Casing end wall

EQVA-027-1-1-22-1-1

Duct connection piece

EQAZ-26-110-080-2-1-1

Width cm : 110

Height in cm : 80

Connection type: flange connection

Material: galvanized sheet steel / AlZn

Empty section

EQTC-027-020-0-0-0-0-0-1-2

Unit size : 027

Length: 020

Inspection side : right

Plenum fan

EQLC-027-3-3-1-2-3-2-2-1-8-1-1

Inspection side: right

Fan selection

Impeller type: Bluefin (composite)

Fan size: size 3

Anti-vibration mountings: wall mounted

Motor selection

Motor type: EC-motor

Motor control

Manufacture, type: EC-motor ZA

Housing protection: IP55

Design: on motor

Delivery options: mounted on current sub

Motor / VSD-accessories

Connection accessories: safety switch with quick connection

Length: 308

Dimensioning data

Two fan wheels in parallel

Speed

1646 Rpm

Max speed

2360 Rpm

Total efficiency

68.2 %

Total static pressure, dimensioning (wet coil)

451 Pa

Dynamic pressure

12 Pa

Fan system input power (absorbed electrical power)

1.43 kW

Temperature rise

0.6 °C

K factor

20

Fan wheel size

040

SFP Calculation

Fan system input power (absorbed electrical power) according to SFP

1.41 kW

Pressure rise

451 Pa

Speed

1633 Rpm

Motor

Motor output

2 x 2.1 kW

Electric current

2 x 2.7 A

Inspection window

EQAZ-01-1-1

Design: standard

Bulkhead light

EQAZ-09-027-2-1-2-2

Type: LED

Delivery form: Lamp supplied loose

Project 781 () / Paterson Labs AHU
AOC ACON-02793490
Unit 337 () / TEF01 (Option 2)
Size

Acon 2.55.47452

2021-04-13

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Frequency converter

Motor accessories

Frequency converter

Fan + EC motor

Help code fan + EC-motor

Duct connection piece

Width cm : 110

Height in cm : 80

Connection type: flange connection

Material: galvanized sheet steel / AlZn

STRR-2-4-0027-3-0-3-9-51-1

APAC-6-4-6-0-1-0027-308-4-0-0

STRR-4-4-0027-3-0-3-9-51-1

GAEC-040-0210-4-0-1-0-00-0-1-1

AQEA-040-0210-0-1-0-02-1-000-1

EQAZ-26-110-080-2-1-1

Project	781 () / Paterson Labs AHU	Acon 2.55.47452
AOC	ACON-02793490	
Unit	337 () / TEF01 (Option 2)	2021-04-13
Size		Page 7/8

BLOCK LIST

	LENGTH (mm)	WIDTH (mm)	HEIGHT (mm)	VOLUME (m³)	WEIGHT (kg)
EQGB-027-100-22-1-1-2-1-1-2-1	1100	1550	1481	2.53	262
Unit casing (frame, module)					
Model box code: EQ 2111					
Material: AlZn sheet steel					
Thermal insulation: T3					
Condensation insulation: TB3					
Leakage class: L2(R)*					
Casing strength: D1(M)					
Casing end wall					
Empty section					
Plug fan wall mounted					
				2.53	262

The dimensions are transport dimensions including packaging

*Flakt Group eQ AHUs are leakage class L2 real unit as certified by Eurovent.

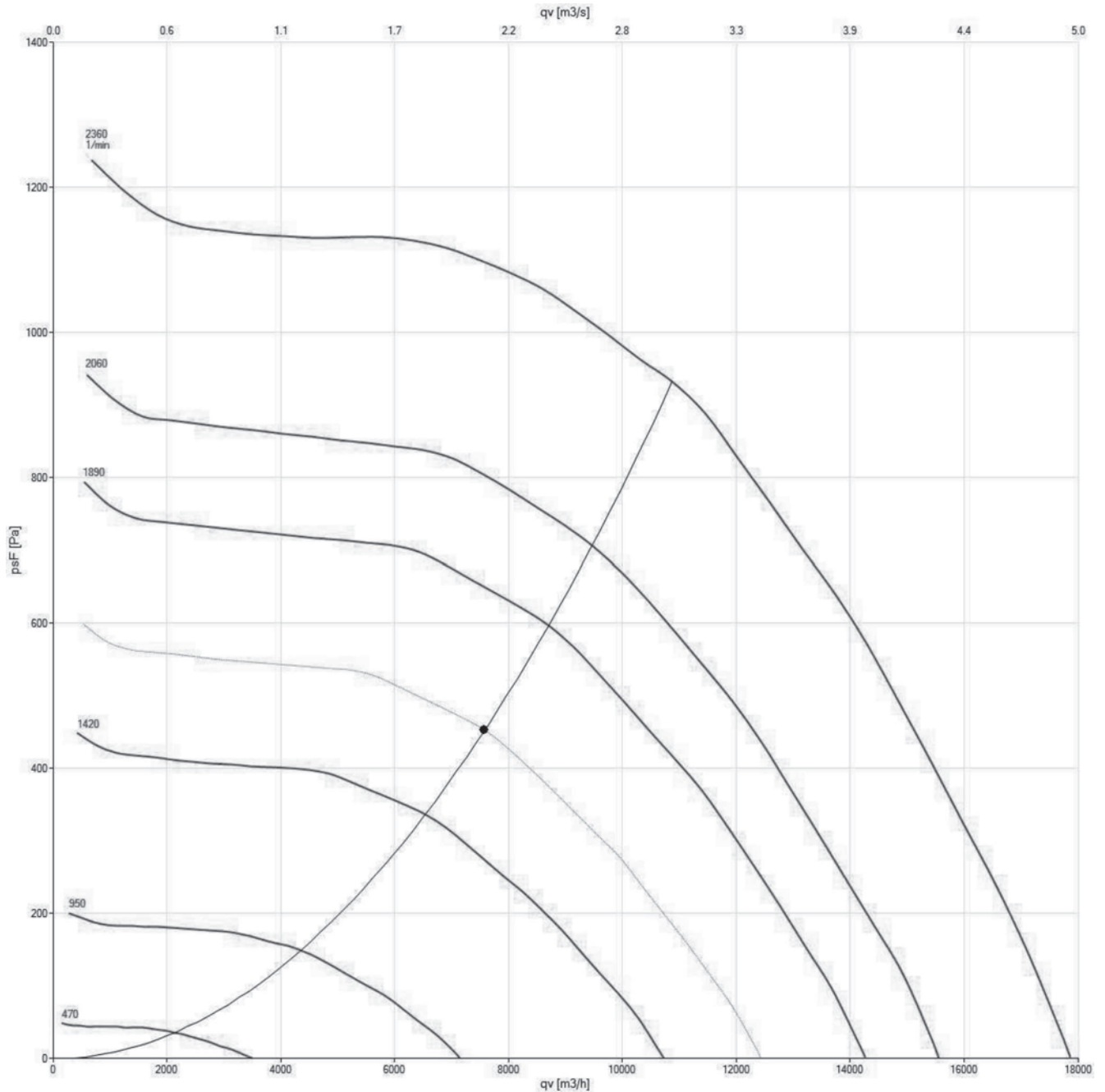
CAL class @-400Pa and @+700Pa. For units where the casing has; (i) a customised or special design that differs from standard module box, (ii) nonstandard components penetrating the casing that is non-standard for a real unit, and (iii) where holes or penetrations are made in casing after delivery to site, the leakage class cannot be guaranteed. This also includes damage to the unit from handling and transportation.

Project 781 () / Paterson Labs AHU
 AOC ACON-02793490
 Unit 337 () / TEF01 (Option 2)
 Size

Acon 2.55.47452

2021-04-13
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Fan chart - Exhaust air inlet - EQLC-027-3-3-1-2-3-2-2-1-8-1-1



Air Conditioning Technical Data

RYYQ-U



> RYYQ8U7Y1B
> RYYQ10U7Y1B
> RYYQ12U7Y1B
> RYYQ14U7Y1B
> RYYQ16U7Y1B
> RYYQ18U7Y1B

> RYYQ20U7Y1B

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RYYQ-U

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1 Features

Daikin's optimum solution with top comfort

- Covers all thermal needs of a building via a single point of contact: accurate temperature control, ventilation, hot water, air handling units and Biddle air curtains
- Wide range of indoor units: possibility to combine VRV with stylish indoor units (Daikin Emura, Nexura, ...)
- Incorporates VRV IV standards & technologies: Variable Refrigerant Temperature, continuous heating, VRV configurator, 7 segment display and full inverter compressors, 4-side heat exchanger, refrigerant cooled PCB, new DC fan motor
- 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
- Continuous comfort: Unique continuous heating technology makes VRV IV the best alternative to traditional heating systems
- VRV configurator software for the fastest and most accurate commissioning, configuration and customisation
- Outdoor unit display for quick on-site settings and easy read out of errors together with the indication of service parameters for checking basic functions.
- Free combination of outdoor units to meet installation space or efficiency requirements
- Fits any building as also indoor installation is possible as a result of high external static pressure of up to 78.4 Pa. Indoor installation leads to less piping length, lower installation costs, increased efficiency and better visual aesthetics
- Simplified installation & guaranteed optimal efficiency with automatic charging & testing
- Easy compliance with F-gas regulation thanks to automated refrigerant containment check
- Wide piping flexibility: 30m indoor height difference, maximum piping length: 190m, total piping length: 1,000m
- The ability to control each conditioned zone individually keeps VRV system running costs to an absolute minimum
- Spread your installation cost by phased installation
- Keep your system in top condition via the Daikin Cloud Service: 24/7 monitoring for maximum efficiency, extended lifetime and immediate service support thanks to failure prediction
- Available as heating only by irreversible field setting



Inverter

2 Specifications

2-1 Technical Specifications					RYYQ8U	RYYQ10U	RYYQ12U	RYYQ14U	RYYQ16U	RYYQ18U	RYYQ20U
Continuous heating					Yes						
Recommended combination					4 x FXFQ50AV EB	4 x FXFQ63AV EB	6 x FXFQ50AV EB	1 x FXFQ50AV EB + 5 x FXFQ63AV EB	4 x FXFQ63AV EB + 2 x FXFQ80AV EB	3 x FXFQ50AV EB + 5 x FXFQ63AV EB	2 x FXFQ50AV EB + 6 x FXFQ63AV EB
Recommended combination 2					4 x FXSQ50A2 VEB	4 x FXSQ63A2 VEB	6 x FXSQ50A2 VEB	1 x FXSQ50A2 VEB + 5 x FXSQ63A2 VEB	4 x FXSQ63A2 VEB + 2 x FXSQ80A2 VEB	3 x FXSQ50A2 VEB + 5 x FXSQ63A2 VEB	2 x FXSQ50A2 VEB + 6 x FXSQ63A2 VEB
Recommended combination 3					4 x FXMQ50P7 VEB	4 x FXMQ63P7 VEB	6 x FXMQ50P7 VEB	1 x FXMQ50P7 VEB + 5 x FXMQ63P7 VEB	4 x FXMQ63P7 VEB + 2 x FXMQ80P7 VEB	3 x FXMQ50P7 VEB + 5 x FXMQ63P7 VEB	2 x FXMQ50P7 VEB + 6 x FXMQ63P7 VEB
Cooling capacity	Prated,c		kW		22.4 (1)	28.0 (1)	33.5 (1)	40.0 (1)	45.0 (1)	50.4 (1)	52.0 (1)
Heating capacity	Prated,h		kW		13.7	16.0	18.4	20.6	23.2	27.9	31.0
	Max.	6°CWB	kW		25.0 (2)	31.5 (2)	37.5 (2)	45.0 (2)	50.0 (2)	56.5 (2)	63.0 (2)
SEER					7.6	6.8	6.3		6.0		5.9
SEER recommended combination 2					6.9	6.8	5.9	6.3	5.9	6.0	5.9
SEER recommended combination 3					7.5	6.8	6.2		5.8	6.0	5.9
SCOP					4.3		4.1	4.0		4.2	4.0
SCOP recommended combination 2					4.2	4.3	4.1	4.0	4.1	4.2	4.0
SCOP recommended combination 3					4.2	4.1		4.0		4.1	3.9
ηs,c			%		302.4	267.6	247.8	250.7	236.5	238.3	233.7
ηs,c recommended combination 2					273.6	270.5	233.5	250.0	234.2	236.8	233.9
ηs,c recommended combination 3					295.2	267.1	246.3	246.7	230.4	238.2	233.1
ηs,h			%		167.9	168.2	161.4	155.4	157.8	163.1	156.6
ηs,h recommended combination 2					165.4	170.6	161.3	157.2	159.5	164.8	158.2
ηs,h recommended combination 3					165.6	162.0	160.6	155.7	156.8	159.6	153.4
Capacity range			HP		8	10	12	14	16	18	20
Maximum number of connectable indoor units					64 (3)						
Indoor index connection	Min.				100.0	125.0	150.0	175.0	200.0	225.0	250.0
	Max.				260.0	325.0	390.0	455.0	520.0	585.0	650.0
Dimensions	Unit	Height		mm	1,685						
		Width		mm	930			1,240			
		Depth		mm	765						
	Packed unit	Height		mm	1,820						
		Width		mm	995			1,305			
		Depth		mm	860						
Weight	Unit			kg	252			319		378	
	Packed unit			kg	265			335		395	
Packing	Material				Carton						
	Weight			kg	1.8			2.2			
Packing 2	Material				Wood						
	Weight			kg	11.0			14.0			
Packing 3	Material				Plastic						
	Weight			kg	0.5			0.6			
Capacity control	Method				Inverter controlled						
Casing	Colour				Daikin White						
	Material				Painted galvanized steel plate						
Heat exchanger	Type				Cross fin coil						
	Indoor side				Air						
	Outdoor side				Air						
	Air flow rate	Cooling	Rated	m³/h	9,720	10,500	11,100	13,380	15,600	15,060	15,660
		Heating	Rated	m³/h	9,720	10,500	11,100	13,380	15,600	15,060	15,660
Compressor	Quantity				1			2			
	Type				Hermetically sealed scroll compressor						
	Crankcase heater			W	33						

2 Specifications

2-1 Technical Specifications					RYYQ8U	RYYQ10U	RYYQ12U	RYYQ14U	RYYQ16U	RYYQ18U	RYYQ20U	
Fan	Quantity				1			2				
	External static pressure	Max.	Pa		78							
Fan motor	Quantity				1			2				
	Type				DC motor							
	Output			W	550			750				
Sound power level	Cooling	Nom.	dBA		78.0 (4)	79.1 (4)	83.4 (4)	80.9 (4)	85.6 (4)	83.8 (4)	87.9 (4)	
	Heating	Nom.	dBA		62.7 (4)	64.8 (4)	64.9 (4)	68.3 (4)	68.6 (4)	66.3 (4)	67.0 (4)	
Sound pressure level	Cooling	Nom.	dBA		57.0 (5)		61.0 (5)	60.0 (5)	63.0 (5)	62.0 (5)	65.0 (5)	
Operation range	Cooling	Min.~Max.	°CDB		-5.0~43.0							
	Heating	Min.~Max.	°CWB		-20.0~15.5							
Refrigerant	Type				R-410A							
	GWP				2,087.5							
	Charge			TCO ₂ eq	12.3	12.5	13.2	21.5	21.7	24.4	24.6	
				kg	5.9	6.0	6.3	10.3	10.4	11.7	11.8	
Refrigerant oil	Type				Synthetic (ether) oil FVC68D							
Piping connections	Liquid	Type			Braze connection							
		OD	mm		9,52		12,7			15,9		
	Gas	Type			Braze connection							
		OD	mm		19.1	22.2	28.6					
	Total piping length	System	Actual	m	1,000 (6)							
Defrost method					Reversed cycle							
Safety devices	Item	01			High pressure switch							
		02			Fan driver overload protector							
		03			Inverter overload protector							
		04			PC board fuse							
		05			Leakage current detector							
PED	Category				Category II							
	Most critical part	Name			Accumulator							
		Ps*V	Bar*l		325			415		493		
Space cooling	A Condition (35°C - 27/19)	EERd			3.0	2.3	2.4	2.6	2.1	1.9		
		Pdc	kW		22.4	28.0	33.5	40.0	45.0	50.4	52.0	
	B Condition (30°C - 27/19)	EERd			5.2	4.7	4.3	4.1	3.9	3.8	3.7	
		Pdc	kW		16.5	20.6	24.7	29.5	33.2	37.1	38.3	
	C Condition (25°C - 27/19)	EERd			9.5	8.3	7.7	7.8	7.7	7.5	7.3	
		Pdc	kW		10.6	13.3	15.9	18.9	21.3	23.9	24.6	
	D Condition (20°C - 27/19)	EERd			18.8	17.0	13.9	14.3	14.2	18.3		
		Pdc	kW		8.0	9.3	9.4	8.4	9.5	11.5		
	Space cooling recommended combination 2	A Condition (35°C - 27/19)	EERd			2.6	2.4		2.6	2.1	1.9	
			Pdc	kW		22.4	28.0	33.5	40.0	45.0	50.4	52.0
B Condition (30°C - 27/19)		EERd			4.9	4.7	4.0	4.1	3.8	3.7	3.6	
		Pdc	kW		16.5	20.6	24.7	29.5	33.2	37.1	38.3	
C Condition (25°C - 27/19)		EERd			8.8	8.5	7.1	7.9	7.6	7.5	7.3	
		Pdc	kW		10.6	13.3	15.9	18.9	21.3	23.9	24.6	
D Condition (20°C - 27/19)		EERd			15.1	17.2	13.1	14.0		18.1	18.9	
		Pdc	kW		8.8	9.3	9.1	8.4	9.5	11.4	10.9	
Space cooling recommended combination 3		A Condition (35°C - 27/19)	EERd			3.0	2.3	2.4	2.6	2.1	1.9	
			Pdc	kW		22.4	28.0	33.5	40.0	45.0	50.4	52.0
	B Condition (30°C - 27/19)	EERd			5.1	4.7	4.2	4.0	3.7		3.6	
		Pdc	kW		16.5	20.6	24.7	29.5	33.2	37.1	38.3	
	C Condition (25°C - 27/19)	EERd			9.6	8.4	7.7		7.4	7.6	7.3	
		Pdc	kW		10.6	13.3	15.9	19.0	21.3	23.9	24.6	
	D Condition (20°C - 27/19)	EERd			16.0	16.9	13.7	14.0	14.1	18.3		
		Pdc	kW		9.1	9.3	9.4	8.4	9.5	11.6		

2 Specifications

2-1 Technical Specifications			RYYQ8U	RYYQ10U	RYYQ12U	RYYQ14U	RYYQ16U	RYYQ18U	RYYQ20U	
Space heating (Average climate)	TBivalent	COPd (declared COP)		2.5	2.4	2.0	2.3	2.2	1.9	1.8
		Pdh (declared heating cap)	kW	13.7	16.0	18.4	20.6	23.2	27.9	31.0
		Tbiv (bivalent temperature)	°C	-10						
	TOL	COPd (declared COP)		2.5	2.4	2.0	2.3	2.2	1.9	1.8
		Pdh (declared heating cap)	kW	13.7	16.0	18.4	20.6	23.2	27.9	31.0
		Tol (temperature operating limit)	°C	-10						
	A Condition (-7°C)	COPd (declared COP)		2.7	2.6	2.4	2.6		2.4	2.1
		Pdh (declared heating cap)	kW	12.1	14.2	16.3	18.2	20.5	24.7	27.4
	B Condition (2°C)	COPd (declared COP)		3.9			3.5		3.7	3.6
		Pdh (declared heating cap)	kW	7.4	8.6	9.9	11.1	12.5	15.0	16.7
	C Condition (7°C)	COPd (declared COP)		6.3	6.4	6.1		6.3	6.7	6.5
		Pdh (declared heating cap)	kW	5.0	5.5	6.4	7.1	8.0	9.7	10.7
	D Condition (12°C)	COPd (declared COP)		7.9	8.2	7.9	8.5	8.6	9.0	9.1
		Pdh (declared heating cap)	kW	5.9		6.3	4.9		7.1	
Space heating (Average climate) recommended combination 2	A Condition (-7°C)	COPd (declared COP)		2.7		2.4	2.6		2.4	2.2
		Pdh (declared heating cap)	kW	12.1	14.2	16.3	18.2	20.5	24.7	27.4
	B Condition (2°C)	COPd (declared COP)		3.9	4.0	3.9	3.5		3.8	3.7
		Pdh (declared heating cap)	kW	7.4	8.6	9.9	11.1	12.2	15.0	16.7
	C Condition (7°C)	COPd (declared COP)		6.3	6.5	6.1		6.3	6.8	6.5
		Pdh (declared heating cap)	kW	5.0	5.5	6.4	7.1	8.0	9.7	10.7
	D Condition (12°C)	COPd (declared COP)		7.8	8.3	7.9	8.6	8.7	9.1	9.2
		Pdh (declared heating cap)	kW	5.9	6.0	6.4	4.9	5.0	7.2	
	TBivalent	COPd (declared COP)		2.4		1.9	2.3	2.2	1.9	1.8
		Pdh (declared heating cap)	kW	13.7	16.0	18.4	20.6	23.2	27.9	31.0
		Tbiv (bivalent temperature)	°C	-10						
	TOL	COPd (declared COP)		2.4		1.9	2.3	2.2	1.9	1.8
		Pdh (declared heating cap)	kW	13.7	16.0	18.4	20.6	23.2	27.9	31.0
		Tol (temperature operating limit)	°C	-10						

2 Specifications

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2-1 Technical Specifications					RYYQ8U	RYYQ10U	RYYQ12U	RYYQ14U	RYYQ16U	RYYQ18U	RYYQ20U	
Space heating (Average climate) recommended combination 3	A Condition (-7°C)	COPd (declared COP)			2.7	2.6	2.4	2.6		2.4	2.1	
		Pdh (declared heating cap)	kW		12.1	14.2	16.3	18.2	20.5	24.7	27.4	
	B Condition (2°C)	COPd (declared COP)			3.9	3.7	3.9	3.5		3.7	3.6	
		Pdh (declared heating cap)	kW		7.4	8.6	9.9	11.1	12.5	15.0	16.7	
	C Condition (7°C)	COPd (declared COP)			6.2	6.4	6.0	6.1	6.2	6.5	6.3	
		Pdh (declared heating cap)	kW		4.9	5.5	6.4	7.1	8.0	9.7	10.7	
	D Condition (12°C)	COPd (declared COP)			7.8	8.1	7.8	8.5	8.6	8.7		
		Pdh (declared heating cap)	kW		5.8	5.9	6.2	4.9		6.9		
	TBivalent	COPd (declared COP)			2.5	2.4	2.0	2.3	2.2	1.9	1.8	
		Pdh (declared heating cap)	kW		13.7	16.0	18.4	20.6	23.2	27.9	31.0	
		Tbiv (bivalent temperature)	°C		-10							
	TOL	COPd (declared COP)			2.5	2.4	2.0	2.3	2.2	1.9	1.8	
		Pdh (declared heating cap)	kW		13.7	16.0	18.4	20.6	23.2	27.9	31.0	
		Tol (temperature operating limit)	°C		-10							
Cooling	Cdc (Degradation cooling)				0.25							
Heating	Cdh (Degradation heating)				0.25							
Power consumption in other than active mode	Crankcase heater mode	Cooling	PCK	kW	0.000							
		Heating	PCK	kW	0.052			0.077		0.089		
	Off mode	Cooling	POFF	kW	0.041			0.074		0.075		
		Heating	POFF	kW	0.052			0.077		0.089		
	Standby mode	Cooling	PSB	kW	0.041			0.074		0.075		
		Heating	PSB	kW	0.052			0.077		0.089		
	Thermostat-off mode	Cooling	PTO	kW	0.005			0.010				
		Heating	PTO	kW	0.056			0.097		0.098		
Indication if the heater is equipped with a supplementary heater					no							
Supplementary heater	Back-up capacity	Heating	elbu	kW	0.0							

Standard Accessories : Installation manual; Quantity : 1;

Standard Accessories : Operation manual; Quantity : 1;

Standard Accessories : Connection pipes; Quantity : 1;

2-2 Electrical Specifications				RYYQ8U	RYYQ10U	RYYQ12U	RYYQ14U	RYYQ16U	RYYQ18U	RYYQ20U
Power supply	Name			Y1						
	Phase			3N~						
	Frequency		Hz	50						
	Voltage		V	380-415						
Voltage range	Min.		%	-10						
	Max.		%	10						
Current	Nominal running current (RLA) - 50Hz	Cooling	A	7.2 (7)	10.2 (7)	12.7 (7)	15.4 (7)	18.0 (7)	20.8 (7)	26.9 (7)
Current - 50Hz	Starting current (MSC) - remark			(8)						
	Zmax	List		No requirements						
	Minimum circuit amps (MCA)		A	16.1 (9)	22.0 (9)	24.0 (9)	27.0 (9)	31.0 (9)	35.0 (9)	39.0 (9)
	Maximum fuse amps (MFA)		A	20 (10)	25 (10)	32 (10)		40 (10)		50 (10)
	Full load amps (FLA)	Total	A	1.2 (11)	1.3 (11)	1.5 (11)	1.8 (11)	2.6 (11)		
Wiring connections - 50Hz	For power supply	Quantity		5G						
	For connection with indoor	Quantity		2						
		Remark		F1,F2						
Power supply intake				Both indoor and outdoor unit						

2 Specifications

Notes

- (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) Actual number of connectable indoor units depends on the indoor unit type (VRV indoor, Hydrobox, RA indoor, etc.) and the connection ratio restriction for the system (50% ≤ CR ≤ 130%)
- (4) Sound power level is an absolute value that a sound source generates.
- (5) Sound pressure level is a relative value, depending on the distance and acoustic environment. For more details, please refer to the sound level drawings.
- (6) Refer to refrigerant pipe selection or installation manual
- (7) RLA is based on following conditions: indoor temp. 27°CDB, 19°CWB; outdoor temp. 35°CDB
- (8) MSC means the maximum current during start up of the compressor. VRV IV uses only inverter compressors. Starting current is always ≤ max. running current.
- (9) MCA must be used to select the correct field wiring size. The MCA can be regarded as the maximum running current.
- (10) MFA is used to select the circuit breaker and the ground fault circuit interrupter (earth leakage circuit breaker).
- (11) FLA means the nominal running current of the fan

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 with Ssc ≥ minimum Ssc value

Maximum allowable voltage range variation between phases is 2%.

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

The AUTOMATIC ESEER value corresponds with normal VRV4 Heat Pump operation, taking into account advanced energy saving operation functionality (variable refrigerant temperature)

The STANDARD ESEER value corresponds with normal VRV4 Heat Pump operation, not taking into account advanced energy saving operation functionality

Sound values are measured in a semi-anechoic room.

