PANASONIC CONDENSING UNITS WITH NATURAL REFRIGERANT

Panasonic is now introducing the new environmentally friendly CO_2 condensing units for commercial refrigeration.
With Panasonic condensing units you can expect:
- Energy savings - Low noise levels - Light weight - Low refrigerant charge
- Low installation cost - Low costs on servicing

CHOOSE THE GREEN SOLUTION BY PANASONIC

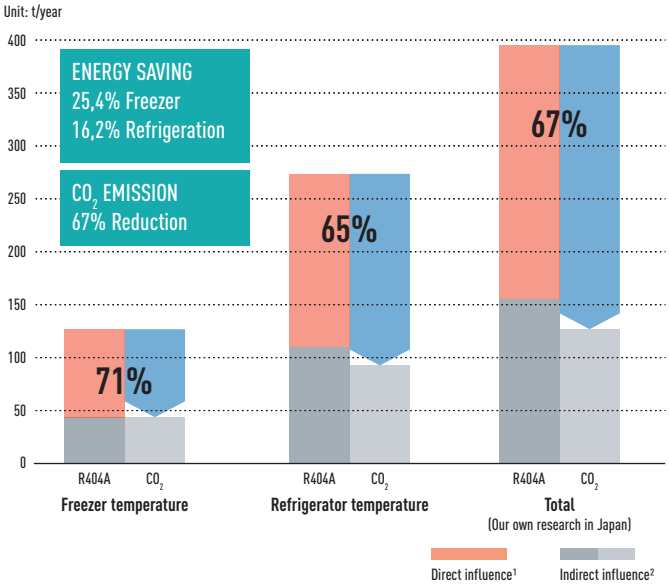
Why CO_2? : Natural refrigerant

Carbon dioxide (R–744) is regaining its place in the refrigeration world. Driven by environmental concerns, legislation is requiring increased adoption of 'alternative' refrigerants, of which CO_2 is one.
CO_2 is a very attractive refrigerant from an environmental perspective. 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.
In fact, not only in Europe but also other countries all over the world have actively been preparing to enact the necessary domestic legislation to implement the agreement for reducing the use of HFCs.
Panasonic is now able to provide a solution in Europe with CO_2 refrigeration systems to prevent global warming and to support environment-friendly retail operations.
The following table shows how well R744 (CO_2) performs regarding environmental impact and safety.

ODP (Oxone Depletion Potential) = 0 - CFC-free CO_2 refrigerant GWP: 1/4000.

	Next generation refrigerant			Current refrigerant	
	CO_2	Ammonia	Isobutane	R410	R404
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_2 emissions



1) Direct influence presents the effect of refrigerant leakage comparing R744 (CO_2) with R404A.
2) Indirect influence presents CO_2 emissions linked to power consumption of CO_2 unit and conventional units.
By Panasonic research in Japan. Comparing 6 shops average for R404 inverter multi condensing unit.

Reliability is our main target and therefore we offer compressor warranties of 5 years, and 2 year warranties on other components!

CO_2 transcritical condensing units VF Series

- Set-points at medium or low temperature available depending on applications (200VF5: ET -45 ~ -5°C, 1000VF8: ET -20 ~ -5°C)
- High COP at high ambient temperature thanks to Panasonic's 2-stage compression CO_2 rotary compressor
- Compact and extremely quiet. Noise level is minimal, only 35,5 dB(A) (200VF5 model)
- Transfer Pressure control for stable expansion valve control in showcases (1000VF8 model only)

*SEPR values has been tested at 3-part laboratory

3,83
SEPR COOLING*
1,92
SEPR FREEZING*

HIGH PRESSURE TYPE
BOTH MT&LT
4,0kW / 2HP

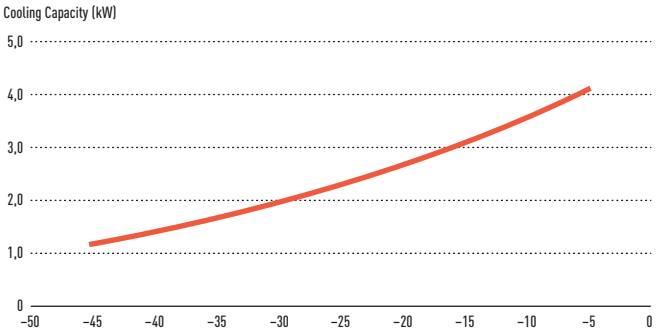
TRANSFER PRESSURE
CONTROL TYPE
MULTIPLE EVAPORATOR
15,0kW / 10HP

Superior cooling capacity at each evaporating temperature

CO_2 Transcritical Condensing units have a high cooling capacity at each set point.
CO_2 2-stage compression rotary compressor developed by Panasonic is designed to compress CO_2 refrigerant twice; it reduces load in operation by half compared with 1-stage refrigerant compression and delivers better durability and reliability.

