



Air Conditioning Technical Data

VRV IV water cooled series



EEEN15-201

RWEYQ-T8

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RWEYQ-T8

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1 Features

Ideal for high rise buildings, using water as heat source

- Unified range for standard and geothermal series simplifies stock. Geothermal series reduce CO2 emissions thanks to the use of geothermal energy as a renewable energy source
- No need for an external heating or cooling source when used in geothermal mode
- Covers all thermal needs of a building via a single point of contact: accurate temperature control, ventilation, air handling units and Biddle air curtains
- Compact & lightweight design can be stacked for maximum space saving
- Incorporates VRV IV standards & technologies: Variable Refrigerant Temperature and full inverter compressors
- Customize your VRV for best seasonal efficiency & comfort with the weather dependant Variable Refrigerant Temperature function. Increased seasonal efficiency and no more cold draft by supply of high outblow temperatures
- 2-stage heat recovery: first stage between indoor units, second stage between outdoor units thanks to the storage of energy in the water circuit
- Available in heat pump and heat recovery version
- Variable Water Flow control option increases flexibility and control
- Easy compliance with F-gas regulation thanks to automated refrigerant containment check
- 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 our i-Net service: 24/7 monitoring for maximum efficiency, extended lifetime, immediate service support thanks to failure prediction and a clear understanding of operability and usage



Inverter

2 Specifications

2-1 Technical Specifications				RWEYQ8T8	RWEYQ10T8		
System	Outdoor unit module 1			RWEYQ8T	RWEYQ10T		
Capacity range			HP	8	10		
Cooling capacity	Nom.			kW	22.4 (1) / 22.4 (2)	28.0 (1) / 27.5 (2)	
Heating capacity	Nom.			kW	25.0 (3) / 25.0 (4)	31.5 (3) / 31.5 (4)	
Power input - 50Hz	Cooling	Nom.			kW	4.42 (1) / 4.45 (2)	6.14 (1) / 6.35 (2)
	Heating	Nom.			kW	4.21 (3) / 4.30 (4)	6.00 (3) / 6.20 (4)
Capacity control	Method			Inverter controlled			
COP				5.94 (3) / 5.81 (4)	5.25 (3) / 5.08 (4)		
Maximum number of connectable indoor units				36 (5)			
Indoor index connection	Min.				100	125	
	Nom.				200	250	
	Max.				260	325	
Dimensions	Unit	Height			mm	1,000	
		Width			mm	780	
		Depth			mm	550	
	Packed unit	Height			mm	1,131	
		Width			mm	890	
		Depth			mm	660	
Weight	Unit				kg	137	
	Packed unit				kg	149	
Packing	Material			Carton			
	Weight				kg	3.1	
Packing 2	Material			Wood			
	Weight				kg	8.3	
Packing 3	Material			Plastic			
	Weight				kg	0.2	
Casing	Colour			Ivory white (Munsell code: 5Y7.5/1)			
	Material			Painted galvanized steel plate			
Heat exchanger	Type			Stainless steel plate			
Compressor	Quantity			1			
	Model			Inverter			
	Type			Hermetically sealed scroll compressor			
Fan	Type			-			
	Air flow rate	Cooling	Nom.	m ³ /min		-	
	External static pressure	Max.		Pa		-	
Sound power level	Cooling	Nom.		dBA		-	
Sound pressure level	Cooling	Nom.		50	51		
Operation range	Cooling	Min.~Max.		°CDB		--	
	Heating	Min.~Max.		°CWB		--	
	Inlet water temperature	Cooling	Min.~Max.	°CDB		10~45	
		Heating	Min.~Max.	°CWB		-10 (6) / 10.0~45	
Refrigerant	Type			R-410A			
	Charge			kg	3.5	4.2	
				TCO ₂ eq	7.3	8.8	
	GWP			2,087.5			
Refrigerant oil	Type			Synthetic (ether) oil			
	Charged volume				l	2.7	

2 Specifications

2

2-1 Technical Specifications				RWEYQ8T8	RWEYQ10T8	
Piping connections	Liquid	Type	Flare connection			
		OD	mm	9.52		
	Gas	Type	Braze connection			
		OD	mm	19.10 (7)	22.2 (7)	
	Discharge gas	Type	Braze connection			
		OD	mm	15.9 (8) / 19.10 (9)	19.1 (8) / 22.10 (9)	
	Drain	Outlet	ISO 228 - G1 1/2 B Internal Thread			
	Water	Inlet	ISO 228 - G1 1/4 B External Thread			
		Outlet	ISO 228 - G1 1/4 B External Thread			
	Heat insulation		Liquid, Suction gas and HP/LP gas			
	Piping length	OU - IU	Max.	m	120	
		After branch	Max.	m	90 (10)	
	Total piping length	System	Actual	m	300	
Level difference	OU - IU	Outdoor unit in highest position	m	50		
		Indoor unit in highest position	m	40		
	IU - IU	Max.	m	15		
Safety devices	Item	01	High pressure switch			
		02	Fusible plugs			
		03	Inverter overload protector			
		04	PC board fuse			
PED	Category	Category II				

Standard Accessories : Installation manual;

Standard Accessories : Operation manual;

Standard Accessories : Connection pipes;

2-2 Electrical Specifications				RWEYQ8T8	RWEYQ10T8
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	9.5
Current - 50Hz	Minimum circuit amps (MCA)		A	12.6	
	Maximum fuse amps (MFA)		A	20	
	Total overcurrent amps (TOCA)		A	13.5	
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; inlet water temp.: 30°C; equivalent refrigerant piping: 7,5m; level difference: 0m. Rated values are with 100% water (no glycol)
- (2) Cooling: Indoor temp. 27°CDB; 19°CWB; inlet water temp.: 30°C; equivalent refrigerant piping: 7,5m; level difference: 0m. Rated values are with 30% glycol.
- (3) Heating: Indoor temp. 20°CDB; inlet water temp.: 20°C; equivalent refrigerant piping: 7,5m; level difference: 0m. Rated values are with 100% water (no glycol).
- (4) Heating: Indoor temp. 20°CDB; inlet water temp.: 20°C; equivalent refrigerant piping: 7,5m; level difference: 0m. Rated values are with 30% glycol.
- (5) 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%)
- (6) Operation range extension in case of Glycol is used in combination with fieldsettings (see installation manual).
- (7) In case of heat recovery system
- (8) In case of heat pump system
- (9) This unit should not be installed outdoors, but indoors e.g. in a machine room.
- (10) RLA is based on following conditions: indoor temp. 27°CDB, 19°CWB; inlet water temp. 30°C

Sound pressure level is a relative value, depending on the distance and acoustic environment. For more details, please refer to the sound level drawings.

Sound values are measured in a semi-anechoic room.

Hold ambient temperature at 0-40°C and humidity at 80%RH or less. Heat rejection from the casing: 0.64kW/8HP

Hold ambient temperature at 0-40°C and humidity at 80%RH or less. Heat rejection from the casing: 0.71kW/10HP

Refer to refrigerant pipe selection or installation manual

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

Contains fluorinated greenhouse gases

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

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

TOCA means the total value of each OC set.

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

Maximum allowable voltage range variation between phases is 2%.

In accordance with EN/IEC 61000-3-11, respectively 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 $Z_{sys} \leq Z_{max}$, respectively $S_{sc} \geq$ minimum S_{sc} value.

EN/IEC 61000-3-11: European/international technical standard setting the limits for voltage changes, voltage fluctuations and flicker in public low-voltage supply systems for equipment with rated ≤ 75A

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 > 16A and ≤ 75A per phase

Ssc: Short-circuit power

system impedance

Multi combination (16-30HP) data is corresponding with the standard multi combination as mentioned on 3D084911

For more details on standard accessories refer to Installation/operation manual

In case of heat pump system, gas pipe is not used

2-3 Technical Specifications			RWEYQ16T8	RWEYQ18T8	RWEYQ20T8	RWEYQ24T8	RWEYQ26T8	RWEYQ28T8	RWEYQ30T8	
System	Outdoor unit module 1		RWEYQ8T		RWEYQ10T	RWEYQ8T			RWEYQ10T	
	Outdoor unit module 2		RWEYQ8T	RWEYQ10T		RWEYQ8T		RWEYQ10T		
	Outdoor unit module 3		-			RWEYQ8T	RWEYQ10T			
Capacity range		HP	16	18	20	24	26	28	30	
Cooling capacity	Nom.	kW	44.8 / 44.8	50.4 / 49.9	56.0 / 55.0	67.2 / 67.2	72.8 / 72.3	78.4 / 77.4	84.0 / 82.5	
Heating capacity	Nom.	kW	50.0 / 50.0	56.5 / 56.5	63.0 / 63.0	75.0 / 75.0	81.5 / 81.5	88.0 / 88.0	94.5 / 94.5	
Power input - 50Hz	Cooling	Nom.	kW	8.8 / 8.9	10.6 / 10.8	12.3 / 12.7	13.3 / 13.4	15.0 / 15.3	16.7 / 17.2	18.4 / 19.1
	Heating	Nom.	kW	8.4 / 8.6	10.2 / 10.5	12.0 / 12.4	12.6 / 12.9	14.4 / 14.8	16.2 / 16.7	18.0 / 18.6
Capacity control	Method		Inverter controlled							
COP			5.94 / 5.81	5.53 / 5.38	5.25 / 5.08	5.94 / 5.81	5.65 / 5.51	5.43 / 5.27	5.25 / 5.08	
Maximum number of connectable indoor units			36							
Indoor index connection	Min.		200	225	250	300	325	350	375	
	Nom.		400	450	500	600	650	700	750	
	Max.		520	585	650	780	845	910	975	

2 Specifications

2

2-3 Technical Specifications				RWEYQ16T8	RWEYQ18T8	RWEYQ20T8	RWEYQ24T8	RWEYQ26T8	RWEYQ28T8	RWEYQ30T8	
Sound pressure level	Cooling	Nom.	dBa	53	54		55		56		
Piping connections	Liquid	Type		Flare connection							
		OD	mm	12.7	15.9		19.1				
	Gas	Type		Braze connection							
		OD	mm	28.6		34.9					
	Discharge gas	Type		Braze connection							
		OD	mm	22.2 / 28.60		28.6 / 34.90					
	Drain	Outlet		ISO 228 - G1 1/2 B Internal Thread							
	Piping length	OU - IU	Max.	m	120						
		After branch	Max.	m	90						
	Total piping length	System	Actual	m	300						
Level difference	OU - IU	Outdoor unit in highest position	m	50							
		Indoor unit in highest position	m	40							
	IU - IU	Max.	m	15							
PED	Category			Category II							

Standard Accessories : Installation manual;

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Standard Accessories : Connection pipes;

2-4 Electrical Specifications				RWEYQ16T8	RWEYQ18T8	RWEYQ20T8	RWEYQ24T8	RWEYQ26T8	RWEYQ28T8	RWEYQ30T8
Current	Nominal running current (RLA) - 50Hz	Cooling	A	14.4	16.7	19.0	21.6	23.9	26.2	28.5
Current - 50Hz	Minimum Ssc value		kVa	1,811			2,716			
	Minimum circuit amps (MCA)		A	25.3			37.9			
	Maximum fuse amps (MFA)		A	32			50			
	Total overcurrent amps (TOCA)		A	27.0			40.5			
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

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In case of heat recovery system

In case of heat pump system

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Maximum allowable voltage range variation between phases is 2%.

