

2 WAY MINI ECOi LE SERIE 2018 — 2019

**NEW MINI ECOi  
EXTRAORDINARY  
ENERGY-SAVING**



60<sup>th</sup> Anniversary  
heating & cooling solutions

# MINI ECOi LE SERIES FOR LIGHT COMMERCIAL & RESIDENTIAL USE

NEW  
COMPACT  
DESIGN



Mini ECOi with extraordinary energy-saving performance and high external static pressure (35Pa).

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

### 1 Efficiency energy control

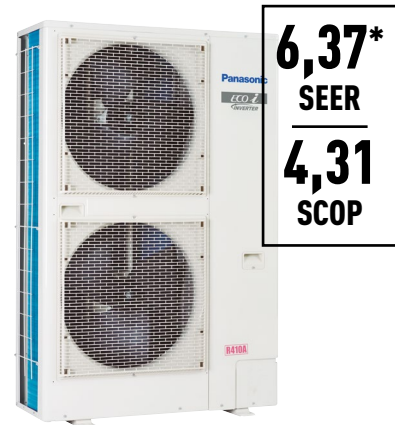
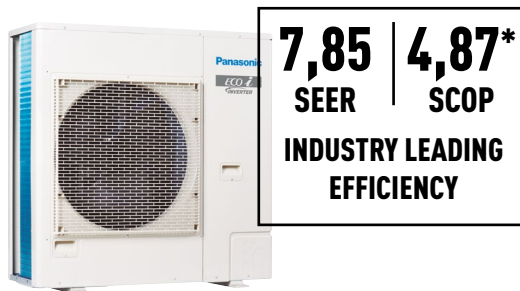
Upgraded outdoor units deliver high efficiency rating and reduced energy costs.

### 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 increase installation options.



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

- Extraordinary energy saving: 7,85 SEER and 4,87 SCOP (4HP)\*
- 50 m piping length without additional refrigerant charge
- Quiet operation mode with 4 levels
- High COP mode option

\* SEER/SCOP is calculated based on the seasonal space cooling/heating efficiency "η<sub>1</sub>" values of the COMMISSION REGULATION (EU) 2016/2281. SEER, SCOP = (η<sub>1</sub> + Correction) × PEF.

#### LE1 Series - 8 / 10HP

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

#### Key features for LE1 / LE2.

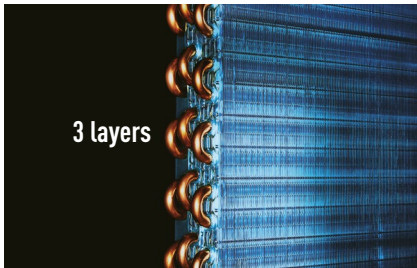
- High external static pressure 35Pa
- Full range of ECOi indoor units and controllers
- Variable evaporation temperature control as standard
- Connectable maximum indoor / outdoor capacity ratio up to 130%
- Auto restart from outdoor units
- Demand response (Peak cut) by optional parts
- Suitable for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

# ENERGY CONTROL & RELIABILITY

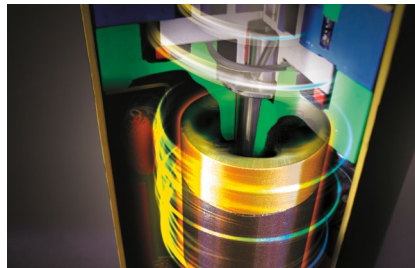


The new Mini ECOi system delivering energy-saving performance, powerful operation, reliability and comfort surpassing anything previously possible.

