

Level measurement solution helps Ford optimize operations and meet environmental standards

RESULTS

- Environmental standards met
- Facility maintenance cost savings
- Efficient management of oil use
- Early detection of any operations issues



APPLICATION

Level measurement for a new tank farm built for oil management

CUSTOMER

Ford Motor Company at Dagenham UK

CHALLENGE

Ford Motor Company's Dagenham Stamping Operations produce the body parts and wheels for Ford brands such as Ka, Fiesta, Focus and Transit as well as other manufacturers including Land Rover and Jaguar.

The site uses 87 presses each weighing 1,600 tons that require thousands of litres of hydraulic and lubricating oil each year. As part of the company's on-going commitment to running safe, environmentally friendly and cost-effective facilities, Ford decided to review the supply, delivery, storage and use of oil at the site.

In order to meet environmental standards regarding the handling of bulk liquids (ISO 14001) and the Pollution Prevention Guidelines set down by the Environment Agency, it was decided that an oil tank farm should be designed and built at the site. To do this a team of oil, electrical and instrumentation specialists were brought together, led by the site's maintenance co-ordinator John Cooper.

The aim was to streamline deliveries, reduce stock and minimize oil spillage and waste. An essential element was reliable and consistent measurement at each stage – from tanker delivery at the storage tanks to the intermediate bulk containers (IBCs) that take the oil to the production floor.

SOLUTION

Ford called upon process automation solutions supplier Emerson to join the project team. Following an initial meeting at the site, the use of Emerson's Mobrey 9700 series hydrostatic electronic level transmitters were recommended to measure the oil in the storage tanks and IBCs.

The Mobrey level solution contributed to process improvement and cost savings, while supporting increasingly stringent safety and environmental legislation.



Figure 1: Ford's Dagenham plant

Figure 2: Oil tank farm at the Dagenham plant

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AUTOMOTIVE

“Our job,” comments Ron Perks, UK Sales Manager, Rosemount Measurement, “was to identify the technology that met the needs of the site without incurring unnecessary cost. Hydrostatic level transmitters are a proven reliable technology with a choice of mounting options that made them ideal for the Ford site.”

There are five storage tanks and ten IBCs at the site, all of which have a Mobrey 9700 installed. The transmitters use a ceramic capacitive pressure sensor that measures the head of the liquid with an accuracy of $\pm 0.1\%$. The sensor is ceramic because of the material’s corrosion resistance and the transmitter is factory sealed and tested to IP68 for submersed duty and long-term stability.

The 9700s are suspended by cable in the 3-5000 litre capacity storage tanks. In the IBCs they are pole mounted for extra durability because of the constant movement of the IBCs between storage tank and production floor.

Output from all the 9700s is to a programmable logic controller (PLC) designed for Ford by Emerson and its partner B&G Controls. In addition to showing level readings, the PLC provides data logging and time stamps all events. This information provides an essential insight into the running of the presses. For example, if one IBC is using more oil than the others it could signify a leak or problem with machinery. By analysing this data, Ford can identify and investigate problems early, minimizing maintenance costs in the short term and helping to optimise processes in the long term.

Since its completion, the tank oil farm at Ford Dagenham has also had a significant impact on the plant’s environmental performance. The Emerson level solution contributed to process improvement and cost savings, while supporting increasingly stringent safety and environmental legislation.

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Figure 3: John Cooper of Ford and Mick Grantham of Rosemount Measurement reviewing data generated by the PLC

**Emerson Process Management
Rosemount Measurement Ltd.**
158 Edinburgh Avenue, Slough,
Berks UK SL1 4UE
Tel: +44 (0)1753 756600
Fax: +44 (0)1753 823589
www.mobrey.com

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