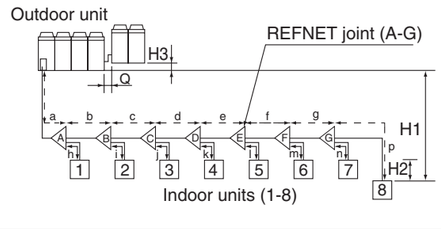
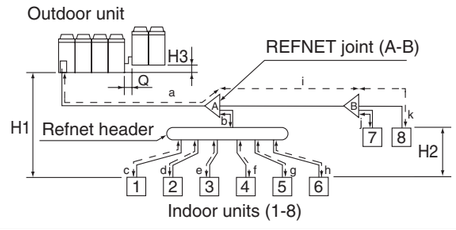
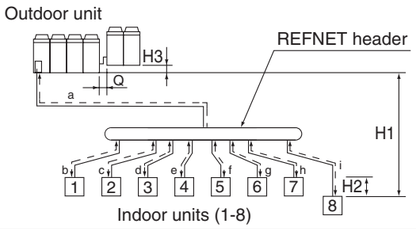
1. Appendix of Installation

1.1 Example of Connection

Connection of 8 indoor units
Heat pump system

1 indoor unit
A refnet joint
refnet header

			Branch with refnet joint	Branch with refnet joint and refnet header	Branch with refnet header
					
Maximum allowable length	Between outdoor and indoor units	Actual pipe length	Pipe length between outdoor and indoor units ≤ 100m		
			Example unit 8: a + b + c + d + e + f + g + p ≤ 100m	Example unit 6: a + b + h ≤ 100m, unit 8: a + i + k ≤ 100m	Example unit 8: i ≤ 40m
		Equivalent length	Equivalent pipe length between outdoor and indoor units ≤ 125m (assume equivalent pipe length of refnet joint to be 0.5m, that of refnet header to be 1m, calculation purposes)		
	Between outdoor unit (main) and outdoor unit (sub)	Actual pipe length	Pipe length between outdoor unit (main) and outdoor unit (sub)(Q) ≤ 5m		
Allowable height length	Between outdoor and indoor units	Difference in height	Difference in height between outdoor and indoor units (H1) ≤ 50m (≤ 40m or less when oudoor unit is located in a lower position)		
	Between adjacent indoor units	Difference in height	Difference in height between adjacent indoor units (H2) ≤ 15m		
	Between outdoor unit (main) and outdoor unit (sub)	Difference in height	Difference in height between outdoor unit (main) and outdoor unit (sub) (H3) ≤ 5m		
Allowable length after the branch		Actual pipe length	Pipe length from first refrigerant branch kit (either refnet joint or refnet header) to indoor unit ≤ 40m		
			Example unit 8: b + c + d + e + f + g + p ≤ 40m	Example unit 6: b + h ≤ 40m, unit 8:i + k ≤ 40m	Example unit 8: i ≤ 40m

Retrigerant branch kit selection

How to select the refnet joint

- When using refnet joints at the first branch counted from the outdoor unit side.
  If the system capacity is < 500, use KHRP26K40T + KHRP26K40TP
  If the system capacity is ≥ 500, use KHRP26K75T + KHRP26K75TP
- For refnet joints other than the first branch, select the proper branch kit model based on the total capacity index (Refer to chapter "Combination") of the indoor units installed after the first branch using the following table:

indoor capacity index	branch kit
<100	KHRP26K11T
100≤x<160	KHRP26K18T
160≤x<330	KHRP26K37T
330≤x<640	KHRP26K40T+KHRP26K40TP (Pipe size Reducer)
>640	KHRP26K75T+KHRP26K75TP (Pipe size Reducer)

How to select the refnet header

- Select the proper branch kit model based on the total capacity index (Refer to chapter "CombinationQ") of indoor units installed after the header using the following table.
- Branching is impossible between refnet header and indoor unit.
- For systems with a total capacity of 640 and over, connect a refnet joint branch.

indoor capacity index	branch kit
<100	KHRP26K11H
100≤x<160	KHRP26K18H
160≤x<330	KHRP26K37H
330≤x<640	KHRP26K40H+KHRP26K40HP (Pipe size Reducer)

Example of downstream indoor units	example in case of refnet joint C; indoor units 3 + 4 + 5 + 6 + 7 + 8	example in case of refnet joint B indoor units 7 + 8, example in case of refnet header; indoor units 1 + 2 + 3 + 4 + 5 + 6

Pipe size selection

Pipe size = outer diameter x minimum wall thickness
(Unit; mm).
Use the included reducing joint which matches the pipe size.

Between outdoor unit and uppermost stream refrigerant branch kit

- Select pipe size according to outdoor system name.

Pipe size connected to outdoor unit.

	liquid	gas
RSXYP16K	ϕ19.1×t1.0	ϕ34.9×t1.3
RSXYP18-20K	ϕ19.1×t1.0	ϕ34.9×t1.3
RSXYP24K	ϕ19.1×t1.0	ϕ41.3×t1.7
RSXYP26-30K	ϕ22.2×t1.2	ϕ41.3×t1.7

Between two immediately adjacent branch kits

- Select the proper pipe size based on the total capacity index (Refer to chapter "Combination") of indoor units connected downstream, using the following table.
- Select connection pipe size according to the outdoor unit (table on the bottom left). Do not select a larger pipe size.

total capacity index	liquid	gas
<100	ϕ9.5×t0.8	ϕ15.9×t1.0
100≤x<160	ϕ9.5×t0.8	ϕ19.1×t1.0
160≤x<330	ϕ12.7×t0.8	ϕ25.4×t1.2
330≤x<480	ϕ15.9×t1.0	ϕ34.9×t1.3
480≤x<640	ϕ19.1×t1.0	ϕ34.9×t1.3
≥640	ϕ19.1×t1.0	ϕ41.3×t1.7

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.

Connection pipe size of indoor unit.

total capacity index	liquid	gas
20,25,32,40	ϕ6.4×t0.8	ϕ12.7×t0.8
50,63,80	ϕ9.5×t0.8	ϕ15.9×t1.0
100,125	ϕ9.5×t0.8	ϕ19.1×t1.0
200	ϕ12.7×t0.8	ϕ25.4×t1.2
250	ϕ12.7×t0.8	ϕ28.6×t1.2

Additional refrigerant to be charged

Calculation of additional refrigerant to be charged R (kg) is in function of the total length of liquid lines L

Note - Round off R to 1 decimal place

R=[(Lϕ22.2)×0.39] + [(Lϕ19.1)×0.28] + [(Lϕ15.9)×0.19] + [(Lϕ12.7)×0.12] + [(Lϕ9.5)×0.06] + [(Lϕ6.4)×0.023] +0 :RSXYP16,18,24,28

+0.4:RSXYP30
+0.6:RSXYP26
+0.8:RSXYP20

Example for refrigerant branch using refnet joint and refnet header for RSXYP28

a: ϕ22.2×30m	d: ϕ9.5×10m	g: ϕ6.4×10m	j: ϕ6.4×10m
b: ϕ15.9×10m	e: ϕ9.5×10m	h: ϕ6.4×20m	k: ϕ6.4×9m
c: ϕ9.5×10m	f: ϕ9.5×10m	i: ϕ12.7×10m	

R=[30×0.39]+[10×0.19]+[10×0.12]+[40×0.06]+[49×0.023]+[0] =18.32 ⇩ [18.3kg]
a b i c+d+e+f g+h+j+k

(V1350)