SmartOil M™

Safe, Accurate, Autonomous, LIVE Sampling of In-Service Oils & Coolants.

LUBRICATION ENGINEERING

SmartOil M™

The SmartOil™ M is the world's first and most advanced fully autonomous fluid sampling device that enables the collection of live fluid samples from machinery without direct contact with the fluid system.

- All SmartOil M units feature sensors that monitor oil pressure and temperature in real-time.
- Each unit is pre-programmed with the parameters of the oil to be sampled.
- Using proprietary algorithms, the integrated edge processor in each unit, calculates the required time for the sample valve to remain open to ensure the correct sample volume is collected every time.
- Each unit is programmed by the user for their required sample interval, IE: operating hours or calendar date.
- Bluetooth® versions are available that enable users to remotely trigger the sampling events using smart devices and a free proprietary app.

SmartOil™ M Improves Safety

People interacting with live machinery has always been a critical safety issue within all industry sectors and the taking of oil samples from live equipment remains a critical risk for both the employer and employee.

The extraction of fluid samples from machinery has not changed much since its inception. Naturally, there have been incremental improvements to sampling tools, equipment, and the overall understanding of the importance of fluid monitoring however, today's methods still rely on people interacting with live equipment.

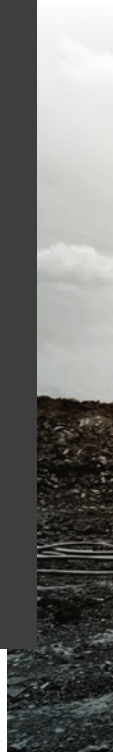
Currently people are placed in potentially hazardous environments including but not limited to:

Entanglement & Crushing

Stored Energy Release

Vehicle Movement

The SmartOil M unit addresses these concerns by removing people from the task. Samples are taken automatically at timed intervals or remotely via the free SmartOil app installed on a suitable smart device.



SmartOil™ M Improves Sample Accuracy

Fluid analysis is integral to monitoring the health of machinery compartments and the fluid itself. Without accurate data, the money spent on fluid analysis programs is simply wasted. Even more alarming are the engineering decisions that may be made based on poor or misleading results, adding unnecessary costs to your business.

The accuracy of any fluid sample being analysed has always relied on two primary control measures being maintained.

- The method of extraction
- The location of extraction

By far, the method of extraction, has had the biggest impact on the accuracy of sample results.

This issue is primarily caused by a combination of the following:

- Inadequate staff training
- Variability of sampling technique
- Variability of people obtaining the sample

Any of these will directly impact the accuracy of the analysis results.

The SmartOil M unit solves these problems because people are no longer involved in the sample extraction. All fluid samples are now obtained completely autonomously, leaving technicians only needing to collect full sample bottles ready for shipment to the laboratory. This can be done during maintenance periods, inspections, refuelling events or any other time that the machine can be safely accessed.

How does SmartOil™ M Work?

All SmartOil M unit versions feature internal sensors that continually monitor oil pressure and temperature. Each unit is pre-programmed with the parameters of the oil to be sampled on your machine or compartment. Using proprietary algorithms, the integrated edge process in each unit, calculates the required time for the sample valve to remain open to ensure the required sample volume is taken every time, no matter the conditions.

Each unit is programmed by you, the end user, for the required sample interval, IE: operating hours or calendar hours. Versions are also available with Bluetooth wireless functionality that enables users to remotely trigger a sampling event using a compatible smart device and the free proprietary app.

SAFE, Hands-free LIVE Sample Collection

Automated sample collection removes operators, mechanics and technicians from the dangers of collecting fluid samples from LIVE systems, saving valuable time while preventing potentially fatal accidents.

In-Service Lubricant Sample Collection

Automated sample collection of in-service fluids ensures Reliability Engineers and Condition Monitoring Specialists collect fluid samples that are truly representative of the current equipment condition.

Accurate, Trendable, Data Driven Decisions

Contaminate-free, in-service fluids collected at precise sample interval periods provides fluid analysis labs with high integrity samples from which to generate reliable data useful in basing data driven decisions condition.

COMMON FEATURES TO ALL VERSIONS

- Fully automated single bottle sample collection
- User-programmable sample interval
- Localised manual sample button
- Wireless Bluetooth® user interface
- Options for side and rear fluid path connection
- 24VDC power supply
- Multiple compliance approvals
- Stainless steel and aluminium construction (Full stainless steel available)
- IP67 Environmental rating
- Standard operating pressure of up to 68 Bar (Up to 207 Bar for full stainless)
- Fully upgradable

M1 FEATURES

M1 is the entry level product within the M-Series range

- Hands-free LIVE sample collection of in-service fluids such as engine oils, coolants, gearbox and hydraulic oils

M1+ FEATURES

In addition to the common features

- Wireless Bluetooth® remote sample activation via a smart device
- Wireless Bluetooth® sample event history

M2 FEATURES

In addition to the common features

- Hard-wired output point to provide a real-time stream of internal sensor data
- Wireless Bluetooth® real-time stream of internal sensor data
- Wireless Bluetooth® sample event history

M3 FEATURES

In addition to the common features

- Advance and higher capacity edge processor
- Ability to add external sensor and data feeds into the device
- Wireless Bluetooth® sample activation via smart device*
- Wireless Bluetooth® remote sample event history*
- Hard-wired output point to provide a real-time stream of internal sensor data
- Wireless Bluetooth® real-time stream of internal sensor data*
- Wireless Bluetooth® sample event history*

*Requires iOS compatible device and the SmartOil™ App. Check with Lubrication Engineering for the latest on iOS compatibility

APPLICATIONS

- Engine Lubricants/Coolants
- Transmissions
- Steering/Brake Systems
- Hydraulic/Pneumatic Systems
- Final Drives/Hubs
- Compressors
- Pumps
- Gearboxes

INDUSTRIES

- Mobile Mining Fleets
- Mineral Processing Mills
- Off-road Heavy Construction
- Power Generation
- Pulp & Paper
- Oil & Gas
- Marine
- Rail

TECHNICAL DATA

ATTRIBUTE	RANGE	NOTES
Max. Operating Pressure	207 bar (3000 psi)	Version Dependant
Operating Temperature (Fluid)	-30 to 66 C	Standard
Fluid Viscosity	7.4 to 680 cSt	Standard
Wetted Fluid Path Materials (1 to 1000 psi)	Aluminium & Stainless Steel	Standard
Wetted Fluid Path Materials (1000 to 3000 psi)	Stainless Steel	Standard
Power Supply	+9 - 36 VDC	Standard
Back-up Power Duration (primary lithium battery)	6-Months	Standard
Connection - Fluid Path	Female thread - 1/4-19 BSPP (ISO 6149)	Standard
Connection - Electrical (power, control, data)	M12x1, 3-12 pole connectors, IP68 Rated	Standard
Permissable Fluids	Mineral based or Synthetic (oils, coolants)	Standard
Fluid Flow Rate (through device)	Controlled up to 1.51 lpm	Standard
Fluid Cleanliness Requirements	20/18/14	ISO4406
Sample Bottle Fill Volume	1 to 1000 ml	Options
User Interface Control	Bluetooth® w/SmartOilTM App (iOS)	Standard
Agency Certification	IP67, CE, FCC, EN 61326-1 CLASS A, EN 301 489-1, EN 61000-4, EN 55011	

LUBRICATION ENGINEERING

- **Quality**
- **Reliability**
- **Knowledge**

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