Carly

REFRIGERATION & CLIMATE COMPONENTS SOLUTIONS

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CARLY equipment can only be installed by a Trade-approved technician

CARLY SAS - Share capital of 1.000.000 € - R.C.S. LYON B 959 500 257 00032 - Code APE 2825 Z

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MISCELLANEOUS

Carly

Refrigeration & Climate Components Solutions

"Made in Europe"

All our production facilities are located in Lissieu, near Lyons. Total manufacturing process control allows us to ensure perfect traceability and optimum quality level.
Confronted with the growing opacity of the goods specific origins, CARLY commits itself to offer its customers "Made in France" refrigerating components. The location of our production unit, at the heart of Europe, offers an actual proximity thus ensuring customised, responsive service.

The experience

Created in 1923, CARLY designs, manufactures and markets a wide range of very high quality components for the refrigerating and air conditioning markets.
For many years, our partnerships with the most prestigious manufacturers, our agreements and exchanges with the best specialised distributors, our ongoing relationships with well-known professional refrigerating installers have helped us increase our experience in order to better serve the profession.

The technical specialist of refrigerating circuit components

CARLY focuses its efforts in a very specific business area to which it is truly dedicated: refrigerating circuit components. Research & Development, Production and Marketing investments are therefore targeted towards the line components activity.
This strong specialization has allowed CARLY to become an international reference and to offer its users one of the market's most comprehensive product lines.
Our technical teams have the required expertise to deal with various subjects such as filtering, decontamination, noise annoyance, oil return management…

An independent, international and customer oriented company

As an international and independent company focusing on its customers, CARLY is a family owned company, which gives it a great adaptation capacity and a high reactivity on a more and more demanding market. Therefore, the company's management ensures that its teams focus on developing new solutions aimed at reacting to the evolution of a constantly changing environment.
With more than 60% of its annual turn-over made on the international market, CARLY's activities follow a path of ongoing growth that enables the company to offer the actors of the refrigerating industry more and more efficient products and services.

Warning

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- The use of CARLY products requires that the buyer perform a prior technical validation more specifically as regards the following:
    - The design of the refrigerating circuit within which the product is integrated
    - Oils and refrigerants used
    - The installation's operating conditions
- Indeed, the installation designers' responsibility is to make sure that all operating equipment items are fitted for their intended use and are compatible with each other.
- As a component manufacturer, CARLY is not liable for coming up with general scope recommendations, and this applies to all types of installations. Nevertheless, we remain at your service to answer all your questions and orient your selections, but by providing you with advice, particularly in terms of product selection, we do not assume responsibility and said advice is in no way contractual. Indeed, the great amount and diversity of installation parameters and operation conditions are unknown to us for most of them, and therefore we cannot perform an exhaustive survey that could allow us to give you detailed and specific answers.
- CARLY components are not compatible with corrosive, toxic or flammable substances. CARLY denies all responsibilities for damages subsequent to the use of said refrigerants. CARLY components are exclusively designed for refrigerating and air conditioning installations.
- We suggest you carefully read the specifications dealing with the guarantee provisions in our general sales conditions (refer to chapter 117). These general sales conditions govern the commercial relationships between CARLY and its customers. They are also specified on the acknowledgments of receipt of order, delivery notes and commercial invoices. Ordering from CARLY implies accepting without condition these general sales conditions prevailing over any general purchase condition.
- CARLY equipment can only be installed by a Trade-approved technician.
- CARLY cannot be held responsible for missing, misleading or erroneous information that could be found in technical brochures, catalogues, drawings and technical features or any other document distributed by CARLY. CARLY reserves the right to modify its manufactured products without notice, and this is also valid for products that have already been ordered.

PED

European Pressure Equipment Directive 97/23/EC

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The European Pressure Equipment Directive 97/23/EC (called PED) aims at harmonising the national provisions, specific to each member state, in order to enable free flow of equipment under pressure within the European Union.

The essential safety requirements under this directive only apply to risks linked to pressure.

The European Pressure Equipment Directive 97/23/EC applies to the design, the manufacturing, the conformity assessment of equipment and sets intended to contain refrigerants, gasses or liquids under pressure, whose maximum working pressure is **higher than 0.5 bar.**

Equipment for which the European Pressure Equipment Directive 97/23/EC applies can be the following:

- Containers: casing designed and built in order to contain refrigerants under pressure
- Piping
- Safety accessories
- Accessories under pressure
- Sets (equipment under pressure assembled by a manufacturer and forming a functional unit)

➜ Application to CARLY products

CARLY products can be containers, piping or accessories under pressure.

■ Definitions - CE category

- According to criteria such as volume and diameter, the nature of the refrigerant contained, and the **maximum working pressure (PS)**, each piece of equipment is assigned a risk category, the CE category.
- There are 4 of them: CE categories I, II, III and IV. Category I, II, III and IV equipment items are subject to the essential requirements such as defined in the Appendix 1 to the directive.
- The sets are subject to Appendix 1 requirements, when they contain at least one category I equipment item, safety accessories not included.
- **Article 3§3** relates to equipment or sets that are outside the scope of application of directive requirements.

■ Definitions - Technical features

- **Pressure** / Pressure with reference to atmospheric pressure.
- **Maximum working pressure PS** / Maximum pressure for which the equipment was designed.
- **Minimum / maximum working temperatures TS** / Minimum and maximum temperatures for which the equipment was designed.
- **Volume V** / Internal volume for each compartment including the volume of the connections up to the first connection, not including the volume of permanent internal elements.
- **Nominal size DN** / Numerical designation common to all the elements of a piping system other than the elements referenced by their outer diameter or by their thread size.
- **Nature of refrigerant contained** / Liquid or gas, hazardous or non-hazardous.

PED

European Pressure Equipment Directive 97/23/EC

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■ Definitions - Technical features

- **Final test** / Includes a final examination (inner and outer visual examination, inspection of enclosed documents) and a proof test, which is generally a hydrostatic pressure resistance test. This proof test is systematically performed for products that fall within CE categories II, III and IV; it can be performed by sampling on CE category I products manufactured in mass production.

- **Proof test pressure PT** / Hydrostatic proof test pressure value, equal to 1.43 times the maximum working pressure value PS, for CARLY product applications.

- **Classification of an equipment or set in a CE Category** / Performed using tables contained in the Appendix II to the directive. It relies on the following criteria: nature of the refrigerant contained and PS x V or PS x DN product value.

➜ Application to CARLY products

The refrigerants chosen by **CARLY** are **Group 2** gases, i.e. non-hazardous gases.

The following tables, to be found in Appendix II, are therefore used for classification within a CE category

- Appendix II - Table No. 2 - Containers - Products selected according to their volume V
- Appendix II - Table No. 7 - Piping - Products selected according to their nominal diameter DN

The features for each product (CE Category, PS, V/DN, min. TS, max. TS) are indicated in the “Technical features” table in each chapter of the technical documentation.

For each product, a description sheet can be obtained from CARLY technical services on request; it certifies each product’s features.

■ CE marking

- CE marking is printed on each product and shows the following information:
  - CE marking (*)
  - Manufacturer’s name and address
  - Year of manufacture
  - Product reference
  - Manufacturing batch identification
  - The product’s technical features (PS, V/DN, max. TS, min. TS, PT (**))
  - Refrigerant families to be used

(*) For CE category II, III and IV products, the notified organisation identification number is printed next to the CE marking - For CARLY, this number is N° 0036 (TÜV Sud).
(**) For CE category II, III and IV products.

- No CE marking is printed on article 3§3 products.

PED

European Pressure Equipment Directive 97/23/EC

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■ CE declaration of conformity

- The CE conformity statement is printed by the manufacturer and certifies that the product concerned matches the requirements of the European Pressure Equipment Directive 97/23/EC in terms of design, manufacturing and conformity assessment (final test).

➜ Application to CARLY products

CE category I products
The CE conformity statement is not linked to manufacturing batch but to product design.
The original is kept by CARLY.
A copy can be obtained from CARLY technical services on request.

CE category II products
A CE conformity statement is printed for each manufacturing batch.
The original is kept by CARLY; a copy is enclosed in each product's packing.

CE category III products
A CE conformity statement is printed for each manufacturing batch.
The original is kept by CARLY; a copy is enclosed in each product's packing.

■ CE Instruction Notice

- The CE Instruction Notice should catch the reader's attention on the dangers linked to erroneous use and contain all information dealing with the assembly, commissioning, operation and maintenance of the product concerned.

- It also indicates the product features (CE Category retained, PS, V/DN, max. TS, min. TS, etc.).

➜ Application to CARLY products

CE category I products
For each product, a CE instruction notice can be obtained from CARLY technical services on request.

CE category II products
A CE instruction notice is enclosed in each product's packing.

CE category III products
A CE instruction notice is enclosed in each product's packing.

■ Pressure limitation for Low temperatures

- To comply with the European Pressure Equipment Directive 97/23/EC requirements in terms of brittle fracture risks (low-temperature brittle fracture of materials), the following features are defined:

- **PS BT** / Limited Working pressure (Low Temperature)

- **TS BT** / Limited Working Temperature (Low Temperature)

- If the PS BT and TS BT values are defined, then for a working temperature between the min. TS and TS BT values, the Product's maximum working pressure is limited to the PS BT value.

- The PS BT and TS BT values for each Product are indicated in the "Technical features" table in each chapter of the Technical Documentation.

Anti-acid filter driers

DTGB - 1.1-1-1-10

→ DCY

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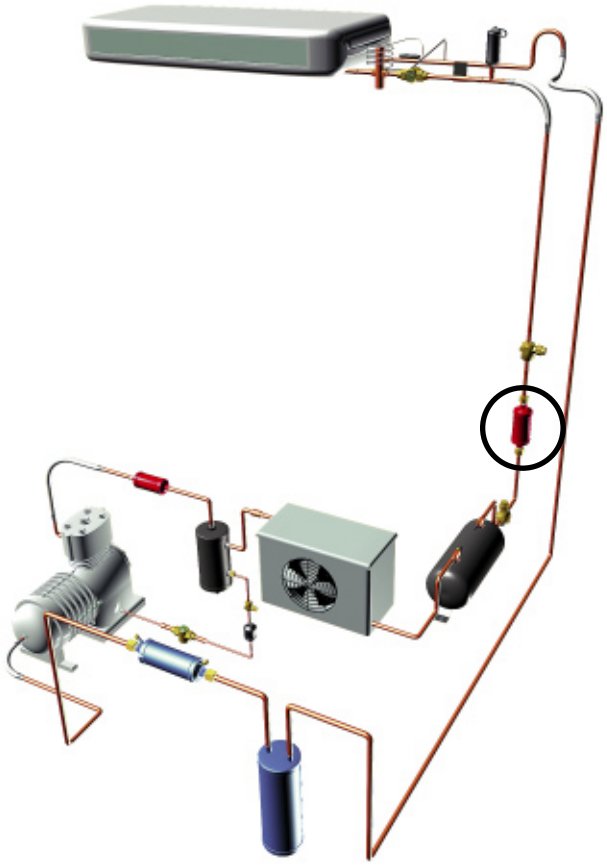
■ Applications

- Filtering and drying of refrigerants and acid neutralization for liquid lines of refrigerating and air conditioning installations.



■ Functional features

- Products are compatible with HFCs, HCFCs, CFCs, 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.
- Product classification in CE categories is done with the PED 97/23/EC table, corresponding to a volume-based selection.
- Filtering at outlet preventing propagation within the circuit of particles bigger than 12 microns.
- No desorption, even at a high temperature.

■ CARLY advantages

- 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).
- Initial drying capacity guaranteed by a 200°C oven drying and airtight sealing.
- Filter driers sizes that ensure interchangeability with most products of the market.
- A dispenser located at the intake ensures optimal distribution and permanent treatment of the whole refrigerant, inside the filter drier.
- Connections to solder are made of copper-plated steel up to connections diameter 3/4” included and allow the use of filler metals with a low silver content; their resistance to pressure is much higher than that of full copper connections.
- GOST certified products.

Anti-acid filter driers

→ DCY

■ Recommendations

* Filter driers are to be mounted on the liquid line between the receiver 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.
* 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 8); these liquid hammer phenomena can originate from other sources, in long-piping installations.
* Never install the filter driers in an area of the circuit that can be isolated.
* We recommend the use of a 10 % silver braze for the brazing of copper plated steel connections.
* Never trap the refrigerant in its liquid state (between a check valve and a solenoid valve, for instance).
* Filter driers replacement is imperative after each intervention on the installation, and at least once a year.
* Filter drier efficiency and refrigerant moisture content should be checked using VCYL or VCYLS liquid sight glasses (refer to chapter 7).
* General assembly precautions: refer to chapter 115.

■ Selection table: Male/female connections to screw

CARLY references	Flare connections SAE inch	Refrigerating capacity (kW)(1)				Dehydratable refrigerant capacity (kg of refrigerant)(2)					
		R22	R134a	R404A R507	R407C R410A	R22 R407C		R134a R410A		R404A R507	
						24°C	52°C	24°C	52°C	24°C	52°C
DCY 032 MF	1/4	8,0	7,7	5,5	8,2	6,5	5,5	7,0	6,0	6,5	5,5
DCY 052 MF	1/4	8,5	8,0	6,0	8,5	9,5	9,0	11,5	10,0	9,5	8,0
DCY 053 MF	3/8	23,0	22,0	16,0	23,5	9,5	9,0	11,5	10,0	9,5	8,0
DCY 082 MF	1/4	9,0	8,5	6,5	9,0	15,0	14,5	16,5	15,0	14,5	13,5
DCY 083 MF	3/8	24,0	23,0	17,0	24,5	15,0	14,5	16,5	15,0	14,5	13,5
DCY 163 MF	3/8	24,5	24,0	18,0	25,0	40,0	34,0	50,0	37,0	38,0	31,0

(1) Refrigerating capacities according to Standard ARI 710-86 for To = -15°C, Tk = 30°C and Δp = 0.07 bar. If different conditions, refer to correction factors in chapter 112.

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

Anti-acid filter driers

→ DCY

■ Selection table

CARLY references	Connections		CARLY references	Connections	Refrigerating capacity (kW)(1)				Dehydratable refrigerant capacity (kg of refrigerant)(2)					
	To screw SAE	To solder ODF		To solder ODF	R22	R134a	R404A R507	R407C R410A	R22 R407C		R134a R410A		R404A R507	
	inch	inch		mm					24°C	52°C	24°C	52°C	24°C	52°C
DCY 032	1/4				8,0	7,7	5,5	8,2	6,5	5,5	7,0	6,0	6,5	5,5
DCY 032 S		1/4	**DCY 032 MMS**	6	8,0	7,7	5,5	8,2	6,5	5,5	7,0	6,0	6,5	5,5
DCY 033	3/8				22,0	20,0	15,5	22,5	6,5	5,5	7,0	6,0	6,5	5,5
DCY 033 S		3/8	**DCY 033 MMS**	10	22,0	20,0	15,5	22,5	6,5	5,5	7,0	6,0	6,5	5,5
DCY 052	1/4				8,5	8,0	6,0	8,5	9,5	9,0	11,5	10,0	9,5	8,0
DCY 052 S		1/4	**DCY 052 MMS**	6	8,5	8,0	6,0	8,5	9,5	9,0	11,5	10,0	9,5	8,0
DCY 053	3/8				23,0	22,0	16,0	23,5	9,5	9,0	11,5	10,0	9,5	8,0
DCY 053 S		3/8	**DCY 053 MMS**	10	23,0	22,0	16,0	23,5	9,5	9,0	11,5	10,0	9,5	8,0
DCY 082	1/4				9,0	8,5	6,5	9,0	15,0	14,5	17,0	15,5	14,5	13,5
DCY 082 S		1/4	**DCY 082 MMS**	6	9,0	8,5	6,5	9,0	15,0	14,5	17,0	15,5	14,5	13,5
DCY 083	3/8				24,0	23,0	17,0	24,5	15,0	14,5	17,0	15,5	14,5	13,5
DCY 083 S		3/8	**DCY 083 MMS**	10	24,0	23,0	17,0	24,5	15,0	14,5	17,0	15,5	14,5	13,5
DCY 084	1/2				38,0	37,0	30,0	39,5	15,0	14,5	17,0	15,5	14,5	13,5
DCY 084 S		1/2	**DCY 084 MMS**	12	38,0	37,0	30,0	39,5	15,0	14,5	17,0	15,5	14,5	13,5
DCY 162	1/4				9,0	8,5	6,5	9,0	40,0	34,0	50,0	37,0	38,0	31,0
DCY 162 S		1/4	**DCY 162 MMS**	6	9,0	8,5	6,5	9,0	40,0	34,0	50,0	37,0	38,0	31,0
DCY 163	3/8				24,5	24,0	18,0	25,0	40,0	34,0	50,0	37,0	38,0	31,0
DCY 163 S		3/8	**DCY 163 MMS**	10	24,5	24,0	18,0	25,0	40,0	34,0	50,0	37,0	38,0	31,0
DCY 164	1/2				41,5	40,0	32,0	43,0	40,0	34,0	50,0	37,0	38,0	31,0
DCY 164 S		1/2	**DCY 164 MMS**	12	41,5	40,0	32,0	43,0	40,0	34,0	50,0	37,0	38,0	31,0
DCY 165	5/8				68,0	66,0	50,0	70,0	40,0	34,0	50,0	37,0	38,0	31,0
DCY 165 S/MMS		5/8	**DCY 165 S/MMS**	16	68,0	66,0	50,0	70,0	40,0	34,0	50,0	37,0	38,0	31,0
DCY 302	1/4				9,0	8,5	6,5	9,0	70,0	61,0	80,5	69,0	69,5	56,0
DCY 303	3/8				25,0	24,5	18,0	26,0	70,0	61,0	80,5	69,0	69,5	56,0
DCY 303 S		3/8	**DCY 303 MMS**	10	25,0	24,5	18,0	26,0	70,0	61,0	80,5	69,0	69,5	56,0
DCY 304	1/2				45,0	42,0	34,0	46,0	70,0	61,0	80,5	69,0	69,5	56,0
DCY 304 S		1/2	**DCY 304 MMS**	12	45,0	42,0	34,0	46,0	70,0	61,0	80,5	69,0	69,5	56,0
DCY 305	5/8				70,0	68,0	51,0	72,0	70,0	61,0	80,5	69,0	69,5	56,0
DCY 305 S/MMS		5/8	**DCY 305 S/MMS**	16	70,0	68,0	51,0	72,0	70,0	61,0	80,5	69,0	69,5	56,0
DCY 307 S		7/8	**DCY 307 MMS**	22	110,0	105,0	80,0	115,0	70,0	61,0	80,5	69,0	69,5	56,0
DCY 414	1/2				46,0	44,0	36,0	47,0	114,0	102,5	130,0	112,0	108,0	95,0
DCY 415	5/8				72,0	70,0	52,0	74,0	114,0	102,5	130,0	112,0	108,0	95,0
DCY 415 S/MMS		5/8	**DCY 415 S/MMS**	16	72,0	70,0	52,0	74,0	114,0	102,5	130,0	112,0	108,0	95,0
DCY 417 S		7/8	**DCY 417 MMS**	22	122,0	118,0	85,0	125,0	114,0	102,5	130,0	112,0	108,0	95,0
DCY 755	5/8				75,0	73,0	55,0	77,0	168,0	147,0	179,0	155,0	159,0	134,0
DCY 756	3/4 BSP				93,0	91,0	65,0	95,0	168,0	147,0	179,0	155,0	159,0	134,0
DCY 756 S		3/4	**DCY 756 MMS**	18	93,0	91,0	65,0	95,0	168,0	147,0	179,0	155,0	159,0	134,0
DCY 967 S		7/8	**DCY 967 MMS**	22	115,0	113,0	81,0	125,0	168,0	147,0	179,0	155,0	159,0	134,0
DCY 969 S		1 1/8	**DCY 969 MMS**	28	126,0	128,0	92,0	148,0	168,0	147,0	179,0	155,0	159,0	134,0

(1) Refrigerating capacities according to Standard ARI 710-86 for To = -15°C, Tk = 30°C and Δp = 0.07 bar.
If different conditions, refer to correction factors in chapter 112.

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

Anti-acid filter driers

➔ DCY

■ Example of selection of a DCY anti-acid filter drier

The sizing of a product implies that the buyer takes into account the conditions under which the product is going to be used (temperature - pressure - refrigerant - oil - external environment). The values proposed in the CARLY catalogue selection tables match specific test conditions.
In order to define a correct sizing, we suggest that you convert your operating data into data that match the CARLY selection tables.

- Installation operating with R404A under the following conditions(1):
  - ➔ To = -20°C
  - ➔ Tk = 35°C
  - ➔ Q_Ox = 46 kW
  - ➔ 69 kg of refrigerant at 24°C
- Which **DCY** anti-acid filter drier to choose?

∗ DCY SELECTION

- *Conversion of installation capacity to match the conditions of Standard ARI 710-86.*
  Refer to correction factor table page 112.3: fct = 1.10

$$Q_{ox} \times fct = Q_{oARI}$$

Q_{oARI} = 46 x 1,10 = 50,6 i.e **51 kW**

- DCY type selection and reading of selection table on page 1.3
  - ➔ R 404A
  - ➔ 69 kg refrigerant at 24°C
  - ➔ Q_OARI = 51 kW

Filter drier volume selection depends on the installation total refrigerant capacity. For a quantity of 69 kg of R404A, selection should be done from the DCY 300 product line. See dehydratable refrigerant capacity column.
Selection of the connection, hence of the filter drier, is performed by carrying the Q_OARI refrigerating capacity and the refrigerant over to the refrigerating capacity column.

Result: DCY 305 S/MMS (connections to solder) **or DCY 305** (connections to screw)

If the Q_OARI value is between two CARLY filter drier types in the selection table, it is recommended to select the filter drier with the greater capacity.

CARLY references	Connections		CARLY references	Connections	Refrigerating capacity (kW)(1)				Dehydratable refrigerant capacity (kg of refrigerant)(2)					
	To screw SAE inch	To solder ODF inch		To solder ODF mm	R22	R134a	R404A R507	R407C R410A	R22 R407C		R134a R410A		R404A R507	
									24°C	52°C	24°C	52°C	24°C	52°C
DCY 304	1/2				45	42	34	46	70	61	80,5	69	69,5	56
DCY 304 S		1/2	**DCY 304 MMS**	12	45	42	34	46	70	61	80,5	69	69,5	56
DCY 305	5/8				70	68	51	72	70	61	80,5	69	69,5	56
DCY 305 S/MMS		5/8	**DCY 305 S/MMS**	16	70	68	51	72	70	61	80,5	69	69,5	56

(1) *Chapter "Abbreviations and units" (refer to chapter 113).*
(2) *Dehydratable refrigerant capacity according to Standard ARI 710-86.*

Anti-acid filter driers

→ DCY

■ Technical features

CARLY references		Connections types (1)	Filtering surface (cm^2)	Volume of desiccation products (cm^3)	Dimensions (mm)		Net weight (kg)
					Ø	L	
DCY 032		1	52	59,0	53,0	108,5	0,30
DCY 032 S	**DCY 032 MMS**	2	52	59,0	53,0	98,5	0,30
DCY 033		1	52	59,0	53,0	114,5	0,30
DCY 033 S	**DCY 033 MMS**	2	52	59,0	53,0	98,5	0,30
DCY 052		1	52	81,5	53,0	121,5	0,35
DCY 052 S	**DCY 052 MMS**	2	52	81,5	53,0	111,5	0,35
DCY 053		1	52	81,5	53,0	127,5	0,35
DCY 053 S	**DCY 053 MMS**	2	52	81,5	53,0	111,5	0,35
DCY 082		1	52	130,0	53,0	149,5	0,40
DCY 082 S	**DCY 082 MMS**	2	52	130,0	53,0	139,5	0,40
DCY 083		1	52	130,0	53,0	155,5	0,40
DCY 083 S	**DCY 083 MMS**	2	52	130,0	53,0	139,5	0,40
DCY 084		1	52	130,0	53,0	159,5	0,45
DCY 084 S	**DCY 084 MMS**	2	52	130,0	53,0	139,5	0,45
DCY 162		1	102	321,6	74,0	169,0	0,90
DCY 162 S	**DCY 162 MMS**	2	102	321,6	74,0	159,0	0,90
DCY 163		1	102	321,6	74,0	175,0	0,90
DCY 163 S	**DCY 163 MMS**	2	102	321,6	74,0	159,0	0,90
DCY 164		1	102	321,6	74,0	179,5	0,95
DCY 164 S	**DCY 164 MMS**	2	102	321,6	74,0	159,0	0,95
DCY 165		1	102	321,6	74,0	183,5	1,00
DCY 165 S/MMS	**DCY 165 S/MMS**	2	102	321,6	74,0	163,0	1,00
DCY 302		1	102	581,6	74,0	245,5	1,35
DCY 303		1	102	581,6	74,0	251,5	1,35
DCY 303 S	**DCY 303 MMS**	2	102	581,6	74,0	235,5	1,35
DCY 304		1	102	581,6	74,0	255,5	1,40
DCY 304 S	**DCY 304 MMS**	2	102	581,6	74,0	235,5	1,40
DCY 305		1	102	581,6	74,0	259,5	1,50
DCY 305 S/MMS	**DCY 305 S/MMS**	2	102	581,6	74,0	239,5	1,50
DCY 307 S	**DCY 307 MMS**	2	102	581,6	74,0	259,5	1,55
DCY 414		1	170	936,0	93,0	252,5	2,10
DCY 415		1	170	987,0	93,0	265,5	2,20
DCY 415 S/MMS	**DCY 415 S/MMS**	2	170	987,0	93,0	245,5	2,20
DCY 417 S	**DCY 417 MMS**	2	170	1060,0	93,0	278,5	2,25
DCY 755		1	170	1327,0	93,0	325,5	2,70
DCY 756		1	170	1327,0	93,0	333,5	2,70
DCY 756 S	**DCY 756 MMS**	2	170	1327,0	93,0	311,5	2,70
DCY 967 S	**DCY 967 MMS**	2	170	1327,0	93,0	325,5	2,75
DCY 969 S	**DCY 969 MMS**	3	170	1327,0	93,0	335,5	2,85

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

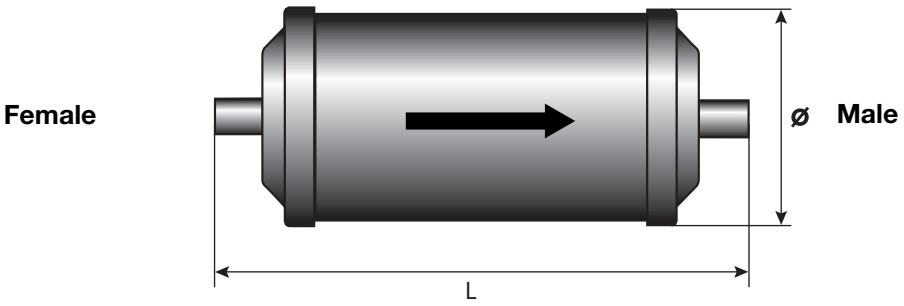
Anti-acid filter driers

→ DCY

■ Technical features: Male/female connections to screw

CARLY references	Connection types (1)	Filtering surface (cm^2)	Volume of desiccation products (cm^3)	Dimensions (mm)		Net weight (kg)
				ø	L	
DCY 032 MF	1	52	59,0	53	105,5	0,30
DCY 052 MF	1	52	81,5	53	118,5	0,40
DCY 053 MF	1	52	81,5	53	124,5	0,40
DCY 082 MF	1	52	130,0	53	146,5	0,45
DCY 083 MF	1	52	130,0	53	152,5	0,45
DCY 163 MF	1	102	321,6	74	172,0	0,95

(1) *Chapter "Connection features and drawings" (refer to chapter 114).*



Anti-acid filter driers

→ DCY

■ 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)	
DCY 032		0,10	42	10	80	-40	-20	Art3§3
DCY 032 S	**DCY 032 MMS**	0,10	42	10	80	-40	-20	Art3§3
DCY 033		0,10	42	10	80	-40	-20	Art3§3
DCY 033 S	**DCY 033 MMS**	0,10	42	10	80	-40	-20	Art3§3
DCY 052		0,12	42	10	80	-40	-20	Art3§3
DCY 052 S	**DCY 052 MMS**	0,12	42	10	80	-40	-20	Art3§3
DCY 053		0,12	42	10	80	-40	-20	Art3§3
DCY 053 S	**DCY 053 MMS**	0,12	42	10	80	-40	-20	Art3§3
DCY 082		0,16	42	10	80	-40	-20	Art3§3
DCY 082 S	**DCY 082 MMS**	0,16	42	10	80	-40	-20	Art3§3
DCY 083		0,17	42	10	80	-40	-20	Art3§3
DCY 083 S	**DCY 083 MMS**	0,17	42	10	80	-40	-20	Art3§3
DCY 084		0,17	42	10	80	-40	-20	Art3§3
DCY 084 S	**DCY 084 MMS**	0,17	42	10	80	-40	-20	Art3§3
DCY 162		0,39	42	10	80	-40	-20	Art3§3
DCY 162 S	**DCY 162 MMS**	0,39	42	10	80	-40	-20	Art3§3
DCY 163		0,40	42	10	80	-40	-20	Art3§3
DCY 163 S	**DCY 163 MMS**	0,40	42	10	80	-40	-20	Art3§3
DCY 164		0,42	42	10	80	-40	-20	Art3§3
DCY 164 S	**DCY 164 MMS**	0,42	42	10	80	-40	-20	Art3§3
DCY 165		0,42	42	10	80	-40	-20	Art3§3
DCY 165 S/MMS	**DCY 165 S/MMS**	0,42	42	10	80	-40	-20	Art3§3
DCY 302		0,65	42	10	80	-40	-20	Art3§3
DCY 303		0,66	42	10	80	-40	-20	Art3§3
DCY 303 S	**DCY 303 MMS**	0,66	42	10	80	-40	-20	Art3§3
DCY 304		0,67	42	10	80	-40	-20	Art3§3
DCY 304 S	**DCY 304 MMS**	0,67	42	10	80	-40	-20	Art3§3
DCY 305		0,68	42	10	80	-40	-20	Art3§3
DCY 305 S/MMS	**DCY 305 S/MMS**	0,68	42	10	80	-40	-20	Art3§3
DCY 307 S	**DCY 307 MMS**	0,68	42	10	80	-40	-20	Art3§3
DCY 414		1,09	42	10	80	-40	-20	Art3§3
DCY 415		1,14	42	10	80	-40	-20	Art3§3
DCY 415 S/MMS	**DCY 415 S/MMS**	1,14	42	10	80	-40	-20	Art3§3
DCY 417 S	**DCY 417 MMS**	1,22	42	10	80	-40	-20	I
DCY 755		1,48	42	10	80	-40	-20	I
DCY 756		1,48	42	10	80	-40	-20	I
DCY 756 S	**DCY 756 MMS**	1,48	42	10	80	-40	-20	I
DCY 967 S	**DCY 967 MMS**	1,49	42	10	80	-40	-20	I
DCY 969 S	**DCY 969 MMS**	1,49	42	10	80	-40	-20	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 page 7).

Anti-acid filter driers

→ DCY

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■ Technical features: Male/female connections to screw

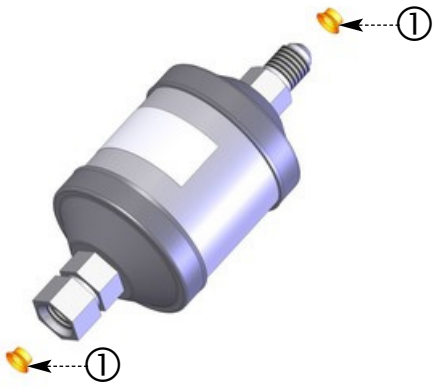
CARLY references	Volume	Maximal working pressure	Working pressure (1)	Maximal working temperature	Minimal working temperature	Working temperature (1)	CE Category (2)
	V (L)	PS (bar)	PS BT (bar)	TS maxi (°C)	TS mini (°C)	TS BT (°C)	
DCY 032 MF	0,10	42	10	80	-40	-20	Art3§3
DCY 052 MF	0,12	42	10	80	-40	-20	Art3§3
DCY 053 MF	0,12	42	10	80	-40	-20	Art3§3
DCY 082 MF	0,16	42	10	80	-40	-20	Art3§3
DCY 083 MF	0,17	42	10	80	-40	-20	Art3§3
DCY 163 MF	0,40	42	10	80	-40	-20	Art3§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 97/23/EC (refer to Chapter 0 page 7).

■ Spare parts

CARLY references	Part Nb	Description	Types	Quantity
CY 15590015	1	Set of 25 guided taper copper gaskets for 1/4" SAE (flare) connections	DCY 032 MF	1
			DCY 052 MF	
			DCY 082 MF	
CY 15590025	1	Set of 25 guided taper copper gaskets for 3/8" SAE (flare) connections	DCY 053 MF	1
			DCY 083 MF	
			DCY 163 MF	



Anti-acid filter driers

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→ DCY

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■ Weights and packaging

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
DCY 032	0,33	0,30	24	125
DCY 032 S & MMS	0,33	0,30	24	/
DCY 033	0,33	0,30	24	/
DCY 033 S & MMS	0,33	0,30	24	/
DCY 052	0,38	0,35	24	/
DCY 052 S & MMS	0,38	0,35	24	/
DCY 053	0,38	0,35	24	125
DCY 053 S & MMS	0,38	0,35	24	/
DCY 082	0,43	0,40	24	/
DCY 082 S & MMS	0,43	0,40	24	/
DCY 083	0,43	0,40	24	/
DCY 083 S & MMS	0,43	0,40	24	/
DCY 084	0,48	0,45	24	90
DCY 084 S & MMS	0,48	0,45	24	/
DCY 162	0,94	0,90	16	/
DCY 162 S & MMS	0,94	0,90	16	/
DCY 163	0,94	0,90	16	/
DCY 163 S & MMS	0,94	0,90	16	/
DCY 164	0,99	0,95	16	/
DCY 164 S & MMS	0,99	0,95	16	/
DCY 165	1,04	1,00	16	48
DCY 165 S/MMS	1,04	1,00	16	/

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
DCY 302	1,42	1,35	12	/
DCY 303	1,42	1,35	12	/
DCY 303 S & MMS	1,42	1,35	12	/
DCY 304	1,47	1,40	12	/
DCY 304 S & MMS	1,47	1,40	12	/
DCY 305	1,57	1,50	12	/
DCY 305 S/MMS	1,57	1,50	12	/
DCY 307 S & MMS	1,62	1,55	12	/
DCY 414	2,80	2,10	6	/
DCY 415	2,90	2,20	6	/
DCY 415 S/MMS	2,90	2,20	6	/
DCY 417 S & MMS	2,95	2,25	6	/
DCY 755	2,78	2,70	6	/
DCY 756	2,78	2,70	6	/
DCY 756 S & MMS	2,78	2,70	6	/
DCY 967 S & MMS	2,83	2,75	6	/
DCY 969 S & MMS	2,93	2,85	6	/
DCY 032 MF	0,33	0,30	24	/
DCY 052 MF	0,43	0,40	24	/
DCY 053 MF	0,43	0,40	24	/
DCY 082 MF	0,48	0,45	24	/
DCY 083 MF	0,48	0,45	24	/
DCY 163 MF	0,99	0,95	16	/

Bi-directional flow and anti-acid filter driers

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→ DDCY

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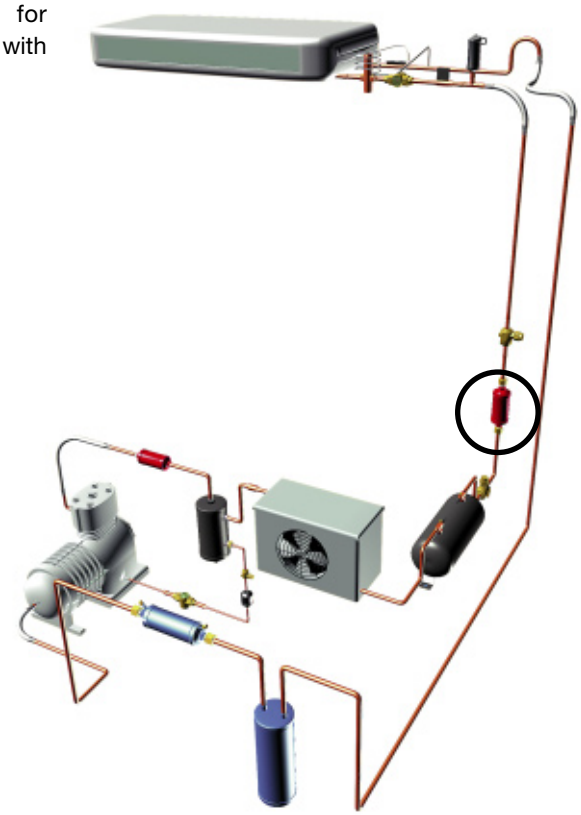
■ Applications

- Refrigerant filtering, drying and acid neutralization for refrigerating and air conditioning installation liquid lines with change over in flow direction, including heat pumps.



■ Functional features

- Products are compatible with HFCs, HCFCs, CFCs, as well as their associated oils and additives. Products are designed for use of non-hazardous refrigerants from group 2 of PED 97/23/EC.
- Product classification in CE categories is performed using the PED 97/23/EC table, corresponding to a volume-based selection.
- Refrigerant flow is possible in both directions, and filtering is ensured whichever the direction.
- Filtering at outlet preventing propagation within the circuit of particles bigger than 12 microns.
- No desorption, even at high temperatures.

■ CARLY advantages

- Bi-flow filter driers with very low pressure drop, thanks to an innovative CARLY patented system, in terms of flow circuiting.
- No risk of discharge of the pollutants trapped inside the filter driers, during change over in flow directions.
- High drying and acid neutralization capacity at all temperatures, thanks to a rigorous selection and a judicious mix of chemical agents present in the filter driers (alumina activated to neutralise the acids and molecular sieves to adsorb moisture).
- Initial drying capacity guaranteed by a 200°C oven drying and airtight sealing.
- A dispenser located at the intake ensures optimal distribution and permanent treatment of the whole refrigerant, inside the filter drier.
- Connections to solder are made of copper-plated steel and allow the use of filler metals with a low silver content; their resistance to pressure is much higher than that of full copper connections.
- GOST certified products.

Bi-directional flow and anti-acid filter driers

→ DDCY

■ Recommendations

* Filter driers are to be mounted on the liquid line, upstream of the pressure relief valve.
* 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 8); 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).
* It is imperative to replace filter driers after each intervention on the installation and at least once a year.
* Drier efficiency and refrigerant moisture content should be checked using VCYL or VCYLS liquid sight glasses (refer to chapter 7).
* General assembly precautions: refer to chapter 115.

■ Selection table

CARLY references	Connections		CARLY references	Connections	Refrigerating capacity (kW)(1)				Dehydratable refrigerant capacity (kg of refrigerant)(2)					
	To screw SAE	To solder ODF		To solder ODF	R22	R134a	R404A R507	R407C R410A	R22 R407C		R134a R410A		R404A R507	
	inch	inch		mm					24°C	52°C	24°C	52°C	24°C	52°C
DDCY 082	1/4				9,0	8,5	6,5	9,0	15,0	14,5	17,0	15,5	14,5	13,5
DDCY 082 S		1/4	**DDCY 082 MMS**	6	9,0	8,5	6,5	9,0	15,0	14,5	17,0	15,5	14,5	13,5
DDCY 083	3/8				24,0	23,0	17,0	24,5	15,0	14,5	17,0	15,5	14,5	13,5
DDCY 083 S		3/8	**DDCY 083 MMS**	10	24,0	23,0	17,0	24,5	15,0	14,5	17,0	15,5	14,5	13,5
DDCY 084	1/2				38,0	37,0	30,0	39,5	15,0	14,5	17,0	15,5	14,5	13,5
DDCY 084 S		1/2	**DDCY 084 MMS**	12	38,0	37,0	30,0	39,5	15,0	14,5	17,0	15,5	14,5	13,5
DDCY 163	3/8				24,5	24,0	18,0	25,0	40,0	34,0	50,0	37,0	38,0	31,0
DDCY 163 S		3/8	**DDCY 163 MMS**	10	24,5	24,0	18,0	25,0	40,0	34,0	50,0	37,0	38,0	31,0
DDCY 164	1/2				41,5	40,0	32,0	43,0	40,0	34,0	50,0	37,0	38,0	31,0
DDCY 164 S		1/2	**DDCY 164 MMS**	12	41,5	40,0	32,0	43,0	40,0	34,0	50,0	37,0	38,0	31,0
DDCY 165	5/8				68,0	66,0	50,0	70,0	40,0	34,0	50,0	37,0	38,0	31,0
DDCY 165 S/MMS		5/8	**DDCY 165 S/MMS**	16	68,0	66,0	50,0	70,0	40,0	34,0	50,0	37,0	38,0	31,0
DDCY 305	5/8				70,0	68,0	51,0	72,0	70,0	61,0	80,5	69,0	69,5	56,0
DDCY 305 S/MMS		5/8	**DDCY 305 S/MMS**	16	70,0	68,0	51,0	72,0	70,0	61,0	80,5	69,0	69,5	56,0
DDCY 307 S		7/8	**DDCY 307 MMS**	22	110,0	105,0	80,0	115,0	70,0	61,0	80,5	69,0	69,5	56,0

(1) Refrigerating capacities according to Standard ARI 710-86 for To = -15°C, Tk = 30°C and Δp = 0.07 bar. If different conditions, refer to correction factors in chapter 112.

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

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Bi-directional flow and anti-acid filter driers

→ DDCY

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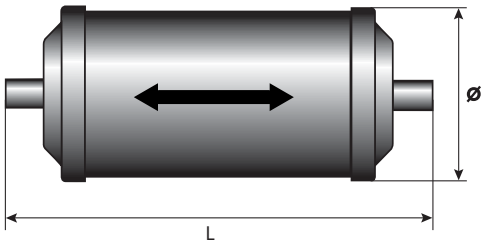
■ Technical features

CARLY references		Connection types(1)	Filtering surface (cm^2)	Desiccants volume (cm^3)	Dimensions (mm)		Net weight (kg)
					Ø	L	
DDCY 082		1	64	118,0	53	150	0,40
DDCY 082 S	**DDCY 082 MMS**	2	64	118,0	53	140	0,40
DDCY 083		1	64	118,0	53	156	0,40
DDCY 083 S	**DDCY 083 MMS**	2	64	118,0	53	140	0,40
DDCY 084		1	64	118,0	53	160	0,50
DDCY 084 S	**DDCY 084 MMS**	2	64	118,0	53	140	0,50
DDCY 163		1	160	297,7	74	175	0,90
DDCY 163 S	**DDCY 163 MMS**	2	160	297,7	74	159	0,90
DDCY 164		1	160	297,7	74	179	0,95
DDCY 164 S	**DDCY 164 MMS**	2	160	297,7	74	159	0,95
DDCY 165		1	160	297,7	74	183	1,00
DDCY 165 S/MMS	**DDCY 165 S/MMS**	2	160	297,7	74	163	1,00
DDCY 305		1	160	557,7	74	259	1,45
DDCY 305 S/MMS	**DDCY 305 S/MMS**	2	160	557,7	74	239.5	1,45
DDCY 307 S	**DDCY 307 MMS**	2	160	557,7	74	259.5	1,45

(1) Chapter "Connections features and drawings" (refer to chapter 114)



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)	
DDCY 082 / 082 S / 082 MMS	0,17	42	10	80	-40	-20	Art3§3
DDCY 083 / 083 S / 083 MMS	0,17	42	10	80	-40	-20	Art3§3
DDCY 084 / 084 S / 084 MMS	0,17	42	10	80	-40	-20	Art3§3
DDCY 163 / 163 S / 163 MMS	0,41	42	10	80	-40	-20	Art3§3
DDCY 164 / 164 S / 164 MMS	0,41	42	10	80	-40	-20	Art3§3
DDCY 165 / 165 S/MMS	0,41	42	10	80	-40	-20	Art3§3
DDCY 305 / 305 S/MMS	0,66	42	10	80	-40	-20	Art3§3
DDCY 307 S / 307 MMS	0,66	42	10	80	-40	-20	Art3§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 97/23/EC (refer to Chapter 0 page 7)

Bi-directional flow and anti-acid filter driers

→ DDCY

■ Weights and packaging

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
DDCY 082	0,43	0,40	24	/
DDCY 082 S & MMS	0,43	0,40	24	/
DDCY 083	0,43	0,40	24	/
DDCY 083 S & MMS	0,43	0,40	24	/
DDCY 084	0,53	0,50	24	/
DDCY 084 S & MMS	0,53	0,50	24	/
DDCY 163	0,94	0,90	16	/

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
DDCY 163 S & MMS	0,94	0,90	16	/
DDCY 164	0,99	0,95	16	/
DDCY 164 S & MMS	0,99	0,95	16	/
DDCY 165	1,04	1,00	16	/
DDCY 165 S/MMS	1,04	1,00	16	/
DDCY 305	1,52	1,45	12	/
DDCY 305 S/MMS	1,52	1,45	12	/
DDCY 307 S/MMS	1,52	1,45	12	/

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

DTGB - 2.5-1-1-10

→ DDNCY *(Temporary use)*

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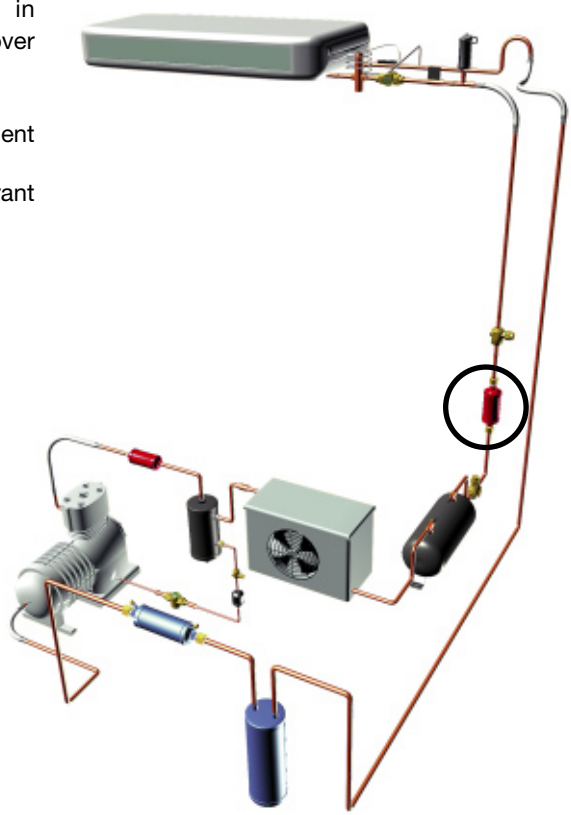
■ Applications

- 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 dirts.
  - → existing installations for an efficient cleaning of the refrigerant after compressor burnout.



■ Functional features

- Products are compatible with HFCs, HCFCs, CFCs, 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.
- Product classification in CE categories is performed using the PED 97/23/EC table, corresponding to a volume-based selection.
- Refrigerant flow is possible in both directions, and filtering is ensured whichever the direction.
- Filtering at outlet preventing propagation within the circuit of particles bigger than 12 microns.
- Two Shraeder valves for checking pressure drop, which facilitates the monitoring of filter saturation (except for model DDNCY 083).
- No desorption, even at high temperatures.
- Easy installation, in the liquid line between the condensing unit and terminal units (evaporators or air conditionning indoor units).

■ CARLY advantages

- Bi-flow cleaning filter driers with very low pressure drop, thanks to an innovative CARLY patented system, in terms of flow circuiting.
- Great efficiency for acid, wax binding and oily sludge neutralization at all temperatures, thanks to a fair distribution of chemical agents present in the filters: molecular sieves, activated alumina, active charcoal.
- 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.
- GOST certified products.

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

01/10

→ DDNCY *(Temporary use)*

■ Recommendations

* Cleaning filter driers are to be mounted on the liquid line, upstream from the expansion valve.
* 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 8); 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
  → visually monitor the oil condition and acidity level with TESTOIL-MAS and TESTOIL-POE acidity tests (refer to chapter 91).
* General assembly precautions: refer to chapter 115.

■ 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 (see procedure page 9.9)

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 9)

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.**

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

DTGB - 2.5-1-1-10

→ DDNCY *(Temporary use)*

01/10

■ Selection table

CARLY references	SAE connections inch	Refrigerating capacity (kW) (1)				Drying capacity (kg of refrigerant) (2)						Acid neutralization capacity (g) (3)
		R22	R134a	R404A R507	R407C R410A	R22 R407C		R134a R410A		R404A R507		
						24°C	52°C	24°C	52°C	24°C	52°C	
DDNCY 083	3/8	24,0	23	17	24,5	8	7,5	9	8	8	7	2,83
DDNCY 164	1/2	41,5	40	32	43,0	22	18,0	28	20	21	16	8,08
DDNCY 305	5/8	70,0	68	51	72,0	40	34,0	44	38	39	31	11,40

(1) *Refrigerating capacities according to Standard ARI 710-86 for To = -15°C, Tk = 30°C and Δp = 0.07 bar. If different conditions, refer to correction factors in chapter 112.*

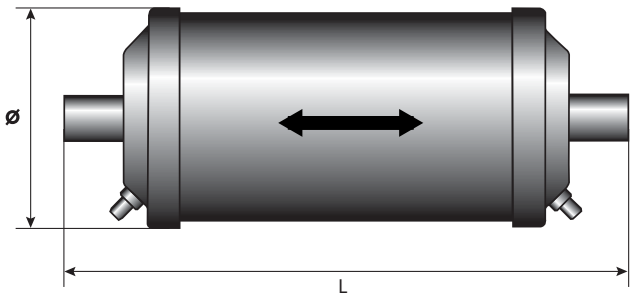
(2) *Dehydratable refrigerant capacity according to Standard ARI 710-86.*

(3) *Acid netralization capacity for a TAN of 0,05 (Total Acid Number).*

■ Technical features

CARLY references	Schraeder valves	Connection types(1)	Filtering surface (cm^2)	Desiccants volume (cm^3)	Dimensions (mm)		Net weight (kg)
					Ø	L	
DDNCY 083	0	1	64	118,0	53	156,0	0,40
DDNCY 164	2	1	160	297,7	74	179,0	0,95
DDNCY 305	2	1	160	557,7	74	259,0	1,50

(1) *Chapter "Connection features and drawings" (refer to chapter 114).*



CARLY references	Volume	Maximum working pressure	Working pressure (1)	Maximum working temperature	Minimum 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	42	10	80	-40	-20	Art3§3
DDNCY 164	0,41	42	10	80	-40	-20	Art3§3
DDNCY 305	0,66	42	10	80	-40	-20	Art3§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 97/23/EC (refer to Chapter 0 page 7).*

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

01/10

→ DDNCY *(Temporary use)*

■ Weights and packaging

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
DDNCY 083	0,43	0,40	24	/
DDNCY 164	0,99	0,95	24	/
DDNCY 305	1,57	1,50	24	/

Filter drier receiver units

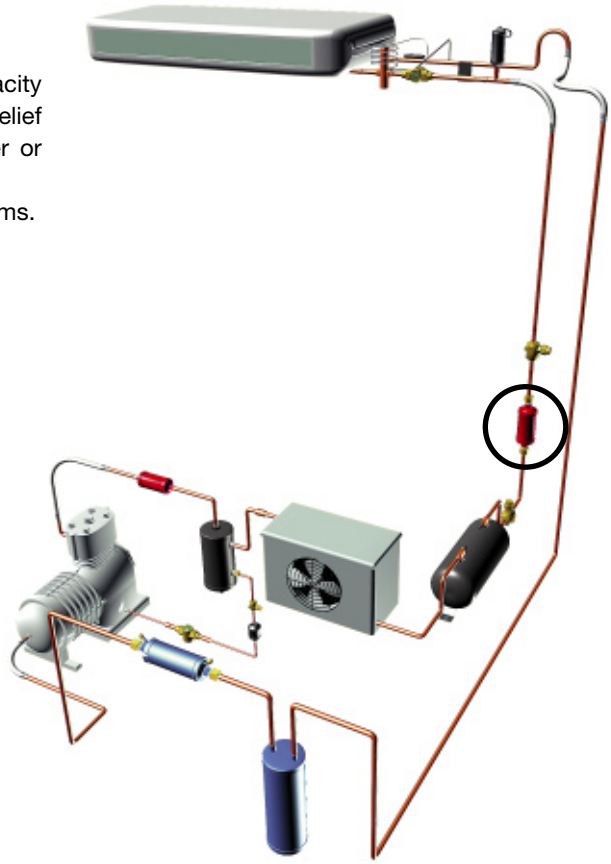
DTGB - 3.1-1-1-10

→ RCY

01/10

■ Applications

- Refrigerant filtering and drying, and acid neutralization for refrigerating and air conditioning installation liquid lines.
- Integrated liquid reserve function.
- 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-type condenser.
- Filter drier receivers fit perfectly within the heat pump systems.



■ Functional features

- Products are compatible with HFCs, HCFCs, CFCs, 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.
- Product classification in CE categories is performed using the PED 97/23/EC table, corresponding to a volume-based selection.
- Permanent reserve of dried and filtered refrigerant, for better feeding of the pressure relief valve, whichever the operating rate.
- Filtering at outlet preventing the propagation within the circuit of particles bigger than 12 microns.
- No desorption, even at high temperatures.

ⓘ CARLY can deliver specifie versions of filter driers receivers : drying capacity, volume of the receiver or connections adapted to your needs.

■ CARLY advantages

- Room saving in comparison with the assembly of two separate components (filter drier + receiver); savings in terms of labour cost and accessories.
- High drying and acid neutralization capacity at all temperatures, thanks to a rigorous selection and judicious mix of chemical agents present in the filter drier receivers (activated alumina to neutralise the acids and molecular sieves to adsorb moisture).
- Initial drying capacity guaranteed by a 200°C oven drying and airtight sealing.
- A dispenser located at the intake ensures optimal distribution and permanent treatment of the whole refrigerant, inside the filter drier receiver.
- Connections to solder are made of copper-plated steel, and allow the use of filler metals with a low silver content; their resistance to pressure is much higher than that of full copper connections.
- GOST certified products.

Filter drier receiver units

→ RCY

■ Recommendations

* 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.
* Be careful to properly select the solenoid valves located downstream of the filter drier receivers; their oversizing could cause liquid hammer phenomena hindering proper mechanical behaviour of the filter drier receivers; protection of the regulation elements upstream of the evaporator should be performed with FILTRY dirt filters (refer to chapter 8); these liquid hammer phenomena can come from other sources, in long-piping installations.
* Never install filter drier receivers 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).
* The filter drier receivers efficiency and the refrigerant moisture content should be checked using VCYL or VCYLS liquid sight glasses (refer to chapter 7).
* General assembly precautions: refer to chapter 115.

■ Selection table

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

(1) Refrigerating capacities according to Standard ARI 710-86 for To = -15°C, Tk = 30°C and Δp = 0.07 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

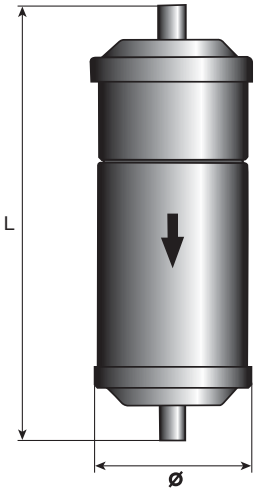
Filter drier receiver units

→ RCY

■ Technical features

CARLY references		Connection types (1)	Filtering surface (cm^2)	Desiccants volume (cm^3)	Receiver volume (L)	Dimensions (mm)		Net weight (kg)
						Ø	L	
RCY 502-3 S		2	52	70	0,12	53	160,5	0,35
RCY 522 S	**RCY 522 MMS**	2	52	60	0,21	53	209,0	0,45
RCY 523 S	**RCY 523 MMS**	2	52	60	0,21	53	209,0	0,45
RCY 743 S	**RCY 743 MMS**	2	102	240	0,35	74	232,0	1,00
RCY 744 S	**RCY 744 MMS**	2	102	240	0,35	74	232,0	1,00
RCY 924		1	170	290	0,76	93	266,0	1,65
RCY 924 S	**RCY 924 MMS**	2	170	290	0,76	93	246,0	1,65
RCY 925		1	170	290	1,80	93	455,0	2,35
RCY 925 S/MMS		2	170	290	1,80	93	435,0	2,35

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



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	42	10	80	-40	-20	Art 3§3
RCY 522 S	**RCY 522 MMS**	0,29	42	10	80	-40	-20	Art 3§3
RCY 523 S	**RCY 523 MMS**	0,29	42	10	80	-40	-20	Art 3§3
RCY 743 S	**RCY 743 MMS**	0,63	42	10	80	-40	-20	Art 3§3
RCY 744 S	**RCY 744 MMS**	0,63	42	10	80	-40	-20	Art 3§3
RCY 924		1,16	42	10	80	-40	-20	Art 3§3
RCY 924 S	**RCY 924 MMS**	1,16	42	10	80	-40	-20	Art 3§3
RCY 925		2,22	42	10	80	-40	-20	I
RCY 925 S/MMS		2,22	42	10	80	-40	-20	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 page 7).

Filter drier receiver units

→ RCY

■ Weights and packaging

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
RCY 502-3 S	0,35	0,35	1	48
RCY 522 S & MMS	0,45	0,45	1	48
RCY 523 S & MMS	0,45	0,45	1	70
RCY 743 S & MMS	1,01	1,00	1	25
RCY 744 S & MMS	1,01	1,00	1	25

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
RCY 924	1,66	1,65	1	12
RCY 924 S & MMS	1,66	1,65	1	12
RCY 925	2,36	2,35	1	12
RCY 925 S/MMS	2,36	2,35	1	12

Anti-acid filter driers with liquid sight glass

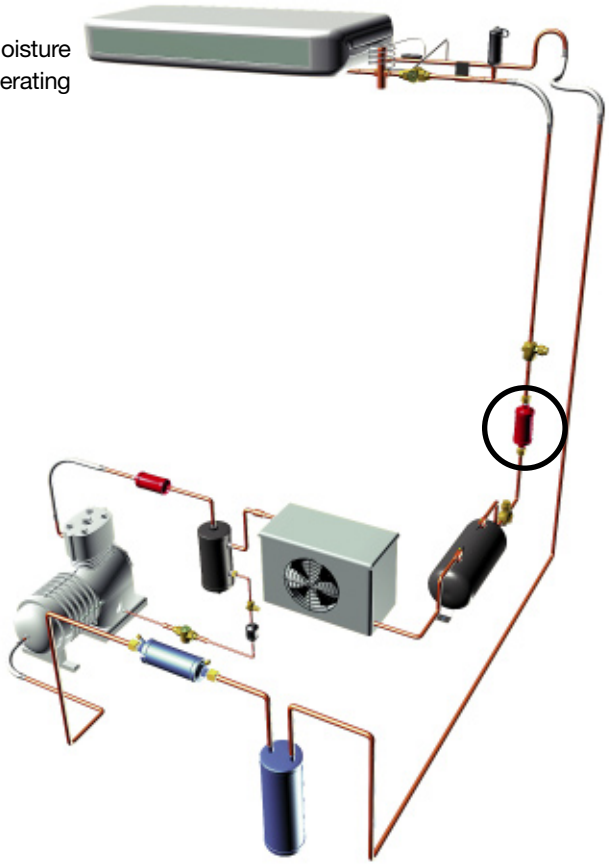
DTGB - 3.5-1-1-10

→ TSGY

01/10

■ Applications

- Filtering and drying of refrigerants and acid neutralization for liquid lines of refrigerating and air conditioning installations.
- Immediate and direct monitoring of flow, condition or moisture content of the refrigerant in its liquid or diphasic phase in refrigerating and air conditioning installations.



■ Functional features

- Products are compatible with HFCs, HCFCs, CFCs, 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.
- Product classification in CE categories is done with the PED 97/23/EC table, corresponding to a volume-based selection.
- Filtering at outlet preventing propagation within the circuit of particles bigger than 12 microns.
- No desorption, even at a high temperature.
- Visualisation of refrigerant through glass.
- A moisture indicator sensitive to moisture and resistant to acids is positioned under the glass.
- Moisture presence is characterised by a modification of the indicator colour; this modification is reversible.
- The sight glasses die-cast brass body guarantees perfect resistance to corrosion.

■ CARLY advantages

- Great drying and acid neutralization capacity at all tempe-ratures, 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).
- Initial drying capacity guaranteed by a 200°C oven drying and airtight sealing.
- A dispenser located at the intake ensures optimal distri- bution and permanent treatment of the whole refrigerant, inside the filter drier.
- The large size of the glass and the absence of a central hygroscopic tip ensure excellent visibility.
- The sealed design and the seaming principle of the chosen glass ensure perfect air-tightness.
- Two product fitted and tested in a factory, warranty of quality.
- GOST certified products.

Anti-acid filter driers with liquid sight glass

→ TSGY

■ Recommendations

* Filter driers are to be mounted on the liquid line between the receiver 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.
* 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 8); these liquid hammer phenomena can originate from other sources, in long-piping installations.
* Never install the filter driers in an area of the circuit that can be isolated.
* Never trap a refrigerant in its liquid state (between a check valve and a solenoid valve, for instance).
* Filter driers replacement is imperative after each intervention on the installation, and at least once a year.
* Filter drier efficiency and refrigerant moisture content should be checked by the sight glass.
* The indication of moisture presence is quick; in return, the moisture indicator indicates the return to normal situation a few hours only after implementation of a drying system.
* General assembly precautions: refer to chapter 115.

■ Selection table: Male/male connections to screw

CARLY references	Flare connections SAE inch	Refrigerating capacity (kW)(1)				Dehydratable refrigerant capacity (kg of refrigerant)(2)					
		R22	R134a	R404A R507	R407C R410A	R22 R407C		R134a R410A		R404A R507	
						24°C	52°C	24°C	52°C	24°C	52°C
TSGY 052	1/4	8,5	8,0	6,0	8,5	9,5	9,0	11,5	10	9,5	8,0
TSGY 082	1/4	9,0	8,5	6,5	9,0	15,0	14,5	16,5	15	14,5	13,5
TSGY 083	3/8	24,0	23,0	17,0	24,5	15,0	14,5	16,5	15	14,5	13,5
TSGY 163	3/8	24,5	24,0	18,0	25,0	40,0	34,0	50,0	37	38,0	31,0
TSGY 164	1/2	41,5	40,0	32,0	43,0	40,0	34,0	50,0	37	38,0	31,0

(1) Refrigerating capacities according to Standard ARI 710-86 for To = -15°C, Tk = 30°C and Δp = 0.07 bar. If different conditions, refer to correction factors in chapter 112.

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

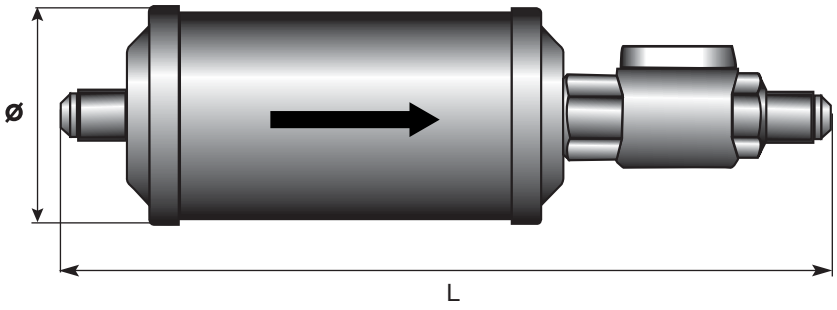
Example of selection of the anti-acid filter drier with sight glasses TSGY, report to chapter 1.4 of the DCY technical documentation.

Anti-acid filter driers with liquid sight glass

→ TSGY

■ Technical features

CARLY references	Filtering surface (cm^2)	Desiccants volume (cm^3)	Dimensions (mm)		Net weight (kg)
			Ø	L	
TSGY 052	52	81,5	53	171	0,45
TSGY 082	52	130,0	53	199	0,55
TSGY 083	52	130,0	53	213	0,60
TSGY 163	102	321,6	74	233	1,10
TSGY 164	102	321,6	74	239	1,20



■ 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)	
TSGY 052	0,12	42	10	80	-40	-20	Art3§3
TSGY 082	0,16	42	10	80	-40	-20	Art3§3
TSGY 083	0,17	42	10	80	-40	-20	Art3§3
TSGY 163	0,40	42	10	80	-40	-20	Art3§3
TSGY 164	0,42	42	10	80	-40	-20	Art3§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 97/23/EC (refer to Chapter 0 page 7).

DTGB - 3.5-1-1-10

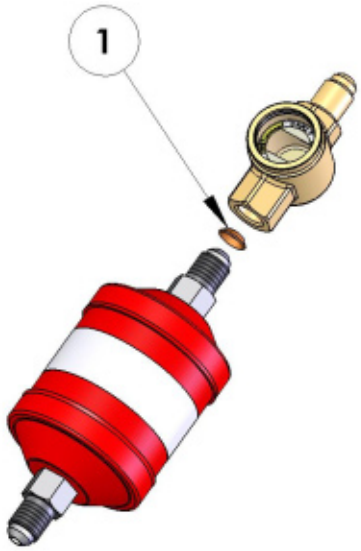
Anti-acid filter driers with liquid sight glass

→ TSGY

01/10

■ Spare parts

CARLY references	Part N°	Description	Types	Quantity
CY 15590015	1	Set of 25 guided taper copper gaskets for 1/4" SAE (flare) connections	TSGY 052	1
			TSGY 082	
CY 15590025	1	Set of 25 guided taper copper gaskets for 3/8" SAE (flare) connections	TSGY 083	1
			TSGY 163	
CY 15590035	1	Set of 25 guided taper copper gaskets for 1/2" SAE (flare) connections	TSGY 164	1



■ Weights and packaging

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
TSGY 052	0,48	0,45	24	/
TSGY 082	0,62	0,55	24	/
TSGY 083	0,67	0,60	12	/
TSGY 163	1,14	1,10	12	/
TSGY 164	1,24	1,20	12	/

DTGB - 4.1-2-5-10

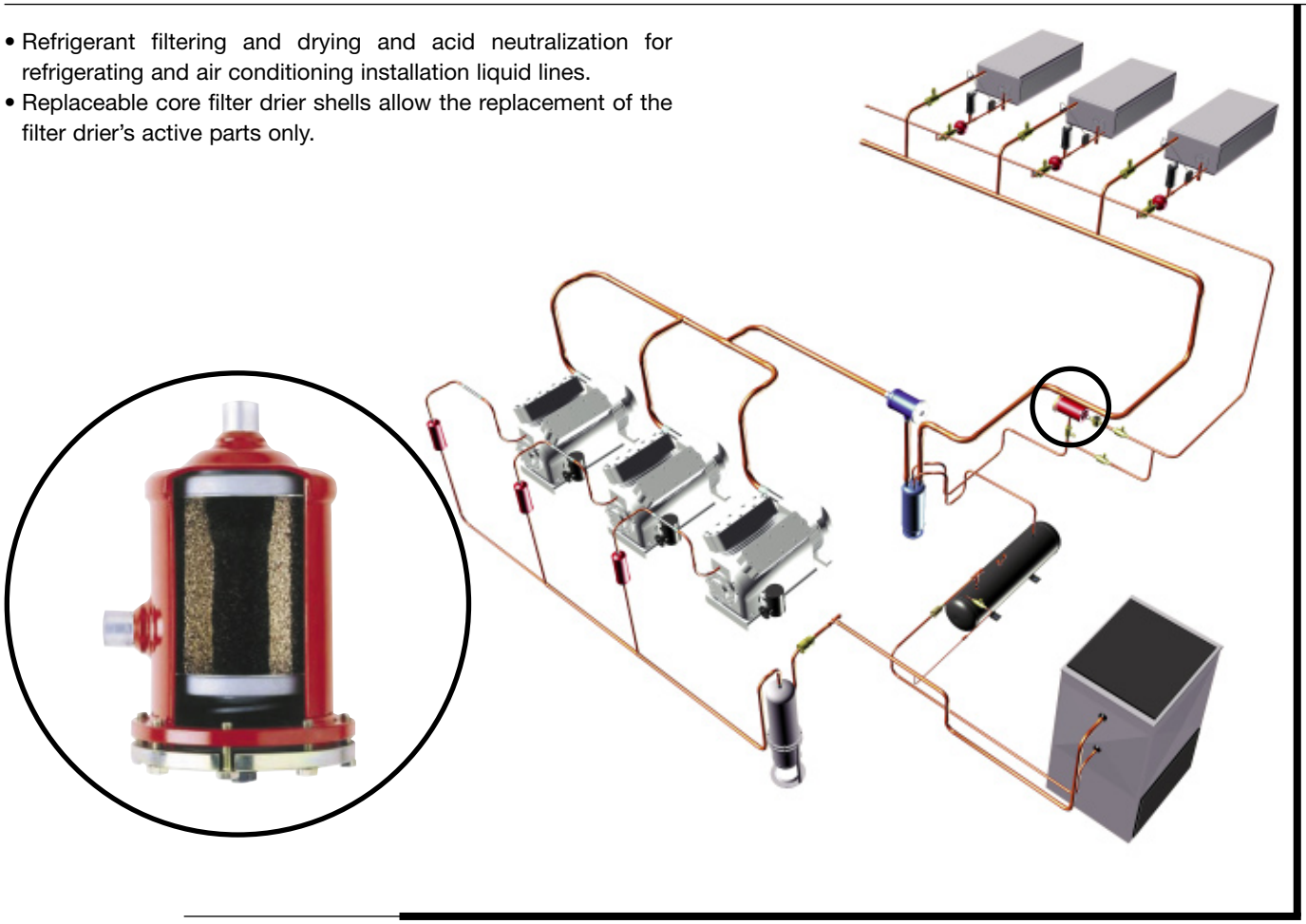
Replaceable core filter drier shells (liquid line)

→ BDCY / BCY / BBCY

01/10

■ Applications

- Refrigerant filtering and drying and acid neutralization for refrigerating and air conditioning installation liquid lines.
- Replaceable core filter drier shells allow the replacement of the filter drier's active parts only.



■ Functional features

- Products that are compatible with HFCs, HCFCs, CFCs, 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.
- Product classification in CE categories is performed using the PED 97/23/EC table, corresponding to a volume-based selection.
- Filtering at outlet preventing the propagation within the circuit of particles bigger than 150 microns.
- 1/4" NPT taper tapping and its plug on end plate, allowing the installation of a pressure tap or a feeding valve.
- End plate perfectly tight thanks to its circular rim and its gasket compatible with all HFCs, HCFCs and CFCs.

■ CARLY advantages

- Individual core holders treated against corrosion by zinc-coating, with a reduced course for easy core replacement; therefore, replacement time is extremely reduced, limiting the time the drying cores and the inner part of the circuit are exposed to the atmosphere.
- Core holder design ensures automatic and immediate centring of the filter drier shells.
- No flow area restriction outside the filter drier shells thanks to an appropriate filtering system.
- GOST certified products.

DTGB - 4.1-2-5-10

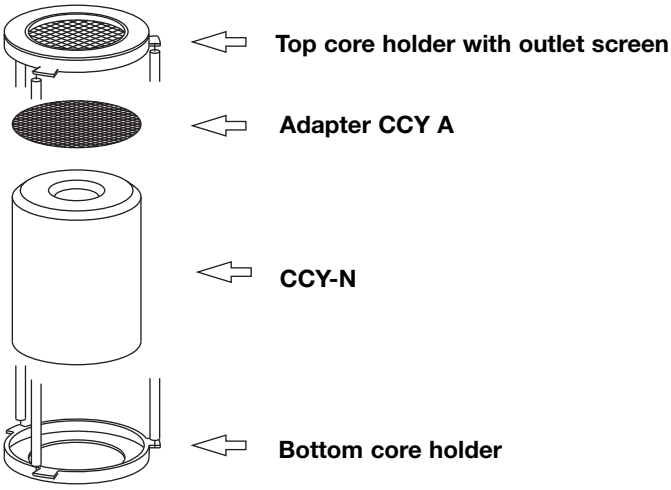
Replaceable core filter drier shells (liquid line)

→ BDCY / BCY / BBCY

01/10

■ Recommendations

* Filter drier shells are to be mounted on the liquid line between the receiver and the expansion element.
* The refrigerant flow direction, indicated by an arrow on the filter drier shells' tags, should be complied with.
* Assembly can be performed in whichever position, but not vertically with the outlet connection oriented downwards.
* During filter drier shells assembly, provide for sufficient course to allow core replacement (refer to sizes in the technical features table).
* Be careful to properly select the solenoid valves located downstream of the filter drier shells; their oversizing could cause liquid hammer phenomena hindering the filter drier shells' proper mechanical behaviour; protection of the regulation elements upstream of the evaporator should be performed with FILTRY dirt filters (refer to chapter 8); these liquid hammer phenomena can originate from other sources, in long-piping installations.
* Never install filter drier shells 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).
* The filter drier shells' efficiency and the refrigerant's moisture content should be checked using VCYL or VCYLS liquid sight glasses (refer to chapter 7).
* General assembly precautions: refer to chapter 115.



DTGB - 4.1-2-5-10

Replaceable core filter drier shells (liquid line)

→ BDCY *(corresponding cores: CCY 42)*

01/10

■ Core replacement procedure

1 • Isolate the **BDCY** filter drier shell.

2 • Purge the installation up to atmospheric pressure (shell should be empty of refrigerants)

3 • Remove the end plate.

4 • Remove the bottom core holder.

5 • Remove the used core.

6 • Clean and replace if necessary, the **CCY A 42** adapter and the outlet screen.

7 • Check and replace if necessary, the outlet gasket of top core holder.

8 • Replace systematically the end plate gasket.

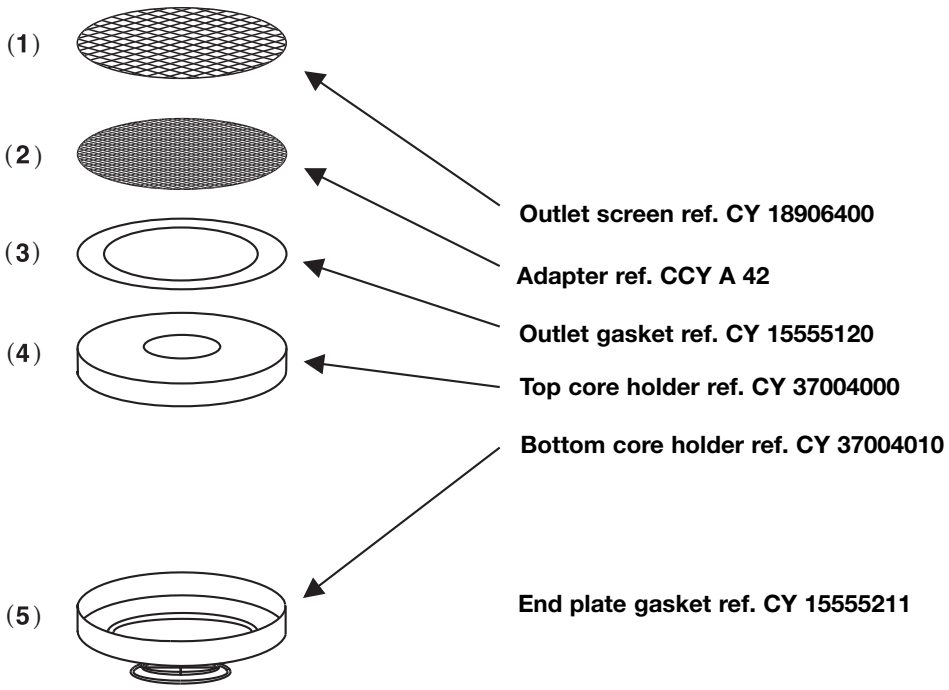
9 • Remove the **CCY 42** core from its sealed can.

10 • Reassemble in order: the outlet screen (1), the **CCY A 42** adapter (2), the outlet gasket (3), the top core holder (4), the **CCY 42** core, the bottom core holder and its compression spring (5) (sketch below)

11 • Place the end plate back making sure that the compression spring is properly positioned and tighten the fastening bolts in a uniform and progressive way (cross tightening) Maximum bolt tightening torque: 24 N.m.

12 • Make sure that the end plate's 1/4" NPT taper tapping has been properly plugged in and sealed.

13 • Make vacuum in the installation and check air-tightness of the whole set before putting back under pressure.



Replaceable core filter drier shells (liquid line)

01/10

→ BDCY *(corresponding cores: CCY 42)*

■ Selection table

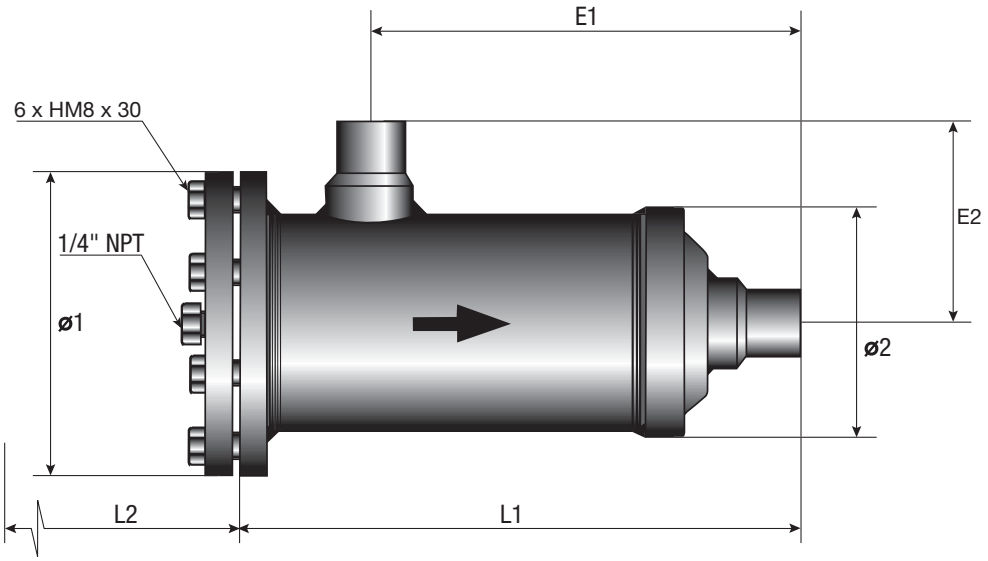
CARLY references	Connections To solder ODF inch	CARLY references	Connections To solder ODF mm	Refrigerating capacity (kW)(1)				Number of cores
				R22	R134a	R404A R507	R407C R410A	
BDCY 424 S	1/2	**BDCY 424 MMS**	12	19	17	12	19	1
BDCY 425 S/MMS	5/8	**BDCY 425 S/MMS**	16	27	25	18	27	1
BDCY 427 S	7/8	**BDCY 427 MMS**	22	45	41	29	44	1

(1) Refrigerating capacities according to Standard ARI 710-86 for To = -15°C, Tk = 30°C and Δp = 0.07 bar.
If different conditions, refer to correction factors in chapter 112.

■ Technical features

CARLY references		Connection types (1)	Filtering surface (cm²)			Dimensions (mm)						Net weight (kg)
			CCY 42 HP CCY 42 N	CCY 42 F	CCY 42 I	Ø1	Ø2	L1	L2	E1	E2	
BDCY 424 S	**BDCY 424 MMS**	2	374	329	348	124	93	207,5	210	150,5	64,5	2,6
BDCY 425 S/MMS		2	374	329	348	124	93	209,5	210	152,5	66,5	2,6
BDCY 427 S	**BDCY 427 MMS**	2	374	329	348	124	93	219,5	210	162,5	76,0	2,7

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



DTGB - 4.1-2-5-10

Replaceable core filter drier shells (liquid line)

01/10

→ BDCY *(corresponding cores: CCY 42)*

■ Technical features

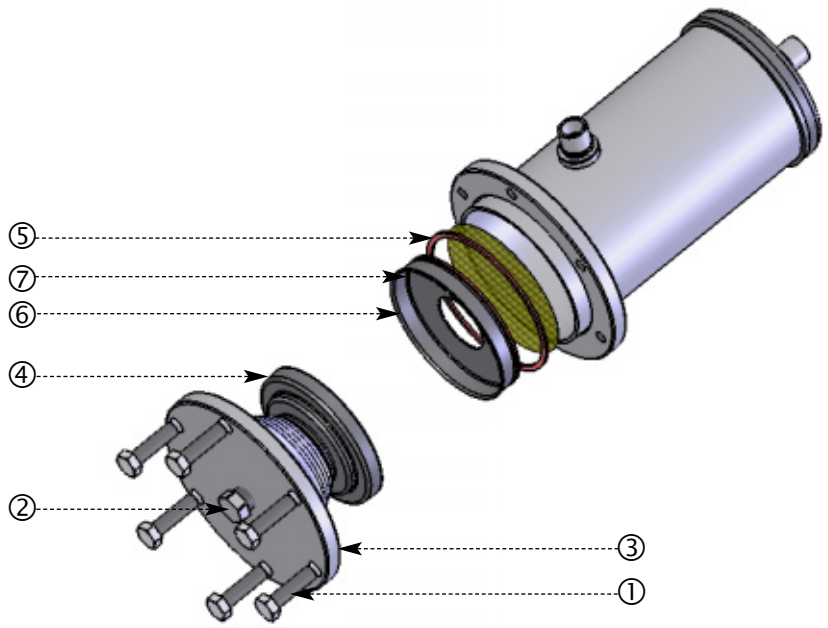
CARLY references		Volume	Maximal working pressure	Working pressure (1)	Maximal working temperature	Minimal working temperature	Working temperature(1)	CE Category(2)
		V (L)	PS (bar)	PS BT (bar)	TS maxi (°C)	TS mini (°C)	TS BT (°C)	
BDCY 424 S	**BDCY 424 MMS**	1,06	42	10	80	-40	-20	Art3§3
BDCY 425 S/MMS		1,06	42	10	80	-40	-20	Art3§3
BDCY 427 S	**BDCY 427 MMS**	1,07	42	10	80	-40	-20	Art3§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 97/23/EC (refer to chapter 0 page 7).

■ Spare parts

CARLY references	Part N°	Description	Quantity
CY 19900410	1	Lot de 6 vis de fermeture de flasque	1
CY 19910410	1	Lot de 6 vis inox de fermeture de flasque	1
CY 10810010	2	Bouchon 1/4" NPT phosphaté pour flasque de fermeture	1
CY 33301000	2 + 3 + 5	Bouchon 1/4" NPT + flasque de fermeture + joint	1
CY 37004010	4	Support de cartouche d'entrée	1
CY 15555211	5	Joint plat pour flasque de fermeture	1
CY 37004000	6	Support de cartouche de sortie	1
CCY A 42	7	Adaptateur pour support de cartouche de sortie	1



DTGB - 4.1-2-5-10

Replaceable core filter drier shells (liquid line)

01/10

→ BCY *(corresponding cores: CCY 48 and PLATINIUM 48)*

■ Core replacement procedure

1 • Isolate the **BCY** filter drier shell.

2 • Purge the installation up to atmospheric pressure (shell should be empty of refrigerants)

3 • Remove the end plate.

4 • Remove the core holders one after the other.

5 • Remove the used cores.

6 • Clean very carefully the core holders, the adapter (CCY A 48) and the inner part of the shell case.

7 • Replace systematically the gasket on the end plate and check the core holder and core end gaskets.

8 • Remove the core from its can and put it on the core holder, separating by traction the two flanges that hold the core holder (sketch 1)

9 • Repeat the operation for each core holder.

10 • Quickly install the core holders with their core in the shell, complying with their mounting order: the first one holds the filter elements and the last one is the one equipped with the compression spring (sketch 2)

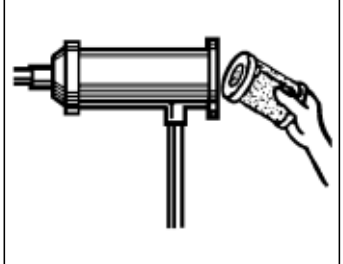
11 • Put the end plate back and tighten the fastening bolts in a uniform and progressive way (cross tightening). Maximum bolt tightening torque: 30 N.m.

12 • Make sure that the end plate's 1/4" NPT taper tapping has been properly plugged in and sealed.

13 • Make vacuum in the installation and check air-tightness of the whole set before putting back under pressure.

1

2



DTGB - 4.1-2-5-10

Replaceable core filter drier shells (liquid line)

01/10

→ BCY *(corresponding cores: CCY 48 and PLATINIUM 48)*

■ Selection table

CARLY references	Connections To solder ODF inch	CARLY references	Connections To solder ODF mm	Refrigerating capacity (kW)(1)				Number of cores
				R22	R134a	R404A R507	R407C R410A	
BCY 485 S/MMS	5/8	**BCY 485 S/MMS**	16	94	86	61	93	1
BCY 487 S	7/8	**BCY 487 MMS**	22	157	143	102	155	1
BCY 489 S	1 1/8	**BCY 489 MMS**	28	207	188	135	205	1
BCY 4811 S/MMS	1 3/8	**BCY 4811 S/MMS**	35	247	225	161	245	1
BCY 4813 S	1 5/8	**BCY 4813 MMS**	42	300	273	195	297	1
BCY 4817 S/MMS	2 1/8	**BCY 4817 S/MMS**	54	350	319	228	347	1
BCY 967 S	7/8	**BCY 967 MMS**	22	153	139	100	151	2
BCY 969 S	1 1/8	**BCY 969 MMS**	28	235	214	153	233	2
BCY 9611 S/MMS	1 3/8	**BCY 9611 S/MMS**	35	334	304	217	331	2
BCY 9613 S	1 5/8	**BCY 9613 MMS**	42	410	373	267	406	2
BCY 9617 S/MMS	2 1/8	**BCY 9617 S/MMS**	54	414	377	269	410	2
BCY 1449 S	1 1/8	**BCY 1449 MMS**	28	375	341	244	371	3
BCY 14411 S/MMS	1 3/8	**BCY 14411 S/MMS**	35	400	364	260	396	3
BCY 14413 S	1 5/8	**BCY 14413 MMS**	42	415	378	270	411	3
BCY 14417 S/MMS	2 1/8	**BCY 14417 S/MMS**	54	445	405	290	441	3
BCY 19213 S	1 5/8	**BCY 19213 MMS**	42	525	478	342	520	4
BCY 19217 S/MMS	2 1/8	**BCY 19217 S/MMS**	54	560	510	364	554	4

(1) Refrigerating capacities according to Standard ARI 710-86 for To = -15°C, Tk = 30°C and Δp = 0.07 bar.
If different conditions, refer to correction factors in chapter 112.

Replaceable core filter drier shells (liquid line)

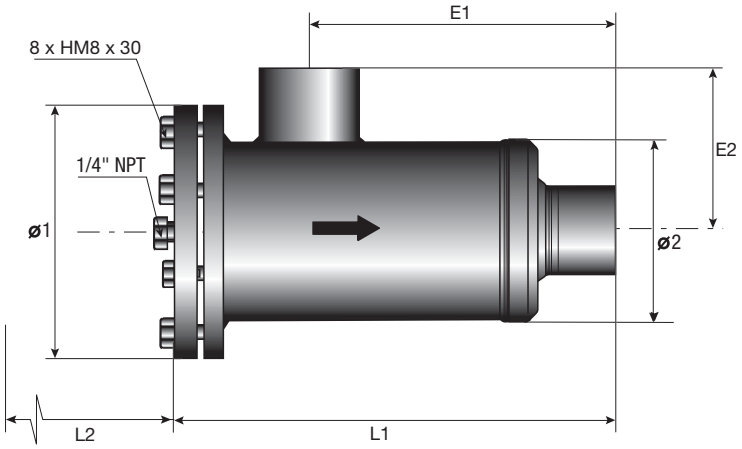
01/10

→ BCY *(corresponding cores: CCY 48 and PLATINIUM 48)*

■ Technical features

CARLY references		Connection types (1)	Filtering surface (cm^2)	Dimensions (mm)						Net weight (kg)
				Ø1	Ø2(2)	L1	L2	E1	E2	
BCY 485 S/MMS		2	420	150	128	230	210	139	82	4,20
BCY 487 S	**BCY 487 MMS**	2	420	150	128	240	210	149	92	4,30
BCY 489 S	**BCY 489 MMS**	3	420	150	128	245	210	154	97	4,40
BCY 4811 S/MMS		3	420	150	128	255	210	164	107	4,45
BCY 4813 S	**BCY 4813 MMS**	3	420	150	128	255	210	164	107	4,55
BCY 4817 S/MMS		3	420	150	128	270	210	178	124	4,80
BCY 967 S	**BCY 967 MMS**	2	840	150	128	380	210	289	92	5,60
BCY 969 S	**BCY 969 MMS**	3	840	150	128	385	210	294	97	5,65
BCY 9611 S/MMS		3	840	150	128	395	210	304	107	5,85
BCY 9613 S	**BCY 9613 MMS**	3	840	150	128	395	210	304	107	5,95
BCY 9617 S/MMS		3	840	150	128	410	210	318	124	6,10
BCY 1449 S	**BCY 1449 MMS**	3	1260	150	128	525	210	434	97	6,85
BCY 14411 S/MMS		3	1260	150	128	535	210	444	107	7,05
BCY 14413 S	**BCY 14413 MMS**	3	1260	150	128	535	210	444	107	7,10
BCY 14417 S/MMS		3	1260	150	128	550	210	458	124	7,35
BCY 19213 S	**BCY 19213 MMS**	3	1680	150	128	680	210	589	107	8,25
BCY 19217 S/MMS		3	1680	150	128	695	210	603	124	8,65

(1) *Chapter "Connection features and drawings" (refer to chapter 114).*
(2) *Including weld*



DTGB - 4.1-2-5-10

Replaceable core filter drier shells (liquid line)

05/10

→ BCY *(corresponding cores: CCY 48 and PLATINIUM 48)*

■ Technical features

CARLY references		Volume V (L)	Maximal working pressure PS (bar)	Working pressure (1) PS BT (bar)	Maximal working temperature TS maxi (°C)	Minimal working temperature TS mini (°C)	Working temperature (1) TS BT (°C)	CE Category(2)
BCY 485 S/MMS		1,90	35	10	80	-40	-20	I
BCY 487 S	**BCY 487 MMS**	1,91	35	10	80	-40	-20	I
BCY 489 S	**BCY 489 MMS**	1,92	35	10	80	-40	-20	I
BCY 4811 S/MMS		1,93	35	10	80	-40	-20	I
BCY 4813 S	**BCY 4813 MMS**	1,95	35	10	80	-40	-20	I
BCY 4817 S/MMS		2,03	35	10	80	-40	-20	I
BCY 967 S	**BCY 967 MMS**	3,30	35	10	80	-40	-20	I
BCY 969 S	**BCY 969 MMS**	3,30	35	10	80	-40	-20	I
BCY 9611 S/MMS		3,30	35	10	80	-40	-20	I
BCY 9613 S	**BCY 9613 MMS**	3,30	35	10	80	-40	-20	I
BCY 9617 S/MMS		3,40	35	10	80	-40	-20	I
BCY 1449 S	**BCY 1449 MMS**	4,90	35	10	80	-40	-20	I
BCY 14411 S/MMS		5,00	35	10	80	-40	-20	I
BCY 14413 S	**BCY 14413 MMS**	5,00	35	10	80	-40	-20	I
BCY 14417 S/MMS		5,10	35	10	80	-40	-20	I
BCY 19213 S	**BCY 19213 MMS**	6,40	31	10	80	-40	-20	I
BCY 19217 S/MMS		6,40	31	10	80	-40	-20	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 page 7).

Replaceable core filter drier shells (liquid line)

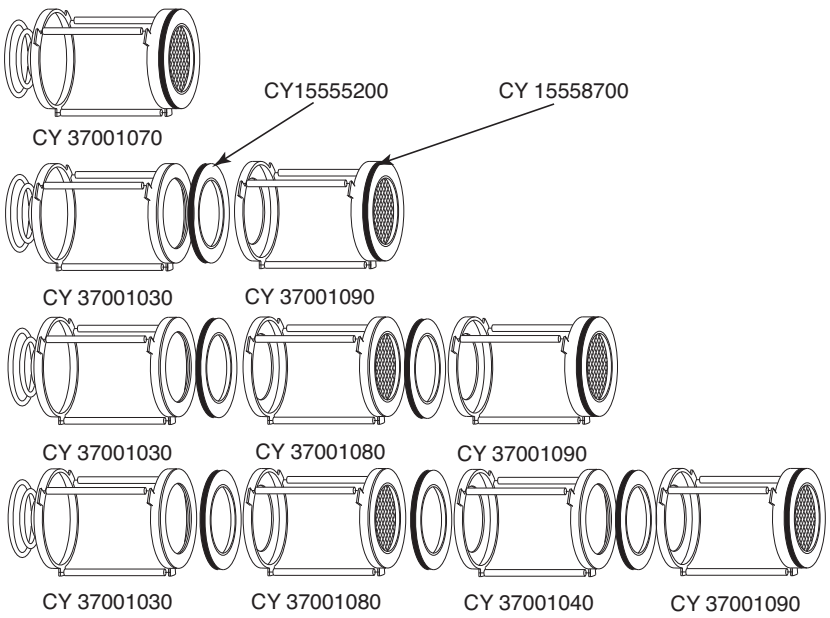
01/10

→ BCY *(corresponding cores: CCY 48 and PLATINIUM 48)*

■ Spare parts

SHELLS	CARLY References for core holders	Quantity and type of gaskets for use	
		Core holders gasket	End plate gasket
BCY 1 core	CY 37001070	1 gasket CY 15558700	1 gasket CY 15555601 (2)
BCY 2 cores	CY 37001030 + CY 37001090	1 gasket CY 15555200 (1) +1 gasket CY 15558700	
BCY 3 cores	CY 37001030 + CY 37001080 + CY 37001090	2 gaskets CY 15555200 (1) +1 gasket CY 15558700	
BCY 4 cores	CY 37001030 + CY 37001080 + CY 37001040 + CY 37001090	3 gaskets CY 15555200 (1) +1 gasket CY 15558700	

(1) Gasket delivred with core holders
(2) Gasket delivred with cores CCY 48 N, CCY 48 HP and PLATINIUM 48



DTGB - 4.1-2-5-10

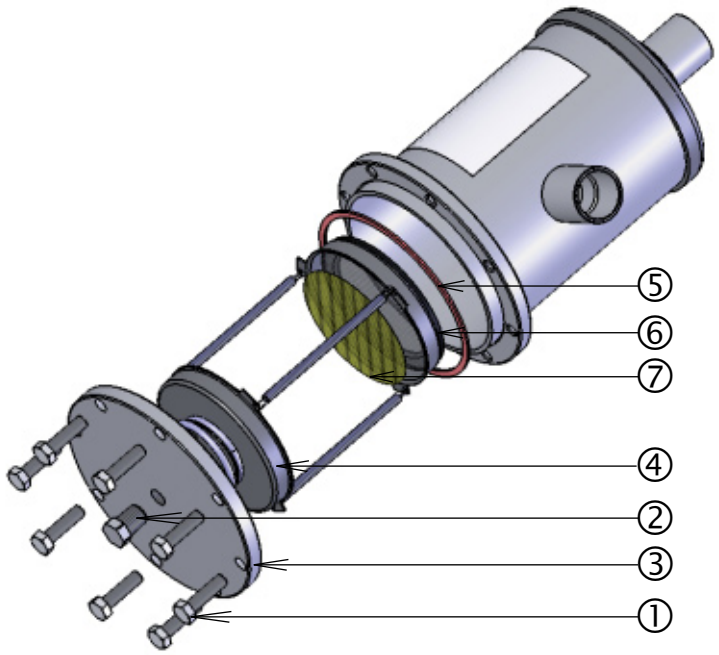
Replaceable core filter drier shells (liquid line)

01/10

→ BCY *(corresponding cores: CCY 48 and PLATINIUM 48)*

■ Spare parts

CARLY references	Part N°	Description	Quantity
CY 19900411	1	Set of 8 fastening screws for end plate	1
CY 19910411	1	Set of 8 fastening stainless steel screws for end plate	1
CY 10810010	2	1/4" NPT phosphate plug for end plate	1
CY 33301200	2 + 3 + 5	1/4" NPT plug + end plate + gasket	1
CY 37001030	4	Core holder (2, 3 and 4 cores)	1
CY 37001040	4	Core holder (4 cores)	1
CY 37001070	4	Core holder (1 core)	1
CY 37001080	4	Core holder (3 and 4 cores)	1
CY 37001090	4	Core holder (2, 3 and 4 cores)	1
CY 15555601	5	End plate gasket	1
CY 15555200	6	Adhesive gasket for core holders:: CY 37001030, CY 37001040 et CY 37001080	1
CCY A 48	7	Adapter for end core holder	1
CY 15555000		Bag of gaskets for shell end plates : CARLY and for most manufacturers (gaskets: 122 x 114 x 1.6 and 114 x 103 x 1.6)	1



DTGB - 4.1-2-5-10

Replaceable core filter drier shells (liquid line)

01/10

→ BBCY *(corresponding cores: CCY 100)*

■ Core replacement procedure

1 • Isolate the **BBCY** filter drier shell.

2 • Purge the installation up to atmospheric pressure (shell should be empty of refrigerant)

3 • Remove the end plate.

4 • Remove the core holders one after the other.

5 • Remove the used cores.

6 • Clean very carefully the core holders, the adapter (CCY A 100) and the inner part of the shell case.

7 • Replace systematically the gasket on the end plate and check the core holder and core end gaskets.

8 • Remove the core from its can and put it on the core holder, separating by traction the two flanges that hold the core holder (sketch 1)

9 • Repeat the operation for each core holder.

10 • Quickly install the core holders with their core in the shell complying with their mounting order:
the first one holds the filter elements and the last one is equipped with a compression spring (sketch 2)

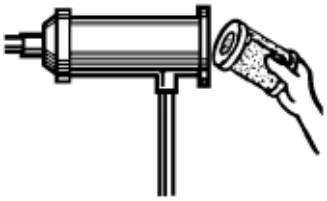
11 • Put the end plate back and tighten the fastening bolts in a uniform and progressive way (cross tightening). Maximum bolt tightening torque: 48 N.m.

12 • Make sure that the end plate's 1/4" NPT taper tapping has been properly plugged in and sealed.

13 • Make vacuum in the installation and check air-tightness of the whole set before putting back under pressure.

1

2



DTGB - 4.1-2-5-10

Replaceable core filter drier shells (liquid line)

01/10

→ BBCY *(corresponding cores: CCY 100)*

■ Selection table

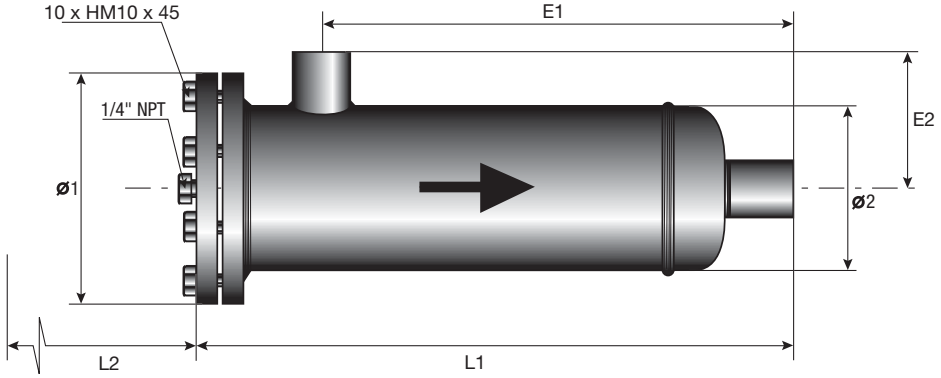
CARLY references	Connections To solder ODF inch	CARLY references	Connections To solder ODF mm	Refrigerating capacity (kW)(1)				Number of cores
				R22	R134a	R404A R507	R407C R410A	
BBCY 20017 S/MMS	2 1/8	**BBCY 20017 S/MMS**	54	454	413	295	450	2
BBCY 20021 S	2 5/8	**BBCY 20021 MMS**	67	500	455	325	495	2
BBCY 30021 S	2 5/8	**BBCY 30021 MMS**	67	580	528	377	574	3
BBCY 40017 S/MMS	2 1/8	**BBCY 40017 S/MMS**	54	591	538	385	586	4
BBCY 40021 S	2 5/8	**BBCY 40021 MMS**	67	700	637	456	693	4
BBCY 40025 S	3 1/8	**BBCY 40025 MMS**	80	840	765	547	832	4

(1) Refrigerating capacities according to Standard ARI 710-86 for To = -15°C, Tk = 30°C and Δp = 0.07 bar.
If different conditions, refer to correction factors in chapter 112.

■ Technical features

CARLY references		Connection types (1)	Filtering surface (cm²)	Dimensions (mm)						Net weight (kg)
				Ø1	Ø2(2)	L1	L2	E1	E2	
BBCY 20017 S/MMS		3	1260	200	156	545	300	402	136	14,40
BBCY 20021 S	**BBCY 20021 MMS**	3	1260	200	156	555	300	413	138	15,10
BBCY 30021 S	**BBCY 30021 MMS**	3	1890	200	156	745	300	613	138	18,05
BBCY 40017 S/MMS		3	2520	200	156	900	470	780	136	20,10
BBCY 40021 S	**BBCY 40021 MMS**	3	2520	200	156	910	470	778	138	21,30
BBCY 40025 S	**BBCY 40025 MMS**	3	2520	200	156	920	470	777	130	23,00

(1) Chapter "Connection features and drawings" (refer to chapter 114).
(2) Including weld



DTGB - 4.1-2-5-10

Replaceable core filter drier shells (liquid line)

01/10

→ BBCY *(corresponding cores: CCY 100)*

■ 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)	
BBCY 20017 S/MMS		7,23	31,5	10	80	-40	-20	II
BBCY 20021 S	**BBCY 20021 MMS**	7,34	31,5	10	80	-40	-20	II
BBCY 30021 S	**BBCY 30021 MMS**	10,64	31,5	10	80	-40	-20	II
BBCY 40017 S/MMS		13,23	31,5	10	80	-40	-20	II
BBCY 40021 S	**BBCY 40021 MMS**	13,34	31,5	10	80	-40	-20	II
BBCY 40025 S	**BBCY 40025 MMS**	13,42	31,5	10	80	-40	-20	II

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

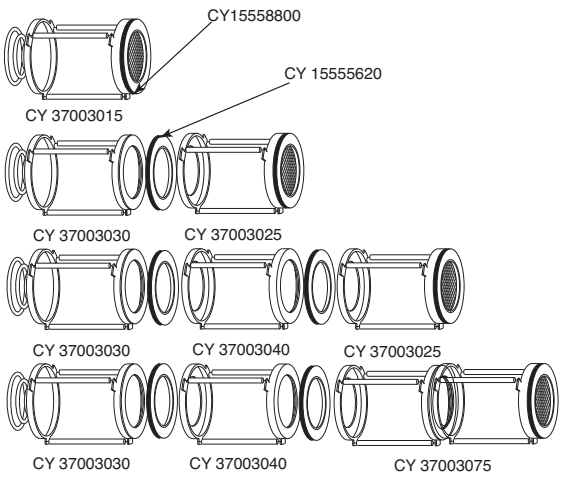
(2) Classification by volume, according to PED 97/23/EC (refer to chapter 0 page 7).

