HBD
Expert on Metal 3D Printing

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METAL

HBD ADDITIVE MANUFACTURING

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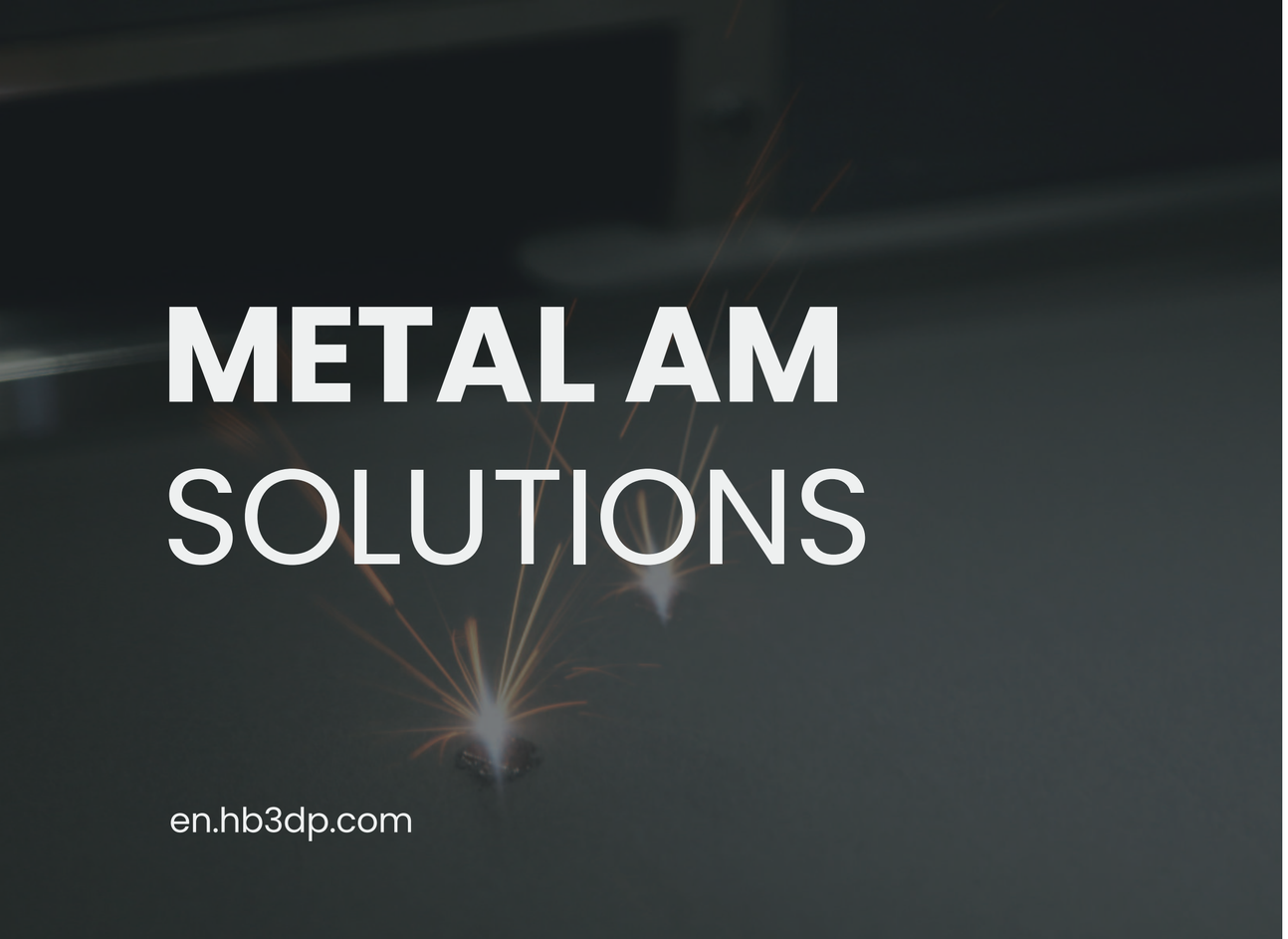
HBD
Expert on Metal 3D Printing

