04/2025 | EN

FonMag+

EXPO EDITION

Featuring plenty of world premieres
set for Formnext 2025

BOOMING
AM is taking the construction industry
by storm – BE-AM showcases its potential

Page 10

DYNAMIC
Desktop 3D printers are being used
increasingly in industrial settings

Page 18

mesago

formnext

Messe Frankfurt Group

Cover image: Intamsys – more information on page 16

Looking back on the past ten years of Formnext, it's clearly been a decade full of innovation, transformation, and shared accomplishments – but also one marked by a pandemic and geopolitical upheaval. What began in 2015 with a bold vision to create a platform and home for Additive Manufacturing (AM) has triumphantly developed into a global meeting place and the leading trade fair for the next generation of industrial manufacturing.

The last ten years have been characterized by incredible technological evolution. No longer a far-off promise for the future, AM is now a reality in numerous industries. In medical technology, patient-specific implants and biocompatible structures are helping people achieve a new quality of life. In the aerospace and automotive industries, AM is creating lighter, more efficient, and more sustainable components. And in mechanical engineering, locally made parts are revolutionizing production.

But with progress comes new challenges. The sector faces the task of industrializing AM solutions further, increasing supply chain flexibility, and making the technology more accessible to SMEs. Plug-and-play is not yet a reality; instead, complex, individual solutions dominate the space. This is exactly where Formnext comes in: We combine horizontal and vertical perspectives, demonstrate real-world applications, and promote knowledge-sharing across sectors with the aim of driving AM ever further.

Our 2025 anniversary issue is more than just a retrospective – it's a look at what's ahead. With new formats, inspiring presentations, and a strong focus on user industries – ranging from aerospace, automotive, mechanical engineering, medical technology, security and defense, and tool and mold making to consumer goods, construction, jewelry, and many more – we create space for reflection and visions for the future. Formnext remains not just a trade fair, but a true platform, a source of inspiration, and a home for the global fAMily.

When we look back on 20 years of Formnnext in 2035, we will perhaps point to today as the moment when AM finally went from being a fascinating process to a tool we started taking for granted; an instrument that has changed products, industries, and our very lives.

There's plenty of room for you to join us on this journey! Let us surprise, inspire, and excite you at Formnext's 10-year anniversary in Frankfurt am Main.

Sincerely, Sascha F. Wenzler
Vice President Formnext

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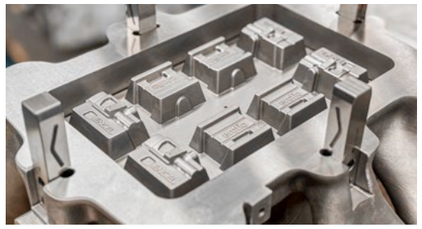


AWARDS, CONFERENCES, SPECIAL SHOWCASES

With a multifaceted program that focuses on specific applications in various industries, Formnext supports the further industrialization of Additive Manufacturing.

FORMNEXT AWARDS

The Formnext Awards will once again be presented in six different categories that cover young innovative companies, sustainable business ideas, and groundbreaking technologies. The following finalists have already won the jury over with their submissions:

- **AMbassador Award:** Irena Heuzeroth (SKZ KFE), Gustavo Melo (RWTH Aachen University), Naiara Zubizarreta (Addimat)
- **Design Award:** Grabbit – Schwäbisch Gmünd University of Design, IKM Flux Vaporizer – IKM Flux, EOS, Valland, ToffeeX, The Limb Kind Project – Limb Kind Foundation
- **(R)Evolution Award:** Erofio – Engenharia e Fabricação de Moldes, imes-icore, Laempe Mössner Sinto
- **Rookie Award:** Fidentis, IAM3DHub – Projekt »3DMyMask«, Tesseract Technologies
- **Start-up Award supported by Fluxo Technologies:** Allonic, Biomotion Technologies, Nureo, OsseoLabs, Perfi Technologies
- **Sustainability Award supported by Renishaw:** Continuum Powders, EOS, Smart Materials 3D Printing

The finalists' ideas will be presented on our website and at Formnext as a special showcase. And just like last year, you can help decide who wins by voting online!

The Formnext team and all award participants would like to extend a heartfelt thank you to all jury members and supporters:

RENISHAW apply innovation™ Fluxo SUTOSUTO FKM ADDITIVE MANUFACTURING

Online voting and presentation of finalists
formnext.com/awards

Formnext Awards special showcase
Hall 11.0, Booth D82

Announcement of winners and award ceremony
Thursday, 20 November, 4:20 p.m.
on the Industry Stage (Hall 11.0, D72)

MULTISTAGE PROGRAM

In the conference program, which is freely accessible to all trade fair attendees, renowned experts will discuss current and future applications, technologies, and trends in AM and the greater manufacturing industry. The Industry Stage (Hall 11.0, D72) is dedicated to interdisciplinary topics that are driving the AM industry, such as sustainability, the industrialization of AM, and design for AM. On the Application Stage (Hall 11.1, E69), AM users will share their experiences and expertise. And on the Technology Stage (Hall 12.1, B49), exhibitors will present their innovations.

For further program details, please visit
formnext.com/eventcalendar

FOR START-UPS AND NEWCOMERS

Young, innovative companies will be introducing themselves in the Start-up Area (Hall 11.0, D62) and at the Young Innovators joint booth of the Federal Ministry for Economic Affairs and Energy (Hall 12.1, B39), where they will have the opportunity to make valuable contacts with potential investors and cooperation partners. The companies in the Start-up Area will also be presenting themselves at a Pitchnext event starting at 2:15 p.m. on 18 November 2025 on the Industry Stage (Hall 11.0, D72). In addition, the established and very popular Discover3DPrinting seminars, which are held in cooperation with ACAM (Aachen Center for Additive Manufacturing), will take place daily on the Application Stage. Here, newcomers to the world of AM can gain an overview of the space along with important insights. Deep dives are also planned on the topics of large-format plastic 3D Printing, the rise of DED technology, data-driven design, and the scaling of 3D Printing.

Find dates at
formnext.com/discover

MECHANICAL ENGINEERING, ARCHITECTURE, AND DESIGN

VDMA AG AM will be presenting valuable AM applications from the world of mechanical engineering at a joint booth at the Additive4industry special show (Hall 12.0, B01). The BE-AM Symposium (19 November 2025 in the Portalhaus, Transparency room) and special show (11.0, F49) will focus on developments in the increasingly important topic of 3D Printing in the construction industry (see the article on page 10). The day before Formnext (17 November), the AM Innovation and Standards Summit at Formnext (Hall 4.0, Europa room) will also take place in cooperation with ASTM International.

The complete program can be found at
formnext.com/program

THIS YEAR'S PARTNER COUNTRY: SPAIN

Spain will be present at Formnext 2025 with numerous innovative exhibitors. Traditionally one of the strongest exhibitors at Formnext, the country will have around 30 companies showing off their latest innovations at the 2025 event. The Spanish AM industry is particularly prominent in the areas of AM systems, materials, and research and development.

+ FURTHER INFORMATION:

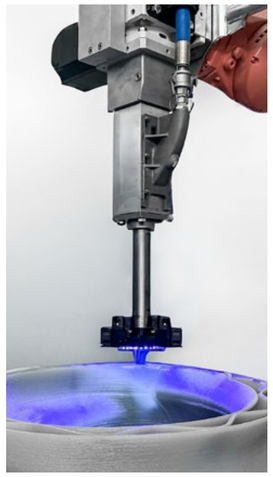
To purchase tickets and obtain all the other important information for your visit to Formnext, please visit:
» Formnext.com/visitors

The Formnext Navigator app puts all the information you need at your fingertips, making it the best way to prepare for your next visit to Formnext. Download it now at:
» Formext.com/app

ROBOTIC HYBRID PLATFORM FOR COMPOSITE PRODUCTION

Supported by the EIC Accelerator program, Moi Composites has developed the HPF Series, a robotic hybrid platform for composite production. The HPF series, which was designed as a modular plug-and-play solution, integrates two new AM technologies and conventional machining in a digitalized manufacturing environment. The platform supports two important additive processes developed by Moi Composites: Continuous Fiber Manufacturing (CFM) enables the processing of thermally curable composite prepregs with a high fiber content, enabling the production of lightweight structural parts with optimized mechanical performance. Short Fiber Manufacturing (SFM), meanwhile, was developed for processing thermally curable pastes that are densely reinforced with short fibers. This technology is particularly suitable for tools, molds, and components that require high stiffness and good machinability. A milling head is integrated to complement these additive processes. The HFP series offers a maximum coating speed of 100 mm/s. Moi Composites also focuses on material development. The company has a portfolio of thermoset formulations that have been developed for various applications and can be integrated into hybrid and multi-process manufacturing.

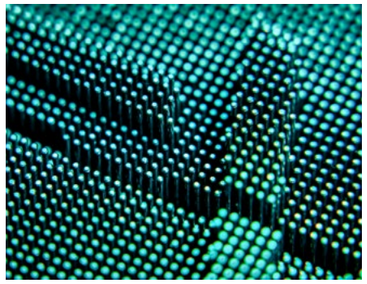
Moi Composites at Formnext 2025:
Hall 12.1, Booth C82

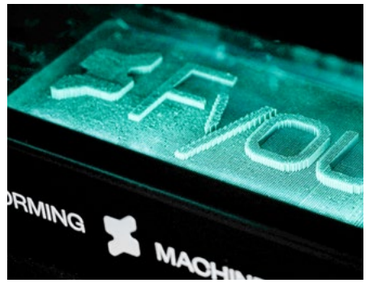


RECONFIGURABLE MOLDS MADE FROM PINS

Fyous has created a new manufacturing category: polymorphic manufacturing. At its heart is PolyMorphic Moulding, a process invented by Fyous that uses digitally controlled, shape-shifting pins to form infinitely reconfigurable molds. According to Fyous, which was founded in Sheffield in 2020 by two engineers, this invention marks the first time a technology has offered both the scalability of traditional molding and the flexibility of Additive Manufacturing. At Formnext, Fyous will publish a white paper on polymorphic manufacturing for the first time worldwide. The paper describes the technical principles, market drivers, and data behind this category. It will also show never-before-seen footage of the PolyMorphic Moulding (PM-1) system in action on the Fyous production line. In addition, the company will present an upgraded PF-1 molding machine running live at its booth to demonstrate the pin-based technology it has invented.

