

DC Inverter



OUTDOOR UNITS

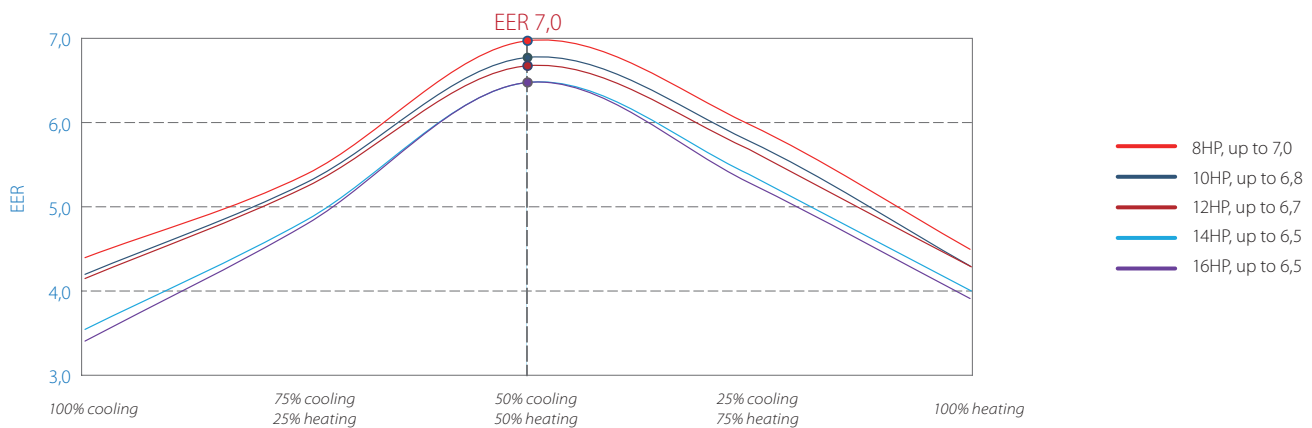


VRF MHR

Heat recovery outdoor units

High efficiency

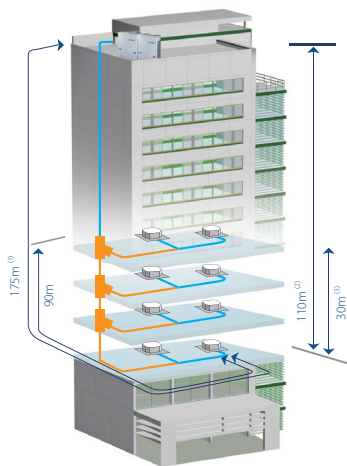
HEAT RECOVERY EER UP TO 7,0



EER in simultaneous cooling and heating mode are based on the following condition: Outdoor temperature 7°C DB/6°C WB, indoor temperature 27°C DB/19°C WB for cooling, indoor temperature 20°C DB for heating.

Wide Application Range

LONG PIPING LENGTH



- (1) Longest actual piping length
- (2) Level difference between indoor units and outdoor units
- (3) Level difference between indoor units

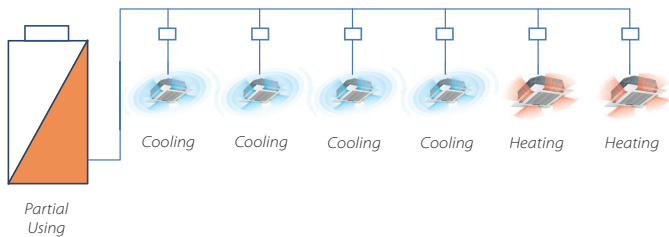
Piping length	Capability
Total piping length	1000m
Longest length - actual (equivalent)	175m (200m)
Longest length after first branch	90m*
Longest length from outdoor unit to its downstream indoor unit	40m
Largest height difference between indoor and outdoor units - ODU up (down)	90m (110m)
Largest height difference between indoor units	30m

*The longest length after first branch is 40m as standard but can be extended to up to 90m under certain conditions. Please refer to technical manual for further information.

