

ENERGY GLASS | THERMAL PERFORMANCE | EN 1279 | IS 13830 | ASTM E773 / E774

Insulated Glass Units

Precision-Engineered Thermal Performance for Every Facade

Insulated Glass from IPH Glasses delivers the thermal and acoustic performance demanded by ECBC 2017 and green building codes. Assembled with European-grade components, our IGUs support IGBC, LEED, and GRIHA certification across all Indian climate zones.

PRODUCT CATEGORY

Energy Glass
Thermal Performance
EN 1279
IS 13830
ASTM E773 / E774

AUTHORIZED DISTRIBUTOR

Guardian Glass | Saint-Gobain
Kuraray | Technoform | Fenzi

PRODUCT OVERVIEW

Insulated Glass Units

Thermal efficiency and acoustic comfort, precision-engineered.

An Insulated Glass Unit (IGU) consists of two or more glass panes separated by a hermetically sealed spacer and a gas-filled cavity. This construction creates a thermal break between interior and exterior environments, dramatically reducing heat transfer through the glazing envelope. At IPH Glasses, IGUs are assembled on a **Vertical Fully Automatic Assembly Line** using European-grade components: Profilglass (Italy) spacers, Fenzi (Italy) desiccant and butyl, Technoform (Germany) thermal spacers, and Dow / GE Momentive (USA) structural silicone.

12–65 mm	2850 × 6000 mm	Argon Fill	U ≈ 1.1 W/m²K
Overall unit thickness	Maximum panel size	Enhanced thermal performance option	Best-in-class U-value (Low-E + Argon)

PERFORMANCE CONFIGURATIONS

IGU Configuration Guide

Performance is determined by glass substrate selection, spacer width, and gas fill:

Configuration	Construction	U-Value (approx.)	Best Suited For
Standard IGU	6 mm Clear + 12 mm Air + 6 mm Clear	~2.7 W/m²K	Budget commercial, mild climates
Low-E IGU	6 mm Low-E + 12 mm Air + 6 mm Clear	~1.6–1.8 W/m²K	ECBC compliance, energy-rated offices
Low-E + Argon	6 mm Low-E + 14 mm Argon + 6 mm Clear	~1.1–1.4 W/m²K	Premium residential, IGBC/LEED projects
Solar Control	6 mm Solar-Control + 12 mm Air + 6 mm Clear	~2.0–2.5 W/m²K (low SHGC)	South/west facades in hot Indian climates
Laminated IGU	6.38 mm Lam + 12 mm Air + 6 mm Tempered	Varies by coating	Overhead glazing + thermal performance

TECHNICAL DATA

Technical Specifications

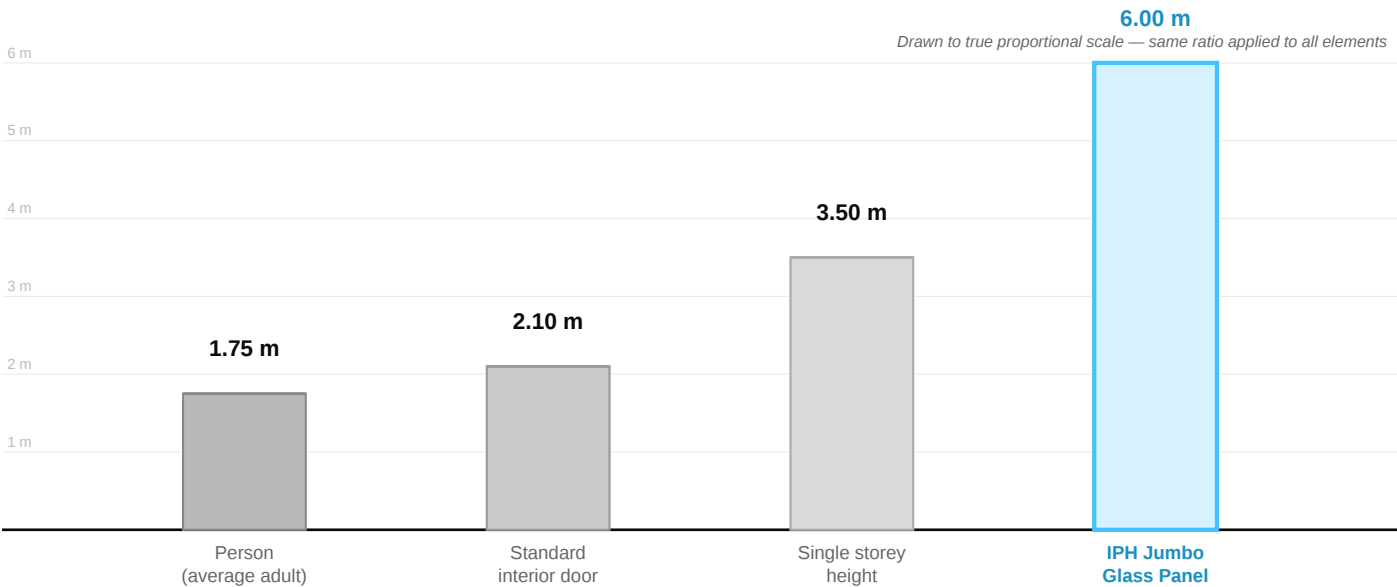
Parameter	Specification
Assembly Line	Vertical Fully Automatic IGU Assembly Line
Glass Substrate Types	Clear, Extra Clear, Ultra Clear, Tinted, Solar-Control Coated, Low-E Coated
Surface Treatments	Ceramic Frit, Digital Printing, Sandblasting, Acid Etching, Shaped Units
Unit Thickness Range	12 mm to 65 mm (overall assembled unit)
Maximum Dimensions	2,850 mm × 6,000 mm

