



Approval body for construction products and types of construction

#### **Bautechnisches Prüfamt**

An institution established by the Federal and Laender Governments



## European Technical Assessment

## ETA-10/0198 of 7 September 2023

English translation prepared by DIBt - Original version in German language

#### **General Part**

Technical Assessment Body issuing the European Technical Assessment:

Trade name of the construction product

Product family to which the construction product belongs

Manufacturer

Manufacturing plant

This European Technical Assessment contains

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

This version replaces

Deutsches Institut für Bautechnik

SX, SLG, SL, TDA, TDB, TDC, SD, SXW, SW, CX, CXLW, SDL, SXL

Fastening screws for metal members and sheeting

SFS Group Schweiz AG Rosenbergsaustraße 10 9435 HEERBRUGG SCHWEIZ

SFS plants 5, 7, 32

76 pages including 69 annexes which form an integral part of this assessment

330046-01-0602

ETA-10/0198 issued on 1 June 2022



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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	Material Fastener	Material Component I / II
4 / 5	Fastening screws for perforated steel sheeting	Steel sheeting with hole pattern I Steel sheeting with hole pattern II	Stainless steel	Perfoated sheeting
6 7	CX-S16-5,5 x L	Self-drilling screw with sealing washer ≥ Ø 16 mm	Stainless steel	Steel / Steel Alu / Alu
8/9	SX3-A11-6,0 x L SX3-L12-A11-6,0 x L SX3-D12-A11-6,0 x L SX3-D10-A11-6,0 x L	Self-drilling screw with sealing washer ≥ Ø 11 mm	Stainless steel	Steel / Steel
10 / 11	SX3-A11-6,0 x L SX3-L12-A11-6,0 x L SX3-D12-A11-6,0 x L SX3-D10-A11-6,0 x L SX3-S14-6,0 x L	Self-drilling screw with sealing washer ≥ Ø 11 mm	Stainless steel	Alu / Steel
12	SX3-L12-S14-6,0 x L SX3-D12-S14-6,0 x L SX3-D10-S14-6,0 x L	12-S14-6,0 x L 12-S14-6,0 x L		Alu / Alu
13 / 14	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 $\geq \emptyset$ 12 mm	Stainless steel	Steel / Steel
15 / 16	SX3-S14-6,0 x L SX3-L12-S14-6,0 x L SX3-D12-S14-6,0 x L SX3-D10-S14-6,0 x L	Self-drilling screw with sealing washer $\geq \emptyset$ 14 mm	Stainless steel	Steel / Steel
17 / 18	SX3-S16-6,0 x L SX3-L12-S16-6,0 x L SX3-D12-S16-6,0 x L SX3-D10-S16-6,0 x L	Self-drilling screw with sealing washer $\ge \emptyset$ 16 mm	Stainless steel	Steel / Steel
19 / 20	SX3-S19-6,0 x L SX3-L12-S19-6,0 x L SX3-D12-S19-6,0 x L SX3-D10-S19-6,0 x L	Self-drilling screw with sealing washer $\ge \emptyset$ 19 mm	Stainless steel	Steel / Steel
21	SX5-A11-5,5 x L SX5-L12-A11-5,5 x L SX5-D12-A11-5,5 x L SX5-D10-A11-5,5 x L	Self-drilling screw with sealing washer $\geq \emptyset$ 11 mm	Stainless steel	Steel / Steel
22	SX5-A11-5,5 x L SX5-L12-A11-5,5 x L SX5-D12-A11-5,5 x L			Alu / Steel
23	SX5-D10-A11-5,5 x L SX5-S14-5,5 x L SX5-L12-S14-5,5 x L SX5-D12-S14-5,5 x L SX5-D10-S14-5,5 x L	Self-drilling screw with sealing washer $\ge \emptyset$ 11 mm	Stainless steel	Alu / Alu



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#### Table 1 – Continued

Annex	Fastening Screw	Description	Material Fastener	Material Component I / I
24	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 $\ge \emptyset$ 12 mm	Stainless steel	Steel / Steel
25	SX5-S14-5,5 x L SX5-L12-S14-5,5 x L SX5-D12-S14-5,5 x L SX5-D10-S14-5,5 x L	Self-drilling screw with sealing washer $\ge \emptyset$ 14 mm	Stainless steel	Steel / Steel
26	SX5-S16-5,5 x L SX5-L12-S16-5,5 x L	Self-drilling screw	Stainless	Steel / Steel
27	SX5-D12-S16-5,5 x L SX5-D10-S16-5,5 x L	with sealing washer $\geq \emptyset$ 16 mm	steel	Steel / Alu
28	SX5-S19-5,5 x L SX5-L12-S19-5,5 x L SX5-D12-S19-5,5 x L SX5-D10-S19-5,5 x L	Self-drilling screw with sealing washer $\geq \emptyset$ 19 mm	Stainless steel	Steel / Steel
29	SX14-A11-5,5 x L SX14-L12-A11-5,5 x L SX14-D10-A11-5,5 x L	Self-drilling screw with sealing washer $\ge \emptyset$ 11 mm	Stainless steel	Steel / Steel
30	SX14-S14-5,5 x L SX14-L12-S14-5,5 x L SX14-D10-S14-5,5 x L	Self-drilling screw with sealing washer $\ge \emptyset$ 14 mm	Stainless steel	Steel / Steel
31	SX14-S16-5,5 x L SX14-L12-S16-5,5 x L SX14-D12-S16-5,5 x L SX14-D10-S16-5,5 x L	4-S16-5,5 x L 4-L12-S16-5,5 x L Self-drilling screw Stainles 4-D12-S16-5,5 x L with sealing washer ≥ Ø 16 mm steel		Steel / Steel
32	SX20-S16-5,5 x L	Self-drilling screw with sealing washer $\ge \emptyset$ 16 mm	Stainless steel	Steel / Steel
33	SW2-S-S16-6.0 x L SW2-S-L12-S16-6.0 x L Self-drilling screw		Stainless	Steel / Timber
34	SXW-S16-6.0 x L SXW-L12-S16-6.0 x L	with sealing washer $\geq \emptyset$ 16 mm	steel	Alu / Timber
35	SXW-S16-6.5 x L	Self-drilling screw	Stainless	Steel / Timber
36	SXW-L12-S16-6.5 x L	with sealing washer $\ge \emptyset$ 16 mm	steel	Alu / Timber
37 / 38				Steel / Steel
39				Alu / Steel
40	TDA-S-S16-6,5 x L TDA-S16-6,5 x L	Self-tapping screw with sealing washer $\ge \emptyset$ 16 mm	Stainless steel	Alu / Alu
41	]			Steel / Timber
42	]			Alu / Timber
43				Steel / Steel
44	TDB-S-S16-6,3 x L TDB-S16-6,3 x L	Self-tapping screw with sealing washer $\ge \emptyset$ 16 mm	Stainless steel	Alu / Steel
45	]			Alu / Alu
46	TDC-S-S16-6,3 x L TDC-S16-6,3 x L	Self-tapping screw with sealing washer $\geq \emptyset$ 16 mm	Stainless steel	Steel / Steel



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### Table 1 - Continued

Annex	Fastening Screw	Description	Material Fastener	Material Component I / II
47				Steel / Steel
48	CXLW-D10-A11-4,8 x L	Self-drilling screw with sealing washer $\geq \emptyset$ 11 mm	Stainless steel	Alu / Alu
49				Steel / Timber
50				Steel / Steel
51	CXLW-AV14-4,8 x L	Self-drilling screw with sealing washer $\ge \emptyset$ 14 mm	Stainless steel	Alu / Alu
52				Steel / Timber
53	SD1-D7-4,8 x L SX2-D7-4,8 x L	Self-drilling screw	Stainless steel	Steel / Steel
54	SDL1-D10-A11-4,8 x L	$^{,8 \text{ x L}}$ Self-drilling screw with sealing washer ≥ Ø 11 mm		Steel / Steel
55	SDL1-AV14-4,8 x L	Self-drilling screw with sealing washer $\ge \emptyset$ 14 mm	Stainless steel	Steel / Steel
56	SXL2-AV14-6,3 x L	Self-drilling screw	Stainless	Steel / Steel
57	SXL2-L12-AV14-6,3 x L	with sealing washer $\ge \emptyset$ 14 mm	steel	Alu / Alu
58			Stainless	Steel / Steel
59	SLG-S-6,5 x L	Self-drilling screw	steel	Alu / Steel
60 / 61	SL3/2-5-S-SV16-6,0 x L	Self-drilling screw	Stainless	Steel / Steel
62 / 63	SXL3-SV16-6,0 x L	with washer 13x16 mm	steel	Alu / Steel
64	SL2-S-S14-4.8 x L	Self-drilling screw with sealing washer $\ge \emptyset$ 14 mm	Stainless steel	Steel / Steel
65		Solf drilling corour		Steel / Steel
66	- SL2-S-S14-5.5 x L	with sealing washer $\ge \emptyset$ 14 mm	Stainless steel	Alu / Alu
67	SL2-S-S14-6.3 x L	Self-drilling screw	Stainless	Steel / Steel
68	SL2-S-L12-S14-6.3 x L	with sealing washer $\ge \emptyset$ 14 mm	steel	Alu / Alu
69	SLG-S-S14-4.8 x L	Self-drilling screw with sealing washer $\ge \emptyset$ 14 mm	Stainless steel	Steel / Steel



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# 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  $\geq$  C2 corrosion according to the standard EN ISO 12944-2 are made of stainless steel. Furthermore the intended use comprises connections with predominantly static loads (e.g. wind loads, dead loads). The fastening screws are not intended for re-use.

The performances given in Section 3 are only valid if the fastening screws are used in compliance with the specifications and conditions given in Annex (1-69).

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+



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#### 5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD

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

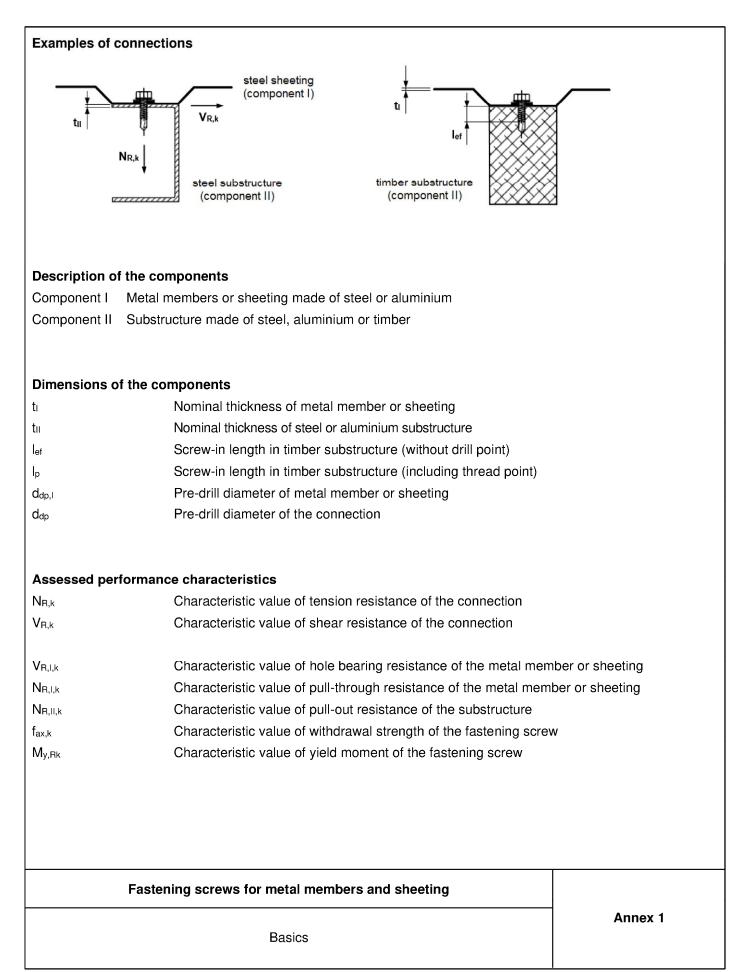
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BD Dr.-Ing. Ronald Schwuchow Head of Section

beglaubigt: Hahn

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### Assessment of performance characteristics

The declared performance characteristics have been assessed according to EAD 330047-01-0602.

The characteristic value of tension resistance of a connection ( $N_{B,k}$ ) results from the minimum of the tension resistance of the fastening screw ( $N_{screw}$ ), the pull-through resistance of the metal member or sheeting ( $N_{B,l,k}$ ) and the pull-out resistance of the substructure ( $N_{B,l,k}$ ). The pull-through resistance includes a reduction factor 2/3 to take the influence of repeated wind loads into account.

$$N_{Rk} = min\{N_{screw}; N_{R,I,k}; N_{R,II,k}\}$$

The characteristic value of shear resistance of a connection ( $V_{R,k}$ ) results from the minimum of the shear resistance of the fastening screw ( $V_{screw}$ ) and the shear resistance of the connection between metal member or sheeting and substructure ( $V_{R,k/II,k}$ ).

$$V_{Rk} = min\{V_{screw}; V_{R,1/11,k}\}$$

The characteristic values consider minimum thicknesses  $(t_{min})$  of the declared nominal thicknesses  $(t_{nom} = t_i, t_{ii})$  according following table:

	t <sub>nom</sub> [mm]	t <sub>min</sub> [mm]						
Ohad	0.40	0.33	1.00	0.91	3.00	2.85	10.00	8.50
Steel	0.50	0.42	1.25	1.13	4.00	3.40	12.00	10.20
components	0.63	0.55	1.50	1.38	5.00	4.25	15.00	12.75
	0.75	0.67	2.00	1.87	6.00	5.10	18.00	15.30
	0.88	0.79	2.50	2.36	8.00	6.80		

	t <sub>nom</sub> [mm]	t <sub>min</sub> [mm]						
Aluminium	0.50	0.44	0.90	0.82	2.00	1.85	5.00	4.75
components	0.60	0.53	1.00	0.91	2.50	2.35	6.00	5.70
	0.70	0.63	1.20	1.10	3.00	2.85		
	0.80	0.72	1.50	1.35	4.00	3.80		

The characteristic values consider a minimum tensile strength of 360 N/mm<sup>2</sup> of the declared steel materials (S280GD, S235), a minimum tensile strength of 165 N/mm<sup>2</sup> and 215 N/mm<sup>2</sup> of the declared aluminium materials resp. the minimum density of 350 kg/m<sup>3</sup>, 550 kg/m<sup>3</sup> resp. 500 kg/m<sup>3</sup> of the declared timber materials (C24, OSB3 resp. P5).

