

2 WAY MINI ECOi LE SERIES 2017 — 2018

**NEW MINI ECOi**  
**EXTRAORDINARY ENERGY-SAVING**



# NEW 2-PIPE MINI ECOi LE SERIES FOR LIGHT COMMERCIAL & RESIDENTIAL USE



**NEW  
COMPACT  
DESIGN**

The most flexible VRF system ever.  
Meeting the needs of light commercial applications.

**ECOi**

Advantages of Mini ECOi LE Series used for medium sized buildings.

**1**

### Efficiency energy control

Upgraded outdoor units deliver high efficiency rating and reduced energy costs.

**2**

### Space saving

Ideal for commercial locations with limited space such as banks and shops. Compact units integrate easily and discreetly into building design.

**3**

### Flexible installation

Reduced installation time thanks to compact units and extra long piping without additional refrigeration charge. High external static pressure 35Pa and small chassis maximize installation options.



#### New compact design: LE2 Series - 4 / 5 / 6HP

- Extraordinary energy saving: 4,50 EER and 5,19 COP (4HP)
- 50 m piping length without additional refrigerant charge
- Quiet operation mode with 4 levels
- High COP mode option

#### LE1 Series - 8 / 10HP

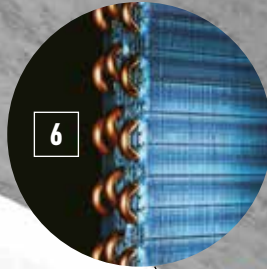
- 60 % smaller than ECOi ME2 8 / 10 HP with vertical flow type
- Flexible piping length (Total : 300m, Furthest : 150m)
- Maximum number of connectable indoor units: 15

#### Key features for LE1 / LE2

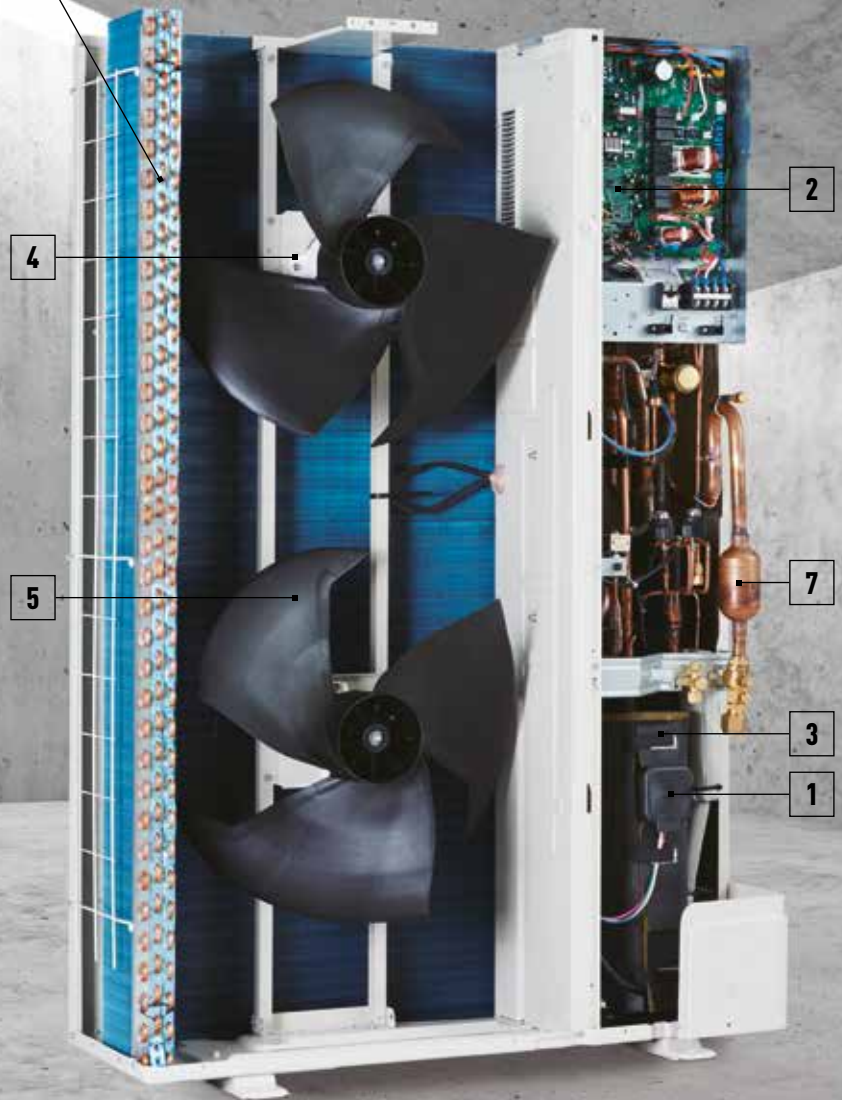
- High external static pressure 35Pa
- Full range of ECOi indoor units and controllers
- Variable evaporation temperature control as standard
- Connectable maximum indoor / outdoor capacity ratio up to 130%
- Auto restart from outdoor units
- Demand response (Peak cut) by optional parts
- Suitable for R22 renewable projects

