

Narrowing the gap

With sales to the motorsport sector growing rapidly, Silverstone was the venue selected by Faro to launch its most accurate arm ever, the all-new Quantum. *Machinery* reports

Over the past decade, the increasing accuracy of portable measuring technology has seen it steadily move into fixed-bed CMM territory. Originally derided as the 'poor relation' to CMMs, portable solutions have advanced to become a genuine alternative to their larger, immobile counterparts.

Well, it may come as little surprise to learn that Faro has now reduced the 'accuracy gap' further still. The new Quantum FaroArm is around 30 per cent more accurate than the company's previous top-of-the-range model, the Platinum. Faro says that the Quantum is the first 2.4 m arm proven to measure accurately to within ± 0.018 mm.

The ± 0.018 mm figure is not unsubstantiated either, having come about as a result of extensive single point articulation performance tests whereby the probe of the arm is placed within a conical socket and individual points are measured from multiple approach directions. Each individual point measurement is analysed as a range of deviations. This test method is a subset of those given in the B89.4.22 standard.

The new arm also features an exclusive Faro i-Probe (intelligent probe) with automatic probe size recognition, Bluetooth cable-free operation to allow measurement up to 10 m away (even through walls), automatic sleep mode to save energy, and a new universal quick mount to reduce set-up time.

According to Faro, the 30 per cent leap in accuracy over the Platinum range is thanks to the i-Probe in combination with improved encoder accuracy and interpolation, as well as enhanced

mechanical and geometric attributes.

"The sight of a metrologist in a white coat using a CMM in an inspection room is quite rare in modern manufacturing today," states Faro's country manager for the UK, David Homewood. "Faro portable solutions have become an increasingly popular option due largely to our investment in process simplification; effectively making metrology accessible to more people. Even as recently as two or three years ago the point cloud market operated at a very scientific level."

Ease-of-use is a primary feature of the Quantum FaroArm. A counterbalance in the arm's 'elbow' makes for light and easily controlled movements, while slip rings on every joint permit infinite rotation and non-stop measuring. Green and red buttons on the arm's trigger act as the left and right clicks would operate on a mouse to drive the software. Users simply glide the touch probe along the surface of the object to be measured while the Quantum's laptop computer simultaneously illustrates the 3D measurements on-screen and records the data.

3D BLUEPRINT

The system effectively creates a 3D 'blueprint' of a part or assembly, making it an all-in-one portable tool for performing inspection, tool certification, CAD-to-component analysis or reverse engineering.

According to Faro, approximately 50 per cent of all portable arm sales are

now for reverse engineering applications, where the system collects point cloud data for an integrated CAD/CAM package such as Faro's CAM2 software or other suites such as PowerInspect, Rhino, Geomagic or PolyWorks.

The Quantum FaroArm can also accommodate a seventh axis in the form of a laser scanning head for surface work that sends up to 20,000 points a second to the laptop. Mr Homewood explains: "The seven-axis model provides the best of both worlds. Holes and pockets can be measured using the touch probe, while surfaces and external shapes can be processed using the laser scanner." □



The Quantum FaroArm is narrowing the accuracy gap between portable and fixed CMM measurement solutions. It is around 30 per cent more accurate than Faro's previous top-of-the-range model, the Platinum