VERROTEC
Testing, inspection and certification body (RPF14)

Content: **Test Report Conclusion**

Project: Bohle VetroMount Top and VetroMount Side

Project number: VT 17-0682

Report: VT 17-0682 - 13

Contract: Impact test with twin-tyre impactor according to DIN 18008-4 to regulate the usability in form of an “Allgemeines bauaufsichtliches Prüfzeugnis (AbP)”

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Date: 04th December 2020

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Directory

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-	-	04.12.2020

1. Motivation

The company VERROTEC GmbH located in Mainz (Germany) was assigned by the company Bohle AG located in D-42781 Haan to verify the guardrail effect of the VetroMount Top and VetroMount Side balustrade systems by impact tests.

In this test report, the relevant glass formats, including their direct substructure, are evaluated under impact loading. The glazing must resist the impact load of category B according to the DIN 18008-4. Additionally, tests were conducted with a higher fall height.

This report is a conclusion of the test report VT 17-0682-03 [8] for the standard system, VT 20-1054-01 [9] for the enamelled glass panes and VT 19-0954-06 [10] for the small glass heights.

Subject of this report is only the resistance of the balustrade system under impact loading. The verification of the glass under static loads shall be executed separately.

A transfer of the results of this test report is not permitted, unless within the scope of this report.

Note:

Glazing with guardrail function for which the usability has to be verified by an “Allgemeines bauaufsichtliches Prüfzeugnis” (AbP) are listed under Verwaltungsvorschrift Technische Baubestimmungen NRW (VV TB NRW) No. C 4.12. The guardrail system to be evaluated in this report shows no relevant deviation from DIN 18008-4. The system concerned is a product according to Verwaltungsvorschrift Technische Baubestimmungen NRW (VV TB NRW) from the 7th December 2018, last changed on 28th September 2020.

For these reasons, the usability of this system has to be regulated in form of a

“Allgemeines bauaufsichtliches Prüfzeugnis” (AbP)

by a notified laboratory according to “Landesbauordnung”. AbPs are valuable in all federal states of Germany for 5 years. The validity can be extended.

2. General Information

- Glazing with guardrail function for which the usability has to be verified by an “Allgemeines bauaufsichtliches Prüfzeugnis” (AbP) are listed under administrative provision – technical building rules section C3 no. C 3.18 or section C4 no. C 4.12 respectively.
- The edge protection profile for balustrade systems is to be executed according to the requirements of DIN 18008-4.
- Material compatibilities are to be verified when using different plastic materials (silicon, PVB, etc.).
- Corrosion of metallic materials is to be prevented by suitable means (e.g. different alloy choice, coating, prevention of contact corrosion, constructive means, etc.). Corrosive categories are to be considered object related.
- Due to material and production related nickel sulphide inclusion, tempered glass is susceptible to spontaneous breakage of glass. We recommend the general use of tempered glass with Heat Soak Test. Due to the additional Heat Soak Test the risk of glass breakage due to nickel sulphide inclusion is considerably minimized.
- A constraint-free bearing of the glass is to be ensured.
- Contact between metal and glass or glass and glass are to be avoided permanently.
- In case of glass breakage, the affected areas are to be secured, the broken glass panes are to be replaced immediately.
- This document is only valid for the tested system. The results of this document are only valid, if the boundary conditions defined in this document are provided on-site. This is to be verified on-site.
- This document is to be published unabridged; partial publication requires the permission of Verrotec GmbH.
- A transfer of the results on other positions and/or systems is not allowed unless described within this document.
- The company VERROTEC GmbH in Mainz, Germany, takes responsibility only for the calculated/appraised construction parts under the described preconditions. If there are any changes or discrepancies, we demand notification.
- The written results are intended exclusively for the client, so that no claims can be made by third parties. In addition, Verrotec GmbH does not assume any obligation in favor of third parties or any liability towards third parties from and in connection with the services rendered for the customer.

3. Standards and guidelines

The following standards are bases for the present report:

[1] DIN 18008-1 Glass in Building – Design and construction rules – Part 1: Terms and general bases

[2] DIN 18008-2 Glass in Building – Design and construction rules – Part 2: Linearly supported glazing

[3] DIN 18008-4 Glass in Building – Design and construction rules – Part 4: Additional requirements for barrier glazing

4. Current Plans

The following current plans are the basis of this document:

[4] Basisprofil: Pattern of drilling Topmount / Pattern of drilling Sidemount - dwg.no.: 0003953 from 22.05.2018 (3 sheets) Index 00-D.

[5] Handlauf (handrail): BO_5215248 from 17.09.2018.

[6] Handlauf (edge protection): BO_5215257 from 17.09.2018.

[7] Installation drawing VetroMount.

5. Other Documents

[8] Test report VT 17-0682-03 Bohle VetroMount from 19.12.2019

[9] Test report VT 20-1054-01 Bohle VetroMount from 06.10.2020

[10] Test report VT 19-0954-06 Bohle VetroMount from 05.10.2020

6. Description of the Construction

Note: TVG means means heat strengthened glass, ESG means heat toughened glass and VSG means laminated safety glass (with PVB = polyvinyl butyral interlayer).

6.1 General Description

The guardrail system VetroMount Top and VetroMount Side consists of a laminated glass pane out of ESG or TVG with at least 0.76 mm of PVB interlayer. In Addition laminated glass out of enamelled ESG with at least 1.52 mm of PVB interlayer is possible. The glass is clamped into a supporting profile made of aluminium (EN AW 6063 T66).

6.2 Substructure

The profile can be executed in two different configurations. Image 1 shows VetroMount Top for on-floor mounting. Image 2 shows VetroMount Side for front-mounting. Both profiles are available with different covers, depicted in Image 3 and Image 4.

Both profile types contain drill holes for fixing to the substructure, spaced every 200 mm (e.g. Hilti HUS-3 H10).

The VetroMount Top profile can be mounted by screws according to the static requirements with a minimum of two screws per profile or at least 400 mm. The VetroMount Side profile can be mounted by screws at least every 200 mm and with a minimum of three screws per profile.

If necessary, two or more profile sections may be connected to each other by spring pins.

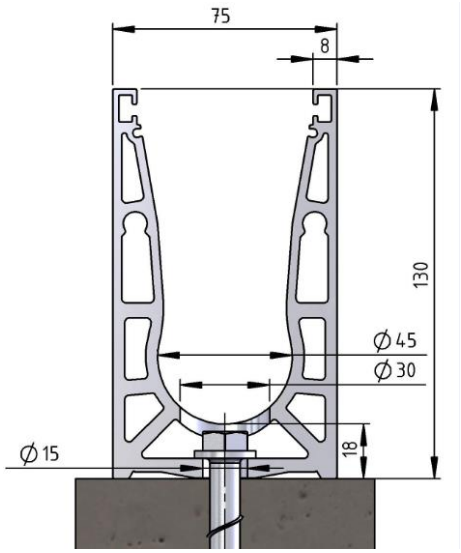


Image 1 VetroMount Top

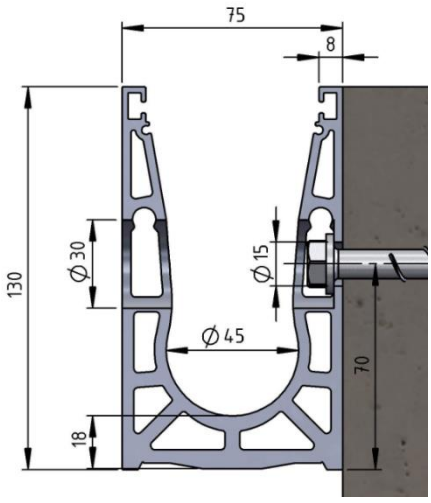


Image 2 VetroMount Side

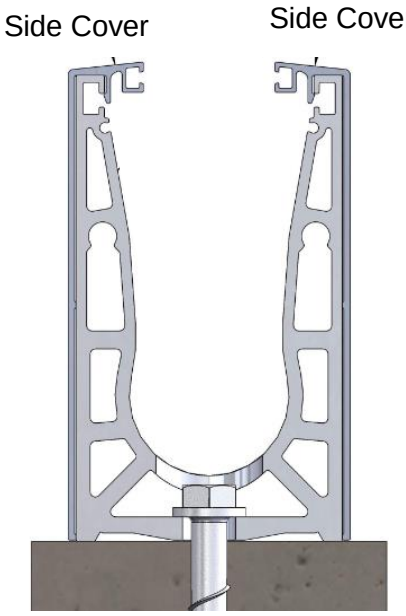


Image 3 VetroMount Top with Side Cover

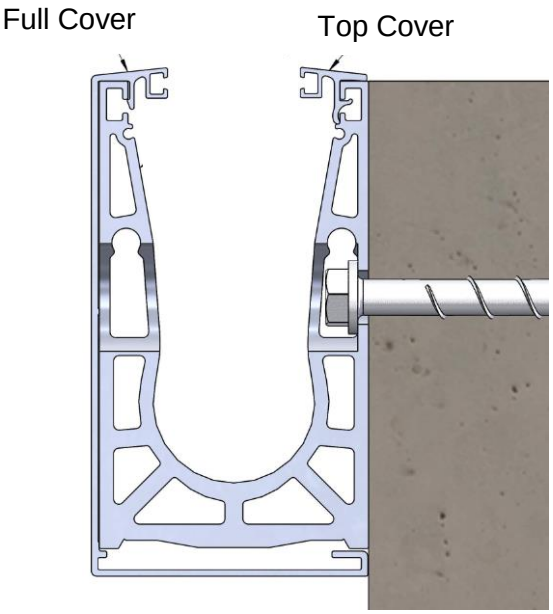


Image 4 VetroMount Side with Full & Top cover

The clamping is secured with the glass pane bearings at least every 250 mm. The glass pane bearing consists of a blind bearing with two oppositely situated cross-wedges and pressure wedges (Image 6). The glass pane bearings have different attachments for each glass assembly, which are illustrated in Table 1.

