



Liquid sight glasses

→ VCYLS

■ Applications

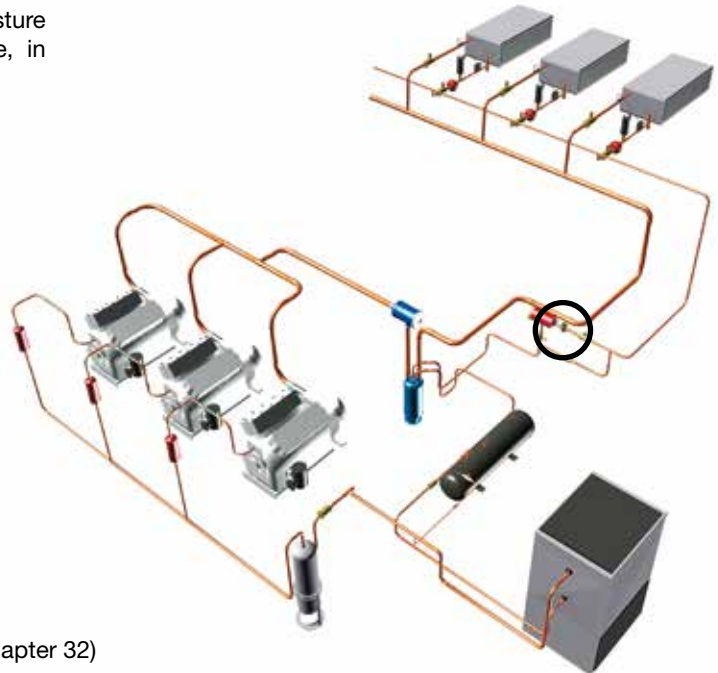
- Immediate and direct monitoring of flow, condition and moisture content of the refrigerant in its liquid or diphasic phase, in refrigerating and air conditioning installations.



Standard product



Sight glass with steel base (see chapter 32)



■ Functional features

- Products are compatible with CFCs, HCFCs, HFCs, CO₂, as well as with their associated oils and additives. Products are designed for use of non-hazardous refrigerants from group 2 of PED 2014/68/EU. To use CARLY components with fluids of the hydrocarbon group 1 – Propane R290, Butane R600, Isobutane R600a, Propylene R1270 – with HFOs and transcritical CO₂ and for a RANKINE organic cycle application, contact CARLY technical department.
- Product classification in CE categories is performed using the PED 2014/68/EU table, corresponding to a nominal diameter-based selection.
- Monitoring with a large sight glass of the refrigerant state in the liquid pipes of the installation. The possible presence of bubbles in the refrigerant will be visible by the VCYLS and it might have several meanings such as a lack of refrigerant, a too low or absent subcooling, or also a too important pressure drop due to the filter drier, which would have then to be changed.
- A reliable hygroscopic indicator responsive to humidity and resistant to acids is positioned under the glass.
- Moisture presence is characterized by a modification of the indicator colour (green when the refrigerant is dry, and yellow when it is too wet); this continuous indication is reliable and this color change is reversible. It is very important to check the level of moisture in the refrigerant, in order to avoid the formation of acids harmful to the proper functioning of the installation.
- 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 gasket ensuring air-tightness between the base and the glass.



Possible customization on demand:

- CARLY can supply, upon request, some liquid sight glasses to solder on tubes, of type VCYLS, without hygroscopic paper or with a ball for level monitoring.

■ CARLY advantages

- Maximal working pressure: 42 bar.
- 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 dirt 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.



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■ Warning

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

■ General assembly precautions

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

- Some are specific to each component, and in this case, they are specified in the **RECOMMENDATIONS SPECIFIC** part defined hereafter ;
- Other are general to all CARLY components, they are presented in the chapter 115 – **GENERAL ASSEMBLY PRECAUTIONS**.
- The recommendations relating to the CARLY components for the subcritical CO₂ applications are also developed in

chapter 115 – **GENERAL ASSEMBLY PRECAUTIONS**.

■ Recommendations specific to liquid sight glasses VCYLS

- 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 the brazing and when the temperature of the base is low enough, put back in place the seal and tight the glass with preferably an hexagonal spanner, respecting a tightening torque of 25 N.m.
- The O-ring (CARLY reference CY 15552180) should be replaced after each removal of the 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 (**DCY** filter drier, **DDCY** bi-directional flow and anti-acid filter driers, **RCY** filter drier-receiver or **CCY HP/N** or **PLATINIUM 48** drying cores).

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

R404A : → 50 ppm

R407C : → 50 ppm

R744 : → 10 ppm

R134a : → 50 ppm

R507 : → 50 ppm

R410A : → 50 ppm

R407F : → 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 a new drying system such as **DCY** filter drier, **DDCY** bi-directional flow and anti-acid filter driers, **RCY** filter drier-receiver or **CCY HP/N** or **PLATINIUM 48** drying cores.

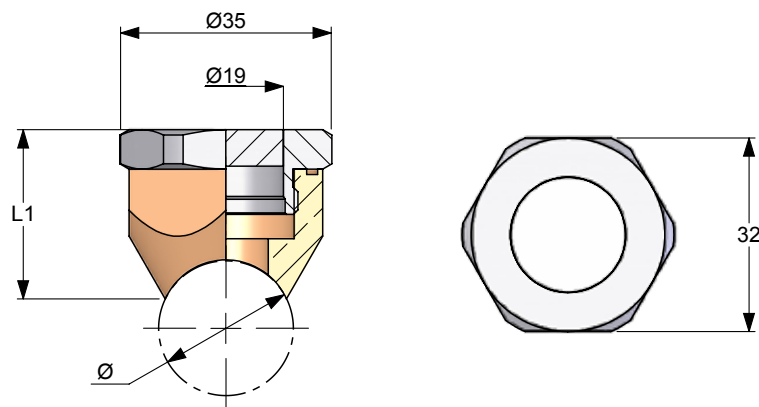


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■ Technical features

CARLY references	For soldering onto the pipe		Dimensions
	Ø inch	Ø mm	L1 mm
VCYLS 5	5/8	16	29
VCYLS 7	7/8	22	28
VCYLS 9	1 1/8	28	27
VCYLS 11	1 3/8	35	26
VCYLS 13	1 5/8	42	25
VCYLS 17	2 1/8	54	24
VCYLS 21	2 5/8	67	24



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	/	100	-20	/	Art4§3
VCYLS 7	42	/	100	-20	/	Art4§3
VCYLS 9	42	/	100	-20	/	Art4§3
VCYLS 11	42	/	100	-20	/	Art4§3
VCYLS 13	42	/	100	-20	/	Art4§3
VCYLS 17	42	/	100	-20	/	Art4§3
VCYLS 21	42	/	100	-20	/	Art4§3

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

⁽²⁾ Classification by diameter, according to PED 2014/68/EU (refer to chapter 0).



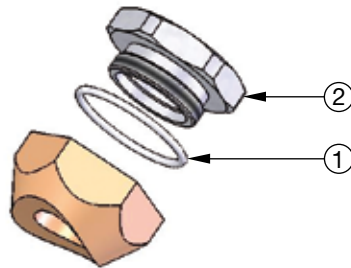
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■ Spare parts

CARLY references	Part N°	Description	Quantity
CY 15552180	1	O-ring PTFE gasket for sight glass	1
CY 35012140	2	Glass with moisture indicator, gasket included	1
CY 35012150	2	Glass without moisture indicator, gasket included	1



■ Weights and packaging

CARLY references	Unit weight kg		Packaging number of pieces
	With packaging	Without packaging	
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