

# DuraForm<sup>®</sup> GF Plastic

Rigid Selective Laser Sintering material has fantastic mechanical stiffness and durability



## General Properties

| MEASUREMENT                           | CONDITION | METRIC | U.S.  |
|---------------------------------------|-----------|--------|-------|
| Specific Gravity (g/cm <sup>3</sup> ) | ASTM D792 | 1.49   | 1.49  |
| Moisture Absorption - 24 hours        | ASTM D570 | 0.22%  | 0.22% |

## Mechanical Properties

| MEASUREMENT   | CONDITION  | METRIC            | U.S.                         |
|---|------------|-------------------|------------------------------|
| Tensile Strength, yield (MPa   psi)                             | ASTM D638  | 27                | 3916                         |
| Tensile Strength, ultimate (MPa   psi)                          | ASTM D638  | 26                | 3771                         |
| Tensile Modulus (MPa   ksi)                                     | ASTM D638  | 4068              | 590                          |
| Elongation at Break (%)   | ASTM D638  | 1.4               | 1.4                          |
| Flexural Strength, ultimate (MPa   psi)                         | ASTM D790  | 37                | 5366                         |
| Flexural Modulus (MPa   ksi)                                    | ASTM D790  | 3106              | 450                          |
| Hardness, Shore D   | ASTM D2240 | 77                | 77                           |
| Impact Strength<br>Notched Izod, 23 °C<br>Unnotched Izod, 23 °C | ASTM D256  | 41 J/m<br>123 J/m | 0.8 ft-lb/in<br>2.3 ft-lb/in |
| Gardner Impact (J   ft. - lb)                                   | ASTM D5420 | 4.5               | 3.3                          |

## Thermal Properties

| MEASUREMENT                      | CONDITION                                  | METRIC                            | U.S.                                 |
|----------------------------------|--|-----------------------------------|--------------------------------------|
| Heat Deflection Temperature      | ASTM D 648<br>@ 0.45 MPa<br>@ 1.82 MPa     | 179 °C<br>134 °C                  | 354 °F<br>273 °F                     |
| Coefficient of Thermal Expansion | ASTM D 648<br>@ 0 - 50 °C<br>@ 85 - 145 °C | 62.3 µm/m - °C<br>124.6 µm/m - °C | 34.6 µin/in - °F<br>69.2 µin/in - °F |
| Specific Heat Capacity           | ASTM E1269                                 | 1.09 J/g - °C                     | 0.261 BTU/lb - °F                    |
| Thermal Conductivity             | ASTM E1225                                 | 0.47 W/m-K                        | 3.26 BTU- in/hr-ft <sup>2</sup> - °F |
| Flammability                     | UL 94                                      | HB                                | HB                                   |

## Electrical Properties

| MEASUREMENT                         | CONDITION | METRIC                 | U.S.                   |
|-------------------------------------|-----------|------------------------|------------------------|
| Volume Resistivity (ohm - cm)       | ASTM D257 | 3.2 x 10 <sup>11</sup> | 3.2 x 10 <sup>11</sup> |
| Surface Resistivity (ohm)           | ASTM D257 | 3.2 x 10 <sup>11</sup> | 3.2 x 10 <sup>11</sup> |
| Dissipation Factor, 1KHz            | ASTM D150 | 0.177                  | 0.177                  |
| Dielectric Constant, 1 KHz          | ASTM D150 | 6.27                   | 6.27                   |
| Dielectric Strength (kV/mm   kV/in) | ASTM D149 | 8.7                    | 221                    |

Data was generated by building parts under typical default parameters. DuraForm GF plastic was processed on a base-level Sinterstation HiQ SLS system at 13 watts laser power, 200 inches/sec [5 m/sec] scan speed, and a powder layer thickness of 0.004 inches [0.1 mm].

## Features

- Excellent mechanical stiffness
- Elevated temperature resistance
- Dimensionally stable
- Easy-to-process
- Nice surface finish

## Benefits

- Excels in load bearing applications at higher temperatures
- Prototypes and end-use parts without tooling
- Accurate and repeatable parts
- Machinable and paintable for demonstration parts
- Improved isotropic shrinkage due to glass filler

## Applications

- Housings and enclosures
- Consumer sporting goods
- Appropriate for low- to mid-volume rapid manufacturing
- Parts requiring machining or joining with adhesives
- Complex production and prototype plastic parts
- Form, fit or functional prototypes
- Parts requiring stiffness
- Thermally stressed parts

RAPIDAPPLICATIONGROUP.COM

+1(833)-RAP-APP1  
(+1-833-727-2771)

### Location:

405 SOUTH 9TH ST.  
BROKEN ARROW, OK. 74012 USA