ADVANCING
METAL 3D PRINTING
WITH INNOVATIVE SOLUTIONS



METAL AM SOLUTIONS

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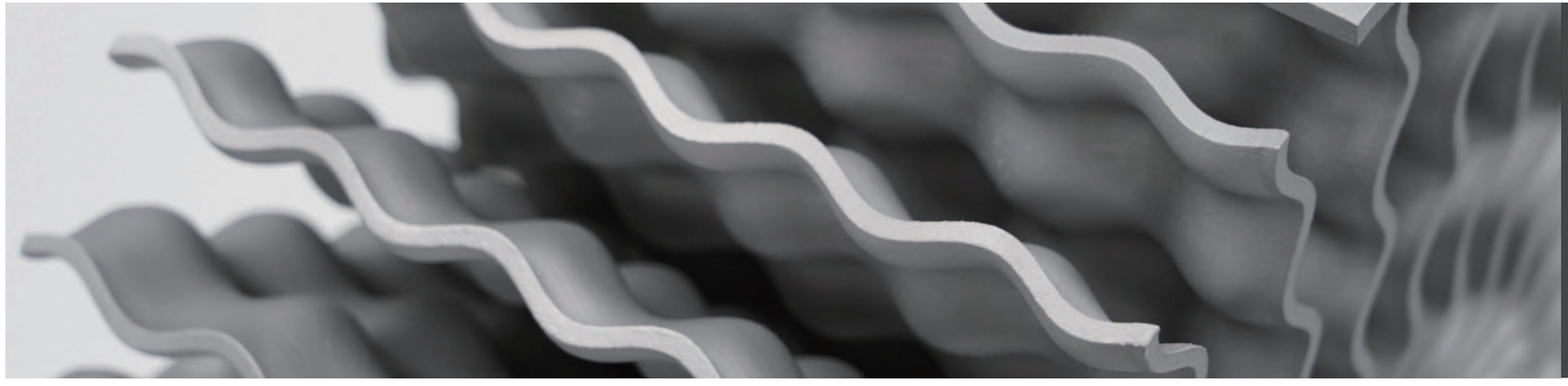


Revolutionizing Additive Manufacturing with HBD LPBF Solutions

Professional partners recognized in 37 Countries

Industry-tailored advanced additive manufacturing solutions

Experienced R&D team with sustained innovation capability

Comprehensive customer support system

MILESTONE

2007-2012

The HBD founding team entered the metal 3D printing industry and initiated the R&D of LPBF additive manufacturing machines.

2013-2014

Launched industrial-grade metal additive manufacturing machine and successfully promoted it in the market.

2015-2016

Created the HBD brand and further refined the comprehensive set of metal solutions incorporating equipment, software, control systems, process technology parameters, and so on.

2017-2018

The Shanghai headquarters is established to further expand the global market and deepen technological research and development.

2019-2020

Launch aerospace-grade metal additive manufacturing machine with multi-laser and large build volume.

2021-2022

Completed the Series A financing of $600 million US dollars ; Two new factories has begun construction in Shanghai and Guangdong.

2023-2024

HBD's metal AM machines are globally popular, with 850+ installations and 100+ units sold to a single customer. HBD European R&D facility is operational.

2025 & FUTURE

Advance HBD's global full - process digitalization and comprehensive service.

HBD GLOBAL NETWORK

Partners

Business Coverage

BEFORE SALE

We select top global suppliers to ensure superior parts quality and perform rigorous tests on over 100 aspects such as raw materials, processes, and final products. Additionally, we conduct extended print tests to maintain equipment quality standards. Integrated dozens of software and hardware safety technologies to effectively ensure the safety of personnel, equipment, and products.

AFTER SALE

Through thorough training and precise operational guidance, clients quickly master HBD additive manufacturing technology, reaping maximum benefits in minimal time. Expert teams provide lifelong technical support, tailoring solutions and collaborating on material and process development to ensure consistent and reliable production.

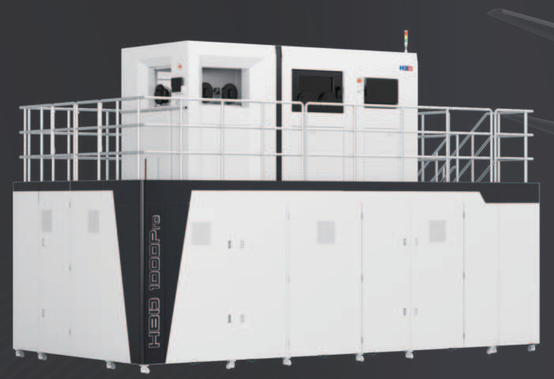
HBD PORTFOLIO
METAL ADDITIVE MANUFACTURING
EQUIPMENT

// HBD 150

// HBD 200

// HBD 400

// HBD 500



// HBD 1000Pro

// HBD 800

HBD 150/150D

With round base plate, HBD 150 is equipped with efficient and safe independent atmosphere purification system, sealed glove structure. It also reserves sealed powder adding and powder clearing holes, which could enable adding powder and clearing powder without opening the chamber door, providing safe and stable titanium printing solutions. HBD 150/150D could be applied in fields including dentistry, prototype, education and scientific research, material verification and customization.

