Fabricación Aditiva

BOLETÍN DE VIGILANCIA TECNOLÓGICA.

ABRIL-JUNIO 2021. **CEIIA**

NOTICIAS

11/05/2021

Rio Tinto develops new steel powder for 3-D printing

Rio Tinto has successfully developed and tested a steel powder designed for 3-D printing applications at its Rio Tinto Fer et Titane (RTFT) metallurgical complex in Sorel-Tracy, Québec. The water-atomized steel powder delivers mechanical properties superior to conventional metal manufacturing techniques, paving the way for advances in the use of 3-D printing technology for metal parts.

https://www.greencarcongress.com/2021/05/20210511-rtft.html

27/05/2021

Air Works marks 'strategic shift' with 3D printing partnership

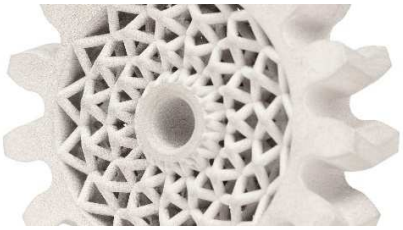
Indian MRO Air Works has partnered with additive manufacturing and services provider Objectify Technologies to explore business opportunities in 3D printing solutions for the aerospace and defence industries.

https://www.flightglobal.com/aerospace/air-works-marks-strategic-shift-with-3d-printing-partnership/143923.article

09/06/2021

Desktop Metal qualifies 4140 low-alloy steel for high-volume additive manufacturing

Mass-production additive-manufacturing (AM) solutions provider Desktop Metal has qualified the use of 4140 low-alloy steel for its Production System process, which leverages its proprietary Single Pass Jetting (SPJ) technology, a binder jetting AM process. Desktop Metal says it is the first to qualify 4140 low-alloy steel for use with metal binder jetting systems, enabling it to be used in the mass production of end-use parts.



https://www.enginetechnologyinternational.com/news/materials-surface-treatment/desktop-metal-qualifies-4140-low-alloy-steel-for-high-volume-additive-manufacturing.html

18/06/2021

Volkswagen plans to use new 3D printing process in vehicle production in the years ahead

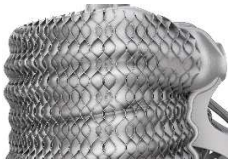
Volkswagen is pressing ahead with the use of innovative 3D printers in car production. For the first time, the newest process – known as binder jetting – is being used to manufacture components at the company's main plant in Wolfsburg, Germany. Whereas conventional 3D printing uses a laser to build a component layer by layer from metallic powder, the binder jetting process uses an adhesive. The resulting metallic component is then heated and shaped. Using the binder jetting component reduces costs and increases productivity – for example, the components weigh only half as much as those made from sheet steel. Volkswagen is currently the only car maker using this 3D printing technology in the production process.

https://www.volkswagen-newsroom.com/en/press-releases/volkswagen-plans-to-use-new-3d-printing-process-in-vehicle-production-in-the-years-ahead-7269

25/06/2021

'Thinking ahead' maximizes additive manufacturing potential

Successfully designing parts for additive manufacturing requires engineers to challenge design legacy.



https://www.sae.org/news/2021/06/designing-for-additive-manufacturing

30/06/2021

Rodin to employ additive manufacturing in production of new 8-speed

New Zealand-based manufacturer Rodin Cars has unveiled the state-of-the-art 8-speed sequential transmission that it will pair with a new Neil Brown Engineering V10 for the FZero road car. The 3D-printed titanium gearbox – with hydraulically controlled differential – is the result of an 18-month collaborative design process between Rodin, Ricardo and 3D Systems.

https://www.enginetechnologyinternational.com/news/transmissions-technologies/rodin-to-employ-additive-manufacturing-in-production-of-new-8-speed.html?utm_source=mailing&utm_medium=email#prettyPhoto

PUBLICACIONES CIENTÍFICAS

Maio/2021

The roles and applications of additive manufacturing in the aerospace and automobile sector

V.Mohanavela, K.S.Ashraff Ali, K.Ranganathan, J.Allen Jeffrey, M.M.Ravikumar, S.Rajkumar

Additive manufacturing or 3D printing is one of the developing technologies of the manufacturing field. 3D printing is establishing its power and potential in various areas by implementing new processing techniques of 3D printing over the world. 3D Printing is proving its efficiency in fabricating 3D models, especially in aerospace, automobile, medical etc. The existing and non-existing components in various fields can be produced by scanning or designing the particular components through designing software. We can print them through a 3D printer. Using additive manufacturing, we can make stronger and light-weighted products within a short period. The components can also be manufactured through various plastic and metal materials. Rapid prototyping is one of the time-saving processes of 3D printing in the aerospace and automobile industries. Nowadays, 3D printing is developing to solve human health issues by printing the human organs through the tissues of a particular human. It is a time-saving and cost-efficient technique. If we compare the other traditional manufacturing techniques with additive manufacturing, AM is environmentally friendly to both nature and humans. The safety provided by the AM products is also well and good. Raw material wastages can be prevented. Here we review the topics regarding additive manufacturing techniques, 3D printing in the automobile and aerospace field.

https://www.sciencedirect.com/science/article/pii/S2214785321035227

Maio/2021

Improving the surface characteristics of additively manufactured parts: A review

Abdul Wahab Hashmi, Harlal Singh Mali, Anoj Meena

Nowadays, the additive manufacturing process had significant attention due to its great advantages that are being used for developing products and producing prototypes. This technology overcomes the various drawbacks of existing techniques and it becomes the most efficient approach. In the industrial sector, this

technology is most important for individual designing products and extended with different functions. The performance of additively manufactured parts, on the other hand, is largely influenced by their surface integrity and dimensional accuracy. The surface integrity is an important issue because the additively manufactured products are affected by staircase effects resulting from layer-by-layer manufacturing. The rapid prototyping contains multiple methods such as VAT Photopolymerization and Poor surface quality is caused by the staircase effect in all additive manufacturing processes so therefore, the various post-processing efforts and controlling different process parameters of additive manufacturing are necessary on the produced component for improving surface quality and reducing surface roughness. To focus on improving the finish of an additively manufactured part's surface, there are numerous methods presented. This research described the various existing approaches of surface finishing with various efficacies such as reduction of surface roughness value, mechanical strength, and dimensional accuracy. Current post-processing methods for improving the surface characteristics of additively manufactured parts are discussed, with a classification based on the processes' mechanisms.

https://www.sciencedirect.com/science/article/pii/S2214785321031436

Maio/2021

Geometric precision analysis for Additive Manufacturing processes: A comparative study

Zhaohui Geng, Bopaya Bidanda

Additive Manufacturing (AM) has recently attracted increasing attention among manufacturing industries. This class of technologies is capable of creating parts with complex shapes and intricate structures. However, the poor geometric quality of the parts they produced is a major constraint in wide industrial adoption. Currently available analytical techniques based on classic measurement equipment could fail in analyzing the process parameters based on AM-created parts because of the layer-by-layer fabrication process. In this article, we introduce a novel three-dimensional point-cloud-based analytical toolset, volumetric data analysis (VDA), for AM-oriented metrological and experimental analysis. Each step of the VDA is discussed in detail. A high dimensional hypothesis testing procedure is proposed to compare the geometric precision of the part samples from two printing settings. New visualization tools for deviation diagnostics are presented to aid in interpreting and comparing the process outputs. The proposed methods are illustrated with a real experiment to compare the effects of different layer thicknesses in a filament deposition modeling printing process.

https://www.sciencedirect.com/science/article/abs/pii/S0141635921000052