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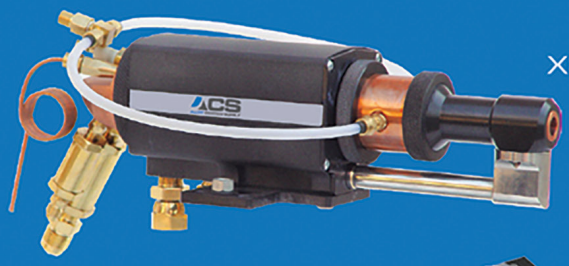

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On the cover: Metal spray coating a crankshaft for a restoration. (Photo credit: Shutterstock.)

Published by the International Thermal Spray Association, a Standing Committee of the American Welding Society

Mission: To be the flagship thermal spray industry publication providing company, event, personnel, product, research, and membership news of interest to industrial leaders, engineers, researchers, scholars, policymakers, and the public thermal spray community.

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ITSA MEMBER NEWS

Kirk Fick
Chair

As we enter the second quarter of the year, ITSA remains focused on strengthening our programs, governance, and member value while preparing for a productive annual meeting this fall. Planning is underway for our November meeting in San Diego, coordinated to align with San Diego Fleet Week (Nov. 6–15), and final dates and details will be shared soon. This timing presents a unique opportunity to connect our technical community with broader naval and industrial activities in the region.

In parallel with annual meeting preparations, the ITSA Executive Committee and subcommittees continue to make meaningful progress across several priority areas:

- **Education** (Chair: Ana Duminie) — Evaluating updates to the "What Is Thermal Spray?" document and exploring opportunities to deliver thermal spray training through ITSA.
- **Governance** (Chair: Bill Mosier) — Leading the update and revision of the ITSA bylaws to align with current standards and best practices.
- **Membership** (Chair: Jim Ryan) — Identifying ways to increase member value while attracting new members.
- **Planning** (Chair: Ashley Hunsaker) — Coordinating and executing ITSA meeting planning efforts.
- **Scholarship** (Chair: Mollie Blasingame) — Increasing awareness of the ITSA Scholarship Program and encouraging applications from qualified candidates.
- ***SPRAYTIME*** (Chair: Kirk Fick) — Expanding readership, attracting new content contributors, and growing the publication's advertising base.

Companies with news, articles, or updates relevant to the thermal spray community are encouraged to contact Cindy Weihl at *cweihl@aws.org* for inclusion in future issues.

Members interested in volunteering on any ITSA committee are encouraged to contact Adrian Bustillo at *abustillo@aws.org*.

My term as ITSA chair concludes on May 31, making this my final contribution to *SPRAYTIME* in this role. Effective June 1, Ashley Hunsaker will assume the position of chair. I am confident in her leadership and look forward to supporting ITSA's continued growth and impact under her guidance.

Thank you for your continued engagement and support of ITSA.

ITSA MISSION STATEMENT

The International Thermal Spray Association (ITSA), a standing committee of the American Welding Society, is a professional industrial organization dedicated to expanding the use of thermal spray technologies for the benefit of industry and society. ITSA invites all interested companies to talk with our officers and company representatives to better understand member benefits.

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Ashley Hunsaker, vice chair, HTS Coatings

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Ana Duminie, North American Höganäs
Jim Ryan, TechMet Alloys
David A. Lee, David Lee Consulting LLC
Bill Mosier, Polymet Corp.

ITSA SCHOLARSHIP OPPORTUNITIES

ITSA offers annual graduate scholarships. Since 1992, the ITSA scholarship program has contributed to the growth of the thermal spray community, especially in the development of new technologists and engineers. ITSA is very proud of this education partnership and encourages all eligible participants to apply. Visit *thermalspray.org* for criteria information and a printable application form.

ITSA *SPRAYTIME*

Since 1992, ITSA has been publishing *SPRAYTIME* for the thermal spray industry. The mission is to be the flagship thermal spray industry publication providing company, event, personnel, product, research, and membership news of interest to the thermal spray community.

JOIN ITSA

Membership is open to companies involved in all facets of the industry — equipment and materials suppliers, job shops, in-house facilities, educational institutions, industry consultants, and others.

