

Pipe kits

VRF SET FREE SIGMA High-Performance

Composition of multi-module outdoor units

Outdoor unit	2-pipe combination	Multikit	Outdoor unit	3-pipe combinations.	Multikit
RAS-5FSXNPE	Single module	-	RAS-5FSXNPE-3P	Single module	-
RAS-6FSXNPE	Single module	-	RAS-6FSXNPE-3P	Single module	-
RAS-8FSXNPE	Single module	-	RAS-8FSXNPE-3P	Single module	-
RAS-10FSXNPE	Single module	-	RAS-10FSXNPE-3P	Single module	-
RAS-12FSXNPE	Single module	-	RAS-12FSXNPE-3P	Single module	-
RAS-14FSXNPE	Single module	-	RAS-14FSXNPE-3P	Single module	-
RAS-16FSXNPE	Single module	-	RAS-16FSXNPE-3P	Single module	-
RAS-18FSXNPE	Single module	-	RAS-18FSXNPE-3P	Single module	-
RAS-20FSXNPE	RAS-10FSXNPE - RAS-10FSXNPE	MC-20AN1	RAS-20FSXNPE-3P	RAS-10FSXNPE - RAS-10FSXNPE	MC-20XN1
RAS-22FSXNPE	RAS-10FSXNPE - RAS-12FSXNPE	MC-20AN1	RAS-22FSXNPE-3P	RAS-10FSXNPE - RAS-12FSXNPE	MC-20XN1
RAS-24FSXNPE	RAS-12FSXNPE - RAS-12FSXNPE	MC-20AN1	RAS-24FSXNPE-3P	RAS-12FSXNPE - RAS-12FSXNPE	MC-20XN1
RAS-26FSXNPE	RAS-16FSXNPE - RAS-10FSXNPE	MC-21AN1	RAS-26FSXNPE-3P	RAS-16FSXNPE - RAS-10FSXNPE	MC-21XN1
RAS-28FSXNPE	RAS-16FSXNPE - RAS-12FSXNPE	MC-21AN1	RAS-28FSXNPE-3P	RAS-16FSXNPE - RAS-12FSXNPE	MC-21XN1
RAS-30FSXNPE	RAS-18FSXNPE - RAS-12FSXNPE	MC-21AN1	RAS-30FSXNPE-3P	RAS-18FSXNPE - RAS-12FSXNPE	MC-21XN1
RAS-32FSXNPE	RAS-18FSXNPE - RAS-14FSXNPE	MC-21AN1	RAS-32FSXNPE-3P	RAS-18FSXNPE - RAS-14FSXNPE	MC-21XN1
RAS-34FSXNPE	RAS-18FSXNPE - RAS-16FSXNPE	MC-21AN1	RAS-34FSXNPE-3P	RAS-18FSXNPE - RAS-16FSXNPE	MC-21XN1
RAS-36FSXNPE	RAS-18FSXNPE - RAS-18FSXNPE	MC-21AN1	RAS-36FSXNPE-3P	RAS-18FSXNPE - RAS-18FSXNPE	MC-21XN1
RAS-38FSXNPE	RAS-14FSXNPE - RAS-12FSXNPE - RAS-12FSXNPE	MC-30AN1	RAS-38FSXNPE-3P	RAS-14FSXNPE - RAS-12FSXNPE - RAS-12FSXNPE	MC-30XN1
RAS-40FSXNPE	RAS-14FSXNPE - RAS-14FSXNPE - RAS-12FSXNPE	MC-30AN1	RAS-40FSXNPE-3P	RAS-14FSXNPE - RAS-14FSXNPE - RAS-12FSXNPE	MC-30XN1
RAS-42FSXNPE	RAS-14FSXNPE - RAS-14FSXNPE - RAS-14FSXNPE	MC-30AN1	RAS-42FSXNPE-3P	RAS-14FSXNPE - RAS-14FSXNPE - RAS-14FSXNPE	MC-30XN1
RAS-44FSXNPE	RAS-18FSXNPE - RAS-14FSXNPE - RAS-12FSXNPE	MC-30AN1	RAS-44FSXNPE-3P	RAS-18FSXNPE - RAS-14FSXNPE - RAS-12FSXNPE	MC-30XN1
RAS-46FSXNPE	RAS-18FSXNPE - RAS-14FSXNPE - RAS-14FSXNPE	MC-30AN1	RAS-46FSXNPE-3P	RAS-18FSXNPE - RAS-14FSXNPE - RAS-14FSXNPE	MC-30XN1
RAS-48FSXNPE	RAS-18FSXNPE - RAS-18FSXNPE - RAS-12FSXNPE	MC-30AN1	RAS-48FSXNPE-3P	RAS-18FSXNPE - RAS-18FSXNPE - RAS-12FSXNPE	MC-30XN1
RAS-50FSXNPE	RAS-18FSXNPE - RAS-18FSXNPE - RAS-14FSXNPE	MC-30AN1	RAS-50FSXNPE-3P	RAS-18FSXNPE - RAS-18FSXNPE - RAS-14FSXNPE	MC-30XN1
RAS-52FSXNPE	RAS-18FSXNPE - RAS-18FSXNPE - RAS-16FSXNPE	MC-30AN1	RAS-52FSXNPE-3P	RAS-18FSXNPE - RAS-18FSXNPE - RAS-16FSXNPE	MC-30XN1
RAS-54FSXNPE	RAS-18FSXNPE - RAS-18FSXNPE - RAS-18FSXNPE	MC-30AN1	RAS-54FSXNPE-3P	RAS-18FSXNPE - RAS-18FSXNPE - RAS-18FSXNPE	MC-30XN1