Fyous at Formnext 2025:
Hall 11.1, Booth E30





Images: Moi Composites, Fyous

MULTI-MATERIAL AM FOR RESEARCH AND SERIES PRODUCTION

With its new OmniFamily systems, Schaeffler Special Machinery is rethinking Additive Manufacturing from the ground up. An innovative key technology, Selective Powder Deposition (SPD), represents the foundation of two systems at present: OmniFusion, which involves multi-material Additive Manufacturing using the LPBF process for demanding applications; and OmniForm which offers a flexible printing platform for cost-effective entry into the world of multi-material manufacturing through subsequent conventional sintering processes. At the heart of OmniFusion and OmniForm is the so-called recoater, which is based on SPD technology – a patented innovation originally developed by the start-up Aerosint. Aerosint is now fully integrated into the Schaeffler Group under its Schaeffler Special Machinery Belgium unit. Selective Powder Deposition enables the precise, selective deposition of different powder materials within a powder layer – without binders and without suction, according to Schaeffler. This makes it possible to create multi-material components with customized properties – metallic, ceramic, or a combination of both. The materials are applied layer by layer and with pinpoint accuracy only where they are actually needed. OmniForm is aimed at research institutions, laboratories, and development departments looking for a cost-effective entry point into multi-material manufacturing. OmniFusion, meanwhile, brings SPD technology to industrial environments and combines it with a powerful laser melting process. The goal is to produce precise multi-material components with the potential for series production.

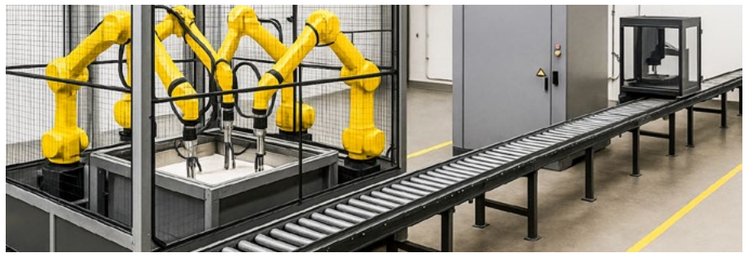
Schaeffler Special Machinery at
Formnext 2025: Hall 11.0, Booth C28

Images: Schaeffler Special Machinery, Exentis

NEW FREEDOM IN PRODUCTION

By replacing support structures with a granular medium that acts as a reusable adaptive mold, 3Deus Dynamics believes it has unlocked an unprecedented level of freedom in production – one that enables the printing of standard injectable silicones into complex geometries with mechanical fidelity. The company's patented Dynamic Molding process first proved its efficiency in healthcare with biomimetic anatomical models made of silicone, which are used as functional organ replicas. These models support surgical planning, simulation, and training while providing a preclinical alternative to animal testing. Meanwhile, the integration of functional powders has resulted in augmented silicones with advanced properties such as electromagnetic shielding, fire resistance, conductivity, and vibration damping. The first silicone seal for electromagnetic shielding, which was validated during a helicopter flight, has demonstrated the maturity and aerospace potential of this breakthrough. The aerospace and defense industries require components over one meter in size that can be manufactured at industrially compatible rates. To address this challenge, 3Deus Dynamics is scaling up by integrating collaborative, multi-axis robotic 3D Printing into its I-Demo project (France 2030), which received funding in 2025. This new generation of equipment combines the flexibility of Dynamic Molding with the precision of cooperative robotic arms that are capable of executing complex toolpaths in parallel. The resulting combination of large-scale printing (up to the decameter range), topological optimization, and direct functional integration into the material at hand ensures both robustness and productivity.

3Deus Dynamics at Formnext 2025:
Hall 11.1, Booth C78



SYMBIOSIS OF METAL 3D PRINTING AND CNC MACHINING

DN Solutions, one of the world's largest machine tool manufacturers, will be exhibiting at Formnext for the first time and presenting its new DLX series together with the proven five-axis CNC DVF5000. This demonstrates how AM and subtractive manufacturing can interact effectively. With the new DLX series – consisting of the DLX150, DLX325, and the high-end DLX450D system – DN Solutions is bringing to market proven powder bed fusion technology in various sizes. The company has also developed its own in-house software for construction job preparation. The resulting end-to-end control over hardware and software makes it possible to flexibly implement customer requirements and tailor Additive Manufacturing specifically to CNC-compatible component preparation. »While many providers view AM as an isolated technology, we make it an integral part of a continuous process chain. In doing so, we are setting new standards in metalworking. With AM2CNC, we make Additive Manufacturing precise, scalable, and economically sustainable,« emphasizes Dr. Vino Suntharakumaran, Vice President of Additive Manufacturing at DN Solutions. At Formnext, DN Solutions will demonstrate how AM can be introduced into existing production processes. An example workflow begins with additive construction on the DLX450D and continues via an unpacking station to automated pallet transfer. This is followed by CNC finishing on the DVF5000. The company also plans to expand its Additive Solutions Centers worldwide. A European center is scheduled to open in Gütersloh, Germany, in early 2026. This center will offer comprehensive support and training for companies looking to enter the field of Additive Manufacturing.

DN Solutions at Formnext 2025:
Hall 12.0, Booth C61

Images: 3Deus Dynamics, DN Solutions, AIM Sweden

NEW E-PBF SYSTEM EXPANDS MACHINE PARK

AIM Sweden is the first European contract manufacturer to use Colibrium's Point Melt technology for electron-beam powder bed fusion (E-PBF). Installation of the Colibrium Spectra L system was scheduled for early October 2025. The new Spectra L expands AIM Sweden's E-PBF fleet to six total systems (alongside two Q10plus and three Q20plus units). It will be validated for medical production using Ti6Al4V and optimized for manufacturing complex impellers for the energy sector. Unlike traditional line melting, the Spectra L's point melting strategy processes each layer through thousands of individual, precisely controlled spots. AIM Sweden also says that the system's plate-free start capability eliminates expensive consumable build plates while reducing machine turnaround times. Meanwhile, the Spectra L's support-free production capability addresses critical manufacturing bottlenecks in regulated industries. Medical implants can now be manufactured with intricate internal geometries and porous structures that enhance osseointegration. Founded in 2016 as a Mid Sweden University spin-off, AIM Sweden specializes in contract manufacturing using E-PBF technology. The company, which maintains ISO 13485 and ISO 9001 certification, has produced over 50,000 medical implants since 2019 and is the innovator behind the FreeFlow tooling solution for sustainable packaging.

AIM Sweden at Formnext 2025:
Hall 11.0, Booth D69

ELVES? NO, JUST SLICERS AND NOZZLES

In the construction industry and architecture, AM is growing like in hardly any other sector – due in part to new technological developments that are making more and more applications possible. Through BE-AM, Formnext showcases the industry's great potential with current and future developments.

R3:shell is a hexagonal wooden lattice construction that was developed and constructed jointly with architecture students from Wuppertal University. To the left, the illuminated »Tor Alva« in the twilight.

Images: Benjamin Hofer/ Nova Fundaziun Origen, Victoria Roznowski

Text: Thomas Masuch

At first glance, the white tower of Mulegns looks like a movie set from The Lord of the Rings. And yet the filigree concrete structure, which is located in a small Swiss mountain village surrounded by peaks over 3,000 meters high, is not the work of elves or hobbits, but a symbol of technological progress: It's the tallest 3D printed building in the world.

The approximately 30-meter-high »Tor Alva« shows what is possible with this technology, including unusual shapes that could not be produced any other way. But prestigious architectural gems like this are only one side of this special industry. In the construction and architecture in general, 3D Printing is growing rapidly thanks in part to new developments in hardware, software, and materials. And while ribbons are being cut on more and more 3D printed buildings (such as offices, data centers, restaurants, or residential buildings), the number of »components« that add value to architecture – lightweight connecting elements, water-conducting roof tiles, sound-absorbing walls, and more – is also growing. That's not even considering the world of interior design, either.

The rise of Additive Manufacturing in construction and architecture is also borne out by the figures: Although Wohlers Report 2025 says that the industry has a share of around 1.7 percent of the overall market – well behind the leading automotive, aerospace, and medical sectors (each with more than 10 percent) – the current growth rates are enormous. According to Mordor Intelligence (seriously!), the 3D printed construction market is set to expand by an average of 37% per year until 2030. Precedence Research even anticipates average annual growth rates of 65% until 2034.

Despite these impressive figures, Prof. Oliver Tessmann takes a positive, but more sober view of current developments. »The practical relevance of the industry continues to increase, but many projects still have an experimental character,« says Tessmann, who, besides teaching and conducting research at the Technical University of Darmstadt, also organizes the BE-AM Symposium and the special show of the same name in cooperation with Prof. Ulrich Knaack and his team. »Overall, the current growth is also limited by the lack of uniform standards in Germany and Europe at large. If we make progress in that area, Additive Manufacturing could open up huge potential in the construction industry.«

Despite the technological advances that have been made, the construction of many buildings is still far from being 100% automated. In the case of walls, only the outer façade is usually created using a 3D printer; the interior, including the reinforcement, is filled in by traditional means (i.e. by hand). On the other hand, Additive Manufacturing makes far more than just extravagant building shapes possible, as a look at the smaller scale shows. At TU Darmstadt, research is also under way on things like nest clinkers – that is, clinker bricks that include individual holes and recesses in which certain bird species can nest. This is because construction projects are often delayed or canceled altogether if a protected bird is found nesting in a tree or barn in the neighborhood. According to Tessmann, another promising future-oriented application involves 3D Printing with clay and other sustainable materials for soundproofing purposes – for instance, in open-plan offices (examples of this will be on display at the BE-AM special show).

