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# Case Study

## Airbus UK Penetrant Flaw Detection (PFD) Installation

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Issued on behalf of George Koch Sons Europe Ltd

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## Airbus UK Penetrant Flaw Detection (PFD) Installation Multi-Function Surface Testing Facility

MULTI-FUNCTION SURFACE TESTING FACILITY INSTALLED BY GEORGE KOCH PROVIDES AN INNOVATIVE SOLUTION TO HELP AIRBUS UK MOVE TO A CHROME-FREE TREATMENT PROCESS

Process system specialist George Koch Sons Europe has completed a major Penetrant Flaw Detection facility for Airbus UK as part of the aerospace manufacturer's move from chromic to tartaric sulphuric acid anodising. The installation in Chester is now understood to be one of the largest such facilities in the world and operates alongside a purpose-designed water treatment plant, also installed by George Koch. The multi-stage, self-contained installation is now a key element in the manufacture of Airbus wings and associated components.

"The move from chromic acid-based chemical solutions to tartaric sulphuric acid meant that the original visual inspection method for crack detection could no longer be utilised," comments Steve Moseley, Sales Manager at George Koch. "The use of fluorescent penetrant dye inspection was considered the most appropriate alternative – the procedure being centred on the application of fluorescent penetrant spray and developer powder, followed by a detailed UV inspection."

To create a focus for the facility and to accommodate space restrictions at the site, George Koch's solution was to build a single self-contained PFD inspection chamber. This would not only house the 11 separate stages that form part of the process, but would also enable ambient light to be shut out to create the ideal environment for UV inspection at the end of the line. Operations within the enclosure include spray, rinse and drying before the application of the developing powder to aid visibility during the manual UV inspection.

A highly innovative handling system is central to the design of the new system. Based on a floor-mounted gantry which moves laterally through the enclosure, station by station, relevant process nozzles and applications are presented to each component as it proceeds. "The final stage sees the UV lighting for the penetrant dye being assessed by specialist operators – a procedure which is

optimised by the enclosed configuration. “Any potential defects are revealed as fluorescent indications,” adds Steve Moseley.

“The project is an excellent demonstration of both our belief in working closely with each customer to respond to exact needs, and also of the range of processing and handling systems which we can incorporate into each project solution,” adds Steve Moseley. He points out that the project works in conjunction with a previous George Koch installation at the plant, which enabled the move from chromic to tartaric sulphuric acid to be achieved.

“The bringing together of so many operational stages into a single, space-efficient unit, with built-in performance capability and versatility, has addressed the key objectives of this major project at Airbus. The result is an installation that is central to a wide range of component production at the site and, importantly, one which underpins the organisation’s commitment to moving away from chromic-based chemical usage,” he concludes.

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