Technical Parameters

Build Volume	φ158mm × 100mm(height incl. build plate)
Laser Power	1 Laser, 300W/500W 2 Lasers, 300W
Layer Thickness	10μm-50μm
Scanning Track Width	40μm-80μm
Scanning Speed	≤ 10m/s
Oxygen Content	≤ 100ppm
Protective Atmosphere	Integral sealed, automatic monitoring of oxygen content, recycling cleaning and collection coefficient ≥ 99%
Typical Accuracy	0.05-0.1mm
Metal Powder	Titanium alloy, cobalt-chromium alloy, stainless steel, mold steel, etc.
Relative Density	99.9%+
Process Parameter Configuration	Tailored parameter set for the specific application, user-modifiable
Weight	Est. 950kg
External Dimensions	1150mm × 1150mm × 1830mm
Power Supply	300W: AC220V, 50/60Hz, peak power ≤4.3-4.5kW, average power ≤2.8-3kW 500W: AC380V, 50/60Hz, peak power ≤5.5kW, average power ≤3.5kW

1 or 2
Single/Dual Laser Option

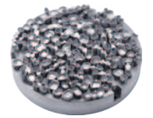
Mainstream Round Plate Size

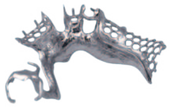
One-way Intelligent Variable Speed Powder Spreading

Closed Loop System

Flexible Powder Feeding System

3D Printed Parts





HBD 200/200D

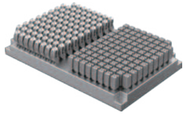
With dual laser and dual galvanometer, HBD 200 is equipped with efficient and safe independent atmosphere purification system, sealed glove structure, interface for powder addition and powder cleaning operation, which could enable adding powder and cleaning powder without opening the cabin door, providing safe and stable titanium printing solutions. HBD 200 could be applied in fields including dentistry, prototype, small mold, education and scientific research and customization.

Technical Parameters

Build Volume	265mm × 170mm × 120mm(height incl. build plate)
Laser Power	2 Lasers, 300W/500W
Layer Thickness	10μm-50μm
Scanning Track Width	40μm-80μm
Scanning Speed	≤ 10m/s
Oxygen Content	≤ 100ppm
Protective Atmosphere	Integral sealed, automatic monitoring of oxygen content, recycling cleaning and collection coefficient ≥ 99%
Typical Accuracy	0.05-0.1mm
Metal Powder	Titanium alloy, cobalt-chromium alloy, stainless steel, mold steel, etc.
Relative Density	99.9%+
Process Parameter Configuration	Tailored parameter set for the specific application, user-modifiable
Weight	Est. 1150kg
External Dimensions	1780mm × 1380mm × 1900mm
Power Supply	300W: AC220V, 50/60Hz, peak power ≤4.5kW, average power ≤3kW 500W: AC380V, 50/60Hz, peak power ≤6kW, average power ≤4kW

- 2 — Dual Laser Configuration
- Mainstream Size
- One-way Intelligent Variable Speed Powder Spreading
- Closed Loop System
- Flexible Powder Feeding System

3D Printed Parts



HBD 400

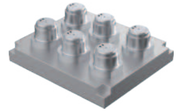
HBD 400 metal additive manufacturing system stands out in the industrial 3D printing field with its excellent performance and efficient printing capabilities. Equipped with a forming size of 350mm × 400mm × 400mm and an optimized 6-laser automatic scanning system, it excels in rapid production of complex components and efficient batch manufacturing, catering to a broad spectrum of production requirements.

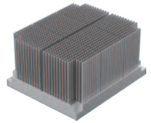
Technical Parameters

Build Volume	350mm × 400mm × 400mm(height incl. build plate)
Laser Power	4 Lasers, 500W/1000W 6 Lasers, 500W/1000W
Layer Thickness	20μm-120μm
Scanning Track Width	70μm-200μm
Scanning Speed	≤ 10m/s
Oxygen Content	≤ 100ppm
Protective Atmosphere	Integral sealed, automatic monitoring of oxygen content, recycling cleaning and collection coefficient ≥ 99%
Typical Accuracy	0.05-0.2mm
Metal Powder	Titanium alloys, Aluminum alloys, Superalloys, Stainless steel, Mould steel, etc.
Relative Density	99.9%+
Process Parameter Configuration	Tailored parameter set for the specific application, user-modifiable
Weight	Est. 3300kg
External Dimensions	1900mm × 1650mm × 2300mm
Power Supply	500W: AC380V, 50/60Hz, peak power ≤14-16kW, average power ≤5.5-8.5kW 1000W: AC380V, 50/60Hz, peak power ≤15-19kW, average power ≤6.5-11.5kW

- Four/Six Laser Configuration
- Mainstream Size
- Upper Powder Feeding Design
- Closed Loop System
- Bi-directional Intelligent Variable Speed Powder Spreading
- Long-lasting Purification System

3D Printed Parts





HBD 500

With a preponderant large forming size, efficient multi-laser configuration, excellent gas flow performance and intelligent powder recoating monitoring system, realize the ultimate pursuit of high quality and consistency, combined with a unique, convenient and practical powder closed-loop management system, is suitable for continuous and batch production application scenarios.