Soundpressure system [dBA] = $10 \cdot \log[10^{A/10} + 10^{B/10} + 10^{C/10}]$, with Unit A = A dBA, Unit B = B dBA, Unit C = C dBA

EN/IEC 61000-3-12: European/international technical standard setting the limits for harmonic currents produced by equipment connected to public low-voltage system with input current I_N > 16A and ≤ 75A per phase

Ssc: Short-circuit power

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

Multi combination (22~54HP) data is corresponding with the standard multi combination

2-3 Technical Specifications		RYYQ22U	RYYQ24U	RYYQ26U	RYYQ28U	RYYQ30U	RYYQ32U	RYYQ34U	RYYQ36U	RYYQ38U
System	Outdoor unit module 1	RYMQ10 U	RYMQ8 U	RYMQ12U			RYMQ16U			RYMQ8 U
	Outdoor unit module 2	RYMQ12 U	RYMQ16 U	RYMQ14 U	RYMQ16 U	RYMQ18 U	RYMQ16 U	RYMQ18 U	RYMQ20 U	RYMQ10 U
	Outdoor unit module 3	-								RYMQ20 U
Continuous heating		Yes								
Recommended combination		6 x FXFQ50 AVEB + 4 x FXFQ63 AVEB	4 x FXFQ50 AVEB + 4 x FXFQ63 AVEB + 2 x FXFQ80 AVEB	7 x FXFQ50 AVEB + 5 x FXFQ63 AVEB	6 x FXFQ50 AVEB + 4 x FXFQ63 AVEB + 2 x FXFQ80 AVEB	9 x FXFQ50 AVEB + 5 x FXFQ63 AVEB	8 x FXFQ63 AVEB + 4 x FXFQ80 AVEB	3 x FXFQ50 AVEB + 9 x FXFQ63 AVEB + 2 x FXFQ80 AVEB	2 x FXFQ50 AVEB + 10 x FXFQ63 AVEB + 2 x FXFQ80 AVEB	6 x FXFQ50 AVEB + 10 x FXFQ63 AVEB
Recommended combination 2		6 x FXSQ50 A2VEB + 4 x FXSQ63 A2VEB	4 x FXSQ50 A2VEB + 4 x FXSQ63 A2VEB + 2 x FXSQ80 A2VEB	7 x FXSQ50 A2VEB + 5 x FXSQ63 A2VEB	6 x FXSQ50 A2VEB + 4 x FXSQ63 A2VEB + 2 x FXSQ80 A2VEB	9 x FXSQ50 A2VEB + 5 x FXSQ63 A2VEB	8 x FXSQ63 A2VEB + 4 x FXSQ80 A2VEB	3 x FXSQ50 A2VEB + 9 x FXSQ63 A2VEB + 2 x FXSQ80 A2VEB	2 x FXSQ50 A2VEB + 10 x FXSQ63 A2VEB + 2 x FXSQ80 A2VEB	6 x FXSQ50 A2VEB + 10 x FXSQ63 A2VEB

2 Specifications

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2-3 Technical Specifications					RYYQ22U	RYYQ24U	RYYQ26U	RYYQ28U	RYYQ30U	RYYQ32U	RYYQ34U	RYYQ36U	RYYQ38U					
Recommended combination 3					6 x FXMQ50 P7VEB + 4 x FXMQ63 P7VEB	4 x FXMQ50 P7VEB + 4 x FXMQ63 P7VEB + 2 x FXMQ80 P7VEB	7 x FXMQ50 P7VEB + 5 x FXMQ63 P7VEB	6 x FXMQ50 P7VEB + 4 x FXMQ63 P7VEB + 2 x FXMQ80 P7VEB	9 x FXMQ50 P7VEB + 5 x FXMQ63 P7VEB	8 x FXMQ63 P7VEB + 4 x FXMQ80 P7VEB	3 x FXMQ50 P7VEB + 9 x FXMQ63 P7VEB + 2 x FXMQ80 P7VEB	2 x FXMQ50 P7VEB + 10 x FXMQ63 P7VEB + 2 x FXMQ80 P7VEB	6 x FXMQ50 P7VEB + 10 x FXMQ63 P7VEB					
					Cooling capacity		Prated,c		kW	61.5 (1)	67.4 (1)	73.5 (1)	78.5 (1)	83.9 (1)	90.0 (1)	95.4 (1)	97.0 (1)	102.4 (1)
					Heating capacity		Prated,h		kW	34.4	36.9	39.0	41.6	46.3	46.4	51.1	54.2	60.7
							Max.		6°CWB	kW	69.0 (2)	75.0 (2)	82.5 (2)	87.5 (2)	94.0 (2)	100.0 (2)	106.5 (2)	113.0 (2)
SEER					6.9	6.8	6.7	6.5		6.4		6.3	6.9					
SEER recommended combination 2					6.7	6.6	6.5	6.3						6.8				
SEER recommended combination 3					6.9	6.7	6.6	6.4	6.5	6.2	6.3		6.9					
SCOP					4.4	4.3	4.2		4.3	4.2		4.1	4.3					
SCOP recommended combination 2					4.4	4.3	4.2		4.3	4.2	4.3	4.2	4.3					
SCOP recommended combination 3					4.3	4.2			4.3	4.1	4.2	4.1	4.2					
ηs,c				%	274.5	269.9	264.2	257.8	256.8	251.7	253.3	250.8	272.4					
ηs,c recommended combination 2					266.5	262.6	256.1	249.3	249.8	248.3	250.9	248.7	269.2					
ηs,c recommended combination 3					273.3	265.3	261.1	253.1	256.1	244.2	249.8	247.2	272.2					
ηs,h				%	171.2	167.0	164.6	166.0	169.8	163.1	166.2	162.4	167.5					
ηs,h recommended combination 2					172.3	167.1	165.4	166.8	170.6	164.6	167.7	164.1	168.4					
ηs,h recommended combination 3					170.2	165.5	164.5	165.0	167.0	161.9	164.2	159.9	164.8					
Capacity range				HP	22	24	26	28	30	32	34	36	38					
Maximum number of connectable indoor units					64 (3)													
Indoor index connection	Min.				275.0	300.0	325.0	350.0	375.0	400.0	425.0	450.0	475.0					
	Max.				715.0	780.0	845.0	910.0	975.0	1,040.0	1,105.0	1,170.0	1,235.0					
Heat exchanger	Indoor side				Air													
	Outdoor side				Air													
	Air flow rate	Cooling	Rated	m³/h	21,600	25,320	24,480	26,700	26,160	31,200	30,660	31,260	35,880					
		Heating	Rated	m³/h	21,600	25,320	24,480	26,700	26,160	31,200	30,660	31,260	35,880					
Sound power level	Cooling	Nom.		dBA	84.8 (4)	86.3 (4)	85.3 (4)	87.6 (4)	86.6 (4)	88.6 (4)	87.8 (4)	89.9 (4)	88.8 (4)					
	Heating	Nom.		dBA	67.8 (4)	69.6 (4)	69.9 (4)	70.1 (4)	68.7 (4)	71.6 (4)	70.6 (4)	70.9 (4)	69.9 (4)					
Sound pressure level	Cooling	Nom.		dBA	62.5 (5)	64.0 (5)	63.5 (5)	65.1 (5)	64.5 (5)	66.0 (5)	65.5 (5)	67.1 (5)	66.2 (5)					
Refrigerant	Type				R-410A													
	GWP				2,087.5													
Refrigerant oil	Type				Synthetic (ether) oil FVC68D													
Piping connections	Liquid	Type			Braze connection													
		OD		mm	15,9		19,1											
	Gas	Type			Braze connection													
		OD		mm	28.6	34.9						41.3						
	Total piping length		System	Actual	m	1,000 (6)												
PED	Category				Category II													
Space cooling	A Condition (35°C - 27/19)	EERd			2.6	2.5	2.6	2.3	2.1	2.3	2.1		2.4					
		Pdc		kW	61.5	67.4	73.5	78.5	83.9	90.0	95.4	97.0	102.4					
	B Condition (30°C - 27/19)	EERd			4.8	4.6		4.4	4.3		4.2	4.1	4.5					
		Pdc		kW	45.3	49.7	54.2	57.8	61.8	66.3	70.3	71.5	75.5					
	C Condition (25°C - 27/19)	EERd			8.5	8.6	8.2	8.1	8.2	8.1		7.9	8.5					
		Pdc		kW	29.1	31.9	34.8	37.2	39.7	42.6	45.2	45.9	48.5					
	D Condition (20°C - 27/19)	EERd			16.0	15.2	14.2	14.3	16.8	14.3	16.8	16.7	17.9					
		Pdc		kW	18.8	15.8	16.2	16.5	21.0	19.0	20.1	20.4	21.6					
Space cooling recommended combination 2	A Condition (35°C - 27/19)	EERd			2.6	2.4	2.6	2.3	2.1	2.2	2.1		2.3					
		Pdc		kW	61.5	67.4	73.5	78.5	83.9	90.0	95.4	97.0	102.4					
	B Condition (30°C - 27/19)	EERd			4.6	4.5	4.4	4.3	4.2			4.1	4.5					
		Pdc		kW	45.3	49.7	54.1	57.8	61.8	66.3	70.3	71.5	75.4					
	C Condition (25°C - 27/19)	EERd			8.2	8.4	7.9	7.8	7.9	8.0	8.1	7.9	8.4					
		Pdc		kW	29.1	31.9	34.8	37.2	39.7	42.6	45.2	45.9	48.5					
	D Condition (20°C - 27/19)	EERd			15.6	14.7	13.6	13.8	16.1	14.0	16.5		17.8					
		Pdc		kW	18.4	15.4	15.7	16.5	20.5	18.9	20.1	20.4	21.6					

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2 Specifications

2-3 Technical Specifications			RYYQ22U	RYYQ24U	RYYQ26U	RYYQ28U	RYYQ30U	RYYQ32U	RYYQ34U	RYYQ36U	RYYQ38U
Space cooling recommended combination 3	A Condition (35°C - 27/19)	EERd	2.5			2.3	2.1	2.2	2.1		2.4
		Pdc kW	61.5	67.4	73.5	78.5	83.9	90.0	95.4	97.0	102.4
	B Condition (30°C - 27/19)	EERd	4.8	4.5		4.3		4.1		4.0	4.5
		Pdc kW	45.3	49.7	54.2	57.8	61.8	66.3	70.3	71.5	75.5
	C Condition (25°C - 27/19)	EERd	8.5	8.4	8.1	8.0	8.2	7.8	8.0	7.8	8.5
		Pdc kW	29.1	31.9	34.8	37.2	39.7	42.6	45.2	45.9	48.5
	D Condition (20°C - 27/19)	EERd	15.8	15.2	14.0	14.1	16.6	13.8	16.6	16.5	17.9
		Pdc kW	18.8	15.7	16.0	16.6	21.0	19.0	20.1	20.4	21.6
Space heating (Average climate)	TBivalent	COPd (declared COP)	2.3	2.5	2.3	2.2	2.1	2.4	2.2	2.1	2.2
		Pdh (declared heating cap) kW	34.4	36.9	39.0	41.6	46.3	46.4	51.1	54.2	60.7
		Tbiv (bivalent temperature) °C	-10								
	TOL	COPd (declared COP)	2.3	2.5	2.3	2.2	2.1	2.4	2.2	2.1	2.2
		Pdh (declared heating cap) kW	34.4	36.9	39.0	41.6	46.3	46.4	51.1	54.2	60.7
		Tol (temperature operating limit) °C	-10								
	A Condition (-7°C)	COPd (declared COP)	2.6	2.8	2.6			2.7	2.6	2.5	
		Pdh (declared heating cap) kW	30.4	32.6	34.5	36.8	41.0		45.2	47.9	53.7
	B Condition (2°C)	COPd (declared COP)	4.0	3.7	3.8		3.9	3.6	3.7		3.9
		Pdh (declared heating cap) kW	18.5	19.9	21.0	22.4	24.9	25.0	27.5	29.2	32.7
	C Condition (7°C)	COPd (declared COP)	6.3		6.1	6.2	6.5	6.3	6.5	6.4	6.5
		Pdh (declared heating cap) kW	11.9	13.0	13.5	14.4	16.0	16.1	17.7	18.8	21.3
	D Condition (12°C)	COPd (declared COP)	8.2	8.9	8.8	9.0			8.8	8.6	8.7
		Pdh (declared heating cap) kW	6.0	5.7	6.0	6.4	7.1		7.9	8.3	13.1
	A Condition (-7°C)	COPd (declared COP)	2.6	2.7	2.6			2.7	2.6	2.5	
		Pdh (declared heating cap) kW	30.4	32.6	34.5	36.8	41.0		45.2	47.9	53.7
	B Condition (2°C)	COPd (declared COP)	4.1	3.7	3.8		3.9	3.6	3.8	3.7	3.9
		Pdh (declared heating cap) kW	18.5	19.9	21.0	22.4	24.9	25.0	27.5	29.2	32.7
Space heating (Average climate) recommended combination 2	C Condition (7°C)	COPd (declared COP)	6.3		6.1	6.3	6.6	6.3	6.6	6.5	
		Pdh (declared heating cap) kW	11.9	13.1		14.4	16.0	16.1	17.7	18.8	21.3
	D Condition (12°C)	COPd (declared COP)	8.4	9.0	8.9	9.1			8.9	8.8	
		Pdh (declared heating cap) kW	6.0	5.7	6.0	6.4	7.2	7.1	7.9	8.3	13.2
	TBivalent	COPd (declared COP)	2.2	2.4	2.2		2.1	2.4	2.2		2.3
		Pdh (declared heating cap) kW	34.4	36.9	39.0	41.6	46.3	46.4	51.1	54.2	60.7
		Tbiv (bivalent temperature) °C	-10								
	TOL	COPd (declared COP)	2.2	2.4	2.2		2.1	2.4	2.2		2.3
		Pdh (declared heating cap) kW	34.4	36.9	39.0	41.6	46.3	46.4	51.1	54.2	60.7
		Tol (temperature operating limit) °C	-10								

2 Specifications

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2-3 Technical Specifications					RYYQ22U	RYYQ24U	RYYQ26U	RYYQ28U	RYYQ30U	RYYQ32U	RYYQ34U	RYYQ36U	RYYQ38U	
Space heating (Average climate) recommended combination 3	A Condition (-7°C)	COPd (declared COP)			2.6	2.7	2.6		2.5	2.7	2.6	2.4	2.5	
		Pdh (declared heating cap)	kW		30.4	32.6	34.5	36.8	41.0		45.2	47.9	53.7	
	B Condition (2°C)	COPd (declared COP)			4.0	3.7	3.8		3.9	3.6	3.7	3.6	3.8	
		Pdh (declared heating cap)	kW		18.5	19.9	21.0	22.4	24.9	25.0	27.5	29.2	32.7	
	C Condition (7°C)	COPd (declared COP)			6.2	6.3	6.1	6.2	6.3		6.4	6.3		
		Pdh (declared heating cap)	kW		11.9	12.9	13.5	14.4	16.0	16.1	17.7	18.8	21.2	
	D Condition (12°C)	COPd (declared COP)			8.2	8.9	8.8	9.0	8.6	9.0	8.9	8.3	8.5	
		Pdh (declared heating cap)	kW		6.0	5.7	6.0	6.4	7.1		7.9	8.3	12.9	
	TBivalent	COPd (declared COP)			2.3	2.4	2.2		2.1	2.4	2.2	2.1	2.2	
		Pdh (declared heating cap)	kW		34.4	36.9	39.0	41.6	46.3	46.4	51.1	54.2	60.7	
		Tbiv (bivalent temperature)	°C		-10									
	TOL	COPd (declared COP)			2.3	2.4	2.2		2.1	2.4	2.2	2.1	2.2	
		Pdh (declared heating cap)	kW		34.4	36.9	39.0	41.6	46.3	46.4	51.1	54.2	60.7	
		Tol (temperature operating limit)	°C		-10									
Cooling	Cdc (Degradation cooling)				0.25									
Heating	Cdh (Degradation heating)				0.25									
Power consumption in other than active mode	Off mode	Cooling	POFF	kW	0.081	0.115			0.116	0.149	0.150	0.157		
		Heating	POFF	kW	0.103	0.129			0.141	0.154	0.166	0.192		
	Standby mode	Cooling	PSB	kW	0.081	0.115			0.116	0.149	0.150	0.157		
		Heating	PSB	kW	0.103	0.129			0.141	0.154	0.166	0.192		
	Thermostat-off mode	Cooling	PTO	kW	0.009	0.014				0.019				
		Heating	PTO	kW	0.113	0.154			0.155	0.195	0.196	0.211		
Indication if the heater is equipped with a supplementary heater					no									
Supplementary heater	Back-up capacity	Heating	elbu	kW	0.0									

Standard Accessories : Installation manual; Quantity : 1;

Standard Accessories : Operation manual; Quantity : 1;

Standard Accessories : Connection pipes; Quantity : 1;

2-4 Technical Specifications				RYYQ40U	RYYQ42U	RYYQ44U	RYYQ46U	RYYQ48U	RYYQ50U	RYYQ52U	RYYQ54U
System	Outdoor unit module 1			RYMQ10U		RYMQ12U	RYMQ14U	RYMQ16U			RYMQ18U
	Outdoor unit module 2			RYMQ12U	RYMQ16U					RYMQ18U	
	Outdoor unit module 3			RYMQ18U	RYMQ16U				RYMQ18U		
Continuous heating				Yes							
Recommended combination				9 x FXFQ50A VEB + 9 x FXFQ63A VEB	12 x FXFQ63A VEB + 4 x FXFQ80A VEB	6 x FXFQ50A VEB + 8 x FXFQ63A VEB + 4 x FXFQ80A VEB	1 x FXFQ50A VEB + 13 x FXFQ63A VEB + 4 x FXFQ80A VEB	12 x FXFQ63A VEB + 6 x FXFQ80A VEB	3 x FXFQ50A VEB + 13 x FXFQ63A VEB + 4 x FXFQ80A VEB	6 x FXFQ50A VEB + 14 x FXFQ63A VEB + 2 x FXFQ80A VEB	9 x FXFQ50A VEB + 15 x FXFQ63A VEB
Recommended combination 2				9 x FXSQ50A 2VEB + 9 x FXSQ63A 2VEB	12 x FXSQ63A 2VEB + 4 x FXSQ80A 2VEB	6 x FXSQ50A 2VEB + 8 x FXSQ63A 2VEB + 4 x FXSQ80A 2VEB	1 x FXSQ50A 2VEB + 13 x FXSQ63A 2VEB + 4 x FXSQ80A 2VEB	12 x FXSQ63A 2VEB + 6 x FXSQ80A 2VEB	3 x FXSQ50A 2VEB + 13 x FXSQ63A 2VEB + 4 x FXSQ80A 2VEB	6 x FXSQ50A 2VEB + 14 x FXSQ63A 2VEB + 2 x FXSQ80A 2VEB	9 x FXSQ50A 2VEB + 15 x FXSQ63A 2VEB

2 Specifications

2-4 Technical Specifications					RYYQ40U	RYYQ42U	RYYQ44U	RYYQ46U	RYYQ48U	RYYQ50U	RYYQ52U	RYYQ54U				
Recommended combination 3					9 x FXMQ50P 7VEB + 9 x FXMQ63P 7VEB	12 x FXMQ63P 7VEB + 4 x FXMQ80P 7VEB	6 x FXMQ50P 7VEB + 8 x FXMQ63P 7VEB + 4 x FXMQ80P 7VEB	1 x FXMQ50P 7VEB + 13 x FXMQ63P 7VEB + 4 x FXMQ80P 7VEB	12 x FXMQ63P 7VEB + 6 x FXMQ80P 7VEB	3 x FXMQ50P 7VEB + 13 x FXMQ63P 7VEB + 4 x FXMQ80P 7VEB	6 x FXMQ50P 7VEB + 14 x FXMQ63P 7VEB + 2 x FXMQ80P 7VEB	9 x FXMQ50P 7VEB + 15 x FXMQ63P 7VEB				
					Cooling capacity	Prated,c		kW	111.9 (1)	118.0 (1)	123.5 (1)	130.0 (1)	135.0 (1)	140.4 (1)	145.8 (1)	151.2 (1)
					Heating capacity	Prated,h		kW	62.3	62.4	64.8	67.0	69.6	74.3	79.0	83.7
						Max.	6°CWB	kW	125.5 (2)	131.5 (2)	137.5 (2)	145.0 (2)	150.0 (2)	156.5 (2)	163.0 (2)	169.5 (2)
					SEER					6.7	6.6	6.5	6.4			
SEER recommended combination 2					6.6		6.3	6.4	6.3		6.4					
SEER recommended combination 3					6.7	6.5	6.3		6.2	6.3	6.4					
SCOP					4.3	4.2		4.1		4.2	4.3					
SCOP recommended combination 2					4.4	4.3	4.2				4.3					
SCOP recommended combination 3					4.3	4.2		4.1		4.2						
ηs,c				%	263.5	261.2	255.9	254.9	251.7	252.8	253.7	254.1				
ηs,c recommended combination 2					259.2	259.3	249.2	252.2	248.3	250.0	251.6	252.5				
ηs,c recommended combination 3					263.2	255.4	250.1	248.3	244.2	248.0	251.5	253.9				
ηs,h				%	170.0	165.5	164.5	162.0	162.8	165.2	167.2	169.4				
ηs,h recommended combination 2					171.3	167.3	165.6	163.5	164.3	166.7	168.7	170.8				
ηs,h recommended combination 3					167.8	164.4	163.5	161.3	161.7	163.2	164.4	166.0				
Capacity range				HP	40	42	44	46	48	50	52	54				
Maximum number of connectable indoor units					64 (3)											
Indoor index connection	Min.				500.0	525.0	550.0	575.0	600.0	625.0	650.0	675.0				
	Max.				1,300.0	1,365.0	1,430.0	1,495.0	1,560.0	1,625.0	1,690.0	1,755.0				
Heat exchanger	Indoor side				Air											
	Outdoor side				Air											
	Air flow rate	Cooling	Rated	m³/h	36,660	41,700	42,300	44,580	46,800	46,260	45,720	45,180				
		Heating	Rated	m³/h	36,660	41,700	42,300	44,580	46,800	46,260	45,720	45,180				
Sound power level	Cooling	Nom.		dBA	87.3 (4)	89.1 (4)	89.8 (4)	89.3 (4)	90.4 (4)	89.8 (4)	89.3 (4)	88.6 (4)				
	Heating	Nom.		dBA	70.2 (4)	72.4 (4)		73.3 (4)	73.4 (4)	72.7 (4)	72.0 (4)	71.1 (4)				
Sound pressure level	Cooling	Nom.		dBA	65.2 (5)	66.5 (5)	67.2 (5)	67.0 (5)	67.8 (5)	67.5 (5)	67.1 (5)	66.8 (5)				
Refrigerant	Type				R-410A											
	GWP				2,087.5											
Refrigerant oil	Type				Synthetic (ether) oil FVC68D											
Piping connections	Liquid	Type			Braze connection											
		OD		mm	19.1											
	Gas	Type			Braze connection											
		OD		mm	41.3											
	Total piping length	System	Actual	m	1,000 (6)											
PED	Category				Category II											
Space cooling	A Condition (35°C - 27/19)	EERd			2.2	2.3		2.4	2.3	2.1	2.0	1.9				
		Pdc		kW	111.9	118.0	123.5	130.0	135.0	140.4	145.8	151.2				
	B Condition (30°C - 27/19)	EERd			4.5	4.4			4.3	4.2		4.1				
		Pdc		kW	82.5	86.9	91.0	95.8	99.5	103.4	107.4	111.4				
	C Condition (25°C - 27/19)	EERd			8.3	8.2	8.1									
		Pdc		kW	53.0	55.9	58.5	61.6	64.0	66.5	69.1	71.6				
	D Condition (20°C - 27/19)	EERd			16.0	15.4	14.4	14.3		15.9	17.6	19.1				
		Pdc		kW	23.6	24.8	26.0	27.4	28.4	29.6	30.7	34.4				
Space cooling recommended combination 2	A Condition (35°C - 27/19)	EERd			2.2	2.3			2.2	2.1	2.0	1.9				
		Pdc		kW	111.9	118.0	123.5	130.0	135.0	140.4	145.8	151.2				
	B Condition (30°C - 27/19)	EERd			4.4		4.3		4.2		4.1					
		Pdc		kW	82.4	86.9	91.0	95.8	99.5	103.5	107.4	111.4				
	C Condition (25°C - 27/19)	EERd			8.1	8.2	7.9	8.1	8.0		8.1					
		Pdc		kW	53.0	55.9	58.5	61.6	63.9	66.5	69.0	71.6				
	D Condition (20°C - 27/19)	EERd			15.9	15.3	14.0			15.6	17.4	18.9				
		Pdc		kW	23.6	24.8	26.0	27.4	28.4	29.6	30.7	34.1				

2 Specifications

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2-4 Technical Specifications			RYYQ40U	RYYQ42U	RYYQ44U	RYYQ46U	RYYQ48U	RYYQ50U	RYYQ52U	RYYQ54U
Space cooling recommended combination 3	A Condition (35°C - 27/19)	EERd	2.2	2.3			2.2	2.1	2.0	1.9
		Pdc kW	111.9	118.0	123.5	130.0	135.0	140.4	145.8	151.2
	B Condition (30°C - 27/19)	EERd	4.4	4.3			4.2	4.1		
		Pdc kW	82.5	87.0	91.0	95.8	99.5	103.5	107.4	111.4
	C Condition (25°C - 27/19)	EERd	8.4	8.0	7.9		7.8	7.9	8.0	8.2
		Pdc kW	53.0	55.9	58.5	61.6	63.9	66.5	69.1	71.6
	D Condition (20°C - 27/19)	EERd	16.1	15.2	14.2	13.9	13.8	15.6	17.5	19.1
		Pdc kW	23.6	24.8	26.0	27.4	28.4	29.6	30.7	34.7
Space heating (Average climate)	TBivalent	COPd (declared COP)	2.2	2.4	2.3	2.4		2.3	2.2	2.1
		Pdh (declared heating cap) kW	62.3	62.4	64.8	67.0	69.6	74.3	79.0	83.7
		Tbiv (bivalent temperature) °C	-10							
	TOL	COPd (declared COP)	2.2	2.4	2.3	2.4		2.3	2.2	2.1
		Pdh (declared heating cap) kW	62.3	62.4	64.8	67.0	69.6	74.3	79.0	83.7
		Tol (temperature operating limit) °C	-10							
	A Condition (-7°C)	COPd (declared COP)	2.6	2.7					2.6	
		Pdh (declared heating cap) kW	55.1	55.2	57.3	59.3	61.6	65.7	69.9	74.0
	B Condition (2°C)	COPd (declared COP)	4.0	3.7		3.6		3.7	3.8	3.9
		Pdh (declared heating cap) kW	33.5	33.6	34.9	36.1	37.5	40.0	42.5	45.1
	C Condition (7°C)	COPd (declared COP)	6.5	6.3		6.2	6.3	6.5	6.6	6.8
		Pdh (declared heating cap) kW	21.6		22.4	23.2	24.1	25.7	27.4	29.0
	D Condition (12°C)	COPd (declared COP)	8.7	8.6		8.7	8.8	8.9	9.0	
		Pdh (declared heating cap) kW	13.1	9.9	10.0	10.3	10.7	12.0	14.2	
Space heating (Average climate) recommended combination 2	A Condition (-7°C)	COPd (declared COP)	2.6	2.7					2.6	
		Pdh (declared heating cap) kW	55.1	55.2	57.3	59.3	61.6	65.7	69.9	74.0
	B Condition (2°C)	COPd (declared COP)	4.0	3.7		3.6		3.7	3.8	3.9
		Pdh (declared heating cap) kW	33.5	33.6	34.9	36.1	37.5	40.0	42.6	45.1
	C Condition (7°C)	COPd (declared COP)	6.5	6.4	6.3			6.5	6.7	6.8
		Pdh (declared heating cap) kW	21.6		22.4	22.8	24.1	25.7	27.4	29.0
	D Condition (12°C)	COPd (declared COP)	8.8	8.7		8.8	8.9	9.0	9.1	
		Pdh (declared heating cap) kW	13.2	10.0		10.3	10.7	12.2	14.4	
	TBivalent	COPd (declared COP)	2.2	2.4	2.3	2.4		2.3	2.2	2.1
		Pdh (declared heating cap) kW	62.3	62.4	64.8	67.0	69.6	74.3	79.0	83.7
		Tbiv (bivalent temperature) °C	-10							
	TOL	COPd (declared COP)	2.2	2.4	2.3	2.4		2.3	2.2	2.1
		Pdh (declared heating cap) kW	62.3	62.4	64.8	67.0	69.6	74.3	79.0	83.7
		Tol (temperature operating limit) °C	-10							

2 Specifications

2-4 Technical Specifications					RYYQ40U	RYYQ42U	RYYQ44U	RYYQ46U	RYYQ48U	RYYQ50U	RYYQ52U	RYYQ54U	
Space heating (Average climate) recommended combination 3	A Condition (-7°C)	COPd (declared COP)			2.6	2.7	2.6	2.7		2.6		2.5	
		Pdh (declared heating cap)	kW	55.1	55.2	57.3	59.3	61.6	65.7	69.9	74.0		
	B Condition (2°C)	COPd (declared COP)			3.9	3.7		3.6			3.7	3.8	
		Pdh (declared heating cap)	kW	33.5	33.6	34.9	36.1	37.5	40.0	42.5	45.1		
	C Condition (7°C)	COPd (declared COP)			6.4	6.3	6.2		6.3	6.4		6.5	
		Pdh (declared heating cap)	kW	21.6		22.4	23.2	24.1	25.7	27.3	29.0		
	D Condition (12°C)	COPd (declared COP)			8.4	8.6		8.7	8.8	8.7			
		Pdh (declared heating cap)	kW	12.8	9.9	10.0	10.3	10.7	11.8	13.7			
	TBivalent	COPd (declared COP)			2.2	2.4	2.3	2.4		2.2		2.1	
		Pdh (declared heating cap)	kW	62.3	62.4	64.8	67.0	69.6	74.3	79.0	83.7		
		Tbiv (bivalent temperature)	°C	-10									
	TOL	COPd (declared COP)			2.2	2.4	2.3	2.4		2.2		2.1	
		Pdh (declared heating cap)	kW	62.3	62.4	64.8	67.0	69.6	74.3	79.0	83.7		
		Tol (temperature operating limit)	°C	-10									
Cooling	Cdc (Degradation cooling)				0.25								
Heating	Cdh (Degradation heating)				0.25								
Power consumption in other than active mode	Off mode	Cooling	POFF	kW	0.157	0.190		0.223		0.224	0.225	0.226	
		Heating	POFF	kW	0.192	0.206		0.231		0.243	0.255	0.267	
	Standby mode	Cooling	PSB	kW	0.157	0.190		0.223		0.224	0.225	0.226	
		Heating	PSB	kW	0.192	0.206		0.231		0.243	0.255	0.267	
	Thermostat-off mode	Cooling	PTO	kW	0.019	0.024		0.029					
		Heating	PTO	kW	0.211	0.251		0.292		0.293	0.294		
Indication if the heater is equipped with a supplementary heater					no								
Supplementary heater	Back-up capacity	Heating	elbu	kW	0.0								

Standard Accessories : Installation manual; Quantity : 1;

Standard Accessories : Operation manual; Quantity : 1;

Standard Accessories : Connection pipes; Quantity : 1;

2-5 Electrical Specifications				RYYQ22U	RYYQ24U	RYYQ26U	RYYQ28U	RYYQ30U	RYYQ32U	RYYQ34U	RYYQ36U	RYYQ38U	
Power supply	Name			Y1									
	Phase			3N~									
	Frequency		Hz	50									
	Voltage		V	380-415									
Voltage range	Min.		%	-10									
	Max.		%	10									
Current	Nominal running current (RLA) - 50Hz	Cooling	A	22.9 (7)	25.2 (7)	28.1 (7)	30.7 (7)	33.5 (7)	36.0 (7)	38.8 (7)	44.9 (7)	44.3 (7)	
Current - 50Hz	Starting current (MSC) - remark			(8)									
	Zmax	List		No requirements									
	Minimum circuit amps (MCA)		A	46.0 (9)		51.0 (9)	55.0 (9)	59.0 (9)	62.0 (9)	66.0 (9)	70.0 (9)	76.0 (9)	
	Maximum fuse amps (MFA)		A	63 (10)				80 (10)				100 (10)	
Wiring connections - 50Hz	For power supply	Quantity		5G									
	For connection with indoor	Quantity		2									
		Remark		F1,F2									
Power supply intake				Both indoor and outdoor unit									

2-6 Electrical Specifications					RYYQ40U	RYYQ42U	RYYQ44U	RYYQ46U	RYYQ48U	RYYQ50U	RYYQ52U	RYYQ54U
Power supply	Name				Y1							
	Phase				3N~							
	Frequency			Hz	50							
	Voltage			V	380-415							

2 Specifications

2-6 Electrical Specifications				RYYQ40U	RYYQ42U	RYYQ44U	RYYQ46U	RYYQ48U	RYYQ50U	RYYQ52U	RYYQ54U
Voltage range	Min.		%	-10							
	Max.		%	10							
Current	Nominal running current (RLA) - 50Hz	Cooling	A	43.7 (7)	46.2 (7)	48.7 (7)	51.4 (7)	54.0 (7)	56.8 (7)	59.6 (7)	62.4 (7)
Current - 50Hz	Starting current (MSC) - remark			(8)							
	Zmax	List		No requirements							
	Minimum circuit amps (MCA)		A	81.0 (9)	84.0 (9)	86.0 (9)	89.0 (9)	93.0 (9)	97.0 (9)	101.0 (9)	105.0 (9)
	Maximum fuse amps (MFA)		A	100 (10)				125 (10)			
Wiring connections - 50Hz	For power supply	Quantity		5G							
	For connection with indoor	Quantity		2							
		Remark		F1,F2							
Power supply intake				Both indoor and outdoor unit							