Characteristic values for component thicknesses  $(t_1, t_{11})$  or screw-in lengths  $(l_{ef}, l_p)$  that are between two declared component thicknesses or screw-in lengths may be determined by linear interpolation.

The characteristic values may be applied for further steel materials according to EN 1993-1-1 (table 3.1) and EN 1993-1-3 (table 3.1) as long as the material properties corresponds to declared materials.

Fastening screws for metal mem	bers and sheeting
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Annex 2

Basics

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#### Recommendation for design values

Provisions for the design of a connection are given in Eurocode 0 (EN 1990: Basis of structural design), Eurocode 3 (EN 1993: Design of steel structures) Eurocode 5 (EN 1995: Design of timber structures) and Eurocode 9 (EN 1999: Design of aluminium structures).

The design value of tension and shear resistance of a connection (N<sub>R,d</sub> resp. V<sub>R,d</sub>) shall be determined by taking into account a partial safety factor ( $\gamma$ <sub>M</sub>). Recommended is  $\gamma$ <sub>M</sub> = 1.33 unless otherwise stated in National Regulations or National Annexes of Eurocode 0, Eurocode 3, Eurocode 5 or Eurocode 9.

$$N_{R,d} = \frac{N_{R,k}}{\gamma_M} \qquad \qquad V_{R,d} = \frac{V_{R,k}}{\gamma_M} \label{eq:VR}$$

Application specific conditions shall be taken into account:

- In case of combined tension and shear load of a connection, the condition according to EN 1993-1-3 (equation 8.2) resp. EN 1999-1-4 (equation 8.1) shall be fulfilled.
- In case of timber substructure, a modification factor (k<sub>mod</sub>) according to EN 1995-1-1 (table 3.1) shall be applied at pull-out resistance (N<sub>R,II,k</sub>).
- In case of eccentric fastening of metal members or sheeting or asymmetrical steel or aluminium substructure, a reduction of tension resistance (N<sub>R,k</sub>) according to EN 1090-4 (section B.5) and EN 1993-1-3 (section 8.3) resp. EN 1090-5 (section B.4) and EN 1999-1-4 (section 8.3) shall be applied.

#### Installation requirements

The installation has to be carried out according to the manufacturer's instructions.

Installation instructions given in corresponding European Standards shall be taken into account:

- Requirements on the installation of fastening screws are given in EN 1090-2 (section 8.8) and EN 1090-4 (section 8.1 and 8.2) resp. EN 1090-3 (section 8.5) and EN 1090-5 (section 8.1 and 8.2).
- Requirements on minimum distances between fastening screws and minimum distances to component edges and ends are given in EN 1090-4 (section 8.7) and EN 1993-1-3 (section 8.3), EN 1090-5 (section 8.6) and EN 1999-1-4 (section 8.1) resp. EN 1995-1-1 (section 8.7).

Requirements on the minimum screw-in depth in steel substructures are given in EN 1090-4 (section 8.5).

#### Fastening screws for metal members and sheeting

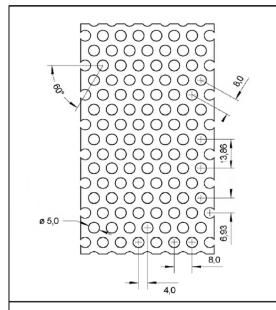
Annex 3

Basics

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 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			
	0.75	2.16	2.22	2.24			
V <sub>R,I,k</sub> [kN]	0.88	2.56	2.64	2.64			
tı [mm]	1.00	2.92	3.04	3.02			
	1.25	3.70	3.88	3.80			
	1.50	4.46	4.74	4.56			
	0.75	1.40	1.94	2.14			
N <sub>R,I,k</sub> [kN]	0.88	1.82	2.34	2.62			
t [mm]	1.00	2.24	2.74	3.06			
t <sub>I</sub> [mm] -	1.25	3.24	3.58	4.08			
-	1.50	4.36	4.46	5.12			

### Additional definitions

The characteristic values N<sub>R,k</sub> and V<sub>R,k</sub> can be determined according to Annex 3 For component I made of S320GD the indicated values may be increased by 8.3% For component I made of S350GD to S450GD the indicated values may be increased by 16.6% The thickness t<sub>I</sub> shall be at least 1 mm if component I is exposed to wind loads

### Steel sheeting with hole pattern I

Fastening screws for perforated steel sheeting

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 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			
	0.75	2.38	2.52	2.84			
V <sub>R,I,k</sub> [kN]	0.88	3.02	3.12	3.42			
tı [mm]	1.00	3.56	3.70	3.84			
	1.25	4.68	4.84	4.92			
	1.50	5.76	6.04	5.90			
	0.75	2.86	3.16	3.24			
N <sub>R,I,k</sub> [kN]	0.88	3.40	3.72	3.76			
t [mm]	1.00	3.90	4.28	4.28			
tı [mm] -	1.25	4.94	5.42	5.42			
	1.50	6.00	6.60	6.60			

### Additional definitions

The characteristic values N<sub>R,k</sub> and V<sub>R,k</sub> can be determined according to Annex 3 For component I made of S320GD the indicated values may be increased by 8.3% For component I made of S350GD to S450GD the indicated values may be increased by 16.6% The thickness t<sub>I</sub> shall be at least 1 mm if component I is exposed to wind loads

### Steel sheeting with hole pattern II

Fastening screws for perforated steel sheeting

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	Materials:	
	Fastener:	Stainless steel A2 or A4 - EN ISO 3506
ø10,5 SW8	Washer:	Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal
5,3	Component I:	S280GD to S450GD - EN 10346
9,3 2 1,5 05,5 L	Component II:	S280GD to S450GD - EN 10346
Ø	Drilling-capacity:	Σ(tı + tıı) ≤ 1.80 mm

				tıı (n	nm]		
		0.40	0.50	0.55	0.63	0.75	0.88
	0.40	0.81	0.81	0.81	0.81	0.81	0.81
	0.50	0.81	1.35	1.35	1.35	1.35	1.35
V <sub>R,k</sub> [kN]	0.55	0.81	1.35	1.49	1.49	1.49	1.49
tı [mm]	0.63	0.81	1.35	1.49	1.71	1.71	1.71
	0.75	0.81	1.35	1.49	1.71	2.05	2.05
	0.88	0.81	1.35	1.49	1.71	2.05	2.75
	0.40	0.44	0.77	0.85	0.98	1.04	1.04
	0.50	0.44	0.77	0.85	0.98	1.17	1.25
N <sub>R,k</sub> [kN]	0.55	0.44	0.77	0.85	0.98	1.17	1.51
tı [mm]	0.63	0.44	0.77	0.85	0.98	1.17	1.54
	0.75	0.44	0.77	0.85	0.98	1.17	1.54
	0.88	0.44	0.77	0.85	0.98	1.17	1.54
N <sub>R,II,k</sub> [kN]		0.44	0.77	0.85	0.98	1.17	1.54

### Additional definitions

For component I and component II made of S320GD to S450GD the resistance value may be increased by 8.3%.

### Self-tapping screw with sealing washer $\emptyset \ge 16 \text{ mm}$

CX-S16-5,5xL

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1	ø1 ø10 ø5,5	0,5 SW	B 5,3	Fast Was Com	erials: ener: her: nponent I: nponent II:	Alumii with E Alumii	ess steel A num alloy - PDM-seal num alloy - num alloy -	- EN 573 - EN 573		06																	
				Drilli	ng-capacit	y: Σ(t <sub>i</sub> + t	t <sub>ll</sub> ) ≤ 4.00 n	ım																			
Compon	ent I			L		tıı [mm]	1		L																		
R <sub>m</sub> ≥ 165 N		0.50	0.60	0.70	0.80	0.90	1.00	1.20	1.50	2.00																	
	0.50	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61																	
	0.60	0.61	0.84										0.84									0.84	0.84	0.84	0.84	0.84	0.84
	0.70	0.61	0.84	1.06	1.06	1.06	1.06	1.06	1.06	1.06																	
V <sub>R,k</sub> [kN]	0.61	0.84	1.06 1.06	1.29 1.29	1.29	1.29	1.29	1.29	1.29																		
	0.90 0.61 0.84					1.38	1.38	1.38	1.38	1.38																	

l compon	onti					m [ruuu]				
R <sub>m</sub> ≥ 165 I	N/mm <sup>2</sup>	0.50	0.60	0.70	0.80	0.90	1.00	1.20	1.50	2.00
	0.50	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61
	0.60	0.61	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
	0.70	0.61	0.84	1.06	1.06	1.06	1.06	1.06	1.06	1.06
V <sub>R,k</sub> [kN]	0.80	0.61	0.84	1.06	1.29	1.29	1.29	1.29	1.29	1.29
,	0.90	0.61	0.84	1.06	1.29	1.38	1.38	1.38	1.38	1.38
tı [mm]	1.00	0.61	0.84	1.06	1.29	1.38	1.47	1.47	1.47	1.47
	1.20	0.61	0.84	1.06	1.29	1.38	1.47	1.64	1.64	1.64
	1.50	0.61	0.84	1.06	1.29	1.38	1.47	1.64	1.89	1.89
	2.00	0.61	0.84	1.06	1.29	1.38	1.47	1.64	1.89	2.63
N <sub>R,II,k</sub> [kN]		0.32	0.42	0.52	0.61	0.72	0.83	1.02	1.32	1.89
0.0000000000	a intel					t. [mm]				
Compon R <sub>m</sub> ≥ 215 ľ		0.50	0.60	0.70	0.80	t⊫[mm] 0.90	1.00	1.20	1.50	2.00
1 1 2 1 3 1										
	0.50	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
	0.60	0.80	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
	0.70	0.80	0.96	1.12	1.12	1.12	1.12	1.12	1.12	1.12
V <sub>R,k</sub> [KN]	0.80	0.80	0.96	1.12	1.29	1.29	1.29	1.29	1.29	1.29
	0.90	0.80	0.96	1.12	1.29	1.60	1.60	1.60	1.60	1.60
tı [mm]	1.00	0.80	0.96	1.12	1.29	1.60	1.92	1.92	1.92	1.92
	1.20	0.80	0.96	1.12	1.29	1.60	1.92	2.14	2.14	2.14
	1.50	0.80	0.96	1.12	1.29	1.60	1.92	2.14	2.46	2.46
	2.00	0.80	0.96	1.12	1.29	1.60	1.92	2.14	2.46	3.43
N <sub>R,II,k</sub> [kN]		0.41	0.48	0.55	0.61	0.85	1.08	1.33	1.72	2.46

#### Additional definitions

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

Self-tapping screw with sealing washer  $\emptyset \ge 16$  mm

Annex 7

CX-S16-5,5xL

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English translation prepared by DIBt



≥ø11		<u>Materials:</u> Fastener:	Stainless steel A2 or A4 - EN ISO 3506
ø10,5 SW8	<u> </u>	Washer:	Aluminum alloy – EN 573 with EPDM-seal
5,3	3,3	Component I:	S280GD to S450GD - EN 10346
2 2,2		Component II:	S280GD to S450GD - EN 10346
<u>ø6,0</u> ↓ ↓ ↓ ↓	Ø10 D10 3,3		
ø 3,9	臣	Drilling-capacity:	$\Sigma(t_{1} + t_{11}) \leq 3.00 \text{ mm}$

							tıı [r	nm]			
		0.63		0.75	0.88	1.00	)	1.25	1.50	1.75	2.00
	0.50	0.981)	-	1.201) -	<b>1</b> .45 <sup>1)</sup> -	1.61 <sup>1)</sup>	-	<b>1.76</b> <sup>1)</sup> -	<b>1.90</b> <sup>1)</sup> -	1.90 <sup>1)</sup> -	<b>1.90</b> <sup>1)</sup> -
	0.55	1.03 <sup>1)</sup>	-	1.251) -	<b>1</b> .53 <sup>1)</sup> -	<b>1.68</b> <sup>1)</sup>	-	<b>1.91</b> <sup>1)</sup> -	2.13 <sup>1)</sup> -	2.13 <sup>1)</sup> -	2.13 <sup>1)</sup> -
	0.63	1.11 <sup>1)</sup>	-	1.341) -	<b>1.66</b> <sup>1)</sup> -	1.79 <sup>1)</sup>	-	2.15 <sup>1)</sup> -	2.50 <sup>1)</sup> -	2.50 <sup>1)</sup> -	2.50 <sup>1)</sup> -
V <sub>Rk</sub> [kN]	0.75	1.11 <sup>1)</sup>	-	<b>1.47</b> <sup>1)</sup> -	<b>1</b> .85 <sup>1)</sup> -	1.96 <sup>1)</sup>	-	2.51 <sup>1)</sup> -	3.06 <sup>1)</sup> -	3.06 <sup>1)</sup> -	3.06 <sup>1)</sup> -
t <sub>i</sub> [mm]	0.88	<b>1.11</b> <sup>1)</sup>	-	<b>1.47</b> <sup>1)</sup> -	<b>1.85</b> <sup>1)</sup> -	2.05	-	2.79 -	3.53 -	3.66 -	3.79 -
. []	1.00	<b>1.11</b> <sup>1)</sup>	-	<b>1.47</b> <sup>1)</sup> -	<b>1</b> .85 <sup>1)</sup> -	2.14	-	3.05 -	3.96 -	4.21 -	4.46 -
	1.25	<b>1.11</b> <sup>1)</sup>	-	<b>1.47</b> <sup>1)</sup> -	<b>1.85</b> <sup>1)</sup> -	2.32	-	3.59 -	4.86 -	5.36 -	
	1.50	<b>1.11</b> <sup>1)</sup>	-	<b>1.47</b> <sup>1)</sup> -	<b>1</b> .85 <sup>1)</sup> -	2.32	-	3.59 -	4.86 -		
	0.50	0.89	-	1.14 -	1.59 -	1.59 <sup>1)</sup>	-	1.59 <sup>1)</sup> -	1.59 <sup>1)</sup> -	1.59 <sup>1)</sup> -	1.59 <sup>1)</sup> -
	0.55	0.89	-	1.14 -	1.66 -	1.70	-	<b>1.70</b> <sup>1)</sup> -	<b>1</b> .70 <sup>1)</sup> -	1.70 <sup>1)</sup> -	<b>1</b> .70 <sup>1)</sup> -
	0.63	0.89	-	1.14 -	1.66 -	1.81	-	1.87 <sup>1)</sup> -	1.87 <sup>1)</sup> -	1.87 <sup>1)</sup> -	1.87 <sup>1)</sup> -
N <sub>Rk</sub> [kN]	0.75	0.89	-	1.14 -	1.66 -	1.81	-	2.12 <sup>1)</sup> -	2.12 <sup>1)</sup> -	2.12 <sup>1)</sup> -	2.12 <sup>1)</sup> -
ti[mm] -	0.88	0.89	-	1.14 -	1.66 -	1.81	-	2.38 -	2.67 <sup>1)</sup> -	2.671) -	2.671) -
	1.00	0.89	-	1.14 -	1.66 -	1.81	-	2.38 -	3.14 -	3.17 <sup>1)</sup> -	3.17 <sup>1)</sup> -
	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 <sub>R,II,k</sub> [kN]		0.89	-	1.14 -	1.66 -	1.81	-	2.38 -	3.14 -	3.86	4.57 -

Additional definitions

Index <sup>1</sup>): For component I made of S320GD to S450GD the resistance value may be increased by 8.3%.

