

# WINDFORM® XT 2.0

Polyamide

CRP Technology s.r.l.

## Message:

Technology: Selective Laser Sintering

Windform® XT 2.0 is the evolution of the ground breaking high performance Windform® XT, the carbon fiber reinforced composite material, known for its mechanical properties, which made it particularly suitable in demanding applications such as motorsport sector, aerospace and UAV's. Windform® XT 2.0 is an innovative material, and will replace the Windform® XT, as the "Top Level" of the current Windform® range. Windform® XT 2.0 improves mechanical properties compared to "traditional" Windform® XT, while maintaining the same workability for Laser Sintering machines in order to better fulfill the needs of Additive Manufacturing required to produce end use parts and prototypes. Windform® XT 2.0 retains the matte black colour of the previous version and features improvements in mechanical properties: +8% in tensile strength, +22% in tensile modulus and +46% increase in elongation at break. Windform XT® 2.0 allows for the creation of accurate, reliable and durable prototypes and is perfect for functional applications.

Applications:

Windform® XT 2.0 is the high-tech material for Additive Manufacturing chosen by those working in the Motorsport, Automotive (suitable for example for components under the hood, such as intake manifolds and functional cooling ducts), Air (for components UAV, Unmanned Aerial Vehicle) Aerospace (useful also to create prototype satellite, such as the CubeSat) and Design, as it allows applications that are fully functional, as well as bench testing, or testing and racing on the track.

Surface Finish:

After SLS Process 6.0 Ra µm

After finishing 1.8 Ra µm

General Information			
Filler / Reinforcement	Carbon Fiber		
Features	Durable		
	Good Strength		
Uses	Aerospace Applications		
	Automotive Applications		
	Prototyping		
Agency Ratings	EC 1907/2006 (REACH)		
Appearance	Black		
Forms	Powder		
Processing Method	3D Printing, Laser Sintering/Melting		
Physical	Nominal Value	Unit	
Density (20°C)	1.10	g/cm <sup>3</sup>	
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus	8930	MPa	ISO 527-2
Tensile Stress	83.8	MPa	ISO 527-2
Tensile Strain (Break)	3.8	%	ISO 527-2
Flexural Modulus	7340	MPa	ISO 178
Flexural Stress	133	MPa	ISO 178
Flexural Modulus - per density unit	6690	MPa/g/cm <sup>3</sup>	
Flexural Strength - per density unit	121	MPa/g/cm <sup>3</sup>	
Tensile Modulus - per density unit	8140	MPa/g/cm <sup>3</sup>	

Ultimate Tensile Strength - per density unit	76.4	MPa/g/cm <sup>3</sup>	
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength (23°C)	4.7	kJ/m <sup>2</sup>	ISO 179
Charpy Unnotched Impact Strength (23°C)	22	kJ/m <sup>2</sup>	ISO 179
Notched Izod Impact Strength (23°C)	5.3	kJ/m <sup>2</sup>	ISO 180
Unnotched Izod Impact Strength (23°C)	19	kJ/m <sup>2</sup>	ISO 180
Thermal	Nominal Value	Unit	Test Method
Heat Deflection Temperature (1.8 MPa, Unannealed)	173	°C	ISO 75-2/A
Vicat Softening Temperature	176	°C	ISO 306/A50
Melting Temperature	179	°C	ISO 11357
Electrical	Nominal Value	Unit	Test Method
Surface Resistivity	< 1.0E+8	ohms	ASTM D257
Volume Resistivity	< 1.0E+8	ohms·cm	ASTM D257

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