



DuraForm® ProX® AF+

DuraForm ProX AF+ is an aluminum filled nylon 12 plastic that produces parts with high stiffness and a metallic appearance

General Properties

| MEASUREMENT | CONDITION | METRIC | U.S. |
|-------------------------------|-----------|-----------|---------------------------|
| Sintered Part Density @ 23 °C | ASTM D792 | 1.31 g/cc | 0.047 lbs/in ³ |
| Moisture Absorption @ 23 °C | ASTM D570 | 0.25 % | 0.25 % |

Mechanical Properties

| MEASUREMENT | CONDITION | METRIC | U.S. |
|--|------------|-----------|------------|
| Tensile Strength Yield, Ultimate (MPa psi) | ASTM D638 | 37.0 | 5350 |
| Tensile Modulus (MPa ksi) | ASTM D638 | 4340 | 630 |
| Elongation at Break (%) | ASTM D638 | 3 | 3 |
| Flexural Strength, Ultimate (MPa psi) | ASTM D790 | 64 | 9260 |
| Flexural Modulus (MPa ksi) | ASTM D790 | 3710 | 538 |
| Hardness, Shore D | ASTM D2240 | 78 | 78 |
| Impact Strength (J/m ft-lb/in) Notched Izod Unnotched Izod | ASTM D256 | 54 255 | 1.0 4.8 |

Features

- Excellent surface finish
- Easily machined and polished for the addition of press fits, tappings or other uses
- Repeatable mechanical properties for consistent prints time after time
- High stiffness for rigid functional assemblies
- Improved recyclability for an aluminum filled powder

Benefits

- Aesthetic metallic surface finish directly off the printer
- Complex designs can have a metallic look with functional strength at an affordable cost
- High rigidity ideal for jigs and fixtures
- Excellent stiffness to weight ratio
- Lower cost per part due to higher recyclability

Applications

- Housing and enclosures
- Plastic parts requiring a metallic finish and good appearance
- Automotive styling parts where a metallic look is needed (knobs, bezzels etc.)
- High rigidity components
- Wind tunnel testing parts where stiffness and light weight are needed



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Thermal Properties

| MEASUREMENT | CONDITION | METRIC | U.S. |
|--|-----------|------------------|------------------|
| Heat Deflection Temperature @ 0.45 MPa @ 1.82 MPa | D648 | 182 °C 174 °C | 360 °F 345 °F |
| Coefficient of Thermal Expansion (0-145 °C) (µm/m-°C µin/in-°F) | E831 | 145 | 81 |
| Specific Heat Capacity @ 23 °C (J/g-°C BTU/lb-°F) | E1269 | 1.44 | 0.34 |
| Thermal Conductivity (W/m-K in/hr-ft ² -°F) | E1530 | 0.42 | 2.91 |
| Flammability | UL 94 | HB | HB |

Electrical Properties

| MEASUREMENT | CONDITION | METRIC | U.S. |
|--|-----------|-------------------------|-------------------------|
| Volume Resistivity (ohms-cm ohms-in) | ASTM D257 | 1.09 x 10 ¹⁴ | 4.29 x 10 ¹³ |
| Surface Resistivity (ohm) | ASTM D257 | 1.33 x 10 ¹³ | 1.33 x 10 ¹³ |
| Dissipation Factor, 1 KHz | ASTM D150 | 0.0121 | 0.0121 |
| Dielectric Constant, 1 KHz | ASTM D150 | 2.6 | 2.6 |
| Dielectric Strength (kV/mm kV/mil) | ASTM D149 | 3 | 77 |

The parts used to generate the above data were generated by building parts using 70% virgin powder using default parameters on a ProX[®] SLS 500 printer.



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