Cavity Gas Fill	Atmospheric Air Argon (Ar) — approx. 90%+ fill ratio
Spacer Supply	Profilglass (Italy) Technoform TGI Thermal Spacer (Germany)
Butyl Sealant	Fenzi (Italy) HB Fuller
Desiccant	Fenzi (Italy)
Structural Silicone	Dow (USA) GE Momentive (USA)
Performance Standards	EN 1279 Parts 1–6 IS 13830 ASTM E773 / E774 AS/NZS 4666
Inner Ply Options	Standard Toughened Heat Strengthened Laminated Anti-Burglar Bullet Resistant

MAXIMUM DIMENSIONS

Jumbo Glass Capability & Scale

IPH Glasses processes panels up to **2,850 mm × 6,000 mm** — enabling large, uninterrupted glass surfaces that reduce joint lines and elevate the visual quality of architectural facades, atriums, and interior spaces. The scale diagram below is drawn to true proportion: every bar uses the same fixed scale factor.



Maximum panel width: 2,850 mm — shown separately from height, as glass panels are supplied to project-specific width and height combinations up to these maximum dimensions.

Reference Object	Typical Dimensions	How IPH Glass Compares
Standard interior door	900 × 2,100 mm	IPH panel height is 2.9× a standard door height
Typical floor-to-floor height	3,000 – 3,600 mm	A single IPH panel can span the full floor-to-ceiling height in one piece
Average adult height	~1,750 mm	IPH panel height is 3.4× the height of an average adult
ISO shipping container height	2,591 mm	IPH panel height is 2.3× the height of a standard shipping container
Maximum panel width (separate dimension)	2,850 mm	Width and height are supplied independently up to these maximums, in project-specific combinations

- At 2,850 × 6,000 mm, IPH Glasses produces some of the largest IGU panels available in India — enabling full double-storey facade glazing without horizontal transoms.
- Larger IGU panels reduce the number of edge seals exposed to weather — improving long-term hermetic performance and facade aesthetics.
- ECBC 2017 compliance is achievable with Low-E IGU configurations in most Indian climate zones.

STANDARDS & COMPLIANCE

Applicable Standards

IPH Glasses processes and supplies this product in compliance with the following Indian (IS/BIS), European (EN/ISO), American (ASTM/UL/NIJ), and Australian/New Zealand (AS/NZS) standards:

Standard Code	Title & Scope
Indian Standards — Bureau of Indian Standards (BIS)	
IS 13830 : 1993	Insulating glass units — Specification (India)
IS 14900 : 2000	Transparent float glass — Specification (India)
IS 2553 Part 1 : 1990	Safety glass — General requirements (for component glass panes) (India)
European Standards — CEN	
EN 1279-1 : 2018	Glass in building — Insulating glass units — Part 1: Generalities, dimensional tolerances and rules for description
EN 1279-2 : 2002	Glass in building — Insulating glass units — Part 2: Long term test method and requirements for moisture penetration
EN 1279-3 : 2002	Glass in building — Insulating glass units — Part 3: Long term test method and requirements for gas leakage rate and gas concentration tolerances
EN 1279-4 : 2002	Glass in building — Insulating glass units — Part 4: Methods of test for the physical attributes of edge seals
EN 1279-5 : 2005	Glass in building — Insulating glass units — Part 5: Evaluation of conformity
EN 1279-6 : 2002	Glass in building — Insulating glass units — Part 6: Factory production control and periodic tests
EN 572-1 : 2012	Glass in building — Basic soda lime silicate glass products — Definitions and general physical properties
EN 12150-1 : 2015	Glass in building — Thermally toughened soda lime silicate safety glass (component pane)
EN 673 : 2011	Glass in building — Determination of thermal transmittance (U value) — Calculation method
EN 410 : 2011	Glass in building — Determination of luminous and solar characteristics of glazing
European Standards — CEN / ISO	
EN ISO 10077-1 : 2017	Thermal performance of windows, doors and shutters — Calculation of thermal transmittance — Part 1: General
ASTM International — USA	
ASTM E773 : 2001	Standard Test Methods for Accelerated Weathering of Sealed Insulating Glass Units
ASTM E774 : 1997	Standard Specification for the Classification of the Durability of Sealed Insulating Glass Units
ASTM C1036 : 2016	Standard Specification for Flat Glass (component panes)
ASTM C1048 : 2018	Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass (component panes)
ASTM E1300 : 2016	Standard Practice for Determining Load Resistance of Glass in Buildings
Australian / New Zealand Standards — Standards Australia / SNZ	
AS/NZS 4666 : 2012	Insulating glass units — Australian/New Zealand Standard
AS 1288 : 2006	Glass in buildings — Selection and installation
AS/NZS 4667 : 2000	Quality requirements for cut-to-size and processed glass

