

ECE TYPE-APPROVAL CERTIFICATE




Communication concerning:²


Approval granted
~~Approval extended~~
~~Approval refused~~
~~Approval withdrawn~~
~~Production definitively discontinued~~

of a type of safety glazing material pursuant to Regulation No. 43.

Approval No: **E24*43R01/08*0110*00**

1. Class of safety glazing material: *Uniformly toughened glass panes*
2. Description of the type of glazing: *FC-UTGP-Cat III*
3. Trade names or marks: 
4. Manufacturer's name and address: *Fercam Cam San.ve Tic.Ltd.Şti.
Alaşarköy mahallesi 2.Aral sokak
No:6 Osmangazi Bursa Türkiye*
5. If applicable, name and address of manufacturer's representative: *N/A*
6. Submitted for approval on: *23.07.2019*
7. Technical service responsible for conducting approval tests: *TÜV AUSTRIA TURK
BELGELENDİRME EĞİTİM VE
GÖZETİM
HİZMETLERİ LTD. ŞTİ.
Barbaros Mah. Susuz Sok.
No:13/1 PK: 34746
Ataşehir / ISTANBUL – TURKEY*
8. Date of report issued by that service: *21.07.2019*
9. Number of report issued by that service: *19-TUV-ATR-EU-0077*

Approval No: E24*43R01/08*0110*00

10. Approval is granted/~~refused~~/~~extended~~/~~withdrawn~~: **Granted**
11. Reason(s) for extension of approval: **N/A**
12. Remarks: **N/A**
13. Place: **Dublin**
14. Date: **15th August, 2019**
15. Signature: 



16. The list of documents filed with the administrative service which has granted approval and available on request is annexed to this communication.
- list of components, duly identified, constituting the glass;
 - list of files deposited with the Administrative Service which has granted type approval, and which can be obtained upon request.

Approval No: E24*43R01/08*0110*00

Annex 1 - Appendix 2

UNIFORMLY-TOUGHENED GLASS PANES

(Principal and secondary characteristics as defined in annexes 5 or 9 to Regulation No. 43)

Principal characteristics :

Other than windscreens (yes/ no):	<i>Yes</i>
Windscreen(s) for slow moving vehicles:	<i>No</i>
Shape category:	<i>Flat and curved glass panes</i>
Nature of toughening process:	<i>Thermal</i>
Thickness category:	<i>III</i>
Nature and type of plastic coating(s):	<i>N/A</i>
Nominal thickness of plastic coating(s):	<i>N/A</i>

Secondary characteristics :

Nature of the material (plate, float, sheet glass):	<i>Float</i>
Colouring of glass:	<i>Clear, Green</i>
Colouring of plastics coating(s):	<i>N/A</i>
Conductors incorporated (yes/no):	<i>No</i>
Opaque obscuration incorporated (yes/ no):	<i>Yes</i>

Approved Criteria:

Greatest Area (flat glass):	<i>3.4 m²</i>
Smallest Angle:	<i>6°</i>
Greatest developed area (curved glass):	<i>2.52 m²</i>
Greatest height of segment:	<i>285 mm</i>

Remarks: *N/A*

Index to the Information Package

Date of issue:	<i>15th August, 2019</i>
Date of latest amendment:	<i>N/A</i>
Reason for extension/revision:	<i>N/A</i>
1. Additional conditions, and advisory notes on legal alternatives.	
2. Test report(s)	
- numbers(s):	<i>19-TUV-ATR-EU-0077</i>
- date of issue:	<i>21.07.2019</i>
- date of latest amendment:	<i>N/A</i>
3. Information document	
- number(s):	<i>FC-UTGP-CAT III</i>
- date of issue:	<i>21.07.2019</i>
- date of latest amendment:	<i>N/A</i>
Documentation:	<i>20 pages</i>



Approval No: E24*43R01/08*0110*00

Appendix: **Additional conditions, and advisory notes on legal alternatives**

A: Additional conditions:

1. The attached technical report, with any of its attachments, forms part of this Type Approval certificate.
2. Each type from series production shall be to the measurements specified in the attached drawings, and shall be manufactured only from the materials specified in the Approval documents.
3. Changes in the type are permitted only with the explicit permission of NSAI. Breaches of this requirement will lead to a withdrawal of the Type Approval, and in addition may be subject to criminal prosecution.
4. At regular intervals, any tests or associated checks prescribed by the applicable legislation to verify continued conformity with the approved type shall be carried out. The manufacturer shall demonstrate compliance with this by submitting to NSAI evidence of adequate arrangements and documented control plans for each type approved.
5. Any set of samples or test pieces showing evidence of non-conformity shall give rise to further sampling and testing and all steps shall be taken to restore conformity of production.
6. This Type Approval will expire when it is surrendered by the holder, or withdrawn by NSAI, or when the approved type no longer conforms to legal requirements. The recall of the Type Approval can be issued by NSAI when the conditions required for the issuing or continuation of the Type Approval are no longer current, or when the Approval holder is in breach of the duties attached to the Type Approval, or when it is established that the approved type no longer meets the requirements of traffic safety.
7. Changes in the company name, address or manufacturing site, as well as in any of the sales or other agents specified in the issuing of the approval must immediately be notified to NSAI.
8. The duties imposed by the issuing of this certificate are not transferable. The legal protection of third parties is not affected by this certificate.
9. When the manufacture or sale of the system, component or separate technical unit has not been started within one year of the date of issue of this certificate, then NSAI is to be informed. This requirement also applies when the manufacture or sale has been halted for more than one year, or when it ought to have been halted for more than one year. The initial commencement of manufacture or sale, or the resumption of manufacture or sale, shall then be notified to NSAI within one month of commencement or resumption.

