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European Technical Assessment Body
for construction products



European Technical Assessment

ETA-24/0006
of 24 September 2024

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

S-WO X20, S-WO X50, S-WO WIRE,
S-WO WOODFIX

Product family
to which the construction product belongs

Anchor devices for fastening personal fall protection
systems to timber substructures

Manufacturer

Adolf Würth GmbH & Co. KG
Reinhold-Würth-Straße 12-17
74653 Künzelsau
GERMANY

Manufacturing plant

Plants of Adolf Würth GmbH & Co. KG

This European Technical Assessment
contains

19 pages including 15 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

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Specific Part

1 Technical description of the product

The fall protection systems S-WO X, S-WO Wire und S-WO WOODFIX are made of stainless steel. They are fastened to timber substructure according to EN 338¹, EN 14080², EN 14081-1³, EN 636⁴. The fall protection systems are fastened to timber substructure with 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	Substructure
2	S-WO X20 TYP 5	Pan head timber screw A2 SHR-PANHD-HO-A2- RW30-6x40/37 ⁵	Timber shuttering board >C24 ^{6,7} or OSB/3 ⁸ OSB/4 ⁸ on timber > C24/GL24 ^{6,7,9}
3	S-WO X50 TYP 5		
4	S-WO WIRE TYP 5	Pan head timer screw A2 SHR-SK-HO-A2- RW40- 8x140/80 ⁵	Timber > C24 ^{6,7,9}
5	S-WO WOODFIX	Pan head timber screw A2 SHR-SK-HO-A2- RW30- 6X80/50 ⁵	Timber > C24 ^{6,7,9}

The components and the system setup of the product are given in Annex (1-5).

2 Specification of the intended use in accordance with the applicable EAD 331846-00-0603 – Anchor Devices for Fastening Personal Fall Protection Systems to Timber Substructures

The fall protection systems, listed in table 1, are used to protect operators working at height, 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 systems S-WO X, S-WO Wire und S-WO WOODFIX 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 any load for the S-WO X und S-WO WOODFIX protection system can be applied in all directions to the mounting level. The direction of load for the S-WO X protection system shall be parallel to the mounting level. Thus use at a (timber-) wall is intended only when the direction of force still applies at a 90 ° angle to the fastening axis.

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	EN 338:2016	Structural timber - Strength classes
2	EN 14080:2013	Timber structures - Glued laminated timber and glued solid timber - Requirements
3	EN 14081-1:2005	Timber structures - Strength graded structural timber with rectangular cross section - Part 1: General requirements
4	EN 636:2012	Plywood - Specifications
5	ETA-11/0190 Würth:	self-tapping screws for use in timber construction
6	EN 338:2019	Structural timber – Strength classes
7	EN 14080:2013	Timber structures – Glued laminated timber an glued solid timber – Requirements
8	EN 300:2006	Oriented Strand Boards (OSB) – Definitions, classification and specifications
9	EN 14081-1:2016+A1:2019	Timber structures – Strength graded structural timber with rectangular cross section Part 1: General requirements

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	class A1

3.2 Safety and accessibility in use (BWR 4)

Essential characteristic	Performance
Static loading	Level (kN); see respective product in Annex
Dynamic loading	Level (No. of users); see respective product in Annex
Check of deformation capacity in case of constraining forces	see respective product in Annex
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 24 September 2024 by Deutsches Institut für Bautechnik

Dr.-Ing. Ronald Schwuchow
Head of Section

beglaubigt:
Hahn

This ETA includes the products listed in Table 1:

Table 1: Products include in this ETA

Annex	Tradename (Product in this ETA)	Fastener	Substructure
2	S-WO X20 TYP 5	Pan head timber screw A2 SHR-PANHD-HO-A2- RW30-6x40/37 ^{e)}	Timber shuttering board ≥C24 ^{a),b)} or OSB/3 ^{d)} , OSB/4 ^{d)} on timber ≥ C24/GL24 ^{a),b),c)}
3	S-WO X50 TYP 5		
4	S-WO WIRE TYP 5	Pan head timer screw A2 SHR-SK-HO-A2- RW40-8x140/80 ^{e)}	Timber ≥ C24 ^{a),b),c)}
5	S-WO WOODFIX	Pan head timber screw A2 SHR-SK-HO-A2- RW30-6X80/50 ^{e)}	Timber ≥ C24 ^{a),b),c)}

Annex 2 to 5 shows the components and system structure of the products.

Design values of actions

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

The recommended partial safety factor γ_F is 1,5.

The recommended safety factor is used in order to determine the corresponding design actions, provided no safety factor is given in national regulations or national annexes to EN1990. That leads to the following values:

Example:

For one user: $F_{Ed} = F_{Ek} \times \gamma_F = 6kN \times 1,5 = 9kN$

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

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

- a EN 338:2019
- b EN 14080:2013
- c EN 14081-1:2016+A1:2019
- d EN 300:2006
- e ETA-11/0190

- Structural timber – Strength classes
- Timber structures – Glued laminated timber and glued solid timber – Requirements
- Timber structures – Strength graded structural timber with rectangular cross section
- Part 1: General requirements
- Oriented Strand Boards (OSB) – Definitions, classification and specifications
- Würth: self-tapping screws for use in timber construction

Würth Fall Protection Systems

Overview and rated values

Annex 1

Table 2: Substructure: timber and glued laminated timber \geq C24/GL24 ^{a), b), c)}

Anchor Device	Rod height [mm]	Fastener	Edge distance c_{min} [mm]	Minimum substructure thickness h_{min} [mm]
S-WO X20 TYP 5	200-1000	Pan head timber screw A2 SHR-PANHD-HO-A2- RW30-6x40/37 ^{e)}	35	24

The scope of application of the S-WO X20 TYP 5 on timber shuttering board is limited to service classes 1 and 2 according to EN 1995-1-1. The fixture of the anchor device (base plate, wood screws, as well as the timber beam) must not be weathered freely. All other components can be used in weathered outdoor areas.

