



Approval body for construction products and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and Laender Governments



European Technical Assessment

ETA-17/0293 of 12 July 2017

English translation prepared by DIBt - Original version in German language

General Part

Technical Assessment Body issuing the European Technical Assessment:

Trade name of the construction product

Product family to which the construction product belongs

Manufacturer

Manufacturing plant

This European Technical Assessment contains

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

5.5-6.3BP5, 5.5-6.3BP3, 6.3-7.0BP2

Fastening screws for sandwich panels

Fastener Point B.V. Bonnetstraat 24 6718XN EDE NIEDERLANDE

Plant 1 Plant 2

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

European Assessment Document (EAD) 330047-01-0602, "Fastening screws for sandwich panels", Version 1

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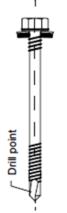
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Specific part

1 Technical description of the product

The products are fastening screws for sandwich panels (self-drilling screws). The fastening screws for sandwich panels are completed with a metallic washer and an EPDM sealing washer. The fastening screws for sandwich panels are made of austenitic stainless steel or a bimetal combination with drill bits made of galvanised/painted carbon steel. The fastening screws for sandwich panels and the corresponding connections are subject to tension and/or shear forces. Samples of fastenings screws for sandwich panels are shown in Figure 1.



Self drilling screw

Figure 1: Fastening screws for sandwich panels.

The components and the system setup of the product are given in Annex (1-15).

| Annex | Fastening Screw |
|----------|-------------------------------|
| Annex 4 | 5,5/6,3xL BP5 Washer Ø16,0 |
| Annex 5 | 5,5/6,3xL BP5 Washer Ø19,0 |
| Annex 6 | 5,5/6,3xL BP5 Washer Ø22,0 |
| Annex 7 | 5,5/6,3xL BP3 Washer Ø16,0 |
| Annex 8 | 5,5/6,3xL BP3 Washer Ø19,0 |
| Annex 9 | 5,5/6,3xL BP3 Washer Ø22,0 |
| Annex 10 | 6,3/7,0xL BP2 Washer Ø16,0 |
| Annex 11 | 6,3/7,0xL BP2 Washer Ø19,0 |

Table 1 – Types of the fastening screws for sandwich panels



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Table 1: Continuation

| Annex 12 | 6,3/7,0xL BP2 Washer Ø22,0 |
|----------|-------------------------------|
| Annex 13 | 6,3/7,0xL BP2 Washer Ø16,0 |
| Annex 14 | 6,3/7,0xL BP2 Washer Ø19,0 |
| Annex 15 | 6,3/7,0xL BP2 Washer Ø22,0 |

2 Specification of the intended use in accordance with the applicable European Assessment Document 330047-01-0602

The fastening screws for sandwich panels are intended to be used for fastening sandwich panels to metal or timber substructures. The sandwich panel can either be used as wall or roof cladding or as load bearing wall and roof element. The intended use comprises fastening screws for sandwich panels and connections for indoor and outdoor applications. Fastening screws which are intended to be used in external environments with \geq C2 corrosion according to the standard EN ISO 12944-2 are made of stainless steel. Furthermore the intended use comprises connections with predominantly static loads (e.g. wind loads, dead loads). The fastening screws for sandwich panels are not intended for re-use.

The performances given in Section 3 are only valid if the fastening screws for sandwich panels are used in compliance with the specifications and conditions given in Annex (1-15).

The verifications and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of the fastening screws for sandwich panels 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 Mechanical resistance and stability (BWR 1)

| Essential characteristic | Performance |
|--|-------------------------|
| Shear Resistance of the Connection | see Annex 2-3 and 4-15 |
| Tension Resistance of the Connection | see Annex 2-3 and 4-15 |
| Design Resistance in case of combined Tension and Shear Forces (interaction) | see Annex 2 and 4-15 |
| Check of Bending Capacity in case of Thermal Expansion of the outer face of Sandwich Panels | No performance assessed |
| Durability | No performance assessed |

3.2 Safety in case of fire (BWR 2)

| Essential characteristic | Performance |
|--------------------------|---|
| Reaction to fire | Performance Class A1 in accordance with EC decision96/603/EC (as amended) |



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

In accordance with EAD No. 330047-01-0602, the applicable European legal act is Decision 1998/214/EC, amended by 2001/596/EC.

The system to be applied is: 2+

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.

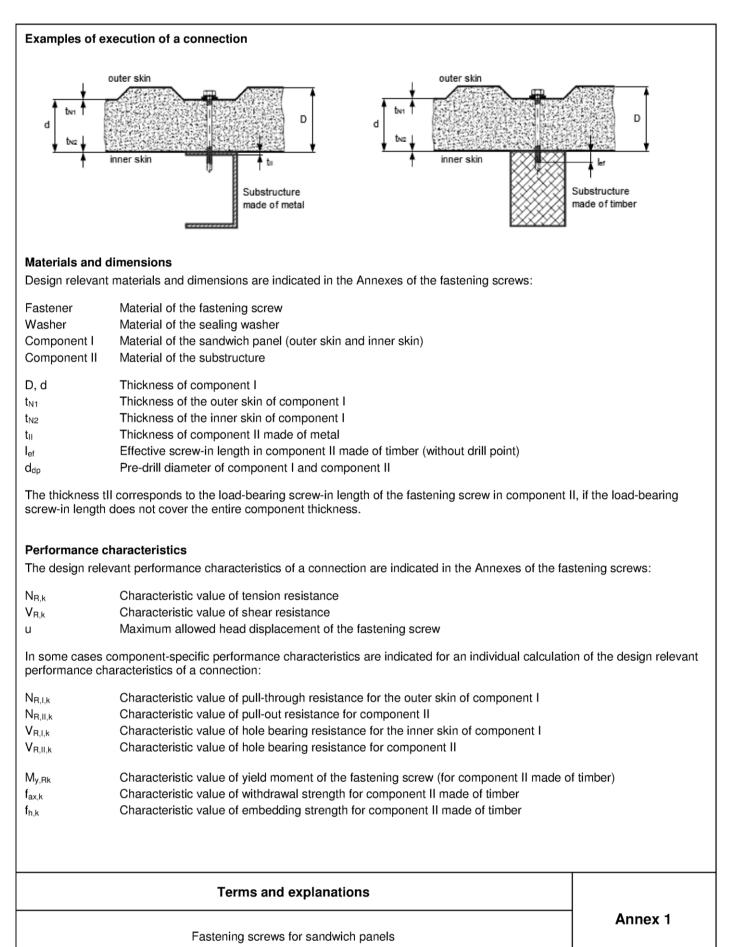
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BD Dipl.-Ing. Andreas Kummerow Head of Department *beglaubigt:* Schult

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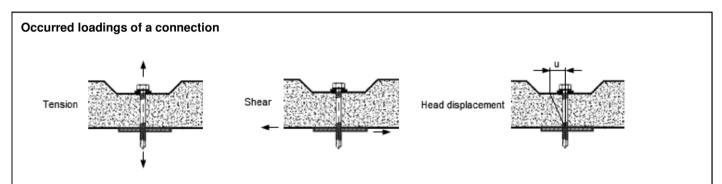




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Design values

The design values of tension and shear resistance of a connection have to be determined as follows:

| $N_{R,d} = \frac{N_{R,k}}{\gamma_M}$ | $V_{R,d} = \frac{V_{R,k}}{\gamma_M}$ |
|--------------------------------------|--------------------------------------|
| YR,d YM | • R,d – Y _M |

| N _{R,d} | Design value of tension resistance |
|------------------|------------------------------------|
| $V_{R,d}$ | Design value of shear resistance |
| Yм | 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.

Special conditions

If the component thickness t_{N1} , t_{N2} or t_{II} lies in between two indicated component thicknesses, the characteristic value may be calculated by linear interpolation.

For asymmetric components II made of metal (e.g. Z- or C-shaped profiles) with component thickness $t_{II} < 5$ mm, the characteristic value $N_{R,k}$ has to be reduced to 70%.

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

$$\frac{N_{S,d}}{N_{R,d}} + \frac{V_{S,d}}{V_{R,d}} \le 1,0$$

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

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

Head displacement

The head displacement of the fastening screw as a result of thermal expansion of the outer skin of the sandwich panel may not exceed the maximum allowed head displacement of the fastening screw.

Installation conditions

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

The load-bearing screw-in length of the fastening screw specified by the manufacturer has to be taken into account.

The fastening screws have to be processed with suitable drill driver (e.g. cordless drill driver with depth stop). The use of impact wrench is not allowed.

The fastening screws have to be fixed rectangular to the surface of the component.

Component I and component II have to be in direct contact to each other. The use of compression resistant thermal insulation strips up to a thickness of 3 mm is allowed.

Design and installation

Fastening screws for sandwich panels

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Component II made of timber

The characteristic values of tension and shear resistance for other k_{mod} or p_k as indicated in the Annex of the fastening screw can be determined as follows:

$$N_{R,k} = min \left\{ \begin{array}{l} N_{R,l,k} \\ N_{R,ll,k} * k_{mod} \end{array} \right. \qquad \qquad V_{R,k} = min \left\{ \begin{array}{l} V_{R,l,k} \\ V_{R,ll,k} * k_{mod} \end{array} \right.$$

 $N_{\text{R},l,k}$ and $V_{\text{R},l,k}$ are given in the Annex of the fastening screw.

 $N_{R,II,k}$ is determined according to EN 1995-1-1:2004 + A1:2008, equation (8.40a), with $f_{ax,k}$ given in the Annex of the fastening screw.

 $V_{\text{R,II,k}}$ is determined according to EN 1995-1-1:2004 + A1:2008, equation (8.9), with $M_{y,\text{Rk}}$ and $f_{h,k}$ given in the Annex of the fastening screw.

