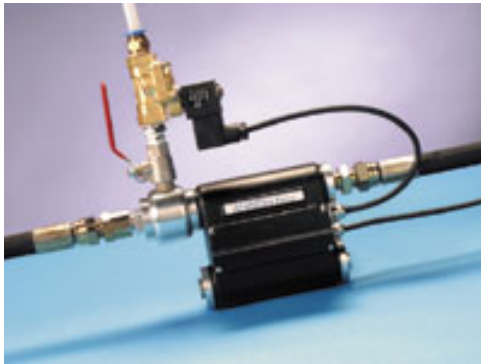


Product: LinerSCAN for Scrapedown Applications

User: MAN B&W 10K98MC-C Engine – Container Vessel - ExxonMobil Lubricated

The container vessel uses an MAN B&W 10K98MC-C slow speed diesel engine lubricated by ExxonMobil. The vessel has been involved in testing and assisting with the development of an online sensor to optimise the lubricant feed rate to the cylinders.

Engines are regularly over lubricated to try to avoid problems like scuffing. This practice can sometimes have the opposite effect and lead to problems such as bore polishing and high lubricant costs. The idea to install sensors on each cylinder is to improve efficiency, decrease lubricant costs and avoid issues



related with over and under lubrication. With the best sampling practices occasional laboratory results can be unrepresentative and possibly cause false alarms and onboard real time trending of ferrous wear in PPM provides a greater data set than ever before and can even show that some damaging events improve without interference.

An average container ship can spend US \$12,000,000 on cylinder lubrication in its life and ship owners currently use offline or laboratory testing of the scrapedown oils to alter the lubrication. Kittiwake have supplied and fitted LinerSCAN sensors on each cylinder of the vessel engine to continually monitor the scrapedown oil for ferrous wear. Multiple output options and bespoke software provide the onboard engineers with actionable and trend-able readings which can be used to; Improve maintenance scheduling, decrease sampling and testing costs, optimise lubricant feed rate, minimise liner wear and detect ingress of CAT fines. The system provides an early warning allowing the vessel to repair onboard or limit damage until the next maintenance opportunity. In one instance the sensors enabled the ships staff to decrease cylinder lubricant usage by up to 40% which represented an annual saving of over \$100,000.

Kittiwake's LinerSCAN has given the vessel the opportunity to react instantly to wear problems and optimise the lubricant usage real-time. An outcome which will provide dividends short and long term and an investment that will pay for itself many times over.



About the Vessel

Size: 74656 ton
Engine: Man B&W 10K98MC-C
Power: 57100 kW
Service: Container Vessel
Year Built: 2003
TEU: 6246

Benefits

- Optimise cylinder oil consumption and feed rate.
- Avoid liner lacquering and bore polishing due to over-dosage.
- Early warning allows onboard detect and repair while damage is at a minor level.
- Detect the ingress of fuel CAT fines in real time.
- Improved maintenance scheduling and decreased sampling & testing costs.
- The sensor not only detects damage, but also the severity of the damage.
- Multiple outputs enable communication with existing onboard systems.

Comments

MAN B&W “[the sensors] have exceeded our expectations and give an early warning if unusually high wear is occurring. Based on successful field test results MAN B&W have no objections that the Total Ferrous Debris Sensor is used on 2-Stroke Engines.”