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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 $> 16A$ and $\leq 75A$ per phase

Ssc: Short-circuit power

system impedance

Multi combination (16-30HP) data is corresponding with the standard multi combination as mentioned on 3D084911

For more details on standard accessories refer to Installation/operation manual

In case of heat pump system, gas pipe is not used

3 Options

3 - 1 Options

3

RWEYQ-T8

Item	Single unit		Multi - 2 - unit			Multi - 3 - unit			
	RWEYQ8	RWEYQ10	RWEYQ16	RWEYQ18	RWEYQ20	RWEYQ24	RWEYQ26	RWEYQ28	RWEYQ30
Cool/heat selector (PCB)	See note 1		KRC19-26A						
Cool/heat selector (switch)	See note 1		BRP2A81						
Cool/heat selector (fixing box)	See note 1		KJB111A						
External control adapter	Outdoor unit		DTA104A62						
Refnet header	Heat pump	---	KHRQ22M29H						
			KHRQ22M64H						
	Heat recovery	---	KHRQ22M75H						
			KHRQ23M29H						
Refnet joint	Heat pump	---	KHRQ23M64H						
			KHRQ23M75H						
			KHRQ22M20T						
			KHRQ22M29T9						
	Heat recovery	---	KHRQ22M64T						
			KHRQ22M75T						
			KHRQ23M20T						
			KHRQ23M29T9						
Outdoor multi-connection kit	Heat pump	See note 3	---			BHFQ22P1007		BHFQ22P1517	
	Heat recovery	See note 3	---			BHFQ23P907		BHFQ23P1357	
Communication cable			EKPCCAB2						

	RWEYQ-T8
BSVQ100P9V1B	○ See note 2
BSVQ100P9V1B	○ See note 2
BSVQ100P9V1B	○ See note 2
BSV4Q100PV	○ See note 2
BSV6Q100PV	○ See note 2
BS1Q10A	○
BS1Q10A	○
BS1Q10A	○
BS4Q14A	○
BS6Q14A	○
BS8Q14A	○
BS10Q14A	○
BS12Q14A	○
BS16Q14A	○

NOTES

- In case of a heat recovery system, the cool/heat selector cannot be connected.
- It is not allowed to combine ·P·-series BS units (single/multi) with ·A·-series BS units (single/multi).
- For installations without special requirements towards fire regulations, the standard multi-connection kits can be used.
For installations with special requirements towards fire regulations, the insulation material can be replaced by using kits ·EKHBFQ1· and ·EKHBFQ2·.
The 4 kits contain alternative insulation material that complies with ·EN13501-1:B-S3,dO· and with ·BS476-7· (class 1).
To replace the insulation material, determine the required number of ·EKHBFQ· kits according to the table below.

	EKBHFQ1	EKBHFQ2
BHFQ22P1007	1	1
BHFQ22P1517	2	2
BHFQ23P907	2	1
BHFQ23P1357	4	2

4 Combination table

4 - 1 Combination Table

RWEYQ-T8

VRV4 Water Cooled standard combination table (multi)

	8HP	10HP
RWEYQ8T8	1	
RWEYQ10T8		1
RWEYQ16T8	2	
RWEYQ18T8	1	1
RWEYQ20T8		2
RWEYQ24T8	3	
RWEYQ26T8	2	1
RWEYQ28T8	1	2
RWEYQ30T8		3

3D084911

RWEYQ-T8

VRV4
Water-cooled
Indoor unit combination restrictions

Indoor unit combination pattern	·VRV* DX· indoor unit	Air handling unit (AHU) ⁽³⁾
·VRV* DX· indoor unit	○	○
Air handling unit (AHU) ⁽³⁾	○	○ ₁

○ : Allowed
x : Not allowed

NOTES

- ₁
 - Combination of ·AHU· only + control box ·EKEQFA· (combination with ·VRV DX· indoor units is not allowed; maximum ·30· HP)
 - ·X·-control is possible (up to ·3x· [·EKEQV+EKEQFA*· boxes] can be connected to one outdoor unit (system)). No Variable Refrigerant Temperature control possible.
 - ·Y·-control is possible (up to ·3x· [·EKEQV+EKEQFA*· boxes] can be connected to one outdoor unit (system)). No Variable Refrigerant Temperature control possible.
 - ·W·-control is possible (up to ·3x· [·EKEQV+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 [·EKEQV+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).
- ⁽³⁾ The following units are considered AHUs:
 - ·EKEQV + EKEQ(MA/FA) + AHU· coil
 - ·Biddle· air curtain
 - ·FXMQ_MF· units

Information

- ·VKM· units are considered to be regular ·VRV DX· indoor units.
- Because there is no refrigerant connection with the outdoor unit (only communication F1/F2), ·VAM· units do not have connection limitations.

3D085697A

5 Capacity tables

5 - 1 Capacity Table Legend

5

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

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

- Capacity table database: lets you find back and export quickly the capacity information you are looking for based upon unit model, refrigerant temperature and connection ratio.

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

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

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



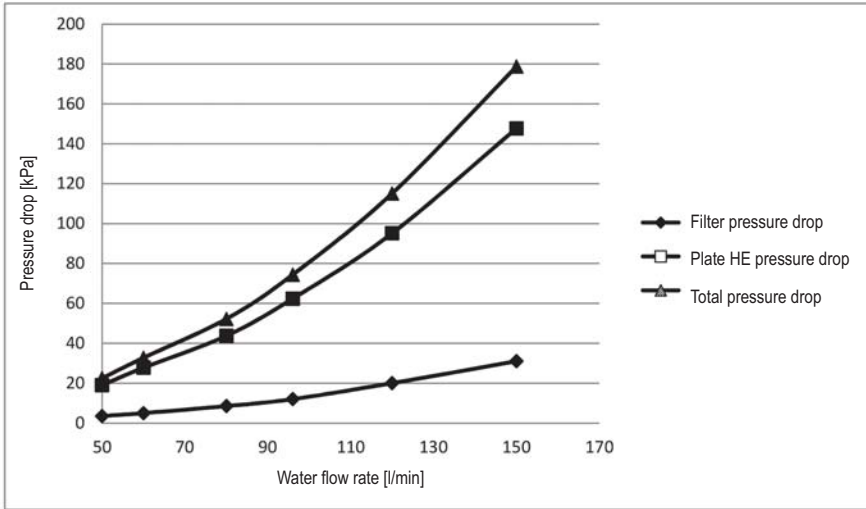
- Selection software: allows you to do load calculations, equipment selections and energy simulations for our VRV, Daikin Altherma, refrigeration and applied systems products.

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

5 Capacity tables

5 - 2 Capacity Correction Factor

RWEYQ-T8



Water flow rate	[l/min]	50	60	80	96	120	150
Filter	[kPa]	3.5	5.0	8.5	12.0	20.0	31.0
	[mH2O]	0.36	0.51	0.87	1.22	2.04	3.16
Plate heat exchanger	[kPa]	19.0	28.0	44.0	62.0	95.0	148.0
	[mH2O]	1.94	2.86	4.49	6.32	9.69	15.09
Total system (1)	[kPa]	23.0	33.0	52.0	74.0	115.0	179.0
	[mH2O]	2.35	3.37	5.30	7.55	11.73	18.25

NOTES

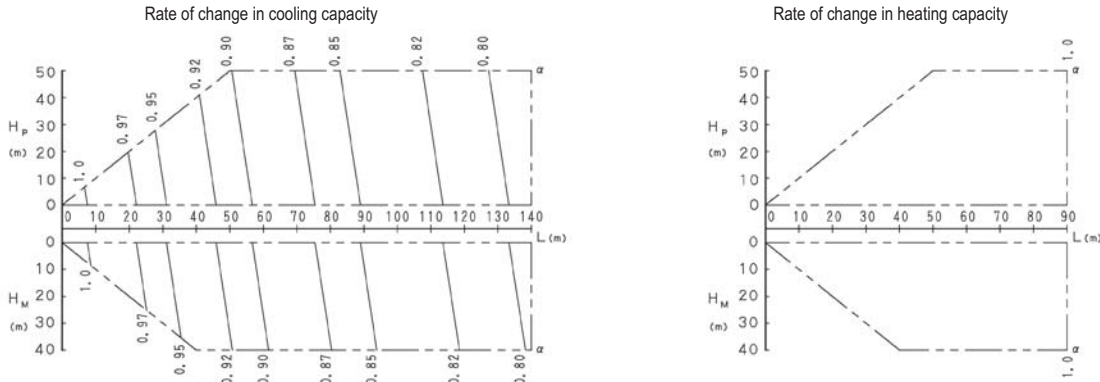
1. Total system = Filter + Plate heat exchanger

5 Capacity tables

5 - 2 Capacity Correction Factor

5

RWEYQ8T8



NOTES

- These figures illustrate the rate of change 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 from the rate of change in capacity shown in the above figures.
- With this outside unit, evaporating pressure constant control when cooling and condensing pressure constant control when heating is carried out.
- Method of calculating A/C (cooling/heating) capacity:
The maximum A/C capacity of the system will be either the total A/C capacity of the indoor units obtained from capacity characteristic table or the maximum A/C capacity of outside units as mentioned below, whichever smaller.

Calculating A/C capacity of outside units

- Condition: Indoor unit combination ratio does not exceed 100%.

$$\text{Maximum A/C capacity of outside units} = \frac{\text{A/C capacity of outside units obtained from capacity characteristic table at the 100\% combination}}{\text{Capacity change rate due to piping length to the farthest indoor unit}}$$

- Condition: Indoor unit combination ratio exceeds 100%.

$$\text{Maximum A/C capacity of outside units} = \frac{\text{A/C capacity of outside units obtained from capacity characteristic table at the combination}}{\text{Capacity change rate due to piping length to the farthest indoor unit}}$$

- When overall equivalent pipe length is 80m or more, the diameter of the main liquid pipes (outside unit-branch sections) must be increased.
Diameter of above case

Model	Liquid pipe
RWEYQ8T8	Ø12.7

- Read cooling/heating capacity rate of change in the above figures based on the following equivalent length

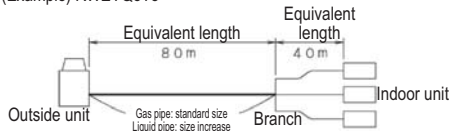
$$\text{Overall equivalent length} = (\text{equivalent length to main pipe}) \times \text{Correction factor} + (\text{Equivalent length after branching})$$

Choose a correction factor from the following table.

