Studio System™

The Desktop Metal Studio System is the world's first affordable, office-friendly metal 3D printing system. Safe and simple to use, the Studio System was designed to bring metal 3D printing to the shop floor, allowing engineering and design teams to make metal parts faster, without the need for special facilities or dedicated operators.

End-to-end metal 3D printing

The Studio System is a complete metal 3D printing solution created to make metal 3D printing easier, less expensive and more accessible for design and engineering teams.

The Studio System was designed with a cloud-based software architecture, making it simple to go from CAD to metal part. By having one software platform across every part of the system, engineers can work with one digital file and workflow instead of needing to use 3rd party equipment and software to get a final part.

Affordable

- Up to 10x less expensive than comparable laser-based systems
- The only complete metal 3D printing system that is cost-effective for prototyping

Safe and simple:

- By eliminating lasers and powders, the Studio System is safe for any facility

- Unlike other systems, there is no third-party equipment, external ventilation or special facilities required – just power and an internet connection

Separable Supports

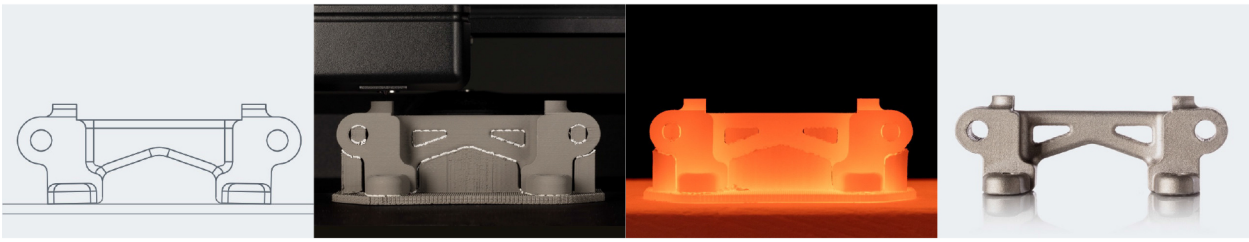
Existing systems weld parts to supports, requiring machining or wire EDM to remove the part. Proprietary Separable Supports make it possible to remove support structures by hand, simplifying post-processing significantly.

High quality parts:

The Studio System delivers densities between 96-99%, depending on the alloy, with parts performing similar to wrought.

How it works

The Studio System was designed as a complete workflow. Each stage of the process is fully automated and managed by sophisticated software, making it simple to go from CAD to part. The entire process is controlled and monitored from the cloud, ensuring a seamless, simple experience.



1 PREP	2 PRINT	3 DEBIND & SINTER	4 POST PROCESS
Digital model	**Green part**	**Sintered part**	**Finished part**
The software accepts a variety of formats—not just STL. Web-based, it runs on a remote or local server so that it is possible to manage jobs from any device securely.	Similar to FDM, the Studio printer shapes a “green” part layer-by-layer by heating and extruding specially formulate d bound metal rods. The green part can be easily sanded by hand.	A portion of the plastic binder is first removed in the included debinder. The furnace then heats the part to temperatures near melting, densifying metal powder to 96-99.8%.	Apply optional finishing methods such as machining or bead blasting for critical tolerances and finishes. Supports are removed by hand.

The printer

The Studio printer is similar to the safest and most widely used 3D printing process, Fused Deposition Modeling (FDM). Unlike laser-based systems, the Studio printer extrudes bound metal rods – similar to how plastic FDM printers work. This eliminates safety and facility requirements associated with traditional metal 3D printing, while enabling new features like closed-cell infill for lightweight strength.

- The Studio System produces near-net-shape metal parts, delivering the resolution and accuracy needed for functional prototyping. Sophisticated software constructs print and sinter plans for every build and material—automatically generating supports and control parameters to ensure a seamless, simple experience from printing through sintering.

- The system is able to print up to 24 cubic inches per day. Maximum resolution is 50um.

- We used encoded ball screws rather than belts for our motion control system. Combined with automated bed-leveling and a heated build area, the Studio printer delivers excellent geometric fidelity and build success.

The furnace

- Desktop Metal designed the first office-friendly sintering furnace with a peak temperature of 1400° C, allowing for the sintering of a wide range of metals. Fully automated with closed looped thermal control and sized to fit through an office door, the furnace delivers industrial-strength sintering in an office-friendly package.

- Cloud-connected, the furnace has temperature profiles that are tuned to every build and material. It uniformly heats parts to just below their melting point, removing binder and fusing metal particles to form fully dense parts without the residual stresses introduced in laser-based systems.

- The Studio printer and furnace were designed together, making it possible to vastly simplify printing and post-processing through the integration of software, hardware, and materials science innovations.

Office friendly

Hand-removal of supports, fast material changes, and web-based software are just a few of the` ways we're making metal 3D printing more accessible. The Studio system was designed from the ground up for simple installation and use.

No hazardous powders
No respirators
No external ventilation

No 480V 3-phase power
No stress relief

No dangerous lasers
No 3rd party equipment
No dedicated operators

No welded supports
No special facilities

Software-controlled workflow

Unlike other systems that require 3rd party equipment, the Studio system was designed as a complete workflow. Every stage of the process is fully automated and managed by sophisticated software, making it simple to go from CAD to part.

Change materials in under a minute

Changing materials in laser-based systems poses safety risks and can take a week or more. The Studio printer was designed with safe-to-handle, swappable media cartridges and quick release print heads for seamless material changes.

Office-friendly sintering

Easily swappable aluminum gas canisters and optional hook-ups for house gas make it simple to manage gas. The system automatically detects levels and gas type, dispatching notifications if there is an issue. Built-in effluent filters, binder cold traps, and safety fail safes keep the system safe to use on the shop floor.

Expert metallurgy built-in

Designed with the world's foremost metallurgists, the Studio System combines unique materials profiles with part data to construct sintering plans for every part. Closed loop thermal control enables real-time heating regulation throughout the sintering cycle, ensuring every part is uniformly heated and cooled.

Materials

- Designed with the world's foremost metallurgists, the Studio System combines unique materials profiles with part data to construct exact print and sinter plans for every part. Bulk sintering and careful process controls enable mechanical properties similar to traditional metalworking processes.
- By enabling the use of metal powders from the MIM industry, our system has access to a wide range of existing materials, from steels to copper and titanium.
- While changing materials in a laser-based system poses safety risks and can take a week or more, the Studio printer was designed with safe-to-handle, swappable media cartridges and quick release print heads for seamless material changes.

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