CTCY-EN - 21.13-4 / 10-2023

Discharge line mufflers

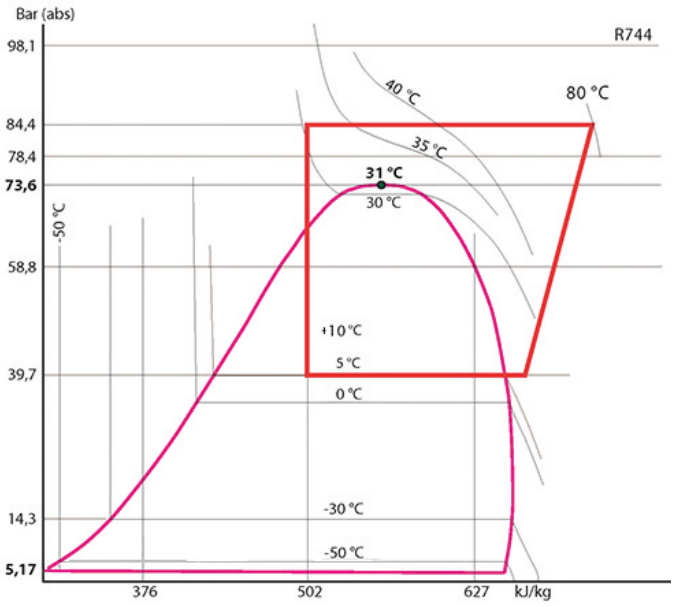
→ SCY-P14 / 140 bar (2030 psig)

■ Applications

140 bar

CO_2 TRANSCRITICAL

- Reduction of noise caused by gas pulses in the discharge lines of refrigerating and air conditioning installations, running with high working pressures, with CO_2 in trancritical compression systems.
- Those pulses generally come from reciprocating compressors or screw compressors. The mufflers have no effect on the mechanical vibrations transmitted to the pipes by the compressors.



■ Functional features

- Products are compatible with CO_2 as well as with its 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.
- Hermetically sealed outer steel enclosure with paint to ensure a high resistance to corrosion.
- Connections on standard products: to solder ODF.

Possible customization on demand :

- Stainless steel casings and connections (resistance to corrosion and at low temperature)

■ CARLY advantages

- Maximal working pressure: up to 140 bar with CO_2 in transcritical compression systems.
- Design allows coverage of a wide range of frequencies.
- Discharge line muffler mounting is possible in vertical and horizontal positions. There is no oil trap whichever the position. The refrigerant can flow in both directions.
- Excellent distribution of the refrigerant in its gaseous phase, with minimum pressure drop.

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■ Warning

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

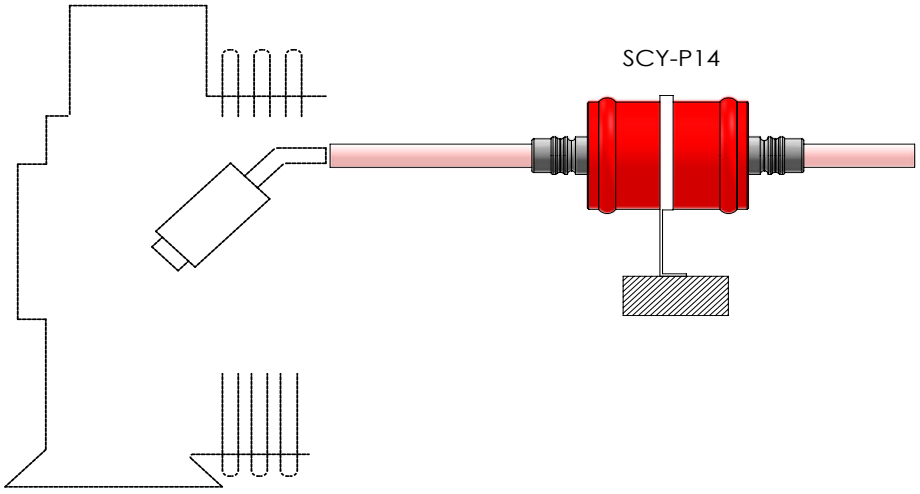
■ General assembly precautions

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 SCY-P14 mufflers

- The discharge line mufflers are to be mounted on the discharge gas line between the compressor and the condenser; the muffler's connections diameter must correspond to the discharges pipes diameter.
- The optimum muffler position will be determined according to your installation's features, by getting in touch with your distributor or with CARLY's technical services.
- Provide for an efficient clamping directly on the muffler (refer to drawing below).
- In case of vertical assembling, it is recommended not to place the muffler just over the compressor.
- Provide for efficient clamping directly on the muffler (refer to drawing below).



