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# FLOAT GLASS



# Clear & Tinted Float Glass

Float glass is a sheet of glass made by floating molten glass on a bed of molten metal. This method gives the sheet a uniform thickness and very flat surfaces.

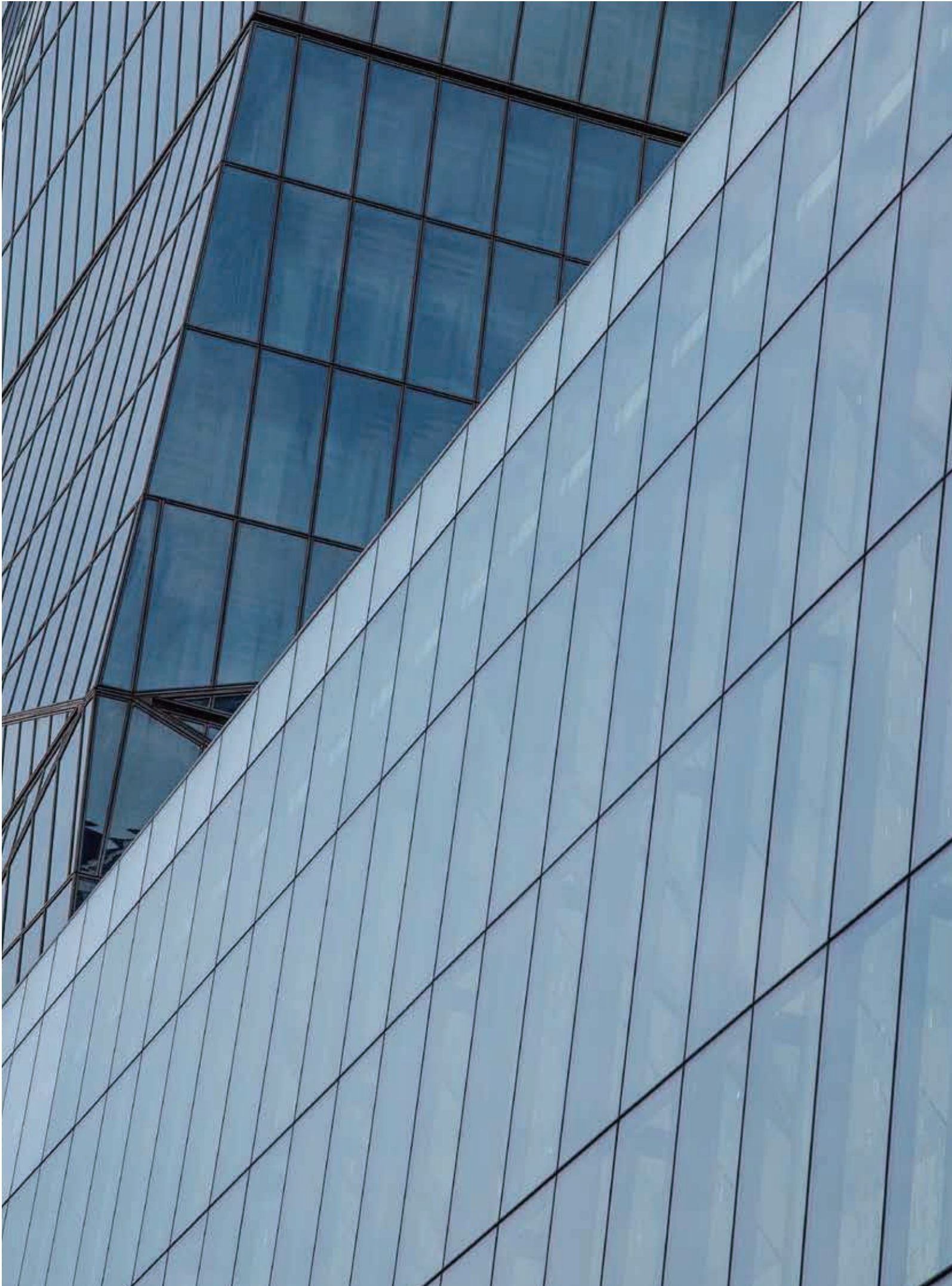
Our factory uses the most advanced production technology, utilizing the highest quality raw materials, they are currently one of China's largest high end float glass manufacturers, using up to date and world class production and control systems.

