BEYOND WHAT’S POSSIBLE

Additive Manufacturing. Thinking things new
Additive Manufacturing (AM) is the process of manufacturing objects from Computer Aided Design (CAD) model data, usually layer upon layer, as opposed to using methods of subtractive manufacturing (removing material until the desired shape is reached) or formative manufacturing (applying mechanical forces and/or heat through processes such as bending, casting, and molding).

It’s not simply a new way of producing. It’s a new way of thinking.

Interest in AM has grown swiftly as applications have progressed from rapid prototyping to the production of end-use products. AM equipment can now use metals to “print” a range of functional components including complex structures that cannot be manufactured by other means. AM technology can be used to build complete parts, add features, or make repairs.

The AM process can build custom tools or parts from a range of metals such as aluminum, high-grade steel, titanium, nickel-base alloy, and cobalt chrome. Applications serve a variety of markets, for example tooling, aerospace, oil and gas, automotive, and medical industries to name a few.

After being digitally designed in a 3D-CAD model, even the most complex of structures can be “printed” via metal powder layer by layer.

Additive Manufacturing can drive efficiencies because AM is able to produce near-net-shape parts.

Additive Manufacturing allows highly optimized fabrications designed for the best results in terms of weight and stability. AM offers a new way of producing parts in nearly endless forms and complex structures which solves problems e.g. in molding production. That’s why applications in the tooling industry are showing big potential for AM.

LIGHT WEIGHT

COMPLEXITY

EFFICIENCY

From Concept to Component

In our Centers of Excellence spread around the globe, we combine a thorough understanding of manufacturing challenges with a forward-thinking embrace of technology. At the same time, we drive innovation and work non-stop on the technical and operational development of our services. With strong partners within the voestalpine group we’re offering the end-to-end solution starting from the production of metal powders through to consulting and designing right to production and post-processing of parts.

Centers of Excellence

Part Production & Services

Powder Production

- Uddeholm
  Hagfors, Sweden
- voestalpine Additive Manufacturing Center
  Düsseldorf, Germany
- voestalpine Additive Manufacturing Center
  Mississauga, Ontario, Canada
- voestalpine Additive Manufacturing Center
  Houston, Texas, USA
- voestalpine Technology Institute Asia
  Taiwan

Laser Beam Melting

- voestalpine Additive Manufacturing Center
  Singapore
- voestalpine eifeler Lasertechnik
  Salzburg, Germany

Laser Metal Deposition
AM METAL POWDER PRODUCTION

Our huge portfolio of metal powder is constantly being updated by newly enhanced products. In the test laboratories of voestalpine BÖHLER Edelstahl and Uddeholm we gather important information and parameters by creating test objects and prototypes in order to develop further and deliver even higher performing metal powders for Additive Manufacturing.

SOME INSIGHTS:

- Powder is produced using latest atomization techniques and tested in-house.
- Vacuum induction melting and atomization under inert gas ensure the highest product quality.
- Depending on the steel grade and customer requirements, raw materials molten under vacuum or remolten can be used. This ensures the highest quality standards and minimizes undesired impurities.
- Depending on the requirements of the AM process used, the appropriate particle fraction in a range from 15-150μm can be provided.

FLEXIBILITY AND EXPERTISE

The Centers of Excellence use equipment from leading AM production equipment suppliers for both laser beam melting and laser metal deposition. By working with both production technologies from different equipment suppliers, voestalpine has the flexibility and expertise to select the best AM production process for your application.

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END-TO-END SOLUTION

As a global technology leader, we offer the full suite of production techniques and services throughout the value chain, supporting and driving innovation and development based on lengthy experience around materials and processing. Starting from the alloy development and metal powder production, to design and manufacturing and including post-processing. We offer the end-to-end solutions the reduce waste and mitigate risk in the supply chain with the goal of being your trusted and reliable business partner.

VALUE CHAIN
**Additive Manufacturing**

**Benefits of using AM in Conformal Cooling**

» Cooling channels directly aimed at the hot spots

» Faster cycle times

» Higher quality of parts in plastic injection molding and die-casting production

» Lower scrap rate by reducing internal stress due to different thickness

» More homogenous material properties

» Less energy consumption

» Better part surface qualities

Cool down right at hot spots

Flexibility in mold-constructs

Cool down exactly where needed.
CONTACT US

Our team supports you with consulting, application development, design and manufacturing of parts with powder bed machines.

Global website:

www.voestalpine.com/additive

Centers of Excellence:

voestalpine Additive Manufacturing Center
Düsseldorf, Germany
Hansaallee 321
40549 Düsseldorf, Germany
Phone: +49 (211) 522-2304
E-Mail: additivemanufacturing@voestalpine.com

voestalpine Additive Manufacturing Center
Singapore
25 Pioneer Crescent
628554 Singapore
Phone: +65 6303 8787
E-Mail: am-sales.singapore@voestalpine.com

voestalpine Additive Manufacturing Center
Mississauga, Canada
2595 Meadowvale Blvd.
Mississauga, Ontario, Canada L5N 7Y3
Phone: +1 (800) 665 8335
E-Mail: am-sales.northamerica@voestalpine.com

voestalpine eifeler Lasertechnik
Salzgitter, Germany
Gottfried-Linke-Straße 205
36239 Salzgitter, Germany
Phone: +49 5341 18863-0
E-Mail: Info-ELT@voestalpine.com

voestalpine Additive Manufacturing Center
Houston, USA
11869 Cutten Road
Houston, Texas, USA 77066
Phone: +1 (800) 665 8335
E-Mail: am-sales.northamerica@voestalpine.com

voestalpine Böhler Edelstahl
Kapfenberg, Austria
Mariazellerstraße 25
8605 Kapfenberg, Austria
Phone: +43 50304 20 - 0
E-Mail: info@bohler-edelstahl.com

voestalpine Technology Institute Asia
Taiwan
Room B105, No. 2 Wenzian Road
Nantou City, Nantou County, 54041 Taiwan, R.O.C.
Phone: +886 49 2332116
E-Mail: info.vti@voestalpine.com

Uddeholm
Hagfors, Sweden
Uvedsvägen
SE-683 33 Hagfors, Sweden
Phone: +46 563 170-00
E-Mail: info@uddeholm.com

voestalpine High Performance Metals GmbH
Donau-City-Straße 7
1220 Vienna, Austria
www.voestalpine.com/additive