

4.4 Selecting Piping Diameters

Tables 3-4.6 to 3-4.11 specify the required pipe diameters for the indoor and outdoor piping.

Figure 3-4.5: Selecting piping diameters

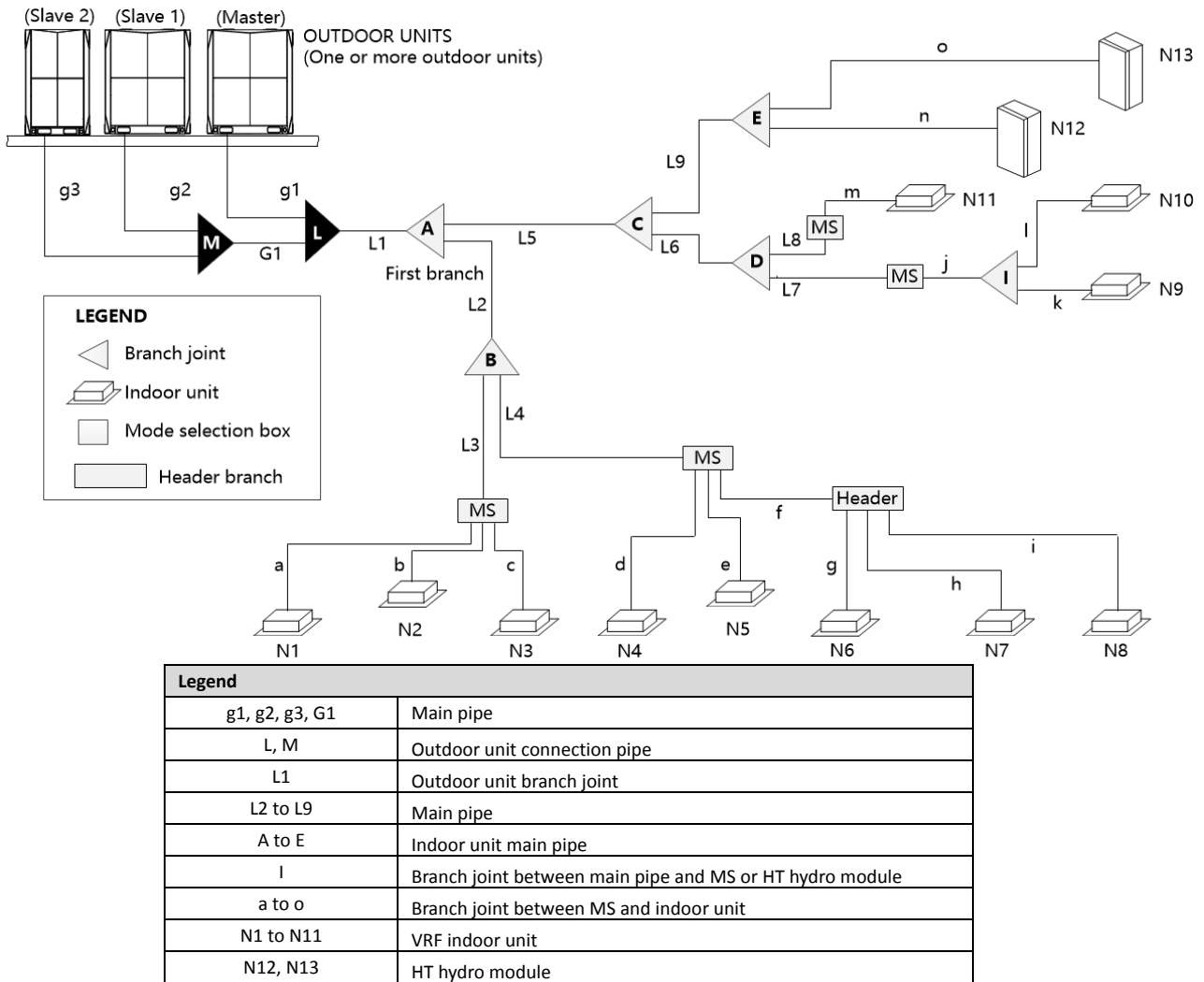


Figure 3-4.6: Outdoor connection pipes

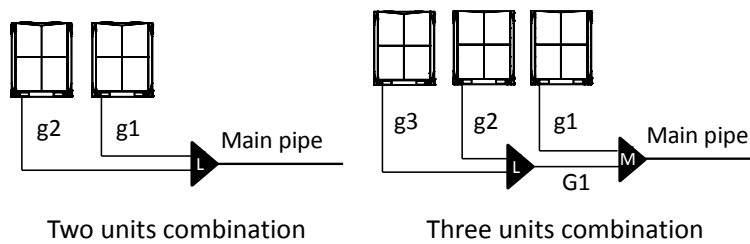


Table 3-4.6: Outdoor unit connection pipes (g1 to g3, G1)

Pipes	Outdoor unit capacity (HP)	Pipe Diameter (mm OD)		
		Liquid pipe	Low Pressure Gas Pipe	High Pressure Gas Pipe
g1 to g3	8	Φ9.53	Φ19.1	Φ15.9
	10	Φ9.53	Φ22.2	Φ19.1
	12	Φ12.7	Φ28.6	Φ19.1
	14-16	Φ12.7	Φ28.6	Φ22.2
	18	Φ15.9	Φ28.6	Φ22.2
G1	≤ 24	Φ15.9	Φ34.9	Φ28.6
	26-34	Φ19.1	Φ34.9	Φ28.6
	36	Φ19.1	Φ41.3	Φ28.6
	≥ 38	Φ19.1	Φ41.3	Φ34.9

Table 3-4.7: Outdoor unit branch joint kits (L, M)

Number of outdoor units	Branch joint kit
2	L: FQZHW-02SB1
3	L+M: FQZHW-03SB1

Table 3-4.8: Main pipe (L1) and first branch joint (A)

Outdoor Unit Capacity (HP)	Pipe Diameter (mm OD)			
	Liquid pipe	Low Pressure Gas Pipe	High Pressure Gas Pipe	Branch joint kit
8	Φ9.53	Φ19.1	Φ15.9	FQZHN-02SB1
10	Φ9.53	Φ22.2	Φ19.1	FQZHN-02SB1
