

# XL Edge<sup>®</sup> Spacer & Endur<sup>™</sup> IG

Cardinal introduced its Warm Edge Technology in 1993, utilizing 201 stainless steel, and a dual seal construction of Polyisobutylene and Silicone. The stainless steel spacer is a key component for the moisture and gas barrier characteristics of the edge seal.

The use of stainless steel provides the necessary resistance to corrosion from moisture and chemicals, and therefore, does not require sealant on the backside of the spacer. The removal of the sealant on the backside of the spacer improves the thermal performance of the edge, without compromising the durability of the IG unit.

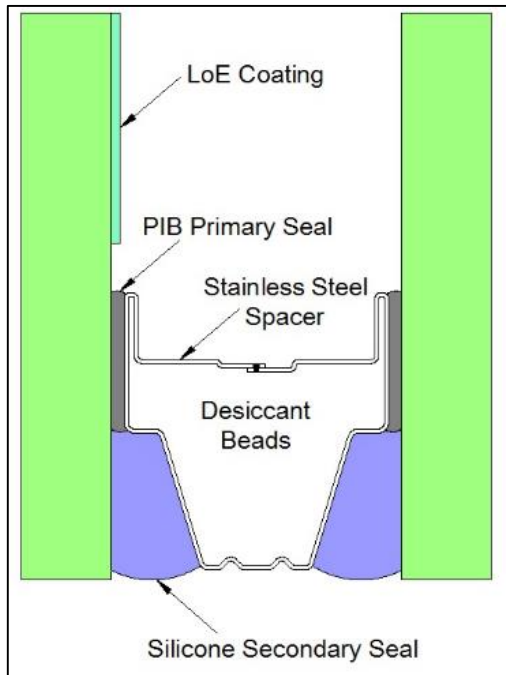


Fig 1 XL Edge spacer

This system now called XL Edge<sup>®</sup> spacer and Cardinal's newest IG design Endur IG<sup>™</sup> are the basis for the most durable units available today. Cardinal has conducted extensive testing on these two IG designs, and estimates a rate of failure of

approximately 0.2% over a 20 year period. In contrast to organic sealants (polysulfide, hot melt butyl, and polyurethane), silicone is an inorganic sealant with superior resistance to moisture, temperature, and ultraviolet radiation. The use of polyisobutylene (PIB) as the primary seal provides low moisture and argon permeation.

Endur IG is a further evolution of Cardinal's successful XL Edge design. The Endur IG spacer uses a 0.0025" thick corrugated stainless steel top. This extraordinary thin top significantly reduces heat conduction across the top of the spacer, and improves performance. While at the same time the spacer retains similar crush resistance to the original XL Edge design.

