

3-PIPE ECOi EX MF3 SERIES

Simultaneous heating and cooling VRF System

The Panasonic 3-Pipe ECOi EX MF3 series offers the ideal solution to meet customer's demand.

Upgraded energy efficiency utilized ECOi EX technology.

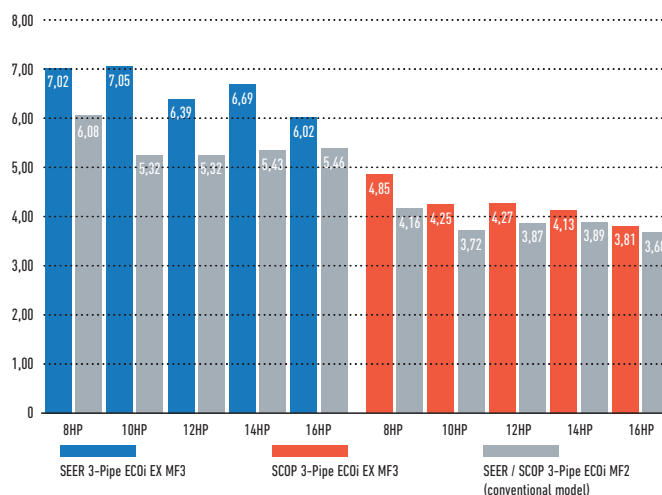
- SEER / SCOP improved in full capacities from 8 to 16HP
- SEER / SCOP follows LOT21 from started from January 2018
- EER / COP is certified in Eurovent

Design flexibility.

- High reliability even under tough temperature condition
- Maximum 52 indoor units connectable
- Slim heat recovery box with just 200 height
- Farthest piping length between indoor units and outdoor units: 200m

Excellent seasonal energy saving.

SEER / SCOP

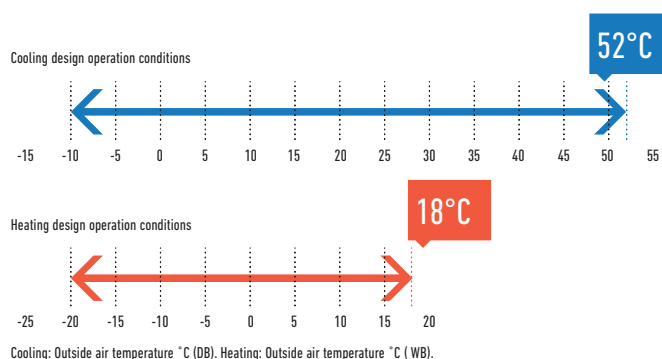


Extended design operation conditions

Cooling design operation conditions: The cooling operation range has been extended to -10°C ~ 52°C by changing the outdoor fan to an Inverter type. Heating design operation conditions: Stable heating operation even with an outside air temperature of -20°C. The heating operation range has been extended to -20°C by use of a compressor with a high-pressure vessel.

Wide temperature setting range

Wired remote control heating temperature setting range is 16 to 30°C.



Increased maximum number of connectable indoor units

Maximum 48HP with 52 indoor units can be set up according to user needs.

Connectable indoor/outdoor unit capacity ratio up to 150%.

System (HP)	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	
Connectable indoor units*: 150 %	19	24	29	34	39	43	48	52					52									

*Depending on indoor units types. Please check service manuals.

Power suppression control for energy saving (Demand control)¹

The 3-Pipe ECOi EX MF3 Series has a built-in demand function which uses the inverter characteristics. With this demand function, the power consumption can be set in three steps, and operation² at optimum performance is performed according to the setting and the power consumption. This function is useful to reduce the annual power consumption and to save electricity costs while maintaining comfort.

¹ An outdoor Seri-Para I/O unit is required for demand input.

² Setting is possible as 0% or in the range from 40 to 100% (in steps of 5%). At the time of shipping, setting has been done to the three steps of 0%, 70%, and 100%.

Simultaneous heating and cooling VRF system.
The 3-Pipe ECOi EX MF3 Series offers the solution for the most demanding customers.



