



## E-RANGE LAMINATED (PVB) GLASS

### PRODUCT RANGE & PRODUCT SPECIFICATIONS

Type of Glass	Colour	Visible Light		Solar Energy					Shading Coefficient	U Value	UV	Noise Control	Safety	Security
		Transmission	Reflection	Total Elimination	Reflectance	Absorption	Direct Transmission	Total Transmission	Ratio (CFG = 0.87)	(W/m).K	Elimination %	ISO rating/STC Value	Rating	Rating
E Range	Armourplate Low E (Toughened Safety Glass)	82%	10%	36%	9%	31%	60%	64%	0.74	3.4	51%	29	1	0
E Range	Armourplate Solar E (Toughened Safety Glass)	59%	6%	50%	6%	51%	43%	50%	0.58	3.4	55%	29	1	0
E Range	Aquamarine Low E (Laminated Safety Glass)	68%	8%	43%	8%	41%	51%	57%	0.66	3.4	99%	33	1	1
E Range	Deep Aquamarine Low E (Laminated Safety Glass)	55%	7%	49%	7%	50%	43%	51%	0.58	3.4	99%	34	2	2
E Range	Intruderprufe Low E	82%	10%	36%	9%	31%	60%	64%	0.74	3.4	99%	33	1	1

	(Laminated Safety Glass)													
E Range	Intruderprufe Solar E (Laminated Safety Glass)	59%	6%	50%	6%	51%	43%	50%	0.58	3.4	99%	33	1	1
E Range	Cool Blue Low E (Laminated Safety Glass)	69%	8%	42%	8%	39%	53%	58%	0.67	3.4	99%	33	1	1
E Range	Deep Cool Blue Low E (Laminated Safety Glass)	57%	7%	46%	7%	46%	47%	54%	0.62	3.4	99%	34	2	2
E Range	Cool Bronze Low E (Laminated Safety Glass)	47%	6%	53%	7%	54%	39%	47%	0.54	3.4	99%	33	1	1
E Range	Deep Cool Bronze Low E (Laminated Safety Glass)	31%	5%	62%	6%	66%	29%	38%	0.44	3.4	99%	34	2	2
E Range	Cool Grey Low E (Laminated Safety Glass)	40%	6%	55%	6%	57%	37%	45%	0.52	3.4	99%	33	1	1
E Range	Deep Cool Grey Low E (Laminated Safety Glass)	23%	5%	64%	5%	69%	26%	36%	0.42	3.4	99%	34	2	2
E Range	Regal Blue Low E (Laminated Safety Glass)	53%	7%	48%	8%	47%	45%	52%	0.60	3.4	99%	33	1	1
E Range	Deep Regal Blue Low E (Laminated Safety Glass)	35%	6%	56%	6%	59%	35%	44%	0.50	3.4	99%	34	2	2
E Range	Serene Green Low E	65%	9%	56%	7%	57%	36%	44%	0.51	3.4	99%	33	1	1

## **STANDARD SIZES**

	Nominal Thickness (mm)	Standard Max. Size (mm)
<b>TOUGHENED SAFETY GLASS</b>		
Armourplate Low E	6.0	3300x2000
Armourplate Solar E	5.0	3300x2000
<b>LAMINATED SAFETY GLASS</b>		
Aquamarine Low E	7.38	3300x2440
Deep Aquamarine Low E	7.76	3300x2440
Cool Blue Low E	7.38	3300x2440
Deep Cool Blue Low E	7.76	3300x2440
Cool Bronze Low E	7.38	3300x2440
Deep Cool Bronze Low E	7.76	3300x2440
Cool Grey Low E	7.38	3300x2440
Deep Cool Grey Low E	7.76	3300x2440
Intruderprufe Low E	7.38	3300x2440
Intruderprufe Solar E	6.38	3300x2440
Regal Blue Low E	7.38	3300x2440
Deep Regal Blue Low E	7.76	3300x2440
Serene Green Low E	7.38	3300x2440

## PROCESSING

- The edges of all heat absorbing glass should be polished to reduce the possibility of thermal breakage.
- Polished edges eliminate the presence of vented faults, chips and flaws.
- Smooth polished edges are best produced by a straight line polishing machine.
- The coated surface of E Range highlights finger marks and general dirt.
- The surface may also highlight any scratches, which would be invisible on a normal glass surface.
- E Range is a sided product, meaning that its appearance may vary when viewed from different sides. Care must be exercised when cutting and glazing to ensure a uniform appearance.

