

Test report

Test report relating to a glass product according to European standard EN 12600:2002, Pendulum test for flat glass, concerning the product marked as: Laminated 12.76mm, manufactured by: Concorde Glass

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Client	Concorde Glass Linx House, Waterloo Road, Mablethorpe Linconshire LN12 1LE UK
Project number	89215871-50
Project name	ERCI0033 EN12600 Pendulum Impact test
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1 Introduction

1.1 Purpose

The tests have been performed in order to establish whether or not the product meets the requirements of the European standard EN 12600 [1].

For this test report, the test results from ERCT “89215871-50 ERCI 0033 Concorde 12.76mm Lami EN12600” [2], dated 29th September 2019, have been used.

1.2 Description of the test specimen

General

Name of the manufacturer	Concorde Glass
Address of the manufacturer	Linx House, Waterloo Road, Mablethorpe, Lincolnshire LN12 1LE, UK.
Production plant of the samples	As above
Line ID where the samples are made	SagertTec SG-3000-2DD Laminating machine
Production date	No information supplied
Sampling date	19th September 2019
The product was marked as	12.76mm Laminated
Dimensions of the samples	876 x 1938 mm

Specific

Nominal thicknesses	12.3mm
Configuration	6/0.76/6
Intermediate layer: type, thickness	Unilam 0.76mm EVA
Applied films	N/A

1.3 Sampling procedure

TÜV Rheinland B.V., acting as Notified Test Laboratory, has had no influence on the selection of the sample. All test specimen within the sample were test-worthy and were received on 16th September 2019.

1.4 Application

The request for testing was submitted by the manufacturer on 18/12/2018, order or reference number or name: N/A. Assignment Form number: 89215871-50.

1.5 Method of testing

All applicable tests have been performed according to the European standard EN 12600 [1].

1.6 Put out to contract

Tests were performed on manufacturer's equipment and executed by personell of ERC Testing Ltd, Unit A8(3), Pennington Court, Walter Leigh Way, Moss Industrial Estate, Leigh WN7 3PT, United Kingdom under responsibility of the Notified Body TÜV Rheinland Nederland B.V.

1.7 Privacy statement

Due to privacy reasons, the names of involved personnel that executed the tests, are not disclosed in the report. However, this information is available on internal work sheets, test forms etc. in the project file.

1.8 Notifications, accreditations, designations

TÜV Rheinland Nederland B.V. has been notified by the Dutch Ministry of Infrastructure and the Environment as Notified Laboratory (number 1750) and Notified (Factory Production Control) Certification Body (number 0336) for the European Construction Products Regulation 305/2011 (EU).

TÜV Rheinland Nederland B.V. has been accredited by the Dutch Accreditation Council (RvA) as ISO 17025 Test Laboratory (nr. L 484) and ISO 17065 Certification Body (nr. C078).

TÜV Rheinland Nederland B.V. has been designated as Technical Service (Laboratory) by the Approval Authorities for Germany (KBA – E1) and the Netherlands (RDW – E4) for automotive safety glass (ECE R43, 92/22/EC, 2009/144/EC).

TÜV Rheinland Nederland B.V. has been recognised by the German Institute for building technics (DIBt) under number NL005 as test, control and certification body.

Remark

The reported tests were performed under ISO 17025 accreditation.

1.9 Calibration of the test rig

Date of the last calibration of the test rig according to annex B of EN 12600 [1]: 24th January 2019.

2 Test results

Test results after performing all applicable tests according to European standard EN 12600 [1].

Class	Drop height (mm)	Result test 1	Result test 2	Result test 3	Result test 4
3	190	No breakage	No breakage	No breakage	Breakage 4b
2	450	Breakage 4b	No breakage	No breakage	N/A
1	1200	N/A	Broke unsafely	Breakage 4b	N/A
Class	Drop height (mm)	Result test 5			
3	190	N/A			
2	450	No breakage			
1	1200	N/A			

Average thickness of the 4 measurements	12.3mm
Because of symmetric composition: Impact side	Either side
Performance classification	2 (B) 2

Because of symmetric composition: Impact either side.

