

MCS Series

Metallic Contamination Sensor



Description

The Metallic Contamination Sensor MCS 1000 detects metallic solid particle contamination in lubrication fluid. The particles are determined according to the inductive measurement process, in which a coil system is the key element of the sensor. Metallic particles (ferromagnetic Fe and nonferromagnetic nFe) in the > 70 µm size range are detected.

The MCS 1000 continuously monitors the status of the system and gives information on imminent gear unit damage. This makes the sensor a reliable instrument for status-oriented maintenance.

Features

- Early detection of imminent gear unit damage
- Prevention of expensive plant downtime
- Optimal supplement to optical sensors
- Measurement of metallic particles (ferromagnetic and non-ferromagnetic) > 70 µm
- Measurement result is not affected by air bubbles or liquid contamination in the liquid

Applications

- Wind Turbines
- Marine Thrusters
- Industrial Gear Boxes
- Mobile Drive Systems
- Lubrication Systems
- Flushing Systems
- Test Stands

Technical Specifications

General Data	
Ambient temperature	-40 to 158°F (-40 to 70°C)
Diameter sensor cross-section	MCS1310 = 1/4" (6.35mm) MCS1410 = 1/2" (12.7mm) MCS1510 = 1" (25.4 mm)
Protection class to DIN 40050	IP 67
Weight	approx. 8 lbs (3.5 kg)
Dimensions (L x W x H)	3.3" x 6.4" x 5.5" (83 x 162 x 140 mm)
Vibration	10 - 58 Hz 58 - 500 Hz
	0.75 mm (amplitude) 10 g (acceleration)
Shock	40 g
Hydraulic Data	
Flow rate	Up to 200 l/min
Operating pressure	20 bar max.
Fluid temperature range	-40 to 185°F (-40 to 85°C)
Inlet / Outlet	Flange connection, SAE 4" according to ISO 6162-1
External Electrical Data	
Supply voltage	9 ... 36 V DC, residual ripple < 10%
Power consumption	5 W max.
Internal Electrical Data	
2 Configurable switching outputs (<i>n-switching Power MOSFET, normally-open</i>)	1 x Ferromagnetic particles (Fe) 1 x Non-ferromagnetic particles (nFe) or 1 x Ferromagnetic particles (Fe) + Non-ferromagnetic (nFe) 1 x Status signal
Alarm relays capacity	1.5 A max.
RS485 interface	2 wire, half duplex
HSI interface	1 wire, half duplex
Detection limits	
Ferromagnetic (Fe) particles	MCS1510 = > 200 µm MCS1410 = > 100 µm MCS1310 = > 70 µm (particle with volume equivalent to that of a sphere with given Ø)
Non-Ferromagnetic (Fe) particles	MCS1510 = > 550 µm MCS1410 = > 300 µm MCS1310 = > 200 µm (particle with volume equivalent to that of a sphere with given Ø)

We do not guarantee the accuracy or completeness of this information. The information is based on average working conditions. For exceptional operating conditions please contact our technical department. All details are subject to technical changes.

The diagram illustrates the structure of the MCS 1510-5000 model number, breaking it down into its constituent parts and their meanings:

- Series:** MCS = Metallic Contamination Sensor
- Model:** 1 = 1000 Series
- Contamination Code:**
 - 3 = particles > 70 µm
 - 4 = particles > 100 µm
 - 5 = particles > 200 µm
- Options:**
 - 1 = Standard (Switching Outputs/HSI)
 - 2 = modbus/RS485
 - 7 = TCP/Ethernet
- Fluids:** 0 = Mineral and synthetic oils (particularly used in wind power industry)
- Hydraulic connection:**
 - 1 = Flange Connection, SAE 1/2" according to ISO 6162-1 (*only for MCS13xx*)
 - 2 = Flange Connection, SAE 3/4" according to ISO 6162-1 (*only for MCS14xx*)
 - 5 = Flange connection, SAE 4" according to ISO 6162-1 (*only for MCS15xx*)
- Electrical Installation:** 0 = Standard
- Modification number:** 000 = Standard

The final assembled model number is: **MCS 1510-5000**.

- MCS 1000
- O-ring (47.22x3.53 NBR 70 Shore)
- O-ring (110.72x3.53 NBR 70 Shore)
- Operating and maintenance instructions

- SAE 4" Flange adaptor set for pipe or hose connection, 42L according ISO 8431-1 Consisting of: 2x Flange adaptors, 2x O-rings, 8x Cylinder screws, 8x Washers, 8x Spring washers, P/N: 3435426
- Flange adaptor plate, SAE 4" – SAE 1½", P/N: 3442518
- Socket plug (female) with 6.5 ft. (2 m) line, shielded, 8-pole, M12x1, P/N: 3281220
- Socket plug (female) with 16.4 ft. (5 m) line, shielded, 8-pole, M12x1, P/N: 02702459
- Extension cable 16.4 ft. (5 m), Socket plug (female) 8-pole, M12x1 / Socket plug (male) 8-pole M12x1, P/N: 3281240
- Socket plug with screw clamp, 8-pole, M12x1, P/N: 3281243

MCS with accessory flange adaptor set (optional)

