

Approval body for construction products
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and
Laender Governments



European Technical Assessment

ETA-20/0257
of 9 June 2021

English translation prepared by DIBt - Original version in German language

General Part

Technical Assessment Body issuing the
European Technical Assessment:

Deutsches Institut für Bautechnik

Trade name of the construction product

ABS-Lock

Product family
to which the construction product belongs

Anchor devices for fastening personal fall protection
systems to timber substructures

Manufacturer

ABS Safety GmbH
Gewerbering 3
47623 Kevelaer
DEUTSCHLAND

Manufacturing plant

ABS Safety GmbH
Gewerbering 3
47623 Kevelaer
GERMANY

This European Technical Assessment
contains

15 pages including 11 annexes which form an integral
part of this assessment

This European Technical Assessment is
issued in accordance with Regulation (EU)
No 305/2011, on the basis of

EAD 331846-00-0603

European Technical Assessment

ETA-20/0257

English translation prepared by DIBt

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Specific part**1 Technical description of the product**

The fall protection systems are made of stainless steel, but ABS-Lock Loop also made of aluminium alloy. They are fastened to timber substructure according to EN 300:2006, EN 338:2016, EN 14080:2013, EN 14081-1:2016+A1:2019.

The fall protection systems are fastened to the timber substructure with the different fasteners which can be seen in the annexes.

This ETA includes the products listed in the following Table 1:

Table 1: Products of this ETA

Annex No.	Trade Name (Product of this ETA)	Fastener	Material
2	ABS-Lock III	ABS-Lock III	1.4301
3	ABS-Lock X	Wafer head timber screw SP-Drill 6x60 TX 25	1.4301
4	ABS-Lock X	Wafer head timber screw Reisser 6x60	1.4301
5	ABS-Lock X	Wafer head timber screw SP-Drill 6x60 TX 25 and Wafer head timber screw SP-Drill 6x100 TX 25	1.4301
6	ABS-Lock Loop	Wafer head timber screw Reisser 8x160	1.4401 / 1.4404 EN-AC-43400 EN-AC-AISI10MG

The components and the system setup of the product are given in Annex (1-6).

2 Specification of the intended use in accordance with the applicable European Assessment Document EAD 331846-00-0603

The fall protection systems listed in Table 1 are used to protect operators working at height (max. 3 persons at once), by arresting them in a fall. The operators attach themselves to the eye using e.g. ropes and karabiners. In the case of a fall the fall protection system prevents the fall and resulting physical damage assuming the correct usage by the operator. The fall protection system is designed for use in all areas of industry, construction and maintenance.

The fall protection system is intended to be used, fastened or inserted on flat roofs or other flat planes made of timber only. The direction of force therefore shall be perpendicular ($90^\circ \pm 5^\circ$) to the fastening element. Thus use at a (timber-) wall is intended only when the direction of force still applies at a 90° angle to the fastening axis. Another load direction is possible if this is specified in the annexes to this ETA.

The performances given in Section 3 are only valid if the products listed in the Table 1 is used in compliance with the specifications and conditions given in Annexes (1-6).

The verifications and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of the fall protection system of at least 25 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

3 Performance of the product and references to the methods used for its assessment

3.1 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	No Performance assessed

3.4 Safety and accessibility in use (BWR 4)

Essential characteristic	Performance
Static loading	Level (kN); see respective product in Annex 2-6
Dynamic loading	Level (No. of users); see respective product in Annex 2-6
Check of deformation capacity in case of constraining forces	see respective product in Annex 2-6
Durability	No performance assessed

4 Assessment and verification of constancy of performance (AVCP) system applied, with reference to its legal base

In accordance with EAD No. 331846-00-0603, the applicable European legal act is: Decision (EU) 2018/771

The system to be applied is: 1+

5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited with Deutsches Institut für Bautechnik.

