



There's a New DEA around the World

New Orders, New Installations

*Airbus
measures up
with DEA
coordinate
metrology*

The Airbus factory in Broughton, North Wales, recently ordered a large gantry-type coordinate measuring machine from DEA. The machine will provide advanced dimensional inspection capabilities that will help keep pace with the production of wing spars for the current fleet of Airbus aircraft and components for the new A380, a 555 seater aircraft for the 21st Century.

The new DEA Coordinate Measuring Machine (CMM), the DELTA AB, was especially conceived to inspect large aerospace tooling, components and assemblies in an open shop environment without sacrificing accuracy. Its innovative, modular mechanical configuration, combines aspects from both gantry and bridge design features in a structure optimised to the specific application. The DELTA AB currently has a longitudinal measuring stroke of 10.5 metres, a transverse measuring stroke of 3 metres, and a vertical stroke of 500mm. With an accuracy formula of $4 + 5L/1000$ [micron], this machine is one of the most accurate and repeatable CMMs of its kind. To further increase its ability to inspect extremely long aircraft structural components, the team at Airbus is planning a future expansion of the machine's inspection envelope by extending its longitudinal stroke to a remarkable size of 20 metres.

DELTA AB will be equipped with A.C.T.I.V. software (an advanced multi-sensor structural temperature compensation system), which cancels the effects of thermally induced distortions on both the CMM and the component being measured. A web of 20 ther-

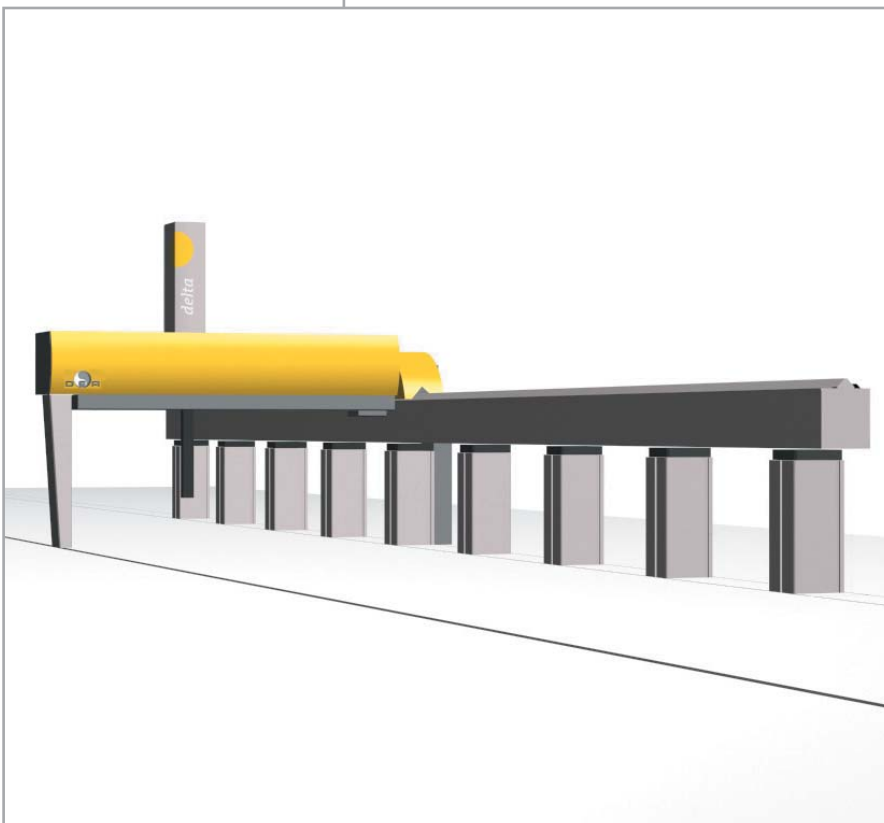
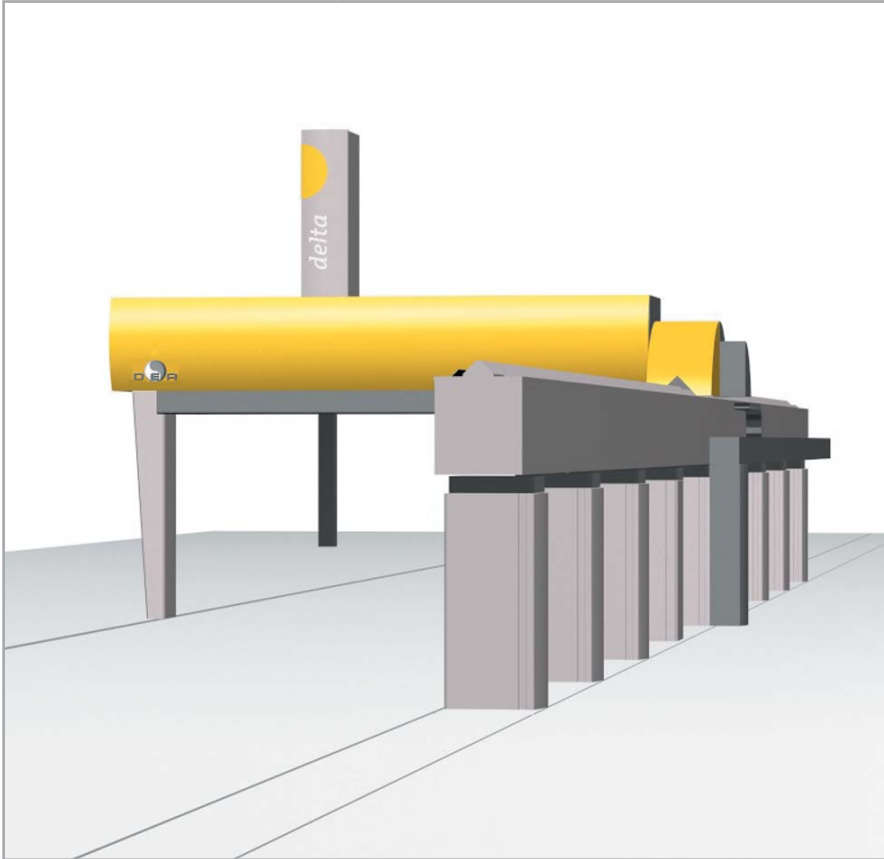


