

ECOi EX THE GAME CHANGER



VRF with outstanding energy-saving performance and powerful operation SEER 7,56 (2-Pipe 18HP model).



A game-changing VRF system delivering energy-saving performance, powerful operation, reliability and comfort surpassing anything previously possible. It represents a true paradigm shift in air conditioning solutions. Taking quality to the extreme — that's the Panasonic challenge.

1 High performance at extreme conditions

ECOi EX is highly reliable, with strong cooling & heating power, even when operating at extreme ambient temperatures. The units can operate at 100% of capacity at 43°C, reaching a great cooling operation up to 52°C and in heating -25°C*.

Also, the ECOi EX features include Bluefin in newly designed heat exchanger improving efficiency as well in marine ambient. A silicone coated PCB (Printed Circuit Board) protects the unit from being damaged by environmental factors such as moisture and dust.

2 Outstanding efficiency and comfort

The new ECOi EX system is designed to increase energy efficiency by delivering high SEER rating, as well as high efficiency for part-load operations.

The system has reduced energy costs thanks to "All-Inverter Compressors", with independent control to deliver highly flexible performance. Also, the ECOi EX features an enlarged heat exchanger with triple surfaces that allow for improved heat transfer and a newly designed curved air discharge bell-mouth for better aerodynamics. The three-stage oil recovery design makes it able to minimise the frequency of forced oil recovery, leading to reduced energy costs and sustained comfort.

3 Superior flexibility

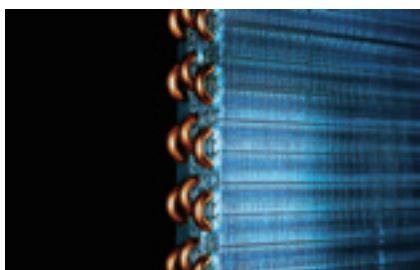
With its up to 1000* meters of pipeline, its maximum 30 meters height difference between indoor units and its 200 meters length, the design possibilities have grown exponentially making the new ECOi EX the ideal air conditioning option for long haul buildings, such as train stations, airports, schools or hospitals. These advantages are enhanced with the wide range of indoor unit models and capacities facilitating the perfect adaptation to all kind of projects. The careful selection of controls and peripherals such as the Pump Down, the AHU or/and the chiller, enables an optimum system use. Connectable maximum allowable indoor / outdoor capacity ratio up to 200%*.

* Conditions of 2-Pipe ECOi EX ME2 Series.



TOP EFFICIENCY AND COMFORT

Remarkable improvement on key components: extraordinary energy-saving performance and redesigned for smooth and better air discharge.



Enlarged heat exchanger surface area with triple surface.

* For 8 & 10HP unit, the heat exchanger is 2 row design.



Multiple large-capacity all inverter compressors (more than 14HP).



Newly designed curved air discharge bell mouth for better aerodynamics.

Improvements on refrigerant circuit

Compressor.

Redesigned components in the body provide performance improvement especially in the rated cooling condition and AEER performance.



Accumulator.

New oil returning circuit with control valve makes efficient oil recovery to compressor.

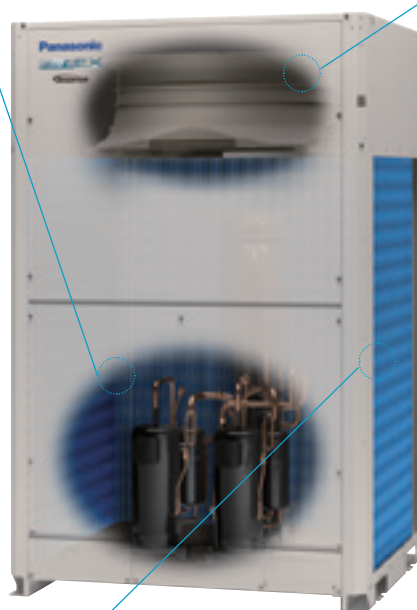
Oil separator.

Modified tank design makes efficient oil separation with less pressure drop.



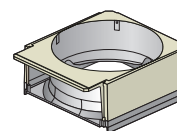
Receiver tank less design

Improved refrigerant control program recovers the remaining refrigerant gas in the system back to the accumulator tank effectively.

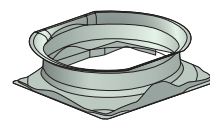


Smooth exhaust flow by new bell-mouth

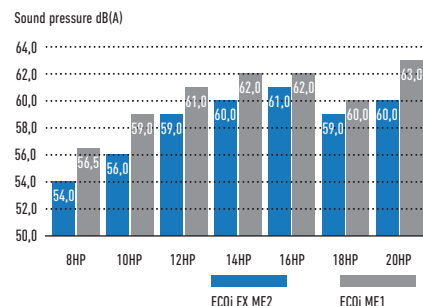
The new curved shape with integrated top and bottom assure smooth exhaust flow. This gives more air-volume with same sound level, less input power at same air volume.



Conventional model (ME1)



New model (ME2)



Combined 3 surface heat exchanger

The highly efficient piping pattern increases heat exchange performance by 5%. The new heat exchanger features a 3 surface construction.

Compared to the divided dual-surface construction in current models, there is no divided space and the face area of heat exchanger becomes larger.



Conventional model (ME1)



New model (ME2)

OIL RECOVERY INTELLIGENT CONTROL

Intelligent 3-stage Oil Management System

In a VRF system, where lengthy piping and a large number of indoor units need to be controlled collectively, the key to maintaining the system's reliability is to ensure an appropriate amount of oil is secured in the compressors. In order to avoid oil shortage in the compressor, maximum operation is normally forcibly conducted at regular intervals to recover oil from indoor units. This method, typically employed in a standard VRF, causes the system to overheat or overcool and thus waste energy. In Panasonic VRF systems, a sensor for detecting oil levels is mounted in each compressor. In installations with multiple outdoor units, a shortage of oil in one compressor can be compensated for by recovering oil either from another compressor in the same unit, from a compressor in an adjacent outdoor unit, or from a connected indoor unit. Panasonic VRF systems provide users with a comfortable environment whilst saving energy.

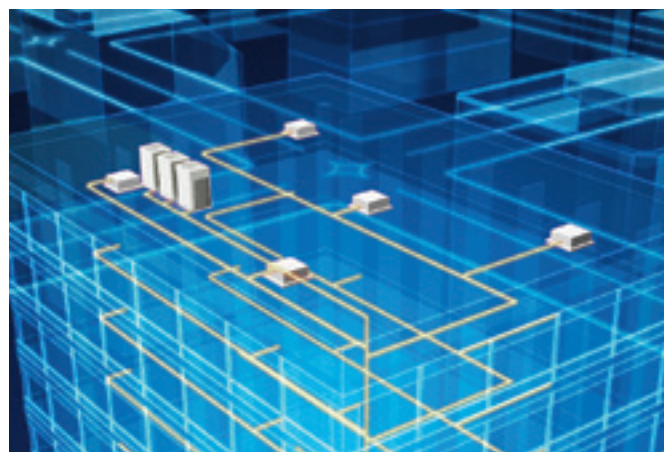
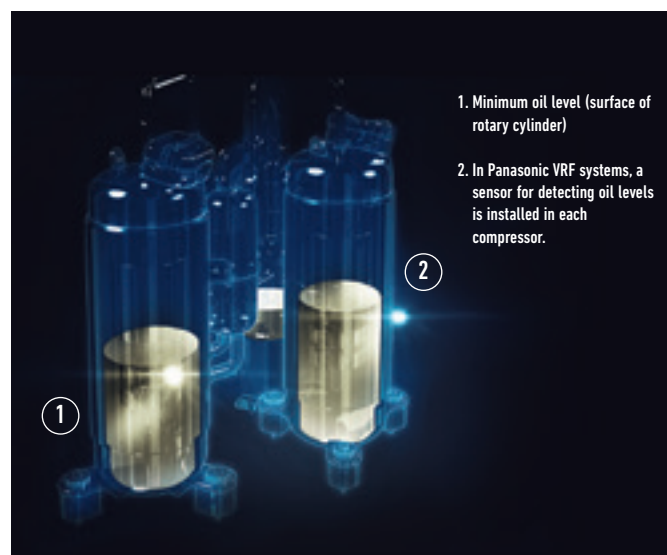
Oil recovery intelligent control advantages:

1. Higher efficiency
2. Durability
3. Comfort:
 - Continuous operation
 - Low noise
 - Low vibration

Features of oil recovery design

Oil sensors installed in each compressor.

Oil sensors installed in each Panasonic compressor precisely monitor oil levels, eliminating unnecessary oil recovery.



The Panasonic system efficiently manages oil recovery in three stages; minimising the frequency of forced oil recovery while reducing energy cost and maintaining comfort.

STAGE-1: Panasonic compressors are equipped with sensors which monitor oil levels precisely at all times. If oil levels fall, oil can be transferred from other compressors within the same outdoor unit.

STAGE-2: If oil levels in all compressors within the outdoor unit fall, oil can be replenished from adjacent outdoor units.

STAGE-3: Forced oil recovery is implemented only if oil levels become insufficient in spite of above measures. The Panasonic system's design concept is radically different from conventional oil systems.

Highly functional oil separator.

Thanks to extended separate piping, oil recovery efficiency reaches 90%, minimising the oil to be discharged from the compressor.



TWIN ROTARY INVERTER COMPRESSOR

New twin rotary inverter compressor

Two independently controlled inverter compressors achieve high efficiency. Redesigned components in the body provide performance improvement especially in the rated cooling condition and EER performance.

