FOR IMMEDIATE RELEASE

3D Platform partners with Oak Ridge National Laboratory on Large Format, Large Diameter, Filament Additive Manufacturing

Roscoe, Illinois, USA – October 3, 2018 – 3D Platform (3DP), a global leader in manufacturing large-format, industrial-strength 3D printers, is pleased to announce a research and development agreement with the Department of Energy's (DOE's) Oak Ridge National Laboratory (ORNL) involving large format, large diameter, filament additive (FFF) manufacturing.

The purpose of this joint enterprise is to develop and test new materials that will be beneficial to industries, and also expand industry-wide engagement by implementing print process guidelines and settings, or "recipes". Research will focus on three areas of development: industrial materials; medium sized molds and objects; and specialty-filled filaments with long fibers.

> *"This collaboration will open up new opportunities in long fiber composites that could help drive new structural applications that are typically elusive for the polymers."*
> — Dr. Lonnie Love, Corporate Fellow, Oak Ridge National Lab

There are currently two types of material formats used for large format printing: Fused Filament Fabrication, and pellet-fed or Fused Granular Fabrication (FGF). Fused Filament Fabrication additive manufacturing is commonly performed by using material with a maximum diameter of three millimeters. Fused Granular Fabrication utilizes extruders that are capable of using pellets that go directly from pellet to part. Pellet materials are much less expensive than filament and have greater print capacities ranging from 0.5 kilograms to more than 100 kilograms per hour. In contrast, traditional filament extruders only average about 80 grams (0.08 kilograms) per hour.

The upfront capital cost of a pellet-fed extruder is higher than a spool filament-fed extruder. Plus, the operational complexity and changeover times are higher. This means that FGF will not be ideal for users who want to frequently switch between materials, or do not have the volume to justify the additional capital cost. Also, those wishing to use filled materials will find they are not readily available in pellet form.

To address this challenge, a new type of FFF extruder is available on the market, one that uses six millimeter filament and can consume greater than one kilogram per hour – matching the throughput of smaller pellet extruders. These new extruders and materials could also be used in conjunction with pellet-to-part extruder systems where there is a requirement for fine detail or dissolvable or break-away support. Currently, not many materials are available in six millimeter filament, but many material suppliers are willing to produce material at this size. This project will test and develop new materials, such as long fiber-filled materials, providing industries with more options and applications.

There are several expected outcomes with this project, including lower upfront capital costs and reduced in-process complexity, which could enable more end users to adopt large-format additive

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printing measuring four-by-four feet up to five-by-ten and make the transition from traditional to additive manufacturing more attainable.

> *"The impact of this project will be that more end users will be able to adapt large-format additive due to the lower upfront capital cost and the lower in-process complexity."*
> — Jonathan Schroeder, President of 3D Platform.

About 3D Platform™
3D Platform is the trusted global leader in industrial-strength, large-format 3D printers. Based in Roscoe, Illinois, USA, the entire 3D Platform team is focused on driving advancements in technology to innovate, design, and build next-generation equipment for additive manufacturing. Our global distribution network, supported by Certified Service Providers, has helped us deploy more large-format, open-market 3D printers than anyone else. To learn more about 3D Platform, visit www.3dplatform.com.

About Oak Ridge National Laboratory (ORNL)
UT-Battelle manages ORNL for the DOE's Office of Science. The DOE Office of Science is the single largest supporter of basic research in the physical sciences in the United States and is working to address some of the most pressing challenges of our time. For more information, visit www.science.energy.gov.

DOE's Office of Energy Efficiency and Renewable Energy accelerates research and development of energy efficiency and renewable energy technologies and market-based solutions that strengthen U.S. energy security, environmental quality, and economic vitality. EERE's Advanced Manufacturing Office (AMO) supports early-stage research to advance innovation in U.S. manufacturing and promote American economic growth and energy security.

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