



**Rapid.Tech (14–16 June 2016), Messe Erfurt**

**13<sup>th</sup> Rapid.Tech – new trade forum “3D Metal Printing” explores the potential  
Industrialising Additive Manufacturing of metal components**

*Erfurt, April 2016: Additive Manufacturing (AM), also known as 3D Printing, has come so far in recent years that it is now possible to print high-quality modules and components from a variety of metals. The latest developments in these technologies and the scope for, and limitations on, their use in industry will be discussed in the new “3D Metal Printing” trade forum at Rapid.Tech, the international trade show and conference for Additive Manufacturing, which takes place from 14 to 16 June 2016 in Erfurt.*

It is clear from a range of applications in fields such as aviation and medical technology that Additive Manufacturing processes offer completely new levels of product design, efficiency, speed and flexibility in the production of series parts. It is therefore hardly surprising that growing numbers of companies are investigating the industrial use of AM technologies. However, standards in series production are significantly more rigorous than for prototype manufacturing. “IT integration in product life cycle management (PLM), continuous processes from concept to finished component and reproducibility are fundamental prerequisites for industrialisation,” explains Helmut Zeyn, Business Development Additive Manufacturing at Siemens Industry Software GmbH. The AM expert will discuss these challenges in his keynote address on the first day of this year’s Rapid.Tech (14–16 June) in Erfurt. Helmut Zeyn will also present innovative developments that enable manufacturers seeking to integrate AM processes into existing production lines to meet the requirements of modern series production for process reliability, process monitoring, traceability and data exchange.

The various trade forums will open immediately after the keynote address. In the inaugural “3D Metal Printing” trade forum, the introductory talk by Jannis Kranz of Materialise will examine the potential for producing metal components, including parts with hollow, lattice or protruding structures. He will take successful applications and demonstrate that it is no longer the limitations of manufacturing technology but rather component functionality that drives the design of metal components – provided that



developers recognise the design freedoms and opportunities offered by AM technologies, and make intelligent use of them. Simon Höges of GKN Sinter Metals Engineering GmbH will present water atomisation as a cost-effective alternative to the more conventional gas atomisation of metal powders. He will compare the microstructure and mechanical properties of components produced by laser melting of water-atomised 316L stainless steel powder with those produced from gas-atomised powder. His session will show that, when combined with the higher production speeds enabled by recent innovations, water atomisation significantly increases the range of possible applications for the series production of 3D-printed metal components. The expanding range of metal powders on the market is also a key factor, as Dr.-Ing Matthias Gieseke of Laserzentrum Hannover e.V. will highlight when he discusses the use of selective laser melting (SLM) of the first magnesium powder, Elektron MAP 43, in lightweight designs. He will outline the results of his study calculating the particle sizes, processing parameters and structures required to produce specimen components with a density of over 99 percent.

The challenges for, and solutions presented by, Metal Additive Manufacturing will be covered in the session led by Oliver Kaczmarzik of Concept Laser GmbH. It will examine issues ranging from how to increase productivity with a modular approach that combines several AM units and automated processes, to the physical separation of the construction, pretreatment and post-processing phases, all the way to the integration of AM machines in manufacturing to Industry 4.0 standards. Both the medical technology and aviation sectors use electron beam melting (EBM) in the production of series parts. One of the firms meeting the resulting increase in demand for process and quality control solutions is the Swedish company Arcam AB, and Patrick Ohlén will be on hand to present some of its innovative developments. These include a high-resolution camera and an X-ray sensor that are integrated in the company's quality systems. The camera takes images of the entire powder bed after melting so that quality controls can be performed for each layer of the process. The X-ray sensor is able to determine beam parameters such as position, focus and beam profile with exceptional accuracy. Clemens Lieberwirth from the Department of Fluid Technology and Microfluidics at the University of Rostock will present a further exciting development: an extrusion-based additive process for producing high-density metal components known as Composite



Extrusion Modelling (CEM). It consists of two phases – additive manufacturing of green parts from injection-moulded metal grains followed by industrial sintering – and has demonstrated distinct advantages over powder-based processes in terms of material handling and cost-effectiveness.

As with all sessions at the Rapid.Tech conference, simultaneous interpretation (German<>English) will be provided for presentations at the trade forum “3D Metal Printing”. The new trade forum is convened and organised by Dr. Yves Küsters, Corporate Technology, Research in Energy and Electronics, Siemens AG. Küsters has been working on SLM for almost ten years and was awarded his PhD for his thesis on “Methodological Parameters for a Robust Blasting Process”. His work at Siemens includes developing SLM processes and materials, with a particular focus on high-temperature alloys.

The 13th Rapid.Tech, international trade show and conference for Additive Manufacturing, will include the trade forums “Additive Contract Manufacturing”, “Electronic Engineering” and “Automotive Industry” for the first time. Both the new conference sections and the well-established trade forums “Medical Technology”, “Dental Technology”, “Design”, “Aviation”, “Tools” and “Science” and the User’s Conference will provide opportunities for industry professionals to discuss specific AM issues in depth. For twelve years, the User’s Conference has been the platform used by experts and newcomers to discuss the current state of Additive Manufacturing as well as developing trends. “With the expanded conference programme and the extended, three-day duration of Rapid.Tech, we are keeping abreast of the latest developments in Additive Manufacturing and 3D Printing,” explains Wieland Kniffka, CEO of Messe Erfurt. The complete programme is available at [www.rapidtech.de](http://www.rapidtech.de).

Thanks to its unique combination of trade show and specialist conference, Rapid.Tech in Erfurt is among the world’s foremost events in the field of Additive Manufacturing and 3D Printing. For the fourth time FabCon 3.D, Germany’s 3D Printing fair for semi-professional users and prosumers, will be held in parallel with the event.

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