



Prüfbericht - Nr.: 15028924 001		Seite 1 von 4 Page 1 of 4	
<i>Test Report No.:</i>			
Auftraggeber: <i>Client:</i>	Hangzhou Boray Imp. & Exp. Co., Ltd. No. 458, Jincheng Road Xiaoshan, Hangzhou 311201 P.R.China		
Gegenstand der Prüfung: <i>Test item:</i>	Shower Enclosure		
Bezeichnung: <i>Identification:</i>	HX-158	Serien-Nr.: <i>Serial No.:</i>	Engineering Sample
Wareneingangs-Nr.: <i>Receipt No.:</i>	153105988-1	Eingangsdatum: <i>Date of receipt:</i>	04-09-2008
Prüfort: <i>Testing location:</i>	Shanghai		
Prüfgrundlage: <i>Test specification:</i>	Testing according to client's requirements EN 14428:2004 + A1:2008 Shower Enclosure – Functional requirements and test methods Cl. 4.1, 4.2, 4.3.2, 4.4.5, 4.4.7		
Prüfergebnis: <i>Test Result:</i>	Der Prüfgegenstand entspricht oben genannter Prüfgrundlage(n). The test item passed the test specification(s).		
Prüflaboratorium: <i>Testing Laboratory:</i>	TÜV Rheinland (Shanghai) Co., Ltd.		
geprüft/ tested by:	kontrolliert/ reviewed by:		
12-09-2008 Morgan Mi  Datum Name/Stellung Unterschrift Date Name/Position Signature		16.09.2008 Sarah Xiong  Datum Name/Stellung Unterschrift Date Name/Position Signature	
Sonstiges/ Other Aspects:			
Order No.: 153105988 This test report is only valid with the below parts: Attachment 1: Test Result of safety glass (1.1-1.4) Attachment 2: Measurement and Test Equipment List			
Abkürzungen:		Abbreviations:	
P(ass) = entspricht Prüfgrundlage F(fail) = entspricht nicht Prüfgrundlage N/A = nicht anwendbar N/T = nicht getestet		P(ass) = passed F(fail) = failed N/A = not applicable N/T = not tested	
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products.</i>			

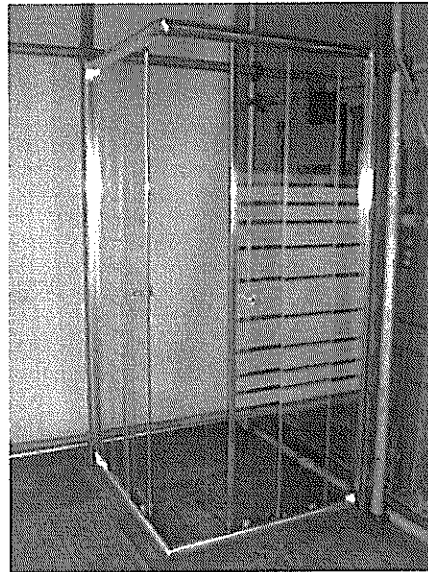
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Client	Hangzhou Boray Imp. & Exp. Co., Ltd.	Page 2 of 4
Clause	Test Description	Remark
		Result

Product description
Shower Enclosure

2 specifications: 90 x 90 cm; 80 x 80 cm
 2 movable flat glass (6 mm), 2 fixed flat glass (5 mm)
 Without shower tray
 Aluminum frame with oxide treatment.



HX-158: 80 x 80 x 185 cm



HX-158: 90 x 90 x 185 cm

4 Requirement

4.1	General The manufacturer shall provide with each shower enclosure detailed instruction on installation and use, to include at least following information: - Description of installation with special consideration of building construction and necessary tools and sealants. - Instructions for appropriate maintenance and care.	User manual provided. Description of installation and instruction for appropriate maintenance and care is sufficient.	P
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Test Report No.	15028924 001		
Client	Hangzhou Boray Imp. & Exp. Co., Ltd.		Page 3 of 4
Clause	Test Description	Remark	Result
4.2	<p>Cleanability</p> <p>When tested visually, the surfaces of the components of the shower enclosures which are accessible during use and cleaning shall be free from sharp corners, edges and burrs.</p> <p>When using recommended cleaning agents in accordance with the manufacturer's installation and care instructions, there shall be no reduction in safety or function of the shower enclosure.</p>	<p>The shower enclosure is free of sharp corners, edges and burrs.</p> <p>No reduction in safety or function occurs when using recommended cleaning agents.</p>	P
4.3.2	<p>Thermally toughened safety glass</p> <p>Thermally toughened safety glass shall meet the requirements of EN 12150-1:2000, except in respect of Clause 8 which is replaced by 5.1 of this document.</p> <p>When tested in accordance with 5.1, the minimum particle count shall be 40.</p>	<p>HX-158: 80 cm x 80 cm Att. 1.1 Movable flat glass (6 mm) Att. 1.2 Fixed flat glass (5 mm) HX-158: 90 cm x 90 cm Att. 1.3 Movable flat glass (6 mm) Att. 1.4 Fixed flat glass (5 mm)</p> <p>Test report of EN 12150-1 with Clause 8 replaced with 5.1 of this document with positive verdicts for glass of same thickness, but different specifications, is provided. 5 mm: WT20070918 6 mm: WT20060732</p> <p>In regard of client's declaration, the current glass is manufactured and treated with the same process and art.</p> <p>Therefore only the below clauses of EN 12150-1, which is impacted by different specifications are checked: Cl. 6.1, 6.2, 6.3, 7.2, 7.4, 7.5, 7.6</p> <p>In the above clauses, dimensions are checked lean to client drawings with tolerances specified in the standard.</p> <p>Details see Attachment 1.1-1.4.</p>	P
4.4.5	<p>Endurance</p> <p>When tested in accordance with 5.5, shower enclosures shall not show any functional deterioration after 20 000 closing-opening cycles.</p>	<p>Test Method lean to Clause 5.5</p> <p>On completion of test (20 000 closing – opening cycles) the door still functions correctly.</p>	P



