

PRESTANDEDEKLARATION

DoP-ETA-170079 [SV]

Sandwichpanelskruv med borrarspets, FZB**Sandwichpanelskruv med borrarspets, Corrseal****Sandwichpanelskruv med vass spets****AVSEDD ANVÄNDNING**

Skruvarna är avsedda för infästning av sandwichpaneler mot underkonstruktioner av stål (borrarspets) eller trä (vass spets) enligt ETA-17/0079 (version 2025-06-04) och EAD 330047-01-0602 (utgåva januari 2016). Sandwichpanelen kan användas som vägg- eller takbeklädnad eller som bärande vägg- och takelement.

I ETA:n är den komponent som ska fästas komponent I och den bärande konstruktionen komponent II. Komponent I är alltid en sandwichpanel (av varierande tjocklek), komponent II har deklarerade värden för antingen stål- eller träunderkonstruktion, enligt ETA Annex.

TILLVERKARE

ESSVE AB, P.O. Box 7091, SE-164 07 Kista, Sweden

info@essve.se

SYSTEM FÖR BEDÖMNING OCH FORTLÖPANDE KONTROLL AV PRESTANDA

2+

ANMÄLT ORGAN

1488 [FPC-audit]

TAB: INSTYTUT TECHNIKI BUDOWLANEJ (ITB)

Sandwichpanelskruv med borrarspets, FZB

| Geometri | | | |
|----------|--------|---------------|-----------|
| Diameter | Längd | Huvuddiameter | Gänglängd |
| 5,5 mm | 70 mm | 10 mm | 35 mm |
| 5,5 mm | 85 mm | 10 mm | 35 mm |
| 5,5 mm | 110 mm | 10 mm | 35 mm |
| 5,5 mm | 130 mm | 10 mm | 35 mm |
| 5,5 mm | 135 mm | 10 mm | 35 mm |
| 5,5 mm | 150 mm | 10 mm | 60 mm |
| 5,5 mm | 155 mm | 10 mm | 55 mm |
| 5,5 mm | 175 mm | 10 mm | 55 mm |
| 5,5 mm | 175 mm | 10 mm | 60 mm |
| 5,5 mm | 185 mm | 10 mm | 55 mm |
| 5,5 mm | 200 mm | 10 mm | 55 mm |
| 5,5 mm | 200 mm | 10 mm | 60 mm |
| 5,5 mm | 230 mm | 10 mm | 60 mm |
| 5,5 mm | 235 mm | 10 mm | 55 mm |
| 5,5 mm | 255 mm | 10 mm | 55 mm |
| 5,5 mm | 275 mm | 10 mm | 60 mm |
| 5,5 mm | 285 mm | 10 mm | 55 mm |

Sandwichpanelskruv med borrarspets, FZB

| Angiven prestanda | | |
|---|--------------------------------|------------------------------------|
| Väsentliga egenskaper | Prestanda | Harmoniserad teknisk specifikation |
| Diameter | 5,5 mm | |
| Skjuvhållfasthet för förband i stål (max. 6 mm) $V_{R,k}$ [kN] | ETA-17/0079, Annex 3 | ETA-17/0079 |
| Draghållfasthet hos förband i stål (max. 6 mm), $N_{R,k}$ [kN] | ETA-17/0079, Annex 3 | ETA-17/0079 |
| Skjuvhållfasthet för förband i stål (max. 12 mm) $V_{R,k}$ [kN] | ETA-17/0079, Annex 9 | ETA-17/0079 |
| Draghållfasthet hos förband i stål (max. 12 mm), $N_{R,k}$ [kN] | ETA-17/0079, Annex 9 | ETA-17/0079 |
| Böjkapacitet vid termisk expansion av sandwichpanelernas yttersta skikt – största huvudförskjutning u | ETA-17/0079, Annex 3 & Annex 9 | ETA-17/0079 |
| Beständighet | NPD (No Performance Declared) | ETA-17/0079 |
| Reaktion vid brand | Class A1 [EN 13501-1] | ETA-17/0079 |

Sandwichpanelskruv med borrhets, FZB

Produkttypens unika identifikationskod

| Artikelnr. | GTIN | Beskrivning |
|------------|---------------|---|
| 4242012070 | 7317761954972 | SANDWICHPANELSKRUV ESSVE-ST 12,0 BS FZB 5,5/6,3X70 750ST |
| 4242012085 | 7317761954989 | SANDWICHPANELSKRUV ESSVE-ST 12,0 BS FZB 5,5/6,3X85 550ST |
| 4242006110 | 7317761954903 | SANDWICHPANELSKRUV ESSVE-ST 6,0 BS FZB 5,5/6,3X110 500ST |
| 4242012110 | 7317761954996 | SANDWICHPANELSKRUV ESSVE-ST 12,0 BS FZB 5,5/6,3X110 500ST |
| 4242006130 | 7317761954910 | SANDWICHPANELSKRUV ESSVE-ST 6,0 BS FZB 5,5/6,3X130 500ST |
| 4242012135 | 7317761955009 | SANDWICHPANELSKRUV ESSVE-ST 12,0 BS FZB 5,5/6,3X135 450ST |
| 4242006150 | 7317761954927 | SANDWICHPANELSKRUV ESSVE-ST 6,0 BS FZB 5,5/6,3X150 400ST |
| 4242012155 | 7317761955016 | SANDWICHPANELSKRUV ESSVE-ST 12,0 BS FZB 5,5/6,3X155 400ST |
| 4242012175 | 7317761955023 | SANDWICHPANELSKRUV ESSVE-ST 12,0 BS FZB 5,5/6,3X175 400ST |
| 4242006175 | 7317761954934 | SANDWICHPANELSKRUV ESSVE-ST 6,0 BS FZB 5,5/6,3X175 400ST |
| 4242012185 | 7317761955030 | SANDWICHPANELSKRUV ESSVE-ST 12,0 BS FZB 5,5/6,3X185 350ST |
| 4242012200 | 7317761955047 | SANDWICHPANELSKRUV ESSVE-ST 12,0 BS FZB 5,5/6,3X200 350ST |
| 4242006200 | 7317761954941 | SANDWICHPANELSKRUV ESSVE-ST 6,0 BS FZB 5,5/6,3X200 350ST |
| 4242006230 | 7317761954958 | SANDWICHPANELSKRUV ESSVE-ST 6,0 BS FZB 5,5/6,3X230 300ST |
| 4242012235 | 7317761955054 | SANDWICHPANELSKRUV ESSVE-ST 12,0 BS FZB 5,5/6,3X235 300ST |
| 4242012255 | 7317761955061 | SANDWICHPANELSKRUV ESSVE-ST 12,0 BS FZB 5,5/6,3X255 200ST |
| 4242006275 | 7317761954965 | SANDWICHPANELSKRUV ESSVE-ST 6,0 BS FZB 5,5/6,3X275 100ST |
| 4242012285 | 7317761955078 | SANDWICHPANELSKRUV ESSVE-ST 12,0 BS FZB 5,5/6,3X285 100ST |

Sandwichpanelskruv med borrspets, Corrseal

Geometri

| Diameter | Längd | Huvuddiameter | Gänglängd |
|----------|--------|---------------|-----------|
| 5,5 mm | 90 mm | 10 mm | 35 mm |
| 5,5 mm | 110 mm | 10 mm | 35 mm |
| 5,5 mm | 125 mm | 10 mm | 35 mm |
| 5,5 mm | 135 mm | 10 mm | 35 mm |
| 5,5 mm | 155 mm | 10 mm | 55 mm |
| 5,5 mm | 175 mm | 10 mm | 55 mm |
| 5,5 mm | 185 mm | 10 mm | 55 mm |
| 5,5 mm | 200 mm | 10 mm | 55 mm |
| 5,5 mm | 235 mm | 10 mm | 55 mm |
| 5,5 mm | 255 mm | 10 mm | 55 mm |

Sandwichpanelskruv med borrspets, Corrseal

Angiven prestanda

| Väsentliga egenskaper | Prestanda | Harmoniserad teknisk specifikation |
|---|-------------------------------|------------------------------------|
| Diameter | 5,5 mm | |
| Skjuvhållfasthet för förband i stål (max. 12 mm) $V_{R,k}$ [kN] | ETA-17/0079, Annex 12 | ETA-17/0079 |
| Draghållfasthet hos förband i stål (max. 12 mm), $N_{R,k}$ [kN] | ETA-17/0079, Annex 12 | ETA-17/0079 |
| Böjkapacitet vid termisk expansion av sandwichpanelernas yttersta skikt - största huvudförskjutning u | ETA-17/0079, Annex 12 | ETA-17/0079 |
| Beständighet | NPD (No Performance Declared) | ETA-17/0079 |
| Reaktion vid brand | Class A1 (EN 13501-1) | ETA-17/0079 |

PRESTANDADECLARATION

DoP-ETA-170079 [SV]

