

Moisture Indicator with "true hermetic" design

Traditional Moisture Indicators have been brass based products which require the use of gaskets to establish the seal between the body and the glass. The MIA series utilizes pioneering manufactures techniques to provide a fully hermetic product without the use of any gaskets.

Features

- Fully hermetic
- Lower Pressure drop
- Corrosion free stainless steel body
- Crystal Indicator element for long lifetime and reliability
- Easily determination of moisture content
- Sensitive indicator with calibrated four colors. Conforms to requirement of most compressor manufacturers (see Asercom statement Oct-01, 2001 in www.asercom.org)
- Large clear viewing area
- Lightweight (only 60g MIA 014)
- ODF extended tube configurations suitable for all commercial applications
- For R 22, R407C, R 134a, R 404A, R410A & R507, (R744 sub-critical) together with Mineral- and POE oils
- Eliminates the need of "wet ragging" during installation
- UL certified for Canada, see SA 4876 (except for MIA-078)

Description

As the use of advanced and alternative refrigerants increase, the need for reducing the effects of global warming also increase. By using pioneering manufacturing techniques, Alco Controls has developed the MIA series which is the first truly hermetic Moisture Indicator, creating a new standard within the industry.

Design

Utilising one continuous process, the glass viewing section and copper extension tubes are fused to the stainless steel body creating a fully hermetic seal. Furthermore by using advanced materials, the MIA becomes free from corrosion whilst having the benefits of becoming lightweight when compared to traditional brass based products. The MIA series also takes advantage of the different thermal conductivity between Stainless steel and copper. Thus under normal circumstances, the MIA can be brazed into a system without the need of "wet ragging". A feature such admired by the industry for saving installation time and costs.

Technical Data

Maximum working pressure PS:	45 bar
Burst pressure	225 bar
Test pressure	49.5 bar
Medium compatibility	CFC, CHFC, HFC Mineral-, Alkyl Benzene and POE oils (not released for use with caustic, poisonous or flammable substances)
Operating temperature TS:	-40 to 100 °C
Standards:	EN 12178; UL certified for Canada, see SA 4876 (except for MIA-078)



MIA
Moisture Indicator

Indicator

Where many products in the market use insensitive paper indicators, Alco has retained the long established moisture indicator used in the existing AMI series because of its known advantages. This guarantees system performance by providing a sensitive and durable monitoring of the systems moisture content, enabling the indicator to react to minimum moisture level of 50 ppm specified by leading compressor manufacturers (see asercom statement Oct-01, 2001 www.asercom.org).

With the new designed reference color scale it has become easier to determine all moisture levels by matching the element colour with the four colors on the reference label.

The crystal indicator element is chemically engineered for long life accuracy and reliability. It is highly resistant to damage by free water or motor burnout contaminants and has proved to be more durable than traditional paper type indicators. It is therefore not necessary to exchange the indicator after exchange of filter drier.

The element gradually changes color in relation to changes of the systems moisture content as indicated in the table.

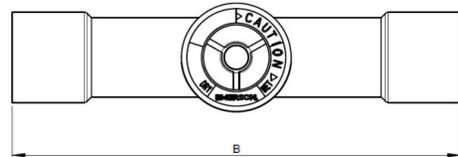
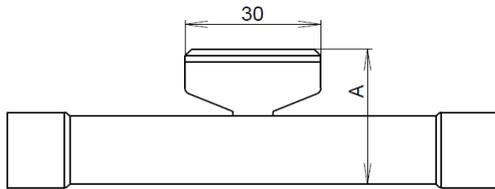
Installation location	in any position
Connections	ODF extended copper tubes, solder connections only
External leakage (100%-production tested with Helium- Spectrometer)	5,0x10-6 mbar.l/sec = 4,9x10-6 cc/sec
Pressure drop	negligible

Determining the Moisture Content with the Color Code

Refrigerant	Liquid temperature °C	Moisture content in mg Water per kg refrigerant (ppm)			
		blue	purple	fuchsia	rose
		Dry		Caution	Caution wet
R22	25	25	40	80	145
	38	35	65	130	205
	52	50	90	185	290
R404A / R507	25	15	33	60	120
	38	25	50	110	150
	52	45	60	140	180
R134a	25	20	35	90	130
	38	35	55	120	160
	52	50	85	150	190
R407C	25	26	42	94	151
	38	40	68	144	232
	52	64	109	230	371
R410A	25	30	50	110	165
	38	55	85	190	290
	52	75	120	270	420
R744	-40	3	5	10	16
	-20	6	10	20	32
	-10	8	14	29	46
	0	11	19	39	63
	5	13	22	46	75
	20	20	34	72	116

In area "Caution" and "Caution wet" filter drier should be changed.

Selection and Dimensions (not to scale)



Type	Part No.	for tube outside Ø	Height A (mm)	Length B (mm)	Weight (g)
MIA 014	805 883	1/4"	25,7	98,0	60
MIA 038	805 884	3/8"	28,5	109,0	70
MIA 012	805 885	1/2"	31,8	113,0	75
MIA M16 /058	805 886	5/8"	31,8	108,5	85
MIA 078	805 887	7/8"	37,8	122,5	150
MIA 118	805 892	1 1/8"	43,5	122,5	190

Type	Part No.	for tube outside Ø	Height A (mm)	Length B (mm)	Weight (g)
MIA M06	805 880	6 mm	25,9	98,0	60
MIA M10	805 881	10 mm	28,5	109,0	70
MIA M12	805 882	12 mm	28,5	113,0	75
MIA M28	805 891	28 mm	43,5	122,5	190
MIA M10 S Female/Male	805 888	10 mm	28,7	119	75
MIA M12 S Female/Male	805 889	12 mm	28,5	113	75

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products are designed and adapted for fixed locations. For mobile applications failures may occur. The suitability for this has to be assured from the plant manufacturer which may include making appropriate tests.

This document replaces all earlier versions.