Slim 3-Pipe Control Box Kit / Multiple connection type

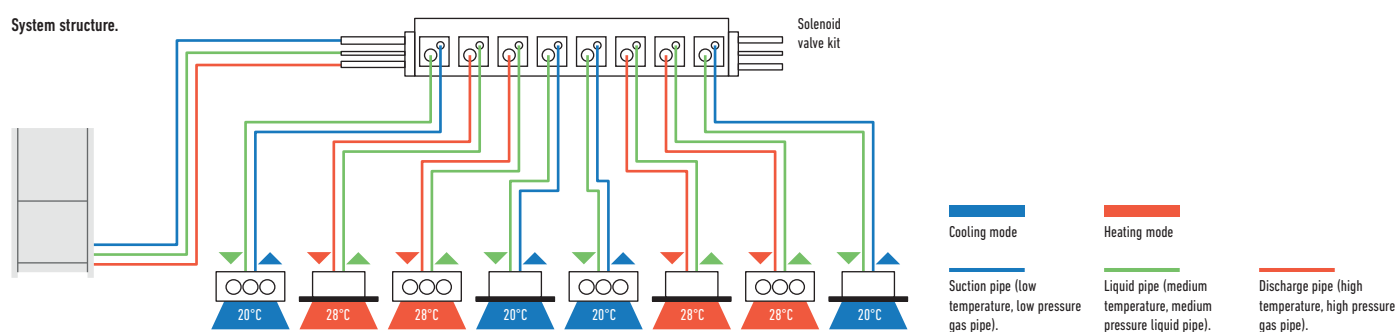
Heat Recovery Box to connect multiple indoor units with just one box, 4, 6 and up to 8 indoor units or groups.

The height is only 200mm. This is good advantage specially in hotel applications, where space for connecting several boxes is limited.

Individual control of multiple indoor units with solenoid valve kits.

- Any design and layout can be used in a single system.
- Cooling operation is possible up to an outdoor temperature of -10°C.

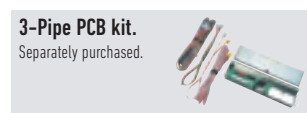
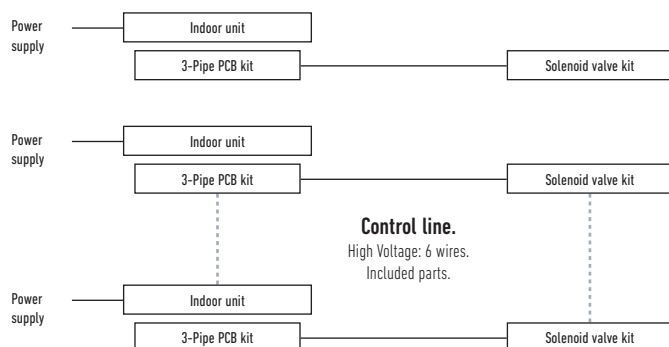
System structure.



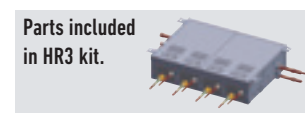
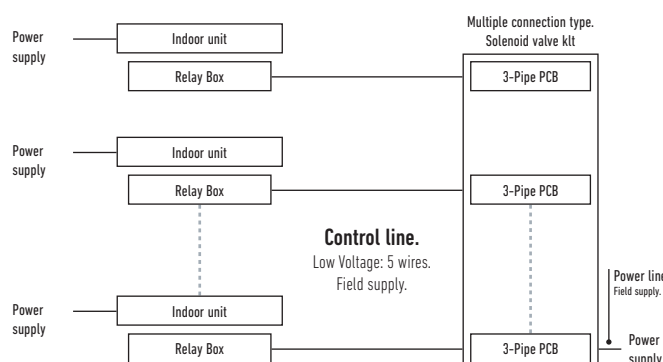
	1 port	4 port	6 port	8 port
56 type	CZ-P56HR3	CZ-P456HR3	CZ-P656HR3	CZ-P856HR3
160 type	CZ-P160HR3	CZ-P4160HR3	—	—

Solenoid valve kit / wiring work

Current model / single connection type



New model / multiple connection type

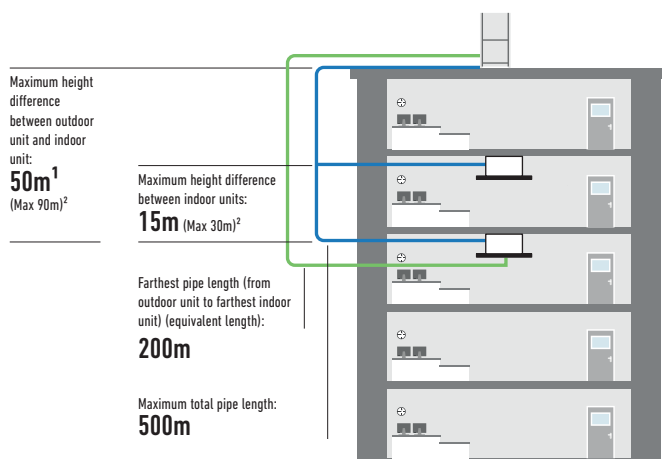


3-PIPE ECOi EX MF3 SERIES

SUPERIOR FLEXIBILITY

Increased piping lengths and design flexibility

Adaptable to various building types and sizes. Actual piping length: 200m.
Maximum piping length: 500m.