Technical Parameters

Build Volume	430mm × 520mm × 520mm(height incl. build plate)		
Laser Power	2 Lasers, 500W/1000W	4 Lasers, 500W/1000W	6 Lasers, 500W/1000W
Layer Thickness	20μm-120μm		
Scanning Track Width	70μm-200μm		
Scanning Speed	≤ 10m/s		
Oxygen Content	≤ 100ppm		
Protective Atmosphere	Integral sealed, automatic monitoring of oxygen content, recycling cleaning and collection coefficient ≥ 99%		
Typical Accuracy	0.05-0.2mm		
Metal Powder	Titanium alloy, aluminium alloy, high temperature alloy, stainless steel, mold steel, etc.		
Relative Density	99.9%+		
Process Parameter Configuration	Tailored parameter set for the specific application, user-modifiable		
Weight	Est. 4500kg		
External Dimensions	2280mm × 1560mm × 2570mm		
Power Supply	500W: AC380V, 50/60Hz, peak power ≤16-16.5kW, average power ≤6.5-7kW 1000W: AC380V, 50/60Hz, peak power ≤17-18kW, average power ≤7.5-8.5kW		

Dual/Four/Six Laser Options

Mainstream Size

Upper Powder Feeding Design

Closed Loop System

Bi-directional Intelligent Variable Speed Powder Spreading

Long-lasting Purification System Optional

3D Printed Parts

HBD 800

HBD 800 is a production-scale metal AM system built for aerospace efficiency and reliability. Ten synchronized lasers, driven by HBD' s proprietary scanning optics, deliver high-precision builds with 30 μm alignment accuracy and <5 min auto-calibration. Bidirectional, speed-adaptive recoating and real-time layer monitoring ensure consistent part quality, while an optimized gas-flow design suppresses spatter for flawless surfaces. Proven on large-format batches, the platform features a closed-loop powder system and dual H13-grade filters.

Technical Parameters

Build Volume	830mm × 830mm × 1250mm(height incl. build plate)		
Laser Power	6 Lasers, 500W/1000W	8 Lasers, 500W/1000W	10 Lasers, 500W/1000W
Layer Thickness	20μm-120μm		
Scanning Track Width	80μm-200μm		
Scanning Speed	≤ 10m/s		
Oxygen Content	≤ 100ppm		
Protective Atmosphere	Integral sealed, automatic monitoring of oxygen content, recycling cleaning and collection coefficient ≥ 99%		
Typical Accuracy	0.05-0.2mm		
Metal Powder	Titanium Alloys, Aluminum Alloys, Superalloys, Stainless Steels, Tool Steels, etc.		
Relative Density	99.9%+		
Process Parameter Configuration	Tailored parameter set for the specific application, user-modifiable		
Weight	Est. 18000kg		
External Dimensions	7850mm × 4050mm × 4880mm		
Power Supply	500W: AC380V,50/60Hz, peak power ≤50-55kW, average power ≤23-28kW 1000W: AC380V,50/60Hz, peak power ≤55-60kW, average power ≤28-33kW		

10 Ten Laser Configuration

Mainstream Size

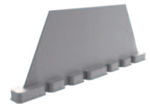
Beam Shaping - 'Guangchi Ⅱ' (optional)

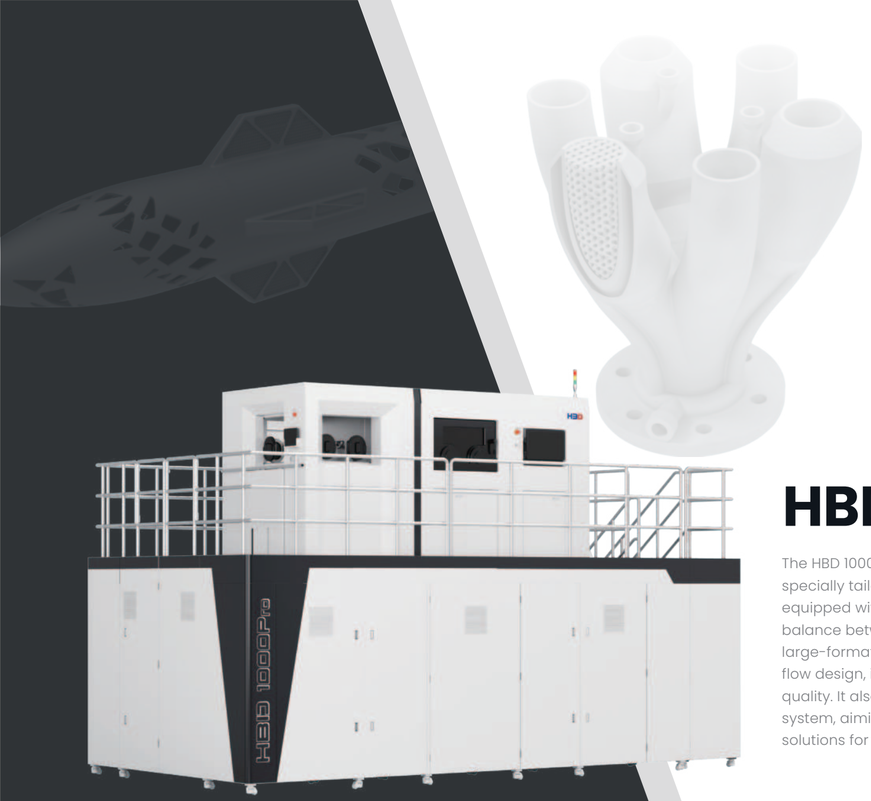
Closed Loop System

Bi-directional Intelligent Variable Speed Powder Spreading

Intelligent Monitoring

3D Printed Parts





HBD 1000Pro

The HBD 1000Pro is a metal additive manufacturing device specially tailored for aerospace manufacturing. It comes equipped with a high-quality eight-laser system, striking a balance between high efficiency and precision. With an enlarged large-format printing capacity and a cutting-edge optimized gas flow design, it enhances the consistency of full-size printing quality. It also offers an independently developed software system, aiming to deliver more efficient additive manufacturing solutions for the aerospace manufacturing industry.

