The MIDAS ferrous metal debris monitor
(Manor Inductive Debris Analysis System)

Background

Condition Based Maintenance, as part of a modern predictive maintenance strategy is increasingly important in improving reliability of plant and machinery. A wide range of monitoring techniques exists with the potential to dramatically reduce costs and increase profits. Of these techniques Lubricant Monitoring, or Oil Analysis offers a unique and direct means to assess machine or plant condition with a minimum of operator effort and experience. By taking regular oil or fluid samples, any wear present can be trended and any deviation from the normal pattern detected (and then corrected) at an early stage. Wear debris monitoring is of special value in detection of emerging problems in applications where vibration analysis, thermography or other indirect monitoring may lack sensitivity. Its value is compounded when used along with other approaches to gain a more complete insight into operating conditions.

Manor Technology has introduced The MIDAS free standing oil sample based ferromagnetic metal debris analyser, to facilitate ferrous debris analysis. The rapid and simple operation of MIDAS is accompanied by supreme sensitivity. MIDAS' cost effective operation enables routine on-site ferrous debris monitoring, and is also a valuable instrument for precision specialist CM laboratory work.

How it works

Operation is based on a special inductive sensor and matching custom electronics with a unique, US & UK patented, combination of features. These guarantee uniquely stable and repeatable measurements, essential for meaningful wear data trending at a sufficiently early stage.

Key Features & applications

- ☑ Avoid unpredicted failures; facilitate planned maintenance
- ☑ Monitor system commissioning ('break in')
- ☑ Assess filter performance and integrity
- ☑ Supremely simple to use, small sample volume
- ☑ Lightweight, robust and portable
- ☑ Calibration independent of base fluid used
- ☑ Data to Reliability Centred Maintenance programmes
- ☑ Throughput of 10 samples per minute achievable
- ☑ Excellent price / performance

Main Specifications

Sensitivity (ferrous)	Concentration down to 1 microgram / ml
Range maximum	2 mg / ml
Repeatability	<+ / - 1 count typical
Sample size	2 ml in plastic micro-tube
Display	3.5 digit LCD with HOLD
Power supply	External 12 V dc supply @ 50 mA, or battery pack
Temperature range	10 to 55 °C operating (-20 to 70° storage)
Dimensions	80 H, 110 W, 150 D (mm)
Weight	980 g (MIDAS unit only)

Operation

MIDAS provides repeatable and accurate determination of ferromagnetic material concentration down to unprecedented levels. It provides a mass proportional output from any size of ferrous contaminant particles down to less than 1 micrometre diameter. A lubricant sample is placed in a standard 2ml laboratory sample tube. A debris reading is taken by simply dropping the plastic sample tube into the sensor opening of the unit and reading the updated display.

Calibration

MIDAS' response is proportional to mass of ferrous material present.
Particle size does not affect the measurement (in contrast to spectrometric methods)
Readings are unaffected by properties (dielectric) of fluid base or additive package, or water content.
The linear response to mass of ferrous metal of MIDAS permits the straightforward presentation of readings in mass / volume standard units, i.e. *mg Fe per litre*, or PPM.

Kit contents

MIDAS is supplied in a protective foam lined plastic case.
Complete with operating instructions, 12Vdc universal mains adaptor and a calibration check tube.
Ready to use with 100 empty sample tubes. Additional tubes are readily available from stock.

Visit website for latest information. Quantity discounts available.

www.manortec.co.uk