■ Spare parts

SHELLS	CARLY References for core holders	Quantity and type of gaskets to use	
		Core holders gasket	End plate gasket
BBCY 1 Core	CY 37003015	1 Gasket CY 15558800	1 Gasket CY 15555701 (2)
BBCY 2 Cores	CY 37003030 + CY 37003025	1 Gasket CY 15555620 (1) +1 Gasket CY 15558800	
BBCY 3 Cores	CY 37003030 + CY 37003040 + CY 37003025	2 Gaskets CY 15555620 (1) +1 Gasket CY 15558800	
BBCY 4 Cores	CY 37003030 + CY 37003040 + CY 37003075	2 Gaskets CY 15555620 (1) +1 Gasket CY 15558800	

(1) Gasket delivred with core holders

(2) Gasket delivred with cores CCY 100 N and CCY 100 HP



Non-binding documents

DTGB - 4.1-2-5-10

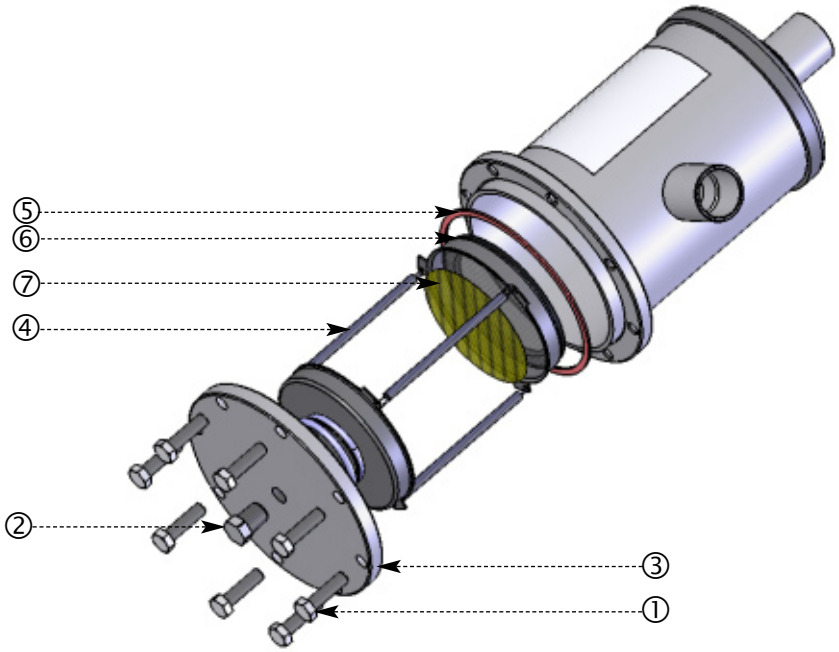
Replaceable core filter drier shells (liquid line)

01/10

→ BBCY *(corresponding cores: CCY 100)*

■ Spare parts

CARLY references	Part N°	Description	Quantity
CY 19900520	1	Set of 10 fastening screws for end plate	1
CY 19910520	1	Set of 10 fastening stainless steel screws for end plate	1
CY 10810010	2	1/4" NPT phosphate plug for end plate	1
CY 33301700	2 + 3 + 5	1/4" NPT plug + end plate + gasket	1
CY 37003015	4	Core holder (1 core)	1
CY 37003025	4	Core holder (2 and 3 cores)	1
CY 37003030	4	Core holder (2, 3 and 4 cores)	1
CY 37003040	4	Core holder (3 and 4 cores)	1
CY 37003075	4	Core holder (4 cores)	1
CY 15555701	5	End plate gasket	1
CY 15555620	6	Adhesive gasket for core holders: CY 37003030 - CY 37003040	1
CCY A 100	7	Adapter for end core holder	1



Replaceable core filter drier shells (liquid line)

→ BDCY / BCY / BBCY

■ Weights and packaging

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
BDCY 424 S & MMS	2,85	2,60	1	/
BDCY 425 S/MMS	2,90	2,65	1	/
BDCY 427 S & MMS	2,95	2,70	1	/
BCY 485 S/MMS	4,45	4,20	1	8
BCY 487 S & MMS	4,55	4,30	1	8
BCY 489 S & MMS	4,65	4,40	1	8
BCY 4811 S/MMS	4,70	4,45	1	/
BCY 4813 S & MMS	4,80	4,55	1	/
BCY 4817 S/MMS	5,05	4,80	1	/
BCY 967 S & MMS	5,90	5,60	1	/
BCY 969 S & MMS	5,95	5,65	1	6
BCY 9611 S/MMS	6,15	5,85	1	6
BCY 9613 S & MMS	6,25	5,95	1	6

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
BCY 9617 S/MMS	6,40	6,10	1	/
BCY 1449 S & MMS	7,20	6,85	1	/
BCY 14411 S/MMS	7,40	7,05	1	/
BCY 14413 S & MMS	7,45	7,10	1	/
BCY 14417 S/MMS	7,70	7,35	1	/
BCY 19213 S & MMS	8,65	8,25	1	/
BCY 19217 S/MMS	9,05	8,65	1	/
BBCY 20017 S/MMS	15,70	14,40	1	/
BBCY 20021 S & MMS	15,80	15,10	1	/
BBCY 30021 S & MMS	18,80	18,05	1	/
BBCY 40017 S/MMS	21,00	20,10	1	/
BBCY 40021 S & MMS	22,20	21,30	1	/
BBCY 40025 S & MMS	23,90	23,00	1	/

DTGB - 5.1-2-5-10

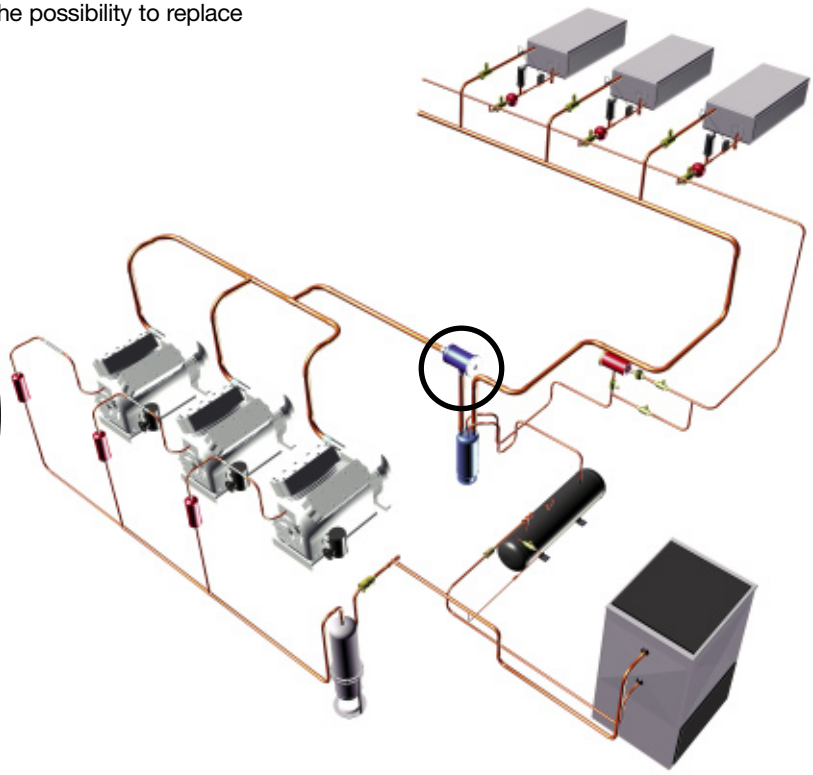
Replaceable core filter shells (suction line)

→ BDCY / ACY / BACY

01/10

■ Applications

- Cleaning, decontamination and protection of refrigerating and air conditioning installation refrigerant circuits.
- Suction replaceable core filter shells give the possibility to replace only active filter parts.



■ Functional features

- Products are compatible with HFCs, HCFCs, CFCs, 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.
- Product classification in CE categories is performed using the PED 97/23/EC table, corresponding to a volume-based selection.
- The suction filter shells also allow for CCY N cleaning cores, using CCY A adapters.
- 1/4" NPT taper tapping and its plug on the end plate, allowing the installation of a pressure tap or a feeding valve.
- End plate perfectly tight thanks to its circular rim and its gasket compatible with all HFCs, HCFCs and CFCs.

■ CARLY advantages

- Individual core holder treated against corrosion by zinc-coating, with a reduced course for core replacement; therefore, replacement time is extremely reduced, limiting drier filter cores and inner circuit part exposition times to ambient atmosphere.
- Core holders are designed to ensure automatic and immediate centring of the filter shells.
- No flow area restriction outside the filter shells thanks to an appropriate filtering system.
- Low suction filter shells case footprint, for large section piping.
- In the case of use of CCY F felt filtering cores or CCY I stainless steel mesh cloth cores, the refrigerant can operate in both directions.
- GOST certified products.

DTGB - 5.1-2-5-10

Replaceable core filter shells (suction line)

→ BDCY / ACY / BACY

01/10

■ Recommendations

* Suction filter shells are to be mounted on the suction line between the evaporator and the compressor.
* The refrigerant flow direction, indicated by an arrow on the suction filter shells' tags, should be complied with, unless CCY F felt cores or CCY I stainless steel mesh cloth cores are being used.
* Mounting to be performed in whichever position, but not vertically with the outlet connection oriented downwards.
* Suction filter shells should be installed so that they do not create an oil trap.
* While mounting the suction filter shells, a sufficient course should be provided to allow for core replacement (refer to measurements in technical features tables).
* Do not forget to mount CCY A adaptors, when suction filter shells are used with CCY HP, CCY N and PLATINIUM 48 cores.
* Suction filter shells selection should take into account the integration of internal active elements (cores); this integration can be temporary or permanent.
* General assembly precautions: refer to chapter 115.

■ Circuit cleaning procedure after compressor burnout for installations equipped with suction filter shells: BDCY/ACY/BACY

1 • According to the model, install the corresponding **CCY A** adapter in the shell (refer to pages 5.3 for **BDCYs**, 5.6 for **ACYs** and 5.12 for **BACYs**) then the corresponding **CCY N** cleaning core(s) (refer to the page 6.2)

2 • Let the installation run for 3 hours maximum, carefully monitoring the internal pressure drop indicating a saturation of the cores that should then be quickly replaced. This phase aims at retrieving moisture, acids, waxes and varnishes from the circuit; it is necessary to repeat it until this objective is reached (acidity and moisture monitoring)

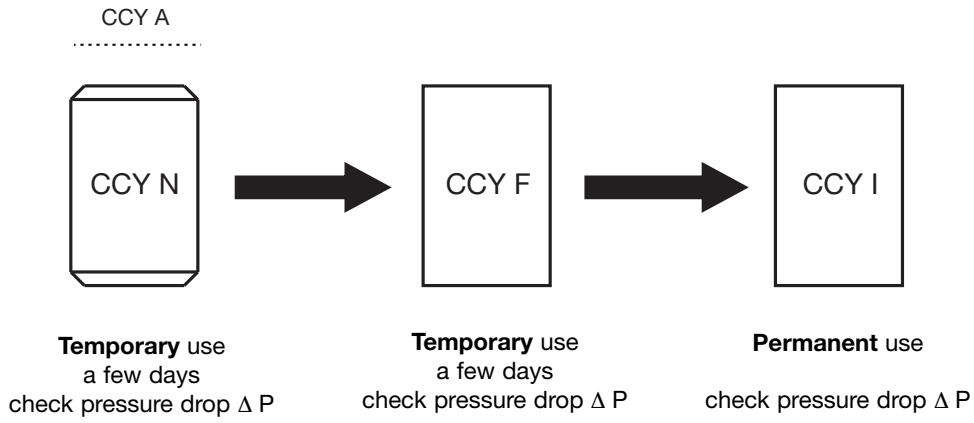
3 • Replace the **CCY N** cleaning core(s) by **CCY F** felt cores after having carefully removed the **CCY A** adapter.

4 • Let the installation run for several days, closely monitoring the internal pressure drop, which would mean that **CCY Fs** are blocked by the contaminating agents, and should then be quickly replaced. This phase aims at eliminating all undesirable solid particles from the circuit.

5 • After several days of operation, replace the **CCY F** felt cores by **CCY I** stainless steel mesh cloth cores that will permanently remain on the installation, ensuring compressor protection.

▲ **It is imperative to regularly monitor the refrigerant's moisture content and condition using the sight glasses with CARLY VCYL and VCYLS moisture indicators (refer to chapter 7)**

▲ **Use replaceable CCY cores (refer to chapter 6) for refrigerating circuit cleaning, decontamination and pollution control after compressor burnout.**



DTGB - 5.1-2-5-10

Replaceable core filter shells (suction line)

→ BDCY

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■ Core replacement procedure

1 • Isolate the **BDCY** suction filter shell.

2 • Purge the installation up to atmospheric pressure (shell should be empty of refrigerants)

3 • Remove the end plate.

4 • Remove the bottom core holder.

5 • Remove the used core.

6 • The **CCY A 42** adapter should be used with **CCY 42 HP** and **CCY 42 N** cores but should imperatively be removed if **CCY 42 F** and **CCY 42 I** cores are being used.

7 • Clean and replace if necessary, the **CCY A 42** adapter and the outlet screen.

8 • Check and replace if necessary, the outlet gasket of the top core holder.

9 • Replace systematically the gasket on the end plate.

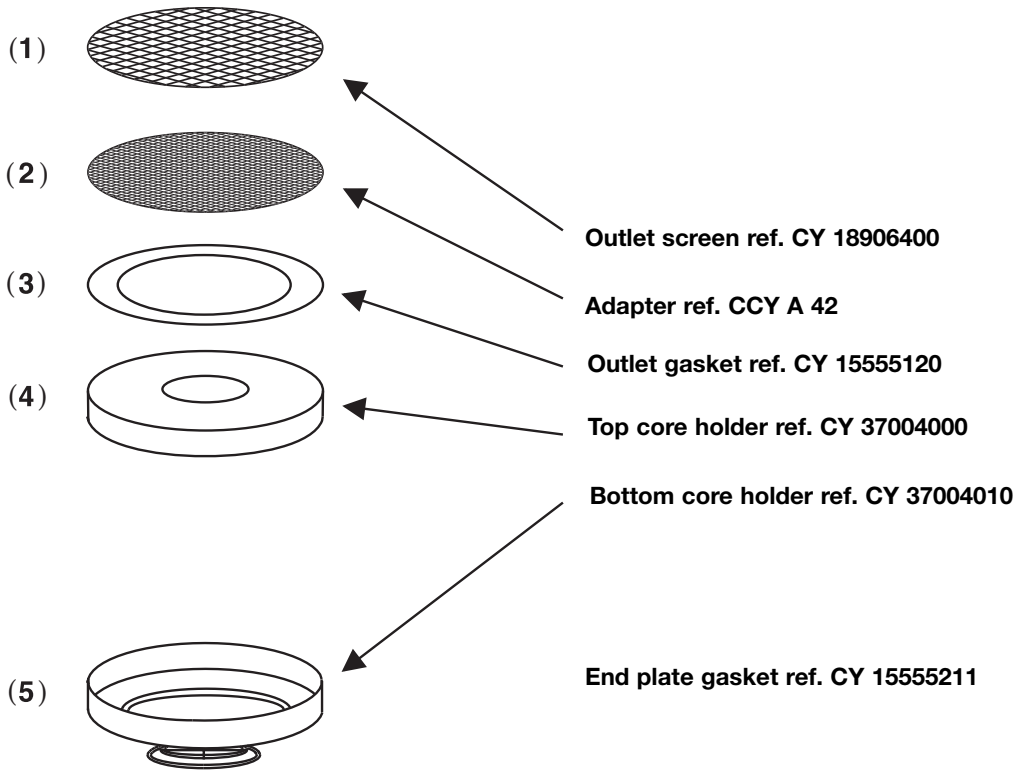
10 • Remove the **CCY 42** core from its can.

11 • Reassemble in order (see drawing below): the outlet screen (1), the **CCY A 42** adapter (2) if necessary, the outlet gasket (3), the top core holder (4), the **CCY 42** core, the bottom core holder and its compression spring (5)

12 • Put the end plate back making sure that the compression spring is properly positioned and tighten the fastening bolts in a uniform and progressive way (cross tightening)
Maximum bolt tightening torque: 24 N.m.

13 • Make sure that the end plate's 1/4" NPT taper tapping has been properly plugged in and sealed.

14 • Make vacuum in the installation and check air-tightness of the whole set before putting back under pressure.



Replaceable core filter shells (suction line)

01/10

→ BDCY *(corresponding cores: CCY 42)*

■ Selection table

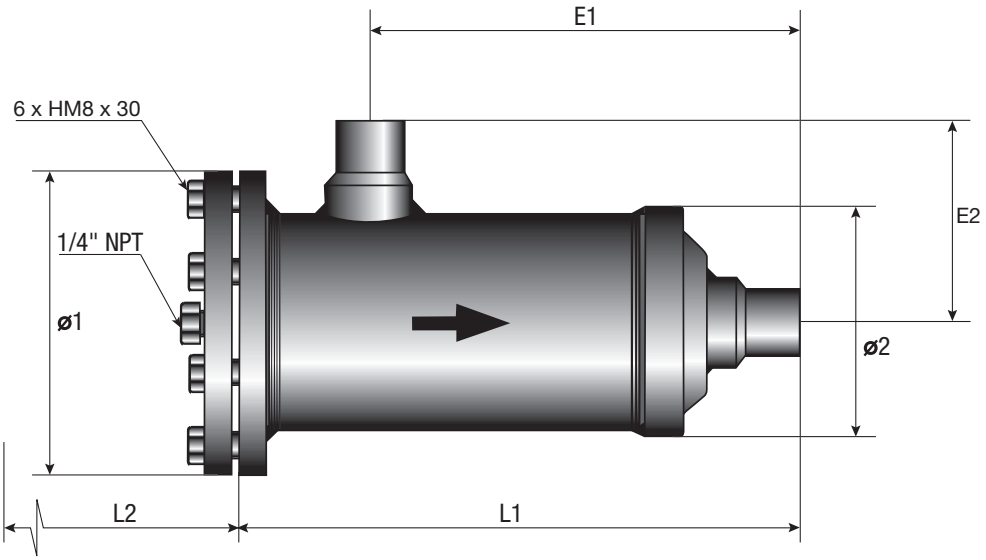
CARLY references	Connections To solder ODF		Refrigerating capacity (kW)(1) Temporary use with CCY 42 N - CCY 42 F				Refrigerating capacity (kW)(1) Permanent use with CCY 42 I				Number of cores
	inch	mm	R22	R134a	R404A R507	R407C R410A	R22	R134a	R404A R507	R407C R410A	
BDCY 424 S	1/2		11	10	7	11	16	15	10	16	1
BDCY 424 MMS		12	11	10	7	11	16	15	10	16	1
BDCY 425 S/MMS	5/8	16	15	14	10	15	22	20	15	22	1
BDCY 427 S	7/8		22	20	15	22	42	39	28	42	1
BDCY 427 MMS		22	22	20	15	22	42	39	28	42	1

(1) *Refrigerating capacities according to Standard ARI 730-2001 for To = 4.4°C, Tk = 32°C.*
If different conditions, refer to correction factors in chapter 112.

■ Technical features

CARLY references		Connection types (1)	Filtering surface (cm^2)			Dimensions (mm)						Net weight (kg)
			CCY 42 HP CCY 42 N	CCY 42 F	CCY 42 I	Ø1	Ø2	L1	L2	E1	E2	
BDCY 424 S	**BDCY 424 MMS**	2	374	329	348	124	93	207,5	210	150,5	64,5	2,60
BDCY 425 S/MMS		2	374	329	348	124	93	209,5	210	152,5	66,5	2,65
BDCY 427 S	**BDCY 427 MMS**	2	374	329	348	124	93	219,5	210	162,5	76,0	2,70

(1) *Chapter "Connection features and drawings" (refer to chapter 114).*



DTGB - 5.1-2-5-10

Replaceable core filter shells (suction line)

01/10

→ BDCY *(corresponding cores: CCY 42)*

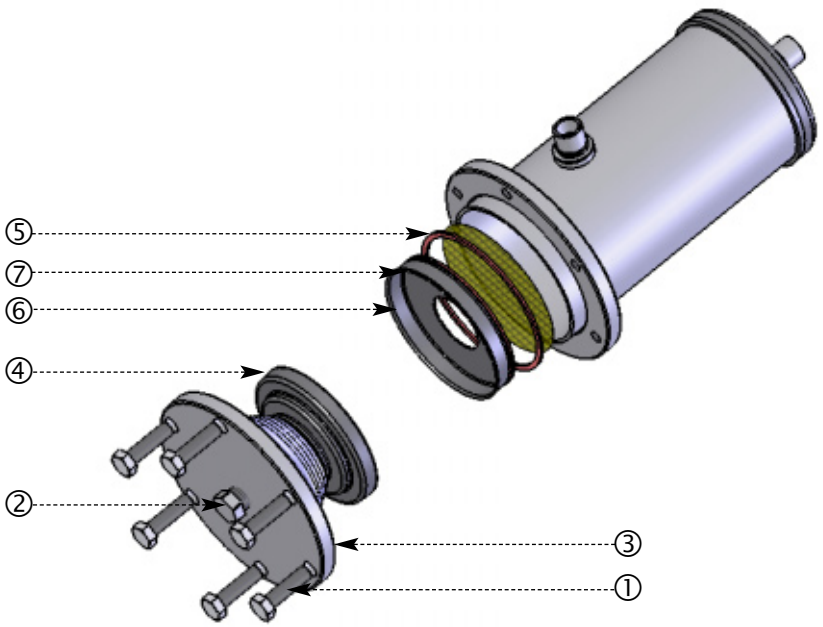
■ Technical features

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)	
BDCY 424 S	**BDCY 424 MMS**	1,06	42	10	80	-40	-20	Art3§3
BDCY 425 S/MMS		1,06	42	10	80	-40	-20	Art3§3
BDCY 427 S	**BDCY 427 MMS**	1,07	42	10	80	-40	-20	Art3§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 97/23/EC (refer to chapter 0 page 7).

■ Spare parts

CARLY references	Part N°	Description	Quantity
CY 19900410	1	Set of 6 fastening screws for end plate	1
CY 19910410	1	Set of 6 fastening stainless steel screws for end plate	1
CY 10810010	2	1/4" NPT phosphate plug for end plate	1
CY 33301000	2 + 3 + 5	End plate with gasket and 1/4" NPT plug	1
CY 37004010	4	Bottom core holder	1
CY 15555211	5	End plate gasket	1
CY 37004000	6	Top core holder	1
CCY A 42	7	Adapter for end core holders	1



DTGB - 5.1-2-5-10

Replaceable core filter shells (suction line)

→ ACY

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■ Core replacement procedure

1 • Isolate the **ACY** suction filter shell.

2 • Purge the installation up to atmospheric pressure (shell should be empty of refrigerants)

3 • Remove the end plate.

4 • Remove the core holders one after the other.

5 • Remove the used cores.

6 • Clean very carefully the core holders, the CCY A 48 adapter and the inner part of the shell case.

7 • Replace systematically the gasket on the end plate and check core holders gaskets.

8 • Remove the core from its can and put it on the core holder, separating by traction the two flanges that hold the core holder (sketch 1) if necessary, install the **CCY A 48** adapter in end core holder.

9 • Repeat the operation for each core holder.

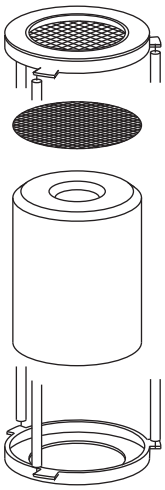
10 • Quickly install the core holders with their cores in the shell complying with their mounting order: the first one holds the screen and the adapter, if any, and the last one is equipped with a compression spring (sketch 2)

11 • Place the end plate back and tighten the fastening bolts in a uniform and progressive way (cross tightening) Maximum bolt tightening torque: 30 N.m.

12 • Make sure that the end plate's 1/4" NPT taper tapping has been properly plugged in and sealed.

13 • Make vacuum in the installation and check air-tightness of the whole set before putting back under pressure.

1



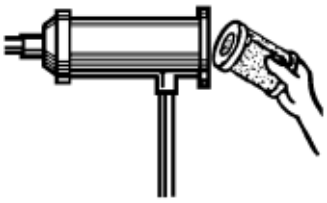
Top core holder with outlet screen

Adapter CCY A

CCY-N

Bottom core holder

2



Replaceable core filter shells (suction line)

→ ACY *(corresponding cores: CCY 48, PLATINIUM 48)*

01/10

■ Selection table

CARLY references	Connections To solder ODF		Refrigerating capacity (kW)(1) Temporary use with CCY 48 N - CCY 48 F				Refrigerating capacity (kW)(1) Permanent use with CCY 48 I				Number of cores
	inch	mm	R22	R134a	R404A R507	R407C R410A	R22	R134a	R404A R507	R407C R410A	
ACY 489 S	1 1/8		51	46	33	50	83	76	54	83	1
ACY 489 MMS		28	51	46	33	50	83	76	54	83	1
ACY 4811 S/MMS	1 3/8	35	60	55	39	60	101	92	66	100	1
ACY 4813 S	1 5/8		67	61	44	66	119	108	78	118	1
ACY 4813 MMS		42	67	61	44	66	119	108	78	118	1
ACY 4817 S/MMS	2 1/8	54	73	67	48	73	144	131	94	142	1
ACY 4821 S	2 5/8		80	73	52	79	173	158	113	171	1
ACY 4821 MMS		67	80	73	52	79	173	158	113	171	1
ACY 4825 S	3 1/8		86	78	56	85	178	162	116	176	1
ACY 4825 MMS		80	86	78	56	85	178	162	116	176	1
ACY 9617 S/MMS	2 1/8	54	100	91	65	99	176	160	115	174	2
ACY 9621 S	2 5/8		103	94	67	102	202	184	131	200	2
ACY 9621 MMS		67	103	94	67	102	202	184	131	200	2
ACY 9625 S	3 1/8		107	97	70	106	254	231	165	251	2
ACY 9625 MMS		80	107	97	70	106	254	231	165	251	2
ACY 14417 S/MMS	2 1/8	54	101	92	66	100	181	165	118	180	3
ACY 14421 S	2 5/8		107	97	70	106	214	195	139	212	3
ACY 14421 MMS		67	107	97	70	106	214	195	139	212	3
ACY 14425 S	3 1/8		113	103	74	112	270	246	176	267	3
ACY 14425 MMS		80	113	103	74	112	270	246	176	267	3
ACY 19217 S/MMS	2 1/8	54	130	119	85	129	214	195	140	212	4
ACY 19221 S	2 5/8		135	123	88	134	249	227	162	246	4
ACY 19221 MMS		67	135	123	88	134	249	227	162	246	4
ACY 19225 S	3 1/8		144	131	94	143	313	286	204	311	4
ACY 19225 MMS		80	144	131	94	143	313	286	204	311	4

(1) Refrigerating capacities according to Standard ARI 730-2001 for To = 4.4°C, Tk = 32°C.
If different conditions, refer to correction factors in chapter 112.

DTGB - 5.1-2-5-10

Replaceable core filter shells (suction line)

01/10

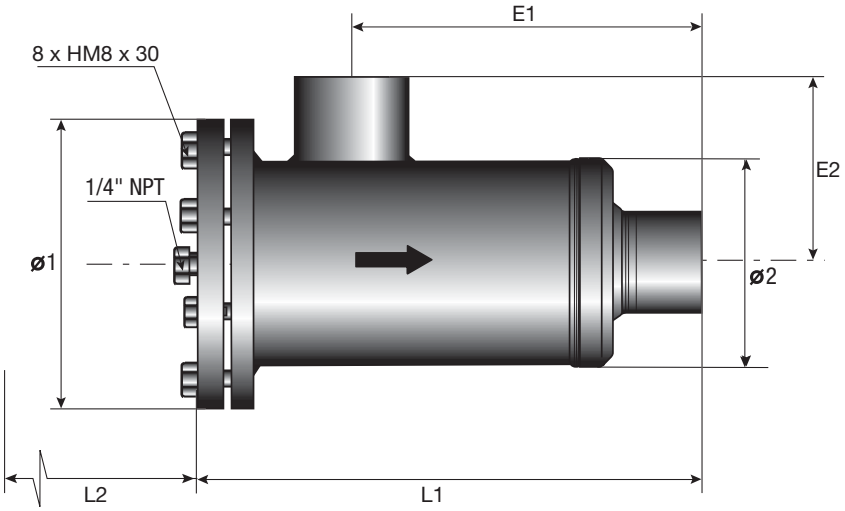
→ ACY *(corresponding cores: CCY 48, PLATINIUM 48)*

■ Technical features

CARLY references		Connection types (1)	Filtering surface (cm^2)	Dimensions (mm)						Net weight (kg)
				Ø1	Ø2(2)	L1	L2	E1	E2	
ACY 489 S	**ACY 489 MMS**	3	420	150	128	245	210	154	97	4,35
ACY 4811 S/MMS		3	420	150	128	255	210	164	107	4,45
ACY 4813 S	**ACY 4813 MMS**	3	420	150	128	255	210	164	107	4,60
ACY 4817 S/MMS		3	420	150	128	270	210	178	124	4,80
ACY 4821 S	**ACY 4821 MMS**	3	420	150	128	284	210	191	128	5,20
ACY 4825 S	**ACY 4825 MMS**	3	420	150	128	290	210	189	132	5,50
ACY 9617 S/MMS		3	840	150	128	410	210	318	124	6,40
ACY 9621 S	**ACY 9621 MMS**	3	840	150	128	424	210	331	128	6,55
ACY 9625 S	**ACY 9625 MMS**	3	840	150	128	430	210	342	132	6,85
ACY 14417 S/MMS		3	1260	150	128	550	210	458	124	7,30
ACY 14421 S	**ACY 14421 MMS**	3	1260	150	128	564	210	471	128	7,85
ACY 14425 S	**ACY 14425 MMS**	3	1260	150	128	570	210	482	132	8,10
ACY 19217 S/MMS		3	1260	150	128	695	210	603	124	8,50
ACY 19221 S	**ACY 19221 MMS**	3	1680	150	128	709	210	616	128	9,20
ACY 19225 S	**ACY 19225 MMS**	3	1680	150	128	715	210	627	132	9,50

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

(2) Including weld



DTGB - 5.1-2-5-10

Replaceable core filter shells (suction line)

05/10

→ ACY *(corresponding cores: CCY 48, PLATINIUM 48)*

■ 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)	
ACY 489 S	**ACY 489 MMS**	1,92	25	10	80	-40	-20	Art3§3
ACY 4811 S/MMS		1,93	25	10	80	-40	-20	Art3§3
ACY 4813 S	**ACY 4813 MMS**	1,95	25	10	80	-40	-20	Art3§3
ACY 4817 S/MMS		2,04	25	10	80	-40	-20	I
ACY 4821 S	**ACY 4821 MMS**	2,18	25	10	80	-40	-20	I
ACY 4825 S	**ACY 4825 MMS**	2,30	25	10	80	-40	-20	I
ACY 9617 S/MMS		3,40	25	10	80	-40	-20	I
ACY 9621 S	**ACY 9621 MMS**	3,60	25	10	80	-40	-20	I
ACY 9625 S	**ACY 9625 MMS**	3,70	25	10	80	-40	-20	I
ACY 14417 S/MMS		5,10	25	10	80	-40	-20	I
ACY 14421 S	**ACY 14421 MMS**	5,20	25	10	80	-40	-20	I
ACY 14425 S	**ACY 14425 MMS**	5,30	25	10	80	-40	-20	I
ACY 19217 S/MMS		6,50	25	10	80	-40	-20	I
ACY 19221 S	**ACY 19221 MMS**	6,70	25	10	80	-40	-20	I
ACY 19225 S	**ACY 19225 MMS**	6,80	25	10	80	-40	-20	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 page 7).

Replaceable core filter shells (suction line)

01/10

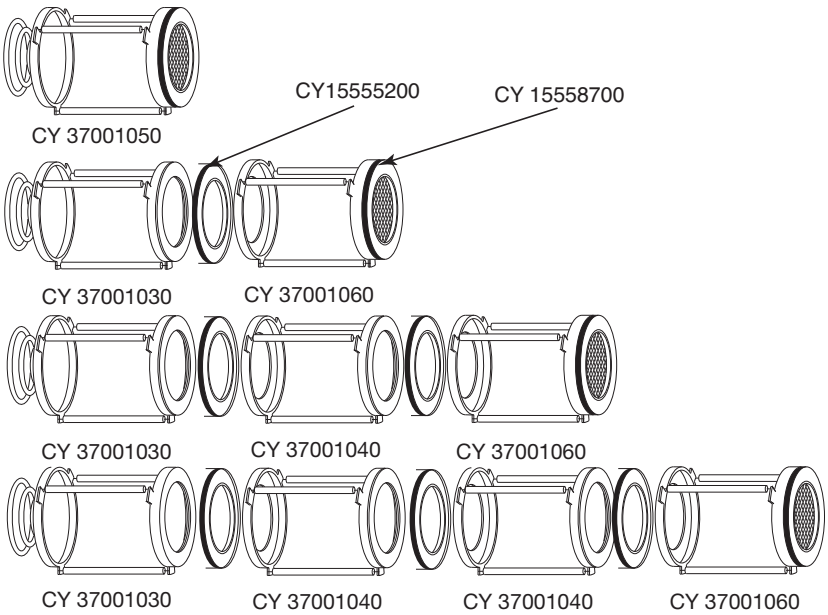
→ ACY *(corresponding cores: CCY 48, PLATINIUM 48)*

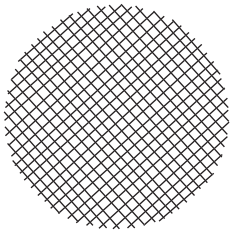
■ Core holders and gaskets

SHELLS	CARLY References for core holders	Quantity and type of gaskets for use	
		Core holders gasket	End plate gasket
ACY 1 core	CY 37001050	1 gasket CY 15558700 (1)	1 gasket CY 15555601 (2)
ACY 2 cores	CY 37001030 + CY 37001060	1 gasket CY 15555200 (1) +1 gasket CY 15558700	
ACY 3 cores	CY 37001030 + CY 37001040 + CY 37001060	2 gaskets CY 15555200 (1) +1 gasket CY 15558700	
ACY 4 cores	CY 37001030 + CY 37001040 + CY 37001040 + CY 37001060	3 gaskets CY 15555200 (1) +1 gasket CY 15558700	

(1) Gasket delivered with core holders

(2) Gasket delivered with cores CCY 48 HP, CCY 48 N, CCY 48 I, CCY 48 F and PLATINIUM 48





- Outlet filter adapter for ACY : **CCY A 48 (To use with cores CCY 48 HP, PLATINIUM 48 and CCY 48 N)**
- The adapter **CCY A 48** shall be installed in top flange of core holder
  CY 37001050 for one core ACY and
  CY 37001060 for several cores ACY.

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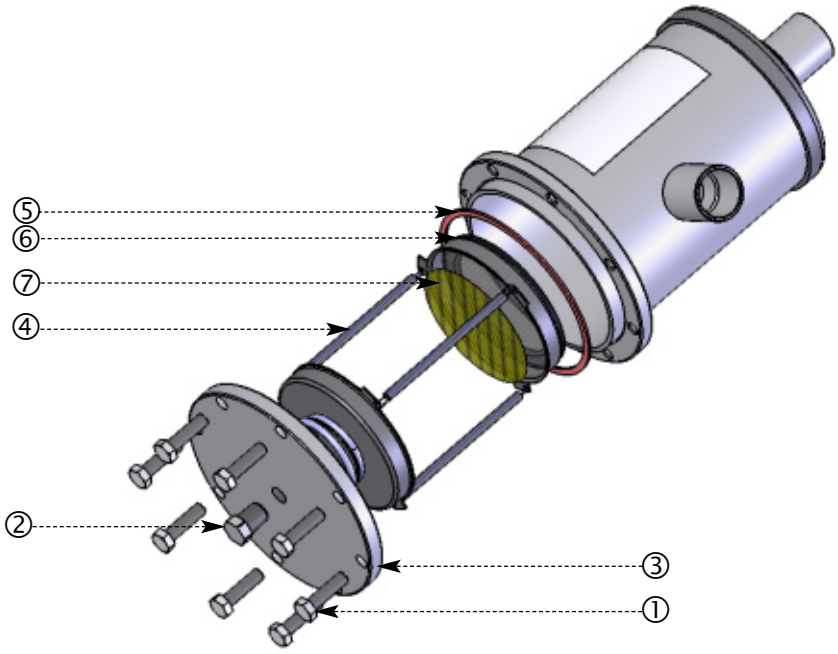
Replaceable core filter shells (suction line)

01/10

→ ACY *(corresponding cores: CCY 48, PLATINIUM 48)*

■ Spare parts

CARLY references	Part N°	Description	Quantity
CY 19900411	1	Set of 8 fastening screws for end plate	1
CY 19910411	1	Set of 8 fastening stainless steel screws for end plate	1
CY 10810010	2	1/4" NPT phosphate plug for end plate	1
CY 33301200	2 + 3 + 5	End plate with gasket and 1/4" NPT plug	1
CY 37001030	4	Core holder (2, 3 and 4 cores)	1
CY 37001040	4	Core holder (3 and 4 cores)	1
CY 37001050	4	Core holder (1 core)	1
CY 37001060	4	Core holder (2, 3 and 4 cores)	1
CY 15555601	5	End plate gasket	1
CY 15555200	6	Adhesive gasket for core holders : CY 37001030 and CY 37001040	1
CCY A 48	7	Adapter for end core holder	1
CY 15555000		Bag of gaskets for shell end plates : CARLY and for most manufacturers (gaskets: 122 x 114 x 1.6 and 114 x 103 x 1.6)	1



Replaceable core filter shells (suction line)

→ BACY

■ Core replacement procedure

1 • Isolate the **BACY** suction filter shell.

2 • Purge the installation up to atmospheric pressure (shell should be empty of refrigerant)

3 • Remove the end plate.

4 • Remove the core holders one after the other.

5 • Remove the used cores.

6 • Clean very carefully the core holders, the CCY A 100 adapter and the inner part of the shell.

7 • Replace systematically the gasket on the end plate and check core holders gaskets.

8 • Remove the core from its can and put it on the core holder, separating by means of traction, if necessary, the two flanges that hold the core holder (sketch 1), install the **CCY A 100** adapter in the end core holder.

9 • Repeat the operation for each core holder.

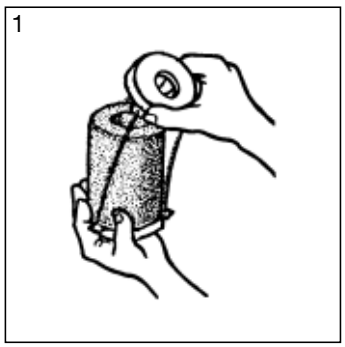
10 • Quickly install the core holders with their cores in the shell, complying with their mounting order: the first one holds the screen and the adapter, if any, and the last one is equipped with a compression spring (sketch 2)

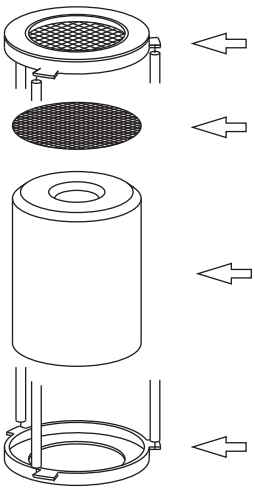
11 • Put the end plate back and tighten the fastening bolts in a uniform and progressive way (cross tightening).
Maximum bolt tightening torque: 48 N.m.

12 • Make sure that the end plate 1/4" NPT taper tapping has been properly plugged in and sealed.

13 • Make vacuum in the installation and check air-tightness of the whole set before putting back under pressure.

1





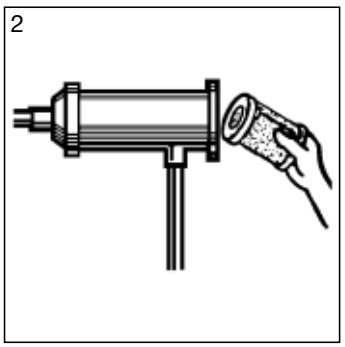
Top core holder with outlet screen

Adapter CCY A

CCY-N

Bottom core holder

2



DTGB - 5.1-2-5-10

Replaceable core filter shells (suction line)

01/10

→ BACY *(corresponding cores: CCY 100)*

■ Selection table

CARLY references	Connections To solder ODF		Refrigerating capacity (kW)(1) Temporary use with CCY 100 N - CCY 100 F				Refrigerating capacity (kW)(1) Permanent use with CCY 100 I				Number of cores
	inch	mm	R22	R134a	R404A R507	R407C R410A	R22	R134a	R404A R507	R407C R410A	
BACY 10021 S	2 5/8		96	88	63	96	221	202	144	219	1
BACY 10021 MMS		67,0	96	88	63	96	221	202	144	219	1
BACY 10025 S	3 1/8		108	99	71	107	230	210	150	228	1
BACY 10025 MMS		80,0	108	99	71	107	230	210	150	228	1
BACY 10029 S	3 5/8		139	127	91	138	301	274	196	298	1
BACY 10029 MMS		88,9	139	127	91	138	301	274	196	298	1
BACY 10033 S	4 1/8		191	175	124	189	404	368	263	400	1
BACY 10033 MMS		108,0	191	175	124	189	404	368	263	400	1
BACY 20025 S	3 1/8		143	130	93	141	313	285	204	310	2
BACY 20029 S	3 5/8		183	166	119	181	398	363	260	394	2
BACY 20029 MMS		88,9	183	166	119	181	398	363	260	394	2
BACY 20033 S	4 1/8		255	232	166	252	530	482	345	524	2
BACY 20033 MMS		108,0	255	232	166	252	530	482	345	524	2
BACY 40033 S	4 1/8		293	266	191	164	670	610	436	663	4
BACY 40033 MMS		108,0	293	266	191	164	670	610	436	663	4

(1) Refrigerating capacities according to Standard ARI 730-2001 for To = 4.4°C, Tk = 32°C.
If different conditions, refer to correction factors in chapter 112.

Replaceable core filter shells (suction line)

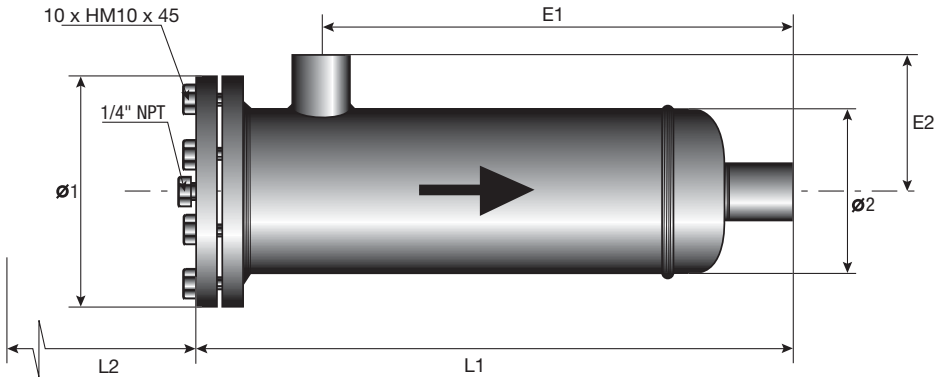
01/10

→ BACY *(corresponding cores: CCY 100)*

■ Technical features

CARLY references		Connection types (1)	Filtering surface (cm^2)	Dimensions (mm)						Net weight (kg)
				Ø1	Ø2(2)	L1	L2	E1	E2	
BACY 10021 S	**BACY 10021 MMS**	3	630	200	156	385	300	243	138	12,70
BACY 10025 S	**BACY 10025 MMS**	3	630	200	156	395	300	252	130	12,80
BACY 10029 S	**BACY 10029 MMS**	3	630	200	156	399	300	256	141	12,90
BACY 10033 S	**BACY 10033 MMS**	3	630	200	156	405	300	262	144	13,80
BACY 20025 S	**BACY 20025 MMS**	3	1260	200	156	565	300	422	130	15,70
BACY 20029 S	**BACY 20029 MMS**	3	1260	200	156	569	300	426	141	15,90
BACY 20033 S	**BACY 20033 MMS**	3	1260	200	156	575	300	432	144	16,20
BACY 40033 S	**BACY 40033 MMS**	3	2520	200	156	930	470	777	144	22,90

(1) Chapter "Connection features and drawings" (refer to chapter 114).
(2) Including weld



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)	
BACY 10021 S	**BACY 10021 MMS**	4,84	25	10	80	-40	-20	I
BACY 10025 S	**BACY 10025 MMS**	4,92	25	10	80	-40	-20	I
BACY 10029 S	**BACY 10029 MMS**	5,05	25	10	80	-40	-20	I
BACY 10033 S	**BACY 10033 MMS**	5,28	25	10	80	-40	-20	I
BACY 20025 S	**BACY 20025 MMS**	7,42	25	10	80	-40	-20	I
BACY 20029 S	**BACY 20029 MMS**	7,55	25	10	80	-40	-20	I
BACY 20033 S	**BACY 20033 MMS**	7,78	25	10	80	-40	-20	I
BACY 40033 S	**BACY 40033 MMS**	13,78	25	10	80	-40	-20	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 97/23/EC (refer to chapter 0 page 7).

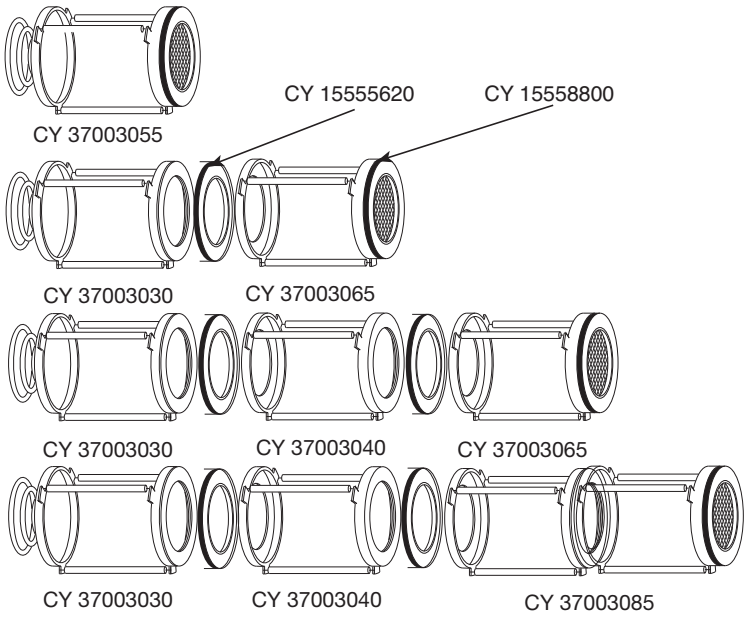
Replaceable core filter shells (suction line)

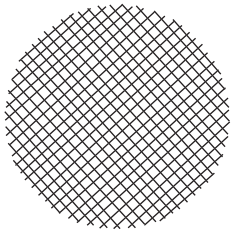
→ BACY *(corresponding cores: CCY 100)*

■ Spare parts

SHELLS	CARLY References for core holders	Quantity and type of gaskets for use	
		Core holders gasket	End plate gasket
BACY 1 core	CY 37003055	1 gasket CY 15558800	1 gasket CY 15555701 (2)
BACY 2 cores	CY 37003030 + CY 37003065	1 gasket CY 15555620 (1) +1 gasket CY 15558800	
BACY 3 cores	CY 37003030 + CY 37003040 + CY 37003065	2 gaskets CY 15555620 (1) +1 gasket CY 15558800	
BACY 4 cores	CY 37003030 + CY 37003040 + CY 37003085	2 gaskets CY 15555620 (1) +1 gasket CY 15558800	

(1) Gasket delivered with core holders
(2) Gasket delivered with cores CCY 100 HP, CCY 100 N, CCY 100 I and CCY 100 F





- Outlet filter adapter for BACY : **CCY A 100 (To use with cores CCY 100 HP and CCY 100 N)**
- The adapter **CCY A 100** shall be installed in top flange of core holder
  CY 37001055 for one core BACY and
  CY 37003065 and CY 37003085 and for several cores BACY.

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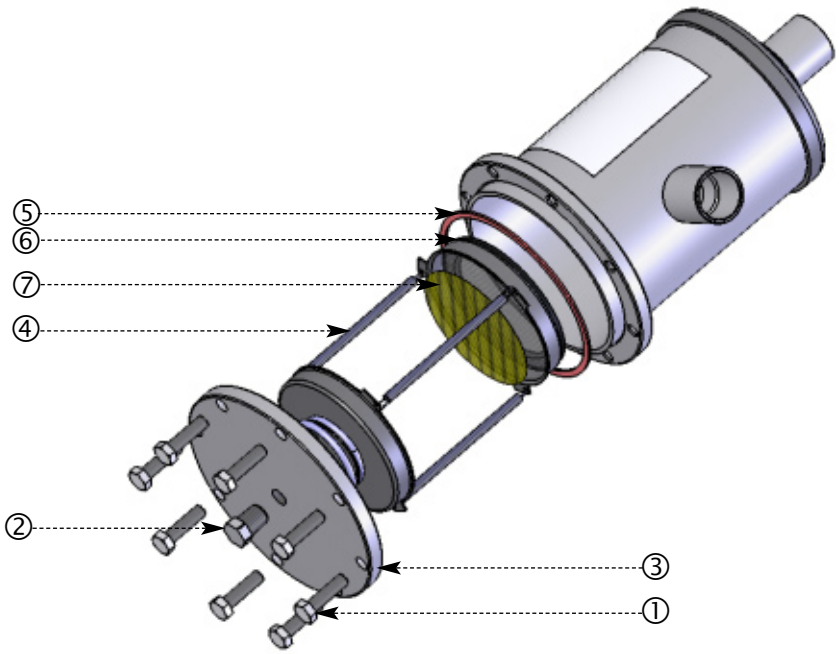
Replaceable core filter shells (suction line)

01/10

→ BACY *(corresponding cores: CCY 100)*

■ Spare parts

CARLY references	Part N°	Description	Quantity
CY 19900520	1	Set of 10 fastening screws for end plate	1
CY 19910520	1	Set of 10 fastening stainless steel screws for end plate	1
CY 10810010	2	1/4" NPT phosphate plug for end plate	1
CY 33301700	2 + 3 + 5	End plate with gasket and 1/4" NPT plug	1
CY 37003030	4	Core holder (2, 3 and 4 cores)	1
CY 37003040	4	Core holder (3 and 4 cores)	1
CY 37003055	4	Core holder (1 core)	1
CY 37003065	4	Core holder (2 and 3 cores)	1
CY 37003085	4	Core holder (4 cores)	1
CY 15555701	5	End plate gasket	1
CY 15555620	6	Adhesive gasket for core holders: CY 37003030 - CY 37003040	1
CCY A 100	7	Adapter for end core holder	1



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Replaceable core filter shells (suction line)

→ BDCY / ACY / BACY

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■ Weights and packaging

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
BDCY 424 S & MMS	2,85	2,60	1	/
BDCY 425 S/MMS	2,90	2,65	1	/
BDCY 427 S & MMS	2,95	2,70	1	/
ACY 489 S & MMS	4,60	4,35	1	8
ACY 4811 S/MMS	4,70	4,45	1	8
ACY 4813 S & MMS	4,85	4,60	1	8
ACY 4817 S/MMS	5,05	4,80	1	8
ACY 4821 S & MMS	5,45	5,20	1	/
ACY 4825 S & MMS	5,75	5,50	1	/
ACY 9617 S/MMS	6,70	6,40	1	/
ACY 9621 S & MMS	6,85	6,55	1	/
ACY 9625 S & MMS	7,15	6,85	1	/
ACY 14417 S/MMS	7,65	7,30	1	/

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
ACY 14421 S & MMS	8,20	7,85	1	/
ACY 14425 S & MMS	8,45	8,10	1	/
ACY 19217 S/MMS	8,90	8,50	1	/
ACY 19221 S & MMS	9,60	9,20	1	/
ACY 19225 S & MMS	9,90	9,50	1	/
BACY 10021 S & MMS	13,30	12,70	1	/
BACY 10025 S & MMS	13,40	12,80	1	/
BACY 10029 S & MMS	13,50	12,90	1	/
BACY 10033 S & MMS	14,40	13,80	1	/
BACY 20025 S	16,40	15,70	1	/
BACY 20029 S & MMS	16,60	15,90	1	/
BACY 20033 S & MMS	16,90	16,20	1	/
BACY 40033 S & MMS	23,80	22,90	1	/

Drying, filtering and cleaning cores

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→ CCY / PLATINIUM 48

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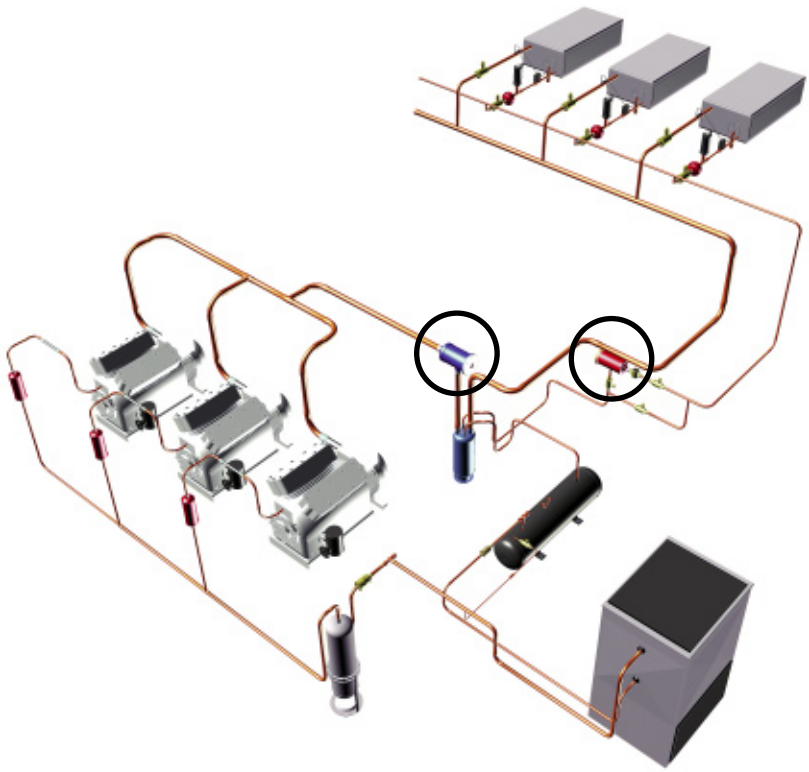
■ Applications

- Interchangeable filtering, drying and cleaning elements for refrigerating and air conditioning installation standard filter shells (BDCY, BCY, BBCY, ACY and BACY).



■ Functional features

- Products are compatible with HFCs, HCFCs, CFCs, 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.
- The CCY HP, PLATINIUM and N cores can be used with all the filter shells that can be found on the market.
- The CCY HP, PLATINIUM and N cores are supplied with a complete set of flange gaskets corresponding to most of the filter shells that can be found on the market.

■ CARLY advantages

- The CCY HP, PLATINIUM and N cores are oven-dried before packaging in order to be perfectly dried.
- The CCY I and F cores are efficient whichever the refrigerant flow direction.
- The CCY 48 HP, PLATINIUM 48 and CCY 48 N models are packaged in sealed metallic cans.
- Efficient solutions for refrigerating circuit decontamination thanks to a complete range of cores.

Drying, filtering and cleaning cores

→ CCY / PLATINIUM 48

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■ Functional features

CARLY References	To be used with						Use			Micron filtration (microns)	Composition	Features
	BDCY	BCY	BBCY	ACY	BACY	HCYBF	on suction line	on liquid line	on oil line			
Felt Cores												
CCY 42 F	X						Temporary a few days			10	Felt	For HFC, HCFC et CFC Reinforced filterring
CCY 48 F				X								
CCY 100 F					X							
Stainless Steel Cores												
CCY 42 I	X						Permanent			140	Stainless steel mesh cloth and screen	For HFC, HCFC et CFC Filtering
CCY 48 I				X								
CCY 100 I					X							
High Efficiency Drying Cores												
CCY 42 HP	X							Permanent until saturation		50	Chemical agents	For HFC, HCFC et CFC Reinforced drying acid neutralization
CCY 48 HP		X										
CCY 100 HP			X									
Very Hich Efficiency Drying Cores												
PLATINIUM 48		X		X				Permanent until saturation		50	Chemical agents	For HFC, HCFC et CFC Optimum drying acid neutralization
Cleaning Cores												
CCY 42 N	X						Temporary a few days			50	Chemical agents	For HFC, HCFC et CFC Burnout decontamination, reinforced drying, reinforced acid neutralization, wax and resin binding
CCY 48 N		X		X								
CCY 100 N			X		X							
Oil cores												
CCY 48 HU						X			Permanent until saturation	16	Filtrating cellulose, glued, pleated	For refrigerating oil filtering

■ Recommendations

* Refer to assembly precautions for replaceable core filter drier shells and recommendations for liquid line: BDCY, BCY, BBCY, for suction replaceable core filter shells: BDCY, ACY, BACY, and for HCYBF replaceable core oil filter shells.
* Remove cores from their sealed can at the very last moment before putting them in the shells.
* It is imperative to use CCY A adapters with chemical cores (CCY N, CCY HP and PLATINIUM 48) in the suction filter shells. Do not forget to remove them before installing CCY F and CCY I cores.
* Important: CCY cores should be regularly replaced, more specifically CCY HP and PLATINIUM 48 cores that should mandatorily be replaced at each intervention requiring the opening of the refrigerating circuit.
* It is important to regularly monitor the refrigerant's moisture content and condition using sight glasses with CARLY VCYL and VCYLS moisture indicator (refer to chapter 7).
* For use of various CCY core types in the pollution control and circuit cleaning process after compressor burnout, closely follow the recommendations given on page 5.2.
* General assembly precautions: refer to chapter 115.

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Drying, filtering and cleaning cores

→ CCY HP / PLATINIUM 48 / CCY N

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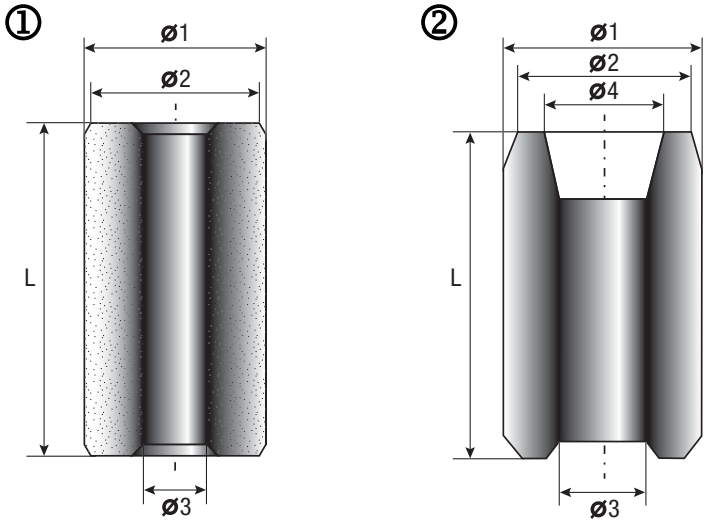
■ Selection table of drying and cleaning cores

CARLY References	Filtering surface (cm^2)	Volume of desiccation products (cm^3)	Dehydratable refrigerant capacity (kg of refrigerant)(1)					
			R22 R407C		R134a R410A		R404A R507	
			24°C	52°C	24°C	52°C	24°C	52°C
CCY 42 HP	374	645	47	40	53	43	50	41
CCY 48 HP	420	704	55	48	64	51	60	49
CCY 100 HP	630	1495	110	95	126	101	120	97
PLATINIUM 48	420	704	72	62	83	66	78	64
CCY 42 N	374	645	47	40	53	43	50	41
CCY 48 N	420	704	55	48	64	51	60	49
CCY 100 N	630	1495	110	95	126	101	120	97

(1) Dehydratable refrigerant capacities according to Standard ARI 710-86.

■ Technical features of drying and cleaning cores

CARLY References	Drawing Nb	Dimensions (mm)					Net weight (kg)
		Ø1	Ø2	Ø3	Ø4	L	
CCY 42 HP	1	80,5	74,5	29,5	/	148,0	0,68
CCY 48 HP	2	94,0	82,0	45,0	60,0	139,5	0,79
CCY 100 HP	1	121,0	108,0	53,0	/	164,0	1,52
PLATINIUM 48	2	94,0	82,0	45,0	60,0	139,5	0,79
CCY 42 N	1	80,5	74,5	29,5	/	148,0	0,53
CCY 48 N	2	94,0	82,0	45,0	60,0	139,5	0,70
CCY 100 N	1	121,0	108,0	53,0	/	164,0	1,36



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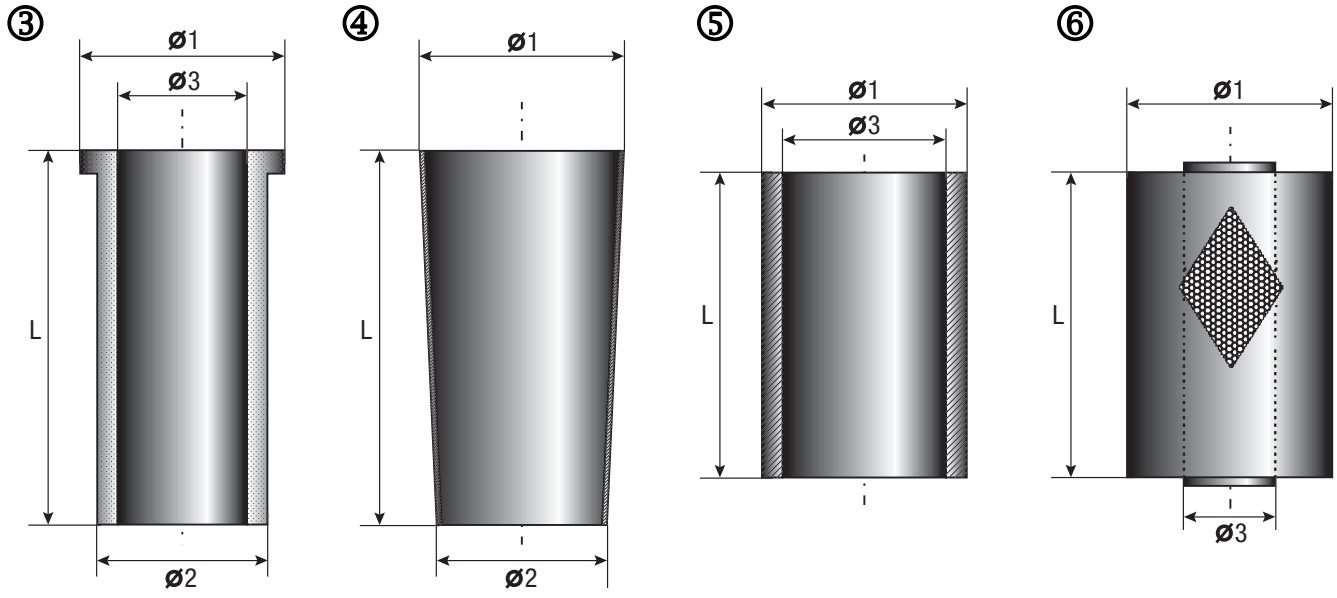
Drying, filtering and cleaning cores

→ CCY F / CCY I / CCY HU

01/10

■ Selection table and technical features of filtering cores

CARLY References	Drawing Nb	Surface de filtration (cm^2)	Dimensions (mm)				Net weight (kg)
			Ø1	Ø2	Ø3	L	
CCY 42 F	3	374	81	62	42,0	155,0	0,06
CCY 48 F	5	420	93	/	75,0	140,0	0,09
CCY 100 F	5	630	122	/	105,0	166,0	0,13
CCY 42 I	4	374	81	62	/	155,0	0,10
CCY 48 I	5	420	93	/	75,0	140,0	0,12
CCY 100 I	5	630	122	/	105,0	166,0	0,18
CCY 48 HU	6	5790	101	/	27,5	152,6	0,30



■ Spare parts

CARLY References	Description	Types	Quantity
CY 15553000	Gasket for mode 48 core ends	CCY 48 HP - CCY 48 N - PLATINIUM 48	1
CY 15553100	Gasket for mode 100 core ends	CCY 100 HP - CCY 100 N	1
CY 15555211	End plate gasket	BDCY	1
CY 15555601	End plate gasket	ACY - BCY	1
CY 15555701	End plate gasket	BACY - BBCY	1

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Drying, filtering and cleaning cores

→ CCY / PLATINIUM

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■ Weights and packaging

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
CCY 42 HP	0,77	0,68	20	/
CCY 48 HP	0,90	0,79	15	/
CCY 100 HP	1,75	1,52	6	/
PLATINIUM 48	0,90	0,79	15	/
CCY 42 N	0,62	0,53	20	/
CCY 48 N	0,81	0,70	15	/
CCY 100 N	1,58	1,36	6	/

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
CCY 42 F	0,15	0,06	6	/
CCY 48 F	0,18	0,09	15	/
CCY 100 F	0,14	0,13	6	/
CCY 42 I	0,19	0,10	6	/
CCY 48 I	0,21	0,12	15	/
CCY 100 I	0,27	0,18	6	/
CCY 48 HU	0,41	0,30	15	/

DTGB - 7.1-2-5-10

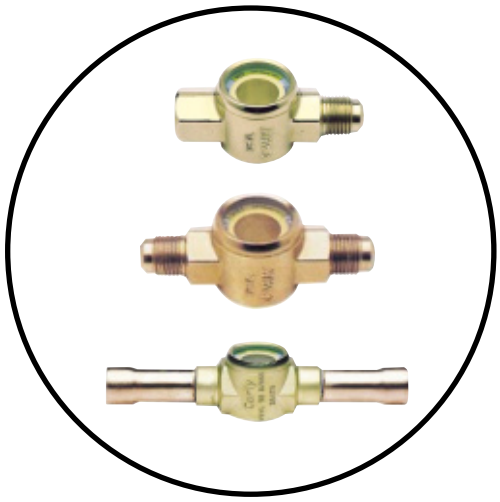
Liquid sight glasses

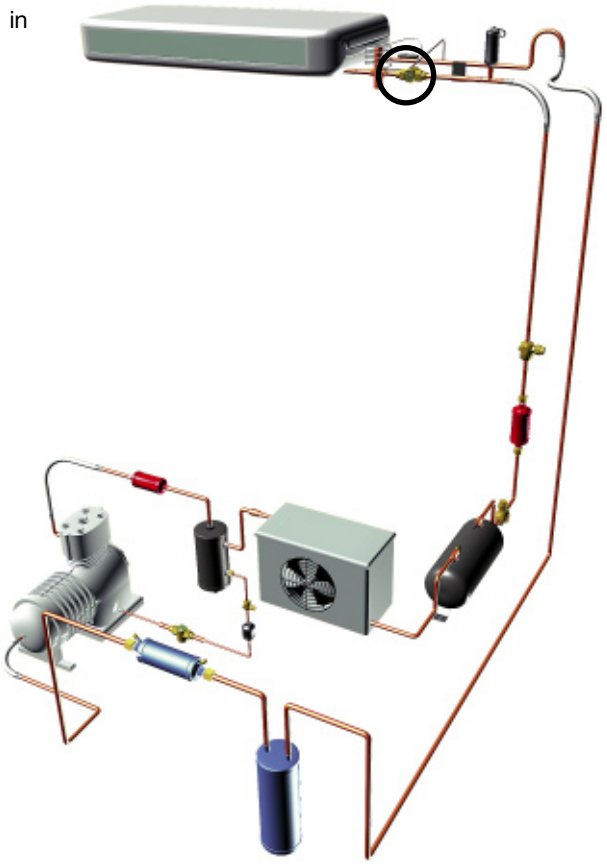
→ VCYL

01/10

■ Applications

• Immediate and direct monitoring of flow, condition or moisture content of the refrigerant in its liquid or diphasic phase in refrigerating and air conditioning installations.





■ Functional features

- Products are compatible with HFCs, HCFCs, CFCs, 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.
- Product classification in CE categories is performed using the PED 97/23/EC table, corresponding to a nominal diameter-based selection.
- Visualisation of refrigerant through glass.
- A moisture indicator sensitive to moisture and resistant to acids is positioned under the glass.
- Moisture presence is characterised by a modification of the indicator colour; this modification is reversible.
- The sight glasses die-cast brass body guarantees perfect resistance to corrosion.
- The brazed liquid sight glasses' long copper sleeves allow quick and safe brazing of connections; since the body and the glass are attached, brazing can be performed without removing the glass.

■ CARLY advantages

- The large size of the glass and the absence of a central hygroscopic tip ensure excellent visibility.
- The moisture indicator fastening system ensures protection against erosion and prevents fouling by oils and dirts present in the circuit; it also eliminates any turbulence that would hinder proper vision of the refrigerant and does not lead to any pressure drop.
- The sealed design and the seaming principle of the chosen glass ensure perfect air-tightness.
- Two very thick hexagon head bolts facilitate sight glasses positioning and handling for tightening of connections to screw.
- The male/female sight glasses to screw are provided with a guided copper gasket that allows fast and reliable positioning.
- GOST certified products.

DTGB - 7.1-2-5-10

Liquid sight glasses

→ VCYL

01/10

■ Recommendations

* Assembly is performed on the liquid line between the filter drier and the pressure relief valve.
* For liquid sight glasses with female connections to screw, pay attention to the correct positioning of the supplied copper seal.
* The indication of moisture presence is quick; in return, the moisture indicator indicates the return to normal situation a few hours only after implementation of a drying system (DCY filter drier, or CCY HP/N or PLATINIUM 48 drying cores).
* General assembly precautions: refer to chapter 115.

READING OF THE MOISTURE INDICATOR

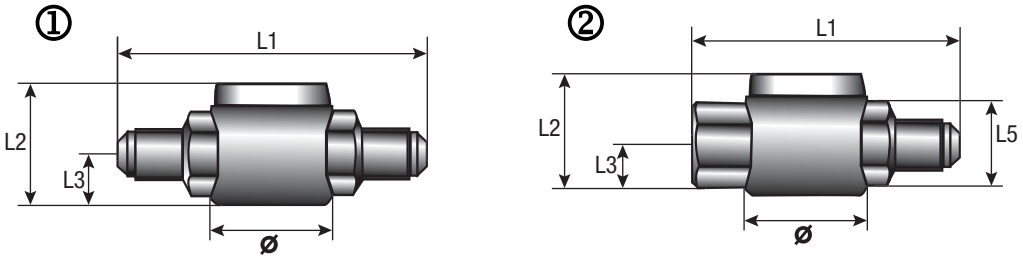
Reminder of acceptable moisture rates expressed in ppm (part per million of water in the refrigerant) : DIN 8949

R22 :	→ 60 ppm
R134a :	→ 50 ppm
R404A :	→ 50 ppm
R507 :	→ 50 ppm
R407C :	→ 50 ppm
R410A :	→ 50 ppm

* Colour: **Green**
  Normal conditions, perfectly dried circuit; the filter driers or the drying cores, in the case of replaceable core filter drier shells, are active.
* Colour: **Light green**
  The filter driers or the drying cores, in the case of replaceable core filter drier shells, are saturating. it is necessary to quickly replace them.
* Colour: **Yellow**
  The filter driers or drying cores, in the case of replaceable core filter drier shells, are entirely saturated. There is a possibility of danger, the circuit is humid and polluted; immediate intervention is required: quickly install new **DCY** sealed anti-acid filter driers or new **CCY HP / N** or **PLATINIUM 48** filtering and drying cores.

■ Technical features

CARLY references	Drawing Nb	Connections To screw SAE inch	Connections		Dimensions (mm)					Net weight (kg)
			Male / Male	Female / Male	Ø	L1	L2	L3	L5 upper faces	
VCYL 12	1	1/4	X		26	67,0	26,5	10,8	16	0,10
VCYL 13	1	3/8	X		32	82,0	29,6	12,3	24	0,20
VCYL 14	1	1/2	X		32	88,0	29,6	12,3	24	0,25
VCYL 15	1	5/8	X		32	94,0	29,6	12,3	24	0,30
VCYL 22	2	1/4		X	26	58,5	26,5	10,8	16	0,15
VCYL 23	2	3/8		X	32	69,0	29,6	12,3	24	0,20
VCYL 24	2	1/2		X	32	74,5	29,6	12,3	24	0,25
VCYL 25	2	5/8		X	32	112,8	29,6	12,3	24	0,28



DTGB - 7.1-2-5-10

Liquid sight glasses

→ VCYL

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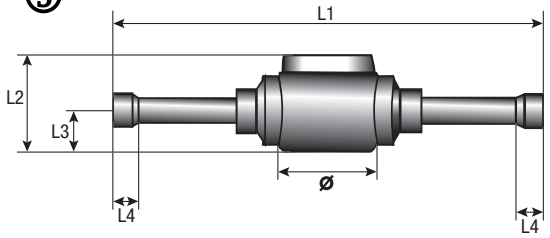
■ Technical features

CARLY references	Connections To solder ODF inch	CARLY references	Connections To solder ODF mm	Connections		Drawing Nb	Dimensions (mm)					Net weight (kg)
				Male / Female	Female / Female		ø	L1	L2	L3	L4	
VCYL 32 S	1/4	**VCYL 32 MMS**	6		X	3	26	101	26,5	10,8	8	0,10
VCYL 33 S	3/8	**VCYL 33 MMS**	10		X	3	26	119	26,5	10,8	10	0,10
VCYL 34 S	1/2	**VCYL 34 MMS**	12		X	3	32	146	29,6	12,3	10	0,15
VCYL 35 S/MMS	5/8	**VCYL 35 S/MMS**	16		X	3	32	146	29,6	12,3	12	0,20
VCYL 36 S	3/4	**VCYL 36 MMS**	18		X	4	38	160	35,8	14,4	14	0,22
VCYL 37 S	7/8	**VCYL 37 MMS**	22		X	4	38	160	35,8	14,4	17	0,25
VCYL 39 S	1 1/8	**VCYL 39 MMS**	28		X	4	43	160	42,3	17,7	23	0,25
VCYL 52 S	1/4	**VCYL 52 MMS**	6	X		5	26	101	26,5	10,8	8	0,10
VCYL 53 S	3/8	**VCYL 53 MMS**	10	X		5	26	119	26,5	10,8	10	0,10
VCYL 54 S	1/2	**VCYL 54 MMS**	12	X		5	32	146	29,6	12,3	10	0,15
VCYL 55 S/MMS	5/8	**VCYL 55 S/MMS**	16	X		5	32	146	29,6	12,3	12	0,20

③



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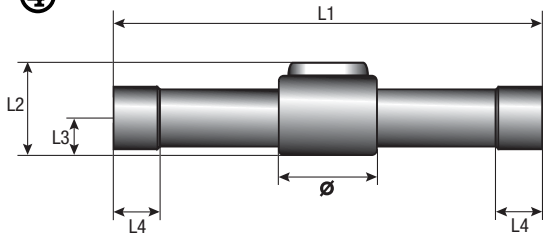

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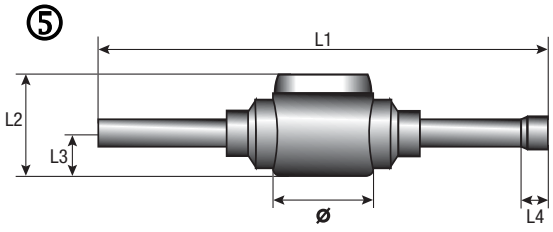

DTGB - 7.1-2-5-10

Liquid sight glasses

→ VCYL

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■ Technical features

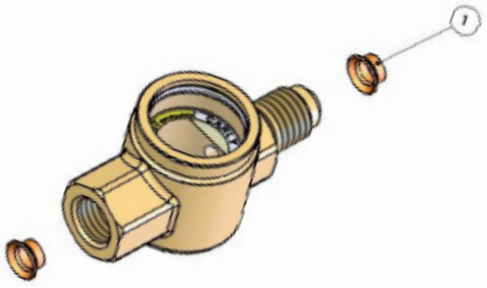
CARLY references	Nominal diameter	CARLY references	Nominal diameter	Maximal working pressure	Working pressure (1)	Maximal working temperature	Minimal working temperature	Working temperature (1)	CE Category (2)
	DN (inch)		DN (mm)	PS (bar)	PS BT (bar)	TS maxi (°C)	TS mini (°C)	TS BT (°C)	
VCYL 12	1/4			42	/	80	-20	/	Art3§3
VCYL 13	3/8			42	/	80	-20	/	Art3§3
VCYL 14	1/2			42	/	80	-20	/	Art3§3
VCYL 15	5/8			42	/	80	-20	/	Art3§3
VCYL 22	1/2			42	/	80	-20	/	Art3§3
VCYL 23	3/8			42	/	80	-20	/	Art3§3
VCYL 24	1/4			42	/	80	-20	/	Art3§3
VCYL 25	5/8			42	/	80	-20	/	Art3§3
VCYL 32 S	1/4	**VCYL 32 MMS**	6	42	/	80	-20	/	Art3§3
VCYL 33 S	3/8	**VCYL 33 MMS**	10	42	/	80	-20	/	Art3§3
VCYL 34 S	1/2	**VCYL 34 MMS**	12	42	/	80	-20	/	Art3§3
VCYL 35 S/MMS	5/8	**VCYL 35 S/MMS**	16	42	/	80	-20	/	Art3§3
VCYL 36 S	3/4	**VCYL 36 MMS**	18	42	/	80	-20	/	Art3§3
VCYL 37 S	7/8	**VCYL 37 MMS**	22	42	/	80	-20	/	Art3§3
VCYL 39 S	1 1/8	**VCYL 39 MMS**	28	42	/	80	-20	/	Art3§3
VCYL 52 S	1/4	**VCYL 52 MMS**	6	42	/	80	-20	/	Art3§3
VCYL 53 S	3/8	**VCYL 53 MMS**	10	42	/	80	-20	/	Art3§3
VCYL 54 S	1/2	**VCYL 54 MMS**	12	42	/	80	-20	/	Art3§3
VCYL 55 S/MMS	5/8	**VCYL 55 S/MMS**	19	42	/	80	-20	/	Art3§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 diameter, according to PED 97/23/EC (refer to chapter 0 page 7).

■ Spare parts

CARLY references	Part N°	Description	Quantity
CY 15590015	1	Set of 25 guided taper copper gaskets for 1/4" SAE (flare) connections	1
CY 15590025	1	Set of 25 guided taper copper gaskets for 3/8" SAE (flare) connections	1
CY 15590035	1	Set of 25 guided taper copper gaskets for 1/2" SAE (flare) connections	1
CY 15590040	1	Set of 25 taper copper gaskets for 5/8" SAE (flare) connections	1



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Liquid sight glasses

→ VCYL

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■ Weights and packaging

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
VCYL 12	0,11	0,10	1	/
VCYL 13	0,21	0,20	1	/
VCYL 14	0,26	0,25	1	/
VCYL 15	0,31	0,30	1	8
VCYL 22	0,16	0,15	8	8
VCYL 23	0,21	0,20	8	8
VCYL 24	0,26	0,25	1	8
VCYL 25	0,29	0,28	1	/

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
VCYL 32 S & MMS	0,12	0,10	1	/
VCYL 33 S & MMS	0,12	0,10	1	/
VCYL 34 S & MMS	0,17	0,15	1	/
VCYL 35 S/MMS	0,22	0,20	1	/
VCYL 36 S & MMS	0,25	0,22	1	/
VCYL 37 S & MMS	0,28	0,25	1	/
VCYL 39 S & MMS	0,28	0,25	1	/
VCYL 52 S & MMS	0,12	0,10	1	/
VCYL 53 S & MMS	0,12	0,10	1	/
VCYL 54 S & MMS	0,17	0,15	1	/
VCYL 55 S/MMS	0,22	0,20	1	/

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Liquid sight glasses

→ VCYLS

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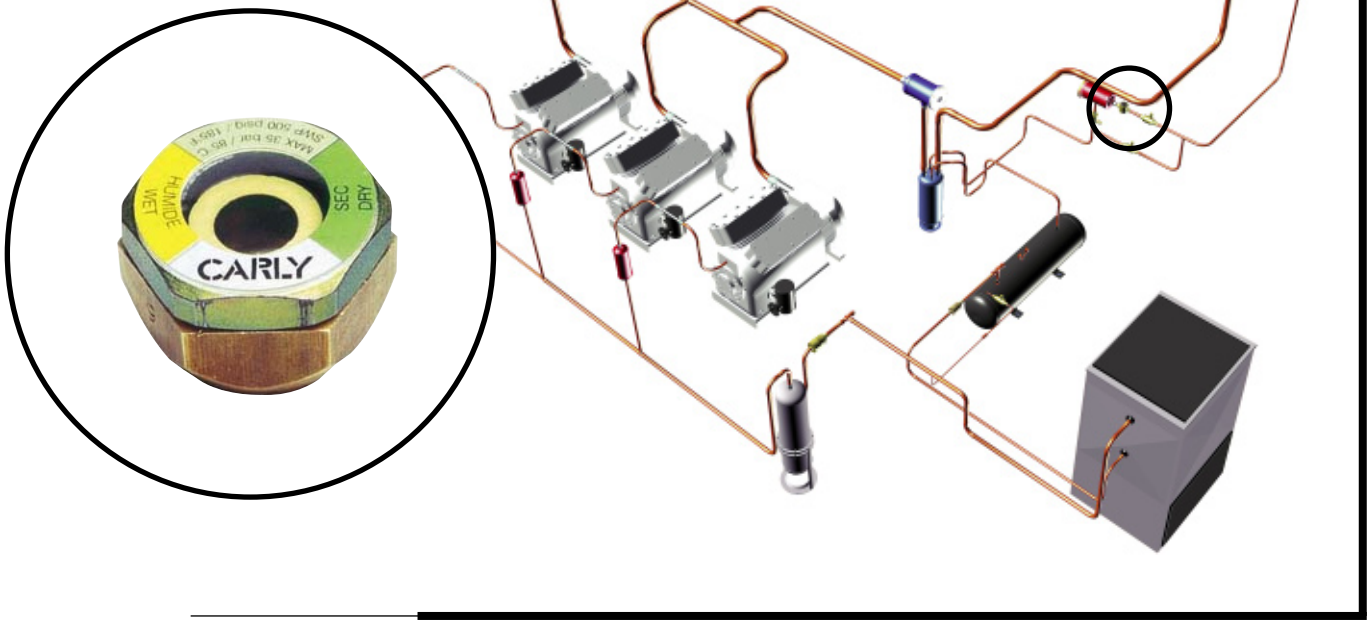
■ Applications

- Immediate and direct monitoring of flow, condition and moisture content of the refrigerant in its liquid or diphasic phase, in refrigerating and air conditioning installations.



■ Functional features

- Products are compatible with HFCs, HCFCs, CFCs, 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.
- Product classification in CE categories is performed using the PED 97/23/EC table, corresponding to a nominal diameter-based selection.
- Assessment of the refrigerant through the glass.
- A moisture indicator sensitive to moisture and resistant to acids is positioned under glass.
- Moisture presence is characterised by a modification of the indicator colour; this modification is reversible.
- Constitution of the three-part sight glass:
  - → one brass base to be brazed directly on piping after drilling.
  - → one glass with one moisture indicator, screwed on the base.
  - → one PTFE O-ring ensuring air-tightness between the base and the glass.

■ CARLY advantages

- The large size of the glass and the absence of a central hygroscopic tip ensure an excellent visibility.
- The moisture indicator fastening system ensures protection against erosion and prevents fouling by oils and dirts present in the circuit; it also eliminates any turbulence that would hinder proper vision of the refrigerant and does not lead to any pressure drop.
- Room, material and mounting time are saved, compared with the installation of a sight glass fitted to bypass the refrigerating line.
- The brass base and the dichromated zinc-plated steel glass ensure perfect resistance to corrosion.
- The glass is cast in metal which eliminates risks of leak.
- GOST certified product.

Liquid sight glasses

→ VCYLS

■ Recommendations

* Assembly is performed on the liquid line between the filter drier and the pressure relief valve.
* The glass and the O-ring should be removed during the brazing of the base on the piping.
* After this brazing and when the base temperature is sufficiently low, put the O-ring back into its recess and screw the glass back complying with the recommended 25 N.m tightening torque.
* The O-ring should be replaced after each removal of the glass.
* The indication of moisture presence is quick; in return, the moisture indicator indicates return to a normal situation a few hours only after implementation of a drying system (DCY filter drier, or CCY HP/N or PLATINIUM 48 drying cores).
* General assembly precautions: refer to chapter 115.

READING OF THE MOISTURE INDICATOR

Reminder of acceptable moisture rates expressed in ppm (part per million of water in the refrigerant) : DIN 8949

R22 :	→ 60 ppm
R134a :	→ 50 ppm
R404A :	→ 50 ppm
R507 :	→ 50 ppm
R407C :	→ 50 ppm
R410A :	→ 50 ppm

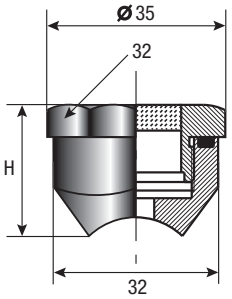
* Colour: **Green**
  Normal conditions, perfectly dried circuit; the filter driers or the drying cores, in the case of replaceable core filter drier shells, are active.

* Colour: **Light green**
  The filter driers or the drying cores, in the case of replaceable core filter drier shells, are saturating. it is necessary to quickly replace them.

* Colour: **Yellow**
  The filter driers or drying cores, in the case of replaceable core filter drier shells, are entirely saturated. There is a possibility of danger, the circuit is humid and polluted; immediate intervention is required: quickly install new **DCY** sealed anti-acid filter driers or new **CCY HP / N** or **PLATINIUM 48** filtering and drying cores.

■ Technical features

CARLY references	For soldering onto the pipe :		Dimensions	Net weight (kg)
	Ø (inch)	Ø (mm)	H (mm)	
VCYLS 5	5/8	16	22,0	0,1
VCYLS 7	7/8	22	21,5	0,1
VCYLS 9	1 1/8	28	20,0	0,1
VCYLS 11	1 3/8	35	19,0	0,1
VCYLS 13	1 5/8	42	18,5	0,1
VCYLS 17	2 1/8	54	17,8	0,1
VCYLS 21	2 5/8	67	17,2	0,1



Liquid sight glasses

→ VCYLS

■ Technical features

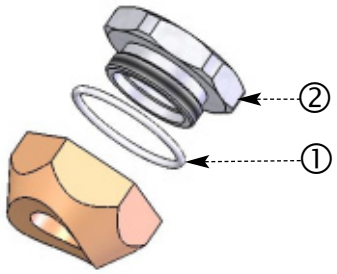
CARLY references	Maximal working pressure	Working pressure (1)	Maximal working temperature	Minimal working temperature	Working temperature (1)	CE Category (2)
	PS (bar)	PS BT (bar)	TS maxi (°C)	TS mini (°C)	TS BT (°C)	
VCYLS 5	42	10	80	-40	-20	Art3§3
VCYLS 7	42	10	80	-40	-20	Art3§3
VCYLS 9	42	10	80	-40	-20	Art3§3
VCYLS 11	42	10	80	-40	-20	Art3§3
VCYLS 13	42	10	80	-40	-20	Art3§3
VCYLS 17	42	10	80	-40	-20	Art3§3
VCYLS 21	42	10	80	-40	-20	Art3§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 diameter, according to PED 97/23/EC (refer to chapter 0 page 7).

■ Spare parts

CARLY references	Part N°	Description	Quantity
CY 15552180	1	O-ring for sight glass	1
CY 35012140	2	Glass with moisture indicator	1

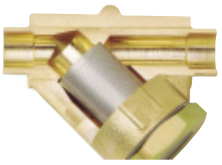


Liquid sight glasses

→ VCYLS

■ Weights and packaging

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
VCYLS 5	0,11	0,10	10	/
VCYLS 7	0,11	0,10	10	/
VCYLS 9	0,11	0,10	10	/
VCYLS 11	0,11	0,10	10	/
VCYLS 13	0,11	0,10	10	/
VCYLS 17	0,11	0,10	10	/
VCYLS 21	0,11	0,10	10	/

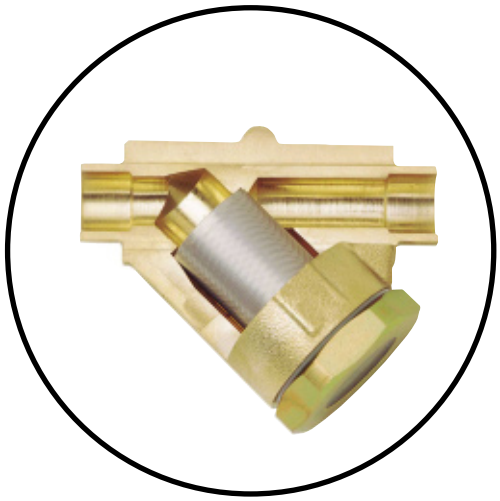


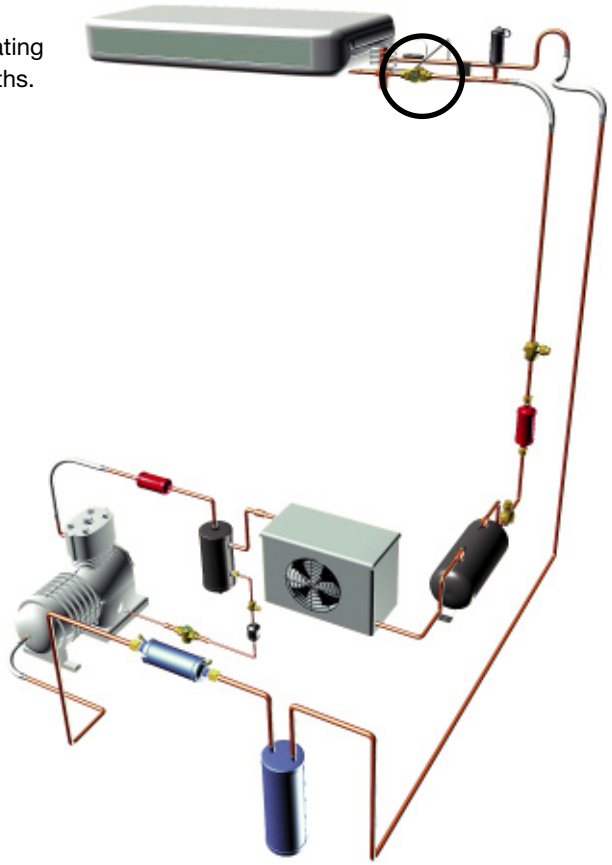
Dirt filters

→ FILTRY *(permanent use)*

■ Applications

- Permanent refrigerant filtering, regulation and expansion element protection in refrigerating and air conditioning installations.
- These filters are particularly suited for commercial refrigerating applications and installations with important liquid line lengths.



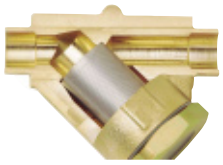


■ Functional features

- Products are compatible with HFCs, HCFCs, CFCs, 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.
- Product classification in CE categories is performed using the PED 97/23/EC table, corresponding to a nominal diameter-based selection.
- Product is ergonomic for quick maintenance interventions.
- Body made of die-cast brass with brazed connection.
- Filtration preventing propagation within the circuit of particles bigger than 150 microns in standard version, with a filtration area of 16 cm^2.
- Net weight: 0.30 kg.

■ CARLY advantages

- Supply of a 50-micron filtrating sleeve on request.
- The stainless steel filtrating sleeve can be removed for cleaning, without removing the filter case and without de-brazing the connections, thus allowing important time savings during maintenance operations.
- Plug can be handled with a flat spanner.
- Air-tightness guaranteed thanks to a PTFE O-ring.
- Compact product for ease of assembly in reduced footprint.
- Upon request, FILTRY filters can be supplied with a moisture indicator instead of the basic plug
- GOST certified products.



Dirt filters

→ FILTRY *(permanent use)*

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■ Recommendations

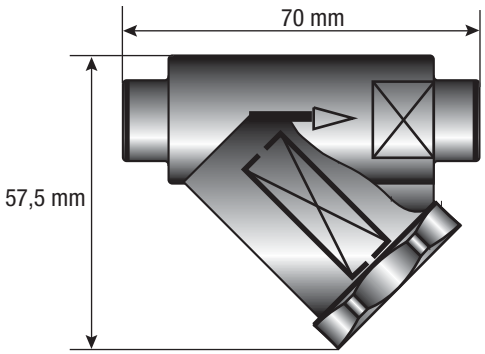
* FILTRY dirt filters are to be mounted on the liquid line between the receiver and the expansion element.
* The refrigerant flow direction, indicated by an arrow on filter case should be complied with.
* It is necessary to remove the filtrating sleeve and the O-ring before assembling filter by brazing.
* After brazing, when the base temperature is sufficiently low, put the O-ring back into its recess and screw back the plug complying with the recommended tightening torque of 15 N.m.
* After each removal of the plug, impera-tively replace the PTFE O-ring; it is preferable to position, in a first step, the filtrating sleeve in the filter case and in a second step, to screw the plug.
* 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.
* Never install 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).
* Mounting to be performed preferably horizontally, access plug oriented downwards.
* General assembly precautions: refer to chapter 115.

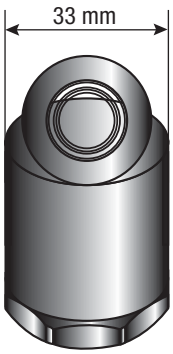
■ Technical features

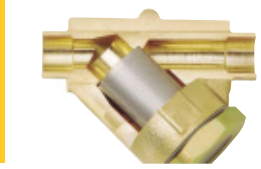
CARLY references	Nominal diameter	CARLY references	Nominal diameter	Maximal working pressure	Working pressure (1)	Maximal working temperature	Minimal working temperature	Working temperature (1)	CE Category (2)
	DN (inch)		DN (mm)	PS (bar)	PS BT (bar)	TS maxi (°C)	TS mini (°C)	TS BT (°C)	
FILTRY 3 S	3/8	**FILTRY 3 MMS**	10	42	10	80	-40	-20	Art3§3
FILTRY 4 S	1/2	**FILTRY 4 MMS**	12	42	10	80	-40	-20	Art3§3
FILTRY 5 S	5/8	**FILTRY 5 MMS**	15	42	10	80	-40	-20	Art3§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 diameter, according to PED 97/23/EC (refer to chapter 0 page 7).





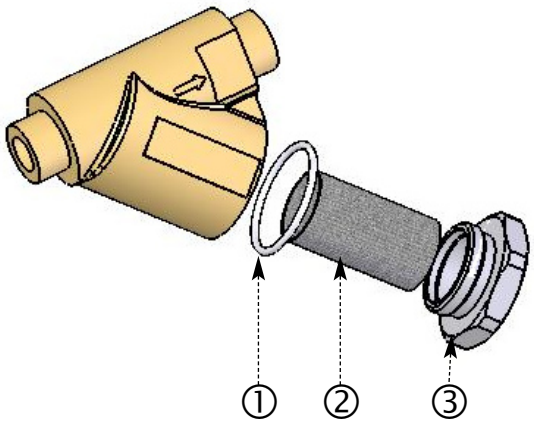


Dirt filters

→ FILTRY *(permanent use)*

■ Spare parts

CARLY references	Part N°	Description	Quantity
CY 10850110	3	Srandard fastening plug	1
CY 11610050	2	50 microns filtrating sleeve	1
CY 11610150	2	150 microns filtrating sleeve	1
CY 15552180	1	O-ring	1
CY 35012140	3	Glass with moisture indicator	1
CY 35012150	3	Glass without moisture indicator	1



■ Weights and packaging

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
FILTRY 3 S & MMS	0,31	0,30	16	/
FILTRY 4 S & MMS	0,31	0,30	16	/
FILTRY 5 S & MMS	0,31	0,30	16	/

Dirt filters

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→ FCY *(permanent use)*

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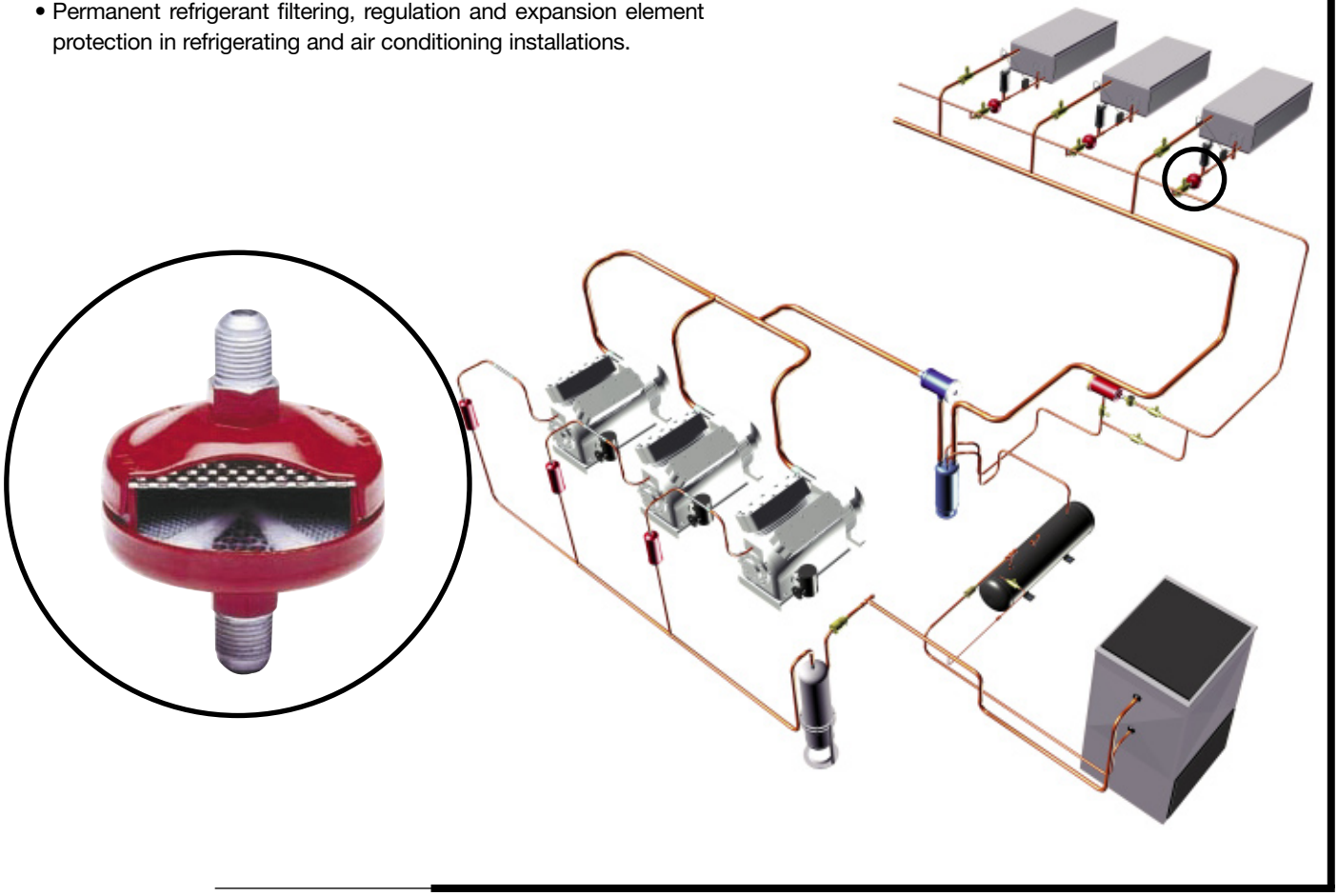
■ Applications

- Permanent refrigerant filtering, regulation and expansion element protection in refrigerating and air conditioning installations.



■ Functional features

- Products are compatible with HFCs, HCFCs, CFCs, 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.
- Product classification in CE categories is performed using the PED 97/23/EC table, corresponding to a volume-based selection
- FCY dirt filters are entirely made of steel.
- Filtering at outlet preventing the propagation within the circuit of particles bigger than 12 microns.

■ CARLY advantages

- 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.
- Connections to solder are made of copper-plated steel up to connections diameter 3/4" included and allow the use of filler metals with a low silver content; their resistance to pressure is much higher than that of full copper connections.
- GOST certified products.

Dirt filters

→ FCY *(permanent use)*

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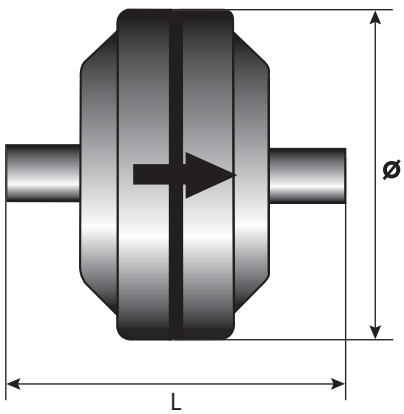
■ Recommendations

* FCY 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 oil filters, or HYDROIL filter driers for POE oils (refer to chapters 45 and 46).
* The refrigerant flow direction, indicated by an arrow on the filter tag, should be complied with.
* Dirt filter mounting is to be performed horizontally, in order to allow proper operation of the contaminating agent retention system.
* 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 dirt filters.
* 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).
* General assembly precautions: refer to chapter 115.

