Technical Data Sheet

Siraya Tech Flex TPU 85A

Black & White

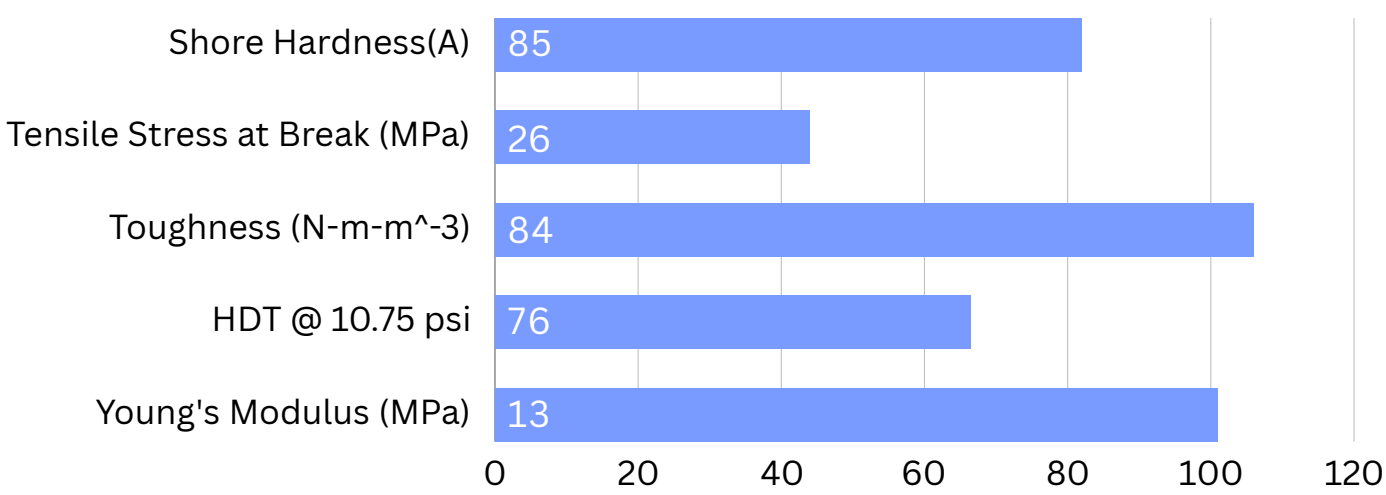
PRODUCT INTRODUCTION

Features of Flex TPU 85A

- **Superior Flexibility:** 85A hardness makes Flex TPU softer to the touch and more flexible.
- **Higher Impact Resistance:** Excellent flexibility makes TPU prints more impact-resistant.
- **Easier Printing:** Enhanced extrusion and adherence for smoother printing.
- **Faster Printing:** Up to 5x speed of similar TPU with quality results.

Applications

- **Wearable Devices:** Such as straps for smartwatches, insoles, etc.
- **Flexible Connectors:** Like hoses, vibration dampening pads, etc.
- **Prototyping:** Design prototyping and rapid iteration.
- **Medical Device Accessories:** Custom wrist braces, supports, etc.
- **Everyday Items:** Phone cases, shock- absorbing pads, protective covers, and more.



Property Data

Mechanical Properties	Measure	Method	Processed
Tensile Stress at Yield (Mpa)	4	ASTM D638	-
Tensile Stress at Break (MPa)	24± 3.0	ISO 527	Tested on X/Y axis
Young's Modulus (MPa)	13	ASTM D638	-
Elongation at Break(%)	580	ASTM D638	Tested on X/Y axis
Toughness (N.m.m^-3)	84	ASTM D638	-
Tensile stress at 100%	6.7 MPa	-	-
Tensile stress at 200%	8.4 MPa	-	-
Tensile stress at 300%	10.8 MPa	-	-

Other Properties	Measure	Method	Processed
Vicat softening temperature ℃	76	ISO 306	-
IZOD Impact (Notched 72F) kJ/m	4.4	D256	-
Shore Hardness(A)	85	ISO 7619	
Abrasion Resistance (10K cycle)	0.08	D4060	-
Melting Point (C)	200	-	-
Biocompatibility	Not Test	-	-

Filament Properties	Measure	Method	Processed
Filament Density g/cm³	1.16	ISO 1183	-

SIRAYA Tech

Work Flow

Preparing for Printing

(1) Printer Compatibility

Flex TPU 85A is optimized for FDM printers equipped with direct drive extruders, which are located on the tool head for enhanced filament control.

For best results, mount the filament directly above the extruder to facilitate the shortest and most efficient path from the spool to the extruder, thus significantly enhancing the print quality and success rate.

(2) Print Bed Preparation

A clean, level print bed is essential. We recommend a heated bed temperature ranging from 20°C to 50°C, adjusted according to your printer's capabilities.

Printing with Flex TPU 85A

(1) Temperature Settings

Ideal extrusion temperatures range from 200°C to 225°C, varying with printer models and environmental factors. Printers with shorter melt zones may benefit from the higher end of this spectrum (215-225°C), while those with longer melt zones can operate at the lower range
(200-210°C).

Notably, the black variant of TPU 85A often performs better at slightly cooler temperatures compared to the white variant.

(2) Print Speed

Thanks to its high-flow formulation, Flex TPU 85A can be printed at speeds between 30 and 90 mm/s. For optimal results, start at the lower end and gradually increase speed.

(3) Nozzle Size

A nozzle size greater than 0.2mm is recommended, with the best results typically achieved using a 0.4mm nozzle.

(4) Retraction Settings

Keep retraction speeds between 1800-3600 mm/min and retraction distances within 1-3 mm to prevent clogging. Start with short and slow retraction first.

Work Flow

Printing with Fibreheart ABS-GF

(5) Build Platform Material

PEI or glass with glue stick application is recommended for best adhesion.

(6) Cooling Fan

Ensure the cooling fan is operational to maintain print quality. Adjust settings as needed for your specific printer.

Moisture Management

TPU filaments, including Flex TPU 85A, are prone to moisture absorption, which can adversely affect print quality. Effective moisture management is therefore cricial.

(1) Storage: Store Flex TPU 85A in the provided moisture-resistant aluminum bags when not used. Using a dry box with desiccant, maintaining humidity below 15%, is ideal for prolonged storage.

(2) Drying Filament: If moisture absorption is suspected, dry the filament at 50°C - 65°C for 4-6 hours in a filament dryer or an oven.

Troubleshooting Common Issues

(1) Stringing: Adjust retraction settings and print speed to tackle stringing. Also, ensure the filament's moisture level is within acceptable limits.

(2) Poor Bed Adhesion: Improve bed adhesion using a glue stick or hairspray, or by slightly increasing the bed temperature.