



TECHNICAL DATA SHEET

FILAFLEX 70A

Description

Filaflex 70A TPU delivers exceptional elasticity, making it an ideal solution for ultra-soft and elastic 3D printed parts. With a Shore 70A hardness and an impressive elongation of up to 900%, this advanced TPU offers a silicone-like feel combined with excellent elastic recovery, returning to its original shape without deformation when used within its elastic limit. Designed for professional 3D printing applications, Filaflex 70A provides excellent bed adhesion without the need for a heated bed or adhesives. It is odorless, durable, skin-safe, and resistant to certain fuels and solvents, ensuring reliable performance in demanding flexible applications.

Key Features

- **High Flexibility:** Shore 70A hardness with up to 900% elongation
- **Elastic Recovery:** Returns to original shape after stretching
- **Easy Printing:** Excellent bed adhesion without heated bed or adhesives
- **Chemical Resistance:** Resistant to fuels and solvents
- **Material Safety:** Odorless and skin-safe formulation
- **Quality Manufacturing:** Produced in the EU for consistent, premium quality

Professional Applications

- **Medical & Orthopedic:** Custom insoles and prosthetic components
- **Surgical Training:** Anatomical models for operation simulation
- **Industrial Components:** Buffers, gaskets, tires, and grippers
- **Fashion & Accessories:** Textile printing, bags, and wearable items
- **Footwear Production:** Soles, custom shoes, and sandals

Certifications - ISO 10993 Tested & Regulatory Compliance

- [ISO 10993-5: 2009 - In Vitro Cytotoxicity Test with Filaflex](#)

- [ISO 10993-23: 2021 - Acute Skin Irritation Test with Filaflex](#)

- [ISO 10993-10: 2013 - Skin Sensitization Test with Filaflex](#)

- [Food & Skin Contact Regulatory Statement – EU 10/2011 & FDA 21 CFR 177.2600](#)



Resources

- [Complete Guide: How to Print with Filaflex Flexible Filament](#)

- [Troubleshooting Guide: Common Issues with Flexible Filaments](#)

- [Research and Innovation with Filaflex](#)

- [Filaflex](#)

- [Print Settings](#)

Physical Property	Value	Unit	Test method according to
Material density	1080	kg/m ³	ISO 1183
Melt flow rate (230 °C / 2.16 kg)	—	g/10 min	ISO 1133

Mechanical Property	Value	Unit	Test method according to
Hardness (Shore A, 3 s)	70	—	ISO 7619-1
Tensile strength	32	MPa	DIN 53504-S2
Elongation at break	900	%	DIN 53504-S2
Stress at 20% elongation	1,5	MPa	DIN 53504-S2
Stress at 100% elongation	3,5	MPa	DIN 53504-S2
Stress at 300% elongation	6,3	MPa	DIN 53504-S2
Tear strength	45	N/mm	ISO 34-1
Abrasion resistance	45	mm ³	ISO 4649
Compression set (23 °C / 72 h)	20	%	ISO 815
Compression set (70 °C / 24 h)	39	%	ISO 815
Tensile strength after storage in water (80 °C, 42 d)	20	MPa	DIN 53504-S2
Elongation at break after storage in water (80 °C, 42 d)	900	%	DIN 53504-S2

Thermal Property	Value	Unit	Test method according to
Glass transition temperature (10 °C/min)	-50	°C	ISO 11357-1/-2
VST Vicat softening temperature (Method A, 10 N, 120 °C/h)	84	°C	ISO 306

Printing Properties	Recommended
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1. Material Preparation

Drying Temperature	55 °C
Minimum Time	1 hour
Note	Drying is crucial for optimal results

2. Basic Parameters, Speed Settings and Retraction Settings

Nozzle 0.4 mm	
Layer Height	0.2 mm
Line Width	0.35 mm
Volumetric Speed (mm ³ /s)	2.5 mm ³ /s
Temperature	240 °C
External Perimeter	50% - 17.86 mm/s
Internal Perimeters	75% - 26.79 mm/s

Infill	100% - 35.71 mm/s
Top/Bottom	60% - 21.43 mm/s
First Layer	30% - 10.71 mm/s
Retraction distance	1.8–2.8 mm
Retraction speed	35 mm/s
Retraction Z-Hop	0.2 mm
Nozzle 0.6 mm	
Layer Height	0.3 mm
Line Width	0.55 mm
Volumetric Speed (mm ³ /s)	5.6 mm ³ /s
Temperature	240 °C
External Perimeter	50% - 17.00 mm/s
Internal Perimeters	75% - 25.50 mm/s
Infill	100% - 34.00 mm/s
Top/Bottom	60% - 20.40 mm/s
First Layer	30% - 10.20 mm/s
Retraction distance	1.8–2.8 mm
Retraction speed	35 mm/s
Retraction Z-Hop	0.2 mm
Nozzle 0.8 mm	
Layer Height	0.4 mm
Line Width	0.75 mm
Volumetric Speed (mm ³ /s)	10.0 mm ³ /s
Temperature	240 °C
External Perimeter	50% - 16.67 mm/s
Internal Perimeters	75% - 25.00 mm/s
Infill	100% - 33.33 mm/s
Top/Bottom	60% - 20.00 mm/s
First Layer	30% - 10.00 mm/s
Retraction distance	2.0–3.0 mm
Retraction speed	35 mm/s
Retraction Z-Hop	0.2 mm
Nozzle 1.0 mm	
Layer Height	0.5 mm
Line Width	0.95 mm
Volumetric Speed (mm ³ /s)	15.6 mm ³ /s
Temperature	240 °C
External Perimeter	50% - 16.42 mm/s
Internal Perimeters	75% - 24.63 mm/s
Infill	100% - 32.84 mm/s
Top/Bottom	60% - 19.70 mm/s
First Layer	30% - 9.85 mm/s
Retraction distance	2.0–3.0 mm
Retraction speed	35 mm/s

Retraction Z-Hop	0.2 mm
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3. Bed Temperature

Small parts	Room temperature (no heating)
Large parts	45–50 °C

4. Cooling

General Fan	0% (always off)
Force fan on overhangs/bridges	OFF
Layers < 10 seconds	40%
First layer	0%

5. Troubleshooting

Irregular extrusion	1. Dry the filament 2. Check extruder 3. Reduce printing speed
Poor adhesion	1. Dry the filament 2. Use adhesive 3. Adjust first layer
Stringing	1. Dry the filament 2. Adjust retraction 3. Increase travel speed 4. Check temperature

6. Best Practices

- Keep filament dry – store and dry before use.
- Preferably use a direct drive extruder system.
- Print multiple small parts simultaneously for better results.
- Use maximum travel speed to minimize stringing.

Disclaimer

PLEASE NOTE: These printing parameters are initial recommendations based on our experience. They may need adjustment depending on your specific 3D printer, environmental conditions, and the geometry of the part you are printing. Use these settings as a starting point and fine-tune them according to your specific needs.

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