Enhanced Comfort

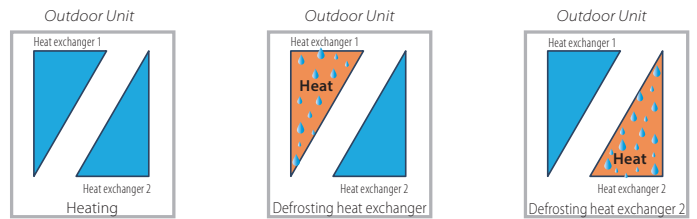
ADJUSTABLE OUTDOOR HEAT EXCHANGER

Heat exchanger is split in two different parts, so the unit can distribute a part of evaporator to be as condensing area according to the heating load requirement to improve the efficiency of the condenser.



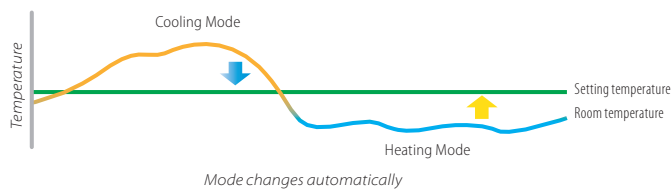
CONTINUOUS HEATING DURING MIXED HEATING/COOLING OPERATION

Each heat exchanger is defrosted by using heat transferred from one heat exchanger to the other in the outdoor unit. Defrost has no impact on the indoor unit on heating mode.



AUTO MODE CONTROL

Under the Auto Mode, the indoor unit can change the operation mode automatically, to keep the indoor temperature at a constant level.



INNOVATIVE MODE SWITCH (MS) BOX

Simultaneous cooling and heating achieved through new designed MS (Mode Switch) box.

- Low noise operation for precise control of multiple solenoid valves;
- Max. 24 indoor units connect to a MS box;
- Max. 28kW indoor units connect to a MS box;

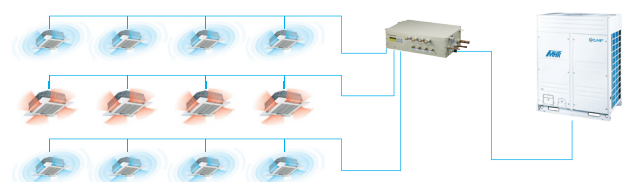
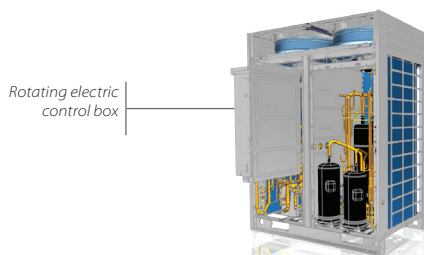


One group pipe with max. 4 indoor units connection Two group pipes with max. 8 indoor units connection Four group pipes with max. 16 indoor units connection Six group pipes with max. 24 indoor units connection

- Indoor units connected to a same MS can realize simultaneous cooling and heating operation.

ROTATABLE CONTROL BOX

Newly designed rotating control box can rotate in a wide angle. It is convenient for the inspection and maintenance of the pipeline system and greatly reduces the dismount time of the electric control box.



VRF MHR



Size		MHR-XMi	252T	280T	335T	400T	450T
Capacity		HP	8	10	12	14	16
Cooling ⁽¹⁾	Capacity	kW	25,2	28,0	33,5	40,0	45,0
	Power input	kW	5,97	6,75	9,28	11,49	14,20
	EER	-	4,22	4,15	3,61	3,48	3,17
	Operating temperature range (DB)	°C	-5 ~ 48	-5 ~ 48	-5 ~ 48	-5 ~ 48	-5 ~ 48
Heating ⁽²⁾	Capacity	kW	27,0	31,5	37,5	40,0	45,0
	Power input	kW	5,02	6,21	9,24	9,76	11,90
	COP	-	5,38	5,07	4,06	4,10	3,78
	Operating temperature range (DB)	°C	-20 ~ 24	-20 ~ 24	-20 ~ 24	-20 ~ 24	-20 ~ 24
Connectable indoor units	Total Capacity Index ⁽³⁾	-	50 ~ 130%	50 ~ 130%	50 ~ 130%	50 ~ 130%	50 ~ 130%
	Max quantity	-	13	16	20	23	26
Compressor	Type	-	DC Inverter	DC Inverter	DC Inverter	DC Inverter	DC Inverter
	Quantity	-	1	1	1	2	2
Refrigerant	Factory charge	kg	10	10	10	13	13
	CO ₂ equivalence	ton	20,88	20,88	20,88	27,14	27,14
Pipe connections	Liquid pipe	mm	Ø 12,7	Ø 12,7	Ø 15,9	Ø 15,9	Ø 15,9
	Low pressure gas pipe	mm	Ø 22,2	Ø 22,2	Ø 25,4	Ø 28,6	Ø 28,6
	High pressure gas pipe	mm	Ø 19,1	Ø 19,1	Ø 19,1	Ø 22,2	Ø 22,2
	High pressure gas balance pipe	mm	Ø 19,1	Ø 19,1	Ø 19,1	Ø 19,1	Ø 19,1
	Oil balance pipe	mm	Ø 6,35	Ø 6,35	Ø 6,35	Ø 6,35	Ø 6,35
Fan motors	Quantity	-	2	2	2	2	2
	Static pressure	Pa	0 ~ 40	0 ~ 40	0 ~ 40	0 ~ 40	0 ~ 40
Dimensions (Width x Height x Depth)		mm	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765
Weight		kg	255	255	255	303	303
Air flow rate		m ³ /h	12000	12000	13000	15000	15000
Sound pressure level ⁽⁴⁾		dB(A)	59	62	63	66	66
Sound power level ⁽⁴⁾		dB(A)	79	83	84	88	88
Power supply		V/Ph/Hz	380-415/3/50				