B: Legal Options:

Any objection to the requirements set out in this certificate shall be made within one month of the date of issue. The objection shall be made, in writing, to NSAI in Dublin.

Manufacturer: Fercam Cam San.ve Tic.Ltd.Şti.
Type: FC-UTGP-Cat III

Technical Report

19-TUV-ATR-EU-0077

**Uniform Provisions Concerning The Approval Of;
safety glazing materials and their installation on vehicles**

Test standard
ECE Regulation 43


Level of amendment
**ECE Regulation 43.01, Supplement 8 to the 01 series of amendments
(Date 28.05.2019)**

Approval Status	
<input checked="" type="checkbox"/>	Granting of a type approval:
<input type="checkbox"/>	Extension to type approval number:
<input type="checkbox"/>	Correction to type approval number:
<input type="checkbox"/>	Only test report:

© TÜV AUSTRIA TURK Barbaros Mah. Susuz Sok.No:13/1 Ataşehir / İSTANBUL +90 216 5370811					
Revision-Date	03 / 24.07.2017	Document No	FRM-ATR-011-C	Page	1 of 13

Manufacturer: Fercam Cam San.ve Tic.Ltd.Şti.
 Type: FC-UTGP-Cat III

1. General

- 1.1 Trade Names or marks: Fercam Cam San.ve Tic.Ltd.Şti.

- 1.2 Category / Class of glazing material: Category III 4.5mm < e ≤ 6.5mm
- 1.3 Type / Description of the type of glazing: FC-UTGP-Cat III
- 1.4 Name and address of the manufacturer: Fercam Cam San.ve Tic.Ltd.Şti.
 Alaşarköy mahallesi 2.Aral sokak No:6
 Osmangazi Bursa Türkiye
- 1.5 If applicable, name and address of manufacturer's representative. Not applicable
- 1.6 Date of issue of information folder: 21.07.2019
- 1.7 Information folder no: FC-UTGP-Cat III
- Place and Date of the test: Fercam 19.07.2019
- 1.8 Parameter of the test area: 21 °C,
 %45 Humidity

1.9 Calibration Equipments

Test Instrument	Type	Manufacturer	ID - No.	
Electronic Scales	SF-400C	-	32015	<input checked="" type="checkbox"/>

LIST OF ANNEXES

Annex	No of Pages	Subject
1	6	Information Document of Manufacturer (FC-UTGP-Cat III Dated:21.07.2019)

Manufacturer: Fercam Cam San.ve Tic.Ltd.Şti.
 Type: FC-UTGP-Cat III

TEST SPECIFICATION AND WORST CASE

Test required

- Fragmentation Test
- Mechanical Strength Test
 - Ball-impact test
 - Mechanical Strength Test 227g ball
 - Mechanical Strength Test 2260g ball
 - ~~-Headform test On The Complete Windscreen~~
- ~~Test Of Resistance To The Environment~~
 - ~~-Test of Resistance to Abrasion~~
 - ~~-Test of Resistance to High Temperature~~
 - ~~-Test of Resistance to Radiation~~
 - ~~-Test Resistance to Humidity~~
 - ~~-Resistance To Temperature Changes Test~~
 - ~~-Resistance To Simulated Weathering Test~~
 - ~~-Cross Cut Test~~
- Optical Qualities
 - Light Transmittance Test
 - ~~-Optical Distortion Test~~
 - ~~-Secondary Image Separation Test~~
- ~~Burning behaviour (fire resistance) test~~
- ~~Test of resistance to chemicals~~
- ~~Flexibility and fold test~~

MANUFACTURER'S DOCUMENTATION Manufacturer's documentation is complete and reflects the agreed specification for the component tested and covers all variants and versions agreed in the worst case rationale	Yes
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Manufacturer: Fercam Cam San.ve Tic.Ltd.Şti.
 Type: FC-UTGP-Cat III

2. Test Report

Clause	Requirements	Results
6.	General Requirements	
6.1.	All glazing materials, including glazing material for the manufacturer of windscreens, shall be such that, in the event of shattering the danger of bodily injury is reduced as far as possible. The glazing material shall be sufficiently resistant to the incidents likely to occur in normal traffic, and to atmospheric and temperature conditions, chemical action, combustion and abrasion.	Fulfilled
6.2.	Safety glazing materials shall in addition be sufficiently transparent, shall not cause any noticeable distortions of objects as seen through the windscreen, and shall not give rise to any confusion between the colours used in road-traffic signs and signals. In the event of the windscreen's shattering, the driver must still be able to see the road clearly enough to be able to brake and stop his vehicle safely.	Fulfilled
Annex 3	General Test Conditions	
1.	Fragmentation Test	Fulfilled (min 93 – max 185)
2.	Ball-Impact Tests	Fulfilled (227 g ball)
3.	Headform Test	NA
4.	Test Of Resistance To Abrasion	NA
5.	Test Of Resistance To High Temperature	NA
6.	Resistance-To-Radiation Test	NA
7.	Resistance-To-Humidity Test	NA
8.	Test Of Resistance To Temperature Changes	NA
9.	Optical Qualities	Fulfilled (See photo)
10.	Burning Behaviour (Fire-Resistance) Test	NA
11.	Test Of Resistance To Chemicals	NA
12.	Flexibility Test And Fold Test	NA
13.	Cross-Cut Test	NA
7.	Particular Requirements.	