Engage with dozens of like-minded industry professionals at the Annual ITSA Membership Meeting, where there is ample time for business and personal discussions. Learn about industry advancements through the one-day technical program, participate in the half-day business meeting, and enjoy your peers in a relaxed atmosphere complete with fun social events.

Build awareness of your company and its products and services through valuable promotional opportunities: a listing in *SPRAYTIME*, exposure on the ITSA website, and recognition at industry trade shows.

Plus, ITSA Membership comes with an AWS Supporting Company Membership and up to five AWS Individual Memberships to give to your best employees, colleagues, or customers. Visit *aws.org/membership/supportingcompany* for a complete listing of additional AWS benefits. For more information or a membership application, contact Adrian Bustillo at (786) 937-9595 or *abustillo@aws.org*.

For an ITSA Membership application, visit the membership section at *thermalspray.org*.

52nd International Conference on Metallurgical Coatings and Thin Films (ICMCTF 2026)
April 19–24
San Diego, CA
icmctf2026.avs.org

Coatings 2026: Safe and Sustainable by Design Surface Treatment and Coating
April 20–22
Athens, Greece
sciforum.net/event/Coatings2026

American Coatings Show + Conference
May 5–7
Indianapolis, IN
american-coatings-show.com

Surfaces, Interfaces and Coatings Technologies International Conference
May 6–8
Prague, Czech Republic
setcor.org/conferences/sict-2026

Cold Spray Action Team
June 9, 10
Worcester, MA
coldsprayteam.com

Coatings Science International Conference (CoSI 2026)
June 22–25
Noordwijk, The Netherlands
coatings-science.com

IMAT 2026
Sept. 28–Oct. 1
Quebec City, Canada
asminternational.org/imat

Two New America Makes Project Calls Target AM Materials and Qualification Research

America Makes, Youngstown, Ohio, a collaborative organization that brings together government, industry, academia, and economic development partners to advance additive manufacturing (AM), and the National Center for Defense Manufacturing and Machining have announced two new project calls totaling $8 million in funding.

The first project call, Powder Alloy Development for Additive Manufacturing 2.0 (PADAM 2.0), is a $6 million effort funded by the Air Force Research Laboratory's Materials and Manufacturing Directorate. The work focuses on improving the development and qualification of high-temperature refractory alloys for Department of Defense AM applications. The project is expected to produce data and process improvements that reduce technical risk and support future qualification.

The second project call, Artificial Intelligence for Material Allowables in Additive Manufacturing (AIM-4AM), provides $2 million in funding through the Office of the Under Secretary of Defense, Manufacturing Technology Office. The two-phase effort aims to develop an AI-based framework to assess risk in the current material-allowables approach for 17-4PH stainless steel (H1025) made by laser powder bed fusion. By using machine learning to better understand process-structure-property relationships and identify the most informative tests, the project seeks to reduce the amount of physical testing required while clearly defining any associated risks. The results are intended to support faster, more cost-effective qualification of AM materials.

The submission deadline for both calls is March 25, with the anticipated awards on April 28. Proposers for the project calls are advised to reference the request for proposals for full details and guidelines. Proposals for PADAM 2.0 can be submitted at *americamakes.us/project_calls/powder-alloy-development-for-additive-manufacturing-padam-2-0*. Proposals for AIM-4AM can be submitted at *americamakes.us/project_calls/artificial-intelligence-for-material-allowables-in-additive-manufacturing-aim-4am*.

CK Supply and HTS Coatings Enter 10-Year Multigas Supply Partnership

CK Supply, a St. Louis, Mo.-based supplier of industrial gases, welding equipment, and gas solutions, has partnered with HTS Coatings Inc., a thermal spray, machining, and grinding service provider located in Madison, Ill. Under a newly established ten-year gas supply agreement, CK Supply will provide a portfolio of gases (industrial, microbulk, bulk, and trailers) and equipment to support HTS Coatings' expanding production.

