

# Panasonic



## PANASONIC CONDENSING UNITS WITH NATURAL REFRIGERANT

The new environmentally friendly  
CO<sub>2</sub> condensing units for commercial  
refrigeration.



heating & cooling solutions



## Choose the green solution by Panasonic

ENVIRONMENTALLY  
FRIENDLY  
**CO<sub>2</sub>**  
CONDENSING UNITS



## Why CO<sub>2</sub>? Natural refrigerant

EU F-Gas regulation is a key priority for European countries. It ensures compliance with the Kigali Amendment supporting international climate commitments on greenhouse gases and leading the global transition to climate-friendly HFC-free technologies. Carbon dioxide (R744) is regaining its place in the refrigeration world. Driven by environmental concerns, legislation now requires increased adoption of 'alternative' refrigerants, such as CO<sub>2</sub>.

CO<sub>2</sub> is an environmentally-friendly solution, with zero ODP and "GWP" (Global Warming Potential)=1 means natural substance in the atmosphere.

In Europe a step-by-step HFC reduction has been in place since the F-Gas regulation was introduced in 2015.

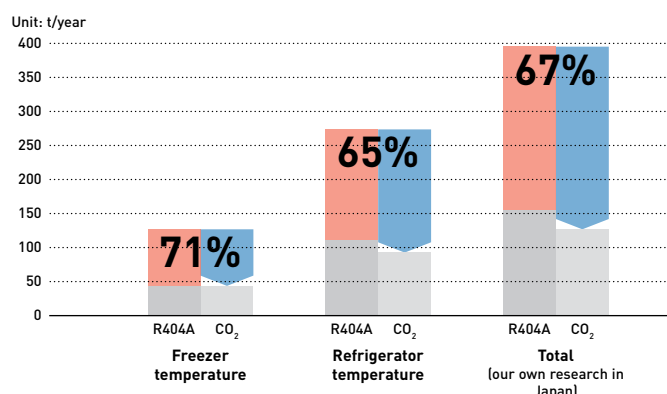
Countries all over the world have actively been preparing to enact the necessary domestic legislation to implement the agreement to reduce the use of HFCs.

Panasonic is now able to provide a solution with CO<sub>2</sub> refrigeration systems to prevent global warming and to support environment-friendly retail operations. The following table shows how well R744 (CO<sub>2</sub>) performs regarding environmental impact and safety.

**ODP (Ozone Depletion Potential) = 0 - GWP (Global Warming Potential) = 1.**

	Next generation refrigerant			Current refrigerant	
	CO <sub>2</sub>	Ammonia	Isobutane	R410A	R404A
ODP	0	0	0	0	0
GWP	1	0	4	2090	3920
Flammability	Non flammable	Light flammable	Flammable	Non flammable	Non flammable
Toxicity	No	Yes	No	No	No

## Comparison of CO<sub>2</sub> emissions



**ENERGY SAVING**  
25,4% Freezer  
16,2% Refrigeration

**CO<sub>2</sub> EMISSION**  
67% Reduction

Direct influence <sup>1)</sup> Indirect influence <sup>2)</sup>

1) Direct influence presents the effect of refrigerant leakage comparing R744 (CO<sub>2</sub>) with R404A.  
2) Indirect influence presents CO<sub>2</sub> emissions linked to power consumption of CO<sub>2</sub> unit and conventional units.

By Panasonic research in Japan. Comparing 6 shops average for R404A inverter multi condensing unit.

## Energy saving



### Natural CO<sub>2</sub> / R744.

R744 refrigerant provides higher energy saving and lower CO<sub>2</sub> emission compared to R404A. Zero ODP and GWP=1 means natural substance.



### Inverter+.

Inverter Plus system classification highlights the highest performing Panasonic systems.



### High efficiency compressor.

Powerful 2-stage CO<sub>2</sub> rotary compressor by Panasonic. It delivers high performance all year around.