Notes

- (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) Actual number of connectable indoor units depends on the indoor unit type (VRV indoor, Hydrobox, RA indoor, etc.) and the connection ratio restriction for the system (50% ≤ CR ≤ 130%)
- (4) Sound power level is an absolute value that a sound source generates.
- (5) Sound pressure level is a relative value, depending on the distance and acoustic environment. For more details, please refer to the sound level drawings.
- (6) Refer to refrigerant pipe selection or installation manual
- (7) RLA is based on following conditions: indoor temp. 27°CDB, 19°CWB; outdoor temp. 35°CDB
- (8) MSC means the maximum current during start up of the compressor. VRV IV uses only inverter compressors. Starting current is always ≤ max. running current.
- (9) MCA must be used to select the correct field wiring size. The MCA can be regarded as the maximum running current.
- (10) MFA is used to select the circuit breaker and the ground fault circuit interrupter (earth leakage circuit breaker).
- 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 with Ssc ≥ minimum Ssc value
- FLA means the nominal running current of the fan
- Maximum allowable voltage range variation between phases is 2%.
- Voltage range: units are suitable for use on electrical systems where voltage supplied to unit terminal is not below or above listed range limits.
- The AUTOMATIC ESEER value corresponds with normal VRV4 Heat Pump operation, taking into account advanced energy saving operation functionality (variable refrigerant temperature)
- The STANDARD ESEER value corresponds with normal VRV4 Heat Pump operation, not taking into account advanced energy saving operation functionality
- Sound values are measured in a semi-anechoic room.
- Soundpressure system [dBA] = $10 \cdot \log[10^{A/10} + 10^{B/10} + 10^{C/10}]$, with Unit A = A dBA, Unit B = B dBA, Unit C = C dBA
- EN/IEC 61000-3-12: European/international technical standard setting the limits for harmonic currents produced by equipment connected to public low-voltage system with input current $I_N \geq 16A$ and $\leq 75A$ per phase
- Ssc: Short-circuit power
- For detailed contents of standard accessories, see installation/operation manual
- Multi combination (22~54HP) data is corresponding with the standard multi combination

2-7 Technical Specifications				RYMQ10U	RYMQ12U	RYMQ14U	RYMQ16U	RYMQ18U	RYMQ20U	RYMQ8U
Dimensions	Unit	Height	mm	1,685						
		Width	mm	930		1,240				930
		Depth	mm	765						
	Packed unit	Height	mm	1,820						
		Width	mm	995		1,305				995
		Depth	mm	860						
Weight	Unit	kg	198		275		308		198	
	Packed unit	kg	211		291		324		211	
Packing	Material			Carton						
	Weight			kg	1.8		2.2			

2 Specifications

2-7 Technical Specifications					RYMQ10U	RYMQ12U	RYMQ14U	RYMQ16U	RYMQ18U	RYMQ20U	RYMQ8U
Packing 2	Material				Wood						
	Weight		kg	11.0		14.0				11.0	
Packing 3	Material				Plastic						
	Weight		kg	0.5		0.6				0.5	
Capacity control	Method				Inverter controlled						
Casing	Colour				Daikin White						
	Material				Painted galvanized steel plate						
Compressor	Quantity				1		2				1
	Type				Hermetically sealed scroll compressor						
	Crankcase heater		W	33							
Fan	Quantity				1		2				1
	External static pressure	Max.	Pa	78							
Fan motor	Quantity				1		2				1
	Type				DC motor						
	Output		W	550		750				550	
Sound power level	Cooling	Nom.	dBA	79.1	83.4	80.9	85.6	83.8	87.9	78.0	
	Heating	Nom.	dBA	64.8	64.9	68.3	68.6	66.3	67.0	62.7	
Sound pressure level	Cooling	Nom.	dBA	57.0	61.0	60.0	63.0	62.0	65.0	57.0	
Operation range	Cooling	Min.~Max.	°CDB	-5.0~43.0							
	Heating	Min.~Max.	°CWB	-20.0~15.5							
Refrigerant	Type				R-410A						
	GWP				2,087.5						
	Charge		TCO ₂ eq	12.5	13.2	21.5	23.6	24.4	24.6	12.3	
			kg	6.0	6.3	10.3	11.3	11.7	11.8	5.9	
Refrigerant oil	Type				Synthetic (ether) oil FVC68D						
Piping connections	Liquid	Type			Braze connection						
		OD	mm	9,52	12,7			15,9		9,52	
	Gas	Type			Braze connection						
		OD	mm	22.2	28.6				19.1		
	Equalizing	Type			Braze connection						
		OD	mm	22.2				28.6		19.1	
	Total piping length	System	Actual	m	1,000						
Defrost method					Reversed cycle						
Safety devices	Item	01			High pressure switch						
		02			Fan driver overload protector						
		03			Inverter overload protector						
		04			PC board fuse						
		05			Leakage current detector						

3 Options

3 - 1 Options

RXYQQ-U
RXYQ-U
RYYQ-U
RYMQ-U

3

No	Item	RXYQ8U RYYQ8U RXYQQ8U	RXYQ10-12U RYYQ10-12U RXYQQ10-12U	RXYQ14-18U RYYQ14-18U RXYQQ14-18U	RXYQ20U RYYQ20U RXYQQ20U	RYYQ22~54U RXYQ22~54U RXYQQ22~42U		
I.	Refnet header	KHRQ22M29H						
		KHRQ22M64H						
		---	---	---	KHRQ22M75H			
II.	Refnet joint	KHRQ22M20T						
		KHRQ22M29T9						
		KHRQ22M64T						
		---	---	---	KHRQ22M75T			
III.	Outdoor multi-connection kit	See note 2.	---	---	---	BHFQ22P1007		
IV.	Outdoor multi-connection kit	See note 2.	---	---	---	BHFQ22P1517		
No	Item	8HP	10HP	12HP	14HP	16HP	18HP	20HP
1a	Cool/heat selector (switch)	See note 4.						
1b	Cool/heat selector (PCB)	KRC19-26A						
1c	Cool/heat selector (fixing box)	BRP2A81						
2	VRV configurator	KJB111A						
3	Heater tape kit PCB	EKPCCAB*						
4	Demand PCB	EKBPH012T7A						
5	Demand PCB mounting plate	EKBPH020T7A						
		DTA104A61/62*						

		KKS26B1*						

Notes

- 1 All options are kits
- 2 Only for multi units
- 3 To operate the cool/heat selector function, options 1a and 1b are both required.
- 4 To mount option 1a, option 1c is required.
- 5 To install the demand PCB on the large casing type, the demand PCB mounting plate is required.

Medium casing type VRV4 heat pump: modules 8~12HP

Large casing type VRV4 heat pump: modules 14~20HP

3D120006

4 Combination table

4 - 1 Combination Table

RXYQQ-U

RXYQ-U

RYYQ-U

RYMQ-U

Heat pump VRV4
Multi-unit standard combinations table

		8HP	10HP	12HP	14HP	16HP	18HP	20HP
Heat pump	RXYQ8* / RYYQ8* / RXYQ8*	1						
	RXYQ10* / RYYQ10* / RXYQ10*		1					
	RXYQ12* / RYYQ12* / RXYQ12*			1				
	RXYQ14* / RYYQ14* / RXYQ14*				1			
	RXYQ16* / RYYQ16* / RXYQ16*					1		
	RXYQ18* / RYYQ18* / RXYQ18*						1	
	RXYQ20* / RYYQ20* / RXYQ20*							1
Multi-combination with 2 outdoor units	RXYQ22* / RYYQ22* / RXYQ22*		1	1				
	RXYQ24* / RYYQ24* / RXYQ24*	1				1		
	RXYQ26* / RYYQ26* / RXYQ26*			1	1			
	RXYQ28* / RYYQ28* / RXYQ28*			1		1		
	RXYQ30* / RYYQ30* / RXYQ30*			1			1	
	RXYQ32* / RYYQ32* / RXYQ32*					2		
	RXYQ34* / RYYQ34* / RXYQ34*						1	1
	RXYQ36* / RYYQ36* / RXYQ36*						1	1
	RXYQ38* / RYYQ38* / RXYQ38*	1	1					1
Multi-combination with 3 outdoor units	RXYQ40* / RYYQ40* / RXYQ40*		1	1			1	
	RXYQ42* / RYYQ42* / RXYQ42*		1			2		
	RXYQ44* / RYYQ44*			1		2		
	RXYQ46* / RYYQ46*				1	2		
	RXYQ48* / RYYQ48*					3		
	RXYQ50* / RYYQ50*					2	1	
	RXYQ52* / RYYQ52*						1	2
	RXYQ54* / RYYQ54*							3
	RXYQ56* / RYYQ56*							4

Remark

- RXYQ8~20 = Single continuous heating
RYYQ22~54 Multi continuous heating
RXYQ8~20 = Single non-continuous heating
RXYQ22~54 Multi non-continuous heating
RXYQ8~20 Single non-continuous heating replacement (VRV4-Q)
RXYQ22~54 Multi non-continuous heating replacement (VRV4-Q)
1) For single unit installation RYYQ* units (continuous heating) and RXYQ* units (non-continuous heating)
2) "Non-continuous heating" multi-outdoor-unit combinations consist of RXYQ8~20 units (e.g. RXYQ36*+RXYQ16*+RXYQ20*).
3) "Continuous heating" multi-outdoor-unit combinations consist of RYM08~20 units (e.g. RYYQ36*+RYMQ16*+RYMQ20*).
→ RYM08~20 units can only be used in multi-outdoor-unit combinations and cannot be used as standalone units.
4) RYYQ8~20* units cannot be used in multi-outdoor-unit combinations.
5) RXYQ8~20 "Continuous heating" multi-outdoor-unit combinations cannot contain RXYQ* units.
6) RXYQ8~20 "Non-continuous heating" multi-outdoor-unit combinations cannot contain RYM08~20 units.
7) Multi "non-continuous heating" replacement models only consist of RXYQ8~20 modules (e.g. RXYQ36*+RXYQ16*+RXYQ20*).
8) Replacement units cannot be combined with other units.
9) T-series outdoor units and U-series outdoor units cannot share the same refrigerant circuit. When combining these units, make sure they are part of separate refrigerant circuits.

3D120060

RYYQ8-20U

RYMQ8-20U

RXYQ8-20U

Compatibility list: ·VRV4· heat pump - ·RA DX· indoor unit

Wall mounted type	Emura	FTXJ20M
		FTXJ25M
		FTXJ35M
	Stylish	FTXJ50M
		FTXA20
		FTXA25
		FTXA35
Ceiling/wall mounted	Flex	FTXA42
		FTXA50
		FLXS25B
		FLXS35B
Floor standing type	FVXM	FLXS50B
		FLXS60B
		FVXM25F
	Nexura	FVXM35F
		FVXM50F
		FVXG25K
		FVXG35K
		FVXG50K

Remark

- The limitations on the use of ·RA DX· indoor units with the ·VRV4· Heat Pump are subject to the rules set out in drawings ·3D079543· and ·3D079540·.
- If you want to connect ·RA·/·SA· ·DX· cassette, ceiling-mounted, or duct indoor units, use their ·VRV DX· indoor unit equivalents instead.

3D082373D

4 Combination table

4 - 1 Combination Table

RXYQ-U
RYYQ-U
RYMQ-U

VRV4
Heat pump
Indoor unit combination restrictions
(1/2)

Indoor unit combination pattern	·VRV* DX· indoor unit	·RA DX· indoor unit	Hydrobox unit	Air handling unit (AHU) ⁽³⁾
·VRV* DX· indoor unit	O	O	O	O
·RA DX· indoor unit	O	O	X	X
Hydrobox unit	O	X	O ₁	X
Air handling unit ⁽³⁾	O	X	X	O ₂

O: Allowed
X: Not allowed

Notes

- VRV* DX· indoor unit
 - When combining ·VRV DX· indoor units with other types of indoor units, respect the following combination patterns:

Example

Allowed : {·VRV DX· indoor unit + ·Hydrobox· unit} or {·VRV DX· indoor unit + ·RA DX· indoor unit} or {·VRV DX· indoor unit + ·AHU·}

Not allowed : {·VRV DX· indoor unit + {·RA DX· indoor unit & {·Hydrobox· unit or ·AHU·}} or {·VRV DX· indoor unit + {·Hydrobox· unit & {·RA DX· indoor unit or ·AHU·}}}
- O₁
 - Only connect ·Hydrobox· units to a ·VRV IV· Heat Pump in combination with a ·VRV DX· indoor unit.
 - Refer to the connection ratio restrictions (-3D079540 & 3D117169-).
 - Connection with only Hydrobox units: refer to the Daikin Altherma solutions.
 - Only connect ·Hydrobox· units of the ·HXY*· series.
 - HXHD*· series ·Hydrobox· units are not allowed.
- O₂
 - Combination of ·AHU· only + control box ·EKEQFA· (the combination with ·VRV DX· indoor units is not allowed; maximum ·54-HP for ·400 + 2x500· class ·EKEV· kit)
 - X·-control is possible (up to ·3x· {·EKEV+EKEQFA*· boxes} can be connected to one outdoor unit (system)). No Variable Refrigerant Temperature control possible.
 - Y·-control is possible (up to ·3x· {·EKEV+EKEQFA*· boxes} can be connected to one outdoor unit (system)). No Variable Refrigerant Temperature control possible.
 - W·-control is possible (up to ·3x· {·EKEV+EKEQFA*· boxes} can be connected to one outdoor unit (system)). No Variable Refrigerant Temperature control possible.
 - Combination of ·AHU· only + control box ·EKEQMA· (not combined with ·VRV DX· indoor units)
 - Z-control is possible (the allowed number of {·EKEV + EKEQMA· boxes} is determined by the connection ratio (-90-110%-) and the capacity of the outdoor unit.
- Combination of ·AHU· and ·VRV DX· indoor units
 - Z-control is possible {·EKEQMA*· boxes are allowed, but with a limited connection ratio}.
- The combination of ·AHU· with ·Hydrobox· units or ·RA DX· indoor units is not allowed.
- (3) The following units are considered AHUs:
 - EKEV + EKEQ(MA/FA) + AHU· coil
 - Biddle· air curtain
 - FXMQ_MF· units

Information

 - VKM· units are considered to be regular ·VRV DX· indoor units.

3D079543F

RXYQ-U
RYYQ-U
RYMQ-U

VRV4
Heat pump
Indoor unit combination restrictions
(2/2)

Combination table	RYYQ*	RYYQ*	RXYQ* RXMLQ* RXYLQ*	RXYQ* RXMLQ* RXYLQ*
	Single continuous heating	Multi continuous heating	Single non-continuous heating	Multi non-continuous heating
·VRV* DX· indoor unit	O	O	O	O
·RA DX· indoor unit	O	X	O	X
Hydrobox unit	O	O ₁	O	O ₁
Air handling unit (AHU) ⁽²⁾	O	O	O	O

O: Allowed
X: Not allowed

Notes

- O₁
 - Available upon request through the ·SPN· procedure.
- (2) The following units are considered AHUs:
 - EKEV + EKEQ(MA/FA) + AHU· coil
 - Biddle· air curtain
 - FXMQ_MF· units

3D079543F

4 Combination table

4 - 1 Combination Table

REMQ5U

REYQ8-20U

RXYQQ8-20U

RXYTQ8-16UYF

RYYQ8-20U

RYMQ8-20U

Unit combination restrictions: VRV4 outdoor units (all models) + 15-class indoor units

Units in scope: FXZQ15A and FXAQ15A.

1. In case the system contains these indoor units and the total connection ratio (CR) $\leq 100\%$: 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 FXZQ15A and/or FXAQ15A units in the system $\leq 70\%$, 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 FXZQ15A and/or FXAQ15A units in the system $\leq 70\%$, and NOT ALL other VRV DX indoor units have an individual capacity class > 50 : the restrictions below apply.
 - $100\% < CR \leq 105\% \rightarrow$ CR1 of the sum of all FXZQ15A and/or FXAQ15A indoor units in the system must be $\leq 70\%$.
 - $105\% < CR \leq 110\% \rightarrow$ CR1 of the sum of all FXZQ15A and/or FXAQ15A indoor units in the system must be $\leq 60\%$.
 - $110\% < CR \leq 115\% \rightarrow$ CR1 of the sum of all FXZQ15A and/or FXAQ15A indoor units in the system must be $\leq 40\%$.
 - $115\% < CR \leq 120\% \rightarrow$ CR1 of the sum of all FXZQ15A and/or FXAQ15A indoor units in the system must be $\leq 25\%$.
 - $120\% < CR \leq 125\% \rightarrow$ CR1 of the sum of all FXZQ15A and/or FXAQ15A indoor units in the system must be $\leq 10\%$.
 - $125\% < CR \leq 130\% \rightarrow$ FXZQ15A and FXAQ15A 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.

3D104665

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.

[Click here to access the capacity table viewer.](#)



- For more information about all our tools we offer [click here to see the overview](#) on my.daikin.eu



5 Capacity tables

5 - 2 Capacity Correction Factor

RXYQQ-U
RXYQ-U
RYYQ-U
RYMQ-U

VRV4

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 (see table)
C = Integrated correction factor for frost accumulation (see table)
 $A = B \times C$

Inlet air temperature of heat exchanger

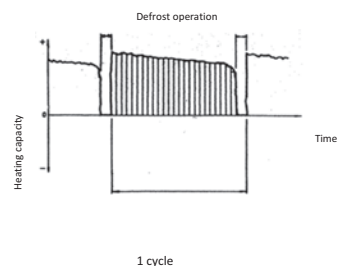
[°CDB/°CWB]	-7/-7,6 or less	-5/-5,6	-3/-3,7	0/-0,7	3/2,2	5/4,1	7/6
Integrated correction factor for frost accumulation C							
8HP	0,95	0,93	0,88	0,84	0,85	0,90	1,00
10HP	0,95	0,93	0,87	0,79	0,80	0,88	1,00
12HP	0,95	0,92	0,87	0,75	0,76	0,85	1,00
14HP	0,95	0,92	0,86	0,72	0,73	0,84	1,00
16HP	0,95	0,92	0,86	0,72	0,72	0,83	1,00
18HP	0,95	0,93	0,88	0,84	0,85	0,90	1,00
20HP	0,95	0,93	0,88	0,84	0,85	0,90	1,00
22HP	0,95	0,92	0,87	0,77	0,78	0,86	1,00
24HP	0,95	0,92	0,87	0,75	0,76	0,85	1,00
26HP	0,95	0,92	0,86	0,73	0,74	0,84	1,00
28HP	0,95	0,92	0,86	0,73	0,74	0,84	1,00
30HP	0,95	0,93	0,87	0,80	0,81	0,88	1,00
32HP	0,95	0,92	0,86	0,71	0,72	0,83	1,00
34HP	0,95	0,92	0,87	0,78	0,79	0,87	1,00
36HP	0,95	0,92	0,87	0,78	0,79	0,87	1,00
38HP	0,95	0,93	0,88	0,83	0,84	0,89	1,00
40HP	0,95	0,93	0,87	0,80	0,81	0,88	1,00
42HP	0,95	0,92	0,86	0,73	0,74	0,84	1,00
44HP	0,95	0,92	0,86	0,72	0,73	0,84	1,00
46HP	0,95	0,92	0,86	0,72	0,72	0,83	1,00
48HP	0,95	0,92	0,86	0,71	0,72	0,83	1,00
50HP	0,95	0,92	0,87	0,76	0,77	0,86	1,00
52HP	0,95	0,93	0,87	0,80	0,81	0,88	1,00
54HP	0,95	0,93	0,88	0,84	0,85	0,90	1,00

Notes

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

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.

The multi-combination data 22~54HP corresponds with the standard multi-combination of drawing 3D079534.

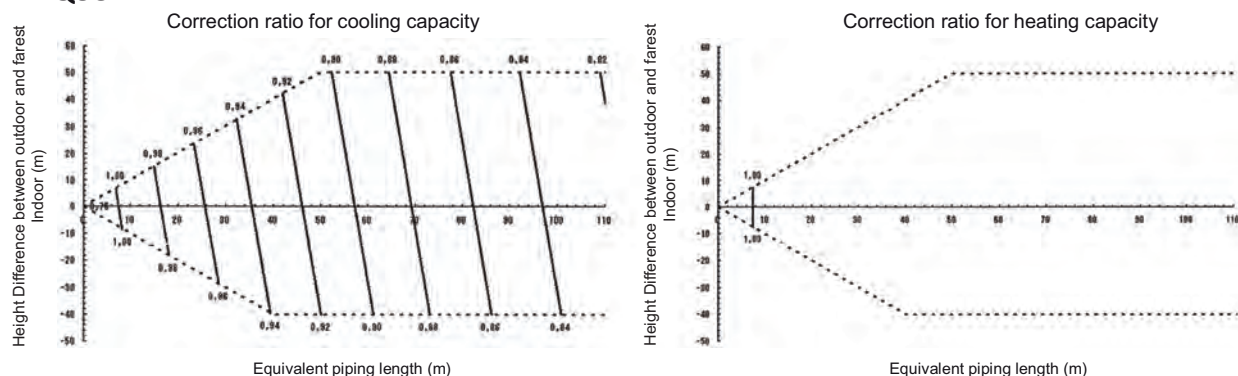


3D079898A

5 Capacity tables

5 - 2 Capacity Correction Factor

RXYQQ8U
RXYQ8U
RYYQ8U
RYMQ8U



NOTES

- These figures illustrate the correction ratio for piping length in capacity 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, shown in the above figures.

- With this outdoor unit, constant evaporating pressure control when cooling and constant condensing pressure control when heating is carried out.

- 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 smaller.

Condition: Indoor connection ratio does not exceed 100%.

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

Condition: Indoor connection ratio exceeds 100%.

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

- When level difference is 50 m or more (see installation manual and 3D079540 / 3D079543) and equivalent pipe length is 90 m or more, the diameter of the main gas and liquid pipes (outdoor unit - branch sections) must be increased.

For new diameters, see below.

Model	Gas	Liquid
8HP	22.2	12.7

- When the pipe length after the first refrigerant branch kit is more than 40 m, pipe size between first and final branch kit must be increased (only for VRV DX indoor units; details see installation manual).

*Refer to the installation manual for allowed system setups and rules for dedicated indoor connection types.

Diameter of main pipes (standard size)

Model	Gas	Liquid
8HP	19.1	9.5

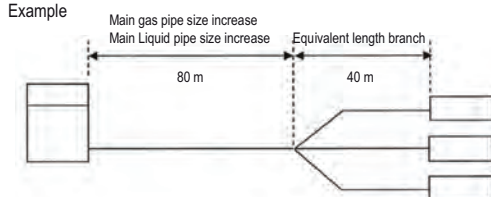
- Equivalent length used in the above figures is based upon the following equivalent length

$$\begin{aligned} \text{Equivalent piping length} &= \\ \text{Equivalent length of main pipe} &\times \text{Correction factor} \\ + \\ \text{Equivalent length of branch pipes} \end{aligned}$$

Choose the correction factor from the following table. When cooling capacity is calculated: gas pipe size When heating capacity is calculated: liquid pipe size

	Correction factor	
	Standard size	Size increase
Cooling (gas pipe)	1.0	0.5
Heating (liquid pipe)	1.0	0.5

Example



In the above case (Cooling) Overall equivalent length = 80 m x 0.5 + 40 m = 80 m

(Heating) Overall equivalent length = 80 m x 0.5 + 40 m = 80 m

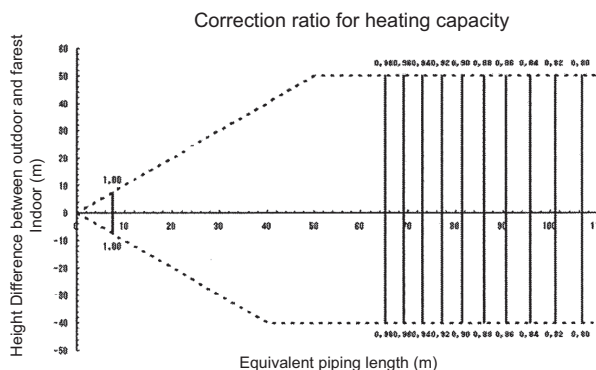
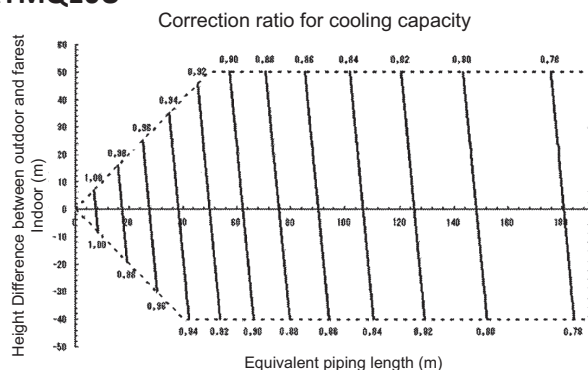
The rate of change in cooling capacity when height difference = 0 is thus approximately 0.86
heating capacity when height difference = 0 is thus approximately 1.0

3D079897A

5 Capacity tables

5 - 2 Capacity Correction Factor

RXYQQ10U
RXYQ10U
RYYQ10U
RYMQ10U



NOTES

- These figures illustrate the correction ratio for piping length in capacity 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, shown in the above figures.

- With this outdoor unit, constant evaporating pressure control when cooling and constant condensing pressure control when heating is carried out.

- 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 smaller.

Condition: Indoor connection ratio does not exceed 100%.

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

Condition: Indoor connection ratio exceeds 100%.

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

- When level difference is 50 m or more (see installation manual and 3D079540 / 3D079543) and equivalent pipe length is 90 m or more, the diameter of the main gas and liquid pipes (outdoor unit - branch sections) must be increased. For new diameters, see below.

Model	Gas	Liquid
RXYQ10P	25.4*	12.7

*If not available on site, do not increase. If not increased correction factor should be applied to the equivalent length (see note 6).

- When the pipe length after the first refrigerant branch kit is more than 40 m, pipe size between first and final branch kit must be increased (only for VRV DX indoor units; details see installation manual).

*Refer to the installation manual for allowed system setups and rules for dedicated indoor connection types.

Diameter of main pipes (standard size)

Model	Gas	Liquid
10 HP	22.2	9.5

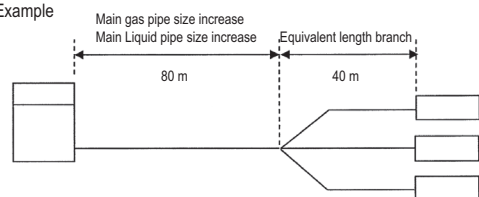
- Equivalent length used in the above figures is based upon the following equivalent length

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

Choose the correction factor from the following table. When cooling capacity is calculated: gas pipe size When heating capacity is calculated: liquid pipe size

	Correction factor	
	Standard size	Size increase
Cooling (gas pipe)	1.0	0.5
Heating (liquid pipe)	1.0	0.5

Example



In the above case (Cooling) Overall equivalent length = $80 \text{ m} \times 0.5 + 40 \text{ m} = 80 \text{ m}$
(Heating) Overall equivalent length = $80 \text{ m} \times 0.5 + 40 \text{ m} = 80 \text{ m}$
The rate of change in cooling capacity when height difference = 0 is thus approximately 0.87
heating capacity when height difference = 0 is thus approximately 0.90

3D079897A

5 Capacity tables

5 - 2 Capacity Correction Factor

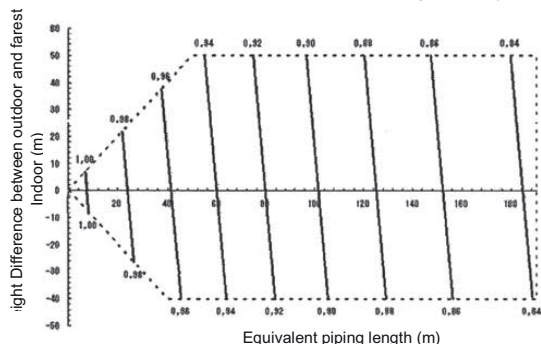
RXYQQ12,14,16,24,36U

RXYQ12,14,24,36U

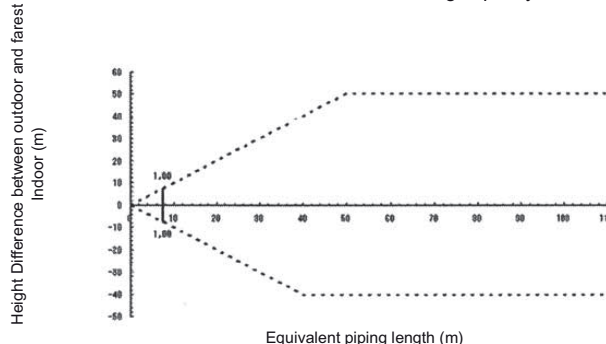
RYYQ12,14,24,36U

RYMQ12,14U

Correction ratio for cooling capacity



Correction ratio for heating capacity



NOTES

- These figures illustrate the correction ratio for piping length in capacity 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, shown in the above figures.
- With this outdoor unit, constant evaporating pressure control when cooling and constant condensing pressure control when heating is carried out.
- 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 smaller.

Condition: Indoor connection ratio does not exceed 100%.

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

Condition: Indoor connection ratio exceeds 100%.

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

- When level difference is 50 m or more (see installation manual and 3D079540 / 3D079543) and equivalent pipe length is 90 m or more, the diameter of the main gas and liquid pipes (outdoor unit - branch sections) must be increased. For new diameters, see below.

Model	Gas	Liquid
12 HP	28.6	15.9
14 HP	28.6	15.9
24 HP	34.9	19.1
36 HP	41.3	22.2

- When the pipe length after the first refrigerant branch kit is more than 40 m, pipe size between first and final branch kit must be increased (only for VRV DX indoor units; details see installation manual).
*Refer to the installation manual for allowed system setups and rules for dedicated indoor connection types.