Notes

- (1) Indoor temperature 27°C DB/19°C WB; Outdoor temperature 35°C DB/24°C WB. Interconnecting piping length is 7,5m, level difference is zero.
- (2) Indoor temperature 20°C DB/15°C WB; Outdoor temperature 7°C DB/6°C WB. Interconnecting piping length is 7,5m, level difference is zero.
- (3) Total Capacity Index = indoor unit total capacity/outdoor unit capacity
- (4) Sound values are measured in a semi-anechoic room, at a position 1m in front of the unit and 1,3m above the floor.

VRF MHR


Size	MHR-XMi	532T	560T	615T	680T	730T	800T	850T	900T	
Capacity	HP	18	20	22	24	26	28	30	32	
Combination	HP	8+10	10x2	10+12	10+14	10+16	14x2	14+16	16x2	
Cooling ⁽¹⁾	Capacity	kW	53,2	56,0	61,5	68,0	73,0	80,0	85,0	90,0
	Power input	kW	12,72	13,50	16,03	18,24	20,95	22,98	25,69	28,4
	EER	-	4,18	4,15	3,84	3,73	3,48	3,48	3,31	3,17
	Operating temperature range (DB)	°C	-5 ~ 48	-5 ~ 48	-5 ~ 48	-5 ~ 48	-5 ~ 48	-5 ~ 48	-5 ~ 48	-5 ~ 48
Heating ⁽²⁾	Capacity	kW	58,5	63,0	69,0	71,5	76,5	80,0	85,0	90,0
	Power input	kW	11,23	12,42	15,45	15,97	18,11	19,52	21,66	23,8
	COP	-	5,21	5,07	4,47	4,48	4,22	4,10	3,92	3,78
	Operating temperature range (DB)	°C	-20 ~ 24	-20 ~ 24	-20 ~ 24	-20 ~ 24	-20 ~ 24	-20 ~ 24	-20 ~ 24	-20 ~ 24
Connectable indoor units	Total Capacity Index ⁽³⁾	-	50 ~ 130%	50 ~ 130%	50 ~ 130%	50 ~ 130%	50 ~ 130%	50 ~ 130%	50 ~ 130%	50 ~ 130%
	Max quantity	-	29	33	36	39	43	46	50	53
Compressor	Type	-	DC Inverter	DC Inverter	DC Inverter	DC Inverter	DC Inverter	DC Inverter	DC Inverter	DC Inverter
	Quantity	-	2	2	2	3	3	4	4	4
Refrigerant	Factory charge	kg	20	20	20	23	23	26	26	26
	CO ₂ equivalence	ton	41,76	41,76	41,76	48,02	48,02	54,29	54,29	54,29
Pipe connections	Liquid pipe	mm	Ø 15,9	Ø 15,9	Ø 15,9	Ø 15,9	Ø 19,1	Ø 19,1	Ø 19,1	Ø 19,1
	Low pressure gas pipe	mm	Ø 31,8	Ø 31,8	Ø 31,8	Ø 34,9	Ø 34,9	Ø 34,9	Ø 34,9	Ø 34,9
	High pressure gas pipe	mm	Ø 28,6	Ø 28,6	Ø 28,6	Ø 28,6	Ø 28,6	Ø 28,6	Ø 28,6	Ø 28,6
	High pressure gas balance pipe	mm	Ø 19,1	Ø 19,1	Ø 19,1	Ø 19,1	Ø 19,1	Ø 19,1	Ø 19,1	Ø 19,1
	Oil balance pipe	mm	Ø 6,35	Ø 6,35	Ø 6,35	Ø 6,35	Ø 6,35	Ø 6,35	Ø 6,35	Ø 6,35
Fan motors	Quantity	-	4	4	4	4	4	4	4	4
	Static pressure	Pa	0 ~ 40	0 ~ 40	0 ~ 40	0 ~ 40	0 ~ 40	0 ~ 40	0 ~ 40	0 ~ 40
Dimensions (Width x Height x Depth)	Unit 1	mm	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765
	Unit 2	mm	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765
Weight	kg	510	510	510	558	558	606	606	606	
Air flow rate	m ³ /h	24000	24000	25000	27000	27000	30000	30000	30000	
Sound pressure level ⁽⁴⁾	dB(A)	67	67	67	68	68	69	69	69	
Sound power level ⁽⁴⁾	dB(A)	89	89	89	90	90	91	91	91	
Power supply	V/Ph/Hz	380-415/3/50								

