

LAMGLAS Skytec®
Point Fixed Structural Glass Systems

Kagithane Avenau Ugur Street No:48/1
 Caglayan-Istanbul
 TR-34403
 Tel : +90(212) 210 48 55
 Fax: +90(212) 210 54 51
 Web site: <http://www.lamglas.com>
 e-mail: info@lamglas.com

Single/Monolithic Glazing: Single
LAMGLAS Skytec® glass - flat & curved

The exterior glass used in all PLANAR systems is normally (8+1+8)mm or (6+1+10)mm thick SISECAM tempered and heat soaked glass that can be either clear or tinted. All glass complies with CE certificated by SISECAM. All glass, after tempering, must pass a destructive quality control test, the **heat soak**. This test is designed to virtually eliminate spontaneous on site breakage of glass due to the possible presence of nickel sulfide.

Lamglas able to manufacturing all glass into a structural application which costumer preferred has heat soak. Heat soaking is a prudent investment in safety for all those concerned about liability on a project.

Specification- flat single **LAMGLAS Skytec®**

FLAT SINGLE GLASS

Thickness: Tolerance:

10, 12mm	+/- 1mm
15mm	+/- 1mm
19mm	+/- 2mm

For dimensions

LAMGLAS Skytec® Flat single glass size rectangles		<2m	>/=2m
Maximum:	1900 x 3900mm	+/-1mm	+/-2mm
Minimum:	400 x 700mm	+/-1mm	+/-2mm
Aspect ratio:	10:1	Maximum	

Diagonal tolerance:

Up to 4m: 3mm	Maximum difference
Over 4m 4mm	Maximum difference

Flat shape capability- simple shapes

All tolerances will vary depending on the complexity of shape.

Edge condition

Smooth ground edges giving a flat profile with small ground arris. Shells or chips at edges will be ground out prior to toughening and do not constitute reason for rejection. Corners may be dubbed. Some variations in edgework may be discernible on exposed edges where different machines and/or hand forming is a requirement for manufacture. Such variations shall be kept to a minimum.

Hole drilling- rectangles

Diameter:	19mm +/-1mm (countersunk)
Position:	Normally 70mm from glass edge at corners and sometimes along edge. Other configurations subject to confirmation.
Tolerance:	+/-1mm from one datum point.
Number:	2-8

Toughening stress

Fully toughened to BS 6206 Class A and equivalent international standards. Checked regularly during production by the Differential Surface Refractometer (DSR) method.

Heat soak testing

All toughening glass will be supplied heat soak tested to DIN Standard.

Glass marking

Glass will be marked with the LAMGLAS toughening stamp and any other regulatory requirements. The mark to be on each glass usually near a corner.

CURVED GLASS

Thickness: 8mm, 10mm, 12mm +/-1mm

Curved glass size- rectangles

Developed width:	360 to 2000mm	+/-3mm
Length:	400 to 3200mm	+/-3mm
Aspect ratio:	2:1 maximum for large areas	
Minimum size:	1000 x 1000mm	+/-3mm
Minimum radius:	1000mm	

Tolerances on curves are difficult to define. In simple terms:

Straight edge will be: +/-3mm from the straight

Developed width will be: +/-3mm from perfect curve

Note: 'developed width' means the width of glass pane prior to bending.

Curved shape capability

Rectangles and simple rakes. All tolerances will vary depending on complexity of shape.

Edge condition

Smooth ground edges giving a flat profile with small ground arris. Shells or chips at edges will be ground out prior to toughening and do not constitute reason for rejection. Corners may be dubbed.

Some variation in edgework may be discernible on exposed edges where different machine and/or hand forming is a requirement for manufacture. Such variations shall be kept to a minimum.



Hole drilling

Diameter:	19mm +/-1mm (countersunk) Curved glass countersunk on convex side.
Position:	Normally 100mm from glass edge at corners and sometimes along edge. Other configurations subject to confirmation.
Tolerance:	+/-2mm from one datum point.
Number:	2-8

Toughening stress

The glass will be toughened to a similar standard as TSE Class A but no standard exists for curved glass.