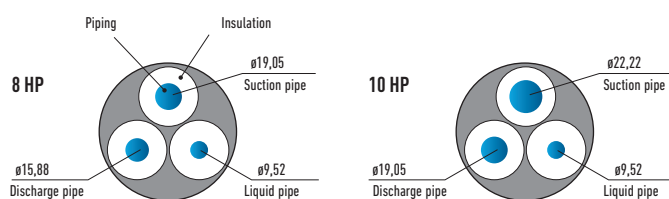


1. 40m if the outdoor unit is below the indoor unit.
2. Setting change is necessary. Please contact an authorized Panasonic dealer in the case of conditions below:
50 < Height difference between OU and IU ≤ 90 or 15 < Height difference between IUs ≤ 30.

Excellent cost saving and smaller piping size

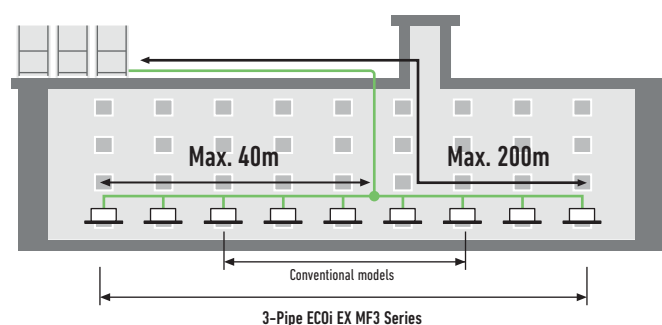
By using R410A with low pressure loss, pipe sizes for discharge, suction and liquid are all reduced.

This makes it possible to aim for reduced piping space, improved workability at the site, and reduction of the piping material costs.



Up to 40m piping after first branch

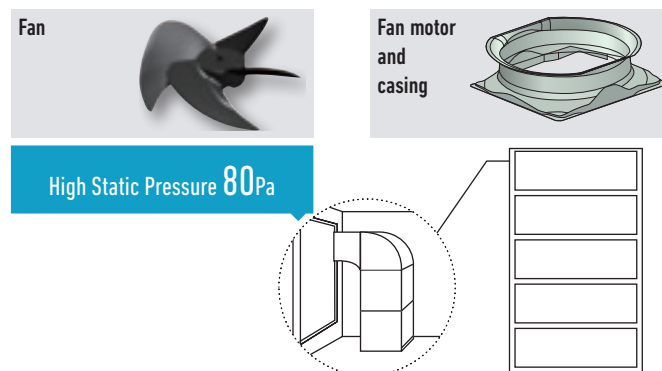
Up to 52 units can be connected to one system. Flexible piping layout makes it easier to design systems for locations such as train stations, airports, schools and hospitals.



High external static pressure on condensers

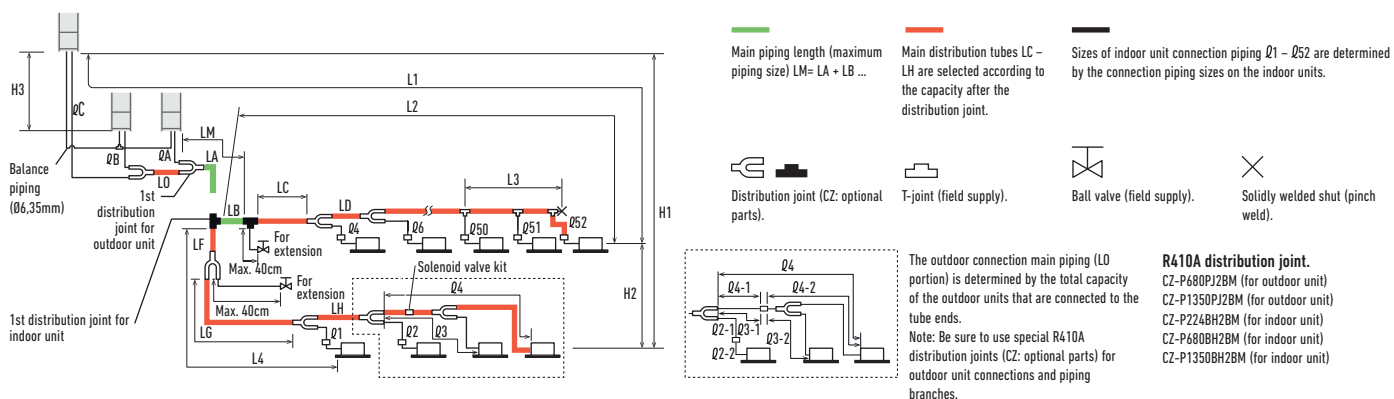
With a newly designed fan, fan guard, motor, and casing, new models can be custom-installed on-site to provide up to 80 Pa of external static pressure.

An air discharge duct prevents shortages of air circulation, allowing outdoor units to be installed on every floor of a building.



3-PIPE ECOi EX MF3 SERIES PIPING DESIGN

Select the installation location so that the length and size of refrigerant tubing are within the allowable range shown in the figure below.