## High performance and comfortability



**SUPER QUIET**

**Super quiet.**  
Systems operate extremely quiet. Minimum 35,5dB(A) @10m with 200VF5 model.



**AMBIENT TEMPERATURE**

**Operation range up to 43°C.**  
The system operates up to 43°C, allowing for installation in various locations.



**ANTI CORROSION COATING**

**Anti corrosion coating.**  
Selectable fin type with or without an anti corrosion coating. The anti corrosion coating prevents salt damage for a longer lifespan.



**HEAT RECOVERY PORT**

**Heat recovery port.**  
The heat recovery port is available to cut running costs by utilizing exhausted heat generated by refrigeration to the energy source for heating.



**AUTOMATIC FAN**

**Automatic fan.**  
Microprocessor control automatically adjusts the outdoor fan speed in CO<sub>2</sub> systems for delete efficient operation.



**2 YEARS COMPRESSOR WARRANTY**

**2 Years compressor warranty.**  
We guarantee the outdoor unit compressors in the entire range for two years.



**BMS CONNECTIVITY**

**BMS connectivity.**  
The system can be supervised with major monitoring system.

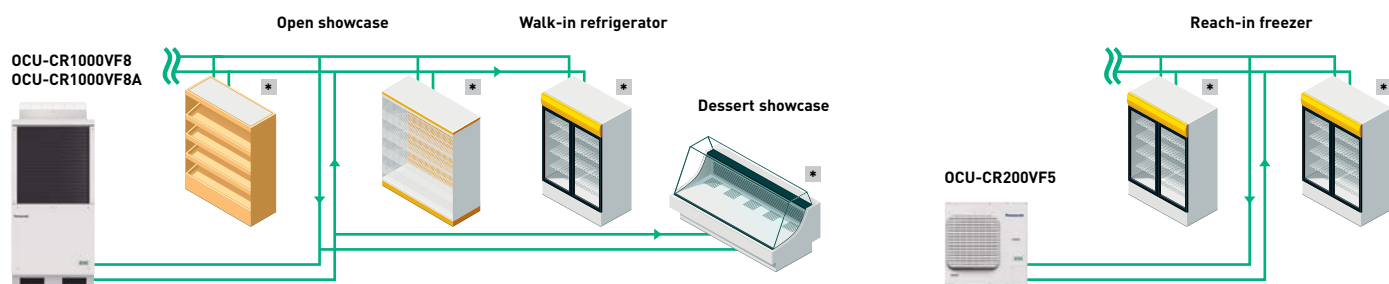
## Natural solution with high energy saving





## Showcases

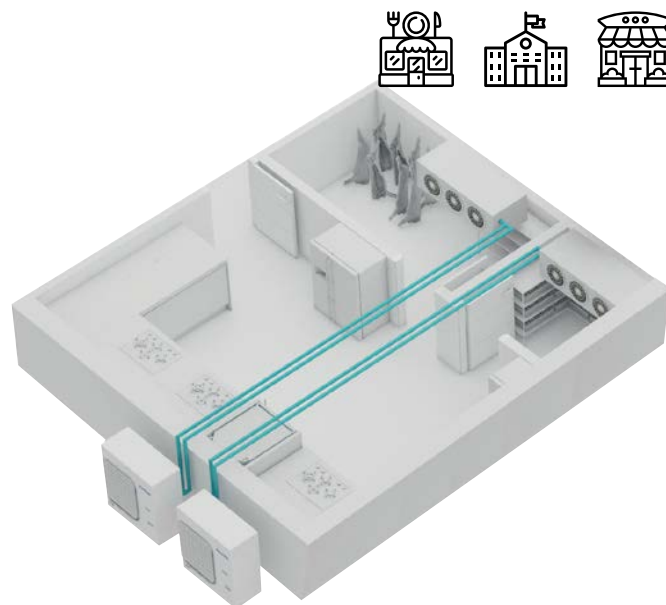
Convenience stores, supermarkets, service stations.



\* Controllers: PAW-CO2-PANEL or local supply.