**Clear Glass Characteristics**

- Smooth and flat surfaces reducing distortion
- Flexible size specification reducing wastage in production

**Tinted Glass Characteristics**

- Offers solar control, reducing the need for air conditioning
- Can compliment other building materials and the surrounding environment
- Reduces glare from the sun



## Clear & Tinted Performance

Colour	Thickness (mm)	Transmittance	Reflection Rate	Solar Transmittance	ASHRAE			JGJ151	CEN
					U-Value	U-Value	SC	SC	K
Clear	6	89	7	81	5.81	5.24	0.97	0.99	5.73
	8	89	7	79	5.74	5.19	0.95	0.98	5.67
	10	87	7	75	5.67	5.13	0.92	0.95	5.6
French Green	6	75	6	46	5.81	5.24	0.69	0.71	5.73
	8	70	6	38	5.74	5.19	0.63	0.65	5.67
	10	65	5	32	5.67	5.13	0.59	0.6	5.6
Euro Grey	6	45	5	43	5.81	5.24	0.69	0.69	5.73
	8	35	5	34	5.74	5.19	0.62	0.61	5.67
	10	26	4	26	5.67	5.13	0.56	0.55	5.6
Crystal Grey	6	64	6	57	5.81	5.24	0.78	0.8	5.73
	8	56	6	49	5.74	5.19	0.72	0.73	5.67
	10	50	6	42	5.67	5.13	0.68	0.68	5.6

# Low Iron / Ultra Clear Glass

Low Iron / Ultra Clear Float Glass is a type of glass produced by reducing the amount of iron in the molten glass formula. This type of glass is more transparent than regular glass and doesn't have a green tint. Making modifications to the iron content can increase light transparency by 5 to 6 percent.

### Characteristics

- Extreme transparency
- Light transmission is higher than clear float glass, with thicker glass in particular
- Low Iron glass increases light transmission by 3-4%, reaching 7-8% with thicknesses over 8mm
- Enhanced glass aesthetics and brightness
- Allow for the better colour retention of objects when observed through the glass surface

## Low Iron / Ultra Clear Performance

Colour	Thickness (mm)	Transmittance	Reflection Rate	Solar Transmittance	ASHRAE			JGJ151	CEN
					U-Value Max	U-Value Min	SC	SC	K
Ultra Clear	5	91.3	8	90	5.85	5.28	1.04	1.03	5.77
	6	91.2	8	89	5.81	5.25	1.04	1.03	5.74
	8	91.0	8	89	5.75	5.19	1.03	1.02	5.67
	10	90.6	8	88	5.68	5.13	1.03	1.01	5.61
	12	90.3	7	87	5.62	5.08	1.02	1.00	5.55
	15	89.9	7	86	5.62	4.99	1.01	0.99	5.45





# Product Information

## Grades of Glass

- Mirror Grade
- Windshield Grade
- Side Window Grade
- Common Processing Grade
- Architectural Grade

## Thicknesses

- Clear Float Glass: 1.8 - 25mm
- Low Iron Float Glass: 3.0 - 12mm
- Tinted Float Glass:
  - French Green : 2.1 - 12mm
  - Euro Grey: 4.0 - 12mm
  - Crystal Grey: 5.0 - 12mm
  - Euro Bronze: 3.0 - 12mm
  - Light Blue: 5.0 to 12mm

## Sizes

- Lengths: 720mm - 13000mm
- Widths: 2700mm - 4880mm

## Packaging

- Wooden Crates
- A-Frames
- Crateless

# Quality Assurance

All glass that our factory produces follows all the relevant international quality standards for the production processes, from raw material procurement, manufacturing and after sales service. This is to ensure that all products meet our customer's requirements.