Diameter of main pipes (standard size)

Model	Gas	Liquid
12 HP	28.6	12.7
14 HP	28.6	12.7
24 HP	34.9	15.9
36 HP	41.3	19.1

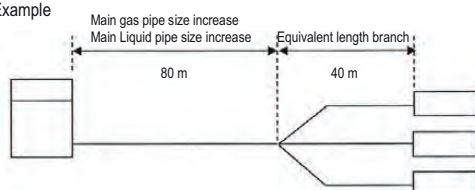
- Equivalent length used in the above figures is based upon the following equivalent length

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

Choose a correction factor from the following table. When cooling capacity is calculated: gas pipe size When heating capacity is calculated: liquid pipe size

	Correction factor	
	Standard size	Size increase
Cooling (gas pipe)	1.0	1.0
Heating (liquid pipe)	1.0	0.5

Example



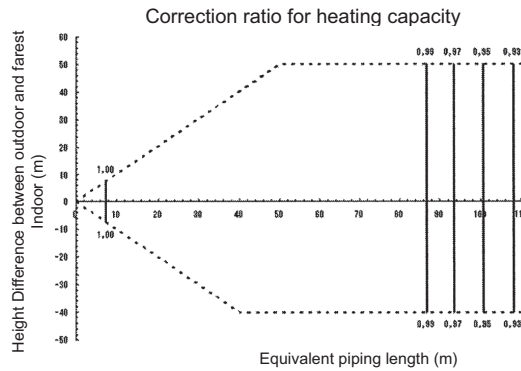
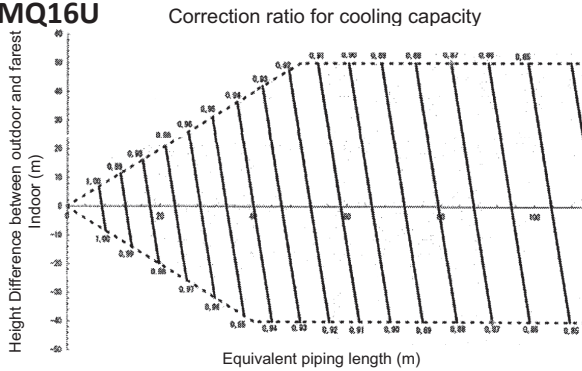
In the above case (Cooling) Overall equivalent length = 80 m x 1.0 + 40 m = 120 m
(Heating) Overall equivalent length = 80 m x 0.5 + 40 m = 80 m
The rate of change in cooling capacity when height difference = 0 is thus approximately 0.89
heating capacity when height difference = 0 is thus approximately 1.0

3D079897A

5 Capacity tables

5 - 2 Capacity Correction Factor

RXYQQ16U
RXYQ16U
RYYQ16U
RYMQ16U



NOTES

- These figures illustrate the correction ratio for piping length in capacity 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, shown in the above figures.
- With this outdoor unit, constant evaporating pressure control when cooling and constant condensing pressure control when heating is carried out.
- 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 smaller.

Condition: Indoor connection ratio does not exceed 100%.

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

Condition: Indoor connection ratio exceeds 100%.

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

- When level difference is 50 m or more (see installation manual and 3D079540 / 3D079543) and equivalent pipe length is 90 m or more, the diameter of the main gas and liquid pipes (outdoor unit - branch sections) must be increased. For new diameters, see below.

Model	Gas	Liquid
16 HP	31.8"	15.9

*If not available on site, do not increase. If not increased correction factor should be applied to the equivalent length (see note 6).

- When the pipe length after the first refrigerant branch kit is more than 40 m, pipe size between first and final branch kit must be increased (only for VRV DX indoor units; details see installation manual).

*Refer to the installation manual for allowed system setups and rules for dedicated indoor connection types.

Diameter of main pipes (standard size)

Model	Gas	Liquid
16 HP	28.6	12.7

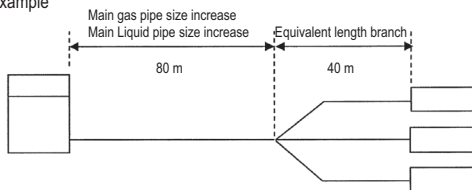
- Equivalent length used in the above figures is based upon the following equivalent length

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

Choose a correction factor from the following table. When cooling capacity is calculated: gas pipe size When heating capacity is calculated: liquid pipe size

	Correction factor	
	Standard size	Size increase
Cooling (gas pipe)	1.0	0.5
Heating (liquid pipe)	1.0	0.5

Example



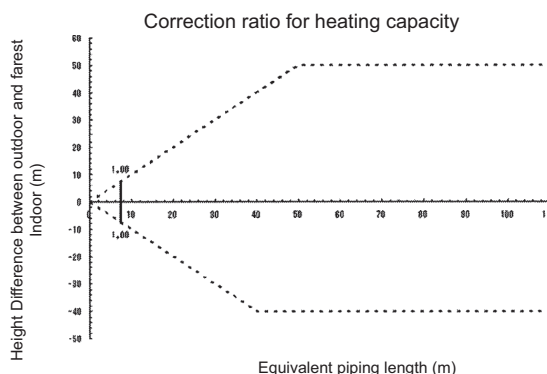
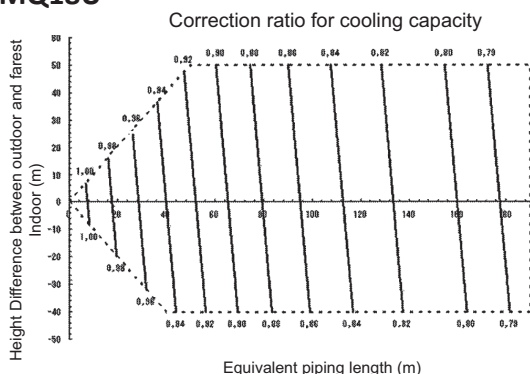
In the above case (Cooling) Overall equivalent length = $80 \text{ m} \times 1.0 + 40 \text{ m} = 80 \text{ m}$
(Heating) Overall equivalent length = $80 \text{ m} \times 0.5 + 40 \text{ m} = 80 \text{ m}$
The rate of change in cooling capacity when height difference = 0 is thus approximately 0.88
heating capacity when height difference = 0 is thus approximately 0.99

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5 Capacity tables

5 - 2 Capacity Correction Factor

RXYQQ18,26,28,30,38,42,44U
 RXYQ18,26,28,30,38,42,44U
 RYYQ18,26,28,30,38,42,44U
 RYMQ18U



NOTES

- These figures illustrate the correction ratio for piping length in capacity 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, shown in the above figures.

- With this outdoor unit, constant evaporating pressure control when cooling and constant condensing pressure control when heating is carried out.

- 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 smaller.

Condition: Indoor connection ratio does not exceed 100%.

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

Condition: Indoor connection ratio exceeds 100%.

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

- When level difference is 50 m or more (see installation manual and 3D079540 / 3D079543) and equivalent pipe length is 90 m or more, the diameter of the main gas and liquid pipes (outdoor unit - branch sections) must be increased. For new diameters, see below.

Model	Gas	Liquid
18 HP	31.8*	19.1
26~30 HP	38.1*	22.2
38~44 HP	41.3	22.2

*If not available on site, do not increase. If not increased correction factor should be applied to the equivalent length (see note 6).

- When the pipe length after the first refrigerant branch kit is more than 40 m, pipe size between first and final branch kit must be increased (only for VRV DX indoor units; details see installation manual).

*Refer to the installation manual for allowed system setups and rules for dedicated indoor connection types.

Diameter of main pipes (standard size)

Model	Gas	Liquid
18 HP	28.6	15.9
26~30 HP	34.9	19.1
38~44 HP	41.3	19.1

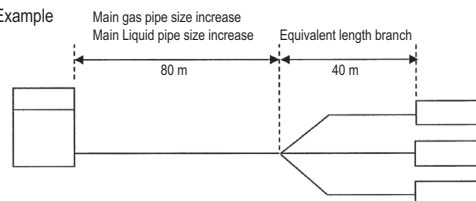
- Equivalent length used in the above figures is based upon the following equivalent length

$$\begin{aligned} \text{Equivalent piping length} &= \\ \text{Equivalent length of main pipe} &\times \text{Correction factor} \\ + \\ \text{Equivalent length of branch pipes} \end{aligned}$$

Choose the correction factor from the following table. When cooling capacity is calculated: gas pipe size When heating capacity is calculated: liquid pipe size

	Correction factor	
	Standard size	Size increase
Cooling (gas pipe)	1.0	0.5
Heating (liquid pipe)	1.0	0.5

Example



In the above case (for RXYQ38-44) (Cooling) Overall equivalent length = 80 m x 1.0 + 40 m = 120 m

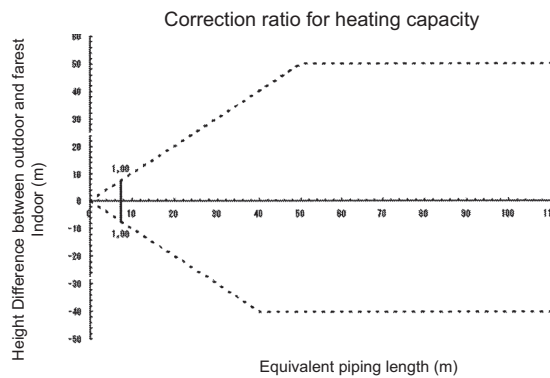
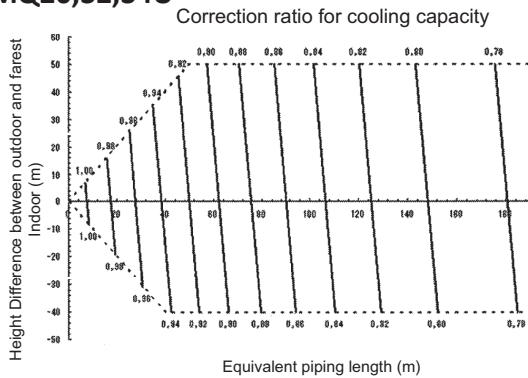
(Heating) Overall equivalent length = 80 m x 0.5 + 40 m = 80 m
 cooling capacity when height difference = 0 is thus approximately 0.83
 heating capacity when height difference = 0 is thus approximately 1.0

3D079897A

5 Capacity tables

5 - 2 Capacity Correction Factor

RXYQQ20,32,34U
RXYQ20,32,34U
RYYQ20,32,34U
RYMQ20,32,34U



NOTES

- These figures illustrate the correction ratio for piping length in capacity 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, shown in the above figures.
- With this outdoor unit, constant evaporating pressure control when cooling and constant condensing pressure control when heating is carried out.
- 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 smaller.

Condition: Indoor connection ratio does not exceed 100%.

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

Condition: Indoor connection ratio exceeds 100%.

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

- When level difference is 50 m or more (see installation manual and 3D079540 / 3D079543) and equivalent pipe length is 90 m or more, the diameter of the main gas and liquid pipes (outdoor unit - branch sections) must be increased.
For new diameters, see below.

Model	Gas	Liquid
20 HP	31.8*	19.1
32/34 HP	38.1*	22.2

*If not available on site, do not increase. If not increased correction factor should be applied to the equivalent length (see note 6).

- When the pipe length after the first refrigerant branch kit is more than 40 m, pipe size between first and final branch kit must be increased (only for VRV DX indoor units; details see installation manual).
*Refer to the installation manual for allowed system setups and rules for dedicated indoor connection types.

Diameter of main pipes (standard size)

Model	Gas	Liquid
20 HP	28.6	15.9
32/34 HP	34.9	19.1

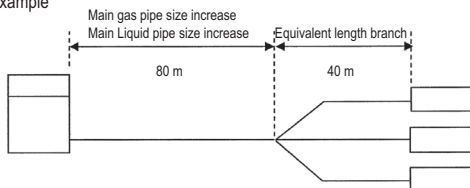
- Equivalent length used in the above figures is based upon the following equivalent length

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

Choose a correction factor from the following table. When cooling capacity is calculated: gas pipe size When heating capacity is calculated: liquid pipe size

	Correction factor	
	Standard size	Size increase
Cooling (gas pipe)	1.0	0.5
Heating (liquid pipe)	1.0	0.5

Example



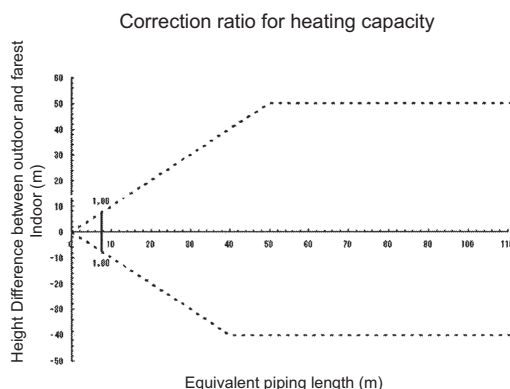
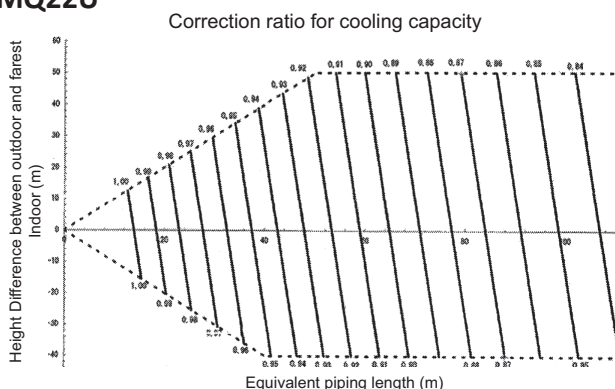
In the above case (Cooling) Overall equivalent length = 80 m x 0.5 + 40 m = 80 m
(Heating) Overall equivalent length = 80 m x 0.5 + 40 m = 80 m
The rate of change in cooling capacity when height difference = 0 is thus approximately 0.88
heating capacity when height difference = 0 is thus approximately 1.0

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5 Capacity tables

5 - 2 Capacity Correction Factor

RXYQQ22U
RXYQ22U
RYYQ22U
RYMQ22U



NOTES

- These figures illustrate the correction ratio for piping length in capacity 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, shown in the above figures.

- With this outdoor unit, constant evaporating pressure control when cooling and constant condensing pressure control when heating is carried out.

- 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 smaller.

Condition: Indoor connection ratio does not exceed 100%.

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

Condition: Indoor connection ratio exceeds 100%.

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

- When level difference is 50 m or more (see installation manual and 3D079540 / 3D079543) and equivalent pipe length is 90 m or more, the diameter of the main gas and liquid pipes (outdoor unit - branch sections) must be increased. For new diameters, see below.

Model	Gas	Liquid
22 HP	31.8*	19.1

* If not available on site, do not increase, if not increased, no correction factor should be applied to the equivalent length (see note 6).

- When the pipe length after the first refrigerant branch kit is more than 40 m, pipe size between first and final branch kit must be increased (only for VRV DX indoor units; details see installation manual).

*Refer to the installation manual for allowed system setups and rules for dedicated indoor connection types.

Diameter of main pipes (standard size)

Model	Gas	Liquid
22 HP	28.6	15.9

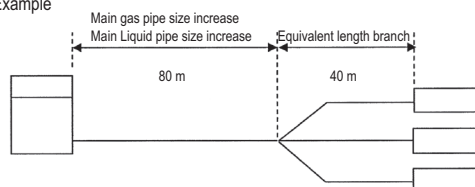
- Equivalent length used in the above figures is based upon the following equivalent length

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

Choose a correction factor from the following table. When cooling capacity is calculated: gas pipe size When heating capacity is calculated: liquid pipe size

	Correction factor	
	Standard size	Size increase
Cooling (gas pipe)	1.0	0.5
Heating (liquid pipe)	1.0	0.5

Example



In the above case (Cooling) Overall equivalent length = 80 m x 0.5 + 40 m = 80 m

(Heating) Overall equivalent length = 80 m x 0.5 + 40 m = 80 m

The rate of change in cooling capacity when height difference = 0 is thus approximately 0.88
heating capacity when height difference = 0 is thus approximately 1.0

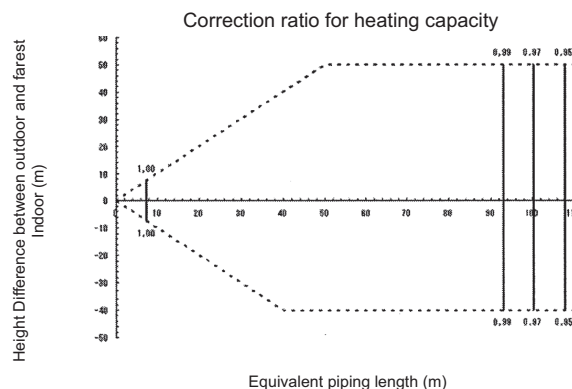
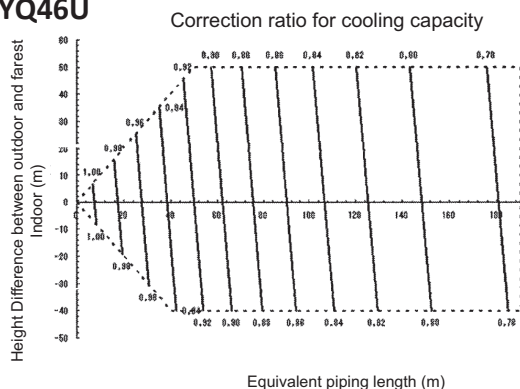
3D079897A

5 Capacity tables

5 - 2 Capacity Correction Factor

RYYQ46U

RXYQ46U



NOTES

- These figures illustrate the correction ratio for piping length in capacity 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, shown in the above figures.

- With this outdoor unit, constant evaporating pressure control when cooling and constant condensing pressure control when heating is carried out.

- 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 smaller.

Condition: Indoor connection ratio does not exceed 100%.

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

Condition: Indoor connection ratio exceeds 100%.

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

- When level difference is 50 m or more (see installation manual and 3D079540 / 3D079543) and equivalent pipe length is 90 m or more, the diameter of the main gas and liquid pipes (outdoor unit - branch sections) must be increased. For new diameters, see below.

Model	Gas	Liquid
46 HP	41.3	22.2

- When the pipe length after the first refrigerant branch kit is more than 40 m, pipe size between first and final branch kit must be increased (only for VRV DX indoor units; details see installation manual).

*Refer to the installation manual for allowed system setups and rules for dedicated indoor connection types.

Diameter of main pipes (standard size)

Model	Gas	Liquid
46 HP	41.3	19.1

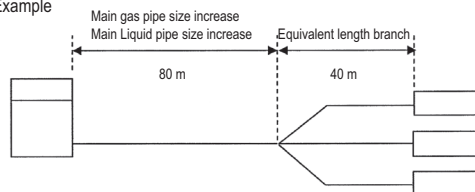
- Equivalent length used in the above figures is based upon the following equivalent length

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

Choose a correction factor from the following table. When cooling capacity is calculated: gas pipe size When heating capacity is calculated: liquid pipe size

	Correction factor	
	Standard size	Size increase
Cooling (gas pipe)	1.0	0.5
Heating (liquid pipe)	1.0	0.5

Example



In the above case (Cooling) Overall equivalent length = 80 m x 1.0 + 40 m = 120 m

(Heating) Overall equivalent length = 80 m x 0.5 + 40 m = 80 m

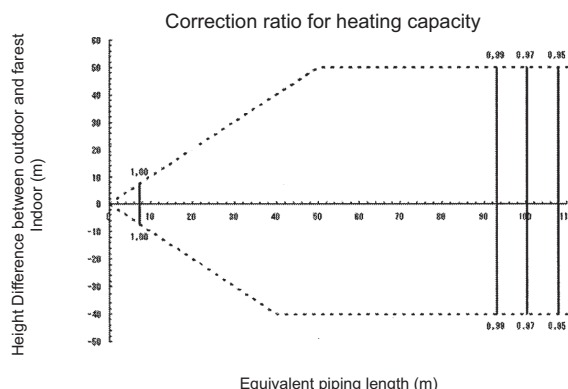
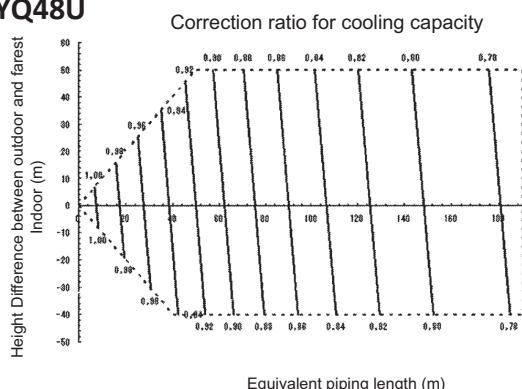
The rate of change in cooling capacity when height difference = 0 is thus approximately 0.83
heating capacity when height difference = 0 is thus approximately 1.0

3D079897A

5 Capacity tables

5 - 2 Capacity Correction Factor

RYYQ48U RXYQQ48U RXYQ48U



NOTES

- These figures illustrate the correction ratio for piping length in capacity 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, shown in the above figures.

- With this outdoor unit, constant evaporating pressure control when cooling and constant condensing pressure control when heating is carried out.

- 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 smaller.

Condition: Indoor connection ratio does not exceed 100%.

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

Condition: Indoor connection ratio exceeds 100%.

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

- When level difference is 50 m or more (see installation manual and 3D079540 / 3D079543) and equivalent pipe length is 90 m or more, the diameter of the main gas and liquid pipes (outdoor unit - branch sections) must be increased. For new diameters, see below.

Model	Gas	Liquid
48 HP	41.3	22.2

- When the pipe length after the first refrigerant branch kit is more than 40 m, pipe size between first and final branch kit must be increased (only for VRV DX indoor units; details see installation manual).

*Refer to the installation manual for allowed system setups and rules for dedicated indoor connection types.

Diameter of main pipes (standard size)

Model	Gas	Liquid
48 HP	41.3	19.1

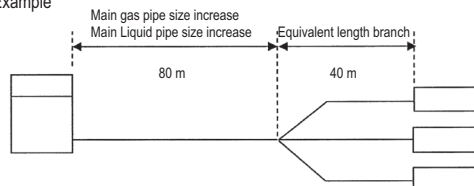
- Equivalent length used in the above figures is based upon the following equivalent length

$$\begin{aligned} \text{Equivalent piping length} &= \\ \text{Equivalent length of main pipe} &\times \text{Correction factor} \\ + \\ \text{Equivalent length of branch pipes} \end{aligned}$$

Choose a correction factor from the following table. When cooling capacity is calculated: gas pipe size When heating capacity is calculated: liquid pipe size

	Correction factor	
	Standard size	Size increase
Cooling (gas pipe)	1.0	
Heating (liquid pipe)	1.0	0.5

Example



In the above case (Cooling) Overall equivalent length = 80 m x 1.0 + 40 m = 120 m

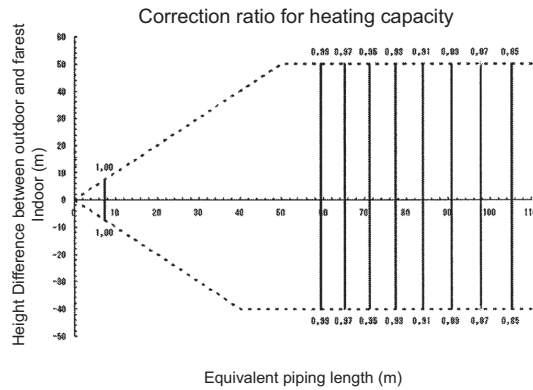
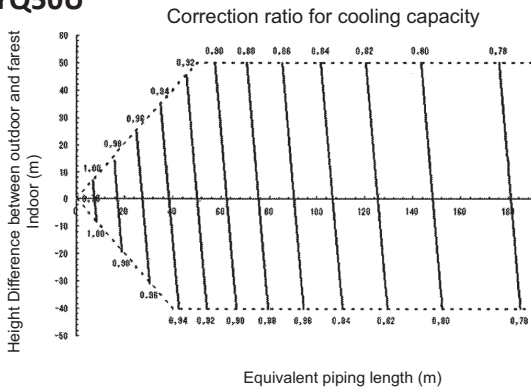
(Heating) Overall equivalent length = 80 m x 0.5 + 40 m = 80 m

The rate of change in cooling capacity when height difference = 0 is thus approximately 0.83
heating capacity when height difference = 0 is thus approximately 0.97

5 Capacity tables

5 - 2 Capacity Correction Factor

RYYQ50U
RXYQ50U
RXYQ50U



NOTES

- These figures illustrate the correction ratio for piping length in capacity 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, shown in the above figures.
- With this outdoor unit, constant evaporating pressure control when cooling and constant condensing pressure control when heating is carried out.
- 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 smaller.

Condition: Indoor connection ratio does not exceed 100%.

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

Condition: Indoor connection ratio exceeds 100%.

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

- When level difference is 50 m or more (see installation manual and 3D079540 / 3D079543) and equivalent pipe length is 90 m or more, the diameter of the main gas and liquid pipes (outdoor unit - branch sections) must be increased. For new diameters, see below.

Model	Gas	Liquid
50 HP	41.3	22.2

- When the pipe length after the first refrigerant branch kit is more than 40 m, pipe size between first and final branch kit must be increased (only for VRV DX indoor units; details see installation manual).

*Refer to the installation manual for allowed system setups and rules for dedicated indoor connection types.

Diameter of main pipes (standard size)

Model	Gas	Liquid
50 HP	41.3	19.1

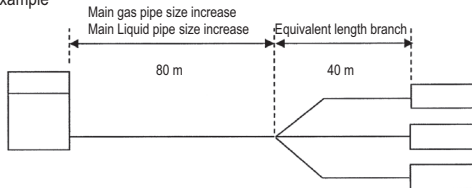
- Equivalent length used in the above figures is based upon the following equivalent length

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

Choose a correction factor from the following table. When cooling capacity is calculated: gas pipe size When heating capacity is calculated: liquid pipe size

	Correction factor	
	Standard size	Size increase
Cooling (gas pipe)	1.0	1.0
Heating (liquid pipe)	1.0	0.5

Example



In the above case (Cooling) Overall equivalent length = 80 m x 1.0 + 40 m = 120 m
(Heating) Overall equivalent length = 80 m x 0.5 + 40 m = 80 m

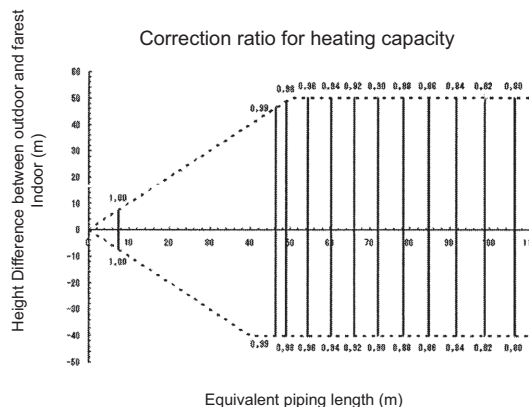
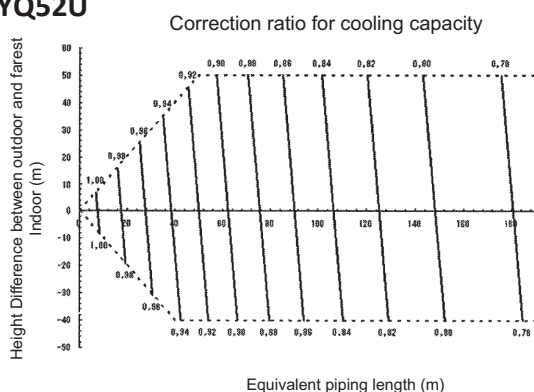
The rate of change in cooling capacity when height difference = 0 is thus approximately 0.83
heating capacity when height difference = 0 is thus approximately 0.92

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5 Capacity tables

5 - 2 Capacity Correction Factor

RYYQ52U RXYQQ52U RXYQ52U



NOTES

- These figures illustrate the correction ratio for piping length in capacity 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, shown in the above figures.

- With this outdoor unit, constant evaporating pressure control when cooling and constant condensing pressure control when heating is carried out.

- 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 smaller.

Condition: Indoor connection ratio does not exceed 100%.

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

Condition: Indoor connection ratio exceeds 100%.

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

- When level difference is 50 m or more (see installation manual and 3D079540 / 3D079543) and equivalent pipe length is 90 m or more, the diameter of the main gas and liquid pipes (outdoor unit - branch sections) must be increased. For new diameters, see below.

Model	Gas	Liquid
52 HP	41.3	22.2

- When the pipe length after the first refrigerant branch kit is more than 40 m, pipe size between first and final branch kit must be increased (only for VRV DX indoor units; details see installation manual).

*Refer to the installation manual for allowed system setups and rules for dedicated indoor connection types.

Diameter of main pipes (standard size)

Model	Gas	Liquid
52 HP	41.3	19.1

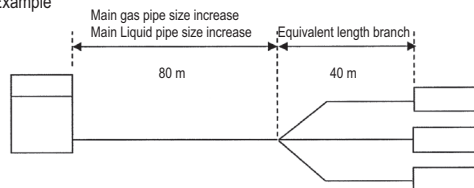
- Equivalent length used in the above figures is based upon the following equivalent length

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

Choose a correction factor from the following table. When cooling capacity is calculated: gas pipe size When heating capacity is calculated: liquid pipe size

	Correction factor	
	Standard size	Size increase
Cooling (gas pipe)	1.0	0.5
Heating (liquid pipe)	1.0	0.5

Example



In the above case (Cooling) Overall equivalent length = 80 m x 1.0 + 40 m = 120 m

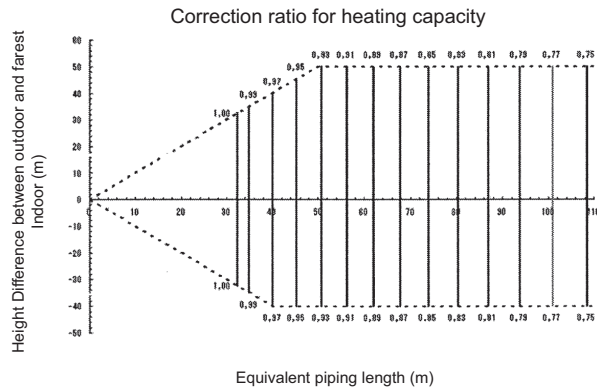
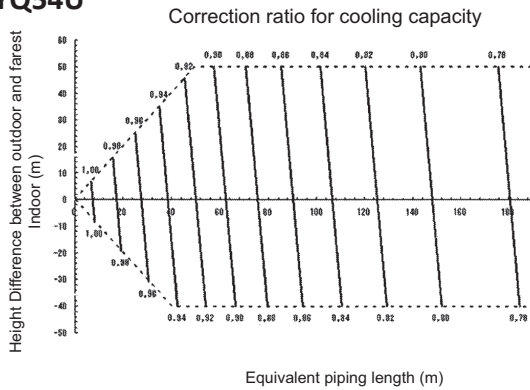
(Heating) Overall equivalent length = 80 m x 0.5 + 40 m = 80 m

The rate of change in cooling capacity when height difference = 0 is thus approximately 0.83 heating capacity when height difference = 0 is thus approximately 0.88

5 Capacity tables

5 - 2 Capacity Correction Factor

RYYQ54U RXYQQ54U RXYQ54U



NOTES

- These figures illustrate the correction ratio for piping length in capacity 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, shown in the above figures.
- With this outdoor unit, constant evaporating pressure control when cooling and constant condensing pressure control when heating is carried out.
- 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 smaller.

Condition: Indoor connection ratio does not exceed 100%.

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

Condition: Indoor connection ratio exceeds 100%.

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

- When level difference is 50 m or more (see installation manual and 3D079540 / 3D079543) and equivalent pipe length is 90 m or more, the diameter of the main gas and liquid pipes (outdoor unit - branch sections) must be increased.
For new diameters, see below.