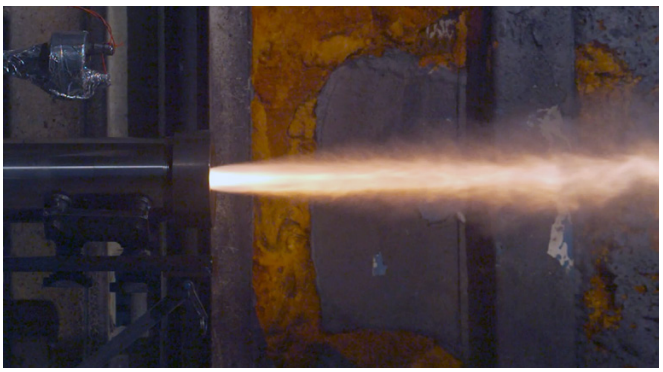
The agreement is designed to provide HTS Coatings with the reliability, purity, and volume required for its coating and machining processes.

"CK Supply quickly distinguished themselves with not only their comprehensive product offering but also their responsiveness, flexibility, and commitment to our growth," said Ashley Hunsaker, HTS Coatings owner and CEO. "With this partnership, we have full confidence in the consistency, safety, and support of our gas supply for years to come."

The long-term agreement formalizes the relationship between the two companies and supports HTS Coatings' operational expansion. CK Supply will serve as a primary gas provider as HTS Coatings continues to increase capacity and refine its production capabilities.

Titomic Completes Hot Fire Test on Cold Spray-Built Thrust Chamber

Titomic Ltd., Huntsville, Ala., a provider of cold spray additive manufacturing technology, completed a hot fire test on a solid rocket motor thrust chamber produced for a major U.S. aerospace and defense prime. The test represents a step in evaluating the company's Titomic Kinetic Fusion (TKF)™ technology for use in aerospace and defense environments, demonstrating how cold spray additive manufacturing can be applied to fabricate components for high-performance systems.



A static test fire of an additively manufactured pressure vessel for a solid rocket motor. (Photo credit: Northrop Grumman.)

The thrust chamber, produced using the company's cold spray process, underwent hot fire testing under high-temperature and high-pressure operating conditions. The evaluation confirmed that the component maintained structural integrity, strength, and thermal stability throughout the test, meeting the performance thresholds associated with aerospace and defense propulsion systems.

The results contribute to ongoing efforts to assess TKF's capabilities as a manufacturing method for complex metal components. The process, which does not rely on high-heat or melting techniques, enables the production of large or intricate geometries while reducing material use and shortening manufacturing timelines. These characteristics support broader industry goals for efficiency, sustainability, and adaptability in aerospace and defense supply chains.

The hot fire test represents a key validation milestone for the company and the prime, providing a strong foundation for future collaboration, including the potential integration of cold spray technology into operational programs.

"This successful test validates the strength and performance of Titomic's technology in one of the most challenging environments imaginable," said Jim Simpson, CEO of the company. "It represents not only a technical achievement but further affirms cold spray as a critical additive manufacturing capability for advanced aerospace and defense solutions. Titomic delivered the components to its customer within weeks of receiving the order, demonstrating our ability to rapidly deliver — from prototype to production — critical missile components, which today [have] significant lead times."

Linde AMT and Velo3D Supply CuNi Powder for U.S. Navy Program

Velo3D Inc., Fremont, Calif., an additive manufacturer of mission-critical metal parts, and Linde Advanced Material Technologies (AMT) (formerly known as Praxair Surface Technologies), a provider of metal powders and coatings, have signed an agreement to supply domestically produced CuNi (70-30 copper-nickel) powder in support of the U.S. Navy and the Maritime Industrial Base (MIB) Program.

The collaboration provides a fully U.S.-based solution for producing corrosion-resistant copper-nickel components used in naval systems. Leveraging Linde AMT's expanded powder manufacturing facility for additive metal powders in Indianapolis, Ind., and Velo3D's Sapphire XC large-format printer, the initiative strengthens national manufacturing resiliency while enabling faster production of key shipbuilding parts for fleet readiness.

CuNi is widely used in naval systems for its mechanical strength, resistance to seawater corrosion and biofouling, and durability in harsh marine environments. Its thermal conductivity and ductility make it ideal for shipboard piping, cooling systems, and structural components requiring long-term performance and reliability.

The agreement follows the recent award to Velo3D by the U.S. Navy to develop, qualify, and print CuNi components for shipbuilding modernization. Under this agreement, Velo3D will operate a dedicated Sapphire XC printer using Linde AMT's U.S.-made CuNi powder to support year-round production at no cost to participating Navy and MIB stakeholders.