Issued in Berlin on 9 June 2021 by Deutsches Institut für Bautechnik

Dr.-Ing. Ronald Schwuchow
Head of Section

beglaubigt:
Hahn

This ETA includes the product variants listed in Table 1:

Table 1: Product variants included in this ETA

Annex	Tradename (Product in this ETA)	Fastener	Substructure
2	ABS-Lock III	ABS-Lock III	Timber / Glued laminated timber ≥ C24/GL24 ^{a,b,c}
3	ABS-Lock X	Wafer head timber screw SP-Drill 6x60 TX 25 ^e	OSB 3 ^d on Timber / Glued laminated timber ≥ C24/GL24 ^{a,b,c}
4	ABS-Lock X	Wafer head timber screw Reisser 6x60 ^f	OSB 3 ^d on Timber / Glued laminated timber ≥ C24/GL24 ^{a,b,c}
5	ABS-Lock X	Wafer head timber screw SP-Drill 6x60 TX 25 ^e and Wafer head timber screw SP-Drill 6x100 TX 25 ^e	Timber ≥ C24/GL24 ^{a,b} on Timber / Glued laminated timber ≥ C24/GL24 ^{a,b,c}
6	ABS-Lock Loop	Wafer head timber screw Reisser 8x160 ^f	timber ≥ C24/GL24 ^{a,b} on Timber / Glued laminated timber ≥ C24/GL24 ^{a,b,c}

Annexes 2 to 6 show the components and the system structure of the products.

Design values of actions

$$F_{Ed} = F_{Ek} \cdot \gamma_F$$

The recommended partial factor γ_F is 1,5.

The recommended partial factor is used in order to determine the corresponding design actions, provided no partial factor is given in national regulations or national annexes to EN 1990. That leads to the following values.

Example:

For one User: $F_{Ed} = F_{Ek} \cdot \gamma_F = 6 \text{ kN} \cdot 1,5 = 9 \text{ kN}$

For two User: $F_{Ed} = F_{Ek} \cdot \gamma_F = (6 + 1) \text{ kN} \cdot 1,5 = 10,5 \text{ kN}$

For three User: $F_{Ed} = F_{Ek} \cdot \gamma_F = (6 + 2) \text{ kN} \cdot 1,5 = 12 \text{ kN}$

^a	EN 338:2016	Structural timber – Strength classes
^b	EN 14080:2013	Timber structures - Glued laminated timber and glued solid timber - Requirements
^c	EN 14081-1:2016+A1:2019	Timber structures - Strength graded structural timber with rectangular cross section - Part 1: General requirements
^d	EN 300:2006	Oriented Strand Boards (OSB) - Definitions, classification and specifications
^e	ETA-11/0283	S+P screws for use in timber construction
^f	ETA-11/0106	Reisser screws for use in timber construction

Fallprotection ABS-Lock

Design Values

Annex 1

Table 2: Substructure timber and glued laminated timber

Anchor Device	Bar height [mm]	Fastener	Edge distance [mm]	Minimum substructure thickness b_{min} / h_{min} [mm]
ABS-Lock III	200 – 600	ABS-Lock III	centred	80 / 120

The scope of application of the ABS-Lock III on timber is limited to service class 1 and 2 according to EN 1995-1-1. The fixture of the anchor device must not be weathered freely. All other components can be used in weathered outdoor areas.

Regulations for ABS-Lock III on timber and glued laminated timber \geq C24/GL24 and timber planks C24/GL24

For the installation of the ABS Lock III-H anchorage device, a 13 mm diameter hole has to be pre-drilled vertically through the wooden planks in the middle of the timber beams at least 125 mm deep (total thickness 24 mm planks 120 mm timber beam = 144 mm). The anchor device must be screwed into the roof structure at least 120 mm deep up to the marking. If the screwing in is possible without significant resistance and if the anchorage device can be turned further after reaching the bottom of the hole, it must not be used and must be removed and the hole must be closed and marked positively using suitable timber construction means.

The minimum dimensions for the shuttering boards and the beams as well as the possible beam spacing are given in Annex 2.3.