Energy saving design



**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.

Reliable Quality

- 1. Panasonic Inverter Compressor.** A large-capacity inverter compressor has been adopted. The inverter compressor is superior in performance with improved partial-load capacity.
- 2. Printed Circuit Board.** The number of PCB is 2 pieces for making maintenance easier.
- 3. Accumulator.** A large accumulator has been adopted to maintain compressor reliability because of the increased refrigerant quantity, which allows an extended maximum piping length.
- 4. DC Fan Motor.** Checking load and outside temperature, the DC motor is controlled for optimum air volume.
- 5. Newly Designed Fan.** The newly designed fan blades have been developed to inhibit air turbulence and to increase efficiency. As fan diameter has been increased its size, the air volume has been increased whilst maintaining a same sound level.
- 6. Heat Exchanger & Copper Tubes.** The heat exchanger size and the copper tube sizes in the heat exchanger 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.

Maximum comfort with quiet operation mode

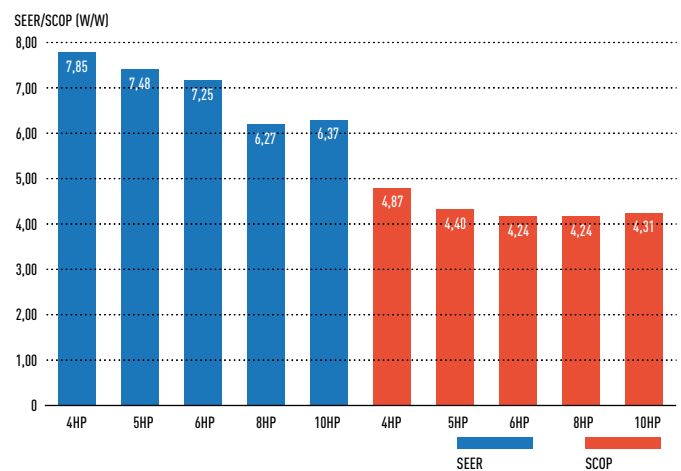
- Quiet operation mode reduces outdoor unit operating sound by 7dB(A)
- 4-step set point is available
- Silent mode 1 maintains rated cooling capacity

\* 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)

Superior seasonal energy efficiency (SEER/SCOP follows LOT21\*)

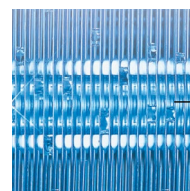
The operation efficiency has been improved using highly efficient R410A refrigerant, a DC Inverter compressor, DC motor and a heat exchanger design.



\* SEER/SCOP is calculated based on the seasonal space cooling/heating efficiency "η<sub>1</sub>" values of the COMMISSION REGULATION (EU) 2016/2281. SEER, SCOP = (η<sub>1</sub> + Correction) × PEF.

Bluefin condenser: High durability outdoor unit

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



Heat exchanger (Bluefin condenser)



INSTALLATION FLEXIBLE, EASY  
AND HASSLE-FREE



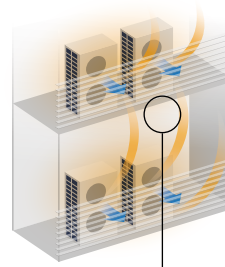
### High external static pressure 35Pa

- 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

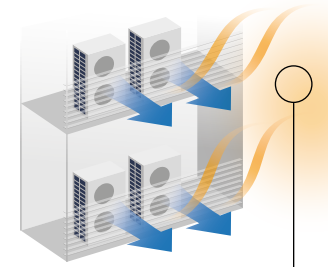


**Heat Accumulated.**  
When the pressure is low, hot air will accumulate in the unit thus affecting its work performance and that of unit above it as well.



Previous fan

### 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.



New LE2's fan

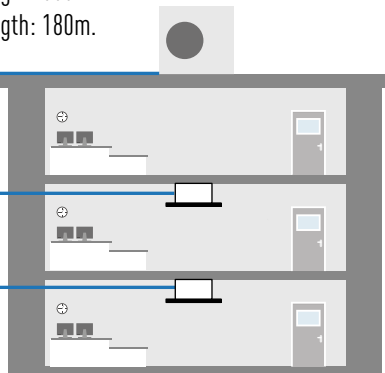
### Long piping design length for greater design flexibility

- LE1: Maximum total piping length: 300m.
- LE2: Maximum total piping length: 180m.

