Deutsches Institut für Bautechnik

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Bautechnisches Prüfamt

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European Technical Assessment

ETA-10/0198 of 6 January 2021

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General Part

Technical Assessment Body issuing the European Technical Assessment:	Deutsches Institut für Bautechnik
Trade name of the construction product	SX, SLG, SL, TDA, TDB, TDC, SD, SXW, SW, CDM
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	SFS plants 1, 5, 7, 16 and 18
This European Technical Assessment contains	78 pages including 71 annexes which form an integral part of this assessment
This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of	EAD 330046-01-0602
This version replaces	ETA-10/0198 issued on 25 January 2019

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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	Description	Fastener material	Application
3 / 4	Fastening screws for perforated sheeting	Hole pattern I Hole pattern II	Stainless steel	Perfoated Sheeting
5 / 6	SX3-S12-6,0 x L SX3-L12-S12-6,0 x L SX3-D12-S12-6,0 x L	Self-drilling screw with sealing washer Ø 12 mm	Stainless steel	Steel / Steel
7 / 8	SX3-S14-6,0 x L SX3-L12-S14-6,0 x L SX3-D12-S14-6,0 x L	Self-drilling screw with sealing washer Ø 14 mm	Stainless steel	Steel / Steel
9 / 10	SX3-S16-6,0 x L SX3-L12-S16-6,0 x L SX3-D12-S16-6,0 x L	Self-drilling screw with sealing washer Ø 16 mm	Stainless steel	Steel / Steel
11 / 12	SX3-S19-6,0 x L SX3-L12-S19-6,0 x L SX3-D12-S19-6,0 x L	Self-drilling screw with sealing washer ≥ Ø 19 mm	Stainless steel	Steel / Steel
13	SX5-S12-5,5 x L SX5-L12-S12-5,5 x L SX5-D12-S12-5,5 x L	Self-drilling screw with sealing washer Ø 12 mm	Stainless steel	Steel / Steel
14	SX5-S14-5,5 x L SX5-L12-S14-5,5 x L SX5-D12-S14-5,5 x L	Self-drilling screw with sealing washer Ø 14 mm	Stainless steel	Steel / Steel
15	SX5-S16-5,5 x L SX5-L12-S16-5,5 x L SX5-D12-S16-5,5 x L	Self-drilling screw with sealing washer Ø 16 mm	Stainless steel	Steel / Steel
16	SX5-S19-5,5 x L SX5-L12-S19-5,5 x L SX5-D12-S19-5,5 x L	Self-drilling screw with sealing washer Ø ≥ 19 mm	Stainless steel	Steel / Steel
17	SX14-S16-5,5 x L SX14-L12-S16-5,5 x L SX14-D12-S16-5,5 x L	Self-drilling screw with sealing washer ≥ Ø 16 mm	Stainless steel	Steel / Steel
18 / 19	TDA-S-S16-6,5 x L	Self-tapping screw with sealing washer ≥ Ø 16 mm	Stainless steel	Steel / Steel
20	TDB-S-S16-6,3 x L	Self-tapping screw with sealing washer ≥ Ø 16 mm	Stainless steel	Steel / Steel
21	TDC-S-S16-6,3 x L	Self-tapping screw with sealing washer ≥ Ø 16 mm	Stainless steel	Steel / Steel
22	SLG-S-S14-4.8 x L	Self-drilling screw with sealing washer ≥ Ø 14 mm	Stainless steel	Steel / Steel
23	SL2-S-S14-4.8 x L	Self-drilling screw with sealing washer ≥ Ø 14 mm	Stainless steel	Steel / Steel

Table 1 - continued

Annex	Fastening screw	Description	Fastener material	Application
24	SL2-S-S14-5.5 x L	Self-drilling screw with sealing washer ≥ Ø 14 mm	Stainless steel	Steel / Steel
25	SL2-S-S14-6.3 x L SL2-S-L12-S14-6.3 x L	Self-drilling screw with sealing washer ≥ Ø 14 mm	Stainless steel	Steel / Steel
26	SLG-S-6.5 x L	Self-drilling screw	Stainless steel	Steel / Steel
27 / 28	SL3/2-5-S-SV16-6.0 x L	Self-drilling screw mit SV-washer 13x16 mm	Stainless steel	Steel / Steel
29	SD2-T16-6.3 x L	Self-drilling screw with sealing washer ≥ Ø 16 mm	Carbon steel	Steel / Steel
30	SD3-T16-4,8 x L SD3-L12-T16-4,8 x L	Self-drilling screw with sealing washer ≥ Ø 16 mm	Carbon steel	Steel / Steel
31	SD3/15-T16-4,8 x L SD3/15-L12-T16-4,8 x L	Self-drilling screw with sealing washer ≥ Ø 16 mm	Carbon steel	Steel / Steel
32	SD3-T16-5.5 x L SD3-L12-T16-5.5 x L SD3-D12-T16-5.5 x L	Self-drilling screw with sealing washer ≥ Ø 16 mm	Carbon steel	Steel / Steel
33	SDP3-Z-5.5 x L	Self-drilling screw	Carbon steel	Steel / Steel
34	SDL3-T16-5.5 x L SDL3-L12-T16-5.5 x L	Self-drilling screw with sealing washer ≥ Ø 16 mm	Carbon steel	Steel / Steel
35	SD3-T16-6.3 x L SD3-L12-T16-6.3 x L SD3-D12-T16-6.3 x L	Self-drilling screw with sealing washer ≥ Ø 16 mm	Carbon steel	Steel / Steel
36	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 with sealing washer ≥ Ø 16 mm	Carbon steel	Steel / Steel
37	SD6-H15-5.5 x L	Self-drilling screw	Carbon steel	Steel / Steel
38	SD6-T16-6.3 x L SD6-L12-T16-6.3 x L	Self-drilling screw with sealing washer ≥ Ø 16 mm	Carbon steel	Steel / Steel
39	SD8-H15-5.5 x L	Self-drilling screw	Carbon steel	Steel / Steel
40	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 with sealing washer ≥ Ø 16 mm	Carbon steel	Steel / Steel
41	SD14-H15-5.5 x L	Self-drilling screw	Carbon steel	Steel / Steel
42	CDM-4.8 x L CDM-D12-4.8xL	Self-drilling screw	Carbon steel	Steel / Steel
43	SLG-T-A14-4.8 x L	Self-drilling screw with sealing washer ≥ Ø 14 mm	Carbon steel	Steel / Steel
44	SL2-T-A14-4.8 x L	Self-drilling screw with sealing washer ≥ Ø 14 mm	Carbon steel	Steel / Steel
45	SL2-4.8 x L	Self-drilling screw	Carbon steel	Steel / Steel
46	SL2-H15-6.3 x L	Self-drilling screw	Carbon steel	Steel / Steel

Table 1 - continued

Annex	Fastening screw	Description	Fastener material	Application
47	SL3-H15-6.3 x L	Self-drilling screw	Carbon steel	Steel / Steel
48	SW2-S-S16-6.0 x L SW2-S-L12-S16-6.0 x L	Self-drilling screw with sealing washer ≥ Ø 16 mm	Stainless steel	Steel / Timber
49	SXW-S16-6.5 x L SXW-L12-S16-6.5 x L	Self-drilling screw with sealing washer ≥ Ø 16 mm	Stainless steel	Steel / Timber
50	TDA-S-S16-6,5 x L	Self-tapping screw with sealing washer ≥ Ø 16 mm	Stainless steel	Steel / Timber
51	SW-T-A14-4.8 x L	Self-drilling screw with sealing washer ≥ Ø 14 mm	Carbon steel	Steel / Timber
52	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 with sealing washer ≥ Ø 16 mm	Carbon steel	Steel / Timber
53	SW3-T-H15-6.5 x L	Self-drilling screw	Carbon steel	Steel / Timber
54	SX3-S12-6,0 x L SX3-L12-S12-6,0 x L SX3-D12-S12-6,0 x L	Self-drilling screw with sealing washer ≥ Ø 12 mm	Stainless steel	Aluminum alloy - EN 573 / Aluminum alloy - EN 573
55	SX5-S12-5,5 x L SX5-L12-S12-5,5 x L SX5-D12-S12-5,5 x L	Self-drilling screw with sealing washer ≥ Ø 12 mm	Stainless steel	Aluminum alloy - EN 573 / Aluminum alloy - EN 573
56	TDA-S-S16-6,5 x L	Self-tapping screw with sealing washer ≥ Ø 16 mm	Stainless steel	Aluminum alloy - EN 573 / Aluminum alloy - EN 573
57	TDB-S-S16-6.3 x L	Self-tapping screw with sealing washer ≥ Ø 16 mm	Stainless steel	Aluminum alloy - EN 573 / Aluminum alloy - EN 573
58	SL2-S-S14-5.5 x L	Self-drilling screw with sealing washer ≥ Ø 14 mm	Stainless steel	Aluminum alloy - EN 573 / Aluminum alloy - EN 573
59	SL2-S-S14-6.3 x L SL2-S-L12-S14-6.3 x L	Self-drilling screw with sealing washer ≥ Ø 14 mm	Stainless steel	Aluminum alloy - EN 573 / Aluminum alloy - EN 573
60 / 61	SX3-S12-6,0 x L SX3-L12-S12-6,0 x L SX3-D12-S12-6,0 x L	Self-drilling screw with sealing washer ≥ Ø 12 mm	Stainless steel	Aluminum alloy - EN 573 / Steel
62	SX5-S12-5,5 x L SX5-L12-S12-5,5 x L SX5-D12-S12-5,5 x L	Self-drilling screw with sealing washer ≥ Ø 12 mm	Stainless steel	Aluminum alloy - EN 573 / Steel
63	TDA-S-S16-6,5 x L	Self-tapping screw with sealing washer ≥ Ø 16 mm	Stainless steel	Aluminum alloy - EN 573 / Steel
64	TDB-S-S16-6.3 x L	Self-tapping screw with sealing washer ≥ Ø 16 mm	Stainless steel	Aluminum alloy - EN 573 / Steel
65 / 66	SL3/2-5-S-SV16-6.0 x L	Self-drilling screw mit SV-washer 13x16 mm	Stainless steel	Aluminum alloy - EN 573 / Steel

Table 1 - continued

Annex	Fastening screw	Description	Fastener material	Application
67	SW2-S-S16-6.0 x L SW2-S-L12-S16-6.0 x L	Self-drilling screw with sealing washer ≥ Ø 16 mm	Stainless steel	Aluminum alloy - EN 573 / Timber
68	SXW-S16-6.5 x L SXW-L12-S16-6.5 x L	Self-drilling screw with sealing washer ≥ Ø 16 mm	Stainless steel	Aluminum alloy - EN 573 / Timber
69	TDA-S-S16-6,5 x L	Self-tapping screw with sealing washer ≥ Ø 16 mm	Stainless steel	Aluminum alloy - EN 573 / /Timber
70	SDA5-H13-5,5 x L	Self-drilling screw	Stainless steel	Aluminum alloy - EN 573 / Aluminum alloy - EN 573
71	SDA5-H13-5,5 x L	Self-drilling screw	Stainless steel	Stainless steel / Aluminum alloy - EN 573

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

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 ≥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 are used in compliance with the specifications and conditions given in Annex (1-71).

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 combination of 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	see Annexes to this ETA

3.2 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	Class A1

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

In accordance with EAD 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 with Deutsches Institut für Bautechnik.

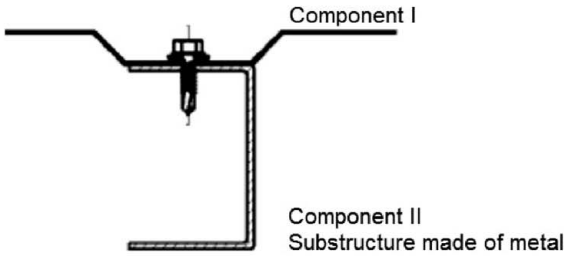
Issued in Berlin 6 January 2021 by Deutsches Institut für Bautechnik

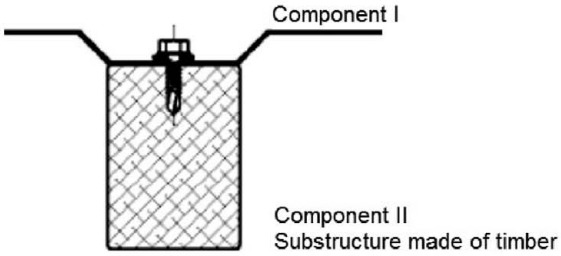
Dr.-Ing. Ronald Schwuchow
Head of Section

beglaubigt:
Hahn

Deutsches Institut für Bautechnik DIBt

Exemplary execution of a connection





Dimensions

Design relevant dimensions are indicated as follows:

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

Resistance values

The resistance values of a connection are indicated as follows:

$N_{R,k}$	Characteristic tension resistance
$V_{R,k}$	Characteristic shear resistance

In some cases component-specific resistance values are indicated:

$N_{R,I,k}$	Characteristic pull-through resistance of component I
$N_{R,II,k}$	Characteristic pull-out resistance of component II
$V_{R,I,k}$	Characteristic hole bearing resistance of component I

Additionally indicated values for component II made of timber:

$M_{y,Rk}$	Characteristic yield moment of the fastening screw
$f_{ax,k}$	Characteristic withdrawal strength of timber

Terms and explanations	**Annex 1**
Fastening screws for metal members and sheeting	

Design values

The design values 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 thickness of component I (t_I) or component II (t_{II}) is between two indicated thicknesses, the resistance values $N_{R,k}$ and $V_{R,k}$ can be determined by linear interpolation. The same applies to screw-in lengths l_{ef} and l_p.

If component II made of metal with thickness $t_{II} < 3$ mm leads to an asymmetric loading of the connection (e.g. Z-profile), the resistance values $N_{R,k}$ have to be reduced to 70%.

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

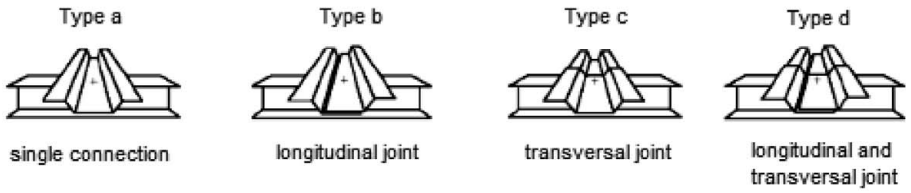
$$\frac{N_{S,d}}{N_{R,d}} + \frac{V_{S,d}}{V_{R,d}} \leq 1.0$$

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

Types of connection

For the types of connection (a, b, c, d), indicated 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 or if no connection types are indicated, 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.

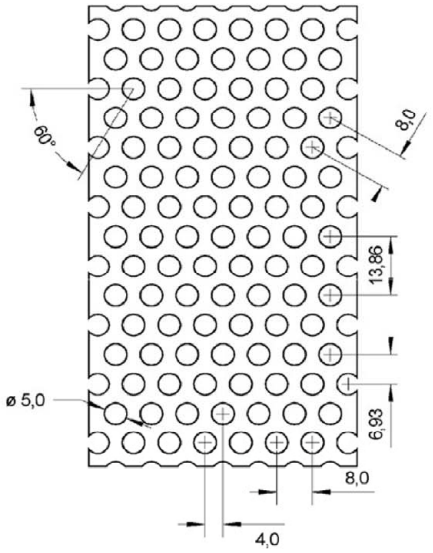
The load-bearing screw-in length of the fastening screw specified by the manufacturer has to be taken into account.

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

The 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	Annex 2
Fastening screws for metal members and sheeting	



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] / t_I [mm]	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] / t_I [mm]	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 resistance values $N_{R,k}$ and $V_{R,k}$ can be determined as follows: $N_{R,k}$ = min {$N_{R,I,k}$ | $N_{R,II,k}$} and $V_{R,k}$ = min {$V_{R,I,k}$ | $V_{R,k}$}. $N_{R,II,k}$ and $V_{R,k}$ are indicated in the Annex of the fastening screw.