7.3.	As regards uniformly toughened-glass panes, the requirements contained in Annex 5;	
Annex 5	Uniformly Toughened-Glass Panes	
1.	Definition of Type Uniformly-toughened glass panes shall be deemed to belong to different types if they differ in at least one of the following principal or secondary characteristics.	
1.1.	Principal Characteristics are as Follows	
1.1.1.	The trade names or marks.	See information document

Manufacturer: Fercam Cam San.ve Tic.Ltd.Şti.
 Type: FC-UTGP-Cat III

1.1.2	The nature of the toughening process (thermal or chemical);	See information document								
1.1.3	The shape category; two categories are distinguished: -Flat glass panes, -Flat and curved glass panes.	See information document								
1.1.4	The thickness category in which the nominal thickness 'e' lies (a manufacturing tolerance of $\pm 0.2\text{mm}$ being allowed): Category I $e \leq 3,5\text{mm}$ Category II $3.5\text{mm} < e \leq 4,5\text{mm}$ Category III $4.5\text{mm} < e \leq 6,5 \text{ mm}$ Category IV $6,5\text{mm} < e$	Category III								
1.2.	The Secondary Characteristics Are As Follows									
1.2.1.	The nature of the material (polished (plate) glass, float glass, sheet glass)	Float								
1.2.2.	Colouring (colourless or tinted),	Clear, Green								
1.2.3.	The incorporation or otherwise of conductors.	NA								
1.2.4.	The incorporation or otherwise of opaque obscuration	Yes								
2.	Fragmentation Test									
2.1	Indices of Difficulty of the Secondary Characteristics <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Material</th> <th>Index of difficulty</th> </tr> </thead> <tbody> <tr> <td>Plate glass</td> <td>2</td> </tr> <tr> <td>Float glass</td> <td>1</td> </tr> <tr> <td>Sheet glass</td> <td>1</td> </tr> </tbody> </table>	Material	Index of difficulty	Plate glass	2	Float glass	1	Sheet glass	1	
Material	Index of difficulty									
Plate glass	2									
Float glass	1									
Sheet glass	1									
2.2.	Selection of test pieces	Fulfilled								
2.2.1	Test pieces of each shape category and of each thickness category difficult to produce shall be selected according to the following criteria for testing.	Fulfilled								
2.2.1.1	In the case of flat glass panes, two sets of test pieces shall be provided, corresponding to: -The largest developed area, -The smallest angle between two adjacent sides.	NA								
2.2.1.2	In the case of flat and curved glass panes, three sets of samples shall be provided, corresponding to: -The largest developed area, -The smallest angle between two adjacent sides, -The largest height of segment.	Fulfilled								
2.2.2	Tests carried out on test pieces corresponding to the largest area 'S' shall be considered to be applicable to any other area smaller than $S + 5\%$.	Fulfilled								
2.2.3	If the samples submitted present an angle γ smaller than 30° , the tests shall be considered as applicable to all glass panes produced having an angle greater than $\gamma - 5^\circ$. If the samples submitted present an angle γ greater than or equal to 30° , the tests shall be considered as applicable to all glass panes produced having an angle equal to or greater than 30° .	Fulfilled								

Manufacturer: Fercam Cam San.ve Tic.Ltd.Şti.
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2.2.4	<p>If the height of segment h of the samples submitted is greater than 100mm, the tests shall be considered as applicable to all glass panes produced having a height of segment smaller than h + 30mm.</p> <p>If the height of segment of the samples submitted is less than or equal to 100mm, the tests shall be considered as applicable to all glass panes having a height of segment less than or equal to 100mm.</p>	Fulfilled								
2.3	<p>Number of Test Pieces Per Set</p> <table border="1" data-bbox="375 734 1133 880"> <thead> <tr> <th>Kind of glass pane</th> <th>Number of test pieces</th> </tr> </thead> <tbody> <tr> <td>Flat</td> <td>4</td> </tr> <tr> <td>Curved (minimum radius of curvature ≥ 200mm)</td> <td>4</td> </tr> <tr> <td>Curved (minimum radius of curvature < 200mm)</td> <td>8</td> </tr> </tbody> </table>	Kind of glass pane	Number of test pieces	Flat	4	Curved (minimum radius of curvature ≥ 200mm)	4	Curved (minimum radius of curvature < 200mm)	8	
Kind of glass pane	Number of test pieces									
Flat	4									
Curved (minimum radius of curvature ≥ 200mm)	4									
Curved (minimum radius of curvature < 200mm)	8									
2.4	Test Method									
2.4.1	The method used shall be that described in Annex 3, Paragraph 1.	Fulfilled								
2.5	Points of Impact (see Annex 20, Figure 3)									
2.5.1	<p>For flat glass panes and curved glass panes the points of impact represented respectively in Annex 20, Figures 3(a) and 3(b) on the one hand, and in Annex 20, Figure 3(c) on the other hand, shall be as follows:</p> <p>Point 1: In the geometric centre of the glass.</p> <p>Point 2: For curved glass panes having a minimum radius of curvature "r" of less than 200mm. The point shall be selected on the largest median in that part of the pane where the radius of curvature is smallest.</p>	Fulfilled								
2.5.2	Four test pieces shall be tested from each point of impact.	Fulfilled								
2.6	Interpretation of Results									
2.6.1	A test shall be deemed to have given a satisfactory result if fragmentation satisfies the following conditions:	Fulfilled								
2.6.1.1	The number of fragments in any 5cm × 5cm square is not less than 40.	Fulfilled								
2.6.1.2	For the purposes of the above rule, a fragment extending across a side of a square shall count as half a fragment.	Fulfilled								
2.6.1.3	Fragmentation shall not be checked in a strip 2cm wide round the edge of the samples, this strip representing the frame of the glass; nor within a radius of 7.5cm from the point of impact.	Fulfilled								
2.6.1.4	When a fragment extends beyond the excluded area only the part of the fragment falling outside of the area shall be assessed.	Fulfilled								
2.6.1.5	Fragments of an area exceeding 3cm ² shall not be allowed except in the parts defined in Paragraph 2.6.1.3. above.	Fulfilled								
2.6.1.6	No fragment longer than 100mm in length shall be allowed except in the areas defined in Paragraph 2.6.1.3. above provided that:	Fulfilled								