12	Φ12.7	Φ28.6	Φ19.1	FQZHN-03SB1
14-16	Φ12.7	Φ28.6	Φ22.2	FQZHN-03SB1
18	Φ15.9	Φ28.6	Φ22.2	FQZHN-03SB1
20-22	Φ15.9	Φ28.6	Φ28.6	FQZHN-03SB1
24	Φ15.9	Φ34.9	Φ28.6	FQZHN-04SB1
26-34	Φ19.1	Φ34.9	Φ28.6	FQZHN-04SB1
36	Φ19.1	Φ41.3	Φ28.6	FQZHN-05SB1
38-60	Φ19.1	Φ41.3	Φ34.9	FQZHN-05SB1

Notes:

- When the equivalent piping length from outdoor units to the farthest indoor unit exceed 90 m, or the level difference is greater than 50 m (outdoor unit is above) or 40 m (outdoor unit is below), the liquid pipe of the main pipe (L1) should be increased as Table 3-4.2.

Table 3-4.9: Indoor unit main pipes (L2 to L8) and indoor unit branch joint kits

Total capacity of downstream indoor units (× 100W)	Pipe Diameter (mm OD)			Branch joint kit
	Liquid pipe	Low Pressure Gas Pipe	High Pressure Gas Pipe	
< 168	Φ9.53	Φ15.9	Φ12.7	FQZHN-01SB1
168 ≤ A < 224	Φ9.53	Φ19.1	Φ15.9	FQZHN-02SB1
224 ≤ A < 330	Φ9.53	Φ22.2	Φ19.1	FQZHN-02SB1
330 ≤ A < 470	Φ12.7	Φ28.6	Φ19.1	FQZHN-03SB1
470 ≤ A < 710	Φ15.9	Φ28.6	Φ28.6	FQZHN-03SB1
710 ≤ A < 1040	Φ19.1	Φ34.9	Φ28.6	FQZHN-04SB1
1040 ≤ A	Φ19.1	Φ41.3	Φ28.6	FQZHN-05SB1