Technical Parameters

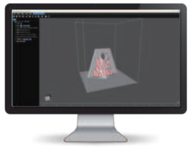
Build Volume	660mm × 660mm × 1250mm(height incl. build plate)
Laser Power	8 Lasers, 500W/1000W
Layer Thickness	20μm-120μm
Scanning Track Width	70μm-200μm
Scanning Speed	≤ 10m/s
Oxygen Content	≤ 100ppm
Protective Atmosphere	Integral sealed, automatic monitoring of oxygen content, recycling cleaning and collection coefficient ≥ 99%
Typical Accuracy	0.05-0.2mm
Metal Powder	Stainless steel, cobalt-chrome alloy, Hastelloy, Titanium alloy, Nickel-based alloy, Tool Steel, Aluminum alloy, and some refractory metals like Tungsten and Tantalum, etc.
Relative Density	99.9%+
Process Parameter Configuration	Tailored parameter set for the specific application, user-modifiable
Weight	Est. 16000kg
External Dimensions	7050mm × 3630mm × 4480mm
Power Supply	500W: AC380V, 50/60Hz, peak power ≤35kW, average power ≤25kW 1000W: AC380V, 50/60Hz, peak power ≤40kW, average power ≤30kW

- Eight Laser Configuration
- Mainstream Size
- Upper Powder Feeding Design
- Closed Loop System
- Bi-directional Intelligent Variable Speed Powder Spreading
- Long-lasting Purification System

3D Printed Parts

SELF-DEVELOPED AM SOFTWARE

▲ HBD AMES X



▲ HBD Build Expert

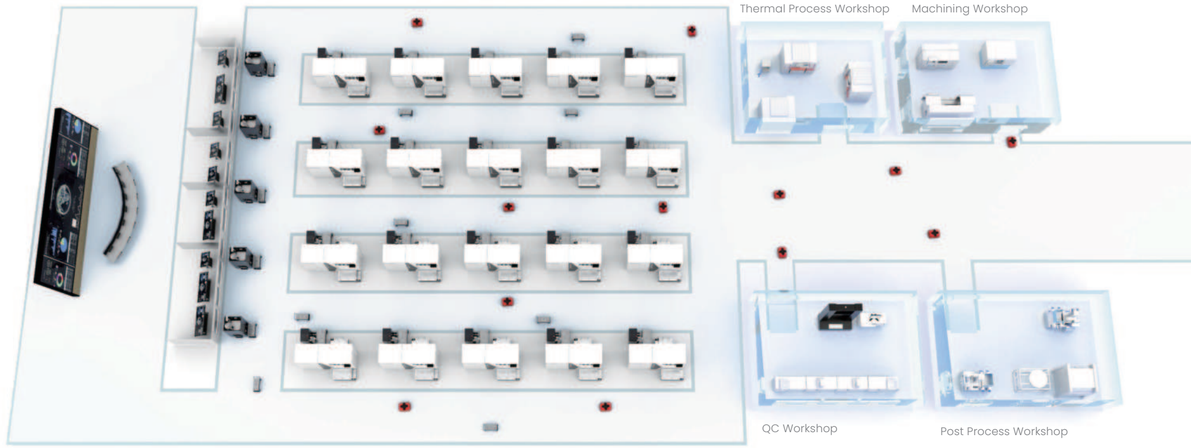
▲ HBD System

AM MACHINERY AND PLANT LAYOUT

▼ AMES X System

▼ Equipment Layout

▼ Post-processing Station



01

Offer tailor-made AM solutions based on customer needs.

02

Integrate intelligent and automated production systems to improve factory efficiency.

03

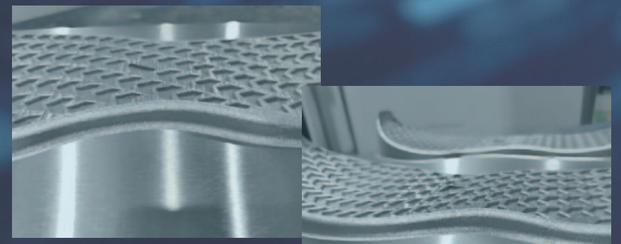
Create value for partners through in-depth development of industry applications.

AUTO-STITCHING SYSTEM

HBD auto-stitching system enables fully software-controlled processes, significantly reducing setup time, achieving process standardization, and minimizing interference from human intervention and measurement errors. Through automated corrections and rapid verification, it drastically enhances debugging efficiency and accuracy.