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Selected testing items lean to:

EN 14428:2004 + A1:2008

Cl. 4.1; 4.2, 4.3.2, 4.4.5, 4.4.7

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Client	Hangzhou Boray Imp. & Exp. Co., Ltd.		Page 4 of 4
Clause	Test Description	Remark	Result
4.4.7	Water retention When tested in accordance with 5.7, shower enclosures shall retain water. A few small drops of water on the outside of the water retaining area are acceptable.	Test method lean to Clause 5.7 No appearance of leakage from the water retaining area. There are a few small drops of water on the outside of the water retaining area, but the results can be accepted according to the description of the requirements.	P

END of Test Report 15028924 001

Attachment 1.1 of Testing Report
15028924 001

Testing Result of Safety Glass (6 mm flat glass)
HX-158: 80 x 80 cm



Clause	Test requirements	Result
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Product specification

(All dimension in millimetres)

Product: Thermally toughened soda lime silicate safety glass for shower enclosure

Shape and Nominal dimensions

Flat
Thickness 6,0
Width B 400
Length H 1820

Curved
Thickness
Width B
Length H1 (extended length)
Length H2 (direct length)

Toughening

Horizontal toughening
 Vertical toughening

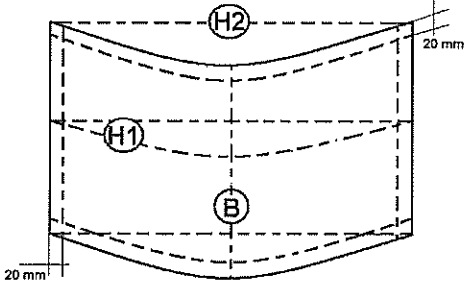
Production

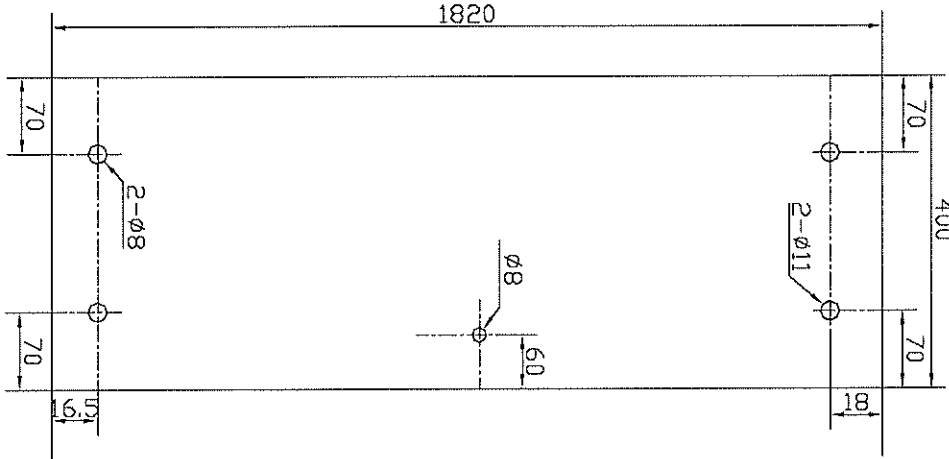
Float glass 浮法玻璃
 Drawn sheet glass 普通平板玻璃
 Patterned glass 压花玻璃
 Coated glass 镀膜玻璃
 Others

Remark

For shower enclosure Type HX-158: 80 x 80 cm.