### Self-drilling screw with sealing washer $\ge \emptyset$ 11 mm

Annex 8

SX3-A11-6,0xL, SX3-L12-A11-6,0xL, SX3-D12-A11-6,0xL, SX3-D10-A11-6,0xL

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English translation prepared by DIBt



9	2 = 011 010,5 12 2,2 06,0 010 000 0000 0000 0000 0000 0000 0000 0000 00000 00000 0000000000	<u>Materials:</u> Fastener: Washer: Component I: Component II:	Stainless steel A2 or A4 - EN ISO 3506 Aluminum alloy – EN 573 with EPDM-seal S280GD to S450GD - EN 10346 S280GD to S450GD - EN 10346
	9	Drilling-capacity:	Σ(t <sub>i</sub> + t <sub>ii</sub> ) ≤ 4.00 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							
	0.50	0.88 <sup>1)</sup> -	1.87 <sup>1)</sup> -	1.89 <sup>1)</sup> -	1.91 <sup>1)</sup> -	1.91 <sup>1)</sup> -	1.91 <sup>1)</sup> -							
	0.55	0.98 <sup>1)</sup> -	2.01 <sup>1)</sup> -	2.05 <sup>1)</sup> -	2.081) -	2.12 <sup>1)</sup> -	2.12 <sup>1)</sup> -							
	0.63	1.15 <sup>1)</sup> -	2.24 <sup>1)</sup> -	2.30 <sup>1)</sup> -	2.36 <sup>1)</sup> -	2.45 <sup>1)</sup> -	2.451) -							
V <sub>R,k</sub> [kN]	0.75	1.39 <sup>1)</sup> -	2.58 <sup>1)</sup> -	2.68 <sup>1)</sup> -	2.77 <sup>1)</sup> -	2.96 <sup>1)</sup> -	2.96 <sup>1)</sup> -							
t <sub>i</sub> [mm]	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 -	3.17 -	1.01 -	5.05 -								
	1.50	2.41 -	2.92 -	3.47 -	4.01 -	5.05 -								
	0.50	1.40 -	1.59 <sup>1)</sup> -	1.59 <sup>1)</sup> -	1.59 <sup>1)</sup> -	1.59 <sup>1)</sup> -	1.59 <sup>1)</sup> -							
	0.55	1.40 -	1.70 <sup>1)</sup> -	1.70 <sup>1)</sup> -	1.70 <sup>1)</sup> -	1.70 <sup>1)</sup> -	1.70 <sup>1)</sup> -							
	0.63	1.40 -	1.87 -	1.87 <sup>1)</sup> -	1.87 <sup>1)</sup> -	<b>1.87</b> <sup>1)</sup> -	<b>1.87</b> <sup>1)</sup> -							
N <sub>R,k</sub> [kN]	0.75	1.40 -	1.98 -	2.12 <sup>1)</sup> -	2.12 <sup>1)</sup> -	2.12 <sup>1)</sup> -	2.12 <sup>1)</sup> -							
t <sub>i</sub> [mm]	0.88	1.40 -	1.98 -	2.61 -	2.671) -	2.67 <sup>1)</sup> -	2.671) -							
	1.00	1.40 -	1.98 -	2.61 -	3.17 -	3.17 <sup>1)</sup> -	3.17 <sup>1)</sup> -							
	1.25	1.40 -	1.98 -	2.61 -	3.19 -	4.27 -	-							
	1.50	1.40 -	1.98 -	2.61 -	3.19 -	4.37 -	-							
N <sub>R,II,k</sub> [kN]		1.40	1.98	2.61	3.19	4.37	5.82							

#### Additional definitions

Index <sup>1</sup>): For component I made of S320GD to S450GD the resistance value may be increased by 8.3%.

### Self-drilling screw with sealing washer $\ge \emptyset$ 11 mm

Annex 9

SX3-A11-6,0xL, SX3-L12-A11-6,0xL, SX3-D12-A11-6,0xL, SX3-D10-A11-6,0xL

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English translation prepared by DIBt



≥ø11 ø10,5	-	<sup>/8</sup> _ ø12	L12	<u>Materials:</u> Fastener: Washer:	Alumir	ess steel A2 or num alloy - EN ess steel A2 or	573	
1 2 06.0 9	2,2	5,3 ø10	D10 3,3 3,3	Component Component	with El I: Alumir	PDM-seal num alloy - EN	573	3306
	ø 3,9	B		Drilling-capa	icity: Σ(t <sub>i</sub> + t <sub>i</sub>	ı) ≤ 3.00 mm		
Compon	ent I				tıı [mm]			
R <sub>m</sub> ≥ 165 I	N/mm <sup>2</sup>	0.75	0.88	1.00	1.25	1.50	1.75	2.00
	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 -
V <sub>R,k</sub> [kN]	0.80	1.06 -	1.11 -	1.20 -	1.22 -	1.35 -	1.37 -	1.38 -
t <sub>i</sub> [mm]	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 <sub>R,II,k</sub> [kN]		1.14	1.66	1.81	2.38	3.14	3.86	4.57
Compon	ent I				tıı [mm]			
R <sub>m</sub> ≥ 215 I		0.75	0.88	1.00	1.25	1.50	1.75	2.00
	0.50	0.74 -	0.95 -	1.02 -	1.02 -	1.02 -	1.02 -	1.02 -
			1	1.00	1 01	4.07	4.07	1
	0.60	0.99 -	1.11 -	1.20 -	1.21 -	1.27 -	1.27 -	1.28 -
V [KNI]	0.60	0.99 - 1.25 -	1.11 -	1.20 -	1.21 -	1.27 -	1.27 -	1.28 -

V<sub>R,k</sub> [kN]

tı [mm]

N<sub>R,II,k</sub> [kN]

0.80

0.90

1.00

1.20

1.50

1.37

1.37

1.37

1.37

1.37

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-

1.14

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

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1.59

1.78

1.96

2.34

2.34

2.38

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1.76

2.01

2.26

2.75

2.75

-

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-

-

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3.14

1.78

2.04

2.29

2.80

-

3.86

Self-drilling screw with sealing washer ≥ Ø 11 mm

1.44

1.61

1.77

1.77

1.77

-

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-

-

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1.66

1.57

1.75

1.93

1.93

1.93

1.81

SX3-A11-6,0xL, SX3-L12-A11-6,0xL, SX3-D12-A11-6,0xL, SX3-D10-A11-6,0xL, SX3-S14-6,0xL, SX3-L12-S14-6,0xL, SX3-D12-S14-6,0xL, SX3-D10-S14-6,0xL

Annex 10

1.80

2.07

2.33

-

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4.57

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English translation prepared by DIBt



9	Ø10,5 SW8 Ø12 L12 3,3 Ø10 D10 J10 J10 J10 J10 J10 J10 J10 J					A S V	- EN IS	O 3506 O 3506				
Component R <sub>m</sub> ≥ 165 N/mr		2 x 0.63	2 x 0	).75	2 x 0		nm] 2 x 1	.00	2 x 1	.25	2 x 1.	.50
0.5			0.70	-	0.75	-	0.78	-	0.78	-	0.78	-
0.6	60 0.6	65 -	1.02	-	1.07	-	1.10	-	1.10	-	1.10	-
0.7	70 0.6	65 -	1.18	-	1.39	-	1.42	-	1.42	-	1.42	-
$V_{R,k}$ [kN]	30 0.6	5 -	1.18	_	1.71		1.74		1.74	-	1.74	

	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	-
V <sub>R,k</sub> [kN]	0.80	0.65	-	1.18	-	1.71	-	1.74	-	1.74	-	1.74	-
tı [mm]	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	-	-	-
AL			10	10	0	0.0	·	01	0	1 1 1	7	5.0	0
N <sub>R,II,k</sub> [kN]		1.4	Đ	1.9	8	2.6		3.1	9	4.3	57	5.8	2
	ient I	1.4	FU	1.9	8	2.6		nm]	9	4.3	57 	5.6	
R,II,k [KN] Compon R <sub>m</sub> ≥ 215 I		2 x 0		2 x 0		2.6	tıı [r			4.3		2 x 1	
Compon						1	tıı [r	nm]		1			
Compon	N/mm <sup>2</sup>	2 x (	).63	2 x 0	.75	2 x 0	tıı (r 9.88	mm] 2 x 1	.00	2 x 1	.25	2 x 1	.50
Compon R <sub>m</sub> ≥ 215 I	N/mm <sup>2</sup>	2 x ( 0.85	).63 -	2 x 0 0.92	.75 -	2 x 0 0.98	tıı [r 9.88 -	nm] 2 x 1 1.02	.00	2 x 1 1.02	.25	2 x 1 1.02	.50
Compon	N/mm <sup>2</sup> 0.50 0.60	2 x ( 0.85 0.85	).63 - -	2 x 0 0.92 1.33	.75 - -	2 x 0 0.98 1.40	tıı (r 1.88 - -	nm] 2 x 1 1.02 1.44	.00 - -	2 x 1 1.02 1.44	.25 - -	2 x 1 1.02 1.44	.50 - -
Compon R <sub>m</sub> ≥ 215 I	N/mm <sup>2</sup> 0.50 0.60 0.70	2 x ( 0.85 0.85 0.85	).63 - - -	2 x 0 0.92 1.33 1.33	.75 - -	2 x 0 0.98 1.40 1.81	tıı [r ).88 - - -	nm] 2 x 1 1.02 1.44 1.85	.00 - -	2 x 1 1.02 1.44 1.85	.25 - -	2 x 1 1.02 1.44 1.85	.50 - -

### Additional definitions

N<sub>R,II,k</sub> [kN]

1.20

1.50

0.85

0.85

1.40

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-

1.33

1.33

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

2.61

2.22

2.22

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2.68

2.68

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-

3.19

2.27

2.27

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-

4.37

Self-drilling screw with sealing washer ≥ Ø 11 mm

1.98

SX3-A11-6,0xL, SX3-L12-A11-6,0xL, SX3-D12-A11-6,0xL, SX3-D10-A11-6,0xL, SX3-S14-6,0xL, SX3-L12-S14-6,0xL, SX3-D12-S14-6,0xL, SX3-D10-S14-6,0xL

Annex 11

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5.82

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English translation prepared by DIBt



≥011 010.5 12 06.0 9	sw	8 ø 12 5,3 ø 10 ø 10		3,3 C	<u>laterials:</u> astener: Vasher: Componer	A S V nt I: A	Aluminum Stainless vith EPDN Aluminum	steel A2 or alloy - EN steel A2 or A-seal alloy - EN alloy - EN	573 A4 - EN 573		
	ø3,9	and a		D	prilling-ca	oacity: Σ	Σ(tı + tıı) ≤	4.00 mm			
Component	land I					tu Ir	nml				
Component R <sub>m</sub> ≥ 165 I		1.00		1.	20		nm] 50	2.00	)	≥2.5	0
		1.00 0.65	-	1. 0.69	20		nm] 50 -	2.00 0.69	) -	≥2.5 0.69	0
	V/mm <sup>2</sup>					1.	50		-		-
R <sub>m</sub> ≥ 165 I	V/mm <sup>2</sup> 0.50	0.65	-	0.69	-	1. 0.69	50 -	0.69	-	0.69	-
	V/mm <sup>2</sup> 0.50 0.60	0.65 0.80	-	0.69 0.80	-	1. 0.69 0.86	50 - -	0.69 0.97	-	0.69 0.97	-
R <sub>m</sub> ≥ 165 I V <sub>R,k</sub> [kN]	N/mm <sup>2</sup> 0.50 0.60 0.70	0.65 0.80 0.99	-	0.69 0.80 0.99	-	1.3 0.69 0.86 1.04	50 - - -	0.69 0.97 1.25	-	0.69 0.97 1.25	-
	N/mm <sup>2</sup> 0.50 0.60 0.70 0.80	0.65 0.80 0.99 1.19		0.69 0.80 0.99 1.19	-	1.04 0.69 0.86 1.04 1.21	50 - - - -	0.69 0.97 1.25 1.53		0.69 0.97 1.25 1.53	
R <sub>m</sub> ≥ 165 I V <sub>R,k</sub> [kN]	N/mm <sup>2</sup> 0.50 0.60 0.70 0.80 0.90	0.65 0.80 0.99 1.19 1.31	- - - -	0.69 0.80 0.99 1.19 1.31	- - - -	1.3 0.69 0.86 1.04 1.21 1.38	50 - - - - - -	0.69 0.97 1.25 1.53 1.81	-	0.69 0.97 1.25 1.53 1.81	-
R <sub>m</sub> ≥ 165 I V <sub>R,k</sub> [kN]	N/mm <sup>2</sup> 0.50 0.60 0.70 0.80 0.90 1.00	0.65 0.80 0.99 1.19 1.31 1.42	- - - - -	0.69 0.80 0.99 1.19 1.31 1.42	- - - - -	1.1           0.69           0.86           1.04           1.21           1.38           1.55	50	0.69 0.97 1.25 1.53 1.81 2.08	- - - -	0.69 0.97 1.25 1.53 1.81 2.08	
R <sub>m</sub> ≥ 165 I V <sub>R,k</sub> [kN]	V/mm <sup>2</sup> 0.50 0.60 0.70 0.80 0.90 1.00 1.20	0.65 0.80 0.99 1.19 1.31 1.42 1.42	- - - - - -	0.69 0.80 0.99 1.19 1.31 1.42 1.45 1.45	- - - - - - -	1.1           0.69           0.86           1.04           1.21           1.38           1.55           1.90           1.90	50 - - - - - - - - - - - - -	0.69 0.97 1.25 1.53 1.81 2.08 2.08	- - - - - - - -	0.69 0.97 1.25 1.53 1.81 2.08 2.08	- - - - - - - - -

