

NAVIGATING THE COMPLEXITIES OF ADDITIVE
MANUFACTURING

ABOUT PRODUCT EVALUATION SYSTEMS. Product Evaluation Systems (PES) in Latrobe, Pennsylvania, provides mechanical, metallurgical and chemical testing services to companies in the United States and Europe.

THE CHALLENGE. With the rise in industrial additive manufacturing (AM) applications, PES saw a growing need for AM testing and characterization services. The challenge for PES was that while AM technologies and materials were advancing rapidly, standards and testing protocols were lagging. Companies often look to PES for guidance and testing recommendations based on the technology readiness level of their specific product or project. With limited AM standards and guidelines, PES recommends testing and characterization approaches based on their knowledge of conventional and AM processed parts. However, such proposals lack the technical authority that a vetted specification provides.

MEP CENTER'S ROLE. Earlier this year, PES participated in a NASA TechConnect Event held at America Makes in Youngstown, Ohio. The TechConnect Event was jointly sponsored by NASA Glenn Research Center, MAGNET and Catalyst Connection, regional MEP Centers in Ohio and Pennsylvania, and America Makes, the Manufacturing USA Institute for additive manufacturing. TechConnect offered regional manufacturers with the opportunity to receive one-on-one assistance from NASA experts to help solve their AM challenges.

Companies were asked to submit a technical challenge statement as part of the application process to participate in the NASA TechConnect. NASA subject matter experts with the right background and expertise were identified to help the companies solve their specific technical issues.

Three months after meeting with NASA experts at the TechConnect Event, PES visited the NASA Glenn Research Center and saw first-hand the equipment that NASA uses to characterize powders and test parts produced via AM. From their various discussions with NASA experts, PES was able to develop matrices for minimum and recommended testing plans based on various technology readiness levels. They also learned about specific AM equipment that will enable the company to expand its capabilities for characterizing metal powders.

According to Jerry Capo, Technical Director - Metallurgy at PES, "TechConnect was an excellent opportunity to interact with NASA subject matter experts who have deep knowledge of AM. Their willingness to listen to small companies like PES and help us with our specific challenges was invaluable. I wish there were more opportunities like this."

"The opportunity to meet with NASA's experts easily saved us 12–24 months in development time. The opportunity to participate in TechConnect substantially shortened our additive manufacturing learning curve. This helps not only our company but also benefits those companies that look to PES for guidance as they move through their own additive manufacturing learning curve."

-Walt Moorhead, President

RESULTS



\$75,000 in increased or retained sales



\$20,000 in cost savings

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