The number of screws or nails for fastening the timber planks is depending on the width of the timber planks:

$n=2$ for $100 \text{ mm} \leq b \leq 120 \text{ mm}$

$n=3$ for $120 \text{ mm} \leq b \leq 300 \text{ mm}$

The use of substructures with higher rigidity (e.g. tongue and groove siding, glued laminated timber) is possible.

Static loading / design resistance

$$F_{R,d} = \frac{F_{R,k}}{\gamma_M} \cdot k_{mod} = \frac{13,1 \text{ kN}}{1,3} \cdot 1,1 = 11,1 \text{ kN}$$

The recommended partial factor γ_M is 1,3, provided no partial factor is given in national regulations or national annexes to EN 1995. The recommended modification factor k_{mod} is 1,1 for service class 1 and 2, provided no modification factor is given in national regulations or national annexes to EN 1995.

Dynamic loading / design resistance

Three user

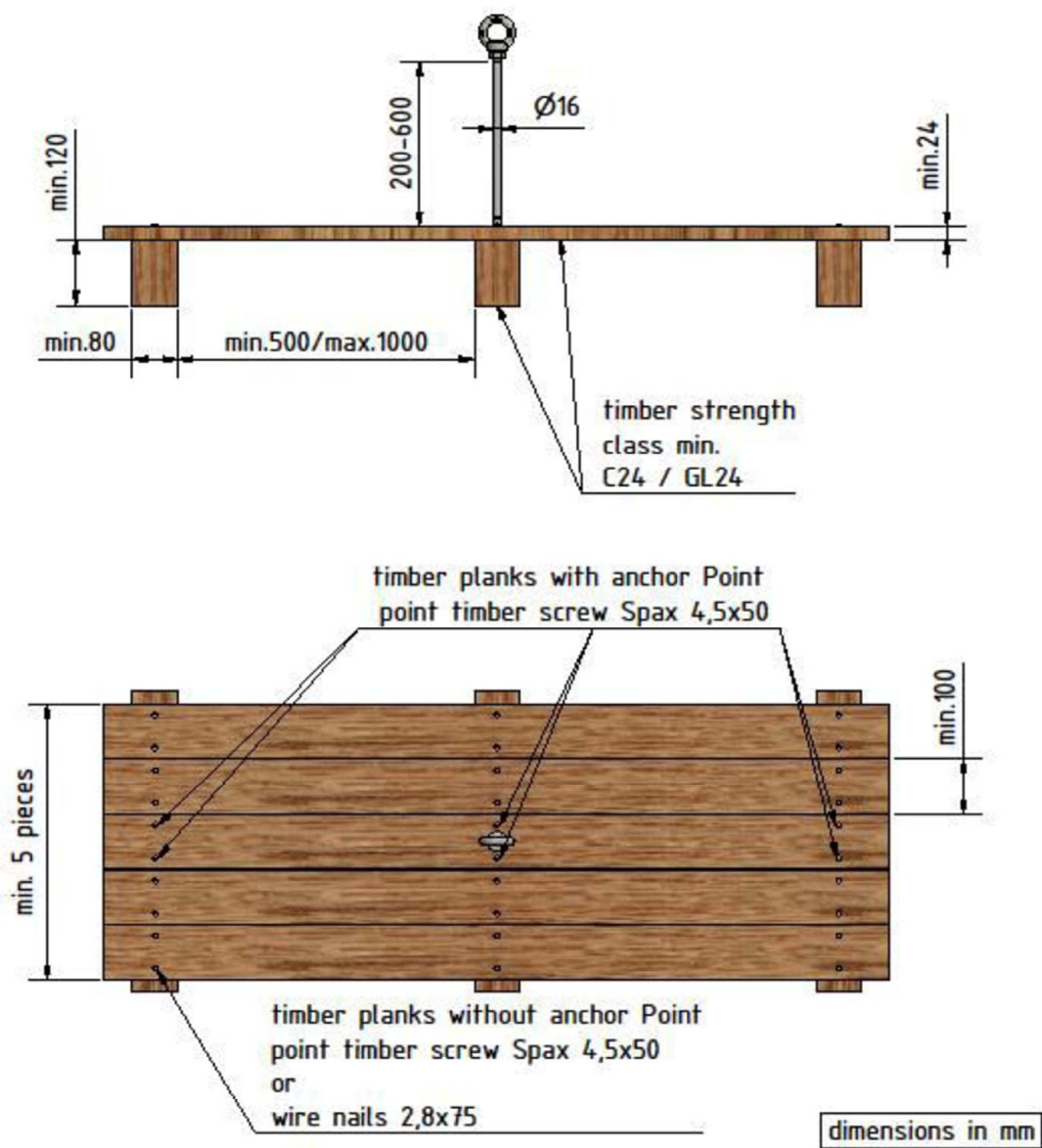
Deformation capacity

$\leq 10 \text{ mm}$ at 0,70 kN maximum length above insulation layer 300mm.

Fallprotection ABS-Lock

ABS-Lock III on timber and glued laminated timber

Annex 2.1



Fallprotection ABS-Lock

ABS-Lock III on timber and glued laminated timber

Annex 2.2

Table 3: Substructure OSB 3

Anchor Device	Bar height [mm]	Fastener	Edge distance [mm]	Minimum substructure thickness [mm]
ABS-Lock X	150 – 600	Wafer head timber screw SP-Drill 6x60 TX 25	Annex 3.2	22

The scope of application of the ABS-Lock X on timber is limited to service class 1 according to EN 1995-1-1. The fixture of the anchor device must not be weathered freely. All other components can be used in weathered outdoor areas.

Regulations for ABS-Lock X on ≥ 22 mm OSB3

The support beams must have a minimum cross-section of $B = 100 \times H = 120$ mm.

An existing substructure made of OSB boards with a thickness of less than $t = 22$ mm can be retrofitted with OSB panels in order to achieve the required thickness of $t = 22$ mm. In this case, the assembly instructions must be observed.

Static loading / design resistance

$$F_{R,d} = \frac{F_{R,k}}{\gamma_M} \cdot k_{mod} = \frac{12,6 \text{ kN}}{1,3} \cdot 1,1 = 10,6 \text{ kN}$$

The recommended partial factor γ_M is 1,3, provided no partial factor is given in national regulations or national annexes to EN 1995. The recommended modification factor k_{mod} is 1,1 for service class 1, provided no modification factor is given in national regulations or national annexes to EN 1995.

