Fabrication Additive

Bulletin de Veille - 09 juin 2020

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SOMMAIRE

GÉNÉRALITÉS - FABRICATION ADDITIVE

- Romanian researchers investigate the compressive behaviour of 3D printed spheres
- A Non-Contact Method to Precisely Shape 3D-Printed Metal Parts

AÉROSPATIAL - FABRICATION ADDITIVE

- Italian Scientific Research Center 3D prints UV telescope for use on the International Space Station
- GE's Additive Manufacturing Project for the U.S. Air Force Takes off
- Le spécialiste des drones GA-ASI fait voler sa première pièce métallique imprimée en 3D
- Impression 3D d'un déployeur de satellites

CONCEPTION - FABRICATION ADDITIVE

- 3D Systems announces two new versions of its Geomagic reverse engineering software
- Open Mind to showcase AM capabilities of its hyperMILL software at IMTS 2020
- Autodesk posts financial results for Q1 2021

TECHNOLOGIES - FABRICATION ADDITIVE

- Zurich researchers create universal carrier bioink for 3D printing
- Optomec introduces robotic automation to metal additive manufacturing repair
- Nano Dimension fait une percée majeure dans l'impression électronique
- Researchers successful in reducing spatter-induced defects in metal 3D printed parts
- Using electric pulses to finely post-process metal 3D printed parts
- AXIOM: A New Method from HMT Combines Benefits of 3D Printing and Injection Molding

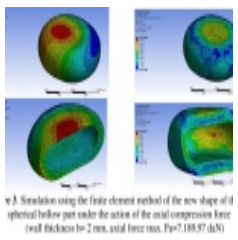
MATÉRIAUX - FABRICATION ADDITIVE

- Liqcreate releases new 3D printing material

GÉNÉRALITÉS - FABRICATION ADDITIVE

Romanian researchers investigate the compressive behaviour of 3D printed spheres

01/06/2020 - 3dprintingindustry.com



Researchers from the Gheorghe Asachi Technical University, Romania have released a study investigating the mechanical behaviour of 3D printed parts under axial compression. A set of hollow PLA spheres were additively manufactured with varying print parameters before being subjected to a comprehensive mechanical testing regime, revealing the influence of temperature, print speed, and part wall thickness on the mechanical properties of the spheres.

A Non-Contact Method to Precisely Shape 3D-Printed Metal Parts

29/05/2020 - www.azom.com

Professor Dirk Bähre and his research team at Saarland University have developed a non-contact method of transforming metal parts fabricated by a 3D printer into high-precision technical components for specialist applications. The novel method enables them to process parts made from strong, lightweight metals to produce precision-finished components with complex geometries and dimensional tolerances of a few thousandths of a millimetre. The team of manufacturing technologists combine metal 3D printing and electrochemical machining (ECM). Complex technical systems like the engines that power cars, planes or rockets are made from a large number of highly specialized metal components.

AÉROSPATIAL - FABRICATION ADDITIVE

Italian Scientific Research Center 3D prints UV telescope for use on the International Space Station

25/05/2020 - 3dprintingindustry.com

Italy's National Institute for Nuclear physics (INFN) has used 3D printing to produce the mechanical structure of a UV telescope, which was recently sent to the International Space Station (ISS).Over the next three years, the Italian Space Agency (ASI) and Russian Space Agency (Roscosmos) will use the 3D printed Mini-EUSO telescope to analyze UV emissions from the ISS. The aim of the project is to gain a better understanding of cosmic rays and to lay the technological groundwork for future missions to the space station. "Using Stratasys FDM 3D printing throughout the production of the Mini-EUSO's mechanical structure enables us to reduce the overall cost of the project," said Marco Ricci, Lead Researcher at Laboratori Nazionali di ...

