LASIMM project goes live – one of the world's largest hybrid machines that will pave the way for 3D printing parts and structures for construction

The modular machine is now ready to build, enabling a swift CAD-to-production manufacturing process, reducing both costs and time to market by 20%

Lisbon, January 31st 2019: The Large Additive Subtractive Integrated Modular Machine (LASIMM) project is today announcing a major milestone in its development. One of the world's largest hybrid manufacturing machines, which features unique metal additive and subtractive capabilities, is now ready to build, and will be capable of 3D printing large pieces of metal and large parts and structures for construction. The machine is the first of its kind and brings together a coalition of leading organisations that have kept Europe's advanced manufacturing industry at the forefront of the global market.

Reducing costs, improving efficiency and production flexibility are core pillars to improve Europe's industrial competitiveness. As part of a major initiative to address this, the European Union's Horizon 2020 research and innovation programme has funded ten partners, including universities, research institutions and other technology providers, to produce a machine that can manufacture components for the most demanding industries, all directly from CAD models.

The machine will now be tested to manufacture demonstrator parts. These have been designed by leading industrial end-users to take the machine's capabilities to the limit. It features capabilities for additive manufacturing, machining, cold-work, metrology and inspection. These technologies provide the optimum solution for the hybrid manufacturing of large engineering parts and deliver a 20 per cent reduction in time and cost expenditure, as well as a 15 per cent increase in productivity for high-volume additive manufacturing production.

The machine includes a modular configuration of industrial robot arms and a specialised milling robot – the first for additive manufacturing of aluminum and steel, and the second for machining away surplus material to provide the final finish. This process will enable entire large-scale industries to move away from standardised components and towards bespoke solutions for industries such as aerospace, renewables, energy, transport, construction and many more.

From a software point of view, the LASIMM project is also pushing manufacturing boundaries from a single machine process CAM towards a multi-machine multi-process CAM, driving hybrid machines where multiple processes are combined to manufacture the end component.

Eurico Assuncao, Deputy Director at European Federation for Welding, Joining and Cutting and the LASIMM project coordinator said: "While 3D printing for consumers and makers has received a great deal of publicity, it is within the industrial manufacturing and construction industries that this technology could have its most significant and lasting impact. Its use has now reached a tipping point and this technological achievement will pave the way to enable entire construction infrastructures to be 3D printed in the future. At EWF, we are hard at work to ensure these advanced equipments are handled by adequately trained and qualified professionals. We are thrilled to be part of this unique project."

Project impact:

- 20% reduction in time and cost, with respect to the current additive and subtractive processes
- 15% increase in productivity for high-volume additive manufacturing production, with respect to the current additive and subtractive processes
- More flexibility and robustness of the machines
- Reduction of inventory
- Reduction of work floor space
- Localised manufacturing environments and reduced supply chains length
- Contribution to standardisation and certification for new hybrid procedures

Project partners

Organisations from six countries (Belgium, United Kingdom, Denmark, Spain, Germany and Portugal) have been brought together to develop the Large Additive Subtractive Integrated Modular Machine (LASIMM), based on a scalable open architecture framework with associated software, enabling full parallel manufacturing. There are ten partners engaged on this project, comprising six companies (including the entire supply chain needed to produce such a machine), two universities and two research institutes.

Project partners include the European Federation for Welding, Joining and Cutting, BAE Systems (Operations) Ltd., Foster + Partners Limited, Vestas Wind Systems A/S, Cranfield University, Global Robots Ltd., Loxin2002, S.L., Helmholtz-Zentrum Geesthacht Zentrum für Material- und Küstenforschung GmbH, Autodesk Limited and Instituto Superior Técnico.

The LASIMM project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. H2020-FoF-2016-723600-LASIMM.

About the European Federation for Welding, Joining and Cutting

EWF is a pioneer in implementing a harmonised qualification and certification system for joining professionals. Through European projects, EWF has been innovating in training methodologies, and involved in the development of new technologies and uses for joining. Through its member organisations, EWF has established a firm link to the local industry, providing knowledge and training as well as participating in research initiatives that address the most pressing questions and challenges in the field of joining technologies.

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