

Media Release

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DMP Factory 500: New 3D metal printer for aerospace components from 3D Systems and GF Machining Solutions

GF Machining Solutions and 3D Systems are innovating to bring game-changing metal Additive Manufacturing (AM) to the booming aerospace market, as evidenced by their DMP Factory 500. This workflow-optimized metal AM printing solution enables seamless large parts, increased quality and lower total cost of ownership (TCO) for aerospace original equipment manufacturers (OEMs) and their suppliers.

With over a half a century of expertise and key aerospace machining technologies, GF Machining Solutions keeps aerospace OEMs, Tier 1 and Tier 2 suppliers, maintenance repair and overhaul (MRO) partners and other contract manufacturers soaring high above the competition. GF Machining Solutions offers a vast range of aerospace component manufacturing solutions including, most recently, metal AM.

The full potential of AM as an important aerospace component manufacturing technology is supported by recent studies predicting a growth rate of as much as 23 percent for AM in aerospace manufacturing. That makes good business sense because AM optimizes buy-to-fly ratios through reduced costs associated with waste material and enhances geometry and design for functionality to reduce aircraft weight and increase performance.

GF Machining Solutions' long history of relationships with aerospace OEMs and 3D Systems' deep AM expertise and broad portfolio of 3D printers position these partners to develop factory grade AM solutions that fully address the challenges of mass production and the aerospace industry's full traceability requirement.

DMP Factory 500: Meet the AM Factory

The DMP Factory 500 empowers aerospace manufacturers to develop their own dedicated AM factories today. This workflow-optimized 3D metal printing solution is the cornerstone for scalable metal AM production of seamless large parts. It ensures massive scalability, high throughput and low TCO for the production of parts up to 500 x 500 x 500 mm in size.

Metal 3D printing emerged as a technology best suited for producing small, intricate metal parts, and achieving consistent high quality even as part sizes increase is a challenge. But GF Machining Solutions and 3D Systems master that challenge with the deep expertise and clever engineering integrated into the DMP Factory 500.

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The DMP Factory 500 is a remarkably viable modular factory solution because it allows users to overcome a vast range of existing hurdles, including control of part quality, cost and workflows, as well as scalability. In doing so, it paves the way for aerospace manufacturers to build higher-quality parts, reduce their TCO, simplify their process workflows, and scale in a factory environment.

Key features include:

- **Unique vacuum chamber** in order to attain the purest atmosphere during printing. Results: best part quality (no oxidation of titanium parts), highest powder recyclability, lowest argon consumption, fastest setup time.
- Fast **bidirectional** material deposition allowing for faster recoating and greater productivity over time, which is translated to lower operational costs
- Unique modular concept to maximize efficiency by optimizing utilization
- **DMP Monitoring** allowing for non-destructive quality control using real-time process monitoring for informed decisions on product quality.
- **3DXpert™** integrated software that handles the entire spectrum of AM workflow. Supporting every step of the AM workflow from design to post-processing, 3DXpert™ streamlines your process to quickly and efficiently transition from a 3D model to successfully printed parts.

More information:

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Picture caption:

Freedom of design: 25 intricate fuel injection nozzles were produced in just 74 hours using the DMP Factory 500, the AgieCharmilles CUT E 600 for separating the parts from the build platform, 3DXpert all-in-one software, and LaserFORM® Ni718 metal powder.



Seamless large parts: This turbine rear vane (TRV) was produced in only 48 hours with a 60-micron layer thickness and Ra 7–12 μm surface roughness. This application was perfectly executed using the DMP Factory 500 for the build, the AgieCharmilles CUT E 600 for separating the parts from the build platform, 3DXpert all-in-one software, and LaserFORM® Ni718 metal powder.



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Significant weight reduction and increased stiffness-to-weight ratio were among the benefits of using 3D Systems' and GF Machining Solutions' AM technology, LaserForm™ Ti GR 23 powder, and 3DXpert® all-in-one software to build this satellite bracket in just 35 hours. The Mikron MILL S 400 was used for post-processing. The result is a significantly lighter bracket with a 60-micron layer thickness and Ra 4–7 µm surface roughness.

**Profile of GF Machining Solutions**

GF Machining Solutions is the world's leading provider of machine tools, diverse technical solutions and services to manufacturers of precision molds and tooling and of tight-tolerance, precision-machined components. The key segments we serve include the aerospace, automotive, medical, energy, information and communications technology (ICT) and electronics industries. Our extensive portfolio ranges from Electrical Discharge Machining (EDM) solutions, three- and five-axis Milling machines and Spindles, 3D Laser texturing machines, Additive Manufacturing and machines for Laser micromachining to solutions for Tooling, Automation, Software and Digitalization—all backed by unrivaled Customer Services and support. GF Machining Solutions is a globally acting Division of the Georg Fischer Group (Switzerland) and maintains a presence at 50 locations worldwide. Its 3,394 employees generated sales of CHF 1,066 million in 2018. More information can be found at www.gfms.com

