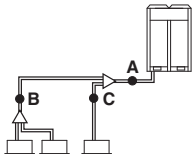
Pipe size selection



A. Piping between outdoor unit and refrigerant branch kit

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

Outdoor unit connection piping size

Outdoor unit capacity type	Piping size (outer diameter) (mm)	
	Gas pipe	Liquid pipe
RXYCQ8	Ø15.9	Ø9.5
RXYCQ10	Ø19.1	
RXYCQ12	Ø22.2	
RXYCQ14~18	Ø28.6	Ø12.7
RXYCQ20		Ø15.9

B. Piping between refrigerant branch kits

- Choose from the following table in accordance with the total capacity of all the indoor units connected below this.
- Do not let the connection piping exceed the refrigerant piping size chosen by general system model name.

Indoor or outdoor unit total capacity	Piping size (outer diameter) (mm)	
	Gas pipe	Liquid pipe
<150	Ø15.9	Ø9.5
150≤x<200	Ø19.1	
200≤x<290	Ø22.2	
290≤x<420	Ø28.6	Ø12.7
420≤x<600		Ø15.9

C. Piping between refrigerant branch kit and indoor unit

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

Indoor capacity type	Piping size (outer diameter) (mm)	
	Gas pipe	Liquid pipe
20~50	Ø12.7	Ø6.4
63~125	Ø15.9	Ø9.5
200	Ø19.1	
250	Ø22.2	

When the equivalent pipe length between outdoor and indoor units is 90 m or more, the size of the main pipes (both gas side and liquid side) 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 pipes.

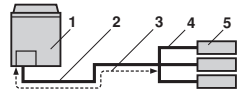
	Gas side
RXYCQ8	Ø15.9 → Ø19.1
RXYCQ10	Ø19.1 → Ø22.2
RXYCQ12	Ø22.2 → Ø25.4(a)
RXYCQ14+16	Ø28.6 —
RXYCQ18+20	Ø28.6 → Ø31.8(a)

— Increase is not allowed

	Liquid side
RXYQ8	Ø9.5 —
RXYQ10~12	Ø9.5 → Ø12.7
RXYQ14~18	Ø12.7 → Ø15.9
RXYQ20	Ø15.9 → Ø19.1

— Increase is not allowed

(a) If not available, increase is not allowed



1 Outdoor unit
2 Main pipes
3 Increase
4 First refrigerant branch kit
5 Indoor unit

How to calculate the additional refrigerant to be charged

Additional refrigerant to be charged R (kg)
R should be rounded off in units of 0.1 kg

$$R = [(X_1 \times \mathbf{Ø19.1}) \times 0.26] + [(X_2 \times \mathbf{Ø15.9}) \times 0.18] + [(X_3 \times \mathbf{Ø12.7}) \times 0.12] + [(X_4 \times \mathbf{Ø9.5}) \times 0.059] + [(X_5 \times \mathbf{Ø6.4}) \times 0.022] + \mathbf{A}$$

	A
8~14	**0** kg
16~20	**1** kg

$X_{1...5}$ = Total length (m) of liquid piping size at **Øa**
A = Weight according to table

When using metric piping, see note 2.

Example for refrigerant branch using refnet joint

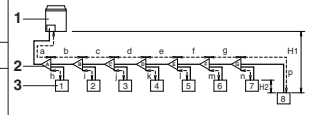
If the outdoor unit is RXYCQ20A and the piping lengths are as below

a : Ø15.9x30 m	e : Ø12.7x5 m	i : Ø6.4x3 m	m: Ø9.5x3 m
b : Ø15.9x5 m	f : Ø12.7x5 m	j : Ø9.5x3 m	n : Ø9.5x3 m
c : Ø15.9x5 m	g : Ø9.5x5 m	k : Ø6.4x3 m	p : Ø9.5x3 m
d : Ø12.7x5 m	h : Ø6.4x3 m	l : Ø6.4x3 m	

R = [40x0.18]+[15x0.12]+[17x0.059]+[12x0.022] = 10.27
⇒ **R = 10.3 kg**

Note 1

Allowable length after the first refrigerant branch kit to indoor units is 40 m or less, however it can be extended up to 90 m if all the following conditions are fulfilled.

Required conditions	Example drawings	
It is necessary to increase the pipe size of the liquid and the gas pipe if the pipe length between the first and the final branch kit is over 40 m (reducers must be procured on site). If the increased pipe size is larger than the pipe size of the main pipe, then the pipe size of the main pipe needs to be increased as well.	indoor unit **8**: b+c+d+e+f+g+p≤90 m increase the pipe size of b, c, d, e, f, g	Increase the pipe size as follows Ø9.5 → Ø12.7 Ø15.9 → Ø19.1 Ø22.2 → Ø25.4* Ø12.7 → Ø15.9 Ø19.1 → Ø22.2 Ø28.6 → Ø31.8* * If available on the site. Otherwise it can not be increased.
For calculation of total extension length, the actual length of above pipes must be doubled. (except main pipe and the pipes that not increase the pipe size)	a+b*2+c*2+d*2+e*2+f*2+g*2+h+i+j+k+l+m+n+p≤1000 m	
Indoor unit to the nearest branch kit ≤40 m	h, i, j..... p≤40 m	1 Outdoor unit 2 Refnet joints (a~g) 3 Indoor units (1~8)
The difference between the distance of the outdoor unit to the farthest indoor unit and the distance of the outdoor unit to the nearest indoor unit ≤40 m	The farthest indoor unit **8** The nearest indoor unit **1** (a+b+c+d+e+f+g+p)–(a+h)≤40 m	

Note 2

When using metric piping, please take into account following table concerning the weight factor to be allocated.
It should be substituted in the formula for **R**.

Inch piping		Metric piping	
Size (mm)	Weight factor	Size (mm)	Weight factor
Ø6.4	0.022	Ø6	0.018
Ø9.52	0.056	Ø10	0.065
Ø12.7	0.12	Ø12	0.097
Ø15.9	0.18	Ø15	0.16
		Ø16	0.18
Ø19.1	0.26	Ø18	0.24
Ø22.2	0.37	Ø22	0.35