Maximum height difference between outdoor unit and indoor unit:  
**50m\***

Maximum height difference between indoor units:  
**15m**

Actual piping length  
**150m**  
(Equivalent piping length 175m)



\* 40m if the outdoor unit is below the indoor unit.

- 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.

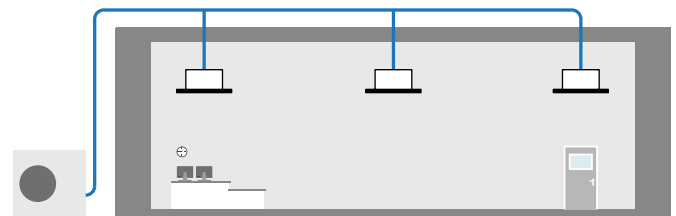
#### LE2 short height of 996mm.

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

### Plug & Play concept

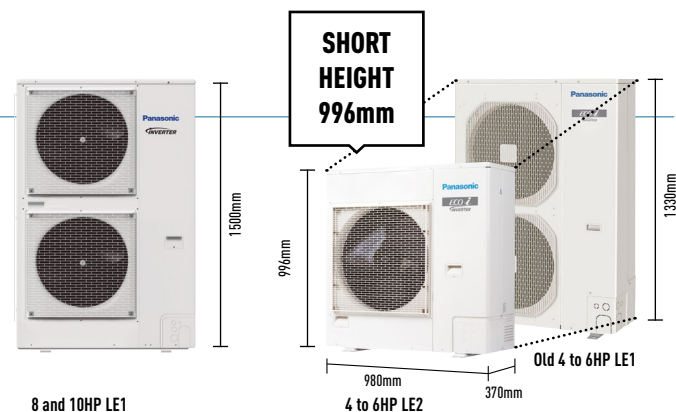
- 50m piping length free of charge
- A 50m pipe length is sufficient for most residential and small business buildings

**FREE OF CHARGE**  
**50m**



### Up to 15 indoor units connectable

An expansion from Panasonic VRF line up, the mini ECOi is compatible with the same indoor units and controls as the rest of the ECOi range.



# MINI ECOi LE2 SERIES HIGH EFFICIENCY 4 TO 6HP



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 996m

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

- Outstanding SEER and SCOP
- Better 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