Fastening screws for sandwich panels

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| ام | Ø6.3 Ø4.8 01 V5.0 Ø5.5 | | 8 mp / 5/16 | , | Materials Screw: Washer: Componer Componer Drill capac | Stainle nt I: S280G nt II: S235 - S280G ity: ≤ 12 m ostructures | - EN 10025 D, S320GI m : | 4301 (A2) – D and S350 -2 | - EN ISO 3)GD - EN 1 | 506 0346 | |
|------------------------------|---|--|---|---|---|--|---|---|---|---|---|
| tı | [mm] | | | | | t _{ii} [n | וm] | | | | |
| | | 0,75 | 0,88 | 1,00 | 1,13 | 1,25 | 1,50 | 2,00 | 3,00 | 4,00 | <u>≥</u> 6,00 |
| | 0,40 | 0,94 | 0,94 | 0,94 | 0,94 | 0,94 | 0,94 | 0,94 | 0,94 | 0,94 | 0,94 |
| | 0,50 | 1,14 | 1,14 | 1,14 | 1,14 | 1,14 | 1,14 | 1,14 | 1,14 | 1,14 | 1,14 |
| ĺN) | 0,55 | 1,24 | 1,24 | 1,24 | 1,24 | 1,24 | 1,24 | 1,24 | 1,24 | 1,24 | 1,24 |
| V _{R,k} [kN] | 0,63 | 1,39 | 1,39 | 1,39 | 1,39 | 1,39 | 1,39 | 1,39 | 1,39 | 1,39 | 1,39 |
| <μ κ | 0,75 | 1,63 | 1,84 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 |
| | 0,88 | 1,63 | 1,84 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 |
| | 1,00 | 1,63 | 1,84 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 |
| | 0,40 | 0,60 | 0,74 | 0,86 | 1,09 | 1,30 | 1,48 | 1,48 | 1,48 | 1,48 | 1,48 |
| | 0,50 | 0,60 | 0,74 | 0,86 | 1,09 | 1,30 | 1,51 | 1,51 | 1,51 | 1,51 | 1,51 |
| | 0,55 | 0,60 | 0,74 | 0,86 | 1,09 | 1,30 | 1,74 | 1,82 | 1,82 | 1,82 | 1,82 |
| [kN] | 0.00 | | | | | | | | 2,31 | 2,31 | 2,31 |
| I _{R,k} [kN] | 0,63 | 0,60 | 0,74 | 0,86 | 1,09 | 1,30 | 1,74 | 2,31 | | | 0.04 |
| N _{R,k} [kN] | 0,75 | 0,60 | 0,74 | 0,86 | 1,09 | 1,30 | 1,74 | 2,62 | 3,04 | 3,04 | 3,04 |
| N _{R,k} [kN] | 0,75 0,88 | 0,60 0,60 | 0,74 0,74 | 0,86 0,86 | 1,09 1,09 | 1,30 1,30 | 1,74 1,74 | 2,62 2,62 | 3,04 3,04 | 3,04 3,04 | 3,04 |
| N _{R,k} [kN] | 0,75 0,88 1,00 | 0,60 0,60 0,60 | 0,74 0,74 0,74 | 0,86 0,86 0,86 | 1,09 1,09 1,09 | 1,30 1,30 1,30 | 1,74 1,74 1,74 | 2,62 2,62 2,62 | 3,04 3,04 3,04 | 3,04 3,04 3,04 | 3,04 3,04 |
| N _{R,k} [kN] | 0,75 0,88 1,00 40 | 0,60 0,60 0,60 10,0 | 0,74 0,74 0,74 5,0 | 0,86 0,86 0,86 5,0 | 1,09 1,09 1,09 5,0 | 1,30 1,30 1,30 5,0 | 1,74 1,74 1,74 5,0 | 2,62 2,62 2,62 5,0 | 3,04 3,04 3,04 5,0 | 3,04 3,04 3,04 3,0 | 3,04 3,04 3,0 |
| N _{R,k} [kN] | 0,75 0,88 1,00 40 50 | 0,60 0,60 0,60 10,0 12,5 | 0,74 0,74 0,74 5,0 6,3 | 0,86 0,86 0,86 5,0 6,3 | 1,09 1,09 1,09 5,0 6,3 | 1,30 1,30 1,30 5,0 6,3 | 1,74 1,74 1,74 5,0 6,3 | 2,62 2,62 2,62 5,0 6,3 | 3,04 3,04 3,04 5,0 6,3 | 3,04 3,04 3,04 3,0 3,8 | 3,04 3,04 3,0 3,8 |
| | 0,75 0,88 1,00 40 50 60 | 0,60 0,60 10,0 12,5 15,0 | 0,74 0,74 0,74 5,0 6,3 7,5 | 0,86 0,86 0,86 5,0 6,3 7,5 | 1,09 1,09 1,09 5,0 6,3 7,5 | 1,30 1,30 1,30 5,0 6,3 7,5 | 1,74 1,74 1,74 5,0 6,3 7,5 | 2,62 2,62 2,62 5,0 6,3 7,5 | 3,04 3,04 3,04 5,0 6,3 7,5 | 3,04 3,04 3,04 3,0 3,8 4,5 | 3,04 3,04 3,0 3,8 4,5 |
| | 0,75 0,88 1,00 40 50 60 80 | 0,60 0,60 10,0 12,5 15,0 20,0 | 0,74 0,74 0,74 5,0 6,3 7,5 10,0 | 0,86 0,86 0,86 5,0 6,3 7,5 10,0 | 1,09 1,09 1,09 5,0 6,3 7,5 10,0 | 1,30 1,30 1,30 5,0 6,3 7,5 10,0 | 1,74 1,74 1,74 5,0 6,3 7,5 10,0 | 2,62 2,62 2,62 5,0 6,3 7,5 10,0 | 3,04 3,04 3,04 5,0 6,3 7,5 10,0 | 3,04 3,04 3,04 3,0 3,8 4,5 6,0 | 3,04 3,04 3,0 3,8 4,5 6,0 |
| u [mm] N _{R,k} [kN] | 0,75 0,88 1,00 40 50 60 80 100 | 0,60 0,60 10,0 12,5 15,0 20,0 25,0 | 0,74 0,74 5,0 6,3 7,5 10,0 12,5 | 0,86 0,86 5,0 6,3 7,5 10,0 12,5 | 1,09 1,09 1,09 5,0 6,3 7,5 10,0 12,5 | 1,30 1,30 5,0 6,3 7,5 10,0 12,5 | 1,74 1,74 5,0 6,3 7,5 10,0 12,5 | 2,62 2,62 2,62 5,0 6,3 7,5 10,0 12,5 | 3,04 3,04 5,0 6,3 7,5 10,0 12,5 | 3,04 3,04 3,04 3,0 3,8 4,5 6,0 7,5 | 3,04 3,04 3,0 3,8 4,5 6,0 7,5 |
| | 0,75 0,88 1,00 40 50 60 80 | 0,60 0,60 10,0 12,5 15,0 20,0 | 0,74 0,74 0,74 5,0 6,3 7,5 10,0 | 0,86 0,86 0,86 5,0 6,3 7,5 10,0 | 1,09 1,09 1,09 5,0 6,3 7,5 10,0 | 1,30 1,30 1,30 5,0 6,3 7,5 10,0 | 1,74 1,74 1,74 5,0 6,3 7,5 10,0 | 2,62 2,62 2,62 5,0 6,3 7,5 10,0 | 3,04 3,04 3,04 5,0 6,3 7,5 10,0 | 3,04 3,04 3,04 3,0 3,8 4,5 6,0 | 3,04 3,04 3,0 3,8 4,5 6,0 |

"Self drilling Screws"

Screw for Sandwich panels 5,5/6,3 \times L – BP5, washer size Ø 16,0 mm

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| ທ[| Ø6.3 | | 8 mm / 5/16 | , | <u>Materials</u> Screw: Washer: Componer Componer | Stainle at I: S280G at II:S235 - | | 4301 (A2) – D and S350 -2 | - EN ISO 3)GD - EN 1 | 506 0346 | |
|-----------------------|---------------------------------|------------------------------|-----------------------------|-----------------------------|---|--|----------------------|---------------------------------|--------------------------|-------------------|-------------------|
| | 01 4 4 5,0 4 5,5 | | | | Drill capac <u>Timber sub</u> No perform | ostructures | <u>:</u> | | | | |
| | | | | | | t _{II} [n | וm] | | | | |
| t _{N1} , t | t _{N2} , d, D | 0,75 | 0,88 | 1,00 | 1,13 | 1,25 | 1,50 | 2,00 | 3,00 | 4,00 | <u>≥</u> 6,00 |
| | 0,40 | 0,94 | 0,94 | 0,94 | 0,94 | 0,94 | 0,94 | 0,94 | 0,94 | 0,94 | 0,94 |
| [| 0,50 | 1,14 | 1,14 | 1,14 | 1,14 | 1,14 | 1,14 | 1,14 | 1,14 | 1,14 | 1,14 |
| Ξ | 0,55 | 1,24 | 1,24 | 1,24 | 1,24 | 1,24 | 1,24 | 1,24 | 1,24 | 1,24 | 1,24 |
| V _{R,k} [kN] | 0,63 | 1,39 | 1,39 | 1,39 | 1,39 | 1,39 | 1,39 | 1,39 | 1,39 | 1,39 | 1,39 |
| <pre></pre> | 0,75 | 1,63 | 1,84 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 |
| | 0,88 | 1,63 | 1,84 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 |
| | 1,00 | 1,63 | 1,84 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 |
| | 0,40 | 0,60 | 0,74 | 0,86 | 1,09 | 1,30 | 1,74 | 1,87 | 1,87 | 1,87 | 1,87 |
| [| 0,50 | 0,60 | 0,74 | 0,86 | 1,09 | 1,30 | 1,74 | 1,89 | 1,89 | 1,89 | 1,89 |
| ΣĮ | 0,55 | 0,60 | 0,74 | 0,86 | 1,09 | 1,30 | 1,74 | 2,30 | 2,30 | 2,30 | 2,30 |
| N _{R,k} [kN] | 0,63 | 0,60 | 0,74 | 0,86 | 1,09 | 1,30 | 1,74 | 2,62 | 2,96 | 2,96 | 2,96 |
| Ž | 0,75 | 0,60 | 0,74 | 0,86 | 1,09 | 1,30 | 1,74 | 2,62 | 3,65 | 3,95 | 3,95 |
| | 0,88 | 0,60 | 0,74 | 0,86 | 1,09 | 1,30 | 1,74 | 2,62 | 3,65 | 3,95 | 3,95 |
| | 1,00 | 0,60 | 0,74 | 0,86 | 1,09 | 1,30 | 1,74 | 2,62 | 3,65 | 3,95 | 3,95 |
| | | 10,0 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 | 3,0 | 3,0 |
| | 40 | | | 6,3 | 6,3 | 6,3 | 6,3 | 6,3 | 6,3 | 3,8 | 3,8 |
| | 50 | 12,5 | 6,3 | | | | | 7,5 | 7,5 | 4,5 | 4,5 |
| | 50 60 | 15,0 | 7,5 | 7,5 | 7,5 | 7,5 | 7,5 | | | | - |
| [шш | 50 60 80 | 15,0 20,0 | 7,5 10,0 | 7,5 10,0 | 7,5 10,0 | 10,0 | 10,0 | 10,0 | 10,0 | 6,0 | 6,0 |
| n [mm] | 50 60 80 100 | 15,0 20,0 25,0 | 7,5 10,0 12,5 | 7,5 10,0 12,5 | 7,5 10,0 12,5 | 10,0 12,5 | 10,0 12,5 | 10,0 12,5 | 10,0 12,5 | 6,0 7,5 | 6,0 7,5 |
| n [mm] | 50 60 80 100 120 | 15,0 20,0 25,0 30,0 | 7,5 10,0 12,5 15,0 | 7,5 10,0 12,5 15,0 | 7,5 10,0 12,5 15,0 | 10,0 12,5 15,0 | 10,0 12,5 15,0 | 10,0 12,5 15,0 | 10,0 12,5 15,0 | 6,0 7,5 9,0 | 6,0 7,5 9,0 |
| n [mm] | 50 60 80 100 | 15,0 20,0 25,0 | 7,5 10,0 12,5 | 7,5 10,0 12,5 | 7,5 10,0 12,5 | 10,0 12,5 | 10,0 12,5 | 10,0 12,5 | 10,0 12,5 | 6,0 7,5 | 6,0 7,5 |

