WINDFORM® GF 2.0

Class of material: Composite polyamide material reinforced with glass and aluminium

Technology: Selective Laser Sintering

Windform® GF 2.0 is a composite material with a polyamide base, which is filled with glass and aluminium. These updated properties present improvements upon the previous Windform® GF formula with increases in thermal, mechanical and aesthetic properties.
Windform® GF 2.0 shows a significant improvement in the HDT (almost +8%), as well as increases in tensile strength and elongation strength, offering greater ductility than the previous version. This is useful for various racing applications and applications subject to vibrations.
Windform® GF 2.0 also has excellent mechanical properties per unit of density, thanks to its lighter weight.
Windform® GF 2.0 is a light grey color, with a radiant metallic sheen, which is appreciated in many design and wind tunnel applications.
Improvements in detail reproduction make Windform® GF 2.0 suitable for applications which require accurate and superior surface definition, such as for proof of concept parts, or for mock castings.

Applications:

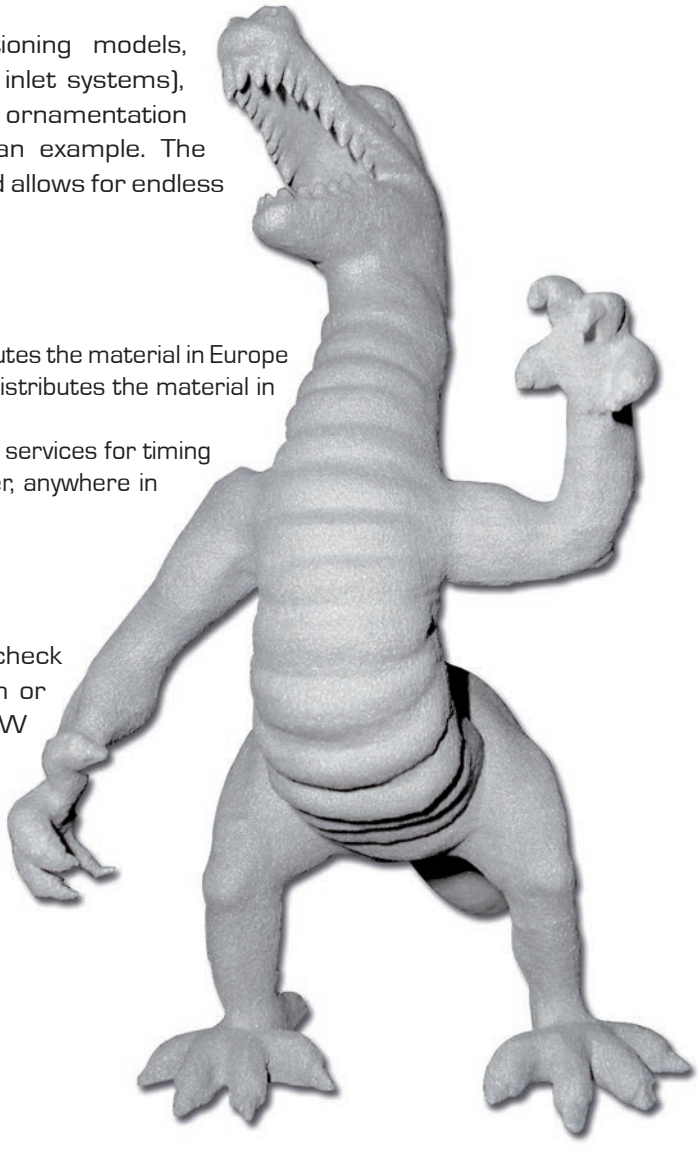
Applications include: objects of design and non-functioning models, prototype intake manifolds (intake and cooling ducts, air inlet systems), fuel systems, and household items (appliances, cabinetry, ornamentation and decoration). These applications indicated are just an example. The versatility of the product combined with the technology used allows for endless possibilities.

Where to find Windform® products

CRP Technology produces items in Windform® GF 2.0 and distributes the material in Europe and ROW. CRP USA produces items in Windform® GF 2.0 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.



3D printed dragon toy prototype

WINDFORM® GF 2.0

WINDFORM® GF 2.0	Test Method	SI Unity	Windform® GF 2.0
General Properties			
Density (20° C)		g/cc	1,41
Colour			ALUMINIUM
Thermal Properties			
Melting point	ISO 11357-2	°C	179,60
HDT, 1.82 Mpa	ASTM D 648 TYPE B	°C	134,30
Vicat 10N	ASTM D1525-09	°C	168,70
Mechanical Properties			
Tensile Strength	UNI EN ISO 527-1	Mpa	50,60
Tensile Modulus	UNI EN ISO 527-1	Mpa	4304
Elongation at break	UNI EN ISO 527-1	%	4,60
Flexural Strength	UNI EN ISO 14125	Mpa	80,20
Flexural Modulus	UNI EN ISO 14125	Mpa	3430
Impact Strength Unnotched (Charpy 23°C)	UNI EN ISO 179-1	KJ/m^2	21,85
Impact Strength Notched (Charpy 23°C)	UNI EN ISO 179-1	KJ/m^2	4,72
Electrical Properties			
Resistivity, Volume	ASTM D257	ohm*cm	1,0 x 10^13
Resistivity, Surface	ASTM D257	ohm	9,1 x 10^13
Surface Finish			
After SLS Process		Ra µm	6,0
After finishing		Ra µm	1,8
Properties per Density Unit			
UTS per density unit		Mpa/(g/cc)	35,89
Tensile Modulus per density unit		Mpa/(g/cc)	3052,48
Flexural Strength per density unit		Mpa/(g/cc)	56,88
Flexural Modulus per density unit		Mpa/(g/cc)	2432,62