Notes

- (1) Indoor temperature 27°C DB/19°C WB; Outdoor temperature 35°C DB/24°C WB. Interconnecting piping length is 7,5m, level difference is zero.
- (2) Indoor temperature 20°C DB/15°C WB; Outdoor temperature 7°C DB/6°C WB. Interconnecting piping length is 7,5m, level difference is zero.
- (3) Total Capacity Index = indoor unit total capacity/outdoor unit capacity
- (4) Sound values are measured in a semi-anechoic room, at a position 1m in front of the unit and 1,3m above the floor.

VRF MHR


Size	MHR-XMi	960T	1010T	1065T	1130T	1200T	1250T	1300T	1350T
Capacity	HP	34	36	38	40	42	44	46	48
Combination	HP	10x2+14	10x2+16	10+12+16	10+14+16	14x3	14x2+16	14+16x2	16x3
Cooling ⁽¹⁾	Capacity	kW	96	101	106,5	113	120	125	130
	Power input	kW	24,99	27,7	30,23	32,44	34,47	37,18	39,89
	EER	-	3,84	3,65	3,52	3,48	3,48	3,36	3,26
	Operating temperature range (DB)	°C	-5 ~ 48	-5 ~ 48	-5 ~ 48	-5 ~ 48	-5 ~ 48	-5 ~ 48	-5 ~ 48
Heating ⁽²⁾	Capacity	kW	103	108	114	116,5	120	125	130
	Power input	kW	22,18	24,32	27,35	27,87	29,28	31,42	33,56
	COP	-	4,64	4,44	4,17	4,18	4,10	3,98	3,87
	Operating temperature range (DB)	°C	-20 ~ 24	-20 ~ 24	-20 ~ 24	-20 ~ 24	-20 ~ 24	-20 ~ 24	-20 ~ 24
Connectable indoor units	Total Capacity Index ⁽³⁾	-	50 ~ 130%	50 ~ 130%	50 ~ 130%	50 ~ 130%	50 ~ 130%	50 ~ 130%	50 ~ 130%
	Max quantity	-	56	59	63	64	64	64	64
Compressor	Type	-	DC Inverter	DC Inverter	DC Inverter	DC Inverter	DC Inverter	DC Inverter	DC Inverter
	Quantity	-	4	4	4	5	6	6	6
Refrigerant	Factory charge	kg	33	33	33	36	39	39	39
	CO ₂ equivalence	ton	68,90	68,90	68,90	75,17	81,43	81,43	81,43
Pipe connections	Liquid pipe	mm	Ø 19,1	Ø 19,1	Ø 19,1	Ø 19,1	Ø 19,1	Ø 19,1	Ø 19,1
	Low pressure gas pipe	mm	Ø 41,3	Ø 41,3	Ø 41,3	Ø 41,3	Ø 41,3	Ø 41,3	Ø 41,3
	High pressure gas pipe	mm	Ø 34,9	Ø 34,9	Ø 34,9	Ø 34,9	Ø 34,9	Ø 34,9	Ø 34,9
	High pressure gas balance pipe	mm	Ø 19,1	Ø 19,1	Ø 19,1	Ø 19,1	Ø 19,1	Ø 19,1	Ø 19,1
	Oil balance pipe	mm	Ø 6,35	Ø 6,35	Ø 6,35	Ø 6,35	Ø 6,35	Ø 6,35	Ø 6,35
Fan motors	Quantity	-	6	6	6	6	6	6	6
	Static pressure	Pa	0 ~ 40	0 ~ 40	0 ~ 40	0 ~ 40	0 ~ 40	0 ~ 40	0 ~ 40
Dimensions (Width x Height x Depth)	Unit 1	mm	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765
	Unit 2	mm	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765
	Unit 3	mm	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765
Weight	kg	1013	813	813	861	909	909	909	909
Air flow rate	m ³ /h	39000	39000	40000	42000	45000	45000	45000	45000
Sound pressure level ⁽⁴⁾	dB(A)	69	69	69	70	71	71	71	71
Sound power level ⁽⁴⁾	dB(A)	91	91	91	92	93	93	93	93
Power supply	V/Ph/Hz	380-415/3/50							

