

In 1945, Joseph Cyril Bamford launched the construction and agricultural manufacturing company that bears his initials. Over the years, the company's pioneering spirit and reputation for superb build quality has led to huge success: JCB now lead the world in backhoe loaders and telescopic handlers, the company manufacture a range of over 300 machines and boasts some of the finest engineering facilities across the globe.

From the company's beginning as a builder of agricultural tipping trailers in 1945, to today's global giant within the field of designing and manufacturing agriculture and construction machinery, JCB has enjoyed nearly 70 years of remarkable growth.



JCB has expanded from just one man working in a garage in Uttoxeter, UK, to the employment of a 11,000-strong worldwide force across 22 plants on four continents. Today, this major global brand has more than 750 dealers around the world and such is the scope of the company's all-embracing range, JCB machines now lend their productive performance to virtually any application in any industry.

To help ensure continued success, JCB continue to innovate and push the boundaries in research and development; in particular within the area of sustainability, where

energy costs and emissions are becoming an increasingly important purchasing consideration.

In 2008, JCB Heavy Products opened a new £43 million factory, in Staffordshire, UK. One of the biggest single investments in JCB's history, the impressive facility is one of the world's most modern manufacturing plants and employs a 350-strong workforce in the design and manufacture of the 25-strong range of JCB tracked and wheeled excavators, weighing from seven up to 46 tonnes.

Manned by 48 highly skilled teams, the new 450,000 sq ft plant is split into two main areas: fabrication and welding and assembly, a layout which is key to enhancing quality because it eliminates the potential for contaminants to infiltrate the assembly area from the welding and fabrication shop.

The Heavy Products plant has the capability to produce 8,000 machines a year and has taken quality standards to new heights. JCB's pre-delivery tests of machines have always been exhaustive, but the 'hot-test' at the new JCB Heavy Products factory has been increased from two to three stages. There is also a 200-point check on the machine's finish before it leaves the factory.

Part of the company's investment has been in new machining centres and extremely accurate jigs and fixtures, the use of which puts JCB in direct control of component quality. The new machining centres are able to self-position and 'find' components to maximise machining precision, giving consistent quality to fabrications.

To help ensure the continued accuracy and quality of the company's fabrications JCB's Heavy Products plant administers a stringent policy of regular jig and fixture calibration.

Andy Young Manufacturing Engineering Manager explained. "As the accuracy of our jigs and fixtures plays such a critical role in the precision of our fabrications and the eventual build quality of our products, we made a decision to establish a jig and fixture calibration regime with calibration time intervals based on the perceived requirements of each individual piece of equipment.

“Having decided to engage the services of an outside contractor to undertake our jig and fixture calibration procedures, mindful of the company’s reputation and advanced capabilities, we awarded the contract to Manchester Metrology.

“The precision of the FARO Vantage Laser Tracker used by Manchester Metrology for calibrating our jigs and fixtures enables the generation of detailed traceable certificates. Also, on the rare occasion that any aspect of a jig or fixture is highlighted as drifting from its nominal position, we are able to take the relevant corrective steps and re-calibrate the fixture to confirm its accuracy. “

“Through these actions we are able to pre-empt any possible problems and further ensure our continued quality standards. Also, we have been able to fine-tune the calibration intervals of each of our jigs and fixtures based on experience and gathered data.”

“In addition to calibration procedures, Manchester Metrology’s use of the FARO Laser Tracker has proved invaluable in determining the accuracy of our first-off prototypes, prior to being signed-off for manufacture. Also, the advanced FARO equipment is used for generating initial sample reports on all new sub-assemblies.”

Owner of Manchester Metrology, Paul Bulman explained. “As our staff have considerable experience within the field of metrology and through our access to a full range of FARO equipment, we are able to make use of the most appropriate technology and apply the most suitable measuring strategies to all prospective customers needs.

“We were able to formulate a suitable plan of action to enable the accurate and efficient calibration of the JCB’s important jigs and fixtures. As the FARO Vantage laser tracker is portable and ideal for large scale measuring, we use this very accurate equipment for our regular on-site work at JCB. Having used the tracker and FARO CAM2 Measure 10 software to measure and capture the dimensions of critical features on a jig or fixture, we are then able to compare the data to CAD models and when necessary identify areas that could cause future concerns.

“In the same way, when involved in checking prototype fabricated parts or sub-assemblies, we are able to judge the gathered data against engineering drawing. As some of JCB Heavy Products’ fabrications can measure up to 7 meters in length, the large capacity and high accuracy specification of the FARO Laser Tracker Vantage makes it ideal for this type of work.”

The FARO Laser Tracker is an extremely accurate, portable coordinate measuring machine that enables customers to build products, optimise processes, and deliver solutions by measuring quickly, simply and precisely.

Customers throughout the world trust the FARO Laser Tracker to solve their everyday measurement challenges as well as their most complex of gauging problems. Users are able to make considerable cost saving by completing jobs faster, reducing downtime, eliminating costly scrap, and achieving accurate, consistent, and reportable measurement data.

With its high accuracy capability, large measurement range, and advanced features such as MultiView cameras, SmartFind target detection, TruADM, innovative packaging, and a water and dust resistant IP52 rating, the FARO Vantage provides the world’s most complete laser tracking solution.

((Box: 4 good reasons about the FARO product as a customer quote, ca. 595 characters))

Paul Bulman, Owner of Manchester Metrology

1. High precision requirements: Accurate and efficient calibration of JCB’s important jigs and fixtures are achieved with the Laser Tracker Vantage
2. Large capacity and high accuracy: the outstanding accuracy and long distance measurement of the Laser Tracker Vantage are ideal as some of the JCB Heavy Products’ fabrications can measure up to 7 meters in length
3. Portability: The portable Laser Tracker allows large scale measuring for on-site work

4. Error prevention: The data gained by the Vantage and the FARO Software CAM2 Measure 10 compared with CAD models help to identify areas that could cause future concerns.