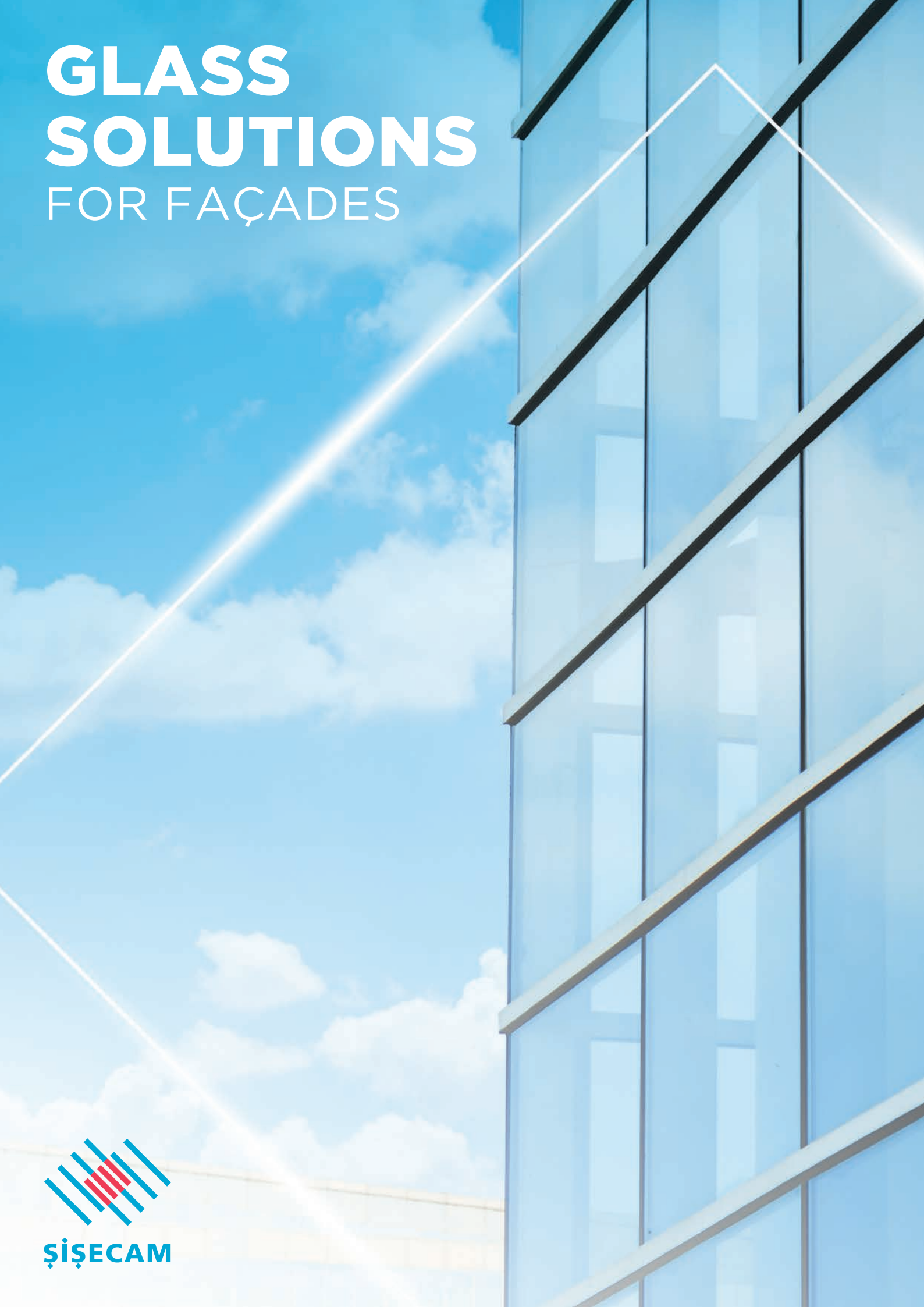
GLASS SOLUTIONS
FOR FAÇADES



ŞİŞECAM

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ŞİŞECAM

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RIGHT GLASS SOLUTIONS FOR DIFFERENT NEEDS

Coated glass is produced using two different methods: **off-line** and **on-line.** Off-line coated glass, including Low-E, Solar Control Low-E, Temperable Low-E, and Temperable Solar Control Low-E, is produced by depositing multi-layered metals/metal oxides onto float or tinted glass through “magnetically enhanced vacuum sputtering” technology. On-line coated glass, including Şişecam Tentesol and Tentesol Titanium, is produced by applying a thin, reflective, mechanically, and chemically resistant pyrolytic hard coating onto clear float glass or tinted glass.