# COATED FLOAT GLASS

The factory has successfully introduced 11 large scale Low-E vacuum magnetron sputtering coating production lines from Germany and currently have the highest film production capacity and are the most advanced radiation coated glass manufacturers in China

German made high precision equipment is used to ensure an ultra high vacuum environment, and supports the introduction of Germany's professional cleaning equipment; along with a large number of medium frequency rotating cathodes ensure a higher sputtering energy. All of these factors give the film a high density that is durable and resistant to chemicals, which improves the products stability and life.

With on-line real time monitoring , and surface inspection equipment we are able to ensure the products colour stability and uniformity, in addition to this with our advanced optical performance test equipment we are able to check the solar energy, visible light transmittance, reflectivity and other parameters to ensure that our products meet all of our customers requirements.

The company has a research and development center based in Hong Kong along with a post doctoral research work station, staffed by experts from around the globe, including 4 experts from the state council. Using advanced software, instruments and equipments, the team are world leaders in the development of energy saving glass, closely following the development of the building glass market to provide only the best and cutting edge products on the market.



## Temperable Low-E Glass

Low Emissivity coated glass (Low-E Glass) has a layer of metal or metal oxide film deposited on the original glass, one or two layers of Ag - based special coating. Low-E glass has a high reflection ratio to the far infrared wavelength of 4.5um to 25um and can effectively reduce the absorption of solar energy or control the loss of energy and reduce the heat transfer coefficient of the the glass. Solar control coated glass is a coated glass that controls sunlight in the wavelengths between 350nm to 1800nm.

### Characteristics

- The coating remains stable at high temperatures, making it suitable for tempering
- Lower SC value and U Value ensure improved energy savings when compared to other float glass
- More varieties and colour choices in keeping with today's architectural designs





# Quality Standards

GB/TI 8915.1 - Coated Glass, Part 1 - Solar Control Coated Glass

GB/TI 8915.2 - Coated Glass, Part 2 - Low-Radiation Film Coated Glass

# Terminology

- o **Visible Light Transmittance:** In the range of visible spectrum (wavelength 380 - 780nm), the ratio of light intensity of glass to the projected light intensity.
- o **Visible Light Reflectance:** In the range of visible spectrum (wavelength 380 - 780nm), glass reflected light intensity and projected light intensity ratio.
- o **Solar Transmittance:** In the range of the solar spectrum (wavelength 300 - 2500nm), the ratio of the light intensity to the projected light intensity directly through the glass.
- o **Sun Reflectance:** In the range of the solar spectrum (wavelength 300 - 2500nm), the ratio of the reflected light intensity of the glass to the projected light intensity.
- o **Solar Heat Gain Ratio:** The SHGC is the fraction of incident solar radiation admitted through a window, both directly transmitted, and absorbed and subsequently released inward.
- o **Shading Coefficient:** Also known as shielding coefficient, SC value, refers to the same conditions under the glass sunlight heat gain than the standard 3mm transparent float glass ratio of the sun heat. The sunlight heat gain ratio of 3mm transparent float glass is 0.87, the smaller the coefficient, the better the radiation performance of the glass shielding sunlight.
- o **Heat Transfer Coefficient:** U value or K value is the quantity of heat transmitted through a unit thickness of a material - in a direction normal to a surface of unit area - due to a unit temperature gradient under steady state conditions.
- o **Relative Heat:** RHG value, in the ASH RAE summer standard conditions, the the total heat gain of glass is to characterise the comprehensive performance of glass, the unit is W /M2
- o **LSG:** Ratio of light to heat, glass products visible light transmittance and sunlight heat gain ratio, measures glasses light heat filtration ability.

