



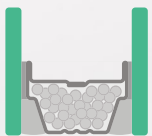
CARDINAL 
Glass Industries

Insulating Glass

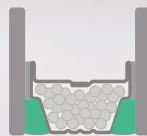


Engineering Insulating Glass Since 1962

At Cardinal Glass, we've earned the trust of the window and door industry through consistently providing high-quality insulating glass units. Our IG products, found in various residential applications, demonstrate our relentless pursuit of durability, performance, and aesthetics. With continuous R&D, state-of-the-art automation, and lean manufacturing, we don't just create superior glass products, we build lasting partnerships and enhance living spaces.

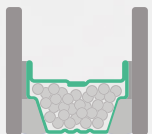


Glass panes



Silicone seal

Structural support,
UV resistant, watertight



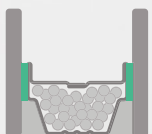
Warm edge spacer

Low thermal conductivity



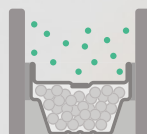
Desiccants

Trace moisture absorption



Polyisobutylene seal

Excellent gas retention



Gas fill

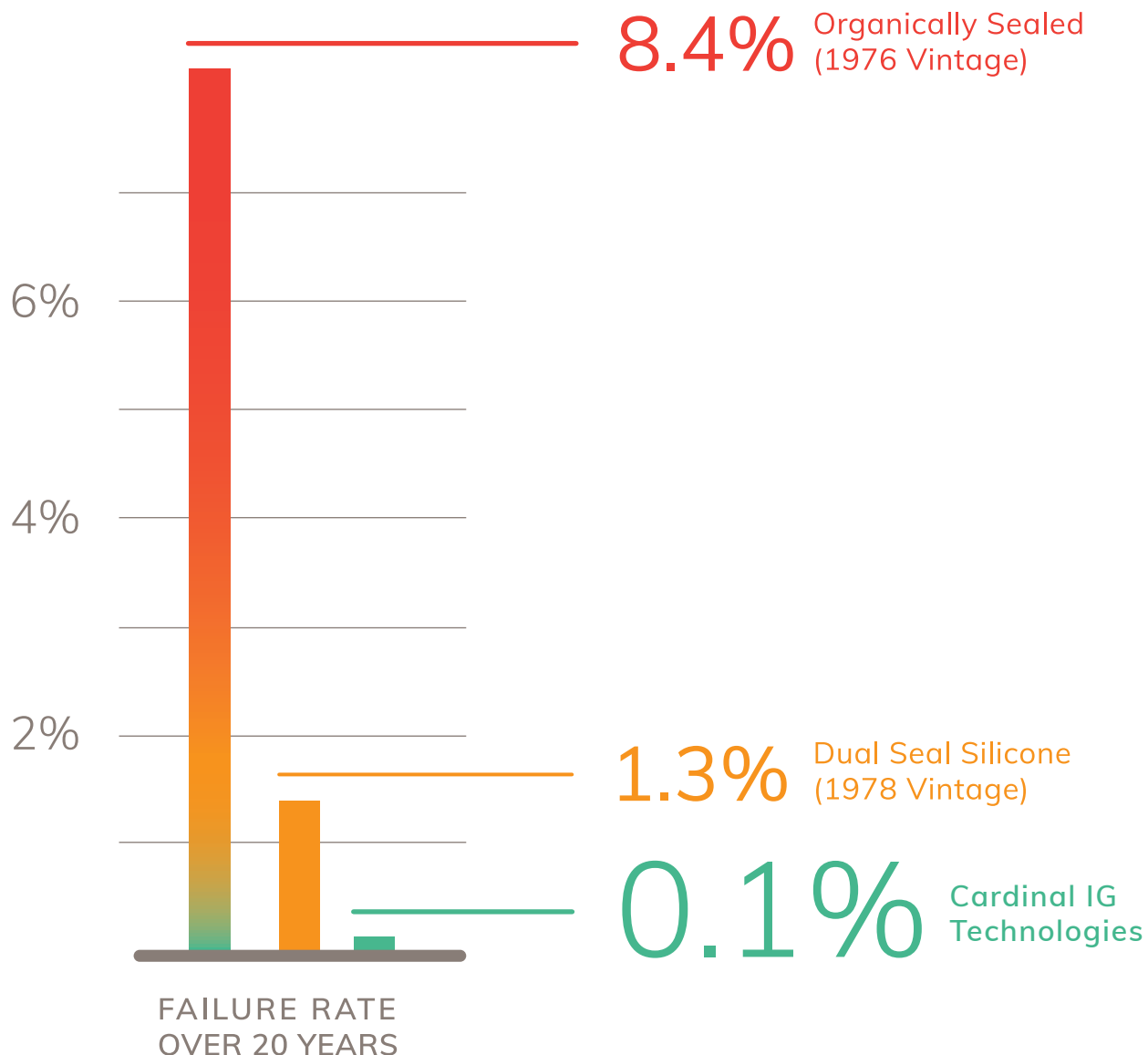
Argon or air

Time-Defying Durability

Cardinal's insulating glass boasts the lowest seal failure rate in the industry.

We achieved this success on a foundation of 60+ years of experience in manufacturing IG units, with over 40 years utilizing a dual-seal silicone system.

Our IG comes with a 20-year, 150% credit warranty. It's like an insurance policy for your window business. No other IG manufacturer offers such a guarantee.





Lower Failure Rates Mean Fewer Warranty Claims

Our low IG failure rates directly translate to fewer warranty claims for your company. By integrating our insulating glass into your products, you can expect to benefit from reduced support and replacement costs. This leads to higher margins for your business, as you will experience increased reliability and customer satisfaction, while keeping operational costs in check.

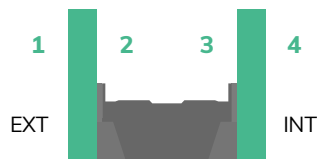