ARCHITECTURAL APPLICATIONS

Applications

High-Rise Office Towers Unitised curtain wall and structural glazing with low-E IGU for ECBC compliance and IGBC/LEED credits.	Premium Residential Floor-to-ceiling balcony glazing and large picture windows with thermal comfort and noise reduction.	Hospitality & Hotels Guest room facades, atrium glazing, and lobby systems combining thermal and acoustic performance.
Retail Malls Shopfronts, food court skylights, and atria where solar heat gain and cooling load reduction are critical.	Airports & Infrastructure Terminal facades, departure lounges, and large-span transparent roofs with solar and thermal control.	Healthcare Facilities Patient room glazing and clinical areas requiring precise thermal environment control.
Educational Buildings Classroom facades where thermal comfort and daylight quality impact learning performance.	IT & Tech Parks Large glass facades with automated HVAC integration and building energy management.	Industrial Clean Rooms Precision thermal control environments using IGU to minimise heat transfer and condensation risk.

COMPARISON

Product Comparison

Performance Attribute	Standard Float Glass	Insulated Glass Unit
Thermal Insulation (U-Value)	✗ ~5.7 W/m²K — poor thermal performance	✓ Down to ~1.1 W/m²K with Low-E + Argon — 75%+ reduction
ECBC / NBC Compliance	✗ Not compliant for energy-rated buildings	✓ Primary glazing solution for ECBC 2017 compliance
Cooling Load Reduction	✗ No reduction — high HVAC operating cost	✓ Up to 75% reduction in heat transmission
Acoustic Performance	✗ Limited sound attenuation	✓ Enhanced with asymmetric glass construction
Condensation Risk	✗ High risk on inner glass surface	✓ Significantly reduced — higher inner pane temperature
Solar Control	✗ No inherent solar performance	✓ Compatible with all solar-control and low-E coatings
Security Upgrade	✗ Not available	✓ Anti-burglar and bullet-resistant inner ply configurations available

MANUFACTURING EXCELLENCE

Quality Assurance

Every panel processed at IPH Glasses passes through a structured, multi-stage quality control process — from incoming raw material to final pre-dispatch inspection.

Raw Material Verification

Incoming float glass and component materials (interlayers, spacers, sealants) are checked against supplier specification before entering production.

Process-Controlled Manufacturing

Furnace temperature, cooling rate, lamination pressure, and IGU assembly parameters are monitored and logged at each processing stage.

Optical Quality Inspection

Glass surfaces are visually inspected for distortion, bow, roller wave, and coating defects prior to dispatch.

Dimensional Accuracy Checks

Panel dimensions, squareness, and thickness are verified against project specification tolerances.

Edge Quality Inspection

Edge finish (rough grind, arressed, or super polished) is checked for consistency and conformance to the specified finish.

Toughening Process Validation

Surface compressive stress and fragmentation pattern are verified on sample panels from each production batch to confirm heat treatment compliance.

Batch Traceability

Production records link each panel batch to its raw material source, processing parameters, and quality check results.

Final Pre-Dispatch Sign-Off

A final inspection is carried out before packing and dispatch, confirming the panel meets project specification and IPH Glasses' internal quality criteria.

OUR CAPABILITY

Why Choose IPH Glasses?

IPH Glasses — operating as Mahavir Glass Enterprise — is one of Gujarat's most trusted architectural glass processors and authorized distributors for Guardian Glass and Saint-Gobain. We serve architects, developers, facade consultants, and PMC teams from our facility in Kheda, Gujarat.

Authorized Distributor

Guardian Glass and Saint-Gobain — certified supply chain, authentic products with full traceability.

Advanced Processing

Horizontal roller furnace, autoclave lamination, and fully automatic IGU assembly line.

Complete Product Range

Toughened, laminated, insulated, digital printed, curved, anti-burglar, and bullet-resistant glass — all from one processor.

Technical Support

In-house team for glass selection, specification writing, performance calculations, and full project delivery support.

Multi-Stage Quality Control

Raw material verification, in-process inspection, optical and dimensional accuracy checks, and final pre-dispatch quality sign-off on every batch.

Export Experience

Supplying projects across India, East Africa, Congo, Sri Lanka, and expanding international markets.

CONTACT & TECHNICAL SUPPORT

Get in Touch

Head Office & Factory	Sales & Technical	Digital Presence
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Our technical team is available to assist with glass selection, specification writing, performance calculations, and project-specific requirements. Contact us to schedule a technical consultation or to request samples and project pricing.

This catalogue is for reference purposes. Specifications subject to change. Consult IPH Glasses technical team for project-specific recommendations.