# Product Information

## High Transmittance Low-E Glass

- High transmittance of visible light
- Very high far infrared reflectivity
- Suitable for any area with high permeability
- Ideal for cold areas where heating is needed

## Solar Shading Low-E Glass

- Moderate transmittance of visible light
- High infrared reflectivity
- Lower solar transmittance
- Suitable for warmer regions

## Colours

- Clear Float Glass (Low-E code #01)
- French Green (F.Green, Low-E code #02)
- Euro Grey (Low-E code #23)
- Light Grey/ Crystal Grey (Low-E code #03)
- Extra Clear Glass (Low-E code #00)

## Dimensions

- **Max Size:** 4880mm X 11000mm
- **Thickness:** 1.8mm to 22mm (Clear Float Glass)  
2.0mm to 22mm(Tinted Float Glass)

## Reflective Coated Glass

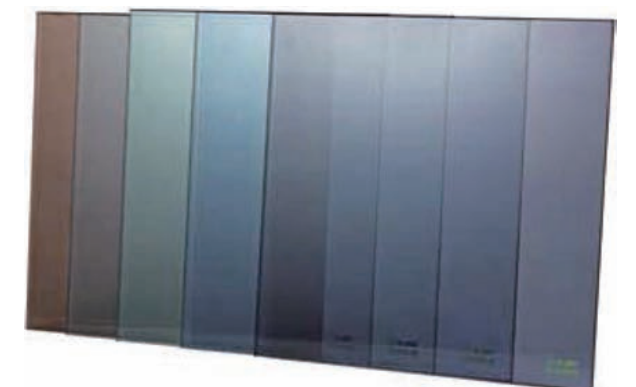
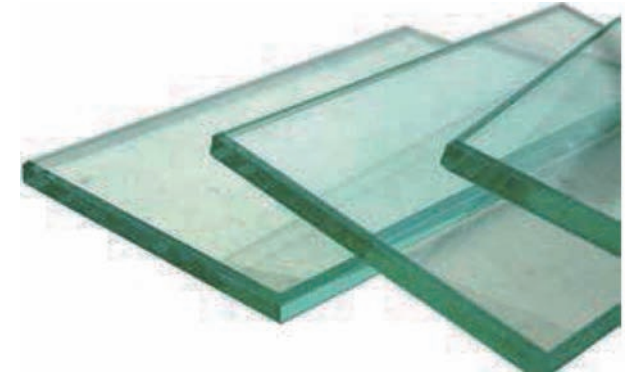
- Various Colours
- Effective control of solar energy
- Better visible light transmittance and reflectance
- Suitable for interior or exterior applications

**Glass Colours:** Blue Gray, Light Gray, Gray, Dark Gray, Blue-Green, Light Green, Green, etc.

**Visible Light Transmittance:** 30%, 40%, 50%, 60%, 70%, 80%

## Glass Sizes:

- 2140 x 3300mm
- 2440 x 3300mm
- 2280 x 3300mm
- 2600 x 3300mm
- 2740 x 3300mm
- 4280 x 3300mm
- 4880 x 3300mm



## Product Specification

### Dimensions:

Max Size: 3300 x 6000mm  
Min Size: 300 x 800mm

### Thickness:

3, 4, 5, 6, 8, 10, 12, 15, 19mm

The actual size of the coating-related composite products also depends on the processing capacity of other equipment





