

Welcome to the Fourth Industrial Revolution

May, 2018

More than 100 parts for NASA's Orion capsule to be 3D printed



More than 100 parts for U.S. space agency NASA's deep-space capsule Orion will be made by 3D printers, using technology that experts say will eventually become key to efforts to send humans to Mars.

U.S. defense contractor Lockheed Martin, 3D printing specialist Stratasys, and engineering firm P&D have developed the parts using new materials that can withstand the extreme temperatures and chemical exposure of deep space missions, Stratasys said on Tuesday.

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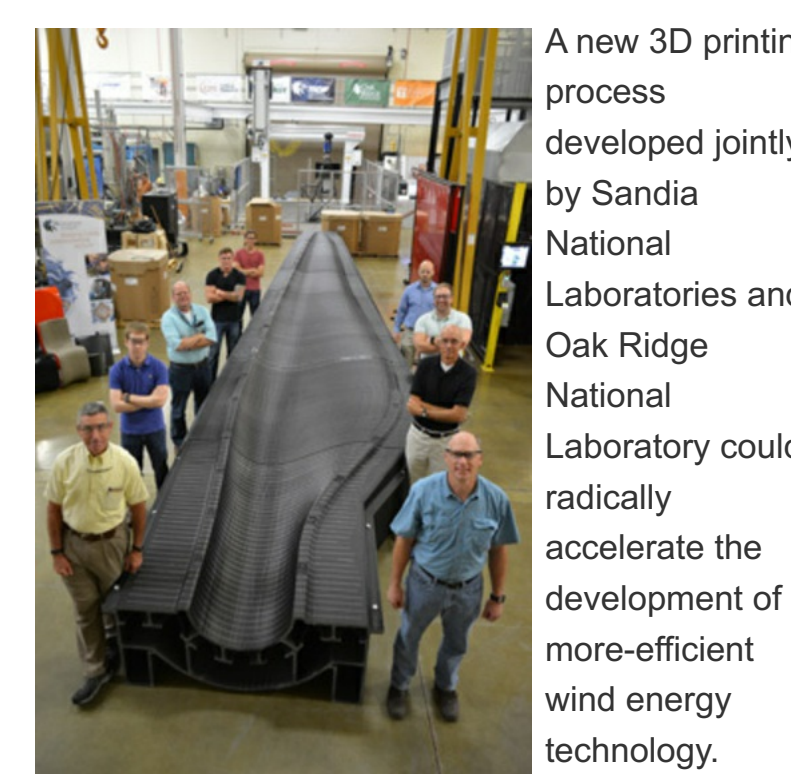
3D Printing is Evolving to Produce High Volume Plastic Part Production



In an effort to evolve, 3D printer manufacturers are moving away from prototype machines and concentrating on closed loop, high volume plastic part production systems. These systems produce high volume parts in end-use plastic. 3D printed materials in the past have been weak and expensive, not suitable for real world plastic products. Material quality and durability has improved to the state that these systems can produce real world end-use plastic products at production costs and speeds. This is the tipping point where old school manufacturing will become antiquated. On the cusp of the 4th industrial revolution, these are the types of systems that are changing everything. Examples of this can be found in the following articles:

- [3D Systems Moves Manufacturers from Prototyping to Production Showcasing New Solutions at RAPID+TCT 2018, Including Figure 4 with World's Fastest Time-to-Part Evolve Your Manufacturing Capabilities](#)
- [Make Everything Except Compromise](#)

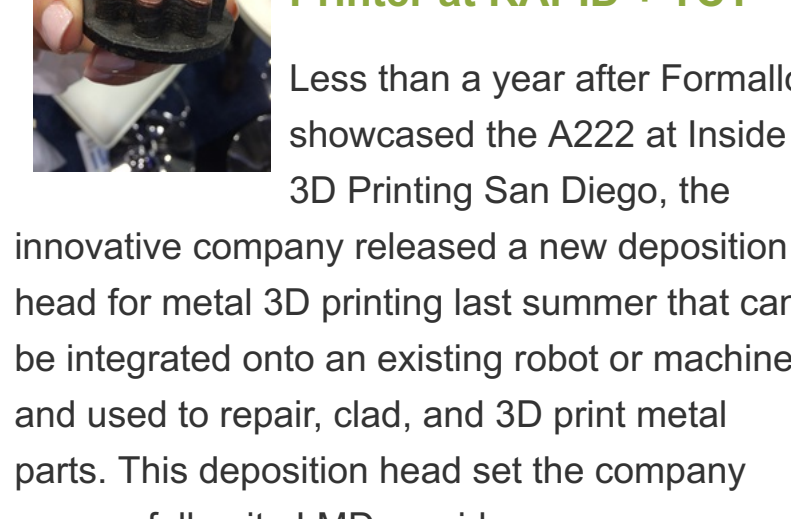
3-D printing accelerates research on wind blades



