



Filter drier receiver units

→ RCY

■ Applications

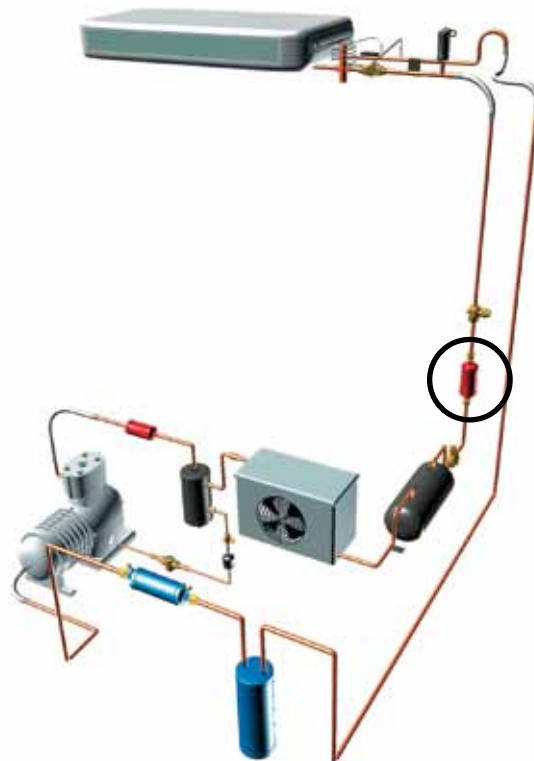
- Refrigerant filtering and drying, and acid neutralization for refrigerating and air conditioning installation liquid lines.
- The filter driers receivers provide a permanent reserve of dehydrated and filtered refrigerant, for a better supply of the expansion valve, whatever the operating conditions.
- The filter drier receivers are particularly suited to low capacity installations that operate with a thermostatic pressure relief valve and that are equipped with an air-cooled condenser or a plate condenser.
- Filter drier receivers fit perfectly within the heat pump systems.



Standard product



Customized product



■ Functional features

- Products are compatible with CFCs, HCFCs, HFCs, CO₂s, as well as with their associated oils and additives. Products are designed for use of non-hazardous refrigerants from group 2 of PED 97/23/EC. 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 97/23/EC table, corresponding to a volume-based selection.
- Hermetically sealed outer steel enclosure 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.
- No desorption, even at high temperatures.



Possible customization on request:

- Drying capacity
- Receiver volume
- Specific unions (O-RING, ORFS, etc.)
- Adding of an indicator with or without hygroscopic paper on the receiver part
- Aluminium casings and connections (weight optimisation)
- Stainless steel casings and connections (resistance to corrosion and at low temperatures)
- Connections to braze, 100 % copper
- Model « Bi-flow ».

■ CARLY advantages

- Maximal working pressure: 46 bar.
- Compared to an assembly with two separated components (filter drier + receiver)
 - Space gain on the installation
 - Optimisation of assembly time
 - 2 connections to be screwed or brased instead of 4 ; therefore, reducing the risk of leakage
- Great drying and acid neutralization capacity at all temperatures, thanks to a rigorous selection and a judicious mix of the chemical agents present in the filter driers (activated alumina in order to neutralise the acids and molecular sieves to adsorb moisture); the volume of free-grains drying agents used in a CARLY filter drier is greater than that present in an equivalent model with a solid core.
- Initial drying capacity guaranteed by a 200 °C oven drying and airtight sealing.
- Drying ensured for the subcritical CO₂ applications at low temperatures.
- A dispenser located at the intake ensures optimal distribution and permanent treatment of the whole refrigerant, inside the filter drier receiver.
- The copper-plated steel connections facilitate the brazing and allow using brazing alloys with a low silver percentage.
- GOST certified products.



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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 RCY filter-drier receivers

- Filter drier receivers are to be mounted on the liquid line between the condenser and the expansion element.
- 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 drier tag. It must be necessarily respected.
- Mounting of filter drier receivers should always be performed vertically, refrigerant inlet up, for proper use of the receiver part.
- We recommend the use of a brasing at 10 % silver minimum for the brasing of the copper coated silver unions.
- Be careful to properly select the solenoid valves located downstream of the filter driers; their over-sizing could cause liquid hammer phenomena hindering the filter driers' mechanical behaviour; protection of regulation elements located upstream of the evaporator should be performed with FILTRY dirt filters (refer to chapter 11); these liquid hammer phenomena can originate from other sources, in longpiping installations.
- Never install the filter driers in an area of the circuit that can be isolated.
- Never trap the refrigerant in its liquid state (between a check valve and a solenoid valve, for instance).
- The filter driers must be changed :
 - after each intervention on the installation requiring the opening of the circuit
 - when the liquid indicator (VCYL or VCYLS) indicates an abnormal humidity content
 - when the pressure loss measured in the filter drier is too high
 - at least once a year as a measure of precaution
- A filter drier saturated in humidity no longer retains the water molecules which circulate then in the circuit ; these molecules in contact with other materials and with the POE oils which are very hydrophilic are liable to form acids which can be fatal for the installation ; therefore, it is very important to use filter driers containing activated alumina in order to neutralise as rapidly as possible the acids present in the circuit and not dewatering filters with only 100 % of a molecular screen.
- Filter drier efficiency and refrigerant moisture content should be checked using VCYL or VCYLS liquid sight glasses (refer to chapters 9 or 10).
- Make sure that the piping can support without deformation the weight of the filter drier ; otherwise, provide for the attachment of the filter drier with a clamp on a stable part of the installation.
- Example of a selection of a RCY for the drying part of the product : see example of a selection of a DCY filter drier in chapter 1. For the liquid tank part of the product, use the usual methods for determining the coolant fluid storage volume by taking into account all the parameters related to the user's application.