50 μm
Accuracy

< 5 min
Required Time

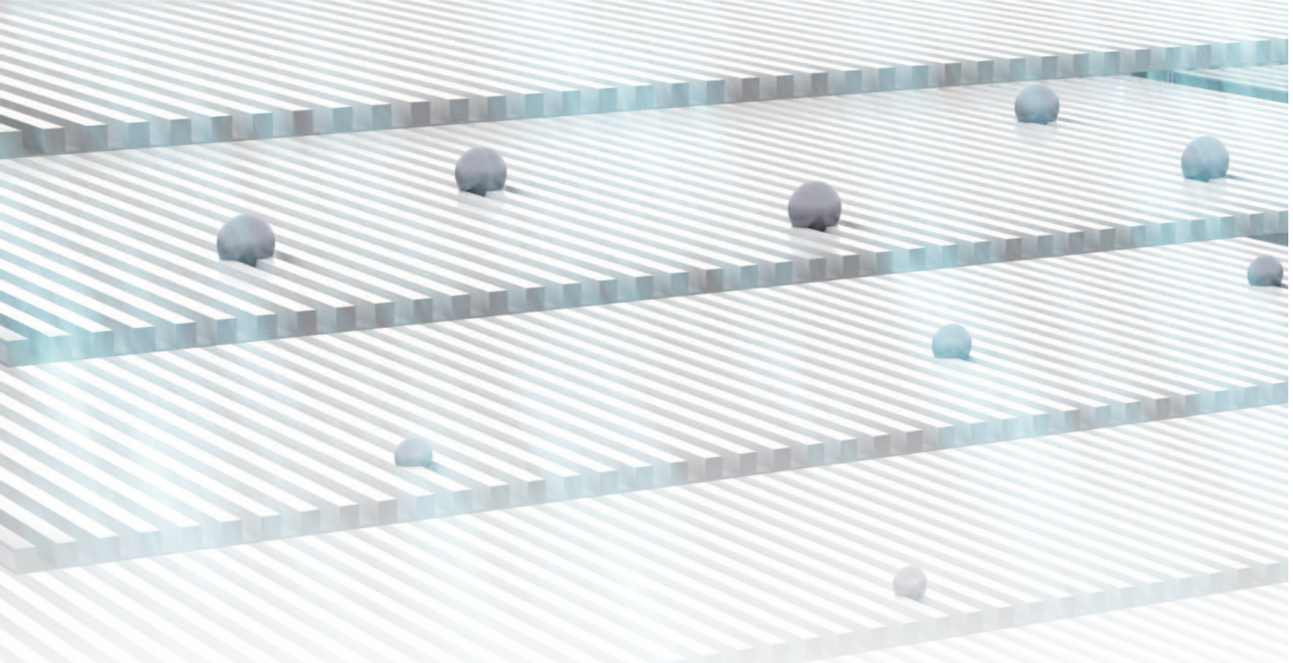


PRECISION PRINTING TECHNOLOGY

Breaks through manufacturing limits, achieving high-precision forming of 0.06mm thin-walled structures, redefining new standards for manufacturing accuracy and surface quality.

Ra2.2 μm
Surface Roughness down to

±0.02 μm
Ultimate Forming Accuracy



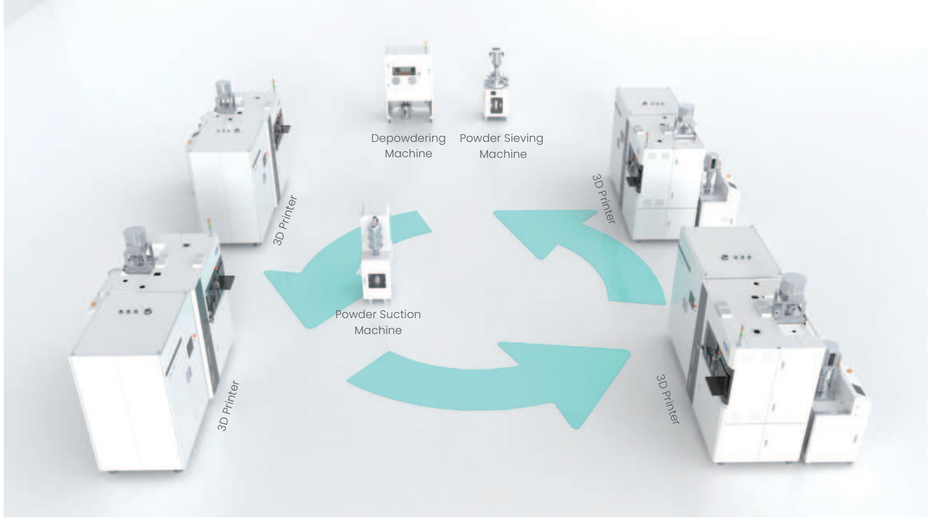
LONG-LASTING FILTRATION SYSTEM

The filtration system utilizes next-generation PTFE-coated filter elements, meeting H13 standards with a capture efficiency of up to 99.9%, capable of trapping particles as small as 0.3µm. The filter includes self-cleaning features, providing a filter element lifetime of over 5 years. Optimized gas-flow configuration enables secure and efficient waste reclamation in inert gas environments, ensuring optimal printing conditions.

