BCN3D FILAMENTS

ADDITIVE X

PA

Our PA is specially developed for FFF printing. It is based on BASF´s polyamide portfolio known as Ultramid®. The filament has unique mechanical properties due to its chemical structure. This makes it suitable for a wide range of applications working within a larger temperature range. Ultramid® is noted for its high mechanical strength, stiffness and thermal stability. In addition, Ultramid® offers good toughness at low temperatures. Owing to its excellent properties, this material has become indispensable in almost all sectors of engineering. It can be used for a wide range of different components and machine elements, such as a highgrade electrical insulation material.

Ultrafuse PA is the translation of BASF´s Ultramid® to 3D printing space. It is based on copolyamide 6/66 grade of intermediate viscosity. With Ultrafuse PA, it is possible to print semi- flexible thin parts, however, it is very stiff in higher thicknesses.

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PA - *Technical information including:*

General Properties		Standard
Printed Part Density (dry)	1115 kg/m3 / 69.6 lb/ft3	ISO 1183-1
Printed Part Density (conditioned)	1050 kg/m3 / 65.5 lb/ft3	ISO 1183-1

Thermal Properties		Standard
HDT at 1.8 MPa (dry)	6v5 °C / 149 °F	ISO 75-2
HDT at 0.45 MPa (dry)	135 °C / 275 °F	ISO 75-2
Vicat softening point at 50 N	172 °C / 342 °F	ISO 306
Glass Transition Temperature	49 °C / 120 °F	ISO 11357-2
Crystallization Temperature	147 °C / 297 °F	ISO 11357-3
Melting Temperature	195 – 197 °C / 383 – 386 °F	ISO 11357-3
Melt Volume Rate	49.5 cm3 /10 min / 3.02 in3 /10 min (275 °C, 5 kg)	ISO 1133

Mechanical Properties | Conditioned specimens				
Print direction	***Standard***	***XY***	***XZ***	***ZX***
Tensile strength	ISO 527	33.2 MPa / 4.8 ksi	-	17.6 MPa / 2.6 ksi
Elongation at Break	ISO 527	143.3%	-	12.8%
Young's Modulus	ISO 527	395 MPa / 57 ksi	-	334 MPa / 48 ksi
Flexural Strength	ISO 178	17.7 MPa / 2.6 ksi#	18.1 MPa / 2.6 ksi #	17.3 MPa / 2.5 ksi #
Flexural Modulus	ISO 178	445 MPa / 64.5 ksi	468 MPa / 67.9 ksi	428 MPa / 62.1 ksi
Flexural Strain at Break	ISO 178	No break	No break	No break
Impact Strength Charpy (notched)	ISO 179-2	-	136 kJ/m2 ##	9.4 kJ/m2
Impact Strength Charpy (unnotched)	ISO 179-2	No break	No break	13.4 kJ/m2
Impact Strength Izod (notched)	ISO 180	85.4 kJ/m2	106.0 kJ/m2	10.1 kJ/m2
Impact Strength Izod (unnotched)	ISO 180	No break	No break	17.4 kJ/m2

No break, strength at 5% bending strain
Partial rupture