AME-3D
Redefining Manufacturing Limits

SELECTIVE LASER SINTERING (SLS) TECHNICAL PACK

MOMENTUM HOUSE
DINNINGTON, SHEFFIELD, S25 2RG

AME-3D.CO.UK
INFO@AME-3D.CO.UK | 01909 550 999

SELECTIVE LASER SINTERING

AME-3D
Redefining Manufacturing Limits

TECHNICAL SPECIFICATION

MACHINES	VANGUARD
XYZ (mm)	330 x 280 x 400
Layer Thickness	0.1mm
Clearances	Connections Min 0.2mm | Functional Parts 0.5 - 0.6mm
Tolerances	± 0.3% (with a lower limit of ± 0.3mm)
Wall Thickness	0.8mm - 1mm (varies with material choices)
Engraving	Minimum depth of 1mm (text must have a min. font size of 2mm)
Embossed Details	Minimum height of 1mm
Holes / Escape Holes	>1.5mm diameter / Min. 3.5mm diameter
Materials	Nylon PA 650 | Nylon GF 615 GS | PA 2210 FR | PA 2241 FR | WINDFORM XT

MOMENTUM HOUSE
DINNINGTON, SHEFFIELD, S25 2RG

AME-3D.CO.UK
INFO@AME-3D.CO.UK | 01909 550 999

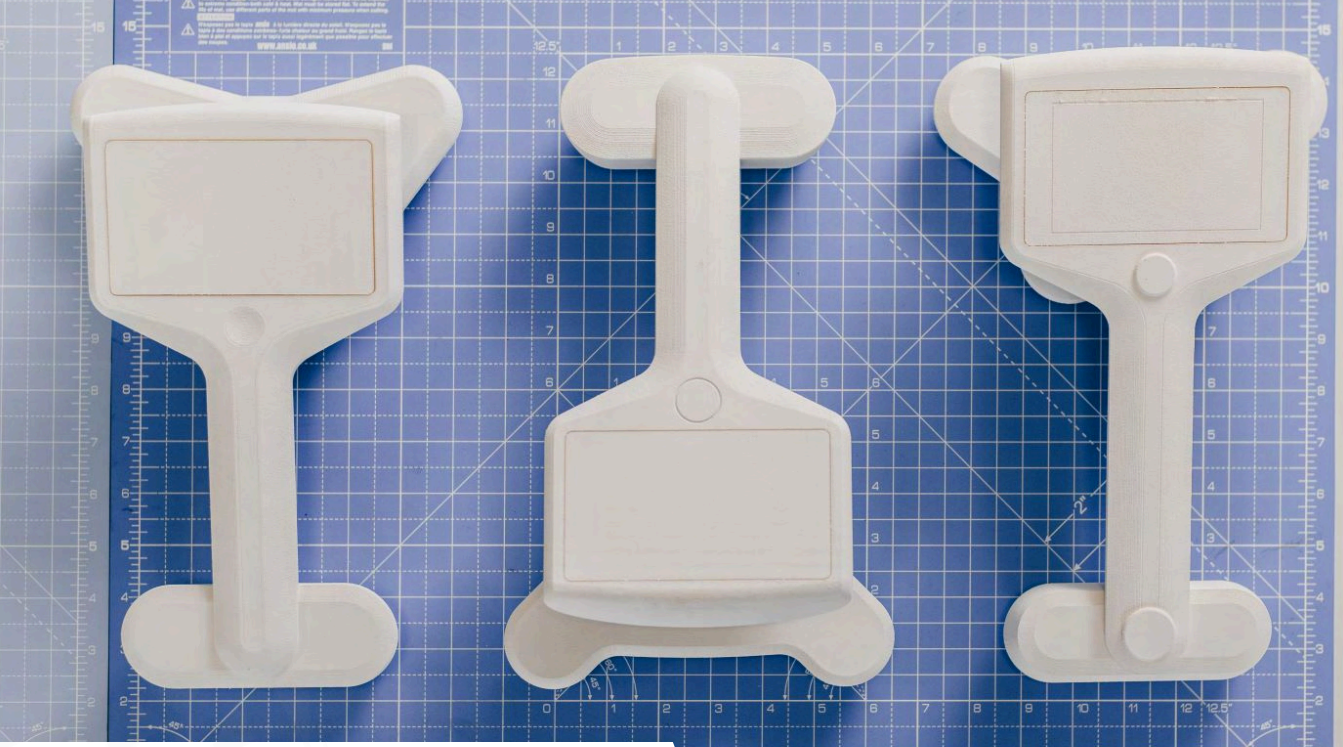
SELECTIVE LASER SINTERING

MATERIAL MATRIX

MATERIAL	NYLON PA 650	NYLON GF 615 GS	PA 2210 FR	PA 2241 FR	WINDFORM XT
