

FDM Nylon 12

APPLICATIONS

FDM Nylon 12 is the first material complementing the current portfolio of FDM materials and enabling new applications requiring: repetitive snap fits, high fatigue resistance, strong chemical resistance and press (friction) fit inserts.

Nylon 12 is primarily used in aerospace, automotive and consumer goods industries to take on everything from tooling, jigs and fixtures to covers, panels and vibration resistant components.

CONDITIONED					
Mechanical Properties ¹	Test Method	English		Metric	
		XZ Axis	XZ Axis	XZ Axis	XZ Axis
Tensile Strength (Type 1, 0.125", 0.2"/min)	ASTM D638	7,000 psi	6,400 psi	48 MPa	44 MPa
Tensile Modulus (Type 1, 0.125", 0.2"/min)	ASTM D638	190,000 psi	180,000 psi	1,310 MPa	1,241 MPa
Elongation at Break (Type 1, 0.125", 0.2"/min)	ASTM D638	30%	5%	30%	5%
Elongation at Yield (Type 1, 0.125", 0.2"/min)	ASTM D638	6.5%	5%	6.5%	5%
Flexural Strength (Method 1, 0.05"/min)	ASTM D790	10,000 psi	8,600 psi	69 MPa	59 MPa
Flexural Modulus (Method 1, 0.05"/min)	ASTM D790	190,000 psi	180,000 psi	1,310 MPa	1,241 MPa
Flexural Strain at Break (Method 1, 0.05"/min)	ASTM D790	No Break	>10%	No Break	>10%
IZOD impact - notched (Method A, 23°C)	ASTM D256	3.7 ft-lb/in	75.0 ft-lb/in	200 J/m	75 J/m
IZOD impact - unnotched (Method A, 23°C)	ASTM D256	>37.4 ft-lb/in	3.7 ft-lb/in	>2,000 J/m	200 J/m

UNCONDITIONED (DRY)					
Mechanical Properties	Test Method	English		Metric	
		XZ Axis	XZ Axis	XZ Axis	XZ Axis
Tensile Strength, Yield (Type 1, 0.125", 0.2"/min)	ASTM D638	7,700 psi	6,900 psi	53 MPa	48 MPa
Tensile Modulus (Type 1, 0.125", 0.2"/min)	ASTM D638	190,000 psi	180,000 psi	1,310 MPa	1,241 MPa
Elongation at Break (Type 1, 0.125", 0.2"/min)	ASTM D638	9.5%	5%	9.5%	5%
Elongation at Yield (Type 1, 0.125", 0.2"/min)	ASTM D638	6.5%	5%	6.5%	5%
Flexural Strength (Method 1, 0.05"/min)	ASTM D790	10,200 psi	8,600 psi	0 MPa	0 MPa
Flexural Modulus (Method 1, 0.05"/min)	ASTM D790	190,000 psi	180,000 psi	0 MPa	0 MPa
Flexural Strain at Break	ASTM D790	No Break	>10%	No Break	>10%
IZOD impact - notched (Method A, 23°C)	ASTM D256	2.8 ft-lb/in	0.9 ft-lb/in	150 J/m	50 J/m
IZOD impact - unnotched (Method A, 23°C)	ASTM D256	>37.4 ft-lb/in	5.1 ft-lb/in	>2,000 J/m	275 J/m

Thermal Properties ¹	Test Method	English	Metric
Heat Deflection (HDT) @ 66 psi annealed	ASTM D648	207°F	97°C
Heat Deflection (HDT) @ 66 psi unannealed	ASTM D649	167°F	75°C
Heat Deflection (HDT) @ 264 psi annealed	ASTM D650	180°F	82°C
Heat Deflection (HDT) @ 264 psi unannealed	ASTM D651	131°F	55°C
Melting Point	-----	352°F	178°C

¹ - Literature value unless otherwise noted.