- When cooling capacity is calculated: gas pipe size
- When heating capacity is calculated: liquid pipe size.

Rate of change (object piping)	Correction factor	
	Standard size	Size increase
Cooling (gas pipe)	1.0	—
Heating (liquid pipe)	1.0	0.5

(Example) RWEYQ8T8



In the above case

(Cooling) Overall equivalent length = 80m x 1.0 + 40m = 120m

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

The correction factor in:

cooling capacity when Hp = 0m is thus approximately 0.81

heating capacity when Hp = 0m is thus approximately 1.0

- Explanation of symbols

H_p: Level difference (m) between indoor and outside units where indoor unit in inferior position

H_m: Level difference (m) between indoor and outside units where indoor unit in superior position

L: Equivalent pipe length (m)

α: Capacity correction factor

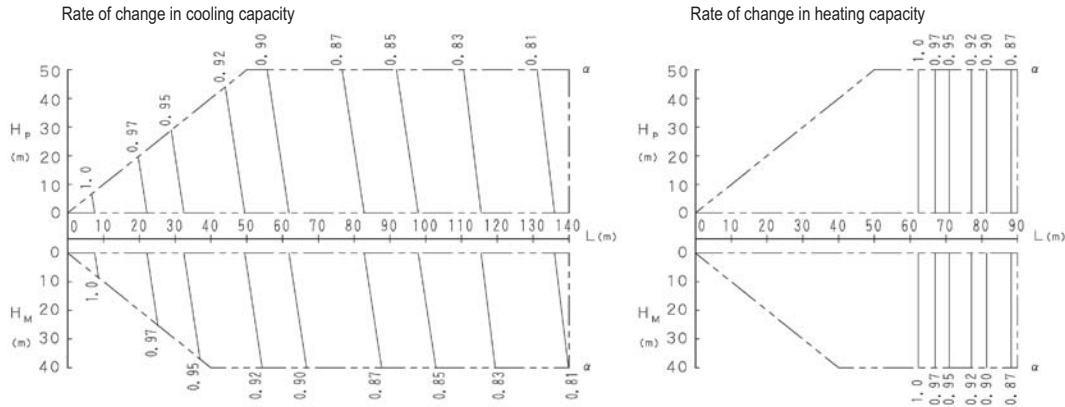
Diameter of pipes

Model	Liquid pipe
RWEYQ8T8	Ø9.5

5 Capacity tables

5 - 2 Capacity Correction Factor

RWEYQ10,20T8



3D048283D

NOTES

- These figures illustrate the rate of change 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 from the rate of change in capacity shown in the above figures.
- With this outside unit, evaporating pressure constant control when cooling and condensing pressure constant control when heating is carried out.
- Method of calculating A/C (cooling/heating) capacity:
The maximum A/C capacity of the system will be either the total A/C capacity of the indoor units obtained from capacity characteristic table or the maximum A/C capacity of outside units as mentioned below, whichever smaller.

Calculating A/C capacity of outside units

- Condition: Indoor unit combination ratio does not exceed 100%.

$$\text{Maximum A/C capacity of outside units} = \frac{\text{A/C capacity of outside units obtained from capacity characteristic table at the 100\% combination}}{\text{Capacity change rate due to piping length to the farthest indoor unit}}$$

- Condition: Indoor unit combination ratio exceeds 100%.

$$\text{Maximum A/C capacity of outside units} = \frac{\text{A/C capacity of outside units obtained from capacity characteristic table at the combination}}{\text{Capacity change rate due to piping length to the farthest indoor unit}}$$

- When overall equivalent pipe length is 80m or more, the diameter of the main liquid pipes (outside unit-branch sections) must be increased.
Diameter of above case

Model	Liquid pipe
RWEYQ10T8	Ø12.7
RWEYQ20T8	Ø19.1

- Read cooling/heating capacity rate of change in the above figures based on the following equivalent length

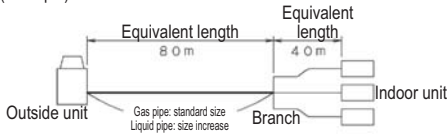
$$\text{Overall equivalent length} = (\text{equivalent length to main pipe}) \times \text{Correction factor} + (\text{Equivalent length after branching})$$

Choose a correction factor from the following table.

- When cooling capacity is calculated: gas pipe size
- When heating capacity is calculated: liquid pipe size.

Rate of change (object piping)	Correction factor	
	Standard size	Size increase
Cooling (gas pipe)	1.0	—
Heating (liquid pipe)	1.0	0.5

(Example) RWEYQ10T8



In the above case

(Cooling) Overall equivalent length = 80m x 1.0 + 40m = 120m

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

The correction factor in:

cooling capacity when Hp = 0m is thus approximately 0.82

heating capacity when Hp = 0m is thus approximately 0.90

- Explanation of symbols

- Hp: Level difference (m) between indoor and outside units where indoor unit in inferior position
- Hs: Level difference (m) between indoor and outside units where indoor unit in superior position
- L: Equivalent pipe length (m)
- α: Capacity correction factor
- Diameter of pipes

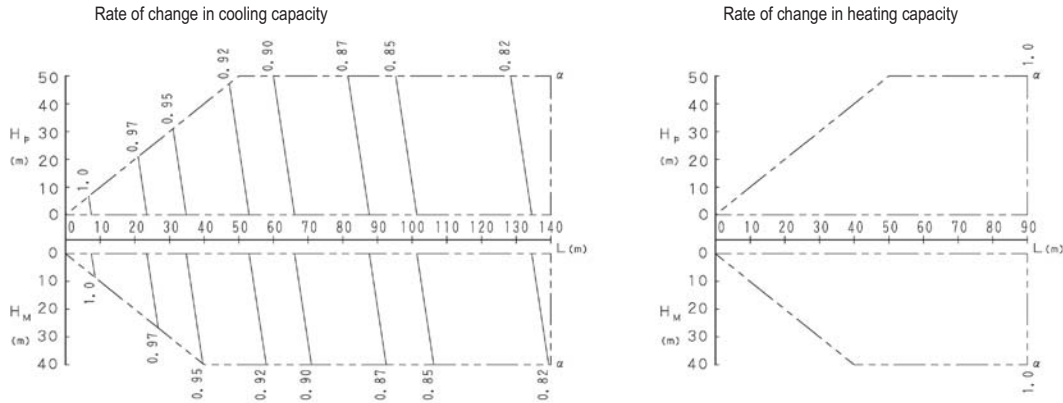
Model	Liquid pipe
RWEYQ10T8	Ø9.5
RWEYQ20T8	Ø15.9

5 Capacity tables

5 - 2 Capacity Correction Factor

5

RWEYQ16,18,24,26,28,30T8



3D048284D

NOTES

- These figures illustrate the rate of change 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 from the rate of change in capacity shown in the above figures.
- With this outside unit, evaporating pressure constant control when cooling and condensing pressure constant control when heating is carried out.
- Method of calculating A/C (cooling/heating) capacity:
The maximum A/C capacity of the system will be either the total A/C capacity of the indoor units obtained from capacity characteristic table or the maximum A/C capacity of outside units as mentioned below, whichever smaller.

Calculating A/C capacity of outside units

- Condition: Indoor unit combination ratio does not exceed 100%.

$$\text{Maximum A/C capacity of outside units} = \frac{\text{A/C capacity of outside units obtained from capacity characteristic table at the 100\% combination}}{\text{Capacity change rate due to piping length to the farthest indoor unit}}$$

- Condition: Indoor unit combination ratio exceeds 100%.

$$\text{Maximum A/C capacity of outside units} = \frac{\text{A/C capacity of outside units obtained from capacity characteristic table at the combination}}{\text{Capacity change rate due to piping length to the farthest indoor unit}}$$

- When overall equivalent pipe length is 80m or more, the diameter of the main liquid pipes (outside unit-branch sections) must be increased.
Diameter of above case

Model	Liquid pipe
RWEYQ16T8	Ø15.9
RWEYQ18,24T8	Ø19.1
RWEYQ26,28,30T8	Ø22.2

- Read cooling/heating capacity rate of change in the above figures based on the following equivalent length

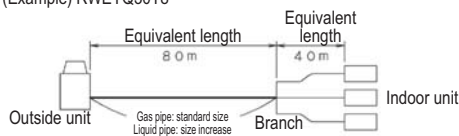
$$\text{Overall equivalent length} = (\text{equivalent length to main pipe}) \times \text{Correction factor} + (\text{Equivalent length after branching})$$

Choose a correction factor from the following table.

- When cooling capacity is calculated: gas pipe size
- When heating capacity is calculated: liquid pipe size.

Rate of change (object piping)	Correction factor	
	Standard size	Size increase
Cooling (gas pipe)	1.0	—
Heating (liquid pipe)	1.0	0.5

(Example) RWEYQ30T8



In the above case

(Cooling) Overall equivalent length = 80m x 1.0 + 40m = 120m

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

The correction factor in:

cooling capacity when Hp = 0m is thus approximately 0.83

heating capacity when Hp = 0m is thus approximately 1.0

- Explanation of symbols

- H_p: Level difference (m) between indoor and outside units where indoor unit in inferior position
- H_m: Level difference (m) between indoor and outside units where indoor unit in superior position
- L: Equivalent pipe length (m)
- α: Capacity correction factor

Diameter of pipes

Model	Liquid pipe
RWEYQ16T8	Ø12.7
RWEYQ18,24T8	Ø15.9
RWEYQ26,28,30T8	Ø19.1

6 Dimensional drawings

6 - 1 Dimensional Drawings

RWEYQ-T8

Top view: 51, 270, 80, 10, 39, 70, 44, 107, 71, 96, 8, 3, 2, 1, 9

Bottom view: Foundation bolt hole 8x Ø17, 600, 744, 400, 514

Front view: 60 After attaching accessories pipe, 780, 1000, 486, 78, 19, 97, 389, 6, 7, Manufacturer label

Right side view: 550

Rear view: 19, 389, 6

Item	Part name	Remark
1	Liquid pipe	See table 1
2	Suction pipe	See table 1
3	Gas pipe	See table 1
4	Water in connection	External pipe thread · ISO 228 - G1 1/4 B ·
5	Water out connection	External pipe thread · ISO 228 - G1 1/4 B ·
6	Drain outlet	External pipe thread · ISO 228 - G1/2 B ·
7	Grounding terminal	M5
8	Power supply wiring intake	Ø29
9	Cable inlet	Ø29

NOTES

1. The grounding terminal is located in the switch box.

Table 1

Model	RWEYQ8		RWEYQ10	
	Heat pump	Heat recovery	Heat pump	Heat recovery
Liquid pipe	Ø9.5	Ø9.5	Ø9.5	Ø9.5
Suction pipe		Ø19.1		Ø22.2
Gas pipe (high/low pressure)	Ø19.1	Ø15.9	Ø22.2	Ø19.1

