



## Graphene Enhanced Super Tough PLA 3D Filament

### Product description

A super tough graphene enhanced PLA monofilament suitable for use in Fused Deposition Modelling (FDM) / Fused Filament Fabrication (FFF) 3D printing machines. The addition of graphene to PLA enhances several properties including strength, thermal conductivity, anti-static and improved dimensional stability.

### TYPICAL PROPERTIES

Property	Unit	Value	Test Method
Specific gravity at 20 °C	g/cm <sup>3</sup>	1.24	
Glass transition temperature (T <sub>g</sub> )	°C	67	DMA, ASTM D4065- 12, 5°C/min, tan delta peak
Heat deflection temperature (HDT)	°C	47.7	ISO75-2:2013, 120°C/hr
Melt flow index (MFI)	g/10mins	5.81	ISO1113-1:2001 Procedure A, 190°C, 2.16kg
Thermal conductivity at 23°C	W/m.K	0.40	Internal method using Modified Transient Plane Source
Volume electrical conductivity at 23°C	S/m	1.3E-14	ASTM D257
Odour		Almost odourless	
Tensile modulus at 23°C (filament, diameter 1.75mm)	MPa	2850	Internal using capstan grips
Tensile strength at 23°C** (filament, diameter 1.75mm)	MPa	52	Internal using capstan grips
Tensile elongation at break at 23°C (filament, diameter 1.75mm)	%	6	Internal using capstan grips
Flexural modulus at 23°C (injection moulded specimens)	MPa	2545	ISO178
Flexural strength at 23°C** (injection moulded specimens)	MPa	76	ISO178
Flexural modulus at 23°C (printed specimens)	MPa	2133	ISO178
Flexural strength at 23°C** (printed specimens)	MPa	67	ISO178

\* Typical properties only, not to be construed as a specification

\*\* Based on maximum measured stress.

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### Characteristics

- Faster and better print quality
- Excellent first layer and z-axis bonding
- Improved dimensional stability
- Easy to post process
- Super tough
- Anti-static
- Relatively high thermal conductivity

### Product Range

Catalogue number	Diameter	Reel weight
ME365918	1.75 mm	~134 m (400 g)
ME365929	2.85 mm	~95 m (750 g)

### Processing information

PLA can be processed on all FDM/ FFF type 3D printers. PLA is typically extruded using a nozzle temperature of 200°C and a heated bed temperature of 58°C is recommended for good first layer adhesion in 3D printing. PLA can be extruded from 170°C, but processing temperatures must never exceed 220°C.

### Storage

PLA is a biodegradable thermoplastic polyester and will absorb moisture over time which can affect product performance. To ensure a good shelf life before use the 3D printing filament and pellets are packaged under a controlled vacuum and sealed to prevent moisture ingress. It is recommended that filament and pellets be kept in cool and dry conditions before use in 3D print melt extrusion and processing.

Properties shown are typical values, they are not absolute material properties, and should be used for guidance only.  
 It is recommended that materials and components are tested for their suitability for a specific application.  
 For more information and advice please discuss your application with our sales staff.

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