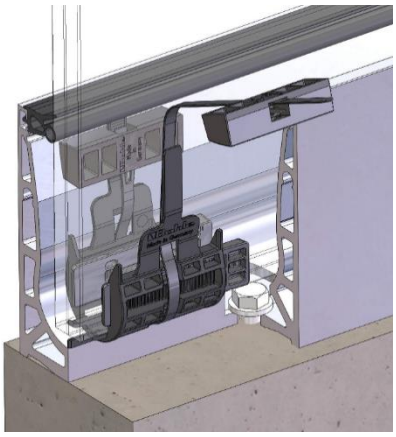
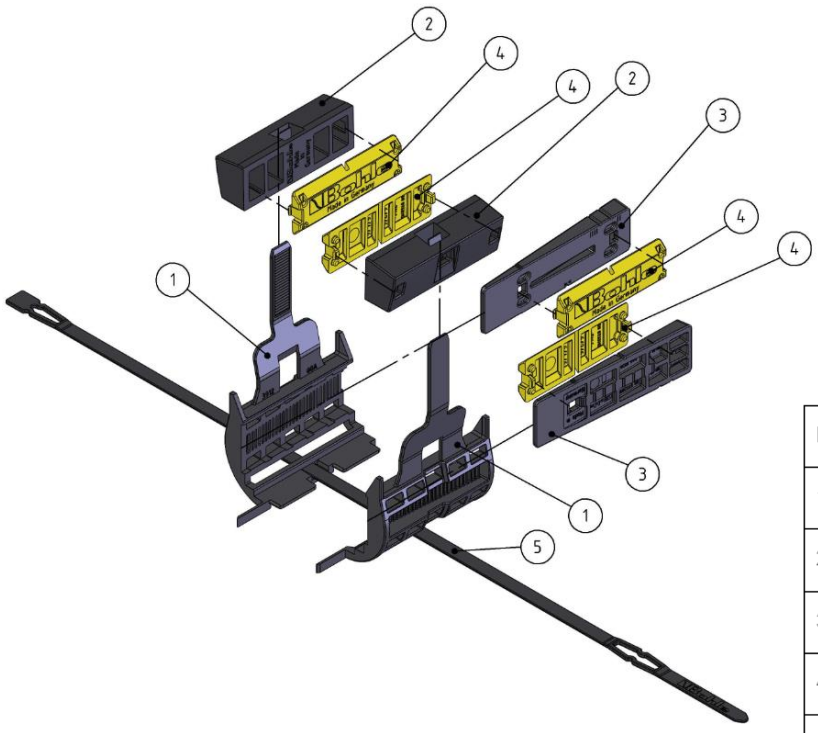
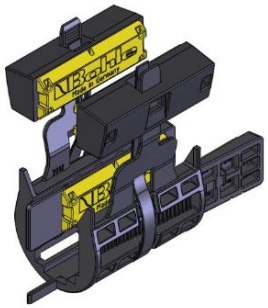


Image 5 Isometry of the glass pane bearing of the VetroMount profile

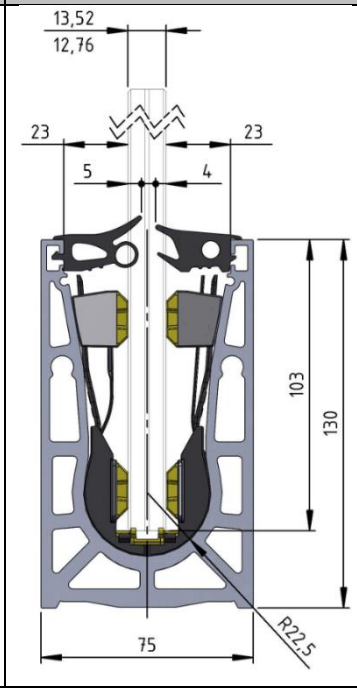
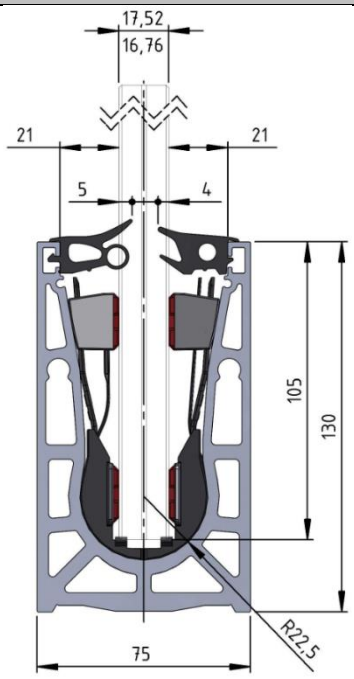
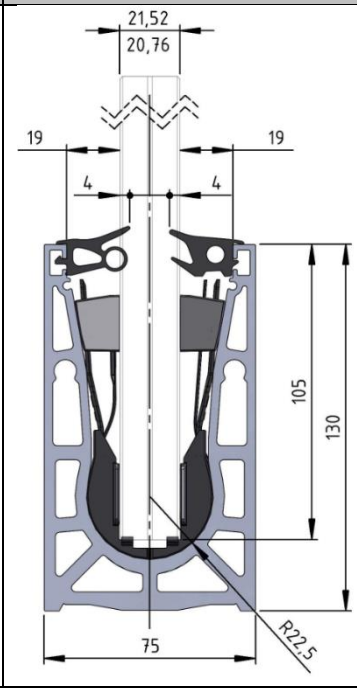




Pos.	Description
1	Blind bearing
2	Pressure wedge
3	Spacer plate
4	Cross wedge
5	Pull string

Image 6 Exploded drawing of the glass bearing

Table 1 VetroMount cross section, dependent of the glass assembly

Glass assembly	12,76 mm-13,52 mm	16,76 mm - 17,52 mm	20,76 mm – 21,52 mm
Profile section			

6.3 Glazing

The denomination of the glass dimensions are specified in Image 7. The maximum glass height is h_G=1300 mm and the minimum is 400 mm. The glass panes are placed in the substructure at a height of h_c = 105 mm. That leaves a glass height h_B varying between min. 295 mm and max. 1195 mm. The glass width is min. 300 mm or 500 mm depending on the glass assembly.

The VSG is made of TVG or ESG with a PVB interlayer of at least 0.76 mm. If enamelled glass is used, VSG made of ESG with a PVB layer of at least 1.52 mm is required. Image 8 shows the position of the enamelling.

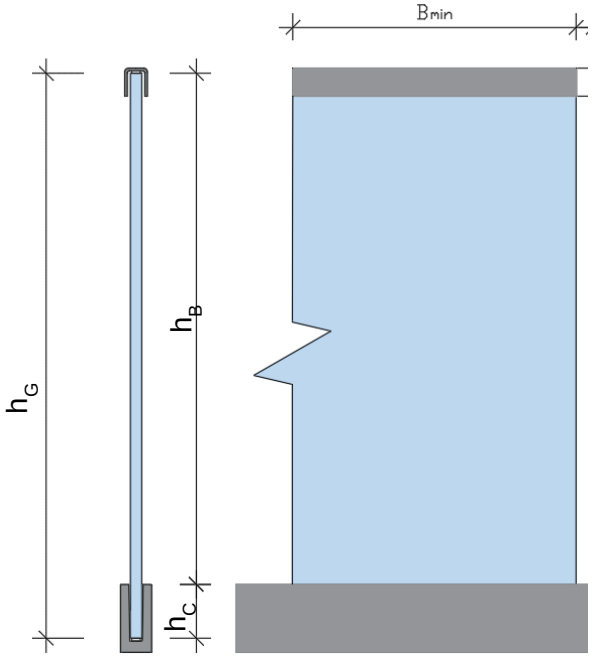


Image 7 Denomination of the glass dimensions

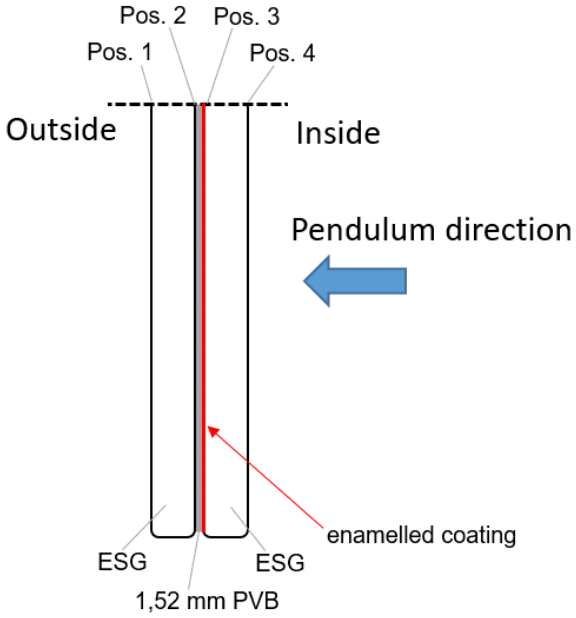


Image 8 Glass assembly in case of enameled glass

The following glass products can be used according to chapter 8:

VSG (LSG) laminated safety glass with PVB film according to EN 14449 taking into account the defined characteristics described in Annex A 1.2.7./2 of Verwaltungsvorschrift Technische Baubestimmungen NRW (VV TB NRW) from the 7. December 2018, last modified on 14. June 2019

Tensile strength of the PVB-interlayer ≥20 N/mm^2, elongation at fracture of the PVB-interlayer ≥ 250% in case of a test temperature of 23°C and a test velocity of 50 mm/min.

or alternatively:

The interlayer shall consist of PVB, which shall be rated in tests according to DIN EN 12600 as 1 (B) 1 and class P1A in tests according to DIN EN 356.

TVG (HSG): Heat strengthened soda lime silicate glass according to EN 1863 for use according to DIN 18008 with all of its parts.

In order to verify the sufficient fragmentation of heat strengthened glass with regard to the residual load capacity, the following additional tests to EN 1863 shall be carried out:

- The fracture pattern of two test panes with dimensions of at least 1000 mm x 1500 mm shall be examined quarterly.
- The test pane shall be supported on a flat table without mechanical constraints.
- The test plate shall be fractured with a pointed steel tool according to EN 1863-1, Section 8.3. The fracture pattern is to be examined with regard to the area share of critical fragments in relation to the total area. Critical fragments are fragments into which a circle with a diameter of 120 mm cannot be inscribed. If the area share of critical fragments is less than 1/5 of the total area, the test is passed.

The results of the factory production control shall be recorded and evaluated. The records shall contain at least the following information:

- Existing influences and selected strengthening process parameters for the manufacture of strengthened glass
- type of control or audit,
- date of production and testing of the construction product or ground material respectively,
- result of the controls and tests and comparison with the requirements,
- Signature of the person responsible for factory production control.

The records shall be kept for at least five years and shall be submitted to the inspecting body upon request during the construction phase. In the event of insufficient test results, the manufacturer shall immediately take the necessary measures to remedy the defect. Construction products which do not meet the requirements may not be used. After rectification of the defect - as far as technically possible and necessary to prove that the defect has been rectified - the relevant test shall be repeated without delay.

ESG (TTG): Thermally toughened soda lime safety glass according to EN 12150-2 for use according to DIN 18008 and all its parts.

Instead of TTG, heat-soaked soda lime safety glass according to EN 14179-2 may be used.

6.4 Edge Protection/ Handrail

A stainless steel or aluminium handrail shall be fitted to the upper edge of the pane in accordance with Annex A.2. There are three handrail variations:

- The glass panes are not connected to the neighbouring glass panes by the attached handrail (design variant α, Image 9).
- The glass panes are connected to the neighbouring glass panes by a continuous handrail (design variant β, Image 10).
- The glass panes are connected to the neighbouring glass panes by a continuous handrail and secured by a post-corner connection (design variant γ, Image 11).

Possible edge protections are shown in Image 12 and Image 13, possible handrail profiles for the design variant β and γ are shown in Image 14.

All free edges must be protected in accordance with DIN 18008-4.

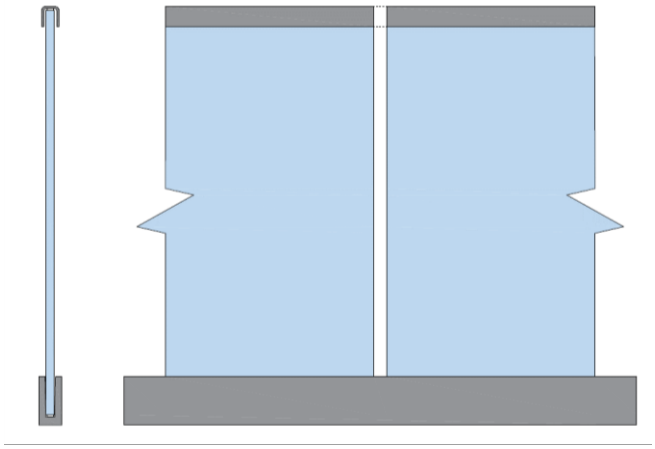


Image 9 System α: Version with attached handrail without connection between the panes

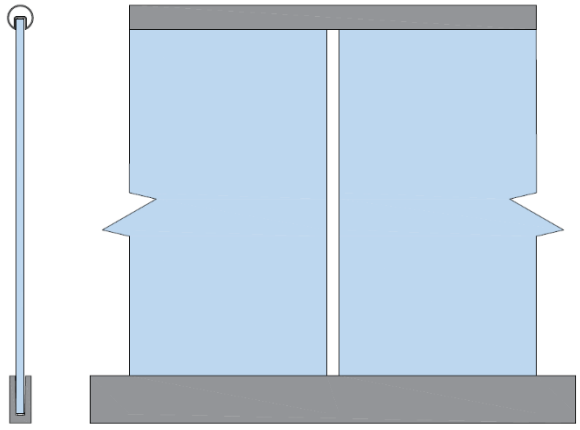


Image 10 System β: Version with continuous handrail without lateral end connection of the handrail

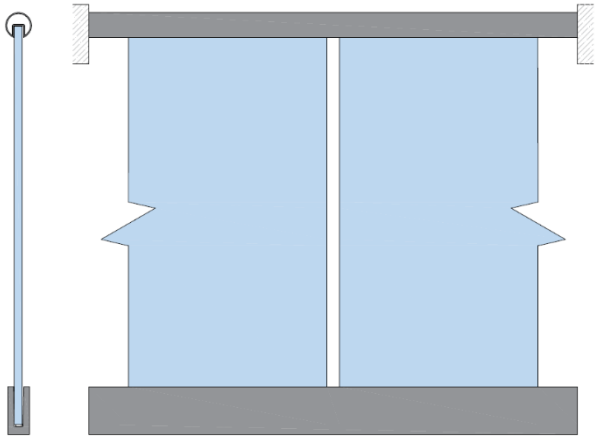


Image 11 System γ: Version with continuous handrail and lateral end connection of the handrail

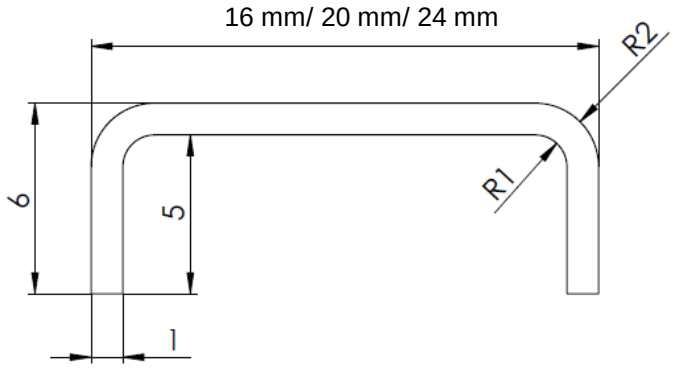


Image 12 Stainless steel Edge protection

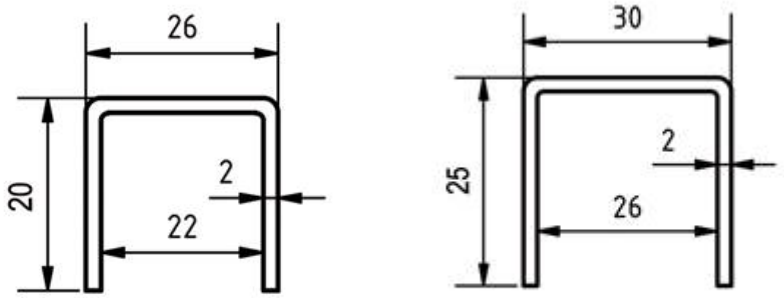


Image 13 Stainless steel Edge protection

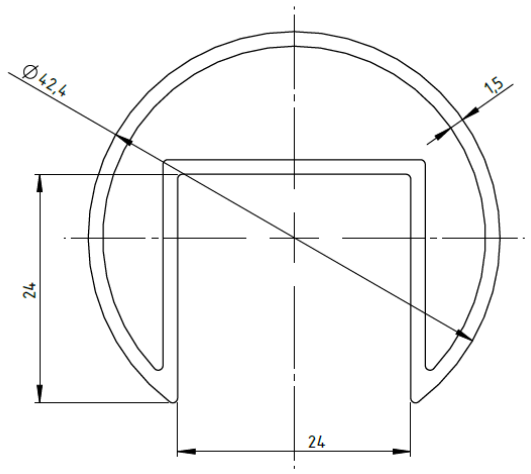


Image 14 Stainless steel Handrail

7. Impact Tests

7.1 General

The system's guardrail function is verified taking into account the regulations for impact tests of DIN 18008-4. The pendulum impact tests are based on DIN 18008-4 with a twin-tyre (weight = 50 kg, tyre pressure = 3.5 bar). The drop heights and impact points are chosen acc. to DIN 18008-4. They vary between 700 mm and 900 mm according to the tested handrail or edge protection.