Part numbers of cooler accessories

Multikit



2 pipes

3 pipes

E-102SN4	E-52XN3
E-162SN4	E-102XN3
E-242SN3	E-162XN3
E-302SN3	E-202XN3
MW-NP2682A3	E-242XN3
	E-322XN3

Header

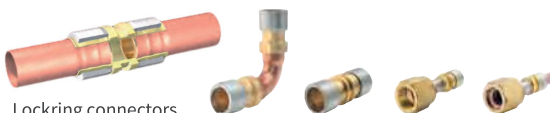


2 pipes

3 pipes

MH-84AN1	MH-108XN
MH-108AN	

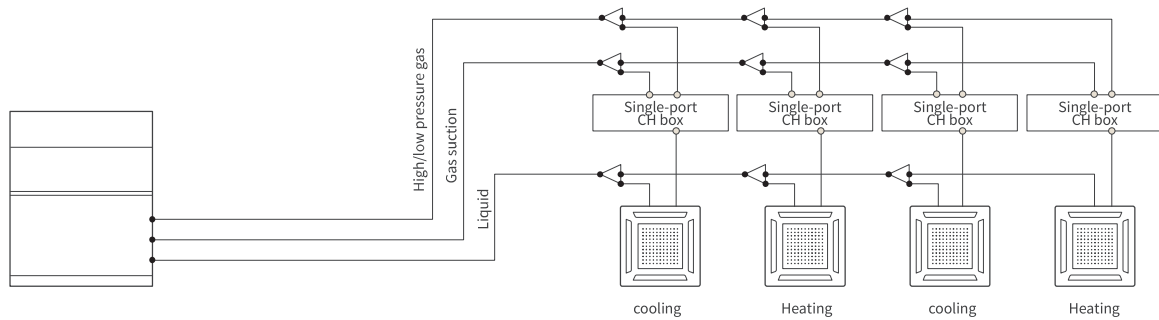
Compatible accessories



Lockring connectors

VRF SET FREE Single CH boxes

Compatible with Sigma and SET FREE Mini 3-pipe ranges (8 to 12 Hp)



Description

- CH box range with 1 port.
- Up to 8 indoor units per CH box.
- Compact.
- Lightweight.
- Connect 2-pipes only (gas pipes).
- No condensate connection.

- Long pipe lengths possible.
- Very low sound level: 33 dB(A).
- Flare type pipe connections.

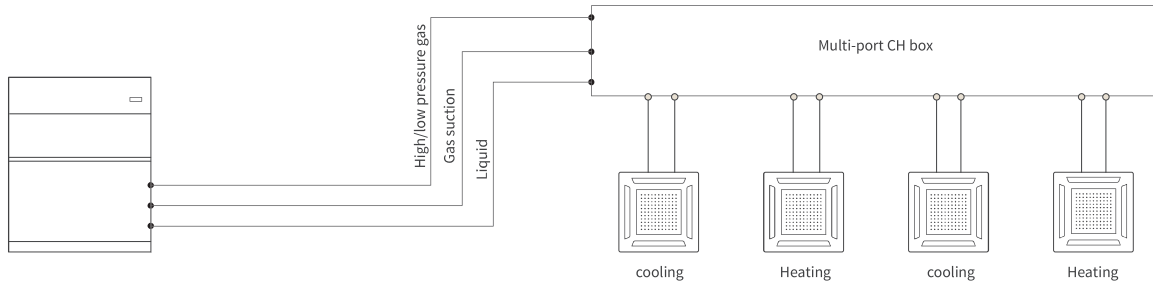
Mono CH boxes	Part no.	CH-AP160SSX	CH-AP280SSX
Max. capacity in cooling mode	Hp (kW)	16.0	28.0
Number of indoor units that can be connected*		1 ~ 7	1 ~ 8
Max. pipe length between CH box and Indoor units	m	40	
Difference in height of indoor units connected to the same CH box	m	< 4	
Height difference between each CH box or between a CH box and an indoor unit	m	< 15	
Dimensions (H x L x D)	mm	191 x 301 x 214	
Weight	kg	6	
Diameter of refrigeration pipes – outdoor unit - Gas only	inches	5/8 - 3/4	
Diameter of refrigeration pipes – indoor unit - Gas only	inches	5/8	3/4
Sound pressure level	dB(A)	33 (46 max**)	