Regulations for S-WO X20 TYP 5 on timber shuttering boards

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

Before mounting the anchor device, the shuttering boards and their substructure must be checked with regard to their condition and parameters influencing the load-bearing capacity.

The number of screws for fixing the shuttering boards to the timber substructure depends on the width of the shuttering boards and must be verified according to the technical building regulations:

$n=2$ für $70\text{mm} < b < 100\text{mm}$

$n=3$ für $100\text{mm} < b < 160\text{mm}$

$n=4$ für $160\text{mm} < b < 240\text{mm}$

The anchor device can be freely arranged, taking into account the edge distances as specified in Annex 2.4.

Static loading / design resistance

$$F_{R,d} = \frac{F_{R,k}}{\gamma_M} \times k_{mod} = \frac{16,01\text{kN}}{1,3} \times 1,1 = 13,56\text{kN}$$

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

Dynamic loading / design resistance

Max. three users

Deforming capacity

$\leq 10\text{ mm}$ at 0,7kN with a maximum overhang of 300mm above the insulation

^{e)} ETA-11/0190

Würth: self-tapping screws for use in timber construction

Würth Fall Protection System

S-WO X20 TYP 5 on Timber

Annex 2.1

Table 3: Substructure: OSB3 / OSB4 ^{d)}

Anchor Device	Rod height [mm]	Fastener	Edge distance c_{min} [mm]	Minimum substructure thickness h_{min} [mm]
S-WO X20 TYP 5	200-1000	Pan head timber screw A2 SHR-PANHD-HO-A2-RW30-6x40/37 ^{e)}	163	22

The scope of application of the S-WO X20 TYP 5 on timber shuttering board is limited to service classes 1 and 2 according to EN 1995-1-1. The fixture of the anchor device (base plate, wood screws, as well as the timber beam) must not be weathered freely. All other components can be used in weathered outdoor areas.

Regulations for S-WO X20 TYP 5 on OSB 3 / OSB 4

The support beams must have a minimum cross-section of B= 60mm x H= 120mm.

Before mounting the anchor device, the OSB boards and their substructure must be checked with regard to their condition and parameters influencing the load-bearing capacity.

The OSB boards must be connected by means of tongue and groove.

The anchor device can be freely arranged, taking into account the edge distances as specified in Annex 2.5.

The transmission of the forces into the substructure must be verified in accordance with the technical building regulations. The fixing of the OSB board to the substructure must be done with 5 stainless steel screws with $d_{sch} = 5$ mm.

Static loading / design resistance

$$F_{R,d} = \frac{F_{R,k}}{\gamma_M} \times k_{mod} = \frac{13,41kN}{1,3} \times 1,1 = 11,34kN$$

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

Dynamic loading / design resistance

Max. two users

Deforming capacity

≤ 10 mm at 0,7kN with a maximum overhang of 300mm above the insulation

^{e)} ETA-11/0190

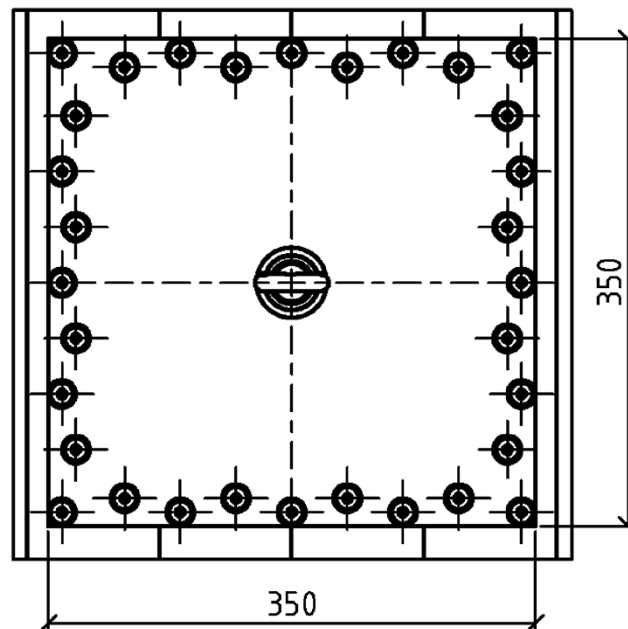
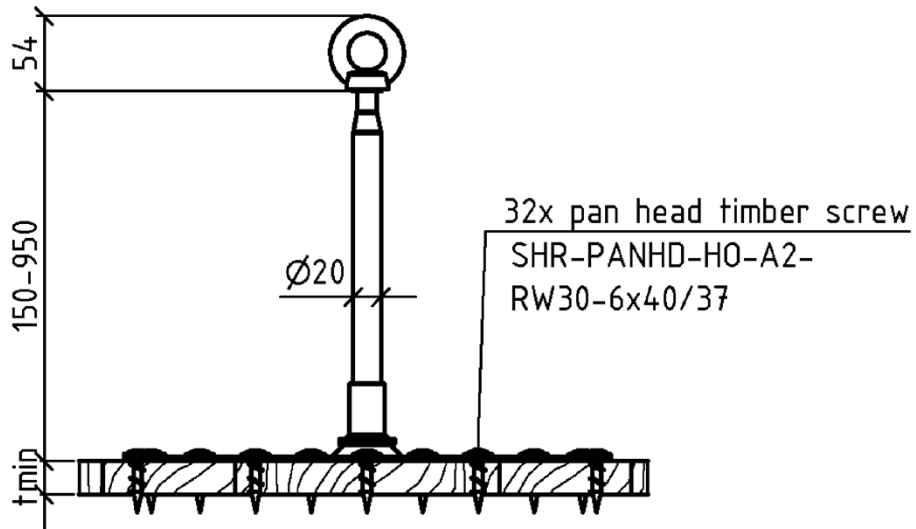
Würth: self-tapping screws for use in timber construction