Componen						տլո	uul				
R <sub>m</sub> ≥ 215	N/mm <sup>2</sup>	1.0	0	1.2	0	1.5	0	2.0	0	≥2.5	50
	0.50	0.85	-	0.90	-	0.90	-	0.90	-	0.90	-
	0.60	1.04	-	1.04	-	1.12	-	1.26	-	1.26	-
	0.70	1.30	-	1.30	-	1.35	-	1.63	-	1.63	-
V <sub>R,k</sub> [kN]	0.80	1.55	-	1.55	-	1.57	-	1.99	-	1.99	-
tı [mm]	0.90	1.70	-	1.70	-	1.80	-	2.35	-	2.36	-
	1.00	1.85	-	1.85	-	2.02	-	2.71	-	2.71	-
	1.20	1.85	-	1.89	-	2.47	-	2.71	-	2.71	-
	1.50	1.85	-	1.89	-	2.47	-	2.71	-	2.71	-
N <sub>R,II,k</sub> [kN]		0.9	3	1.0	6	1.64		2.41		3.45	

### Additional definitions

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

SX3-A11-6,0xL, SX3-L12-A11-6,0xL, SX3-D12-A11-6,0xL, SX3-D10-A11-6,0xL, SX3-S14-6,0xL, SX3-L12-S14-6,0xL, SX3-D10-S14-6,0xL

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English translation prepared by DIBt



	<u>Materials:</u> Fastener:	Stainless steel A2 or A4 - EN ISO 3506
Ø12 Ø10,5 SW8 Ø12 L12	Washer:	Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal
5,3 3,3	Component I:	S280GD to S450GD - EN 10346
	Component II:	S280GD to S450GD - EN 10346
ø3,9	Drilling-capacity:	Σ(t <sub>I</sub> + t <sub>II</sub> ) ≤ 3.00 mm

									tıı [r	nm]							
		0.63		0.75		0.88	3	1.00	)	1.25		1.50	)	1.75	i	2.00	)
	0.50	0.98 <sup>1)</sup>	-	<b>1.20</b> <sup>1)</sup> -	1	.45 <sup>1)</sup>	-	1.61 <sup>1)</sup>	-	1.76 <sup>1)</sup> -	-	1.90 <sup>1)</sup>	-	1.90 <sup>1)</sup>	-	<b>1.90</b> <sup>1)</sup>	-
	0.55	1.03 <sup>1)</sup>	-	<b>1</b> .25 <sup>1)</sup> -	1	.53 <sup>1)</sup>	-	1.68 <sup>1)</sup>	-	1.91 <sup>1)</sup> -	-	2.13 <sup>1)</sup>	-	2.13 <sup>1)</sup>	-	2.13 <sup>1)</sup>	-
	0.63	1.11 <sup>1)</sup>	-	1.341) -	1	.66 <sup>1)</sup>	-	1.79 <sup>1)</sup>	-	2.15 <sup>1)</sup> -	-	2.50 <sup>1)</sup>	-	2.50 <sup>1)</sup>	-	2.50 <sup>1)</sup>	-
V <sub>Rk</sub> [kN]	0.75	1.11 <sup>1)</sup>	-	<b>1.47</b> <sup>1)</sup> -	1	.85 <sup>1)</sup>	-	1.96 <sup>1)</sup>	-	2.51 <sup>1)</sup> -	-	3.06 <sup>1)</sup>	-	3.06 <sup>1)</sup>	-	3.06 <sup>1)</sup>	-
t <sub>i</sub> [mm]	0.88	<b>1.11</b> <sup>1)</sup>	-	<b>1.47</b> <sup>1)</sup> -	1	.85 <sup>1)</sup>	-	2.05	-	2.79 -	-	3.53	-	3.66	-	3.79	-
. []	1.00	<b>1.11</b> <sup>1)</sup>	-	<b>1.47</b> <sup>1)</sup> -	1	.85 <sup>1)</sup>	-	2.14	-	3.05 -	-	3.96	-	4.21	-	4.46	-
	1.25	<b>1.11</b> <sup>1)</sup>	-	<b>1.47</b> <sup>1)</sup> -	1	<b>.85</b> 1)	-	2.32	-	3.59 -	-	1.86	-	5.36	-	-	-
	1.50	<b>1.11</b> <sup>1)</sup>	-	<b>1</b> .47 <sup>1)</sup> -	1	.85 <sup>1)</sup>	-	2.32	-	3.59 -	-	4.86	-	-	-	-	-
	0.50	0.89	-	1.14 -	1	.221)	-	1.22 <sup>1)</sup>	-	1.22 <sup>1)</sup> -	-	<b>1.22</b> <sup>1)</sup>	-	<b>1.22</b> <sup>1)</sup>	-	<b>1.22</b> <sup>1)</sup>	-
	0.55	0.89	-	1.14 -	1	.54	-	<b>1</b> .54 <sup>1)</sup>	-	1.54 <sup>1)</sup> -	-	<b>1.54</b> <sup>1)</sup>	-	<b>1</b> .54 <sup>1)</sup>	-	<b>1</b> .54 <sup>1)</sup>	-
	0.63	0.89	-	1.14 -	1	.66	-	1.81	-	2.041) -	-	2.041)	-	2.04 <sup>1)</sup>	-	2.041)	-
N <sub>Rk</sub> [kN]	0.75	0.89	-	1.14 -	1	.66	-	1.81	-	2.38 -	-	2.801)	-	2.801)	-	2.801)	-
t <sub>i</sub> [mm]	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 <sub>R,II,k</sub> [kN]		0.89	-	1.14 -	1	.66	-	1.81	-	2.38 -	-	3.14	-	3.86		4.57	-

#### Additional definitions

Index <sup>1</sup>): For component I made of S320GD to S450GD the resistance value may be increased by 8.3%.

### Self-drilling screw with sealing washer $\ge Ø$ 12 mm

Annex 13

SX3-S12-6,0xL, SX3-L12-S12-6,0xL, SX3-D12-S12-6,0xL

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English translation prepared by DIBt



ø12		<u>Materials:</u> Fastener:	Stainless steel A2 or A4 - EN ISO 3506
Ø10,5 SW8	Ø12 L12	Washer:	Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal
5,3	3,3	Component I:	S280GD to S450GD - EN 10346
2,2 Ø6,0	Ø 12 D12 2,3	Component II:	S280GD to S450GD - EN 10346
9 ø 3,9		Drilling-capacity:	Σ( $t_i + t_{ii}$ ) ≤ 4.00 mm

			t <sub>II</sub> [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					
	0.50	0.88 <sup>1)</sup> -	1.87 <sup>1)</sup> -	1.89 <sup>1)</sup> -	1.91 <sup>1)</sup> -	1.91 <sup>1)</sup> -	1.91 <sup>1)</sup> -					
	0.55	0.98 <sup>1)</sup> -	2.01 <sup>1)</sup> -	2.05 <sup>1)</sup> -	2.081) -	2.12 <sup>1)</sup> -	2.121) -					
	0.63	1.15 <sup>1)</sup> -	2.24 <sup>1)</sup> -	2.30 <sup>1)</sup> -	2.36 <sup>1)</sup> -	2.45 <sup>1)</sup> -	2.451) -					
V <sub>R,k</sub> [kN]	0.75	1.39 <sup>1)</sup> -	2.58 <sup>1)</sup> -	2.68 <sup>1)</sup> -	2.77 <sup>1)</sup> -	2.96 <sup>1)</sup> -	2.961) -					
t <sub>l</sub> [mm]	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 -	3.17 -	1.01 -	5.05 -						
	1.50	2.41 -	2.92 -	3.47 -	4.01 -	5.05 -						
	0.50	1.22 <sup>1)</sup> -										
	0.55	1.40 -	1.54 <sup>1)</sup> -	1.54 <sup>1)</sup> -	1.54 <sup>1)</sup> -	1.54 <sup>1)</sup> -	1.54 <sup>1)</sup> -					
	0.63	1.40 -	1.98 -	2.04 <sup>1)</sup> -	2.041) -	2.041) -	2.041) -					
N <sub>R,k</sub> [kN]	0.75	1.40 -	1.98 -	2.61 -	2.801) -	2.80 <sup>1)</sup> -	2.801) -					
t <sub>l</sub> [mm]	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 <sub>R,II,k</sub> [kN]		1.40	1.98	2.61	3.19	4.37	5.82					

#### Additional definitions

Index <sup>1</sup>): For component I made of S320GD to S450GD the resistance value may be increased by 8.3%.

### Self-drilling screw with sealing washer $\ge Ø$ 12 mm

Annex 14

SX3-S12-6,0xL, SX3-L12-S12-6,0xL, SX3-D12-S12-6,0xL

Z31424.23

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English translation prepared by DIBt



ø14	<u>Materials:</u> Fastener:	Stainless steel A2 or A4 - EN ISO 3506
Ø10,5 SW8 Ø12 L12	Washer:	Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal
5,3 3,3	Component I:	S280GD to S450GD - EN 10346
2 22	Component II:	S280GD to S450GD - EN 10346
↓ ↓ §3,9	Drilling-capacity:	$\Sigma(t_{1} + t_{11}) \leq 3.00 \text{ mm}$

			t <sub>II</sub> [mm]														
		0.63	3	0.75	5	0.88	3	1.00	1.00 1.25		1.50		1.75		2.00		
	0.50	0.98 <sup>1)</sup>	-	1.20 <sup>1)</sup>	-	1.45 <sup>1)</sup>	ac	1.61 <sup>1)</sup>	ac	1.76 <sup>1)</sup>	ac	1.90 <sup>1)</sup>	ac	1.90 <sup>1)</sup>	ac	1.90 <sup>1)</sup>	ac
_	0.55	1.03 <sup>1)</sup>	-	1.25 <sup>1)</sup>	-	1.53 <sup>1)</sup>	-	1.68 <sup>1)</sup>	ac	1.91 <sup>1)</sup>	ac	2.13 <sup>1)</sup>	ac	2.13 <sup>1)</sup>	ac	2.13 <sup>1)</sup>	а
	0.63	<b>1.11</b> <sup>1)</sup>	-	1.34 <sup>1)</sup>	-	1.66 <sup>1)</sup>	-	1.79 <sup>1)</sup>	ac	2.15 <sup>1)</sup>	ac	2.50 <sup>1)</sup>	ac	2.50 <sup>1)</sup>	а	2.50 <sup>1)</sup>	а
V <sub>Rk</sub> [kN] <sup>−</sup>	0.75	<b>1.11</b> <sup>1)</sup>	-	1.47 <sup>1)</sup>	-	1.85 <sup>1)</sup>	-	1.96 <sup>1)</sup>	ac	2.51 <sup>1)</sup>	ac	3.06 <sup>1)</sup>	ac	3.06 <sup>1)</sup>	а	3.06 <sup>1)</sup>	а
t <sub>i</sub> [mm] _	0.88	<b>1.11</b> <sup>1)</sup>	-	1.47 <sup>1)</sup>	-	1.85 <sup>1)</sup>	-	2.05	-	2.79	-	3.53	-	3.66	-	3.79	а
	1.00	<b>1.11</b> <sup>1)</sup>	-	<b>1.47</b> <sup>1)</sup>	-	1.85 <sup>1)</sup>	-	2.14	-	3.05	-	3.96	-	4.21	-	4.46	а
	1.25	<b>1.11</b> <sup>1)</sup>	-	<b>1.47</b> <sup>1)</sup>	-	1.85 <sup>1)</sup>	-	2.32	-	3.59	-	1.86	-	5.36	-	-	-
	1.50	<b>1.11</b> <sup>1)</sup>	-	<b>1.47</b> <sup>1)</sup>	-	1.85 <sup>1)</sup>	-	2.32	-	3.59	-	4.86	-	-	-	-	-
	0.50	0.89	-	1.14	-	<b>1.34</b> <sup>1)</sup>	ac	1.34 <sup>1)</sup>	ac	1.34 <sup>1)</sup>	ac	1.34 <sup>1)</sup>	ac	1.34 <sup>1)</sup>	ac	<b>1.34</b> <sup>1)</sup>	ac
	0.55	0.89	-	1.14	-	1.66	-	1.69	ac	<b>1</b> .69 <sup>1)</sup>	ac	<b>1</b> .69 <sup>1)</sup>	ac	1.69 <sup>1)</sup>	ac	<b>1.69</b> <sup>1)</sup>	а
	0.63	0.89	-	1.14	-	1.66	-	1.81	ac	2.25	ac	2.25 <sup>1)</sup>	ac	2.25 <sup>1)</sup>	а	2.25 <sup>1)</sup>	а
N <sub>Rk</sub> [kN] ⊺	0.75	0.89	-	1.14	-	1.66	-	1.81	ac	2.38	ac	3.09	ac	3.09 <sup>1)</sup>	а	3.091)	а
t <sub>i</sub> [mm] _	0.88	0.89	-	1.14	-	1.66	-	1.81	-	2.38	-	3.14	-	3.86	-	4.00	а
	1.00	0.89	-	1.14	-	1.66	-	1.81	-	2.38	-	3.14	-	3.86	-	4.57	а
	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 <sub>R,II,k</sub> [kN]		0.89	-	1.14	-	1.66	-	1.81	-	2.38	-	3.14	-	3.86		4.57	-

#### Additional definitions

Index <sup>1</sup>): For component I made of S320GD to S450GD the resistance value may be increased by 8.3%.