4,0kW: OCU-CR200VF5(SL)

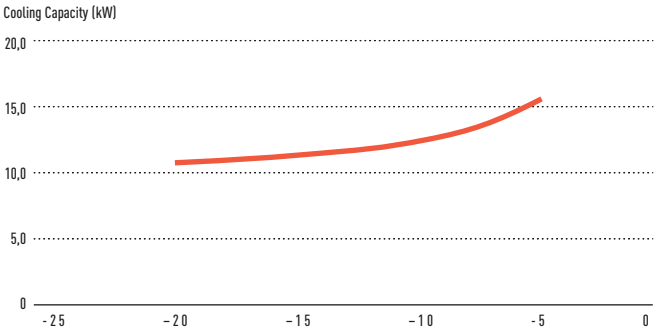
This compact unit provides flexibility to adapt to changing needs of refrigeration depending on the install setting.



Ambient temperature: 32°C, 200V, Compressor: operation frequency: 65 S^{-1} Refrigerant: R744, suction gas temperature: 18°C.

Units can be set to run at low and medium temperatures with four initial settings. These settings can then be modified by turning a simple and user friendly rotary switch to further enhance energy savings. (200 VF5 model only).

15,0 kW: OCU-CR1000VF8(SL)



Ambient temperature: 32°C, 400V, Compressor: Operation frequency: 60 S^{-1}, Refrigerant: R744, suction gas temperature:18°C.

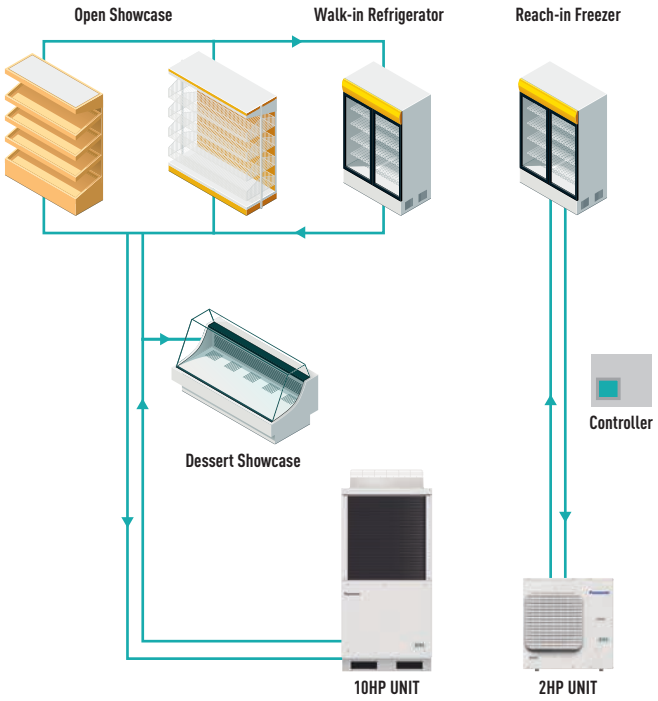
Panasonic condensing units with natural refrigerant: The environmentally friendly and reliable solution for convenience stores, supermarket, gas stations and cold rooms.

Cold chain applications

Panasonic's VF Series of CO_2 condensing units provide the ideal solution for supermarkets, convenience stores and gas stations.
Keeping food always fresh at right temperature in showcases or cold rooms is a very critical point. And one of the biggest challenges for those retailers has been the expensive effects of refrigeration breakdowns which can result in costly product wastage.
Panasonic's reliable CO_2 solution helps address the above issue by having a stable and reliable all year-round system to help maximise energy efficiency.

Showcases

Convenience stores, supermarket, gas stations.