Sandwichpanelskruv med borrarpet, Corseal

Produkttypens unika identifikationskod

| Artikelnr. | GTIN | Beskrivning |
|------------|---------------|--|
| 4242512090 | 7317761955085 | SANDWICHPANELSKRUV ESSVE-ST 12,0 BS CS 5,5/6,3X90 550ST |
| 4242512110 | 7317761955092 | SANDWICHPANELSKRUV ESSVE-ST 12,0 BS CS 5,5/6,3X110 500ST |
| 4242512125 | 7317761955108 | SANDWICHPANELSKRUV ESSVE-ST 12,0 BS CS 5,5/6,3X125 500ST |
| 4242512135 | 7317761955115 | SANDWICHPANELSKRUV ESSVE-ST 12,0 BS CS 5,5/6,3X135 450ST |
| 4242512155 | 7317761955122 | SANDWICHPANELSKRUV ESSVE-ST 12,0 BS CS 5,5/6,3X155 400ST |
| 4242512175 | 7317761955139 | SANDWICHPANELSKRUV ESSVE-ST 12,0 BS CS 5,5/6,3X175 400ST |
| 4242512185 | 7317761955146 | SANDWICHPANELSKRUV ESSVE-ST 12,0 BS CS 5,5/6,3X185 350ST |
| 4242512200 | 7317761955153 | SANDWICHPANELSKRUV ESSVE-ST 12,0 BS CS 5,5/6,3X200 350ST |
| 4242512235 | 7317761955160 | SANDWICHPANELSKRUV ESSVE-ST 12,0 BS CS 5,5/6,3X235 300ST |
| 4242512255 | 7317761955177 | SANDWICHPANELSKRUV ESSVE-ST 12,0 BS CS 5,5/6,3X255 200ST |

Sandwichpanelskruv med vass spets

Geometri

| Diameter | Längd | Huvuddiameter | Kärndiameter |
|----------|--------|---------------|--------------|
| 6,3 mm | 120 mm | 19 mm | 4,3 mm |
| 6,3 mm | 140 mm | 19 mm | 4,3 mm |
| 6,3 mm | 160 mm | 19 mm | 4,3 mm |
| 6,3 mm | 190 mm | 19 mm | 4,3 mm |
| 6,3 mm | 210 mm | 19 mm | 4,3 mm |
| 6,3 mm | 260 mm | 19 mm | 4,3 mm |
| 6,3 mm | 310 mm | 19 mm | 4,3 mm |

Sandwichpanelskruv med vass spets

Angiven prestanda

| Väsentliga egenskaper | Prestanda | Harmoniserad teknisk specifikation |
|---|-------------------------------|------------------------------------|
| Diameter | 6,3 mm | |
| Skjuvhållfasthet för förband i trä, $V_{R,k}$ [kN] | ETA-17/0079, Annex 15 | ETA-17/0079 |
| Draghållfasthet hos förband i trä, $N_{R,k}$ [kN] | ETA-17/0079, Annex 15 | ETA-17/0079 |
| Böjkapacitet vid termisk expansion av sandwichpanelernas yttersta skikt – största huvudförskjutning u | ETA-17/0079, Annex 15 | ETA-17/0079 |
| Beständighet | NPD (No Performance Declared) | ETA-17/0079 |
| Reaktion vid brand | Class A1 [EN 13501-1] | ETA-17/0079 |

Sandwichpanelskruv med vass spets

Produkttypens unika identifikationskod

| Artikelnr. | GTIN | Beskrivning |
|------------|---------------|--|
| 10565102 | 7317761151319 | BETONGSKRUV SANDWICH SEXKANTH. RFR BRI RUSP 6,3X7X120 500ST |
| 10565104 | 7317761151326 | BETONGSKRUV SANDWICH SEXKANTH. RFR BRI RUSP 6,3X7X140 400ST |
| 10565106 | 7317761151333 | BETONGSKRUV SANDWICH SEXKANTH. RFR BRI RUSP 6,3X7X160 400ST |
| 10565108 | 7317761151340 | BETONGSKRUV SANDWICH SEXKANTH. RFR BRI RUSP 6,3X7X190 350ST |
| 10565110 | 7317761151357 | BETONGSKRUV SANDWICH SEXKANTHUV RFR BRI RUSP 6,3X7X210 300ST |
| 10565112 | 7317761151364 | BETONGSKRUV SANDWICH SEXKANTH. RFR BRI RUSP 6,3X7X260 200ST |
| 10565114 | 7317761151371 | BETONGSKRUV SANDWICH SEXKANTH. RFR BRI. RUSP 6,3X7X310 100ST |

Prestandan för ovanstående produkt överensstämmer med den angivna prestandan. Denna prestandadeklaration har utfärdats i enlighet med förordning (EU) nr 305/2011 på eget ansvar av den tillverkare som anges ovan.

Undertecknat för tillverkaren av:



Viktor Bukowski, Product manager, concrete & mass timber fasteners
Kista 2025-10-15



INSTYTUT TECHNIKI BUDOWLANEJ



Member of



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**European Technical
Assessment**

**ETA-17/0079
of 04/06/2025**



General Part

Technical Assessment Body issuing the European Technical Assessment

Instytut Techniki Budowlanej

Trade name of the construction product

SANDWICHPANEL SCREW ESSVE-ST
SANDWICHPANEL SCREW ESSVE-WD

Product family to which the construction product belongs

Fastening screws for sandwich panels

Manufacturer

ESSVE AB
P.O. Box 7091
SE-16407 Kista
Sweden

Manufacturing plant

Essve plants

This European Technical Assessment contains

22 pages including 17 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

European Assessment Document (EAD)
330047-01-0602 "Fastening screws for sandwich panels"

This version replaces

ETA-17/0079 issued on 27/03/2020



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Specific Part

1 Technical description of the product

The fastening screws for sandwich panels SANDWICHPANEL SCREW ESSVE-ST and SANDWICHPANEL SCREW ESSVE-WD are a self-drilling and self-tapping screws listed in Table 1. The carbon steel screws are supplied with EPDM washers made of carbon steel or stainless steel. For details see the Annexes 3 to 17.

The fastening screw for sandwich panels and the corresponding connections are subject to tension and shear forces.

Table 1

| No. | Screw | Material | Annex |
|-----|--|---|-------|
| 1 | SANDWICHPANEL SCREW ESSVE-ST-Z19-EZP 5,5/6,3xL/6 | screw: carbon steel with $\geq 10 \mu\text{m}$ of zinc washer: galvanized carbon steel | 3 |
| 2 | SANDWICHPANEL SCREWESSVE-ST-Z22-EZP 5,5/6,3xL/6 | | 4 |
| 3 | SANDWICHPANEL SCREW ESSVE-ST-Z29-EZP 5,5/6,3xL/6 | | 5 |
| 4 | SANDWICHPANEL SCREW ESSVE-ST-S19-CorrSeal 5,5/6,3xL/6 | screw: galvanized carbon steel with zinc-epoxy topcoat washer: stainless steel | 6 |
| 5 | SANDWICHPANEL SCREW ESSVE-ST-S22-CorrSeal 5,5/6,3xL/6 | | 7 |
| 6 | SANDWICHPANEL SCREW ESSVE-ST-S29-CorrSeal 5,5/6,3xL/6 | | 8 |
| 7 | SANDWICHPANEL SCREW ESSVE-ST-Z19-EZP 5,5/6,3xL/12 | screw: carbon steel with $\geq 10 \mu\text{m}$ of zinc washer: galvanized carbon steel | 9 |
| 8 | SANDWICHPANEL SCREW ESSVE-ST-Z22-EZP 5,5/6,3xL/12 | | 10 |
| 9 | SANDWICHPANEL SCREW ESSVE-ST-Z29-EZP 5,5/6,3xL/12 | | 11 |
| 10 | SANDWICHPANEL SCREW ESSVE-ST-S19-CorrSeal 5,5/6,3xL/12 | screw: galvanized carbon steel with zinc-epoxy topcoat washer: stainless steel | 12 |
| 11 | SANDWICHPANEL SCREW ESSVE-ST-S22-CorrSeal 5,5/6,3xL/12 | | 13 |
| 12 | SANDWICHPANEL SCREW ESSVE-ST-S29-CorrSeal 5,5/6,3xL/12 | | 14 |
| 12 | SANDWICHPANEL SCREW ESSVE-WD-S19-CorrSeal 6,3/7,0xL | screw: galvanized carbon steel with zinc-epoxy topcoat washer: stainless steel | 15 |
| 13 | SANDWICHPANEL SCREW ESSVE-WD-S22-CorrSeal 6,3/7,0xL | | 16 |
| 14 | SANDWICHPANEL SCREW ESSVE-WD-S29-CorrSeal 6,3/7,0xL | | 17 |

2 Specification of the intended use in accordance with the applicable European Assessment Document (EAD)

The fastening screws for sandwich panels are intended to be used for fastening sandwich panels to steel or timber substructures. For details see the Annexes 3 to 17. The component to be fastened is component I and the supporting structure is component II. The sandwich panel can either be used as wall or roof cladding or as load bearing wall and roof element.

Fastening screws for sandwich panels are intended to be used in internal environments with corrosion category class C1 in accordance with EN ISO 12944-2.

For the corrosion protection the rules given in EN 1993-1-3 and EN 1993-1-4 shall be taken into account.

Furthermore the intended use comprises connections with predominantly static loads (e.g. wind loads, dead loads).

Example of execution of a connections are given in Annex 1.