* If connecting multiple indoor units per branch, use the Hitachi multikits referenced P.270.

** Max. noise means the maximum operating noise level of the CH box emitted when the unit is in simultaneous cooling and heating or in defrost mode.

VRF SET FREE Multi CH boxes

Compatible with Sigma and SET FREE Mini 3-pipe ranges (8 to 12 Hp)



Description

- Range of multi-port CH boxes.
- Up to 96 indoor units per CH box.
- Low-height.
- Low volume.
- No condensate connection.

- Lightweight.
- Very low sound level: 31 dB(A).
- Refrigerant pipe connections brazed (outdoor unit) and flare type (indoor unit).

Multi CH boxes	Part no.	CH-AP04MSSX	CH-AP08MSSX	CH-AP12MSSX	CH-AP16MSSX
Number of branches		4	8	12	16
Number of units per branch*		1 ~ 6	1 ~ 6	1 ~ 6	1 ~ 6
Total max. Cooling capacity per CH box	kW	44.8	85	85	85
Total max. Cooling capacity per branch	kW			16	
Max. pipe length between CH box & indoor units	m			40	
Difference in height of indoor units connected to the same CH box	m			< 4	
Height difference between each CH box or between a CH box and an indoor unit	m			< 15	
Dimensions (H x L x D)	mm	260 x 303 x 352	260 x 543 x 352	260 x 783 x 352	260 x 1023 x 352
Weight	kg	14	25	36	47
Diameters of refrigeration pipes – outdoor unit (Dis - Suc - Liq)	inches	7/8 - 1 1/8 - 1/2	7/8 - 1 1/8 - 1/2	1 - 1 1/8 - 5/8	1 1/8 - 1 1/4 - 3/4
Diameters of refrigeration pipes – indoor unit (Gas - Liq)	inches			5/8 - 3/8	
Sound pressure level	dBA	31 (43 max**)	31 (46 max**)	34 (48 max**)	34 (49 max**)

* If connecting multiple indoor units per branch, use the Hitachi multikits referenced P. 270.

** Max. noise means the maximum operating noise level of the CH box emitted when the unit is in simultaneous cooling and heating or in defrost mode.

