Enhance lubricant management with cutting-edge oil quality sensors

To meet the highest standards of industrial oil analysis, ISO-Reliability has partnered with Yateks®, a technological leader in the manufacture of industrial borescopes, oil condition monitoring sensors and laboratory equipment. Craig FitzGerald from ISO-Reliability Partners explains why.

The Yateks YTS61 6-in-1 oil quality sensor uses the world's most advanced piezoelectric resonant MEMS

In today's fast-paced industrial world, ensuring the smooth operation of machinery is crucial. Among the numerous factors governing machinery efficiency and lifespan, condition of the lubricating oil plays a pivotal role.

As a leading manufacturer of oil condition sensors and oil analysis instruments, Yateks® is committed to providing comprehensive solutions for online and portable oil condition monitoring systems. Leveraging cutting-edge technology and expertise in this field, the company has gained industry recognition for delivering high-quality and reliable products.

Portable oil analysis equipment can play a vital role in maintaining the health and performance of mechanical equipment, through the immediate availability of critical information. By measuring various parameters such as viscosity, acidity and contamination levels, portable oil analysis equipment can provide valuable insights into the condition of the lubricant and the equipment itself.

As a result, oil analysis enables proactive maintenance to prevent costly downtime and unexpected failures. Yateks offers a range of portable oil analysis devices that are easy to use and provide accurate and reliable results, making them an essential tool for any maintenance or reliability professional. The range includes affordable, easy to operate and durable oil analysis instruments and equipment for laboratory analysis, online real-time monitoring, offline testing and field work.

When it comes to oil analysis laboratory equipment, there are several important factors to consider. Equipment accuracy and reliability are critical as they directly impact the quality of results and the effectiveness of any maintenance or reliability programmes. Yateks is proud to offer oil analysis laboratory equipment that meets the highest standards of accuracy and performance. This equipment is designed to deliver consistent and repeatable results, ensuring data trustworthiness and enabling informed decision-making.

"To proactively monitor and maintain the health of plant and equipment, integrating advanced oil quality sensors eliminates the need for costly samples and the human errors that can lead to inaccurate data," says FitzGerald.

The benefits and functionalities of Yateks' cutting-edge technologies ultimately empower a business to take proactive measures with real-time online oil condition monitoring. Changes in wear rates, increased temperatures, contamination events and viscosity changes can be identified and rectified immediately, as opposed to a time-based oil analysis programme with regular scheduled sampling. To answer these industrial needs, ISO-Reliability Partners has a put together an innovative range of ISO fluid cleanliness solutions for transformers, compressors, diesel fuels, gear oils, hydraulic oils, and lubricating systems. The new partnership with Yateks Africa, a technological leader in industrial borescopes, oil condition monitoring sensors and laboratory equipment, further advances this offering for local plant operators and equipment users.

Yateks' high-precision oil condition monitoring sensors and monitoring equipment are widely used in aerospace, automotive casting, oil and gas, power generation and automotive repairs, amongst others.

"This pivotal partnership brings cost effective, affordable, high-quality oil analysis solutions to the greater African market," says FitzGerald. The product range provides a wide offering of innovative real-time oil quality sensors that provide unrivalled protection of industrial plant and equipment. Oil analysis is generally carried out monthly as a snapshot in time. With ISO-Reliability and Yateks Africa, such information is available 24/7, thanks to real-time oil quality sensors.

Yateks' high-precision products are widely used in aerospace, automotive casting, oil and gas, power generation, automotive repairs, wind power, earthmoving, mining, mineral processing, steel mills and marine. They have been exported to 80 countries and regions in the Americas, Europe, Australia and Asia, and have now been launched into Africa.

Notable innovations

A recent development is the Yateks YTS61 6-in-1 oil quality sensor that uses the world's most advanced piezoelectric resonant MEMS components. An integrated, high-precision signal sampling and processing unit, combined with advanced algorithms, automatically detects moisture (ppm), density, viscosity, dielectric constant, water activity (%) and temperature. Yateks software, combined with the range of measurements received from the sensor, is able to calculate additional parameters such as density at 20 °C, kinematic viscosity, viscosity index, and viscosity at 40 °C, while viscosity at 100 °C can also be achieved through a powerful internal calculation program.

Precision probes ensure accurate measurement and real-time reporting of oil quality parameters. Sensors provide fast response rates and a data refresh frequency of every second. The outer casing and probes are manufactured from 316 stainless steel for excellent chemical and pressure resistance.

Additional benefits include no moving parts and no consumables. With a compact structure, installation and system integration are quick and simple, which enables rapid operational status to be achieved.