2 Pane IG: Proven Performance

Cardinal's insulating glass is fabricated with our industry leading LoE™ coatings. We offer a variety of standard and room-side coatings to enhance thermal efficiency, cut solar heat gain, resist interior condensation, and meet stringent performance standards.

2p 3/4" IG (3mm panes, 13mm airspace)			U-Factor (IP) - Argon	
Coating	Vis Light Trans	SHGC	Clear	w/LoE-i89 #4
Ē180 #3*	79%	0.69	0.26	-
Ē180	79%	0.65	0.26	0.21
Ē272	72%	0.41	0.25	0.20
Ē270	70%	0.37	0.25	0.20
Ē366	65%	0.27	0.24	0.20
Ē452+	52%	0.22	0.24	0.19
Ē240	40%	0.25	0.25	0.20
Ē340	39%	0.18	0.24	0.20

Notes: LoE coatings are placed on #2 surface unless otherwise indicated. Adding LoE-i89 slightly lowers visible light transmittance and SHGC. * LoE-i89 not available on #4 surface while LoE-180 is on #3.

2 Pane
Glass Surfaces





Ultimate Solar Control Glass

LoE⁺-452+ LoE³-366



High Solar Gain Glass

LoE-180



Maximum Glare Control Glass

LoE²-240 LoE³-340



Room-side U-Factor Efficiency

LoE-i89



Moderate Solar Gain Glass

LoE²-272 LoE²-270



Naturally Cleaner Glass

Neat+

Triple Pane IG: Ultimate Thermal Comfort

Cardinal produces triple-pane IG units, designed to provide optimal thermal comfort during winter conditions. Triple-pane IG can be configured in multiple overall thicknesses to meet diverse design requirements.

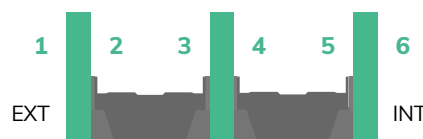
3p 1" IG (3mm panes, 8mm airspaces)		No LoE-i89		w/LoE-i89 #6	
Coatings	Vis Light Trans	SHGC	U-Factor*	SHGC	U-Factor*
Ē180 / Ē180	70%	0.56	0.17	0.53	0.15
Ē272 / Ē180	63%	0.37	0.17	0.36	0.15
Ē270 / Ē180	62%	0.33	0.17	0.32	0.15
Ē366 / Ē180	57%	0.25	0.17	0.24	0.14
Ē452+ / Ē180	46%	0.20	0.16	0.19	0.14

*(IP) – Argon Fill

Notes: LoE coatings are placed on #2 and #5 surfaces. With LoE-i89 on #6 surface, LoE coatings are on #2 and #4. Adding LoE-i89 slightly lowers visible light transmittance and SHGC.

