translation of the German original version which has not been verified by the German Institute for Construction Technology



Eine vom Bund und den Ländern gemeinsam getragene Anstalt des öffentlichen Rechts

Zulassungs- und Genehmigungsstelle für Bauprodukte und Bauarten

Datum: 13.03.2024

Geschäftszeichen: I 88-1.14.9-44/23

Allgemeine bauaufsichtliche Zulassung/ Allgemeine Bauartgenehmigung

Nummer: Z-14.9-828

Antragsteller: ABS Safety GmbH Gewerbering 3 47623 Kevelaer Geltungsdauer

vom: 12 March 2024 bis: 12 March 2029

Gegenstand dieses Bescheides: Fall arrest system ABS-Lock® Falz VI

The subject of approval named above is herewith licensed/awarded national technical approval. This official notice comprises ten pages and five appendices.

This national technical approval/general type approval extends and amends national technical approval/general type approval No. Z-14.9-828 dated 11 March 2019. This subject of this notice was first awarded national technical approval on 11 March 2019.



I GENERAL PROVISIONS

- 1 This official notice herewith confirms the fitness for use and application of the subject of approval in line with the state building regulations.
- 2 This official notice does not substitute the approvals, consents and certificates required by law for carrying out construction projects.
- 3 This official notice is issued without prejudice to the rights of third parties, in particular, private property rights.
- 4 Copies of this official notice must be made available to the user, resp. operator of the subject of approval, irrespective of any further provisions contained in the "Special Provisions" section below. In addition, it must be pointed out to the user, resp. operator of the subject of approval that this official notice must be available at the place of usage, resp. operation. Upon request, copies must also be made available to the authorities involved.
- 5 This official notice may only be reproduced in full. Partial publication requires the consent of the German Institute for Construction Technology [Deutsches Institut für Bautechnik = DIBt]. The texts and drawings contained in promotional material must not contradict this official notice; translations must contain a note to the effect that the translation is a "translation of the German original version which has not been verified by the German Institute for Construction Technology".
- 6 This official notice may be revoked. The provisions contained herein may be supplemented or amended in arrears, in particular, where new technical findings make this necessary.
- 7 This official notice is based on the information and documents presented by the applicant. Any changes to the underlying conditions are not covered by this official notice and must be disclosed to the German Institute for Construction Technology immediately.



II SPECIAL PROVISIONS

1 Subject of approval and field of usage, resp. operation

1.1 Subject of the licence

The subject of the licence is the ABS-Lock® Falz-VI model which is an anchorage point for use with personal fall protection equipment (PPE), designed to secure individuals from falling (anchorage device).

1.2 Subject of the approval

The subject of the approval incorporates the planning, dimensioning and execution of the ABS-Lock® Falz-VI anchorage device on BEMO-FLAT-ROOF standing seam profile roof elements made of aluminium according to national technical approval No. Z-14.1-182¹, issued by the German Institute for Construction Technology. The standing seam profile roof elements must be fixed to a timber or steel substructure.

The base body of the anchorage device consists of two folded metal plates made of stainless steel, each with one round hole and one elongated slit for adjusting the device to fit structural widths of between 305 and 500 mm. The anchorage device is attached to the standing seam profiles (rounded edge seams) using three aluminium profile clamps which are designed to fit the contours of the seams and are clamped on using M10 screws for a form fit. All three profile clamps are connected to the base body using a hexagonal M16 screw - whereby the elongated slits, which are used to adjust the device to fit the respective structural width, are located over the middle profile clamp. A stainless steel anchorage eyelet is screwed onto the top of the anchorage device. This is used to attach personal fall protection equipment (PPE). In order to attach a lifeline system, an extender element can be used instead of an anchorage eyelet.

The anchorage device serves solely to secure individuals in the case of a fall and should not otherwise be subjected to loads.

2.1 Properties and composition

2.1.1 Dimensions

The main dimensions of the components of the anchorage device can be reviewed in Appendices 1 to 4.

More information on the respective dimensions and tolerances are deposited at the German Institute for Construction Technology.

2.1.2 Materials

The metal plates of the base body are manufactured from stainless steel with material numbers 1.4301 or 1.4307 in accordance with EN 10088-4².

