SUPER SPACER® STRUCTURAL SILICONE SPACER SYSTEMS

for high-performance, Warm Edge insulating glass units

glassandmirrorcraft.com
Super Spacer® Features

What is a Warm Edge Spacer?
“Warm Edge” refers to the thermal conductivity of the spacer used to separate the lites of an insulating glass unit. If the spacer material is less conductive than conventional aluminum, it is considered warm edge.

Most of the newer spacers perform better than aluminum, but still contain some metal, and this metal is highly conductive.

What is Super Spacer?
Super Spacer® is an extruded, thermoset polymer structural silicone spacer with integrally incorporated desiccants. The shape of the thermoset polymer material is set during heat curing and can’t be reshaped through reheating. Super Spacer retains its flexibility over a wide temperature range, always returns to its original cured shape and has a low compression set.

The silicone formula of Super Spacer exhibits excellent resistance to ozone, sunlight, oxidation and has excellent color stability.

Super Spacer Construction

1. Smooth, matte finish guaranteed against blistering and bubbling.
2. Thermoset silicone matrix.
4. Structural adhesive combines with perimeter edge sealant for dual seal performance and durability.

The NO-Metal Advantage
The edge of an IG unit is the most vulnerable part of the glass to heating and cooling losses, condensation and frosting. Super Spacer contains NO-Metal and is one of the most thermally efficient IG spacers available in the market today.

Super Spacer® Features

Reduces Sealant Stress
Super Spacer’s thermoset silicone polymer material expands and contracts and always returns to its original shape. Rigid spacers do not accommodate the natural expansion and contraction caused by glazing pressure, thermal expansion, wind loads and barometric pressure. The results are stress cracks and sealant movement that eventually lead to seal failure.

Super Spacer sealed IG units last up to five times longer in durability tests than conventional single seal units. Super Spacer features superior Argon and Krypton gas retention.

Maximizes Heat Flow Resistance
Super Spacer resists heat flow at a rate of 1500 times more than that of aluminum. This means lower energy costs, less condensation/frosting and reduced chances for mold growth.

Improves Glass Surface Temperature
Super Spacer’s extremely low thermal conductivity means less variation in the surface temperature of the IG unit.

The surface temperature of the glass at the sightline, or the edge of the IG units, with Super Spacer® is typically 14°F / 7.8°C warmer than with a conventional aluminum spacer.

Improves Condensation Resistance
Mold needs moisture to grow. The significantly reduced tendency of IG units fabricated with Super Spacer to exhibit interior condensation or frosting means that the health problems associated with mold may be virtually eliminated.

Research done by Health Canada found that Super Spacer helped IG units stay in the optimum low-humidity zone that prevents mold and bacteria growth.

Promotes Sound Absorption
The closed-cell polymer of Super Spacer transmits very little sound compared to conventional aluminum or less-metal warm edge spacers.

We recommend the use of Super Spacer wherever noise from airplanes, trains or automobiles may be a problem for building occupants.

Globally Tested and Proven with Awards
Super Spacer is the world’s first polymer, NO-Metal warm edge spacer. Over 1 billion feet of Super Spacer has been used worldwide since the start of production in 1989. The company received the 1994 “Solar Company of the Year” award issued by Solar Energy Society of Canada, Inc. Super Spacer was awarded the DWM Green Product Award in both 2009 and 2010.

Test Data is available to show that IG made with Super Spacer meets and/or exceeds standards used in the USA, Canada, Europe and many other locations around the globe. Super Spacer also meets Dade County Hurricane standards.
Super Spacer® Architectural Units Selection Chart

for Captured Glazing Units

PREMIUM
Available Sizes: 0.188” (4.8mm) to 0.787” (20.0mm) airspace
Standard Colors: Black, Grey and Aluminum Grey

TRISEAL™
Available Sizes: 0.323” (8.2mm) to 0.874” (22.2mm) airspace
Standard Colors: Black, Grey and Aluminum Grey

Silicone Spacer vs. Metal: The Inside Story

Full Metal Spacer
With conventional metal spacers, condensation is a fact of life.

Less Metal Spacer
Mid-performance spacer systems that may still contain some metal improve condensation resistance.

NO-Metal Super Spacer®
Patented silicone design dramatically reduces condensation, delivering the clearest picture in Warm Edge technology.