"Self drilling Screws"

Screw for Sandwich panels 5,5/6,3 x L – BP5, washer size Ø 19,0 mm

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| ja | Ø6.3 Ø4.8 01 | | 8 mm / 5/16 # 12-13 #22 | | <u>Materials</u> Screw: Washer: Componer Componer | Stainle at I: S280G at II:S235 - S280G | - EN 10025 D, S320GI | 4301 (A2) - D and S350 -2 | - EN ISO 3)GD - EN 1 | 506 0346 | |
|------------------------------|---|--|---|---|---|---|---|---|---|--|---|
| | \$5,0 \$5,5 | | | | <u>Timber sub</u> No perform | | - | | | | |
| | | | | | | t _{ii} [n | ım] | | | | |
| τ _{Ν1} , τ | t _{N2} , d, D | 0,75 | 0,88 | 1,00 | 1,13 | 1,25 | 1,50 | 2,00 | 3,00 | 4,00 | <u>≥</u> 6,00 |
| | 0,40 | 0,94 | 0,94 | 0,94 | 0,94 | 0,94 | 0,94 | 0,94 | 0,94 | 0,94 | 0,94 |
| [| 0,50 | 1,14 | 1,14 | 1,14 | 1,14 | 1,14 | 1,14 | 1,14 | 1,14 | 1,14 | 1,14 |
| Σ | 0,55 | 1,24 | 1,24 | 1,24 | 1,24 | 1,24 | 1,24 | 1,24 | 1,24 | 1,24 | 1,24 |
| V _{R,k} [kN] | 0,63 | 1,39 | 1,39 | 1,39 | 1,39 | 1,39 | 1,39 | 1,39 | 1,39 | 1,39 | 1,39 |
| , S | 0,75 | 1,63 | 1,84 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 |
| | 0,88 | 1,63 | 1,84 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 |
| | 1 00 | 1,63 | 1,84 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 |
| | 1,00 | | | 0.96 | 1 00 | 1 20 | 1,74 | 1,78 | 1,78 | 1,78 | 1,78 |
| | 0,40 | 0,60 | 0,74 | 0,86 | 1,09 | 1,30 | | | 0 | 0 | 1 0 E 0 |
| | 0,40 0,50 | 0,60 | 0,74 | 0,86 | 1,09 | 1,30 | 1,74 | 2,53 | 2,53 | 2,53 | 2,53 |
| [kN] | 0,40 0,50 0,55 | 0,60 0,60 | 0,74 0,74 | 0,86 0,86 | 1,09 1,09 | 1,30 1,30 | 1,74 1,74 | 2,53 2,62 | 2,90 | 2,90 | 2,90 |
| l _{R,k} [kN] | 0,40 0,50 0,55 0,63 | 0,60 0,60 0,60 | 0,74 0,74 0,74 | 0,86 0,86 0,86 | 1,09 1,09 1,09 | 1,30 1,30 1,30 | 1,74 1,74 1,74 | 2,53 2,62 2,62 | 2,90 3,49 | 2,90 3,49 | 2,90 3,49 |
| N _{R,k} [kN] | 0,40 0,50 0,55 0,63 0,75 | 0,60 0,60 0,60 0,60 | 0,74 0,74 0,74 0,74 | 0,86 0,86 0,86 0,86 | 1,09 1,09 1,09 1,09 | 1,30 1,30 1,30 1,30 | 1,74 1,74 1,74 1,74 | 2,53 2,62 2,62 2,62 2,62 | 2,90 3,49 3,65 | 2,90 3,49 4,37 | 2,90 3,49 4,37 |
| N _{R,k} [kN] | 0,40 0,50 0,55 0,63 0,75 0,88 | 0,60 0,60 0,60 0,60 0,60 | 0,74 0,74 0,74 0,74 0,74 | 0,86 0,86 0,86 0,86 0,86 | 1,09 1,09 1,09 1,09 1,09 | 1,30 1,30 1,30 1,30 1,30 | 1,74 1,74 1,74 1,74 1,74 | 2,53 2,62 2,62 2,62 2,62 2,62 | 2,90 3,49 3,65 3,65 | 2,90 3,49 4,37 4,37 | 2,90 3,49 4,37 4,37 |
| N _{R,k} [KN] | 0,40 0,50 0,55 0,63 0,75 0,88 1,00 | 0,60 0,60 0,60 0,60 0,60 0,60 | 0,74 0,74 0,74 0,74 0,74 0,74 | 0,86 0,86 0,86 0,86 0,86 0,86 | 1,09 1,09 1,09 1,09 1,09 1,09 1,09 | 1,30 1,30 1,30 1,30 1,30 1,30 1,30 | 1,74 1,74 1,74 1,74 1,74 1,74 1,74 | 2,53 2,62 2,62 2,62 2,62 2,62 2,62 | 2,90 3,49 3,65 3,65 3,65 | 2,90 3,49 4,37 4,37 4,37 | 2,90 3,49 4,37 4,37 4,37 |
| N _{R,k} [kN] | 0,40 0,50 0,55 0,63 0,75 0,88 1,00 40 | 0,60 0,60 0,60 0,60 0,60 0,60 10,0 | 0,74 0,74 0,74 0,74 0,74 0,74 0,74 5,0 | 0,86 0,86 0,86 0,86 0,86 0,86 5,0 | 1,09 1,09 1,09 1,09 1,09 1,09 1,09 5,0 | 1,30 1,30 1,30 1,30 1,30 1,30 1,30 5,0 | 1,74 1,74 1,74 1,74 1,74 1,74 1,74 5,0 | 2,53 2,62 2,62 2,62 2,62 2,62 2,62 2,62 5,0 | 2,90 3,49 3,65 3,65 3,65 3,65 5,0 | 2,90 3,49 4,37 4,37 4,37 3,0 | 2,90 3,49 4,37 4,37 4,37 3,0 |
| N _{R,k} [kN] | 0,40 0,50 0,55 0,63 0,75 0,88 1,00 40 50 | 0,60 0,60 0,60 0,60 0,60 0,60 10,0 12,5 | 0,74 0,74 0,74 0,74 0,74 0,74 0,74 5,0 6,3 | 0,86 0,86 0,86 0,86 0,86 0,86 5,0 6,3 | 1,09 1,09 1,09 1,09 1,09 1,09 1,09 5,0 6,3 | 1,30 1,30 1,30 1,30 1,30 1,30 5,0 6,3 | 1,74 1,74 1,74 1,74 1,74 1,74 1,74 5,0 6,3 | 2,53 2,62 2,62 2,62 2,62 2,62 2,62 5,0 6,3 | 2,90 3,49 3,65 3,65 3,65 5,0 6,3 | 2,90 3,49 4,37 4,37 4,37 3,0 3,8 | 2,90 3,49 4,37 4,37 4,37 3,0 3,8 |
| | 0,40 0,50 0,55 0,63 0,75 0,88 1,00 40 50 60 | 0,60 0,60 0,60 0,60 0,60 10,0 12,5 15,0 | 0,74 0,74 0,74 0,74 0,74 0,74 0,74 5,0 6,3 7,5 | 0,86 0,86 0,86 0,86 0,86 0,86 5,0 6,3 7,5 | 1,09 1,09 1,09 1,09 1,09 1,09 5,0 6,3 7,5 | 1,30 1,30 1,30 1,30 1,30 1,30 5,0 6,3 7,5 | 1,74 1,74 1,74 1,74 1,74 1,74 5,0 6,3 7,5 | 2,53 2,62 2,62 2,62 2,62 2,62 5,0 6,3 7,5 | 2,90 3,49 3,65 3,65 3,65 5,0 6,3 7,5 | 2,90 3,49 4,37 4,37 4,37 3,0 3,8 4,5 | 2,90 3,49 4,37 4,37 4,37 3,0 3,8 4,5 |
| | 0,40 0,50 0,55 0,63 0,75 0,88 1,00 40 50 | 0,60 0,60 0,60 0,60 0,60 10,0 12,5 15,0 20,0 | 0,74 0,74 0,74 0,74 0,74 0,74 5,0 6,3 7,5 10,0 | 0,86 0,86 0,86 0,86 0,86 0,86 5,0 6,3 7,5 10,0 | 1,09 1,09 1,09 1,09 1,09 1,09 5,0 6,3 7,5 10,0 | 1,30 1,30 1,30 1,30 1,30 1,30 5,0 6,3 7,5 10,0 | 1,74 1,74 1,74 1,74 1,74 1,74 5,0 6,3 7,5 10,0 | 2,53 2,62 2,62 2,62 2,62 2,62 5,0 6,3 7,5 10,0 | 2,90 3,49 3,65 3,65 5,0 6,3 7,5 10,0 | 2,90 3,49 4,37 4,37 4,37 3,0 3,8 4,5 6,0 | 2,90 3,49 4,37 4,37 4,37 3,0 3,8 4,5 6,0 |
| u [mm] N _{R,k} [kN] | 0,40 0,50 0,55 0,63 0,75 0,88 1,00 40 50 60 80 | 0,60 0,60 0,60 0,60 0,60 10,0 12,5 15,0 | 0,74 0,74 0,74 0,74 0,74 0,74 0,74 5,0 6,3 7,5 | 0,86 0,86 0,86 0,86 0,86 0,86 5,0 6,3 7,5 | 1,09 1,09 1,09 1,09 1,09 1,09 5,0 6,3 7,5 | 1,30 1,30 1,30 1,30 1,30 1,30 5,0 6,3 7,5 | 1,74 1,74 1,74 1,74 1,74 1,74 5,0 6,3 7,5 | 2,53 2,62 2,62 2,62 2,62 2,62 5,0 6,3 7,5 | 2,90 3,49 3,65 3,65 3,65 5,0 6,3 7,5 | 2,90 3,49 4,37 4,37 4,37 3,0 3,8 4,5 | 2,90 3,49 4,37 4,37 4,37 3,0 3,8 4,5 |
| | 0,40 0,50 0,55 0,63 0,75 0,88 1,00 40 50 60 80 80 100 | 0,60 0,60 0,60 0,60 0,60 10,0 12,5 15,0 20,0 25,0 | 0,74 0,74 0,74 0,74 0,74 0,74 5,0 6,3 7,5 10,0 12,5 | 0,86 0,86 0,86 0,86 0,86 5,0 6,3 7,5 10,0 12,5 | 1,09 1,09 1,09 1,09 1,09 1,09 5,0 6,3 7,5 10,0 12,5 | 1,30 1,30 1,30 1,30 1,30 1,30 5,0 6,3 7,5 10,0 12,5 | 1,74 1,74 1,74 1,74 1,74 1,74 5,0 6,3 7,5 10,0 12,5 | 2,53 2,62 2,62 2,62 2,62 2,62 5,0 6,3 7,5 10,0 12,5 | 2,90 3,49 3,65 3,65 3,65 5,0 6,3 7,5 10,0 12,5 | 2,90 3,49 4,37 4,37 3,0 3,8 4,5 6,0 7,5 | 2,90 3,49 4,37 4,37 4,37 3,0 3,8 4,5 6,0 7,5 |