■ Technical features

CARLY references	Connections To screw SAE inch	Connections To solder ODF inch	CARLY references	Connections To solder ODF mm	Filtering surface (cm^2)	Dimensions (mm) Ø	Dimensions (mm) L	Net weight (kg)
FCY 702	1/4				40	74	92	0,35
FCY 702 S		1/4	**FCY 702 MMS**	6	40	74	82	0,35
FCY 703	3/8				40	74	98	0,40
FCY 703 S		3/8	**FCY 703 MMS**	10	40	74	82	0,40
FCY 894	1/2				65	93	106	0,50
FCY 894 S		1/2	**FCY 894 MMS**	12	65	93	86	0,50
FCY 895	5/8				65	93	110	0,60
FCY 895 S/MMS		5/8	**FCY 895 S/MMS**	16	65	93	90	0,60
FCY 896 S		3/4	**FCY 896 MMS**	18	65	93	96	0,60
FCY 897 S		7/8	**FCY 897 MMS**	22	65	93	110	0,65
FCY 899 S		1 1/8	**FCY 899 MMS**	28	65	93	120	0,65
FCY 8911 S/MMS		1 3/8	**FCY 8911 S/MMS**	35	65	93	140	0,85

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



DTGB - 8.5-1-1-10

Dirt filters

→ FCY *(permanent use)*

01/10

■ 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)	
FCY 702		0,15	42	10	80	-40	-20	Art3§3
FCY 702 S	**FCY 702 MMS**	0,15	42	10	80	-40	-20	Art3§3
FCY 703		0,15	42	10	80	-40	-20	Art3§3
FCY 703 S	**FCY 703 MMS**	0,15	42	10	80	-40	-20	Art3§3
FCY 894		0,26	42	10	80	-40	-20	Art3§3
FCY 894 S	**FCY 894 MMS**	0,26	42	10	80	-40	-20	Art3§3
FCY 895		0,26	42	10	80	-40	-20	Art3§3
FCY 895 S/MMS		0,26	42	10	80	-40	-20	Art3§3
FCY 896 S	**FCY 896 MMS**	0,26	42	10	80	-40	-20	Art3§3
FCY 897 S	**FCY 897 MMS**	0,27	42	10	80	-40	-20	Art3§3
FCY 899 S	**FCY 899 MMS**	0,29	42	10	80	-40	-20	Art3§3
FCY 8911 S/MMS		0,29	42	10	80	-40	-20	Art3§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 97/23/EC (refer to chapter 0 page 7).

■ Weights and packaging

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
FCY 702	0,39	0,35	16	/
FCY 702 S & MMS	0,39	0,35	16	/
FCY 703	0,44	0,40	16	/
FCY 703 S & MMS	0,44	0,40	16	/
FCY 894	0,57	0,50	1	/
FCY 894 S & MMS	0,57	0,50	1	/

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
FCY 895	0,67	0,60	1	/
FCY 895 S/MMS	0,67	0,60	1	/
FCY 896 S & MMS	0,67	0,60	1	/
FCY 897 S & MMS	0,72	0,65	1	/
FCY 899 S & MMS	0,72	0,65	1	/
FCY 8911 S/MMS	0,92	0,85	1	/

DTGB - 9.1-2-8-10

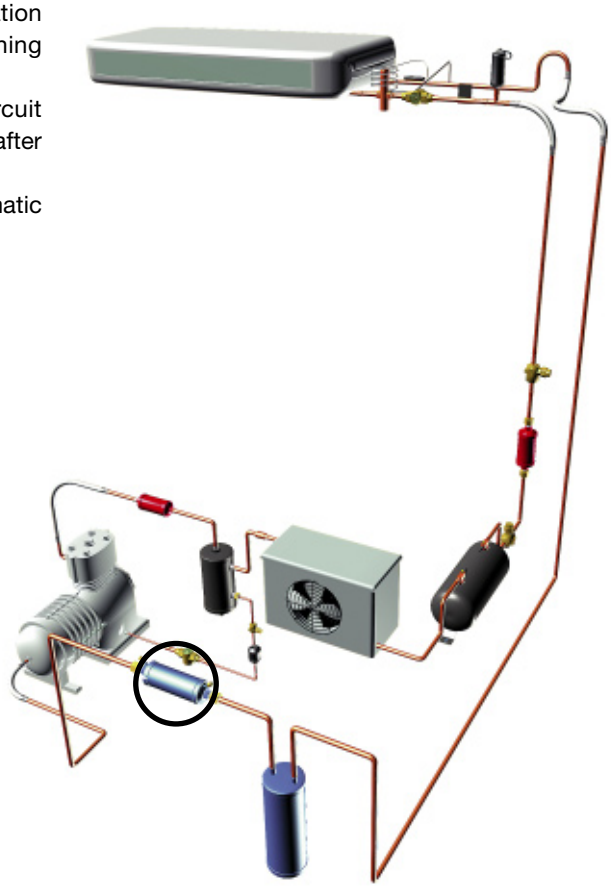
Cleaning filters (suction line)

01/10

→ FACY *(permanent use, with or without automatic bypass)*

■ Applications

- Permanent refrigerant filtering, compressor and regulation element protection in refrigerating and air conditioning instal-lations.
- Recommended use during commissioning, during circuit decontamination and refrigerant regeneration operations, after compressor burnout.
- Particularly recommended for sealed groups, their automatic bypass system prevents a major drop in suction pressure.



■ Functional features

- Products are compatible with HFCs, HCFCs, CFCs, 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.
- Product classification in CE categories is performed using the PED 97/23/EC table, corresponding to a volume-based selection.
- Filtering at outlet preventing the propagation within the circuit of particles bigger than 10 microns.
- Presence of a permanent magnet at the intake of the filters, for steel metallic particle trapping.

■ CARLY advantages

- Two access valves allow measurement of the filters' pressure drop, to check filter saturation.
- Permanent treatment until saturation and regular refrigerant distribution, through a tubular felt core, that creates a lower depression than in the connection piping.
- Internal automatic bypass system in case of filter blocking.
- Very economical cleaning process without 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.
- Connections to solder are made of copper-plated steel up to connections diameter 3/4" included and allow the use of filler metals with a low silver content; their resistance to pressure is much higher than that of full copper connections.
- GOST certified products.

Cleaning filters (suction line)

01/10

→ FACY *(permanent use, with or without automatic bypass)*

■ Recommendations

* Cleaning filters are to be mounted on the suction line between the evaporator outlet and the compressor.
* On reversing cycle installations, FACY cleaning filters should always be installed between the inversion valve and the compressor.
* Never use these cleaning filters on the oil line; in such a case, use HCYF oil filters, or HYDROIL filter driers for POE oils (refer to chapters 45 and 46).
* Pay attention to the filters' assembly order, because the automatic bypass operation depends on the refrigerant direction indicated on the filter tag.
* In the event of compressor burnout, the cleaning and pollution control procedure is described in the FNCY cleaning filter chapter (refer to page 9.9).
* FNCY cleaning filters used for these operations are perfectly interchangeable with FACY filters; therefore, they can be temporarily mounted instead of FACY filters.
* Closely monitor the pressure drops using the access valves, in order to prevent shortage of the refrigerant vapour required to cool the compressor engine.
* Upon saturation or when the bypass system is used, filters have to be replaced.
* General assembly precautions: refer to chapter 115.

■ Selection table

CARLY references	Connections		CARLY references	Connections	Refrigerating capacity (kW)(1)			
	To screw SAE inch	To solder ODF inch		To solder ODF mm	R22	R134a	R404A R507	R407C R410A
FACY 283	3/8				5,64	5,13	3,67	5,58
FACY 284	1/2				9,40	8,55	6,11	9,31
FACY 285	5/8				21,24	19,33	13,81	21,03
FACY 285 S/MMS		5/8	**FACY 285 S/MMS**	16	21,24	19,33	13,81	21,03
FACY 286 S		3/4	**FACY 286 MMS**	18	30,36	27,63	19,74	30,06
FACY 287 S		7/8	**FACY 287 MMS**	22	38,16	34,73	24,81	37,78
FACY 289 S		1 1/8	**FACY 289 MMS**	28	48,69	44,31	31,65	48,21
FACY 489 S		1 1/8	**FACY 489 MMS**	28	57,81	52,61	37,58	57,23
FACY 4811 S/MMS		1 3/8	**FACY 4811 S/MMS**	35	70,31	63,98	45,70	69,61
FACY 4813 S		1 5/8	**FACY 4813 MMS**	42	76,89	69,97	49,98	76,12

(1) Refrigerating capacities according to Standard ARI 730-2001 for To = 4.4°C, Tk = 32°C.
If different conditions, refer to correction factors in chapter 112.

Cleaning filters (suction line)

DTGB - 9.1-2-8-10

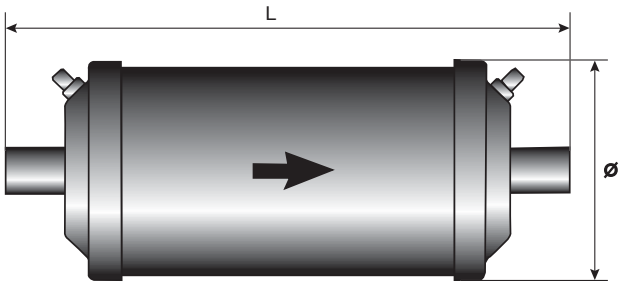
→ FACY *(permanent use, with or without automatic bypass)*

08/10

■ Technical features

CARLY references		Connection types (1)	Filtering surface (cm^2)	Dimensions (mm)		Net weight (kg)
				Ø	L	
FACY 283		1	150	74	225,0	0,90
FACY 284		1	150	74	229,0	0,95
FACY 285		1	150	74	233,0	1,00
FACY 285 S/MMS		2	150	74	213,0	1,00
FACY 286 S	**FACY 286 MMS**	2	150	74	219,0	1,00
FACY 287 S	**FACY 287 MMS**	2	150	74	233,0	1,00
FACY 289 S	**FACY 289 MMS**	3	150	74	243,0	1,10
FACY 489 S	**FACY 489 MMS**	3	356	93	314,6	1,70
FACY 4811 S/MMS		3	356	93	334,6	1,90
FACY 4813 S	**FACY 4813 MMS**	3	356	93	334,6	2,00

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



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)	
FACY 283		0,58	42	10	80	-40	-20	Art3§3
FACY 284		0,58	42	10	80	-40	-20	Art3§3
FACY 285		0,58	42	10	80	-40	-20	Art3§3
FACY 285 S/MMS		0,58	42	10	80	-40	-20	Art3§3
FACY 286 S	**FACY 286 MMS**	0,58	42	10	80	-40	-20	Art3§3
FACY 287 S	**FACY 287 MMS**	0,59	42	10	80	-40	-20	Art3§3
FACY 289 S	**FACY 289 MMS**	0,60	42	10	80	-40	-20	Art3§3
FACY 489 S	**FACY 489 MMS**	1,39	42	10	80	-40	-20	Art3§3
FACY 4811 S/MMS		1,40	42	10	80	-40	-20	Art3§3
FACY 4813 S	**FACY 4813 MMS**	1,42	42	10	80	-40	-20	Art3§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 97/23/EC (refer to chapter 0 page 7).

Cleaning filters (suction line)

→ FACY *(permanent use, with or without automatic bypass)*

■ Weights and packaging

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
FACY 283	0,94	0,90	12	/
FACY 284	0,99	0,95	12	/
FACY 285	1,04	1,00	12	/
FACY 285 S/MMS	1,04	1,00	12	/
FACY 286 S & MMS	1,04	1,00	12	/
FACY 287 S & MMS	1,04	1,00	12	/
FACY 289 S & MMS	1,14	1,10	12	/
FACY 489 S & MMS	1,77	1,70	6	/
FACY 4811 S/MMS	1,97	1,90	6	/
FACY 4813 S & MMS	2,07	2,00	6	/

DTGB - 9.5-1-1-10

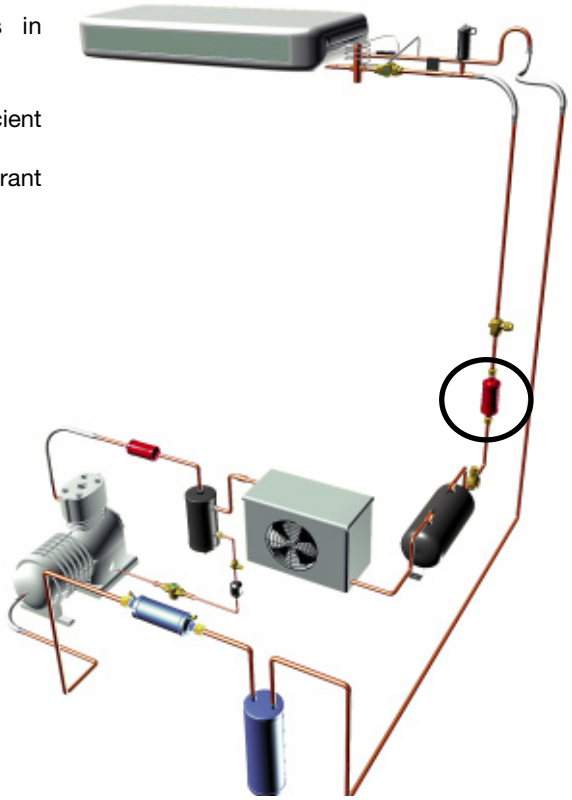
Cleaning filter driers (liquid or suction line)

01/10

→ NCY *(temporary use)*

■ Applications

- Cleaning and decontamination of refrigerant circuits in refrigerating and air conditioning installations.
- Temporary uses:
  - → new installations during start-up period for a very efficient protection of compressors against all types of dirts.
  - → existing installations for an efficient cleaning of the refrigerant after compressor burnout.



■ Functional features

- Products are compatible with HFCs, HCFCs, CFCs, 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.
- Product classification in CE categories is performed using the PED 97/23/EC table, corresponding to a volume-based selection.
- Filtering at outlet preventing the propagation within the circuit of particles bigger than 12 microns.
- No desorption, even at high temperatures.
- A dispenser located at the intake ensures optimal distribution and permanent treatment of the whole refrigerant, inside the cleaning filter driers.
- They integrate all DCY anti-acid filter drier functions, plus:
  - → a decantation filter located at the intake to stop the flow of particles such as iron and copper oxides, carbon, foundry sand, etc.
  - → a permanent magnet located at the intake that traps the steel particles (except for models NCY 63 and 63 S/MMS).

■ CARLY advantages

- Great efficiency for acid, wax binding and oily sludge neutralization at all temperatures, thanks to a fair distribution of chemical agents present in the filters: molecular sieves, activated alumina, active charcoal.
- 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.
- 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.
- Two access valves that allow filter pressure drop measurement, and define its level of saturation (except for models NCY 63 and 63 S/MMS).
- Connections to solder are made of copper-plated steel up to connections diameter 3/4" included and allow the use of filler metals with a low silver content; their resistance to pressure is much higher than that of full copper connections.
- GOST certified products.

Cleaning filter driers (liquid or suction line)

→ NCY *(temporary use)*

■ Recommendations

* Cleaning filter driers are to be mounted on the suction line between the evaporator outlet and the compressor or in the liquid line just after the receiver.
* The refrigerant flow direction, indicated by an arrow on the filter tag should be respected.
* 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 access valves, in order to prevent shortage of the refrigerant vapour required to cool the compressor engine.
* After compressor burnout:
  → refer to the instructions given by the manufacturer, for circuit cleaning operations and compressor replacement
  → visually monitor the oil condition and acidity level with TESTOIL-MAS and TESTOIL-POE acidity tests (refer to chapter 91).
* The decontamination procedure of a refrigerating circuit, after compressor burnout, using NCY cleaning filters, is identical to that for FNCY cleaning filters (description: refer to page 9.9).
* General assembly precautions: refer to chapter 115.

■ Selection table (in a suction line)

CARLY references	Connections		CARLY references	Connections	Refrigerating capacity (kW)(1)				Dehydratable refrigerant capacity (kg of refrigerant)(2)						Acid neutralization capacity (g) (3)
	To screw SAE	To solder ODF		To solder ODF	R22	R134a	R404A R507	R407C R410A	R22 R407C		R134a R410A		R404A R507		
	inch	inch		mm					24°C	52°C	24°C	52°C	24°C	52°C	
NCY 63	3/8				1,5	1,4	1,0	1,5	15,0	14,5	17,0	15,5	14,5	13,5	3,95
NCY 63 S		3/8	**NCY 63 MMS**	10	1,5	1,4	1,0	1,5	15,0	14,5	17,0	15,5	14,5	13,5	3,95
NCY 73	3/8				4,3	3,9	2,8	4,3	40,0	34,0	50,0	37,0	38,0	31,0	10,00
NCY 73 S		3/8	**NCY 73 MMS**	10	4,3	3,9	2,8	4,3	40,0	34,0	50,0	37,0	38,0	31,0	10,00
NCY 74	1/2				5,7	5,2	3,7	5,7	40,0	34,0	50,0	37,0	38,0	31,0	10,00
NCY 74 S		1/2	**NCY 74 MMS**	12	5,7	5,2	3,7	5,7	40,0	34,0	50,0	37,0	38,0	31,0	10,00
NCY 75	5/8				14,4	13,1	9,3	14,2	70,0	61,0	80,5	69,0	69,5	56,0	18,51
NCY 75 S/MMS		5/8	**NCY 75 S/MMS**	16	14,4	13,1	9,3	14,2	70,0	61,0	80,5	69,0	69,5	56,0	18,51
NCY 76	3/4 BSP				16,2	15,2	10,6	16,0	70,0	61,0	80,5	69,0	69,5	56,0	18,51
NCY 76 S		3/4	**NCY 76 MMS**	18	16,2	15,2	10,6	16,0	70,0	61,0	80,5	69,0	69,5	56,0	18,51
NCY 77 S		7/8	**NCY 77 MMS**	22	18,7	17,0	12,2	18,5	70,0	61,0	80,5	69,0	69,5	56,0	18,51

(1) Refrigerating capacities according to Standard ARI 730-2001 for To = 4.4°C, Tk = 32°C and Δp = 0.21 bar. If different conditions, refer to correction factors in chapter 112.

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

(3) Acid neutralization capacity for a TAN of 0,05 (Total Acid Number).

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Cleaning filter driers (liquid or suction line)

01/10

→ NCY *(temporary use)*

■ Selection table (in a liquid line)

CARLY references	Connections		CARLY references	Connections	Refrigerating capacity (kW)(1)				Dehydratable refrigerant capacity (kg of refrigerant)(2)						Acid neutralization capacity (g) (3)
	To screw SAE	To solder ODF		To solder ODF	R22	R134a	R404A R507	R407C R410A	R22 R407C		R134a R410A		R404A R507		
	inch	inch		mm					24°C	52°C	24°C	52°C	24°C	52°C	
NCY 63	3/8				24,0	23,0	17,0	24,5	6,5	5,5	7,0	6,0	6,5	5,5	3,95
NCY 63 S		3/8	**NCY 63 MMS**	10	24,0	23,0	17,0	24,5	6,5	5,5	7,0	6,0	6,5	5,5	3,95
NCY 73	3/8				24,5	24,0	18,0	25,0	6,5	5,5	7,0	6,0	6,5	5,5	10,00
NCY 73 S		3/8	**NCY 73 MMS**	10	24,5	24,0	18,0	25,0	6,5	5,5	7,0	6,0	6,5	5,5	10,00
NCY 74	1/2				41,5	40,0	32,0	43,0	9,5	9,0	11,5	10,0	9,5	8,0	10,00
NCY 74 S		1/2	**NCY 74 MMS**	12	41,5	40,0	32,0	43,0	9,5	9,0	11,5	10,0	9,5	8,0	10,00
NCY 75	5/8				70,0	68,0	51,0	72,0	9,5	9,0	11,5	10,0	9,5	8,0	18,51
NCY 75 S/MMS		5/8	**NCY 75 S/MMS**	16	70,0	68,0	51,0	72,0	9,5	9,0	11,5	10,0	9,5	8,0	18,51
NCY 76	3/4 BSP				90,0	86,5	65,5	83,5	15,0	14,5	17,0	15,5	14,5	13,5	18,51
NCY 76 S		3/4	**NCY 76 MMS**	18	90,0	86,5	65,5	83,5	15,0	14,5	17,0	15,5	14,5	13,5	18,51
NCY 77 S		7/8	**NCY 77 MMS**	22	110,0	105,0	80,0	115,0	15,0	14,5	17,0	15,5	14,5	13,5	18,51

(1) Refrigerating capacities according to Standard ARI 730-2001 for To = 4.4°C, Tk = 32°C and Δp = 0.07 bar. If different conditions, refer to correction factors in chapter 112.

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

(3) Acid neutralization capacity for a TAN of 0,05 (Total Acid Number).

■ 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)	
NCY 63		0,17	42	10	80	-40	-20	Art3§3
NCY 63 S	**NCY 63 MMS**	0,17	42	10	80	-40	-20	Art3§3
NCY 73		0,39	42	10	80	-40	-20	Art3§3
NCY 73 S	**NCY 73 MMS**	0,39	42	10	80	-40	-20	Art3§3
NCY 74		0,41	42	10	80	-40	-20	Art3§3
NCY 74 S	**NCY 74 MMS**	0,41	42	10	80	-40	-20	Art3§3
NCY 75		0,41	42	10	80	-40	-20	Art3§3
NCY 75 S/MMS		0,41	42	10	80	-40	-20	Art3§3
NCY 76		0,68	42	10	80	-40	-20	Art3§3
NCY 76 S	**NCY 76 MMS**	0,68	42	10	80	-40	-20	Art3§3
NCY 77 S	**NCY 77 MMS**	0,68	42	10	80	-40	-20	Art3§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 97/23/EC (refer to chapter 0 page 7).

Cleaning filter driers (liquid or suction line)

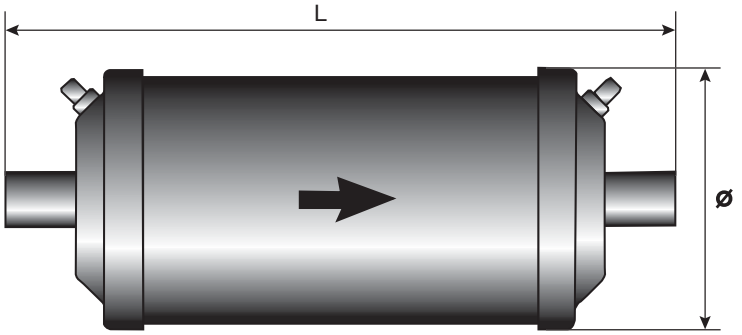
01/10

→ NCY *(temporary use)*

■ Technical features

CARLY references		Connection types (1)	Filtering surface (cm^2)	Volume of desiccation products (cm^3)	Dimensions (mm)		Net weight (kg)
					Ø	L	
NCY 63		1	52	125,0	53,0	155,5	0,40
NCY 63 S	**NCY 63 MMS**	2	52	125,0	53,0	139,5	0,40
NCY 73		1	102	315,0	74,0	175,5	0,95
NCY 73 S	**NCY 73 MMS**	2	102	315,0	74,0	159,5	0,95
NCY 74		1	102	315,0	74,0	179,5	1,00
NCY 74 S	**NCY 74 MMS**	2	102	315,0	74,0	159,5	1,00
NCY 75		1	102	581,6	74,0	259,5	1,50
NCY 75 S/MMS		2	102	581,6	74,0	239,5	1,50
NCY 76		1	102	581,6	74,0	267,5	1,50
NCY 76 S	**NCY 76 MMS**	2	102	581,6	74,0	245,5	1,50
NCY 77 S	**NCY 77 MMS**	2	102	581,6	74,0	259,5	1,55

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



DTGB - 9.5-1-1-10

Cleaning filter driers (liquid or suction line)

01/10

→ NCY *(temporary use)*

■ Weights and packaging

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
NCY 63	0,43	0,40	24	/
NCY 63 S & MMS	0,43	0,40	24	/
NCY 73	0,99	0,95	16	/
NCY 73 S & MMS	0,99	0,95	16	/
NCY 74	1,04	1,00	16	/
NCY 74 S & MMS	1,04	1,00	16	/
NCY 75	1,54	1,50	16	/
NCY 75 S/MMS	1,54	1,50	16	/
NCY 76	1,54	1,50	16	/
NCY 76 S & MMS	1,54	1,50	16	/
NCY 77 S & MMS	1,59	1,55	16	/

DTGB - 9.9-1-1-10

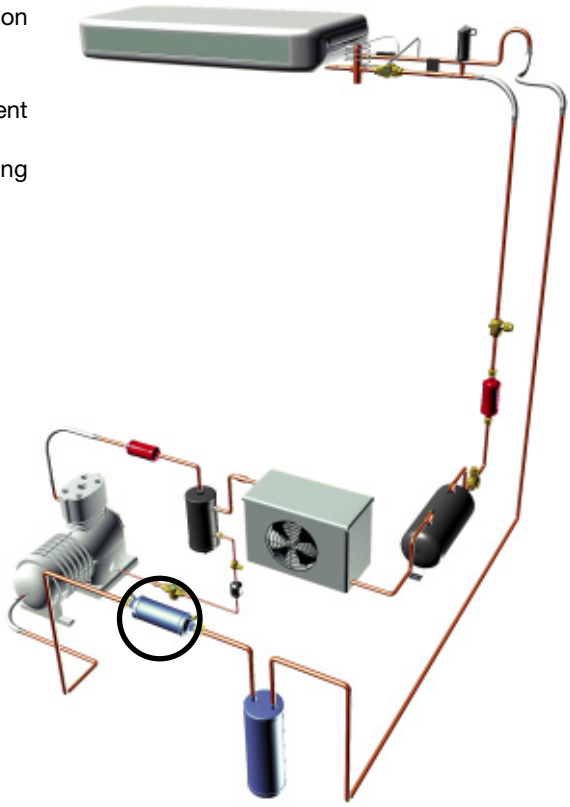
Cleaning filter driers (suction line)

→ FNCY *(temporary use - special "burnout")*

01/10

■ Applications

- Reinforced refrigerant circuits cleaning and decontamination in refrigerating and air conditioning installations.
- Temporary use for:
  - → new installations during start-up period for a very efficient protection of compressors against all types of dirts.
  - → existing installations for an efficient refrigerant cleaning after compressor burnout.



■ Functional features

- Products are compatible with HFCs, HCFCs, CFCs, 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.
- Product classification in CE categories is performed using the PED 97/23/EC table, corresponding to a volume-based selection.
- Filtering at outlet preventing the propagation within the circuit of particles bigger than 10 microns.
- No desorption, even at high temperatures.
- They integrate all DCY anti-acid filter drier functions plus:
  - → a permanent magnet located at the intake that traps the steel particles.
  - → two access valves for checking pressure, which facilitates the monitoring of filter blocking.
- FNCYs are different from NCYs in that there is a felt core that guarantees optimal filtering performances.

■ CARLY advantages

- Great efficiency for acid, wax binding and oily sludge neutralization at all temperatures, thanks to a fair distribution of chemical agents present in the filters: molecular sieves, activated alumina, active charcoal.
- Chemical agents in the form of free grains for increased performance and elimination of the risk of polluting the circuit with solid particles, consecutive to desiccant core break-up.
- Important retention capacity, without blocking risk and with minimum pressure drop.
- Very economical cleaning process without 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.
- Connections to solder are made of copper-plated steel up to connections diameter 3/4" included and allow the use of filler metals with a low silver content; their resistance to pressure is much higher than that of full copper connections.
- GOST certified products.

Cleaning filter driers (suction line)

→ FNCY *(temporary use - special "burnout")*

01/10

■ Recommendations

* The cleaning filter driers are to be mounted on the suction line between the evaporator outlet and the compressor.
* The refrigerant flow direction, indicated by an arrow on the filter tag should be respected.
* 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 two access valves, in order to prevent shortage of the refrigerant vapour required to cool the compressor engine.
* After compressor burnout:
  → refer to instructions given by the manufacturer, for circuit cleaning operations and compressor replacement and apply the CARLY decontamination procedure described hereinafter
  → visually monitor the oil condition and acidity level with TESTOIL-MAS and TESTOIL-POE acidity tests (refer to chapter 91).
* General assembly precautions: refer to chapter 115.

■ Decontamination procedure for a refrigerating circuit, after a compressor burnout, using FNCY cleaning filter driers

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 • Make sure that the part of the suction line immediately upstream of the compressor is clean.

4 • Replace all filters on the liquid line by **NCY** sealed decontamination filter of a greater capacity than that required by the new installation.

5 • Install special **FNCY** "burnout" filter drier, selected according to the installation capacity, on the suction line as close as possible to the compressor

6 • For reverse cycle systems, FNCY should be installed between the inversion valve and the compressor.

7 • Check circuit air-tightness according to the art.

8 • Make vacuum in the installation.

9 • Put circuit back under pressure.

10 • Power up the installation.
Monitor **FNCY** pressure drop evolution using the valves provided to that effect.

11 • Replace filter if pressure drop becomes too important.
The acceptable values are:
0.15 bar for a low temperature application
0.25 bar for a positive refrigeration application
0.50 bar for an air conditioning application
Increase of pressure drop indicates that the **FNCY** is performing its decontamination role.

12 • Monitor system operation during the first four hours (this monitoring must be increased when the compressor is hermetic or hermetic accessible). Replace **FNCY** as often as necessary until pressure drop in **FNCY** remains acceptable.

13 • After 48 hours of operation in decontamination phase, proceed to an oil sampling; visually inspect the sampling's condition and check the oil acidity level using **TESTOIL** oil acidity tests: **TESTOIL-POE** for polyol-ester oils or **TESTOIL-MAS** for synthetic alkylbenzene mineral oils (refer to chapter 91). If this sampling shows a non-satisfactory quality, drain oil, replace oil filter **HCYF** or **HYDROIL** and **FNCY**. Repeat the operation starting from phase 10.

14 • After about 15 days, proceed to a new oil analysis by repeating phase 14 operation. If it is satisfactory, repeat the operation starting from phase 1.

15 • When the procedure is finished, replace the cleanig filter **FNCY** by an equivalent filter **FACY** and the cleaning filter **NCY** by an equivalent filter drier **DCY**.

▲ **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.**

DTGB - 9.9-1-1-10

Cleaning filter driers (suction line)

→ FNCY *(temporary use - special "burnout")*

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■ Selection table

CARLY references	Connections To screw SAE inch	Connections To solder ODF inch	CARLY references	Connections To solder ODF mm	Refrigerating capacity (kW)(1) R22	R134a	R404A R507	R407C R410A	Dehydratable refrigerant capacity (kg of refrigerant)(2) R22 R407C 24°C	52°C	R134a R410A 24°C	52°C	R404A R507 24°C	52°C	Acid neutralization capacity (g) (3)
FNCY 283	3/8				1,50	1,37	0,98	1,49	38,5	32,5	40	38,5	61	34	9,21
FNCY 284	1/2				4,32	3,93	2,81	4,28	38,5	32,5	40	38,5	61	34	9,21
FNCY 285	5/8				7,24	6,59	4,70	7,17	38,5	32,5	40	38,5	61	34	9,21
FNCY 285 S/MMS		5/8	**FNCY 285 S/MMS**	16	7,24	6,59	4,70	7,17	38,5	32,5	40	38,5	61	34	9,21
FNCY 286 S		3/4	**FNCY 286 MMS**	18	12,14	11,05	7,90	12,02	38,5	32,5	40	38,5	61	34	9,21
FNCY 287 S		7/8	**FNCY 287 MMS**	22	18,71	17,02	12,16	18,52	38,5	32,5	40	38,5	61	34	9,21
FNCY 489 S		1 1/8	**FNCY 489 MMS**	28	23,69	21,56	15,40	23,45	68,5	57,0	71	68,5	111	61	17,50
FNCY 4811 S/MMS		1 3/8	**FNCY 4811 S/MMS**	35	46,06	41,91	29,94	45,60	68,5	57,0	71	68,5	111	61	17,50
FNCY 4813 S		1 5/8	**FNCY 4813 MMS**	42	50,38	45,85	32,75	49,88	68,5	57,0	71	68,5	111	61	17,50

(1) Refrigerating capacities according to Standard ARI 730-2001 for To = 4.4°C, Tk = 32°C.
If different conditions, refer to correction factors in chapter 112.

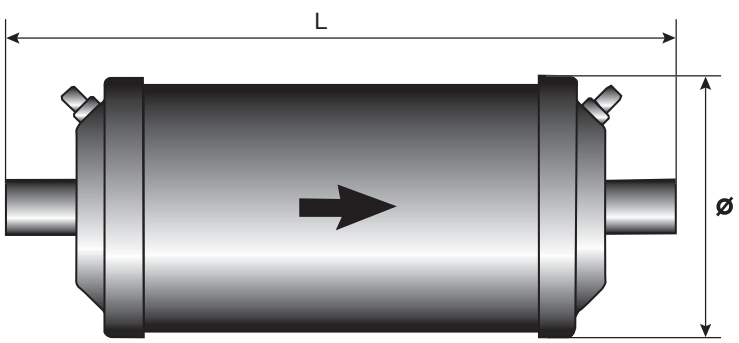
(2) Dehydratable refrigerant capacity according to Standard ARI 710-86.

(3) Acid neutralization capacity for a TAN of 0,05 (Total Acid Number).

■ Technical features

CARLY references		Connection types (1)	Filtering surface (cm²)	Volume of desiccation products (cm³)	Dimensions (mm) Ø	L	Net weight (kg)
FNCY 283		1	150	290	74	224,5	1,05
FNCY 284		1	150	290	74	228,5	1,10
FNCY 285		1	150	290	74	232,5	1,15
FNCY 285 S/MMS		2	150	290	74	212,5	1,15
FNCY 286 S	**FNCY 286 MMS**	2	150	290	74	218,5	1,17
FNCY 287 S	**FNCY 287 MMS**	2	150	290	74	232,5	1,20
FNCY 489 S	**FNCY 489 MMS**	3	356	550	93	314,5	2,15
FNCY 4811 S/MMS		3	356	550	93	334,5	2,35
FNCY 4813 S	**FNCY 4813 MMS**	3	356	550	93	334,5	2,40

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



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Cleaning filter driers (suction line)

→ FNCY *(temporary use - special "burnout")*

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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)	
FNCY 283		0,58	42	10	80	-40	-20	Art3§3
FNCY 284		0,58	42	10	80	-40	-20	Art3§3
FNCY 285		0,58	42	10	80	-40	-20	Art3§3
FNCY 285 S/MMS		0,58	42	10	80	-40	-20	Art3§3
FNCY 286 S	**FNCY 286 MMS**	0,59	42	10	80	-40	-20	Art3§3
FNCY 287 S	**FNCY 287 MMS**	0,59	42	10	80	-40	-20	Art3§3
FNCY 489 S	**FNCY 489 MMS**	1,39	42	10	80	-40	-20	Art3§3
FNCY 4811 S/MMS		1,40	42	10	80	-40	-20	Art3§3
FNCY 4813 S	**FNCY 4813 MMS**	1,42	42	10	80	-40	-20	Art3§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 97/23/EC (refer to chapter 0 page 7).

■ Weights and packaging

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
FNCY 283	1,09	1,05	12	/
FNCY 284	1,14	1,10	12	/
FNCY 285	1,19	1,15	12	/
FNCY 285 S/MMS	1,19	1,15	12	/
FNCY 286 S & MMS	1,22	1,17	12	/
FNCY 287 S & MMS	1,24	1,20	12	/
FNCY 489 S & MMS	2,22	2,15	6	/
FNCY 4811 S/MMS	2,42	2,35	6	/
FNCY 4813 S & MMS	2,47	2,40	6	/

DTGB - 21.1-2-8-10

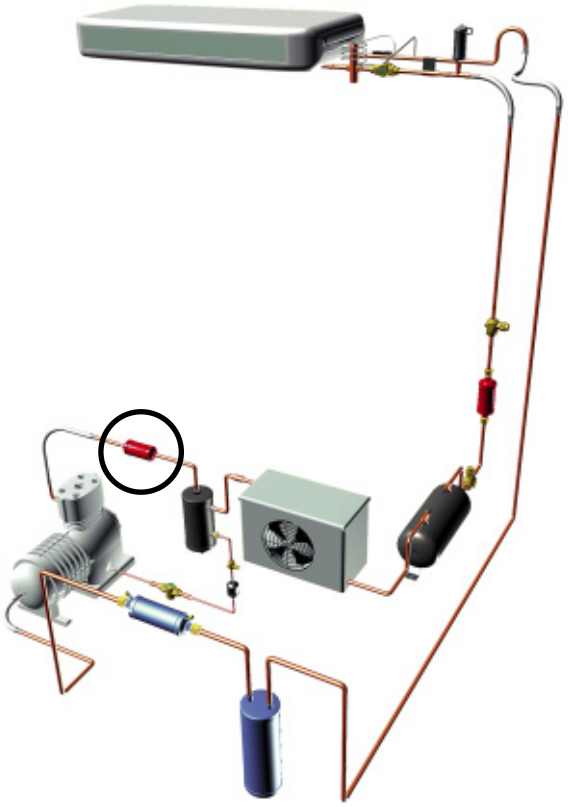
Discharge line mufflers

→ SCY

01/10

■ Applications

• Reduction of noise caused by gas pulses in the discharge lines of refrigerating and air conditioning installations.



■ Functional features

- Products are compatible with HFCs, HCFCs, CFCs, 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.
- Product classification in CE categories is performed using the PED 97/23/EC table, corresponding to a volume-based selection.
- Discharge line mufflers are entirely made of steel.

■ CARLY advantages

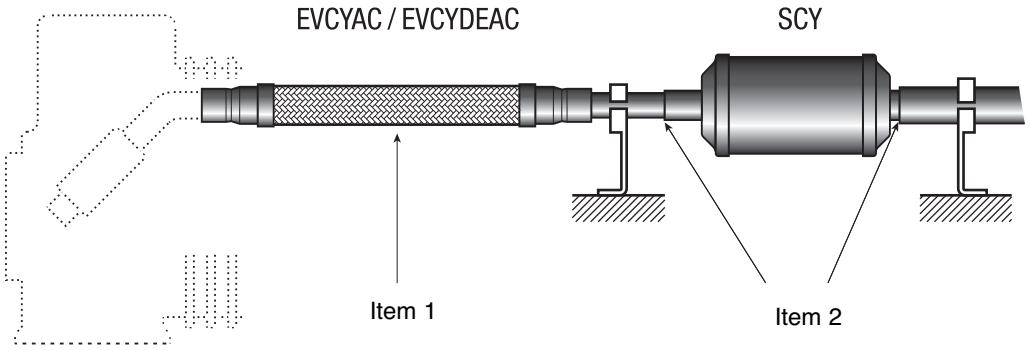
- Design allows coverage of a wide range of frequencies.
- Discharge line muffler mounting is possible in vertical and horizontal positions. There is no oil trap whichever the position. The refrigerant can flow in both directions.
- Excellent distribution of the refrigerant in its gaseous phase, with minimum pressure drop.
- Connections to solder are made of copper-plated steel up to connections diameter 3/4" included and allow the use of filler metals with a low silver content; their resistance to pressure is much higher than that of full copper connections.
- GOST certified products.

Discharge line mufflers

→ SCY

■ Recommendations

* The discharge line mufflers are to be mounted on the discharge gas line between the compressor and the condenser; 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.
* In the case of a horizontal mounting, it is recommended to perform an inner connection at the intake point, and an outer connection at the muffler outlet point (refer to drawing below, item 2).
* Provide for efficient clamping before the intake and after the outlet of the mufflers (refer to drawing below).
* For increased efficiency, it is imperative to install, upstream of the discharge mufflers, that is to say between the muffler and the compressor, an EVCYAC standard or EVCYDEAC double-effect vibration eliminator (see drawing below, item 1) (refer to chapter 22).
* General assembly precautions: refer to chapter 115.



■ Selection table

CARLY references	Connections To solder ODF inch	CARLY references	Connections To solder ODF mm	Refrigerating capacity (kW)			
				R22	R134a	R404A R507	R407C R410A
SCY 30 S	3/8	**SCY 30 MMS**	10	7,0	5,5	8,0	7,5
SCY 40 S	1/2	**SCY 40 MMS**	12	11,5	9,0	14,0	13,5
SCY 50 S/MMS	5/8	**SCY 50 S/MMS**	16	19,0	15,0	22,5	22,0
SCY 60 S	3/4	**SCY 60 MMS**	18	27,5	21,5	32,5	31,5
SCY 70 S	7/8	**SCY 70 MMS**	22	38,5	30,0	45,5	43,5
SCY 90 S	1 1/8	**SCY 90 MMS**	28	60,0	47,0	71,0	68,0
SCY 110 S/MMS	1 3/8	**SCY 110 S/MMS**	35	94,0	73,5	111,0	108,0
SCY 130 S	1 5/8	**SCY 130 MMS**	42	134,0	105,0	160,0	152,0
SCY 170 S/MMS	2 1/8	**SCY 170 S/MMS**	54	229,0	179,5	273,5	260,0
SCY 210 S	2 5/8	**SCY 210 MMS**	67	350,5	274,5	418,5	398,0
SCY 250 S	3 1/8	**SCY 250 MMS**	80	497,5	390,0	594,5	565,0

(1) Refrigerating capacities for To = 4°C, Tk = 32°C and Δp = 0,21bar.
If different conditions, refer to correction factors in chapter 112.

DTGB - 21.1-2-8-10

Discharge line mufflers

→ SCY

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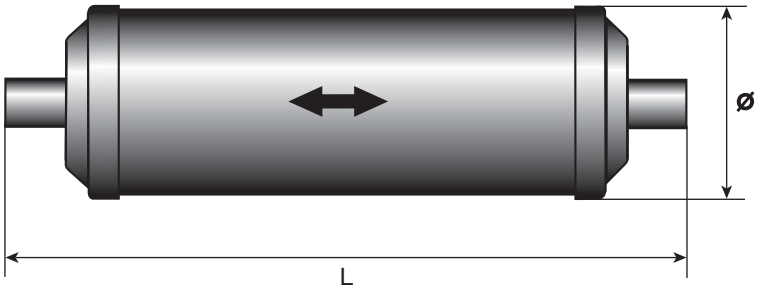
■ Technical features

CARLY references		Connections types (1)	Dimensions (mm)		Net weight (kg)
			ø	L	
SCY 30 S	**SCY 30 MMS**	2	53	162,5	0,35
SCY 40 S	**SCY 40 MMS**	2	53	162,5	0,35
SCY 50 S/MMS		2	53	166,5	0,35
SCY 60 S	**SCY 60 MMS**	2	93	163,0	0,95
SCY 70 S	**SCY 70 MMS**	2	93	183,0	1,05
SCY 90 S	**SCY 90 MMS**	3	93	283,0	1,50
SCY 110 S/MMS		3	93	303,0	1,65
SCY 130 S	**SCY 130 MMS**	3	93	303,0	1,75
SCY 170 S/MMS		3	127	681,0	6,20
SCY 210 S	**SCY 210 MMS**	3	156	626,0	9,85
SCY 250 S	**SCY 250 MMS**	3	156	872,0	13,70

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



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 30 S	**SCY 30 MMS**	0,18	42,0	10	120	-40	-20	Art3§3
SCY 40 S	**SCY 40 MMS**	0,18	42,0	10	120	-40	-20	Art3§3
SCY 50 S/MMS		0,18	42,0	10	120	-40	-20	Art3§3
SCY 60 S	**SCY 60 MMS**	0,56	42,0	10	120	-40	-20	Art3§3
SCY 70 S	**SCY 70 MMS**	0,57	42,0	10	120	-40	-20	Art3§3
SCY 90 S	**SCY 90 MMS**	1,09	42,0	10	120	-40	-20	Art3§3
SCY 110 S/MMS		1,10	42,0	10	120	-40	-20	Art3§3
SCY 130 S	**SCY 130 MMS**	1,12	42,0	10	120	-40	-20	Art3§3
SCY 170 S/MMS		5,59	35,0	10	120	-40	-20	I
SCY 210 S	**SCY 210 MMS**	8,89	31,5	10	120	-40	-20	II
SCY 250 S	**SCY 250 MMS**	12,57	31,5	10	120	-40	-20	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 97/23/EC (refer to chapter 0 page 7).

Discharge line mufflers

→ SCY

■ Weights and packaging

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
SCY 30 S & MMS	0,38	0,35	24	/
SCY 40 S & MMS	0,38	0,35	24	/
SCY 50 S/MMS	0,38	0,35	24	/
SCY 60 S & MMS	1,02	0,95	6	/
SCY 70 S & MMS	1,12	1,05	6	/
SCY 90 S & MMS	1,57	1,50	6	/

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
SCY 110 S/MMS	1,72	1,65	6	/
SCY 130 S & MMS	1,82	1,75	6	/
SCY 170 S/MMS	6,55	6,20	1	/
SCY 210 S & MMS	10,25	9,85	1	/
SCY 250 S & MMS	14,10	13,70	1	/

Vibration eliminators

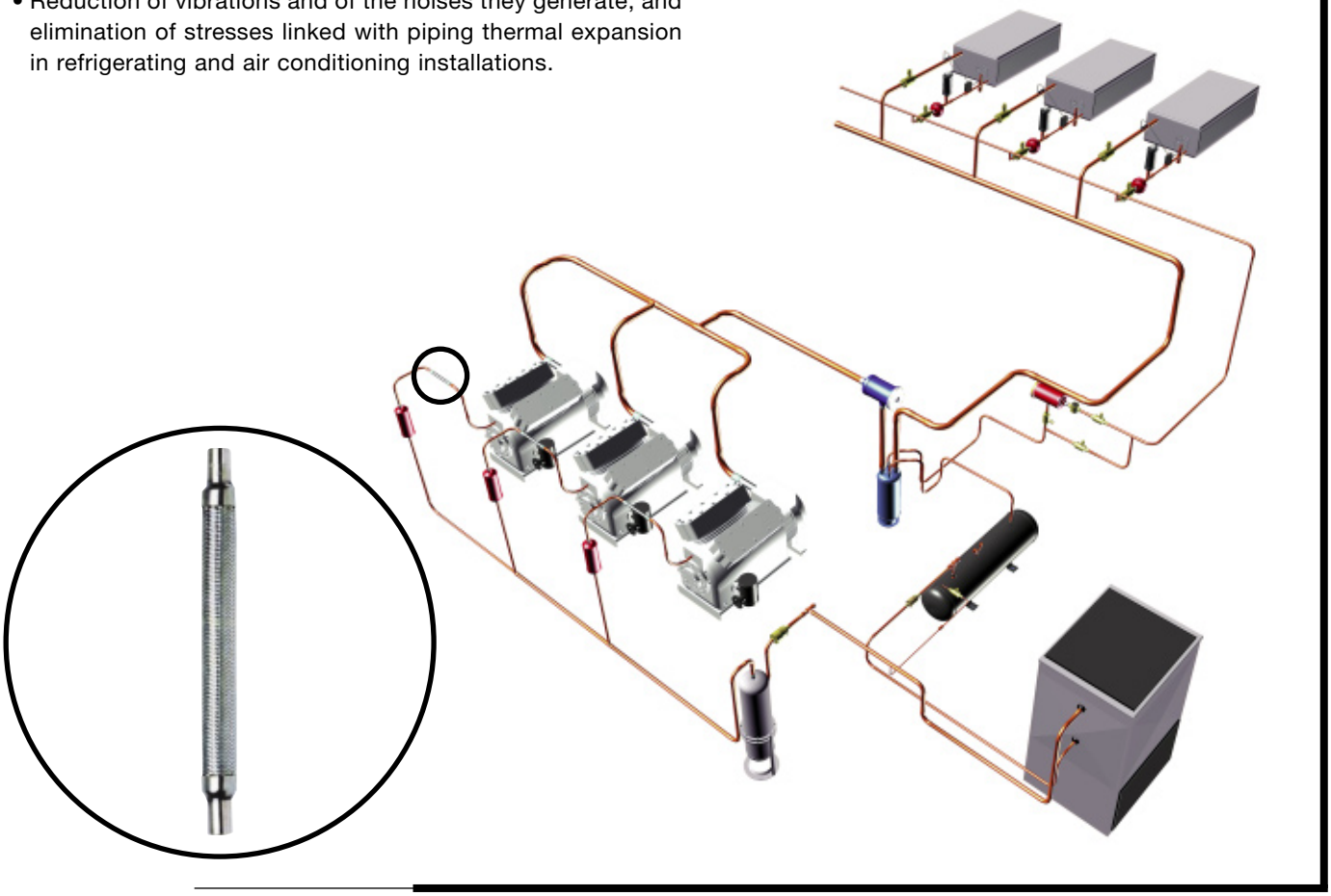
DTGB - 22.1-1-1-10

→ EVCYAC

01/10

■ Applications

• Reduction of vibrations and of the noises they generate, and elimination of stresses linked with piping thermal expansion in refrigerating and air conditioning installations.



■ Functional features

- Products are compatible with HFCs, HCFCs, CFCs, 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.
- Product classification in CE categories is performed using the PED 97/23/EC table, corresponding to a nominal diameter-based selection.
- Flexible wavy stainless steel metallic hoses constituted of parallel waves from a tube welded end to end and covered with a stainless steel wire braid (refer to the sketch No. 2 page 22.3).
- Nickel-plated steel connections.
- Vibration eliminators are cleaned and dried before individual packaging under heat-sealed plastic tubular film.

■ CARLY advantages

- Specifically designed in order to resist frost and major temperature shifts, from -40°C to +120°C.
- Principle for connecting the components together (stainless steel hose + air-tightness ring + braid + connection) by stainless steel TIG weld. This weld eliminates all risks of deteriorating the vibration eliminator by heat transfer during connection to the installation's piping.
- Very high mechanical resistance to corrosion.
- Long brazed or welded connections, in order to facilitate connection to installation.
- Unity helium air-tightness inspection.
- Stainless steel connections and specific lengths are available upon request.
- GOST certified products.

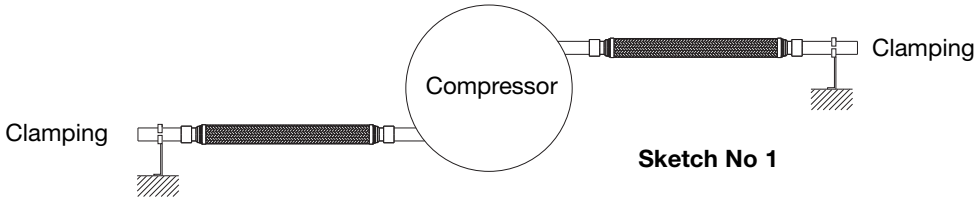
Vibration eliminators

→ EVCYAC

01/10

■ Recommendations

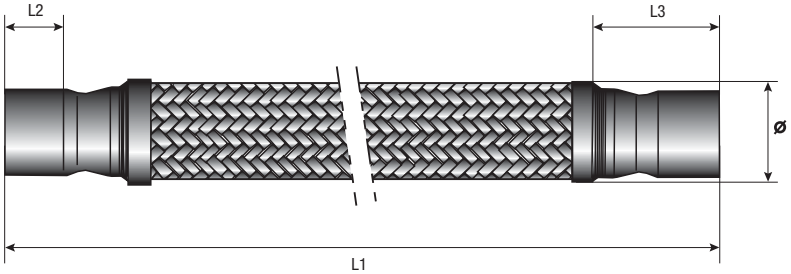
* Mounting of vibration eliminators should be performed:
  - → on a piping straight-up part
  - → imperatively horizontal at compressor suction line
  - → without twisting, extension or axial compression stress
  - → preferably 90° in relation to vibration source
* Warning, when put under pressure, the vibration eliminators can present a slight extension (about 2% of initial length); it is therefore necessary to take this into account during the assembly operation.
* For the brazing operation, we recommend the use of a filler metal with a high silver content (55% for instance) and the use of a neutral gas inside the vibration eliminators in order to not trigger internal corrosion phenomena.
* During the brazing operation, be careful that the scouring flux used does not come in contact with the hose and its braid.
* The connections' nickel lining holds ready nicely during temperature increase; it is nevertheless recommended to protect the connections after brazing with an appropriate product, against corrosion risks.
* Provide for clamping of the vibration eliminator ends that are located opposite the vibration source (refer to sketch No. 1).
* Do not isolate vibration eliminators with a heat insulating sleeve, in order to prevent water concentration that may freeze and deteriorate it.
* General assembly precautions: refer to chapter 115.



Sketch No 1

■ Technical features

CARLY references	Connections To solder ODF inch	CARLY references	Connections To solder ODF mm	Dimensions (mm) Ø +/- 0.6	L1 +/- 6	L2 +/- 1	L3 +/- 1	Net weight (kg)
EVCYAC 2 S	1/4	**EVCYAC 2 MMS**	6,0	12,7	200,0	6,0	16,0	0,05
EVCYAC 3 S	3/8	**EVCYAC 3 MMS**	10,0	18,0	221,0	9,0	20,5	0,10
EVCYAC 4 S	1/2	**EVCYAC 4 MMS**	12,0	20,3	242,0	11,0	23,5	0,10
EVCYAC 5 S	5/8	**EVCYAC 5 MMS**	15,0	26,3	288,0	14,0	29,0	0,20
EVCYAC 6 S	3/4	**EVCYAC 6 MMS**	18,0	30,9	318,0	15,5	33,0	0,25
EVCYAC 7 S	7/8	**EVCYAC 7 MMS**	22,0	30,0	318,0	18,0	42,0	0,30
EVCYAC 9 S	1 1/8	**EVCYAC 9 MMS**	28,0	38,2	360,0	20,0	50,5	0,45
EVCYAC 11 S/MMS	1 3/8	**EVCYAC 11 S/MMS**	35,0	46,2	406,0	30,0	55,5	0,75
EVCYAC 13 S	1 5/8	**EVCYAC 13 MMS**	42,0	58,2	472,0	30,0	68,0	1,35
EVCYAC 17 S/MMS	2 1/8	**EVCYAC 17 S/MMS**	54,0	71,0	560,0	40,0	88,0	2,40
EVCYAC 21 S	2 5/8	**EVCYAC 21 MMS**	67,0	87,7	670,0	50,0	105,0	3,90
EVCYAC 25 S	3 1/8	**EVCYAC 25 MMS**	80,0	108,0	760,0	55,0	124,0	5,70
EVCYAC 29 S	3 5/8	**EVCYAC 29 MMS**	88,9	134,6	895,0	55,0	142,0	7,95
EVCYAC 33 S	4 1/8	**EVCYAC 33 MMS**	108,0	134,6	930,0	60,0	160,0	8,85



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Vibration eliminators

→ EVCYAC

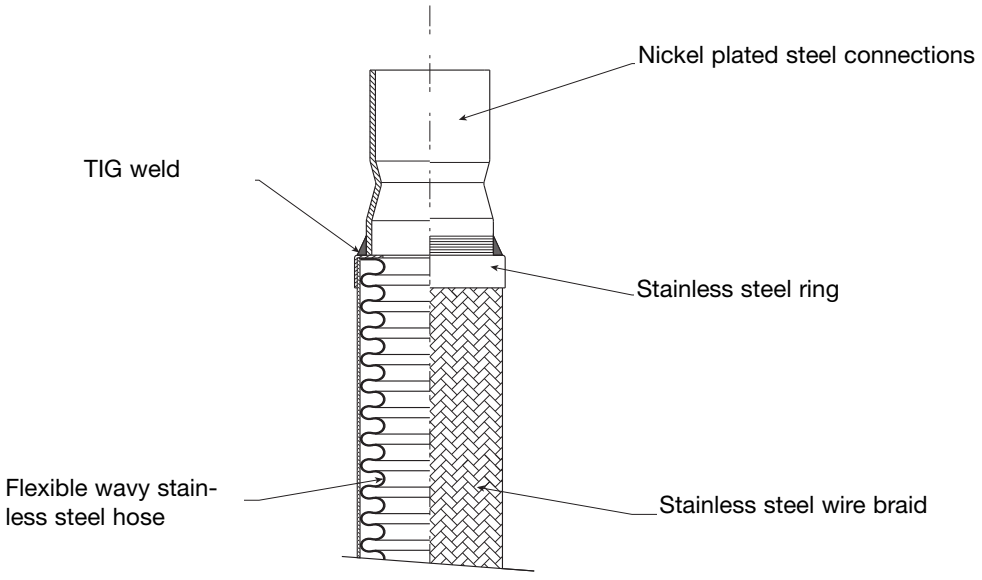
01/10

■ Technical features

CARLY references	Nominal diameter DN (inch)	CARLY references	Nominal diameter DN (mm)	Maximal working pressure PS (bar)	Working pressure (1) PS BT (bar)	Maximal working temperature TS maxi (°C)	Minimal working temperature TS mini (°C)	Working temperature (1) TS BT (°C)	CE Category (2)
EVCYAC 2 S	1/4	**EVCYAC 2 MMS**	6,0	42	10	120	-40	-20	Art3§3
EVCYAC 3 S	3/8	**EVCYAC 3 MMS**	10,0	42	10	120	-40	-20	Art3§3
EVCYAC 4 S	1/2	**EVCYAC 4 MMS**	12,0	42	10	120	-40	-20	Art3§3
EVCYAC 5 S	5/8	**EVCYAC 5 MMS**	15,0	42	10	120	-40	-20	Art3§3
EVCYAC 6 S	3/4	**EVCYAC 6 MMS**	18,0	42	10	100	-40	-20	Art3§3
EVCYAC 7 S	7/8	**EVCYAC 7 MMS**	22,0	42	10	100	-40	-20	Art3§3
EVCYAC 9 S	1 1/8	**EVCYAC 9 MMS**	28,0	42	10	100	-40	-20	Art3§3
EVCYAC 11 S/MMS	1 3/8	**EVCYAC 11 S/MMS**	35,0	35	10	120	-40	-20	I
EVCYAC 13 S	1 5/8	**EVCYAC 13 MMS**	42,0	35	10	120	-40	-20	I
EVCYAC 17 S/MMS	2 1/8	**EVCYAC 17 S/MMS**	54,0	34	10	120	-40	-20	I
EVCYAC 21 S	2 5/8	**EVCYAC 21 MMS**	67,0	25	10	120	-40	-20	I
EVCYAC 25 S	3 1/8	**EVCYAC 25 MMS**	80,0	20	10	120	-40	-20	I
EVCYAC 29 S	3 5/8	**EVCYAC 29 MMS**	88,9	20	10	120	-40	-20	I
EVCYAC 33 S	4 1/8	**EVCYAC 33 MMS**	108,0	20	10	120	-40	-20	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 diameter, according to PED 97/23/EC (refer to chapter 0 page 7).



Sketch No 2

Vibration eliminators

→ EVCYAC

■ Weights and packaging

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
EVCYAC 2 S et MMS	0,05	0,05	1	/
EVCYAC 3 S & MMS	0,10	0,10	1	/
EVCYAC 4 S et MMS	0,10	0,10	1	/
EVCYAC 5 S & MMS	0,20	0,20	1	/
EVCYAC 6 S et MMS	0,25	0,25	1	/
EVCYAC 7 S & MMS	0,25	0,30	1	/
EVCYAC 9 S et MMS	0,45	0,45	1	/

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
EVCYAC 11 S/MMS	0,75	0,75	1	/
EVCYAC 13 S et MMS	1,36	1,35	1	/
EVCYAC 17 S/MMS	2,41	2,40	1	/
EVCYAC 21 S et MMS	3,91	3,90	1	/
EVCYAC 25 S & MMS	5,71	5,70	1	/
EVCYAC 29 S et MMS	7,95	7,95	1	/
EVCYAC 33 S & MMS	8,86	8,85	1	/

DTGB - 22.5-1-1-10

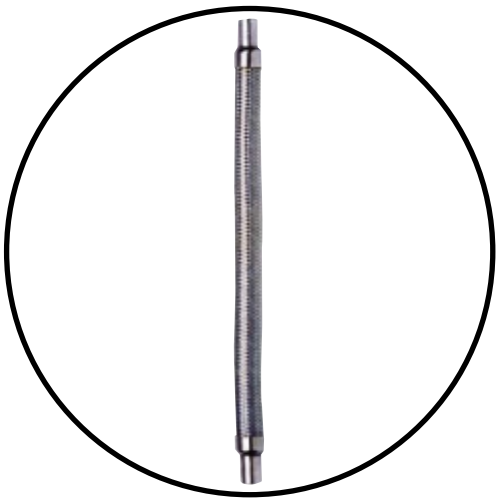
Vibration eliminators

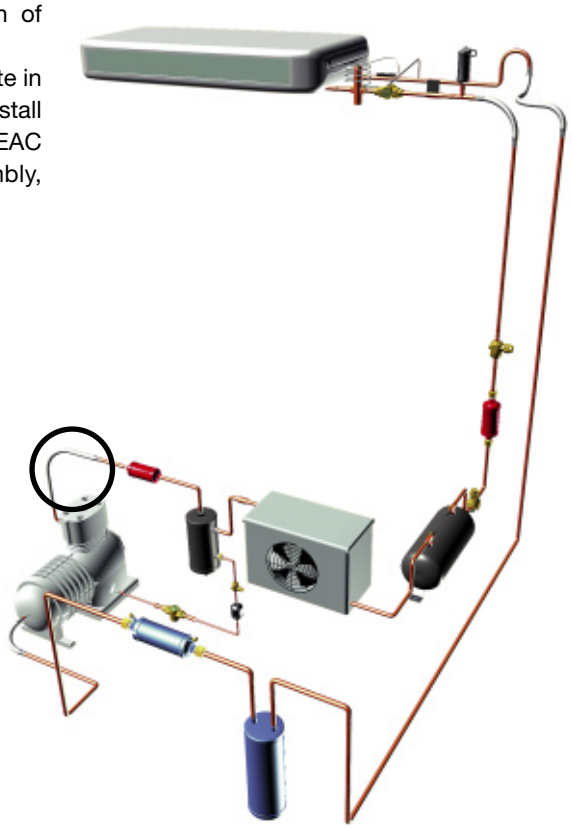
→ EVCYDEAC *(double effect)*

01/10

■ Applications

- Reduction of vibrations and of the noises they generate and elimination of stresses linked to piping thermal expansion of refrigerating and air conditioning installations.
- Vibrations generated by a refrigerating compressor propagate in several directions, therefore, it is usually recommended to install two vibration eliminators placed at 90°; the use of EVCYDEAC double-effect vibration eliminators replaces this assembly, because it is possible to bend them at 90°.





■ Functional features

- Products are compatible with HFCs, HCFCs, CFCs, 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.
- Product classification in CE categories is performed using the PED 97/23/EC table, corresponding to a nominal diameter-based selection.
- Flexible wavy stainless steel metallic hoses constituted of parallel waves from a tube welded end to end and covered with a stainless steel wire braid (refer to sketch No. 2 page 22.6).
- Construction suited to a straight-up or bended utilisation position, with the minimum imposed bending radius (refer to technical features table page 22.5).
- Nickel-plated steel connections.
- Vibration eliminators are cleaned and dried before individual packaging under heat-sealed plastic tubular film.

■ CARLY advantages

- Specifically designed in order to resist frost and major temperature shifts, from -40°C to +120°C.
- Connection principle of the components together (stainless steel hose + air-tightness ring + braid + connection) by stainless steel TIG weld. This weld eliminates all risks of deteriorating the vibration eliminator by heat transfer during connection to the installation's piping.
- Reduction of installation costs and of footprint, compared with the use of two vibration eliminators placed at 90°.
- Very high mechanical resistance to corrosion.
- Long brazed or welded connections, in order to facilitate connection to installation.
- Unity helium air-tightness inspection.
- Stainless steel connections and special lengths are available upon request.
- GOST certified products.

Vibration eliminators

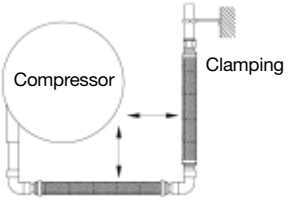
→ EVCYDEAC *(double effect)*

01/10

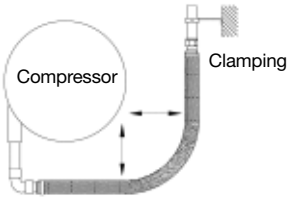
■ Recommendations

* Mounting of vibration eliminators should be performed:
  - → on a piping straight-up part
  - → imperatively horizontal at compressor suction line
  - → without twisting, extension or axial compression stress
  - → without over-bending, or extension of the hose
  - → preferably 90° in relation to vibration source, if straight-up mounting
* Warning, when put under pressure, the vibration eliminators can present a slight extension (about 2% of initial length); it is therefore necessary to take this into account during the assembly operation.
* Comply with minimum bending radii indicated in the technical features table and the configurations in sketch No. 3, page 22.6.
* For the brazing operation, we recommend the use of filler metal with a high silver content (55% for instance) and the use of a neutral gas inside the vibration eliminators in order to not trigger internal corrosion phenomena.
* During the brazing operation, be careful that the scouring flux used does not come in contact with the hose and its braid.
* The nickel lining of the connections hold really nicely during temperature increase; it is nevertheless recommended to protect the connections after brazing with an appropriate product, against corrosion risks.
* Provide for clamping of the vibration eliminators ends that are located opposite the vibration source (refer to sketch No. 1).
* Do not isolate vibration eliminators with a heat insulating sleeve, in order to prevent any water concentration that may freeze and deteriorate it.
* General assembly precautions: refer to chapter 11

Regular installation



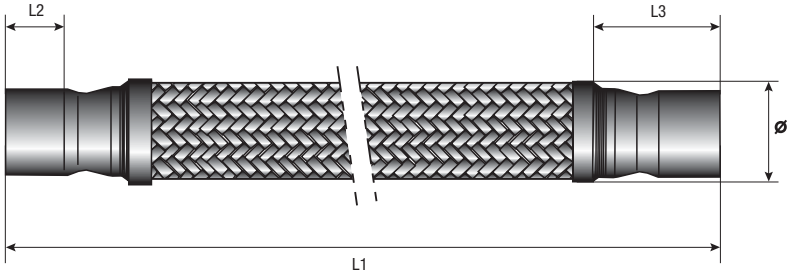
CARLY solution



Sketch No 1

■ Technical features

CARLY references	Connections To solder ODF inch	CARLY references	Connections To solder ODF mm	Dimensions (mm) Ø +/- 0.5	L1 +/- 6	L2 +/- 1	L3 +/- 1	Minimal bending radius (mm) Static	Dynamic	Net weight (kg)
EVCYDEAC 2 S	1/4	**EVCYDEAC 2 MMS**	6,0	12,7	270	6	16,0	20	105	0,05
EVCYDEAC 3 S	3/8	**EVCYDEAC 3 MMS**	10,0	19,0	340	9	20,5	18	100	0,10
EVCYDEAC 4 S	1/2	**EVCYDEAC 4 MMS**	12,0	22,0	360	11	23,5	20	140	0,10
EVCYDEAC 5 S	5/8	**EVCYDEAC 5 MMS**	15,0	26,3	420	14	29,0	25	190	0,20
EVCYDEAC 6 S	3/4	**EVCYDEAC 6 MMS**	18,0	31,9	462	15	33,0	30	230	0,25
EVCYDEAC 7 S	7/8	**EVCYDEAC 7 MMS**	22,0	31,9	480	18	42,0	30	230	0,30
EVCYDEAC 9 S	1 1/8	**EVCYDEAC 9 MMS**	28,0	38,2	530	20	50,5	40	250	0,45
EVCYDEAC 11 S/MMS	1 3/8	**EVCYDEAC 11 S/MMS**	35,0	47,0	630	30	55,5	50	290	0,75
EVCYDEAC 13 S	1 5/8	**EVCYDEAC 13 MMS**	42,0	58,2	750	30	68,0	60	320	1,35
EVCYDEAC 17 S/MMS	2 1/8	**EVCYDEAC 17 S/MMS**	54,0	71,0	880	40	88,0	70	360	2,40
EVCYDEAC 21 S	2 5/8	**EVCYDEAC 21 MMS**	67,0	87,7	1060	50	105,0	80	420	3,90
EVCYDEAC 25 S	3 1/8	**EVCYDEAC 25 MMS**	80,0	105,7	1210	55	124,0	100	480	5,70
EVCYDEAC 29 S	3 5/8	**EVCYDEAC 29 MMS**	88,9	134,6	1560	55	142,0	120	580	7,95
EVCYDEAC 33 S	4 1/8	**EVCYDEAC 33 MMS**	108,0	134,6	1610	60	160,0	120	580	8,85



DTGB - 22.5-1-1-10

Vibration eliminators

→ EVCYDEAC *(double effect)*

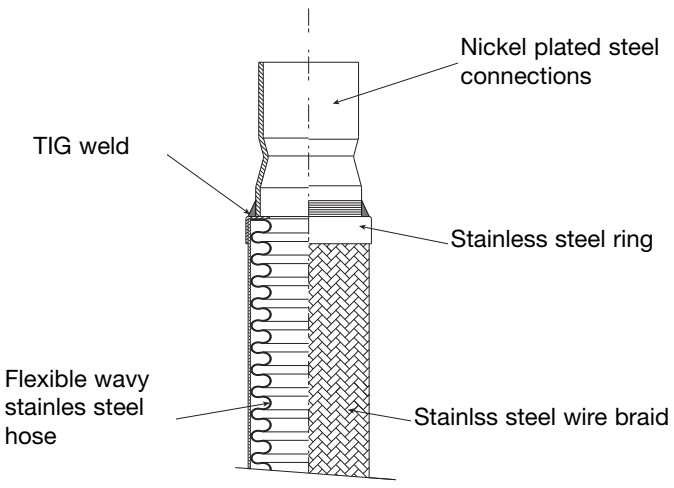
01/10

■ Technical features

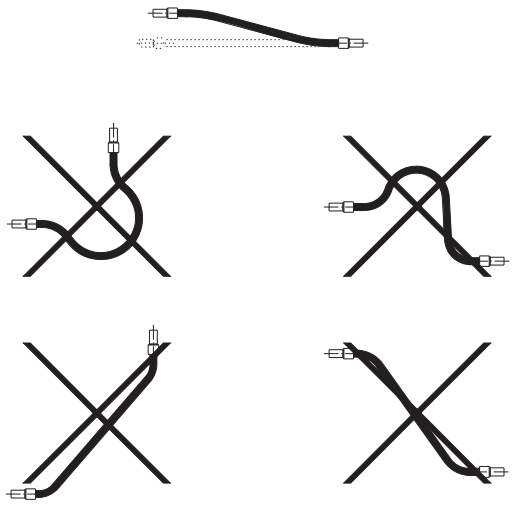
CARLY references	Nominal diameter DN (inch)	CARLY references	Nominal diameter DN (mm)	Maximal working pressure PS (bar)	Working pressure (1) PS BT (bar)	Maximal working temperature TS maxi (°C)	Minimal working temperature TS mini (°C)	Working temperature (1) TS BT (°C)	CE Category (2)
EVCYDEAC 2 S	1/4	**EVCYDEAC 2 MMS**	6,0	42	10	120	-40	-20	Art3§3
EVCYDEAC 3 S	3/8	**EVCYDEAC 3 MMS**	10,0	42	10	120	-40	-20	Art3§3
EVCYDEAC 4 S	1/2	**EVCYDEAC 4 MMS**	12,0	42	10	120	-40	-20	Art3§3
EVCYDEAC 5 S	5/8	**EVCYDEAC 5 MMS**	15,0	42	10	120	-40	-20	Art3§3
EVCYDEAC 6 S	3/4	**EVCYDEAC 6 MMS**	18,0	42	10	100	-40	-20	Art3§3
EVCYDEAC 7 S	7/8	**EVCYDEAC 7 MMS**	22,0	42	10	100	-40	-20	Art3§3
EVCYDEAC 9 S	1 1/8	**EVCYDEAC 9 MMS**	28,0	42	10	100	-40	-20	Art3§3
EVCYDEAC 11 S/MMS	1 3/8	**EVCYDEAC 11 S/MMS**	35,0	35	10	120	-40	-20	I
EVCYDEAC 13 S	1 5/8	**EVCYDEAC 13 MMS**	42,0	35	10	120	-40	-20	I
EVCYDEAC 17 S/MMS	2 1/8	**EVCYDEAC 17 S/MMS**	54,0	34	10	120	-40	-20	I
EVCYDEAC 21 S	2 5/8	**EVCYDEAC 21 MMS**	67,0	25	10	120	-40	-20	I
EVCYDEAC 25 S	3 1/8	**EVCYDEAC 25 MMS**	80,0	20	10	120	-40	-20	I
EVCYDEAC 29 S	3 5/8	**EVCYDEAC 29 MMS**	88,9	20	10	120	-40	-20	I
EVCYDEAC 33 S	4 1/8	**EVCYDEAC 33 MMS**	108,0	20	10	120	-40	-20	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 diameter, according to PED 97/23/EC (refer to chapter 0 page 7).



Sketch No 2



Sketch No 3

Vibration eliminators

→ EVCYDEAC *(double effect)*

01/10

■ Weights and packaging

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
EVCYDEAC 2 S et MMS	0,05	0,05	1	/
EVCYDEAC 3 S & MMS	0,10	0,10	1	/
EVCYDEAC 4 S et MMS	0,10	0,10	1	/
EVCYDEAC 5 S & MMS	0,20	0,20	1	/
EVCYDEAC 6 S et MMS	0,25	0,25	1	/
EVCYDEAC 7 S & MMS	0,30	0,30	1	/
EVCYDEAC 9 S et MMS	0,45	0,45	1	/

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
EVCYDEAC 11 S/MMS	0,75	0,75	1	/
EVCYDEAC 13 S et MMS	1,36	1,35	1	/
EVCYDEAC 17 S/MMS	2,41	2,40	1	/
EVCYDEAC 21 S et MMS	3,91	3,90	1	/
EVCYDEAC 25 S & MMS	5,71	5,70	1	/
EVCYDEAC 29 S et MMS	7,96	7,95	1	/
EVCYDEAC 33 S & MMS	8,86	8,85	1	/

DTGB - 22.9-1-1-10

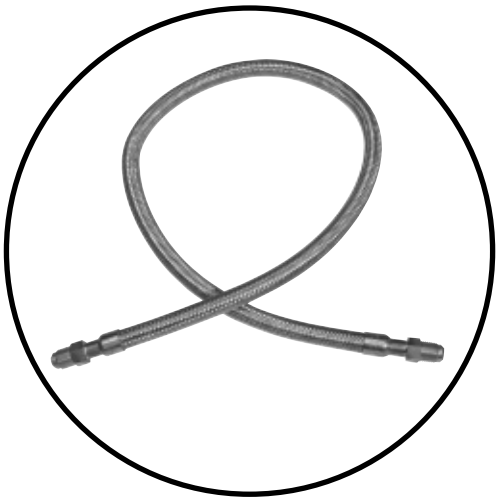
Stainless steel hoses, nickel-plated steel connections

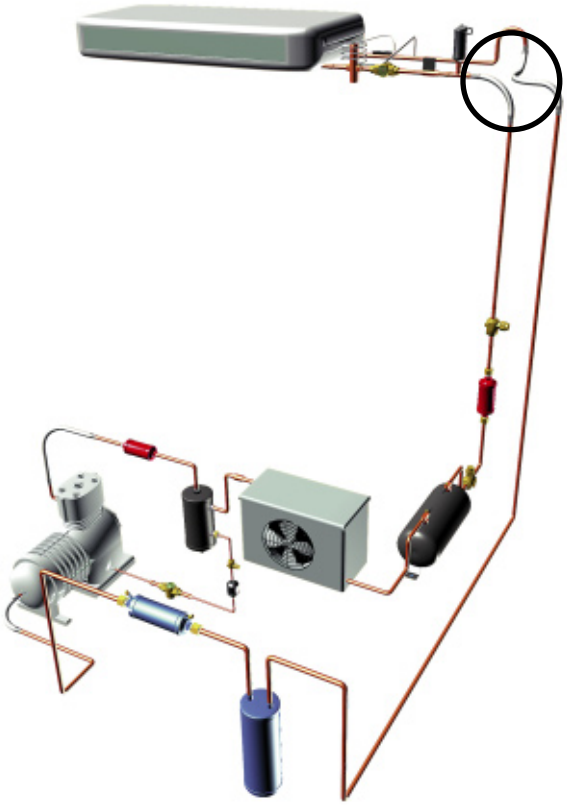
→ TSCYS

01/10

■ Applications

- Flexible joining between fixed or mobile elements of refrigerating and air conditioning installations.
- Disconnection of installation's components, in order to eliminate all vibration transmissions.
- Elimination of stresses linked to dimensional piping variations (thermal expansion, retraction).
- Particularly recommended for construction of mobile refrigerated display cabinets and of installations necessitating the removal of mobile parts in order to facilitate their cleaning.





■ Functional features

- Products are compatible with HFCs, HCFCs, CFCs, 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.
- Product classification in CE categories is performed using the PED 97/23/EC table, corresponding to a nominal diameter-based selection.
- Flexible wavy stainless steel metallic hoses constituted of spiral waves from a tube welded end to end and covered with a stainless steel wire braid.
- Nickel-plated steel connections, SAE to flare and ODF to solder.
- Standard lengths: 1 metre, and 1.50 metre.
- Cleaning and drying before individual packaging under heat sealed plastic tubular film.

■ CARLY advantages

- Specifically designed in order to resist frost and major temperature shifts, from -40°C to +120°C.
- Connection principle of the components together (stainless steel hose + air-tightness ring + braid + connection) by stainless steel TIG weld. This weld eliminates all risks of deteriorating the hose by heat transfer during connection to the installation's piping.
- Very high mechanical resistance to corrosion.
- Long brazed or welded connections, in order to facilitate connection to installation.
- Unity helium air-tightness inspection.
- Stainless steel connections and specific lengths are available upon request.
- GOST certified products.

Stainless steel hoses, nickel-plated steel connections

→ TSCYS

01/10

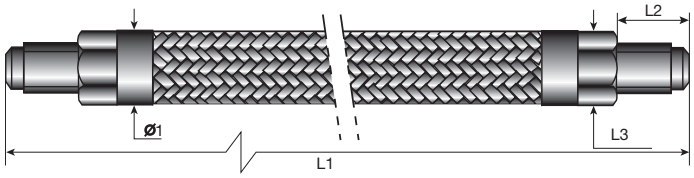
■ Recommendations

* Mounting of hoses can be performed in any direction, but without twisting, over-bending, extension or axial compression stress.
* Comply with the minimum bending radii indicated in the technical features table.
* The hoses must imperatively be protected against shocks, not be put directly on the ground, not lie on sharp edges and not be in contact with each other.
* In the case of a dynamic assembly, the direction of movement and the axis of the hose should be located within a same plane.
* For the brazing operation, we recommend the use of a filler metal with a high silver content (55% for instance) and the use of a neutral gas inside the hose in order to avoid internal corrosion phenomena.
* During the brazing operation, be careful that the scouring flux used does not come in contact with the hose and its braid.
* The nickel lining of the connections hold ready nicely during temperature increase; it is nevertheless recommended to protect the connections after brazing with an appropriate product, against corrosion risks.
* Tightening of hoses with flare connections must imperatively be performed with two wrenches, in order to prevent piping twisting.
* General assembly precautions: refer to chapter 115.

■ Technical features

CARLY references	Connections To screw SAE inch	Connections To solder ODF inch	CARLY references	Connections To solder ODF mm	Drawing No	Dimensions (mm)					Minimal bending radius (mm)		Net weight (kg)
						Ø1 +/- 0.5	Ø2 +/- 0.5	L1 +/- 6	L2 +/- 1	L3 upper faces	Static	Dynamic	
TSCYS 1002	1/4				1	12,7	/	1000	15	14	20	105	0,20
TSCYS 1002 S		1/4	**TSCYS 1002 MMS**	6	2	12,7	9	1000	6	/	20	105	0,20
TSCYS 1003	3/8				1	18,0	/	1000	18	17	30	130	0,30
TSCYS 1003 S		3/8	**TSCYS 1003 MMS**	10	2	18,0	12	1000	9	/	30	130	0,30
TSCYS 1004	1/2				1	20,3	/	1000	20	22	40	150	0,35
TSCYS 1004 S		1/2	**TSCYS 1004 MMS**	12	2	20,3	15	1000	11	/	40	150	0,35
TSCYS 1005	5/8				1	26,3	/	1000	23	24	60	190	0,60
TSCYS 1005 S		5/8	**TSCYS 1005 MMS**	15	2	26,3	19	1000	14	/	60	190	0,45
TSCYS 1502	1/4				1	12,7	/	1500	15	14	20	105	0,25
TSCYS 1502 S		1/4	**TSCYS 1502 MMS**	6	2	12,7	9	1500	6	/	20	105	0,25
TSCYS 1503	3/8				1	18,0	/	1500	18	17	30	130	0,45
TSCYS 1503 S		3/8	**TSCYS 1503 MMS**	10	2	18,0	12	1500	9	/	30	130	0,45
TSCYS 1504	1/2				1	20,3	/	1500	20	22	40	150	0,65
TSCYS 1504 S		1/2	**TSCYS 1504 MMS**	12	2	20,3	15	1500	11	/	40	150	0,55
TSCYS 1505	5/8				1	26,3	/	1500	23	24	60	190	0,80
TSCYS 1505 S		5/8	**TSCYS 1505 MMS**	15	2	26,3	19	1500	14	/	60	190	0,65

①



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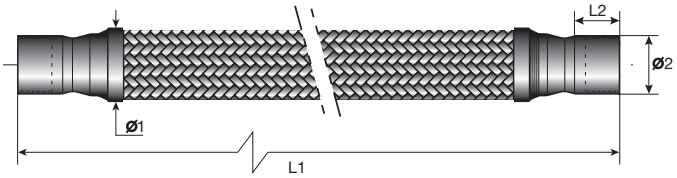


DTGB - 22.9-1-1-10

Stainless steel hoses, nickel-plated steel connections

→ TSCYS

01/10

■ Technical features

CARLY references	Nominal diameter DN (inch)	CARLY references	Nominal diameter DN (mm)	Maximal working pressure PS (bar)	Working pressure (1) PS BT (bar)	Maximal working temperature TS maxi (°C)	Minimal working temperature TS mini (°C)	Working temperature (1) TS BT (°C)	CE Category (2)
TSCYS 1002	1/4			42	10	120	-40	-20	Art3§3
TSCYS 1002 S	1/4	**TSCYS 1002 MMS**	6	42	10	120	-40	-20	Art3§3
TSCYS 1003	3/8			42	10	120	-40	-20	Art3§3
TSCYS 1003 S	3/8	**TSCYS 1003 MMS**	10	42	10	120	-40	-20	Art3§3
TSCYS 1004	1/2			42	10	120	-40	-20	Art3§3
TSCYS 1004 S	1/2	**TSCYS 1004 MMS**	12	42	10	120	-40	-20	Art3§3
TSCYS 1005	5/8			42	10	120	-40	-20	Art3§3
TSCYS 1005 S	5/8	**TSCYS 1005 MMS**	15	42	10	120	-40	-20	Art3§3
TSCYS 1502	1/4			42	10	120	-40	-20	Art3§3
TSCYS 1502 S	1/4	**TSCYS 1502 MMS**	6	42	10	120	-40	-20	Art3§3
TSCYS 1503	3/8			42	10	120	-40	-20	Art3§3
TSCYS 1503 S	3/8	**TSCYS 1503 MMS**	10	42	10	120	-40	-20	Art3§3
TSCYS 1504	1/2			42	10	120	-40	-20	Art3§3
TSCYS 1504 S	1/2	**TSCYS 1504 MMS**	12	42	10	120	-40	-20	Art3§3
TSCYS 1505	5/8			42	10	120	-40	-20	Art3§3
TSCYS 1505 S	5/8	**TSCYS 1505 MMS**	15	42	10	120	-40	-20	Art3§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 diameter, according to PED 97/23/EC (refer to chapter 0 page 7).

■ Weights and packaging

CARLY references	Unit weight (kg) With packaging	Unit weight (kg) Without packaging	Packaging unit standard	Packaging unit OEM'S
TSCYS 1002	0,20	0,20	1	/
TSCYS 1002 S & MMS	0,20	0,20	1	/
TSCYS 1003	0,30	0,30	1	/
TSCYS 1003 S & MMS	0,30	0,30	1	/
TSCYS 1004	0,35	0,35	1	/
TSCYS 1004 S & MMS	0,35	0,35	1	/
TSCYS 1005	0,60	0,60	1	/
TSCYS 1005 S & MMS	0,45	0,45	1	/

CARLY references	Unit weight (kg) With packaging	Unit weight (kg) Without packaging	Packaging unit standard	Packaging unit OEM'S
TSCYS 1502	0,25	0,25	1	/
TSCYS 1502 S & MMS	0,25	0,25	1	/
TSCYS 1503	0,45	0,45	1	/
TSCYS 1503 S & MMS	0,45	0,45	1	/
TSCYS 1504	0,65	0,65	1	/
TSCYS 1504 S & MMS	0,55	0,55	1	/
TSCYS 1505	0,80	0,80	1	/
TSCYS 1505 S & MMS	0,65	0,65	1	/

DTGB - 31.1-3-9-10

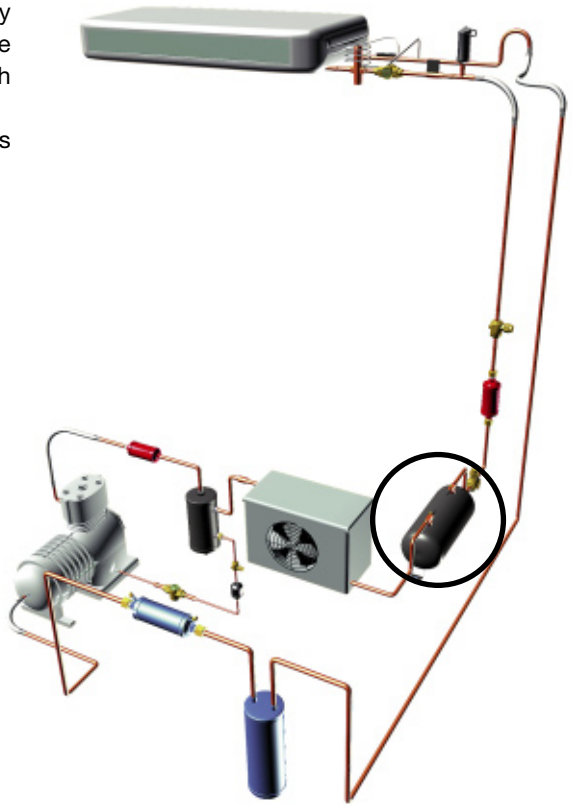
Liquid receivers

→ RLHCY *(horizontal)* / RLVCY *(vertical)*

01/10

■ Applications

- Liquid receivers ensure the compensation of refrigerant volume variations in refrigerating and air conditioning installations.
- These volume variations are due to fluctuations generated by various operating temperatures at various seasons, and to the opening and closing sequences of the expansion valve, which fills - or not - the evaporator with its refrigerant.
- Liquid receivers also allow storage of the whole installation's refrigerant, for maintenance or trouble-shooting operations.



■ Functional features

- Products are compatible with HFCs, HCFCs, CFCs, 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.
- Product classification in CE categories is performed using the PED 97/23/EC table, corresponding to a volume-based selection.
- Liquid receivers are entirely made of steel.
- They are fitted with fastening means suited to their volume and to their weight.
- From the 9-litre model and on, receivers come with a 3/8" NPT boss for mounting of safety elements such as safety valves.

■ CARLY advantages

- Liquid receivers are supplied perfectly clean and dried.
- They still offer both following connection possibilities:
  - → Outside of the connections to screw.
  - → Inside of the connections to solder.
- A wide range of accessories is available:
  - → Rotalock stop valves, with connections to flare or to braze.
  - → Rotalock connections with possibility of diameter reductions and with connections to screw or to solder.
  - → Bracket sets for compressors.
- CARLY designs and manufactures special receivers, according to the specific needs of the user.
- GOST certified products .

Liquid receivers

→ RLHCY *(horizontal)* / RLVCY *(vertical)*

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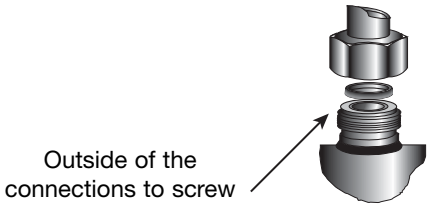
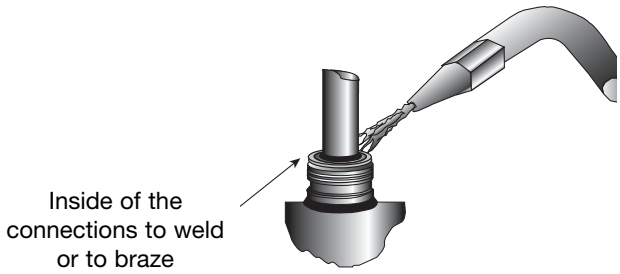
■ Recommendations

* Liquid receivers are to be mounted after the condenser.
* For optimal operation, special attention should be paid to the receivers' level: RLHCY receivers should be perfectly horizontal and RLVCY should be perfectly vertical.
* If sizing of the receivers is performed on the basis of the total refrigerant load, it is imperative to select receivers with an internal volume 20 % bigger, so that the gas reserve is always above the liquid level.
* General assembly precautions: refer to chapter 115.





■ Technical features of RLHCY horizontal receivers

CARLY references	Outside of connections to screw UNF inch	Inside of connections to solder inch	Drawing Nb (1)	Dimensions (mm)									Net weight (kg)
				Ø1	L1	L2	E1	E2	E3	Ø2	L3	Ø3 NPTF (inch)	
RLHCY 15	3/4	1/4	1	89,0	332	282	210	61,0	/	M10	17,0	/	1,55
RLHCY 25	3/4	3/8	1	121,0	330	285	150	90,0	/	M10	17,0	/	2,95
RLHCY 30	3/4	3/8	1	121,0	366	321	186	90,0	/	M10	17,0	/	3,40
RLHCY 45	3/4	3/8	2	152,4	380	309	145	87,0	/	2 holes ø 10,5	17,0	/	5,55
RLHCY 60	1	1/2	2	152,4	463	391	228	81,5	/	2 holes ø 10,5	17,0	/	6,80
RLHCY 75	1	1/2	2	152,4	563	491	328	81,5	/	2 holes ø 10,5	17,0	/	8,15
RLHCY 90	1	1/2	3	152,4	258	599	436	81,5	192	4 holes ø 10,5	17,0	3/8	9,40
RLHCY 120	1 1/4	5/8	3	152,4	389	730	567	81,5	192	4 holes ø 10,5	22,5	3/8	11,80
RLHCY 150	1 1/4	3/4	3	168,3	352	753	582	85,5	200	4 holes ø 10,5	22,5	3/8	16,00
RLHCY 200	1 1/4	3/4	3	168,3	600	1001	830	85,5	200	4 holes ø 10,5	22,5	3/8	20,00
RLHCY 250	1 1/4	3/4	3	168,3	750	1249	1078	85,5	200	4 holes ø 10,5	22,5	3/8	23,00
RLHCY 300	1 1/4	3/4	3	219,1	402	907	691	108,0	220	4 holes ø 10,5	22,5	3/8	24,25
RLHCY 400	1 1/4	3/4	3	219,1	690	1196	979	108,0	220	4 holes ø 10,5	22,5	3/8	30,50
RLHCY 500	1 1/4	3/4	3	219,1	800	1485	1268	108,0	220	4 holes ø 10,5	22,5	3/8	36,50
RLHCY 600	1 1/4	3/4	3	323,9	455	856	559	148,0	320	4 holes ø 10,5	22,5	3/8	55,50
RLHCY 700	1 1/4	3/4	3	323,9	605	1005	709	148,0	320	4 holes ø 10,5	22,5	3/8	62,40

(1) *Refer to drawings page 31.3*

Liquid receivers

→ RLHCY *(horizontal)*

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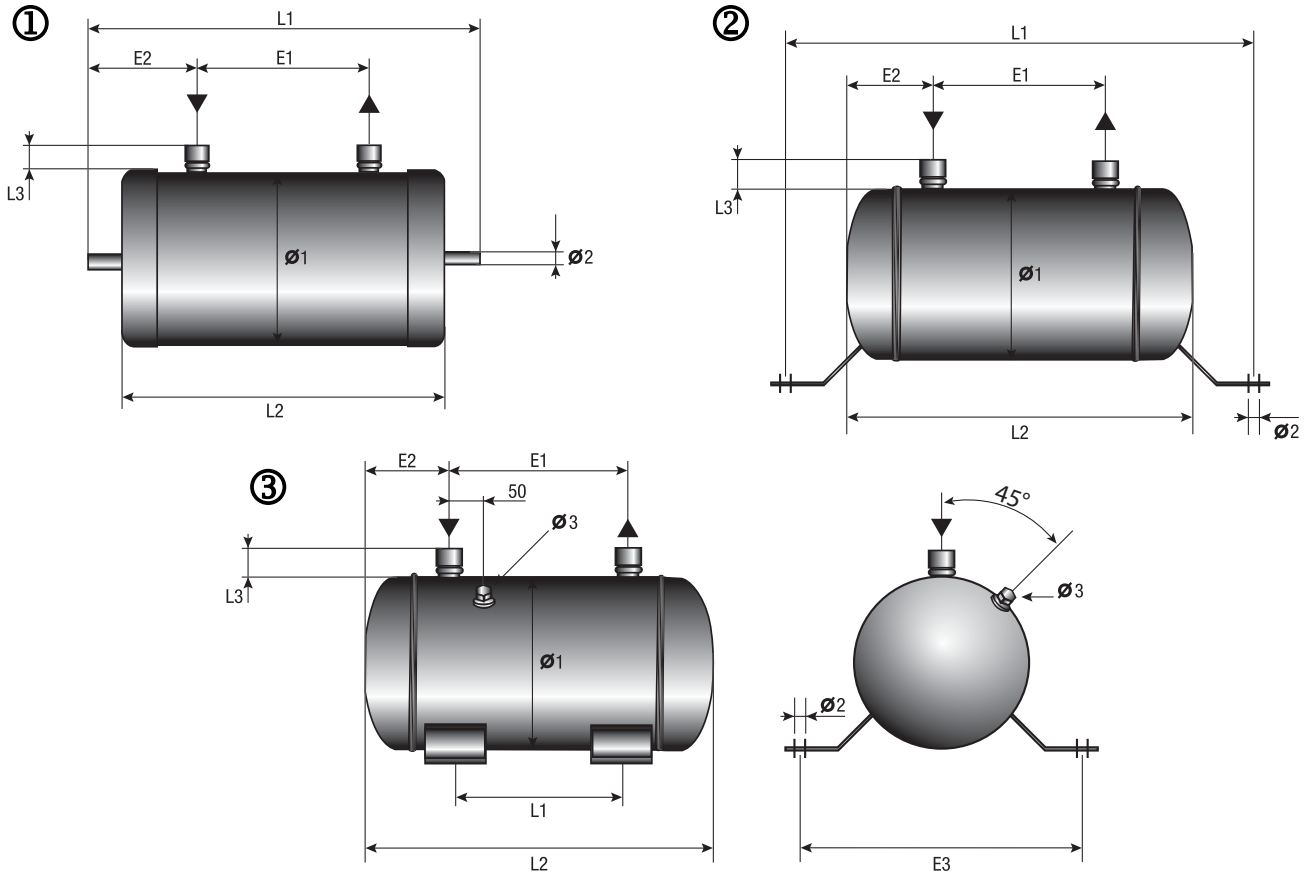
■ Technical features



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)	
RLHCY 15	1,5	42,0	10	80	-40	-20	I
RLHCY 25	2,8	31,0	10	80	-40	-20	I
RLHCY 30	3,1	31,0	10	80	-40	-20	I
RLHCY 45	4,5	31,5	10	80	-40	-20	I
RLHCY 60	5,8	31,5	10	80	-40	-20	I
RLHCY 75	7,4	31,5	10	80	-40	-20	II
RLHCY 90	9,2	31,5	10	80	-40	-20	II
RLHCY 120	11,5	31,5	10	80	-40	-20	II
RLHCY 150	15,0	31,5	10	80	-40	-20	II
RLHCY 200	20,0	43,0	10	80	-40	-20	II
RLHCY 250	25,0	31,5	10	80	-40	-20	II
RLHCY 300	30,0	27,5	10	80	-40	-20	II
RLHCY 400	40,0	27,5	/	80	0	/	III
RLHCY 500	50,0	27,5	/	80	0	/	III
RLHCY 600	60,0	27,0	/	80	0	/	III
RLHCY 700	70,0	27,0	/	80	0	/	III

(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 0.7)

Liquid receivers

→ RLVCY *(vertical)*

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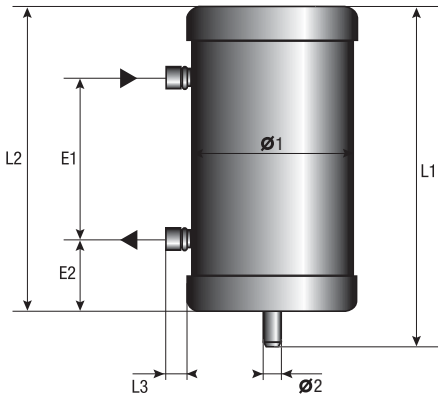
■ Technical features

CARLY references	Outside of connections to screw UNF inch	Inside of connections to solder inch	Drawing Nb (1)	Dimensions (mm)									Net weight (kg)
				Ø1	L1	L2	E1	E2	Ø4	Ø2	L3	Ø3 NPTF (inch)	
RLVCY 09	3/4	1/4	1	89,0	209	184	110	37	/	M10	17,0	/	1,10
RLVCY 15	3/4	1/4	1	89,0	309	284	210	37	/	M10	17,0	/	1,75
RLVCY 20	3/4	1/4	1	101,6	288	266	140	63	/	M10	17,0	/	2,35
RLVCY 25	3/4	3/8	1	121,0	309	284	150	67	/	M10	17,0	/	2,95
RLVCY 30	3/4	3/8	1	121,0	345	320	186	67	/	M10	17,0	/	3,00
RLVCY 40	3/4	3/8	1	121,0	445	420	286	67	/	M10	17,0	/	4,10
RLVCY 45	3/4	3/8	2	152,4	333	311	145	84	/	M12	17,0	/	5,55
RLVCY 60	1	1/2	2	152,4	416	394	228	84	/	M12	17,0	/	6,80
RLVCY 75	1	1/2	2	152,4	516	494	328	84	/	M12	17,0	/	8,15
RLVCY 90	1	1/2	3	168,3	507	487	295	92	/	M12	17,0	3/8	10,00
RLVCY 120	1 1/4	5/8	3	168,3	622	603	410	92	/	M12	22,5	3/8	10,10
RLVCY 150	1 1/4	3/4	4	219,1	563	/	280	151	190	8 trous ø 10,2	22,5	3/8	16,65
RLVCY 200	1 1/4	3/4	4	219,1	713	/	430	151	190	8 trous ø 10,2	22,5	3/8	20,15
RLVCY 250	1 1/4	3/4	4	219,1	830	/	547	151	190	8 trous ø 10,2	22,5	3/8	24,00
RLVCY 300	1 1/4	3/4	4	323,9	534	/	160	205	290	8 lumières ø 10,2	22,5	3/8	34,00
RLVCY 400	1 1/4	3/4	4	323,9	670	/	296	205	290	8 lumières ø 10,2	22,5	3/8	41,30
RLVCY 500	1 1/4	3/4	4	323,9	802	/	428	205	290	8 lumières ø 10,2	22,5	3/8	49,40
RLVCY 600	1 1/4	3/4	4	323,9	934	/	560	205	290	8 lumières ø 10,2	22,5	3/8	56,00
RLVCY 700	1 1/4	3/4	4	323,9	1084	/	709	205	290	8 lumières ø 10,2	22,5	3/8	63,50

(1) Refer to drawings page 31.4 and 31.5

①



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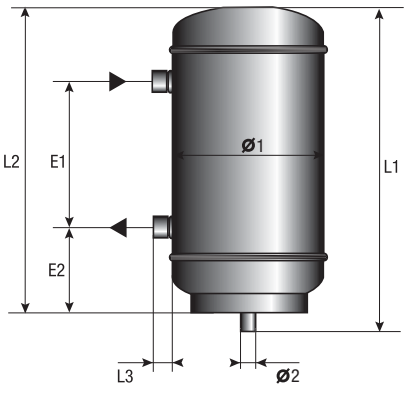

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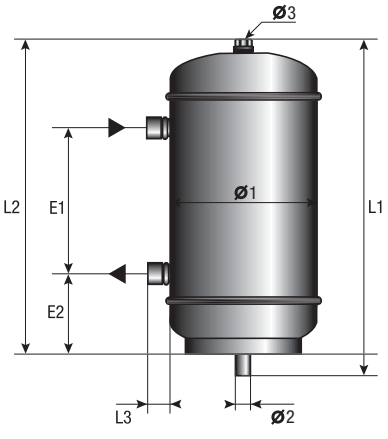

DTGB - 31.1-3-9-10

Liquid receivers

→ RLVCY *(vertical)*

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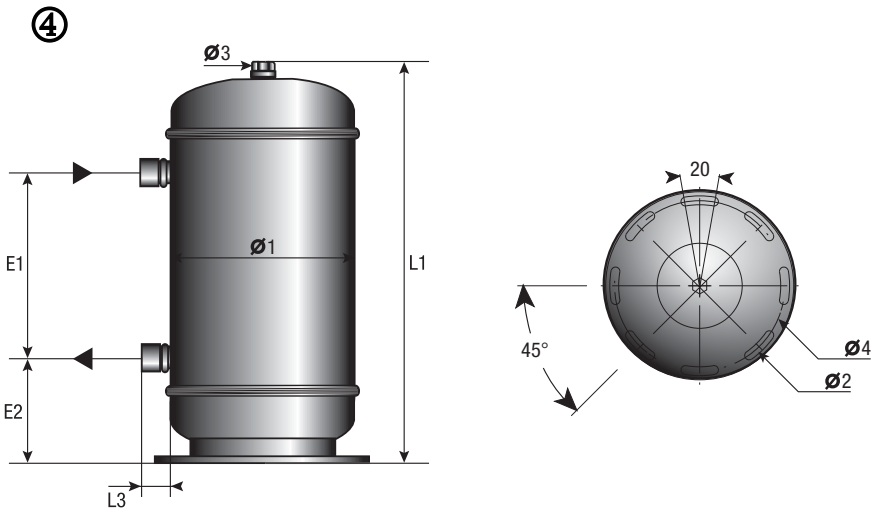
■ Technical features



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)	
RLVCY 09	0,9	42,0	10	80	-40	-20	Art3§3
RLVCY 15	1,5	42,0	10	80	-40	-20	I
RLVCY 20	1,8	43,0	10	80	-40	-20	I
RLVCY 25	2,8	31,0	10	80	-40	-20	I
RLVCY 30	3,1	31,0	10	80	-40	-20	I
RLVCY 40	4,2	31,0	10	80	-40	-20	I
RLVCY 45	4,5	31,5	10	80	-40	-20	I
RLVCY 60	5,8	34,0	10	80	-40	-20	I
RLVCY 75	7,4	31,5	10	80	-40	-20	II
RLVCY 90	9,2	31,5	10	80	-40	-20	II
RLVCY 120	11,5	31,5	10	80	-40	-20	II
RLVCY 150	15,7	27,5	10	80	-40	-20	II
RLVCY 200	20,0	27,5	10	80	-40	-20	II
RLVCY 250	25,0	27,5	10	80	-40	-20	II
RLVCY 300	29,6	27,5	10	80	-40	-20	II
RLVCY 400	40,0	27,0	10	80	-40	-20	II
RLVCY 500	50,0	27,0	/	80	0	/	III
RLVCY 600	60,0	27,0	/	80	0	/	III
RLVCY 700	70,0	27,0	/	80	0	/	III

(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 0.7).

