


# Dragontrail™ Glass


## ■ Key Properties of Dragontrail™ Glass


- 💪 **High Surface Strength:** Chemically strengthened through ion exchange — up to 800–900 MPa compressive stress for superior impact resistance.
- 🍃 **Thin & Lightweight:** Enables ultra-thin optical windows (as low as 0.3 mm) without compromising rigidity or performance.
- 🔍 **Excellent Optical Clarity:** High visible transmission (~90%) with minimal haze or distortion across 350 nm – 2.5  $\mu\text{m}$ .
- 🧪 **Chemically Durable:** Resistant to acids, alkalis, and environmental exposure — ideal for outdoor and industrial applications.
- ⚙️ **High Hardness:** Surface hardness up to 7 H (Mohs  $\approx$  6.8), providing strong scratch and abrasion resistance.
- 🔥 **Thermal Stability:** Performs reliably under temperature cycling with low expansion ( $\sim 8.3 \times 10^{-6} / ^\circ\text{C}$ ).
- 🌍 **Environmentally Stable:** Non-hygroscopic and non-reactive, ensuring long-term clarity and mechanical integrity.


## Applications of Dragontrail™ Glass


 Display Covers & Touch Panels: Widely used in smartphones, tablets, and instrument displays requiring thin, durable protection and optical clarity.

 Automotive Displays & Sensors: Ideal for in-car infotainment, dashboards, and LIDAR windows where strength and clarity are critical.

 Aerospace & Defense Optics: Used in protective windows, instrument housings, and rugged optical sensors exposed to harsh conditions.

 Optical Instruments & Laboratory Equipment: Serves as a protective cover or optical window in high-precision and analytical systems.

 Industrial & Medical Devices: Provides durable, chemically resistant protective covers for sensors, diagnostic instruments, and touch interfaces.

 Custom Optical Components: Available machined, polished, and coated for laser systems, photonics, and environmental optics applications.



## Technical Parameters of Dragontrail™ Glass

Property	Typical Value
Material Type	Chemically strengthened aluminosilicate glass (Asahi Glass Co.)
Transmission Range	~350 nm – 2.5 μm
Refractive Index (nd)	~1.52 @ 589 nm
Density	~2.42 g/cm <sup>3</sup>
Young's Modulus	~73 GPa
Surface Compressive Stress	800 – 900 MPa (after ion exchange)
Hardness (Vickers)	~620 HV (Mohs ≈ 6.8)
Thermal Expansion Coefficient (α)	8.3 × 10 <sup>-6</sup> /°C (25–300 °C)
Thermal Conductivity	~1.0 W/m·K @ 300 K
Softening Point	~720 °C
Chemical Durability	Excellent – resistant to acids, alkalis, and moisture
Surface Quality	Typical 40-20 scratch-dig (better on request)
Thickness Tolerance	± 0.05 mm (precision cut parts)
Coating Compatibility	AR, DLC and ITO coatings suitable
Applications	Display covers, optical windows, sensors, touch panels, ruggedized electronics

