WINDFORM® LX 3.0

Class of material: Composite polyamide based material reinforced with glass fibers

Technology: Selective Laser Sintering

Windform® LX 3.0 has improved the already excellent performance of Windform® LX 2.0.
These improvements can be noticed from a sinterability standpoint.
Windform® LX 3.0 maintains the Windform® LX 2.0's technical and thermal properties; it is also not electrically conductive.
Windform® LX 3.0 is a composite polyamide based material which is reinforced with a new generation glass fiber system.
It is a naturally black material and is characterized by good Tensile Strength and stiffness.
Windform® LX 3.0 is also characterized by high level of temperature resistance (HDT, 1.82 Mpa is 175,9°C / 348.62 °F).
Windform® LX 3.0 has an excellent surface finish in its sintered state; it is perfect for components with fine details.
Windform® LX 3.0 is highly recommended for applications that require a strong visual impact and for aesthetical parts.
Windform® LX 3.0's impact resistance properties at room and low temperature are similar.
Windform® LX 3.0 is an entry-level material and is perfect for creating functional prototypes or finished parts that require reliability, resistance and aesthetical properties.

Applications:

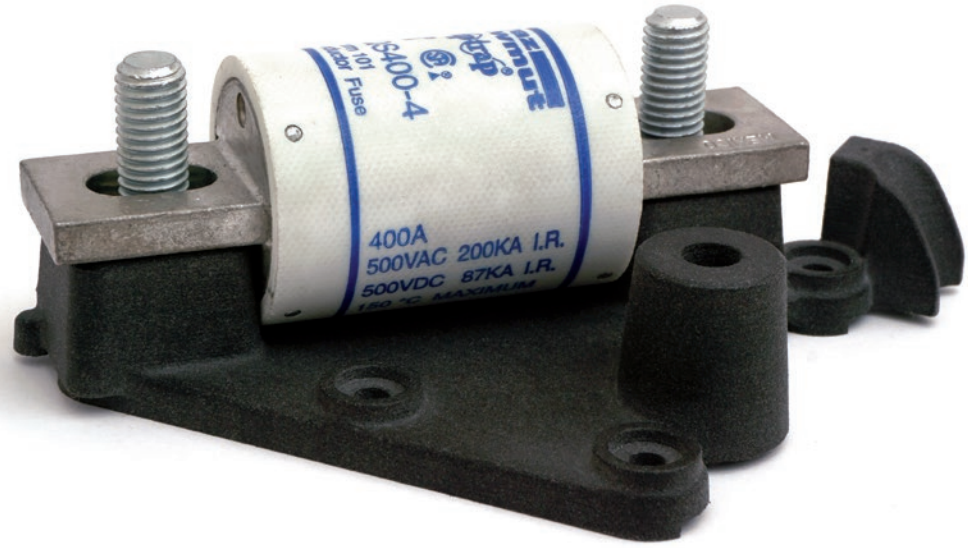
Windform® LX 3.0 is perfect for complex parts, as well as assembly testing.
It is a suitable material to create fully functional applications which do not require high resistance to mechanical stress.
There are several fields of application: covers, latching systems, air intake systems, connectors, driver cockpit components. Cooling/ ducted fans, UAV structural components, design parts.
It is the material of choice for electrically insulated prototypes (CTI Rating of 600).
Windform® LX 3.0 is perfect for creating battery boxes, containers of electrical and electronic components.
The versatility of the product combined with the technology used, allows for near endless possibilities.

Where to find Windform® products:

CRP Technology produces items in Windform® LX 3.0 and distributes the material in Europe and ROW. CRP USA produces items in Windform® LX 3.0 and distributes the material in the US and North America.
Both CRP Technology and CRP USA offer individually customized services for timing and method of delivery depending on the needs of the customer, anywhere in the world.

How to get Windform® products:

For any further information, requests for quotation, or to check delivery times, please visit our website www.windform.com or send an inquiry to info@windform.com (for Europe and ROW markets) or info@crp-usa.net (for US market).
We will be in contact to answer all inquiries.



Motorbike application. 3D printed fuse holder
tested under working conditions of 300V - 400A. Continuous 300V - ~120A

WINDFORM® LX 3.0

WINDFORM® LX 3.0	Test Method	SI Unity	Windform® LX 3.0
General Properties			
Density (20° C)		g/cc	1,324
Colour			BLACK
Thermal Properties			
Melting point	ISO 11357	°C	183,3
HDT, 1.82 Mpa	ASTM D 648 TYPE B	°C	175,9
Vicat 10N	ASTM D1525-09	°C	178,8
Mechanical Properties			
Tensile Strength	UNI EN ISO 527-1	Mpa	60,42
Tensile Modulus	UNI EN ISO 527-1	Mpa	6048,00
Elongation at break	UNI EN ISO 527-1	%	2,42
Flexural Strength	UNI EN ISO 14125	Mpa	85,80
Flexural Modulus	UNI EN ISO 14125	Mpa	5465,20
Impact Strength Unnotched (Charpy 23°C - Completely broken specimens)	UNI EN ISO 179-1	KJ/m^2	18,82
Impact Strength Notched (Charpy 23°C)	UNI EN ISO 179-1	KJ/m^2	5,33
Impact Strength Notched (Charpy -40°C)	UNI EN ISO 179-1	KJ/m^2	4,83
Electrical Properties			
CTI - Comparative Tracking Index	IEC 60112:2003		600
Resistivity, Volume	ASTM D257	ohm*cm	1,7x10^13
Resistivity, Surface	ASTM D257	ohm	6,8x10^15
Surface Finish			
After SLS Process		Ra µm	7,5
After manual finishing		Ra µm	3,2
After CNC machining		Ra µm	1,2
Properties per Density Unit			
UTS per density unit		Mpa/(g/cc)	45,63
Tensile Modulus per density unit		Mpa/(g/cc)	4567,98
Flexural Strength per density unit		Mpa/(g/cc)	64,80
Flexural Modulus per density unit		Mpa/(g/cc)	4127,79

