

Approval body for construction products
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and
Laender Governments



European Technical Assessment

ETA-10/0198
of 29 June 2017

English translation prepared by DIBt - Original version in German language

General Part

Technical Assessment Body issuing the
European Technical Assessment:

Deutsches Institut für Bautechnik

Trade name of the construction product

Fastening Screws SFS SX, SLG, SL, TDA, TDB, TDC,
SD, SXW, SW

Product family
to which the construction product belongs

Fastening screws for metal members and sheeting

Manufacturer

SFS intec AG
Rosenbergsaustraße 10
9435 Heerbrugg
SCHWEIZ

Manufacturing plant

Factory 1
Factory 5
Factory 7
Factory 16
Factory 18

This European Technical Assessment
contains

75 pages including 68 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)
330046-01-0602 "Fastening Screws for Metal Members
and Sheetting", Version 1

This version replaces

ETA-10/0198 issued on 26 June 2013

European Technical Assessment

ETA-10/0198

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Specific part

1 Technical description of the product

The fastening screws are self-drilling or self-tapping screws made of austenitic stainless steel or carbon steel with anticorrosion coating (listed in Table 1). The fastening screws are normally completed with sealing washers consisting of metal washer and EPDM-seal.

Table 1 – Fastening screws for metal members and sheeting

| Annex | Fastening screw | Product description | Application |
|---------|--|---|---------------------|
| 4 / 5 | Fastening screws for perforated sheeting | Steel sheeting with hole pattern I Steel sheeting with hole pattern II | Perforated sheeting |
| 6 / 7 | SX3-S12-6,0 x L SX3-L12-S12-6,0 x L SX3-D12-S12-6,0 x L | Self-drilling screw made of stainless steel with sealing washer Ø 12 mm | Steel / Steel |
| 8 / 9 | SX3-S14-6,0 x L SX3-L12-S14-6,0 x L SX3-D12-S14-6,0 x L | Self-drilling screw made of stainless steel with sealing washer Ø 14 mm | Steel / Steel |
| 10 / 11 | SX3-S16-6,0 x L SX3-L12-S16-6,0 x L SX3-D12-S16-6,0 x L | Self-drilling screw made of stainless steel with sealing washer Ø 16 mm | Steel / Steel |
| 12 / 13 | SX3-S19-6,0 x L SX3-L12-S19-6,0 x L SX3-D12-S19-6,0 x L | Self-drilling screw made of stainless steel with sealing washer Ø ≥ 19 mm | Steel / Steel |
| 14 | SX5-S12-5,5 x L SX5-L12-S12-5,5 x L SX5-D12-S12-5,5 x L | Self-drilling screw made of stainless steel with sealing washer Ø 12 mm | Steel / Steel |
| 15 | SX5-S14-5,5 x L SX5-L12-S14-5,5 x L SX5-D12-S14-5,5 x L | Self-drilling screw made of stainless steel with sealing washer Ø 14 mm | Steel / Steel |
| 16 | SX5-S16-5,5 x L SX5-L12-S16-5,5 x L SX5-D12-S16-5,5 x L | Self-drilling screw made of stainless steel with sealing washer Ø 16 mm | Steel / Steel |
| 17 | SX5-S19-5,5 x L SX5-L12-S19-5,5 x L SX5-D12-S19-5,5 x L | Self-drilling screw made of stainless steel with sealing washer Ø ≥ 19 mm | Steel / Steel |
| 18 | SX14-S16-5,5 x L SX14-L12-S16-5,5 x L SX14-D12-S16-5,5 x L | Self-drilling screw made of stainless steel with sealing washer ≥ Ø 16 mm | Steel / Steel |
| 19 / 20 | TDA-S-S16-6,5 x L | Self-tapping screw made of stainless steel with sealing washer ≥ Ø 16 mm | Steel / Steel |
| 21 | TDB-S-S16-6,3 x L | Self-tapping screw made of stainless steel with sealing washer ≥ Ø 16 mm | Steel / Steel |
| 22 | TDC-S-S16-6,3 x L | Self-tapping screw made of stainless steel with sealing washer ≥ Ø 16 mm | Steel / Steel |
| 23 | SLG-S-S14-4.8 x L | Self-drilling screw made of stainless steel with sealing washer ≥ Ø 14 mm | Steel / Steel |

Table 1 - continued

| Annex | Fastening screw | Product description | Application |
|---------|--|--|---------------|
| 24 | SL2-S-S14-4.8 x L | Self-drilling screw made of stainless steel with sealing washer $\geq \varnothing 14$ mm | Steel / Steel |
| 25 | SL2-S-S14-5.5 x L | Self-drilling screw made of stainless steel with sealing washer $\geq \varnothing 14$ mm | Steel / Steel |
| 26 | SL2-S-S14-6.3 x L SL2-S-L12-S14-6.3 x L | Self-drilling screw made of stainless steel with sealing washer $\geq \varnothing 14$ mm | Steel / Steel |
| 27 | SLG-S-6.5 x L | Self-drilling screw made of stainless steel | Steel / Steel |
| 28 / 29 | SL3/2-5-S-SV16-6.0 x L | Self-drilling screw made of stainless steel with SV-washer 13x16 mm | Steel / Steel |
| 30 | SD2-T16-6.3 x L | Self-drilling screw made of carbon steel with sealing washer $\geq \varnothing 16$ mm | Steel / Steel |
| 31 | SD3-T16-4,8 x L SD3-L12-T16-4,8 x L | Self-drilling screw made of carbon steel with sealing washer $\geq \varnothing 16$ mm | Steel / Steel |
| 32 | SD3/15-T16-4,8 x L SD3/15-L12-T16-4,8 x L | Self-drilling screw made of carbon steel with sealing washer $\geq \varnothing 16$ mm | Steel / Steel |
| 33 | SD3-T16-5.5 x L SD3-L12-T16-5.5 x L SD3-D12-T16-5.5 x L | Self-drilling screw made of carbon steel with sealing washer $\geq \varnothing 16$ mm | Steel / Steel |
| 34 | SDP3-Z-5.5 x L | Self-drilling screw made of carbon steel | Steel / Steel |
| 35 | SDL3-T16-5.5 x L SDL3-L12-T16-5.5 x L | Self-drilling screw made of carbon steel with sealing washer $\geq \varnothing 16$ mm | Steel / Steel |
| 36 | SD3-T16-6.3 x L SD3-L12-T16-6.3 x L SD3-D12-T16-6.3 x L | Self-drilling screw made of carbon steel with sealing washer $\geq \varnothing 16$ mm | Steel / Steel |
| 37 | SD6-T16-5.5 x L SD6-L12-T16-5.5 x L SD6-S16-5.5 x L SD6-L12-S16-5.5 x L | Self-drilling screw made of carbon steel with sealing washer $\geq \varnothing 16$ mm | Steel / Steel |
| 38 | SD6-H15-5.5 x L | Self-drilling screw made of carbon steel | Steel / Steel |
| 39 | SD6-T16-6.3 x L SD6-L12-T16-6.3 x L | Self-drilling screw made of carbon steel with sealing washer $\geq \varnothing 16$ mm | Steel / Steel |
| 40 | SD8-H15-5.5 x L | Self-drilling screw made of carbon steel | Steel / Steel |
| 41 | SD14-T16-5.5 x L SD14-L12-T16-5.5 x L SD14-S16-5.5 x L SD14-L12-S16-5.5 x L | Self-drilling screw made of carbon steel with sealing washer $\geq \varnothing 16$ mm | Steel / Steel |
| 42 | SD14-H15-5.5 x L | Self-drilling screw made of carbon steel | Steel / Steel |
| 43 | SL2-T-A14-4.8 x L | Self-drilling screw made of carbon steel with sealing washer $\geq \varnothing 14$ mm | Steel / Steel |
| 44 | SL2-4.8 x L | Self-drilling screw made of carbon steel | Steel / Steel |
| 45 | SL2-H15-6.3 x L | Self-drilling screw made of carbon steel | Steel / Steel |

Table 1 – continued

| Annex | Fastening screw | Product description | Application |
|---------|--|--|----------------|
| 46 | SL3-H15-6.3 x L | Self-drilling screw made of carbon steel | Steel / Steel |
| 47 | SW2-S-S16-6.0 x L SW2-S-L12-S16-6.0 x L | Self-drilling screw made of stainless steel with sealing washer $\geq \varnothing 16$ mm | Steel / Timber |
| 48 | SXW-S16-6.5 x L SXW-L12-S16-6.5 x L | Self-drilling screw made of stainless steel with sealing washer $\geq \varnothing 16$ mm | Steel / Timber |
| 49 | TDA-S-S16-6,5 x L | Self-tapping screw made of stainless steel with sealing washer $\geq \varnothing 16$ mm | Steel / Timber |
| 50 | SW-T-A14-4.8 x L | Self-drilling screw made of carbon steel with sealing washer $\geq \varnothing 14$ mm | Steel / Timber |
| 51 | SW3-T-T16-6.5 x L SW3-T-L12-T16-6.5 x L SW3-T-S16-6.5 x L SW3-T-L12-S16-6.5 x L | Self-drilling screw made of carbon steel with sealing washer $\geq \varnothing 16$ mm | Steel / Timber |
| 52 | SW3-T-H15-6.5 x L | Self-drilling screw made of carbon steel | Steel / Timber |
| 53 | SX3-S12-6,0 x L SX3-L12-S12-6,0 x L SX3-D12-S12-6,0 x L | Self-drilling screw made of stainless steel with sealing washer $\geq \varnothing 12$ mm | Alu / Alu |
| 54 | SX5-S12-5,5 x L SX5-L12-S12-5,5 x L SX5-D12-S12-5,5 x L | Self-drilling screw made of stainless steel with sealing washer $\geq \varnothing 12$ mm | Alu / Alu |
| 55 | TDA-S-S16-6,5 x L | Self-tapping screw made of stainless steel with sealing washer $\geq \varnothing 16$ mm | Alu / Alu |
| 56 | TDB-S-S16-6.3 x L | Self-tapping screw made of stainless steel with sealing washer $\geq \varnothing 16$ mm | Alu / Alu |
| 57 | SL2-S-S14-5.5 x L | Self-drilling screw made of stainless steel with sealing washer $\geq \varnothing 14$ mm | Alu / Alu |
| 58 | SL2-S-S14-6.3 x L SL2-S-L12-S14-6.3 x L | Self-drilling screw made of stainless steel with sealing washer $\geq \varnothing 14$ mm | Alu / Alu |
| 59 / 60 | SX3-S12-6,0 x L SX3-L12-S12-6,0 x L SX3-D12-S12-6,0 x L | Self-drilling screw made of stainless steel with sealing washer $\geq \varnothing 12$ mm | Alu / Steel |
| 61 | SX5-S12-5,5 x L SX5-L12-S12-5,5 x L SX5-D12-S12-5,5 x L | Self-drilling screw made of stainless steel with sealing washer $\geq \varnothing 12$ mm | Alu / Steel |
| 62 | TDA-S-S16-6,5 x L | Self-tapping screw made of stainless steel with sealing washer $\geq \varnothing 16$ mm | Alu / Steel |
| 63 | TDB-S-S16-6.3 x L | Self-tapping screw made of stainless steel with sealing washer $\geq \varnothing 16$ mm | Alu / Steel |
| 64 / 65 | SL3/2-5-S-SV16-6.0 x L | Self-drilling screw made of stainless steel with SV-washer 13x16 mm | Alu / Steel |
| 66 | SW2-S-S16-6.0 x L SW2-S-L12-S16-6.0 x L | Self-drilling screw made of stainless steel with sealing washer $\geq \varnothing 16$ mm | Alu / Timber |
| 67 | SXW-S16-6.5 x L SXW-L12-S16-6.5 x L | Self-drilling screw made of stainless steel with sealing washer $\geq \varnothing 16$ mm | Alu / Timber |
| 68 | TDA-S-S16-6,5 x L | Self-tapping screw made of stainless steel with sealing washer $\geq \varnothing 16$ mm | Alu / Timber |

2 Specification of the intended use in accordance with the applicable European Assessment Document 330046-01-0602

The fastening screws are intended to be used for fastening metal sheeting to metal or timber substructures. The sheeting can either be used as wall or roof cladding or as load bearing wall and roof element. The fastening screws can also be used for the fastening of any other thin gauge metal members. The intended use comprises fastening screws 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 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 (1-68).

The verification and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of the fastening screws of at least 25 years. The indications given on the working life cannot be interpreted as a guarantee given by the manufacturer, 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 Annexes to this ETA |
| Tension Resistance of the Connection | see Annexes to this ETA |
| Design Resistance in case of combined Tension and Shear Forces (interaction) | see Annexes to this ETA |
| Check of Deformation Capacity in case of constraining forces due to temperature | 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 decision 96/603/EC (as amended) |

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

In accordance with EAD No. 330046-01-0602, the applicable European legal act is: Commission 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

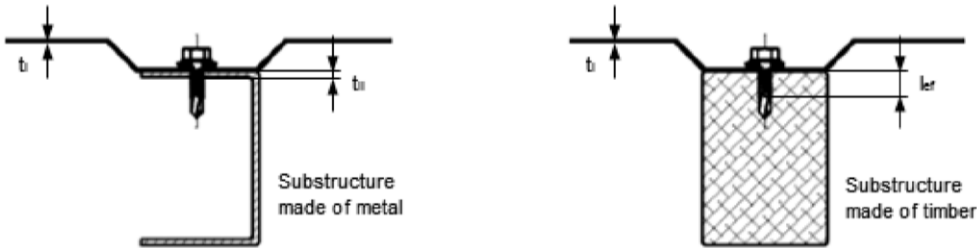
Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at Deutsches Institut für Bautechnik.

Issued in Berlin on 29 June 2017 by Deutsches Institut für Bautechnik

BD Dipl.-Ing. Andreas Kummerow
Head of Department

beglaubigt:
Schult

Examples of execution of a connection



Materials and dimensions

Design relevant materials and dimensions are indicated in the Annexes of the fastening screws:

| | |
|--------------|--|
| Fastener | Material of the fastening screw |
| Washer | Material of the sealing washer |
| Component I | Material of the metal member or sheeting |
| Component II | Material of the substructure |

| | |
|------------|--|
| t_I | Thickness of component I |
| t_{II} | Thickness of component II made of metal |
| l_{ef} | Effective screw-in length in component II made of timber (without drill point) |
| d_{dp} | Pre-drill diameter of component I and component II |
| $d_{dp,I}$ | Pre-drill diameter of component I |

The thickness t_{II} corresponds to the load-bearing screw-in length of the fastening screw in component II, if the load-bearing screw-in length does not cover the entire component thickness.

Performance characteristics

The design relevant performance characteristics of a connection are indicated in the Annexes of the fastening screws.

| | |
|-----------|--|
| $N_{R,k}$ | Characteristic value of tension resistance |
| $V_{R,k}$ | Characteristic value of shear resistance |

In some cases component-specific performance characteristics are indicated for an individual calculation of the design relevant performance characteristics of a connection:

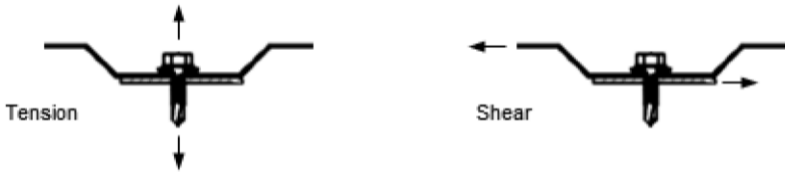
| | |
|--------------|---|
| $N_{R,I,k}$ | Characteristic value of pull-through resistance for component I |
| $N_{R,II,k}$ | Characteristic value of pull-out resistance for component II |
| $V_{R,I,k}$ | Characteristic value of hole bearing resistance for component I |
| $V_{R,II,k}$ | Characteristic value of hole bearing resistance for component II |
| $M_{y,Rk}$ | Characteristic value of yield moment of the fastening screw (for component II made of timber) |
| $f_{ax,k}$ | Characteristic value of withdrawal strength for component II made of timber |
| $f_{h,k}$ | Characteristic value of embedding strength for component II made of timber |

Terms and explanations

Fastening screws for metal members and sheeting

Annex 1

Occurred loadings of a connection



Design values

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

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

- $N_{R,d}$ 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.

Special conditions

If the component thickness t_I 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%.

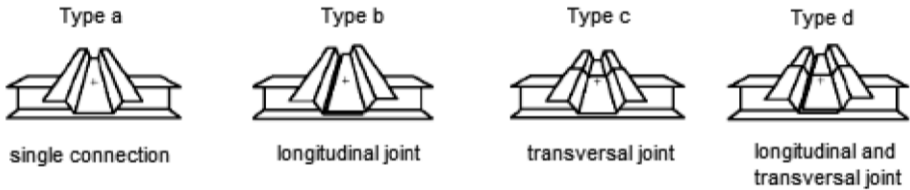
In case of combined loading by tension and shear forces the following interaction equation has to be taken into account:

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

- $N_{S,d}$ Design value of the applied tension forces
- $V_{S,d}$ Design value of the applied shear forces

Types of connection

For the types of connection (a, b, c, d) given in the Annexes of the fastening screws, it is not necessary to take into account the effect of constraints due to temperature. For other types of connection the effect of constraints have to be taken into account, unless they do not occur or are not significant (e.g. sufficient flexibility of the substructure).



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 metal members and sheeting

Annex 2

Component I made of perforated sheeting

The characteristic values of tension and shear resistance are determined as follows:

$$N_{R,k} = \min \left\{ \begin{array}{l} N_{R,I,k} \\ N_{R,II,k} \end{array} \right. \quad V_{R,k} = \min \left\{ \begin{array}{l} V_{R,I,k} \\ V_{R,k} \end{array} \right.$$

$N_{R,I,k}$ and $V_{R,I,k}$ are given in Annex 4 and 5.

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

Component I made of aluminium alloy

The characteristic value of tension resistance is determined as follows:

$$N_{R,k} = \min \left\{ \begin{array}{l} N_{R,I,k} \\ N_{R,II,k} \end{array} \right.$$

$N_{R,I,k}$ is determined according to EN 1999-1-4:2007 + AC:2009, equation (8.13).

$N_{R,II,k}$ is given in the Annex of the fastening screw.

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:

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

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

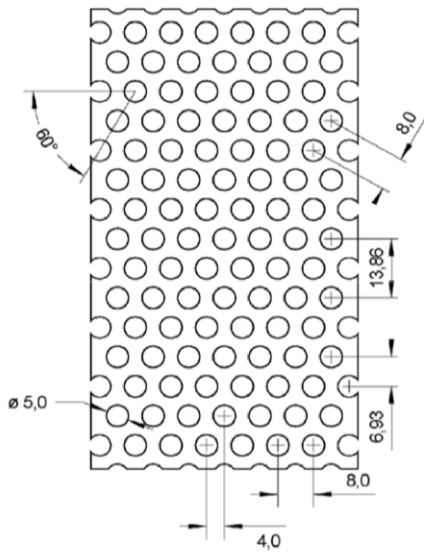
$N_{R,II,k}$ is determined according to EN 1995-1-1:2004 + A1:2008, equation (8.40a), with $f_{ax,k}$ given in the Annex of the fastening screw.

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

Additional provisions

Fastening screws for metal members and sheeting

Annex 3



Fastening screws

Self-drilling screws Ø 5.5 to 6.3 mm made of stainless steel with sealing washer made of stainless steel

Self-tapping screws Ø 6.3 to 6.5 mm made of stainless steel with sealing washer made of stainless steel

Materials

Fastener: According to Annex of the fastening screw

Washer: According to Annex of the fastening screw

Component I: S280GD to S450GD - EN 10346

Component II: According to Annex of the fastening screw

| | | Sealing washer Ø [mm] | | |
|------------------|------|-----------------------|------|------|
| | | 16 | 19 | ≥ 22 |
| $V_{R,i,k}$ [kN] | 0.75 | 2.16 | 2.22 | 2.24 |
| | 0.88 | 2.56 | 2.64 | 2.64 |
| | 1.00 | 2.92 | 3.04 | 3.02 |
| | 1.25 | 3.70 | 3.88 | 3.80 |
| | 1.50 | 4.46 | 4.74 | 4.56 |
| $N_{R,i,k}$ [kN] | 0.75 | 1.40 | 1.94 | 2.14 |
| | 0.88 | 1.82 | 2.34 | 2.62 |
| | 1.00 | 2.24 | 2.74 | 3.06 |
| | 1.25 | 3.24 | 3.58 | 4.08 |
| | 1.50 | 4.36 | 4.46 | 5.12 |

Additional definitions

The characteristic values $N_{R,k}$ and $V_{R,k}$ can be determined according to Annex 3

For component I made of S320GD the indicated values may be increased by 8.3%

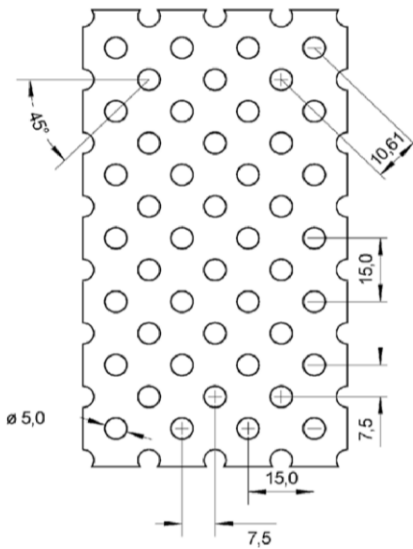
For component I made of S350GD to S450GD the indicated values may be increased by 16.6%

The thickness t_i shall be at least 1 mm if component I is exposed to wind loads

Steel sheeting with hole pattern I

Fastening screws for perforated steel sheeting

Annex 4



Fastening screws

Self-drilling screws Ø 5.5 to 6.3 mm made of stainless steel
with sealing washer made of stainless steel

Self-tapping screws Ø 6.3 to 6.5 mm made of stainless steel
with sealing washer made of stainless steel

Materials

Fastener: According to Annex of the fastening screw

Washer: According to Annex of the fastening screw

Component I: S280GD to S450GD - EN 10346

Component II: According to Annex of the fastening screw

| | | Sealing washer Ø [mm] | | |
|------------------|------|-----------------------|------|------|
| | | 16 | 19 | ≥ 22 |
| $V_{R,i,k}$ [kN] | 0.75 | 2.38 | 2.52 | 2.84 |
| | 0.88 | 3.02 | 3.12 | 3.42 |
| | 1.00 | 3.56 | 3.70 | 3.84 |
| | 1.25 | 4.68 | 4.84 | 4.92 |
| | 1.50 | 5.76 | 6.04 | 5.90 |
| $N_{R,i,k}$ [kN] | 0.75 | 2.86 | 3.16 | 3.24 |
| | 0.88 | 3.40 | 3.72 | 3.76 |
| | 1.00 | 3.90 | 4.28 | 4.28 |
| | 1.25 | 4.94 | 5.42 | 5.42 |
| | 1.50 | 6.00 | 6.60 | 6.60 |

Additional definitions

The characteristic values $N_{R,k}$ and $V_{R,k}$ can be determined according to Annex 3

For component I made of S320GD the indicated values may be increased by 8.3%

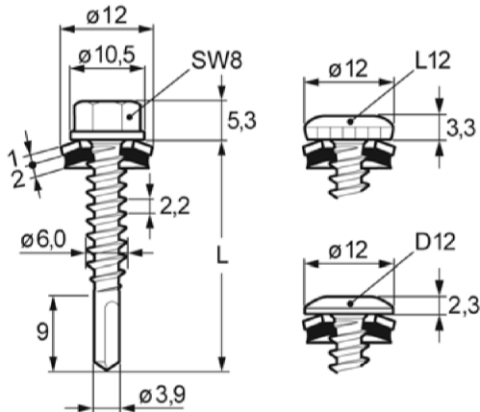
For component I made of S350GD to S450GD the indicated values may be increased by 16.6%

The thickness t_i shall be at least 1 mm if component I is exposed to wind loads

Steel sheeting with hole pattern II

Fastening screws for perforated steel sheeting

Annex 5



Materials

| | |
|---------------|--|
| Fastener: | Stainless steel A2 or A4 - EN ISO 3506 |
| Washer: | Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal |
| Component I: | S280GD to S450GD - EN 10346 |
| Component II: | S280GD to S450GD - EN 10346 HX300LAD to HX460LAD - EN 10346 |

Drilling-capacity $\Sigma(t_I + t_{II}) \leq 3.00 \text{ mm}$

| | | $t_{II} [\text{mm}]$ | | | | | | | |
|--------------------------|------|----------------------|------|-------------------|------|-------------------|------|-------------------|------|
| | | 0.63 | 0.75 | 0.88 | 1.00 | 1.25 | 1.50 | 1.75 | 2.00 |
| $V_{R,k} [\text{kN}]$ | 0.50 | 0.98 ^a | - | 1.20 ^a | - | 1.45 ^a | - | 1.61 ^a | - |
| | 0.55 | 1.03 ^a | - | 1.25 ^a | - | 1.53 ^a | - | 1.68 ^a | - |
| | 0.63 | 1.11 ^a | - | 1.34 ^a | - | 1.66 ^a | - | 1.79 ^a | - |
| | 0.75 | 1.11 ^a | - | 1.47 ^a | - | 1.85 ^a | - | 1.96 ^a | - |
| | 0.88 | 1.11 ^a | - | 1.47 ^a | - | 1.85 ^a | - | 2.05 | - |
| | 1.00 | 1.11 ^a | - | 1.47 ^a | - | 1.85 ^a | - | 2.14 | - |
| | 1.25 | 1.11 ^a | - | 1.47 ^a | - | 1.85 ^a | - | 2.32 | - |
| | 1.50 | 1.11 ^a | - | 1.47 ^a | - | 1.85 ^a | - | 2.32 | - |
| $N_{R,k} [\text{kN}]$ | 0.50 | 0.89 | - | 1.14 | - | 1.22 ^a | - | 1.22 ^a | - |
| | 0.55 | 0.89 | - | 1.14 | - | 1.54 | - | 1.54 ^a | - |
| | 0.63 | 0.89 | - | 1.14 | - | 1.66 | - | 1.81 | - |
| | 0.75 | 0.89 | - | 1.14 | - | 1.66 | - | 1.81 | - |
| | 0.88 | 0.89 | - | 1.14 | - | 1.66 | - | 1.81 | - |
| | 1.00 | 0.89 | - | 1.14 | - | 1.66 | - | 1.81 | - |
| | 1.25 | 0.89 | - | 1.14 | - | 1.66 | - | 1.81 | - |
| | 1.50 | 0.89 | - | 1.14 | - | 1.66 | - | 1.81 | - |
| $N_{R,II,k} [\text{kN}]$ | | 0.89 | 1.14 | 1.66 | 1.81 | 2.38 | 3.14 | 3.86 | 4.57 |

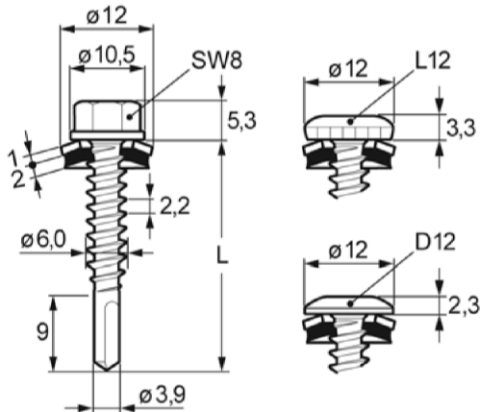
Additional definitions

Index ^a: For component I made of S320GD to S450GD the indicated values may be increased by 8.3%

Self-drilling screw with sealing washer Ø 12 mm

SX3-S12-6,0 x L, SX3-L12-S12-6,0 x L, SX3-D12-S12-6,0 x L

Annex 6



Materials

| | |
|---------------|--|
| Fastener: | Stainless steel A2 or A4 - EN ISO 3506 |
| Washer: | Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal |
| Component I: | S280GD to S450GD - EN 10346 |
| Component II: | S280GD to S450GD - EN 10346 HX300LAD to HX460LAD - EN 10346 |

Drilling-capacity $\Sigma(t_I + t_{II}) \leq 4.00 \text{ mm}$

| | | t _{II} [mm] | | | | | | | | |
|--------------------------|---------------------|----------------------|----------|-------------------|----------|-------------------|----------|-------------------|------|---|
| | | 2 x 0.63 | 2 x 0.75 | 2 x 0.88 | 2 x 1.00 | 2 x 1.25 | 2 x 1.50 | | | |
| V _{R,k} [kN] | 0.50 | 0.88 ^a | - | 1.87 ^a | - | 1.89 ^a | - | 1.91 ^a | - | |
| | 0.55 | 0.98 ^a | - | 2.01 ^a | - | 2.05 ^a | - | 2.12 ^a | - | |
| | 0.63 | 1.15 ^a | - | 2.24 ^a | - | 2.30 ^a | - | 2.45 ^a | - | |
| | 0.75 | 1.39 ^a | - | 2.58 ^a | - | 2.68 ^a | - | 2.96 ^a | - | |
| | t _I [mm] | 0.88 | 1.66 | - | 2.67 | - | 3.30 | - | 3.36 | - |
| | 1.00 | 1.90 | - | 2.75 | - | 3.36 | - | 4.01 | - | |
| | 1.25 | 2.41 | - | 2.92 | - | 4.01 | - | 5.05 | - | |
| | 1.50 | 2.41 | - | 2.92 | - | 4.01 | - | 5.05 | - | |
| N _{R,k} [kN] | 0.50 | 1.22 ^a | - | 1.22 ^a | - | 1.22 ^a | - | 1.22 ^a | - | |
| | 0.55 | 1.40 | - | 1.54 ^a | - | 1.54 ^a | - | 1.54 ^a | - | |
| | 0.63 | 1.40 | - | 1.98 | - | 2.04 ^a | - | 2.04 ^a | - | |
| | 0.75 | 1.40 | - | 1.98 | - | 2.61 | - | 2.80 ^a | - | |
| | t _I [mm] | 0.88 | 1.40 | - | 1.98 | - | 2.61 | - | 3.19 | - |
| | 1.00 | 1.40 | - | 1.98 | - | 2.61 | - | 3.19 | - | |
| | 1.25 | 1.40 | - | 1.98 | - | 3.19 | - | 4.37 | - | |
| | 1.50 | 1.40 | - | 1.98 | - | 3.19 | - | 4.37 | - | |
| N _{R,II,k} [kN] | | 1.40 | 1.98 | 2.61 | 3.19 | 4.37 | 5.82 | | | |

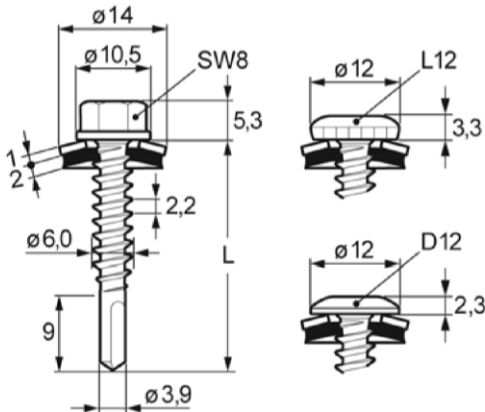
Additional definitions

Index ^a: For component I made of S320GD to S450GD the indicated values may be increased by 8.3%