### Self-drilling screw with sealing washer $\ge Ø$ 14 mm

SX3-S14-6,0xL, SX3-L12-S14-6,0xL, SX3-D12-S14-6,0xL, SX3-D10-S14-6,0xL

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English translation prepared by DIBt



Ø14 Ø10,5 SW8 Ø12 L12 3,3	<u>Materials:</u> Fastener: Washer: Component I:	Stainless steel A2 or A4 - EN ISO 3506 Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal S280GD to S450GD - EN 10346								
	Component II: Drilling-capacity:	S280GD to S450GD - EN 10346 $\Sigma(t_l + t_{ll}) \leq 4.00 \text{ mm}$								
	t <sub>ii</sub> [mm]									

			t <sub>ii</sub> [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			
	0.50	0.88 <sup>1)</sup> ac	1.87 <sup>1)</sup> ac	1.89 <sup>1)</sup> ac	1.91 <sup>1)</sup> ac	1.91 <sup>1)</sup> ac	1.91 <sup>1)</sup> ac			
	0.55	0.98 <sup>1)</sup> ac	2.01 <sup>1)</sup> ac	2.05 <sup>1)</sup> ac	2.08 <sup>1)</sup> ac	2.12 <sup>1)</sup> ac	2.12 <sup>1)</sup> a			
	0.63	1.15 <sup>1)</sup> ac	2.24 <sup>1)</sup> ac	2.30 <sup>1)</sup> ac	2.36 <sup>1)</sup> ac	2.45 <sup>1)</sup> ac	2.45 <sup>1)</sup> a			
V <sub>R,k</sub> [kN]	0.75	1.39 <sup>1)</sup> ac	2.58 <sup>1)</sup> ac	2.68 <sup>1)</sup> ac	2.77 <sup>1)</sup> ac	2.96 <sup>1)</sup> ac	2.96 <sup>1)</sup> a			
t <sub>l</sub> [mm]	0.88	1.66 -	2.67 -	3.30 -	3.36 ac	3.66 a	3.79 a			
	1.00	1.90 -	2.75 -	3.36 -	4.01 ac	4.01 a	4.01 a			
	1.25	2.41 -	2.92 -	3.17 -	4.01 -	5.05 a				
	1.50	2.41 -	2.92 -	3.47 -	4.01 -	5.05 a				
	0.50	1.34 ac	1.34 <sup>1)</sup> ac	1.34 <sup>1)</sup> ac	1.34 <sup>1)</sup> ac	1.34 <sup>1)</sup> ac	1.34 <sup>1)</sup> ac			
	0.55	1.40 ac	1.69 <sup>1)</sup> ac	1.69 <sup>1)</sup> ac	1.69 <sup>1)</sup> ac	1.69 <sup>1)</sup> ac	1.69 <sup>1)</sup> a			
	0.63	1.40 ac	1.98 ac	2.25 <sup>1)</sup> ac	2.25 <sup>1)</sup> ac	2.25 <sup>1)</sup> ac	2.25 <sup>1)</sup> a			
N <sub>R,k</sub> [kN]	0.75	1.40 ac	1.98 ac	2.61 ac	3.09 ac	3.09 <sup>1)</sup> ac	3.09 <sup>1)</sup> a			
ti[mm]	0.88	1.40 -	1.98 -	2.61 -	3.19 ac	4.00 a	4.00 a			
	1.00	1.40 -	1.98 -	2.61 -	3.19 ac	4.37 a	4.84 a			
	1.25	1.40 -	1.98 -	2.61 -	3.19 -	4.37 a				
	1.50	1.40 -	1.98 -	2.61 -	3.19 -	4.37 a				
N <sub>R,II,k</sub> [kN]		1.40	1.98	2.61	3.19	4.37	5.82			

Additional definitions

Index <sup>1</sup>): For component I made of S320GD to S450GD the resistance value may be increased by 8.3%.

### Self-drilling screw with sealing washer $\ge Ø$ 14 mm

SX3-S14-6,0xL, SX3-L12-S14-6,0xL, SX3-D12-S14-6,0xL, SX3-D10-S14-6,0xL

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English translation prepared by DIBt



a16	<u>Materials:</u> Fastener:	Stainless steel A2 or A4 - EN ISO 3506
ø10,5 SW8 ø12 L12	Washer:	Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal
5,3 3,3	Component I:	S280GD to S450GD - EN 10346
2	Component II:	S280GD to S450GD - EN 10346
ø3,9	Drilling-capacity:	$\Sigma(t_1 + t_{11}) \le 3.00 \text{ mm}$

			t <sub>II</sub> [mm]														
		0.63	3	0.75	5	0.88	0.88		1.00		1.25		)	1.75	5	2.00	)
	0.50	0.98 <sup>1)</sup>	-	1.20 <sup>1)</sup>	-	1.45 <sup>1)</sup>	ac	1.61 <sup>1)</sup>	ac	1.76 <sup>1)</sup>	ac	<b>1.90</b> <sup>1)</sup>	ac	1.90 <sup>1)</sup>	ac	<b>1.90</b> <sup>1)</sup>	ac
	0.55	1.03 <sup>1)</sup>	-	1.25 <sup>1)</sup>	-	1.53 <sup>1)</sup>	-	1.68 <sup>1)</sup>	ac	1.91 <sup>1)</sup>	ac	2.13 <sup>1)</sup>	ac	2.13 <sup>1)</sup>	ac	2.13 <sup>1)</sup>	а
	0.63	1.11 <sup>1)</sup>	-	1.34 <sup>1)</sup>	-	1.66 <sup>1)</sup>	-	1.79 <sup>1)</sup>	ac	2.15 <sup>1)</sup>	ac	2.50 <sup>1)</sup>	ac	2.50 <sup>1)</sup>	а	2.50 <sup>1)</sup>	а
V <sub>Rk</sub> [kN]	0.75	<b>1.11</b> <sup>1)</sup>	-	1.47 <sup>1)</sup>	-	1.85 <sup>1)</sup>	-	1.96 <sup>1)</sup>	ac	2.51 <sup>1)</sup>	ac	3.06 <sup>1)</sup>	ac	3.06 <sup>1)</sup>	а	3.06 <sup>1)</sup>	а
t <sub>i</sub> [mm]	0.88	<b>1.11</b> <sup>1)</sup>	-	1.47 <sup>1)</sup>	-	1.85 <sup>1)</sup>	-	2.05	-	2.79	-	3.53	-	3.66	-	3.79	а
. []	1.00	<b>1.11</b> <sup>1)</sup>	-	<b>1.47</b> <sup>1)</sup>	-	1.85 <sup>1)</sup>	-	2.14	-	3.05	-	3.96	-	4.21	-	4.46	а
	1.25	<b>1.11</b> <sup>1)</sup>	-	1.47 <sup>1)</sup>	-	1.85 <sup>1)</sup>	-	2.32	-	3.59	-	1.86	-	5.36	-	-	-
	1.50	<b>1.11</b> <sup>1)</sup>	-	<b>1.47</b> <sup>1)</sup>	-	1.85 <sup>1)</sup>	-	2.32	-	3.59	-	4.86	-	-	-	-	-
	0.50	0.89	-	1.14	-	1.52	ac	1.52 <sup>1)</sup>	ac	1.52 <sup>1)</sup>	ac	1.52 <sup>1)</sup>	ac	1.52 <sup>1)</sup>	ac	1.52 <sup>1)</sup>	ac
	0.55	0.89	-	1.14	-	1.66	-	1.81	ac	<b>1.91</b> <sup>1)</sup>	ac	<b>1.91</b> <sup>1)</sup>	ac	<b>1.91</b> <sup>1)</sup>	ac	<b>1.91</b> <sup>1)</sup>	а
	0.63	0.89	-	1.14	-	1.66	-	1.81	ac	2.38	ac	2.70 <sup>1)</sup>	ac	2.70 <sup>1)</sup>	а	2.70 <sup>1)</sup>	а
N <sub>Rk</sub> [kN]	0.75	0.89	-	1.14	-	1.66	-	1.81	ac	2.38	ac	3.14	ac	3.50 <sup>1)</sup>	а	3.50 <sup>1)</sup>	а
t <sub>i</sub> [mm] .	0.88	0.89	-	1.14	-	1.66	-	1.81	-	2.38	-	3.14	-	3.86	-	4.52	а
	1.00	0.89	-	1.14	-	1.66	-	1.81	-	2.38	-	3.14	-	3.86	-	4.57	а
	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 <sub>R,II,k</sub> [kN]		0.89	-	1.14	-	1.66	-	1.81	-	2.38	-	3.14	-	3.86		4.57	-

#### Additional definitions

Index <sup>1</sup>): For component I made of S320GD to S450GD the resistance value may be increased by 8.3%.

### Self-drilling screw with sealing washer $\ge Ø$ 16 mm

SX3-S16-6,0xL, SX3-L12-S16-6,0xL, SX3-D12-S16-6,0xL, SX3-D10-S16-6,0xL

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Ø16 Ø10,5 SW8 0,0 9 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0	<u>Materials:</u> Fastener: Washer: Component I: Component II:	Stainless steel A2 or A4 - EN ISO 3506 Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal S280GD to S450GD - EN 10346 S280GD to S450GD - EN 10346							
ø3,9	Drilling-capacity:	Σ(t <sub>I</sub> + t <sub>II</sub> ) ≤ 4.00 mm							
	t <sub>ii</sub> [mm]								

			t <sub>ii</sub> [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					
	0.50	0.88 <sup>1)</sup> ac	1.87 <sup>1)</sup> ac	1.89 <sup>1)</sup> ac	1.91 <sup>1)</sup> ac	1.91 <sup>1)</sup> ac	1.91 <sup>1)</sup> ac					
	0.55	0.98 <sup>1)</sup> ac	2.01 <sup>1)</sup> ac	2.05 <sup>1)</sup> ac	2.08 <sup>1)</sup> ac	2.12 <sup>1)</sup> ac	2.12 <sup>1)</sup> a					
	0.63	1.15 <sup>1)</sup> ac	2.24 <sup>1)</sup> ac	2.30 <sup>1)</sup> ac	2.36 <sup>1)</sup> ac	2.45 <sup>1)</sup> ac	2.45 <sup>1)</sup> a					
V <sub>R,k</sub> [kN]	0.75	1.39 <sup>1)</sup> ac	2.58 <sup>1)</sup> ac	2.68 <sup>1)</sup> ac	2.77 <sup>1)</sup> ac	2.96 <sup>1)</sup> ac	2.96 <sup>1)</sup> a					
t <sub>i</sub> [mm]	0.88	1.66 -	2.67 -	3.30 -	3.36 ac	3.66 a	3.79 a					
	1.00	1.90 -	2.75 -	3.36 -	4.01 ac	4.01 a	4.01 a					
	1.25	2.41 -	2.92 -	3.17 -	1.01 -	5.05 a						
	1.50	2.41 -	2.92 -	3.47 -	4.01 -	5.05 a						
	0.50	1.40 ac	1.52 <sup>1)</sup> ac	1.52 <sup>1)</sup> ac	1.52 <sup>1)</sup> ac	1.52 <sup>1)</sup> ac	1.52 <sup>1)</sup> ac					
	0.55	1.40 ac	1.91 ac	1.91 <sup>1)</sup> ac	1.91 <sup>1)</sup> ac	1.91 <sup>1)</sup> ac	1.91 <sup>1)</sup> a					
	0.63	1.40 ac	1.98 ac	2.61 ac	2.70 <sup>1)</sup> ac	2.70 <sup>1)</sup> ac	2.70 <sup>1)</sup> a					
N <sub>R,k</sub> [kN]	0.75	1.40 ac	1.98 ac	2.61 ac	3.19 ac	3.50 <sup>1)</sup> ac	3.50 <sup>1)</sup> a					
t <sub>i</sub> [mm]	0.88	1.40 -	1.98 -	2.61 -	3.19 ac	4.37 a	4.52 a					
	1.00	1.40 -	1.98 -	2.61 -	3.19 ac	4.37 a	5.47 a					
	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 <sub>R,II,k</sub> [kN]	N <sub>R,II,k</sub> [kN]		1.98	2.61	3.19	4.37	5.82					

#### Additional definitions

Index <sup>1</sup>): For component I made of S320GD to S450GD the resistance value may be increased by 8.3%.

