



ACONITY 3D

Empowering Industries with Aconity3D: The Future of 3D Printing

Machines and Products



About us

Aconity3D GmbH specializes in the development of state-of-the-art and beyond machines for Additive Manufacturing (AM). With modular and expandable machine platforms, Aconity3D enables additive manufacturing with established processes and beyond, offering not only proven workflows but also highly customized, customer-specific solutions at an attractive performance-to-cost ratio.

The fully configurable machines offer maximum flexibility – from automated solutions that require no user intervention to complete control over the entire process through their open system architecture.

A comprehensive hardware portfolio, hands-on training, and tailored feasibility studies make Additive Manufacturing accessible to start-ups, medium-sized businesses, and industry leaders alike.



Table of Contents

Aconity CUSTOMIZATION	4
Aconity PLATFORM	6
Aconity POLYMER 	8
Aconity X 	12
Aconity TWO	16
Aconity MIDI+	18
Aconity MIDI	20
Aconity MINI	22
Aconity MICRO	24
Aconity WIRE	26
Multi-Material-Weldhead 	28
Aconity CONTROL	30
Aconity SHOP	32
Business Case Configurator	34
Instant Quoting	35
Application Center	36
Consulting	38
Aconity ACADEMY	39



Aconity **CUSTOMIZATION**

PRODUCTION – Tailored for Efficiency

Where conventional manufacturing reaches its limits, Aconity3D delivers custom production solutions – precise, scalable, and efficient.

Build Volumes

Scalable to meet specific production needs

Automation

Streamlined workflows for maximum productivity

Gas Management

Optimized atmosphere control for superior part quality

Powder Handling

Efficient and controlled material management



Reliable Manufacturing. Confident Scaling.
Maximum Efficiency at Every Step.

RESEARCH – Engineered for Innovation

From first idea to first part – Aconity3D is the ideal partner for research and early-stage innovation.

Optical Systems

Tailored beam shaping and laser configurations

Monitoring Systems

Advanced in-situ process observation and control

Processing Strategies

Adaptive solutions for enhanced material performance

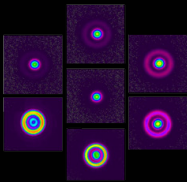
Thermal Management

Precision temperature control for optimal results

Unique Machine Capabilities for Maximum Research Impact.