Connection method

Liquid pipe	} Flare connection
Suction pipe	
Gas pipe (high/low pressure)	

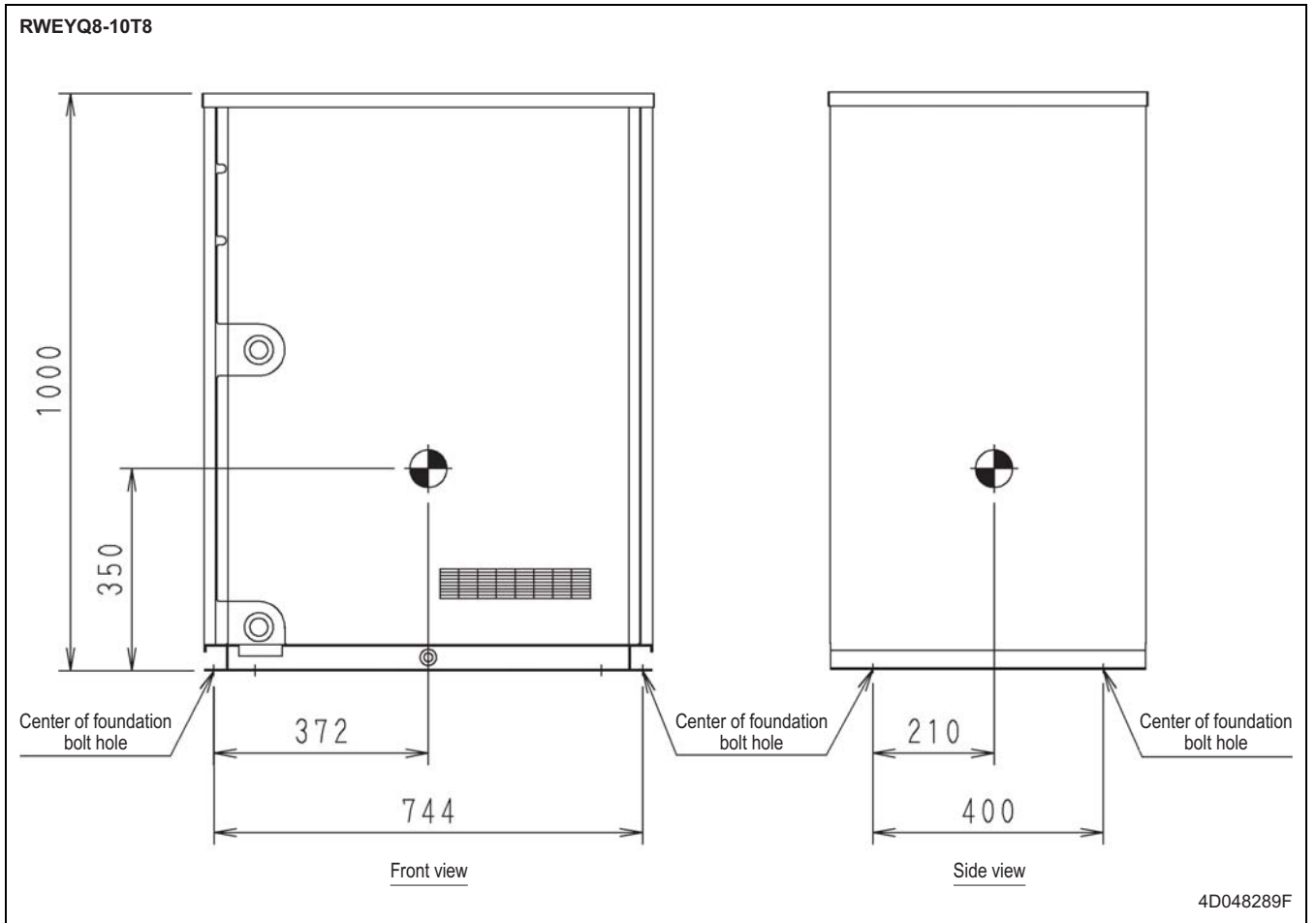
In case of a heat pump, the suction pipe is not used.