## Reflective Glass Performance

Glass Configuration	Base Plate Colour	Colour of Reflected Light	Visible Light (%)			JGJ151			
			Transmittance	Reflection Rate		K (W/m2. k)	SC	SHGC	W/m2
				Outdoor	Indoor				
6XSTY0065	Extra Clear	Silver Grey	66	18	20	5.29	0.85	0.74	580
6XSTY0050	Extra Clear	Grey	51	23	18	5.06	0.67	0.59	465
6XSTY0040	Extra Clear	Grey	40	23	10	4.77	0.53	0.46	371
6XSTY0030	Extra Clear	Grey	30	29	21	4.65	0.44	0.38	313
6XSTB0048	Extra Clear	Blue	48	16	16	4.83	0.62	0.54	427
6XSTY0165	Clear	Silver Grey	65	17	20	5.30	0.80	0.70	551
6XSTY0150	Clear	Grey	50	22	18	5.02	0.64	0.56	448
6XSTY0140	Clear	Grey	40	22	10	4.64	0.51	0.45	365
6XSTY0130	Clear	Grey	30	28	21	4.48	0.43	0.38	316
6XSTB0148	Clear	Blue	47	16	16	4.72	0.59	0.52	415
6XSTY0265	French Green	Green	54	14	19	5.30	0.58	0.51	414
6XSTY0250	French Green	Green	42	16	17	5.02	0.49	0.44	359
6XSTY0240	French Green	Green	33	17	10	4.64	0.42	0.38	313
6XSTY0230	French Green	Green	25	21	21	4.48	0.37	0.34	283
6XSTB0248	French Green	Green	39	12	16	4.72	0.46	0.41	338
6XSTY2365	Euro Grey	Grey	32	8	18	5.31	0.58	0.52	422
6XSTY2350	Euro Grey	Grey	25	9	17	5.02	0.48	0.44	362
6XSTY2340	Euro Grey	Grey	20	9	10	4.64	0.41	0.37	310
6XSTY2330	Euro Grey	Grey	15	10	20	4.48	0.36	0.34	283
6XSTB2348	Euro Grey	Blue	23	7	15	4.72	0.45	0.41	334
6XSTY0365	Crystal Grey	Grey	47	12	19	5.29	0.64	0.56	448
6XSTY0350	Crystal Grey	Grey	37	14	17	5.06	0.53	0.46	375
6XSTY0340	Crystal Grey	Grey	29	14	10	4.77	0.44	0.38	315
6XSTY0330	Crystal Grey	Grey	21	17	20	4.65	0.39	0.34	280
6XSTB0348	Crystal Grey	Blue	34	11	15	4.83	0.50	0.43	352
6XSTY0065+12A+6C	Extra Clear	Silver Grey	60	22	19	2.64	0.75	0.65	495
6XSTY0050+12A+6C	Extra Clear	Grey	46	25	17	2.56	0.58	0.50	386
6XSTY0040+12A+6C	Extra Clear	Grey	36	24	10	2.46	0.44	0.38	300
6XSTY0030+12A+6C	Extra Clear	Grey	27	30	21	2.41	0.37	0.32	251
6XSTB0048+12A+6C	Extra Clear	Blue	43	18	16	2.48	0.52	0.45	350
6XSTY0165+12A+6C	Clear	Silver Grey	59	20	23	2.64	0.69	0.60	459
6XSTY0150+12A+6C	Clear	Grey	45	23	21	2.56	0.54	0.47	326
6XSTY0140+12A+6C	Clear	Grey	35	23	15	2.46	0.42	0.36	286
6XSTY0130+12A+6C	Clear	Grey	27	28	24	2.41	0.35	0.30	241
6XSTB0148+12A+6C	Clear	Blue	42	17	20	2.48	0.49	0.43	331
6XSTY0265+12A+6C	French Green	Green	49	16	23	2.64	0.46	0.40	315
6XSTY0250+12A+6C	French Green	Green	38	18	21	2.56	0.38	0.33	264
6XSTY0240+12A+6C	French Green	Green	30	17	15	2.46	0.32	0.28	223
6XSTY0230+12A+6C	French Green	Green	23	21	24	2.41	0.28	0.24	194
6XSTB0248+12A+6C	French Green	Green	35	13	20	2.48	0.36	0.31	247
6XSTY2365+12A+6C	Euro Grey	Grey	29	8	22	2.64	0.46	0.40	310
6XSTY2350+12A+6C	Euro Grey	Grey	23	9	21	2.56	0.37	0.32	256
6XSTY2340+12A+6C	Euro Grey	Grey	18	9	15	2.46	0.30	0.26	212
6XSTY2330+12A+6C	Euro Grey	Grey	13	10	23	2.41	0.27	0.23	188
6XSTB2348+12A+6C	Euro Grey	Blue	21	7	19	2.48	0.34	0.29	236
6XSTY0365+12A+6C	Crystal Grey	Grey	43	13	22	2.64	0.53	0.46	356
6XSTY0350+12A+6C	Crystal Grey	Grey	33	15	21	2.56	0.43	0.37	290
6XSTY0340+12A+6C	Crystal Grey	Grey	26	15	15	2.46	0.34	0.30	237
6XSTY0330+12A+6C	Crystal Grey	Grey	19	17	23	2.41	0.30	0.26	208
6XSTB0348+12A+6C	Crystal Grey	Blue	32	12	20	2.48	0.40	0.34	271

## Standard Differences

At present the common standards are, China JGJ151, USA NFRC and Europe EN, three standards between the boundary conditions and optical standards, which results in a difference in the final calculations.

