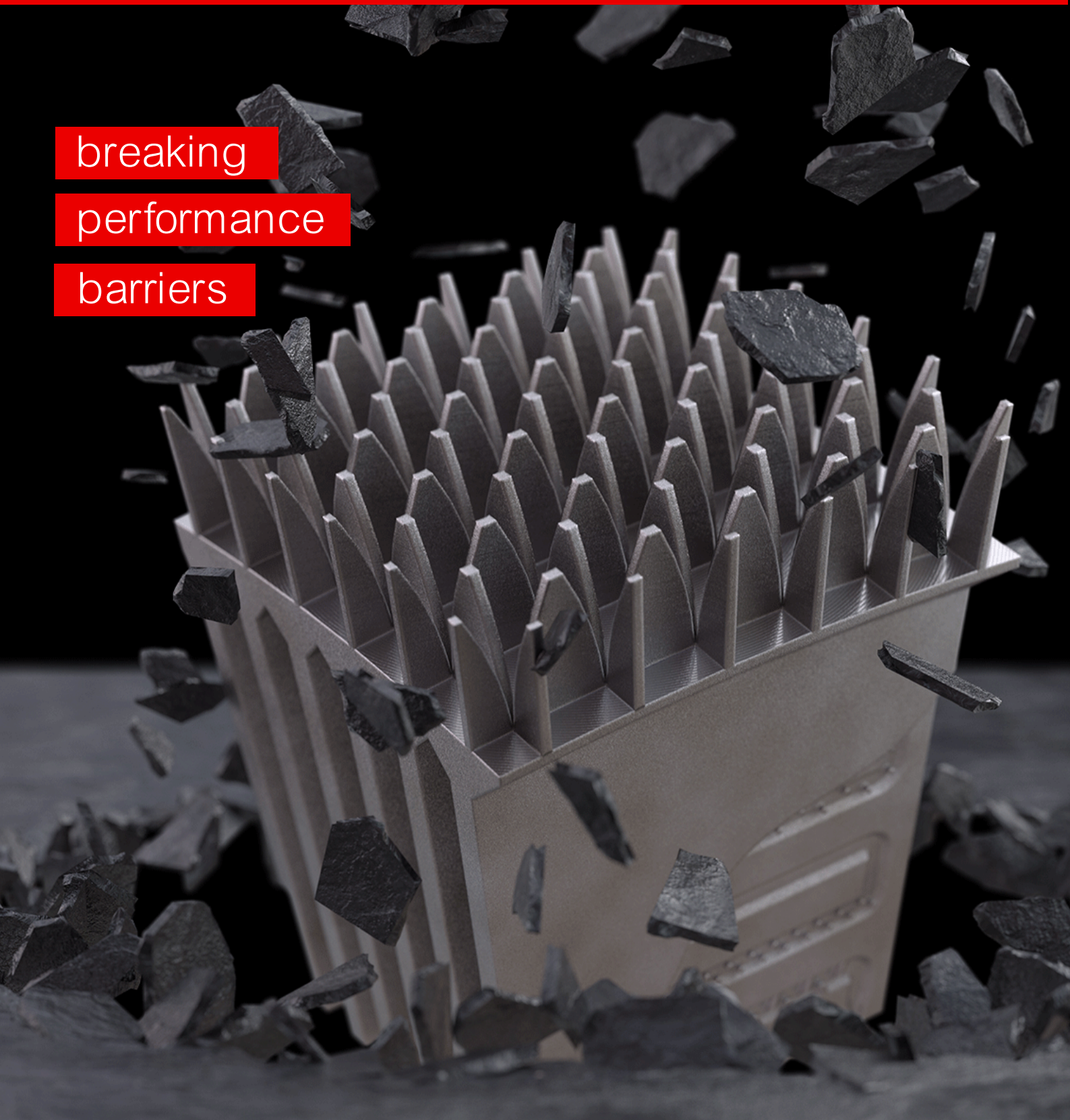


# Metal Additive Manufacturing and Product Development Partner

breaking

performance

barriers

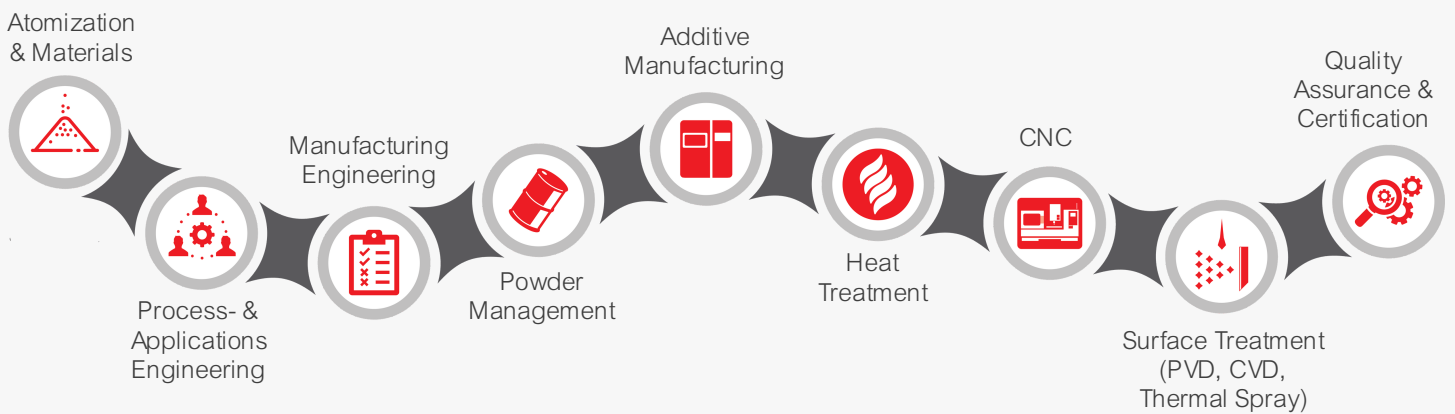




# Industrialized AM is now

At Oerlikon, we integrate and scale the entire Additive Manufacturing value chain to manage your project from start to finish.

Our unique position allows us to drive the industrialization of Metal Additive Manufacturing by offering Metal Powders, Component Manufacturing, and Advanced Surface Treatments including PVD, CVD, and Thermal Spray coatings, along with a cutting-edge Research and Development department.



## **Research & Development**

Our dedicated Research & Development team leads the way in Metal Additive Manufacturing, pioneering advancements in materials, technologies, and processes within our state-of-the-art labs. Additionally, we spearhead multiple US and EU-funded research projects aimed at propelling this technology towards a more sustainable future.

## **Metal Powders**

With over 85 years of experience in materials development and production, we introduce a comprehensive metal powder portfolio meticulously crafted, tested, and manufactured specifically for additive manufacturing applications. Our range includes alloys based on Nickel, Cobalt, Iron, and Titanium.

## **Additive Component Manufacturing**

Our expertise lies in providing tailored, state-of-the-art metal additive manufacturing solutions designed specifically for the Aerospace, Space, Defense, and Semiconductor sectors. Our primary emphasis is on producing Aluminum and Nickel alloy components to meet rigorous standards.

## **Advanced Surface Treatments**

We specialize in PVD, CVD, and Thermal Spray technologies to boost the durability and performance of your additively manufactured components. Our coatings provide essential benefits like improved wear resistance, corrosion protection, and better thermal insulation, ensuring your components last longer and perform better.







# Additive Component Manufacturing

Our Huntersville facility offers unparalleled value across industries. With end-to-end engineering, Additive Components Manufacturing, and a range of post-processing services like heat treatment and CNC machining, we provide tailored solutions. Leveraging our expertise in Advanced Surface Treatments, including PVD, CVD, and Thermal Spray coatings, we optimize component durability and performance.

## Key Equipment

### EOS

6x EOS M290  
