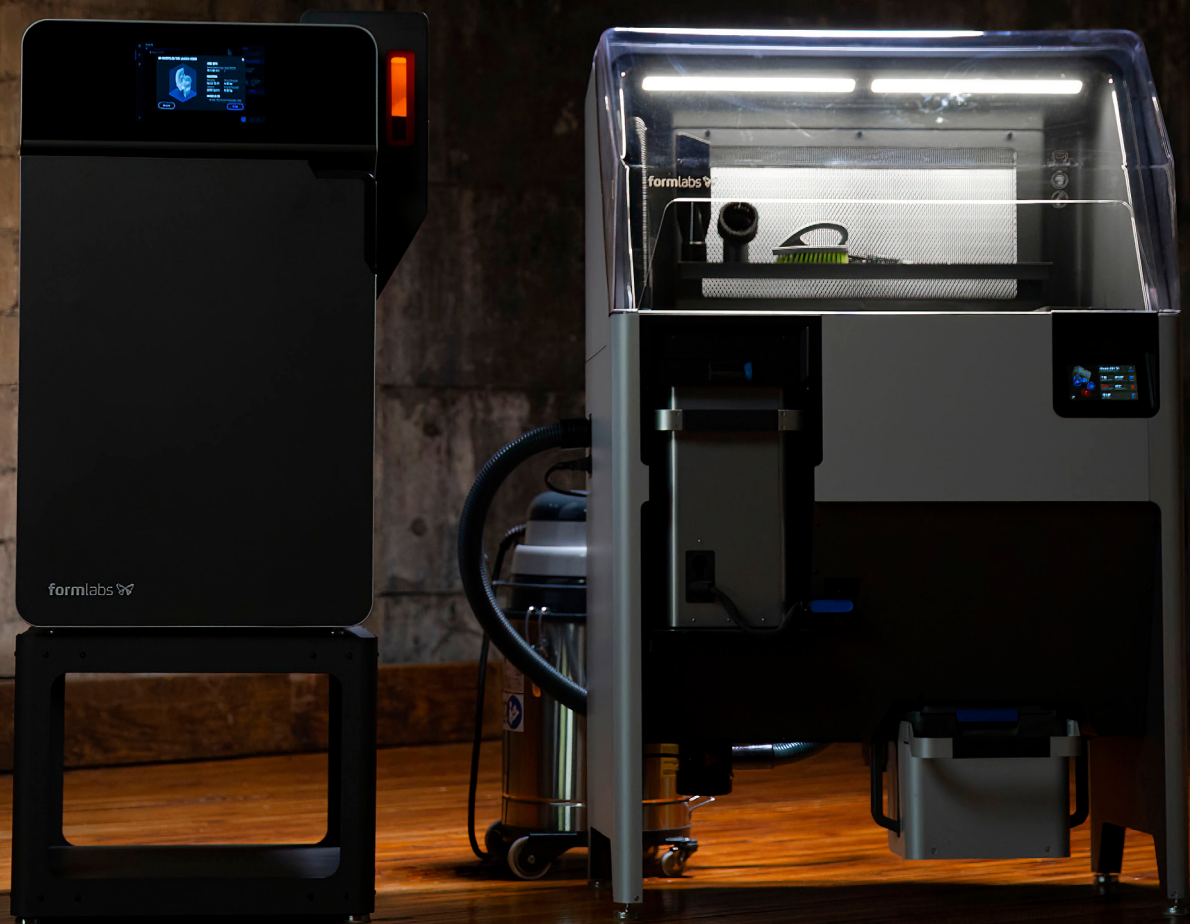




# The Fuse 1+ 30W SLS Ecosystem

High Performance Selective Laser Sintering Within Reach

formlabs 

# Fuse 1+ 30W

Take control of your design and production process with our fastest, most powerful SLS printer yet.

## ZERO WASTE PRINTING

Due to the advanced packing algorithm and improved refresh rates for every material, you can print with an entirely circular workflow - using all your powder for parts, with little to no waste.

## INDUSTRIAL QUALITY PARTS, FASTER THAN EVER

With a more powerful laser and enhanced scanning speed, the Fuse 1+ 30W delivers parts at up to two times the speed as previous generations, allowing designers, engineers, and manufacturers to go from design to finished part overnight.

## DESIGNED FOR NONSTOP THROUGHPUT

Add a second removable build chamber to start a new print only 1-2 hours after your first production round finishes, increasing your production capacity and enabling continuous printing.