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7 Centre of gravity

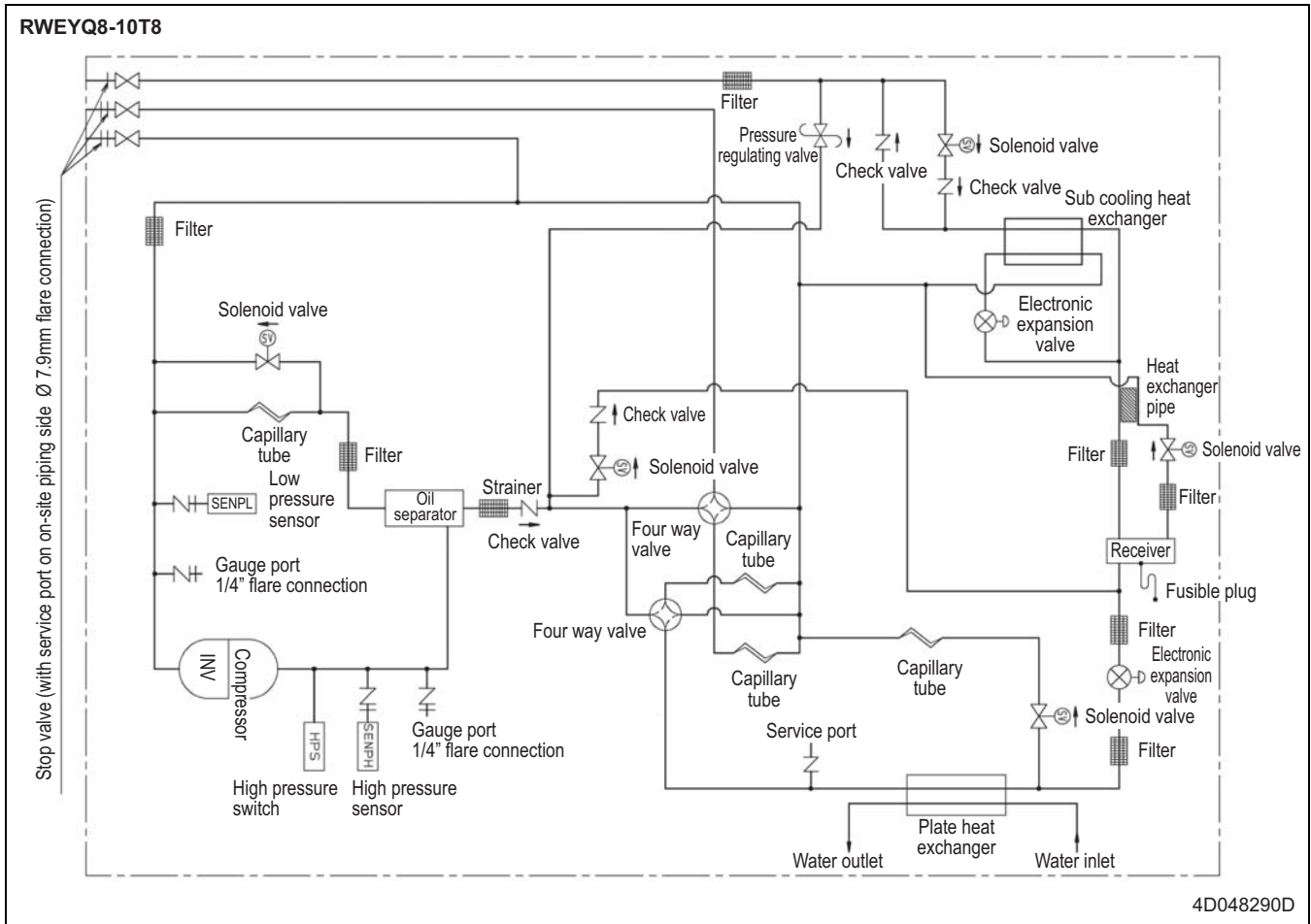
7 - 1 Centre of Gravity

7



8 Piping diagrams

8 - 1 Piping Diagrams

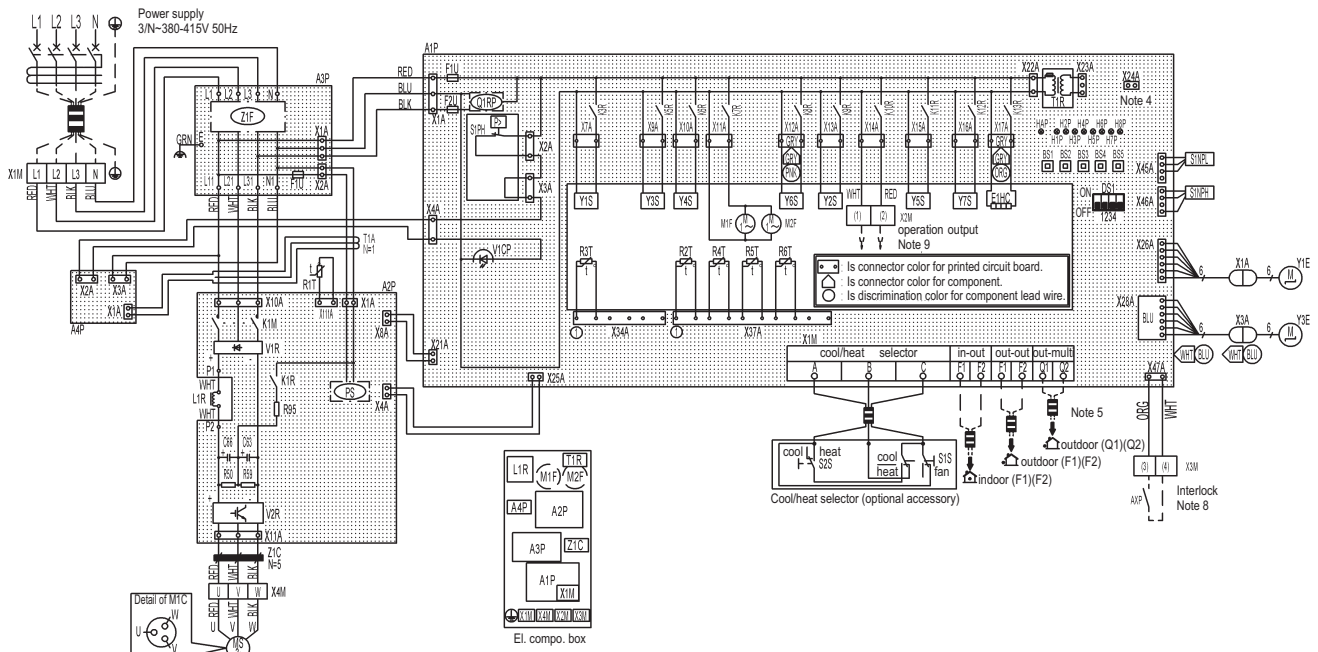


9 Wiring diagrams

9 - 1 Wiring Diagrams - Three Phase

9

RWEYQ-T8



A1P	Printed circuit board (main)	R2T	Thermistor (suction)
A2P	Printed circuit board (inv)	R3T	Thermistor (M1C discharge)
A3P	Printed circuit board (noise filter)	R4T	Thermistor (lhex gas pipe)
A4P	Printed circuit board (sub)	R5T	Thermistor (sub cooling hex)
BS1~5	Push button switch (mode, set, return, test, reset)	R6T	Thermistor (receiver liq pipe)
C63, C66	Capacitor	S1NPH	Pressure sensor (high)
DS1	Dip switch	S1NPL	Pressure sensor (low)
E1HC	Crankcase heater	S1PH	Pressure switch (high)
F1U	Fuse (250V, 5A, ⊕) (A3P)	T1A	Current sensor (A4P)
F1U, F2U	Fuse (250V, 10A, ⊕) (A1P)	T1R	Transformer (220-240V/20V)
H1P~8P	Pilot lamp (service monitor-orange) (A1P) [H2P] prepare test..... flickering malfunction detection..... light up	V1CP	Safety devices input
HAP	Pilot lamp (service monitor-green) (A1P)	V1R	Diode bridge (A2P)
K1M	Magnetic contactor (M1C) (A2P)	V2R	Power module (A2P)
K1R	Magnetic relay (A2P)	X1A, X3A	Connector (Y1E, Y3E)
K3R	Magnetic relay (Y1S) (A1P)	X1M	Terminal strip (power supply)
K5R	Magnetic relay (Y3S) (A1P)	X1M	Terminal strip (control) (A1P)
K6R	Magnetic relay (Y4S) (A1P)	X2M	Terminal strip (operation output)
K7R	Magnetic relay (M1F, M2F) (A1P)	X3M	Terminal strip (interlock)
K8R	Magnetic relay (Y6S) (A1P)	X4M	Terminal strip (M1C)
K9R	Magnetic relay (Y2S) (A1P)	Y1E	Electronic expansion valve (main)
K10R	Magnetic relay (operating output) (A1P)	Y3E	Electronic expansion valve (sub cool)
K11R	Magnetic relay (Y5S) (A1P)	Y1S	Solenoid valve (hot gas bypass)
K12R	Magnetic relay (Y7S) (A1P)	Y2S	Solenoid valve (oil recovery)
K13R	Magnetic relay (E1HC) (A1P)	Y3S	Solenoid valve (receiver pressurization)
L1R	Reactor	Y4S	Solenoid valve (receiver gas purge)
M1C	Motor (compressor)	Y5S	Solenoid valve (4 way valve) (main)
M1F, M2F	Motor (fan inverter cooling)	Y6S	Solenoid valve (liquid pipe)
PS	Switching power supply	Y7S	Solenoid valve (4 way valve) (heat exchanger)
Q1RP	Phase reversal detect circuit (A1P)	Z1C	Noise filter (ferrite core)
R50, 59	Resistor	Z1F	Noise filter (with surge absorber)
R95	Resistor (current limiting)		Cool/heat selector
R1T	Thermistor (fin) (A2P)	S1S	Selector switch (fan/cool • heat)
		S2S	Selector switch (cool/heat)

NOTES

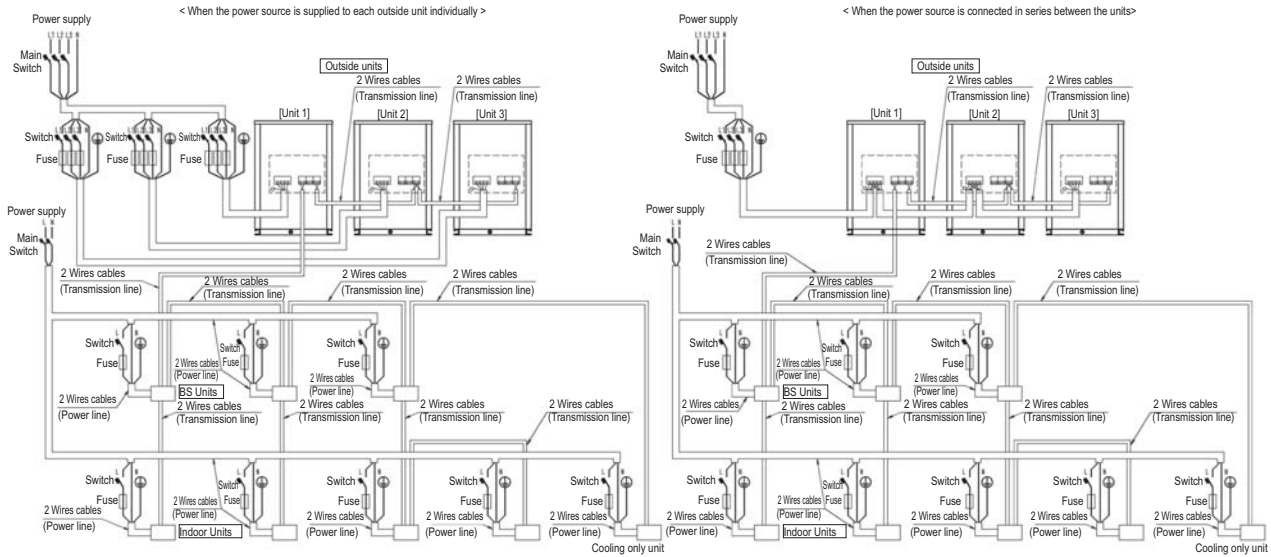
1. This wiring diagram is applied only to the outdoor unit.
2. - - [] - - : field wiring
3. [] : terminal strip, [] : connector, -○- : terminal, ⊕ : protective earth (screw)
4. When using the option adapter, refer to the installation manual.
5. Refer to the installation manual for connection wiring to indoor-outdoor transmission F1-F2. Outdoor-outdoor transmission F1-F2. Outdoor-multi transmission Q1-Q2.
6. Refer to installation manual, how to use BS1~BS5 and DS1 switch.
7. When operating, don't short circuit for protection device (S1PH).
8. Be sure to connect an interlock circuit between the terminal (3) - (4) of terminal strip (X3M).
9. Install a heat source water pump operation circuit between the terminal (1) - (2) of terminal strip (X2M), when interlocking a heat source water pump and system operation.
10. Cool/heat selector cannot be connected when operating heat recovery system.
11. Colours: BLK: BLACK, RED: RED, BLU: BLUE, WHT: WHITE, PNK: PINK, GRY: GRAY, ORG: ORANGE.

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10 External connection diagrams

10 - 1 External Connection Diagrams

RWEYQ-T8 [HEAT RECOVERY]

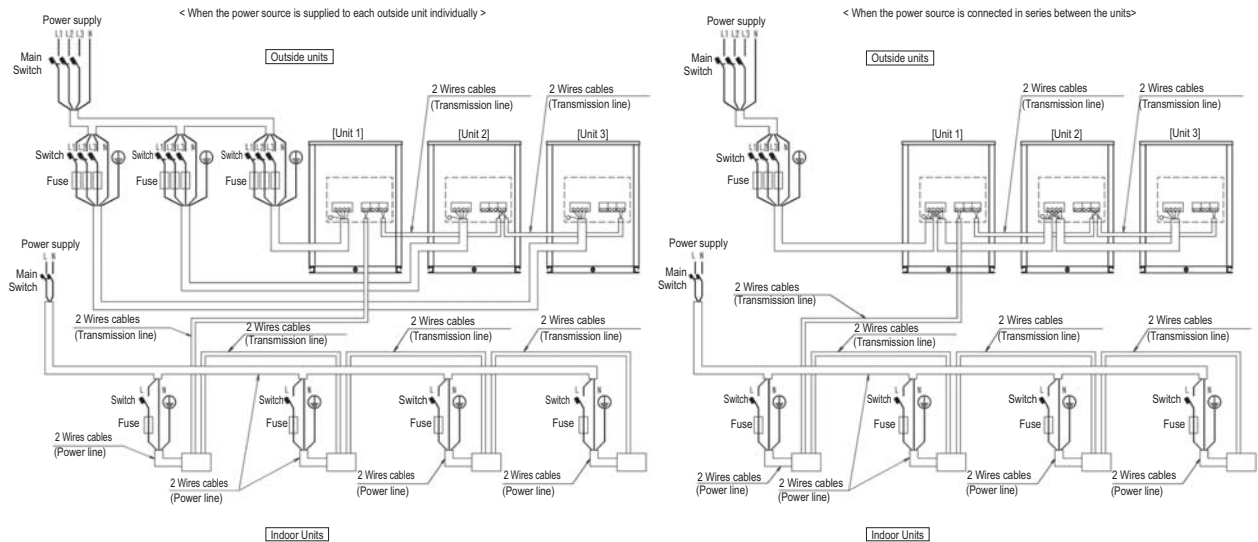


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NOTES

1. All wiring, components and materials to be procured on the site must comply with the applicable local and national codes.
2. Use copper conductors only.
3. As for details, see wiring diagram.
4. Install circuit breaker for safety.
5. All field wiring and components must be provided by licensed electrician.
6. Unit shall be grounded in compliance with the applicable local and national codes.
7. Wiring shown are general points-of-connection guides only and are not intended for or to include all details for a specific installation.
8. Be sure to install the switch and the fuse to the power line of each equipment.
9. Install the main switch that can interrupt all the power sources in an integrated manner because this system consists of the equipment utilizing the multiple power sources.
10. If there exists the possibility of reversed phase, lose phase, momentary blackout or 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.