Clause	Test requirements	Result
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1	(EN 12150-1:2000) 6.1 Nominal thickness and thickness tolerances					P				
	<input checked="" type="checkbox"/> Flat glass Final sample x 3 pieces <input type="checkbox"/> Curved glass Final sample x 3 pieces									
	Spl. No.	Nominal thickness	Required tolerance	Measurement						
	1	6,0	± 0,2	5,81	5,80		5,81	5,82		
2	5,83			5,81	5,83	5,82				
3	5,81			5,82	5,81	5,83				
2	(EN 12150-1:2000) 6.2 Width and length (sizes)					P				
	<input checked="" type="checkbox"/> Flat glass Final sample x 3 pieces <input type="checkbox"/> Curved glass Final sample x 3 pieces									
	Flat glass									
	Spl. No.	Nominal width (B)	Nominal length (H)	Tolerance (t)	(B+t) x (H+t) / (B-t) x (H-t)		Result			
	1	400	1820	± 2.5	402,5 x 1822,5 / 397,5 x 1817,5		<input checked="" type="checkbox"/> Inside <input type="checkbox"/> Outside			
	2						<input checked="" type="checkbox"/> Inside <input type="checkbox"/> Outside			
	3						<input checked="" type="checkbox"/> Inside <input type="checkbox"/> Outside			
	Curved glass									
	Spl. No.	Width B		Extended length H1			Direct length H2			
		Nom.	Toler.	Measu.	Nom.		Toler.	Measu.	Nom.	Toler.
1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
			N/A			N/A				
			N/A			N/A				
2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
			N/A			N/A				
			N/A			N/A				
3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
			N/A			N/A				
			N/A			N/A				
Curved glass										
										

Clause	Test requirements	Result																																																	
3	<p>(EN 12150-1:2000) 6.3 Flatness</p> <p><input checked="" type="checkbox"/> Flat glass Final sample x 1 piece (without holes / notches / cut outs) <input type="checkbox"/> Curved glass N/A</p>	P																																																	
<table border="1"> <thead> <tr> <th>Overall bow</th> <th>B1</th> <th>B2</th> <th>H1</th> <th>H2</th> <th>Diagonal 1</th> <th>Diagonal 2</th> </tr> </thead> <tbody> <tr> <td>Dimensions (mm)</td> <td>400</td> <td>400</td> <td>1820</td> <td>1820</td> <td>1863,4</td> <td>1863,4</td> </tr> <tr> <td>Required bow (mm/mm)</td> <td>0,003</td> <td>0,003</td> <td>0,003</td> <td>0,003</td> <td>0,003</td> <td>0,003</td> </tr> <tr> <td>Overall bow (mm/mm)</td> <td>0,0002</td> <td>0,0002</td> <td>0,0000</td> <td>0,0000</td> <td>0,0002</td> <td>0,0000</td> </tr> <tr> <th>Local bow</th> <th>B1</th> <th>B2</th> <th>H1</th> <th>H2</th> <th>Diagonal 1</th> <th>Diagonal 2</th> </tr> <tr> <td>Required bow (mm/300mm)</td> <td>0,5</td> <td>0,5</td> <td>0,5</td> <td>0,5</td> <td>N/A</td> <td>N/A</td> </tr> <tr> <td>Local bow (mm/300mm)</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>N/A</td> <td>N/A</td> </tr> </tbody> </table>			Overall bow	B1	B2	H1	H2	Diagonal 1	Diagonal 2	Dimensions (mm)	400	400	1820	1820	1863,4	1863,4	Required bow (mm/mm)	0,003	0,003	0,003	0,003	0,003	0,003	Overall bow (mm/mm)	0,0002	0,0002	0,0000	0,0000	0,0002	0,0000	Local bow	B1	B2	H1	H2	Diagonal 1	Diagonal 2	Required bow (mm/300mm)	0,5	0,5	0,5	0,5	N/A	N/A	Local bow (mm/300mm)	0	0	0	0	N/A	N/A
Overall bow	B1	B2	H1	H2	Diagonal 1	Diagonal 2																																													
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Required bow (mm/300mm)	0,5	0,5	0,5	0,5	N/A	N/A																																													
Local bow (mm/300mm)	0	0	0	0	N/A	N/A																																													
4	<p>(EN 12150-1:2000) 7.2 Edge working of glass for toughening</p> <p><input checked="" type="checkbox"/> Flat glass Final sample x 1 piece <input type="checkbox"/> Curved glass Final sample x 1 pieces</p> <p>Result:</p> <p><input checked="" type="checkbox"/> a) Arrised edge <input type="checkbox"/> with blank spots <input checked="" type="checkbox"/> without blank spots <input type="checkbox"/> b) Ground edge <input type="checkbox"/> with blank spots <input type="checkbox"/> without blank spots <input checked="" type="checkbox"/> c) Smooth ground edge <input type="checkbox"/> with blank spots <input checked="" type="checkbox"/> without blank spots <input type="checkbox"/> d) Polished edge <input type="checkbox"/> Other edge profiles</p>	P																																																	
5	<p>(EN 12150-1:2000) 7.4 Round holes</p> <p><input checked="" type="checkbox"/> Flat glass Final sample x 1 piece <input type="checkbox"/> Curved glass Final sample x 1 piece</p> <p>Dimensions and locations of the holes:</p> 	P																																																	