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■ Selection table

CARLY references	Connections		CARLY references	Connections To solder ODF mm	Refrigerating capacity kW ⁽¹⁾					Dehydratable refrigerant capacity kg of refrigerant ⁽²⁾						
	To screw SAE inch	To solder ODF inch			R22	R134a	R404A R507 R407F	R407C R410A	R744 CO ₂ ⁽⁴⁾	R22 R407C R407F		R134a R410A		R404A R507		R744 CO ₂
										24 °C	52 °C	24 °C	52 °C	24 °C	52 °C	24 °C
RCY 502-3 S		3/8-1/4 ⁽³⁾			8,0	7,3	5,2	7,9	9,0	10,5	9,0	11,0	10,5	17,0	9,5	6,4
RCY 522 S		1/4	RCY 522 MMS	6	8,0	7,3	5,2	7,9	9,0	10,5	9,0	11,0	10,5	17,0	9,5	6,4
RCY 523 S		3/8	RCY 523 MMS	10	20,0	18,2	13,0	19,8	22,4	10,5	9,0	11,0	10,5	17,0	9,5	6,4
RCY 743 S		3/8	RCY 743 MMS	10	35,0	31,9	22,8	34,7	39,2	38,5	32,5	40,0	38,5	61,0	34,0	23,4
RCY 744 S		1/2	RCY 744 MMS	12	38,0	34,6	24,7	37,6	42,6	38,5	32,5	40,0	38,5	61,0	34,0	23,4
RCY 924 S		1/2	RCY 924 MMS	12	40,0	36,4	26,0	39,6	44,8	50,0	42,5	52,0	50,0	79,0	44,0	30,3
RCY 925 S/MMS		5/8		16	42,0	38,2	27,3	41,6	47,0	50,0	42,5	52,0	50,0	79,0	44,0	30,3

⁽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⁾ Inlet 3/8 - Outlet 1/4

⁽⁴⁾ Refrigerating capacities Q_n for $T_k = -10\text{ °C}$ and $T_o = -40\text{ °C}$
 For $T_k = 0\text{ °C}$ $Q_o = Q_n + 12\%$, For $T_k = -20\text{ °C}$ $Q_o = Q_n - 10\%$,
 For $T_o = -30\text{ °C}$ $Q_o = Q_n - 2\%$, For $T_o = -20\text{ °C}$ $Q_o = Q_n - 6\%$

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



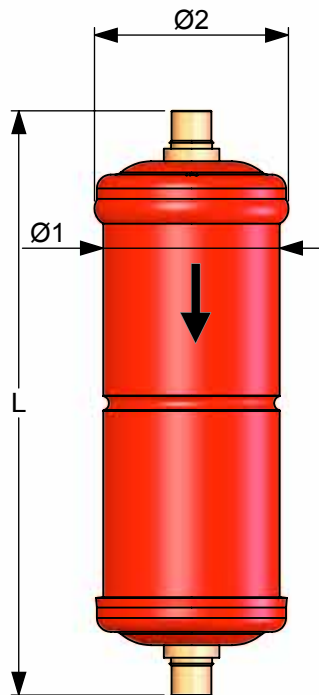
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■ Technical features

CARLY references	Connection types ⁽¹⁾	Filtering surface cm ²	Volume of desiccation products cm ³	Receiver volume L	Dimensions		
					Ø1 mm	Ø2 mm	L mm
RCY 502-3 S	2	52	70	0,12	50	55	161
RCY 522 S	RCY 522 MMS	52	60	0,21	50	55	211
RCY 523 S	RCY 523 MMS	52	60	0,21	50	55	211
RCY 743 S	RCY 743 MMS	102	260	0,33	70	76	232
RCY 744 S	RCY 744 MMS	102	260	0,33	70	76	232
RCY 924 S	RCY 924 MMS	170	290	0,76	89	96	250
RCY 925 S/MMS	2	170	290	1,80	89	96	439

⁽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		
RCY 502-3 S	0,20	46	15	100	-40	-30	Art 3§3	
RCY 522 S	RCY 522 MMS	0,29	46	15	100	-40	-30	Art 3§3
RCY 523 S	RCY 523 MMS	0,29	46	15	100	-40	-30	Art 3§3
RCY 743 S	RCY 743 MMS	0,63	46	15	100	-40	-30	Art 3§3
RCY 744 S	RCY 744 MMS	0,63	46	15	100	-40	-30	Art 3§3
RCY 924 S	RCY 924 MMS	1,16	46	15	100	-40	-30	I
RCY 925 S/MMS		2,22	46	15	100	-40	-30	I

⁽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 97/23/EC (refer to Chapter 0).

■ Weights and packaging

CARLY references	Unit weight kg		Packaging number of pieces
	With packaging	Without packaging	
RCY 502-3 S	0,38	0,35	1
RCY 522 S & MMS	0,48	0,45	1
RCY 523 S & MMS	0,48	0,45	1
RCY 743 S & MMS	1,03	1,00	1
RCY 744 S & MMS	1,03	1,00	1
RCY 924 S & MMS	1,73	1,65	1
RCY 925 S/MMS	2,43	2,35	1