Ranges that apply to refrigerant piping lengths and to differences in installation heights

Items	Mark	Contents	Length (m)
Allowable piping length	L1	Maximum piping length	Actual length ≤200 ¹⁾ Equivalent length ≤210 ¹⁾
	Δ L (L2-L4)	Difference between maximum length and minimum length from the 1st distribution joint	≤50 ²⁾
	LM	Maximum length of main piping (at maximum size) * Even after 1st distribution joint, LM is allowed if at maximum piping length.	— ³⁾
	Q1, Q2~ Q52	Maximum length of each distribution tube	≤50 ⁴⁾
	L1+ Q1+ Q2~ Q51+ QA+QB+LF+LG+LH	Total maximum piping length including length of each distribution tube (only liquid piping)	≤500
	QA, QB+LO, QC+LO	Maximum piping length from outdoor's 1st distribution joint to each outdoor unit	≤10
Allowable elevation difference	Q1-2, Q2-2 ~ Q52-2	Maximum length between solenoid valve kit and indoor unit	≤30
	H1	When outdoor unit is installed higher than indoor unit	≤50
	H2	When outdoor unit is installed lower than indoor unit	≤40
	H3	Maximum difference between indoor units	≤15 ⁵⁾
Allowable length of joint piping	L3	T-joint piping (field-supply); Maximum piping length between the first T-joint and solidly welded-shut end point	≤2

L = Length, H = Height

1) If the longest piping length (L1) exceeds 90m (equivalent length), increase the sizes of the main pipes (LM) by 1 rank for suction pipes, discharge pipes and liquid pipes. Use a field supply reducer. Select the pipe size from the table of main piping sizes (Table 3) and from the table of refrigerant piping sizes (Table 8). 2) If the longest main piping length (LM) exceeds 50m, increase the main piping size at the portion before 50 m by 1 rank for the suction pipes and discharge pipes. Use a field supply reducer. Determine the length less than the limitation of allowable maximum piping length. For the portion that exceeds 50m, set based on the main piping size (LA) listed in Table 3. 3) If the piping length marked "L" (L2-L4) exceeds 40m, increase the piping size at the portion after the 1st distribution joint by 1 rank for the liquid pipe, suction pipe and discharge pipe. Refer to the Technical Data for the details. 4) If any of the piping length exceeds 30m, increase the size of the suction pipes, discharge pipes and liquid pipes by 1 rank.

* The outdoor connection main piping (LO portion) is determined by the total capacity of the outdoor units that are connected to the pipe ends.

System limitations.

Maximum number allowable connected outdoor units	3
Maximum capacity allowable connected outdoor units	135kW (48HP)
Maximum connectable indoor units	52
Maximum allowable indoor / outdoor capacity ratio	50-150%

1) In the case of 24 HP (type 68kW) or smaller units, the number is limited by the total capacity of the connected indoor units.

2) Up to 3 units can be connected if the system has been extended.

3) It is strongly recommended that you choose the unit so the load can become between 50 and 130%.

Additional refrigerant charge.

Liquid piping size Inch (mm)	Amount of refrigerant charge/m (g/m)
1/4 (6,35)	26
3/8 (9,52)	56
1/2 (12,70)	128
5/8 (15,88)	185
3/4 (19,05)	259
7/8 (22,22)	366

Necessary amount of additional refrigerant charge per meter, according to discharge piping size.

Discharge piping size	Inch (mm)	1/2 (12,70)	5/8 (15,88)	3/4 (19,05)	7/8 (22,22)	1 (25,40)	1-1/8 (28,58)	1-1/4 (31,75)	1-1/2 (38,10)
Additional amount	g/m	12	21	31	41	55	71	89	126

Refrigerant piping.

Piping size Inch (mm)	Material Temper - 0	Material Temper - 1/2 H, H
1/4 (6,35)	t 0,8	7/8 (22,22)
3/8 (9,52)	t 0,8	1 (25,40)
1/2 (12,70)	t 0,8	1-1/8 (28,58)
5/8 (15,88)	t 1,0	1-1/4 (31,75)
3/4 (19,05)	t 1,2	1-1/2 (38,10)
		1-1/5 41,28
		t 1,20

* When bending the tubes, use a bending radius that is at least 4 times the outer diameter of the tubes. In addition, take sufficient care to avoid crushing or damaging the tubes when bending them.

3-Pipe ECOi EX MF3 Series



**4,85
SCOP**

Simultaneous heating and cooling operation with heat recovery type

The 3-Pipe ECOi EX MF3 Series is one of the most advanced VRF systems.

Not only high-efficient performance for simultaneous heating and cooling, but also sophisticated installation and maintenance available.

