



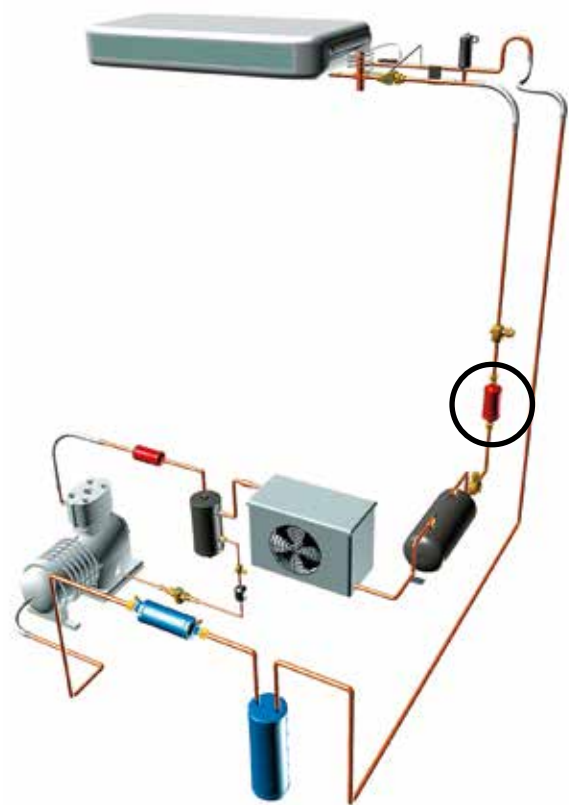
Cleaning bi-directional flow and anti-acid filter driers (liquid line)

CTCY-EN – 3.1-6 / 07-2018

→ DDNCY (Temporary use)

■ Applications

- Cleaning and decontamination of refrigerant circuits in refrigerating and air conditioning installations with change over in flow direction, including heat pumps.
- Temporary uses:
 - new installations during start-up period for a very efficient protection of compressors against all types of dirt.
 - existing installations for an efficient cleaning of the refrigerant after compressor burnout.



■ Functional features

- Products are compatible with CFCs, HCFCs, HFCs, 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. To use CARLY components with fluids of the hydrocarbon group 1 – Propane R290, Butane R600, Isobutane R600a, Propylene R1270 – with HFOs and transcritical CO₂ and for a RANKINE organic cycle application, contact CARLY technical department.
- Product classification in CE categories is performed using the PED 2014/68/EU table, corresponding to a volume-based selection.
- Refrigerant flow is possible in both directions, and filtering is ensured whichever the direction.
- 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.
- Two Schrader valves for checking pressure drop, which facilitates the monitoring of filter saturation (except for model DDNCY 083).
- Screw connections type SAE made of nickel-plated steel.
- No desorption, even at high temperatures.
- Easy installation, in the liquid line between the condensing unit and terminal units (evaporators or air conditioning indoor units).

■ CARLY advantages

- Maximal working pressure: 46 bar.
- Bi-flow filter drier with very low pressure loss thanks to a CARLY patented internal check valve system ensuring an optimum circuiting of the flows.
- High effectiveness in the neutralisation of acids and fixing of waxes and sludge at all temperatures thanks to a rigorous selection and a wise mixture of chemical agents present in the cleaning filter driers : molecular sieves, activated alumina, activated carbon.
- Drying and depollution of the coolant fluid ensured for the subcritical CO₂ applications at low temperatures.
- Chemical agents in the form of free grain, for increased performance and elimination of the risk of polluting the circuit with solid particles, consecutive to drying core break-up.
- No risk of discharge of the pollutants trapped inside the filter driers, during change over in flow directions.
- Very economical cleaning process with no loss of time, because the installation is still running during the operation.
- Environmental protection and savings of refrigerant, because using these cleaning filters allows re-use of the refrigerant after pollution control.