The YTS61 sensor is the ultimate in transformer protection solutions. Transformer oil sampling is challenging, costly and highly specialised. Due to potential exposure to PCBs and for other safety reasons, sampling is generally carried out once a year and at a time when the oil is being purified by a service provider. This 6-in-1 oil quality sensor provides continuous real-time analysis, greatly improving transformer safety and reliability and it has CE and ATEX certification.

As a value-added service, Yateks also provides a cloud data-based condition monitoring platform that helps users to monitor their equipment directly from a mobile phone. The Yateks Industrial IoT system allows users to receive real-time monitoring results from sensors installed in the oil circuit. Connected to the cloud platform in real-time, the system converts key information about equipment and oil in use, and uses it to generate equipment maintenance recommendations based on oil quality results.

"Oil quality sensors are innovative devices that provide real-time analysis of lubricating oil, ensuring optimal quality. These sensors monitor essential parameters such as viscosity, insolubles, water content and acid number, giving valuable insight into wear and contamination levels. By promptly detecting any deviations from normal levels, oil quality sensors prevent severe damage to machinery and minimise costly repair and maintenance downtime," notes FitzGerald.

"Oil condition sensors complement the functionalities of oil quality sensors, providing a comprehensive understanding of the lubricant's overall health, continuously measuring crucial parameters such as oxidation, additive depletion and base number to evaluate the oil's remaining useful life. Using Yateks sensors enables businesses to make informed decisions regarding oil changes, allowing for efficient maintenance practices and substantial cost-savings," he adds.

By monitoring the condition of lubricating oil in real-time, engineers can proactively plan oil changes, avoid unnecessary oil replacements and optimise machine performance. With predictive analysis, costly breakdowns and unscheduled maintenance can be avoided, resulting in heightened efficiency and increased productivity.

Combining oil quality and condition sensors provides a fully integrated solution to attain optimal lubrication management. The continuous monitoring and analysis offered by these technologies supports proactive maintenance practices. And, Yateks oil sensors take condition monitoring to the next level.

Oil particle size testing is an important technique to assess the level of particulate contamination in diesel fuels and lubricating oils. Particulate contamination has a direct impact on equipment wear and risk of failure, which means that accurate measurement and monitoring of particle size and concentrations in oil is critical. Particle size detection technology uses sophisticated instruments and methods to accurately count, distribute and shape particles in oil. This kind of detection can help users to understand the cleanliness of oil, formulate corresponding maintenance measures, install ISO microfine bypass filtration and improve equipment reliability. In an era where operational efficiency and machine health are paramount, oil quality sensors emerge as indispensable tools for successful lubrication oil management. By harnessing the power of these cutting-edge technologies, businesses can proactively detect potential issues, and take prompt action to avoid costly machinery failures and downtime. Investing in these integrated monitoring solutions ultimately empowers businesses to optimise their lubrication management, reduce operational costs and ensure continuous production, all while gaining a competitive advantage in today's dynamic industrial landscape. Yateks YFM8 oil debris sensors have passed SGS's rigorous environmental-type tests of high and low temperatures, humidity and heat cycles, shock and vibration and package drop tests, as well as regulatory-type tests, including EMC and safety. Yateks is proud to have been awarded the SGS Premium Performance Certificate, verifying that sensor accuracy, life expectancy and functionality are all in line with the manufacturer's claims and issued under the SGS Sensor Trust programme.

SGS is an internationally recognised testing, inspection and certification body with over 98 000 employees in more than 2 650 branches and laboratories around the world, constituting a global network of services.

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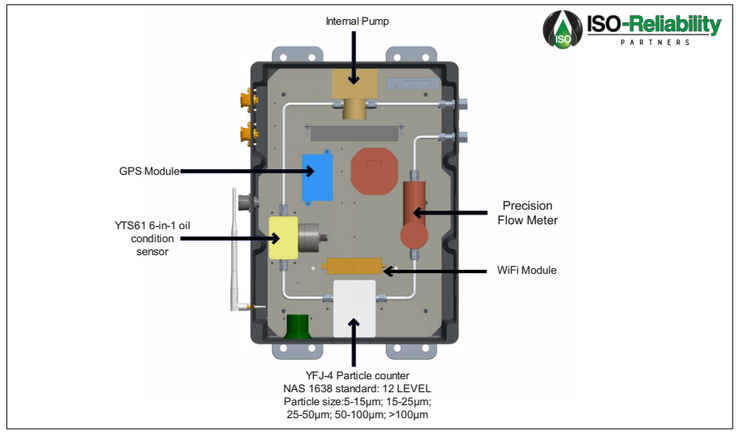

Yateks modular online oil monitoring systems, such as the YOL-S6FJ, can be customised according to customer demand to combine multiple sensor functions into one.

Yateks is a global leader in the research and manufacture of industrial endoscope and oil monitoring instruments.