Note: these are all indicative values. Data was generated from the testing of parts produced with Windform® GF 2.0 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® GF 2.0

WINDFORM® GF 2.0	Test Method	US Unit	Windform® GF 2.0
General Properties			
Density (68° F)		g/cc	1.41
Colour			ALUMINIUM
Thermal Properties			
Melting point	ISO 11357-2	°F	355
HDT, 1.82 Mpa	ASTM D 648 TYPE B	°F	274
Vicat 10N	ASTM D1525-09	°F	336
Mechanical Properties			
Tensile Strength	UNI EN ISO 527-1	psi	7340
Tensile Modulus	UNI EN ISO 527-1	ksi	624
Elongation at break	UNI EN ISO 527-1	%	4.60
Flexural Strength	UNI EN ISO 14125	psi	11600
Flexural Modulus	UNI EN ISO 14125	ksi	497
Impact Strength Unnotched (Charpy 73.4°F)	UNI EN ISO 179-1	ft-lb/in^2	10.4
Impact Strength Notched (Charpy 73.4°F)	UNI EN ISO 179-1	ft-lb/in^2	2.25
Electrical Properties			
Resistivity, Volume	ASTM D257	ohm*cm	1.0 x 10^13
Resistivity, Surface	ASTM D257	ohm	9.1 x 10^13
Surface Finish			
After SLS Process		Ra µm	6.0
After finishing		Ra µm	1.8
Properties per Density Unit			
UTS per density unit		psi/(g/cc)	5210
Tensile Modulus per density unit		ksi/(g/cc)	443
Flexural Strength per density unit		psi/(g/cc)	8250
Flexural Modulus per density unit		ksi/(g/cc)	353

Note: these are all indicative values. Data was generated from the testing of parts produced with Windform® GF 2.0 material under optimal processing conditions.
Standard Technical Details for Accuracy versus Tolerance:
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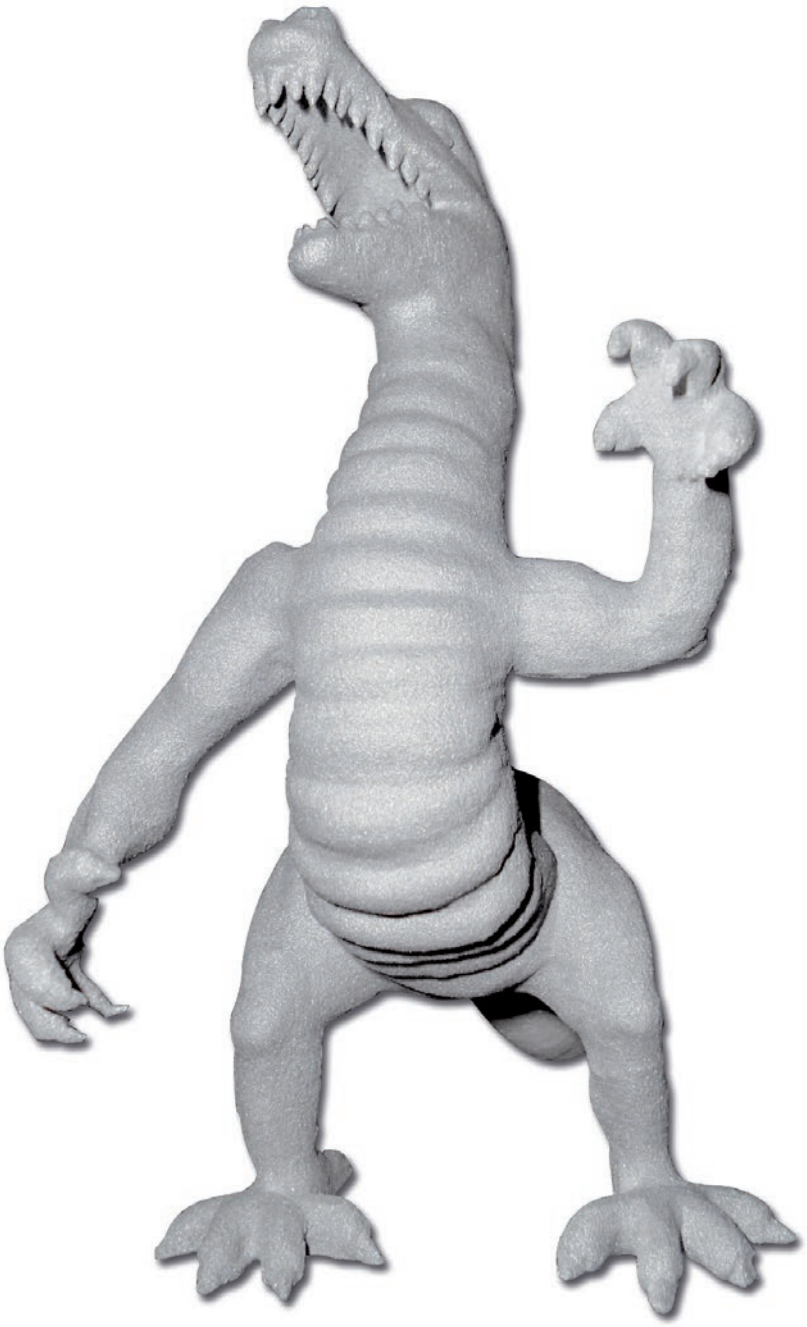

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