

1. Outdoor Unit

1-1. Specifications

Unit specifications (1)

OUTDOOR		MODEL	U-8MF3E8			U-10MF3E8			U-12MF3E8			
Performance test condition		EN14511, EN14825			EN14511, EN14825			EN14511, EN14825				
Power supply		Ø,Hz	3Ø, 380-400-415V, 50Hz			3Ø, 380-400-415V, 50Hz			3Ø, 380-400-415V, 50Hz			
		V	380	400	415	380	400	415	380	400	415	
C O O L I N G	Capacity *3	kW	22.4	22.4	22.4	28.0	28.0	28.0	33.5	33.5	33.5	
		BTU/h	76500	76500	76500	95600	95600	95600	114300	114300	114300	
	Current *3	A	7.16	6.80	6.55	9.90	9.41	9.07	13.9	13.2	12.7	
	Input power *3	W	4.38k	4.38k	4.38k	5.93k	5.93k	5.93k	8.57k	8.57k	8.57k	
	EER *3	(W/W)	5.11	5.11	5.11	4.72	4.72	4.72	3.91	3.91	3.91	
	Power factor *3	%	93	93	93	91	91	91	94	94	94	
	ηs,c *4	%	277.7			278.9			252.7			
N o i s e o u t d o o r * 3		dB-A (Normal)	54.0			57.0			60.0			
		Power Level dB (Normal)	76.0			78.0			81.0			
		dB-A (Silent 1)	51.0			54.0			57.0			
		dB-A (Silent 2)	49.0			52.0			55.0			
H E A T I N G	Capacity *3	kW	25.0	25.0	25.0	31.5	31.5	31.5	37.5	37.5	37.5	
		BTU/h	85300	85300	85300	107500	107500	107500	128000	128000	128000	
	Current *3	A	7.78	7.39	7.12	10.2	9.66	9.31	13.4	12.8	12.3	
	Input power *3	W	4.76k	4.76k	4.76k	6.09k	6.09k	6.09k	8.32k	8.32k	8.32k	
	COP *3	(W / W)	5.25	5.25	5.25	5.17	5.17	5.17	4.51	4.51	4.51	
	Power factor *3	%	93	93	93	91	91	91	94	94	94	
ηs,h *4	%	190.9			166.8			167.8				
Max Current (A) / Max Input power (W)			14.0 / 8.57k	14.0 / 9.02k	14.0 / 9.36k	18.0 / 10.8k	18.0 / 11.3k	18.0 / 11.8k	20.0 / 12.4k	20.0 / 13.0k	20.0 / 13.5k	
Starting current (A)			1	1	1	1	1	1	1	1	1	
Time Delay fuse max size (A)			25			25			30			
Fan motor output		W / Pole number	750 / 8			750 / 8			750 / 8			
External static pressure		Pa	80			80			80			
Air flow		m ³ / min	210			220			232			
Refrigerant type / amount g			R410A / 6.8k			R410A / 6.8k			R410A / 8.3k			
P r o d u c t d i m e n s i o n	Height	mm	1842			1842			1842			
	Width	mm	1180			1180			1180			
	Depth	mm	1000			1000			1000			
P a c k i n g d i m e n s i o n	Height	mm	1977			1977			1977			
	Width	mm	1280			1280			1280			
	Depth	mm	1100			1100			1100			
W e i g h t	(NET) kg		261			262			286			
	(GROSS) kg		281			282			306			
Layers limit			1			1			1			
O p e r a t i o n c o n d i t i o n (O u t d o o r)	Cool (DBT)		-10°C ~ 52°C			-10°C ~ 52°C			-10°C ~ 52°C			
	Heat (WBT)		-20°C ~ 18°C			-20°C ~ 18°C			-20°C ~ 18°C			
	Cool & Heat (DBT)		-10°C ~ 24°C			-10°C ~ 24°C			-10°C ~ 24°C			
M A X. W O R K I N G P R E S S U R E	High side bar (MPa)		38.0 (3.80)			38.0 (3.80)			38.0 (3.80)			
	Low side bar (MPa)		31.1 (3.11)			31.1 (3.11)			31.1 (3.11)			
P i p i n g	Pipe diameter mm (inch)	(Liquid) 9.52(3/8) (Discharge) 15.88 (5/8)	(Suction) 19.05 (3/4)			(Liquid) 9.52 (3/8) (Discharge) 19.05(3/4)	(Suction) 22.22 (7/8)			(Liquid) 12.7 (1/2) (Discharge) 19.05(3/4)	(Suction) 25.4 (1inch)	
	Pipe diameter mm (inch) *1	(Liquid) 12.7 (1/2) (Discharge) 19.05 (3/4)	(Suction) 22.22 (7/8)			(Liquid) 12.7 (1/2) (Discharge) 22.22 (7/8)	(Suction) 25.4 (1inch)			(Liquid) 15.88 (5/8) (Discharge) 22.22 (7/8)	(Suction) 28.58 (1-1/8)	
	Balance pipe mm (inch)	6.35 (1/4)			6.35 (1/4)			6.35 (1/4)				
	Connecting method		(Balance) & (Liquid) & (Discharge) flared type, (Suction) brazing connection			(Balance) & (Liquid) flared type, (Suction) & (Discharge) brazing connection			(Balance) & (Liquid) flared type, (Suction) & (Discharge) brazing connection			
	M a x t u b i n g l e n g t h	Actual length m	7.5	~	200	7.5	~	200	7.5	~	200	
		Equivalent length m	7.5	~	210	7.5	~	210	7.5	~	210	
	Total Max tubing length m		7.5 ~ 500			7.5 ~ 500			7.5 ~ 500			
Indoor unit & Outdoor unit height difference (Outdoor unit upper / Outdoor unit Lower) m		50 / 40			50 / 40			50 / 40				
Max connectable indoor units pcs.		15 (19 *2)			19 (24 *2)			22 (29 *2)				
Max allowable indoor/outdoor capacity ratio %		50 ~ 150			50 ~ 150			50 ~ 150				