### Self-drilling screw with sealing washer $\ge \emptyset$ 16 mm

SX3-S16-6,0xL, SX3-L12-S16-6,0xL, SX3-D12-S16-6,0xL, SX3-D10-S16-6,0xL

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≥ø19	<u>Materials:</u> Fastener:	Stainless steel A2 or A4 - EN ISO 3506
Ø10,5 SW8 Ø12 L12	Washer:	Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal
5,3 3,3	Component I:	S280GD to S450GD - EN 10346
2 22	Component II:	S280GD to S450GD - EN 10346
<u>↓</u> <u>↓</u> <u>∞</u> 3,9	Drilling-capacity:	$\Sigma(t_1 + t_{11}) \le 3.00 \text{ mm}$

			t <sub>ii</sub> [mm]														
		0.63	}	0.75	5	0.88	3	1.00	)	1.25	5	1.50	)	1.75	5	2.00	)
	0.50	0.98 <sup>1)</sup>	-	1.20 <sup>1)</sup>	-	1.45 <sup>1)</sup>	ac	1.61 <sup>1)</sup>	ac	1.76 <sup>1)</sup>	ac	1.90 <sup>1)</sup>	ac	1.90 <sup>1)</sup>	ac	1.90 <sup>1)</sup>	ac
_	0.55	1.03 <sup>1)</sup>	-	1.25 <sup>1)</sup>	-	1.53 <sup>1)</sup>	-	1.68 <sup>1)</sup>	ac	1.91 <sup>1)</sup>	ac	2.13 <sup>1)</sup>	ac	2.13 <sup>1)</sup>	ac	2.13 <sup>1)</sup>	а
	0.63	1.11 <sup>1)</sup>	-	1.34 <sup>1)</sup>	-	1.66 <sup>1)</sup>	-	1.79 <sup>1)</sup>	ac	2.15 <sup>1)</sup>	ac	2.50 <sup>1)</sup>	ac	2.50 <sup>1)</sup>	а	2.50 <sup>1)</sup>	а
V <sub>Rk</sub> [kN] <sup>−</sup>	0.75	1.11 <sup>1)</sup>	-	<b>1.47</b> <sup>1)</sup>	-	1.85 <sup>1)</sup>	-	1.96 <sup>1)</sup>	ac	2.51 <sup>1)</sup>	ac	3.06 <sup>1)</sup>	ac	3.06 <sup>1)</sup>	а	3.06 <sup>1)</sup>	а
t <sub>i</sub> [mm] _	0.88	<b>1.11</b> <sup>1)</sup>	-	<b>1.47</b> <sup>1)</sup>	-	1.85 <sup>1)</sup>	-	2.05	-	2.79	-	3.53	-	3.66	-	3.79	а
	1.00	<b>1.11</b> <sup>1)</sup>	-	<b>1.47</b> <sup>1)</sup>	-	1.85 <sup>1)</sup>	-	2.14	-	3.05	-	3.96	-	4.21	-	4.46	а
	1.25	<b>1.11</b> <sup>1)</sup>	-	1.47 <sup>1)</sup>	-	1.85 <sup>1)</sup>	-	2.32	-	3.59	-	1.86	-	5.36	-	-	-
	1.50	<b>1.11</b> <sup>1)</sup>	-	<b>1.47</b> <sup>1)</sup>	-	1.85 <sup>1)</sup>	-	2.32	-	3.59	-	4.86	-	-	-	-	-
	0.50	0.89	-	1.14	-	1.66	ac	1.81	ac	1.87 <sup>1)</sup>	ac	1.87 <sup>1)</sup>	ac	1.87 <sup>1)</sup>	ac	<b>1.87</b> <sup>1)</sup>	ac
	0.55	0.89	-	1.14	-	1.66	-	1.81	ac	2.36	ac	2.361)	ac	2.361)	ac	2.361)	а
	0.63	0.89	-	1.14	-	1.66	-	1.81	ac	2.38	ac	3.14	ac	3.14 <sup>1)</sup>	а	3.14 <sup>1)</sup>	а
N <sub>Rk</sub> [kN]	0.75	0.89	-	1.14	-	1.66	-	1.81	ac	2.38	ac	3.14	ac	3.86	а	4.31	а
t <sub>i</sub> [mm] _	0.88	0.89	-	1.14	-	1.66	-	1.81	-	2.38	-	3.14	-	3.86	-	4.57	а
	1.00	0.89	-	1.14	-	1.66	-	1.81	-	2.38	-	3.14	-	3.86	-	4.57	а
	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 <sub>R,II,k</sub> [kN]		0.89	-	1.14	-	1.66	-	1.81	-	2.38	-	3.14	-	3.86		4.57	-

#### Additional definitions

Index <sup>1</sup>): For component I made of S320GD to S450GD the resistance value may be increased by 8.3%.

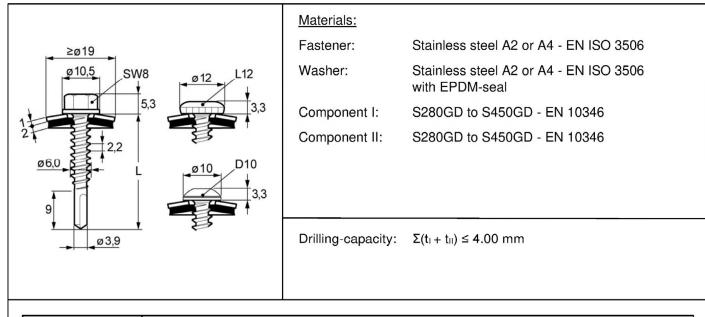
### Self-drilling screw with sealing washer $\ge Ø$ 19 mm

SX3-S19-6,0xL, SX3-L12-S19-6,0xL, SX3-D12-S19-6,0xL, SX3-D10-S19-6,0xL

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				tıı [	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
	0.50	0.88 <sup>1)</sup> ac	1.87 <sup>1)</sup> ac	1.89 <sup>1)</sup> ac	1.91 <sup>1)</sup> ac	1.91 <sup>1)</sup> ac	1.91 <sup>1)</sup> ac
	0.55	0.981) ac	2.01 <sup>1)</sup> ac	2.05 <sup>1)</sup> ac	2.08 <sup>1)</sup> ac	2.12 <sup>1)</sup> ac	2.12 <sup>1)</sup> a
	0.63	1.15 <sup>1)</sup> ac	2.24 <sup>1)</sup> ac	2.30 <sup>1)</sup> ac	2.36 <sup>1)</sup> ac	2.45 <sup>1)</sup> ac	2.45 <sup>1)</sup> a
V <sub>R,k</sub> [kN]	0.75	1.39 <sup>1)</sup> ac	2.58 <sup>1)</sup> ac	2.68 <sup>1)</sup> ac	2.77 <sup>1)</sup> ac	2.96 <sup>1)</sup> ac	2.96 <sup>1)</sup> a
t <sub>l</sub> [mm]	0.88	1.66 -	2.67 -	3.30 -	3.36 ac	3.66 a	3.79 a
	1.00	1.90 -	2.75 -	3.36 -	4.01 ac	4.01 a	4.01 a
	1.25	2.41 -	2.92 -	3.17 -	1.01 -	5.05 a	
	1.50	2.41 -	2.92 -	3.47 -	4.01 -	5.05 a	
	0.50	1.40 ac	1.87 ac	1.87 <sup>1)</sup> ac	1.87 <sup>1)</sup> ac	1.87 <sup>1)</sup> ac	1.87 <sup>1)</sup> ac
	0.55	1.40 ac	1.98 ac	2.36 <sup>1)</sup> ac	2.36 <sup>1)</sup> ac	2.36 <sup>1)</sup> ac	2.36 <sup>1)</sup> a
	0.63	1.40 ac	1.98 ac	2.61 ac	3.14 ac	3.14 <sup>1)</sup> ac	3.14 <sup>1)</sup> a
N <sub>R,k</sub> [kN]	0.75	1.40 ac	1.98 ac	2.61 ac	3.19 ac	4.31 ac	4.31 a
t <sub>i</sub> [mm]	0.88	1.40 -	1.98 -	2.61 -	3.19 ac	4.37 a	5.57 a
	1.00	1.40 -	1.98 -	2.61 -	3.19 ac	4.37 a	5.82 a
	1.25	1.40 -	1.98 -	2.61 -	3.19 -	4.37 a	
	1.50	1.40 -	1.98 -	2.61 -	3.19 -	4.37 a	
N <sub>R,II,k</sub> [kN]	N <sub>R,II,k</sub> [kN]		1.98	2.61	3.19	4.37	5.82

#### Additional definitions

Index <sup>1</sup>): For component I made of S320GD to S450GD the resistance value may be increased by 8.3%.

#### Self-drilling screw with sealing washer $\ge \emptyset$ 19 mm

SX3-S19-6,0xL, SX3-L12-S19-6,0xL, SX3-D12-S19-6,0xL, SX3-D10-S19-6,0xL

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ø11	<u>Materials:</u> Fastener:	Stainless steel A2 or A4 - EN ISO 3506
Ø10,5 SW8 Ø12 L12	Washer:	Aluminum alloy – EN 573 with EPDM-seal
5,3	Component I:	S280GD to S450GD - EN 10346
2 1,8 05,5 12 010 010 010 3,3	Component II:	S235 to S355 - EN 10025 S280GD to S450GD - EN 10346
v v v v v v v v v v v v v v v v v v v	Drilling-capacity:	$\Sigma(t_1 + t_{11}) \le 5.00 \text{ mm}$

			t <sub>ii</sub> [mm]												
		1.25	5	1.50	)	1.7	1.75		0	2.50		3.00	)	4.00	0
	0.50	1.09 <sup>1)</sup>	-	1.57 <sup>1)</sup>	-	1.67 <sup>1)</sup>	-	<b>1</b> .76 <sup>1)</sup>	-	<b>1</b> .76 <sup>1)</sup>	-	1.76 <sup>1)</sup>	-	1.76 <sup>1)</sup>	-
	0.55	1.09 <sup>1)</sup>	-	1.71 <sup>1)</sup>	-	1.79 <sup>1)</sup>	-	<b>1.86</b> <sup>1)</sup>	-	<b>1.86</b> <sup>1)</sup>	-	1.86 <sup>1)</sup>	-	1.86 <sup>1)</sup>	-
	0.63	1.09 <sup>1)</sup>	-	1.94 <sup>1)</sup>	-	1.99 <sup>1)</sup>	-	2.03 <sup>1)</sup>	-	2.03 <sup>1)</sup>	-	2.03 <sup>1)</sup>	-	2.03 <sup>1)</sup>	-
V <sub>R,k</sub> [kN]	0.75	1.09 <sup>1)</sup>	-	2.28 <sup>1)</sup>	-	2.28 <sup>1)</sup>	-	2.28 <sup>1)</sup>	-	2.28 <sup>1)</sup>	-	2.28 <sup>1)</sup>	-	2.28 <sup>1)</sup>	-
t <sub>i</sub> [mm]	0.88	1.09 <sup>1)</sup>	-	2.86 <sup>1)</sup>	-	2.86 <sup>1)</sup>	-	2.86 <sup>1)</sup>	-	3.04 <sup>1)</sup>	-	3.27 <sup>1)</sup>	-	3.27 <sup>1)</sup>	-
	1.00	1.09 <sup>1)</sup>	-	3.43	-	3.43	-	3.43	-	3.74	-	4.18	-	4.18	-
	1.25	1.09 <sup>1)</sup>	-	3.43	-	3.87	-	4.31	-	5.20	-	6.08	-	-	-
	1.50	1.09 <sup>1)</sup>	-	3.43	-	3.87	-	4.31	-	5.20	-	6.08	-	-	-
	0.50	1.39 <sup>2)</sup>	-	1.59 <sup>1)</sup>	-	1.59 <sup>1)</sup>	-	1.59 <sup>1)</sup>	-	1.59 <sup>1)</sup>	-	1.59 <sup>1)</sup>	-	1.59 <sup>1)</sup>	-
	0.55	1.39 <sup>2)</sup>	-	<b>1.70</b> <sup>1)</sup>	-	<b>1.70</b> <sup>1)</sup>	-	<b>1.70</b> <sup>1)</sup>	-	<b>1.70</b> <sup>1)</sup>	-	<b>1.70</b> <sup>1)</sup>	-	<b>1.70</b> <sup>1)</sup>	-
	0.63	1.39 <sup>2)</sup>	-	1.87 <sup>1)</sup>	-	1.87 <sup>1)</sup>	-	<b>1.87</b> <sup>1)</sup>	-	<b>1.87</b> <sup>1)</sup>	-	<b>1.87</b> <sup>1)</sup>	-	<b>1.87</b> <sup>1)</sup>	-
N <sub>R,k</sub> [kN]	0.75	1.39 <sup>2)</sup>	-	2.09	-	2.12 <sup>1)</sup>	-	2.12 <sup>1)</sup>	-	2.12 <sup>1)</sup>	-	2.12 <sup>1)</sup>	-	2.12 <sup>1)</sup>	-
t <sub>i</sub> [mm]	0.88	1.39 <sup>2)</sup>	-	2.09	-	2.67	-	2.67 <sup>1)</sup>	-	2.671)	-	2.671)	-	2.671)	-
	1.00	1.39 <sup>2)</sup>	-	2.09	-	2.69	-	3.17	-	3.17 <sup>1)</sup>	-	3.17 <sup>1)</sup>	-	3.17 <sup>1)</sup>	-
	1.25	1.39 <sup>2)</sup>	-	2.09	-	2.69	-	3.28	-	4.15	-	4.27 <sup>1)</sup>	-	-	-
	1.50	1.39 <sup>2)</sup>	-	2.09	-	2.69	-	3.28	-	4.15	-	4.88	-	-	-
N <sub>R,II,k</sub> [kN]	N <sub>R,II,k</sub> [kN]		2)	2.09	9	2.69	9	3.28	8	4.15	5	5.02	2	8.32	2

Additional definitions

Index <sup>1</sup>): For component I made of S320GD to S450GD the resistance value may be increased by 8.3%.

Index <sup>2</sup>): For component II made of S320GD to S450GD the resistance value may be increased by 8.3%.