Period of testing

The tests took place on 19th September 2019

Explanation

EN 12600 § 6 Classification

6.1 General

Glazing conforming to this European Standard is classified as follows:

- its performance under the impact test;
- the drop height at which breakage occurred;
- the drop height at which the product passed in accordance with a) of clause 4;
- the drop height at which the product passed in accordance with b) of clause 4;
- the mode of breakage of the material if it remains unbroken after the impact test.

6.2 Drop height class

Glazing shall be classified as follows:

- Class 3: material that conforms to the requirements of clause 4 when tested by the method given in clause 5 at a drop height of 190 mm;
- Class 2: material that conforms to the requirements of clause 4 when tested by the method given in clause 5 at drop heights of 190 mm and 450 mm;
- Class 1: material that conforms to the requirements of clause 4 when tested by the method given in clause 5 at drop heights of 190 mm, 450 mm and 1 200 mm.

6.3 Mode of breakage

If all test pieces remain unbroken at the drop height appropriate to its intended drop height class, the mode of breakage shall be determined as per Annex C. The mode of breakage shall be described as follows:

- Type A: numerous cracks appear forming separate fragments with sharp edges, some of which are large (typical of annealed glass);
- Type B: numerous cracks appear, but the fragments hold together and do not separate (typical of laminated glass);
- Type C: disintegration occurs, leading to a large number of small particles that are relatively harmless (typical of toughened glass).

Performance classification

The performance classification of a glass product shall be given as follows:

α (β) φ

where

- α is the highest drop height class at which the product either did not break or broke in accordance with a) or b) of clause 4;
- β is the mode of breakage;
- φ is the highest drop height class at which the product either did not break or when broke, broke in accordance with a) of clause 4.

When a glass product breaks at a drop height of 190 mm and the breakage is not in accordance with a) of clause 4 then the value of φ quoted shall be zero.

3 Conclusion

The tested glass product, marked by the client or manufacturer as **12.76mm Laminated**, manufactured by: **Concorde Glass**, meets the applicable requirements as stated in the European standard EN 12600 [1] for a class: **2 (B) 2**.

The test results exclusively relate to the tested objects.

Remark 1

When and if changes are made in production method and/or equipment, assessment according to this standard shall be reconsidered and re-tests shall be performed when the changes can lead to different specifications of the glass. The decision and responsibility lay with the manufacturer.


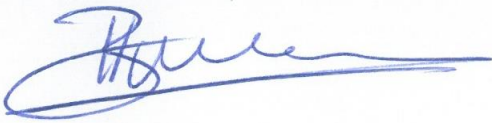

Remark 2

If no reference of the product description was supplied by the manufacturer, then that document shall be added to this test report by the manufacturer. It was to the manufacturer's responsibility that the samples delivered for initial type test are representative to the production and deviations from perfection were included in the delivered test samples.

4 References

- 1 European standard EN 12600:2002 (E),
Glass in building – Pendulum test – Impact test method and classification for float glass,
European Committee for Standardisation, November 2002.
- 2 Test report “89215871-50 ERCI 0033 Concorde 12.76mm Lami EN12600” dated 29th September 2019
by ERC Testing Ltd, Unit A8 (3), Pennington Court, Walter Leigh Way, Moss Industrial Estate, Leigh
WN7 3PT, United Kingdom.

5 Signatures

Author Mr. M. Hackett	Signature 
ERC Testing Ltd	
Peer review Mr. R. Brandhorst	Signature 
Specialist	
Approved by Mr. R. de Jonge	Signature 
Managing Director	

Appendix A, Pictures of the test specimen



Sample 1



Sample 2 (broke unsafely)



Sample 3



Sample 4

(This is the end of this report).