

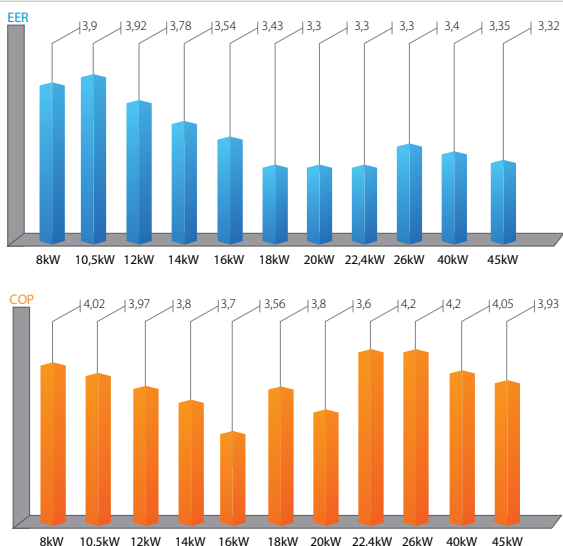


MINI VRF

Compact design heat pump outdoor units

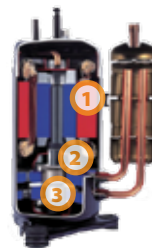
High efficiency

HIGH EER AND COP VALUES



ALL DC INVERTER COMPRESSORS

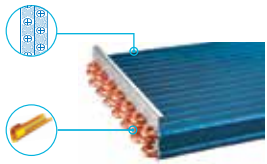
The DC inverter compressor adopts innovative design and numerous high performance key parts which can reduce power consumption by 25%.



Compressor (Twin Rotary) structure

- Highly Efficient DC Motor:
 - Creative motor core design
 - High density neodymium magnet
 - Concentrated type stator
 - Wider operating frequency range
- Better balance and Extremely Low Vibration:
 - Twin eccentric cams
 - 2 balance weights
- Highly Stable Moving Parts:
 - Optimal material matching rollers and vanes
 - Optimize compressor drive technology
 - Highly robust bearings
 - Compact structure

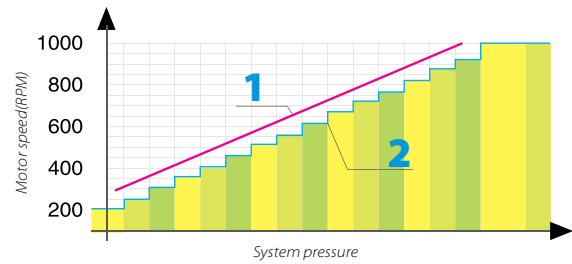
HIGH EFFICIENCY HEAT EXCHANGER



Newly designed window type fins enlarge the heat exchange area and decrease air resistance, enhance heat exchange performance and save more energy. Hydrophilic fins and internally threaded copper pipes optimize heat exchange efficiency.

ALL DC FAN MOTORS

Fan speed is controlled according to the system pressure and system load, minimizing energy consumption.



1. DC inverter stepless adjustment
2. AC inverter multistep adjustment

NEW GRILL DESIGN



Optimally designed fan shape and newly designed grill ensure both safety and air volume.

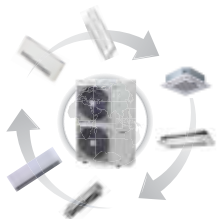
Wide application range

WIDE CAPACITY RANGE

The outdoor units' capacity range from 7,2kW to 45kW which is ideal for small offices, villas, apartment and shops, making it perfect for commercial and residential application.

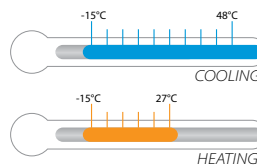


WIDE RANGE OF INDOOR UNITS



Clivet provides 12 types and more than 100 models of VRF indoor units to meet varied customer requirements in a wide range of locations including shopping malls, hospitals, office buildings, hotels and airports.