Aconity *PLATFORM*

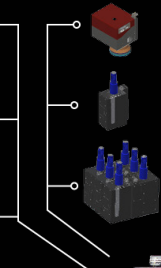


200 W

$\lambda = 445 \text{ nm}$ $\lambda = 1070 \text{ nm}$

1200 W AFX
1500 W AFX

Single Mode / Multi Mode
1000 W / 3000 W



Setup Station



Additional Process Chamber

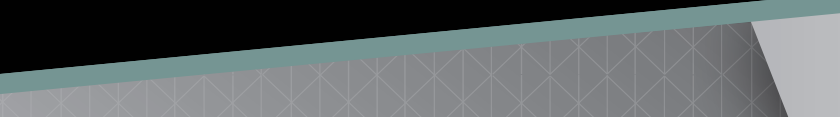


Multi Material

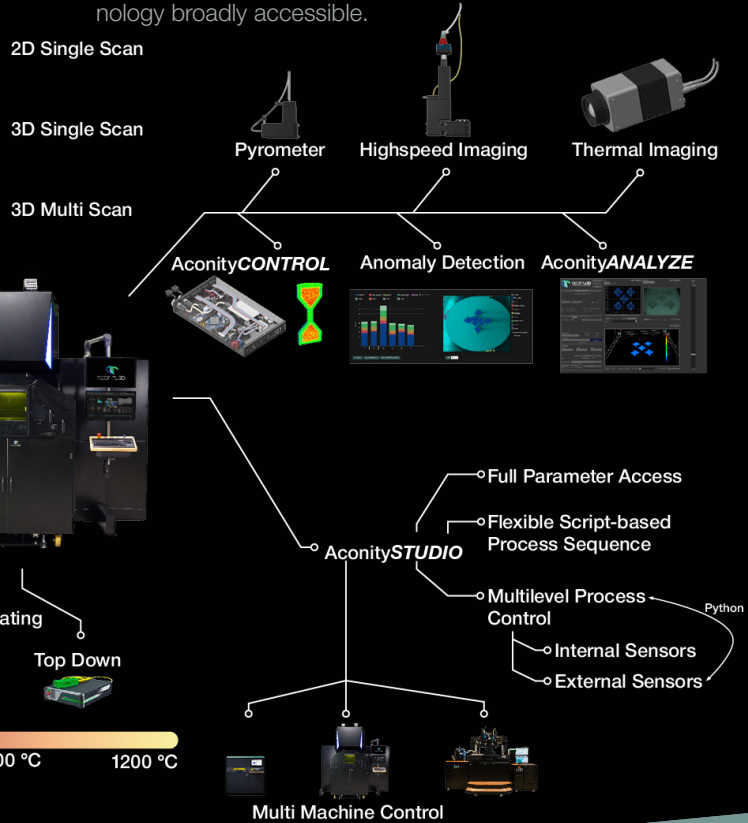


Bottom Up

RT 500 °C 800 °C



Aconity**PLATFORM** enables full machine configuration to individual needs, expanding AM applications and making the technology broadly accessible.



Configure your Machine now:



Aconity **POLYMER**

High-Performance-Plastics Machine





Variable Spot Diameter

Adjustable from 400 to 2000 μm



Exchangeable Build Cylinder

Efficient external powder handling



Ultra-Fast Scanning

Speeds up to 20 m/s for high throughput



Advanced Temperature Monitoring

Pyrometer & thermal camera control



Integrated Heating System

Infrared & platform heating



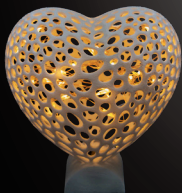
Full Process Control

Access to all key process parameters

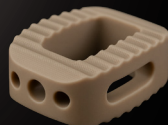


Aconity **POLYMER**

High-Performance- Plastics Machine



Part: Love Light
Material: Polyamide 12



Part: Interbody Fusion Cage
Material: PEEK

Aconity**POLYMER** – Aconity3D revolutionizes polymer AM with precision, speed, and versatility. Very high preheating temperatures allow for an increased materials spectrum. Completely open machine with full access to all process parameters.

Technical **SPECIFICATIONS**

Build Space	Ø 250 x 180 mm ³ Ø 100 x 180 mm ³
-------------	--

Laser Configuration	120 W CO ₂ Laser
---------------------	-----------------------------

Preheating Temp / Build Space	200 °C / Ø 250 x 180 mm ³ 350 °C / Ø 150 x 150 mm ³
----------------------------------	--

Optic Configuration / Spot Size	3D Scanner / 400 - 2000 µm
------------------------------------	-------------------------------

Scan Speed	Up to 15 m/s
------------	--------------

More
information:



AconityX

High-Efficient Production Machine



NEW!



Up to 6 x 4 kW Laser Power

Flexible beam profiles for unmatched productivity



Exchangeable Process Chambers

Maximum flexibility & highest production yield



Infinity Filter & Ultrafast Purging

Minimized downtime for uninterrupted production



Robust Design

Built for demanding production environments



Latest Version AconitySTUDIO

Now more user-friendly than ever



Fully Configurable

Fit your machine to your application

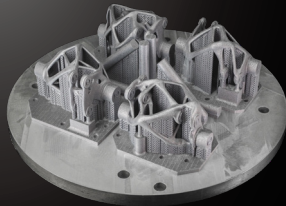


AconityX

High-Efficient Production Machine



Part: LEAP 71 Aerospike
Rocket (Engine)
Material: CuCr1Zr



Part: Bell Cranks
Material: AlSi10Mg

Aconity**X** - Ne**X**t Level AM: Aconity3D presents the revolution in additive manufacturing. Ideal for demanding, versatile, high-throughput applications.