Liquid receivers

→ RLVCY *(vertical)*

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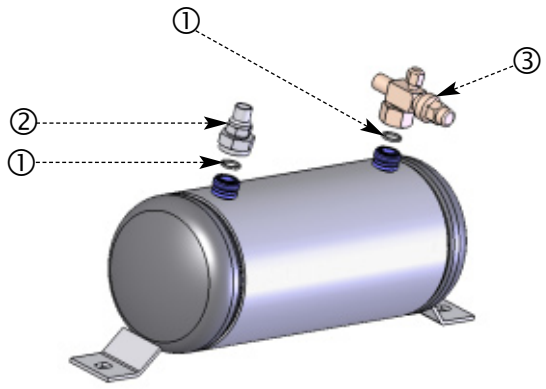
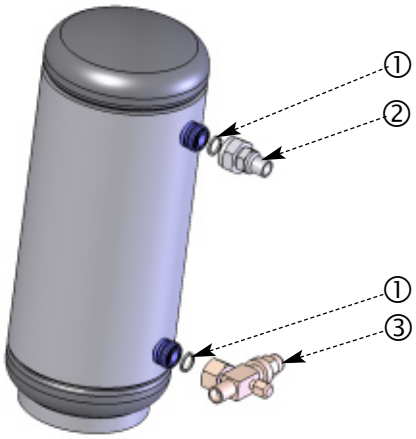
■ Spare parts

CARLY references	Part N°	Description	RLHCY / RLVCY types	Quantity
CY 15580100	1	Gasket for 1/4" and 3/8" Rotalock connections and valves	09 to 45	1
CY 15580120	1	Gasket for 5/8", 7/8" and 1" 1/8 Rotalock connections and valves	120 to 700	1
CY 15580140	1	Gasket for 1/2" Rotalock connections and valves	60 to 90	1
CY 17400000	2	1/4" ODF Rotalock connection with gasket	09 to 45	1
CY 17400010	2	3/8" ODF Rotalock connection with gasket	09 to 45	1
CY 17400020	2	1/2" ODF Rotalock connection with gasket	60 to 90	1
CY 17400035	2	5/8" ODF Rotalock connection with gasket	120 to 700	1
CY 17400040	2	7/8" ODF Rotalock connection with gasket	120 to 700	1
CY 17400050	2	1" 1/8" ODF Rotalock connection with gasket	120 to 700	1
CY 17400100	2	1/4" SAE Rotalock connection with gasket	09 to 45	1
CY 17400110	2	3/8" SAE Rotalock connection with gasket	09 to 45	1
CY 17400120	2	1/2" SAE Rotalock connection with gasket	60 to 90	1
CY 19700080	3	1/4" ODF Rotalock valve with gasket	09 to 20	1
CY 19700110	3	3/8" ODF Rotalock valve with gasket	25 to 45	1
CY 19700120	3	1/2" ODF Rotalock valve with gasket	60 to 90	1
CY 19700135	3	5/8" ODF Rotalock valve with gasket	120 to 700	1
CY 19700160	3	7/8" ODF Rotalock valve with gasket	120 to 700	1
CY 19700170	3	1" 1/8 ODF Rotalock valve with gasket	120 to 700	1
CY 19700090	3	1/4" SAE Rotalock valve with gasket	09 to 45	1
CY 19700100	3	3/8" SAE Rotalock valve with gasket	09 to 45	1
CY 19700140	3	1/2" SAE Rotalock valve with gasket	60 to 90	1





DTGB - 31.1-3-9-10

Liquid receivers

→ RLHCY *(horizontal)* / RLVCY *(vertical)*

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■ Weights and packaging

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
RLHCY 15	1,90	1,55	1	/
RLHCY 25	3,25	2,95	1	/
RLHCY 30	3,70	3,40	1	/
RLHCY 45	5,95	5,55	1	/
RLHCY 60	7,40	6,80	1	/
RLHCY 75	8,75	8,15	1	/
RLHCY 90	10,00	9,40	1	/
RLHCY 120	12,40	11,80	1	/
RLHCY 150	16,60	16,00	1	/
RLHCY 200	20,60	20,00	1	/
RLHCY 250	25,20	23,00	1	/
RLHCY 300	26,45	24,25	1	/
RLHCY 400	32,70	30,50	1	/
RLHCY 500	38,70	36,50	1	/
RLHCY 600	57,70	55,50	1	/
RLHCY 700	64,60	62,40	1	/

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
RLVCY 09	1,50	1,10	1	/
RLVCY 15	2,15	1,75	1	15
RLVCY 20	2,75	2,35	1	/
RLVCY 25	3,20	2,95	1	8
RLVCY 30	3,35	3,00	1	/
RLVCY 40	4,20	4,10	1	6
RLVCY 45	5,85	5,55	1	/
RLVCY 60	7,10	6,80	1	/
RLVCY 75	8,50	8,15	1	/
RLVCY 90	10,35	10,00	1	/
RLVCY 120	10,60	10,10	1	/
RLVCY 150	17,15	16,65	1	/
RLVCY 200	20,80	20,15	1	/
RLVCY 250	24,60	24,00	1	/
RLVCY 300	34,80	34,00	1	/
RLVCY 400	42,10	41,30	1	/
RLVCY 500	50,60	49,40	1	/
RLVCY 600	57,20	56,00	1	/
RLVCY 700	64,70	63,50	1	/

DTGB - 32.1-1-1-10

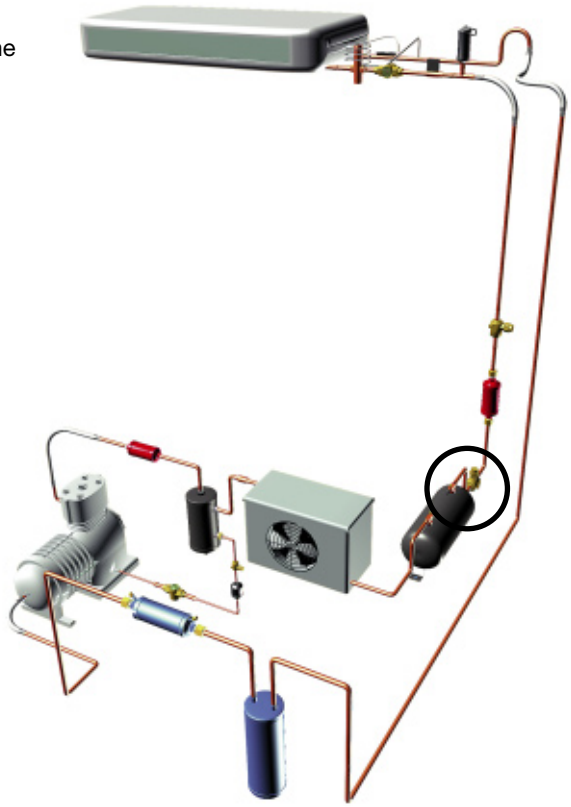
Receiver sight glasses

→ VCYR

01/10

■ Applications

- Immediate and direct monitoring of levels of refrigerant in its liquid phase or of refrigerating oil, in refrigerating and air conditioning installations.
- These level sight glasses are to be positioned directly on the receivers' body or on the piping.



■ Functional features

- Products are compatible with HFCs, HCFCs, CFCs, 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.
- Product classification in CE categories is performed using the PED 97/23/EC table, corresponding to a nominal diameter-based selection.
- The VCYR receiver sight glass is an accessory that can be mounted on any product under pressure up to CE category III included.
- Visualisation of refrigerant through a glass.
- The sight glass is made of four parts:
  - → a steel base intended to be directly welded on a bracket after drilling.
  - → a glass screwed on the base.
  - → a PTFE O-ring ensuring air-tightness between the base and the glass.
  - → a colour ball ensures correct liquid level visualisation within the component on which the sight glass is positioned.
- Net weight: 0.10 kg.

■ CARLY advantages

- The large size of the glass ensures an excellent visibility.
- Room, material and mounting time are saved, compared with the installation of a sight glass mounted in series with the refrigerating piping.
- The nickel-plated steel base and the dichromated zinc-plated steel glass guarantee perfect resistance to corrosion.
- The glass is cast in metal; therefore it eliminates risks of leak.
- GOST certified products.

Receiver sight glasses

→ VCYR

01/10

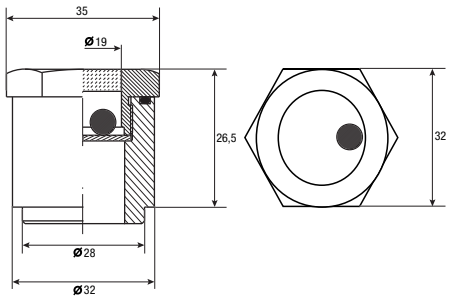
■ Recommendations

* The glass and the O-ring should be removed during the welding of the base on the bracket.
* After this welding and when the base temperature is low enough, put the O-ring back into its recess and screw the glass back complying with the recommended tightening torque of 25 N.m.
* The O-ring should be replaced after each removal of the glass.
* General assembly precautions: refer to chapter 115.

■ Technical features

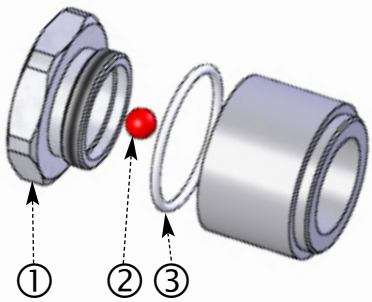
CARLY references	Maximal working pressure	Working pressure (1)	Maximal working temperature	Minimal working temperature	Working temperature (1)	CE Category(2)
	PS (bar)	PS BT (bar)	TS maxi (°C)	TS mini (°C)	TS BT (°C)	
VCYR 32	42	10	80	-40	-20	Art3§3

(1) The working pressure is limited to the PS BT value when working temperature is lower than or equal to TS BT value.
(2) Accessories, according to PED 97/23/EC (refer to chapter 0.7).



■ Spare parts

CARLY references	Part N°	Description	Types	Quantity
CY 35012150	1	Glass without moisture indicator	VCYR 32	1
CY 10501000	2	Colour ball for sight glass	VCYR 32	1
CY 15552180	3	O-ring for sight glass	VCYR 32	1



Receiver sight glasses

→ VCYR

■ Weights and packaging

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
VCYR 32	0,10	0,10	1	/

DTGB - 33.1-1-1-10

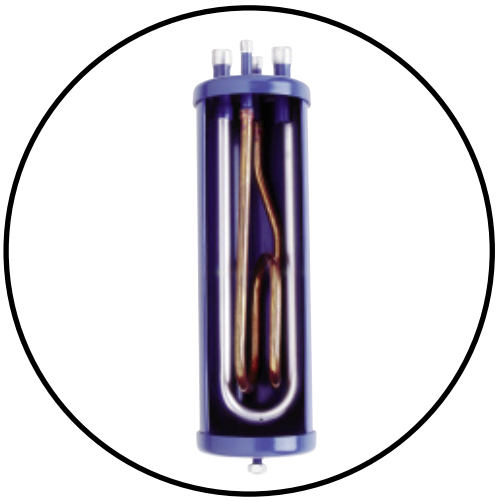
Suction line accumulators

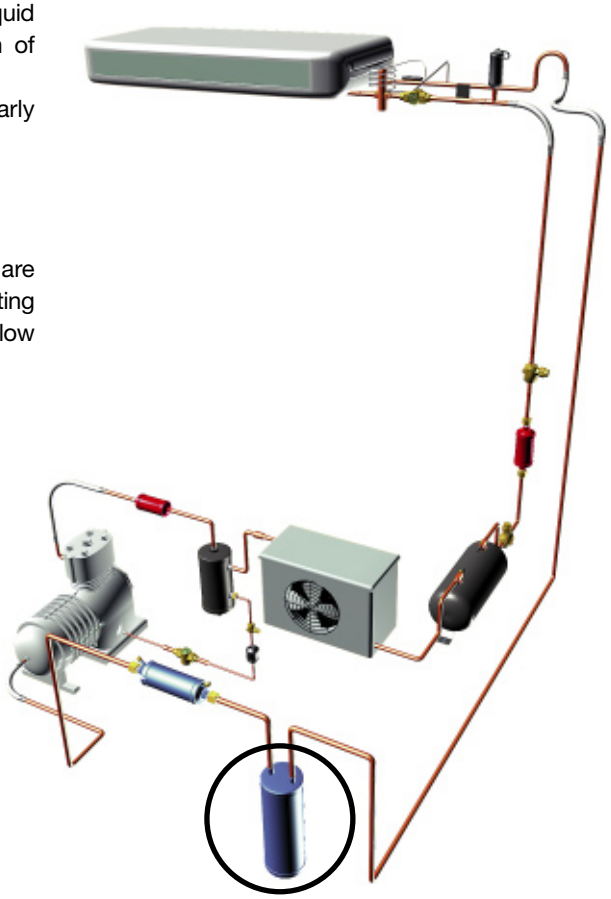
→ LCY *(without heat exchanger)* / LCYE *(with heat exchanger)*

01/10

■ Applications

- Elimination of risks linked to the return of refrigerant in its liquid phase and to the massive oil intake at compressor suction of refrigerating and air conditioning installations.
- The suction line accumulators LCY and LCYE are particularly recommended for installations that are:
  - → exposed to sudden thermal load variations
  - → whose piping lengths are important
  - → operating with cycle inversions.
- The LCYE suction accumulators with heat exchanger are particularly recommended for installations with a low overheating of refrigerant vapours at compressor suction (liquid coolant, low temperature display cabinets, vehicle refrigerating, etc …).





■ Functional features

- Products are compatible with HFCs, HCFCs, CFCs, 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
- Product classification in CE categories is performed using the PED 97/23/EC table, corresponding to a volume-based selection.
- LCY and LCYE suction line accumulators are designed to ensure optimal separation between the vapour phase and the liquid phase of the refrigerant; only the vapour phase is aspirated by the compressor.
- Reduction of the low pressure circuit vibrations.

■ CARLY advantages

- The pressure drops are low and never go over 0.3°C.
- The heat exchanger allows the increase of the refrigerant's refrigerating effect, by high pressure liquid sub-refrigerating, upstream of the pressure relief valve; it therefore prevents the risks of gas presence at the intake of the pressure relief valve.
- A hole on the lower part of the inner rod ensures liquid expansion and return to the compressor of the oil that could be trapped inside the suction line accumulator.
- A hole on the upper part of the rod is used for safety, in case of excess liquid in the accumulator.
- From models LCY 1517 S/MMS and LCYE 1513 S/MMS, presence of a connection on the low part for a return of oil by gravity.
- A very large range of suction line accumulators is available, from 0.9 to 70 litres.
- GOST certified products.

Suction line accumulators

→ LCY *(without heat exchanger)* / LCYE *(with heat exchanger)*

■ Recommendations

* The capacity of the selected accumulator in kg of refrigerant must be higher than 50% of the installation's total refrigerant load.
* Mounting should be exclusively performed in vertical position, as close as possible to the compressor and at the same height.
* In order to prevent suction line accumulator icing, CARLY recommends to heat insulate them.
* For optimal operation, the refrigerant flow speed in the suction line accumulators rods should be between 8 and 12 m/s; for lower speed values, the oil return to the compressor is unsure.
* The LCYE suction line accumulators' heat exchanger should be connected in series with the liquid line, between the installation's receiver and pressure relief valve.
* General assembly precautions: refer to chapter 115.

■ SELECTION OF A SUCTION LINE ACCUMULATOR LCY / LCYE

TO SELECT A CARLY (LCY/LCYE) SUCTION LINE ACCUMULATOR:

1 • The capacity of the installation should not be higher than the maximum acceptable capacity of the selected accumulator.

2 • The oil return is ensured when the capacity of the installation is not lower than the minimum acceptable capacity of the selected accumulator.

∗ LCY/LCYE MODEL SELECTION USING THE INSTALLATION'S REFRIGERATING CAPACITY

• "*MAXIMUM refrigerating capacity*" *selection curves, according to the refrigerant used (refer to pages 33.4 and 33.5)*

Carry forward on the curve the installation's refrigerating capacity and the evaporation temperature: if the operating point is between 2 curves: take the higher curve.

• "*MINIMUM refrigerating capacity*" *selection curves, according to the refrigerant used (refer to pages 33.4 and 33.5)*

Carry forward on the curve the installation's refrigerating capacity and the evaporation temperature:
the operating point should be above the curve of the accumulator selected. If this is not the case, choose a smaller accumulator.

∗ LCY/LCYE VOLUME SELECTION USING THE INSTALLATION'S REFRIGERANT LOAD

• *Selection tables (refer to pages 33.6 and 33.9)*

The capacity of the selected accumulator in kg of refrigerant at 30°C must be higher than half the installation's total refrigerant load.

Suction line accumulators

➔ LCY *(without heat exchanger)* / LCYE *(with heat exchanger)*

■ Example of selection of a LCY suction line accumulator without heat exchanger

The sizing of a product implies for the buyer to take into account the conditions under which the product will be used (temperature - pressure - refrigerant - oil - external environment). The values of the selection tables proposed in the CARLY catalogue match accurate test conditions.

- Installation operating with R404A under the following conditions(1):
  - ➜ T_O = -10°C
  - ➜ Tk = 30°C
  - ➜ Q_Ox = 8 kW
  - ➜ Capacity of refrigerant at 30°C of the circuit = 5 kg
  - ➜ Suction piping = 7/8”
- Which **LCY** suction line accumulator to choose?

∗ LCY MODEL SELECTION USING THE INSTALLATION’S REFRIGERATING CAPACITY

- "*MAXIMUM refrigerating capacity*" *selection curves according to the refrigerant used*

  Selection curves for R 404A (refer to page 33.4)
  Q_Ox = 8 kW
  T_O = -10°C

  Result: LCY 27 S or LCY 47 S

- "*MINIMUM refrigerating capacity*" *selection curves according to the refrigerant used*

  Selection curves for R 404A (refer to page 33.4)
  Range chosen: LCY 27 S or LCY 47 S

  Result: Minimum power: 2 kW lower than 8 kW ➜ The selection is correct

∗ LCY VOLUME SELECTION USING THE INSTALLATION’S REFRIGERANT LOAD

- *Selection table (refer to page 33.6)*

  ➜ Refrigerant capacity of the refrigerating circuit: 5 kg
  Half the load represents: 7/2 = 2,5 kg
  LCY 27S : 1.8 kg LCY 47 S : 2.6 kg

CARLY references	Connections To solder ODF inch	CARLY references	Connections To solder ODF mm	Capacity of accumulator (kg of refrigerant at 30°C)		
				R22 R407C	R134a	R410A R404A R507
LCY 27 S	7/8	**LCY 27 MMS**	22	1,7	1,8	1,8
LCY 47 S	7/8	**LCY 47 MMS**	22	2,5	2,6	2,6

Result : Among the 2 pre-selected references, the **LCY 47 S** accumulator should be selected because its capacity in kg of refrigerant (2.6 kg) is higher than half the installation’s total refrigerant load (2.5 kg).

(1) Chapter "Abbreviations and units" (refer to chapter 113).

Suction line accumulators

→ LCY *(without heat exchanger)* / LCYE *(with heat exchanger)*

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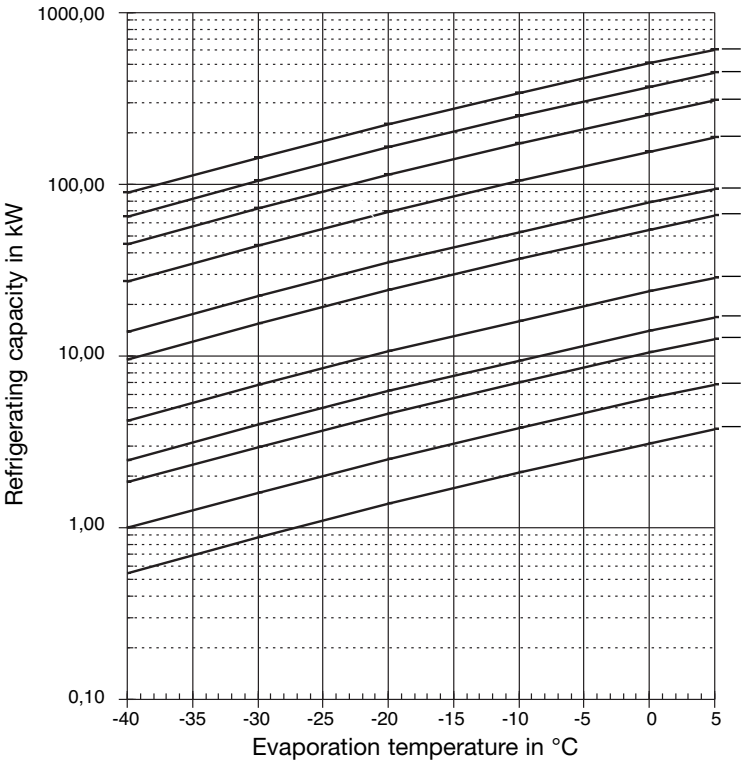
■ Selection curves for R22 - R404A - R507 - R407C - R410A

• MAXIMAL REFRIGERATING CAPACITY

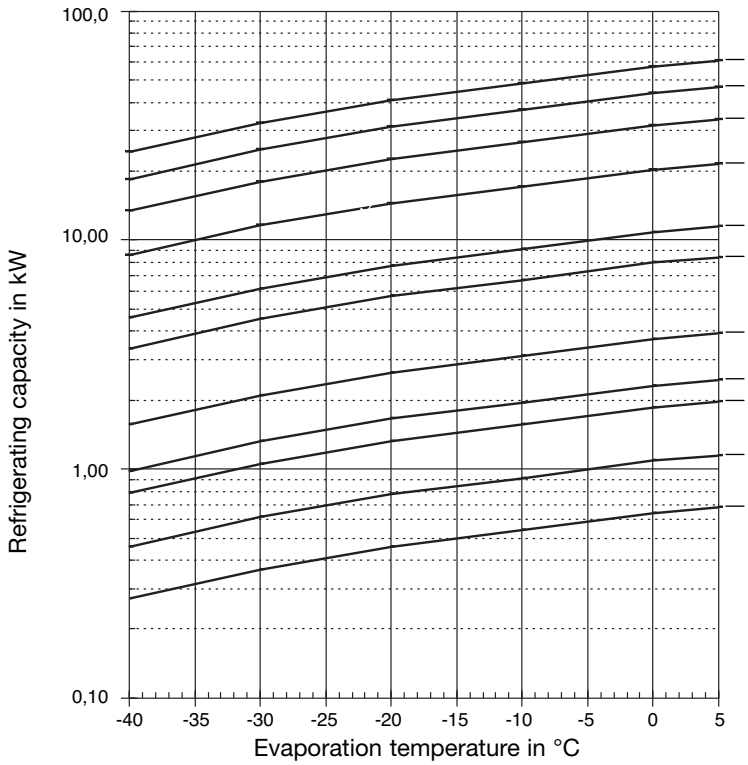


• CARLY REFERENCES

• CONNECTIONS

	inch	mm
LCY 7029	3 5/8	88,9
LCY 3625 - LCY 5025 - LCY 7025 - LCYE 3625	3 1/8	80,0
LCY 3621 - LCY 5021 - LCYE 3621	2 5/8	67,0
LCY 1517 - LCY 1817 - LCY 3617- LCYE 1517	2 1/8	54,0
LCY 813 - LCY 1013 - LCYE 1013	1 5/8	42,0
LCY 611 - LCY 811 - LCY 1011 - LCYE 811	1 3/8	35,0
LCY 49 - LCY 69 - LCY 89 - LCYE 69	1 1/8	28,0
LCY 27 - LCY 47 - LCYE 47	7/8	22,0
LCY 16 - LCY 26 - LCYE 26	3/4	18,0
LCY 15 - LCY 25 - LCYE 25	5/8	16,0
LCY 04 - LCY 14	1/2	12,0

• MINIMAL REFRIGERATING CAPACITY



• CARLY REFERENCES

• CONNECTIONS

	inch	mm
LCY 7029	3 5/8	88,9
LCY 3625 - LCY 5025 - LCY 7025 - LCYE 3625	3 1/8	80,0
LCY 3621 - LCY 5021 - LCYE 3621	2 5/8	67,0
LCY 1517 - LCY 1817 - LCY 3617- LCYE 1517	2 1/8	54,0
LCY 813 - LCY 1013 - LCYE 1013	1 5/8	42,0
LCY 611 - LCY 811 - LCY 1011 - LCYE 811	1 3/8	35,0
LCY 49 - LCY 69 - LCY 89 - LCYE 69	1 1/8	28,0
LCY 27 - LCY 47 - LCYE 47	7/8	22,0
LCY 16 - LCY 26 - LCYE 26	3/4	18,0
LCY 15 - LCY 25 - LCYE 25	5/8	16,0
LCY 04 - LCY 14	1/2	12,0

Suction line accumulators

→ LCY *(without heat exchanger)* / LCYE *(with heat exchanger)*

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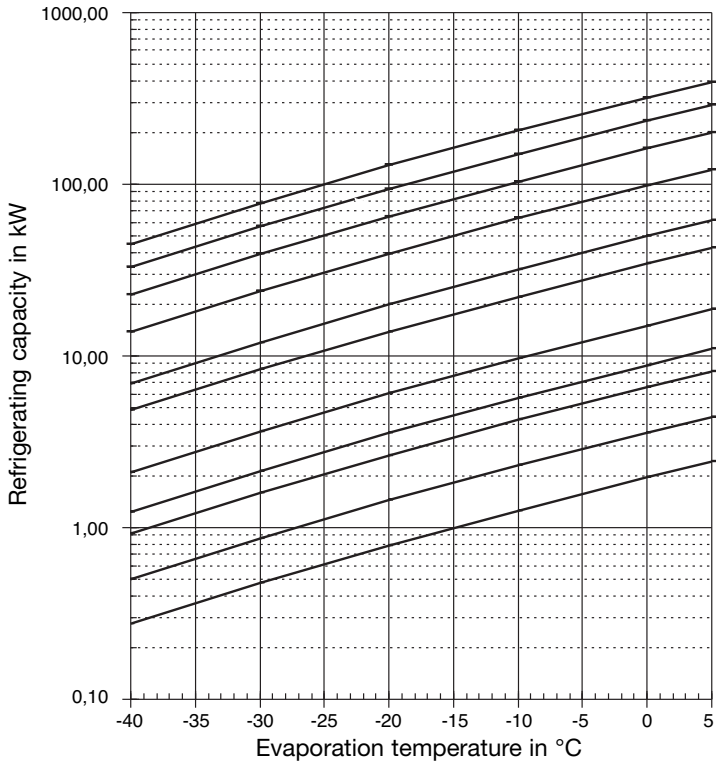
■ Selection curves for R134a

• MAXIMAL REFRIGERATING CAPACITY

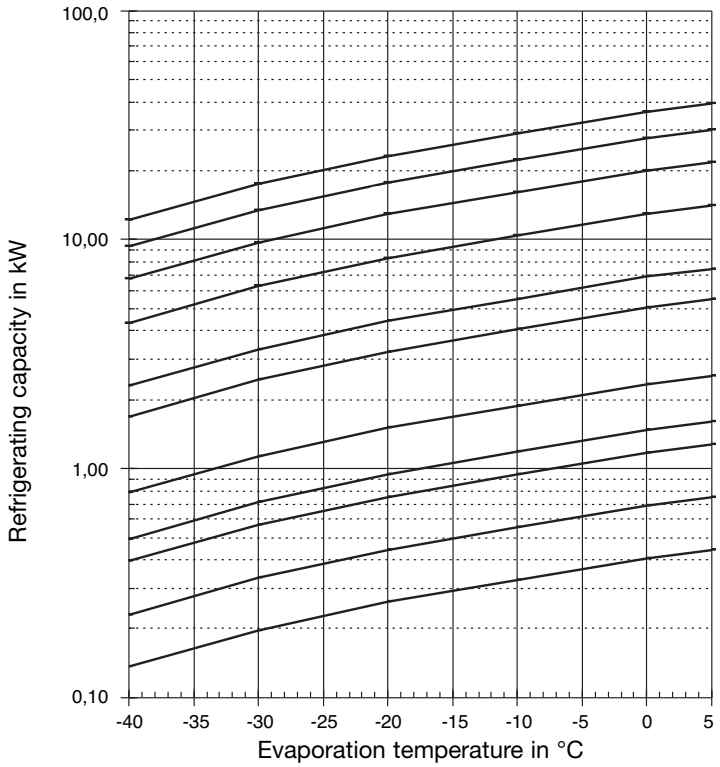


• CARLY REFERENCES

• CONNECTIONS

	inch	mm
LCY 7029	3 5/8	88,9
LCY 3625 - LCY 5025 - LCY 7025 - LCYE 3625	3 1/8	80,0
LCY 3621 - LCY 5021 - LCYE 3621	2 5/8	67,0
LCY 1517 - LCY 1817 - LCY 3617- LCYE 1517	2 1/8	54,0
LCY 813 - LCY 1013 - LCYE 1013	1 5/8	42,0
LCY 611 - LCY 811 - LCY 1011 - LCYE 811	1 3/8	35,0
LCY 49 - LCY 69 - LCY 89 - LCYE 69	1 1/8	28,0
LCY 27 - LCY 47 - LCYE 47	7/8	22,0
LCY 16 - LCY 26 - LCYE 26	3/4	18,0
LCY 15 - LCY 25 - LCYE 25	5/8	16,0
LCY 04 - LCY 14	1/2	12,0

• MINIMAL REFRIGERATING CAPACITY



• CARLY REFERENCES

• CONNECTIONS

	inch	mm
LCY 7029	3 5/8	88,9
LCY 3625 - LCY 5025 - LCY 7025 - LCYE 3625	3 1/8	80,0
LCY 3621 - LCY 5021 - LCYE 3621	2 5/8	67,0
LCY 1517 - LCY 1817 - LCY 3617- LCYE 1517	2 1/8	54,0
LCY 813 - LCY 1013 - LCYE 1013	1 5/8	42,0
LCY 611 - LCY 811 - LCY 1011 - LCYE 811	1 3/8	35,0
LCY 49 - LCY 69 - LCY 89 - LCYE 69	1 1/8	28,0
LCY 27 - LCY 47 - LCYE 47	7/8	22,0
LCY 16 - LCY 26 - LCYE 26	3/4	18,0
LCY 15 - LCY 25 - LCYE 25	5/8	16,0
LCY 04 - LCY 14	1/2	12,0

Suction line accumulators

→ LCY *(without heat exchanger)*

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■ Selection table

CARLY references	Connections To solder ODF inch	CARLY references	Connections To solder ODF mm	Capacity of accumulator (kg of refrigerant at 30°C)		
				R22 R407C	R134a	R410A R404A R507
LCY 04 S	1/2	**LCY 04 MMS**	12,0	0,7	0,7	0,7
LCY 14 S	1/2	**LCY 14 MMS**	12,0	1,1	1,2	1,2
LCY 15 S/MMS	5/8	**LCY 15 S/MMS**	16,0	1,1	1,2	1,2
LCY 16 S	3/4	**LCY 16 MMS**	18,0	1,1	1,2	1,2
LCY 25 S/MMS	5/8	**LCY 25 S/MMS**	16,0	1,7	1,8	1,8
LCY 26 S	3/4	**LCY 26 MMS**	18,0	1,7	1,8	1,8
LCY 27 S	7/8	**LCY 27 MMS**	22,0	1,7	1,8	1,8
LCY 47 S	7/8	**LCY 47 MMS**	22,0	2,5	2,6	2,6
LCY 49 S	1 1/8	**LCY 49 MMS**	28,0	3,2	3,2	3,2
LCY 69 S	1 1/8	**LCY 69 MMS**	28,0	4,8	4,9	4,9
LCY 89 S	1 1/8	**LCY 89 MMS**	28,0	6,5	6,6	6,6
LCY 611 S/MMS	1 3/8	**LCY 611 S/MMS**	35,0	4,8	4,9	4,9
LCY 811 S/MMS	1 3/8	**LCY 811 S/MMS**	35,0	6,5	6,6	6,6
LCY 813 S	1 5/8	**LCY 813 MMS**	42,0	6,5	6,6	6,6
LCY 1011 S/MMS	1 3/8	**LCY 1011 S/MMS**	35,0	8,6	8,7	8,7
LCY 1013 S	1 5/8	**LCY 1013 MMS**	42,0	8,6	8,7	8,7
LCY 1517 S/MMS	2 1/8	**LCY 1517 S/MMS**	54,0	14,0	14,5	14,5
LCY 1817 S/MMS	2 1/8	**LCY 1817 S/MMS**	54,0	18,5	19,0	19,0
LCY 3617 S/MMS	2 1/8	**LCY 3617 S/MMS**	54,0	33,0	33,5	33,5
LCY 3621 S	2 5/8	**LCY 3621 MMS**	67,0	33,0	33,5	33,5
LCY 3625 S	3 1/8	**LCY 3625 MMS**	80,0	33,0	33,5	33,5
LCY 5021 S	2 5/8	**LCY 5021 MMS**	67,0	47,0	47,5	47,5
LCY 5025 S	3 1/8	**LCY 5025 MMS**	80,0	47,0	47,5	47,5
LCY 7025 S	3 1/8	**LCY 7025 MMS**	80,0	65,5	67,0	67,0
LCY 7029 S	3 5/8	**LCY 7029 MMS**	88,9	65,5	67,0	67,0


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Suction line accumulators

→ LCY *(without heat exchanger)*

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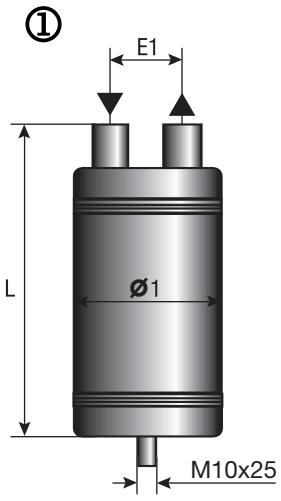
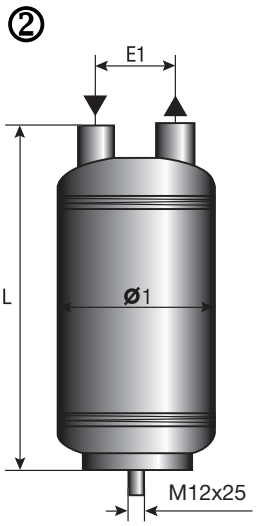
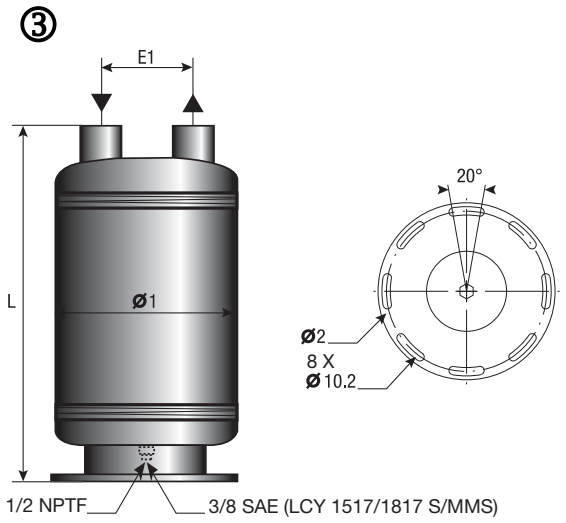
■ Technical features

CARLY references		Drawing Nb	Dimensions (mm)				Possible retention volume (L)	Net weight (kg)
			Ø1	L	E1	Ø2		
LCY 04 S	**LCY 04 MMS**	1	89,0	208,0	50	/	0,09	1,20
LCY 14 S	**LCY 14 MMS**	1	89,0	299,0	50	/	0,09	1,70
LCY 15 S/MMS		1	89,0	299,0	48	/	0,10	1,80
LCY 16 S	**LCY 16 MMS**	1	89,0	299,0	37	/	0,12	1,95
LCY 25 S/MMS		1	101,6	363,0	56	/	0,13	3,15
LCY 26 S	**LCY 26 MMS**	1	101,6	363,0	56	/	0,12	3,20
LCY 27 S	**LCY 27 MMS**	1	101,6	373,0	56	/	0,14	3,30
LCY 47 S	**LCY 47 MMS**	1	101,6	487,0	56	/	0,14	4,35
LCY 49 S	**LCY 49 MMS**	2	121,0	464,5	49	/	0,16	5,60
LCY 69 S	**LCY 69 MMS**	2	152,4	433,5	76	/	0,21	8,20
LCY 89 S	**LCY 89 MMS**	2	152,4	533,5	76	/	0,21	9,85
LCY 611 S/MMS		2	152,4	439,0	76	/	0,25	9,10
LCY 811 S/MMS		2	152,4	539,0	76	/	0,25	11,20
LCY 813 S	**LCY 813 MMS**	2	152,4	539,0	73	/	0,25	11,60
LCY 1011 S/MMS		2	152,4	647,0	76	/	0,25	13,65
LCY 1013 S	**LCY 1013 MMS**	2	152,4	647,0	73	/	0,25	14,25
LCY 1517 S/MMS		3	219,1	631,5	114	190	0,48	20,35
LCY 1817 S/MMS		3	219,1	781,5	114	190	0,48	25,20
LCY 3617 S/MMS		3	323,9	727,0	155	290	1,60	41,40
LCY 3621 S	**LCY 3621 MMS**	3	323,9	727,0	155	290	1,80	45,70
LCY 3625 S	**LCY 3625 MMS**	3	323,9	727,0	155	290	2,10	47,35
LCY 5021 S	**LCY 5021 MMS**	3	323,9	927,0	155	290	1,80	57,10
LCY 5025 S	**LCY 5025 MMS**	3	323,9	927,0	155	290	2,10	59,10
LCY 7025 S	**LCY 7025 MMS**	3	323,9	1177,0	155	290	2,10	75,00
LCY 7029 S	**LCY 7029 MMS**	3	323,9	1177,0	155	290	2,30	79,00







Suction line accumulators

→ LCY *(without heat exchanger)*

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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)	
LCY 04 S	**LCY 04 MMS**	0,90	42	10	80	-40	-20	Art 3§3
LCY 14 S	**LCY 14 MMS**	1,50	42	10	80	-40	-20	I
LCY 15 S/MMS		1,50	42	10	80	-40	-20	I
LCY 16 S	**LCY 16 MMS**	1,50	42	10	80	-40	-20	I
LCY 25 S/MMS		2,20	20	10	80	-40	-20	Art 3§3
LCY 26 S	**LCY 26 MMS**	2,20	20	10	80	-40	-20	Art 3§3
LCY 27 S	**LCY 27 MMS**	2,20	28	10	80	-40	-20	I
LCY 47 S	**LCY 47 MMS**	3,20	20	10	80	-40	-20	I
LCY 49 S	**LCY 49 MMS**	4,20	30	10	80	-40	-20	I
LCY 69 S	**LCY 69 MMS**	5,80	20	10	80	-40	-20	I
LCY 89 S	**LCY 89 MMS**	7,40	20	10	80	-40	-20	I
LCY 611 S/MMS		5,80	20	10	80	-40	-20	I
LCY 811 S/MMS		7,47	20	10	80	-40	-20	I
LCY 813 S	**LCY 813 MMS**	7,51	20	10	80	-40	-20	I
LCY 1011 S/MMS		9,27	20	10	80	-40	-20	I
LCY 1013 S	**LCY 1013 MMS**	9,30	20	10	80	-40	-20	I
LCY 1517 S/MMS		15,20	20	10	80	-40	-20	II
LCY 1817 S/MMS		20,20	20	10	80	-40	-20	II
LCY 3617 S/MMS		35,39	20	10	80	-40	-20	II
LCY 3621 S	**LCY 3621 MMS**	35,61	20	10	80	-40	-20	II
LCY 3625 S	**LCY 3625 MMS**	35,89	20	10	80	-40	-20	II
LCY 5021 S	**LCY 5021 MMS**	50,61	20	10	80	-40	-20	III
LCY 5025 S	**LCY 5025 MMS**	50,89	20	10	80	-40	-20	III
LCY 7025 S	**LCY 7025 MMS**	70,89	20	10	80	-40	-20	III
LCY 7029 S	**LCY 7029 MMS**	71,15	20	10	80	-40	-20	III

(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 page 7).

Suction line accumulators

→ LCYE *(with heat exchanger)*

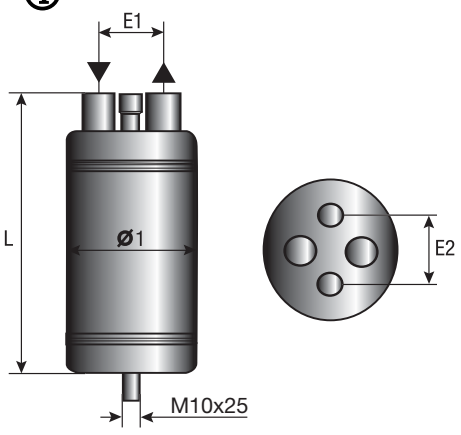
■ Selection table

CARLY references	Connections To solder ODF inch	Heat exchangers connections to solder ODF inch	CARLY references	Connections To solder ODF mm	Heat exchangers connections to solder ODF mm	Capacity of accumulator (kg of refrigerant at 30°C)		
						R22 R407C	R134A	R410A R404A R507
LCYE 25 S	5/8	3/8	**LCYE 25 MMS**	16	10	1,7	1,8	1,8
LCYE 26 S	3/4	3/8	**LCYE 26 MMS**	18	10	1,7	1,8	1,8
LCYE 47 S	7/8	1/2	**LCYE 47 MMS**	22	12	2,5	2,6	2,6
LCYE 69 S	1 1/8	5/8	**LCYE 69 MMS**	28	16	4,8	4,9	4,9
LCYE 811 S/MMS	1 3/8	5/8	**LCYE 811 S/MMS**	35	16	6,5	6,6	6,6
LCYE 1013 S	1 5/8	3/4	**LCYE 1013 MMS**	42	18	8,6	8,7	8,7
LCYE 1517 S	2 1/8	7/8	**LCYE 1517 MMS**	54	22	14,0	14,5	14,5
LCYE 3621 S	2 5/8	1 1/8	**LCYE 3621 MMS**	67	28	33,0	33,5	33,5
LCYE 3625 S	3 1/8	1 3/8	**LCYE 3625 MMS**	80	35	33,0	33,5	33,5

■ Technical features

CARLY references		Drawing Nb	Dimensions (mm)					Possible retention volume (L)	Net weight (kg)
			Ø1	L	E1	E2	Ø2		
LCYE 25 S	**LCYE 25 MMS**	4	101,6	362	56	60	/	0,13	3,45
LCYE 26 S	**LCYE 26 MMS**	4	101,6	362	56	60	/	0,12	3,60
LCYE 47 S	**LCYE 47 MMS**	4	101,6	487	56	70	/	0,14	4,45
LCYE 69 S	**LCYE 69 MMS**	5	152,4	433	76	96	/	0,21	8,70
LCYE 811 S/MMS	**LCYE 811 S/MMS**	5	152,4	554	76	96	/	0,25	12,40
LCYE 1013 S	**LCYE 1013 MMS**	5	152,4	647	73	96	/	0,25	15,15
LCYE 1517 S	**LCYE 1517 MMS**	6	219,1	631	114	141	190	0,48	21,85
LCYE 3621 S	**LCYE 3621 MMS**	6	323,9	727	155	180	290	1,80	47,50
LCYE 3625 S	**LCYE 3625 MMS**	6	323,9	727	155	180	290	2,10	52,00

④



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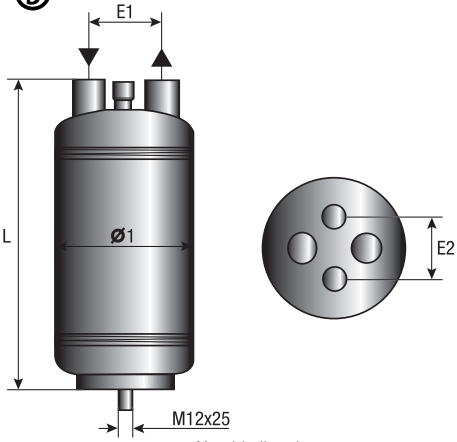

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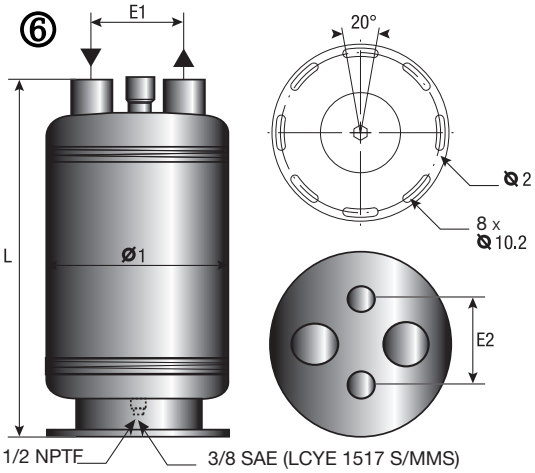

Suction line accumulators

→ LCYE *(with heat exchanger)*

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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)	
LCYE 25 S	**LCYE 25 MMS**	2,30	43	10	80	-40	-20	I
LCYE 26 S	**LCYE 26 MMS**	2,30	43	10	80	-40	-20	I
LCYE 47 S	**LCYE 47 MMS**	3,20	43	10	80	-40	-20	I
LCYE 69 S	**LCYE 69 MMS**	5,80	20	10	80	-40	-20	I
LCYE 811 S/MMS	**LCYE 811 S/MMS**	7,50	20	10	80	-40	-20	I
LCYE 1013 S	**LCYE 1013 MMS**	9,30	20	10	80	-40	-20	I
LCYE 1517 S	**LCYE 1517 MMS**	15,20	20	10	80	-40	-20	II
LCYE 3621 S	**LCYE 3621 MMS**	35,61	20	10	80	-40	-20	II
LCYE 3625 S	**LCYE 3625 MMS**	35,00	20	10	80	-40	-20	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 97/23/EC (refer to chapter 0 page 7).

→ LCY / LCYE

■ Weights and packaging

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
LCY 04 S & MMS	1,28	1,20	6	24
LCY 14 S & MMS	1,78	1,70	6	/
LCY 15 S/MMS	1,85	1,75	6	/
LCY 16 S & MMS	2,03	1,95	6	15
LCY 25 S/MMS	3,55	3,15	1	8
LCY 26 S & MMS	3,60	3,20	1	/
LCY 27 S & MMS	3,70	3,30	1	8
LCY 47 S & MMS	3,40	3,15	1	4
LCY 49 S & MMS	6,00	5,60	1	/
LCY 69 S & MMS	7,55	7,25	1	/
LCY 89 S & MMS	10,20	9,85	1	/
LCY 611 S/MMS	9,45	9,10	1	/
LCY 811 S/MMS	10,60	10,40	1	/
LCY 813 S & MMS	11,95	11,60	1	/
LCY 1011 S/MMS	14,25	13,65	1	/
LCY 1013 S & MMS	14,85	14,25	1	/
LCY 1517 S/MMS	20,85	20,35	1	/

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
LCY 1817 S/MMS	25,70	25,20	1	/
LCY 3617 S/MMS	42,80	41,40	1	/
LCY 3621 S & MMS	47,10	45,70	1	/
LCY 3625 S & MMS	48,75	47,35	1	/
LCY 5021 S & MMS	58,50	57,10	1	/
LCY 5025 S & MMS	60,50	59,10	1	/
LCY 7025 S & MMS	76,40	75,00	1	/
LCY 7029 S & MMS	80,40	79,00	1	/
LCYE 25 S & MMS	3,85	3,45	1	/
LCYE 26 S & MMS	4,00	3,60	1	/
LCYE 47 S & MMS	4,85	4,45	1	/
LCYE 69 S & MMS	7,55	7,25	1	/
LCYE 811 S/MMS	10,60	10,40	1	/
LCYE 1013 S & MMS	15,75	15,15	1	/
LCYE 1517 S & MMS	22,35	21,85	1	/
LCYE 3621 S & MMS	48,90	47,50	1	/
LCYE 3625 S & MMS	53,40	52,00	1	/

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Water cooled condensers with liquid receiver

→ CONDOR-V *(vertical)*

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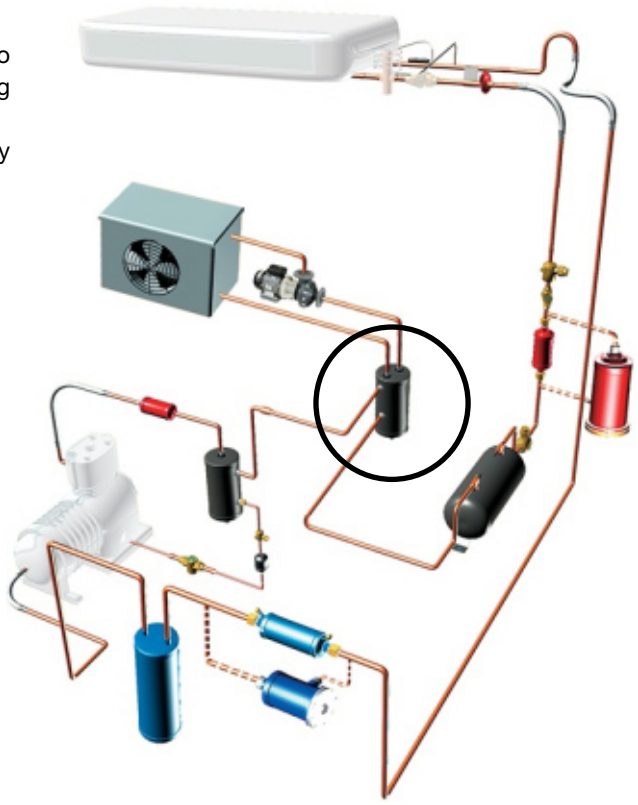
■ Applications

- Water cooled condensers with liquid receiver ensure cooling, condensation and storage of refrigerant in refrigerating and air conditioning installations.
- They also allow storage of the refrigerant, in order to compensate volume variations due to the opening and closing sequences of the expansion valve.
- Heat exchange is carried out by a water circulation inside a very high performance finned copper tubing coil.



■ Functional features

- Products are compatible with HFCs, HCFCs, CFCs, 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.
- Product classification in CE categories is performed using the PED 97/23/EC table, corresponding to a volume-based selection.
- Water cooled condensers with liquid receiver are made of steel for the shell and copper for the heat exchanger.
- They are fitted with fastening means suited to their volume and to their weight (see page 34.10).
- The CONDOR-V 2500 model comes with a 3/8" NPT boss for mounting of safety elements such as safety valves.

■ CARLY advantages

- Water cooled condensers with receiver are supplied perfectly clean and dried.
- They offer both following connection possibilities for the refrigerant:
  - → Outside of the connections to screw.
  - → Inside of the connections to braze.
- Very high performance heat exchangers.
- Low water consumptions.
- A wide range of accessories is available:
  - → Rotalock stop valves, with connections to screw or to braze.
  - → Rotalock connections with possibility of diameter reductions and with connections to screw or to braze.
- Reduction of the quantity of the refrigerant in the circuit compared to installations with air cooled condensers.
- GOST certified products.

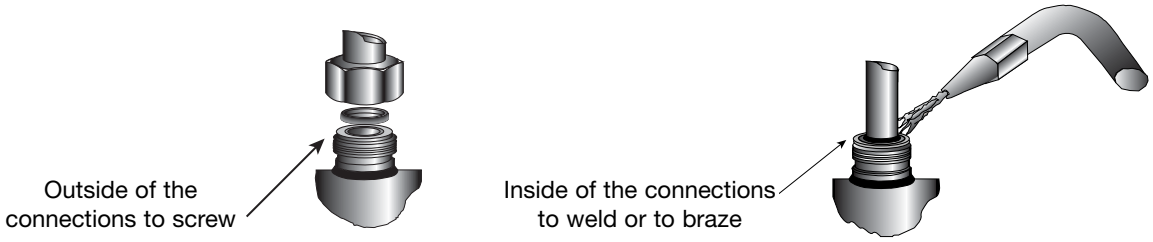
Water cooled condensers with liquid receiver

→ CONDOR-V *(vertical)*

01/10

■ Recommendations

* Water cooled condensers with liquid receiver are to be installed after the compressor discharge.
* For optimal operation, refrigerant and water flow directions should be respected ("IN" tag at the inlet).
* If sizing of the receivers is performed on the basis of the total refrigerant load, it is imperative to select receivers with an internal volume 20 % bigger, so that the gas reserve is always above the liquid level.
* It is essential to ensure a water circulation before any handling on the refrigerating circuit (risk of icing).
* Take care to keep the water circuit clean, using suitable filters.
* Use of sea water is forbidden.
* General assembly precautions: refer to chapter 115.



■ Selection table

CARLY references	Gaz inlet connections		Liquid outlet connections		Water inlet and outlet connections	Condensation capacity Qk (kW)	Water flow (m^3/h)	Water pressure drop (bar)	Storage volume (L)
	Outside of connections to screw UNF inch	Inside of connections to braze ODF inch	Outside of connections to screw UNF inch	Inside of connections to braze ODF inch	inch				
CONDOR-V 100	3/4	3/8	3/4	3/8	1/2 ODF	1,11 (1)	0,10	0,01	1,00
CONDOR-V 150	3/4	3/8	3/4	3/8	1/2 ODF	1,52 (1)	0,10	0,01	1,80
CONDOR-V 240	3/4	3/8	3/4	3/8	1/2 ODF	2,39 (1)	0,20	0,02	1,70
CONDOR-V 500	1	1/2	3/4	3/8	1/2 ODF	4,90 (1)	0,30	0,07	2,50
CONDOR-V 1000	1 1/4	5/8	1	1/2	1/2 ODF	9,82 (1)	0,50	0,25	2,50
CONDOR-V 1400	1 1/4	5/8	1	1/2	1/2 ODF	14,56 (2)	0,80	0,53	0,70
CONDOR-V 2500	1 3/4	7/8	1 1/4	5/8	G 3/4 M	25,50 (2)	1,60	0,37	3,50

(1) Refrigerant R404A ; Δt1 = 20 K ;

(2) Refrigerant R404A ; Δt1 = 25 K ;

Δt1= Condensing temperature - Water inlet temperature

For any further details about water cooled condensers with receiver, please refer to pages 34-4 to 34-9.

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Water cooled condensers with liquid receiver

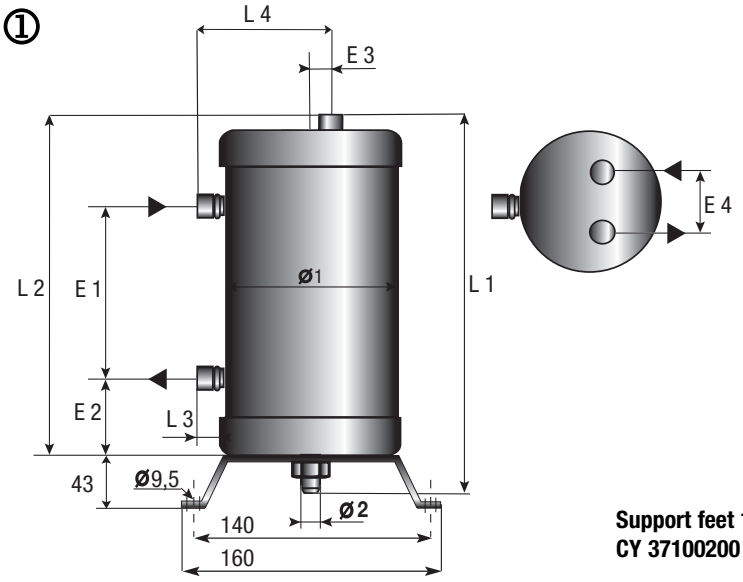
→ CONDOR-V *(vertical)*

01/10

■ Technical features

CARLY references	Drawing Nb	Dimensions (mm)											Net weight (kg)
		Ø1	L1	L2	L3	L4	E1	E2	E3	E4	Ø2	Ø3	
CONDOR-V 100	1	121,0	340	315	14	88	145	70,0	10	40	M10	/	4
CONDOR-V 150	1	121,0	410	385	14	88	220	70,0	10	40	M10	/	5
CONDOR-V 240	1	121,0	410	385	14	88	220	70,0	10	40	M10	/	5
CONDOR-V 500	2	152,4	548	526	17	108	330	84,0	15	70	M12	/	11
CONDOR-V 1000	2	152,4	656	634	23	114	430	84,0	15	70	M12	/	14
CONDOR-V 1400	3	121,0	462	437	23	73	288	52,0	10	40	M10	/	7
CONDOR-V 2500	4	219,1	547	/	23	117	290	128,6	15	150	3x10.2	200	23

①



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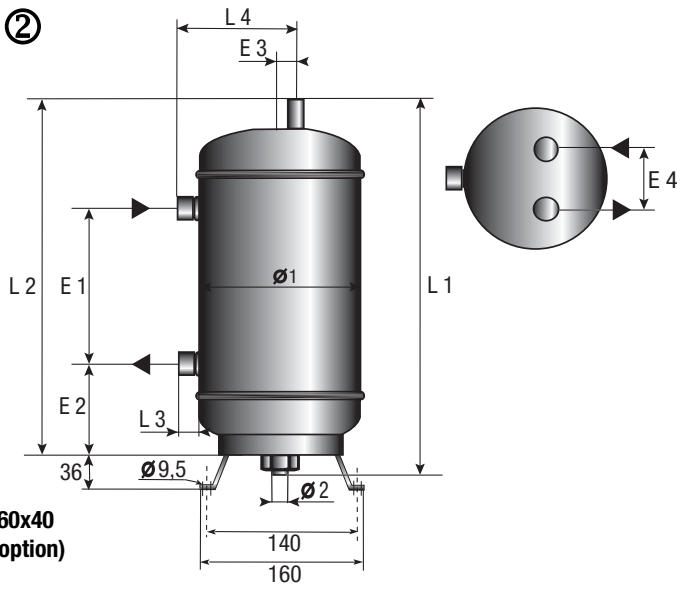
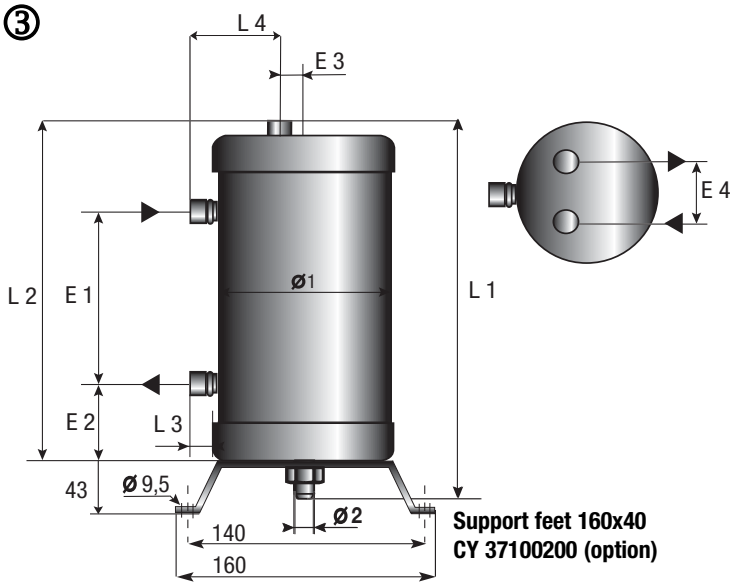


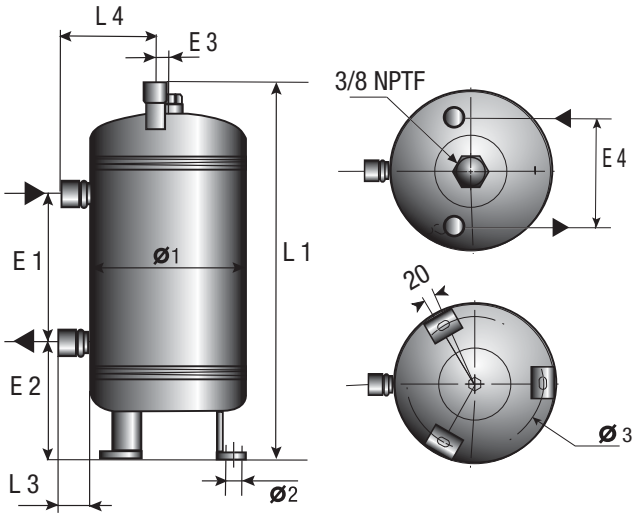
Support feet 160x40
CY 37100200 (option)

③



Support feet 160x40
CY 37100200 (option)

④



Water cooled condensers with liquid receiver

→ CONDOR-V *(vertical)*

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■ Technical features

CARLY references	Volume	Maximal working pressure	Heat exchanger maximal working pressure	Maximal working temperature	Minimal working temperature	Working temperature (1)	CE Category (2)
	V (L)	PS (bar)	PS Ech. (bar)	TS maxi (°C)	TS mini (°C)	TS BT (°C)	
CONDOR-V 100	2,5	26	10	80	-10	/	I
CONDOR-V 150	3,3	26	10	80	-10	/	I
CONDOR-V 240	3,3	26	10	80	-10	/	I
CONDOR-V 500	7,6	26	10	80	-10	/	I
CONDOR-V 1000	9,5	26	10	80	-10	/	II
CONDOR-V 1400	3,8	26	10	80	-10	/	I
CONDOR-V 2500	16,0	26	10	80	-10	/	II

(1) Classification by volume, according to PED 97/23/EC (refer to chapter 0.7).

■ Example of selection of a CONDOR water cooled condenser with liquid receiver

The sizing of a product implies for the buyer to take into account the conditions under which the product will be used (temperature - pressure refrigerant oil external environment). The values of the selection tables proposed in the CARLY catalogue match accurate test conditions.

- Installation operating with R404A under the following conditions(1):
  - → Qk_X = 10 kW
  - → Tk = 40°C
  - → Tl1 = 20°C ⟶ Δt1 = 40 - 20 = 20K
  - → Maximum water flow = 500 l/h
  - → Normal city water
- Which water cooled condenser **CONDOR** to choose?

1°: Make corrections according to the water and the refrigerant:
- 1-1 Correction according to fouling factor Fe (refer to page 34.5)
- 1-2 Correction according to refrigerant Fr (refer to page 34.5)

Result : $Qk = Qk_X$ x Fe x Fr = 10kW

2°: Report the capacity to the quick selection table (page 34.5) and take note of possible condensers.

Result : CONDOR-V 500, CONDOR-V 1000, CONDOR-V 1400, CONDOR-V 2500

3°: Search on the condenser feature curves (pages 34-6 to 34-9), the most suitable condenser.

Result : CONDOR V-500 works with Δt1 of 25K (page 34-7)
(does not match because Δt1 > 20K)
CONDOR V-1000 matches perfectly (page 34-8)
CONDOR V-1400 works with a water flow of 700 l/h (page 34-8)
(does not match because water flow > 500 l/h)
CONDOR V-2500 is too powerful because Δt1 < 20K (page 34-9).

4°: Select the CONDOR V-1000 model and determine on the curves the water **Δt** and the water pressure drop (page 34-8).

Result : Δt water **= 16.5K**
Δp water**= 0.25 bar**

(1) Chapter "Abbreviations and units" (refer to chapter 113).

Water cooled condensers with liquid receiver

→ CONDOR-V *(vertical)*

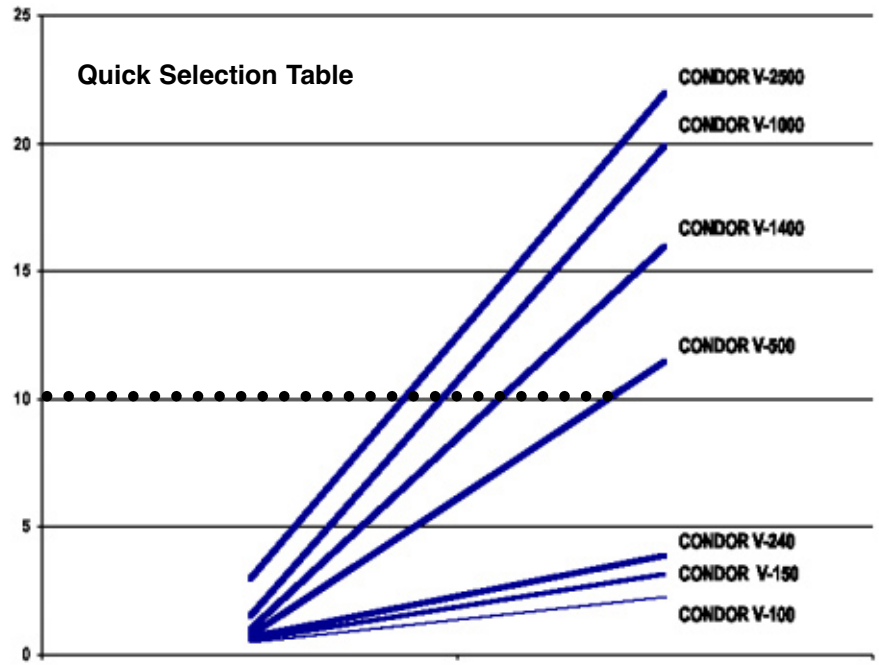
■ Technical features

* According to the type of water available, the condensation capacity (Qk_x) of the installation should be corrected in accordance to the fouling factor by the formula: $Qk = Qk_x \times Fe$

Water type	Fouling factor ($m^2.K / W$)	Correction factor Fe
Normal city water	43.10-6	1,00
Treated tower water	43.10-6	1,00
Untreated tower water	86.10-6	1,19
River water	86.10-6	1,19
Glycol water below 40%	86.10-6	1,19
Glycol water below 70%	172.10-6	1,56

* According to the type of refrigerant used, the condensation capacity (Qk_x) of the installation should be corrected in accordance to the following Fr factor by the formula: $Qk = Qk_x \times Fr$

Refrigerant	Correction factor Fr
R404A / R507	1,00
R 22 / R410A	0,92
R134a / R407C	0,85

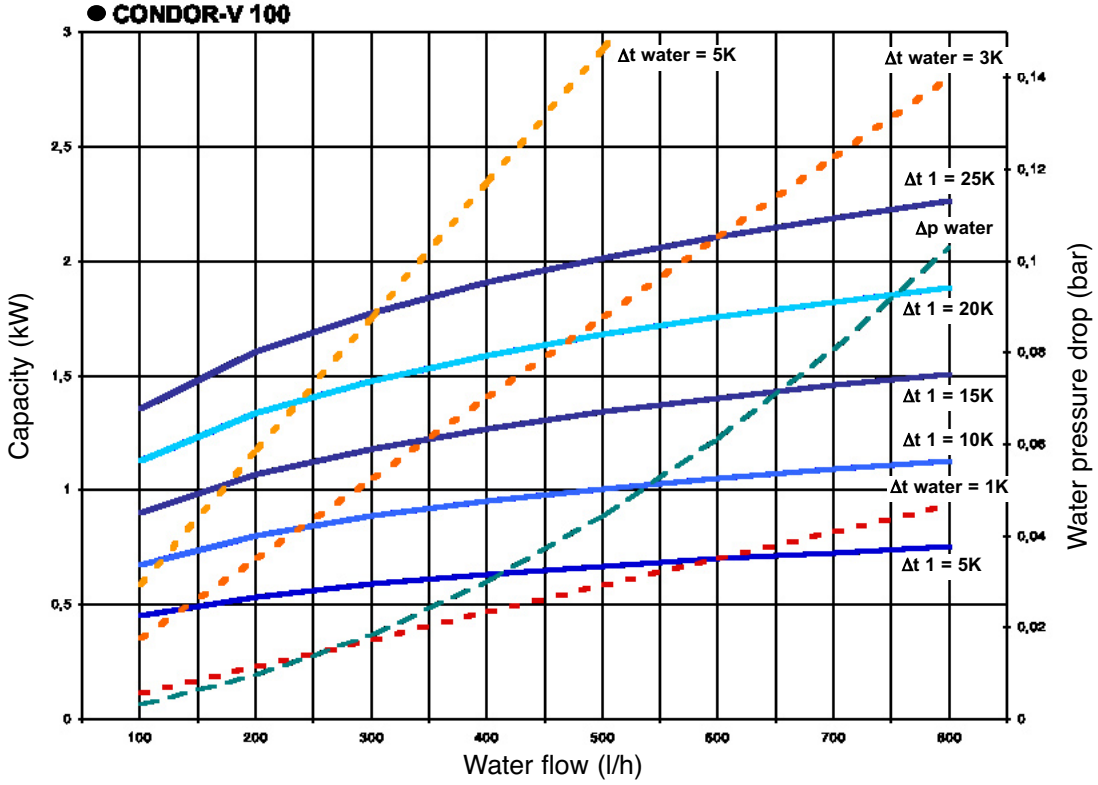


Water cooled condensers with liquid receiver

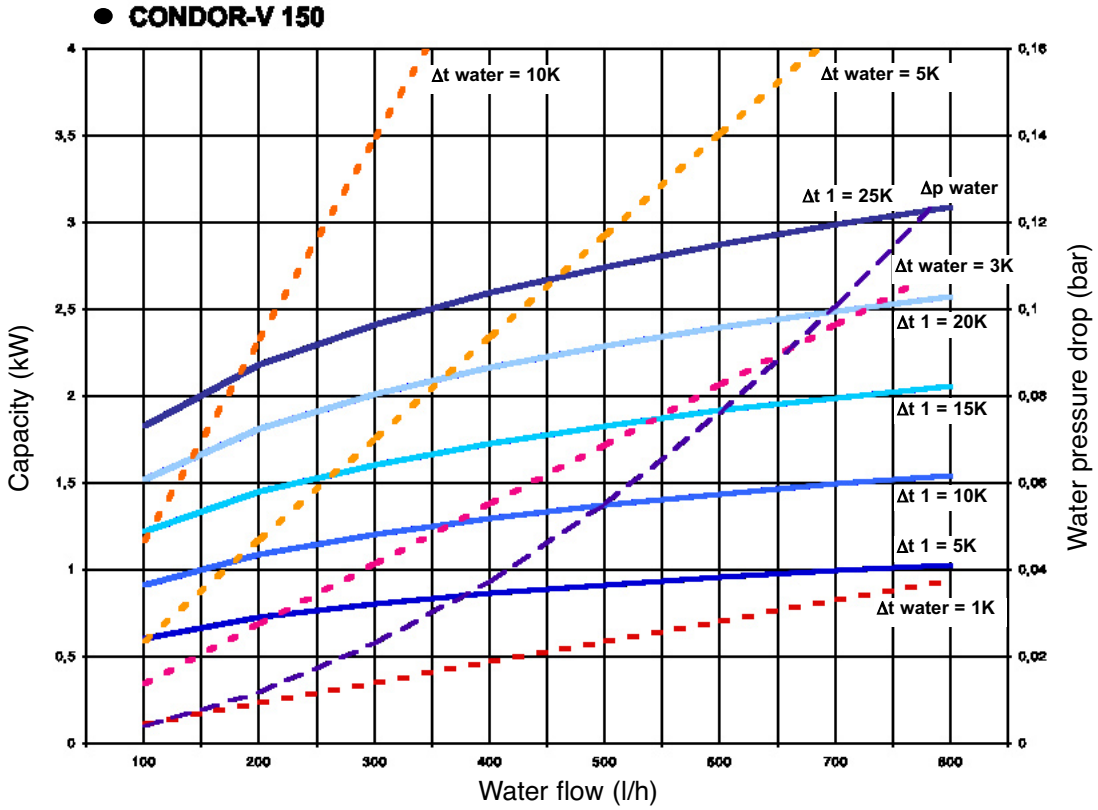
→ CONDOR-V *(vertical)*

■ Technical features

● **CONDOR-V 100**



● **CONDOR-V 150**



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Water cooled condensers with liquid receiver

→ CONDOR-V *(vertical)*

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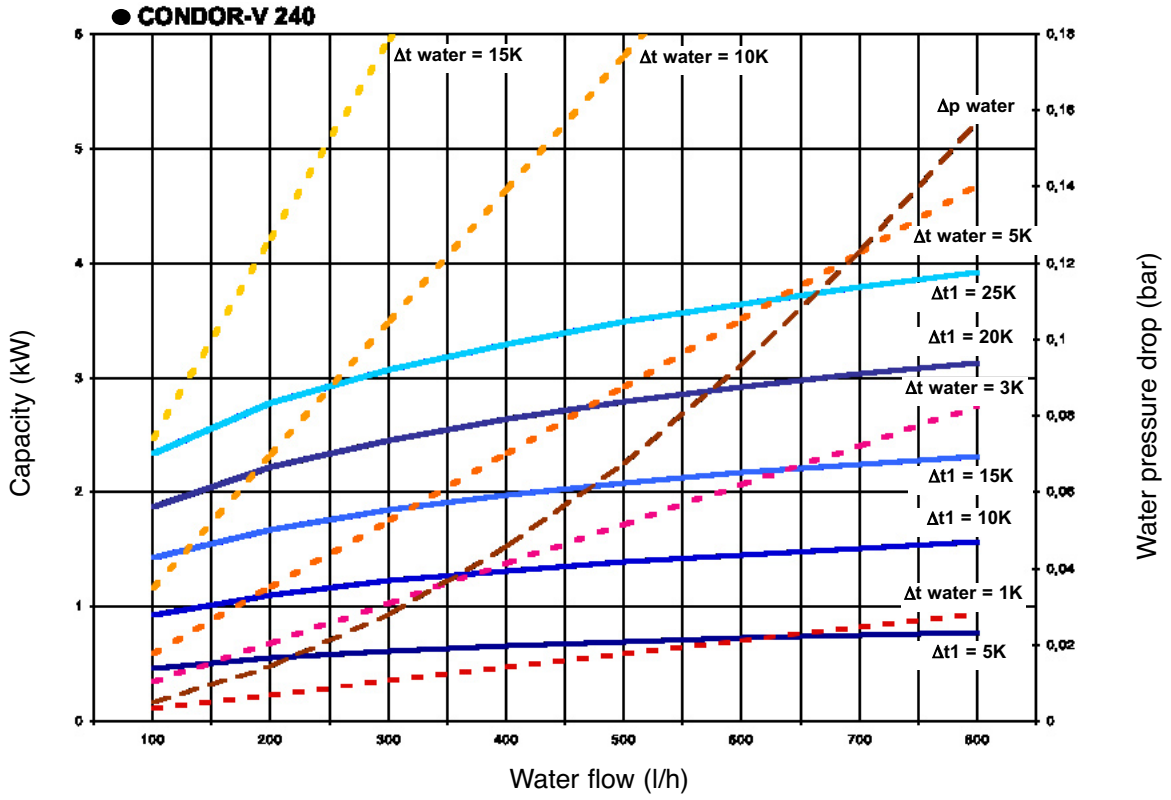
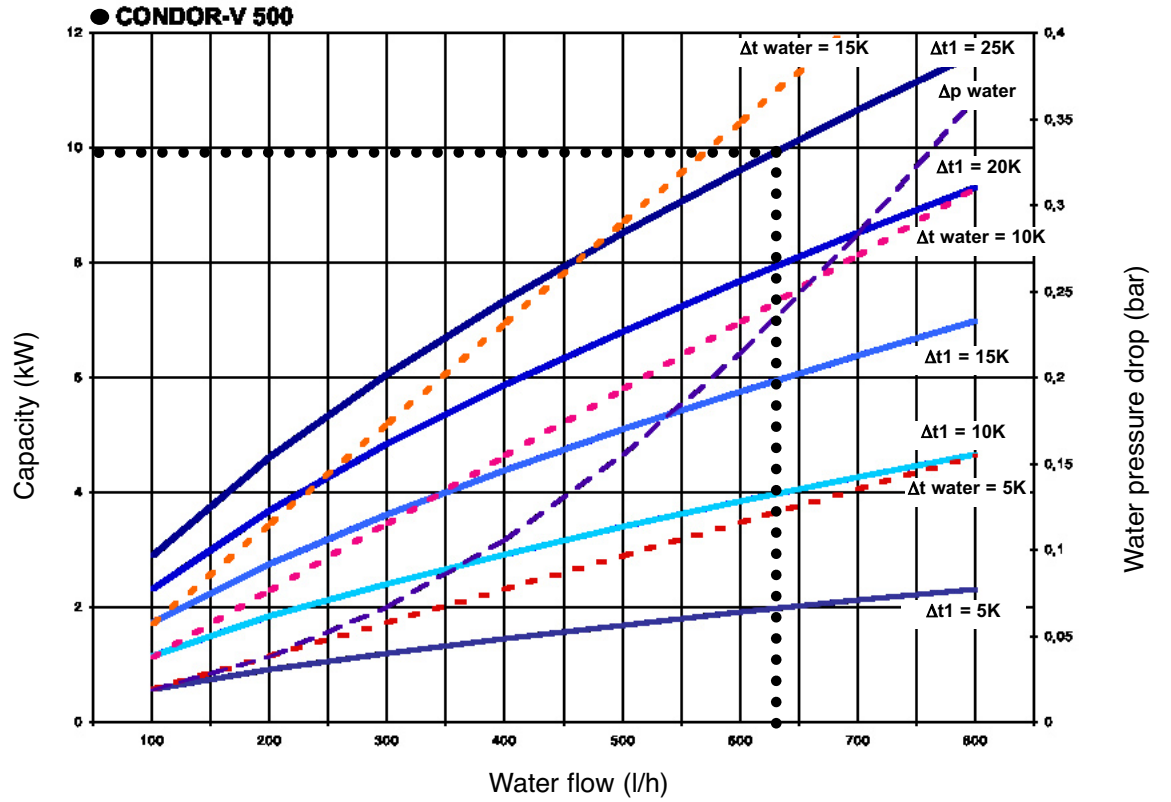
■ Technical features

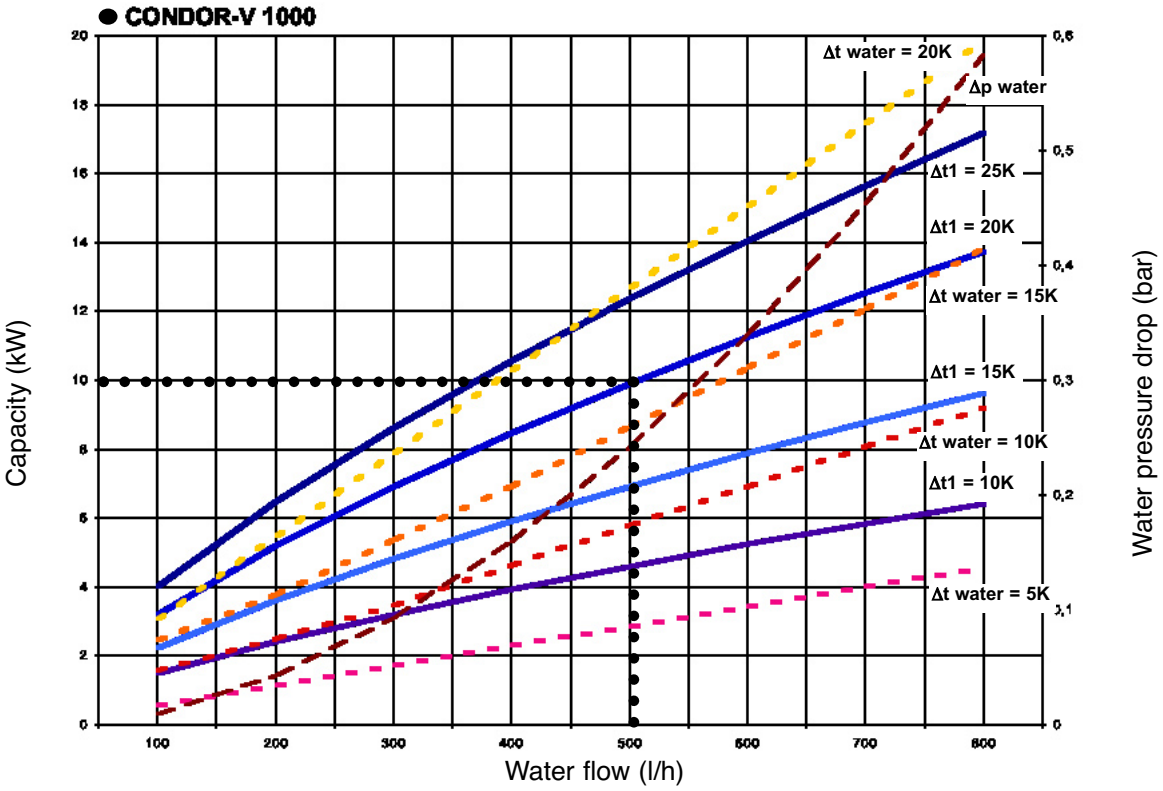


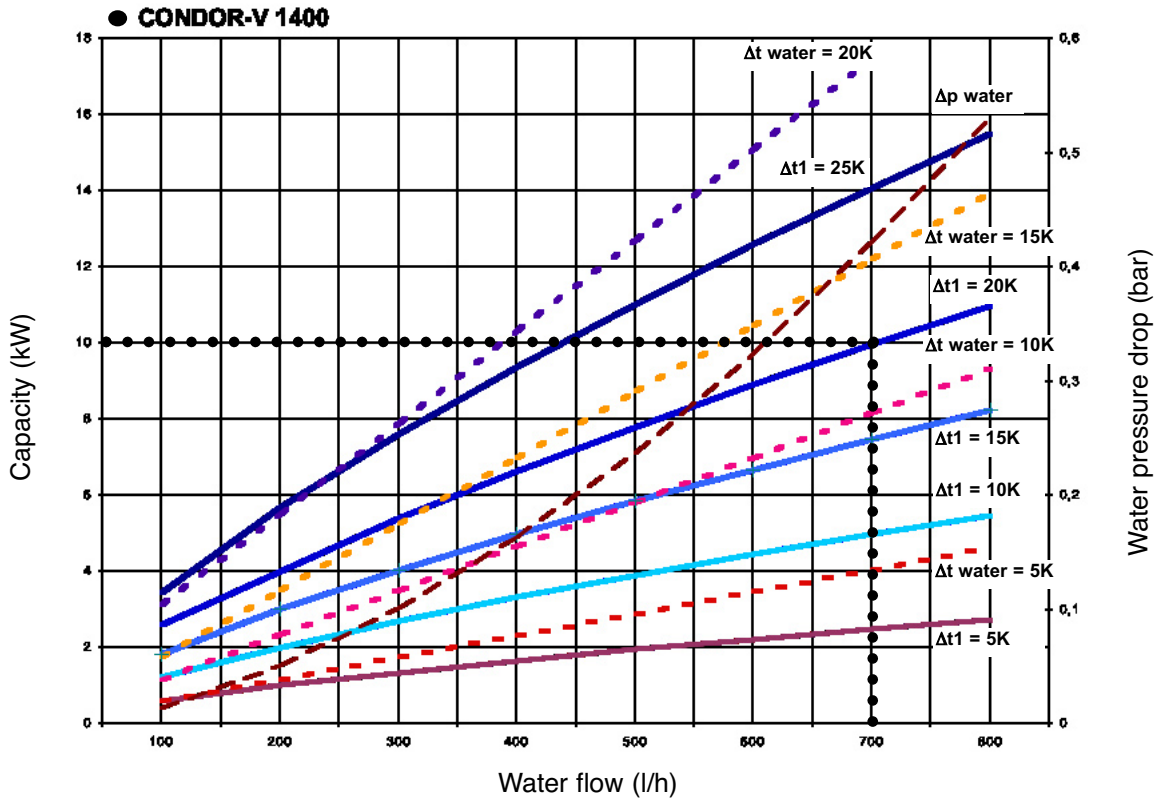


Water cooled condensers with liquid receiver

→ CONDOR-V *(vertical)*

■ Technical features

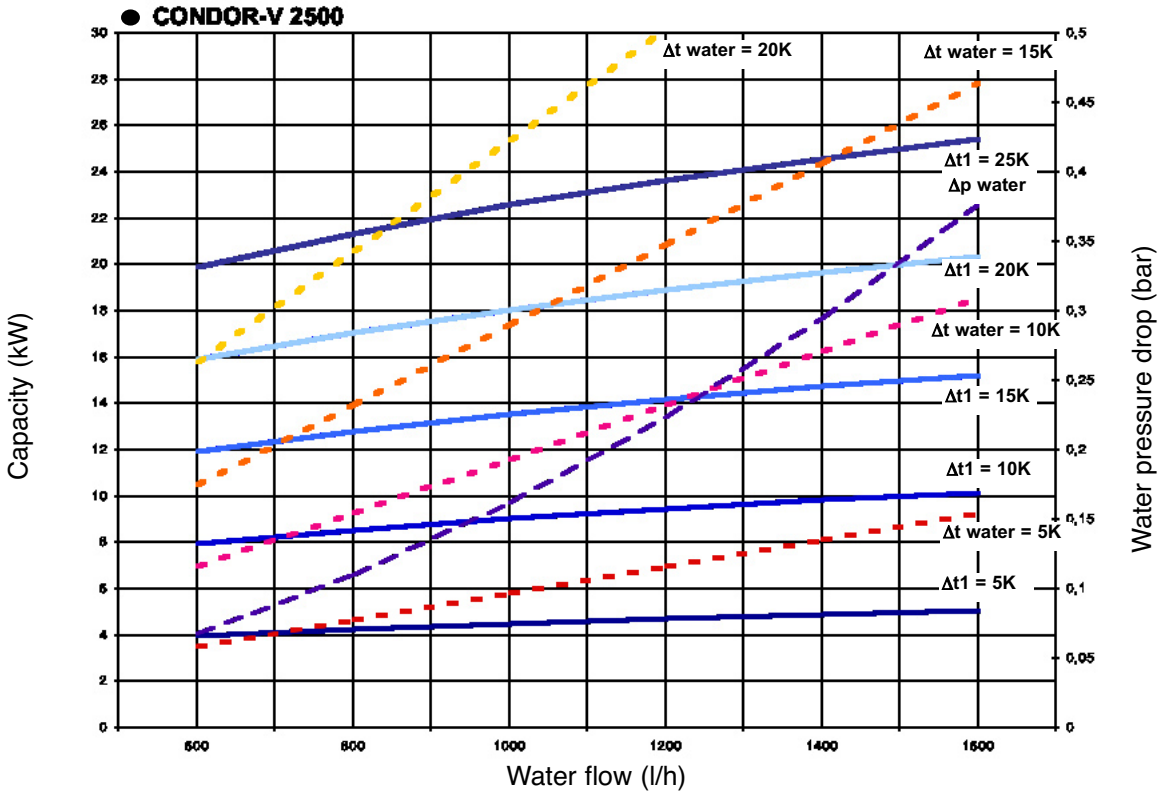




Water cooled condensers with liquid receiver

→ CONDOR-V *(vertical)*

■ Technical features



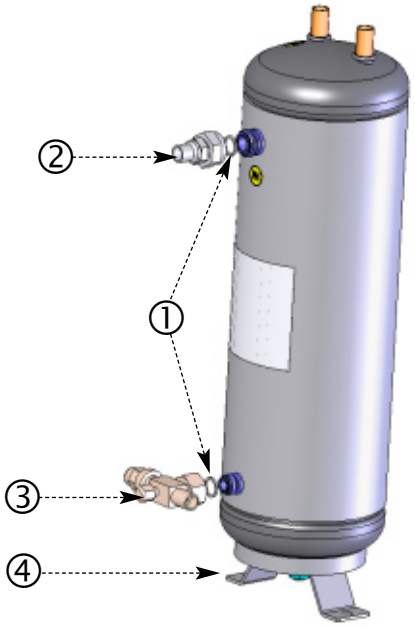
Water cooled condensers with liquid receiver

→ CONDOR-V *(vertical)*

■ Spare parts and options

CARLY references	Part N°	Description	CONDOR Types (1)	Quantity
CY 15580100	1	Gasket for 1/4" and 3/8" Rotalock connections and valves	V 100 - V 150 - V 240 - V 500(O)	1
CY 15580120	1	Gasket for 5/8", 7/8" and 1" 1/8 Rotalock connections and valves	V 1000(I) - V 1400(I) - V 2500(O)	1
CY 15580140	1	Gasket for 1/2" Rotalock connections and valves	V 500(I) - V 1000(I) - V 1400(O)	1
CY 17400000	2	1/4" ODF Rotalock connection with gasket	V 100 - V 150 - V 240 - V 500(O)	1
CY 17400010	2	3/8" ODF Rotalock connection with gasket	V 100 - V 150 - V 240 - V 500(O)	1
CY 17400020	2	1/2" ODF Rotalock connection with gasket	V 500(I) - V 1000(O) - V 1400(O)	1
CY 17400035	2	5/8" ODF Rotalock connection with gasket	V 1000(I) - V 1400(I) - V 2500(O)	1
CY 17400040	2	7/8" ODF Rotalock connection with gasket	V 1000(I) - V 1400(I) - V 2500(O)	1
CY 17400050	2	1" 1/8" ODF Rotalock connection with gasket	V 1000(I) - V 1400(I) - V 2500(O)	1
CY 17400100	2	1/4" SAE Rotalock connection with gasket	V 100 - V 150 - V 240 - V 500(O)	1
CY 17400110	2	3/8" SAE Rotalock connection with gasket	V 100 - V 150 - V 240 - V 500(O)	1
CY 17400120	2	1/2" SAE Rotalock connection with gasket	V 500(I) - V 1000(O) - V 1400(O)	1
CY 19700080	3	1/4" ODF Rotalock valve with gasket	V 100 - V 150 - V 240 - V 500(O)	1
CY 19700110	3	3/8" ODF Rotalock valve with gasket	V 100 - V 150 - V 240 - V 500(O)	1
CY 19700120	3	1/2" ODF Rotalock valve with gasket	V 500(I) - V 1000(O) - V 1400(O)	1
CY 19700130	3	5/8" ODF Rotalock valve with gasket	V 500(I) - V 1000(O) - V 1400(O)	1
CY 19700135	3	5/8" ODF Rotalock valve with gasket	V 1000(I) - V 1400(I) - V 2500(O)	1
CY 19700160	3	7/8" ODF Rotalock valve with gasket	V 1000(I) - V 1400(I) - V 2500(O)	1
CY 19700170	3	1" 1/8 ODF Rotalock valve with gasket	V 1000(I) - V 1400(I) - V 2500(O)	1
CY 19700090	3	1/4" SAE Rotalock valve with gasket	V 100 - V 150 - V 240 - V 500(O)	1
CY 19700100	3	3/8" SAE Rotalock valve with gasket	V 100 - V 150 - V 240 - V 500(O)	1
CY 19700140	3	1/2" SAE Rotalock valve with gasket	V 500(I) - V 1000(O) - V 1400(O)	1
CY 37100200	4	Support feet	V 100 - V 150 - V 240 - V 500 - V 1000 - V 1400	1

(1) (I) = Inlet, (O) = Outlet



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Water cooled condensers with liquid receiver

→ CONDOR-V *(vertical)*

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■ Weights and packaging

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
CONDOR-V 100	4,30	4,00	1	/
CONDOR-V 150	5,45	5,00	1	/
CONDOR-V 240	5,45	5,00	1	/
CONDOR-V 500	11,30	11,00	1	/

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
CONDOR-V 1000	14,30	14,00	1	/
CONDOR-V 1400	7,45	7,00	1	/
CONDOR-V 2500	23,60	23,00	1	/

Water cooled condensers with liquid receiver

DTGB - 35.1-3-5-10

→ CONDOR-H *(horizontal)*

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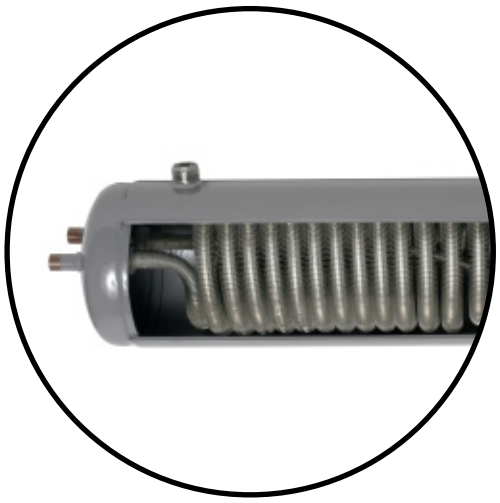
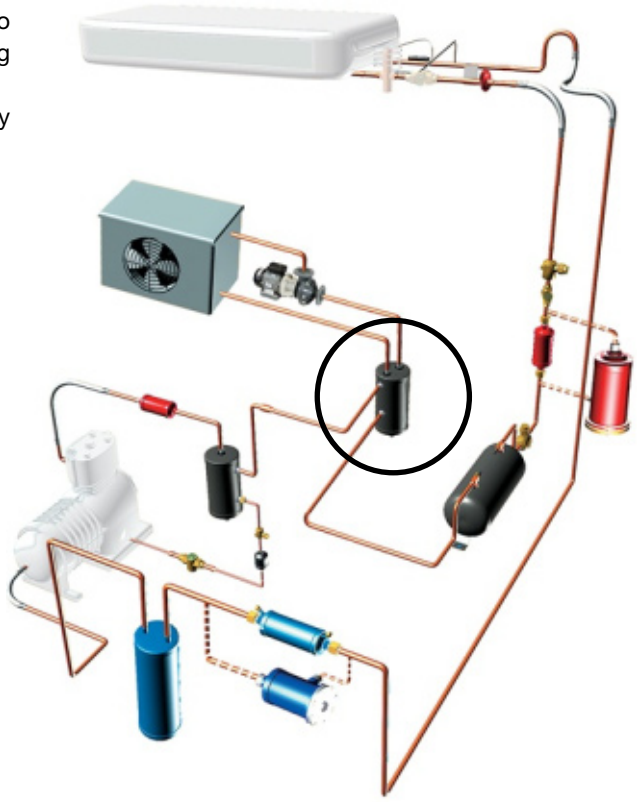
■ Applications

- Water cooled condensers with liquid receiver ensure cooling, condensation and storage of refrigerant in refrigerating and air conditioning installations.
- They also allow storage of the refrigerant, in order to compensate volume variations due to the opening and closing sequences of the expansion valve.
- Heat exchange is carried out by a water circulation inside a very high performance finned copper tubing coil.





■ Functional features

- Products are compatible with HFCs, HCFCs, CFCs, 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.
- Product classification in CE categories is performed using the PED 97/23/EC table, corresponding to a volume-based selection.
- Water cooled condensers with liquid receiver are made of steel for the shell and copper for the heat exchanger.
- They are fitted with fastening means suited to their volume and to their weight (see page 35.6).

■ CARLY advantages

- Water cooled condensers with receiver are supplied perfectly clean and dried.
- They offer both following connection possibilities for the refrigerant:
  - → Outside of the connections to screw.
  - → Inside of the connections to braze.
- Very high performance heat exchangers.
- Low water consumptions.
- A wide range of accessories is available:
  - → Rotalock stop valves, with connections to screw or to braze.
  - → Rotalock connections with possibility of diameter reductions and with connections to screw or to braze.
- Reduction of the quantity of the refrigerant in the circuit compared to installations with air cooled condensers.
- GOST certified products.

Water cooled condensers with liquid receiver

→ CONDOR-H *(horizontal)*

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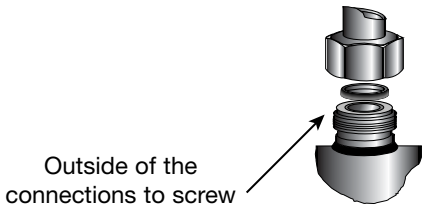
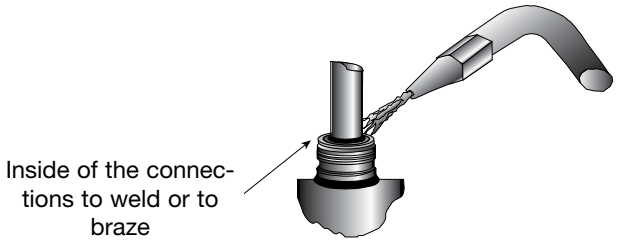
■ Recommendations

* Water cooled condensers with liquid receiver are to be installed after the compressor discharge.
* For optimal operation, refrigerant and water flow directions should be respected ("IN" tag at the inlet).
* If sizing of the receivers is performed on the basis of the total refrigerant load, it is imperative to select receivers with an internal volume 20 % bigger, so that the gas reserve is always above the liquid level.
* It is essential to ensure a water circulation before any handling on the refrigerating circuit (risk of icing).
* Take care to keep the water circuit clean, using suitable filters.
* Use of sea water is forbidden.
* General assembly precautions: refer to chapter 115.





■ Selection table

CARLY references	Gaz inlet connections		Liquid outlet connections		Water inlet and outlet connections	Condensation capacity Qk (kW)(1)	Water flow (m^3/h)	Water pressure drop (bar)	Storage volume (L)
	Outside of connections to screw UNF inch	Inside of connections to braze ODF inch	Outside of connections to screw UNF inch	Inside of connections to braze ODF inch	inch				
CONDOR-H 150	3/4	3/8	3/4	3/8	1/2 ODF	1,45	0,10	0,01	0,50
CONDOR-H 250	3/4	3/8	3/4	3/8	1/2 ODF	2,46	0,20	0,02	0,50
CONDOR-H 500	1	1/2	3/4	3/8	1/2 ODF	5,00	0,25	0,06	0,50
CONDOR-H 750	1	1/2	3/4	3/8	1/2 ODF	7,50	0,30	0,12	0,50
CONDOR-H 1000	1	1/2	3/4	3/8	1/2 ODF	9,90	0,40	0,16	0,50

(1) Refrigerant R404A ; Δt1 = 25 K ;

Δt1= Condensing temperature - Water inlet temperature

Water cooled condensers with liquid receiver

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→ CONDOR-H *(horizontal)*

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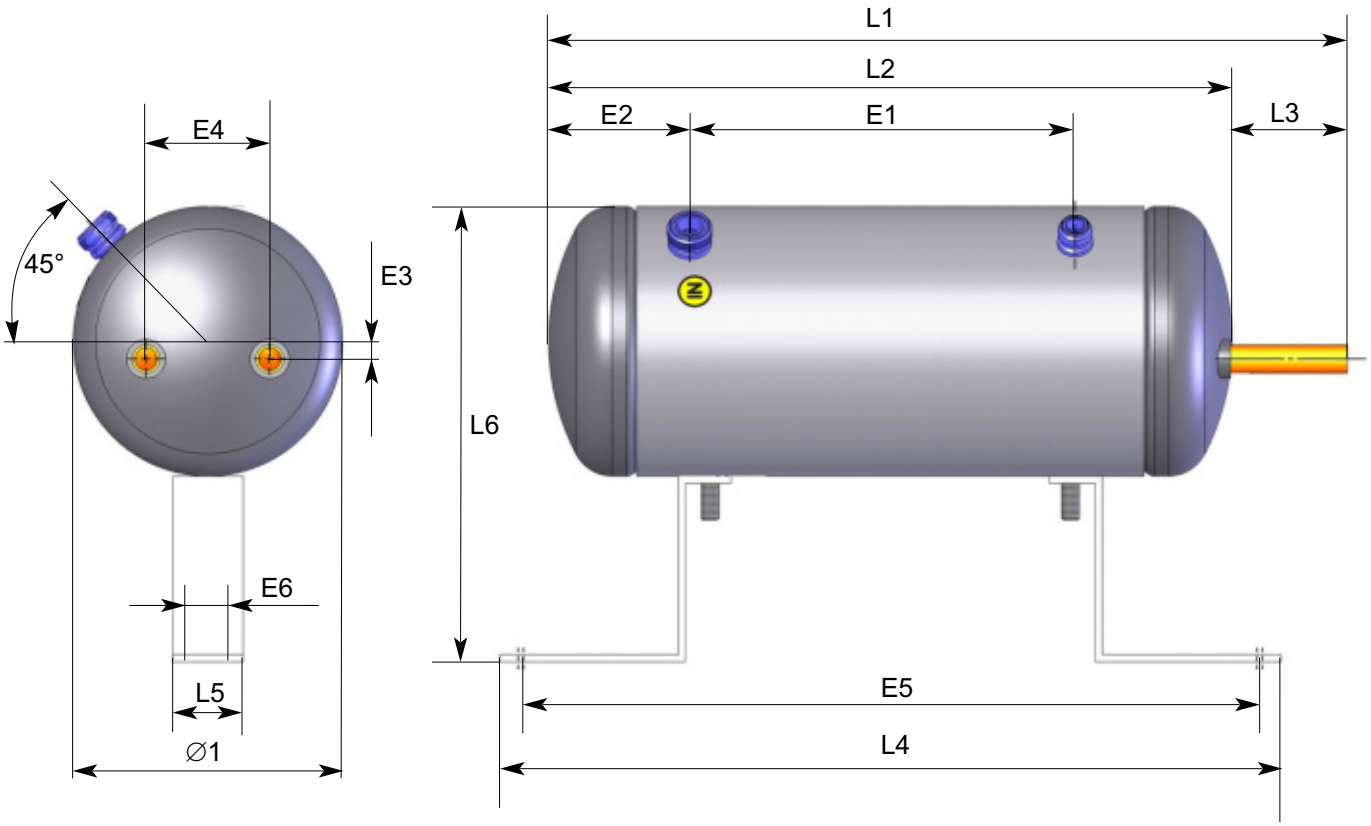
■ Technical features

CARLY references	Dimensions (mm)													Net weight (kg)
	Ø1	L1	L2	L3	L4	L5	L6	E1	E2	E3	E4	E5	E6	
CONDOR-H 150	121,0	402	368	34	340	80	227	230	62	4	40	300	60	5
CONDOR-H 250	121,0	402	398	34	340	80	227	230	62	4	40	300	60	5
CONDOR-H 500	152,4	452	387	65	442	40	257	218	80	10	70	410	/	11
CONDOR-H 750	121,0	542	508	34	340	80	227	360	72	4	40	300	60	7
CONDOR-H 1000	152,4	568	503	65	442	40	257	348	71	10	70	410	/	14



Water cooled condensers with liquid receiver

→ CONDOR-H *(horizontal)*

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■ Technical features

CARLY references	Volume	Maximal working pressure	Heat exchanger maximal working pressure	Maximal working temperature	Minimal working temperature	Working temperature	CE Category (1)
	V (L)	PS (bar)	PS Ech. (bar)	TS maxi (°C)	TS mini (°C)	TS BT (°C)	
CONDOR-H 150	3,6	26	10	80	-10	/	I
CONDOR-H 250	3,6	26	10	80	-10	/	I
CONDOR-H 500	6,0	26	10	80	-10	/	I
CONDOR-H 750	5,1	26	10	80	-10	/	I
CONDOR-H 1000	7,8	26	10	80	-10	/	II

(1) Classification by volume, according to PED 97/23/EC (refer to chapter 0.7).