Manufacturer: Fercam Cam San.ve Tic.Ltd.Şti.
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2.6.1.6.1	Fragment ends do not converge to a point. If they extend to the edge of the pane they do not form an angle of more than 45° to it.	Fulfilled																
2.6.2	A set of test pieces submitted for approval shall be considered satisfactory from the point of view of fragmentation if at least three of the four tests carried out at each of the points of impact prescribed in Paragraph 2.5.1. above have given a satisfactory result.	Fulfilled																
2.6.3	If the above-mentioned deviations are found, they shall be noted in the test report and permanent recording(s) of the fragmentation pattern of the relevant parts of the glass pane shall be attached to the report.	Fulfilled																
3.	Mechanical Strength Test																	
3.1	227 g Ball Test																	
3.1.1	<p>Indices of difficulty of the secondary characteristics</p> <table border="1"> <thead> <tr> <th>Material</th> <th>Index of difficulty</th> <th>Colouring</th> <th>Index of difficulty</th> </tr> </thead> <tbody> <tr> <td>Polished glass</td> <td>2</td> <td>Colourless</td> <td>1</td> </tr> <tr> <td>Float glass</td> <td>1</td> <td>Tinted</td> <td>2</td> </tr> <tr> <td>Sheet glass</td> <td>1</td> <td></td> <td></td> </tr> </tbody> </table> <p>The other secondary characteristic (namely, incorporation or otherwise of conductors) is not involved.</p>	Material	Index of difficulty	Colouring	Index of difficulty	Polished glass	2	Colourless	1	Float glass	1	Tinted	2	Sheet glass	1			
Material	Index of difficulty	Colouring	Index of difficulty															
Polished glass	2	Colourless	1															
Float glass	1	Tinted	2															
Sheet glass	1																	
3.1.2	Number of test pieces Six test pieces shall be subjected to testing for each thickness category defined in Paragraph 1.1.4. above.	Fulfilled																
3.1.3	Test Method																	
3.1.3.1	The test method used shall be that described in Annex 3, Paragraph 2.1.	Fulfilled																
3.1.3.2	The height of drop from the underface of the ball to the upper face of the test piece shall be 2.0m +5 mm	Fulfilled																
3.1.4	Interpretation of Results																	
3.1.4.1	The test shall be deemed to have given a satisfactory result if at least five of the test pieces do not break.	Fulfilled																
4.	Optical Qualities																	
4.1	The provisions concerning regular light transmittance set out in Annex 3, Paragraph 9.1., shall apply to uniformly-toughened glass panes or parts of glass panes located at places which are essential to the driver's vision.	Fulfilled																
4.2	The provisions of Paragraph 9. of Annex 3 shall apply to uniformly-toughened glass panes used as windscreens of slow-moving vehicles which, by construction, cannot exceed 40km/h. This shall not apply to flat windscreens which fall within an already approved group.	NA																

Manufacturer: Fercam Cam San.ve Tic.Ltd.Şti.
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8.	Tests	
8.1.	The Following Tests Are Prescribed In This Regulation:	
8.1.1.	Fragmentation test The purpose of this test is: To verify that the fragments and splinters produced by fracture of the glass pane are such as to minimize the risk of injury, and In the case of windscreens, to check residual visibility after shattering.	Fulfilled
8.1.2.	Mechanical strength test	
8.1.2.1.	Ball-impact test There are two forms of tests, one using a 227 g ball and one using a 2,260 g ball.	Fulfilled
8.1.2.1.1.	227 g ball test: The purpose of this test is to assess the adhesion of the interlayer of laminated glass and the mechanical strength of uniformly-toughened glass and plastic glazings.	Fulfilled
8.1.2.1.2.	2,260 g ball test: The purpose of this test is to assess ball-penetration resistance of laminated glass.	NA
8.1.2.2.	Headform test The purpose of this test is to verify the compliance of glazing with the requirements relating to the limitation of injury in the event of impact of the head against the windscreen, laminated glass and glazing of glass-plastic and rigid plastic other than windscreens, together with the multiple-glazed units used in the side windows.	NA
8.1.3.	Test of resistance to the environment	
8.1.3.1.	Test of resistance to abrasion The purpose of this test is to determine whether the resistance of a safety glazing to abrasion exceeds a specified value.	NA
8.1.3.2.	Test of resistance to high temperature The purpose of this test is to verify that no bubbles or other defects occur in the interlayer in laminated glass or glass-plastics glazing when exposed to high temperatures over an extended period of time.	NA
8.1.3.3.	Resistance-to-radiation test The purpose of this test is to determine whether the light transmittance of laminated glass glazing, glass-plastics glazing or glass glazing faced with plastics material when exposed to radiation over an extended period of time is significantly reduced thereby or whether the glazing is significantly discoloured.	NA
8.1.3.4.	Resistance-to-humidity test The purpose of this test is to determine whether laminated-glass glazing, glass-plastic glazing, glass glazing faced with plastic material and rigid plastic material will withstand, without significant deterioration, the effects of prolonged exposure to atmospheric humidity.	NA