Model	Gas	Liquid
54 HP	41.3	22.2

- When the pipe length after the first refrigerant branch kit is more than 40 m, pipe size between first and final branch kit must be increased (only for VRV DX indoor units; details see installation manual).
*Refer to the installation manual for allowed system setups and rules for dedicated indoor connection types.

Diameter of main pipes (standard size)

Model	Gas	Liquid
54 HP	41.3	19.1

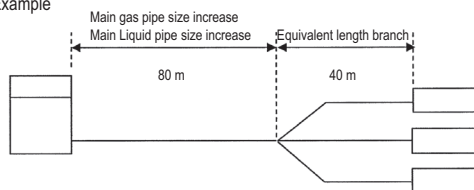
- Equivalent length used in the above figures is based upon the following equivalent length

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

Choose a correction factor from the following table. When cooling capacity is calculated: gas pipe size When heating capacity is calculated: liquid pipe size

	Correction factor	
	Standard size	Size increase
Cooling (gas pipe)	1.0	0.5
Heating (liquid pipe)	1.0	

Example



In the above case (Cooling) Overall equivalent length = 80 m x 1.0 + 40 m = 120 m
(Heating) Overall equivalent length = 80 m x 0.5 + 40 m = 80 m

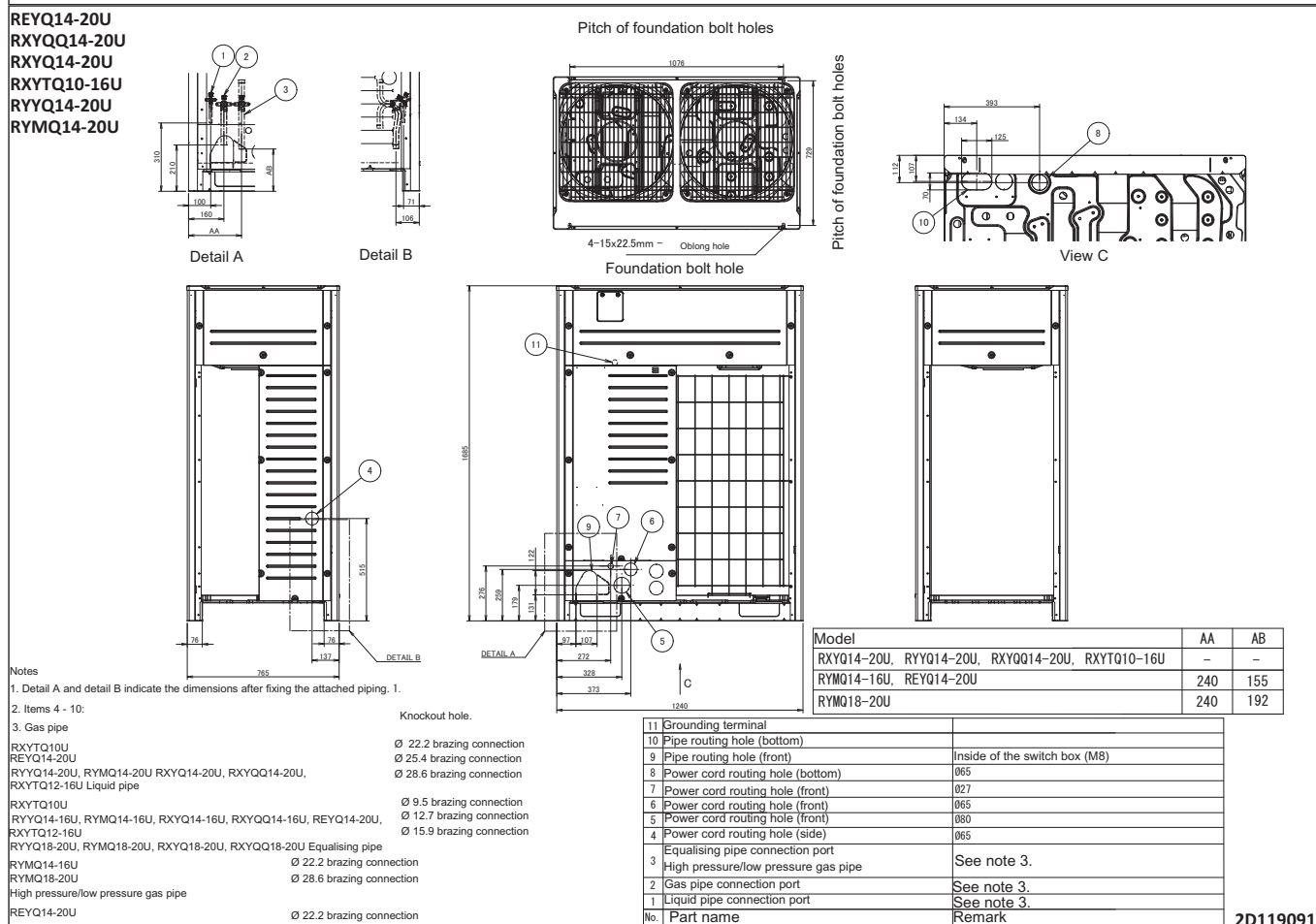
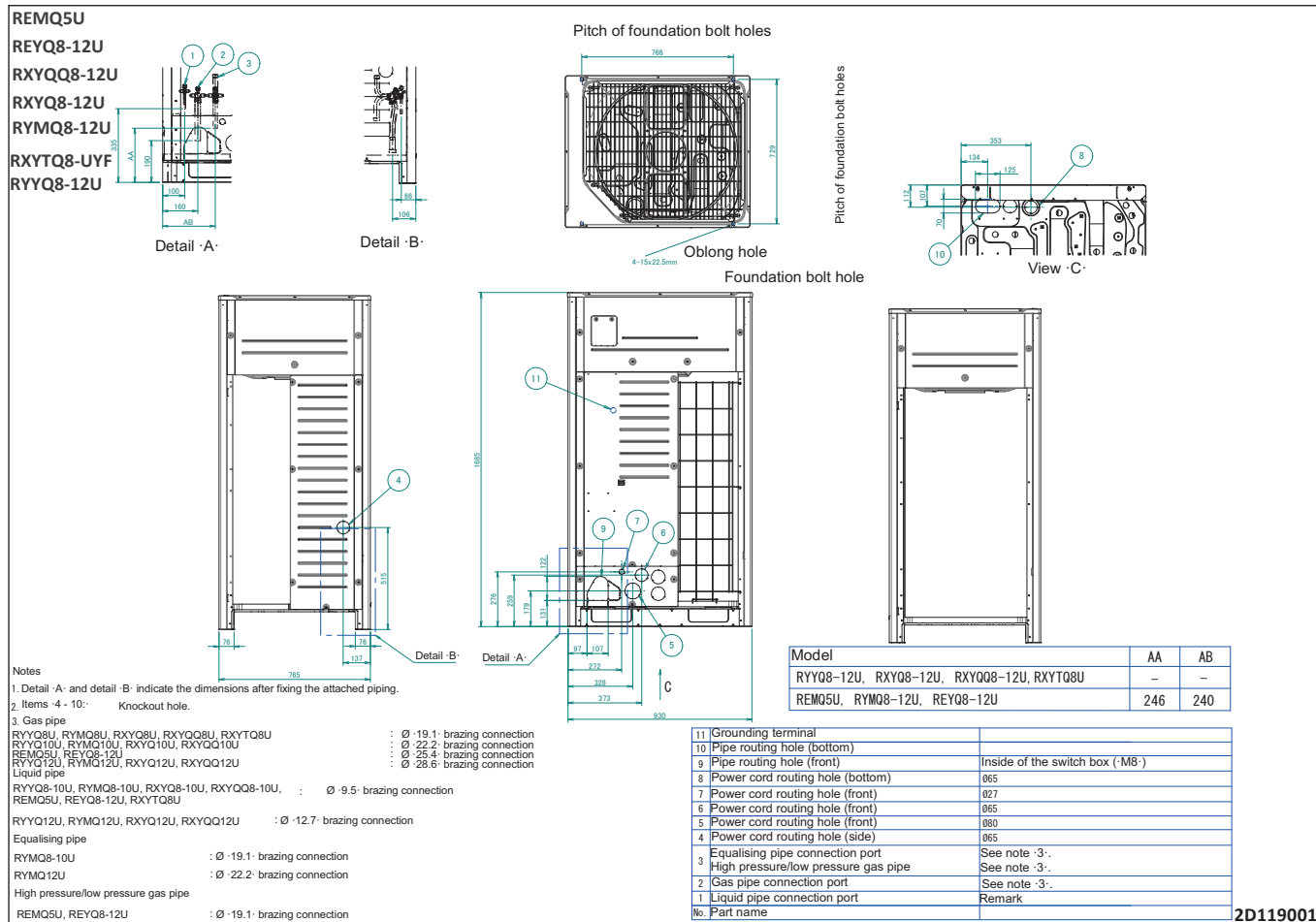
The rate of change in cooling capacity when height difference = 0 is thus approximately 0.83
heating capacity when height difference = 0 is thus approximately 0.83

3D079897A

6 Dimensional drawings

6 - 1 Dimensional Drawings

6

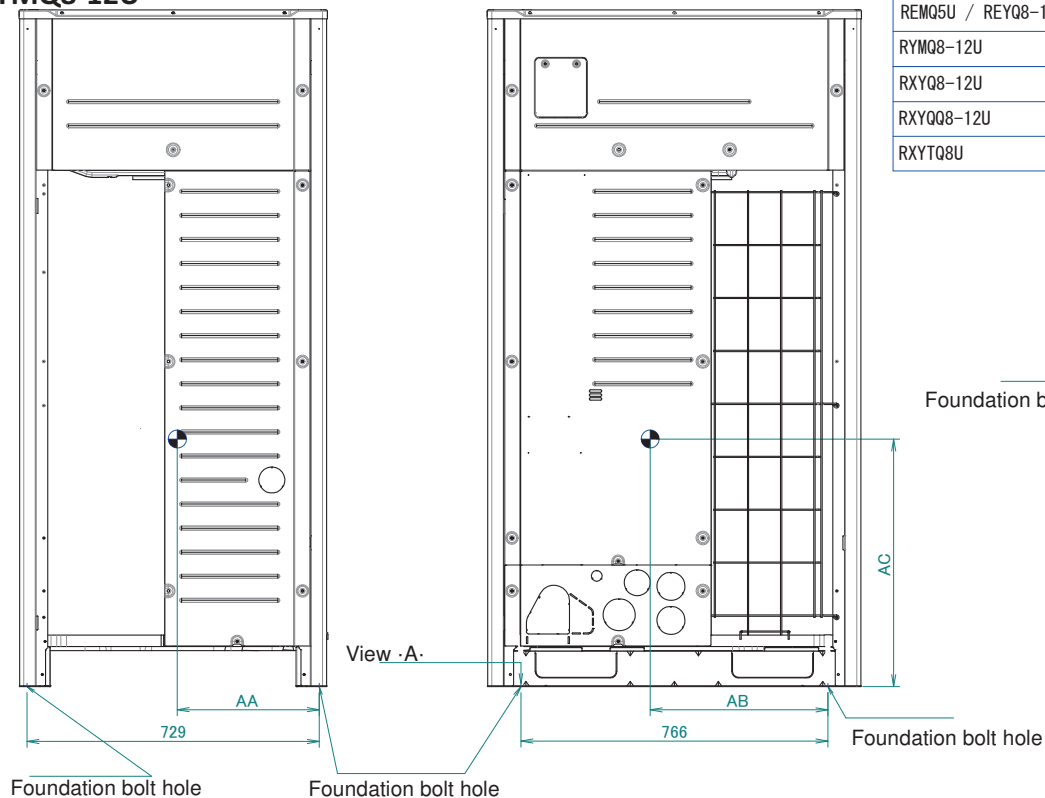


7 Centre of gravity

7 - 1 Centre of Gravity

RXYQQ8-12U
RXYQ8-12U
RXYTQ8U
RYYQ8-12U
RYMQ8-12U

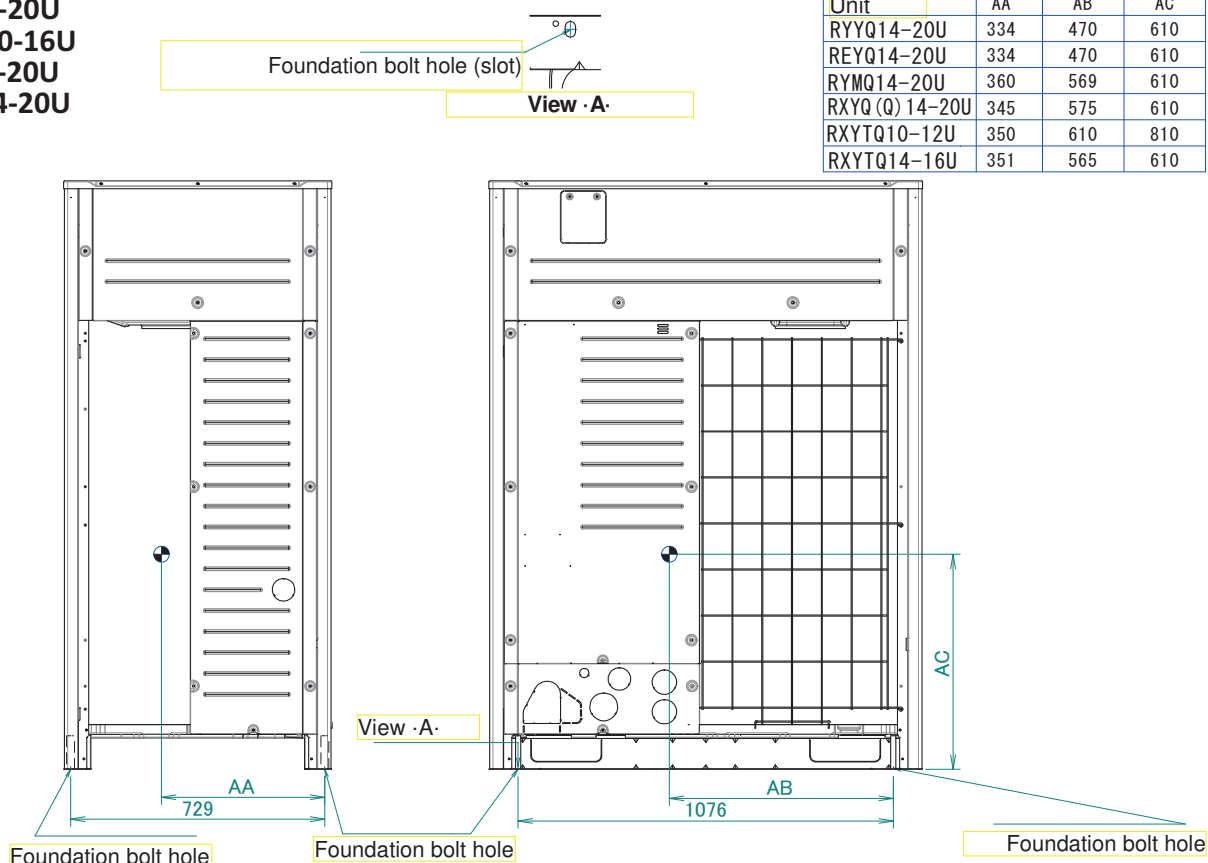
Unit	AA	AB	AC
RYYQ8-12U	328	366	565
REMQ5U / REYQ8-12U			
RYMQ8-12U	354	443	565
RXYQ8-12U	339	448	565
RXYQQ8-12U			
RXYTQ8U			



3D119703

RXYQQ14-20U
RXYQ14-20U
RXYTQ10-16U
RYYQ14-20U
RYMQ14-20U

Unit	AA	AB	AC
RYYQ14-20U	334	470	610
REYQ14-20U	334	470	610
RYMQ14-20U	360	569	610
RXYQ (Q) 14-20U	345	575	610
RXYTQ10-12U	350	610	810
RXYTQ14-16U	351	565	610



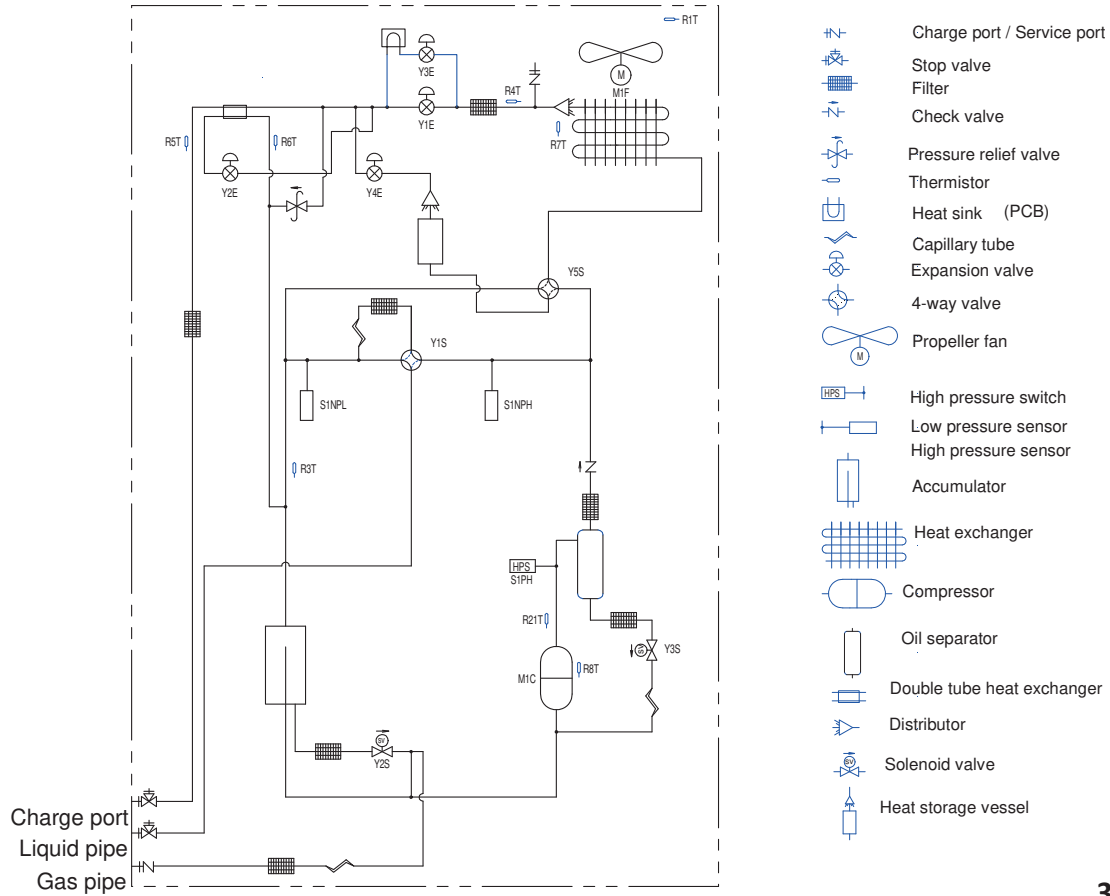
3D119704

8 Piping diagrams

8 - 1 Piping Diagrams

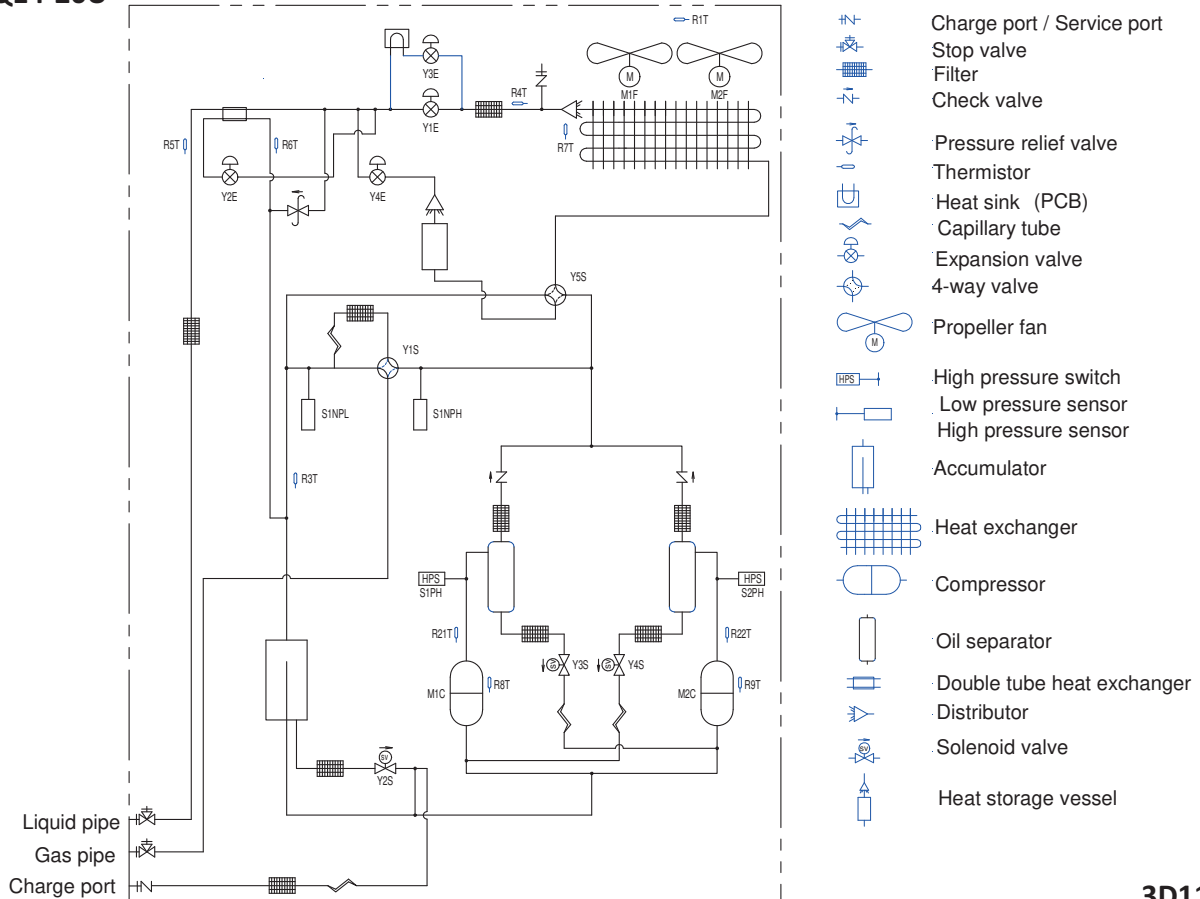
8

RYYQ8-12U



3D118183

RYYQ14-20U

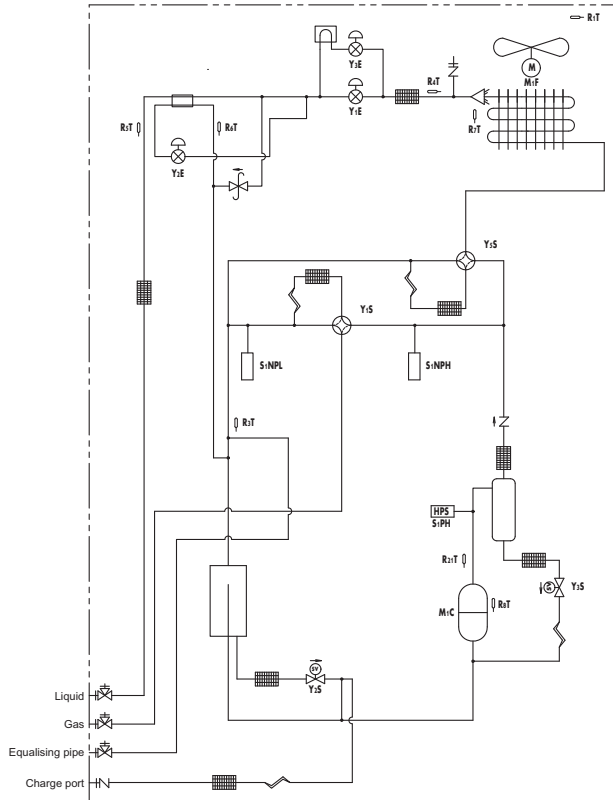


3D118184

8 Piping diagrams

8 - 1 Piping Diagrams

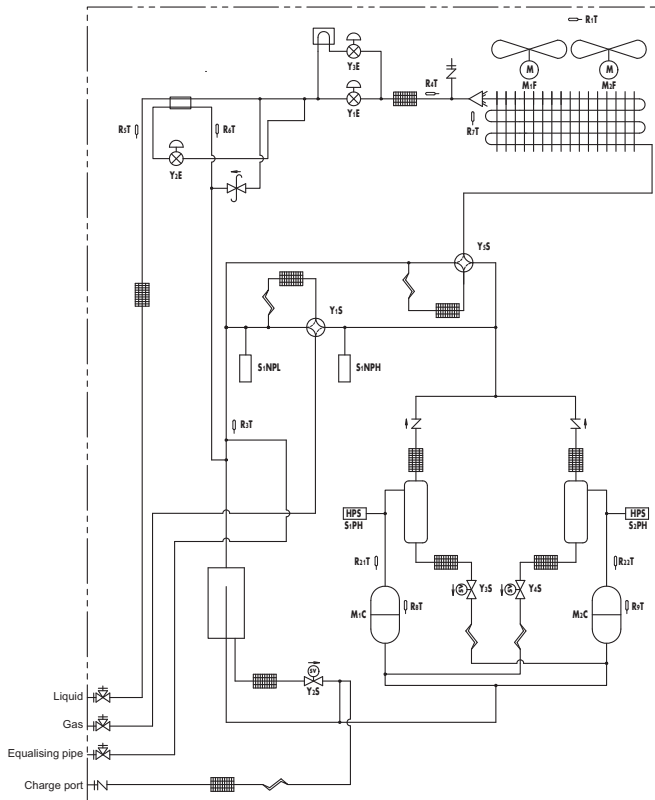
RYMQ8-12U



- Charge port / Service port
- Stop valve
- Filter
- Check valve
- Pressure relief valve
- Thermistor
- Heat sink (PCB)
- Capillary tube
- Expansion valve
- 4-way valve
- Propeller fan
- High pressure switch
- Low pressure sensor
- High pressure sensor
- Accumulator
- Heat exchanger
- Compressor
- Oil separator
- Double tube heat exchanger
- Distributor
- Solenoid valve

3D118185

RYMQ14-20U



- Charge port / Service port
- Stop valve
- Filter
- Check valve
- Pressure relief valve
- Thermistor
- Heat sink (PCB)
- Capillary tube
- Expansion valve
- 4-way valve
- Propeller fan
- High pressure switch
- Low pressure sensor
- High pressure sensor
- Accumulator
- Heat exchanger
- Compressor
- Oil separator
- Double tube heat exchanger
- Distributor
- Solenoid valve