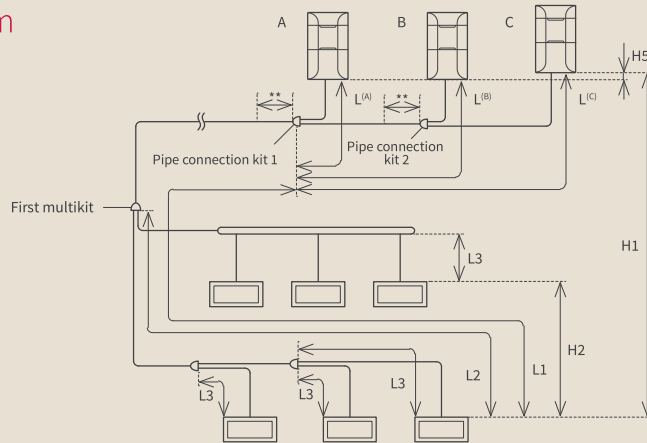
Design rules for refrigeration piping

Permissible length of pipes

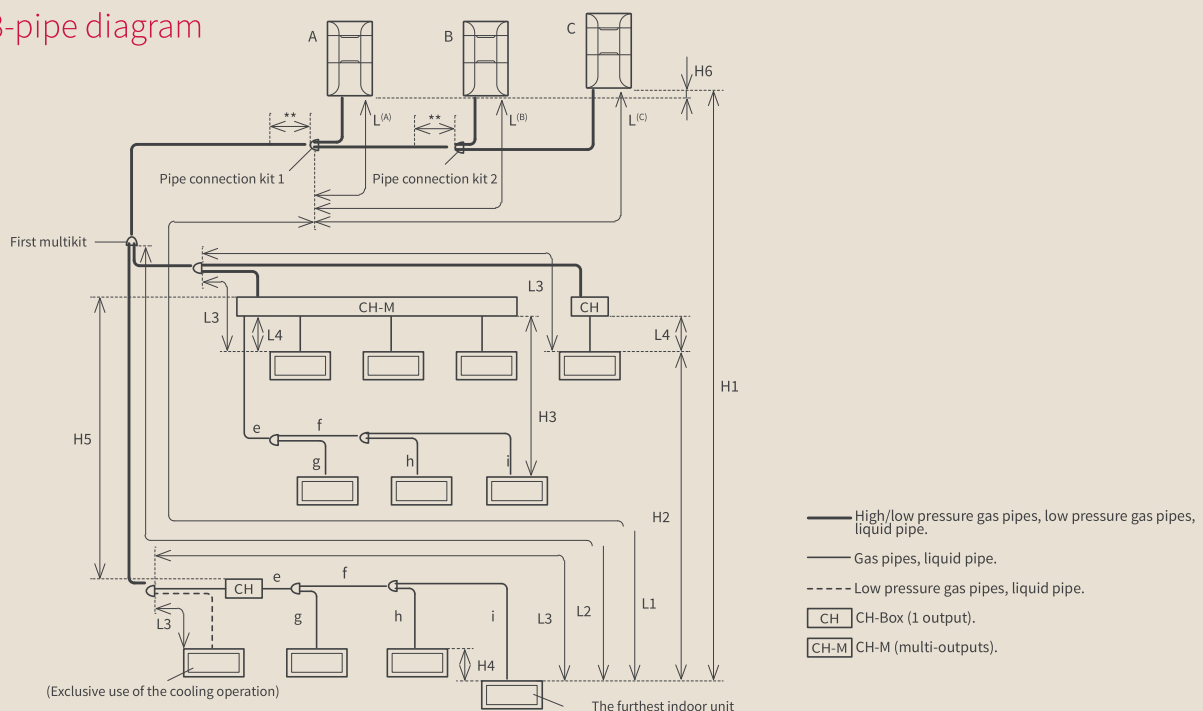
Item	Symbol	Permissible length of pipes	
		≤ Number of indoor units recommended*	≥ Number of indoor units recommended*
Total length of piping	Actual total length of liquid piping	≤ 1000m ⁽³⁾	≤ 300m ⁽³⁾
Max. pipe length	Actual length	≤ 165m	≤ 165m
	Equivalent length	≤ 190m	≤ 190m
Max. length of piping between the multi-kit of the first branch and each indoor unit	L1	≤ 90m	≤ 40m
Max. pipe length between multi-kits and indoor units	L2	≤ 40m	≤ 30m
Total pipe length between the CH-Box and each indoor unit	L3	≤ 40m	≤ 30m
Total pipe length between the CH-Box and each indoor unit	L4 (e + f + g + h + i)	≤ 40m	≤ 30m
Pipe length between the piping connection kit 1 and each outdoor unit	La, Lb, Lc	≤ 10m	≤ 10m
Height difference between outdoor units and indoor units	Outdoor unit is higher	≤ 50m ⁽¹⁾	≤ 50m ⁽¹⁾
	Outdoor unit is lower	≤ 40m	≤ 40m
Height difference between indoor units	H2	≤ 30m	≤ 30m
Height difference between the CH box and indoor unit	H3	15m ⁽²⁾	
Difference in height between indoor units connected to the same CH box branch	H4	≤ 4m	≤ 4m
Height difference between CH boxes	H5	≤ 15m	≤ 15m
Difference in height between the outdoor units	H6	≤ 0.1m	≤ 0.1m

(* See the technical manual for the recommended number of indoor units (TC). ⁽¹⁾ Longer piping (up to 110 m) is available for all models. Remember, you must obtain prior approval from Hitachi's Customer Service team if the difference in height is greater than 50 m. Please contact Hitachi's Customer Service department to provide them with the necessary features of the system so that they can carry out a feasibility study. ⁽²⁾ The recommended height difference between the CH box and the indoor unit must be no more than 15 m. If the height difference is greater, it could compromise the operating performance. ⁽³⁾ If following the recommended number of indoor units, the total length of piping must be less than 1,000 m due to the additional coolant load limit. If you exceed the recommended number of indoor units, the restrictions for the total length of the pipes apply.

2-pipe diagram



3-pipe diagram



* These maximum values may vary depending on the maximum number of indoor units connected. Refer to current technical documentation.
 ** Keep a straight distance of 500 mm or more downstream of the connection kit.