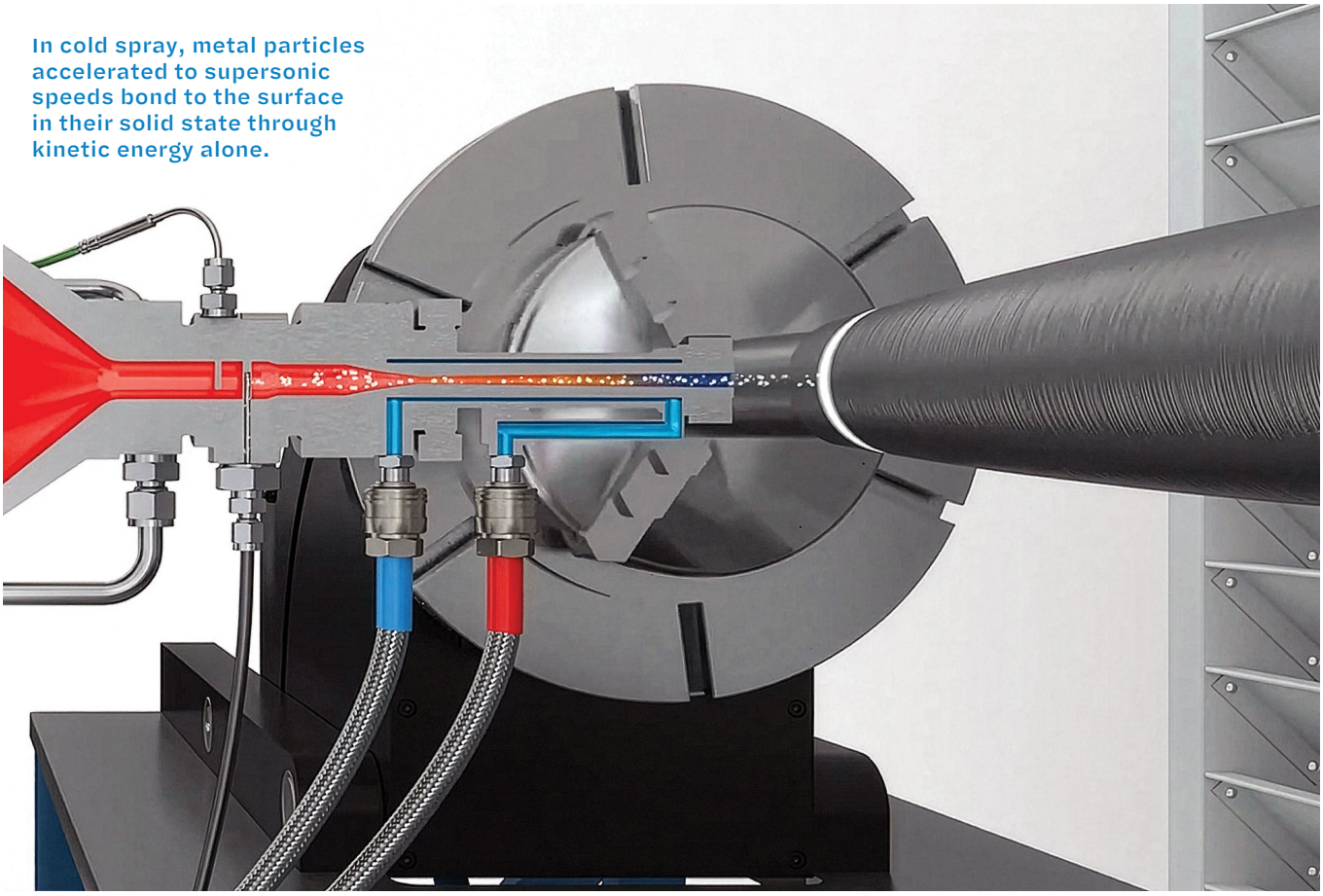
Oerlikon Finishes Divestment of Barmag

Oerlikon, Pfaeffikon, Switzerland, has sold its Barmag man-made fibers business to Rieter. The transaction values Barmag at an enterprise value of CHF 850 million (about $1.1 billion), excluding a potential earn-out of up to CHF 100 million (about $129.8 million). Proceeds will be used to reduce debt, meet general company needs, and support potential shareholder distributions.