HP			4HP	5HP	6HP	4HP	5HP	6HP
Outdoor Units			U-4LE2E5	U-5LE2E5	U-6LE2E5	U-4LE2E8	U-5LE2E8	U-6LE2E8
Power supply	Voltage	V	220/230/240	220/230/240	220/230/240	380/400/415	380/400/415	380/400/415
	Phase		Single Phase	Single Phase	Single Phase	Three Phase	Three Phase	Three Phase
	Frequency	Hz	50	50	50	50	50	50
Cooling capacity		kW	12,10	14,00	15,50	12,10	14,00	15,50
EER <sup>1)</sup>		W/W	4,50	4,06	3,73	4,50	4,06	3,73
SEER <sup>2)</sup>		W/W	<b>7,85</b>	<b>7,48</b>	<b>7,25</b>	<b>7,85</b>	<b>7,48</b>	<b>7,25</b>
Running current cooling		A	13,30/12,70/12,20	16,30/15,60/17,00	20,30/19,40/18,60	4,39/4,17/4,02	5,58/5,30/5,11	6,71/6,37/6,14
Input power cooling		kW	2,69	3,45	4,15	2,69	3,45	4,15
Heating capacity		kW	12,50	16,00	16,5	12,50	16,00	16,50
COP <sup>1)</sup>		W/W	5,19	4,60	4,27	5,19	4,60	4,27
SCOP <sup>2)</sup>		W/W	<b>4,87</b>	<b>4,40</b>	<b>4,24</b>	<b>4,87</b>	<b>4,40</b>	<b>4,24</b>
Running current heating		A	12,20/11,60/11,20	17,60/16,80/16,10	19,10/18,20/17,50	3,98/3,78/3,64	5,62/5,34/5,14	6,24/5,93/5,71
Input power heating		kW	2,41	3,48	3,86	2,41	3,48	3,86
Starting current		A	1,00	1,00	1,00	1,00	1,00	1,00
Maximum current		A	17,30	24,30	27,40	7,90	10,10	10,70
Maximum input power		kW	3,50/3,66/3,82	4,92/5,14/5,37	5,61/5,86/6,12	4,34/5,09/5,28	6,25/6,55/6,82	6,62/6,97/7,23
Maximum number of connectable indoor units			7(10) <sup>3)</sup>	8(10) <sup>3)</sup>	9(12) <sup>3)</sup>	7(10) <sup>3)</sup>	8(10) <sup>3)</sup>	9(12) <sup>3)</sup>
External static pressure		Pa	0~35	0~35	0~35	0~35	0~35	0~35
Air volume		m <sup>3</sup> /min	69	72	74	69	72	74
Sound pressure	Cool	dB(A)	52	53	54	52	53	53
	Cool (Silent 1/2/3/4)	dB(A)	50,5/49/47/45	51,5/50/48/46	52,5/51/48/46	50,5/49/49/47	48,5/50/48/46	48,5/50/48/46
	Heat	dB(A)	54	56	56	54	56	56
Sound power	Cool / Heat	dB	69/72	71/75	73/75	69/72	71/75	73/75
Dimension	H x W x D	mm	996 x 980 x 370	996 x 980 x 370	996 x 980 x 370	996 x 980 x 370	996 x 980 x 370	996 x 980 x 370
Net weight		kg	106	106	106	106	106	106
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)	5/8(15,88)
Maximum piping length (total)		m	150(180)	150(180)	150(180)	150(180)	150(180)	150(180)
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.	6,70(14,40)/ 13,9896	6,70(14,40)/ 13,9896	6,70(14,40)/ 13,9896	6,70(14,40)/ 13,9896	6,70(14,40)/ 13,9896	6,70(14,40)/ 13,9896
Maximum allowable indoor / outdoor capacity ratio		%	50~130	50~130	50~130	50~130	50~130	50~130
Operating range	Cool Min ~ Max	°C	-10 ~ +46	-10 ~ +46	-10 ~ +46	-10 ~ +46	-10 ~ +46	-10 ~ +46
	Heat Min ~ Max	°C	-20 ~ +18	-20 ~ +18	-20 ~ +18	-20 ~ +18	-20 ~ +18	-20 ~ +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) × PE.F. 3) In case of 1,5kW indoor unit's connection, able to connect maximum 12 indoor units.



INTERNET CONTROL: Optional.



## MINI ECOi LE1 SERIES HIGH EFFICIENCY 8 AND 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
Outdoor Units			U-8LE1E8	U-10LE1E8
Power supply	Voltage	V	380/400/415	380/400/415
	Phase		Three Phase	Three Phase
	Frequency	Hz	50	50
Cooling capacity		kW	22,40	28,00
EER <sup>1)</sup>		W/W	3,80	3,11
<b>SEER<sup>2)</sup></b>		<b>W/W</b>	<b>6,27</b>	<b>6,37</b>
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
<b>SCOP<sup>2)</sup></b>		<b>W/W</b>	<b>4,24</b>	<b>4,31</b>
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>3)</sup>	15 <sup>3)</sup>
External static pressure		Pa	0~35	0~35
Air volume		m <sup>3</sup> /min	150	160
Sound pressure	Cool	dB(A)	60	63
	Cool(Silent 1/2/3/4)	dB(A)	57/55/53	60/58/56
	Heat	dB(A)	64	65
Sound power	Cool / Heat	dB	81/85	84/86
Dimension	H x W x D	mm	1500 x 980 x 370	1500 x 980 x 370
Net weight		kg	132	133
Piping connections	Liquid pipe	Inch (mm)	3/8 (9,52) <sup>4)</sup> 1/2 (12,70) <sup>5)</sup>	3/8 (9,52) <sup>4)</sup> 1/2 (12,70) <sup>5)</sup>
	Gas pipe	Inch (mm)	3/4 (19,05) <sup>4)</sup> 7/8 (22,22) <sup>5)</sup>	7/8 (22,22) <sup>4)</sup> 1 (25,40) <sup>5)</sup>
Maximum piping length (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.	6,30 (24,00) / 13,1544	6,60 (24,00) / 13,7808
Maximum allowable indoor / outdoor capacity ratio		%	50~130	50~130
Operating range	Cool Min ~ Max	°C	-10~+46	-10~+46
	Heat Min ~ Max	°C	-20~+18	-20~+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) 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. 4) Under 90m for ultimate indoor unit. 5) 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.