The provisions made in this European Technical Assessment are based on an assumed working life of the fasteners of 25 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer or Technical Assessment Body, 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 Performance of the product

3.1.1 Mechanical resistance and stability (BWR 1)

| Essential characteristics | Performances |
|--|-------------------------|
| Shear resistance of the connection | Annexes A3 to A17 |
| Tension resistance of the connection | Annexes A3 to A17 |
| Bending capacity in case of thermal expansion of the outer face of sandwich panels – maximum head displacement u | Annexes A3 to A17 |
| Durability | No performance assessed |

3.1.2 Safety in case of fire (BWR 2)

| Essential characteristic | Performance |
|--------------------------|-------------|
| Reaction to fire | Class A1 |

3.2 Methods used for the assessment

The assessment of the products has been made in accordance with EAD 330047-01-0602.

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

According to Decision 1998/214/EC, amended by 2001/596/EC, of the European Commission the system 2+ of assessment and verification of constancy of performance applies (see Annex V to regulation (EU) No 305/2011).

5 Technical details necessary for the implementation of the AVCP system, as provided in the applicable European Assessment Document (EAD)

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited in Instytut Techniki Budowlanej.

For type testing the results of the tests performed as part of the assessment for the European Technical Assessment shall be used unless there are changes in the production line or plant.

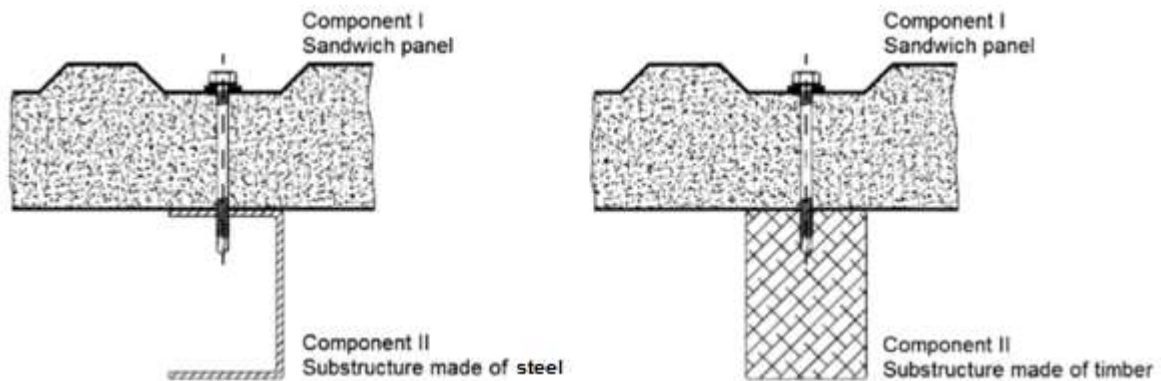
In such cases the necessary type testing has to be agreed between Instytut Techniki Budowlanej and the notified body.

Issued in Warsaw on 04/06/2025 by Instytut Techniki Budowlanej



Anna Panek, MSc
Deputy Director of ITB

Exemplary execution of a connections



Description of the components

Component I Sandwich panel with outer and inner skin made of steel

Component II Substructure made of steel or timber

Dimensions of the components

- t_1 Thickness of sandwich panel (component I)
- t_{N1} Thickness of sandwich panel outer skin
- t_{N2} Thickness of sandwich panel inner skin
- t_{II} Thickness of component II made of steel
- l_{ef} Effective screw-in length in timber substructure (without drill point)
- l_p Screw-in length in timber substructure (including drill point)
- d_{dp} Pre-drill diameter for component I and II

Performances

- $N_{R,k}$ Characteristic value of tension resistance of the connection
- $V_{R,k}$ Characteristic value of shear resistance of the connection
- u Bending capacity of the fastening screw (maximum head displacement of the fastener)
- $N_{R,I,k}$ Characteristic value of pull-through resistance through the sandwich panel (component I)
- $N_{R,II,k}$ Characteristic value of pull-out resistance out of the substructure (component II)
- $M_{y,Rk}$ Characteristic value of yield moment of the fastening screw (timber structure)
- $f_{ax,k}$ Characteristic value of withdrawal strength (timber structure)

**SANDWICH PANEL SCREW ESSVE-ST
SANDWICH PANEL SCREW ESSVE-WD
Fastening screws for sandwich panels**

Basics (1)

Annex 1
of European
Technical Assessment
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Design values

The design values of a connection have to be determined as follows:

$$N_{R,d} = \frac{N_{R,k}}{\gamma_M}$$

$$V_{R,d} = \frac{V_{R,k}}{\gamma_M}$$

$N_{R,d}$ Design value of tension resistance

$V_{R,d}$ Design value of shear resistance

γ_M Partial safety factor

The recommended partial safety factor γ_M is 1,33, provided no partial safety factor is given in national regulations or national Annexes to Eurocode 3. For timber substructure k_{mod} according to Eurocode 5 needs to be considered, unless steel failure in component I is governing.

In case of combined loading of a connection by tension and shear forces the following interaction equation has to be taken into account:

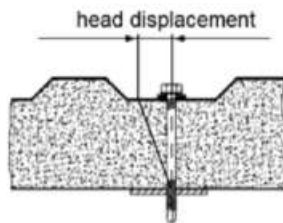
$$\frac{N_{S,d}}{N_{R,d}} + \frac{V_{S,d}}{V_{R,d}} \leq 1.0$$

$N_{S,d}$ Design value of the applied tension force

$V_{S,d}$ Design value of the applied shear force

Head Displacement

Thermal expansions of the outer skin of sandwich panels may not exceed the maximum head displacement of the fastener (u).



Installation conditions

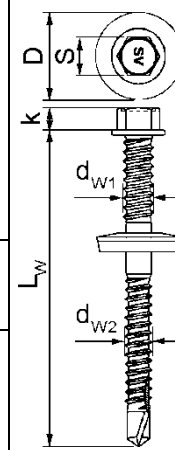
The installation is carried out according to manufacturer's instruction.

The fastening screws have to be installed with a suitable drill driver (e.g. cordless drill driver with depth stop).

SANDWICH PANEL SCREW ESSVE-ST
SANDWICH PANEL SCREW ESSVE-WD
Fastening screws for sandwich panels

Basics (2)

Annex 2
 of European
 Technical Assessment
 ETA-17/0079

| | | |
|--|--|--|
| Materials Fastener: carbon steel – SAE1022 quenched, tempered and galvanized Washer: EPDM sealing ring with metal top made of carbon steel, galvanized Component I: S280GD, S320GD or S350GD – EN 10346 Component II: $t_{II} \leq 2$ mm: S280GD, S320GD or S350GD – EN 10346 $t_{II} > 2$ mm: S235 – EN 10025-1 | |  |
| Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 6$ mm | | |
| Timber substructures no performance assessed | | $L_w = 65 - 275$ mm $d_{W1} = 6,3$ mm $d_{W2} = 5,5$ mm $k = 5,5$ mm $S = 8,0$ mm $D = 19,0$ mm |

| | | Component II: t_{II} [mm] | 2,00 | 2,50 | 3,00 | 4,00 | 5,00 |
|---|----------------|-----------------------------|------|------|------|------|------|
| Component I: $t_{N,1}$ or $t_{N,2}$ [mm] | $V_{R,k}$ [kN] | 0,50 | 1,60 | 1,60 | 1,60 | 1,60 | 1,60 |
| | | 0,55 | 1,60 | 1,60 | 1,60 | 1,60 | 1,60 |
| | | 0,63 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 |
| | | 0,75 | 2,72 | 2,72 | 2,72 | 2,72 | 2,72 |
| | | 0,88 | 2,72 | 2,72 | 2,72 | 2,72 | 2,72 |
| | $N_{R,k}$ [kN] | 0,50 | 2,58 | 2,58 | 2,58 | 2,58 | 2,58 |
| | | 0,55 | 2,58 | 2,58 | 2,58 | 2,58 | 2,58 |
| | | 0,63 | 2,58 | 2,58 | 2,58 | 4,69 | 4,69 |
| | | 0,75 | 2,58 | 2,58 | 2,58 | 5,38 | 5,38 |
| | | 0,88 | 2,58 | 2,58 | 2,58 | 5,38 | 5,38 |
| Max. head displacement u depending on the sandwich panel thickness [mm] | 30 | 12 | 12 | 12 | 1,5 | 1,5 | |
| | 40 | 12 | 12 | 12 | 1,5 | 1,5 | |
| | 50 | 12 | 12 | 12 | 1,5 | 1,5 | |
| | 60 | 18 | 18 | 18 | 4 | 4 | |
| | 70 | 18 | 18 | 18 | 4 | 4 | |
| | 80 | 18 | 18 | 18 | 4 | 4 | |
| | 90 | 23 | 23 | 23 | 10 | 10 | |
| | 100 | 23 | 23 | 23 | 10 | 10 | |
| | 120 | 23 | 23 | 23 | 10 | 10 | |
| | >140 | 23 | 23 | 23 | 10 | 10 | |

**SANDWICH PANEL SCREW ESSVE-ST
 SANDWICH PANEL SCREW ESSVE-WD
 Fastening screws for sandwich panels**

SANDWICH PANEL SCREW ESSVE-ST-Z19-EZP 5,5/6,3xL/6
 self-drilling screws with hexagon head and sealing washer $\varnothing 19$ mm
 with metal top made of carbon steel galvanized (Z)