With this divestment, Oerlikon now operates as a fully focused surface technology company. It supplies coating and surface treatment solutions to a wide range of industries, including automotive, aerospace, tooling, energy, luxury goods, medical, and semiconductors. The company plans to continue developing new applications for its technologies and expand its footprint, particularly in Asia and the Americas.

This article was supplied by TANIOBIS GmbH (*taniobis.com*), Goslar, Germany

Cold Spray for Aerospace, Defense, and Energy Applications



In cold spray, metal particles accelerated to supersonic speeds bond to the surface in their solid state through kinetic energy alone.

Additive manufacturing, alongside established processes like powder bed fusion and cold gas spraying (also known as cold spraying), has gained great momentum in the last several years and is becoming increasingly important. This approach is opening up new opportunities where conventional technologies are reaching their limits: for large-sized components, complex material combinations, or refractory materials. The manufacturing process and the quality of the powders are the crucial factors for success — and this forms the basis for the collaboration between Impact Innovations and TANIOBIS.

Impact Innovations is a global provider of developing industrial cold gas systems and processes. In addition to its research and development services, the German corporation manufactures industrial cold gas spraying systems

for users in a wide variety of sectors around the world. Its goal is to establish cold spray as a viable technology for surface coating and additive manufacturing in the future. The company was founded in Rattenkirchen in 2010 and has since supplied clients in the aerospace, defense, electronics, automotive, energy, and household goods sectors.

Manufacturing Without Melting Process or Oxidation

In the cold spray process, a carrier gas accelerates metal particles at supersonic speed and projects them on to a surface in a solid state. The kinetic energy ensures the metallurgical bonding without the need to melt the material in advance. This simple principle is making a huge impact.

First, typical disadvantages found in melting-based processes do not apply because no oxides are formed in the melting procedure, no structural changes take place, and no thermally-contingent tensions, which can cause cracks, occur. Second, it is possible to manufacture robust components that also include high deposition rates and low porosity.

Cold spray also allows a combination of very different materials. Gradient layers or multimaterial components are just as feasible as the specific coating of individual areas. Scalability up to large-sized structures makes the process particularly interesting for sectors where classic powder bed processes are reaching their limits, for instance, with rocket or jet engine components.

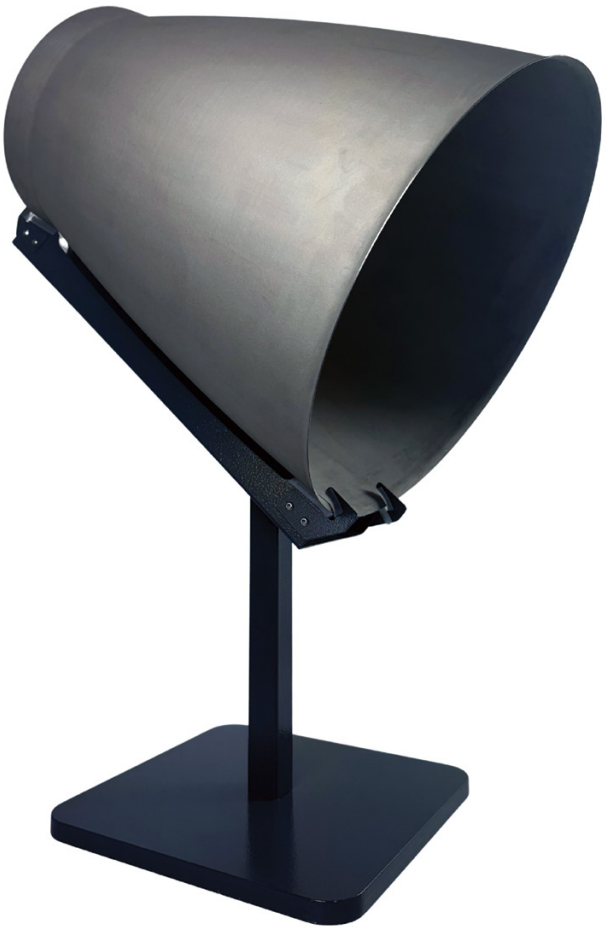


Fig. 1 — The thruster shown was produced using cold spray with tantalum and niobium alloys, providing a solution that overcomes material limitations.