- Achieving SCOP 4,77 as the top class in the industry (LOT21 Seasonal heating efficiency value for 8HP outdoor unit)
- Simultaneous cooling and heating operation with up to 39 indoor units
- Slim heat recovery boxes with just 200mm height fit with the ceiling space limited in hotel applications
- Rotation operation function and back-up operation function provided

Technical focus

- High SEER/SCOP at full Load capacity (Follows LOT21)
- EER, COP: Eurovent certified
- Standardisation of outdoor unit to one compact casing size
- The constant-speed compressor adopts a high-performance internal high-pressure scroll
- Up to 52 indoor units connectable
- High external static pressure 80 Pa with a newly designed fan, fan guard, motor, and casing
- Silent outdoor unit operation: Minimum 54dB(A) for 8HP
- Bluefin condenser outdoor unit

			8HP	10HP	12HP	14HP	16HP
Outdoor Units			U-8MF3E8	U-10MF3E8	U-12MF3E8	U-14MF3E8	U-16MF3E8
Power supply	Voltage	V	380/400/415	380/400/415	380/400/415	380/400/415	380/400/415
	Phase		Three Phase	Three Phase	Three Phase	Three Phase	Three Phase
	Frequency	Hz	50	50	50	50	50
Cooling capacity		kW	22,40	28,00	33,50	40,00	45,00
EER ¹⁾		W/W	5,11	4,72	3,91	3,70	3,49
SEER ²⁾			7,02	7,05	6,39	6,69	6,02
Running current cooling		A	7,16/6,80/6,55	9,90/9,41/9,07	3,19/13,20/12,70	18,20/17,30/16,70	21,30/20,20/19,50
Input power cooling		kW	4,38	5,93	8,57	10,80	12,90
Heating capacity		kW	25,00	31,50	37,50	45,00	50,00
COP ¹⁾		W/W	5,25	5,17	4,51	4,21	4,17
SCOP ²⁾			4,85	4,25	4,27	4,13	3,81
Running current heating		A	7,78/7,39/7,12	10,20/9,66/9,31	13,40/12,80/12,30	18,10/17,20/16,50	20,00/19,00/18,30
Input power heating		kW	4,76	6,09	8,32	10,70	12,00
Starting current		A	1,00	1,00	1,00	2,00	2,00
External static pressure (Max)		Pa	80	80	80	80	80
Air volume		m/min	210	220	232	232	232
Sound pressure	Normal mode	dB(A)	54,00	57,00	60,00	61,00	62,00
	Silent mode 1 / 2	dB(A)	51,00/49,00	54,00/52,00	57,00/55,00	58,00/56,00	59,00/57,00
Sound power	Normal mode	dB	76,00	78,00	81,00	82,00	82,00
Dimension	H x W x D	mm	1842 x 1180 x 1000	1842 x 1180 x 1000	1842 x 1180 x 1000	1842 x 1180 x 1000	1842 x 1180 x 1000
Net weight		kg	261	262	286	334	334
Piping connections ³⁾	Liquid pipe	Inch (mm)	3/8(9,52) / 1/2(12,70)	3/8(9,52) / 1/2(12,70)	1/2(12,70) / 5/8(15,88)	1/2(12,70) / 5/8(15,88)	1/2(12,70) / 5/8(15,88)
	Discharge pipe	Inch (mm)	5/8(15,88) / 3/4(19,05)	3/4(19,05) / 7/8(22,22)	3/4(19,05) / 7/8(22,22)	7/8(22,22) / 1(25,40)	7/8(22,22) / 1(25,40)
	Suction pipe	Inch (mm)	3/4(19,05) / 7/8(22,22)	7/8(22,22) / 1(25,40)	1(25,40) / 1-1/8(28,58)	1(25,40) / 1-1/8(28,58)	1-1/8(28,58) / 1-1/4(31,75)
	Balance pipe	Inch (mm)	1/4(6,35)	1/4(6,35)	1/4(6,35)	1/4(6,35)	1/4(6,35)
Refrigerant (R410A) / CO ₂ Eq.		kg / TCO ₂ Eq.	6,80 / 14,1984	6,80 / 14,1984	8,30 / 17,3304	8,30 / 17,3304	8,30 / 17,3304
Maximum allowable indoor / outdoor capacity ratio %			50 ~ 150	50 ~ 150	50 ~ 150	50 ~ 150	50 ~ 150
Operating range	Cool Min ~ Max	°C	-10 ~ +52	-10 ~ +52	-10 ~ +52	-10 ~ +52	-10 ~ +52
	Heat Min ~ Max	°C	-20 ~ +18	-20 ~ +18	-20 ~ +18	-20 ~ +18	-20 ~ +18
	Simultaneous op.	°C	-10 ~ +24	-10 ~ +24	-10 ~ +24	-10 ~ +24	-10 ~ +24

