

REFRIGERATING SYSTEM PROTECTORS

LIQUID INDICATORS & MOISTURE/LIQUID INDICATORS

APPLICATIONS

The liquid indicators and moisture/liquid indicators ensure fast, safe inspection of the refrigerant fluid conditions in the liquid circuit in terms of its regular flow and the presence of moisture. They are designed for installation on commercial refrigeration systems and on civil and industrial air conditioning plants.

These indicators are considered "Pressure Accessories" according to the definition provided in Article 2, Point 5 of the Directive 2014/68/EU (PED Recast) and are subject to the classification indicated in Article 4, Points 1.c) and 3 of the same Directive.

They can be installed on systems that use the following refrigerant fluids:

- HFC (R134a, R32, R404A, R407C, R410A, R507)
- HFO, HFO/HFC mixtures (R1234yf, R1234ze, R448A, R449A, R450A, R452A, R452B, R454A, , R454B, R454C, R455A, R513A, R515A, R515B)
- HC (R290, R600, R600a, R1270)

belonging to Group 1 and 2, as defined in Article 13, Chapter 1, Point (a) and (b) of Directive 2014/68/EU, with reference to EC Regulation No. 1272/2008.

For specific applications with refrigerant fluids not listed above, please contact Technical Department.

Note: The indicator in series GJFD are excluded from the scope of application of Directive 2014/68/EU as they are piping components. These indicators cannot be installed on systems that use HCFC (R22) refrigerant.

OPERATION

The moisture/liquid indicators consist of a sensitive ring element that changes colour, from green to yellow, according to the percent moisture in the system.

The moisture content values that correspond to the "green" colour can be considered admissible for the proper operation of the system. When the sensitive element starts to yellow, "Chartreuse green", the threshold value has been reached and operating conditions could become difficult. When the sensitive element becomes "yellow", it's time to replace the filter drier.

If the charge and operating conditions of the plant are normal, the refrigerant fluid appears perfectly liquid underneath the "lens" of the indicator. The presence of bubbles indicates that the refrigerant fluid is partially evaporating along the liquid line.

CONSTRUCTION

The moisture/liquid indicators in series GJFD are manufactured in a sealed hermetic unit to avoid any possible refrigerant leaks.

The glass "lens", with suitable gasket, is housed inside the brass body and is fixed in its seat with an edge caulking operation. The main parts of these indicators are made from the following materials:

- Hot forged brass EN 12420 – CW 617N for the body
- Copper tube EN 12735-1 – Cu-DHP for solder connections
- Glass for lens
- PTFE for outlet gaskets

Liquid/moisture indicators in series GJFD are manufactured with the glass "lens" directly fused onto a steel metallic ring, with proper surface protection. This metallic ring, screwed on the indicator body, is equipped with a gasket of hydrogenated nitrile butadiene (HNBR).

INSTALLATION

At start-up, the colour of the sensitive element may be yellow, due to exposure to air humidity or due to moisture in the circuit. When the moisture of the refrigerant is returned to acceptable levels by the filter drier, the indicator colour turns green again. This is evidence that equilibrium has been re-established. If the yellow colour persists, measures must be taken to eliminate moisture. Only when the sensitive element turns green again, is there evidence that measures adopted were effective.

About 12 hours of system operation are required to achieve equilibrium. In any case, the moisture indication is usually read when the plant is in function and the fluid is flowing. Brazing of the indicators with solder connections should be carried out with care, using a low melting point filler material (min. 5% Ag). Avoid direct contact between the torch flame and the indicator body or glass, which could be damaged and compromise the proper functioning of the indicator.

APPROVALS

The liquid indicators in series GJFD are approved by the American certification authority, Underwriters Laboratories Inc. These indicators are certified **UL Listed** for the USA with file SA33318, in compliance with American standard UL 207.



General characteristics of liquid / moisture indicators

Catalogue Number	Type	Connections					PS [bar]	TS [°C]		Risk Category according to PED Recast
		SAE Flare	ODS		for pipe			min.	max.	
			Ø [in.]	Ø [mm]	Ø [in.]	Ø [mm]				
GJFD1002A	male - male	1/4"	-	-						
GJFD1003A		3/8"	-	-						
GJFD1004A		1/2"	-	-						
GJFD1005A		5/8"	-	-						
GJFD1006A		3/4"	-	-						
GJFD1112A		brazing	-	1/4"	-					
GJFD1123A	-		3/8"	-						
GJFD1210A	-		-	10						
GJFD1212A	-		-	12						
GJFD1104A	-		1/2"	-	-	-	50 (1)	-40	+120	Art. 4.3
GJFD1105A	-		5/8"	16						
GJFD1218A	-		-	18						
GJFD1106A	-		3/4"	-						
GJFD1107A	-		7/8"	22						
GJFD1109A	-		1.1/8"	-						
GJFD1002B	male - female	1/4"	-	-						
GJFD1003B		3/8"	-	-						
GJFD1014B		1/2"	-	-						
GJFD1015B		5/8"	-	-						

(1) : MWP = 500 psi according to UL approval

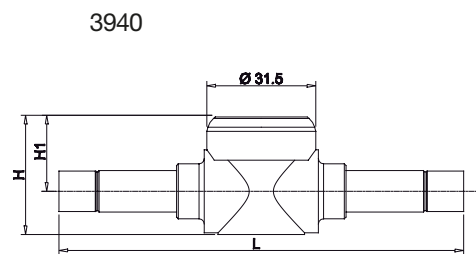
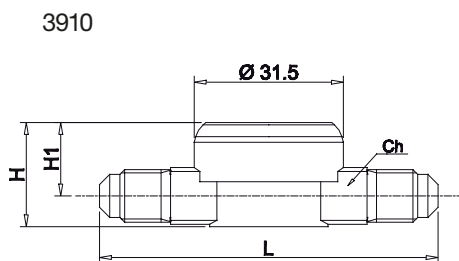


TABLE 3: Dimensions and weights

Catalogue Number	Dimensions [mm]				Weight [g]	
Moisture Liquid Indicators	H	H1	L	Ch		
GJFD1002A	22	16,5	71,5	12	110	
GJFD1003A	26,5	17,5	77,5	17	150	
GJFD1004A	30	18,5	81,5	22	196	
GJFD1005A	34	21,5	89,5	24	238	
GJFD1006A	37,5	23,5	90	28	298	
GJFD1112A	22	15,5	113	-	116	
GJFD1123A	34	21,5	117		-	185
GJFD1210A						
GJFD1212A						
GJFD1104A						
GJFD1105A						
GJFD1218A	34	21,5	131		-	195
GJFD1106A						
GJFD1107A	37,5	23,5	151		-	306
GJFD1109A	43,5	26	186		-	501
GJFD1002B	26,5	17,5	68	17	140	
GJFD1003B	30	18,5	74	22	185	
GJFD1014B	34	21,5	77	24	231	
GJFD1015B	37,5	23,5	82	28	288	