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■ Warning

Before selecting or installing any component, please refer to the chapter 0 - **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 – **GENERAL ASSEMBLY PRECAUTIONS**.

- The recommendations relating to the CARLY components for the subcritical CO₂ applications are also developed in chapter 115 – **GENERAL ASSEMBLY PRECAUTIONS**.

■ Recommendations specific to the DDNCY cleaning bi-flow filter driers

- Cleaning filter driers are to be mounted on the liquid line, upstream from the expansion valve.
- We recommend the vertical mounting of the bi-flow filter drier in order to favour its filling when in operation.
- Be careful to properly select the solenoid valves located downstream of the filter driers; their oversizing could cause liquid hammer phenomena hindering the filter driers mechanical behaviour; protection of the regulation elements upstream of the evaporator should be performed with FILTRY dirt filters (refer to chapter 11); these liquid hammer phenomena can come from other sources, in long-piping installations.
- Never install filter driers 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).
- These filters are products intended for temporary use only; they should not be left permanently on the circuit.
- Closely monitor the pressure drop thanks to the Schraeder valves, (except model DDNCY 083).
- After compressor burnout:
 - refer to the instructions given by the manufacturer, for circuit cleaning operations and compressor replacement
 - apply the CARLY decontamination procedure described hereafter
- Keep an eye on the refrigerants condition and its level of humidity, with the liquid sight glasses VCYL or VCYLS (see chapters 9 and 10).
- Make sure that the piping can support without deformation the weight of the filter drier ; otherwise, provide for the attachment of the cleaning filter drier with a clamp on a stable part of the installation.
- Example of a selection of a DDNCY cleaning bi-flow filter drier: see example of a selection of a DCY dewatering filter in chapter 1.



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■ Decontamination procedure for a refrigerating circuit, after a compressor burnout, using cleaning bi-flow filter driers DDNCY

- 1 • Evaluate the importance of the circuit contamination. If the pollution present in the refrigerating circuit is not too high, it is economical to recover the refrigerant for re-use after treatment.
- 2 • Install replacement compressor and perform usual checks.
- 3 • Install special **FNCY** «burnout» filter drier, on the suction line between the 4 ways valves and the compressor, if it is possible (refer to the decontamination procedure of chapter 15)
- 4 • Install the cleaning bi-flow filter drier **DDNCY**, selected according to the installation capacity, on the liquid line, upstream from the expansion valve.
- 5 • Check circuit leak-tightness according to the art.
- 6 • Create vacuum in the installation.
- 7 • Fill the circuit.
- 8 • Power up the installation and monitor the **DDNCY** and **FNCY** pressure drop evolution using their checking valves (except model 083)
- 9 • Replace filter if pressure drop becomes too important (> 0.5 bar for **DDNCY** and **FNCY**); increase of pressure drop indicates that the **FNCY** is performing its decontamination role.
- 10 • Monitor system operation during the first four hours (this monitoring must be increased when the compressor is hermetic or hermetic accessible). Replace **DDNCY** and **FNCY** as often as necessary until pressure drop in **DDNCY** and **FNCY** remains acceptable.
- 11 • After 48 hours of operation in decontamination phase, proceed to an oil sampling; visually inspect the sampling condition and check the oil acidity level using **TESTOIL** oil acidity tests: **TESTOIL-POE** for polyol-ester oils or **TESTOIL-MAS** for synthetic alkylbenzene and mineral oils (refer to chapter 91). If this sampling shows a non-satisfactory quality, drain oil, replace oil filter **HCYF** or **HYDROIL**, **DDNCY** and **FNCY**.
Repeat the operation starting from phase 8.
If this sampling shows a satisfactory quality, replace the **DDNCY** by a bi-flow filter drier **DDCY** and replace **FNCY** by **FACY** suction cleaning filter bearing the same reference and perfectly interchangeable (refer to chapters 2 and 13)
- 12 • After about 15 days, proceed to a new oil analysis by repeating stage 11.