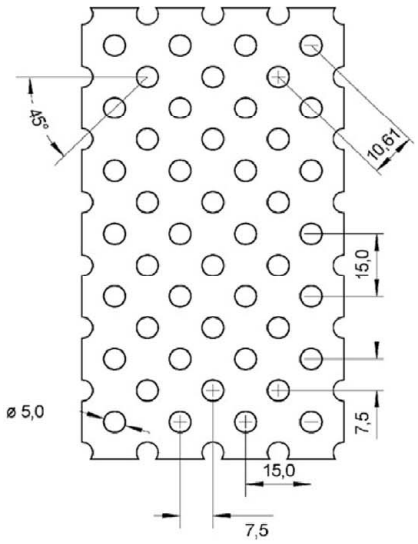
For component I made of S320GD the indicated resistance values $N_{R,I,k}$ and $V_{R,I,k}$ may be increased by 8.3% and for component I made of S350GD to S450GD by 16.6%.

If the connection is exposed to wind loads, the component thickness t_I must be at least 1 mm.

Hole pattern I

Fastening screws for perforated 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] / t_I [mm]	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] / t_I [mm]	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 resistance values $N_{R,k}$ and $V_{R,k}$ can be determined as follows: $N_{R,k}$ = min {$N_{R,I,k}$ | $N_{R,II,k}$} and $V_{R,k}$ = min {$V_{R,I,k}$ | $V_{R,k}$}. $N_{R,II,k}$ and $V_{R,k}$ are indicated in the Annex of the fastening screw.

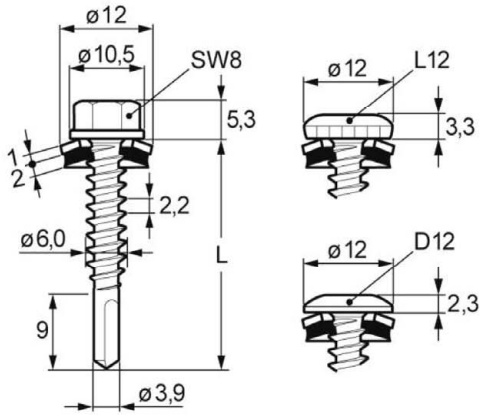
For component I made of S320GD the indicated resistance values $N_{R,I,k}$ and $V_{R,I,k}$ may be increased by 8.3% and for component I made of S350GD to S450GD by 16.6%.

If the connection is exposed to wind loads, the component thickness t_I must be at least 1 mm.

Hole pattern II

Fastening screws for perforated sheeting

Annex 4



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 $\Sigma(t_I + t_{II}) \leq 3.00$ mm

		t_{II} [mm]							
		0.63	0.75	0.88	1.00	1.25	1.50	1.75	2.00
$V_{R,k}$ [kN] t_I [mm]	0.50	0.98[a] -	1.20[a] -	1.45[a] -	1.61[a] -	1.76[a] -	1.90[a] -	1.90[a] -	1.90[a] -
	0.55	1.03[a] -	1.25[a] -	1.53[a] -	1.68[a] -	1.91[a] -	2.13[a] -	2.13[a] -	2.13[a] -
	0.63	1.11[a] -	1.34[a] -	1.66[a] -	1.79[a] -	2.15[a] -	2.50[a] -	2.50[a] -	2.50[a] -
	0.75	1.11[a] -	1.47[a] -	1.85[a] -	1.96[a] -	2.51[a] -	3.06[a] -	3.06[a] -	3.06[a] -
	0.88	1.11[a] -	1.47[a] -	1.85[a] -	2.05 -	2.79 -	3.53 -	3.66 -	3.79 -
	1.00	1.11[a] -	1.47[a] -	1.85[a] -	2.14 -	3.05 -	3.96 -	4.21 -	4.46 -
	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] t_I [mm]	0.50	0.89 -	1.14 -	1.22[a] -	1.22[a] -	1.22[a] -	1.22[a] -	1.22[a] -	1.22[a] -
	0.55	0.89 -	1.14 -	1.54 -	1.54[a] -	1.54[a] -	1.54[a] -	1.54[a] -	1.54[a] -
	0.63	0.89 -	1.14 -	1.66 -	1.81 -	2.04[a] -	2.04[a] -	2.04[a] -	2.04[a] -
	0.75	0.89 -	1.14 -	1.66 -	1.81 -	2.38 -	2.80[a] -	2.80[a] -	2.80[a] -
	0.88	0.89 -	1.14 -	1.66 -	1.81 -	2.38 -	3.14 -	3.63 -	3.63 -
	1.00	0.89 -	1.14 -	1.66 -	1.81 -	2.38 -	3.14 -	3.86 -	4.39 -
	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

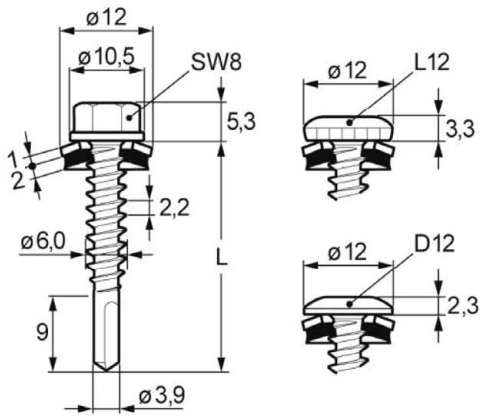
Additional definitions

Index [a]: For component I made of S320GD to S450GD the resistance value 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 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 $\Sigma(t_I + t_{II}) \leq 4.00$ 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] t_I [mm]	0.50	0.88[a] -	1.87[a] -	1.89[a] -	1.91[a] -	1.91[a] -	1.91[a] -
	0.55	0.98[a] -	2.01[a] -	2.05[a] -	2.08[a] -	2.12[a] -	2.12[a] -
	0.63	1.15[a] -	2.24[a] -	2.30[a] -	2.36[a] -	2.45[a] -	2.45[a] -
	0.75	1.39[a] -	2.58[a] -	2.68[a] -	2.77[a] -	2.96[a] -	2.96[a] -
	0.88	1.66 -	2.67 -	3.30 -	3.36 -	3.66 -	3.79 -
	1.00	1.90 -	2.75 -	3.36 -	4.01 -	4.01 -	4.01 -
	1.25	2.41 -	2.92 -	3.47 -	4.01 -	5.05 -	- -
	1.50	2.41 -	2.92 -	3.47 -	4.01 -	5.05 -	- -
$N_{R,k}$ [kN] t_I [mm]	0.50	1.22[a] -	1.22[a] -	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] -	1.54[a] -	1.54[a] -
	0.63	1.40 -	1.98 -	2.04[a] -	2.04[a] -	2.04[a] -	2.04[a] -
	0.75	1.40 -	1.98 -	2.61 -	2.80[a] -	2.80[a] -	2.80[a] -
	0.88	1.40 -	1.98 -	2.61 -	3.19 -	3.63 -	3.63 -
	1.00	1.40 -	1.98 -	2.61 -	3.19 -	4.37 -	4.39 -
	1.25	1.40 -	1.98 -	2.61 -	3.19 -	4.37 -	- -
	1.50	1.40 -	1.98 -	2.61 -	3.19 -	4.37 -	- -
$N_{R,II,k}$ [kN]		1.40	1.98	2.61	3.19	4.37	5.82

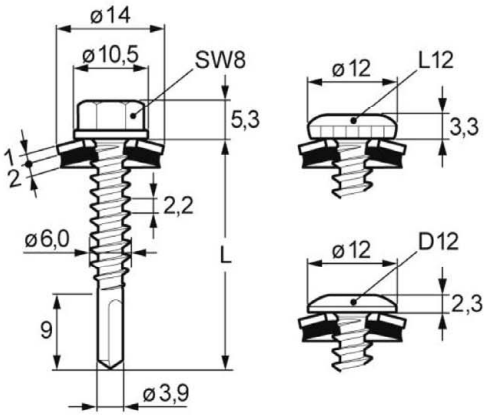
Additional definitions

Index [a]: For component I made of S320GD to S450GD the resistance value 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 $\Sigma(t_I + t_{II}) \leq 3.00$ mm

		t_{II} [mm]							
		0.63	0.75	0.88	1.00	1.25	1.50	1.75	2.00
$V_{R,k}$ [kN] / t_I [mm]	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 -	- -	- -
$N_{R,k}$ [kN] / t_I [mm]	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	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] 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	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	3.09[a] a
	0.88	0.89 -	1.14 -	1.66 -	1.81 -	2.38 -	3.14 -	3.86 -	4.00 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

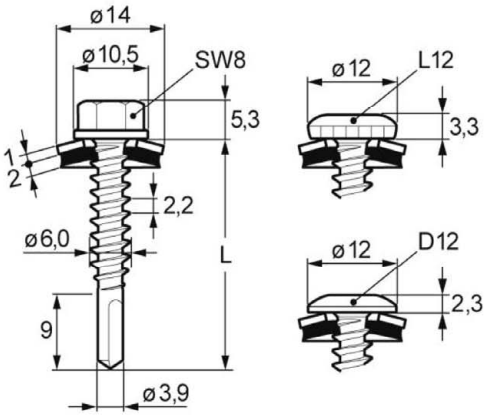
Additional definitions

Index [a]: For component I made of S320GD to S450GD the resistance value 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 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 $\Sigma(t_I + t_{II}) \leq 4.00$ 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] / t_I [mm]	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
	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	-	-
$N_{R,k}$ [kN] / t_I [mm]	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
	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	-	-
$N_{R,II,k}$ [kN]		1.40		1.98		2.61		3.19		4.37		5.82	

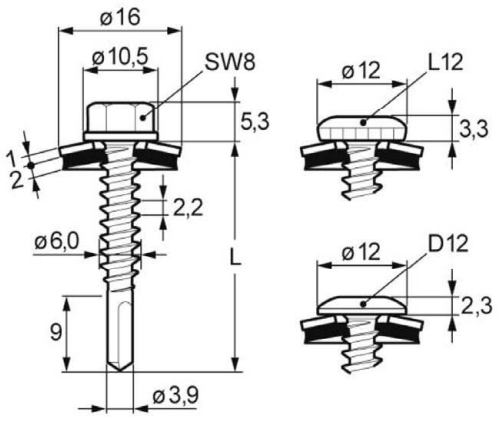
Additional definitions

Index [a]: For component I made of S320GD to S450GD the resistance value 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 $\Sigma(t_I + t_{II}) \leq 3.00$ mm

		t_{II} [mm]							
		0.63	0.75	0.88	1.00	1.25	1.50	1.75	2.00
$V_{R,k}$ [kN] t_I [mm]	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 -	- -	- -
$N_{R,k}$ [kN] t_I [mm]	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 -	- -	- -
$N_{R,II,k}$ [kN]		0.89	1.14	1.66	1.81	2.38	3.14	3.86	4.57

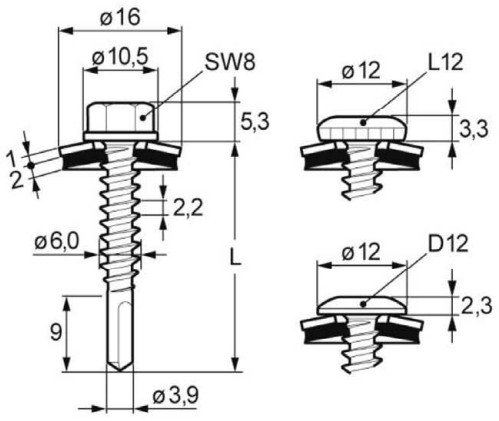
Additional definitions

Index [a]: For component I made of S320GD to S450GD the resistance value 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 9



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 $\Sigma(t_I + t_{II}) \leq 4.00$ 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] / t_I [mm]	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
	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	-	-
$N_{R,k}$ [kN] / t_I [mm]	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
	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
	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	-	-
$N_{R,II,k}$ [kN]		1.40		1.98		2.61		3.19		4.37		5.82	

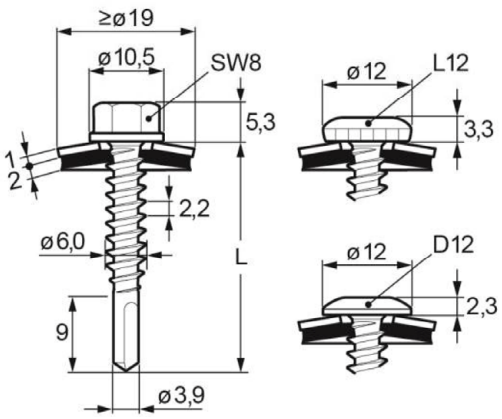
Additional definitions

Index [a]: For component I made of S320GD to S450GD the resistance value 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 $\Sigma(t_I + t_{II}) \leq 3.00$ mm

		t_{II} [mm]							
		0.63	0.75	0.88	1.00	1.25	1.50	1.75	2.00
$V_{R,k}$ [kN] t_I [mm]	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 -	- -	- -
$N_{R,k}$ [kN] t_I [mm]	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
	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

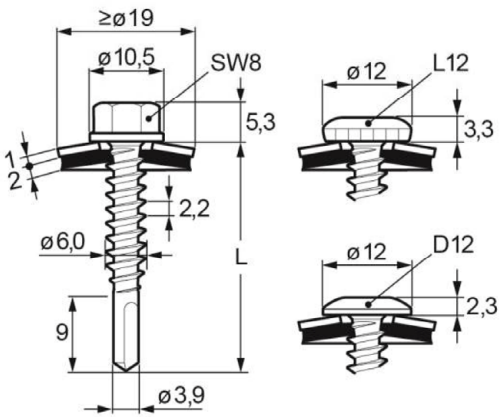
Additional definitions

Index [a]: For component I made of S320GD to S450GD the resistance value may be increased by 8.3%.

Self-drilling screw with sealing washer ≥ Ø 19 mm

SX3-S19-6,0 x L, SX3-L12-S19-6,0 x L, SX3-D12-S19-6,0 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 $\Sigma(t_I + t_{II}) \leq 4.00$ 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] / t_I [mm]	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
	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	-	-
$N_{R,k}$ [kN] / t_I [mm]	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
	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	-	-
$N_{R,II,k}$ [kN]		1.40		1.98		2.61		3.19		4.37		5.82	

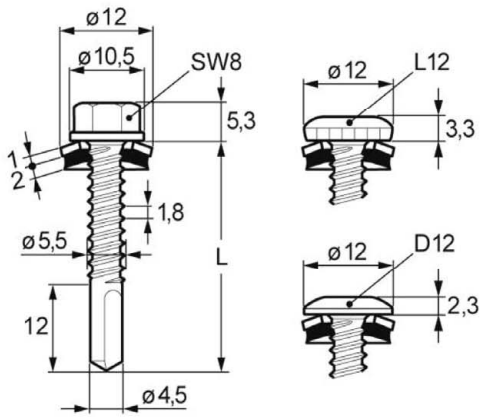
Additional definitions

Index [a]: For component I made of S320GD to S450GD the resistance value may be increased by 8.3%.

