Formlabs Fuse Series

Quick Stats

	Fuse 1	**Fuse 1+ 30W**
Technology	Selective Laser Sintering	Selective Laser Sintering
Build Volume (W x D x H)	165 x 165 x 300 mm 6.5 x 6.5 x 11.8 in	165 x 165 x 300 mm 6.5 x 6.5 x 11.8 in
Layer Thickness	110 microns 0.004 in	110 microns 0.004 in
Build Speed (20% packing density)	0.3 liter per hour	0.5 liter/hour
Laser Type	Ytterbium Fiber	Ytterbium Fiber
Laser Spot Size (FWHM)	200 microns (0.0079 in)	247 microns (0.0097 in)
Material Refresh Rate	30% – 50%	30% – 50%

Printing Properties

Technology	Selective Laser Sintering	Selective Laser Sintering
Build Volume (W × D × H)	165 x 165 x 300 mm 6.5 × 6.5 × 11.8 in	165 x 165 x 300 mm 6.5 × 6.5 × 11.8 in
Layer Thickness (Axis Resolution)	110 microns .004 in	110 microns .004 in
Hopper Capacity	17.8 Liters	14.5 Liters
Material Refresh Rate	30 – 50 %	30 – 50 %
Dimensions	685 x 645 x 1065 mm	685 x 645 x 1065 mm
Supports	No supports	No supports

Hardware

Hardware	Fuse 1	Fuse 1+ 30W
Minimum Access Dimensions (W × D × H)	125.5 × 149.5 × 187.0 cm 49.4 × 59.0 × 73.6 in	125.5 × 149.5 × 187.0 cm 49.4 × 59.0 × 73.6 in
Printer Dimensions(W × D × H)	64.5 × 68.5 × 107 cm (165.5 cm with stand) 25.4 × 27.0 × 42.0 in (65.0 in with stand)	64.5 × 68.5 × 107 cm (165.5 cm with stand) 25.4 × 27.0 × 42.0 in (65.0 in with stand)
Weight	114 kg (without build chamber or powder) 251.3 lb (without build chamber or powder)	120 kg (without build chamber or powder) 265 pounds (without build chamber or powder)
Startup Time	< 60 minutes	< 60 minutes
Operating Environment	18 – 28 ºC 68 – 82 ºF ≤ 50% ambient humidity	18 – 28 ºC 68 – 82 ºF ≤ 50% ambient humidity
Internal Temperature	200 ºC 392 ºF	200 ºC 392 ºF
Temperature Control	Quartz tube heating elements Positive temperature coefficient (PTC) cartridges	Quartz Tube Heating Elements Resistive Air Heater
Air Handling	Pressure-controlled two-stage filtration (Replaceable HEPA and carbon mediums)	Interface to external inert gas supply Pressure controlled two-stage filtration (Replaceable HEPA and carbon mediums)
Power Requirements	EU: 230 VAC, 7.5 A (dedicated circuit) US: 120 VAC, 15 A (dedicated circuit)	EU: 230 VAC, 7.5 A (dedicated circuit) US: 120 VAC, 15 A (dedicated circuit)
Galvanometers	Formlabs Custom	Formlabs Custom 2nd Generation
Laser Specifications	Ytterbium Fiber IEC 60825-1:2014 certified 1070 nm wavelength Maximum 10 Watts 4.01 mrad beam divergence (nominal, full angle)	Ytterbium Fiber IEC 60825-1: 2014 certified 1070 nm wavelength Maximum 30 Watts 3.24 mrad beam divergence (nominal, full angle)
Laser Spot Size (FWHM)	200 microns 0.0097 in	247 microns 0.0097 in
Radiation Information	The Fuse 1 is a Class 1 Laser product. Accessible radiation is within Class 1 limits.	The Fuse 1 is a Class 1 Laser product. Accessible radiation is within Class 1 limits.
Connectivity	Wi-fi (2.4GHz + 5GHz) Ethernet (100 Mbit) USB 2.0	Wi-fi (2.4GHz + 5GHz) Ethernet (100 Mbit) USB 2.0
Printer Control	10.1" interactive touchscreen 1280 × 800 resolution	10.1" interactive touchscreen 1280 × 800 resolution
Alerts	Touchscreen alerts and tracking SMS/email via Dashboard Live video feed with computer vision Proactive maintenance alerts	Touchscreen alerts and tracking SMS/email via Dashboard Live video feed with computer vision Proactive maintenance alerts

Software

Software	Fuse 1	Fuse 1+ 30W
Print Preparation	PreForm Desktop Software	PreForm Desktop Software
System Requirements	Windows 7 (64-bit) and up Mac OS X 10.12 and up OpenGL 2.1 4 GB RAM (8 GB recommended)	Windows 7 (64-bit) and up Mac OS X 10.12 and up OpenGL 2.1 4 GB RAM (8 GB recommended)
Hardware Requirements	Fuse 1 generation 3D Printer	Fuse 1 generation 3D Printer
File Types	• .STL, .OBJ, or .3MF • FORM file output	• .STL, .OBJ, or .3MF • FORM file output