3D118186

9 Wiring diagrams

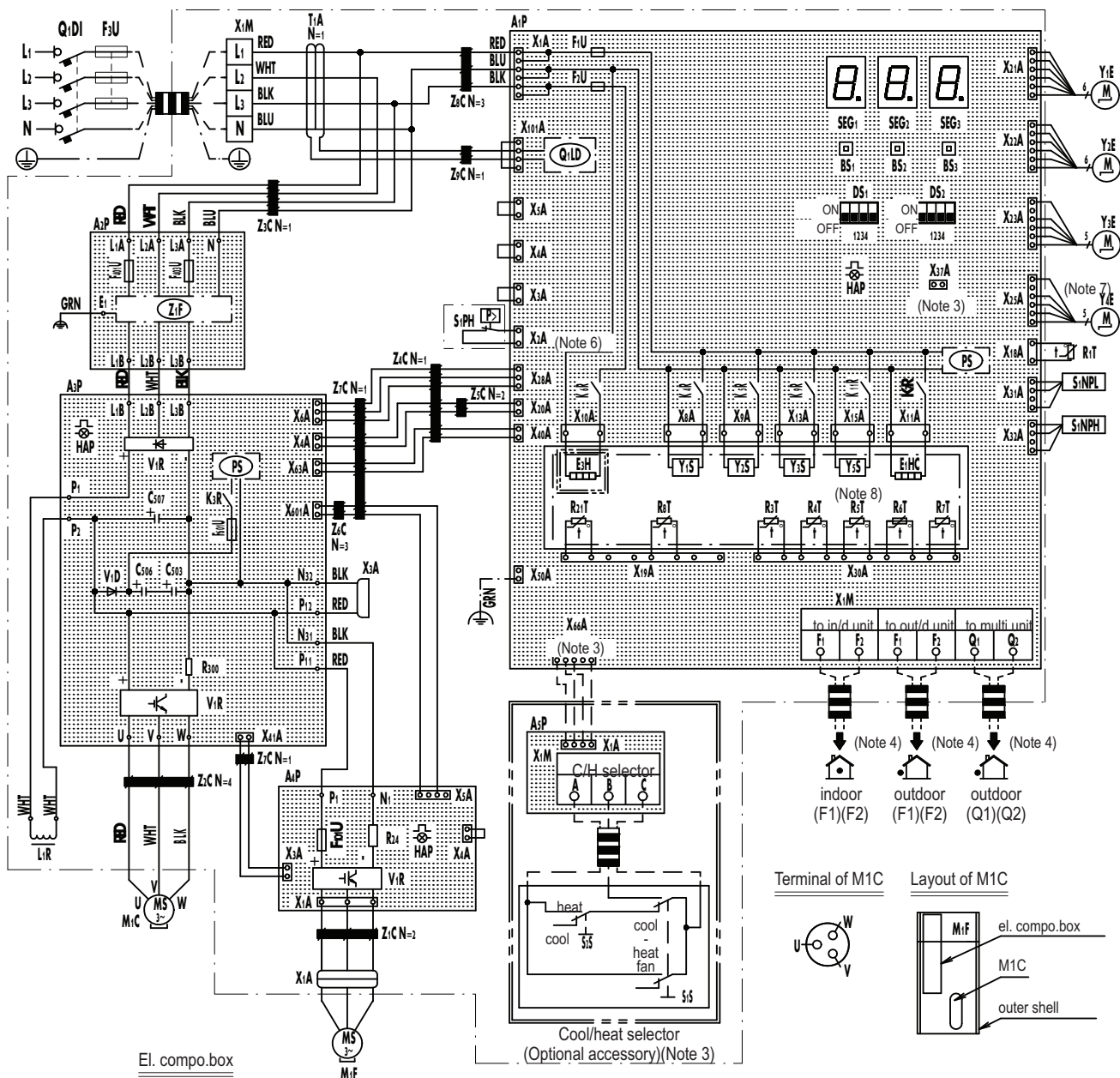
9 - 1 Wiring Diagrams - Three Phase

RXYQ8-12U
RXYTQ8UYF
RYYQ8-12U
RYMQ8-12U

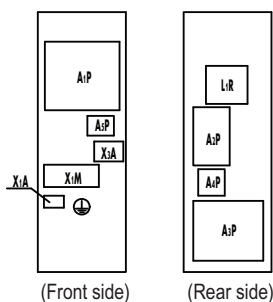
Power supply

3N~ 380-415V 50Hz
3N~ 380V 60Hz

Wiring diagram



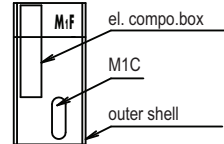
El. compo.box



Terminal of M1C



Layout of M1C



2D117534

9 Wiring diagrams

9 - 1 Wiring Diagrams - Three Phase

RXYQ8-12U
RXYTQ8UYF
RYYQ8-12U
RYMQ8-12U

A1P	Printed Circuit Board (Main)	R3T	Thermistor (Accumulator)
A2P	Printed Circuit Board (Noise Filter)	R4T	Thermistor (Heat Exc,Liq,Pipe)
A3P	Printed Circuit Board (Inv)	R5T	Thermistor (Subcool,Liq,Pipe)
A4P	Printed Circuit Board (Fan)	R6T	Thermistor (Heat Exc,Gas Pipe)
A5P	Printed Circuit Board (ABC I/P)(Option)	R7T	Thermistor (Heat Exc,Deicer)
BS1~3 (A1P)	Push Button Switch (Mode,Set,Return)	R8T	Thermistor (M1C body)
C503,C506,C507 (A3P)	Capacitor	R21T	Thermistor (M1C discharge)
DS1,DS2 (A1P)	DIP Switch	S1NPH	Pressure Sensor (High)
E1HC	Crankcase Heater	S1NPL	Pressure Sensor (Low)
E3H	Drainpan Heater (Option)	S1PH	Pressure Switch (Disch)
F1U,F2U (A1P)	Fuse (T,3,15A,250V)	SEG1~SEG3 (A1P)	7-Segment Display
F3U	Field Fuse	T1A	Current Sensor
F101U (A4P)	Fuse	V1D (A3P)	Diode
F401U,F403U (A2P)	Fuse	V1R (A3P,A4P)	Power Module
F601U (A3P)	Fuse	X*A	Connector
HAP (A1P,A3P, A4P)	Pilotlamp (Service Monitor-Green)	X1M (A1P)	Terminal Block (Control)
K3R (A3P)	Magnetic Relay	X1M (A5P)	Terminal Block (Power Supply)(Option)
K4R (A1P)	Magnetic Relay (Y1S)	Y1E	Electronic Expansion Valve(Main)
K5R (A1P)	Magnetic Relay (Y2S)	Y2E	Electronic Expansion Valve (Injection)
K6R (A1P)	Magnetic Relay (E3H)	Y3E	Electronic Expansion Valve (Refrigerant Jacket)
K7R (A1P)	Magnetic Relay (E1HC)	Y4E	Electronic Expansion Valve (Storage Vessel)
K9R (A1P)	Magnetic Relay (Y3S)	Y1S	Solenoid Valve (Main)
K11R (A1P)	Magnetic Relay (Y5S)	Y2S	Solenoid Valve (Accumulator Oil Return)
L1R	Reactor	Y3S	Solenoid Valve (Oil1)
M1C	Motor (Compressor)	Y5S	Solenoid Valve (Sub)
M1F	Motor (Fan)	Z*C	Noise Filter (Ferrite Core)
PS (A1P,A3P)	Switching Power Supply	Z*F (A2P)	Noise Filter (With Surge Absorber)
Q1DI	Field Earth Leakage Breaker	Connector For Optional Accessories	
Q1LD (A1P)	Field Earth Current Detector	X10A	Connector (Drainpan Heater)
R24 (A4P)	Resistor (Current Sensor)	X37A	Connector (Power Adapter)
R300 (A3P)	Resistor (Current Sensor)	X66A	Connector (Remote Switching Cool/Heat Selector)
R1T	Thermistor (Air)		

NOTES

1. This wiring diagram applies only to the outdoor unit.
2. :field wiring, :terminal block, :connector, : terminal, : protective earth (screw), : functional earth, : earth wiring, : field supply, : PCB, : switch box, : option
3. When using the optional adapter, refer to the installation manual of the optional adapter.
4. For connection wiring to indoor-outdoor transmission F1-F2, outdoor-outdoor transmission F1-F2, outdoor-multi transmission Q1-Q2, refer to the installation manual.
5. How to use BS1~3 switch. Refer to "service precaution" label on el. compo. box cover.
6. When operating, don't shortcircuit the protection devices (S1PH).
7. Only for RYYQ model.
8. Only for RYYQ/RYMQ model.
9. Colors: BLK: Black, RED: Red, BLU: Blue, WHT: White, GRN: Green.

2D117534

9 - 1 Wiring Diagrams - Three Phase

[illegible]

40

9 Wiring diagrams

9 - 1 Wiring Diagrams - Three Phase

RXYQ14-20U
RXYTQ14-16U
RYYQ14-20U
RYMQ14-20U

A1P	Printed Circuit Board (Main)	R3T	Thermistor (Accumulator)
A2P,A5P	Printed Circuit Board (Noise Filter)	R4T	Thermistor (Heat Exc,Liq,Pipe)
A3P,A6P	Printed Circuit Board (Inv)	R5T	Thermistor (Subcool,Liq,Pipe)
A4P,A7P	Printed Circuit Board (Fan)	R6T	Thermistor (Heat Exc,Gas Pipe)
A8P	Printed Circuit Board (ABC I/P)	R7T	Thermistor (Heat Exc,Deicer)
C503,C506,C507 (A3P,A6P)	Capacitor	R8T,R9T	Thermistor (M1C ,M2C body)
DS1,DS2 (A1P)	DIP Switch	R21T,R22T	Thermistor (M1C ,M2C discharge)
E1HC,E2HC	Crankcase Heater	S1NPH	Pressure Sensor (High)
E3H	Drainpan Heater (Option)	S1NPL	Pressure Sensor (Low)
F1U,F2U (A1P)	Fuse (T,3,15A,250V)	S1PH,S2PH	Pressure Switch (Disch)
F3U	Field Fuse	SEG1~SEG3 (A1P)	7-Segment Display
F101U (A4P,A7P)	Fuse	T1A	Current Sensor
F401U,F403U (A2P,A5P)	Fuse	V1D (A3P,A6P)	Diode
F601U (A3P,A6P)	Fuse	V1R (A3P,A4P,A6P,A7P)	Power Module
HAP (A1P,A3P,A4P,A6P,A7P)	Pilotlamp (Service Monitor-Green)	X*A	Connector
K3R (A3P,A6P)	Magnetic Relay	X1M (A1P)	Terminal Block (Control)
K3R (A1P)	Magnetic Relay (Y4S)	X1M (A8P)	Terminal Block (Power Supply)
K4R (A1P)	Magnetic Relay (Y1S)	Y1E	Electronic Expansion Valve(Main)
K5R (A1P)	Magnetic Relay (Y2S)	Y2E	Electronic Expansion Valve (Injection)
K6R (A1P)	Magnetic Relay (E3H)	Y3E	Electronic Expansion Valve (Refrigerant Jacket)
K7R (A1P)	Magnetic Relay (E1HC)	Y4E	Electronic Expansion Valve (Storage Vessel) (Note 7)
K8R (A1P)	Magnetic Relay (E2HC)	Y1S	Solenoid Valve (Main)
K9R (A1P)	Magnetic Relay (Y3S)	Y2S	Solenoid Valve (Accumulator Oil Return)
K11R (A1P)	Magnetic Relay (Y5S)	Y3S	Solenoid Valve (Oil1)
L1R,L2R	Reactor	Y3S	Solenoid Valve (Oil2)
M1C,M2C	Motor (Compressor)	Y5S	Solenoid Valve (Sub) (Note 8)
M1F,M2F	Motor (Fan)	Z*C	Noise Filter (Ferrite Core)
PS (A1P,A3P,A6P)	Switching Power Supply	Z*F (A2P,A5P)	Noise Filter (With Surge Absorber)
Q1DI	Field Earth Leakage Breaker	Connector For Optional Accessories	
Q1LD (A1P)	Field Earth Current Detector	X10A	Connector (Drainpan Heater)
R24 (A4P,A7P)	Resistor (Current Sensor)	X37A	Connector (Power Adapter)
R300 (A3P,A6P)	Resistor (Current Sensor)	X66A	Connector (Remote Switching Cool/Heat Selector)
R1T	Thermistor (Air)		

NOTES

1. This wiring diagram applies only to the outdoor unit.
2. : field wiring, : terminal block, : connector, : terminal, : protective earth (screw), : functional earth, : earth wiring, : field supply, : PCB, : switch box, : option
3. When using the optional adapter, refer to the installation manual of the optional adapter.
4. For connection wiring to indoor-outdoor transmission F1-F2, outdoor-outdoor transmission F1-F2, outdoor-multi transmission Q1-Q2, refer to the installation manual.
5. How to use BS1~3 switch. Refer to "service precaution" label on el. compo. box cover.
6. When operating, don't shortcircuit the protection devices (S1PH, S2PH).
7. Only for RYYQ model.
8. Only for RYYQ/RYMQ model.
9. Connector x1a (m1f) is red, connector x2a (m2f) is white.
10. Colors: BLK: Black, RED: Red, BLU: Blue, WHT: White, GRN: Green.
11. Only for 14,16 class

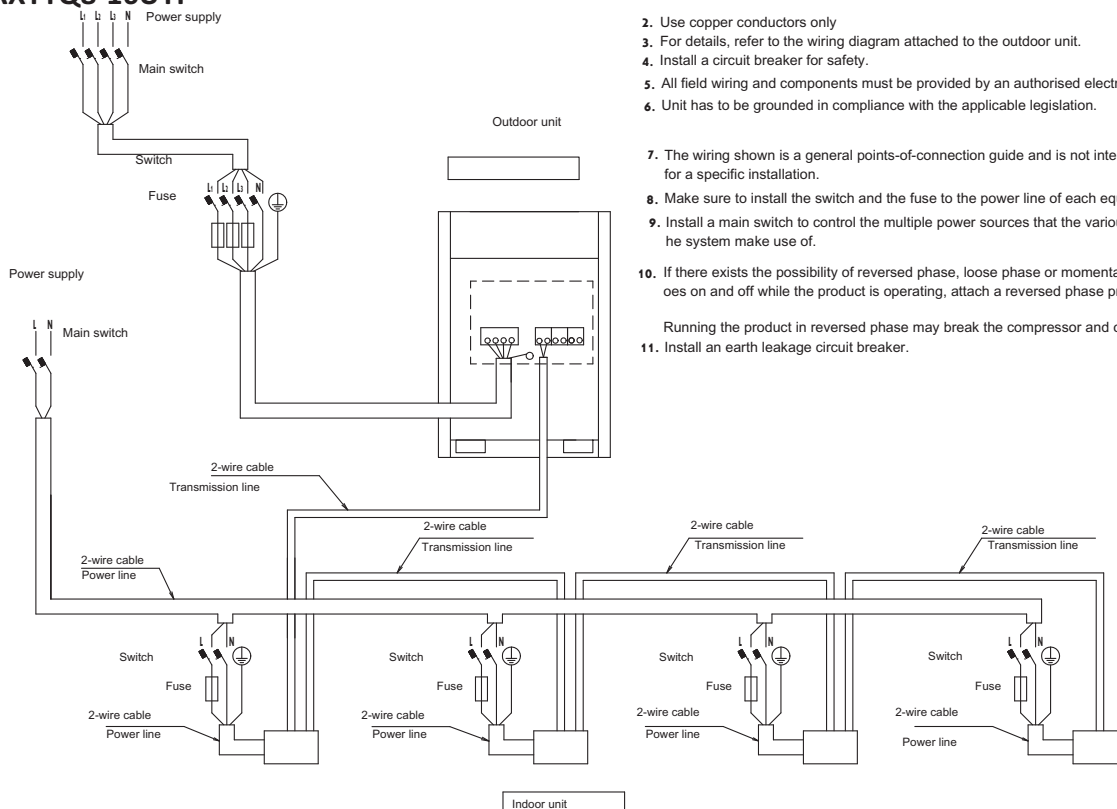
2D117536B

10 External connection diagrams

10 - 1 External Connection Diagrams

10

RXYQQ8-20U
RXYQ8-20U
RYYQ8-20U
RYMQ8-20U
RXYTQ8-16UYF



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 details, refer to the wiring diagram attached to the outdoor 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 switch to control the multiple power sources that the various components of the system make use of.
 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.

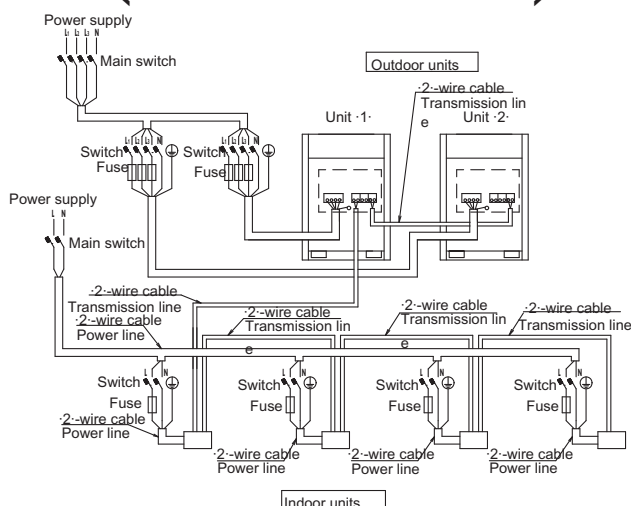
3D119317

RXYQQ8-20U
RXYQ8-20U
RXYTQ8-16U
RYYQ8-20U
RYMQ8-26U

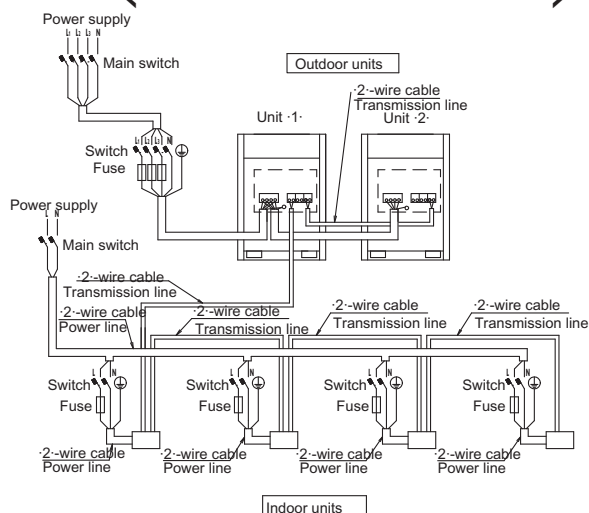
Notes

1. All wiring, components and materials to be procured on-site must comply with the applicable legislation.
 2. Use copper conductors only
 3. For details, refer to the wiring diagram attached to the outdoor 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 switch to control the multiple power sources that the various components of the system make use of.
 10. The capacity of UNIT1 must be larger than that of UNIT2 when the power source is connected in series between the units.
 11. 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.
12. Install an earth leakage circuit breaker.

< Power source is supplied to each outdoor unit individually. >



< Power source is connected in series between the units. >



3D119316

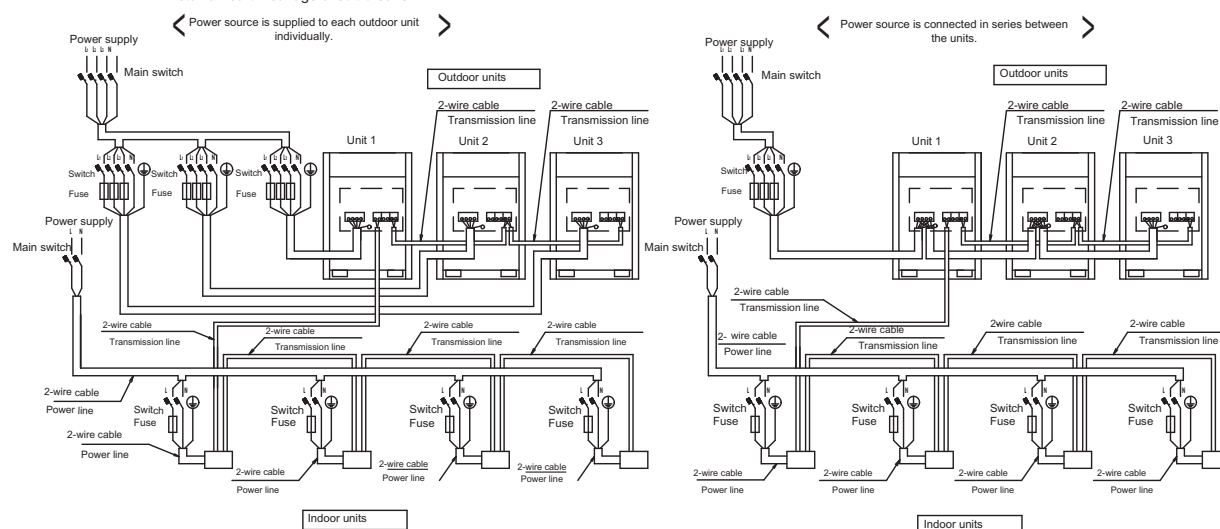
10 External connection diagrams

10 - 1 External Connection Diagrams

RXYQQ8-20U
RXYQ8-20U
RXYTQ8-16UYF
RYYQ8-20U
RYMQ8-20U

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 details, refer to the wiring diagram attached to the outdoor 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 switch to control the multiple power sources that the various components of the system make use of.
10. The capacity of UNIT1 must be larger than that of UNIT2 when the power source is connected in series between the units.
The capacity of UNIT 2 must be larger than that of UNIT3 when the power source is connected in series between the units.
11. 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.
12. Install an earth leakage circuit breaker.

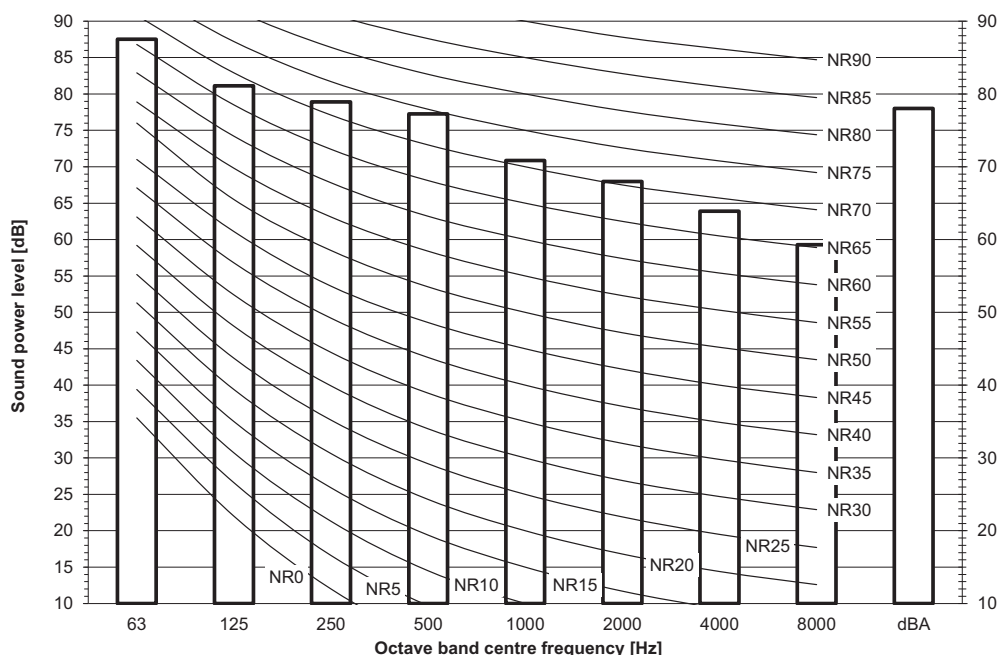


3D119200

11 Sound data

11 - 1 Sound Power Spectrum

REMQ5U
REYQ8U
RXYQQ8U
RXYQ8U
RXYTQ8UYF
RYYQ8U
RYMQ8U

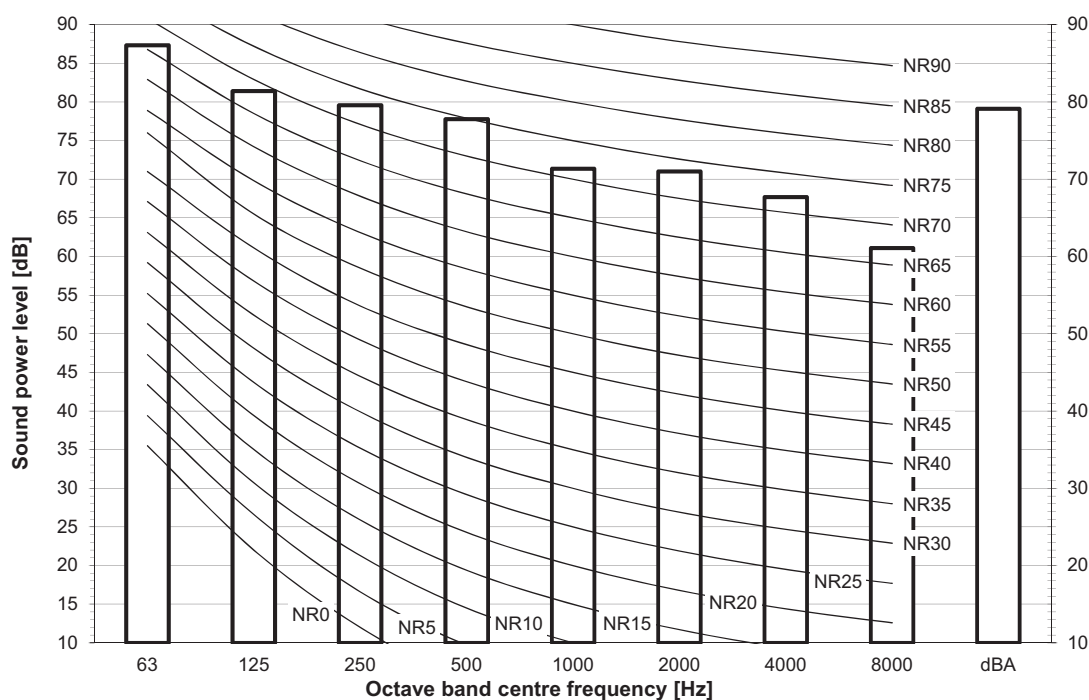


Notes

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

3D119528

REYQ10U
RXYQQ10U
RXYQ10U
RYYQ10U
RYMQ10U



Notes

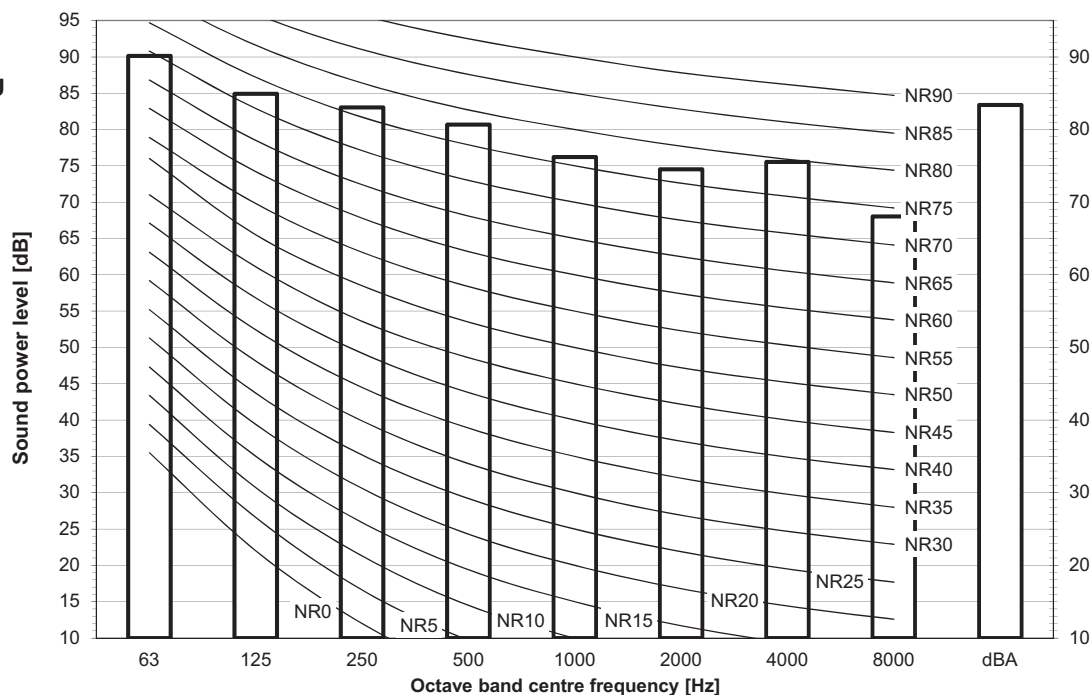
dBA = A-weighted sound power level (A scale according to IEC).
Reference acoustic intensity 0dB = $10E-6\mu W/m^2$
Measured according to ISO 3744

3D119529

11 Sound data

11 - 1 Sound Power Spectrum

REYQ12U
RXYQ12U
RXYQ12U
RYYQ12U
RYMQ12U



Notes

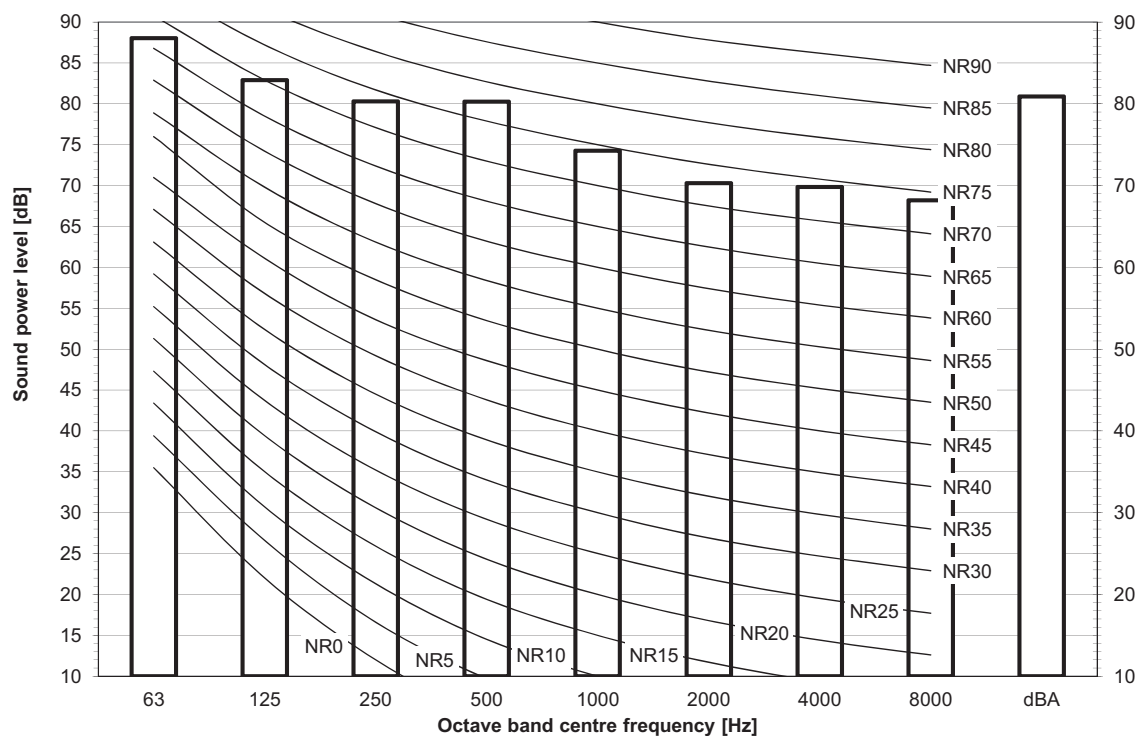
dBA = A-weighted sound power level (A scale according to IEC).

Reference acoustic intensity $O_{dB} = 10E-6\mu W/m^2$

Measured according to ISO 3744

3D119530

REYQ14U
RXYQ14U
RXYQ14U
RYYQ14U
RYMQ14U



Notes

dBA = A-weighted sound power level (A scale according to IEC).