Würth Fall Protection System

S-WO X20 TYP 5 on OSB 3 / OSB 4

Annex 2.2

Load:
parallel to the mounting plane



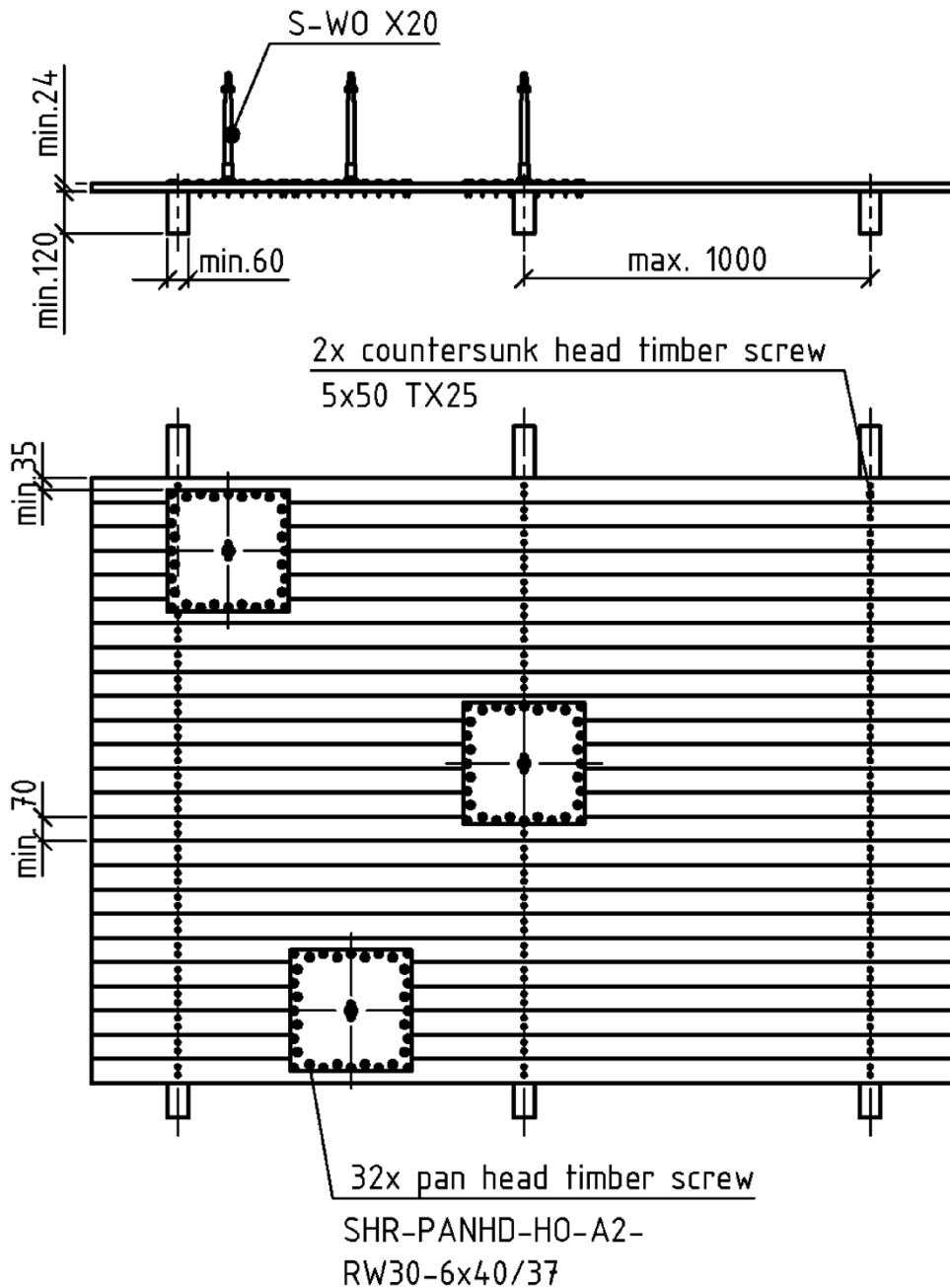
All dimensions in mm

Würth Fall Protection System

S-WO X20 TYP 5 on timber / OSB

Annex 2.3

Load:
parallel to the mounting plane

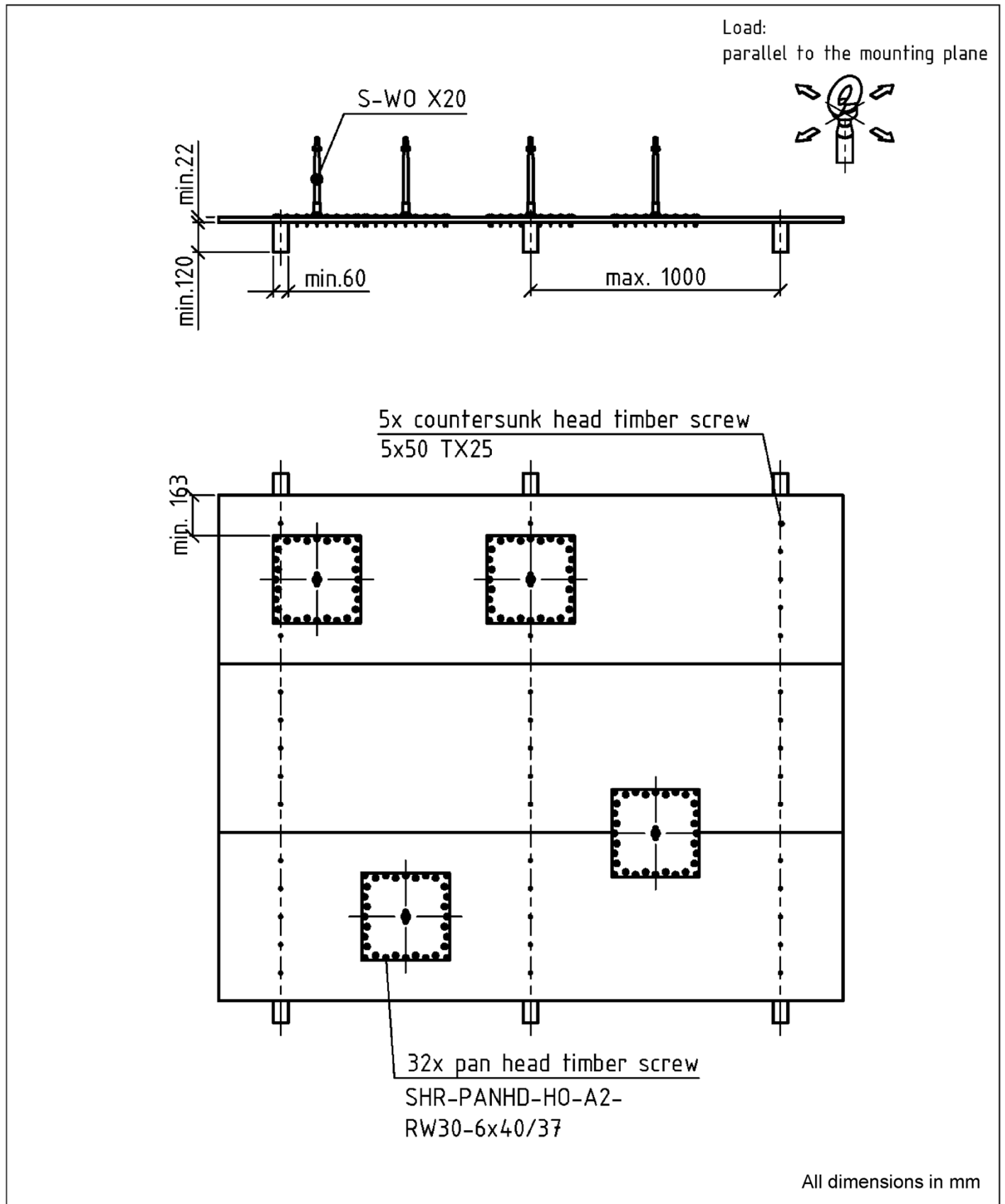


All dimensions in mm

Würth Fall Protection System

S-WO X20 TYP 5 on timber

Annex 2.4



Würth Fall Protection System

S-WO X20 TYP 5 on OSB 3 / OSB 4

Annex 2.5

Table 4: Substructure: timber and glued laminated timber \geq C24/GL24 ^{a), b), c)}

Anchor Device	Rod height [mm]	Fastener	Edge distance c_{min} [mm]	Minimum substructure thickness h_{min} [mm]
S-WO X50 TYP 5	200-1000	Pan head timber screw A2 SHR-PANHD-HO-A2- RW30-6x40/37 ^{e)}	35	24

The scope of application of the S-WO X50 TYP 5 on timber shuttering board is limited to service classes 1 and 2 according to EN 1995-1-1. The fixture of the anchor device (base plate, wood screws, as well as the timber beam) must not be weathered freely. All other components can be used in weathered outdoor areas.

Regulations for S-WO X50 TYP 5 on timber shuttering boards

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

Before mounting the anchor device, the shuttering boards and their substructure must be checked with regard to their condition and parameters influencing the load-bearing capacity.

The number of screws for fixing the shuttering boards to the timber substructure depends on the width of the shuttering boards and must be verified according to the technical building regulations:

- $n= 2$ für $70\text{mm} < b < 100\text{mm}$
- $n= 3$ für $100\text{mm} < b < 160\text{mm}$
- $n= 4$ für $160\text{mm} < b < 240\text{mm}$

The anchor device can be freely arranged, taking into account the edge distances as specified in Annex 3.4.

Static loading / design resistance

$$F_{R,d} = \frac{F_{R,k}}{\gamma_M} \times k_{mod} = \frac{16,01\text{kN}}{1,3} \times 1,1 = 13,56\text{kN}$$

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

Dynamic loading / design resistance

Max. three users

Deforming capacity

≤ 10 mm at 0,7kN with a maximum overhang of 300mm above the insulation

^{e)} ETA-11/0190

Würth: self-tapping screws for use in timber construction

Würth Fall Protection System

S-WO X50 TYP 5 on Timber

Annex 3.1

Table 5: Substructure: OSB3 / OSB4 ^{d)}

Anchor Device	Rod height [mm]	Fastener	Edge distance c_{min} [mm]	Minimum substructure thickness h_{min} [mm]
S-WO X50 TYP 5	200-1000	Pan head timber screw A2 SHR-PANHD-HO-A2-RW30-6x40/37 ^{e)}	163	22

The scope of application of the S-WO X50 TYP 5 on timber shuttering board is limited to service classes 1 and 2 according to EN 1995-1-1. The fixture of the anchor device (base plate, wood screws, as well as the timber beam) must not be weathered freely. All other components can be used in weathered outdoor areas.

Regulations for S-WO X50 TYP 5 on OSB 3 / OSB 4

The support beams must have a minimum cross-section of B= 60mm x H= 120mm.