# EFFICIENCY ENERGY CONTROL

RELIABLE  
QUALITY



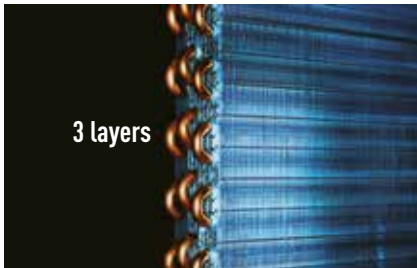
- 1** **New cylinder type compressor.** Better partial load control due to improved motor and volume optimization of the compressor.
- 2** **Printed Circuit Board.** Two piece PCB for easy maintenance.
- 3** **Accumulator.** New larger accumulator maintains compressor reliability because of increased refrigerate quality, which also allows an extended max piping length.
- 4** **DC Fan Motor.** Checking load and outside temperature, the DC motor is controlled for optimum air volume.
- 5** **New design fan.** New fan has ribs extending near the blade tips, in a structure that resists deformation. During high electro static pressure, this blade shape suppresses disruptions in the airflow.
- 6** **3 layers Heat Exchanger & Copper Tubes (LE2 / LE1).** The heat exchanger and the copper tube sizes have been redesigned to increase efficiency.
- 7** **Oil Separator.** A centrifugal separator has been adopted to improve oil separation efficiency and reduce refrigerant pressure loss.



The new Mini ECOi LE Series with extraordinary energy performance. LE Series has been redesigned with a focus on energy saving performance, reliable quality and comfort.

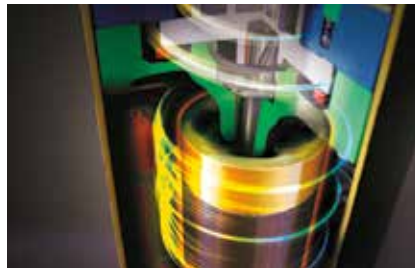
**UPGRADED COMPONENTS ARE EQUIPPED FOR MINI ECOi FAMILY (LE2 / LE1)**

**Energy saving design**



3 layers

**Powerful heat exchanger.** 3 layers of heat exchanger for all LE series. LE Series features the same heat exchange volume as conventional model even though it is 15% smaller in size.



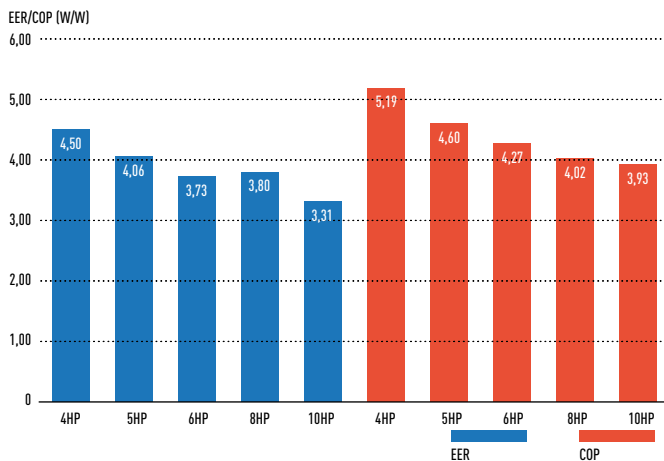
**Panasonic twin Rotary Compressor.** A large capacity inverter compressor has been adopted. This new compressor features wider and 0,1Hz step inverter control.



