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14 WINNERS OF THE JEC ASIA INNOVATION AWARDS 2015
Celebrating the use of innovation in composite materials
SINGAPORE SUNTEC CENTER - October 20, 2015

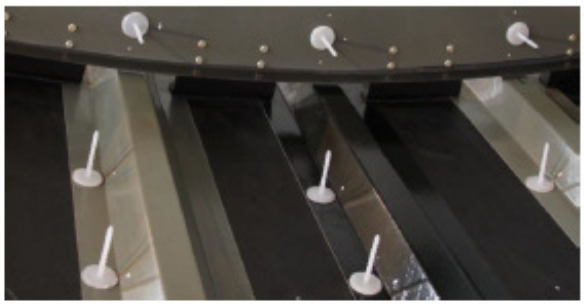
Category: THERMOPLASTIC PROCESS

Winner: Advanced Composite Structures Australia (Australia)

Partners: Airbus Operations S.A.S. (France), The University of Sydney (Australia), Bishop GmbH - Aeronautical Engineers (Germany), Pacific Engineering Systems International Pty Ltd. (Australia)

Name of Product or Process: **COFA™ - Rapid welding of thermoplastic brackets to thermoset composite structures**

Description:



Many composite structures and assemblies include small brackets, fittings and attachments that support only minor loads but are vital to the performance of the structure as a whole. They are most often attached after the main composite structure has been manufactured, as they can be difficult or expensive to incorporate into the structure during the original manufacturing process.

A novel method to rapidly weld thermoplastic brackets and fittings onto pre-manufactured thermoset composite panels has been developed that eliminates the need for fastening or traditional adhesive bonding. This innovative technology, known as COFA™ (COmposite Fitting Attachment), works via the incorporation of a special thermoplastic polymer surfacing layer onto the surface of the thermoset composite laminates, which then makes it possible to weld brackets designed with a compatible thermoplastic polymer surface. The bracket can be rapidly welded onto the laminate using a fast interface heating method, such as ultrasonic welding, which enables the joint to be made in a few seconds. The joints are strong enough for the requirements of many non-structural brackets.

Typical aerospace structures require thousands of small brackets, fittings and attachments to be installed for a variety of non-structural or semi-structural applications such as the support of wiring, ducting, insulation, spacers, latches and the like. **The COFA™ technology enables such brackets to be quickly assembled to a wide variety of composite structures, with a significant saving in process time and cost, and with the ability to remove and re-install brackets as necessary.** In parallel with the specific developments and applications for the aerospace market, Advanced Composite Structures Australia is working with a number of companies to implement the COFA™ technology in a fast growing automotive market, where rapid assembly is a key driver.