Description	Great for prototypes & end-use products requiring durability.	50% Glass filled nylon. Ideal for automotive engine components or parts with complex geometries.	**Blue card certified.** Ideal for manufacturing flame-resistant parts.	**Blue card certified.** Ideal for manufacturing flame-resistant parts. FAR 25.853 compliant.	Excellent mechanical performances, including high stiffness matched to low density & remarkable lightness.
Available Colours	White & Black	Light Sand Tone	White	White	Black
Rigid	x	x	x	x	x
High Temp.	x	x			x
Flame Retardant			x	x	
Shore Hardness	73D	77D	75D	75D	79D
Tensile Strength	48 MPa	38 MPa	46 MPa	49 MPa	83 - 84 MPa
Tensile Modulus	1,700 MPa	5,910 MPa	2,500 MPa	1,900 MPa	8928, 20 MPa
Flexural Strength	48 MPa	37 MPa	65 MPa	59 MPa	133, 00 MPa
Flexural Modulus	1,500 MPa	3,300 MPa	2,300 MPa	1,390 MPa	7338, 20 MPa
Heat Deflection Temp.	95 - 180° C	137 - 179° C	84° C	84° C	173, 40° C
Elongation Break	24%	2%	4%	15%	3, 80%

MOMENTUM HOUSE
DINNINGTON, SHEFFIELD, S25 2RG

AME-3D.CO.UK
INFO@AME-3D.CO.UK | 01909 550 999



AME Nylon PA 650

Selective Laser Sintering (SLS)
Material Datasheet

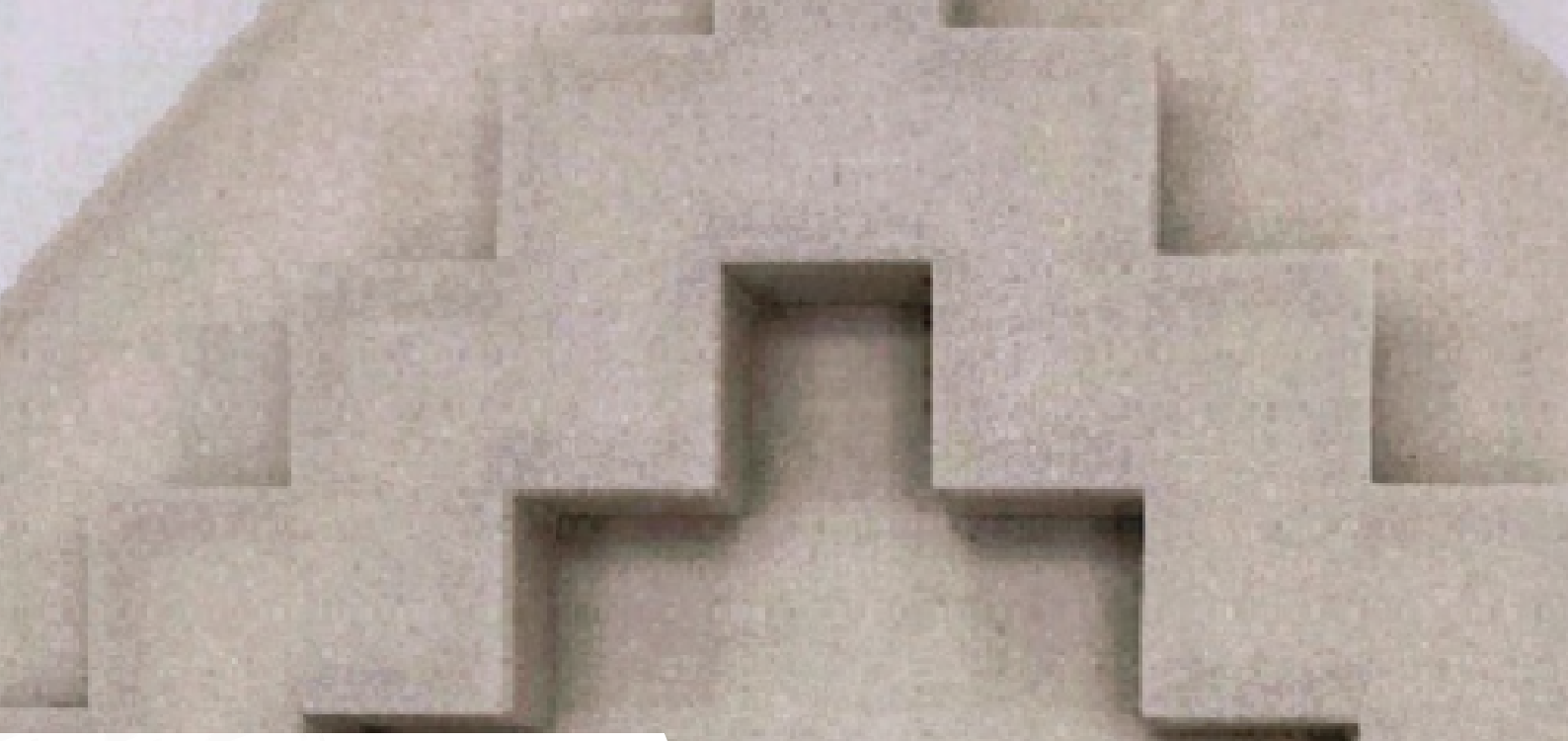
A versatile and highly robust material, which is chemical resistant and sustainable as 80% of post production powder is recyclable.