»3D Printing can also lead to mass customization in modular production,« Tessmann continues. »Architects and manufacturers still need to rethink this, however; simple shapes are still being used, primarily because they are easy to produce.« The situation is different in 3D Printing, where geometries have a much smaller influence on manufacturing costs.

BE-AM SYMPOSIUM AND SPECIAL SHOW

The BE-AM (Built Environment Additive Manufacturing) Symposium and special show, which are taking place for the eighth time as part of Formnext and are open to all Formnext visitors free of charge, offer a detailed look at how far Additive Manufacturing has already come in construction and design.

This year's edition will focus on projects that have been completed in 2025: Spanish design studio Nagami will present interior and furniture pieces, while Etcetera will show how computational design and close collaboration with manufacturers can be condensed into market-ready products and spaces. In addition to the aforementioned Tor Alva, the »Wavehouse« will be discussed. Europe's largest 3D printed building, which was designed by SSV Architects in Heidelberg, sports a striking façade while serving as a data center. In addition to robot-assisted 3D concrete printing technology from Vertico, BE-AM 2025 will be dedicated to research and discuss topics like flexible insulation and absorption panels made of natural fibers, the use of 3D Printing with clay for acoustic applications and wildlife protection, and mycelia as sustainable building material.

Visitors to Formnext can experience further examples at the BE-AM special show in Hall 11.0. Around 30 exhibits from research and industry will include columns made from shell waste and recycled plastics, various 3D printed functional bricks, innovative connecting nodes, and unusual pieces of furniture.

That said, Formnext not only shows what is possible; it's an important platform for professional exchange, as well. »With the BE-AM Symposium and the associated special show, Formnext offers researchers, start-ups, and other innovative AM companies important access to the construction industry, provides an understanding of the sector's special requirements, and makes it possible to meet the right contacts,« says Christoph Stüker, Vice President of Formnext. Oliver Tessmann adds: »Many of these young companies have often developed very good solutions, but have little access to the complex construction universe due to their origins in the technology sector. That's what we want to change.«

+ FURTHER INFORMATION:

» formnext.com/fonmag
» be-am.de/symposium

BE-AM special show:
Hall 11.0, F49
BE-AM Symposium on
19 November 2025, Portalhaus, Transparency room

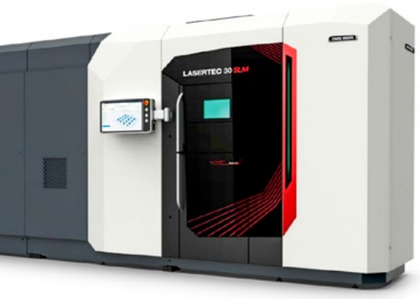
Brick By Bit is a modular, 3D printed facade system that unites aesthetics, ecology and thermal performance.

DIAMOND-REINFORCED NOZZLE TIP FOR MAKERS

In Dianoz, Gühring is now launching the world's first 3D Printing nozzle with a diamond-reinforced tip for makers and home use. According to the manufacturer, patented technology ensures high wear resistance and print quality. The Dianoz Pro, which is already on the market, has a synthetic black diamond tip that is designed to be highly durable even when printing abrasive materials. With the more affordable Dianoz, which Gühring is launching at Formnext, ambitious makers can also experiment with different or abrasive filaments. It is equipped with the patented black diamond tip, as well. According to Gühring, the Dianoz impresses not only with its durability, but also with its surface quality. A specially developed filament channel ensures uniform extrusion, while a special ironing surface smooths the surface of components during printing. The Dianoz has interfaces for Bambu Lab, Raise3D, and UltiMaker, as well as for V6, Volcano, and MK8 hot ends. It is also compatible with Mako(FIN) hot ends.

Gühring at Formnext 2025
:Hall 12.1, Booth B122

TECHNOLOGICAL UPDATES



DMG Mori has continued to develop its Additive Manufacturing machines both for laser cladding, the Lasertec DED hybrid models, and powder bed fusion, the Lasertec SLM series. Controlled component preheating has been implemented in the Lasertec 65 DED hybrid, for example, which minimizes stress and prevents cracks between the base and weld materials. In addition, DMG Mori has expanded the integrated monitoring and safety functions of the Lasertec 30 SLM (third generation). A new feature projects the layer data of the workpiece onto the respective camera image. This makes it easier to assess whether a detected defect actually affects the component or is limited to non-critical areas.

DMG Mori at Formnext 2025:
Hall 12.0, Booth D139

WAAM SYSTEM FOR EDUCATION AND RESEARCH

Having expanded its portfolio with the new ArcLab, Gefertec is now offering a solution that is specifically tailored to the requirements of universities and research institutions. The aim is to make it easier to integrate wire arc Additive Manufacturing (WAAM) technology into education and research. The ArcLab requires approximately five square meters of space and is equipped with the Siemens Sinumerik One control system. The multi-axis CNC system enables the production of components up to 1,200 x 1,200 x 1,200 mm³ made of steel, aluminum, and other alloys. It also features a 42-inch monitor that can display images from multiple cameras and process data live. For research work and student projects, the ArcLab offers comprehensive sensor technology and a process monitor. Three camera systems, a pyrometer, and a gas flow measurement system are integrated, allowing users to record and evaluate process parameters in detail.

Gefertec at Formnext 2025:
Hall 11.1, Booth D31

Images: Gühring, DMG Mori, Gefertec

COMPACT LPBF SYSTEM FOR MEDICAL TECHNOLOGY INNOVATORS

Indian company Amace Solutions is excited to present its compact LPBF platform STLR 120, which was developed for research laboratories, universities and competence development, start-ups, tool applications, and medical technology innovators. According to the manufacturer, the system minimizes setup time and powder consumption and accelerates the path from concept to finished part. With a build volume of Ø120 × 200 mm, the STLR 120 is equipped with a 400-W fiber laser that can process layers between 20 and 60 µm. The first build can start with as little as 1 kg of powder, significantly reducing both downtime and powder inventory for rapid iterations. The STLR 120 also supports a wide range of qualified materials, including aluminum alloys (AlSi10Mg), stainless steels (SS316L, 17-4PH, 15-5PH), maraging steel (18Ni300), cobalt-chromium (CoCr), Inconel (IN625, IN718), and titanium alloys (Ti-6Al-4V). The construction process is prepared using Materialise Magics Print LM software. The machine has a footprint of 950 × 1250 × 1750 mm and is powered by single-phase 220 V (50 Hz) with a peak load of 3.7 kW.

Amace Solutions at Formnext 2025:
Hall 11.0, Booth F51

Images: Amace Solutions, AddUp

OPEN FDM SYSTEM FOR LARGE-FORMAT PRINTS

Austrian company Nevo3D is poised to present its latest flagship model, an FDM 3D printer for industrial applications. The N200 was developed as an open system specifically for large-format prints and the series production of functional parts. The N200 offers a build volume of 200 liters, which can be heated to up to 100° C. According to Nevo3D, this makes it possible to produce large-format components with dimensions of 800 x 500 x 500 mm (even from high-performance plastics) in a cost-effective manner and with minimal warping. Meanwhile, the IDEX (Independent Dual Extruder) system allows for series production using dual printing and makes it possible to work efficiently with support structures. According to the manufacturer, the new »belt-free« drive technology of the N200 also significantly improves surface quality. The new Revo High-Flow nozzle can be used to print a wide range of engineering plastics, from versatile ABS to fiber-reinforced PC-FR. The N200 comes standard with fully automatic Z0 determination and sensor-supported bed measurement with 2,500 measuring points. A 32-bit processor ensures outstanding smoothness at speeds of up to 500 mm/s.

Nevo3D at Formnext 2025:
Hall 12.1, Booth C119

LINEAR MOTORS FOR FDM 3D PRINTERS

Tesseract Technologies will unveil its first linear motors developed specifically for FDM 3D printers at Formnext 2025. Unlike the belt-driven systems used in most printers today, linear motors offer a more precise and reliable alternative, the company says. The Dutch start-up aims to make this technology accessible to a wider range of printers. Since 2020, the company has been redeveloping its motors from the ground up, prioritizing affordability and control through simple step-and-direction signals. Meanwhile, Tesseract is running pilot programs with several large-format FDM 3D printer manufacturers. »We are seeing a significant increase in print speed combined with improved print quality,« says company founder Timothy Kramer.

Tesseract Technologies at Formnext 2025:
Hall 11.0, Booth D62A

LARGE VOLUME, HIGH THROUGHPUT

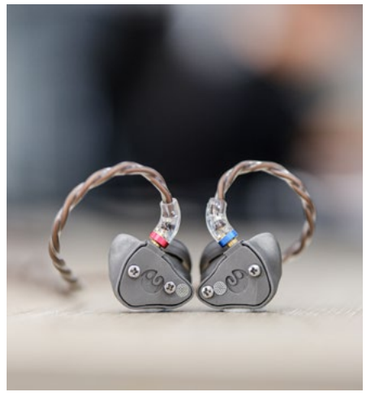
With its new Hammer Pro25 machine, Incus GmbH promises new possibilities for the scalability of metal Additive Manufacturing – particularly through the combination of precision, automation, and throughput. The system is designed for 24/7 operation and supports fully automated production (»lights-out manufacturing«). The new machine offers a large build volume of 200 × 204.55 × 140 mm and a material throughput of up to 980 cm³/h with automatic material refilling and removal of finished parts. Two synchronized projectors printing simultaneously on two build platforms enable a resolution of 25 µm lateral resolution and flexible layer thicknesses between 10 and 100 µm. According to Incus, the surface quality after sintering (Ra approx. 2 µm) often eliminates the need for post-processing.