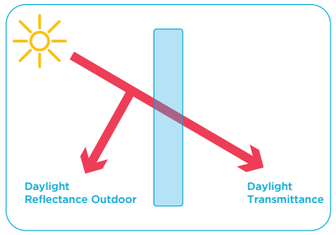
Şişecam Low-E Glass is **heat** control glass. Thanks to its Low-E coating, it prevents heat loss through the glazing. For maximum thermal insulation, triple insulating glass units with Low-E or Temperable Low-E glass in both the outer and inner panes are recommended.

Şişecam Tentesol and Tentesol Titanium are **reflective solar** control glass. Thanks to its coating, it reduces solar heat gain in the summer. It can be used as a monolithic glass or incorporated into an insulating glass unit. When combined with Low-E or Temperable Low-E glass in an insulating glass unit, it provides both heat control and solar control.

Şişecam Solar Control Low-E Glass is **heat** and **solar** control glass. Thanks to its solar control Low-E coating, it provides effective thermal insulation by preventing heat loss in the winter and reduces solar heat gain in the summer. For maximum thermal insulation and solar control, triple-insulating glass units are recommended, using Solar Control Low-E or Temperable Solar Control Low-E glass on the outer pane, and Low-E or Temperable Low-E glass on the inner pane.

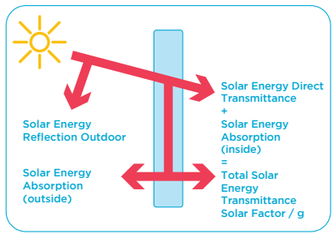
Şişecam Temperable Low-E Glass and Şişecam Temperable Solar Control Low-E Glass provide **safety** due to their temperability, while retaining the Low-E and Solar Control Low-E properties of their coatings. When broken, they shatter into small, blunt pieces, minimizing the risk of injury. They are resistant to distributed loads up to 5 times more than standard glass.

PERFORMANCE PARAMETERS

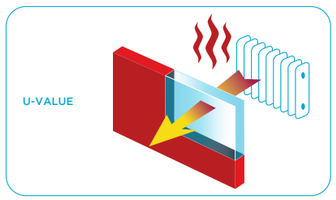


Daylight Transmittance (%)
The percentage of visible light transmitted through the glass.

Daylight reflectance outdoor (%)
The percentage of visible light reflected outside by the glass.