Measurement	Value
Shore Hardness	73D
Tensile Strength	48 MPa
Tensile Modulus	1,700 MPa
Flexural Strength	48 MPa
Flexural Modulus	1,500 MPa
Heat Deflection Temp.	95 - 180° C
Elongation Break	24%

Actual values may vary depending on build conditions. Our technical team can advise.

AME-3D.CO.UK
INFO@AME-3D.CO.UK
01909 550 999

AME-3D



AME Nylon GF 615 GS

Selective Laser Sintering (SLS)
Material Datasheet

50% Glass filled nylon. Ideal for automotive engine components or parts with complex geometries.

Measurement	Value
Shore Hardness	77D
Tensile Strength	38 MPa
Tensile Modulus	5,910 MPa
Flexural Strength	37 MPa
Flexural Modulus	3,300 MPa
Heat Deflection Temp.	137 - 179° C
Elongation Break	2%

Actual values may vary depending on build conditions. Our technical team can advise.

AME-3D.CO.UK
INFO@AME-3D.CO.UK
01909 550 999

AME-3D

AME PA 2210 FR

Selective Laser Sintering (SLS)
Material Datasheet

A high-performance, blue card certified SLS material with a halogen-free flame retardant.

Measurement	Value
Shore Hardness	75D
Tensile Strength	46 MPa
Tensile Modulus	2,500 MPa
Flexural Strength	65 MPa
Flexural Modulus	2,300 MPa
Heat Deflection Temp.	84° C
Elongation Break	4%

Actual values may vary depending on build conditions. Our technical team can advise.

AME-3D.CO.UK
INFO@AME-3D.CO.UK
01909 550 999

AME-3D

AME PA 2241 FR

Selective Laser Sintering (SLS)
Material Datasheet

Blue card certified. Ideal for manufacturing flame-resistant parts. FAR 25.853 compliant.

Measurement	Value
Shore Hardness	75D
Tensile Strength	49 MPa
Tensile Modulus	1,900 MPa
Flexural Strength	59 MPa
Flexural Modulus	1,390 MPa
Heat Deflection Temp.	84° C
Elongation Break	15%

Actual values may vary depending on build conditions. Our technical team can advise.