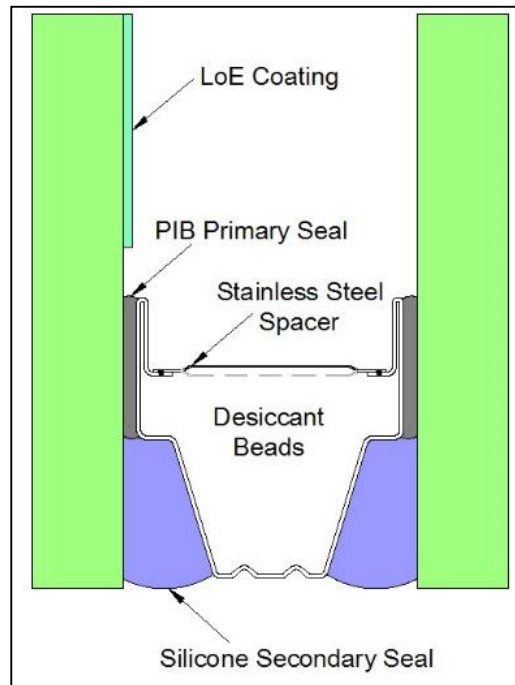
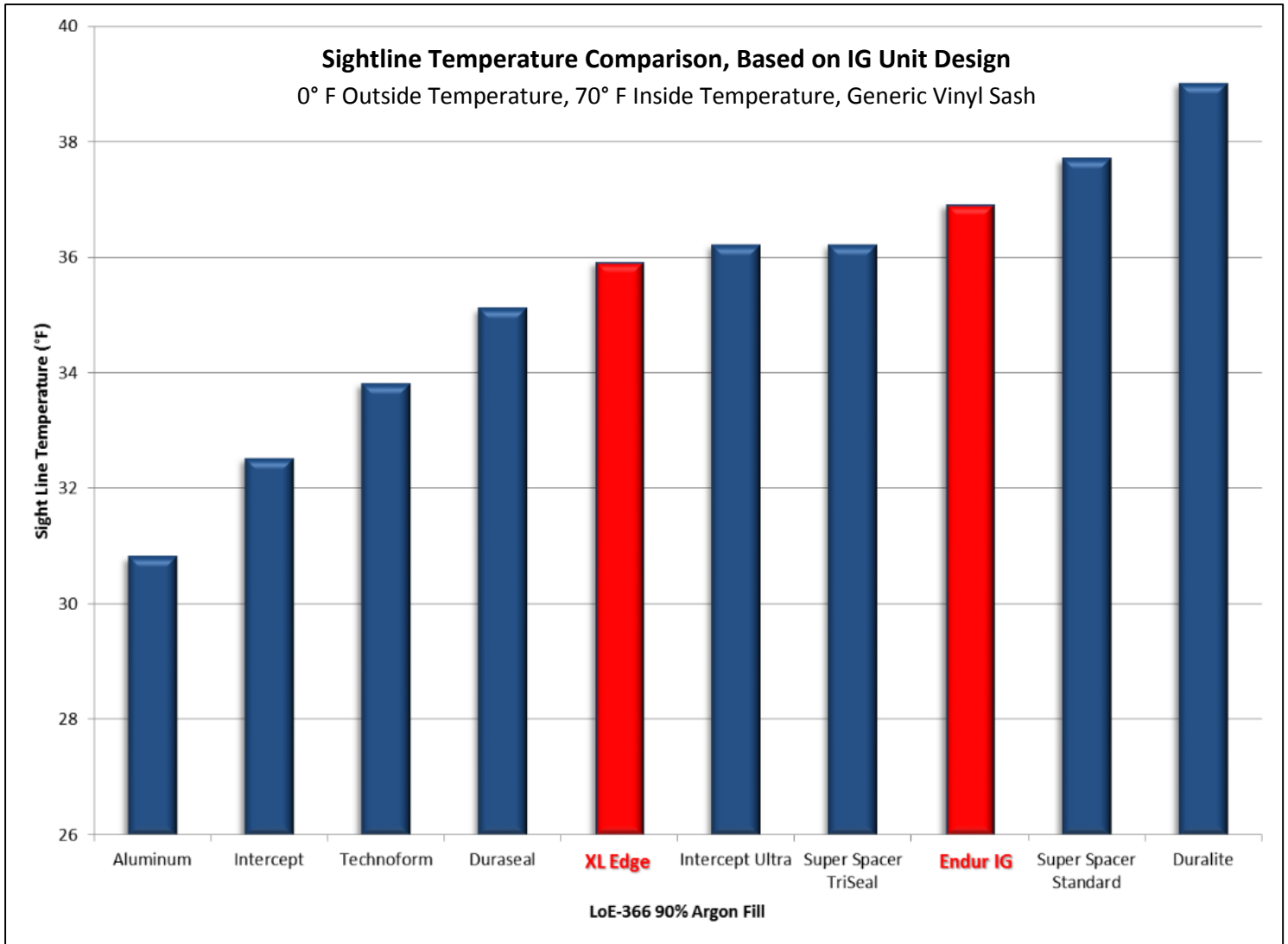


Fig 2 Endur IG

The table on the following page illustrates the sightline temperature of a generic vinyl window utilizing the most common IG designs on the market today. You can see that Cardinals designs are some of the warmest products on the market, while still maintain the highest level of quality and longevity.



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