Clause	Test requirements	Result																																																																						
	<p>Diameter of the hole shall not be less than the Nominal thickness of the glass. <input checked="" type="checkbox"/> P <input type="checkbox"/> F <input type="checkbox"/> N/A</p> <p>Relationship between hole and edge of pane: Dimension a \geq 2d <input checked="" type="checkbox"/> P <input type="checkbox"/> F <input type="checkbox"/> N/A</p> <p>Relationship between two holes: Dimension b \geq 2d <input checked="" type="checkbox"/> P <input type="checkbox"/> F <input type="checkbox"/> N/A</p> <p>Relationship between hole and corner of pane: Dimension c \geq 6d <input checked="" type="checkbox"/> P <input type="checkbox"/> F <input type="checkbox"/> N/A</p> <p>Tolerance on hole diameters</p> <table border="1"> <thead> <tr> <th>--</th> <th>Hole 1</th> <th>Hole 2</th> <th>Hole 3</th> <th>Hole 4</th> <th>Hole 5</th> <th>Hole 6</th> </tr> </thead> <tbody> <tr> <td>Nominal diameter \varnothing</td> <td>11</td> <td>11</td> <td>8</td> <td>8</td> <td>8</td> <td>N/A</td> </tr> <tr> <td>Required tolerance</td> <td>$\pm 1,0$</td> <td>$\pm 1,0$</td> <td>$\pm 1,0$</td> <td>$\pm 1,0$</td> <td>$\pm 1,0$</td> <td>N/A</td> </tr> <tr> <td>Measured diameter \varnothing</td> <td>11,05</td> <td>11,02</td> <td>8,01</td> <td>8,00</td> <td>8,01</td> <td>N/A</td> </tr> </tbody> </table> <p>Tolerance on positions of holes</p> <table border="1"> <thead> <tr> <th>--</th> <th>Hole 1</th> <th>Hole 2</th> <th>Hole 3</th> <th>Hole 4</th> <th>Hole 5</th> <th>Hole 6</th> </tr> </thead> <tbody> <tr> <td>Nominal position X</td> <td>70</td> <td>330</td> <td>330</td> <td>330</td> <td>70</td> <td>N/A</td> </tr> <tr> <td>Nominal position Y</td> <td>1802</td> <td>1802</td> <td>910</td> <td>16,5</td> <td>16,5</td> <td>N/A</td> </tr> <tr> <td>Required tolerance t</td> <td>$\pm 2,5$</td> <td>$\pm 2,5$</td> <td>$\pm 2,5$</td> <td>$\pm 2,5$</td> <td>$\pm 2,5$</td> <td>N/A</td> </tr> <tr> <td>Measured position X</td> <td>69,2</td> <td>330,1</td> <td>330,2</td> <td>329,2</td> <td>70,1</td> <td>N/A</td> </tr> <tr> <td>Measured position Y</td> <td>1801,1</td> <td>1802,3</td> <td>909,8</td> <td>16,4</td> <td>16,5</td> <td>N/A</td> </tr> </tbody> </table>	--	Hole 1	Hole 2	Hole 3	Hole 4	Hole 5	Hole 6	Nominal diameter \varnothing	11	11	8	8	8	N/A	Required tolerance	$\pm 1,0$	$\pm 1,0$	$\pm 1,0$	$\pm 1,0$	$\pm 1,0$	N/A	Measured diameter \varnothing	11,05	11,02	8,01	8,00	8,01	N/A	--	Hole 1	Hole 2	Hole 3	Hole 4	Hole 5	Hole 6	Nominal position X	70	330	330	330	70	N/A	Nominal position Y	1802	1802	910	16,5	16,5	N/A	Required tolerance t	$\pm 2,5$	$\pm 2,5$	$\pm 2,5$	$\pm 2,5$	$\pm 2,5$	N/A	Measured position X	69,2	330,1	330,2	329,2	70,1	N/A	Measured position Y	1801,1	1802,3	909,8	16,4	16,5	N/A	
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6	<p>(EN 12150-1:2000) 7.5 Notches and cut-outs</p> <p><input checked="" type="checkbox"/> Flat glass Final sample x 1 piece <input type="checkbox"/> Curved glass Final sample x 1 piece</p> <p>Outline drawing of notches and cut-outs: N/A (No notches and cut-outs)</p>	N/A																																																																						
7	<p>(EN 12150-1:2000) 7.6 Shaped panes</p> <p><input checked="" type="checkbox"/> Flat glass Final sample x 1 piece <input type="checkbox"/> Curved glass Final sample x 1 piece</p> <p>Result: <input checked="" type="checkbox"/> Rectangular shape <input type="checkbox"/> Non-rectangular shape</p>	P																																																																						
8	<p>(EN 12150-1:2000) 9.3 Thermal durability</p> <p>See test report WT20060732.</p>	N/T																																																																						


