



TECHNICAL DATA SHEET

FLEX HARD PRO

1. DESCRIPTION

FLEX Hard Pro is a TPU filament engineered for demanding applications and positioned above the hardness level of FLEX Hard. It combines the typical elasticity of TPU with enhanced mechanical strength and durability. The material offers excellent abrasion and wear resistance, along with high scratch and tear resistance. It is also characterised by good chemical resistance and maintains flexibility even at low temperatures. FLEX Hard Pro is optimised for FFF/FDM 3D printing processes.

2. FEATURES

- Shore hardness 65 D
- Very abrasion and wear resistant
- High scratch and tear resistance
- Enhanced mechanical strength
- Flexible at low temperatures

3. PROPERTIES

TEST	METHOD	UNIT	VALUE	PRINT SETTINGS
Tensile stress at break	ISO 527	MPa	59	Nozzle temperature 220–260 °C
Elongation at break	ISO 527	%	> 300	Build plate temperature 30–60 °C
Flexural modulus	ISO 178	MPa	350	Surface preparation Glue
Charpy notched impact strength (+23°C)	ISO 179-1eA	kJ/m ²	No Break (NB)	Print speed 120 mm/s
Charpy unnotched impact strength (+23°C)	ISO 179-1eU	kJ/m ²	No Break (NB)	Cooling fan 60–100 %
Melting point (Tm)	ISO 3146-C	°C	200–240	Enclosed chamber required No
CLTE — flow direction	–	10 ⁻⁴ /K	1.5	Hardened nozzle required No
Density	ISO 1183	g/cm ³	1.2	Max. volumetric flow 8 mm ³ /s rate
Water absorption (saturation, 23°C)	–	%	0.8	Drying temperature 60 °C
Mould shrinkage	ISO 294-4	%	0.8–1.2	Drying time 4–8 h
Chemical resistance	–		Yes	Recommended settings for printers with a 0.4 mm nozzle. Max. 50% layer height. Optimal settings may vary between printers and are also dependent on environmental factors.
Abrasion resistance	ISO 4649	mm ³	18	

4. CERTIFICATIONS & ADDITIONAL INFORMATION



REACH
compliant



SHORE
98A

Certifications depend on colors in final product. More info in the regulatory information sheet.



5. STORAGE AND SHELF LIFE

Store in a dry room at room temperature (18-27°C / 65-80°F). Keep out of direct heat and sunlight.
When stored correctly, this material has a shelf life of 2 years.
Additional info in our regulatory, chemical resistance and safety data sheets.