Mechanical oil level regulators and adapters

→ LEVOIL®

■ 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.

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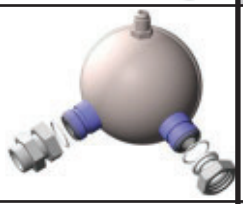
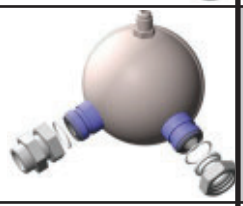
■ Technical features

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.

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■ 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

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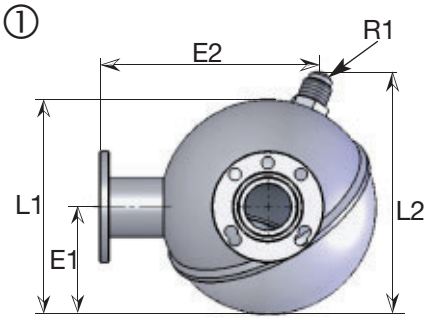

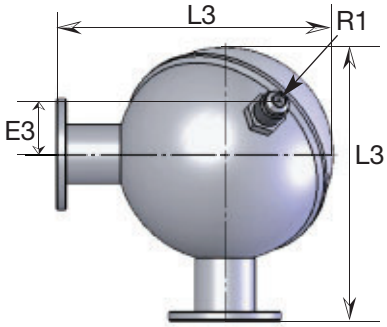

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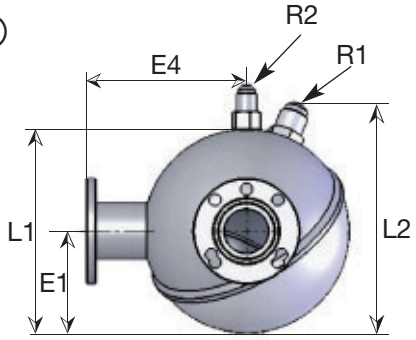

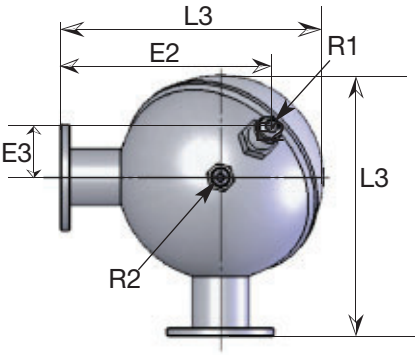

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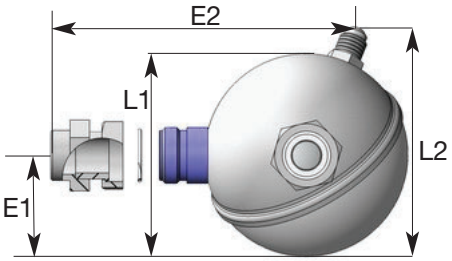

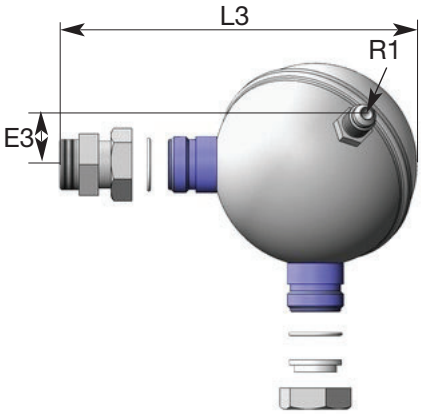

CARLY references	Volume	Pressure range	Maximal working pressure	Working pressure (1)	Maximal working temperature	Minimal working temperature	Working temperature (1)	CE Category (2)
	V (L)	ΔP (bar)	PS (bar)	PS BT (bar)	TS maxi (°C)	TS mini (°C)	TS BT (°C)	
LEVOIL 22	0,8	1 - 4,5	42	/	80	-20	/	Art3§3
LEVOIL 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).