Before mounting the anchor device, the OSB boards and their substructure must be checked with regard to their condition and parameters influencing the load-bearing capacity.

The OSB boards must be connected by means of tongue and groove.

The anchor device can be freely arranged, taking into account the edge distances as specified in Annex 3.5.

The transmission of the forces into the substructure must be verified in accordance with the technical building regulations. The fixing of the OSB board to the substructure must be done with 5 stainless steel screws with $d_{sch} = 5$ mm.

Static loading / design resistance

$$F_{R,d} = \frac{F_{R,k}}{\gamma_M} \times k_{mod} = \frac{13,41kN}{1,3} \times 1,1 = 11,34kN$$

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

Dynamic loading / design resistance

Max. three users

Deforming capacity

≤ 10 mm at 0,7kN with a maximum overhang of 300mm above the insulation

^{e)} ETA-11/0190

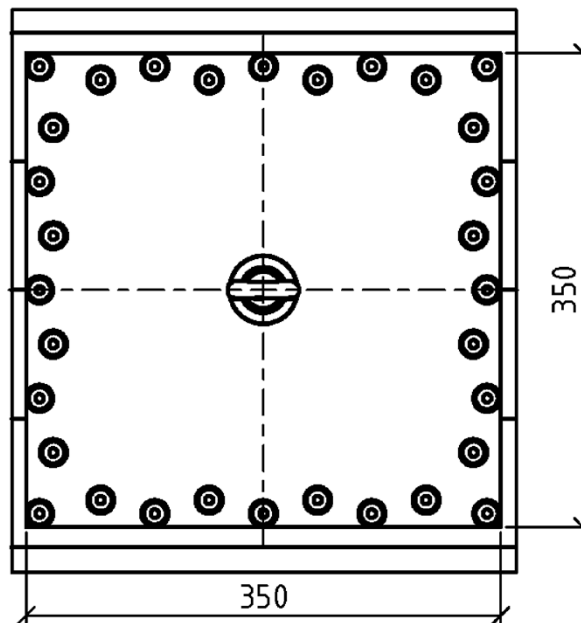
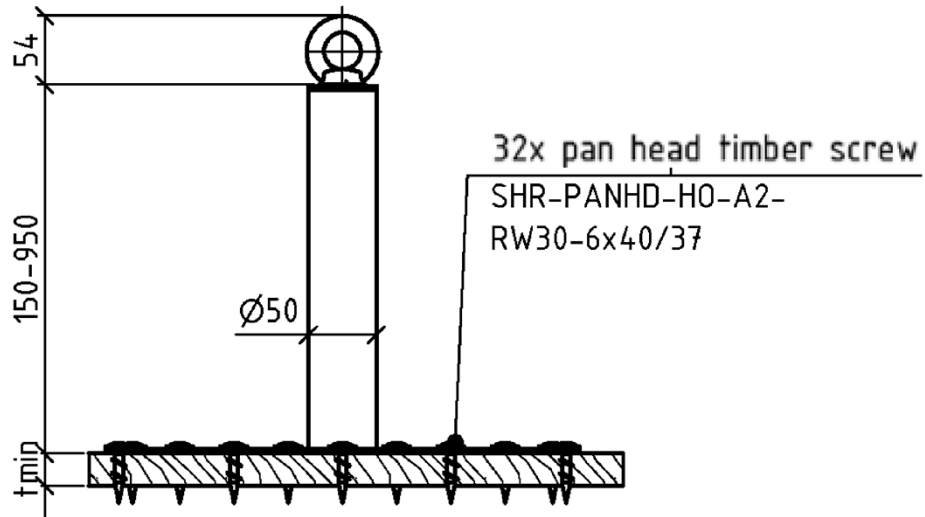
Würth: self-tapping screws for use in timber construction