3 Pane

Glass Surfaces





Regular 3-pane IG

Triple-thin IG

Narrowing the Gap

Our triple-thin IG units with krypton gas fill render the same U-factor performance as traditional 3-pane IG but in a slimmer design. This opens more design possibilities for triple pane units in narrower pockets.



Spacer Superiority by Engineering Excellence

Cardinal's newest generation Endur® IG is an improvement over the previous-generation XL Edge®. Its durable construction renders the same ultra-low failure rate, while maintaining a low U-factor for thermal comfort.

What's more: Endur's patented spacer design provides even higher sightline temperatures and better interior condensation resistance.





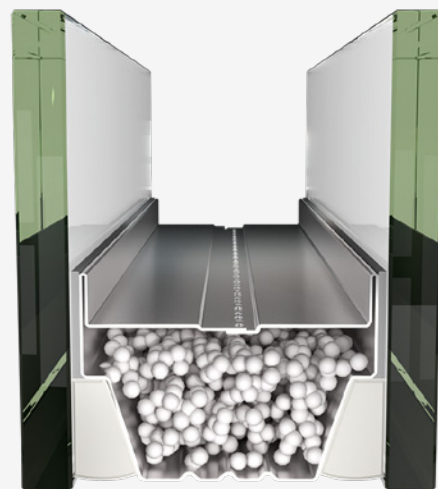
FEATURED

Painted Spacers

Cardinal's stainless steel spacers are available in natural and painted finishes to match your aesthetic vision.



XL Edge Construction



The Original that Changed the IG Industry

Cardinal launched the XL Edge® spacer system in 1993 to bring warm edge characteristics to insulating glass. It readily outperformed previous aluminum-based IG spacers due to its low conductance and impressive seal dependability. With XL Edge, Cardinal's window and door customers entered a new age of product performance.