The designs of the edge protection listed in Image 12 and Image 13 do not comply with the specifications of DIN 18008-4 and therefore, the verification of the edge protection must be provided in accordance with DIN 18008-4 Appendix E. The edge protection test is to be executed as a "hard impact test". These tests shall be conducted with a steel ball with a diameter d= 63,5 mm and mass m= 1,03 kg.

Before each pendulum impact test, a hard impact shall be made on the glass edge including edge protection. The location of the hard impact is determined by the position of the pendulum impact and the orientation of the tested edge. It is located in the extension of the relevant point of impact coordinate (see Image 15 and Image 16). The impact energy of the steel ball is 20 Nm.

The relevant points of impact are selected according to DIN 18008-4 and based on previously performed experiments with similar systems. Image 15 and Image 16 display the points of impact.

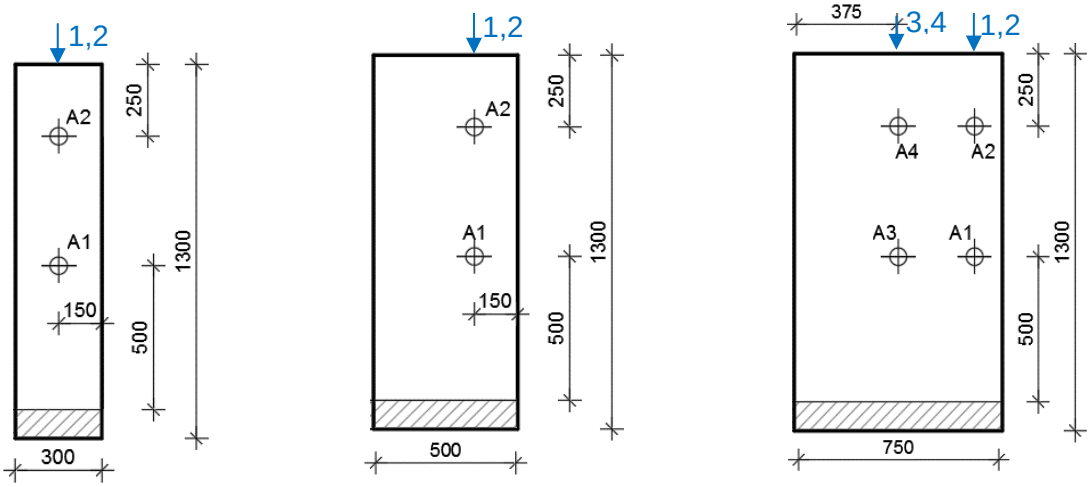


Image 15 Impact points for h_G=1300 mm and widths of 300 mm, 500 mm and 750 mm

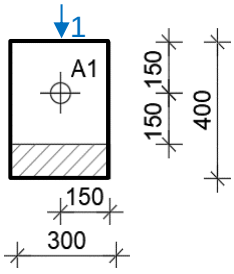


Image 16 Impact points for h_G=400 mm and a width of 300 mm

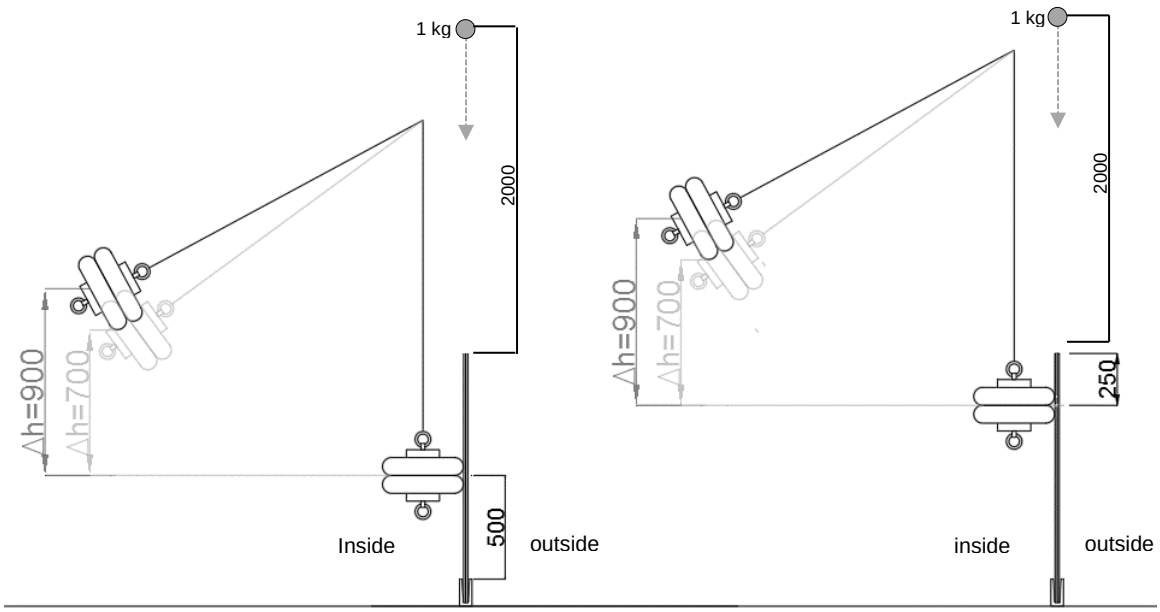


Image 17 Drop heights Δh for the impact points

The pendulum impact direction for VetroMount Side is depicted in Image 18. The VetroMount Top system is symmetrical, and the pendulum impact direction is therefore irrelevant.

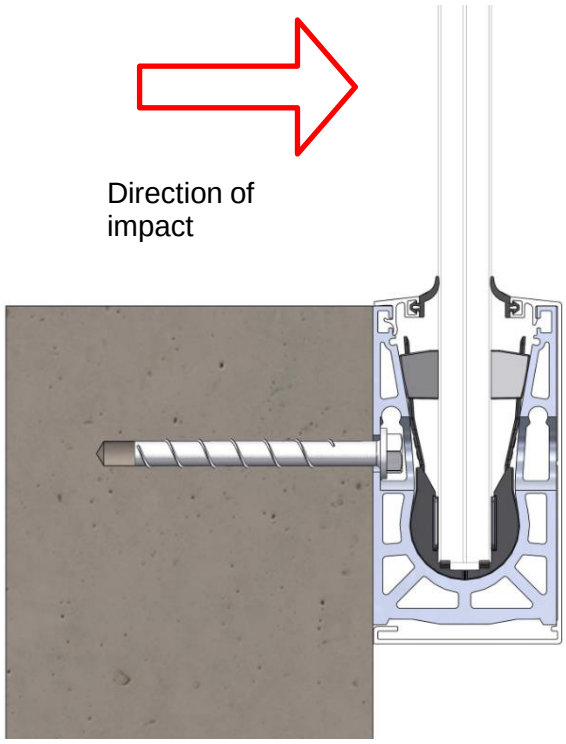


Image 18 Direction of the impact for VetroMount Side

7.2 Test setup and procedure

The VetroMount Top profiles for on-floor mounting are secured, with screws spaced every 400 [mm] or every 200 [mm] (see Image 20). The VetroMount Side profiles for front-mounting are fastened with a screw distance of 200 [mm] (see Image 21). The amount of glass pane bearings is given in Table 2. For category α the edge protection given in Image 12, and for category β and γ the handrail given in Image 14 is connected to the upper glass edge.

Additionally the tests also include:

- profile sections connected with coiled spring pins and
- Cover Profiles: Side Cover for VetroMount Top (Image 3), Full Cover and Top Cover for VetroMount Side (Image 4).

Table 2 Amount of glass pane bearings

Glass pane width	Glass pane bearing
From 300 mm to <500 mm (Image 19)	At least two
More than 500 mm	Maximum centre distance 250 mm, a smaller distance is allowed.