AME-3D.CO.UK
INFO@AME-3D.CO.UK
01909 550 999

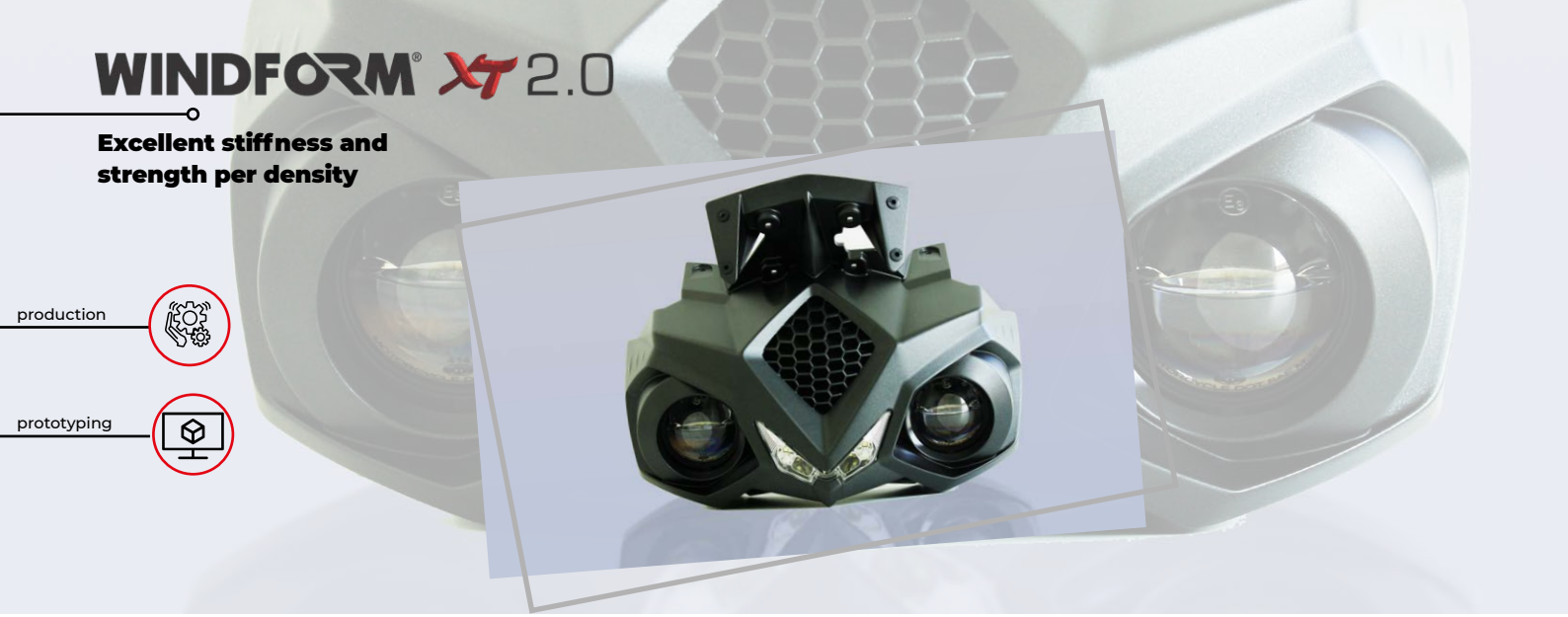
AME-3D

WINDFORM® XT 2.0

Excellent stiffness and strength per density

production

prototyping



Pre-production series front nose of Energica Eva electric motorbike

ABOUT

Class	Polyamide-based carbon fiber reinforced composite
Color	Black
Technology:	SLS (Selective Laser Sintering)
Test:	UL94 HB 1mm and 3mm rating Outgassing Nasa and Esa Coefficient of thermal expansion Skin contact approved

Windform XT 2.0 features excellent mechanical performances, including high stiffness and robustness matched to low density and remarkable lightness.

APPLICATIONS

- Realization of accurate, reliable, **durable prototypes**
- **Small production batch** and **pre-production**
- **Aerodynamic motorsport components** for F1 and IndyCar such as alternator covers
- **Automotive parts** such as cooling ducts, mirrors, headlight lids
- **Aerospace**: small satellites and spacecraft components

>>> KEY FEATURES

High tensile modulus
Ideal for high-end mechanical applications

High stiffness and tensile strength

Good elongation at break

Low density

Resistant to high temperatures
(HDT 1,82 MPa 173,4 °C)

Ideal for applications where weigth saving is crucial

Spaceproof
Compliant to NASA and ESA Outgassing tests

Skin contact approved

GOT A PROJECT?