The profile clamps are manufactured from aluminium with the material number EN AW 6063-T6 in accordance with EN 755-2³.

| 1 | Z-14.1-182 | BEMO-FLAT-ROOF standing seam profile system made of aluminium and its associated products, DIBt, dated 22.04.2022 and amended on 26.02.2024 |
|---|--------------------|--|
| 2 | EN 10088-4:2010-01 | Stainless steels - Part 4: Technical delivery conditions for sheet/plate and strip of corrosion- resistant steels for construction purposes |
| 3 | EN 755-2:2016-10 | Aluminium and aluminium alloys - Extruded rod/bar, tube and profiles - Part 2: Mechanical properties |



The hexagonal screws as well as the M10 and M16 nuts must be manufactured from stainless steel of at least A2 quality with strength class 70 in accordance with EN ISO 3506-1⁴ resp. EN ISO 3506-2⁵. The washers are composed of stainless steel of at least A2 quality in accordance with EN ISO 7093-1⁶.

The anchorage eyelet is manufactured from stainless steel with the material number 1.4301 or 1.4307 in accordance with EN 10088-4².

The extender element is composed of stainless steel with the material number 1.4301 in accordance with EN 10088-4².

More information on the materials are deposited at the German Institute for Construction Technology.

2.2 Production, packaging, transport, storage and labelling

2.2.1 Production

In as far as nothing to the contrary has been stipulated in the following, the requirements of EN 1090-2⁷ and EN 1090-3⁸ apply to the components. In addition, the requirements set down in the German Institute for Construction Technology's national technical approval No. Z-30.3-6⁹ apply to components made of stainless steel.

2.2.2 Packaging, transport and storage

The anchorage devices must be packed, transported and stored in a manner that protects them from corrosion and which is suitable for the materials in question.

2.2.3 Labelling

The manufacturer must label all the components of the anchorage device, the packaging and the attachments to the delivery note with the mark of conformity ("Ü symbol") in accordance with the state regulations. This label may only be used where the pre-requisites set down in section 2.3 below have been fulfilled.

The anchorage device must be permanently labelled with "Z-14.9-828" as a minimum requirement.

In addition, the place of manufacture, name of the construction product and the materials used must be obvious from the label.

2.3 Confirmation of conformity

2.3.1 General information

Confirmation that the construction products comply with the provisions of the national technical approval included in this official notice needs to be acquired for each manufacturing site through the issue of a declaration of conformity on the part of the manufacturer based on internal production controls within the company and a certificate of conformity issued by an appropriately recognised certification body as well as through regular external monitoring by a recognised monitoring body in line with the following provisions.

With a view to obtaining this certificate of conformity and with respect to external monitoring, including the product inspections that need to be carried out as part of this process, the manufacturer of the construction products must call in appropriately recognised certification and monitoring bodies.

| 4 | EN ISO 3506-1:2010-04 | Mechanical fasteners - Mechanical properties of corrosion-resistant stainless steel fasteners - |
|---|---------------------------|---|
| 5 | EN ISO 3506-2:2010-04 | Part 1: Bolts with specified steel grades and property classes Mechanical fasteners - Mechanical properties of corrosion-resistant stainless steel fasteners – |
| | | Part 2: Nuts with specified steel grades and property classes |
| 6 | EN ISO 7093-1:2000-06 | Plain washers - Large series - Part 1: Product class A |
| 7 | EN 1090-2:2018-09 | Execution of steel structures and aluminium structures - Part 2: Technical requirements for steel structures |
| 8 | EN 1090-3:2019-07 | Execution of steel structures and aluminium structures - Part 3: Technical requirements for aluminium structures |
| 9 | Z-30.3-6 dated 20.04.2022 | Products, components and fasteners made of stainless steel |



The manufacturer must officially declare that the construction products conform with the above requirements by labelling these products with the mark of conformity (Ü symbol) and stating their intended usage.

A copy of the certificate of conformity issued by the certification body must be submitted to the German Institute for Construction Technology to inform them accordingly.

In addition, a copy of the first inspection report must also be submitted to the German Institute for Construction Technology for their information.

2.3.2 Internal production controls

At each manufacturing site, internal production controls must be set up and implemented. The term "internal production controls" is understood to mean the continual monitoring of the production process on the part of the manufacturer to ensure that the construction products produced by the manufacturer comply with the provisions of the national technical approval included in this official notice.