Incus at Formnext 2025:
Hall 11.1, Booth E59

Images: Nevo3D, Tesseract Technologies, Incus, BLT

DEMONSTRATING THE LATEST POSSIBILITIES WITH METAL

For years, the AM world has promised that lighter, faster, and smarter solutions are coming – but BLT aims to offer a different perspective. Under the motto »The Power of Now,« the company will demonstrate what is already possible with metal AM at Formnext 2025. BLT will also present an improved range of printers and devices, various materials, new processes, and innovative parts that create real added value. Among the applications on display will be Earfit's TitanIEMs, the world's first fully customized in-ear monitors made of titanium. Thanks to the acoustic properties of this material, the monitors can meet the high standards of touring musicians and professional sound engineers. Meanwhile, Italian BLT customer Extreme Manufacturing Engineering is changing both rollercoaster rides and hydraulics with metal AM, and BLT's Slovenian customer, HTS, is producing tools for large-scale die casting and plastic injection molding. BLT will also be presenting a new real-time monitoring system and a new process for material handling, as well as the new S400 and S210 metal AM systems and the QF400 for smooth, easy depowdering.



BLT at Formnext 2025:
Hall 12.0, Booth D81

(STILL) SECRET INNOVATIONS

In recent years, an exciting trade fair tradition has emerged: While many Formnext exhibitors announce their innovations before the event (as in this issue), some only unveil their latest creations during the fair – often as part of a highly publicized unveiling. Until then, the innovations remain a well-kept secret. Nevertheless, we have already been able to obtain some clues as to what will be revealed during the four days of Formnext 2025.

For example, the US company Carbon is promising a new technological solution that simplifies and accelerates post-processing by drastically reducing labor, process steps, and solvent consumption – all while ensuring precise cleaning and high productivity in series production.

»TURNING POINT IN THE COMPANY'S HISTORY«

Meanwhile, Prima Additive by Sodick says that this year's Formnext will »mark a turning point in the company's history.« Following its complete takeover by the Sodick Group in May 2025, the company is set to present a new brand identity to the global AM community. Details of the rebranding and the new company name will remain under wraps until the trade fair, but the company has already revealed that it intends to emphasize its efforts to make Additive Manufacturing even more industrial, automated, and scalable.

In addition, Prima Additive by Sodick will be presenting a number of new machines at Formnext 2025: a new powder bed fusion system from the 300 series with a build volume of 330 × 330 × 450 mm, which is designed for industrial applications; a robot-controlled cell with wire DED technology that produces and repairs large parts; and an AI-supported human-machine interface (HMI) with an innovative assistant that simplifies interaction with the machine, as well as monitoring and troubleshooting. In addition to these product premieres, Prima Additive by Sodick will also showcase its latest automation projects, which demonstrate how laser-based AM can be seamlessly integrated into industrial production environments.

FULLY AUTOMATED REINFORCEMENT

Spanish company Reinforce3D is claiming a new development in the automation of fiber-reinforced component production, with plans to unveil a »fully automated reinforcement cell« at Formnext 2025. Thanks to robotics and closed-loop process control, it will enable lights-out manufacturing of fiber-reinforced components. Founder and CTO Marc Crescenti explains: »Automation is about more than efficiency. It gives us precision, consistency, and data, allowing our customers to reinforce parts exactly how and when they need to.«

FFF FOR INDUSTRY

Intamsys, a Chinese manufacturer of FFF 3D printers, also wants to make headlines with the presentation of its new industrial-grade AM system. The model was developed for production-ready applications in the aerospace, medical, robotics, and automotive industries and promises to »redefine the standards for speed, strength, and continuous performance in high-performance polymer printing.«

All these companies can be found at Formnext 2025:
Carbon: Hall 11.1, Booth C61
Prima Additive: Hall 12.0, Booth E139
Reinforce3D: Hall 12.0, Booth C121
Intamsys: Hall 12.1, Booth B121

Images: Carbon, Reinforce3D, Intamsys

CARBON FIBER AND BIOMASS

In racing, one of the main challenges is to produce extremely lightweight, yet durable components. This is why carbon fiber is often the material of choice. Here, DWS used autoclave-compatible molds to manufacture aerodynamic parts for an electric race car that hit the track in the summer of 2025. The material used, Therma DM570, withstood 135° C and pressure levels up to 6 bar. In addition, DWS has investigated new sustainable production methods for industries such as interior design and packaging. In these techniques, biomass containing cellulose is processed in an ultrasonic compression process, while the sonotrode used vibrates at high frequencies and reaches a temperature of 200° C.

DWS at Formnext 2025:
Hall 12.1, Booth D31

IMPROVING THE PRODUCTION OF WASHOUT TOOLS

Alia Mentis, an Italian material technology company, is collaborating with Dutch 3D printer manufacturer Concr3de to improve the production of water-soluble washout tools for composite layups. Concr3de will customize its Elephant Gray binder jetting printer and provide its specialized printing materials for this application. After the composite is laid, the 3D printed tools are washed out with tap water. Elephant Gray prints water-soluble tools measuring up to 1 x 2 x 1 meters using binder jetting technology. Concr3de's Washout Ceramic printing material offers high green strength, is stable up to 180° C, and contains no harmful chemicals. After printing, the tool is used as a mold for the lamination process (coating or wrapping).

Concr3de at Formnext 2025:
Hall 11.1, Booth B52

DYNAMIC DESKTOP 3D PRINTING

There is no standard definition of a desktop 3D printer today. Historically, they were differentiated by their size and usually the specific AM technology they used (i.e., FDM/FFF). But, like a cup (when does it become a mug, a bowl or a vase?) we know one when we see it.

Text: James Woodcock

A desktop 3D printer is a compact, (relatively) affordable, plug-and-play AM system designed to be operated in an office, studio or light workshop environment. Unlike large industrial machines, you won't require three-phase electricity, specialised HVAC systems and acres of space for ancillary equipment. While the desktop definition used to be applicable to a handful of systems and effectively a single technology class, today the field is far broader.

FDM-based desktop systems remain the mainstay for the consumer and hobbyist user. In commercial and industrial settings, however, FDM/FFF is joined on the 'desktop' by SLS, SLA, binder jetting and even metal systems.

FAMILIAR ADOPTION DRIVERS

Much like the rest of the 3D Printing ecosystem, developments in four key areas are driving the adoption of desktop 3D Printing in commercial and industrial applications:

Speed — FDM/FFF-based desktop systems have become far quicker than their predecessors thanks to advances in throughput and motion control. A 3DBenchy that would have taken ~60 minutes to complete in 2015 can be printed in ~15 minutes with stock commercial machines today.

Automation — The desktop 3D printer is the building block of the print-farm, an infinitely scalable production system thanks to workflow automation. The Formlabs Automation Ecosystem automates part removal and starts the next job without intervention. Bambu Labs has free software — Farm Manager — that allows local network control of multiple printers.

Materials — Multi-material parts, multi-colour parts and parts in high-performance materials have greatly opened up the opportunities for desktop 3D Printing within industry. While systems like the Stratasys J35 Pro push the cost envelope, they do tick the boxes of true multi-material parts in an office-friendly package. FDM/FFF-based multi-colour and multi-material options are now widely available, making functional prototyping easier to reach. High-performance materials are increasingly commonly offered by lower-cost, office-friendly systems. Carbon-fibre reinforced nylon can replace metal parts for jigs and fixtures. With nozzle temperatures exceeding 300°C, heated chambers and tuned profiles allow for polycarbonate, nylon or even PEEK and PEI alongside traditional PLA and ABS materials.

Images: Formlabs / Ford Motor, BCN3D / Alstom / Replique

Photo left page:
The Ford development team uses desktop SLA 3D Printing to manufacture various prototypes.
Photo left:
These door stops were manufactured for Alstom in just 6 weeks using Ultrafuse 316L on BCN3D's Epsilon W27 printers through service provider Replique.

Usability — encompassing advances in safety, reliability and ease of use — has moved desktop 3D Printing significantly away from the trial-and-error of early systems. Print monitoring using latest-generation sensors and AI (see Bambu Lab's and Creality's AI-powered LiDAR systems) improves quality dramatically, brings failure rates down and reduces the burden of expertise on the user.

Closed-loop air filtration, as seen in the UltiMaker S7 and others, alongside better noise damping and tidier setups make desktop systems more at home in the office and easier to live with day-to-day.

WIDESPREAD UTILISATION

It is no surprise, given the significant advancements in speed, reliability, materials choice and usability, that this class of 3D printer is seeing significant uptake in usage. Ford Motor Company has demonstrated how harnessing multiple technologies — namely SLA and SLS — in the Formlabs Form 4, 3L and Fuse systems has allowed it to prototype more quickly, create parts for mechanical testing and 3D print inserts for injection moulding to reduce lead times from 2–3 months to 2–3 weeks.

Alstom has a global network of 3D Printing hubs, opening up on-demand spare parts to its global user base. While the company offers a mix of technologies, desktop systems feature prominently. Indirectly, they have pioneered the use of metal FDM/FFF for spare parts through service provider Replique, using BCN3D's Epsilon W27 desktop 3D printers.

Desktop 3D printers are being put to use producing jigs and fixtures across all manner of manufacturing application areas, in virtually all vertical industries.

THE FUTURE ON THE DESKTOP?

