

Product Specifications:

Material: ALGIX 3D DURA™ Filament

Color Names	Cosmic Black Benthic Blue Boreal Green Supernova Yellow Magma Red Icecap White
Filament Diameter	1.75 and 2.85 mm



Packaging

Filament Quantity	100 Gram Coil and 375 Gram Spool
Spool Diameter	17.8 cm (7 in)
Spool Width	2.8 cm (1 1/8 in)
Spool Hub Hole	5.2 cm (2 in)

General Information

ALGIX 3D DURA™ filament is the perfect material for your FFF 3D printing needs, because it is easy to use and outperforms conventional PLA and ABS in many areas. DURA™ does not release toxic fumes and does not require a heated bed or heated chamber like ABS. Final parts printed with DURA™ have a very smooth finish where the print layers are nearly invisible. Compared to conventional PLA and ABS, DURA™ has improved toughness, elongation and brittleness. DURA™ has better heat resistance and layer adhesion than PLA and has higher print resolution than ABS. DURA™ filament is made from majority renewable content and is compostable. It also requires a lower printing temperature than ABS, which allows for more energy efficient printing. By special order, DURA™ is available in a formulation made from food grade certified resin.

Professional Production

ALGIX 3D is part of the ALGIX family of companies. ALGIX is a distinguished leader in compounding and additives for the bioplastics industry. Our polymer science expertise and strategic partnerships are driving material innovations and quality. All ALGIX 3D filaments are produced in the Solaplast bioplastic production facility located in Meridian, Mississippi. We source all of the finest raw materials, including resins, pigments and additives in the making of our ALGIX 3D DURA™ filament, so that we can ensure the most consistent and highest quality product for every order. You can expect our polymer scientists to continually develop innovative new materials focused on performance, sustainability and quality.

Quality Control

Our filament extrusion system uses dual axis micrometer measurement systems to check the diameter and roundness during production. This helps us guarantee that each spool of ALGIX 3D filament is produced with a precision tolerance. We can guarantee $\pm 3\%$ on our ALGIX 3D DURA filament, which means you can rest assured that your printer is extruding the exact amount of material without causing jams, clogs and headaches. The ALGIX 3D printing test lab features many popular 3D printers, and we're continuously testing our filament on these 3D printers to monitor quality using advanced statistical practices.

3D Printing Tips

- To achieve the best performance, store DURA™ filament in a cool, dry place as it can absorb moisture from the air, and long-term exposure to high humidity conditions can compromise almost any filament quality and performance.
- Print in an area with good airflow and minimal temperature fluctuations.
- Be sure your build plate is level, clean and oil-free before printing. DURA™ filament adheres well to glass or plastic and does not require a heated build plate or heated chamber like ABS filament.
- If your machine does have a heated build plate, we do advise using it for larger prints set at a temperature of 60°C, and if your machine has a fan, we recommend using it for most prints.
- It is recommended to use a water based glue stick before starting prints to ensure the first layer of the print sticks to the plate.
- This filament will run best at an extrusion temperature of 175-195°C (2.85mm filament usually prints at the higher end of this range).
- If prints appear stringy lower temp in 5°C increments until your prints appear satisfactory.
- For more stability and a higher quality print, consider experimenting with infills of 10-35% as well as print speeds of 50-100 mm/s. Reduce layer height to 0.10mm.
- For prints with curvatures, it is recommended to turn on rafts and supports in your settings.

Competitive Filament Comparison

Physical Properties	DURA™	ABS	Characteristic Effects
Clarity	Opaque	Opaque	Light Transmission of Part
Melting Point (°C)	155	105	Polymer melting temperature
Diameter Tolerances (mm)	± 0.05	*	Variation in filament size
Ovality (mm)	0.06	*	Difference between two diameters measured across the filament's profile
Density (g/cm ²)	1.29	1.04	Density of filament material
Melt Flow Index (195°C)	12.5	2	Viscosity of filament in molten state
Tensile Strength at Yield (MPa)	29	33	The force required to deform
Tensile Elongation (%)	>23	2.98	The amount of stretching before breaking
Tensile Modulus (MPa)	2754	1920	The rigidity or resistance to stretching
Toughness (J)	>0.78	0.12	The amount of energy required to break
Heat Deformation Temp (°C)	120	98	Temperature at which a part will begin to deform after being post annealed
Volatile Compounds Detected	6	35	Number of identified compounds released during 3D printing
Volatiles with Toxicity Concerns	≤ 1♦	11	Number of identified compounds with a toxic health hazard rating according to GHS exceeding the exposure threshold

*Dependent on manufacturer

♦Presence fluctuates and not present in food grade certified resin (available by special order)