These internal production controls must include the measures stated in the following as a minimum requirement:

- The required dimensions set down in section 2.1 above must be regularly checked.
- Proof that the required material properties set down in section 2.1 above are met must be provided for each separate batch by way of an acceptance test certificate 3.1 in accordance with EN 10204¹⁰. The information contained in each acceptance test certificate must be checked to ensure that it complies with the specifications set down in section 2.1 above.
- Visual checks must be carried out on all the anchorage devices to ensure that these are manufactured correctly.

The test schedule deposited at the German Institute for Construction Technology dated 13 March 2024 determines the scope, type and frequency of the internal production controls.

The results of these internal production controls must be logged and evaluated accordingly. As a minimum requirement, these logs must include the following information:

- Description of the construction product, resp. the source materials and components;
- Type of examination or test;
- Manufacturing date and the date on which the construction product, resp. the source materials or components, were examined;
- Results of the examination or test and comparison with the requirements;
- Signature of the person responsible for the internal production controls.

These logs must be preserved for at least five years and presented to the monitoring body commissioned to carry out the external monitoring. They must be presented to the German Institute for Construction Technology and the responsible supreme building authority when requested to do so.

Should the results of the examination prove to be unsatisfactory, the manufacturer must initiate all the measures necessary to remedy the defect without delay. Construction products that do not meet the requirements may not be used and must be handled in such a way as to ensure that they cannot be confused with products that meet the requirements. Once the defect has been remedied, the respective examination must be repeated without delay - in as far as this is technically feasible and necessary to prove that the respective defect has been accordingly corrected.



2.3.3 External monitoring

At each manufacturing site, the factory and the internal production controls must be regularly examined by an external monitoring body - at least once a year.

In line with the requirements set down in the inspection and monitoring plan deposited with the German Institute for Construction Technology, random checks and an initial inspection of the construction products must be carried out as part of the external monitoring activities. The recognised monitoring body is responsible for sampling and inspections.

The results of the certification and monitoring processes must be preserved for at least five years. These must be presented to the German Institute for Construction Technology and the responsible supreme building authority by the respective certification, resp. monitoring body, when requested to do so.

3 Planning, dimensioning and execution provisions

3.1 Planning

3.1.1 General information

The maximum number of users of an anchorage device refers to the maximum number of users using the device simultaneously whose fall can be arrested in a fall incident.

Proof of the structural integrity of the device and that it is fit for usage must be provided in each individual case through structural analysis. The verification concept specified in EN 1990¹¹ in conjunction with National Annex EN 1990/NA¹² applies accordingly. In as far as nothing to the contrary is set down in the following, the Federal Technical Building Rules apply.

The anchorage device is not intended to be installed overhead, on a ceiling or on a wall.

When planning the anchorage device, constraints caused by temperature changes must be avoided, respectively the required dimensions must be verified.

Loads may only be applied to the anchorage device via. the anchorage eyelet described in Appendix 3 or the extender element described in Appendix 4 in conjunction with the respective components of a lifeline system in accordance with national technical approval/general type approval No. Z-14.9-786¹³ issued by the German Institute for Construction Technology. The extender element may only be used in combination with a lifeline system.

The anchorage device is suitable for the attachment of a lifeline system that complies with national technical approval/general type approval No. Z-14.9-786¹³ and which includes a maximum of one curve, as long as the anchoring force at the end of the lifeline cable (value of design action) does not exceed the value of design resistance of the anchorage device (pls. refer to Table 3). In each individual case, structural analysis must be carried out to verify that the timber, steel or aluminium substructure and its corresponding attachment elements are capable of bearing the additional load resulting from the anchorage device and lifeline systems installed on the standing seam profile roof elements.

The horizontal forces across the whole roof surface must also be verified.

The anchorage device may only be used in areas that comply with a maximum corrosion resistance class of CRC II in accordance with EN 1993-1-4¹⁴.

| 11 | EN 1990:2010-12 | Eurocode: Basis of structural design |
|----|---------------------|---|
| 12 | EN 1990/NA:2010-12 | National Annex - Eurocode: Basis of structural design |
| 13 | Z-14.9-786 | ABS-Lock SYS fall protection lifeline system, DIBt 21.03.2022 |
| 14 | EN 1993-1-4:2015-10 | Eurocode 3: Design of steel structures - Part 1-4: General dimensioning rules - |
| | | Supplementary rules for stainless steels |



With respect to corrosion protection for components made of structural steel, the requirements set down in EN 1090-2⁷ and EN 1090-3⁸ apply; for components made of stainless steel, the requirements set down in EN 1993-1-4¹⁴ in conjunction with National Annex EN 1993-1-4/NA¹⁵ apply. The provisions set down in national technical approval/general type approval No. Z-14.1-182¹, Z-14.4-426¹⁶ and Z-14.9-786¹³ issued by the German Institute for Construction Technology concerning corrosion protection are to be observed.