Self-drilling screw with sealing washer ≥ Ø 19 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:	S235 to S355 - EN 10025 S280GD to S450GD - EN 10346 HX300LAD to HX460LAD - EN 10346

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

		t_{II} [mm]					
		1.50	1.75	2.00	2.50	3.00	4.00
$V_{R,k}$ [kN] t_I [mm]	0.50	1.57[a] -	1.67[a] -	1.76[a] -	1.76[a] -	1.76[a] -	1.76[a] -
	0.55	1.71[a] -	1.79[a] -	1.86[a] -	1.86[a] -	1.86[a] -	1.86[a] -
	0.63	1.94[a] -	1.99[a] -	2.03[a] -	2.03[a] -	2.03[a] -	2.03[a] -
	0.75	2.28[a] -	2.28[a] -	2.28[a] -	2.28[a] -	2.28[a] -	2.28[a] -
	0.88	2.86[a] -	2.86[a] -	2.86[a] -	3.04[a] -	3.27[a] -	3.27[a] -
	1.00	3.43 -	3.43 -	3.43 -	3.74 -	4.18 -	4.18 -
	1.25	3.43 -	3.87 -	4.31 -	5.20 -	6.08 -	- -
	1.50	3.43 -	3.87 -	4.31 -	5.20 -	6.08 -	- -
$N_{R,k}$ [kN] t_I [mm]	0.50	1.22[a] -	1.22[a] -	1.22[a] -	1.22[a] -	1.22[a] -	1.22[a] -
	0.55	1.54[a] -	1.54[a] -	1.54[a] -	1.54[a] -	1.54[a] -	1.54[a] -
	0.63	2.04 -	2.04[a] -	2.04[a] -	2.04[a] -	2.04[a] -	2.04[a] -
	0.75	2.09 -	2.69 -	2.80[a] -	2.80[a] -	2.80[a] -	2.80[a] -
	0.88	2.09 -	2.69 -	3.28 -	3.63 -	3.63 -	3.63 -
	1.00	2.09 -	2.69 -	3.28 -	4.15 -	4.39 -	4.39 -
	1.25	2.09 -	2.69 -	3.28 -	4.15 -	5.02 -	- -
	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

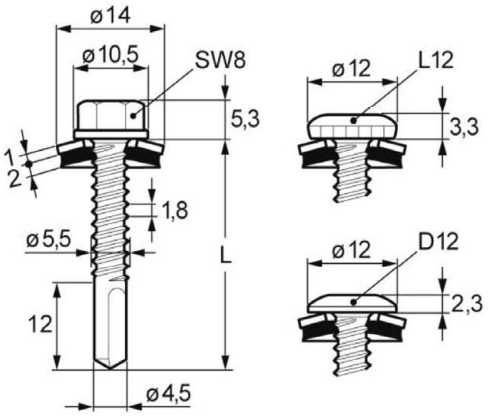
Additional definitions

Index [a]: For component I made of S320GD to S450GD the resistance value 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 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 $\Sigma(t_I + t_{II}) \leq 5.00$ mm

		t_{II} [mm]											
		1.50		1.75		2.00		2.50		3.00		4.00	
$V_{R,k}$ [kN] t_I [mm]	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] t_I [mm]	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	

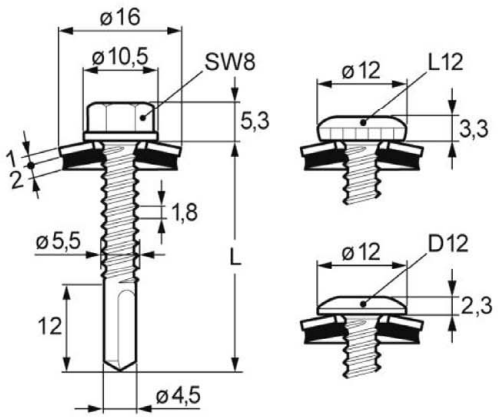
Additional definitions

Index [a]: For component I made of S320GD to S450GD the resistance value 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 14



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 $\Sigma(t_I + t_{II}) \leq 5.00$ mm

		t_{II} [mm]											
		1.50		1.75		2.00		2.50		3.00		4.00	
$V_{R,k}$ [kN] t_I [mm]	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] t_I [mm]	0.50	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	1.91[a]	ac	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]	ac	2.70[a]	a
	0.75	2.09	ac	2.69	ac	3.09	ac	3.50[a]	ac	3.50[a]	ac	3.50[a]	a
	0.88	2.09	ac	2.69	ac	3.28	ac	4.15	ac	4.52	ac	4.52	a
	1.00	2.09	ac	2.69	ac	3.28	ac	4.15	ac	5.02	ac	5.47	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

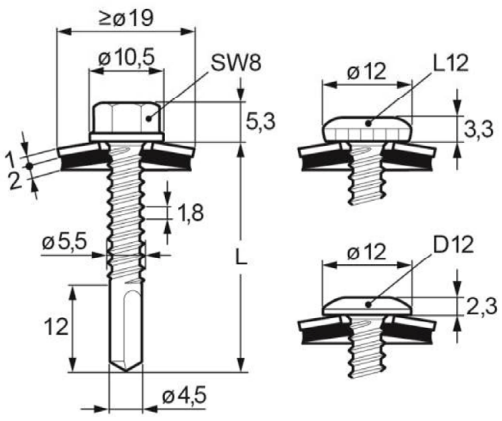
Index [a]: For component I made of S320GD to S450GD the resistance value may be increased by 8.3%.

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 15

Deutsches Institut für Bautechnik DIBt



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 $\Sigma(t_I + t_{II}) \leq 5.00$ mm

		t_{II} [mm]											
		1.50		1.75		2.00		2.50		3.00		4.00	
$V_{R,k}$ [kN] t_I [mm]	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] t_I [mm]	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	-	-	-
$N_{R,II,k}$ [kN]		2.09		2.69		3.28		4.15		5.02		8.32	

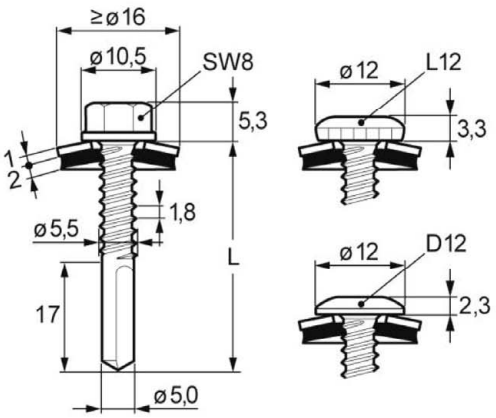
Additional definitions

Index [a]: For component I made of S320GD to S450GD the resistance value may be increased by 8.3%.

Self-drilling screw with sealing washer ≥ Ø 19 mm

SX5-S19-5,5 x L, SX5-L12-S19-5,5 x L, SX5-D12-S19-5,5 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 $\Sigma(t_I + t_{II}) \leq 14.00$ mm

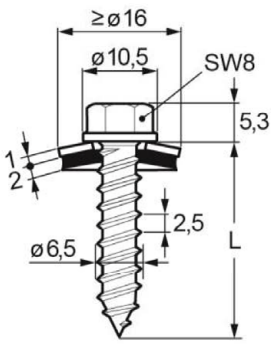
		t_{II} [mm]											
		4.00		5.00		6.00		8.00		10.00		12.00	
$V_{R,k}$ [kN] t_I [mm]	0.50	2.20	ac	2.20	ac	2.20	ac	2.20	ac	2.20	ac	2.20	ac
	0.55	2.50	ac	2.50	ac	2.50	ac	2.50	ac	2.50	ac	2.50	ac
	0.63	2.80	ac	2.80	ac	2.80	ac	2.80	ac	2.80	ac	2.80	ac
	0.75	3.40	ac	3.40	ac	3.40	ac	3.40	ac	3.40	ac	3.40	ac
	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
$N_{R,k}$ [kN] t_I [mm]	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
$N_{R,II,k}$ [kN]		7.10		10.90		10.90		10.90		10.90		10.90	

Additional definitions

Self-drilling screw with sealing washer ≥ Ø 16 mm

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

Annex 17



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 -

		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_I [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_I [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

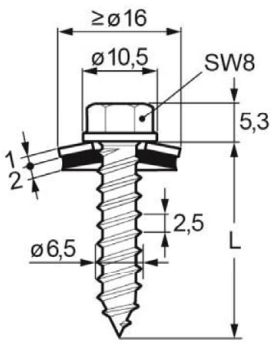
Index [a]: For component I made of S320GD to S450GD the resistance value may be increased by 8.3%.

Self-tapping screw with sealing washer ≥ Ø 16 mm

TDA-S-S16-6,5 x L

Annex 18

Deutsches Institut für Bautechnik DIBt



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 -

		t_{II} [mm]									
		2 x 0.75		2 x 0.88		2 x 1.00		2 x 1.25		2 x 1.50	
d_{pd} [mm]		4.0						4.5			
$V_{R,k}$ [kN] t_I [mm]	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
	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] t_I [mm]	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
	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

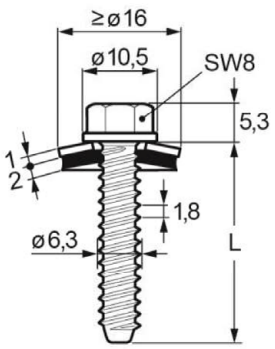
Index [a]: For component I made of S320GD to S450GD the resistance value may be increased by 8.3%.

Self-tapping screw with sealing washer ≥ Ø 16 mm

TDA-S-S16-6,5 x L

Annex 19

Deutsches Institut für Bautechnik DIBt



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_{II} [mm]								
		1.25	1.50	2.00	3.00	4.00	6.00	8.00	10.00	> 10.00[b]
d_{pd} [mm][c]		5.0			5.3		5.5	5.7		5.8
$V_{R,k}$ [kN] t_I [mm]	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
	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
	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
	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
	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] t_I [mm]	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
	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
	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
	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
	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 resistance value may be increased by 8.3%.

Index [b]: Only valid for component II made of S235, S280GD or HX300LAD.

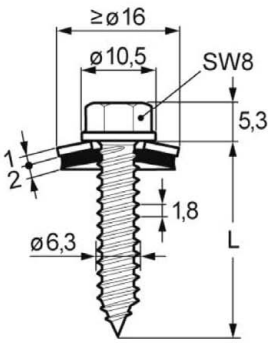
Index [c]: The pre-drill diameter d_{pd} for not indicated thicknesses t_{II} is defined as follows:
d_{pd} = 5.3 mm for t_{II} = 1.6 - 4.0 mm, d_{pd} = 5.5 mm for t_{II} = 4.1 - 6.0 mm, d_{pd} = 5.7 mm for t_{II} = 6.1 - 10.0 mm

Self-tapping screw with sealing washer ≥ Ø 16 mm

TDB-S-S16-6,3 x L

Annex 20

Deutsches Institut für Bautechnik DIBt



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_{II} [mm] 1.25		1.50		2.00		3.00		4.00	
d_{pd} [mm]		5.0				5.3					
$V_{R,k}$ [kN] t_I [mm]	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
	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] t_I [mm]	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
	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

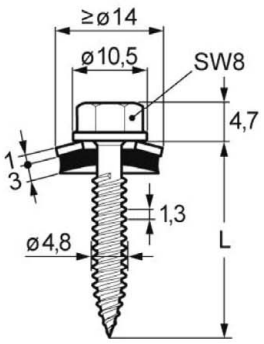
Index [a]: For component I made of S320GD to S450GD the resistance value may be increased by 8.3%.

Self-tapping screw with sealing washer ≥ Ø 16 mm

TDC-S-S16-6,3 x L

Annex 21

Deutsches Institut für Bautechnik DIBt



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 $\Sigma(t_I + t_{II}) \leq 2.00$ mm

		t_{II} [mm]						
		0.40	0.50	0.55	0.63	0.75	0.88	1.00
$V_{R,k}$ [kN] t_I [mm]	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
$N_{R,k}$ [kN] t_I [mm]	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
$N_{R,II,k}$ [kN]		0.52	0.73	0.82	0.97	1.20	n/a	n/a

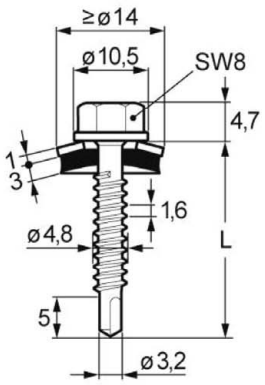
Additional definitions

Self-drilling screw with sealing washer ≥ Ø 14 mm

SLG-S-S14-4,8 x L

Annex 22

Deutsches Institut für Bautechnik DIBt



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 $\Sigma(t_I + t_{II}) \leq 2.50$ mm

		t_{II} [mm]								
		0.40	0.50	0.55	0.63	0.75	0.88	1.00	1.25	1.50
$V_{R,k}$ [kN] / t_I [mm]	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	-	-
$N_{R,k}$ [kN] / t_I [mm]	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	-	-
$N_{R,II,k}$ [kN]		0.30	0.42	0.49	0.59	0.76	0.96	1.16	n/a	n/a

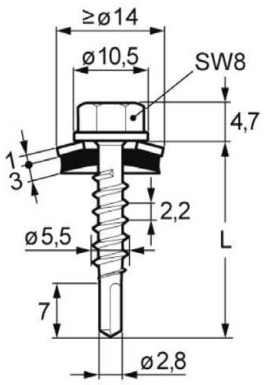
Additional definitions

Self-drilling screw with sealing washer ≥ Ø 14 mm

SL2-S-S14-4,8 x L

Annex 23

Deutsches Institut für Bautechnik DIBt



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 $\Sigma(t_I + t_{II}) \leq 2.50$ mm

		t_{II} [mm]								
		0.40	0.50	0.55	0.63	0.75	0.88	1.00	1.25	1.50
$V_{R,k}$ [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
t_I [mm]	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	-	-
$N_{R,k}$ [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
t_I [mm]	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	-	-
$N_{R,II,k}$ [kN]		0.43	0.57	0.65	0.79	1.03	1.32	1.61	n/a	n/a

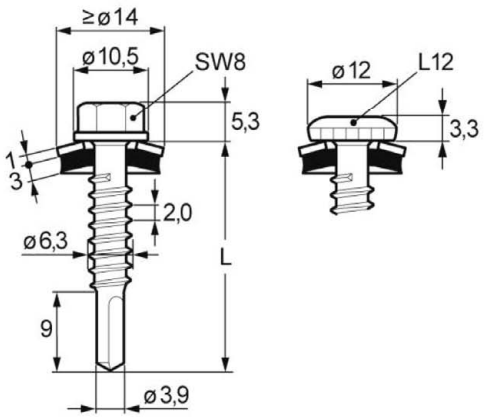
Additional definitions

Self-drilling screw with sealing washer ≥ Ø 14 mm

SL2-S-S14-5,5 x L

Annex 24

Deutsches Institut für Bautechnik DIBt



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 $\Sigma(t_I + t_{II}) \leq 2.50$ mm

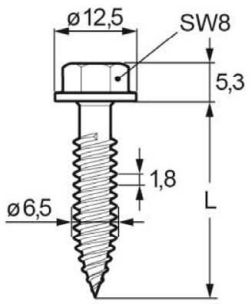
		t_{II} [mm]								
		0.40	0.50	0.55	0.63	0.75	0.88	1.00	1.25	1.50
$V_{R,k}$ [kN] t_I [mm]	0.40	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57
	0.50	0.57	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
	0.55	0.57	0.80	0.95	0.95	0.95	0.95	0.95	0.95	0.95
	0.63	0.57	0.80	0.95	1.18	1.18	1.18	1.18	1.18	1.18
	0.75	0.57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

Additional definitions

Self-drilling screw with sealing washer ≥ Ø 14 mm

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

Annex 25



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] t_I [mm]	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] t_I [mm]	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

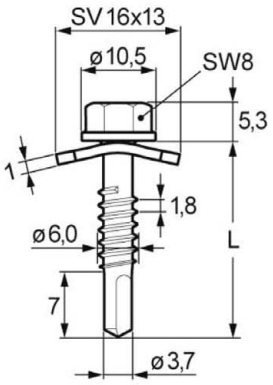
Additional definitions

Self-drilling screw

SLG-S-6,5 x L

Annex 26

Deutsches Institut für Bautechnik DIBt



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 $\Sigma(t_I + t_{II}) \leq 3.00$ mm

		t_{II} [mm]					
		0.63	0.75	0.88	1.00	1.25	1.50
$V_{R,k}$ [kN] t_I [mm]	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	-	-
$N_{R,k}$ [kN] t_I [mm]	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	-	-
$N_{R,II,k}$ [kN]		0.82	1.15	1.49	1.82	2.51	3.21

Additional definitions

Self-drilling screw with SV-washer 13x16 mm

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

Annex 27

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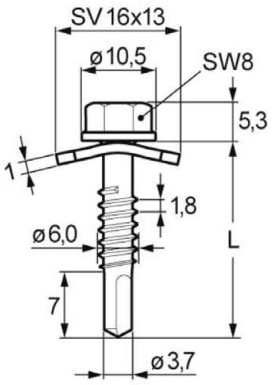


Materials

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 $\Sigma(t_I + t_{II}) \leq 4.00$ mm

		t_{II} [mm]			
		2 x 0.75	2 x 0.88	2 x 1.00	2 x 1.25
$V_{R,k}$ [kN] t_I [mm]	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	-
$N_{R,k}$ [kN] t_I [mm]	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	-
$N_{R,II,k}$ [kN]		2.43	2.94	3.45	4.38

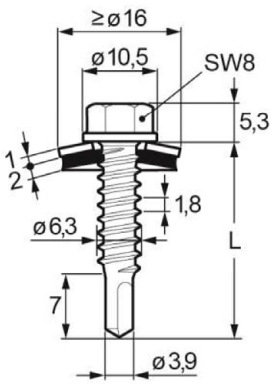
Additional definitions

Self-drilling screw with SV-washer 13x16 mm

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

Annex 28

Deutsches Institut für Bautechnik DIBt



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 $\Sigma(t_I + t_{II}) \leq 2.50$ mm