- Wider and flexible control on Inverter compressor
- Better oil lubrication
- Smooth start up

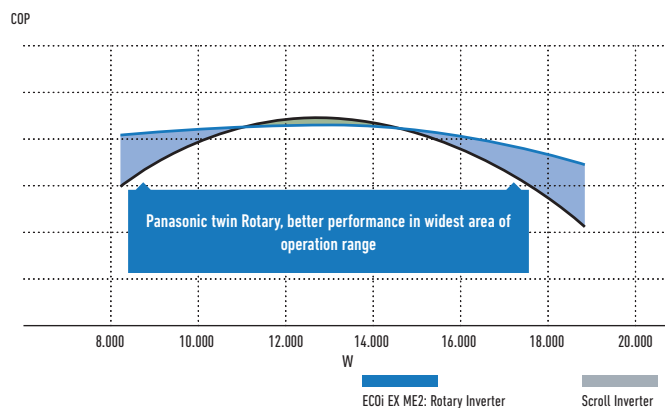


Extraordinary energy-saving performance

Designed for Actual Operation Performance. Panasonic builds air conditioning systems not only with a high EER for rated operation, but also with Seasonal-EER appropriate to the customer's actual environment of use. For instance, with rated operation, outdoor temperature is constant at 35°C, but in reality the outdoor temperature is continuously changing. Consequently, required air conditioning performance also changes. That's why Panasonic implements the following kind of proprietary control.

1. Set temperature is rapidly attained; full-load operating time is kept to a minimum.
2. The frequency of forced oil recovery is minimised. The volume of oil within the compressors is monitored precisely by sensors, so forced oil recovery under full-load operation is conducted only when necessary. Since this suppresses noise due to oil recovery, comfort is maintained.
3. Panasonic pursues a high EER, of course, as well as high EER in part load, for energy saving performance under a broad range of loads. Panasonic's design concept contributes to substantial energy cost reductions.

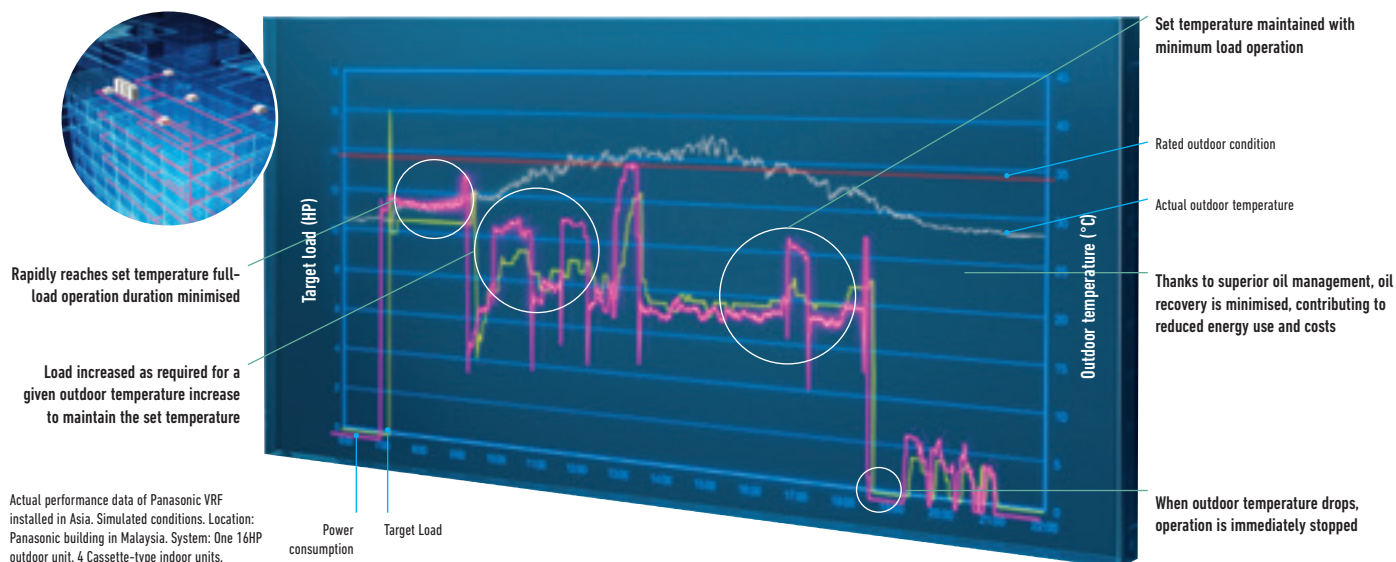
Compressor efficiency electric system VRF.



Number of Inverter compressors

	2-Pipe ECOi EX ME2						3-Pipe ECOi EX MF3					
Size	Small		Medium		Large		Medium					
HP	8HP	10HP	12HP	14HP	16HP	18HP	20HP	8HP	10HP	12HP	14HP	16HP
Number	1 pc.		1 pc.	2 pcs.		2 pcs.		1 pc.			2 pcs.	

Actual operation data graph of Panasonic VRF

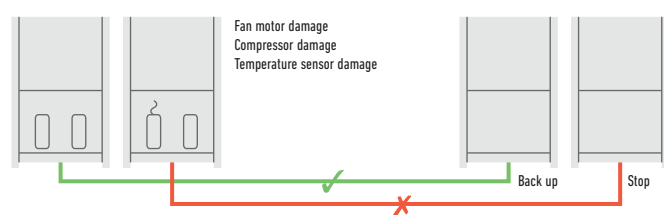


SUPERIOR QUALITY, RELIABILITY AND DURABILITY

High safety operation in case of breakdown!

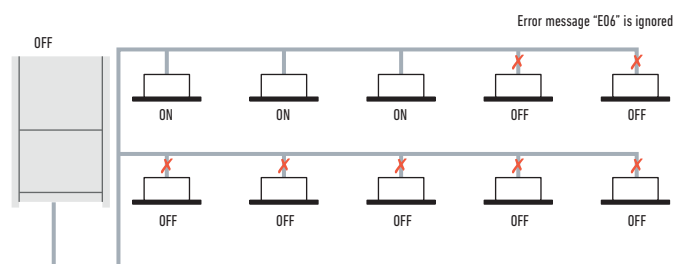
Automatic Back-Up operation. Ensures heating and cooling.

It is possible for the system to keep working, even if the compressors, fan motor and the temperature sensor are damaged (even when a compressor fails in single unit with 2 compressors inside).



The system will still operate up to 25% of the connected indoor units.

System will not stop when up to 25% of indoor units have power supply breakdown when they are ON Mode.

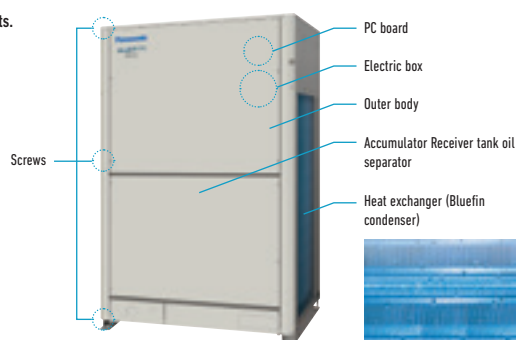


Hi-durability outdoor unit

Treated for high resistance to corrosion (rust and salty air) to ensure long-lasting performance.

Note: Selecting this unit does not completely eliminate the possibility of rust developing. For details concerning unit installation and maintenance, please consult an authorised dealer.

Specially protected parts.



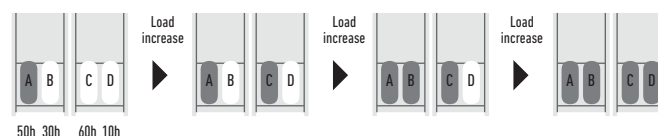
Extended compressor life by uniform compressor operation time

The total run-time of compressors are monitored by a built-in microcomputer, which ensures that operation times of all compressors within the same refrigerant circuit are balanced.

Compressors with histories showing shorter run times are selected first, ensuring equal wear and tear across all units and extending the working life of the system.

System example.

A.C: DC inverter compressor
B.D: Constant speed compressor



* Depend on accumulated operation time of each compressors.

* Compressor priority has possibility to be changed.

(e.g) Case 1: A→C→B→D, Case 2: C→A→D→B, Case 3: A→C→D→B, Case 4: C→A→B→D

* Also other cases available.

A large number of indoor unit models can be connected



2-PIPE ECOi EX ME2 SERIES EXTRAORDINARY PARTIAL LOAD AND SEER/SCOP

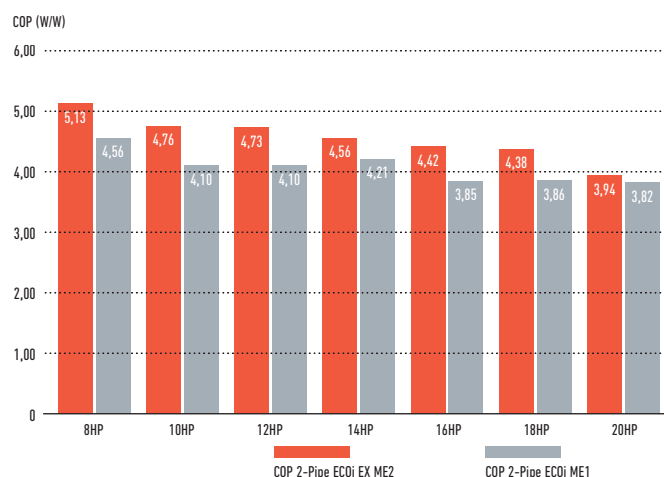
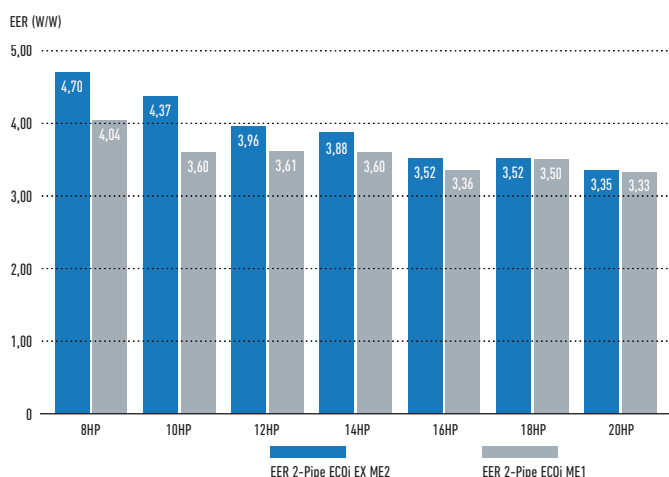
Efficiency in VRF systems

The only way to compare so far, was the nominal efficiency at outdoor ambient temperature of 35°C (EER) in Cooling and at 7°C in heating (COP). With new EN-14825 seasonal efficiency will be shown, the result will be SEER and SCOP. New ECOi EX is reaching excellent performance without using any additional saving functions.

