



Dirt filters

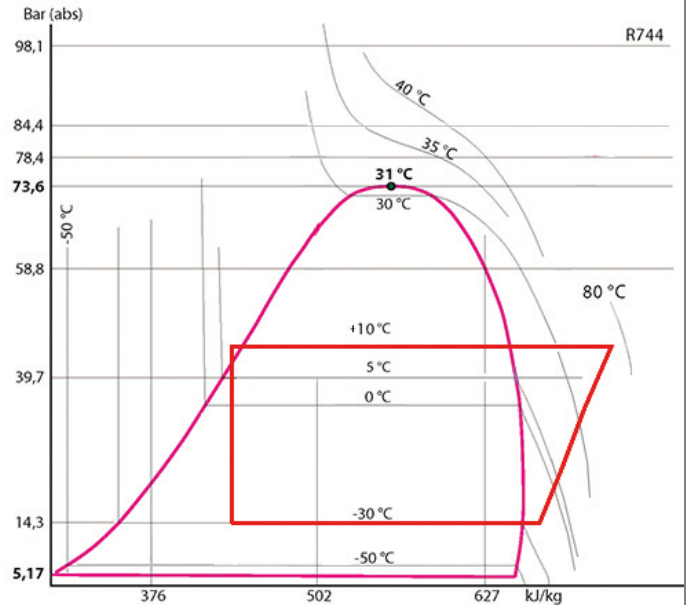
→ FCY-P6 / 64 bar (928 psig) (permanent use)

■ Applications

- Permanent refrigerant filtering, regulation and expansion element protection in refrigerating and air conditioning installations, running with high working pressures.

64 bar

CO₂ SUBCRITICAL



■ Functional features

- Products are compatible with HFC, CO₂, as well as with their associated oils and additives. Products are designed for use of non-hazardous refrigerants from group 2 of PED 2014/68/EU.
- Product classification in CE categories is performed using the PED 2014/68/EU table, corresponding to a volume-based selection
- External steel body hermetically sealed with paint to ensure a high resistance to corrosion
- Filtering at outlet preventing propagation within the circuit of particles bigger than 25 microns, with a very low pressure drop.
- One type of connection is on standard products: to be screwed type SAE



Possible customization on demand:

- Specific connections (O-RING, ORFS, ...)
- To be brazed for tubes in inches (S)
- To be brazed for tubes in millimeters (MMS)

■ CARLY advantages

- Maximal working pressure: up to 64 bar with CO₂ in subcritical compression systems.
- Compact products for ease of assembly in reduced footing.
- Internal retention system with minimum pressure drop, preventing the release of trapped contaminating agents.
- Very large filtering area that limits pressure drop.



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■ Warning

Before selecting or installing any component, please refer to the chapter 0 of CARLY technical catalogue - **WARNING**.

■ General assembly precautions

The installation of a component in a refrigeration system by a skilled professional, requires some precautions:

- Some are specific to each component, and in this case, they are specified in the **RECOMMENDATIONS SPECIFIC** part defined hereafter ;
- Other are general to all CARLY

components, they are presented in the chapter 115 of CARLY technical catalogue – **GENERAL ASSEMBLY PRECAUTIONS**.

■ Recommendations specific to the FCY-P6 dirt filters

- FCY-P6 dirt filters are to be mounted on the liquid line between the receiver and the expansion element.
- Never use these dirt filters on the oil line; in such a case, use HCYF-P6 oil filters (refer to chapter 45 of CARLY technical catalogue).
- The refrigerant flow direction is indicated by an "IN" mark in the inlet shell of the filter drier and by an arrow on the filter tag. It must be necessarily respected.
- We recommend the vertical mounting of the dewatering filter with a top-down fluid flow direction in order to favour its filling when in operation and a rapid flow of the fluid when the installation is shut down.
- Be careful to properly select the solenoid valves located downstream of the filters; their oversizing could cause liquid hammer phenomena hindering the filters' proper mechanical behaviour; these liquid hammer phenomena can originate from other sources, in long-piping installations; in case of doubt, it is preferable to use FILTRY-P9 dirt filters. (refer to chapter 11 of CARLY technical catalogue).
- Never install the filters in an area of the circuit that can be isolated.
- Never trap refrigerant in its liquid state (between a check valve and a solenoid valve, for instance).
- It is mandatory to change the dirt filters when the pressure drop measured in filter is too important. CARLY recommends this operation at least once a year as prevention.
- Make sure that the piping can support without deformation the weight of the dirt filter ; otherwise, provide for the attachment of the dirt filter with a clamp on a stable part of the installation.



