

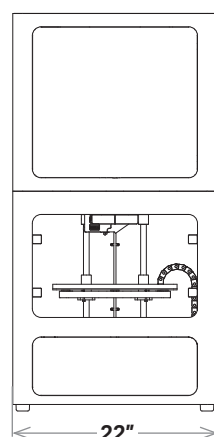
PRODUCT SPECIFICATIONS

Metal X

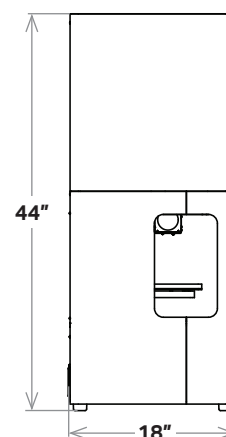
The Metal X is a revolutionary 3D printer that prints metal powder bound in a plastic matrix to eliminate safety risks associated with traditional metal 3D printing methods while enabling new features like close-cell infill for reduced part weight and cost. It's up to 10x less expensive than alternative metal additive manufacturing technologies — and up to 100x less than traditional fabrication technologies like machining or casting. Affordable, reliable, and easy to use, the Metal X print system gives you everything you need to go from design to fully functional metal parts faster than ever before.

Printer Properties	Process	Atomic Diffusion Additive Manufacturing (ADAM)
	Build Volume	300 x 220 x 180 mm (11.8 x 8.7 x 7.1 in)
	Machine Size	575 x 467 x 1,120 mm (22.7 x 18.4 x 44.1 in), 75 kg (160 lbs)
	Print Chamber	Heated
	Print Bed	Heated, vacuum-sealed print sheet, auto bed leveling
	Print System	Two nozzles — Metal material and release material
	Power Requirements	100–240 VAC, 2,400 W (20 A peak), IEC 60320 type C20
Materials	Metal Material	Stainless steel (17-4 PH, 316L*), Tool steel (H13, A2, D2), Inconel 625, Titanium-6Al-4V*, Copper*
	Release Material	Ceramic (consumed at 1:10 ratio to metal spools, on average)
	Media (Spools)	Filament fed, bound powder
Part Properties	Max Part Size	250 x 183 x 150 mm (9.8 x 7.2 x 5.9 in), 10kg
	Supports	Metal material with ceramic release layer
	Layer Height	50µm and 125µm post-sinter
Software	Supplied Software	Eiger Cloud (Other options available at cost)
	Security	Two-factor authentication, org admin access, single sign-on

FRONT VIEW



SIDE VIEW



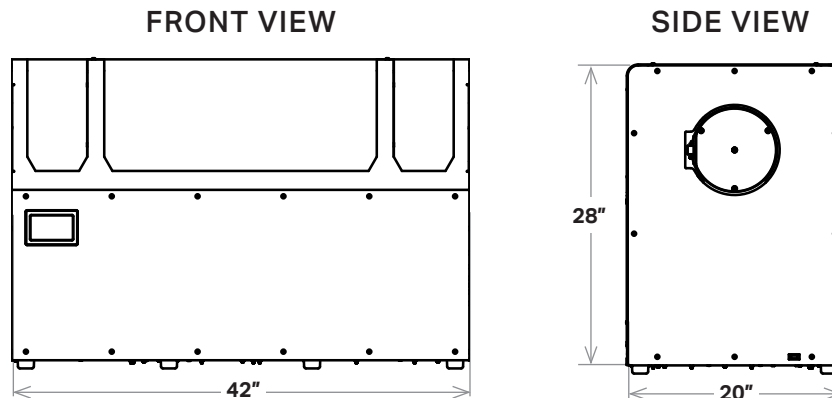
* Materials currently under development. **Note:** All specifications are approximate and subject to change without notice.

PRODUCT SPECIFICATIONS

Sinter-1

The Markforged Sinter-1 is a high-performing, high-value furnace that is ideal for small batch production. Built on 30 years of Metal Injection Molding (MIM) technology, it's affordable and reliable. Featuring 4,760 cm³ of active hot zone, the Sinter-1 effortlessly converts washed parts into their high-quality dense final metallic form in as few as 26 hours.

Furnace Properties	Materials Supported	Chemically debound Metal X-printed parts
	Heating Element	Kanthal
	Controller	Pre-programmed automatic cycling
	Sinter Run Time	26 hours*
	Peak Internal Temp.	1,300° C / 2,372° F
	Sintering Capacity	Rectangle w/radius top — 141 mm ID x 305 mm L (5.55 in ID x 12 in L)
	Sintering Workload	3,020 cm ³ (184 in ³)
	Sinter Surface Area	348 cm ² (53.9 in ²) for single ceramic setter plate
	Setter Plate Dimensions	11.4cm W x 30.4cm D, (4.5in W x 12.0in D)
	Gas Types	Argon, argon / hydrogen mix
	Retort	High purity refractory retort (carbon-free)
	Safety & Installation	Environmental Req.
Power		200–240 V single phase 36A, recommend wiring 50A
Physical Dimensions	External Dimensions	1,067 x 505 x 720 mm (42 x 20 x 28 in)
	Weight	136 kg (300 lbs)



