Austech 2012: Additive Manufacturing moves beyond prototyping

Melbourne,15 March 2012 From 8 to 11 May 2012, innovativecompanies will be showcasing more than CNC machining at Austech 2012 inSydney. Additive Manufacturing (AM) is the watchword for eight companiespresenting the latest technology for 3D printing and digital manufacturingsolutions in a dedicated additive/digital manufacturing pavilion over the fourdays of the show. AM, also referred to as 3D printing, is now playing an everincreasing role in a range of industries such as aerospace, automotive, medicaland defence because of the many benefits it offers compared to traditionalsubtractive technologies. As a consequence, new machines have been introducedon both the high and low ends of the cost spectrum over the past couple ofyears.

These new developments have led to directdigital manufacturing (DDM) not only being used for rapid prototyping of newproduct designs, but increasingly for manufacturing end-user parts such as jigs,fixtures and other tools used in production and assembly processes. It is alsobeing used to create custom components as well as medical and dental partsbecause DDM processes are faster, more affordable alternatives to manufacturingsuch parts via machining or injection moulding.

Additive manufacturing is an emergingtrend, which is rapidly gaining acceptance within the manufacturing community,comments Joel Brown from Solidtec Solutions. Events like Austech help toeducate the broader market ensuring the technology is propagated at a morerapid rate. The 3D CAD market acts as an enabling technology to accelerateadoption of technologies like additive manufacturing as companies which adopt3D CAD for design are able to leverage 3D data in all aspects of theirbusiness.

One of the many reasons why manufacturers shouldfollow the AM developments is speed: AM processes require no tooling and have adigital foundation. There are virtually no delays in moving from a robustdigital design to the manufacturing process. There is direct, uninterruptedprogression from concept to part.

Austech having a dedicated pavilionshowcasing AM/3D Printing is an excellent medium for potential customers to seefirst-hand how companies are now actively saving time and money whileaccelerating the product to market timetables, says Bruce Jackson from 3DPrinting Systems Australia. The costs for 3D printing systems are gettinglower and it is now an affordable desktop addition to any product designdepartment.

Tasman Machinery Managing Director DermidMcKinley thinks that the market is in a point of transition, where earlyadopting Australian manufacturers are beginning to understand and invest in AMtechnologies. Where previously AM was very much aimed at the prototyping anddesign sectors, we now have customers running their machines on a 24/7 basis,looking for maximum capacity utilisation and expecting service and supportlevels of our traditional manufacturing customers. This is quite a turnaroundfrom the previous view of AM technologies.

We all know we can never compete againstthe mass production of low cost economies, but Australia can certainly competein manufacturing markets where complexity and sophistication of design isnecessary. In almost all manufacturing environments, product designs aredictated by the constraints in the ability to manufacture parts. Product features are compromised. Multipleparts are used when a single part would suffice. AM eliminates many of thosemanufacturing constraints and makes mass customisation possible.

Thanks to the technologys freedom in termsof shape and design, it enables customised, optimum products to be created. Byvirtue of the geometric freedom provided, and the high elasticity of thematerial involved, moreover, it is possible to manufacture snap-fitconnections, complicated form-locking elements, spring-force connections andgeometries like leaf springs or helical springs. This means fewer parts have tobe mounted or connected with tools.

As a consequence, more and more businesses bringthis technology in-house that previously was mainly provided through servicebureaus. According to Camplex Managing Director Fred Carlstrom, machine pricesfor smaller machines start from around $10,000 which is quite affordable butyou still pay up to a $1,000,000 for a large SLA (Stereo-Lithography) machine.

Metal sintering, laser or electron beam,is also generating a lot of interest because the technology unlocks all designconstraints, he adds. With additive manufacturing you can pretty much designand manufacture any design without having to consider how it is going tomanufactured or consider what tooling to use because there is no toolingrequired.

However, AM does not aim at replacingconventional machining processes. The technologies will co-exist and complementeach other to optimum effect. As part of the Additive Manufacturing Pavilion,exhibitors will help interested visitors to find the right approach to definethe correct application categories and to replace existing conventionaltechnologies only where commercial and technical advantages are to be gained.

The focus on AM and rapid prototyping atAustech is timely and appropriate, concludes Anna Elliott, Marketing Managerat Memko. In the rapidly evolving market, low volume and customisedmanufacturing will play an ever increasing role for Australian customers and itis important to have a platform for showcasing and promoting the diversesolutions available today.

Participatingcompanies:

3DPrinting Systemswww.3Dprintingsystems.com.au

3DSystems Asia-Pacificwww.3dsystems.com.au

Camplexwww.camplex.com.au

Memkowww.memko.com.au

Objective3Dwww.objective3d.com.au

SolidtecSolutionswww.solidtec.com.au

TasmanMachinerywww.tasmanmachinery.com.au

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