A new 3D printing process developed jointly by Sandia National Laboratories and Oak Ridge National Laboratory could radically accelerate the development of more-efficient wind energy technology.

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Formalloy Introduces New X-series LMD Metal 3D Printer at RAPID + TCT



Less than a year after Formalloy showcased the X22 at Insite 3D Printing San Diego, the innovative company released a new deposition head for metal 3D printing last summer that can be integrated onto an existing robot or machine and used to repair, clad, and 3D print metal parts. This deposition head set the company up as a full-suite LMD provider.

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Thrashing the Future of Design With Topology Optimization and Skateboard Trucks

Skateboard trucks are set to change, thanks to topology optimization and metal additive manufacturing.

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 California's Manufacturing Network

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Chris Wentworth
 Chris is CMTC's principal development and Additive Manufacturing (AM) expert. With over 20 years of experience in manufacturing, twelve of those working with AM, Chris brings a wealth of knowledge to small and medium-sized manufacturers.

The Largest Metal 3D Printer in the World is Built for Rockets



Formalloy has 3D printed a functioning rocket engine consisting of just three parts—compared with the 2,700 components that make up a traditional one. Printing such large parts drastically cuts down on time and labor, which will allow the company to charge less and run more frequent trips to space. It's targeting a customer base of medium-sized satellite companies and already has \$1 billion in contract commitments.

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Additive Manufacturing Training Program

Lunch 'N Learn
May 11, 2018
Noon - 1:30 p.m.
Formalloy
 2810 Via Orange Way, Suite A
 Spring Valley, CA 91978

Additive Manufacturing: The Evolution of 3D Printing This no cost event is designed to give the small and medium-sized manufacturer an overview of the current state of Additive Manufacturing, new developments in technology and new trends manufacturers need to be aware of. It will focus on real world technologies and how they can be used to help improve productivity and grow your business. Lunch will be provided.

[Click Here to Reserve Your Complimentary Seat](#)



Formalloy's 3D metal printing technology utilizes Laser Metal Deposition (LMD) to create metallic parts to near-net shape, increasing the design envelope while providing a more economical solution than producing the same part with conventional methods.

Formalloy's 3D metal printing technology utilizes Laser Metal Deposition (LMD) to create metallic parts to near-net shape, increasing the design envelope while providing a more economical solution than producing the same part with conventional methods. Formalloy's 3D printing systems enable reduced machining time and nearly eliminate material waste, particularly with high-value materials such as titanium and Inconel. 3D printing parts with Formalloy's process can provide design features that can't be achieved with conventional manufacturing methods, such as internal cooling channels and multi-metal parts. For more information on Formalloy, please visit their website at: www.formalloy.com

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How do you combine lean and automation? Smart Manufacturing and Industry 4.0 are changing the way we think about manufacturing. Join us for a day of learning and networking.

- Automation and its role in your production environment
- Industry 4.0 and the future of manufacturing
- A Friday afternoon networking opportunity

DATE: June 11, 2018
TIME: 8:00am - 5:00pm
LOCATION: The CMTC Conference Center, 2800 Via Orange, CA 91978
REGISTRATION IS OPEN

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CMTC Offers AM Consulting

CMTC can help you! Additive Manufacturing may be able to help you save money and improve quality. Let us help you minimize risk as you explore AM printing technology. We can advise you on new manufacturing methods, equipment and revenue streams. Don't get left behind. Contact me at cwentworth@cmtc.com to get help with understanding additive. We can help you keep up with the latest Additive Manufacturing technology!

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