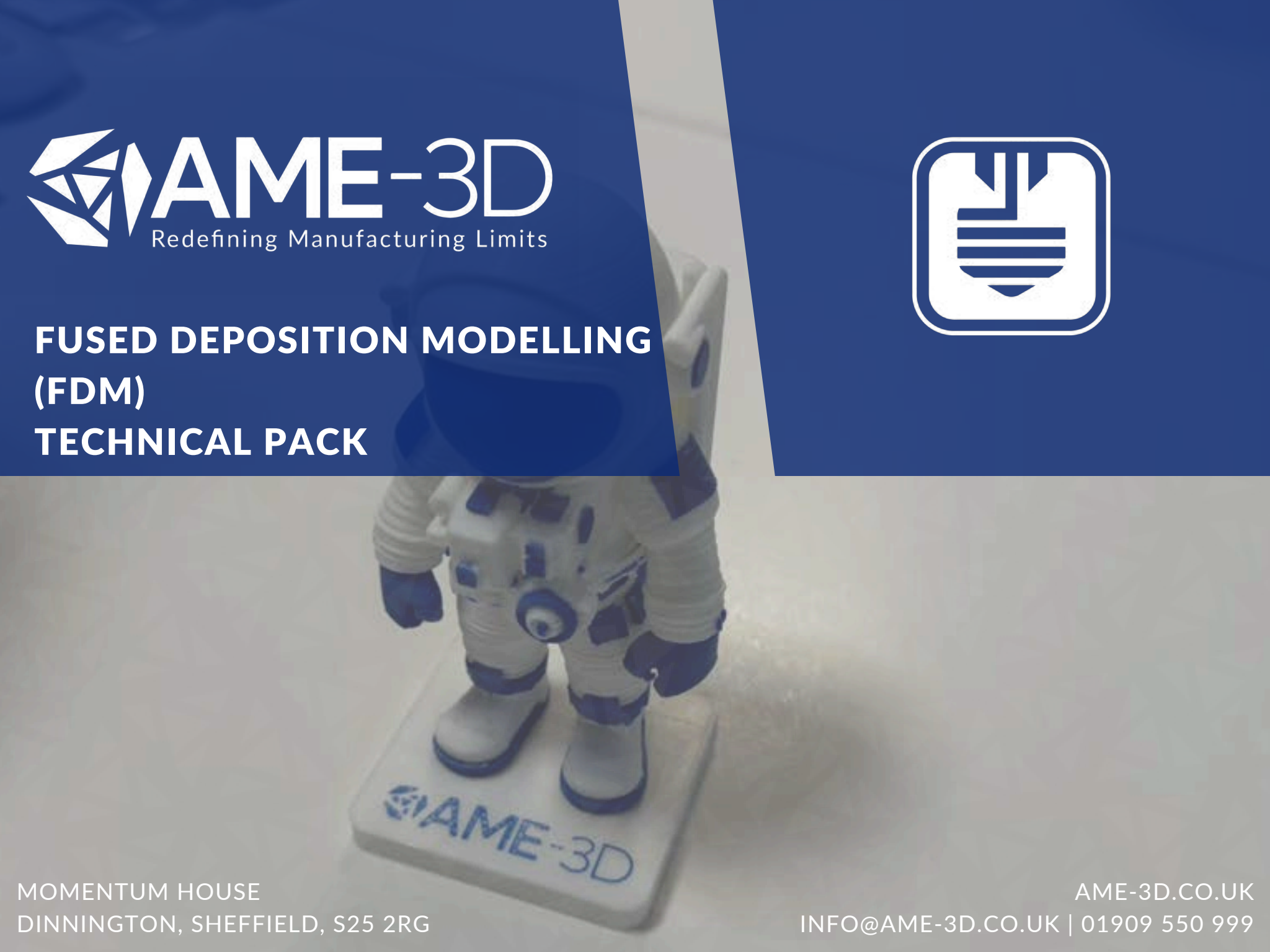
AME-3D
Redefining Manufacturing Limits

FUSED DEPOSITION MODELLING (FDM) TECHNICAL PACK



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FUSED DEPOSITION MODELLING

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TECHNICAL SPECIFICATION

CAPACITY (MM)	SINGLE NOZZLE 325 X 320 X 325 MM³	DOUBLE NOZZLE 300 X 320 X 325 MM³	TOTAL VOLUME X2 350 X 320 X 325 MM³
Nozzle Diameters	2mm, 4mm		
Materials	TPU (90A & 85A) PETG (Carbon-Filled, Clear & Multiple Colours Available) PLA (Carbon-Filled & Multiple Colours Available) ABS (Glass-Filled & Multiple Colours Available) Materials can be requested*		

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PETG

Fused Deposition Modelling (FDM)
Material Datasheet

A strong, versatile thermoplastic offering improved durability and chemical resistance compared to PLA. Available in multiple colours, clear & CF.