		JGJ151	NFRC	CEN
Heat Transfer Coefficient (winter)	Outdoor Temp	-20	-18	0°C
	Indoor Temp	20°C	21°C	20°C
	Sunlight Radiation	300 W/m <sup>2</sup>	0 W/m <sup>2</sup>	300 W/m <sup>2</sup>
Shading Coefficient		Solar spectrum ISO9845-1 Table 1, 5th column, Direct Sunlight & Scattering	Solar spectrum ISO9845-1 Table, 2nd column, Direct Sunlight	Solar spectrum ISO9845-1 Table 1, 5th column, Direct Sunlight & Scattering
	Sunlight Radiation	500 W/m <sup>2</sup>	786 W/m <sup>2</sup>	500 W/m <sup>2</sup>

U Value: The JGJ standard is close to the NFRC standard, the same glass value is greater than the EN standard, the structure is slightly different.

SC Value: The JGJ standard is close to the EN standard, the same glass value is greater than the NFRC standard, the structure is slightly different.

**Notice:** Customers should pay attention to the standard differences when selecting products.



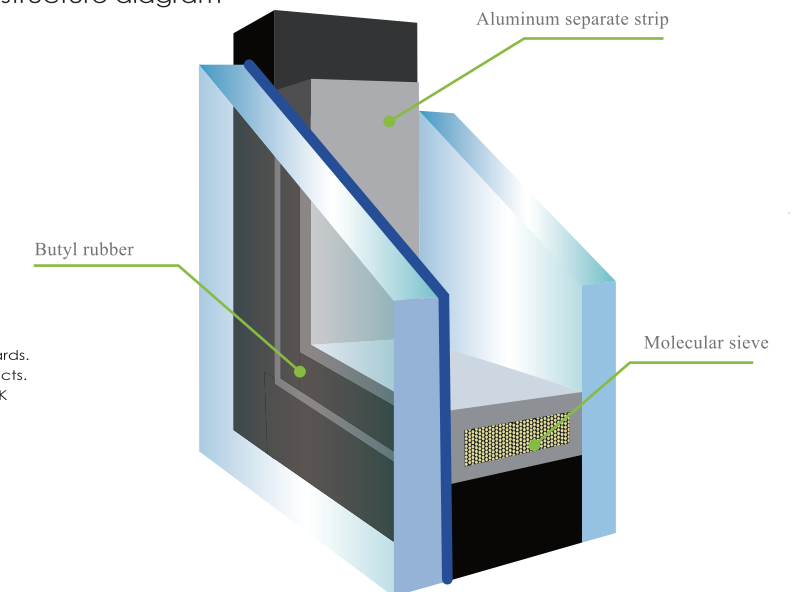
## Single Silver Low-E Performance

Glass Configuration	Base Plate Colour	Colour of Reflected Light	Visible Light (%)			JGJ151			
			Transmittance	Reflection Rate		K (W/m2. k)	SC	SHGC	W/m2
				Outdoor	Indoor				
6XETN0080+12A+6C	Extra Clear	Colourless	74	10	11	1.85	0.71	0.62	465
6XETB0070+12A+6C	Extra Clear	Blue	65	12	11	1.84	0.60	0.52	392
6XETB0060+12A+6C	Extra Clear	Blue	54	18	9	1.84	0.52	0.46	345
6XETS0060+12A+6C	Extra Clear	Silver Grey	54	23	11	1.81	0.50	0.43	328
6XETB0050+12A+6C	Extra Clear	Blue Grey	45	19	9	1.84	0.44	0.38	291
6XETS0050+12A+6C	Extra Clear	Silver Grey	45	30	12	1.77	0.42	0.37	282
6XE290140-00+12A+6C	Extra Clear	Silver Grey	42	34	11	1.71	0.38	0.33	253
6XETN0180+12A+6C	Clear	Colourless	72	10	11	1.85	0.67	0.58	438