Würth Fall Protection System

S-WO X50 TYP 5 on OSB 3 / OSB 4

Annex 3.2

Load:
parallel to the mounting plane



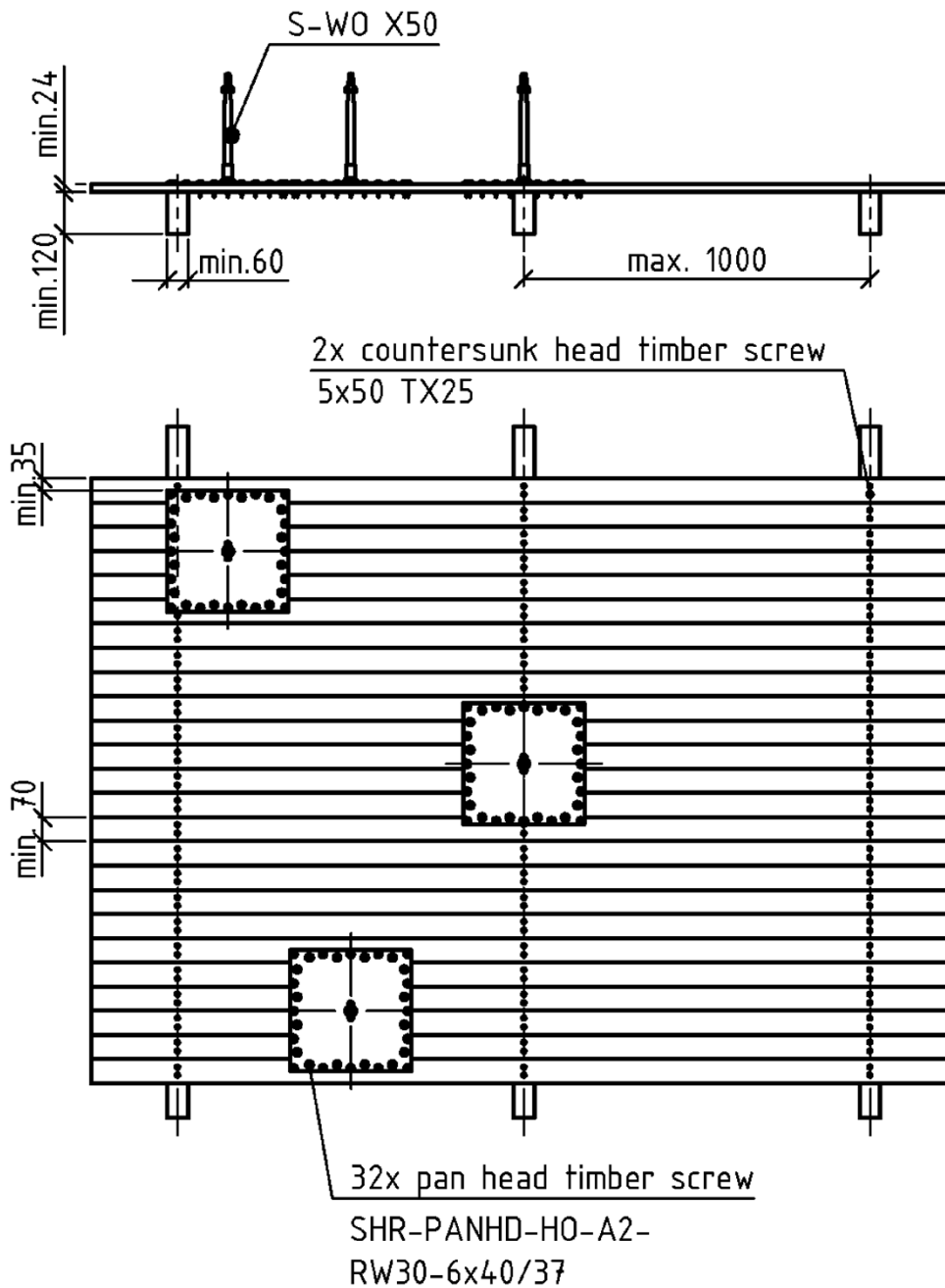
All dimensions in mm

Würth Fall Protection System

S-WO X50 TYP 5 on OSB 3 / OSB 4

Annex 3.3

Load:
parallel to the mounting plane



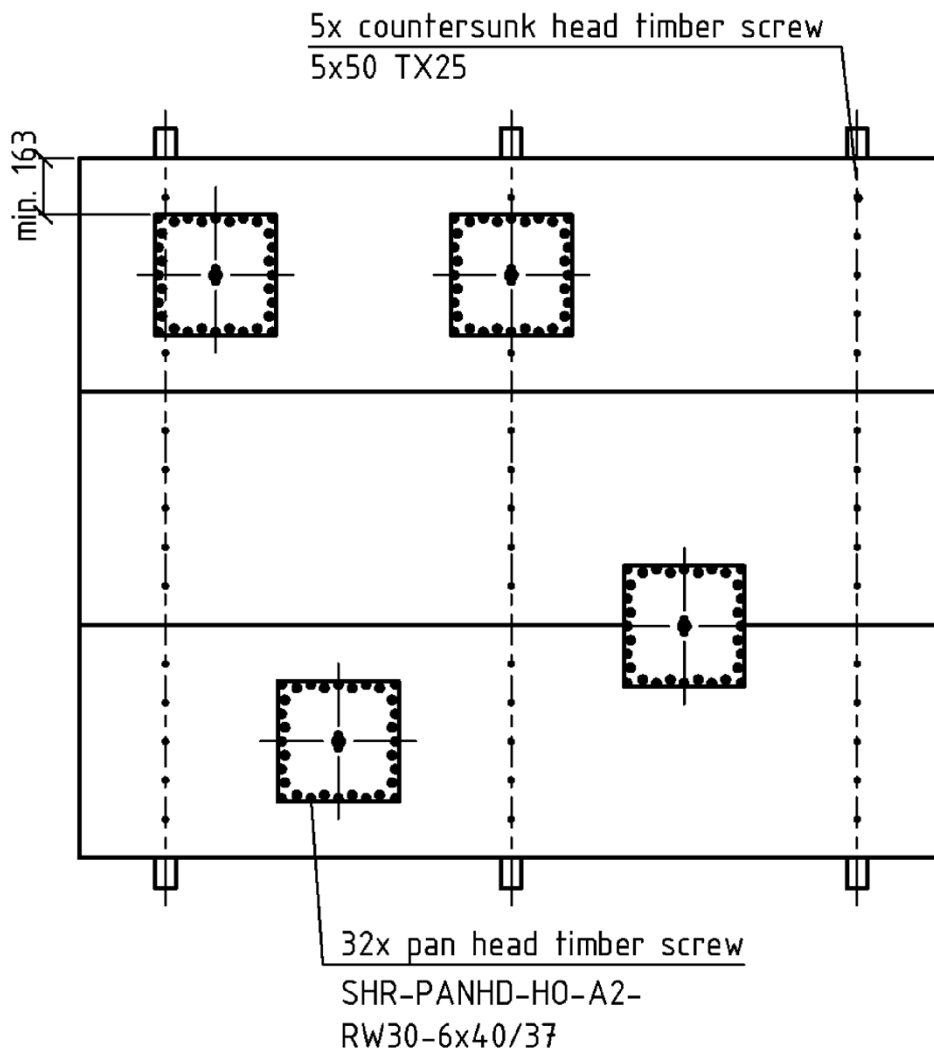
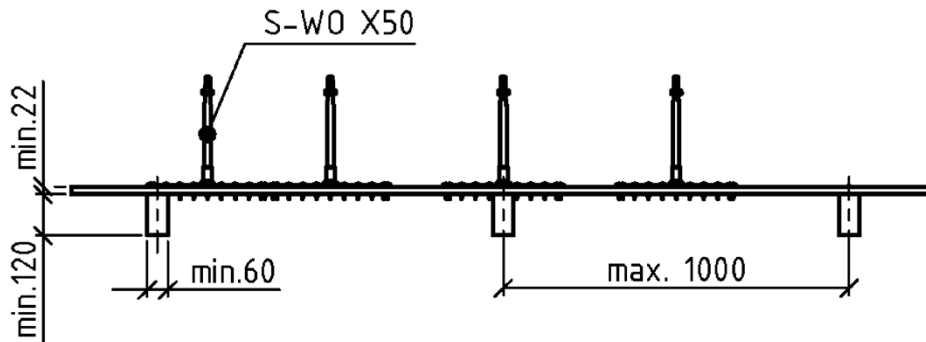
All dimensions in mm

