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Mechanical oil level regulators

→ HCYN

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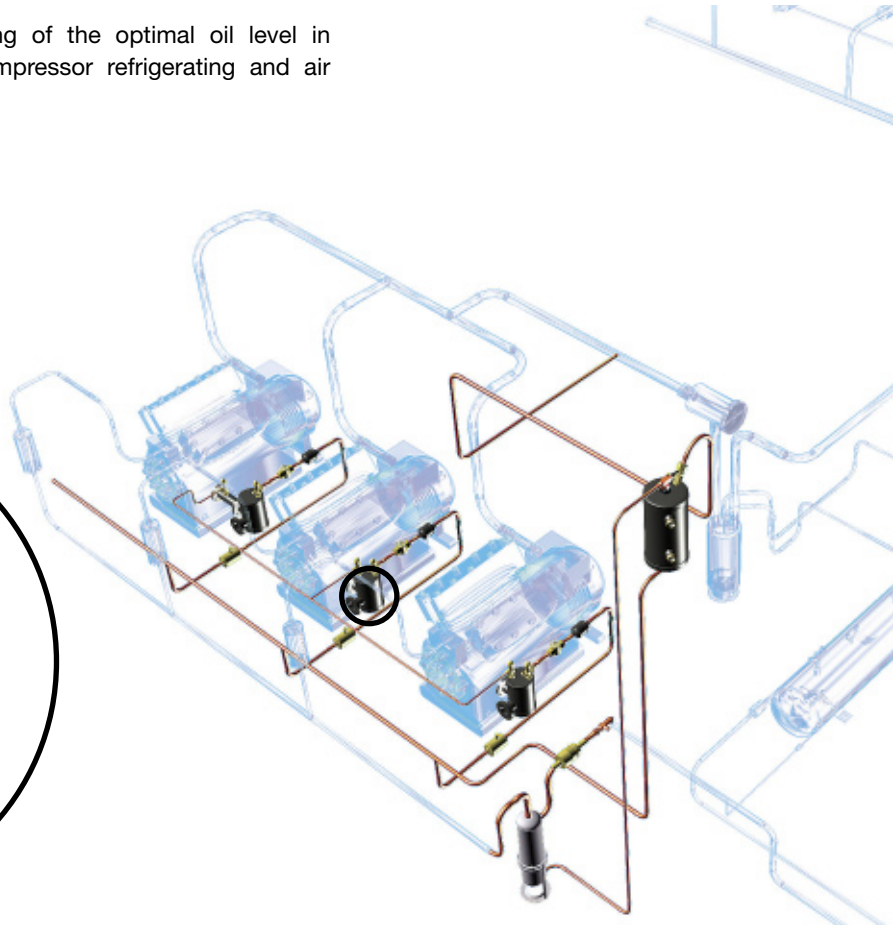
■ Applications

- 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.

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Mechanical oil level regulators

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■ 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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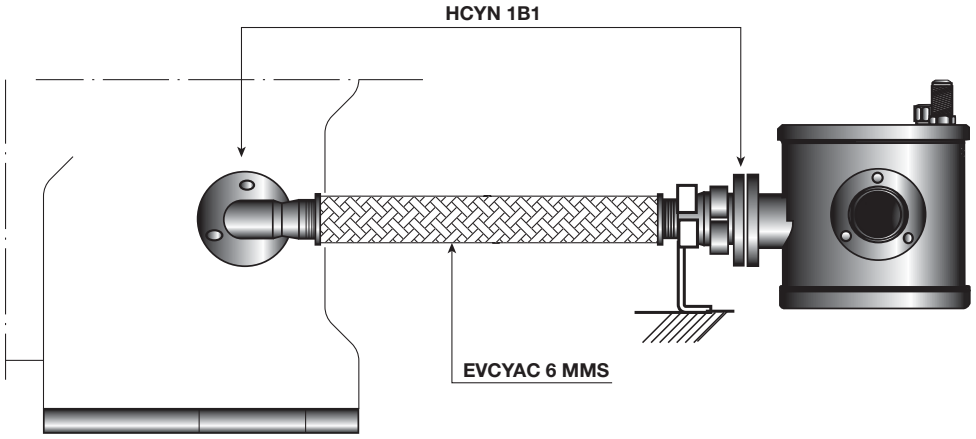
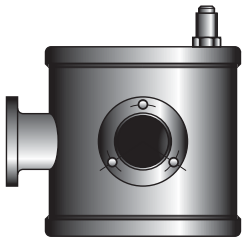
■ Recommendations

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.