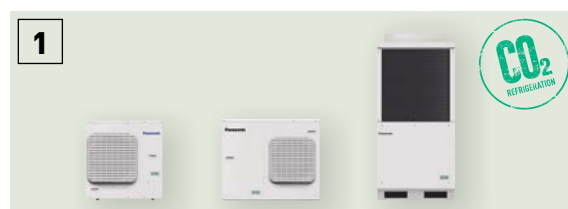
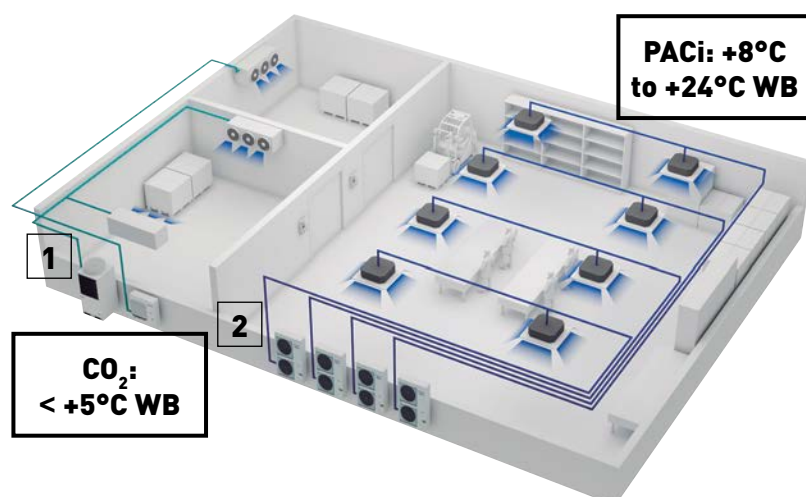
## Cold room application to keep food fresh

Restaurants, schools, fast food chains.



## Cold room application integrated with PACi systems

Panasonic offers various solutions for cold rooms by combining a wide range of products. Integrated with PACi system, it allows for flexible design and installation.



CO<sub>2</sub> Condensing units for refrigerated room.



PACi systems for cooling rooms between 8°C WB and 24°C.

## CO<sub>2</sub> transcritical condensing units CR Series



A new addition to the CR Series, the 7,5kW MT Type offers a wide range of refrigeration systems, meeting the specific needs of small retail stores.

## 1 Superior efficiency with reliable quality

- Panasonic has combined the 2-stage compressor with the split cycle for increased efficiency.
- High seasonal performance. SEPR: Maximum 3,83 in cooling, 1,92 in freezing<sup>1)</sup>
- High COP at high ambient temperature

1) 200VF5.

## 2 Flexible installation

- Set-points at medium or low temperature available depending on applications
- Compact unit
- Silent operation
- Long piping length: Maximum 100m<sup>2)</sup>
- High external static pressure<sup>2)</sup>
- Transfer pressure control for stable expansion valve control in showcases<sup>2)</sup>

2) 1000VF8/8A.

## 3 Heat recovery port as renewable energy

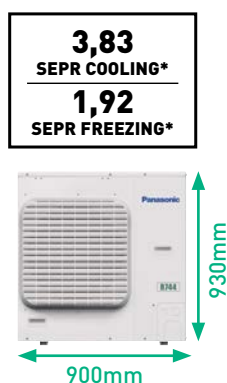
Heat recovery provides the opportunity to reduce running costs by utilizing exhausted heat from the refrigeration system and transferring it to the energy source for heating water.

### Superior cooling capacity at each evaporating temperature

CO<sub>2</sub> transcritical condensing units have a high cooling capacity at each set point. The CO<sub>2</sub> 2-stage compressor developed by Panasonic is designed to compress CO<sub>2</sub> refrigerant twice; it reduces the load in operation by half (compared to 1-stage refrigerant compression) and delivers increased durability and reliability.

Units can be programmed to run at low and medium temperatures at initial set-up. These settings can then be modified by turning a simple and user friendly rotary switch to further enhance energy savings.

