Five Projects to Advance ExOne Binder Jet 3D Printing Receive Manufacturing PA Innovation Grants

June 18, 2020

Commonwealth of Pennsylvania initiative unites graduate and undergraduate students with local manufacturers to collaborate on projects and develop new technologies to propel manufacturing innovation throughout the state

NORTH HUNTINGDON, Pa.--(BUSINESS WIRE)--Jun. 18, 2020-- Five projects with Pennsylvania universities have received funding through the Manufacturing PA Innovation Program to advance binder jet 3D printing in collaboration with The ExOne Company (Nasdaq: XONE), the global leader in industrial sand and metal 3D printers using binder jetting technology.

In all, the Department of Community and Economic Development (DCED) awarded $2.8M to Pennsylvania universities for 43 projects to advance manufacturing technology projects.

ExOne binder jetting technology is a relatively mature method of 3D printing in which an industrial printhead deposits a liquid binder onto a thin layer of powdered particles, layer by layer, until an object is formed. ExOne binder jet systems currently 3D print more than 20 metals, ceramics and composite materials, but important R&D work continues to further advance the disruptive production technology.

“The Manufacturing PA program is helping ExOne to expand our research and development efforts in important ways with the assistance of Pennsylvania’s outstanding universities and other technology companies,” said John Hartner, ExOne CEO. “The projects funded by this program will help ExOne unlock the commercial and sustainability value that binder jet 3D printing has to offer, such as delivering lighter weight vehicles that are more fuel-efficient as well as all-new innovations.”

ExOne 3D systems are the most researched in the field of binder jetting, and this work has played an important role in advancing ExOne’s binder jetting strategies, materials and processes over the years.

“We strongly value our relationships with the academic R&D community, and we appreciate their support enhancing our competitiveness and advancing this important 3D printing field,” Hartner added. “We congratulate our partners and all of the other universities and companies receiving Manufacturing PA Innovation funding.”

Funded Projects Will Help Resolve Key Challenges

The five projects funded by Manufacturing PA will help ExOne resolve challenges related to printing irregular and porous powders, as well as sintering and identifying parts that can best benefit from binder jet 3D printing, among other projects. The awards are as follows:

- Carnegie Mellon University: "Binder Jet 3D Printing from Powder Produced by Metal Attrition." This project will work to optimize binder jet printing parameters and densification of irregularly shaped powders, such as those experiencing attrition.
- Carnegie Mellon University, with Kennametal and Ansys: "Optimal Parts Consolidation and Structural Redesign for Additive Manufacturing to Reduce Weight, Production Costs, and Lifecycle Fuel Use." This project aims to create a software tool that allows users to upload a CAD file of a large-scale system and automatically identify components and subsystems for consolidation and optimization with binder jet 3D printing. This will allow manufacturers to minimize production costs and lightweight existing parts while preserving functionality.
- The Pennsylvania State University: “Advanced Manufacturing of Ceramics for PA Industries." This project aims to develop a new class of ceramic materials using binder jetting technology, which will provide a unique combination of high-temperature stability, corrosion resistance and toughness for a wide range of applications.
- University of Pittsburgh with Ansys: “A Computational Tool for Simulating the Sintering Behavior in Binder Jet Additive Manufacturing.” This project aims to develop a computational tool for simulating the deformation and porosity resulting from the sintering of binder jet 3D printed parts made of 316L stainless steel powders.
- Villanova University: "Wetting of Binder Solution on Porous Bed of Microparticles.” This project will investigate how to best wet porous particles with binder and generate guidelines or parameters for this form of 3D printing.

About ExOne

ExOne is the pioneer and global leader in binder jet 3D printing technology. Since 1995, we’ve been on a mission to deliver powerful 3D printers that solve the toughest problems and enable world-changing innovations. Our 3D printing systems quickly transform powder materials — including metals, ceramics, composites and sand — into precision parts, metalcasting molds and cores, and innovative tooling solutions. Industrial customers use our technology to save time and money, reduce waste, improve their manufacturing flexibility, and deliver designs and products that were once impossible. As home to the world’s leading team of binder jetting experts, ExOne also provides specialized 3D printing services, including on-demand production of mission-critical parts, as well as engineering and design consulting. Learn more about ExOne at www.exone.com or on Twitter at @ExOneCo.

View source version on businesswire.com: https://www.businesswire.com/news/home/20200618005055/en/

Media:
Sarah Webster
Global Marketing Director
724-516-2336
sarah.webster@exone.com

Source: The ExOne Company