GE's Additive Manufacturing Project for the U.S. Air Force Takes off

27/05/2020 - www.engineering.com

The great promise of 3D printing combined with innovative 3D design (such as generative

- 3D Systems expands material selection for Figure 4 platform and SLA 3D printing
- Researchers 3D print cellulose-based hydrogel with programmable deformation
- Protolabs launches cobalt chrome superalloy for its metal laser sintering service
- Enable Manufacturing expands metal 3D printing service with over 130 materials
- 2020 Update: Carbon Fiber 3D Printing
- Researchers determine the effects of powder recycling on stainless steel 316L
- Rosswag qualifies Ni-base superalloy Waspaloy for Additive Manufacturing

MARKET / BUSINESS - FABRICATION ADDITIVE

- Une machine Shop System de Desktop Metal au Cetim

EVÈNEMENTS / ÉTUDES - FABRICATION ADDITIVE

- Heraeus AMLOY receives German Innovation Award for its amorphous alloys
- Alstom réduit ses déchets grâce à l'impression 3D

RÉGLEMENTATION / BREVETS - FABRICATION ADDITIVE

- 3DEO achieves ISO 9001:2015 certification
- 3D Printed Ventilator Part Receives Emergency FDA Approval
- U.S. Army investigates predictive maintenance for 3D printed steel parts
- Elementum 3D Granted Patents in U.S., Canada, and Australia for Reactive Additive Manufacturing technology

design) is to reduce parts and material waste while creating geometry that surpasses the capability of traditional subtractive machining. The downside of using the technology for such applications has always been less material strength, due to 3D printing's process of anatomically printing one layer at a time, like a giant pancake.Addressing the complicated thermodynamics of jet engines, including material stress and very high temperatures, GE has steadily made progress and has produced several 3D-printed engine components with properties that pass muster for Federal Aviation Administration (FAA) certification.

Le spécialiste des drones GA-ASI fait voler sa première pièce métallique imprimée en 3D

30/05/2020 - www.primante3d.com

De l'aviation civile à l'aviation militaire, la fabrication additive continue de s'immiscer dans les pratiques de l'industrie aéronautique. Elle n'est pas seulement utilisée pour la fabrication de composants d'avions, mais aussi de drones pour apporter plus de complexité à leur design et réduire leur poids pour optimiser leurs performances. Dernièrement c'est General Atomics Aeronautical Systems, Inc. (GA-ASI), le premier fabricant mondial de systèmes d'aéronefs pilotés à distance (Remotely Piloted Aircraft Systems, RPAS), qui a officialisé le premier vol d'une pièce métallique imprimée 3D sur un de ses avions pilotés à distance SkyGuardian (RPA).

Impression 3D d'un déployeur de satellites

05/06/2020 - www.a3dm-magazine.fr

La société écossaise Alba Orbital, constructeur de satellites, a fait appel à la société italienne CRP Technology pour la construction d'AlbaPod 2.0, un déployeur de satellites entièrement réalisé par impression 3D. La technologie de fusion laser sur lit de poudre et le matériau Windform XT 2.0 ont permis de concevoir ces pièces.Un satellite miniaturisé utilisé pour la recherche spatiale

CONCEPTION - FABRICATION ADDITIVE

3D Systems announces two new versions of its Geomagic reverse engineering software

19/05/2020 - 3dprintingindustry.com

U.S.-based 3D Systems has officially announced two new versions of its Geomagic Design X and Geomagic Wrap 3D scan processing software packages. The amped-up iterations feature a number of "first-to-market capabilities" and are designed to allow engineers to streamline workflows and deliver high-quality, high-precision products from 3D scans in a timely manner.Radhika Krishnan, an Executive Vice President at 3D Systems, stated: "3D Systems has the broadest reverse engineering software portfolio in the industry, which includes a variety of best-in-class products.

Open Mind to showcase AM capabilities of its hyperMILL software at IMTS 2020

28/05/2020 - www.metal-am.com

CAD/CAM software solutions developer Open Mind Technologies AG, headquartered in Wessling, Germany, will showcase the advanced capabilities, including Additive Manufacturing support, of its latest hyperMILL® CAD/CAM software suite at the International Manufacturing Technology Show (IMTS) 2020, to be held from September 14–19 at McCormick Place, Chicago, Illinois, USA. The latest versions of hyperMILL are said to encompass a wide range of user friendly enhancements and important new machining strategies. The new Additive Manufacturing process in hyperMILL CAM software supports both additive and subtractive machining on one machine tool.

