Markforged Composite 3D Printers

Markforged offers a smart, scalable additive manufacturing platform designed to seamlessly fit into your operation. Markforged has manufactured and distributed best-in-class industrial and desktop composite printers built around Continuous Fiber Reinforcement (CFR) since 2014.

The Digital Forge Platform includes Eiger software, built for scale — delivering a single user-experience, digital part repository, and fleet management across the entire Markforged portfolio.

Carbon Fibre Strength

Only Markforged offers CFR: a groundbreaking technology designed to fabricate parts as strong as and capable of replacing machined aluminum today.

Accurate and Reliable

Markforged composite 3D printers reliably yield accurate parts with excellent surface finish. Their precision-machined hardware, advanced sensors, and unique software drive first-class customer results.

Built for Functional Requirements

Whatever your functional requirements - flame resistance, chemical resistance, energy absorbance, precision, or speed - our composite printers have an industrial material or print mode capable of fabricating a functional part for you.

Materials

+ Onyx
+ Onyx FR (UL94 V0 Rated)
+ Onyx ESD (ESD Safe)
+ Nylon
+ Nylon White Food Safe
+ ULTEM™ 9085 Filament
+ Vega (PEKK)
+ TPU 95A
+ PLA
+ Stainless Steel 17-4PH
+ Stainless Steel 316L

Continuous Fibres

+ Carbon Fibre
+ Carbon Fibre FR
+ Fiberglass
+ HSHT Fiberglass
+ Aramid Fibre (Kevlar)

Markforged

FFF Printer Comparison

Desktop
Reliable entry-level machines. Accurate parts with good surface finish. Prints with standard materials.

Industrial
Industrial-grade machines with large build envelope and in-chamber sensors for optimized performance. Superior accuracy, resolution, and speed. Full industrial material portfolio.

	Onyx Pro™	Mark Two™	X7™	FX10™	FX20™
Process					
Fused Filament Fabrication	Thermoplastic-based filaments are heated and extruded through a nozzle in discrete layers				
Continuous Fiber Reinforcement	Continuous fibers laid down in-layer, reinforcing FFF infill to aluminum-strength				
Engineering Thermoplastics[3]					
Onyx™ (Micro carbon fiber filled nylon)	x	x	x	x	x
Onyx ESD™			x	x	x
Onyx FR™[2]			x	x	x
Nylon White		x	x	x	
Nylon White Food Safe				x	
Precise PLA	x	x	x		
Smooth TPU 95A	x	x	x		
ULTEM™ 9085 Filament[1]					x
Vega™ (Micro carbon fiber filled PEKK)					x
Continuous Fibers[3]					
Continuous Fiberglass	x	x	x		x
Continuous Carbon Fiber		x	x	x	x
Continuous Carbon Fiber FR[2]			x		x
High Temperature Carbon Fiber[1]					x
Continuous HSHT Fiberglass		x	x		
Continuous Aramid Fiber (Kevlar®)[4]		x	x		x
Advanced Features					
Out-of-Plastic Detection	x	x	x	x	x
Out-of-Fiber Detection			x	x	x
Fiber Jam Detection	x	x	x	x	x
Adaptive Bed Leveling			x	x	x
Automated Bed Leveling				x	x
Micron Precision Linear Encoders					x
Print Speed (default Z resolution)	1x	1x	1x	3x	3x
Turbo Print Speed	4x	4x	4x	8x	8x
Inspection (compatible)			x	x	
Hardware					
Build Volume	320 x 132 x 154 mm, 6.5 L (12.6 x 5.2 x 6.0 in)		330 x 270 x 200 mm, 17.8 L (13.0 x 10.6 x 7.9 in)	375 x 300 x 300, 33.8 L (14.8 x 11.8 x 11.8 in)	525 x 400 x 400 mm, 84 L (20.7 x 15.7 x 15.7 in)
Print Bed	Flat to within 160 µm; Kinematic coupling Manual shim leveling		Flat to within 80 µm; Kinematic coupling Manual laser-assisted leveling	Heated, Precision-ground aluminum vacuum bed, Auto leveling	Precision ground aluminum vacuum bed Auto leveling
Z Resolution Range	100 - 250 µm		50 - 250 µm	125-250 µm	50 - 250 µm
Build Chamber	Not heated			Heated up to 60ºC	Heated up to 200ºC
Material Storage	Outboard dry box	Inboard dry box		Humidity controlled material drawer, 4 spool bays	
	800cc spool		800cc spool	800cc spools	800cc or 3200cc spools
Supports	Same material breakaway supports				Same material breakaway supports (Onyx) Dedicated breakaway support (Ultem™ Filament and Vega)
Infill	Closed-cell infill; Multiple geometries available				
Specifications					
Storage	Cloud included; Offline available				
Power	100-240 VAC, 150W (2A peak)			100-120 VAC, 12A or 200-240 VAC, 6A	200-240VAC 3P+E, 24A or 347-416VAC 3P+N+E, 14A; 8 kW
Weight	16 kg (35 lb)		48 kg (106 lb)	109 kg (240 lb)	530 kg (1170 lb)
Footprint	584 x 330 x 355 mm (23 x 13 x 14 in)		584 x 483 x 914 mm (23 x 19 x 36 in)	760 x 640 x 1200 mm (30in x 25in x 46in)	1325 x 900 x 1925 mm (52 x 36 x 76 in)