Note: these are all indicative values. Data was generated from the testing of parts produced with Windform® LX 3.0 material under optimal processing conditions.
Standard Technical Details for Accuracy versus Tolerance:
For parts up to 6" (150 mm) the standard tolerance is: +/- 0.012 inches (0,3 mm)
For parts more than 6" (150 mm) the standard tolerance is: +/- 0.002 inches per inch (0,05 mm per 25 mm)
Example: For a 9" (229 mm) part, the standard tolerance would be: +/- 0.018 inches (0,46 mm).

WINDFORM® LX 3.0

WINDFORM® LX 3.0	Test Method	US Unit	Windform® LX 3.0
General Properties			
Density (68° F)		g/cc	1.324
Colour			BLACK
Thermal Properties			
Melting point	ISO 11357	°F	361.94
HDT, 1.82 Mpa	ASTM D 648 TYPE B	°F	348.62
Vicat 10N	ASTM D1525-09	°F	353.84
Mechanical Properties			
Tensile Strength	UNI EN ISO 527-1	psi	8763.18
Tensile Modulus	UNI EN ISO 527-1	ksi	877.18
Elongation at break	UNI EN ISO 527-1	%	2.42
Flexural Strength	UNI EN ISO 14125	psi	12444.23
Flexural Modulus	UNI EN ISO 14125	ksi	792.66
Impact Strength Unnotched (Charpy 73.4°F - Completely broken specimens)	UNI EN ISO 179-1	ft-lb/in^2	8.95
Impact Strength Notched (Charpy 73.4°F)	UNI EN ISO 179-1	ft-lb/in^2	2.53
Impact Strength Notched (Charpy -40°F)	UNI EN ISO 179-1	ft-lb/in^2	2.29
Electrical Properties			
CTI - Comparative Tracking Index	IEC 60112:2003		600
Resistivity, Volume	ASTM D257	ohm*cm	1.7x10^13
Resistivity, Surface	ASTM D257	ohm	6.8x10^15
Surface Finish			
After SLS Process		Ra µm	7.5
After manual finishing		Ra µm	3.2
After CNC machining		Ra µm	1.2
Properties per Density Unit			
UTS per density unit		psi/(g/cc)	6618.71
Tensile Modulus per density unit		ksi/(g/cc)	662.52
Flexural Strength per density unit		psi/(g/cc)	9398.96
Flexural Modulus per density unit		ksi/(g/cc)	598.68

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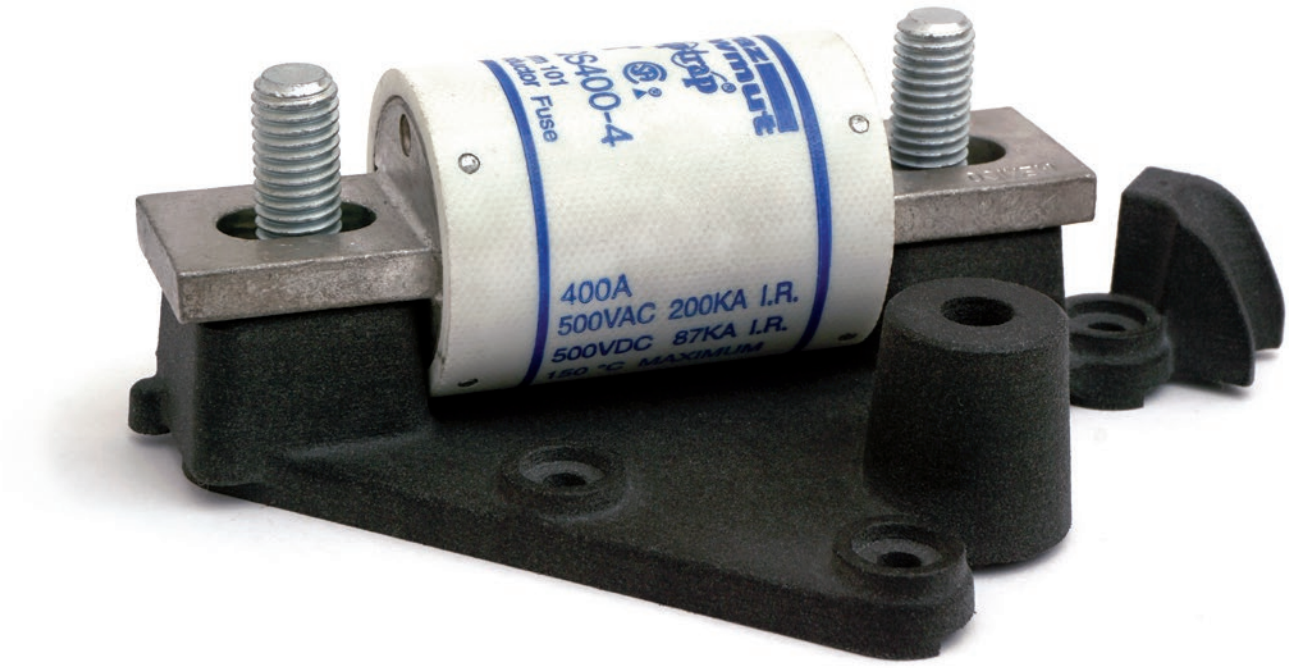

Motorbike application. 3D printed fuse holder tested under working conditions of 300V - 400A. Continuous 300V - ~120A

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