mal sensors placed at crucial areas of the machine, in addition to 10 sensors that automatically come into contact with the component, feed an advanced and complex algorithm along with a huge amount of environmental data in real time. Through these values, a combination of linear and structural thermal compensation software routines correct in real time each measured point, so that the influence of temperature is cancelled. The A.C.T.I.V. software technology complements a first class machine design

and high thermal conductivity materials to ensure a fast thermal stabilisation process. As a part of the project, DEA has also taken the commitment to design and fabricate adequate CMM foundations to meet the necessary rigidity required. The open structure of the new CMM gives optimum accessibility to the working area for fast loading and unloading of parts, and allows easy integration of material handling equipment. Parts to be inspected will be moved by overhead crane into position on a floor plate.



*Style Sketches
of the new DELTA AB*



The measuring area is fully protected by optical barriers and safety fences, which prevent the operator from accessing it whilst CMM axes are moving.

The components under inspection will be located on dedicated supporting fixtures designed and supplied by DEA. These fixtures are especially conceived to support the components in their design specific position during the inspection cycle. Precise master locators and dedicated suction cups are designed to hold the spars firmly in place, in the same position they were supported during the 5-axis CNC machining process.

The machine is equipped with PC-DMIS geometric measuring software, an interactive graphics package that simplifies and streamlines measuring programming for both the ordinary and the most exotic applications. PC-DMIS provides fast and precise data analysis, a fully configurable, intuitive graphic user interface, interactive report formatting and data handling, and graphic output capabilities. Exclusive CAD interface options provide a direct path from CAD data, to part programming, graphical simulations, and inspection results.

Airbus will accelerate the inspection programming task by employing an off-line programming system, capable of generating part programs in standard DMIS formats directly from CAD geometry. The ability of PC-DMIS to execute these programs, without translators, ensures high part program consistency and a superior operating efficiency. Inspection results can be uploaded to an off-line computer system by DMIS links for more detailed SPC data analysis. ■



Hexagon Metrology

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