INTERNET CONTROL: Optional.

# INDOOR UNITS RANGE

	1,5kW	2,2kW	2,8kW	3,0kW	3,6kW	4,0kW	4,5kW
U2 Type 4 Way 90x90 Cassette		 S-22MU2E5A	 S-28MU2E5A		 S-36MU2E5A		 S-45MU2E5A
Y2 Type 4 Way 60x60 Cassette	 S-15MY2E5A	 S-22MY2E5A	 S-28MY2E5A		 S-36MY2E5A		 S-45MY2E5A
L1 Type 2 Way Cassette		 S-22ML1E5	 S-28ML1E5		 S-36ML1E5		 S-45ML1E5
D1 Type 1 Way Cassette			 S-28MD1E5		 S-36MD1E5		 S-45MD1E5
F2 Type Variable Static Pressure Hide Away	 S-15MF2E5A	 S-22MF2E5A	 S-28MF2E5A		 S-36MF2E5A		 S-45MF2E5A
M1 Type Slim Variable Static Pressure Hide Away	 S-15MM1E5A	 S-22MM1E5A	 S-28MM1E5A		 S-36MM1E5A		 S-45MM1E5A
E2 Type High Static Pressure Hide Away							
Heat Recovery with DX Coil				 PAW-500ZDX3N		 PAW-800ZDX3N	 PAW-01KZDX3N
T2 Type Ceiling					 S-36MT2E5A		 S-45MT2E5A
K2 Type Wall Mounted	 S-15MK2E5A	 S-22MK2E5A	 S-28MK2E5A		 S-36MK2E5A		 S-45MK2E5A
P1 Type Floor Standing		 S-22MP1E5	 S-28MP1E5		 S-36MP1E5		 S-45MP1E5
R1 Type Concealed Floor Standing		 S-22MR1E5	 S-28MR1E5		 S-36MR1E5		 S-45MR1E5
	<b>16,0kW</b>	<b>28,0kW</b>	<b>56,0kW</b>	<b>84,0kW</b>	<b>112,0kW</b>	<b>140,0kW</b>	<b>168,0kW</b>
AHU Connection Kit 16, 28 and 56kW	 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
Energy Recovery Ventilation	 FY-250ZDY8R	 FY-350ZDY8R	 FY-500ZDY8R	 FY-800ZDY8R	 FY-01KZDY8R		

**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-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



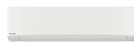
S-73MT2E5A



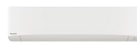
S-106MT2E5A



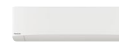
S-140MT2E5A



S-56MK2E5A



S-73MK2E5A



S-106MK2E5A



S-56MP1E5



S-71MP1E5



S-56MR1E5



S-71MR1E5

**11,4kW**

**25,0kW**

**31,5kW**

**37,5kW**

Air Curtain Jet-Flow  
with DX Coil



PAW-10EAIRC-MJ



PAW-15EAIRC-MJ



PAW-20EAIRC-MJ



PAW-25EAIRC-MJ

Air Curtain Standard  
with DX Coil



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.