AUTOMATED POWDER HANDLING SOLUTION

HBD provides the integrated solution for handling and processing metal AM materials for both pre- and post-processing: from simple powder preparation to a closed, fully automatic powder cycle. The powder handling system is perfectly matched to the HBD series 3D printers.

A fully automated closed powder handling loop can be implemented for a production cell of up to multiple 3D printers. Such systems can be scaled gradually, either by integrating additional 3D printers or by retrofitting existing 3D printers.



Dental

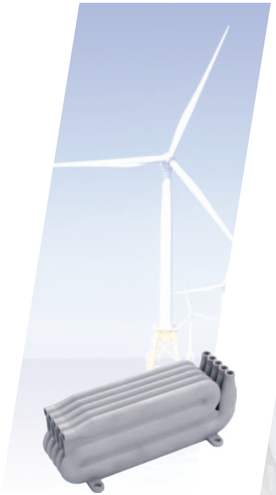
Medical

Consumer Electronics

Consumer Goods

Die & Mold

Transportation

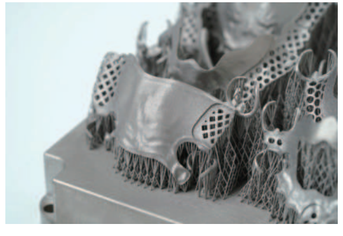


Energy

Aerospace

INDUSTRY APPLICATIONS

Dental

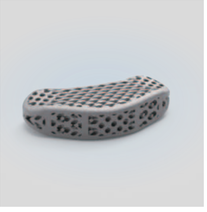


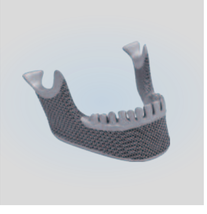
Metal 3D printing is used to create custom dental implants and orthodontic appliances. These devices can be precisely designed to fit each patient's unique anatomy, improving comfort and treatment outcomes.In dental labs, 3D printing reduces production time and allows for more complex designs compared to traditional methods.

The technology also enables the fabrication of dental models and surgical guides, enhancing the accuracy of dental procedures.

Medical

Metal 3D printing is revolutionizing the medical industry by enabling the production of customized implants, prosthetics, and surgical tools. These components can be designed to fit the unique anatomy of each patient, resulting in improved outcomes and reduced recovery times. For example, 3D-printed knee implants can be designed to match the patient's specific knee geometry, resulting in a better fit and reduced risk of complications.

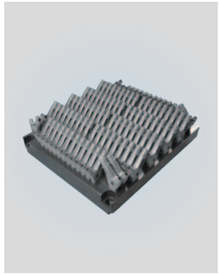




Consumer Electronics

Metal 3D printing is employed in the production of complex and lightweight components for consumer electronics. This includes enclosures, brackets, and connectors. It allows for rapid prototyping and customization, enabling companies to bring products to market faster. 3D printing also offers the potential for on-demand manufacturing, reducing inventory costs.

Metal 3D printing transforms consumer goods by merging artistry with engineering. It empowers brands to create intricate, high-end designs. By enabling direct-to-consumer customization and sustainable small-batch production, it slashes mold costs, minimizes overstock risks, and accelerates premium product launches.

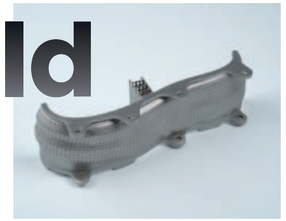


Consumer Goods

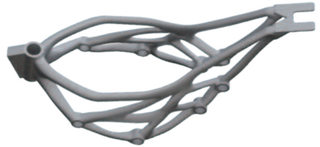
Metal 3D printing is used to create molds and dies with complex geometries. This enables the production of parts with higher accuracy and reduced lead times.The technology can also be used to repair and refurbish existing molds, extending their lifespan and reducing costs.

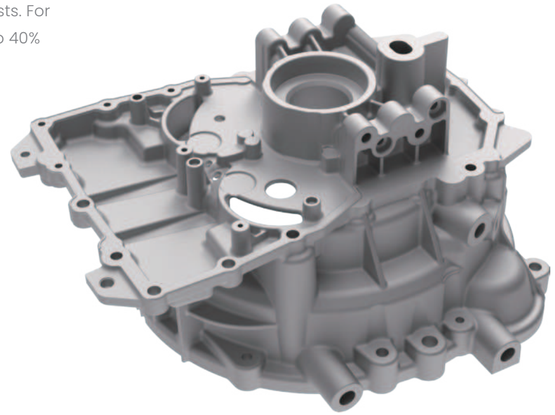
3D printing allows for the creation of conformal cooling channels in molds, improving cooling efficiency and reducing cycle times.