Glass marking

Glass will be marked with the LAMGLAS stamp and any regulatory requirements. The mark to be on each glass usually near a corner.

Visual quality

A degree of distribution, both when looking through and in reflection, is inevitable in curved toughened glass, particularly when viewing a moving object through the glass. All curved glass should be site inspected from a minimum distance of 3m and viewed at right angles to the glass. It should also be noted that toughened curved glass will split direct sunlight into striped shadow.

General Notes- Curved Glazing

Curved **LAMGLAS Skytec®** applications are the subject of continuing development and inquiries are welcomed for projects furthering current specifications and usage. Special fittings have been designed for curved glazing and particular torque settings determined. The angle of spring plate or especial desing must suit the curve radius.

This document gives a general description of the product and materials. It is the responsibility of the users of this document to ensure that the proposed application of the product is appropriate and that such application complies with all relevant local and national legislation, standards, codes of practice and other requirements.

LAMGLAS Skytec® -Insulated/Double Glazing

The exterior glass used in all PLANAR systems is normally 6+1+10mm laminated tempered and heat soaked glass that can be either clear or tinted. All glass complies with Federal Code requirements, has international standards. All glass, after tempering must pass a destructive quality control test, the **heat soak**. This test is designed to virtually eliminate spontaneous on site breakage of glass due to the possible presence of nickel sulfide.

Lamglas able to manufacturing all glass into a structural application which customer preferred has heat soak. Heat soaking is a prudent investment in safety for all those concerned about liability on a project.

The combination of glass types and thickness vary. Low emissivity glass as well as inert Argon filled units can be used to increase thermal performance.

To facilitate the positioning of the PLANAR fixing in the insulating unit a transparent boss acts as a separator between the two plates of glass. This in combination with newly designed clear bushes and spacers is now a standard feature in all PLANAR systems and provides clarity of vision greater than that achieved in the past.

Specification of **LAMGLAS Skytec®** -Insulated/Double Glazing Units

Composition

LAMGLAS Skytec® -Insulated/Double Glazing Units are manufactured from two fully toughened and heat soaked glasses and reference should be made to the Flat Single glass specification.



Outer glass

Outer glass to conform to single specification glass.

Inner glass Thickness	6mm	+/-0.2mm
LAMGLAS Skytec® Units Airspace:	16mm	
Depth of silicone seal:	6mm	+/-3mm
Aluminum spacer:	7mm	
Spacer colour:	neutral	
Overall thickness:	+/-1.5mm tolerance	

LAMGLAS Skytec® -Insulated/Double Glazing Units Glass size- rectangles

Maximum:	2000 x 4000mm	-0 + 4.5mm
Minimum:	500 x 800mm	-0 + 4.5mm
Aspect ratio:	10:1	Maximum
Diagonal tolerance:		
Up to 4m: 3mm		Maximum difference
Over 4m: 4mm		Maximum difference

Shape capability

Rectangles and simple shapes. All tolerances will vary depending on the complexity of shape.

Roller wave- both glasses in same direction

6mm mean roller wave depth:	0.30mm
Maximum edge dip:	0.50mm

Roller wave is usually parallel to the short side and in coated glasses should be glazed horizontally where possible.

Edge condition

Smooth ground edges giving a flat profile with small ground arris. Shells or chips at edges will be ground out prior to toughening and do not constitute reason for rejection. Corners may be dubbed. Some variations in edgework may be discernible on exposed edges where different machines and/or hand forming is requirement for manufacture. Such variations shall be kept to a minimum.

Hole drilling- rectangles

Diameter:	38mm +/-1mm	(10mm glass)
Diameter:	19mm +/-1mm	Countersunk (10/12mm glass)
Position:	Normally 100mm from glass edge at corners and sometimes along edge. Other configurations subject to confirmation.	
Tolerance:	+/-2mm from one datum point.	
Number:	2-6	

Toughening stress

Fully toughened to BS 6206 Class A and equivalent international standards. Checked regularly during protection by the Differential Surface Refractometer (DSR) method.