When Materials and Processes Harmonize

Powders must have precisely defined properties to enable cold spray to exploit its full potential. The process can powerfully demonstrate its benefits, particularly with metals such as tantalum and niobium, which have high melting points — Fig. 1. Both are so-called refractory metals, whose melting point exceeds 3000°C. They are corrosion resistant and temperature resistant and are, therefore, hard to process using conventional procedures. The cold spray system avoids these restrictions because the melting process is unnecessary. As a result, it is even possible to process challenging materials reliably and without a protective chamber.

Material efficiency is another benefit. As almost all the powder is bonded in the component, the buy-to-fly ratio, which is the ratio of starting material to the final product, is almost one. This significantly reduces the material costs, particularly with high-cost alloys like C-103. The process also opens up new design opportunities and options — Fig. 2. Wall thicknesses starting at 0.5 mm are feasible, so that fine, light structures can be formed, which are still extremely robust.

Combining cold spray with tantalum and niobium alloys, therefore, offers a solution that overcomes material restrictions and enables components that are both able to withstand mechanical stress and can be produced cost effectively.

Powder Expertise for the Toughest Demands

Impact Innovations often works with alloys such as C-103, a niobium-based alloy with tantalum, hafnium, and titanium, as part of research and development projects for the aerospace sector, for instance.

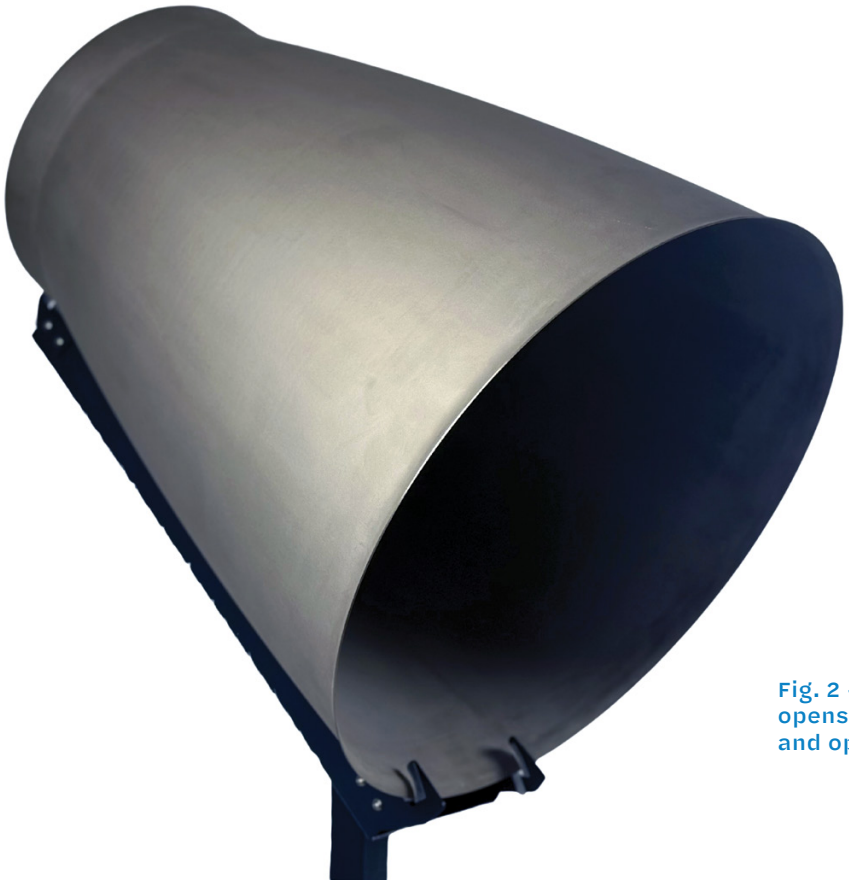


Fig. 2 — Cold spray technology opens up new design opportunities and options.

This extremely expensive alloy is viewed as the preferred material for jet engine components in the aerospace sector. "C-103, however, is subject to strict export controls," explained Jan Kodas, an R&D engineer at Impact Innovations. "Thanks to TANIOBIS's experience as a German and European supplier of tantalum or niobium and the corresponding alloys, we've still been able to reliably use the material and deploy the process in a stable manner."