Technical **SPECIFICATIONS**

Build Space (x/y/z)

Aconity X -250	250 x 250 x 250 mm ³
Aconity X -400	400 x 400 x 400 mm ³
Aconity X -600	600 x 600 x 600 mm ³

Laser Configuration	Up to 6 Lasers 200 - 4000 W Multiple Beam Profile Options
---------------------	---

Preheating Temp	Up to 1000 °C
-----------------	---------------

Optic Configuration / Spot Size	3D Scanner / 80 - 500 µm
------------------------------------	-----------------------------

Multi-Material Support	Up to three Materials
------------------------	-----------------------

More
information:

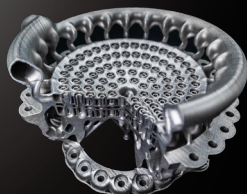


Aconity *TWO*

Large Part Production Machine



Part: Sunfire Rocket
Material: AlSi10Mg



Part: LEAP 71 Rocket Injector
(Head)
Material: Inconel718

Aconity**TWO** represents Aconity3D's high-tech production system at maximum flexibility. Your choice for high-quality production of large components.

Technical **SPECIFICATIONS**

Build Space	Ø 400 x 400 mm ³
Build Size Reduction	Ø 200 x 400 mm ³

Laser Configuration	Up to 4 Lasers 200 - 4000 W Multiple Beam Profile Options
---------------------	---

Preheating Temp / Build Space	500 °C / Ø 400 x 300 mm ³ 800 °C / Ø 200 x 200 mm ³
----------------------------------	--

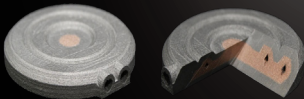
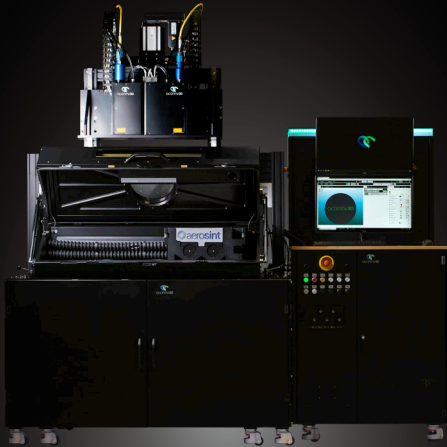
Optic Configuration / Spot Size	3D Scanner / 80 - 500 µm
------------------------------------	-----------------------------

More
information:



AconityMIDI+

Production-Research Hybrid Machine



Part: Multi-Material Part
Material: Pure Cu, 316L



Part: Triple-Metal Part
Material: CuSn10, CuCr, 316L

Aconity**MIDI+** is the uncompromised combination of production capabilities and research proficiency. The machine also features the world's first commercially available multi-material option.

Technical **SPECIFICATIONS**

Build Space	Ø 250 x 250 mm ³
Build Size Reductions	Ø 170 x 250 mm ³
	Ø 100 x 250 mm ³
	Ø 55 x 250 mm ³

Laser Configuration	Up to 4 Lasers 200 - 4000 W Multiple Beam Profile Options Different Wavelengths Available
---------------------	--

Preheating Temp / Build Space	500 °C / Ø 250 x 180 mm ³ 1000 °C / Ø 150 x 150 mm ³
----------------------------------	---

Optic Configuration / Spot Size	3D Scanner / 80 - 500 µm 3D Scanner Green / 50 - 250 µm
------------------------------------	--