*1: If the longest tubing equivalent length exceeds 90m, increase the sizes of the main tubes by 1 rank for suction tubes, discharge tubes and liquid tubes.
 *2: In case that all connected indoor unit are only mini cassette (Y type), wall mounted (K type) and slim duct (M type), maximum number of indoor unit is able to increase (Able to apply bigger value). If one or more another indoor unit is connected, maximum number of indoor unit is smaller value.
 *3: Indoor units combination of performance test, 8HP: S-22MF2E5×8+S-22MU2E5A×2, 10HP: S-22MF2E5×9+S-45MF2E5×1+S-22MU2E5A×2 Measured according with EN14511. 12HP: S-22MF2E5×8+S-60MF2E5×2+S-22MU2E5A×2
 *4: Measured according with EN14825.
 The number of max connectable outdoor units are 3.
 Necessary amount of additional refrigerant charge per outdoor unit, for 8HP or 10HP is 6.0kg, for 12HP or 14HP or 16HP is 7.4kg.
 Max total refrigerant amount of 1 outdoor unit is 50kg, for 2 outdoor units is 80kg, for 3 outdoor units is 100kg.

1. Outdoor Unit

1-1. Specifications

Unit specifications (2)

OUTDOOR		MODEL	U-14MF3E8			U-16MF3E8					
Performance test condition		EN14511, EN14825									
Power supply		Ø,Hz	3Ø, 380-400-415V, 50Hz			3Ø, 380-400-415V, 50Hz					
		V	380	400	415	380	400	415			
C O O L I N G	Capacity *3	kW	40.0	40.0	40.0	45.0	45.0	45.0			
		BTU/h	136500	136500	136500	153600	153600	153600			
	Current *3	A	18.2	17.3	16.7	21.3	20.2	19.5			
	Input power *3	W	10.8k	10.8k	10.8k	12.9k	12.9k	12.9k			
	EER *3	(W/W)	3.70	3.70	3.70	3.49	3.49	3.49			
	Power factor *3	%	90	90	90	92	92	92			
	ηs,c *4	%	264.4			237.7					
Noise outdoor *3		dB-A (Normal)	61.0			62.0					
		Power Level dB (Normal)	82.0			82.0					
		dB-A (Silent 1)	58.0			59.0					
		dB-A (Silent 2)	56.0			57.0					
H E A T I N G	Capacity *3	kW	45.0	45.0	45.0	50.0	50.0	50.0			
		BTU/h	153600	153600	153600	170600	170600	170600			
	Current *3	A	18.1	17.2	16.5	20.0	19.0	18.3			
	Input power *3	W	10.7k	10.7k	10.7k	12.0k	12.0k	12.0k			
	COP *3	(W / W)	4.21	4.21	4.21	4.17	4.17	4.17			
	Power factor *3	%	90	90	90	91	91	91			
ηs,h *4	%	162.1			149.3						
Max Current (A) / Max Input power (W)			30.0 / 17.8k	30.0 / 18.7k	30.0 / 19.4k	32.0 / 19.4k	32.0 / 20.4k	32.0 / 21.2k			
Starting current (A)			2	2	2	2	2	2			
Time Delay fuse max size (A)			40			40					
Fan motor output		W / Pole number	750 / 8			750 / 8					
External static pressure		Pa	80			80					
Air flow		m ³ /min	232			232					
Refrigerant type / amount g			R410A / 8.3k			R410A / 8.3k					
Product dimension	Height	mm	1842			1842					
	Width	mm	1180			1180					
