



THE GUND COMPANY

MANUFACTURERS & FABRICATORS OF ENGINEERED MATERIAL SOLUTIONS

G-15 NEMA Thermoset Composite

NEMA G-15 is a new thermoset composite comprised of woven fiberglass and a unique blend of high-temperature resin binders designed for applications that demand superior performance at elevated temperatures. It is a cost-effective alternative to engineered thermoplastics. NEMA G-15 has outstanding flexural and impact strength and maintains a high percentage of mechanical and insulating properties up to 240°C. NEMA G-15 offers excellent dimensional stability and creep resistance and has good resistance to moisture, chemicals, alkalis, and acids. It does not melt or soften at elevated temperatures and offers extended application capability beyond typical NEMA grades. IEC equivalent is PIGC 203.

| | | ASTM/IEC | TYPICAL VALUES | |
|-------------------------------------|---|-------------|----------------|---------------------|
| PROPERTIES | | Test Method | Units | NEMA G-15 |
| PHYSICAL | Specific Gravity | ASTM D229 | -- | 1.81 |
| | Water Absorption: 0.35" | ASTM D570 | % | <0.16 |
| MECHANICAL | Rockwell Hardness | ASTM D785 | M Scale | 117 |
| | Bond Strength | ASTM D229 | lb (kg) | >1,450 (658) |
| | Flexural Strength: Lengthwise (0.35") | ASTM D790 | PSI (MPa) | >78,000 (538) |
| | Flexural Strength: Crosswise (0.35") | ASTM D790 | PSI (MPa) | >73,000 (503) |
| | Flexural Strength: LW & CW @ 150°C/302°F for 1 hour | ASTM D790 | PSI (MPa) | >59,000 (407) |
| | Flexural Strength: LW & CW @ 220°C/428°F for 1 hour | ASTM D790 | PSI (MPa) | >36,100 (249) |
| | Flexural Strength: LW & CW @ 260°C/500°F for 1 hour | ASTM D790 | PSI (MPa) | >17,400 (120) |
| | IZOD Impact Strength: Lengthwise | ASTM D256 | ft-lb/in | >17 |
| | IZOD Impact Strength: Crosswise | ASTM D256 | ft-lb/in | >14 |
| | Compressive Strength: Flatwise | ASTM D695 | PSI (MPa) | >60,000 (414) |
| Shear Strength: Category A (0.125") | ASTM D732 | PSI (MPa) | >20,000 (138) | |
| ELECTRICAL | Dielectric Breakdown: 0.125" | ASTM D149 | V | >50,000 |
| | Dielectric Strength: Step by Step | ASTM D149 | VPM | >450 |
| | Arc Resistance | ASTM D495 | Seconds | >180 |
| | Comparative Tracking Index | IEC 60112 | | 375 |
| | Flammability | UL94 | | V1 <5 mm / V0 >6 mm |
| THERMAL | Tg-DMA Method: 0.35" | ASTM E1640 | °C (°F) | 240 (464) |

SHEET AVAILABILITY

SHEET SIZE

- 48" x 48" or 48" x 96"

THICKNESS

- 0.016" to 3.500"

SHEET AVAILABILITY (SI)

SHEET SIZE

- 122 cm x 122 cm or 122 cm x 244 cm

THICKNESS

- 0.41 mm to 88.90 mm

The Gund Company custom fabricates insulation materials to the exact specifications and drawings specified by our customers. We offer our customers the proper product for their specific application. A variety of dimensions and diameter sizes are available. Product colors vary according to material type.



The data supplied are typical values. They are not to be considered specification values. All of the information, suggestions, and recommendations about these properties and uses of the products herein are based on tests and data believed to be accurate; however, the final determination regarding the suitability of any material described herein for the contemplated application, the manner of such use, and whether the use infringes any patents is the sole responsibility of the user. There is no warranty - expressed or implied - including, without limitation, warranties of merchantability or fitness for a particular purpose. Under no circumstances shall we be liable for incidental or consequential loss or damage.