* According to the type of water available, the condensation capacity (Qk_x) of the installation should be corrected in accordance to the fouling factor by the formula: **$Qk = Qk_x \times Fe$**

Water type	Fouling factor ($m^2.K / W$)	Correction factor Fe
Normal city water	43.10-6	1,00
Treated tower water	43.10-6	1,00
Untreated tower water	86.10-6	1,19
River water	86.10-6	1,19
Glycol water below 40%	86.10-6	1,19
Glycol water below 70%	172.10-6	1,56

* According to the type of refrigerant used, the condensation capacity (Qk_x) of the installation should be corrected in accordance to the following Fr factor by the formula: **$Qk = Qk_x \times Fr$**

Refrigerant	Correction factor Fr
R404A / R507	1,00
R 22 / R410A	0,92
R134a / R407C	0,85

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Water cooled condensers with liquid receiver

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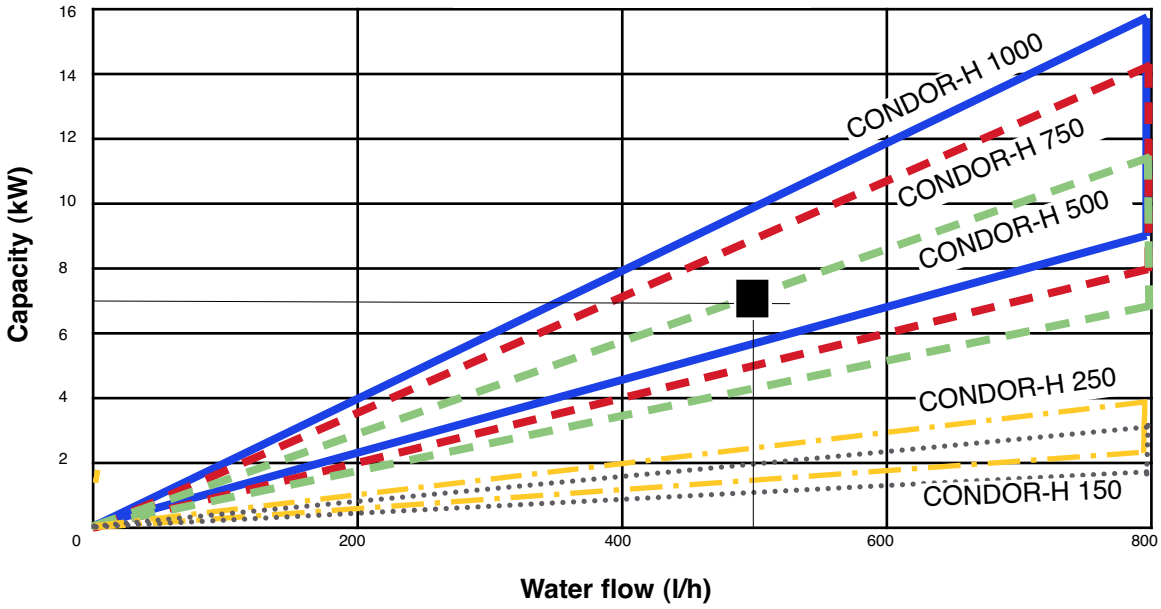
→ CONDOR-H *(horizontal)*

■ Technical features

Quick Selection Table



15K ≤ Δt1 ≤ 25K

■ Example of selection of a CONDOR water cooled condenser with liquid receiver

The sizing of a product implies for the buyer to take into account the conditions under which the product will be used (temperature - pressure refrigerant oil external environment). The values of the selection tables proposed in the CARLY catalogue match accurate test conditions.

- Installation operating with R404A under the following conditions(1):
  - → Qk_X = 7 kW
  - → Tk = 40°C
  - → Tl1 = 20°C → Δt1 = 40 - 20 = 20K
  - → Maximum water flow = 500 l/h
  - → Normal city water
- Which water cooled condenser **CONDOR** to choose?

1°: Make corrections according to the water and the refrigerant:
- 1-1 Correction according to fouling factor Fe (refer to page 35.5)
- 1-2 Correction according to refrigerant Fr (refer to page 35.5)

Result : $Qk = Qk_X$ x Fe x Fr = 7kW

2°: Report the capacity to the quick selection table (page 35.5).

3°: Report the water flow to the quick selection table (page 35.5)

4°: Select the best CONDOR H

Result :	CONDOR H -1000	⇨Δt1 = 18K
	CONDOR H -750	**⇨Δt1 = 20K**
	CONDOR H -500	⇨Δt1 = 25K

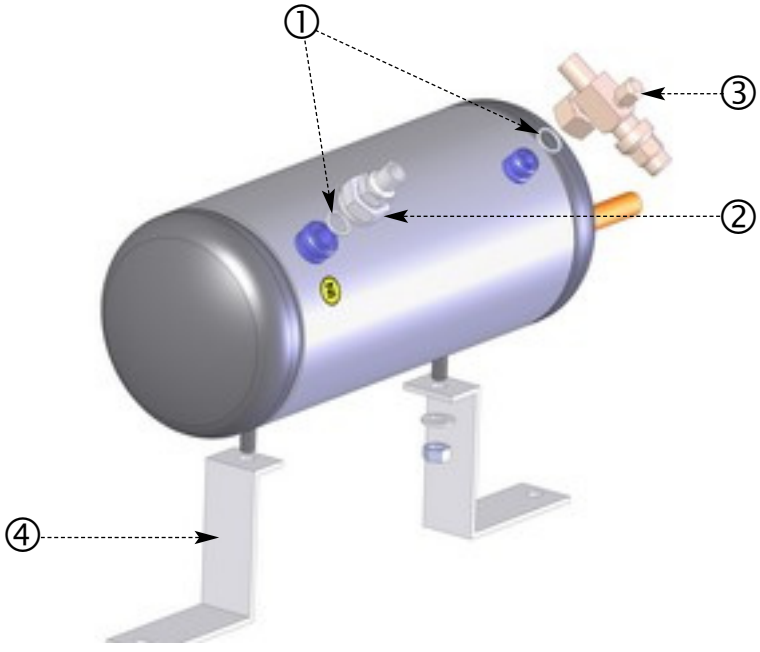
Water cooled condensers with liquid receiver

→ CONDOR-H *(horizontal)*

■ Spare parts and options

CARLY references	Part N°	Description	CONDOR Types (1)	Quantity
CY 15580100	1	Gasket for 1/4" and 3/8" Rotalock connections and valves	H 150 - H 250 - H 500(O) - H 750(O) - H1000(O)	1
CY 15580140	1	Gasket for 1/2" Rotalock connections and valves	H 500(I) - H 750(I) - H1000(I)	1
CY 17400000	2	1/4" ODF Rotalock connection with gasket	H 150 - H 250 - H 500(O) - H 750(O) - H1000(O)	1
CY 17400010	2	3/8" ODF Rotalock connection with gasket	H 150 - H 250 - H 500(O) - H 750(O) - H1000(O)	1
CY 17400020	2	1/2" ODF Rotalock connection with gasket	H 500(I) - H 750(I) - H1000(I)	1
CY 17400100	2	1/4" SAE Rotalock connection with gasket	H 150 - H 250 - H 500(O) - H 750(O) - H1000(O)	1
CY 17400110	2	3/8" SAE Rotalock connection with gasket	H 150 - H 250 - H 500(O) - H 750(O) - H1000(O)	1
CY 17400120	2	1/2" SAE Rotalock connection with gasket	H 500(I) - H 750(I) - H1000(I)	1
CY 19700080	3	1/4" ODF Rotalock valve with gasket	H 150 - H 250 - H 500(O) - H 750(O) - H1000(O)	1
CY 19700110	3	3/8" ODF Rotalock valve with gasket	H 150 - H 250 - H 500(O) - H 750(O) - H1000(O)	1
CY 19700120	3	1/2" ODF Rotalock valve with gasket	H 500(I) - H 750(I) - H1000(I)	1
CY 19700090	3	1/4" SAE Rotalock valve with gasket	H 150 - H 250 - H 500(O) - H 750(O) - H1000(O)	1
CY 19700100	3	3/8" SAE Rotalock valve with gasket	H 150 - H 250 - H 500(O) - H 750(O) - H1000(O)	1
CY 19700140	3	1/2" SAE Rotalock valve with gasket	H 500(I) - H 750(I) - H1000(I)	1
CY 37100210	4	Support feet	H 150 - H 250 - H 750	1
CY 37100220	4	Support feet	H 500 - H 1000	1

(1) (I) = Inlet, (O) = Outlet



Water cooled condensers with liquid receiver

→ CONDOR-H *(horizontal)*

■ Weights and packaging

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
CONDOR-H 150	5,45	5,00	1	/
CONDOR-H 250	5,45	5,00	1	/
CONDOR-H 500	11,30	11,00	1	/
CONDOR-H 750	7,45	7,00	1	/
CONDOR-H 1000	14,30	14,00	1	/

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Oil separators

→ TURBOIL® *(welded)* / TURBOIL-F® *(flanged)*

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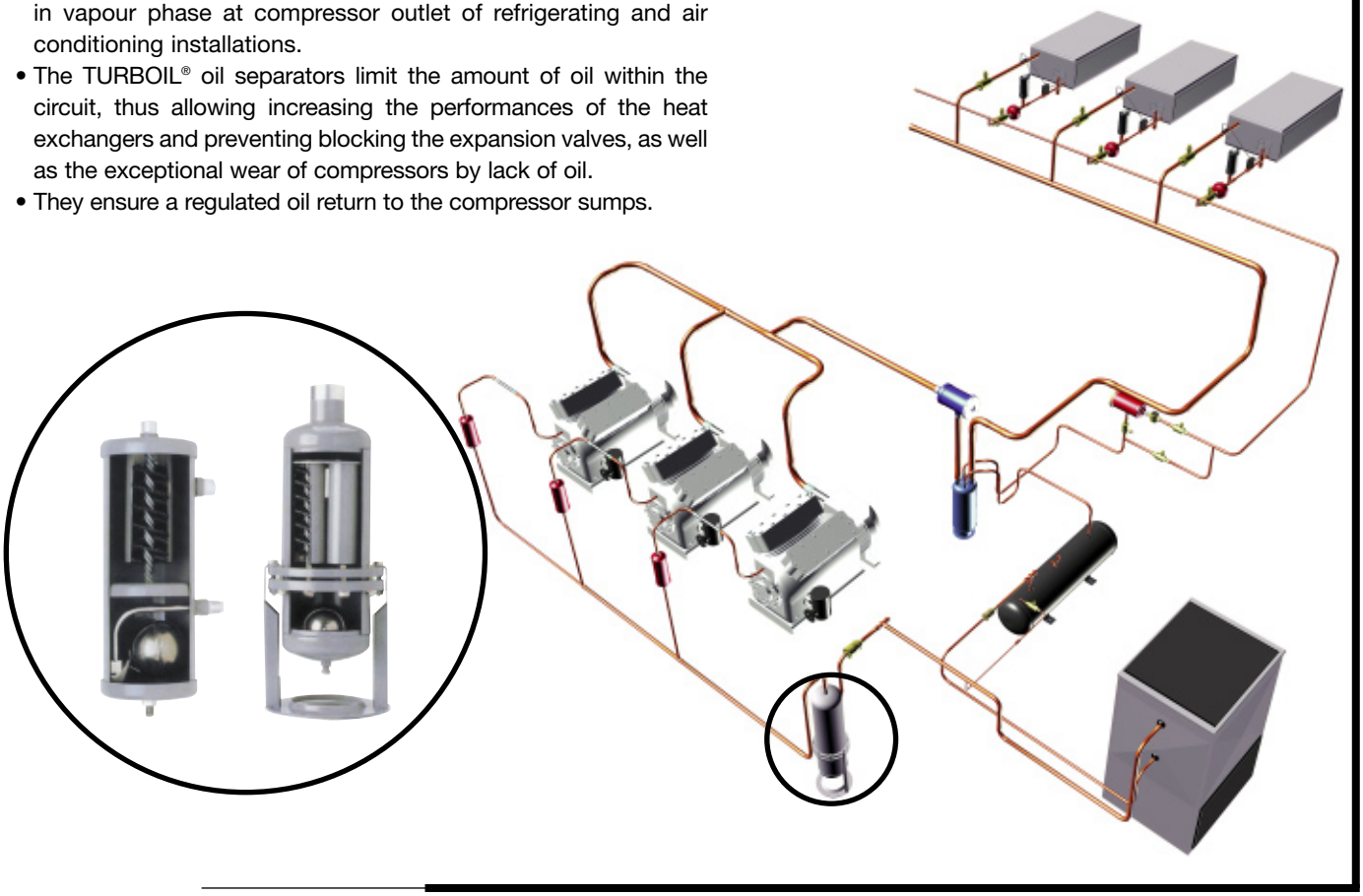
■ Applications

- Separation and recovery of the oil carried by the refrigerant in vapour phase at compressor outlet of refrigerating and air conditioning installations.
- The TURBOIL® oil separators limit the amount of oil within the circuit, thus allowing increasing the performances of the heat exchangers and preventing blocking the expansion valves, as well as the exceptional wear of compressors by lack of oil.
- They ensure a regulated oil return to the compressor sumps.



■ Functional features

- Products are compatible with HFCs, HCFCs, CFCs, 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.
- Product classification in CE categories is performed using the PED 97/23/EC table, corresponding to a volume-based selection.
- The oil separators are entirely made of steel.
- Two models are offered:
  - → a welded version: TURBOIL®; these models have built-in fastening means
  - → a flanged version: TURBOIL-F®, allowing cleaning the float/needle oil return system; these models are not fitted with built-in fastening means: appropriate support legs are available as an option.
- The automatic regulation of the oil return directly to the compressor sumps or by means of an oil receiver is ensured by a robust, accurate and protected unit (float, valve, and needle).

■ CARLY advantages

- Reliability and efficiency of the TURBOIL® oil separators are ensured thanks to a CARLY patented process, simultaneously associating several oil separation techniques:
  - → centrifugation by helical motion generated by one or several spirals
  - → coalescence thanks to the needled material of these spirals
  - → sudden modification of speed by increase of the flow area located at the separator's intake
  - → sudden change of direction: intake of the mixture by the top, outlet of the refrigerant from the higher lateral part and outlet of the oil from the lower part.
- The presence of an internal baffle eliminates a new risk of the oil being carried by the refrigerant.
- Presence of a 1/4" NPT drain plug in the lower part of the TURBOIL® from model F-7011 S/MMS to model F-30025 S/MMS.
- GOST certified products.

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Oil separators

→ TURBOIL® *(welded)* / TURBOIL-F® *(flanged)*

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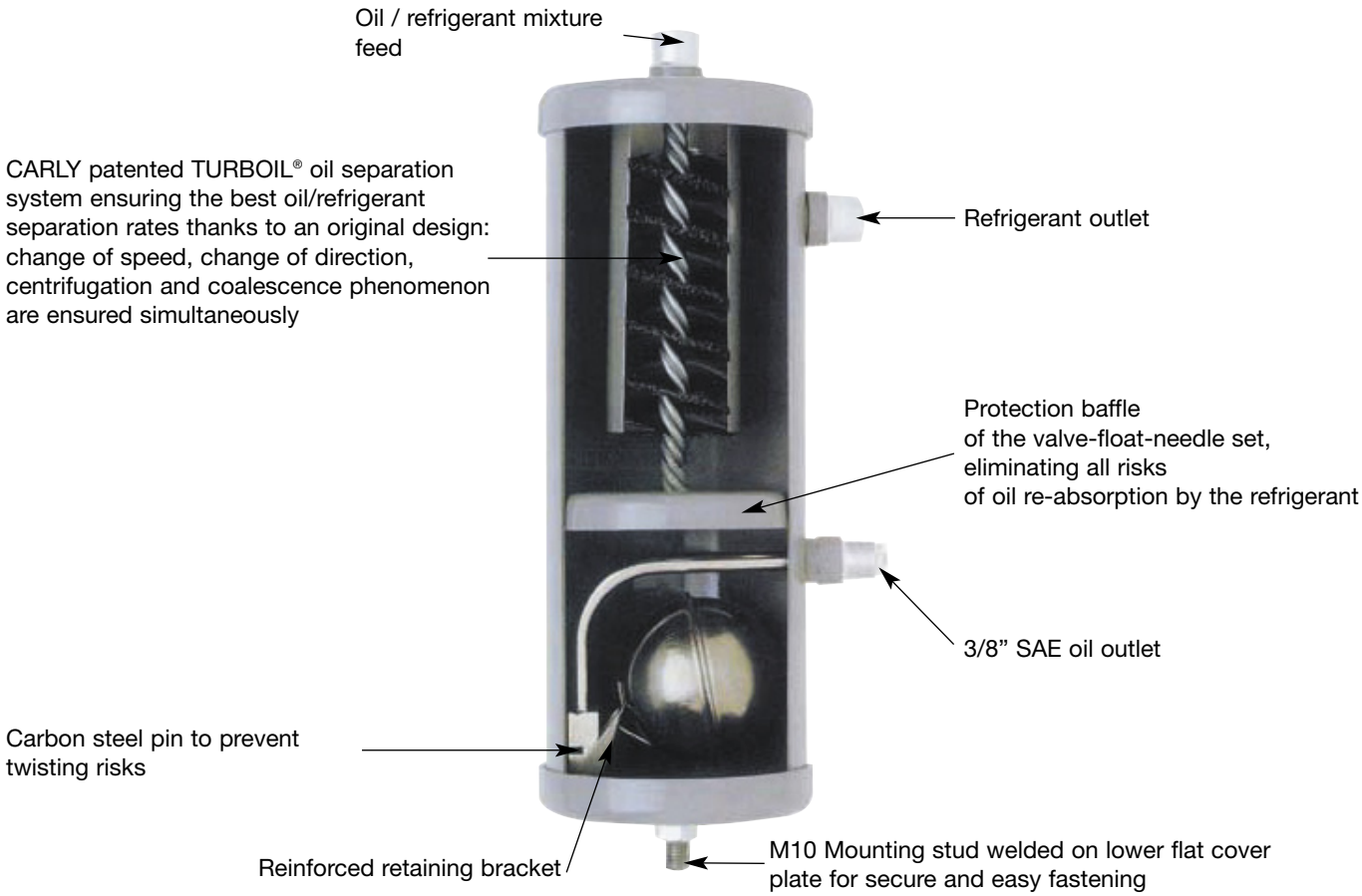
■ Recommendations

* To select the TURBOIL® oil separators, it is necessary to refer to the selection tables in the following pages, taking into account:
  - ➜ refrigerating capacity
  - ➜ type of refrigerant used
  - ➜ evaporation and condensation temperatures.
* Oil separators should be installed vertically on the discharge line, as close as possible to the compressor.
* Refrigerant flow direction with feed from the top is imperative and identified on the upper cover plate with the letters “IN”.
* Connection diameter of the oil separators should be higher than or equal to the diameter of the discharge line.
* In the case of a multi-compressor installation mounted in parallel, it is recommended to use one oil separator by compressor, in order to keep an optimal efficiency at all operating rates; otherwise, the separator should be selected based on the sum of each compressor’s maximum capacity.
* The oil separation performances will depend directly on the flow rate of the oil/refrigerant mixture at the intake of the separators.
* The oil return connection is done either at the filling plug on the compressor sump, or in the case of multi-compressor installations, at the oil receiver.
* In order to prevent all risks of refrigerant condensation, it is recommended to not install the oil separators in the draft produced by the fans; in a cold environment, it may be necessary to provide for the installation of a heat insulation or a heating element around the separators.
* Before connecting the oil separator, it is necessary to introduce by the higher connection a load of oil matching the load in litre indicated in the oil separator technical features tables. Use an oil identical to that of the compressors.
* In case of implantation of a TURBOIL® oil separator after installation commissioning, it is necessary to monitor the oil level in the compressor sump, in order to collect a possible oil surplus caused by a return of the lubricant accumulated in the refrigerating circuit.
* An efficient oil return system design requires that all the components (TURBOIL®, HCYR, HCYCT, HCYF, HCYN) be correctly selected according to the installation’s refrigerating capacity and operating rates.
* General assembly precautions: refer to chapter 115



Oil separators

➔ TURBOIL® *(welded)* / TURBOIL-F® *(flanged)*

■ Example of selection

The sizing of a product implies for the buyer to take into account the conditions under which the product will be used (temperature - pressure - refrigerant - oil - external environment). The values of the selection tables proposed in the CARLY catalogue match accurate test conditions.
We recommend that you convert your operating data into data matching the CARLY selection table so that you can perform a rigorous and correct sizing.

- **For a condensation temperature different from 38°C, it is recommended to convert the installation's refrigerating capacity using the following formula:**

$$Q_o^{Tk\ 38} = Q_o^{Tk\ x} / \{(Tk_x - 38) \times 0{,}0143 + 1\}$$

(1)**Qo $^{Tk\ x}$ =** installation's refrigerating capacity at initial condensation temperature (kW)
Tk ^{x} = initial condensation temperature (°C)
Qo$^{Tk\ 38}$ = installation's refrigerating capacity at a condensation temperature of 38°C (kW)

∗ SELECTION OF A TURBOIL® MODEL CORRESPONDING TO THE CORRECTED REFRIGERATING CAPACITY.

- Installation operating with R404A under the following conditions:
  - ➔ T_O = -10°C
  - ➔ Tk = 30°C
  - ➔ $Q_O^{Tk\ x}$ = 75 kW
  - ➔ Compressor discharge = 1" 5/8
- Which **TURBOIL®** to choose?

- Application of the formula

$$Q_o^{Tk\ 38} = Q_o^{Tk\ x} / \{(Tk_x - 38) \times 0{,}0143 + 1\}$$

75 / { (30 - 38) x 0.0143 + 1} = **85 kW**
Refer to the selection table page 41.4

➔ **Result: TURBOIL 8013 S**

Make sure that the TURBOIL® oil separator connection diameter is at least equal to the compressor discharge line diameter.
The selected oil separator has a connection diameter identical to the piping diameter.

(1) *Chapter "Abbreviations and units" (refer to chapter 113).*

Oil separators

→ TURBOIL® *(welded)*

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■ Selection table

CARLY references	Connections To solder ODF inch	CARLY references	Connections To solder ODF mm	Refrigerating capacity (kW)(1)											
				R22			R134a			R404A R507			R407C R410A		
				- 40°C	- 10°C	+ 5°C	- 40°C	- 10°C	+ 5°C	- 40°C	- 10°C	+ 5°C	- 40°C	- 10°C	+ 5°C
TURBOIL 1503 S	3/8	**TURBOIL 1503 MMS**	10	5,0	6,0	7,0	3,5	4,5	5,0	5,0	6,0	7,0	5,0	6,0	7,0
TURBOIL 1504 S	1/2	**TURBOIL 1504 MMS**	12	6,0	7,0	8,0	4,0	5,0	5,5	6,0	7,0	8,0	6,0	7,0	8,0
TURBOIL 2505 S/MMS	5/8	**TURBOIL 2505 S/MMS**	16	17,0	22,0	24,0	12,0	15,0	17,0	17,0	22,0	25,0	16,0	21,0	24,0
TURBOIL 3006 S	3/4	**TURBOIL 3006 MMS**	18	20,0	25,0	28,0	16,0	21,0	23,0	22,0	27,0	30,0	21,0	26,0	28,5
TURBOIL 3007 S	7/8	**TURBOIL 3007 MMS**	22	24,0	27,0	30,0	18,0	23,0	25,0	26,0	30,0	32,0	25,0	28,5	30,5
TURBOIL 3009 S	1 1/8	**TURBOIL 3009 MMS**	28	28,0	32,0	36,0	19,0	25,0	28,0	29,0	36,0	40,0	27,5	34,0	38,0
TURBOIL 3011 S/MMS	1 3/8	**TURBOIL 3011 S/MMS**	35	32,0	40,0	45,0	21,0	27,0	31,0	32,0	40,0	47,0	31,0	39,0	43,5
TURBOIL 4007 S	7/8	**TURBOIL 4007 MMS**	22	32,0	37,0	40,0	26,0	34,0	38,0	32,0	40,0	44,0	31,0	36,5	39,0
TURBOIL 6009 S	1 1/8	**TURBOIL 6009 MMS**	28	42,0	50,0	55,0	34,0	37,0	42,0	42,0	54,0	60,0	41,0	48,0	54,0
TURBOIL 6011 S/MMS	1 3/8	**TURBOIL 6011 S/MMS**	35	48,0	55,0	60,0	38,0	46,0	50,0	48,0	60,0	70,0	46,0	57,0	66,5
TURBOIL 7011 S/MMS	1 3/8	**TURBOIL 7011 S/MMS**	35	48,0	55,0	60,0	38,0	46,0	50,0	48,0	60,0	70,0	46,0	57,0	66,5
TURBOIL 8013 S	1 5/8	**TURBOIL 8013 MMS**	42	65,0	80,0	90,0	45,0	60,0	70,0	65,0	85,0	94,0	62,0	81,0	89,5
TURBOIL 9017 S/MMS	2 1/8	**TURBOIL 9017 S/MMS**	54	85,0	100,0	110,0	58,0	70,0	80,0	87,0	105,0	120,0	83,0	100,0	114,0

(1) The indicated refrigerating capacities take into account a condensation temperature of + 38°C, a 5°C sub-refrigeration, and an aspirated gas temperature of + 18°C.

Refer to selection example page 41.3.

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Oil separators

→ TURBOIL® *(welded)*

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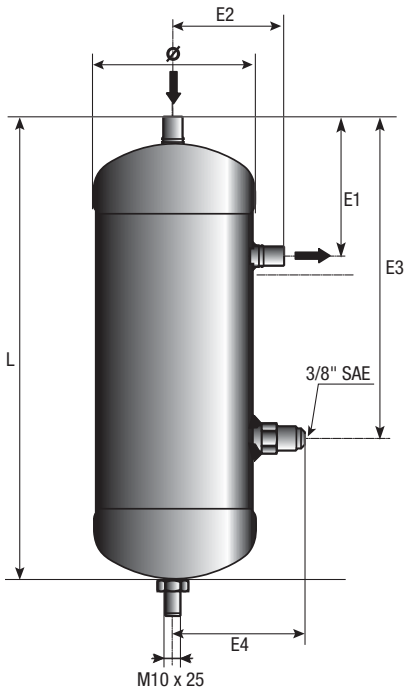
■ Technical features

CARLY references		Drawing No	Connections types (1)	Oil quantity (L)	Dimensions (mm)						Net weight (kg)
					ø	L	E1	E2	E3	E4	
TURBOIL 1503 S	**TURBOIL 1503 MMS**	1	2	0,30	107,6	264	66	71	168	83	2,65
TURBOIL 1504 S	**TURBOIL 1504 MMS**	1	2	0,30	107,6	281	70	71	185	83	3,10
TURBOIL 2505 S/MMS		1	2	0,30	107,6	298	72	73	202	83	3,25
TURBOIL 3006 S	**TURBOIL 3006 MMS**	1	2	0,30	107,6	324	77	76	228	83	3,45
TURBOIL 3007 S	**TURBOIL 3007 MMS**	1	2	0,30	107,6	357	88	83	261	83	3,90
TURBOIL 3009 S	**TURBOIL 3009 MMS**	1	3	0,30	107,6	388	93	80	292	83	3,95
TURBOIL 3011 S/MMS		1	3	0,30	107,6	498	107	90	402	83	5,20
TURBOIL 4007 S	**TURBOIL 4007 MMS**	1	2	0,30	107,6	383	87	83	287	83	3,90
TURBOIL 6009 S	**TURBOIL 6009 MMS**	1	3	0,30	107,6	433	93	80	337	83	4,55
TURBOIL 6011 S/MMS		1	3	0,30	107,6	548	107	90	452	83	5,90
TURBOIL 7011 S/MMS		2	3	1,00	155,0	422	150	114	250	108	8,10
TURBOIL 8013 S	**TURBOIL 8013 MMS**	2	3	1,00	155,0	502	150	114	330	108	10,40
TURBOIL 9017 S/MMS		2	3	1,00	155,0	516	164	127	344	108	10,95

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

①



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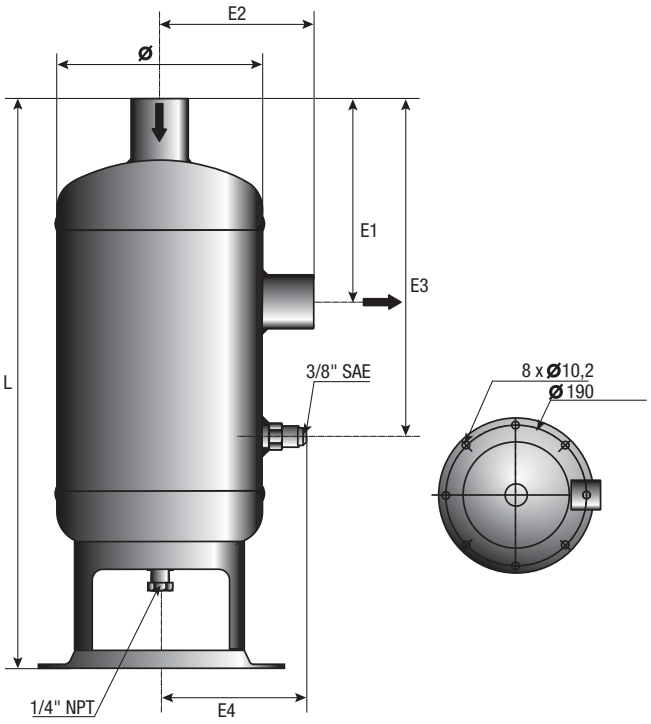

Oil separators

→ TURBOIL® *(welded)*

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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)	
TURBOIL 1503 S	**TURBOIL 1503 MMS**	1,72	31,0	10	120	-40	-20	I
TURBOIL 1504 S	**TURBOIL 1504 MMS**	1,86	31,0	10	120	-40	-20	I
TURBOIL 2505 S/MMS		1,97	31,0	10	120	-40	-20	I
TURBOIL 3006 S	**TURBOIL 3006 MMS**	2,12	31,0	10	120	-40	-20	I
TURBOIL 3007 S	**TURBOIL 3007 MMS**	2,33	31,0	10	120	-40	-20	I
TURBOIL 3009 S	**TURBOIL 3009 MMS**	2,54	31,0	10	120	-40	-20	I
TURBOIL 3011 S/MMS		3,28	31,0	10	120	-40	-20	I
TURBOIL 4007 S	**TURBOIL 4007 MMS**	2,53	31,0	10	120	-40	-20	I
TURBOIL 6009 S	**TURBOIL 6009 MMS**	2,87	31,0	10	120	-40	-20	I
TURBOIL 6011 S/MMS		3,64	31,0	10	120	-40	-20	I
TURBOIL 7011 S/MMS		4,33	31,5	10	120	-40	-20	I
TURBOIL 8013 S	**TURBOIL 8013 MMS**	5,65	31,5	10	120	-40	-20	I
TURBOIL 9017 S/MMS		5,73	31,5	10	120	-40	-20	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 page 7).

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Oil separators

→ TURBOIL-F® *(flanged)*

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■ Selection table

CARLY references	Connections To solder ODF inch	CARLY references	Connections To solder ODF mm	Refrigerating capacity (kW)(1)											
				R22			R134a			R404A R507			R407C R410A		
				- 40°C	- 10°C	+ 5°C	- 40°C	- 10°C	+ 5°C	- 40°C	- 10°C	+ 5°C	- 40°C	- 10°C	+ 5°C
TURBOIL-F 2505 S/MMS	5/8	**TURBOIL-F 2505 S/MMS**	16	17	22	24	12	15	17	17	22	25	16,0	21,0	24,0
TURBOIL-F 3007 S	7/8	**TURBOIL-F 3007 MMS**	22	24	27	30	18	23	25	25	30	32	25,0	28,5	30,5
TURBOIL-F 3009 S	1 1/8	**TURBOIL-F 3009 MMS**	28	28	32	36	19	25	28	29	36	40	27,5	34,0	38,0
TURBOIL-F 3011 S/MMS	1 3/8	**TURBOIL-F 3011 S/MMS**	35	32	40	45	21	27	31	32	40	47	31,0	39,0	43,5
TURBOIL-F 7011 S/MMS	1 3/8	**TURBOIL-F 7011 S/MMS**	35	48	55	60	38	46	50	48	60	70	46,0	57,0	66,5
TURBOIL-F 8013 S	1 5/8	**TURBOIL-F 8013 MMS**	42	65	80	90	45	60	70	65	85	94	62,0	81,0	89,5
TURBOIL-F 9017 S/MMS	2 1/8	**TURBOIL-F 9017 S/MMS**	54	85	100	110	58	70	80	87	105	120	83,0	100,0	114,0
TURBOIL-F 15013 S	1 5/8	**TURBOIL-F 15013 MMS**	42	104	128	145	78	96	109	105	130	148	100,0	124,0	141,0
TURBOIL-F 15017 S/MMS	2 1/8	**TURBOIL-F 15017 S/MMS**	54	121	149	170	91	112	127	125	154	175	119,0	146,5	166,5
TURBOIL-F 15021 S	2 5/8	**TURBOIL-F 15021 MMS**	67	138	170	194	104	128	146	142	175	200	135,0	166,5	190,0
TURBOIL-F 30025 S	3 1/8	**TURBOIL-F 30025 MMS**	80	303	372	424	228	280	318	310	380	430	295,0	362,0	409,5

(1) The indicated refrigerating capacities take into account a condensation temperature of + 38°C, a 5°C sub-refrigeration, and an aspirated gas temperature of + 18°C.

Refer to selection example page 41.3.

■ Float set internal cleaning or replacement procedure

1 • Isolate the **TURBOIL-F®** (or the **TURBOIL-RF®**)

2 • Purge the isolated circuit until atmospheric pressure is reached in the oil separator.

3 • Empty the oil present in the separator, using the 1/4" NPT drain plug located in the lower part of the **TURBOIL-F®.**

4 • Remove the bolts and remove the lower part of the **TURBOIL-F®.**

5 • Proceed to the cleaning or replacement, if necessary, of this lower part of the separator.

6 • Replace systematically the fastening gasket on the lower part of the separator (gasket references on page 41.9)

7 • Put back the lower part of the separator, uniformly and progressively tightening the fastening bolts (cross tightening). The recommended tightening torques are:
- → 30 N.m for TURBOIL-F 2505 S/MMS to 3011 S/MMS
- → 55 N.m for TURBOIL-F 7011 S/MMS to 9017 S/MMS
- → 35 N.m for TURBOIL-F 15013 S/MMS to 30025 S/MMS

8 • Screw back the 1/4" NPT drain plug on the lower part of the separator and make sure it is properly sealed.

9 • Make vacuum in the installation and check air-tightness of the whole set before putting back under pressure.

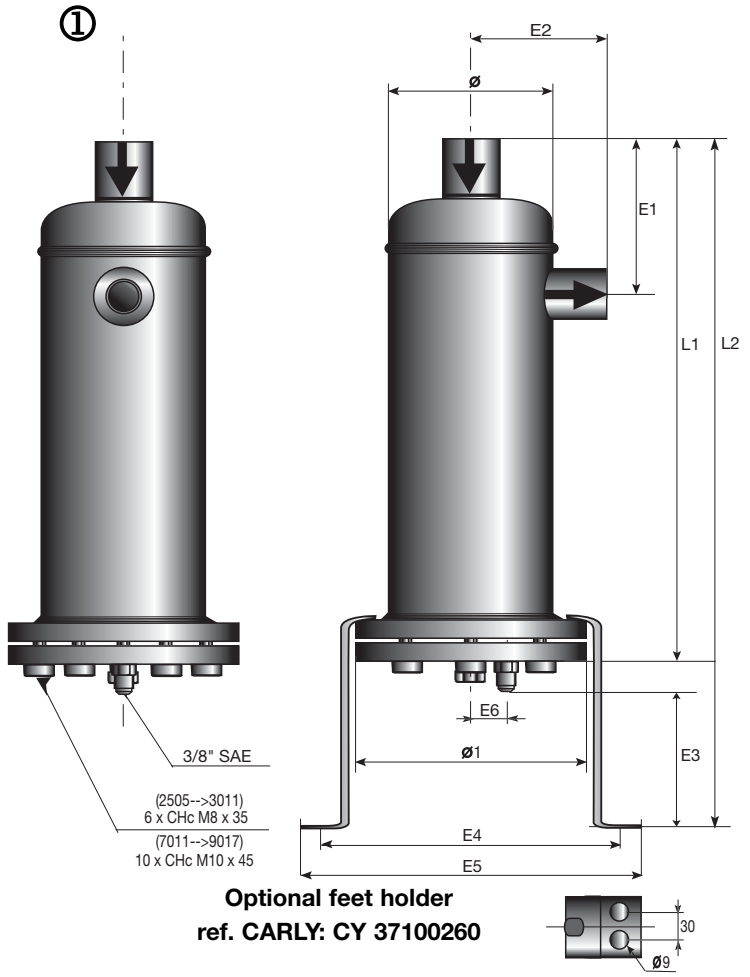
Oil separators

→ TURBOIL-F® *(flanged)*

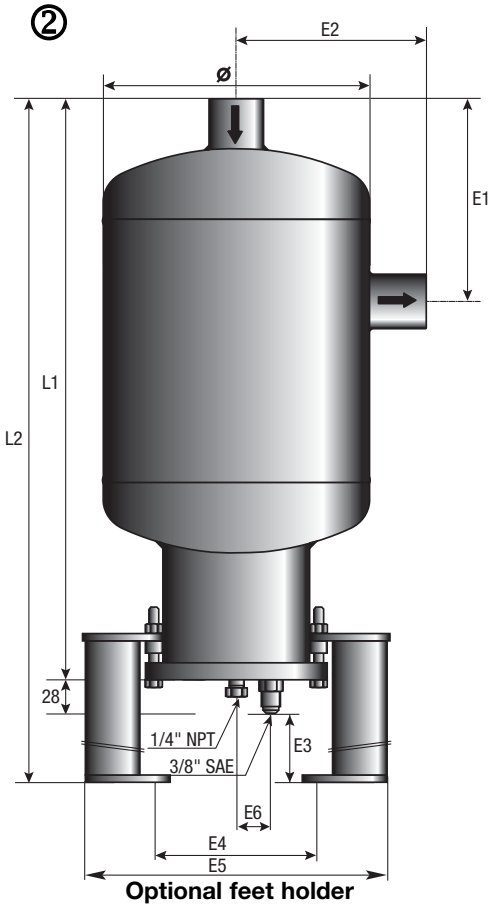
■ Technical features

CARLY references		Drawing No	Connections types (1)	Dimensions (mm)										Net weight (kg)
				Ø	Ø 1	L1	L2	E1	E2	E3	E4	E5	E6	
TURBOIL-F 2505 S/MMS		1	2	108	139,5	302	441,0	82	73	110	204	222	35	4,95
TURBOIL-F 3007 S	**TURBOIL-F 3007 MMS**	1	2	108	139,5	355	493,0	101	83	110	204	222	35	5,30
TURBOIL-F 3009 S	**TURBOIL-F 3009 MMS**	1	3	108	139,5	387	525,0	106	88	110	204	222	35	5,75
TURBOIL-F 3011 S/MMS		1	3	108	139,5	484	623,0	116	90	110	204	222	35	6,85
TURBOIL-F 7011 S/MMS		1	3	155	200	398	525,0	151	114	99	258	276	40	11,70
TURBOIL-F 8013 S	**TURBOIL-F 8013 MMS**	1	3	155	200	430	558,0	150	114	99	258	276	40	13,95
TURBOIL-F 9017 S/MMS		1	3	155	200	444	571,0	164	127	99	258	276	40	15,50
TURBOIL-F 15013 S	**TURBOIL-F 15013 MMS**	2	3	222	150	485	814,0	170	157	301,0	249	126	35	17,85
TURBOIL-F 15017 S/MMS		2	3	222	150	543	872,0	191	170	301,0	249	126	35	20,95
TURBOIL-F 15021 S	**TURBOIL-F 15021 MMS**	2	3	222	200	558	887,1	212	184	301,0	249	126	35	21,65
TURBOIL-F 30025 S	**TURBOIL-F 30025 MMS**	2	3	222	200	571	900,0	231	184	301,0	249	126	35	22,75

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



Optional feet holder
ref. CARLY: CY 37100260



Optional feet holder
ref. CARLY: CY 38600220

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Oil separators

→ TURBOIL-F® *(flanged)*

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■ Technical features

CARLY references		Volume	Oil volume (L)	Maximal working pressure	Working pressure (1)	Maximal working temperature	Minimal working temperature	Working temperature (1)	CE Category (2)
		V (L)	V (L)	PS (bar)	PS BT (bar)	TS maxi (°C)	TS mini (°C)	TS BT (°C)	
TURBOIL-F 2505 S/MMS		2,29	0,3	31,0	10	120	-40	-20	I
TURBOIL-F 3007 S	**TURBOIL-F 3007 MMS**	2,62	0,3	31,0	10	120	-40	-20	I
TURBOIL-F 3009 S	**TURBOIL-F 3009 MMS**	2,82	0,3	31,0	10	120	-40	-20	I
TURBOIL-F 3011 S/MMS		3,56	0,3	31,0	10	120	-40	-20	I
TURBOIL-F 7011 S/MMS		5,03	1,0	31,5	10	120	-40	-20	I
TURBOIL-F 8013 S	**TURBOIL-F 8013 MMS**	6,35	1,0	31,5	10	120	-40	-20	I
TURBOIL-F 9017 S/MMS		6,43	1,0	31,5	10	120	-40	-20	I
TURBOIL-F 15013 S	**TURBOIL-F 15013 MMS**	11,56	0,4	28,0	10	120	-40	-20	II
TURBOIL-F 15017 S/MMS		13,25	0,4	28,0	10	120	-40	-20	II
TURBOIL-F 15021 S	**TURBOIL-F 15021 MMS**	13,39	0,4	28,0	10	120	-40	-20	II
TURBOIL-F 30025 S	**TURBOIL-F 30025 MMS**	13,50	0,4	28,0	10	120	-40	-20	II

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

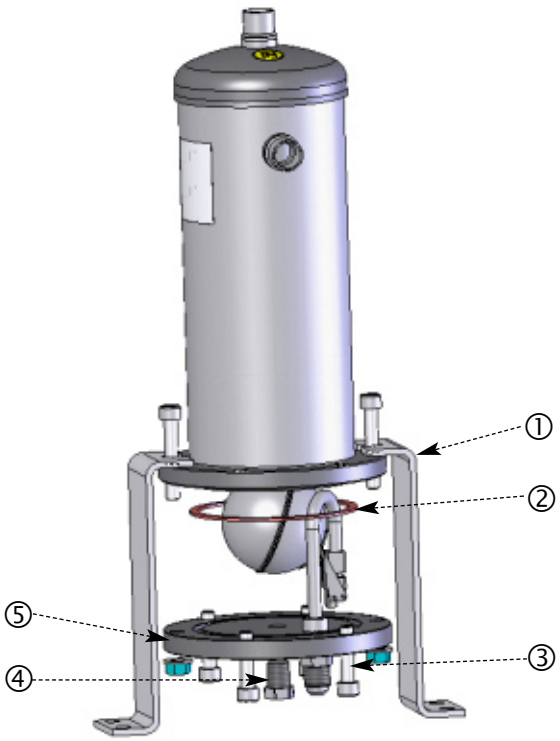
(2) Classification by volume, according to PED 97/23/EC (refer to chapter 0 page 7).

Oil separators

→ TURBOIL-F® *(flanged)*

■ Spare parts

CARLY references	Part Nb	Description	TURBOIL-F® Types	Quantity
CY 37100250	1	Feet (kit)	2505 S/MMS to 3011 S/MMS (Before 2010)	1
CY 37100260	1	Feet (kit)	2505 S/MMS à 9017 S/MMS	1
CY 37100300	1	Feet (kit)	7011 S/MMS to 9017 S/MMS (Before 2010)	1
CY 38600220	1	Feet (kit)	15013 S/MMS to 30025 S/MMS	1
CY 15555151	2	Gasket for oil separator	2505 S/MMS to 3011 S/MMS	1
CY 15555701	2	Gasket for oil separator	7011 S/MMS to 9017 S/MMS	1
CY 15555601	2	Gasket for flange of oil separator	15013 S/MMS to 30025 S/MMS	1
CY 19900420	3	Set of 8 screws for flange	15013 S/MMS to 30025 S/MMS	1
CY 19900425	3	Set of 6 screws for flange	2505 S/MMS to 3011 S/MMS	1
CY 19900520	3	Set of 10 screws for flange	7011 S/MMS to 9017 S/MMS	1
CY 10810010	4	1/4" NPT drain plug	7011 S/MMS to 30025 S/MMS	1
CY 33303450	5	Flange with gasket and float set	15013 S/MMS to 30025 S/MMS	1
CY 33402000	5	Lower part of separator with gasket and float set	2505 S/MMS to 3011 S/MMS (Before 2010)	1
CY 33403000	5	Lower part of separator with gasket and float set	7011 S/MMS to 9017 S/MMS (Before 2010)	1
CY 33800515	5	Flange with gasket and float set	2505 S/MMS à 3011 S/MMS	1
CY 33801705	5	Flange with gasket and float set	7011 S/MMS à 9017 S/MMS	1



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Oil separators

→ TURBOIL® *(welded)* / TURBOIL-F® *(flanged)*

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■ Weights and packaging

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
TURBOIL 1503 S & MMS	2,90	2,65	1	/
TURBOIL 1504 S & MMS	3,35	3,10	1	/
TURBOIL 2505 S/MMS	3,55	3,25	1	/
TURBOIL 3006 S & MMS	3,75	3,45	1	/
TURBOIL 3007 S & MMS	4,20	3,90	1	/
TURBOIL 3009 S & MMS	4,25	3,95	1	/
TURBOIL 3011 S/MMS	5,55	5,20	1	/
TURBOIL 4007 S & MMS	4,20	3,90	1	/
TURBOIL 6009 S & MMS	4,90	4,55	1	/
TURBOIL 6011 S/MMS	6,25	5,90	1	/
TURBOIL 7011 S/MMS	8,50	8,10	1	/
TURBOIL 8013 S & MMS	10,80	10,40	1	/
TURBOIL 9017 S/MMS	11,35	10,95	1	/

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
TURBOIL-F 2505 S/MMS	5,25	4,95	1	/
TURBOIL-F 3007 S & MMS	5,60	5,30	1	/
TURBOIL-F 3009 S & MMS	6,10	5,75	1	/
TURBOIL-F 3011 S/MMS	7,20	6,85	1	/
TURBOIL-F 7011 S/MMS	12,10	11,70	1	/
TURBOIL-F 8013 S & MMS	14,35	13,95	1	/
TURBOIL-F 9017 S/MMS	15,90	15,50	1	/
TURBOIL-F 15013 S & MMS	19,05	17,85	1	/
TURBOIL-F 15017 S/MMS	22,15	20,95	1	/
TURBOIL-F 15021 S & MMS	22,85	21,65	1	/
TURBOIL-F 30025 S & MMS	23,95	22,75	1	/

Oil separator receivers

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→ TURBOIL-R® *(welded)*

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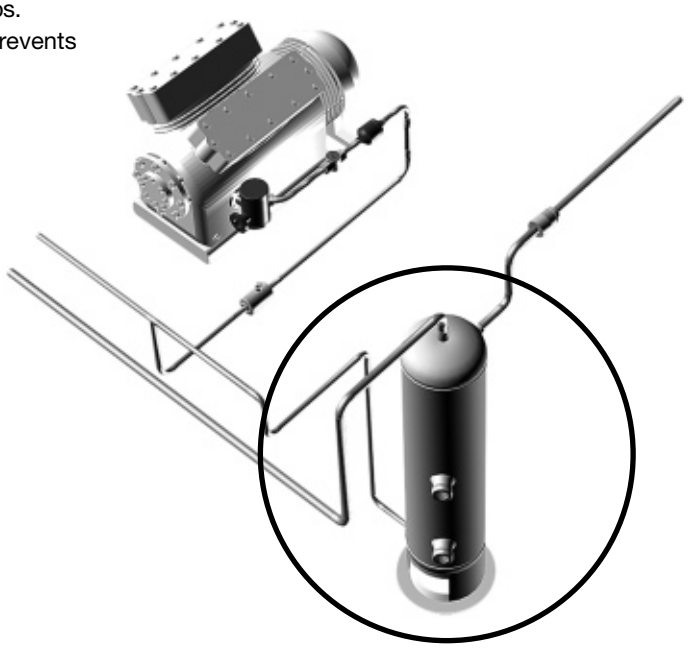
■ Applications

- Separation and recovery of the oil carried by the refrigerant in vapour phase at the outlet of compressors, in refrigerating and air conditioning installations.
- The TURBOIL-R® oil separator receivers limit the amount of oil within the circuit, thus allowing increasing the heat exchangers' performances and preventing blocking the pressure relief valves, as well as exceptional wear of compressors by lack of oil.
- They ensure a regulated oil return to the compressor sumps.
- The selection of TURBOIL-R® oil separator receivers prevents having to install a separate oil receiver.



■ Functional features

- Products are compatible with HFCs, HCFCs, CFCs, CO_2 (R744) 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.
- Product classification in CE categories is performed using the PED 97/23/EC table, corresponding to a volume-based selection.
- The oil separator receivers are entirely made of steel.
- The oil reserve function is ensured by a built-in receiver.
- High pressure oil outlet by a 3/8" SAE Rotalock stop valve.
- The TURBOIL-R® are fitted without an internal oil regulation set (float, valve, and needle).

■ CARLY advantages

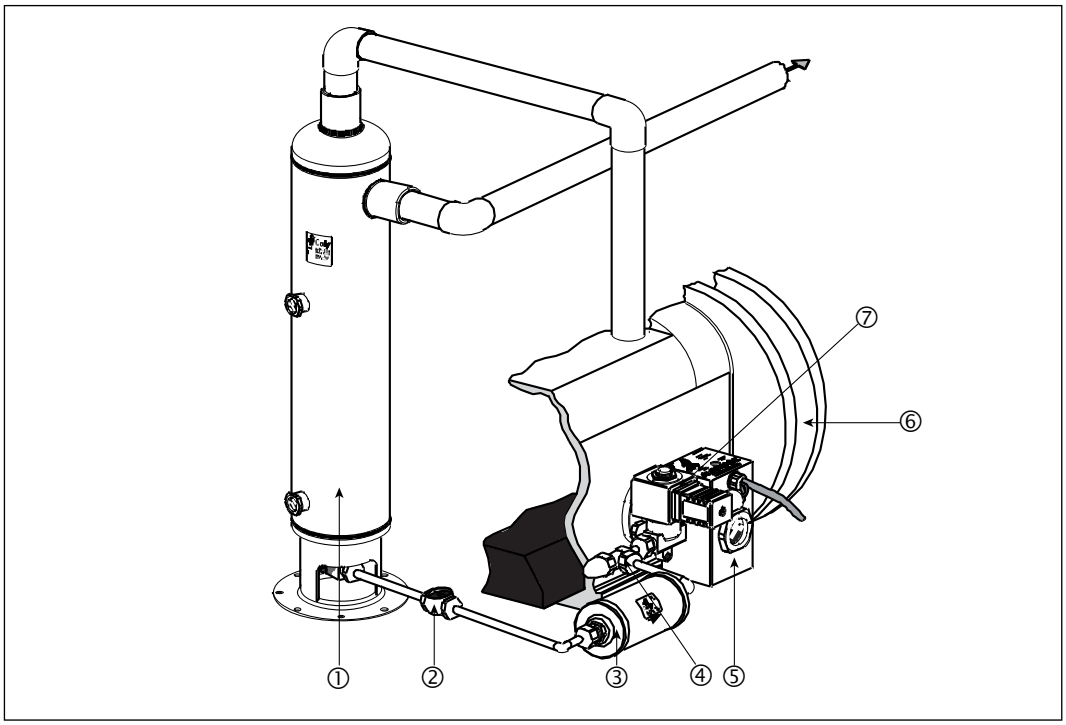
- Very important simplification and cost reduction compared with a traditional oil system:
  - → drastic reduction of piping lengths and number of components
  - → important reduction of mounting time
  - → limitation of machine footprint
  - → suppression of the differential valve joining the oil receiver and the suction line
  - → limitation of the risk of leak thanks to the simplification of the oil return system.
- Fitted with the efficient TURBOIL® oil separation system.
- Presence of two sight glasses with colour balls on the receiver part, for a better reading of the oil level.
- Very large range.
- Specific products on request (sizes, connections, volume of oil receiver ...).
- GOST certified products.

Oil separator receivers

→ TURBOIL-R® *(welded)*

■ Recommendations

* The recommendations are identical to those listed for the TURBOIL® oil separators (refer to chapter 41.2).
* The oil return is likely to take place at a pressure close to condensation pressure, therefore the use of a CARLY ELECTROIL electronic oil level regulator is imperative (refer to chapter 50).
* Considering the high oil pressure at the outlet of the TURBOIL-R®, the use of HCYN oil level regulators is impossible.
* In the case of multi-compressor installations, CARLY recommends the use of a TURBOIL-R® oil separator receiver for each compressor.
* Make sure that the TURBOIL-R® oil separator connection diameter is at least equal to the discharge line diameter.
* Upon commissioning of a new installation, fill the TURBOIL-R® receiver part with an oil identical to that used in the compressors, up to half the upper sight glass, corresponding to the volume of oil V2 in the technical features table (refer to page 42.4).
* During the first two days of operation of the installation, carefully monitor the oil level in the separator receivers and keep it at half the higher sight glass. **Then, no extra oil shall be added, as long as the level does not go below half the lower sight glass.**
* In the case of an installation that is already operating, the oil should be added very carefully. Reintegration of the oil distributed until then in the installation must, after a first day of operation, be sufficient to fill the receiver part of the TURBOIL-R® and reach the upper sight glass. If the oil level has not reached the upper sight glass, then the necessary amount of oil should be added. But, if the oil level is higher than the upper sight glass, it is imperative to empty the surplus; this operation is possible via the lower valve of the TURBOIL-R®.
* Systematically use an oil identical to that in the compressor.
* The O-ring should be replaced after each removal of the sight glass; screw it back complying with the recommended 25 N.m tightening torque.
* General assembly precautions: refer to chapter 115.



① **TURBOIL-R®** oil separator receiver
② **HCYVP** oil sight glass
③ **HYDROIL** filter drier for POE oil
④ **HCYVI** shut-off valve
⑤ **ELECTROIL** electronic oil level regulator
⑥ Compressor
⑦ Solenoid valve

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Oil separator receivers

→ TURBOIL-R® *(welded)*

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■ Selection table

CARLY references	Connections To solder ODF inch	CARLY references	Connections To solder ODF mm	Refrigerating capacity (kW)(1)												
				R22			R134a			R404A R507			R407C R410A			R 744 (2)
				- 40°C	- 10°C	+ 5°C	- 40°C	- 10°C	+ 5°C	- 40°C	- 10°C	+ 5°C	- 40°C	- 10°C	+ 5°C	
TURBOIL-R 22505 S/MMS	5/8	**TURBOIL-R 22505 S/MMS**	16	17	22	24	12	15	17	17	22	25	16	21	24	22
TURBOIL-R 23007 S	7/8	**TURBOIL-R 23007 MMS**	22	24	27	30	18	23	25	26	30	32	25	28	30	43
TURBOIL-R 23009 S	1 1/8	**TURBOIL-R 23009 MMS**	28	28	32	36	19	25	28	29	36	40	27	34	38	55
TURBOIL-R 23011 S/MMS	1 3/8	**TURBOIL-R 23011 S/MMS**	35	32	40	45	21	27	31	32	40	47	30	38	45	/
TURBOIL-R 47009 S	1 1/8	**TURBOIL-R 47009 MMS**	28	42	50	55	34	37	42	42	54	60	41	48	54	55
TURBOIL-R 47011 S/MMS	1 3/8	**TURBOIL-R 47011 S/MMS**	35	48	55	60	38	46	50	48	60	70	46	57	66	85
TURBOIL-R 48013 S	1 5/8	**TURBOIL-R 48013 MMS**	42	65	80	90	45	60	70	65	85	94	62	81	89	120
TURBOIL-R 49017 S/MMS	2 1/8	**TURBOIL-R 49017 S/MMS**	54	85	100	110	58	70	80	87	105	120	83	100	114	/
TURBOIL-R 77011 S/MMS	1 3/8	**TURBOIL-R 77011 S/MMS**	35	48	55	60	38	46	50	48	60	70	46	57	66	85
TURBOIL-R 78013 S	1 5/8	**TURBOIL-R 78013 MMS**	42	65	80	90	45	60	70	65	85	94	62	81	89	120
TURBOIL-R 79017 S/MMS	2 1/8	**TURBOIL-R 79017 S/MMS**	54	85	100	110	58	70	80	87	105	120	83	100	114	/
TURBOIL-R 127011 S/MMS	1 3/8	**TURBOIL-R 127011 S/MMS**	35	48	55	60	38	46	50	48	60	70	46	57	66	85
TURBOIL-R 128013 S	1 5/8	**TURBOIL-R 128013 MMS**	42	65	80	90	45	60	70	65	85	94	62	81	89	120
TURBOIL-R 129017 S/MMS	2 1/8	**TURBOIL-R 129017 S/MMS**	54	85	100	110	58	70	80	87	105	120	83	100	114	/
TURBOIL-R 815017 S/MMS	2 1/8	**TURBOIL-R 815017 S/MMS**	54	121	149	170	91	112	127	125	154	175	119	146	166	/
TURBOIL-R 815021 S	2 5/8	**TURBOIL-R 815021 MMS**	67	138	170	194	104	128	146	142	175	200	135	166	190	/
TURBOIL-R 830025 S	3 1/8	**TURBOIL-R 830025 MMS**	80	303	372	424	228	280	318	310	380	430	295	362	409	/

(1) The indicated refrigerating capacities take into account a condensation temperature of + 38°C, a 5°C subcooling, and an aspirated gas temperature of + 18°C.

(2) The indicated refrigerating capacities take into account a condensation temperature Tk of 0°C, an evaporating temperatureT0 of -40°C, a liquid subcooling of 2K and a suction gaz temperature of -30°C.

Refer to selection example page 41.3.

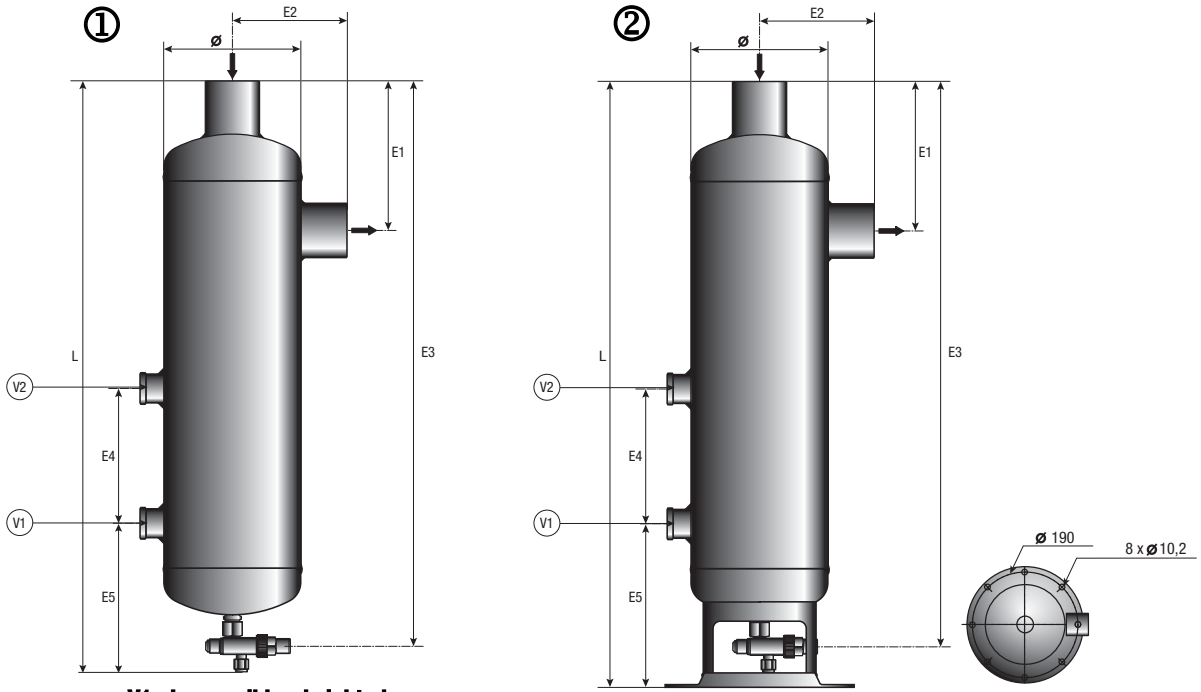
Oil separator receivers

→ TURBOIL-R® *(welded)*

■ Technical features

CARLY references		Connections types (1)	Volume of the receiver (L)	Volume (L)		Drawing No	Dimensions (mm)							Net weight (kg)
				V1	V2		Ø	L1	E1	E2	E3	E4	E5	
TURBOIL-R 22505 S/MMS		2	2,3	0,45	2,00	1	108	567	82,0	73	537,0	207	137	7,50
TURBOIL-R 23007 S	**TURBOIL-R 23007 MMS**	2	2,3	0,45	2,00	1	108	576	96,0	83	546,0	207	137	7,60
TURBOIL-R 23009 S	**TURBOIL-R 23009 MMS**	3	2,5	0,45	2,00	1	108	641	106,0	80	611,0	207	137	8,00
TURBOIL-R 23011 S/MMS		3	2,5	0,45	2,00	1	108	650	115,5	90	620,5	207	137	8,10
TURBOIL-R 47009 S	**TURBOIL-R 47009 MMS**	3	4,3	1,41	3,83	2	155	571	144,0	113	531,0	150	182	10,60
TURBOIL-R 47011 S/MMS		3	4,3	1,41	3,83	2	155	580	153,0	114	533,4	150	182	10,80
TURBOIL-R 48013 S	**TURBOIL-R 48013 MMS**	3	4,3	1,41	3,83	2	155	660	153,0	114	620,0	150	182	14,20
TURBOIL-R 49017 S/MMS		3	4,3	1,41	3,83	2	155	673	166,0	128	626,5	150	182	14,25
TURBOIL-R 77011 S/MMS		3	7,7	1,41	6,98	2	155	779	153,0	114	732,4	345	182	13,70
TURBOIL-R 78013 S	**TURBOIL-R 78013 MMS**	3	7,7	1,41	6,98	2	155	856	153,0	114	809,0	345	182	16,80
TURBOIL-R 79017 S/MMS		3	7,7	1,41	6,98	2	155	869	166,0	128	822,5	345	182	16,85
TURBOIL-R 127011 S/MMS		3	12,7	1,41	11,91	2	155	1080	153,0	114	1033,5	650	182	18,35
TURBOIL-R 128013 S	**TURBOIL-R 128013 MMS**	3	12,7	1,41	11,91	2	155	1160	153,0	114	1113,0	650	182	21,55
TURBOIL-R 129017 S/MMS		3	12,7	1,41	11,91	2	155	1173	166,0	128	1126,5	650	182	21,60
TURBOIL-R 815017 S/MMS		3	8,0	3,10	6,25	2	219	675	191,0	170	627,0	90	198	23,65
TURBOIL-R 815021 S	**TURBOIL-R 815021 MMS**	3	8,0	3,10	6,25	2	219	688	212,0	184	642,0	90	198	24,35
TURBOIL-R 830025 S	**TURBOIL-R 830025 MMS**	3	8,0	3,10	6,25	2	219	703	226,6	184	657,0	90	198	25,45

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



V1 : Lower oil level sight glass
V2 : Upper oil level sight glass

Oil separator receivers

→ TURBOIL-R® *(welded)*

■ 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)	
TURBOIL-R 22505 S/MMS		3,45	43	10	120	-40	-20	I
TURBOIL-R 23007 S	**TURBOIL-R 23007 MMS**	3,45	43	10	120	-40	-20	I
TURBOIL-R 23009 S	**TURBOIL-R 23009 MMS**	3,90	43	10	120	-40	-20	I
TURBOIL-R 23011 S/MMS		3,90	43	10	120	-40	-20	I
TURBOIL-R 47009 S	**TURBOIL-R 47009 MMS**	7,20	43	10	120	-40	-20	II
TURBOIL-R 47011 S/MMS		7,15	43	10	120	-40	-20	II
TURBOIL-R 48013 S	**TURBOIL-R 48013 MMS**	8,50	43	10	120	-40	-20	II
TURBOIL-R 49017 S/MMS		8,50	43	10	120	-40	-20	II
TURBOIL-R 77011 S/MMS		10,50	43	10	120	-40	-20	II
TURBOIL-R 78013 S	**TURBOIL-R 78013 MMS**	11,80	43	10	120	-40	-20	II
TURBOIL-R 79017 S/MMS		11,80	43	10	120	-40	-20	II
TURBOIL-R 127011 S/MMS		15,50	43	10	120	-40	-20	II
TURBOIL-R 128013 S	**TURBOIL-R 128013 MMS**	16,85	43	10	120	-40	-20	II
TURBOIL-R 129017 S/MMS		16,85	43	10	120	-40	-20	II
TURBOIL-R 815017 S/MMS		17,50	33	10	120	-40	-20	II
TURBOIL-R 815021 S	**TURBOIL-R 815021 MMS**	17,60	33	10	120	-40	-20	II
TURBOIL-R 830025 S	**TURBOIL-R 830025 MMS**	17,70	33	10	120	-40	-20	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 97/23/EC (refer to chapter 0 page 7).

Oil separator receivers

→ TURBOIL-R® *(welded)*

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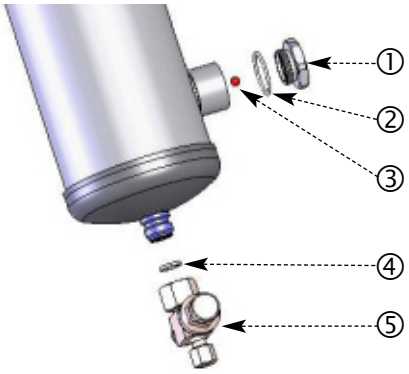
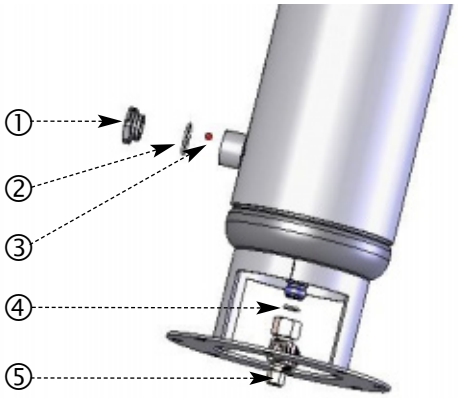
■ Spare parts

CARLY references	Part Nb	Description	Quantity
CY 35012150	1	Glass without moisture indicator	1
CY 15552180	2	O-ring for sight glass	1
CY 10501000	3	Colour ball for sight glass	1
CY 15580100	4	Gasket for 3/8" SAE Rotalock valve	1
CY 19700100	5	3/8" SAE Rotalock valve with gasket	1





■ Weights and packaging

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
TURBOIL-R 22505 S/MMS	8,65	8,05	1	/
TURBOIL-R 23007 S & MMS	10,60	10,00	1	/
TURBOIL-R 23009 S & MMS	10,70	10,10	1	/
TURBOIL-R 23011 S/MMS	10,80	10,20	1	/
TURBOIL-R 47009 S & MMS	11,40	10,80	1	/
TURBOIL-R 47011 S/MMS	11,60	11,00	1	/
TURBOIL-R 48013 S & MMS	14,80	14,20	1	/
TURBOIL-R 49017 S/MMS	14,85	14,25	1	/

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
TURBOIL-R 77011 S/MMS	17,30	16,70	1	/
TURBOIL-R 78013 S & MMS	17,40	16,80	1	/
TURBOIL-R 79017 S/MMS	17,45	16,85	1	/
TURBOIL-R 127011 S/MMS	18,95	18,35	1	/
TURBOIL-R 128013 S & MMS	22,15	21,55	1	/
TURBOIL-R 129017 S/MMS	22,20	21,60	1	/
TURBOIL-R 815017 S/MMS	24,25	23,65	1	/
TURBOIL-R 815021 S & MMS	24,95	24,35	1	/
TURBOIL-R 830025 S & MMS	26,05	25,45	1	/

DTGB - 43.1-2-5-10

Oil receivers

→ HCYR

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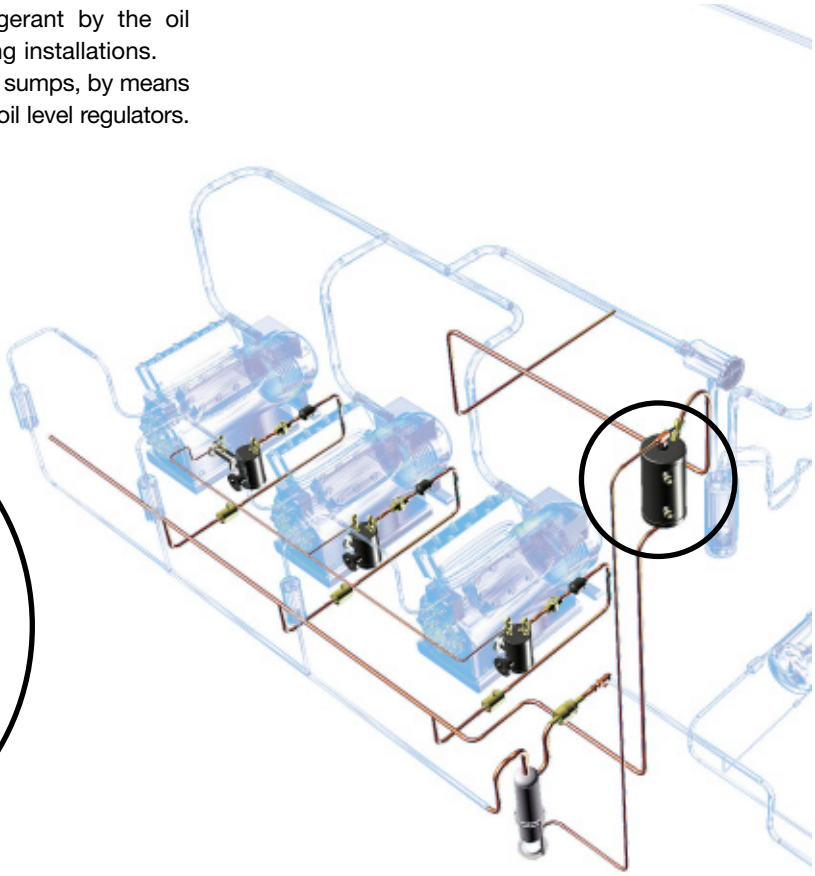
■ Applications

- Storage of the oil separated from the refrigerant by the oil separator(s) of refrigerating and air conditioning installations.
- This oil is then re-distributed to the compressor sumps, by means of HCYN mechanical or ELECTROIL electronic oil level regulators.



■ Functional features

- Products are compatible with HFCs, HCFCs, CFCs, 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.
- Product classification in CE categories is performed using the PED 97/23/EC table, corresponding to a volume-based selection.
- The oil receivers are entirely made of steel.
- The oil receivers constitute an intermediary expansion volume between the oil separator and the compressor sumps; thus they eliminate all risks of major refrigerant “trapping” in the oil regulation system and allow immediate compensation of the compressor oil carry-over variations.
- High and low lateral fastenings by angle brackets with holes.

■ CARLY advantages

- Intake and outlet equipped with Rotalock valves, with pressure tap.
- Presence of a 3/8” SAE connection in the higher part, for possible mounting of a differential relief valve.
- Presence of two sight glasses allowing visualization of the level of oil stored in the receiver and detection of any malfunction within the oil circuit.
- Very large range of oil receivers: from 4 to 30 litres.
- GOST certified products.

Oil receivers

→ HCYR

■ Recommendations

* The oil receivers are to be mounted between the oil separators and the oil level regulators connected to the compressor sumps.
* An overpressure between the oil receivers and the compressor sumps facilitates oil return in the latter; this overpressure can be obtained:
  → either by installing the oil receivers above the oil level regulators (minimum height of 2 m recommended)
  → or by connecting the oil receiver to the circuit's suction line, using the 3/8" SAE upper connection, equipped with a differential relief valve.
* Upon commissioning of a new installation, fill the receiver with an oil identical to that used in the compressors, up to half the upper sight glass, corresponding to the volume of oil V2 in the Technical features table (refer to page 43.3).
* During the first two days of operation of the installation, carefully monitor the oil level in the receiver and keep it at half the higher sight glass; the addition of oil is possible through the oil receiver's upper valve. **Then, no extra oil shall be added, as long as the level does not go below half the lower sight glass.**
* In the case of an installation that is already operating, the oil should be added very carefully. Reintegration of the oil distributed until then in the installation must, after the first day of operation, be sufficient to fill the receiver and reach the upper sight glass. If the oil level has not reached the upper sight glass, then the necessary quantity of oil should be added. But, if the oil level is higher than the upper sight glass, it is imperative to empty the surplus; this operation is possible via the oil receiver's lower valve.
* Systematically use an oil identical to that in the compressor.
* The O-ring should be replaced after each removal of the sight glass; screw it back complying with the recommended 25 N.m tightening torque.
* General assembly precautions: refer to chapter 115.

■ Selection table

CARLY references											
HCYR 40 3,9 L		HCYR 80 - 81 7,4 L		HCYR 120 - 121 12 L		HCYR 150 15 L		HCYR 200 20 L		HCYR 300 30 L	
Nc(1)	Vmb(2)	Nc	Vmb	Nc	Vmb	Nc	Vmb	Nc	Vmb	Nc	Vmb
2	4 - 30	2	30 - 60	2	60 - 140	2	100 - 190	2	140 - 240	2	240 - 340
3	4 - 20	3	20 - 40	3	40 - 95	3	65 - 125	3	95 - 160	3	160 - 230
		4	15 - 30	4	30 - 70	4	50 - 95	4	70 - 120	4	120 - 170
				6	4 - 45	6	25 - 60	6	45 - 80	6	80 - 125
				8	4 - 35	8	20 - 45	8	35 - 60	8	60 - 85

(1) Nc: Number of compressors

(2) Vmb: Average volume processed by each compressor; Vmb = (Vmb + Vmb2 + … = VmbN) / Nc in m^3/hr

For HCYR oil receiver selection, only take into account the volume processed by the first level compressors in the case of bi-level systems.

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Oil receivers

→ HCYR

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■ Technical features

CARLY references	Volume (L)		Drawing Nb	Dimensions (mm)											Net weight (kg)
	V1	V2		Ø	L1	L2	E1	E2	E3	E4	E5	E6	E7	E8	
HCYR 40	1,0	2,9	1	121,0	517	457	180	157	460	138,5	384,0	/	/	/	4,60
HCYR 80	1,5	6,0	1	152,4	622	562	280	189	563	140,8	482,4	/	/	/	9,10
HCYR 81	1,9	5,6	1	168,3	510	450	183	205	449	133,5	377,0	/	/	/	8,90
HCYR 120	2,5	9,5	1	152,4	864	800	435	189	794	184,4	726,0	/	/	/	12,80
HCYR 121	2,8	8,4	1	168,3	698	638	277	205	637	180,5	565,0	/	/	/	12,35
HCYR 150	3,0	12,0	1	152,4	1090	1025	558	189	1025	235,5	952,0	/	/	/	14,80
HCYR 200	4,0	16,0	2	219,1	703	643	350	257	350	/	570,6	212	252	142,0	17,85
HCYR 300	8,2	21,8	2	323,9	589	529	172	363	160	/	456,3	228	268	184,5	31,30

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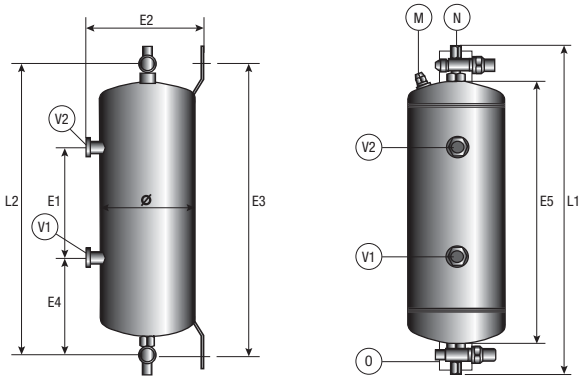

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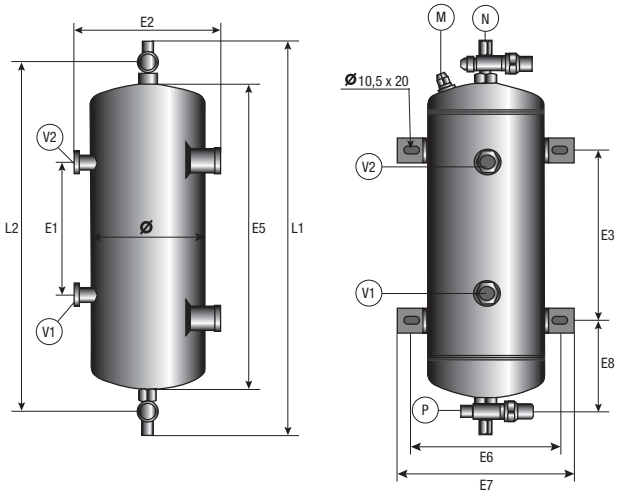

Connections:

M : 3/8" SAE connections (pressure nozzle on suction line)

N : 3/8" SAE valve (oil inlet) + 1/4" SAE pressure nozzle

O : 3/8" SAE valve (oil outlet) + 1/4" SAE pressure nozzle

P : For HCYR 200 (oil outlet) : 1/2" ODF valve + 1/4" SAE pressure nozzle

P : For HCYR 300 (oil outlet) : 5/8" ODF valve + 1/4" SAE pressure nozzle

V1 : Lower oil level sight glass

V2 : Upper oil level sight glass

Oil receivers

→ HCYR

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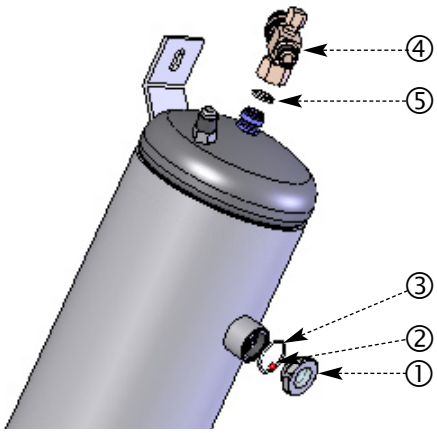
■ Technical features

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)	
HCYR 40	4,2	31,5	10	100	-40	-20	I
HCYR 80	7,4	43,0	10	100	-40	-20	II
HCYR 81	7,4	31,5	10	100	-40	-20	II
HCYR 120	12,0	31,5	10	100	-40	-20	II
HCYR 121	11,2	31,5	10	100	-40	-20	II
HCYR 150	15,0	31,5	10	100	-40	-20	II
HCYR 200	20,0	28,0	10	100	-40	-20	II
HCYR 300	30,0	28,0	10	100	-40	-20	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 97/23/EC (refer to chapter 0 page 7).

■ Spare parts

CARLY references	Part Nb	Description	HCYR type	Quantity
CY 35012150	1	Glass without moisture indicator	all	1
CY 10501000	2	Colour ball for sight glass	all	1
CY 15552180	3	O-ring for sight glass	all	1
CY 19700100	4	3/8" SAE Rotalock valve with gasket	inlet and outlet from 40 to 150 , inlet of 200 and 300	1
CY 19700120	4	1/2" ODF Rotalock valve with gasket	oulet of 200	1
CY 19700130	4	5/8" ODF Rotalock valve with gasket	oulet of 300	1
CY 15580100	5	Gasket for 3/8" SAE Rotalock valve	inlet and outlet from 40 to 150 , inlet of 200 and 300	1
CY 15580140	5	Gasket for 1/2" ODF and 5/8" ODF Rotalock valve	oulet of 200 , oulet of 300	1



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Oil receivers

→ HCYR

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■ Weights and packaging

Références CARLY	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
HCYR 40	4,95	4,60	1	/
HCYR 80	9,70	9,10	1	/
HCYR 81	9,30	8,90	1	/
HCYR 120	13,40	12,80	1	/

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
HCYR 121	12,95	12,35	1	/
HCYR 150	15,40	14,80	1	/
HCYR 200	18,65	17,85	1	/
HCYR 300	32,50	31,30	1	/

DTGB - 44.1-1-1-10

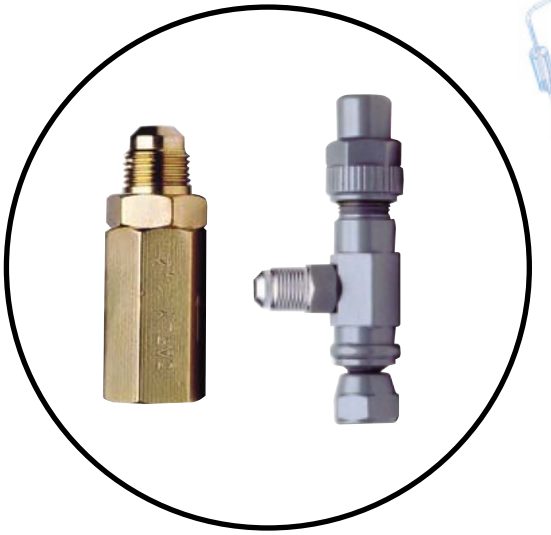
Differential valves for oil receivers

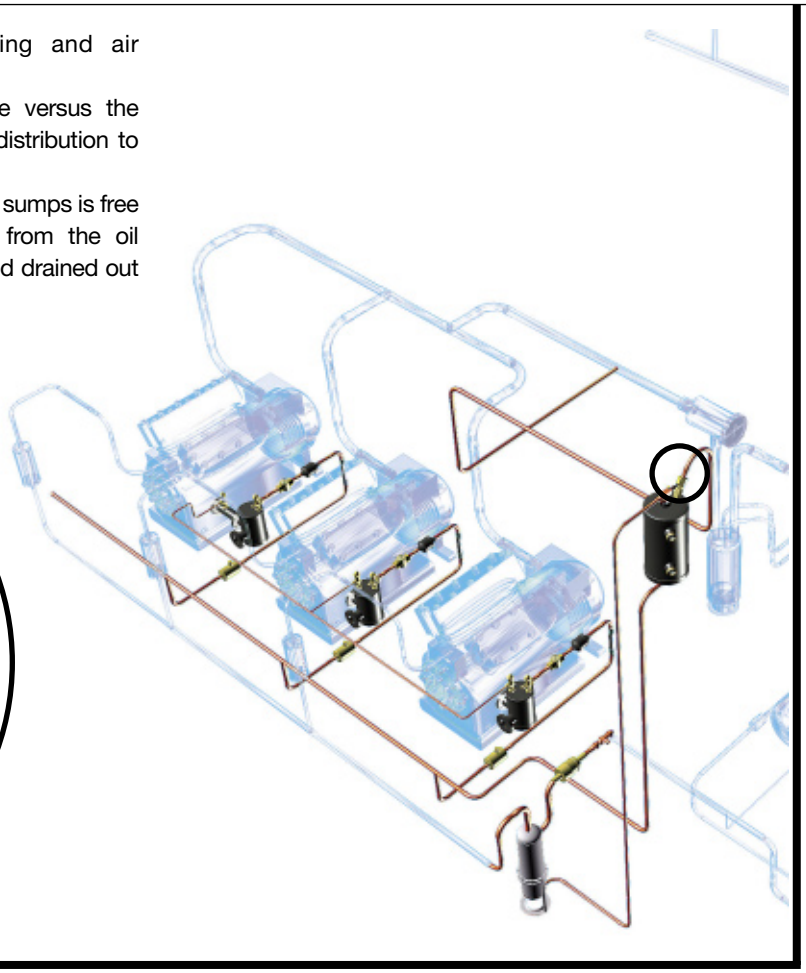
→ HCYCT *(non adjustable)* / HCYCTR *(adjustable)*

01/10

■ Applications

- Differential valves are mounted on refrigerating and air conditioning installation oil receivers.
- They maintain permanent oil receiver overpressure versus the compressor sumps in order to ensure constant oil distribution to the compressors.
- Therefore, the oil which is returned to the compressor sumps is free from refrigerant as, should any refrigerant come from the oil separator, it would be expanded in the oil receiver and drained out to the suction line via the differential valves.





■ Functional features

- Products are compatible with HFCs, HCFCs, CFCs, 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.
- Product classification in CE categories is performed using the PED 97/23/EC table, corresponding to a nominal diameter-based selection.
- Non adjustable differential valve HCYCT:
  - → Brass body and internal mechanism
  - → Valve spring strictly calibrated
  - → PTFE gaskets.
- Adjustable differential valve HCYCTR:
  - → Painted steel body with internal phosphatization
  - → Connection to the 360°-adjustable oil receiver with 3/8" SAE revolving nut
  - → Screwed plug perfectly sealed to prevent any accidental handling of the adjustment rod
  - → Internal Neoprene® sealing gasket.

■ CARLY advantages

- HCYCT: 3 models of non adjustable differential valves with set pressures of 0.35, 1.4 and 3.5 bar.
- HCYCTR: 1 model of adjustable differential valve allowing a possible adjustment of the set pressure with a rod handled with a tool (square section of 8 mm), from 0.35 bar to 3.5 bar. Adjustment in factory : 1,4 bar.
- GOST certified products.

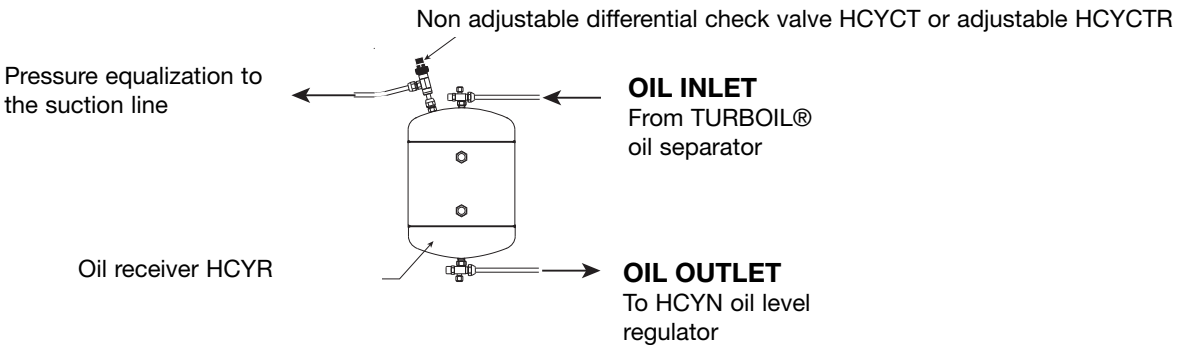

Differential valves for oil receivers

→ HCYCT *(non adjustable)* / HCYCTR *(adjustable)*

01/10

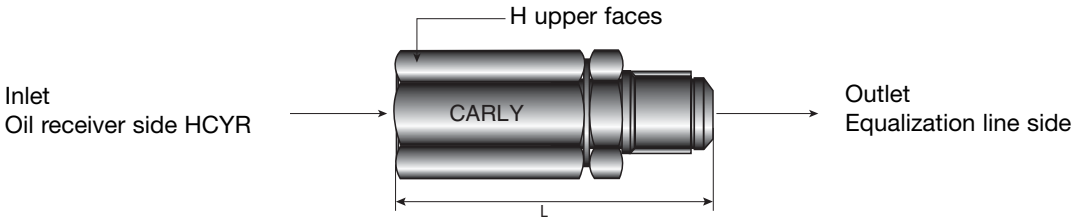
■ Recommendations

* The differential valves are to be mounted on the 3/8" SAE connection located in the higher part of the oil receiver, by its female connection.
* Be sure to comply with the flow direction indicated by an arrow engraved on the body of the differential valves.
* On some multi-compressor installations, one or several compressors can operate at different suction pressures; in order to ensure correct oil feeding of all compressors, it is necessary to select the differential valves so as to establish a minimum overpressure of 0.35 bar between the oil receiver and the compressor with the highest suction pressure (refer to the selection example page 48.6).
* On installations equipped with bi-level compressors or "Booster" system, it is recommended to connect the differential valves to the intermediary level suction line.
* For HCYCT/HCYCTR differential valves, carefully watch the correct positionning of the supplied copper seals.
* General assembly precautions: refer to chapter 115.



■ Technical features of HCYCT non adjustable differential valves

CARLY references	Connections to screw SAE (inch)		Pressure range (bar)	Dimensions (mm)		Net weight (kg)
	Inlet Female	Outlet Male		H upper faces	L	
HCYCT 1	3/8	3/8	0,35	21	65	0,15
HCYCT 3	3/8	3/8	1,40	21	65	0,15
HCYCT 4	3/8	3/8	3,50	21	65	0,15



CARLY references	Nominal diameter	Maximal working pressure	Working pressure (1)	Maximal working temperature	Minimal working temperature	Working temperature (1)	CE Category (2)
	DN (inch)	PS (bar)	PS BT (bar)	TS maxi (°C)	TS mini (°C)	TS BT (°C)	
HCYCT 1	3/8	35	10	80	-40	-20	Art3§3
HCYCT 3	3/8	35	10	80	-40	-20	Art3§3
HCYCT 4	3/8	35	10	80	-40	-20	Art3§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 diameter, according to PED 97/23/EC (refer to chapter 0 page 7).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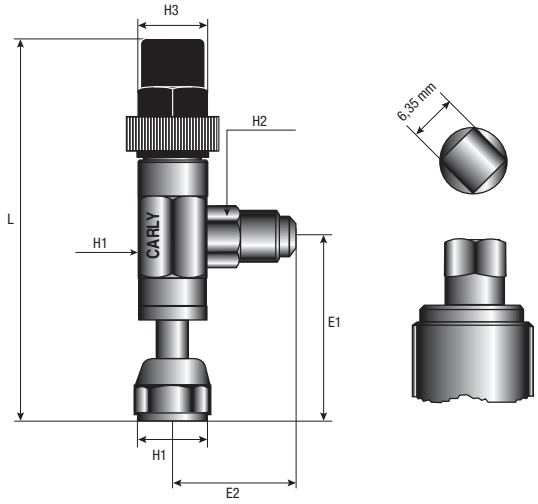
Differential valves for oil receivers

→ HCYCTR *(adjustable)*

01/10

■ Technical features

CARLY references	Connections to screw SAE (inch)		Pressure range (bar)	Dimensions (mm)						Net weight (kg)
	Inlet Female	Outlet Male		H1 upper faces	H2 upper faces	H3 upper faces	L	E1	E2	
HCYCTR	3/8	3/8	0,35 à 3,50	22	17	24	125	58	39	0,2



CARLY references	Nominal diameter	Maximal working pressure	Working pressure (1)	Maximal working temperature	Minimal working temperature	Working temperature (1)	CE Category (2)
	DN (inch)	PS (bar)	PS BT (bar)	TS maxi (°C)	TS mini (°C)	TS BT (°C)	
HCYCTR	3/8	35	10	80	-40	-20	Art3§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 diameter, according to PED 97/23/EC (refer to chapter 0 page 7).


Differential valves for oil receivers

→ HCYCT *(non adjustable)* / HCYCTR *(adjustable)*

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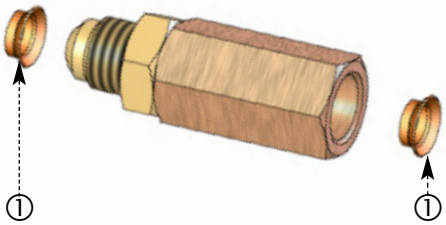
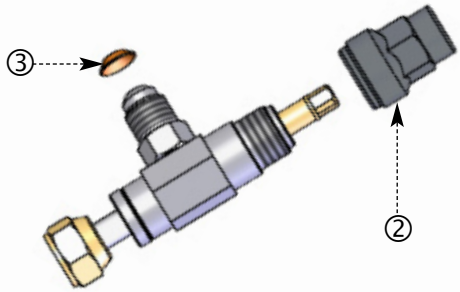
■ Spare parts

CARLY references	Part Nb	Description	Type	Quantity
CY 15590025	1	Set of 25 taper guided copper gaskets for 3/8" SAE connection	HCYCT	1
CY 10870010	2	Plug for inspection rod	HCYCTR	1
CY 15590020	3	Set of 25 taper copper gaskets for 3/8" SAE connection	HCYCTR	1





■ Weights and packaging

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
HCYCT 1	0,16	0,15	1	50
HCYCT 3	0,16	0,15	1	50

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
HCYCT 4	0,16	0,15	1	50
HCYCTR	0,23	0,20	1	/

DTGB - 45.1-1-1-10

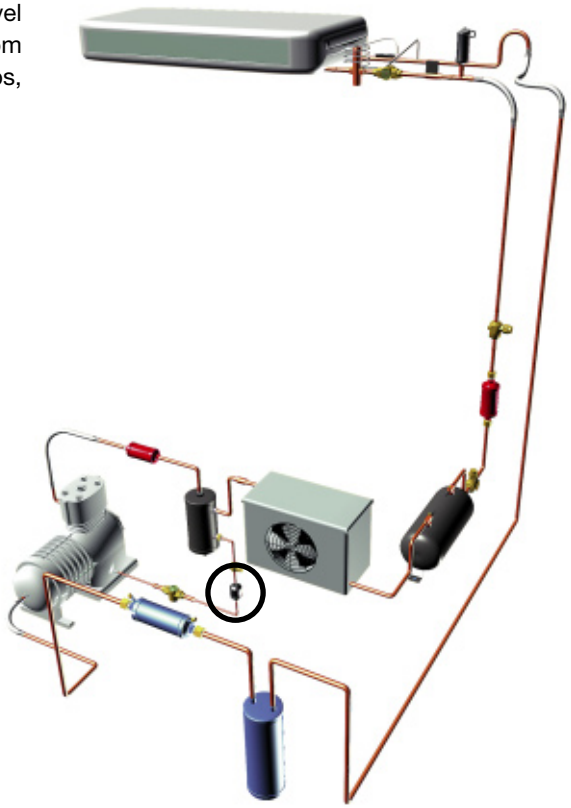
Oil filters

→ HCYF

01/10

■ Applications

- Oil filtering on the oil return line to the compressor sumps of refrigerating and air conditioning installations.
- These filters are required for the good operation of oil level regulators and to protect them as well as the compressors, from any contaminants that could damage them (metallic chips, filings, oxides, sludge, etc …).



■ Functional features

- Products are compatible with HFCs, HCFCs, CFCs, 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..
- Product classification in CE categories is performed using the PED 97/23/EC table, corresponding to a volume-based selection.
- Filtrating core made of stainless steel mesh cloth.
- Filtering efficient at 150 microns.

■ CARLY advantages

- Very large filtering surface areas.
- Presence of a permanent magnet located at the intake of the filter, ensuring the immediate “trapping” of all steel particles.
- Very large range of filters: 6 different models.
- Connections to solder are made of copper-plated steel and allow the use of filler metals with a low silver content; their resistance to pressure is much higher than that of full copper connections.
- GOST certified products.

Oil filters

→ HCYF

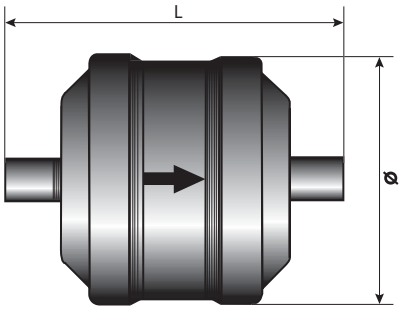
01/10

■ Recommendations

* The oil filters are to be mounted on the oil return line, between the oil separator and the oil level regulator, as close as possible to the latter.
* The direction of oil flow indicated by an arrow on the filter tag should be respected.
* The level of filter blocking should be regularly checked, making sure that the oil return is correct at compressor sumps.
* It is highly recommended to install a HCYVP sight glass upstream of the oil filter (refer to chapter 47), in order to visually check the presence and condition of the oil.
* HCYF oil filter only ensures mechanical filtering of solid contaminants; to ensure an optimal protection of the oil level regulators and of the compressors operating with highly hydrophilous POE oils, it is imperative to use an HYDROIL filter drier for POE oils: refer to chapter 46.
* General assembly precautions: refer to chapter 115.

■ Technical features

CARLY references	Connections		CARLY references	Connections	Filtering surface (cm^2)	Dimensions (mm)		Net weight (kg)
	To screw SAE inch	To solder ODF inch		To solder ODF mm		Ø	L	
HCYF 52	1/4				70	54	121,0	0,25
HCYF 53	3/8				70	54	127,0	0,25
HCYF 53 S		3/8	**HCYF 53 MMS**	10	70	54	111,5	0,25
HCYF 83	3/8				121	93	140,0	0,75
HCYF 84	1/2				121	93	144,0	0,80



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)	
HCYF 52		0,1	42	10	100	-40	-20	Art3§3
HCYF 53		0,1	42	10	100	-40	-20	Art3§3
HCYF 53 S	**HCYF 53 MMS**	0,1	42	10	100	-40	-20	Art3§3
HCYF 83		0,5	42	10	100	-40	-20	Art3§3
HCYF 84		0,5	42	10	100	-40	-20	Art3§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 97/23/EC (refer to chapter 0 page 7).

Oil filters

→ HCYF

■ Weights and packaging

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
HCYF 52	0,28	0,25	24	/
HCYF 53	0,28	0,25	24	/
HCYF 53 S & MMS	0,28	0,25	24	/
HCYF 83	0,78	0,75	6	/
HCYF 84	0,83	0,80	6	/

DTGB - 45.3-1-1-10

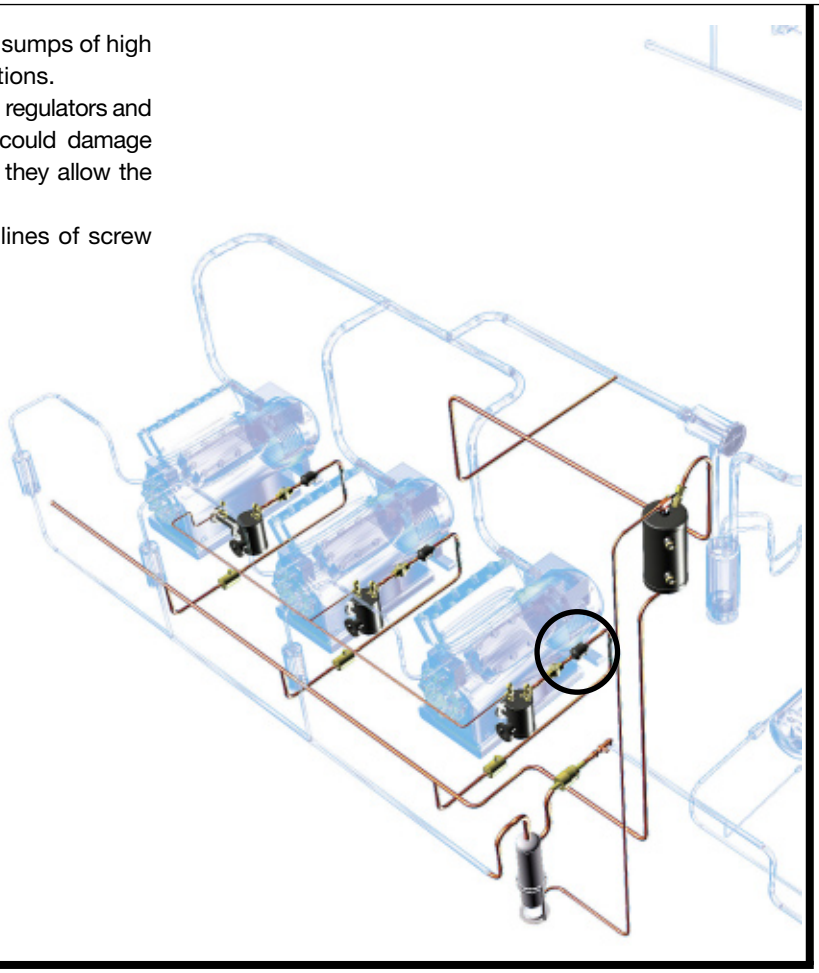
Replaceable core oil filter shells

→ HCYBF

01/10

■ Applications

- Oil filtering on the oil return line to the compressor sumps of high capacity refrigerating and air conditioning installations.
- These filters guarantee the good operation of oil level regulators and protect the compressors from contaminants that could damage them (metallic chips, filings, oxides, sludge, etc…); they allow the replacement of the oil filters' active parts only.
- These filters are recommended for the oil return lines of screw compressors and of centrifuge compressors.



