

Fixing Instructions

ETB Specification Table - TÜV Specification Table

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The calculated proof "Components which ensure against collapse" ETB
 Guideline Rupture loadings Material: ZL5 or V4A -
 Material no. 1.4581 only for 9302/03/06/07

Reference	mm ²	M _{min} Nmm	Projection ^h mm	F _{min,Clamp} N	F _{min} on the plate with 4 clamps N	F _{min} on the plate with 4 clamps kN
4804 ⁿ	256,22	58930	32	1842	7368	7,37
4805 ⁿ	256,22	58930	32	1842	7368	7,37
4806	256,22	58930	32	1842	7368	7,37
4807	170,47	39208	35	1120	4480	4,48
4808	170,47	39208	35	1120	4480	4,48
4810	287,18	66051	31,5	2097	8388	8,39
4813	287,18	66051	31,5	2097	8388	8,39
4814	287,18	66051	31,5	2097	8388	8,39
4816	170,47	39208	35	1120	4480	4,48
4817	170,47	39208	35	1120	4480	4,48
4842	218,55	50267	29	1733	6932	6,93
4844	218,55	50267	29	1733	6932	6,93
4845	218,55	50267	29	1733	6932	6,93
4846	218,55	50267	29	1733	6932	6,93
4847	218,55	39208	35	1120	4480	4,48
4848	170,47	46046	31	1485	5940	5,94
4851	200,20	46046	31	1485	5940	5,94
4852	200,20	46046	31	1485	5940	5,94
4855	200,20	74863	18	3086	12344	12,34
4856	200,20	74863	18	3086	12344	12,34
4857	325,49	55547	18	4190	16776	16,78
4858	241,51	55547	48	719	8952	8,95
4860	241,51	74863	48	719	8952	8,95
4861	325,49	34514	32	2238	8952	8,95
		34514	32	2238	7368	7,37
			32	2238	7368	7,37
			32	2238	12336	12,34

In order to ensure the high standard of our products, we have established a Quality Management System (QMS). This guarantees our customers exemplary product quality. We continually optimise the quality of our products and also our organisational procedures. For a high product standard and uncomplicated service are important constituents of our company philosophy.

The requirements for quality assurance and their documentation are set out in a QM Manual with corresponding definitions and explanations.

In addition to our own Quality Management System, The TÜV (German Technical Inspectorate) conducts a follow-up inspection in our firm every twelve months. This inspection is based on EN 9000-ff.

On the following pages you will find the following data and specifications for our products:

- Fitting Instructions
- ETB specifications table
- TÜV specifications table

Fitting instructions for clamp fixtures

Please note

1. Before assembly, be sure the glass thickness and the clamp fixture are of the correct dimensions.
2. The material to be clamped must have a smooth surface and may not be treated by chemical substances which can effect clamping functions.
In the case of deviations, please see: Assembly of the V2A safety stud or security plates.
3. Ensure that clamping surfaces are clean and free of grease.
4. The specified permissible forces across the axis of the pane apply for fixture of the clamps to steel.
5. Care should be taken to ensure that the wall thickness and stability of the construction element (support, posts etc.) is sufficient.
6. For measurement of the pane dimensions, DIN 1055, DIN 24533, DIN 24510, DIN 18065, Glass Type and Glass Span are relevant.
7. The clamps are not to be machined and are to be used in accordance to this guideline.
8. For engineering designs, the construction laws and regulations of the country concerned must be complied with.
9. We presuppose a qualified assembly.

Fitting of clamp fixtures by tapping an M8 thread in the construction elements (supports, posts, etc.)

1. Scribe and centre punch hole or work with a drilling template or with the "Quick-Easy" Fitting Tool. With the "Quick-Easy", scribing and centre punching is unnecessary. It is to be ensured that the mounting the panes are done friction free. In particular, that the posts are to be arranged upright in a vertical position and that holes of the neighbouring posts lie in plane of the glass pane.
2. Drill a $\varnothing 6.8$ mm hole (metric ISO thread).
3. Tap thread with M8 thread cutter.
4. Insert a cylindrical head screw (Ref Z096) with inner hexagonal recess M8 DIN912 through the fixing hole ($\varnothing 9$ mm) in the rear part of the clamp fixture and screw this to the construction element. (The fastening bolt is not included in the delivery package. Order separately.)
5. Align clamps in a single plane and tighten.
6. Insert a sheet of glass or another suitable material and adjust it correctly. Pay attention to clean the area of glass in which the clamps make contact.
7. Screw the front and rear part of the clamp fixture together with the enclosed countersunk screws with inner hexagonal recess M6x16 mm, DIN7991 in rotation so that both screws reach a torque of 7 N·m.

