Rapid Growth of Additive Manufacturing Disrupts Traditional Manufacturing Process Companies

David Burns

Additive manufacturing is exploding on the manufacturing scene as leading companies are transitioning from “analog” to “digital” manufacturing in order to recognize cost saving and design benefits not possible through traditional manufacturing , said Dave Burns, President and COO of ExOne.

As the leading additive manufacturing company for the industrial manufacturing sector, ExOne works with a blue-chip roster of clients that include BMW, Sikorsky, Caterpillar and Ford. It has implemented additive manufacturing into the production processes at these and other leading industrial companies around the world.

“Major global companies have recognized that additive manufacturing can significantly reduce costs while offering design freedoms not previously possible and have begun to implement the technology into their manufacturing processes,” Burns said. “Additive manufacturing is a truly disruptive technology.”

3D Printing on an Industrial Scale

Additive manufacturing uses three-dimensional printing to transform engineering design files into fully functional and durable objects created from sand, metal or glass. This advanced manufacturing process starts with a computer-aided design (CAD) file that conveys information about how the finished product is supposed to

look. The CAD file is then sent to a specialized printer where the product is created by the repeated laying of finely powdered material (sand, metal or glass) and binder to gradually build the finished product.

Since it works in a similar fashion as an office printer laying ink on paper, this process is often referred to as 3D printing. The 3D printers can create a vast range of products for a host of industrial segments, including parts for use in airplanes and automobiles, to replace aging or broken industrial equipment, or for precise components for medical needs. Manufacturers across several industries are also using this form of digital manufacturing to produce engine components for automotive applications, impellers and blades for aerospace use, patternless sand molds for pumps used in the oil and energy industry, and medical prosthetics which require easily adaptable design modifications.

“The moment is now for additive manufacturing; it delivers real benefits to manufacturing companies,” added Burns. “It has robust capabilities for a range of industries including aerospace, automotive and energy. It’s no wonder The Economist has already predicted that ‘factories of the future will have 3D printers working alongside milling machines, presses, foundries and plastic injection molding equipment in the business of making things.’”

The Next Industrial Revolution

There are tremendous cost advantages to using additive manufacturing. There is little to no waste in creating objects through additive manufacturing, as they are precisely built by adding material layer by layer. In traditional manufacturing, objects are created in a subtractive manner as metals are trimmed and shaped to fit together properly. The subtractive manufacturing process creates substantial waste that can be harmful to the environment. Additive manufacturing is a very energy-efficient and environmentally-friendly manufacturing option.

Industries looking to cut costs, to improve productivity and efficiency, to speed product development, and to spur creativity can introduce additive manufacturing in a variety of ways, from product prototyping to actual printing of component parts.

With reduced costs, improved efficiency, rapid prototyping characteristics and freedom from the constraints of design parameters of subtractive manufacturing, additive manufacturing fosters a new level of creativity. From a design standpoint, what wasn’t physically possible in the past – from engine blocks to precision prosthetics – is now possible through additive manufacturing, leading many to believe additive manufacturing carries the promise of the next industrial revolution.

About The Ex One Company

Headquartered near Pittsburgh in Irwin, Pa., ExOne has a global footprint that includes U.S. facilities in Troy, Michigan and Houston, Texas, as well as operations in Germany, Japan and Russia. Founded in 2005 as a spin-off of Extrude Hone Corporation, a supplier and developer of precision nontraditional machining processes and automated systems worldwide, ExOne has expanded to deliver consistent and fast turnaround service to customers across the globe in the aerospace, automotive, energy/oil/gas/pumps, medical/biomedical, and

art/design/decorative spaces. For more information, visit www.ExOne.com [1].

David Burns is President and Chief Operating Officer for The Ex One Company, LLC where he is responsible for worldwide operations. Mr. Burns received his Bachelor of Arts in Economics from St. John Fisher College and his M.B.A. from The Simon School at the University of Rochester. He serves as Trustee for the Rochester Institute of Technology, the Strong National Museum of Play, and the Executive Advisory Council for The Simon School. He is a former board member and chairman of The Association for Manufacturing Technology.

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