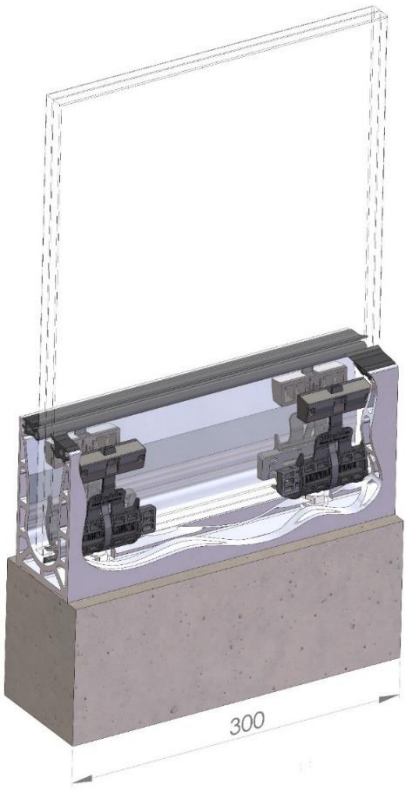
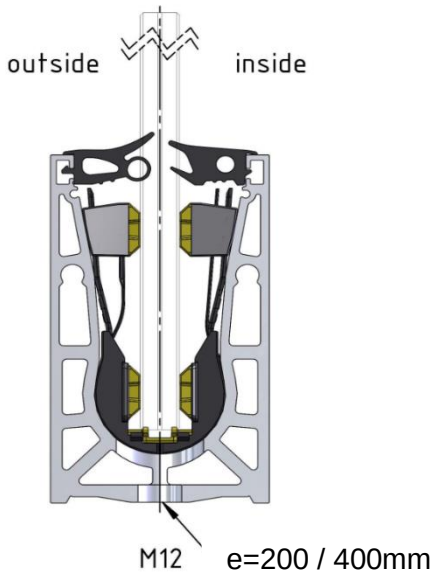


Image 19 Glass pane bearings for a glass width between 300 mm and < 500 mm



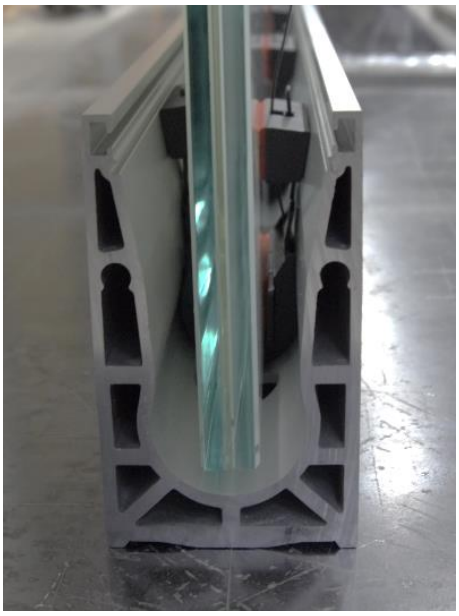


Image 20 VetroMount Top

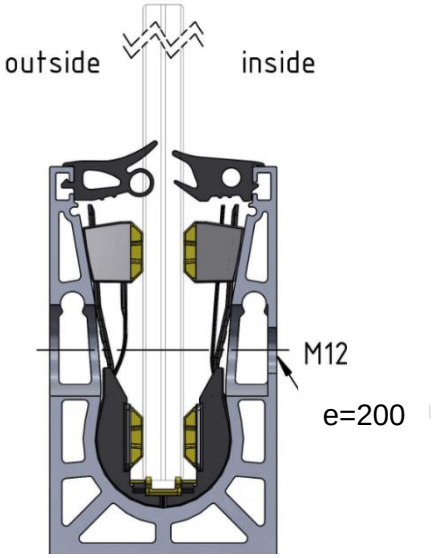


Image 21 VetroMount Side

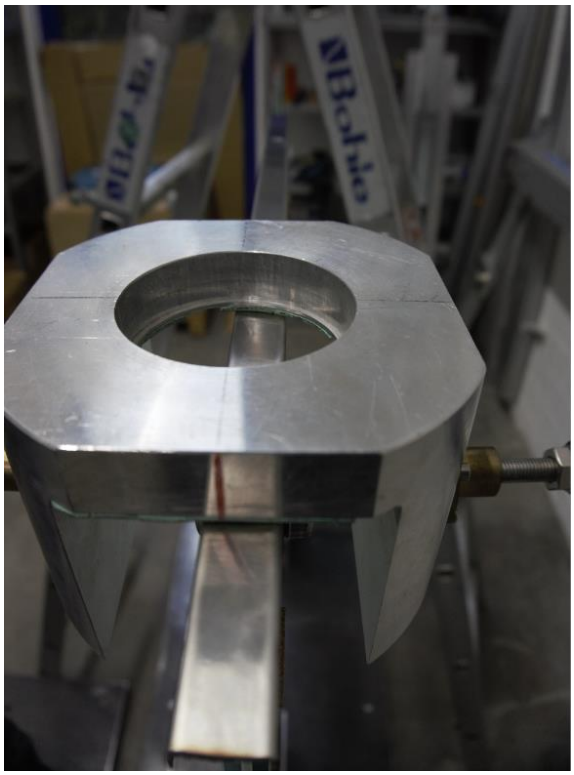


Image 22 Test setup for the hard impact test

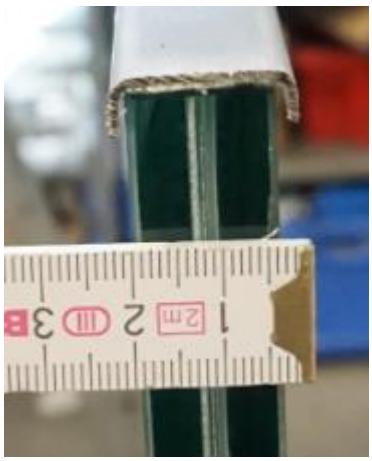


Image 23 Tested edge protection

Image 24 Fixed Handrail, handrailsystem γ

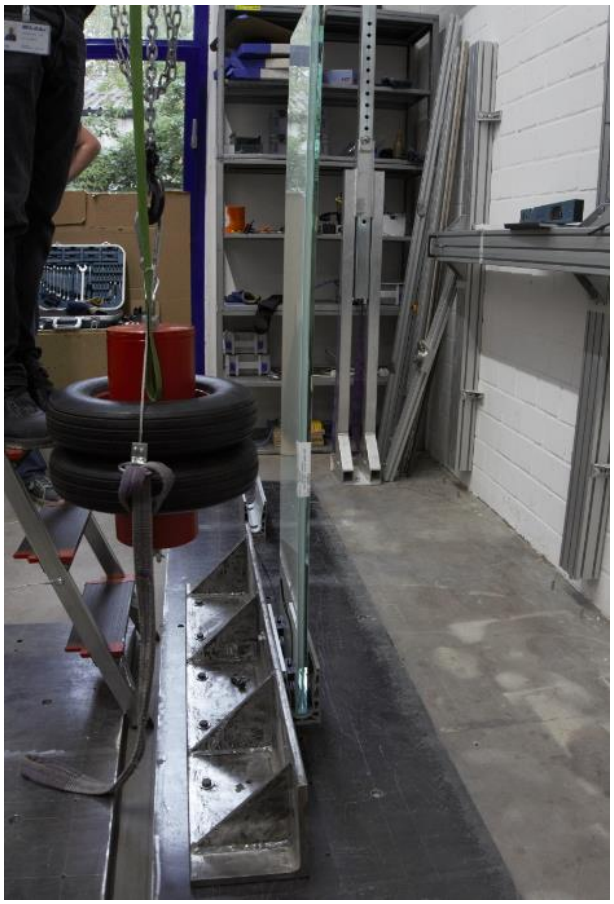


Image 25 Test setup for the impact test with twin-tyre impactor (for VetroMount Side)

7.3 Results

Table 3 Results of the dynamic tests VetroMount Top, height 1300 mm

Profile	Glass assembly	Glasswidth [mm]	Fall Height [mm]	Handrail-System	Impact Point	Result
VetroMount Top	88.2 VSG of TVG	500	700	γ	1, 2	No damage to the glazing or substructure
		500	900	β	1, 2	No damage to the substructure, breakage of the facing glass pane, passed
		750	900	α*	1 – 4	No damage to the glazing or substructure.
	1010.2 VSG of TVG	500	900	α*, β, γ	1, 2	No damage to the glazing or substructure
	66.2 VSG of ESG	500	700	γ	1, 2	No damage to the glazing or substructure
		500	900	β	1, 2	No damage to the glazing or substructure
		750	900	α*	1 - 4	No damage to the glazing or substructure
	88.2 VSG of ESG	300	700	γ	1, 2	No damage to the glazing or substructure
		500	900	α*, β, γ	1, 2	No damage to the substructure, breakage of the facing glass pane, passed
		750	900	α*, β, γ	1 - 4	No damage to the glazing or substructure.
	1010.2 VSG of ESG	300	900	α*, β, γ	1, 2	No damage to the glazing, dents in the profile, where the glass bearing is
		500	900	α*, β, γ	1, 2	No damage to the glazing or substructure.