**New design fan.** Fan blades have been redesigned to inhibit air resistance and to increase efficiency. The larger fan increases air volume while maintaining low noise levels.

**Superior energy efficiency**

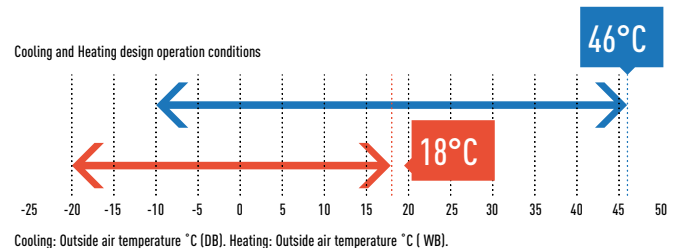
The operation efficiency has been improved using highly efficient R410A refrigerant, a DC Inverter compressor, the DC motor and a heat exchanger design.



**Wide operating range (LE2 / LE1)**

Cooling operation is possible from -10°C DB to +46°C DB. Heating operation is possible as low as -20°C WB. The remote controller temperature can be set from 18°C up to 30°C in cooling and 16°C up to 30°C in heating\*.

\* Depending on the type of remote controller.



**Maximum comfort with quiet operation mode**

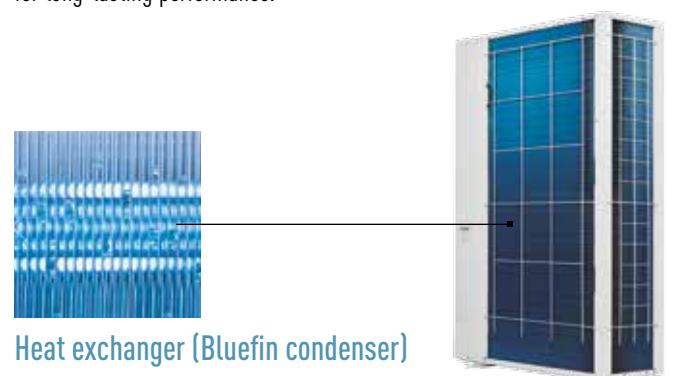
- Quiet operation mode reduces outdoor unit operating sound by 7dB(A)
- 4-step set point is available
- Silent mode 1 maintains rated cooling capacity

\* Timer setting of quiet operation mode is available in High-spec remote controller.

Silent mode options	Sound pressure level
Silent mode 1	-1,5dB(A)
Silent mode 2	-3dB(A)
Silent mode 3	-5dB(A)
Silent mode 4	-7dB(A)

**Bluefin condenser: High durability outdoor unit (LE2 / LE1)**

The anti-corrosion Bluefin treatment of the heat exchanger provides greater resistance against corrosion. All models are equipped with Bluefin condenser and treated with high corrosion resistance to rust and salty air for long-lasting performance.



Heat exchanger (Bluefin condenser)

# SPACE SAVING & FLEXIBLE INSTALLATION

**INVISIBLE FROM  
THE STREET**



- Compact space-saving design
- High external static pressure 35Pa
- Long piping length for flexible installation

- No refrigeration charge up to 50m
- 130% ratio for connectable indoor capacity units