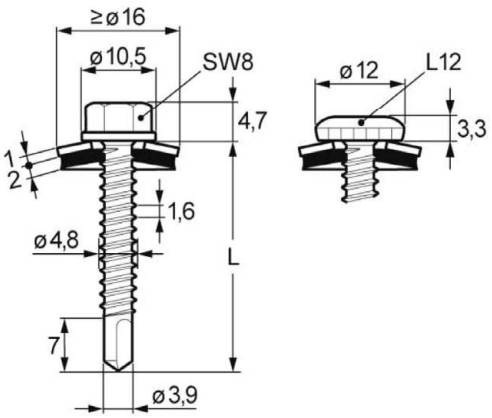
		t_{II} [mm]									
		0.75		0.88		1.00		1.25		1.50	
$V_{R,k}$ [kN] t_I [mm]	0.50	n/a	-	n/a	-	n/a	-	n/a	-	n/a	-
	0.55	n/a	-	n/a	-	n/a	-	n/a	-	n/a	-
	0.63	1.54	-	1.54	-	1.54	-	1.54	-	1.54	-
	0.75	1.54	-	1.54	-	1.54	-	1.54	-	1.54	-
	0.88	1.54	-	2.39	-	2.39	-	2.39	-	2.39	-
	1.00	1.54	-	2.39	-	2.39	-	2.39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

Additional definitions

Self-drilling screw with sealing washer ≥ Ø 16 mm

SD2-T16-6.3 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 $\Sigma(t_I + t_{II}) \leq 3.00$ mm

		t_{II} [mm]									
		1.25		1.50		1.75		2.00		2.50	
$V_{R,k}$ [kN] t_I [mm]	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	-	-
	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	-	-	-	-	-	-	-
$N_{R,k}$ [kN] t_I [mm]	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	-	-
	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	-	-	-	-	-	-	-
$N_{R,II,k}$ [kN]		1.65		2.16		2.60		3.03		n/a	

Additional definitions

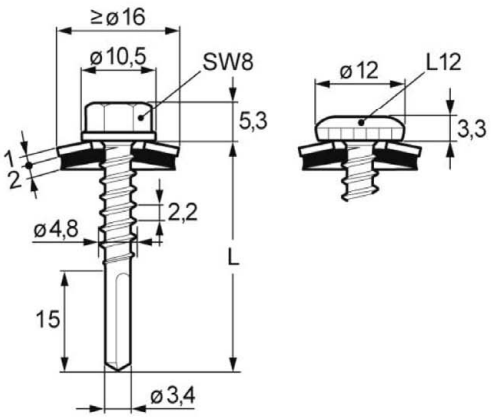
Index [a]: For component I made of S320GD to S450GD the resistance value may be increased by 8.3%.

Self-drilling screw with sealing washer ≥ Ø 16 mm

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

Annex 30

Deutsches Institut für Bautechnik DIBt



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 $\Sigma(t_I + t_{II}) \leq 3.50$ mm

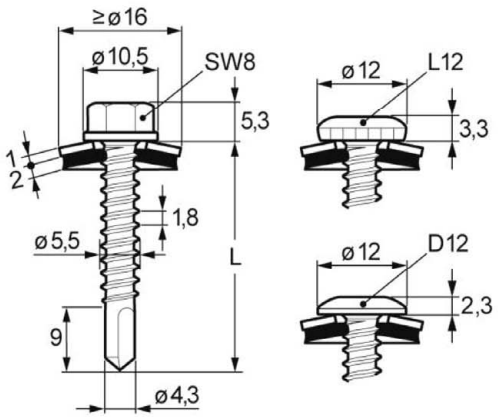
		t_{II} [mm]									
		2 x 0.63		2 x 0.75		2 x 0.88		2 x 1.00		2 x 1.25	
$V_{R,k}$ [kN] / t_I [mm]	0.50	-	-	-	-	-	-	-	-	-	-
	0.55	-	-	-	-	-	-	-	-	-	-
	0.63	1.64	-	1.64	-	1.64	-	1.64	-	1.64	-
	0.75	2.22	-	2.22	-	2.22	-	2.22	-	2.22	-
	0.88	2.84	-	2.84	-	2.84	-	2.84	-	2.84	-
	1.00	2.87	-	2.97	-	3.06	-	3.06	-	3.06	-
	1.25	2.90	-	3.10	-	3.29	-	3.29	-	-	-
	1.50	2.90	-	3.10	-	3.29	-	3.29	-	-	-
$N_{R,k}$ [kN] / t_I [mm]	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	-
	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	-	-	-
	1.50	1.41	-	2.00	-	2.58	-	2.71	-	-	-
$N_{R,II,k}$ [kN]		1.41		2.00		2.58		2.71		n/a	

Additional definitions

Self-drilling screw with sealing washer ≥ Ø 16 mm

SD3/15-T16-4,8 x L, SD3/15-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 $\Sigma(t_I + t_{II}) \leq 3.50$ mm

		t_{II} [mm]									
		1.25		1.50		1.75		2.00		2.50	
$V_{R,k}$ [kN] / t_I [mm]	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
	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] / t_I [mm]	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
	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	

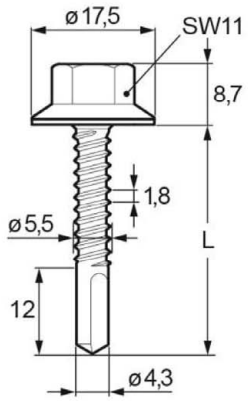
Additional definitions

Self-drilling screw with sealing washer ≥ Ø 16 mm

SD3-T16-5,5 x L, SD3-L12-T16-5.5 x L, SD3-D12-T16-5,5 x L

Annex 32

Deutsches Institut für Bautechnik DIBt



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 $\Sigma(t_I + t_{II}) \leq 3.50$ mm

		t_{II} [mm]									
		1.25		1.50		1.75		2.00		2.50	
$V_{R,k}$ [kN] / t_I [mm]	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	-	-	-
$N_{R,k}$ [kN] / t_I [mm]	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	-	-	-
$N_{R,II,k}$ [kN]		1.71		2.36		2.76		3.16		n/a	

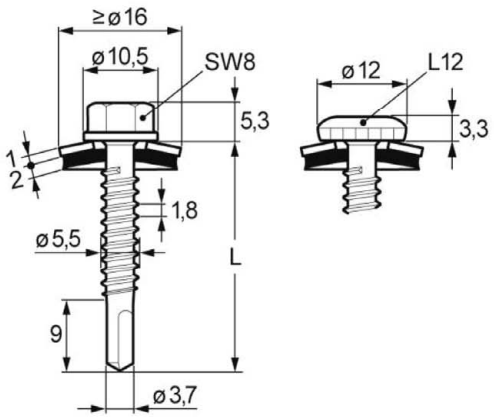
Additional definitions

For component I and II made of S320GD the indicated resistance values $N_{R,k}$ (and $N_{R,II,k}$) and $V_{R,k}$ may be increased by 8.3% and for component I and II made of S350GD to S450GD by 16.6%.

Self-drilling screw

SDP3-Z-5,5 x L

Annex 33



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 $\Sigma(t_I + t_{II}) \leq 3.00$ mm

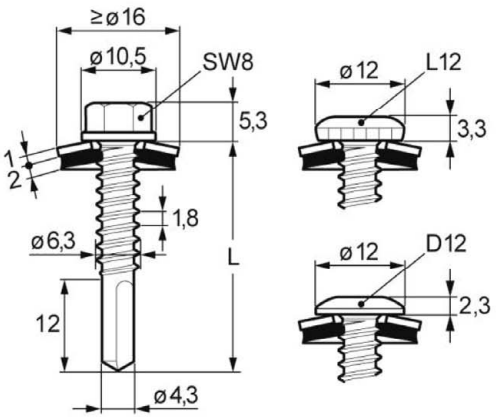
		t_{II} [mm]									
		1.25		1.50		1.75		2.00		2.50	
$V_{R,k}$ [kN] / t_I [mm]	0.50	1.79	ac	1.79	ac	1.79	ac	1.79	ac	1.79	a
	0.55	1.92	ac	1.92	ac	1.92	ac	1.92	a	-	-
	0.63	2.13	ac	2.13	ac	2.13	a	2.13	a	-	-
	0.75	2.44	ac	2.44	ac	2.44	a	2.44	a	-	-
	0.88	2.57	-	2.57	-	2.57	-	2.57	-	-	-
	1.00	3.11	-	3.11	-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

Additional definitions

Self-drilling screw with sealing washer ≥ Ø 16 mm

SDL3-T16-5,5 x L, SDL3-L12-T16-5,5 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 $\Sigma(t_I + t_{II}) \leq 3.00$ mm

		t_{II} [mm]									
		1.25		1.50		1.75		2.00		2.50	
$V_{R,k}$ [kN] t_I [mm]	0.50	1.61	ac	1.61	ac	1.61	ac	1.61	ac	1.61	a
	0.55	1.86	-	1.86	-	1.86	-	1.86	-	-	-
	0.63	2.27	-	2.27	-	2.27	-	2.27	-	-	-
	0.75	2.88	-	2.88	-	2.88	-	2.88	-	-	-
	0.88	3.42	-	3.65	-	3.88	-	4.10	-	-	-
	1.00	3.92	-	4.36	-	4.80	-	5.23	-	-	-
	1.25	4.12	-	4.36	-	4.80	-	-	-	-	-
	1.50	4.32	-	4.36	-	-	-	-	-	-	-
$N_{R,k}$ [kN] t_I [mm]	0.50	1.70	ac	1.70	ac	1.70	ac	1.70	ac	1.70	a
	0.55	1.93	-	1.93	-	1.93	-	1.93	-	-	-
	0.63	2.29	-	2.29	-	2.29	-	2.29	-	-	-
	0.75	2.42	-	2.83	-	2.83	-	2.83	-	-	-
	0.88	2.42	-	3.36	-	3.64	-	3.77	-	-	-
	1.00	2.42	-	3.36	-	3.64	-	3.91	-	-	-
	1.25	2.42	-	3.36	-	3.64	-	-	-	-	-
	1.50	2.42	-	3.36	-	-	-	-	-	-	-
$N_{R,II,k}$ [kN]		2.42		3.36		3.64		3.91		n/a	

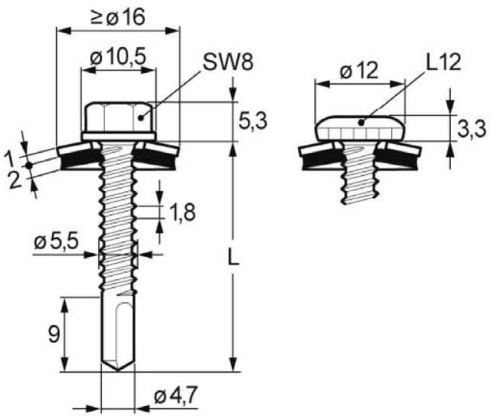
Additional definitions

Self-drilling screw with sealing washer ≥ Ø 16 mm

SD3-T16-6,3 x L, SD3-L12-T16-6.3 x L, SD3-D12-T16-6,3 x L

Annex 35

Deutsches Institut für Bautechnik DIBt



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

		t_{II} [mm]											
		1.50		1.75		2.00		2.50		3.00		4.00		5.00	
$V_{R,k}$ [kN] t_I [mm]	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
	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	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] t_I [mm]	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
	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	

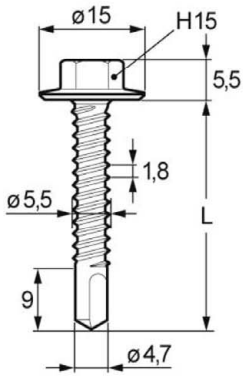
Additional definitions

Index [a]: For component I made of S320GD to S450GD the resistance value may be increased by 8.3%.

Self-drilling screw with sealing washer ≥ Ø 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 36



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] t_I [mm]	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
	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	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] t_I [mm]	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	2.20	ac	2.70	ac	3.20	ac	3.20	ac	3.20	ac	3.20	ac	3.20	a
	0.88	2.20	ac	2.70	ac	3.20	ac	4.00	ac	4.00	ac	4.00	ac	4.00	a
	1.00	2.20	ac	2.70	ac	3.20	ac	4.30	ac	4.80	ac	4.80	ac	4.80	a
	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

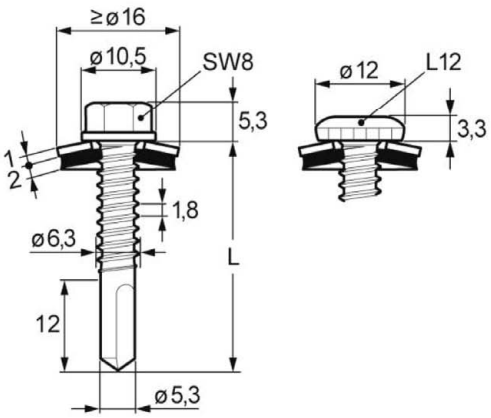
Index [a]: For component I made of S320GD to S450GD the resistance value may be increased by 8.3%.

Self-drilling screw

SD6-H15-5,5 x L

Annex 37

Deutsches Institut für Bautechnik DIBt



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:	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] t_I [mm]	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
	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] t_I [mm]	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
	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	

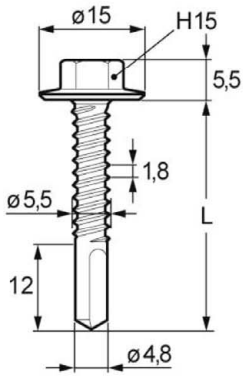
Additional definitions

Self-drilling screw with sealing washer ≥ Ø 16 mm

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

Annex 38

Deutsches Institut für Bautechnik DIBt



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] / t_I [mm]	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
	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] / t_I [mm]	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
	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	

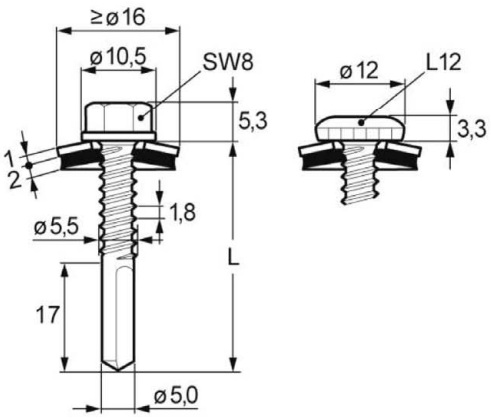
Additional definitions

Index [a]: For component I made of S320GD to S450GD the resistance value may be increased by 8.3%.

Self-drilling screw

SD8-H15-5,5 x L

Annex 39



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 $\Sigma(t_I + t_{II}) \leq 14.00$ mm

		t_{II} [mm]											
		4.00		5.00		6.00		8.00		10.00		12.00	
$V_{R,k}$ [kN] / t_I [mm]	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
	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] / t_I [mm]	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
	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

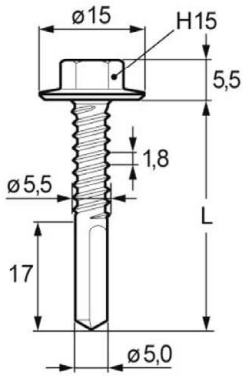
Index [a]: For component I made of S320GD to S450GD the resistance value may be increased by 8.3%.

Self-drilling screw with sealing washer ≥ Ø 16 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 40

Deutsches Institut für Bautechnik DIBt



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 $\Sigma(t_I + t_{II}) \leq 14.00$ mm

		t_{II} [mm]											
		4.00		5.00		6.00		8.00		10.00		12.00	
$V_{R,k}$ [kN] / t_I [mm]	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
	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] / t_I [mm]	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
	0.88	3.62	ac	3.62	ac	3.62	ac	3.62	ac	3.62	ac	3.62	ac
	1.00	4.33	ac	4.33	ac	4.33	ac	4.33	ac	4.33	ac	4.33	ac
	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	-
$N_{R,II,k}$ [kN]		6.99		8.75		9.62		n/a		n/a		n/a	

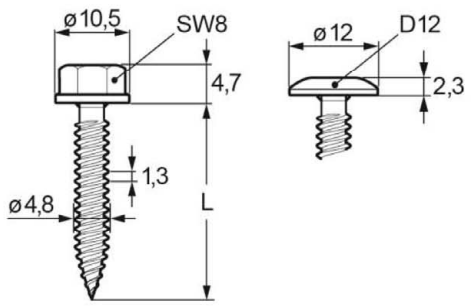
Additional definitions

Index [a]: For component I made of S320GD to S450GD the resistance value may be increased by 8.3%.