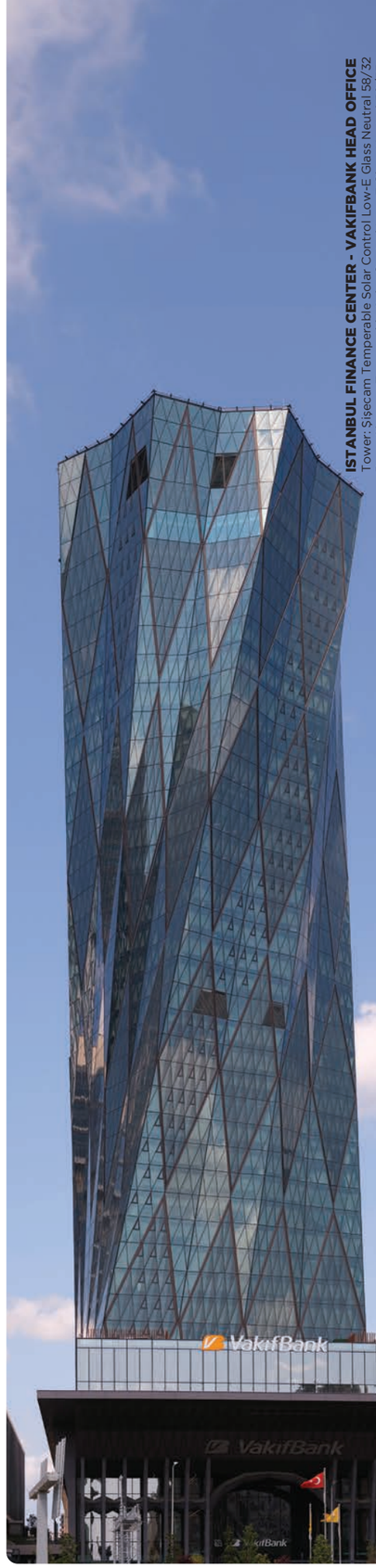


Solar Factor (g-value) (%)
The percentage of total solar radiant heat energy passing through the glass. A lower solar factor indicates better solar control. The other solar control parameter, the **shading coefficient**, is the ratio of the solar factor of a particular glass type to that of 3 mm clear float glass (0.87) under identical conditions.



Thermal Conductivity (U-value) (W/m²K)
A measure of the rate of heat loss through a building component. A lower U value means better heat control and greater comfort in winter.

Colour Rendering Index (Ra) (%)
Describes how much an object’s colour changes when viewed through the glazing. A higher colour rendering index means the object’s colours appear more natural.



ISTANBUL FINANCE CENTER - VAKIFBANK HEAD OFFICE
Tower: Şişecam Temperable Solar Control Low-E Glass Neutral 58/32
Base: Şişecam Temperable Solar Control Low-E Glass Neutral 50/33

ISTANBUL AIRPORT AND AIR TRAFFIC CONTROL TOWER
Şişecam Temperable Solar Control Low-E Glass (Special Production)

CRITERIA FOR RIGHT GLASS SELECTION

- Project function
- Project location
- Glass dimensions and thicknesses
- Wind / snow loads
- Sunshade elements on the façade
- Sun exposure of the façade
- Mechanical performances
- Visual impact

The above criteria should be taken into consideration when choosing the right glass.

The choice of glass for the façade is driven by functional needs such as heat control or both heat and solar control, depending on the climate zone, to ensure effective energy savings. In addition to these functional needs, factors such as safety, security, noise control, daylight transmittance, glare, and reflection control, as well as the desired visual effect requirements, also influence the selection of glass.