"Self drilling Screws"

Screw for Sandwich panels 5,5/6,3 x L – BP5, washer size Ø 22,0 mm

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English translation prepared by DIBt



| آ | | \$\$\$ 4.8 \$\$\$6.3 \$\$\$4.5 | 8 mm / 5/16 | | <u>Materials</u> Screw: Washer: Componer Componer | Stainle nt I: S280G nt II:S235 - | ss steel 1.4 D, S320GI · EN 10025 | | - EN ISO 3)GD - EN 1 | 506 0346 | |
|---------------------------|------------------------------------|---|---------------------------------|---------------------------------|---|--|---|--------------------------|--------------------------|-------------|---|
| | | ¢4,8 | | | Drill capac | ity: Σt _i ≤ 6,0 | 00 mm | | | | |
| | 0 <u>v</u> 4.8 <u>ø</u> 5,5 | | | | <u>Timber sub</u> No perform | | - | | | | |
| | | | | | | t _{ii} [n | וm] | | | | |
| t _{N1} , t | t _{№2} , d , D | 0,75 | 1,00 | 1,50 | 2,00 | 3,00 | 4,00 | 6,00 | - | - | - |
| | 0,40 | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 | - | - | - |
| [| 0,50 | 0,93 | 0,93 | 0,93 | 0,93 | 0,93 | 0,93 | 0,93 | - | - | - |
| Ξ | 0,55 | 1,11 | 1,11 | 1,11 | 1,11 | 1,11 | 1,11 | 1,11 | - | - | - |
| V _{R,k} [kN] | 0,63 | 1,39 | 1,39 | 1,39 | 1,39 | 1,39 | 1,39 | 1,39 | - | - | - |
| K | 0,75 | 1,82 | 1,91 | 1,91 | 1,91 | 1,91 | 1,91 | 1,91 | - | - | - |
| | 0,88 | 1,82 | 1,91 | 1,91 | 1,91 | 1,91 | 1,91 | 1,91 | - | - | - |
| | 1,00 | 1,82 | 1,91 | 1,91 | 1,91 | 1,91 | 1,91 | 1,91 | - | - | - |
| | 0,40 | 0,60 | 0,66 | 1,58 | 1,58 | 1,58 | 1,58 | 1,58 | - | - | - |
| [| 0,50 | 0,60 | 0,66 | 1,77 | 1,80 | 1,80 | 1,80 | 1,80 | - | - | - |
| 2 | 0,55 | 0,60 | 0,66 | 1,77 | 2,11 | 2,11 | 2,11 | 2,11 | - | - | - |
| | 0,63 | 0,60 | 0,66 | 1,77 | 2,61 | 2,61 | 2,61 | 2,61 | - | - | - |
| 3,k | 0,75 | 0,60 | 0,66 | 1,77 | 2,87 | 3,36 | 3,36 | 3,36 | - | - | - |
| N _{R,k} [kN] | 0,88 | 0,60 | 0,66 | 1,77 | 2,87 | 3,36 | 3,36 | 3,36 | - | - | - |
| N _{R,k} [| | 0,60 | 0,66 | 1,77 | 2,87 | 3,36 | 3,36 | 3,36 | - | - | - |
| N _{R,k} [| 1,00 | | | | 0.0 | 3,0 | 2,0 | 2,0 | - | - | - |
| N _{R,k} [| 40 | 6,0 | 3,0 | 3,0 | 3,0 | | | | | | 1 |
| N _{R,k} [| 40 50 | 6,0 7,5 | 3,5 | 3,5 | 3,5 | 3,5 | 2,5 | 2,5 | - | - | - |
| | 40 50 60 | 6,0 7,5 9,0 | 3,5 4,5 | 3,5 4,5 | 3,5 4,5 | 3,5 4,5 | 3,0 | 3,0 | - | - | - |
| | 40 50 60 80 | 6,0 7,5 9,0 12,0 | 3,5 4,5 6,0 | 3,5 4,5 6,0 | 3,5 4,5 6,0 | 3,5 4,5 6,0 | 3,0 4,0 | 3,0 4,0 | | | - |
| u [mm] N _{R,k} [| 40 50 60 80 100 | 6,0 7,5 9,0 12,0 15,0 | 3,5 4,5 6,0 7,5 | 3,5 4,5 6,0 7,5 | 3,5 4,5 6,0 7,5 | 3,5 4,5 6,0 7,5 | 3,0 4,0 5,0 | 3,0 4,0 5,0 | | - | |
| | 40 50 60 80 100 120 | 6,0 7,5 9,0 12,0 15,0 18,0 | 3,5 4,5 6,0 7,5 9,0 | 3,5 4,5 6,0 7,5 9,0 | 3,5 4,5 6,0 7,5 9,0 | 3,5 4,5 6,0 7,5 9,0 | 3,0 4,0 5,0 6,0 | 3,0 4,0 5,0 6,0 | - | - | - |
| | 40 50 60 80 100 | 6,0 7,5 9,0 12,0 15,0 | 3,5 4,5 6,0 7,5 | 3,5 4,5 6,0 7,5 | 3,5 4,5 6,0 7,5 | 3,5 4,5 6,0 7,5 | 3,0 4,0 5,0 | 3,0 4,0 5,0 | | - | - |

"Self drilling Screws"

Screw for Sandwich panels 5,5/6,3 x L – BP3, washer size Ø 16,0 mm

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English translation prepared by DIBt



| | | \$\$4.8 \$\$4.8 \$\$4.8 | 8 PHP / 5/16 | , | <u>Materials</u> Screw: Washer: Componer Componer | Stainle nt I: S280G nt II:S235 - | ss steel 1.4 D, S320GI - EN 10025 | | - EN ISO 3)GD - EN 1 | 506 0346 | |
|-----------------------|------------------------|-------------------------------|--------------|--------------|---|--|---|------------|--------------------------|-------------|---|
| | | | | | Drill capac | | | | | | |
| ļ | 9 Ø4,8 Ø5,5 | | | | <u>Timber suk</u> No perforn | | | | | | |
| | | | | | | t _{ii} [n | nm] | | | | |
| ι _{N1} , ι | t _{N2} , d, D | 0,75 | 1,00 | 1,50 | 2,00 | 3,00 | 4,00 | 6,00 | - | - | - |
| | 0,40 | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 | - | - | - |
| [| 0,50 | 0,93 | 0,93 | 0,93 | 0,93 | 0,93 | 0,93 | 0,93 | - | - | - |
| Σ | 0,55 | 1,11 | 1,11 | 1,11 | 1,11 | 1,11 | 1,11 | 1,11 | - | - | - |
| V _{R,k} [kN] | 0,63 | 1,39 | 1,39 | 1,39 | 1,39 | 1,39 | 1,39 | 1,39 | - | - | - |
| , S | 0,75 | 1,82 | 1,91 | 1,91 | 1,91 | 1,91 | 1,91 | 1,91 | - | - | - |
| | 0,88 | 1,82 | 1,91 | 1,91 | 1,91 | 1,91 | 1,91 | 1,91 | - | - | - |
| | 1,00 | 1,82 | 1,91 | 1,91 | 1,91 | 1,91 | 1,91 | 1,91 | - | - | - |
| | 0,40 | 0,60 | 0,66 | 1,77 | 2,14 | 2,14 | 2,14 | 2,14 | - | - | - |
| | 0,50 | 0,60 | 0,66 | 1,77 | 2,30 | 2,30 | 2,30 | 2,30 | - | - | - |
| <u>Š</u> | 0,55 | 0,60 | 0,66 | 1,77 | 2,62 | 2,62 | 2,62 | 2,62 | - | - | - |
| N _{R,k} [kN] | 0,63 | 0,60 | 0,66 | 1,77 | 2,87 | 3,14 | 3,14 | 3,14 | - | - | - |
| ž | 0,75 | 0,60 | 0,66 | 1,77 | 2,87 | 3,55 | 3,91 | 3,91 | - | - | - |
| | 0,88 | 0,60 | 0,66 | 1,77 | 2,87 | 3,55 | 3,91 | 3,91 | - | - | - |
| | 1,00 | 0,60 | 0,66 | 1,77 | 2,87 | 3,55 | 3,91 | 3,91 | - | - | - |
| | 40 | 6,0 | 3,0 | 3,0 | 3,0 | 3,0 | 2,0 | 2,0 | - | - | - |
| | 50 | 7,5 | 3,5 | 3,5 | 3,5 | 3,5 | 2,5 | 2,5 | - | - | - |
| | 60 | 9,0 | 4,5 | 4,5 | 4,5 | 4,5 | 3,0 | 3,0 | - | - | - |
| [| 80 | 12,0 | 6,0 | 6,0 | 6,0 | 6,0 | 4,0 | 4,0 | - | - | - |
| | 100 | 15,0 | 7,5 | 7,5 | 7,5 | 7,5 | 5,0 | 5,0 | - | - | - |
| ⊐⊦ | 120 | 18,0 | 9,0 | 9,0 | 9,0 | 9,0 | 6,0 | 6,0 | - | - | - |
| 3 | 140 | 010 | 105 | 105 | | | | | | | |
| 3 | 140 ≥160 | 21,0 24,0 | 10,5 12,0 | 10,5 12,0 | 10,5 12,0 | 10,5 12,0 | 7,0 8,0 | 7,0 8,0 | - | - | - |