Attachment 1.1 of Testing Report
15028924 001

Testing Result of Safety Glass (6 mm flat glass)
HX-158: 80 x 80 cm

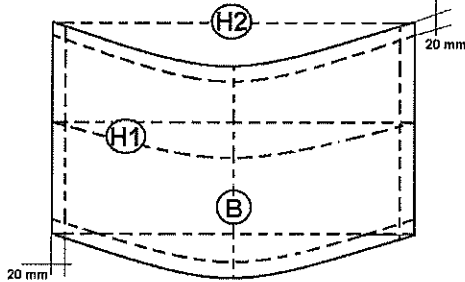


Clause	Test requirements	Result
9	(EN 12150-1:2000) 9.4 Mechanical strength See test report WT20060732.	N/T
10	(EN 12150-1:2000) 9.5 Classification of performance under accidental human impact See test report WT20060732.	N/T
11	(EN 14428:2004) 5.1 Fragmentation test See test report WT20060732.	N/T

- END -

Attachment 1.1 of Testing Report 15028924 001		 TÜVRheinland [®]
Testing Result of Safety Glass (5 mm flat glass) HX-158: 80 x 80 cm		
Clause	Test requirements	Result
Product specification		(All dimension in millimetres)
Product:	Thermally toughened soda lime silicate safety glass for shower enclosure	
Shape and Nominal dimensions	<input checked="" type="checkbox"/> Flat Thickness 5,0 Width B 330 Length H 1775 <input type="checkbox"/> Curved Thickness Width B Length H1 (extended length) Length H2 (direct length)	
Toughening	<input checked="" type="checkbox"/> Horizontal toughening <input type="checkbox"/> Vertical toughening	
Production	<input checked="" type="checkbox"/> Float glass 浮法玻璃 <input type="checkbox"/> Drawn sheet glass 普通平板玻璃 <input type="checkbox"/> Patterned glass 压花玻璃 <input type="checkbox"/> Coated glass 镀膜玻璃 <input type="checkbox"/> Others	
Remark	For shower enclosure Type HX-158: 80 x 80 cm.	

Clause	Test requirements	Result
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1	(EN 12150-1:2000) 6.1 Nominal thickness and thickness tolerances		P							
	<input checked="" type="checkbox"/> Flat glass Final sample x 3 pieces <input type="checkbox"/> Curved glass Final sample x 3 pieces									
	Spl. No.	Nominal thickness		Required tolerance	Measurement					
	1	5,0		± 0,2	4,90	4,88	4,87	4,88		
2	4,81		4,82		4,81	4,82				
3	4,82		4,83		4,83	4,83				
2	(EN 12150-1:2000) 6.2 Width and length (sizes)		P							
	<input checked="" type="checkbox"/> Flat glass Final sample x 3 pieces <input type="checkbox"/> Curved glass Final sample x 3 pieces									
	Flat glass									
	Spl. No.	Nominal width (B)		Nominal length (H)	Tolerance (t)	(B+t) x (H+t) / (B-t) x (H-t)	Result			
	1	330		1775	± 2.5	332,5 x 1777,5 / 327,5 x 1772,5	<input checked="" type="checkbox"/> Inside <input type="checkbox"/> Outside			
	2						<input checked="" type="checkbox"/> Inside <input type="checkbox"/> Outside			
	3						<input checked="" type="checkbox"/> Inside <input type="checkbox"/> Outside			
	Curved glass									
	Spl. No.	Width B		Extended length H1			Direct length H2			
		Nom.		Toler.	Measu.	Nom.	Toler.	Measu.	Nom.	Toler.
1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
			N/A			N/A				
			N/A			N/A				
2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
			N/A			N/A				
			N/A			N/A				
3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
			N/A			N/A				
			N/A			N/A				
Curved glass										
										



Clause	Test requirements	Result																																																	
3	<p>(EN 12150-1:2000) 6.3 Flatness</p> <p><input checked="" type="checkbox"/> Flat glass Final sample x 1 piece (without holes / notches / cut outs) <input type="checkbox"/> Curved glass N/A</p>	P																																																	
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- END -

Attachment 1.3 of Testing Report
15028924 001

Testing Result of Safety Glass (6 mm flat glass)
HX-158: 90 x 90 cm



Clause Test requirements

Result

Product specification

(All dimension in millimetres)

Product: Thermally toughened soda lime silicate safety glass for shower enclosure

Shape and Nominal dimensions

Flat
Thickness 6,0
Width B 450
Length H 1820

Curved
Thickness
Width B
Length H1 (extended length)
Length H2 (direct length)