Heat Soak Testing

All toughened glass available supplied heat soak tested to DIN Standard.

Glass marking

Glass will be marked with the **LAMGLAS Skytec®** toughening stamp and any other regulatory requirements. The mark to be on each glass usually near a corner. Multiple panes will not necessarily be marked in the same corner.

Distortion

LAMGLAS Skytec® Insulated/Double Glazing Units are manufactured from two toughened glasses which has minimal effect on visual transmission through the glass but some distortion can be seen in reflection the air in all sealed units expands and contracts in hot and cold weather causing that glass to bow out and in respectively and again reflections will reflect this movement. Site inspection should be from a distance of 3m.

*This document gives a general description of the product and materials. It is the responsibility of the users of this document to ensure that the proposed application of the product is appropriate and that such application complies with all relevant local and national legislation, standards, codes of practice and other requirements. To the extent allowed by law **LAMGLAS Co.** hereby disclaims all liability howsoever arising from any error in or omission from this publication and all consequences of relying on it.*

LAMGLAS Skytec® Laminated Single/Monolithic Glazing: LAMGLAS Laminated Safety Glass

The exterior glass used in all PLANAR systems is normally 6mm or 8mm thickness Float tempered and heat soaked glass that can be either clear or tinted.

All glass complies with international standards All glass, after tempering must pass a destructive quality control test, the **heat soak**. This test is designed to virtually eliminate spontaneous on site breakage of glass due to the possible presence of nickel sulfide.

Lamglas able to manufacturing all glass into a structural application which customer preferred has heat soak. Heat soaking is a prudent investment in safety for all those concerned about liability on a project.

LAMGLAS Skytec® LAMINATED GLASS — Where laminated glass is required, especially in roof or layback glazing applications, 5/32" or 1/4" lites of the laminated unit will be supplied as heat strengthened to maintain greater panel integrity in the event of breakage.

LAMGLAS Skytec® laminated glass is manufactured by cureable a liquid resin between parallel glass panes held apart by a clear tape. The cast-in-place resin (CIP) can further improve environmental performance of the laminated unit by offering choices of excellent sound insulation, UV protection or light diffusion. The resin can be tailored to suit individual requirements such as a high level of acoustic performance and a very high level of UV protection. CIP resins allow the laminated unit to have an exposed edge to the weather and are compatible with accepted structural silicones.

Notes

All 4 or 6mm glasses are heat strengthened.
A special acoustic laminate interlayer is used to give excellent noise reduction performances.
Special UV laminate interlayers are also available to provide exceptional UV protection.
All laminated glass edges are sealed to give excellent weather resistance. Silicone perimeter seals must be compatible with **LAMGLAS** Laminated Safety Glass.
A wide range of glass combinations is possible with laminated glasses. Please check our web site as reference. www.lamglas.com

Specification- Single **LAMGLAS** Skytec® Laminated Safety Glass

Composition

Thickest glass will be to single **LAMGLAS** Skytec® standard and reference should be made to single **LAMGLAS** Skytec® specification.

Glass combinations

10mm + 6mm or 4mm
12mm + 6mm or 4mm
15mm + 6mm or 4mm
19mm + 6mm or 4mm

LAMGLAS Skytec® Laminated Safety Glass

Interlayer: 1mm, 1.50mm or 2mm
There may be a step up on each side to 3mm
Overall thickness: +/-1mm tolerance



Glass size- rectangles

Maximum (4mm):	1500 x 2500mm	-0 + 4mm
Maximum (6mm):	2000 x 3900mm	-0 + 4mm
Minimum:	400 x 700mm	-0 + 4mm
Aspect ratio:	2:1 Maximum for larger sizes	

Shape capability

Rectangles and simple shapes. All tolerance will vary depending on the complexity of shape.