Dynamic loading / design resistance

Three user

Deformation capacity

≤ 10 mm at 0,70 kN maximum length above insulation layer 300 mm

Fallprotection ABS-Lock

ABS-Lock X on OSB3

Annex 3.1

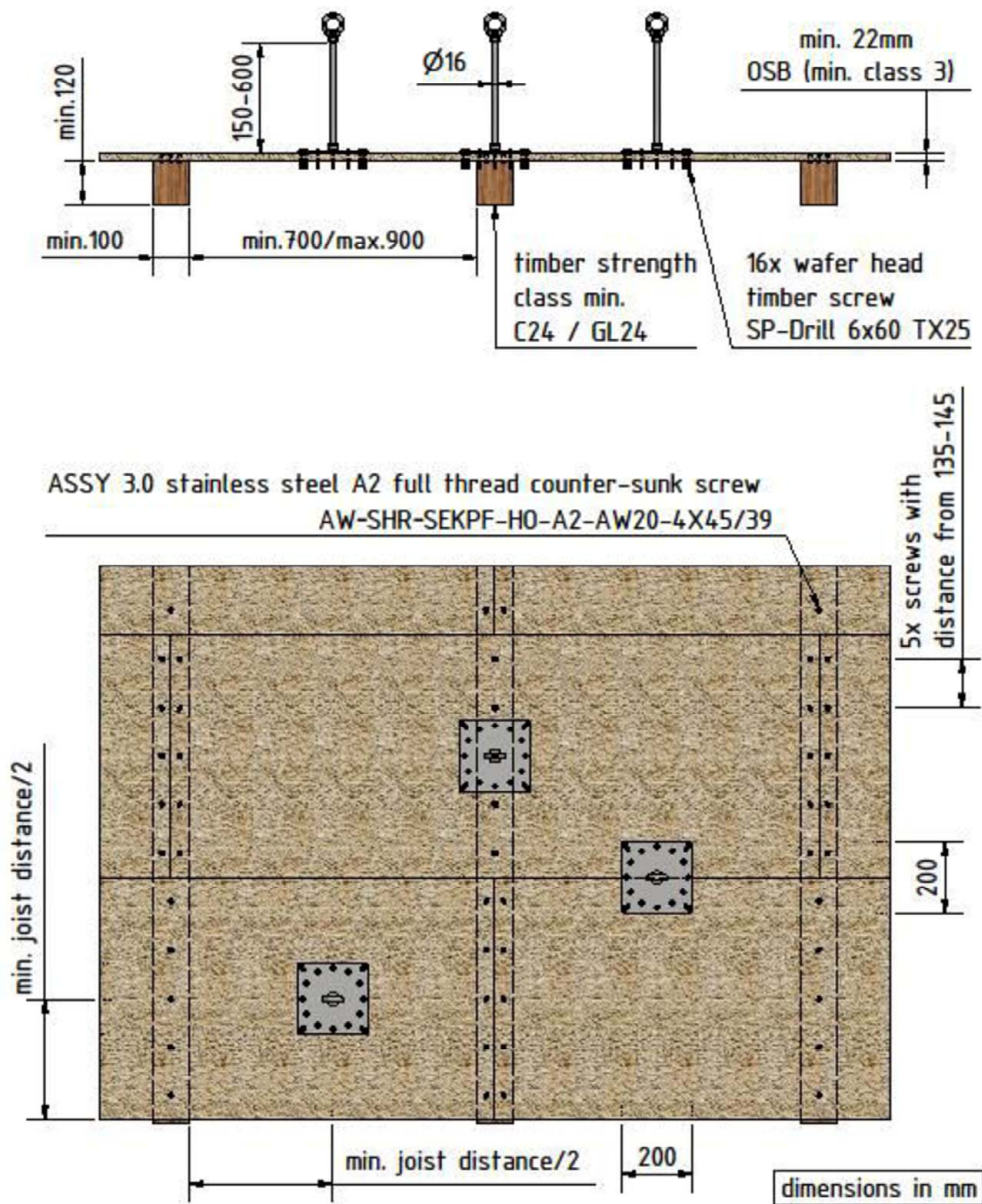


Table 4: Substructure OSB 3, timber planks, tongue and groove siding

Anchor Device	Bar height [mm]	fastener	Edge distance [mm]	Minimum substructure thickness [mm]
ABS-Lock X	150 – 1000	Wafer head screw 6x60 TX 25	Annex 4.2	18 OSB
ABS-Lock X	150 – 1000	Wafer head screw 6x60 TX 25	Annex 4.2	20 timber planks ≥ C24/GL24
ABS-Lock X	150 – 1000	Wafer head screw 6x60 TX 25	Annex 4.2	21 groove and tongue siding

The scope of application of the ABS-Lock X on timber is limited to service class 1 and 2 according to EN 1995-1 1. The fixture of the anchor device must not be weathered freely. All other components can be used in weathered outdoor areas.

Regulations for ABS-Lock X on OSB ≥ 12 mm

The anchor device mounted on the load distribution plate can be freely positioned.

The gap between the joist can be between 400 mm and 1000 mm. The support beams must have a minimum cross-section of B = 60 mm x H = 80 mm

The minimum dimensions for the boards, timber planks, groove and tongue siding and the beams as well as the possible gap between the joists are given in Annex 4.2.

The use of substructures with higher rigidity (e.g. glued laminated timber) is possible.

Static loading / design resistance

$$F_{R,d} = \frac{F_{R,k}}{\gamma_M} \cdot k_{mod} = \frac{12,6 \text{ kN}}{1,3} \cdot 1,1 = 10,7 \text{ kN}$$

The recommended partial factor γ_M is 1,3, provided no partial factor is given in national regulations or national annexes to EN 1995. The recommended modification factor k_{mod} is 1,1 for service class 1 and 2, provided no modification factor is given in national regulations or national annexes to EN 1995.