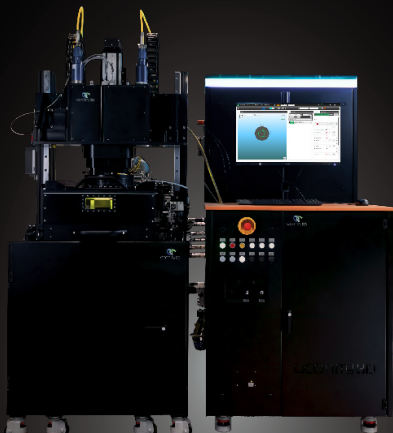
Multi-Material Support	Up to three Materials
------------------------	-----------------------

More
information:



AconityMIDI

High-End Research Machine



Part: Gas Cooler
Material: Pure Cu



Part: Hollow Bicycle Crank
Material: Ti6Al4V

Aconity**MIDI** is the ideal combination of flexibility and productivity. Push the boundaries of applicable materials and quality assurance with unique options designed for highly flexible research applications.

Technical **SPECIFICATIONS**

Build Space	Ø 170 x 200 mm ³
Build Size Reductions	Ø 100 x 200 mm ³
	Ø 55 x 200 mm ³

Laser Configuration	Up to 2 Lasers 200 - 4000 W Multiple Beam Profile Options Different Wavelengths Available
---------------------	--

Preheating Temp /	500 °C / Ø 170 x 180 mm ³
Build Space	800 °C / Ø 100 x 180 mm ³
	1200 °C / Ø 70 x 150 mm ³

Optic Configuration /	2D Scanner / 80 µm
Spot Size	3D Scanner / 80 - 500 µm
	3D Scanner Green / 50 - 250 µm

Vacuum Option	≤ 2 mbar Absolute Pressure
---------------	----------------------------

More
information:



Aconity*MINI*

Highly Flexible Entry-Level Machine



Part: Earrings
Material: Ti6Al4V



Part: MetaFix Implant
Material: WE43

Aconity**MINI** is Aconity3D's highly flexible entry-level AM system for fast process development and small-series production, pushing the boundaries of process understanding and unlocking deeper manufacturing insights.

Technical **SPECIFICATIONS**

Build Space	Ø 140 x 190 mm ³
Build Size Reductions	Ø 100 x 190 mm ³
	Ø 55 x 190 mm ³

Laser Configuration	200 - 1500 W Multiple Beam Profile Options Different Wavelengths Available
---------------------	--

Preheating Temp / Build Space	500 °C / Ø 140 x 150 mm ³ 800 °C / Ø 100 x 150 mm ³
----------------------------------	--

Optic Configuration / Spot Size	2D Scanner / 80 µm 3D Scanner / 80 - 500 µm 3D Scanner Green / 50 - 250 µm
------------------------------------	--

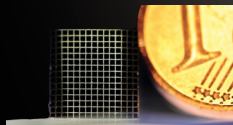
Vacuum Option	≤ 2 mbar Absolute Pressure
---------------	----------------------------

More
information:



Aconity**MICRO**

Compact Machine for Efficient
Production and Material Qualification



Part: Tungsten Grid
Material: W



Part: Dental Frameworks
Material: CoCr

Aconity**MICRO** is Aconity3D's very first compact pre-configured system, designed towards one sole application: MICRO LPBF, ideal for applications such as jewelry, medical devices and dental frameworks.

Technical **SPECIFICATIONS**

Build Space \varnothing 100 x 150 mm³

Laser Configuration 200 - 400 W Gaussian Profile

Optic Configuration / Spot Size F-Theta / 40 μ m
3D Scanner / 40 - 350 μ m

Material Handling Exchangeable Build Tray for Fast Process Setup

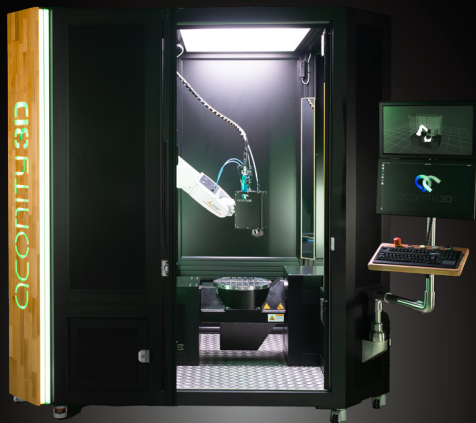


More
information:

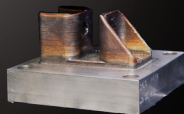


Aconity**WIRE**

Compact Wire-DED Machine



Part: Twisted Demonstrator
Material: 316L



Part: Bearing Block
Material: 316L

The Aconity**WIRE** expands the portfolio with powder-free, wire-based metal 3D printing for ultra-fast near net-shape production. Optional re-manufacturing capabilities make it ideal for repair in aerospace and energy.

Technical **SPECIFICATIONS**

Build Space \varnothing 400 x 780 mm³

Laser Configuration 1000 - 3000 W

Optic Configuration Ring-shaped intensity profile

Preheating Temp 500 °C

Mechanical Configuration 6-Axis Robot & 2-Axis Turn-Tilt Table with Unlimited Rotation

Repair Application Fully Automated Hardware and Software Solutions

Multi-Material Support Up to three Materials



More
information:



Aconity**WIRE** Multi-Material-Weldhead

NEW!



ACONITY 3D



The image shows a close-up of the Aconity 3D Multi-Material-Weldhead. It is a black, rectangular unit mounted on a white robotic arm. The unit has a prominent logo consisting of two interlocking loops, one blue and one green, above the text 'ACONITY 3D'. The bottom of the unit is a copper-colored nozzle that is illuminated from within, creating a bright glow. Several cables (blue, red, white) are connected to the top of the unit. The background is dark, and the overall lighting is dramatic, highlighting the metallic and plastic components of the weldhead.

The Multi-Material-Weldhead merges innovation, precision, and power for limitless manufacturing possibilities. Available as a production add-on and as a standalone process head module for flexible integration.

Technical **SPECIFICATIONS**

Multi-Material Support	Up to three Materials
Wire Diameter	Up to three Wires with 0.6 - 1.2 mm Adjustable throughout the process
Laser Configuration	1000 - 3000 W
Optics Configuration	Ring-shaped intensity profile
Repair Application	Fully Automated Hardware and Software Solutions
Process Control	Closed loop laser power adaption
Process Monitoring Spectral Range	Pyrometer 1 kHz 350 - 1100 nm



More
information:

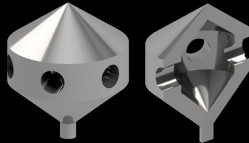


Aconity**CONTROL**

Aconity**CONTROL** solves the most demanding challenge in LPBF: Overheating in specific areas, which typically occurs either in overhangs or short scan vectors.

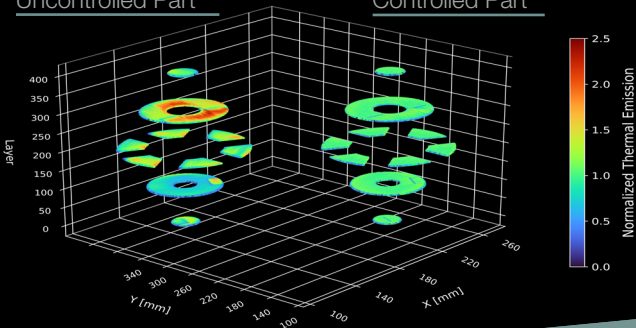
Here, Aconity**CONTROL** demonstrates its strength by achieving a homogenized temperature distribution across the entire part.

This is demonstrated by a complex part, shown below. Accordingly, thermal emissions of the uncontrolled part on the left are equalized for the controlled part on the right, yielding improved part qualities at minimized job interruptions.



Uncontrolled Part

Controlled Part



Aconity**CONTROL** is the world's first real time closed-loop LPBF power control based on process emissions.