Self-drilling screw

SD14-H15-5,5 x L

Annex 41



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 $\Sigma(t_I + t_{II}) \leq 2.50$ mm

		t_{II} [mm]				
		0.63	0.75	0.88	1.00	1.25
$V_{R,k}$ [kN] t_I [mm]	0.63	1.48	1.48	1.48	1.48	1.48
	0.75	1.48	2.90	2.90	2.90	2.90
	0.88	1.48	2.90	3.78	3.78	3.78
	1.00	1.48	2.90	3.78	4.59	4.59
	1.25	1.48	2.90	3.78	4.49	4.59
$N_{R,k}$ [kN] t_I [mm]	0.63	1.16	1.34	1.65	1.88	1.88
	0.75	1.16	1.34	1.65	1.94	2.35
	0.88	1.16	1.34	1.65	1.94	2.35
	1.00	1.16	1.34	1.65	1.94	2.35
	1.25	1.16	1.34	1.65	1.94	2.35
$N_{R,II,k}$ [kN]		1.16	1.34	1.65	1.94	2.62

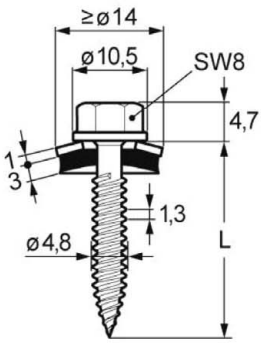
Additional definitions

Self-drilling screw

CDM-4,8 x L, CDM-D12-4,8 x L

Annex 42

Deutsches Institut für Bautechnik DIBt



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 $\Sigma(t_I + t_{II}) \leq 2.00$ mm

		t_{II} [mm]						
		0.40	0.50	0.55	0.63	0.75	0.88	1.00
$V_{R,k}$ [kN] t_I [mm]	0.40	0.74	0.74	0.74	0.74	0.74	0.74	0.74
	0.50	0.74	0.94	0.94	0.94	0.94	0.94	0.94
	0.55	0.74	0.94	1.06	1.06	1.06	1.06	1.06
	0.63	0.74	0.94	1.06	1.25	1.25	1.25	1.25
	0.75	0.74	0.94	1.06	1.25	2.29	2.29	2.29
	0.88	0.74	0.94	1.06	1.25	2.29	2.98	2.98
	1.00	0.74	0.94	1.06	1.25	2.29	2.98	3.61
$N_{R,k}$ [kN] t_I [mm]	0.40	0.69	0.89	1.00	1.16	1.34	1.58	1.58
	0.50	0.69	0.89	1.00	1.16	1.34	1.65	1.77
	0.55	0.69	0.89	1.00	1.16	1.34	1.65	1.94
	0.63	0.69	0.89	1.00	1.16	1.34	1.65	1.94
	0.75	0.69	0.89	1.00	1.16	1.34	1.65	1.94
	0.88	0.69	0.89	1.00	1.16	1.34	1.65	1.94
	1.00	0.69	0.89	1.00	1.16	1.34	1.65	1.94
$N_{R,II,k}$ [kN]		0.69	0.89	1.00	1.16	1.34	1.65	1.94

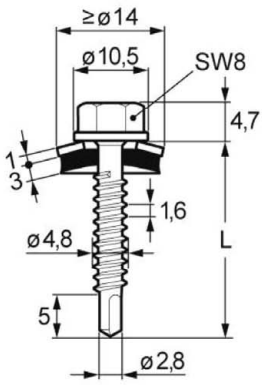
Additional definitions

Self-drilling screw with sealing washer ≥ Ø 14 mm

SLG-T-A14-4,8 x L

Annex 43

Deutsches Institut für Bautechnik DIBt



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 $\Sigma(t_I + t_{II}) \leq 2.50$ mm

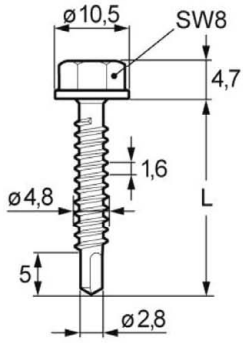
		t_{II} [mm]								
		0.40	0.50	0.55	0.63	0.75	0.88	1.00	1.25	1.50
$V_{R,k}$ [kN] t_I [mm]	0.40	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58
	0.50	0.58	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
	0.55	0.58	0.69	0.80	0.80	0.80	0.80	0.80	0.80	0.80
	0.63	0.58	0.69	0.80	0.98	0.98	0.98	0.98	0.98	0.98
	0.75	0.58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

Additional definitions

Self-drilling screw with sealing washer ≥ Ø 14 mm

SL2-T-A14-4,8 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 $\Sigma(t_I + t_{II}) \leq 2.50$ mm

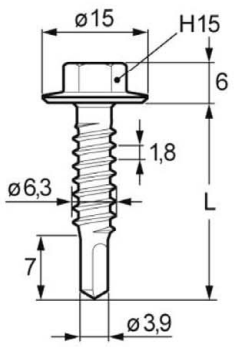
		t_{II} [mm]					
		0.63	0.75	0.88	1.00	1.25	1.50
$V_{R,k}$ [kN] t_I [mm]	0.63	1.40	1.40	1.90	2.40	2.40	2.40
	0.75	1.40	1.90	1.90	2.60	2.60	2.60
	0.88	1.80	1.90	2.80	2.80	2.80	2.80
	1.00	2.10	2.50	2.80	3.60	3.60	3.60
	1.25	2.10	2.50	2.80	3.60	3.60	-
	1.50	2.10	2.50	2.80	3.60	-	-
$N_{R,k}$ [kN] t_I [mm]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

Additional definitions

Self-drilling screw

SL2-4,8 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 $\Sigma(t_I + t_{II}) \leq 2.50$ mm

		t_{II} [mm]					
		0.63	0.75	0.88	1.00	1.25	1.50
$V_{R,k}$ [kN] t_I [mm]	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	-	-
$N_{R,k}$ [kN] t_I [mm]	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	-	-
$N_{R,II,k}$ [kN]		0.80	1.10	1.40	1.60	2.10	n/a

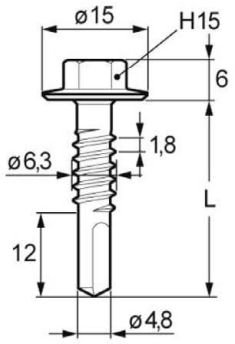
Additional definitions

Self-drilling screw

SL2-H15-6,3 x L

Annex 46

Deutsches Institut für Bautechnik DIBt



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 $\Sigma(t_I + t_{II}) \leq 3.50$ mm

		t_{II} [mm]				
		1.00	1.25	1.50	1.75	2.00
$V_{R,k}$ [kN] t_I [mm]	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	-	-
$N_{R,k}$ [kN] t_I [mm]	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	-	-
$N_{R,II,k}$ [kN]		1.40	2.20	2.60	n/a	n/a

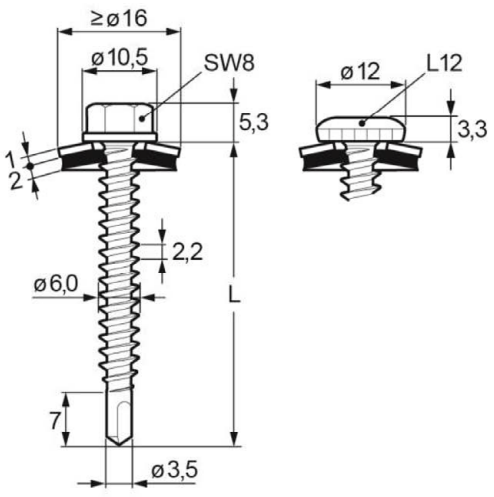
Additional definitions

Self-drilling screw

SL3-H15-6,3 x L

Annex 47

Deutsches Institut für Bautechnik DIBt



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 $\Sigma(t_I) \leq 2.00$ mm

Characteristics

$M_{y,Rk}$ = 7.9 Nm

$f_{ax,k}$ = 13.2 N/mm² (l_{ef} = 25 mm, ρ_a = 350 kg/m³)

		l_{ef} [mm]						
		25	30	35	40	45		
$V_{R,k}$ [kN] t_I [mm]	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] t_I [mm]	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

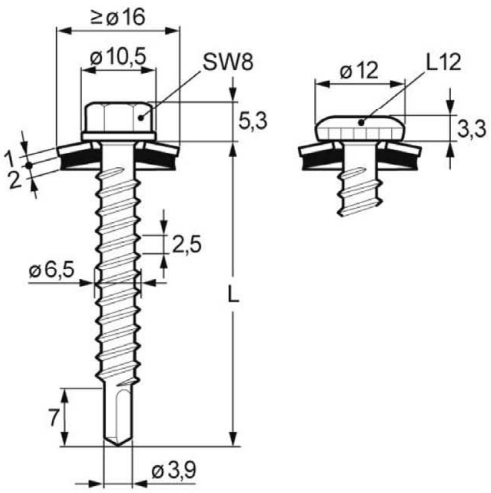
The indicated resistance values $N_{R,k}$ (and $N_{R,II,k}$) applies to component II with k_{mod} = 0.9 and ρ_k = 350 kg/m³. $N_{R,k}$ for other k_{mod} or ρ_k can be determined as follows: $N_{R,k}(k_{mod}, \rho_k) = \min \{N_{R,I,k} \mid N_{R,II,k} * \frac{k_{mod}}{0.9} * \frac{\rho_k}{350}\}$.

Self-drilling screw with sealing washer ≥ Ø 16 mm

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

Annex 48

Deutsches Institut für Bautechnik DIBt



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 $\Sigma(t_I) \leq 2.00$ mm

Characteristics

$M_{y,Rk}$ = 12.1 Nm

$f_{ax,k}$ = 13.2 N/mm² (l_{ef} = 35 mm, ρ_a = 350 kg/m³)

		l_{ef} [mm]						
		35	45	55	65	75		
$V_{R,k}$ [kN] t_I [mm]	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	3.14	3.34	3.50	
	0.88	1.73	2.23	2.73	3.14	3.34	4.00	
	1.00	1.73	2.23	2.73	3.14	3.34	4.50	
	1.25	1.73	2.23	2.73	3.14	3.34	5.40	
	1.50	1.73	2.23	2.73	3.14	3.34	5.70	
$N_{R,k}$ [kN] t_I [mm]	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		

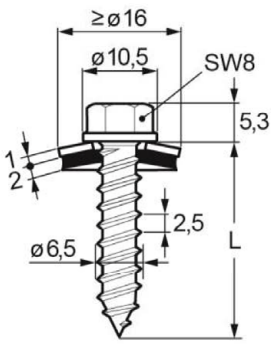
Additional definitions

The indicated resistance values $N_{R,k}$ (and $N_{R,II,k}$) applies to component II with k_{mod} = 0.9 and ρ_k = 350 kg/m³. $N_{R,k}$ for other k_{mod} or ρ_k can be determined as follows: $N_{R,k}(k_{mod}, \rho_k) = \min \{N_{R,I,k} \mid N_{R,II,k} * \frac{k_{mod}}{0.9} * \frac{\rho_k}{350}\}$.

Self-drilling screw with sealing washer ≥ Ø 16 mm

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

Annex 49



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:	Timber (coniferous timber) - EN 14081

Drilling-capacity -

Characteristics

$M_{y,Rk}$ = 13.9 Nm

$f_{ax,k}$ = 13.2 N/mm² (l_{ef} = 29 mm, ρ_a = 350 kg/m³)

		l_p [mm] 35	45	55	65	75		
d_{pd} [mm]		4.0						
$V_{R,k}$ [kN] t_I [mm]	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	3.14	3.34	3.50	
	0.88	1.73	2.23	2.73	3.14	3.34	4.00	
	1.00	1.73	2.23	2.73	3.14	3.34	4.50	
	1.25	1.73	2.23	2.73	3.14	3.34	5.40	
	1.50	1.73	2.23	2.73	3.14	3.34	5.70	
$N_{R,k}$ [kN] t_I [mm]	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

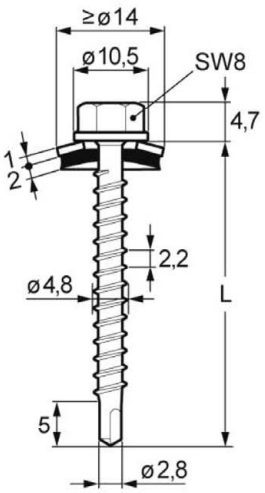
The indicated resistance values $N_{R,k}$ (and $N_{R,II,k}$) applies to component II with k_{mod} = 0.9 and ρ_k = 350 kg/m³. $N_{R,k}$ for other k_{mod} or ρ_k can be determined as follows: $N_{R,k}(k_{mod}, \rho_k) = \min \{N_{R,I,k} \mid N_{R,II,k} * \frac{k_{mod}}{0.9} * \frac{\rho_k}{350}\}$.

Self-tapping screw with sealing washer ≥ Ø 16 mm

TDA-S-S16-6,5 x L

Annex 50

Deutsches Institut für Bautechnik DIBt



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 $\Sigma(t_I) \leq 2.00$ mm

Characteristics

$M_{y,Rk}$	=	6.1 Nm
$f_{ax,k}$	=	13.2 N/mm² (l_{ef} = 25 mm, ρ_a = 350 kg/m³)

		l_{ef} [mm]						
		25	30	35	40	45		
$V_{R,k}$ [kN] t_I [mm]	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] t_I [mm]	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		

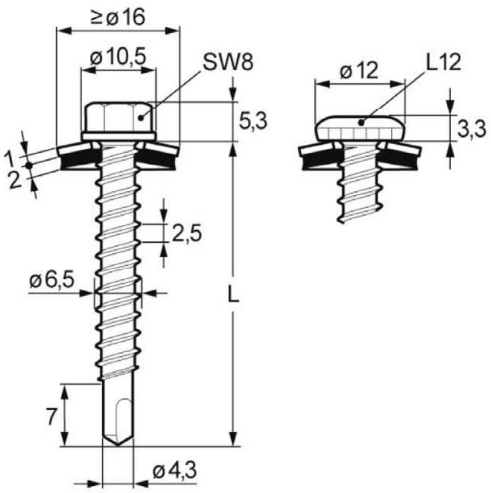
Additional definitions

The indicated resistance values $N_{R,k}$ (and $N_{R,II,k}$) applies to component II with k_{mod} = 0.9 and ρ_k = 350 kg/m³. $N_{R,k}$ for other k_{mod} or ρ_k can be determined as follows: $N_{R,k}(k_{mod}, \rho_k) = \min \{N_{R,I,k} \mid N_{R,II,k} * \frac{k_{mod}}{0.9} * \frac{\rho_k}{350}\}$.

Self-drilling screw with sealing washer ≥ Ø 14 mm

SW-T-A14-4,8 x L

Annex 51



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/mm² (l_{ef} = 35 mm, ρ_a = 350 kg/m³)

		l_{ef} [mm]						
		35	45	55	65	75		
$V_{R,k}$ [kN] t_I [mm]	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] t_I [mm]	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 resistance values $N_{R,k}$ (and $N_{R,II,k}$) applies to component II with k_{mod} = 0.9 and ρ_k = 350 kg/m³. $N_{R,k}$ for other k_{mod} or ρ_k can be determined as follows: $N_{R,k}(k_{mod}, \rho_k) = \min \{N_{R,I,k} \mid N_{R,II,k} * \frac{k_{mod}}{0.9} * \frac{\rho_k}{350}\}$.

