



**SCHOTT**  
glass made of ideas

**AMIRAN®**

Anti-Reflective Glass



SCHOTT is a leading international technology group in the areas of specialty glass and glass-ceramics. With more than 130 years of outstanding development, materials and technology expertise we offer a broad portfolio of high-quality products and intelligent solutions that contribute to our customers' success.

SCHOTT works closely with architects and designers to extend the boundaries of design and create new opportunities for building culture – in terms of design and space, indoors and outdoors, aesthetics and functionality. That's what makes SCHOTT a qualified partner for architecture.

**Cover:** One North Wacker, Chicago  
Architecture: Goettsch Partners  
**Right:** Royal Palace in Dresden:  
The Anti-Reflective Glass AMIRAN® glass that was used to produce 13 large display cases provides an undisturbed view of the noble knights and their horses.

SCHOTT AMIRAN® is a glass that features an anti-reflective coating for clear and unrestricted viewing both during the day and at night. Its durable high-tech coating is available on either one or both sides and offers the highest possible flexibility during processing. AMIRAN® thermally toughened safety glass and laminated safety glass reduces reflections to 1% and allows for up to 98% of the light to pass through unhindered.



## A clear view of what counts

### Low in reflection, neutral in color, nearly invisible

SCHOTT AMIRAN® Anti-Reflective Glass offers crystal clear transparency, even with a significant difference in the amount of light in front of and behind the pane. It reduces reflections to just a fraction of those seen with conventional glass. This makes AMIRAN® Anti-Reflective Glass the material of choice for display windows and showrooms, museums and glass cabinets, VIP seating areas in stadiums and panorama restaurants, television and recording studios, facades and balustrades, lobbies and foyers.

Sizes up to 3,770 mm × 1,770 mm ensure transparency even with large surface areas. The boundaries between the outside and inside dissolve, giving you the highest possible freedom of design. Canopies or other structures designed to avoid reflections are no longer necessary. What is more: increased daylight inside will lower your energy costs and lighting expenditures.

#### Innovative technology

All of this is made possible by the sol-gel dipping process developed by SCHOTT. The glass is dipped in different metal oxide solutions.

#### Hard coating

Once dipped the metal oxide coating layers are burned in at 450 °C to 500 °C. The oxidic layers produce interference that actually helps prevent annoying reflections. These layers are actually much purer and more mechanically and chemical stable than those processed with conventional

PVD techniques (such as vapor deposition or sputtering, for example).

#### Durable and easy to keep clean

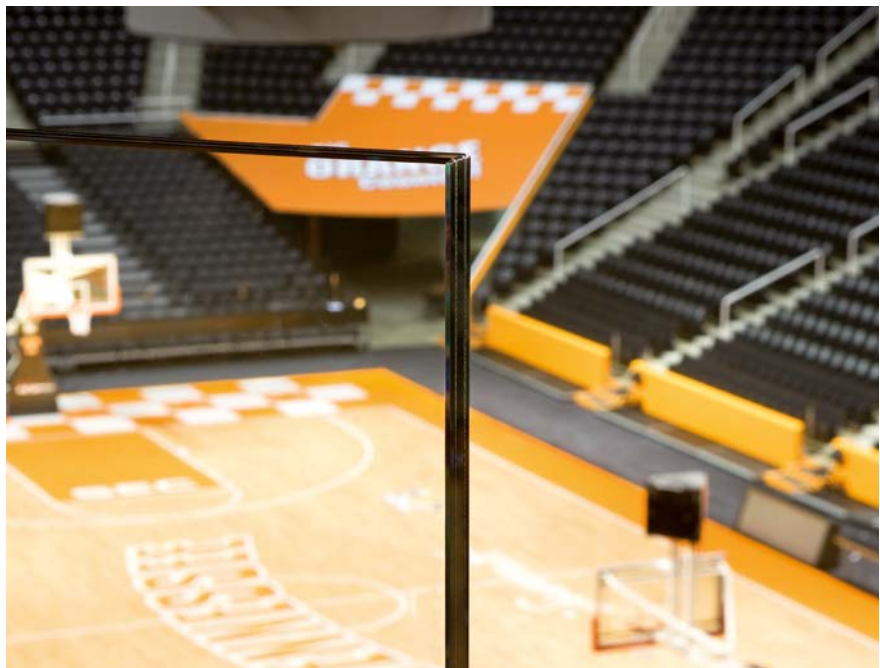
The process results in excellent optical qualities and is what makes AMIRAN® Anti-Reflective Glass so incredibly durable. The coating resists both scratching and chemicals, making AMIRAN® easy to clean with appropriate commercially available glass cleaners. Please refer to cleaning instructions No. 2001, handling instructions No. 2002 and processing instructions No. 2003.