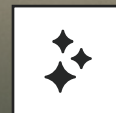
Instant Privacy

On-demand activation with immediate results



Smart Security

Double lami construction resists smash and grab



Unmatched Clarity

Haze-free views at any angle in clear mode



Silence Amplified

Massive reduction in exterior noise transmission



Fade Protection

Protect home interiors with UV light filtering

CLiCTM
On-demand Privacy Glass

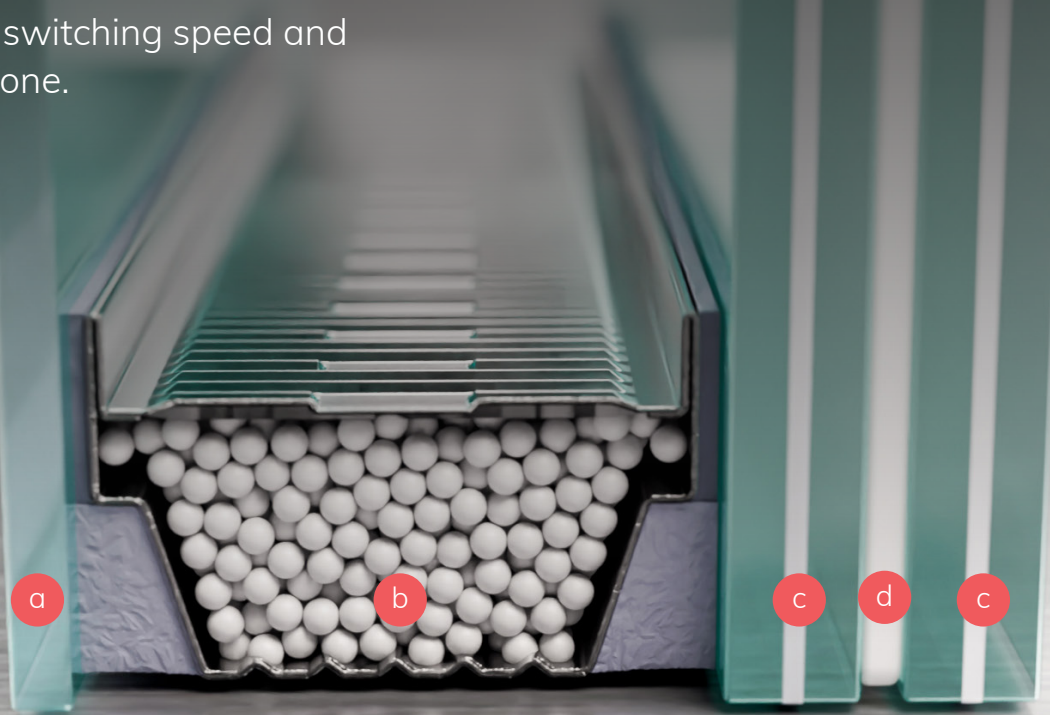
Here for Privacy

Experience ultimate control with CLiCTM switchable privacy glass, effortlessly transforming from transparent to opaque at the touch of a button. Enhance your privacy, regulate natural light, and elevate your home's modern aesthetics.



Innovative Liquid Crystal Technology

CLiC combines the most advanced liquid crystal science with Cardinal's proven expertise in glass manufacturing and fabrication. When it comes to privacy, clarity, switching speed and durability, CLiC stands alone.



Annealed or tempered pane with LoE coatings and Neat+



Warm edge spacer with dual seal for IG thermal efficiency



Double laminated panes with various thicknesses available



Liquid crystal layer film-free PSCT technology

The Only Smart

Glass with Cardinal IG

Durable, enhanced thermal efficiency for any climate



Premier LoE™

Coatings

Reduced solar heat for maximum comfort



Seamless Smart Home Integration

Easy installation, convenient user experience





Window Protection through Installation

Preserve™ window film, pre-applied on Cardinal insulating glass units, ensures clean and undamaged windows throughout the construction process.

With Preserve, say goodbye to time-wasting cleanups. At the end of construction, Preserve peels off, taking the accumulated dirt and labels with it. Clean windows can mean a shorter punch list.