Solenoid valve kit

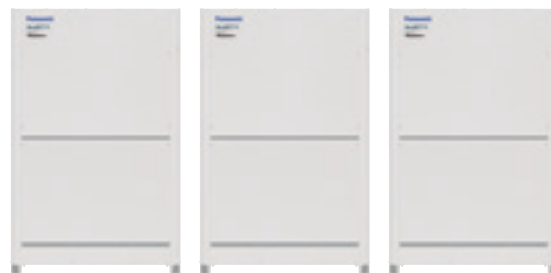
KIT-P56HR3	KIT-P56HR3	3-Pipe control Solenoid valve kit (up to 5,60kW)
	CZ-P56HR3	Solenoid valve kit (up to 5,60kW)
	CZ-CAPE2	3-Pipe control PCB
KIT-P160HR3	KIT-P160HR3	3-Pipe control Solenoid valve kit (from 5,60 to 16,00kW)
	CZ-P160HR3	Solenoid valve kit (up to 16,00kW)
	CZ-CAPE2	3-Pipe control PCB
CZ-CAPEK2		3-Pipe control PCB for wall mounted

3-Pipe control box kit

CZ-P456HR3	4 ports 3 pipe box (up to 5,60kW)
CZ-P656HR3	6 ports 3 pipe box (up to 5,60kW)
CZ-P856HR3	8 ports 3 pipe box (up to 5,60kW)
CZ-P4160HR3	4 ports 3 pipe box (up to 16,00kW)

¹⁾ EER and COP calculation is based in accordance to EN14511. ²⁾ SEER/SCOP is calculated based on the seasonal space cooling/heating efficiency "η" values of the COMMISSION REGULATION (EU) 2016/2281. SEER, SCOP = (η + Correction) × PEF. ³⁾ Pipe diameter under 90m for ultimate indoor unit / over 90m for ultimate indoor unit (if the longest piping equivalent length exceeds 90m, increase the sizes of the main tubes by 1 rank for gas tubes and liquid tubes).