Toughening

Horizontal toughening
 Vertical toughening

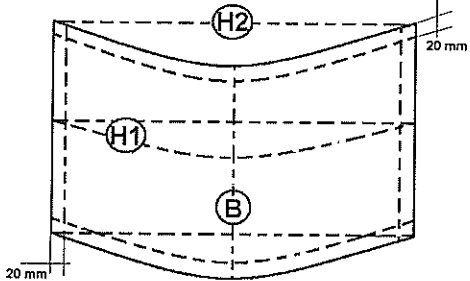
Production

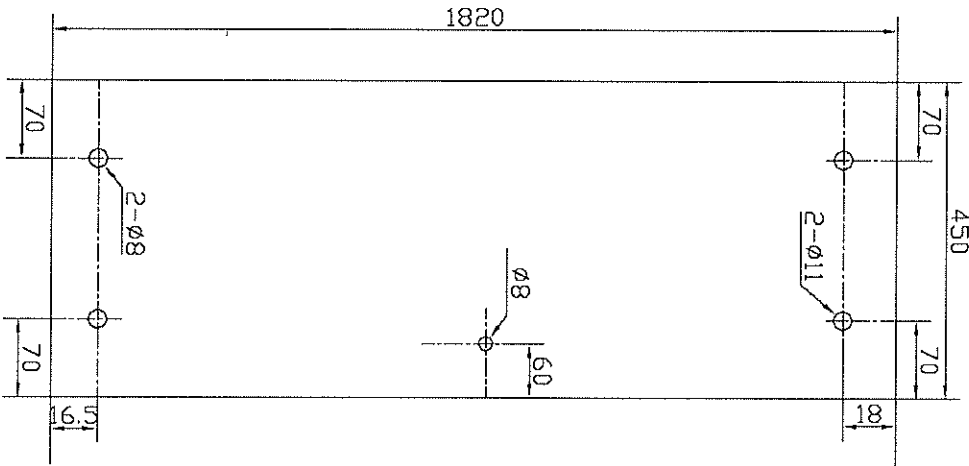
Float glass 浮法玻璃
 Drawn sheet glass 普通平板玻璃
 Patterned glass 压花玻璃
 Coated glass 镀膜玻璃
 Others

Remark

For shower enclosure Type HX-158: 90 x 90 cm.

Clause	Test requirements	Result
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1	(EN 12150-1:2000) 6.1 Nominal thickness and thickness tolerances		P							
	<input checked="" type="checkbox"/> Flat glass Final sample x 3 pieces <input type="checkbox"/> Curved glass Final sample x 3 pieces									
	Spl. No.	Nominal thickness		Required tolerance	Measurement					
	1	6,0		± 0,2	5,83	5,83	5,84	5,82		
2	5,81		5,81		5,82	5,82				
3	5,83		5,82		5,83	5,83				
2	(EN 12150-1:2000) 6.2 Width and length (sizes)		P							
	<input checked="" type="checkbox"/> Flat glass Final sample x 3 pieces <input type="checkbox"/> Curved glass Final sample x 3 pieces									
	Flat glass									
	Spl. No.	Nominal width (B)		Nominal length (H)	Tolerance (t)	(B+t) x (H+t) / (B-t) x (H-t)	Result			
	1	450		1820	± 2.5	452,5 x 1822,5 / 447,5 x 1817,5	<input checked="" type="checkbox"/> Inside <input type="checkbox"/> Outside			
	2						<input checked="" type="checkbox"/> Inside <input type="checkbox"/> Outside			
	3						<input checked="" type="checkbox"/> Inside <input type="checkbox"/> Outside			
	Curved glass									
	Spl. No.	Width B		Extended length H1			Direct length H2			
		Nom.		Toler.	Measu.	Nom.	Toler.	Measu.	Nom.	Toler.
1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
			N/A			N/A				
			N/A			N/A				
2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
			N/A			N/A				
			N/A			N/A				
3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
			N/A			N/A				
			N/A			N/A				
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5	<p>(EN 12150-1:2000) 7.4 Round holes</p> <p><input checked="" type="checkbox"/> Flat glass Final sample x 1 piece <input type="checkbox"/> Curved glass Final sample x 1 piece</p> <p>Dimensions and locations of the holes:</p> 	P																																																	

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8	<p>(EN 12150-1:2000) 9.3 Thermal durability</p> <p>See test report WT20060732.</p>	N/T																																																																						

Attachment 1.3 of Testing Report
15028924 001

Testing Result of Safety Glass (6 mm flat glass)
HX-158: 90 x 90 cm



Clause	Test requirements	Result
9	(EN 12150-1:2000) 9.4 Mechanical strength See test report WT20060732.	N/T
10	(EN 12150-1:2000) 9.5 Classification of performance under accidental human impact See test report WT20060732.	N/T
11	(EN 14428:2004) 5.1 Fragmentation test See test report WT20060732.	N/T

- END -

Attachment 1.1 of Testing Report
15028924 001

Testing Result of Safety Glass (5 mm flat glass)
HX-158: 90 x 90 cm



Clause	Test requirements	Result
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Product specification

(All dimension in millimetres)

Product: Thermally toughened soda lime silicate safety glass for shower enclosure

Shape and Nominal dimensions

Flat
Thickness 5,0
Width B 380
Length H 1775

Curved
Thickness
Width B
Length H1 (extended length)
Length H2 (direct length)