MT/LT TYPE  
200VF5 - 4kW / 2kW



MT TYPE  
400VF8 - 7,5kW



MT TYPE  
1000VF8 - 15kW

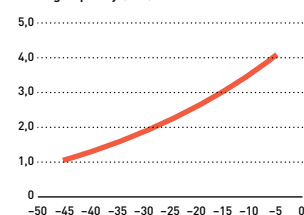


MT/LT TYPE  
1000VF8A - 16kW / 8kW



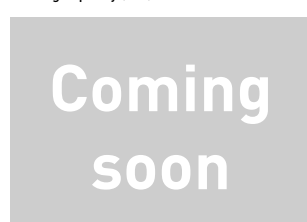
\* SEPR values has been tested at 3-part laboratory.

OCU-CR200VF5(SL)  
Cooling capacity (kW)

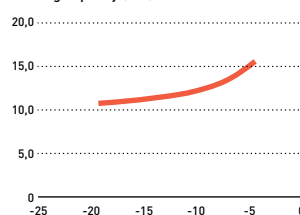


Ambient temperature: 32°C, 230V, compressor: operation frequency: 65 S<sup>-1</sup>, refrigerant: R744, suction gas temperature: 18°C.

OCU-CR400VF8(SL)  
Cooling capacity (kW)

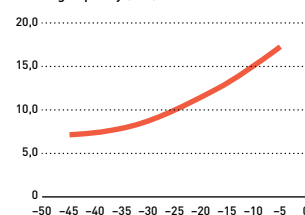


OCU-CR1000VF8(SL)  
Cooling capacity (kW)



Ambient temperature: 32°C, 400V, compressor: operation frequency: 60 S<sup>-1</sup>, refrigerant: R744, suction gas temperature: 18°C.

OCU-CR1000VF8A(SL)  
Cooling capacity (kW)



Ambient temperature: 32°C, 400V, compressor: operation frequency: 60 S<sup>-1</sup>, refrigerant: R744, suction gas temperature: 18°C.

CR Series	Low temperature	Medium temperature	Heat recovery port	ET (Evaporation Temperature) set points range	Room size example*
OCU-CR200VF5	✓	✓	—	-45 ~ -5°C	10m <sup>3</sup> / 40m <sup>3</sup>
OCU-CR400VF8	—	✓	✓	-20 ~ -5°C	20m <sup>3</sup>
OCU-CR1000VF8	—	✓	—	-20 ~ -5°C	200m <sup>3</sup>
OCU-CR1000VF8A	✓	✓	✓	-45 ~ -5°C	50m <sup>3</sup> / 200m <sup>3</sup>

\* Room size is reference. Please contact to authorized Panasonic dealer for calculation.

# Technology by Panasonic

## Reliable CO<sub>2</sub> technology by Panasonic

- Reliable quality: Made in Japan
- Over 10000 units sold and installed in 3700 retail operations such as convenience stores and supermarkets in Japan\*
- Excellent quality control established by skilled factory team
- Panasonic offers a 2 year warranty on compressors and components

\* As of the end of November 18.



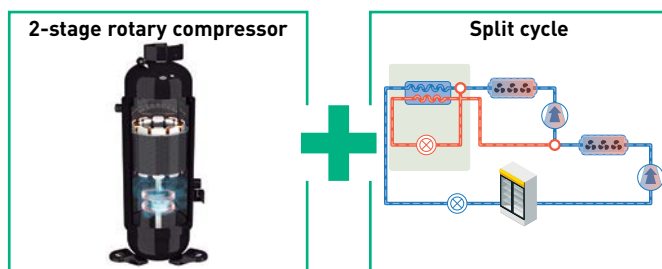
## Panasonic's combined technology of the 2-stage compressor with the split cycle



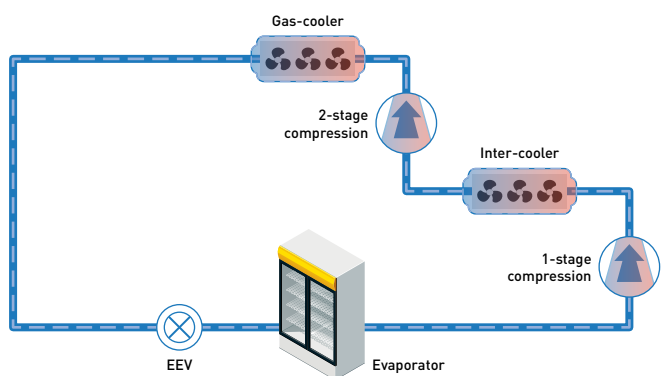
- Panasonic 2-stage rotary compressor delivering powerful performance for more than 20 years
- Split cycle\* enhances cooling effect.