Autodesk posts financial results for Q1 2021

28/05/2020 - 3dprintingindustry.com

3D software developer Autodesk has announced financial results for the first quarter of fiscal 2021. Total revenue for the company increased 20

percent to $886 million, compared to the same period for FY 2020 which was reported at $735 million. On a constant currency basis, the increase was 22 percent. Although the COVID-19 pandemic had an inevitable impact especially with the economic slowdown in the latter stages of Q1, Autodesk President and CEO Andrew Anagnost is pleased with the “solid first quarter results,” adding that the company is prepared to overcome the challenges presented by the ongoing economic challenges. “

TECHNOLOGIES - FABRICATION ADDITIVE

Zurich researchers create universal carrier bioink for 3D printing

03/06/2020 - 3dprintingindustry.com

Researchers at the Swiss Federal Institute of Technology Zurich (ETHZ) have produced a universal nanocarrier ink platform, that provides tailored rheology for extrusion-based 3D printing, and facilitates the formulation of biofunctional inks. The Universal Nanocarrier Ink (UNI), can be combined with a range of functional secondary polymers, to enable the stabilization of printed constructs via secondary cross-linking. Applications for the material’s unique customized biofunctionality, include tissue engineering and drug delivery, as well as the rapid formulation of a broad range of functional inks, for the additive manufacturing of advanced biomaterials.

Optomec introduces robotic automation to metal additive manufacturing repair

22/05/2020 - 3dprintingindustry.com

Optomec, the New Mexico-based developers of Laser Engineered Net Shaping (LENS) and Aerosol Jet Printing (AJP) metal 3D printers, has introduced robotic automation to its Huffman line of production 3D Metal Additive Repair machines.The company has combined its production laser cladders under the Huffman brand, with a Fanuc LRMate 200, a compact, six-axis industrial robot with the approximate size and reach of a human arm. The robotic integration is intended to automate the process of loading and unloading parts for high volume repair of turbine blades and vanes.

Nano Dimension fait une percée majeure dans l’impression électronique

26/05/2020 - www.primante3d.com

Si l’électronique est un domaine d’application parmi les plus récents de l’impression 3D, ce segment a réalisé des progrès très rapides. Sur le très petit nombre de fabricants capables aujourd’hui de fournir des imprimantes 3D pour l’électronique, la société israélienne Nano Dimension est probablement la plus en pointe. Celui qui lançait le premier service en ligne d’impression 3D électronique il y a deux ans, vient de franchir un nouveau cap. Un client dénommé HENSOLDT spécialisé dans les solutions de capteurs militaires, a récemment réalisé avec succès l’impression 3D et l’assemblage d’un prototype de PCB (printed circuit board) à dix couches double face.

Researchers successful in reducing spatter-induced defects in metal 3D printed parts

27/05/2020 - 3dprintingindustry.com

A team of researchers from Lawrence Livermore National Laboratory (LLNL) have discovered a way of reducing defects in metal parts 3D printed via LPBF. By carefully controlling the ‘spatter’ of rogue material launched out of the powder melt track, the scientists were able to significantly reduce loose powder interaction with freshly fused material, increasing the quality of each metal layer.

Using electric pulses to finely post-process metal 3D printed parts

29/05/2020 - 3dprintingindustry.com

Researchers at Saarland University have developed a non-contact method for transforming 3D printed metal parts into high-precision technical components for specialist applications.The novel technique leverages electrochemical machining (ECM) to post-process additive manufactured metal components into precision-finished parts

with complex geometries and dimensional tolerances of a few thousandths of a millimetre. Such a method is intended to improve the implementation of 3D printed metal parts in applications that have to meet extremely strict dimensional requirements in industries such as automotive and aerospace.

AXIOM: A New Method from HMT Combines Benefits of 3D Printing and Injection Molding

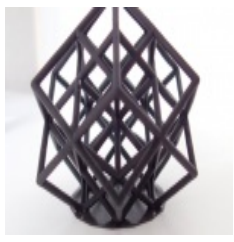
05/06/2020 - www.engineering.com

The AXIOM method from Hybrid Manufacturing Technologies is shown here. The AMBIT XTRUDE PE-1 3D printhead was fixed to a CNC milling machine to produce finished parts from polymers and composites that resembled finished injection molded parts. (Image courtesy of HMT.)

