

CARBON FIBRE COMPOSITE AUTOMOTIVE FENDER

Quickstep

Quickstep is a supplier of carbon fibre composite parts, focussing on the aerospace, defence and automotive sectors. Essential to its continued success is collaboration, including with universities and with other companies to maintain its technology leadership and to develop industry-relevant solutions. An area of potential is the luxury automotive industry, with volumes up to 10,000 vehicles a year representing a sweet spot for Quickstep's capabilities.



Left to Right: Professor Jan den Hollander AO Deakin Vice-Chancellor, Dr Jens Goennemann AMGC Managing Director, Hon Craig Laundry MP, David Marino, Quickstep

How the Growth Centre helped:

The AMGC provided a \$250,000 grant for a collaborative project with Special Patterns and Deakin University's Carbon Nexus. Fostering such collaborations is critical for Australian manufacturing to be internationally relevant, according to Quickstep.

What's changed:

The six-month project has seen Quickstep qualify to supply composite fenders for a German OEM. RFQ will take place early 2018. The concept has attracted interest from other luxury European and British car makers.

Success story overview

Established in 2001 to commercialise its innovative out-of-autoclave composite curing method, Quickstep is a supplier of components to the F-35 Lightning II Joint Strike Fighter program and, since July 2015, to the automotive sector. It also produces in smaller quantities for other industries, such as medical.

"Companies like Quickstep need to find collaborative partners to be able to take their technology to the globe," explains Carl de Koning, Executive General Manager, Business Development (Automotive).

“A lot of people see us as a publicly-listed company, but the reality is we're about \$51 million in turnover and we have roughly 200 people across our business. So we're an SME, but we're an advanced manufacturing SME.”



Quickstep’s technology leadership depends on links with public researchers, and Deakin University – where the company’s Automotive division has been located since November 2015 – is its principal research provider. 11 Deakin PhDs have worked on its Quickstep Process (now called Quickstep Qure Process)

Qure is a substitute for autoclave curing, which is expensive to run and requires significant capital investment. Autoclave methods are also slow, and have an output of around 3,000 cycles a year (cycle times are between four and eight hours). *Qure* has a half-hour curing time.

Quickstep received a grant of \$250,000 in February to demonstrate *Qure* and the Quickstep Production System to create carbon fibre fenders for a European automotive OEM, from material to finished part. The project included tooling company Special Patterns of Braeside, Victoria, and Carbon Nexus, a carbon fibre research facility headquartered at Deakin.

The OEM has planned volumes of 5,000 vehicles annually (10,000 fenders). Quickstep’s proposed method offers simplified tooling, quicker production, and less capital investment.

There were four technical hurdles to address: developing an automated pre-forming solution to overcome lengthy

manual layup times, fast curing that also provides a Class A finish, providing a flexible tooling solution enabling one-piece flow, and superiority on cost.

Special Patterns worked on the development of the tooling solution, and Carbon Nexus assisted with materials.

Stage 1 of the project ran for six months, and developed a manufacturing solution and a part to be tested. Tooling has been shifted to Quickstep’s German facility to be used with a *Qure* cell onsite. (Stage 2 involves building pre-forming equipment.)

The impact of the project is significant. Potential export value has been estimated at \$25 million. The solution has qualified Quickstep to be a supplier, with request for quotation to take place in Q1 2018.

Importantly, says de Koning, Quickstep also gained permission to demonstrate a modified, three-quarter-scale version of the fender to other potential clients. There is interest in a competitive composite fender manufacturing solution from “a number of German and UK luxury OEMs that are all building vehicles in the 3,000 to 10,000 cars a year range.”

“There are some curing technologies that the auto industry uses for vehicle volumes of 50,000 to 100,000,” explains de Koning.

“But those solutions are very expensive and the tooling costs are prohibitive for somebody who wants to only build 10,000 cars a year.

Quickstep says the AMGC funding of \$250,000 – its first to a company – was valuable, representing perhaps a quarter of the total project cost. What has also been important is lifting the profile of both Quickstep as an advanced manufacturer and the concept of advanced manufacturing within the Australian environment.

Vital to advanced manufacturing is collaboration. This is seen as mandatory within the automotive world, though not everywhere else, says de Koning. It will be essential if Australian manufacturing is to be internationally relevant.

“Pretty much all of the planes, trains and automobiles that are used in our marketplace are made somewhere else, and so we have to have that global focus,” says de Koning.

“You need projects that lead to international activity, because there are no major end-users in this market. And projects like this are ideal, because you’ve got an international end-user as part of the process.”

Contact us

www.amgc.org.au



@AMGC_Ltd



Advanced Manufacturing Growth Centre Ltd



AMGC_Ltd