Self-drilling screw with sealing washer ≥ Ø 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 52

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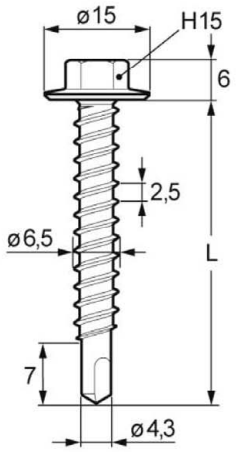


Materials

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/mm² (l_{ef} = 35 mm, ρ_a = 350 kg/m³)

		l_{ef} [mm]						
		35	45	55	65	75		
$V_{R,k}$ [kN] t_I [mm]	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] t_I [mm]	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	
	0.88	2.70	3.47	3.55	3.55	3.55	3.55	
	1.00	2.70	3.47	4.25	4.33	4.33	4.33	
	1.25	2.70	3.47	4.25	4.33	4.33	4.33	
	1.50	2.70	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		

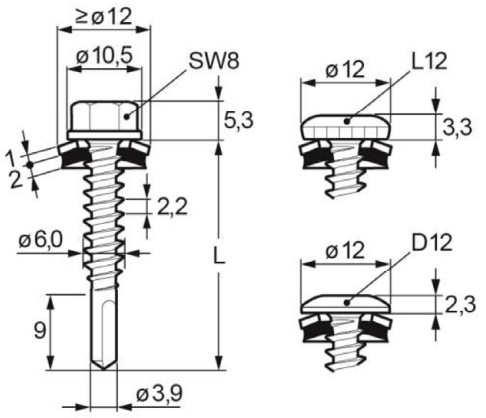
Additional definitions

The indicated resistance values $N_{R,k}$ (and $N_{R,II,k}$) applies to component II with k_{mod} = 0.9 and ρ_k = 350 kg/m³. $N_{R,k}$ for other k_{mod} or ρ_k can be determined as follows: $N_{R,k}(k_{mod}, \rho_k) = \min \{N_{R,I,k} \mid N_{R,II,k} * \frac{k_{mod}}{0.9} * \frac{\rho_k}{350}\}$.

Self-drilling screw

SW3-T-H15-6,5 x L

Annex 53



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 $\Sigma(t_I + t_{II}) \leq 3.00$ mm

Component I and II $R_m \geq 165$ N/mm²		t_{II} [mm]									
		1.00		1.20		1.50		2.00		2.50	
$V_{R,k}$ [kN] / t_I [mm]	0.50	0.65	-	0.69	-	0.69	-	0.69	-	0.69	-
	0.60	0.80	-	0.80	-	0.86	-	0.97	-	-	-
	0.70	0.99	-	0.99	-	1.04	-	1.25	-	-	-
	0.80	1.19	-	1.19	-	1.21	-	1.53	-	-	-
	0.90	1.31	-	1.31	-	1.38	-	1.81	-	-	-
	1.00	1.42	-	1.42	-	1.55	-	2.08	-	-	-
	1.20	1.42	-	1.45	-	1.90	-	-	-	-	-
	1.50	1.42	-	1.45	-	1.90	-	-	-	-	-
$N_{R,II,k}$ [kN]		0.72		0.82		1.26		1.85		2.65	

Component I and II $R_m \geq 215$ N/mm²		t_{II} [mm]									
		1.00		1.20		1.50		2.00		2.50	
$V_{R,k}$ [kN] / t_I [mm]	0.50	0.85	-	0.90	-	0.90	-	0.90	-	0.90	-
	0.60	1.04	-	1.04	-	1.12	-	1.26	-	-	-
	0.70	1.30	-	1.30	-	1.35	-	1.63	-	-	-
	0.80	1.55	-	1.55	-	1.57	-	1.99	-	-	-
	0.90	1.70	-	1.70	-	1.80	-	2.35	-	-	-
	1.00	1.85	-	1.85	-	2.02	-	2.71	-	-	-
	1.20	1.85	-	1.89	-	2.47	-	-	-	-	-
	1.50	1.85	-	1.89	-	2.47	-	-	-	-	-
$N_{R,II,k}$ [kN]		0.93		1.06		1.64		2.41		3.45	

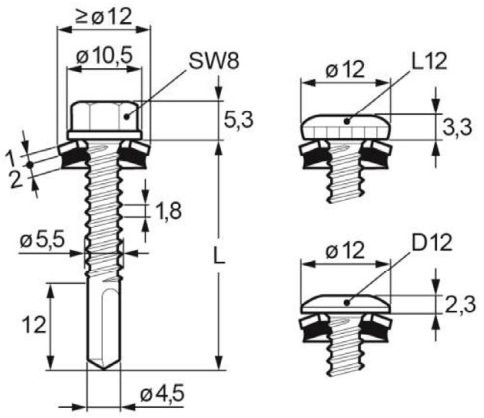
Additional definitions

The resistance value $N_{R,k}$ can be determined as follows: $N_{R,k} = \min \{N_{R,I,k} \mid N_{R,II,k}\}$. $N_{R,I,k}$ is to be calculate according to EN 1999-1-4:2007, equation (8.13).

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 54



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 $\Sigma(t_I + t_{II}) \leq 5.00$ mm

Component I and II $R_m \geq 165$ N/mm²		t_{II} [mm]									
		1.50		2.00		2.50		3.00		4.00	
$V_{R,k}$ [kN] / t_I [mm]	0.50	0.71	-	0.89	-	0.89	-	0.89	-	0.89	-
	0.60	0.83	-	1.06	-	1.06	-	1.06	-	1.06	-
	0.70	0.95	-	1.23	-	1.23	-	1.23	-	1.23	-
	0.80	1.06	-	1.40	-	1.40	-	1.40	-	1.40	-
	0.90	1.18	-	1.49	-	1.52	-	1.55	-	1.60	-
	1.00	1.30	-	1.57	-	1.63	-	1.69	-	1.80	-
	1.20	1.30	-	1.74	-	1.86	-	1.97	-	-	-
	1.50	1.30	-	1.74	-	1.86	-	1.97	-	-	-
$N_{R,II,k}$ [kN]		1.00		1.13		1.74		2.35		3.88	

Component I and II $R_m \geq 215$ N/mm²		t_{II} [mm]									
		1.50		2.00		2.50		3.00		4.00	
$V_{R,k}$ [kN] / t_I [mm]	0.50	0.76	-	1.16	-	1.16	-	1.16	-	1.16	-
	0.60	0.90	-	1.38	-	1.38	-	1.38	-	1.38	-
	0.70	1.04	-	1.60	-	1.61	-	1.61	-	1.61	-
	0.80	1.18	-	1.82	-	1.83	-	1.83	-	1.83	-
	0.90	1.32	-	1.93	-	1.98	-	2.02	-	2.09	-
	1.00	1.46	-	2.04	-	2.13	-	2.20	-	2.35	-
	1.20	1.46	-	2.26	-	2.42	-	2.57	-	-	-
	1.50	1.46	-	2.26	-	2.42	-	2.57	-	-	-
$N_{R,II,k}$ [kN]		1.31		1.48		2.28		3.07		5.05	

Additional definitions

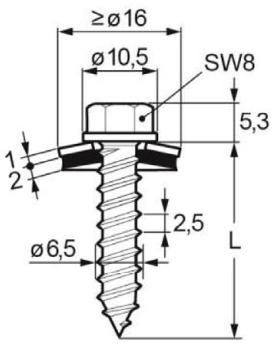
The resistance value $N_{R,k}$ can be determined as follows: $N_{R,k} = \min \{N_{R,I,k} \mid N_{R,II,k}\}$. $N_{R,I,k}$ is to be calculate according to EN 1999-1-4:2007, equation (8.13).

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 55

Deutsches Institut für Bautechnik DIBt



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 $R_m \geq 165$ N/mm²		t_{II} [mm]					
		1.00	1.20	1.50	2.00	2.50	3.00
d_{pd} [mm]		4.5			5.0		5.3
$V_{R,k}$ [kN] / t_I [mm]	0.50	0.65 -	0.82 -	0.86 -	0.86 -	0.86 -	0.86 -
	0.60	0.65 -	0.82 -	1.03 -	1.03 -	1.03 -	1.03 -
	0.70	0.65 -	0.82 -	1.03 -	1.20 -	1.20 -	1.20 -
	0.80	0.65 -	0.82 -	1.03 -	1.37 -	1.37 -	1.37 -
	0.90	0.65 -	0.82 -	1.03 -	1.37 -	1.46 -	1.54 -
	1.00	0.67 -	0.82 -	1.03 -	1.37 -	1.55 -	1.72 -
	1.20	0.67 -	0.88 -	1.08 -	1.41 -	1.74 -	2.06 -
	1.50	0.67 -	0.88 -	1.24 -	1.53 -	1.83 -	2.13 -
$N_{R,II,k}$ [kN]		0.42	0.55	0.77	1.19	1.69	2.19

Component I and II $R_m \geq 215$ N/mm²		t_{II} [mm]					
		1.00	1.20	1.50	2.00	2.50	3.00
d_{pd} [mm]		4.5			5.0		5.3
$V_{R,k}$ [kN] / t_I [mm]	0.50	0.85 -	1.06 -	1.12 -	1.12 -	1.12 -	1.12 -
	0.60	0.85 -	0.06 -	1.34 -	1.34 -	1.34 -	1.34 -
	0.70	0.85 -	1.06 -	1.34 -	1.57 -	1.57 -	1.57 -
	0.80	0.85 -	1.06 -	1.34 -	1.79 -	1.79 -	1.79 -
	0.90	0.85 -	1.06 -	1.34 -	1.78 -	1.90 -	2.01 -
	1.00	0.88 -	1.06 -	1.34 -	1.78 -	2.01 -	2.24 -
	1.20	0.88 -	1.15 -	1.41 -	1.83 -	2.26 -	2.68 -
	1.50	0.88 -	1.15 -	1.61 -	2.00 -	2.39 -	2.77 -
$N_{R,II,k}$ [kN]		0.55	0.71	1.01	1.55	2.20	2.85

Additional definitions

The resistance value $N_{R,k}$ can be determined as follows: $N_{R,k} = \min \{N_{R,I,k} \mid N_{R,II,k}\}$. $N_{R,I,k}$ is to be calculate according to EN 1999-1-4:2007, equation (8.13).

Self-tapping screw with sealing washer ≥ Ø 16 mm

TDA-S-S16-6,5 x L

Annex 56

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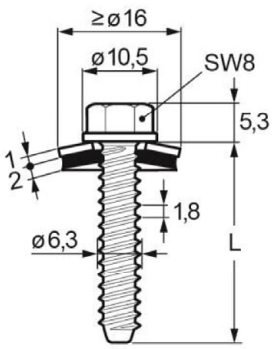


Materials

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 $R_m \geq 165$ N/mm²		t_{II} [mm]					
		1.50	2.00	2.50	3.00	4.00	≥ 6.00
d_{pd} [mm]		4.5	5.0			5.3	5.5
$V_{R,k}$ [kN] / t_I [mm]	0.50	0.83 -	0.83 -	0.83 -	0.83 -	0.83 -	0.83 -
	0.60	1.00 -	1.00 -	1.00 -	1.00 -	1.00 -	1.00 -
	0.70	1.00 -	1.16 -	1.16 -	1.16 -	1.16 -	1.16 -
	0.80	1.00 -	1.33 -	1.33 -	1.33 -	1.33 -	1.33 -
	0.90	1.00 -	1.33 -	1.50 -	1.50 -	1.50 -	1.50 -
	1.00	1.00 -	1.33 -	1.66 -	1.66 -	1.66 -	1.66 -
	1.20	1.06 -	1.37 -	1.68 -	2.00 -	2.00 -	2.00 -
	1.50	1.22 -	1.50 -	1.79 -	2.07 -	2.49 -	2.49 -
$N_{R,II,k}$ [kN]		0.76	1.17	1.64	2.15	4.21	6.09

Component I and II $R_m \geq 215$ N/mm²		t_{II} [mm]					
		1.50	2.00	2.50	3.00	4.00	≥ 6.00
d_{pd} [mm]		4.5	5.0			5.3	5.5
$V_{R,k}$ [kN] / t_I [mm]	0.50	1.08 -	1.08 -	1.08 -	1.08 -	1.08 -	1.08 -
	0.60	1.30 -	1.30 -	1.30 -	1.30 -	1.30 -	1.30 -
	0.70	1.30 -	1.52 -	1.52 -	1.52 -	1.52 -	1.52 -
	0.80	1.30 -	1.73 -	1.73 -	1.73 -	1.73 -	1.73 -
	0.90	1.30 -	1.73 -	1.95 -	1.95 -	1.95 -	1.95 -
	1.00	1.30 -	1.73 -	2.17 -	2.17 -	2.17 -	2.17 -
	1.20	1.38 -	1.79 -	2.19 -	2.60 -	2.60 -	2.60 -
	1.50	1.59 -	1.96 -	2.33 -	2.70 -	3.25 -	3.25 -
$N_{R,II,k}$ [kN]		0.99	1.53	2.13	2.80	5.48	7.93

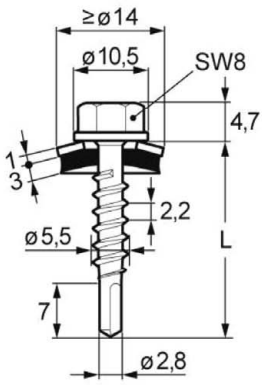
Additional definitions

The resistance value $N_{R,k}$ can be determined as follows: $N_{R,k} = \min \{N_{R,I,k} \mid N_{R,II,k}\}$. $N_{R,I,k}$ is to be calculate according to EN 1999-1-4:2007, equation (8.13).

Self-tapping screw with sealing washer ≥ Ø 16 mm

TDB-S-S16-6,3 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 $\Sigma(t_I + t_{II}) \leq 2.50$ mm

Component I and II $R_m \geq 165$ N/mm²		t_{II} [mm]							
		0.50	0.60	0.70	0.80	0.90	1.00	1.20	1.50
$V_{R,k}$ [kN] / t_I [mm]	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	-	-
$N_{R,II,k}$ [kN]		0.26	0.36	0.47	0.57	0.67	0.77	n/a	n/a

Component I and II $R_m \geq 215$ N/mm²		t_{II} [mm]							
		0.50	0.60	0.70	0.80	0.90	1.00	1.20	1.50
$V_{R,k}$ [kN] / t_I [mm]	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	-	-
$N_{R,II,k}$ [kN]		0.34	0.48	0.61	0.75	0.88	1.00	n/a	n/a

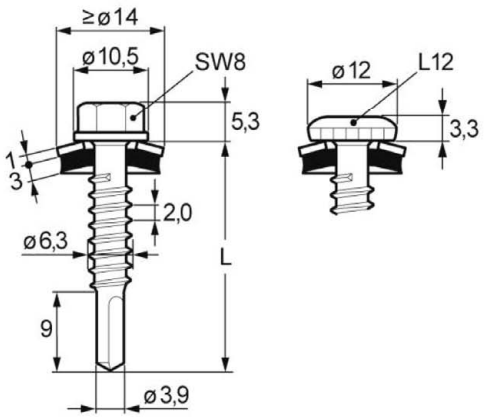
Additional definitions

The resistance value $N_{R,k}$ can be determined as follows: $N_{R,k} = \min \{N_{R,I,k} \mid N_{R,II,k}\}$. $N_{R,I,k}$ is to be calculate according to EN 1999-1-4:2007, equation (8.13).

Self-drilling screw with sealing washer ≥ Ø 14 mm

SL2-S-S14-5,5 x L

Annex 58



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 $\Sigma(t_I + t_{II}) \leq 2.50$ mm

Component I and II $R_m \geq 165$ N/mm²		t_{II} [mm]							
		0.50	0.60	0.70	0.80	0.90	1.00	1.20	1.50
$V_{R,k}$ [kN] / t_I [mm]	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	-	-
$N_{R,II,k}$ [kN]		0.35	0.44	0.54	0.63	0.75	0.87	n/a	n/a

Component I and II $R_m \geq 215$ N/mm²		t_{II} [mm]							
		0.50	0.60	0.70	0.80	0.90	1.00	1.20	1.50
$V_{R,k}$ [kN] / t_I [mm]	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	-	-
$N_{R,II,k}$ [kN]		0.46	0.58	0.70	0.82	0.98	1.14	n/a	n/a

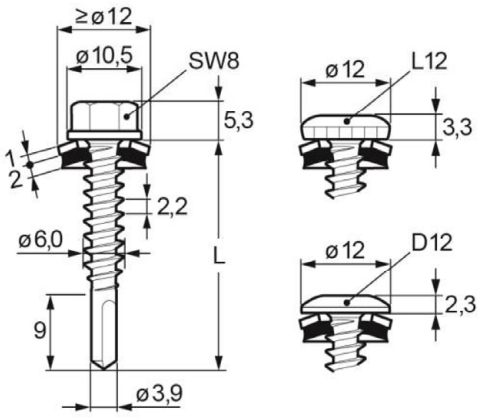
Additional definitions

The resistance value $N_{R,k}$ can be determined as follows: $N_{R,k} = \min \{N_{R,I,k} \mid N_{R,II,k}\}$. $N_{R,I,k}$ is to be calculate according to EN 1999-1-4:2007, equation (8.13).