Dynamic loading / design resistance

Three user

Two user for timber planks between 20 mm and 24 mm

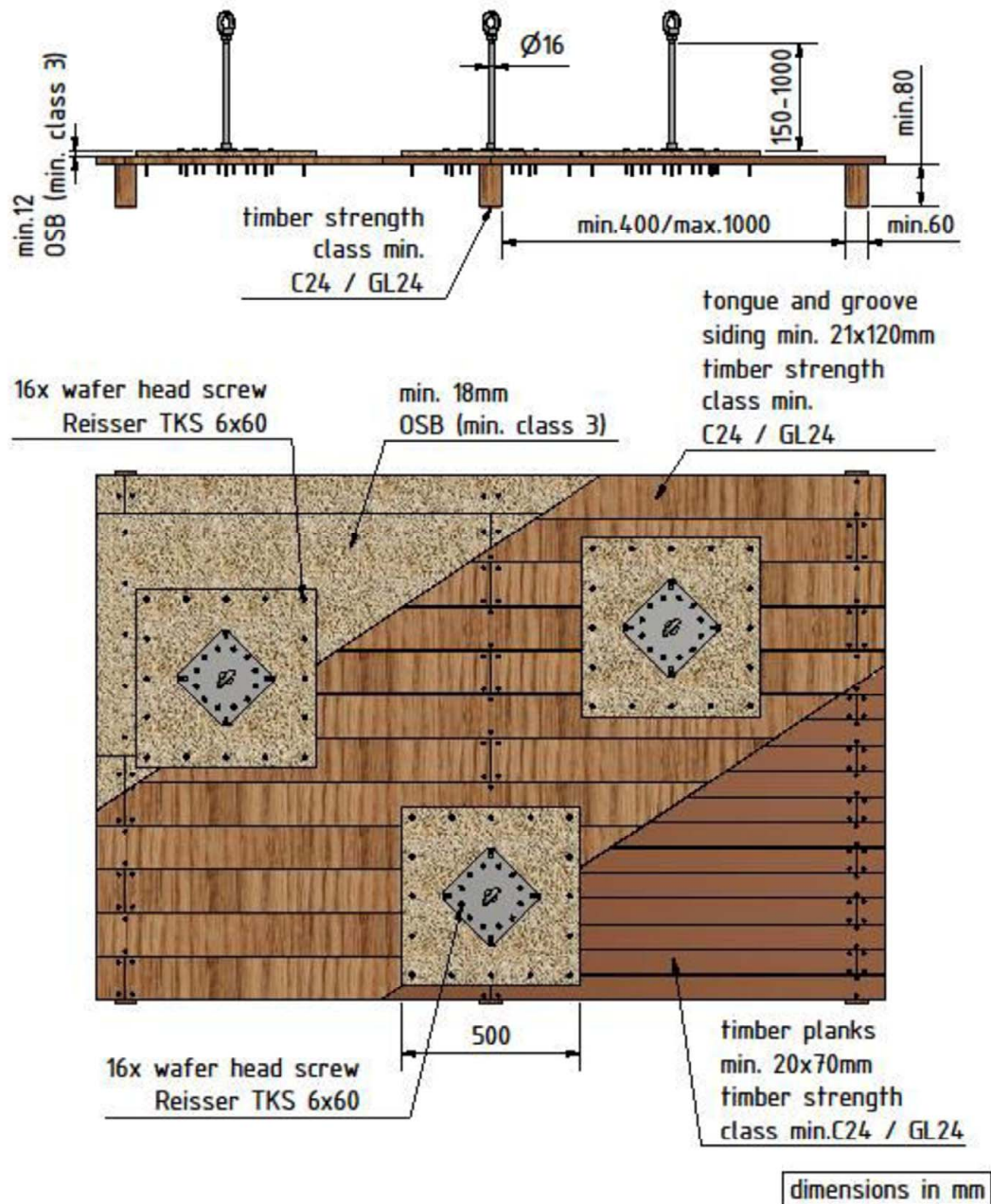
Deformation capacity

≤ 10mm at 0,70 kN maximum length above insulation layer 300mm

Fallprotection ABS-Lock

ABS-Lock X on OSB3, timber planks and grooved and groove and tongue siding

Annex 4.1



Fallprotection ABS-Lock

ABS-Lock X on OSB3, timber planks and grooved and groove and tongue siding

Annex 4.2

Table 5: Substructure timber planks

Anchor Device	Bar height [mm]	Fastener	Edge distance [mm]	Minimum substructure thickness [mm]
ABS-Lock X	150 – 600	Wafer head timber screw 6x60 and 6x100 TX 25	Annex 5.2	24 timber planks ≥ C24/GL24

The scope of application of the ABS-Lock X on timber planks is limited to service class 1 according to EN 1995-1-1. The fixture of the anchor device must not be weathered freely. All other components can be used in weathered outdoor areas.

Regulations for ABS-Lock X on wooden planks C24/GL24

The support beams must have a minimum cross-section of $B = 60 \times H = 120 \text{ mm}$.

In the area of the substructure, the on-site fastening of the timber planks must be reinforced with self-drilling screws SP-Drill 6x100 TX 25.

The number of screws SP-Drill 6x100 TX 25 for fastening the timber planks depends on the width of the timber planks.

$n=2$ for $70 \text{ mm} \leq b \leq 100 \text{ mm}$
 $n=3$ for $100 \text{ mm} \leq b \leq 160 \text{ mm}$
 $n=4$ for $160 \text{ mm} \leq b \leq 300 \text{ mm}$

The use of substructures with higher rigidity (e.g. tongue and groove siding, glued laminated timber) is possible.

Static loading / design resistance

$$F_{R,d} = \frac{F_{R,k}}{\gamma_M} \cdot k_{mod} = \frac{10,6 \text{ kN}}{1,3} \cdot 1,1 = 9,0 \text{ kN}$$