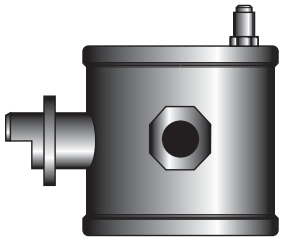
Example of anti-vibration mounting of the **HCYN** oil level regulator containing:
2 **HCYN 1B1** + 1 **EVCYAC 6 MMS**

■ Technical features



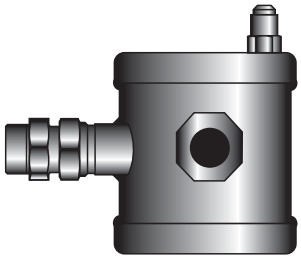
HCYN 2

- 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.



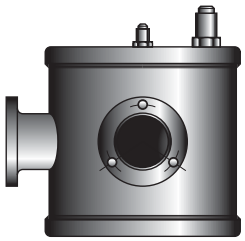
HCYN 2BO (BITZER OCTAGON ; SCROLL MANEUROP ; BOCK HG et HA 12.22.34 - FK 30.40.50.)

- 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.

Mechanical oil level regulators

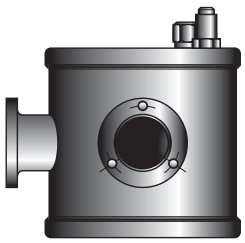
→ HCYN

■ Technical features



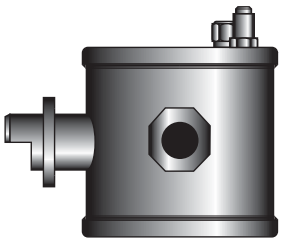
HCYN 2E (with equalization)

- 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.



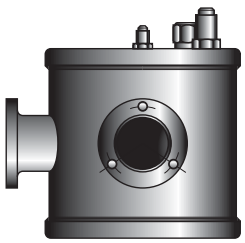
HCYN 2R (Adjustable between the quarter and the half-glass)

- 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.



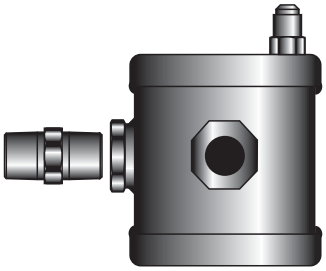
HCYN 2RB BITZER (4G-4H-4J-6F-6G-6H-6J) (Adjustable between the quarter and the half-glass)

- 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.



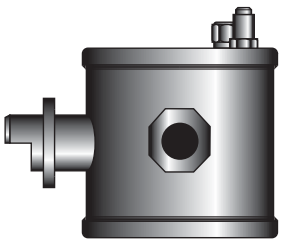
HCYN 2RE (Adjustable between the quarter and the half-glass with egalization)

- 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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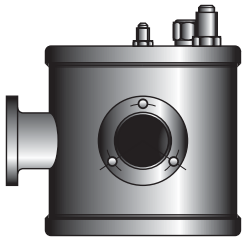
■ Technical features



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

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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

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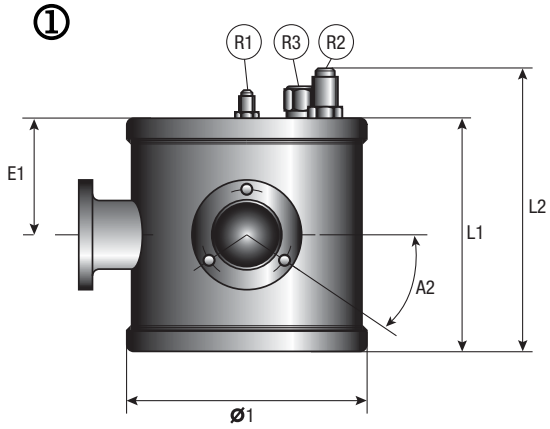

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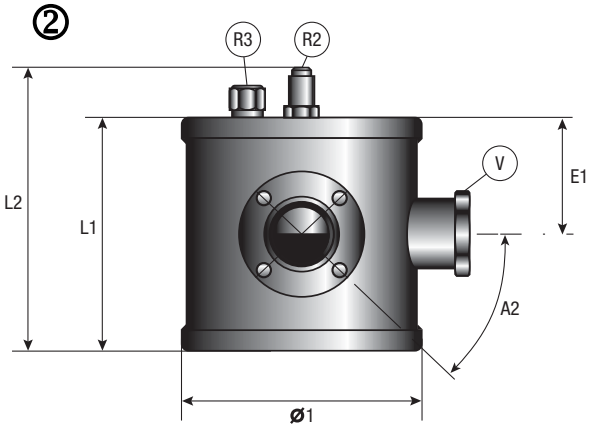
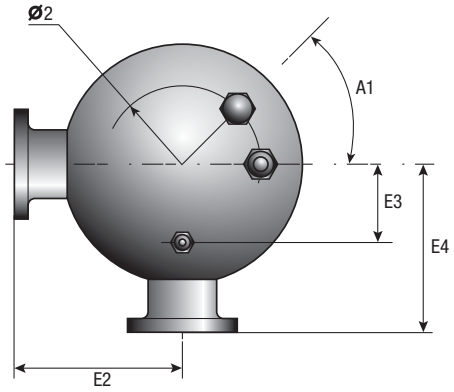
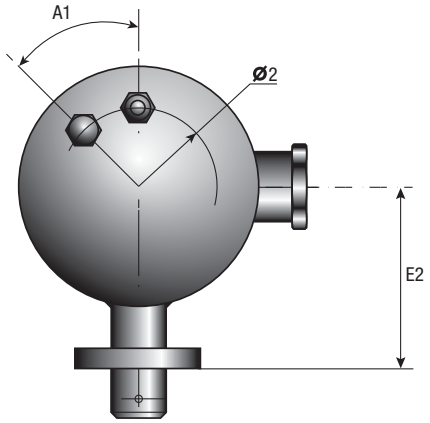