■ Functional features

- Products are compatible with HFCs, HCFCs, CFCs, 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.
- Product classification in CE categories is performed using the PED 97/23/EC table, corresponding to a volume-based selection.
- The oil filter shells are used with the CCY 48 HU filtrating cores (refer to chapter 6,1).
- 1/4" NPT taper tapping and its plug on the end plate, allowing the installation of a pressure tap or a feeding valve.
- End plate perfectly airtight thanks to its circular rim and its gasket compatible with all HFCs, HCFCs and CFCs.

These products are not kept on stock;they are manufactured on demand.
Minimal order : 10 pieces per reference.

■ CARLY advantages

- Individual core holders treated against corrosion by zinc-coating, with a reduced course to allow for core replacement; therefore, the time needed for replacement is extremely reduced, limiting oil core and inner circuit part exposition times to ambient atmosphere.
- Core holders are designed to ensure an automatic and immediate centring in the oil filter shell and an excellent distribution of the oil around the core, with a minimum pressure drop.
- CCY 48 HU oil core filtering of 16 microns.
- GOST certified products.

Replaceable core oil filter shells

→ HCYBF

■ Recommendations

* The oil filter shells are to be mounted on the oil return line, between the oil separator and the oil level regulator, as close as possible to the latter.
* Mounting to be performed in whichever position, but not vertically with the outlet connection oriented downwards.
* The oil flow direction indicated by an arrow on the filter tag should be respected.
* When mounting the oil filter shells, provide for a sufficient course to allow the replacement of cores (refer to dimensions in Technical features tables).
* The level of blocking of the filtrating cores must be regularly checked, making sure that the oil return is correct at the compressor sumps.
* Oil filter shells selection should take into account the integration of the internal active elements (cores CCY 48 HU); this integration can be temporary or permanent.
* It is highly recommended to install a HCYVP sight glass upstream of the oil filter shell (refer to chapter 47), in order to visually check the presence and condition of the oil.
* HCYBF oil filter shell only ensures mechanical filtering of solid contaminants; to ensure optimal protection of the oil level regulators and of the compressors operating with very hydrophilous POE oils, it is imperative to use an HYDROIL filter drier for POE oils: refer to chapter 46.
* General assembly precautions: refer to chapter 115.

■ CCY 48 HU core replacement procedure

1 • Isolate the **HCYBF** oil filter shell.

2 • Purge the installation up to atmospheric pressure (the shell should be empty of oil)

3 • Remove the end plate.

4 • Remove the core holders.

5 • Remove the used cores.

6 • Clean very carefully the core holders as well as the inner part of the shell case.

7 • Replace systematically the end plate gasket.

8 • Remove the cores from their can and put them in the core holders, separating by traction the two flanges holding each core holder (sketch 1)

9 • Put the core holders into place with their core in the shell (sketch 2)

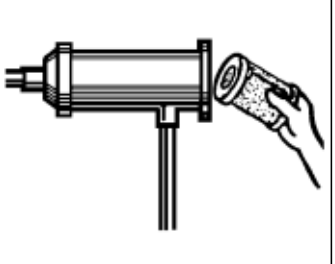
10 • Put the end plate back and tighten the fastening bolts in a uniform and progressive way (cross tightening). Maximum bolt tightening torque: HCYBF = 30 N.m.

11 • Make sure that the end plate's 1/4" NPT taper threading has been properly plugged in and sealed.

12 • Make vacuum the installation and check the air tightness of the set before putting back in service.

1

2



Replaceable core oil filter shells

→ HCYBF

■ Technical features

CARLY references	Connections To screw SAE inch	Connections To solder ODF inch	Connections To solder ODF mm	Filtering surface (cm^2)	Maximal admissible oil flow (l/mn) (1)	Drawing Nb	Dimensions (mm) Ø1	Ø2	L1	L2	E1	E2	Number of cores	Net weight (kg)
HCYBF 485 S/MMS		5/8	16	5790	55	1	150	128	230	170	146	83,0	1	4,30
HCYBF 486 S		3/4		5790	70	1	150	128	233	170	149	86,0	1	4,35
HCYBF 486 MMS			18	5790	70	1	150	128	233	170	149	86,0	1	4,35
HCYBF 486 N	3/4 NPT			5790	70	2	150	128	216	170	127	84,0	1	4,45

(1) These values take into account the capacity limitation linked to the connections flow area and to the performance average of the oil cores available on the market. For higher flow rates, it is recommended to install several shells in parallel.

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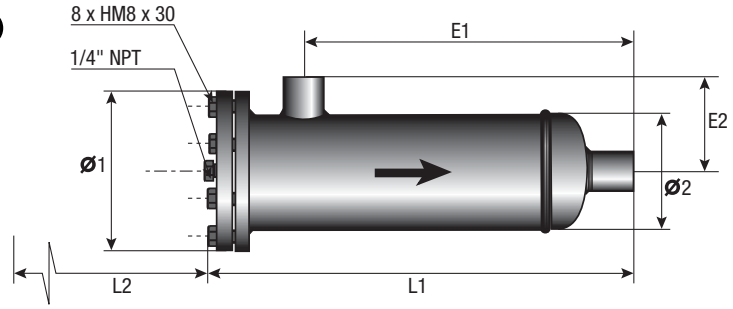

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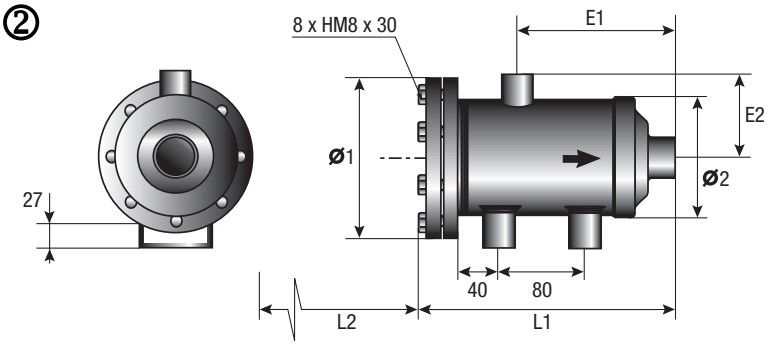


CARLY references	Volume V (L)	Maximal working pressure PS (bar)	Working pressure (1) PS BT (bar)	Maximal working temperature TS maxi (°C)	Minimal working temperature TS mini (°C)	Working temperature (1) TS BT (°C)	CE Category (2)
HCYBF 485 S/MMS	1,9	28	10	80	-40	-20	I
HCYBF 486 S	1,9	28	10	80	-40	-20	I
HCYBF 486 MMS	1,9	28	10	80	-40	-20	I
HCYBF 486 N	1,9	28	10	80	-40	-20	I

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

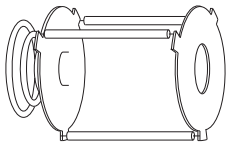
(2) Classification by volume, according to PED 97/23/EC (refer to chapter 0 page 7).

Replaceable core oil filter shells

→ HCYBF

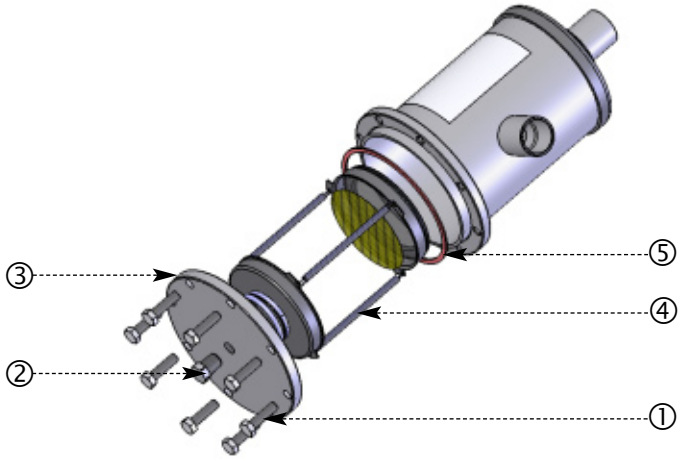
■ Spare parts

Shells	CARLY References of core holders to use	Gasket for end cover
HCYBF 1 core	CY 37002010	1 gasket CY 15555601



CY 37002010

CARLY references	Part Nb	Description	Quantity
CY 19900411	1	Set of 8 fastening screws for end plate	1
CY 10810010	2	1/4" NPT phosphate plug for end plate	1
CY 33301200	2 + 3 + 5	1/4" NPT plug + End plate + gasket	1
CY 37002010	4	Core holder	1
CY 15555601	5	End plate gasket	1



DTGB - 45.3-1-1-10

Replaceable core oil filter shells

→ HCYBF

01/10

■ Weights and packaging

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
HCYBF 485 S/MMS	4,55	4,30	1	/
HCYBF 486 S & MMS	4,60	4,35	1	/
HCYBF 486 N	4,70	4,45	1	/
HCYBF 967 S & MMS	5,90	5,60	1	/

DTGB - 46.1-1-1-10

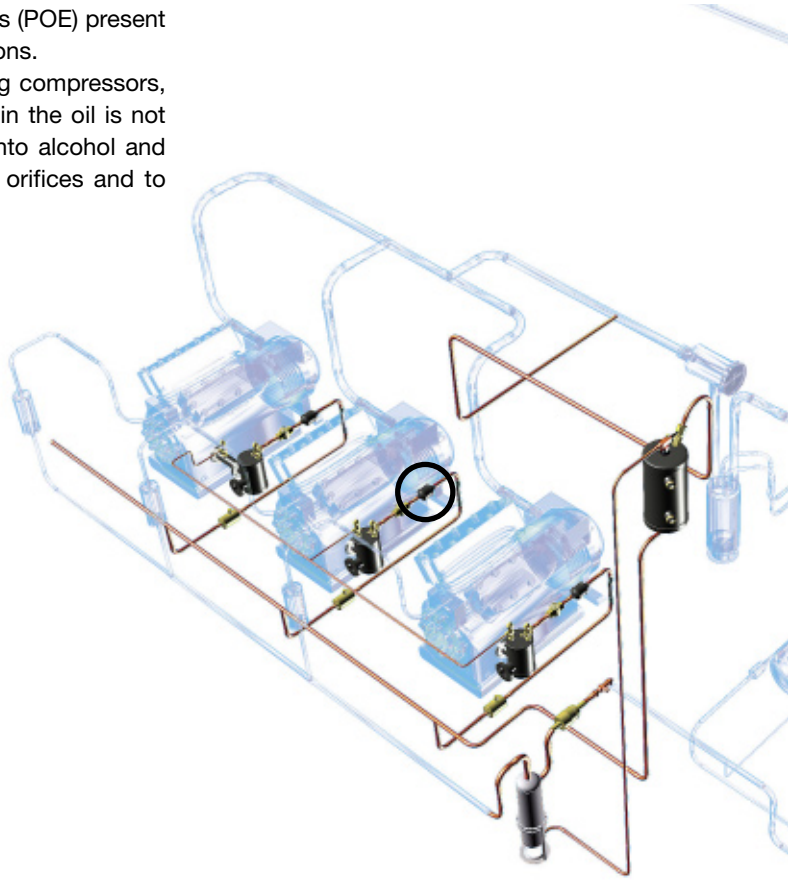
Oil filter drier for polyol-ester oils (POE)

→ HYDROIL

01/10

■ Applications

- Continuing filtering and drying of polyol-ester oils (POE) present in the refrigerating and air conditioning installations.
- HYDROIL is a safety component for refrigerating compressors, because when the quantity of water contained in the oil is not controlled, the esters transform by hydrolysis into alcohol and fatty acids (soaps), likely to block the smallest orifices and to cause the compressor burnout.



■ Functional features

- Products are compatible with HFCs, HCFCs, CFCs, 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.
- Product classification in CE categories is performed using the PED 97/23/EC table, corresponding to a volume-based selection.
- The filtering threshold: 10 microns.
- Initial drying capacity guaranteed by a 200°C oven drying and airtight sealing.

■ CARLY advantages

- Automatic bypass of the internal filter when it is too dirty and when the pressure drop generated exceeds 0.5 bar; this particularity ensures the continuity of compressor lubrication, even if filter maintenance is late.
- A large contaminant retention capacity is ensured by an important filtering area of 175 cm^2 and by a volume of drying agents of 170 cm^3.
- Chemical agents in the form of free grains, for increased drying performances.
- A pressure tap on the filter case makes it possible to check its good operation.
- GOST certified products.

Oil filter drier for polyol-ester oils (POE)

→ HYDROIL

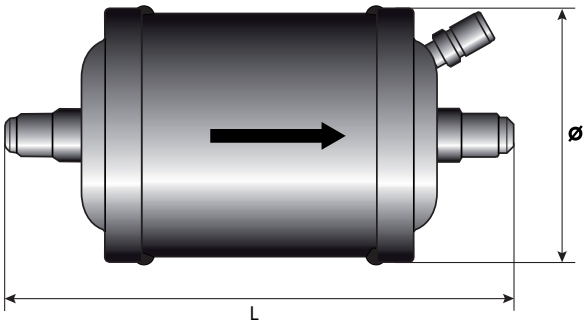
■ Recommendations

* The oil filter drier is to be mounted on the oil return line, between the oil separator and the oil level regulator, as close as possible to the latter.
* The oil flow direction indicated by an arrow on the filter tag should be respected.
* The clogging level of the filter must be regularly checked, making sure that the oil return is correct at compressor sumps.
* It is highly recommended to install a HCYVP sight glass upstream of the oil filter drier, in order to visually check the presence and condition of the oil.
* Replacement of the filter is recommended after each intervention on the oil circuit and particularly after an addition of oil.
* The POE oils are very hydrophilous, therefore the installation of a HCYF or HCYBF regular oil filter is not sufficient.
* The installation of a HYDROIL oil filter drier prevents the hydrolysis reactions between moisture and oil, which generate acids and alcohols that could greatly disturb the refrigerating installation's operation.
* Oil acidity monitoring is ensured by using TESTOIL-POE acidity tests: refer to chapter 91.
* General assembly precautions: refer to chapter 115.

■ Technical features

CARLY references	Connections To screw SAE inch	Connections types (1)	Filtering surface (cm^2)	Volume of desiccation products (cm^3)	Dimensions (mm)		Net weight (kg)
					Ø	L	
HYDROIL 163	3/8	1	175	170	93	185	1,4

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



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)	
HYDROIL 163	0,7	42	10	80	-40	-20	Art3§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 97/23/EC (refer to chapter 0 page 7).

DTGB - 46.1-1-1-10

Oil filter drier for polyol-ester oils (POE)

01/10

→ HYDROIL

■ Weights and packaging

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	
HYDROIL 163	1,45	1,38	6	/

DTGB - 47.1-1-1-10

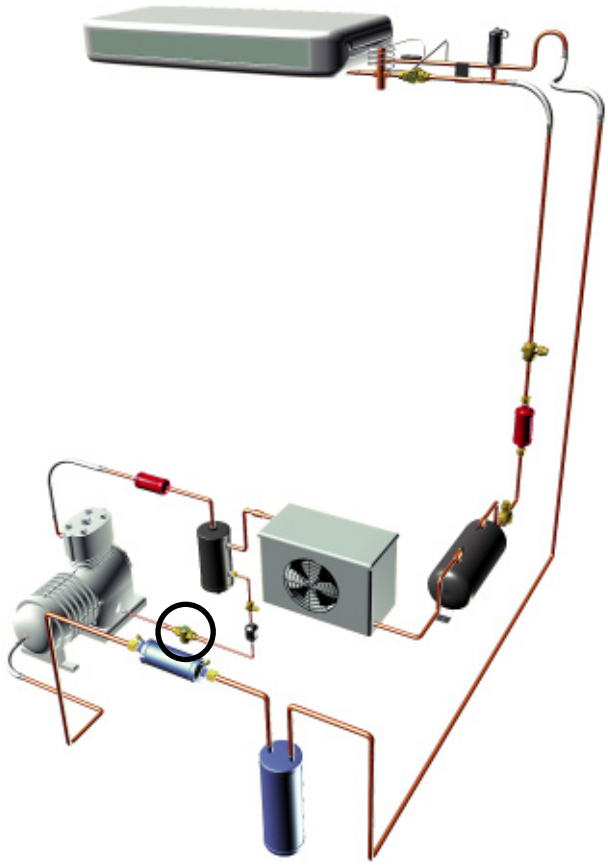
Oil sight glasses

→ HCYVP

01/10

■ Applications

• Immediate visual check of the oil presence and aspect in the oil lines of refrigerating and air conditioning installations.



■ Functional features

- Products are compatible with HFCs, HCFCs, CFCs, 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.
- Product classification in CE categories is performed using the PED 97/23/EC table, corresponding to a nominal diameter-based selection.
- Brass body.
- Sealed construction and crimping of the glass ensure a perfect air tightness thanks to a PTFE gasket.
- The sight glasses with flare connections to screw are provided with copper gaskets.

■ CARLY advantages

- Good visibility ensured by the large area of the glass and the absence of any indicator ring or central tip.
- Installation facilitated by long copper sleeves for the models to be brazed and by the presence of a hexagon head bolt for positioning and tightening of flare models to screw.
- The male/female connection simplifies the assembly of the oil line components, without having to use accessories such as dudgeon/nut, sleeve, etc…
- GOST certified products.

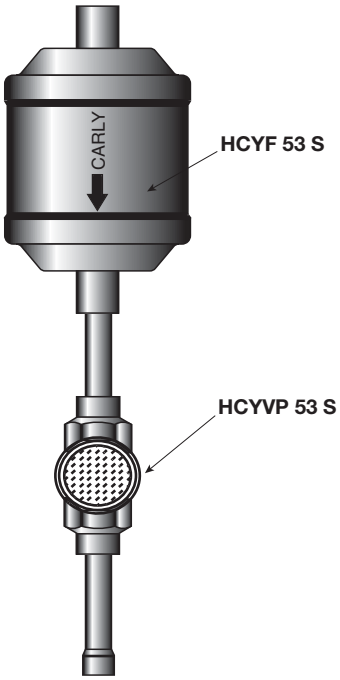
Oil sight glasses

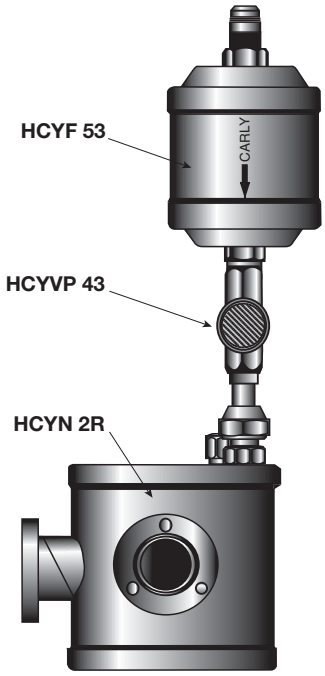
→ HCYVP

01/10

■ Recommendations

* The oil sight glasses are to be mounted on the oil return line, between the oil separators and the oil level regulators, as close as possible to the latter and if possible, after the oil filters.
* For sight glasses with flare connections to screw, be careful to properly position the copper gaskets provided.
* After each removal imperatively replace the copper gaskets.
* General assembly precautions: refer to chapter 115.





DTGB - 47.1-1-1-10

Oil sight glasses

→ HCYVP

01/10

■ Technical features

CARLY references	Connections						Drawing Nb	Dimensions (mm)						Net weight (kg)
	To screw SAE	To solder ODM		To screw SAE	To solder ODF			Ø1	L1	L2	L3	L4 upper faces	L5 upper faces	
	inch	inch	mm	inch	inch	mm								
HCYVP 43	3/8			3/8			1	32	92	29,6	/	20	22	0,2
HCYVP 53 S		3/8			3/8		2	26	119	26,5	10	/	/	0,1
HCYVP 53 MMS			10			10	2	26	119	26,5	10	/	/	0,1

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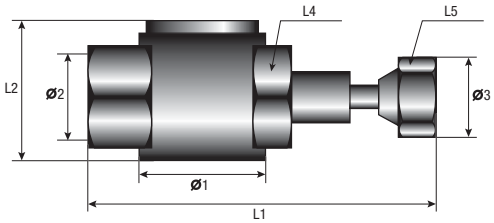

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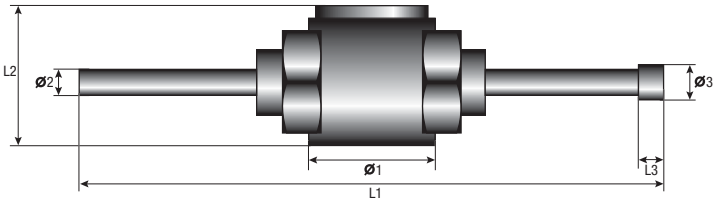


CARLY references	Nominal diameter	Nominal diameter	Maximal working pressure	Working pressure (1)	Maximal working temperature	Minimal working temperature	Working temperature (1)	CE Category (2)
	DN (mm)	DN (inch)	PS (bar)	PS BT (bar)	TS maxi (°C)	TS mini (°C)	TS BT (°C)	
HCYVP 43		3/8	42	/	80	-20	/	Art3§3
HCYVP 53 S		3/8	42	/	80	-20	/	Art3§3
HCYVP 53 MMS	10		42	/	80	-20	/	Art3§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 diameter, according to PED 97/23/EC (refer to chapter 0 page 7).

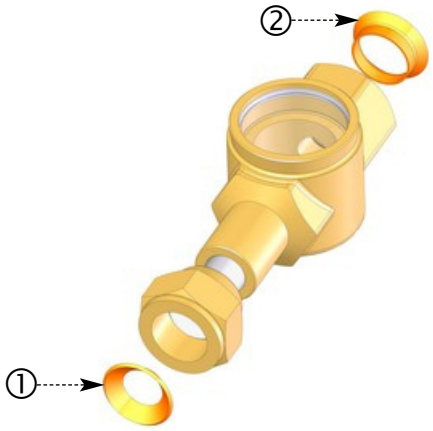
Oil sight glasses

→ HCYVP

01/10

■ Spare parts

CARLY references	Part Nb	Description	HCYVP Types	Quantity
CY 15590020	1	Set of 25 taper copper gaskets for 3/8" SAE connection	43	1
CY 15590025	2	Set of 25 taper guided copper gaskets for 3/8" SAE connection	43	1



■ Weights and packaging

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
HCYVP 43	0,21	0,20	1	/
HCYVP 53 S & MMS	0,11	0,10	1	/

DTGB - 48.1-3-5-10

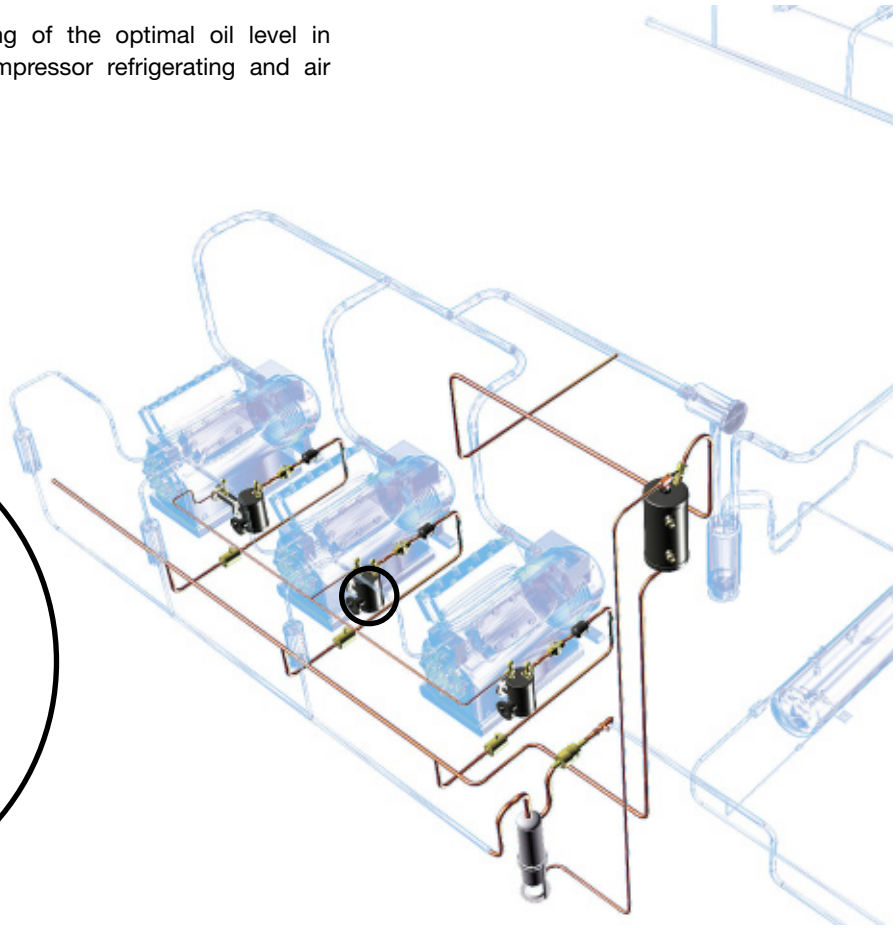
Mechanical oil level regulators

→ HCYN

01/10

■ Applications

- Monitoring and automatic maintaining of the optimal oil level in each compressor sump of multi-compressor refrigerating and air conditioning installations.



■ Functional features

- Products are compatible with HFCs, HCFCs, CFCs, 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.
- Product classification in CE categories is performed using the PED 97/23/EC table corresponding to a volume-based selection.
- The oil level regulators are entirely made of steel.
- Two standard connection flanges at 90° on the standard oil level regulator body allow for one, fastening on the compressor boss and for the other, the constitution of an oil level sight glass.
- Detail of items supplied with the oil level regulators, pages 48.3, 48.4, 48.5.

■ CARLY advantages

- Models of flanged oil level regulators suited to most compressors:
  - Standard BITZER
  - BITZER OCTAGON
  - SCROLL
- Internal valve/needle/float oil return system, efficient and reliable.
- A large number of possible adapters for connection on the numerous brands and types of compressors.
- GOST certified products.

DTGB - 48.1-3-5-10

Mechanical oil level regulators

→ HCYN

01/10

■ Functional features

- The systematic use of HCYN oil level regulators:
  - → guarantees oil level regulation in each compressor sump, preventing its deterioration and its exceptional wear.
  - → does not require any additional electro-mechanical or electronic device for oil level check.
  - → makes possible the installation of compressors at different heights, or at different oil levels.
  - → allows independent operation of each compressor mounted in parallel.
  - → allows parallel mounting on a same installation of compressors of different dimensional features or refrigerating capacities.
  - → facilitates the visualisation of oil levels thanks to two possibilities for mounting on the compressor for the standard models with three-hole flanges.
- Models of oil level regulators for operation with two possible pressure differentials:
  - → HCYN 2 : from 0.35 bar to 2.10 bar
  - → HCYN 3 : from 2.10 bar to 6.35 bar
- Models of oil level regulators, for operation with a fixed oil level:
  - → HCYN 2 and 3: 1/2 glass
- Models of HCYN 2R adjustable oil level regulator: adjustable range between the quarter and the half-glass of the compressor sump.
- Models of oil level regulators with a connection for a pressure equalization line, between several regulators (example: HCYN 2**E**).

■ Recommendations

* The oil level regulators must be bolted on the compressor boss instead of the original oil level sight glass.
* If the compressor sump does not provide a connection matching the flange of the standard oil level regulators, use a HCYN 1A adapter on one of the flanges and a HCYN 1V1 oil level sight glass on the other.
* Mounting of oil level regulators must only be performed with the oil feed connection located in the higher part.
* The oil receiver should be mounted at two metres minimum above the oil level regulators; if this cannot be, it is necessary to mount a HCYCT - non adjustable - or HCYCTR - adjustable - differential valve on the receiver and connected to the suction line, in order to maintain overpressure in the receiver, ensuring:
  - → continuous and regular oil feed of regulators
  - → limitation of the pressure in the oil return line to the compressor sumps whose excess would hinder proper operation of regulators and be a source of incidents for the installation.
* Imperatively provide for an oil filter (HCYF or HCYBF or HYDROIL if polyol-ester oils) upstream of the oil level regulators in order to stop contaminants from disturbing their good operation.
* In order to perform perfect air-tightness with the SCROLL connections, it is recommended to use a thread sealing product.
* For the adjustable oil level regulators models:
  - → turn the screw clockwise, to lower the oil level
  - → turn the screw counter clockwise, to raise the oil level.
* In some cases, the vibrations generated by the compressor can disturb the oil level regulators operation; it is then recommended to install an EVCYAC 6 MMS vibration eliminator between the compressor and the regulator, with two HCYN 1B1 adapters (refer to sketch page 48.3).
* For correct operation, it is necessary to ensure, after mounting, that the oil level regulators are perfectly horizontal and that the oil quality is not degrading with time: modified viscosity and acidity level (TESTOILs ensure monitoring of the refrigerating oil acidity: refer to chapter 91).
* To select the optimal oil level, refer to the recommendations given by the compressor manufacturers; most of the time, this reference level is situated between the half and the quarter of the sight glass.
* During the selection process, take into account the oil return line pressure drops (filters, low sections, complex shapes), that can vary in time (filter blocking).
* For the SCROLL and hermetic compressors, it is recommended to install ELECTROIL electronic oil level regulators (refer to chapter 50), with integrated alarm management in case of shortage of oil in the compressors.
* In the case of multi-compressor systems, it is recommended to use oil level regulators with a pressure equalization connection (models HCYN E), in order to get all the compressor sumps at the same pressure.
* For the models equipped with sight glass, the O-ring should be replaced after each removal of the sight glass; screw it back complying with the recommended 25 N.m tightening torque.
* General assembly precautions: refer to chapter 115.

Mechanical oil level regulators

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→ HCYN

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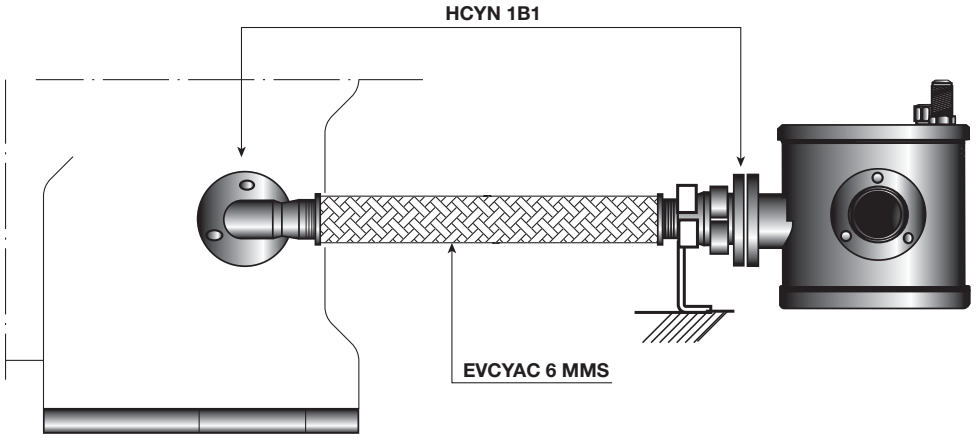
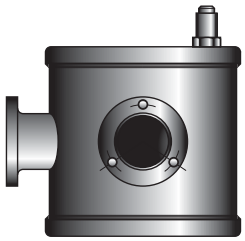
■ Recommendations

This will have to be mounted with **HCYN 1B1** connection flanges.
The regulator will have to be very firmly flanged. In this case, preferably use a **HCYN R** adjustable oil level regulator, in order to be able to choose the required oil level with accuracy.



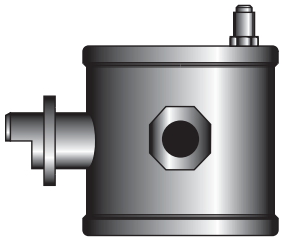
Example of anti-vibration mounting of the **HCYN** oil level regulator containing:
2 **HCYN 1B1** + 1 **EVCYAC 6 MMS**

■ Technical features



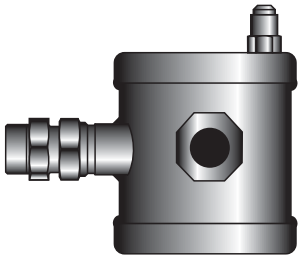
HCYN 2

- equipped with a **3/8" SAE connection** for oil feed;
- preset for oil level regulation at the central horizontal axis of the compressor sump glass (**half-glass**);
- no connection for an equalization line;
- operates with a pressure differential of **0.35 to 2.10 bar**;
- delivered with 3 HM6-30 screws, 3 M6 nuts, 3 ø 6 washers, 2 O-rings and 1 four-lobed seal.



HCYN 2B (BITZER 4G-4H-4J-6F-6G-6H-6J)

- equipped with a **3/8" SAE connection** for oil feed;
- preset for oil level regulation at the central horizontal axis of the compressor sump glass (**half-glass**);
- no connection for an equalization line;
- operates with a pressure differential of **0.35 to 2.10 bar**;
- 4 hole flange;
- delivered with 1 four-lobed seal.



HCYN 2BO (BITZER OCTAGON ; SCROLL MANEUROP ; BOCK HG et HA 12.22.34 - FK 30.40.50.)

- equipped with a **3/8" SAE connection** for oil feed;
- preset for oil level regulation at the central horizontal axis of the compressor sump glass (**half-glass**);
- no connection for an equalization line;
- operates with a pressure differential of **0.35 to 2.10 bar**;
- delivered with a flange with 1" 18 - 18 screwing connection.

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Mechanical oil level regulators

→ HCYN

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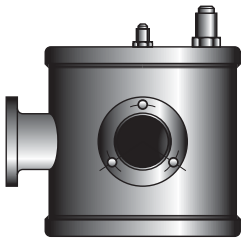
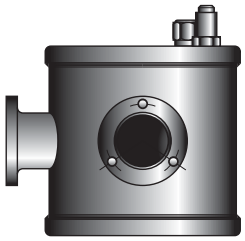
■ Technical features



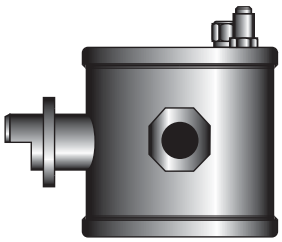
HCYN 2E (with equalization)

- equipped with a **3/8" SAE connection** for oil feed;
- preset for oil level regulation at the central horizontal axis of the compressor sump glass (**half-glass**);
- with **1/4 SAE connection** for an equalization line;
- operates with a pressure differential of **0.35 to 2.10 bar**;
- delivered with 3 HM6-30 screws, 3 M6 nuts, 3 ø 6 washers, 2 O-rings and 1 four-lobed seal.



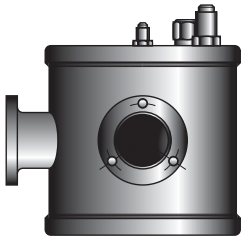
HCYN 2R (Adjustable between the quarter and the half-glass)

- equipped with a **3/8" SAE connection** for oil feed;
- no connection for an equalization line;
- operates with a pressure differential of **0.35 to 2.10 bar**;
- equipped with an oil level regulation adjustment system **between the quarter and the half-glass**;
- delivered with 3 HM6-30 screws, 3 M6 nuts, 3 ø 6 washers, 2 O-rings and 1 four-lobed seal.



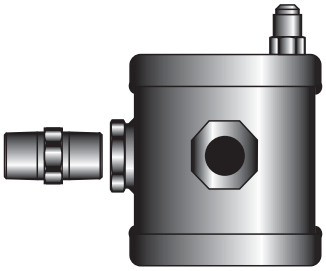
HCYN 2RB BITZER (4G-4H-4J-6F-6G-6H-6J) (Adjustable between the quarter and the half-glass)

- equipped with a **3/8" SAE connection** for oil feed;
- no connection for an equalization line;
- operates with a pressure differential of **0.35 to 2.10 bar**;
- 4-hole flange for **BITZER** compressors **(4G-4H-4J-6F-6G-6H-6J)**;
- equipped with an oil level regulation adjustment system **between the quarter and the half-glass**;
- delivered with 1 O-ring.



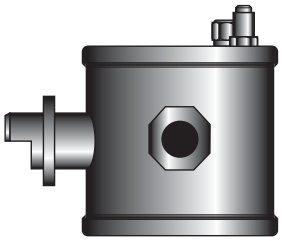
HCYN 2RE (Adjustable between the quarter and the half-glass with egalization)

- equipped with a **3/8" SAE connection** for oil feed;
- operates with a pressure differential of **0.35 to 2.10 bar**;
- with **1/4 SAE connection** for an equalization line;
- equipped with an oil level regulation adjustment system **between the quarter and the half-glass**;
- delivered with 3 HM6-30 screws, 3 M6 nuts, 3 ø 6 washers, 2 O-rings and 1 four-lobed seal.



HCYN 2SC (SCROLL COPELAND ZB - ZF - ZS)

- equipped with a **3/8" SAE connection** for oil feed;
- preset for oil level regulation at the central horizontal axis of the compressor sump glass (**half-glass**);
- no connection for an equalization line;
- operates with a pressure differential of **0.35 to 2.10 bar**;
- flange with 3/4 NPT threading for SCROLL COPELAND ZB - ZF - ZS compressors;
- delivered with a 3/4 NPT double tube nipple.



HCYN 3RB (Adjustable between the quarter and the half-glass) Δp : 2,10 to 6,30 bar

- equipped with a **3/8" SAE connection** for oil feed;
- no connection for an equalization line;
- operates with a pressure differential of **2.10 to 6.30 bar**;
- 4-hole flange for **BITZER** compressors **(4G-4H-4J-6F-6G-6H-6J)**;
- equipped with an oil level regulation adjustment system **between the quarter and the half-glass**;
- delivered with 1 O-ring.

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Mechanical oil level regulators

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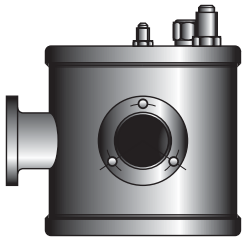
■ Technical features



HCYN 3RE (Adjustable between the quarter and the half-glass with equalization) Δp : 2,10 à 6,30 bar

- equipped with a **3/8" SAE connection** for oil feed;
- operates with a pressure differential of **2.10 to 6.30 bar**;
- with connection for an equalization line;
- equipped with an oil level regulation adjustment system **between the quarter and the half-glass**;
- delivered with 3 HM6-30 screws, 3 M6 nuts, 3 ø 6 washers, 2 O-rings and 1 four-lobed seal.

CARLY references	Oil inlet 3/8" SAE	Preset oil level (glass)	Adjustable oil level between 1/4 and 1/2 sight glass	Equalization connection 1/4" SAE	Δ P 0,35 to 2,10 (bar)	Δ P 2,10 to 6,30 (bar)
HCYN 2	x	1/2			x	
HCYN 2B	x	1/2			x	
HCYN 2BO	x	1/2			x	
HCYN 2E	x	1/2		x	x	
HCYN 2R	x		x		x	
HCYN 2RB	x		x		x	
HCYN 2RE	x		x	x	x	
HCYN 2SC	x	1/2			x	
HCYN 3RB	x		x			x
HCYN 3RE	x		x	x		x

See tables page 48-12 and 48-13 for regulators ans compressors association.

Mechanical oil level regulators

➔ HCYN

■ Example of selection

The sizing of a product implies for the buyer to take into account the conditions under which the product will be used (temperature - pressure - refrigerant - oil - external environment). The values of the selection tables proposed in the CARLY catalogue match accurate test conditions.

• Refrigerating unit composed of three compressors operating with R404A under the following conditions[1]:

- ➜ Compressor No.1 T_o = -25°C Po = 2.5 bar
- ➜ Compressors No.2 and 3 T_o = -10°C Po = 4.4 bar
- ➜ Use of a HCYCT 3 differential valve between the oil receiver and the suction collector that maintains a pressure differential of 1.4 bar.
- ➜ Connection of regulators by a pressure equalization line
- ➜ Oil level regulation adjustment is possible between the quarter and the half-glass

• Which **HCYN** mechanical oil level regulator to choose?

• *Calculation of the oil receiver pressure (P_{RH})*

$$P_{RH} = P_{o\ maxi} + \Delta P_{\ check\ valve}$$

Result: P_{RH} = 4.4 + 1.4 = 5.8 bar

∗ HCYN selection for compressors No.2 and No.3

The pressure differential between the HCYR oil receiver and the common line compressors being of 1.40 bar (given by the HCYCT 3 differential valve), a HCYN oil level regulator accepting a pressure differential between 0.35 and 2.10 bar has to be mounted on each of these compressors. A connection for pressure equalization and an oil level regulation adjustment are required between the quarter and the half-glass.

Result: HCYN 2RE

∗ HCYN selection for compressor No.1

The pressure differential between the HCYR oil receiver and compressor No.1 being of 5.8 - 2.5 = 3.3 bar, a HCYN oil level regulator accepting a pressure differential between 2.10 and 6.30 bar has to be mounted on the compressor. A connection for pressure equalization and an oil level regulation adjustment are required between the quarter and the half-glass.

Result: HCYN 3RE

[1] Chapter "Abbreviations and units" (refer to chapter 113).

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Mechanical oil level regulators

→ HCYN

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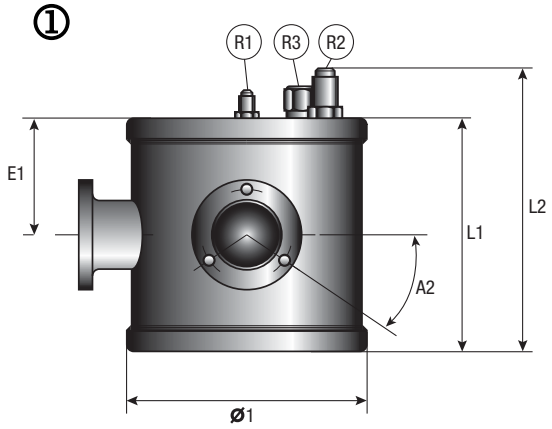
■ Technical features

CARLY references	Drawing Nb	Dimensions (mm)									Angles (°)		Net weight (kg)
		Ø1	Ø2	L1	L2	L3	E1	E2	E3	E4	A1	A2	
HCYN 2	1	108	70	120	148	/	57	80,0	/	80	/	34	2,00
HCYN 2B	2	108	70	120	148	/	57	96,0	/	77	/	45	1,95
HCYN 2BO	3	108	70	120	148	/	57	114,8	/	77	/	/	2,10
HCYN 2E	1	108	70	120	148	/	57	80,0	35	80	/	34	2,00
HCYN 2R	1	108	70	120	148	/	57	80,0	/	80	45	34	2,15
HCYN 2RB	2	108	70	120	148	/	57	96,0	/	77	45	45	2,10
HCYN 2RE	1	108	70	120	148	/	57	80,0	35	80	45	34	2,05
HCYN 2SC	4	108	70	120	148	55	57	64,8	/	64	/	/	1,90
HCYN 3RB	2	108	70	120	148	/	57	96,0	/	77	45	45	2,10
HCYN 3RE	1	108	70	120	148	/	57	80,0	35	80	45	34	2,05

①



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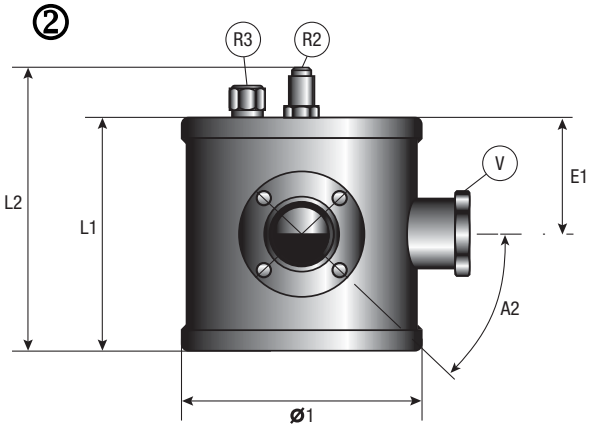
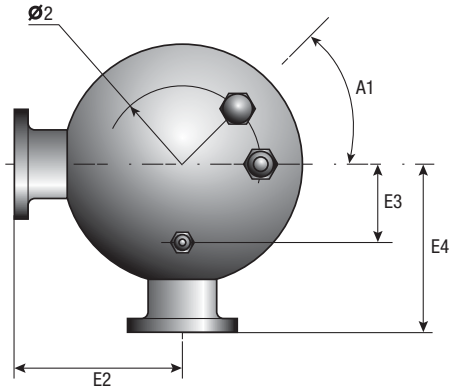
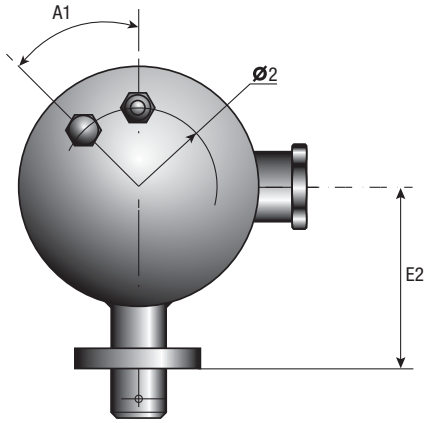


R1 : 1/4" SAE connection, pressure equalization line
R2 : 3/8" SAE connection, oil inlet
R3 : Oil level adjusting screw

R2 : 3/8" SAE connection, oil inlet
R3 : Oil level adjusting screw
V : Oil sight glass



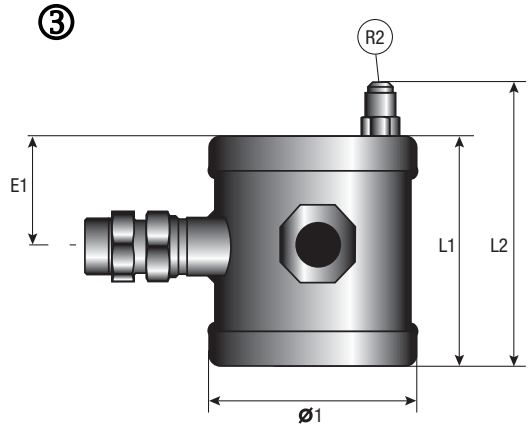


Mechanical oil level regulators

→ HCYN

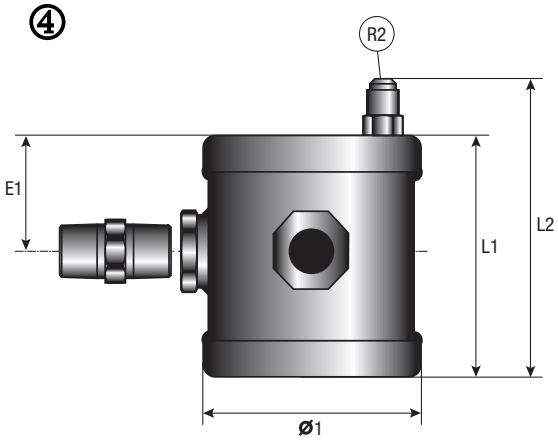
■ Technical features

③

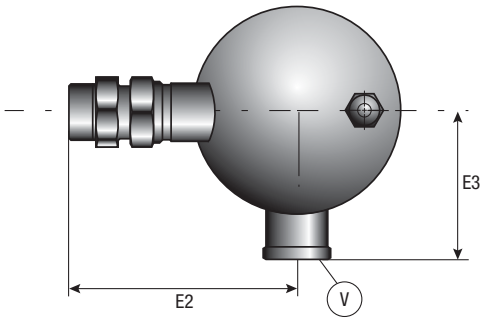


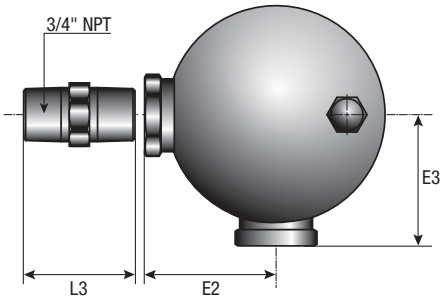
R2 : 3/8" SAE connection, oil inlet
V : Oil sight glass

④



R2 : 3/8" SAE connection, oil inlet





CARLY references	Volume	Pressure range	Maximal working pressure	Working pressure (1)	Maximal working temperature	Minimal working temperature	Working temperature (1)	CE Category (2)
	V (L)	ΔP (bar)	PS (bar)	PS BT (bar)	TS maxi (°C)	TS mini (°C)	TS BT (°C)	
HCYN 2	0,9	0,35 - 2,10	30	10	80	-40	-20	Art3§3
HCYN 2B	0,9	0,35 - 2,10	30	10	80	-40	-20	Art3§3
HCYN 2BO	0,9	0,35 - 2,10	30	10	80	-40	-20	Art3§3
HCYN 2E	0,9	0,35 - 2,10	30	10	80	-40	-20	Art3§3
HCYN 2R	0,9	0,35 - 2,10	30	10	80	-40	-20	Art3§3
HCYN 2RB	0,9	0,35 - 2,10	30	10	80	-40	-20	Art3§3
HCYN 2RE	0,9	0,35 - 2,10	30	10	80	-40	-20	Art3§3
HCYN 2SC	0,9	0,35 - 2,10	30	10	80	-40	-20	Art3§3
HCYN 3RB	0,9	2,10 - 6,30	30	10	80	-40	-20	Art3§3
HCYN 3RE	0,9	2,10 - 6,30	30	10	80	-40	-20	Art3§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 97/23/EC (refer to chapter 0 page 7).

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Adapters for oil level regulators

→ HCYN 1A

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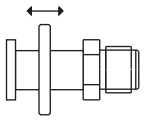
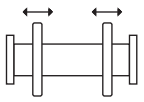
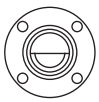
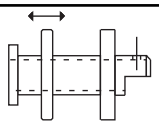
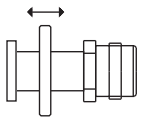
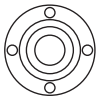
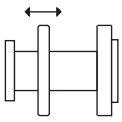
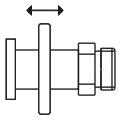
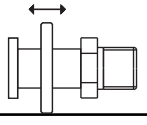
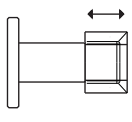
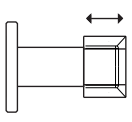
■ Technical features

• HCYN 1A adapters allow connection of CARLY oil level regulators to compressors for which the flange, instead of the oil sight glass, does not correspond to the standard 3-holes flange.

CARLY references	Features of compressor connection (sight glass)	Accessories delivered with the adapter	End view from compressor side	Side view compressor on the right
HCYN 1A2	Threads 1 1/8" - 12	1 O-ring 3 screws HM6 - 30 cl 8 - 8 3 nuts HM6 3 washers DEC 6 1 glass 3 trous diameter 60		
HCYN 1A3	3 screws 1/4" diameter 47.6	1 O-ring 3 screws HM6 - 30 cl 8 - 8 3 nuts HM6 3 washers DEC 6		
HCYN 1A5	4 screws 1/4" diameter 50	1 O-ring 3 screws HM6 - 30 cl 8 - 8 3 nuts HM6 3 washers DEC 6 1 glass 3 holes diameter 60		
HCYN 1A7	Threads 1 1/2" - 18	1 O-ring 3 screws HM6 - 30 cl 8 - 8 3 nuts HM6 3 washers DEC 6 1 glass 3 holes diameter 60		
HCYN 1A9	4 screws 1/4" at 90° diameter 50	1 O-ring 3 screws HM6 - 30 cl 8 - 8 3 nuts HM6 3 washers DEC 6 1 glass 3 holes diameter 60		
HCYN 1A10	Threads 1 1/8" - 18	1 O-ring 3 screws HM6 - 30 cl 8 - 8 3 nuts HM6 3 washers DEC 6 1 glass 3 holes diameter 60		
HCYN 1A11	Threads 3/4" NPT	1 O-ring 3 screws HM6 - 30 cl 8 - 8 3 nuts HM6 3 washers DEC 6 1 glass 3 holes diameter 60		
HCYN 1A14	1 3/4 - 12 UNF ROTALOCK	1 O-ring 3 screws HM6 - 30 cl 8 - 8 3 nuts HM6 3 washers DEC 6 1 gasket PTFE 1 glass 3 holes diameter 60		
HCYN 1A15	1 1/4 - 12 UNF ROTALOCK	1 O-ring 3 screws HM6 - 30 cl 8 - 8 3 nuts HM6 3 washers DEC 6 1 gasket PTFE 1 glass 3 holes diameter 60		

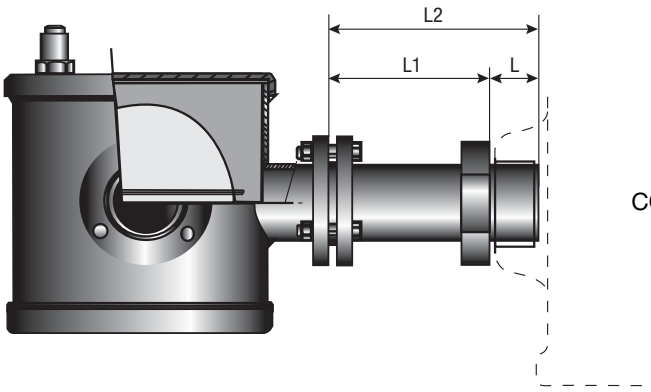
See tables page 48-12 and 48-13 for regulators ans compressors association.

Adapters for oil level regulators

➔HCYN 1A

■ Technical features

CARLY references	Dimensions (mm)			Net weight (kg)
	L1 +- 0.5	L2 +- 0.5	L	
HCYN 1A2	58,5	84,5	27,0	0,45
HCYN 1A3	102,0	102,0	/	0,45
HCYN 1A5	57,5	82,5	24,5	0,60
HCYN 1A7	55,5	82,5	27,0	0,58
HCYN 1A9	59,5	63,0	3,5	0,45
HCYN 1A10	46,5	57,5	11,0	0,40
HCYN 1A11	46,5	72,5	26,0	0,45
HCYN 1A14	46,5	72,5	26,0	0,45
HCYN 1A15	46,5	72,5	26,0	0,45



CARLY references	Nominal Diameter	Maximal working pressure	Working pressure (1)	Maximal working temperature	Minimal working temperature	Working temperature (1)	CE Category (2)
	DN (mm)	PS (bar)	PS BT (bar)	TS maxi (°C)	TS mini (°C)	TS BT (°C)	
HCYN 1A2	21,7	30	/	80	-20	/	Art3§3
HCYN 1A3	21,7	30	/	80	-20	/	Art3§3
HCYN 1A5	21,7	30	/	80	-20	/	Art3§3
HCYN 1A7	21,7	30	/	80	-20	/	Art3§3
HCYN 1A9	21,7	30	/	80	-20	/	Art3§3
HCYN 1A10	21,7	30	/	80	-20	/	Art3§3
HCYN 1A11	21,7	30	/	80	-20	/	Art3§3
HCYN 1A14	21,7	30	/	80	-20	/	Art3§3
HCYN 1A15	21,7	30	/	80	-20	/	Art3§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 diameter, according to PED 97/23/EC (refer to chapter 0 page 7).

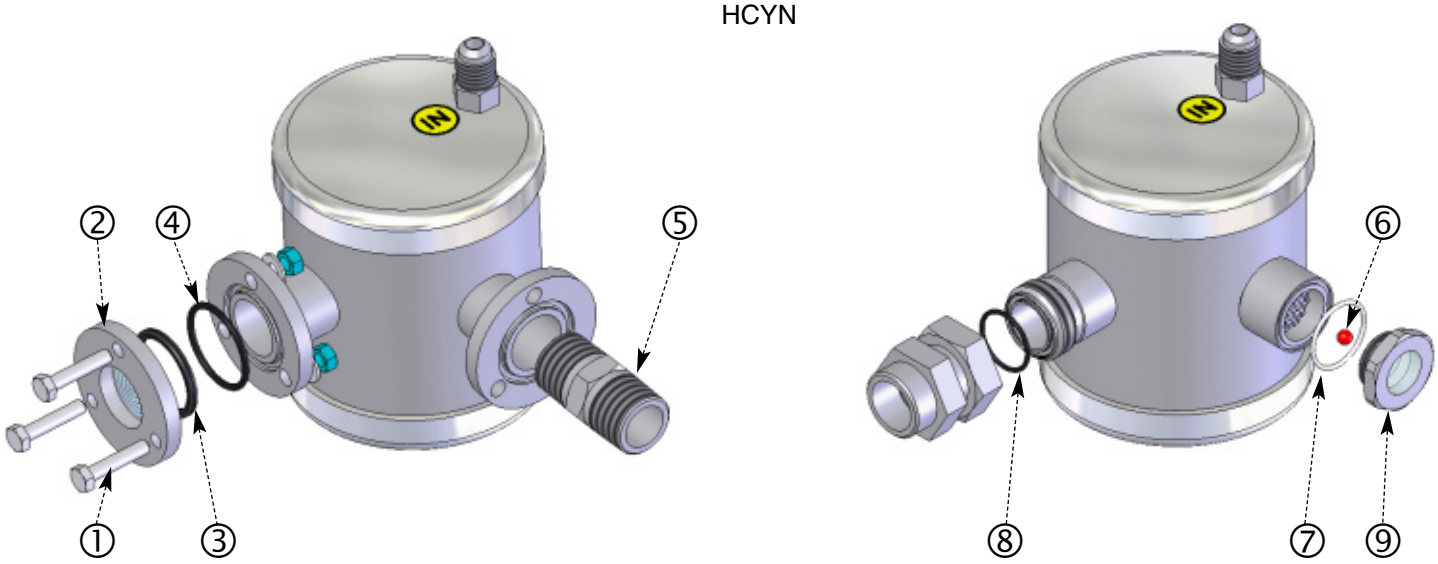
Mechanical oil level regulators

→ HCYN

■ Spare parts

CARLY references	Part Nb	Description	Types	Quantity
HCYN 1V1	2	Oil level sight glass	HCYN 2 / HCYN 2E HCYN 2R / HCYN 2RE HCYN 3RE	1
CY 15552000	3	Four-lobed gasket		1
CY 15552190	4	O-ring		1
HCYN 1V1K	1+2+3+4	HCYN 1V1 + screws + gaskets		1
CY 36002050	5	Double 3/4" gas nipple for SCROLL flange	HCYN SC (Scroll)	1
CY 10501000	6	Colour ball for sight glass	HCYN B and BO (Bitzer)	1
CY 15552180	7	O-ring for sight glass	HCYN B and BO (Bitzer)	1
CY 15580032	8	O-ring for BO connection-flange	HCYN BO (Bitzer)	1
CY 25012140	9	Glass	HCYN B and BO (Bitzer)	1

HCYN



Oil level regulators and adapters

→ HCYN AND HCYN 1A

■ Compressor / oil level regulator association

Compressor		Type of connection	Oil level regulator	Oil level regulator + adapter	Electronic oil level regulator	BOOSTER application LP oil level regulator	Adjustable oil level regulator	Oil level regulator with equalisation
Brand	Range		(0,35 bar < Δp < 2,1bar)		(3,5 bar < Δp < 21 bar)	(2,10 bar < Δp < 6,30 bar)		
BITZER	2CC--> 2KC	1 1/8 - 18 UNEF	HCYN 2BO	HCYN 2 + HCYN 1A10	**ELECTROIL + HCYN 1A10**	HCYN 3RE + HCYN 1A10	HCYN 2R, HCYN 2RE + HCYN 1A10	HCYN 2E, HCYN 2RE + HCYN 1A10
	4CC--> 4FC							
	ESH							
	2N, 2T, 4N, 4T, 4P	4 holes in Diam. 50mm	HCYN 2B	HCYN 2 + HCYN 1A5	ELECTROIL (+ HCYN 1A5 for CP before 05/1997)	HCYN 3RB	HCYN 2RB	HCYN 2E, HCYN 2RE + HCYN 1A5
	4G, 4H, 4J, 6F, 6G, 6H, 6J							
	S4, S6, S66							
	4NCS --> 4VCS	3 holes in Diam. 47,6mm	HCYN 2	HCYN 2 + HCYN 1A3	ELECTROIL	HCYN 3RE	HCYN 2R, HCYN 2RE	HCYN 2E, HCYN 2RE
	6D, 6E							
	8FC, 8GC		/	+ HCYN 1A3	ELECTROIL + HCYN 1A3	HCYN 3RE + HCYN 1A3	HCYN 2R, HCYN 2RE + HCYN 1A3	HCYN 2E, HCYN 2RE + HCYN 1A3
	GSD 8	1 3/4-12 UNF	/	HCYN 2 + HCYN 1A14	ELECTROIL + HCYN 1A14	HCYN 3RE + HCYN 1A14	HCYN 2R, HCYN 2RE + HCYN 1A14	HCYN 2E, HCYN 2RE + HCYN 1A14
BOCK	HA, HG (4 ,5 , 6)	3 holes in Diam. 47,6mm	HCYN 2	HCYN 2 + HCYN 1A3	ELECTROIL	HCYN 3RE	HCYN 2R, HCYN 2RE	HCYN 2E, HCYN 2RE
	HG (7, 8) HGZ							
	EX	1 1/8 - 18 UNEF	HCYN 2BO	HCYN 2 + HCYN 1A10	ELECTROIL + HCYN 1A10	HCYN 3RE + HCYN 1A10	HCYN 2R, HCYN 2RE + HCYN 1A10	HCYN 2E, HCYN 2RE + HCYN 1A10
	HA, HG (12 ,22 , 34)							
	AM (2-->5)	4 holes in Diam. 50mm	/	HCYN 2 + HCYN 1A9	ELECTROIL + HCYN 1A9	HCYN 3RE + HCYN 1A9	HCYN 2R, HCYN 2RE + HCYN 1A9	HCYN 2E, HCYN 2RE + HCYN 1A9
	F (2-->16)							
CARRIER	EA, ER, 6E, OBE, OBCC	3 holes in Diam. 47,6mm	HCYN 2	HCYN 2 + HCYN 1A3	ELECTROIL	HCYN 3RE	HCYN 2R, HCYN 2RE	HCYN 2E, HCYN 2RE
	DA, DR, 5F, 5H, 6D, 6E	1 1/2 - 18 UNEF	/	HCYN 2 + HCYN 1A7	ELECTROIL + HCYN 1A7	HCYN 3RE + HCYN 1A7	HCYN 2R, HCYN 2RE + HCYN 1A7	HCYN 2E, HCYN 2RE + HCYN 1A7
COPELAND	DK, DL, DN , ZR, ZZ	1 1/8 - 12 UNF	/	HCYN 2 + HCYN 1A2	**ELECTROIL + HCYN 1A2**	HCYN 3RE + HCYN 1A2	HCYN 2R, HCYN 2RE + HCYN 1A2	HCYN 2E, HCYN 2RE + HCYN 1A2
	D2, D3, D4 , D6, 4CC, 6CC	3 holes in Diam. 47,6mm	HCYN 2	HCYN 2 + HCYN 1A3	ELECTROIL	HCYN 3RE	HCYN 2R, HCYN 2RE	HCYN 2E, HCYN 2RE
	D8, 8CC		/	HCYN 2 + HCYN 1A3	ELECTROIL + HCYN 1A3	HCYN 3RE + HCYN 1A3	HCYN 2R, HCYN 2RE + HCYN 1A3	HCYN 2E, HCYN 2RE + HCYN 1A3
	ZB, ZF, ZS, ZO	3/4-14 NPTF	HCYN 2SC	HCYN 2 + HCYN 1A11	**ELECTROIL + HCYN 1A11**	HCYN 3RE + HCYN 1A11	HCYN 2R, HCYN 2RE + HCYN 1A11	HCYN 2E, HCYN 2RE + HCYN 1A11
	ZR (11 --> 19, 90), ZP (180/235/295/385)	1 3/4-12 UNF ROTALOCK	/	HCYN 2 + HCYN 1A14	**ELECTROIL + HCYN 1A14**	HCYN 3RE + HCYN 1A14	HCYN 2R, HCYN 2RE + HCYN 1A14	HCYN 2E, HCYN 2RE + HCYN 1A14
	ZR (94/108/125/144/160/190), ZP (90/103/120/137/154/182)	1 1/4-12 UNF ROTALOCK	/	HCYN 2 + HCYN 1A15	**ELECTROIL + HCYN 1A15**	HCYN 3RE + HCYN 1A15	HCYN 2R, HCYN 2RE + HCYN 1A15	HCYN 2E, HCYN 2RE + HCYN 1A15

DTGB - 48.1-3-5-10

Oil level regulators and adapters

→ HCYN AND HCYN 1A

05/10

■ Compressor / oil level regulator association

Compressor		Type of connection	Oil level regulator	Oil level regulator + adapter	Electronic oil level regulator	BOOSTER application LP oil level regulator	Adjustable oil level regulator	Oil level regulator with equalisation
Brand	Range		(0,35 bar < Δp < 2,1bar)		(3,5 bar < Δp < 21 bar)	(2,10 bar < Δp < 6,30 bar)		
DANFOSS	**MLZ / MFZ / LFZ**	**1 1/8 - 18 UNEF**	**HCYN 2BO**	HCYN 2 + HCYN 1A10	**ELECTROIL + HCYN 1A10**	HCYN 3RE + HCYN 1A10	HCYN 2R, HCYN 2RE + HCYN 1A10	HCYN 2E, HCYN 2RE + HCYN 1A10
	SH (090-->161)	**1 3/4-12 UNF ROTALOCK**	**/**	HCYN 2 + HCYN 1A14	**ELECTROIL + HCYN 1A14**	HCYN 3RE + HCYN 1A14	HCYN 2R, HCYN 2RE + HCYN 1A14	HCYN 2E, HCYN 2RE + HCYN 1A14
DORIN	**H, K (40CC --> 240SB)**	1 1/8 - 18 UNEF	**HCYN 2BO**	HCYN 2 + HCYN 1A10	**ELECTROIL + HCYN 1A10**	HCYN 3RE + HCYN 1A10	HCYN 2R, HCYN 2RE + HCYN 1A10	HCYN 2E, HCYN 2RE + HCYN 1A10
	K, KP, 2S, Y, SC	3 Trous sur Diam. 47,6mm	**HCYN 2**	HCYN 2 + HCYN 1A3	ELECTROIL	HCYN 3RE	HCYN 2R, HCYN 2RE	HCYN 2E, HCYN 2RE
	K (8 CYL)	3 Trous sur Diam. 47,6mm	**/**	**HCYN 2 + HCYN 1A3**	ELECTROIL + HCYN 1A3	HCYN 3RE + HCYN 1A3	HCYN 2R, HCYN 2RE + HCYN 1A3	HCYN 2E, HCYN 2RE + HCYN 1A3
DUNHAM-BUSH	**B6**	3 Trous sur Diam. 47,6mm	**HCYN 2**	HCYN 2 + HCYN 1A3	ELECTROIL	HCYN 3RE	HCYN 2R, HCYN 2RE	HCYN 2E, HCYN 2RE
FRASCOLD	**A,B,D,F,S,V,Z A-SK --> S-SK**	3 Trous sur Diam. 47,6mm	**HCYN 2**	HCYN 2 + HCYN 1A3	ELECTROIL	HCYN 3RE	HCYN 2R, HCYN 2RE	HCYN 2E, HCYN 2RE
	W	3 Trous sur Diam. 47,6mm	**/**	**HCYN 2 + HCYN 1A3**	ELECTROIL + HCYN 1A3	HCYN 3RE + HCYN 1A3	HCYN 2R, HCYN 2RE + HCYN 1A3	HCYN 2E, HCYN 2RE + HCYN 1A3
PRESTCOLD	**Tous les compresseurs avec voyants**	1 1/8 - 12 UNF	**/**	**HCYN 2 + HCYN 1A2**	ELECTROIL + HCYN 1A2	HCYN 3RE + HCYN 1A2	HCYN 2R, HCYN 2RE + HCYN 1A2	HCYN 2E, HCYN 2RE + HCYN 1A2
	PK, PL	3 Trous sur Diam. 47,6mm	**HCYN 2**	HCYN 2 + HCYN 1A3	ELECTROIL	HCYN 3RE	HCYN 2R, HCYN 2RE	HCYN 2E, HCYN 2RE
	P	3 Trous sur Diam. 47,6mm	**/**	**HCYN 2 + HCYN 1A3**	ELECTROIL + HCYN 1A3	HCYN 3RE + HCYN 1A3	HCYN 2R, HCYN 2RE + HCYN 1A3	HCYN 2E, HCYN 2RE + HCYN 1A3
MANEUROP	**P8, P08**	1 1/8 - 18 UNEF	**HCYN 2BO**	HCYN 2 + HCYN 1A10	**ELECTROIL + HCYN 1A10**	HCYN 3RE + HCYN 1A10	HCYN 2R, HCYN 2RE + HCYN 1A10	HCYN 2E, HCYN 2RE + HCYN 1A10
REFCOMP	**SP**	3 Trous sur Diam. 47,6mm	**HCYN 2**	HCYN 2 + HCYN 1A3	ELECTROIL	HCYN 3RE	HCYN 2R, HCYN 2RE	HCYN 2E, HCYN 2RE
	SP (8 cyl)	3 Trous sur Diam. 47,6mm	**/**	**HCYN 2 + HCYN 1A3**	ELECTROIL + HCYN 1A3	HCYN 3RE + HCYN 1A3	HCYN 2R, HCYN 2RE + HCYN 1A3	HCYN 2E, HCYN 2RE + HCYN 1A3
TECUMSEH EUROPE	**Tous les compresseurs avec voyants**	1 1/8 - 18 UNEF	**HCYN 2BO**	HCYN 2 + HCYN 1A10	**ELECTROIL + HCYN 1A10**	HCYN 3RE + HCYN 1A10	HCYN 2R, HCYN 2RE + HCYN 1A10	HCYN 2E, HCYN 2RE + HCYN 1A10
	SCROLL VSA	3/4-14 NPTF	**HCYN 2SC**	HCYN 2 + HCYN 1A11	**ELECTROIL + HCYN 1A11**	HCYN 3RE + HCYN 1A11	HCYN 2R, HCYN 2RE + HCYN 1A11	HCYN 2E, HCYN 2RE + HCYN 1A11
TRANE	**M, R**	3 Trous sur Diam. 47,6mm	**HCYN 2**	HCYN 2 + HCYN 1A3	ELECTROIL	HCYN 3RE	HCYN 2R, HCYN 2RE	HCYN 2E, HCYN 2RE
	K	3/4-14 NPTF	**HCYN 2SC**	HCYN 2 + HCYN 1A11	**ELECTROIL + HCYN 1A11**	HCYN 3RE + HCYN 1A11	HCYN 2R, HCYN 2RE + HCYN 1A11	HCYN 2E, HCYN 2RE + HCYN 1A11
YORK	**GC, GS, JS**	3 Trous sur Diam. 47,6mm	**HCYN 2**	HCYN 2 + HCYN 1A3	ELECTROIL	HCYN 3RE	HCYN 2R, HCYN 2RE	HCYN 2E, HCYN 2RE

Oil level regulators and adapters

→ HCYN AND HCYN 1A

■ Weights and packaging

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
HCYN 2	2,17	2,00	1	/
HCYN 2B	2,12	1,95	1	/
HCYN 2BO	2,27	2,10	1	/
HCYN 2E	2,17	2,00	1	/
HCYN 2R	2,32	2,15	1	/
HCYN 2RB	2,27	2,10	1	/
HCYN 2RE	2,22	2,05	1	/
HCYN 2SC	2,07	1,90	1	/
HCYN 3RB	2,27	2,10	1	/
HCYN 3RE	2,22	2,05	1	/

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
HCYN 1A2	0,45	0,45	1	/
HCYN 1A3	0,45	0,45	1	/
HCYN 1A5	0,60	0,60	1	/
HCYN 1A7	0,58	0,58	1	/
HCYN 1A9	0,45	0,45	1	/
HCYN 1A10	0,40	0,40	1	/
HCYN 1A11	0,45	0,45	1	/
HCYN 1A14	0,45	0,45	1	/
HCYN 1A15	0,45	0,45	1	/

DTGB - 49.1-1-1-10

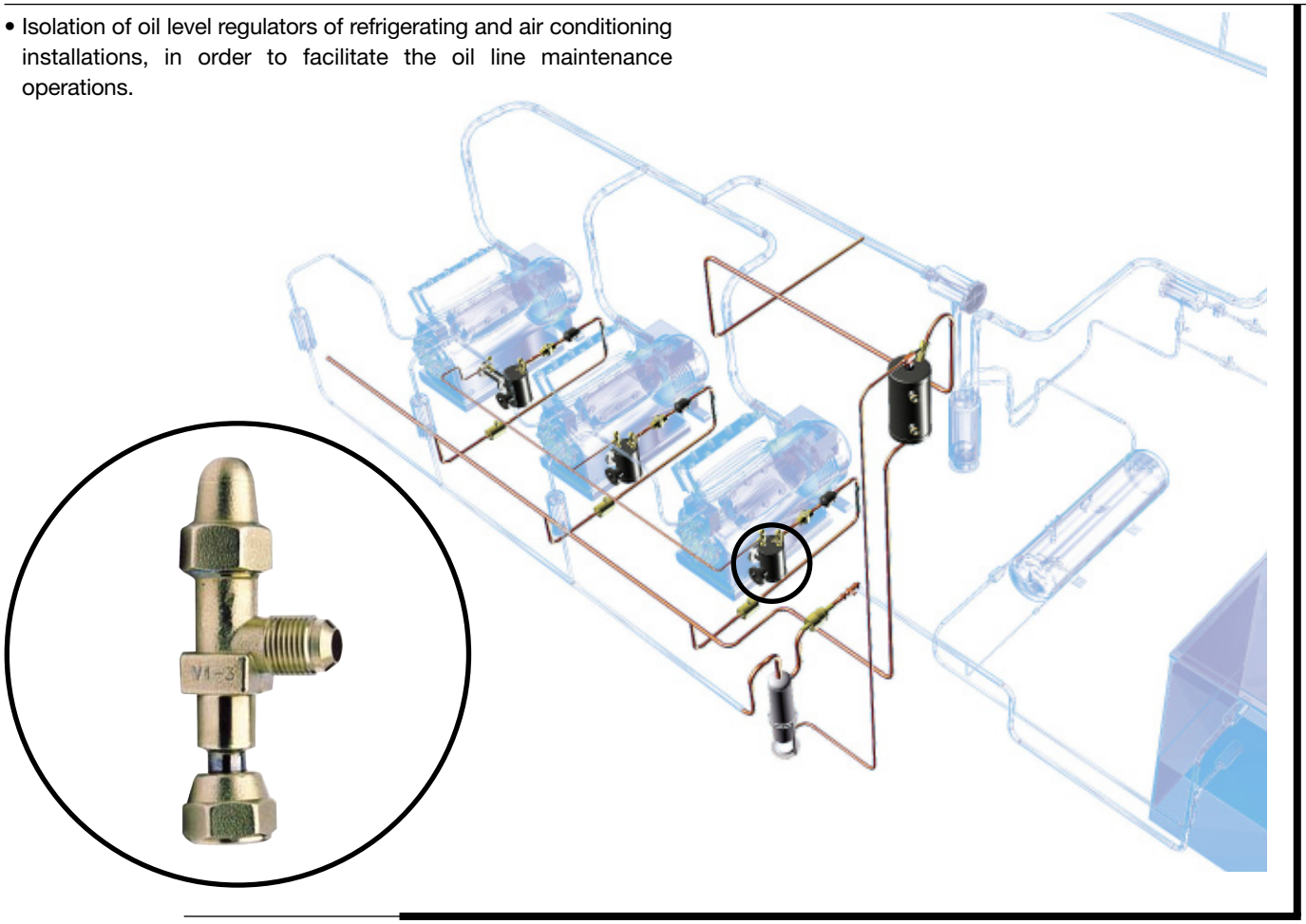
Isolation valves for oil level regulators

→ HCYVI

01/10

■ Applications

- Isolation of oil level regulators of refrigerating and air conditioning installations, in order to facilitate the oil line maintenance operations.



■ Functional features

- Products are compatible with HFCs, HCFCs, CFCs, 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.
- Product classification in CE categories is performed using the PED 97/23/EC table, corresponding to a nominal diameter-based selection.
- Body and internal needle are made of brass.
- Screwed plug, perfectly sealed, preventing accidental handling of the adjustment rod.
- Square section inspection rod to be handled with tool.
- Neoprene® internal O-rings.
- Delivered with a copper taper gasket for the revolving side of the nut.

■ CARLY advantages

- Connection to the 360° adjustable oil level regulator thanks to a revolving nut.
- Possibility to have vertical and horizontal valves (H version with reduced footprint in height).
- GOST certified products.

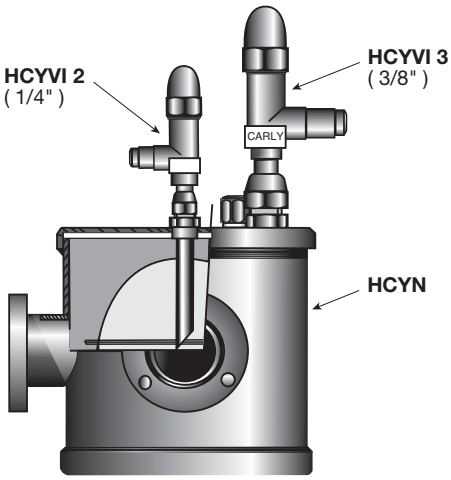
Isolation valves for oil level regulators

→ HCYVI

01/10

■ Recommendations

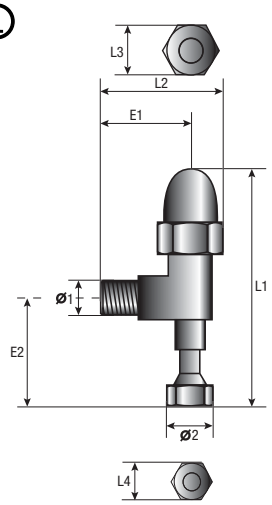
* The isolation valves are to be mounted on the oil level regulators:
  - → HCYVI 3 : on the 3/8" SAE oil intake connection
  - → HCYVI 2 : on the 1/4" SAE pressure equalization connection
* General assembly precautions: refer to chapter 115.



■ Technical features

CARLY references	Connections To screw SAE Ø1 inch	Connections To screw SAE Ø2 inch	Drawing Nb	Dimensions (mm) L1	L2	L3 upper faces	L4 upper faces	E1	E2	Net weight (kg)
HCYVI 2	1/4	1/4	1	88	36,5	22	17	24,5	41,0	0,15
HCYVI 2H	1/4	1/4	2	74	52,0	22	17	39,5	26,0	0,15
HCYVI 3	3/8	3/8	1	98	41,0	22	22	28,5	51,0	0,20
HCYVI 3H	3/8	3/8	2	78	55,7	22	22	44,0	30,5	0,20

①



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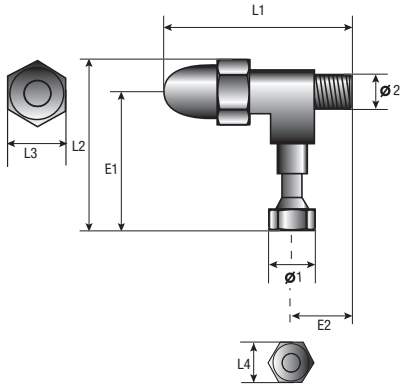


DTGB - 49.1-1-1-10

Isolation valves for oil level regulators

→ HCYVI

01/10

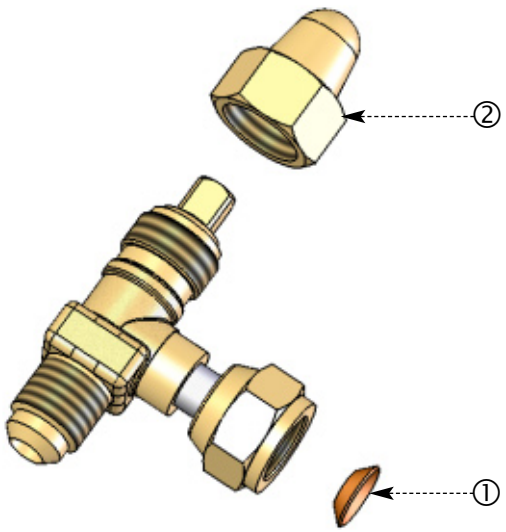
■ Technical features

CARLY references	Nominal diameter	Maximal working pressure	Working pressure (1)	Maximal working temperature	Minimal working temperature	Working temperature (1)	CE Category (2)
	DN (inch)	PS (bar)	PS BT (bar)	TS maxi (°C)	TS mini (°C)	TS BT (°C)	
HCYVI 2	1/4	35	10	80	-40	-20	Art3§3
HCYVI 2H	1/4	35	10	80	-40	-20	Art3§3
HCYVI 3	3/8	35	10	80	-40	-20	Art3§3
HCYVI 3H	3/8	35	10	80	-40	-20	Art3§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 diameter, according to PED 97/23/EC (refer to chapter 0 page 7).

■ Spare parts

CARLY references	Part Nb	Description	HCYVI Types	Quantity
CY 15590010	1	Set of 25 taper copper gaskets for 1/4" SAE connection	2 and 2H	1
CY 15590020	1	Set of 25 taper copper gaskets for 3/8" SAE connection	3, 3H	1
CY 10850030	2	Plug for inspection rod	All	1



Isolation valves for oil level regulators

→ HCYVI

■ Weights and packaging

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
HCYVI 2	0,15	0,15	1	/
HCYVI 2H	0,15	0,15	1	/

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
HCYVI 3	0,20	0,20	1	/
HCYVI 3H	0,20	0,20	1	/

DTGB - 51.1-3-5-10

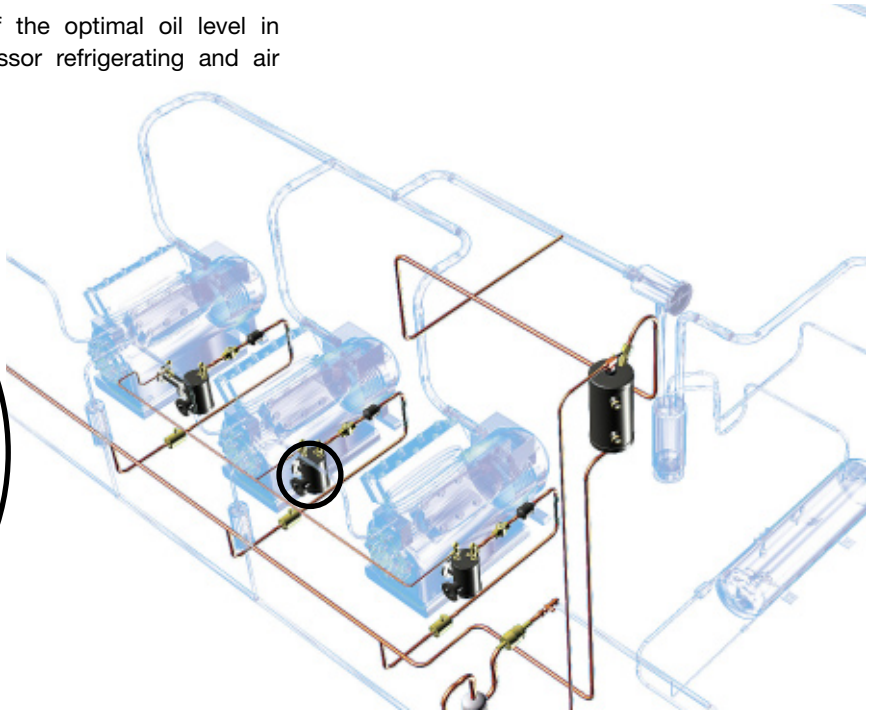
Mechanical oil level regulators and adapters

→ LEVOIL®

05/10

■ Applications

- Monitoring and automatic maintaining of the optimal oil level in each compressor sump of multi-compressor refrigerating and air conditioning installations.



■ Functional features

- Products are compatible with HFCs, HCFCs, CFCs, CO_2 (Subcritical) 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.
- Product classification in CE categories is performed using the PED 97/23/EC table corresponding to a volume-based selection.
- The oil level regulators are entirely made of steel.
- Two connection flanges at 90° on the standard oil level regulator body allow for one, fastening on the compressor boss and for the other, the connection of the oil sight glass originally fixed on the compressor.
- Detail of items supplied with the oil level regulators, pages 51.3.

■ CARLY advantages

- Optimized range of oil level regulators equipped with two 7 holes universal flanges in order to be mounted on most of compressors available on the market.
- Resistance to higher pressure and limited foaming phenomenon inside the regulator due to the spherical design.
- Internal valve/needle/float oil return system, efficient and reliable. Minimizes the bad effect of foaming and ensures a good stability of the oil level.
- The density and viscosity of oils have nearly no effect on the regulator LEVOIL®.
- Due to the large pressure differential (1bar to 4,5bar), the basic model LEVOIL 23 is suitable for mounting on 2 levels cascade packs.
- Installation possible on the right or left side of the compressor, thanks to the centered inlet oil connection.
- Inlet oil connection inclined backwards, in order to avoid the cylinder heads of the compressor.
- Small volume of oil retention in the lower part of the LEVOIL®.
- Wide range of adapters allowing connection of the LEVOIL® on most of the compressors available on the market.
- GOST certified products.

DTGB - 51.1-3-5-10

Mechanical oil level regulators and adapters

→ LEVOIL®

01/10

■ Functional features

- The systematic use of LEVOIL® oil level regulators:
  - → guarantees oil level regulation in each compressor sump, preventing its deterioration and its exceptional wear.
  - → does not require any additional electro-mechanical or electronic device for oil level check.
  - → makes possible the installation of compressors at different heights, or at different oil levels.
  - → allows independent operation of each compressor mounted in parallel.
  - → allows parallel mounting on a same installation of compressors of different dimensional features or refrigerating capacities.
  - → facilitates the visualisation of oil levels thanks to two possibilities for mounting (right/left) on the compressor for the standard models with seven-hole flanges.

■ Recommendations

* The oil level regulators must be bolted on the compressor bosses instead of the original oil level sight glass.
* The regulator must be fit in using the small elements of the installation kit delivered together (see page 51.3). The four-lobed gasket has to be used when connecting a sight glass or an adapter on the regulator (flange with grooves): see page 51.10.
* If the compressor sump does not provide a connection matching the flange of the standard oil level regulator, use a HCYN 1A adapter (see pages 51.6 to 51.9)
* Mounting of oil level regulator must only be performed with the oil feed connection located in the higher part.
* The oil receiver enables the feeding of oil level regulators, and it must be mounted two meters minimum above the oil level regulators; if it cannot be, it is necessary to mount a HCYCT – non adjustable – or HCYCTR – adjustable – differential valve on the oil receiver and to connect it to the suction line, in order to maintain overpressure in the receiver, ensuring:
  - → continuous and regular oil feed of regulators
  - → limitation of the pressure in the oil return line in the oil return line of the feeding of the oil level regulators, whose excess would hinder proper operation of regulators and be a source of incidents for the installation.
* Imperatively provide for an oil filter (HCYF or HCYBF or HYDROIL if polyol-ester oils, see chapters 45 and 46) upstream of the oil level regulators in order to stop contaminants from disturbing their good operation.
* In order to perform perfect air-tightness with the connections to screw without gasket, it is recommended to use a thread sealing product.
* For the adjustable oil level regulators models:
  - → turn the nut clockwise, to lower the oil level
  - → turn the nut counter clockwise, to raise the oil level.
* In some cases, the vibrations generated by the compressors can disturb the oil level regulators operation; it is then necessary to eliminate causes of vibration.
* For correct operation, it is necessary to ensure, after mounting, that the oil level regulators are perfectly horizontal.
* Check that the oil quality is not degrading with time and make regularly some oil acidity tests (TESTOIL-MAS and TESTOIL-POE: refer to chapter 91).
* Ensure that the pressure differential between the oil feeding and the compressor crankcase remains within the range recommended page 51.3.
* To select the optimal oil level, refer to the recommendations given by the compressor manufacturers; most of the time, this reference level is situated between the quarter and the half-sight glass.
* During the selection process, take into account the oil return line pressure drops (filters, low sections, complex shapes), that can vary in time (filter blocking).
* For compressors non fitted with a protection device against lack of oil, it is recommended to install ELECTROIL electronic oil level regulators (refer to chapter 50), with integrated alarm management in case of shortage of oil in the compressors.
* In the case of multi-compressor systems, it is recommended to use oil level regulators with a pressure equalization connection (LEVOIL 33 RE models), in order to get all the compressor sumps at the same pressure.
* Replace the different gaskets each time the regulators or the sight glasses are taken out (see page 51.10).
* Replace the oil filter after each intervention on the oil system (change of oil, component replacement, etc)
* General assembly precautions: refer to chapter 115.

Mechanical oil level regulators and adapters

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→ LEVOIL®

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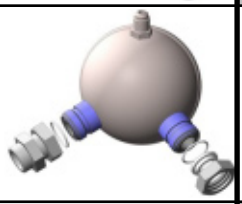
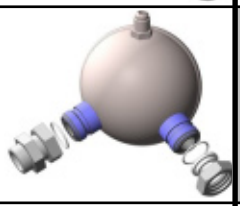
■ Technical features

CARLY references	Type of connection	Pressure range (bar)	Oil inlet connection To screw SAE (inch)	Pressure equalization connection To screw SAE (inch)	Adjusted level	Installation kit (delivered with the product)
LEVOIL 23 	7 holes Ø 6,5mm	1 - 4,5	1/4	/	Set ½ glass	4 screw HM6-30 4 nuts M6 4 washers Diam. 6 2 O-ring 1 quadring 1 fitting wedge for 4 holes sight glass
LEVOIL 23 	7 holes Ø 6,5mm	1 - 4,5	3/8	/	Set ½ glass	4 screw HM6-30 4 nuts M6 4 washers Diam. 6 2 O-ring 1 quadring 1 fitting wedge for 4 holes sight glass
LEVOIL 23 BO 	1 1/8 - 18 UNEF	1 - 4,5	3/8	/	Set ½ glass	1 sight glass 1 1/4 - 12 UNF 2 PTFE gaskets 1 1 1/8 - 18 UNEF adapter
LEVOIL 23 SC 	3/4 NPTF	1 - 4,5	3/8	/	Set ½ glass	1 sight glass 1 1/4 - 12 UNF 2 PTFE gaskets 1 3/4 NPT adapter
LEVOIL 33 RE 	7 holes Ø 6,5mm	1 - 6,5	3/8	1/4	Adjustable between ¼ and ¾ - glass	4 screw HM6-30 4 nuts M6 4 washers Diam. 6 2 O-ring 1 quadring 1 fitting wedge for 4 holes sight glass

See tables page 51-8 and 51-9 for regulators ans compressors association.

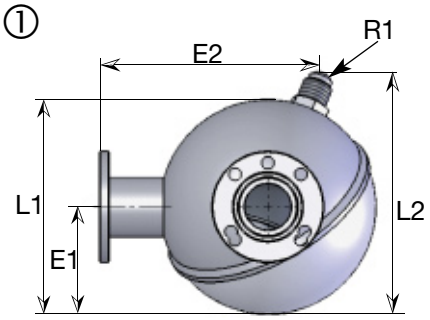
Mechanical oil level regulators and adapters

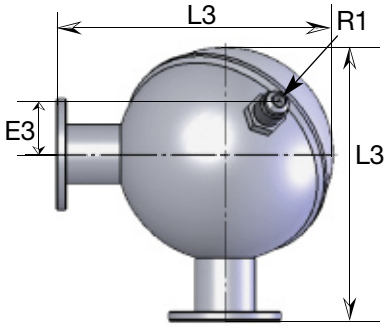
→ LEVOIL®

■ Technical features

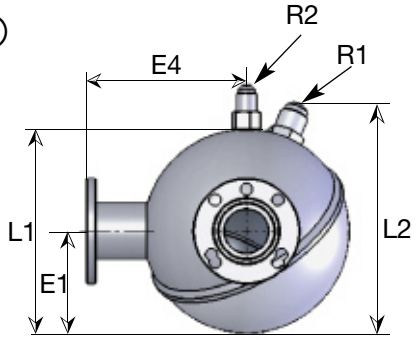
CARLY references	Drawing Nb	Dimensions (mm)							Connections to flare SAE (inch)	
		L1	L2	L3	E1	E2	E3	E4	R1	R2
LEVOIL 22	1	115	130	148	58	119	29	/	1/4	/
LEVOIL 23	1	115	130	148	58	119	29	/	3/8	/
LEVOIL 23 BO	3	115	130	204	58	174	29	/	3/8	/
LEVOIL 23 SC	3	115	130	204	58	174	29	/	3/8	/
LEVOIL 33 RE	2	115	144	148	58	125	35	90	3/8	1/4

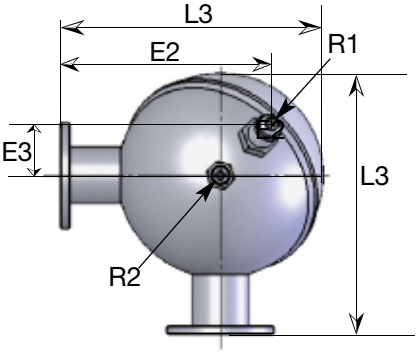
①



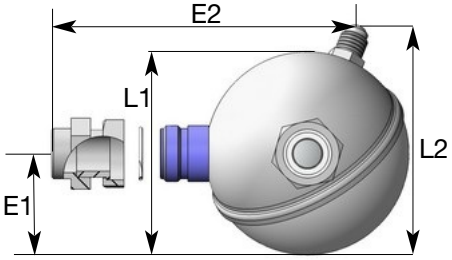


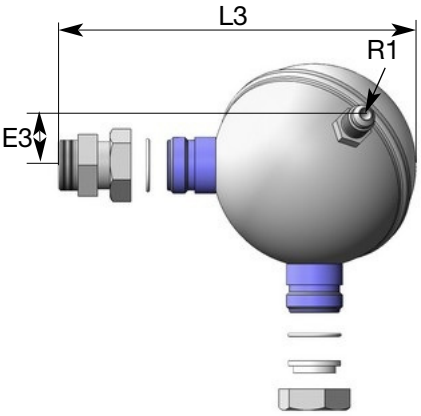
②





③





CARLY references	Volume	Pressure range	Maximal working pressure	Working pressure (1)	Maximal working temperature	Minimal working temperature	Working temperature (1)	CE Category (2)
	V (L)	ΔP (bar)	PS (bar)	PS BT (bar)	TS maxi (°C)	TS mini (°C)	TS BT (°C)	
LEVOIL 22	0,8	1 - 4,5	42	/	80	-20	/	Art3§3
LEVOIL 23	0,8	1 - 4,5	42	/	80	-20	/	Art3§3
LEVOIL 23 BO	0,8	1 - 4,5	42	/	80	-20	/	Art3§3
LEVOIL 23 SC	0,8	1 - 4,5	42	/	80	-20	/	Art3§3
LEVOIL 33 RE	0,8	1 - 6,5	42	/	80	-20	/	Art3§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 97/23/EC (refer to chapter 0 page 7).

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Mechanical oil level regulators and adapters

➔ LEVOIL®

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■ Example of selection

The selection of the oil level regulator **LEVOIL®** implies for the user to take into account all the conditions under which the product will be used (temperature - pressure - refrigerant - oil - external environment etc).

• Refrigerating unit composed of three compressors operating with R404A under the following conditions:

- ➜ Compressors n°1 et 2 T_O = -10°C Po = 4,4 bar
- ➜ Compressor n°3 T_O = -25°C Po = 2,5 bar
- ➜ Use of a HCYCT 3 differential valve between the oil receiver and the suction collector that maintains a pressure differential of 1.4 bar.
- ➜ Oil level regulation at half glass (according manufacturer's recommendation).
- ➜ Inlet oil pipe diameter 3/8".

• Which **LEVOIL®** mechanical oil level regulator to choose?

• *Calculation of the oil receiver pressure (P_{RH})*

$$P_{RH} = P_{o\ maxi} + \Delta P_{\ valve}$$

Result: P_{RH} = 4.4 + 1.4 = 5.8 bar

∗ LEVOIL® SELECTION FOR COMPRESSORS NO.1 AND NO.2

The pressure differential between the **HCYR** oil receiver and the common line compressors being of **1.40 bar** (given by the **HCYCT 3** differential valve), a **LEVOIL®** oil level regulator accepting a pressure differential of **1.4 bar** has to be mounted on each of these compressors.

Result: LEVOIL 23

∗ LEVOIL® SELECTION FOR COMPRESSOR NO.3

The pressure differential between the **HCYR** oil receiver and compressor No.3 being of 5.8 - 2.5 = 3.3 bar, a **LEVOIL®** oil level regulator accepting a pressure differential of 3.3 bar has to be mounted on the compressor.

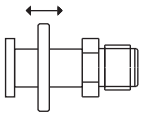
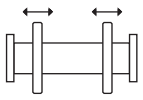
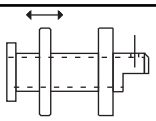
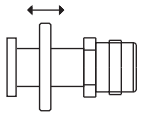
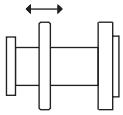
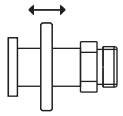
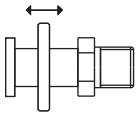
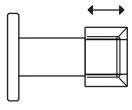
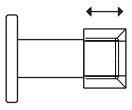
Result: LEVOIL 23

Mechanical oil level regulators and adapters

→ HCYN 1A

■ Technical features

• HCYN 1A adapters allow connection of CARLY oil level regulators to compressors when it is not possible to connect the universal 7 holes flange directly on the compressors sight glass flange.

CARLY references	Features of compressor connection (sight glass)	Accessories delivered with the adapter	End view from compressor side	Side view compressor on the right
HCYN 1A2	Threads 1 1/8" - 12	1 O-ring 3 screws HM6 - 30 cl 8 - 8 3 nuts HM6 3 washers DEC 6 1 glass 3 trous diameter 60		
HCYN 1A3	3 screws 1/4" diameter 47.6	1 O-ring 3 screws HM6 - 30 cl 8 - 8 3 nuts HM6 3 washers DEC 6		
HCYN 1A5	4 screws 1/4" diameter 50	1 O-ring 3 screws HM6 - 30 cl 8 - 8 3 nuts HM6 3 washers DEC 6 1 glass 3 holes diameter 60		
HCYN 1A7	Threads 1 1/2" - 18	1 O-ring 3 screws HM6 - 30 cl 8 - 8 3 nuts HM6 3 washers DEC 6 1 glass 3 holes diameter 60		
HCYN 1A9	4 screws 1/4" at 90° diameter 50	1 O-ring 3 screws HM6 - 30 cl 8 - 8 3 nuts HM6 3 washers DEC 6 1 glass 3 holes diameter 60		
HCYN 1A10	Threads 1 1/8" - 18	1 O-ring 3 screws HM6 - 30 cl 8 - 8 3 nuts HM6 3 washers DEC 6 1 glass 3 holes diameter 60		
HCYN 1A11	Threads 3/4" NPT	1 O-ring 3 screws HM6 - 30 cl 8 - 8 3 nuts HM6 3 washers DEC 6 1 glass 3 holes diameter 60		
HCYN 1A14	1 3/4 - 12 UNF ROTALOCK	1 O-ring 3 screws HM6 - 30 cl 8 - 8 3 nuts HM6 3 washers DEC 6 1 gasket PTFE 1 glass 3 holes diameter 60		
HCYN 1A15	1 1/4 - 12 UNF ROTALOCK	1 O-ring 3 screws HM6 - 30 cl 8 - 8 3 nuts HM6 3 washers DEC 6 1 gasket PTFE 1 glass 3 holes diameter 60		

See tables page 51-8 and 51-9 for regulators ans compressors association.

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Mechanical oil level regulators and adapters

→HCYN 1A

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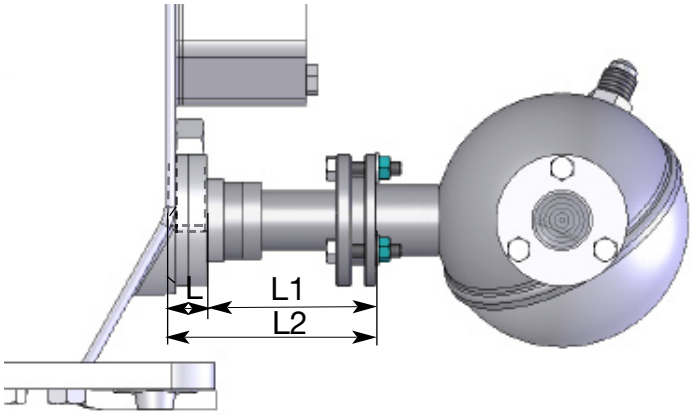
■ Technical features

CARLY references	Dimensions (mm)		
	L1	L2	L
HCYN 1A2	58,5	84,5	26,0
HCYN 1A3	102,0	102,0	/
HCYN 1A5	57,5	82,5	25,0
HCYN 1A7	55,5	82,5	27,0
HCYN 1A9	59,5	63,0	3,5
HCYN 1A10	46,5	57,5	11,0
HCYN 1A11	46,5	72,5	26,0
HCYN 1A14	46,5	72,5	26,0
HCYN 1A15	46,5	72,5	26,0



CARLY references	Nominal Diameter	Maximal working pressure	Working pressure (1)	Maximal working temperature	Minimal working temperature	Working temperature (1)	CE Category (2)
	DN (mm)	PS (bar)	PS BT (bar)	TS maxi (°C)	TS mini (°C)	TS BT (°C)	
HCYN 1A2	21,7	30	/	80	-20	/	Art3§3
HCYN 1A3	21,7	30	/	80	-20	/	Art3§3
HCYN 1A5	21,7	30	/	80	-20	/	Art3§3
HCYN 1A7	21,7	30	/	80	-20	/	Art3§3
HCYN 1A9	21,7	30	/	80	-20	/	Art3§3
HCYN 1A10	21,7	30	/	80	-20	/	Art3§3
HCYN 1A11	21,7	30	/	80	-20	/	Art3§3
HCYN 1A14	21,7	30	/	80	-20	/	Art3§3
HCYN 1A15	21,7	30	/	80	-20	/	Art3§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 diameter, according to PED 97/23/EC (refer to chapter 0 page 7).

