ORNILUX
Bird Protection Glass

Innovation by ARNOLD GLAS

The Solution For Bird Protection Is Clear …

Researchers estimate that up to one billion birds are killed each year in North America due to collisions with glass on human-built structures, making bird collisions one of the most significant causes of avian mortality globally.

With the understanding that birds are able to see light in the ultraviolet spectrum, bird-friendly glass innovator, ARNOLD GLAS developed ORNILUX Bird Protection Glass. The glass has a patterned, UV reflective coating making it visible to birds while remaining virtually transparent to the human eye.

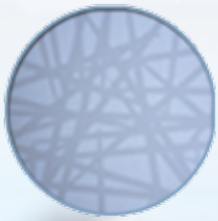
ORNILUX: The Transparent Solution

UMASS Science Building,
Amherst, MA, USA

Hellabrunn Zoo, Munich, Germany

A proven bird-friendly glazing treatment, ORNILUX is tested by American Bird Conservancy. The glass has demonstrated to be an effective solution to mitigate bird collisions, especially in areas where transparency is a top priority.

ORNILUX, the leading multi-functional, clear glass solution to bird collisions is available as laminated glass or insulated units paired with a low-E or solar control coating, thus providing energy efficiency and bird collision protection.



What Birds See

What We See

Tested by
AMERICAN BIRD CONSERVANCY

2011 Crystal Achievement Award Winner glass

2010 Top-10 Green Building Product GreenSpec® LISTED

LBV

reddot design award best of the best 2010

Innovationspreis 2007 mittelstand

Designpreis 2006 Nominee

Innovationspreis Architektur und Bauwesen

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ARNOLDGLAS

Product Overview

The following ORNILUX types have been tested under controlled conditions and have been rated "*Effective*" by American Bird Conservancy's testing program. The Tunnel Score indicates the percentage of birds tested that fly towards the control pane and avoid the ORNILUX pane. The Material Threat Factor is the inverse of the Tunnel Score and applies to USGBC's LEED Pilot Credit 55: Bird Collision Deterrence. For more information about ABC's rating and testing program visit: www.BirdSmartGlass.org

Product	Transmission			Reflectance			Absorbance	U-Value (Argon)		Relative Heat Gain BTU/ (hft²)	Shading Coefficient	Solar Heat Gain Coefficient	Light to Solar Gain (LSG)	Tunnel Score	Threat Factor
	Visible Light %	Ultra-violet %	Solar Energy %	Visible Light Out %	Visible Light In %	Solar Energy Out %	Solar Energy %	Winter Btu/(hft² F)	Summer Btu/(hft² F)						
Insulating Glass with low-E															
Double Glazing (6mm:/10mm/:8.76mm laminated - Mikado on surface 2 / uno on surface 3)															
uno N10	66	0	35	24	25	39	25	0.24	0.24	106	0.51	0.44	1.49	74%	26
Double Glazing (4mm:/12mm/:8.76mm laminated - Mikado on surface 2 / advance 34 on surface 3)															
Adv. N34	77	0	48	15	14	30	21	0.24	0.23	137	0.67	0.58	1.33	77%	23
Insulating Glass with solar control															
Double Glazing (6mm:/10mm/:8.76mm laminated - A70 on surface 2 / Mikado on surface 3)															
A70	66	0	28	16	16	37	35	0.24	0.24	81	0.38	0.33	1.97	80%	20
Double Glazing (6mm:/16mm/:8.76mm laminated - A60 on surface 2 / Mikado on surface 3)															
A60	58	0	25	16	15	36	39	0.24	0.17	71	0.34	0.30	1.95	63% Europe	N/A
Double Glazing (10.76mm laminated:/10mm/4mm - Mikado on surface 2 / A50 on surface 4)															
A50	51	0	21	19	12	26	53	0.24	0.24	66	0.31	0.27	1.88	75%	25
Double Glazing (10.76mm laminated:/10mm/4mm - Mikado on surface 2 / A40 on surface 4)															
A40	41	0	17	23	12	25	59	0.24	0.24	57	0.27	0.23	1.79	75%	25
Triple Insulating Glass															
Triple Insulating Glass (12.76mm laminated:/14mm/4mm/14mm/:4mm - ORNILUX Mikado on surface 2 / A50 on surface 4 / advance 34 on surface 7)															
A50 Triple	46	0	18	20	15	24	58	0.12	0.11	52	0.25	0.22	2.07	64% Europe	N/A
Triple Laminated Glass															
Triple Laminated Glass 36 mm (12mm:/0.76 PVB/12mm/0.76 mm PVB/:12mm - Mikado on surfaces 2 and 5)															
mono 36mm	76	0	45	10	10	7	48	0.84	0.77	479	0.71	0.61	1.24	68% Europe	N/A
Triple Laminated Glass 12 mm (4mm:/0.76 PVB/4mm/0.76 mm PVB/:4mm - Mikado on surfaces 2 and 5)															
mono 12mm	84	0	65	11	11	8	27	0.95	0.86	569	0.84	0.73	1.14	64%	N/A

Note: *According to ABC's Bird Smart Glass program: "Window products rated Effective and Highly Effective have shown in controlled studies to significantly reduce, but not altogether eliminate, bird collisions, and results will vary depending on local bird populations, landscape conditions, and building design."*

Other glass and spacer thicknesses can be produced but note that configurations that deviate relative to glass thickness and/or spacer width may result in a deviation of the score achieved with tested ORNILUX configurations.

ORNILUX insulated and laminated units can be heat-strengthened or tempered.

A-Line solar control coatings (A40, A50, A60, A70) featuring different light transmission and performance can be paired together to design a color-matched façade. For more information visit www.arnold-glas.com.

Max Unit Dimensions (for IGU and laminated)

ORNILUX on tempered glass: 2,800 x 6,000mm / 110 in. x 236 in. / 9.2 ft. x 19.7 ft

ORNILUX on laminated tempered: 2,600 x 5,000mm / 102 in. x 197 in. / 8.5 ft. x 16.4 ft.

Max sizes vary depending on the build-up and can be confirmed on an individual project basis.

Transport Note: *Due to standard container height, max unit size should not exceed 7.2' in one dimension (ex: 10' x 6.5'' is acceptable; 10' x 7.5' is not). Larger sizes can be shipped with an added premium to the transport price.*

Minimum OA IGU thickness: 23mm

Laminated glass OA thickness

Min: 12mm / Max: 36mm

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