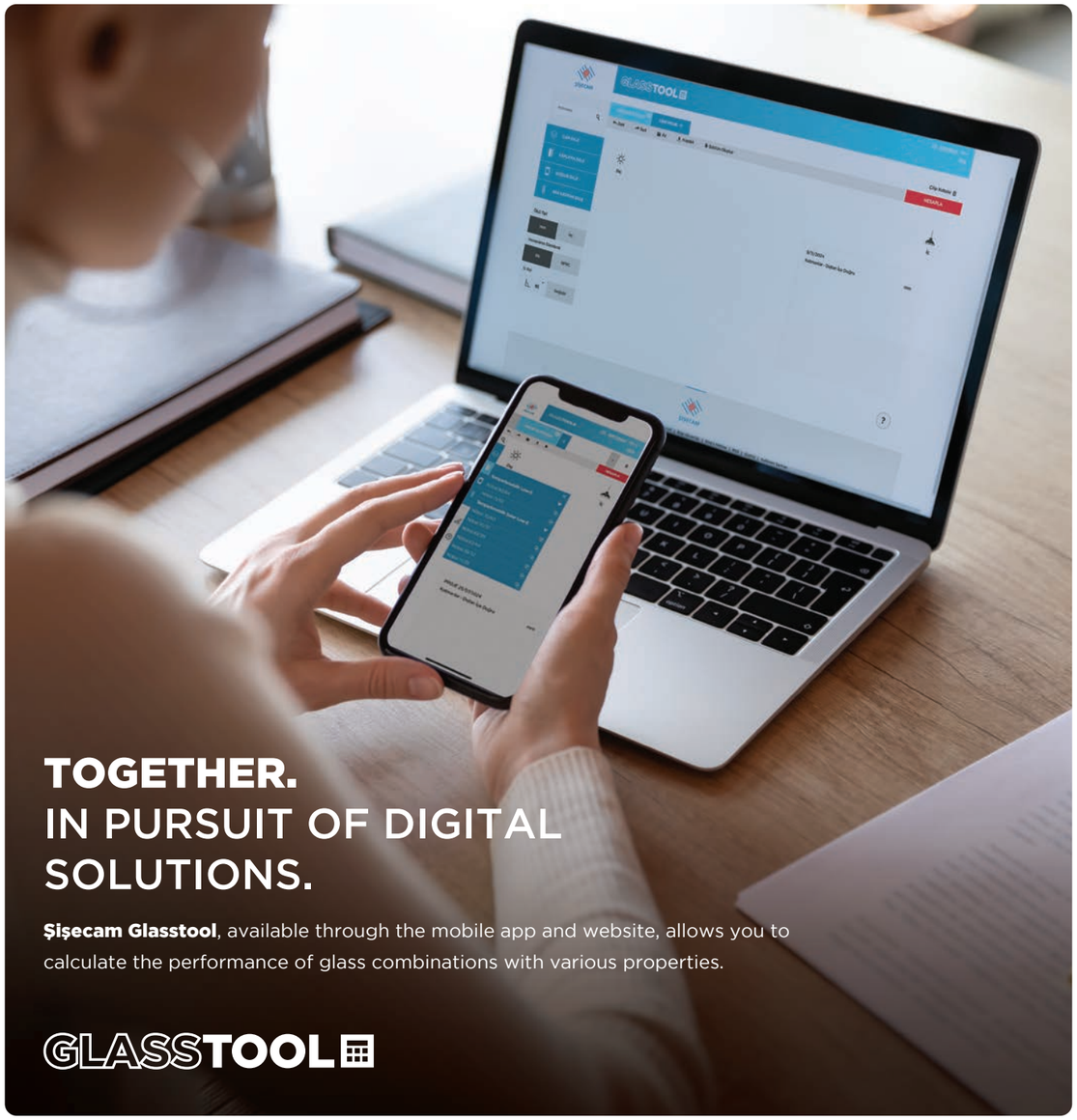
275 FOURTH AVENUE
Şişecam Temperable Solar Control Low-E Glass Neutral 50/33

GLASS CONSULTANCY FOR PROJECTS

Şişecam Glass Consultancy is here with right glass solutions for your project! Our experienced team provides Glass Consultancy for your projects and develops solution for your project requirements.

In the scope of Glass Consultancy:

- We make static, thermal breakage risk, and performance calculations for the projects.
- We provide glass specification draft based on the calculations.
- We offer the right glass solutions for the project's requirements.
- We supply samples and mock-up support for projects.
- We share our know-how about glass through trainings.



MATILD PALACE
Şişecam Temperable Solar Control Low-E Glass Neutral 58/32
Şişecam Temperable Low-E Glass Neutral 71/53

Şişecam offers environmentally sensitive and innovative solutions as part of its CareforNext sustainability strategy.

Following the “product life cycle analysis (LCA)” carried out for all products in the flat glass product portfolio, “Environmental Product Declarations (EPD)” certificates have been obtained for 11 product groups.

EPD®
THE INTERNATIONAL EPD® SYSTEM

TURKEY EPD®
THE INTERNATIONAL EPD® SYSTEM

PERFORMANCE TABLES

ŞİŞECAM LOW-E GLASS	HEAT CONTROL GLASS											
4 mm Low-E Glass (#2) +16 mm Cavity + 4 mm Clear Float Glass	Applications	Daylight (EN 410)			Colour Rendering Index (Ra) %	Solar Energy (EN 410)					Thermal Conductivity (U-Value) W/m²K (EN 673)
		Transmittance %	Reflectance Outdoor %	Reflectance Indoor %		Direct Transmittance %	Reflectance Outdoor %	Absorption %	Solar Factor (g-value) %	Shading Coefficient	Argon
Neutral	Residences and small/medium-sized commercial buildings where heat control is required	79	12	12	97	53	27	20	56	0.64	1.1

Low-E coating can be used on the 2nd or 3rd surface of the insulating glass unit.

