The Fuse 1 SLS Ecosystem

High Performance Selective Laser Sintering Within Reach

formlabs

Fuse 1

A new wave of independent manufacturing and prototyping starts now with the Fuse 1.

Bring production-ready selective laser sintering (SLS) 3D printing onto your benchtop.

SLS MADE MANAGEABLE.

Manage production and prototyping in-house, on-demand. The Fuse 1 delivers industrial power in a small footprint with effective powder containment and easy setup.

FAST, SIMPLE PRINT SETUP.

Use Formlabs PreForm print preparation software (free to use) to import STL or OBJ part files, orient and arrange models, estimate print times, monitor your printers, and upload job files.

RELIABLE, CONSISTENT PRINTING.

With patent pending Surface Armor technology, a semi-sintered shell that prints around the surface of the part, the Fuse 1 provides competitive mechanical properties and surface finish without the prohibitive cost or hassle of competitor systems.

DESIGNED FOR NONSTOP THROUGHPUT.

Add a second removable build chamber and additional powder cartridges to enable continuous printing and reduce downtime. Industry leading cooldown times allows you to start a print 1-2 hours after your previous print has finished.

Fuse Sift

The Fuse Sift is a safe, efficient powder recovery system for the Fuse 1. This all-in-one station combines part extraction, powder recovery, storage, and mixing in a single free-standing device.

COMPACT, ENCLOSED SYSTEM

A negative air pressure system keeps powder inside while enabling open access and easy cleanup.

AUTOMATIC POWDER MIXING

Fuse Sift will dispense and mix used and new powder automatically so you can reduce waste and control your powder supply.

LOW WASTE

Fuse Sift's sieve filters out particles to be remixed with new powder and reused in future prints. With the high part packing densities possible on the Fuse 1, this means you can print with little to no material waste.

NONSTOP PRINTING

Reduce downtime by transferring modular build chambers and powder cartridges. between the Fuse 1 and Fuse Sift for a nonstop, cyclical workflow.

Materials

Nylon Powders

3D print production-ready, end-use parts on the Fuse 1 with our family of Nylon Powders*. Our materials, hardware, and software are developed and validated together to deliver peak performance while optimizing cost per part.

NYLON 12 POWDER

A Material That Does It All

Balancing strength and detail, Nylon 12 Powder is a highly capable material for both functional prototyping and end-use production of complex assemblies and durable parts with high environmental stability.

50 MPa
Tensile Strength

11 %
Elongation at break (X/Y)

30 %
Refresh Rate

NYLON 12 GF POWDER

Stiff, Stable, Functional Parts

A glass-filled material with enhanced stiffness and thermal stability for demanding industrial environments. Choose Nylon 12 GF Powder to produce stiff functional prototypes or end-use parts for applications where structural rigidity and thermal stability are critical.

2800 MPa
Tensile Modulus

113 °C
Heat Deflection Temperature @ 1.8 MPa

30-50 %
Refresh Rate

NYLON 11 POWDER

High Performance, High Impact

For highly ductile, robust parts, Nylon 11 Powder is our higher performance nylon material for functional prototyping and small batch production. Compared to Nylon 12 Powder, our Nylon 11 Powder is more flexible, less brittle, and better at printing thin walls.

49 MPA
Tensile Strength

40 %
Elongation at break (X/Y)

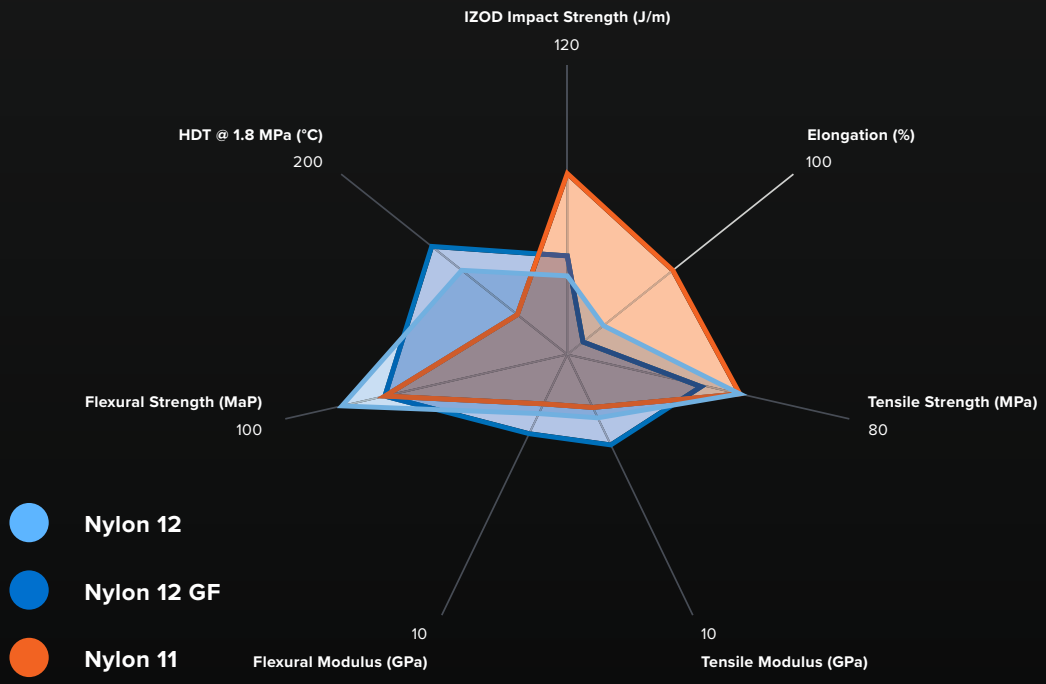
50 %
Refresh Rate

** Nylon powders available now, many other materials in development.*

The Fuse 1 ecosystem offers a range of high-performance materials with complementary properties to meet your needs for functional prototyping and end-use products.

Applications	Nylon 12	Glass-filled Nylon 12	Nylon 11
Jigs & Fixtures	Rigid, impact-resistant	Stiff, static, load-bearing	Ductile, high-impact
Casing, Housings, Enclosures	Balanced stiffness and ductility	Static, mountable	Resilient, Pliable
Hot Fluid/air Flow components	Not recommended	Manifolds, pipings, ducts	Not recommended
Mechanical connectors	Clips and clamps	Threads, sockets	Snap fits, sliding joints
General Parts	Balanced stiffness and ductility	Static, rigid, unyielding	Flexible, resilient

Material Properties



Tech Specs: **Fuse 1**

Technology	Selective Laser Sintering (SLS)
Build Volume	165 x 165 x 300 mm 6.5 x 6.5 x 11.8 in
Layer Thickness	110 microns 0.004 in
Laser Type	Ytterbium Fiber 10W Class 1 Laser Product
Laser Spot Size	200 microns (0.0079 in)
Material Refresh Rate	30% – 50%
Build Chamber	Modular, compatible with Fuse 1 and Fuse Sift
Print Support Structures	No supports necessary
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 optional stand)

Weight	114 kg (without build chamber or powder) 251.3 lb (without build chamber or powder)
Startup Time	60 minutes
Power Requirements	EU: 230 VAC, 7.5 A (dedicated circuit) US: 120 VAC, 15 A (dedicated circuit)
Warranty and Service	One Year Warranty included. Extended Warranty, Standard Service Plan and Premium Service Plan available.
Software Compatibility	Windows 7 and up // Mac OSX 10.6.8 and up
File Type	STL or OBJ

90,000,000 Parts Printed With Formlabs Technology

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