TANIOBIS has over 60 years of experience in processing tantalum and niobium materials. The corporation has a reputation as a reliable partner for individual powder solutions, ranging from implants in medical engineering to components for the chemical industry and high-temperature applications for the aerospace sector.

Geographical proximity and reliable supplies, however, are not the only benefits of the collaboration for Impact Innovations; the company can also directly realize specific requests. TANIOBIS adapts the particle size distribution to the cold gas spraying requirements; by combining cold spray with its powders, new opportunities are opening up to manufacture components with a high degree of reproducibility and defined properties.

Material Utilization of More Than 90%

Impact Innovations has displayed the efficiency of its EvoCSII system in tests with a demonstrator. Deposition rates of more than 90% have been achieved when using the TANIOBIS powders, an unusually high figure compared to other additive processes. The results reveal that C-103 can be processed efficiently to reproduce components using the technology.

Prospects for Future Industries

Combining the Impact EvoCSII system technology with the TANIOBIS powders shows how it is possible to manufacture large-sized structures with complex geometries without the disadvantages of conventional forming and welding processes. Users in the defense and energy industries are benefiting from the possibility of coating components with different materials or completely forming them. The process can also display its strengths in repairing large components that would be disproportionately expensive to replace.

Cold spray is not only an addition to established additive technologies for Impact Innovations and TANIOBIS, but it's also a genuine alternative in many cases. The partnership with Impact Innovations illustrates how technology and material expertise can go hand in hand. Together, the companies are setting new standards for industrial manufacturing in the field of high-temperature and special applications ranging from aerospace to the energy industries.

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Plasma I.D. Platform Provides High-Enthalpy Coating Capability

The C+ Cascade Plasma platform delivers high-enthalpy internal diameter (I.D.) coating capability in diameters down to 3 in., addressing demand for higher performance, improved efficiency, and tighter access in confined geometries. Designed for advanced thermal barrier coatings (TBCs), the system operates at plasma power levels up to 100 kW, including off-axis spray angles. The C+ I.D. configuration utilizes a cascade plasma design with configurable nozzle options to maintain high-enthalpy performance. The system supports nitrogen and hydrogen gas combinations commonly used in industrial plasma applications while preserving power and stability. Flexible powder injection configurations and adjustable spray spot sizes allow the process to be tuned for coating quality, efficiency, and repeatability. These capabilities are especially valuable for ZrO_2/Y_2O_3 TBCs, where precise control of particle temperature and velocity is critical to achieving consistent coating performance in challenging I.D. geometries.

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High-Performance Ceramic Coatings Market Anticipates Steady Expansion

High-Performance Ceramic Coatings Market Size 2025 reports the global high-performance ceramic coatings market is projected to rise at a considerable rate between 2025 and 2032. The report provides a clear view of current market size by value and volume, emerging opportunities, and overall development status across key industries. Following steady growth in 2024, the market is expected to continue expanding, supported by increasing strategic initiatives from major participants. The study evaluates key industry drivers, technological advancements, regulatory influences, competitive intensity, market volatility, and potential barriers shaping the sector. Recent developments highlight innovation across aerospace, automotive, energy, and industrial applications. Advancements include next-generation nano-structured ceramic thermal barrier coatings for turbine components, plasma-sprayed solutions for electric vehicle battery systems, expanded European production capacity for gas turbine and hydrogen-ready infrastructure coatings, and environmentally friendly sol-gel technologies designed to reduce volatile organic compounds emissions. The report also details recent mergers and acquisitions aimed at strengthening portfolios in high-temperature, wear-resistant, and nanoceramic coating technologies. Regionally, Asia Pacific holds the largest share at 38%, driven by rapid industrialization and expanding automotive, aerospace, and energy infrastructure. North America accounts for 25%, supported by aerospace, oil and gas, and advanced manufacturing. Europe represents 23%, followed by the Middle East at 8% and South America at 6%, reflecting steady growth in energy, petrochemical, and mining sectors. The report includes detailed competitive analysis, company profiles, revenue breakdowns at regional and country levels, supply chain mapping, and strategic insights designed to support informed decision-making. Covering core market segments, emerging trends, and expansion opportunities, the study provides a 360-deg view of the global high-performance ceramic coatings landscape.