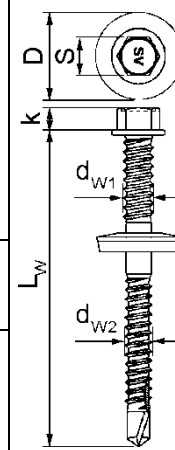
Annex 3

of European
 Technical Assessment
 ETA-17/0079

| | | |
|--|--|---|
| Materials Fastener: carbon steel – SAE1022 quenched, tempered and galvanized Washer: EPDM sealing ring with metal top made of carbon steel, galvanized Component I: S280GD, S320GD or S350GD – EN 10346 Component II: $t_{II} \leq 2$ mm: S280GD, S320GD or S350GD – EN 10346 $t_{II} > 2$ mm: S235 – EN 10025-1 | | <p> $L_w = 65 - 275$ mm $d_{W1} = 6,3$ mm $d_{W2} = 5,5$ mm $k = 5,5$ mm $S = 8,0$ mm $D = 22,0$ mm </p> |
| Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 6$ mm | | |
| Timber substructures no performance assessed | | |

| | | Component II: t_{II} [mm] | 2,00 | 2,50 | 3,00 | 4,00 | 5,00 |
|---|----------------|-----------------------------|------|------|------|------|------|
| Component I: $t_{N,1}$ or $t_{N,2}$ [mm] | $V_{R,k}$ [kN] | 0,50 | 1,60 | 1,60 | 1,60 | 1,60 | 1,60 |
| | | 0,55 | 1,60 | 1,60 | 1,60 | 1,60 | 1,60 |
| | | 0,63 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 |
| | | 0,75 | 2,72 | 2,72 | 2,72 | 2,72 | 2,72 |
| | | 0,88 | 2,72 | 2,72 | 2,72 | 2,72 | 2,72 |
| | | 1,00 | 2,72 | 2,72 | 2,72 | 2,72 | 2,72 |
| | $N_{R,k}$ [kN] | 0,50 | 2,58 | 2,58 | 2,58 | 2,58 | 2,58 |
| | | 0,55 | 2,58 | 2,58 | 2,58 | 2,58 | 2,58 |
| | | 0,63 | 2,58 | 2,58 | 2,58 | 4,69 | 4,69 |
| | | 0,75 | 2,58 | 2,58 | 2,58 | 5,38 | 5,38 |
| | | 0,88 | 2,58 | 2,58 | 2,58 | 5,38 | 5,38 |
| | | 1,00 | 2,58 | 2,58 | 2,58 | 5,38 | 5,38 |
| Max. head displacement u depending on the sandwich panel thickness [mm] | 30 | 12 | 12 | 12 | 1,5 | 1,5 | |
| | 40 | 12 | 12 | 12 | 1,5 | 1,5 | |
| | 50 | 12 | 12 | 12 | 1,5 | 1,5 | |
| | 60 | 18 | 18 | 18 | 4 | 4 | |
| | 70 | 18 | 18 | 18 | 4 | 4 | |
| | 80 | 18 | 18 | 18 | 4 | 4 | |
| | 90 | 23 | 23 | 23 | 10 | 10 | |
| | 100 | 23 | 23 | 23 | 10 | 10 | |
| | 120 | 23 | 23 | 23 | 10 | 10 | |
| | >140 | 23 | 23 | 23 | 10 | 10 | |

| | |
|--|--|
| SANDWICH PANEL SCREW ESSVE-ST SANDWICH PANEL SCREW ESSVE-WD Fastening screws for sandwich panels | Annex 4 of European Technical Assessment ETA-17/0079 |
| SANDWICH PANEL SCREW ESSVE-ST-Z22-EZP 5,5/6,3xL/6 self-drilling screws with hexagon head and sealing washer $\varnothing 22$ mm with metal top made of carbon steel galvanized (Z) | |

| | | |
|--|--|--|
| Materials Fastener: carbon steel – SAE1022 quenched, tempered and galvanized Washer: EPDM sealing ring with metal top made of carbon steel, galvanized Component I: S280GD, S320GD or S350GD – EN 10346 Component II: $t_{II} \leq 2$ mm: S280GD, S320GD or S350GD – EN 10346 $t_{II} > 2$ mm: S235 – EN 10025-1 | |  |
| Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 6$ mm | | |
| Timber substructures no performance assessed | | $L_w = 65 - 275$ mm $d_{w1} = 6,3$ mm $d_{w2} = 5,5$ mm $k = 5,5$ mm $S = 8,0$ mm $D = 29,0$ mm |

| | | Component II: t_{II} [mm] | 2,00 | 2,50 | 3,00 | 4,00 | 5,00 |
|---|----------------|-----------------------------|------|------|------|------|------|
| Component I: $t_{N,1}$ or $t_{N,2}$ [mm] | $V_{R,k}$ [kN] | 0,50 | 1,60 | 1,60 | 1,60 | 1,60 | 1,60 |
| | | 0,55 | 1,60 | 1,60 | 1,60 | 1,60 | 1,60 |
| | | 0,63 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 |
| | | 0,75 | 2,72 | 2,72 | 2,72 | 2,72 | 2,72 |
| | | 0,88 | 2,72 | 2,72 | 2,72 | 2,72 | 2,72 |
| | $N_{R,k}$ [kN] | 0,50 | 2,58 | 2,58 | 2,58 | 2,58 | 2,58 |
| | | 0,55 | 2,58 | 2,58 | 2,58 | 2,58 | 2,58 |
| | | 0,63 | 2,58 | 2,58 | 2,58 | 4,69 | 4,69 |
| | | 0,75 | 2,58 | 2,58 | 2,58 | 5,38 | 5,38 |
| | | 0,88 | 2,58 | 2,58 | 2,58 | 5,38 | 5,38 |
| Max. head displacement u depending on the sandwich panel thickness [mm] | 30 | 12 | 12 | 12 | 1,5 | 1,5 | |
| | 40 | 12 | 12 | 12 | 1,5 | 1,5 | |
| | 50 | 12 | 12 | 12 | 1,5 | 1,5 | |
| | 60 | 18 | 18 | 18 | 4 | 4 | |
| | 70 | 18 | 18 | 18 | 4 | 4 | |
| | 80 | 18 | 18 | 18 | 4 | 4 | |
| | 90 | 23 | 23 | 23 | 10 | 10 | |
| | 100 | 23 | 23 | 23 | 10 | 10 | |
| | 120 | 23 | 23 | 23 | 10 | 10 | |
| | >140 | 23 | 23 | 23 | 10 | 10 | |

**SANDWICH PANEL SCREW ESSVE-ST
 SANDWICH PANEL SCREW ESSVE-WD
 Fastening screws for sandwich panels**

SANDWICH PANEL SCREW ESSVE-ST-Z29-EZP 5,5/6,3xL/6
 self-drilling screws with hexagon head and sealing washer $\varnothing 29$ mm
 with metal top made of carbon steel galvanized (Z)

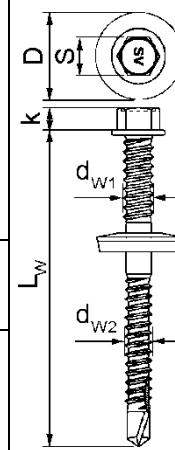
Annex 5

of European
 Technical Assessment
 ETA-17/0079

| | | |
|--|--|--|
| Materials Fastener: carbon steel – SAE1022 quenched, tempered, galvanized with zinc-epoxy topcoat Washer: EPDM sealing ring with metal top made of stainless steel Component I: S280GD, S320GD or S350GD – EN 10346 Component II: $t_{II} \leq 2$ mm: S280GD, S320GD or S350GD – EN 10346 $t_{II} > 2$ mm: S235 – EN 10025-1 | | |
| Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 6$ mm | | |
| Timber substructures no performance assessed | | $L_w = 65 - 275$ mm $d_{W1} = 6,3$ mm $d_{W2} = 5,5$ mm $k = 5,5$ mm $S = 8,0$ mm $D = 19,0$ mm |

| | | Component II: t_{II} [mm] | 2,00 | 2,50 | 3,00 | 4,00 | 5,00 |
|---|----------------|-----------------------------|------|------|------|------|------|
| Component I: $t_{N,1}$ or $t_{N,2}$ [mm] | $V_{R,k}$ [kN] | 0,50 | 1,60 | 1,60 | 1,60 | 1,60 | 1,60 |
| | | 0,55 | 1,60 | 1,60 | 1,60 | 1,60 | 1,60 |
| | | 0,63 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 |
| | | 0,75 | 2,72 | 2,72 | 2,72 | 2,72 | 2,72 |
| | | 0,88 | 2,72 | 2,72 | 2,72 | 2,72 | 2,72 |
| | | 1,00 | 2,72 | 2,72 | 2,72 | 2,72 | 2,72 |
| | $N_{R,k}$ [kN] | 0,50 | 2,58 | 2,58 | 2,58 | 2,58 | 2,58 |
| | | 0,55 | 2,58 | 2,58 | 2,58 | 2,58 | 2,58 |
| | | 0,63 | 2,58 | 2,58 | 2,58 | 4,69 | 4,69 |
| | | 0,75 | 2,58 | 2,58 | 2,58 | 5,38 | 5,38 |
| | | 0,88 | 2,58 | 2,58 | 2,58 | 5,38 | 5,38 |
| | | 1,00 | 2,58 | 2,58 | 2,58 | 5,38 | 5,38 |
| Max. head displacement u depending on the sandwich panel thickness [mm] | 30 | 12 | 12 | 12 | 1,5 | 1,5 | |
| | 40 | 12 | 12 | 12 | 1,5 | 1,5 | |
| | 50 | 12 | 12 | 12 | 1,5 | 1,5 | |
| | 60 | 18 | 18 | 18 | 4 | 4 | |
| | 70 | 18 | 18 | 18 | 4 | 4 | |
| | 80 | 18 | 18 | 18 | 4 | 4 | |
| | 90 | 23 | 23 | 23 | 10 | 10 | |
| | 100 | 23 | 23 | 23 | 10 | 10 | |
| | 120 | 23 | 23 | 23 | 10 | 10 | |
| | >140 | 23 | 23 | 23 | 10 | 10 | |