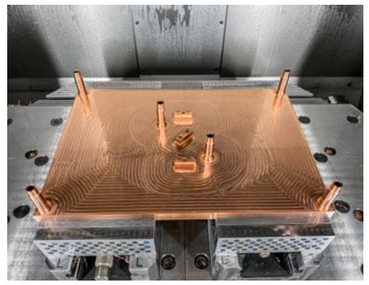
Not all parts are desk-friendly in size, of course, but a huge proportion of parts and assemblies across all industries would comfortably fit within a desktop machine. As the technology advances and opens up ever-quicker and more capable systems, with materials that match or exceed those already available, desktop systems will surely continue to push the boundaries in terms of their real — and of their own — definition.

+ FURTHER INFORMATION:
» formnext.com/fonmag

MONOLITHIC COPPER PLATE HEAT EXCHANGER

Hermle Additive Manufacturing has produced a monolithic copper plate heat exchanger using the HERMLE MPA process (cold spray Additive Manufacturing) combined with precision CNC finishing. The component measures 220 × 330 mm and integrates two independent cooling circuits within a single plate – eliminating solder joints and their associated leak risks. Conventional soldered assemblies often suffer from micro-leaks that result in pressure fluctuations and inaccurate measurements. By manufacturing the heat exchanger as a single copper body, Hermle ensures leak-free performance and stable thermal conditions. The MPA process deposits copper in its solid state, avoiding melting and preserving material properties such as thermal conductivity up to 400 W/m·K. A key enabler of this innovation is Hermle's water-soluble support material, which allows the creation of fully enclosed internal channels without post-joining steps. After additive build-up, the part is finish-machined on the same platform for dimensional accuracy and the required surface quality.

Hermle at Formnext 2025:
Hall 12.0, Booth C71



SCALING UP PRODUCTION OF EYEGLASS HINGES

Baars, the Paris-based premium eyewear brand known for its minimalist designs and patented magnetic hinge technology, has successfully scaled up the production of its signature frames by leveraging Tritone Technologies' MoldJet AM system in partnership with MIMplus Technologies GmbH & Co. KG. Baars faced the challenge of producing thousands of high-precision hinges for its eyewear collection. The hinges required a visible face area with a decorative surface finish (8 × 5.6 mm), 3D printed layered textures on both side faces, and large-scale production volumes at cost-efficient levels. MIMplus applied Tritone's MoldJet technology, a sinter-based AM process, to deliver scalable mass production, which includes the ability to produce 16,000 parts (for 4,000 pairs of glasses) in less than 20 hours (800 parts per tray). »We are extremely satisfied with both the surface quality and dimensional consistency of the parts. Our end customers have given very positive feedback,« said Baars in a joint statement.

Tritone Technologies at Formnext 2025:
Hall 12.0, Booth C72

ROCKET ENGINE FOR RACE 2 SPACE

Eplus3D, in collaboration with University College London (UCL) and the student-led UCL Rocket team, has successfully designed and additively manufactured Excelsior – a regeneratively cooled, bipropellant rocket engine for the UK's Race 2 Space 2025 competition. Manufactured using AlSi10Mg and laser powder bed fusion (LPBF) on an EP-M400S quad-laser system, the project has demonstrated how Additive Manufacturing enables advanced cooling channels, integrated features, and rapid development. As a technical partner in the project, Eplus3D handled process consultation and manufacturing execution for Excelsior's complex thrust chamber and injector components. The rocket engine achieved its target thrust of 5 kN during hot-fire testing, ranking fourth in the Nitrous Bipropellant category, and was one of only eight engines out of 17 to survive all the competition's tests.

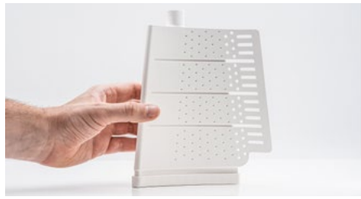
Eplus3D at Formnext 2025:
Hall 12.0, Booth E101

Images: Hermle, Tritone Technologies, Eplus3D, courtesy HiFiction AG, Lithoz

APPLICATIONS FROM VARIOUS INDUSTRIES SET TO PREMIERE

In its presentation at Formnext, Lithoz is clearly focusing on real series applications in ceramic 3D Printing from various user industries, ranging from aerospace and the semiconductor industry to medicine and luxury goods. The company plans to emphasize the importance of its global »Ceramic 3D Factory« network of experienced LCM contract manufacturers. One of the highlights is an S320 build platform equipped with 36 near-series ceramic casting cores for aircraft turbine manufacturing. The complex design of the casting cores on LCM printers enables increasingly delicate branching of the cooling channels in the turbines, offering a new solution for even more efficient cooling of high-performance engines and ultimately reducing fuel consumption in air traffic. The Austrian company is also exhibiting a complex aluminum oxide gas distribution ring with a diameter of 380 mm. The ring features an exceptionally thin-walled, lightweight design with highly optimized flow channels. A critical wear part in the semiconductor industry, the ring – designed by Plasway (Germany) and manufactured in series by Alumina Systems (Germany) – offers a verifiable nine-month extension in service life while tripling production output. Another complex series-produced component for the semiconductor industry is a gas injector for etching processes that is manufactured by Bosch Advanced Ceramics (Germany) on Lithoz CeraFab printers in series of 2,000 units per year. This year will also witness a world-first in the medical and dental sector with the ceramic ear molds (otoplastics) for hearing aids designed by Swiss OC GmbH and mass-produced by CADdent (Germany) on Lithoz CeraFab printers. In addition to improved comfort for the wearer, these individually customized, additively manufactured hearing aids impress with their acoustically neutral sound and biocompatible hygienic properties.Finally, the world's first monoblock pickup with moving coil technology offers a unique aesthetic. The Thales VORO pickup for analog turntables from HiFiction AG (Switzerland) is encased in a zirconia housing printed in a single piece, whose shape is inspired by naturally occurring Voronoi skeleton structures. The pickup, which won the iF Design Award 2025, was developed and mass-produced by Steinbach AG (Germany) and will also be on display in its entirety at the company's Formnext booth.

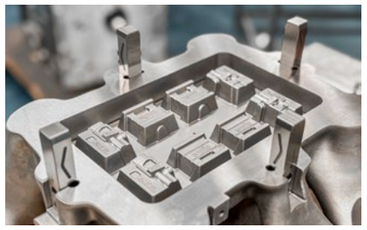
Lithoz and **Steinbach** at Formnext 2025:
Hall 11.1, Booth C35 and Hall 11.1, Booth B39



INJECTION MOLD FOR ULTRA-THIN PARTS

Inov.iQ is an additively manufactured metal injection mold designed specifically for a 100-ton injection molding machine and ultra-thin parts with wall thicknesses of just 1 mm. It is also designed to fully exploit the potential of Engel's iQ injection molding systems. The mold was designed specifically for Engel's e-mac 100. Erofio developed the geometry and conformal cooling channels in direct response to the requirements and tolerances specified by Engel's virtual assistants. Inov.iQ was manufactured out of Uddeholm Corrax stainless steel, a precipitation-hardening alloy, utilizing LPBF technology on a Colibrium Additive MLine system. According to Erofio, topology optimization reduced the mold's weight by 75%, down to just 80 kilograms. Thermal management is another critical area where Inov.iQ exhibited remarkable performance. Using Engel's new e-flomo capabilities, Erofio accelerated heating and cooling cycles, significantly shortening cycle times from 26 to 16 seconds. When paired with Engel's iQ platform, Inov.iQ enables a 15% reduction in clamping force and a 30% decrease in energy consumption per injected part. These improvements translate directly into increased productivity, lower operational costs, and improved sustainability.

Erofio at Formnext 2025:
Hall 11.0, Booth A79



LIGHTWEIGHT AND HIGH-PERFORMANCE

This year, Smart Materials is coming to Frankfurt with several new developments, ranging from environmentally sustainable materials to high-performance technical materials. Among its new products are TPU Light Weight and r-PETG Light Weight. By combining elasticity, flexibility, and impact resistance, the TPU Light Weight Shore 93A aims to enable new applications in areas where energy absorption and adaptability are required. Smart Materials will also be presenting fiberglass-reinforced r-PETG at Formnext, emphasizing its commitment to using recycled r-PETG as the base material for new developments. Its r-PETG material will be available as filament and granulate in various colors. In addition, the Spanish company will be showcasing its brand-new PPS CF and exhibiting a model of a Formula 1 part made from PETG CF. Another material that has just come out of development will be a conductive TPU. Finally, Smart Materials will also be demonstrating the possible applications of PLA Light Weight at its trade fair booth. Walls and furniture will be made from this material, which enables weight reductions of up to 65%.

Smart Materials at Formnext 2025:
Hall 12.1, Booth D81

WITH CARBON BLACK AND GLASS FIBERS

Filament PM is coming to Formnext armed with two new materials. »PA-GFJET 0.5 kg 1.75 mm natural« is a fiberglass-reinforced nylon that exhibits less shrinkage and temperature resistance up to 160° C. According to the manufacturer, it also has excellent mechanical properties and can be used as an insulator with glass filling. Meanwhile, »ESD-PETG filament 0.5 kg 1.75 mm black« is PETG-based and contains highly conductive carbon black, which gives the material antistatic properties during discharges. The volume resistance of printed objects with 100% filling is 2.7 ·101 Ω·cm.

