

Global Thermography Condition Monitoring Equipment Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)

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Report description:

The Global Thermography Condition Monitoring Equipment Market is expected to register a CAGR of around 5.5% during the forecast period. The thermography condition monitoring equipment uses a thermal imager to detect radiation in the form of heat coming from an object. Thermography plays a crucial role, and it is a valuable tool for condition monitoring and preventive maintenance.

Key Highlights

The thermography condition monitoring equipment prevents unforeseen breakdowns that could disrupt production, interrupt power, or even cause a fire. The infrared thermography process detects the energy emitted from an object and detects heat-related issues before they become a disaster for all, thus driving the market's growth.

The benefits of the thermography condition monitoring equipment include 24/7 remote monitoring, reduction in unplanned downtime, early warnings of potential (serious) failures, support ongoing reliability, reduction in maintenance cost, and risk reduction with fewer inspections at confined and remote assets. The thermography condition monitoring equipment lowers the stress level of maintenance staff in process industries.

Condition monitoring supports various goals for manufacturers, including reducing and eliminating unplanned machine downtime, optimizing machine health and performance, improving quality and reducing scrap parts, driving a higher-performing maintenance program based on accurate machine data, and enabling automation based on real-time machine condition data. The Internet of Things (IoT) is driving the demand for condition monitoring equipment. The IoT is set to change condition monitoring as devices can connect and communicate. This indicates that connected smart machines in different locations can communicate to provide a joined-up comparison between systems. Preventative maintenance ensures employees' safety and promotes safer working conditions by inspecting and fixing items before they breakdown. Condition monitoring means that owners can plan maintenance before failure occurs that could pose a threat to employees working nearby.

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The epidemic has caused a sharp fall in the number of businesses all over the world that have crucial assets for manufacturing goods and services. Since manufacturing activity is low, companies are tempted to eliminate maintenance, resulting in high prices in the coming future. Due to the COVID-19 pandemic, the global supply chain and demand for thermography condition monitoring equipment were disrupted, severely impacting market adoption. Globally, countries have noticed a shortage of condition monitoring equipment due to the production stoppage during the pandemic.

Thermography Condition Monitoring Equipment Market Trends

Oil and Gas Industry to Hold Significant Market Share

Oil refineries run round the clock. These oil refineries are to be provided with automated and remote monitoring capabilities, eliminating the need for manual measurements. The advanced condition monitoring solutions improve the reliability of turbines, compressors, motors, generators, and other critical machinery. Companies in this sphere are applying optimal technology based on asset criticality. These capabilities allow the customers to monitor and protect necessary machinery, prevent unplanned shutdowns, and improve reliability.

The offshore oil exploration and production equipment and machinery are subjected to constant exposure and 24/7 demands in harsh environments and working conditions. Equipment failures and developing mechanical problems can cause expensive unplanned shutdowns and repairs, posing safety, environmental, and operational risks to personnel. The demand for thermographic condition monitoring equipment is increasing significantly as this equipment for offshore mission-critical machinery provides enhanced reliability and is a valuable tool for predictive maintenance.

Infrared thermography, analytical ferrography, vibration analysis, motor current, and acoustic emission technologies are typically utilised to identify active faults and abnormal wear. The thermographic condition monitoring avoids major breakdowns and reduces downtime, enables better asset management across its lifespan, and decreases costs, particularly with emergency maintenance, thus driving the market growth.

According to BP, global oil production amounted to 89.9 million barrels per day in 2021. The oil and gas equipment is exposed to harsh and demanding environments daily. The thermography condition monitoring in the oil and gas industry detects heat and radiation patterns in machines. The data analysis help in spotting patterns that indicate failure or degradation. Thermography condition monitoring has many applications, including detecting misalignment, imbalances, improper lubrication, and wear and stress in mechanical parts. Thermography identifies overheating pipe leaks and pressure vessel weaknesses in electrical equipment.

Asia-Pacific to Witness Significant Growth

The demand for condition monitoring solutions has been rising due to the increased focus on overall plant and machine health and breakdown monitoring. Condition monitoring improves worker safety and reduces the chances of collateral damage to the system. The peculiar advantage of condition monitoring is that the solution addresses the equipment conditions that would shorten lifespan long before they develop into catastrophic failure, thus driving the demand for the thermography condition monitoring equipment market.

The thermography condition monitoring provides manufacturers with the necessary, real-time machine condition data to make proactive decisions based on the current health condition of the equipment, even enabling the manufacturers to introduce automation to the shop floor. The demand for thermography condition monitoring is increasing rapidly because it enables manufacturers to use real-time asset conditions to monitor and improve machine performance and maintenance to ensure that equipment is not overmaintained or experiencing unscheduled downtime.

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According to the Ministry of Petroleum and Natural Gas (India), the western offshore region had the highest share of estimated crude oil reserves in India, at approximately 37% as of March 2021. The country had an overall estimated reserve of some 5873 million metric tons during that period, thus driving the demand for the thermography condition monitoring equipment market. According to the Department for Promotion of Industry and Internal Trade (India), in February 2022, the manufacturing industry has emerged as a fast-growing sector owing to the rapidly increasing population in the country. Investments in the industry have been on the rise, and initiatives like Make in India aim to turn the south Asian country into a global manufacturing hub. Condition monitoring deals with the comprehensive monitoring of machines in industrial production. One of the significant advantages of condition monitoring is that the solution helps companies to make more precise decisions. Therefore it provides an opportunity for companies to increase profitability and minimize the risk of operational losses.

Thermography Condition Monitoring Equipment Market Competitor Analysis

The thermography condition monitoring equipment market is very competitive in nature. Some of the significant players in the market are SKF, Parker Hannifin Corp, Rockwell Automation, Inc., Emerson Electric Co., National Instruments Corp, Schaeffler India Limited, Wilcoxon Sensing Technologies, and many more.

In September 2022, condition-based maintenance concepts were made possible through database linking using the Data Matrix Code. To the already-existing vehicle-based condition monitoring systems, Schaeffler included bearing condition diagnosis. ZF and Schaeffler worked together. Schaeffler used the pre-existing sensors and onboard unit gateways of ZF in rail vehicles outfitted with the ZF connect@rail system. The condition monitoring solution can be retrofitted to current fleets with the use of wireless sensors.

In April 2022, SKF and Amazon Web Services (AWS), Inc. collaborated to reinvent the industrial machine reliability and predictive maintenance field with a combined solution. The collaboration delivered an easy-to-use and easy-to-scale condition monitoring and analysis solution that makes the ability to collect and analyze data using machine learning technologies available to a wider range of applications and customers.. SKF combined its knowledge of rotating machinery and predictive maintenance with AWS's Industrial artificial intelligence (AI) services, bringing AI, industrial expertise, and machine learning technologies together. By adding this solution to its current portfolio of condition monitoring products, SKF can help large manufacturing sites increase the number of rotating assets in the end user's predictive maintenance programs by several thousands.

Additional Benefits:

The market estimate (ME) sheet in Excel format
3 months of analyst support

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