

FARO LASER TRACKER

TRACKER MEASURES TOOLING AT LASER SPEED



B & H Precision Tooling has rapidly reduced inspection time for large aerospace tooling using "Faro Laser Tracker" technology.

Greater Manchester based B & H Precision Tooling were faced with the problem of checking the accuracy of 3D free form tooling, which covered an area of 7½ x 2½ metres, against CAD data. Increasing Quality Assurance requirements throughout the total supply chain of the aerospace industry meant that some years ago their customers started to demand 'footprints' or quality data on their jigs and fixtures both initial and on-going, this became very time and resource consuming by conventional measuring techniques.

With more than 30 years experience of pattern making, form tool design and production mainly for the aerospace industry, it was a natural progression for B&H to produce 'lay-up' tooling for the manufacture of carbon-fibre components as well as assembly jigs and fixtures.

B&H approached SMX (recently acquired by Faro) to use a laser tracker to satisfy their customer's requirements. Initially the cost of purchasing such a facility was regarded as too high for their 50 man, £2million turnover operation therefore B&H like many similar companies hired in this easily portable equipment as a sub-contract service. It soon became apparent there were sufficient applications to justify the purchase of a laser tracker and B&H have not looked back.

Figure A:- In situ tool inspection

Figure B:- Measuring edge points using Retro Probe

Figure C:- Inspection against CAD data

Figure D:- Airbus A320 tool



FIGURE A



FIGURE B



FIGURE C



FIGURE D

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The Laser Tracker allows B&H to import CAD data into the software and measure literally 'thousands of points and compare against the CAD data in minutes' said Managing Director Mr Andy Dutton. The software was found to be very CAD friendly and allowed the direct import from many CAD sources including CATIA.

The Laser Tracker has been used to measure tools, jigs and fixtures for major European aircraft manufacturers in the 12 months since it was delivered. An added benefit was realised when the tracker was taken on to a major customers site to set up and measure aircraft assembly and build jigs. Geometric features such as tooling holes and location pins can easily be measured and adjusted if necessary.

Andy Dutton confirms that having their own Laser Tracker has led to the **faster and more accurate checking of their large jigs, fixtures and tools** such as the 7.5 x 2.5 metre vertical stabiliser (rudder) of the A320 Airbus mentioned above. However, more surprising are the size of the savings and the spread of the additional benefits that it has given them. On the work for which it was primarily purchased the Tracker has **'reduced inspection times by two thirds!'** But its wider benefits have been immeasurable.



FIGURE E

Reverse engineering is an obvious application, the trackers ability to scan and digitise models or old components for spare parts is quite significant in an industry such as Aerospace where before the 'CAD-era' design data was encapsulated in models or 'lofts'. However, **one totally unexpected advantage has been its ability to 'extend the capacity' of their machine shop.** They have a large Elgamill machining centre and its 6.5 metres of X-axis traverse was a constraint on some of the work that they could undertake but now by using the tracker for highly accurate component repositioning on the bed of the machine, this constraint is removed and much longer work can now be machined.

Similarly their largest co-ordinate measuring machine (CMM) has a measurement envelope of 3 x 2 x 1.2 metres

For more information please contact

FARO Europe Distribution at: Phone: +49 711 2222 4 0, Fax: +49 711 2222 4 44,
e-mail distribution@faro-europe.com or visit our website at www.faro.com