



DuraForm PA11 Natural

Production Tough

Manufacture tough, impact-resistant plastic prototypes or end-use parts requiring molded-part performance and capable of withstanding harsh environments.

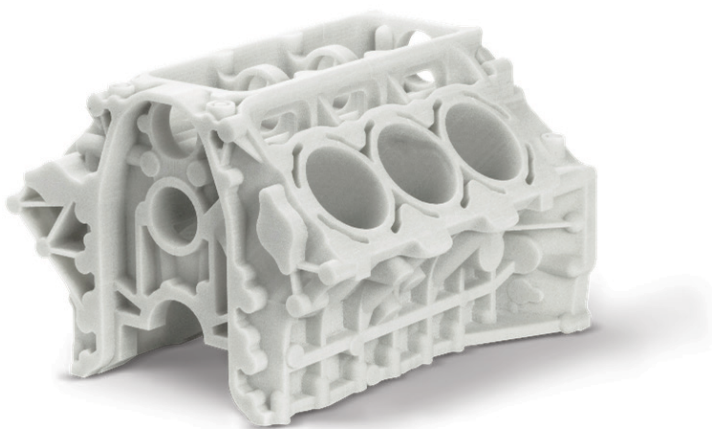
Selective Laser Sintering (SLS)

PRODUCTION-GRADE, HIGH IMPACT NYLON 11 WITH HIGH ELONGATION AT BREAK

DuraForm PA11 is produced from a renewable bio-source and offers outstanding toughness and excellent impact resistance.

It possesses outstanding mechanical properties including excellent chemical resistance, high and low temperature performance, high dimensional stability, and high elongation at break. It also provides superior isotropic performance which further enhances strength along the z-axis.

As a production-grade material, DuraForm PA11 can be utilized for functional prototypes or end use parts.



APPLICATIONS

- Complex, thin-walled ductwork
- Housings and small enclosures
- Impellers
- Connectors
- Consumer sporting goods
- Automotive interior components
- Bumper and grille components
- Fasteners, clips, and mechanical parts
- Quick connectors and fittings

BENEFITS

- Produced from a green, renewable bio-resource
- Excellent chemical resistance
- Performs well at high and low temperatures
- High dimensional stability
- Parts have the toughness of injection molded ABS and polypropylene
- Production grade and long-term stable, can be used for functional prototypes or end-use parts

SOLID MATERIAL						
METRIC	ASTM METHOD	METRIC	US	ISO METHOD	METRIC	US
PHYSICAL				PHYSICAL		
Solid Density	ASTM D792	1.02 g/cm ³	0.037 lb/in ³	ISO 1183	1.02 g/cm ³	0.037 lb/in ³
24 Hour Water Absorption	ASTM D570	0.54 %	0.54 %	ISO 62	0.54 %	0.54 %
MECHANICAL				MECHANICAL		
Tensile Strength Ultimate	ASTM D638 Type IV	50 MPa	7200 psi	ISO 527 -1/2	50 MPa	7300 psi
Tensile Strength at Yield	ASTM D638 Type IV	50 MPa	7200 psi	ISO 527 -1/2	50 MPa	7300 psi
Tensile Modulus	ASTM D638 Type IV	3100 MPa	450 ksi	ISO 527 -1/2	3400 MPa	500 ksi
Elongation at Break	ASTM D638 Type IV	21.4 %	21.4 %	ISO 527 -1/2	19.7 %	19.7 %
Elongation at Yield	ASTM D638 Type IV	15.2 %	15.2 %	ISO 527 -1/2	15 %	15 %
Flex Strength	ASTM D790	57 MPa	8300 psi	ISO 178	52 MPa	7500 psi
Flex Modulus	ASTM D790	1600 MPa	230 ksi	ISO 178	1400 MPa	207 ksi
Izod Notched Impact	ASTM D256	41 J/m	0.8 ft-lb/in	ISO 180-A	5 J/m ²	0.0024 ft-lb/in ²
Izod Unnotched impact	ASTM D4812	Did not break	Did not break	ISO 180-U	Did not break	Did not break
Shore Hardness	ASTM D2240	77 D	77 D	ISO 7619	77 D	77 D
THERMAL				THERMAL		
Tg (DMA E")	ASTM E1640 (E"Peak)	47 C	117 F	ISO 6721-1/11 (E" Peak)	47 C	117 F
HDT 0.455MPa/66PSI	ASTM D648	192 C	378 F	ISO 75- 1/2 B	180 C	355 F
HDT 1.82MPa/264 PSI	ASTM D648	58 C	136 F	ISO 75-1/2 A	49 C	120 F
CTE -20 TO 50C	ASTM E831	123 ppm/C	68 ppm/F	ISO 11359-2	123 ppm/C	68 ppm/F
CTE 75 TO 180C	ASTM E831	220 ppm/C	122 ppm/F	ISO 11359-2	220 ppm/C	122 ppm/F

Complete data set will be available in Q1 2024.