RWEYQ-T8 [HEAT PUMP]



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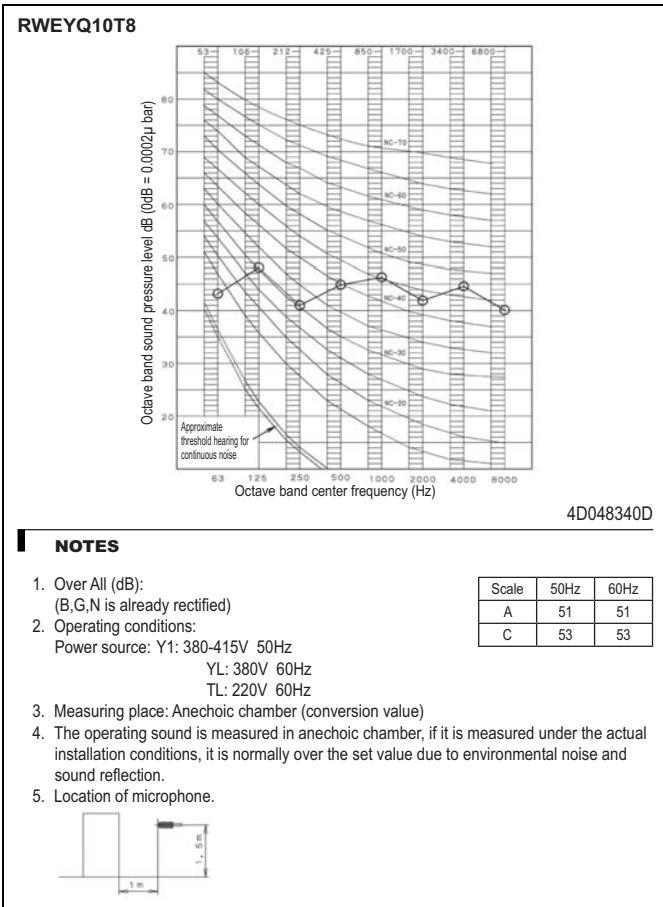
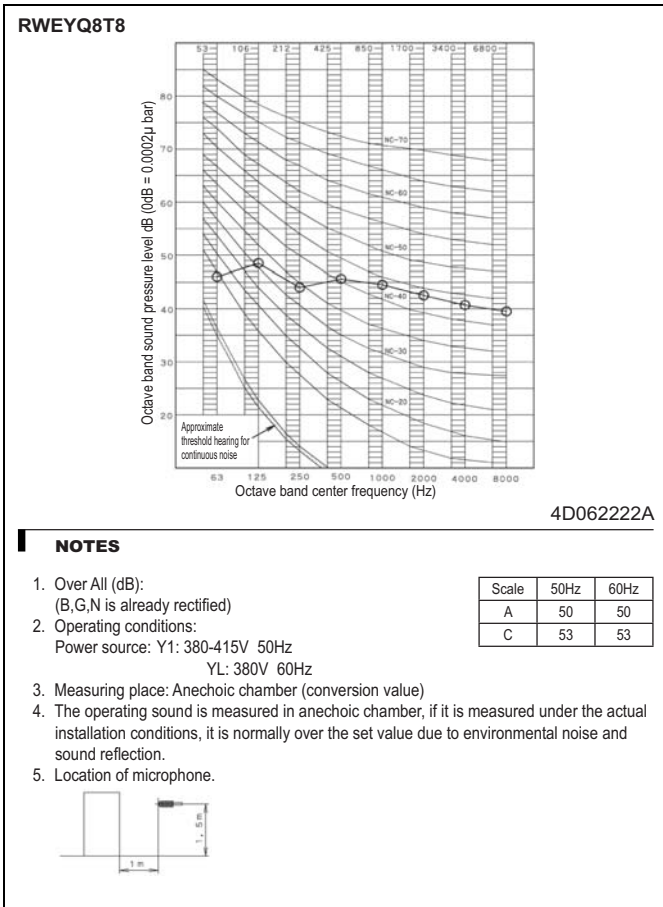
NOTES

1. All wiring, components and materials to be procured on the site must comply with the applicable local and national codes.
2. Use copper conductors only.
3. As for details, see wiring diagram.
4. Install circuit breaker for safety.
5. All field wiring and components must be provided by licensed electrician.
6. Unit shall be grounded in compliance with the applicable local and national codes.
7. Wiring shown are general points-of-connection guides only and are not intended for or to include all details for a specific installation.
8. Be sure to install the switch and the fuse to the power line of each equipment.
9. Install the main switch that can interrupt all the power sources in an integrated manner because this system consists of the equipment utilizing the multiple power sources.
10. If there exists the possibility of reversed phase, lose phase, momentary blackout or 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 Sound data

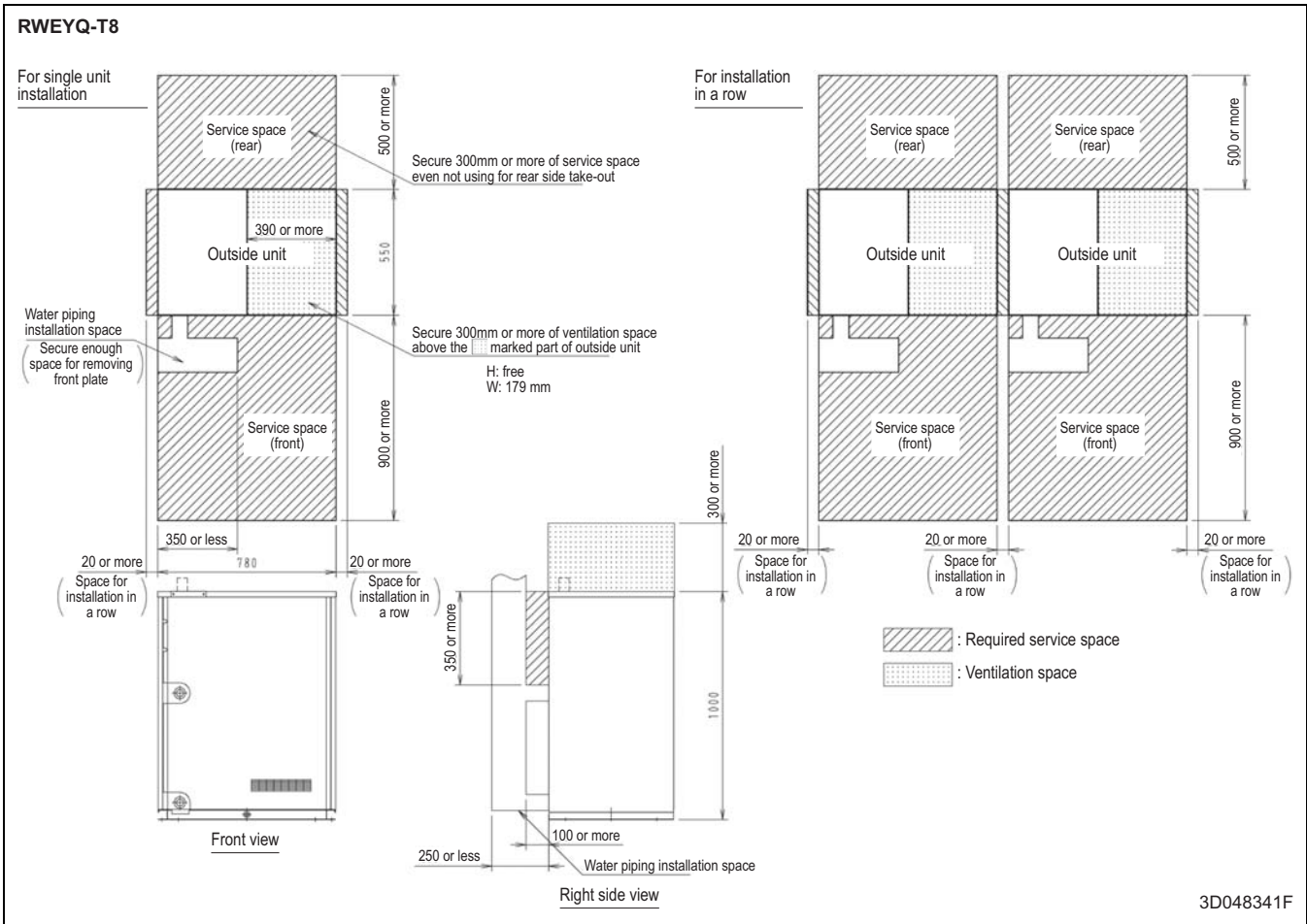
11 - 1 Sound Pressure Spectrum

11



12 Installation

12 - 1 Service Space



12 Installation

12 - 2 Refrigerant Pipe Selection

12

RWEYQ-T8
VRV4 Watercooled Field Piping Restrictions (1/3)

Reference drawing see page 2/3	Maximum piping length			Maximum height difference			Total Piping Length
	Longest pipe (A+[B,J]) Actual / (Equivalent)	After first branch (B,J) Actual	After first branch for outdoor multi (D) Actual / (Equivalent)	Indoor to outdoor (H1) Outdoor above indoor / (indoor above outdoor)	Indoor to indoor (H2)	Outdoor to outdoor (H3)	
Standard Only VRV DX indoor connected Standard multi combination	120/(140)m	40 m ⁽¹⁾	10/(13)m	50/(40)m	15m	2m	300m
AHU connection	Pair	50/(55)m ⁽²⁾	-	-	40/(40)m	-	-
	Multi ⁽³⁾	120/(140)m	40 m	10/13m	40/(40)m	15m	300m
	Mix ⁽⁴⁾	120/(140)m	40 m	10/13m	40/(40)m	15m	300m

NOTES

For standard multi combinations; see 3D084911

(1) Extension is possible if all below conditions are met (limitation can be extended up to 90m)

- The piping length between all indoor to the nearest branch kit is ≤ 40m.
- It is necessary to increase the pipe size of the gas and liquid piping if the pipe length between the first and the final branch kit is over 40m. If the increased pipe size is larger than the pipe size of the main pipe, then the pipe size of the main pipe has to be increased as well.
- When the piping size is increased (b), the piping length has to be counted as double. The total piping length has to be within limitations (see table above).
- The piping length difference between the nearest indoor from first branch to the outdoor unit and farthest indoor to the outdoor unit is ≤ 40m.

(2) The allowable minimum length is 5 m.

(3) Using several AHU (EKEXV + EKEQ - kits)

(4) Mix of AHU and VRV DX indoor

3D085696(1)

RWEYQ-T8
VRV4 Watercooled Field Piping Restrictions (2/3)

NOTES

- Schematic indication: illustrations may vary from real unit outlook.
- Displayed system is only to illustrate piping length limitations! Combination of displayed indoor unit types is not allowed. See 3D085697 for allowed combinations.