4x EOS M400  
1x EOS M400-4

### Trumpf

1x Trumpf TruPrint 1000  
2x Trumpf TruPrint 5000

### Concept Laser

5x Concept Laser M2

### 3D Systems + GF

1x DMP Factory 500

## Printing Materials Capabilities

### Aluminum

AlSi10Mg, CP1,  
Elementum Al7050-RAM2

### Nickel

Inconel 625, Inconel 718, H188, H282,  
Alloy23X, HX, C-22, Pure Ni

## Certifications

We have the AS9100 and ISO 9001 certifications; as well as the ITAR registration.





# Our Industry Expertise

## **Aerospace**

Additive manufacturing offers numerous benefits for the aerospace industry. It provides design flexibility for the creation of complex and optimized parts that enhance performance and aerodynamics. Lightweighting of 3D printed components contribute to fuel efficiency and reduced emissions. Additionally, it has the potential to simplify the supply chain by consolidating parts and streamlining assembly processes. Maintenance and repair benefit from on-demand production of spare parts, reducing aircraft downtime.

## **Space**

Additive Manufacturing plays an increasingly important role in space technology. The technology enables the creation of complex parts and structures, making it well-suited for space applications where weight and size constraints are critical. The technology offers multiple benefits for space technology, including cost savings, weight reduction, on-demand manufacturing, and parts consolidation. Typical 3D printed space applications include rocket components, satellite parts, and heat exchangers.

## **Semiconductor**

As smart devices evolve, the demand for intricate microchips rises, challenging semiconductor capital equipment manufacturers. Metal Additive Manufacturing optimizes component designs, enhancing thermal management, streamlining manufacturing, optimizing fluid flow, and improving structural integrity. This boosts production efficiency and reliability, meeting the demands of the semiconductor industry.

# MetcoAdd™ Metal Powder Portfolio for Additive Manufacturing

Based in Plymouth, MI, our cutting-edge manufacturing facility specializes in producing premium Metal Powders tailored for Additive Manufacturing applications.

Drawing upon over 85 years of expertise in materials development and production, we present a comprehensive metal powder portfolio meticulously crafted, tested, and manufactured for additive manufacturing applications. Our range encompasses Nickel, Cobalt, Iron, and Titanium-based alloys.

