

## **QUICKSTEP SIGNS MAJOR NEW RESEARCH & DEVELOPMENT CONTRACT WITH VCAMM**

- **New Research & Development programme valued at over A\$940,000, to be jointly funded by Quickstep at The Victorian Centre for Advanced Materials Manufacturing (VCAMM).**
- **Programme to include 3 research projects, with specific application to aerospace and automotive composites manufacturing.**
- **Molecular analysis of Quickstep-manufactured components to be carried out in support of major aerospace manufacturers, including Boeing and Airbus.**

International advanced composites manufacturing group, Quickstep Holdings Limited (ASX: QHL – “Quickstep”), and the Victorian Centre for Advanced Materials Manufacturing (VCAMM) today jointly announced a major new R&D programme focusing on the development and analysis of composite components for aerospace and automotive applications.

The new programme builds on an existing research collaboration agreement between Quickstep and the Victorian State Government-backed VCAMM signed in July 2004, and provides for further exploration of two existing R&D projects, as well as funding new material analysis in support of major aerospace manufacturers.

Quickstep’s Managing Director, Mr Nick Noble, said the agreement would enable important research to be carried out to facilitate the ongoing commercialisation of Quickstep’s patented composites manufacturing technology for the global aerospace and automotive sectors.

The most significant component of the research programme will focus on the performance characteristics of composite components manufactured using the Quickstep Process, specifically examining how Quickstep’s unique fluid-based composites curing technique results in apparent improvements in the thermal and adhesion performance of the resulting composite material.

Previous research has established that the rapid heating of composite materials made possible by the Quickstep Process can, in certain cases, result in improvements in resin toughness, impact strength or mechanical properties. The reasons for this are not fully understood, however it is supposed that a positive effect is occurring at micro and molecular levels, resulting in a “better cure”.

Nick Noble said Quickstep continues to receive questions from Boeing, Airbus, and other companies regarding these molecular differences, and what specific effects the Quickstep Process has on composite properties.

“The key focus of this new R&D agreement will be analysing the molecular properties of composite materials manufactured using the Quickstep Process to establish how these improvements are produced,” Mr Noble said.

“If the R&D program demonstrates that the Quickstep Process does deliver a fundamental improvement in the material structure at a microscopic level, this could unlock a high-potential market value in the aerospace industry, particularly in the construction of high-value aircraft primary structures,” he continued.

In addition to this new R&D project, continued analysis will also be conducted on thermoset and thermoplastic composite tubes produced using the Quickstep Process to investigate their effectiveness in automotive crash energy management - an area currently attracting strong interest from international researchers.

Previous testing by VCAMM has identified that tubes produced by Quickstep have a high specific crush energy, suggesting they may offer important safety benefits in automobile accidents. Further research will be conducted by VCAMM's researchers based at Deakin University and the US-based Oak Ridge National Laboratory to evaluate the performance of different fibreglass/thermoplastic structures under high speed crush testing.

VCAMM's CEO Mr Brad Dunstan said, "Preliminary testing of composite tubes manufactured using the Quickstep Process has shown some exciting results for crash energy management. Gaining a detailed understanding of how and why the Quickstep Process delivers such unique performance in specific energy absorbance will be a key aspect of this project. This process has the potential to revolutionise the way engineers design automotive crash structures."

The third project to be carried out under the new R&D agreement will involve enhancing Quickstep's patented melding process, which enables one composite part to be effectively welded to another, without the use of bolts or adhesives and with no physical difference or separating surface remaining between them.

VCAMM's researchers will be evaluating the melding process with specific focus on aerospace applications, with the aim of developing design guidelines for obtaining the full potential in advanced carbon fibre composites

The \$940,000 R&D programme will be jointly funded by Quickstep and VCAMM. Quickstep will provide total funding of \$250,000 cash and \$130,000 in-kind contributions. The cash component will be paid quarterly in advance subject to satisfactory progress on each project up to a report date of two weeks prior to the end of each quarter. VCAMM funding towards delivering the project will be \$380,000 in cash and over \$180,000 in-kind.

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## **Background on Quickstep Holdings Limited**

**Quickstep Holdings Limited (ASX Code: QHL)** is an advanced materials company listed on the Australian Stock Exchange and focused on the worldwide commercialization of an innovative, fully proven Australian composites manufacturing technology with application in the multi-billion dollar aerospace and automotive industries as well as other mid-tier market segments.