Self-drilling screw with sealing washer Ø 12 mm

SX3-S12-6,0 x L, SX3-L12-S12-6,0 x L, SX3-D12-S12-6,0 x L

Annex 7



Materials

| | |
|---------------|--|
| Fastener: | Stainless steel A2 or A4 - EN ISO 3506 |
| Washer: | Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal |
| Component I: | S280GD to S450GD - EN 10346 |
| Component II: | S280GD to S450GD - EN 10346 HX300LAD to HX460LAD - EN 10346 |

Drilling-capacity $\Sigma(t_i + t_{II}) \leq 3.00 \text{ mm}$

| | | t _{II} [mm] | | | | | | | | | | | | | |
|--------------------------|------|----------------------|------|-------------------|------|-------------------|------|-------------------|------|-------------------|----|-------------------|----|-------------------|----|
| | | 0.63 | 0.75 | 0.88 | 1.00 | 1.25 | 1.50 | 1.75 | 2.00 | | | | | | |
| V _{R,k} [kN] | 0.50 | 0.98 ^a | - | 1.20 ^a | - | 1.45 ^a | ac | 1.61 ^a | ac | 1.76 ^a | ac | 1.90 ^a | ac | 1.90 ^a | ac |
| | 0.55 | 1.03 ^a | - | 1.25 ^a | - | 1.53 ^a | - | 1.68 ^a | ac | 1.91 ^a | ac | 2.13 ^a | ac | 2.13 ^a | a |
| | 0.63 | 1.11 ^a | - | 1.34 ^a | - | 1.66 ^a | - | 1.79 ^a | ac | 2.15 ^a | ac | 2.50 ^a | ac | 2.50 ^a | a |
| | 0.75 | 1.11 ^a | - | 1.47 ^a | - | 1.85 ^a | - | 1.96 ^a | ac | 2.51 ^a | ac | 3.06 ^a | ac | 3.06 ^a | a |
| | 0.88 | 1.11 ^a | - | 1.47 ^a | - | 1.85 ^a | - | 2.05 | - | 2.79 | - | 3.53 | - | 3.66 | - |
| | 1.00 | 1.11 ^a | - | 1.47 ^a | - | 1.85 ^a | - | 2.14 | - | 3.05 | - | 3.96 | - | 4.21 | - |
| | 1.25 | 1.11 ^a | - | 1.47 ^a | - | 1.85 ^a | - | 2.32 | - | 3.59 | - | 4.86 | - | 5.36 | - |
| | 1.50 | 1.11 ^a | - | 1.47 ^a | - | 1.85 ^a | - | 2.32 | - | 3.59 | - | 4.86 | - | - | - |
| N _{R,k} [kN] | 0.50 | 0.89 | - | 1.14 | - | 1.34 ^a | ac | 1.34 ^a | ac | 1.34 ^a | ac | 1.34 ^a | ac | 1.34 ^a | ac |
| | 0.55 | 0.89 | - | 1.14 | - | 1.66 | - | 1.69 ^a | ac | 1.69 ^a | ac | 1.69 ^a | ac | 1.69 ^a | a |
| | 0.63 | 0.89 | - | 1.14 | - | 1.66 | - | 1.81 | ac | 2.25 | ac | 2.25 ^a | ac | 2.25 ^a | a |
| | 0.75 | 0.89 | - | 1.14 | - | 1.66 | - | 1.81 | ac | 2.38 | ac | 3.09 ^a | ac | 3.09 ^a | a |
| | 0.88 | 0.89 | - | 1.14 | - | 1.66 | - | 1.81 | - | 2.38 | - | 3.14 | - | 3.86 | - |
| | 1.00 | 0.89 | - | 1.14 | - | 1.66 | - | 1.81 | - | 2.38 | - | 3.14 | - | 3.86 | - |
| | 1.25 | 0.89 | - | 1.14 | - | 1.66 | - | 1.81 | - | 2.38 | - | 3.14 | - | 3.86 | - |
| | 1.50 | 0.89 | - | 1.14 | - | 1.66 | - | 1.81 | - | 2.38 | - | 3.14 | - | - | - |
| N _{R,II,k} [kN] | | 0.89 | | 1.14 | | 1.66 | | 1.81 | | 2.38 | | 3.14 | | 3.86 | |

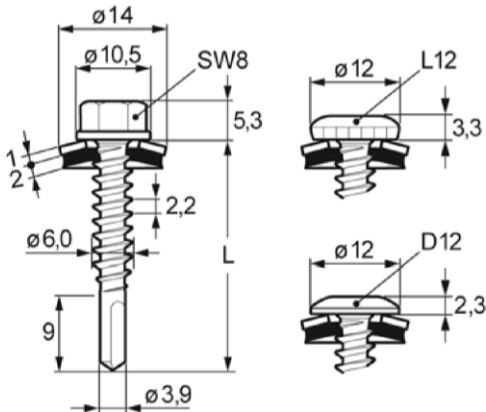
Additional definitions

Index ^a: For component I made of S320GD to S450GD the indicated values may be increased by 8.3%

Self-drilling screw with sealing washer Ø 14 mm

SX3-S14-6,0 x L, SX3-L12-S14-6,0 x L, SX3-D12-S14-6,0 x L

Annex 8



Materials

| | |
|---------------|--|
| Fastener: | Stainless steel A2 or A4 - EN ISO 3506 |
| Washer: | Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal |
| Component I: | S280GD to S450GD - EN 10346 |
| Component II: | S280GD to S450GD - EN 10346 HX300LAD to HX460LAD - EN 10346 |

Drilling-capacity $\Sigma(t_I + t_{II}) \leq 4.00 \text{ mm}$

| | | $t_{II} [\text{mm}]$ | | | | | |
|--------------------------|-------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| | | 2 x 0.63 | 2 x 0.75 | 2 x 0.88 | 2 x 1.00 | 2 x 1.25 | 2 x 1.50 |
| $V_{R,k} [\text{kN}]$ | 0.50 | 0.88 ^a ac | 1.87 ^a ac | 1.89 ^a ac | 1.91 ^a ac | 1.91 ^a ac | 1.91 ^a ac |
| | 0.55 | 0.98 ^a ac | 2.01 ^a ac | 2.05 ^a ac | 2.08 ^a ac | 2.12 ^a ac | 2.12 ^a a |
| | 0.63 | 1.15 ^a ac | 2.24 ^a ac | 2.30 ^a ac | 2.36 ^a ac | 2.45 ^a ac | 2.45 ^a a |
| | 0.75 | 1.39 ^a ac | 2.58 ^a ac | 2.68 ^a ac | 2.77 ^a ac | 2.96 ^a ac | 2.96 ^a a |
| | $t_I [\text{mm}]$ | | | | | | |
| | 0.88 | 1.66 - | 2.67 - | 3.30 - | 3.36 ac | 3.66 a | 3.79 a |
| | 1.00 | 1.90 - | 2.75 - | 3.36 - | 4.01 ac | 4.01 a | 4.01 a |
| | 1.25 | 2.41 - | 2.92 - | 3.47 - | 4.01 - | 5.05 a | - - |
| | 1.50 | 2.41 - | 2.92 - | 3.47 - | 4.01 - | 5.05 a | - - |
| $N_{R,k} [\text{kN}]$ | 0.50 | 1.34 ac | 1.34 ^a ac | 1.34 ^a ac | 1.34 ^a ac | 1.34 ^a ac | 1.34 ^a ac |
| | 0.55 | 1.40 ac | 1.69 ^a ac | 1.69 ^a ac | 1.69 ^a ac | 1.69 ^a ac | 1.69 ^a a |
| | 0.63 | 1.40 ac | 1.98 ac | 2.25 ^a ac | 2.25 ^a ac | 2.25 ^a ac | 2.25 ^a a |
| | 0.75 | 1.40 ac | 1.98 ac | 2.61 ac | 3.09 ac | 3.09 ^a ac | 3.09 ^a a |
| | $t_I [\text{mm}]$ | | | | | | |
| | 0.88 | 1.40 - | 1.98 - | 2.61 - | 3.19 ac | 4.00 a | 4.00 a |
| | 1.00 | 1.40 - | 1.98 - | 2.61 - | 3.19 ac | 4.37 a | 4.84 a |
| | 1.25 | 1.40 - | 1.98 - | 2.61 - | 3.19 - | 4.37 a | - - |
| | 1.50 | 1.40 - | 1.98 - | 2.61 - | 3.19 - | 4.37 a | - - |
| $N_{R,II,k} [\text{kN}]$ | | 1.40 | 1.98 | 2.61 | 3.19 | 4.37 | 5.82 |

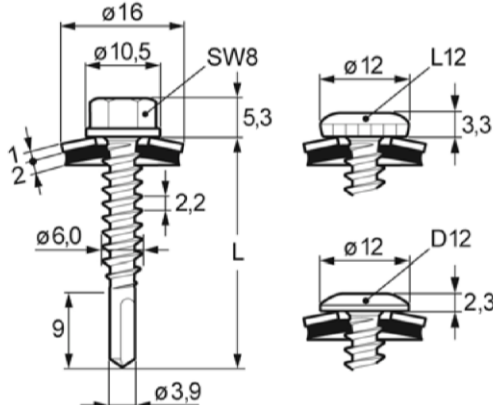
Additional definitions

Index ^a: For component I made of S320GD to S450GD the indicated values may be increased by 8.3%

Self-drilling screw with sealing washer Ø 14 mm

SX3-S14-6,0 x L, SX3-L12-S14-6,0 x L, SX3-D12-S14-6,0 x L

Annex 9

| | |
|---|--|
|  | <p>Materials</p> <p>Fastener: Stainless steel A2 or A4 - EN ISO 3506</p> <p>Washer: Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal</p> <p>Component I: S280GD to S450GD - EN 10346</p> <p>Component II: S280GD to S450GD - EN 10346 HX300LAD to HX460LAD - EN 10346</p> <p>Drilling-capacity $\Sigma(t_I + t_{II}) \leq 3.00 \text{ mm}$</p> |
|---|--|

| | | $t_{II} [\text{mm}]$ | | | | | | | |
|--------------------------|------|----------------------|---------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| | | 0.63 | 0.75 | 0.88 | 1.00 | 1.25 | 1.50 | 1.75 | 2.00 |
| $V_{R,k} [\text{kN}]$ | 0.50 | 0.98 ^a - | 1.20 ^a - | 1.45 ^a ac | 1.61 ^a ac | 1.76 ^a ac | 1.90 ^a ac | 1.90 ^a ac | 1.90 ^a ac |
| | 0.55 | 1.03 ^a - | 1.25 ^a - | 1.53 ^a - | 1.68 ^a ac | 1.91 ^a ac | 2.13 ^a ac | 2.13 ^a ac | 2.13 ^a a |
| | 0.63 | 1.11 ^a - | 1.34 ^a - | 1.66 ^a - | 1.79 ^a ac | 2.15 ^a ac | 2.50 ^a ac | 2.50 ^a a | 2.50 ^a a |
| | 0.75 | 1.11 ^a - | 1.47 ^a - | 1.85 ^a - | 1.96 ^a ac | 2.51 ^a ac | 3.06 ^a ac | 3.06 ^a a | 3.06 ^a a |
| | 0.88 | 1.11 ^a - | 1.47 ^a - | 1.85 ^a - | 2.05 - | 2.79 - | 3.53 - | 3.66 - | 3.79 a |
| | 1.00 | 1.11 ^a - | 1.47 ^a - | 1.85 ^a - | 2.14 - | 3.05 - | 3.96 - | 4.21 - | 4.46 a |
| | 1.25 | 1.11 ^a - | 1.47 ^a - | 1.85 ^a - | 2.32 - | 3.59 - | 4.86 - | 5.36 - | - - |
| | 1.50 | 1.11 ^a - | 1.47 ^a - | 1.85 ^a - | 2.32 - | 3.59 - | 4.86 - | - - | - - |
| $N_{R,k} [\text{kN}]$ | 0.50 | 0.89 - | 1.14 - | 1.52 ^a ac | 1.52 ^a ac | 1.52 ^a ac | 1.52 ^a ac | 1.52 ^a ac | 1.52 ^a ac |
| | 0.55 | 0.89 - | 1.14 - | 1.66 - | 1.81 ac | 1.91 ^a ac | 1.91 ^a ac | 1.91 ^a ac | 1.91 ^a a |
| | 0.63 | 0.89 - | 1.14 - | 1.66 - | 1.81 ac | 2.38 ac | 2.70 ^a ac | 2.70 ^a a | 2.70 ^a a |
| | 0.75 | 0.89 - | 1.14 - | 1.66 - | 1.81 ac | 2.38 ac | 3.14 ac | 3.50 ^a a | 3.50 ^a a |
| | 0.88 | 0.89 - | 1.14 - | 1.66 - | 1.81 - | 2.38 - | 3.14 - | 3.86 - | 4.52 a |
| | 1.00 | 0.89 - | 1.14 - | 1.66 - | 1.81 - | 2.38 - | 3.14 - | 3.86 - | 4.57 a |
| | 1.25 | 0.89 - | 1.14 - | 1.66 - | 1.81 - | 2.38 - | 3.14 - | 3.86 - | - - |
| | 1.50 | 0.89 - | 1.14 - | 1.66 - | 1.81 - | 2.38 - | 3.14 - | - - | - - |
| $N_{R,II,k} [\text{kN}]$ | | 0.89 | 1.14 | 1.66 | 1.81 | 2.38 | 3.14 | 3.86 | 4.57 |

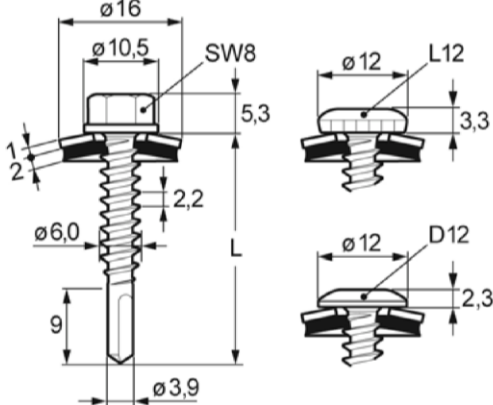
Additional definitions

Index ^a: For component I made of S320GD to S450GD the indicated values may be increased by 8.3%

Self-drilling screw with sealing washer Ø 16 mm

SX3-S16-6,0 x L, SX3-L12-S16-6,0 x L, SX3-D12-S16-6,0 x L

Annex 10



Materials

| | |
|---------------|--|
| Fastener: | Stainless steel A2 or A4 - EN ISO 3506 |
| Washer: | Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal |
| Component I: | S280GD to S450GD - EN 10346 |
| Component II: | S280GD to S450GD - EN 10346 HX300LAD to HX460LAD - EN 10346 |

Drilling-capacity $\Sigma(t_I + t_{II}) \leq 4.00 \text{ mm}$

| | | $t_{II} [\text{mm}]$ | | | | | |
|--------------------------|-------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| | | 2 x 0.63 | 2 x 0.75 | 2 x 0.88 | 2 x 1.00 | 2 x 1.25 | 2 x 1.50 |
| $V_{R,k} [\text{kN}]$ | 0.50 | 0.88 ^a ac | 1.87 ^a ac | 1.89 ^a ac | 1.91 ^a ac | 1.91 ^a ac | 1.91 ^a ac |
| | 0.55 | 0.98 ^a ac | 2.01 ^a ac | 2.05 ^a ac | 2.08 ^a ac | 2.12 ^a ac | 2.12 ^a a |
| | 0.63 | 1.15 ^a ac | 2.24 ^a ac | 2.30 ^a ac | 2.36 ^a ac | 2.45 ^a ac | 2.45 ^a a |
| | 0.75 | 1.39 ^a ac | 2.58 ^a ac | 2.68 ^a ac | 2.77 ^a ac | 2.96 ^a ac | 2.96 ^a a |
| | $t_I [\text{mm}]$ | | | | | | |
| | 0.88 | 1.66 - | 2.67 - | 3.30 - | 3.36 ac | 3.66 a | 3.79 a |
| | 1.00 | 1.90 - | 2.75 - | 3.36 - | 4.01 ac | 4.01 a | 4.01 a |
| | 1.25 | 2.41 - | 2.92 - | 3.47 - | 4.01 - | 5.05 a | - - |
| $N_{R,k} [\text{kN}]$ | 1.50 | 2.41 - | 2.92 - | 3.47 - | 4.01 - | 5.05 a | - - |
| | 0.50 | 1.40 ac | 1.52 ^a ac | 1.52 ^a ac | 1.52 ^a ac | 1.52 ^a ac | 1.52 ^a ac |
| | 0.55 | 1.40 ac | 1.91 ac | 1.91 ^a ac | 1.91 ^a ac | 1.91 ^a ac | 1.91 ^a a |
| | 0.63 | 1.40 ac | 1.98 ac | 2.61 ac | 2.70 ^a ac | 2.70 ^a ac | 2.70 ^a a |
| | 0.75 | 1.40 ac | 1.98 ac | 2.61 ac | 3.19 ac | 3.50 ^a ac | 3.50 ^a a |
| | $t_I [\text{mm}]$ | | | | | | |
| | 0.88 | 1.40 - | 1.98 - | 2.61 - | 3.19 ac | 4.37 a | 4.52 a |
| | 1.00 | 1.40 - | 1.98 - | 2.61 - | 3.19 ac | 4.37 a | 5.47 a |
| $N_{R,II,k} [\text{kN}]$ | 1.25 | 1.40 - | 1.98 - | 2.61 - | 3.19 - | 4.37 a | - - |
| | 1.50 | 1.40 - | 1.98 - | 2.61 - | 3.19 - | 4.37 a | - - |
| $N_{R,II,k} [\text{kN}]$ | | 1.40 | 1.98 | 2.61 | 3.19 | 4.37 | 5.82 |

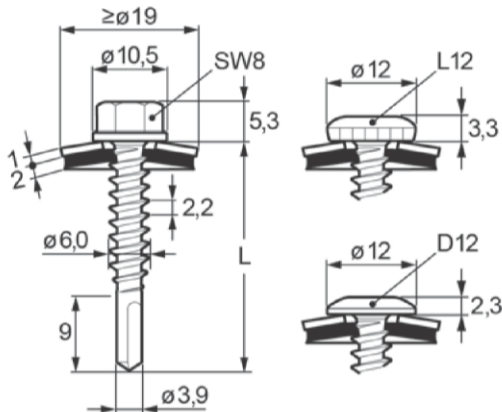
Additional definitions

Index ^a: For component I made of S320GD to S450GD the indicated values may be increased by 8.3%

Self-drilling screw with sealing washer Ø 16 mm

SX3-S16-6,0 x L, SX3-L12-S16-6,0 x L, SX3-D12-S16-6,0 x L

Annex 11



Materials

| | |
|---------------|--|
| Fastener: | Stainless steel A2 or A4 - EN ISO 3506 |
| Washer: | Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal |
| Component I: | S280GD to S450GD - EN 10346 |
| Component II: | S280GD to S450GD - EN 10346 HX300LAD to HX460LAD - EN 10346 |

Drilling-capacity $\Sigma(t_I + t_{II}) \leq 3.00 \text{ mm}$

| | | t _{II} [mm] | | | | | | | | | | | | | | | | |
|--------------------------|---------------------|----------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------|-------------------|------|-------------------|------|-------------------|------|-------------------|------|---|
| | | 0.63 | 0.75 | 0.88 | 1.00 | 1.25 | 1.50 | 1.75 | 2.00 | | | | | | | | | |
| V _{R,k} [kN] | 0.50 | 0.98 ^a | - | 1.20 ^a | - | 1.45 ^a | ac | 1.61 ^a | ac | 1.76 ^a | ac | 1.90 ^a | ac | 1.90 ^a | ac | | | |
| | 0.55 | 1.03 ^a | - | 1.25 ^a | - | 1.53 ^a | - | 1.68 ^a | ac | 1.91 ^a | ac | 2.13 ^a | ac | 2.13 ^a | a | | | |
| | 0.63 | 1.11 ^a | - | 1.34 ^a | - | 1.66 ^a | - | 1.79 ^a | ac | 2.15 ^a | ac | 2.50 ^a | ac | 2.50 ^a | a | | | |
| | 0.75 | 1.11 ^a | - | 1.47 ^a | - | 1.85 ^a | - | 1.96 ^a | ac | 2.51 ^a | ac | 3.06 ^a | ac | 3.06 ^a | a | | | |
| | t _I [mm] | 0.88 | 1.11 ^a | - | 1.47 ^a | - | 1.85 ^a | - | 2.05 | - | 2.79 | - | 3.53 | - | 3.66 | - | 3.79 | a |
| | 1.00 | 1.11 ^a | - | 1.47 ^a | - | 1.85 ^a | - | 2.14 | - | 3.05 | - | 3.96 | - | 4.21 | - | 4.46 | a | |
| | 1.25 | 1.11 ^a | - | 1.47 ^a | - | 1.85 ^a | - | 2.32 | - | 3.59 | - | 4.86 | - | 5.36 | - | - | - | |
| | 1.50 | 1.11 ^a | - | 1.47 ^a | - | 1.85 ^a | - | 2.32 | - | 3.59 | - | 4.86 | - | - | - | - | - | |
| N _{R,k} [kN] | 0.50 | 0.89 | - | 1.14 | - | 1.66 | ac | 1.81 | ac | 1.87 ^a | ac | 1.87 ^a | ac | 1.87 ^a | ac | 1.87 ^a | ac | |
| | 0.55 | 0.89 | - | 1.14 | - | 1.66 | - | 1.81 | ac | 2.36 | ac | 2.36 ^a | ac | 2.36 ^a | ac | 2.36 ^a | a | |
| | 0.63 | 0.89 | - | 1.14 | - | 1.66 | - | 1.81 | ac | 2.38 | ac | 3.14 | ac | 3.14 ^a | a | 3.14 ^a | a | |
| | 0.75 | 0.89 | - | 1.14 | - | 1.66 | - | 1.81 | ac | 2.38 | ac | 3.14 | ac | 3.86 | a | 4.31 | a | |
| | t _I [mm] | 0.88 | 0.89 | - | 1.14 | - | 1.66 | - | 1.81 | - | 2.38 | - | 3.14 | - | 3.86 | - | 4.57 | a |
| | 1.00 | 0.89 | - | 1.14 | - | 1.66 | - | 1.81 | - | 2.38 | - | 3.14 | - | 3.86 | - | 4.57 | a | |
| | 1.25 | 0.89 | - | 1.14 | - | 1.66 | - | 1.81 | - | 2.38 | - | 3.14 | - | 3.86 | - | - | - | |
| | 1.50 | 0.89 | - | 1.14 | - | 1.66 | - | 1.81 | - | 2.38 | - | 3.14 | - | - | - | - | - | |
| N _{R,II,k} [kN] | | 0.89 | | 1.14 | | 1.66 | | 1.81 | | 2.38 | | 3.14 | | 3.86 | | 4.57 | | |

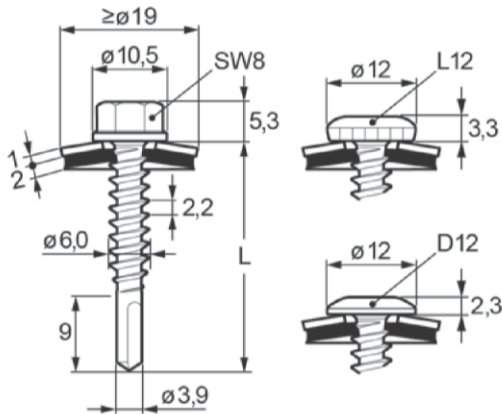
Additional definitions

Index ^a: For component I made of S320GD to S450GD the indicated values may be increased by 8.3%

Self-drilling screw with sealing washer $\geq \varnothing 19 \text{ mm}$

SX3-S19-6,0 x L, SX3-L12-S19-6,0 x L, SX3-D12-S19-6,0 x L

Annex 12



Materials

| | |
|---------------|--|
| Fastener: | Stainless steel A2 or A4 - EN ISO 3506 |
| Washer: | Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal |
| Component I: | S280GD to S450GD - EN 10346 |
| Component II: | S280GD to S450GD - EN 10346 HX300LAD to HX460LAD - EN 10346 |

Drilling-capacity $\Sigma(t_I + t_{II}) \leq 4.00 \text{ mm}$

| | | $t_{II} [\text{mm}]$ | | | | | |
|--------------------------|-------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| | | 2 x 0.63 | 2 x 0.75 | 2 x 0.88 | 2 x 1.00 | 2 x 1.25 | 2 x 1.50 |
| $V_{R,k} [\text{kN}]$ | 0.50 | 0.88 ^a ac | 1.87 ^a ac | 1.89 ^a ac | 1.91 ^a ac | 1.91 ^a ac | 1.91 ^a ac |
| | 0.55 | 0.98 ^a ac | 2.01 ^a ac | 2.05 ^a ac | 2.08 ^a ac | 2.12 ^a ac | 2.12 ^a a |
| | 0.63 | 1.15 ^a ac | 2.24 ^a ac | 2.30 ^a ac | 2.36 ^a ac | 2.45 ^a ac | 2.45 ^a a |
| | 0.75 | 1.39 ^a ac | 2.58 ^a ac | 2.68 ^a ac | 2.77 ^a ac | 2.96 ^a ac | 2.96 ^a a |
| | $t_I [\text{mm}]$ | | | | | | |
| | 0.88 | 1.66 - | 2.67 - | 3.30 - | 3.36 ac | 3.66 a | 3.79 a |
| | 1.00 | 1.90 - | 2.75 - | 3.36 - | 4.01 ac | 4.01 a | 4.01 a |
| | 1.25 | 2.41 - | 2.92 - | 3.47 - | 4.01 - | 5.05 a | - - |
| | 1.50 | 2.41 - | 2.92 - | 3.47 - | 4.01 - | 5.05 a | - - |
| $N_{R,k} [\text{kN}]$ | 0.50 | 1.40 ac | 1.87 ^a ac | 1.87 ^a ac | 1.87 ^a ac | 1.87 ^a ac | 1.87 ^a ac |
| | 0.55 | 1.40 ac | 1.98 ac | 2.36 ^a ac | 2.36 ^a ac | 2.36 ^a ac | 2.36 ^a a |
| | 0.63 | 1.40 ac | 1.98 ac | 2.61 ac | 3.14 ac | 3.14 ^a ac | 3.14 ^a a |
| | 0.75 | 1.40 ac | 1.98 ac | 2.61 ac | 3.19 ac | 4.31 ac | 4.31 a |
| | $t_I [\text{mm}]$ | | | | | | |
| | 0.88 | 1.40 - | 1.98 - | 2.61 - | 3.19 ac | 4.37 a | 5.57 a |
| | 1.00 | 1.40 - | 1.98 - | 2.61 - | 3.19 ac | 4.37 a | 5.82 a |
| | 1.25 | 1.40 - | 1.98 - | 2.61 - | 3.19 - | 4.37 a | - - |
| | 1.50 | 1.40 - | 1.98 - | 2.61 - | 3.19 - | 4.37 a | - - |
| $N_{R,II,k} [\text{kN}]$ | | 1.40 | 1.98 | 2.61 | 3.19 | 4.37 | 5.82 |

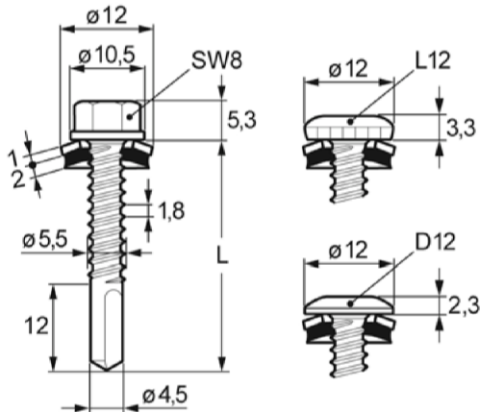
Additional definitions

Index ^a: For component I made of S320GD to S450GD the indicated values may be increased by 8.3%

Self-drilling screw with sealing washer $\geq \varnothing 19 \text{ mm}$

SX3-S19-6,0 x L, SX3-L12-S19-6,0 x L, SX3-D12-S19-6,0 x L

Annex 13



Materials

| | |
|---------------|---|
| Fastener: | Stainless steel A2 or A4 - EN ISO 3506 |
| Washer: | Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal |
| Component I: | S280GD to S450GD - EN 10346 |
| Component II: | S235 to S355 - EN 10025 S280GD to S450GD - EN 10346 HX300LAD to HX460LAD - EN 10346 |

Drilling-capacity $\Sigma(t_I + t_{II}) \leq 5.00 \text{ mm}$

| | | $t_{II} [\text{mm}]$ | | | | | |
|--------------------------|-------------------|----------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| | | 1.50 | 1.75 | 2.00 | 2.50 | 3.00 | 4.00 |
| $V_{R,k} [\text{kN}]$ | 0.50 | 1.57 ^a | - | 1.67 ^a | - | 1.76 ^a | - |
| | 0.55 | 1.71 ^a | - | 1.79 ^a | - | 1.86 ^a | - |
| | 0.63 | 1.94 ^a | - | 1.99 ^a | - | 2.03 ^a | - |
| | 0.75 | 2.28 ^a | - | 2.28 ^a | - | 2.28 ^a | - |
| | $t_I [\text{mm}]$ | 0.88 | 2.86 ^a | - | 2.86 ^a | - | 3.04 ^a |
| | | 1.00 | 3.43 | - | 3.43 | - | 3.74 |
| | | 1.25 | 3.43 | - | 4.31 | - | 5.20 |
| | | 1.50 | 3.43 | - | 4.31 | - | 5.20 |
| $N_{R,k} [\text{kN}]$ | 0.50 | 1.22 ^a | - | 1.22 ^a | - | 1.22 ^a | - |
| | 0.55 | 1.54 ^a | - | 1.54 ^a | - | 1.54 ^a | - |
| | 0.63 | 2.04 | - | 2.04 ^a | - | 2.04 ^a | - |
| | 0.75 | 2.09 | - | 2.69 | - | 2.80 ^a | - |
| | $t_I [\text{mm}]$ | 0.88 | 2.09 | - | 2.69 | - | 3.28 |
| | | 1.00 | 2.09 | - | 2.69 | - | 3.28 |
| | | 1.25 | 2.09 | - | 2.69 | - | 3.28 |
| | | 1.50 | 2.09 | - | 2.69 | - | 3.28 |
| $N_{R,II,k} [\text{kN}]$ | | 2.09 | 2.69 | 3.28 | 4.15 | 5.02 | 8.32 |

Additional definitions

Index ^a: For component I made of S320GD to S450GD the indicated values may be increased by 8.3%