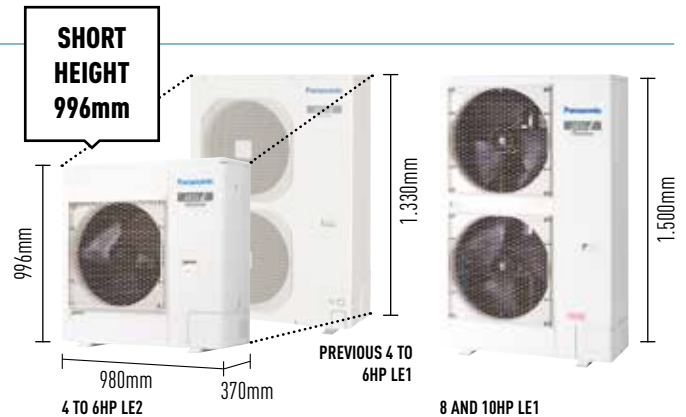
**Compact design**

**Mini ECOi LE Series is a single unit**

Perfect for installations with limited space and easy to hide within a modern building. Flexible space-saving options compared to single split system.

**LE2 lower height of 996mm**

New LE2 Series is 25% smaller in height than conventional model.



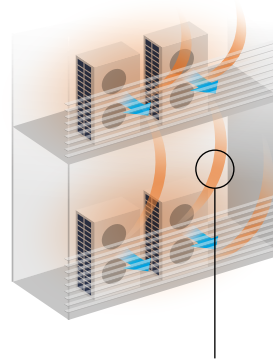
**High external static pressure 35Pa**

- High air pressure
- New blade shape
- Good for high class condominiums

When unit is installed on a narrow balcony and exposed to the sun, the barrier at the front side would restrict hot air from being discharged. Heat accumulated in an enclosure can cause over-heating. This could potentially result in damage or shorten the product's life span. A high external static pressure sends the air further away from the outdoor unit and through the barrier. This provides better air circulation and distribution.

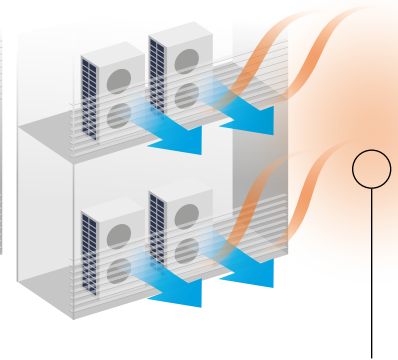
And a high air pressure of 35Pa discharges the hot air a sufficient distance.

**Previous Model - Low Pressure**



**Heat Accumulated** When the pressure is low, hot air will accumulate in the unit thus affecting its work performance and that of unit above it as well.

**LE Series - High Pressure**

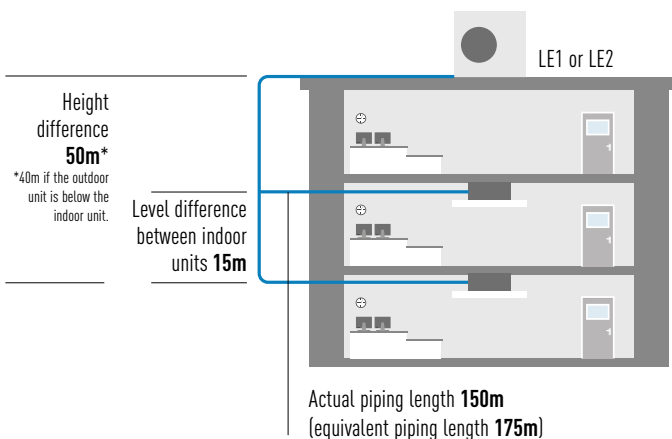


**Heat Discharged** But with a high pressure of 35Pa, hot air is sent further away preventing overheating inside the outdoor unit enclosure.