Fitting of opposing clamp fixtures on a centre post or centre support

Drill a $\varnothing 8.5$ mm hole right through the posts or supports. Screw the rear parts of the clamp fixtures opposite each other using a cylindrical head screw M8 with hexagonal inner recess and an M8 nut. See above mentioned points 5, 6 and 7.

Special details of the general building code authorisation (Z-70.2-28)

Fitting with rivet nuts

(Particularly suitable for thin-walled components with a wall thickness of less than 2 mm)

1. Scribe and centre punch hole or work with a drilling template or with the new "Quick-Easy" Fitting Tool. With the "Quick-Easy", scribing and centre punching is unnecessary.
2. Drill a $\varnothing 10.1$ mm hole.
3. First screw the rivet nut (M8 thread (Ref Z071)) on to the threaded mandrel of the rivetting tongs and then insert it into the drilled hole.
4. Pressure on the rivetting tongs deforms the rivet in the drilled hole so that it cannot rotate. At the same time, the shaft of the rivet is clinched and firmly bonded with the component.
Further fitting is then carried out as stated on adjoining page in the sequence 5, 6 and 7.

Fitting the V2A security stud (is not included in the delivery package. Order separately.)

The V2A security stud may be necessary in the case of increased security requirements. This varies in size according to the item ($\varnothing 4 \times 16$ mm, $\varnothing 6 \times 18$ mm, $\varnothing 6 \times 24$ mm).

Before fitting a sheet of glass or another suitable material, a hole for the V2A security stud must be drilled in the element to be fitted.

The V2A security stud is driven into the front part of the clamp fixture until it sits tightly.

The employment of V2A security studs with a plastic hose is only possible in the case of clamp fixtures with the corresponding hole.

Use of security plates (is not included in the delivery package. Order separately.)

Recesses are provided in the various clamp fixtures, into which a security plate can be inserted. When glass panelling is being used, we recommend gluing our plastic support pad, Reference 3058 KU0, to the security plate. To do so, first insert the plate into the rear part and then screw the front part to the rear part. In this way, the clamp fixtures can be used as corner supports without the necessity of drilling the material.

Glass thickness regulation by grub screw

Clamp fixtures fitted with a grub screw are suitable as indicated for adjustment to the thickness of glass or other material.

Tightening torque for counter sunk screws

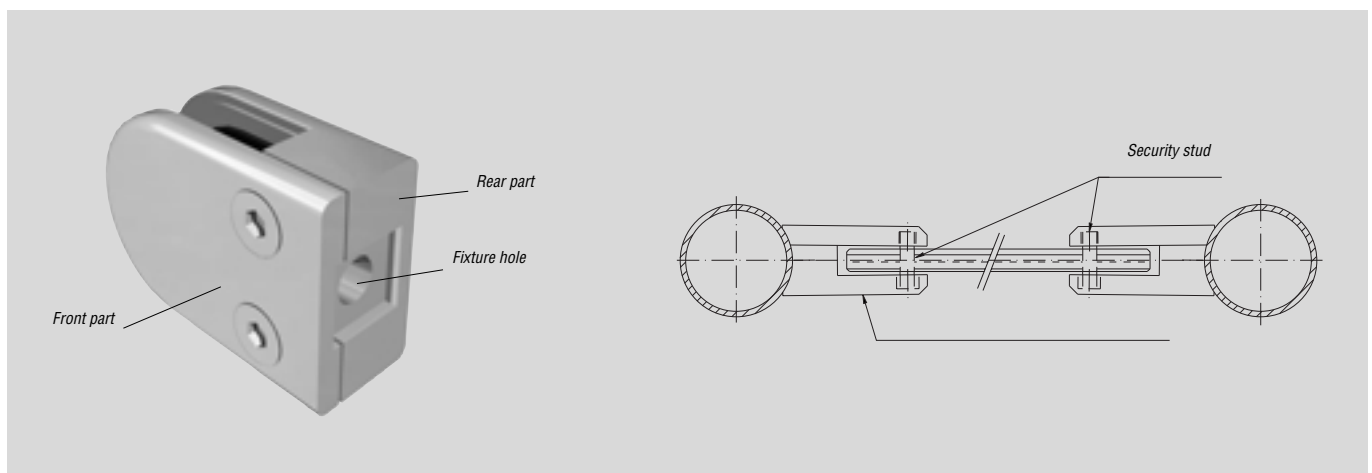
M4 counter sunk screw = 2 N·m

M5 counter sunk screw = 4 N·m

M6 counter sunk screw = 7 N·m

Please note

1. Only pure water and a dust-free cloth may be used for the cleaning of ZN7 models.
2. In cases particularly subject to wear (outdoor applications), we recommend our Ti coated clamps (ZNT11, ZNT15, ZNT17, ZNT122, ZNT126) or stainless steel clamp fixtures.