GET IN TOUCH WITH OUR EXPERT TO TALK ABOUT MOST SUITABLE MATERIAL AND TECHNOLOGY

LET'S TALK

Europe
info@windform.com

North America
info@crp-usa.net

UAE & GCC
info@crp-gulf.com

AME-3D
Redefining Manufacturing Limits

UK Distributor of Windform® 3D-Printed Parts

Rel.03_1024

Technical Specifications & conformity

	Test Method	SI Unit	US Unit
General Properties			
Density (20 °C/68 °F)		1,097 g/cc	1.097 g/cc
Colour		BLACK	BLACK
Thermal Properties			
Melting point	ISO 11357-2	179,30 °C	355 °F
HDT, 1.82 MPa	ISO 75-2 TYPE A	173,40 °C	344 °F
Vicat 10N	ISO 306 TYPE A50	176,10 °C	349 °F
Flammability Properties			
Burning Test - HB 1mm	UL 94	HB	HB
Burning Test - HB 3mm	UL 94	HB	HB
Mechanical Properties			
Tensile Strength	UNI EN ISO 527-1	83,84 MPa	12200 psi
Tensile Modulus	UNI EN ISO 527-1	8928,20 MPa	1290 ksi
Elongation at break	UNI EN ISO 527-1	3,80 %	3.80 %
Flexural Strength	UNI EN ISO 178	133,00 MPa	19300 psi
Flexural Modulus	UNI EN ISO 178	7338,20 MPa	1060 ksi
Impact Strength Unnotched (Charpy 23°C)	UNI EN ISO 179	22,43 kJ/m²	10.7 ft-lb/in²
Impact Strength Notched (Charpy 23°C)	UNI EN ISO 179	4,72 kJ/m²	2.25 ft-lb/in²
Impact Strength Unnotched (Izod 23°C)	UNI EN ISO 180	19,26 kJ/m²	9.16 ft-lb/in²
Impact Strength Notched (Izod 23°C)	UNI EN ISO 180	5,30 kJ/m²	2.52 ft-lb/in²
Hardness Shore D	UNI EN ISO 868	79	79
Poisson Ratio	ASTM D638-14	0.41	0.41
Compression Strength	ASTM D695-10	120,2 MPa	17433.54 psi
Compression Elastic Modulus	ASTM D695-10	6,18 GPa	896.33 ksi
Electrical Properties			
Resistivity, Volume	ASTM D257	<10^8 Ω*cm	<10^8 Ω*cm
Resistivity, Surface	ASTM D257	<10^8 Ω	<10^8 Ω
Surface Finish			
After SLS Process		6,00 Ra µm	6.00 Ra µm
After finishing		1,8 Ra µm	1.8 Ra µm
Properties per density unit			
UTS per density unit		76,43 MPa/(g/cc)	11100 psi/(g/cc)
Tensile Modulus per density unit		8138,74 MPa/(g/cc)	1180 ksi/(g/cc)
Flexural Strength per density unit		121,24 MPa/(g/cc)	17600 psi/(g/cc)
Flexural Modulus per density unit		6689,33 MPa/(g/cc)	970 ksi/(g/cc)

Note: The material properties provided herein are for reference purposes only. Data was generated from the testing of parts produced with Windform® XT 2.0 material under optimal processing conditions.
Actual values may vary significantly as they are affected by part geometry and process parameters. Material specifications are subject to change without notice.
Standard Technical Details for Accuracy versus Tolerance:
For parts up to 1 mm (0.039"), the standard tolerance is ± 0,070 mm (0.003")
For parts up to 3 mm (0.118"), the standard tolerance is ± 0,125 mm (0.005")
For parts up to 6 mm (0.236"), the standard tolerance is ± 0,150 mm (0.006")
For parts over 6 mm (0.236"), refer to UNI EN ISO 286-2 JS14 class (linear tolerances).