3.1.2 Standing seam profile roof elements

The anchorage device is installed on BEMO-FLAT-ROOF standing seam profile roof elements made of aluminium in accordance with national technical approval/general type approval No. Z-14.1-182¹. The standing seam profile roof element sheets must have a nominal thickness of at least 0.9 mm and a height of 50 to 65 mm. Furthermore, installation on VF¹ profiles is possible. The structural width of a standing seam profile panel may range between 305 mm and 500 mm.

To each side of the standing seam profiles on which an anchorage device has been installed - i.e. at 90 degrees to the direction of span, at least three further standing seam profiles must be installed. The information contained in Appendix 1 applies with respect to the minimum dimensions of the respective roof surface.

The minimum distance from the middle of the anchorage device to the edges of a roof surface consisting of standing seam profiles must be 2 m in the direction in which the profiles are spanned. The information contained in Appendix 1 must be observed accordingly.

The standing seam profiles must be attached to the substructure using at least two brackets per seam. Proof must be provided confirming the number of required brackets used for the timber or steel substructure.

3.1.3 Timber substructure and attachment elements

The standing seam profiles may be installed on a substructure consisting of wooden beams that are at least 80 mm wide and 120 mm high using matching brackets made of aluminium or glass fibre reinforced plastic (GRP) in accordance with national technical approval/general type approval No. Z-14.1-182¹. The installation may only be carried out on timber components where the load-bearing capacity of the timber substructure has been verified in accordance with the Federal Technical Building Rules.

The substructure consists of solid, coniferous wood of at least grade S10 quality, resp. strength class C24, as set down in EN 14081-1¹⁷ in conjunction with DIN 20000-5¹⁸.

In the case of a timber substructure, a relative humidity level of 85 % may only be exceeded for a few weeks in the year, i.e. service classes 1 and 2 in accordance with EN 1995-1-1¹⁹.

With respect to the brackets, a distinction is made between free brackets that allow the standing seam profiles to be displaced in a longitudinal direction and fixed point brackets which fix the standing seam profiles firmly in place so that they cannot be displaced. Only brackets made of aluminium may be used as fixed point brackets. The free brackets may be made of GRP. The aluminium brackets may have an overall height of 80 mm to 220 mm and glass fibre reinforced plastic brackets an overall height of 85 mm to 205 mm in accordance with national technical approval/general type approval No. Z-14.1-182¹.

The seams to which the profile clamps of the anchorage device are attached must be connected to fixed point brackets using at least one M6 screw in accordance with national technical approval/general type approval No. Z-14.1-182¹.

| 15 | EN 1993-1-4/NA:2017-1 | National Annex - Nationally determined parameters - Eurocode 3: Dimensioning and design of steel structures - Part 1-4: General dimensioning rules - supplementary |
|----|-----------------------|---|
| 16 | Z-14.4-426 | Installation of multi-layered roof systems, DIBt 07.02.2022 |
| 17 | EN 14081-1:2016-06 | Timber structures - Strength graded structural timber with rectangular cross section for load-bearing purposes – Part 1: General requirements |
| 18 | DIN 20000-5:2016-06 | Application of construction products in structures - Part 5: Strength graded structural timber with rectangular cross-section for load-bearing purposes |
| 19 | EN 1995-1-1:2010-12 | Eurocode 5: Dimensioning and design of timber structures - Part 1-1: General information - General rules and rules for timber structures |



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The brackets are fixed to the wooden beams using EJOT JT3-X-2-6.0 x 36 mm or JT3-X-2-6.0 x 46 mm drilling screws in accordance with national technical approval/general type approval No. Z-14.4-426¹⁶. The minimum number of drilling screws can be taken from Table 1 below. The free brackets must be screwed onto one beam and the fixed point brackets onto two adjacent beams.