Self-drilling screw with sealing washer Ø 12 mm

SX5-S12-5,5 x L, SX5-L12-S12-5,5 x L, SX5-D12-S12-5,5 x L

Annex 14

| | |
|--|--|
| | <p>Materials</p> <p>Fastener: Stainless steel A2 or A4 - EN ISO 3506</p> <p>Washer: Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal</p> <p>Component I: S280GD to S450GD - EN 10346</p> <p>Component II: S235 to S355 - EN 10025 S280GD to S450GD - EN 10346 HX300LAD to HX460LAD - EN 10346</p> <p>Drilling-capacity $\Sigma(t_I + t_{II}) \leq 5.00 \text{ mm}$</p> |
|--|--|

| | | t _{II} [mm] | | | | | | | | | | | |
|--------------------------|------|----------------------|----|-------------------|----|-------------------|----|-------------------|----|-------------------|----|-------------------|----|
| | | 1.50 | | 1.75 | | 2.00 | | 2.50 | | 3.00 | | 4.00 | |
| V _{R,k} [kN] | 0.50 | 1.57 ^a | ac | 1.67 ^a | ac | 1.76 ^a | ac | 1.76 ^a | ac | 1.76 ^a | ac | 1.76 ^a | ac |
| | 0.55 | 1.71 ^a | ac | 1.79 ^a | ac | 1.86 ^a | ac | 1.86 ^a | ac | 1.86 ^a | ac | 1.86 ^a | a |
| | 0.63 | 1.94 ^a | ac | 1.99 ^a | ac | 2.03 ^a | ac | 2.03 ^a | ac | 2.03 ^a | ac | 2.03 ^a | a |
| | 0.75 | 2.28 ^a | ac | 2.28 ^a | ac | 2.28 ^a | ac | 2.28 ^a | ac | 2.28 ^a | ac | 2.28 ^a | a |
| | 0.88 | 2.86 ^a | ac | 2.86 ^a | ac | 2.86 ^a | ac | 3.04 ^a | ac | 3.27 ^a | ac | 3.27 ^a | a |
| | 1.00 | 3.43 | ac | 3.43 | ac | 3.43 | ac | 3.74 | ac | 4.18 | ac | 4.18 | a |
| | 1.25 | 3.43 | - | 3.87 | - | 4.31 | - | 5.20 | - | 6.08 | a | - | - |
| | 1.50 | 3.43 | - | 3.87 | - | 4.31 | - | 5.20 | - | 6.08 | - | - | - |
| N _{R,k} [kN] | 0.50 | 1.34 ^a | ac | 1.34 ^a | ac | 1.34 ^a | ac | 1.34 ^a | ac | 1.34 ^a | ac | 1.34 ^a | ac |
| | 0.55 | 1.69 ^a | ac | 1.69 ^a | ac | 1.69 ^a | ac | 1.69 ^a | ac | 1.69 ^a | ac | 1.69 ^a | a |
| | 0.63 | 2.09 | ac | 2.25 ^a | ac | 2.25 ^a | ac | 2.25 ^a | ac | 2.25 ^a | ac | 2.25 ^a | a |
| | 0.75 | 2.09 | ac | 2.69 | ac | 3.09 | ac | 3.09 ^a | ac | 3.09 ^a | ac | 3.09 ^a | a |
| | 0.88 | 2.09 | ac | 2.69 | ac | 3.28 | ac | 4.00 | ac | 4.00 | ac | 4.00 | a |
| | 1.00 | 2.09 | ac | 2.69 | ac | 3.28 | ac | 4.15 | ac | 4.84 | ac | 4.84 | a |
| | 1.25 | 2.09 | - | 2.69 | - | 3.28 | - | 4.15 | - | 5.02 | a | - | - |
| | 1.50 | 2.09 | - | 2.69 | - | 3.28 | - | 4.15 | - | 5.02 | - | - | - |
| N _{R,II,k} [kN] | | 2.09 | | 2.69 | | 3.28 | | 4.15 | | 5.02 | | 8.32 | |

Additional definitions

Index ^a: For component I made of S320GD to S450GD the indicated values may be increased by 8.3%

Self-drilling screw with sealing washer Ø 14 mm

SX5-S14-5,5 x L, SX5-L12-S14-5,5 x L, SX5-D12-S14-5,5 x L

Annex 15

| | |
|--|--|
| | <p>Materials</p> <p>Fastener: Stainless steel A2 or A4 - EN ISO 3506</p> <p>Washer: Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal</p> <p>Component I: S280GD to S450GD - EN 10346</p> <p>Component II: S235 to S355 - EN 10025 S280GD to S450GD - EN 10346 HX300LAD to HX460LAD - EN 10346</p> <p>Drilling-capacity $\Sigma(t_I + t_{II}) \leq 5.00 \text{ mm}$</p> |
|--|--|

| | | $t_{II} [\text{mm}]$ | | | | | | | | | |
|--------------------------|-------------------|----------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| | | 1.50 | | 1.75 | | 2.00 | | 2.50 | | 3.00 | |
| $V_{R,k} [\text{kN}]$ | 0.50 | 1.57 ^a | ac | 1.67 ^a | ac | 1.76 ^a | ac | 1.76 ^a | ac | 1.76 ^a | ac |
| | 0.55 | 1.71 ^a | ac | 1.79 ^a | ac | 1.86 ^a | ac | 1.86 ^a | ac | 1.86 ^a | a |
| | 0.63 | 1.94 ^a | ac | 1.99 ^a | ac | 2.03 ^a | ac | 2.03 ^a | ac | 2.03 ^a | a |
| | 0.75 | 2.28 ^a | ac | 2.28 ^a | ac | 2.28 ^a | ac | 2.28 ^a | ac | 2.28 ^a | a |
| | $t_I [\text{mm}]$ | 0.88 | 2.86 ^a | ac | 2.86 ^a | ac | 2.86 ^a | ac | 3.04 ^a | ac | 3.27 ^a |
| | 1.00 | 3.43 | ac | 3.43 | ac | 3.43 | ac | 3.74 | ac | 4.18 | ac |
| | 1.25 | 3.43 | - | 3.87 | - | 4.31 | - | 5.20 | - | 6.08 | a |
| | 1.50 | 3.43 | - | 3.87 | - | 4.31 | - | 5.20 | - | 6.08 | - |
| $N_{R,k} [\text{kN}]$ | 0.50 | 1.52 ^a | ac | 1.52 ^a | ac | 1.52 ^a | ac | 1.52 ^a | ac | 1.52 ^a | ac |
| | 0.55 | 1.91 ^a | ac | 1.91 ^a | ac | 1.91 ^a | ac | 1.91 ^a | ac | 1.91 ^a | a |
| | 0.63 | 2.09 | ac | 2.69 | ac | 2.70 ^a | ac | 2.70 ^a | ac | 2.70 ^a | a |
| | 0.75 | 2.09 | ac | 2.69 | ac | 3.09 | ac | 3.50 ^a | ac | 3.50 ^a | a |
| | $t_I [\text{mm}]$ | 0.88 | 2.09 | ac | 2.69 | ac | 3.28 | ac | 4.15 | ac | 4.52 |
| | 1.00 | 2.09 | ac | 2.69 | ac | 3.28 | ac | 4.15 | ac | 5.02 | ac |
| | 1.25 | 2.09 | - | 2.69 | - | 3.28 | - | 4.15 | - | 5.02 | a |
| | 1.50 | 2.09 | - | 2.69 | - | 3.28 | - | 4.15 | - | 5.02 | - |
| $N_{R,II,k} [\text{kN}]$ | | 2.09 | | 2.69 | | 3.28 | | 4.15 | | 5.02 | |

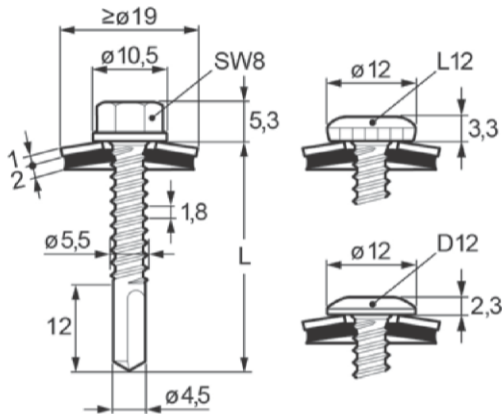
Additional definitions

Index ^a: For component I made of S320GD to S450GD the indicated values may be increased by 8.3%

Self-drilling screw with sealing washer Ø 16 mm

SX5-S16-5,5 x L, SX5-L12-S16-5,5 x L, SX5-D12-S16-5,5 x L

Annex 16



Materials

| | |
|---------------|---|
| Fastener: | Stainless steel A2 or A4 - EN ISO 3506 |
| Washer: | Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal |
| Component I: | S280GD to S450GD - EN 10346 |
| Component II: | S235 to S355 - EN 10025 S280GD to S450GD - EN 10346 HX300LAD to HX460LAD - EN 10346 |

Drilling-capacity $\Sigma(t_I + t_{II}) \leq 5.00 \text{ mm}$

| | | $t_{II} [\text{mm}]$ | | | | | | | | | | | |
|--------------------------|------|----------------------|----|-------------------|----|-------------------|----|-------------------|----|-------------------|----|-------------------|----|
| | | 1.50 | | 1.75 | | 2.00 | | 2.50 | | 3.00 | | 4.00 | |
| $V_{R,k} [\text{kN}]$ | 0.50 | 1.57 ^a | ac | 1.67 ^a | ac | 1.76 ^a | ac | 1.76 ^a | ac | 1.76 ^a | ac | 1.76 ^a | ac |
| | 0.55 | 1.71 ^a | ac | 1.79 ^a | ac | 1.86 ^a | ac | 1.86 ^a | ac | 1.86 ^a | ac | 1.86 ^a | a |
| | 0.63 | 1.94 ^a | ac | 1.99 ^a | ac | 2.03 ^a | ac | 2.03 ^a | ac | 2.03 ^a | ac | 2.03 ^a | a |
| | 0.75 | 2.28 ^a | ac | 2.28 ^a | ac | 2.28 ^a | ac | 2.28 ^a | ac | 2.28 ^a | ac | 2.28 ^a | a |
| | 0.88 | 2.86 ^a | ac | 2.86 ^a | ac | 2.86 ^a | ac | 3.04 ^a | ac | 3.27 ^a | ac | 3.27 ^a | a |
| | 1.00 | 3.43 | ac | 3.43 | ac | 3.43 | ac | 3.74 | ac | 4.18 | ac | 4.18 | a |
| | 1.25 | 3.43 | - | 3.87 | - | 4.31 | - | 5.20 | - | 6.08 | a | - | - |
| | 1.50 | 3.43 | - | 3.87 | - | 4.31 | - | 5.20 | - | 6.08 | - | - | - |
| $N_{R,k} [\text{kN}]$ | 0.50 | 1.87 ^a | ac | 1.87 ^a | ac | 1.87 ^a | ac | 1.87 ^a | ac | 1.87 ^a | ac | 1.87 ^a | ac |
| | 0.55 | 2.09 | ac | 2.36 ^a | ac | 2.36 ^a | ac | 2.36 ^a | ac | 2.36 ^a | ac | 2.36 ^a | a |
| | 0.63 | 2.09 | ac | 2.69 | ac | 3.14 | ac | 3.14 ^a | ac | 3.14 ^a | ac | 3.14 ^a | a |
| | 0.75 | 2.09 | ac | 2.69 | ac | 3.28 | ac | 4.15 | ac | 4.31 | ac | 4.31 | a |
| | 0.88 | 2.09 | ac | 2.69 | ac | 3.28 | ac | 4.15 | ac | 5.02 | ac | 5.57 | a |
| | 1.00 | 2.09 | ac | 2.69 | ac | 3.28 | ac | 4.15 | ac | 5.02 | ac | 6.74 | a |
| | 1.25 | 2.09 | - | 2.69 | - | 3.28 | - | 4.15 | - | 5.02 | a | - | - |
| | 1.50 | 2.09 | - | 2.69 | - | 3.28 | - | 4.15 | - | 5.02 | - | - | - |
| $N_{R,II,k} [\text{kN}]$ | | 2.09 | | 2.69 | | 3.28 | | 4.15 | | 5.02 | | 8.32 | |

Additional definitions

Index ^a: For component I made of S320GD to S450GD the indicated values may be increased by 8.3%

Self-drilling screw with sealing washer $\geq \text{Ø } 19 \text{ mm}$

SX5-S19-5,5 x L, SX5-L12-S19-5,5 x L, SX5-D12-S19-5,5 x L

Annex 17

| | |
|--|---|
| | <p>Materials</p> <p>Fastener: Stainless steel A2 or A4 - EN ISO 3506</p> <p>Washer: Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal</p> <p>Component I: S280GD to S450GD - EN 10346</p> <p>Component II: S235 to S355 - EN 10025 S280GD to S450GD - EN 10346 HX300LAD to HX460LAD - EN 10346</p> <p>Drilling-capacity $\Sigma(t_I + t_{II}) \leq 14.00 \text{ mm}$</p> |
|--|---|

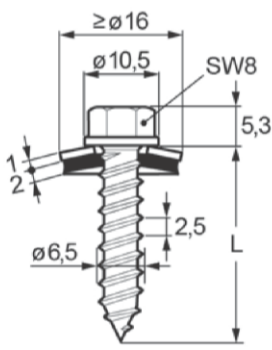
| | | $t_{II} [\text{mm}]$ | | | | | | | | | | | |
|--------------------------|------|----------------------|----|-------|----|-------|----|-------|----|-------|----|-------|----|
| | | 4.00 | | 5.00 | | 6.00 | | 8.00 | | 10.00 | | 12.00 | |
| $V_{R,k} [\text{kN}]$ | 0.50 | 2.20 | ac | 2.20 | ac | 2.20 | ac | 2.20 | ac | 2.20 | ac | 2.20 | ac |
| | 0.55 | 2.50 | ac | 2.50 | ac | 2.50 | ac | 2.50 | ac | 2.50 | ac | 2.50 | ac |
| | 0.63 | 2.80 | ac | 2.80 | ac | 2.80 | ac | 2.80 | ac | 2.80 | ac | 2.80 | ac |
| | 0.75 | 3.40 | ac | 3.40 | ac | 3.40 | ac | 3.40 | ac | 3.40 | ac | 3.40 | ac |
| | 0.88 | 4.00 | ac | 4.00 | ac | 4.00 | ac | 4.00 | ac | 4.00 | ac | 4.00 | ac |
| | 1.00 | 4.50 | ac | 4.50 | ac | 4.50 | ac | 4.50 | ac | 4.50 | ac | 4.50 | ac |
| | 1.25 | 5.60 | ac | 5.60 | ac | 5.60 | ac | 5.60 | ac | 5.60 | ac | 5.60 | ac |
| | 1.50 | 6.40 | ac | 6.40 | ac | 6.40 | ac | 6.40 | ac | 6.40 | ac | 6.40 | ac |
| $N_{R,k} [\text{kN}]$ | 0.50 | 1.80 | ac | 1.80 | ac | 1.80 | ac | 1.80 | ac | 1.80 | ac | 1.80 | ac |
| | 0.55 | 2.10 | ac | 2.10 | ac | 2.10 | ac | 2.10 | ac | 2.10 | ac | 2.10 | ac |
| | 0.63 | 2.40 | ac | 2.40 | ac | 2.40 | ac | 2.40 | ac | 2.40 | ac | 2.40 | ac |
| | 0.75 | 3.00 | ac | 3.00 | ac | 3.00 | ac | 3.00 | ac | 3.00 | ac | 3.00 | ac |
| | 0.88 | 3.60 | ac | 3.60 | ac | 3.60 | ac | 3.60 | ac | 3.60 | ac | 3.60 | ac |
| | 1.00 | 4.20 | ac | 4.20 | ac | 4.20 | ac | 4.20 | ac | 4.20 | ac | 4.20 | ac |
| | 1.25 | 6.60 | ac | 6.60 | ac | 6.60 | ac | 6.60 | ac | 6.60 | ac | 6.60 | ac |
| | 1.50 | 7.10 | ac | 10.90 | ac | 10.90 | ac | 10.90 | ac | 10.90 | ac | 10.90 | ac |
| $N_{R,II,k} [\text{kN}]$ | | 7.10 | | 10.90 | | 10.90 | | 10.90 | | 10.90 | | 10.90 | |

No additional definitions

Self-drilling screw with sealing washer $\geq \varnothing 16 \text{ mm}$

SX14-S16-5,5 x L, SX14-L12-S16-5,5 x L

Annex 18

| | | |
|---|------------------|--|
|  | <u>Materials</u> | |
| | Fastener: | Stainless steel A2, A4 or 1.4547 - EN ISO 3506 |
| | Washer: | Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal |
| | Component I: | S280GD to S450GD - EN 10346 |
| | Component II: | S280GD to S450GD - EN 10346 HX300LAD to HX460LAD - EN 10346 |
| <u>Drilling-capacity</u> - | | |

| | | t_{II} [mm] | | | | | | | | |
|-------------------|------------|---------------|---------------------|---------------------|----------------------|----------------------|----------------------|----------------------|----------------------|--|
| | | 0.63 | 0.75 | 0.88 | 1.00 | 1.25 | 1.50 | 2.00 | 3.00 | |
| d_{pd} [mm] | | 3.5 | 4.0 | 4.5 | | | 5.0 | | | |
| $V_{R,k}$ [kN] | t_l [mm] | | | | | | | | | |
| | 0.50 | 0.82 - | 1.07 ^a - | 1.35 ^a - | 1.60 ^a ac | 1.60 ^a ac | 1.60 ^a ac | 1.60 ^a ac | 1.60 ^a ac | |
| | 0.55 | 1.00 - | 1.24 - | 1.52 - | 1.75 ac | 1.95 ac | 2.10 ac | 2.10 ac | 2.10 ac | |
| | 0.63 | 1.30 - | 1.50 - | 1.80 - | 2.00 ac | 2.50 ac | 2.90 ac | 2.90 ac | 2.90 ac | |
| | 0.75 | 1.40 - | 1.60 - | 1.90 - | 2.20 ac | 2.70 ac | 3.10 ac | 3.40 ac | 3.50 ac | |
| | 0.88 | 1.50 - | 1.70 - | 2.00 - | 2.30 - | 2.80 ac | 3.20 ac | 3.90 ac | 4.00 ac | |
| | 1.00 | 1.60 - | 1.80 - | 2.10 - | 2.50 - | 3.10 - | 3.60 - | 4.40 - | 4.50 ac | |
| | 1.25 | 1.60 - | 1.82 - | 2.30 - | 2.70 - | 3.30 - | 4.00 - | 4.70 - | 5.40 - | |
| | 1.50 | 1.60 - | 1.83 - | 2.40 - | 2.80 - | 3.50 - | 4.00 - | 4.90 - | 5.70 - | |
| $N_{R,k}$ [kN] | t_l [mm] | | | | | | | | | |
| | 0.50 | 1.00 - | 1.20 - | 1.40 - | 1.50 ac | 1.68 ^a ac | 1.68 ^a ac | 1.68 ^a ac | 1.68 ^a ac | |
| | 0.55 | 1.00 - | 1.20 - | 1.40 - | 1.50 ac | 1.88 ^a ac | 1.88 ^a ac | 1.88 ^a ac | 1.88 ^a ac | |
| | 0.63 | 1.00 - | 1.20 - | 1.40 - | 1.50 ac | 1.90 ac | 2.30 ac | 2.70 ac | 2.70 ac | |
| | 0.75 | 1.00 - | 1.20 - | 1.40 - | 1.50 ac | 1.90 ac | 2.30 ac | 3.40 ac | 3.40 ac | |
| | 0.88 | 1.00 - | 1.20 - | 1.40 - | 1.50 - | 1.90 ac | 2.30 ac | 3.80 ac | 4.10 ac | |
| | 1.00 | 1.00 - | 1.20 - | 1.40 - | 1.50 - | 1.90 - | 2.30 - | 3.80 - | 4.80 ac | |
| | 1.25 | 1.00 - | 1.20 - | 1.40 - | 1.50 - | 1.90 - | 2.30 - | 3.80 - | 5.60 - | |
| | 1.50 | 1.00 - | 1.20 - | 1.40 - | 1.50 - | 1.90 - | 2.30 - | 3.80 - | 5.60 - | |
| $N_{R,II,k}$ [kN] | | 1.00 | 1.20 | 1.40 | 1.50 | 1.90 | 2.30 | 3.80 | 5.60 | |

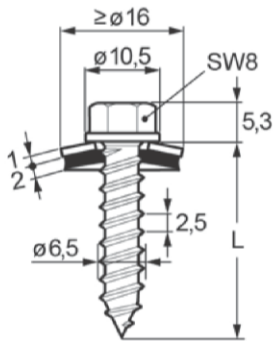
Additional definitions

Index ^a: For component I made of S320GD to S450GD the indicated values may be increased by 8.3%

Self-tapping screw with sealing washer $\geq \varnothing 16$ mm

TDA-S-S16-6,5 x L

Annex 19



Materials

| | |
|---------------|--|
| Fastener: | Stainless steel A2, A4 or 1.4547 - EN ISO 3506 |
| Washer: | Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal |
| Component I: | S280GD to S450GD - EN 10346 |
| Component II: | S280GD to S450GD - EN 10346 HX300LAD to HX460LAD - EN 10346 |

Drilling-capacity -

| | | 2 x 0.75 | | 2 x 0.88 | | t _{II} [mm] 2 x 1.00 | | 2 x 1.25 | | 2 x 1.50 | | |
|--------------------------|---------------------|-------------------|-------------------|-------------------|-------------------|----------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|----|
| d _{pd} [mm] | | 4.0 | | | | | | 4.5 | | | | |
| V _{R,k} [kN] | 0.50 | 1.36 ^a | ac | 1.48 ^a | ac | 1.60 ^a | ac | 1.60 ^a | ac | 1.60 ^a | ac | |
| | 0.55 | 1.54 ^a | ac | 1.72 ^a | ac | 1.90 ^a | ac | 1.90 ^a | ac | 1.90 ^a | ac | |
| | 0.63 | 1.83 ^a | ac | 2.10 ^a | ac | 2.37 ^a | ac | 2.37 ^a | ac | 2.37 ^a | ac | |
| | 0.75 | 2.30 ^a | ac | 2.72 ^a | ac | 3.14 ^a | ac | 3.14 ^a | ac | 3.14 ^a | ac | |
| | t _I [mm] | 0.88 | 2.49 ^a | - | 2.94 ^a | - | 3.40 ^a | ac | 3.40 ^a | ac | 3.40 ^a | ac |
| | 1.00 | 2.67 ^a | - | 3.16 ^a | - | 3.65 | ac | 3.65 | ac | 3.65 | ac | |
| | 1.25 | 2.67 ^a | - | 3.17 ^a | - | 3.67 | - | 3.67 | - | 3.67 | - | |
| | 1.50 | 2.67 ^a | - | 3.18 ^a | - | 3.68 | - | 3.68 | - | 3.68 | - | |
| N _{R,k} [kN] | 0.50 | 1.68 ^a | ac | 1.68 ^a | ac | 1.68 ^a | ac | 1.68 ^a | ac | 1.68 ^a | ac | |
| | 0.55 | 1.88 ^a | ac | 1.88 ^a | ac | 1.88 ^a | ac | 1.88 ^a | ac | 1.88 ^a | ac | |
| | 0.63 | 2.18 | ac | 2.70 | ac | 2.70 | ac | 2.70 | ac | 2.70 | ac | |
| | 0.75 | 2.18 | ac | 2.77 | ac | 3.36 | ac | 3.36 | ac | 3.36 | ac | |
| | t _I [mm] | 0.88 | 2.18 | - | 2.77 | - | 3.36 | ac | 3.36 | ac | 3.36 | ac |
| | 1.00 | 2.18 | - | 2.77 | - | 3.36 | ac | 3.36 | ac | 3.36 | ac | |
| | 1.25 | 2.18 | - | 2.77 | - | 3.36 | - | 3.36 | - | 3.36 | - | |
| | 1.50 | 2.18 | - | 2.77 | - | 3.36 | - | 3.36 | - | 3.36 | - | |
| N _{R,II,k} [kN] | | 2.18 | | 2.77 | | 3.36 | | n/a | | n/a | | |

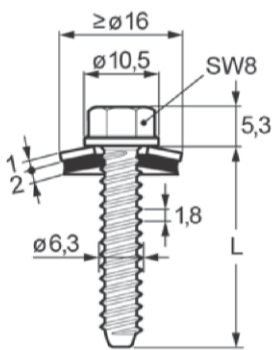
Additional definitions

Index ^a: For component I made of S320GD to S450GD the indicated values may be increased by 8.3%

Self-tapping screw with sealing washer ≥ Ø 16 mm

TDA-S-S16-6,5 x L

Annex 20

| | | |
|---|--------------------------|---|
|  | Materials | |
| | Fastener: | Stainless steel A2, A4 or 1.4547 - EN ISO 3506 |
| | Washer: | Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal |
| | Component I: | S280GD to S450GD - EN 10346 |
| | Component II: | S235 to S355 - EN 10025 S280GD to S450GD - EN 10346 HX300LAD to HX460LAD - EN 10346 |
| | Drilling-capacity | - |

| | | t_{li} [mm] | | | | | | | | | |
|-------------------|------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| | | 1.25 | 1.50 | 2.00 | 3.00 | 4.00 | 6.00 | 8.00 | 10.00 | > 10.00 ^b | |
| d_{pd} [mm] | | 5.0 | | 5.3 | | | 5.5 | 5.7 | | 5.8 | |
| $V_{R,k}$ [kN] | 0.50 | 1.84 ^a ac | 1.84 ^a ac | 1.84 ^a ac | 1.84 ^a ac | 1.84 ^a ac | 1.84 ^a ac | 1.84 ^a ac | 1.84 ^a ac | 1.84 ^a ac | 1.84 ^a ac |
| | 0.55 | 2.06 ^a ac | 2.06 ^a ac | 2.06 ^a ac | 2.06 ^a ac | 2.06 ^a ac | 2.06 ^a ac | 2.06 ^a ac | 2.06 ^a ac | 2.06 ^a ac | 2.06 ^a ac |
| | 0.63 | 2.50 ac | 2.70 ac | 2.90 ac | 3.00 ac | 3.10 ac | 3.10 ac | 3.10 ac | 3.10 ac | 3.10 ac | 3.10 ac |
| | 0.75 | 2.60 ac | 3.10 ac | 3.30 ac | 3.60 ac | 3.70 ac | 3.70 ac | 3.70 ac | 3.70 ac | 3.70 ac | 3.70 ac |
| | t_i [mm] | 0.88 | 2.80 ac | 3.20 ac | 3.80 ac | 4.10 ac | 4.30 ac | 4.40 ac | 4.40 ac | 4.40 ac | 4.40 ac |
| | | 1.00 | 3.20 - | 3.60 - | 4.10 - | 4.80 ac | 4.90 ac | 5.10 ac | 5.10 ac | 5.10 ac | 5.10 ac |
| | | 1.25 | 3.60 - | 4.20 - | 5.00 - | 6.10 - | 6.30 - | 6.50 - | 6.50 - | 6.50 - | 6.50 - |
| | | 1.50 | 3.70 - | 4.40 - | 5.70 - | 6.80 - | 7.10 - | 7.30 - | 7.30 - | 7.30 - | 7.30 - |
| $N_{R,k}$ [kN] | 0.50 | 1.84 ^a ac | 1.84 ^a ac | 1.84 ^a ac | 1.84 ^a ac | 1.84 ^a ac | 1.84 ^a ac | 1.84 ^a ac | 1.84 ^a ac | 1.84 ^a ac | 1.84 ^a ac |
| | 0.55 | 2.00 ac | 2.05 ^a ac | 2.05 ^a ac | 2.05 ^a ac | 2.05 ^a ac | 2.05 ^a ac | 2.05 ^a ac | 2.05 ^a ac | 2.05 ^a ac | 2.05 ^a ac |
| | 0.63 | 2.00 ac | 2.70 ac | 2.80 ac | 2.80 ac | 2.80 ac | 2.80 ac | 2.80 ac | 2.80 ac | 2.80 ac | 2.80 ac |
| | 0.75 | 2.00 ac | 2.70 ac | 3.60 ac | 3.60 ac | 3.60 ac | 3.60 ac | 3.60 ac | 3.60 ac | 3.60 ac | 3.60 ac |
| | t_i [mm] | 0.88 | 2.00 ac | 2.70 ac | 3.60 ac | 4.29 ac | 4.29 ac | 4.29 ac | 4.29 ac | 4.29 ac | 4.29 ac |
| | | 1.00 | 2.00 - | 2.70 - | 3.60 - | 4.85 ac | 4.85 ac | 4.85 ac | 4.85 ac | 4.85 ac | 4.85 ac |
| | | 1.25 | 2.00 - | 2.70 - | 3.60 - | 4.90 - | 4.90 - | 4.90 - | 4.90 - | 4.90 - | 4.90 - |
| | | 1.50 | 2.00 - | 2.70 - | 3.60 - | 5.90 - | 5.90 - | 5.90 - | 5.90 - | 5.90 - | 5.90 - |
| $N_{R,II,k}$ [kN] | | 2.00 | 2.70 | 3.60 | 6.48 | 9.19 | 12.22 | 15.24 | 15.24 | 15.24 | |

Additional definitions

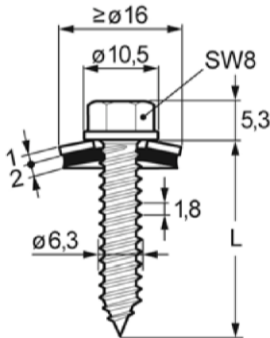
Index ^a: For component I made of S320GD to S450GD the indicated values may be increased by 8.3%

Index ^b: Only valid for component II made of S235, S280GD or HX300LAD

Self-tapping screw with sealing washer $\geq \varnothing 16$ mm

TDB-S-S16-6,3 x L

Annex 21



Materials

| | |
|---------------|---|
| Fastener: | Stainless steel A2, A4 or 1.4547 - EN ISO 3506 |
| Washer: | Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal |
| Component I: | S280GD to S450GD - EN 10346 |
| Component II: | S235 to S355 - EN 10025 S280GD to S450GD - EN 10346 HX300LAD to HX460LAD - EN 10346 |