AHU connection		Allowable piping length	Max. height difference
		EXV to AHU (K)	EXV to AHU (H5)
	Pair	≤5m	5m
	Multi ⁽¹⁾	≤5m	5m
	Mix ⁽²⁾	≤5m	5m

NOTES

- Using several AHU (EKEXV + EKEQ- kits)
- Mix of AHU and VRV DX indoor

3D085696(2)

12 Installation

12 - 2 Refrigerant Pipe Selection

RWEYQ-T8

VRV4 Watercooled Field Piping Restrictions (3/3)

System pattern Allowed connection ratio (CR)	Total		Allowable capacity	
	capacity	Indoor unit quantity (VRV, RA, AHU, Hydrobox) (excl. BP box and EXV kits)	VRV DX indoor	AHU
* Other combinations are N.A.				
Only VRV DX indoor	50~130%	Max. 36	50~130%	-
VRV DX indoor + AHU (mix)	50~110% ⁽²⁾	Max. 36 ⁽¹⁾	50~110%	0~110%
Only AHU (pair AHU + multi AHU) ⁽³⁾	90~110% ⁽²⁾	Max. 36 ⁽¹⁾	-	90~110%

NOTES

1. When using AHU connection: see EKEXV kit as an indoor unit for counting the total number of indoor units
2. Restrictions by air handling unit capacity
3. Pair AHU = system with 1 AHU connected to one watercooled unit // Multi AHU = system with several AHU connected to 1 watercooled unit system

SPECIAL INFORMATION REGARDING VENTILATION APPLICATIONS

- FXMQ_MF** model is considered as an AHU, following AHU limitations and respecting additional limitations:
 - Maximum FXMQ_MF connection ratio (CR) when combined with VRV DX indoor units: CR ≤ 30%
 - Maximum FXMQ_MF connection ratio (CR) when only AHU is used: CR ≤ 100%
 - (operation range information: see specifications of FXMQ_MF unit)
- Biddle aircurtain** is considered as an AHU, following AHU limitations
(operation range information: see specifications of Biddle unit)
- [EKEXV + EKEQ] combined with AHU** is considered as an AHU, following AHU limitations
(operation range information: see specifications of EKEXV-EKEQ unit)
- VKM** is considered to be a regular VRV DX indoor unit
(operation range information: see specifications of VKM unit)
- VAM** does not have limitations on connection as there is no refrigerant connection with the watercooled unit (only communication F1/F2; so counting in # indoor units)

3D085696(3)

12 Installation

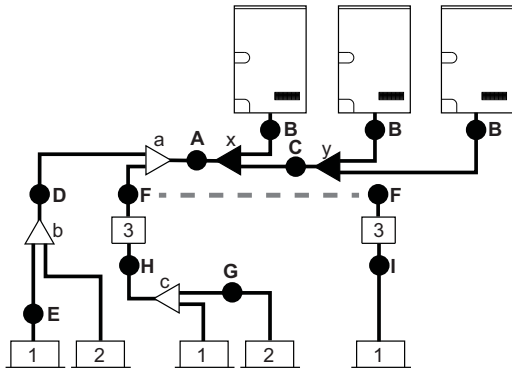
12 - 2 Refrigerant Pipe Selection

12

RWEYQ-T8

Selection of piping size

Determine the proper size referring to following tables and reference figure (only for indication).



- 1,2 VRV DX indoor unit
- 3 BS unit
- a,b,c Indoor branch kit
- x,y Multi outdoor unit connection kit



INFORMATION

- In case of heat recovery system:
Use 3 pipes (suction gas, HP/LP gas, liquid).
- In case of heat pump system:
Use 2 pipes (gas and liquid).
In case of gas pipe in heat pump system
Select the piping size in accordance with the suction gas piping size.
No BS unit can be used in case of heat pump system.

Piping between outdoor unit and (first) refrigerant branch kit: A, B, C

Choose from the following table in accordance with the outdoor unit total capacity type, connected downstream.

Outdoor unit capacity type (HP)	Piping outer diameter size (mm)		
	Suction gas pipe	Liquid pipe	HP/LP gas pipe
8	19.1	9.5	15.9
10	22.2		19.1
16	28.6	12.7	22.2
18+20		15.9	
24	34.9	19.1	28.6
26+30			

- Piping between refrigerant branch kits: D
- Piping between refrigerant branch kit and BS unit: F
- Piping between BS unit and refrigerant branch kit: H

Choose from the following table in accordance with the indoor unit total capacity type, connected downstream. Do not let the connection piping exceed the refrigerant piping size chosen by the general system model name.

Indoor unit capacity index	Piping outer diameter size (mm)		
	Suction gas pipe	Liquid pipe	HP/LP gas pipe
<150	15.9	9.5	12.7
150≤x<200	19.1		15.9
200≤x<290	22.2	12.7	19.1
290≤x<420	28.6		
420≤x<640	34.9	15.9	28.6
640≤x<920		19.1	
≥920	41.3	19.1	

In case of heat pump system (or 2 pipe):
For the gas piping size: select the size of suction gas piping.

Example:

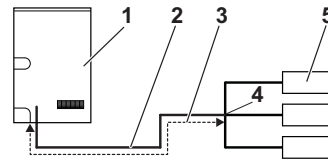
Downstream capacity for E=capacity index of unit 1
Downstream capacity for D=capacity index of unit 1+capacity index of unit 2

Piping between BS unit or refrigerant branch kit and indoor unit: E, G, I

Pipe size for direct connection to indoor unit must be the same as the connection size of the indoor unit.

Indoor unit capacity index	Piping outer diameter size (mm)	
	Suction gas pipe	Liquid pipe
15, 20, 25, 32, 40, 50	12.7	6.4
63, 80, 100, 125	15.9	9.5
200	19.1	
250	22.2	

- When the equivalent pipe length between outdoor and indoor units is 80 m or more, the size of the main liquid pipe must be increased. Depending on the length of the piping, the capacity may drop, but even in such a case it is possible to increase the size of the main pipe.



- 1 Outdoor unit
- 2 Main pipes
- 3 Increase only liquid pipe size
- 4 First refrigerant branch kit
- 5 Indoor unit

Size up	
HP Class	Liquid size (mm)
8+10	9.5 → 12.7
16	12.7 → 15.9
18+20+24	15.9 → 19.1
26+30	19.1 → 22.2

Never increase suction gas pipe and HP/LP gas pipe.

- The pipe thickness of the refrigerant piping shall comply with the applicable legislation. The minimal pipe thickness for R410A piping must be in accordance with the table below.

Pipe Ø (mm)	Minimal thickness t (mm)
6.4	0.80
9.5	
12.7	
15.9	0.99
19.1	
22.2	0.80
28.6	
34.9	0.99
41.3	1.21
	1.43

- In case the required pipe sizes (inch sizes) are not available, it is also allowed to use other diameters (mm sizes), taken the following into account:

- Select the pipe size nearest to the required size.
- Use the suitable adapters for the change-over from inch to mm pipes (field supply).

In this case, the additional refrigerant calculation has to be adjusted as mentioned in "16.3. Calculating the additional refrigerant charge" on page 31.

12 Installation

12 - 2 Refrigerant Pipe Selection

RWEYQ-T8

Selection of refrigerant branch kits

Refrigerant Refnets

For piping example, refer to "9.3. Selection of piping size" on page 10.

- When using Refnet joints at the first branch counted from the outdoor unit side, choose from the following table in accordance with the capacity of the outdoor unit (e.g. Refnet joint a).

Outdoor unit capacity type (HP)	2 pipes	3 pipes
8+10	KHRQ22M29T9	KHRQ23M29T9
16+18+20	KHRQ22M64T	KHRQ23M64T
24+26+30	KHRQ22M75T	KHRQ23M75T

- For Refnet joints other than the first branch (e.g. Refnet joint b), select the proper branch kit model based on the total capacity index of all indoor units connected after the refrigerant branch.

Indoor unit capacity index	2 pipes	3 pipes
<200	KHRQ22M20T	KHRQ23M20T
200≤x<290	KHRQ22M29T9	KHRQ23M29T9
290≤x<640	KHRQ22M64T	KHRQ23M64T
≥640	KHRQ22M75T	KHRQ23M75T

- Concerning Refnet headers, choose from the following table in accordance with the total capacity of all the indoor units connected below the Refnet header.

Indoor unit capacity index	2 pipes	3 pipes
<200	KHRQ22M29H	KHRQ23M29H
200≤x<290	KHRQ22M29H	KHRQ23M29H
290≤x<640	KHRQ22M64H ^(a)	KHRQ23M64H ^(a)
≥640	KHRQ22M75H	KHRQ23M75H

(a) If the pipe size above the Refnet header is Ø34.9 or more, KHRQ22M75H/ KHRQ23M75H is required.



INFORMATION

Maximum 8 branches can be connected to a header.

- How to choose a multi outdoor unit connection piping kit (needed if the outdoor unit capacity type is 16 HP or more). Choose from the following table in accordance with the number of outdoor units.

Number of outdoor units	Multi outdoor unit connection kit	
	2	3
Heat pump system	BHFQ22P1007	BHFQ22P1517
Heat recovery system	BHFQ23P907	BHFQ23P1357



NOTICE

Refrigerant branch kits can only be used with R410A.

System piping (length) limitations

Piping length restrictions

Make sure to perform the piping installation within the range of the maximum allowable pipe length, allowable level difference and allowable length after branching as indicated below.

Definitions

Actual piping length: pipe length between outdoor⁽¹⁾ and indoor units.

Equivalent piping length⁽²⁾: pipe length between outdoor⁽¹⁾ and indoor units.

Total piping length: total piping length from the outdoor⁽¹⁾ to all indoor units.

Difference in height between outdoor and indoor units: H1

Difference in height between indoor and indoor units: H2

Difference in height between outdoor and outdoor units: H3

(1) If the system capacity is >10HP, re-read "the first outdoor branch as seen from the indoor unit".
 (2) Assume equivalent piping length of Refnet joint=0.5 m, Refnet header=1 m, BSVQ100/160=4 m and BSVQ250=6 m (for calculation purposes of equivalent piping length, not for refrigerant charge calculations).

12 Installation

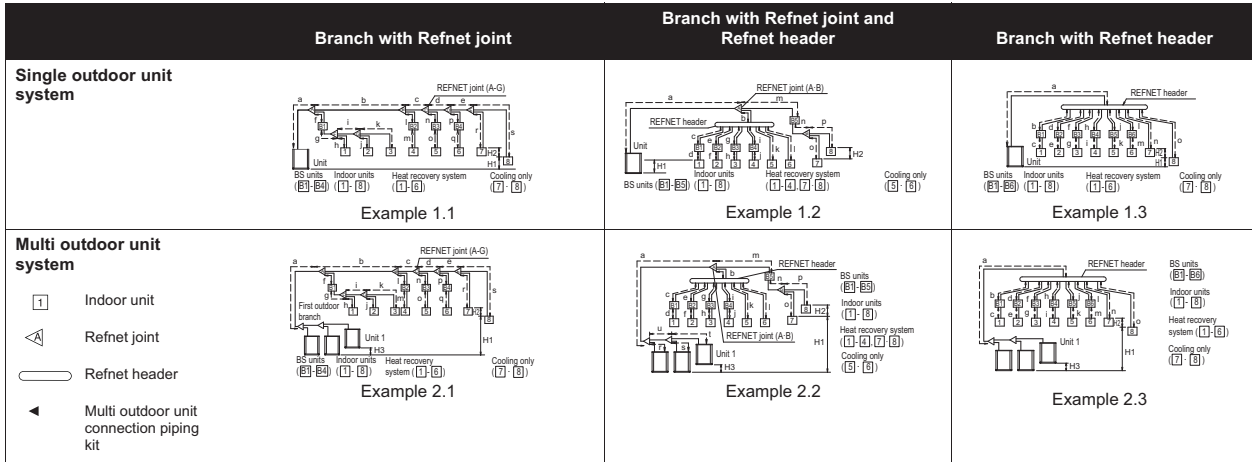
12 - 2 Refrigerant Pipe Selection

12

RWEYQ-T8

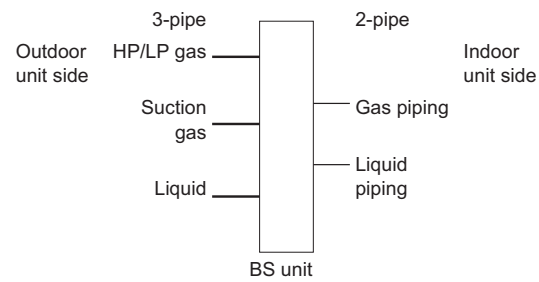
System containing VRV DX indoor units

System setup



Example of connection in case of heat recovery system

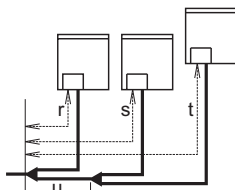
Connection to BS unit



■ Piping between outdoor unit and BS unit: thick line (3 pipe)