Other means of attachment may be used to fix the brackets in place, if the pull-through resistance and the shear load-bearing capacity of these attachment elements can be verified in accordance with the Federal Technical Building Rules or by way of respective national technical approvals, general type approvals or European technical evaluations. The characteristic pull-through and shear load values of a single element of any other type of attachment element must at least correspond to the characteristic pull-through and shear load resistance of drilling screw EJOT JT3-X-2-6.0 x 36 mm in accordance with national technical approval/general type approval No. Z-14.4-426¹⁶.

For timber construction components that are at least 80 mm wide but less than 120 mm high, the load-bearing capacity of the timber substructure, the number of fixed point and free brackets as well as the number of and the pull-through resistance and shear load-bearing capacity of the attachment elements used to attach the brackets to the timber substructure must be verified according to the Federal Technical Building Rules or by way of respective national technical approvals, general type approvals or European technical evaluations.

| Variant | Drilling screw | Fixed p | oint bracket | Free bracket | |
|---------|--|-----------|------------------------------|--------------|------------------------------|
| | acc. to nat. tech. approval No. Z-14.4-426 | Material | Number of drilling screws | Material | Number of drilling screws |
| 1 | JT3 X 2 6.0 x 46 mm | Aluminium | 4 screws | Aluminium | 2 screws |
| 2 | JT3-X-2-6.0 x 36 mm | Aluminium | 4 screws | GRP | 4 screws |

 Table 1 - Minimum number of drilling screws for attaching a bracket to a wooden beam that is at least 80 mm wide and 120 mm high

3.1.4 Substructure made of steel and aluminium and its corresponding attachment elements

The brackets may be mounted on trapezoidal steel profiles with a nominal sheet thickness of $t_N \ge 0.75$ mm where the nominal height ranges between 35 mm and 200 mm. In this case, four JT3-X-2-6.0 x 36 mm screws must be used for each bracket.

The standing seam profiles may also be installed on other steel or aluminium substructures using matching aluminium or GRP brackets in accordance with national technical approval/general type approval No. Z-14.1-182¹, if the load-bearing capacity of the substructure has been verified in accordance with the Federal Technical Building Rules.

Where the brackets are attached to a steel or aluminium substructure, the number of as well as the pull-through resistance and shear load-bearing capacity of the attachment elements used to attach the brackets must be verified according to the Federal Technical Building Rules or by way of respective national technical approvals, general type approvals or European technical evaluations.

3.2 Dimensioning

3.2.1 Verification of the load-bearing capacity

As far as the anchorage device itself and its attachment to the substructure are concerned, this official notice serves to confirm that when used as an anchorage device for PPE, the respective load is duly distributed for up to 3 individuals (pls. refer to Table 3 below).



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With respect to verifying the distribution of load through the substructure, it is assumed that the values of design action in Section 3.2.2 below are variable as set down in EN 1990¹¹.

Confirmation of the distribution of load through the downstream substructure (trusses, supporting roof structure) and the respective load-bearing capacity of the substructure must be provided in accordance with the Federal Technical Building Rules.

With respect to the distribution of load, the following must be verified:

 $F_{Ed} / F_{Rd} \le 1$

where

F_{Ed} Value of design action according to section 3.2.2 below

F_{Rd} Value of design resistance according to section 3.2.3 below

This verification must incorporate all components involved in the distribution of load.

3.2.2 Value of design action

The value of design action F_{Ed} on a substructure can be taken from Table 2. In the case of standing seam profile roof elements, any absorption of the impact through the respective roof structure may also be taken into account.

| Table 2 – | Value of design | action on a | substructure |
|-----------|-----------------|-------------|--------------|
|-----------|-----------------|-------------|--------------|

| Anchorage device | Value of desigr | Load | |
|-------------------|---------------------------|------------------------------|-------------------|
| | using an anchorage eyelet | using an extender element | |
| ABS-Lock® Falz-VI | 9.6 | 8.3 | in all directions |

3.2.3 Value of design resistance

The value of design resistance F_{Rd} presented in Table 3 below applies to an anchorage device installed on standing seam profile roof elements - not to the respective substructure or fixture to the timber or steel substructure. The former must be dimensioned in accordance with the Federal Technical Building Rules.