R1 : 1/4" SAE connection, pressure equalization line
R2 : 3/8" SAE connection, oil inlet
R3 : Oil level adjusting screw

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



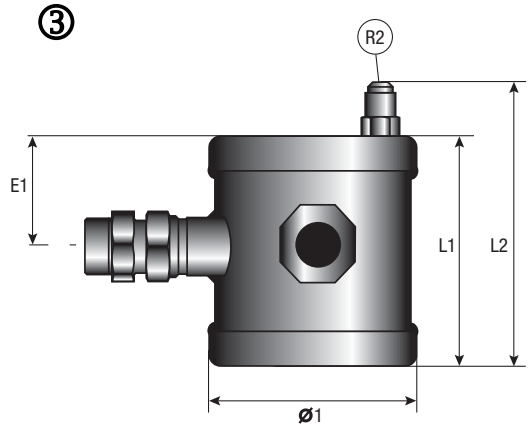


Mechanical oil level regulators

→ HCYN

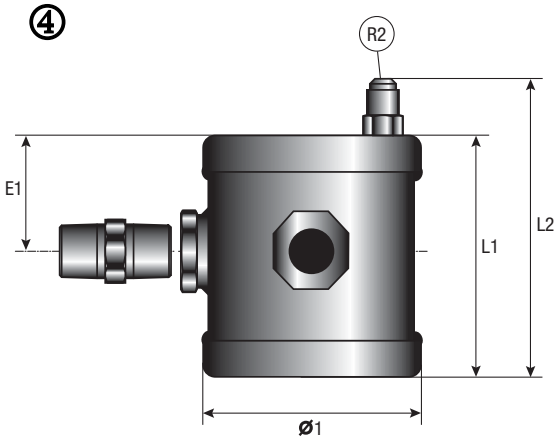
■ Technical features

③

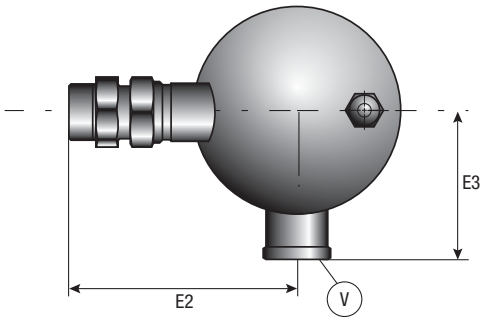


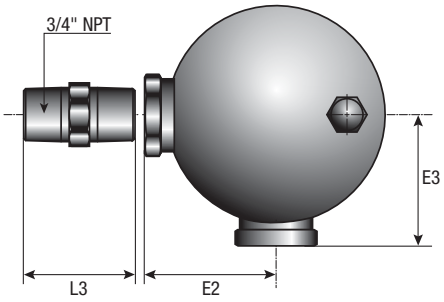
R2 : 3/8" SAE connection, oil inlet
V : Oil sight glass

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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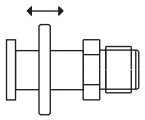
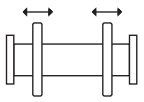
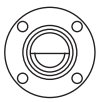
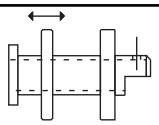
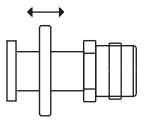
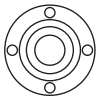
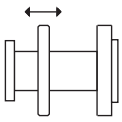
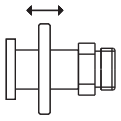
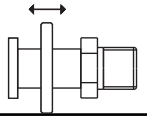
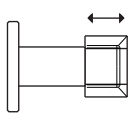
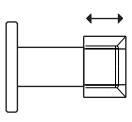
■ Technical features