MATÉRIAUX - FABRICATION ADDITIVE

Liqcreate releases new 3D printing material

20/05/2020 - 3dprintingindustry.com



Netherlands-based 3D printing material manufacturer Liqcreate has launched its new Tough-X photopolymer resin. Liqcreate’s latest material provides high durability, which lends itself to the manufacturing of spare parts and consumer goods such as insoles. Liqcreate’s latest Tough-X resin is suitable for producing spare parts and consumer products such as insoles. Photo via Liqcreate. Liqcreate’s new Tough-X resin Liqcreate specializes in developing and manufacturing photopolymer resins for Stereolithography (SLA) and Digital Light Projector (DLP) 3D printers. The company also offers custom resin development, enabling customers to create photopolymers with different colors and properties for any DLP, LCD or SLA 3D-printer.

3D Systems expands material selection for Figure 4 platform and SLA 3D printing

04/06/2020 - 3dprintingindustry.com

U.S. 3D printer OEM 3D Systems has announced an expansion to its portfolio of plastics materials, in order to increase the breadth of their applications for manufacturers in the 3D printing industry.

Researchers 3D print cellulose-based hydrogel with programmable deformation

02/06/2020 - 3dprintingindustry.com

A team of researchers from the University of Stuttgart, the University of Virginia, and Koc University, Istanbul, have 3D printed multimaterial parts with multidirectional stiffness gradients. By combining their expertise in materials engineering and digital processing, the researchers were able to create sets of cellulose-based filaments with varying mechanical and rheological properties, despite having similar compositions. The materials were then used in conjunction with each other to program specific deformation profiles into complex parts.

Protolabs launches cobalt chrome superalloy for its metal laser sintering service

05/06/2020 - 3dprintingindustry.com

Digital prototyping specialist Protolabs has launched a new 3D printing material for its metal laser sintering process – cobalt chrome superalloy. The UK-based company believes the heat, wear, and corrosion resistant material will disrupt a number of industries including oil and gas where customized cobalt chrome parts were not previously possible.Andrea Landoni, 3D printing product manager for Protolabs, stated: “Cobalt chrome is one of the toughest materials known and can be polished to an extremely smooth surface.

Enable Manufacturing expands metal 3D printing service with over 130 materials

01/06/2020 - 3dprintingindustry.com

Enable Manufacturing, a UK-based metal 3D printing service provider, has announced that it is now able to produce metal parts with its Additive Casting process in more than 130 metals.The company's Additive Casting process uses a combination of 3D printed molds and traditional casting techniques to create metal parts. By using a combination of both manufacturing techniques, the company aims to offer an expansive material selection for customers, so that they are able to produce their metal parts in the desired material. Metal casted part using 3D printed mold.

2020 Update: Carbon Fiber 3D Printing

02/06/2020 - www.engineering.com

Heralded as an important catalyst for the changing face of manufacturing and supply chains, additive manufacturing is back in the limelight. It's with good reason. The layer-by-layer additive techniques, clubbed under the umbrella term of 3D printing, are being extensively employed to help save lives as governments across the world battle to flatten the COVID-19 curve.While companies like Isnnova and Lonati SpA have 3D printed valves for ventilators, others firms like RapidMade are now producing emergency personal protective equipment (PPE) such as lightweight plastic face masks with built-in removable filters as well as face shields.

Researchers determine the effects of powder recycling on stainless steel 316L

03/06/2020 - 3dprintingindustry.com

Researchers from the I-Form Advanced Manufacturing Research Centre in Dublin have published a study investigating the effects of metal powder reuse on the porosity of 3D printed parts. The team employed X-ray tomography, AFM (atomic force microscopy) roughness measurements, and nanoindentation measurements with the aim of determining the optimum number of reuse cycles for stainless steel 316L powder.

Rosswag qualifies Ni-base superalloy Waspaloy for Additive Manufacturing

28/05/2020 - www.metal-am.com

Rosswag GmbH, Pfinztal, Germany, has qualified the nickel-base superalloy Waspaloy for Laser Powder Bed Fusion (L-PBF) Additive Manufacturing. Waspaloy is a registered trademark of United Technologies Corp that refers to an age-hardening austenitic nickel-base superalloy. The alloy has a tensile strength of 1400 MPa, exceeding that of some of the nickel-base alloys most frequently used in the AM process, such as Inconel 718. Due to its good strength properties at temperatures up to approx 980ºC, it is typically used in high-temperature applications, particularly in gas turbines

MARKET / BUSINESS - FABRICATION ADDITIVE

Une machine Shop System de Desktop Metal au Cetim

28/05/2020 - www.a3dm-magazine.fr

Desktop Metal vient d'annoncer l'installation dune machine Shop System, en France, au Cetim. Ensemble, l'institut technologique labellisé Carnot et la société américaine souhaitent accélérer l'adoption de la fabrication additive métallique.L'imprimante 3D Shop System MJB Lancée à l'occasion du salon Formnext 2019, qui s'est déroulé à Francfort en Allemagne, l'imprimante 3D Shop System de Desktop Metal (photo ci-dessus) est une machine utilisant le procédé de projection de liants métalliques (MJB). Cette technologie d'impression 3D métal possède un coût moindre que les technologies à poudre, avec une bonne qualité d'impression et une bonne productivité.