PRODUCT SPECIFICATIONS

Metal X (Gen 2)

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**	Metal fused filament fabrication
	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) Touchscreen: 12 cm (4.7 in) horizontal extension
	Print Chamber	Heated
	Print Bed	Heated, vacuum-sealed print sheet, auto bed leveling
	Print System	Two nozzles — Metal material and release material
	Power Requirements	100–120 / 200-240 VAC (12A / 6A), IEC 60320 type C20
	RF Module	Operating Band 2.4 GHz Wi-Fi Standards 802.11 b/g/n
Materials	**Metal Material**	Stainless steel (17-4 PH), Tool steel (H13, A2, D2), Inconel 625, 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

44"

22"

18"

Touchscreen extends 12cm (4.7 in) horizontally from front face of printer.
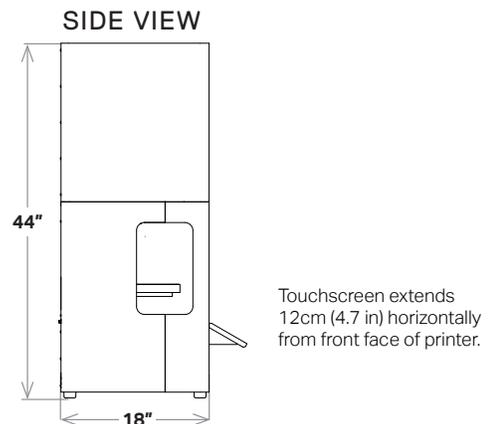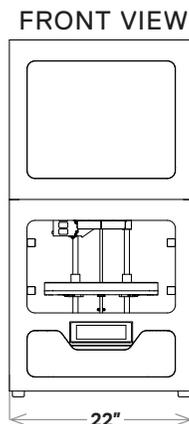
Note: All specifications are approximate and subject to change without notice.

PX100 Machine Specifications

The PX100 is a precise, reliable Binder Jetting machine built on nearly two decades of proven excellence, combining production speed additive fabrication with industry leading part resolution. It comprises one part of the PX100 system, which includes powder handling machines and furnaces to deliver end to end production capabilities. The system is highly configurable and has a wide range of available materials.

Outstanding productivity

→ Capable of print speeds up to 1,000 cm³ per hour
→ Printhead with 70,400 nozzles delivering 2pL droplets at 15.5 kHz
→ Easily exchangeable powder magazine for fast material & build changeover

Detailed precision and quality

→ Static accuracy better than 1μm
→ 1600 dpi resolution with industry leading accuracy and repeatability
→ Robust machine design minimizes downtime and unscheduled stops

Built for your needs

→ Fully customizable, open system
→ Equipped for future updates, such as inertization and automation modules
→ Optimized powder utilization: close to 100% of excess powder is recycled

Printing System	Page-wide print system with 70,400 ink nozzles
Machine Footprint	2700 x 1000 x1700 mm (L x W x H)
Build Volume	250 × 217 × 70 mm or 250 × 217 × 186 mm (L x W x H)
Weight	2000 kg
Typical Productivity	500 – 1,000 cm3 /h
Accuracy	Static accuracy better than 1μm
Power Consumption	3.5 kW (average)
Material Deposition	Recoating with powder applicator
Material Recirculation	Yes, with no degradation

Available Materials

17-4PH Stainless Steel

316L Stainless Steel

4140 Steel

H13 Tool Steel

D2 Tool Steel

Alloy 247

Alloy 625

Alloy 718

Copper

Ti6Al4V