Drilling-capacity -

| | | 1.25 | | 1.50 | | t _{II} [mm] 2.00 | | 3.00 | | 4.00 | | |
|--------------------------|---------------------|-------------------|------|-------------------|------|------------------------------|------|-------------------|------|-------------------|------|----|
| d _{pd} [mm] | | 5.0 | | | | 5.3 | | | | | | |
| V _{R,k} [kN] | 0.50 | 1.84 ^a | ac | 1.84 ^a | ac | 1.84 ^a | ac | 1.84 ^a | ac | 1.84 ^a | ac | |
| | 0.55 | 2.06 ^a | ac | 2.06 ^a | ac | 2.06 ^a | ac | 2.06 ^a | ac | 2.06 ^a | ac | |
| | 0.63 | 2.50 | ac | 2.70 | ac | 2.90 | ac | 3.00 | ac | 3.10 | ac | |
| | 0.75 | 2.60 | ac | 3.10 | ac | 3.30 | ac | 3.60 | ac | 3.70 | ac | |
| | t _i [mm] | 0.88 | 2.80 | ac | 3.20 | ac | 3.80 | ac | 4.10 | ac | 4.30 | ac |
| | 1.00 | 3.20 | - | 3.60 | - | 4.10 | - | 4.80 | ac | 4.90 | ac | |
| | 1.25 | 3.60 | - | 4.20 | - | 5.00 | - | 6.10 | - | 6.30 | - | |
| | 1.50 | 3.70 | - | 4.40 | - | 5.70 | - | 6.80 | - | 7.10 | - | |
| N _{R,k} [kN] | 0.50 | 1.84 ^a | ac | 1.84 ^a | ac | 1.84 ^a | ac | 1.84 ^a | ac | 1.84 ^a | ac | |
| | 0.55 | 2.00 | ac | 2.05 ^a | ac | 2.05 ^a | ac | 2.05 ^a | ac | 2.05 ^a | ac | |
| | 0.63 | 2.00 | ac | 2.70 | ac | 2.80 | ac | 2.80 | ac | 2.80 | ac | |
| | 0.75 | 2.00 | ac | 2.70 | ac | 3.60 | ac | 3.60 | ac | 3.60 | ac | |
| | t _i [mm] | 0.88 | 2.00 | ac | 2.70 | ac | 3.60 | ac | 4.29 | ac | 4.29 | ac |
| | 1.00 | 2.00 | - | 2.70 | - | 3.60 | - | 4.85 | ac | 4.85 | ac | |
| | 1.25 | 2.00 | - | 2.70 | - | 3.60 | - | 4.90 | - | 4.90 | - | |
| | 1.50 | 2.00 | - | 2.70 | - | 3.60 | - | 5.90 | - | 5.90 | - | |
| N _{R,II,k} [kN] | | 2.00 | | 2.70 | | 3.60 | | 6.48 | | 9.19 | | |

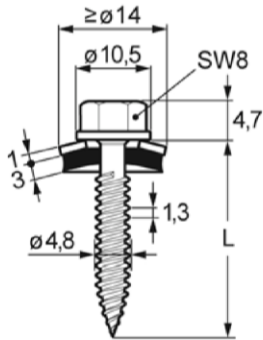
Additional definitions

Index ^a: For component I made of S320GD to S450GD the indicated values may be increased by 8.3%

Self-tapping screw with sealing washer ≥ Ø 16 mm

TDC-S-S16-6,3 x L

Annex 22



Materials

| | |
|---------------|--|
| Fastener: | Stainless steel A2 or A4 - EN ISO 3506 |
| Washer: | Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal |
| Component I: | S280GD to S450GD - EN 10346 |
| Component II: | S280GD to S450GD - EN 10346 HX300LAD to HX460LAD - EN 10346 |

Drilling-capacity $\Sigma(t_I + t_{II}) \leq 2.00 \text{ mm}$

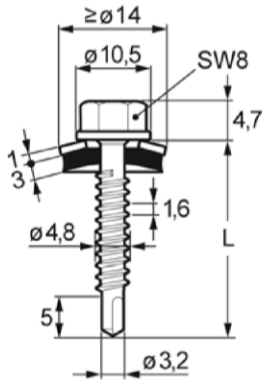
| | | $t_{II} [\text{mm}]$ | | | | | | |
|--------------------------|------|----------------------|------|------|------|------|------|------|
| | | 0.40 | 0.50 | 0.55 | 0.63 | 0.75 | 0.88 | 1.00 |
| $V_{R,k} [\text{kN}]$ | 0.40 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 |
| | 0.50 | 0.66 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| | 0.55 | 0.66 | 0.80 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| | 0.63 | 0.66 | 0.80 | 0.98 | 1.28 | 1.28 | 1.28 | 1.28 |
| | 0.75 | 0.66 | 0.80 | 0.98 | 1.28 | 1.72 | 1.72 | 1.72 |
| | 0.88 | 0.66 | 0.80 | 0.98 | 1.28 | 1.72 | 1.72 | 1.72 |
| | 1.00 | 0.66 | 0.80 | 0.98 | 1.28 | 1.72 | 1.72 | 1.72 |
| $N_{R,k} [\text{kN}]$ | 0.40 | 0.52 | 0.73 | 0.82 | 0.95 | 0.95 | 0.95 | 0.95 |
| | 0.50 | 0.52 | 0.73 | 0.82 | 0.97 | 1.20 | 1.20 | 1.20 |
| | 0.55 | 0.52 | 0.73 | 0.82 | 0.97 | 1.20 | 1.20 | 1.20 |
| | 0.63 | 0.52 | 0.73 | 0.82 | 0.97 | 1.20 | 1.20 | 1.20 |
| | 0.75 | 0.52 | 0.73 | 0.82 | 0.97 | 1.20 | 1.20 | 1.20 |
| | 0.88 | 0.52 | 0.73 | 0.82 | 0.97 | 1.20 | 1.20 | 1.20 |
| | 1.00 | 0.52 | 0.73 | 0.82 | 0.97 | 1.20 | 1.20 | 1.20 |
| $N_{R,II,k} [\text{kN}]$ | | 0.52 | 0.73 | 0.82 | 0.97 | 1.20 | n/a | n/a |

No additional definitions

Self-drilling screw with sealing washer $\geq \varnothing 14 \text{ mm}$

SLG-S-S14-4,8 x L

Annex 23



Materials

| | |
|---------------|--|
| Fastener: | Stainless steel A2 or A4 - EN ISO 3506 |
| Washer: | Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal |
| Component I: | S280GD to S450GD - EN 10346 |
| Component II: | S280GD to S450GD - EN 10346 HX300LAD to HX460LAD - EN 10346 |

Drilling-capacity $\Sigma(t_I + t_{II}) \leq 2.50 \text{ mm}$

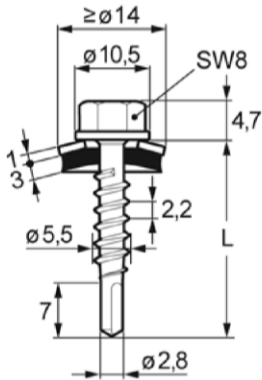
| | | $t_{II} [\text{mm}]$ | | | | | | | | |
|--------------------------|------|----------------------|------|------|------|------|------|------|------|------|
| | | 0.40 | 0.50 | 0.55 | 0.63 | 0.75 | 0.88 | 1.00 | 1.25 | 1.50 |
| $V_{R,k} [\text{kN}]$ | 0.40 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 |
| | 0.50 | 0.58 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 |
| | 0.55 | 0.58 | 0.69 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| | 0.63 | 0.58 | 0.69 | 0.80 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| | 0.75 | 0.58 | 0.69 | 0.80 | 0.98 | 1.26 | 1.26 | 1.26 | 1.26 | 1.26 |
| | 0.88 | 0.58 | 0.69 | 0.80 | 0.98 | 1.26 | 1.82 | 1.82 | 1.82 | 1.82 |
| | 1.00 | 0.58 | 0.69 | 0.80 | 0.98 | 1.26 | 1.82 | 2.35 | 2.35 | 2.35 |
| | 1.25 | 0.58 | 0.69 | 0.80 | 0.98 | 1.26 | 1.82 | 2.35 | 2.35 | - |
| | 1.50 | 0.58 | 0.69 | 0.80 | 0.98 | 1.26 | 1.82 | 2.35 | - | - |
| $N_{R,k} [\text{kN}]$ | 0.40 | 0.30 | 0.42 | 0.49 | 0.59 | 0.76 | 0.96 | 1.07 | 1.07 | 1.07 |
| | 0.50 | 0.30 | 0.42 | 0.49 | 0.59 | 0.76 | 0.96 | 1.16 | 1.16 | 1.16 |
| | 0.55 | 0.30 | 0.42 | 0.49 | 0.59 | 0.76 | 0.96 | 1.16 | 1.16 | 1.16 |
| | 0.63 | 0.30 | 0.42 | 0.49 | 0.59 | 0.76 | 0.96 | 1.16 | 1.16 | 1.16 |
| | 0.75 | 0.30 | 0.42 | 0.49 | 0.59 | 0.76 | 0.96 | 1.16 | 1.16 | 1.16 |
| | 0.88 | 0.30 | 0.42 | 0.49 | 0.59 | 0.76 | 0.96 | 1.16 | 1.16 | 1.16 |
| | 1.00 | 0.30 | 0.42 | 0.49 | 0.59 | 0.76 | 0.96 | 1.16 | 1.16 | 1.16 |
| | 1.25 | 0.30 | 0.42 | 0.49 | 0.59 | 0.76 | 0.96 | 1.16 | 1.16 | - |
| | 1.50 | 0.30 | 0.42 | 0.49 | 0.59 | 0.76 | 0.96 | 1.16 | - | - |
| $N_{R,II,k} [\text{kN}]$ | | 0.30 | 0.42 | 0.49 | 0.59 | 0.76 | 0.96 | 1.16 | n/a | n/a |

No additional definitions

Self-drilling screw with sealing washer $\geq \varnothing 14 \text{ mm}$

SL2-S-S14-4,8 x L

Annex 24



Materials

| | |
|---------------|--|
| Fastener: | Stainless steel A2 or A4 - EN ISO 3506 |
| Washer: | Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal |
| Component I: | S280GD to S450GD - EN 10346 |
| Component II: | S280GD to S450GD - EN 10346 HX300LAD to HX460LAD - EN 10346 |

Drilling-capacity $\Sigma(t_I + t_{II}) \leq 2.50 \text{ mm}$

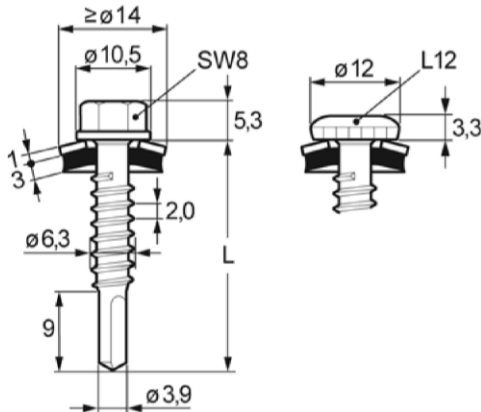
| | | $t_{II} [\text{mm}]$ | | | | | | | | |
|--------------------------|------|----------------------|------|------|------|------|------|------|------|------|
| | | 0.40 | 0.50 | 0.55 | 0.63 | 0.75 | 0.88 | 1.00 | 1.25 | 1.50 |
| $V_{R,k} [\text{kN}]$ | 0.40 | 0.48 | 0.48 | 0.48 | 0.48 | 0.48 | 0.48 | 0.48 | 0.48 | 0.48 |
| | 0.50 | 0.48 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 |
| | 0.55 | 0.48 | 0.75 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| | 0.63 | 0.48 | 0.75 | 0.90 | 1.13 | 1.13 | 1.13 | 1.13 | 1.13 | 1.13 |
| | 0.75 | 0.48 | 0.75 | 0.90 | 1.13 | 1.48 | 1.48 | 1.48 | 1.48 | 1.48 |
| | 0.88 | 0.48 | 0.75 | 0.90 | 1.13 | 1.48 | 1.73 | 1.73 | 1.73 | 1.73 |
| | 1.00 | 0.48 | 0.75 | 0.90 | 1.13 | 1.48 | 1.73 | 1.97 | 1.97 | 1.97 |
| | 1.25 | 0.48 | 0.75 | 0.90 | 1.13 | 1.48 | 1.73 | 1.97 | 1.97 | - |
| | 1.50 | 0.48 | 0.75 | 0.90 | 1.13 | 1.48 | 1.73 | 1.97 | - | - |
| $N_{R,k} [\text{kN}]$ | 0.40 | 0.43 | 0.57 | 0.65 | 0.79 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | 0.50 | 0.43 | 0.57 | 0.65 | 0.79 | 1.03 | 1.32 | 1.61 | 1.61 | 1.61 |
| | 0.55 | 0.43 | 0.57 | 0.65 | 0.79 | 1.03 | 1.32 | 1.61 | 1.61 | 1.61 |
| | 0.63 | 0.43 | 0.57 | 0.65 | 0.79 | 1.03 | 1.32 | 1.61 | 1.61 | 1.61 |
| | 0.75 | 0.43 | 0.57 | 0.65 | 0.79 | 1.03 | 1.32 | 1.61 | 1.61 | 1.61 |
| | 0.88 | 0.43 | 0.57 | 0.65 | 0.79 | 1.03 | 1.32 | 1.61 | 1.61 | 1.61 |
| | 1.00 | 0.43 | 0.57 | 0.65 | 0.79 | 1.03 | 1.32 | 1.61 | 1.61 | 1.61 |
| | 1.25 | 0.43 | 0.57 | 0.65 | 0.79 | 1.03 | 1.32 | 1.61 | 1.61 | - |
| | 1.50 | 0.43 | 0.57 | 0.65 | 0.79 | 1.03 | 1.32 | 1.61 | - | - |
| $N_{R,II,k} [\text{kN}]$ | | 0.43 | 0.57 | 0.65 | 0.79 | 1.03 | 1.32 | 1.61 | n/a | n/a |

No additional definitions

Self-drilling screw with sealing washer $\geq \varnothing 14 \text{ mm}$

SL2-S-S14-5,5 x L

Annex 25



Materials

| | |
|---------------|--|
| Fastener: | Stainless steel A2 or A4 - EN ISO 3506 |
| Washer: | Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal |
| Component I: | S280GD to S450GD - EN 10346 |
| Component II: | S280GD to S450GD - EN 10346 HX300LAD to HX460LAD - EN 10346 |

Drilling-capacity $\Sigma(t_I + t_{II}) \leq 2.50 \text{ mm}$

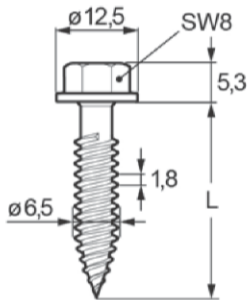
| | | $t_{II} [\text{mm}]$ | | | | | | | | |
|--------------------------|------|----------------------|------|------|------|------|------|------|------|------|
| | | 0.40 | 0.50 | 0.55 | 0.63 | 0.75 | 0.88 | 1.00 | 1.25 | 1.50 |
| $V_{R,k} [\text{kN}]$ | 0.40 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 |
| | 0.50 | 0.57 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| | 0.55 | 0.57 | 0.80 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| | 0.63 | 0.57 | 0.80 | 0.95 | 1.18 | 1.18 | 1.18 | 1.18 | 1.18 | 1.18 |
| | 0.75 | 0.57 | 0.80 | 0.95 | 1.18 | 1.55 | 1.55 | 1.55 | 1.55 | 1.55 |
| | 0.88 | 0.57 | 0.80 | 0.95 | 1.18 | 1.55 | 2.27 | 2.27 | 1.55 | 1.55 |
| | 1.00 | 0.57 | 0.80 | 0.95 | 1.18 | 1.55 | 2.27 | 2.98 | 1.55 | 1.55 |
| | 1.25 | 0.57 | 0.80 | 0.95 | 1.18 | 1.55 | 2.27 | 2.98 | 1.55 | - |
| | 1.50 | 0.57 | 0.80 | 0.95 | 1.18 | 1.55 | 2.27 | 2.98 | - | - |
| $N_{R,k} [\text{kN}]$ | 0.40 | 0.57 | 0.74 | 0.84 | 0.99 | 1.23 | 1.28 | 1.28 | 1.28 | 1.28 |
| | 0.50 | 0.57 | 0.74 | 0.84 | 0.99 | 1.23 | 1.36 | 1.36 | 1.36 | 1.36 |
| | 0.55 | 0.57 | 0.74 | 0.84 | 0.99 | 1.23 | 1.50 | 1.50 | 1.50 | 1.50 |
| | 0.63 | 0.57 | 0.74 | 0.84 | 0.99 | 1.23 | 1.61 | 1.73 | 1.73 | 1.73 |
| | 0.75 | 0.57 | 0.74 | 0.84 | 0.99 | 1.23 | 1.61 | 1.98 | 1.98 | 1.98 |
| | 0.88 | 0.57 | 0.74 | 0.84 | 0.99 | 1.23 | 1.61 | 1.98 | 1.98 | 1.98 |
| | 1.00 | 0.57 | 0.74 | 0.84 | 0.99 | 1.23 | 1.61 | 1.98 | 1.98 | 1.98 |
| | 1.25 | 0.57 | 0.74 | 0.84 | 0.99 | 1.23 | 1.61 | 1.98 | 1.98 | - |
| | 1.50 | 0.57 | 0.74 | 0.84 | 0.99 | 1.23 | 1.61 | 1.98 | - | - |
| $N_{R,II,k} [\text{kN}]$ | | 0.57 | 0.74 | 0.84 | 0.99 | 1.23 | 1.61 | 1.98 | n/a | n/a |

No additional definitions

Self-drilling screw with sealing washer $\geq \varnothing 14 \text{ mm}$

SL2-S-S14-6,3 x L, SL2-S-L12-S14-6,3 x L

Annex 26



Materials

Fastener: Stainless steel A2 or A4 - EN ISO 3506

Washer: -

Component I: S235 to S355 - EN 10025
S280GD to S450GD - EN 10346

Component II: S280GD to S450GD - EN 10346
HX300LAD to HX460LAD - EN 10346

Drilling-capacity $\Sigma(t_{II}) \leq 1.25$ mm

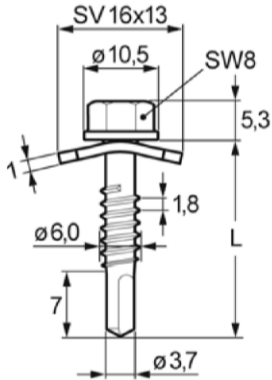
| | | t_{II} [mm] | | | | |
|-------------------|------|---------------|------|------|------|------|
| | | 0.63 | 0.75 | 0.88 | 1.00 | 1.25 |
| $d_{pd,I}$ [mm] | | 6.50 - 7.20 | | | | |
| $V_{R,k}$ [kN] | 2.00 | 1.49 | 2.29 | 3.16 | 3.38 | 3.62 |
| | 2.50 | 1.49 | 2.29 | 3.16 | 3.38 | 3.62 |
| | 3.00 | 1.49 | 2.29 | 3.16 | 3.38 | 3.62 |
| | 3.50 | 1.49 | 2.29 | 3.16 | 3.38 | 3.62 |
| | 4.00 | 1.49 | 2.29 | 3.16 | 3.38 | - |
| $N_{R,k}$ [kN] | 2.00 | 1.07 | 1.48 | 1.93 | 2.19 | 2.47 |
| | 2.50 | 1.07 | 1.48 | 1.93 | 2.19 | 2.47 |
| | 3.00 | 1.07 | 1.48 | 1.93 | 2.19 | 2.47 |
| | 3.50 | 1.07 | 1.48 | 1.93 | 2.19 | 2.47 |
| | 4.00 | 1.07 | 1.48 | 1.93 | 2.19 | - |
| $N_{R,II,k}$ [kN] | | 1.07 | 1.48 | 1.93 | 2.19 | 2.47 |

No additional definitions

Self-drilling screw

SLG-S-6,5 x L

Annex 27



Materials

| | |
|---------------|--|
| Fastener: | Stainless steel A2 or A4 - EN ISO 3506 |
| Washer: | Stainless steel A2 or A4 - EN ISO 3506 |
| Component I: | S280GD to S450GD - EN 10346 |
| Component II: | S280GD to S450GD - EN 10346 HX300LAD to HX460LAD - EN 10346 |

Drilling-capacity $\Sigma(t_I + t_{II}) \leq 3.00 \text{ mm}$

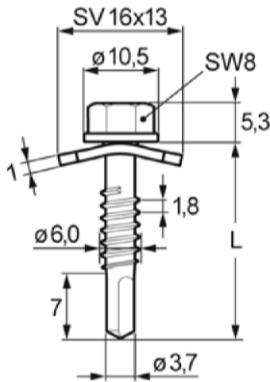
| | | $t_{II} [\text{mm}]$ | | | | | |
|--------------------------|------|----------------------|------|------|------|------|------|
| | | 0.63 | 0.75 | 0.88 | 1.00 | 1.25 | 1.50 |
| $V_{R,k} [\text{kN}]$ | 1.00 | - | - | 1.88 | 1.88 | 2.01 | 2.01 |
| | 1.25 | 1.03 | 1.46 | 1.88 | 2.22 | 2.97 | 2.97 |
| | 1.50 | 1.03 | 1.46 | 1.88 | 2.22 | 2.97 | 2.97 |
| | 1.75 | 1.03 | 1.46 | 1.88 | 2.22 | 2.97 | - |
| | 2.00 | 1.03 | 1.46 | 1.88 | 2.22 | - | - |
| $N_{R,k} [\text{kN}]$ | 1.00 | - | - | 1.49 | 1.82 | 2.51 | 3.21 |
| | 1.25 | 0.82 | 1.15 | 1.49 | 1.82 | 2.51 | 3.21 |
| | 1.50 | 0.82 | 1.15 | 1.49 | 1.82 | 2.51 | 3.21 |
| | 1.75 | 0.82 | 1.15 | 1.49 | 1.82 | 2.51 | - |
| | 2.00 | 0.82 | 1.15 | 1.49 | 1.82 | - | - |
| $N_{R,II,k} [\text{kN}]$ | | 0.82 | 1.15 | 1.49 | 1.82 | 2.51 | 3.21 |

No additional definitions

Self-drilling screw with SV-washer 13x16 mm

SL3/2-5-S-SV16-6,0 x L

Annex 28



Materials

| | |
|---------------|--|
| Fastener: | Stainless steel A2 or A4 - EN ISO 3506 |
| Washer: | Stainless steel A2 or A4 - EN ISO 3506 |
| Component I: | S280GD to S450GD - EN 10346 |
| Component II: | S280GD to S450GD - EN 10346 HX300LAD to HX460LAD - EN 10346 |

Drilling-capacity $\Sigma(t_I + t_{II}) \leq 4.00 \text{ mm}$

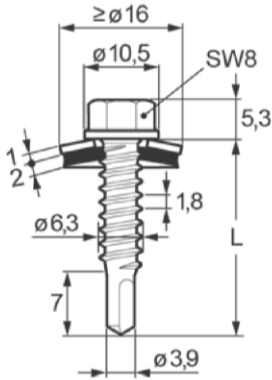
| | | $t_{II} [\text{mm}]$ | | | |
|--------------------------|------|----------------------|----------|----------|----------|
| | | 2 x 0.75 | 2 x 0.88 | 2 x 1.00 | 2 x 1.25 |
| $V_{R,k} [\text{kN}]$ | 1.00 | 2.10 | 2.23 | 2.35 | 3.23 |
| | 1.25 | 2.60 | 2.92 | 3.24 | 4.01 |
| | 1.50 | 3.09 | 3.61 | 4.12 | 4.12 |
| | 1.75 | 3.09 | 3.61 | 4.12 | - |
| | 2.00 | 3.09 | 3.61 | 4.12 | - |
| $N_{R,k} [\text{kN}]$ | 1.00 | 2.43 | 2.94 | 3.45 | 3.69 |
| | 1.25 | 2.43 | 2.94 | 3.45 | 4.38 |
| | 1.50 | 2.43 | 2.94 | 3.45 | 4.38 |
| | 1.75 | 2.43 | 2.94 | 3.45 | - |
| | 2.00 | 2.43 | 2.94 | 3.45 | - |
| $N_{R,II,k} [\text{kN}]$ | | 2.43 | 2.94 | 3.45 | 4.38 |

No additional definitions

Self-drilling screw with SV-washer 13x16 mm

SL3/2-5-S-SV16-6,0 x L

Annex 29



Materials

| | |
|---------------|--|
| Fastener: | Carbon steel with anticorrosion coating |
| Washer: | Carbon steel with anticorrosion coating with EPDM-seal |
| Component I: | S280GD to S450GD - EN 10346 |
| Component II: | S280GD to S450GD - EN 10346 HX300LAD to HX460LAD - EN 10346 |

Drilling-capacity $\Sigma(t_I + t_{II}) \leq 2.50 \text{ mm}$

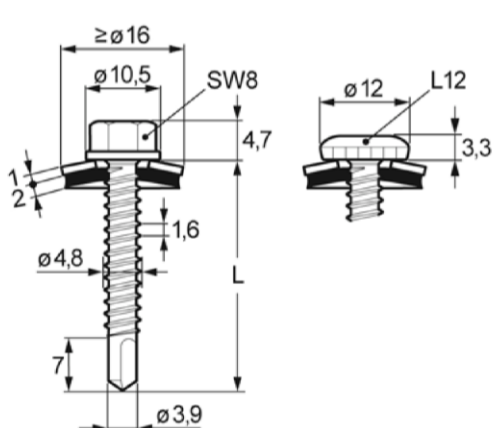
| | | $t_{II} [\text{mm}]$ | | | | | |
|--------------------------|------|----------------------|------|------|------|------|---|
| | | 0.75 | 0.88 | 1.00 | 1.25 | 1.50 | |
| $V_{R,k} [\text{kN}]$ | 0.50 | n/a | - | n/a | - | n/a | - |
| | 0.55 | n/a | - | n/a | - | n/a | - |
| | 0.63 | 1.54 | - | 1.54 | - | 1.54 | - |
| | 0.75 | 1.54 | - | 1.54 | - | 1.54 | - |
| | 0.88 | 1.54 | - | 2.39 | - | 2.39 | - |
| | 1.00 | 1.54 | - | 2.39 | - | 2.39 | - |
| | 1.25 | 1.54 | - | 2.39 | - | 2.39 | - |
| | 1.50 | 1.54 | - | 2.39 | - | - | - |
| $N_{R,k} [\text{kN}]$ | 0.50 | n/a | - | n/a | - | n/a | - |
| | 0.55 | n/a | - | n/a | - | n/a | - |
| | 0.63 | 1.17 | - | 1.60 | - | 1.92 | - |
| | 0.75 | 1.17 | - | 1.60 | - | 1.92 | - |
| | 0.88 | 1.17 | - | 1.60 | - | 1.92 | - |
| | 1.00 | 1.17 | - | 1.60 | - | 1.92 | - |
| | 1.25 | 1.17 | - | 1.60 | - | 1.92 | - |
| | 1.50 | 1.17 | - | 1.60 | - | - | - |
| $N_{R,II,k} [\text{kN}]$ | | 1.17 | 1.60 | 1.92 | n/a | n/a | |

No additional definitions

Self-drilling screw with sealing washer $\geq \varnothing 16 \text{ mm}$

SD2-T16-6.3 x L

Annex 30

| | |
|---|--|
|  | <p>Materials</p> <p>Fastener: Carbon steel with anticorrosion coating</p> <p>Washer: Carbon steel with anticorrosion coating with EPDM-seal</p> <p>Component I: S280GD to S450GD - EN 10346</p> <p>Component II: S280GD to S450GD - EN 10346 HX300LAD to HX460LAD - EN 10346</p> <p>Drilling-capacity $\Sigma(t_I + t_{II}) \leq 3.00 \text{ mm}$</p> |
|---|--|

| | | 1.25 | | 1.50 | | $t_{II} [\text{mm}]$ 1.75 | | 2.00 | | 2.50 | |
|--|-------------------|-------------------|------|-------------------|------|------------------------------|------|-------------------|------|-------------------|---|
| $V_{R,k} [\text{kN}]$ | 0.50 | 1.57 ^a | ac | 1.57 ^a | ac | 1.57 ^a | ac | 1.57 ^a | a | 1.57 ^a | a |
| | 0.55 | 1.63 ^a | ac | 1.63 ^a | ac | 1.63 ^a | ac | 1.63 ^a | a | - | - |
| | 0.63 | 1.72 ^a | ac | 1.72 ^a | ac | 1.72 ^a | a | 1.72 ^a | a | - | - |
| | 0.75 | 2.43 ^a | ac | 2.43 ^a | ac | 2.43 ^a | a | 2.43 ^a | a | - | - |
| | $t_I [\text{mm}]$ | 0.88 | 2.92 | - | 3.11 | - | 3.30 | - | 3.49 | a | - |
| | | 1.00 | 3.37 | - | 3.73 | - | 4.10 | - | 4.46 | a | - |
| | | 1.25 | 3.89 | - | 4.07 | - | 4.10 | - | - | - | - |
| | | 1.50 | 4.40 | - | 4.40 | - | - | - | - | - | - |
| $N_{R,k} [\text{kN}]$ | 0.50 | 1.53 | ac | 1.53 | ac | 1.53 | ac | 1.53 | a | 1.53 | a |
| | 0.55 | 1.65 | ac | 1.71 | ac | 1.71 | ac | 1.71 | a | - | - |
| | 0.63 | 1.65 | ac | 1.98 | ac | 1.98 | a | 1.98 | a | - | - |
| | 0.75 | 1.65 | ac | 2.16 | ac | 2.41 | a | 2.41 | a | - | - |
| | $t_I [\text{mm}]$ | 0.88 | 1.65 | - | 2.16 | - | 2.60 | - | 2.86 | a | - |
| | | 1.00 | 1.65 | - | 2.16 | - | 2.60 | - | 3.03 | a | - |
| | | 1.25 | 1.65 | - | 2.16 | - | 2.60 | - | - | - | - |
| | | 1.50 | 1.65 | - | 2.16 | - | - | - | - | - | - |
| $N_{R,II,k} [\text{kN}]$ | | 1.65 | | 2.16 | | 2.60 | | 3.03 | | n/a | |

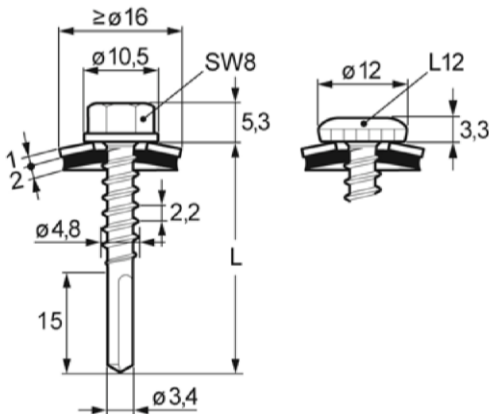
Additional definitions

Index ^a: For component I made of S320GD to S450GD the indicated values may be increased by 8.3%

Self-drilling screw with sealing washer $\geq \varnothing 16 \text{ mm}$

SD3-T16-4,8 x L, SD3-L12-T16-4,8 x L

Annex 31



Materials

| | |
|---------------|--|
| Fastener: | Carbon steel with anticorrosion coating |
| Washer: | Carbon steel with anticorrosion coating with EPDM-seal |
| Component I: | S280GD to S450GD - EN 10346 |
| Component II: | S280GD to S450GD - EN 10346 HX300LAD to HX460LAD - EN 10346 |