Filament PM at Formnext 2025:
Hall 12.1, Booth F59

Images: Erofio, Smart Materials

FOR SKIN CONTACT AND HIGH TEMPERATURES

Under its Cubic Ink brand, Altana is set to present a range of new materials that are specifically tailored to the requirements of industrial applications. The focus will be on further developments in its resin portfolio and functional high-performance solutions for 3D Printing. Together with its partner SK Industriemodell, Altana will demonstrate how Cubic Ink mold material can be used in injection molding. Live demonstrations at its booth will show how 3D printed tool inserts can be used directly in production. Designed in response to the increase in 3D Printing applications in the field of orthotics, Cubic Ink features high-performance 4 – 4800 VP material, which is characterized by impact strengths of over 90 J/m (Izod notched), good thermomechanical properties, balanced chemical resistance, and a scratch-resistant surface. Printed objects are also suitable for direct skin contact. In addition, Altana's new resins (Rigid 1600 VP, Rigid 2000 VP, and Tough 2100 VP) boast increased impact strength, dimensional stability, and improved long-term performance, making them particularly suitable for functional prototypes and small series components. The company is also presenting two new materials: High Temperature 200 VP and High Temperature 1901 VP.

Altana Cubic Ink at Formnext 2025:
Hall 12.1, Booth E39

Images: Altana Cubic Ink

SOFTER TPU

As a further innovation on TPU, which has been available on the market for 12 years now, AM Polymers has developed a new variant, TPU-03. This enables the production of softer components in a hardness range of 50–70 Shore A, which still results in an elongation at break of over 150% in the build direction. According to AM Polymers, the material remains easy to process without significant smoke development, and the soft powder cakes are easy to unpack even when cold. To complement the flame-retardant, natural-colored PA11-01-FR (which was commercialized last year), a special black version has been developed. Thanks to its adapted absorption behavior, this material can also be processed on laser sintering systems using diode or fiber lasers. AM Polymers describes it as the first black flame-retardant material ever to be launched on the market. The material complies with UL94 V0 at a wall thickness of 3 mm and can be processed in a refreshed state. Founded in 2014, AM Polymers GmbH has established itself as a specialist in plastic powders for the powder-bed-based SLS and HSS processes. Today, its portfolio contains over 30 different powder materials based on nine different polymers.

AM Polymers at Formnext 2025:
Hall 12.1, Booth C59

FROM SHAPE MEMORY ALIGNERS TO ELASTIC RESINS

Graphy will be showcasing new dental innovations based on its Shape Memory Aligner (SMA) at Formnext. The Korean company will also be presenting new developments in the field of medical materials and lifestyle and sports solutions based on a new elastic resin. The Shape Memory Aligner utilizes a proprietary shape-memory resin that recovers at body temperature, enabling tooth movement without the need for attachments. This technology shortens treatment duration, reduces patient discomfort, and ensures predictable outcomes. As the lead institution in a national R&D program in collaboration with Yonsei University, the University of Michigan, Seoul National University, Eone Laboratories, and KAIST, Graphy is developing biocompatible materials for customized oral devices and biliary stents. Graphy is also introducing a new elastic resin that addresses the limitations of conventional UV resins, such as slow curing speeds, surface tackiness, and insufficient durability. The new material offers fast curing, excellent surface quality, long-term resilience, and rebound elasticity. The company sees

Graphy at Formnext 2025:
Hall 11.1, Booth D51

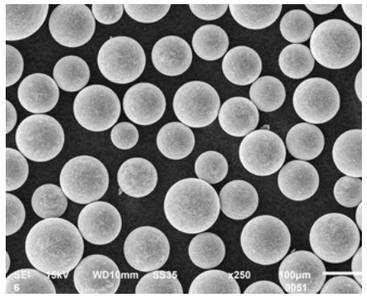
FOR ACIDIC AND CORROSIVE ENVIRONMENTS

The Fomas Group has announced the qualification of Mimete V 625 NACE, a nickel-based powder suitable for highly acidic and corrosive environments. This alloy has been developed to meet the stringent requirements of NACE MR0175 / ISO 15156 and is suitable for critical components in the subsea oil and gas and energy sectors. According to Fomas, the new material offers high resistance to stress corrosion cracking and hydrogen embrittlement, remains stable even at extreme temperatures and pressures, and is easy to weld and machine. The powder has undergone a rigorous qualification program that included chemical analysis, mechanical testing, and corrosion resistance evaluation.

Fomas Group at Formnext 2025:
Hall 12.0, Booth C51

NEXT GENERATION OF ULTRASONIC ATOMIZERS

At this year's Formnext, 3D Lab will unveil the next generation of ATO ultrasonic metal atomizers alongside equipment for powder processing and handling. Its system is intended for both research environments and industrial production. According to the company, it enables in-house metal powder production with controlled, repeatable outcomes for Additive Manufacturing and beyond. The system is modular, with atomizer capabilities that adapt within an interconnected suite of devices. Additionally, the suite supports circular economy practices that make it possible to recover manufacturing scraps and turn them into valuable powder, thereby conserving resources and tightening cost and supply control.



3D Lab at Formnext 2025:
Hall 11.0, Booth B21

Images: Graphy, Fomas Group, 3D Lab

ULTRA-HIGH-TEMPERATURE CERAMIC

Nanoe is set to launch a new ultra-high-temperature ceramic (UHTC) composite at Formnext. This composite is a blend of two high-temperature materials: zirconium diboride (ZrB_2) and silicon carbide (SiC). It will be available in powder form for pressing and injection molding, as well as in filament form for 3D Printing. »UHTC ceramics have been the subject of extensive research in recent years, particularly with a view to developing materials capable of withstanding hypersonic conditions. However, the market has so far lacked ready-to-use commercial products that are needed for industrial applications to emerge,« states Guillaume de Calan, CEO of Nanoe. The new composite consists of 80% ZrB_2 and 20% SiC, with additional doping elements such as B_4C enabling pressureless sintering at 2,000° C under partial argon pressure. According to Nanoe, the first customers for this material include laboratories in aerospace and defense, such as NASA and ONERA, as well as a New Space startup and a major European defense contractor.

Nanoe at Formnext 2025:
Hall 12.0, Booth B31

Imag: Nanoe

FROM IRON TO TITANIUM ALLOYS

Qualloy, the digital marketplace for metal powders, recently introduced its own powder brand, Qualloy Select, as a complement to its existing range. Tested and certified in the Rosswag Engineering laboratory, Qualloy Select powders are now available from stock in Germany for fast delivery throughout the EU. Qualloy says it wants to position itself as »one of the price leaders in Europe« with its new powder brand. In addition, the company is focusing on transparency: Customers can view its entire product range online, including detailed specifications, delivery times, and daily price updates. The Qualloy portfolio includes iron-based, nickel-based, aluminum, and titanium alloys, among others.

Qualloy at Formnext 2025:
Hall 11.0, Booth C62

NEW SPOOL WITH NARROWER INNER CORE

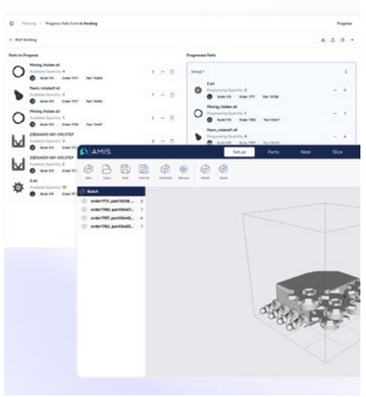
At Formnext 2025, Alpaplastic is set to introduce the brand-new RS 200 RK, the latest addition to its range of 3D filament spools. Designed following the success of the widely used RS 200 KD, the new model has been developed to meet specific customer needs while maintaining the same external dimensions. The RS 200 KD continues to be a key product and a reliable solution for winding 1 kg of filament. The new RS 200 RK, with its narrower inner core, allows users to comfortably wind 1 kg of lower-density materials such as ABS — ensuring full compatibility with AMS loading systems.

Alpaplastic at Formnext 2025:
Hall 12.1, Booth E46

LIVE DEMONSTRATIONS HIGHLIGHT SEAMLESS DATA FLOW

Phasio and AMIS will be presenting their newly integrated software solution for optimizing Additive Manufacturing workflows with live demonstrations at Formnext 2025. The companies' collaboration brings together two powerful platforms: Phasio's end-to-end digital production workflow and AMIS's build preparation software. According to the two partners, this integration enables manufacturers to proceed from quote to delivery with unprecedented speed, accuracy, and efficiency while minimizing human error. At Formnext, visitors will have the opportunity to experience the solution firsthand through live demonstrations at both the Phasio and AMIS booths. These sessions will highlight how data flows seamlessly between the platforms, how builds are automatically prepared for various 3D Printing technologies (including MJF, SLS, binder jetting, and material jetting), and how the system ensures full traceability and repeatability for future orders.

AMIS at Formnext 2025:
Hall 12.0, Booth B19



AI BRAIN FOR MACHINES

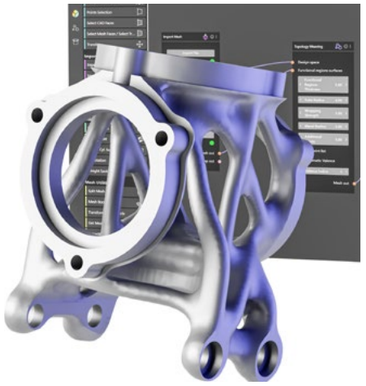
Ailoys GmbH, a Berlin-based industrial AI company, will showcase its plug-and-play AI device at Formnext 2025. Marketed as the »brain for your machinery,« the compact system enables additive and other advanced manufacturers to integrate AI into their existing equipment both quickly and affordably. Within hours, operators can carry out real-time root cause analysis and process adjustments without costly retrofits. »We give machines a brain that's similar to Amazon Alexa, but for industrial production. Our AI listens to machines 10 million times per second, delivers real-time root cause analysis of defects to operators, and even adjusts machine settings automatically based on process performance,« says Sergei Altynbaev, CEO and founder of Ailoys GmbH.

