



sapphire™

# HIGH PERFORMANCE GLASS

Product brochure



REGULAR GLASS

SAPPHIRE ANTI-REFLECTIVE GLASS



# Sapphire by Groglass

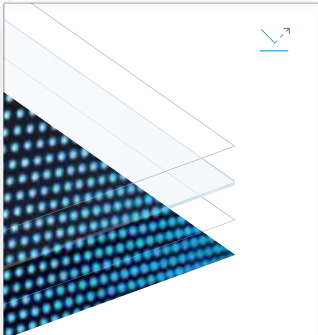
Our advanced magnetron sputtering technology guarantees striking and consistent coating designs that are tested and valued across various industries.


Our optical coatings ensure an ocean of technical glass possibilities, with a meticulous focus on durability and performance.

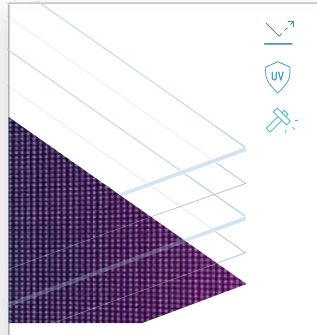
**ADVANCED DOUBLE-SIDED  
MAGNETRON SPUTTERING  
TECHNOLOGY**




**UNIFORM AND DURABLE  
PRODUCT DESIGN**

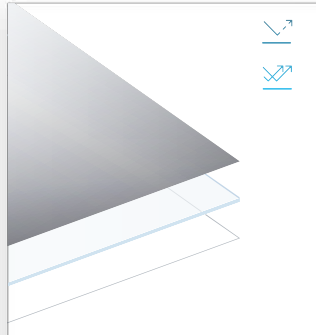
**OPTICAL NANOCOATINGS  
FOR IMPROVED GLASS  
PERFORMANCE**





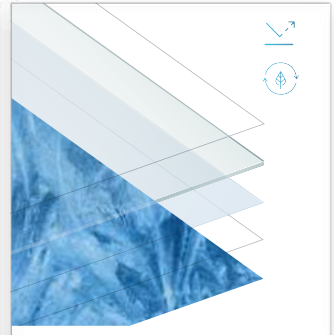
  
**Sapphire anti-reflective**  
**Sapphire AR**





  
  
  
**Sapphire shatter-resistant**  
**Sapphire AR Protect**

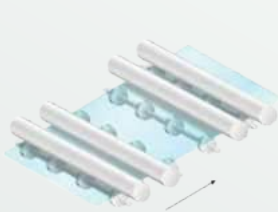


  
  
**Sapphire mirror glass**  
**Sapphire AR beamsplitter**  
**Sapphire semi-transparent mirror**



  
  
**Sapphire low-emissivity anti-reflective glass**  
**Sapphire AR soft low-e**  
**Sapphire AR hard low-e**

## COATING TECHNOLOGY

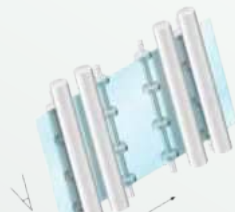


**Traditional coating technology**

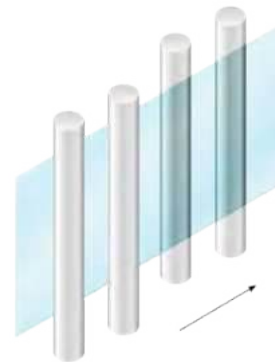
Defects caused by coated side being in contact with transport rollers.

Handling defects caused by the two-step manufacturing process.

Coating defects caused by debris falling on the glass during the manufacturing process.



**Enhanced (semi-vertical) coating technology**



**Groglass unique vertical coating technology**

Two side coating in a single manufacturing step

No direct contact with glass surface

No debris falling on the glass

Achieves premium quality

## APPLICATIONS

### SHOWCASES AND DISPLAYS

Reduce the visual noise from your showcases by choosing Sapphire anti-reflective glass. It removes distractions and adds an inviting quality to your displays. Choose Sapphire AR or Sapphire AR 99 Protect for maximum clarity.

### COLD STORAGE

Refrigerated cabinets covered with Sapphire anti-reflective products are energy efficient and provide a clear view of the products on display. Choose Sapphire AR Low-E products for displaying your products under museum-quality glass while saving energy in your refrigerated displays.

### ARCHITECTURE

Sapphire's high-performance products can add value to various architectural projects and ambitions. Explore our product properties or contact us to find the best product for your requirements.

### ELECTRONIC DISPLAYS

Anti-reflective glass coatings protect your displays, improve the visibility of the information and assist in thermoregulation. Our products are suitable for indoor and outdoor use and add value to various display applications.

### LIGHTING

Light transmission is one of the essential aspects of lighting fixtures and achieving maximum lighting efficiency. Explore how our anti-reflective products can save energy and improve the effectiveness of your lighting solutions.