\* Available for 200VF5 and 1000VF8A models.

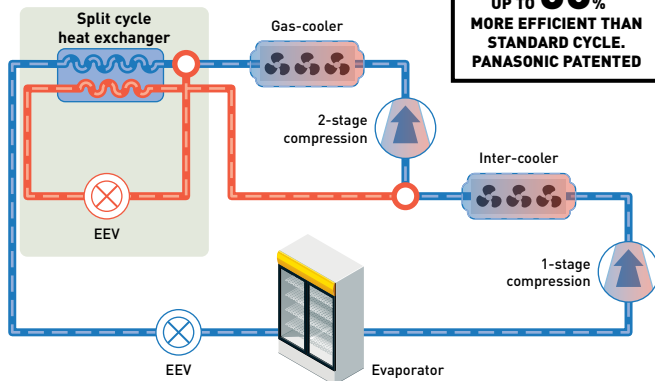
\*\* In the case that the standard cycle with 1-stage rotary compressor was compared.



### Standard cycle.



### Split cycle.



## Heat recovery function for heating

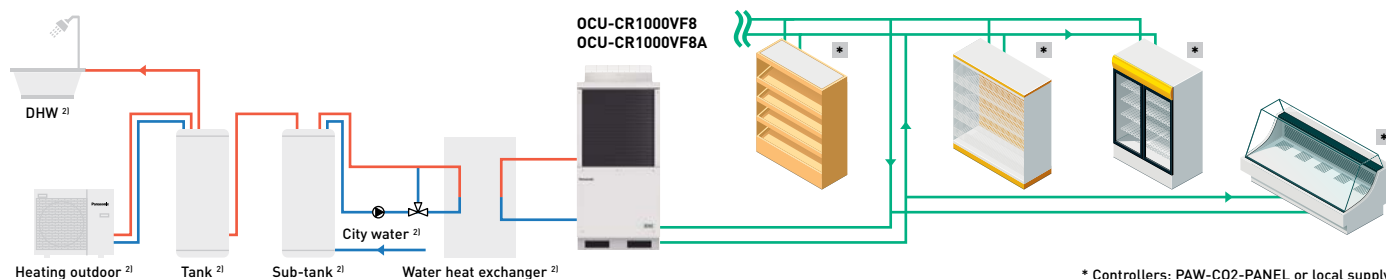
This function offers refrigeration combined with heating all in one system. The ground-breaking solution allows for increased opportunity to cut running costs by utilizing exhausted heat from refrigeration and transferring to the energy source for heating.

1) Under the condition: ambient temperature 32°C, evaporation temperature -10°C. 100% Partial load. 2) Local supply.

### What is heat recovery function?

New solution example.

Heat recovery system can produce both heating and refrigeration.



\* Controllers: PAW-CO2-PANEL or local supply.



Manufactured in Japan with excellent quality control by a skilled factory team. Reliability is our main target and therefore we offer a 2 year warranty on compressors and other components!

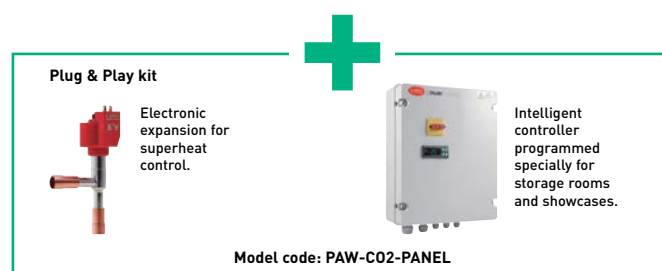
### Saving installation time with Plug & Play kit

To ensure a quick and easy installation, Panasonic has designed a one box solution that includes the condensing unit, a panel pre-programmed controller, electronic expansion and all required sensors in addition to providing simple instructions.