Self-drilling screw with sealing washer ≥ Ø 11 mm	
SX5-A11-5,5xL, SX5-L12-A11-5,5xL, SX5-D12-A11-5,5xL, SX5-D10-A11-5,5xL, SX5-S14-5,5xL, SX5-L12-S14-5,5xL, SX5-D12-S14-5,5xL, SX5-D10-S14-5,5xL	Annex 21

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1,8 <u>ø5,5</u> 12	8 5,3 Ø10	L12 ↓ 3,3 ↓ D10 ↓ 3,3 ↓	Fast Was Com Com	iponent I: iponent II:	Alu Sta with Alu S23	iminum alloy - ainless steel A h EPDM-seal iminum alloy - 35 to S355 - E	2 or A4 - EN IS EN 573 EN 10025 )GD - EN 10346	O 3506	
→ 4 <u>Ø4,5</u>			Driiii						_
Component I			_	1	ո [mm	-			
R <sub>m</sub> ≥ 165 N/mm <sup>2</sup>	1.50	1.7	5	2.00		2.50	3.00	4.00	
0.50	0.70 -	0.80	-	0.89 -	(	0.89 -	0.89 -	0.89 -	

		1.0	0	1.7	0	2.0	0	2.0		0.0	0	1.0	0
	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	-
V <sub>R,k</sub> [kN]	0.80	1.44	-	1.44	-	1.44	-	1.44	-	1.44	-	1.44	-
tı [mm]	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 <sub>R,II,k</sub> [kN]		2.09	9	2.6	9	3.2	8	4.1	5	5.0	2	8.3	2
Compor	ient I						tıı [r	nm]					
R <sub>m</sub> ≥ 215	N/mm²	1.5	0	1.7	5	2.0	0	2.5	0	3.0	0	4.0	0
	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	-

	0.70	1.56	-	1.60	-	1.64	-	1.64	-	1.64	-	1.64	-
V <sub>R,k</sub> [kN]	0.80	1.88	-	1.88	-	1.88	-	1.88	-	1.88	-	1.88	-
t <sub>i</sub> [mm]	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 <sub>R,II,k</sub> [kN]		2.0	9	2.6	9	3.2	8	4.1	5	5.0	2	8.3	2

### Additional definitions

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

SX5-A11-5,5xL, SX5-L12-A11-5,5xL, SX5-D12-A11-5,5xL, SX5-D10-A11-5,5xL, SX5-S14-5,5xL, SX5-L12-S14-5,5xL, SX5-D12-S14-5,5xL, SX5-D10-S14-5,5xL

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English translation prepared by DIBt



Ø11 Ø10,5 SW8 Ø5,5 12 1,8 Ø10 1,8 Ø10 Ø10 Ø10 Ø10 Ø10 Ø10 Ø10 Ø10 Ø10 Ø10	Materials: Fastener: Washer: 3,3 Component I: Component II:	Stainless steel A2 or A4 - EN ISO 3506 Aluminum alloy - EN 573 Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal Aluminum alloy - EN 573 Aluminum alloy - EN 573
Ø4,5	Drilling-capacity	: Σ(t <sub>I</sub> + t <sub>II</sub> ) ≤ 7.00 mm
		t[mm]

Component	I and II			_		tii [m	ım]			_	
R <sub>m</sub> ≥ 165 I	N/mm <sup>2</sup>	1.50		2.00		2.5	50	3.00		≥4.(	00
	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	-
V <sub>R,k</sub> [kN]	0.80	1.06	-	1.40	-	1.40	-	1.40	-	1.40	-
tı [mm]	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	-	1.97	-
	1.50	1.30	-	1.74	-	1.86	-	1.97	-	1.97	-
N <sub>R,II,k</sub> [kN]	N <sub>R,II,k</sub> [kN] 0.62		2	1.0	2	1.74		2.0	2	3.6	5

Component	I and II			_		tii [m	ım]				
R <sub>m</sub> ≥ 215 ľ	N/mm <sup>2</sup>	1.50		2.00		2.5	50	3.0	0	≥4.0	
	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	-
V <sub>R,k</sub> [kN]	0.80	1.18	-	1.82	-	1.83	-	1.83	-	1.83	-
tı [mm]	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	-	2.57	-
	1.50 1.46 -		2.26	-	2.42	-	2.57	-	2.57	-	
N <sub>R,II,k</sub> [kN]	N <sub>R,II,k</sub> [kN] 0.81		1.3	3	2.2	28	3.9	1	4.7	6	

#### Additional definitions

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

Self-drilling screw with sealing washer ≥ Ø 11 mm	
	Annex

SX5-A11-5,5xL, SX5-L12-A11-5,5xL, SX5-D12-A11-5,5xL, SX5-D10-A11-5,5xL, SX5-S14-5,5xL, SX5-L12-S14-5,5xL, SX5-D12-S14-5,5xL, SX5-D10-S14-5,5xL

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English translation prepared by DIBt



-10	<u>Materials:</u> Fastener:	Stainless steel A2 or A4 - EN ISO 3506
Ø12 Ø10,5 SW8 Ø12 L12	Washer:	Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal
5,3 3,3	Component I:	S280GD to S450GD - EN 10346
1,8 <u>ø5,5</u> 12 12 012 012 012 2,3	Component II:	S235 to S355 - EN 10025 S280GD to S450GD - EN 10346
♥ ♥ ♥ ● Ø4,5	Drilling-capacity:	$\Sigma(t_1 + t_{11}) \le 5.00 \text{ mm}$

					tıı [mm]			
		1.25	1.50	1.75	2.00	2.50	3.00	4.00
	0.50	1.09 <sup>1)</sup> -	1.57 <sup>1)</sup> -	1.67 <sup>1)</sup> -	<b>1</b> .76 <sup>1)</sup> -	<b>1.76</b> <sup>1)</sup> -	<b>1</b> .76 <sup>1)</sup> -	<b>1</b> .76 <sup>1)</sup> -
	0.55	<b>1.09</b> <sup>1)</sup> -	<b>1.71</b> <sup>1)</sup> -	<b>1</b> .79 <sup>1)</sup> -	<b>1.86</b> <sup>1)</sup> -	<b>1.86</b> <sup>1)</sup> -	<b>1.86</b> <sup>1)</sup> -	<b>1.86</b> <sup>1)</sup> -
	0.63	1.09 <sup>1)</sup> -	1.94 <sup>1)</sup> -	1.99 <sup>1)</sup> -	2.03 <sup>1)</sup> -	2.03 <sup>1)</sup> -	2.03 <sup>1)</sup> -	2.031) -
V <sub>R,k</sub> [kN]	0.75	1.09 <sup>1)</sup> -	2.281) -	2.28 <sup>1)</sup> -	2.28 <sup>1)</sup> -	2.28 <sup>1)</sup> -	2.28 <sup>1)</sup> -	2.281) -
t <sub>i</sub> [mm]	0.88	1.09 <sup>1)</sup> -	2.861) -	2.86 <sup>1)</sup> -	2.86 <sup>1)</sup> -	3.04 <sup>1)</sup> -	3.27 <sup>1)</sup> -	3.271) -
	1.00	1.09 <sup>1)</sup> -	3.43 -	3.43 -	3.43 -	3.74 -	4.18 -	4.18 -
	1.25	1.09 <sup>1)</sup> -	3.13 -	3.87 -	4.31 -	5.20 -	6.08 -	
	1.50	1.09 <sup>1)</sup> -	3.43 -	3.87 -	4.31 -	5.20 -	6.08 -	
	0.50	1.22 <sup>1)</sup> -	1.22 <sup>1)</sup> -	<b>1.22</b> <sup>1)</sup> -	1.22 <sup>1)</sup> -	<b>1.22</b> <sup>1)</sup> -	1.22 <sup>1)</sup> -	1.22 <sup>1)</sup> -
	0.55	1.39 <sup>2)</sup> -	<b>1.54</b> <sup>1)</sup> -	<b>1</b> .54 <sup>1)</sup> -	<b>1</b> .54 <sup>1)</sup> -	<b>1.54</b> <sup>1)</sup> -	<b>1</b> .54 <sup>1)</sup> -	<b>1.54</b> <sup>1)</sup> -
	0.63	1.39 <sup>2)</sup> -	2.04 -	2.041) -	2.041) -	2.041) -	2.041) -	2.041) -
N <sub>R,k</sub> [kN]	0.75	1.39 <sup>2)</sup> -	2.09 -	2.69 -	2.801) -	2.80 <sup>1)</sup> -	2.801) -	2.801) -
t <sub>i</sub> [mm]	0.88	1.39 <sup>2)</sup> -	2.09 -	2.69 -	3.28 -	3.63 -	3.63 -	3.63 -
	1.00	1.39 <sup>2)</sup> -	2.09 -	2.69 -	3.28 -	4.15 -	4.39 -	4.39 -
	1.25	1.39 <sup>2)</sup> -	2.09 -	2.69 -	3.28 -	4.15 -	5.02 -	
	1.50	1.39 <sup>2)</sup> -	2.09 -	2.69 -	3.28 -	4.15 -	5.02 -	
N <sub>R,II,k</sub> [kN]		1.39 <sup>2)</sup>	2.09	2.69	3.28	4.15	5.02	8.32

Additional definitions

Index <sup>1</sup>): For component I made of S320GD to S450GD the resistance value may be increased by 8.3%.

Index <sup>2</sup>): For component II made of S320GD to S450GD the resistance value may be increased by 8.3%.

### Self-drilling screw with sealing washer $\ge \emptyset$ 12 mm

Annex 24

SX5-S12-5,5xL, SX5-L12-S12-5,5xL, SX5-D12-S12-5,5xL

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English translation prepared by DIBt



	<u>Materials:</u> Fastener:	Stainless steel A2 or A4 - EN ISO 3506
Ø14 Ø10,5 SW8 Ø12 L12	Washer:	Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal
5,3 3,3	Component I:	S280GD to S450GD - EN 10346
1,8 <u>ø5,5</u> 12 <u>ø10</u> 010 3,3	Component II:	S235 to S355 - EN 10025 S280GD to S450GD - EN 10346
<u>↓</u> <u>∅4,5</u>	Drilling-capacity:	$\Sigma(t_i + t_{ii}) \leq 5.00 \text{ mm}$

								t⊫[mi	n]						
		1.2	5	1.50	)	1.75	5	2.00	0	2.50		3.00	)	4.00	
	0.50	1.09 <sup>1)</sup> - 1.57 <sup>1)</sup> -		1.67 <sup>1)</sup>	-	1.76 <sup>1)</sup>	-	1.76 <sup>1)</sup>	-	1.76 <sup>1)</sup>	-	1.76 <sup>1)</sup>	-		
	0.55	1.09 <sup>1)</sup>	-	<b>1.71</b> <sup>1)</sup>	-	1.79 <sup>1)</sup>	-	1.86 <sup>1)</sup>	-	<b>1.86</b> <sup>1)</sup>	-	1.86 <sup>1)</sup>	-	<b>1.86</b> <sup>1)</sup>	-
	0.63	1.09 <sup>1)</sup>	-	1.94 <sup>1)</sup>	-	1.99 <sup>1)</sup>	-	2.03 <sup>1)</sup>	-	2.03 <sup>1)</sup>	-	2.03 <sup>1)</sup>	-	2.03 <sup>1)</sup>	-
V <sub>R,k</sub> [kN]	0.75	1.09 <sup>1)</sup>	-	2.28 <sup>1)</sup>	-	2.28 <sup>1)</sup>	-	2.28 <sup>1)</sup>	-	2.281)	-	2.281)	-	2.28 <sup>1)</sup>	-
t <sub>i</sub> [mm]	0.88	1.09 <sup>1)</sup>	-	2.86 <sup>1)</sup>	-	2.86 <sup>1)</sup>	-	2.86 <sup>1)</sup>	-	3.04 <sup>1)</sup>	-	3.27 <sup>1)</sup>	-	3.271)	-
	1.00	1.09 <sup>1)</sup>	-	3.43	-	3.43	-	3.43	-	3.74	-	4.18	-	4.18	-
	1.25	1.09 <sup>1)</sup>	-	3.43	-	3.87	-	4.31	-	5.20	-	6.08	-	-	-
	1.50	1.09 <sup>1)</sup>	-	3.43	-	3.87	-	4.31	-	5.20	-	6.08	-	-	-
	0.50	1.34 <sup>1)</sup>	-	1.34 <sup>1)</sup>	ac	1.34 <sup>1)</sup>	ac	1.34 <sup>1)</sup>	ac	1.34 <sup>1)</sup>	ac	1.34 <sup>1)</sup>	ac	1.34 <sup>1)</sup>	ac
	0.55	1.39 <sup>2)</sup>	-	<b>1.69</b> <sup>1)</sup>	ac	1.69 <sup>1)</sup>	ac	<b>1.69</b> <sup>1)</sup>	ac	1.69 <sup>1)</sup>	ac	1.69 <sup>1)</sup>	ac	<b>1.69</b> <sup>1)</sup>	а
	0.63	1.39 <sup>2)</sup>	-	2.09	ac	2.25 <sup>1)</sup>	ac	2.25 <sup>1)</sup>	ac	2.25 <sup>1)</sup>	ac	2.25 <sup>1)</sup>	ac	2.25 <sup>1)</sup>	а
N <sub>R,k</sub> [kN]	0.75	1.39 <sup>2)</sup>	-	2.09	ac	2.69	ac	3.09	ac	3.09 <sup>1)</sup>	ac	3.091)	ac	3.09 <sup>1)</sup>	а
t <sub>i</sub> [mm]	0.88	1.39 <sup>2)</sup>	-	2.09	ac	2.69	ac	3.28	ac	4.00	ac	4.00	ac	4.00	а
	1.00	1.39 <sup>2)</sup>	-	2.09	ac	2.69	ac	3.28	ac	4.15	ac	4.84	ac	4.84	а
	1.25	1.39 <sup>2)</sup>	-	2.09	-	2.69	-	3.28	-	4.15	-	5.02	а	-	-
	1.50	1.39 <sup>2)</sup>	-	2.09	-	2.69	-	3.28	-	4.15	-	5.02	-	-	-
N <sub>R,II,k</sub> [kN]		1.39	1.39 <sup>2)</sup> 2.09		2.69	)	3.28	3	4.15	j	5.02		8.32		

Additional definitions

Index <sup>1</sup>): For component I made of S320GD to S450GD the resistance value may be increased by 8.3%.

Index <sup>2</sup>): For component II made of S320GD to S450GD the resistance value may be increased by 8.3%.