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8.1.3.5.	Resistance-to-temperature-changes test The purpose of this test is to check that plastics material(s) used in safety glazing above will withstand the effects of prolonged exposure to extremes of temperature without significant deterioration.	NA
8.1.3.6.	Resistance to simulated weathering test The purpose of this test is to verify that plastic safety glazing is resistant to simulated weathering conditions.	NA
8.1.3.7.	Cross cut test The purpose of this test is to examine whether any abrasive resistant coating of a rigid plastic glazing has sufficient adherence.	NA
8.1.4.	Optical qualities	
8.1.4.1.	Light-transmission test The purpose of this test is to determine whether the regular transmittance of safety glazing exceeds a specified value.	Fulfilled
8.1.4.2.	Optical-distortion test The purpose of this test is to verify that the distortion of objects as seen through the windscreen is not of such extent as to be likely to confuse the driver.	NA
8.1.4.3.	Secondary-image-separation test The purpose of this test is to verify that the angular separation of the secondary image from the primary image does not exceed a specified value.	NA
8.1.5.	Burning-behaviour (fire-resistance) test The purpose of this test is to verify that a safety glazing material has a sufficiently low burn rate.	NA
8.1.6.	Test of resistance to chemicals The purpose of this test is to determine whether the safety glazing material will withstand the effects of exposure to chemicals likely to be normally present or used within the vehicle (e.g. cleaning compounds) without significant deterioration.	NA
8.1.7.	Flexibility and fold test The purpose of this test is to determine whether a plastic glazing material falls within the rigid or flexible category.	NA
8.2.	Test Prescribed	
8.2.1.	Safety glazing materials shall be subjected to the tests listed in the following tables: 8.2.1.1. and 8.2.1.2.	Fulfilled
8.2.1.1.	Safety glass glazing shall be subjected to the tests listed in the following table:	Fulfilled
8.2.2.	A safety glazing material shall be approved if it meets all the requirements prescribed in the relevant provisions referred to in the tables: 8.2.1.1 and 8.2.1.2.	Fulfilled

Manufacturer: Fercam Cam San.ve Tic.Ltd.Şti.
 Type: FC-UTGP-Cat III

3. Test Results

Sample 1	Greatest area (flat glass)	Ref info doc flat glass pane diagram F = 3,4 m ² (greatest developed area)
Sample 2	Greatest area (curved glass)	Ref info doc curved glass pane diagram F = 2,52 m ² (greatest developed area)
Sample 3	Greatest height of segment	Ref info doc greatest height of segment diagram h = 285 mm (greatest height of segment)
Sample 4	Smallest angle	Ref info smallest angle diagram Angle = 6°

Fragmentation test (*C : Clear , *G : Green)

Samples (C* ; G*)	Visual check (OK / NOK)
Sample 1	Necessary patterns checked , min 93 max 143 parts OK
Sample 2	Necessary patterns checked , min 109 max 168 parts OK
Sample 3	Necessary patterns checked , min 105 max 185 parts OK
Sample 4	Necessary patterns checked , min 114 max 153 parts OK

227 gr ball test (*C : Clear , *G : Green)

Sample no (C* ; G*)	Visual check (OK / NOK)
227 gr ball test Test samples 300x300 mm	No break in the test samples 6 / 6 OK

Light Transmittance Test (*C : Clear , *G : Green)

Sample no (C* ; G*)	Check (OK / NOK)
Sample 1	Required > % 70 Measured min % 78,6 max % 87,6 OK
Sample 2	Required > % 70 Measured min % 80,6 max % 90,2 OK
Sample 3	Required > % 70 Measured min % 82,2 max % 89,8 OK
Sample 4	Required > % 70 Measured min % 84,4 max % 88,6 OK

Technical Report

19-TUV-ATR-EU-0077

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Manufacturer: Fercam Cam San.ve Tic.Ltd.Şti.
Type: FC-UTGP-Cat III

4. Test place and date

Fercam Cam San.ve Tic.Ltd.Şti. 19.07.2019

5. Final Confirmation

As the result of inspections of **Fercam Cam San.ve Tic.Ltd.Şti.** company's sample product, it has been confirmed that the sample product fulfilled the requirements related to the ECE R43.01 as given.

This report cannot be multiplied without written approval of TÜV AUSTRIA TURK.
This report is not valid without security hologram in this page.
This technical report consists of 13 pages.

Approval authority	Country	Registration number	Actual scope list
Bilim, Sanayi ve Teknoloji Bakanlığı	Türkiye	21676894-130.01-E246	https://www.unece.org/fileadmin/DAM/trans/main/wp29/wp29wgs/wp29g/en/wp29fdoc/02-ECE-TRANS-WP_29-343-Rev.25.pdf
National Standards Authority of Ireland (NSAI)	Ireland	Technical Service Number: 108	



TR-İstanbul
21.07.2019

Özlem OK
A Check



Sinan COŞKUN
Recognized
Expert/Signature

Test Photo

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Revision-Date	03 / 24.07.2017	Document No	FRM-ATR-011-C	Page	11 of 13