Notes

- (1) Indoor temperature 27°C DB/19°C WB; Outdoor temperature 35°C DB/24°C WB. Interconnecting piping length is 7,5m, level difference is zero.
- (2) Indoor temperature 20°C DB/15°C WB; Outdoor temperature 7°C DB/6°C WB. Interconnecting piping length is 7,5m, level difference is zero.
- (3) Total Capacity Index = indoor unit total capacity/outdoor unit capacity
- (4) Sound values are measured in a semi-anechoic room, at a position 1m in front of the unit and 1,3m above the floor.

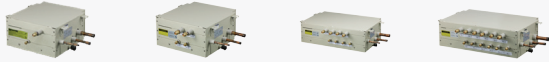
VRF MHR


Size		MHR-XMi	1432T	1460T	1515T	1580T	1650T	1700T	1750T	1800T
Capacity	HP		50	52	54	56	58	60	62	64
Combination	HP		8+10+16x2	10x2+16x2	10+12+16x2	10+14+16x2	14x3+16	14x2+16x2	14+16x3	16x4
Cooling ⁽¹⁾	Capacity	kW	143,2	146	151,5	158	165	170	175	180
	Power input	kW	41,12	41,9	44,43	46,64	48,67	51,38	54,09	56,08
	EER	-	3,48	3,48	3,41	3,39	3,39	3,31	3,24	3,17
	Operating temperature range (DB)	°C	-5 ~ 48	-5 ~ 48	-5 ~ 48	-5 ~ 48	-5 ~ 48	-5 ~ 48	-5 ~ 48	-5 ~ 48
Heating ⁽²⁾	Capacity	kW	148,5	153	159	161,5	165	170	175	180
	Power input	kW	35,03	36,22	39,25	39,77	41,18	43,32	45,46	47,6
	COP	-	4,24	4,22	4,05	4,06	4,01	3,92	3,85	3,78
	Operating temperature range (DB)	°C	-20 ~ 24	-20 ~ 24	-20 ~ 24	-20 ~ 24	-20 ~ 24	-20 ~ 24	-20 ~ 24	-20 ~ 24
Connectable indoor units	Total Capacity Index ⁽³⁾	-	50 ~ 130%	50 ~ 130%	50 ~ 130%	50 ~ 130%	50 ~ 130%	50 ~ 130%	50 ~ 130%	50 ~ 130%
	Max quantity	-	64	64	64	64	64	64	64	64
Compressor	Type	-	DC Inverter	DC Inverter	DC Inverter	DC Inverter	DC Inverter	DC Inverter	DC Inverter	DC Inverter
	Quantity	-	6	6	6	7	8	8	8	8
Refrigerant	Factory charge	kg	46	46	46	49	52	52	52	52
	CO ₂ equivalence	ton	96,05	96,05	96,05	102,31	108,58	108,58	108,58	108,58
Pipe connections	Liquid pipe	mm	Ø 22,2	Ø 22,2	Ø 22,2	Ø 22,2	Ø 22,2	Ø 22,2	Ø 22,2	Ø 22,2
	Low pressure gas pipe	mm	Ø 44,5	Ø 44,5	Ø 44,5	Ø 44,5	Ø 44,5	Ø 44,5	Ø 44,5	Ø 44,5
	High pressure gas pipe	mm	Ø 38,1	Ø 38,1	Ø 38,1	Ø 38,1	Ø 38,1	Ø 38,1	Ø 38,1	Ø 38,1
	High pressure gas balance pipe	mm	Ø 19,1	Ø 19,1	Ø 19,1	Ø 19,1	Ø 19,1	Ø 19,1	Ø 19,1	Ø 19,1
	Oil balance pipe	mm	Ø 6,35	Ø 6,35	Ø 6,35	Ø 6,35	Ø 6,35	Ø 6,35	Ø 6,35	Ø 6,35
Fan motors	Quantity	-	8	8	8	8	8	8	8	8
	Static pressure	Pa	0 ~ 40	0 ~ 40	0 ~ 40	0 ~ 40	0 ~ 40	0 ~ 40	0 ~ 40	0 ~ 40
Dimensions (Width x Height x Depth)	Unit 1	mm	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765
	Unit 2	mm	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765
	Unit 3	mm	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765
	Unit 4	mm	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765	1250x1615x765
Weight	kg	1116	1116	1116	1164	1212	1212	1212	1212	
Air flow rate	m ³ /h	54000	54000	55000	57000	60000	60000	60000	60000	
Sound pressure level ⁽⁴⁾	dB(A)	72	72	72	73	74	74	74	74	
Sound power level ⁽⁴⁾	dB(A)	94	94	94	95	96	96	96	96	
Power supply	V/Ph/Hz	380-415/3/50								