| | |
|---|--|
| SANDWICH PANEL SCREW ESSVE-ST SANDWICH PANEL SCREW ESSVE-WD Fastening screws for sandwich panels | Annex 6 of European Technical Assessment ETA-17/0079 |
| SANDWICH PANEL SCREW ESSVE-ST-S19-CorrSeal 5,5/6,3xL/6 self-drilling screws with hexagon head and sealing washer $\varnothing 19$ mm with metal top made of stainless steel (S) | |

| | | |
|--|--|--|
| Materials Fastener: carbon steel – SAE1022 quenched, tempered, galvanized with zinc-epoxy topcoat Washer: EPDM sealing ring with metal top made of stainless steel Component I: S280GD, S320GD or S350GD – EN 10346 Component II: $t_{II} \leq 2$ mm: S280GD, S320GD or S350GD – EN 10346 $t_{II} > 2$ mm: S235 – EN 10025-1 | |  |
| Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 6$ mm | | |
| Timber substructures no performance assessed | | $L_w = 65 - 275$ mm $d_{W1} = 6,3$ mm $d_{W2} = 5,5$ mm $k = 5,5$ mm $S = 8,0$ mm $D = 22,0$ mm |

| | | Component II: t_{II} [mm] | 2,00 | 2,50 | 3,00 | 4,00 | 5,00 |
|---|----------------|-----------------------------|------|------|------|------|------|
| Component I: $t_{N,1}$ or $t_{N,2}$ [mm] | $V_{R,k}$ [kN] | 0,50 | 1,60 | 1,60 | 1,60 | 1,60 | 1,60 |
| | | 0,55 | 1,60 | 1,60 | 1,60 | 1,60 | 1,60 |
| | | 0,63 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 |
| | | 0,75 | 2,72 | 2,72 | 2,72 | 2,72 | 2,72 |
| | | 0,88 | 2,72 | 2,72 | 2,72 | 2,72 | 2,72 |
| | $N_{R,k}$ [kN] | 0,50 | 2,58 | 2,58 | 2,58 | 2,58 | 2,58 |
| | | 0,55 | 2,58 | 2,58 | 2,58 | 2,58 | 2,58 |
| | | 0,63 | 2,58 | 2,58 | 2,58 | 4,69 | 4,69 |
| | | 0,75 | 2,58 | 2,58 | 2,58 | 5,38 | 5,38 |
| | | 0,88 | 2,58 | 2,58 | 2,58 | 5,38 | 5,38 |
| Max. head displacement u depending on the sandwich panel thickness [mm] | 30 | 12 | 12 | 12 | 1,5 | 1,5 | |
| | 40 | 12 | 12 | 12 | 1,5 | 1,5 | |
| | 50 | 12 | 12 | 12 | 1,5 | 1,5 | |
| | 60 | 18 | 18 | 18 | 4 | 4 | |
| | 70 | 18 | 18 | 18 | 4 | 4 | |
| | 80 | 18 | 18 | 18 | 4 | 4 | |
| | 90 | 23 | 23 | 23 | 10 | 10 | |
| | 100 | 23 | 23 | 23 | 10 | 10 | |
| | 120 | 23 | 23 | 23 | 10 | 10 | |
| | >140 | 23 | 23 | 23 | 10 | 10 | |

**SANDWICH PANEL SCREW ESSVE-ST
SANDWICH PANEL SCREW ESSVE-WD
Fastening screws for sandwich panels**

SANDWICH PANEL SCREW ESSVE-ST-S22-CorrSeal 5,5/6,3xL/6
self-drilling screws with hexagon head and sealing washer $\varnothing 22$ mm
with metal top made of stainless steel (S)

Annex 7

of European
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| | | |
|--|--|--|
| Materials Fastener: carbon steel – SAE1022 quenched, tempered, galvanized with zinc-epoxy topcoat Washer: EPDM sealing ring with metal top made of stainless steel Component I: S280GD, S320GD or S350GD – EN 10346 Component II: $t_{II} \leq 2$ mm: S280GD, S320GD or S350GD – EN 10346 $t_{II} > 2$ mm: S235 – EN 10025-1 | | |
| Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 6$ mm | | |
| Timber substructures no performance assessed | | $L_w = 65 - 275$ mm $d_{W1} = 6,3$ mm $d_{W2} = 5,5$ mm $k = 5,5$ mm $S = 8,0$ mm $D = 29,0$ mm |

| | | Component II: t_{II} [mm] | 2,00 | 2,50 | 3,00 | 4,00 | 5,00 |
|---|----------------|-----------------------------|------|------|------|------|------|
| Component I: t_{N1} or t_{N2} [mm] | $V_{R,k}$ [kN] | 0,50 | 1,60 | 1,60 | 1,60 | 1,60 | 1,60 |
| | | 0,55 | 1,60 | 1,60 | 1,60 | 1,60 | 1,60 |
| | | 0,63 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 |
| | | 0,75 | 2,72 | 2,72 | 2,72 | 2,72 | 2,72 |
| | | 0,88 | 2,72 | 2,72 | 2,72 | 2,72 | 2,72 |
| | | 1,00 | 2,72 | 2,72 | 2,72 | 2,72 | 2,72 |
| | $N_{R,k}$ [kN] | 0,50 | 2,58 | 2,58 | 2,58 | 2,58 | 2,58 |
| | | 0,55 | 2,58 | 2,58 | 2,58 | 2,58 | 2,58 |
| | | 0,63 | 2,58 | 2,58 | 2,58 | 4,69 | 4,69 |
| | | 0,75 | 2,58 | 2,58 | 2,58 | 5,38 | 5,38 |
| | | 0,88 | 2,58 | 2,58 | 2,58 | 5,38 | 5,38 |
| | | 1,00 | 2,58 | 2,58 | 2,58 | 5,38 | 5,38 |
| Max. head displacement u depending on the sandwich panel thickness [mm] | 30 | 12 | 12 | 12 | 1,5 | 1,5 | |
| | 40 | 12 | 12 | 12 | 1,5 | 1,5 | |
| | 50 | 12 | 12 | 12 | 1,5 | 1,5 | |
| | 60 | 18 | 18 | 18 | 4 | 4 | |
| | 70 | 18 | 18 | 18 | 4 | 4 | |
| | 80 | 18 | 18 | 18 | 4 | 4 | |
| | 90 | 23 | 23 | 23 | 10 | 10 | |
| | 100 | 23 | 23 | 23 | 10 | 10 | |
| | 120 | 23 | 23 | 23 | 10 | 10 | |
| | >140 | 23 | 23 | 23 | 10 | 10 | |

| | |
|---|--|
| SANDWICH PANEL SCREW ESSVE-ST SANDWICH PANEL SCREW ESSVE-WD Fastening screws for sandwich panels | Annex 8 of European Technical Assessment ETA-17/0079 |
| SANDWICH PANEL SCREW ESSVE-ST-S29-CorrSeal 5,5/6,3xL/6 self-drilling screws with hexagon head and sealing washer $\varnothing 29$ mm with metal top made of stainless steel (S) | |

| | | |
|---|--|--|
| <p>Materials</p> <p>Fastener: carbon steel – SAE1022 quenched, tempered and galvanized</p> <p>Washer: EPDM sealing ring with metal top made of carbon steel, galvanized</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: $t_{II} \leq 2$ mm: S280GD, S320GD or S350GD – EN 10346 $t_{II} > 2$ mm: S235 – EN 10025-1</p> | | <p>$L_w = 65 - 300$mm $d_{W1} = 6,3$ mm $d_{W2} = 5,5$ mm $k = 5,5$ mm $S = 8,0$ mm $D = 19,0$ mm</p> |
| <p>Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 12$ mm</p> | | |
| <p>Timber substructures no performance assessed</p> | | |