Measurement	Normal PETG	Clear	Carbon-Filled
Tensile Strength (Z)	23 ± 4 MPa	29 ± 3 MPa	29 ± 4 MPa
Tensile Strength (X-Y)	34 ± 4 MPa	33 ± 4 MPa	35 ± 5 MPa
Breaking Elongation Rate (X-Y)	8.6 ± 1.2 %	8.2 ± 1.3 %	10.4 ± 0.6 %
Breaking Elongation Rate (Z)	5.1 ± 0.8 %	5.2 ± 0.9 %	4.7 ± 0.4 %
Young's Modulus (X-Y)	1810 ± 190 MPa	1420 ± 160 MPa	2460 ± 230 MPa
Young's Modulus (Z)	1540 ± 130 MPa	1230 ± 140 MPa	1340 ± 150 MPa
Bending Modulus (X-Y)	2050 ± 120 MPa	1610 ± 130 MPa	2910 ± 260 MPa
Bending Modulus (Z)	1810 ± 140 MPa	1520 ± 110 MPa	1560 ± 180 MPa
Impact Strength (X-Y)	31.5 ± 2.2 kJ/m²; 6.2 ± 1.8 kJ/m² (notched)	37.4 ± 3.3 kJ/m²; 8.6 ± 2.1 kJ/m² (notched)	41.2 ± 2.6 kJ/m²; 15.7 ±1.6 kJ/m² (notched)
Impact Strength (Z)	10.6 ± 1.2 kJ/m²	7.2 ± 1.8 kJ/m²	10.7 ± 1.6 kJ/m²
Heat Resistance (HDT, 0.45 MPa)	69 °C	74 °C	74 °C

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

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PLA

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Material Datasheet

Ideal for early-stage prototypes and mock-ups. It offers good dimensional accuracy, making it suitable for quick validation. Available in multiple colours & carbon-filled.

Measurement	Normal PLA	Carbon-Filled
Tensile Strength (Z)	31 ± 3 MPa	26 ± 2 MPa
Tensile Strength (X-Y)	35 ± 4 MPa	38 ± 4 MPa
Breaking Elongation Rate (X-Y)	12.2 ± 1.8 %	8.4 ± 3.2 %
Breaking Elongation Rate (Z)	7.5 ± 1.3 %	3.6 ± 0.7 %
Young's Modulus (X-Y)	2580 ± 220 MPa	2790 ± 120 MPa
Young's Modulus (Z)	2060 ± 170 MPa	2160 ± 90 MPa
Bending Modulus (X-Y)	2750 ± 160 MPa	3950 ± 190 MPa
Bending Modulus (Z)	2370 ± 150 MPa	2260 ± 180 MPa
Impact Strength (X-Y)	26.6 ± 2.8 kJ/m²; 7.9 ± 1.2 kJ/m² (notched)	23.2 ± 3.7 kJ/m²; 7.6 ± 2.6 kJ/m²(notched)
Impact Strength (Z)	13.8 ± 0.9 kJ/m²	7.8 ± 0.7 kJ/m²
Heat Resistance (HDT, 0.45 MPa)	57 °C	55 °C

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ABS

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A tough, impact-resistant material commonly used for functional testing and practical applications. It performs well in higher-temperature environments. Available in multiple colours & glass-filled.

Measurement	Normal ABS	Glass-Filled
Tensile Strength (Z)	28 ± 2 MPa	29 ± 3 MPa
Tensile Strength (X-Y)	33 ± 3 MPa	36 ± 3 MPa
Breaking Elongation Rate (X-Y)	10.5 ± 1.0 %	6.3% ± 1.2%
Breaking Elongation Rate (Z)	4.7 ± 0.8 %	2.3% ± 0.8%
Young's Modulus (X-Y)	2200 ± 190 MPa	3160 ± 170 MPa
Young's Modulus (Z)	1960 ± 110 MPa	2250 ± 130 MPa
Bending Modulus (X-Y)	1880 ± 110 MPa	2860 ± 130 MPa
Bending Modulus (Z)	1590 ± 100 MPa	1970 ± 110 MPa
Impact Strength (X-Y)	39.3 ± 3.6 kJ/m²; 21.5 ± 2.2 kJ/m² (notched)	14.5 ± 1.5 kJ/m²; 4.2 ± 1.1 kJ/m² (notched)
Impact Strength (Z)	7.4 ± 1.2 kJ/m²	5.3 ± 1.4 kJ/m²
Heat Resistance (HDT, 0.45 MPa)	87° C	99° C

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TPU (90A)

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Material Datasheet

Offers a balance between flexibility and structural strength. It is suitable for parts that need to flex while maintaining shape. Multiple colours available.

Measurement	Value
Tensile Strength (Z)	10.1 ± 0.6 MPa
Tensile Strength (X-Y)	12.5 ± 0.8 MPa
Breaking Elongation Rate (X-Y)	> 650%
Breaking Elongation Rate (Z)	> 350%
Young's Modulus (X-Y)	5.3 ± 0.7 MPa
Young's Modulus (Z)	4.4 ± 0.6 MPa
Impact Strength (X-Y)	124.2 kJ/m²
Impact Strength (Z)	87.3 kJ/m²

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TPU (85A)

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Material Datasheet

A highly flexible, rubber-like material ideal for applications requiring elasticity and impact absorption. Available in multiple colours.

Measurement	Value
Tensile Strength (Z)	10.5 ± 0.6 MPa
Tensile Strength (X-Y)	12.0 ± 0.8 MPa
Breaking Elongation Rate (X-Y)	> 700%
Breaking Elongation Rate (Z)	> 350%
Young's Modulus (X-Y)	6.8 ± 0.7 MPa
Young's Modulus (Z)	5.2 ± 0.6 MPa
Impact Strength (X-Y)	124.3 kJ/m²
Impact Strength (Z)	88.5 kJ/m²

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