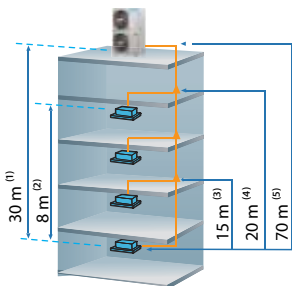
WIDE OPERATION RANGE



Mini VRF Series operates stably under extreme conditions, ranging from -15°C to +48°C (400T/450T sizes)

LONG PIPING LENGTH

The Mini VRF provides a total piping length possibility of 120m, a maximum height difference between outdoor and indoor units of 30m. The height difference between indoor units can be up to 8m. These generous allowances facilitate an extensive array of system designs.



Permitted value			80M	105M	120M	140M	160M	120T	140T	160T	180T	200T	224T	260T	400T	450T
Piping length	Total piping length	Actual length	m	100	100	100	100	100	100	100	100	120	120	120	250	250
	Longest piping	Actual length	m	45	45	60	60	60	60	60	60	60	60	60	100	100
		Equivalent length	m	50	50	70	70	70	70	70	70	70	70	70	120	120
Height difference	Longest length after first branch		m	20	20	20	20	20	20	20	20	20	20	20	40	40
	Height difference between indoor and outdoor units	Outdoor unit up	m	30	30	30	30	30	30	30	30	30	30	30	30	30
		Outdoor unit down	m	20	20	20	20	20	20	20	20	20	20	20	20	20
	Height difference between indoor units		m	8	8	8	8	8	8	8	8	8	8	8	8	8

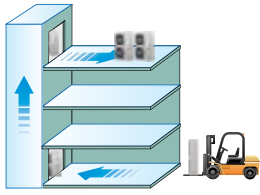
1 Total pipe length is equal to all the liquid pipe or all the gas pipe length.

2 When the total equivalent pipe length of liquid side plus gas side is more than 90m, it needs to meet the specific conditions according to the installation part of the technical manual.

- (1) Level difference between Indoor Units and Outdoor units
- (2) Level difference between Indoor Units
- (3) Indoor Units to the nearest branch joint
- (4) First branch joint to the farthest Indoor Units
- (5) Longest piping length

Easy installation and service

EASY INSTALLATION



Easy installation: No special area is required for outdoor units.

Easy transportation: All outdoor units can be transported by elevator, which greatly simplifies installation and reduces time and labor.

The Mini VRF system's indoor and outdoor units are almost as easy to install as residential airconditioning systems, making them ideal for small offices and shops.

SPACE SAVING DESIGN

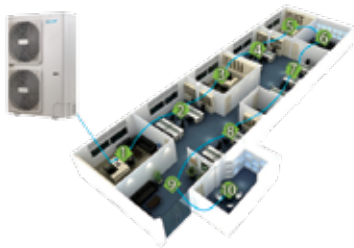


The Mini VRF units are slimmer and more compact, resulting in significant savings in installation space.

In some large residential and light commercial areas, such as villas, restaurants, usually it need more than one indoor unit, which in turn requires multiple outdoor units. Mini VRF system solves this problem, and retains buildings' original aesthetics.

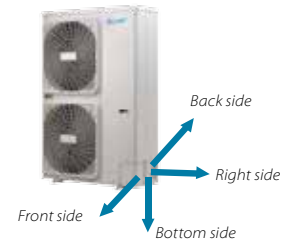
AUTO ADDRESSING

Outdoor unit can distribute addresses for indoor units automatically. Wireless and wired controllers can query and modify each indoor unit's address.



FOUR-WAY PIPING CONNECTION

A four-direction space is available for connecting pipes and wiring in various installation sites.