■ Piping between BS unit and indoor unit: thin line (2 pipe)

Example 3: with multi outdoor unit layout



Maximum allowable length

■ Between outdoor and indoor units

Actual piping length	120 m	Example 1.1 unit 8: a+b+c+d+e+s≤120 m Example 2.1 unit 8: a+b+c+d+e+s≤120 m	Example 1.2 unit 4: a+b+i+j≤120 m unit 5: a+b+k≤120 m unit 8: a+m+n+p≤120 m	Example 1.3 unit 8: a+o≤120 m unit 4: a+h+i≤120 m
Equivalent length ⁽²⁾	140 m	—	—	—
Total piping length	300 m	Example 1.1 a+b+c+d+e+f+g+h+i+j+k+l+m+n+o+p+q+r+s ≤300 m Example 2.1 a+b+c+d+e+f+g+h+i+j+k+l+m+n+o+p+q+r+s ≤300 m	—	—

■ Between outdoor branch and outdoor unit (only in case >10 HP)

Actual piping length	10 m	Example 3 r, s, t≤10 m; u≤5 m
Equivalent length	13 m	—

Maximum allowable height difference

H1	≤50 m (40 m) (if outdoor is located below indoor units)
H2	≤15 m
H3	≤2 m

12 Installation

12 - 2 Refrigerant Pipe Selection

RWEYQ-T8

Maximum allowable length after branch

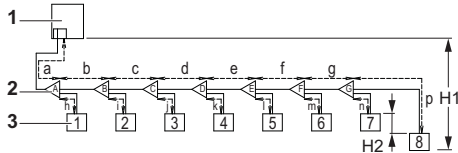
The pipe length from the first refrigerant branch kit to the indoor unit ≤ 40 m.

Example 1.1: unit 8: $b+c+d+e+s \leq 40$ m

Example 1.2: unit 5: $b+k \leq 40$ m, unit 8: $m+n+p \leq 40$ m

Example 1.3: unit 8: $o \leq 40$ m

However, extension is possible if all below conditions are met. In this case limitation can be extended up to 90 m.



- 1 Outdoor units
- 2 Refnet joints (A-G)
- 3 Indoor unit (1-8)

a. The piping length between all indoor to the nearest branch kit is ≤ 40 m.

Example: $h, i, j \dots p \leq 40$ m

b. It is necessary to increase the pipe size of the suction gas and liquid piping if the pipe length between the first and the final branch kit is over 40 m.

If the increased pipe size is larger than the pipe size of the main pipe, increase is not allowed, extension till 90 m can not be done.

Increase the pipe size as follows:

$9.5 \rightarrow 12.7$; $12.7 \rightarrow 15.9$; $15.9 \rightarrow 19.1$; $19.1 \rightarrow 22.2$; $22.2 \rightarrow 25.4^{(1)}$; $28.6 \rightarrow 31.8^{(1)}$; $34.9 \rightarrow 38.1^{(1)}$

Example: unit 8: $b+c+d+e+f+g+p \leq 90$ m and $b+c+d+e+f+g > 40$ m; increase the pipe size of b, c, d, e, f, g.

c. When the piping size is increased (step b), the piping length has to be counted as double (except for the main pipe and the pipes that are not increased in pipe size).

The total piping length has to be within limitations (see table above).

Example:

$a+b*2+c*2+d*2+e*2+f*2+g*2+h+i+j+k+l+m+n+p \leq 300$ m.

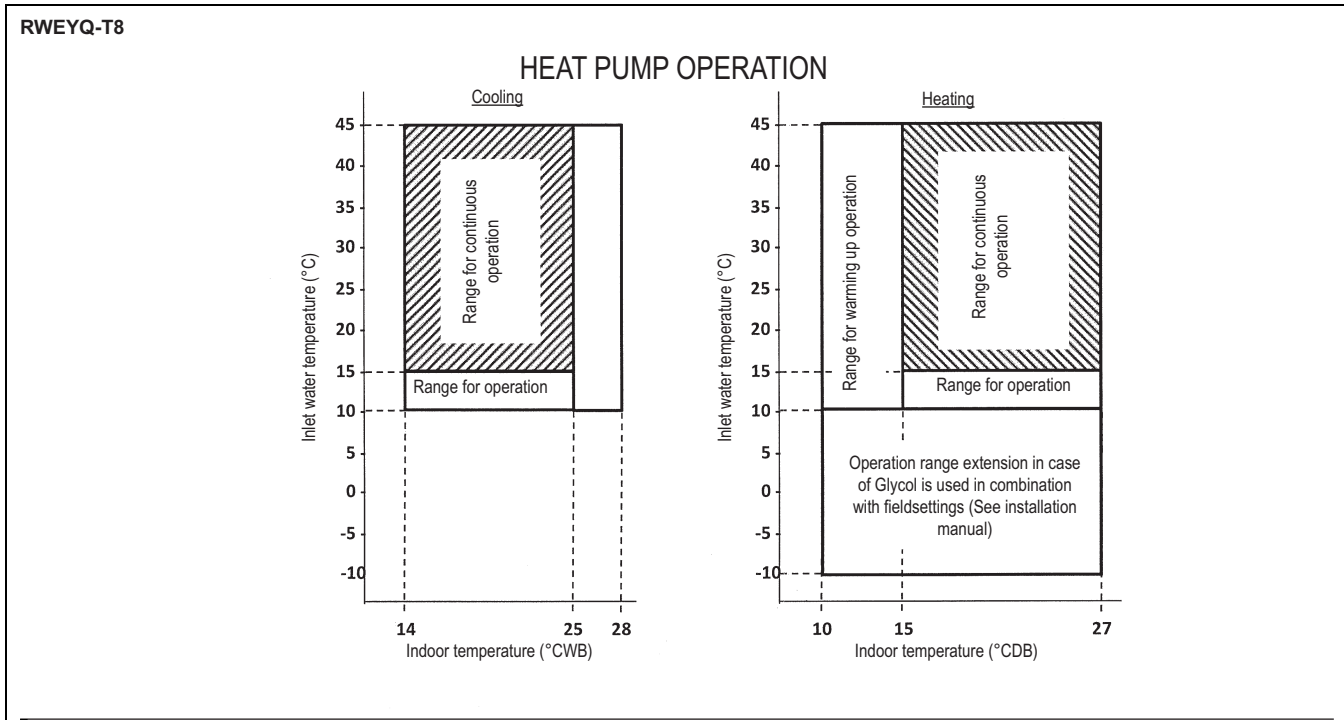
d. The piping length difference between the nearest indoor from first branch to the outdoor unit and farthest indoor to the outdoor unit is ≤ 40 m.

Example: The farthest indoor unit 8. The nearest indoor unit 1 $\rightarrow (a+b+c+d+e+f+g+p)-(a+h) \leq 40$ m.

13 Operation range

13 - 1 Operation Range

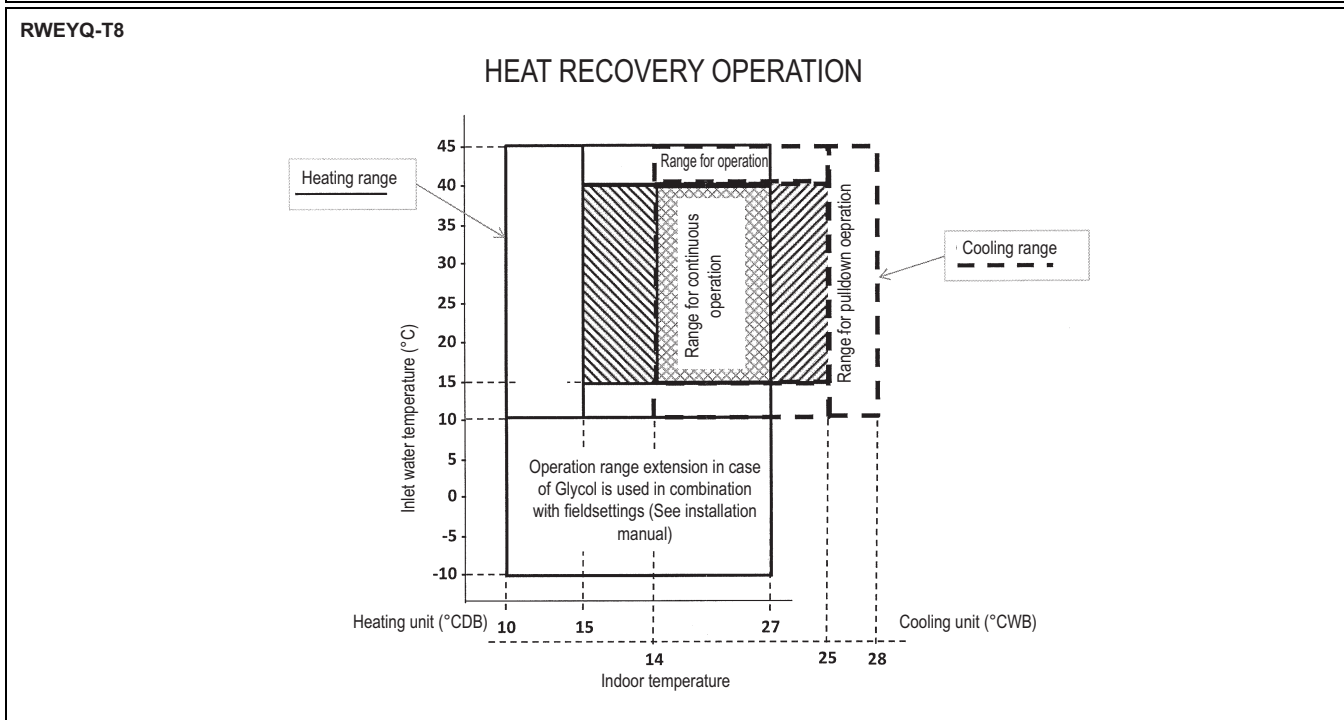
13



NOTES

- Cooling operation range is kept in any case
- This figure shows the range which can be operated when the water flow is between 50~150 l/min.
- Design within the following condition range:
 water temperature: 20 ~ 35 °C
 water volume: 60 l/min or more
- When cooling load is small, thermostat-off may be carried out for freeze-up protection
- Hold ambient temperature at 0~40°C and humidity at 80%RH or less.

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