The recommended partial factor γ_M is 1,3, provided no partial factor is given in national regulations or national annexes to EN 1995. The recommended modification factor k_{mod} is 1,1 for service class 1, provided no modification factor is given in national regulations or national annexes to EN 1995.

Dynamic loading / design resistance

Three user

Deformation capacity

≤ 10mm at 0,70 kN maximum length above insulation layer 300mm

Fallprotection ABS-Lock

ABS-Lock X on timber planks

Annex 5.1



Table 6: Substructure timber and glued laminated timber

Anchor Device	Bar height [mm]	Fastener	Edge distance [mm]	Minimum substructure thickness b_{\min} / h_{\min} [mm]
ABS-Lock Loop	-	Wafer head timber screw SP-Drill 8x160	centred	60 / 120

The scope of application of the ABS-Lock III on timber is limited to service class 1 and 2 according to EN 1995-1 1. The fixture of the anchor device must not be weathered freely. All other components can be used in weathered outdoor areas.

Regulations for ABS-Lock Loop on timber and glued laminated timber \geq C24/GL24

The timber plank must have a thickness of at least 24mm. The anchor device must be mounted on the middle beam of the three supporting beams. The width of the timber plank must be between 100 mm and 160mm. The support beams must have a minimum cross-section of 60 mm x 120 mm. The counter battens on the supporting beams must have a cross section of at least 48 mm x 24mm.

Static loading / design resistance

$$F_{R,d} = \frac{F_{R,k}}{1,5 \cdot \gamma_M} = \frac{15 \text{ kN}}{1,5 \cdot 1,0} = 10 \text{ kN}$$

The recommended partial factor γ_M is 1,0, provided no partial factor is given in national regulations or national annexes to EN 1993.