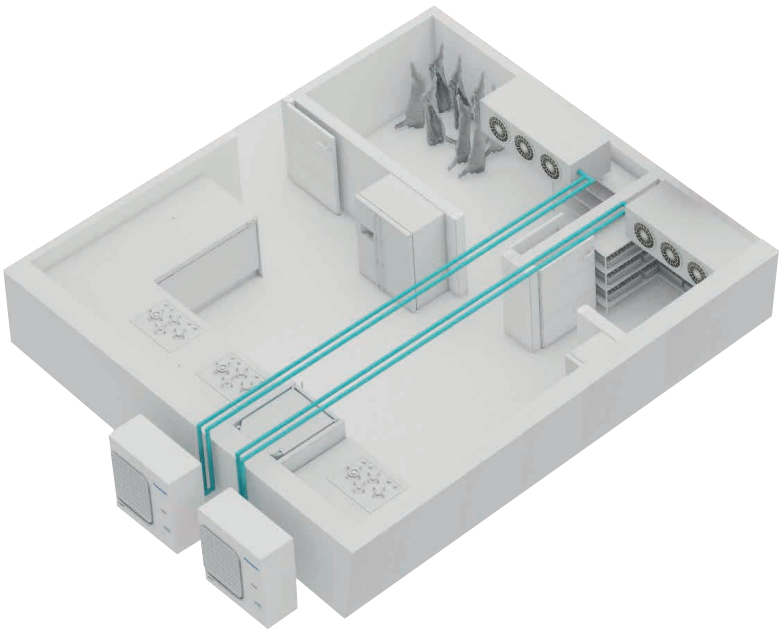


CO_2 Model	Showcase type example
4,0 kW / OCU-CR200VF5	Reach in Freezer
15,0 kW / OCU-CR1000VF8	Open Showcase (Total width 850cm) / Dessert Showcase / Walk-in Refrigerator (6 or 7 doors)

*Showcases are local supply

Cold room application to keep food fresh

Hotel, school, hospital.



CO_2 Model	Cold room	
	Temperature	Room size*
4,0kW / OCU-CR200VF5	-30°C	< 30m³
	-10°C	< 60m³
15,0kW / OCU-CR1000VF8	-30°C	NA
	-10°C	< 800m³

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

Saving installation time with Plug & Play kit

To ensure a quick and easy install of the product, Panasonic has designed a one box solution that includes the condensing unit, a panel pre-programmed controller, expansion valve and sensors in addition to providing easy to understand instructions.

Plug & Play kit

Valve for superheat control (included with PAW-CO2-PANEL).

PAW-CO2-PANEL
Intelligent controller programmed specially for storage rooms and show cases.

Reliable CO_2 technology by Panasonic

- Reliable Quality: Made in Japan
- Experience: 8.500 units sold and installed in 3.100 retail operations such a convenience stores and supermarkets in Japan*
- Excellent quality control established by skilled factory team
- Panasonic offers 5 year warranties on compressor and 2 years on components
- The 5 year compressor warranty matches the products long lifetime

*As of the end of March 18.

Model			OCU-CR200VF5		OCU-CR200VF5SL		OCU-CR1000VF8		OCU-CR1000VF8SL	
Description			4kW unit standard version		4kW CO_2 + anti corrosion coating		15kW unit standard version		15kW CO_2 + anti corrosion coating	
Cooling capacity at -35	Nominal	kW	1,80		1,80		N/A		N/A	
Cooling capacity at -10	Nominal	kW	3,70		3,70		14,0		14,0	
Evaporation temperature	Min ~ Max	°C	-45 ~ -5		-45 ~ -5		-20 ~ -5		-20 ~ -5	
Power supply	Voltage	V	230		230		400		400	
	Phase		Single Phase		Single Phase		Three Phase		Three Phase	
	Frequency	Hz	50		50		50		50	
Refrigerant			R744		R744		R744		R744	
Design pressure liquid line		Mpa	12		12		8/12		8/12	
Design pressure suction line		Mpa	8		8		8		8	
Compressor type			2- stage rotary		2- stage rotary		2- stage rotary		2- stage rotary	
Dimensions	H x W x D	mm	930 x 900 x 437		930 x 900 x 437		1938 x 890 x 890		1938 x 890 x 890	
Weight		Kg	70		70		293		293	
Ambient temperature	Min ~ Max	°C	-15 ~ +43		-15 ~ +43		-15 ~ +43		-15 ~ +43	
Connection piping	Suction pipe	Inch (mm)	3/8 (9,52)		3/8 (9,52)		3/4 (19,05)		3/4 (19,05)	
	Liquid pipe	Inch (mm)	1/4 (6,35)		1/4 (6,35)		5/8 (15,88)		5/8 (15,88)	
Length of connection piping		m	25		25		—		—	
Standard performance	Ambient temperature	°C	32		32		32		32	
	Evaporating temperature	°C	-10	-30	-10	-30	-10		-10	
	Cooling capacity	kW	3,70	1,80	3,70	1,80	14,00	N/A	14,00	N/A
	Power consumption	kW	1,79	1,65	1,79	1,65	8,20	N/A	8,20	N/A
	Nominal load ampere	A	7,94	7,26	7,94	7,26	12,60	N/A	12,60	N/A
	Sound pressure level	dB(A)	35,5[1]	35,5[1]	35,5[1]	35,5[1]	36,0[2]	N/A	36,0[2]	N/A

Accessories	
PAW-CO2-PANEL	Room and superheat control including both Panel + expansion valve
PAW-CO2-FILTER-1	Filter, liquid line

Accessories	
SPK-TU125	Filling pipe
S-008T[3]	Suction Filter
PAW-CO2-WPH-2HP	Snow protection

SPK-TU125: Connector Jig

1) ET -10°C, 65 S^{-1}, 10m from product. - 2) ET -10°C, 60 S^{-1}, 10m from product. 3) For 15kW model.