
Prima Additive and Materialise advance efficiency and process control of additive manufacturing systems

Collegno, 22 November 2021 – [Prima Additive](#), the dynamic Business Unit of Prima Industrie Group (Borsa Italiana, Star segment) manufacturing industrial metal Additive Manufacturing systems at global level, and [Materialise](#) (Nasdaq MTLN), a global leader in 3D printing solutions, are intensifying their collaboration in the optimization of metal additive manufacturing systems.

The collaboration between the two companies has led to the optimization of the [Print Genius 150](#), the additive manufacturing system by Prima Additive with Powder Bed Fusion technology featuring two lasers working on the same area. On this machine Prima Additive has integrated [Materialise's MCP](#) (Materialise Control Platform) hardware control to obtain real-time control functions and a streamlined combination with external systems to assist the process, such as monitoring and control systems.

A major result of the integration between the Prima Additive and Materialise systems is the development of a laser Workload Balancing algorithm that allows to exploit the two lasers to the maximum and in a balanced way, optimizing their workload. Thanks to this algorithm the two lasers are able to work in each layer for the same amount of time, automatically distributing the work in a homogeneous way and eliminating the moments in which only one of the two lasers is at work, maximizing the benefit of having two lasers on the same machine. The first Print Genius 150 resulting from this collaboration was installed at the University of Leuven, Belgium in April 2021.

Prima Additive 150 Family is a very flexible and smart machine platform. It is the best way to explore additive manufacturing, but also to develop new alloys and to qualify new materials



and applications. All the machines of the 150 Family are equipped with different sensors that monitor the process in real-time, a double preheating system to heat the surface of the powder bed both from the top and from the bottom through the heated plate (up to 300° C), as well as the possibility to integrate lasers with different wavelengths (e.g. green lasers). Furthermore, the machine offers the user the possibility to set the laser parameters and the layer thickness in real-time during the job. Given the product's characteristics, Materialise MCP adapts well to the software architecture of this family of machines and is a flexible tool of indisputable value to optimize the unique features of this machine.

The Materialise Control Platform is a machine-embedded hardware- and software-driven platform for advanced control of laser-based 3D printing processes. This solution is ideal for machine manufacturers, researchers, and 3D printing users who need to adapt the production process to meet specific needs. The MCP provides all the tools required for an easy-to-use, open and configurable system to connect, control and monitor all process related hardware (Laser, Scanhead and Dynamic Focus). Consistent with Industry 4.0, the MCP is equipped with OPC ua and REST API communication protocols. It allows to get access to real time data for analysis and empowers the user to profit from the real time, closed loop control function embedded in the MCP to further optimize the printing process and reduce costs by improving process repeatability while optimizing printing efficiency.

"After the successful integration of our state-of-the-art Machine Control Platform (MCP) into the Print Genius 150, we demonstrated together that our Optics Load Balancing solution ensures an important gain in printing efficiency without loss of print quality. It was also nice to see how the Prima Additive and Materialise teams - however being located at different sites during Covid-19 travel restrictions - succeeded in delivering such a successful project in such a short time period. Materialise and Prima Additive form a strong complementary partnership and we are looking forward to further joint projects with Prima Additive." - declares Jan Van Espen, Research Manager at Materialise.

"This first joint project between Prima Additive and Materialise is the first brick of a research and business partnership for the two companies that will continue to invest in an ever more profitable technological collaboration for the development of increasingly performing and easy-to-use machines, with the target to make additive technology more usable for SMEs



and for all the companies that want to integrate this technology profitably in their production contexts.” – comments Paolo Calefati, Head of Additive Manufacturing and Innovation at Prima Industrie.

High-res pictures

<https://drive.google.com/drive/folders/1JwaGCB851gZoNhmNrZtBkZGvLVZkIWUH?usp=sharing>

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Prima Additive

Benefiting from Prima Industrie’s longstanding experience on laser machinery and services, Prima Additive provides strong support to its customers, developing innovative applications driven by the recent needs and demands in the main industrial sectors (i.e. aerospace, automotive, energy) where Additive Manufacturing is dynamically evolving. Prima Additive covers the two main laser-based AM technologies (Powder Bed Fusion & Laser Metal Deposition) and has strong partnerships with strategic actors (Joint ventures with technology providers, Universities and Competences centres).

Prima Industrie is a group with nearly 1,800 employees worldwide, manufacturing facilities in Italy, Finland, USA and China and a sales and service network in over 80 countries.

Materialise

Materialise incorporates three decades of 3D printing experience into a range of software solutions and 3D printing services, which together form the backbone of the 3D printing industry. Materialise’s open and flexible solutions enable players in a wide variety of industries, including healthcare, automotive, aerospace, art and design, and consumer goods, to build innovative 3D printing applications that aim to make the world a better and healthier place. Headquartered in Belgium, with



branches worldwide, Materialise combines the largest group of software developers in the industry with one of the largest 3D printing facilities in the world.