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A new laser-based research and development cell has been installed at the Manufacturing Technology Centre (MTC) in Ansty, West Midlands, to help keep British manufacturing at the forefront of assembly, fabrication and joining technologies.

At the heart of the system is Europe's most powerful non-military laser, a 20kW rare earth Ytterbium fibre laser with a four-way beam switch, supplied by automation and laser specialists Tec Systems of Loughborough. They built the bespoke system in consultation with MTC's specialist research teams and incorporated a high-performance data acquisition and control system based on a Mitsubishi Electric iQ-controller.

The iQ-controller controls the laser, a six-axis test piece handling robot and multiple points of distributed I/O over Profibus connections. It is integrated with a GOT touch screen HMI (Human Machine Interface), which displays comprehensive information on a large number of parameters such as welding gas flow, cutting gas flow, robot position, laser power, safety functions, etc.

Chris Nelms of Tec who built the control system, explains that data acquisition is vital to development work, such as that carried out at the MTC.

"The iQ-controller is a powerful device able to handle enormous amounts of data," he says. "As well as collecting performance data, it functions as a master controller for the whole cell, so is often processing multiple data streams simultaneously. We have also included a data logging module in the controller's backplane which backs-up real time data for added reliability."

Mitsubishi's iQ-controller is designed to be the heart of a control system, whether it is in discrete manufacturing, continuous processing or other sectors. It offers total integration of data acquisition, control and communication functions from a single platform and can also provide seamless connection to enterprise management systems.

Chris continues: "Just as important as collecting the data is interpreting it. To aid this at the MTC we have set up the HMI with clear, simple graphics; its large format makes for easy reading, while its touch screen operation ensures it is intuitive and easy to use."



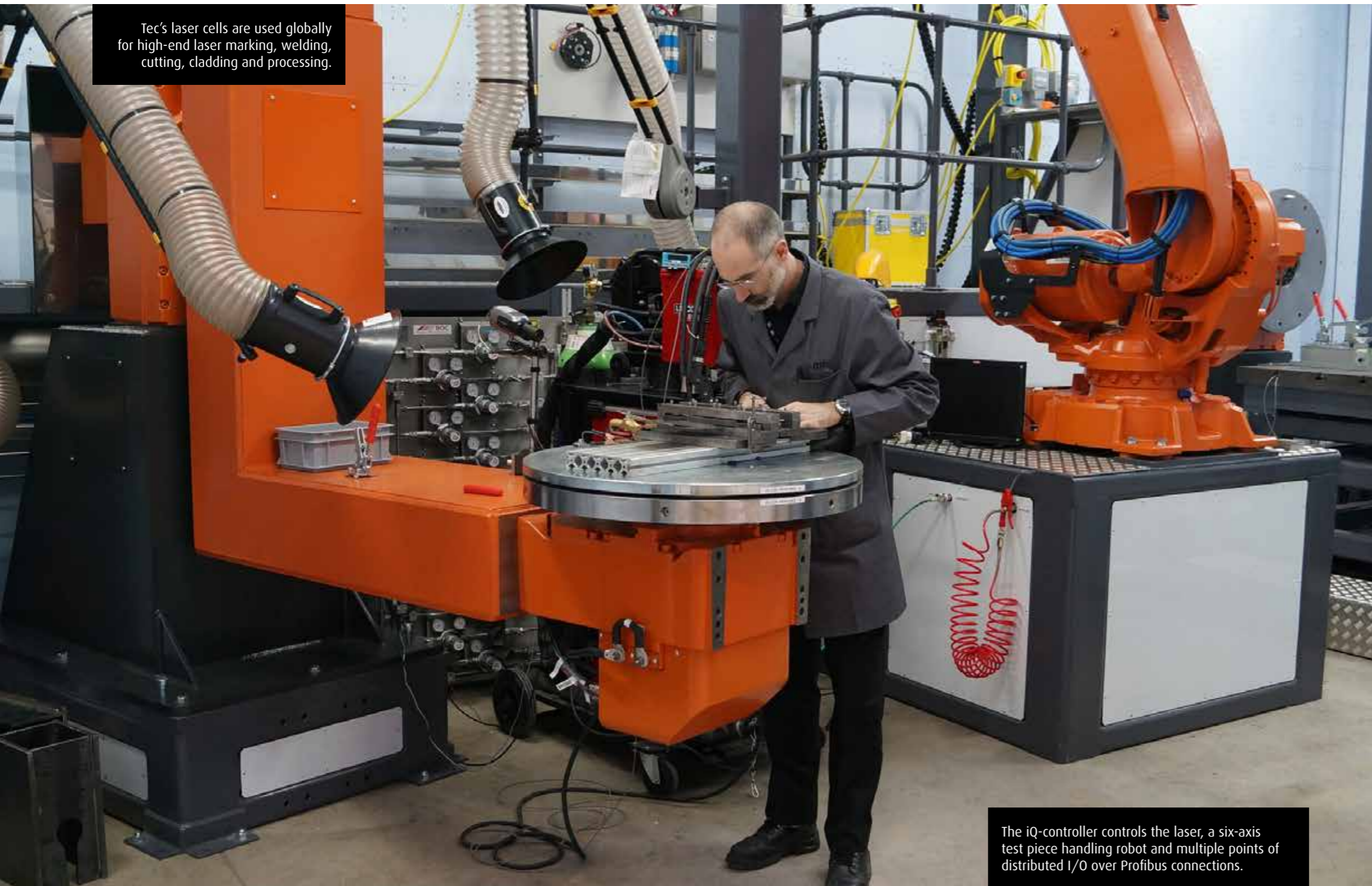
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Tec has a track record of supplying high-end automation and laser solutions for many industries including the automotive, aerospace, electronics, plastics, food, pharmaceutical and research sectors. Its laser cell at the MTC includes the laser and robot, plus an active cell guarding structure, two multi-axis servo-driven manipulators and a range of laser heads and optics to cover a wide range of applications.