"Self drilling Screws"

Screw for Sandwich panels 5,5/6,3 x L – BP3, washer size Ø 19,0 mm

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English translation prepared by DIBt



| Ţ | | Ø 4.8 Ø 4.5 | 8 mm / 5/16 | - | <u>Materials</u> Screw: Washer: Componer Componer | Stainle nt I: S280G nt II:S235 - | ss steel 1.4 D, S320GI - EN 10025 | | - EN ISO 3)GD - EN 1 | 506 0346 | |
|---|--|---|--|--|---|--|--|--|--|--|---|
| | -118 -117 | <u>Ø4,8</u> | | | Drill capac | ity: Σt _i ≤ 6,0 | 00 mm | | | | |
| | 01 \$4,8 \$5,5 | | | | <u>Timber sub</u> No perform | | - | | | | |
| | | | | | | t _{ii} [n | וm] | | | | |
| t _{N1} , 1 | t _{№2} , d, D | 0,75 | 1,00 | 1,50 | 2,00 | 3,00 | 4,00 | 6,00 | - | - | - |
| | 0,40 | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 | 0,83 | - | - | - |
| | 0,50 | 0,93 | 0,93 | 0,93 | 0,93 | 0,93 | 0,93 | 0,93 | - | - | - |
| F | 0,55 | 1,11 | 1,11 | 1,11 | 1,11 | 1,11 | 1,11 | 1,11 | - | - | - |
| | 0,63 | 1,39 | 1,39 | 1,39 | 1,39 | 1,39 | 1,39 | 1,39 | - | - | - |
| - Ž | | 1 00 | 1,91 | 1,91 | 1,91 | 1,91 | 1,91 | 1,91 | - | - | - |
| V _{R,k} [ŀ | 0,75 | 1,82 | | 1.01 | 1,91 | 1,91 | 1,91 | 1,91 | - | - | - |
| V _{R,k} [kN] | 0,75 0,88 | 1,82 | 1,91 | 1,91 | 1,01 | | ., | | | | |
| V _{R,k} [k | | | 1,91 1,91 | 1,91 | 1,91 | 1,91 | 1,91 | 1,91 | - | - | - |
| V _{R,k} [h | 0,88 | 1,82 | | | | | | 1,91 2,21 | - | - | - |
| V _{R,k} [h | 0,88 1,00 | 1,82 1,82 | 1,91 | 1,91 | 1,91 | 1,91 | 1,91 | | | | |
| | 0,88 1,00 0,40 | 1,82 1,82 0,60 | 1,91 0,66 | 1,91 1,77 | 1,91 2,21 | 1,91 2,21 | 1,91 2,21 | 2,21 | - | | |
| | 0,88 1,00 0,40 0,50 | 1,82 1,82 0,60 0,60 | 1,91 0,66 0,66 | 1,91 1,77 1,77 | 1,91 2,21 2,42 | 1,91 2,21 2,42 | 1,91 2,21 2,42 | 2,21 2,42 | - | - | - |
| N _{R,k} [kN] V _{R,k} [k | 0,88 1,00 0,40 0,50 0,55 0,63 0,75 | 1,82 1,82 0,60 0,60 0,60 0,60 0,60 | 1,91 0,66 0,66 0,66 0,66 0,66 | 1,91 1,77 1,77 1,77 1,77 1,77 | 1,91 2,21 2,42 2,80 2,87 | 1,91 2,21 2,42 2,80 3,42 3,55 | 1,91 2,21 2,42 2,80 3,42 4,22 | 2,21 2,42 2,80 3,42 4,34 | | | |
| | 0,88 1,00 0,40 0,50 0,55 0,63 0,75 0,88 | 1,82 1,82 0,60 0,60 0,60 0,60 | 1,91 0,66 0,66 0,66 0,66 | 1,91 1,77 1,77 1,77 1,77 | 1,91 2,21 2,42 2,80 2,87 | 1,91 2,21 2,42 2,80 3,42 | 1,91 2,21 2,42 2,80 3,42 | 2,21 2,42 2,80 3,42 | | | |
| | 0,88 1,00 0,40 0,50 0,55 0,63 0,75 0,88 1,00 | 1,82 1,82 0,60 0,60 0,60 0,60 0,60 | 1,91 0,66 0,66 0,66 0,66 0,66 | 1,91 1,77 1,77 1,77 1,77 1,77 | 1,91 2,21 2,42 2,80 2,87 | 1,91 2,21 2,42 2,80 3,42 3,55 | 1,91 2,21 2,42 2,80 3,42 4,22 | 2,21 2,42 2,80 3,42 4,34 | | | - - - - |
| | 0,88 1,00 0,40 0,50 0,55 0,63 0,75 0,88 1,00 40 | 1,82 1,82 0,60 0,60 0,60 0,60 0,60 0,60 0,60 6,0 | 1,91 0,66 0,66 0,66 0,66 0,66 0,66 0,66 3,0 | 1,91 1,77 1,77 1,77 1,77 1,77 1,77 1,77 | 1,91 2,21 2,42 2,80 2,87 2,87 2,87 2,87 2,87 3,0 | 1,91 2,21 2,42 2,80 3,42 3,55 3,55 3,55 3,55 3,55 3,0 | 1,91 2,21 2,42 2,80 3,42 4,22 4,22 4,22 4,22 2,0 | 2,21 2,42 2,80 3,42 4,34 4,34 4,34 4,34 2,0 | - - - - - | - - - - - | - - - - - |
| | 0,88 1,00 0,40 0,50 0,55 0,63 0,75 0,88 1,00 | 1,82 1,82 0,60 0,60 0,60 0,60 0,60 0,60 0,60 6,0 7,5 | 1,91 0,66 0,66 0,66 0,66 0,66 0,66 0,66 3,0 3,5 | 1,91 1,77 1,77 1,77 1,77 1,77 1,77 1,77 | 1,91 2,21 2,42 2,80 2,87 2,87 2,87 2,87 3,0 3,5 | 1,91 2,21 2,42 2,80 3,42 3,55 3,55 3,55 3,55 3,0 3,0 3,5 | 1,91 2,21 2,42 2,80 3,42 4,22 4,22 4,22 4,22 2,0 2,5 | 2,21 2,42 2,80 3,42 4,34 4,34 4,34 4,34 2,0 2,5 | - - - - - | - - - - - - - | - - - - - - |
| N _{R,k} [kN] | 0,88 1,00 0,40 0,50 0,55 0,63 0,75 0,88 1,00 40 50 60 | 1,82 1,82 0,60 0,60 0,60 0,60 0,60 0,60 0,60 6,0 7,5 9,0 | 1,91 0,66 0,66 0,66 0,66 0,66 0,66 0,66 3,0 3,5 4,5 | 1,91 1,77 1,77 1,77 1,77 1,77 1,77 1,77 | 1,91 2,21 2,42 2,80 2,87 2,87 2,87 2,87 3,0 3,5 4,5 | 1,91 2,21 2,42 2,80 3,42 3,55 3,55 3,55 3,55 3,55 3,0 3,5 4,5 | 1,91 2,21 2,42 2,80 3,42 4,22 4,22 4,22 4,22 2,0 2,5 3,0 | 2,21 2,42 2,80 3,42 4,34 4,34 4,34 4,34 2,0 2,5 3,0 | - - - - - - - - - | - - - - - - - - - | - - - - - - - |
| N _{R,k} [kN] | 0,88 1,00 0,40 0,50 0,55 0,63 0,75 0,88 1,00 40 50 60 80 | 1,82 1,82 0,60 0,60 0,60 0,60 0,60 0,60 0,60 6,0 7,5 9,0 12,0 | 1,91 0,66 0,66 0,66 0,66 0,66 0,66 0,66 3,0 3,5 4,5 6,0 | 1,91 1,77 1,77 1,77 1,77 1,77 1,77 1,77 | 1,91 2,21 2,42 2,80 2,87 2,87 2,87 2,87 3,0 3,5 4,5 6,0 | 1,91 2,21 2,42 2,80 3,42 3,55 3,55 3,55 3,55 3,55 3,0 3,5 4,5 6,0 | 1,91 2,21 2,42 2,80 3,42 4,22 4,22 4,22 4,22 2,0 2,5 3,0 4,0 | 2,21 2,42 2,80 3,42 4,34 4,34 4,34 2,0 2,5 3,0 4,0 | - - - - - - - - - - - - | - - - - - - - - - - - - - - | - - - - - - - |
| N _{R,k} [kN] | 0,88 1,00 0,40 0,50 0,55 0,63 0,75 0,88 1,00 40 50 60 80 100 | 1,82 1,82 0,60 0,60 0,60 0,60 0,60 0,60 6,0 7,5 9,0 12,0 15,0 | 1,91 0,66 0,66 0,66 0,66 0,66 0,66 0,66 3,0 3,5 4,5 6,0 7,5 | 1,91 1,77 1,77 1,77 1,77 1,77 1,77 1,77 | 1,91 2,21 2,42 2,80 2,87 2,87 2,87 2,87 3,0 3,5 4,5 6,0 7,5 | 1,91 2,21 2,42 2,80 3,42 3,55 3,55 3,55 3,55 3,55 3,55 3,55 3,5 | 1,91 2,21 2,42 2,80 3,42 4,22 4,22 4,22 2,0 2,5 3,0 4,0 5,0 | 2,21 2,42 2,80 3,42 4,34 4,34 4,34 2,0 2,5 3,0 4,0 5,0 | - - - - - - - - - - - - | - - - - - - - - - - - - - - | - - - - - - - - - - - - - |
| | 0,88 1,00 0,40 0,50 0,55 0,63 0,75 0,88 1,00 40 50 60 80 100 120 | 1,82 1,82 0,60 0,60 0,60 0,60 0,60 0,60 6,0 7,5 9,0 12,0 15,0 18,0 | 1,91 0,66 0,66 0,66 0,66 0,66 0,66 0,66 3,0 3,5 4,5 6,0 7,5 9,0 | 1,91 1,77 1,77 1,77 1,77 1,77 1,77 1,77 | 1,91 2,21 2,42 2,80 2,87 2,87 2,87 2,87 3,0 3,5 4,5 6,0 7,5 9,0 | 1,91 2,21 2,42 2,80 3,42 3,55 3,55 3,55 3,55 3,55 3,55 3,55 3,5 | 1,91 2,21 2,42 2,80 3,42 4,22 4,22 4,22 4,22 2,0 2,5 3,0 4,0 5,0 6,0 | 2,21 2,42 2,80 3,42 4,34 4,34 4,34 2,0 2,5 3,0 4,0 5,0 6,0 | - - - - - - - - - - - - - - - - - - | - - - - - - - - - - - - - - - - - - | - - - - - - - - - - - - - - - - - - |
| N _{R,k} [kN] | 0,88 1,00 0,40 0,50 0,55 0,63 0,75 0,88 1,00 40 50 60 80 100 | 1,82 1,82 0,60 0,60 0,60 0,60 0,60 0,60 6,0 7,5 9,0 12,0 15,0 | 1,91 0,66 0,66 0,66 0,66 0,66 0,66 0,66 3,0 3,5 4,5 6,0 7,5 | 1,91 1,77 1,77 1,77 1,77 1,77 1,77 1,77 | 1,91 2,21 2,42 2,80 2,87 2,87 2,87 2,87 3,0 3,5 4,5 6,0 7,5 | 1,91 2,21 2,42 2,80 3,42 3,55 3,55 3,55 3,55 3,55 3,55 3,55 3,5 | 1,91 2,21 2,42 2,80 3,42 4,22 4,22 4,22 2,0 2,5 3,0 4,0 5,0 | 2,21 2,42 2,80 3,42 4,34 4,34 4,34 2,0 2,5 3,0 4,0 5,0 | - - - - - - - - - - - - - - | - - - - - - - - - - - - - - - - - - | - - - - - - - - - - - - - - - - - - - |

