technical datasheet

F3 TPU HSE ORANGE/ F3 TPU HSE BLUE

December 2025

www.fiberthree.com

General information

Properties

- *TPU*
- ***warning color in orange/ blue***
- *tremendous impact resistance*
- *moderate water absorption*
- *enormous elasticity*
- *excellent adhesion to print bed*
- *glossy surface*
- *temperature stable up to 100°C*
- *good oil & solvent resistance*
- ***hardness Shore 92A to 95A***

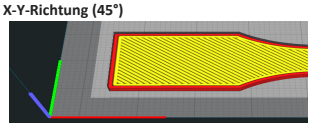
Mechanical properties	Test method	Unit	Typical value	Quality grade acc. VDI 3405 Part 7
Density	DIN EN ISO 1183	g/ cm³	1,16	
Tensile strength	DIN EN ISO 527	MPa (N/mm²)	41	
Modulus of Elasticity printed specimen x-y (0°) *	DIN EN ISO 527-2 Typ 1A *	MPa (N/mm²)	85	0
Modulus of Elasticity printed specimen x-y (90°) *	DIN EN ISO 527-2 Typ 1A *	MPa (N/mm²)	--	--
Tensile strength printed specimen x-y (0°) *	DIN EN ISO 527-2 Typ 1A *	MPa (N/mm²)	--	0
Tensile strength printed specimen x-y (+ 45°/-45°) *	DIN EN ISO 527-2 Typ 1A *	MPa (N/mm²)	--	0
Tensile strength printed specimen x-y (90°) *	DIN EN ISO 527-2 Typ 1A *	MPa (N/mm²)	--	--
Tensile stress printed specimen x-y (0°)	DIN EN ISO 527-2 Typ 1A*	MPa (N/mm²)	--	10
Elongation printed specimen (0°)	DIN EN ISO 527-2 Typ 1A*	%	< 350	--
Flexural modulus Ef printed specimen (+ 45°/-45°)	DIN EN ISO 14125 (Method B)	GPa (kN/mm²)	--	
Impact strength printed specimen	DIN EN ISO 179eU	kJ/m²	--	
Impact strength printed specimen (notched)	DIN EN ISO 179eB	kJ/m²	--	
Shore hardness	DIN EN ISO 868		92 - 95 (Shore A)	
Compression set	ASTM D 395	%	--	

* Test specimen printed: 1.75mm filament; v=50 mm/s; Orientation layers in 0°/ 90°/ +-45°; conditioned 24h at 50% RF and 23° C
Test specimen TPU: Prusa MK4, nozzle 0.6mm, temp. nozzle 235°C, temp. print bed 70°C; layer height 0.15mm

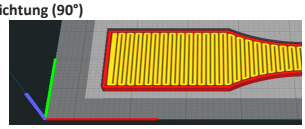
Tensile test TPU with 50 mm/min. These are target values for optimal print quality. Values might vary greatly with the same settings, depending on the system Nozzle - Printer - Gcode.

Orientation of printed specimen

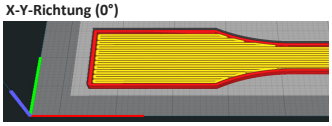
X-Y-Richtung (45°)



X-Y-Richtung (90°)



X-Y-Richtung (0°)



Thermal properties	Test method	Unit	Value
Glass transition temp.	ISO 11357	°C	--
Heat deflection temperature	Fiberthree GmbH	°C	100
Electrical properties	**Test method**	**Unit**	**Value**
Insulation resistance	IEC 60167	Ohm*m	$>10^{12}$
Surface resistance	IEC 60093	Ohm*m	$>10^{12}$
Other properties	**Test method**	**Unit**	**Value**
Water absorption (after 24h)	DIN ISO 62	%	>0,2
Recommendations	**Test method**	**Unit**	**Value**
Temperature nozzle	Fiberthree GmbH	°C	240
Temperature build plate	Fiberthree GmbH	°C	cold
Nozzle diameter	Fiberthree GmbH	mm	≥ 0,4
Fan cooling	Fiberthree GmbH	%	50 - 100
Layer height	Fiberthree GmbH	mm	≥ 0,1
Printing speed	Fiberthree GmbH	mm/s	30
Infill	Fiberthree GmbH	%	0 - 100
Material build plate	Fiberthree GmbH		carbon fiber, glass fiber or phenolic resins, glass, PEI
Recommended nozzle	Fiberthree GmbH		all nozzles suitable
Recommended parts	Fiberthree GmbH		Flexible components with high elasticity as sealings, protective zones, inflatable components…

EU & REACH Conformity

SVHC > 0,1 % (List dated December 2023)	given	no substances included
Regulated substances acc. 2015/863/EU (RoHS 3)	given	no substances included

Legal disclaimer

Technical properties or values are related to the thermoplastic base material for filament production if not mentioned differently.
Any recommendation made for use of seller's materials are made to the best knowledge and are based upon prior tests and experience of the seller. Seller does not guarantee the results to be obtained and all such recommendations are non-binding and do not constitute any representation and do not affect in any way buyer's obligation to examine and test the seller's goods with regard to their suitability for buyer's foreseen purposes.
No information given by the seller is to be construed in any way as a guarantee regarding charactaristics or duration of use, unless such information has been explicitly given as a guarantee.