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NEMA Thermoset Composite

| PROPERTIES | ASTM | | TYPICAL VALUES | | | | | | | |
|--------------------------|----------------------------------|----------------------|----------------------|--------------|-----------|-----------|-----------|-------------|--------------|-------------|
| | Test Method | Units | NEMA GPO-3 | NEMA G-10/FR | NEMA G-11 | NEMA G-15 | Mica XM | Mica XP | Mica XFP | |
| PHYSICAL | Specific Gravity | | 1.80 | 1.85 | 1.90 | 1.81 | 2.21 | 2.13 | 1.90 | |
| | Water Absorption (0.125") | ASTM D570 | % | 0.20 | 0.10 | 0.01 | <0.16 | 0.065 | < 1 | < 1 |
| MECHANICAL | Flexural Strength: Lengthwise | ASTM D790 | KSI (Mpa) | 23 (159) | 80 (552) | 70 (486) | >78 (538) | 24 (166) | 18 (125) | - |
| | Flexural Strength: Crosswise | ASTM D790 | KSI (Mpa) | 20 (138) | 70 (483) | 62 (425) | >73 (503) | 24 (166) | 18 (125) | - |
| | IZOD Impact Strength: Lengthwise | ASTM D229 | ft-lb/in | 9.3 | 13 | 11 | >17 | - | - | - |
| | IZOD Impact Strength: Crosswise | ASTM D229 | ft-lb/in | 9.5 | 12 | 10 | >14 | - | - | - |
| | Compressive Strength: Flatwise | ASTM D695 | KSI (Mpa) | 33 (228) | 66 (455) | 70 (483) | >60 (414) | 58 (397) | 48 (330) | - |
| | Shear Strength: Cat. A (0.125") | ASTM D732 | KSI (Mpa) | 13 (90) | 22 (148) | - | >20 (138) | - | - | - |
| | Compressibility | ASTM F36 J | % | - | - | - | - | - | - | 20 |
| Elastic Recovery | ASTM F36 J | % | - | - | - | - | - | - | 37 | |
| ELECTRICAL | Dielectric Breakdown | ASTM D149 | kV | 45 | 66 | 50 | 50 | - | - | - |
| | Dielectric Strength | ASTM D149 | V/mil | 550 | 635 | 485 | >450 | 629 | 625 | 508 |
| | Arc Resistance | ASTM D495 | Seconds | 192 | 140 | - | >180 | >420 | >420 | >420 |
| | Thermal Conductivity: 23°C | ASTM E1461 | W/m°C | 0.32 | - | - | 0.32 | 0.23 | 0.23 | 0.23 |
| | Thermal Conductivity: 250°C | ASTM E1461 | W/m°C | - | - | - | - | 0.21 | 0.21 | 0.21 |
| | Thermal Expansion: 110°C | ASTM E228 | 10 ⁻⁶ /°C | - | 15 | 10 | - | 10 | 10 | 10 |
| Thermal Expansion: 250°C | ASTM E228 | 10 ⁻⁶ /°C | - | - | - | - | 28 | 28 | 28 | |
| THERMAL | Operating Temperature | UL 746B | °C (°F) | 130 (266) | 130 (266) | 180 (356) | 225 (437) | 500 (932) | 700 (1,292) | 700 (1,292) |
| | Peak Temperature | UL 746B | °C (°F) | - | - | - | 280 (536) | 700 (1,292) | 1000 (1,832) | 900 (1,652) |
| | Flame Rating | UL 94 | Class | V-0 | V-0 | HB | V-0 | V-0 | V-0 | V-0 |
| | Specific Heat: 23°C | ASTM E1269 | J/kg°C | - | - | - | - | 822 | 0.21 | 0.21 |
| | Specific Heat: 250°C | ASTM E1269 | J/kg°C | - | - | - | - | 1,081 | 1,081 | 1,081 |

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