Drilling-capacity $\Sigma(t_I + t_{II}) \leq 3.50 \text{ mm}$

| | | 2 x 0.63 | | 2 x 0.75 | | t _{II} [mm] 2 x 0.88 | | 2 x 1.00 | | 2 x 1.25 | |
|--------------------------|---------------------|----------|------|----------|------|----------------------------------|------|----------|------|----------|------|
| V _{R,k} [kN] | 0.50 | - | - | - | - | - | - | - | - | - | - |
| | 0.55 | - | - | - | - | - | - | - | - | - | - |
| | 0.63 | 1.64 | - | 1.64 | - | 1.64 | - | 1.64 | - | 1.64 | - |
| | 0.75 | 2.22 | - | 2.22 | - | 2.22 | - | 2.22 | - | 2.22 | - |
| | t _I [mm] | 0.88 | 2.84 | - | 2.84 | - | 2.84 | - | 2.84 | - | 2.84 |
| | | 1.00 | 2.87 | - | 2.97 | - | 3.06 | - | 3.06 | - | 3.06 |
| | | 1.25 | 2.90 | - | 3.10 | - | 3.29 | - | 3.29 | - | - |
| N _{R,k} [kN] | 0.50 | - | - | - | - | - | - | - | - | - | - |
| | 0.55 | - | - | - | - | - | - | - | - | - | - |
| | 0.63 | 1.41 | - | 1.98 | - | 1.98 | - | 1.98 | - | 1.98 | - |
| | 0.75 | 1.41 | - | 2.00 | - | 2.41 | - | 2.41 | - | 2.41 | - |
| | t _I [mm] | 0.88 | 1.41 | - | 2.00 | - | 2.58 | - | 2.71 | - | 2.71 |
| | | 1.00 | 1.41 | - | 2.00 | - | 2.58 | - | 2.71 | - | 2.71 |
| | | 1.25 | 1.41 | - | 2.00 | - | 2.58 | - | 2.71 | - | - |
| N _{R,II,k} [kN] | | 1.41 | | 2.00 | | 2.58 | | 2.71 | | n/a | |

No additional definitions

Self-drilling screw with sealing washer $\geq \varnothing 16 \text{ mm}$

SD3/15-T16-4,8 x L, SD3/15-L12-T16-4,8 x L

Annex 32

| | |
|--|--|
| | <p><u>Materials</u></p> <p>Fastener: Carbon steel with anticorrosion coating</p> <p>Washer: Carbon steel with anticorrosion coating with EPDM-seal</p> <p>Component I: S280GD to S450GD - EN 10346</p> <p>Component II: S280GD to S450GD - EN 10346 HX300LAD to HX460LAD - EN 10346</p> <p><u>Drilling-capacity</u> $\Sigma(t_I + t_{II}) \leq 3.50 \text{ mm}$</p> |
|--|--|

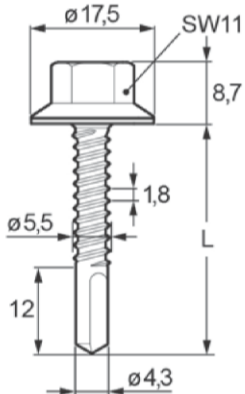
| | | t _{II} [mm] | | | | | | | | | | |
|--------------------------|----------------------|----------------------|------|------|------|------|------|------|------|------|------|---|
| | | 1.25 | | 1.50 | | 1.75 | | 2.00 | | 2.50 | | |
| V _{R,k} [kN] | 0.50 | 1.19 | ac | 1.19 | ac | 1.19 | ac | 1.19 | ac | 1.19 | ac | |
| | 0.55 | 1.30 | - | 1.30 | - | 1.30 | - | 1.30 | ac | 1.30 | a | |
| | 0.63 | 1.47 | - | 1.47 | - | 1.47 | - | 1.47 | ac | 1.47 | a | |
| | 0.75 | 1.72 | - | 1.72 | - | 1.72 | - | 1.72 | ac | 1.72 | a | |
| | t _{II} [mm] | 0.88 | 2.49 | - | 2.62 | - | 2.75 | - | 2.87 | a | 2.87 | a |
| | 1.00 | 3.20 | - | 3.45 | - | 3.70 | - | 3.94 | a | 3.94 | a | |
| | 1.25 | 4.03 | - | 4.14 | - | 4.14 | - | 4.14 | - | - | - | |
| | 1.50 | 4.82 | - | 4.82 | - | 4.82 | - | 4.82 | - | - | - | |
| N _{R,k} [kN] | 0.50 | 1.53 | ac | 1.53 | ac | 1.53 | ac | 1.53 | ac | 1.53 | ac | |
| | 0.55 | 1.71 | - | 1.71 | - | 1.71 | - | 1.71 | ac | 1.71 | a | |
| | 0.63 | 1.71 | - | 1.98 | - | 1.98 | - | 1.98 | ac | 1.98 | a | |
| | 0.75 | 1.71 | - | 2.36 | - | 2.41 | - | 2.41 | ac | 2.41 | a | |
| | t _{II} [mm] | 0.88 | 1.71 | - | 2.36 | - | 2.76 | - | 2.86 | a | 2.86 | a |
| | 1.00 | 1.71 | - | 2.36 | - | 2.76 | - | 3.16 | a | 3.16 | a | |
| | 1.25 | 1.71 | - | 2.36 | - | 2.76 | - | 3.16 | - | - | - | |
| | 1.50 | 1.71 | - | 2.36 | - | 2.76 | - | 3.16 | - | - | - | |
| N _{R,II,k} [kN] | | 1.71 | | 2.36 | | 2.76 | | 3.16 | | n/a | | |

No additional definitions

Self-drilling screw with sealing washer $\geq \text{Ø } 16 \text{ mm}$

SD3-T16-5,5 x L, SD3-L12-T16-5,5 x L, SD3-D12-T16-5,5 x L

Annex 33



Materials

Fastener: Carbon steel with anticorrosion coating with polyamide screw head

Washer: -

Component I: S280GD to S450GD - EN 10346

Component II: S280GD to S450GD - EN 10346
HX300LAD to HX460LAD - EN 10346

Drilling-capacity $\Sigma(t_I + t_{II}) \leq 3.50 \text{ mm}$

| | | $t_{II} [\text{mm}]$ | | | | | | | | | |
|--------------------------|------|----------------------|----|------|----|------|----|------|----|------|----|
| | | 1.25 | | 1.50 | | 1.75 | | 2.00 | | 2.50 | |
| $V_{R,k} [\text{kN}]$ | 0.50 | 1.76 | ac | 1.90 | ac | 2.04 | ac | 2.04 | ac | 2.04 | ac |
| | 0.55 | 1.76 | - | 1.90 | - | 2.04 | - | 2.04 | - | 2.04 | - |
| | 0.63 | 1.76 | - | 1.90 | - | 2.04 | - | 2.04 | - | 2.04 | - |
| | 0.75 | 1.76 | - | 1.90 | - | 2.04 | - | 2.04 | - | 2.04 | - |
| | 0.88 | 1.76 | - | 1.90 | - | 2.04 | - | 2.04 | - | 2.04 | - |
| | 1.00 | 1.76 | - | 1.90 | - | 2.04 | - | 2.04 | - | 2.04 | - |
| | 1.25 | 1.76 | - | 1.90 | - | 2.04 | - | 2.04 | - | - | - |
| | 1.50 | 1.76 | - | 1.90 | - | 2.04 | - | 2.04 | - | - | - |
| $N_{R,k} [\text{kN}]$ | 0.50 | 1.34 | ac | 1.64 | ac | 1.94 | ac | 1.94 | ac | 1.94 | ac |
| | 0.55 | 1.34 | - | 1.64 | - | 1.94 | - | 1.94 | - | 1.94 | - |
| | 0.63 | 1.34 | - | 1.64 | - | 1.94 | - | 1.94 | - | 1.94 | - |
| | 0.75 | 1.34 | - | 1.64 | - | 1.94 | - | 1.94 | - | 1.94 | - |
| | 0.88 | 1.34 | - | 1.64 | - | 1.94 | - | 1.94 | - | 1.94 | - |
| | 1.00 | 1.34 | - | 1.64 | - | 1.94 | - | 1.94 | - | 1.94 | - |
| | 1.25 | 1.34 | - | 1.64 | - | 1.94 | - | 1.94 | - | - | - |
| | 1.50 | 1.34 | - | 1.64 | - | 1.94 | - | 1.94 | - | - | - |
| $N_{R,II,k} [\text{kN}]$ | | 1.71 | | 2.36 | | 2.76 | | 3.16 | | n/a | |

Additional definitions

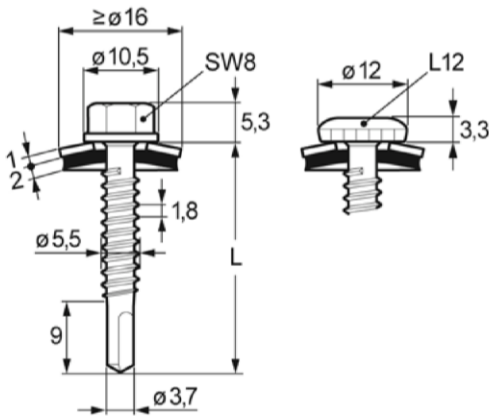
For component I and component II made of S320GD the values may be increased by 8.3%

For component I and component II made of S350GD to S450GD the values may be increased by 16.6%

Self-drilling screw

SDP3-Z-5,5 x L

Annex 34



Materials

| | |
|---------------|--|
| Fastener: | Carbon steel with anticorrosion coating |
| Washer: | Carbon steel with anticorrosion coating with EPDM-seal |
| Component I: | S280GD to S450GD - EN 10346 |
| Component II: | S280GD to S450GD - EN 10346 HX300LAD to HX460LAD - EN 10346 |

Drilling-capacity $\Sigma(t_I + t_{II}) \leq 3.00 \text{ mm}$

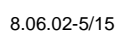
| | | $t_{II} [\text{mm}]$ | | | | | | | | | |
|--------------------------|-------------------|----------------------|------|------|------|------|------|------|------|------|---|
| | | 1.25 | | 1.50 | | 1.75 | | 2.00 | | 2.50 | |
| $V_{R,k} [\text{kN}]$ | 0.50 | 1.79 | ac | 1.79 | ac | 1.79 | ac | 1.79 | ac | 1.79 | a |
| | 0.55 | 1.92 | ac | 1.92 | ac | 1.92 | ac | 1.92 | a | - | - |
| | 0.63 | 2.13 | ac | 2.13 | ac | 2.13 | a | 2.13 | a | - | - |
| | 0.75 | 2.44 | ac | 2.44 | ac | 2.44 | a | 2.44 | a | - | - |
| | $t_I [\text{mm}]$ | 0.88 | 2.57 | - | 2.57 | - | 2.57 | - | 2.57 | - | - |
| | 1.00 | 3.11 | - | 3.11 | - | 3.11 | - | 3.11 | - | - | - |
| | 1.25 | 3.72 | - | 3.72 | - | 3.72 | - | - | - | - | - |
| | 1.50 | 4.33 | - | 4.33 | - | - | - | - | - | - | - |
| $N_{R,k} [\text{kN}]$ | 0.50 | 1.90 | ac | 1.90 | ac | 1.90 | ac | 1.90 | ac | 1.90 | a |
| | 0.55 | 2.12 | ac | 2.12 | ac | 2.12 | ac | 2.12 | a | - | - |
| | 0.63 | 2.18 | ac | 2.47 | ac | 2.47 | a | 2.47 | a | - | - |
| | 0.75 | 2.18 | ac | 2.93 | ac | 3.00 | a | 3.00 | a | - | - |
| | $t_I [\text{mm}]$ | 0.88 | 2.18 | - | 2.93 | - | 3.42 | - | 3.47 | - | - |
| | 1.00 | 2.18 | - | 2.93 | - | 3.42 | - | 3.90 | - | - | - |
| | 1.25 | 2.18 | - | 2.93 | - | 3.42 | - | - | - | - | - |
| | 1.50 | 2.18 | - | 2.93 | - | - | - | - | - | - | - |
| $N_{R,II,k} [\text{kN}]$ | | 2.18 | | 2.93 | | 3.42 | | 3.90 | | n/a | |

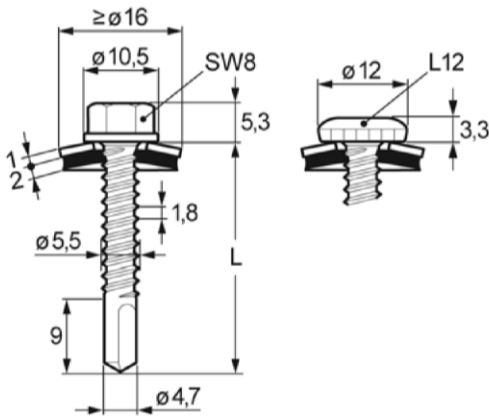
No additional definitions

Self-drilling screw with sealing washer $\geq \varnothing 16 \text{ mm}$

SDL3-T16-5,5 x L, SDL3-L12-T16-5,5 x L

Annex 35





Materials

Fastener: Carbon steel with anticorrosion coating

Washer: Carbon steel with anticorrosion coating
or stainless steel A2 - EN ISO 3506
with EPDM-seal

Component I: S280GD to S450GD - EN 10346

Component II: S235 to S355 - EN 10025
S280GD to S450GD - EN 10346
HX300LAD to HX460LAD - EN 10346

Drilling-capacity
$$\Sigma(t_I + t_{II}) \leq 6.00 \text{ mm}$$

| | | t _{II} [mm] | | | | | | | | | | | | | | |
|--------------------------|---------------------|----------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|---|
| | | 1.50 | | 1.75 | | 2.00 | | 2.50 | | 3.00 | | 4.00 | | 5.00 | | |
| V _{R,k} [kN] | 0.50 | 1.57 ^a | ac | 1.67 ^a | ac | 1.76 ^a | ac | 1.76 ^a | ac | 1.76 ^a | ac | 1.76 ^a | ac | 1.76 ^a | ac | |
| | 0.55 | 1.71 ^a | ac | 1.79 ^a | ac | 1.86 ^a | ac | 1.86 ^a | ac | 1.86 ^a | ac | 1.86 ^a | ac | 1.86 ^a | a | |
| | 0.63 | 1.94 ^a | ac | 1.99 ^a | ac | 2.03 ^a | ac | 2.03 ^a | ac | 2.03 ^a | ac | 2.03 ^a | ac | 2.03 ^a | a | |
| | 0.75 | 2.28 ^a | ac | 2.28 ^a | ac | 2.28 ^a | ac | 2.28 ^a | ac | 2.28 ^a | ac | 2.28 ^a | ac | 2.28 ^a | a | |
| | t _I [mm] | 0.88 | 2.86 ^a | ac | 2.86 ^a | ac | 2.86 ^a | ac | 3.04 ^a | ac | 3.27 ^a | ac | 3.27 ^a | ac | 3.27 ^a | a |
| | 1.00 | 3.43 | ac | 3.43 | ac | 3.43 | ac | 3.74 | ac | 4.18 | ac | 4.18 | ac | 4.18 | ac | a |
| | 1.25 | 3.43 | - | 3.87 | - | 4.31 | - | 5.20 | - | 6.08 | ac | 6.08 | a | - | - | |
| | 1.50 | 3.43 | - | 3.87 | - | 4.31 | - | 5.20 | - | 6.08 | - | 6.08 | - | - | - | |
| N _{R,k} [kN] | 0.50 | 1.53 | ac | 1.53 | ac | 1.53 | ac | 1.53 | ac | 1.53 | ac | 1.53 | ac | 1.53 | ac | |
| | 0.55 | 1.71 | ac | 1.71 | ac | 1.71 | ac | 1.71 | ac | 1.71 | ac | 1.71 | ac | 1.71 | a | |
| | 0.63 | 1.98 | ac | 1.98 | ac | 1.98 | ac | 1.98 | ac | 1.98 | ac | 1.98 | ac | 1.98 | a | |
| | 0.75 | 2.20 | ac | 2.41 | ac | 2.41 | ac | 2.41 | ac | 2.41 | ac | 2.41 | ac | 2.41 | a | |
| | t _I [mm] | 0.88 | 2.20 | ac | 2.70 | ac | 2.86 | ac | 2.86 | ac | 2.86 | ac | 2.86 | ac | 2.86 | a |
| | 1.00 | 2.20 | ac | 2.70 | ac | 3.20 | ac | 3.29 | ac | 3.29 | ac | 3.29 | ac | 3.29 | a | |
| | 1.25 | 2.20 | - | 2.70 | - | 3.20 | - | 4.10 | - | 4.10 | ac | 4.10 | a | - | - | |
| | 1.50 | 2.20 | - | 2.70 | - | 3.20 | - | 4.30 | - | 5.00 | - | 5.00 | - | - | - | |
| N _{R,II,k} [kN] | | 2.20 | | 2.70 | | 3.20 | | 4.30 | | 5.40 | | n/a | | n/a | | |

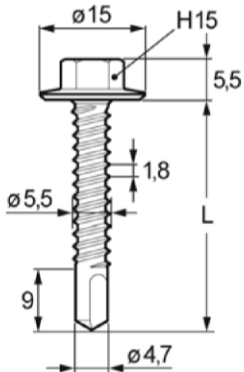
Additional definitions

Index ^a: For component I made of S320GD to S450GD the indicated values may be increased by 8.3%

Self-drilling screw with sealing washer $\geq \varnothing 16$ mm

SD6-T16-5,5 x L, SD6-L12-T16-5,5 x L, SD6-S16-5,5 x L, SD6-L12-S16-5,5 x L

Annex 37



Materials

Fastener: Carbon steel with anticorrosion coating

Washer: -

Component I: S280GD to S450GD - EN 10346

Component II: S235 to S355 - EN 10025
S280GD to S450GD - EN 10346
HX300LAD to HX460LAD - EN 10346

Drilling-capacity $\Sigma(t_I + t_{II}) \leq 6.00$ mm

| | | t_{II} [mm] | | | | | | | |
|-------------------|------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|--|
| | | 1.50 | 1.75 | 2.00 | 2.50 | 3.00 | 4.00 | 5.00 | |
| $V_{R,k}$ [kN] | 0.50 | 1.57 ^a ac | 1.67 ^a ac | 1.76 ^a ac | 1.76 ^a ac | 1.76 ^a ac | 1.76 ^a ac | 1.76 ^a ac | |
| | 0.55 | 1.71 ^a ac | 1.79 ^a ac | 1.86 ^a ac | 1.86 ^a ac | 1.86 ^a ac | 1.86 ^a ac | 1.86 ^a ac | |
| | 0.63 | 1.94 ^a ac | 1.99 ^a ac | 2.03 ^a ac | 2.03 ^a ac | 2.03 ^a ac | 2.03 ^a ac | 2.03 ^a ac | |
| | 0.75 | 2.28 ^a ac | 2.28 ^a ac | 2.28 ^a ac | 2.28 ^a ac | 2.28 ^a ac | 2.28 ^a ac | 2.28 ^a ac | |
| | t_I [mm] | 0.88 | 2.86 ^a ac | 2.86 ^a ac | 2.86 ^a ac | 3.04 ^a ac | 3.27 ^a ac | 3.27 ^a ac | |
| | 1.00 | 3.43 ac | 3.43 ac | 3.43 ac | 3.74 ac | 4.18 ac | 4.18 ac | 4.18 ac | |
| | 1.25 | 3.43 - | 3.87 - | 4.31 - | 5.20 - | 6.08 ac | 6.08 a | - | |
| | 1.50 | 3.43 - | 3.87 - | 4.31 - | 5.20 - | 6.08 - | 6.08 - | - | |
| $N_{R,k}$ [kN] | 0.50 | 1.15 ac | 1.15 ac | 1.15 ac | 1.15 ac | 1.15 ac | 1.15 ac | 1.15 ac | |
| | 0.55 | 1.28 ac | 1.28 ac | 1.28 ac | 1.28 ac | 1.28 ac | 1.28 ac | 1.28 ac | |
| | 0.63 | 1.80 ac | 1.80 ac | 1.80 ac | 1.80 ac | 1.80 ac | 1.80 ac | 1.80 ac | |
| | 0.75 | 2.20 ac | 2.70 ac | 3.20 ac | 3.20 ac | 3.20 ac | 3.20 ac | 3.20 ac | |
| | t_I [mm] | 0.88 | 2.20 ac | 2.70 ac | 3.20 ac | 4.00 ac | 4.00 ac | 4.00 ac | |
| | 1.00 | 2.20 ac | 2.70 ac | 3.20 ac | 4.30 ac | 4.80 ac | 4.80 ac | 4.80 ac | |
| | 1.25 | 2.20 - | 2.70 - | 3.20 - | 4.30 - | 5.40 ac | 5.60 a | - | |
| | 1.50 | 2.20 - | 2.70 - | 3.20 - | 4.30 - | 5.40 - | 5.80 - | - | |
| $N_{R,II,k}$ [kN] | | 2.20 | 2.70 | 3.20 | 4.30 | 5.40 | n/a | n/a | |

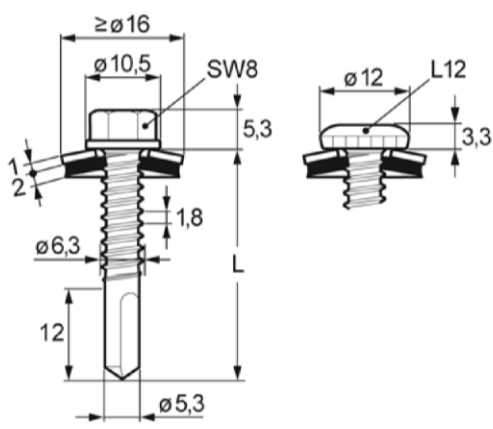
Additional definitions

Index ^a: For component I made of S320GD to S450GD the indicated values may be increased by 8.3%

Self-drilling screw

SD6-H15-5,5 x L

Annex 38

| | |
|---|--|
|  | <p><u>Materials</u></p> <p>Fastener: Carbon steel with anticorrosion coating</p> <p>Washer: Carbon steel with anticorrosion coating with EPDM-seal</p> <p>Component I: S280GD to S450GD - EN 10346</p> <p>Component II: S235 to S355 - EN 10025 S280GD to S450GD - EN 10346 HX300LAD to HX460LAD - EN 10346</p> <p><u>Drilling-capacity</u> $\Sigma(t_I + t_{II}) \leq 6.00 \text{ mm}$</p> |
|---|--|

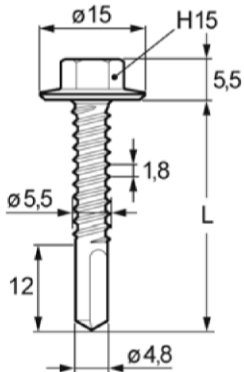
| | | t _{II} [mm] | | | | | | | | | | | | | | |
|--------------------------|---------------------|----------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|---|
| | | 1.50 | | 1.75 | | 2.00 | | 2.50 | | 3.00 | | 4.00 | | 5.00 | | |
| V _{R,k} [kN] | 0.50 | 1.97 | ac | 1.97 | ac | 1.97 | ac | 1.97 | ac | 1.99 | ac | 1.99 | ac | 1.99 | ac | |
| | 0.55 | 1.99 | - | 2.02 | - | 2.05 | - | 2.13 | - | 2.19 | ac | 2.19 | ac | 2.19 | a | |
| | 0.63 | 2.27 | - | 2.31 | - | 2.35 | - | 2.44 | - | 2.51 | ac | 2.51 | ac | 2.51 | a | |
| | 0.75 | 2.71 | - | 2.76 | - | 2.80 | - | 2.90 | - | 2.99 | ac | 2.99 | ac | 2.99 | a | |
| | t _I [mm] | 0.88 | 3.18 | - | 3.27 | - | 3.36 | - | 3.54 | - | 3.72 | ac | 3.72 | ac | 3.72 | a |
| | 1.00 | 3.61 | - | 3.74 | - | 3.87 | - | 4.13 | - | 4.39 | ac | 4.39 | ac | 4.39 | a | |
| | 1.25 | 3.61 | - | 3.74 | - | 3.87 | - | 4.13 | - | 4.39 | - | 4.39 | - | - | - | |
| | 1.50 | 3.61 | - | 3.74 | - | 3.87 | - | 4.13 | - | 4.39 | - | 4.39 | - | - | - | |
| N _{R,k} [kN] | 0.50 | 1.95 | ac | 1.95 | ac | 1.95 | ac | 1.95 | ac | 1.95 | ac | 1.95 | ac | 1.95 | ac | |
| | 0.55 | 2.13 | - | 2.33 | - | 2.33 | - | 2.33 | - | 2.33 | ac | 2.33 | ac | 2.33 | a | |
| | 0.63 | 2.13 | - | 2.66 | - | 2.93 | - | 2.93 | - | 2.93 | ac | 2.93 | ac | 2.93 | a | |
| | 0.75 | 2.13 | - | 2.66 | - | 3.20 | - | 3.83 | - | 3.83 | ac | 3.83 | ac | 3.83 | a | |
| | t _I [mm] | 0.88 | 2.13 | - | 2.66 | - | 3.20 | - | 4.59 | - | 4.59 | ac | 4.59 | ac | 4.59 | a |
| | 1.00 | 2.13 | - | 2.66 | - | 3.20 | - | 4.63 | - | 5.29 | ac | 5.29 | ac | 5.29 | a | |
| | 1.25 | 2.13 | - | 2.66 | - | 3.20 | - | 4.63 | - | 5.29 | - | 5.29 | - | - | - | |
| | 1.50 | 2.13 | - | 2.66 | - | 3.20 | - | 4.63 | - | 5.29 | - | 5.29 | - | - | - | |
| N _{R,II,k} [kN] | | 2.13 | | 2.66 | | 3.20 | | 4.63 | | 5.29 | | n/a | | n/a | | |

No additional definitions

Self-drilling screw with sealing washer $\geq \varnothing 16 \text{ mm}$

SD6-T16-6,3 x L, SD6-L12-T16-6,3 x L

Annex 39



Materials

Fastener: Carbon steel with anticorrosion coating

Washer: -

Component I: S280GD to S450GD - EN 10346

Component II: S235 to S355 - EN 10025
S280GD to S450GD - EN 10346
HX300LAD to HX460LAD - EN 10346

Drilling-capacity $\Sigma(t_I + t_{II}) \leq 8.00$ mm

| | | t _{II} [mm] | | | | | | | | | | | | | | |
|--------------------------|---------------------|----------------------|------|-------------------|------|-------------------|------|-------------------|------|-------------------|------|-------------------|------|--------------------|------|---|
| | | 2.00 | | 2.50 | | 3.00 | | 4.00 | | 5.00 | | 6.00 | | 7.00 | | |
| V _{R,k} [kN] | 0.50 | 1.76 ^a | ac | 1.76 ^a | ac | 1.76 ^a | ac | 1.76 ^a | ac | 1.76 ^a | ac | 1.76 ^a | ac | 1.76 ^{a)} | ac | |
| | 0.55 | 1.86 ^a | ac | 1.86 ^a | ac | 1.86 ^a | ac | 1.86 ^a | ac | 1.86 ^a | ac | 1.86 ^a | ac | 1.86 ^{a)} | a | |
| | 0.63 | 2.40 | ac | 2.40 | ac | 2.80 | ac | 2.80 | ac | 3.00 | ac | 3.00 | ac | 3.00 | a | |
| | 0.75 | 2.80 | ac | 2.80 | ac | 3.40 | ac | 3.40 | ac | 3.40 | ac | 3.60 | ac | 3.60 | a | |
| | t _I [mm] | 0.88 | 3.20 | - | 3.20 | - | 4.00 | ac | 4.00 | ac | 4.20 | ac | 4.20 | ac | 4.20 | a |
| | 1.00 | 3.80 | - | 3.80 | - | 4.40 | - | 4.60 | ac | 4.80 | ac | 4.80 | ac | 4.80 | a | |
| | 1.25 | 4.80 | - | 4.80 | - | 5.80 | - | 5.80 | - | 6.00 | - | 6.40 | - | - | - | |
| | 1.50 | 5.20 | - | 5.20 | - | 6.40 | - | 6.40 | - | 7.00 | - | 7.20 | - | - | - | |
| N _{R,k} [kN] | 0.50 | 1.15 | ac | 1.15 | ac | 1.15 | ac | 1.15 | ac | 1.15 | ac | 1.15 | ac | 1.15 | ac | |
| | 0.55 | 1.28 | ac | 1.28 | ac | 1.28 | ac | 1.28 | ac | 1.28 | ac | 1.28 | ac | 1.28 | a | |
| | 0.63 | 1.80 | ac | 1.80 | ac | 1.80 | ac | 1.80 | ac | 1.80 | ac | 1.80 | ac | 1.80 | a | |
| | 0.75 | 3.20 | ac | 3.20 | ac | 3.20 | ac | 3.20 | ac | 3.20 | ac | 3.20 | ac | 3.20 | a | |
| | t _I [mm] | 0.88 | 3.20 | - | 4.00 | - | 4.00 | ac | 4.00 | ac | 4.00 | ac | 4.00 | ac | 4.00 | a |
| | 1.00 | 3.20 | - | 4.30 | - | 4.80 | - | 4.80 | ac | 4.80 | ac | 4.80 | ac | 4.80 | a | |
| | 1.25 | 3.20 | - | 4.30 | - | 5.40 | - | 5.60 | - | 5.60 | - | 5.60 | - | - | - | |
| | 1.50 | 3.20 | - | 4.30 | - | 5.40 | - | 5.80 | - | 6.00 | - | 6.00 | - | - | - | |
| N _{R,II,k} [kN] | | 3.20 | | 4.30 | | 5.40 | | n/a | | n/a | | n/a | | n/a | | |

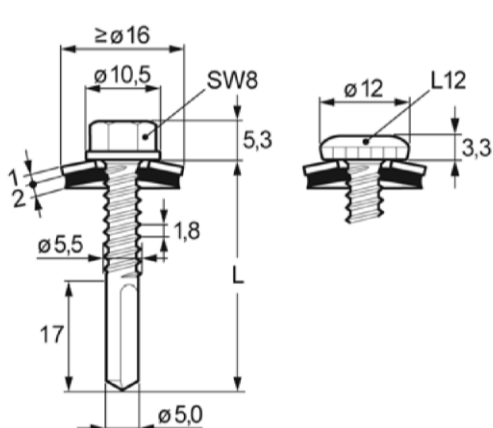
Additional definitions

Index ^a: For component I made of S320GD to S450GD the indicated values may be increased by 8.3%

