

UniFuse™ IN718 60um 400W Turbine Blade Use Case (Heat Treated)

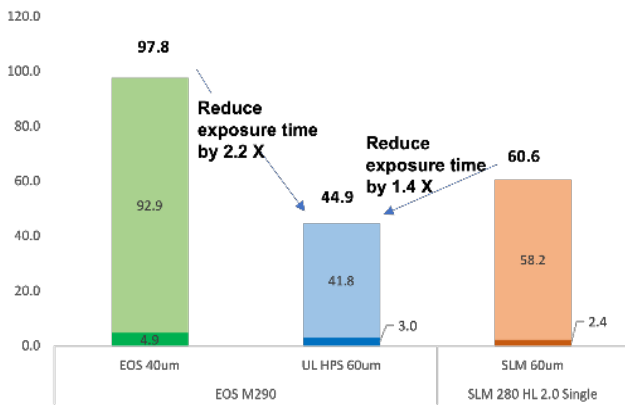
Uniformity Labs powder and scanning provide more repeatable and reproducible mechanical properties across the build bed, as demonstrated by substantially tighter property standard deviations.

UniFuse™ IN718 ultra-low porosity powder and High Performance Scanning, in this example of production printing, **achieves a 2.2X faster exposure time** when compared to competitors' lower layer thickness scan strategies targeting best-in-class mechanical properties. This throughput improvement is typical for UniFuse™ IN718 builds.

UniFuse™ IN718 60um 400W heat treated mechanical properties are **superior** in UTS, YS, Elongation, and density compared to competitors' lower layer thickness and same layer thickness parameter sets.

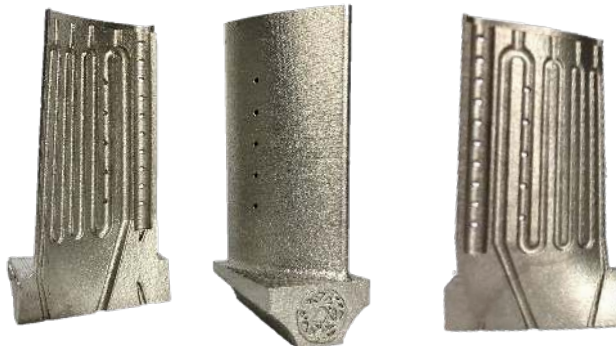
Layer thickness: UL 60um, EOS 40um, SLM 60um
Parts per build: 45
Laser Power: 400W

Single Layer Platform Build Times (Hours)

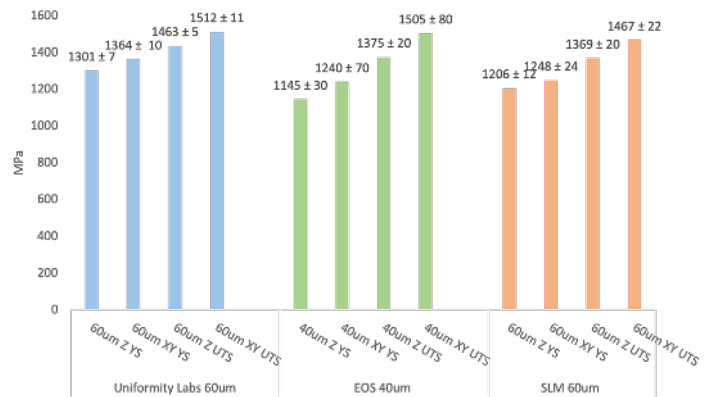


UL Parameters **SLM Parameters** **EOS Parameters**

- Exposure Time ■ Exposure Time ■ Exposure Time
- Recoating Time ■ Recoating Time ■ Recoating Time



Heat Treated Mechanical Performance



Vertical Surface Roughness	Ra (µm)	Sa (µm)
EOS 40um	NA	4 – 5
SLM 60um	6 – 10	NA
Uniformity 60um	6 – 8	5.8 - 7

Elongation	Vertical	Horiz.
	EOS 40um	17 ± 3%
SLM 60um	15 ± 5%	13 ± 5%
Uniformity 60um	13 ± 1.8% ⁽¹⁾	15 ± 0.7%

Density	g/cm ³	%
EOS 40um	≥ 8.15	NA
SLM 60um	8.2	≥ 99.5
Uniformity 60um	8.22	≥ 99.9

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1) Fracture Elongation is 14.1 +/- 0.7% for z-bars when the 4 z-bars located in the corners of the plates, where low airflow is measured, are removed from the data set. The average Fracture Elongation of said 4 coupons located in the corners is 10.5%, with a minimum of 9.0%.