Mechanical oil level regulators and adapters

→ LEVOIL® + HCYN 1A

■ Compressor / oil level regulator association

Compressor		Type of connection	Oil level regulator	Oil level regulator + adapter	Electronic oil level regulator	BOOSTER application LP oil level regulator	Adjustable oil level regulator	Oil level regulator with equalisation
Brand	Range		(1,0 bar < Δp < 4,5 bar)		(3,5 bar < Δp < 21 bar)	(1,0 bar < Δp < 4,5 bar)	(1,0 bar < Δp < 6,5 bar)	(1,0 bar < Δp < 6,5 bar)
BITZER	2CC --> 2KC 2CHC --> 2JHC	1 1/8 - 18 UNEF	**LEVOIL 23 BO**	LEVOIL 22/23 + HCYN 1A10	**ELECTROIL + HCYN 1A10**	LEVOIL 23 BO	LEVOIL 33 RE + HCYN 1A10	LEVOIL 33 RE + HCYN 1A10
	4CC --> 4FC 4CHC --> 4FHC							
	ESH							
	2N, 2T, 4N, 4T, 4P	4 holes in Ø 50mm	**LEVOIL 22/23**	LEVOIL 22/23 (+ HCYN 1A5 for CP before 05/1997)	ELECTROIL (+ HCYN 1A5 for CP before 05/1997)	LEVOIL 22/23 (+ HCYN 1A5 for CP before 05/1997)	LEVOIL 33 RE (+ HCYN 1A5 for CP before 05/1997)	LEVOIL 33 RE (+ HCYN 1A5 for CP before 05/1997)
	4G, 4H, 4J, 6F, 6G, 6H, 6J							
	S4, S6, S66							
	4NCS --> 4VCS 4NHC --> 4VHC	3 holes in Ø 47,6mm	**LEVOIL 22/23**		ELECTROIL	LEVOIL 22/23	LEVOIL 33 RE	LEVOIL 33 RE
	6D, 6E							
	8FC, 8GC		/	**LEVOIL 22/23 + HCYN 1A3**	ELECTROIL + HCYN 1A3	LEVOIL 23 + HCYN 1A3	LEVOIL 33 RE + HCYN 1A3	LEVOIL 33 RE + HCYN 1A3
	GSD 8	1 3/4-12 UNF	/	**LEVOIL 22/23 + HCYN 1A14**	ELECTROIL + HCYN 1A14	LEVOIL 22/23 + HCYN 1A14	LEVOIL 33 RE + HCYN 1A14	LEVOIL 33 RE + HCYN 1A14
BOCK	HA, HG (4 ,5 , 6)	3 holes in Ø 47,6mm	**LEVOIL 22/23**		ELECTROIL	LEVOIL 22/23	LEVOIL 33 RE	LEVOIL 33 RE
	HG (7, 8) HGZ							
	EX	1 1/8 - 18 UNEF	**LEVOIL 23 BO**	LEVOIL 22/23 + HCYN 1A10	ELECTROIL + HCYN 1A10	LEVOIL 23 BO	LEVOIL 33 RE + HCYN 1A10	LEVOIL 33 RE + HCYN 1A10
	HA, HG (12 ,22 , 34), HGX							
	AM (2 --> 5)	4 holes in Ø 50mm	/	**LEVOIL 22/23 + HCYN 1A9**	ELECTROIL + HCYN 1A9	LEVOIL 22/23 + HCYN 1A9	LEVOIL 33 RE + HCYN 1A9	LEVOIL 33 RE + HCYN 1A9
	F (2 --> 16)							
CARRIER	EA, ER, 6E, OBE, OBCC	3 holes in Ø 47,6mm	**LEVOIL 22/23**		ELECTROIL	LEVOIL 22/23	LEVOIL 33 RE	LEVOIL 33 RE
	DA, DR, 5F, 5H, 6D, 6E	1 1/2 - 18 UNEF	/	**LEVOIL 22/23 + HCYN 1A7**	ELECTROIL + HCYN 1A7	LEVOIL 22/23 + HCYN 1A7	LEVOIL 33 RE + HCYN 1A7	LEVOIL 33 RE + HCYN 1A7
COPELAND	DK, DL, DN , ZR, ZZ	1 1/8 - 12 UNF	/	**LEVOIL 22/23 + HCYN 1A2**	**ELECTROIL + HCYN 1A2**	LEVOIL 22/23 + HCYN 1A2	LEVOIL 33 RE + HCYN 1A2	LEVOIL 33 RE + HCYN 1A2
	D2, D3, D4 , D6, 4CC, 6CC	3 holes in Ø 47,6mm	**LEVOIL 22/23**		ELECTROIL	LEVOIL 22/23	LEVOIL 33 RE	LEVOIL 33 RE
	D8, 8CC		/	**LEVOIL 22/23 + HCYN 1A3**	ELECTROIL + HCYN 1A3	LEVOIL 22/23 + HCYN 1A3	LEVOIL 33 RE + HCYN 1A3	LEVOIL 33 RE + HCYN 1A3
	ZB, ZF, ZS, ZO	3/4-14 NPTF	LEVOIL 23 SC	LEVOIL 22/23 + HCYN 1A11	**ELECTROIL + HCYN 1A11**	LEVOIL 23 SC	LEVOIL 33 RE + HCYN 1A11	LEVOIL 33 RE + HCYN 1A11
	ZR (11 --> 19, 90), ZP (180/235/295/385)	1 3/4-12 UNF ROTALOCK	/	LEVOIL 22/ 23 + HCYN 1A14	**ELECTROIL + HCYN 1A14**	LEVOIL 22/23 + HCYN 1A14	LEVOIL 33 RE + HCYN 1A14	LEVOIL 33 RE + HCYN 1A14
	ZR (94/108/125/144/160/190), ZP (90/103/120/137/154/182)	1 1/4-12 UNF ROTALOCK	/	LEVOIL 22/23 + HCYN 1A15	**ELECTROIL + HCYN 1A15**	LEVOIL 22/23 + HCYN 1A15	LEVOIL 33 RE + HCYN 1A15	LEVOIL 33 RE + HCYN 1A15

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Mechanical oil level regulators and adapters

→ LEVOIL® + HCYN 1A

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■ Compressor / oil level regulator association

Compressor		Type of connection	Oil level regulator	Oil level regulator + adapter	Electronic oil level regulator	BOOSTER application LP oil level regulator	Adjustable oil level regulator	Oil level regulator with equalisation
Brand	Range		(1,0 bar < Δp < 4,5 bar)		(3,5 bar < Δp < 21 bar)	(1,0 bar < Δp < 4,5 bar)	(1,0 bar < Δp < 6,5 bar)	(1,0 bar < Δp < 6,5 bar)
DANFOSS	MLZ / MFZ / LFZ	1 1/8 - 18 UNEF	**LEVOIL 23 BO**	LEVOIL 22/23 + HCYN 1A10	**ELECTROIL + HCYN 1A10**	LEVOIL 23 BO	LEVOIL 33 RE + HCYN 1A10	LEVOIL 33 RE + HCYN 1A10
	SH (090-->161)	1 3/4-12 UNF ROTALOCK	/	LEVOIL 22/23 + HCYN 1A14	**ELECTROIL + HCYN 1A14**	LEVOIL 22/23 + HCYN 1A14	LEVOIL 33 RE + HCYN 1A14	LEVOIL 33 RE + HCYN 1A14
DORIN	H, K (40CC --> 240SB)	1 1/8 - 18 UNEF	LEVOIL 23 BO	LEVOIL 22/23 + HCYN 1A10	**ELECTROIL + HCYN 1A10**	LEVOIL 23 BO	LEVOIL 33 RE + HCYN 1A10	LEVOIL 33 RE + HCYN 1A10
	K, KP, 2S, Y, SC	3 holes in Ø 47,6mm	**LEVOIL 22/23**		ELECTROIL	LEVOIL 22/23	LEVOIL 33 RE	LEVOIL 33 RE
	K (8 CYL)	3 holes in Ø 47,6mm	/	**LEVOIL 22/23 + HCYN 1A3**	ELECTROIL + HCYN 1A3	LEVOIL 22/23 + HCYN 1A3	LEVOIL 33 RE + HCYN 1A3	LEVOIL 33 RE + HCYN 1A3
DUNHAM-BUSH	B6	3 holes in Ø 47,6mm	**LEVOIL 22/23**		ELECTROIL	LEVOIL 22/23	LEVOIL 33 RE	LEVOIL 33 RE
FRASCOLD	A,B,D,F,S,V,Z A-SK --> S-SK	3 holes in Ø 47,6mm	**LEVOIL 22/23**		ELECTROIL	LEVOIL 22/23	LEVOIL 33 RE	LEVOIL 33 RE
	W	3 holes in Ø 47,6mm	/	**LEVOIL 22/23 + HCYN 1A3**	ELECTROIL + HCYN 1A3	LEVOIL 22/23 + HCYN 1A3	LEVOIL 33 RE + HCYN 1A3	LEVOIL 33 RE + HCYN 1A3
MANEUROP	All compressors with sight glass	1 1/8 - 18 UNEF	LEVOIL 23 BO	LEVOIL 22/23 + HCYN 1A10	**ELECTROIL + HCYN 1A10**	LEVOIL 23 BO	LEVOIL 33 RE + HCYN 1A10	LEVOIL 33 RE + HCYN 1A10
PRESTCOLD	PK, PL	1 1/8 - 12 UNF	/	**LEVOIL 22/23 + HCYN 1A2**	ELECTROIL + HCYN 1A2	LEVOIL 22/23 + HCYN 1A2	LEVOIL 33 RE + HCYN 1A2	LEVOIL 33 RE + HCYN 1A2
	P	3 holes in Ø 47,6mm	**LEVOIL 22/23**		ELECTROIL	LEVOIL 22/23	LEVOIL 33 RE	LEVOIL 33 RE
	P8, P08	3 holes in Ø 47,6mm	/	**LEVOIL 22/23 + HCYN 1A3**	ELECTROIL + HCYN 1A3	LEVOIL 22/23 + HCYN 1A3	LEVOIL 33 RE + HCYN 1A3	LEVOIL 33 RE + HCYN 1A3
REFCOMP	SP	3 holes in Ø 47,6mm	**LEVOIL 22/23**		ELECTROIL	LEVOIL 22/23	LEVOIL 33 RE	LEVOIL 33 RE
	SP (8 cyl)	3 holes in Ø 47,6mm	/	**LEVOIL 22/23 + HCYN 1A3**	ELECTROIL + HCYN 1A3	LEVOIL 22/23 + HCYN 1A3	LEVOIL 33 RE + HCYN 1A3	LEVOIL 33 RE + HCYN 1A3
TECUMSEH EUROPE	All compressors with sight glass	1 1/8 - 18 UNEF	LEVOIL 23 BO	LEVOIL 22/23 + HCYN 1A10	**ELECTROIL + HCYN 1A10**	LEVOIL 23 BO	LEVOIL 33 RE + HCYN 1A10	LEVOIL 33 RE + HCYN 1A10
	SCROLL VSA	3/4-14 NPTF	LEVOIL 23 SC	LEVOIL 22/23 + HCYN 1A11	**ELECTROIL + HCYN 1A11**	LEVOIL 23 SC	LEVOIL 33 RE + HCYN 1A11	LEVOIL 33 RE + HCYN 1A11
TRANE	M, R	3 holes in Ø 47,6mm	**LEVOIL 22/23**		ELECTROIL	LEVOIL 22/23	LEVOIL 33 RE	LEVOIL 33 RE
	K	3/4-14 NPTF	LEVOIL 23 SC	LEVOIL 22/23 + HCYN 1A11	**ELECTROIL + HCYN 1A11**	LEVOIL 23 SC	LEVOIL 33 RE + HCYN 1A11	LEVOIL 33 RE + HCYN 1A11
YORK	GC, GS, JS	3 holes in Ø 47,6mm	**LEVOIL 22/23**		ELECTROIL	LEVOIL 22/23	LEVOIL 33 RE	LEVOIL 33 RE

Mechanical oil level regulators and adapters

→ LEVOIL® + HCYN 1A

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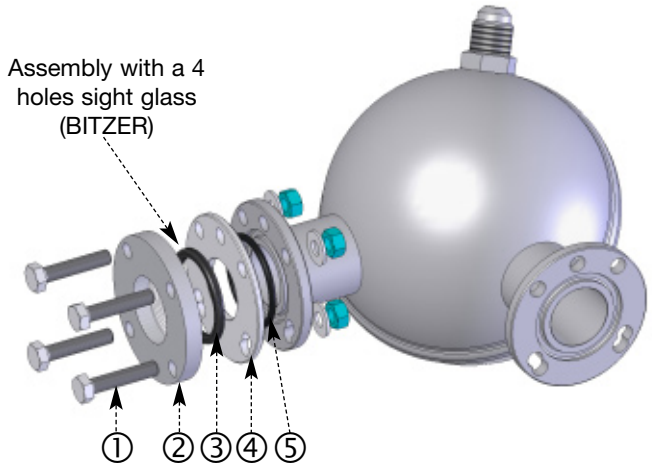
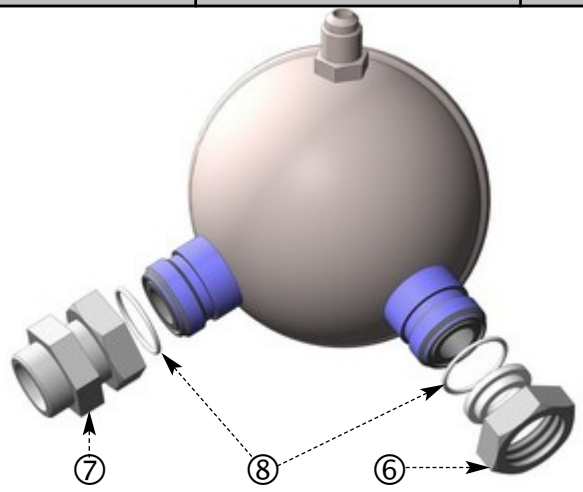
■ Spare parts

CARLY references	Part Nb	Description	Types	Quantity
HCYN 1V1K	1+2+3+5	Bolts (1) + Glass (2) + gaskets (3, 5)	LEVOIL 22 / 23 / 33 RE	1
CY 29900130	1+3+4+5	Bolts (1) + intermediate disk (4) + gaskets (3, 5)	LEVOIL 22 / 23 / 33 RE	1
CY 15552000	3	Quad ring	LEVOIL 22 / 23 / 33 RE	1
CY 15552190	5	O-ring	LEVOIL 22 / 23 / 33 RE	1
CY 12850080	6	Sight glass 1 1/4 ROTALOCK	LEVOIL 23 SC / LEVOIL 23 BO	1
CY 17637550	7	1 1/8 -18 UNEF adapter	LEVOIL 23 BO	1
CY 17637490	7	3/4 NPT adapter	LEVOIL 23 SC	1
CY 15580120	8	PTFE gasket	LEVOIL 23 SC / LEVOIL 23 BO	1





■ Weights and packaging

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM
LEVOIL 22	1,27	1,10	1	/
LEVOIL 23	1,27	1,10	1	/
LEVOIL 23 BO	1,90	1,70	1	/
LEVOIL 23 SC	1,90	1,70	1	/
LEVOIL 33 RE	1,37	1,20	1	/

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM
HCYN 1A2	0,45	0,45	1	/
HCYN 1A3	0,45	0,45	1	/
HCYN 1A5	0,60	0,60	1	/
HCYN 1A7	0,58	0,58	1	/
HCYN 1A9	0,45	0,45	1	/
HCYN 1A10	0,40	0,40	1	/
HCYN 1A11	0,45	0,45	1	/
HCYN 1A14	0,45	0,45	1	/
HCYN 1A15	0,45	0,45	1	/

DTGB - 62.1-1-1-10

Check valves

→ CRCY / CRCYP *(high Pressure)*

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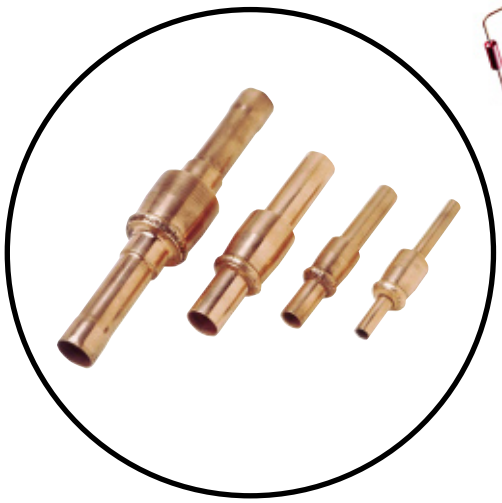
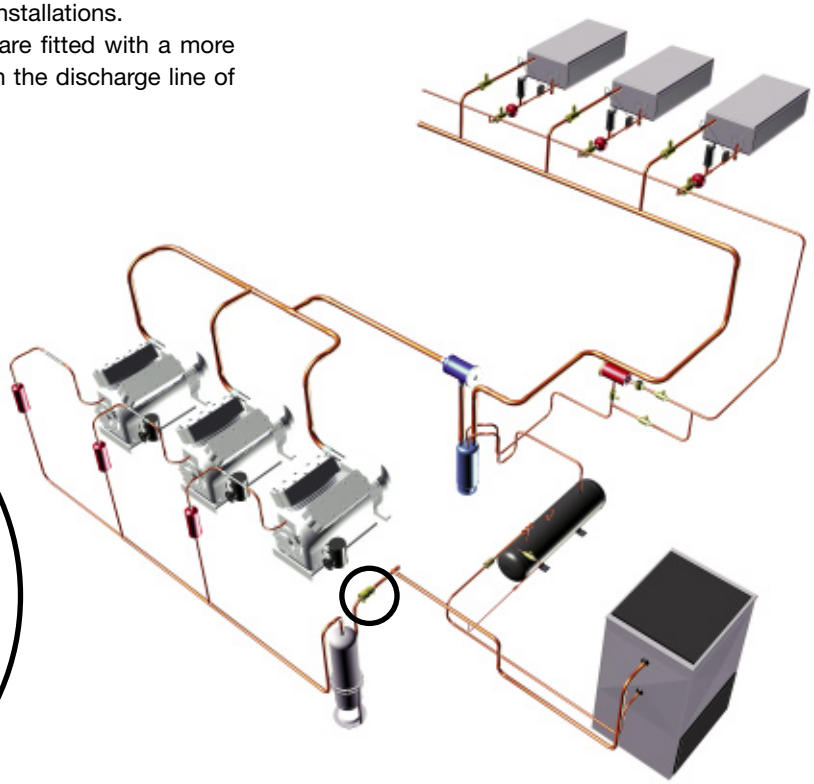
■ Applications

- The check valves ensure a one-way direction of the refrigerant flow, in refrigerating and air conditioning installations.
- The CRCYP high Pressure check valves are fitted with a more powerful spring and are to be installed on the discharge line of compressors coupled in parallel.





■ Functional features

- Products are compatible with HFCs, HCFCs, CFCs, 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.
- Product classification in CE categories is performed using the PED 97/23/EC table, corresponding to a nominal diameter-based selection.
- An arrow indicating the refrigerant flow direction is engraved on the brass body of the valve.
- 10 models with SAE connections to screw, except for model 3/4" which is a BSP threading (from 1/4" to 3/4" and from 6 to 18 mm).
- 24 models with connections to braze (from 1/4" to 7/8" and from 6 to 22 mm).
- For use on the discharge line of compressors coupled in parallel, select the CRCYP high Pressure models, with more powerful springs and with connections identical to those of standard check valves.

■ CARLY advantages

- The check valves can be installed in all positions.
- They are equipped with an internal pulse absorber piston, with PTFE gasket.
- Pressure drops are negligible.
- Perfect air tightness ensured by a TIG brass weld of the body.
- Check valves with connections to braze do not require removal, thanks to long length sleeves made of copper-plated brass up to model 5 S/MMS, and made of copper for models 6 and 7 S/MMS.
- GOST certified products .

Check valves

→ CRCY

■ Recommendations

* The check valves are to be mounted on the suction, discharge and liquid lines.
* On a discharge line, the valves should be installed as far as possible from the compressor.
* General assembly precautions: refer to chapter 115.

■ Selection table CRCY

CARLY references	Connections			Refrigerating capacity (kW)(2)												Δ P(3) (bar)	kv(4) (m³/h)
				Liquid				Suction compressor				Compressor discharge line					
	To screw SAE (1)	To solder ODF		R22	R134a	R404A R507	R407C R410A	R22	R134a	R404A R507	R407C R410A	R22	R134a	R404A R507	R407C R410A		
	inch	inch	mm														
CRCY 2	1/4			6,7	6,2	4,4	6,2	1,0	0,8	0,8	1,0	4,4	3,2	3,7	4,7	0,06	0,37
CRCY 2 S		1/4		6,7	6,2	4,4	6,2	1,0	0,8	0,8	1,0	4,4	3,2	3,7	4,7	0,06	0,37
CRCY 2 MMS			6	6,7	6,2	4,4	6,2	1,0	0,8	0,8	1,0	4,4	3,2	3,7	4,7	0,06	0,37
CRCY 3	3/8			31,7	29,3	20,8	29,2	4,7	3,8	3,8	4,5	20,8	15,1	17,5	22,2	0,06	1,75
CRCY 3 S		3/8		31,7	29,3	20,8	29,2	4,7	3,8	3,8	4,5	20,8	15,1	17,5	22,2	0,06	1,75
CRCY 3 MMS			10	31,7	29,3	20,8	29,2	4,7	3,8	3,8	4,5	20,8	15,1	17,5	22,2	0,06	1,75
CRCY 4	1/2			59,2	54,8	38,9	54,6	8,8	7,1	7,1	8,4	38,0	28,3	32,7	40,6	0,05	3,27
CRCY 4 S		1/2		59,2	54,8	38,9	54,6	8,8	7,1	7,1	8,4	38,0	28,3	32,7	40,6	0,05	3,27
CRCY 4 MMS			12	59,2	54,8	38,9	54,6	8,8	7,1	7,1	8,4	38,0	28,3	32,7	40,6	0,05	3,27
CRCY 5	5/8			65,9	61,0	43,3	60,7	9,8	7,9	7,9	9,3	43,3	31,5	36,4	46,3	0,05	3,64
CRCY 5 S/MMS		5/8	16	65,9	61,0	43,3	60,7	9,8	7,9	7,9	9,3	43,3	31,5	36,4	46,3	0,05	3,64
CRCY 6	3/4 BSP			125,5	116,1	82,4	115,7	18,7	15,0	15,0	17,8	82,4	31,5	36,4	88,0	0,03	6,93
CRCY 6 S		3/4		125,5	116,1	82,4	115,7	18,7	15,0	15,0	17,8	82,4	59,9	69,3	88,0	0,03	6,93
CRCY 6 MMS			18	125,5	116,1	82,4	115,7	18,7	15,0	15,0	17,8	82,4	59,9	69,3	88,0	0,03	6,93
CRCY 7 S		7/8		136,4	126,4	89,8	125,7	20,5	16,3	17,0	19,5	87,5	63,8	75,0	93,5	0,03	7,50
CRCY 7 MMS			22	136,4	126,4	89,8	125,7	20,5	16,3	17,0	19,5	87,5	63,8	75,0	93,5	0,03	7,50

(1) Male/male connections.

*(2) **Warning:***

Liquid/Compressor discharge: refrigerating capacity calculated with a flow rate corresponding to a pressure drop of 0.15 bar for To = 4°C and Tk = 38°C.

Compressor suction line: refrigerating capacity according to Standard ARI 710-86. Flow rate corresponding to a pressure drop of 1 bar suction temperature = 18°C.

(3) i.e. the minimum pressure difference for which the check valve remains fully open.

(4) i.e. the flow rate in m³/hr for a pressure drop in the check valve of 1 bar (refrigerant used: water with per volume ratio = 1.000 kg/m³).

Check valves

→ CRCY

■ Technical features

CARLY references	Connections To screw SAE inch	Connections To solder ODF inch	CARLY references	Connections To solder ODF mm	Drawing Nb	Dimensions (mm) Ø2	Dimensions (mm) L2 upper faces	Dimensions (mm) L	Net weight (kg)
CRCY 2	1/4				1		19	55,0	0,05
CRCY 2 S		1/4	**CRCY 2 MMS**	6	2	18,0		95,0	0,05
CRCY 3	3/8				1		19	63,0	0,05
CRCY 3 S		3/8	**CRCY 3 MMS**	10	2	18,0		95,0	0,05
CRCY 4	1/2				1		27	76,0	0,15
CRCY 4 S		1/2	**CRCY 4 MMS**	12	2	27,0		116,5	0,15
CRCY 5	5/8				1		27	82,5	0,20
CRCY 5 S/MMS		5/8	**CRCY 5 S/MMS**	16	2	27,0		116,5	0,20
CRCY 6	3/4 BSP				1		36	86,3	0,25
CRCY 6 S		3/4	**CRCY 6 MMS**	18	2	35,5		158,3	0,25
CRCY 7 S		7/8	**CRCY 7 MMS**	22	2	35,5		186,3	0,25

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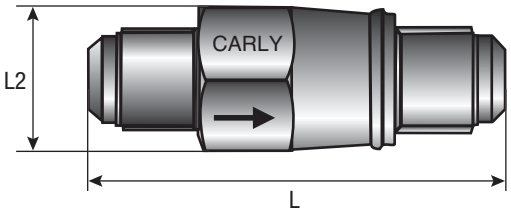

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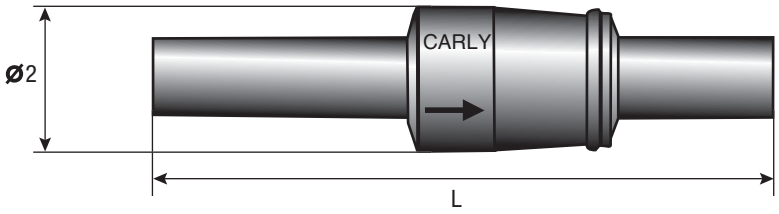

CARLY references	Nominal diameter DN (inch)	CARLY references	Nominal diameter DN (mm)	Maximal working pressure PS (bar)	Working pressure (1) PS BT (bar)	Maximal working temperature TS maxi (°C)	Minimal working temperature TS mini (°C)	Working temperature (1) TS BT (°C)	CE Category (2)
CRCY 2	1/4			42,0	10	120	-40	-20	Art3§3
CRCY 2 S	1/4	**CRCY 2 MMS**	6	42,0	10	120	-40	-20	Art3§3
CRCY 3	3/8			42,0	10	120	-40	-20	Art3§3
CRCY 3 S	3/8	**CRCY 3 MMS**	10	42,0	10	120	-40	-20	Art3§3
CRCY 4	1/2			42,0	10	120	-40	-20	Art3§3
CRCY 4 S	1/2	**CRCY 4 MMS**	12	42,0	10	120	-40	-20	Art3§3
CRCY 5	5/8			42,0	10	120	-40	-20	Art3§3
CRCY 5 S/MMS	5/8	**CRCY 5 S/MMS**	16	42,0	10	120	-40	-20	Art3§3
CRCY 6	3/4			31,5	10	120	-40	-20	Art3§3
CRCY 6 S	3/4	**CRCY 6 MMS**	18	31,5	10	120	-40	-20	Art3§3
CRCY 7 S	7/8	**CRCY 7 MMS**	22	31,5	10	120	-40	-20	Art3§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 diameter, according to PED 97/23/EC (refer to chapter 0 page 7).

Check valves

→ CRCYP *(high Pressure)*

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■ Selection table

CARLY references	Connections			Refrigerating capacity (kW)(2)								Δ P(3) (bar)	kv(4) (m³/h)
				Liquid				Compressor discharge line					
	To screw SAE(1)	To solder ODF		R22	R134a	R404A R507	R407C R410A	R22	R134a	R404A R507	R407C R410A		
	inch	inch	mm										
CRCYP 2	1/4			5,6	5,2	3,7	5,2	3,7	2,7	3,1	4,0	0,30	0,31
CRCYP 2 S		1/4		5,6	5,2	3,7	5,2	3,7	2,7	3,1	4,0	0,30	0,31
CRCYP 2 MMS			6	5,6	5,2	3,7	5,2	3,7	2,7	3,1	4,0	0,30	0,31
CRCYP 3	3/8			28,4	26,3	18,7	26,2	18,7	13,6	15,7	20,0	0,30	1,57
CRCYP 3 S		3/8		28,4	26,3	18,7	26,2	18,7	13,6	15,7	20,0	0,30	1,57
CRCYP 3 MMS			10	28,4	26,3	18,7	26,2	18,7	13,6	15,7	20,0	0,30	1,57
CRCYP 4	1/2			48,2	44,6	31,6	44,4	31,6	23,0	26,6	33,8	0,30	2,66
CRCYP 4 S		1/2		48,2	44,6	31,6	44,4	31,6	23,0	26,6	33,8	0,30	2,66
CRCYP 4 MMS			12	48,2	44,6	31,6	44,4	31,6	23,0	26,6	33,8	0,30	2,66
CRCYP 5	5/8			52,5	48,6	34,5	48,4	34,5	25,1	29,0	36,9	0,30	2,90
CRCYP 5 S/MMS		5/8	16	52,5	48,6	34,5	48,4	34,5	25,1	29,0	36,9	0,30	2,90
CRCYP 6	3/4 BSP			114,4	105,9	75,2	105,4	75,2	54,7	63,2	80,3	0,30	6,32
CRCYP 6 S		3/4		114,4	105,9	75,2	105,4	75,2	54,7	63,2	80,3	0,30	6,32
CRCYP 6 MMS			18	114,4	105,9	75,2	105,4	75,2	54,7	63,2	80,3	0,30	6,32
CRCYP 7 S		7/8		125,5	116,3	82,6	115,7	80,5	58,7	69,0	86,0	0,30	6,90
CRCYP 7 MMS			22	125,5	116,3	82,6	115,7	80,5	58,7	69,0	86,0	0,30	6,90

(1) Male/male connections.

*(2) **Warning:***

Liquid/Compressor discharge: refrigerating capacity calculated with a flow rate corresponding to a pressure drop of 0.30 bar for To = 4°C and Tk = 38°C.

(3) i.e. the minimum pressure difference for which the check valve remains fully open.

(4) i.e. the flow rate in m^3/hr for a pressure drop in the check valve of 1 bar (refrigerant used: water with per volume ratio = 1.000 kg/m^3).

Check valves

→ CRCYP *(high pressure)*

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■ Technical features

CARLY references	Connections To screw SAE inch	Connections To solder ODF inch	CARLY references	Connections To solder ODF mm	Drawing Nb	Dimensions (mm) Ø2	Dimensions (mm) L2 upper faces	Dimensions (mm) L	Net weight (kg)
CRCYP 2	1/4				1		19	55,0	0,05
CRCYP 2 S		1/4	**CRCYP 2 MMS**	6	2	18,0		95,0	0,05
CRCYP 3	3/8				1		19	63,0	0,05
CRCYP 3 S		3/8	**CRCYP 3 MMS**	10	2	18,0		95,0	0,05
CRCYP 4	1/2				1		27	76,0	0,15
CRCYP 4 S		1/2	**CRCYP 4 MMS**	12	2	27,0		116,5	0,15
CRCYP 5	5/8				1		27	82,5	0,20
CRCYP 5 S/MMS		5/8	**CRCYP 5 S/MMS**	16	2	27,0		116,5	0,20
CRCYP 6	3/4 BSP				1		36	86,3	0,25
CRCYP 6 S		3/4	**CRCYP 6 MMS**	18	2	35,5		158,3	0,25
CRCYP 7 S		7/8	**CRCYP 7 MMS**	22	2	35,5		186,3	0,25

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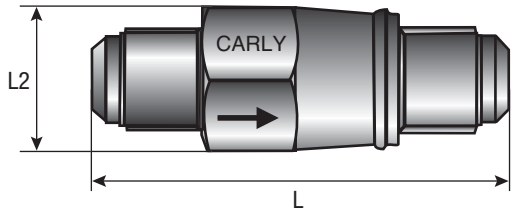

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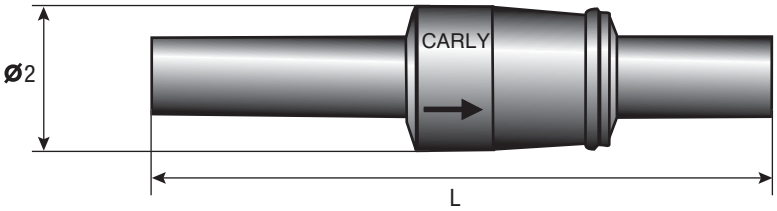

CARLY references	Nominal diameter DN (inch)	CARLY references	Nominal diameter DN (mm)	Maximal working pressure PS (bar)	Working pressure (1) PS BT (bar)	Maximal working temperature TS maxi (°C)	Minimal working temperature TS mini (°C)	Working temperature (1) TS BT (°C)	CE Category (2)
CRCYP 2	1/4			42,0	10	120	-40	-20	Art3§3
CRCYP 2 S	1/4	**CRCYP 2 MMS**	6	42,0	10	120	-40	-20	Art3§3
CRCYP 3	3/8			42,0	10	120	-40	-20	Art3§3
CRCYP 3 S	3/8	**CRCYP 3 MMS**	10	42,0	10	120	-40	-20	Art3§3
CRCYP 4	1/2			42,0	10	120	-40	-20	Art3§3
CRCYP 4 S	1/2	**CRCYP 4 MMS**	12	42,0	10	120	-40	-20	Art3§3
CRCYP 5	5/8			42,0	10	120	-40	-20	Art3§3
CRCYP 5 S/MMS	5/8	**CRCYP 5 S/MMS**	16	42,0	10	120	-40	-20	Art3§3
CRCYP 6	3/4			31,5	10	120	-40	-20	Art3§3
CRCYP 6 S	3/4	**CRCYP 6 MMS**	18	31,5	10	120	-40	-20	Art3§3
CRCYP 7 S	7/8	**CRCYP 7 MMS**	22	31,5	10	120	-40	-20	Art3§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 diameter, according to PED 97/23/EC (refer to chapter 0 page 7).

Check valves

→ CRCY / CRCYP

■ Weights and packaging

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
CRCY 2	0,06	0,05	1	/
CRCY 2 S & MMS	0,06	0,05	1	/
CRCY 3	0,06	0,05	1	/
CRCY 3 S & MMS	0,06	0,05	1	/
CRCY 4	0,16	0,15	1	/
CRCY 4 S & MMS	0,16	0,15	1	/
CRCY 5	0,21	0,20	1	/
CRCY 5 S/MMS	0,21	0,20	1	/
CRCY 6	0,28	0,25	1	/
CRCY 6 S & MMS	0,28	0,25	1	/
CRCY 7 S & MMS	0,28	0,25	1	/

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
CRCYP 2	0,06	0,05	1	/
CRCYP 2 S & MMS	0,06	0,05	1	/
CRCYP 3	0,06	0,05	1	/
CRCYP 3 S & MMS	0,06	0,05	1	/
CRCYP 4	0,16	0,15	1	/
CRCYP 4 S & MMS	0,16	0,15	1	/
CRCYP 5	0,21	0,20	1	/
CRCYP 5 S/MMS	0,21	0,20	1	/
CRCYP 6	0,28	0,25	1	/
CRCYP 6 S & MMS	0,28	0,25	1	/
CRCYP 7 S & MMS	0,28	0,25	1	/

Connection sets

DTGB - 71.1-1-1-10

→ KRCY

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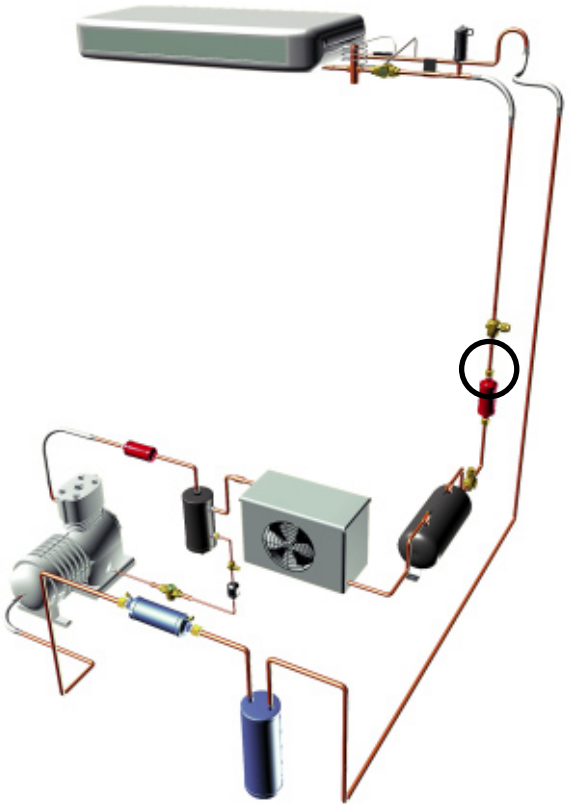
■ Applications

- The connection sets can be used with all line components equipped with SAE connections to screw, in refrigerating and air conditioning installations.
- They ensure perfect air-tightness, even after several replacements of components, and facilitate maintenance conditions.



■ Functional features

- Products are compatible with HFCs, HCFCs, CFCs, 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.
- Product classification in CE categories is performed using the PED 97/23/EC table, corresponding to a nominal diameter-based selection.
- The connection sets are composed of a brass dudgeon, a brass nut and a guided copper ring (except KRCY 6 S/MMS).
- The dudgeon is brazed on the piping on one side and the nut is screwed on a component on the other; the guided copper ring is positioned at the end of the dudgeon, in a specifically designed housing.
- For each model, connection sets are supplied in plastic bags containing 10 complete sets each.

■ CARLY advantages

- Compared with a traditional mounting (dudgeon on copper piping), the connection sets:
  - → ensure higher air tightness
  - → increase the connection's reliability in time
  - → allow numerous mountings and removals of components, without work hardening or rupture of the piping dudgeon, which are major sources of refrigerant leaks
  - → facilitate component replacement operations: the copper ring is the only part to replace, compared with a classic piping without KRCY (easy and cheap).
- GOST certified products.

DTGB - 71.1-1-1-10

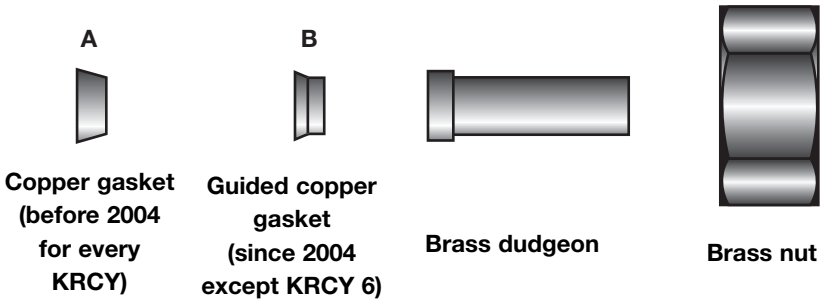
Connection sets

→ KRCY

01/10

■ Recommendations

* When mounting the connection sets, it is imperative to ensure a good positioning of the copper rings in their housing, in order to not deform them abnormally during tightening.
* It is imperative to respect the tightening torques listed in the table below.
* After each removal, imperatively replace the copper gaskets.
* General assembly precautions: refer to chapter 115.



Copper gasket (before 2004 for every KRCY)

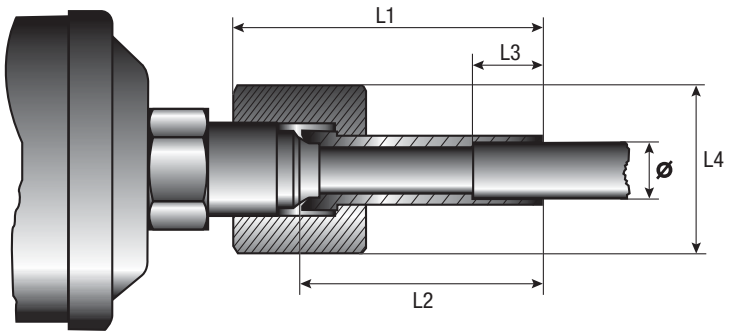
Guided copper gasket (since 2004 except KRCY 6)

Brass dudgeon

Brass nut

■ Technical features

CARLY references	Connections		CARLY references	Connections		Type of copper gaskets	Dimensions (mm)				Maximal torque (N.m)	Net weight (kg)
	To screw SAE inch	To solder ODF inch		To screw SAE inch	To solder ODF mm		L1	L2	L3	L4 upper faces		
KRCY 2 S	1/4	1/4	**KRCY 2 MMS**	1/4	6	B	36,3	27	8,0	19	20	0,040
KRCY 3 S	3/8	3/8	**KRCY 3 MMS**	3/8	10	B	41,0	31	11,7	24	45	0,065
KRCY 4 S	1/2	1/2	**KRCY 4 MMS**	1/2	12	B	46,0	33	11,7	27	60	0,090
KRCY 5 S/MMS	5/8	5/8	**KRCY 5 S/MMS**	5/8	16	B	50,5	35	15,0	30	80	0,115
KRCY 6 S	3/4 BSP	3/4	**KRCY 6 MMS**	3/4 BSP	18	A	55,0	37	15,0	36	85	0,185
KRCY 23 S	3/8	1/4	**KRCY 23 MMS**	3/8	6	B	37,0	27	8,0	24	45	0,070
KRCY 34 S	1/2	3/8	**KRCY 34 MMS**	1/2	10	B	44,0	31	11,7	27	60	0,100
KRCY 45 S	5/8	1/2	**KRCY 45 MMS**	5/8	12	B	48,5	33	15,0	30	80	0,130



Connection sets

DTGB - 71.1-1-1-10

→ KRCY

01/10

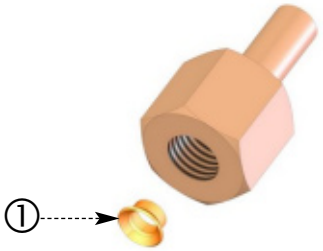
■ Technical features

CARLY references	Nominal diameter	CARLY references	Nominal diameter	Maximal working pressure	Working pressure (1)	Maximal working temperature	Minimal working temperature	Working temperature (1)	CE Category (2)
	DN (inch)		DN (mm)	PS (bar)	PS BT (bar)	TS maxi (°C)	TS mini (°C)	TS BT (°C)	
KRCY 2 S	1/4	**KRCY 2 MMS**	6	42	10	120	-40	-20	Art3§3
KRCY 3 S	3/8	**KRCY 3 MMS**	10	42	10	120	-40	-20	Art3§3
KRCY 4 S	1/2	**KRCY 4 MMS**	12	42	10	120	-40	-20	Art3§3
KRCY 5 S/MMS	5/8	**KRCY 5 S/MMS**	16	42	10	120	-40	-20	Art3§3
KRCY 6 S	3/4	**KRCY 6 MMS**	18	42	10	120	-40	-20	Art3§3
KRCY 23 S	1/4	**KRCY 23 MMS**	6	42	10	120	-40	-20	Art3§3
KRCY 34 S	3/8	**KRCY 34 MMS**	10	42	10	120	-40	-20	Art3§3
KRCY 45 S	1/2	**KRCY 45 MMS**	12	42	10	120	-40	-20	Art3§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 diameter, according to PED 97/23/EC (refer to chapter 0 page 7).

■ Spare parts

CARLY references	Part Nb	Description	Types	Quantity
CY 15590010	1	Set of 25 copper taper gaskets for 1/4" SAE connection	2 S/MMS before 2004	1
CY 15590015	1	Set of 25 guided taper copper gaskets for 1/4" SAE connection	2 S/MMS after 2004	1
CY 15590020	1	Set of 25 copper taper gaskets for 3/8" SAE connection	3 S/MMS - 23 S/MMS before 2004	1
CY 15590025	1	Set of 25 guided taper copper gaskets for 3/8" SAE connection	3 S/MMS - 23 S/MMS after 2004	1
CY 15590030	1	Set of 25 copper taper gaskets for 1/2" SAE connection	4 S/MMS - 34 S/MMS before 2004	1
CY 15590035	1	Set of 25 guided taper copper gaskets for 1/2" SAE connection	4 S/MMS - 34 S/MMS after 2004	1
CY 15590040	1	Set of 25 copper taper gaskets for 5/8" SAE connection	5 S/MMS - 45 S/MMS before 2004	1
CY 15590045	1	Set of 25 guided taper copper gaskets for 5/8" SAE connection	5 S/MMS - 45 S/MMS after 2004	1
CY 15590050	1	Set of 25 copper taper gaskets for 3/4" SAE connection	6 S/MMS	1



Connection sets

→ KRCY

■ Weights and packaging

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
KRCY 2 S et MMS	0,041	0,040	10	100
KRCY 3 S & MMS	0,066	0,065	10	100
KRCY 4 S et MMS	0,091	0,090	10	100
KRCY 5 S/MMS	0,116	0,115	10	100

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
KRCY 6 S & MMS	0,186	0,185	10	100
KRCY 23 S & MMS	0,071	0,070	10	100
KRCY 34 S & MMS	0,101	0,100	10	100
KRCY 45 S & MMS	0,131	0,130	10	100

Introduction

CHEMICAL PRODUCTS

01/10

DTGB - 80.1-1-1-10

	Leak Detector	Heat exchanger detergent	Heat exchanger decontaminant	Anti corrosion treatment	Oil tests	Acid neutraliser	Calories discharger
CARLYLOC page 81							
CARLYCLEAN page 82							
CARLYBIO page 83							
CARLYPRO page 84							
CARLYNET page 85							
CARLYCOAT page 86							
TESTOIL page 91							
STOPACID page 92							
DETECTOIL-POE page 93							
CARLYCOOL page 95							

Refrigerant leak detectors

DTGB - 81.1-1-1-10

→ CARLYLOC

01/10

The French and European regulations on leak detection checks for refrigerating and air conditioning systems aim at:

- → limiting the emissions of greenhouse effect refrigerants
- → enhancing the protection of the ozone layer.

The European regulation 2037/2000 imposes refrigerating and air conditioning installations containing more than 3 kg of refrigerant to undergo an air tightness check on a yearly basis.

The check should be performed by a company duly registered: when starting-up, when intervening on the circuit, and at least once a year for installations in operation.

■ Applications

- CARLYLOC is a leak detector for efficient and quick checking of the air-tightness of connections intended for use on refrigerant flows, in refrigerating and air conditioning installations.
- The product is:
  - → a synergetic formulation with a surface-active base (anionic and non-ionic);
  - → compatible with all refrigerants (CFCs, HCFCs, HFCs), natural gases (nitrogen, ammoniac…);
  - → non aggressive for metals, rubber and plastics;
  - → anti-freeze;
  - → non flammable, non toxic;
  - → fluorescent for quick localization of the leak.

■ Functional features

- CARLYLOC allows quick and easy detection of refrigerant leaks.
- Its wettability allows a homogenous distribution of the product on the surface.
- CARLYLOC comes in two formulations:
  - → a liquid formulation: packaged in 0.4-litre aerosol;
  - → a viscous formulation: packaged in a 0.5-litre spray with a 5-litre or 25-litre refill can.
- The product is efficient on surfaces, between -20°C and +60°C, whichever the size of the leaks.
- The product is compatible with all materials.

■ CARLY advantages

- Ready-for-use.
- Non aggressive for surfaces. Non toxic.
- CARLY offers CARLYLOC in the form of a 0.5-litre spray and of 5-litre or 25-litre refill can; this packaging mode presents numerous advantages:
  - → technical advantages: the product is more viscous than in aerosol. It covers more efficiently the surfaces to be checked, bubble detection is easier, the product's yellow fluorescent coloration allows better visibility;
  - → environmental advantages: the container is re-usable as opposed to the aerosol that should be disposed of after use;
  - → economical advantage: 100 % of the contents can be used; refills in the form of 5-litre and 25-litre cans make the product extremely price-attractive.

DTGB - 81.1-1-1-10

Refrigerant leak detectors

→ CARLYLOC

01/10

■ Directions for use

- Shake before use.
- Apply CARLYLOC on the suspicious parts (connections, brazes, potential friction surfaces: piping close to each other, fastenings…) by spraying or coating.
- The product is harmless; it can be removed by simple wiping or washing with a wet sponge.

■ Precautions for use

General precautions for use:

* Do not spray onto energized electrical equipment.
* Avoid excessive contact with skin.
* In case of contact with eyes, rinse copiously with water. If irritation persists, see a physician.
* It is recommended wearing gloves and protective glasses when using.
* Do not swallow.
* Keep away from children.
* Use only in well ventilated places.
* **Storage conditions:** between +5°C and +50°C.
* **Reprocessing:** The products must be eliminated according to the legislation in force.
* **Aerosol:** pressurised container. Protect from sunlight and do not expose to temperatures exceeding 50°C. Do not pierce or burn after use. Do not spray on a naked flame or an incandescent material.

■ Technical features

CARLY references	Volume (Litres)	Packaging
CARLYLOC	0,4	Spray
CARLYLOC 500	0,5	Atomiser
CARLYLOC 5000	5,0	Can
CARLYLOC 25000	25,0	Can

■ Weights and packaging

CARLY references	Unit weight (kg)	Packaging unit
CARLYLOC	0,51	12
CARLYLOC 500	0,57	15
CARLYLOC 5000	5,40	2
CARLYLOC 25000	26,00	1

Heat exchanger detergents

DTGB - 82.1-1-1-10

→ CARLYCLEAN

01/10

Refrigerating and air conditioning systems' heat exchangers are environments that are subject to heat transfer. Any cleaning, grease, dust, corrosion and even bacterium and other micro-organisms act as isolation barriers and contribute to disturbing the exchangers' efficiency.

The air condenser installed outside is directly exposed to these undesirable soils.

In an air conditioning system, all particles (dust, greases, fumes) that are sufficiently small to go through the evaporator filter, accumulate on the fins which are generally wet and make up an ideal environment for bacteria and micro-organism development.

An efficient and harmless cleaning of exchangers is hence a priority in order to preserve their efficiency, increase their service life and maintain a healthy environment for the users.

Suitable for products in contact with food *(compliant with order of 08/09/1999)*.

■ Applications

- CARLYCLEAN is a concentrated alkaline detergent formula (non acid, non aggressive) to clean and degrease the soils of synthetic, vegetal and mineral origin deposited on the exchangers: condensers and evaporators.
- This product is a surface active formulation composed of active non acid, non toxic and easily biodegradable substances.
- The judicious association of CARLYCLEAN's chemical components allows the elimination of soils by emulsion. This process is an efficient technique that only acts on the soils, without altering the fragile surfaces, such as aluminium fins or other nearby materials.
- Cleaning greasy deposits by emulsion is also healthier for the user and for the environment than some acid and caustic detergents, based on strong chemical interaction formations on the exchangers to degrease them or to remove the microbic flora.

■ Functional features

- CARLYCLEAN is efficient against:
  - → mineral greases (oils, sludge…);
  - → vegetal greases (grass, leaves…);
  - → proteinic and keratinous derivatives (feathers…);
  - → glucidic derivatives;
  - → mineral soils (lime or silica dust…).
- Keeping exchangers clean ensures better equipment reliability and efficiency.
- CARLYCLEAN using temperature: between +5°C and + 60°C.

■ CARLY advantages

- CARLYCLEAN is suitable for products in contact with food : compliant with the legislation on the cleaning of foodstuff containers (order of 08/09/1999).
- CARLYCLEAN can be diluted.
- Note: once the fins are perfectly cleaned-up, further anti-microbial treatment with CARLYBIO is recommended for the evaporators: CARLYBIO is efficient against bacteria, fungicides and Legionella in 10 minutes maximum. Efficiency reports are available upon request.
- Deodorising product.

Heat exchanger detergents

→ CARLYCLEAN

01/10

■ Directions for use

- Considering the multiplicity of soils accumulated on the exchangers, the concentration of CARLYCLEAN can be extremely variable: the detergent can be used pure or diluted (dilution up to 10%: 9 volumes of water for a volume of CARLYCLEAN).
  - → For condensers: for maximum efficiency, it is recommended to perform a pulverisation on the soiled parts, to let the product act for at least 5 minutes, then to rinse with water.
  - → For evaporators: CARLYCLEAN can be diluted in 5 to 9 volumes of water. Rinsing is not mandatory (de-icing is enough to swill out the fins).

■ Chemical features

- **Chemical compositions:**
  - → anionic surface-active agents;
  - → solvents (< 5%);
  - → mineral salts;
  - → water.

CARLYCLEAN associates the most detergent surface-active agent with the most emulsifying surface active agent. Thus its wetting and sequestering power makes it possible to easily reach, remove and eliminate the soils encountered.

The solvent used brings synergy to the level of cleaning.

Mineral salts (silicates, phosphates), with their anti-corrosive properties, are easily absorbed on the sensitive surfaces to be protected such as aluminium and its alloys, copper, zinc and tin.

CARLYCLEAN's chemical composition allows compatibility with all materials used in the manufacturing of exchangers (aluminium, copper…) and with the fin protection compounds (varnish, tinning…).

CARLYCLEAN is efficient and without danger on condensers and finned type evaporators.

■ Precautions for use

* Like all highly degreasing products, it is recommended wearing gloves and glasses when using the product.
* Do not spray onto energized electrical equipment.
* Do not put in contact with eyes and skin.
* In the case of contact with eyes, rinse copiously with water.
* Do not swallow.
* Keep away from children.
* **Xi**: Irritant.
* **R36/38**: Irritant for eyes and skin.
* **S24**: Avoid excessive contact with skin.
* **S25**: Avoid contact with eyes.
* **Regulation:** For surfaces in contact with foodstuff, a rinse with drinkable water is required (Order of 08/09/1999).
  The enforced regulation is that of the country where the product is used.
* **Frequency of use:** in order to obtain an efficient heat exchange, it is recommended to clean-up the exchangers on a monthly basis.
* **Storage conditions:** between +5°C and +60°C.
* To make the CARLYCLEAN use even easier, CARLY proposes a pump with a pressure of 5 L, or CARLYSPRAY(refer to chapter 100).

■ Technical features

CARLY references	Volume (Litres)	Packaging
CARLYCLEAN 500	0,5	Atomiser
CARLYCLEAN 5000	5,0	Can
CARLYCLEAN 25000	25,0	Can

Heat exchanger detergents

→ CARLYCLEAN

01/10

■ Weights and packaging

CARLY references	Unit weight (kg)	Packaging unit
CARLYCLEAN 500	0,56	15
CARLYCLEAN 5000	5,25	2
CARLYCLEAN 25000	26,00	1

Refrigerating and air conditioning system decontaminants

DTGB - 83.1-1-1-10

→ CARLYBIO *(Anti Légionella)*

01/10

The air conditioning and refrigerating systems can be contaminated by micro-organisms (bacteria, mould, algae…).

The development of these micro-organisms is mainly caused by:

- → warm water (20°C to 45°C);
- → nutriments in sufficient amount (for instance, the iron salts produced by corrosion);
- → the accumulation of organic materials, sediments and other micro-organisms.

A large part of these micro-organisms can be dispersed in the system by water coming from a condensation or de-icing system. Thus they can damage piping, heat exchangers and other surfaces by forming bio-films.

The Legionella Pneumophilia bacterium is a micro-organism that can cause severe infections to man.

The water contaminated by the Legionella presents a risk for health when it is dispersed in the air and inhaled by man.

To fight against air conditioning and refrigerating system contamination, the installations must be regularly cleaned-up with CARLYCLEAN, then disinfected with CARLYBIO.

Suitable for products in contact with food *(compliant with order of 08/09/1999)*.

■ Applications

- CARLYBIO is suited for disinfection (bacteria, mould, Legionella) of steel, painted, aluminium, copper, plastic - such as PE, PP, PVC, PTFE, PVDF - surfaces of refrigerating and air conditioning installations.
- CARLYBIO is to be used pure on the surfaces to be desinfected.

■ Functional features

- CARLYBIO is very efficient against:
  - → Legionella: NFT 72.301.
    At 10 % concentration, the product is still extremely efficient: it destroys all Legionella Pneumophilia cells in 5 minutes at a temperature of 20°C;
  - → Bacteria (Salmonella, Listeria): NFT 72.150 and NFT 72.170.
    At 10 % concentration, the product is still efficient: it destroys all bacteria cells in 10 minutes maximum at a temperature of 20°C;
  - → Fungicides (mould and yeasts): NFT 72.200.
    At 10 % concentration, the product is still efficient: it destroys all mould spores and the vegetal cells in 10 minutes maximum at a temperature of 20°C;
  - → CARLYBIO efficiency reports are available on request.

■ CARLY advantages

- CARLYBIO is suitable for products in contact with food : compliant with the legislation on the cleaning of foodstuff containers (order of 08/09/1999).
- CARLYBIO is a strong bactericide and fungicide disinfectant.
- CARLYBIO is a neutral product, non aggressive for surfaces.
- Deodorising product.

Refrigerating and air conditioning system decontaminants

→ CARLYBIO *(Anti Légionella)*

■ Directions for use

- Clean the surfaces to be treated with CARLYCLEAN, then rinse with water.
- Spray CARLYBIO on the surfaces of elements to be treated: evaporators, condensate receivers…
- Let the product act during at least 10 minutes, for perfect disinfection.

■ Precautions for use

* The product can be diluted.
* It is recommended wearing gloves and protective glasses when using this product.
* Do not spray onto energized electrical equipment.
* Do not mix with anionic or chlorinated by-products.
* Do not swallow.
* If necessary, wash hands after use.
* Keep away from children.
* If irritation persists, see a physician.
* **Xi**: Irritant.
* **R36/38**: Irritant for eyes and skin.
* **S24**: Avoid excessive contact with skin.
* **S25**: Avoid contact with eyes.
* **Regulation:** For surfaces in contact with foodstuff, a rinse with drinkable water is required (Order of 08/09/1999). The enforced regulation is that of the country where the product is used.
* **Storage conditions:** between +5°C and +60°C.
* To make the CARLYBIO use even easier, CARLY proposes a 5 L pump with a pressure , or CARLYSPRAY (refer to chapter 100).

■ Technical features

CARLY references	Volume (Litres)	Packaging
CARLYBIO 500	0,5	Atomiser
CARLYBIO 5000	5,0	Can
CARLYBIO 25000	25,0	Can

■ Weights and packaging

CARLY references	Unit weight (kg)	Packaging unit
CARLYBIO 500	0,50	15
CARLYBIO 5000	5,25	2
CARLYBIO 25000	26,00	1

Heat exchanger detergents and decontaminants

DTGB - 84.1-1-1-10

→ CARLYPRO

01/10

An efficient cleaning of heat exchanger is a priority for optimal efficiency of refrigerating and air conditioning installations, and helps extend equipment service life.

A periodic (permanent and preventive) disinfection makes it possible to prevent proliferation of micro-organisms (bacteria and mould) and formation of bad odours, while maintaining good air quality.

The association of detergent compounds and disinfectant compounds allows major savings of time, energy and labour, because only one product is used: CARLYPRO.

Suitable for products in contact with food *(compliant with order of 08/09/1999)*.

■ Applications

- CARLYPRO is an alkaline detergent and disinfectant product, ready for use, intended for cleaning air condensers, evaporators and other exchange surfaces (steel, aluminium, copper, plastics…)
- CARLYPRO is a surface active formulation combining non-ionic surface agents selected for their great cleaning efficiency, and CARLYBIO disinfection components.
- It is a non toxic and non flammable product.

■ Functional features

- CARLYPRO is compliant with the following standards:
  - → Bactericide: NF EN 1040
    The product destroys all bacteria cells in 5 minutes maximum at a temperature of 20°C.
  - → Legionella : NF EN 1276
    At 20 % concentration, the product is still extremely efficient : it destroys all Legionella Pneumophilia cells in 15 minutes at a temperature of 20°C.
  - → Fungicide: NF EN 1275
    The product destroys all mould spores and the vegetal cells in 5 minutes maximum at a temperature of 20°C.
- CARLYPRO efficiency reports are available upon request.

■ CARLY advantages

- CARLYPRO is suitable for products in contact with food: compliant with the legislation on the cleaning of foodstuff containers (order of 08/09/1999).
- CARLYPRO is a powerful bactericide and fungicide detergent: it is thus unnecessary to use two different products (1 detergent + 1 disinfectant).
- Product non aggressive for the surface (steel, aluminium, copper, plastics…)
- Deodorising product.

Heat exchanger detergents and decontaminants

DTGB - 84.1-1-1-10

→ CARLYPRO

01/10

■ Directions for use

- Perform cleaning with CARLYCLEAN and rinse with water, if the surfaces to be treated contain too many soils.
- Spray CARLYPRO on the surfaces of the elements to be treated.
- Let the product act during at least 10 minutes for perfect cleaning and disinfection.

■ Precautions for use

* For perfect efficiency of the detergent-disinfectant product, the surfaces to be cleaned must not contain too many soils.
* If surfaces are too soiled, it is important to clean-up with CARLYCLEAN and to rinse with water before disinfection.
* Do not dilute the product.
* It is recommended wearing gloves and glasses when using the product.
* Do not mix with acid products and anionic or chlorinated compounds.
* Do not spray onto energized electrical equipment.
* Do not put in contact with the eyes and the skin.
* Wash hands after using product.
* In case of contact with eyes, rinse copiously with water.
* If irritation persists, see a physician.
* Do not swallow.
* Keep away from children.
* **R36/38**: Irritant for eyes and skin.
* **S24**: Avoid excessive contact with skin.
* **S25**: Avoid contact with eyes.
* **Regulation:** For surfaces in contact with foodstuff, a rinse with drinkable water is required (Order of 08/09/1999).
  The enforced regulation is that of the country where the product is used.
* **Frequency of use:** in order to obtain efficient heat exchange, it is recommended to perform a monthly cleaning and disinfecting of the exchangers.
* **Storage conditions:** between +5°C and +60°C.
* To make the CARLYPRO use even easier, CARLY proposes a pump with a pressure of 5 L , or CARLY-SPRAY (refer to chapter 100).

■ Technical features

CARLY references	Volume (Litres)	Packaging
CARLYPRO 500	0,5	Atomiser
CARLYPRO 5000	5,0	Can
CARLYPRO 25000	25,0	Can

■ Weights and packaging

CARLY references	Unit weight (kg)	Packaging unit
CARLYPRO 500	0,56	15
CARLYPRO 5000	5,25	2
CARLYPRO 25000	26,00	1

DTGB - 85.1-1-1-10

Grease remover

→ CARLYNET

01/10

CARLYNET is a solvent based condensing coil cleaner.
Its high degreasing performance mean that is particularly appropriate for very greasy surfaces (kitchens, restaurants, canteens etc…..)

CARLYNET contains NEITHER Chlorides nor Fluorides.

■ Applications

- CARLYNET is a degreasing solvent, ready to use, formulated for the cold cleaning of air condensers.
- This product, which dissolves easily, works rapidly and eliminates dust, oil, grease, impurities and all other residues and deposits.
- Its very low surface tension makes a very efficient product.
- CARLYNET is compatible with all the materials used in the production of heat exchangers and also with plastics and paints. You are however advised to do a test on these surfaces before a general application.

■ Functional features

- CARLYNET works against:
  - → grease
  - → oil
  - → dust
- Keeping the heat exchangers clean assures a better efficiency and a maximum yield from cooling equipment.
- The gas used for propulsion is inflammable.
- CARLYNET using temperature: between +5°C and +50°C.

■ CARLY advantages

- CARLYNET is a powerful degreasing solvent for condensers.
- It is without chlorides and fluorides.
- It dries quickly.
- It is non-aggressive for surfaces (steel, aluminium, copper, brass, plastic…..).
- No rinsing is required after application of the product.

DTGB - 85.1-1-1-10

Grease remover

→ CARLYNET

01/10

■ Directions for use

- Before spraying ensure that the equipment to be treated is switched off and unplugged.
- Shake the product well. Spray approximately 15cm. from the surfaces to be cleaned, keeping the aerosol vertical.
- Leave until the solvent has completely evaporated.
- Wipe any surplus off with a clean cloth if necessary.
- Repeat if required.
- Use the extension tube for any localised treatment.

■ Precautions for use

* Pressurised container.
* Protect from sun-light and do not expose to temperatures exceeding 50°C.
* Do not pierce or burn after use.
* Do not spray on a naked flame or an incandescent material.
* Keep away from all flames or sources of sparks or ignition.
* Do not smoke during the application of the product.
* Only use in well ventilated areas.
* Do not inhale the vapours.
* Do not ingest.
* If swallowed, consult a doctor immediately and show the packaging or label
* Keep away from childrens.
* Do not use for a different purpose from which it has been designed.
* **F**: Easily flammable.
* **Xi**: Irritant.
* **N**: Dangerous for the environment.
* **Frequency of use:** in order to obtain efficient heat exchange, it is recommended to perform a monthly cleaning of the exchangers.
* **Storage conditions:** Store between +5°C and +30°C (never with the top of 50°C, freezing fears).
* **Reprocessing:** The products must be eliminated according to the legislation in force.

■ Technical features

CARLY references	Volume (Litre)	Packaging
CARLYNET	0,4	Spray

■ Weights and packaging

CARLY references	Unit weight (kg)	Packaging unit
CARLYNET	0,51	12

DTGB - 86.1-1-1-10

Anti-corrosion treatment for heat exchanger fins

→ CARLYCOAT

01/10

Heat exchangers coils used in air conditioning and refrigerating systems, are the seat of pollutants (mineral and vegetable dusts, humidity, acid rains, sulphurated or nitrogenous compounds).
These pollutants, major actors of atmospheric corrosion, are extremely harmful for the exchanger's surfaces (particularly aluminium fins).
The main metal materials, used in the heat exchanger's manufacturing (aluminium and cuprus alloys, galvanized steel), may corrode.
The corrosion under pollutants deposits, the most frequent, entails the complete deterioration of fins.
Changed into alumina (whitish product), the aluminium fins, for example, becomes breakable without any mechanical property.

To remedy the severe deterioration and extend the heat exchangers fins life, CARLY offers an anti-corrosion treatment - CARLYCOAT.

CHLORINE free product.

■ Applications

- CARLYCOAT is an anti-corrosion product, ready to use, formulated to fight against hostile surrounding agent.
- This product, with a high covering capacity and a high content of aluminium pigments, assures a maximal anti-oxidation and anti-corrosion protection of the aluminium and copper fins (for evaporators and condensors)
- The product does not pour. It has no side effects on the thermic exchange.
- CARLYCOAT is compatible with all materials used in the production of heat exchanger.

■ Functional features

- CARLYCOAT is especially intended for small heat exchanger fins.
- Chlorine free product.
- The product can be applied on surfaces where the temperature can vary between -50°C and 550°C.
- A spray can treat 0,60 m² (400ml of active constituent).
- Non-flammable propulsion gas.
- Non toxic. Irritating for the skin.

■ CARLY advantages

- CARLYCOAT ensures a high anti-corrosion and anti-oxydation protection of heat exchanger fins.
- Very high covering power.
- Homogeneous cover. Does not run, with high aluminium pigments content.
- Resists on surfaces where the temperature is between -50°C and 550°C.
- Ready to use product.
- Fast drying (on clean and dry surfaces).
- For new heat exchangers or exchangers having already been used.

DTGB - 86.1-1-1-10

Anti-corrosion treatment for heat exchanger fins

→ CARLYCOAT

01/10

■ Directions for use

- Clean the fins surfaces to be treated with CARLYCLEAN (refer to chapter 82) and eliminate any oxidation tracks.
- Shake the product well.
- Spray at approximately 15 cm from the surfaces to be treated.

■ Precautions for use

* It is recommended to wear gloves and glasses when using the product.
* Irritating for the skin.
* Harmful to aquatic organisms, may cause long-terme adverse effects in the aquatic environment.
* Vapours may cause drowsiness and dizziness.
* Pressurized container.
* Protect from sun's rays and do not expose to a temperature exceeding 50°C.
* Do not pierce or burn, after use.
* Do not spray on a flame or an incandescend material.
* Keep away from all flames, sparks sources, heat sources or electrical appliances under operation.
* Do not smoke during the application of the product.
* Only use in well ventilated areas.
* Do not inhale the vapors.
* Keep away from childrens.
* Do not swallow.
* If swallowed, consult a doctor immediately and show the packaging or label.
* Apply by short pressures. No long pulverization.
* Do not use for a different purpose from which it has been designed.
* Do not empty into drains.
* **F**: Easily flammable.
* **Xi**: Irritant.
* **N**: Dangerous for the environment.
* **Storage conditions:** Keep away from humidity and store between +5°C and +30°C (never with the top of 50°C, freezing fears).
* **Reprocessing:** The products must be eliminated according to the legislation in force.

■ Technical features

CARLY references	Volume (Litre)	Packaging
CARLYCOAT	0,4	Spray

■ Weights and packaging

CARLY references	Unit weight (kg)	Packaging unit
CARLYCOAT	0,51	12

Acidity tests for mineral, alkylbenzene and polyol-ester refrigerating oils

DTGB - 91.1-1-1-10

→ TESTOIL-MAS / TESTOIL-POE / TESTOIL-MP

01/10

The oil acidity content is an important parameter to check because it determines the refrigerating installation's good operating condition.
Two internal chemical processes can alter the oil quality and generate the formation of acids and sludge harmful for the installation:

- → the formation of free fluorinated and chlorinated acids produced by alteration of halogen refrigerants;
- → the formation of fatty acids by hydrolysis of POE-type oils.

These acids then generate metallic salts and oxides (iron or copper) that could block the oil filter or lead to the copper plating of metallic parts in motion. These degradation phenomena are dangerous for the installation, because they lead to seizing of oil pumps and to severe damage due to lubrication defect.
The new oils (mineral, alkylbenzenes and polyol-esters) have different acidity indices due to the addition of (anti-wear, antioxidant, anticorrosive…) additives by the manufacturer, in order to reduce mechanical wear and extend the compressor's service life.
The additive mineral and alkylbenzene oils usually have acidity thresholds lower than 0.10 mg of potash /g of oil (TAN).
The additive polyol-ester oils have acidity thresholds lower than 0.25 mg of potash /g of oil.

■ Applications

- TESTOILs ensure monitoring of the additive mineral, alkylbenzene and polyol-ester oil acidity in refrigerating and air conditioning installations.

■ Functional features

- TESTOILs are solvent-based flammable chemical solutions, coming from natural products (they do not contain benzene, or xylene, or toluene).
- TESTOILs have been formulated according to the oil acidity threshold values defined above:
  - → TESTOIL-MAS (for additive mineral and alkylbenzene oils) has a maximum detection acidity threshold of 0.10 mg of potash / g of oil;
  - → TESTOIL-POE (for additive polyol-ester oils) has a maximum detection acidity threshold of 0.25 mg of potash /g of oil.

■ CARLY advantages

- TESTOILs are ready for use products, usable on site.
- The measurement process is simple, quick and efficient.

Acidity tests for mineral, alkylbenzene and polyol-ester refrigerating oils

DTGB - 91.1-1-1-10

→ TESTOIL-MAS / TESTOIL-POE / TESTOIL-MP

01/10

■ Directions for use

- TESTOIL bottles should be opened only for immediate use.
- Pour an oil sample in the bottle.
- Shake and let it rest for 10 seconds until colour stabilisation.
- Observe the test solution colour:
  - ➔ Purple: test is satisfactory, oil acidity is correct;
  - ➔ Yellow: oil acidity is high, oil should be replaced.

■ Precautions for use

* Flammable product: keep away from heat sources.
* The test solution colour changes with highly additive oils (TAN > 0.30) but this does not mean that they are faulty: it is therefore very important to inquire about the additive contents of the oil used, for a correct interpretation of the result obtained when the acidity test is performed using TESTOIL.
* To ensure reliable measurement, shorten the handling time between the oil sampling from the compressor and the opening of the TESTOIL bottle.
* Do not smoke.
* Do not swallow.
* Noxious by inhalation.
* Avoid excessive contact with skin.
* In case of contact with eyes, rinse copiously with water.
* If irritation persists, see a physician.
* It is recommended wearing gloves and glasses when using the product.
* Keep away from childrens.
* **R 11**: Easily flammable.
* **R 36/38**: Irritant for eyes and skin.
* The product is solvent-based and should be kept in a cool and dry place.
* Do not expose the product to sunlight.
* Do not use TESTOIL in a circuit containing a tracer (the tracer distorts the test's interpretation).
* **Storage conditions:** store between +5°C and +40°C, in a dry and cool place, and protect from sunlight.
* **Reprocessing:** the product should be disposed of in accordance with the legislation in force.

■ Technical features

CARLY references	Acid test for additive oils	Packaging
TESTOIL-MAS	mineral and alkylbenzene	1 bottle of 30 ml
TESTOIL-POE	polyol-ester	1 bottle of 30 ml
TESTOIL-MP	mineral, alkylbenzene and polyol-ester	2 bottle of 30 ml

■ Weights and packaging

CARLY references	Unit weight (kg)	Packaging unit
TESTOIL-MAS	0,07	18
TESTOIL-POE	0,07	18
TESTOIL-MP	0,14	16

DTGB - 92.1-1-1-10

Acid neutraliser for mineral, alkylbenzene and polyol-ester refrigerating oils

→ STOPACID-MAS / STOPACID-POE

01/10

The chemical development of acids and moisture inside of refrigerating and air conditioning installations can have important consequences on the operation of installations: compressor burnout, seizing of metallic parts, metal corrosion …

In order to protect the equipment from these undesirable chemical attacks, CARLY offers an acid neutraliser for synthetic alkylbenzene and mineral oils - STOPACID-MAS - and an acid neutraliser for polyol-ester oils - STOPACID-POE.

■ Applications

- STOPACID-MAS should be used in refrigerating and air conditioning systems lubricated by synthetic alkylbenzene and mineral oils.
- STOPACID-POE should be used in refrigerating and air conditioning systems lubricated by polyol-ester oils.
- These neutralization products are rigorously titrated and must always be used in full bottles in order to prevent moisture contamination.

■ Functional features

- A bottle of STOPACID treats 2 litres of oil and can reduce the oil acidity threshold by 0.1 mg of potash / g of oil.
- STOPACID-MAS is compatible with refrigerants: CFC, HCFC.
- STOPACID-POE is compatible with refrigerants: HFC.

■ CARLY advantages

- Products ready for use and simple of use.
- Products with high neutralization capacity of acids present in the synthetic alkylbenzene, mineral and polyol-ester oils.

DTGB - 92.1-1-1-10

Acid neutraliser for mineral, alkylbenzene and polyol-ester refrigerating oils

→ STOPACID-MAS / STOPACID-POE

01/10

■ Directions for use

- For mineral and alkylbenzene oils: Determine oil acidity with the TESTOIL-MAS acid test (refer to chapter 91). If the oil acidity is high (the solution turns yellow), the oil has to be treated with STOPACID-MAS.
- For polyol-ester oils : Determine oil acidity with the TESTOIL-POE acid test (refer to chapter 91). If the oil acidity is high (the solution turns yellow), the oil has to be treated with STOPACID-POE.
- Determine oil capacity of the installation by referring to the manufacturers' documentation or getting in touch with a registered distributor.
- Define the number of STOPACID-MAS bottles required for installation neutralization: the number of bottles to use = volume of oil in the compressor (in litre) / 2.

  Note: an open bottle must be entirely poured into the installation; if the result of the above calculation indicates that 2.5 bottles are necessary, then you should use 3 bottles.
- An amount of oil equivalent to that of STOPACID-MAS must be collected before neutralization in order to maintain the compressor oil capacity.
- Shake the bottles and introduce their contents directly into the compressor sump, making sure that the system is stopped during product injection, and avoiding lengthy contact of the product with ambient air.
- After 7 days of operation, check the acidity content of the oil treated with TESTOIL-MAS or TESTOIL-POE.

■ Precautions for use

* Store in a dry and cool place.
* Shake the bottles before use.
* Use the product by full bottles.
* Avoid contact with eyes and skin.
* Keep away from children.
* **Xi**: Irritant.
* **R 36/38**: Irritant for eyes and skin.
* **Conditions de stockage :** between +5°C and +40°C.
* **Reprocessing:** the product should be disposed of in accordance with the legislation in force.

■ Technical features

CARLY references	Acids neutraliser	Packaging
STOPACID-MAS	mineral and alkylbenzene	1 bottle of 30 ml
STOPACID-POE	polyol-ester	1 bottle of 30 ml

■ Weights and packaging

CARLY references	Unit weight (kg)	Packaging unit
STOPACID-MAS	0,08	18
STOPACID-POE	0,08	18

DTGB - 93.1-1-1-10

Identification test for polyol-ester oils

→ DETECTOIL-POE

01/10

DETECTOIL-POE is an identification test for polyol-ester oils.

This simple and economical device allows, on site, the immediate identification of the type of oil used: mineral – alkybenzine or polyester.

The user avoids all risk of mixing oils without first having to undertake long chemical laboratory analysis.

■ Applications

- DETECTOIL-POE is a ready to use test which permits the user to know in few seconds if the oil used in refrigerating and air conditioning units is a polyol-ester or not.

■ Functional features

- DETECTOIL-POE is a two phase solution, based on solvents and caustic products.
- The “test” solution forms a homogenous gel in the presence of a polyol-ester oil (the solution sets).
- The “test” solution remains liquid in the presence of a mineral or alkylbenzene oil.

■ CARLY advantages

- DETECTOIL-POE is ready for use product, usable on site.
- Reading the test is very simple, quick (only few seconds) and efficient.
- This product can be used instead of a long onerous analysis in a laboratory, or other measuring devices (refractometers).

Identification test for polyol-ester oils

DTGB - 93.1-1-1-10

→ DETECTOIL-POE

01/10

■ Directions for use

- The bottle of DETECTOIL-POE should be opened just before use.
- Pour a sample of the oil to be tested into the bottle, and then close it.
- Shake the " test " bottle for about fifteen seconds.
- Check the appearance of the solution
  - ➔ if a coloured gel has formed (the solution has set) : the tested oil is a polyol-ester one.
  - ➔ if the solution remains liquid : the oil in question is not a polyol-ester.

■ Precautions for use

* Flammable product: keep away from heat sources.
* To ensure reliable measurement, shorten the handling time between the oil sampling from the compressor and the opening of the DETECTOIL-POE bottle.
* Do not smoke whilst using this product.
* Do not swallow.
* Noxious by inhalation.
* Contains caustic products, avoid contact with the skin.
* In case of contact with eyes, rinse copiously with water.
* If irritation persists, see a physician.
* It is recommended wearing gloves and glasses when using the product.
* Keep away from children.
* **C**: Corrosive.
* **F**: Easily flammable.
* **R11**: Easily flammable.
* **R35**: Can cause severe burns.
* The product is solvent-based and should be kept in a cool and dry place.
* Do not expose the product to sunlight.
* **Storage conditions:** store between +5°C and +40°C, in a dry and cool place, and protect from sunlight.
* **Reprocessing:** the product should be disposed of in accordance with the legislation in force.

■ Technical features

CARLY references	Identification test for oils	Packaging
DETECTOIL-POE	polyol-ester	1 bottle of 30 ml

■ Weights and packaging

CARLY references	Unit weight (kg)	Packaging unit
DETECTOIL-POE	0,08	18

DTGB - 95.1-1-1-10

Calories discharger

→ CARLYCOOL

01/10

For maximum protection of heat sensitive equipment during brazing or soldering operations.

■ Applications

- CARLYCOOL is a calories discharger: it is applied on zones that present a risk of degradation during temperature increases (nearby surfaces, walls, piping, line components, etc...) before the brazing or soldering operations.
- Thanks to its chemical composition, CARLYCOOL can eliminate most of the emitted calories and ensures an efficient protection against the noxious effects of excessive heat.

■ Functional features

- CARLYCOOL has a high calorie dissipating power.
- It does not run and can be used on sloped, vertical or horizontal parts.
- CARLYCOOL is stable at high temperatures.
- It is non toxic for materials, users and the environment.
- Vanilla odour.

■ CARLY advantages

- CARLYCOOL is a translucent gel that does not mask the work surfaces.
- Avoids having to remove the heat sensitive parts to be soldered.
- Non aggressive for the surfaces on which it is applied (steel, copper, aluminium…).
- Does not stain.
- After use, a simple wiping with a cloth leaves the surfaces clean, after brazing or soldering.

DTGB - 95.1-1-1-10

Calories discharger

→ CARLYCOOL

01/10

■ Directions for use

- Apply a 5-mm thickness of product on the part to be treated.
- Braze or solder, the product evaporates with the heat.
- If necessary, add more product to ensure maximum heat protection.
- After use, wipe with a clean cloth.

■ Precautions for use

* CARLYCOOL does not contain any hazardous products.
* Do not apply on electrical equipment, whether in operation or not.
* Keep away from children.
* Do not swallow.
* If swallowed, consult a doctor immediately and show the packaging or label.
* In case of contact with eyes, rinse copiously with water.
* In case of contact with skin, rinse copiously with drinking water.
* **Storage conditions:** between +5°C and +60°C.
* **Reprocessing:** the product should be disposed of in accordance with the legislation in force.

■ Technical features

CARLY references	Volumes (Litre)	Packaging
CARLYCOOL	0,6	Atomiser

■ Weights and packaging

CARLY references	Unit weight (kg)	Packaging unit
CARLYCOOL	0,65	8

DTGB - 100.1-1-1-10

Accessories for chemical products

→ POMPE 5000

01/10

For easier use of CARLYCLEAN detergent, of CARLYBIO decontaminant and of CARLYPRO detergent decontaminant.

■ Applications

• 5-L pressure spray for liquids (without solvent).

■ Directions for use

- PE and PP bottle.
- Brass piston rod.
- Viton gaskets.
- Maximum pressure = 3 bar.
- Variable jet: vaporised or strong.
- Compatible with solvent-free liquids.
- Incompatible with derivative petroleum products, solvents, …
- Presence of a safety valve.

■ Mode d'emploi

- Pour the liquid into the pump by keeping enough space for air: this air, once compressed, will provide the correct pressure.
- Fit and firmly screw in the bottle pump piston.
- Actuate the pump bar in order to build up a sufficient pressure inside the pump.
- Adjust the jet (spray or strong jet) by means of the forward nozzle end, on the spray lance.

DTGB - 100.1-1-1-10

Accessories for chemical products

→ POMPE 5000

01/10

■ Precautions for use

* After each use, discharge the pressure from the bottle by pulling out the safety valve relief bar.
* After use, rinse the pump and spray lance with clean water.
* Do not open the pump when pressurized.
* Avoid direct exposure of the pump to sunlight and protect the pump from freezing temperatures.
* Do not keep the pump next to hot temperature sources.
* Do not spray toxic or poisonous products or substances towards persons or animals.

■ Technical features

CARLY references	Volume (Litre)	Maximal working pressure (bar)	Packaging
POMPE 5000	5	3	Pump

■ Weights and packaging

CARLY references	Unit weight (kg)	Packaging unit
POMPE 5000	2,02	1

DTGB - 100.1-1-1-10

Accessories for chemical products

→ CARLYSPRAY

01/10

CARLYSPRAY is an electric autonomous spray with battery ; it is rechargeable. This spray easily generates different types of jets by just pushing a button: from a straight directional jet (diameter 0.6 mm) to a large vaporised jet.

This product is compatible with:
- → CARLYCLEAN (heat exchanger detergent)
- → CARLYBIO (heat exchanger decontaminant)
- → CARLYPRO (heat exchanger detergent and decontaminant)

■ Applications

- Product intended for the maintenance and servicing of refrigerating and air conditioning systems.

■ Functional features

- Spray made of recyclable materials. This product is very ecological and economical thanks to its very low energy consumption.
- The full charged product is able to dispense up to 1 litre of liquid (i.e. an autonomy of 15 minutes under continued pressure).
- CARLYSPRAY and its battery are supplied with a charger for the mains (220V - 50 Hz). The battery is supplied non charged and must be charged during at least 10 hours initially, following recharges only take a few hours.

■ CARLY advantages

- Easy to use, quick and efficient, by simple pressure on the button – no tiring pumping.
- Straight and precise directional jets or “vaporised jet“.
- Regular and even jets.
- Quick charge of the battery.
- Low weight: 400 grams.
- Ergonomic and compact shape.
- Can be used in any position.
- Used properly, this product does not require any maintenance.
- Long life product.
- No possible overcharge of the battery. The charger can be plugged permanently. Low energy consumption.

DTGB - 100.1-1-1-10

Accessories for chemical products

→ CARLYSPRAY

01/10

■ Directions for use

- Fill the receiver.
- Screw on the spray until feeling a resistance.
- Adjust the nozzle of the spray in the wanted position:
  - ➝ Straight directional jet.
  - ➝ Vaporised jet.
  - ➝ Median jet.

- If CARLYSPRAY does not work, check that:
  - ➝ the receiver is full
  - ➝ the battery is charged
  - ➝ the diffuser is not is the closed position
  - ➝ the spray filter is not blocked by dirt or residue...

■ Precautions for use

* Ambient temperature of use of CARLYSPRAY: inferior to 50°C.
* To avoid damage to the pump, do not use the spray when it is empty.
* Never put CARLYSPRAY and the charger in the water.
* Do not use with products such as varnish, paint, lacquer…
* Do not use with explosive or inflammable products (solvents…)
* With irritant or corrosive products, wear appropriate protection (gloves…)
* Do not spray into the eyes.
* The battery and the charger are intended to work together, never use the charger with other electric devices or other chargers with CARLYSPRAY.
* It is recommended to leave the charger continually plugged into the mains and to connect the spray after each use (the battery never can be over-charged).
* CARLYSPRAY is guaranteed for the exclusive use of CARLYCLEAN, CARLYBIO and CARLYPRO. The use of CARLYSRPAY with other products annuls the CARLY guarantee.
* At the end of the product life, do not throw it away with domestic waste, eliminate according to current legislation.

■ Technical features

CARLY references	Volume (Litre)	Packaging
CARLYSPRAY	1	Atomiser

■ Weights and packaging

CARLY references	Unit weight (kg)	Packaging unit
CARLYSPRAY	0,54	1

Spare parts (classification by reference)

→ CY

08/10

CARLY references	Description	Types of products
CCY A 42	Adapter for end core holders	BDCY
CCY A 48	Adapter for end core holders	ACY / BCY
CCY A 100	Adapter for end core holders	BACY / BBCY
CY 10501000	Colour ball for sight glass	VCYR / TURBOIL-R® and TURBOIL-RF® HCYR / HCYN (B and BO types Bitzer)
CY 10800020	Plug for inspection rod	VBCY: 9 S/MMS (steel) to 13 S/MMS
CY 10800030	Plug for inspection rod	VBCY: 17 S/MMS to 25 S/MMS
CY 10810010	1/4" NPT phosphate plug for end plate	ACY / BCY / BACY / BBCY / HCYBF TURBOIL-F® 7011 S/MMS to 30025 S/MMS
CY 10850000	Plug for inspection rod	VBCY: 2 S/MMS to 6 S/MMS before 2002
CY 10850005	Plug for inspection rod	VBCY: 2 S/MMS to 6 S/MMS
CY 10850010	Plug for inspection rod	VBCY: 7 S/MMS before 2002
CY 10850015	Plug for inspection rod	VBCY: 7 S/MMS and 9 S/MMS (brass)
CY 10850030	Plug for inspection rod	HCYVI
CY 10850110	Standard fastening plug	FILTRY
CY 10870010	Plug for inspection rod	HCYCTR
CY 11610050	50 microns filtrating sleeve	FILTRY
CY 11610150	150 microns filtrating sleeve	FILTRY
CY 12850080	Sight glass 1" 1/4 ROTALOCK	LEVOIL 23 BO and 23 SC
CY 15552000	Four-lobed gasket for holed flange	HCYN / ELECTROIL / LEVOIL
CY 15552180	O-ring for sight glass	FILTRY / VCYLS / VCYR 32 TURBOIL-R® and TURBOIL-RF® HCYR / HCYN B and BO (Bitzer) / ELECTROIL
CY 15552190	O-ring for holed flange	HCYN / HCYN 1A / ELECTROIL / LEVOIL 22, 23 and 33 RE
CY 15553000	Gasket for 48 model core ends	CCY: HP / N / PLATINIUM
CY 15553100	Gasket for 100 model core ends	CCY: HP / N
CY 15555000	Bag of gaskets for shell end plates: CARLY and for most manufacturers of the market (gaskets: 122 x 114 x 1,6 and 114 x 103 x 1,6)	ACY / BCY
CY 15555120	Gasket for top core holders	BDCY
CY 15555151	Gasket for flange of oil separators	HCYSD: 1503 / 2204 / 2505 / 3006 / 1504 S/MMS to 3009 S/MMS TURBOIL-RF® TURBOIL-F®: 2505 S/MMS to 3011 S/MMS
CY 15555200	Adhesive gasket for core holders: C / D / B1	ACY / BCY
CY 15555211	End plate gasket	BDCY
CY 15555601	Gasket for end plate and for flange of oil separator	ACY / BCY / HCYBF TURBOIL-F® : 15013 S/MMS to 30025 S/MMS HCYSD: 3011 S/MMS - 3013 S/MMS - 15013 S/MMS to 70033 S/MMS
CY 15555620	Adhesive gasket for core holders: L - M2	BACY / BBCY
CY 15555701	Gasket for end plate and for oil separator	BACY / BBCY TURBOIL-F®: 7011 S/MMS to 9017 S/MMS HCYSD: 6011 S/MMS to 8017 S/MMS
CY 15558700	Gasket for core holders: A1 / G1 / E / F	ACY / BCY
CY 15558800	Gasket for core holders: N1 / P1 / R1 / J2 / K2 / Q2	BACY / BBCY

Spare parts (classification by reference)

→ CY

08/10

CARLY references	Description	Types of products
CY 15560030	Gasket for inspection rod plug	VBCY : 2 S/MMS to 6 S/MMS before 2002
CY 15560040	Gasket for inspection rod plug	VBCY : 7 S/MMS before 2002
CY 15560050	Gasket for inspection rod plug	VBCY : 7 S/MMS and 9 S/MMS (brass) 9 S/MMS (steel) to 13 S/MMS
CY 15560055	Gasket for inspection rod plug	VBCY : 17 S/MMS to 25 S/MMS
CY 15560085	Gasket for inspection rod plug	VBCY : 2 S/MMS to 6 S/MMS
CY 15580032	O-ring for connection-flange	HCYN : type BO (Bitzer)
CY 15580100	Gasket for 3/8" SAE Rotalock valve	TURBOIL-R® and TURBOIL-RF® HCYR / RLHCY / RLVCY CONDOR-V 100 to V 500 / CONDOR-H 150 and 250, outlet from 500, 750 and 1000
CY 15580120	Gasket for 5/8", 7/8" and 1" 1/8 Rotalock valve and connection	RLHCY / RLVCY / CONDOR-V 1000 to V 2500 / LEVOIL 23 BO and 23 SC
CY 15580140	Gasket for 1/2" ODF and 5/8" ODF Rotalock valve	HCYR / RLHCY / RLVCY / CONDOR-V 500 / V 1000 CONDOR-H inlet from 500, 750 and 1000
CY 15590010	Set of 25 taper copper gaskets for 1/4" SAE connection	KRCY before 2004 HCYVI
CY 15590015	Set of 25 guided taper copper gaskets for 1/4" SAE connection	KRCY / VCYL / DCY MF
CY 15590020	Set of 25 taper copper gaskets for 3/8" SAE connection	KRCY before 2004 HCYVI / HCYVP / HCYCTR
CY 15590025	Set of 25 guided taper copper gaskets for 3/8" SAE connection	HCYCT / HCYVP / KRCY VCYL / DCY MF
CY 15590030	Set of 25 taper copper gaskets for 1/2" SAE connection	KRCY before 2004
CY 15590035	Set of 25 guided taper copper gaskets for 1/2" SAE connection	KRCY / VCYL
CY 15590040	Set of 25 taper copper gaskets for 5/8" SAE connection	KRCY before 2004 / VCYL
CY 15590045	Set of 25 guided taper copper gaskets for 5/8" SAE connection	KRCY
CY 15590050	Set of 25 taper copper gaskets for 3/4" SAE connection	KRCY
CY 17400000	1/4" ODF Rotalock connection with gasket	RLHCY / RLVCY : 09 to 20 / CONDOR-V 100 to V 500 CONDOR-H 150 and 250, outlet from 500, 750 and 1000
CY 17400010	3/8" ODF Rotalock connection with gasket	RLHCY / RLVCY : 25 to 45 / CONDOR-V 100 to V 500 CONDOR-H 150 and 250, outlet from 500, 750 and 1000
CY 17400020	1/2" ODF Rotalock connection with gasket	RLHCY / RLVCY : 60 to 90 / CONDOR-V 500 / V 1000 CONDOR-H inlet from 500, 750 and 1000
CY 17400035	5/8" ODF Rotalock connection with gasket	RLHCY / RLVCY : 120 to 700 / CONDOR-V 1000 to V 2500
CY 17400040	7/8" ODF Rotalock connection with gasket	RLHCY / RLVCY : 120 to 700 / CONDOR-V 1000 to V 2500
CY 17400050	1" 1/8 ODF Rotalock connection with gasket	RLHCY / RLVCY : 120 to 700 / CONDOR-V 1000 to V 2500
CY 17400100	1/4" SAE Rotalock connection with gasket	RLHCY / RLVCY : 09 to 20 / CONDOR-V 100 to V 500 CONDOR-H 150 and 250, outlet from 500, 750 and 1000
CY 17400110	3/8" SAE Rotalock connection with gasket	RLHCY / RLVCY : 25 to 45 / CONDOR-V 100 to V 500 CONDOR-H 150 and 250, outlet from 500, 750 and 1000
CY 17400120	1/2" SAE Rotalock connection with gasket	RLHCY / RLVCY : 60 to 90 / CONDOR-V 500 / V 1000 CONDOR-H inlet from 500, 750 and 1000

Spare parts (classification by reference)

→ CY

08/10

CARLY references	Description	Types of products
CY 17637490	3/4 NPT adapter	LEVOIL 23 SC
CY 17637550	1" 1/8 - 18 UNEF adapter	LEVOIL 23 BO
CY 18906400	Roast exit	BDCY
CY 19700080	1/4" ODF Rotalock valve with gasket	RLHCY / RLVCY: 09 to 20 / CONDOR-V 100 to V 500 CONDOR-H 150 and 250, outlet from 500, 750 and 1000
CY 19700090	1/4" SAE Rotalock valve with gasket	RLHCY / RLVCY: 09 to 20 / CONDOR-V 100 to V 500 CONDOR-H 150 and 250, outlet from 500, 750 and 1000
CY 19700100	3/8" SAE Rotalock valve with gasket	TURBOIL-R® and TURBOIL-RF® HCYR: inlet and outlet from 40 to 150 inlet from 200 and from 300 RLHCY / RLVCY: 25 to 45 / CONDOR-V 100 to V 500 CONDOR-H 150 and 250, outlet from 500, 750 and 1000
CY 19700110	3/8" ODF Rotalock valve with gasket	RLHCY / RLVCY: 25 to 45 / CONDOR-V 100 to V 500 CONDOR-H 150 and 250, outlet from 500, 750 and 1000
CY 19700120	1/2" ODF Rotalock valve with gasket	HCYR: outlet from 200 / RLHCY / RLVCY: 60 to 90 / CONDOR-V 500 / V 1000 CONDOR-H inlet from 500, 750 and 1000
CY 19700130	5/8" ODF Rotalock valve with gasket	HCYR: outlet from 300 / CONDOR-V 100 to V 500
CY 19700135	5/8" ODF Rotalock valve with gasket	RLHCY / RLVCY: 120 to 700 / CONDOR-V 1000 to V 2500
CY 19700140	1/2" SAE Rotalock valve with gasket	RLHCY / RLVCY: 60 to 90 / CONDOR-V 500 / V 1000 CONDOR-H inlet from 500, 750 and 1000
CY 19700160	7/8" ODF Rotalock valve with gasket	RLHCY / RLVCY: 120 to 700 / CONDOR-V 1000 to V 2500
CY 19700170	1" 1/8 ODF Rotalock valve with gasket	RLHCY / RLVCY: 120 to 700 / CONDOR-V 1000 to V 2500
CY 19900411	Set of 8 fastening screws for flange	HCYBF / ACY / BCY
CY 19900420	Set of 8 fastening screws for flange	HCYSD: 1503 to 3006, 1504 S/MMS to 3009 S/MMS TURBOIL-F® 15013 S/MMS to 30025 S/MMS
CY 19900425	Set of 8 fastening screws for flange	TURBOIL-F® and RF® 2505 S/MMS to 3011 S/MMS
CY 19900520	Set of 10 fastening screws for flange	BACY / BBCY / TURBOIL-F® 7011 S/MMS to 9017 S/MMS
CY 25012140	Glass	HCYN B and BO / ELECTROIL
CY 29900130	Bolts + intermediate disk + gaskets	LEVOIL
CY 33301000	Flange with gasket and 1/4" NPT plug	BDCY
CY 33301200	Flange with gasket and 1/4" NPT plug	ACY / BCY / HCYBF
CY 33301700	Flange with gasket and 1/4" NPT plug	BACY / BBCY
CY 33303450	Flange with gasket and float set	HCYSD: 15013 S/MMS to 70033 S/MMS TURBOIL-F®: 15013 S/MMS to 30025 S/MMS
CY 33304000	Internal cores for oil separation and filtering	HCYSD: 15013 S/MMS to 15021 S/MMS
CY 33304100	Internal cores for oil separation and filtering	HCYSD: 30025 S/MMS to 70033 S/MMS
CY 33402000	Lower part of separator with gasket and float set	TURBOIL-F®: 2505 S/MMS to 3011 S/MMS (Before 2010)
CY 33403000	Lower part of separator with gasket and float set	TURBOIL-F®: 7011 S/MMS to 9017 S/MMS (Before 2010)
CY 33800515	Flange with gasket and float set	TURBOIL-F®: 2505 S/MMS to 3011 S/MMS
CY 33801705	Flange with gasket and float set	TURBOIL-F®: 7011 S/MMS to 9017 S/MMS
CY 35012140	Glass with moisture indicator	VCYLS - FILTRY
CY 35012150	Glass without moisture indicator	TURBOIL-R® and TURBOIL-RF® HCYR / VCYR 32 / FILTRY
CY 35012160	Glass with moisture indicator	VCYR 50

Spare parts (classification by reference)

→ CY

08/10

CARLY references	Description	Types of products
CY 36002050	Double 3/4" gas nipple for SCROLL flange	HCYN 2 SC / ELECTROIL
CY 37001030	C core holder	ACY / BCY (2, 3 and 4 cores)
CY 37001040	D core holder	ACY (3 and 4 cores) / BCY (4 cores)
CY 37001050	E core holder	ACY (1 core)
CY 37001060	F core holder	ACY (2, 3 and 4 cores)
CY 37001070	A1 core holder	BCY (1 core)
CY 37001080	B1 core holder	BCY (3 and 4 cores)
CY 37001090	G1 core holder	BCY (2, 3 and 4 cores)
CY 37002010	H core holder	HCYBF (1, 2 and 3 cores)
CY 37002020	S core holder	HCYBF (2 and 3 cores)
CY 37003015	J2 core holder	BBCY (1 core)
CY 37003025	K2 core holder	BBCY (2, 3 and 4 cores)
CY 37003030	L core holder	BACY (2, 3 and 4 cores) / BBCY (2, 3 and 4 cores)
CY 37003040	M2 core holder	BACY (3 and 4 cores) / BBCY (3 and 4 cores)
CY 37003055	N1 core holder	BACY (1 core)
CY 37003065	P1 core holder	BACY (2 and 3 cores)
CY 37003075	Q2 core holder	BBCY (4 cores)
CY 37003085	R1 core holder	BACY (4 cores)
CY 37004000	Top core holder	BDCY
CY 37004010	Bottom core holder	BDCY
CY 37100200	Leg of fixing	CONDOR-V 100 to V 1400
CY 37100210	Leg of fixing	CONDOR-H 150 - H 250 - H 750
CY 37100220	Leg of fixing	CONDOR-H 500 - H 1000
CY 37100250	Feet	TURBOIL-F®: 2505 S/MMS to 3011 S/MMS (Before 2010)
CY 37100260	Feet (kit)	TURBOIL-F®: 2505 S/MMS to 9017 S/MMS (Before 2010)
CY 37100300	Feet	TURBOIL-F®: 7011 S/MMS to 9017 S/MMS (Before 2010)
CY 38600220	Feet	HCYSD: 15013 S/MMS to 70033 S/MMS TURBOIL-F®: 15013 S/MMS to 30025 S/MMS
HCYN 1V1	Oil level sight glass for standard flange (3-holes)	HCYN
HCYN 1V1K	HCYN 1V1 + screws + gaskets	HCYN

Spare parts (classification by product)

→ DCY

08/10

CARLY references	Description	Types of products	Quantity
CY 15590015	Set of 25 guided taper copper gaskets for 1/4" SAE (flare) connections	DCY 032 MF	1
		DCY 052 MF	
		DCY 082 MF	
CY 15590020	Set of 25 guided taper copper gaskets for 3/8" SAE (flare) connections	DCY 053 MF	1
		DCY 083 MF	
		DCY163 MF	

→ TSGY

CARLY references	Description	Types of products	Quantity
CY 15590015	Set of 25 guided taper copper gaskets for 1/4" SAE (flare) connections	TSGY 052	1
		TSGY 082	
CY 15590025	Set of 25 guided taper copper gaskets for 3/8" SAE (flare) connections	TSGY 083	1
		TSGY 163	
CY 15590035	Set of 25 guided taper copper gaskets for 1/2" SAE (flare) connections	TSGY 164	1

→ BDCY

CARLY references	Description	Quantity
CY 10810010	1/4" NPT phosphate plug for end plate	1
CY 15555211	End plate gasket	1
CY 19900410	Set of 6 fastening screws for end plate	1
CY 33301000	End plate with gasket and 1/4" NPT plug	1
CY 37004000	Outlet core holder	1
CY 37004010	Intlet core holder	1
CCY A 42	Adapter for end core holders	1