 Table 3 - Value of design resistance and maximum number of users

| Anchorage device | Value of design resistance F℞ⅆ [kN] | | Maximum number of individuals permitted | | Load |
|---------------------|--|---------|--|--------------------|-------------------|
| | us an anchorage | | us an anchorage | ing an extender | |
| | eyelet | element | eyelet | element | |
| ABS-Lock® Falz-VI | 10.2 | 8.6 | 3 | 2 | in all directions |

3.3 Execution

It is important to make sure that the load-bearing capacity of the substructure and attachment elements is sufficient. This must be checked prior to commencing work and must be accordingly documented. Prior to installation, it is important to make sure that only approved system components and attachment elements are used.

All the attachment elements must be installed using a torque wrench which has been accordingly inspected beforehand. The components may only be subjected to loads when the required tightening torque specified in the installation instructions can be applied.



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Installation must be carried out by companies with the required experience in accordance with Appendices 1 to 5 hereto as well as the manufacturer's installation instructions deposited at the German Institute for Construction Technology - unless arrangements have been made to have the installation personnel accordingly instructed by specialists of companies with experience in this area.

The company carrying out the construction work must issue a declaration in accordance with Section 16 a, para. 5 in conjunction with Section 21, para. 2 German Model Building Code (Musterbauordnung = MBO) confirming the conformity of the anchorage devices with the general type approval included in this official notice.

4 Provisions for usage, maintenance and servicing

The anchorage device referred to in this official notice may solely be used to secure individuals from falling.

Prior to each usage - and after being deployed - the anchorage device must be examined to ensure it is still firmly in place and physically intact. Any loose components must be firmly secured and any anchorage devices that have been deformed or otherwise damaged must be replaced.

Once installed on the building structure, the anchorage device can be examined visually, by checking the tightening torque and through a vibration test (by hand) by exerting a maximum load of 70 kg in an axial direction and at a radial angle to the anchorage device. Subjecting the device to loads for the purpose of carrying out tests using test loads in accordance with EN 795²⁰, section 5.3.4 is not permitted when installed on the building structure.

Following installation of the anchorage device, the respective components must be regularly checked to ensure their functionality. As part of the annual inspection process, the device must be checked for corrosion damage and, where necessary, respective repair measures initiated. For the purpose of verification, the inspections must be accordingly logged.

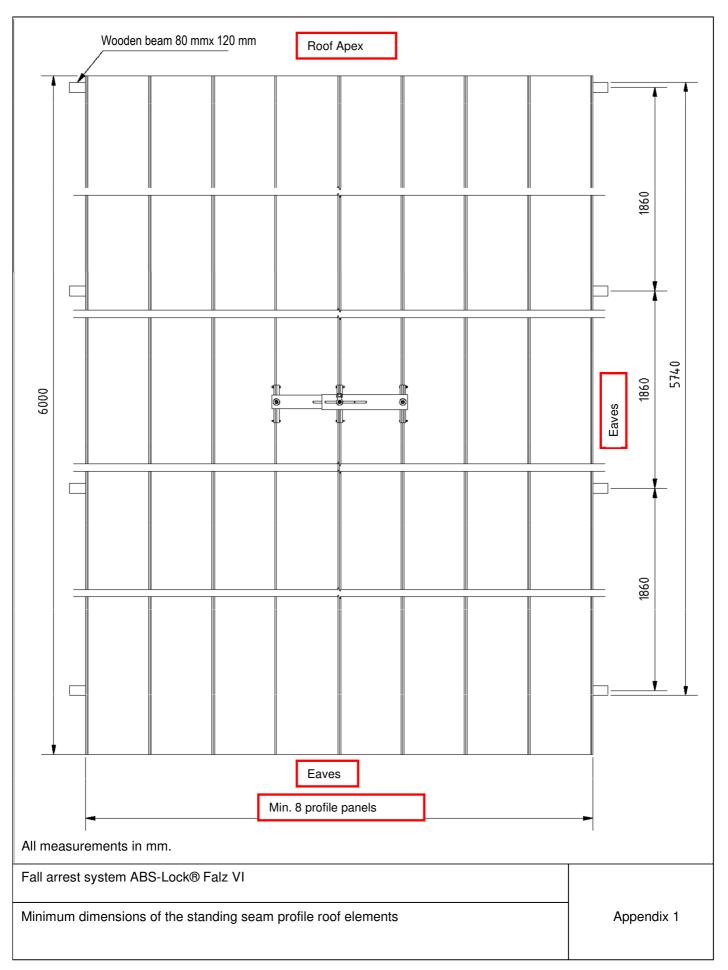
If the anchorage device or fixture is damaged, or if components are permanently deformed, or if they have been deployed in a fall, these may no longer be used. In such cases, both the anchorage device and the attachment to the building structure must be examined by a qualified and experienced engineer. Where required, the complete anchorage device, including the fixture, must be dismounted and completely replaced - at least in the area around the attachment points and two adjacent profile panels.

