

# MATERIAL SPECIFICATIONS

## PA 640-GSL

### HIGHLIGHTS

- Sharp, dark grey appearance
- Excellent strength to weight ratio properties
- Cost effective, requiring 10% less material per build
- Excellent surface finish and detail

### APPLICATIONS

- Aerospace/UAV components
- Athletic equipment
- Motor sports and racing
- Ideal for applications requiring a balance of strength and lighter weight without sacrificing dimensional stability and surface finish

## TYPICAL PHYSICAL PROPERTIES

PROPERTY	TEST METHOD	U.S. STANDARD	METRIC
Colour/Appearance	Visual	Dark Grey	Dark Grey
Bulk Density	ASTM D1895	0.214 oz/in <sup>3</sup>	0.37 g/cm <sup>3</sup>
Average Particle Size (D50)	Laser Diffraction	0.002 inches	55 microns
Particle Size Range (D10-D90)	Laser Diffraction	0.001 - 0.004 inches	35 - 100 microns
Sintered Part Density	ASTM D792	0.474 oz/in <sup>3</sup>	0.82 g/cm <sup>3</sup>
Heat Detection Temperature	ASTM D648	338°F @ 264 psi	170°C @ 1.82 MPa
Heat Detection Temperature	ASTM D648	356°F @ 66 psi	180°C @ 0.45 MPa
Ultimate Tensile Strength (XY)	ASTM D638	7,170 psi	49 MPa
Ultimate Tensile Strength (Z)	ASTM D638	4,835 psi	33 MPa
Tensile Modulus (XY)	ASTM D638	554,000 psi	3,816 MPa
Tensile Modulus (Z)	ASTM D638	282,000 psi	1,945 MPa
Elongation at Break (XY)	ASTM D638	3%	3%
Elongation at Break (Z)	ASTM D638	3%	3%
Flexural Modulus (XY)	ASTM D790	731,000 psi	5,040 MPa
Flexural Modulus (Z)	ASTM D790	626,000 psi	4,313 MPa

For reference use only. Actual properties may vary significantly from those listed above based on processing parameters, operating conditions and end use applications. The above properties were based on virgin ALM PA 640-GSL using normal processing parameters on a 2500+ platform as outlined in the ALM Material Processing Guide. Advanced Laser Materials, LLC makes no warranties of materials for any application, nor does it make a warranty of any type, expressed or implied, but not limited to, the warranties of merchantability for a particular purpose.



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