The highest EER/COP rating in most capacities

Compared to conventional model ECOi (ME1)

The ECOi EX marks a revolutionary step forward in VRF efficiency. A look at the incredible EER/COP value clearly indicates that. What's more, this high EER/COP value is achieved even during part load operation. This shows the extraordinary energy-saving performance the ECOi EX is capable of providing.

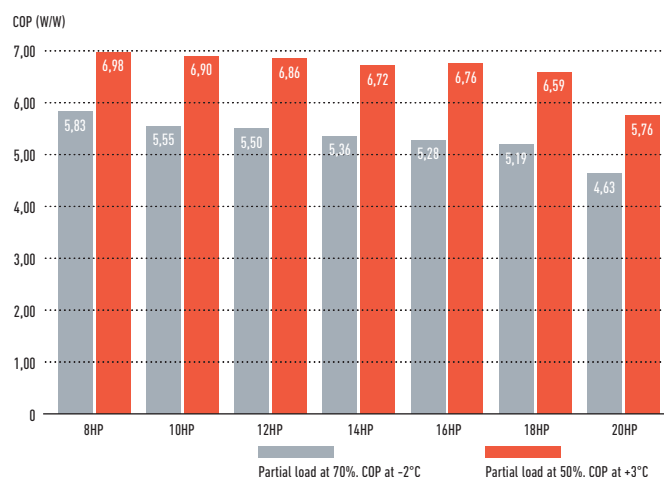
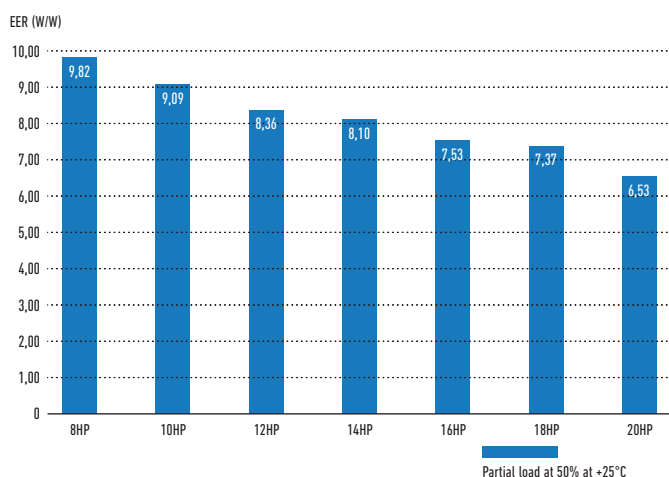


Partial load for seasonal and real system efficiency

VRF units are designed to adapt to the heating and cooling demand, adapting its performance to different outdoor conditions. When compressor runs at lower than 100% capacity, the system is working at partial load. A wider compressor operating range results in better system performance both at full load and partial load conditions. Panasonic ECOi EX partial load is excellent, reaching a minimum of 15% of compressor capacity.

Excellent efficiency at any condition and partial load

In both heating and cooling mode, Panasonic ECOi EX is reaching exceptional levels of efficiency.



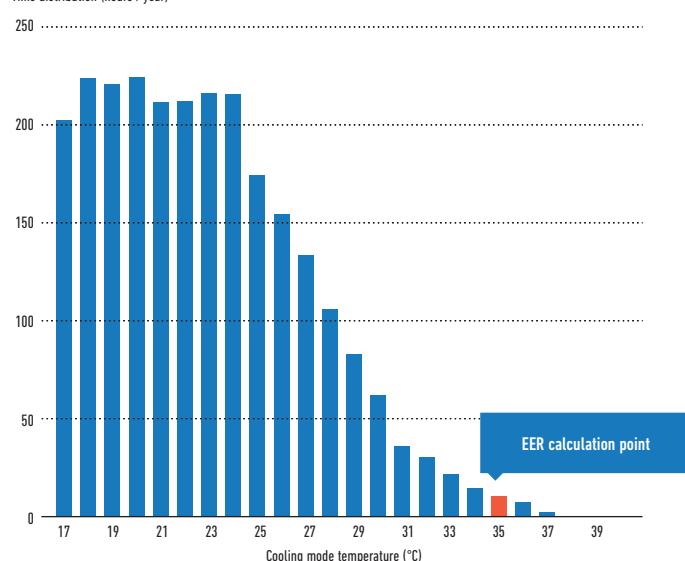
SEER and SCOP following to EN-14825

When better partial load, better efficiency is achieved in real operation. New EN-14825 is showing the way to calculate considering full year operation hours at different conditions. New Panasonic ECOi EX is designed to save energy in any partial load conditions. Most of operation hours system is under partial load conditions, 80% of total operation hours is less than 70% of full load.

In below graphs is the example for average ambient conditions, this uses Strasbourg ambient conditions for calculation.

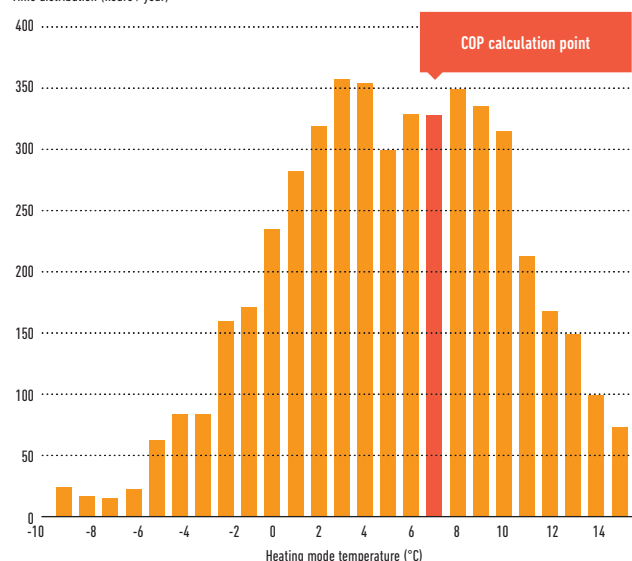
Outside temperature distribution

Time distribution (hours / year)



Outside temperature distribution

Time distribution (hours / year)



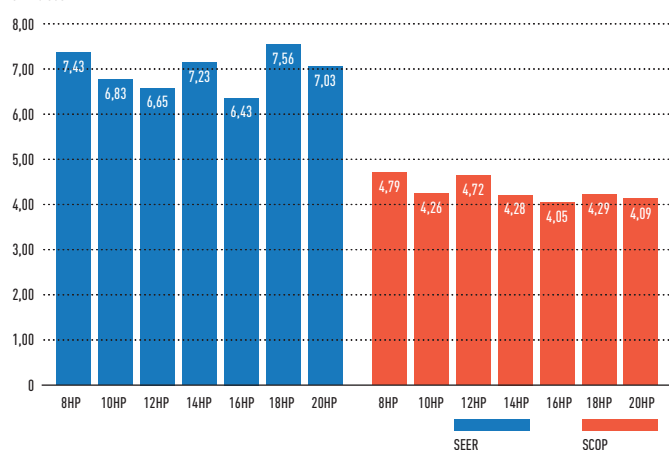
In the characteristics EER and COP only a single temperature for the assessment of the efficiency is taken as a basis in each case. Data calculated under EN-14825 conditions, not additional saving function considered for this calculation. Compressor frequency according to ambient temperature and building design.

SEER and SCOP values

ECOi EX models have superior seasonal space cooling/heating efficiency following not only EN 14825 but also COMMISSION REGULATION (EU) 2016/2281. This regulation requires to use "η" values in the technical documents from January 2018.

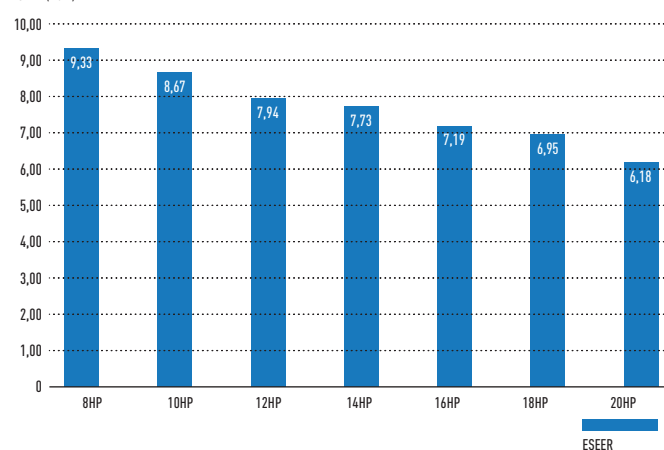
Please visit our websites www.aircon.panasonic.eu or www.ptc.panasonic.eu.