Notes:

- Choose indoor main pipes from the above table in accordance with total downstream indoor capacity, which is the total capacity of all the indoor units, exclude HT hydro module, connected downstream.
- If there are HT hydro module connected to the system, the pipes (L9, n, o), only HT hydro module connected downstream, are selected according to Table 3-4.10.

Table 3-4.10: HT hydro module pipes (L9, n, o) and branch joint kits (only HT hydro module connected downstream)

Total capacity of downstream HT hydro module (× 100W)	Pipe Diameter (mm OD)		Branch joint kit
	Liquid pipe	Gas Pipe	
< 168	Ø9.53	Φ12.7	FQZHN-01SB1
168 ≤ B < 224	Ø9.53	Φ15.9	FQZHN-02SB1
224 ≤ B < 330	Ø9.53	Φ19.1	FQZHN-02SB1
330 ≤ B < 470	Φ12.7	Φ19.1	FQZHN-03SB1
470 ≤ B < 710	Φ15.9	Φ28.6	FQZHN-03SB1
710 ≤ B < 1040	Φ19.1	Φ28.6	FQZHN-04SB1
1040 ≤ B	Φ19.1	Φ28.6	FQZHN-05SB1

Notes:

- One or more HT hydro modules can be connected in the V6R system, HT hydro modules should be connecting to the first branch joint or its downstream branch joints, never connecting to the MS or header branches.
- Choose HT hydro module pipes from the above table in accordance with total downstream HT hydro module capacity, which is the total capacity of all the HT hydro module connected downstream.

Table 3-4.11: Indoor unit auxiliary pipes (a to m) and branch joint kits between MS and downstream indoor units

Capacity of indoor units (× 100W)	Pipe Diameter (mm OD)		Branch joint kit
	Liquid pipe (mm)	Gas pipe (mm)	
A < 56	Φ6.35	Φ12.7	FQZHN-01D
56 ≤ A < 160	Φ9.53	Φ15.9	FQZHN-01D
160 ≤ A < 224	Φ9.53	Φ19.1	FQZHN-01D
224 ≤ A ≤ 280	Φ9.53	Φ22.2	FQZHN-02D

Notes:

- The branch joint kits are required only when two or more indoor units are connected to 1 port of MS.
- Indoor units with a capacity more than 16 kW should be connected to 2 ports merged in a multi MS unit using branch joints (FQZHN-09A). Merged ports must start on an odd number and with the next sequential even number (i.e. 1, 2 or 3, 4 and so on). And if the single MS is used, the downstream Indoor units can be up to a maximum capacity of 32 kW.

VRF HEAT PUMP BRANCH JOINTS

MODEL	APPEARANCE	MODEL	PACKED DIMENSIONS mm	NET/ GROSS WEIGHT kg	TWO PIPE REFRIGERANT SYSTEM BRANCH JOINTS
BRANCH JOINTS FOR INDOOR UNIT		FQZHN-01D	290x105x100	0.3/0.4	A* < 16.6kW
		FQZHN-02D	290x105x100	0.4/0.6	16.6 ≤ A* < 33kW
		FQZHN-03D	310x130x125	0.6/0.9	33kW ≤ A* < 66kW
		FQZHN-04D	350x180x170	1.1/1.5	66kW ≤ A* < 92kW
		FQZHN-05D	365x195x215	1.4/1.9	92kW ≤ A*