**Long piping length for greater design flexibility**

LE1: Maximum total piping length: 300m

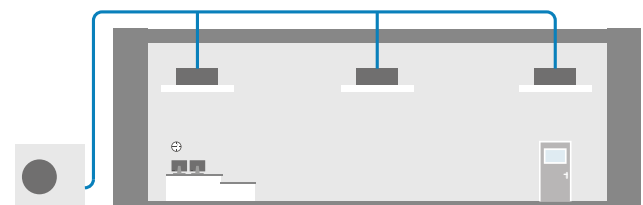
LE2: Maximum total piping length: 180m



**Flexible & easy installation**

- 50m piping length without refrigerant charge
- A 50m pipe length is sufficient for most residential and small business buildings

**NO REFRIGERANT CHARGE UP TO 50M**



**Maximum 15 indoor units per system**

System / HP	4HP	5HP	6HP	8HP	10HP
Maximum number of connectable indoor units	6	8	12*	15*	15*

\* In case of 1,5KW indoor unit's connection.

## 2-PIPE MINI ECOi LE SERIES HIGH EFFICIENCY 4-6HP

COMPACT LE2  
THREE PHASE  
MODEL  
COMING SOON

New Panasonic Mini ECOi. Extraordinary energy-saving. The most compact ECOi system ever.

### For light commercial use

Mini ECOi allows easier installation in condominiums and medium sized buildings with limited spaces. Utilising R410A and DC inverter technology, Panasonic offers VRF to a new and growing market.

### Short height of 996mm

In addition to raising efficiency, the outdoor unit has been designed to be as compact as possible. It can now be installed in places that were previously too small.

### Technical focus

- The TOP EER and COP in industry
- The best efficiency even compared to 2 fan outdoor units
- 50m piping length free of refrigeration charge
- 35Pa high static pressure
- High COP mode selectable with maintenance remote controller
- Selectable silent mode