Edge condition

Smooth ground edges giving a flat profile with small ground arris. Shells or chips at edges will be ground out prior to toughening and do not constitute reason for rejection. Corners may be dubbed.
Some variation in edgework may be discernible on exposed edges where different

machines and/or hand forming is a requirement for manufacture. Such variations shall be kept to a minimum.

Hole drilling- rectangles

Diameter:	38mm +/-1mm	(4/6mm glass)
Diameter:	19mm +/-1mm	Countersunk (10/12mm glass)
Position:	Normally 100mm from glass edge at corners and sometimes along edge. Other configurations subject to confirmation	
Tolerance:	+/-2mm from one datum point.	
Number:	2-6	

Method of production

Cast-in-place

Tempering

10/12/15/19mm glass: Toughened and Heat Soak tested available
4/6mm glass: Heat Strengthened

Glass marking

Glass will be marked with the **LAMGLAS Skytec®** toughening stamp and any other regulatory requirements. The mark to be on each glass usually near a corner. Multiple panes will not necessarily be marked in the same corner.

Visual quality

Clear tape

The cast-in-place process uses a clear tape 6 to 9mm wide around the edge and around the holes between the two glasses. The junction between the clear tape and the resin is just visible inboard from the edge of the glass and the holes.

Bubble

As with lamination techniques there will be minor imperfections as follows:
Very fine bubble at resin/tape interface. One bubble of size 2-3mm will be acceptable per m run or per hole area. One bubble of size 2-3mm will be acceptable in the body of each plate but not in the visible area as defined by an oval touching the centre of all four sides.

Distortion

When laminating toughened or heat strengthened glasses together slight visible distortion in transmission due to the small lens effects will be noted with increase in viewing angle. The phenomenon is not normally a problem in roof glazing, but may be discernible in vertical glazing. Site inspection should be from a distance of 3m.

This document gives a general description of the product and materials. It is the responsibility of the users of this document to ensure that the proposed application of the product is appropriate and that such application complies with all relevant local and national legislation, standards, codes of practice and other requirements. To the extent allowed by law LAMGLAS Co. hereby disclaims all

liability howsoever arising from any error in or omission from this publication and all consequences of relying on it.

LAMGLAS Laminated Insulated/Double Glazing: Heat-isolated Laminated Glass

The exterior glass used in all PLANAR systems is normally 6mm or 8mm thick tempered and heat soaked glass that can be either clear or tinted.

All glass complies with international standard All glass, after tempering must pass a destructive quality control test, the **heat soak**. This test is designed to virtually eliminate spontaneous on site breakage of glass due to the possible presence of nickel sulfide.

Lamglas able to manufacturing all glass into a structural application which customer preferred has heat soak. Heat soaking is a prudent investment in safety for all those concerned about liability on a project.

LAMINATED GLASS — Where laminated glass is required, especially in roof or layback glazing applications, 5/32" or 1/4" lites of the laminated unit will be supplied as heat strengthened to maintain greater panel integrity in the event of breakage.

LAMGLAS PLANAR laminated glass is manufactured by pouring a liquid resin between parallel glass panes held apart by a clear tape. The cast-in-place resin (CIP) can further improve environmental performance of the laminated unit by offering choices of excellent sound insulation, UV protection or light diffusion. The resin can be tailored to suit individual requirements such as a high level of acoustic performance and a very high level of UV protection. CIP resins allow the laminated unit to have an exposed edge to the weather and are compatible with accepted structural silicones.

LAMGLAS Skytec® PLANAR double glazing units normally have an outer lite of 6mm or 8mm thick glass. The units have a 16mm airspace which is the optimum for thermal insulation. Laminated glass can be incorporated into the **Skytec** glass unit.

The combination of glass types and thickness vary. Low emissivity glass as well as inert Argon filled units can be used to increase thermal performance.

To facilitate the positioning of the PLANAR fixing in the insulating unit a transparent boss acts as a separator between the two plates of glass. This in combination with newly designed clear bushes and spacers is now a standard feature in all PLANAR systems and provides clarity of vision greater than that achieved in the past.