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Formlabs Fuse Sift and Fuse Blast

Properties

	Fuse Sift	Fuse Blast
Printer Compatibility	Fuse Series SLS 3D Printers	Fuse Series SLS 3D Printers Third-party powder bed fusion 3D printers
Minimum dimensions for convenient access (W × D × H)	221.1 × 122.0 × 218.0 cm 87.1 × 48.0 × 85.8 in	145 × 150 × 210 cm 57.4 × 59.6 × 82.6 in
Product dimensions (W × D × H)	101.5 × 61.0 × 154.5 cm 39.9 × 24.0 × 60.8 in Height when open: 190 cm (75 in)	100 × 75 × 175 cm 39 × 29.6 × 68.7 in Height when open: 195 cm (76.8 in)
Product weight	93 kg (without build chamber or powder) 205 lb (without build chamber or powder)	164 kg (without blasting media) 360 lb (without blasting media)
Hopper capacity	Fresh Powder Hopper Capacity 17 liters Used Powder Hopper Capacity 18 liters	Media hopper capacity 8.3 L, equivalent to 13 kg of 200-300 µm glass media Waste hopper capacity 10.6 L
Operating environment	18 – 26 ºC 68 – 80 ºF ≤ 50% ambient humidity	10–36 ºC 50–96.8 ºF Elevation up to 7500 ft / 2286 meters
Air handling	Negatively pressurized hood with replaceable HEPA filter Independent venting system	Negatively pressurized hood with replaceable HEPA filter Independent venting system
Power requirements (with a vacuum that draws less than 6 A (230 VAC) / 12 A (120 VAC))	EU: 230 VAC, 7.5 A (dedicated circuit) US: 120 VAC, 15 A (dedicated circuit)	EU: 230 VAC, 3 A (no dedicated circuit or vacuum required) US: 120 VAC, 6 A (no dedicated circuit or vacuum required)
Power Requirements (with a vacuum that draws more than 6 A (230 VAC) / 12 A (120 VAC))	EU: 230 VAC, 10 A (dedicated circuit) US: 120 VAC, 20 A (dedicated circuit)	N/A
Vacuum requirement	Auxiliary vacuum with static dissipative components that is grounded and bonded (e.g., a NFPA 652 compliant vacuum)	No vacuum required
Compressed air requirements	N/A	Supply at least 10 SCFM at 90 PSI / 285 SLPM at 6 bar. Regulate pressure input between 90-120 PSI / 6-8 bar. Typically achieved by a single 4 HP compressor.

Connectivity	Wi-Fi (2.4 GHz) Ethernet (1000 Mbit) USB 2.0	Wi-Fi: 2.4 GHz Ethernet: 1000 Mbit USB: 2.0
Wi-Fi connectivity	Protocol: IEEE 802.11 b/g/n Frequency: 2.4 GHz Supported security: WPA/WPA2	Protocol: IEEE 802.11 b/g/n/ac Frequency: 2.4 / 5.0 GHz Supported security: WPA/WPA2
Ethernet connectivity	RJ-45 Ethernet (10BASE-T/100BASE-TX/1000BASE-T) LAN port Connect with a shielded Ethernet cable (not included): minimum Cat5, or Cat5e or Cat6 for 1000BASE-T.	RJ-45 Ethernet (10BASE-T/100BASE-TX/1000BASE-T) LAN port Connect with a shielded Ethernet cable (not included): minimum Cat5, or Cat5e or Cat6 for 1000BASE-T.
USB connectivity	USB (rev 2.0) B port with a USB A-B cable	USB (rev 2.0) C port with a USB A-C or C-C cable
Sound emission	Does not exceed 76.5 dB(A)	Does not exceed 75 dB(A).
Product control	Interactive touchscreen, physical buttons	Interactive touchscreen, foot pedals for manual control.
Build Chamber Dimension	27.9 × 34.2 × 48.9 cm 11.0 × 13.5 × 19.3 in	N/A
Build Chamber Weight	11 kg (17.6 kg, full with 20% packed powder) 24.3 lb (38.8 lb, full with 20% packed powder)	N/A
Included Accessories	Large Brush Small Brush x 2 Pipe Cleaners Dental Picks Gloves Dust Mask Safety Glasses Vacuum Brush Tool Vacuum Crevice Tool Lifting Straps	Transfer container Control pedals ESD wrist strap 7mm socket wrench Blast orifice (3mm) Blast orifice (4mm - installed) T-20 driver Floor mat
Tumbling Basket dimensions	N/A	Internal diameter: 450mm / 17.7" Opening diameter: 345mm / 13.6" Basket depth: 250mm / 9.8" Basket is removable without tools. Fits a full Fuse build volume.
Internal work area (W x D x H)	N/A	71 x 55 x 67 cm 27.9 x 21.6 x 26.3 in
Accessible work area (W x D x H)	N/A	57 x 50 x 67 cm 22.4 x 19.6 x 26.4 in (basket removed)

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