Toughening

Horizontal toughening
 Vertical toughening

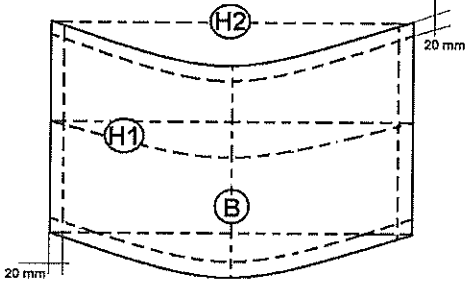
Production

Float glass 浮法玻璃
 Drawn sheet glass 普通平板玻璃
 Patterned glass 压花玻璃
 Coated glass 镀膜玻璃
 Others

Remark

For shower enclosure Type HX-158: 90 x 90 cm.

Clause	Test requirements	Result
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1	(EN 12150-1:2000) 6.1 Nominal thickness and thickness tolerances		P							
	<input checked="" type="checkbox"/> Flat glass Final sample x 3 pieces <input type="checkbox"/> Curved glass Final sample x 3 pieces									
	Spl. No.	Nominal thickness		Required tolerance	Measurement					
	1	5,0		± 0,2	4,82	4,83	4,82	4,83		
2	4,81		4,81		4,82	4,82				
3	4,82		4,82		4,82	4,83				
2	(EN 12150-1:2000) 6.2 Width and length (sizes)		P							
	<input checked="" type="checkbox"/> Flat glass Final sample x 3 pieces <input type="checkbox"/> Curved glass Final sample x 3 pieces									
	Flat glass									
	Spl. No.	Nominal width (B)		Nominal length (H)	Tolerance (t)	(B+t) x (H+t) / (B-t) x (H-t)	Result			
	1	380		1775	± 2.5	382,5 x 1777,5 / 377,5 x 1772,5	<input checked="" type="checkbox"/> Inside <input type="checkbox"/> Outside			
	2						<input checked="" type="checkbox"/> Inside <input type="checkbox"/> Outside			
	3						<input checked="" type="checkbox"/> Inside <input type="checkbox"/> Outside			
	Curved glass									
	Spl. No.	Width B		Extended length H1			Direct length H2			
		Nom.		Toler.	Measu.	Nom.	Toler.	Measu.	Nom.	Toler.
1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
			N/A			N/A				
			N/A			N/A				
2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
			N/A			N/A				
			N/A			N/A				
3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
			N/A			N/A				
			N/A			N/A				
Curved glass										
										