Self-drilling screw with sealing washer ≥ Ø 14 mm

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

Annex 59



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

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

Component I $R_m \geq 165$ N/mm²		t_{II} [mm]						
		0.75	0.88	1.00	1.25	1.50	1.75	2.00
$V_{R,k}$ [kN] / t_I [mm]	0.50	0.56 -	0.73 -	0.78 -	0.78 -	0.78 -	0.78 -	0.78 -
	0.60	0.76 -	0.86 -	0.92 -	0.93 -	0.97 -	0.98 -	0.98 -
	0.70	0.96 -	0.98 -	1.06 -	1.07 -	1.16 -	1.17 -	1.18 -
	0.80	1.06 -	1.11 -	1.20 -	1.22 -	1.35 -	1.37 -	1.38 -
	0.90	1.06 -	1.24 -	1.34 -	1.37 -	1.54 -	1.57 -	1.59 -
	1.00	1.06 -	1.36 -	1.48 -	1.51 -	1.73 -	1.76 -	1.79 -
	1.20	1.06 -	1.36 -	1.48 -	1.80 -	2.11 -	2.15 -	- -
	1.50	1.06 -	1.36 -	1.48 -	1.80 -	2.11 -	- -	- -
$N_{R,II,k}$ [kN]		1.14	1.66	1.81	2.38	3.14	3.86	4.57

Component I $R_m \geq 215$ N/mm²		t_{II} [mm]						
		0.75	0.88	1.00	1.25	1.50	1.75	2.00
$V_{R,k}$ [kN] / t_I [mm]	0.50	0.74 -	0.95 -	1.02 -	1.02 -	1.02 -	1.02 -	1.02 -
	0.60	0.99 -	1.11 -	1.20 -	1.21 -	1.27 -	1.27 -	1.28 -
	0.70	1.25 -	1.28 -	1.38 -	1.40 -	1.51 -	1.53 -	1.54 -
	0.80	1.37 -	1.44 -	1.57 -	1.59 -	1.76 -	1.78 -	1.80 -
	0.90	1.37 -	1.61 -	1.75 -	1.78 -	2.01 -	2.04 -	2.07 -
	1.00	1.37 -	1.77 -	1.93 -	1.96 -	2.26 -	2.29 -	2.33 -
	1.20	1.37 -	1.77 -	1.93 -	2.34 -	2.75 -	2.80 -	- -
	1.50	1.37 -	1.77 -	1.93 -	2.34 -	2.75 -	- -	- -
$N_{R,II,k}$ [kN]		1.14	1.66	1.81	2.38	3.14	3.86	4.57

Additional definitions

The resistance value $N_{R,k}$ can be determined as follows: $N_{R,k} = \min \{N_{R,I,k} \mid N_{R,II,k}\}$. $N_{R,I,k}$ is to be calculate according to EN 1999-1-4:2007, equation (8.13).

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 60

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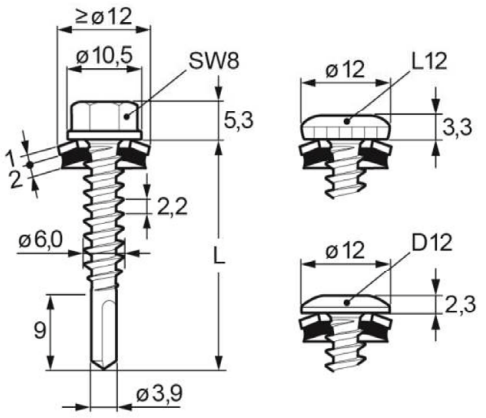


Materials

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

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

Component I $R_m \geq 165$ N/mm²		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] / t_I [mm]	0.50	0.65	-	0.70	-	0.75	-	0.78	-	0.78	-	0.78	-
	0.60	0.65	-	1.02	-	1.07	-	1.10	-	1.10	-	1.10	-
	0.70	0.65	-	1.18	-	1.39	-	1.42	-	1.42	-	1.42	-
	0.80	0.65	-	1.18	-	1.71	-	1.74	-	1.74	-	1.74	-
	0.90	0.65	-	1.18	-	1.71	-	1.90	-	1.90	-	1.90	-
	1.00	0.65	-	1.18	-	1.71	-	2.06	-	2.06	-	2.06	-
	1.20	0.65	-	1.18	-	1.71	-	2.06	-	2.06	-	-	-
	1.50	0.65	-	1.18	-	1.71	-	2.06	-	2.06	-	-	-
$N_{R,II,k}$ [kN]		1.40		1.98		2.61		3.19		4.37		5.82	

Component I $R_m \geq 215$ N/mm²		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] / t_I [mm]	0.50	0.85	-	0.92	-	0.98	-	1.02	-	1.02	-	1.02	-
	0.60	0.85	-	1.33	-	1.40	-	1.44	-	1.44	-	1.44	-
	0.70	0.85	-	1.33	-	1.81	-	1.85	-	1.85	-	1.85	-
	0.80	0.85	-	1.33	-	2.22	-	2.27	-	2.27	-	2.27	-
	0.90	0.85	-	1.33	-	2.22	-	2.48	-	2.48	-	2.48	-
	1.00	0.85	-	1.33	-	2.22	-	2.68	-	2.68	-	2.68	-
	1.20	0.85	-	1.33	-	2.22	-	2.68	-	2.27	-	-	-
	1.50	0.85	-	1.33	-	2.22	-	2.68	-	2.27	-	-	-
$N_{R,II,k}$ [kN]		1.40		1.98		2.61		3.19		4.37		5.82	

Additional definitions

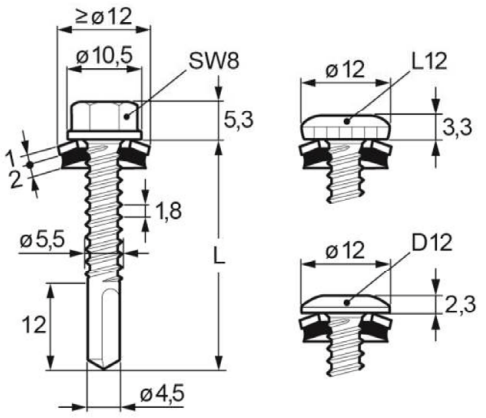
The resistance value $N_{R,k}$ can be determined as follows: $N_{R,k} = \min \{N_{R,I,k} \mid N_{R,II,k}\}$. $N_{R,I,k}$ is to be calculate according to EN 1999-1-4:2007, equation (8.13).

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 61

Deutsches Institut für Bautechnik DIBt



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

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

Component I $R_m \geq 165$ N/mm²		t_{II} [mm]											
		1.50		1.75		2.00		2.50		3.00		4.00	
$V_{R,k}$ [kN] / t_I [mm]	0.50	0.70	-	0.80	-	0.89	-	0.89	-	0.89	-	0.89	-
	0.60	0.95	-	1.01	-	1.07	-	1.07	-	1.07	-	1.07	-
	0.70	1.19	-	1.23	-	1.26	-	1.26	-	1.26	-	1.26	-
	0.80	1.44	-	1.44	-	1.44	-	1.44	-	1.44	-	1.44	-
	0.90	1.55	-	1.55	-	1.55	-	1.55	-	1.58	-	1.63	-
	1.00	1.66	-	1.66	-	1.66	-	1.66	-	1.72	-	1.82	-
	1.20	1.66	-	1.72	-	1.77	-	1.88	-	1.99	-	-	-
	1.50	1.66	-	1.72	-	1.77	-	1.88	-	1.99	-	-	-
$N_{R,II,k}$ [kN]		2.09		2.69		3.28		4.15		5.02		8.32	

Component I $R_m \geq 215$ N/mm²		t_{II} [mm]											
		1.50		1.75		2.00		2.50		3.00		4.00	
$V_{R,k}$ [kN] / t_I [mm]	0.50	0.91	-	1.03	-	1.16	-	1.16	-	1.16	-	1.16	-
	0.60	1.23	-	1.31	-	1.40	-	1.40	-	1.40	-	1.40	-
	0.70	1.56	-	1.60	-	1.64	-	1.64	-	1.64	-	1.64	-
	0.80	1.88	-	1.88	-	1.88	-	1.88	-	1.88	-	1.88	-
	0.90	2.03	-	2.03	-	2.03	-	2.03	-	2.06	-	2.13	-
	1.00	2.17	-	2.17	-	2.17	-	2.17	-	2.24	-	2.38	-
	1.20	2.17	-	2.24	-	2.31	-	2.46	-	2.60	-	-	-
	1.50	2.17	-	2.24	-	2.31	-	2.46	-	2.60	-	-	-
$N_{R,II,k}$ [kN]		2.09		2.69		3.28		4.15		5.02		8.32	

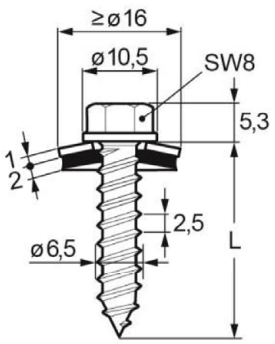
Additional definitions

The resistance value $N_{R,k}$ can be determined as follows: $N_{R,k} = \min \{N_{R,I,k} \mid N_{R,II,k}\}$. $N_{R,I,k}$ is to be calculate according to EN 1999-1-4:2007, equation (8.13).

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

Drilling-capacity -

Component I $R_m \geq 165$ N/mm²		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_I [mm]	0.50	0.35 -	0.44 -	0.55 -	0.65 -	0.86 -	0.86 -	0.86 -	0.86 -
	0.60	0.35 -	0.44 -	0.55 -	0.65 -	0.86 -	1.03 -	1.03 -	1.03 -
	0.70	0.35 -	0.44 -	0.55 -	0.65 -	0.86 -	1.03 -	1.20 -	1.20 -
	0.80	0.35 -	0.44 -	0.55 -	0.65 -	0.86 -	1.03 -	1.37 -	1.37 -
	0.90	0.35 -	0.44 -	0.56 -	0.65 -	0.86 -	1.03 -	1.37 -	1.54 -
	1.00	0.35 -	0.44 -	0.56 -	0.67 -	0.86 -	1.03 -	1.37 -	1.72 -
	1.20	0.35 -	0.44 -	0.56 -	0.67 -	0.92 -	1.08 -	1.41 -	2.06 -
	1.50	0.35 -	0.44 -	0.56 -	0.67 -	0.94 -	1.24 -	1.53 -	2.13 -
$N_{R,II,k}$ [kN]		1.00	1.20	1.40	1.50	1.90	2.30	3.80	5.60

Component I $R_m \geq 215$ N/mm²		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_I [mm]	0.50	0.45 -	0.58 -	0.72 -	0.85 -	1.12 -	1.12 -	1.12 -	1.12 -
	0.60	0.45 -	0.58 -	0.72 -	0.85 -	1.12 -	1.34 -	1.34 -	1.34 -
	0.70	0.45 -	0.58 -	0.72 -	0.85 -	1.12 -	1.34 -	1.57 -	1.57 -
	0.80	0.45 -	0.58 -	0.72 -	0.85 -	1.12 -	1.34 -	1.79 -	1.79 -
	0.90	0.45 -	0.58 -	0.72 -	0.85 -	1.12 -	1.34 -	1.78 -	2.01 -
	1.00	0.45 -	0.58 -	0.72 -	0.88 -	1.12 -	1.34 -	1.78 -	2.24 -
	1.20	0.45 -	0.58 -	0.72 -	0.88 -	1.20 -	1.41 -	1.83 -	2.68 -
	1.50	0.45 -	0.58 -	0.72 -	0.88 -	1.23 -	1.61 -	2.00 -	2.77 -
$N_{R,II,k}$ [kN]		1.00	1.20	1.40	1.50	1.90	2.30	3.80	5.60

Additional definitions

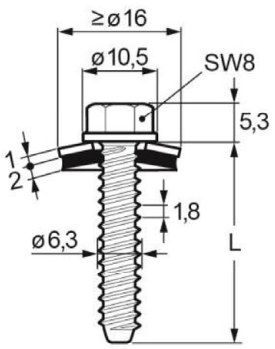
The resistance value $N_{R,k}$ can be determined as follows: $N_{R,k} = \min \{N_{R,I,k} \mid N_{R,II,k}\}$. $N_{R,I,k}$ is to be calculate according to EN 1999-1-4:2007, equation (8.13).

Self-tapping screw with sealing washer ≥ Ø 16 mm

TDA-S-S16-6,5 x L

Annex 63

Deutsches Institut für Bautechnik DIBt



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 $R_m \geq 165$ N/mm²		t_{II} [mm]								
		1.25	1.50	2.00	3.00	4.00	6.00	8.00	10.00	> 10.00[a]
d_{pd} [mm][b]		5.0		5.3			5.5	5.7		5.8
$V_{R,k}$ [kN] t_I [mm]	0.50	0.83 -	0.83 -	0.83 -	0.83 -	0.83 -	0.83 -	0.83 -	0.83 -	0.83 -
	0.60	0.83 -	1.00 -	1.00 -	1.00 -	1.00 -	1.00 -	1.00 -	1.00 -	1.00 -
	0.70	0.83 -	1.00 -	1.16 -	1.16 -	1.16 -	1.16 -	1.16 -	1.16 -	1.16 -
	0.80	0.83 -	1.00 -	1.33 -	1.33 -	1.33 -	1.33 -	1.33 -	1.33 -	1.33 -
	0.90	0.83 -	1.00 -	1.33 -	1.50 -	1.50 -	1.50 -	1.50 -	1.50 -	1.50 -
	1.00	0.83 -	1.00 -	1.33 -	1.66 -	1.66 -	1.66 -	1.66 -	1.66 -	1.66 -
	1.20	0.90 -	1.06 -	1.37 -	2.00 -	2.00 -	2.00 -	2.00 -	2.00 -	2.00 -
	1.50	0.93 -	1.22 -	1.50 -	2.07 -	2.49 -	2.49 -	2.49 -	2.49 -	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 $R_m \geq 215$ N/mm²		t_{II} [mm]								
		1.25	1.50	2.00	3.00	4.00	6.00	8.00	10.00	> 10.00[a]
d_{pd} [mm][b]		5.0		5.3			5.5	5.7		5.8
$V_{R,k}$ [kN] t_I [mm]	0.50	1.08 -	1.08 -	1.08 -	1.08 -	1.08 -	1.08 -	1.08 -	1.08 -	1.08 -
	0.60	1.08 -	1.30 -	1.30 -	1.30 -	1.30 -	1.30 -	1.30 -	1.30 -	1.30 -
	0.70	1.08 -	1.30 -	1.52 -	1.52 -	1.52 -	1.52 -	1.52 -	1.52 -	1.52 -
	0.80	1.08 -	1.30 -	1.73 -	1.73 -	1.73 -	1.73 -	1.73 -	1.73 -	1.73 -
	0.90	1.08 -	1.30 -	1.73 -	1.95 -	1.95 -	1.95 -	1.95 -	1.95 -	1.95 -
	1.00	1.08 -	1.30 -	1.73 -	2.17 -	2.17 -	2.17 -	2.17 -	2.17 -	2.17 -
	1.20	1.18 -	1.38 -	1.79 -	2.60 -	2.60 -	2.60 -	2.60 -	2.60 -	2.60 -
	1.50	1.21 -	1.59 -	1.96 -	2.70 -	3.25 -	3.25 -	3.25 -	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

Additional definitions

The resistance value $N_{R,k}$ can be determined as follows: $N_{R,k} = \min \{N_{R,I,k} \mid N_{R,II,k}\}$. $N_{R,I,k}$ is to be calculate according to EN 1999-1-4:2007, equation (8.13).

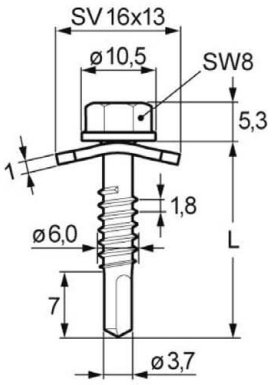
Index [a]: Only valid for component II made of S235, S280GD or HX300LAD.