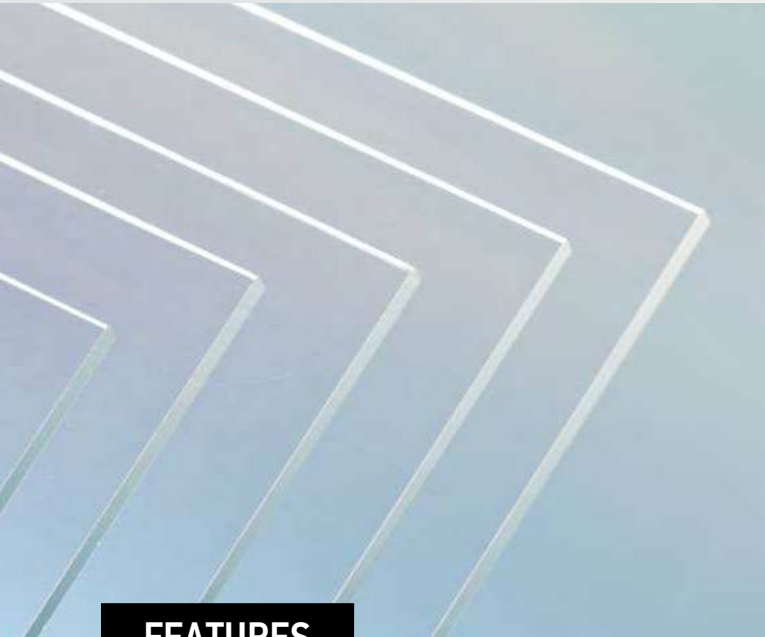
# Sapphire AR

## HIGH-PERFORMANCE ANTI-REFLECTIVE GLASS

ANTI-REFLECTIVE  
COATING DESIGN







IMPROVED LIGHT  
TRANSMISSION, UP TO 99%

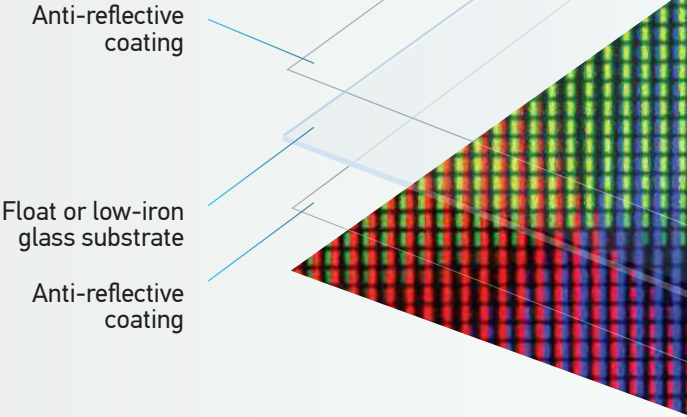
EASY TO PROCESS TO  
YOUR SPECIFICATIONS



### FEATURES

Sapphire anti-reflective glass is widely used across industries because of its improved light transmission and high-performance coating design. Sapphire AR is manufactured in compliance with ISO standards in one of the world's largest double-sided magnetron deposition systems.

-  Increased light transmission
-  Reflection reduced to <math><1\%</math>
-  Suitable for tempering
-  Suitable for outdoor use
-  Uniform optical coating design
-  Abrasion resistant



## APPLICATIONS



Sapphire AR is suited for indoor and outdoor glass applications and can be processed like regular glass.

### INDOOR AND OUTDOOR ELECTRONIC DISPLAYS

### RETAIL SHOWCASES

### EFFICIENT LIGHTING SOLUTIONS







### COLD STORAGE CABINETS

### ARCHITECTURE APPLICATIONS

### INTERIOR DESIGN SOLUTIONS



## PRODUCT PROPERTIES

	Substrate	Premium float or low-iron glass
	Thickness	2-12 mm
	Reflection	<1%
	Light transmission	up to 99%
	Maximum sheet size	2250 x 3302 mm
	Reflection color	Green / Blue

# Sapphire AR Low-e

## NEAR-INVISIBLE GLASS FOR COLD STORAGE







LOW-IRON SUBSTRATE  
FOR MAXIMUM CLARITY

IMPROVED LIGHT  
TRANSMISSION, UP TO 99%

ANTI-REFLECTIVE  
COATING DESIGN



### FEATURES

-  Increased light transmission
-  Improved U-value
-  High-performance glass coating design
-  Suitable for thermal processing
-  Suitable for DGU design
-  Scratch resistant

Sapphire cold storage anti-reflective glass offers visibility close to open cabinets and gives consumers a clear view of the products inside.

Compared to open refrigerated cabinets, cold storage with Sapphire AR glass reduces the energy required for cooling products and significantly improves temperature uniformity.