Reference acoustic intensity $O_{dB} = 10E-6\mu W/m^2$

Measured according to ISO 3744

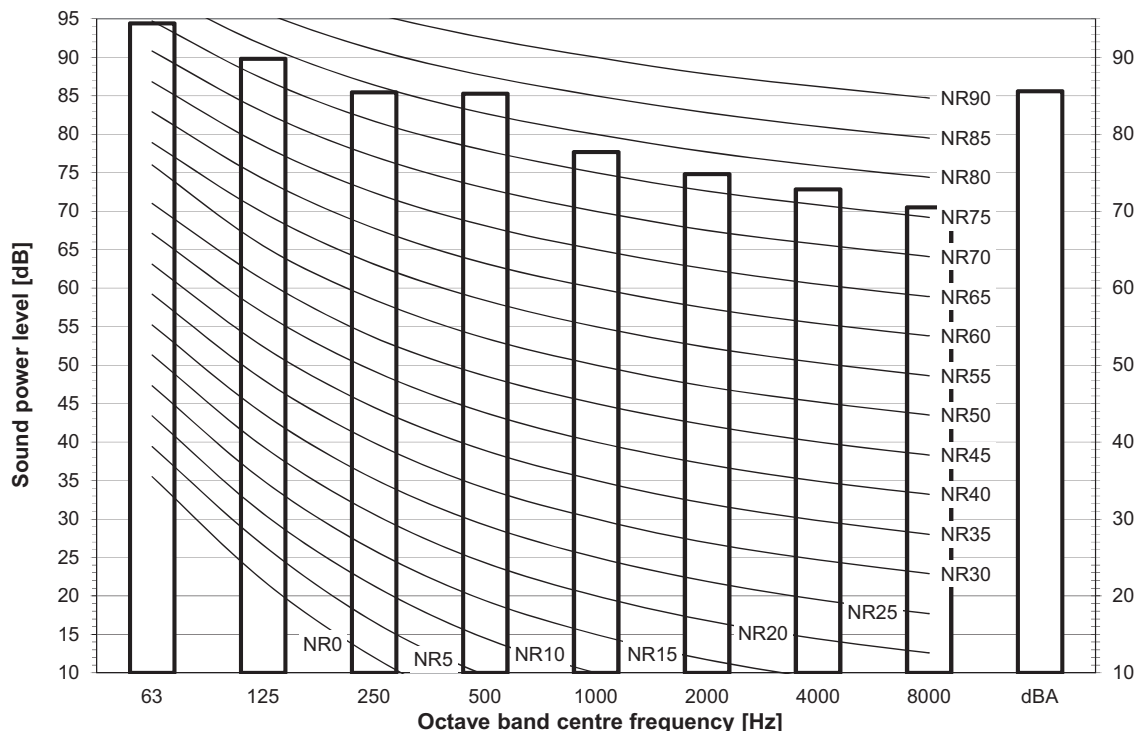
3D119531

11 Sound data

11 - 1 Sound Power Spectrum

11

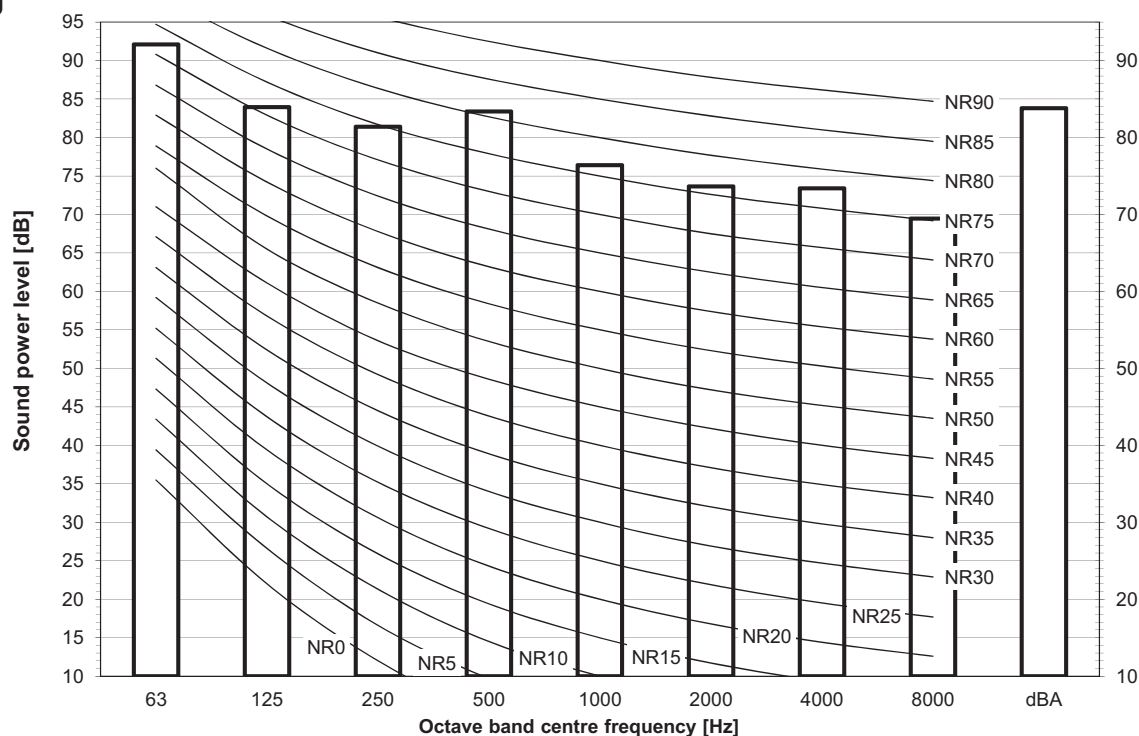
REYQ16U
RXYQ16U
RXYQ16U
RYYQ16U
RYMQ16U



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

3D119532

REYQ18U
RXYQ18U
RXYQ18U
RYYQ18U
RYMQ18U



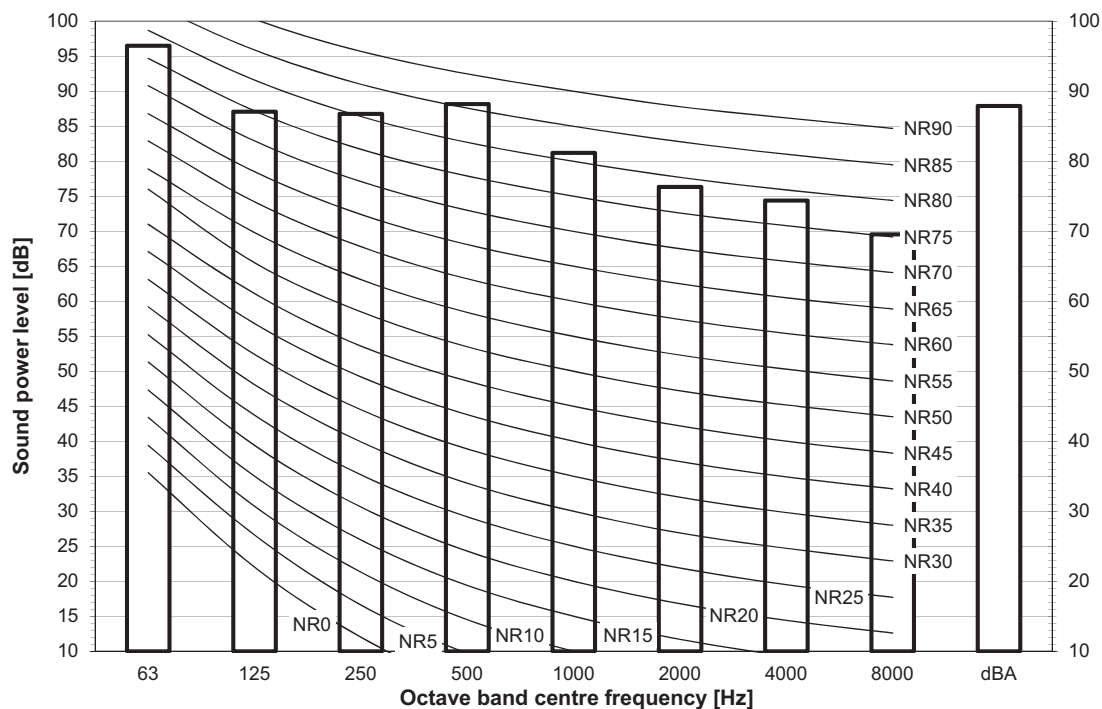
Notes
dBA = A-weighted sound power level (A scale according to IEC).
Reference acoustic intensity 0dB = $10E-6\mu W/m^2$
Measured according to ISO 3744

3D119533

11 Sound data

11 - 1 Sound Power Spectrum

REYQ20U
RXYQQ20U
RXYQ20U
RYYQ20U
RYMQ20U



Notes

dBA = A-weighted sound power level (A scale according to IEC).

Reference acoustic intensity 0dB = $10E-6 \mu W/m^2$

Measured according to ISO 3744

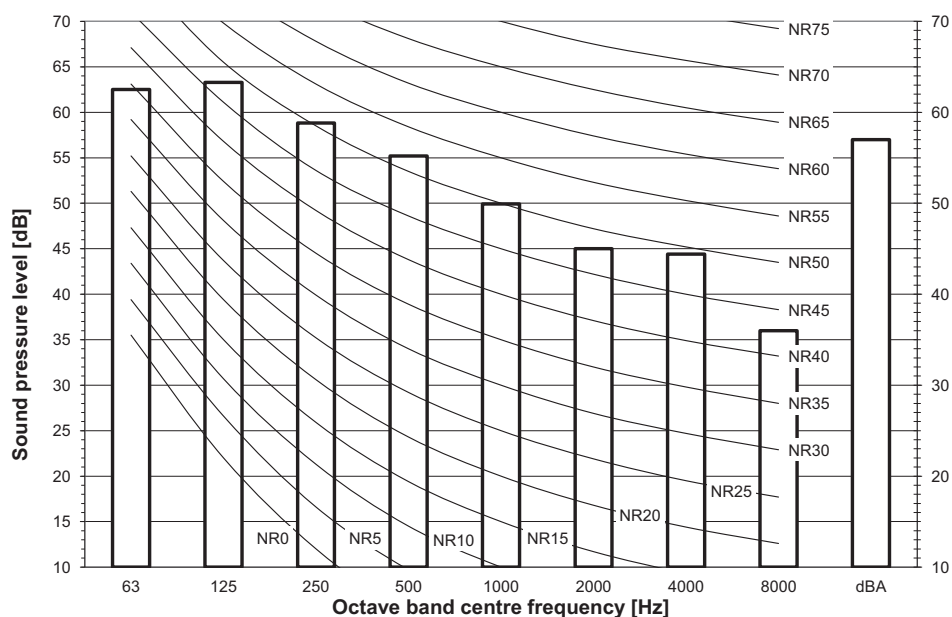
3D119534

11 Sound data

11 - 2 Sound Pressure Spectrum

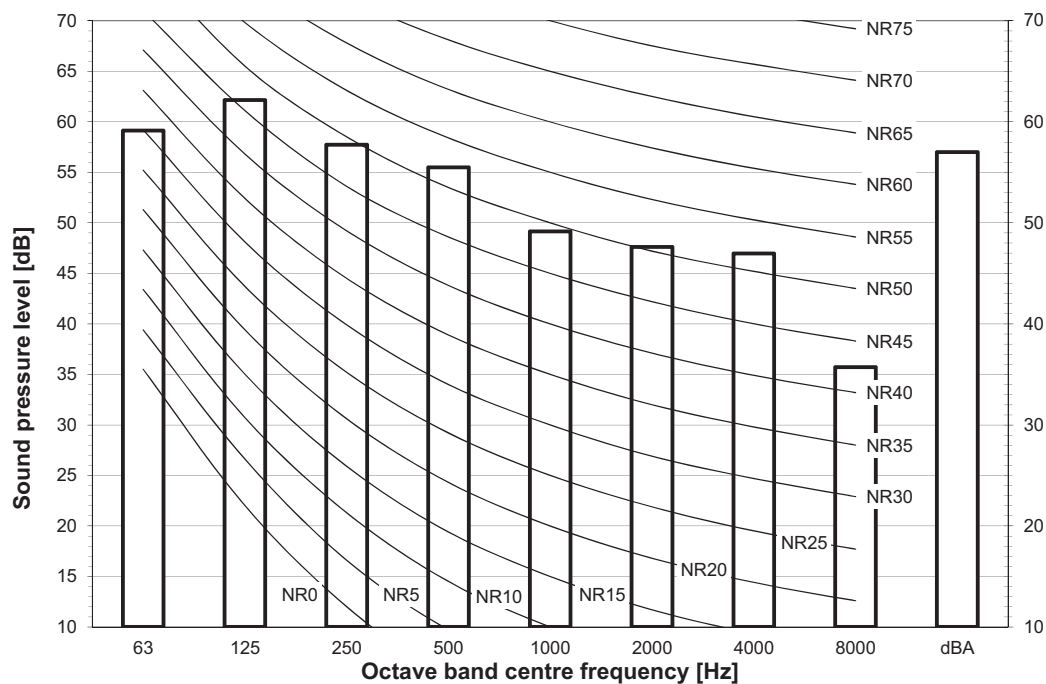
11

REMQ5U
REYQ8U
RXYQQ8U
RXYQ8U
RXYTQ8UYF
RYYQ8U
RYMQ8U



3D119521

REYQ10U
RXYQQ10U
RXYQ10U
RYYQ10U
RYMQ10U

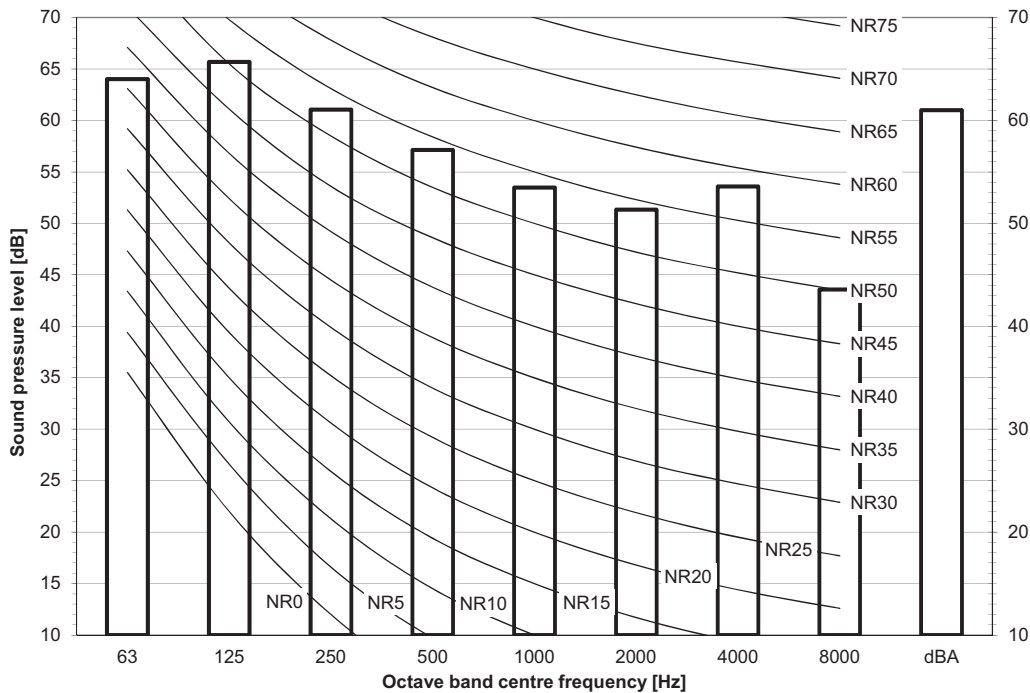


3D119522

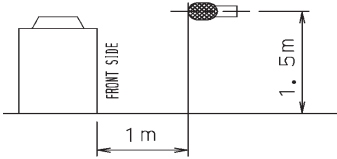
11 Sound data

11 - 2 Sound Pressure Spectrum

REYQ12U
RXYQQ12U
RXYQ12U
RYYQ12U
RYMQ12U

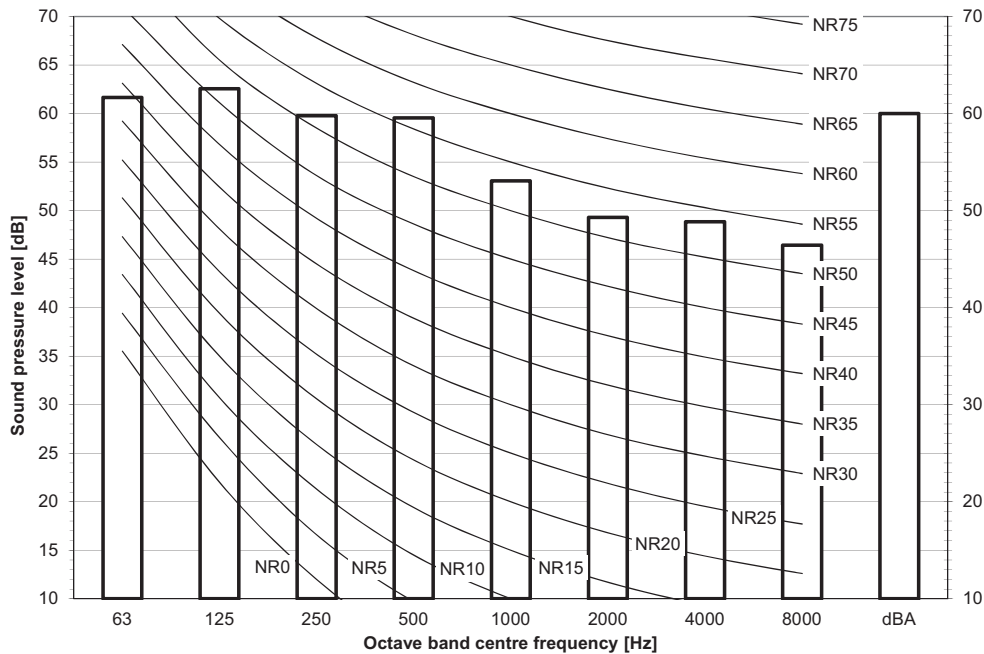


Notes
Data is valid at free field condition.
Data is valid at nominal operation condition.
dBA = A-weighted sound pressure level (A scale according to IEC).
Reference acoustic pressure 0 dB = 20 µPa

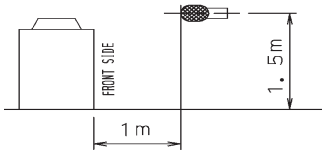


3D119523

REYQ14U
RXYQQ14U
RXYQ14U
RYYQ14U
RYMQ14U



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



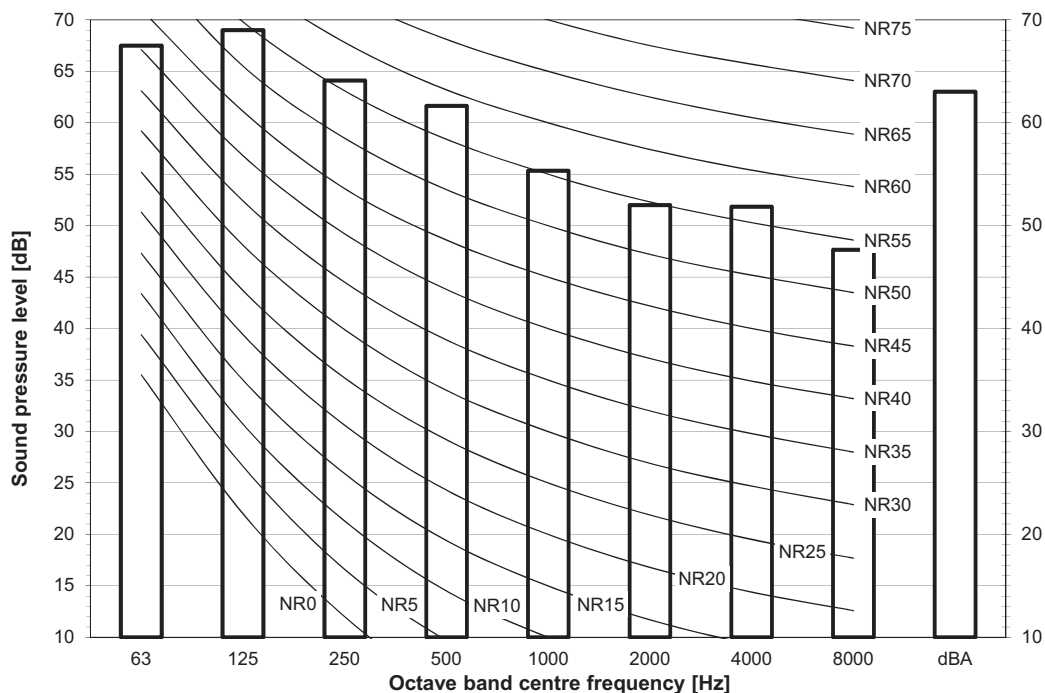
3D119524

11 Sound data

11 - 2 Sound Pressure Spectrum

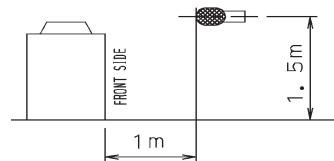
11

REYQ16U
RXYQQ16U
RXYQ16U
RYYQ16U
RYMQ16U



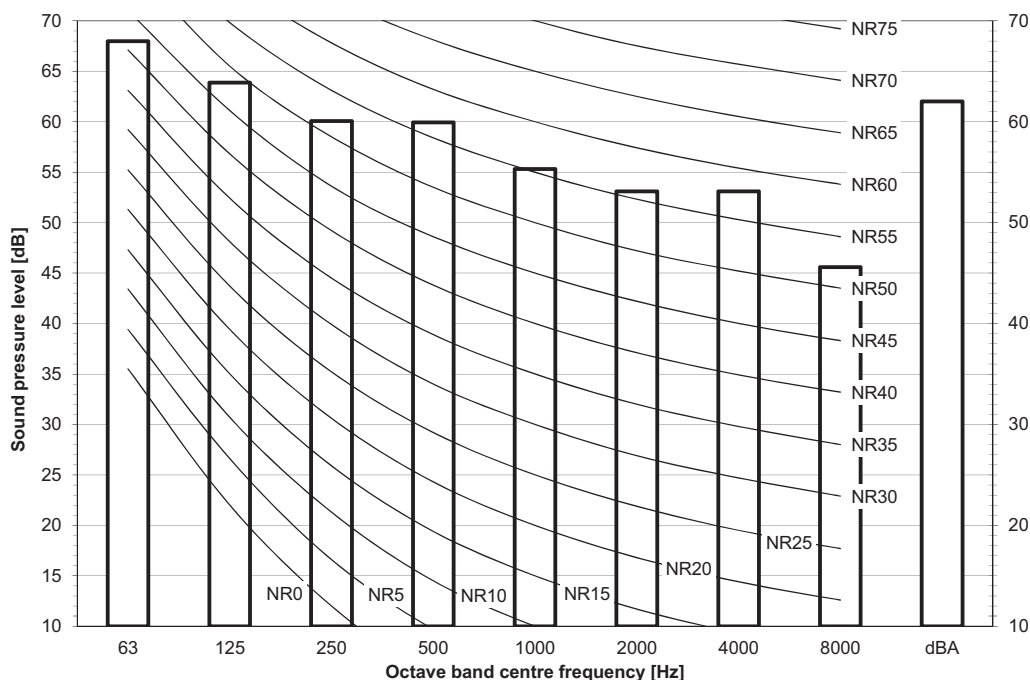
Notes

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



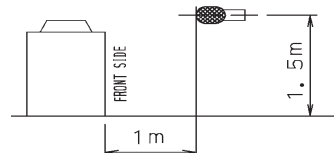
3D119525

REYQ18U
RXYQQ18U
RXYQ18U
RYYQ18U
RYMQ18U



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

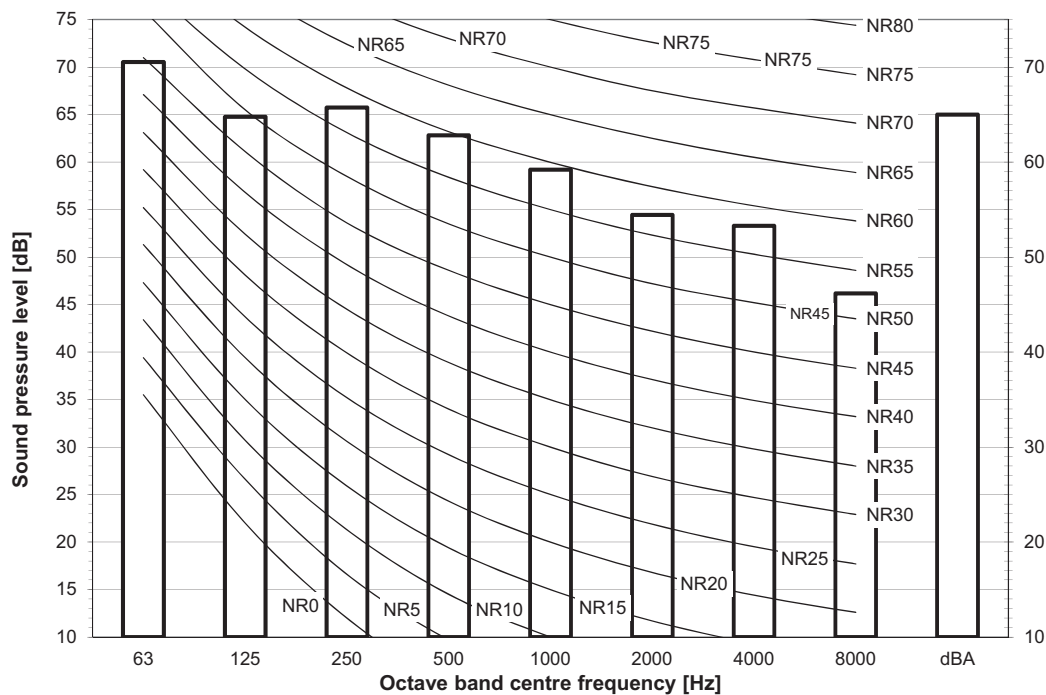


3D119526

11 Sound data

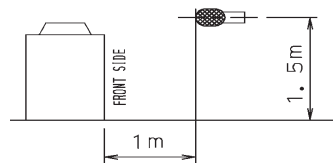
11 - 2 Sound Pressure Spectrum

REYQ20U
RXYQQ20U
RXYQ20U
RYYQ20U
RYMQ20U



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



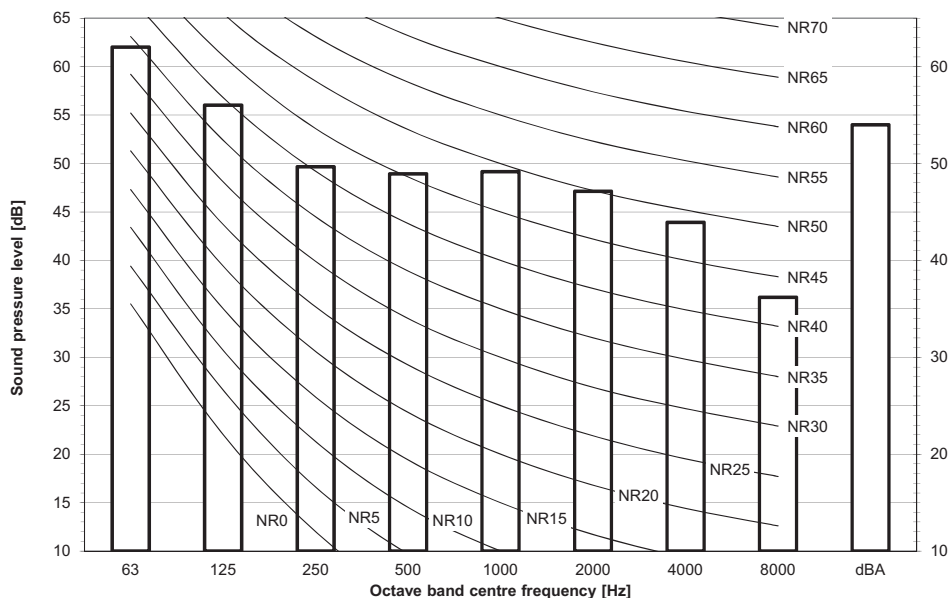
3D119527

11 Sound data

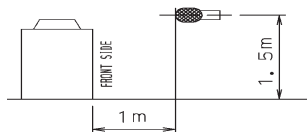
11 - 3 Sound Pressure Spectrum Quiet Mode

11

REMQ5U
REYQ8-12U
RXYQ8-12U
RXYQ8-12U
RXYTQ8UYF
RYY8-12U
RYMQ8-12U

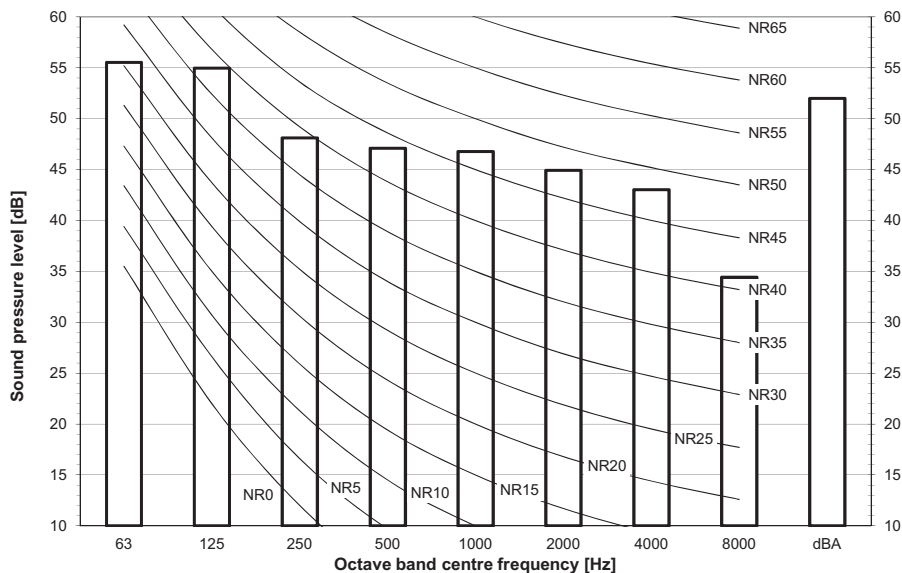


Notes
Data is valid at free field condition.
Data is valid at nominal operation condition.
dBA = A-weighted sound pressure level (A scale according to IEC).
Reference acoustic pressure 0 dB = 20 μ Pa
Data is valid under the following conditions
Cooling operation
Outdoor Ta: 35°C
Full load (maximum fan rps and maximum compressor rps for the dedicated low noise mode)

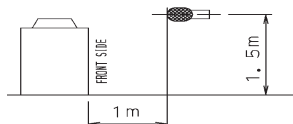


3D119535

REMQ5U
REYQ8-12U
RXYQ8-12U
RXYQ8-12U
RXYTQ8UYF
RYYQ8-12U
RYMQ8-12U



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
Data is valid under the following conditions
Cooling operation
Outdoor Ta: 35°C
Full load (maximum fan rps and maximum compressor rps for the dedicated low noise mode)

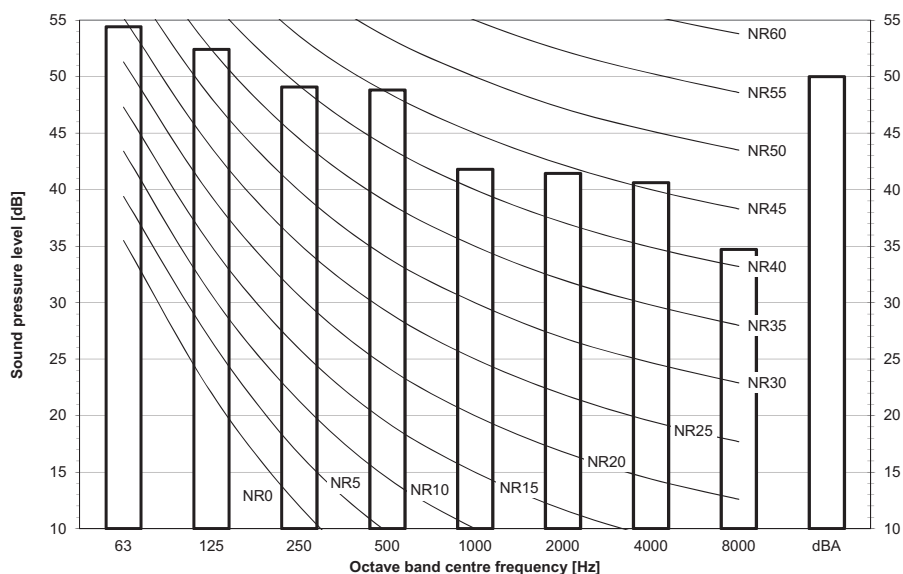


3D119536

11 Sound data

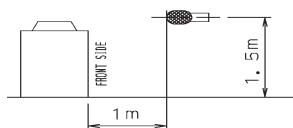
11 - 3 Sound Pressure Spectrum Quiet Mode