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Thermal Sprayed Coating Service Market Expands as Demand Drives Growth through 2032

Thermal Sprayed Coating Service — Global Market Share and Ranking, Overall Sales and Demand Forecast 2026–2032 presents a comprehensive analysis of the global thermal sprayed coating service market, covering market size, share, demand, competitive landscape, and growth forecasts through 2032. The report evaluates historical data from 2021 to 2025 and provides forecast projections for 2026–2032 to support strategic planning and decision-making. The global market for thermal sprayed coating services was valued at $869 million in 2024 and is projected to reach $1447 million by 2031, growing at a compound annual growth rate of 7.8% during the forecast period. The study examines supply and demand trends, industry development status, and strategic patterns adopted across the competitive landscape, offering multiangle insights into evolving market dynamics. The report provides detailed analysis of growth drivers, restraints, opportunities, and risks influencing the market. It assesses production volumes by type and region from 2021 through 2032 and outlines the potential impact of key segments and applications. All findings are supported by verified data sources and in-depth research methodologies. Market segmentation includes corrosion and wear-resistant coating services, high-temperature and thermal barrier coating services, repair and dimension restoration services, and other specialty applications. Key end-use industries include aerospace, automotive, petrochemical, metallurgy and steel, and power and energy. Regional analysis spans North America, Europe, Asia Pacific, Latin America, and the Middle East and Africa, with revenue and sales data provided at both regional and country levels. In addition to competitive benchmarking and company profiles, the report covers industrial chain analysis, raw materials, manufacturing costs, sales channels, distributors, and customer insights. The study is designed to help stakeholders identify profit opportunities, allocate resources effectively, and remain competitive in the global thermal sprayed coating service market.

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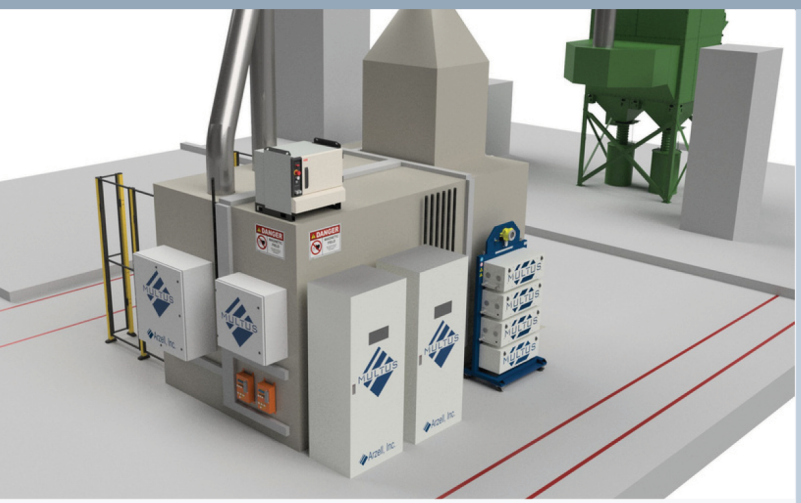

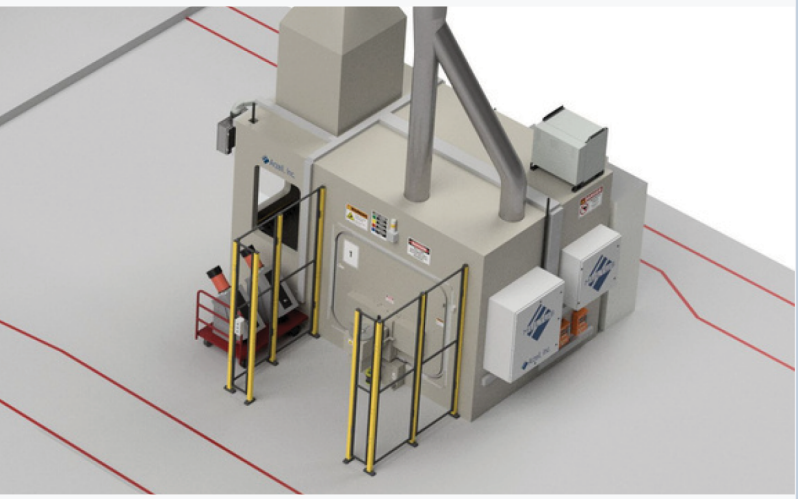

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