 This process ensures complete circuit decontamination and pollution control, thus protecting the new compressor and all the other components of a refrigerating circuit after compressor burnout.



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■ Technical features

CARLY references	Flare connections SAE inch	Refrigerating capacity kW ⁽¹⁾					Dehydratable refrigerant capacity kg of refrigerant ⁽²⁾						
		R22	R134a	R404A R507 R407F	R407C R410A	R744 ⁽³⁾	R22 R407C R407F		R134a R410A		R404A R507		R744
							24 °C	52 °C	24 °C	52 °C	24 °C	52 °C	
DDNCY 083	3/8	24,0	23	17	24,5	26,9	8	7,5	9	8	8	7	4,9
DDNCY 164	1/2	41,5	40	32	43,0	46,5	22	18,0	28	20	21	16	13,4
DDNCY 305	5/8	70,0	68	51	72,0	78,4	40	34,0	44	38	39	31	24,3

⁽¹⁾ Refrigerating capacities according to Standard ARI 710-86 for $T_o = -15\text{ °C}$, $T_k = 30\text{ °C}$ and $\Delta p = 0.07\text{ bar}$.
If different conditions, refer to correction factors in chapter 112.

⁽²⁾ Dehydratable refrigerant capacity according to Standard ARI 710-86.

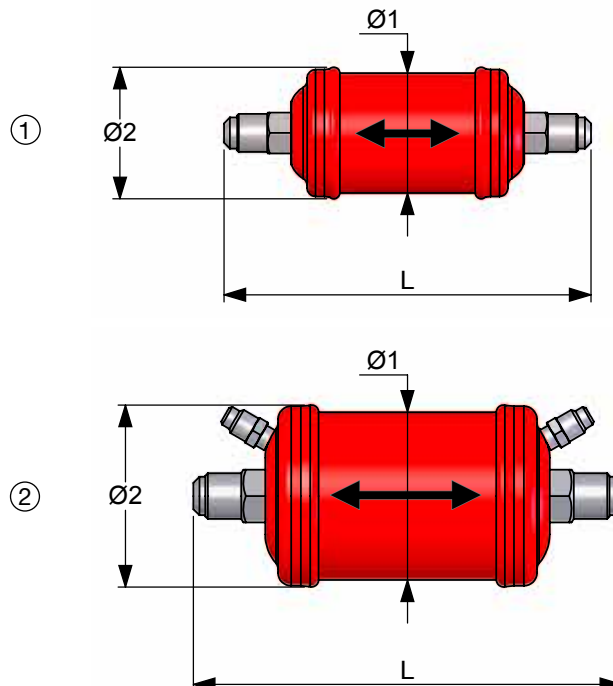
⁽³⁾ Refrigerating capacities Q_n for $T_k = -10\text{ °C}$ and $T_o = -40\text{ °C}$.
If different conditions, refer to correction factors in chapter 112.

Nota: the diameter of connections must not be inferior to the diameter of the main pipe.

■ Technical features

CARLY references	Connection types ⁽¹⁾	Drawing Nb	Filtering surface cm ²	Volume of desiccation products cm ³	Dimensions		
					Ø1 mm	Ø2 mm	L mm
DDNCY 083	1	1	64	118	50	55	157
DDNCY 164	1	2	160	298	70	76	179
DDNCY 305	1	2	160	558	70	76	259

⁽¹⁾ Chapter «Connection features and drawings» (refer to chapter 114).





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■ Technical features

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	
DDNCY 083	0,17	46	15	100	-40	-30	Art4§3
DDNCY 164	0,41	46	15	100	-40	-30	Art4§3
DDNCY 305	0,66	46	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).

■ Weights and packaging

CARLY references	Unit weight kg		Packaging number of pieces
	With packaging	Without packaging	
DDNCY 083	0,43	0,40	24
DDNCY 164	0,99	0,95	16
DDNCY 305	1,57	1,50	12