DuraForm® ProX® EX BLK

Strong, tough nylon 11 based plastic handles the rigors of repeated abuse for long-term use in harsh environments

General Properties

MEASUREMENT	CONDITION	METRIC	U.S.
Sintered Part Density @ 23 °C	ASTM D792	1.02 g/cc	0.037 lb/in^3
Moisture Absorption @ 23 °C	ASTM D570	0.08 %	0.080 %

Mechanical Properties

MEASUREMENT	CONDITION	METRIC	U.S.
Tensile Strength, Ultimate (MPa | psi)	ASTM D638	43	6210
Tensile Modulus (MPa | ksi)	ASTM D638	1570	227
Elongation at Break %) at 5mm/min (%) at 50mm/min (%)	ASTM D638	 60 27	 60 27
Flexural Strength, Ultimate (MPa | psi)	ASTM D790	51	7430
Flexural Modulus (MPa | ksi)	ASTM D790	1360	197
Hardeness, Shore D	ASTM D2240	76	76
Impact Strength (J/m | ft-lb/in) Notched Izod Unnotched Izod	ASTM D256	 75 3336	 1.4 63

The parts used to generate the above data were generated by building parts using 80% virgin powder using default parameters on a ProX® SLS 500 printer.

Features

- Outstanding durability for long-life
- Excellent impact resistance
- Fatigue resistant for applications like hinges requiring hundreds of open-close cycles
- Fuel and oil resistance make it perfect for automotive applications
- Uniform black coloring resists fading or staining
- Derived from sustainable non-petrochemical based plastics

Benefits

- Complex end-use parts can be economically manufactured without the expense of tooling
- Parts have toughness required to replace injection molded ABS and polypropylene
- Functional parts can be tested in real life environments such as crash tests or other stress simulations
- No painting required for a a deep black color that doesn't fade or chip

Applications

- Housing and enclosures
- Vehicle dashboards and grilles
- Automotive bumpers
- Snap-fits, living hinges and connector type parts
- Short production consumer goods/sporting equipment
- Complex designs, especially custom ductwork
- Exhaust and duct systems for aerospace and automotive uses
- Impellers

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Thermal Properties

MEASUREMENT	CONDITION	METRIC	U.S.
Heat Deflection Temperature @ 0.45 MPa @ 1.82 MPa	D648	 193 °C 57 °C	 379 °F 134 °F
Coefficient of Thermal Expansion (0-145 °C) (µm/m-°C | µin/in-°F)	E831	168	94
Specific Heat Capacity @ 23 °C (J/g - °C | BTU/lb - °F)	E1269	1.77	0.42
Thermal Conductivity (W/m-K | in/hr-ft²- °F)	E1530	0.25	1.73
Flammability	UL 94	HB	HB

Electrical Properties

MEASUREMENT	CONDITION	METRIC	U.S.
Volume Resistivity (ohm - cm)	ASTM D257	1.09×10^{17}	4.29×10^{16}
Surface Resistivity (ohm)	ASTM D257	2.53×10^{12}	2.53×10^{12}
Dissipation Factor, 1 KHz	ASTM D150	0.051	0.051
Dielectric Constant, 1 KHz	ASTM D150	2.82	2.82
Dielectric Strength (kV/mm | kV/mil)	ASTM D149	17	428

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