oerlikon

SOLUTIONS
FOR THE
DEFENSE INDUSTRY

Additive Manufacturing
Coating Services
PVD and Thermal Spray Equipment
Advanced Materials

METAL ADDITIVE MANUFACTURING

Oerlikon Additive Manufacturing (AM) is redefining defense innovation through advanced 3D printing technologies and specialized alloys engineered for reliability and precision. Our crack-free additive materials and processes enable the rapid, lightweight production of mission-critical components – helping defense organizations accelerate development, reduce lead times, and enhance performance and operational readiness.

3D-printed suppressors

Our single-piece metal AM suppressors are built for reliable operation in demanding environments. They effectively reduce gas blowback and operator exposure to harmful emissions, contributing to lower health risks.

Heat exchangers and cold plates

Our heat exchangers and cold plates are engineered for advanced thermal management in weapons and mission systems. AM enables complex, optimized internal geometries that increase heat transfer, lower pressure drop, enhance durability, and reduce costs.

Additively manufactured RF components

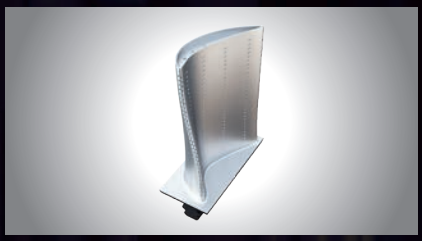
Additively manufactured waveguides, antennas, and housings integrate features that improve signal integrity, reduce part count, and support compact, lightweight, high-performance RF designs.

COATING SERVICES THIN FILM

Oerlikon Balzers is a global leader in thin-film technologies engineered to enhance the performance, durability, and efficiency of advanced high-strength steel (AHSS) and composites, supporting the rigorous demands of components and tools. Our coatings deliver exceptional wear resistance, low friction, and effective protection against corrosion and erosion, even in extreme conditions, extending component life and reducing maintenance cost. Thin-film coated cutting and forming tools meet strict standards for machining advanced materials. Additionally, our inner diameter coating capability provides reliable protection for internal surfaces of complex geometries.

Protection for turbine components

BALINIT® TURBINE PRO offers outstanding resistance to solid particle erosion (SPE) while maintaining the fatigue strength of critical components such as low- and high-pressure compressors in aircraft, helicopter axial compressors and impellers.



Protection for hot section components

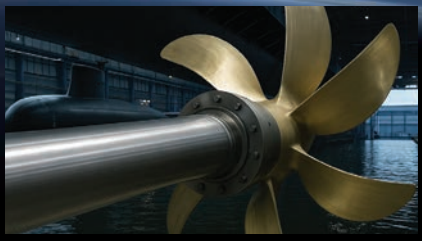
BALORA™ PVD MCrAlY coatings provide excellent substrate adhesion, a dense layer structure, and tailored compositions that provide an optimal barrier against oxidation and hot corrosion in turbine engines.

High quality for high-volume components

Carbon-based coatings play a key role in the production of high-volume components such as cartridges. They prevent material adhesion to tools and reduce friction, enabling smooth, reliable forming processes, and flawless surface quality.

COATING SERVICES THERMAL SPRAY

Thermal spray coatings strengthen and protect critical surfaces, boosting durability, performance and service life in challenging environments. Oerlikon Metco utilizes full integrated quality management systems that align with international standards and customer specifications. To address specific requirements, we custom-develop new coatings in close collaboration with our clients. Our experienced team manages external intellectual property professionally, ensuring both confidentiality and compliance throughout every project.



Coatings for drive shafts and rotors

Thermal spray coatings reduce wear, corrosion and oxidation, enabling higher operating temperatures and tighter clearances. This extends component lifetime, even under demanding conditions.

Coatings for piston and turbine engines

Our AS/EN 9100 and NADCAP certified facilities handle everything from small precision parts to large components up to 60 tonnes, from single-piece applications to high-volume production.

Coatings for extended life

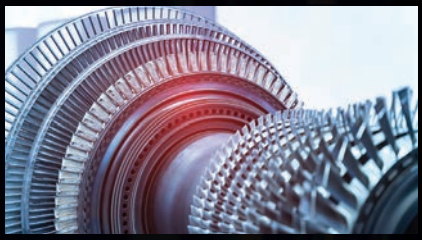
Our global network offers all major thermal spray technologies, including High Velocity Oxy-Fuel (HVOF), Atmospheric Plasma Spray (APS), Electric Wire Arc, Combustion Powder, Combustion Wire, and Vacuum Plasma Spray.