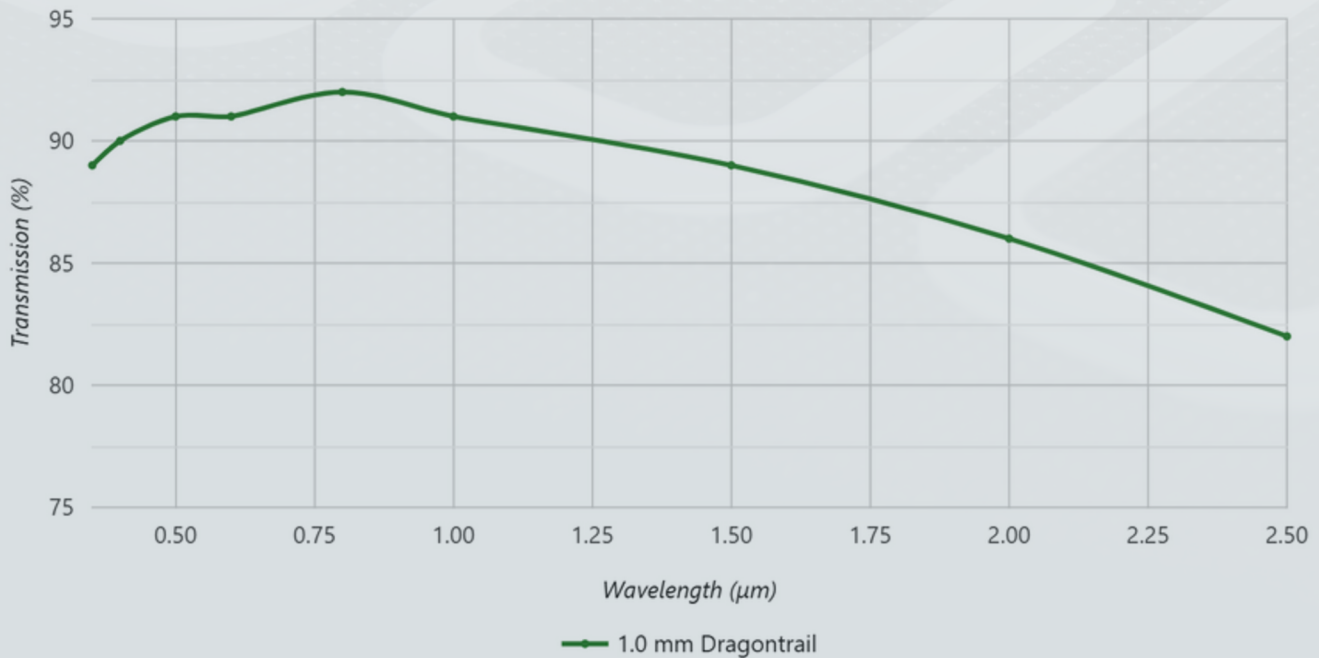
Dragontrail™ Glass is a premium chemically strengthened aluminosilicate glass developed by Asahi Glass Co. (AGC), engineered for high strength, optical clarity, and durability.

Through an ion-exchange hardening process, it achieves exceptional surface compressive stress (up to 900 MPa) and a hardness of around 620 HV, providing outstanding resistance to impact and abrasion.

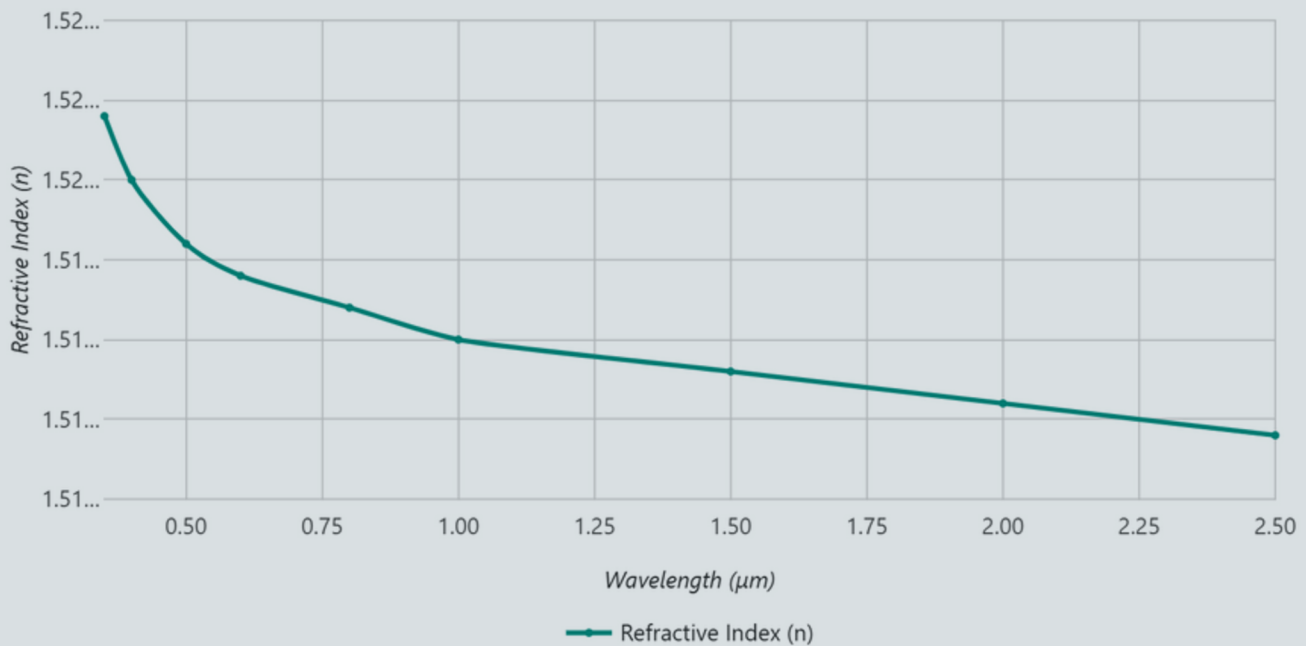
With a low thermal expansion coefficient (8.3 × 10<sup>-6</sup> /°C) and excellent transmission from 350 nm to 2.5 μm, Dragontrail™ combines optical precision with mechanical toughness — making it ideal for display covers, sensors, optical windows, and ruggedized electronic applications where both transparency and durability are essential.