The calculated proof "Components which ensure against collapse"
 ETB Guideline Rupture loadings Material: ZL5 or V4A -
 Material no. 1.4581 only for 9302/03/06/07

Reference	Projection ¹⁾	F _{perm} /Clamp	F _{perm} on the plate with 4 clamps	F _{perm} on the plate with 4 clamps
	mm	N	N	kN
4804 ²⁾	32	1842	7368	7,37
4805 ²⁾	32	1842	7368	7,37
4806	32	1842	7368	7,37
4807	32	1842	7368	7,37
4808	35	1120	4480	4,48
4810	35	1120	4480	4,48
4813	31,5	2097	8388	8,39
4814	31,5	2097	8388	8,39
4816	31,5	2097	8388	8,39
4817	31,5	2097	8388	8,39
4842	35	1120	4480	4,48
4844	29	1733	6932	6,93
4845	29	1733	6932	6,93
4846	29	1733	6932	6,93
4847	29	1733	6932	6,93
4848	29	1733	6932	6,93
4851	29	1733	6932	6,93
4852	35	1120	4480	4,48
4855	31	1485	5940	5,94
4856	31	1485	5940	5,94
4857	31	1485	5940	5,94
4858	31	1485	5940	5,94
4860	18	4190	12344	12,34
4861	18	3086	12344	12,34
4866	18	3086	12344	12,34
4867	18	4190	12344	12,34
4874	48	719	2876	2,89
4875	48	719	2876	2,89
4891	32	2238	8952	8,95
4892	32	2238	8952	8,95
4893	32	2238	8952	8,95
4894	32	2238	8952	8,95
4895	32	2238	8952	8,95
4896	32	2238	8952	8,95
9001 ²⁾	32	1842	7366	7,37
9005 ²⁾	32	1842	7366	7,37
9302/03V4A	35	3159	12636	12,64
9306/07V4A	35	3159	12636	12,64

1) In relation to the front edge of the rubber inlay.

2) These components are tested in accordance with ETB Guideline "Components which ensure against collapse" by the Institute for Construction Material Studies and Material Testing of the University of Hanover and have passed the tests with hard and soft impact in accordance with the above-mentioned guidelines.

