

# Technical Data Sheet

## Spectrum Filaments smart ABS

Identification	
Trade name	Spectrum smart ABS
Chemical name	Acrylonitrile Butadiene Styrene
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>	21 g/10 min	ASTM D1238
Melt temperature	210-240°C	-
Density	1.05 g/cm <sup>3</sup>	ASTM D792
Vicat softening temperature (5kg, 50°C/h)	92°C	ASTM D1525
Heat deflection temperature (6.4mm / 18.6kg)	85°C	ASTM D648
Solubility	Acetone	-
Odor	Little odor	-
Storage	Avoid fire and temperatures exceeding 60°C	-


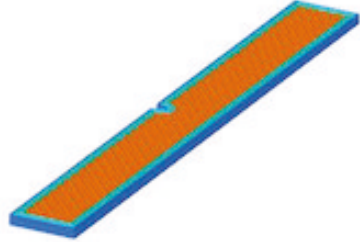
<sup>1</sup>Test conditions: T = 220°C; m = 10 kg

Guideline for print settings*	
Nozzle temperature	230-255°C
Bed temperature	100°C
Active cooling fan	YES (up to 100%)
Layer height**	0.05 - 0.35 mm
Shell thickness**	0.40 – 1.60 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)	12,6	16,2	15,8	23,8
Force at break (MPa)	12,6	16,2	15,7	23,6
Elongation at max force (%)	4,0	3,9	8,8	5,3
Elongation at break (%)	4,0	3,9	11,0	13,3
Emodulus (MPa)	313,3	428,7	307,8	453,8
<p>All specimens were printed using the BLIXET B100 Multi 3D printer using following parameters:            Nozzle temperature: 250°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> )	2,59	4,61	1,38	1,70
Impact energy (mJ)	1000	1900	600	700
<p>All specimens were printed using the BLIXET B100 Multi 3D printer using following parameters:            Nozzle temperature: 250°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)	1429	1490	1682	2157
Maximum bending stress (MPa)	2,39	23,48	43,75	63,64
Deflection (mm)	0,8	11	1,5	10,5
<p>All specimens were printed using the BLIXET B100 Multi 3D printer using following parameters:</p> <p>Nozzle temperature: 250°C            Bed temperature: 100°C            Printing speed: 45mm/s            Number of shells: 4            Infill type: lattice            Infill under: 45°</p>				

Preparation date: 08-05-2019

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