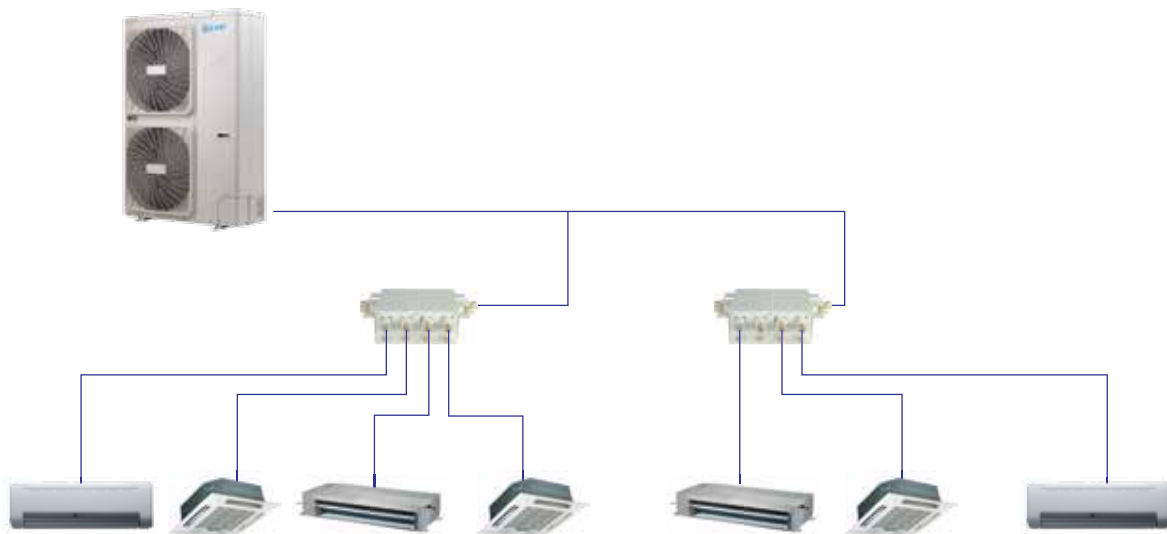
HEADER CONNECTION AVAILABLE THROUGH BRANCH BOX



Easier and safer installation thanks to a branch box that simplifies piping work and the adoption of screw connection.




Both left and right pipe flare connections from outdoor unit to branch box are dedicated, which greatly simplifies field installation.



Branch Box FQT4-01



Mini VRF							
Size	MSAN-XMi		80M	105M	120M	140M	160M
Capacity	HP		3	4	4,5	5	6
Cooling	Capacity	kW	7,20	9,00	12,3	14,0	15,5
	Power input	kW	1,85	2,30	3,25	3,95	4,52
	EER	-	3,90	3,92	3,78	3,54	3,43
	Operating temperature range (DB)	°C	-15 ~ 43	-15 ~ 43	-15 ~ 43	-15 ~ 43	-15 ~ 43
Heating	Capacity	kW	7,20	9,00	13,2	15,4	17,0
	Power input	kW	1,79	2,27	3,47	4,16	4,78
	COP	-	4,02	3,97	3,80	3,70	3,56
	Operating temperature range (DB)	°C	-15 ~ 27	-15 ~ 27	-15 ~ 27	-15 ~ 27	-15 ~ 27
Connectable indoor units	Total Capacity Index (1)	-	45~130%	45~130%	45~130%	45~130%	45~130%
	Max quantity	-	4	5	6	6	7
Compressor	Type (2)	-	ROT	ROT	ROT	ROT	ROT
	Quantity	-	1	1	1	1	1
Refrigerant	Factory charge	kg	2,95	2,95	3,30	3,90	3,90
	CO ₂ equivalence	ton	6,16	6,16	6,89	8,14	8,14
	Liquid pipe	mm	Ø 9,53	Ø 9,53	Ø 9,53	Ø 9,53	Ø 9,53
Pipe connections	Gas pipe	mm	Ø 15,9	Ø 15,9	Ø 15,9	Ø 15,9	Ø 19,1
	Dimensions (Width x Height x Depth)	mm	1075x966x396	1075x966x396	900x1327x400	900x1327x400	900x1327x400
Weight	kg	75,5	75,5	95	95	100	
Fan number	-	1	1	2	2	2	
Air flow rate	m ³ /h	5500	5500	6000	6000	6000	
Sound pressure level	dB(A)	56	57	57	57	57	
Sound power level	dB(A)	67	68	70	71	72	
Power supply	V/Ph/Hz				220-240/1/50		