COMPARISON OF SPACER PRODUCT PERFORMANCE

<table>
<thead>
<tr>
<th></th>
<th>Aluminum Spacer</th>
<th>Stainless</th>
<th>TriSeal™</th>
<th>Premium</th>
</tr>
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<tbody>
<tr>
<td>Glass Surface Temperature</td>
<td>Poor</td>
<td>Good</td>
<td>Excellent</td>
<td>Excellent</td>
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<tr>
<td>Thermal Performance</td>
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<td>Excellent</td>
<td>Excellent</td>
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<tr>
<td>Condensation Resistance</td>
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<tr>
<td>Edge Seal Integrity</td>
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<td>Dew Point Drop</td>
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<td>Excellent</td>
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<td>Sound Absorption</td>
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<td>Sealant Stress Reduction</td>
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<td>UV Resistance</td>
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<td>Excellent</td>
<td>Excellent</td>
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<td>Desiccant Capacity</td>
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<tr>
<td>Structural Strength</td>
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<td>Volatile Out-Gassing</td>
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<td>Custom Colors</td>
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State-of-the-Art Glass Fabrication Equipment
PRECISION MEETS BEAUTY AND FUNCTIONALITY

Our highly automated glass line requires no manual manipulation. This dramatically reduces seal failures caused by human contact with the glass. The robotic equipment provides an incredible level of accuracy for a fast and efficient material flow.

For you, this translates to complete peace of mind. You have the confidence that your IG Unit is manufactured with the highest quality standards and will consistently provide long-lasting durable performance.
PART 1 - GENERAL
Spacer References (contact Quanex for details)
1. North America ASTM E2188/ E2189/ E2190
2. European EN 1279
3. Canadian CGSB 12.8
4. ASTM E330 (120* psf positive, 155* psf negative)
5. French Standard CSTB for CEKAL
6. Industry type P-1 testing
   * no failure; maximum limitations of testing equipment

System Description
Super Spacer is a flexible, silicone product providing maximum perimeter insulation for sealed insulating glass units. It is desiccant filled with pre-applied adhesive for bonding to the glass with a vapor barrier backing.

Submittals
Super Spacer® Premium is a flexible, silicone spacer that provides the maximum in perimeter insulation for sealed glazing units.
1. Thermoset structural silicone containing NO-Metal with integral 3A desiccant
2. Pre-applied sealant/adhesive for glass bonding
3. Secondary Sealant
4. Pre-applied advanced multi-layer vapor barrier

Super Spacer® TriSeal™ features a continuous vapor barrier backing across the profiled back of the spacer and is engineered to accept both a butyl primary seal and a silicone secondary seal.
1. Thermoset structural silicone containing NO-Metal with integral 3A desiccant
2. PIB primary seal
3. Silicone, Polyurethane, Polysulfide, DSE/DSA’s or Hot Melt secondary seal
4. Pressure-sensitive acrylic adhesive
5. Pre-applied advanced multi-layer vapor barrier

PART 2 - PRODUCTS
Spacer Manufacturer
Quanex Building Products • 800 Cochran Avenue • Cambridge, Ohio 43725 • USA
T: 740.439.2338 • Toll Free: 866.TRUEWARM • F: 740.439.0121
www.Quanex.com

Insulating Glass Units
Specification Description:
Super Spacer Premium—a reverse dual seal design consisting of a thermoset silicone spacer, multi-layer vapor barrier and preapplied sealant/adhesive for glass bonding requiring a secondary seal.
Super Spacer TriSeal—a triple seal design suitable for Structural Glazing, consisting of a thermoset silicone spacer incorporating integral 3A desiccant, pre-applied adhesive for glass bonding, a captive polyisobutylene primary seal, and a structural seal.

PART 3 - EXECUTION
Installation
No special procedures required for Insulating Glass units fabricated with the Super Spacer system; limit spacer compression at installation to 1mm.

Field Quality
No special inspection procedures required for IG units fabricated with the Super Spacer system.

Protection
Follow usual requirements for protecting IG units.

Specifying Super Spacer®

Glass + Mirror Craft: Endless Possibilities
Over the last five decades, GMC’s progressive approach has enabled GMC to evolve from its humble storefront providing mirrors, to one of the nations largest on-site fully custom glass and metal fabricators. Fifty years later, Glass & Mirror Craft continues to grow and reinvent itself developing processes that serve and satisfy Architects, Designers and Glaziers needs.

Architectural Systems
GMC designs and fabricates custom glass and metal systems for entryways, structure walls, guardrails, canopies, shower enclosures, stairs and more.

Insulated Glass
GMC provides a full spectrum of energy-efficient insulated glass solutions for residential and commercial projects.

Fabricated Glass
GMC creates a wide range of custom glass products for residential and commercial applications.

Decorative Glass
Whether the need is clear glass, bright colored glass, or textured glass, GMC offers a wide variety of decorative glass with endless usage possibilities. GMC produces back-painted, silk screened, laminated, cast & etched glass in house.