#### SCHOTT AMIRAN® – Anti-Reflective Glass

- Minimum reflection on one or both sides
- 1 % residual reflection achievable
- Up to 98 % transmission
- Durable, easy to clean and chemically stable
- CE certified
- Available in a variety of different substrate glasses
- Several processing options (as thermally toughened safety glass, laminated safety glass or insulating glass units, for example)

Left: Thompson Boling Arena at the University of Tennessee, Knoxville

Right: Museum of Islamic Art, Doha, Qatar  
Photo: zedphoto.com









Anti-Reflective Glass for the facade of the Abu Dhabi Financial Car Park

## SCHOTT AMIRAN® – Anti-Reflective Glass

### Diverse and one-of-a-kind

The range of applications for AMIRAN® Anti-Reflective Glass goes even further thanks to the many different processing options SCHOTT offers. AMIRAN® Anti-Reflective Glass can be bent, printed on or drilled. It can be heat strengthened or processed into thermally toughened safety glass or laminated safety glass. When processed into insulating glass units, it is virtually free from reflections. And it meets a wide range of different demands if specially selected heat insulation, sun protection coating or sound protection assembling are applied or solutions capable of meeting even higher safety requirements are put to use. Even 99% UV protection is possible.

Please contact us.



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# SCHOTT AMIRAN® – Anti-Reflective Glass

## Technical Data Sheet


**Base material:** Extra-clear low-iron float glass

**Processing:** Thermally toughened safety glass / heat strengthened glass / laminated safety glass / Curved glass / insulating glass / sun protection glass / sound protecting glass / alarm glass / security glazing / screen printing / drilling of holes / edge processing

	Max. net dimensions (min.)	Thickness	Glass substrate	Luminous reflectance	Luminous transmittance	Color rendering index	Thermal transmittance	Total solar energy transmittance	UV-transmittance
	mm x mm	mm		$\rho_{VD65}$ %	$\tau_{VD65}$ %	$R_a$	$U_g$ W/(m <sup>2</sup> ·K)	g %	$\tau_{UV}$ %
 <b>AMIRAN®</b>	3,770 × 1,770	4, 6, 8, 10, 12	Extra-clear low-iron float glass	1	98	100	5.8	90	63
 <b>AMIRAN® Thermally toughened safety glass / heat strengthened glass</b>	3,770 × 1,770	4, 6, 8, 10, 12	Extra-clear low-iron float glass	1	98	100	5.8	90	63
 <b>AMIRAN® LSG with a PVB film</b>	3,770 × 1,770	Dependant on assembly	Extra-clear low-iron float glass	1	97	100	5.7	89	1
 <b>AMIRAN® Insulating glass optionally as thermally toughened safety glass</b>	3,770 × 1,770 Dependant on the processor	Dependant on assembly	Extra-clear low-iron float glass	2	96	99	2.6	87	49
 <b>AMIRAN® Insulating glass with sun protection, optionally as thermally toughened safety glass</b>	3,770 × 1,770 Dependant on the processor	Dependant on assembly	Extra-clear low-iron float glass	3	85	98	1.1	48	14
 <b>AMIRAN® Insulating glass with heat protection, optionally as thermally toughened safety glass</b>								64	

### Conventional glass in comparison

<b>Thermally toughened safety glass</b>	Dependant on the manufacturer	Dependant on the manufacturer	Float glass	approx. 8	90	98	5.8	86	62
			Extra-clear low-iron float glass	approx. 8	91	99	5.8	91	84
<b>Insulating glass</b>	Dependant on the manufacturer	Dependant on the manufacturer	Float glass	approx. 15	80	97	2.6	75	39
			Extra-clear low-iron float glass	approx. 15	84	99	2.6	83	72

-  Glass pane
-  AMIRAN® anti-reflective coating
-  PVB film
-  Spacer
-  Space between the panes (filled with air or gas)
-  Solar control coating (Arcon Sunbelt Platin)

1. The values refer to a glass thickness of 4 mm for monolithic glasses. The structure selected for laminated safety glass is 4/0.76/4 mm; for insulating glass units 4/16/4 mm filled with argon gas.

2. The values are calculated based on the standards DIN EN 410 and DIN EN 673.

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