SEER / SCOP



However, if it was necessary by setting on commissioning Panasonic, can increase efficiency additionally by "20%" increasing evaporation refrigerant temperature range, for a higher efficiency and lower energy consumption.

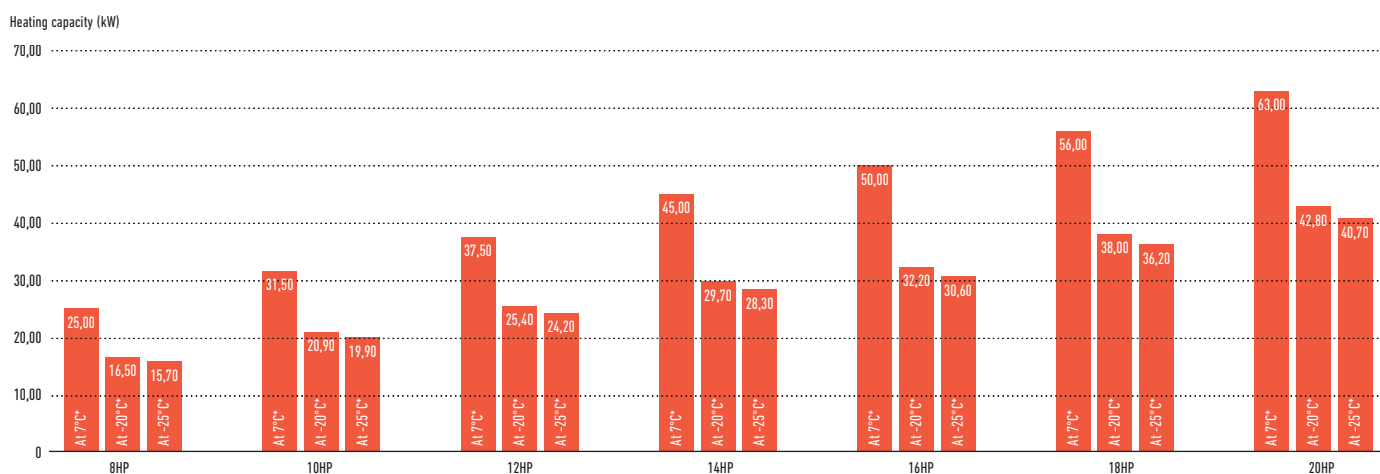
ESEER (W/W)



2-PIPE ECOi EX ME2 SERIES HIGH PERFORMANCE AT EXTREME CONDITIONS

The ECOi EX can still operate at 100% capacity when the outside temperature is as high as 43°C. This high power capability enables reliable operation even under extremely high temperature conditions.

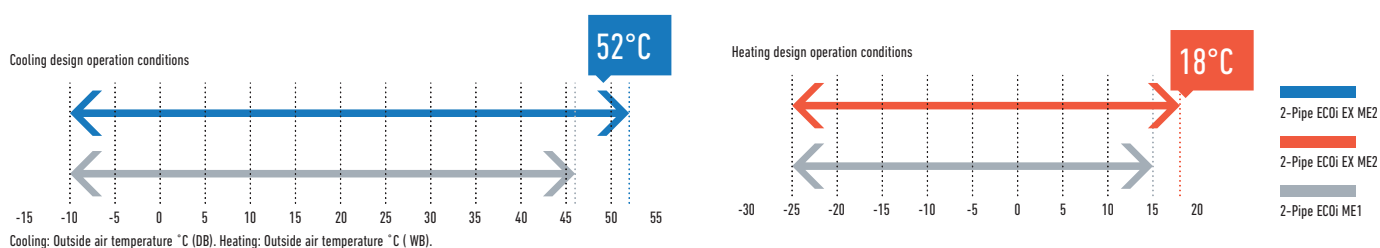
Extremely high capacity at -20°C and unique heating capacity at -25°C



* Outdoor air temperature (°C WB).

Trusted reliability even under high and low temperature conditions

Designed to be durable enough to withstand extreme heat, 2-Pipe ECOi EX ME2 Series ensures reliable cooling operation over an extended operation range up to 52°C, and heating operation also at minus -25°C.



2-PIPE ECOi EX ME2 SERIES

SUPERIOR FLEXIBILITY

Connectable maximum allowable indoor / outdoor capacity ratio up to 200%*

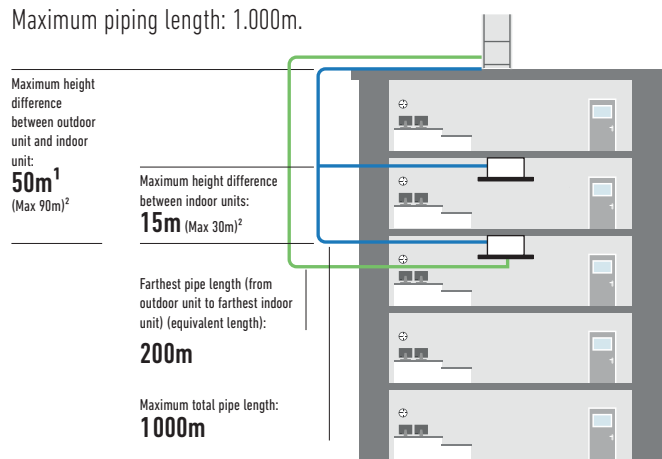
ECOi EX attain maximum indoor unit connection capacity of up to 130% of the unit's connection range. This limit can be overpassed and reach up to 200% if some conditions are satisfied. With this feature, ECOi EX provides an ideal air conditioning solution for locations where full cooling/heating are not always required in all spaces at same time.

System (HP)	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80																	
Connectable indoor units: 130%	13	16	19	23	26	29	33	36	40	43	46	50	53	56	59																64																							
Connectable indoor units: 200%	20	25	30	35	40	45	50	55	60																															64														

Note: If more than 100% indoor units are operated with a high load, the units may not perform at the rated capacity. For the details, please consult with an authorised Panasonic dealer. * If the following conditions are satisfied, the effective range is above 130% up to 200%. Obey the limited number of connectable indoor units. The lower limit of operating range for heating outdoor temperature is limited to -10°C WB (standard -25°C WB). Simultaneous operation is limited to less than 130% of connectable indoor units. 1.50kW capacity of Indoor Units are included.

Increased piping lengths and design flexibility

Adaptable to various building types and sizes. Actual piping length: 200m. Maximum piping length: 1.000m.



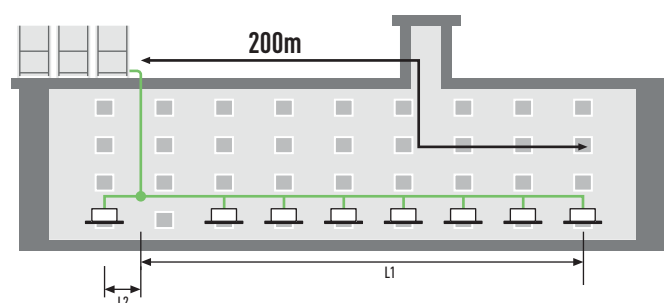
1. 40m if the outdoor unit is below the indoor unit.

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.

Up to 50m length difference between the longest and the shortest piping from the first branch

Flexible piping layout makes it easier to design systems for locations such as train stations, airports, schools and hospitals.

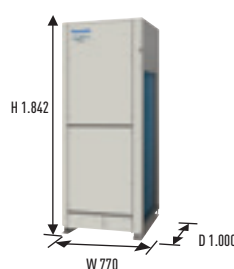
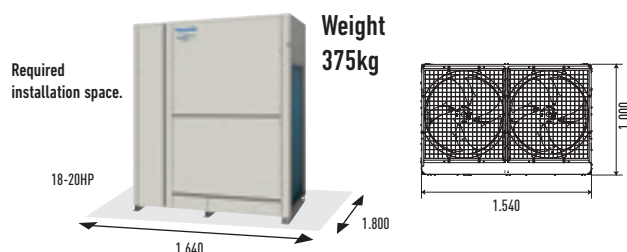
- Up to 64 units can be connected to one system
- Difference between maximum and minimum pipe runs after first branch can be a maximum of 50m
- Larger pipe runs can be up to 200m



L1 = Longest pipe run. L2 = Shortest pipe run. L1 - L2 = Maximum 50m.

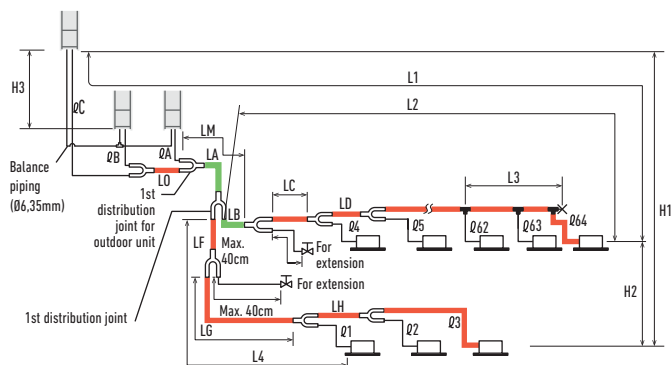
Compact design

The ME2 series has reduced the installation space required with up to 20HP available in a single chassis. 8 - 10HP are able to fit inside a lift for easy handling on site.