• 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		

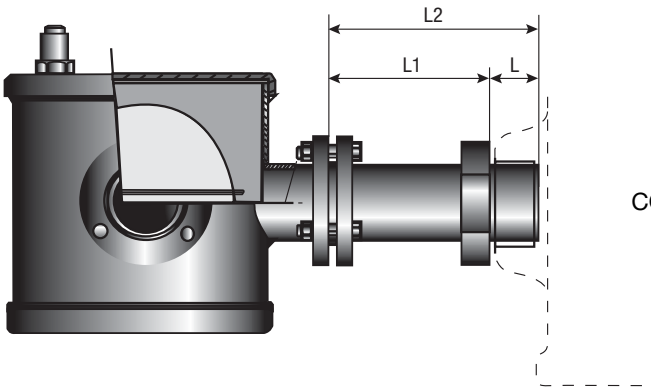
See tables page 48-12 and 48-13 for regulators ans compressors association.

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

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→ HCYN

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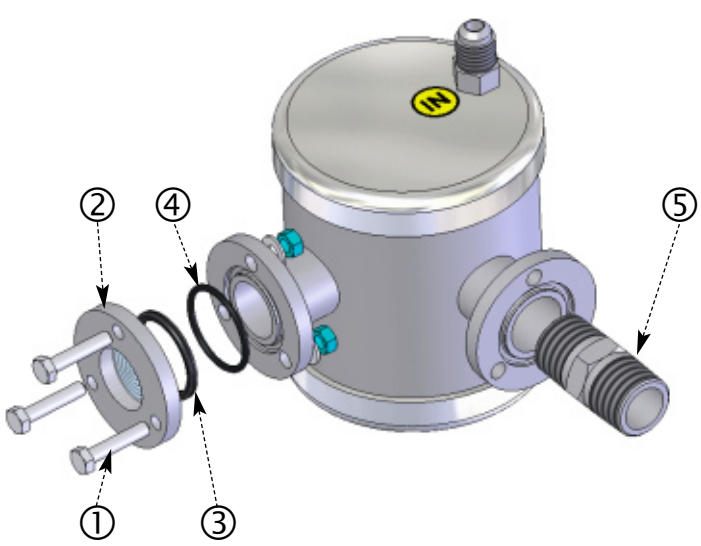
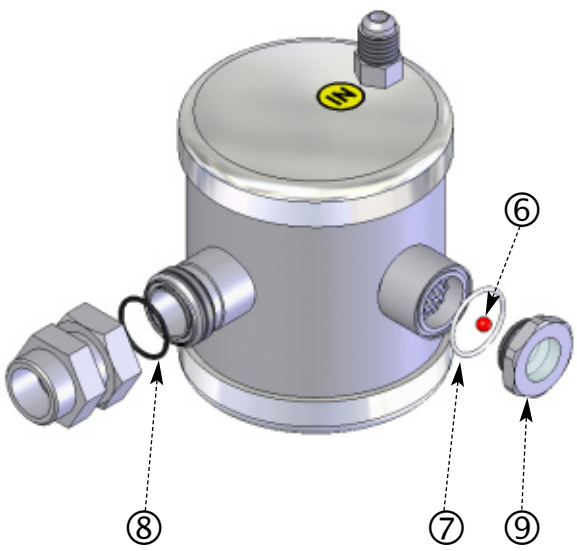
■ Spare parts

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

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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		(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, Z0	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

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Oil level regulators and adapters

→ HCYN AND 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		(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 holes in Diam. 47,6mm	**HCYN 2**	HCYN 2 + HCYN 1A3	ELECTROIL	HCYN 3RE	HCYN 2R, HCYN 2RE	HCYN 2E, HCYN 2RE
	K (8 CYL)	3 holes in 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 holes in 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 holes in Diam. 47,6mm	**HCYN 2**	HCYN 2 + HCYN 1A3	ELECTROIL	HCYN 3RE	HCYN 2R, HCYN 2RE	HCYN 2E, HCYN 2RE
	W	3 holes in 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	**All compressors with sight glass**	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
PRESTCOLD	**PK, PL**	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
	P	3 holes in Diam. 47,6mm	**HCYN 2**	HCYN 2 + HCYN 1A3	ELECTROIL	HCYN 3RE	HCYN 2R, HCYN 2RE	HCYN 2E, HCYN 2RE
	P8, P08	3 holes in 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
REFCOMP	**SP**	3 holes in Diam. 47,6mm	**HCYN 2**	HCYN 2 + HCYN 1A3	ELECTROIL	HCYN 3RE	HCYN 2R, HCYN 2RE	HCYN 2E, HCYN 2RE
	SP (8 cyl)	3 holes in 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	**All compressors with sight glass**	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 holes in 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 holes in 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	/