3-Pipe ECOi EX MF3 Series combination from 18 to 48HP



HP			18HP	20HP	22HP	24HP	26HP	28HP	30HP	32HP
Model name			U-8MF3E8 U-10MF3E8	U-8MF3E8 U-12MF3E8	U-10MF3E8 U-12MF3E8	U-12MF3E8 U-12MF3E8	U-10MF3E8 U-16MF3E8	U-12MF3E8 U-16MF3E8	U-14MF3E8 U-16MF3E8	U-16MF3E8 U-16MF3E8
			Three Phase	Three Phase	Three Phase	Three Phase	Three Phase	Three Phase	Three Phase	Three Phase
Power supply	Voltage	V	380 / 400 / 415	380 / 400 / 415	380 / 400 / 415	380 / 400 / 415	380 / 400 / 415	380 / 400 / 415	380 / 400 / 415	380 / 400 / 415
	Phase		Three Phase	Three Phase	Three Phase	Three Phase	Three Phase	Three Phase	Three Phase	Three Phase
	Frequency	Hz	50	50	50	50	50	50	50	50
Cooling capacity	kW		50,00	56,00	61,50	68,00	73,00	78,50	85,00	90,00
EER ¹⁾	W/W		4,90	4,31	4,24	3,89	3,88	3,65	3,59	3,49
Running current cooling	A		16,80/16,00/15,40	21,00/20,00/19,20	23,70/22,50/21,70	28,30/26,90/25,90	31,00/29,50/28,40	35,10/33,40/32,20	39,60/37,60/36,20	42,60/40,50/39,00
Input power cooling	kW		10,20	13,00	14,50	17,50	18,80	21,50	23,70	25,8
Heating capacity	kW		56,00	63,00	69,00	76,50	81,50	87,50	95,00	100,00
COP ¹⁾	W/W		5,23	4,77	4,79	4,47	4,50	4,31	4,19	4,17
Running current heating	A		17,70/16,80/16,20	21,30/20,30/19,50	23,50/22,30/21,50	27,60/26,30/25,30	30,20/28,70/27,70	33,50/31,80/30,70	37,90/36,00/34,70	40,10/38,10/36,70
Input power heating	kW		10,70	13,20	14,40	17,10	18,10	20,30	22,70	24,00
Starting current			2,00	2,00	2,00	2,00	3,00	3,00	4,00	4,00
External static pressure (Max)			80	80	80	80	80	80	80	80
Air volume	m ³ /min		430	442	452	464	452	464	464	464
Sound pressure	Normal mode	dB(A)	59,00	61,00	62,00	63,00	63,50	64,50	64,50	65,00
	Silent mode 1 / 2	dB(A)	56,00 / 54,00	58,00 / 56,00	59,00 / 57,00	60,00 / 58,00	60,50 / 58,50	61,50 / 59,50	61,50 / 59,50	62,00 / 60,00
Sound power	Normal mode	dB	81,50	84,00	84,50	86,00	84,50	86,00	86,00	86,00
Dimension	H x W x D	mm	1842 x 2360 (+60) x 1000	1842 x 2360 (+60) x 1000	1842 x 2360 (+60) x 1000	1842 x 2360 (+60) x 1000	1842 x 2360 (+60) x 1000	1842 x 2360 (+60) x 1000	1842 x 2360 (+60) x 1000	1842 x 2360 (+60) x 1000
Net weight	kg		523	547	548	574	596	620	668	668
Piping connections ²⁾	Liquid pipe	Inch (mm)	5/8 (15,88) / 3/4 (19,05)	5/8 (15,88) / 3/4 (19,05)	5/8 (15,88) / 3/4 (19,05)	5/8 (15,88) / 3/4 (19,05)	3/4 (19,05) / 7/8 (22,22)	3/4 (19,05) / 7/8 (22,22)	3/4 (19,05) / 7/8 (22,22)	3/4 (19,05) / 7/8 (22,22)
	Discharge pipe	Inch (mm)	7/8 (22,22) / 1 (25,40)	7/8 (22,22) / 1 (25,40)	1 (25,40) / 1-1/8 (28,58)	1 (25,40) / 1-1/8 (28,58)	1 (25,40) / 1-1/8 (28,58)	1-1/8 (28,58) / 1-1/4 (31,75)	1-1/8 (28,58) / 1-1/4 (31,75)	1-1/8 (28,58) / 1-1/4 (31,75)
	Suction pipe	Inch (mm)	1-1/8 (28,58) / 1-1/4 (31,75)	1-1/8 (28,58) / 1-1/4 (31,75)	1-1/8 (28,58) / 1-1/4 (31,75)	1-1/8 (28,58) / 1-1/4 (31,75)	1-1/4 (31,75) / 1-1/2 (38,10)	1-1/4 (31,75) / 1-1/2 (38,10)	1-1/4 (31,75) / 1-1/2 (38,10)	1-1/4 (31,75) / 1-1/2 (38,10)
	Balance pipe	Inch (mm)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)
Refrigerant (R410A) / CO ₂ Eq.	kg / T		13,60 / 28,3968	15,10 / 31,5288	15,10 / 31,5288	16,60 / 34,6608	15,10 / 31,5288	16,60 / 34,6608	16,60 / 34,6608	16,60 / 34,6608
Maximum allowable indoor / outdoor capacity ratio %			50 ~ 150	50 ~ 150	50 ~ 150	50 ~ 150	50 ~ 150	50 ~ 150	50 ~ 150	50 ~ 150
Operating range	Cool Min ~ Max	°C	-10 ~ +52	-10 ~ +52	-10 ~ +52	-10 ~ +52	-10 ~ +52	-10 ~ +52	-10 ~ +52	-10 ~ +52
	Heat Min ~ Max	°C	-20 ~ +18	-20 ~ +18	-20 ~ +18	-20 ~ +18	-20 ~ +18	-20 ~ +18	-20 ~ +18	-20 ~ +18
	Simultaneous op.	°C	-10 ~ +24	-10 ~ +24	-10 ~ +24	-10 ~ +24	-10 ~ +24	-10 ~ +24	-10 ~ +24	-10 ~ +24