Die & Mold



Metal 3D printing is enabling the production of lightweight and complex automotive components, including engine parts, suspension components, and interior parts. These components can be designed to improve fuel efficiency and performance, while also reducing manufacturing costs. For example, 3D-printed titanium suspension components can be up to 40% lighter than their conventionally manufactured counterpar.

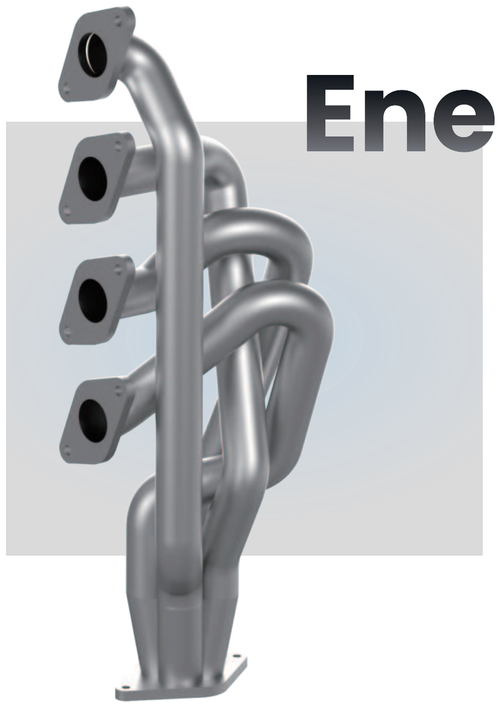


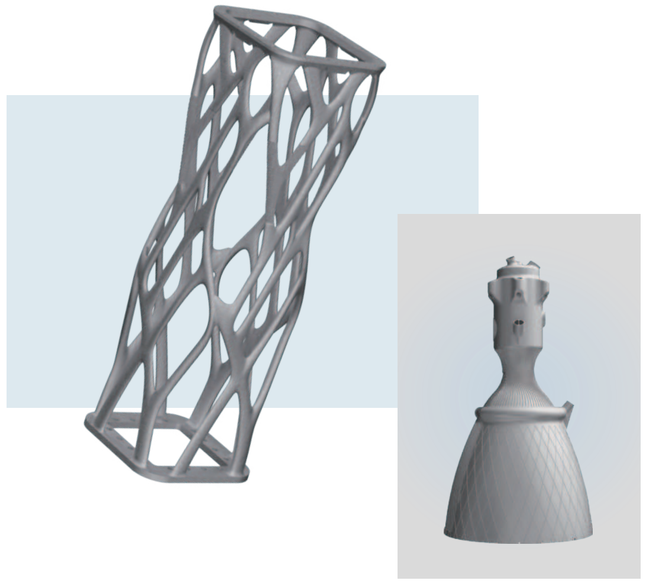


Transportation

Energy

Metal 3D printing is enabling the fabrication of highly efficient turbine blades and heat exchangers. These components can be designed with optimized internal geometries, enhancing heat transfer and improving overall system efficiency. Studies have shown that 3D-printed turbine blades can increase power output by up to 10% compared to traditional blades.





Aerospace

Metal 3D printing enables the production of lightweight and complex geometries, resulting in reduced fuel consumption and increased payload capacity. In the aerospace industry, 3D printing is used to manufacture a wide range of components, including turbine blades, engine parts, and structural components. The technology allows for the creation of complex geometries that are difficult or impossible to achieve with traditional manufacturing methods, resulting in improved performance and reduced weight.

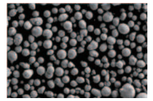
Self-Developed R&D Materials

The R&D of HBD powders is carried out by a highly qualified research team consisting of two experienced and qualified materials technologists, and includes a number of Masters and PhD researchers.We have invested in nearly 60 metal AM machines to develop and optimize material formulations and manufacturing process.

In the process, we have successfully developed super wear-resistant and corrosion-resistant stainless steel HBCL-SS01, wear-resistant mold steel HBCL-MS01, and super tough titanium alloy HBCL-Ti01 powder materials.

HBCL-SS01

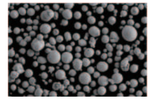
HBCL-SS01, a wear-resistant and corrosion-resistant stainless steel developed by HBD, has more excellent mechanical properties, wear resistance and corrosion resistance than 316L stainless steel, and has a widely application prospect in the fields of aerospace, marine engineering, chemical and medical industries.



Sphericity Picture

HBCL-MS01

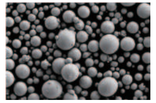
HBCL-MS01, a wear-resistant die steel researched and developed by HBD, has more excellent wear-resistant property than 18Ni300 die steel, which brings more explorations and applications in the field of die manufacturing etc.



Sphericity Picture

HBCL-Ti01

HBCL-Ti01, a tough titanium alloy developed by HBD, has superior strength and plasticity (uniform elongation) compared to TC4 titanium alloy, and has a wide range of applications in aerospace and other fields.



Sphericity Picture