Screw for Sandwich panels 5,5/6,3 x L – BP3, washer size Ø 22,0 mm

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English translation prepared by DIBt



| | | ¢5.5 | 8 mm / 5/1 # 12-13 #16 | 6* | - | Stainle nt I: S280G nt II: S235 - S280G ity: Σt _i ≤ 1,5 <u>ostructures</u> | <u>:</u> | 1301 (A2) - 0 and S350 -2 | - EN ISO 3)GD - EN 1 | 506 0346 | |
|-----------------------|----------------------|------|------------------------------|------|------|--|-------------|---------------------------------|--------------------------|-------------|---|
| t _{N1} , t | _{N2} , d, D | 0,75 | 0,88 | 1,00 | 1,13 | t⊪ [n 1,25 | nm] 1,50 | - | - | - | |
| | 0,40 | 0,67 | 0,67 | 0,67 | 0,67 | 0,67 | 0,67 | - | - | - | - |
| ŀ | 0,50 | 1,31 | 1,31 | 1,31 | 1,31 | 1,31 | 1,31 | - | - | - | - |
| 5 | 0,55 | 1,48 | 1,48 | 1,48 | 1,48 | 1,48 | 1,48 | - | - | - | - |
| V _{R,k} [kN] | 0,63 | 1,76 | 1,76 | 1,76 | 1,76 | 1,76 | 1,76 | - | - | - | - |
| V _{R,k} | 0,75 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | - | - | - | - |
| | 0,88 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | - | - | - | - |
| | 1,00 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | - | - | - | - |
| | 0,40 | 0,99 | 1,15 | 1,29 | 1,31 | 1,31 | 1,31 | - | - | - | - |
| [| 0,50 | 0,99 | 1,15 | 1,29 | 1,39 | 1,39 | 1,39 | - | - | - | - |
| ΣĮ | 0,55 | 0,99 | 1,15 | 1,29 | 1,50 | 1,64 | 1,64 | - | - | - | - |
| N _{R,k} [kN] | 0,63 | 0,99 | 1,15 | 1,29 | 1,50 | 1,69 | 2,04 | - | - | - | - |
| z | 0,75 | 0,99 | 1,15 | 1,29 | 1,50 | 1,69 | 2,08 | - | - | - | - |
| Ļ | 0,88 | 0,99 | 1,15 | 1,29 | 1,50 | 1,69 | 2,08 | - | - | - | - |
| | 1,00 | 0,99 | 1,15 | 1,29 | 1,50 | 1,69 | 2,08 | - | - | - | - |
| ļ | 40 | 8,0 | 8,0 | 8,0 | 8,0 | 8,0 | 10,0 | - | - | - | - |
| - | 50 | 10,0 | 10,0 | 10,0 | 10,0 | 10,0 | 12,5 | - | - | - | - |
| | 60 | 12,0 | 12,0 | 12,0 | 12,0 | 12,0 | 15,0 | - | - | - | - |
| [n | 80 | 16,0 | 16,0 | 16,0 | 16,0 | 16,0 | 20,0 | - | - | - | - |
| | 100 | 20,0 | 20,0 | 20,0 | 20,0 | 20,0 | 25,0 | - | - | - | - |
| Ļ | 120 | 24,0 | 24,0 | 24,0 | 24,0 | 24,0 | 30,0 | - | - | - | - |
| | 140 | 28,0 | 28,0 | 28,0 | 28,0 | 28,0 | 35,0 | - | - | - | - |
| - | <u>></u> 160 | 32,0 | 32,0 | 32,0 | 32,0 | 32,0 | 40,0 | - | - | - | - |

"Self drilling Screws"

Screw for Sandwich panels 6,3/7,0 x L – BP2, washer size Ø 16,0 mm

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English translation prepared by DIBt



| | | ₹ <u>5,00</u> | 8 mm / 5/1 | 6* | Materials Screw: Washer: Componer Componer | Stainle nt I: S280G nt II: S235 - S280G | - EN 10025 iD, S320GI | 4301 (A2) - D and S350 -2 | - EN ISO 3)GD - EN 1 | 506 0346 | |
|-----------------------|----------------------|---------------|------------|------|--|--|--------------------------|---------------------------------|--------------------------|-------------|---|
| | | Ø6,5 Ø5,5 | | | <u>Timber sub</u> No perforn | | - | | | | |
| | | | | | | t _{ii} [n | nm] | | | | |
| τ _{N1} , τ | _{N2} , d, D | 0,75 | 0,88 | 1,00 | 1,13 | 1,25 | 1,50 | - | - | - | - |
| | 0,40 | 0,67 | 0,67 | 0,67 | 0,67 | 0,67 | 0,67 | - | - | - | - |
| | 0,50 | 1,31 | 1,31 | 1,31 | 1,31 | 1,31 | 1,31 | - | - | - | - |
| Ξ | 0,55 | 1,48 | 1,48 | 1,48 | 1,48 | 1,48 | 1,48 | - | - | - | - |
| V _{R,k} [kN] | 0,63 | 1,76 | 1,76 | 1,76 | 1,76 | 1,76 | 1,76 | - | - | - | - |
| , S | 0,75 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | - | - | - | - |
| | 0,88 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | - | - | - | - |
| | 1,00 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | - | - | - | - |
| | 0,40 | 0,99 | 1,15 | 1,29 | 1,50 | 1,69 | 1,70 | - | - | - | - |
| | 0,50 | 0,99 | 1,15 | 1,29 | 1,50 | 1,69 | 1,70 | - | - | - | - |
| Ţ | 0,55 | 0,99 | 1,15 | 1,29 | 1,50 | 1,69 | 2,03 | - | - | - | - |
| N _{R,k} [kN] | 0,63 | 0,99 | 1,15 | 1,29 | 1,50 | 1,69 | 2,08 | - | - | - | - |
| Ž | 0,75 | 0,99 | 1,15 | 1,29 | 1,50 | 1,69 | 2,08 | - | - | - | - |
| | 0,88 | 0,99 | 1,15 | 1,29 | 1,50 | 1,69 | 2,08 | - | - | - | - |
| | 1,00 | 0,99 | 1,15 | 1,29 | 1,50 | 1,69 | 2,08 | - | - | - | - |
| | 40 | 8,0 | 8,0 | 8,0 | 8,0 | 8,0 | 10,0 | - | - | - | - |
| | 50 | 10,0 | 10,0 | 10,0 | 10,0 | 10,0 | 12,5 | - | - | - | - |
| | 60 | 12,0 | 12,0 | 12,0 | 12,0 | 12,0 | 15,0 | - | - | - | - |
| [uuu] n | 80 | 16,0 | 16,0 | 16,0 | 16,0 | 16,0 | 20,0 | - | - | - | - |
| | 100 | 20,0 | 20,0 | 20,0 | 20,0 | 20,0 | 25,0 | - | - | - | - |
| | 120 | 24,0 | 24,0 | 24,0 | 24,0 | 24,0 | 30,0 | - | - | - | - |
| | 140 | 28,0 | 28,0 | 28,0 | 28,0 | 28,0 | 35,0 | - | - | - | - |
| | <u>></u> 160 | 32,0 | 32,0 | 32,0 | 32,0 | 32,0 | 40,0 | - | - | - | - |

