

## Smart condition monitoring helps barley malt producer keep a head

**Muntons Malt, one of the UK's largest producers of malted barley has chosen the Smart Condition Monitoring (SCM) system from Mitsubishi Electric to protect fans and motors vital to its large-scale and sensitive production process. Used to make beer, spirits and a range of popular foodstuffs, malted barley is produced in large batches where conditions are critical to a consistent product.**

The operation team had previously experienced issues with difficult-to-reach bearings inside a large fan housing and wanted to stay ahead of the game in future. Plant Engineer Michael Plawecki explains, "the malting process was established literally thousands of years ago and still involves steeping, germination and kilning of barley ears. The big difference now is the scale of operation; we process many tonnes at a time and the last two processes both rely on a steady supply of blown air. The fans and motors that provide the air are therefore critical to our operations.

"Like many food industries, the principles of the process are quite traditional, but we rely a lot of automation, electro-mechanical equipment and sensors to provide fine control over air flow, heat and moisture. Each batch is very valuable, not just in monetary terms but also to the customer, so we are extremely pro-active when it comes to service and maintenance of our equipment.

"We were however caught-out by a bearing inside a fan assembly that we only realised had problems when it was too late, and we had to make an unscheduled stop on one of the lines to make repairs. Determined to learn from that lesson we found what looked like an ideal solution from Mitsubishi Electric, an automation brand we trusted. The key for us was to find a system with sophisticated predictive maintenance technology onboard that could be linked to the existing SCADA system and provide us with the maximum forewarning of any future issues yet was quick and easy to install."

The SCM solution provided by Mitsubishi Electric comprises of smart sensors that when attached to bearing housings, gearboxes, pumps and motors can sense when equipment starts to operate outside its normal envelope due to wear. It effectively provides a sophisticated early warning system for critical pieces of rotating plant equipment. Vibration frequencies and temperature readouts are monitored continuously and fed back to an L Series Mitsubishi Electric PLC controller via an industrial Ethernet network cable.

The controller is housed in a robust enclosure and easily connected to other network system hardware and software platforms, such as the SCADA system at Muntons Malt. The sensors are developed by bearing expert FAG and can be set-up to recognise tell-tale signs in complex vibration patterns specific to the type of equipment it is attached to. The intelligent part of the software compares the data it is receiving with highly developed data models from thousands of previous installations, providing a virtually fool proof analysis and alert system for the user.

Live information and any alarms are displayed on a GOT Series HMI mounted to the control enclosure. The system can work autonomously of any other automation, with multiple sensors located and recognised by unique IP addresses. The visual information as well as the alerts in the case of Muntons were easily connected in to the existing automation software platform.

The initial system installed provides condition monitoring for two large 315kW fan sets and a single 90kW fan set, referencing the electric motor, power transmission coupling and main fan shaft bearing on each. Michael confirms the team is happy with the project and the initial results, "As promised the system was easy to install and relatively simple to commission. We are now acutely aware of the health of the fan sets and have a very clear picture of any maintenance way in advance of us needing to make physical changes. Remote monitoring and fast diagnosis of any issues has also made us very responsive should the operating parameters we have set even be approached.

"We are reviewing the entire plant now to make a decision on which other parts of the plant we include, with the aim of speeding up maintenance and reducing scheduled maintenance periods. We recognise that the investment in automation and predictive maintenance pays off very quickly by avoiding unscheduled downtime but can also be used to increase operational effectiveness and productivity."

**Image 1:** Muntons Malt uses Mitsubishi Electric's Smart Condition Monitoring (SCM) system to protect fans and motors vital to its large-scale and sensitive production process.

[Source: Mitsubishi Electric Europe B.V.]

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**Note to Editor:** if you would like the text in another language please contact Carolin Heel at DMA Europa – [carolin@dmaeuropa.com](mailto:carolin@dmaeuropa.com).

## About Mitsubishi Electric Corporation

Corporation (TOKYO: 6503) is a recognized world leader in the manufacture, marketing and sales of electrical and electronic equipment used in information processing and communications, space development and satellite communications, consumer electronics, industrial technology, energy, transportation and building equipment. Embracing the spirit of its corporate statement, Changes for the Better, and its environmental statement, Eco Changes, Mitsubishi Electric endeavors to be a global, leading green company, enriching society with technology. The company recorded consolidated group sales of 4,444.4 billion yen (in accordance with IFRS; US\$ 41.9 billion\*) in the fiscal year ended March 31, 2018.

Mitsubishi Electric Europe, Industrial Automation – UK Branch is located in Hatfield, United Kingdom. It is a part of the European Factory Automation Business Group based in Ratingen, Germany which in turn is part of Mitsubishi Electric Europe B.V., a wholly owned subsidiary of Mitsubishi Electric Corporation, Japan.

The role of Industrial Automation – UK Branch is to manage sales, service and support across its network of local branches and distributors throughout the United Kingdom.

*\*At an exchange rate of 106 yen to the US dollar, the rate given by the Tokyo Foreign Exchange Market on March 31, 2018*

**Further Information:**

**Website:** [gb3a.mitsubishielectric.com](http://gb3a.mitsubishielectric.com)

**Email:** [automation@meuk.mee.com](mailto:automation@meuk.mee.com)

**Facebook:** [www.facebook.com/MEUKAutomation](http://www.facebook.com/MEUKAutomation)

**Twitter:** [twitter.com/MEUKAutomation](https://twitter.com/MEUKAutomation)

**YouTube:** [www.youtube.com/user/MitsubishiFAEU](http://www.youtube.com/user/MitsubishiFAEU)

**LinkedIn:** [www.linkedin.com Mitsubishi Electric - Automation Systems UK](http://www.linkedin.com/Mitsubishi%20Electric%20-%20Automation%20Systems%20UK)

## Editor Contact

DMA Europa Ltd. : Carolin Heel

Tel: +44 (0)1562 751436

Web: [www.dmaeuropa.com](http://www.dmaeuropa.com)

Email: [carolin@dmaeuropa.com](mailto:carolin@dmaeuropa.com)

## Company Contact

Mitsubishi Electric Europe B.V. Automation Systems Division : Garry Lewis, Manager - Marketing & Communications

Tel: +44 (0) 1707 288769

Fax: +44 (0) 1707 278695

Web: [gb3a.mitsubishielectric.com](http://gb3a.mitsubishielectric.com)

Email: [automation@meuk.mee.com](mailto:automation@meuk.mee.com)