Würth Fall Protection System

S-WO X50 TYP 5 on timber

Annex 3.4

Load:
parallel to the mounting plane



All dimensions in mm

Würth Fall Protection System

S-WO X50 TYP 5 on OSB 3 / OSB 4

Annex 3.5

Table 6: Substructure timber \geq C24/GL24 ^{a),b),c)}

Anchor Device	Wire length [mm]	Fastener	Edge distance c_{min} [mm]	Minimum substructure thickness $b_{min} \times h_{min}$ [mm]
S-WO WIRE TYPE 5	445	Pan head timer screw A2 SHR-SK-HO-A2-RW40-8x140/80 ^{e)}	centred	60/120

The scope of application of the S-WO WIRE TYPE 5 on timber is limited to use classes 1 and 2 according to EN 1995-1. The attachment of the anchor device must not be exposed to the weather. All other components can be used in weathered outdoor areas.

Regulations for S-WO WIRE TYP 5 on timber and glued laminated timber

The formwork board must have a minimum thickness of 24 mm. The anchor device must be fixed to the middle of the three support beams. The width of the formwork board must be at least 120mm. The support beams must have a minimum cross-section of $b = 60 \times h = 120\text{mm}$. The counter-battening resting on the supports must have a minimum cross-section of $48 \times 24\text{mm}$.

Static loading / design resistance

$$F_{R,d} = \frac{F_{R,k}}{\gamma_M} \times k_{mod} = \frac{11,8\text{kN}}{1,3} \times 1,1 = 9,4\text{kN}$$

The recommended safety factor γ_M is 1,38 provided no safety factor is given in national regulations or national annexes to EN 1995. The recommended modification factor k_{mod} is 1,1 for service classes 1 and 2, provided no modification factor is given in national regulations or national annexes to EN 1995.

Dynamic loading / design resistance

Max. one user

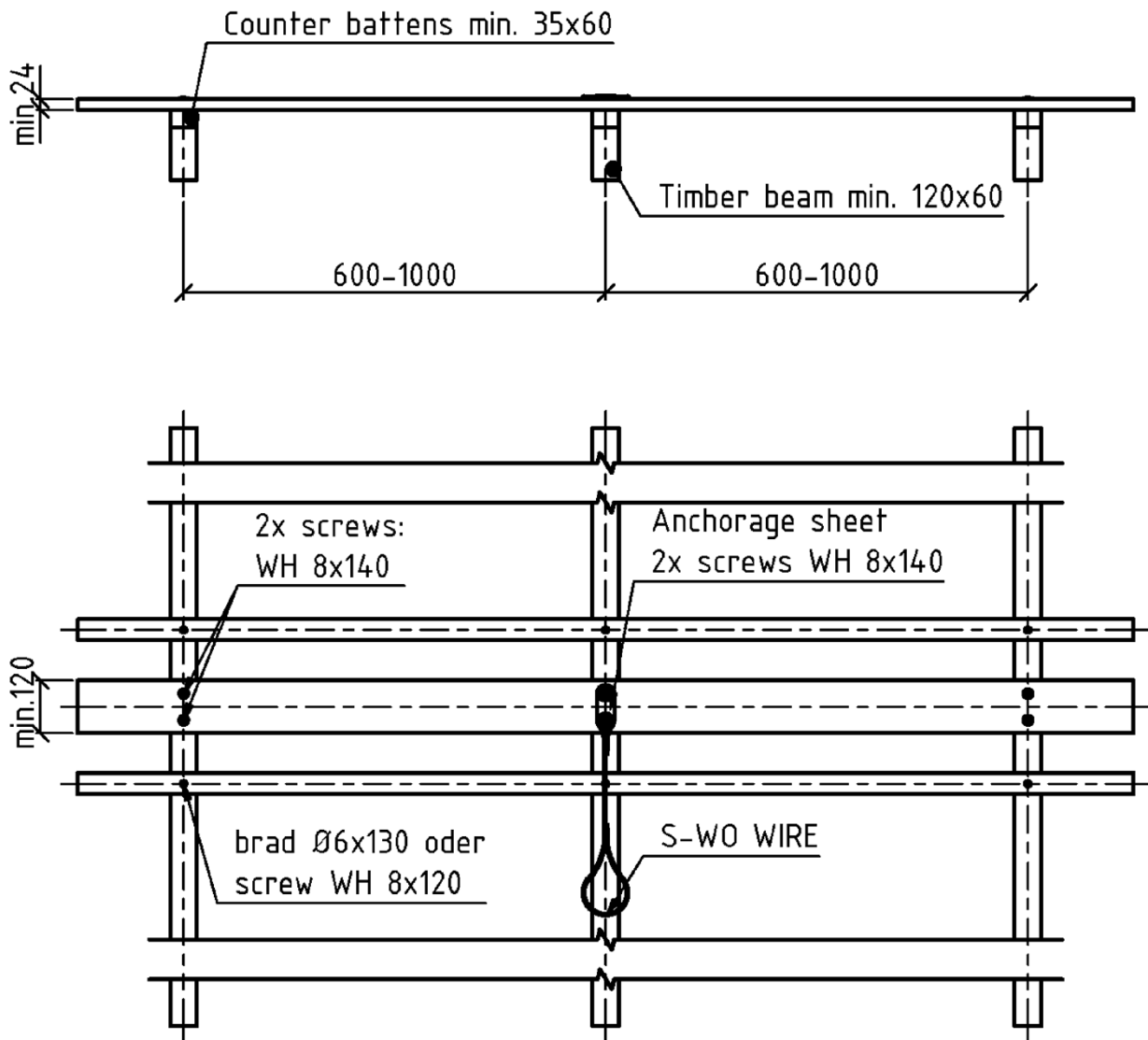
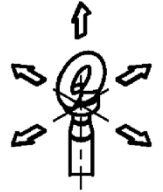
Deforming capacity