Self-drilling screw

SD8-H15-5,5 x L

Annex 40

| | |
|---|---|
|  | <p>Materials</p> <p>Fastener: Carbon steel with anticorrosion coating</p> <p>Washer: Carbon steel with anticorrosion coating or stainless steel A2 - EN ISO 3506 with EPDM-seal</p> <p>Component I: S280GD to S450GD - EN 10346</p> <p>Component II: S235 to S355 - EN 10025 S280GD to S450GD - EN 10346 HX300LAD to HX460LAD - EN 10346</p> <p>Drilling-capacity $\Sigma(t_I + t_{II}) \leq 14.00 \text{ mm}$</p> |
|---|---|

| | | t _{II} [mm] | | | | | | | | | | | | |
|--------------------------|---------------------|----------------------|------|-------------------|------|-------------------|------|-------------------|------|-------------------|------|-------------------|------|----|
| | | 4.00 | | 5.00 | | 6.00 | | 8.00 | | 10.00 | | 12.00 | | |
| V _{R,k} [kN] | 0.50 | 1.76 ^a | ac | 1.76 ^a | ac | 1.76 ^a | ac | 1.76 ^a | ac | 1.76 ^a | ac | 1.76 ^a | ac | |
| | 0.55 | 1.86 ^a | ac | 1.86 ^a | ac | 1.86 ^a | ac | 1.86 ^a | ac | 1.86 ^a | ac | 1.86 ^a | ac | |
| | 0.63 | 2.63 | ac | 2.63 | ac | 2.63 | ac | 2.63 | ac | 2.63 | ac | 2.63 | ac | |
| | 0.75 | 5.25 | ac | 5.25 | ac | 5.25 | ac | 5.25 | ac | 5.25 | ac | 5.25 | ac | |
| | t _I [mm] | 0.88 | 6.22 | ac | 6.35 | ac | 6.49 | ac | 6.49 | ac | 6.49 | ac | 6.49 | ac |
| | 1.00 | 7.19 | ac | 7.46 | ac | 7.72 | ac | 7.72 | ac | 7.72 | ac | 7.72 | ac | |
| | 1.25 | 7.19 | - | 7.46 | - | 7.72 | - | 8.22 | - | 8.22 | - | 8.22 | - | |
| | 1.50 | 7.19 | - | 7.46 | - | 7.72 | - | 8.72 | - | 8.72 | - | 8.72 | - | |
| N _{R,k} [kN] | 0.50 | 1.53 | ac | 1.53 | ac | 1.53 | ac | 1.53 | ac | 1.53 | ac | 1.53 | ac | |
| | 0.55 | 1.71 | ac | 1.71 | ac | 1.71 | ac | 1.71 | ac | 1.71 | ac | 1.71 | ac | |
| | 0.63 | 1.98 | ac | 1.98 | ac | 1.98 | ac | 1.98 | ac | 1.98 | ac | 1.98 | ac | |
| | 0.75 | 2.41 | ac | 2.41 | ac | 2.41 | ac | 2.41 | ac | 2.41 | ac | 2.41 | ac | |
| | t _I [mm] | 0.88 | 2.86 | ac | 2.86 | ac | 2.86 | ac | 2.86 | ac | 2.86 | ac | 2.86 | ac |
| | 1.00 | 3.29 | ac | 3.29 | ac | 3.29 | ac | 3.29 | ac | 3.29 | ac | 3.29 | ac | |
| | 1.25 | 4.10 | - | 4.10 | - | 4.10 | - | 4.10 | - | 4.10 | - | 4.10 | - | |
| | 1.50 | 5.00 | - | 5.00 | - | 5.00 | - | 5.00 | - | 5.00 | - | 5.00 | - | |
| N _{R,II,k} [kN] | | 6.99 | | 8.75 | | 9.62 | | n/a | | n/a | | n/a | | |

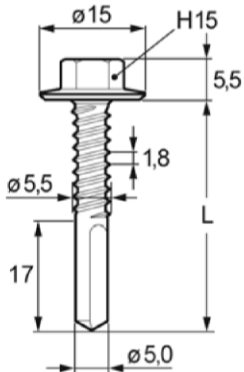
Additional definitions

Index ^a: For component I made of S320GD to S450GD the indicated values may be increased by 8.3%

Self-drilling screw with sealing washer $\geq \varnothing 16 \text{ mm}$

SD14-T16-5,5 x L, SD14-L12-T16-5,5 x L, SD14-S16-5,5 x L, SD14-L12-S16-5,5 x L

Annex 41



Materials

Fastener: Carbon steel with anticorrosion coating

Washer: -

Component I: S280GD to S450GD - EN 10346

Component II: S235 to S355 - EN 10025
S280GD to S450GD - EN 10346
HX300LAD to HX460LAD - EN 10346

Drilling-capacity $\Sigma(t_I + t_{II}) \leq 14.00 \text{ mm}$

| | | $t_{II} \text{ [mm]}$ | | | | | | | | | | | |
|---------------------------|--------------------|-----------------------|------|-------------------|------|-------------------|------|-------------------|------|-------------------|------|-------------------|------|
| | | 4.00 | | 5.00 | | 6.00 | | 8.00 | | 10.00 | | 12.00 | |
| $V_{R,k} \text{ [kN]}$ | 0.50 | 1.76 ^a | ac | 1.76 ^a | ac | 1.76 ^a | ac | 1.76 ^a | ac | 1.76 ^a | ac | 1.76 ^a | ac |
| | 0.55 | 1.86 ^a | ac | 1.86 ^a | ac | 1.86 ^a | ac | 1.86 ^a | ac | 1.86 ^a | ac | 1.86 ^a | ac |
| | 0.63 | 2.63 | ac | 2.63 | ac | 2.63 | ac | 2.63 | ac | 2.63 | ac | 2.63 | ac |
| | 0.75 | 5.25 | ac | 5.25 | ac | 5.25 | ac | 5.25 | ac | 5.25 | ac | 5.25 | ac |
| | $t_I \text{ [mm]}$ | 0.88 | 6.22 | ac | 6.35 | ac | 6.49 | ac | 6.49 | ac | 6.49 | ac | 6.49 |
| | | 1.00 | 7.19 | ac | 7.46 | ac | 7.72 | ac | 7.72 | ac | 7.72 | ac | 7.72 |
| | | 1.25 | 7.19 | - | 7.46 | - | 7.72 | - | 8.22 | - | 8.22 | - | 8.22 |
| | | 1.50 | 7.19 | - | 7.46 | - | 7.72 | - | 8.72 | - | 8.72 | - | 8.72 |
| $N_{R,k} \text{ [kN]}$ | 0.50 | 1.15 | ac | 1.15 | ac | 1.15 | ac | 1.15 | ac | 1.15 | ac | 1.15 | ac |
| | 0.55 | 1.28 | ac | 1.28 | ac | 1.28 | ac | 1.28 | ac | 1.28 | ac | 1.28 | ac |
| | 0.63 | 2.00 | ac | 2.00 | ac | 2.00 | ac | 2.00 | ac | 2.00 | ac | 2.00 | ac |
| | 0.75 | 2.90 | ac | 2.90 | ac | 2.90 | ac | 2.90 | ac | 2.90 | ac | 2.90 | ac |
| | $t_I \text{ [mm]}$ | 0.88 | 3.62 | ac | 3.62 | ac | 3.62 | ac | 3.62 | ac | 3.62 | ac | 3.62 |
| | | 1.00 | 4.33 | ac | 4.33 | ac | 4.33 | ac | 4.33 | ac | 4.33 | ac | 4.33 |
| | | 1.25 | 6.13 | - | 6.13 | - | 6.13 | - | 6.13 | - | 6.13 | - | 6.13 |
| | | 1.50 | 6.99 | - | 8.75 | - | 9.62 | - | 9.62 | - | 9.62 | - | 9.62 |
| $N_{R,II,k} \text{ [kN]}$ | | 6.99 | | 8.75 | | 9.62 | | n/a | | n/a | | n/a | |

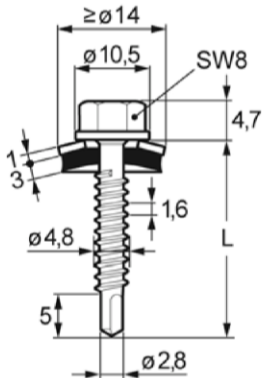
Additional definitions

Index ^a: For component I made of S320GD to S450GD the indicated values may be increased by 8.3%

Self-drilling screw

SD14-H15-5,5 x L

Annex 42



Materials

| | |
|---------------|--|
| Fastener: | Carbon steel with anticorrosion coating |
| Washer: | Aluminum alloy - EN 573 with EPDM-seal |
| Component I: | S280GD to S450GD - EN 10346 |
| Component II: | S280GD to S450GD - EN 10346 HX300LAD to HX460LAD - EN 10346 |

Drilling-capacity $\Sigma(t_I + t_{II}) \leq 2.50 \text{ mm}$

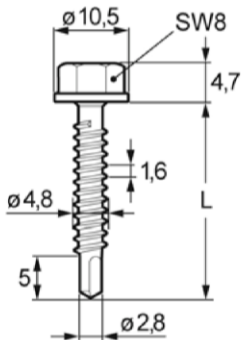
| | | $t_{II} [\text{mm}]$ | | | | | | | | |
|--------------------------|------|----------------------|------|------|------|------|------|------|------|------|
| | | 0.40 | 0.50 | 0.55 | 0.63 | 0.75 | 0.88 | 1.00 | 1.25 | 1.50 |
| $V_{R,k} [\text{kN}]$ | 0.40 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 |
| | 0.50 | 0.58 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 |
| | 0.55 | 0.58 | 0.69 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| | 0.63 | 0.58 | 0.69 | 0.80 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| | 0.75 | 0.58 | 0.69 | 0.80 | 0.98 | 1.26 | 1.26 | 1.26 | 1.26 | 1.26 |
| | 0.88 | 0.58 | 0.69 | 0.80 | 0.98 | 1.26 | 1.82 | 1.82 | 1.82 | 1.82 |
| | 1.00 | 0.58 | 0.69 | 0.80 | 0.98 | 1.26 | 1.82 | 2.35 | 2.35 | 2.35 |
| | 1.25 | 0.58 | 0.69 | 0.80 | 0.98 | 1.26 | 1.82 | 2.35 | 2.35 | - |
| | 1.50 | 0.58 | 0.69 | 0.80 | 0.98 | 1.26 | 1.82 | 2.35 | - | - |
| $N_{R,k} [\text{kN}]$ | 0.40 | 0.30 | 0.42 | 0.49 | 0.80 | 1.00 | 1.09 | 1.09 | 1.09 | 1.09 |
| | 0.50 | 0.30 | 0.42 | 0.49 | 0.80 | 1.00 | 1.40 | 1.70 | 1.92 | 1.92 |
| | 0.55 | 0.30 | 0.42 | 0.49 | 0.80 | 1.00 | 1.40 | 1.70 | 2.10 | 2.10 |
| | 0.63 | 0.30 | 0.42 | 0.49 | 0.80 | 1.00 | 1.40 | 1.70 | 2.10 | 2.10 |
| | 0.75 | 0.30 | 0.42 | 0.49 | 0.80 | 1.00 | 1.40 | 1.70 | 2.10 | 2.10 |
| | 0.88 | 0.30 | 0.42 | 0.49 | 0.80 | 1.00 | 1.40 | 1.70 | 2.10 | 2.10 |
| | 1.00 | 0.30 | 0.42 | 0.49 | 0.80 | 1.00 | 1.40 | 1.70 | 2.10 | 2.10 |
| | 1.25 | 0.30 | 0.42 | 0.49 | 0.80 | 1.00 | 1.40 | 1.70 | 2.10 | - |
| | 1.50 | 0.30 | 0.42 | 0.49 | 0.80 | 1.00 | 1.40 | 1.70 | - | - |
| $N_{R,II,k} [\text{kN}]$ | | 0.30 | 0.42 | 0.49 | 0.80 | 1.00 | 1.40 | 1.70 | 2.10 | n/a |

No additional definitions

Self-drilling screw with sealing washer $\geq \varnothing 14 \text{ mm}$

SL2-T-A14-4,8 x L

Annex 43



Materials

| | |
|---------------|--|
| Fastener: | Carbon steel with anticorrosion coating |
| Washer: | - |
| Component I: | S280GD to S450GD - EN 10346 |
| Component II: | S280GD to S450GD - EN 10346 HX300LAD to HX460LAD - EN 10346 |

Drilling-capacity $\Sigma(t_I + t_{II}) \leq 2.50 \text{ mm}$

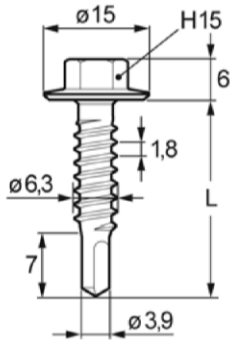
| | | $t_{II} \text{ [mm]}$ | | | | | |
|---------------------------|--------------------|-----------------------|------|------|------|------|------|
| | | 0.63 | 0.75 | 0.88 | 1.00 | 1.25 | 1.50 |
| $V_{R,k} \text{ [kN]}$ | 0.63 | 1.40 | 1.40 | 1.90 | 2.40 | 2.40 | 2.40 |
| | 0.75 | 1.40 | 1.90 | 1.90 | 2.60 | 2.60 | 2.60 |
| | 0.88 | 1.80 | 1.90 | 2.80 | 2.80 | 2.80 | 2.80 |
| | $t_I \text{ [mm]}$ | 1.00 | 2.10 | 2.50 | 2.80 | 3.60 | 3.60 |
| | 1.25 | 2.10 | 2.50 | 2.80 | 3.60 | 3.60 | - |
| | 1.50 | 2.10 | 2.50 | 2.80 | 3.60 | - | - |
| $N_{R,k} \text{ [kN]}$ | 0.63 | 0.80 | 1.00 | 1.40 | 1.70 | 2.10 | 2.10 |
| | 0.75 | 0.80 | 1.00 | 1.40 | 1.70 | 2.10 | 2.10 |
| | 0.88 | 0.80 | 1.00 | 1.40 | 1.70 | 2.10 | 2.10 |
| | $t_I \text{ [mm]}$ | 1.00 | 0.80 | 1.00 | 1.40 | 1.70 | 2.10 |
| | 1.25 | 0.80 | 1.00 | 1.40 | 1.70 | 2.10 | - |
| | 1.50 | 0.80 | 1.00 | 1.40 | 1.70 | - | - |
| $N_{R,II,k} \text{ [kN]}$ | | 0.80 | 1.00 | 1.40 | 1.70 | 2.10 | n/a |

No additional definitions

Self-drilling screw

SL2-4,8 x L

Annex 44



Materials

Fastener: Carbon steel with anticorrosion coating

Washer: -

Component I: S280GD to S450GD - EN 10346

Component II: S280GD to S450GD - EN 10346
HX300LAD to HX460LAD - EN 10346

Drilling-capacity $\Sigma(t_I + t_{II}) \leq 2.50 \text{ mm}$

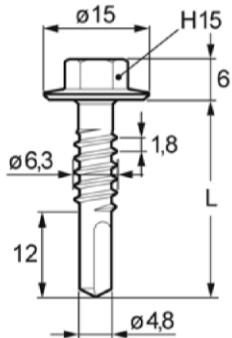
| | | $t_{II} \text{ [mm]}$ | | | | | |
|---------------------------|------|-----------------------|------|------|------|------|------|
| | | 0.63 | 0.75 | 0.88 | 1.00 | 1.25 | 1.50 |
| $V_{R,k} \text{ [kN]}$ | 0.63 | 0.90 | 1.00 | 1.10 | 1.30 | 1.60 | 1.60 |
| | 0.75 | 0.90 | 2.70 | 2.70 | 2.70 | 2.70 | 2.70 |
| | 0.88 | 0.90 | 2.70 | 3.60 | 3.60 | 3.60 | 3.60 |
| | 1.00 | 0.90 | 2.70 | 3.60 | 3.90 | 4.10 | 4.10 |
| | 1.25 | 0.90 | 2.70 | 3.60 | 3.90 | 4.10 | - |
| | 1.50 | 0.90 | 2.70 | 3.60 | 3.90 | - | - |
| $N_{R,k} \text{ [kN]}$ | 0.63 | 0.80 | 1.10 | 1.40 | 1.60 | 2.10 | 2.10 |
| | 0.75 | 0.80 | 1.10 | 1.40 | 1.60 | 2.10 | 2.10 |
| | 0.88 | 0.80 | 1.10 | 1.40 | 1.60 | 2.10 | 2.10 |
| | 1.00 | 0.80 | 1.10 | 1.40 | 1.60 | 2.10 | 2.10 |
| | 1.25 | 0.80 | 1.10 | 1.40 | 1.60 | 2.10 | - |
| | 1.50 | 0.80 | 1.10 | 1.40 | 1.60 | - | - |
| $N_{R,II,k} \text{ [kN]}$ | | 0.80 | 1.10 | 1.40 | 1.60 | 2.10 | n/a |

No additional definitions

Self-drilling screw

SL2-H15-6,3 x L

Annex 45



Materials

Fastener: Carbon steel with anticorrosion coating

Washer: -

Component I: S280GD to S450GD - EN 10346

Component II: S280GD to S450GD - EN 10346
HX300LAD to HX460LAD - EN 10346

Drilling-capacity $\Sigma(t_I + t_{II}) \leq 3.50 \text{ mm}$

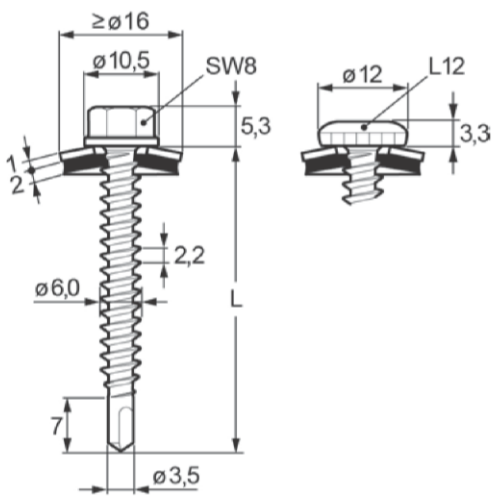
| | | $t_{II} \text{ [mm]}$ | | | | |
|---------------------------|------|-----------------------|------|------|------|------|
| | | 1.00 | 1.25 | 1.50 | 1.75 | 2.00 |
| $V_{R,k} \text{ [kN]}$ | 1.00 | - | 3.50 | 4.10 | 4.10 | 4.10 |
| | 1.25 | 3.20 | 3.60 | 4.10 | 4.10 | 4.10 |
| | 1.50 | 3.20 | 3.60 | 5.40 | 5.40 | 4.10 |
| | 1.75 | 3.20 | 3.60 | 5.40 | 5.40 | - |
| | 2.00 | 3.20 | 3.60 | 5.40 | - | - |
| $N_{R,k} \text{ [kN]}$ | 1.00 | - | 2.20 | 2.60 | 2.60 | 2.60 |
| | 1.25 | 1.40 | 2.20 | 2.60 | 2.60 | 2.60 |
| | 1.50 | 1.40 | 2.20 | 2.60 | 2.60 | 2.60 |
| | 1.75 | 1.40 | 2.20 | 2.60 | 2.60 | - |
| | 2.00 | 1.40 | 2.20 | 2.60 | - | - |
| $N_{R,II,k} \text{ [kN]}$ | | 1.40 | 2.20 | 2.60 | n/a | n/a |

No additional definitions

Self-drilling screw

SL3-H15-6,3 x L

Annex 46

| | |
|---|--|
|  | Materials Fastener: Stainless steel A2 or A4 - EN ISO 3506 Washer: Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal Component I: S280GD to S450GD - EN 10346 Component II: Timber (coniferous timber) - EN 14081 |
| | Drilling-capacity $\Sigma(t_i) \leq 2.00 \text{ mm}$ |
| | Characteristics $M_{y,Rk} = 7.9 \text{ Nm}$ $f_{ax,k} = 13.2 \text{ N/mm}^2 (l_{ef} = 25 \text{ mm}, \rho_a = 350 \text{ kg/m}^3)$ $f_{h,k} = 27.2 \text{ N/mm}^2 (\rho_a = 350 \text{ kg/m}^3)$ |

| | | l _{ef} [mm] | | | | | | |
|--------------------------|------|----------------------|------|------|------|------|------|-------------------------|
| | | 25 | 30 | 35 | 40 | 45 | | |
| V _{R,k} [kN] | 0.50 | 1.02 | 1.02 | 1.02 | 1.02 | 1.02 | 1.02 | V _{R,I,k} [kN] |
| | 0.55 | 1.02 | 1.10 | 1.10 | 1.10 | 1.10 | 1.10 | |
| | 0.63 | 1.02 | 1.21 | 1.21 | 1.21 | 1.21 | 1.21 | |
| | 0.75 | 1.02 | 1.23 | 1.40 | 1.40 | 1.40 | 1.40 | |
| | 0.88 | 1.02 | 1.23 | 1.40 | 1.40 | 1.40 | 1.40 | |
| | 1.00 | 1.02 | 1.23 | 1.40 | 1.40 | 1.40 | 1.40 | |
| | 1.25 | 1.02 | 1.23 | 1.40 | 1.40 | 1.40 | 1.40 | |
| | 1.50 | 1.02 | 1.23 | 1.40 | 1.40 | 1.40 | 1.40 | |
| N _{R,k} [kN] | 0.50 | 1.59 | 1.59 | 1.59 | 1.59 | 1.59 | 1.59 | N _{R,I,k} [kN] |
| | 0.55 | 1.78 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | |
| | 0.63 | 1.78 | 2.14 | 2.44 | 2.44 | 2.44 | 2.44 | |
| | 0.75 | 1.78 | 2.14 | 2.49 | 2.85 | 3.21 | 3.28 | |
| | 0.88 | 1.78 | 2.14 | 2.49 | 2.85 | 3.21 | 3.28 | |
| | 1.00 | 1.78 | 2.14 | 2.49 | 2.85 | 3.21 | 3.28 | |
| | 1.25 | 1.78 | 2.14 | 2.49 | 2.85 | 3.21 | 3.28 | |
| | 1.50 | 1.78 | 2.14 | 2.49 | 2.85 | 3.21 | 3.28 | |
| N _{R,II,k} [kN] | | 1.78 | 2.14 | 2.49 | 2.85 | 3.21 | | |

Additional definitions

The indicated values $V_{R,k}$, $N_{R,k}$ and $N_{R,II,k}$ apply to $k_{mod} = 0.9$ and $\rho_k = 350 \text{ kg/m}^3$. Values for other k_{mod} or ρ_k can be determined according to Annex 3.

Self-drilling screw with sealing washer $\geq \varnothing 16 \text{ mm}$

SW2-S-S16-6,0 x L, SW2-S-L12-S16-6,0 x L

Annex 47

| | |
|--|--|
| | Materials Fastener: Stainless steel A2 or A4 - EN ISO 3506 Washer: Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal Component I: S280GD to S450GD - EN 10346 Component II: Timber (coniferous timber) - EN 14081 |
| | Drilling-capacity $\Sigma(t_i) \leq 2.00 \text{ mm}$ |
| | Characteristics $M_{y,Rk} = 12.1 \text{ Nm}$ $f_{ax,k} = 13.2 \text{ N/mm}^2 (l_{ef} = 35 \text{ mm}, \rho_a = 350 \text{ kg/m}^3)$ $f_{h,k} = 27.2 \text{ N/mm}^2 (\rho_a = 350 \text{ kg/m}^3)$ |

| | | l _{ef} [mm] | | | | | | |
|--------------------------|------|----------------------|------|------|------|------|------|-------------------------|
| | | 35 | 45 | 55 | 65 | 75 | | |
| V _{R,k} [kN] | 0.50 | 1.55 | 1.55 | 1.55 | 1.55 | 1.55 | 1.55 | V _{R,I,k} [kN] |
| | 0.55 | 1.71 | 1.71 | 1.71 | 1.71 | 1.71 | 1.71 | |
| | 0.63 | 1.73 | 2.23 | 2.73 | 2.90 | 2.90 | 2.90 | |
| | 0.75 | 1.73 | 2.23 | 2.73 | 3.22 | 3.50 | 3.50 | |
| | 0.88 | 1.73 | 2.23 | 2.73 | 3.22 | 3.72 | 4.00 | |
| | 1.00 | 1.73 | 2.23 | 2.73 | 3.22 | 3.72 | 4.50 | |
| | 1.25 | 1.73 | 2.23 | 2.73 | 3.22 | 3.72 | 5.40 | |
| | 1.50 | 1.73 | 2.23 | 2.73 | 3.22 | 3.72 | 5.70 | |
| N _{R,k} [kN] | 0.50 | 1.68 | 1.68 | 1.68 | 1.68 | 1.68 | 1.68 | N _{R,I,k} [kN] |
| | 0.55 | 1.88 | 1.88 | 1.88 | 1.88 | 1.88 | 1.88 | |
| | 0.63 | 2.70 | 2.70 | 2.70 | 2.70 | 2.70 | 2.70 | |
| | 0.75 | 2.70 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | |
| | 0.88 | 2.70 | 3.47 | 4.10 | 4.10 | 4.10 | 4.10 | |
| | 1.00 | 2.70 | 3.47 | 4.25 | 4.80 | 4.80 | 4.80 | |
| | 1.25 | 2.70 | 3.47 | 4.25 | 5.02 | 5.60 | 5.60 | |
| | 1.50 | 2.70 | 3.47 | 4.25 | 5.02 | 5.60 | 5.60 | |
| N _{R,II,k} [kN] | | 2.70 | 3.47 | 4.25 | 5.02 | 5.79 | | |

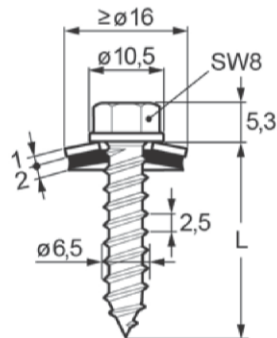
Additional definitions

The indicated values $V_{R,k}$, $N_{R,k}$ and $N_{R,II,k}$ apply to $k_{mod} = 0.9$ and $\rho_k = 350 \text{ kg/m}^3$. Values for other k_{mod} or ρ_k can be determined according to Annex 3.

Self-drilling screw with sealing washer $\geq \text{Ø } 16 \text{ mm}$

SXW-S16-6,5 x L, SXW-L12-S16-6,5 x L

Annex 48

| | |
|---|--|
|  | <p>Materials</p> <p>Fastener: Stainless steel A2, A4 or 1.4547 - EN ISO 3506</p> <p>Washer: Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal</p> <p>Component I: S280GD to S450GD - EN 10346</p> <p>Component II: Timber (coniferous timber) - EN 14081</p> |
| | <p>Drilling-capacity -</p> |
| | <p>Characteristics</p> <p>$M_{y,Rk}$ = 13.9 Nm</p> <p>$f_{ax,k}$ = 13.2 N/mm² (l_{ef} = 35 mm, ρ_a = 350 kg/m³)</p> <p>$f_{h,k}$ = 27.2 N/mm² (ρ_a = 350 kg/m³)</p> |

| | | l_{ef} [mm] | | | | | | |
|-------------------|------|---------------|------|------|------|------|------|------------------|
| | | 35 | 45 | 55 | 65 | 75 | | |
| d_{pd} [mm] | | 4.0 | | | | | | |
| $V_{R,k}$ [kN] | 0.50 | 1.55 | 1.55 | 1.55 | 1.55 | 1.55 | 1.55 | $V_{R,I,k}$ [kN] |
| | 0.55 | 1.71 | 1.71 | 1.71 | 1.71 | 1.71 | 1.71 | |
| | 0.63 | 1.73 | 2.23 | 2.73 | 2.90 | 2.90 | 2.90 | |
| | 0.75 | 1.73 | 2.23 | 2.73 | 3.22 | 3.50 | 3.50 | |
| | 0.88 | 1.73 | 2.23 | 2.73 | 3.22 | 3.72 | 4.00 | |
| | 1.00 | 1.73 | 2.23 | 2.73 | 3.22 | 3.72 | 4.50 | |
| | 1.25 | 1.73 | 2.23 | 2.73 | 3.22 | 3.72 | 5.40 | |
| | 1.50 | 1.73 | 2.23 | 2.73 | 3.22 | 3.72 | 5.70 | |
| $N_{R,k}$ [kN] | 0.50 | 1.68 | 1.68 | 1.68 | 1.68 | 1.68 | 1.68 | $N_{R,I,k}$ [kN] |
| | 0.55 | 1.88 | 1.88 | 1.88 | 1.88 | 1.88 | 1.88 | |
| | 0.63 | 2.70 | 2.70 | 2.70 | 2.70 | 2.70 | 2.70 | |
| | 0.75 | 2.70 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | |
| | 0.88 | 2.70 | 3.47 | 4.10 | 4.10 | 4.10 | 4.10 | |
| | 1.00 | 2.70 | 3.47 | 4.25 | 4.80 | 4.80 | 4.80 | |
| | 1.25 | 2.70 | 3.47 | 4.25 | 5.02 | 5.60 | 5.60 | |
| | 1.50 | 2.70 | 3.47 | 4.25 | 5.02 | 5.60 | 5.60 | |
| $N_{R,II,k}$ [kN] | | 2.70 | 3.47 | 4.25 | 5.02 | 5.79 | | |

| | |
|---|--|
| Additional definitions | |
| The indicated values $V_{R,k}$, $N_{R,k}$ and $N_{R,II,k}$ apply to $k_{mod} = 0.9$ and $\rho_k = 350 \text{ kg/m}^3$. Values for other k_{mod} or ρ_k can be determined according to Annex 3. | |

| | |
|---|-----------------|
| Self-tapping screw with sealing washer $\geq \text{Ø } 16 \text{ mm}$ | Annex 49 |
| TDA-S-S16-6,5 x L | |

| | |
|--|--|
| | Materials Fastener: Carbon steel with anticorrosion coating Washer: Aluminum alloy - EN 573 with EPDM-seal Component I: S280GD to S450GD - EN 10346 Component II: Timber (coniferous timber) - EN 14081 |
| | Drilling-capacity $\Sigma(t_i) \leq 2.00 \text{ mm}$ |
| | Characteristics $M_{y,Rk} = 6.1 \text{ Nm}$ $f_{ax,k} = 13.2 \text{ N/mm}^2 (l_{ef} = 25 \text{ mm}, \rho_a = 350 \text{ kg/m}^3)$ $f_{h,k} = 27.2 \text{ N/mm}^2 (\rho_a = 350 \text{ kg/m}^3)$ |

| | | l_{ef} [mm] | | | | | | |
|-------------------|------|---------------|------|------|------|------|------|------------------|
| | | 25 | 30 | 35 | 40 | 45 | | |
| $V_{R,k}$ [kN] | 0.50 | 0.90 | 1.08 | 1.19 | 1.19 | 1.19 | 1.19 | $V_{R,I,k}$ [kN] |
| | 0.55 | 0.90 | 1.08 | 1.26 | 1.28 | 1.28 | 1.28 | |
| | 0.63 | 0.90 | 1.08 | 1.26 | 1.42 | 1.42 | 1.42 | |
| | 0.75 | 0.90 | 1.08 | 1.26 | 1.44 | 1.62 | 1.63 | |
| | 0.88 | 0.90 | 1.08 | 1.26 | 1.44 | 1.62 | 1.72 | |
| | 1.00 | 0.90 | 1.08 | 1.26 | 1.44 | 1.62 | 1.81 | |
| | 1.25 | 0.90 | 1.08 | 1.26 | 1.44 | 1.62 | 1.81 | |
| | 1.50 | 0.90 | 1.08 | 1.26 | 1.44 | 1.62 | 1.81 | |
| $N_{R,k}$ [kN] | 0.50 | 1.43 | 1.71 | 1.92 | 1.92 | 1.92 | 1.92 | $N_{R,I,k}$ [kN] |
| | 0.55 | 1.43 | 1.71 | 2.00 | 2.15 | 2.15 | 2.15 | |
| | 0.63 | 1.43 | 1.71 | 2.00 | 2.28 | 2.49 | 2.49 | |
| | 0.75 | 1.43 | 1.71 | 2.00 | 2.28 | 2.57 | 3.02 | |
| | 0.88 | 1.43 | 1.71 | 2.00 | 2.28 | 2.57 | 3.62 | |
| | 1.00 | 1.43 | 1.71 | 2.00 | 2.28 | 2.57 | 4.18 | |
| | 1.25 | 1.43 | 1.71 | 2.00 | 2.28 | 2.57 | 4.18 | |
| | 1.50 | 1.43 | 1.71 | 2.00 | 2.28 | 2.57 | 4.18 | |
| $N_{R,II,k}$ [kN] | | 1.43 | 1.71 | 2.00 | 2.28 | 2.57 | | |

Additional definitions

The indicated values $V_{R,k}$, $N_{R,k}$ and $N_{R,II,k}$ apply to $k_{mod} = 0.9$ and $\rho_k = 350 \text{ kg/m}^3$. Values for other k_{mod} or ρ_k can be determined according to Annex 3.