## Dragontrail™ Glass – Optical & Thermal Performance Graphs

**Dragontrail™ – Transmission vs. Wavelength**



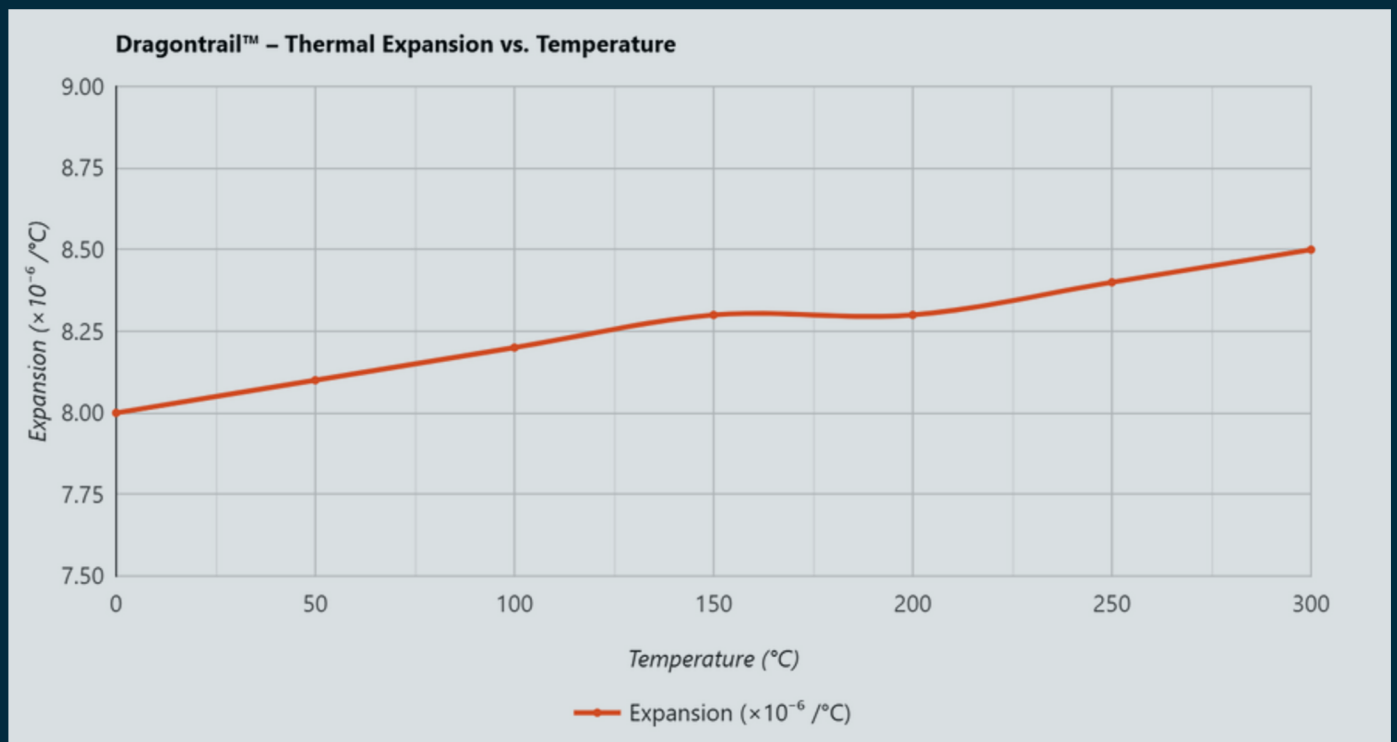
**Dragontrail™ – Refractive Index vs. Wavelength**