6XETB0170+12A+6C	Clear	Blue	64	11	11	1.84	0.56	0.49	370
6XETB0160+12A+6C	Clear	Blue	53	17	9	1.84	0.49	0.43	325
6XETS0160+12A+6C	Clear	Silver Grey	53	22	10	1.81	0.47	0.41	310
6XETB0150+12A+6C	Clear	Blue Grey	44	18	9	1.84	0.42	0.36	279
6XETS0150+12A+6C	Clear	Silver Grey	44	29	12	1.77	0.41	0.35	270
6XE290140-01+12A+6C	Clear	Silver Grey	41	32	11	1.71	0.36	0.31	241
6XETN0280+12A+6C	French Green	Green	61	8	11	1.85	0.46	0.40	302
6XETB0270+12A+6C	French Green	Green	54	9	11	1.84	0.40	0.35	269
6XETB0260+12A+6C	French Green	Green	44	14	8	1.84	0.35	0.31	237
6XETS0260+12A+6C	French Green	Green	44	16	10	1.81	0.34	0.30	231
6XETB0250+12A+6C	French Green	Green	37	14	9	1.84	0.31	0.27	210
6XETS0250+12A+6C	French Green	Green	37	21	12	1.77	0.30	0.26	203
6XE290140-02+12A+6C	French Green	Green	34	24	11	1.71	0.27	0.24	186
6XETN2380+12A+6C	Euro Grey	Grey	36	6	10	1.85	0.41	0.36	274
6XETB2370+12A+6C	Euro Grey	Blue Grey	32	6	10	1.84	0.35	0.31	237
6XETB2360+12A+6C	Euro Grey	Blue Grey	26	7	8	1.84	0.32	0.27	214
6XETS2360+12A+6C	Euro Grey	Grey	26	9	10	1.81	0.30	0.26	205
6XETB2350+12A+6C	Euro Grey	Grey	22	8	8	1.84	0.28	0.24	189
6XETS2350+12A+6C	Euro Grey	Grey	22	10	11	1.77	0.27	0.23	183
6XE290140-23+12A+6C	Euro Grey	Grey	20	11	11	1.71	0.24	0.21	166
6XETN0380+12A+6C	Crystal Grey	Light Grey	53	8	11	1.85	0.50	0.44	332
6XETB0370+12A+6C	Crystal Grey	Blue Grey	47	9	11	1.84	0.43	0.37	286
6XETB0360+12A+6C	Crystal Grey	Blue Grey	39	12	8	1.84	0.38	0.33	254
6XETS0360+12A+6C	Crystal Grey	Grey	39	14	10	1.81	0.37	0.32	247
6XETB0350+12A+6C	Crystal Grey	Grey	32	12	9	1.84	0.33	0.29	224
6XETS0350+12A+6C	Crystal Grey	Grey	32	18	11	1.77	0.32	0.28	215
6XE290140-03+12A+6C	Crystal Grey	Grey	29	19	11	1.71	0.29	0.25	196