E24*43R01/08*0110*00

Manufacturer: Fercam Cam San.ve Tic.Ltd.Şti.
Type: FC-UTGP-Cat III

Fragmentation Test

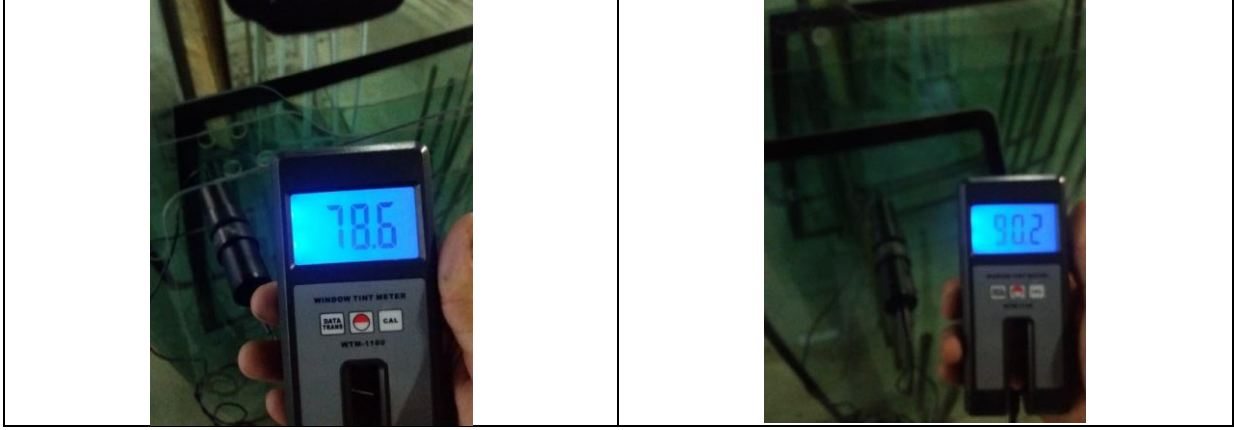


Mechanical Strength Test 227 g Ball Test



Manufacturer: Fercam Cam San.ve Tic.Ltd.Şti.
Type: FC-UTGP-Cat III

Optical Tests Light Transmission Test





INFORMATION DOCUMENT FC-UTGP-CAT III

Date : 21.07.2019

Prepared by : Raşit
HOŞGÖR

Rev date :

Rev no : 0

ACCORDING TO R43.01 UNIFORM PROVISIONS CONCERNING THE APPROVAL OF SAFETY GLAZING MATERIALS AND THEIR INSTALLATION ON VEHICLES

0.Type of glass

Uniformly-toughened glass panes (R43 Annex 1 Appendix 2 - Annex 5)

1.Type name

FC-UTGP-Cat III

2.Trade name of the manufacturer and address

Fercam Cam San.ve Tic.Ltd.Şti.

Alaşarköy mahallesi 2.Aral sokak No:6 Osmangazi Bursa Türkiye

3.Trademark(s) and approval mark

Trademark



Approval mark



43R-XXXX

4.Principal Characteristics

Other than windscreens (yes/no): Yes

Windscreen(s) for slow moving vehicles: No

Shape category: Flat and curved glass panes

Nature of toughening process: Thermal

Thickness category: Category III $4.5\text{mm} < e \leq 6.5\text{mm}$

Nature and type of plastics coating(s): -

Nominal thickness of plastic coating(s): -

5.Secondary Characteristics

Nature of the material (plate, float, sheet glass): Float

Colouring of glass: Clear , Green

Colouring of plastics coating(s): -

Conductors incorporated (yes/no): No

Opaque obscuration incorporated (yes/no): Yes

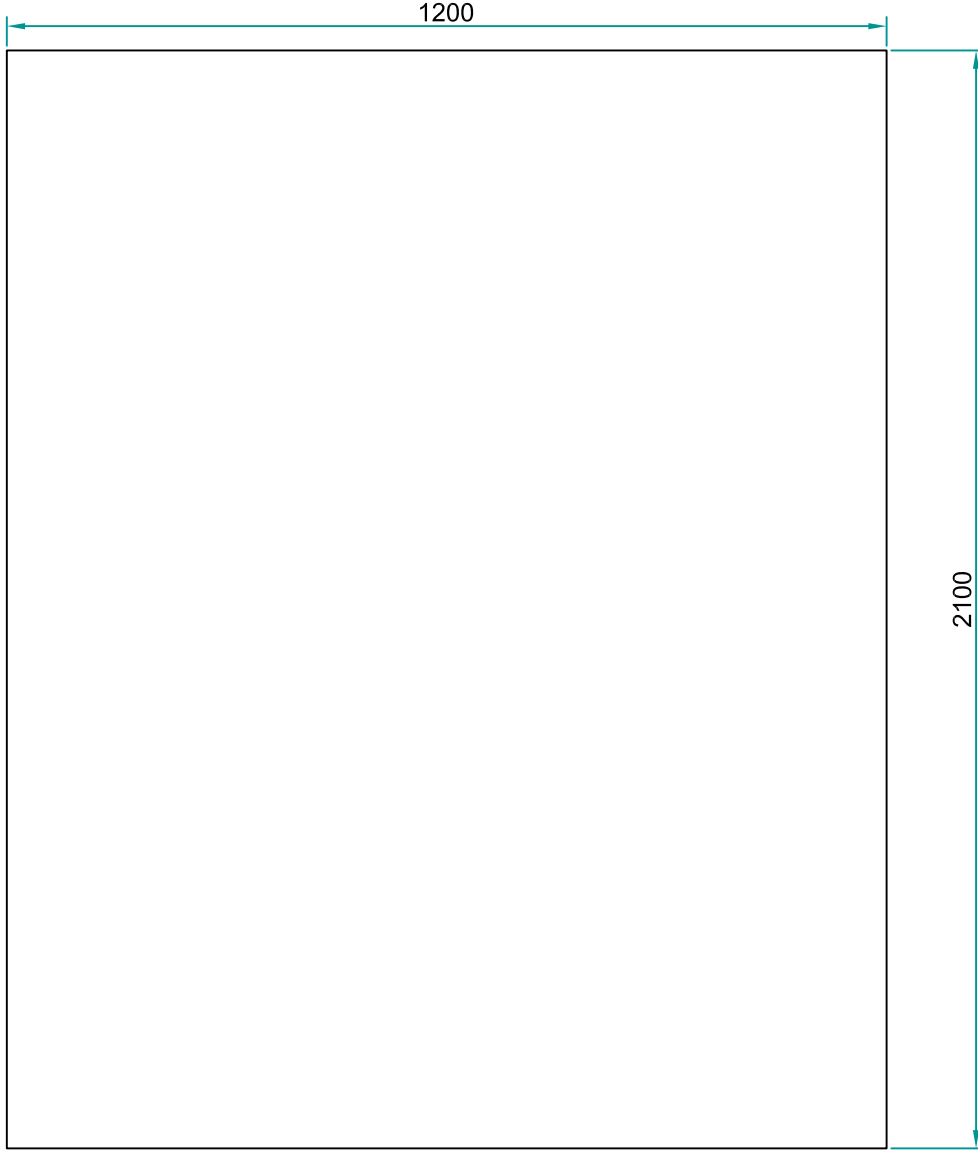
6.Approved criteria:

