3D SYSTEMS

News Release

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America Makes and Department of Defense Select 3D Systems to Help Reduce Part Corrosion - Potential to Significantly Reduce Maintenance Costs

- Collaboration with Newport News Shipbuilding, Northrop Grumman, University of Akron intends to deliver guidance that could reduce maintenance costs for the U.S. military
- 3D Systems' expertise in metals manufacturing and material science provides confidence to address corrosion difficulties common to naval sea system and other Department of Defense (DoD) platforms exposed to saltwater environments

ROCK HILL, South Carolina, October 28, 2019 – 3D Systems (NYSE:DDD) today announced it has been awarded a contract to conduct research and development of a Corrosion Performance Design Guide for Direct Metal Printing of Nickel Alloys. 3D Systems received the award based on its ability to thoroughly collect corrosion data and apply its expertise on the effects of various production practices associated with parts built via direct metal printing (DMP). The company's particular technology is ideal for shipbuilding and munition fabrication due to its low oxygen content and superior part quality control. On this project effort, 3D Systems will collaborate with industry leaders - Newport News Shipbuilding and Northrop Grumman Innovation Systems - as well as nationally recognized corrosion experts at the University of Akron.

"We believe that post-processes for additively manufactured components can be designed to limit corrosion in a saltwater environment," said Dr. Jared Blecher, principal, aerospace &

defense engineering, 3D Systems. "Through our research and development efforts, corrosion rates will be quantified for additively manufactured parts, so end users will have better data for deciding when parts should be inspected or replaced. Additionally, we'll explore the value of heat treatment to help improve the mechanical properties of the part and mitigate corrosion and ultimately cost."

America Makes Executive Director John Wilczynski added, "There's no question that the DoD's need for rapid qualification and certification of additive manufacturing processes like DMP using metal materials like Nickel alloys is great. The creation of a performance design guide by 3D Systems and its project partners will be of tremendous value to the DoD. With qualified empirical data on how to minimize saltwater corrosion of additive manufactured components used in weapon systems, defense supply chains can accelerate their adoption of additive technologies to manufacture these critical components."

As a producer of powder bed fusion additive manufacturing (AM) systems, 3D Systems will ensure that machine parameters and related software are appropriately taken into account to address phenomena observed in the corrosion analysis. 3D Systems, Newport News Shipbuilding and Northrop Grumman Innovation Systems will identify the specific corrosion mechanisms that form the bulk of key Nickel alloy corrosion difficulties common to naval sea system platforms and high-speed weapons. The companies will support 240 corrosion tests with four different surface finishes, and four different heat treatments evaluating crevice, stress corrosion cracking, and galvanic corrosion modes. Surface finish and post-build annealing time will also be varied to simulate the range of surface conditions, elemental micro-segregation, and deleterious secondary phases found in deployed components.

According to a 2018 study by Logistics Management Institute (LMI) (*Estimated Impact of Corrosion on Cost and Availability of DoD Weapon Systems*, March 2018), corrosion costs the U.S. Navy more than $8.5 billion annually, which is more than 20% of total maintenance costs. Corrosion is accelerated with traditional manufacturing methods that require expensive heat treatment and machining steps. These additional steps cause stress to the metal, which weakens its properties and opens the finished parts up to accelerated mean time between failure (MTBF). If additive manufacturing is used in lieu of traditional manufacturing, production and delivery times can be reduced while maintaining corrosion resistance and potentially improved MTBF. Obtaining a better understanding of corrosion of additively manufactured components could

enable cost-effective production of more durable final parts, thus leading to longer times between inspections and maintenance.

3D Systems has contributed additive manufacturing expertise to the Department of Defense for decades with 3D printing being used for everything from aircraft parts to submersible components. The company's technologies are also used extensively for the production of aerospace components.

"We're excited to partner with 3D Systems on this important effort," said Charles Southall, vice president of engineering and design for Newport News Shipbuilding, a division of Huntington Ingalls Industries. "Last year, we collaborated to qualify metal additive manufacturing technologies to build naval warships, and installed 3D Systems' DMP technology. We're looking forward to expanding that work by developing design standards to help create more durable parts, and ultimately improve the quality of our armed forces' fleet."

3D Systems was selected for this project in a competitive process by America Makes, the National Additive Manufacturing Innovation Institute, and the Department of Defense. The program is a Directed Project Opportunity on Advanced Tools for Rapid Qualification (ATRQ), funded by the Manufacturing and Industrial Base Policy Office within the Office of the Secretary of Defense.

Forward-Looking Statements

Certain statements made in this release that are not statements of historical or current facts are forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Forward-looking statements involve known and unknown risks, uncertainties and other factors that may cause the actual results, performance or achievements of the company to be materially different from historical results or from any future results or projections expressed or implied by such forward-looking statements. In many cases, forward-looking statements can be identified by terms such as "believes," "belief," "expects," "may," "will," "estimates," "intends," "anticipates" or "plans" or the negative of these terms or other comparable terminology. Forward-looking statements are based upon management's beliefs, assumptions, and current expectations and may include comments as to the company's beliefs and expectations as to future events and trends affecting its business and are necessarily subject to uncertainties, many of which are outside the control of the company. The factors described under the headings "Forward-Looking Statements" and "Risk Factors" in the company's periodic filings with the Securities

and Exchange Commission, as well as other factors, could cause actual results to differ materially from those reflected or predicted in forward-looking statements. Although management believes that the expectations reflected in the forward-looking statements are reasonable, forward-looking statements are not, and should not be relied upon as a guarantee of future performance or results, nor will they necessarily prove to be accurate indications of the times at which such performance or results will be achieved. The forward-looking statements included are made only as of the date of the statement. 3D Systems undertakes no obligation to update or review any forward-looking statements made by management or on its behalf, whether as a result of future developments, subsequent events or circumstances or otherwise.

About 3D Systems

More than 30 years ago, 3D Systems brought the innovation of 3D printing to the manufacturing industry. Today, as the leading AM solutions company, it empowers manufacturers to create products and business models never before possible through transformed workflows. This is achieved with the Company's best-of-breed digital manufacturing ecosystem - comprised of plastic and metal 3D printers, print materials, on-demand manufacturing services and a portfolio of end-to-end manufacturing software. Each solution is powered by the expertise of the company's application engineers who collaborate with customers to transform manufacturing environments. 3D Systems' solutions address a variety of advanced applications for prototyping through production in markets such as aerospace, automotive, medical, dental and consumer goods. More information on the company is available at www.3dsystems.com.

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