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■ Special precautions for components used with CO₂ in subcritical and transcritical systems

- The maximal working pressure and the power variations of the installation must be taken into account as of its design, in order to select all the components consequently.
- The pressure of the circuit during the stop phases must also be taken into account, because it can be very high, due to the pressure equalization according to the ambient temperature; several solutions exist to limit and control this pressure when the installation is stopped.
 - Design of the installation allowing to resist to this pressure.
 - Implementation of a « buffer » volume of storage or expansion (receiver).
 - Installation of a secondary circuit with valve or solenoid valve, allowing the fluid transfer to the coldest point, or the less high in pressure of the installation.
 - Implementation of a small separate refrigeration unit, to maintain the liquid temperature at a pressure lower than the maximal working pressure ; it is so far the most effective technical solution, but with a major drawback, which is the power failure (safety unit to be considered, or backup power supply).
- The hot gas defrost, frequently used with CO₂ for low temperatures applications, generates also high pressures (to take in consideration)
- The implementation on the liquid line of a filter drier **DCY-P6** is highly recommended. Serious problems can occur in the presence of moisture, such as expansion valve blocking and formation of dry ice and even carbonic acid. To avoid this, it is imperative to limit the circuit openings in order to avoid air introduction, causing the condensation in the pipes, and to proceed to a high evacuation of the installation, before any commissioning or restarting.
- For an operation with CO₂ at low temperature, provide thermal insulation on the components which can be covered by frost.
- There is no incompatibility between CO₂ and the main metallic materials commonly used in refrigeration systems (steel, copper, brass...)
- On the other hand, there is a real compatibility issue between CO₂ and polymers. For example, swelling phenomena and internal explosion of the seal are possible. Carly **dirt filters FCY-P6** do not have polymer gaskets directly in contact with CO₂.



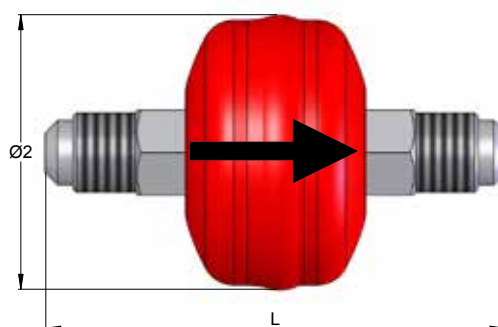
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■ Technical features

CARLY references	Connections ⁽¹⁾		Connections types ⁽¹⁾	Filtering surface cm ²	Dimensions mm	
	To screw SAE inch	To solder ODF inch			Ø2	L
FCY-P6 502	1/4"		1	20	55	86
FCY-P6 503	3/8"		1	20	55	92

⁽¹⁾ Chapter «Connection features and drawings» (refer to chapter 114 of CARLY technical catalogue).



CARLY references	Volume V L	Maximal working pressure	Working pressure ⁽¹⁾	Maximal working temperature	Minimal working temperature	Working temperature ⁽¹⁾	CE Category ⁽²⁾
		PS bar	PS BT bar	TS maxi °C	TS mini °C	TS BT °C	
FCY-P6 502	0,06	64	15	100	-40	-30	Art4§3
FCY-P6 503	0,06	64	15	100	-40	-30	Art4§3

⁽¹⁾ The working pressure is limited to the PS BT value when working temperature is lower than or equal to TS BT value.

⁽²⁾ Classification by volume, according to PED 2014/68/EU (refer to chapter 0 of CARLY technical catalogue).

■ Weights and packaging

CARLY references	Unit weight kg		Packaging number of pieces
	With packaging	Without packaging	
FCY-P6 502	0,28	0,25	1
FCY-P6 503	0,28	0,25	1