

# Technical Data Sheet

## Spectrum Filaments HIPS-X

Identification	
Trade name	HIPS-X
Chemical name	High Impact Polystyrene
Use	Additive Manufacturing
Origin	Spectrum Group Sp. z o.o.

Filament Specification	
Diameter 1.75	1.75 ± 0.05 mm
“Verify your spool” option	YES



Material properties		
Melt Flow Rate <sup>1</sup>	12 g/10 min	ISO 1133
Melting point	90-130°C	-
Density	1.05 g/cm <sup>3</sup>	ISO 1183
Vicat softening temperature	95°C	ISO 306
Heat deflection temperature	87°C	ISO 75
Decomposition temperature	300°C	-
Flame rating – UL 1.60mm	HB	UL 94
Solubility	D-Limonene, Acetone	-
Odor	odorless	-


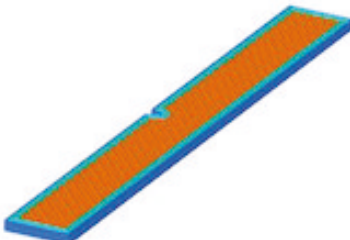
<sup>1</sup>Test conditions: T = 200°C; m = 5.0 kg



Guideline for print settings*	
Nozzle temperature	230-255°C
Bed temperature	100°C
Active cooling fan	YES (up to 100%)
Layer height**	0.05 - 0.30 mm
Shell thickness**	0.40 – 2.4 mm
Print speed**	40 – 100 mm/s

\*Settings are based on a 0,4 mm nozzle.

\*\* The range depends on the geometrical complexity

Mechanical properties	Tensile test		Test Method ASTM D638	
	Printed vertical (Z-axis)		Printed horizontal (X, Y-axis)	
Infill	50 %	100 %	50 %	100 %
Tensile strength (MPa)	2,9	4,0	3,6	5,2
Force at break (MPa)	2,9	4,0	3,5	5,2
Elongation at max force (%)	2,6	3,1	11,4	3,1 ; 18,1
Elongation at break (%)	2,6	3,1	10,6	18,1
Emodulus (MPa)	157,0	184,5	133,9	199,1
<p>All specimens were printed using the BLIXET B100 Multi 3D printer using following parameters:</p> <p>Nozzle temperature: 240°C            Bed temperature: 100°C            Printing speed: 45mm/s            Number of shells: 4            Infill type: lattice            Infill under: 45°</p>				

Mechanical properties	Impact test		Test Method ISO 179	
	Charpy - Printed vertical (Z-axis)		Charpy - Printed horizontal (X, Y-axis)	
Infill	50%	100%	50%	100%
Impact strength (J/cm <sup>2</sup> )	1,42	1,21	2,04	2,52
Impact energy (mJ)	600	500	800	1000
<p>All specimens were printed using the BLIXET B100 Multi 3D printer using following parameters:</p> <p>Nozzle temperature: 240°C            Bed temperature: 100°C            Printing speed: 45mm/s            Number of shells: 4            Infill type: lattice            Infill under: 45°</p>				

Mechanical properties	Flexural test		Test Method ISO 178	
	Printed vertical (Z-axis)		Printed horizontal (X, Y-axis)	
Infill	50%	100%	50%	100%
Flexural modulus (MPa)	874	900	884	1178
Maximum bending stress (MPa)	11,72	14,01	15,71	21,15
Deflection (mm)	2,5	10	4	10
<p>All specimens were printed using the BLIXET B100 Multi 3D printer using following parameters:</p> <p>Nozzle temperature: 240°C            Bed temperature: 100°C            Printing speed: 45mm/s            Number of shells: 4            Infill type: lattice            Infill under: 45°</p>				

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All shown data are typical properties. Users should confirm results by their own tests.