HP			34HP	36HP	38HP	40HP	42HP	44HP	46HP	48HP
Model name			U-8MF3E8 U-10MF3E8 U-16MF3E8	U-8MF3E8 U-12MF3E8 U-16MF3E8	U-10MF3E8 U-12MF3E8 U-16MF3E8	U-8MF3E8 U-16MF3E8 U-16MF3E8	U-10MF3E8 U-16MF3E8 U-16MF3E8	U-12MF3E8 U-16MF3E8 U-16MF3E8	U-14MF3E8 U-16MF3E8 U-16MF3E8	U-16MF3E8 U-16MF3E8 U-16MF3E8
			Three Phase	Three Phase	Three Phase	Three Phase	Three Phase	Three Phase	Three Phase	Three Phase
Power supply	Voltage	V	380 / 400 / 415	380 / 400 / 415	380 / 400 / 415	380 / 400 / 415	380 / 400 / 415	380 / 400 / 415	380 / 400 / 415	380 / 400 / 415
	Phase		Three Phase	Three Phase	Three Phase	Three Phase	Three Phase	Three Phase	Three Phase	Three Phase
	Frequency	Hz	50	50	50	50	50	50	50	50
Cooling capacity	kW		96,00	101,00	107,00	113,00	118,00	124,00	130,00	135,00
EER ¹⁾	W/W		4,10	3,90	3,88	3,72	3,72	3,58	3,55	3,49
Running current cooling	A		38,60/36,70/35,40	42,30/40,20/38,70	45,60/43,30/41,70	50,20/47,70/46,00	52,40/49,70/47,90	56,50/53,70/51,80	61,10/58,10/56,00	63,90/60,70/58,50
Input power cooling	kW		23,40	25,90	27,60	30,40	31,70	34,60	36,60	38,70
Heating capacity	kW		108,00	113,00	119,00	127,00	132,00	138,00	145,00	150,00
COP ¹⁾	W/W		4,64	4,48	4,51	4,31	4,36	4,25	4,18	4,17
Running current heating	A		38,90/37,00/35,60	41,60/39,50/38,10	43,60/41,40/39,90	49,30/46,80/45,10	50,60/48,10/46,30	53,70/51,00/49,10	57,90/55,00/53,00	60,10/57,10/55,00
Input power heating	kW		23,30	25,20	26,40	29,50	30,30	32,50	34,70	36,00
Starting current			4,00	4,00	4,00	5,00	5,00	5,00	6,00	6,00
External static pressure (Max)			80	80	80	80	80	80	80	80
Air volume	m ³ /min		662	674	684	674	684	696	696	696
Sound pressure	Normal mode	dB(A)	64,00	64,50	65,00	65,50	66,00	66,50	66,50	67,00
	Silent mode 1 / 2	dB(A)	61,00 / 59,00	61,50 / 59,50	62,00 / 60,00	62,50 / 60,50	63,00 / 61,00	63,50 / 61,50	63,50 / 61,50	64,00 / 62,00
Sound power	Normal mode	dB	84,50	85,50	85,50	85,50	86,00	86,50	87,00	87,00
Dimension	H x W x D	mm	1842 x 3540 (+120) x 1000	1842 x 3540 (+120) x 1000	1842 x 3540 (+120) x 1000	1842 x 3540 (+120) x 1000	1842 x 3540 (+120) x 1000	1842 x 3540 (+120) x 1000	1842 x 3540 (+120) x 1000	1842 x 3540 (+120) x 1000
Net weight	kg		857	881	882	929	930	954	1002	1002
Piping connections ³⁾	Liquid pipe	Inch (mm)	3/4 (19,05) / 7/8 (22,22)	3/4 (19,05) / 7/8 (22,22)	3/4 (19,05) / 7/8 (22,22)	3/4 (19,05) / 7/8 (22,22)	3/4 (19,05) / 7/8 (22,22)	3/4 (19,05) / 7/8 (22,22)	3/4 (19,05) / 7/8 (22,22)	3/4 (19,05) / 7/8 (22,22)
	Discharge pipe	Inch (mm)	1-1/8 (28,58) / 1-1/4 (31,75)	1-1/8 (28,58) / 1-1/4 (31,75)	1-1/4 (31,75) / 1-1/2 (38,10)	1-1/4 (31,75) / 1-1/2 (38,10)	1-1/4 (31,75) / 1-1/2 (38,10)	1-1/4 (31,75) / 1-1/2 (38,10)	1-1/4 (31,75) / 1-1/2 (38,10)	1-1/4 (31,75) / 1-1/2 (38,10)
	Suction pipe	Inch (mm)	1-1/4 (31,75) / 1-1/2 (38,10)	1-1/2 (38,10) / 1-5/8 (41,28)	1-1/2 (38,10) / 1-5/8 (41,28)	1-1/2 (38,10) / 1-5/8 (41,28)	1-1/2 (38,10) / 1-5/8 (41,28)	1-1/2 (38,10) / 1-5/8 (41,28)	1-1/2 (38,10) / 1-5/8 (41,28)	1-1/2 (38,10) / 1-5/8 (41,28)
	Balance pipe	Inch (mm)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)	1/4 (6,35)
Refrigerant (R410A) / CO ₂ Eq.	kg / T		21,90 / 45,72719	23,40 / 48,85919	23,40 / 48,85919	23,40 / 48,85919	23,40 / 48,85919	24,90 / 46,3536	24,90 / 51,9912	24,90 / 51,9912
Maximum allowable indoor / outdoor capacity ratio %			50 ~ 150	50 ~ 150	50 ~ 150	50 ~ 150	50 ~ 150	50 ~ 150	50 ~ 150	50 ~ 150
Operating range	Cool Min ~ Max	°C	-10 ~ +52	-10 ~ +52	-10 ~ +52	-10 ~ +52	-10 ~ +52	-10 ~ +52	-10 ~ +52	-10 ~ +52
	Heat Min ~ Max	°C	-20 ~ +18	-20 ~ +18	-20 ~ +18	-20 ~ +18	-20 ~ +18	-20 ~ +18	-20 ~ +18	-20 ~ +18
	Simultaneous op.	°C	-10 ~ +24	-10 ~ +24	-10 ~ +24	-10 ~ +24	-10 ~ +24	-10 ~ +24	-10 ~ +24	-10 ~ +24