Mini VRF											
Size	MSAN-XMi		120T	140T	160T	180T	200T	224T	260T	400T	450T
Capacity	HP		4,5	5	6	6,5	7	8	10	14	16
Cooling	Capacity	kW	12,3	14,0	15,5	17,5	20,0	22,4	26,0	40,0	45,0
	Power input	kW	3,25	3,95	4,52	5,30	6,10	6,80	7,60	11,9	13,6
	EER	-	3,78	3,54	3,43	3,30	3,28	3,29	3,42	3,35	3,32
	Operating temperature range (DB)	°C	-15 ~ 43	-15 ~ 43	-15 ~ 43	-15 ~ 43	-15 ~ 46	-15 ~ 46	-15 ~ 46	-15 ~ 46	-5 ~ 48
Heating	Capacity	kW	13,2	15,4	17,0	19,0	22,0	24,5	28,5	45,0	50,0
	Power input	kW	3,47	4,16	4,78	5,00	6,10	5,90	6,80	11,1	12,7
	COP	-	3,80	3,70	3,56	3,80	3,61	4,15	4,19	4,05	3,93
	Operating temperature range (DB)	°C	-15 ~ 27	-15 ~ 27	-15 ~ 27	-15 ~ 27	-15 ~ 24	-15 ~ 24	-15 ~ 24	-15 ~ 24	-15 ~ 24
Connectable indoor units	Total Capacity Index (1)	-	45~130%	45~130%	45~130%	45~130%	50~130%	50~130%	50~130%	50~130%	50~130%
	Max quantity	-	6	6	7	9	10	11	12	14	15
Compressor	Type (2)	-	ROT	ROT	ROT	ROT	ROT	ROT	ROT	ROT	ROT
	Quantity	-	1	1	1	1	1	1	1	2	2
Refrigerant	Factory charge	kg	3,3	3,9	3,9	4,5	4,8	6,2	6,2	9,0	12
	CO ₂ equivalence	ton	6,89	8,14	8,14	9,40	10,02	12,95	12,95	18,79	25,06
	Liquid pipe	mm	Ø 9,53	Ø 9,53	Ø 9,53	Ø 9,53	Ø 9,53	Ø 9,53	Ø 9,53	Ø 12,7	Ø 12,7
Pipe connections	Gas pipe	mm	Ø 15,9	Ø 15,9	Ø 19,1	Ø 19,1	Ø 19,1	Ø 19,1	Ø 22,2	Ø 22,2	Ø 25,4
	Dimensions (Width x Height x Depth)	mm	900x1327x400	900x1327x400	900x1327x400	900x1327x400	1120x1558x528	1120x1558x528	1120x1558x528	1360x1650x540	1460x1650x540
Weight	kg	95	95	102	107	137	146,5	147	240	275	
Fan number	-	2	2	2	2	2	2	2	2	2	
Air flow rate	m ³ /h	6000	6000	6000	6800	10999	10464	10494	16575	16575	
Sound pressure level	dB(A)	57	57	57	59	59	59	60	62	62	
Sound power level	dB(A)	70	71	72	74	73	73	74	76	76	
Power supply	V/Ph/Hz					380-415/3/50+N					

Notes

Data referred to the following conditions:
 Cooling: Indoor temperature 27°C DB/19°C WB; Outdoor temperature 35°C DB/24°C WB;
 Heating: Indoor temperature 20°C DB/15°C WB; Outdoor temperature 7°C DB/6°C WB.
 Piping length: Interconnecting piping length is 7,5m, level difference is zero.

Sound values are measured in a semi-anechoic room, at a position 1m in front of the unit and 1m above the floor.

- (1) Total Capacity Index = indoor unit total capacity/outdoor unit capacity
- (2) ROT = rotary compressor