*the tests of the edge protection were performed before the dynamic tests. The edge protection tests were carried out on the glasses with the edge protection profiles (system α) given in Image 12. The ball with the fall height of 2000 mm left dents in the edge protection. In a few tests, chipping occurred in the glass at the point of impact with a diameter of approx. 1 cm Image 26. These results had no negative effects on the afterwards performed pendulum impact tests.

Table 4 Results of the dynamic tests VetroMount Top, height 1300 mm

Profile	Glass assembly	Glasswidth [mm]	Fall Height [mm]	Handrail-System	Impact Point	Result
VetroMount Side	88.2 TVG	500	700	γ	1, 2	No damage to the glazing or substructure
		500	900	β	1, 2	No damage to the substructure, breakage of the facing glass pane, passed
		750	900	α*	1 – 4	No damage to the glazing or substructure.
	1010.2 TVG	500	900	α*, β, γ	1, 2	No damage to the glazing or substructure
	66.2 ESG	500	700	γ	1, 2	No damage to the glazing or substructure
		500	900	β	1, 2	No damage to the glazing or substructure
		750	900	α*	1 - 4	No damage to the glazing or substructure
	88.2 ESG	300	700	γ	1, 2	No damage to the glazing or substructure
		500	900	α*, β, γ	1, 2	No damage to the substructure, breakage of the facing glass pane, passed
		750	900	α*, β, γ	1 - 4	No damage to the glazing or substructure.
	1010.2 ESG	300	900	α*, β, γ	1, 2	No damage to the glazing, dents in the profile, where the glass bearing is
		500	900	α*, β, γ	1, 2	No damage to the glazing or substructure.

*the tests of the edge protection were performed before the dynamic tests. The edge protection tests were carried out on the glasses with the edge protection profiles (system α) given inImage 12. The ball with the fall height of 2000 mm left dents in the edge protection. In a few tests, chipping occurred in the glass at the point of impact with a diameter of approx. 5 cm Image 26. These results had no negative effects on the afterwards performed pendulum impact tests.

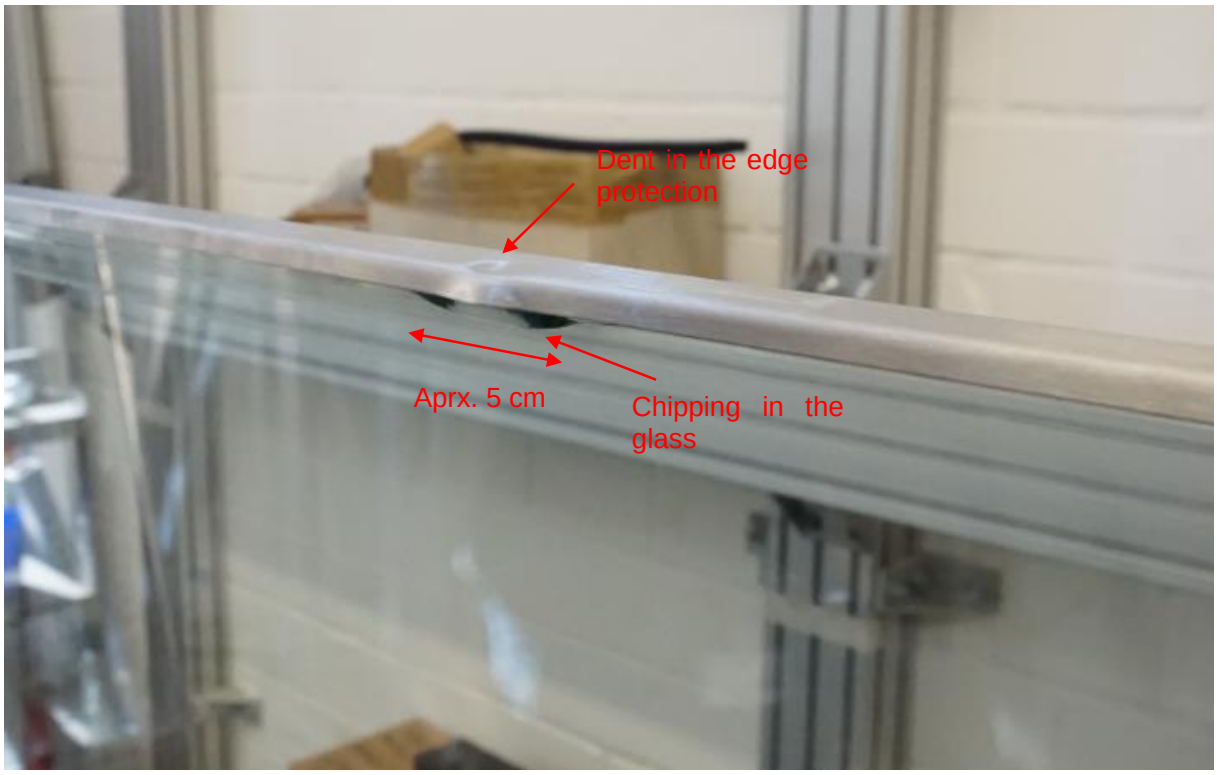


Image 26 Chipping in the glass after testing the edge protection with the hard impact test

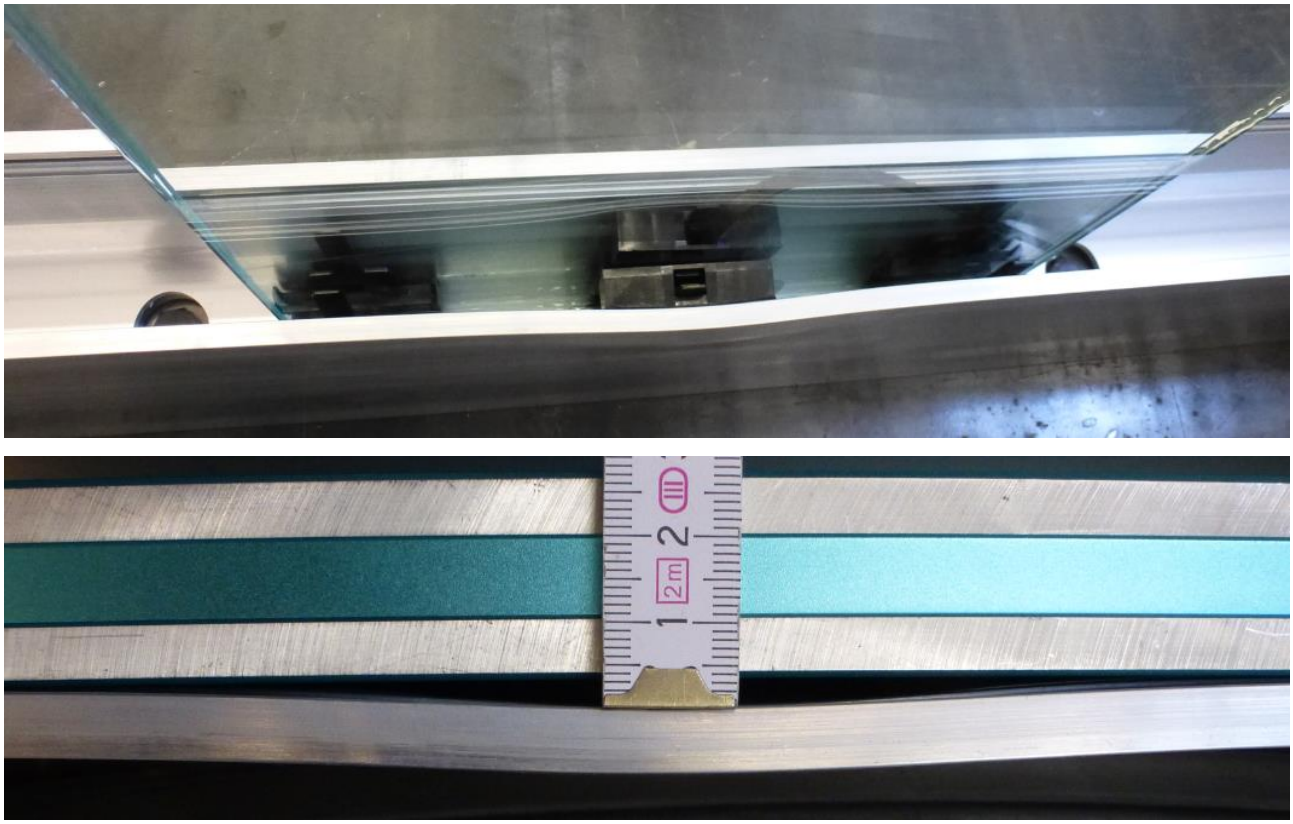


Image 27 Bulging (4 mm) of the profile after the test with the width 300 mm

Table 5 Results of the dynamic tests VetroMount Top and Side, height 400 mm

Profile	Glass assembly	Width / height [mm]	Handrail-System	Fall Height [mm]	Impact Point	Result
VetroMount Top	88.2 ESG	500 / 400	α	900	A1	No visible damage to the glazing, bending of the profile, passed
VetroMount Top	1010.2 TVG		α	900	A1	No visible damage to the glazing, bending of the profile, passed
VetroMount Side			α	900	A1	No visible damage to the glazing, bending of the profile, passed
VetroMount Top	1010.2 heat soaked ESG	300 / 400	α	900	A1	No visible damage to the glazing, bending of the profile, passed
VetroMount Side			α	900	A1	No visible damage to the glazing, bending of the profile, passed