The cell processes complex 3D components up to 5,000kg and 3m in diameter. Data monitoring and capture capabilities are built into the cell to allow projects the MTC undertakes for clients to be efficiently recorded and documented.

Ken Young, Technology Manager at the MTC says: “This new laser cell is a unique combination of state-of-the-art equipment which will be used to provide UK industry with an unparalleled environment for the development and demonstration of advanced laser materials processing.”

Tec's Managing Director Tony Jones is delighted with the project: “This is a good news story for UK manufacturing. It demonstrates that the UK can apply research excellence and new Technology to enable commercial production to achieve global competitiveness.”

Tec's laser cells are used globally for high-end laser marking, welding, cutting, cladding and processing. Its standard range of laser cells can be configured to suit the specific customer application, while its in-house multidisciplinary automation experts can also engineer and deliver fully integrated bespoke laser solutions.

About MTC

The Manufacturing Technology Centre (MTC) represents one of the largest public sector investments in manufacturing and is housed in a 12,000 square metre purpose built facility at Ansty Park, Coventry. It is a partnership between some of the UK's major global manufacturers and the universities of Birmingham, Nottingham and Loughborough, and TWI Ltd.

The role of the centre is to provide a high quality environment for the development of cutting edge technologies into manufacturing processes with the aim of delivering truly innovative solutions to UK industry.

The MTC is an open access centre providing a flexible approach to working with companies of all sizes from SMEs to Tier 1s and large OEMs supplemented by a membership scheme which creates a collaborative research programme. The MTC is part of the High Value Manufacturing Catapult, which is supported by the Technology Strategy board and government funding.



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With around 129.000 employees the company recorded consolidated group sales of 36,0 billion US Dollar* in the fiscal year ended March 31, 2015.

Our sales offices, research & development centres and manufacturing plants are located in over 30 countries.

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

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