Spare parts (classification by product)

→ BCY

08/10

CARLY references	Description	Quantity
CY 10810010	1/4" NPT phosphate plug for end plate	1
CY 15555000	Bag of gaskets for shell end plates CARLY and for most manufacturers (gaskets: 122 x 114 x 1.6 and 114 x 103 x 1.6)	1
CY 15555200	Adhesive gasket for core holders: CY 37001030, CY 37001040 and CY 37001080	1
CY 15555601	End plate gasket	1
CY 19900411	Set of 8 fastening screws for end plate	1
CY 33301200	End plate with gasket and 1/4" NPT plug	1
CY 37001030	Core holder (2,3 and 4 cores)	1
CY 37001040	Core holder (4 cores)	1
CY 37001070	Core holder (1 core)	1
CY 37001080	Core holder (3 and 4 cores)	1
CY 37001090	Core holder (2, 3 and 4 cores)	1
CCY A 48	Adapter for end core holder	1

→ BBCY

CARLY references	Description	Quantity
CY 10810010	1/4" NPT phosphate plug for end plate	1
CY 15555620	Adhesive gasket for core holders: CY 37003030 - CY 37003040	1
CY 15555701	End plate gasket	1
CY 19900520	Set of 10 fastening screws for end plate	1
CY 33301700	End plate with gasket and 1/4" NPT plug	1
CY 37003015	Core holder (1 core)	1
CY 37003025	Core holder (2 and 3 cores)	1
CY 37003030	Core holder (2, 3 and 4 cores)	1
CY 37003040	Core holder (3 and 4 cores)	1
CY 37003075	Core holder (4 cores)	1
CCY A 100	Adapter for end core holders	1

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Spare parts (classification by product)

→ ACY

08/10

CARLY references	Description	Quantity
CY 10810010	1/4" NPT phosphate plug for end plate	1
CY 15555000	Bag of gaskets for shell end plates CARLY and for most manufacturers (gaskets: 122 x 114 x 1.6 and 114 x 103 x 1.6)	1
CY 15555200	Adhesive gasket for core holders: CY 37001030 and CY 37001040	1
CY 15555601	End plate gasket	1
CY 19900411	Set of 8 fastening screws for end plate	1
CY 33301200	End plate with gasket and 1/4" NPT plug	1
CY 37001030	Core holder (2, 3 and 4 cores)	1
CY 37001040	Core holder (3 and 4 cores)	1
CY 37001050	Core holder (1 core)	1
CY 37001060	Core holder (2, 3 and 4 cores)	1
CCY A 48	Adapter for end core holder	1

→ BACY

CARLY references	Description	Quantity
CY 10810010	1/4" NPT phosphate plug for end plate	1
CY 15555620	Adhesive gasket for core holders: CY 37003030 - CY 37003040	1
CY 15555701	End plate gasket	1
CY 19900520	Set of 10 fastening screws for end plate	1
CY 33301700	End plate with gasket and 1/4" NPT plug	1
CY 37003030	Core holder (2, 3 and 4 cores)	1
CY 37003040	Core holder (3 and 4 cores)	1
CY 37003055	Core holder (1 core)	1
CY 37003065	Core holder (2 and 3 cores)	1
CY 37003085	Core holder (4 cores)	1
CCY A 100	Adapter for end core holders	1

Spare parts (classification by product)

→ CCY / PLATINIUM 48

08/10

CARLY references	Description	Types of products	Quantity
CY 15553000	Gasket for 48 model core ends	CCY 48 HP - CCY 48 N - PLATINIUM 48	1
CY 15553100	Gasket for 100 model core ends	CCY 100 HP - CCY 100 N	1
CY 15555211	End plate gasket	BDCY	1
CY 15555601	End plate gasket	ACY - BCY	1
CY 15555701	End plate gasket	BACY - BBCY	1

→ VCYL

CARLY references	Description	Quantity
CY 15590015	Set of 25 guided taper copper gaskets for 1/4" SAE connection	1
CY 15590025	Set of 25 guided taper copper gaskets for 3/8" SAE connection	1
CY 15590035	Set of 25 guided taper copper gaskets for 1/2" SAE connection	1
CY 15590040	Set of 25 taper copper gaskets for 5/8" SAE connection	1

→ VCYLS

CARLY references	Description	Quantity
CY 15552180	O-ring for sight glass	1
CY 35012140	Glass with moisture indicator	1

→ FILTRY

CARLY references	Description	Quantity
CY 10850110	Standard fastening plug	1
CY 11610050	50 microns filtrating sleeve	1
CY 11610150	150 microns filtrating sleeve	1
CY 15552180	O-ring	1
CY 35012140	Glass with moisture indicator	1
CY 35012150	Glass without moisture indicator	1

Spare parts (classification by product)

→ RLHCY *(horizontal)* / RLVCY *(vertical)*

08/10

CARLY references	Description	Types of products	Quantity
CY 15580100	Gasket for 1/4" and 3/8" Rotalock connections and valves	09 to 45	1
CY 15580120	Gasket for 5/8", 7/8" and 1" 1/8 Rotalock connections and valves	120 to 700	1
CY 15580140	Gasket for 1/2" Rotalock connections and valves	60 to 90	1
CY 17400000	1/4" ODF Rotalock connection with gasket	09 to 45	1
CY 17400010	3/8" ODF Rotalock connection with gasket	09 to 45	1
CY 17400020	1/2" ODF Rotalock connection with gasket	60 to 90	1
CY 17400035	5/8" ODF Rotalock connection with gasket	120 to 700	1
CY 17400040	7/8" ODF Rotalock connection with gasket	120 to 700	1
CY 17400050	1" 1/8 ODF Rotalock connection with gasket	120 to 700	1
CY 17400100	1/4" SAE Rotalock connection with gasket	09 to 45	1
CY 17400110	3/8" SAE Rotalock connection with gasket	09 to 45	1
CY 17400120	1/2" SAE Rotalock connection with gasket	60 to 90	1
CY 19700080	1/4" ODF Rotalock valve with gasket	09 to 20	1
CY 19700110	3/8" ODF Rotalock valve with gasket	25 to 45	1
CY 19700120	1/2" ODF Rotalock valve with gasket	60 to 90	1
CY 19700135	5/8" ODF Rotalock valve with gasket	120 to 700	1
CY 19700160	7/8" ODF Rotalock valve with gasket	120 to 700	1
CY 19700170	1" 1/8 ODF Rotalock valve with gasket	120 to 700	1
CY 19700090	1/4" SAE Rotalock valve with gasket	09 to 45	1
CY 19700100	3/8" SAE Rotalock valve with gasket	09 to 45	1
CY 19700140	1/2" SAE Rotalock valve with gasket	60 to 90	1

→ VCYR

CARLY references	Description	Types of products	Quantity
CY 10501000	Colour ball for sight glass	VCYR 32	1
CY 15552180	O-ring for sight glass	VCYR 32	1
CY 35012150	Glass without moisture indicator	VCYR 32	1

Spare parts (classification by product)

→ CONDOR-V *(vertical)*

08/10

CARLY references	Description	Types of products	Quantity
CY 15580100	Gasket for 1/4" and 3/8" Rotalock connections and valves	V 100 - V 150 - V 240 - V 500(0)	1
CY 15580120	Gasket for 5/8", 7/8", 1" 1/8 Rotalock connections and valves	V 1000(I) - V 1400(I) - V 2500(0)	1
CY 15580140	Gasket for 1/2" Rotalock connections and valves	V 500(I) - V 1000(O) - V 1400(O)	1
CY 17400000	1/4" ODF Rotalock connection with gasket	V 100 - V 150 - V 240 - V 500(0)	1
CY 17400010	3/8" ODF Rotalock connection with gasket	V 100 - V 150 - V 240 - V 500(0)	1
CY 17400020	1/2" ODF Rotalock connection with gasket	V 500(I) - V 1000(O) - V 1400(O)	1
CY 17400035	5/8" ODF Rotalock connection with gasket	V 1000(I) - V 1400(I) - V 2500(0)	1
CY 17400040	7/8" ODF Rotalock connection with gasket	V 1000(I) - V 1400(I) - V 2500(0)	1
CY 17400050	1" 1/8 ODF Rotalock connection with gasket	V 1000(I) - V 1400(I) - V 2500(0)	1
CY 17400100	1/4" SAE Rotalock connection with gasket	V 100 - V 150 - V 240 - V 500(0)	1
CY 17400110	3/8" SAE Rotalock connection with gasket	V 100 - V 150 - V 240 - V 500(0)	1
CY 17400120	1/2" SAE Rotalock connection with gasket	V 500(I) - V 1000(O) - V 1400(O)	1
CY 19700080	1/4" ODF Rotalock valve with gasket	V 100 - V 150 - V 240 - V 500(0)	1
CY 19700110	3/8" ODF Rotalock valve with gasket	V 100 - V 150 - V 240 - V 500(0)	1
CY 19700120	1/2" ODF Rotalock valve with gasket	V 500(I) - V 1000(O) - V 1400(O)	1
CY 19700130	5/8" ODF Rotalock valve with gasket	V 500(I) - V 1000(O) - V 1400(O)	1
CY 19700135	5/8" ODF Rotalock valve with gasket	V 1000(I) - V 1400(I) - V 2500(0)	1
CY 19700160	7/8" ODF Rotalock valve with gasket	V 1000(I) - V 1400(I) - V 2500(0)	1
CY 19700170	1" 1/8 ODF Rotalock valve with gasket	V 1000(I) - V 1400(I) - V 2500(0)	1
CY 19700090	1/4" SAE Rotalock valve with gasket	V 100 - V 150 - V 240 - V 500(0)	1
CY 19700100	3/8" SAE Rotalock valve with gasket	V 100 - V 150 - V 240 - V 500(0)	1
CY 19700140	1/2" SAE Rotalock valve with gasket	V 500(I) - V 1000(O) - V 1400(O)	1
CY 37100200	Support feet	V 100 - V 150 - V 240 - V 500 - V 1000 - V 1400	1

(I) = Inlet ; (O) = Outlet

Spare parts (classification by product)

→ CONDOR-H *(horizontal)*

08/10

CARLY references	Description	Types of products	Quantity
CY 15580100	Gasket for 1/4" and 3/8" Rotalock connections and valves	H 150 - H 250 - H 500(OS) - H 750(O) - H1000(O)	1
CY 15580140	Gasket for 1/2" Rotalock connections and valves	H 500(I) - H 750(I) - H1000(I)	1
CY 17400000	1/4" ODF Rotalock connection with gasket	H 150 - H 250 - H 500(O) - H 750(O) - H1000(O)	1
CY 17400010	3/8" ODF Rotalock connection with gasket	H 150 - H 250 - H 500(O) - H 750(O) - H1000(O)	1
CY 17400020	1/2" ODF Rotalock connection with gasket	H 500(I) - H 750(I) - H1000(I)	1
CY 17400100	1/4" SAE Rotalock connection with gasket	H 150 - H 250 - H 500(O) - H 750(O) - H1000(O)	1
CY 17400110	3/8" SAE Rotalock connection with gasket	H 150 - H 250 - H 500(O) - H 750(O) - H1000(O)	1
CY 17400120	1/2" SAE Rotalock connection with gasket	H 500(I) - H 750(I) - H1000(I)	1
CY 19700080	1/4" ODF Rotalock valve with gasket	H 150 - H 250 - H 500(O) - H 750(O) - H1000(O)	1
CY 19700110	3/8" ODF Rotalock valve with gasket	H 150 - H 250 - H 500(O) - H 750(O) - H1000(O)	1
CY 19700120	1/2" ODF Rotalock valve with gasket	H 500(I) - H 750(I) - H1000(I)	1
CY 19700090	1/4" SAE Rotalock valve with gasket	H 150 - H 250 - H 500(O) - H 750(O) - H1000(O)	1
CY 19700100	3/8" SAE Rotalock valve with gasket	H 150 - H 250 - H 500(O) - H 750(O) - H1000(O)	1
CY 19700140	1/2" SAE Rotalock valve with gasket	H 500(I) - H 750(I) - H1000(I)	1
CY 37100210	Support feet	H 150 - H 250 - H 750	1
CY 37100220	Support feet	H 500 - H 1000	1

(I) = Inlet ; (O) = Outlet

→ TURBOIL-F® *(flanged)*

CARLY references	Description	Types of products	Quantity
CY 10810010	1/4" NPT drain plug	7011 S/MMS to 30025 S/MMS	1
CY 15555151	Gasket for oil separator	2505 S/MMS to 3011 S/MMS	1
CY 15555601	Gasket for flange of oil separator	15013 S/MMS to 30025 S/MMS	1
CY 15555701	Gasket for oil separator	7011 S/MMS to 9017 S/MMS	1
CY 19900420	Set of 8 screws for flange	15013 S/MMS to 30025 S/MMS	1
CY 19900425	Set of 6 screws for flange	2505 S/MMS to 3011 S/MMS	1
CY 19900520	Set of 10 screws for flange	7011 S/MMS to 9017 S/MMS	1
CY 33303450	Flange with gasket and float set	15013 S/MMS to 30025 S/MMS	1
CY 33402000	Lower part of separator with gasket and float set	2505 S/MMS to 3011 S/MMS (Before 2010)	1
CY 33403000	Lower part of separator with gasket and float set	7011 S/MMS to 9017 S/MMS (Before 2010)	1
CY 33800515	Flange with gasket and float set	2505 S/MMS to 3011 S/MMS	1
CY 33801705	Flange with gasket and float set	7011 S/MMS to 9017 S/MMS	1
CY 37100250	Feet (kit)	2505 S/MMS to 3011 S/MMS (Before 2010)	1
CY 37100260	Feet (kit)	2505 S/MMS to 9017 S/MMS	1
CY 37100300	Feet (kit)	7011 S/MMS to 9017 S/MMS (Before 2010)	1
CY 38600220	Feet (kit)	15013 S/MMS to 30025 S/MMS	1

Spare parts (classification by product)

→ TURBOIL-R®

08/10

CARLY references	Description	Quantity
CY 10501000	Colour ball for sight glass	1
CY 15552180	O-ring for sight glass	1
CY 15580100	Gasket for 3/8" SAE Rotalock valve	1
CY 19700100	3/8" SAE Rotalock valve with gasket	1
CY 35012150	Glass without moisture indicator	1

→ HCYR

CARLY references	Description	Types of products	Quantity
CY 10501000	Colour ball for sight glass	all	1
CY 15552180	O-ring for sight glass	all	1
CY 15580100	Gasket for 3/8" SAE Rotalock valve	inlet and outlet from 40 to 150, inlet for 200 and for 300	1
CY 15580140	Gasket for 1/2" ODF and 5/8" ODF Rotalock valve	outlet for 200 / outlet for 300	1
CY 35012150	Glass without moisture indicator	all	1
CY 19700100	3/8" SAE Rotalock valve with gasket	inlet and outlet from 40 to 150, inlet for 200 and or 300	1
CY 19700120	1/2" ODF Rotalock valve with gasket	outlet for 200	1
CY 19700130	5/8" ODF Rotalock valve with gasket	outlet for 300	1

→ HCYCT *(non adjustable)* / HCYCTR *(adjustable)*

CARLY references	Description	Types of products	Quantity
CY 15590025	Set of 25 taper guided copper gaskets for 3/8" SAE connection	HCYCT	1
CY 10870010	Plug for inspection rod	HCYCTR	1
CY 15590020	Set of 25 taper copper gaskets for 3/8" SAE connection	HCYCTR	1

Spare parts (classification by product)

→ HCYBF

08/10

CARLY references	Description	Quantity
CY 10810010	1/4" NPT phosphate plug for end plate	1
CY 15555601	End plate gasket	1
CY 19900411	Set of 8 fastening screws for end plate	1
CY 33301200	End plate with gasket and 1/4" NPT plug	1
CY 37002010	Core holders	1

→ HCYVP

CARLY references	Description	Types of products	Quantity
CY 15590020	Set of 25 taper copper gaskets for 3/8" SAE connection	43 nut side	1
CY 15590025	Set of 25 taper guided copper gaskets for 3/8" SAE connection	43 body side	1

→ HCYN

CARLY references	Description	Types of products	Quantity
CY 15552000	Four-lobed gasket	HCYN 2 / HCYN 2E HCYN 2R / HCYN 2RE HCYN 3RE	1
CY 15552190	O-ring		1
CY 19900121	Set of 3 fastening bolts		1
HCYN 1V1	Oil level sight glass		1
HCYN 1V1K	HCYN 1V1 + screws + gaskets		1
CY 10501000	Colour ball for sight glass	HCYN B and BO (Bitzer)	1
CY 15552180	O-ring for sight glass	HCYN B and BO (Bitzer)	1
CY 15580032	O-ring for BO connection-flange	HCYN BO (Bitzer)	1
CY 25012140	Glass	HCYN B and BO (Bitzer)	1
CY 36002050	Double 3/4" gas nipple for SCROLL flange	HCYN SC (Scroll)	1
HCYN 1B1	Connection flange (standard 3-hole)	HCYN with standard 3-hole flange	1

Spare parts (classification by product)

→ HCYVI

08/10

CARLY references	Description	Types of products	Quantity
CY 15590010	Set of 25 taper copper gaskets for 1/4" SAE connection	2 and 2H	1
CY 15590020	Set of 25 taper copper gaskets for 3/8" SAE connection	3, 3H and 3N	1
CY 10850030	Plug for inspection rod	all	1

→ LEVOIL

CARLY references	Description	Types of products	Quantity
HCYN 1V1K	Bolts (1) + glass (2) + gaskets (3, 5)	LEVOIL 22 / 23 / 33 RE	1
CY 12850080	Sight glass 1" 1/4 ROTALOCK	LEVOIL 23 SC / LEVOIL 23 BO	1
CY 15552000	Quad ring	LEVOIL 22 / 23 / 33 RE	1
CY 15552190	O-ring	LEVOIL 22 / 23 / 33 RE	1
CY 15580120	PTFE gasket	LEVOIL 23 SC / LEVOIL 23 BO	1
CY 17637490	3/4" NPT adapter	LEVOIL 23 SC	1
CY 17637550	1" 1/8 - 18 UNEF adapter	LEVOIL 23 BO	1
CY 29900130	Bolts (1) + intermediate disk (4) + gaskets (3, 5)	LEVOIL 22 / 23 / 33 RE	1

→ KRCY

CARLY references	Description	Types of products	Quantity
CY 15590010	Set of 25 copper taper gaskets for 1/4" SAE connection	2 S/MMS before 2004	1
CY 15590015	Set of 25 guided copper gaskets for 1/4" SAE connection	2 S/MMS after 2004	1
CY 15590020	Set of 25 copper taper gaskets for 3/8" SAE connection	3 S/MMS - 23 S/MMS before 2004	1
CY 15590025	Set of 25 guided taper copper gaskets for 3/8" SAE connection	3 S/MMS - 23 S/MMS after 2004	1
CY 15590030	Set of 25 copper taper gaskets for 1/2" SAE connection	4 S/MMS - 34 S/MMS before 2004	1
CY 15590035	Set of 25 guided taper copper gaskets for 1/2" SAE connection	4 S/MMS - 34 S/MMS after 2004	1
CY 15590040	Set of 25 copper taper gaskets for 5/8" SAE connection	5 S/MMS - 45 S/MMS before 2004	1
CY 15590045	Set of 25 guided taper copper gaskets for 5/8" SAE connection	5 S/MMS - 45 S/MMS after 2004	1
CY 15590050	Set of 25 copper taper gaskets for 3/4" SAE connection	6 S/MMS	1

DTGB - 112.1-1-1-10

Correction factors for refrigerating capacities

➔ LIQUID LINE ACCORDING TO STANDARD ARI 710-86

01/10

The refrigerating capacities values of CARLY filter drier selection tables for the liquid line (DCY - DDCY - NCY - RCY - BDCY - BCY - BBCY) have been established according to Standard ARI 710-86.

- i.e. with the following rate conditions[1]:
  - ➔ T_o = -15°C
  - ➔ Tk = 30°C
  - ➔ Flow rate corresponds to the pressure drop caused by the filter drier of 0.07 bar.

- For different rate conditions, a correction factor must be used that will depend on the refrigerant and on the evaporation and condensation temperatures.
  In order to bring the installation's capacity (Q_{ox}) to this **STANDARD's** conditions, apply the following formula:

$$\mathbf{Q_{ox} \times fct = Q_{oARI}}$$

- This capacity correction allows rigorous selection of the filter drier to be installed on the refrigerating installation, by referring to the selection tables present in each product-related chapter.

■ Example

- Installation operating with R 404A under the following rate conditions:
  - ➔ T_o = -20°C
  - ➔ Tk = 35°C
  - ➔ Q_{ox} = 72 kW
- How to convert the refrigerating installation's capacity to the conditions of Standard ARI 710-86?

1 • Read the correction factor page 112.3

- ➔ T_o = -20°C
- ➔ Tk = 35°C
- ➔ R 404A refrigerant

➔ fct = 1.10

2 • Application of the correction formula

$$\mathbf{Q_{ox} \times fct = Q_{oARI}}$$

➔ 72 x 1.10 = **79.20 kW**

The installation's capacity under the conditions of Standard ARI 710 - 86 is therefore 79.20 kW.

[1] *Chapter "Abbreviations and units" (refer to chapter 113).*

Correction factors for refrigerating capacities

LIQUID LINE ACCORDING TO STANDARD ARI 710-86

R22

Condensing temperature T_k (°C)	Evaporating temperature T_0 (°C)													
	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
60	1,20	1,21	1,22	1,24	1,25	1,27	1,29	1,31	1,34	1,36	1,39	1,41	1,44	1,47
55	1,14	1,15	1,16	1,18	1,19	1,21	1,23	1,24	1,26	1,29	1,31	1,33	1,36	1,39
50	1,09	1,10	1,11	1,12	1,14	1,15	1,17	1,18	1,20	1,22	1,24	1,27	1,29	1,31
45	1,04	1,05	1,06	1,07	1,09	1,10	1,12	1,13	1,15	1,17	1,18	1,21	1,23	1,25
40	1,00	1,01	1,02	1,03	1,04	1,06	1,07	1,08	1,10	1,12	1,13	1,15	1,17	1,19
35	0,97	0,97	0,98	0,99	1,00	1,01	1,03	1,04	1,05	1,07	1,08	1,10	1,12	1,14
30	0,93	0,94	0,95	0,96	0,97	0,98	0,99	1,00	1,01	1,03	1,04	1,06	1,07	1,09
25	0,90	0,91	0,91	0,92	0,93	0,94	0,95	0,96	0,98	0,99	1,00	1,02	1,03	1,05
20		0,88	0,88	0,89	0,90	0,91	0,92	0,93	0,94	0,95	0,97	0,98	0,99	1,01
15			0,86	0,86	0,87	0,88	0,89	0,90	0,91	0,92	0,93	0,94	0,96	0,97
10				0,84	0,84	0,85	0,86	0,87	0,88	0,89	0,90	0,91	0,92	0,94
5					0,82	0,83	0,83	0,84	0,85	0,86	0,87	0,88	0,89	0,91
0						0,80	0,81	0,82	0,83	0,83	0,84	0,85	0,87	0,88
-5							0,79	0,79	0,80	0,81	0,82	0,83	0,84	0,85
-10								0,77	0,78	0,79	0,80	0,80	0,81	0,82

R134a

Condensing temperature T_k (°C)	Evaporating temperature T_0 (°C)										
	20	15	10	5	0	-5	-10	-15	-20	-25	-30
60	1,21	1,24	1,27	1,30	1,34	1,37	1,41	1,45	1,50	1,55	1,60
55	1,14	1,16	1,19	1,21	1,24	1,28	1,31	1,35	1,38	1,42	1,47
50	1,07	1,09	1,12	1,14	1,17	1,19	1,22	1,26	1,29	1,32	1,36
45	1,02	1,03	1,06	1,08	1,10	1,12	1,15	1,18	1,21	1,24	1,27
40	0,97	0,98	1,00	1,02	1,04	1,06	1,09	1,11	1,14	1,16	1,19
35	0,92	0,94	0,95	0,97	0,99	1,01	1,03	1,05	1,08	1,10	1,13
30	0,88	0,89	0,91	0,93	0,94	0,96	0,98	1,00	1,02	1,04	1,07
25	0,84	0,86	0,87	0,89	0,90	0,92	0,94	0,95	0,97	0,99	1,01
20		0,82	0,84	0,85	0,86	0,88	0,89	0,91	0,93	0,95	0,97
15			0,80	0,82	0,83	0,84	0,86	0,87	0,89	0,91	0,92
10				0,79	0,80	0,81	0,82	0,84	0,85	0,87	0,88
5					0,77	0,78	0,79	0,81	0,82	0,83	0,85
0						0,75	0,77	0,78	0,79	0,80	0,82
-5							0,74	0,75	0,76	0,77	0,79
-10								0,73	0,74	0,75	0,76

Correction factors for refrigerating capacities

LIQUID LINE ACCORDING TO STANDARD ARI 710-86

R404A

Condensing temperature T_k (°C)	Evaporating temperature T_0 (°C)													
	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
60	1,47	1,51	1,56	1,61	1,67	1,73	1,80	1,88	1,98	2,08	2,20	2,33	2,48	2,66
55	1,30	1,33	1,37	1,41	1,45	1,50	1,55	1,61	1,68	1,75	1,83	1,93	2,03	2,15
50	1,17	1,20	1,23	1,26	1,29	1,33	1,37	1,42	1,47	1,53	1,59	1,66	1,73	1,82
45	1,07	1,09	1,12	1,14	1,17	1,20	1,24	1,28	1,32	1,36	1,41	1,47	1,52	1,59
40	0,99	1,01	1,03	1,05	1,08	1,10	1,13	1,16	1,20	1,24	1,28	1,32	1,37	1,42
35	0,93	0,94	0,96	0,98	1,00	1,02	1,05	1,07	1,10	1,14	1,17	1,21	1,25	1,29
30	0,87	0,88	0,90	0,92	0,94	0,96	0,98	1,00	1,03	1,05	1,08	1,11	1,15	1,18
25	0,82	0,83	0,85	0,86	0,88	0,90	0,92	0,94	0,96	0,98	1,01	1,04	1,06	1,10
20		0,79	0,80	0,82	0,83	0,85	0,86	0,88	0,90	0,92	0,95	0,97	0,99	1,02
15			0,76	0,78	0,79	0,80	0,82	0,84	0,85	0,87	0,89	0,91	0,94	0,96
10				0,74	0,75	0,77	0,78	0,79	0,81	0,83	0,84	0,86	0,88	0,90
5					0,72	0,73	0,74	0,76	0,77	0,79	0,80	0,82	0,84	0,86
0						0,70	0,71	0,72	0,74	0,75	0,76	0,78	0,80	0,81
-5							0,68	0,69	0,70	0,72	0,73	0,74	0,76	0,78
-10								0,67	0,68	0,69	0,70	0,71	0,73	0,74

R507

Condensing temperature T_k (°C)	Evaporating temperature T_0 (°C)													
	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
60	1,50	1,54	1,59	1,64	1,70	1,77	1,85	1,93	2,03	2,13	2,26	2,39	2,55	2,74
55	1,31	1,34	1,38	1,42	1,46	1,51	1,57	1,63	1,70	1,77	1,85	1,95	2,05	2,17
50	1,18	1,20	1,23	1,26	1,30	1,34	1,38	1,43	1,48	1,53	1,60	1,67	1,74	1,82
45	1,07	1,10	1,12	1,15	1,17	1,21	1,24	1,28	1,32	1,37	1,41	1,47	1,53	1,59
40	0,99	1,01	1,03	1,05	1,08	1,11	1,13	1,17	1,20	1,24	1,28	1,32	1,37	1,42
35	0,93	0,94	0,96	0,98	1,00	1,02	1,05	1,07	1,10	1,13	1,17	1,20	1,24	1,29
30	0,87	0,88	0,90	0,92	0,94	0,96	0,98	1,00	1,02	1,05	1,08	1,11	1,14	1,18
25	0,82	0,83	0,85	0,86	0,88	0,90	0,92	0,94	0,96	0,98	1,01	1,03	1,06	1,09
20		0,79	0,80	0,82	0,83	0,85	0,86	0,88	0,90	0,92	0,95	0,97	0,99	1,02
15			0,76	0,78	0,79	0,80	0,82	0,84	0,85	0,87	0,89	0,91	0,93	0,96
10				0,74	0,75	0,77	0,78	0,79	0,81	0,83	0,84	0,86	0,88	0,90
5					0,72	0,73	0,74	0,76	0,77	0,79	0,80	0,82	0,84	0,86
0						0,70	0,71	0,72	0,74	0,75	0,77	0,78	0,80	0,81
-5							0,68	0,69	0,71	0,72	0,73	0,75	0,76	0,78
-10								0,67	0,68	0,69	0,70	0,71	0,73	0,74

Correction factors for refrigerating capacities

LIQUID LINE ACCORDING TO STANDARD ARI 710-86

R407C

Condensing temperature T_k (°C)	Evaporating temperature T_0 (°C)										
	20	15	10	5	0	-5	-10	-15	-20	-25	-30
60	1,28	1,30	1,32	1,34	1,37	1,40	1,44	1,47	1,51	1,55	1,60
55	1,19	1,20	1,22	1,25	1,27	1,30	1,32	1,35	1,39	1,42	1,46
50	1,11	1,13	1,15	1,16	1,19	1,21	1,23	1,26	1,29	1,32	1,35
45	1,05	1,06	1,08	1,10	1,11	1,13	1,16	1,18	1,20	1,23	1,26
40	1,00	1,01	1,02	1,04	1,05	1,07	1,09	1,11	1,13	1,16	1,18
35	0,95	0,96	0,97	0,99	1,00	1,02	1,03	1,05	1,07	1,09	1,11
30	0,91	0,92	0,93	0,94	0,95	0,97	0,98	1,00	1,02	1,04	1,06
25	0,87	0,88	0,89	0,90	0,91	0,92	0,94	0,95	0,97	0,99	1,01
20		0,84	0,85	0,86	0,87	0,89	0,90	0,91	0,93	0,94	0,96
15			0,82	0,83	0,84	0,85	0,86	0,88	0,89	0,90	0,92
10				0,80	0,81	0,82	0,83	0,84	0,85	0,87	0,88
5					0,78	0,79	0,80	0,81	0,82	0,83	0,85
0						0,76	0,77	0,78	0,79	0,80	0,82
-5							0,75	0,76	0,77	0,78	0,79
-10								0,73	0,74	0,75	0,76

R410A

Condensing temperature T_k (°C)	Evaporating temperature T_0 (°C)													
	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
60	1,47	1,48	1,50	1,52	1,54	1,57	1,59	1,62	1,66	1,69	1,73	1,78	1,82	1,87
55	1,31	1,32	1,34	1,35	1,37	1,39	1,41	1,44	1,46	1,49	1,52	1,55	1,59	1,63
50	1,20	1,21	1,22	1,24	1,25	1,27	1,28	1,30	1,33	1,35	1,37	1,40	1,43	1,46
45	1,11	1,12	1,13	1,14	1,16	1,17	1,19	1,20	1,22	1,24	1,26	1,28	1,31	1,33
40	1,05	1,05	1,06	1,07	1,08	1,09	1,11	1,12	1,14	1,15	1,17	1,19	1,21	1,24
35	0,99	0,99	1,00	1,01	1,02	1,03	1,04	1,06	1,07	1,08	1,10	1,12	1,14	1,16
30	0,94	0,94	0,95	0,96	0,97	0,98	0,99	1,00	1,01	1,03	1,04	1,06	1,07	1,09
25	0,90	0,90	0,91	0,91	0,92	0,93	0,94	0,95	0,96	0,98	0,99	1,00	1,02	1,03
20		0,86	0,87	0,88	0,88	0,89	0,90	0,91	0,92	0,93	0,94	0,96	0,97	0,98
15			0,83	0,84	0,85	0,85	0,86	0,87	0,88	0,89	0,90	0,91	0,93	0,94
10				0,81	0,82	0,82	0,83	0,84	0,85	0,86	0,87	0,88	0,89	0,90
5					0,79	0,79	0,80	0,81	0,82	0,82	0,83	0,84	0,85	0,86
0						0,77	0,77	0,78	0,79	0,80	0,80	0,81	0,82	0,83
-5							0,75	0,75	0,76	0,77	0,78	0,78	0,79	0,80
-10								0,73	0,74	0,74	0,75	0,76	0,77	0,78

DTGB - 112.1-1-1-10

Correction factors for refrigerating capacities

SUCTION LINE ACCORDING TO STANDARD ARI 730-2001

01/10

The refrigerating capacities values of CARLY filter selection tables for the suction line (NCY - FNCY - FACY - BDCY - ACY - BACY) have been established according to Standard ARI 730-2001.

- i.e. with the following rate conditions [1]:
  - ➜ T_o = 4.4°C
  - ➜ Tk = 32°C
  - ➜ Flow rate corresponding to the pressure drop caused by the filter of 0.21 bar.

- For different rate conditions, a correction factor must be used that will depend on the refrigerant and on the evaporation and condensation temperatures.
  In order to bring the installation's capacity (Q_Ox) to the **STANDARD** conditions, apply the following correction formula:

$$\mathbf{Q_{ox} \times fct = Q_{oARI}}$$

- This capacity correction allows rigorous selection of the filter to be installed on the refrigerating installation, by referring to the selection tables present in each product-related chapter.

■ Example

- Installation operating with R 507 under the following rate conditions:
  - ➜ T_o = -20°C
  - ➜ Tk = 40°C
  - ➜ Q_Ox = 100 kW
- How to convert the installation refrigerating capacity to the conditions of Standard ARI 730-2001?

1 • Read the correction factors page 112.7

- ➜ T_o = -20°C
- ➜ Tk = 40°C
- ➜ R 507 Refrigerant

➜ fct = 1.27

2 • Application of the formula

$$\mathbf{Q_{ox} \times fct = Q_{oARI}}$$

➜ 100 x 1.27 = **127 kW**

The installation capacity under the conditions of Standard ARI 730-2001 is therefore 127 kW.

[1] *Chapter "Abbreviations and units" (refer to chapter 113).*

Correction factors for refrigerating capacities

SUCTION LINE ACCORDING TO STANDARD ARI 730-2001

01/10

R22

Condensing temperature T_k (°C)	Evaporating temperature T_0 (°C)															
	20	15	10	5	4.4	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
60	1,23	1,24	1,26	1,27	1,28	1,29	1,31	1,33	1,35	1,37	1,40	1,43	1,46	1,49	1,52
55	1,17	1,18	1,20	1,21	1,21	1,23	1,24	1,26	1,28	1,30	1,32	1,35	1,37	1,40	1,43
50	1,12	1,13	1,14	1,16	1,16	1,17	1,19	1,20	1,22	1,24	1,26	1,28	1,30	1,33	1,35
45	1,07	1,08	1,10	1,11	1,11	1,12	1,13	1,15	1,16	1,18	1,20	1,22	1,24	1,26	1,29
40	1,03	1,04	1,05	1,06	1,06	1,07	1,09	1,10	1,12	1,13	1,15	1,17	1,19	1,21	1,23
35	0,99	1,00	1,01	1,02	1,02	1,03	1,04	1,06	1,07	1,09	1,10	1,12	1,13	1,15	1,17
32	0,97	0,98	0,99	1,00	1,00	1,01	1,02	1,03	1,05	1,06	1,07	1,09	1,11	1,12	1,14
30	0,96	0,97	0,97	0,98	0,99	0,99	1,01	1,02	1,03	1,04	1,06	1,07	1,09	1,11	1,12
25	0,93	0,93	0,94	0,95	0,95	0,96	0,97	0,98	0,99	1,00	1,02	1,03	1,05	1,06	1,08
20		0,90	0,91	0,92	0,92	0,93	0,94	0,95	0,96	0,97	0,98	0,99	1,01	1,02	1,04
15			0,88	0,89	0,89	0,90	0,91	0,91	0,93	0,94	0,95	0,96	0,97	0,99	1,00
10				0,86	0,86	0,87	0,88	0,89	0,90	0,91	0,92	0,93	0,94	0,95	0,97
5						0,84	0,85	0,86	0,87	0,88	0,89	0,90	0,91	0,92	0,93
0							0,82	0,83	0,84	0,85	0,86	0,87	0,88	0,89	0,90
-5								0,81	0,82	0,83	0,83	0,84	0,85	0,86	0,87
-10									0,79	0,80	0,81	0,82	0,83	0,84	0,85

R134a

Condensing temperature T_k (°C)	Evaporating temperature T_0 (°C)											
	20	15	10	5	4.4	0	-5	-10	-15	-20	-25	-30
60	1,28	1,31	1,34	1,38	1,38	1,41	1,45	1,49	1,54	1,58	1,63	1,69
55	1,20	1,23	1,26	1,29	1,28	1,32	1,35	1,38	1,42	1,46	1,51	1,55
50	1,13	1,16	1,18	1,21	1,21	1,23	1,26	1,29	1,33	1,36	1,40	1,44
45	1,07	1,09	1,12	1,14	1,14	1,16	1,19	1,22	1,25	1,28	1,31	1,34
40	1,02	1,04	1,06	1,08	1,08	1,10	1,12	1,15	1,18	1,20	1,23	1,26
35	0,97	0,99	1,01	1,03	1,03	1,05	1,07	1,09	1,11	1,14	1,16	1,19
32	0,95	0,96	0,98	1,00	1,00	1,02	1,04	1,06	1,08	1,10	1,13	1,15
30	0,93	0,95	0,96	0,98	0,98	1,00	1,02	1,04	1,06	1,08	1,10	1,13
25	0,89	0,91	0,92	0,94	0,94	0,95	0,97	0,99	1,01	1,03	1,05	1,07
20		0,87	0,88	0,90	0,90	0,91	0,93	0,95	0,96	0,98	1,00	1,02
15			0,85	0,86	0,86	0,88	0,89	0,91	0,92	0,94	0,96	0,98
10				0,83	0,83	0,84	0,86	0,87	0,89	0,90	0,92	0,94
5						0,81	0,83	0,84	0,85	0,87	0,88	0,90
0							0,80	0,81	0,82	0,84	0,85	0,86
-5								0,78	0,79	0,81	0,82	0,83
-10									0,77	0,78	0,79	0,80

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Correction factors for refrigerating capacities

SUCTION LINE ACCORDING TO STANDARD ARI 730-2001

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■ R404A

Condensing temperature T_k (°C)	Evaporating temperature T_0 (°C)														
	20	15	10	5	4.4	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
60	1,56	1,60	1,65	1,71	1,71	1,77	1,84	1,91	2,00	2,10	2,21	2,33	2,47	2,63	2,82
55	1,38	1,41	1,45	1,49	1,50	1,54	1,59	1,65	1,71	1,78	1,86	1,95	2,04	2,15	2,28
50	1,24	1,27	1,30	1,33	1,34	1,37	1,41	1,46	1,51	1,56	1,62	1,69	1,76	1,84	1,93
45	1,14	1,16	1,19	1,21	1,22	1,24	1,28	1,31	1,35	1,40	1,45	1,50	1,56	1,62	1,69
40	1,05	1,07	1,09	1,12	1,12	1,14	1,17	1,20	1,24	1,27	1,31	1,35	1,40	1,45	1,51
35	0,98	1,00	1,02	1,04	1,04	1,06	1,09	1,11	1,14	1,17	1,20	1,24	1,28	1,32	1,37
32	0,95	0,96	0,98	1,00	1,00	1,02	1,04	1,06	1,09	1,12	1,15	1,18	1,22	1,26	1,30
30	0,92	0,94	0,95	0,97	0,97	0,99	1,01	1,04	1,06	1,09	1,12	1,15	1,18	1,22	1,25
25	0,87	0,89	0,90	0,92	0,92	0,93	0,95	0,97	0,99	1,02	1,04	1,07	1,10	1,13	1,16
20		0,84	0,85	0,87	0,87	0,88	0,90	0,92	0,94	0,96	0,98	1,00	1,03	1,06	1,08
15			0,81	0,82	0,83	0,84	0,85	0,87	0,89	0,90	0,92	0,95	0,97	0,99	1,02
10				0,79	0,79	0,80	0,81	0,83	0,84	0,86	0,88	0,90	0,92	0,94	0,96
5						0,76	0,77	0,79	0,80	0,82	0,83	0,85	0,87	0,89	0,91
0							0,74	0,75	0,77	0,78	0,80	0,81	0,83	0,84	0,86
-5								0,72	0,73	0,75	0,76	0,78	0,79	0,81	0,82
-10									0,71	0,72	0,73	0,74	0,76	0,77	0,79

■ R507

Condensing temperature T_k (°C)	Evaporating temperature T_0 (°C)														
	20	15	10	5	4.4	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
60	1,59	1,63	1,69	1,74	1,75	1,81	1,88	1,96	2,05	2,15	2,26	2,39	2,54	2,71	2,90
55	1,39	1,42	1,46	1,51	1,51	1,55	1,61	1,66	1,73	1,80	1,88	1,97	2,07	2,18	2,30
50	1,25	1,28	1,31	1,34	1,34	1,38	1,42	1,46	1,51	1,57	1,63	1,69	1,77	1,85	1,94
45	1,14	1,16	1,19	1,22	1,22	1,25	1,28	1,32	1,36	1,40	1,45	1,50	1,56	1,62	1,69
40	1,05	1,07	1,09	1,12	1,12	1,14	1,17	1,20	1,24	1,27	1,31	1,35	1,40	1,45	1,50
35	0,98	1,00	1,02	1,04	1,04	1,06	1,09	1,11	1,14	1,17	1,20	1,24	1,28	1,32	1,36
32	0,95	0,96	0,98	1,00	1,00	1,02	1,04	1,06	1,09	1,12	1,15	1,18	1,22	1,25	1,29
30	0,92	0,94	0,95	0,97	0,97	0,99	1,01	1,04	1,06	1,09	1,12	1,15	1,18	1,21	1,25
25	0,87	0,89	0,90	0,92	0,92	0,93	0,95	0,97	0,99	1,02	1,04	1,07	1,10	1,13	1,16
20		0,84	0,85	0,87	0,87	0,88	0,90	0,92	0,94	0,96	0,98	1,00	1,03	1,05	1,08
15			0,81	0,82	0,83	0,84	0,85	0,87	0,89	0,91	0,93	0,95	0,97	0,99	1,02
10				0,79	0,79	0,80	0,81	0,83	0,84	0,86	0,88	0,90	0,92	0,94	0,96
5						0,76	0,78	0,79	0,80	0,82	0,84	0,85	0,87	0,89	0,91
0							0,74	0,76	0,77	0,78	0,80	0,81	0,83	0,85	0,86
-5								0,72	0,74	0,75	0,76	0,78	0,79	0,81	0,82
-10									0,71	0,72	0,73	0,74	0,76	0,77	0,79

Correction factors for refrigerating capacities

SUCTION LINE ACCORDING TO STANDARD ARI 730-2001

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■ R407C

Condensing temperature T_k (°C)	Evaporating temperature T_0 (°C)											
	20	15	10	5	4.4	0	-5	-10	-15	-20	-25	-30
60	1,33	1,35	1,38	1,40	1,41	1,43	1,46	1,50	1,53	1,57	1,62	1,67
55	1,24	1,26	1,28	1,30	1,30	1,32	1,35	1,38	1,41	1,45	1,48	1,52
50	1,16	1,18	1,19	1,21	1,22	1,24	1,26	1,29	1,31	1,34	1,37	1,41
45	1,09	1,11	1,13	1,14	1,15	1,16	1,18	1,21	1,23	1,25	1,28	1,31
40	1,04	1,05	1,07	1,08	1,08	1,10	1,12	1,14	1,16	1,18	1,21	1,23
35	0,99	1,00	1,01	1,03	1,03	1,04	1,06	1,08	1,10	1,12	1,14	1,16
32	0,96	0,97	0,98	1,00	1,00	1,01	1,03	1,05	1,06	1,08	1,10	1,13
30	0,94	0,95	0,97	0,98	0,98	0,99	1,01	1,03	1,04	1,06	1,08	1,10
25	0,90	0,91	0,93	0,94	0,94	0,95	0,96	0,98	0,99	1,01	1,03	1,05
20		0,88	0,89	0,90	0,90	0,91	0,92	0,94	0,95	0,97	0,98	1,00
15			0,85	0,86	0,87	0,88	0,89	0,90	0,91	0,93	0,94	0,96
10				0,83	0,83	0,84	0,85	0,86	0,88	0,89	0,90	0,92
5						0,81	0,82	0,83	0,84	0,86	0,87	0,88
0							0,79	0,80	0,81	0,83	0,84	0,85
-5								0,78	0,79	0,80	0,81	0,82
-10									0,76	0,77	0,78	0,79

■ R410A

Condensing temperature T_k (°C)	Evaporating temperature T_0 (°C)														
	20	15	10	5	4.4	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
60	1,50	1,51	1,53	1,55	1,55	1,57	1,60	1,63	1,66	1,69	1,73	1,77	1,81	1,86	1,91
55	1,34	1,35	1,37	1,38	1,38	1,40	1,42	1,44	1,47	1,49	1,52	1,55	1,59	1,62	1,66
50	1,23	1,24	1,25	1,26	1,26	1,28	1,29	1,31	1,33	1,35	1,38	1,40	1,43	1,46	1,49
45	1,14	1,15	1,16	1,17	1,17	1,18	1,19	1,21	1,23	1,25	1,27	1,29	1,31	1,34	1,36
40	1,07	1,07	1,08	1,09	1,09	1,10	1,12	1,13	1,15	1,16	1,18	1,20	1,22	1,24	1,26
35	1,01	1,01	1,02	1,03	1,03	1,04	1,05	1,06	1,08	1,09	1,11	1,12	1,14	1,16	1,18
32	0,98	0,98	0,99	1,00	1,00	1,01	1,02	1,03	1,04	1,06	1,07	1,09	1,10	1,12	1,14
30	0,96	0,96	0,97	0,98	0,98	0,99	1,00	1,01	1,02	1,03	1,05	1,06	1,08	1,09	1,11
25	0,91	0,92	0,93	0,93	0,93	0,94	0,95	0,96	0,97	0,98	1,00	1,01	1,02	1,04	1,05
20		0,88	0,89	0,89	0,89	0,90	0,91	0,92	0,93	0,94	0,95	0,96	0,98	0,99	1,00
15			0,85	0,86	0,86	0,87	0,87	0,88	0,89	0,90	0,91	0,92	0,93	0,95	0,96
10				0,83	0,83	0,83	0,84	0,85	0,86	0,86	0,87	0,88	0,90	0,91	0,92
5						0,80	0,81	0,82	0,82	0,83	0,84	0,85	0,86	0,87	0,88
0							0,78	0,79	0,80	0,80	0,81	0,82	0,83	0,84	0,85
-5								0,76	0,77	0,78	0,78	0,79	0,80	0,81	0,82
-10									0,75	0,75	0,76	0,77	0,77	0,78	0,79

Abbreviations and units

DTGB - 113.1-1-1-10

➔ ABBREVIATIONS

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ARI: Air conditioning and Refrigeration Institute.
BSP: British Standard Pipe, defines the cylindrical "gas" threading, "Whitworth" profile.
NPT: National Pipe Taper, defines the taper threading with which air-tightness is ensured metal on metal, and the link by NPT and NPTF taper threads.
ODF: Outside Diameter Female.
ODM: Outside Diameter Male.
SAE: Society of Automotive Engineers, deals with flare connections.
UNF: Unified pipe thread, defines the threading of a part in compliance with the international refrigerating industry Standard (STANDARD DIN 8904) and is equivalent to the SAE threading.
PTFE: Polytetrafluoroethylene.
To: Evaporation temperature.
Tk: Condensation temperature.
Qo: Refrigerating capacity.
ΔP: Pressure drop or pressure differential.
Fct: Correction factor.
Qk : Condensation capacity
ΔT1 : Condensation temperature - water inlet temperature
TL1 : Water inlet temperature

■ Refrigerants

HFC: Hydrofluorocarbon
HCFC: Hydrochlorofluorocarbon
CFC: Chlorofluorocarbon
R1..., R2..., R3...: Pure refrigerants
R4...: 4: Zeotropic refrigerant (e.g. R404A: "A" defines the mixture)
R5...: 5: Azeotropic refrigerant (e.g. R507)
R6...: 6: Hydrocarbon (e.g. R600)
R7...: 7: Inorganic refrigerant (e.g. R717: 17 = molar mass of NH_3 refrigerant)

■ Oils

Mineral oils: Paraffinic or naphtenic oils, used with CFCs, HCFCs, NH_3
Semi-synthetic oils: Mixture of mineral and synthetic oils, used with CFCs, HCFCs, NH_3
Synthetic oils:
AB: Alkylbenzenes, used with CFCs, HCFCs, NH_3
PAO: Polyalphaolefines, used with CFCs, HCFCs, NH_3
PAG: Polyalkyleneglycols, used with R134a and NH_3
POE: Polyolesters, used with HFCs
TAN: Total Acid Number (mg of potash/g of oil)

Abbreviations and units

→ UNITS

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■ Lengths

Units A	Units SI	Adjustment factor F_{ct}
Inch (in.)	m	0.254
Foot (ft)	m	0.3048
Yard (yd)	m	0.9144

$Unit_{SI} = Unit_{A} \times F_{ct}$
$Unit_{A} = Unit_{SI} / F_{ct}$

■ Volumes

Units A	Units SI	Adjustment factor F_{ct}
Cubic inch (cu.in)	m^3	$16.387.10^{-6}$
Cubic foot (cu.ft)	m^3	0.02832
US-Gallon	m^3	0.003785
Imperial-Gallon	m^3	0.004546

$Unit_{SI} = Unit_{A} \times F_{ct}$
$Unit_{A} = Unit_{SI} / F_{ct}$

■ Masses

Units A	Units SI	Adjustment factor F_{ct}
lb (pound)	kg	0.4536
short ton	kg	907.2
long ton	kg	1016

$Unit_{SI} = Unit_{A} \times F_{ct}$
$Unit_{A} = Unit_{SI} / F_{ct}$

■ Mass concentration

ppm: Part per million in mass, i.e. 1 milligram of water per kilogram of refrigerant.

Abbreviations and units

→ UNITS

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■ Pressures

Units A	Units SI	Adjustment factor F_{ct}
bar	Pa	100 000
kg/cm²	Pa	98 070
lb/sq.ft	Pa	47.9
lb/sq.in	Pa	6 895
atm	Pa	101 325
Torr	Pa	133.33
hPa	Pa	100
Mpa	Pa	1 000 000

$Unit_{SI} = Unit_{A} \times F_{ct}$
$Unit_{A} = Unit_{SI} / F_{ct}$

- The pressures announced in the technical documentation are expressed in relative values with the atmospheric pressure as reference value.
- Example:
  A maximum working pressure of 42 bar is that read on a manometer whose 0 graduation corresponds to the atmospheric pressure.

■ Temperatures

SI Units:

Kelvin (K) or degree Celsius (°C)
0°C = 273 K

Fahrenheit Degree (°F):

0°C = 32°F
Conversion of °C in °F: $t_{oF} = 9/5\ t_{oC} + 32$
Conversion of °F in °C: $t_{oC} = 5/9\ (t_{oF} - 32)$

Abbreviations and units

→ UNITS

■ Energetics

Units A	Units SI	Adjustment factor F_{ct}
kcal/h	W	1.163
Btu/p.hr	W	0.293
Br.u.r (British theoretical unit of refrigeration)	W	5615
Br.ton (Bristish commercial ton of refrigeration)	W	3888
ton (Standard commercial ton of refrigeration)	W	3513
PS (cheval vapeur)	W	735.5
h.p (horse power)	W	745.7
m.kg/s	W	9.804

$Unit_{SI} = Unit_{A} \times F_{ct}$
$Unit_{A} = Unit_{SI} / F_{ct}$

■ Flow rates

• Kv coefficient of a valve:

$$\boldsymbol{Kv} = \frac{Qv}{\sqrt{\Delta P}}$$

with:
Qv: Liquid volume flow rate (m^3/hr)
Δ**P**: Pressure drop (bar)
Kv represents the volume flow rate of water running through the device for a pressure drop of 1 bar.

■ Electrical power

VA: Volt Ampere
V: Volt
Ac: Alternating current
Hz: Hertz
A: Ampere
W: Watt

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Drawings and connection features

→ TYPE 1 CONNECTIONS

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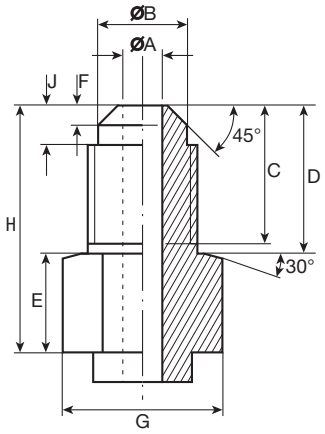
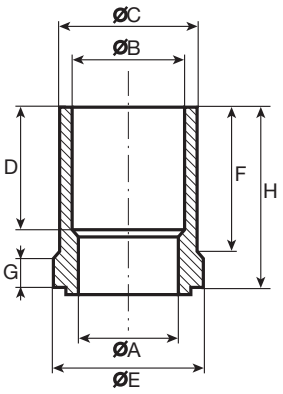
Connections to screw (inch)	Number of threads (inch)	Dimensions (mm)								
		ØA	ØB	C	D	E	F	G	H	J
1/4 SAE	7/16 - 20	4	9	13	15	10	2,0	14	25	4
3/8 SAE	5/8 - 18	7	13	17	18	10	2,5	17	28	5
1/2 SAE	3/4 - 16	10	16	19	20	10	2,5	22	30	5
5/8 SAE	7/8 - 14	13	18	22	23	9	2,3	24	32	5
3/4 BSP	1 1/6 - 14	17	23	24	25	11	2,5	30	36	5



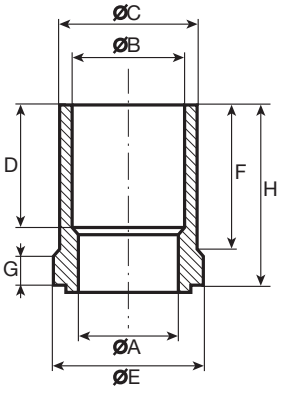
→ TYPE 2 CONNECTIONS *(in inches)*

Connections to solder ODF (inch)	Dimensions (mm)							
	ØA	ØB	ØC	D	E	F	G	H
1/4	4,3	6,40	9,40	6	14	12	5	20
3/8	8,0	9,60	12,60	9	14	12	6	20
1/2	10,0	12,80	15,80	10	22	13	5	20
5/8	14,0	16,10	18,95	16	22	13	7	22
3/4	17,0	19,15	22,10	17	27	15	8	25
7/8	20,0	22,30	25,30	19	34	21	7	32
1	24,0	25,50	28,50	24	34	26	8	37



→ TYPE 2 CONNECTIONS *(in mm)*

Connections to solder ODF (mm)	Dimensions (mm)							
	ØA	ØB	ØC	D	E	F	G	H
6	4,3	6,1	9,40	6	14	12	5	20
10	8,0	10,1	12,60	9	14	12	6	20
12	10,0	12,1	15,80	10	22	13	5	20
16	14,0	16,1	18,95	16	22	13	7	22
18	17,0	18,1	22,10	17	27	15	8	25
22	20,0	22,1	25,30	19	34	21	7	32



Drawings and connection features

→ TYPE 3 CONNECTIONS *(in inches)*

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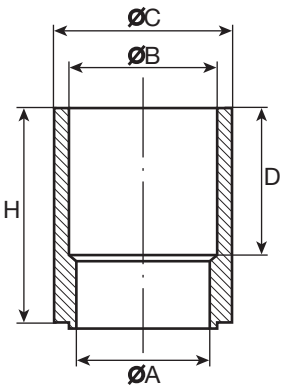
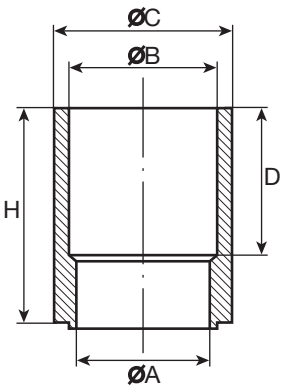
Connections to solder ODF (inch)	Dimensions (mm)				
	ØA	ØB	ØC	D	H
1 1/8	26,0	28,7	34,0	24	37
1 3/8	32,0	35,0	40,0	30	47
1 5/8	38,0	41,4	45,0	30	47
2 1/8	52,3	54,1	60,3	35	62
2 5/8	66,1	66,8	76,1	38	74
3 1/8	76,3	79,5	88,8	45	85
3 5/8	89,0	92,2	101,6	55	92
4 1/8	101,7	104,9	114,3	55	100
5 1/8	127,1	130,3	139,7	55	100



→ TYPE 3 CONNECTIONS *(in mm)*

Connections to solder ODF (mm)	Dimensions (mm)				
	ØA	ØB	ØC	D	H
28	26,0	28,1	34,0	24	37
35	32,0	35,1	40,0	30	47
42	38,4	42,1	48,3	30	47
54	52,0	54,1	60,3	35	62
67	66,0	67,1	76,1	38	74
80	79,0	80,1	88,8	45	85
88.9	90,0	89,0	101,6	55	92
108	102,0	108,1	114,3	55	100
130	127,1	130,1	139,7	55	100



General assembly precautions

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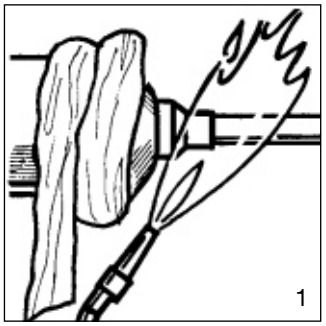
Installing a component on a refrigerating circuit by a skilled installer, requires precautions; some are specific to each component and in such a case, they are indicated in the "Recommendations" chapter of the concerned component'stechnical documentation; others are common to all CARLY components and are expressed hereinafter.

COMPONENT INSTALLATION

- Check that the component and its packaging actually bear the references corresponding to the model selected;
- The components and the piping used must be totally clean, dry and sealed at ends, before their use; to that purpose, check that the components' blanking plugs are always properly in place and remove them at the last moment only, just before installing them on the circuit;
- In order to prevent internal condensation phenomena, the components must be at a temperature higher than or equal to the ambient temperature, before being installed;
- When installing components containing replaceable elements: **BDCY, BCY, ACY, BBCY, BACY, HCYBF**, provide for the necessary room for their mounting and removal; this dimension is specified in the technical features table for the components concerned;
- The CARLY flanged components: **BDCY, BCY, ACY, BBCY, BACY, HCYBF, TURBOIL-F®, TURBOIL-RF®, FILTRY, VCYLS, VCYR**, contain removable parts (core holders, filtering elements, gaskets, etc…) that must imperatively be removed before soldering or brazing the connection piping;
- Most components have a specific mounting direction that must be complied with, taking into account the refrigerant flow direction indicated by the word "IN" engraved on the component's intake cover plate, and/or by an arrow printed on the tag;
- After each installation or replacement of a component, this component's air-tightness and mounting on the circuit should be imperatively checked;
- Perform all recommended operations according to the art and to the intervention to perform: circuit rinsing, draining, air tightening, depressurisation, refrigerant load, etc…;
- The persons responsible for commissioning of CARLY components must ensure that these components will never be exposed to vibration stresses that could cause resonance. Such situation would definitely cause breakage that would be harmful for the installation.
  This monitoring must apply most particularly to "on-board" installations.

ASSEMBLY OF COMPONENTS WITH CONNECTIONS TO BRAZE

- Rigorously clean the internal and external fitting surfaces;
- Make sure that the chosen filler metal is suited to the materials and refrigerants used;
- For brazing of connections, use a wide-flame blowpipe; it should be adjusted so as to ensure quick and uniform heating of the connections and be oriented exclusively toward them; abnormal heating of the components' paint can generate the formation of toxic fumes and cause severe lesions: brazing of components must only be performed in perfectly ventilated rooms.
- The component's body must imperatively be cooled during brazing: with a humid cloth (sketch No.1), or with **CARLYCOOL** calories discharger (refer to chapter 95).


1

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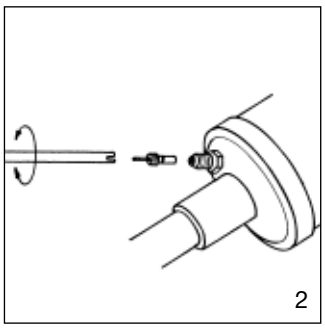
General assembly precautions

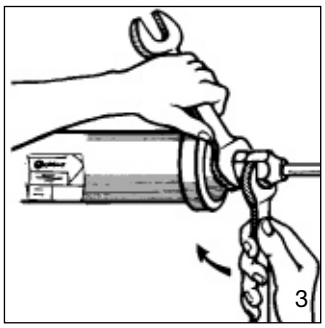
ASSEMBLY OF COMPONENTS WITH CONNECTIONS TO BRAZE

01/10


2

- Some CARLY components contain “Schrader” type access valves. In the case of brazed components, be careful to remove the internal mechanism of these valves before brazing, in order to preserve the built-in gasket (sketch No. 2)
- During brazing, use an inert protection gas inside the component (nitrogen for instance) in order to prevent the formation of copper oxide particles that are going to contaminate the circuit; the protection gas flow must preferably follow the direction of the product flow, in order to not damage sensitive internal elements (DCYs’ felt-glass filtrating medium, for instance);
- Eliminate by brushing the residues of brazing fluxes and the possible dirts present outside the heated surfaces;
- After cleaning, protect the heated surfaces of the steel connections, with paint or other types of anticorrosive protection (cold galvanizing for instance);
- Non compliance with these prescriptions can lead to irreparable damage to the components’ internal elements.

ASSEMBLY OF COMPONENTS WITH FLARE CONNECTIONS


3

- Systematically check the dudgeon condition on the copper piping, in order to ensure good air tightness of the assembly; if copper gaskets are used, check their good positioning and replace them after each product removal;
- Tightening of Flare connections should imperatively be performed with two wrenches, positioned on the six faces of the connections, in order to prevent piping twisting (sketch No. 3);
- Comply with the tightening torque recommended in the “Recommendations” chapter for each component concerned;
- After each assembly, make sure there is no flutter of the piping.

USE OF CARLY COMPONENTS

- CARLY components are designed for use with HFCs, HCFCs, CFCs, as well as with their associated oils and additives; these are non hazardous refrigerants from group 2 of the Pressure Equipment Directive 97/23/EC;
- Each CARLY component should be carefully selected, in order to meet the requirements of the installation as specifically as possible. In order to do so, see the selection tables established for each family of CARLY components. The recommendations in these tables have been established for regular installations, without any specific requirements. For all other specific cases, it is imperative that you get in touch with CARLY’s technical services, or your distributor’s technical services;
- The refrigerants used are particularly expansible depending on the temperatures borne by the system. They can therefore generate very important pressure variations that depend on these temperatures and on the surfaces on which these pressures are exerted. Considering the mechanical and refrigerant thermodynamics laws, and in order to prevent all phenomena linked to hydrostatic forces, it is imperative to ensure that no part of the circuit and more specifically no component, particularly a filter drier, can, at any moment, be full of liquid without any safety element (valve, safety valve) to prevent overpressure higher than the maximum working pressure in this part of the installation. This recommendation is particularly applicable for installations using refrigerant sub-refrigerating technology. Non compliance with this regulation can lead to severe material and physical consequences.

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General assembly precautions

TREATMENT OF CONTAMINATED CIRCUITS

01/10

- On a highly contaminated circuit, particularly after compressor burnout, there is a risk of physical damage. Do not inhale the acid vapours and avoid direct contact of the contaminated refrigerant with the skin, particularly when replacing filtering and/or drying cores from shells;
- It is formally reminded that implementation of CARLY “intervention” components and more particularly those intended for decontamination of a circuit after compressor burnout, and located on the suction line: **NCY**, **FNCY**, **DDNCY, FACY**, as well as the interchangeable active elements, like **CCY N**, **CCY F**, or **CCY I** cores, must imperatively comply with the operating instructions specific to each component;
- These components must not be left on the circuit more than the exact time required for decontamination. This time of course depends on the level of contamination and pollution of the circuit. It should never exceed a few hours, for all components containing chemical, desiccant agents, acid neutralization agents and wax and varnish binding agents;
- The essential criterion to take into account is the pressure loss caused by the component. It is recommended to check very strictly and replace immediately any component that reaches a level of pressure loss disturbing the installation’s operation, a sign of the component’s saturation.

RECURRENT INTERVENTIONS

- Replace systematically synthetic air-tightness gaskets after each intervention that requires the opening of flanged components: **BDCY, BCY, ACY, BBCY, BACY, HCYBF, TURBOIL-F®, TURBOIL-RF®, FILTRY, VCYLS, VCYR;**
- Replace systematically air-tightness copper gaskets after each removal of the following products: **DCY-MF, VCYL, HCYCT, HCYCTR, HCYVI, HCYVP, KRCY**;
- Regularly check the moisture content of the circuit, monitoring the colour of the sight glass moisture indicator, in order to take appropriate action - replace a filter drier for instance - before it becomes a cause of malfunction of the installation;
- Monitor the pressure losses of dehydrating, acid neutralizing and filtering components generally located on the liquid, suction and oil lines. Their contaminant neutralization capacities are by definition limited in time. The saturation and obstruction time depends on the contaminant types and amounts and depends of course on the capacity of the component selected;
- Systematically blank the used components after replacement, in order to prevent the possible running of refrigerants and refrigerating oils. Elimination of these components must follow the applicable local regulations.

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Weights and packaging

→ DCY

01/10

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
DCY 032	0,33	0,30	24	125
DCY 032 S & MMS	0,33	0,30	24	/
DCY 033	0,33	0,30	24	/
DCY 033 S & MMS	0,33	0,30	24	/
DCY 052	0,38	0,35	24	/
DCY 052 S & MMS	0,38	0,35	24	/
DCY 053	0,38	0,35	24	125
DCY 053 S & MMS	0,38	0,35	24	/
DCY 082	0,41	0,40	24	/
DCY 082 S & MMS	0,43	0,40	24	/
DCY 083	0,43	0,40	24	/
DCY 083 S & MMS	0,40	0,35	24	/
DCY 084	0,48	0,45	24	90
DCY 084 S & MMS	0,48	0,45	24	/
DCY 162	0,94	0,90	16	/
DCY 162 S & MMS	0,94	0,90	16	/
DCY 163	0,94	0,90	16	/
DCY 163 S & MMS	0,94	0,90	16	/
DCY 164	0,99	0,95	16	/
DCY 164 S & MMS	0,99	0,95	16	/
DCY 165	1,04	1,00	16	48
DCY 165 S/MMS	1,04	1,00	16	/

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
DCY 302	1,42	1,35	12	/
DCY 303	1,42	1,35	12	/
DCY 303 S & MMS	1,42	1,35	12	/
DCY 304	1,47	1,40	12	/
DCY 304 S & MMS	1,47	1,40	12	/
DCY 305	1,57	1,50	12	/
DCY 305 S/MMS	1,57	1,50	12	/
DCY 307 S & MMS	1,62	1,55	12	/
DCY 414	2,80	2,10	6	/
DCY 415	2,90	2,20	6	/
DCY 415 S/MMS	2,90	2,20	6	/
DCY 417 S & MMS	2,95	2,25	6	/
DCY 755	2,78	2,70	6	/
DCY 756	2,78	2,70	6	/
DCY 756 S & MMS	2,78	2,70	6	/
DCY 967 S & MMS	2,83	2,75	6	/
DCY 969 S & MMS	2,93	2,85	6	/
DCY 032 MF	0,33	0,30	24	/
DCY 052 MF	0,43	0,40	24	/
DCY 053 MF	0,43	0,40	24	/
DCY 082 MF	0,48	0,45	24	/
DCY 083 MF	0,48	0,45	24	/
DCY 163 MF	0,99	0,95	16	/

→ DDCY

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
DDCY 082	0,43	0,40	24	/
DDCY 082 S & MMS	0,43	0,40	24	/
DDCY 083	0,43	0,40	24	/
DDCY 083 S & MMS	0,43	0,40	24	/
DDCY 084	0,53	0,50	24	/
DDCY 084 S & MMS	0,53	0,50	24	/
DDCY 163	0,94	0,90	16	/

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
DDCY 163 S & MMS	0,94	0,90	16	/
DDCY 164	0,99	0,95	16	/
DDCY 164 S & MMS	0,99	0,95	16	/
DDCY 165	1,04	1,00	16	/
DDCY 165 S/MMS	1,04	1,00	16	/
DDCY 305	1,52	1,45	12	/
DDCY 305 S/MMS	1,52	1,45	12	/
DDCY 307	1,52	1,45	12	/

Weights and packaging

→ DDNCY

01/10

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
DDNCY 083	0,43	0,40	24	/
DDNCY 164	0,99	0,95	24	/
DDNCY 305	1,57	1,50	24	/

→ RCY

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
RCY 502-3 S	0,35	0,35	1	48
RCY 522 S & MMS	0,45	0,45	1	48
RCY 523 S & MMS	0,45	0,45	1	70
RCY 743 S & MMS	1,01	1,00	1	25
RCY 744 S & MMS	1,01	1,00	1	25

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
RCY 924	1,66	1,65	1	12
RCY 924 S & MMS	1,66	1,65	1	12
RCY 925	2,36	2,35	1	12
RCY 925 S/MMS	2,36	2,35	1	12

→ TSGY

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
TSGY 052	0,48	0,45	24	/
TSGY 082	0,62	0,55	24	/
TSGY 083	0,67	0,60	12	/
TSGY 163	1,14	1,10	12	/
TSGY 164	1,24	1,20	12	/

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Weights and packaging

→ BDCY / BCY / BBCY

01/10

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
BDCY 424 S & MMS	2,85	2,60	1	/
BDCY 425 S/MMS	2,90	2,65	1	/
BDCY 427 S & MMS	2,95	2,70	1	/
BCY 485 S/MMS	4,45	4,20	1	8
BCY 487 S & MMS	4,55	4,30	1	8
BCY 489 S & MMS	4,65	4,40	1	8
BCY 4811 S/MMS	4,70	4,45	1	/
BCY 4813 S & MMS	4,80	4,55	1	/
BCY 4817 S/MMS	5,05	4,80	1	/
BCY 967 S & MMS	5,90	5,60	1	/
BCY 969 S & MMS	5,95	5,65	1	6
BCY 9611 S/MMS	6,15	5,85	1	6
BCY 9613 S & MMS	6,25	5,95	1	6

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
BCY 9617 S/MMS	6,40	6,10	1	/
BCY 1449 S & MMS	7,20	6,85	1	/
BCY 14411 S/MMS	7,40	7,05	1	/
BCY 14413 S & MMS	7,45	7,10	1	/
BCY 14417 S/MMS	7,70	7,35	1	/
BCY 19213 S & MMS	8,65	8,25	1	/
BCY 19217 S/MMS	9,05	8,65	1	/
BBCY 20017 S/MMS	15,70	14,40	1	/
BBCY 20021 S & MMS	15,80	15,10	1	/
BBCY 30021 S & MMS	18,80	18,05	1	/
BBCY 40017 S/MMS	21,00	20,10	1	/
BBCY 40021 S & MMS	22,20	21,30	1	/
BBCY 40025 S & MMS	23,90	23,00	1	/

→ BDCY / ACY / BACY

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
BDCY 424 S & MMS	2,85	2,60	1	/
BDCY 425 S/MMS	2,90	2,65	1	/
BDCY 427 S & MMS	2,95	2,70	1	/
ACY 489 S & MMS	4,60	4,35	1	8
ACY 4811 S/MMS	4,70	4,45	1	8
ACY 4813 S & MMS	4,85	4,60	1	8
ACY 4817 S/MMS	5,05	4,80	1	8
ACY 4821 S & MMS	5,45	5,20	1	/
ACY 4825 S & MMS	5,75	5,50	1	/
ACY 9617 S/MMS	6,70	6,40	1	/
ACY 9621 S & MMS	6,85	6,55	1	/
ACY 9625 S & MMS	7,15	6,85	1	/
ACY 14417 S/MMS	7,65	7,30	1	/

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
ACY 14421 S & MMS	8,20	7,85	1	/
ACY 14425 S & MMS	8,45	8,10	1	/
ACY 19217 S/MMS	8,90	8,50	1	/
ACY 19221 S & MMS	9,60	9,20	1	/
ACY 19225 S & MMS	9,90	9,50	1	/
BACY 10021 S & MMS	13,30	12,70	1	/
BACY 10025 S & MMS	13,40	12,80	1	/
BACY 10029 S & MMS	13,50	12,90	1	/
BACY 10033 S & MMS	14,40	13,80	1	/
BACY 20025 S	16,40	15,70	1	/
BACY 20029 S & MMS	16,60	15,90	1	/
BACY 20033 S & MMS	16,90	16,20	1	/
BACY 40033 S & MMS	23,80	22,90	1	/

Weights and packaging

→ CCY / PLATINIUM

01/10

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
CCY 42 HP	0,77	0,68	20	/
CCY 48 HP	0,90	0,79	15	/
CCY 100 HP	1,75	1,52	6	/
PLATINIUM 48	0,90	0,79	15	/
CCY 42 N	0,62	0,53	20	/
CCY 48 N	0,81	0,70	15	/
CCY 100 N	1,58	1,36	6	/

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
CCY 42 F	0,15	0,06	6	/
CCY 48 F	0,18	0,09	15	/
CCY 100 F	0,14	0,13	6	/
CCY 42 I	0,19	0,10	6	/
CCY 48 I	0,21	0,12	15	/
CCY 100 I	0,27	0,18	6	/
CCY 48 HU	0,41	0,30	15	/

→ VCYL

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
VCYL 12	0,11	0,10	1	/
VCYL 13	0,21	0,20	1	/
VCYL 14	0,26	0,25	1	/
VCYL 15	0,31	0,30	1	8
VCYL 22	0,16	0,15	8	8
VCYL 23	0,21	0,20	8	8
VCYL 24	0,26	0,25	1	8
VCYL 25	0,29	0,28	1	/

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
VCYL 32 S & MMS	0,12	0,10	1	/
VCYL 33 S & MMS	0,12	0,10	1	/
VCYL 34 S & MMS	0,17	0,15	1	/
VCYL 35 S/MMS	0,22	0,20	1	/
VCYL 36 S & MMS	0,25	0,22	1	/
VCYL 37 S & MMS	0,28	0,25	1	/
VCYL 39 S & MMS	0,28	0,25	1	/
VCYL 52 S & MMS	0,12	0,10	1	/
VCYL 53 S & MMS	0,12	0,10	1	/
VCYL 54 S & MMS	0,17	0,15	1	/
VCYL 55 S/MMS	0,22	0,20	1	/

→ VCYLS

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
VCYLS 5	0,11	0,10	10	/
VCYLS 7	0,11	0,10	10	/
VCYLS 9	0,11	0,10	10	/
VCYLS 11	0,11	0,10	10	/
VCYLS 13	0,11	0,10	10	/
VCYLS 17	0,11	0,10	10	/
VCYLS 21	0,11	0,10	10	/

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Weights and packaging

→ FILTRY

01/10

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
FILTRY 3 S & MMS	0,31	0,30	16	/
FILTRY 4 S & MMS	0,31	0,30	16	/
FILTRY 5 S & MMS	0,31	0,30	16	/

→ FCY

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
FCY 702	0,39	0,35	16	/
FCY 702 S & MMS	0,39	0,35	16	/
FCY 703	0,44	0,40	16	/
FCY 703 S & MMS	0,44	0,40	16	/
FCY 894	0,57	0,50	1	/
FCY 894 S & MMS	0,57	0,50	1	/

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
FCY 895	0,67	0,60	1	/
FCY 895 S/MMS	0,67	0,60	1	/
FCY 896 S & MMS	0,67	0,60	1	/
FCY 897 S & MMS	0,72	0,65	1	/
FCY 899 S & MMS	0,72	0,65	1	/
FCY 8911 S/MMS	0,92	0,85	1	/

→ FACY

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
FACY 283	0,94	0,90	12	/
FACY 284	0,99	0,95	12	/
FACY 285	1,04	1,00	12	/
FACY 285 S/MMS	1,04	1,00	12	/
FACY 286 S & MMS	1,04	1,00	12	/
FACY 287 S & MMS	1,04	1,00	12	/
FACY 289 S & MMS	1,14	1,10	12	/
FACY 489 S & MMS	1,77	1,70	6	/
FACY 4811 S/MMS	1,97	1,90	6	/
FACY 4813 S & MMS	2,07	2,00	6	/

Weights and packaging

→ NCY / FNCY

01/10

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
NCY 63	0,43	0,40	24	/
NCY 63 S & MMS	0,43	0,40	24	/
NCY 73	0,99	0,95	16	/
NCY 73 S & MMS	0,99	0,95	16	/
NCY 74	1,04	1,00	16	/
NCY 74 S & MMS	1,04	1,00	16	/
NCY 75	1,54	1,50	16	/
NCY 75 S/MMS	1,54	1,50	16	/
NCY 76	1,54	1,50	16	/
NCY 76 S & MMS	1,54	1,50	16	/
NCY 77 S & MMS	1,59	1,55	16	/

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
FNCY 283	1,09	1,05	12	/
FNCY 284	1,14	1,10	12	/
FNCY 285	1,19	1,15	12	/
FNCY 285 S/MMS	1,19	1,15	12	/
FNCY 286 S & MMS	1,22	1,17	12	/
FNCY 287 S & MMS	1,24	1,20	12	/
FNCY 489 S & MMS	2,22	2,15	6	/
FNCY 4811 S/MMS	2,42	2,35	6	/
FNCY 4813 S & MMS	2,47	2,40	6	/

→ SCY

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
SCY 30 S & MMS	0,38	0,35	24	/
SCY 40 S & MMS	0,38	0,35	24	/
SCY 50 S/MMS	0,38	0,35	24	/
SCY 60 S & MMS	1,02	0,95	6	/
SCY 70 S & MMS	1,12	1,05	6	/
SCY 90 S & MMS	1,57	1,50	6	/

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
SCY 110 S/MMS	1,72	1,65	6	/
SCY 130 S & MMS	1,82	1,75	6	/
SCY 170 S/MMS	6,55	6,20	1	/
SCY 210 S & MMS	10,25	9,85	1	/
SCY 250 S & MMS	14,10	13,70	1	/

→ EVCYAC / EVCYDEAC

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
EVCYAC 2 S et MMS	0,05	0,05	1	/
EVCYAC 3 S & MMS	0,10	0,10	1	/
EVCYAC 4 S et MMS	0,10	0,10	1	/
EVCYAC 5 S & MMS	0,20	0,20	1	/
EVCYAC 6 S et MMS	0,25	0,25	1	/
EVCYAC 7 S & MMS	0,25	0,30	1	/
EVCYAC 9 S et MMS	0,45	0,45	1	/

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
EVCYAC 11 S/MMS	0,75	0,75	1	/
EVCYAC 13 S et MMS	1,36	1,35	1	/
EVCYAC 17 S/MMS	2,41	2,40	1	/
EVCYAC 21 S et MMS	3,91	3,90	1	/
EVCYAC 25 S & MMS	5,71	5,70	1	/
EVCYAC 29 S et MMS	7,95	7,95	1	/
EVCYAC 33 S & MMS	8,86	8,85	1	/

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Weights and packaging

→ TSCYS

01/10

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
TSCYS 1002	0,20	0,20	1	/
TSCYS 1002 S & MMS	0,20	0,20	1	/
TSCYS 1003	0,30	0,30	1	/
TSCYS 1003 S & MMS	0,30	0,30	1	/
TSCYS 1004	0,35	0,35	1	/
TSCYS 1004 S & MMS	0,35	0,35	1	/
TSCYS 1005	0,60	0,60	1	/
TSCYS 1005 S & MMS	0,45	0,45	1	/

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
TSCYS 1502	0,25	0,25	1	/
TSCYS 1502 S & MMS	0,25	0,25	1	/
TSCYS 1503	0,45	0,45	1	/
TSCYS 1503 S & MMS	0,45	0,45	1	/
TSCYS 1504	0,65	0,65	1	/
TSCYS 1504 S & MMS	0,55	0,55	1	/
TSCYS 1505	0,80	0,80	1	/
TSCYS 1505 S & MMS	0,65	0,65	1	/

→ RLHCY / RLVCY

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
RLHCY 15	1,90	1,55	1	/
RLHCY 25	3,25	2,95	1	/
RLHCY 30	3,70	3,40	1	/
RLHCY 45	5,95	5,55	1	/
RLHCY 60	7,40	6,80	1	/
RLHCY 75	8,75	8,15	1	/
RLHCY 90	10,00	9,40	1	/
RLHCY 120	12,40	11,80	1	/
RLHCY 150	16,60	16,00	1	/
RLHCY 200	20,60	20,00	1	/
RLHCY 250	25,20	23,00	1	/
RLHCY 300	26,45	24,25	1	/
RLHCY 400	32,70	30,50	1	/
RLHCY 500	38,70	36,50	1	/
RLHCY 600	57,70	55,50	1	/
RLHCY 700	64,60	62,40	1	/

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
RLVCY 09	1,50	1,10	1	/
RLVCY 15	2,15	1,75	1	15
RLVCY 20	2,75	2,35	1	/
RLVCY 25	3,20	2,95	1	8
RLVCY 30	3,35	3,00	1	/
RLVCY 40	4,20	4,10	1	6
RLVCY 45	5,85	5,55	1	/
RLVCY 60	7,10	6,80	1	/
RLVCY 75	8,50	8,15	1	/
RLVCY 90	10,35	10,00	1	/
RLVCY 120	10,60	10,10	1	/
RLVCY 150	17,15	16,65	1	/
RLVCY 200	20,80	20,15	1	/
RLVCY 250	24,60	24,00	1	/
RLVCY 300	34,80	34,00	1	/
RLVCY 400	42,10	41,30	1	/
RLVCY 500	50,60	49,40	1	/
RLVCY 600	57,20	56,00	1	/
RLVCY 700	64,70	63,50	1	/

Weights and packaging

→ VCYR

01/10

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	
VCYR 32	0,10	0,10	1	/

→ LCY / LCYE

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
LCY 04 S & MMS	1,28	1,20	6	24
LCY 14 S & MMS	1,78	1,70	6	/
LCY 15 S/MMS	1,85	1,75	6	/
LCY 16 S & MMS	2,03	1,95	6	15
LCY 25 S/MMS	3,55	3,15	1	8
LCY 26 S & MMS	3,60	3,20	1	/
LCY 27 S & MMS	3,70	3,30	1	8
LCY 47 S & MMS	3,40	3,15	1	4
LCY 49 S & MMS	6,00	5,60	1	/
LCY 69 S & MMS	7,55	7,25	1	/
LCY 89 S & MMS	10,20	9,85	1	/
LCY 611 S/MMS	9,45	9,10	1	/
LCY 811 S/MMS	10,60	10,40	1	/
LCY 813 S & MMS	11,95	11,60	1	/
LCY 1011 S/MMS	14,25	13,65	1	/
LCY 1013 S & MMS	14,85	14,25	1	/
LCY 1517 S/MMS	20,85	20,35	1	/

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
LCY 1817 S/MMS	25,70	25,20	1	/
LCY 3617 S/MMS	42,80	41,40	1	/
LCY 3621 S & MMS	47,10	45,70	1	/
LCY 3625 S & MMS	48,75	47,35	1	/
LCY 5021 S & MMS	58,50	57,10	1	/
LCY 5025 S & MMS	60,50	59,10	1	/
LCY 7025 S & MMS	76,40	75,00	1	/
LCY 7029 S & MMS	80,40	79,00	1	/
LCYE 25 S & MMS	3,85	3,45	1	/
LCYE 26 S & MMS	4,00	3,60	1	/
LCYE 47 S & MMS	4,85	4,45	1	/
LCYE 69 S & MMS	7,55	7,25	1	/
LCYE 811 S/MMS	10,60	10,40	1	/
LCYE 1013 S & MMS	15,75	15,15	1	/
LCYE 1517 S & MMS	22,35	21,85	1	/
LCYE 3621 S & MMS	48,90	47,50	1	/
LCYE 3625 S & MMS	53,40	52,00	1	/

→ CONDOR-V / CONDOR-H

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
CONDOR-V 100	4,30	4,00	1	/
CONDOR-V 150	5,45	5,00	1	/
CONDOR-V 240	5,45	5,00	1	/
CONDOR-V 500	11,30	11,00	1	/
CONDOR-V 1000	14,30	14,00	1	/
CONDOR-V 1400	7,45	7,00	1	/
CONDOR-V 2500	23,60	23,00	1	/

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
CONDOR-H 150	5,45	5,00	1	/
CONDOR-H 250	5,45	5,00	1	/
CONDOR-H 500	11,30	11,00	1	/
CONDOR-H 750	7,45	7,00	1	/
CONDOR-H 1000	14,30	14,00	1	/

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Weights and packaging

→ TURBOIL® / TURBOIL-F®

05/10

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
TURBOIL 1503 S & MMS	2,90	2,65	1	/
TURBOIL 1504 S & MMS	3,35	3,10	1	/
TURBOIL 2505 S/MMS	3,55	3,25	1	/
TURBOIL 3006 S & MMS	3,75	3,45	1	/
TURBOIL 3007 S & MMS	4,20	3,90	1	/
TURBOIL 3009 S & MMS	4,25	3,95	1	/
TURBOIL 3011 S/MMS	5,55	5,20	1	/
TURBOIL 4007 S & MMS	4,20	3,90	1	/
TURBOIL 6009 S & MMS	4,90	4,55	1	/
TURBOIL 6011 S/MMS	6,25	5,90	1	/
TURBOIL 7011 S/MMS	8,50	8,10	1	/
TURBOIL 8013 S & MMS	10,80	10,40	1	/
TURBOIL 9017 S/MMS	11,35	10,95	1	/

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
TURBOIL-F 2505 S/MMS	5,25	4,95	1	/
TURBOIL-F 3007 S & MMS	5,60	5,30	1	/
TURBOIL-F 3009 S & MMS	6,10	5,75	1	/
TURBOIL-F 3011 S/MMS	7,20	6,85	1	/
TURBOIL-F 7011 S/MMS	12,10	11,70	1	/
TURBOIL-F 8013 S & MMS	14,35	13,95	1	/
TURBOIL-F 9017 S/MMS	15,90	15,50	1	/
TURBOIL-F 15013 S & MMS	19,05	17,85	1	/
TURBOIL-F 15017 S/MMS	22,15	20,95	1	/
TURBOIL-F 15021 S & MMS	22,85	21,65	1	/
TURBOIL-F 30025 S & MMS	23,95	22,75	1	/

→ TURBOIL-R®

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
TURBOIL-R 22505 S/MMS	8,65	8,05	1	/
TURBOIL-R 23007 S & MMS	10,60	10,00	1	/
TURBOIL-R 23009 S & MMS	10,70	10,10	1	/
TURBOIL-R 23011 S/MMS	10,80	10,20	1	/
TURBOIL-R 47009 S & MMS	11,40	10,80	1	/
TURBOIL-R 47011 S/MMS	11,60	11,00	1	/
TURBOIL-R 48013 S & MMS	14,80	14,20	1	/
TURBOIL-R 49017 S/MMS	14,85	14,25	1	/

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
TURBOIL-R 77011 S/MMS	17,30	16,70	1	/
TURBOIL-R 78013 S & MMS	17,40	16,80	1	/
TURBOIL-R 79017 S/MMS	17,45	16,85	1	/
TURBOIL-R 127011 S/MMS	18,95	18,35	1	/
TURBOIL-R 128013 S & MMS	22,15	21,55	1	/
TURBOIL-R 129017 S/MMS	22,20	21,60	1	/
TURBOIL-R 815017 S/MMS	24,25	23,65	1	/
TURBOIL-R 815021 S & MMS	24,95	24,35	1	/
TURBOIL-R 830025 S & MMS	26,05	25,45	1	/

→ HCYR

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
HCYR 40	4,95	4,60	1	/
HCYR 80	9,70	9,10	1	/
HCYR 81	9,30	8,90	1	/
HCYR 120	13,40	12,80	1	/

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
HCYR 121	12,95	12,35	1	/
HCYR 150	15,40	14,80	1	/
HCYR 200	18,65	17,85	1	/
HCYR 300	32,50	31,30	1	/

Weights and packaging

→ HCYCT / HCYCTR

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CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
HCYCT 1	0,16	0,15	1	50
HCYCT 3	0,16	0,15	1	50

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
HCYCT 4	0,16	0,15	1	50
HCYCTR	0,23	0,20	1	/

→ HCYF / HCYBF

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
HCYF 52	0,28	0,25	24	/
HCYF 53	0,28	0,25	24	/
HCYF 53 S & MMS	0,28	0,25	24	/
HCYF 83	0,78	0,75	6	/
HCYF 84	0,83	0,80	6	/

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
HCYBF 485 S/MMS	4,55	4,30	1	/
HCYBF 486 S & MMS	4,60	4,35	1	/
HCYBF 486 N	4,70	4,45	1	/

→ HYDROIL

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	
HYDROIL 163	1,45	1,38	6	/

→ HCYVP

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
HCYVP 43	0,21	0,20	1	/
HCYVP 53 S & MMS	0,11	0,10	1	/

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Weights and packaging

→ HCYN / HCYN 1A

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CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
HCYN 2	2,17	2,00	1	/
HCYN 2B	2,12	1,95	1	/
HCYN 2BO	2,27	2,10	1	/
HCYN 2E	2,17	2,00	1	/
HCYN 2R	2,32	2,15	1	/
HCYN 2RB	2,27	2,10	1	/
HCYN 2RE	2,22	2,05	1	/
HCYN 2SC	2,07	1,90	1	/
HCYN 3RB	2,27	2,10	1	/
HCYN 3RE	2,22	2,05	1	/

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
HCYN 1A2	0,45	0,45	1	/
HCYN 1A3	0,45	0,45	1	/
HCYN 1A5	0,60	0,60	1	/
HCYN 1A7	0,58	0,58	1	/
HCYN 1A9	0,45	0,45	1	/
HCYN 1A10	0,40	0,40	1	/
HCYN 1A11	0,45	0,45	1	/
HCYN 1A14	0,45	0,45	1	/
HCYN 1A15	0,45	0,45	1	/

→ HCYVI

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
HCYVI 2	0,15	0,15	1	/
HCYVI 2H	0,15	0,15	1	/

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
HCYVI 3	0,20	0,20	1	/
HCYVI 3H	0,20	0,20	1	/

→ LEVOIL

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
LEVOIL 22	1,27	1,10	1	/
LEVOIL 23	1,27	1,10	1	/
LEVOIL 23 SC	1,27	1,10	1	/
LEVOIL 33 RE	1,37	1,20	1	/

Weights and packaging

→ CRCY / CRCYP

01/10

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
CRCY 2	0,06	0,05	1	/
CRCY 2 S & MMS	0,06	0,05	1	/
CRCY 3	0,06	0,05	1	/
CRCY 3 S & MMS	0,06	0,05	1	/
CRCY 4	0,16	0,15	1	/
CRCY 4 S & MMS	0,16	0,15	1	/
CRCY 5	0,21	0,20	1	/
CRCY 5 S/MMS	0,21	0,20	1	/
CRCY 6	0,28	0,25	1	/
CRCY 6 S & MMS	0,28	0,25	1	/
CRCY 7 S & MMS	0,28	0,25	1	/

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
CRCYP 2	0,06	0,05	1	/
CRCYP 2 S & MMS	0,06	0,05	1	/
CRCYP 3	0,06	0,05	1	/
CRCYP 3 S & MMS	0,06	0,05	1	/
CRCYP 4	0,16	0,15	1	/
CRCYP 4 S & MMS	0,16	0,15	1	/
CRCYP 5	0,21	0,20	1	/
CRCYP 5 S/MMS	0,21	0,20	1	/
CRCYP 6	0,28	0,25	1	/
CRCYP 6 S & MMS	0,28	0,25	1	/
CRCYP 7 S & MMS	0,28	0,25	1	/

→ KRCY

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
KRCY 2 S et MMS	0,041	0,040	10	100
KRCY 3 S & MMS	0,066	0,065	10	100
KRCY 4 S et MMS	0,091	0,090	10	100
KRCY 5 S/MMS	0,116	0,115	10	100

CARLY references	Unit weight (kg)		Packaging unit	
	With packaging	Without packaging	standard	OEM'S
KRCY 6 S & MMS	0,186	0,185	10	100
KRCY 23 S & MMS	0,071	0,070	10	100
KRCY 34 S & MMS	0,101	0,100	10	100
KRCY 45 S & MMS	0,131	0,130	10	100

→ CHEMICAL PRODUCTS

CARLY references	Unit weight (kg)	Packaging unit
CARLYLOC	0,51	12
CARLYLOC 500	0,57	15
CARLYLOC 5000	5,40	2
CARLYLOC 25000	26,00	1
CARLYCLEAN 500	0,56	15
CARLYCLEAN 5000	5,25	2
CARLYCLEAN 25000	26,00	1
CARLYBIO 500	0,50	15
CARLYBIO 5000	5,25	2
CARLYBIO 25000	26,00	1
CARLYPRO 500	0,56	15
CARLYPRO 5000	5,25	2

CARLY references	Unit weight (kg)	Packaging unit
CARLYPRO 25000	26,00	1
CARLYNET	0,51	12
CARLYCOAT	0,51	12
TESTOIL-MAS	0,07	18
TESTOIL-POE	0,07	18
TESTOIL-MP	0,14	16
STOPACID-MAS	0,08	18
STOPACID-POE	0,08	18
DETECTOIL-POE	0,08	18
CARLYCOOL	0,65	8
POMPE 5000	2,02	1
CARLYSPRAY	0,54	1

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General sales terms

■ Updated in December 2007

01/10

• ARTICLE 1 - SCOPE

The purpose of these general sales terms is to govern the rights and duties of the CARLY SAS company (hereinafter referred to as "CARLY SAS") and of its client (an individual or legal entity) for the sale of all of CARLY SAS' products (hereinafter referred to as the "Product").
Any service provided by CARLY SAS implies the client's full and unreserved acceptance of these general sales terms, which shall prevail over the client's general purchase terms.

• ARTICLE 2 - FORMATION OF THE AGREEMENT

Any order placed by the client shall be subject to CARLY SAS's acceptance. The order shall be regarded as firm as from the client's receipt of a written acknowledgement of receipt of the order from CARLY SAS confirming the final recording of the said order. Such confirmation shall be the date of the sale agreement and constitutes the acceptance of these general sales terms.
No order having been confirmed by CARLY SAS may be cancelled by the client, unless otherwise agreed in writing by CARLY SAS and subject to the client compensation CARLY SAS for any expense and damage that CARLY SAS may have suffered and incurred as a result of the cancellation.

• ARTICLE 3 - PRICE

The prices of the products sold are those applicable on the order date. They are expressed in Euro and calculated before taxes, free of packaging costs. The final price indicated on the invoice is set according to the specific terms of the order, after applying possible reductions, and after entering the French VAT, as needed, as well as carriage costs on the order date.
Any carriage cost shall be negotiated upon the order, as well as any express shipping cost.
A sale price scale is available on request.
CARLY SAS reserves the right to change its rates at any time. However, CARLY SAS agrees to charge order products at the prices indicated on the order.
Clients based outside metropolitan France should inquire about import duties or taxes that may apply, and shall be responsible for declaring and paying such duties and taxes.

• ARTICLE 4 - DELIVERY

Deliveries may be made as follows:
- client collects the ordered equipment on an agreed date at our premises
- the delivery is made by a carrier chosen by CARLY SAS.

In that event, the delivery time indicated on the acknowledgement of receipt will depend on the carrier ; such time will be announced to the buyer at the time of the order, on request.
At any rate, the delivery time indicated on the order is for information only, and is not guaranteed.
As a result, no product delivery delay may entitle the client to the right to refuse the delivery, cancel the order, postpone the product payment date or request damages.

• ARTICLE 5 - RISKS

All our products are sold ex works, even those delivered carriage free.
At any rate, the transport risk shall be borne by the client, who shall be responsible, in the event of damages or losses, for making reserves and claiming to the carriers.
The CARLY SAS company shall not have to deliver in the event of force majeure or in the event the client fails to pay for a previous delivery.

• ARTICLE 6 - COMPLAINTS

No complaint shall be taken into account more than 48 hours after the delivery of the products, and if not sent by fax or e-mail and registered letter confirmed on the waybill.
No product may be returned without CARLY SAS' written agreement. Such agreement does not imply CARLY SAS' acceptance of the reasons claimed by the client for returning the products.
In the event of non-conform products, CARLY SAS' guarantee shall be limited to the replacement of the products sold, exclusive of damages.

• ARTICLE 7 - RESERVATION OF TITLE

The title to the products sold shall not be transferred to the buyer before the buyer's full payment of the price invoiced and VAT.
If the client is in court reorganisation or liquidation proceedings, CARLY SAS reserves the right to claim the products whose payment is outstanding.
For the whole time of the reservation of title, the risk pertaining to the products shall be borne by the client as from the delivery of the products.

• ARTICLE 8 - INVOICING AND PAYMENT

The minimum order amount is EUR 350 before taxes.
All payments are to be sent to the Accounting Department of CARLY SAS - ZI de Braille - 69380 LISSIEU - France.
Unless otherwise specified in writing and agreed by CARLY SAS, all invoices shall be payable cash before shipping.
Any failure to pay all or part of the products on due date shall result, automatically and subject to no prior injunction:
1) in a late payment penalty equal to one and a half times the legal interest rate applicable on the invoice date, such penalty being calculated on the amount before taxes of the outstanding amount, and starting on the due date of the invoice, and ending on the day of its full payment
2) in the immediate payability of all amounts owed to CARLY SAS by the client.
Possible discounts and reductions are granted to the buyer subject to the client's payment being up to date.
In addition, any previous payment incident shall suspend current orders.

• ARTICLE 9 - CONFIDENTIALITY

Studies, drawings, schematics and documents given or sent by CARLY SAS shall remain its property.
They shall not be disclosed to any third party for any reason, or performed without our written authorisation, under penalty of damages.

• ARTICLE 10 - PRODUCT FEATURES

For safety and technical progress reasons, CARLY SAS reserves the right to change the design of its products and of those under a current order.
Features of products sold may be additionally changed at any time to meet a French or European legal or regulatory requirement.
Catalogues and other documentation showing our products are not contractual. They are only a presentation of the products sold. Should they contain any error, in no event shall CARLY SAS' liability be involved. Only the product sold is within the contractual scope.
However, by departure from the provisions above and below, CARLY SAS' guarantee shall not apply if the product is not used in normal use conditions such as described in our written instructions and our various technical documents.

• ARTICLE 11 - GUARANTEE

11.1 CARLY SAS's products carry a 1-year guarantee as from the shipping date.
The guarantee shall not apply if the product is not used in normal use conditions such as described in our written instructions and our various technical documents.
The guarantee shall not apply to damages occurring as a result of added devices and accessories other than CARLY SAS' products.
The guarantee shall not apply if the buyer modifies the equipment without first informing CARLY SAS in a clear drawing subject to CARLY SAS' approval. The guarantee clause shall not be claimed in the event of carelessness, accidental damages or usual wear, as well as of any failure to comply with our recommendations.
11.2 Under its guarantee, CARLY SAS agrees to repair or exchange the equipment subject to appraisal.
Rejected component shall remain the property of CARLY SAS.
For countries outside the EEC, CARLY SAS may return equipment by boat, and pay for carriage to the port most convenient to the client. Carriage costs from the port to the buyer's premises shall be borne by the buyer.
11.3 In the event of any defect found during the guarantee period, the buyer is responsible for advising CARLY SAS within 24 hours (failing which the guarantee shall not apply) and for returning the equipment in conditions similar to the first shipment, carriage and insurance paid.
Installation and removal costs shall not be borne by CARLY SAS. Any returned equipment shall be accompanied by a file including:
- the invoice,
- use conditions,
- the defect found.

11.4 Our distributors are entitled to the manufacturer's guarantee within the limits set in their own general sales terms.
11.5 The use of CARLY SAS' products implies the buyer's prior technical approval, specifically with regard to:
- the refrigerating system design which the said product is integrated in,
- cooling fluids, oils and pressure conditions.

Indeed, the system designer is responsible for making sure all pieces of equipment used are fit for their intended purpose and compatible with one another.
As a part manufacturer, CARLY SAS is not in a position to issue general recommendations applying to all system types.
However, a CARLY SAS representative is available to answer any of the client's questions.
At any rate, our guarantee shall not apply in the event the client fails to follow our recommendations and should the equipment use methods not be approved by our company.

• ARTICLE 12 - SECONDARY DAMAGES / LIABILITY

12.1 CARLY SAS shall not be responsible for any cost incurred by the client when working on its products such as:
- labour,
- travel,
- loss of refrigeration agent,
- transport.

At any rate and even in the event the product guarantee specified in article 11 applies, CARLY SAS' liability shall not be involved other than for damages caused to people and property, excluding any trading loss, loss of stored equipment or other losses. The responsibility of CARLY SAS is strictly limited to the replacement of the guaranteed product.
12.2 The products bought in continuation of the use of the selection assistance software available on CARLY website or CD, benefit from the guarantee aimed under article 11. Nevertheless, the use of the data and the results provided by the software is done under the full, whole and exclusive responsibility of the buyer. It is for the customer to verify the relevance and accuracy of results and data suggested by the software compared to the installation and the desired use.
In particular, company CARLY cannot be held responsible for the consequences (whatever they are) of using the software or of an error of choice in the software use.

• ARTICLE 13 - RETURNED PRODUCTS

Product returns are subject to CARLY SAS' written agreement.
Any product whose return is accepted shall be shipped to CARLY SAS in conditions similar to those of the first shipment, carriage and insurance paid. No return shall affect any due date.
In the event the equipment is taken back, a minimum 30 % reduction shall be deducted from the initial purchase price, subject to the returned equipment being in perfect condition. No specially manufactured product may be returned.

• ARTICLE 14 - JURISDICTIONAL CLAUSE

Any dispute relating to the interpretation, performance or termination of the sale agreement between the client and CARLY SAS shall be governed by the laws of France.
No invalid clause of these general sales terms shall affect the validity of the other provisions.
Failing an amicable settlement, the dispute shall be brought before the business court of Lyon.