Self-drilling screw with sealing washer $\geq \varnothing 14 \text{ mm}$

SW-T-A14-4,8 x L

Annex 50

| | |
|--|--|
| | Materials |
| | Fastener: Carbon steel with anticorrosion coating |
| | Washer: Carbon steel with anticorrosion coating or stainless steel A2 - EN ISO 3506 with EPDM-seal |
| | Component I: S280GD to S450GD - EN 10346 |
| | Component II: Timber (coniferous timber) - EN 14081 |
| Drilling-capacity $\Sigma(t_i) \leq 2.00$ mm | |
| Characteristics | |
| $M_{y,Rk} = 14.9$ Nm | |
| $f_{ax,k} = 13.2$ N/mm ² ($l_{ef} = 35$ mm, $\rho_a = 350$ kg/m ³) | |
| $f_{h,k} = 27.2$ N/mm ² ($\rho_a = 350$ kg/m ³) | |

| | | l _{ef} [mm] | | | | | | |
|--------------------------|------|----------------------|------|------|------|------|------|-------------------------|
| | | 35 | 45 | 55 | 65 | 75 | | |
| V _{R,k} [kN] | 0.50 | 1.58 | 1.58 | 1.58 | 1.58 | 1.58 | 1.58 | V _{R,I,k} [kN] |
| | 0.55 | 1.73 | 1.73 | 1.73 | 1.73 | 1.73 | 1.73 | |
| | 0.63 | 1.73 | 1.97 | 1.97 | 1.97 | 1.97 | 1.97 | |
| | 0.75 | 1.73 | 2.23 | 2.33 | 2.33 | 2.33 | 2.33 | |
| | 0.88 | 1.73 | 2.23 | 2.33 | 2.33 | 2.33 | 2.33 | |
| | 1.00 | 1.73 | 2.23 | 2.33 | 2.33 | 2.33 | 2.33 | |
| | 1.25 | 1.73 | 2.23 | 2.33 | 2.33 | 2.33 | 2.33 | |
| | 1.50 | 1.73 | 2.23 | 2.33 | 2.33 | 2.33 | 2.33 | |
| N _{R,k} [kN] | 0.50 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | N _{R,I,k} [kN] |
| | 0.55 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | |
| | 0.63 | 2.41 | 2.41 | 2.41 | 2.41 | 2.41 | 2.41 | |
| | 0.75 | 2.70 | 3.13 | 3.13 | 3.13 | 3.13 | 3.13 | |
| | 0.88 | 2.70 | 3.47 | 3.91 | 3.91 | 3.91 | 3.91 | |
| | 1.00 | 2.70 | 3.47 | 4.25 | 4.68 | 4.68 | 4.68 | |
| | 1.25 | 2.70 | 3.47 | 4.25 | 4.68 | 4.68 | 4.68 | |
| | 1.50 | 2.70 | 3.47 | 4.25 | 4.68 | 4.68 | 4.68 | |
| N _{R,II,k} [kN] | | 2.70 | 3.47 | 4.25 | 5.02 | 5.79 | | |

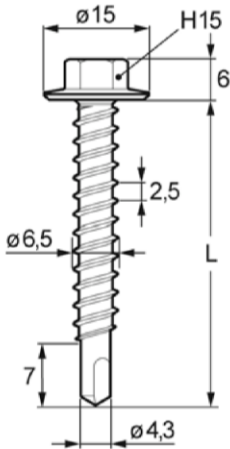
Additional definitions

The indicated values $V_{R,k}$, $N_{R,k}$ and $N_{R,II,k}$ apply to $k_{mod} = 0.9$ and $\rho_k = 350$ kg/m³. Values for other k_{mod} or ρ_k can be determined according to Annex 3.

Self-drilling screw with sealing washer $\geq \varnothing 16$ mm

SW3-T-T16-6,5 x L, SW3-T-L12-T16-6,5 x L, SW3-T-S16-6,5 x L, SW3-T-L12-S16-6,5 x L

Annex 51



Materials

| | |
|---------------|---|
| Fastener: | Carbon steel with anticorrosion coating |
| Washer: | - |
| Component I: | S280GD to S450GD - EN 10346 |
| Component II: | Timber (coniferous timber) - EN 14081 |

Drilling-capacity $\Sigma(t_i) \leq 2.00$ mm

Characteristics

| | | |
|------------|---|---|
| $M_{y,Rk}$ | = | 14.9 Nm |
| $f_{ax,k}$ | = | 13.2 N/mm ² ($l_{ef} = 35$ mm, $\rho_a = 350$ kg/m ³) |
| $f_{h,k}$ | = | 27.2 N/mm ² ($\rho_a = 350$ kg/m ³) |

| | | l_{ef} [mm] | | | | | | |
|-------------------|------------|---------------|------|------|------|------|------|------------------|
| | | 35 | 45 | 55 | 65 | 75 | | |
| $V_{R,k}$ [kN] | 0.50 | 1.58 | 1.58 | 1.58 | 1.58 | 1.58 | 1.58 | $V_{R,I,k}$ [kN] |
| | 0.55 | 1.73 | 1.73 | 1.73 | 1.73 | 1.73 | 1.73 | |
| | 0.63 | 1.73 | 1.97 | 1.97 | 1.97 | 1.97 | 1.97 | |
| | 0.75 | 1.73 | 2.23 | 2.33 | 2.33 | 2.33 | 2.33 | |
| | t_i [mm] | 0.88 | 2.23 | 2.33 | 2.33 | 2.33 | 2.33 | |
| | | 1.00 | 2.23 | 2.33 | 2.33 | 2.33 | 2.33 | |
| | | 1.25 | 2.23 | 2.33 | 2.33 | 2.33 | 2.33 | |
| | | 1.50 | 2.23 | 2.33 | 2.33 | 2.33 | 2.33 | |
| $N_{R,k}$ [kN] | 0.50 | 1.84 | 1.84 | 1.84 | 1.84 | 1.84 | 1.84 | $N_{R,I,k}$ [kN] |
| | 0.55 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | |
| | 0.63 | 2.29 | 2.29 | 2.29 | 2.29 | 2.29 | 2.29 | |
| | 0.75 | 2.70 | 2.71 | 2.71 | 2.71 | 2.71 | 2.71 | |
| | t_i [mm] | 0.88 | 3.47 | 3.55 | 3.55 | 3.55 | 3.55 | |
| | | 1.00 | 3.47 | 4.25 | 4.33 | 4.33 | 4.33 | |
| | | 1.25 | 3.47 | 4.25 | 4.33 | 4.33 | 4.33 | |
| | | 1.50 | 3.47 | 4.25 | 4.33 | 4.33 | 4.33 | |
| $N_{R,II,k}$ [kN] | | 2.70 | 3.47 | 4.25 | 5.02 | 5.79 | | |

Additional definitions

The indicated values $V_{R,k}$, $N_{R,k}$ and $N_{R,II,k}$ apply to $k_{mod} = 0.9$ and $\rho_k = 350$ kg/m³. Values for other k_{mod} or ρ_k can be determined according to Annex 3.

Self-drilling screw

SW3-T-H15-6,5 x L

Annex 52

| | |
|--|--|
| | <p>Materials</p> <p>Fastener: Stainless steel A2 or A4 - EN ISO 3506</p> <p>Washer: Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal</p> <p>Component I: Aluminum alloy - EN 573</p> <p>Component II: Aluminum alloy - EN 573</p> <p>Drilling-capacity $\Sigma(t_I + t_{II}) \leq 3.00 \text{ mm}$</p> |
|--|--|

| Component I and II $R_m \geq 165 \text{ N/mm}^2$ | | $t_{II} [\text{mm}]$ | | | | | |
|---|------|----------------------|------|------|------|------|---|
| | | 1.00 | 1.20 | 1.50 | 2.00 | 2.50 | |
| $V_{R,k} [\text{kN}]$ | 0.50 | 0.65 | - | 0.69 | - | 0.69 | - |
| | 0.60 | 0.80 | - | 0.80 | - | 0.97 | - |
| | 0.70 | 0.99 | - | 0.99 | - | 1.25 | - |
| | 0.80 | 1.19 | - | 1.19 | - | 1.53 | - |
| | 0.90 | 1.31 | - | 1.31 | - | 1.81 | - |
| | 1.00 | 1.42 | - | 1.42 | - | 2.08 | - |
| | 1.20 | 1.42 | - | 1.45 | - | - | - |
| | 1.50 | 1.42 | - | 1.45 | - | - | - |
| $N_{R,II,k} [\text{kN}]$ | | 0.72 | 0.82 | 1.26 | 1.85 | 2.65 | |

| Component I and II $R_m \geq 215 \text{ N/mm}^2$ | | $t_{II} [\text{mm}]$ | | | | | |
|---|------|----------------------|------|------|------|------|---|
| | | 1.00 | 1.20 | 1.50 | 2.00 | 2.50 | |
| $V_{R,k} [\text{kN}]$ | 0.50 | 0.85 | - | 0.90 | - | 0.90 | - |
| | 0.60 | 1.04 | - | 1.04 | - | 1.26 | - |
| | 0.70 | 1.30 | - | 1.30 | - | 1.63 | - |
| | 0.80 | 1.55 | - | 1.55 | - | 1.99 | - |
| | 0.90 | 1.70 | - | 1.70 | - | 2.35 | - |
| | 1.00 | 1.85 | - | 1.85 | - | 2.71 | - |
| | 1.20 | 1.85 | - | 1.89 | - | - | - |
| | 1.50 | 1.85 | - | 1.89 | - | - | - |
| $N_{R,II,k} [\text{kN}]$ | | 0.93 | 1.06 | 1.64 | 2.41 | 3.45 | |

Additional definitions

The characteristic value $N_{R,k}$ can be determined according to Annex 3

Self-drilling screw with sealing washer $\geq \text{Ø } 12 \text{ mm}$

SX3-S12-6,0 x L, SX3-L12-S12-6,0 x L, SX3-D12-S12-6,0 x L

Annex 53

| | |
|--|--|
| | <p>Materials</p> <p>Fastener: Stainless steel A2 or A4 - EN ISO 3506</p> <p>Washer: Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal</p> <p>Component I: Aluminum alloy - EN 573</p> <p>Component II: Aluminum alloy - EN 573</p> <p>Drilling-capacity $\Sigma(t_i + t_{II}) \leq 5.00 \text{ mm}$</p> |
|--|--|

| Component I and II $R_m \geq 165 \text{ N/mm}^2$ | | $t_{II} [\text{mm}]$ | | | | | |
|---|------|----------------------|------|------|------|------|---|
| | | 1.50 | 2.00 | 2.50 | 3.00 | 4.00 | |
| $V_{R,k} [\text{kN}]$ | 0.50 | 0.71 | - | 0.89 | - | 0.89 | - |
| | 0.60 | 0.83 | - | 1.06 | - | 1.06 | - |
| | 0.70 | 0.95 | - | 1.23 | - | 1.23 | - |
| | 0.80 | 1.06 | - | 1.40 | - | 1.40 | - |
| | 0.90 | 1.18 | - | 1.49 | - | 1.55 | - |
| | 1.00 | 1.30 | - | 1.57 | - | 1.69 | - |
| | 1.20 | 1.30 | - | 1.74 | - | 1.97 | - |
| | 1.50 | 1.30 | - | 1.74 | - | 1.97 | - |
| $N_{R,II,k} [\text{kN}]$ | | 1.00 | 1.13 | 1.74 | 2.35 | 3.88 | |

| Component I and II $R_m \geq 215 \text{ N/mm}^2$ | | $t_{II} [\text{mm}]$ | | | | | |
|---|------|----------------------|------|------|------|------|---|
| | | 1.50 | 2.00 | 2.50 | 3.00 | 4.00 | |
| $V_{R,k} [\text{kN}]$ | 0.50 | 0.76 | - | 1.16 | - | 1.16 | - |
| | 0.60 | 0.90 | - | 1.38 | - | 1.38 | - |
| | 0.70 | 1.04 | - | 1.60 | - | 1.61 | - |
| | 0.80 | 1.18 | - | 1.82 | - | 1.83 | - |
| | 0.90 | 1.32 | - | 1.93 | - | 2.02 | - |
| | 1.00 | 1.46 | - | 2.04 | - | 2.20 | - |
| | 1.20 | 1.46 | - | 2.26 | - | 2.57 | - |
| | 1.50 | 1.46 | - | 2.26 | - | 2.57 | - |
| $N_{R,II,k} [\text{kN}]$ | | 1.31 | 1.48 | 2.28 | 3.07 | 5.05 | |

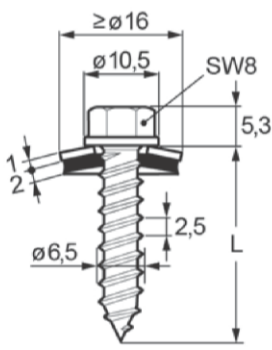
Additional definitions

The characteristic value $N_{R,k}$ can be determined according to Annex 3

Self-drilling screw with sealing washer $\geq \text{Ø } 12 \text{ mm}$

SX5-S12-6,0 x L, SX5-L12-S12-6,0 x L, SX5-D12-S12-6,0 x L

Annex 54

| | |
|---|--|
|  | Materials Fastener: Stainless steel A2, A4 or 1.4547 - EN ISO 3506 Washer: Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal Component I: Aluminum alloy - EN 573 Component II: Aluminum alloy - EN 573 |
| | Drilling-capacity - |

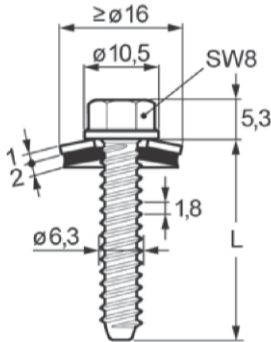
| Component I and II $R_m \geq 165 \text{ N/mm}^2$ | | $t_{II} [\text{mm}]$ | | | | | |
|---|------|----------------------|------|------|------|------|------|
| | | 1.00 | 1.20 | 1.50 | 2.00 | 2.50 | 3.00 |
| $d_{pd} [\text{mm}]$ | | 4.5 | | | 5.0 | | 5.3 |
| $V_{R,k} [\text{kN}]$ | 0.50 | 0.65 | - | 0.82 | - | 0.86 | - |
| | 0.60 | 0.65 | - | 0.82 | - | 1.03 | - |
| | 0.70 | 0.65 | - | 0.82 | - | 1.20 | - |
| | 0.80 | 0.65 | - | 0.82 | - | 1.37 | - |
| $t_I [\text{mm}]$ | 0.90 | 0.65 | - | 0.82 | - | 1.37 | - |
| | 1.00 | 0.67 | - | 0.82 | - | 1.37 | - |
| | 1.20 | 0.67 | - | 0.88 | - | 1.41 | - |
| | 1.50 | 0.67 | - | 0.88 | - | 1.53 | - |
| $N_{R,II,k} [\text{kN}]$ | | 0.42 | 0.55 | 0.77 | 1.19 | 1.69 | 2.19 |

| Component I and II $R_m \geq 215 \text{ N/mm}^2$ | | $t_{II} [\text{mm}]$ | | | | | |
|---|------|----------------------|------|------|------|------|------|
| | | 1.00 | 1.20 | 1.50 | 2.00 | 2.50 | 3.00 |
| $d_{pd} [\text{mm}]$ | | 4.5 | | | 5.0 | | 5.3 |
| $V_{R,k} [\text{kN}]$ | 0.50 | 0.85 | - | 1.06 | - | 1.12 | - |
| | 0.60 | 0.85 | - | 1.06 | - | 1.34 | - |
| | 0.70 | 0.85 | - | 1.06 | - | 1.57 | - |
| | 0.80 | 0.85 | - | 1.06 | - | 1.79 | - |
| $t_I [\text{mm}]$ | 0.90 | 0.85 | - | 1.06 | - | 1.78 | - |
| | 1.00 | 0.88 | - | 1.06 | - | 1.78 | - |
| | 1.20 | 0.88 | - | 1.15 | - | 1.83 | - |
| | 1.50 | 0.88 | - | 1.15 | - | 2.00 | - |
| $N_{R,II,k} [\text{kN}]$ | | 0.55 | 0.71 | 1.01 | 1.55 | 2.20 | 2.85 |

Additional definitions

The characteristic value $N_{R,k}$ can be determined according to Annex 3

| | |
|--|----------|
| Self-tapping screw with sealing washer ≥ Ø 16 mm | Annex 55 |
| TDA-S-S16-6,5 x L | |



Materials

| | |
|---------------|--|
| Fastener: | Stainless steel A2, A4 or 1.4547 - EN ISO 3506 |
| Washer: | Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal |
| Component I: | Aluminum alloy - EN 573 |
| Component II: | Aluminum alloy - EN 573 |

Drilling-capacity -

| Component I and II $R_m \geq 165 \text{ N/mm}^2$ | | $t_{II} [\text{mm}]$ | | | | | |
|---|------|----------------------|------|------|------|------|-------------|
| | | 1.50 | 2.00 | 2.50 | 3.00 | 4.00 | ≥ 6.00 |
| $d_{pd} [\text{mm}]$ | | 4.5 | 5.0 | | | 5.3 | 5.5 |
| $V_{R,k} [\text{kN}]$ | 0.50 | 0.83 | - | 0.83 | - | 0.83 | - |
| | 0.60 | 1.00 | - | 1.00 | - | 1.00 | - |
| | 0.70 | 1.00 | - | 1.16 | - | 1.16 | - |
| | 0.80 | 1.00 | - | 1.33 | - | 1.33 | - |
| | 0.90 | 1.00 | - | 1.33 | - | 1.50 | - |
| | 1.00 | 1.00 | - | 1.33 | - | 1.66 | - |
| | 1.20 | 1.06 | - | 1.37 | - | 1.68 | - |
| | 1.50 | 1.22 | - | 1.50 | - | 1.79 | - |
| $N_{R,II,k} [\text{kN}]$ | | 0.76 | 1.17 | 1.64 | 2.15 | 4.21 | 6.09 |

| Component I and II $R_m \geq 215 \text{ N/mm}^2$ | | $t_{II} [\text{mm}]$ | | | | | |
|---|------|----------------------|------|------|------|------|-------------|
| | | 1.50 | 2.00 | 2.50 | 3.00 | 4.00 | ≥ 6.00 |
| $d_{pd} [\text{mm}]$ | | 4.5 | 5.0 | | | 5.3 | 5.5 |
| $V_{R,k} [\text{kN}]$ | 0.50 | 1.08 | - | 1.08 | - | 1.08 | - |
| | 0.60 | 1.30 | - | 1.30 | - | 1.30 | - |
| | 0.70 | 1.30 | - | 1.52 | - | 1.52 | - |
| | 0.80 | 1.30 | - | 1.73 | - | 1.73 | - |
| | 0.90 | 1.30 | - | 1.73 | - | 1.95 | - |
| | 1.00 | 1.30 | - | 1.73 | - | 2.17 | - |
| | 1.20 | 1.38 | - | 1.79 | - | 2.19 | - |
| | 1.50 | 1.59 | - | 1.96 | - | 2.33 | - |
| $N_{R,II,k} [\text{kN}]$ | | 0.99 | 1.53 | 2.13 | 2.80 | 5.48 | 7.93 |

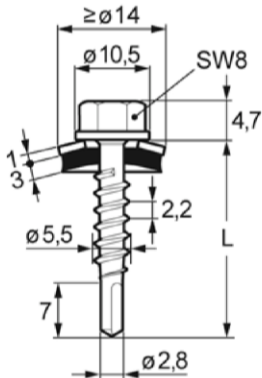
Additional definitions

The characteristic value $N_{R,k}$ can be determined according to Annex 3

Self-tapping screw with sealing washer $\geq \text{Ø } 16 \text{ mm}$

TDB-S-S16-6,3 x L

Annex 56



Materials

| | |
|---------------|--|
| Fastener: | Stainless steel A2 or A4 - EN ISO 3506 |
| Washer: | Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal |
| Component I: | Aluminum alloy - EN 573 |
| Component II: | Aluminum alloy - EN 573 |

Drilling-capacity $\Sigma(t_I + t_{II}) \leq 2.50 \text{ mm}$

| Component I and II $R_m \geq 165 \text{ N/mm}^2$ | $t_{II} [\text{mm}]$ | | | | | | | |
|---|----------------------|------|------|------|------|------|------|------|
| | 0.50 | 0.60 | 0.70 | 0.80 | 0.90 | 1.00 | 1.20 | 1.50 |
| 0.50 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 |
| 0.60 | 0.31 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 |
| 0.70 | 0.31 | 0.45 | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 |
| 0.80 | 0.31 | 0.45 | 0.59 | 0.73 | 0.73 | 0.73 | 0.73 | 0.73 |
| 0.90 | 0.31 | 0.45 | 0.59 | 0.73 | 0.82 | 0.82 | 0.82 | 0.82 |
| 1.00 | 0.31 | 0.45 | 0.59 | 0.73 | 0.82 | 0.91 | 0.91 | 0.91 |
| 1.20 | 0.31 | 0.45 | 0.59 | 0.73 | 0.82 | 0.91 | 0.91 | - |
| 1.50 | 0.31 | 0.45 | 0.59 | 0.73 | 0.82 | 0.91 | - | - |
| $N_{R,II,k} [\text{kN}]$ | 0.26 | 0.36 | 0.47 | 0.57 | 0.67 | 0.77 | n/a | n/a |

| Component I and II $R_m \geq 215 \text{ N/mm}^2$ | $t_{II} [\text{mm}]$ | | | | | | | |
|---|----------------------|------|------|------|------|------|------|------|
| | 0.50 | 0.60 | 0.70 | 0.80 | 0.90 | 1.00 | 1.20 | 1.50 |
| 0.50 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 |
| 0.60 | 0.40 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 |
| 0.70 | 0.40 | 0.58 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 |
| 0.80 | 0.40 | 0.58 | 0.77 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| 0.90 | 0.40 | 0.58 | 0.77 | 0.95 | 1.07 | 1.07 | 1.07 | 1.07 |
| 1.00 | 0.40 | 0.58 | 0.77 | 0.95 | 1.07 | 1.18 | 1.18 | 1.18 |
| 1.20 | 0.40 | 0.58 | 0.77 | 0.95 | 1.07 | 1.18 | 1.18 | - |
| 1.50 | 0.40 | 0.58 | 0.77 | 0.95 | 1.07 | 1.18 | - | - |
| $N_{R,II,k} [\text{kN}]$ | 0.34 | 0.48 | 0.61 | 0.75 | 0.88 | 1.00 | n/a | n/a |

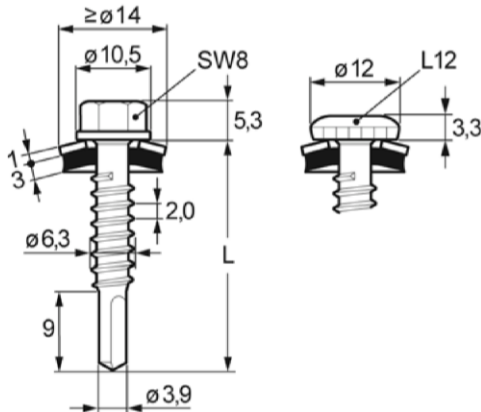
Additional definitions

The characteristic value $N_{R,k}$ can be determined according to Annex 3

Self-drilling screw with sealing washer $\geq \varnothing 14 \text{ mm}$

SL2-S-S14-5,5 x L

Annex 57



Materials

| | |
|---------------|--|
| Fastener: | Stainless steel A2 or A4 - EN ISO 3506 |
| Washer: | Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal |
| Component I: | Aluminum alloy - EN 573 |
| Component II: | Aluminum alloy - EN 573 |

Drilling-capacity $\Sigma(t_I + t_{II}) \leq 2.50 \text{ mm}$

| Component I and II $R_m \geq 165 \text{ N/mm}^2$ | $t_{II} [\text{mm}]$ | | | | | | | |
|---|----------------------|------|------|------|------|------|------|------|
| | 0.50 | 0.60 | 0.70 | 0.80 | 0.90 | 1.00 | 1.20 | 1.50 |
| 0.50 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 |
| 0.60 | 0.28 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 |
| 0.70 | 0.28 | 0.45 | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 |
| 0.80 | 0.28 | 0.45 | 0.62 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 |
| 0.90 | 0.28 | 0.45 | 0.62 | 0.79 | 0.97 | 0.97 | 0.97 | 0.97 |
| 1.00 | 0.28 | 0.45 | 0.62 | 0.79 | 0.97 | 1.15 | 1.15 | 1.15 |
| 1.20 | 0.28 | 0.45 | 0.62 | 0.79 | 0.97 | 1.15 | 1.15 | - |
| 1.50 | 0.28 | 0.45 | 0.62 | 0.79 | 0.97 | 1.15 | - | - |
| $N_{R,II,k} [\text{kN}]$ | 0.35 | 0.44 | 0.54 | 0.63 | 0.75 | 0.87 | n/a | n/a |

| Component I and II $R_m \geq 215 \text{ N/mm}^2$ | $t_{II} [\text{mm}]$ | | | | | | | |
|---|----------------------|------|------|------|------|------|------|------|
| | 0.50 | 0.60 | 0.70 | 0.80 | 0.90 | 1.00 | 1.20 | 1.50 |
| 0.50 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 |
| 0.60 | 0.36 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 |
| 0.70 | 0.36 | 0.58 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 |
| 0.80 | 0.36 | 0.58 | 0.81 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 |
| 0.90 | 0.36 | 0.58 | 0.81 | 1.03 | 1.26 | 1.26 | 1.26 | 1.26 |
| 1.00 | 0.36 | 0.58 | 0.81 | 1.03 | 1.26 | 1.49 | 1.49 | 1.49 |
| 1.20 | 0.36 | 0.58 | 0.81 | 1.03 | 1.26 | 1.49 | 1.49 | - |
| 1.50 | 0.36 | 0.58 | 0.81 | 1.03 | 1.26 | 1.49 | - | - |
| $N_{R,II,k} [\text{kN}]$ | 0.46 | 0.58 | 0.70 | 0.82 | 0.98 | 1.14 | n/a | n/a |

Additional definitions

The characteristic value $N_{R,k}$ can be determined according to Annex 3

Self-drilling screw with sealing washer $\geq \varnothing 14 \text{ mm}$

SL2-S-S14-6,3 x L, SL2-S-L12-S14-6,3 x L

Annex 58

| | |
|--|--|
| | <p>Materials</p> <p>Fastener: Stainless steel A2 or A4 - EN ISO 3506</p> <p>Washer: Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal</p> <p>Component I: Aluminum alloy - EN 573</p> <p>Component II: S280GD to S450GD - EN 10346 HX300LAD to HX460LAD - EN 10346</p> <p>Drilling-capacity $\Sigma(t_i + t_{II}) \leq 3.00 \text{ mm}$</p> |
|--|--|

| Component I $R_m \geq 165 \text{ N/mm}^2$ | | $t_{II} [\text{mm}]$ | | | | | | |
|--|------|----------------------|------|------|------|------|------|------|
| | | 0.75 | 0.88 | 1.00 | 1.25 | 1.50 | 1.75 | 2.00 |
| $V_{R,k} [\text{kN}]$ | 0.50 | 0.56 | - | 0.73 | - | 0.78 | - | 0.78 |
| | 0.60 | 0.76 | - | 0.86 | - | 0.92 | - | 0.93 |
| | 0.70 | 0.96 | - | 0.98 | - | 1.06 | - | 1.07 |
| | 0.80 | 1.06 | - | 1.11 | - | 1.20 | - | 1.22 |
| | 0.90 | 1.06 | - | 1.24 | - | 1.34 | - | 1.37 |
| | 1.00 | 1.06 | - | 1.36 | - | 1.48 | - | 1.51 |
| | 1.20 | 1.06 | - | 1.36 | - | 1.48 | - | 1.80 |
| | 1.50 | 1.06 | - | 1.36 | - | 1.48 | - | 1.80 |
| $N_{R,II,k} [\text{kN}]$ | | 1.14 | 1.66 | 1.81 | 2.38 | 3.14 | 3.86 | 4.57 |

| Component I $R_m \geq 215 \text{ N/mm}^2$ | | $t_{II} [\text{mm}]$ | | | | | | |
|--|------|----------------------|------|------|------|------|------|------|
| | | 0.75 | 0.88 | 1.00 | 1.25 | 1.50 | 1.75 | 2.00 |
| $V_{R,k} [\text{kN}]$ | 0.50 | 0.74 | - | 0.95 | - | 1.02 | - | 1.02 |
| | 0.60 | 0.99 | - | 1.11 | - | 1.20 | - | 1.21 |
| | 0.70 | 1.25 | - | 1.28 | - | 1.38 | - | 1.40 |
| | 0.80 | 1.37 | - | 1.44 | - | 1.57 | - | 1.59 |
| | 0.90 | 1.37 | - | 1.61 | - | 1.75 | - | 1.78 |
| | 1.00 | 1.37 | - | 1.77 | - | 1.93 | - | 1.96 |
| | 1.20 | 1.37 | - | 1.77 | - | 1.93 | - | 2.34 |
| | 1.50 | 1.37 | - | 1.77 | - | 1.93 | - | 2.34 |
| $N_{R,II,k} [\text{kN}]$ | | 1.14 | 1.66 | 1.81 | 2.38 | 3.14 | 3.86 | 4.57 |