"Self drilling Screws"

Screw for Sandwich panels 6,3/7,0 x L – BP2, washer size Ø 19,0 mm

Annex 11

Z27442.17

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English translation prepared by DIBt



| 8 mm √ 5/16* | | | | | MaterialsScrew:Stainless steel 1.4301 (A2) – EN ISO 3506Washer:Stainless steel 1.4301 (A2) – EN ISO 3506Component I:S280GD, S320GD and S350GD - EN 10346Component II:S235 – EN 10025-2S280GD, S320GD and S350GD - EN 10346Drill capacity: $\Sigma_k \leq 1,50 \text{ mm}$ | | | | | | | |
|---|---|---|---|--|---|--|--|---|---|---|---|--|
| | 5 June 1 | <u>\$6.5</u> \$5,5 | | | Timber sub | ostructures | <u>:</u> rmined | | | | | |
| t _{N1} , t | _{N2} , d, D | t _{ii} [mm] | | | | | | | | | | |
| | 0,40 | 0,75 0,67 | 0,88 0,67 | 1,00 0,67 | 1,13 0,67 | 1,25 0,67 | 1,50 0,67 | - | - | - | - | |
| ŀ | 0,40 | 1,31 | 1,31 | 1,31 | 1,31 | 1,31 | 1,31 | - | - | - | - | |
| _ | 0,55 | 1,48 | 1,48 | 1,48 | 1,48 | 1,48 | 1,48 | - | - | - | - | |
| | 0,63 | 1,76 | 1,76 | 1,76 | 1,76 | 1,76 | 1,76 | - | - | - | - | |
| X | | | | 1,70 | 1,70 | 1,70 | 1,70 | | | | | |
| ' _{R,k} [kN] | - | | - | 2.17 | 2.17 | 2.17 | 2.17 | - | - | - | | |
| V _{R,k} [kN] | 0,75 | 2,17 | 2,17 | 2,17 2,17 | 2,17 2,17 | 2,17 2,17 | 2,17 2,17 | | - | - | - | |
| V _{R,k} [kN] | 0,75 0,88 | 2,17 2,17 | 2,17 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | | | | | |
| V _{R,k} [kN] | 0,75 0,88 1,00 | 2,17 2,17 2,17 | 2,17 2,17 2,17 | 2,17 2,17 | 2,17 2,17 | 2,17 2,17 | 2,17 2,17 | - | - | | - | |
| V _{R,k} [kN] | 0,75 0,88 | 2,17 2,17 2,17 0,99 | 2,17 2,17 2,17 1,15 | 2,17 2,17 1,29 | 2,17 2,17 1,50 | 2,17 2,17 1,69 | 2,17 2,17 1,90 | - | - | - | - | |
| | 0,75 0,88 1,00 0,40 | 2,17 2,17 2,17 | 2,17 2,17 2,17 | 2,17 2,17 | 2,17 2,17 | 2,17 2,17 | 2,17 2,17 | - | - | - | - | |
| | 0,75 0,88 1,00 0,40 0,50 | 2,17 2,17 2,17 0,99 0,99 | 2,17 2,17 2,17 1,15 1,15 | 2,17 2,17 1,29 1,29 | 2,17 2,17 1,50 1,50 | 2,17 2,17 1,69 1,69 | 2,17 2,17 1,90 2,03 | - - - - | | | - - - | |
| N _{R,k} [kN] V _{R,k} [kN] | 0,75 0,88 1,00 0,40 0,50 0,55 | 2,17 2,17 2,17 0,99 0,99 0,99 | 2,17 2,17 2,17 1,15 1,15 1,15 | 2,17 2,17 1,29 1,29 1,29 | 2,17 2,17 1,50 1,50 1,50 | 2,17 2,17 1,69 1,69 1,69 | 2,17 2,17 1,90 2,03 2,08 | - - - - | - - - - | - - - - | | |
| | 0,75 0,88 1,00 0,40 0,50 0,55 0,63 | 2,17 2,17 2,17 0,99 0,99 0,99 0,99 | 2,17 2,17 2,17 1,15 1,15 1,15 1,15 1,15 | 2,17 2,17 1,29 1,29 1,29 1,29 | 2,17 2,17 1,50 1,50 1,50 1,50 | 2,17 2,17 1,69 1,69 1,69 1,69 | 2,17 2,17 1,90 2,03 2,08 2,08 | - - - - - | - - - - - | - - - - | - - - - - | |
| | 0,75 0,88 1,00 0,40 0,50 0,55 0,63 0,75 | 2,17 2,17 2,17 0,99 0,99 0,99 0,99 0,99 | 2,17 2,17 1,15 1,15 1,15 1,15 1,15 1,15 | 2,17 2,17 1,29 1,29 1,29 1,29 1,29 | 2,17 2,17 1,50 1,50 1,50 1,50 1,50 | 2,17 2,17 1,69 1,69 1,69 1,69 1,69 | 2,17 2,17 1,90 2,03 2,08 2,08 2,08 | - - - - - - - | - - - - - - - | - - - - - | - - - - - - - | |
| | 0,75 0,88 1,00 0,40 0,50 0,55 0,63 0,75 0,88 | 2,17 2,17 2,17 0,99 0,99 0,99 0,99 0,99 0,99 | 2,17 2,17 1,15 1,15 1,15 1,15 1,15 1,15 1,15 | 2,17 2,17 1,29 1,29 1,29 1,29 1,29 1,29 1,29 | 2,17 2,17 1,50 1,50 1,50 1,50 1,50 1,50 | 2,17 2,17 1,69 1,69 1,69 1,69 1,69 1,69 | 2,17 2,17 1,90 2,03 2,08 2,08 2,08 2,08 2,08 | - - - - - - - - - | - - - - - - - - | - - - - - - | - - - - - - - - - | |
| | 0,75 0,88 1,00 0,40 0,50 0,55 0,63 0,75 0,88 1,00 | 2,17 2,17 2,17 0,99 0,99 0,99 0,99 0,99 0,99 0,99 | 2,17 2,17 1,15 1,15 1,15 1,15 1,15 1,15 1,15 1 | 2,17 2,17 1,29 1,29 1,29 1,29 1,29 1,29 1,29 1,29 | 2,17 2,17 1,50 1,50 1,50 1,50 1,50 1,50 1,50 | 2,17 2,17 1,69 1,69 1,69 1,69 1,69 1,69 1,69 | 2,17 2,17 1,90 2,03 2,08 2,08 2,08 2,08 2,08 2,08 | - - - - - - - - - - - | - - - - - - - - - - - | - - - - - - - - - | - - - - - - - - - - - - | |
| N _{R,k} [kN] | 0,75 0,88 1,00 0,40 0,50 0,55 0,63 0,75 0,88 1,00 40 | 2,17 2,17 2,17 0,99 0,99 0,99 0,99 0,99 0,99 0,99 0,9 | 2,17 2,17 1,15 1,15 1,15 1,15 1,15 1,15 1,15 1 | 2,17 2,17 1,29 1,29 1,29 1,29 1,29 1,29 1,29 1,29 | 2,17 2,17 1,50 1,50 1,50 1,50 1,50 1,50 1,50 8,0 | 2,17 2,17 1,69 1,69 1,69 1,69 1,69 1,69 1,69 8,0 | 2,17 2,17 1,90 2,03 2,08 2,08 2,08 2,08 2,08 2,08 2,08 10,0 | - - - - - - - - - - - - | - - - - - - - - - - - - | - - - - - - - - - - - | - - - - - - - - - - - - - | |
| N _{R,k} [kN] | 0,75 0,88 1,00 0,40 0,50 0,55 0,63 0,75 0,88 1,00 40 50 | 2,17 2,17 2,17 0,99 0,99 0,99 0,99 0,99 0,99 0,99 0,9 | 2,17 2,17 1,15 1,15 1,15 1,15 1,15 1,15 1,15 1 | 2,17 2,17 1,29 1,29 1,29 1,29 1,29 1,29 1,29 1,29 | 2,17 2,17 1,50 1,50 1,50 1,50 1,50 1,50 1,50 8,0 10,0 | 2,17 2,17 1,69 1,69 1,69 1,69 1,69 1,69 1,69 1,69 | 2,17 2,17 1,90 2,03 2,08 2,08 2,08 2,08 2,08 2,08 2,08 10,0 12,5 | - - - - - - - - - - - - - - - - | - - - - - - - - - - - - - - - - | - - - - - - - - - - - - - - - | - - - - - - - - - - - - - - - - | |
| N _{R,k} [kN] | 0,75 0,88 1,00 0,40 0,50 0,55 0,63 0,75 0,88 1,00 40 50 60 | 2,17 2,17 2,17 0,99 0,99 0,99 0,99 0,99 0,99 0,99 0,9 | 2,17 2,17 1,15 1,15 1,15 1,15 1,15 1,15 1,15 1 | 2,17 2,17 1,29 1,29 1,29 1,29 1,29 1,29 1,29 1,29 | 2,17 2,17 1,50 1,50 1,50 1,50 1,50 1,50 1,50 1,50 | 2,17 2,17 1,69 1,69 1,69 1,69 1,69 1,69 1,69 1,69 | 2,17 2,17 1,90 2,03 2,08 2,08 2,08 2,08 2,08 2,08 2,08 10,0 12,5 15,0 | - - - - - - - - - - - - - - - - - - - | - - - - - - - - - - - - - - - | - - - - - - - - - - - - - - - - | - - - - - - - - - - - - - - - - - | |
| | 0,75 0,88 1,00 0,40 0,50 0,55 0,63 0,75 0,88 1,00 40 50 60 80 | 2,17 2,17 2,17 0,99 0,99 0,99 0,99 0,99 0,99 0,99 0,9 | 2,17 2,17 1,15 1,15 1,15 1,15 1,15 1,15 1,15 1 | 2,17 2,17 1,29 1,29 1,29 1,29 1,29 1,29 1,29 1,29 | 2,17 2,17 1,50 1,50 1,50 1,50 1,50 1,50 1,50 1,50 | $\begin{array}{r} 2,17\\ 2,17\\ 1,69\\$ | 2,17 2,17 1,90 2,03 2,08 2,08 2,08 2,08 2,08 2,08 10,0 12,5 15,0 20,0 | - - - - - - - - - - - - - - - - - - - | - - - - - - - - - - - - - - - - - - - | - - - - - - - - - - - - - - - - - | - - - - - - - - - - - - - - - - - - - | |
| N _{R,k} [kN] | 0,75 0,88 1,00 0,40 0,50 0,55 0,63 0,75 0,88 1,00 40 50 60 80 100 | 2,17 2,17 2,17 0,99 0,99 0,99 0,99 0,99 0,99 0,99 0,9 | 2,17 2,17 1,15 1,15 1,15 1,15 1,15 1,15 1,15 1 | 2,17 2,17 1,29 1,29 1,29 1,29 1,29 1,29 1,29 1,29 | 2,17 2,17 1,50 1,50 1,50 1,50 1,50 1,50 1,50 1,50 | 2,17 2,17 1,69 1,69 1,69 1,69 1,69 1,69 1,69 1,69 | 2,17 2,17 1,90 2,03 2,08 2,08 2,08 2,08 2,08 2,08 2,08 10,0 12,5 15,0 20,0 25,0 | - - - - - - - - - - - - - - - - - - | - - - - - - - - - - - - - - - - - - - | - - - - - - - - - - - - - - - - - - - | - - - - - - - - - - - - - - - - - - - | |

