

TECHNICAL SPECIFICATIONS

XA60 is a polyester-based TPU (thermoplastic polyurethane), containing a phthalate-free plasticizer. It is the softest filament available on the market today, by far. It is about the flexibility of an inner tube. This material is perfect for that ultra-flexible application: flexible ducting, comfortable wearables*, gaskets, tie downs, draw latches, releasable molds, parts that need to stretch to fit, and so much more.

PROCESSING RECOMMENDATIONS

Nozzle Temperature	°C	180-210
Drying Temperature (2-3 hrs in Dehumidified Air Dryer)**	°C	80
Post-Process Annealing Temperature (24 hrs)	°C	90-100
Print Speed (typical)	mm/s	10-20
Retraction for Travel Moves (typical)	mm	8-10

For optimum results with this material, use a direct drive extruder with a fully supported compression zone.

PROPERTIES	TEST METHOD	UNITS	TYPICAL VALUES
GENERAL			
Specific Gravity	ASTM D792	g/cm ³	1.16
Shore Hardness	ASTM D 2240	Shore A	60A
MECHANICAL			
Tensile Strength	ASTM D412	psi	3400
Elastic Modulus	ASTM D412	psi	740
Flexural Modulus	ASTM D 790	psi	1336
Ultimate Elongation	ASTM D412	%	760
Tensile Stress (@100%/300% Elongation)	ASTM D412	psi	350/690
Tear Strength	ASTM D624, C	lb/in	350
Taber Abrasion	ASTM D 4060	mg loss	45
THERMAL			
Vicat Softening Temperature	ASTM D1525	°C	76
Compression Set (22 h @ 23°C)	ASTM D395 "B"	% applied deflection	20
Compression Set (22h @ 70°C)	ASTM D395 "B"	% applied deflection	35
Melt Flow Index (190°C, 3.8kg)	ASTM D1238/B	g/10min	20-60

The data listed for Diabase Engineering filament is direct from the resin supplier. The actual performance of the material in printed part form will depend significantly on the printer and settings used to deposit the material. In general, slow deposition speeds and higher temperatures (while still within the recommended nozzle temperature range) followed by post-print annealing will yield materials properties close to the listed values.

* Diabase materials are not recommended for direct skin contact or food contact applications.

** Diabase TPU products are less sensitive to moisture than many common 3D printing polymers. However, for optimum performance, drying prior to melt processing is highly recommended.

