

GANTRY GATE BASED X-RAY COMPUTED TOMOGRAPHY IN AEROSPACE INDUSTRY

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Industrial CT systems have been introduced during the last years in different NDT areas, as e.g. in casting and automotive industry. These are stationary devices and require adjusting the object for inspection in the CT device. New digital detectors in combination with manipulation and computer based control enable the application of new tailored CT-concepts for inspection of large components which cannot be inspected in laboratory based CT-scanners as for instance large flat aircraft components.

The TomoCAR design was modified for in situ inspection of large aircraft components under production conditions. A gantry gate based planar tomograph was constructed and tested for inspection of the integrity of large flat panel components. The TomoCAR geometry was modified and equipped with a specially designed X-ray tube of COMET and a larger DDA of PerkinElmer. CFRP panels (Carbon Fibre Reinforced Polymers) of aircrafts of up to 3 x 9 m size were inspected. The integrity of imbedded stringers has been successfully observed. No alternative NDT method with similar detection rate has been found up to now. The technology was tested and qualified by airbus. Different trials were performed to prove the finding rate of cracks in embedded stringers, which will be presented and discussed.