EVÈNEMENTS / ÉTUDES - FABRICATION ADDITIVE

Heraeus AMLOY receives German Innovation Award for its amorphous alloys

29/05/2020 - www.metal-am.com

The German Design Council has awarded Heraeus AMLOY, a division of Heraeus, Hanau, Germany, a gold German Innovation Award in the category of Materials & Surfaces, Excellence in Business to Business, for its amorphous alloys. Amorphous metals, also called bulk metallic glasses, are frozen metallic melts, where due to the shock freezing of the melt, the individual atoms have no opportunity to form an ordered metal lattice. The resulting material is flexible and, at the same time, extremely stable, corrosion and abrasion resistant and biocompatible.

Alstom réduit ses déchets grâce à l'impression 3D

05/06/2020 - www.a3dm-magazine.fr

Dans les domaines d'applications du développement durable, l'impression 3D fait figure de bonne élève. La technologie est réputée pour utiliser uniquement la matière première nécessaire à la fabrication de la pièce et donc réduire la production de déchets. Elle permet également – comme nous le montrons dans l'initiative Relocaliser par l'impression 3D – de produire près du lieu de consommation et sur commande, limitant ainsi la surproduction et la pollution engendrée par les transports.

RÉGLEMENTATION / BREVETS - FABRICATION ADDITIVE

3DEO achieves ISO 9001:2015 certification

19/05/2020 - www.metal-am.com

The 3DEO team celebrates achieving ISO 9001:2015 certification (Courtesy 3DEO, Inc) 3DEO, Inc., a metal Additive Manufacturing technology company based in Los Angeles, California, USA, has received ISO 9001:2015 certification, which will enable it to further develop the commercialisation of its AM technology.ISO 9001 is the internationally recognised standard for a quality management system (QMS). The certification allows companies to operate more effectively on several different levels, including the ability to focus on customer requirements, ensure consistent production and continuously improve all aspects of the production process.

3D Printed Ventilator Part Receives Emergency FDA Approval

22/05/2020 - www.engineering.com

3D printing company Formlabs just received emergency use authorization (EUA) from the U.S. Food and Drug Administration (FDA) to 3D print bi-level positive airway pressure (BiPAP) adapters. The BiPAP adapters are designed by New York's largest healthcare provider Northwell Health. The first 3D printing manufacturer to receive a EUA, Formlabs is now shipping the FDA-approved adapters to hospitals and healthcare facilities all over the United States. This will help alleviate the current shortage of ventilators used to provide life-saving treatment for patients suffering from COVID-19.Bilevel positive airway pressure (BiPAP) machines use mild air pressure to keep airways open during sleep.

U.S. Army investigates predictive maintenance for 3D printed steel parts

27/05/2020 - 3dprintingindustry.com

The U.S. Army CCDC Army Research Laboratory (ARL) has discovered a method of predicting the performance of 3D printed parts and understanding any imperfections that can affect their performance.Detailed in a new study, the ARL will detect and monitor the wear and tear of 3D printed maraging steel through sensor measurement. Such measurements can help the military predict when parts will degrade or fail, and need replacement, allowing them to maintain readiness. “

Elementum 3D Granted Patents in U.S., Canada, and Australia for Reactive Additive Manufacturing technology

04/06/2020 - 3dprintingindustry.com

Colorado-headquartered additive manufacturing material developer Elementum 3D has announced that it has been awarded patents in the U.S., Canada, and Australia for its Reactive Additive Manufacturing (RAM) technology.The RAM process aims to expand the materials library of additive manufacturing by enabling the 3D printing of previously unprintable materials. With the additive manufacturing industry at the forefront of metal manufacturing, presenting advantageous applications for a number of key industries, the limited selection of printable metal materials constrains wider adoption.