Anti-reflective  
coating

Float glass  
substrate

Low emissivity  
coating

Anti-reflective  
coating



Sapphire AR low-e offers improved insulation, combined with impeccable visibility

**COLD STORAGE  
DISPLAYS**

**REFRIGERATED  
CABINETS**



## PRODUCT PROPERTIES AND PERFORMANCE

Icon	Property	Soft low-e on regular float	Hard low-e on regular float
	Substrate	Soft low-e on regular float	Hard low-e on regular float
	Thickness	4 mm	4 mm
	Reflection	<1%	<1%
	Visible light transmission	>90%	>92%
	Maximum sheet size	2250 x 3210 mm	2250 x 3210 mm

	THERMAL TRANSMITTANCE, w/m <sup>2</sup> k		REFLECTION	
Regular float	5.8		~8%	
<b>Sapphire AR low-e</b>	3.2	3.7	<1%	<1%
<b>Sapphire AR DGU with low-e</b> (Configuration 4/14Ar/4low-e)	1.1	1.5	<1.4%	<1.3%
	SOFT LOW-E	HARD LOW-E	SOFT LOW-E	HARD LOW-E

# Sapphire Semi-transparent mirror

**MIRROR**  
GLASS

**ELEGANT MIRROR  
FINISH**

**EXCEPTIONAL OPTICAL  
PERFORMANCE**

**HIGH REFLECTIVE  
COATING DESIGN**



TV ON



TV OFF - MIRROR

SAPPHIRE SEMI-TRANSPARENT  
MIRROR 35 / 50

	Low-iron
	3 - 6 mm
	35% or 52%
	~65% or ~48%
	2250 x 3210 mm

Sapphire Semi-Transparent Mirror can transform from a regular mirror into a fully functional electronic display.

**ELECTRONIC MIRROR SCREENS AND DISPLAYS**  
**RETAIL AND COMMERCIAL DISPLAYS**  
**INNOVATIVE INTERIOR DESIGN SOLUTIONS**  
**EXTERIOR DESIGN APPLICATIONS**

## FEATURES

- Stable reflection color
- Uniform coating design
- Durable and scratch resistant
- Versatile applications and designs
- Easy to process to your specifications
- One-sided or two-sided mirror glass coating

High-reflective  
coating

Low-iron glass  
substrate

CONTACT US FOR TECHNICAL SPECIFICATIONS FOR DIFFERENT SIZES/THERMAL TREATMENTS






# Sapphire AR Beamsplitter

**DURABLE AND  
SCRATCH-RESISTANT  
COATING DESIGN**

**IMPROVED OPTICAL  
PERFORMANCE**

**ELIMINATED  
“GHOSTING” EFFECT**

SAPPHIRE AR  
BEAMSPLITTER 35 / 50


	Substrate	Low-iron
	Thickness	3 - 6 mm
	Reflection	~35% or ~50%
	Light transmission	~65% or ~50%
	Maximum sheet size	2250 x 3210 mm




- STUDIO AND SPEECH TELEPROMPTERS**
- VISUAL EFFECTS AND LIGHT INSTALLATIONS**
- SIMULATION SYSTEMS**
- HOLOGRAPHIC DISPLAYS**


Our high-performance beamsplitter products range between 35% and 50% reflectance, providing a partially transparent, uniform, and durable coating design.


## FEATURES

High-performance angle reflectance 

Stable reflection color 

Uniform coating design 

Durable and scratch resistant 

Versatile application possibilities 

High-reflective coating

Low-iron glass substrate

Anti-reflective coating

# Sapphire AR 99 Protect

## SHATTER-RESISTANT ANTI-REFLECTIVE GLASS







ANTI-REFLECTIVE COATING FOR  
MAXIMUM LIGHT TRANSMISSION

SHATTER-RESISTANT  
LAMINATED GLASS

EASY TO PROCESS TO  
YOUR SPECIFICATIONS



### FEATURES

-  High-performance glass coating design
-  Increased light transmission
-  Reflection reduced to ~1%
-  Shatter resistant design
-  Scratch resistant and durable
-  Conservation-grade UV protection

Sapphire AR 99 Protect is the highest quality, virtually invisible laminated glass. It offers the highest UV protection and is a physical safety solution. If it breaks, Sapphire AR 99 Protect remains attached to the laminating foil.

Because of its durability and ease of handling, Sapphire AR 99 Protect is the preferred anti-reflective glass of the world's leading designers and architects.

Anti-reflective coating

Low-iron glass substrate

PVB film

Low-iron glass substrate

Anti-reflective coating

## APPLICATIONS



Sapphire AR 99 Protect is suited for applications that require elegant glass finish combined with shatter-resistance.

**EXHIBITION  
SHOWCASES**

**ARCHITECTURE  
SOLUTIONS**







**OUTDOOR GLASS  
DISPLAY APPLICATIONS**

**SEPARATION  
WALLS**

**INTERIOR DESIGN  
APPLICATIONS**



## PRODUCT PROPERTIES

	Substrate	Laminated low-iron glass
	Thickness	4.4 - 13.5 mm
	Reflection	~ 1%
	Light transmission	~ 98%
	Maximum sheet size	2250 x 3210 mm
	UV protection	up to 100%

## ABOUT US



Sapphire is produced by Groglass, one of the world's leading developers and manufacturers of anti-reflective and other high-performance coatings on glass and acrylic for various industries: high-end electronic and static displays, picture framing, museum showcases, architecture, and other applications.

Our products comply with ISO 45001, ISO 9001, ISO 50001, ISO 14001, and EN-1096.



## BE IN TOUCH

### Contact us with any questions!

We're happy to suggest the best high-performance products for your application and provide samples for testing.

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 [groglass.com](http://groglass.com)

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Riga, Latvia

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