# FDM® Nylon 12

#### Polyamide 12

### Stratasys

#### Message:

Production-Grade Thermoplastic for Fortus 3D Production Systems

FDM® Nylon 12 is the first material in Stratasys' new family of nylon offerings, 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. For use with Fortus® 360mc, 400mc & 900mc 3D Production Systems, FDM Nylon 12 offers unparalleled toughness and a simple, clean process - free of powders.

General Information							
Features		Durable					
		Fatigue Resistant					
		Good Chemical Resistance Good Processability					
		Good Sterilizability					
		High Heat Resistance High Impact Resistance					
		Ultra High Toughness  Vibration Damping					
Uses		Aerospace Applications					
		Automotive Applications					
		Consumer Applications					
		Engineering Parts					
		Housings					
		Protective Coverings					
		Tooling					
Appearance		Black					
Processing Method		3D Printing, Fused Filament Fabrication (FFF)					
Physical	Dry	Conditioned	Unit				
Thickness - Layer Capability	177.8 to 330.2		μm				
Flexural Strain at Break	No Break	No Break		ASTM D790			
Mechanical	Dry	Conditioned	Unit	Test Method			
Tensile Modulus <sup>1</sup> (3.18							
mm)	1310	1310	MPa	ASTM D638			
Tensile Strength <sup>2</sup> (3.18 mm)	53.1	48.3	MPa	ASTM D638			
Tensile Elongation <sup>3</sup>		10.0	1711 U	ASTM D638			
	6.5	6.5	%	7.51141 2030			
Yield, 3.18 mm	6.5	6.5	%				

Break, 3.18 mm         9.5         30         %           Flexural Modulus <sup>4</sup> 1310         1310         MPa         ASTM D790           Flexural Strength <sup>5</sup> 70.3         68.9         MPa         ASTM D790           Impact         Dry         Conditioned         Unit         Test Method           Notched Izod Impact (23°C)         150         200         J/m         ASTM D256A           Unnotched Izod Impact (23°C)         > 2000         J/m         ASTM D256           Thermal         Dry         Conditioned         Unit         Test Method           Deflection Temperature Under Load         Unit         Test Method         ASTM D648           0.45 MPa, Unannealed         75.0          °C           0.45 MPa, Annealed         97.0          °C           1.8 MPa, Annealed         82.0          °C           Melting Temperature         178          °C           NOTE         Type I, 5.1 mm/min         3.         Type I, 5.1 mm/min           4.         Method I (3 point load), 1.3 mm/min         Method I (3 point load), 1.3								
Flexural Strength	Break, 3.18 mm	9.5	30	%				
Impact	Flexural Modulus <sup>4</sup>	1310	1310	МРа	ASTM D790			
Notched Izod Impact (23°C)         150         200         J/m         ASTM D256A           Unnotched Izod Impact (23°C)         > 2000         > 2000         J/m         ASTM D256           Thermal         Dry         Conditioned         Unit         Test Method           Deflection Temperature Under Load         Test Method         ASTM D648           0.45 MPa, Unannealed         75.0          °C           0.45 MPa, Annealed         97.0          °C           1.8 MPa, Annealed         82.0          °C           Melting Temperature         178          °C           NOTE         NOTE         Type I, 5.1 mm/min          °C           NOTE         Method I (3 point load), 1.3 mm/min         Method I (3 point load), 1.3 mm/min         Method I (3 point load), 1.3 mm/min	Flexural Strength <sup>5</sup>	70.3	68.9	МРа	ASTM D790			
C23°C    150   200   J/m   ASTM D256A	Impact	Dry	Conditioned	Unit	Test Method			
C23°C		150	200	J/m	ASTM D256A			
Deflection Temperature Under Load  0.45 MPa, Unannealed 75.0 0.45 MPa, Annealed 97.0 1.8 MPa, Unannealed 55.0 1.8 MPa, Annealed 82.0 Melting Temperature 178 NOTE  1. Type I, 5.1 mm/min 2. Type I, 5.1 mm/min 3. Type I, 5.1 mm/min  Method I (3 point load), 1.3 mm/min  Method I (3 point load), 1.3  Method I (3 point load), 1.3		> 2000	> 2000	J/m	ASTM D256			
Under Load     ASTM D648       0.45 MPa, Unannealed     75.0      °C       0.45 MPa, Annealed     97.0      °C       1.8 MPa, Unannealed     55.0      °C       1.8 MPa, Annealed     82.0      °C       Melting Temperature     178      °C       NOTE       1.     Type I, 5.1 mm/min       2.     Type I, 5.1 mm/min       3.     Type I, 5.1 mm/min       Method I (3 point load), 1.3 mm/min       Method I (3 point load), 1.3 mm/min	Thermal	Dry	Conditioned	Unit	Test Method			
0.45 MPa, Annealed       97.0        °C         1.8 MPa, Unannealed       55.0        °C         1.8 MPa, Annealed       82.0        °C         Melting Temperature       178        °C         NOTE         1.       Type I, 5.1 mm/min         2.       Type I, 5.1 mm/min         3.       Type I, 5.1 mm/min         4.       Method I (3 point load), 1.3 mm/min         Method I (3 point load), 1.3         Method I (3 point load), 1.3	· · · · · · · · · · · · · · · · · · ·				ASTM D648			
1.8 MPa, Unannealed       55.0        °C         1.8 MPa, Annealed       82.0        °C         Melting Temperature       178        °C         NOTE         1.       Type I, 5.1 mm/min         2.       Type I, 5.1 mm/min         3.       Type I, 5.1 mm/min         4.       Method I (3 point load), 1.3 mm/min         Method I (3 point load), 1.3 mm/min	0.45 MPa, Unannealed	75.0		°C				
1.8 MPa, Annealed       82.0        °C         Melting Temperature       178        °C         NOTE         1.       Type I, 5.1 mm/min         2.       Type I, 5.1 mm/min         3.       Type I, 5.1 mm/min         Method I (3 point load), 1.3 mm/min         Method I (3 point load), 1.3         Method I (3 point load), 1.3	0.45 MPa, Annealed	97.0		°C				
Melting Temperature         178          °C           NOTE           1.         Type I, 5.1 mm/min           2.         Type I, 5.1 mm/min           3.         Type I, 5.1 mm/min           4.         Method I (3 point load), 1.3 mm/min           Method I (3 point load), 1.3         Method I (3 point load), 1.3	1.8 MPa, Unannealed	55.0		°C				
NOTE  1.	1.8 MPa, Annealed	82.0		°C				
1. Type I, 5.1 mm/min 2. Type I, 5.1 mm/min 3. Type I, 5.1 mm/min  Method I (3 point load), 1.3 mm/min  Method I (3 point load), 1.3	Melting Temperature	178		°C				
2.       Type I, 5.1 mm/min         3.       Type I, 5.1 mm/min         4.       Method I (3 point load), 1.3 mm/min         Method I (3 point load), 1.3	NOTE							
3. Type I, 5.1 mm/min  Method I (3 point load), 1.3  mm/min  Method I (3 point load), 1.3	1.	Type I, 5.1 mm/min						
Method I (3 point load), 1.3 mm/min  Method I (3 point load), 1.3	2.	Type I, 5.1 mm/min						
4. mm/min  Method I (3 point load), 1.3	3.	Type I, 5.1 mm/min						
·	4.							
5. mm/min	5.	Method I (3 point load), 1.3 mm/min						

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