### Panasonic condensing units with natural refrigerant:

The environmentally friendly and reliable solution for convenience stores, supermarket, service stations and cold rooms.

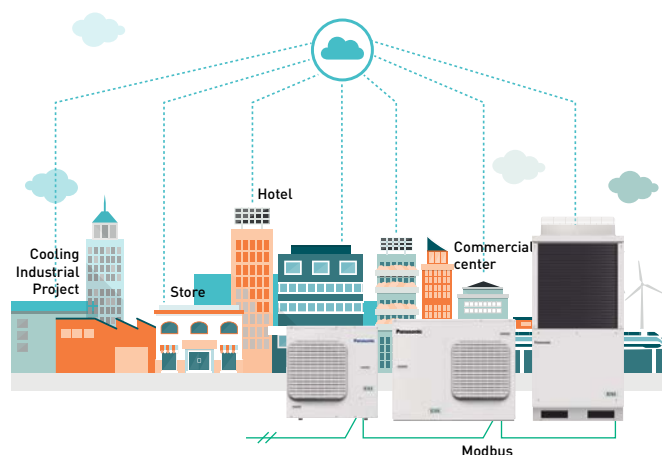


### Modbus compatibility with monitoring system

Panasonic CO<sub>2</sub> condensing unit CR Series can be supervised through major monitoring system such as CAREL, Eliwell, Danfoss and Emerson. Monitoring systems ensure the recording, monitoring and reporting of temperature conditions of entire CO<sub>2</sub> condensing units system.

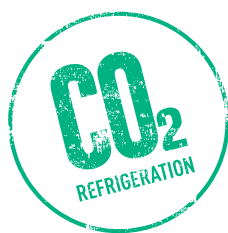
#### Monitoring system

		
Standard boss & boss-mini	AK-SM Series	TelevisGo



### Why Panasonic CO<sub>2</sub>?

- 100% Dedicated Condensing outdoor unit
- High seasonal Energy Savings
- Trusted quality with 2-stage rotary compressor
- Low noise levels
- Light weight and compact
- Low installation cost



# Range of CO<sub>2</sub> condensing units CR Series

Outdoor units	MT	4,0kW	7,5kW	15,0kW	16,0kW
	LT	2,0kW	3,5kW (Coming Soon)	7,5kW	8,0kW

4kW MT / LT  
(200VF5)



OCU-CR200VF5  
OCU-CR200VF5SL

**NEW!**  
7,5kW MT  
(400VF8)



OCU-CR400VF8  
OCU-CR400VF8SL

15kW MT  
(1000VF8)



OCU-CR1000VF8  
OCU-CR1000VF8SL

16kW MT / LT  
(1000VF8A)