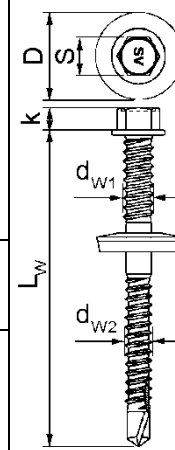
| Component II: t_{II} [mm] | | 4,00 | 5,00 | 6,00 | 8,00 | 10,00 | 11,00 |
|---|----------------|------|------|------|------|-------|-------|
| Component I: $t_{N,1}$ or $t_{N,2}$ [mm] | $V_{R,k}$ [kN] | 0,50 | 1,73 | 1,73 | 1,73 | 1,73 | 1,73 |
| | | 0,55 | 1,73 | 1,73 | 1,73 | 1,73 | 1,73 |
| | | 0,63 | 2,24 | 2,24 | 2,24 | 2,24 | 2,24 |
| | | 0,75 | 3,10 | 3,10 | 3,10 | 3,10 | 3,10 |
| | | 0,88 | 3,10 | 3,10 | 3,10 | 3,10 | 3,10 |
| | | 1,00 | 3,10 | 3,10 | 3,10 | 3,10 | 3,10 |
| | $N_{R,k}$ [kN] | 0,50 | 3,75 | 3,75 | 3,75 | 3,75 | 3,75 |
| | | 0,55 | 3,75 | 3,75 | 3,75 | 3,75 | 3,75 |
| | | 0,63 | 4,69 | 4,69 | 4,69 | 4,69 | 4,69 |
| | | 0,75 | 5,38 | 5,38 | 5,38 | 5,38 | 5,38 |
| | | 0,88 | 5,38 | 5,38 | 5,38 | 5,38 | 5,38 |
| | | 1,00 | 5,38 | 5,38 | 5,38 | 5,38 | 5,38 |
| Max. head displacement u depending on the sandwich panel thickness [mm] | 30 | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 | |
| | 40 | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 | |
| | 50 | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 | |
| | 60 | 4 | 4 | 4 | 4 | 4 | |
| | 70 | 4 | 4 | 4 | 4 | 4 | |
| | 80 | 4 | 4 | 4 | 4 | 4 | |
| | 90 | 10 | 10 | 10 | 10 | 10 | |
| | 100 | 10 | 10 | 10 | 10 | 10 | |
| | 120 | 10 | 10 | 10 | 10 | 10 | |
| | >140 | 10 | 10 | 10 | 10 | 10 | |

| | |
|--|--|
| <p>SANDWICHPANEL SCREW ESSVE-ST SANDWICHPANEL SCREW ESSVE-WD Fastening screws for sandwich panels</p> | <p>Annex 9 of European Technical Assessment ETA-17/0079</p> |
| <p>SANDWICHPANEL SCREW ESSVE-ST-Z19-EZP 5,5/6,3xL/12 self-drilling screws with hexagon head and sealing washer $\varnothing 19$ mm with metal top made of carbon steel galvanized (Z)</p> | |

| | | |
|--|--|--|
| Materials Fastener: carbon steel – SAE1022 quenched, tempered and galvanized Washer: EPDM sealing ring with metal top made of carbon steel, galvanized Component I: S280GD, S320GD or S350GD – EN 10346 Component II: $t_{II} \leq 2$ mm: S280GD, S320GD or S350GD – EN 10346 $t_{II} > 2$ mm: S235 – EN 10025-1 | | |
| Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 12$ mm | | |
| Timber substructures no performance assessed | | L _w = 65 - 300mm d _{w1} = 6,3 mm d _{w2} = 5,5 mm k = 5,5 mm S = 8,0 mm D = 22,0 mm |

| | | Component II: t _{II} [mm] | 4,00 | 5,00 | 6,00 | 8,00 | 10,00 | 11,00 |
|---|-----------------------|------------------------------------|------|------|------|------|-------|-------|
| Component I: t _{N,1} or t _{N,2} [mm] | V _{R,k} [kN] | 0,50 | 1,73 | 1,73 | 1,73 | 1,73 | 1,73 | 1,73 |
| | | 0,55 | 1,73 | 1,73 | 1,73 | 1,73 | 1,73 | 1,73 |
| | | 0,63 | 2,24 | 2,24 | 2,24 | 2,24 | 2,24 | 2,24 |
| | | 0,75 | 3,10 | 3,10 | 3,10 | 3,10 | 3,10 | 3,10 |
| | | 0,88 | 3,10 | 3,10 | 3,10 | 3,10 | 3,10 | 3,10 |
| | | 1,00 | 3,10 | 3,10 | 3,10 | 3,10 | 3,10 | 3,10 |
| | N _{R,k} [kN] | 0,50 | 3,75 | 3,75 | 3,75 | 3,75 | 3,75 | 3,75 |
| | | 0,55 | 3,75 | 3,75 | 3,75 | 3,75 | 3,75 | 3,75 |
| | | 0,63 | 4,69 | 4,69 | 4,69 | 4,69 | 4,69 | 4,69 |
| | | 0,75 | 5,38 | 5,38 | 5,38 | 5,38 | 5,38 | 5,38 |
| | | 0,88 | 5,38 | 5,38 | 5,38 | 5,38 | 5,38 | 5,38 |
| | | 1,00 | 5,38 | 5,38 | 5,38 | 5,38 | 5,38 | 5,38 |
| Max. head displacement u depending on the sandwich panel thickness [mm] | 30 | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 | |
| | 40 | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 | |
| | 50 | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 | |
| | 60 | 4 | 4 | 4 | 4 | 4 | 4 | |
| | 70 | 4 | 4 | 4 | 4 | 4 | 4 | |
| | 80 | 4 | 4 | 4 | 4 | 4 | 4 | |
| | 90 | 10 | 10 | 10 | 10 | 10 | 10 | |
| | 100 | 10 | 10 | 10 | 10 | 10 | 10 | |
| | 120 | 10 | 10 | 10 | 10 | 10 | 10 | |
| | >140 | 10 | 10 | 10 | 10 | 10 | 10 | |

| | |
|--|---|
| SANDWICH PANEL SCREW ESSVE-ST SANDWICH PANEL SCREW ESSVE-WD Fastening screws for sandwich panels | Annex 10 of European Technical Assessment ETA-17/0079 |
| SANDWICH PANEL SCREW ESSVE-ST-Z22-EZP 5,5/6,3xL/12 self-drilling screws with hexagon head and sealing washer Ø22 mm with metal top made of carbon steel galvanized (Z) | |

| | | |
|--|--|--|
| Materials Fastener: carbon steel – SAE1022 quenched, tempered and galvanized Washer: EPDM sealing ring with metal top made of carbon steel, galvanized Component I: S280GD, S320GD or S350GD – EN 10346 Component II: $t_{II} \leq 2$ mm: S280GD, S320GD or S350GD – EN 10346 $t_{II} > 2$ mm: S235 – EN 10025-1 | |  |
| Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 12$ mm | | |
| Timber substructures no performance assessed | | $L_W = 65 - 300$ mm $d_{W1} = 6,3$ mm $d_{W2} = 5,5$ mm $k = 5,5$ mm $S = 8,0$ mm $D = 29,0$ mm |

| Component II: t_{II} [mm] | | 4,00 | 5,00 | 6,00 | 8,00 | 10,00 | 11,00 |
|---|----------------|------|------|------|------|-------|-------|
| Component I: $t_{N,1}$ or $t_{N,2}$ [mm] | $V_{R,k}$ [kN] | 0,50 | 1,73 | 1,73 | 1,73 | 1,73 | 1,73 |
| | | 0,55 | 1,73 | 1,73 | 1,73 | 1,73 | 1,73 |
| | | 0,63 | 2,24 | 2,24 | 2,24 | 2,24 | 2,24 |
| | | 0,75 | 3,10 | 3,10 | 3,10 | 3,10 | 3,10 |
| | | 0,88 | 3,10 | 3,10 | 3,10 | 3,10 | 3,10 |
| | | 1,00 | 3,10 | 3,10 | 3,10 | 3,10 | 3,10 |
| | $N_{R,k}$ [kN] | 0,50 | 3,75 | 3,75 | 3,75 | 3,75 | 3,75 |
| | | 0,55 | 3,75 | 3,75 | 3,75 | 3,75 | 3,75 |
| | | 0,63 | 4,69 | 4,69 | 4,69 | 4,69 | 4,69 |
| | | 0,75 | 5,38 | 5,38 | 5,38 | 5,38 | 5,38 |
| | | 0,88 | 5,38 | 5,38 | 5,38 | 5,38 | 5,38 |
| | | 1,00 | 5,38 | 5,38 | 5,38 | 5,38 | 5,38 |
| Max. head displacement u depending on the sandwich panel thickness [mm] | 30 | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 | |
| | 40 | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 | |
| | 50 | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 | |
| | 60 | 4 | 4 | 4 | 4 | 4 | |
| | 70 | 4 | 4 | 4 | 4 | 4 | |
| | 80 | 4 | 4 | 4 | 4 | 4 | |
| | 90 | 10 | 10 | 10 | 10 | 10 | |
| | 100 | 10 | 10 | 10 | 10 | 10 | |
| | 120 | 10 | 10 | 10 | 10 | 10 | |
| | >140 | 10 | 10 | 10 | 10 | 10 | |

**SANDWICH PANEL SCREW ESSVE-ST
 SANDWICH PANEL SCREW ESSVE-WD
 Fastening screws for sandwich panels**

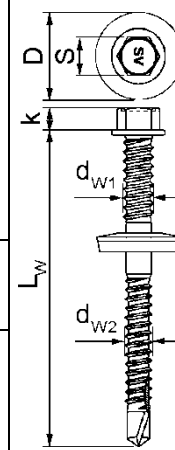
SANDWICH PANEL SCREW ESSVE-ST-Z29-EZP 5,5/6,3xL/12
 self-drilling screws with hexagon head and sealing washer $\varnothing 29$ mm
 with metal top made of carbon steel galvanized (Z)