PVD EQUIPMENT

Take full control of your coating needs with your own thin-film coating systems. For defense organizations managing high-volume production, Oerlikon Balzers offers turnkey equipment and complete production lines. They are engineered for seamless integration and high throughput: proven hardware for top-tier coating quality and consistent performance, backed by decades of field-tested expertise.

PVD systems for high quality production

The advanced deposition technologies of Physical Vapour Deposition (PVD) systems result in precise, reliable surface solutions that meet the highest standards for durability and functional performance.



Equipment for advanced surface coatings

INNOVENTA systems are engineered to coat critical components - such as turbine and missile parts - with BALORA™ PVD MCrAlY and BALINIT® TURBINE PRO. Equipment sizes are available to match production volume and specific requirements.

The flexible thin film platform

DOMINO combines universal applicability with a highly modular architecture, enabling seamless integration of up to four advanced PVD technologies in one single system.

THERMAL SPRAY EQUIPMENT

Advanced thermal spray equipment enables precise application of protective coatings, shielding components from extreme wear, heat, and corrosion. For larger volumes or serial production, Oerlikon Metco offers scalable systems that deliver consistent quality and high throughput for defense applications. All technologies relevant to mission-critical applications including high velocity oxy-fuel, atmospheric and vacuum plasma spray, and combustion spraying can be integrated in systems optimized for performance and controlled conditions.

Standardized systems

Surface One™ and Surface Two™ are standardized thermal spray systems with pre-validated components and modular design - for quick setup, reliable operation, consistent coating quality and minimal downtime.

Cascaded gun technology

Our cascaded plasma spray guns are engineered for high-performance thermal spray applications. They maintain stable plasma conditions, deliver excellent deposition efficiency, and ensure consistent coating quality, all while minimizing material waste.

Tailored thermal spray systems

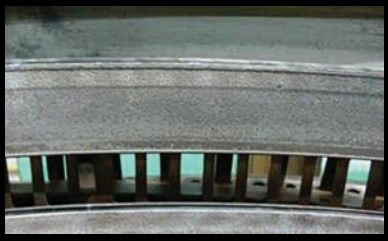
Our custom thermal spray systems support a wide range of defense applications. From specialized configurations to turnkey solutions, our equipment delivers precision, reliability, and performance for mission-critical components.

ADVANCED MATERIALS
DESIGN AND MANUFACTURING

Oerlikon Metco is a market leader for advanced materials engineered to meet the extreme demands of modern defense applications. Our rapid alloy development capabilities enable simultaneous evaluation of millions of material compositions to optimize key performance traits. Supporting a wide range of advanced processes, they meet the strict requirements of leading OEMs. Our materials manufacturing facilities operate under globally recognized quality systems, certified to ISO 9001, AS9100, and NADCAP standards.

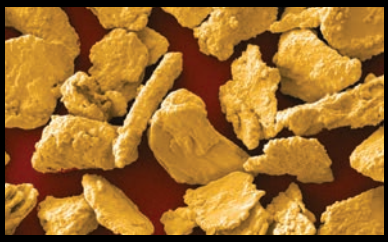
Thermal barrier and oxidation protection materials

Our rapid alloy developed materials for Thermal Barrier Coatings (TBCs) and BALORA™ PVD MCrAlY extend component life, reduce fuel consumption, and support sustainability as engine temperatures rise.



Abradables for gas path sealing

Materials for abradable coatings provide effective gas path sealing, improving fuel efficiency and extending mission duration. They help mitigate damage on rotating components and are tailored to specific operating conditions.



Composite powders for EMI/RFI shielding

For protection of sensitive defense components and systems against Electromagnetic (EMI) and Radio Frequency Interference (RFI), we manufacture advanced EMI/RFI shielding composite powders, engineered to ensure signal integrity and operational reliability in high-performance environments.

A GLOBAL, HIGH-TECH ENGINEERING AND MANUFACTURING GROUP WITH UNIQUE COMPETENCIES

Oerlikon is a global leader in AM, surface technologies, equipment and advanced materials, and an established, industry-certified, and OEM-qualified solution provider for the defense industry. With a unique portfolio spanning surface engineering, high-performance materials, coating equipment and components, we make products better by enhancing performance, efficiency and sustainability.

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