	Depth	mm	1000			1000					
Packing dimension	Height	mm	1977			1977					
	Width	mm	1280			1280					
	Depth	mm	1100			1100					
Weight		(NET) kg	334			334					
		(GROSS) kg	354			354					
Layers limit			1			1					
Operation condition (Outdoor)		Cool (DBT)	-10°C ~ 52°C			-10°C ~ 52°C					
		Heat (WBT)	-20°C ~ 18°C			-20°C ~ 18°C					
		Cool & Heat (DBT)	-10°C ~ 24°C			-10°C ~ 24°C					
MAX. WORKING PRESSURE		High side bar (MPa)	38.0 (3.80)			38.0 (3.80)					
		Low side bar (MPa)	31.1 (3.11)			31.1 (3.11)					
P I P I N G	Pipe diameter mm (inch) (Under 90m for ultimate Indoor unit)		(Liquid) 12.7 (1/2) (Discharge) 22.22 (7/8) (Suction) 25.4 (1inch)			(Liquid) 12.7 (1/2) (Discharge) 22.22 (7/8) (Suction) 28.58 (1-1/8)					
	Pipe diameter mm (inch) *1 (Over 90m for ultimate Indoor unit)		(Liquid) 15.88 (5/8) (Discharge) 25.4 (1inch) (Suction) 28.58 (1-1/8)			(Liquid) 15.88 (5/8) (Discharge) 25.4 (1inch) (Suction) 31.75 (1-1/4)					
	Balance pipe mm (inch)		6.35 (1/4)			6.35 (1/4)					
	Connecting method		(Balance) & (Liquid) flared type, (Suction) & (Discharge) brazing connection			(Balance) & (Liquid) flared type, (Suction) & (Discharge) brazing connection					
	Max tubing length	Actual length m		7.5	~	200	7.5	~	200		
		Equivalent length m		7.5	~	210	7.5	~	210		
	Total Max tubing length m			7.5	~	500	7.5	~	500		
Indoor unit & Outdoor unit height difference (Outdoor unit upper / Outdoor unit Lower) m			50 / 40			50 / 40					
Max connectable indoor units pcs.			27 (34*2)			30 (39*2)					
Max allowable indoor/outdoor capacity ratio %			50 ~ 150			50 ~ 150					

*1: If the longest tubing equivalent length exceeds 90m, increase the sizes of the main tubes by 1 rank for suction tubes, discharge tubes and liquid tubes.

*2: In case that all connected indoor unit are only mini cassette (Y type), wall mounted (K type) and slim duct (M type), maximum number of indoor unit is able to increase (Able to apply bigger value). If one or more another indoor unit is connected, maximum number of indoor unit is smaller value.

*3: Indoor units combination of performance test, 14HP: S-22MF2E5×10 + S-90MF2E5×1 + S-106MF2E5×1
Measured according with EN14511. 16HP: S-22MF2E5×9 + S-60MF2E5×1 + S-106MF2E5×2

*4: Measured according with EN14825.

The number of max connectable outdoor units are 3.

Necessary amount of additional refrigerant charge per outdoor unit, for 8HP or 10HP is 6.0kg, for 12HP or 14HP or 16HP is 7.4kg.

Max total refrigerant amount of 1 outdoor unit is 50kg, for 2 outdoor units is 80kg, for 3 outdoor units is 100kg.