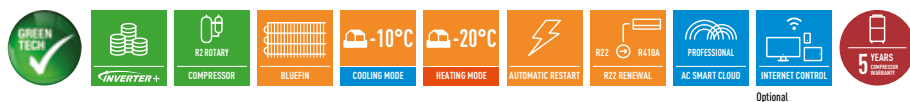


Single Phase  
U-4LE2E5  
U-5LE2E5  
U-6LE2E5

Three Phase  
U-4LE1E8  
U-5LE1E8  
U-6LE1E8

HP			4HP						5HP						6HP					
Model			U-4LE2E5			U-4LE1E8			U-5LE2E5			U-5LE1E8			U-6LE2E5			U-6LE1E8		
Power supply	Voltage	V	220	230	240	380	400	415	220	230	240	380	400	415	220	230	240	380	400	415
	Phase		Single Phase			Three Phase			Single Phase			Three Phase			Single Phase			Three Phase		
	Frequency	Hz	50			50			50			50			50			50		
Cooling capacity	kW		12,10			12,1			14,06			14,0			15,50			15,5		
EER <sup>1)</sup>	W/W		4,50			4,30			4,06			4,20			3,73			3,45		
Running current cooling	A		13,30	12,70	12,20	4,9	4,7	4,5	16,30	15,60	17,00	5,7	5,4	5,2	20,30	19,40	18,60	7,5	7,1	6,9
Input power cooling	kW		2,69			2,81			3,45			3,33			4,15			4,49		
Heating capacity	kW		12,50			12,5			16,00			16,0			16,5			18,0		
COP <sup>1)</sup>	W/W		5,19			4,62			4,60			4,30			4,27			3,95		
Running current heating	A		12,20	11,60	11,20	4,7	4,5	4,3	17,60	16,80	16,10	6,3	6,0	5,8	19,10	18,20	17,50	7,5	7,2	6,9
Input power heating	kW		2,41			2,71			3,48			3,72			3,86			4,56		
Starting current	A		1,00			1,0			1,00			1,0			1,00			1,0		
Maximum current	A		17,30			8,5			24,30			10,0			27,40			12,0		
Maximum input power	kW		3,50	3,66	3,82	5,15	5,42	5,62	4,92	5,14	5,37	6,06	6,37	6,61	5,61	5,86	6,12	7,27	7,65	7,94
Maximum number of connectable indoor units			7			6			8			8			9 (12) <sup>2)</sup>			9		
External static pressure	Pa		0 - 35			0 - 35			0 - 35			0 - 35			0 - 35			0 - 35		
Air volume	m <sup>3</sup> /min		69			95			72			104			74			104		
Sound pressure	Cooling	dB(A)	52			47			53			48			54			49		
	Cooling (Silent 1 / 2 / 3 / 4)	dB(A)	50,5 / 49 / 47 / 45			—			48,5 / 50 / 48 / 46			—			52,5 / 51 / 49 / 47			—		
Sound power	Heating	dB(A)	54			49			56			50			56			52		
	Cooling / Heating	dB	69 / 72			68 / 70			71 / 75			69 / 71			73 / 75			70 / 73		
Dimensions / Net weight	H x W x D	mm / kg	996 x 980 x 370 / 106			1.330 x 940 x 340 / 104			996 x 980 x 370 / 106			1.330 x 940 x 340 / 104			996 x 980 x 370 / 106			1.330 x 940 x 340 / 104		
Piping connections	Liquid pipe	Inch (mm)	3/8 (9,52)			3/8 (9,52)			3/8 (9,52)			3/8 (9,52)			3/8 (9,52)			3/8 (9,52)		
	Gas pipe	Inch (mm)	5/8 (15,88)			5/8 (15,88)			5/8 (15,88)			5/8 (15,88)			5/8 (15,88)			3/4 (19,05)		
Maximum piping length (total)	m		150 (180)			120 (150)			150 (180)			120 (150)			150 (180)			120 (150)		
Elevation difference (in/out)	m		50 (Outdoor unit upper) / 40 (Outdoor unit lower)			50 (Outdoor unit upper) / 40 (Outdoor unit lower)			50 (Outdoor unit upper) / 40 (Outdoor unit lower)			50 (Outdoor unit upper) / 40 (Outdoor unit lower)			50 (Outdoor unit upper) / 40 (Outdoor unit lower)			50 (Outdoor unit upper) / 40 (Outdoor unit lower)		
Refrigerant (R410A)	kg / TCO <sub>2</sub> Eq.		6,7 (14,4) / —			3,5 / 7,308			6,7 (14,4) / —			3,5 / 7,308			6,7 (14,4) / —			3,5 / 7,308		
Maximum allowable indoor / outdoor capacity ratio	%		50 - 130			50 - 130			50 - 130			50 - 130			50 - 130			50 - 130		
Operating range	Cooling / Heating Min - Max	°C	-10 - +46 / -20 - 18			-10 - +46 / -20 - +24			-10 - +46 / -20 - 18			-10 - +46 / -20 - +24			-10 - +46 / -20 - 18			-10 - +46 / -20 - +24		

1) EER and COP classification is at 400 V in accordance with EU directive 2002/31/EC. 2) In case of 1,5kW indoor unit's connection, it is able to connect maximum 12 indoor units.





## 2-PIPE MINI ECOi LE SERIES

### HIGH EFFICIENCY 8-10HP

Prepare to be blown away by Panasonic's New Mini VRF system. The Mini VRF compact system is the ideal solution for minimum outdoor space. Panasonic extends the Mini VRF range by 8 and 10HP units.

#### Increase external static pressure

When unit is installed on a narrow balcony, the fence at front side will be the obstacle. High external static pressure will overcome this obstacle and maintain operation capacity.

#### High ambient temperature performance

Cooling operation range up to 46°C. The system can maintain the rated (100%) capacity up to 40°C by 8HP model & up to 37°C by 10HP model.

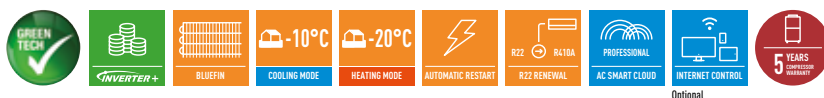
#### Technical focus

- Piping flexibility with 150m maximum length
- High efficiency
- 15 indoor units connectable
- Quiet operation mode (one of the lowest in the market)
- High ambient temp performance
- High static pressure 35Pa



