

SYSTEM OVERVIEW

# Easy-Adopt Metal 3D Printing Comparison



Metal 3D printing is poised to launch the next revolution in manufacturing, with benefits that stretch from the factory floor to international supply chains. At Desktop Metal, we’re leading the way with two print-and-sinter metal 3D printing technologies that prioritize ease-of-adoption and pair with the Desktop Metal Furnace for a production-ready process. Here’s an overview of our two plug-and-play options to get started with metal 3D printing today.

	Desktop Metal Studio System™	Desktop Metal Shop System™
Technology	Bound Metal Deposition Extrudes metal rods into complex shapes layer-by-layer. Hand-stable green parts are sintered in a furnace for final densification	Binder Jetting Deposits powder into thin layers followed by binder, similar to printing on a sheet of paper. Delicate green parts are sintered in a furnace for final densification
Process steps	Print, sinter (depending on material a solvent debinding process may be required before sintering)	Print, crosslink, depowder, sinter
Feedstock	Hot-swappable, push-to-release, user refillable cartridges of pre-bound metal and binder rods	Desktop Metal engineered powders and processing parameters, optimized to deliver exceptional part quality and ensure part-to-part repeatability
Materials qualified	17-4 PH, 316L, 4140, A2, Copper, D2, H13, IN625, Ti64	17-4 PH, 304, 316L, Cobalt Chrome, IN625
Software	Live Studio™ enables a simple and seamless workflow from digital file to sintered part. It integrates with the Studio System printer and furnace to reduce operator burden, ensure process efficiency, and automatically optimize fabrication of high-quality metal parts	Live Build MFG™ is an intuitive and powerful tool to prepare 3D model and ensure build success with automatic nesting, support generation, and slicing in a simple-to-use platform. Live Sinter™ provides predictable sintering outcomes with significantly improved dimensional accuracy
External dimensions of printer	94.8 x 82.3 x 52.9 mm (37.3 x 32.4 x 20.8 in) plus Desktop Metal furnace	1,990 x 760 x 1,630 mm (78.3 x 29.9 x 64.2 in) plus Desktop Metal crosslink oven, depowder station, and furnace
Weight	97 kg (214 lbs)	450 kg (992 lbs)
Build size - envelope	300 x 200 x 200 mm (12 x 8 x 8 in)	
Part min (x, y, z)	6 x 6 x 6 mm (0.24 x 0.24 x 0.24 in)	
Part max (x, y, z)	110 x 110 x 110 mm (4.3 x 4.3 x 4.3 in)	350 x 222 x 50 - 200 mm (13.8 x 8.7 x 2.0 - 7.9 in)
Part weight max	6.5 kg (14.3 lbs) green state	
Layer height	50 - 150 µm high resolution printhead 150 - 300 µm standard resolution printhead	50 - 150 µm
Wall thickness	1 - 5.25 mm thick, obeying the 8:1 aspect ratio	
System throughput	Prototyping, batch production 16 cc/hr	Prototyping, batch production, low-mid volume production 800 cc/hr
Supports structures	Separable Supports™ via a ceramic release layer interface technology are automatically printed and can be broken away by hand after sintering	Parts are fully supported in the powder bed, requiring only sintering setters when necessary. Live Sinter develops distorted geometries that can dramatically reduce or eliminate the cost of printing such setters
Final part quality	98% density, similar to cast parts. Employing an extrusion-based process, layer lines are typically visible and part surfaces are similar to cast part surfaces	Up to 99% density, ±2.0% dimensional tolerance with tighter tolerances achievable through the use of Live Sinter sintering simulation and compensation software