



**Drive  
Management  
Services**

# Engineering Reliability Specialists

**Products & Services Overview**





# About us

We are the  
**Engineering Reliability Experts**

**Founded by engineers in 2004, DMS has over 100 years engineering application experience throughout the business. We can claim many prestigious engineering organisations as long-standing clients. Based within the Advanced Manufacturing Park in Sheffield, we are very much at the heart of engineering innovation and the technologies of tomorrow.**

Our team of highly-skilled engineers work in close partnership with our clients to implement world-class predictive maintenance systems and services to improve their plant asset reliability. Our field-based experts will identify areas for plant improvement, while focusing on long-term sustainable plant reliability, resulting in clear demonstrated real-world operational efficiencies and cost savings.

## Our philosophy

It is our belief that many manufacturing organisations fail to maximise the operational efficiencies and cost savings that can be created by avoiding unnecessary stops in production. Instead focusing reactive techniques by repairing equipment after it has broken, or engaging in maintenance-induced failure of critical

components through invasive activity. It is generally stated that a 10% saving in maintenance costs equates to an increase of 40% in sales, we firmly believe a predictive maintenance approach should be supported and endorsed at all levels within any engineering organisation.

Through our products and services, we will assist you in:

- Providing transparency and clarity in the condition of critical plant assets
- Increasing the efficiency of plant assets
- Reducing unplanned downtime and loss of production
- Utilising maintenance personnel resources more productively
- Reducing costs associated with replacement and repair of equipment
- Reducing the risk secondary equipment damage
- Reducing damage and loss to work-in-progress



# Routine Based / Condition Based Monitoring



**Human senses**

**Our experienced engineers can conduct a visual and audible inspection of critical components to assess their condition.**



**Critical inspections**

DMS undertake site inspections of critical gearboxes in various industry sectors. These inspections are undertaken by engineers with over 100 years experience in gearboxes & power transmission. As part of these inspections DMS use boroscope cameras to enable us to take photographs and video footage from the inside of critical assets such as gearboxes, engine sets, etc. On completion of these inspections an in depth report is generated outlining our conclusions and recommendations.



**Static motor testing (motor current signature analysis)**

Our engineers utilise the latest handheld equipment and motor circuit analysis software for all static motor testing. The equipment can measure resistance (R), phase angle (Fi), current/frequency response (I/F), the impedance (Z) and inductance (L). We can detect potential winding faults in AC and DC motors, transformers (distribution and transmission), generators, alternators, and other devices with windings, phase faults, ground faults, broken rotor bars, and cable faults. Our equipment also enables us to undertake Electrical Signal Analysis (ESA) using the analytical power of the kit, for evaluating the entire motor system.



**Ultrasonic monitoring**

Utilising the latest ATEX approved ultrasound equipment our engineers can detect potential faults in the following areas; bearing damage, lubrication issues, compressed air leaks, pressure and vacuum leak detection, steam trap and valve testing, heat exchanger leaks, gear and gearbox bearings, electrical arcing, and electrical tracking.



**Thermography**

We utilise the latest infrared (IR) thermography camera technology to detect fluctuations in temperature that could indicate potential problems. It is an extremely powerful method of proactively monitoring and troubleshooting electrical, mechanical and structural systems which may have problems that remain undetected using standard visual inspection and diagnostic techniques.



**Vibration analysis**

Using signal analysis (FFT spectra) we can identify a number of potential fault conditions, including; imbalance, misalignment, bearings damage, mechanical looseness, structural looseness, gear damage, flow turbulence, resonance issues and electrical issues.



**Oil sampling and analysis**

Analysis can reveal information regarding the overall condition of the internal components of critical equipment, such as gearboxes, compressors, and hydraulic power packs. Lubricants are sampled and tested for the presence of contaminants such as water or other detrimental particles.



# Machine Guard Asset Minder

A revolutionary approach to condition-based monitoring

**A system that has been designed, tested and refined over the past twenty years to offer a truly remarkable, cost-effective solution to virtually every industry sector.**

The MachineGuard solution has been developed to identify potential mechanical failure within critical assets, enabling you to take necessary action before any costly problems occur.

From a single site to a global operation, MachineGuard powered by AssetMinder can provide the kind of all-encompassing protection your organisation needs. MachineGuard's core technology which originated in the highly-specialised aerospace and Formula 1 motorsport environments has helped save our clients literally millions of pounds in lost revenue due to unnecessary downtime.

We work closely with every client to identify their critical assets and outline the best way to apply the MachineGuard solution.

The easily installed Gateway can accept data from a wide variety of sensor types including our cutting-edge Bluetooth vibration and temperature sensors. Suitable for use on any critical rotating or reciprocating equipment – including gearboxes, electric motors, fans, pumps and much more. And because it's a wireless solution, installation is quick and efficient.

Streamlined access means any internet connected device can be used to monitor critical assets via the AssetMinder cloud-based platform, a powerful 24/7 managed monitoring system providing alerts that can be triggered using the format best suited to your business.