Composites combine high strength with light weight and are key materials in aerospace, automotive, marine, defense, public transport and industrial applications. The global composites parts market is growing strongly, reflecting a shift towards the greater use of composites as an increasingly desirable replacement for metals in many applications because of their high strength and reduced weight.

Quickstep's unique and patented Quickstep Process is an innovative fluid-based curing technology that significantly reduces the cost and time involved in the production of composites compared with conventional processes. Quickstep has been at the leading edge of the growing need to reduce part costs since the early 1990s, with a significant investment in the development of the Quickstep Process over the past decade.

Quickstep already has fully automated Quickstep pilot production facilities operating at four separate locations with one in Japan, a second at the Victorian Centre for Advanced Materials Manufacturing (VCAMM) in Geelong, a third at the Northern Aerospace Technology Exploitation Centre (NATEC) in Manchester, England in conjunction with the University of Manchester, and a fourth at the National Composites Center (NCC) in Ohio in the US.

Global alliances are also in place with major international advanced materials suppliers such as Toray Composites (in the USA and Japan) and German-based industrial chemicals and performance materials giant Degussa AG, alongside R&D and Applications Development Agreements with groups such as VCAMM.

Quickstep's business model is to generate multiple revenue streams from equipment and license sales to major aerospace, automotive and marine manufacturers; joint venture arrangements and co-branding and co-marketing agreements with leading composites manufacturers, Original Equipment Manufacturers (OEM's), Tier One suppliers and alliance partners; and contract and in-house manufacturing operations and sales utilizing the Quickstep Process.

## **Background on VCAMM**

The Victorian Centre for Advanced Materials Manufacturing (VCAMM) represents a new model of research collaboration between the manufacturing sector and materials researchers in Victoria. It is based on the philosophy that innovation in the field of new and advanced materials requires advanced technology infrastructure and an integrated systems approach that addresses materials characterisation, manufacturing, design and deployment of knowledge across the value chain. In conjunction with this, VCAMM acts as a 'one-stop-shop' interface to allow industry to maximise the potential that the research community offers.

VCAMM is based around the core skills of three research organisations: Deakin University, Monash University and CSIRO Manufacturing and Infrastructure Technology, who are leaders in industry-focussed research, education and technology transfer for advanced metals, fibres and composite materials.

At the same time VCAMM draws upon the specific skills of other members in surface science, advanced computing and casting and alloy development. The centre has broad industry support and will enhance a number of current partnerships while also developing new collaborations. This partnership between researchers and industry will allow industry to increase its rate of innovation and technology uptake and thereby improve the sustainability of one of the State's most important sectors.

The main outcomes from VCAMM, identified as major needs by industry, include: improving the collaboration between industry and research providers to develop new products and processes, the provision and access to world class research infrastructure over the entire value chain and the attraction of high quality graduates and researchers to the industry. A broad range of projects are already planned; new ultrahigh strength steels for the automotive industry, new light alloys for forging, forming of near net cast sheet, the development of novel polymers and composites, and new physical and structural characterisation methods. The focus in all cases is on increased functionality, quicker uptake by industry and reduced environmental impact.

VCAMM's technology infrastructure addresses existing market issues. The manufacturing industry is currently unable to access the full range of research infrastructure to meet future requirements because it is physically not available in Victoria, or in many cases, Australia. Further, the cost to establish a fully functional materials research facility is beyond the scope of the majority of small to medium enterprises. Thus, industry is looking to Government and research organisations to provide leadership by funding the initial set-up of such facilities; the operational aspects are then supported through industry and grant funding.

The infrastructure is located at two nodes: Geelong and Clayton, which are aligned with the strategic capabilities and locations of the core members and are emerging technology precincts. The infrastructure supported by VCAMM fill gaps in the Victorian materials community's capability to cover the manufacturing industry value chain. The infrastructure comprises a suite of forming, processing and deformation equipment for advanced metals, fibres and composite materials that are being used to develop new and advanced materials and processes. The platform-characterisation infrastructure determines the unique structure-property relationships of these materials and will assess their relevance for industry application. VCAMMs modelling equipment enables performance simulation from which end-users can visualise, predict and verify how these materials will behave under real-world conditions. This allows industry-wide dissemination and exploitation of the knowledge generated through VCAMM's activities.

The centre operates on a project basis, including specific collaborative projects with partners and industry and internal strategic projects that develops concepts to demonstration stage.

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