Dr.-Ing. Ronald Schwuchow Head of Division

Certified Hahn

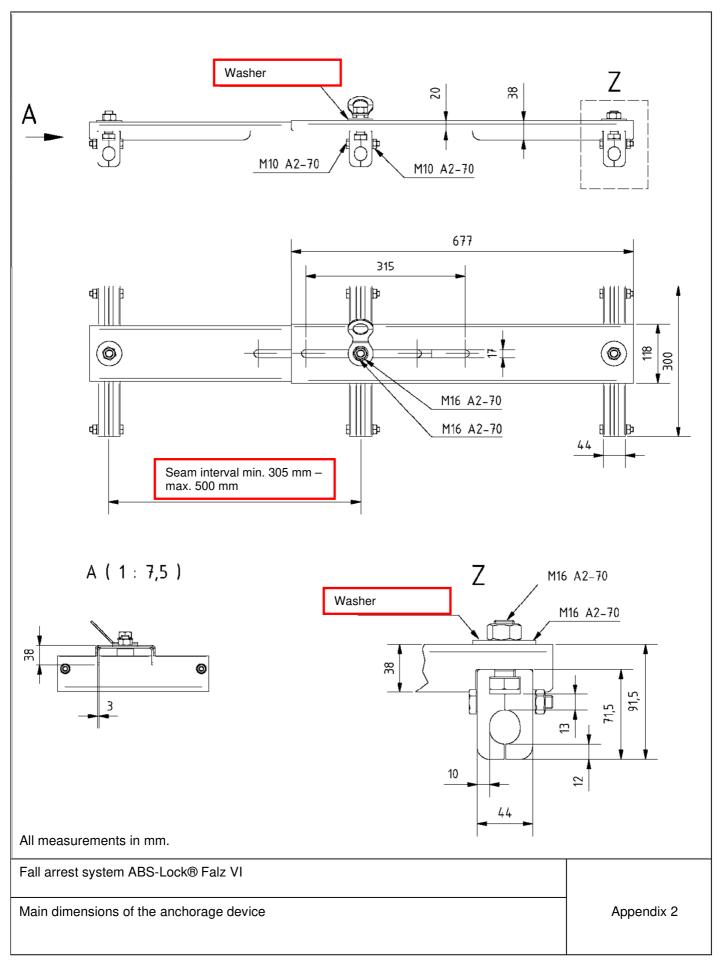
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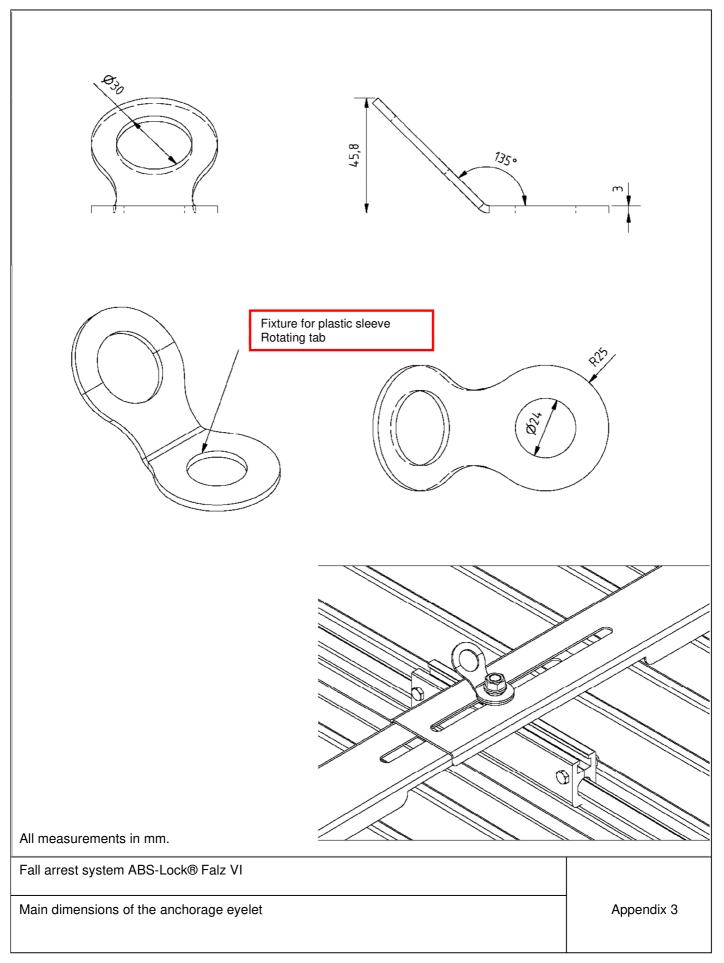


