



Rapid.Tech + FabCon 3.D
25 - 27 June 2019
Messe Erfurt

Fresh momentum in 3D printing **Applications, processes and training: 16th Rapid.Tech + FabCon 3.D demonstrated ways of overcoming current challenges in industrial additive manufacturing**

(Erfurt, 12 July 2019). Three challenges dominated the 16th Rapid.Tech + FabCon 3.D in Erfurt between 25 and 27 June 2019: applications, processes and training. The 175 exhibitors, 24 from outside Germany, noted increasing levels of knowledge about 3D printing amongst the 4,500 trade visitors. They highlighted in particular the high quality of visitors, whose expertise was evident as they inquired about specific applications for additive procedures in production processes. The booths and some 20 forums at the specialist conference were full of trade fair and conference participants discussing the commercial use of additive manufacturing (AM), the requirements for integrated processing from design to finishing including legal and regulatory aspects, and the need for timely training of specialists. "These three days in Erfurt have provided impressive proof of AM's arrival in the industrial sector and of the ability of the conference and trade fair this year to respond to the major challenges and trends relating to industrialisation. The redesigned Education, Software & Processes, Standards & Safety, and Plastics forums and enhanced networking opportunities both played a role in this," say Advisory Board Chairs Michael Eichmann (Stratasys) and Prof. Gerd Witt (University of Duisburg-Essen).

Alongside leading providers such as 3D-Systems, EOS, FIT, Stratasys and Trumpf, who have been regular exhibitors in Erfurt for many years, this year saw other well-known companies such as French 3D design software experts Dassault Systèmes and Austrian technology group Voestalpine give the first demonstrations of commercial industrial AM applications. Many SMEs such as research institutes and universities also showcased expertise in materials, machinery, software, finishing solutions and other additive manufacturing services. 2019 also saw large numbers of international start-ups and young designers also present new and creative ideas for 3D printing. Glassomer GmbH from Freiburg won the Start-Up Award with a process for making a 3D-printable high-purity quartz glass that can also be 3D-printed on, for use in applications such as endoscope lenses. Messe Erfurt was also the platform for the 3D Pioneers Challenge – an international design competition with record numbers of candidates – for the fourth time. Submissions to the high-calibre international jury came from 23 countries and five continents. The best 3D printing design ideas for Architecture, Design, Digital, FashionTech, Material, MedTech, Mobility and Sustainability were chosen from amongst 36 finalists. The jury awarded the 10,000-Euro grand prize to the Tel Aviv University of Israel team's 3D-printed heart project, which submitted a 3D printed mini-heart made from a patient's own stem cells and organic tissue for the 3D Pioneers Challenge.

The impressive keynote presentations that kicked off each day of the fair reflected specific applications on the ground and in the air, from medical technology to industry, and included challenges yet to be overcome in relation to integrated digital process chains. Dr Majeed Rana, Chief Physician and Vice Director of the Department of Oral, Maxillofacial and Plastic Facial Surgery at Düsseldorf University Hospital opened the proceedings. He pointed out how defects in the maxillofacial area caused by accidents, tumours or congenital malformations can now be completely eliminated using computer-assisted surgery and additive methods, usually with just one operation. CAD software and 3D printing are becoming key tools for surgeons. They can be used to plan operations down to the last detail and produce the necessary patient-specific implants. Dr Rana said that this was a quantum leap in comparison with conventional techniques.



He had three requests to make of 3D printing manufacturers and service providers on behalf of the medical sector: user-friendly products and tools, a common language across medicine and industry, and even more speed to implement applications in practice.

Ulli Klenk, Principal Key Expert at Siemens Gas and Power, underlined in his keynote presentation that additive manufacturing and digitisation are perfect partners and together create the conditions for fully integrated digital value chains. However, he did not shy away from the fact that manufacturers and service providers still have plenty of problems to solve behind the scenes. He demonstrated Siemens' activities in AM industrialisation using a turbine burner tip as an example, and also showcased the huge potential of AM for the manufacture of more efficient and weight-saving components, resulting in a significant reduction in CO2 emissions both in the production process and when components are used. Whereas conventional methods require twelve individual parts for the component, the tip can now be printed as a single part. An additional coating process that had previously been required is now no longer necessary. Siemens Gas and Power has been involved with AM since 2006, using 3D printing processes to produce turbines amongst other things and printing the first turbine blade in 2017. AM's achievements so far include reductions in development times of up to 75 per cent, savings in manufacturing resources of up to 65 per cent and delivery times cut by around 50 per cent. Some of the hurdles still to be overcome include integrated software solutions that allow you to take a close 'look' at machinery and machining processes and read parameter sets, said Klenk. The aim is completely virtual production to enable optimised, efficient manufacturing.

In his keynote presentation on the final day of the fair, Dr Steffen Beyer from the Ariane Group spoke about the economic quantum leap the aerospace industry is aiming to achieve using AM. The materials specialist is responsible for materials, production processes and industrialization in the rocket engines division. At present, all eyes are on the Ariane 6, due to be launched next year, and the next generation of rockets. The aim is to bring engine costs down from the current ten million euros to one million. And this can only be achieved with disruptive technologies. Additive manufacturing has a key role to play here, said Dr Beyer, discussing the immense challenges involved. In addition to the powder bed process (LBM), which has already been qualified, Ariane Group developments include a wire process (WAAM) and cold gas spray (CGS) for industrial application. As a rule, it focuses on the qualification and industrialisation of the entire additive development and manufacturing chain, including the implementation of 100 per cent seamless inline process monitoring from raw material to end product. Purity is the key, as even the tiniest particles can lead to engine failure, according to Dr Beyer.

"Germany's longest-running 3D printing conference and trade fair, Rapid.Tech + FabCon 3.D, has once again shown that the Erfurt get-together is a firm fixture on the AM family's calendar for early summer. We are building on this and are implementing an extensive investment programme for Rapid.Tech + FabCon 3.D and our infrastructure that will further improve our attractiveness and range of visitor and exhibitor services in the coming years. The initial results will be evident at Rapid.Tech + FabCon 3.D 2020," promises Michael Kynast, CEO of Messe Erfurt GmbH.

The 17th Rapid.Tech + FabCon 3.D will take place from 16 to 18 June 2020 in Erfurt.
Further information: www.rapidtech-fabcon.com

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