

SonicLayer® 1200 UAM Machine

Love the size? You'll love the cost even more!

SonicLayer® 1200 Fully Automated System

The SonicLayer® 1200 features the same great patented Ultrasonic Additive Manufacturing (UAM) technology at an affordable price. The metal 3D printer has a smaller footprint suited for R&D as well as small scale production. Just like our larger footprint machines, the 1200 benefits from the unique capabilities of UAM:

- Print Dissimilar Metal – UAM creates strong bonds between dissimilar metals without creating undesirable brittle metallurgy. The SonicLayer also works with 'difficult' alloys such as copper and aluminum. A wide range of material combinations can be printed in a single part, opening the design space to enable property gradients and engineered material
- Embed electronics – The UAM process allows sensors to be embedded anywhere in a metal structure, enabling health monitoring, complex process control, and even the Internet of Things
- Complex Internal Geometry - UAM allows designers to dream up interwoven 3D cooling channels not possible with traditional fabrication techniques
- Safety - Don't spend extra for specialized powder handling equipment and expensive shielding gas (SonicLayer requires none)



Work Envelope

Powered	X	Axis:	10	in.
Powered	Y	Axis:	10	in.
Powered	Z	Axis:	10	in.

Footprint

X direction: 4 ft.
Y direction: 5.80 ft.
Height: 76 in.

Linear Accuracy

Positioning: ± 0.0002 in.
Repeatability: 0.0001 in.

Table Size

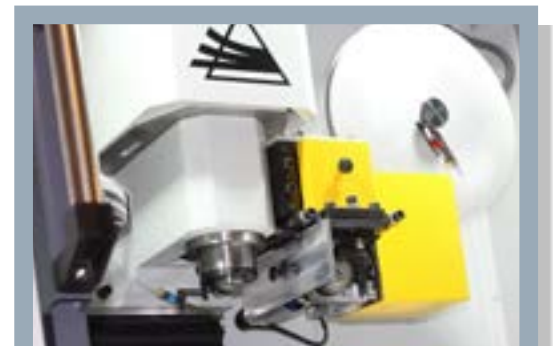
Length \times Width: 16 \times 10.50 in.

Welding Machine

Ultrasonic Power: 2 kW
Welding force: 650 lb.
Welding speed (max): 120 ipm
Steel welding sonotrode

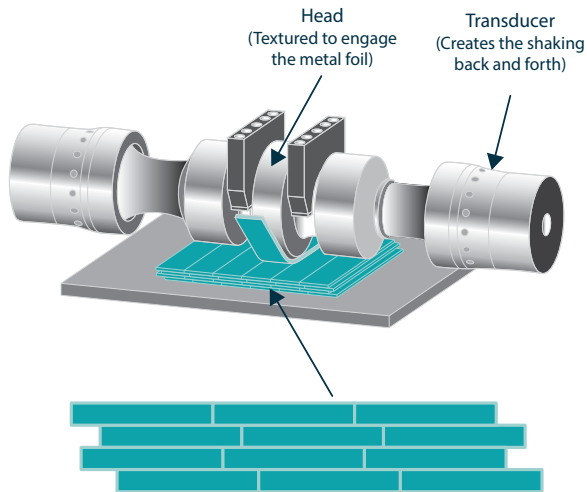
Machining Spindle

7500 rpm Tormach R8



HOW IT WORKS: 3D PRINTING WITH SOUND

Ultrasonic Additive Manufacturing (UAM) is a hybrid 3D metal printing technology that enables you to embed electronics and sensors into metal parts of any design. Using only ultrasonic vibrations to bond layers of metal foil together in the solid-state; there is no melting of the metals through the entire process. UAM produces true metallurgical bonds with full density among a variety of metals including aluminum, copper, stainless steel, titanium, and more. Dissimilar metal combinations can be printed together due to the low temperature welding attribute of the process.



Hybrid metal additive is achieved by alternating Computer Numerical Control (CNC) machining interchangeably with foil layering to introduce precision smooth internal features during the printing process. Working in one machine as a hybrid system, with both additive and subtractive processes, UAM can build complex internal geometries considered impossible to replicate with conventional manufacturing.

BENEFITS OF UAM

- High-speed process for additive manufacturing of metals
- Large available envelope (6'x6'x3') for substantial size parts
- No melting characteristic enables:
 - Bonding of dissimilar metals
 - Cladding
 - Metal matrix composites
 - "Smart" or reactive structures
- Low-temperature process enables:
 - Electronics embedding in tamper-proof structures
 - Non-destructive, fully-encapsulated fiber embedding
- Complex internal geometries
- No post treatments or machining necessary

PRODUCT LINE

- SonicLayer® R200 – Research platform for universities and R&D labs
- SonicLayer® 1200 – Small format fully automated UAM system (10" x 10" x 10")
- SonicLayer® 4000 – Mid-size fully automated UAM system (40" x 24" x 24")
- SonicLayer® 7200 – Production scale automated UAM system (72" x 72" x 36")

To read more about Fabrisonic, go to our website www.fabrisonic.com or visit <http://youtu.be/saSrmgEZJzM> to see our process in action.