ŞİŞECAM SOLAR CONTROL LOW-E GLASS	HEAT AND SOLAR CONTROL GLASS											
4 mm Solar Control Low-E Glass (#2) +16 mm Cavity + 4 mm Clear Float Glass	Applications	Daylight (EN 410)			Colour Rendering Index (Ra) %	Solar Energy (EN 410)					Thermal Conductivity (U-Value) W/m²K (EN 673)
		Transmittance %	Reflectance Outdoor %	Reflectance Indoor %		Direct Transmittance %	Reflectance Outdoor %	Absorption %	Solar Factor (g-value) %	Shading Coefficient	Argon
Neutral	Residences and small/medium-sized commercial buildings where air conditioning is needed, and both heat and effective solar control at the same time	66	25	21	97	42	39	19	44	0.51	**1.0**
Neutral 72/44	Residences and small/medium-sized commercial buildings where air conditioning is needed, and both heat and solar control at the same time	72	10	12	97	42	30	28	45	0.51	1.1

ŞİŞECAM SOLAR CONTROL LOW-E GLASS	HEAT AND SOLAR CONTROL GLASS											
6 mm Solar Control Low-E Glass (#2) +16 mm Cavity + 6 mm Clear Float Glass	Applications	Daylight (EN 410)			Colour Rendering Index (Ra) %	Solar Energy (EN 410)					Thermal Conductivity (U-Value) W/m²K (EN 673)
		Transmittance %	Reflectance Outdoor %	Reflectance Indoor %		Direct Transmittance %	Reflectance Outdoor %	Absorption %	Solar Factor (g-value) %	Shading Coefficient	Argon
Neutral 70/40	Boutique hotels, villas etc. where high light transmission, heat and solar control, transparency, and low reflection are required	69	11	12	93	37	27	36	40	0.46	1.1
Neutral 70/37	Boutique hotels, villas, display windows, etc. where high light transmission, heat and solar control, transparency, and low reflection are required	69	13	13	93	34	36	30	37	0.43	**1.0**
Neutral 62/44	Residences, schools, etc. where high light transmission,heat and solar control are required depending on the glass ratio on the façade	63	23	20	95	39	32	29	43	0.49	1.1
Neutral 50/33	Offices, hotels, hospitals, etc. where optimum light transmission, heat and effective solar control are required for glare and flare control	49	32	24	89	30	36	34	33	0.38	1.1
Neutral 50/25	Offices, hotels, hospitals, etc. where optimum light transmission, heat and effective solar control are required for glare and flare control	48	15	13	94	24	32	44	26	0.30	**1.0**

Şişecam Solar Control Low-E Glass Neutral 70/40, Neutral 70/37, Neutral 62/44, Neutral 50/33, and Neutral 50/25 have also temperable options with the same colour and performance.

ŞİŞECAM TEMPERABLE LOW-E GLASS	TEMPERABLE HEAT CONTROL GLASS											
4 mm Clear Float Glass +16 mm Cavity + (#3) 4 mm Temperable Low-E Glass	Applications	Daylight (EN 410)			Colour Rendering Index (Ra) %	Solar Energy (EN 410)					Thermal Conductivity (U-Value) W/m²K (EN 673)
		Transmittance %	Reflectance Outdoor %	Reflectance Indoor %		Direct Transmittance %	Reflectance Outdoor %	Absorption %	Solar Factor (g-value) %	Shading Coefficient	Argon
Neutral 80/64*	Residences, schools, hotels, hospitals, and display windows, etc. where transparency and low reflectivity are required in addition to effective heat control, are especially important in cold climate zones	79	13	14	97	55	27	18	63	0.72	1.1

*Şişecam Climax Neutral 80/64, which is produced in Italy, is an annealed option with the same colour and performance.