Closed-Loop
Power Control



Easy to Use &
Set Up



Higher
Flexibility



Higher
Part Quality



In Vector Real
Time Control



More
information:



Aconity**SHOP**

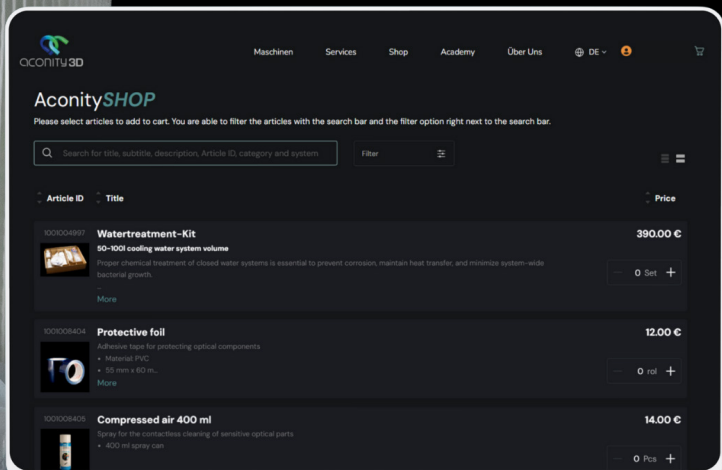
At Aconity3D, we believe in building long-lasting partnerships with our customers. That's why we offer comprehensive After Sales Services to ensure that you get the most out of your equipment.

Apart from our portfolio of consumables and peripherals, we also provide training, on-site services, and retrofits of additional modules such as process monitoring systems and upgrades such as additional laser modules.

If you're interested in learning more about our offerings and how we can help enhance your additive manufacturing capabilities, please don't hesitate to contact us today and visit our Aconity**SHOP** at www.shop.aconity3d.com.



If you're interested in learning more about our offerings and how we can help enhance your additive manufacturing capabilities, please don't hesitate to contact us today or visit our Aconity**SHOP** now:



Discover the range:



Business Case Configurator

Define your business case and discover the ideal 3D printing system for your needs - across our full portfolio reaching from Metal Laser Powder Bed Fusion (LPBF) over Direct Energy Deposition to Polymer LPBF.

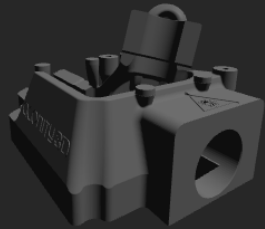


Find your ideal machine now!

Production Example:

Scan Head

Material	AlSi10Mg-Performance
Length (X) [mm]	121.5
Width (Y) [mm]	159.5
Height (Z) [mm]	100.18
Volume [mm ³]	297,671.37

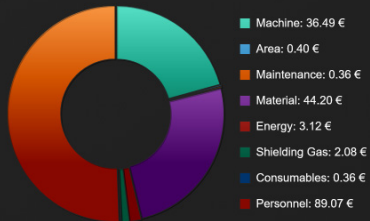


Parts per Year 3,000
Cost per Part 176.09 €

Analysis

Machine Cost	400 000 € - 1 000 000 €
Job Time	7.72 h
Cost per Part	176.09 €
Parts per Job	3
Parts per Year	3 000
Required Machines	1
Productivity	2.57 parts/h
Machine Utilization	97.98 %