## TERMS AND DEFINITIONS

### **Visible Light**

This is made up of all colours of the rainbow, it is the light humans can see. It is also known as “white light”.

### **Visible Light Transmission**

The percentage of visible light transmitted through the glass when the sun shines at right angles to the surface of the glass. Higher visible light transmission makes a building look more transparent from the outside and creates a lighter interior.

### **Visible Light Reflection**

The percentage of visible light reflected from the surface of the glass, when the sun shines at right angles to the surface of the glass. The reflection increases as the angle of the sun decreases.

### **Solar Energy**

Solar energy is high temperature energy radiated by the sun. It is the energy received from the sun on the surface of the earth. This includes the energy from the ultraviolet, visible and infrared segments of the solar spectrum.

- **Solar Heat Elimination**

The portion of the sun’s energy stopped by the glass or glazing system. This value will change when subjected to varying environmental conditions. The environmental conditions, which affect solar heat elimination, include air speed against both surfaces of the glass and temperature.

- **Solar Energy Control**

A solar control glazing system **Reflects, Absorbs and Transmits (RAT)** solar energy. Laminated glass contains an interlayer. Energy that would pass through clear glass is absorbed by this interlayer. A variety of interlayer colours are available to absorb solar radiation – the darker the colour, the

greater the solar control. The increased use of glass in architecture today makes it imperative to consider the comfort of a building's occupants and energy efficiency.

*Example:*

**Grey Solarvue XHL RAT**

*Reflectance*            9

*Absorption*            63

*Direct Transmission*    28

**100 (RAT always = 100)**

- **Reflectance**  
The parts of the sun's energy which is reflected by the glass.
- **Absorption**  
The part of the sun's energy which is absorbed into the glass.
- **Direct Transmission**  
The part of the sun's energy which passes directly through the glass.
- **Total Energy Transmission**  
The sum of the direct energy transmission and the portion of the absorbed energy that is radiated to the interior of the glazing system. Also called Solar Heat Gain Coefficient (SHGC).

**Shading Coefficient**

Shading Coefficient is a measure of the total amount of heat passing through the glazing system (known as the solar heat transmittance) compared to a single clear glass. Clear Float Glass (CFG) has a shading coefficient of 1. Therefore, a shading coefficient of 0.50 represents a reduction of 50% of the heat that would have been transmitted when compared to a single sheet of CFG. In other words the lower the shading coefficient, the less solar heat is allowed into the building.

*How to calculate?*

*SC = Total Energy Transmission (TET) of the glass (87 is the total energy transmission for CFG)*

**U-factor (U-value)**

The lower the better!! The U-factor measures how well a product prevents the conductance/transfer of heat or cold through building material. A lower U-factor means a better insulated window or door.

**Ultraviolet Light (UV)**

Ultraviolet rays are found in everyday sunlight and can cause fading of paint finishes, carpets and fabrics.

**Thermal Insulation**

The ability to restrict the flow of heat.

**Coated Glass**

Glass with a chemical coating applied to one surface of the glass. The coating can provide such enhanced performance characteristics such as privacy, solar control or mirror effects.

**Coated Interlayer**

Interlayer made from multiple stacks of coating also known as sputter soft coated products. The coating is encapsulated inside the interlayer.

**Coated Densities**

The thicker the coating, the less light is transmitted through the glass.

- High Light (HL) - 40%
- Extra High Light (XHL) - 50%
- Super High Light (SHL) - 60%
- Mega High Light (MHL) - 70%
- Ultra High Light (UHL) - 80%

**Annealed Glass**

To prevent or remove stresses in glass by controlled cooling. It is in fact “ordinary” glass as taken from the production line and stored in stock plates. Annealed glass, when broken, gives large fragments with sharp edges and so is not classified as a safety glass.