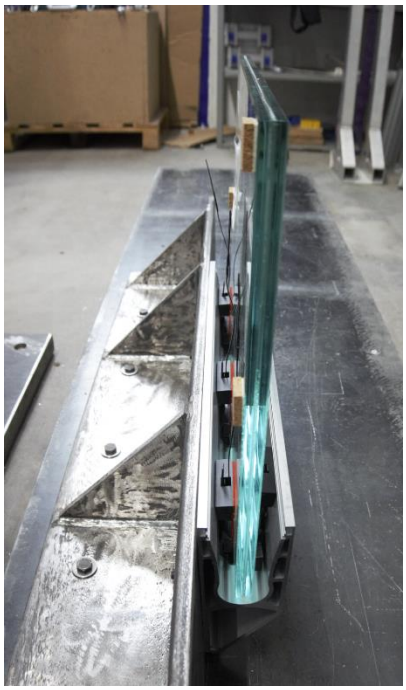


Image 28 Test results for small glass formats

Table 6 Results of the dynamic tests with enamelled glass VetroMount Top and Side, height 1300 mm

Profile	Glass assembly	Width / height [mm]	Fall Height [mm]	Handrail-System	Impact Point	Number of screws / bearing	Result
VetroMount Side	88.4 VSG of enamelled ESG	500 / 1300	900	α*	1	3 / 3	No visible damage to the glazing, light bending of the profile in the area of the screws, small dents in the edge protection
VetroMount Top			900	α	2	2 / 3	No visible damage to the glazing, light bending of the profile in the area of the screws
VetroMount Side	1010.4 VSG of enamelled ESG	300 / 1300	900	α*	1	2 / 2	No visible damage to the glazing, light bending of the profile in the area of the screws, small dents in the edge protection
VetroMount Top			900	α	2	2 / 2	No visible damage to the glazing, light bending of the profile in the area of the screws
VetroMount Side	88.2 VSG of enamelled ESG	750 / 1300	900	α	1	4 / 3	No visible damage to the glazing or substructure
					3		No visible damage to the glazing or substructure
					2		No visible damage to the glazing, light bending of the profile in the area of the screws
VetroMount Top			900	α	4	2 / 3	No visible damage to the glazing, light bending of the profile in the area of the screws
VetroMount Top	88.2 VSG of enamelled ESG	300 / 400	900	α	1	2 / 2	No visible damage to the glazing, light bending of the profile in the area of the screws

*On these test samples the edge protection was also tested. The edge protection tests were carried out on the glasses with the edge protection profiles (system α) given in Image 12. The ball with the fall height of 2000 mm left dents in the edge protection but did no damage to the glazing.

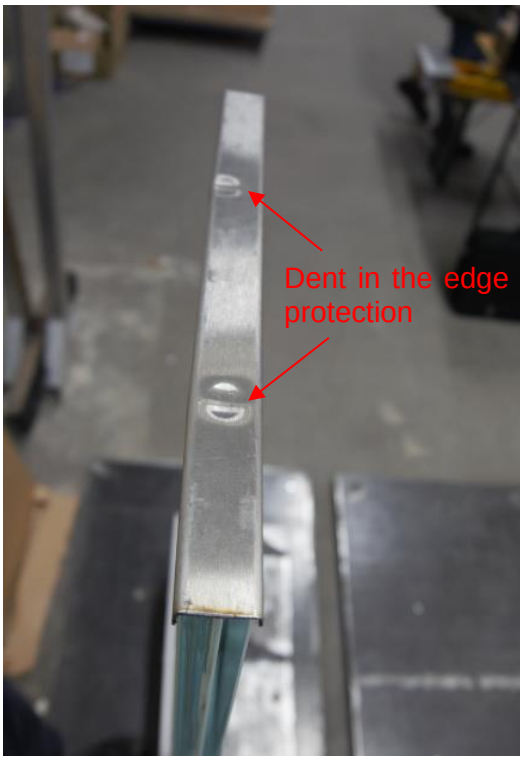


Image 29 Result after the hard impact tests on enamelled glass (dent in the edge protection)

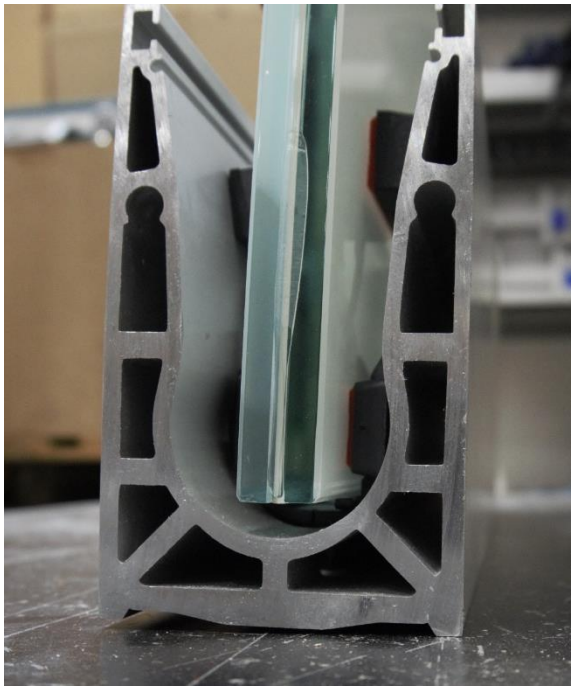


Image 30 Results of 88.2 enamelled ESG

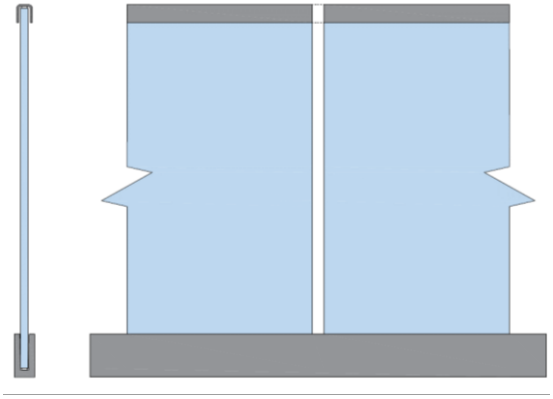
8. Conclusion

The company VERROTEC GmbH located in Mainz (Germany) was assigned by the company Bohle AG located in D-42781 Haan to verify the guardrail effect of the VetroMount Top and VetroMount Side balustrade systems by impact tests.

The subject of this report is exclusively the evaluation of the fall protection of the glass guardrail under impact loads. The verification of the glazing under static loads must be performed separately.

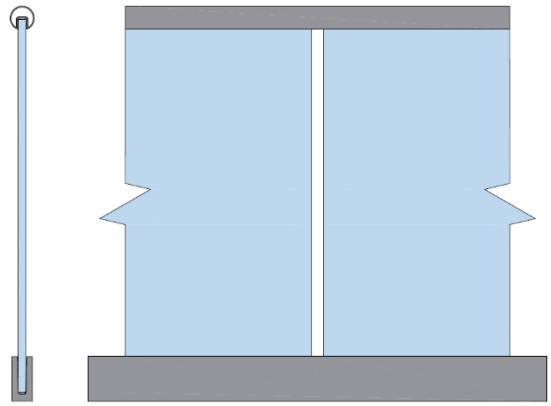
The Bohle AG parapet system VetroMount Top and VetroMount Side was evaluated in regard to its fall protection properties by pendulum impact tests and can be classified as safety barrier in accordance with category B of DIN 18008-4.