## RELIABLE, ACCESSIBLE, STREAMLINED

The Fuse 1+ 30W printer's inert gas environment ensures that you'll get industrial quality parts, every time, while the user-friendly workflow enables anyone to take ownership over production.



# Fuse Sift

Fully compatible with all Fuse Series printers, the Fuse Sift creates an easy, streamlined workflow for industrial quality post-processing.

## 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.

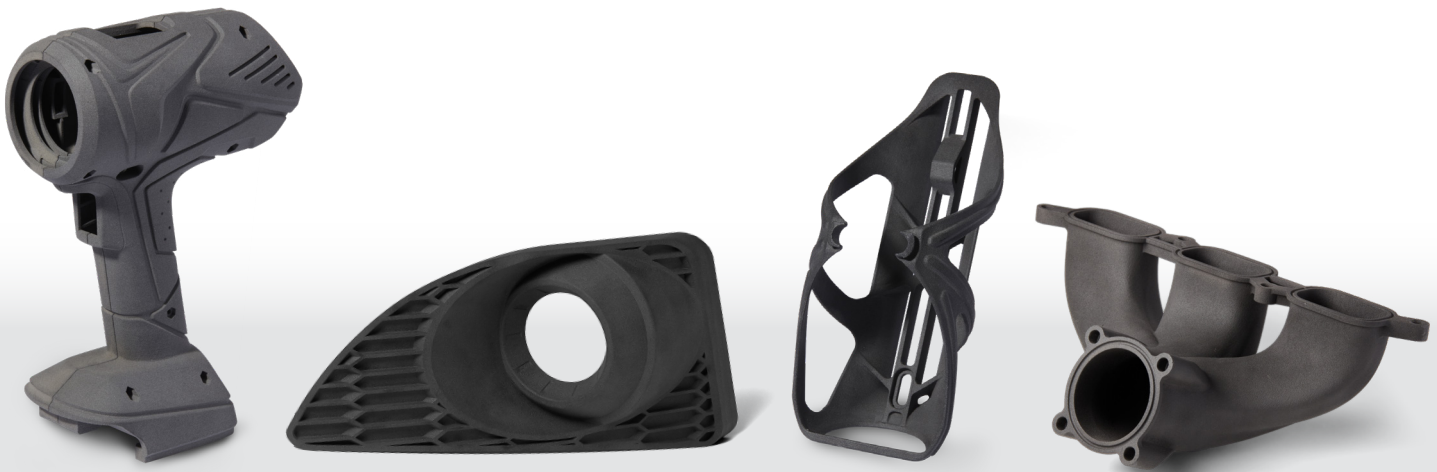
## NONSTOP PRINTING

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



# Materials

3D print production-ready, end-use parts on the Fuse Series with our family of SLS 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.

|                                  |          |
|----------------------------------|----------|
| <b>Tensile Strength</b>          | 50 MPa   |
| <b>Tensile Modulus</b>           | 1850 MPa |
| <b>Elongation at break (X/Y)</b> | 11%      |

## 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.

|                                       |          |
|---------------------------------------|----------|
| <b>Flexural Modulus</b>               | 2400 MPa |
| <b>Tensile Modulus</b>                | 2800 MPa |
| <b>Heat Deflection Temp @ 1.8 MPa</b> | 113 °C   |

## 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.

|                                  |        |
|----------------------------------|--------|
| <b>Tensile Strength</b>          | 49 MPa |
| <b>Izod Impact Strength</b>      | 71 J/m |
| <b>Elongation at break (X/Y)</b> | 40%    |