**Welcome to the power of predictive maintenance.**

- Accelerometers installed can be 4-20mA or raw signal AC type.
- Accelerometers can also be ATEX approved, side entry or top entry depending on the location and environment being installed.
- New Blue Tooth accelerometers, that will operate with our "MachineGuard" Asset Minder IoT4.0 platform.
- All systems supplied can communicate via various converters, such as Profinet and Profibus, and can be integrated into existing PLC / SCADA systems such as Siemens or Rockwell.

**Our fixed condition based monitoring systems are capable of measuring the following:**

- Vibration (velocity (mm/s) or acceleration ("g"))
- Temperature (oC)
- Oil condition & oil temperature (Tan Delta sensors)

## Fixed Condition Based Monitoring Systems

### Standalone / networked / web based

We have a suite of fixed continuous monitoring systems that continuously monitor the health of critical assets and equipment. Such systems and technology is much more accessible to businesses in terms of cost than ever before. Systems can be delivered as standalone, networked or web based, ensuring the client has total control and support.

Most systems have TFT touchscreens with an easy to navigate menu that enables users to set sampling periods, ranges and accuracy levels plus vibration threshold (alarm) levels on a channel-by-channel basis or across all channels.

In addition, these systems have multiple digital I/O channels, enabling them to be integrated with other systems, such as SCADA, PLC's, BEMS, etc.





# Lubrication / Oil Analysis

Lubrication is the life blood of any industrial production facility, it is reported that over 70% of all equipment failures are related to lubrication. We work with many leading companies throughout the UK to offer a complete lubrication services inspection, implementation and monitoring package.

## Inspect

Our team of lubrication experts carry out comprehensive inspections of critical assets such as hydraulic systems, gearboxes, and drive systems utilising bearings.

**As part of the inspection we can isolate and report on issues relating to:**

- Low levels or insufficient volume of lubricant
- Identifying incorrect or underperforming lubricants
- Establish leaks within any lubrication system
- Establish whether current procedures and schedules are optimal

## Implement

Following any inspection, we seek to implement a set of best practices within your business. This includes a lubrication procedure and plan that sets out by asset, lubrication type, required volume and establish suitable oil sample periods.

This even includes supporting you with labelling such as colour coded oil jugs and identification charts. We also assist you with the day-to-day

**implementation of any enhanced maintenance procedure, including:**

- Application of greasing
- Scheduled oil changes
- Oil sampling and reporting

## Oil sampling

Poor or inconsistent oil sampling practices can lead to misinterpretations in the analysis results. Our team of experts always follow established guidelines for sampling, and sample from the same point each time.

Our engineers are trained in taking effective oil samples and ensure that the correct data is supplied to the laboratory with each sample.

**Oil analysis can be divided into three categories:**

- analysis of oil properties including those of the base oil and its additives
- analysis of contaminants
- analysis of wear debris from machinery

# Tan Delta Oil Monitoring Sensors

## Tan Delta OQSx Oil Condition Monitoring Sensor

DMS are one of the early pioneers of this highly flexible and cost effective condition based monitoring solution. Designed to be permanently mounted within any lubrication system and on any type of machine. Over 60 times more sensitive to oil contamination than any other dielectric constant measuring sensor, the Tan Delta Oil Quality Sensor provides real-time monitoring of water ingress and oxidation levels. These high-quality sensors have been designed and built to withstand the harshest of industrial environments, resistant to impacts, high temperatures, shocks and vibrations. Our engineers manage the complete process from inspection, supply and installation.

## Benefits

- Single sealed unit constructed of high grade stainless steel – suitable for long term deployment in any internal or external environment
- Real-time multiple condition sampling 30 times per second with configurable averaging
- Delivers true continuous monitoring whilst equipment is fully operational
- Configurable for any oil type including gearbox, hydraulic, engine, insulating, mineral and synthetics
- FSH™ core technology to detect any oil condition change no matter the cause – wear and or contamination
- Oil condition change detection down to 0.01%.
- Flexible integration (different head thread sizes to fit any inspection plug point & multiple data outputs, CANBUS, MODBUS, 4-20mA for plug and play integration.)

- Doesn't require any human intervention
- Works 24/7/365 with no delay in getting a useable reading
- Trend data immediately available
- No safety issues or human factor
- Will work alongside laboratory analysis
- Can be easily integrated into virtually any existing monitoring and/or control system.
- Can be retrofitted and incorporated into a new build



# Engineering Consultancy Services

With our experience and knowledge DMS will assist engineering and maintenance teams to achieve excellence in equipment reliability. As part of this service, we can help clients understand critical equipment issues as well as improve parts of their operational infrastructure, leading to operational improvements. Examples of these support services include;

- Laser alignment – both shaft to shaft (over 10 metres) and geometry on baseplates / machine bases
- On site fan balancing
- Reliability surveys
- Criticality surveys
- Failure mode and effect analysis
- Reliability programmes
- Root cause analysis
- Training





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