HP		8HP			10HP		
Model		U-8LE1E8*			U-10LE1E8*		
Power supply	Voltage	380			380		
	Phase	400			400		
Frequency	Hz	415			415		
	Three Phase	Three Phase			Three Phase		
Cooling capacity	kW	22,40			28,00		
EER <sup>1)</sup>	W/W	3,80			3,11		
Running current cooling	A	9,60	9,15	8,80	14,70	14,00	13,50
Input power cooling	kW	5,89			9,00		
Heating capacity	kW	25,00			28,00		
COP <sup>1)</sup>	W/W	4,02			3,93		
Running current heating	A	10,20	9,65	9,30	11,60	11,10	10,70
Input power heating	kW	6,22			7,13		
Starting current	A	1,00			1,00		
Maximum current	A	13,70			19,60		
Maximum input power	kW	9,16			13,10		
Maximum number of connectable indoor units		15 <sup>2)</sup>			15 <sup>2)</sup>		
External static pressure	Pa	0 - 35			0 - 35		
Air volume	m <sup>3</sup> /min	150			160		
Sound pressure	Cooling	dB(A)			60		
	Cooling (Silent 1 / 2 / 3)	dB(A)			57 / 55 / 53		
	Heating	dB(A)			64		
Sound power	Cooling / Heating	dB			81 / 85		
					84 / 86		
Dimensions / Net weight	H x W x D	mm / kg			1.500 x 980 x 370 / 132		
	Liquid pipe	Inch (mm)			3/8 (9,52) <sup>3)</sup> / 1/2 (12,70) <sup>4)</sup>		
Piping connections	Gas pipe	Inch (mm)			7/8 (22,22) <sup>3)</sup> / 1 (25,40) <sup>4)</sup>		
					7,5 - 150 (7,5 - 300)		
Maximum piping length range (total)	m	7,5 - 150 (7,5 - 300)			7,5 - 150 (7,5 - 300)		
Elevation difference (in/out)	m	50 (Outdoor unit upper) / 40 (Outdoor unit lower)			50 (Outdoor unit upper) / 40 (Outdoor unit lower)		
Refrigerant (R410A)	kg / TCO <sub>2</sub> Eq.	6,3 (24,0) / 13,1544			6,6 (24,0) / 13,7808		
Maximum allowable indoor / outdoor capacity ratio	%	50 - 130			50 - 130		
Operating range	Cooling / Heating Min - Max	°C			-10 - +46 / -20 - +18		
					-10 - +46 / -20 - +18		

1) EER and COP classification is at 400 V in accordance with EU directive 2002/31/EC. 2) If the heating utilized, it is necessary to increase 1 size with respect to the main liquid pipe, depending on the combination of the indoor unit. 3) Under 90m for ultimate indoor unit. 4) 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 and liquid pipes. \* Tentative data.











































Rating Conditions: Cooling Indoor 27°C DB / 19°C WB. Cooling Outdoor 35°C DB. Heating Indoor 20°C DB. Heating Outdoor 7°C DB / 6°C WB. (DB: Dry Bulb; WB: Wet Bulb)  
Specifications subject to change without notice. For detailed information about ErP, please visit our websites [www.aircon.panasonic.eu](http://www.aircon.panasonic.eu) or [www.ptc.panasonic.eu](http://www.ptc.panasonic.eu).