2-PIPE ECOi EX ME2 SERIES PIPING DESIGN

Select installation locations so that the lengths and sizes of refrigerant piping are within the allowable ranges shown in the figure below.



Main piping length (maximum piping size) $LM = LA + LB \dots$

Main distribution tubes LC - LH are selected according to the capacity after the distribution joint.

Sizes of indoor unit connection piping Q1 – Q64 are determined by the connection piping sizes on the indoor units.



 Distrib parts).



T-joint (field supply).



Ball valve (field supply).



✕ Solidly welded shut (pinch weld).

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

Note: Be sure to use special R410A distribution joints (CZ: optional parts) for outdoor unit connections and piping branches.

R410A distribution joint.

CZ-P680PH2BM (for outdoor unit)
CZ-P1350PH2BM (for outdoor unit)
CZ-P160BK2BM (for indoor unit)
CZ-P680BK2BM (for indoor unit)
CZ-P1350BK2BM (for indoor unit)

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	≤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~ Q64	Maximum length of each distribution tube	≤50 ⁽⁴⁾
	L1+ Q1+ Q2- Q63+ QA+QB+LF+LG+LH	Total maximum piping length including length of each distribution tube (only liquid piping)	≤1000
Allowable elevation difference	QA, QB+LQ, QC+LO	Maximum piping length from outdoor's 1st distribution joint to each outdoor unit	≤10
	H1	When outdoor unit is installed higher than indoor unit	≤50
		When outdoor unit is installed lower than indoor unit	≤40
	H2	Maximum difference between indoor units	≤15
	H3	Maximum difference between outdoor units	≤4
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 tubes (LM) by 1 rank for gas tubes and liquid tubes. Use a field supply reducer. Select the tube size from the table of main piping sizes (Table 3) and from the table of refrigerant piping sizes (Table 8). 2) When the piping length exceeds 40m, increase a longer liquid or gas piping by 1 rank. Refer to the Technical Data for the details. 3) If the longest main piping length (LM) exceeds 50m, increase the main piping size at the portion before 50m by 1 rank for the gas tubes. 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. 4) If any of the piping length exceeds 30m, increase the size of the liquid and gas tubes by 1 rank. 5) If the total distribution piping length exceeds 500m, maximum allowable elevation difference (H2) between the indoor units is calculated by the following formula. Make sure the indoor unit's actual elevation difference should fall within the figure calculated as follows. Unit of account (meter): $15 \times (2 - \text{total piping length (m)} \div 500)$.

* The outdoor connection main piping (L portion) is determined by the total capacity of the outdoor units that are connected to the tube ends. If the size of the existing piping is already larger than the standard piping size, it is not necessary to further increase the size. ** If the existing piping is used, and the amount of on-site refrigerant charge exceeds the value listed below, then change the size of the piping to reduce the amount of refrigerant. Total amount of refrigerant for the system with 1 outdoor unit: 50kg. Total amount of refrigerant for the system with 2 outdoor units: 80kg. Total amount of refrigerant for the system with 3 outdoor units or 4 outdoor units: 105kg.

Necessary amount of additional refrigerant charge per outdoor unit.

U-8ME2E8	U-10ME2E8	U-12ME2E8	U-14ME2E8	U-16ME2E8
5.5ka	5.5ka	7.0ka	7.0ka	7.0ka

System limitations.

Maximum number allowable connected outdoor units	4 ¹⁾
Maximum capacity allowable connected outdoor units	224kW (80HP)
Maximum connectable indoor units	64 ²⁾
Maximum allowable indoor / outdoor capacity ratio	50-130% ³⁾

1) Up to 4 units can be connected if the system has been extended

2) In the case of 38HP or smaller units, the number is limited by the total capacity of the connected indoor units.

3) If the following conditions are satisfied, the effective range is above 130% and below 200%:

A) Obey the limited number of connectable indoor units. B) The lower limit of operating range for heating outdoor temperature is limited to -10°C WB (standard -25°C WB). C) Simultaneous operation is limited to less than 130% of connectable indoor units.

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
1 (25,40)	490

Refrigerant piping (existing piping can be used).

Piping size (mm)													
Material Temper - 0						Material Temper - 1/2 H, H							
06,35	t 0,8	012,70	t 0,8	019,05	t 1,2	022,22	t 1,0	028,58	t 1,0	038,10	over t 1,35	044,45	over t1,55
09,52	t 0,8	015,88	t 1,0			025,40	t 1,0	031,75	t 1,1	041,28	over t 1,45	044,45	over t1,55

* 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.

2-Pipe ECOi EX ME2 Series



A VRF system delivering energy-saving performance, powerful operation, reliability and comfort surpassing anything previously possible. It represents a true paradigm shift in air conditioning solutions

VRF with outstanding energy-saving performance and powerful operation SEER 7,56 (18HP model).

Technical focus

- New twin rotary inverter compressor
- High performance at extreme conditions
- Outstanding efficiency and comfort
- Extraordinary partial load and SEER/SCOP
- SEER and SCOP following to EN-14825
- Oil recovery intelligent control
- Top comfort
- Superior flexibility
- Bluefin full line up EX
- Extremely high capacity at -20°C and unique heating capacity at -25°C
- Smooth exhaust flow by new bell-mouth

			8HP	10HP	12HP	14HP	16HP	18HP	20HP
Outdoor Units			U-8ME2E8	U-10ME2E8	U-12ME2E8	U-14ME2E8	U-16ME2E8	U-18ME2E8	U-20ME2E8
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
	Phase		Three Phase	Three Phase	Three Phase	Three Phase	Three Phase	Three Phase	Three Phase
	Frequency	Hz	50	50	50	50	50	50	50
Cooling capacity		kW	22,40	28,00	33,50	40,00	45,00	50,00	56,00
EER ¹⁾		W/W	4,70	4,37	3,96	3,88	3,52	3,52	3,35
ESEER		W/W	9,33	8,67	7,94	7,73	7,19	6,95	6,18
SEER ²⁾			7,43	6,83	6,65	7,23	6,43	7,56	7,03
Running current cooling		A	7,40 / 7,14	10,20 / 9,80	13,00 / 12,50	16,50 / 15,90	20,10 / 19,40	22,00 / 21,20	25,40 / 24,50
Input power cooling		kW	4,77	6,41	8,47	10,30	12,80	14,20	16,70
Heating capacity		kW	25,00	31,50	37,50	45,00	50,00	56,00	63,00
COP ¹⁾		W/W	5,13	4,76	4,73	4,56	4,42	4,38	3,94
SCOP ²⁾			4,79	4,26	4,72	4,28	4,05	4,29	4,09
Running current heating		A	7,56 / 7,29	10,50 / 11,10	12,30 / 11,80	15,80 / 15,20	17,90 / 17,30	20,10 / 19,40	24,60 / 23,70
Input power heating		kW	4,87	6,62	7,92	9,86	11,30	12,80	16,00
Starting current		A	1,00	1,00	1,00	2,00	2,00	2,00	2,00
External static pressure (Max)		Pa	80	80	80	80	80	80	80
Air volume		m ³ /min	224	224	232	232	232	405	405
Sound pressure	Normal mode	dB(A)	54	56	59	60	61	59	60
	Silent mode	dB(A)	51	53	56	57	58	56	57
Sound power	Normal mode	dB	75	77	80	81	82	80	81
Dimension	H x W x D	mm	1842 x 770 x 1000	1842 x 770 x 1000	1842 x 1180 x 1000	1842 x 1180 x 1000	1842 x 1180 x 1000	1842 x 1540 x 1000	1842 x 1540 x 1000
Net weight		kg	210	210	270	315	315	375	375
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)	5/8 (15,88) / 3/4 (19,05)	5/8 (15,88) / 3/4 (19,05)
	Gas 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)	1-1/8 (28,58) / 1-1/4 (31,75)	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)	1/4 (6,35)	1/4 (6,35)
Refrigerant (R410A) / CO ₂ Eq.		kg / T	5,60 / 11,6928	5,60 / 11,6928	8,30 / 17,3304	8,30 / 17,3304	8,30 / 17,3304	9,50 / 19,836	9,50 / 19,836
Maximum allowable indoor / outdoor capacity ratio % ⁴⁾			50 ~ 130 (200)	50 ~ 130 (200)	50 ~ 130 (200)	50 ~ 130 (200)	50 ~ 130 (200)	50 ~ 130 (200)	50 ~ 130 (200)
Operating range	Cool Min ~ Max	°C	-10 ~ +52	-10 ~ +52	-10 ~ +52	-10 ~ +52	-10 ~ +52	-10 ~ +52	-10 ~ +52
	Heat Min ~ Max	°C	-25 ~ +18	-25 ~ +18	-25 ~ +18	-25 ~ +18	-25 ~ +18	-25 ~ +18	-25 ~ +18

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). 4) If the following conditions are satisfied, the effective range is above 130% and below 200%: A. Obey the limited number of connectable indoor units. B. The lower limit of operating range for heating outdoor temperature is limited to -10°C WB (standard -25°C WB). C. Simultaneous operation is limited to less than 130% of connectable indoor units.