OCU-CR1000VF8A  
OCU-CR1000VF8ASL

PAW-CO2-PANEL



NEW  
2021

Type (MT: medium temp. LT: low temp.)			MT (4kW) / LT (2kW)				NEW MT (7,5kW)		MT (15kW)		MT(16kW) / LT (8kW)			
NZ Standard - Anti Corrosion Models			OCU-CR200VF5SL				OCU-CR400VF8SL		OCU-CR1000VF8SL		OCU-CR1000VF8ASL			
Power supply	Voltage	V	220/230/240				380/400/415		380/400/415		380/400/415			
	Phase		Single Phase				Three Phase		Three Phase		Three Phase			
	Frequency	Hz	50				50		50		50			
Cooling capacity at ET -10°C AT 32°C		kW	3,70				6,90		14,00		15,10			
Cooling capacity at ET -35°C AT 32°C		kW	1,80				—		—		8,00			
Evaporator connection			Multiple <sup>1)</sup>				Multiple <sup>1)</sup>		Multiple		Multiple			
Evaporation temperature	Min ~ Max	°C	-45 ~ -5				-20 ~ -5		-20 ~ -5		-45 ~ -5			
Ambient temperature	Min ~ Max	°C	-15 ~ +43				-15 ~ +43		-15 ~ +43		-15 ~ +43			
Refrigerant			R744				R744		R744		R744			
Design pressure liquid line		Mpa	12				8		8		8			
Design pressure suction line		Mpa	8				8		8		8			
User system external alarm. Digital input. Non-voltage contact			Yes				Yes		Yes		Yes			
Liquid tube electromagnetic valve		Vac	220/230/240				380/400/415		220/230/240		220/230/240			
Showcase operation ON/OFF signal. Digital input. Non-voltage contact			Yes				Yes		Yes		Yes			
Modbus communication line (RS485)		Ports	2				2		2		2			
Compressor type			2- stage rotary				2- stage rotary		2- stage rotary		2- stage rotary			
Dimension	H x W x D	mm	930x900x437				948x1143x609		1941x890x890		1941x890x890			
Net weight		Kg	70				TBC		293		320			
Piping connections	Suction pipe	Inch (mm)	3/8(9,52)				1/2(12,70)		3/4(19,05)		3/4(19,05)			
	Liquid pipe	Inch (mm)	1/4(6,35)				3/8(9,52)		5/8(15,88)		5/8(15,88)			
Length of connection piping		m	25				TBC		100 <sup>2)</sup>		100 <sup>2)</sup>			
Standard performance	Ambient temperature	°C	32				32		32		32			
	Evaporating temperature	°C	-10	-35	-10	-35	-10	-10	-10	-10	-10	-35	-10	-35
	Cooling capacity	kW	3,70	1,80	3,70	1,80	6,90	6,90	14,00	14,00	15,10	8,00	15,10	8,00
	Power consumption	kW	1,79	1,65	1,79	1,65	TBC	TBC	8,20	8,20	8,20	7,57	8,20	7,57
	Nominal load ampere	A	7,94	7,26	7,94	7,26	TBC	TBC	12,60	12,60	12,60	11,60	12,60	11,60
	Sound pressure level	dB(A)	35,5 <sup>3)</sup>	35,5 <sup>3)</sup>	35,5 <sup>3)</sup>	35,5 <sup>3)</sup>	TBC	TBC	36,0 <sup>4)</sup>	36,0 <sup>4)</sup>	36,0 <sup>4)</sup>	36,0 <sup>4)</sup>	36,0 <sup>4)</sup>	36,0 <sup>4)</sup>
PED			I				II		II		II			
Air volume		m³/min	54				TBC		220		220			
External static pressure		Pa	17				TBC		58		58			
Heat recovery port			—				Yes		—		Yes			
Drier filter liquid line, diameter 6,35mm			Included				TBC		—		—			
Drier filter liquid line, diameter 15,88mm			—				TBC		Included		Included			
Necessary accessories														
Tube connector adaptor for vacuum and service		SPK-TU125	Yes (must be ordered)				TBC		Yes (must be ordered)		Yes (must be ordered)			
Suction filter, diameter 19,05mm (outer diameter welding)		S-008T	—				TBC		Yes (must be ordered)		Yes (included: delivered with the unit)			

**Accessories**

<b>PAW-C02-PANEL</b>	Room and superheat control including both panel + expansion valve
<b>SPK-TU125</b>	Tube connector adaptor for vacuum and service

**Accessories**

<b>S-008T</b>	Suction filter
<b>PZ-68S (Spare part) <sup>5)</sup></b>	Refrigeration oil

1) Ask salesperson if you make multiple connection. 2) PZ-68S (refrigeration oil) must be added if >50m. 3) ET-10°C, 65 S-1, 10m from product. 4) ET -10°C, 60 S-1, 10m from product. 5) Please consult with authorized Panasonic dealers.



**SPK-TU125**  
Tube connector  
adaptor for vacuum  
and service.



**S-008T**  
Suction filter,  
diameter 19,05mm  
(outer diameter  
welding).





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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.