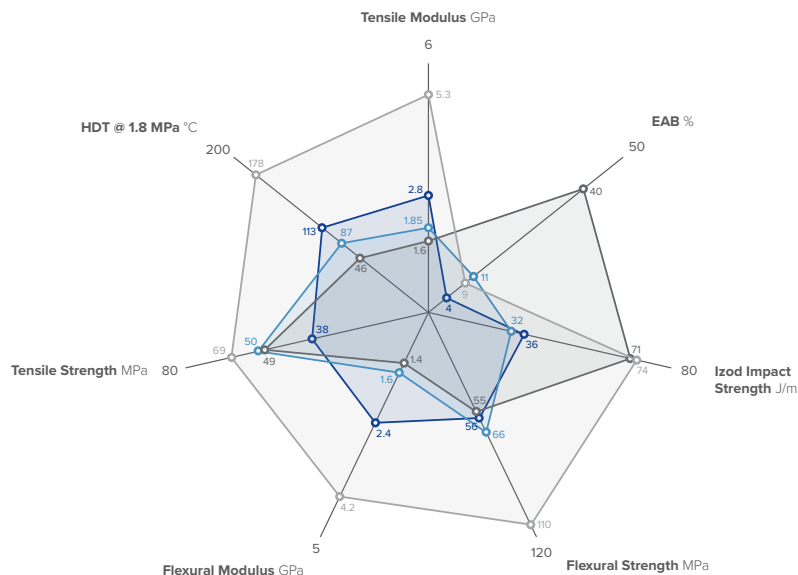
## NYLON 11 CF POWDER

### Stiff, Lightweight Strength Reinforced With Carbon Fiber

Our highest strength material reinforced with carbon fiber, Nylon 11 CF Powder enables end-use production of automotive, aerospace, and other highly rugged applications. Compatible with the Fuse 1+ 30W.

|                                       |          |
|---------------------------------------|----------|
| <b>Tensile Strength</b>               | 69 MPa   |
| <b>Tensile Modulus</b>                | 5300 MPa |
| <b>Heat Deflection Temp @ 1.8 MPa</b> | 178 °C   |

\* SLS Powders available now, many other materials are in development.



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

- **Nylon 12 GF Powder**
- **Nylon 12 Powder**
- **Nylon 11 Powder**
- **Nylon 11 CF Powder**

#### APPLICATIONS

|                               | NYLON 12 POWDER                  | NYLON 12 GF POWDER          | NYLON 11 POWDER           | NYLON 11 CF POWDER               |
|-------------------------------|----------------------------------|-----------------------------|---------------------------|----------------------------------|
| Jigs and Fixtures             | Rigid, impact-resistant          | Stiff, static, load-bearing | Ductile, high-impact      | Stiff, load-bearing, lightweight |
| Casings, Housings, Enclosures | Balanced stiffness and ductility | Static, mountable           | Resilient, pliable        | Rigid, impact-resistant          |
| Hot Fluid/Air Components      | Not recommended                  | Manifolds, pipings, ducts   | Not recommended           | Manifolds, pipings, ducts        |
| Mechanical Connectors         | Clips and clamps                 | Threads, sockets            | Snap fits, sliding joints | Snap fits                        |
| General Parts                 | Balanced stiffness and ductility | Static, rigid, unyielding   | Flexible, resilient       | Strong, unyielding, lightweight  |

## Tech Specs: Fuse 1+ 30W

|                          |                                              |                        |                                                     |
|--------------------------|----------------------------------------------|------------------------|-----------------------------------------------------|
| Technology               | Selective laser sintering (SLS)              | Printer Dimensions     | 64.5 × 68.5 × 107 cm (165.5 cm with stand)          |
|                          | Class 1 Laser Product                        | (W × D × H)            | 25.4 × 27.0 × 42.0 in (65.0 in with optional stand) |
| Build Volume             | 165 x 165 x 300 mm                           | Weight                 | 114 kg (without build chamber or powder)            |
|                          | 6.5 x 6.5 x 11.8 in                          |                        | 251.3 lb (without build chamber or powder)          |
| Layer Thickness          | 110 microns                                  | Startup Time           | 60 minutes                                          |
|                          | 0.004 in                                     |                        |                                                     |
| Laser Type               | Ytterbium Fiber 30W                          | Power Requirements     | EU: 230 VAC, 7.5 A (dedicated circuit)              |
| Laser Spot Size          | 200 microns (0.0079 in)                      |                        | US: 120 VAC, 15 A (dedicated circuit)               |
| Material Refresh Rate    | 30% – 50%                                    | Warranty and Service   | One Year Warranty included.                         |
| Build Chamber            | Modular, compatible with Fuse 1+ 30W, Fuse 1 |                        | Extended Warranty, Standard Service Plan and        |
|                          | and Fuse Sift                                |                        | Premium Service Plan available.                     |
| Print Support Structures | No supports necessary                        | Software Compatibility | Windows 7 and up // Mac OSX 10.6.8 and up           |
|                          |                                              | File Type              | STL or OBJ                                          |

**100,000,000** Parts Printed With Formlabs Technology