Greatest area (flat glass): 3,4 m²

Smallest angle:6 °

Greatest developed area (curved glass): 2,52 m²

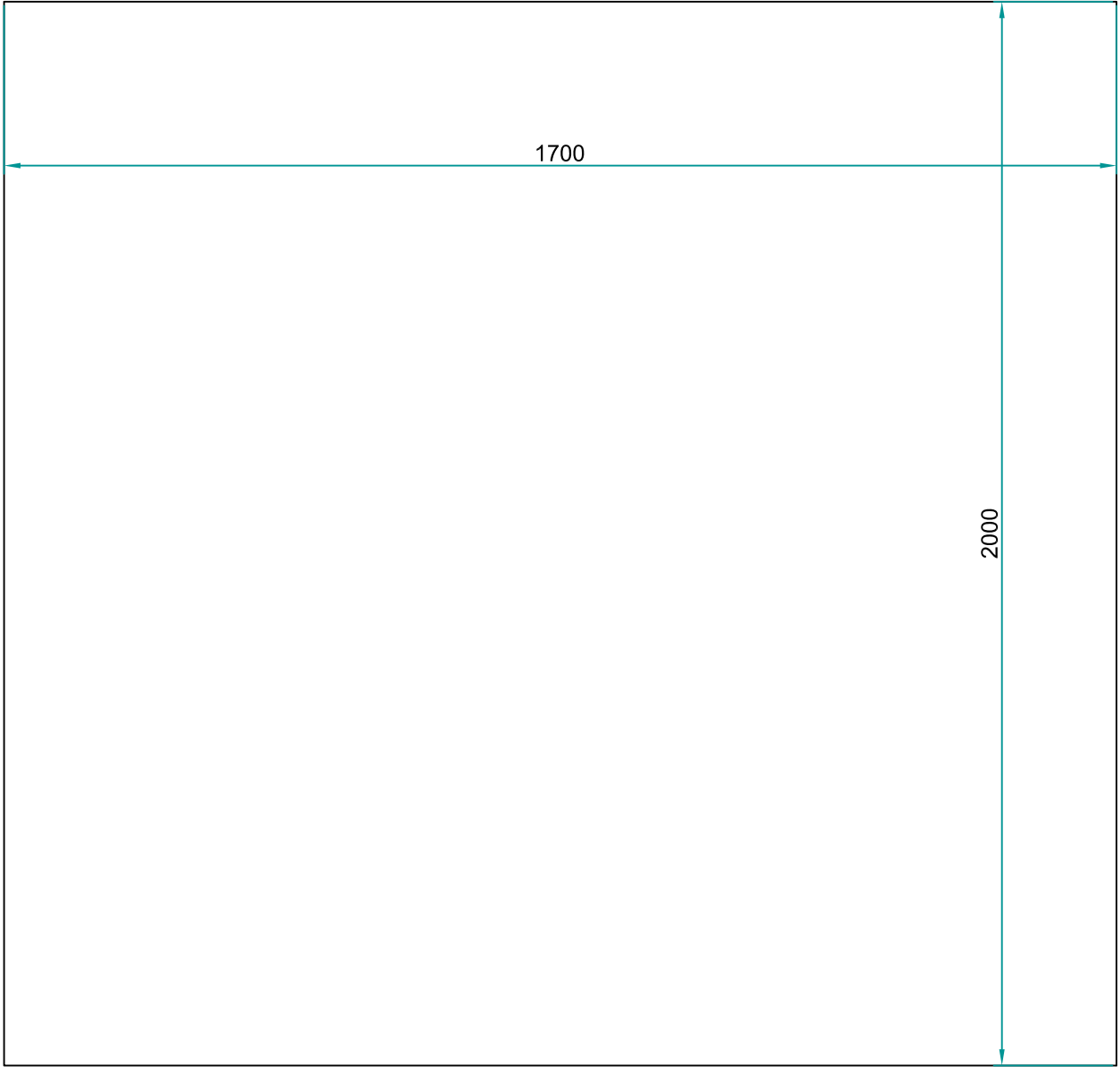
Greatest height of segment: 285 mm



Curved glass pane

BOMBELİ MAX
ÖLÇÜ

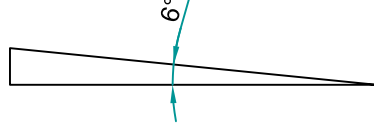
KESİM	CNC RODAJ	BANT TRAS	FORMA	BALIK SIRTI	DÜZ	DELİK	YIKAMA	SERİGRAF	Y.FİRİN	D.FİRİN	L.FİRİN
						2					
						1					
PARÇA ADI :						CAM RENGİ :					
						CAM KALINLIĞI :					
						BOMBE TOLERANSI :					
						MALZEME :					
						RODAJ TİPİ :					
MUŞTERİ KODU :						MARKA RENGİ :					
SERBEST ÖLÇÜ TOLERANSI						EBAT			1200X2100		
10 MM.' DEN 100 MM.'YE		100 MM.' DEN 1000 MM.' YE		1000 MM. DEN 3000 MM.YE							
0,5		0,8		1							
AÇIKLAMALAR :											
.....											
.....											
ÖLÇEK		CAMA BAKIŞ YÖNÜ DIŞARIDANDIR				ÇİZEN			ONAY		
		TARİH				HASAN SALLI					



Flat glass pane

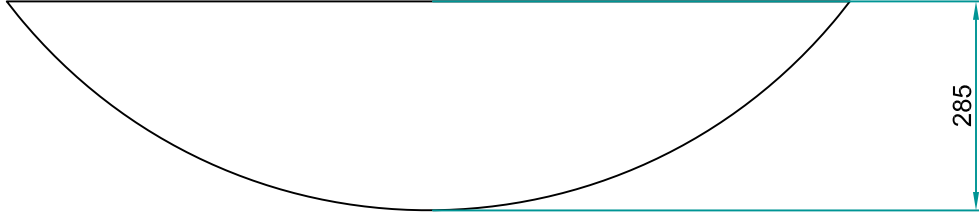
DÜZ MAX ÖLÇÜ

KESİM	CNC RODAJ	BANT TRAS	FORMA	BALIK SIRTI	DÜZ	DELİK	YIKAMA	SERİGRAF	Y.FIRIN	D.FIRIN	L.FIRIN
						2					
						1					
PARÇA ADI :						CAM RENGİ :					
						CAM KALINLIĞI :					
						BOMBE TOLERANSI :					
						MALZEME :					
						RODAJ TİPİ :					
MUŞTERİ KODU :						MARKA RENGİ :					
SERBEST ÖLÇÜ TOLERANSI						EBAT			1700X2000		
10 MM.' DEN 100 MM.'YE		100 MM.' DEN 1000 MM.' YE		1000 MM. DEN 3000 MM.YE							
0,5		0,8		1							
AÇIKLAMALAR :											
.....											
.....											
ÖLÇEK		CAMA BAKIŞ YÖNÜ DIŞARIDANDIR				ÇİZEN			ONAY		
		TARİH				HASAN SALLI					



Smallest angle
EN UFAK AÇI

KESİM	CNC RODAJ	BANT TRAS	FORMA	BALIK SIRTI	DÜZ	DELİK	YIKAMA	SERİGRAF	Y.FIRIN	D.FIRIN	L.FIRIN
PARÇA ADI :						2					
						1					
MÜŞTERİ KODU :						CAM RENGİ :					
						CAM KALINLIĞI :					
SERBEST OLÇU TOLERANSI						BOMBE TOLERANSI :					