Cost Distribution

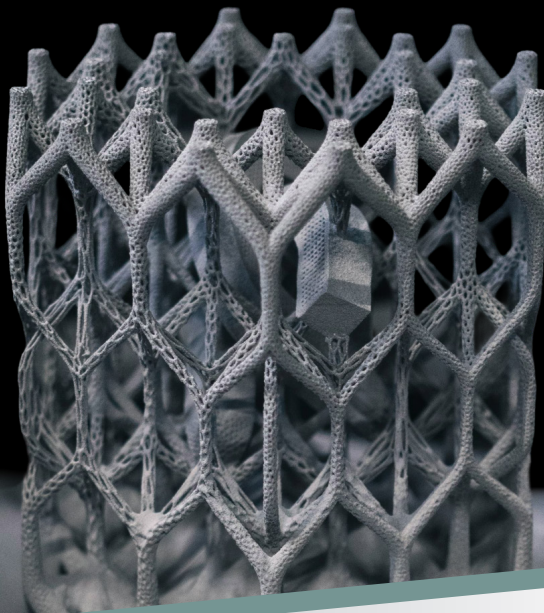


Instant Quoting

Upload your finished part and instantly receive a quote for your 3D printing part with Aconity3D.

Choose from 12 high-performance materials or request custom materials tailored to your application.

Print your part now!



Configure
your machine:



Application Center



Your Design

Create your own product design and upload your CAD-file



Our Capabilities

Due to our machine variety, we can print in best quality and lowest price



On Point Manufacturing and Delivery

Receive your component within a few days everywhere across the globe

Extend your business strategy and speed up your innovation by using our printing service. Benefit from expertise of 3D printing professionals and start manufacturing high-quality products. We print a variety of metals and support your innovative material research. More exotic materials are already available or can be reprinted.



Tyrax

AISi10Mg-
Performance

316L



Ti6Al4V



CuCr1Zr



In718



Scalmalloy®



Pure Cu

Titanium
Grade 2Magnesium
AZ91D

M300



CoCrMo

Print your
Part:



Consulting

Besides in-house trainings on your premises and hands-on workshops at our facilities, we offer a holistic consulting approach. Beginning with the identification of your individual business model we support with analysis of life cycle costs and redesign of AM parts for maximal technology exploitation.

For training purposes, we offer a basic 2-day workshop and an advanced 4-day workshop, covering everything from raw materials and cost structure to design guidelines, data preparation, machine setup, and quality assurance. Additionally, we provide customized workshops tailored to specific customer needs to further enhance your AM production.



AconityACADEMY

Join the Aconity3D family through the Aconity**ACADEMY** your go-to platform for mastering AM with Aconity3D systems. Connect with peers to exchange best practices, stay updated on industry developments, and access our training videos for step-by-step guidance. Whether you're a beginner or advanced user, the Aconity**ACADEMY** helps you deepen your expertise in configuring your machine, process optimization, and specialized applications. Sign up for free today to access our comprehensive training resources and live streams.



Visit our
ACADEMY:





We are hiring!

At **Aconity3D**, we're seeking talented individuals like you, regardless of whether you're a student, looking for a career change, or already an experienced professional in your field. Here, you'll find exciting opportunities to advance your career and bring your passion to life.

If you're ready to take your career to the next level and be part of a dynamic team, don't hesitate to apply with us. We look forward to getting to know you and working together towards a successful future.


aconity
ELABORATING YOUR ADDITIVE



U 3D
PRODUCTION

More information:



STAY CONNECTED!



AconityNEWS

Never miss an update from the world of metal 3D printing. Subscribe to our newsletter and get the latest on new technologies, materials, and Aconity3D events – straight to your inbox.

Sign up now:



Aconity **IMPRINT**



Editorial Office
Dr. Yves Hagedorn

Contact
info@aconity3d.com
+ 49 2406 92749-0



Design
Alina Bauer

Picture Credits
Unless otherwise stated in the respective caption, the image source is:
© Aconity3D GmbH

Changes to specifications and other technical details are subject to change.
All rights reserved.

© Aconity3D GmbH, Herzogenrath 2026
Revision: 01/2026



ACONITY3D



Aconity3D GmbH
An den Glaswerken 2
52134 Herzogenrath
Germany

☎ +49 2406 92749-0
📠 +49 2406 92749-99
✉ info@aconity3d.com

www.Aconity3D.com

