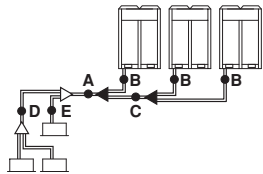


**Pipe size selection**  
For an outdoor unit multi installation (RXYQ16~36), select the pipe size in accordance with the following figure.



**A,B,C. 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 capacity type	Piping size (outer diameter) (mm)	
	Gas pipe	Liquid pipe
RXYQ8	Ø19.1	Ø9.5
RXYQ10	Ø22.2	Ø12.7
RXYQ12+16	Ø28.6	Ø12.7
RXYQ18~22		Ø15.9
RXYQ24	Ø34.9	Ø15.9
RXYQ26~34		Ø19.1
RXYQ36	Ø41.3	Ø19.1

**D. 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	Ø12.7
290<x<420	Ø28.6	
420<x<640	Ø34.9	Ø15.9
640<x<920		Ø19.1
≥920	Ø41.3	Ø19.1

**E. 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	

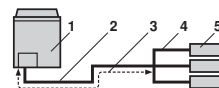
When the equivalent pipe length between outdoor and indoor units is 90 m or more, the size of the main pipes (both gas side and liquid side) must be increased. Depending on the length of the piping, the capacity may drop, but even in such a case it is possible to increase the size of the main pipes.

	Gas side
RXYQ8	Ø19.1 → Ø22.2
RXYQ10	Ø22.2 → Ø25.4 <sup>(a)</sup>
RXYQ12	Ø28.6 —
RXYQ16~22	Ø28.6 → Ø31.8 <sup>(a)</sup>
RXYQ24	Ø34.9 —
RXYQ26~34	Ø34.9 → Ø38.1 <sup>(a)</sup>
RXYQ36	Ø41.3 —

— Increase is not allowed  
(a) If not available, increase is not allowed

	Liquid side
RXYQ8+10	Ø9.5 → Ø12.7
RXYQ12+16	Ø12.7 → Ø15.9
RXYQ18~24	Ø15.9 → Ø19.1
RXYQ26~36	Ø19.1 → Ø22.2

— Increase is not allowed



- Outdoor unit
- Main pipes
- Increase
- First refrigerant branch kit
- 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

**!** The refrigerant charge of the system must be less than 100 kg. This means that in case the calculated refrigerant charge is equal to or more than 95 kg you must divide your multiple outdoor system into smaller independent systems, each containing less than 95 kg refrigerant charge. For factory charge, refer to the unit name plate.

$$R = [(X1 \times \mathbf{\text{Ø}22.2}) \times 0.37] + [(X2 \times \mathbf{\text{Ø}19.1}) \times 0.26] + [(X3 \times \mathbf{\text{Ø}15.9}) \times 0.18] + [(X4 \times \mathbf{\text{Ø}12.7}) \times 0.12] + [(X5 \times \mathbf{\text{Ø}9.5}) \times 0.059] + [(X6 \times \mathbf{\text{Ø}6.4}) \times 0.022] + \mathbf{A + B}$$

	8~12	16~26	28~32	34~36	
<b>A</b>	0.5	1.0	1.5	1.5	kg
<b>B</b>	Y ≤ 100%	0	0	0	kg
	100% < Y ≤ 120%	0.5	0.5	0.5	kg
	120% < Y ≤ 130%	0.5	0.5	1.0	kg

X<sub>1-6</sub> = Total length (m) of liquid piping size at Øa  
A = Refrigerant weight for heat pump system according to table  
B = Refrigerant weight for exceeding connection capacity of indoor unit according to table  
Y = Indoor connection capacity

**Example for refrigerant branch using refnet joint and refnet header for RXYQ34P ((1x 16) + (1x 18))**

If the outdoor unit is RXYQ34P and the piping lengths are as below

a : Ø19.1x30 m	d : Ø9.5x10 m	g : Ø6.4x10 m	j : Ø6.4x10 m
b : Ø15.9x10 m	e : Ø9.5x10 m	h : Ø6.4x20 m	k : Ø6.4x9 m
c : Ø9.5x10 m	f : Ø9.5x10 m	i : Ø12.7x10 m	

$$R = [30 \times 0.26] + [10 \times 0.18] + [10 \times 0.12] + [40 \times 0.059] + [49 \times 0.022] + 1.5 + 0.5 = 16.238$$

⇒ R = 16.2 kg

A = Outdoor system: RXYQ34  
B = Total capacity of indoor system: 116%

**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**

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.

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)

Indoor unit to the nearest branch kit ≤40 m

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

**Example drawings**

indoor unit 8:  
b+c+d+e+f+g+p≤90 m  
increase the pipe size of b, c, d, e, f, g

a+b\*2+c\*2+d\*2+e\*2+f\*2+g\*2+h+i+j+k+l+m+n+p≤1000 m

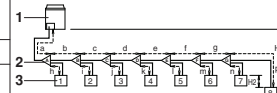
h, i, j, ..... p≤40 m

The farthest indoor unit 8  
The nearest indoor unit 1  
(a+b+c+d+e+f+g+p)-(a+h)≤40 m

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\*  
Ø34.9 → Ø38.1\*

\* If available on the site. Otherwise it can not be increased.



**Note 2**

If the pipe size above the refnet header is Ø34.9 or more, KHRQ22M75H is required.