Ailoys at Formnext 2025:
Hall 11.1, Booth D31

A FASTER PATH TO HIGH-PERFORMANCE PARTS

With the new Cognitive Design 2.0, Cognitive Design Systems (CDS) promises that engineers will be able to determine the best manufacturable design for high-performance parts more quickly and accurately. According to CDS, this engineering platform combines generative design, integration of manufacturability, and data-driven decision-making. The new Design Explorer feature centralizes all design iterations, simulations, and cost analyses in one place, enabling informed design decisions. According to CDS, the platform also allows concepts to be precisely identified and compared in a single dashboard based on multiple KPIs, such as cost, weight, performance, CO_2 emissions, and manufacturability. Design Explorer, meanwhile, offers a comparative multi-criteria view that enables engineers to quickly filter, sort, and visualize design concepts based on key metrics.

Cognitive Design Systems
at Formnext 2025: Hall 12.0, Booth D15



Images: AMIS, Ailoys, Cognitive Design Systems, Grenzebach

SOFTWARE FOR NON-PLANAR AM

The new version 2.0 of its slicing software, which Layer Performance GmbH is presenting for the first time at Formnext, enables both planar and 3D-optimized (non-planar) path planning for all systems – from conventional filament systems with three axes to robotic systems with granulate extruders. A wide variety of materials are supported, from plastics to metal and ceramics to concrete. Even the most complex geometries are translated into optimized machine code. According to Layer Performance, this results in the first universal slicer for non-planar Additive Manufacturing. With version 2.0, it is also possible to define different hardness zones within a component for the first time. This makes it possible to adapt functional properties to the respective application. One example is shoe soles that offer both comfort and stability thanks to customized softer and harder areas. Thanks to its open architecture, Layer Performance says its latest slicing software can be integrated into existing process chains without restrictions.

Layer Performance at Formnext 2025:
Hall 12.1, Booth A98

AUTOMATIC LOADING AND UNLOADING

Grenzebach, a specialist in automation solutions for industrial processes, is launching two new solutions for Additive Manufacturing. The upgraded Dual Setup Station makes it possible to fully automate loading and unloading of metal 3D printers and start of new build jobs directly. Grenzebach's portfolio is also complemented by a new transport container that ensures automated replacement of the build platform and can be flexibly integrated into existing manufacturing environments.

Grenzebach at Formnext 2025:
Hall 11.1, Booth D63

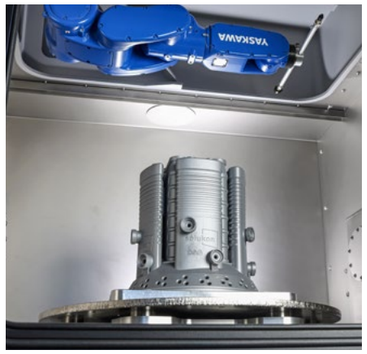
FOR CLEAN BUILD PLATES

With the new Reflecon Build Plate Cleaner, MR Chemie GmbH is launching a specially developed cleaning solution that thoroughly and gently removes residues from pressure beds. With this product, MR Chemie is expanding its Reflecon portfolio, which includes 3D scanning technology and solutions for 3D Printing. As a ready-to-spray application, Reflecon Build Plate Cleaner allows variable spray-pressure dosing. According to MR Chemie, it also offers a short drying time. Regular cleaning is said to contribute to the longevity of the printing bed surface, as well.

MR Chemie at Formnext 2025:
Hall 12.1, Booth F41

ROBOT-INTEGRATED DEPOWDERING

To mark its 10th anniversary, Solukon is presenting a special version of its SFM-AT800 depowdering system with component transfer and robot finishing. The process flow of the machine concept is as follows: A transport trolley from Grenzebach transports the component to the Solukon system, which is equipped with an automated front door. After the component is fixed in place using an automatic zero-point clamping system, the depowdering process begins. An integrated robot from



Yaskawa finishes the component (in this case by blowing away powder residue on and in the component). In addition to the SFM-AT800-S, Solukon is set to show off its SFM-AT350-E system, which depowders medium-sized components quietly and gently using ultrasonic excitation.

Solukon at Formnext 2025:
Hall 12.0, Booth D71

COMPACT BLASTING SYSTEM

BMF GmbH, a mechanical production company based in Grüna (near Chemnitz), Germany, is expanding its portfolio of automatic blasting systems with the Twister750. The »750« refers to the internal width and depth of unit's compact blasting chamber. Compared to the established Twister, the new system is not only smaller, but also primarily aimed at the needs of smaller companies. With its simple operation, BMF says that the Twister750 presents a highly intriguing solution for the automatic blasting of many small components, especially for manufacturers and dental laboratories. Meanwhile, the Twister750 offers space for numerous components on a turntable with eight workpiece carriers, which rotate around the blast wheel on holding elements and are continuously processed on all sides by the blasting media. BMF developed its Smart Surface Control technology to enable precise programming of the optical and physical properties of surfaces. This allows the entire manufacturing process to be tailored to the desired surface quality. Here, AI-supported analysis of previously blasted reference workpieces helps to determine the ideal blasting parameters.

BMF at Formnext 2025:
Hall 11.0, Booth B30

SAFE DISPOSAL OF REACTIVE POWDERS

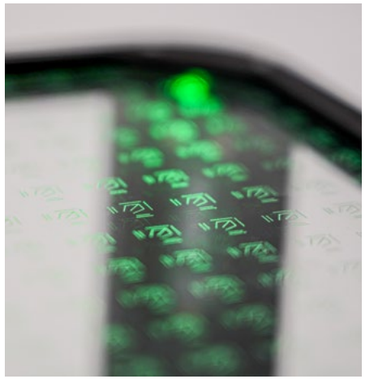
The new EcoBull AM and TB AM industrial vacuum cleaners from Depureco can be seamlessly integrated into PBF 3D printers to ensure safe, efficient extraction of reactive metal powders in Additive Manufacturing. With ATEX-certified side channel blowers, they feature explosion-proof technology. Once powder is vacuumed, it is directed through a submerged nozzle into an inert liquid bath inside a container. Here, a dual-stage filtration system consisting of a metal grid filter and a nylon filter separates the powder from the liquid, preparing it for safe disposal. The inert liquid can then be easily drained through a gravity discharge tap positioned at the base of the container.

Depureco Industrial Vacuums at
Formnext 2025: Hall 11.1, Booth A11

Images: Solukon, BMF, Depureco Industrial Vacuums

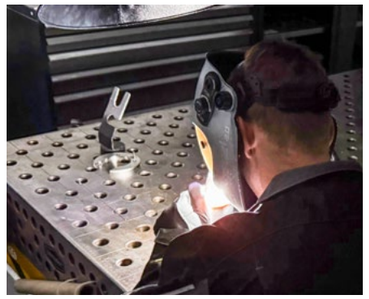
MEASURING THE ENTIRE SCAN FIELD

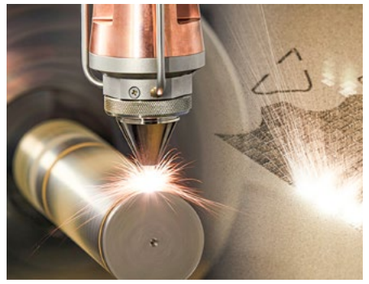
Primes' ScanFieldMonitor 2D (SFM 2D) is the first system capable of measuring the entire scan field of laser scanner systems, enabling comprehensive calibration and process optimization. In less than a minute, the SFM 2D, which will be presented at Formnext, determines the positional deviations of the laser throughout the entire working area, calculates correction data, and checks its implementation. According to Primes, this reduces the time required for conventional scan field correction to a fraction of the several hours that are normally necessary. At the same time, the system records other key parameters such as marking speed, laser spot size, power distribution, and laser duty cycle. Primes launched the ScanFieldMonitor for characterizing laser scanner systems back in 2018. With the new SFM 2D, its proven measurement principle – involving the scattering of laser light on a special glass structure – has been consistently advanced and extended to the entire scan field for the first time. The SFM 2D can reliably record numerous process parameters with just one measurement. The measurement field is scalable and can be adapted to the dimensions of the respective scan field. The wavelengths commonly used in additive systems in the visual and near-infrared range can be measured.Primes has been developing and manufacturing systems for characterizing industrial laser beams for use in the automotive industry, plant engineering, Additive Manufacturing, research and development, and laser material processing for over 30 years. Based in the Rhine-Main area, the owner-managed company employs around 140 people.



Primes at Formnext 2025:
Hall 12.0, Booth B101

JOINING PROCESSES FOR HIGH-QUALITY VISIBLE WELDS





Images: Primes, Toolcraft

Toolcraft AG is expanding its portfolio with additional joining technologies for precise and demanding applications. »In TIG welding, an electric arc is created between a non-consumable tungsten electrode and the workpiece. With or without filler material, precise, clean, and spatter-free welds can be produced,« says Christoph Barth, materials engineer and welding engineer (IWE) at Toolcraft. The process is particularly suitable for high-quality visible seams and materials with special requirements. According to Toolcraft, the advantages include universal applicability, precise heat control, and durable joints with high strength and corrosion resistance. Toolcraft uses the technology for a wide range of materials, including steel, nickel-based, and aluminum alloys. Typical areas of application are in aerospace, defense technology, mechanical engineering and fixture construction, and the semiconductor industry. Complex assemblies also benefit from the advantages of the process: Large-format structures can be joined and costs reduced through intelligent hybrid manufacturing. In addition, Toolcraft is developing innovative solutions for joining additively manufactured aluminum components. »Since the special microstructure of AM components makes fusion welding processes difficult, friction stir welding (FSW) offers great potential,« says Barth. His company ensures the quality of all its welding work through certifications in accordance with DIN EN ISO 3834-2 and DIN 2303.