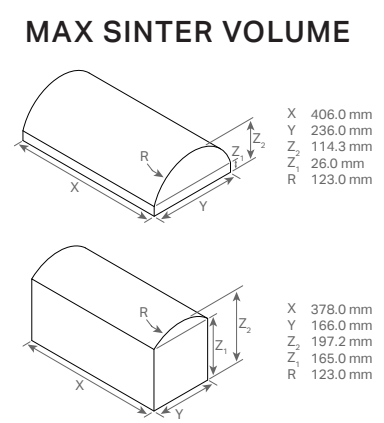
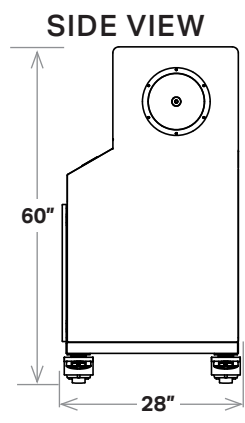
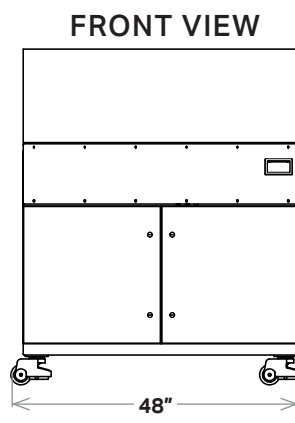
*May vary by material. **Note:** All specifications are approximate and subject to change without notice.

PRODUCT SPECIFICATIONS

Sinter-2

With an expansive active hot zone (19,644 cm³ / 1,199 in³), the Sinter-2 is the perfect solution for mid-volume batch production and for larger parts. Create high-purity metal parts by using sintering technology built with a carbon-free retort. This workhorse furnace is enabled with rapid cooling technology and can process the full range of commercial-grade metals from their washed state into dense metal parts in as few as 30 hours.

Furnace Properties	Materials Supported	Chemically debound Metal X-printed parts	
	Heating Element	Kanthal	
	Controller	Pre-programmed automatic cycling	
	Sinter Run Time	30 hours*	
	Peak Internal Temp.	1,300° C / 2,372° F	
	Sintering Capacity	Rectangle w/radius top — 248 mm ID x 406 mm L (9.8 in ID x 16 in L)	
	Sintering Workload	12,135 cm ³ (741 in ³)	
	Sintering Surface Area	1,644 cm ² (254.8 in ²) for stackable ceramic setter plate	
	Setter Plate Dimensions	Top plate: 24.0cm W x 41.0cm D, (9.4in W x 16.1in D) Bottom plate: 17.0cm W x 41.0cm D, (6.7in W x 16.1in D)	
	Gas Types	Argon, argon / hydrogen mix	
	Retort	High purity refractory retort (carbon-free)	
	Safety & Installation	Environmental Req.	External exhaust (100–150 CFM)
		Power	200–240 V, 3 phase (3 wire), 30 A 346–416 V, 3 phase (4 wire), 30 A
Physical Dimensions	External Dimensions	1,200 x 700 x 1,500 mm (48 x 28 x 60 in)	
	Weight	350 kg (772 lbs)	



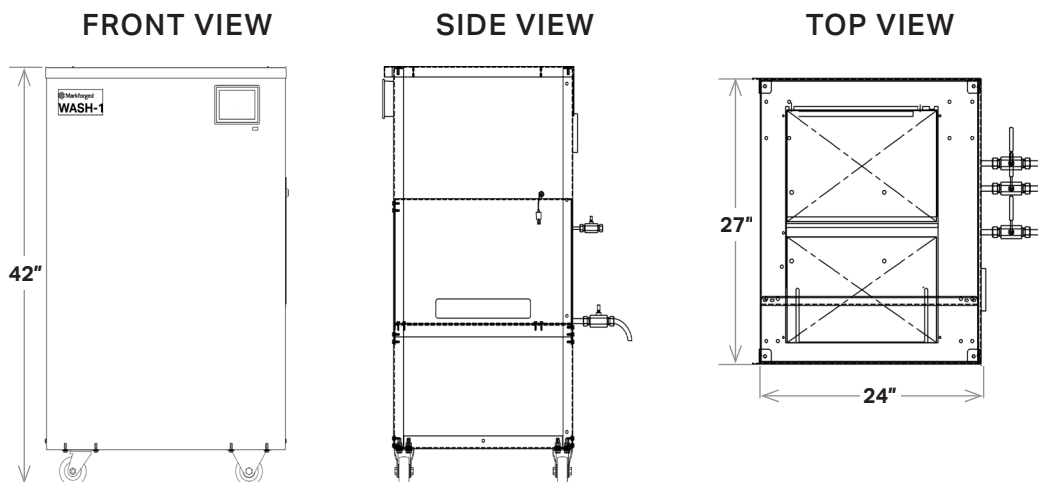
*May vary by material, operating environment, run mass, electrical frequency, etc.. **Note:** All specifications are approximate and subject to change without notice.

PRODUCT SPECIFICATIONS

Wash-1

The first step in transforming a printed “green” part into fully dense metal is debinding. The Wash-1 immerses the green part in a specialized fluid which dissolves the primary binding material, leaving the part semi-porous so the remaining binder can easily burn off during sintering. This debinding step purifies the final metal part and helps keep your sintering furnace clean.

Debinder Properties	Materials Supported	All metals
	Fluid (Solvent)	Opteon SF79
	Controller	Integrated control system
	Workholding	Stainless steel basket
	Washing Size	356 x 254 x 203 mm (14 x 10 x 8 in)
	Washing Volume	18,356 cm ³ (1,120 in ³)
Safety & Installation	Environmental Req.	External exhaust
	Safety Control	Low fluid shutoff control High vapor pressure shutoff control
	Regulatory	Refer to MSDS
	Emissions	Low emission design to conserve solvent
	Power	120/240 VAC single phase, 15 A / 1,650 W peak draw
	Physical Dimensions	External Dimensions
Weight		136 kg (300 lbs)



Note: All specifications are approximate and subject to change without notice.