REMQ5U
REYQ8-12U
RXYQ8-12U
RXYQ8-12U
RXYTQ8UYF
RYYQ8-12U
RYMQ8-12U



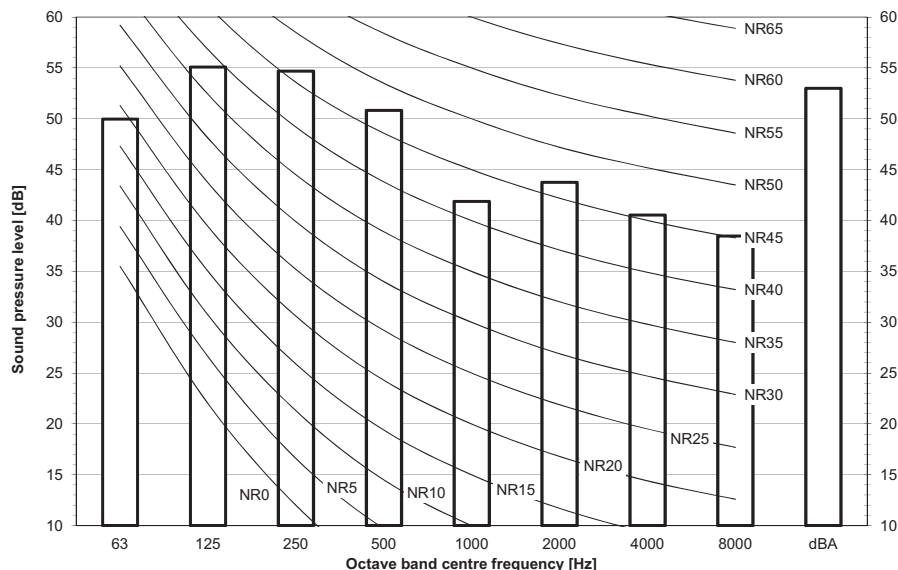
Notes

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
Data is valid under the following conditions
Cooling operation
Outdoor Ta: 35°C
Full load (maximum fan rps and maximum compressor rps for the dedicated low noise mode)



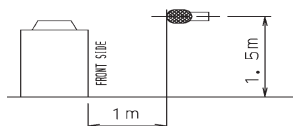
3D119537

REYQ14-16U
RXYQ14-16U
RXYQ14-16U
RXYTQ14-16UYF
RYYQ14-16U
RYMQ14-16U



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
Data is valid under the following conditions
Cooling operation
Outdoor Ta: 35°C
Full load (maximum fan rps and maximum compressor rps for the dedicated low noise mode)

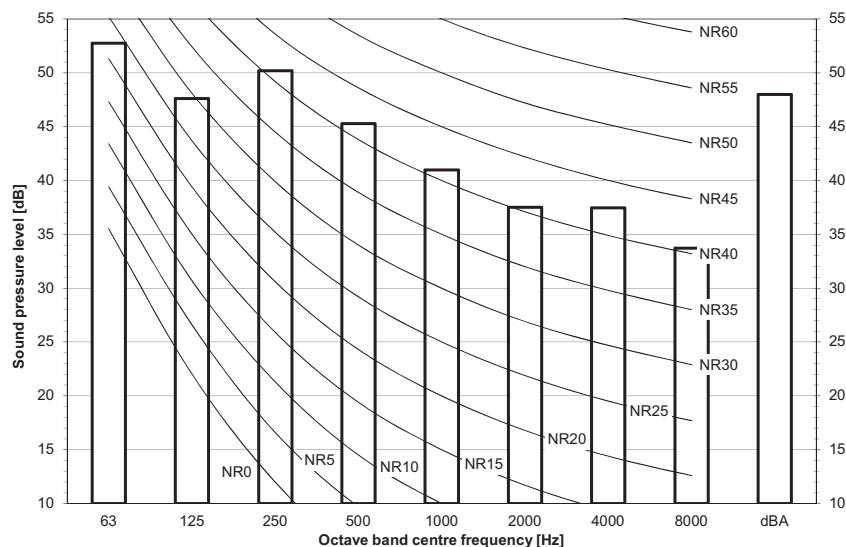


3D119538

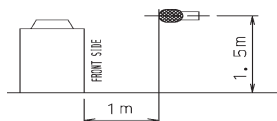
11 Sound data

11 - 3 Sound Pressure Spectrum Quiet Mode

REYQ14-16U
RXYQQ14-16U
RXYQ14-16U
RXYTQ14-16UYF
RYYQ14-16U
RYMQ14-16U

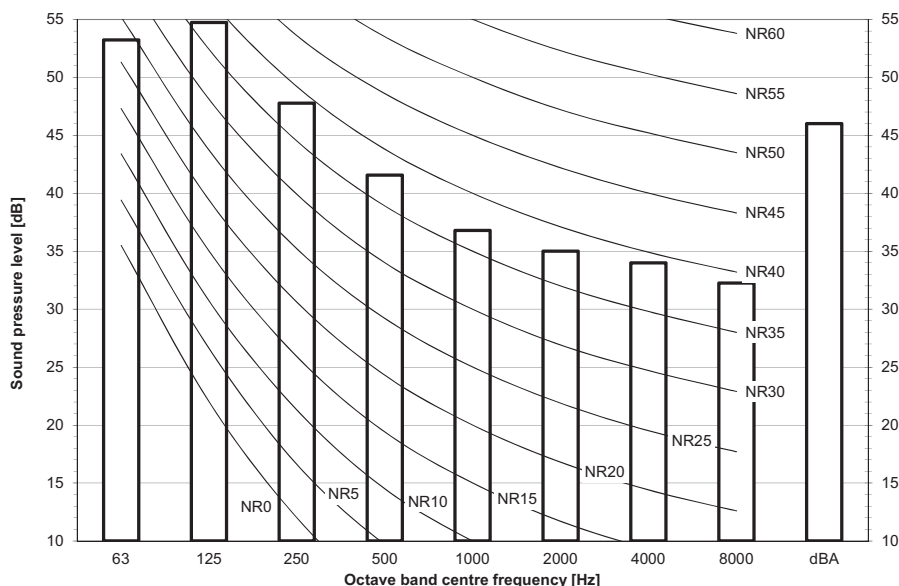


Notes
Data is valid at free field condition.
Data is valid at nominal operation condition.
dBA = A-weighted sound pressure level (A scale according to IEC).
Reference acoustic pressure 0 dB = 20 μ Pa
Data is valid under the following conditions
Cooling operation
Outdoor Ta: 35°C
Full load (maximum fan rps and maximum compressor rps for the dedicated low noise mode)

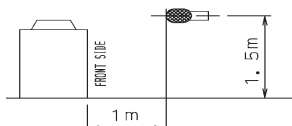


3D119539

REYQ14-16U
RXYQQ14-16U
RXYQ14U-16U
RXYTQ14-16UYF
RYYQ14-16U
RYMQ14-16U



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
Data is valid under the following conditions
Cooling operation
Outdoor Ta: 35°C
Full load (maximum fan rps and maximum compressor rps for the dedicated low noise mode)

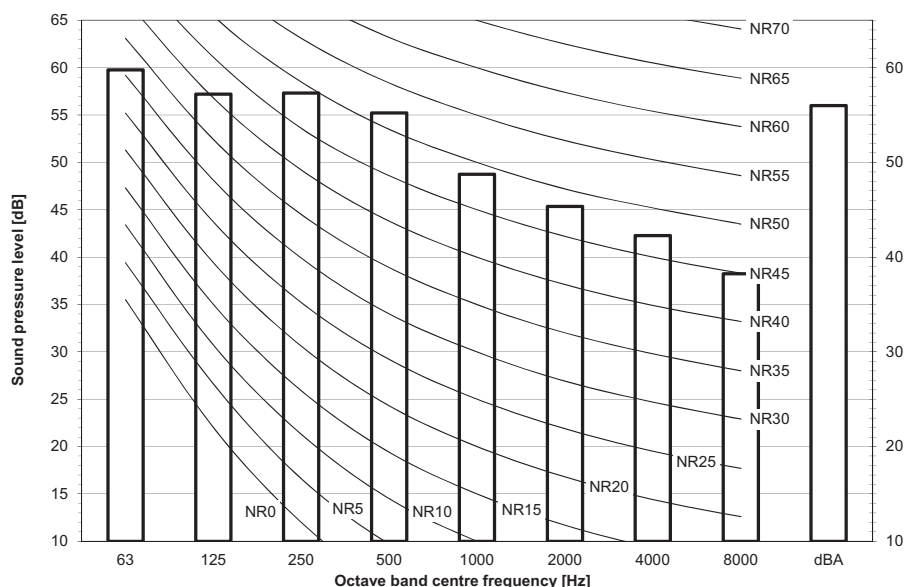


3D119540

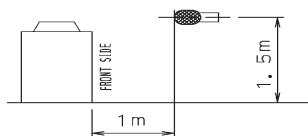
11 Sound data

11 - 3 Sound Pressure Spectrum Quiet Mode

REYQ18-20U
RXYQQ18-20U
RXYQ18-20U
RYYQ18-20U
RYMQ18-20U

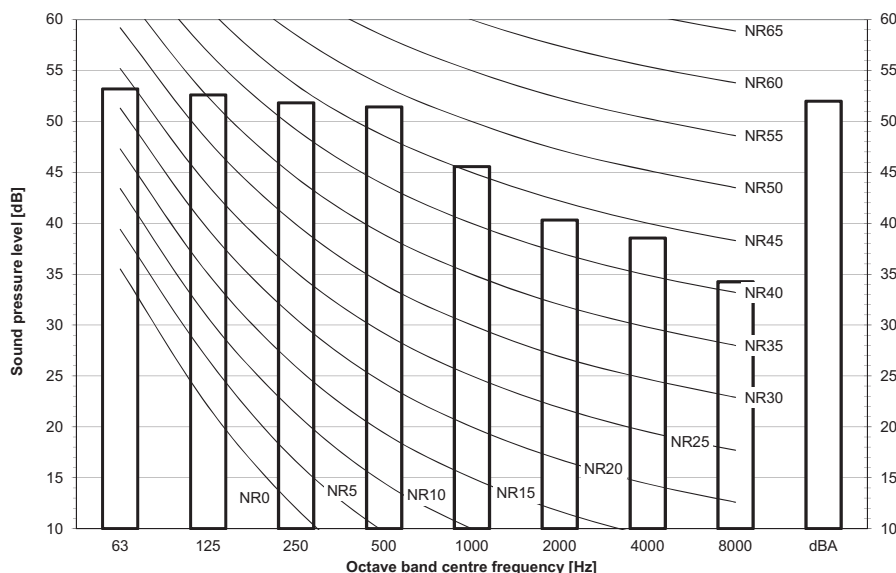


Notes
Data is valid at free field condition.
Data is valid at nominal operation condition.
dBA = A-weighted sound pressure level (A scale according to IEC).
Reference acoustic pressure 0 dB = 20 µPa
Data is valid under the following conditions
Cooling operation
Outdoor Ta: 35°C
Full load (maximum fan rps and maximum compressor rps for the dedicated low noise mode)

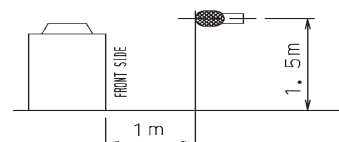


3D119541

REYQ18-20U
RXYQQ18-20U
RXYQ18-20U
RYYQ18-20U
RYMQ18-20U



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
Data is valid under the following conditions
Cooling operation
Outdoor Ta: 35°C
Full load (maximum fan rps and maximum compressor rps for the dedicated low noise mode)

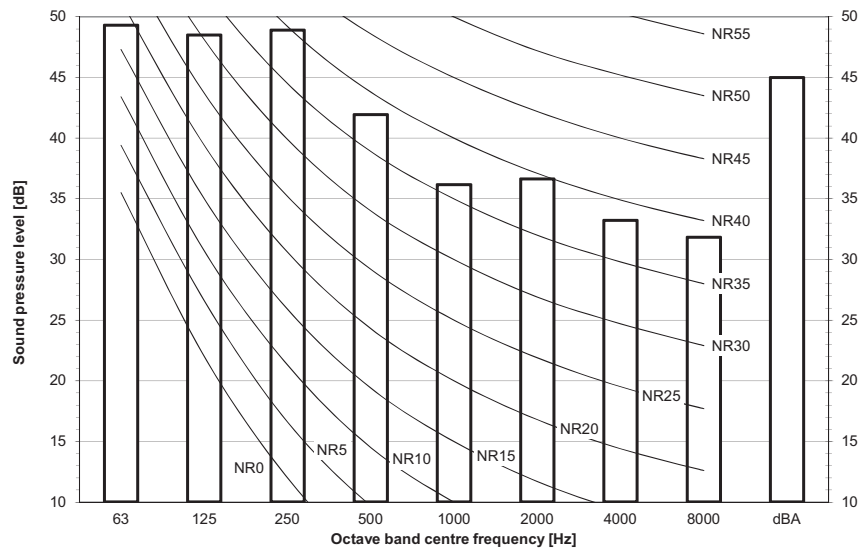


3D119542

11 Sound data

11 - 3 Sound Pressure Spectrum Quiet Mode

REYQ18-20U
RXYQQ18-20U
RXYQ18-20U
RYYQ18-20U
RYMQ18-20U



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).

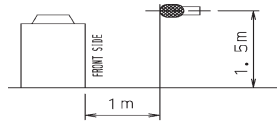
Reference acoustic pressure 0 dB = 20 μ Pa

Data is valid under the following conditions

Cooling operation

Outdoor Ta: 35°C

Full load (maximum fan rps and maximum compressor rps for the dedicated low noise mode)



3D119543

12 Installation

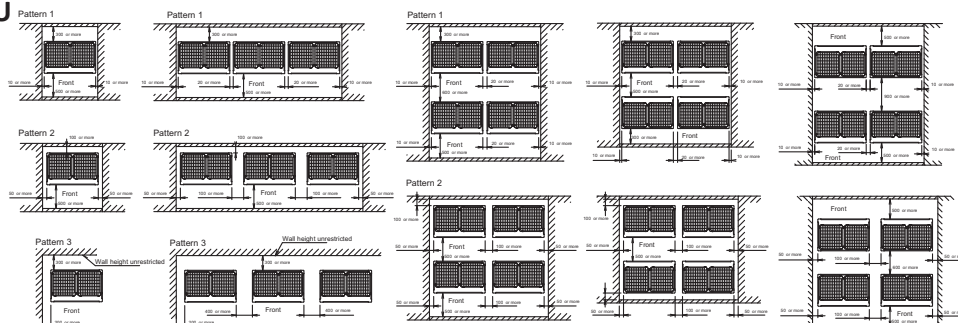
12 - 1 Installation Method

REMQ5U
REYQ8-20U
RXYQ8-20U
RXYQ8-20U
RYYQ8-20U
RYMQ-20U

For single unit installation

For installation in rows

For centralised group layout



Notes

- Height of the walls in case of patterns 1 and 2:

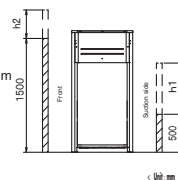
Front: 1500mm

Suction side: 500mm

Side: height unrestricted

The installation space shown on this drawing is based on cooling operation at 35°C (outdoor temperature).

When the design outdoor ambient temperature exceeds 35°C or the load exceeds maximum ability of much generation load of heat in all outdoor unit, make sure the suction-side space is broader than the space shown on this drawing.



- If the walls are higher than mentioned above, then additional service space is needed:

- suction side: service space + $h1/2$

- front side: service space + $h2/2$

- When installing the units, select the pattern that best fits the available space.

Always keep in mind to leave sufficient space for a person to pass between unit and wall and for the air to circulate freely.

If more units are to be installed than are catered for in the above patterns, your layout should take into account of the possibility of short circuits.

- Provide sufficient space at the front to connect refrigerant piping (comfortably).

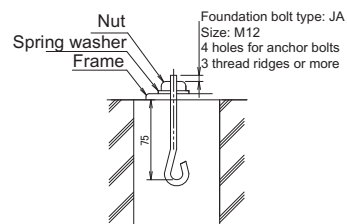
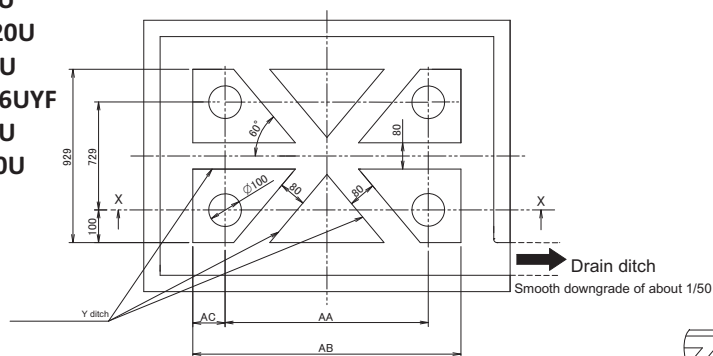
3D118467

12 Installation

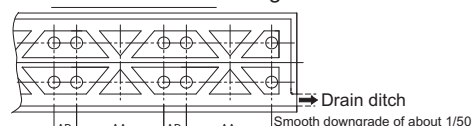
12 - 2 Fixation and Foundation of Units

12

REMQ5U
REYQ8-20U
RXYQ8-20U
RXYQ8-20U
RXYTQ8-16UYF
RYYQ8-20U
RYMQ8-20U



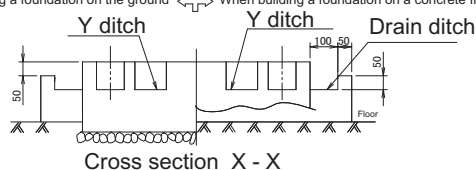
Foundation bolt fixing method



For multi-unit installation

Model	AA	AB	AC	AD
RYYQ8-12U	766	992	113	185
RYMQ8-12U				
RXYQ8-12U				
RXYQ8-12U				
REMQ5T/REYQ8-12U				
RXYTQ8U				
RYYQ14-20U	1076	1076	113	185
RYMQ14-20U				
RXYQ14-20U				
RXYQ14-20U				
REYQ14-20U				
RXYTQ10-16U				

When building a foundation on the ground → When building a foundation on a concrete floor



Cross section X - X

Notes

1. Provide a drain ditch around the foundation to drain water from the installation area.
2. The surface has to be finished with mortar. The corner edges have to be chamfered.
3. Build the foundation on a concrete floor or, if not possible, make sure the foundation surface has a rough finish.
4. Use a cement/sand/gravel ratio of 1/2/4 for the concrete, and a diameter of 10 mm for the reinforcement bars (approximately, 300mm intervals).
5. When installing the equipment on a roof, make sure to check the strength of the floor and take adequate water proofing measures. **3D118459**

12 Installation

12 - 3 Refrigerant Pipe Selection

RXYQ-U
RYYQ-Y
RYMQ-U

VRV4
Heat pump
Piping restrictions 1/3

For the reference drawing, see
page 2/3.

		Maximum piping length			Maximum height difference			Total piping length
		Longest pipe (A+[B,G,E,J]) Actual / (Equivalent)	After first branch (B,G,E,J) Actual	After first branch (for multi-outdoor) (D) Actual / (Equivalent)	Indoor-to-outdoor ⁽³⁾ (H1) Outdoor above indoor / (indoor above outdoor)	Indoor-to-indoor (H2)	Outdoor-to-outdoor (H3)	
Standard								
VRV DX indoor units only		165/(190)m	40m ⁽¹⁾	10/(13)m	50/(40)m ⁽³⁾	30m	5m	1000m
Standard multi-combination								
All multi-outdoor-unit combinations except standard multi-outdoor-unit combinations		135/(160)m	40m ⁽¹⁾	10/(13)m	50/(40)m ⁽³⁾	30m	5m	500m
Hydrobox connection		135/(160)m	40m	10/(13)m	50/(40)m	15m	5m	300-500m ⁽⁵⁾
RA connection		100/(120)m	50m ⁽²⁾	-	50/(40)m	15m	-	250m
AHU connection	Pair	50/(55)m ⁽⁴⁾	-	-	40/(40)m	-	-	-
	Multi ⁽⁶⁾	165/(190)m	40m	10/13m	40/(40)m	15m	5m	1000m
	Mix ⁽⁷⁾	165/(190)m	40m	10/13m	40/(40)m	15m	5m	1000m

Remark

For standard multi-outdoor-unit combinations, see 3D079534.

(1) If all conditions below are met, the limitation can be extended up to 90 m

- The piping length between all indoor units and the nearest branch kit is ≤ 40m.
- It is necessary to increase the size of the gas and liquid piping if the pipe length between the first and the farthest indoor unit is >40m.

If the increased pipe size is larger than the pipe size of the main pipe, also increase the size of the main pipe.

- When the piping size is increased, the piping length has to be counted as double.

The total piping length has to be within limitations.

- The piping length difference between the nearest indoor unit from the first branch to the outdoor unit and the farthest indoor unit to the outdoor unit is ≤ 40m.

(2) If the piping length between the first branch and the BP box or VRV indoor unit is more than 20m, increase the length of the gas and liquid piping between the first branch and the BP box or VRV indoor unit.

(3) An extension to up to 90 m is possible without an additional option kit. Respect the following conditions:

-> If the outdoor units are positioned higher than the indoor units:

- Size up the liquid piping
- A dedicated setting on the outdoor unit is required.

-> If the outdoor units are positioned lower than the indoor units:

- 40~60m Minimum connection ratio: 80%
60~65m Minimum connection ratio: 90%
65~80m Minimum connection ratio: 100%
80~90m Minimum connection ratio: 110%

- Size up the liquid piping

A dedicated setting on the outdoor unit is required.

(4) The allowable minimum length is 5 m.

(5) In case of multi-outdoor-unit combinations.

(6) Multiple air handling units (AHU)(EKEXV + EKEQ kits).

(7) Mix of AHU units and VRV DX indoor

(8) If the equivalent piping length between is > 90m, size up the main liquid and gas piping.

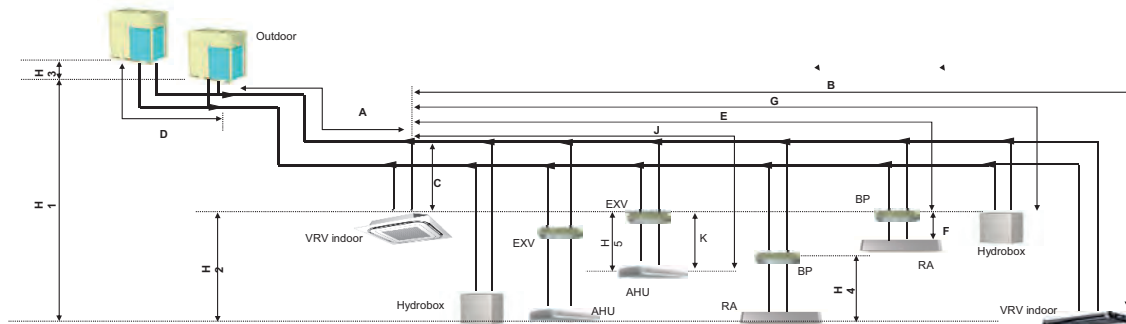
3D079540E

12 Installation

12 - 3 Refrigerant Pipe Selection

RXYQ-U
RYYQ-U
RYMQ-U

VRV4
Heat pump
Piping restrictions 2/3



Remark

- (1) Schematic indication
Illustrations may differ from the actual appearance of the unit.
- (2) This is only to illustrate piping length limitations.
Combination of indoor unit types is not allowed.
Refer to combination table 3D079543 for details about the allowed combinations.

		Allowed piping length		Maximum height difference	
		BP to RA (F)	EXV to AHU (K)	BP to RA (H4)	EXV to AHU (H5)
		2~15m	-	5m	-
RA connection	Pair	-	≤5m	-	5m
	Multi ⁽¹⁾	-	≤5m	-	5m
	Mix ⁽²⁾	-	≤5m	-	5m

Remark

- (1) Multiple air handling units (AHU)(EKEXV + EKEQ kits).
- (2) Mix of AHU units and VRV DX indoor

3D079540E

12 Installation

12 - 3 Refrigerant Pipe Selection

RXYQ-U
RYYQ-U
RYMQ-U

VRV4
Heat pump
Piping restrictions 3/3

System pattern Allowed connection ratio (CR) Other combinations are not allowed.	Total		Allowed capacity			
	Capacity	Indoor unit quantity (VRV, RA, AHU, Hydrobox)	VRV DX indoor unit	RA DX indoor unit	Hydrobox unit	Air handling unit (AHU)
VRV DX indoor units only	50~130%	Max.64	50~130%	-	-	-
VRV DX indoor unit + RA DX	80~130%	Max.32 ⁽¹⁾	0~130%	0~130%	-	-
RA DX indoor unit	80~130%	Max.32 ⁽¹⁾	-	80~130%	-	-
VRV DX indoor unit + LT hydrobox	50~130%	Max.32	50~130%	-	0~80%	-
VRV DX indoor unit + AHU	50~110% ⁽³⁾	Max.64 ⁽²⁾	50~110%	-	-	0~110%
AHU only						
Pair + multi (4)	90~110% ⁽³⁾	Max.64 ⁽²⁾	-	-	-	90~110%

Remark

- (1) There is no restriction on the number of connectable BP boxes.
- (2) For connection with AHU
EKEXV kits are also considered indoor units.
- (3) Restrictions regarding the air handling unit capacity
- (4) Pair AHU = system with 1 air handling unit connected to one outdoor unit
Multi AHU = system with multiple air handling units connected to one outdoor unit

About ventilation applications

- I. FXMQ_MF units are considered air handling units, following air handling unit limitations.
Maximum connection ratio when combined with VRV DX indoor units: <30%.
Maximum connection ratio when only air handling units are connected: <100%.
For information on the operation range, refer to the documentation of the FXMQ_MF unit.
- II. Biddle air curtains are considered air handling units, following air handling unit limitations:
For information on the operation range, refer to the documentation of the Biddle unit.
- III. [EKEXV + EKEQ] units combined with an air handling unit are considered air handling units, following air handling unit limitations.
For information on the operation range, refer to the documentation of the EKEXV-EKEQ unit.
- IV. VKM units are considered to be regular VRV DX indoor units.
For information on the operation range, refer to the documentation of the VKM unit.
- V. Because there is no refrigerant connection with the outdoor unit (only communication F1/F2), VAM units do not have connection limitations.
However, since there is communication via F1/F2, count them as regular indoor unit when calculating the maximum allowed number of connectable indoor units.

3D079540E

13 Operation range

13 - 1 Operation Range

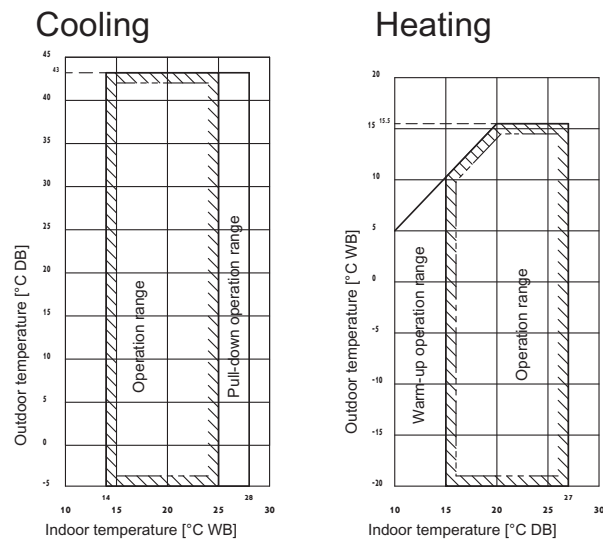
RXYQQ-U

RXYQ-U

RYYQ-U

RYMQ-U

13



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.

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14 Appropriate Indoors

14 - 1 Appropriate Indoors

RYYQ-U
RYMQ-U
RXYQ-U

Recommended indoor units for ·RXYQ*U* / RYYQ*U* / RYMQ*U*· outdoor units

HP	8	10	12	14	16	18	20
	4xFXMQ50	4xFXMQ63	6xFXMQ50	1xFXMQ50 5xFXMQ63	4xFXMQ63 2xFXMQ80	3xFXMQ50 5xFXMQ63	2xFXMQ50 6xFXMQ63

For multi outdoor units >16HP, the recommended amount of indoor units is the sum of the indoor units defined for a single outdoor unit.
For details about the allowed combinations, see the engineering databook.

Appropriate indoor units for ·RXYQ*U* / RYYQ*U* / RYMQ*U*· outdoor units

Covered by ·ENER LOT21·

FXFQ20-25-32-40-50-63-80-100-125
FXZQ15-20-25-32-40-50
FXCQ20-25-32-40-50-63-80-125
FXKQ25-32-40-63
FXDQ15-20-25-32-40-50-63
FXSQ15-20-25-32-40-50-63-80-100-125-140
FXMQ50-63-80-100-125-200-250
FXAQ15-20-25-32-40-50-63
FXHQ32-63-100
FXUQ71-100
FXNQ20-25-32-40-50-63
FXLQ20-25-32-40-50-63

Covered by ·ENER LOT10·

FTXJ25-35-50
FTXM20-25-35-42-50-60-71
CTXM15
FLXS25-35-50-60
FVXM25-35-50
FVXG25-35-50

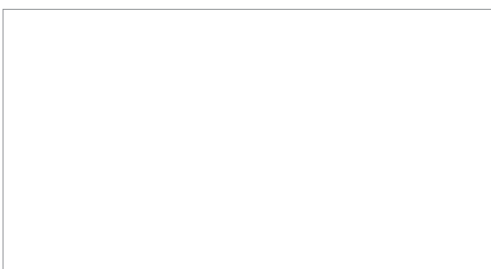
Outside the scope of ·ENER LOT21·

EKEXV50-63-80-100-125-140-200-250-400-500 + EKEQM / EKEQF
HXY080-125
VKM50-80-100
CYVS100-150-200-250
CYVM100-150-200-250
CYVL100-150-200-250

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