"Self drilling Screws"

Screw for Sandwich panels 6,3/7,0 x L – BP2, washer size Ø 22,0 mm

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English translation prepared by DIBt



| | | 8 | # 12-13 Ø16 | Wa Cor Cor Dril | rew: Isher: Imponent I: Il capacity: Il capacity: Inber substr | Stainless S280GD, Timber su $\rho = 350 \text{ kg}$ $\Sigma t_i \le 1,50 \text{ r}$ uctures: determined $M_{y,Rk} = 10$ $f_{ax,k} = 8,04$ | bstructure g/m² (min.) nm h with l,7 Nm l,1 N/mm² f | nd S350G according C24) | EN ISO 35 GD - EN 10 1 to DIN E | 506 0346 | |
|-----------------------------------|--------------|--------------|----------------|--------------------------|---|---|--|-------------------------------|---------------------------------------|--------------|--------------|
| t _{N1} , t _{N2} | 2 [mm] | | | | | d, D [| - | | | | |
| | | 30 | 40 | 50 | 60 | 70 | 80 | 100 | 120 | 140 | <u>≥</u> 160 |
| | 0,40 | 1,03 | 1,03 | 1,03 | 1,03 | 1,03 | 1,03 | 1,03 | 1,03 | 1,03 | 1,03 |
| | 0,50 | 1,35 | 1,35 | 1,35 | 1,35 | 1,35 | 1,35 | 1,35 | 1,35 | 1,35 | 1,35 |
| kN] | 0,55 | 1,51 | 1,51 | 1,51 | 1,51 | 1,51 | 1,51 | 1,51 | 1,51 | 1,51 | 1,51 |
| V _{R,k} [kN] | 0,63 0,75 | 1,76 | 1,76 | 1,76 | 1,76 | 1,76 | 1,76 | 1,76 | 1,76 | 1,76 | 1,76 |
| > | 0,75 | 2,14 2,14 | 2,14 2,14 | 2,14 2,14 | 2,14 2,14 | 2,14 2,14 | 2,14 2,14 | 2,14 2,14 | 2,14 2,14 | 2,14 2,14 | 2,14 2,14 |
| | 1,00 | 2,14 | 2,14 | 2,14 | 2,14 | 2,14 | 2,14 | 2,14 | 2,14 | 2,14 | 2,14 |
| | 0,40 | | - | - | | | | | | | |
| | 0,40 | 1,31 1,39 | 1,31 1,39 | 1,31 1,39 | 1,31 1,39 | 1,31 1,39 | 1,31 1,39 | 1,31 1,39 | 1,31 | 1,31 1,39 | 1,31 1,39 |
| 5 | 0,50 | 1,39 | 1,39 | 1,39 | 1,39 | 1,39 | 1,39 | 1,39 | 1,39 1,64 | 1,39 | 1,39 |
| N _{R,k} [kN] | 0,55 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 |
| J _{R,k} | 0,83 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 |
| 2 | 0,75 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 |
| | 1,00 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 |
| n [mm] | - | 8,0 | 8,0 | 8,0 | 8,0 | 8,0 | 8,0 | 8,0 | 8,0 | 8,0 | 8,0 |

Annex 13

Screw for Sandwich panels 6,3/7,0 x L – BP2, washer size Ø 16,0 mm

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English translation prepared by DIBt



| | | Ø 1 7.0 000 000 | | Scr Wa Cor Cor Dril | sher: nponent I: | Stainless S280GD, Timber su $\rho = 350 \text{ kg}$ $\Sigma t_i \le 1,50 \text{ r}$ uctures: determined $M_{y,Rk} = 10$ $f_{ax,k} = 8,04$ | d with I,7 Nm I1 N/mm ² fi | 1 (A2) – E nd S350G according C24) | EN ISO 35 iD - EN 10 1 to DIN El | 606 0346 | | |
|----------------------------------|--|--------------------------|--------------|---------------------------------|---------------------|---|---|---|--|--------------|--------------|--|
| t _{N1} , t _N | t _{N1} , t _{N2} [mm] | | d, D [mm] | | | | | | | | | |
| | 0.40 | 30 | 40 | 50 | 60 | 70 | 80 | 100 | 120 | 140 | <u>≥</u> 160 | |
| | 0,40 0,50 | 1,03 1,35 | 1,03 1,35 | 1,03 1,35 | 1,03 1,35 | 1,03 1,35 | 1,03 1,35 | 1,03 1,35 | 1,03 1,35 | 1,03 1,35 | 1,03 1,35 | |
| _ | 0,50 | 1,35 | 1,35 | 1,35 | 1,35 | 1,35 | 1,35 | 1,55 | 1,55 | 1,35 | 1,35 | |
| V _{R,k} [kN] | 0,63 | 1,76 | 1,76 | 1,76 | 1,76 | 1,76 | 1,76 | 1,76 | 1,76 | 1,76 | 1,76 | |
| R,k | 0,75 | 2,14 | 2,14 | 2,14 | 2,14 | 2,14 | 2,14 | 2,14 | 2,14 | 2,14 | 2,14 | |
| > | 0,88 | 2,14 | 2,14 | 2,14 | 2,14 | 2,14 | 2,14 | 2,14 | 2,14 | 2,14 | 2,14 | |
| | 1,00 | 2,14 | 2,14 | 2,14 | 2,14 | 2,14 | 2,14 | 2,14 | 2,14 | 2,14 | 2,14 | |
| | 0,40 | 1,70 | 1,70 | 1,70 | 1,70 | 1,70 | 1,70 | 1,70 | 1,70 | 1,70 | 1,70 | |
| | 0,50 | 1,70 | 1,70 | 1,70 | 1,70 | 1,70 | 1,70 | 1,70 | 1,70 | 1,70 | 1,70 | |
| Z | 0,55 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | |
| kN] | 0,63 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | |
| Ě | | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | |
| N _{R,k} [kN] | 0,75 | | | 0.00 | 2.02 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | |
| N _{R,k} [k | 0,75 0,88 | 2,03 | 2,03 | 2,03 | 2,03 | 2,00 | 2,00 | 2,03 | _, | ,00 | | |
| N _{R,k} [k | | 2,03 2,03 | 2,03 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | |

Annex 14

Screw for Sandwich panels $6,3/7,0 \times L - BP2$, washer size Ø 19,0 mm

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English translation prepared by DIBt



| | | Ø 1 | nn / 5/16* ♥22 | Scr Wa Cor Cor Dril | sher: nponent I: | Stainless S280GD, Timber su $\rho = 350 \text{ kg}$ $\Sigma t_i \le 1,50 \text{ r}$ uctures: determined $M_{y,Rk} = 10$ $f_{ax,k} = 8,04$ | d with I,7 Nm I1 N/mm² f | nd S350G according C24) | EN ISO 35 6D - EN 10 1 to DIN E | 506 0346 | | | |
|----------------------------------|--|--------------|-------------------|---------------------------------|---------------------|---|--------------------------------|-------------------------------|---------------------------------------|--------------|--------------|--|--|
| t _{N1} , t _N | t _{N1} , t _{N2} [mm] | | d, D [mm] | | | | | | | | | | |
| | 0.40 | 30 | 40 | 50 | 60 | 70 | 80 | 100 | 120 | 140 | <u>≥</u> 160 | | |
| | 0,40 | 1,03 | 1,03 | 1,03 | 1,03 | 1,03 | 1,03 | 1,03 | 1,03 | 1,03 | 1,03 | | |
| _ | 0,50 0,55 | 1,35 1,51 | 1,35 1,51 | 1,35 1,51 | 1,35 1,51 | 1,35 1,51 | 1,35 1,51 | 1,35 1,51 | 1,35 1,51 | 1,35 1,51 | 1,35 1,51 | | |
| V _{R,k} [kN] | 0,55 | 1,76 | 1,76 | 1,76 | 1,76 | 1,76 | 1,76 | 1,76 | 1,76 | 1,76 | 1,76 | | |
| R,k | 0,75 | 2,14 | 2,14 | 2,14 | 2,14 | 2,14 | 2,14 | 2,14 | 2,14 | 2,14 | 2,14 | | |
| > | 0,88 | 2,14 | 2,14 | 2,14 | 2,14 | 2,14 | 2,14 | 2,14 | 2,14 | 2,14 | 2,14 | | |
| | 1,00 | 2,14 | 2,14 | 2,14 | 2,14 | 2,14 | 2,14 | 2,14 | 2,14 | 2,14 | 2,14 | | |
| | 0,40 | 1,90 | 1,90 | 1,90 | 1,90 | 1,90 | 1,90 | 1,90 | 1,90 | 1,90 | 1,90 | | |
| | 0,50 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | | |
| Ī | 0,55 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | | |
| N _{R,k} [kN] | 0,63 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | | |
| N _{R,} | 0,75 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | | |
| | 0,88 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | | |
| | 1,00 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | | |
| | | 8,0 | 8,0 | 8,0 | 8,0 | 8,0 | 8,0 | 8,0 | 8,0 | 8,0 | 8,0 | | |

Annex 15

Screw for Sandwich panels $6,3/7,0 \times L - BP2$, washer size Ø 22,0 mm