Additional definitions

The characteristic value $N_{R,k}$ can be determined according to Annex 3

Self-drilling screw with sealing washer $\geq \varnothing 12 \text{ mm}$

SX3-S12-6,0 x L, SX3-L12-S12-6,0 x L, SX3-D12-S12-6,0 x L

Annex 59

| | |
|--|--|
| | <p>Materials</p> <p>Fastener: Stainless steel A2 or A4 - EN ISO 3506</p> <p>Washer: Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal</p> <p>Component I: Aluminum alloy - EN 573</p> <p>Component II: S280GD to S450GD - EN 10346 HX300LAD to HX460LAD - EN 10346</p> <p>Drilling-capacity $\Sigma(t_I + t_{II}) \leq 4.00 \text{ mm}$</p> |
|--|--|

| Component I $R_m \geq 165 \text{ N/mm}^2$ | | $t_{II} [\text{mm}]$ | | | | | |
|--|------|----------------------|----------|----------|----------|----------|----------|
| | | 2 x 0.63 | 2 x 0.75 | 2 x 0.88 | 2 x 1.00 | 2 x 1.25 | 2 x 1.50 |
| $V_{R,k} [\text{kN}]$ | 0.50 | 0.65 | - | 0.70 | - | 0.75 | - |
| | 0.60 | 0.65 | - | 1.02 | - | 1.07 | - |
| | 0.70 | 0.65 | - | 1.18 | - | 1.39 | - |
| | 0.80 | 0.65 | - | 1.18 | - | 1.71 | - |
| | 0.90 | 0.65 | - | 1.18 | - | 1.71 | - |
| | 1.00 | 0.65 | - | 1.18 | - | 1.71 | - |
| | 1.20 | 0.65 | - | 1.18 | - | 1.71 | - |
| | 1.50 | 0.65 | - | 1.18 | - | 1.71 | - |
| $N_{R,II,k} [\text{kN}]$ | | 1.40 | 1.98 | 2.61 | 3.19 | 4.37 | 5.82 |

| Component I $R_m \geq 215 \text{ N/mm}^2$ | | $t_{II} [\text{mm}]$ | | | | | |
|--|------|----------------------|----------|----------|----------|----------|----------|
| | | 2 x 0.63 | 2 x 0.75 | 2 x 0.88 | 2 x 1.00 | 2 x 1.25 | 2 x 1.50 |
| $V_{R,k} [\text{kN}]$ | 0.50 | 0.85 | - | 0.92 | - | 0.98 | - |
| | 0.60 | 0.85 | - | 1.33 | - | 1.40 | - |
| | 0.70 | 0.85 | - | 1.33 | - | 1.81 | - |
| | 0.80 | 0.85 | - | 1.33 | - | 2.22 | - |
| | 0.90 | 0.85 | - | 1.33 | - | 2.22 | - |
| | 1.00 | 0.85 | - | 1.33 | - | 2.22 | - |
| | 1.20 | 0.85 | - | 1.33 | - | 2.22 | - |
| | 1.50 | 0.85 | - | 1.33 | - | 2.22 | - |
| $N_{R,II,k} [\text{kN}]$ | | 1.40 | 1.98 | 2.61 | 3.19 | 4.37 | 5.82 |

Additional definitions

The characteristic value $N_{R,k}$ can be determined according to Annex 3

| | |
|---|------------------------|
| <p>Self-drilling screw with sealing washer $\geq \varnothing 12 \text{ mm}$</p> | <p>Annex 60</p> |
| <p>SX3-S12-6,0 x L, SX3-L12-S12-6,0 x L, SX3-D12-S12-6,0 x L</p> | |

| | |
|--|--|
| | <p>Materials</p> <p>Fastener: Stainless steel A2 or A4 - EN ISO 3506</p> <p>Washer: Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal</p> <p>Component I: Aluminum alloy - EN 573</p> <p>Component II: S235 to S355 - EN 10025 S280GD to S450GD - EN 10346 HX300LAD to HX460LAD - EN 10346</p> <p>Drilling-capacity $\Sigma(t_i + t_{II}) \leq 5.00 \text{ mm}$</p> |
|--|--|

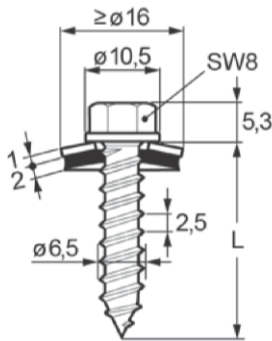
| Component I $R_m \geq 165 \text{ N/mm}^2$ | | $t_{II} [\text{mm}]$ | | | | | |
|--|-------------------|----------------------|------|------|------|------|------|
| | | 1.50 | 1.75 | 2.00 | 2.50 | 3.00 | 4.00 |
| $V_{R,k} [\text{kN}]$ | 0.50 | 0.70 | - | 0.80 | - | 0.89 | - |
| | 0.60 | 0.95 | - | 1.01 | - | 1.07 | - |
| | 0.70 | 1.19 | - | 1.23 | - | 1.26 | - |
| | 0.80 | 1.44 | - | 1.44 | - | 1.44 | - |
| | $t_i [\text{mm}]$ | 0.90 | 1.55 | - | 1.55 | - | 1.58 |
| | 1.00 | 1.66 | - | 1.66 | - | 1.66 | - |
| | 1.20 | 1.66 | - | 1.72 | - | 1.77 | - |
| | 1.50 | 1.66 | - | 1.72 | - | 1.77 | - |
| $N_{R,II,k} [\text{kN}]$ | | 1.88 | 2.38 | 2.87 | 4.34 | 5.81 | 7.28 |

| Component I $R_m \geq 215 \text{ N/mm}^2$ | | $t_{II} [\text{mm}]$ | | | | | |
|--|-------------------|----------------------|------|------|------|------|------|
| | | 1.50 | 1.75 | 2.00 | 2.50 | 3.00 | 4.00 |
| $V_{R,k} [\text{kN}]$ | 0.50 | 0.91 | - | 1.03 | - | 1.16 | - |
| | 0.60 | 1.23 | - | 1.31 | - | 1.40 | - |
| | 0.70 | 1.56 | - | 1.60 | - | 1.64 | - |
| | 0.80 | 1.88 | - | 1.88 | - | 1.88 | - |
| | $t_i [\text{mm}]$ | 0.90 | 2.03 | - | 2.03 | - | 2.06 |
| | 1.00 | 2.17 | - | 2.17 | - | 2.17 | - |
| | 1.20 | 2.17 | - | 2.24 | - | 2.31 | - |
| | 1.50 | 2.17 | - | 2.24 | - | 2.31 | - |
| $N_{R,II,k} [\text{kN}]$ | | 1.88 | 2.38 | 2.87 | 4.34 | 5.81 | 7.28 |

Additional definitions

The characteristic value $N_{R,k}$ can be determined according to Annex 3

| | |
|--|----------|
| Self-drilling screw with sealing washer $\geq \text{Ø } 12 \text{ mm}$ | Annex 61 |
| SX5-S12-6,0 x L, SX5-L12-S12-6,0 x L, SX5-D12-S12-6,0 x L | |



Materials

| | |
|---------------|--|
| Fastener: | Stainless steel A2, A4 or 1.4547 - EN ISO 3506 |
| Washer: | Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal |
| Component I: | Aluminum alloy - EN 573 |
| Component II: | S280GD to S450GD - EN 10346 HX300LAD to HX460LAD - EN 10346 |

Drilling-capacity -

| Component I $R_m \geq 165 \text{ N/mm}^2$ | | $t_{II} [\text{mm}]$ | | | | | | | |
|--|------|----------------------|------|------|------|------|------|------|------|
| | | 0.63 | 0.75 | 0.88 | 1.00 | 1.25 | 1.50 | 2.00 | 3.00 |
| $d_{pd} [\text{mm}]$ | | 3.5 | 4.0 | 4.5 | | | 5.0 | | |
| $V_{R,k} [\text{kN}]$ | 0.50 | 0.35 | - | 0.44 | - | 0.55 | - | 0.65 | - |
| | 0.60 | 0.35 | - | 0.44 | - | 0.55 | - | 0.65 | - |
| | 0.70 | 0.35 | - | 0.44 | - | 0.55 | - | 0.65 | - |
| | 0.80 | 0.35 | - | 0.44 | - | 0.55 | - | 0.65 | - |
| $t_l [\text{mm}]$ | 0.90 | 0.35 | - | 0.44 | - | 0.56 | - | 0.67 | - |
| | 1.00 | 0.35 | - | 0.44 | - | 0.56 | - | 0.67 | - |
| | 1.20 | 0.35 | - | 0.44 | - | 0.56 | - | 0.67 | - |
| | 1.50 | 0.35 | - | 0.44 | - | 0.56 | - | 0.67 | - |
| $N_{R,II,k} [\text{kN}]$ | | 1.00 | 1.20 | 1.40 | 1.50 | 1.90 | 2.30 | 3.80 | 5.60 |

| Component I $R_m \geq 215 \text{ N/mm}^2$ | | $t_{II} [\text{mm}]$ | | | | | | | |
|--|------|----------------------|------|------|------|------|------|------|------|
| | | 0.63 | 0.75 | 0.88 | 1.00 | 1.25 | 1.50 | 2.00 | 3.00 |
| $d_{pd} [\text{mm}]$ | | 3.5 | 4.0 | 4.5 | | | 5.0 | | |
| $V_{R,k} [\text{kN}]$ | 0.50 | 0.45 | - | 0.58 | - | 0.72 | - | 0.85 | - |
| | 0.60 | 0.45 | - | 0.58 | - | 0.72 | - | 0.85 | - |
| | 0.70 | 0.45 | - | 0.58 | - | 0.72 | - | 0.85 | - |
| | 0.80 | 0.45 | - | 0.58 | - | 0.72 | - | 0.85 | - |
| $t_l [\text{mm}]$ | 0.90 | 0.45 | - | 0.58 | - | 0.72 | - | 0.85 | - |
| | 1.00 | 0.45 | - | 0.58 | - | 0.72 | - | 0.85 | - |
| | 1.20 | 0.45 | - | 0.58 | - | 0.72 | - | 0.85 | - |
| | 1.50 | 0.45 | - | 0.58 | - | 0.72 | - | 0.85 | - |
| $N_{R,II,k} [\text{kN}]$ | | 1.00 | 1.20 | 1.40 | 1.50 | 1.90 | 2.30 | 3.80 | 5.60 |

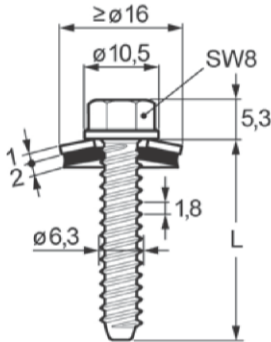
Additional definitions

The characteristic value $N_{R,k}$ can be determined according to Annex 3

Self-tapping screw with sealing washer $\geq \text{Ø } 16 \text{ mm}$

TDA-S-S16-6,5 x L

Annex 62



Materials

| | |
|---------------|---|
| Fastener: | Stainless steel A2, A4 or 1.4547 - EN ISO 3506 |
| Washer: | Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal |
| Component I: | Aluminum alloy - EN 573 |
| Component II: | S235 to S355 - EN 10025 S280GD to S450GD - EN 10346 HX300LAD to HX460LAD - EN 10346 |

Drilling-capacity -

| Component I R _m ≥ 165 N/mm ² | | t _{li} [mm] | | | | | | | | | |
|---|------|----------------------|------|------|------|------|-------|-------|-------|----------------------|---|
| | | 1.25 | 1.50 | 2.00 | 3.00 | 4.00 | 6.00 | 8.00 | 10.00 | > 10.00 ^a | |
| d _{pd} [mm] | | 5.0 | | 5.3 | | | 5.5 | 5.7 | | 5.8 | |
| V _{R,k} [kN] | 0.50 | 0.83 | - | 0.83 | - | 0.83 | - | 0.83 | - | 0.83 | - |
| | 0.60 | 0.83 | - | 1.00 | - | 1.00 | - | 1.00 | - | 1.00 | - |
| | 0.70 | 0.83 | - | 1.00 | - | 1.16 | - | 1.16 | - | 1.16 | - |
| | 0.80 | 0.83 | - | 1.00 | - | 1.33 | - | 1.33 | - | 1.33 | - |
| | 0.90 | 0.83 | - | 1.00 | - | 1.33 | - | 1.50 | - | 1.50 | - |
| | 1.00 | 0.83 | - | 1.00 | - | 1.33 | - | 1.66 | - | 1.66 | - |
| | 1.20 | 0.90 | - | 1.06 | - | 1.37 | - | 2.00 | - | 2.00 | - |
| | 1.50 | 0.93 | - | 1.22 | - | 1.50 | - | 2.07 | - | 2.49 | - |
| N _{R,II,k} [kN] | | 2.00 | 2.70 | 3.60 | 6.00 | 9.19 | 12.22 | 15.24 | 15.24 | 15.24 | |

| Component I R _m ≥ 215 N/mm ² | | t _{li} [mm] | | | | | | | | | |
|---|------|----------------------|------|-------|------|-------|------|-------|-------|----------------------|---|
| | | 1.25 | 1.50 | 2.00 | 3.00 | 4.00 | 6.00 | 8.00 | 10.00 | > 10.00 ^a | |
| d _{pd} [mm] | | 5.0 | | 5.3 | | | 5.5 | 5.7 | | 5.8 | |
| V _{R,k} [kN] | 0.50 | 1.08 | - | 1.08 | - | 1.08 | - | 1.08 | - | 1.08 | - |
| | 0.60 | 1.08 | - | 1.30 | - | 1.30 | - | 1.30 | - | 1.30 | - |
| | 0.70 | 1.08 | - | 1.30 | - | 1.52 | - | 1.52 | - | 1.52 | - |
| | 0.80 | 1.08 | - | 1.30 | - | 1.73 | - | 1.73 | - | 1.73 | - |
| | 0.90 | 1.08 | - | 1.30 | - | 1.73 | - | 1.95 | - | 1.95 | - |
| | 1.00 | 1.08 | - | 1.30 | - | 1.73 | - | 2.17 | - | 2.17 | - |
| | 1.20 | 1.18 | - | 1.38 | - | 1.79 | - | 2.60 | - | 2.60 | - |
| | 1.50 | 1.21 | - | 1.59 | - | 1.96 | - | 3.25 | - | 3.25 | - |
| N _{R,II,k} [kN] | | 2.00 | | 2.70 | | 3.60 | | 6.00 | | 9.19 | |
| | | 12.22 | | 15.24 | | 15.24 | | 15.24 | | 15.24 | |

Additional definitions

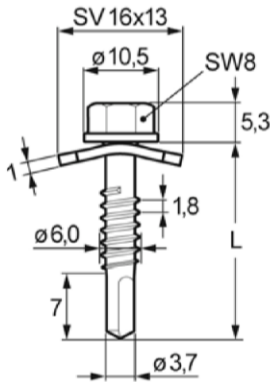
The characteristic value $N_{R,k}$ can be determined according to Annex 3

Index ^a: Only valid for component II made of S235, S280GD or HX300LAD

Self-tapping screw with sealing washer $\geq \text{Ø } 16 \text{ mm}$

TDB-S-S16-6,3 x L

Annex 63



Materials

| | |
|---------------|--|
| Fastener: | Stainless steel A2 or A4 - EN ISO 3506 |
| Washer: | Stainless steel A2 or A4 - EN ISO 3506 |
| Component I: | Aluminum alloy - EN 573 |
| Component II: | S280GD to S450GD - EN 10346 HX300LAD to HX460LAD - EN 10346 |

Drilling-capacity $\Sigma(t_I + t_{II}) \leq 4.00 \text{ mm}$

| Component I $R_m \geq 165 \text{ N/mm}^2$ | | $t_{II} [\text{mm}]$ | | | | | |
|--|------|----------------------|------|------|------|------|------|
| | | 0.63 | 0.75 | 0.88 | 1.00 | 1.25 | 1.50 |
| $V_{R,k} [\text{kN}]$ | 1.50 | 1.20 | 1.40 | 1.57 | 1.74 | 1.77 | 1.77 |
| | 2.00 | 1.20 | 1.83 | 2.04 | 2.25 | 2.57 | 2.88 |
| $t_I [\text{mm}]$ | 2.50 | 1.20 | 1.83 | 2.43 | 2.43 | 2.57 | 2.88 |
| | 3.00 | 1.20 | 2.01 | 2.81 | 2.81 | - | - |
| $N_{R,II,k} [\text{kN}]$ | | 0.82 | 1.15 | 1.49 | 1.82 | 2.51 | 3.21 |

| Component I $R_m \geq 215 \text{ N/mm}^2$ | | $t_{II} [\text{mm}]$ | | | | | |
|--|------|----------------------|------|------|------|------|------|
| | | 0.63 | 0.75 | 0.88 | 1.00 | 1.25 | 1.50 |
| $V_{R,k} [\text{kN}]$ | 1.50 | 1.20 | 1.60 | 1.93 | 2.26 | 2.30 | 2.30 |
| | 2.00 | 1.20 | 1.83 | 2.35 | 2.87 | 3.31 | 3.75 |
| $t_I [\text{mm}]$ | 2.50 | 1.20 | 1.83 | 2.58 | 2.87 | 3.31 | 3.75 |
| | 3.00 | 1.20 | 2.01 | 2.81 | 2.87 | - | - |
| $N_{R,II,k} [\text{kN}]$ | | 0.82 | 1.15 | 1.49 | 1.82 | 2.51 | 3.21 |

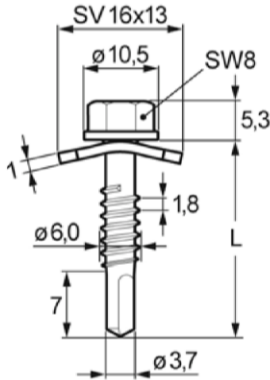
Additional definitions

The characteristic value $N_{R,k}$ can be determined according to Annex 3

Self-drilling screw with SV-washer 13x16 mm

SL3/2-5-S-SV16-6,0 x L

Annex 64



Materials

| | |
|---------------|--|
| Fastener: | Stainless steel A2 or A4 - EN ISO 3506 |
| Washer: | Stainless steel A2 or A4 - EN ISO 3506 |
| Component I: | Aluminum alloy - EN 573 |
| Component II: | S280GD to S450GD - EN 10346 HX300LAD to HX460LAD - EN 10346 |

Drilling-capacity $\Sigma(t_I + t_{II}) \leq 4.00 \text{ mm}$

| Component I $R_m \geq 165 \text{ N/mm}^2$ | | $t_{II} [\text{mm}]$ | | | |
|--|------|----------------------|----------|----------|----------|
| | | 2 x 0.75 | 2 x 0.88 | 2 x 1.00 | 2 x 1.25 |
| $N_{R,k} [\text{kN}]$ | 1.50 | 1.40 | 1.57 | 1.74 | 1.77 |
| | 2.00 | 1.83 | 2.04 | 2.25 | - |
| $t_I [\text{mm}]$ | 2.50 | 1.83 | - | - | - |
| | 3.00 | - | - | - | - |
| $N_{R,II,k} [\text{kN}]$ | | 2.43 | 2.94 | 3.45 | 4.38 |

| Component I $R_m \geq 215 \text{ N/mm}^2$ | | $t_{II} [\text{mm}]$ | | | |
|--|------|----------------------|----------|----------|----------|
| | | 2 x 0.75 | 2 x 0.88 | 2 x 1.00 | 2 x 1.25 |
| $N_{R,k} [\text{kN}]$ | 1.50 | 1.60 | 1.93 | 2.26 | 2.30 |
| | 2.00 | 1.83 | 2.35 | 2.87 | - |
| $t_I [\text{mm}]$ | 2.50 | 1.83 | - | - | - |
| | 3.00 | - | - | - | - |
| $N_{R,II,k} [\text{kN}]$ | | 2.43 | 2.94 | 3.45 | 4.38 |

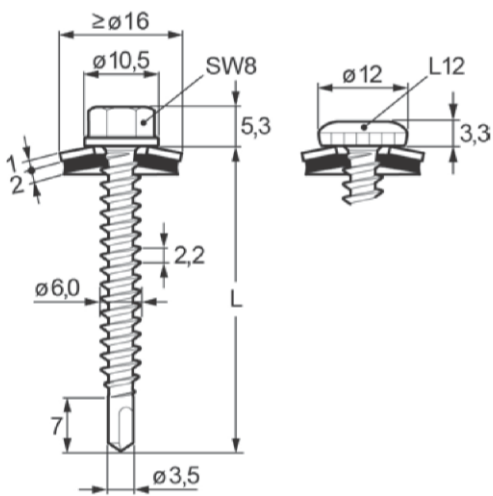
Additional definitions

The characteristic value $N_{R,k}$ can be determined according to Annex 3

Self-drilling screw with SV-washer 13x16 mm

SL3/2-5-S-SV16-6,0 x L

Annex 65

| | | |
|--|------------------|---|
|  | Materials | |
| | Fastener: | Stainless steel A2 or A4 - EN ISO 3506 |
| | Washer: | Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal |
| | Component I: | Aluminum alloy - EN 573 |
| | Component II: | Timber (coniferous timber) - EN 14081 |
| Drilling-capacity $\Sigma(t_i) \leq 2.00 \text{ mm}$ | | |
| Characteristics | | |
| $M_{y,Rk} = 7.9 \text{ Nm}$ | | |
| $f_{ax,k} = 13.2 \text{ N/mm}^2 (l_{ef} = 25 \text{ mm}, \rho_a = 350 \text{ kg/m}^3)$ | | |
| $f_{h,k} = 27.2 \text{ N/mm}^2 (\rho_a = 350 \text{ kg/m}^3)$ | | |

| Component I $R_m \geq 165 \text{ N/mm}^2$ | | $l_{ef} [\text{mm}]$ | | | | | $V_{R,I,k} [\text{kN}]$ |
|--|------|----------------------|------|------|------|------|-------------------------|
| | | 25 | 30 | 35 | 40 | 45 | |
| $V_{R,k} [\text{kN}]$ | 0.50 | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 | |
| | 0.60 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | |
| | 0.70 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | |
| | 0.80 | 1.02 | 1.14 | 1.14 | 1.14 | 1.14 | |
| | 0.90 | 1.02 | 1.23 | 1.26 | 1.26 | 1.26 | |
| $t_i [\text{mm}]$ | 1.00 | 1.02 | 1.23 | 1.26 | 1.26 | 1.26 | |
| | 1.20 | 1.02 | 1.23 | 1.26 | 1.26 | 1.26 | |
| | 1.50 | 1.02 | 1.23 | 1.26 | 1.26 | 1.26 | |
| | | | | | | | |
| $N_{R,II,k} [\text{kN}]$ | | 1.78 | 2.14 | 2.49 | 2.85 | 3.21 | |

| Component I $R_m \geq 215 \text{ N/mm}^2$ | | $l_{ef} [\text{mm}]$ | | | | | $V_{R,I,k} [\text{kN}]$ |
|--|------|----------------------|------|------|------|------|-------------------------|
| | | 25 | 30 | 35 | 40 | 45 | |
| $V_{R,k} [\text{kN}]$ | 0.50 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | |
| | 0.60 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | |
| | 0.70 | 1.02 | 1.16 | 1.16 | 1.16 | 1.16 | |
| | 0.80 | 1.02 | 1.23 | 1.34 | 1.34 | 1.34 | |
| | 0.90 | 1.02 | 1.23 | 1.43 | 1.52 | 1.52 | |
| $t_i [\text{mm}]$ | 1.00 | 1.02 | 1.23 | 1.43 | 1.52 | 1.52 | |
| | 1.20 | 1.02 | 1.23 | 1.43 | 1.52 | 1.52 | |
| | 1.50 | 1.02 | 1.23 | 1.43 | 1.52 | 1.52 | |
| | | | | | | | |
| $N_{R,II,k} [\text{kN}]$ | | 1.78 | 2.14 | 2.49 | 2.85 | 3.21 | |

Additional definitions

The characteristic value $N_{R,k}$ can be determined according to Annex 3

The indicated values $V_{R,k}$ and $N_{R,II,k}$ apply to $k_{mod} = 0.9$ and $\rho_k = 350 \text{ kg/m}^3$. Values for other k_{mod} or ρ_k can be determined according to Annex 3.

Self-drilling screw with sealing washer $\geq \varnothing 16 \text{ mm}$

SW2-S-S16-6,0 x L, SW2-S-L12-S16-6,0 x L

Annex 66

| | |
|--|---|
| | Materials |
| | Fastener: Stainless steel A2 or A4 - EN ISO 3506 |
| | Washer: Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal |
| | Component I: Aluminum alloy - EN 573 |
| | Component II: Timber (coniferous timber) - EN 14081 |
| Drilling-capacity $\Sigma(t_i) \leq 2.00$ mm | |
| Characteristics | |
| $M_{y,Rk} = 12.1$ Nm | |
| $f_{ax,k} = 13.2$ N/mm ² ($l_{ef} = 35$ mm, $\rho_a = 350$ kg/m ³) | |
| $f_{h,k} = 27.2$ N/mm ² ($\rho_a = 350$ kg/m ³) | |

| Component I $R_m \geq 165$ N/mm ² | | l_{ef} [mm] | | | | |
|---|------|---------------|------|------|------|------|
| | | 35 | 45 | 55 | 65 | 75 |
| $V_{R,k}$ [kN] | 0.50 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| | 0.60 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 |
| | 0.70 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 |
| | 0.80 | 1.37 | 1.37 | 1.37 | 1.37 | 1.37 |
| | 0.90 | 1.54 | 1.54 | 1.54 | 1.54 | 1.54 |
| | 1.00 | 1.72 | 1.72 | 1.72 | 1.72 | 1.72 |
| | 1.20 | 1.73 | 2.06 | 2.06 | 2.06 | 2.06 |
| | 1.50 | 1.73 | 2.23 | 2.57 | 2.57 | 2.57 |
| $N_{R,II,k}$ [kN] | | 2.70 | 3.47 | 4.25 | 5.02 | 5.79 |

| | |
|------|------------------|
| 0.86 | $V_{R,I,k}$ [kN] |
| 1.03 | |
| 1.20 | |
| 1.37 | |
| 1.54 | |
| 1.72 | |
| 2.06 | |
| 2.57 | |

| Component I $R_m \geq 215$ N/mm ² | | l_{ef} [mm] | | | | |
|---|------|---------------|------|------|------|------|
| | | 35 | 45 | 55 | 65 | 75 |
| $V_{R,k}$ [kN] | 0.50 | 1.12 | 1.12 | 1.12 | 1.12 | 1.12 |
| | 0.60 | 1.34 | 1.34 | 1.34 | 1.34 | 1.34 |
| | 0.70 | 1.57 | 1.57 | 1.57 | 1.57 | 1.57 |
| | 0.80 | 1.73 | 1.79 | 1.79 | 1.79 | 1.79 |
| | 0.90 | 1.73 | 2.01 | 2.01 | 2.01 | 2.01 |
| | 1.00 | 1.73 | 2.23 | 2.24 | 2.24 | 2.24 |
| | 1.20 | 1.73 | 2.23 | 2.68 | 2.68 | 2.68 |
| | 1.50 | 1.73 | 2.23 | 2.73 | 3.22 | 3.35 |
| $N_{R,II,k}$ [kN] | | 2.70 | 3.47 | 4.25 | 5.02 | 5.79 |

| | |
|------|------------------|
| 1.12 | $V_{R,I,k}$ [kN] |
| 1.34 | |
| 1.57 | |
| 1.79 | |
| 2.01 | |
| 2.24 | |
| 2.68 | |
| 3.35 | |

Additional definitions

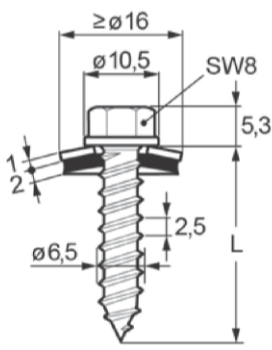
The characteristic value $N_{R,k}$ can be determined according to Annex 3

The indicated values $V_{R,k}$ and $N_{R,II,k}$ apply to $k_{mod} = 0.9$ and $\rho_k = 350$ kg/m³. Values for other k_{mod} or ρ_k can be determined according to Annex 3.

Self-drilling screw with sealing washer $\geq \varnothing 16$ mm

SXW-S16-6,5 x L, SXW-L12-S16-6,5 x L

Annex 67

| | |
|---|--|
|  | Materials |
| | Fastener: Stainless steel A2, A4 or 1.4547 - EN ISO 3506 |
| | Washer: Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal |
| | Component I: Aluminum alloy - EN 573 |
| | Component II: Timber (coniferous timber) - EN 14081 |
| | Drilling-capacity - |
| | Characteristics |
| | $M_{y,Rk}$ = 13.9 Nm |
| | $f_{ax,k}$ = 13.2 N/mm ² (l_{ef} = 35 mm, ρ_a = 350 kg/m ³) |
| | $f_{h,k}$ = 27.2 N/mm ² (ρ_a = 350 kg/m ³) |

| Component I $R_m \geq 165 \text{ N/mm}^2$ | | l_{ef} [mm] | | | | |
|--|------|---------------|------|------|------|------|
| | | 35 | 45 | 55 | 65 | 75 |
| d_{pd} [mm] | | 4.80 | | | | |
| $V_{R,k}$ [kN] | 0.50 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| | 0.60 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 |
| | 0.70 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 |
| | 0.80 | 1.37 | 1.37 | 1.37 | 1.37 | 1.37 |
| t_i [mm] | 0.90 | 1.54 | 1.54 | 1.54 | 1.54 | 1.54 |
| | 1.00 | 1.72 | 1.72 | 1.72 | 1.72 | 1.72 |
| | 1.20 | 1.73 | 2.06 | 2.06 | 2.06 | 2.06 |
| | 1.50 | 1.73 | 2.23 | 2.57 | 2.57 | 2.57 |
| $N_{R,II,k}$ [kN] | | 2.70 | 3.47 | 4.25 | 5.02 | 5.79 |

| | |
|------|------------------|
| 0.86 | $V_{R,I,k}$ [kN] |
| 1.03 | |
| 1.20 | |
| 1.37 | |
| 1.54 | |
| 1.72 | |
| 2.06 | |
| 2.57 | |

| Component I $R_m \geq 215 \text{ N/mm}^2$ | | l_{ef} [mm] | | | | |
|--|------|---------------|------|------|------|------|
| | | 35 | 45 | 55 | 65 | 75 |
| d_{pd} [mm] | | 4.80 | | | | |
| $V_{R,k}$ [kN] | 0.50 | 1.12 | 1.12 | 1.12 | 1.12 | 1.12 |
| | 0.60 | 1.34 | 1.34 | 1.34 | 1.34 | 1.34 |
| | 0.70 | 1.57 | 1.57 | 1.57 | 1.57 | 1.57 |
| | 0.80 | 1.73 | 1.79 | 1.79 | 1.79 | 1.79 |
| t_i [mm] | 0.90 | 1.73 | 2.01 | 2.01 | 2.01 | 2.01 |
| | 1.00 | 1.73 | 2.23 | 2.24 | 2.24 | 2.24 |
| | 1.20 | 1.73 | 2.23 | 2.68 | 2.68 | 2.68 |
| | 1.50 | 1.73 | 2.23 | 2.73 | 3.22 | 3.35 |
| $N_{R,II,k}$ [kN] | | 2.70 | 3.47 | 4.25 | 5.02 | 5.79 |

| | |
|------|------------------|
| 1.12 | $V_{R,I,k}$ [kN] |
| 1.34 | |
| 1.57 | |
| 1.79 | |
| 2.01 | |
| 2.24 | |
| 2.68 | |
| 3.35 | |

Additional definitions

The characteristic value $N_{R,k}$ can be determined according to Annex 3

The indicated values $V_{R,k}$ and $N_{R,II,k}$ apply to $k_{mod} = 0.9$ and $\rho_k = 350 \text{ kg/m}^3$. Values for other k_{mod} or ρ_k can be determined according to Annex 3.

Self-tapping screw with sealing washer $\geq \text{Ø } 16 \text{ mm}$

TDA-S-S16-6,5 x L

Annex 68