TÜV-Loading values

Official loading values in accordance with
TÜV-Rheinland inspection

Reference	Glass thickness	Permissible cohesive forces (N): Clamp system comprising of 4 clamps vertical to the axis of the pane	Permissible cohesive forces (N): Clamp system comprising of 4 clamps perpendicular to the axis of the pane
4801	8 mm	800 N ³⁾	3000 N ²⁾
4802	10 mm	800 N ³⁾	3000 N ²⁾
4804	8 mm	1000 N ¹⁾	3000 N ²⁾
4805	10 mm	1000 N ¹⁾	3000 N ²⁾
4806	8 mm	1000 N ¹⁾	3000 N ²⁾
4807	10 mm	1000 N ¹⁾	3000 N ²⁾
4808	8 mm	1000 N ¹⁾	3000 N ²⁾
4810	10 mm	1000 N ¹⁾	3000 N ²⁾
4813	8 mm	800 N ¹⁾	3000 N ²⁾
4814	10 mm	800 N ¹⁾	3000 N ²⁾
4816	8 mm	800 N ¹⁾	3000 N ²⁾
4817	10 mm	800 N ¹⁾	3000 N ²⁾
4818	8 mm	600 N ¹⁾	3000 N ²⁾
4819	6 mm	600 N ¹⁾	3000 N ²⁾
4822	8 mm	600 N ¹⁾	3000 N ²⁾
4823	6 mm	600 N ¹⁾	3000 N ²⁾
4830	6-10 mm	500 N	1200 N
4840	8 mm	400 N ³⁾	3000 N ²⁾
4842	8 mm	1000 N ¹⁾	3000 N ²⁾
4842 A	8 mm	600 N ³⁾	3000 N ²⁾
4844	6 mm	600 N ³⁾	3000 N ²⁾
4845	8 mm	600 N ³⁾	3000 N ²⁾
4846	10 mm	600 N ³⁾	3000 N ²⁾
4847	8 mm	600 N ³⁾	3000 N ²⁾
4848	10 mm	600 N ³⁾	3000 N ²⁾
4850	10 mm	400 N ³⁾	3000 N ²⁾
4851	6 mm	600 N ³⁾	3000 N ²⁾
4852	10 mm	1000 N ¹⁾	3000 N ²⁾
4852 A	10 mm	600 N ³⁾	3000 N ²⁾
4855	8 mm	600 N ³⁾	3000 N ²⁾
4856	10 mm	600 N ³⁾	3000 N ²⁾
4857	8 mm	600 N ³⁾	3000 N ²⁾
4858	10 mm	600 N ³⁾	3000 N ²⁾
4860	8-12 mm	500 N ³⁾	3000 N ²⁾
4861	8-12 mm	500 N ³⁾	3000 N ²⁾
4866	8-12 mm	500 N ³⁾	3000 N ²⁾
4867	8-12 mm	500 N ³⁾	3000 N ²⁾
4870	6-12 mm	500 N	1600 N
4872	6-12 mm	500 N	1600 N
4874	8-12 mm	500 N	1200 N
4875	8-12 mm	500 N	1200 N
4891	12 mm	1100 N ³⁾	3000 N ²⁾
4892	14 mm	1100 N ³⁾	3000 N ²⁾
4893	16 mm	1100 N ³⁾	3000 N ²⁾
4894	12 mm	1100 N ³⁾	3000 N ²⁾
4895	14 mm	1100 N ³⁾	3000 N ²⁾
4895/R30	14 mm	1100 N ³⁾	3000 N ²⁾
4896	16 mm	1100 N ³⁾	3000 N ²⁾
9001	6 mm	800 N ³⁾	3000 N ²⁾
9005	6 mm	1000 N ¹⁾	3000 N ²⁾
9302	8 mm	600 N ³⁾	3000 N ²⁾
9303	10 mm	600 N ³⁾	3000 N ²⁾
9306	8 mm	600 N ³⁾	3000 N ²⁾
9307	10 mm	600 N ³⁾	3000 N ²⁾
9352	6 mm	1000 N ³⁾	3000 N ²⁾
9353	8 mm	1000 N ³⁾	3000 N ²⁾
9356	8 mm	1000 N ³⁾	3000 N ²⁾
9357	8 mm	1000 N ³⁾	3000 N ²⁾
9362	6 mm	1000 N ³⁾	3000 N ²⁾
9363	8 mm	1000 N ³⁾	3000 N ²⁾
9364	10 mm	1000 N ³⁾	3000 N ²⁾
9366	6 mm	1000 N ³⁾	3000 N ²⁾
9367	8 mm	1000 N ³⁾	3000 N ²⁾
9368	10 mm	1000 N ³⁾	3000 N ²⁾
9382	8 mm	1000 N ³⁾	3000 N ²⁾
9383	10 mm	1000 N ³⁾	3000 N ²⁾
9384	12 mm	1000 N ³⁾	3000 N ²⁾
9386	8 mm	1000 N ³⁾	3000 N ²⁾
9387	10 mm	1000 N ³⁾	3000 N ²⁾
9388	12 mm	1000 N ³⁾	3000 N ²⁾

*1 The values indicated were obtained at room temperature. 2 The values indicated apply for fixture to steel.

The values indicated were obtained at 50 °C. The achieved tightening torque (M6) was 10 N·m during the inspections.

Official loading values in accordance with
TÜV-Rheinland inspection

Reference	Glass thickness	Permissible cohesive forces (N): Clamp system comprising of 4 clamps vertical to the axis of the pane	Permissible cohesive forces (N): Clamp system comprising of 4 clamps perpendicular to the axis of the pane
9510	6 mm	500 N ³⁾	3000 N ²⁾
9511	8 mm	500 N ³⁾	3000 N ²⁾
9512	10 mm	500 N ³⁾	3000 N ²⁾
9520	6 mm	500 N ³⁾	3000 N ²⁾
9521	8 mm	500 N ³⁾	3000 N ²⁾
9522	10 mm	500 N ³⁾	3000 N ²⁾
9710	6 mm	500 N ³⁾	3000 N ²⁾
9711	8 mm	500 N ³⁾	3000 N ²⁾
9712	10 mm	500 N ³⁾	3000 N ²⁾
9720	6 mm	500 N ³⁾	3000 N ²⁾
9721	8 mm	500 N ³⁾	3000 N ²⁾
9722	10 mm	500 N ³⁾	3000 N ²⁾

*1 The values indicated were obtained at room temperature. *2 The values indicated apply for fixture to steel.

The values indicated were obtained at 50 °C. The achieved tightening torque (M6) was 10 N-m during the inspections.