2-Pipe ECOi EX ME2 Series

High Efficiency model combination

from 18 to 64HP

			18HP	20HP	22HP	24HP	26HP	28HP
Model name			U-8ME2E8 U-10ME2E8	U-10ME2E8 U-10ME2E8	U-10ME2E8 U-12ME2E8	U-12ME2E8 U-12ME2E8	U-10ME2E8 U-16ME2E8	U-12ME2E8 U-16ME2E8
Power supply	Voltage	V	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
	Frequency	Hz	50	50	50	50	50	50
Cooling capacity		kW	50,00	56,00	61,50	68,00	73,00	78,50
EER ¹⁾		W/W	4,55	4,38	4,13	3,93	3,80	3,69
Running current cooling		A	17,30 / 16,60	20,30 / 19,60	23,10 / 22,30	26,60 / 25,60	30,10 / 29,00	33,10 / 31,90
Input power cooling		kW	11,00	12,80	14,90	17,30	19,20	21,30
Heating capacity		kW	56,00	63,00	69,00	76,50	81,50	87,50
COP ¹⁾		W/W	4,96	4,77	4,76	4,69	4,55	4,56
Running current heating		A	17,70 / 17,10	20,90 / 20,20	22,70 / 21,90	25,30 / 24,40	28,40 / 27,40	30,10 / 29,00
Input power heating		kW	11,30	13,20	14,50	16,30	17,90	19,20
Starting current		A	2,00	2,00	2,00	2,00	3,00	3,00
External static pressure (Max)		Pa	80	80	80	80	80	80
Air volume		m ³ /min	448	448	456	464	456	464
Sound pressure	Normal / Silent mode	dB(A)	58,50 / 55,50	59,00 / 56,00	61,00 / 58,00	62,00 / 59,00	62,50 / 59,50	63,50 / 60,50
Sound power	Normal mode	dB	79,50	80,00	82,00	83,00	83,50	84,50
Dimension / Net weight	HxWxD	mm / kg	1842 x 1600 x 1000 / 420	1842 x 1600 x 1000 / 420	1842 x 2010 x 1000 / 480	1842 x 2420 x 1000 / 540	1842 x 2010 x 1000 / 535	1842 x 2420 x 1000 / 585
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)
	Gas 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)
	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)
Refrigerant (R410A) / CO ₂ Eq.		kg / T	11,20 / 23,3856	11,20 / 23,3856	13,90 / 29,0232	16,60 / 34,6608	13,90 / 29,0232	16,60 / 34,6608
Maximum allowable indoor / outdoor capacity ratio % ³⁾			50 ~ 130 (200)	50 ~ 130 (200)	50 ~ 130 (200)	50 ~ 130 (200)	50 ~ 130 (200)	50 ~ 130 (200)
Operating range	Cool / Heat Min ~ Max	°C	-10 ~ +52 / -25 ~ +18	-10 ~ +52 / -25 ~ +18	-10 ~ +52 / -25 ~ +18	-10 ~ +52 / -25 ~ +18	-10 ~ +52 / -25 ~ +18	-10 ~ +52 / -25 ~ +18

			30HP	32HP	34HP	36HP	38HP	40HP
Model name			U-14ME2E8 U-16ME2E8	U-16ME2E8 U-16ME2E8	U-10ME2E8 U-12ME2E8 U-12ME2E8	U-12ME2E8 U-12ME2E8 U-12ME2E8	U-10ME2E8 U-12ME2E8 U-16ME2E8	U-12ME2E8 U-12ME2E8 U-16ME2E8
Power supply	Voltage	V	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
	Frequency	Hz	50	50	50	50	50	50
Cooling capacity		kW	85,00	90,00	96,00	101,00	107,00	113,00
EER ¹⁾		W/W	3,68	3,52	4,05	3,95	3,84	3,75
Running current cooling		A	36,60 / 35,30	40,20 / 38,70	36,80 / 35,50	39,30 / 37,90	43,80 / 42,20	46,70 / 45,00
Input power cooling		kW	23,10	25,60	23,70	25,60	27,90	30,10
Heating capacity		kW	95,00	100,00	108,00	113,00	119,00	127,00
COP ¹⁾		W/W	4,48	4,42	4,72	4,73	4,61	4,57
Running current heating		A	33,60 / 32,40	35,80 / 34,60	35,90 / 34,60	37,10 / 35,80	40,50 / 39,00	43,60 / 42,00
Input power heating		kW	21,20	22,60	22,90	23,90	25,80	27,80
Starting current		A	4,00	4,00	3,00	3,00	4,00	4,00
External static pressure (Max)		Pa	80	80	80	80	80	80
Air volume		m ³ /min	464	464	688	696	688	696
Sound pressure	Normal / Silent mode	dB(A)	63,50 / 60,50	64,00 / 61,00	63,00 / 60,00	64,00 / 61,00	64,00 / 61,00	64,50 / 61,50
Sound power	Normal mode	dB	84,50	85,00	84,00	85,00	85,00	85,50
Dimension / Net weight	HxWxD	mm / kg	1842 x 2420 x 1000 / 630	1842 x 2420 x 1000 / 630	1842 x 3250 x 1000 / 750	1842 x 3660 x 1000 / 810	1842 x 3250 x 1000 / 795	1842 x 3660 x 1000 / 855
Piping connections ²⁾	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)
	Gas pipe	Inch (mm)	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)	1-1/2 (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)
Refrigerant (R410A) / CO ₂ Eq.		kg / T	16,60 / 34,6608	16,60 / 34,6608	22,20 / 46,3536	24,90 / 51,9912	22,20 / 46,3536	24,90 / 46,3536
Maximum allowable indoor / outdoor capacity ratio % ³⁾			50 ~ 130 (200)	50 ~ 130 (200)	50 ~ 130 (200)	50 ~ 130 (200)	50 ~ 130 (200)	50 ~ 130 (200)
Operating range	Cool / Heat Min ~ Max	°C	-10 ~ +52 / -25 ~ +18	-10 ~ +52 / -25 ~ +18	-10 ~ +52 / -25 ~ +18	-10 ~ +52 / -25 ~ +18	-10 ~ +52 / -25 ~ +18	-10 ~ +52 / -25 ~ +18

Data is for reference. 1) EER and COP calculation is based in accordance to EN14511. 2) 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) If the following conditions are satisfied, the effective range is above 130% and below 200%: A. Obey the limited number of connectable indoor units. B. The lower limit of operating range for heating outdoor temperature is limited to -10°C WB (standard -25°C WB). C. Simultaneous operation is limited to less than 130% of connectable indoor units.



			42HP	44HP	46HP	48HP	50HP	52HP
Model name			U-10ME2E8	U-12ME2E8	U-14ME2E8	U-16ME2E8	U-10ME2E8	U-12ME2E8
			U-16ME2E8	U-16ME2E8	U-16ME2E8	U-16ME2E8	U-12ME2E8	U-12ME2E8
			U-16ME2E8	U-16ME2E8	U-16ME2E8	U-16ME2E8	U-16ME2E8	U-16ME2E8
Power supply	Voltage	V	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
	Frequency	Hz	50	50	50	50	50	50
Cooling capacity		kW	118,00	124,00	130,00	135,00	140,00	145,00
EER ¹⁾		W/W	3,69	3,62	3,62	3,52	3,87	3,82
Running current cooling		A	50,20 / 48,40	53,20 / 51,30	56,90 / 54,90	60,20 / 58,10	56,20 / 54,20	59,00 / 56,80
Input power cooling		kW	32,00	34,30	35,90	38,40	36,20	38,00
Heating capacity		kW	132,00	138,00	145,00	150,00	155,00	160,00
COP ¹⁾		W/W	4,49	4,50	4,46	4,42	4,65	4,66
Running current heating		A	46,60 / 44,90	48,20 / 46,40	51,50 / 49,70	53,80 / 51,80	52,20 / 50,40	53,80 / 51,90
Input power heating		kW	29,40	30,70	32,50	33,90	33,30	34,30
Starting current		A	5,00	5,00	6,00	6,00	5,00	5,00
External static pressure (Max)		Pa	80	80	80	80	80	80
Air volume		m ³ /min	688	696	696	696	920	928
Sound pressure	Normal / Silent mode	dB(A)	65,00 / 62,00	65,50 / 62,50	65,50 / 62,50	66,00 / 63,00	65,50 / 62,50	66,00 / 63,00
Sound power	Normal mode	dB	86,00	86,50	86,50	87,00	86,50	87,00
Dimension / Net weight	H x W x D	mm / kg	1842 x 3250 x 1000 / 840	1842 x 3660 x 1000 / 900	1842 x 3660 x 1000 / 945	1842 x 3660 x 1000 / 945	1842 x 4490 x 1000 / 1065	1842 x 4900 x 1000 / 1125
Piping connections ²⁾	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)
	Gas pipe	Inch (mm)	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)
Refrigerant (R410A) / CO ₂ Eq.		kg / T	22,20 / 51,9912	24,90 / 51,9912	24,90 / 51,9912	24,90 / 51,9912	30,50 / 63,6840	33,20 / 69,3216
Maximum allowable indoor / outdoor capacity ratio % ³⁾			50 ~ 130 (200)	50 ~ 130 (200)	50 ~ 130 (200)	50 ~ 130 (200)	50 ~ 130 (200)	50 ~ 130 (200)
Operating range	Cool / Heat Min ~ Max	°C	-10 ~ +52 / -25 ~ +18	-10 ~ +52 / -25 ~ +18	-10 ~ +52 / -25 ~ +18	-10 ~ +52 / -25 ~ +18	-10 ~ +52 / -25 ~ +18	-10 ~ +52 / -25 ~ +18