## Double Silver Low-E Performance

Glass Configuration	Base Plate Colour	Colour of Reflected Light	Visible Light (%)			JGJ151			
			Transmittance	Reflection Rate		K (W/m2. k)	SC	SHGC	W/m2
				Outdoor	Indoor				
6XDTN0079+12A+6C	Extra Clear	Colourless	73	11	12	1.66	0.53	0.46	346
6XDTB0071+12A+6C	Extra Clear	Blue	64	16	15	1.66	0.51	0.44	335
6XD TG0060+12A+6C	Extra Clear	Blue Grey	54	21	17	1.65	0.39	0.34	261
6XD TG0055+12A+6C	Extra Clear	Blue Grey	52	27	26	1.58	0.34	0.29	224
6XD TB0040+12A+6C	Extra Clear	Grey	43	25	20	1.68	0.34	0.30	230
6XDTN0179+12A+6C	Clear	Colourless	71	11	12	1.66	0.51	0.44	334
6XD TB0171+12A+6C	Clear	Blue	63	15	15	1.66	0.49	0.42	320
6XD TG0160+12A+6C	Clear	Blue Grey	53	20	17	1.65	0.38	0.33	254
6XD TG0155+12A+6C	Clear	Blue Grey	51	26	26	1.58	0.33	0.27	206
6XD TB1040+12A+6C	Clear	Grey	42	23	20	1.68	0.33	0.29	223
6XDTN0279+12A+6C	French Green	Green	60	9	11	1.66	0.39	0.34	261
6XD TB0271+12A+6C	French Green	Green	53	12	14	1.66	0.36	0.32	242
6XD TG0260+12A+6C	French Green	Green	45	16	17	1.65	0.31	0.27	207
6XD TG0255+12A+6C	French Green	Green	43	20	26	1.58	0.28	0.23	178
6XD TB0240+12A+6C	French Green	Green	35	17	19	1.68	0.27	0.23	183
6XDTN2379+12A+6C	Euro Grey	Grey	36	6	10	1.66	0.32	0.28	215
6XD TB2371+12A+6C	Euro Grey	Blue Grey	31	7	14	1.66	0.31	0.27	206
6XD TG2360+12A+6C	Euro Grey	Grey	27	8	16	1.65	0.25	0.22	170
6XD TG2355+12A+6C	Euro Grey	Grey	26	10	25	1.58	0.22	0.18	147
6XD TB2340+12A+6C	Euro Grey	Grey	21	9	19	1.68	0.23	0.20	156
6XDTN0379+12A+6C	Crystal Grey	Light Grey	52	8	11	1.66	0.40	0.35	264
6XD TB0371+12A+6C	Crystal Grey	Blue Grey	45	10	14	1.66	0.38	0.33	252
6XD TG0360+12A+6C	Crystal Grey	Grey	38	13	17	1.65	0.31	0.27	206
6XD TG0355+12A+6C	Crystal Grey	Grey	37	16	26	1.58	0.27	0.22	173
6XD TB0340+12A+6C	Crystal Grey	Grey	30	14	19	1.68	0.27	0.24	184

Hollow Low-E glass structure diagram



Details:

- Thermal parameters of the above products, version V11.5
- NFRC is calculated according to USA standards, JGJ is according to Chinese standards.
- The parameters provided above are all tempered parameters of temperable products.
- The above parameter error range is +/- 3%, and the K value error range is +/- 0.2 M<sup>2</sup>.K



# PACKING & LOADING

## WOODEN CRATES



Wooden Case(End-cap)



(End-cap)Packing



Loading into GP container



Upper Fixings



Lower Fixings



Loading into OT container



Label



Inspection



Despatch



## A-FRAMES



A-Frame



Securing



Loading into OT container



Inspect and complete loading



## CRATELESS



Ready



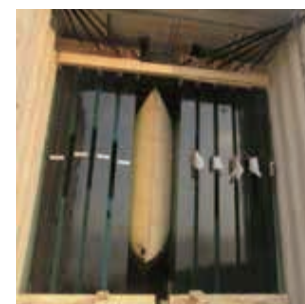
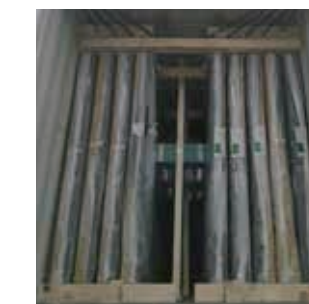
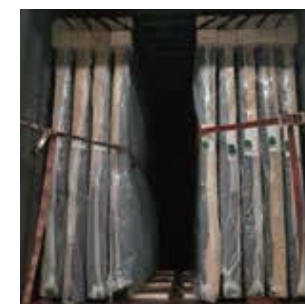
Loading



Securing



Inspect and complete loading





# TECHNOLOGY & EQUIPMENT

Our factory uses the most advanced technology, and is equipped with world class process machinery and control systems. They are able to manufacture high quality float glass with thicknesses from 0.33mm to 25mm, with lengths from 720mm to 13000mm and widths from 2700mm to 4880mm.

