Metallic Contamination Sensor Series

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

- Usable with FluMoS Mobile App when connected to the CSI-C-11

Description

The TestMate® Metallic Sensor TMS 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 TMS 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.

Gear boxes for wind energy
Paper machine bearings

Applications

- Gear boxes for wind energy
- Paper machine bearings

Technical Details

<table>
<thead>
<tr>
<th></th>
<th>TMS-1</th>
<th>TMS-2</th>
<th>TMS-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow Rate</td>
<td>2.6... 52.8 gpm (10... 200 l/min)</td>
<td>0.5... 10.6 gpm (2... 40 l/min)</td>
<td>0.1... 2.1 gpm (0.4... 8 l/min)</td>
</tr>
<tr>
<td>Diameter sensor cross-section</td>
<td>1&quot; (25.4 mm)</td>
<td>1/2&quot; (12.7 mm)</td>
<td>1/4&quot; (6.3 mm)</td>
</tr>
<tr>
<td>Ferromagnetic (Fe) particles</td>
<td>&gt; 200 µm</td>
<td>&gt; 100 µm</td>
<td>&gt; 70 µm</td>
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<td></td>
<td>Particle with volume equivalent to that of a sphere with given Ø</td>
<td></td>
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<tr>
<td>Non-ferromagnetic (nFe) particles</td>
<td>&gt; 550 µm</td>
<td>&gt; 300 µm</td>
<td>&gt; 200 µm</td>
</tr>
<tr>
<td></td>
<td>Particle with volume equivalent to that of a sphere with given Ø</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Particle Rate</td>
<td>&gt;25/s</td>
<td>&gt;25/s</td>
<td>&gt;25/s</td>
</tr>
</tbody>
</table>

Comparison

- Usable with FluMoS Mobile App when connected to the CSI-C-11

Compatible Product

- CSI-C-11

SCHROEDER INDUSTRIES  65
Metallic Contamination Sensor Series

**TMS-1**
Flange connection, SAE 4" according to ISO 6162-1

**TMS-2**
With accessory flange adaptor for pipe or hose connection 42L to ISO 8431-1

**TMS-3**
Flange connection, SAE ½" to ISO 6162-1

Dimensions are for general information only, all critical dimensions should be verified by requesting a certified print.

Metric dimensions in ( ).
## Specifications

**General Data:**
- **Ambient Temperature:** -40°F to 158°F (-40°C to +70°C)
- **Diameter Sensor Cross-section:** up to 1” (25.4 mm)
- **Protection Class to DIN 40050:** IP 67
- **Weight:** approx. 8 lbs. (3.5 kg)
- **Dimensions (L x W x H):** 3.27” x 6.38” x 5.5” (83 x 162 x 140 mm)
- **Vibration:**
  - 10 - 58 Hz: 0.75 mm (amplitude)
  - 58 - 500 Hz: 10 g (acceleration)
- **Shock:** 40 g

**Hydraulic Data:**
- **Flow Rate:** 2.6 to 53 gpm (10 to 200 l/min)
- **Operating Pressure:** 290 psi (20 bar)
- **Fluid Temperature Range:** -40°F to 185°F (-40°C to +85°C)
- **Inlet/Outlet:** Flange connection, SAE 4” according to ISO 6162-1

**External Electrical Data:**
- **Supply Voltage:** 9 - 36 VDC, residual ripple < 10%
- **Power Consumption:** 5 W max.

**Internal Electrical Data:**
- **2 Configurable Switching Outputs:**
  - 1 x Ferromagnetic particles (Fe)
  - 1 x Non-ferromagnetic particles (nFe)
- **Outputs:**
  - 1 x Ferromagnetic particles (Fe) OR Non-ferromagnetic particles (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:**
- **Particle Count:** >25/s

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### How to Build a Valid Model Number for a Schroeder TMS:

<table>
<thead>
<tr>
<th>BOX 1</th>
<th>BOX 2</th>
<th>BOX 3</th>
<th>BOX 4</th>
<th>BOX 5</th>
<th>BOX 6</th>
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</thead>
<tbody>
<tr>
<td>TMS</td>
<td>1</td>
<td>S</td>
<td>F</td>
<td>1</td>
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</tbody>
</table>

Example: **TMS11SF1**

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### What’s Included
- TMS
- O-ring (47.22 x 3.53 NBR 70 Shore)
- 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
- Flange adaptor plate, SAE 4” - SAE 1-1/2”

### Available Accessories
- Socket plug (female) with 3 m line, shielded, M12x1, 8 pole (Description: TCM-C-3M, PN 7632009)
- Socket plug with screw clamp, M12x1, 8 pole

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**Model Number Selection**