

INNOVATION IN COMPOSITE DESIGN

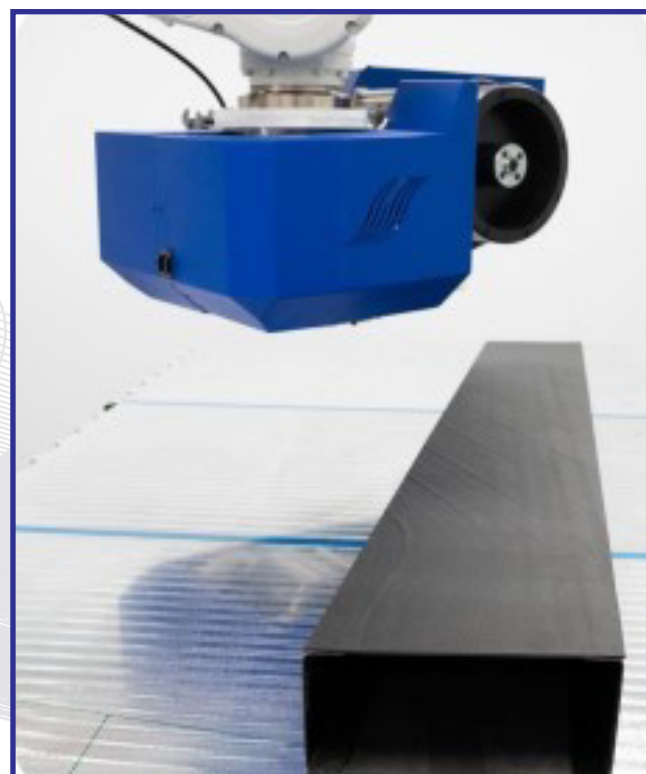
SHORTLISTED: iCOMAT

This 20-month collaborative project (ATI-52622-MASCoTS) produced a representative demonstrator wing-box which is 20% lighter than the equivalent straight-fibre quasi-Isotropic design, through the use of iCOMAT's Rapid-Tow-Shearing (RTS) process.

An end-to-end solution to design/manufacture fibre-steered components was developed and implemented. Specifically, iCOMAT developed an industrial-grade RTS-machine based on its existing prototype-machine by optimising its deposition mechanism and tape-feed-system to ensure high productivity and reliability.

A structural-analysis software and an aeroelastic-design software was developed by MSC UK and Dapta, respectively. A software which interprets the optimised designs obtained by simulation into tool-paths which iCOMAT can translate into manufacturing instructions for the RTS-head was developed creating a link between analysis and manufacturing. A representative wing-box was designed, manufactured and tested providing data on the performance benefits of RTS for a realistic aerostructure.

This was a significant step in measuring the impact of RTS against the efficiency and productivity targets set by the ATI.



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