National technical approval/ general type approval No. Z-14.9-828 dated 13 March 2024



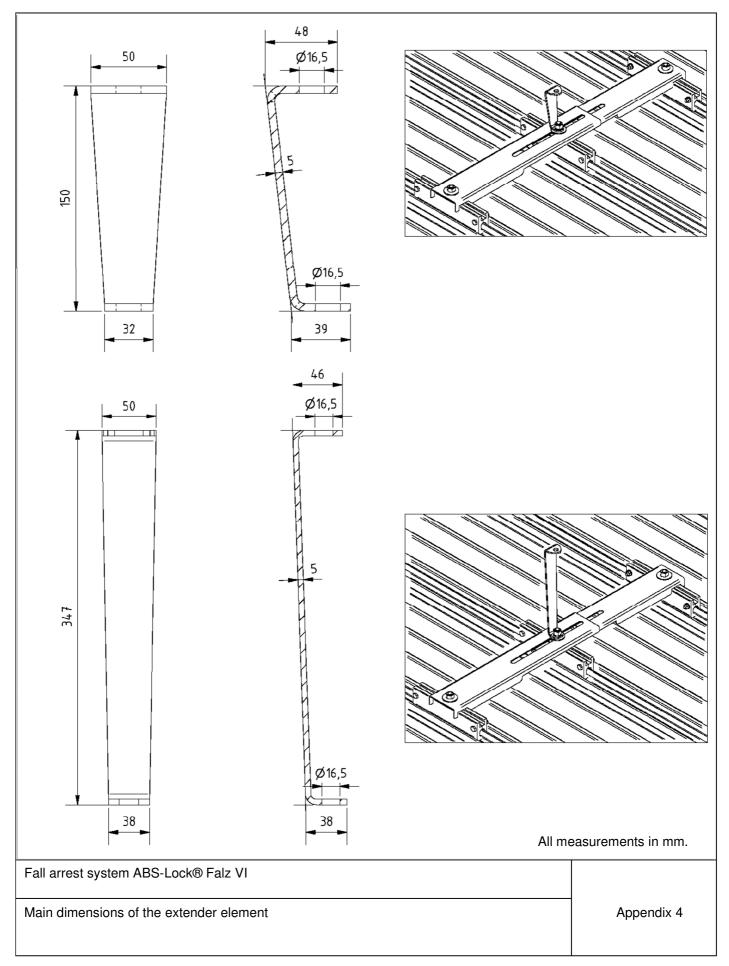






National technical approval/ general type approval No. Z-14.9-828 dated 13 March 2024







| Instructions for installing an ABS-Lock® Falz-VI on standing seam profile roof elements | | | | |
|---|--------------------------------|--|--|--|
| 1 | | Attachment of the profile clamps to the roof seam | ns | |
| 2 | | Do not tighten up the screws | | |
| 3 | | Insert the screws into the guide rails of the profile | e clamp | |
| 4 | | Slot the spacer rings over the screws. The higher on the outside | st ring must be placed | |
| 5 | | Place the metal plates over the screws; the circul plate must be placed over the highest spacer ring | | |
| 6 | | Add the washers and nuts to the outer screws | | |
| 7 | | Add the anchorage eyelet ^{*)} , washer and nut to th ^{*)} Instead of an anchorage eyelet, an extender eler This is attached to the middle screw using a nut ar diameter washer) and tightened using a torque of | ment can be installed. nd large washer (large | |
| 8 | | Tighten up the profile clamp screws using a torqu | ue of 40 Nm | |
| 9 | | Tighten up the upper screws using a torque of 40 |) Nm | |
| Fall a | rrest system ABS-Lock® Falz VI | | | |
| Install | lation instructions | Appendix 5 | | |