						MALZEME :					
10 MM.' DEN 100 MM.'YE						RODAJ TİPİ :					
						MARKA RENGİ :					
100 MM.' DEN 1000 MM.' YE						EBAT					
1000 MM. DEN 3000 MM.YE											
0,5						AÇIKLAMALAR :					
0,8											
1						ÖLÇEK					
CAMA BAKIŞ YÖNÜ DIŞARIDANDIR											
TARİH						ÇİZEN					
						ONAY					
						HASAN SALLI					



Greatest height of
segment
MAX YÜKSEKLİK

KESİM	CNC RODAJ	BANT TRAS	FORMA	BALIK SIRTI	DÜZ	DELİK	YIKAMA	SERİGRAF	Y.FIRIN	D.FIRIN	L.FIRIN
						2					
						1					
<u>PARÇA ADI</u> :						<u>CAM RENGİ</u> :					
						<u>CAM KALINLIĞI</u> :					
						<u>BOMBE TOLERANSI</u> :					
						<u>MALZEME</u> :					
						<u>RODAJ TİPİ</u> :					
<u>MUŞTERİ KODU</u> :						<u>MARKA RENGİ</u> :					
SERBEST OLÇU TOLERANSI						EBAT			1700X2000		
10 MM.' DEN 100 MM.'YE		100 MM.' DEN 1000 MM.' YE		1000 MM. DEN 3000 MM.YE							
0,5		0,8		1							
<u>AÇIKLAMALAR</u> :											
ÖLÇEK		CAMA BAKIŞ YÖNÜ DIŞARIDANDIR				ÇİZEN			ONAY		
		TARİH				HASAN SALLI					

UNICERT®



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FERCAM CAM SANAYI TICARET LIMITED SIRKETI

Alasarkoy Mah. 2. Aral Sok. No:6 Osmangazi/BURSA/TURKEY

by review of SA6.001914 numbered report for the scope

**PRODUCTION AND SALES TEMPERED, LAMINATED,
AUTO GLASS AT OWN ESTABLISHMENTS**

to certify that a quality management system in accordance with
standard's clauses is established and being implemented

DIN EN ISO 9001:2015

Certificate No : QMS 0910 001872

Original Certification Date : 2010-09-02

Issue / Revised Date : 2018-07-31

Expiry Date : 2019-09-01

Certification Period : 3 years (3rd year)



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D-ZM-16058-01-00

Universal GmbH



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