Toolcraft at Formnext 2025:
Hall 12.0, Booth D88

REDUCING DEPENDENCE ON ANIMALS AND CADAVERS

Lynxter has entered into a partnership with Assistance Publique Hôpitaux de Paris (AP-HP) and its 3D Printing platform, Prim3D, with the aim of integrating silicone 3D Printing into everyday hospital life. Among other things, this is intended to enable the development of medical simulators and ultimately reduce dependence on cadavers and animals for training purposes.Launched in January 2023 as an internal service provider for AP-HP, the Prim3D platform is aimed at medical professionals, researchers, industry players, and start-ups. As part of the collaboration, Lynxter's S300X – LIQ21 | LIQ11 and S600D machines have been installed at Prim3D, where they are enabling the production of realistic surgical simulators, complex anatomical models, and customized components for training or surgical planning, among other things. Prim3D acts as a beta tester that evaluates the integration of these technologies into the hospital environment.

Lynxter at Formnext 2025:
Hall 11.1, Booth C69

PRINTING AT OVER 400°C

At this year's Formnext, the Hutthurm Technology Campus of the Deggendorf Institute of Technology is presenting the Sim3dAPP research project, which is funded by the Bavarian State Ministry of Economic Affairs, Regional Development, and Energy. Sim-3dApp's high-performance 3D printer operates at temperatures above 400°C, enabling it to process even high-performance polymers such as PEEK – something many industrial FFF systems have not yet been able to achieve. Sim3dAPP combines high-end hardware, AI, and simulations to make industrial FFF printing more efficient and precise. The system monitors the process in real time, detects errors, and automatically optimizes parameters. AI-supported simulations control post-processing and significantly reduce waste.

Technologie Campus Hutthurm at
Formnext 2025: Hall 12.1, Booth C71

COMPLEX SILICONE COMPONENTS WITH VARIABLE PROPERTIES

Together with seven medium-sized companies, the University of Bayreuth is currently researching the further development of the Additive Manufacturing process Fluid Material Extrusion (»Fluid-MEX«). The aim is to produce complex components made of silicone with variable mechanical and physical properties. Fluid-MEX enables the tool-free production of functional components with locally variable properties such as elasticity, stiffness, or electrical conductivity. The focus is on elastomers: dimensionally stable, but elastically deformable plastics that return to their original shape after being subjected to stress. According to the University of Bayreuth, Fluid-MEX has enormous potential for the production of components that require special hardness (> Shore 80A) and functionality, such as seals, flexible connections, or shock-absorbing elements with complex geometries. »Currently, the technology still faces technical challenges: Deformations, dimensional deviations, and surface defects limit the quality and functionality of the components,« says Philipp Ott, research assistant at the Chair of Environmentally Friendly Production Technology at the University of Bayreuth and network manager at Flexnet. The project, which is being funded by the Central Innovation Program for SMEs of the Federal Ministry for Economic Affairs and Energy, aims to overcome these hurdles.

Universität Bayreuth at Formnext 2025:
Hall 12.1, Booth C71

Images: Lynxter

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» 18–21 November 2025
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SAVE THE DATE:
» 17–20 November 2026
» More information: formnext.com

IMPRINT Fon Mag Issue 04/2025

PUBLISHER
mesago
Messe Frankfurt Group

Mesago Messe Frankfurt GmbH
Rotebühlstraße 83–85
70178 Stuttgart, Germany
Phone +49 711 61946-0
info@mesago.com
mesago.com

Register Court Stuttgart,
HRB Stuttgart 1 33 44
VAT-Identification Number:
DE147794792

Responsible for content under German Press Law: Sascha Wenzler

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DESIGN
feedbackmedia.de

PRINTING
Druckhaus Stil + Find,
Leutenbach-Nellmersbach

PUBLICATION FREQUENCY
Published four times per year

CIRCULATION
23,500 copies

ADVERTISING
Mesago Messe Frankfurt GmbH
Phone +49 711 61946-501
Stefan.Rapp@mesago.com

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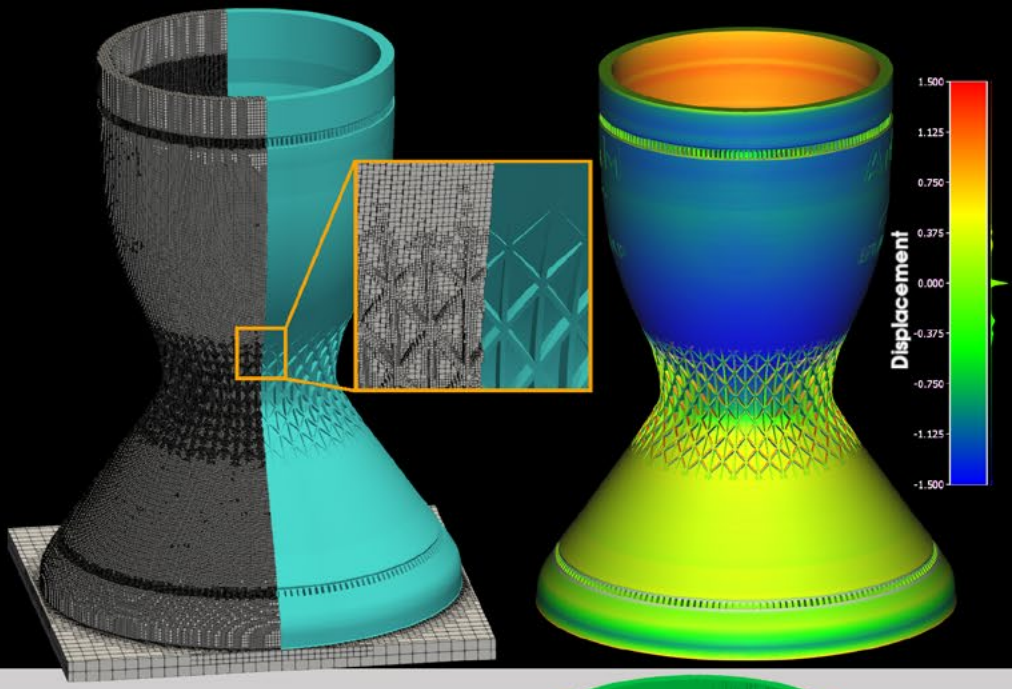
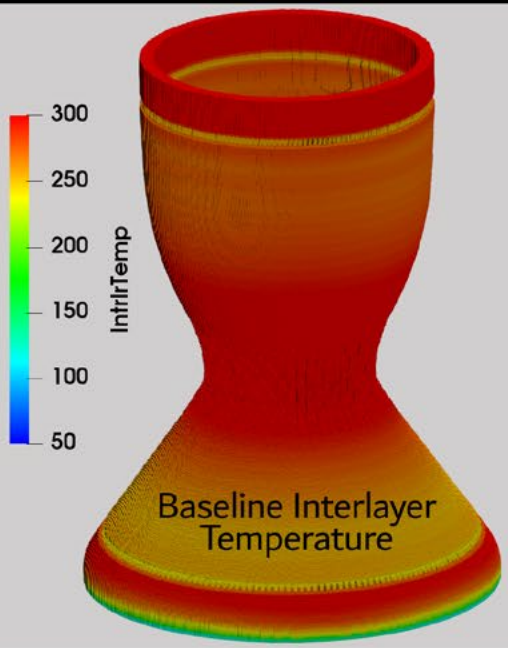
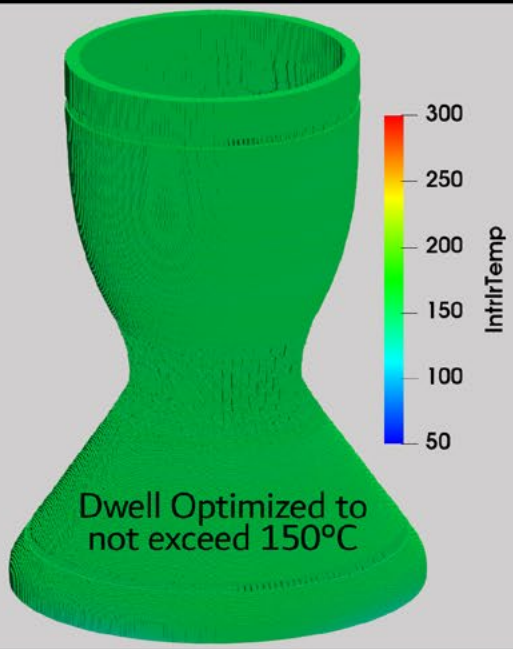
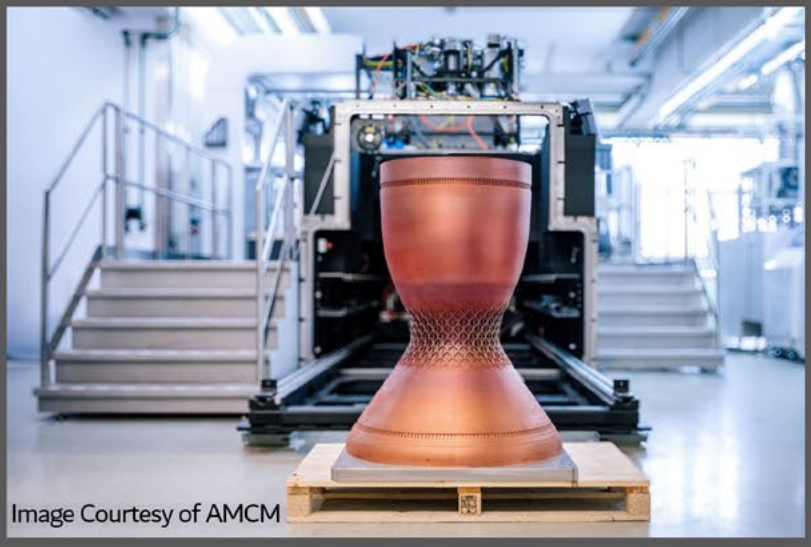


Optimize

Enhance the future







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