

Robotics makes its mark in the composite industry

Robotics, already widely used in industry, is finally catching up on lost time in the field of composites. The paradox of this cutting-edge industry being dominated by traditional methods is fading away with the emergence of robotic solutions at every processing stage.



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The composite processing industry is looking to grow by building on its many innate advantages while at the same time taking in hand and overcoming its weaknesses. The pressure of productivity, quality consistency and environmental constraints is increasingly brought to bear every day on this industry which strives to be at the cutting edge.

From a promising introduction...

Already generally established in the manufacture of flat composite panels (refrigerated industrial bodywork), robotic solutions have really made inroads in the composite industry these past two years. More and more sectors are involved, at various stages along the production line. The Boat Industry System works at Marans,



Robomat gelcoat spraying robot

in western France, have for example been using a robot since 2005 to apply the mould release agent and gelcoat on boats over 10

metres long. Based on a human gesture reproduction technology, the robot allows a complete spraying program to be recorded while a part is being produced by an operator. The robot then reproduces this model infinitely, thereby relieving the operators and the workshop environment of any constraints relating to VOC emissions.



Fibre placement robot

Other workshops have turned to robotics for resin/glass fibre spray-up in a variety of fields: reinforcement of thermoformed acrylic parts, industrial parts (cowlings, bodywork) and large parts (one-piece swimming pools). Sometimes using "non-roll" type resins, users here are seeing their manpower costs fall dramatically. Consider, for example, the 26 hours generally required for manufacturing a one-piece swimming pool: this time is reduced to less than 6 man-hours per unit.

... towards full industrialization

Going still further with this use of robotics, some companies are now taking the full industrialization route, by using these new tools to handle every phase of manufacture. An example of this is a unit that produces bath tubs, and which uses no fewer than seven robots for a 100% automated flow: loading and unloading conveyors, handling inserts, spray-up, cutting, trimming and

More information ...

Matrasur Composites is a specialist in process engineering for composite materials. In line with its three-fold mission as a manufacturer, integrator and distributor of equipment for the composite industry, Matrasur Composites is able to adapt its extensive range of robotics solutions to every industrial situation.

piercing parts are all handled right through to the packaging station with no human intervention and at a rate that would be impossible for traditional operators. Small and medium-sized enterprises are also getting in on the act, with highly versatile robots being used for a variety of tasks: mould release agent, gelcoat, barrier coat, adhesives and sealants, spray-up and – soon – consolidation could all be combined in one and the same robot. Configurations such as these offer really fast return on investment and access to industrialization for SMEs with a headcount of less than ten.

Developments and the future of robotics in composites

There is no shortage of potential applications, several of which are already past the R&D stage. Fibre placement for RTM preforms or prepregs laminate parts in aeronautics, application of adhesives and sealants and automatic debulking/compacting remain priority avenues of development for exploiting robotics in the composite industry to the full. ■

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