Notes

All glasses used in the laminated pane are heat strengthened.

A special acoustic laminate interlayer is used to give excellent noise reduction performances.

Special UV laminate interlayers are also available to provide exceptional UV protection.

All laminated glass edges are sealed to give excellent weather resistance. Silicone perimeter seals must be compatible with **LAMGLAS** Laminated Safety Glass.



An exceptionally wide range of glass combinations is possible with laminated double glazed units. Please refer to **LAMGLAS** website : <http://www.lamglas.com>

Specification- Single LAMGLAS Skytec® Heat-Isolated Laminated Glass Units

Composition

LAMGLAS Skytec® Heat-isolated Laminated glass Units are manufactured from one thick outer toughened glass which in roof glazing is usually to the outside and one laminated inner glass composed of two 4mm or two 6mm glasses and reference should be made to both single **LAMGLAS Planar** and single laminated **LAMGLAS Planar** specifications.

LAMGLAS Skytec® Heat-isolated Laminated Glass Units

Air space:	16mm +/-1mm
Depth of silicone seal: 6mm	+/-3mm
Aluminum spacer:	7mm
Space colour:	Neutral
Laminated interlayer:	1mm, 1.50mm or 2mm
There may be a step up on each side to 3mm	
Overall thickness:	+/-2mm tolerance

Glass size- rectangles

Maximum (4mm):	1300 x 2000mm	-0 + 4.5mm
Maximum (6mm):	2000 x 3500mm	-0 + 4.5mm
Minimum:	500 x 700mm	-0 + 4.5mm
Aspect ratio:	2:1 Maximum for larger sizes	

Shape capability

Rectangles and simple shapes. All tolerance will vary depending on the complexity of shape.

Edge condition

Smooth ground edges giving a flat profile with small ground arris. Shells or chips at edges will be ground out prior to toughening and do not constitute reason for rejection. Corners may be dubbed. Some variation in edgework may be discernible on exposed edges where different machines and/or hand forming is a requirement for manufacture. Such variations shall be kept to a minimum. Where the detail of a structure is such that the double glazing edge sealant is fully exposed, minor undulations in the edge seal may be discernable particularly near corners of the unit.

Hole drilling - rectangles

Diameter:	38mm +/-1mm	Laminated (inner)
Diameter:	No hole	Outer (countersunk)
Position:	Normally 100mm from glass edge at corners and sometimes along edge. Other configurations subject to confirmation.	
Tolerance:	+/-2mm from on datum point	
Number:	2-6	

Method of production

Cast-in-place

Tempering

10/12/15/19mm glass: Toughened and heat soak tested available
4/6mm glass: Heat strengthened

Glass marking

Glass will be marked with the **LAMGLAS Skytec®** toughening stamp and any other regulatory requirements. The mark to be on each glass usually near a corner.

Visual quality

Distortion

When laminating toughened or heat strengthened glasses together slight visible distortion in transmission due to the small lens effect will be noted with increase in viewing angle. The phenomenon is not normally a problem in roof glazing, but may be discernible in vertical glazing. The air in all sealed units expands and contracts in hot and cold weather causing the glass to bow out and in respectively and again reflections will reflect this movement. The clear tape around the edge will, or course, be totally within the edge detail of the sealed unit. Site inspection should be from a distance of 3m.

*This document gives a general description of the product and materials. It is the responsibility of the users of this document to ensure that the proposed application of the product is appropriate and that such application complies with all relevant local and national legislation, standards, codes of practice and other requirements. To the extent allowed by law **LAMGLAS Co.** hereby disclaims all liability howsoever arising from any error in or omission from this publication and all consequences of relying on it.*

LAMGLAS Skytec®

Point Fixed Structural Glass Systems

Kagithane Avenau Ugur Street No:48/1

Caglayan-Istanbul

TR-34403

Tel : +90(212) 210 48 55

Fax: +90(212) 210 54 51

Web site: <http://www.lamglas.com>

e-mail: info@lamglas.com