Clause	Test requirements	Result																																																	
3	<p>(EN 12150-1:2000) 6.3 Flatness</p> <p><input checked="" type="checkbox"/> Flat glass Final sample x 1 piece (without holes / notches / cut outs) <input type="checkbox"/> Curved glass N/A</p>	P																																																	
<table border="1"> <thead> <tr> <th>Overall bow</th> <th>B1</th> <th>B2</th> <th>H1</th> <th>H2</th> <th>Diagonal 1</th> <th>Diagonal 2</th> </tr> </thead> <tbody> <tr> <td>Dimensions (mm)</td> <td>380</td> <td>380</td> <td>1775</td> <td>1775</td> <td>1815,2</td> <td>1815,2</td> </tr> <tr> <td>Required bow (mm/mm)</td> <td>0,003</td> <td>0,003</td> <td>0,003</td> <td>0,003</td> <td>0,003</td> <td>0,003</td> </tr> <tr> <td>Overall bow (mm/mm)</td> <td>0,0002</td> <td>0,0002</td> <td>0,0000</td> <td>0,0000</td> <td>0,0002</td> <td>0,0000</td> </tr> <tr> <th>Local bow</th> <th>B1</th> <th>B2</th> <th>H1</th> <th>H2</th> <th>Diagonal 1</th> <th>Diagonal 2</th> </tr> <tr> <td>Required bow (mm/300mm)</td> <td>0,5</td> <td>0,5</td> <td>0,5</td> <td>0,5</td> <td>N/A</td> <td>N/A</td> </tr> <tr> <td>Local bow (mm/300mm)</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>N/A</td> <td>N/A</td> </tr> </tbody> </table>			Overall bow	B1	B2	H1	H2	Diagonal 1	Diagonal 2	Dimensions (mm)	380	380	1775	1775	1815,2	1815,2	Required bow (mm/mm)	0,003	0,003	0,003	0,003	0,003	0,003	Overall bow (mm/mm)	0,0002	0,0002	0,0000	0,0000	0,0002	0,0000	Local bow	B1	B2	H1	H2	Diagonal 1	Diagonal 2	Required bow (mm/300mm)	0,5	0,5	0,5	0,5	N/A	N/A	Local bow (mm/300mm)	0	0	0	0	N/A	N/A
Overall bow	B1	B2	H1	H2	Diagonal 1	Diagonal 2																																													
Dimensions (mm)	380	380	1775	1775	1815,2	1815,2																																													
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Required bow (mm/300mm)	0,5	0,5	0,5	0,5	N/A	N/A																																													
Local bow (mm/300mm)	0	0	0	0	N/A	N/A																																													
4	<p>(EN 12150-1:2000) 7.2 Edge working of glass for toughening</p> <p><input checked="" type="checkbox"/> Flat glass Final sample x 1 piece <input type="checkbox"/> Curved glass Final sample x 1 pieces</p> <p>Result:</p> <p><input checked="" type="checkbox"/> a) Arrissed edge <input type="checkbox"/> with blank spots <input checked="" type="checkbox"/> without blank spots <input type="checkbox"/> b) Ground edge <input type="checkbox"/> with blank spots <input type="checkbox"/> without blank spots <input checked="" type="checkbox"/> c) Smooth ground edge <input type="checkbox"/> with blank spots <input checked="" type="checkbox"/> without blank spots <input type="checkbox"/> d) Polished edge <input type="checkbox"/> Other edge profiles</p>	P																																																	
5	<p>(EN 12150-1:2000) 7.4 Round holes</p> <p><input checked="" type="checkbox"/> Flat glass Final sample x 1 piece <input type="checkbox"/> Curved glass Final sample x 1 piece</p> <p>Dimensions and locations of the holes: N/A No holes</p> <p>Diameter of the hole shall not be less than the Nominal thickness of the glass. <input type="checkbox"/> P <input type="checkbox"/> F <input checked="" type="checkbox"/> N/A</p> <p>Relationship between hole and edge of pane: Dimension a $\geq 2d$ <input type="checkbox"/> P <input type="checkbox"/> F <input checked="" type="checkbox"/> N/A</p> <p>Relationship between two holes: Dimension b $\geq 2d$ <input type="checkbox"/> P <input type="checkbox"/> F <input checked="" type="checkbox"/> N/A</p> <p>Relationship between hole and corner of pane: Dimension c $\geq 6d$ <input type="checkbox"/> P <input type="checkbox"/> F <input checked="" type="checkbox"/> N/A</p> <table border="1"> <thead> <tr> <th colspan="7">Tolerance on hole diameters</th> </tr> <tr> <th>--</th> <th>Hole 1</th> <th>Hole 2</th> <th>Hole 3</th> <th>Hole 4</th> <th>Hole 5</th> <th>Hole 6</th> </tr> </thead> <tbody> <tr> <td>Nominal diameter \varnothing</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> </tr> <tr> <td>Required tolerance</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> </tr> </tbody> </table>	Tolerance on hole diameters							--	Hole 1	Hole 2	Hole 3	Hole 4	Hole 5	Hole 6	Nominal diameter \varnothing	N/A	N/A	N/A	N/A	N/A	N/A	Required tolerance	N/A	N/A	N/A	N/A	N/A	N/A	N/A																					
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6	<p>(EN 12150-1:2000) 7.5 Notches and cut-outs</p> <p><input checked="" type="checkbox"/> Flat glass Final sample x 1 piece <input type="checkbox"/> Curved glass Final sample x 1 piece</p> <p>Outline drawing of notches and cut-outs: N/A (No notches and cut-outs)</p>	N/A																																																								
7	<p>(EN 12150-1:2000) 7.6 Shaped panes</p> <p><input checked="" type="checkbox"/> Flat glass Final sample x 1 piece <input type="checkbox"/> Curved glass Final sample x 1 piece</p> <p>Result: <input checked="" type="checkbox"/> Rectangular shape <input type="checkbox"/> Non-rectangular shape</p>	P																																																								
8	<p>(EN 12150-1:2000) 9.3 Thermal durability</p> <p>See test report WT20070918.</p>	N/T																																																								
9	<p>(EN 12150-1:2000) 9.4 Mechanical strength</p> <p>See test report WT20070918.</p>	N/T																																																								
10	<p>(EN 12150-1:2000) 9.5 Classification of performance under accidental human impact</p> <p>See test report WT20070918.</p>	N/T																																																								
11	<p>(EN 14428:2004) 5.1 Fragmentation test</p> <p>See test report WT20070918.</p>	N/T																																																								

- END -

Measurement and Test Equipment List

Used MTE

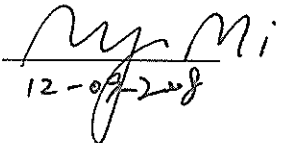
Revision: 20 July, 2007/ G.Luebken

Attachment: 2

Report No.: 15028924 001

Order No.: 153105988

Description	MTE Type/model Internal ID	Next Calibration Date
Digital Caliper	0~150mm L064	10.07.2009
Steel Tape	3m L637	17.04.2009
Clearance gauges	(0.05~1.00)mm L623	23.04.2009
Electron-stopwatch	J9-2II H026	17.06.2009
Electronic Scale	ACS-30Ac M012	01.02.2009
Noncontact Thermometer	ST60 T044	20.03.2009

Date and Signature: 
12-09-2008