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| | | |
|--|--|---|
| Materials Fastener: carbon steel – SAE1022 quenched, tempered, galvanized with zinc-epoxy topcoat Washer: EPDM sealing ring with metal top made of stainless steel Component I: S280GD, S320GD or S350GD – EN 10346 Component II: $t_{II} \leq 2$ mm: S280GD, S320GD or S350GD – EN 10346 $t_{II} > 2$ mm: S235 – EN 10025-1 | | <p> $L_w = 70 - 300$ mm $d_{w1} = 6,3$ mm $d_{w2} = 5,5$ mm $k = 5,5$ mm $S = 8,0$ mm $D = 19,0$ mm </p> |
| Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 12$ mm | | |
| Timber substructures no performance assessed | | |

| | | Component II: t_{II} [mm] | 4,00 | 5,00 | 6,00 | 8,00 | 10,00 | 11,00 |
|---|----------------|-----------------------------|------|------|------|------|-------|-------|
| Component I: $t_{N,1}$ or $t_{N,2}$ [mm] | $V_{R,k}$ [kN] | 0,50 | 1,73 | 1,73 | 1,73 | 1,73 | 1,73 | 1,73 |
| | | 0,55 | 1,73 | 1,73 | 1,73 | 1,73 | 1,73 | 1,73 |
| | | 0,63 | 2,24 | 2,24 | 2,24 | 2,24 | 2,24 | 2,24 |
| | | 0,75 | 3,10 | 3,10 | 3,10 | 3,10 | 3,10 | 3,10 |
| | | 0,88 | 3,10 | 3,10 | 3,10 | 3,10 | 3,10 | 3,10 |
| | | 1,00 | 3,10 | 3,10 | 3,10 | 3,10 | 3,10 | 3,10 |
| | $N_{R,k}$ [kN] | 0,50 | 3,75 | 3,75 | 3,75 | 3,75 | 3,75 | 3,75 |
| | | 0,55 | 3,75 | 3,75 | 3,75 | 3,75 | 3,75 | 3,75 |
| | | 0,63 | 4,69 | 4,69 | 4,69 | 4,69 | 4,69 | 4,69 |
| | | 0,75 | 5,38 | 5,38 | 5,38 | 5,38 | 5,38 | 5,38 |
| | | 0,88 | 5,38 | 5,38 | 5,38 | 5,38 | 5,38 | 5,38 |
| | | 1,00 | 5,38 | 5,38 | 5,38 | 5,38 | 5,38 | 5,38 |
| Max. head displacement u depending on the sandwich panel thickness [mm] | 30 | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 | |
| | 40 | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 | |
| | 50 | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 | |
| | 60 | 4 | 4 | 4 | 4 | 4 | 4 | |
| | 70 | 4 | 4 | 4 | 4 | 4 | 4 | |
| | 80 | 4 | 4 | 4 | 4 | 4 | 4 | |
| | 90 | 10 | 10 | 10 | 10 | 10 | 10 | |
| | 100 | 10 | 10 | 10 | 10 | 10 | 10 | |
| | 120 | 10 | 10 | 10 | 10 | 10 | 10 | |
| | >140 | 10 | 10 | 10 | 10 | 10 | 10 | |

| | |
|--|---|
| SANDWICH PANEL SCREW ESSVE-ST SANDWICH PANEL SCREW ESSVE-WD Fastening screws for sandwich panels | Annex 12 of European Technical Assessment ETA-17/0079 |
| SANDWICH PANEL SCREW ESSVE-ST-S19-CorrSeal 5,5/6,3xL/12 self-drilling screws with hexagon head and sealing washer $\varnothing 19$ mm with metal top made of stainless steel (S) | |

| | | |
|--|--|--|
| Materials Fastener: carbon steel – SAE1022 quenched, tempered, galvanized with zinc-epoxy topcoat Washer: EPDM sealing ring with metal top made of stainless steel Component I: S280GD, S320GD or S350GD – EN 10346 Component II: $t_{II} \leq 2$ mm: S280GD, S320GD or S350GD – EN 10346 $t_{II} > 2$ mm: S235 – EN 10025-1 | |  |
| Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 12$ mm | | |
| Timber substructures no performance assessed | | $L_W = 70 - 300$ mm $d_{W1} = 6,3$ mm $d_{W2} = 5,5$ mm $k = 5,5$ mm $S = 8,0$ mm $D = 22,0$ mm |

| Component II: t_{II} [mm] | | 4,00 | 5,00 | 6,00 | 8,00 | 10,00 | 11,00 |
|---|----------------|------|------|------|------|-------|-------|
| Component I: $t_{N,1}$ or $t_{N,2}$ [mm] | $V_{R,k}$ [kN] | 0,50 | 1,73 | 1,73 | 1,73 | 1,73 | 1,73 |
| | | 0,55 | 1,73 | 1,73 | 1,73 | 1,73 | 1,73 |
| | | 0,63 | 2,24 | 2,24 | 2,24 | 2,24 | 2,24 |
| | | 0,75 | 3,10 | 3,10 | 3,10 | 3,10 | 3,10 |
| | | 0,88 | 3,10 | 3,10 | 3,10 | 3,10 | 3,10 |
| | | 1,00 | 3,10 | 3,10 | 3,10 | 3,10 | 3,10 |
| | $N_{R,k}$ [kN] | 0,50 | 3,75 | 3,75 | 3,75 | 3,75 | 3,75 |
| | | 0,55 | 3,75 | 3,75 | 3,75 | 3,75 | 3,75 |
| | | 0,63 | 4,69 | 4,69 | 4,69 | 4,69 | 4,69 |
| | | 0,75 | 5,38 | 5,38 | 5,38 | 5,38 | 5,38 |
| | | 0,88 | 5,38 | 5,38 | 5,38 | 5,38 | 5,38 |
| | | 1,00 | 5,38 | 5,38 | 5,38 | 5,38 | 5,38 |
| Max. head displacement u depending on the sandwich panel thickness [mm] | 30 | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 | |
| | 40 | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 | |
| | 50 | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 | |
| | 60 | 4 | 4 | 4 | 4 | 4 | |
| | 70 | 4 | 4 | 4 | 4 | 4 | |
| | 80 | 4 | 4 | 4 | 4 | 4 | |
| | 90 | 10 | 10 | 10 | 10 | 10 | |
| | 100 | 10 | 10 | 10 | 10 | 10 | |
| | 120 | 10 | 10 | 10 | 10 | 10 | |
| | >140 | 10 | 10 | 10 | 10 | 10 | |

**SANDWICH PANEL SCREW ESSVE-ST
 SANDWICH PANEL SCREW ESSVE-WD
 Fastening screws for sandwich panels**

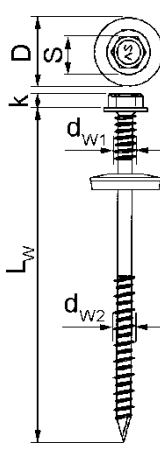
SANDWICH PANEL SCREW ESSVE-ST-S22-CorrSeal 5,5/6,3xL/12 self-drilling screws with hexagon head and sealing washer $\varnothing 22$ mm with metal top made of stainless steel (S)

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| | | |
|--|--|---|
| Materials Fastener: carbon steel – SAE1022 quenched, tempered, galvanized with zinc-epoxy topcoat Washer: EPDM sealing ring with metal top made of stainless steel Component I: S280GD, S320GD or S350GD – EN 10346 Component II: $t_{II} \leq 2$ mm: S280GD, S320GD or S350GD – EN 10346 $t_{II} > 2$ mm: S235 – EN 10025-1 | | <p> $L_w = 70 - 300$ mm $d_{w1} = 6,3$ mm $d_{w2} = 5,5$ mm $k = 5,5$ mm $S = 8,0$ mm $D = 29,0$ mm </p> |
| Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 12$ mm | | |
| Timber substructures no performance assessed | | |

| | | Component II: t_{II} [mm] | 4,00 | 5,00 | 6,00 | 8,00 | 10,00 | 11,00 |
|---|----------------|-----------------------------|------|------|------|------|-------|-------|
| Component I: $t_{N,1}$ or $t_{N,2}$ [mm] | $V_{R,k}$ [kN] | 0,50 | 1,73 | 1,73 | 1,73 | 1,73 | 1,73 | 1,73 |
| | | 0,55 | 1,73 | 1,73 | 1,73 | 1,73 | 1,73 | 1,73 |
| | | 0,63 | 2,24 | 2,24 | 2,24 | 2,24 | 2,24 | 2,24 |
| | | 0,75 | 3,10 | 3,10 | 3,10 | 3,10 | 3,10 | 3,10 |
| | | 0,88 | 3,10 | 3,10 | 3,10 | 3,10 | 3,10 | 3,10 |
| | | 1,00 | 3,10 | 3,10 | 3,10 | 3,10 | 3,10 | 3,10 |
| | $N_{R,k}$ [kN] | 0,50 | 3,75 | 3,75 | 3,75 | 3,75 | 3,75 | 3,75 |
| | | 0,55 | 3,75 | 3,75 | 3,75 | 3,75 | 3,75 | 3,75 |
| | | 0,63 | 4,69 | 4,69 | 4,69 | 4,69 | 4,69 | 4,69 |
| | | 0,75 | 5,38 | 5,38 | 5,38 | 5,38 | 5,38 | 5,38 |
| | | 0,88 | 5,38 | 5,38 | 5,38 | 5,38 | 5,38 | 5,38 |
| | | 1,00 | 5,38 | 5,38 | 5,38 | 5,38 | 5,38 | 5,38 |
| Max. head displacement u depending on the sandwich panel thickness [mm] | 30 | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 | |
| | 40 | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 | |
| | 50 | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 | |
| | 60 | 4 | 4 | 4 | 4 | 4 | 4 | |
| | 70 | 4 | 4 | 4 | 4 | 4 | 4 | |
| | 80 | 4 | 4 | 4 | 4 | 4 | 4 | |
| | 90 | 10 | 10 | 10 | 10 | 10 | 10 | |
| | 100 | 10 | 10 | 10 | 10 | 10 | 10 | |
| | 120 | 10 | 10 | 10 | 10 | 10 | 10 | |
| | >140 | 10 | 10 | 10 | 10 | 10 | 10 | |