PERFORMANCE TABLES

ŞİŞECAM TEMPERABLE LOW-E GLASS	TEMPERABLE HEAT CONTROL GLASS										
6 mm Temperable Low-E Glass (#2) +16 mm Cavity + 6 mm Clear Float Glass	Applications	Daylight (EN 410)			Colour Rendering Index (Ra) %	Solar Energy (EN 410)					Thermal Conductivity (U-Value) W/m²K (EN 673)
		Transmittance %	Reflectance Outdoor %	Reflectance Indoor %		Direct Transmittance %	Reflectance Outdoor %	Absorption %	Solar Factor (g-value) %	Shading Coefficient	Argon
Neutral 71/53	Residences, schools, hotels, hospitals, etc., where maximum transparency is required in addition to heat control in cold climate zones	72	17	15	96	49	23	28	54	0.62	1.1
Grey 36/34	Projects in hot climate regions and skylights where controlled daylight transmittance, heat and solar control are required	37	8	13	93	28	11	61	32	0.37	1.1
Bronze 41/35		42	9	14	95	29	12	59	34	0.39	1.1

ŞİŞECAM TEMPERABLE SOLAR CONTROL LOW-E GLASS	TEMPERABLE HEAT AND SOLAR CONTROL GLASS										
6 mm Temperable Solar Control Low-E Glass (#2) +16 mm Cavity + 6 mm Clear Float Glass	Applications	Daylight (EN 410)			Colour Rendering Index (Ra) %	Solar Energy (EN 410)					Thermal Conductivity (U-Value) W/m²K (EN 673)
		Transmittance %	Reflectance Outdoor %	Reflectance Indoor %		Direct Transmittance %	Reflectance Outdoor %	Absorption %	Solar Factor (g-value) %	Shading Coefficient	Argon
Neutral 60/29	Residences, schools, hotels etc., where high light transmittance depending on the glass ratio on the façade, effective heat and solar control, transparency and low reflection are required	60	14	13	92	26	35	39	29	0.33	**1.0**
Neutral 70/40*	Residences, boutique hotels, villas etc., where high light transmittance, heat and solar control, transparency, and low reflection are required	69	11	12	94	37	29	34	40	0.46	1.1
Neutral 70/37*	Residences, boutique hotels, villas, etc., where high light transmittance, effective heat control, solar control, transparency, and low reflection are required	69	13	13	93	34	35	31	37	0.42	**1.0**
Neutral 58/32	Residences, schools, etc., where high light transmittance depending on the glass ratio on the façade, heat and solar control are required	58	18	18	92	29	33	37	32	0.37	1.1
Neutral 51/28	Offices, hotels, hospitals, etc., where optimum light transmittance for glare control, heat and effective solar control are required	50	23	17	93	26	31	44	29	0.33	1.1
Neutral 50/27	Offices, hotels, hospitals, etc. where optimum light transmittance for glare control, heat and effective solar control are required	49	16	18	89	23	32	45	26	0.30	1.1
Neutral 50/25*	Offices, hotels, hospitals, etc., where optimum light transmittance for glare control, effective heat and solar control are required	49	16	14	93	24	35	41	26	0.30	**1.0**
Neutral 40/22	Projects in hot climate regions and skylights where controlled daylight transmittance, effective heat and solar control are required	40	19	14	89	19	35	46	22	0.25	**1.0**
Deep Blue 40/28	Projects in hot climate regions and skylights where controlled daylight transmittance, heat and effective solar control are required with its blue colour effect	38	18	24	92	24	17	60	28	0.32	1.1
Green 40/28	Projects in hot climate regions and skylights where controlled daylight transmittance, heat and effective solar control are required with its green colour effect	40	37	27	95	25	26	49	28	0.33	1.1
Neutral 62/44*	Residences, schools, etc., where high light transmittance depending on the glass ratio on the façade, heat and solar control are required	63	24	21	95	39	33	28	43	0.49	1.1
Grey 31/28	Projects in hot climate regions and skylights where controlled daylight transmittance, heat and effective solar control are required	33	10	19	92	22	15	63	26	0.30	1.1
Bronze 35/29		37	11	19	94	23	16	61	27	0.31	1.1
Neutral 50/33*	Offices, hotels, hospitals, etc. where optimum light transmittance for glare control, heat and effective solar control are required	49	31	23	88	29	36	35	33	0.37	1.1
Grey 28/26	Projects in hot climate regions and skylights where controlled daylight transmittance, heat and effective solar control are required	25	12	22	85	16	16	68	20	0.23	1.1
Bronze 31/25		29	14	22	92	17	17	66	21	0.24	1.1
Neutral 43/28	Projects in hot climate regions and skylights where controlled daylight transmittance, heat and effective solar control are required	44	34	26	88	25	40	35	29	0.33	1.1
Grey 21/18	Projects in hot climate regions and skylights where controlled daylight transmittance, heat and effective solar control are required	22	12	25	85	14	17	69	18	0.21	1.1
Bronze 24/18		26	15	25	92	15	18	67	19	0.21	1.1
Neutral 41/27	Projects in hot climate regions and skylights where controlled daylight transmittance, heat and effective solar control are required	42	33	32	90	25	38	37	28	0.32	1.1