Table 7 Summarized results of the impact tests valid for VetroMount Top and VetroMount Side

Execution possibility: ▪ **without a load bearing handrail (but with edge protection) (acc. to chapter 6.4 system α)**	**Glass width B [mm]**		**Glass height h_G [mm] (Image 7)**		**Glass assembly* [mm] VSG consisting of …**
	min.	max.	min.	max.	
	500	∞	400	1300	8 mm enamelled ESG 1,52 mm PVB 8 mm ESG
	300	∞	400	1300	10 mm enamelled ESG 1,52 mm PVB 10 mm ESG
	500	∞	400	1100	10 TVG 0,76 PVB 10 TVG
	500	∞	400	1200	8 ESG 0,76 PVB 8 ESG
	300	∞	400	1300	10 ESG 0,76 PVB 10 ESG

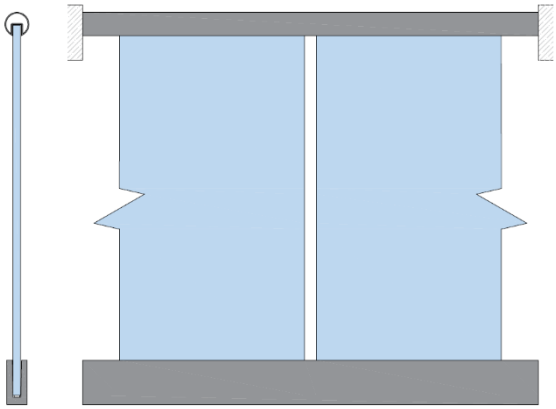
**Note: ESG means heat toughened glass, TVG means heat strengthened glass and VSG means laminated safety glass (with PVB = Interlayer of polyvinyl butyral).*

Table 8 Summarized results of the impact tests valid for VetroMount Top and VetroMount Side

Execution possibility: ▪ **The glass panes are connected to the neighbouring glass panes by a continuous handrail (acc. to chapter 6.4 design variant β)**	**Glass width B [mm]**		**Glass height h_G [mm] (Image 7)**		**Glass assembly* [mm] VSG consisting of …**
	min.	max.	min.	max.	
	500	∞	400	1300	8 mm enamelled ESG 1,52 mm PVB 8 mm ESG
	300	∞	400	1300	10 mm enamelled ESG 1,52 mm PVB 10 mm ESG
	500	∞	400	1100	10 TVG 0,76 PVB 10 TVG
	500	2000	400	1300	8 ESG 0,76 PVB 8 ESG
	300	∞	400	1300	10 ESG 0,76 PVB 10 ESG

**Note: ESG means heat toughened glass, TVG means heat strengthened glass and VSG means laminated safety glass (with PVB = Interlayer of polyvinyl butyral).*

Table 9 Summarized results of the impact tests valid for VetroMount Top and VetroMount Side

Execution possibility: ▪ **The glass panes are connected to the neighbouring glass panes by a continuous handrail and connected by a post-corner connection (acc. to chapter 6.4 design variant γ)**	**Glass width B [mm]**		**Glass height h_G [mm] (Image 7)**		**Glass assembly* [mm] VSG consisting of …**
	min.	max.	min.	max.	
	500	∞	400	1300	8 mm enamelled ESG 1,52 mm PVB 8 mm ESG
	300	∞	400	1300	10 mm enamelled ESG 1,52 mm PVB 10 mm ESG
	500	500	400	1000	8 TVG 0,76 PVB 8 TVG
	500	2000	400	1300	10 TVG 0,76 PVB 10 TVG
	500	500	400	1000	6 ESG 0,76 PVB 6 ESG
	300	2000	400	1300	8 ESG 0,76 PVB 8 ESG
	300	∞	400	1300	10 ESG 0,76 PVB 10 ESG

Note: ESG means heat toughened glass, TVG means heat strengthened glass and VSG means laminated safety glass (with PVB = Interlayer of polyvinyl butyral).

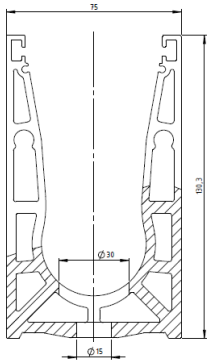
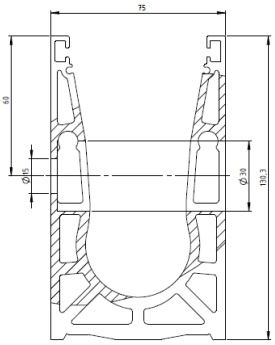
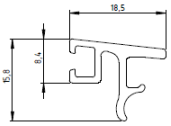
The clamping is secured to the glass pane bearings at least twice or at least every 250 mm.

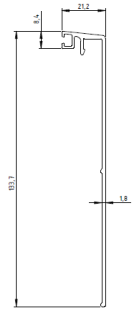
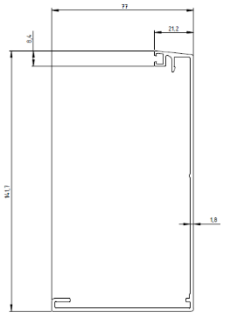
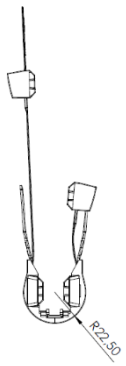
The profile is to be fixed at intervals of 200 mm (for VetroMount Side) and of 400 mm (for VetroMount Top) and with at least 3 screws for VetroMount Side and 2 screws for VetroMount Top.

The enamelling needs to be positioned according to Image 8.

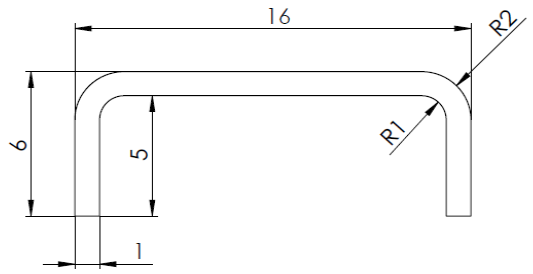
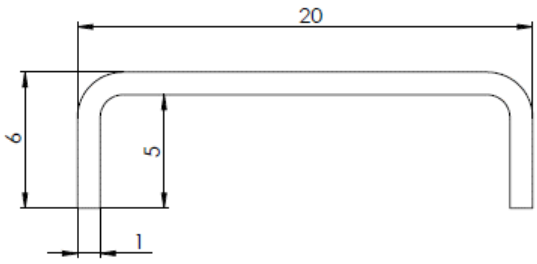
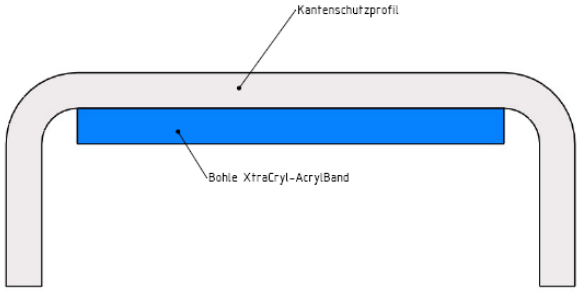
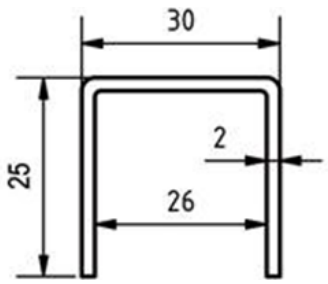
Annex A Item numbers

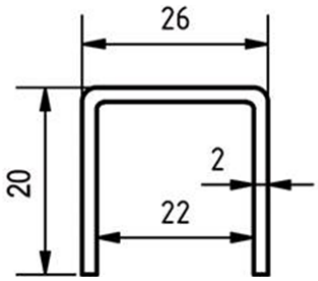
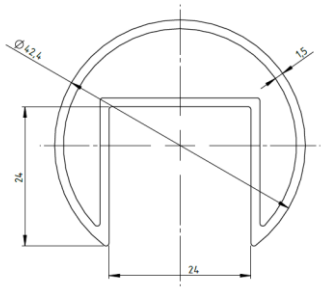
A.1 Profiles

Name	Section	Length	Item number (surface)
VetroMount Top		2,5 m	BO 5403008 (E6/ CO)
		5 m	BO 5403010 (E6/ CO)
VetroMount Side		2,5 m	BO 5403009 (E6/ CO)
		5 m	BO 5403011 (E6/ CO)
Top cover		2,5 m	BO 5403016 (E6/CO)
			BO 5403017 (E4/C31)
		5 m	BO 5403018 (E6/CO)
			BO 5403019 (E4/C31)

Name	Section	Length	Item number (surface)
Side cover		2,5 m	BO 5403012 (E6/CO)
			BO 5403013 (E4/C31)
		5 m	BO 5403014 (E6/CO)
			BO 5403015 (E4/C31)
Full cover		2,5 m	BO 5403004 (E6/CO)
			BO 5403005 (E4/C31)
		5 m	BO 5403006 (E6/CO)
			BO 5403007 (E4/C31)
Glass bearing		12,76 mm	BO 5403060
		13,52 mm	BO 5403061
		16,76 mm	BO 5403063
		17,52 mm	BO 5403064
		20,76 mm	BO 5403066
		21,52 mm	BO 5403067

A.2 Handrails and edge protection

Section of the edge protection/ handrail	Valid for the glass thickness	Item number
	Glass edge protection profile for 12-13,5 mm glass thickness	BO 5403001
	Glass edge protection profile for 15-17,5 mm glass thickness	BO 5403002
	Glass edge protection profile for 19-21,5 mm glass thickness	BO 5403003
	Bohle XtraCryl-AcrylBand for the glass thickness:	
	12,76 - 13,52mm	BO 5207742
	16,76 - 17,52mm	BO 5207743
	20,76 - 21,52mm	BO5207744
	Glass edge protection profile for 12-21,5 mm glass thickness	BO 5215253

Section of the edge protection/ handrail	Valid for the glass thickness	Item number
	Glass edge protection profile for 12-21,5 mm glass thickness	BO 5215293
	Stainless steel handrail profile for 12-21,5 mm glass thickness	BO 5215248 (V2A) BO 5215249 (V4A)