Dragontrail™ Glass offers excellent optical transmission from ~350 nm to 2.5  $\mu\text{m}$ , maintaining high clarity and minimal absorption across the visible and near-infrared spectrum. Its refractive index of approximately 1.52 @ 589 nm ensures low optical distortion and consistent performance for display and sensor applications.

Thermally, the glass exhibits a stable expansion coefficient of  $8.3 \times 10^{-6} / ^\circ\text{C}$  (25–300  $^\circ\text{C}$ ), providing reliable dimensional stability under temperature cycling. Combined with high chemical durability and surface strength, these properties make Dragontrail™ an outstanding choice for precision optical windows, touch panels, and rugged display assemblies operating in variable environments.



# FAQ

**Q: What is Dragontrail™ glass?**

A: Dragontrail™ is a chemically strengthened aluminosilicate glass developed by Asahi Glass Co. (AGC). It is designed for superior strength, scratch resistance, and optical clarity, making it ideal for protective optical windows, displays, and sensors. Through a special ion-exchange process, Dragontrail™ achieves surface compressive stresses of up to 900 MPa, resulting in outstanding impact and scratch resistance.

**Q: How does Dragontrail™ compare to Gorilla Glass®?**

A: Both materials are premium aluminosilicate glasses designed for durability and clarity. Dragontrail™ is often preferred for its slightly higher surface hardness and excellent resistance to alkali corrosion, while maintaining comparable optical transmission. The choice between the two typically depends on coating compatibility, cost, and application-specific requirements.

**Q: How strong and scratch-resistant is Dragontrail™?**

A: Dragontrail™ achieves surface compressive strength up to 800–900 MPa and a Vickers hardness of approximately 620 HV (Mohs  $\approx$  6.8). This combination gives it excellent scratch resistance and mechanical toughness, outperforming conventional glass by several times in impact and bending tests.

**Q: Is Dragontrail™ suitable for optical coatings?**

A: Yes. It is compatible with anti-reflective (AR), diamond-like carbon (DLC), and indium tin oxide (ITO) coatings, making it versatile for both optical and electronic applications. Its smooth surface finish and low porosity ensure excellent adhesion and coating durability.

**Q: Can Dragontrail™ withstand temperature fluctuations?**

A: Yes. It has a low thermal expansion coefficient of approximately  $8.3 \times 10^{-6} / ^\circ\text{C}$ , providing good dimensional stability under thermal cycling. It performs reliably across wide temperature ranges, making it suitable for outdoor, aerospace, and automotive environments.

**Q: What are the typical applications of Dragontrail™?**

A: Dragontrail™ is used in mobile devices, automotive displays, ruggedized electronics, sensor covers, and optical instruments. It is also increasingly adopted for industrial and medical displays, where strength, clarity, and chemical resistance are required.