Base	Product	Nominal Chemistry	Nominal Particle Size Distribution [µm]
Nickel	MetcoAdd 718C	Ni 18Cr 18Fe 5(Nb+Ta) 3Mo 1Ti 0.6Al	-45 +15
	MetcoAdd 718E		-63 +20
	MetcoAdd 718F		-106 +45
	MetcoAdd 718 API C	Fe 53Ni 18Cr 5(Nb+Ta) 3Mo 1Ti 0.5Al	-63 +16
	MetcoAdd 718 API F		-106 +45
	MetcoAdd 738LC-A		-45 +15
	MetcoAdd 625A	Ni 21Cr 9Mo 4Fe 4(Nb+Ta) 0.4Al 0.4Ti	-45 +15
	MetcoAdd HX-D	Ni 21Cr 18Fe 9Mo	-45 +15
	MetcoAdd HX-L		-53 +20
	MetcoAdd H23X-A	Ni 22Cr 2Mo 14W 0.35Al 0.03La	-45 +15
	MetcoAdd NiCP-A	Ni99	-53 +15
	MetcoAdd 6022A	Ni 22Cr 14Mo 3Fe 3W 2.4Co 0.5Mn	-53 +20
Cobalt	MetcoAdd 75A	Co 28Cr 6Mo	-45 +10
	MetcoAdd 76A-1		-45 +15
	MetcoAdd MM509-A		-45 +15
Iron	MetcoAdd 316L-A	Fe 18Cr 12Ni 2Mo 0.02C	-45 +15
	MetcoAdd 316L-D		-106 +45
	MetcoAdd 415F	Fe 13Cr 4Ni 0.8Mn 0.6Mo 0.5Si 0.03C	-45 +15
	MetcoAdd 415G		-106 +45
	MetcoAdd 17-4PH-A	Fe 17Cr 4.5Ni 4Cu 0.3(Nb+Ta) 0.07C	-45 +15
	MetcoAdd 17-4PH-D		-106 +45
	MetcoAdd 15-5PH-A	Fe 15Cr 4.5Ni 3.5Cu 0.3Nb 0.07C	-45 +15
	MetcoAdd 15-5PH-B		-90 +45
	MetcoAdd C300-A	Fe 18Ni 9Co 5Mo	-45 +15
	MetcoAdd H11-A	Fe 5Cr 1Mo 1Si 0.5V 0.4C	-45 +15
	MetcoAdd H13-A	Fe 5Cr 1Mo 1Si 1V 0.4C	-45 +15
	MetcoAdd H13-B		-90 +45
Titanium	MetcoAdd Ti-64 G23-A	Ti 6Al 4V	-45 +15
	MetcoAdd Ti-64 G23-C (Coming 2024)		-53 +15
	MetcoAdd Ti-64 G23-E		-106 +45
	MetcoAdd Ti-64 G5-B		-63 +20





# Innovating Metal Additive Manufacturing

**Innovation is at our core, propelling the industrialization of Metal Additive Manufacturing through pioneering materials, processes, and technologies.**

Our Research and Development team leads innovation in Advanced Manufacturing by leveraging digitization, nurturing close collaborations with academia, and utilizing our in-house AI-driven materials development technology, Scoperta™.

Moreover, we lead numerous research projects funded by both the US and EU and participate in organizations dedicated to advancing this technology towards a more sustainable future.



## Project InShaPe

Teaming up with 10 partners, including the Technical University of Munich and EOS, we're aiming for breakthroughs in laser beam shaping technology with the EU-funded project InShaPe. Overall, we seek to develop a more efficient way of manufacturing, with advantages such as higher production rate, reduced costs, reduced energy consumption, and less waste.



## Project DISCO 2030

With the EU-funded project DISCO2030, we are aiming to develop a hybrid manufacturing process that effectively combines metal-metal and metal-polymer materials and AM processes (e.g. DED and LPBF) to produce complex and lightweight parts, such as hydrogen tanks, and Marine and rocket engines.

Oerlikon is a leading global provider of surface and additive manufacturing solutions and services. The division offers an extensive portfolio of market-leading thin-film, thermal spray and additive manufacturing technologies, equipment, components and materials. Emission reduction in transportation, maximized longevity and performance of tools and components, increased efficiency and intelligent materials are hallmarks of its leadership. Pioneering technology for decades, the division serves customers with standardized and customized solutions across a worldwide network of more than 170 sites in 37 countries. The division is part of the publicly listed Oerlikon Group (SIX: OERL), headquartered in Switzerland, which has more than 13 000 employees and generated sales of CHF 2.9 billion in 2022.

### **We'll never stop expanding our capabilities**

When you're an industry disruptor, you can never rest on your laurels. We're constantly developing our innovation and production sites to serve you with the latest technology.

Why not see what our experience and expertise in application-tailored solutions and materials developments could do for your business?

**If you can imagine it, we can build it.**

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[am@oerlikon.com](mailto:am@oerlikon.com)  
[www.oerlikon.com/am](http://www.oerlikon.com/am)