# INDOOR UNITS RANGE

	1,5kW	2,2kW	2,8kW	3,0kW	3,6kW	4,0kW	4,5kW
<b>NEW U2 Type. 4 Way 90x90 Cassette</b>		 S-22MU2E5A	 S-28MU2E5A		 S-36MU2E5A		 S-45MU2E5A
<b>U1 Type. 4 Way 90x90 Cassette</b>		 S-22MU1E5A	 S-28MU1E5A		 S-36MU1E5A		 S-45MU1E5A
<b>Y2 TYPE. 4 Way 60x60 Cassette</b>	 S-15MY2E5A	 S-22MY2E5A	 S-28MY2E5A		 S-36MY2E5A		 S-45MY2E5A
<b>L1 Type. 2 Way Cassette</b>		 S-22ML1E5	 S-28ML1E5		 S-36ML1E5		 S-45ML1E5
<b>D1 Type. 1 Way Cassette</b>			 S-28MD1E5		 S-36MD1E5		 S-45MD1E5
<b>F2 Type. Variable Static Pressure Hide Away</b>	 S-15MF2E5A	 S-22MF2E5A	 S-28MF2E5A		 S-36MF2E5A		 S-45MF2E5A
<b>M1 Type. Slim Variable Static Pressure Hide Away</b>	 S-15MM1E5A	 S-22MM1E5A	 S-28MM1E5A		 S-36MM1E5A		 S-45MM1E5A
<b>E2 Type. High Static Pressure Hide Away</b>							
<b>Heat Recovery with DX Coil</b>				 PAW-500ZDX2N		 PAW-800ZDX2N	 PAW-01KZDX2N
<b>T2 Type. Ceiling</b>					 S-36MT2E5A		 S-45MT2E5A
<b>K2/K1 Type. Wall Mounted</b>	 S-15MK2E5A	 S-22MK2E5A	 S-28MK2E5A		 S-36MK2E5A		 S-45MK2E5A
<b>P1 Type. Floor Standing</b>		 S-22MP1E5	 S-28MP1E5		 S-36MP1E5		 S-45MP1E5
<b>R1 Type. Concealed Floor Standing</b>		 S-22MR1E5	 S-28MR1E5		 S-36MR1E5		 S-45MR1E5

Wide choice of models depending on the indoor requirements.

	16,0kW	28,0kW	56,0kW	84,0kW	112,0kW	140,0kW	168,0kW
<b>AHU Connection Kit 16, 28 and 56kW</b>	 PAW-160MAH2/M/L	 PAW-280MAH2/M/L	 PAW-560MAH2/M/L	 PAW-280MAH2/M/L + PAW-560MAH2/M/L	 PAW-560MAH2/M/L x 2	 PAW-280MAH2/M/L + PAW-560MAH2/M/L x 2	 PAW-560MAH2/M/L x 3

5,6kW	6,0kW	7,3kW	9,0kW	10,6kW	14,0kW	16,0kW	22,4kW	28,0kW
 S-56MU2E5A	 S-60MU2E5A	 S-73MU2E5A	 S-90MU2E5A	 S-106MU2E5A	 S-140MU2E5A	 S-160MU2E5A		
 S-56MU1E5A	 S-60MU1E5A	 S-73MU1E5A	 S-90MU1E5A	 S-106MU1E5A	 S-140MU1E5A	 S-160MU1E5A		
 S-56MY2E5A								
 S-56ML1E5		 S-73ML1E5						
 S-56MD1E5		 S-73MD1E5						
 S-56MF2E5A	 S-60MF2E5A	 S-73MF2E5A	 S-90MF2E5A	 S-106MF2E5A	 S-140MF2E5A	 S-160MF2E5A		
 S-56MM1E5A								
							 S-224ME2E5	 S-280ME2E5
 S-56MT2E5A		 S-73MT2E5A		 S-106MT2E5A	 S-140MT2E5A			
 S-56MK2E5A		 S-73MK2E5A		 S-106MK2E5A				
 S-56MP1E5		 S-71MP1E5						
 S-56MR1E5		 S-71MR1E5						

	11,4kW	25,0kW	31,5kW	37,5kW
<b>Air Curtain Jet-Flow with DX Coil</b>	 PAW-10EAIRC-MJ	 PAW-15EAIRC-MJ	 PAW-20EAIRC-MJ	 PAW-25EAIRC-MJ
<b>Air Curtain Standard with DX Coil</b>	 PAW-10EAIRC-MS		 PAW-20EAIRC-MS	

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Panasonic Air Conditioning  
Hagenauer Strasse 43, 65203 Wiesbaden, Germany



Do not add or replace refrigerant other than the specified type. Manufacturer is not responsible for the damage and deterioration in safety due to usage of the other refrigerant.  
The outdoor units in this catalogue contains fluorinated greenhouse gases with a GWP higher than 150.