Notes

- (1) Indoor temperature 27°C DB/19°C WB; Outdoor temperature 35°C DB/24°C WB. Interconnecting piping length is 7,5m, level difference is zero.
- (2) Indoor temperature 20°C DB/15°C WB; Outdoor temperature 7°C DB/6°C WB. Interconnecting piping length is 7,5m, level difference is zero.
- (3) Total Capacity Index = indoor unit total capacity/outdoor unit capacity
- (4) Sound values are measured in a semi-anechoic room, at a position 1m in front of the unit and 1,3m above the floor.

MS BOX for MHR-XMi

MS BOX								
Size	MS	01-XC	02-XC	04-XC	06-XC	02E-XC		
Applicable indoor units ⁽¹⁾	-	ALL (-HSPD)				HSPD		
Max. number of indoor unit groups	-	1	2	4	6	1		
Max. number of each group of indoor units	-	4	4	4	4	1		
Max. number of downstream indoor units	-	4	8	16	24	1		
Max. capacity of each group of indoor units	kW	16	16	16	16	20/25/28		
Max. total capacity of downstream indoor units	kW	16	28	45	45	20-28		
Piping connection	Connected to outdoor unit	Liquid pipe	mm	Ø 9,53	Ø 12,7	Ø 15,9	Ø 15,9	Ø 12,7
		High pressure gas pipe	mm	Ø 15,9	Ø 19,1	Ø 22,2	Ø 22,2	Ø 19,1
		Low pressure gas pipe	mm	Ø 19,1	Ø 25,4	Ø 31,8	Ø 31,8	Ø 25,4
	Connected to indoor unit	Liquid pipe	mm	Ø 9,53	Ø 9,53	Ø 9,53	Ø 9,53	Ø 9,53
		Gas pipe	mm	Ø 15,9	Ø 15,9	Ø 15,9	Ø 15,9	Ø 15,9
		Dimensions (Width x Height x Depth)	mm	630x225x600	630x225x600	960x225x600	960x225x600	630x225x600
Weight	kg	18	19,5	31	35	19,5		
Sound pressure level ⁽²⁾	dB(A)	33	33	33	40	33		

Notes

(1) ALL (-HSPD) = All VRF indoor units except high static pressure duct sizes 20-28 kW
HSPD = High static pressure duct sizes 20-28 kW

(2) Sound values are measured in a semi-anechoic room, at a position 1m below the MS equipment in mode switch condition.
It is recommended to avoid the installation of MS boxes in locations with low-noise requirements.