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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 CO_2 for low temperatures applications, generates also high pressures (to take in consideration)
- The implementation on the liquid line of a filter drier **DCY-P14, or a** filter drier shell **BCY-P14** equipped with drying cores **CCY 48 HP** or **PLATINIUM 48,** 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 CO_2 at low temperature, provide thermal insulation on the components which can be covered by frost.
- There is no incompatibility between CO_2 and the main metallic materials commonly used in refrigeration systems (steel, copper, brass...)
- On the other hand, there is a real compatibility issue between CO_2 and polymers. For example, swelling phenomena and internal explosion of the seal are possible. Carly mufflers SCY-P14 do not have polymer gaskets directly in contact with CO_2.

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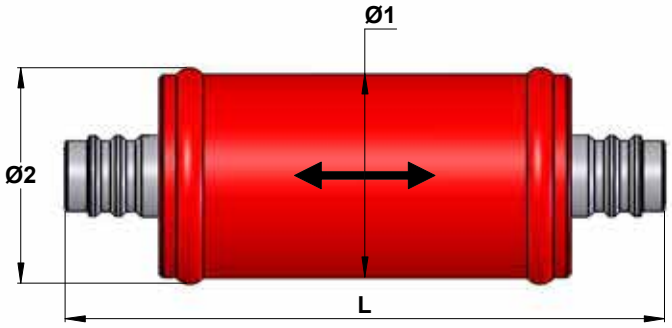
■ Technical features

CARLY references	Connections to solder ODF inch	CARLY references	Connections to solder ODF mm	Connections types[1]	Dimensions mm		
					Ø1	Ø2	L
SCY-P14 30 S/MMS	3/8		10	4	60	64	162
SCY-P14 40 S/MMS	1/2		12	4	60	64	178
SCY-P14 50 S/MMS	5/8		16	5	60	64	178
SCY-P14 60 S	3/4	SCY-P14 60 MMS	18	5	89	92	206
SCY-P14 70 S/MMS	7/8		22	5	89	92	206
SCY-P14 90 S	1 1/8	SCY-P14 90 MMS	28	6	114	118	314
SCY-P14 110 S/MMS	1 3/8		35	5	114	118	315
SCY-P14 130 S	1 5/8		-	6	141	146	485

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



CARLY references		Volume	Maximal working pressure	Working pressure [1]	Maximal working temperature	Minimal working temperature	Working temperature [1]	CE Category [2]
		V L	PS bar	PS BT bar	TS maxi °C	TS mini °C	TS BT °C	
SCY-P14 30 S/MMS		0,20	140	15	140	-40	-30	Art4§3
SCY-P14 40 S/MMS		0,20	140	15	140	-40	-30	Art4§3
SCY-P14 50 S/MMS		0,20	140	15	140	-40	-30	Art4§3
SCY-P14 60 S	SCY-P14 60 MMS	0,41	140	15	140	-40	-30	Art4§3
SCY-P14 70 S/MMS		0,41	140	15	140	-40	-30	Art4§3
SCY-P14 90 S	SCY-P14 90 MMS	1,30	140	15	140	-40	-30	Cat I
SCY-P14 110 S/MMS		1,30	140	15	140	-40	-30	Cat I
SCY-P14 130 S		3,70	140	15	140	-40	-30	Cat II

[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).*

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■ Weights and packaging

CARLY references	Unit weight kg		Packaging number of pieces
	With packaging	Without packaging	
SCY-P14 30 S/MMS	1,33	1,20	1
SCY-P14 40 S/MMS	1,33	1,20	1
SCY-P14 50 S/MMS	1,33	1,20	1
SCY-P14 60 S & MMS	3,13	3,00	1
SCY-P14 70 S/MMS	3,13	3,00	1
SCY-P14 90 S & MMS	7,13	7,00	1
SCY-P14 110 S/MMS	7,77	7,64	1
SCY-P14 130 S	16,47	16,13	1