Index [b]: The pre-drill diameter d_{pd} for not indicated thicknesses t_{II} is defined as follows:
d_{pd} = 5.3 mm for t_{II} = 1.6 - 4.0 mm, d_{pd} = 5.5 mm for t_{II} = 4.1 - 6.0 mm, d_{pd} = 5.7 mm for t_{II} = 6.1 - 10.0 mm

Self-tapping screw with sealing washer ≥ Ø 16 mm

TDB-S-S16-6,3 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 $\Sigma(t_I + t_{II}) \leq 4.00$ mm

Component I $R_m \geq 165$ N/mm²		t_{II} [mm]					
		0.63	0.75	0.88	1.00	1.25	1.50
$V_{R,k}$ [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 [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	-	-
$N_{R,II,k}$ [kN]		0.82	1.15	1.49	1.82	2.51	3.21

Component I $R_m \geq 215$ N/mm²		t_{II} [mm]					
		0.63	0.75	0.88	1.00	1.25	1.50
$V_{R,k}$ [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 [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	-	-
$N_{R,II,k}$ [kN]		0.82	1.15	1.49	1.82	2.51	3.21

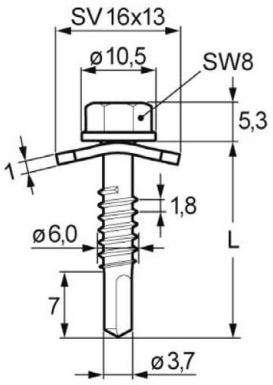
Additional definitions

The resistance value $N_{R,k}$ can be determined as follows: $N_{R,k} = \min \{N_{R,I,k} \mid N_{R,II,k}\}$. $N_{R,I,k}$ is to be calculate according to EN 1999-1-4:2007, equation (8.13).

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

Component I: Aluminum alloy - EN 573

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

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

Component I $R_m \geq 165$ N/mm²		t_{II} [mm]			
		2 x 0.75	2 x 0.88	2 x 1.00	2 x 1.25
$V_{R,k}$ [kN]	1.50	1.40	1.57	1.74	1.77
	2.00	1.83	2.04	2.25	-
t_I [mm]	2.50	1.83	-	-	-
	3.00	-	-	-	-
$N_{R,II,k}$ [kN]		2.43	2.94	3.45	4.38

Component I $R_m \geq 215$ N/mm²		t_{II} [mm]			
		2 x 0.75	2 x 0.88	2 x 1.00	2 x 1.25
$V_{R,k}$ [kN]	1.50	1.60	1.93	2.26	2.30
	2.00	1.83	2.35	2.87	-
t_I [mm]	2.50	1.83	-	-	-
	3.00	-	-	-	-
$N_{R,II,k}$ [kN]		2.43	2.94	3.45	4.38

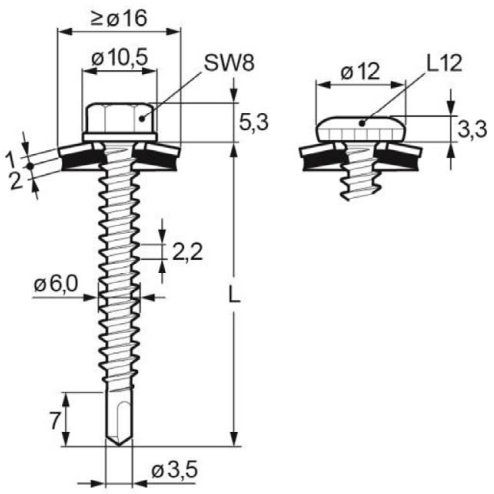
Additional definitions

The resistance value $N_{R,k}$ can be determined as follows: $N_{R,k} = \min \{N_{R,I,k} \mid N_{R,II,k}\}$. $N_{R,I,k}$ is to be calculate according to EN 1999-1-4:2007, equation (8.13).

Self-drilling screw with SV-washer 13x16 mm

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

$M_{y,Rk}$ = 7.9 Nm

$f_{ax,k}$ = 13.2 N/mm² (l_{ef} = 25 mm, ρ_a = 350 kg/m³)

Component I $R_m \geq 165$ N/mm²		l_{ef} [mm] 25	30	35	40	45		
$V_{R,k}$ [kN] t_I [mm]	0.50	0.59	0.59	0.59	0.59	0.59	0.59	$V_{R,I,k}$ [kN]
	0.60	0.80	0.80	0.80	0.80	0.80	0.80	
	0.70	1.01	1.01	1.01	1.01	1.01	1.01	
	0.80	1.02	1.14	1.14	1.14	1.14	1.14	
	0.90	1.02	1.23	1.26	1.26	1.26	1.26	
	1.00	1.02	1.23	1.26	1.26	1.26	1.26	
	1.20	1.02	1.23	1.26	1.26	1.26	1.26	
	1.50	1.02	1.23	1.26	1.26	1.26	1.26	
$N_{R,II,k}$ [kN]		1.78	2.14	2.49	2.85	3.21		

Component I $R_m \geq 215$ N/mm²		l_{ef} [mm] 25	30	35	40	45		
$V_{R,k}$ [kN] t_I [mm]	0.50	0.70	0.70	0.70	0.70	0.70	0.70	$V_{R,I,k}$ [kN]
	0.60	0.93	0.93	0.93	0.93	0.93	0.93	
	0.70	1.02	1.16	1.16	1.16	1.16	1.16	
	0.80	1.02	1.23	1.34	1.34	1.34	1.34	
	0.90	1.02	1.23	1.43	1.52	1.52	1.52	
	1.00	1.02	1.23	1.43	1.52	1.52	1.52	
	1.20	1.02	1.23	1.43	1.52	1.52	1.52	
	1.50	1.02	1.23	1.43	1.52	1.52	1.52	
$N_{R,II,k}$ [kN]		1.78	2.14	2.49	2.85	3.21		

Additional definitions

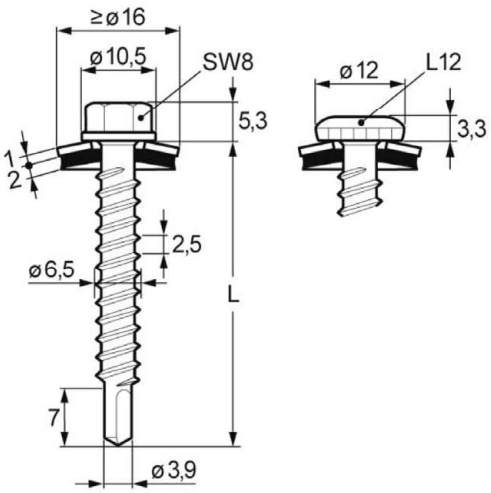
The resistance value $N_{R,k}$ can be determined as follows: $N_{R,k} = \min \{N_{R,I,k} \mid N_{R,II,k}\}$. $N_{R,I,k}$ is to be calculate according to EN 1999-1-4:2007, equation (8.13).

The indicated resistance values $N_{R,II,k}$ applies to component II with k_{mod} = 0.9 and ρ_k = 350 kg/m³. $N_{R,II,k}$ for other k_{mod} or ρ_k can be determined as follows: $N_{R,II,k}(k_{mod}, \rho_k) = N_{R,II,k} * \frac{k_{mod}}{0.9} * \frac{\rho_k}{350}$

Self-drilling screw with sealing washer ≥ Ø 16 mm

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

Annex 67



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/mm² (l_{ef} = 35 mm, ρ_a = 350 kg/m³)

Component I $R_m \geq 165$ N/mm²		l_{ef} [mm] 35	45	55	65	75		
$V_{R,k}$ [kN] t_I [mm]	0.50	0.86	0.86	0.86	0.86	0.86	0.86	$V_{R,I,k}$ [kN]
	0.60	1.03	1.03	1.03	1.03	1.03	1.03	
	0.70	1.20	1.20	1.20	1.20	1.20	1.20	
	0.80	1.37	1.37	1.37	1.37	1.37	1.37	
	0.90	1.54	1.54	1.54	1.54	1.54	1.54	
	1.00	1.72	1.72	1.72	1.72	1.72	1.72	
	1.20	1.73	2.06	2.06	2.06	2.06	2.06	
	1.50	1.73	2.23	2.57	2.57	2.57	2.57	
$N_{R,II,k}$ [kN]		2.70	3.47	4.25	5.02	5.79		

Component I $R_m \geq 215$ N/mm²		l_{ef} [mm] 35	45	55	65	75		
$V_{R,k}$ [kN] t_I [mm]	0.50	1.12	1.12	1.12	1.12	1.12	1.12	$V_{R,I,k}$ [kN]
	0.60	1.34	1.34	1.34	1.34	1.34	1.34	
	0.70	1.57	1.57	1.57	1.57	1.57	1.57	
	0.80	1.73	1.79	1.79	1.79	1.79	1.79	
	0.90	1.73	2.01	2.01	2.01	2.01	2.01	
	1.00	1.73	2.23	2.24	2.24	2.24	2.24	
	1.20	1.73	2.23	2.68	2.68	2.68	2.68	
	1.50	1.73	2.23	2.73	3.22	3.35	3.35	
$N_{R,II,k}$ [kN]		2.70	3.47	4.25	5.02	5.79		

Additional definitions

The resistance value $N_{R,k}$ can be determined as follows: $N_{R,k} = \min \{N_{R,I,k} \mid N_{R,II,k}\}$. $N_{R,I,k}$ is to be calculate according to EN 1999-1-4:2007, equation (8.13).

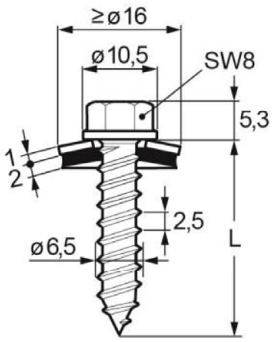
The indicated resistance values $N_{R,II,k}$ applies to component II with k_{mod} = 0.9 and ρ_k = 350 kg/m³. $N_{R,II,k}$ for other k_{mod} or ρ_k can be determined as follows: $N_{R,II,k}(k_{mod}, \rho_k) = N_{R,II,k} * \frac{k_{mod}}{0.9} * \frac{\rho_k}{350}$

Self-drilling screw with sealing washer ≥ Ø 16 mm

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

Annex 68

Deutsches Institut für Bautechnik DIBt



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/mm² (l_{ef} = 29 mm, ρ_a = 350 kg/m³)

Component I $R_m \geq 165$ N/mm²		l_p [mm] 35	45	55	65	75		
d_{pd} [mm]		4.80						
$V_{R,k}$ [kN] t_I [mm]	0.50	0.86	0.86	0.86	0.86	0.86	0.86	**$V_{R,I,k}$ [kN]**
	0.60	1.03	1.03	1.03	1.03	1.03	1.03	
	0.70	1.20	1.20	1.20	1.20	1.20	1.20	
	0.80	1.37	1.37	1.37	1.37	1.37	1.37	
	0.90	1.54	1.54	1.54	1.54	1.54	1.54	
	1.00	1.72	1.72	1.72	1.72	1.72	1.72	
	1.20	1.73	2.06	2.06	2.06	2.06	2.06	
	1.50	1.73	2.23	2.57	2.57	2.57	2.57	
$N_{R,II,k}$ [kN]		2.70	3.47	4.25	5.02	5.79		

Component I $R_m \geq 215$ N/mm²		l_p [mm] 35	45	55	65	75		
d_{pd} [mm]		4.80						
$V_{R,k}$ [kN] t_I [mm]	0.50	1.12	1.12	1.12	1.12	1.12	1.12	**$V_{R,I,k}$ [kN]**
	0.60	1.34	1.34	1.34	1.34	1.34	1.34	
	0.70	1.57	1.57	1.57	1.57	1.57	1.57	
	0.80	1.73	1.79	1.79	1.79	1.79	1.79	
	0.90	1.73	2.01	2.01	2.01	2.01	2.01	
	1.00	1.73	2.23	2.24	2.24	2.24	2.24	
	1.20	1.73	2.23	2.68	2.68	2.68	2.68	
	1.50	1.73	2.23	2.73	3.22	3.35	3.35	
$N_{R,II,k}$ [kN]		2.70	3.47	4.25	5.02	5.79		

Additional definitions

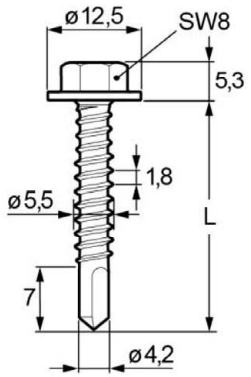
The resistance value $N_{R,k}$ can be determined as follows: $N_{R,k}$ = min {$N_{R,I,k}$ | $N_{R,II,k}$}. $N_{R,I,k}$ is to be calculate according to EN 1999-1-4:2007, equation (8.13).

The indicated resistance values $N_{R,II,k}$ applies to component II with k_{mod} = 0.9 and ρ_k = 350 kg/m³. $N_{R,II,k}$ for other k_{mod} or ρ_k can be determined as follows: $N_{R,II,k}(k_{mod}, \rho_k) = N_{R,II,k} * \frac{k_{mod}}{0.9} * \frac{\rho_k}{350}$

Self-tapping screw with sealing washer ≥ Ø 16 mm

TDA-S-S16-6,5 x L

Annex 69



Materials

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

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

Component I and II $R_m \geq 165$ N/mm²		t_{II} [mm] 1.50	2.00	2.50	3.00	4.00
$d_{pd,I}$ [mm]		5.2				
$V_{R,k}$ [kN]	2.00	1.51	2.03	2.24	2.44	2.44
	2.50	1.51	2.10	2.41	2.70	2.86
t_I [mm]	3.00	1.51	2.17	2.57	2.96	3.28
	4.00	1.51	2.30	2.89	3.48	4.12
$N_{R,II,k}$ [kN]		0.74	1.19	1.58	1.97	4.55

Component I and II $R_m \geq 215$ N/mm²		t_{II} [mm] 1.50	2.00	2.50	3.00	4.00
$d_{pd,I}$ [mm]		5.2				
$V_{R,k}$ [kN]	2.00	1.97	2.64	2.91	3.18	3.18
	2.50	1.97	2.73	3.13	3.52	3.73
t_I [mm]	3.00	1.97	2.82	3.34	3.86	4.28
	4.00	1.97	2.99	3.76	4.53	5.37
$N_{R,II,k}$ [kN]		0.96	1.55	2.06	2.57	5.93

Additional definitions

The resistance value $N_{R,k}$ can be determined as follows: $N_{R,k} = \min \{N_{R,I,k} \mid N_{R,II,k}\}$. $N_{R,I,k}$ is to be calculate according to EN 1999-1-4:2007, equation (8.13).

Self drilling screw	**Annex 70**
SDA5-H13-5,5 x L	

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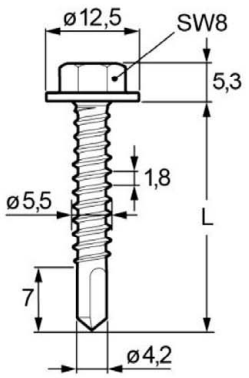

Materials

Fastener:	Stainless steel A2 or A4 - EN ISO 3506
Washer:	-
Component I:	Stainless steel - EN 10088 - $R_m \geq 550$ N/mm²
Component II:	Aluminum alloy - EN 573

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

Component II $R_m \geq 165$ N/mm²		t_{II} [mm] 1.50	2.00	2.50	3.00	4.00
$d_{pd,I}$ [mm]		5.5				
$V_{R,k}$ [kN]	1.50	-	2.32	2.56	2.80	2.80
	2.00	-	2.44	2.78	3.12	3.12
t_I [mm]	2.50	1.90	2.56	3.00	3.44	3.44
$N_{R,II,k}$ [kN]		0.74	1.19	1.58	1.97	4.55

Component II $R_m \geq 215$ N/mm²		t_{II} [mm] 1.50	2.00	2.50	3.00	4.00
$d_{pd,I}$ [mm]		5.5				
$V_{R,k}$ [kN]	1.50	-	3.03	3.34	3.65	3.65
	2.00	-	3.18	3.63	4.07	4.07
t_I [mm]	2.50	2.47	3.33	3.91	4.48	4.48
$N_{R,II,k}$ [kN]		0.96	1.55	2.06	2.57	5.93

Additional definitions

Self drilling screw

SDA5-H13-5,5 x L

Annex 71