			54HP	56HP	58HP	60HP	62HP	64HP
Model name			U-10ME2E8	U-12ME2E8	U-10ME2E8	U-12ME2E8	U-14ME2E8	U-16ME2E8
			U-12ME2E8	U-12ME2E8	U-16ME2E8	U-16ME2E8	U-16ME2E8	U-16ME2E8
			U-16ME2E8	U-16ME2E8	U-16ME2E8	U-16ME2E8	U-16ME2E8	U-16ME2E8
Power supply	Voltage	V	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
	Frequency	Hz	50	50	50	50	50	50
Cooling capacity		kW	151,00	156,00	162,00	168,00	174,00	180,00
EER ¹⁾		W/W	3,75	3,71	3,65	3,60	3,60	3,52
Running current cooling		A	63,20 / 60,90	65,30 / 63,00	69,70 / 67,10	73,30 / 70,60	75,80 / 73,00	80,30 / 77,40
Input power cooling		kW	40,30	42,10	44,40	46,70	48,30	51,20
Heating capacity		kW	169,00	175,00	182,00	189,00	195,00	201,00
COP ¹⁾		W/W	4,56	4,56	4,47	4,47	4,45	4,42
Running current heating		A	58,80 / 56,70	60,20 / 58,10	64,60 / 62,20	67,10 / 64,70	69,50 / 67,00	72,20 / 69,60
Input power heating		kW	37,10	38,40	40,70	42,30	43,80	45,50
Starting current		A	6,00	6,00	7,00	7,00	8,00	8,00
External static pressure (Max)		Pa	80	80	80	80	80	80
Air volume		m ³ /min	920	928	920	928	928	928
Sound pressure	Normal / Silent mode	dB(A)	66,00 / 63,00	66,50 / 63,50	66,50 / 63,50	67,00 / 64,00	67,00 / 64,00	67,00 / 64,00
Sound power	Normal mode	dB	87,00	87,50	87,50	88,00	88,00	88,00
Dimension / Net weight	H x W x D	mm / kg	1842 x 4490 x 1000 / 1110	1842 x 4900 x 1000 / 1170	1842 x 4490 x 1000 / 1155	1842 x 4900 x 1000 / 1215	1842 x 4900 x 1000 / 1260	1842 x 4900 x 1000 / 1260
Piping connections ²⁾	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)
	Gas pipe	Inch (mm)	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)	1-5/8 (41,28) / 1-3/4 (44,45)	1-5/8 (41,28) / 1-3/4 (44,45)
	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)
Refrigerant (R410A) / CO ₂ Eq.		kg / T	30,50 / 63,6840	33,20 / 69,3216	30,50 / 63,6840	33,20 / 69,3216	33,20 / 69,3216	33,20 / 69,3216
Maximum allowable indoor / outdoor capacity ratio % ³⁾			50 ~ 130 (200)	50 ~ 130 (200)	50 ~ 130 (200)	50 ~ 130 (200)	50 ~ 130 (200)	50 ~ 130 (200)
Operating range	Cool / Heat Min ~ Max	°C	-10 ~ +52 / -25 ~ +18	-10 ~ +52 / -25 ~ +18	-10 ~ +52 / -25 ~ +18	-10 ~ +52 / -25 ~ +18	-10 ~ +52 / -25 ~ +18	-10 ~ +52 / -25 ~ +18

Data is for reference. 1) EER and COP calculation is based in accordance to EN14511. 2) 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) If the following conditions are satisfied, the effective range is above 130% and below 200%: A. Obey the limited number of connectable indoor units. B. The lower limit of operating range for heating outdoor temperature is limited to -10°C WB (standard -25°C WB). C. Simultaneous operation is limited to less than 130% of connectable indoor units.

2-Pipe ECOi EX ME2 Series

Space Saving model combination

from 22 to 80HP

			22HP	24HP	26HP	28HP	30HP	32HP	34HP
Model name			U-10ME2E8 U-12ME2E8	U-12ME2E8 U-12ME2E8	U-10ME2E8 U-16ME2E8	U-12ME2E8 U-16ME2E8	U-14ME2E8 U-16ME2E8	U-16ME2E8 U-16ME2E8	U-14ME2E8 U-20ME2E8
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
	Phase		Three Phase	Three Phase	Three Phase	Three Phase	Three Phase	Three Phase	Three Phase
	Frequency	Hz	50	50	50	50	50	50	50
Cooling capacity		kW	61,50	68,00	73,00	78,50	85,00	90,00	96,00
EER ¹⁾		W/W	4,13	3,93	3,80	3,69	3,68	3,52	3,56
Running current cooling		A	23,10 / 22,30	26,60 / 25,60	30,10 / 29,00	33,10 / 31,90	36,60 / 35,30	40,20 / 38,70	41,90 / 40,40
Input power cooling		kW	14,90	17,30	19,20	21,30	23,10	25,60	27,00
Heating capacity		kW	69,00	76,50	81,50	87,50	95,00	100,00	108,00
COP ¹⁾		W/W	4,76	4,69	4,55	4,56	4,48	4,42	4,17
Running current heating		A	22,70 / 21,90	25,30 / 24,40	28,40 / 27,40	30,10 / 29,00	33,60 / 32,40	35,80 / 34,60	40,60 / 39,20
Input power heating		kW	14,50	16,30	17,90	19,20	21,20	22,60	25,90
Starting current		A	2,00	2,00	3,00	3,00	4,00	4,00	4,00
External static pressure (Max)		Pa	80	80	80	80	80	80	80
Air volume		m ³ /min	456	464	456	464	464	464	637
Sound pressure	Normal / Silent mode	dB(A)	61,00 / 58,00	62,00 / 59,00	62,50 / 59,50	63,50 / 60,50	63,50 / 60,50	64,00 / 61,00	63,00 / 60,00
Sound power	Normal mode	dB	82,00	83,00	83,50	84,50	84,50	85,00	84,00
Dimension / Net weight	H x W x D	mm / kg	1842 x 2010 x 1000 / 480	1842 x 2420 x 1000 / 540	1842 x 2010 x 1000 / 525	1842 x 2420 x 1000 / 585	1842 x 2420 x 1000 / 630	1842 x 2420 x 1000 / 630	1842 x 2780 x 1000 / 690
Piping connections ²⁾	Liquid pipe	Inch (mm)	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)	3/4(19,05) / 7/8(22,22)
	Gas 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)
	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)
Refrigerant (R410A) / CO ₂ Eq.		kg / T	13,90 / 23,3856	16,60 / 34,6608	13,90 / 29,0232	16,60 / 34,6608	16,60 / 34,6608	16,60 / 34,6608	17,80 / 37,1664
Maximum allowable indoor / outdoor capacity ratio % ³⁾			50 ~ 130(200)	50 ~ 130(200)	50 ~ 130(200)	50 ~ 130(200)	50 ~ 130(200)	50 ~ 130(200)	50 ~ 130(200)
Operating range	Cool Min ~ Max	°C	-10 ~ +52	-10 ~ +52	-10 ~ +52	-10 ~ +52	-10 ~ +52	-10 ~ +52	-10 ~ +52
	Heat Min ~ Max	°C	-25 ~ +18	-25 ~ +18	-25 ~ +18	-25 ~ +18	-25 ~ +18	-25 ~ +18	-25 ~ +18

			36HP	38HP	40HP	42HP	44HP	46HP	48HP
Model name			U-16ME2E8 U-20ME2E8	U-18ME2E8 U-20ME2E8	U-20ME2E8 U-20ME2E8	U-10ME2E8 U-16ME2E8 U-16ME2E8	U-12ME2E8 U-16ME2E8 U-16ME2E8	U-14ME2E8 U-16ME2E8 U-16ME2E8	U-16ME2E8 U-16ME2E8 U-16ME2E8
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
	Phase		Three Phase	Three Phase	Three Phase	Three Phase	Three Phase	Three Phase	Three Phase
	Frequency	Hz	50	50	50	50	50	50	50
Cooling capacity		kW	101,00	107,00	113,00	118,00	124,00	130,00	135,00
EER ¹⁾		W/W	3,42	3,42	3,34	3,69	3,62	3,62	3,52
Running current cooling		A	45,30 / 43,70	48,10 / 46,30	51,40 / 49,50	50,20 / 48,40	53,20 / 51,30	56,90 / 54,90	60,20 / 58,10
Input power cooling		kW	25,9	31,3	33,8	32,0	34,3	35,9	38,4
Heating capacity		kW	113,00	119,00	127,00	132,00	138,00	145,00	150,00
COP ¹⁾		W/W	4,14	4,13	3,92	4,49	4,50	4,46	4,42
Running current heating		A	42,40 / 40,80	44,70 / 43,10	49,80 / 48,00	46,60 / 44,90	48,20 / 46,40	51,50 / 49,70	53,80 / 51,80
Input power heating		kW	27,30	28,80	32,40	29,40	30,70	32,50	33,90
Starting current		A	4,00	4,00	4,00	5,00	5,00	6,00	6,00
External static pressure (Max)		Pa	80	80	80	80	80	80	80
Air volume		m ³ /min	637	810	810	688	696	696	696
Sound pressure	Normal / Silent mode	dB(A)	63,50 / 60,50	62,50 / 59,50	63,00 / 60,00	65,00 / 62,00	65,50 / 62,50	65,50 / 62,50	66,00 / 63,00
Sound power	Normal mode	dB	84,50	83,50	84,00	86,00	86,50	86,50	87,00
Dimension / Net weight	H x W x D	mm / kg	1842 x 2780 x 1000 / 690	1842 x 3140 x 1000 / 750	1842 x 3140 x 1000 / 750	1842 x 3250 x 1000 / 840	1842 x 3660 x 1000 / 900	1842 x 3660 x 1000 / 945	1842 x 3660 x 1000 / 945
Piping connections ²⁾	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)
	Gas pipe	Inch (mm)	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)
Refrigerant (R410A) / CO ₂ Eq.		kg / T	17,80 / 37,1664	19,00 / 39,672	19,00 / 39,672	22,20 / 46,3536	24,90 / 51,9912	24,90 / 51,9912	24,90 / 51,9912
Maximum allowable indoor / outdoor capacity ratio % ³⁾			50 ~ 130(200)	50 ~ 130(200)	50 ~ 130(200)	50 ~ 130(200)	50 ~ 130(200)	50 ~ 130(200)	50 ~ 130(200)
Operating range	Cool Min ~ Max	°C	-10 ~ +52	-10 ~ +52	-10 ~ +52	-10 ~ +52	-10 ~ +52	-10 ~ +52	-10 ~ +52
	Heat Min ~ Max	°C	-25 ~ +18	-25 ~ +18	-25 ~ +18	-25 ~ +18	-25 ~ +18	-25 ~ +18	-25 ~ +18

1) EER and COP calculation is based in accordance to EN14511. 2) 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) If the following conditions are satisfied, the effective range is above 130% and below 200%: A. Obey the limited number of connectable indoor units. B. The lower limit of operating range for heating outdoor temperature is limited to -10°C WB (standard -25°C WB). C. Simultaneous operation is limited to less than 130% of connectable indoor units.