*Şişecam Temperable Solar Control Low-E Glass Neutral 70/40, Neutral 70/37, Neutral 62/44, Neutral 50/33, and Neutral 50/25 have also annealed options with the same colour and performance.

PERFORMANCE TABLES

ŞİŞECAM TENTESOL	SOLAR CONTROL GLASS (REFLECTIVE)									
6 mm Tentesol (#2) + 16 mm Cavity + (#3) 6 mm Low-E Glass	Daylight (EN 410)			Colour Rendering Index (Ra) %	Solar Energy (EN 410)					Thermal Conductivity (U-value) W/m²K (EN 673)
	Transmittance %	Reflectance Outdoor %	Reflectance Indoor %		Direct Transmittance %	Reflectance Outdoor %	Absorption %	Solar Factor (g-value) %	Shading Coefficient	Argon
Silver + Low-E Glass	35	29	30	95	25	32	43	31	0.36	1.1
Green + Low-E Glass	28	21	30	92	14	13	73	19	0.22	1.1
Blue + Low-E Glass	21	14	30	86	13	12	75	19	0.21	1.1
Grey + Low-E Glass	18	11	30	95	14	14	72	20	0.23	1.1
Bronze + Low-E Glass	21	13	30	87	15	15	70	21	0.24	1.1

Şişecam Tentesol prevents solar heat transmission into buildings, control the luminosity of sunlight and used in commercial buildings such as hospitals, offices, and shopping malls.

Thanks to its reflectivity, it offers a uniform appearance for buildings with curtain walls by covering background features.

Şişecam Tentesol glass is recommended to be used as toughened or heat strengthened to avoid thermal breakage risks.

ŞİŞECAM TENTESOL TITANIUM	SOLAR CONTROL GLASS (TITANIUM REFLECTIVE)									
6 mm Tentesol Titanium (#2) + 16 mm Cavity + (#3) 6 mm Low-E Glass	Daylight (EN 410)			Colour Rendering Index (Ra) %	Solar Energy (EN 410)					Thermal Conductivity (U-value) W/m²K (EN 673)
	Transmittance %	Reflectance Outdoor %	Reflectance Indoor %		Direct Transmittance %	Reflectance Outdoor %	Absorption %	Solar Factor (g-value) %	Shading Coefficient	Argon
Silver + Low-E Glass	59	33	30	98	39	36	25	47	0.54	1.1
Green + Low-E Glass	47	23	29	88	24	14	62	29	0.34	1.1
Blue + Low-E Glass	36	16	29	81	22	13	65	28	0.32	1.1
Grey + Low-E Glass	30	12	29	94	22	16	63	28	0.33	1.1

Şişecam Tentesol Titanium prevents solar heat transmission into buildings, control the luminosity of sunlight and used in commercial buildings such as hospitals, offices, and shopping malls.

Thanks to its reflectivity, it offers a uniform appearance for buildings with curtain walls by covering background features.

Due to its coating, colour of the substrate glass appears more clearly.

Şişecam Tentesol Titanium glass is recommended to be used as toughened or heat strengthened to avoid thermal breakage risks.

ANTİK DANTEL HQ
Şişecam Tentesol Bronze

1071 ANKARA
Şişecam Temperable Solar Control Low-E Glass Neutral 50/33

ŞİŞECAM

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Şişecam GlassTool Mobile Application

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