| | |
|--|---|
| SANDWICH PANEL SCREW ESSVE-ST SANDWICH PANEL SCREW ESSVE-WD Fastening screws for sandwich panels | Annex 14 of European Technical Assessment ETA-17/0079 |
| SANDWICH PANEL SCREW ESSVE-ST-S29-CorrSeal 5,5/6,3xL/12 self-drilling screws with hexagon head and sealing washer $\varnothing 19$ mm with metal top made of stainless steel (S) | |

| | |
|--|--|
| <p>Materials</p> <p>Fastener: carbon steel – SAE1022 quenched, tempered, galvanized with zinc-epoxy topcoat</p> <p>Washer: EPDM sealing ring with metal top made of stainless steel</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: structural timber – EN 14081</p> |  |
| <p>Drilling capacity: -</p> | |
| <p>Timber substructures</p> <p>For timber substructures performance assessed with $M_{y,Rk} = 8,910 \text{ Nm}$ $f_{ax,k} = 14,444 \text{ N/mm}^2$ for $l_{ef} \geq 30 \text{ mm}$</p> | <p>$L_w = 100 - 310 \text{ mm}$ $d_{W1} = 7,0 \text{ mm}$ $d_{W2} = 6,3 \text{ mm}$ $k = 5,5 \text{ mm}$ $S = 8,0 \text{ mm}$ $D = 19,0 \text{ mm}$</p> |

| Component II: wood class \geq C24 | | Effective length l_{ef} [mm] | |
|---|----------------|--------------------------------|------|
| | | $\geq 30,00$ | |
| Component I: $t_{N,1}$ or $t_{N,2}$ [mm] | $V_{R,k}$ [kN] | 0,50 | 1,85 |
| | | 0,55 | 1,85 |
| | | 0,63 | 2,38 |
| | | 0,75 | 2,77 |
| | | 0,88 | 2,77 |
| | | 1,00 | 2,77 |
| | $N_{R,k}$ [kN] | 0,50 | 2,73 |
| | | 0,55 | 2,73 |
| | | 0,63 | 2,73 |
| | | 0,75 | 2,73 |
| | | 0,88 | 2,73 |
| | | 1,00 | 2,73 |
| Max. head displacement u depending on the sandwich panel thickness [mm] | 30 | 1 | |
| | 40 | 1 | |
| | 50 | 1 | |
| | 60 | 1,5 | |
| | 70 | 1,5 | |
| | 80 | 1,5 | |
| | 90 | 2 | |
| | 100 | 2 | |
| | ≥ 140 | 2 | |

**SANDWICH PANEL SCREW ESSVE-ST
SANDWICH PANEL SCREW ESSVE-WD
Fastening screws for sandwich panels**

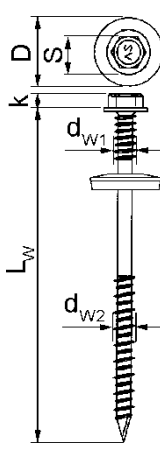
SANDWICH PANEL SCREW ESSVE-WD-S19-CorrSeal 6,3/7,0xL
self-tapping screws with hexagon head and sealing washer $\varnothing 19 \text{ mm}$
with metal top made of stainless steel (S)

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| | |
|--|--|
| <p>Materials</p> <p>Fastener: carbon steel – SAE1022 quenched, tempered, galvanized with zinc-epoxy topcoat</p> <p>Washer: EPDM sealing ring with metal top made of stainless steel</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: structural timber – EN 14081</p> | |
| Drilling capacity: - | |
| <p>Timber substructures</p> <p>For timber substructures performance assessed with</p> <p>$M_{y,Rk} = 8,910 \text{ Nm}$</p> <p>$f_{ax,k} = 14,444 \text{ N/mm}^2$ for $l_{ef} \geq 30 \text{ mm}$</p> | <p>$L_w = 100 - 310 \text{ mm}$</p> <p>$d_{w1} = 7,0 \text{ mm}$</p> <p>$d_{w2} = 6,3 \text{ mm}$</p> <p>$k = 5,5 \text{ mm}$</p> <p>$S = 8,0 \text{ mm}$</p> <p>$D = 22,0 \text{ mm}$</p> |

| Component II: wood class \geq C24 | | Effective length l_{ef} [mm] | |
|---|-----------------------|--------------------------------|------|
| | | $\geq 30,00$ | |
| Component I: $t_{N,1}$ or $t_{N,2}$ [mm] | V _{R,k} [kN] | 0,50 | 1,85 |
| | | 0,55 | 1,85 |
| | | 0,63 | 2,38 |
| | | 0,75 | 2,77 |
| | | 0,88 | 2,77 |
| | | 1,00 | 2,77 |
| | N _{R,k} [kN] | 0,50 | 2,73 |
| | | 0,55 | 2,73 |
| | | 0,63 | 2,73 |
| | | 0,75 | 2,73 |
| | | 0,88 | 2,73 |
| | | 1,00 | 2,73 |
| Max. head displacement u depending on the sandwich panel thickness [mm] | 30 | 1 | |
| | 40 | 1 | |
| | 50 | 1 | |
| | 60 | 1,5 | |
| | 70 | 1,5 | |
| | 80 | 1,5 | |
| | 90 | 2 | |
| | 100 | 2 | |
| | ≥ 140 | 2 | |

| | |
|--|---|
| SANDWICH PANEL SCREW ESSVE-ST SANDWICH PANEL SCREW ESSVE-WD Fastening screws for sandwich panels | Annex 16 of European Technical Assessment ETA-17/0079 |
| SANDWICH PANEL SCREW ESSVE-WD-S22-CorrSeal 6,3/7,0xL self-tapping screws with hexagon head and sealing washer $\varnothing 22 \text{ mm}$ with metal top made of stainless steel (S) | |

| | |
|--|--|
| <p>Materials</p> <p>Fastener: carbon steel – SAE1022 quenched, tempered, galvanized with zinc-epoxy topcoat</p> <p>Washer: EPDM sealing ring with metal top made of stainless steel</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: structural timber – EN 14081</p> |  |
| Drilling capacity: - | |
| <p>Timber substructures</p> <p>For timber substructures performance assessed with</p> <p>$M_{y,Rk} = 8,910 \text{ Nm}$</p> <p>$f_{ax,k} = 14,444 \text{ N/mm}^2$ for $l_{ef} \geq 30 \text{ mm}$</p> | <p>$L_w = 100 - 310 \text{ mm}$</p> <p>$d_{W1} = 7,0 \text{ mm}$</p> <p>$d_{W2} = 6,3 \text{ mm}$</p> <p>$k = 5,5 \text{ mm}$</p> <p>$S = 8,0 \text{ mm}$</p> <p>$D = 29,0 \text{ mm}$</p> |

| Component II: wood class \geq C24 | | Effective length l_{ef} [mm] | |
|---|-----------------------|--------------------------------|------|
| | | $\geq 30,00$ | |
| Component I: $t_{N,1}$ or $t_{N,2}$ [mm] | V _{R,k} [kN] | 0,50 | 1,85 |
| | | 0,55 | 1,85 |
| | | 0,63 | 2,38 |
| | | 0,75 | 2,77 |
| | | 0,88 | 2,77 |
| | | 1,00 | 2,77 |
| | N _{R,k} [kN] | 0,50 | 2,73 |
| | | 0,55 | 2,73 |
| | | 0,63 | 2,73 |
| | | 0,75 | 2,73 |
| | | 0,88 | 2,73 |
| | | 1,00 | 2,73 |
| Max. head displacement u depending on the sandwich panel thickness [mm] | 30 | 1 | |
| | 40 | 1 | |
| | 50 | 1 | |
| | 60 | 1,5 | |
| | 70 | 1,5 | |
| | 80 | 1,5 | |
| | 90 | 2 | |
| | 100 | 2 | |
| | 120 | 2 | |
| ≥ 140 | 2 | | |

**SANDWICH PANEL SCREW ESSVE-ST
SANDWICH PANEL SCREW ESSVE-WD
Fastening screws for sandwich panels**

SANDWICH PANEL SCREW ESSVE-WD-S29-CorrSeal 6,3/7,0xL
self-tapping screws with hexagon head and sealing washer $\varnothing 29 \text{ mm}$
with metal top made of stainless steel (S)

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