			50HP	52HP	54HP	56HP	58HP	60HP	62HP	64HP
Model name			U-14ME2E8	U-16ME2E8	U-14ME2E8	U-16ME2E8	U-18ME2E8	U-20ME2E8	U-14ME2E8	U-16ME2E8
			U-16ME2E8	U-16ME2E8	U-20ME2E8	U-20ME2E8	U-20ME2E8	U-20ME2E8	U-16ME2E8	U-16ME2E8
			U-20ME2E8	U-20ME2E8	U-20ME2E8	U-20ME2E8	U-20ME2E8	U-20ME2E8	U-16ME2E8	U-16ME2E8
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		140,00	145,00	151,00	156,00	162,00	168,00	174,00	180,00
EER ¹⁾	W/W		3,55	3,46	3,49	3,41	3,40	3,35	3,60	3,52
Running current cooling	A		61,10 / 58,90	65,00 / 62,70	66,50 / 64,10	70,30 / 67,80	73,10 / 70,40	76,10 / 73,40	75,80 / 73,00	80,30 / 77,40
Input power cooling	kW		39,40	41,90	43,30	45,80	47,60	50,10	48,30	51,20
Heating capacity	kW		155,00	160,00	169,00	175,00	182,00	189,00	195,00	201,00
COP ¹⁾	W/W		4,29	4,27	4,11	4,08	4,06	3,94	4,45	4,42
Running current heating	A		56,60 / 54,60	58,80 / 56,70	63,80 / 61,50	66,60 / 64,20	69,50 / 67,00	73,70 / 71,00	69,50 / 67,00	72,20 / 69,60
Input power heating	kW		36,10	37,50	41,10	42,90	44,80	48,00	43,80	45,50
Starting current	A		6,00	6,00	6,00	6,00	6,00	6,00	8,00	8,00
External static pressure (Max)	Pa		80	80	80	80	80	80	80	80
Air volume	m ³ /min		869	869	1042	1042	1215	1215	928	928
Sound pressure	Normal / Silent mode	dB(A)	65,50 / 62,50	65,50 / 62,50	65,00 / 62,00	65,50 / 62,50	64,50 / 61,50	65,00 / 62,00	67,00 / 64,00	67,00 / 64,00
Sound power	Normal mode	dB	86,50	86,50	86,00	86,50	85,50	86,00	88,00	88,00
Dimension / Net weight	H x W x D	mm / kg	1842 x 4020 x 1000 / 1005	1842 x 4020 x 1000 / 1005	1842 x 4380 x 1000 / 1065	1842 x 4380 x 1000 / 1065	1842 x 4740 x 1000 / 1125	1842 x 4740 x 1000 / 1125	1842 x 4900 x 1000 / 1260	1842 x 4900 x 1000 / 1260
Piping connections ²⁾	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)
	Gas pipe	Inch (mm)	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)	1-5/8 (41,28) / 1-3/4 (44,45)	1-5/8 (41,28) / 1-3/4 (44,45)
	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		26,10 / 54,4968	26,10 / 54,4968	27,30 / 57,0024	27,30 / 57,0024	28,50 / 59,508	28,50 / 59,508	33,20 / 69,3216	33,20 / 69,3216
Maximum allowable indoor / outdoor capacity ratio % ³⁾			50 ~ 130 (200)	50 ~ 130 (200)	50 ~ 130 (200)	50 ~ 130 (200)	50 ~ 130 (200)	50 ~ 130 (200)	50 ~ 130 (200)	50 ~ 130 (200)
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	-25 ~ +18	-25 ~ +18	-25 ~ +18	-25 ~ +18	-25 ~ +18	-25 ~ +18	-25 ~ +18	-25 ~ +18

			66HP	68HP	70HP	72HP	74HP	76HP	78HP	80HP
Model name			U-10ME2E8	U-12ME2E8	U-10ME2E8	U-16ME2E8	U-16ME2E8	U-18ME2E8	U-20ME2E8	U-20ME2E8
			U-16ME2E8	U-16ME2E8	U-20ME2E8	U-16ME2E8	U-18ME2E8	U-20ME2E8	U-20ME2E8	U-20ME2E8
			U-20ME2E8	U-20ME2E8	U-20ME2E8	U-20ME2E8	U-20ME2E8	U-20ME2E8	U-20ME2E8	U-20ME2E8
			U-20ME2E8	U-20ME2E8	U-20ME2E8	U-20ME2E8	U-20ME2E8	U-20ME2E8	U-20ME2E8	U-20ME2E8
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		185,00	190,00	196,00	202,00	208,00	213,00	219,00	224,00
EER ¹⁾	W/W		3,52	3,49	3,47	3,42	3,42	3,39	3,38	3,35
Running current cooling	A		80,80 / 77,80	83,70 / 80,70	86,80 / 83,60	90,60 / 87,30	93,40 / 90,00	96,60 / 93,10	98,30 / 94,70	101,50 / 97,80
Input power cooling	kW		52,60	54,50	56,50	59,00	60,80	62,90	64,70	66,80
Heating capacity	kW		207,00	213,00	219,00	226,00	233,00	239,00	245,00	252,00
COP ¹⁾	W/W		4,16	4,18	4,05	4,14	4,12	4,03	4,03	3,94
Running current heating	A		77,10 / 74,30	79,20 / 76,30	83,10 / 80,10	84,70 / 81,70	87,70 / 84,50	92,00 / 88,70	93,40 / 90,00	98,30 / 94,70
Input power heating	kW		49,70	51,00	54,10	54,60	56,50	59,30	60,80	64,00
Starting current	A		7,00	7,00	7,00	8,00	8,00	8,00	8,00	8,00
External static pressure (Max)	Pa		80	80	80	80	80	80	80	80
Air volume	m ³ /min		1266	1274	1439	1274	1447	1447	1620	1620
Sound pressure	Normal / Silent mode	dB(A)	66,00 / 63,00	66,50 / 63,50	65,50 / 62,50	66,50 / 63,50	66,50 / 63,50	66,50 / 63,50	66,00 / 63,00	66,00 / 63,00
Sound power	Normal mode	dB	87,00	87,50	86,50	87,50	87,50	87,50	87,00	87,00
Dimension / Net weight	H x W x D	mm / kg	1842 x 5210 x 1000 / 1275	1842 x 5620 x 1000 / 1335	1842 x 5570 x 1000 / 1335	1842 x 5620 x 1000 / 1380	1842 x 5980 x 1000 / 1440	1842 x 5980 x 1000 / 1440	1842 x 6340 x 1000 / 1500	1842 x 6340 x 1000 / 1500
Piping connections ²⁾	Liquid pipe	Inch (mm)	3/4 (19,05) / 7/8 (22,22)	7/8 (22,22) / 1 (25,04)	7/8 (22,22) / 1 (25,04)	7/8 (22,22) / 1 (25,04)	7/8 (22,22) / 1 (25,04)	7/8 (22,22) / 1 (25,04)	7/8 (22,22) / 1 (25,04)	7/8 (22,22) / 1 (25,04)
	Gas pipe	Inch (mm)	1-5/8 (41,28) / 1-3/4 (44,45)	1-5/8 (41,28) / 1-3/4 (44,45)	1-5/8 (41,28) / 1-3/4 (44,45)	1-3/4 (44,45) / 2 (50,80)	1-3/4 (44,45) / 2 (50,80)	1-3/4 (44,45) / 2 (50,80)	1-3/4 (44,45) / 2 (50,80)	1-3/4 (44,45) / 2 (50,80)
	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		32,90 / 68,6952	35,60 / 74,3328	34,10 / 19,836	35,80 / 68,6952	36,80 / 19,836	36,80 / 19,836	38,00 / 79,344	38,00 / 79,344
Maximum allowable indoor / outdoor capacity ratio % ³⁾			50 ~ 130 (200)	50 ~ 130 (200)	50 ~ 130 (200)	50 ~ 130 (200)	50 ~ 130 (200)	50 ~ 130 (200)	50 ~ 130 (200)	50 ~ 130 (200)
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	-25 ~ +18	-25 ~ +18	-25 ~ +18	-25 ~ +18	-25 ~ +18	-25 ~ +18	-25 ~ +18	-25 ~ +18

1) EER and COP calculation is based in accordance to EN14511. 2) 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) If the following conditions are satisfied, the effective range is above 130% and below 200%: A. Obey the limited number of connectable indoor units. B. The lower limit of operating range for heating outdoor temperature is limited to -10°C WB (standard -25°C WB). C. Simultaneous operation is limited to less than 130% of connectable indoor units.