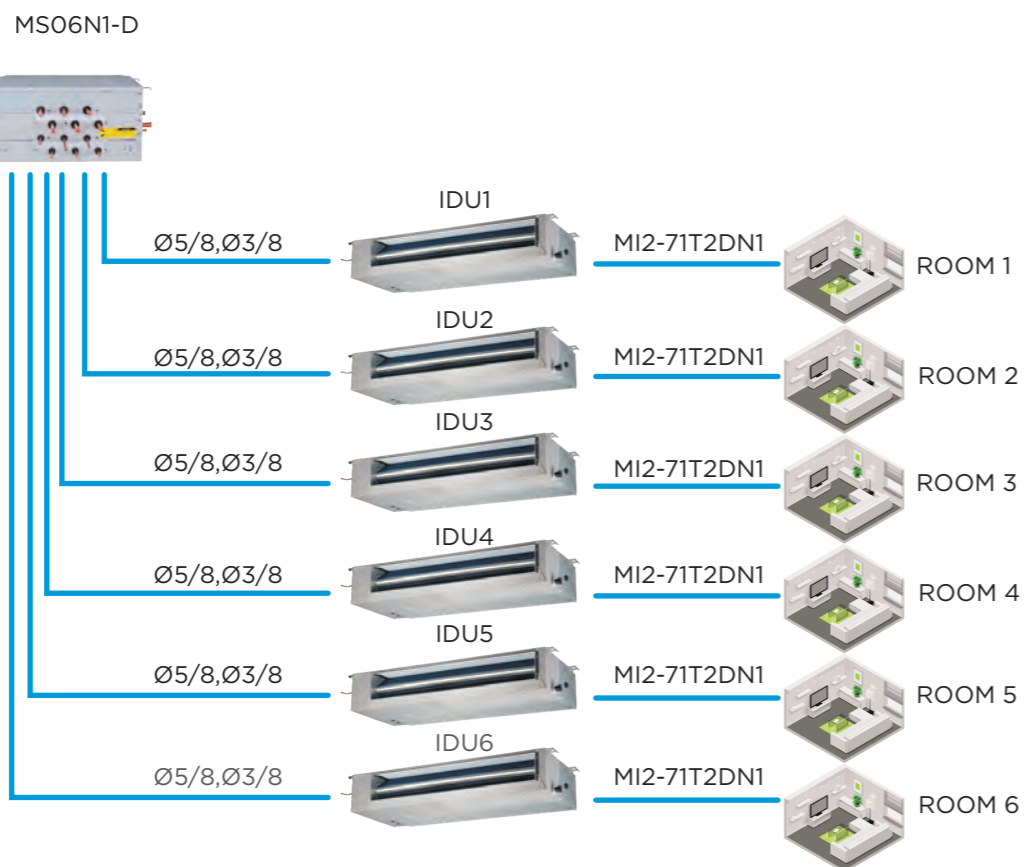
MODEL	APPEARANCE	MODEL	PACKED DIMENSIONS mm	NET / GROSS Weight kg	TWO PIPE REFRIGERANT SYSTEM BRANCH JOINTS
BRANCH JOINTS FOR OUTDOOR UNITS		FQZHW-02SB1	272x167x232	1.6/2.2	Connecting two outdoor units
		FQZHW-03SB1	472x157x312	3.9/5.0	Connecting three outdoor units
		FQZHW-04SB1	745x160x335	6.2/7.5	Connecting four outdoor units
BRANCH JOINTS FOR INDOOR UNIT		FQZHN-01SB1	257x127x107	0.6/0.8	A* < 16.6kW
		FQZHN-02SB1	287x137x107	0.7/0.9	16.6 ≤ A* < 33kW
		FQZHN-03SB1	297x167x177	1.1/1.4	33kW ≤ A* < 66kW
		FQZHN-04SB1	372x197x187	1.6/2.3	66kW ≤ A* < 92kW
		FQZHN-05SB1	432x222x 227	2.2/3.3	92kW ≤ A*

MV6-R400WV2GN1



VRF SELECTION SOFTWARE

Please ask us about supporting your VRF design with a complete application package. This will include equipment performance data, refrigerant pipework schematic (with material parts list), power requirements and wiring diagrams.



* A = Total capacity of indoor units connected to this branch joint