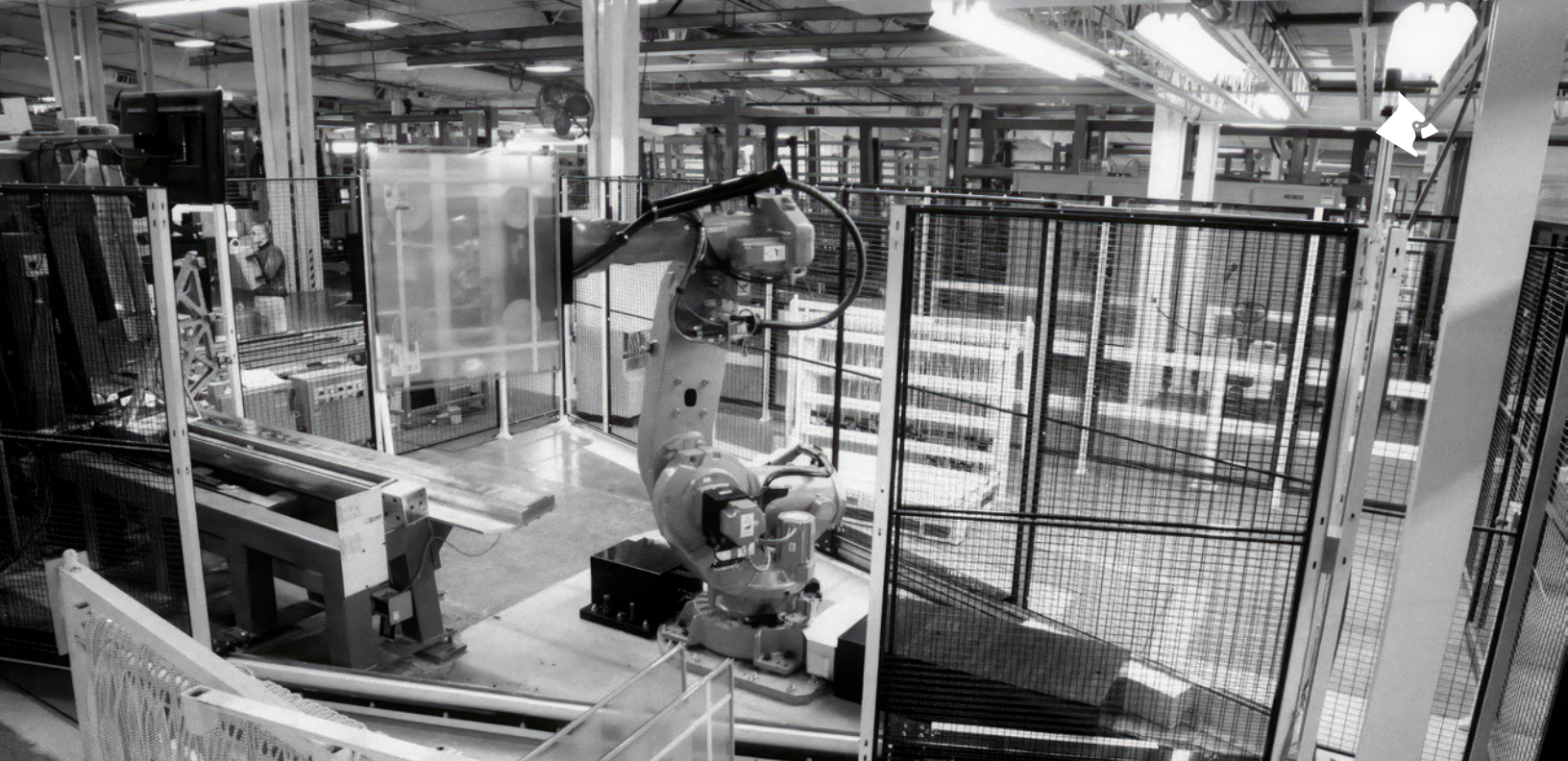
Intelligent Quality
Assurance Program

Cardinal IQ Quality that Delivers

Cardinal leads the glass production industry by maintaining the highest quality standards. Our Intelligent Quality Assurance Programs ensure that our products meet or exceed customer glass specifications.

Using precise scientific instruments, we examine every glass pane for uniformity and consistency. Our R&D department constantly advances glass technology, manufacturing, and inspections.





Key IG Inspection Steps



Washer Quality

Automated tracking systems monitor glass cleaning to maintain optimal PH levels and electrical conductivity.



Automated Glass Defect Detection

Identifies surface imperfections, maximizing the quality of glass that proceeds to high-value operations.



Unit Thickness

Unit thickness is verified, along with other critical attributes.



Argon Fill Levels

This system verifies the initial fill rates of IG units.



Coating Color

Spectrophotometers check color intensity and hue, ensuring compliance with specific values.



Center of Glass Thickness

We inspect 100% of critical attributes including unit thickness.



End-to-End Glass Solutions

Our wide range of product offerings allow you to choose the perfect blend of solutions for privacy, thermal efficiency, comfort, and stunning aesthetics.

- LoE Coated Glass: for advanced thermal and solar efficiency.
- Custom Glass Tempering: to deliver reliable protection and safety glazing.
- Laminated Glass: for hurricane, sound, fading, and security applications.
- Custom Shapes & Sizes: enhanced design flexibility to meet specific architectural requirements.
- Decorative Bars: both internal muntin bars and simulated divided lites.



Electronic Data Interchange



Cardinal's Electronic Data Interchange (EDI) services help you streamline communication by exchanging orders, invoices, shipping notices, and acknowledgments automatically. Our EDI platform expedites transaction times, reduces potential errors, and promotes smoother communication.





Procure Cardinal IG for Your Company

By choosing Cardinal IG for your window and door designs, you bypass the costs, time, and complexities associated with in-house production. You can also rest assured with our industry-leading warranty. Our expertly engineered IG products promise superior energy efficiency and durability, and let you concentrate on delivering exceptional final products to your customers.



Buying Windows with Cardinal IG Technology

Many consumers ask how they can purchase windows and doors configured with Cardinal IG units. Please ask your architect, builder, or window supplier if they use Cardinal IG units in their product designs. With Cardinal IG, you can be confident of having the most energy-efficient and long-lasting glass available to the window and door marketplace.



For more information, visit us
online at cardinalcorp.com/ig

CARDINAL IG 