No performance values

^{e)} ETA-11/0190

Würth: self-tapping screws for use in timber construction

Load:
all directions



All dimensions in mm

Würth Fall Protection Systems

S-WO WIRE TYP 5 on timber

Annex 4.2

Table 7: Substructure timber \geq C24/GL24 ^{a),b),c)}

Anchor Device	Rod length [mm]	Fastener	Edge distance c_{min} [mm]	Minimum substructure thickness $b_{min} \times h_{min}$ [mm]
S-WO WOODFIX	105	Pan head timber screw A2 SHR-SK-HO-A2-RW30-6X80/50 ^{f)}	centred	80/100

The scope of application of the S-WO WOODFIX on timber is limited to use classes 1 and 2 according to EN 1995-1. The attachment of the anchor device must not be exposed to the weather. All other components can be used in weathered outdoor areas.

Static loading / design resistance

$$F_{R,d} = \frac{F_{R,k}}{\gamma_M} \times k_{mod} = \frac{11,68kN}{1,3} \times 1,1 = 9,88kN$$

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

Dynamic loading / design resistance

Max. one user

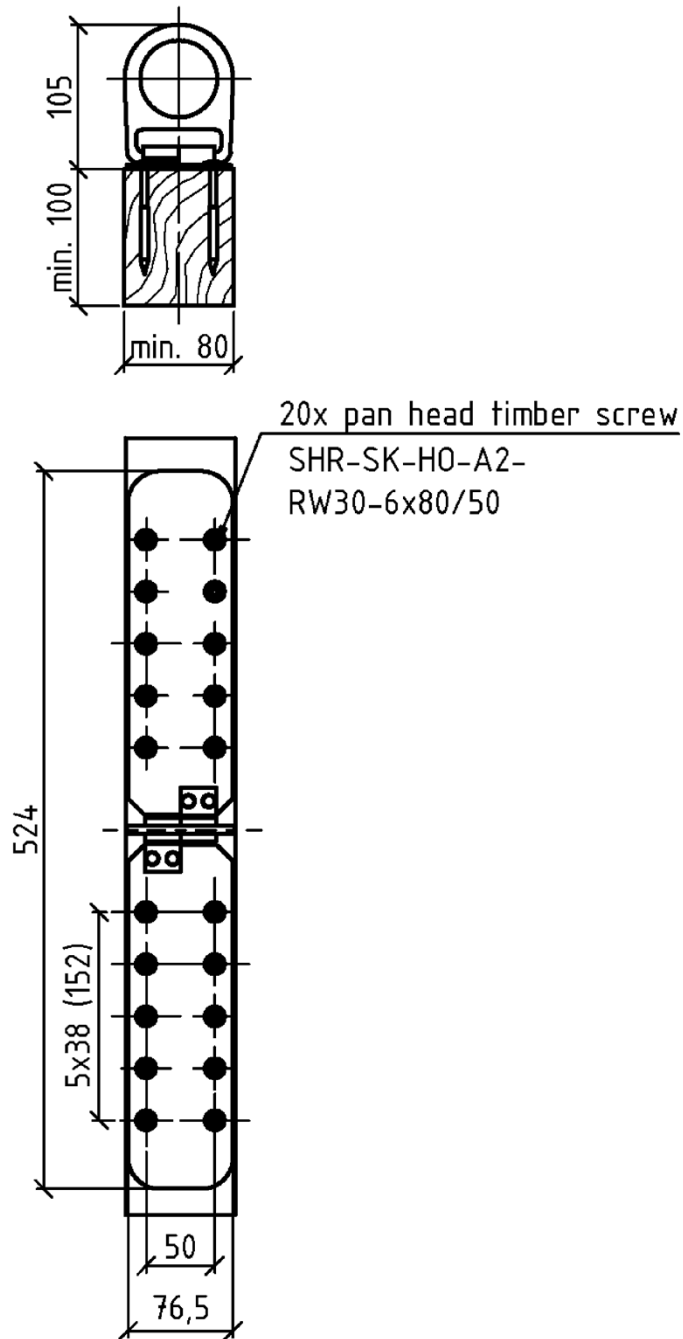
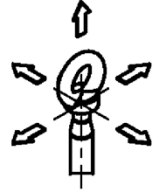
Deforming capacity

No performance values

^{f)} ETA-11/0190

Würth: self-tapping screws for use in timber construction

Load:
all directions



All dimensions in mm

Würth Fall Protection System

S-WO WOODFIX on timber

Annex 5.2