Dynamic loading / design resistance

One user

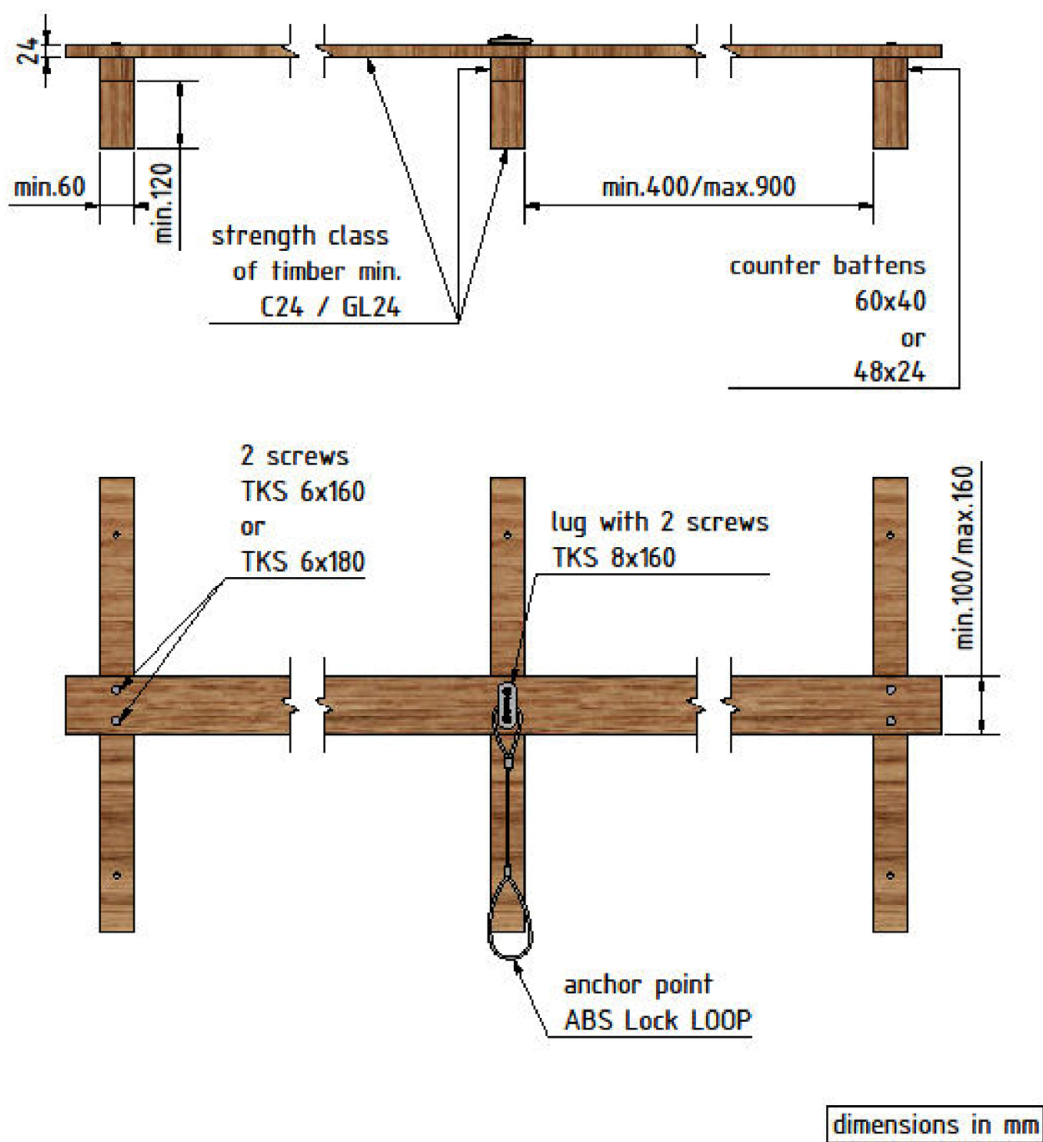
Deformation capacity

No performance assessed

Fallprotection ABS-Lock

ABS-Lock Loop on timber

Annex 6.1



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Fallprotection ABS-Lock	Annex 6.2
ABS-Lock Loop on timber	