### Self-drilling screw with sealing washer $\ge Ø$ 14 mm

Annex 25

SX5-S14-5,5xL, SX5-L12-S14-5,5xL, SX5-D12-S14-5,5xL, SX5-D10-S14-5,5xL

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	<u>Materials:</u> Fastener: Washer: Component I: Component II:	Stainless steel A2 or A4 - EN ISO 3506 Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal S280GD to S450GD - EN 10346 S235 to S355 - EN 10025 S280GD to S450GD - EN 10346
↓ ↓ ↓ ↓ _ Ø4,5	Drilling-capacity:	Σ(tı + tıı) ≤ 5.00 mm

								tii [mi	m]						
		1.2	5	1.50	)	1.75	5	2.0	0	2.50		3.00	)	4.00	
	0.50	1.09 <sup>1)</sup>	-	1.57 <sup>1)</sup>	-	1.67 <sup>1)</sup>	-	1.76 <sup>1)</sup>	-	1.76 <sup>1)</sup>	-	1.76 <sup>1)</sup>	-	1.76 <sup>1)</sup>	-
	0.55	1.09 <sup>1)</sup>	-	1.71 <sup>1)</sup>	-	1.79 <sup>1)</sup>	-	1.86 <sup>1)</sup>	-	<b>1.86</b> <sup>1)</sup>	-	<b>1.86</b> <sup>1)</sup>	-	1.86 <sup>1)</sup>	-
	0.63	1.09 <sup>1)</sup>	-	1.94 <sup>1)</sup>	-	1.99 <sup>1)</sup>	-	2.03 <sup>1)</sup>	-	2.03 <sup>1)</sup>	-	2.03 <sup>1)</sup>	-	2.03 <sup>1)</sup>	-
V <sub>R,k</sub> [kN]	0.75	1.09 <sup>1)</sup>	-	2.28 <sup>1)</sup>	-	2.28 <sup>1)</sup>	-	2.28 <sup>1)</sup>	-	2.28 <sup>1)</sup>	-	2.28 <sup>1)</sup>	-	2.28 <sup>1)</sup>	-
t <sub>i</sub> [mm]	0.88	1.09 <sup>1)</sup>	-	2.86 <sup>1)</sup>	-	2.86 <sup>1)</sup>	-	2.86 <sup>1)</sup>	-	3.04 <sup>1)</sup>	-	3.27 <sup>1)</sup>	-	3.271)	-
	1.00	1.09 <sup>1)</sup>	-	3.43	-	3.43	-	3.43	-	3.74	-	4.18	-	4.18	-
	1.25	1.09 <sup>1)</sup>	-	3.43	-	3.87	-	4.31	-	5.20	-	6.08	-	-	-
	1.50	1.09 <sup>1)</sup>	-	3.43	-	3.87	-	4.31	-	5.20	-	6.08	-	-	-
	0.50	1.39 <sup>1)</sup>	-	1.52 <sup>1)</sup>	ac	1.52 <sup>1)</sup>	ac	1.52 <sup>1)</sup>	ac						
	0.55	1.39 <sup>2)</sup>	-	<b>1.91</b> <sup>1)</sup>	ac	<b>1.91</b> <sup>1)</sup>	ac	<b>1.91</b> <sup>1)</sup>	а						
	0.63	1.39 <sup>2)</sup>	-	2.09	ac	2.69	ac	2.70 <sup>1)</sup>	ac	2.70 <sup>1)</sup>	ac	2.70 <sup>1)</sup>	ac	2.70 <sup>1)</sup>	а
N <sub>R,k</sub> [kN]	0.75	1.39 <sup>2)</sup>	-	2.09	ac	2.69	ac	3.09	ac	3.50 <sup>1)</sup>	ac	3.50 <sup>1)</sup>	ac	3.50 <sup>1)</sup>	а
t <sub>l</sub> [mm]	0.88	1.39 <sup>2)</sup>	-	2.09	ac	2.69	ac	3.28	ac	4.15	ac	4.52	ac	4.52	а
	1.00	1.39 <sup>2)</sup>	-	2.09	ac	2.69	ac	3.28	ac	4.15	ac	5.02	ac	5.47	а
	1.25	1.39 <sup>2)</sup>	-	2.09	-	2.69	-	3.28	-	4.15	-	5.02	а	-	-
	1.50	1.39 <sup>2)</sup>	-	2.09	-	2.69	-	3.28	-	4.15	-	5.02	-	-	-
N <sub>R,II,k</sub> [kN]		1.39	1.39 <sup>2)</sup> 2.09		2.6	9	3.2	8	4.1	5	5.02		8.32		

Additional definitions

Index <sup>1</sup>): For component I made of S320GD to S450GD the resistance value may be increased by 8.3%.

Index <sup>2</sup>): For component II made of S320GD to S450GD the resistance value may be increased by 8.3%.

### Self-drilling screw with sealing washer $\ge \emptyset$ 16 mm

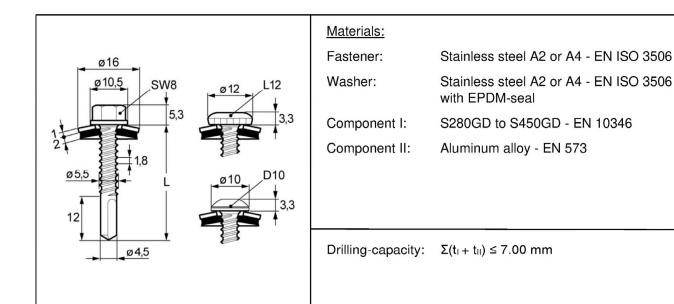
Annex 26

SX5-S16-5,5xL, SX5-L12-S16-5,5xL, SX5-D12-S16-5,5xL, SX5-D10-S16-5,5xL

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Compone							t⊫[r	nm]					
R <sub>m</sub> ≥ 165 N	N/mm <sup>2</sup>	1.50		2.0	0	3.0	0	4.0	0	5.00		6.00	
	0.50	1.48	-	1.54	-	1.54	-	1.54	-	1.54	-	1.54	-
	0.63	1.48	-	1.73	-	1.73	-	1.73	-	1.73	-	1.73	-
V <sub>R,k</sub> [kN]	0.75	1.48	-	1.90	-	1.90	-	1.90	-	1.90	-	1.90	-
	0.88	1.50	-	2.00	-	2.00	-	2.00	-	2.00	-	2.00	-
t <sub>i</sub> [mm]	1.00	1.52	-	2.09	-	2.90	-	3.26	-	3.26	-	3.26	-
	1.25	1.52	-	2.09	-	2.90	-	3.26	-	3.26	-	-	-
	1.50	1.52	-	2.09	-	2.90	-	3.26	-	3.26	-	-	-
	0.50	0.621)	-	1.02 <sup>1)</sup>	-	1.52	-	1.52	-	1.52	-	1.52	-
	0.63	0.621)	-	1.02 <sup>1)</sup>	-	2.021)	-	2.70	-	2.70	-	2.70	-
N <sub>R,k</sub> [kN]	0.75	0.621)	-	1.02 <sup>1)</sup>	-	2.021)	-	3.50	-	3.50	-	3.50	-
	0.88	0.621)	-	1.02 <sup>1)</sup>	-	2.021)	-	3.65	-	4.52	-	4.52	-
t <sub>i</sub> [mm]	1.00	0.621)	-	1.02 <sup>1)</sup>	-	2.021)	-	3.65 <sup>1)</sup>	-	5.38	-	5.47	-
	1.25	0.621)	-	1.02 <sup>1)</sup>	-	2.021)	-	3.65 <sup>1)</sup>	-	5.38	-	-	-
	1.50	0.621)	-	1.02 <sup>1)</sup>	-	2.02 <sup>1)</sup>	-	3.65 <sup>1)</sup>	-	5.38	-	-	-
<b>N<sub>R,II,k</sub> [kN]</b> 0.62 <sup>1)</sup>		21)	1.02 <sup>1)</sup>		2.021)		3.65	51)	5.38	3 <sup>1)</sup>	<b>7.11</b> <sup>1)</sup>		

Additional definitions

Index <sup>1</sup>): For component II made of aluminium alloy with  $R_m \ge 215 \text{ N/mm}^2$  the resistance value may be increased by 30.3%.

### Self-drilling screw with sealing washer $\ge \emptyset$ 16 mm

Annex 27

SX5-S16-5,5xL, SX5-L12-S16-5,5xL, SX5-D12-S16-5,5xL, SX5-D10-S16-5,5xL

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English translation prepared by DIBt



Ø19 Ø10,5 SW8 Ø12 L12 3,3 Ø5,5 12 1,8 Ø10 D10 3,3	<u>Materials:</u> Fastener: Washer: Component I: Component II:	Stainless steel A2 or A4 - EN ISO 3506 Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal S280GD to S450GD - EN 10346 S235 to S355 - EN 10025 S280GD to S450GD - EN 10346
<u>↓</u> <u>↓</u> <u>↓</u> <u>∞4,5</u>	Drilling-capacity:	Σ(t <sub>I</sub> + t <sub>II</sub> ) ≤ 5.00 mm

								tii [mi	m]						
		1.2	5	1.50	)	1.75	5	2.00	2.00		)	3.00	)	4.00	C
	0.50	1.09 <sup>1)</sup>	-	1.57 <sup>1)</sup>	-	1.67 <sup>1)</sup>	-	1.76 <sup>1)</sup>	-	<b>1</b> .76 <sup>1)</sup>	-	1.76 <sup>1)</sup>	-	1.76 <sup>1)</sup>	-
	0.55	1.09 <sup>1)</sup>	-	1.71 <sup>1)</sup>	-	1.79 <sup>1)</sup>	-	1.86 <sup>1)</sup>	-	<b>1.86</b> <sup>1)</sup>	-	<b>1.86</b> <sup>1)</sup>	-	1.86 <sup>1)</sup>	-
	0.63	1.09 <sup>1)</sup>	-	1.94 <sup>1)</sup>	-	1.99 <sup>1)</sup>	-	2.03 <sup>1)</sup>	-	2.03 <sup>1)</sup>	-	2.03 <sup>1)</sup>	-	2.03 <sup>1)</sup>	-
V <sub>R,k</sub> [kN]	0.75	1.09 <sup>1)</sup>	-	2.28 <sup>1)</sup>	-	2.28 <sup>1)</sup>	-	2.28 <sup>1)</sup>	-	2.28 <sup>1)</sup>	-	2.28 <sup>1)</sup>	-	2.28 <sup>1)</sup>	-
t <sub>i</sub> [mm]	0.88	1.09 <sup>1)</sup>	-	2.86 <sup>1)</sup>	-	2.86 <sup>1)</sup>	-	2.86 <sup>1)</sup>	-	3.04 <sup>1)</sup>	-	3.27 <sup>1)</sup>	-	3.27 <sup>1)</sup>	-
	1.00	1.09 <sup>1)</sup>	-	3.43	-	3.43	-	3.43	-	3.74	-	4.18	-	4.18	-
	1.25	1.09 <sup>1)</sup>	-	3.43	-	3.87	-	4.31	-	5.20	-	6.08	-	-	-
	1.50	1.09 <sup>1)</sup>	-	3.43	-	3.87	-	4.31	-	5.20	-	6.08	-	-	-
	0.50	1.39 <sup>2)</sup>	-	1.87 <sup>1)</sup>	ac	1.87 <sup>1)</sup>	ac	1.87 <sup>1)</sup>	ac	<b>1.87</b> <sup>1)</sup>	ac	1.87 <sup>1)</sup>	ac	1.87 <sup>1)</sup>	ac
	0.55	1.39 <sup>2)</sup>	-	2.09	ac	2.36 <sup>1)</sup>	ac	2.36 <sup>1)</sup>	ac	2.36 <sup>1)</sup>	ac	2.36 <sup>1)</sup>	ac	2.36 <sup>1)</sup>	а
	0.63	1.39 <sup>2)</sup>	-	2.09	ac	2.69	ac	3.14	ac	3.14 <sup>1)</sup>	ac	3.14 <sup>1)</sup>	ac	3.14 <sup>1)</sup>	а
N <sub>R,k</sub> [kN]	0.75	1.39 <sup>2)</sup>	-	2.09	ac	2.69	ac	3.28	ac	4.15	ac	4.31	ac	4.31	а
t <sub>l</sub> [mm]	0.88	1.39 <sup>2)</sup>	-	2.09	ac	2.69	ac	3.28	ac	4.15	ac	5.02	ac	5.57	а
	1.00	1.39 <sup>2)</sup>	-	2.09	ac	2.69	ac	3.28	ac	4.15	ac	5.02	ac	6.74	а
	1.25	1.39 <sup>2)</sup>	-	2.09	-	2.69	-	3.28	-	4.15	-	5.02	а	-	-
	1.50	1.39 <sup>2)</sup>	-	2.09	-	2.69	-	3.28	-	4.15	-	5.02	-	-	-
N <sub>R,II,k</sub> [kN]		1.39 <sup>2)</sup> 2.09		2.6	9	3.2	8	4.15	5	5.02	2	8.32			

Additional definitions

Z31424.23

Index <sup>1</sup>): For component I made of S320GD to S450GD the resistance value may be increased by 8.3%.

Index <sup>2</sup>): For component II made of S320GD to S450GD the resistance value may be increased by 8.3%.

### Self-drilling screw with sealing washer $\ge Ø$ 19 mm

Annex 28

SX5-S19-5,5xL, SX5-L12-S19-5,5xL, SX5-D12-S19-5,5xL, SX5-D10-S19-5,5xL

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English translation prepared by DIBt



≥ø11	<u>Materials:</u> Fastener:	Stainless steel A2 or A4 - EN ISO 3506				
Ø10,5 SW8 Ø12 L12	Washer:	Aluminum alloy – EN 573 with EPDM-seal				
5,3 3,3	Component I:	S280GD to S450GD - EN 10346				
2 <u>ø5,5</u> 1,8 <u>ø10</u> 17 17 17	Component II:	S235 to S355 - EN 10025 S280GD to S450GD - EN 10346				
	Drilling-capacity:	$\Sigma(t_1 + t_{11}) \le 14.00 \text{ mm}$				

		t <sub>ii</sub> [mm]											
	4.00		0	5.00		6.00		8.00		10.00		12.00	
	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
V <sub>R,k</sub> [kN]	0.75	3.40	ac	3.40	ac	3.40	ac	3.40	ac	3.40	ac	3.40	ac
t <sub>i</sub> [mm]	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
	0.50	1.59 <sup>1)</sup>	ac	1.59 <sup>1)</sup>	ac	1.59 <sup>1)</sup>	ac	1.59 <sup>1)</sup>	ac	1.59 <sup>1)</sup>	ac	1.59 <sup>1)</sup>	ac
	0.55	1.70 <sup>1)</sup>	ac	<b>1.70</b> <sup>1)</sup>	ac	1.70 <sup>1)</sup>	ac	1.70 <sup>1)</sup>	ac	1.70 <sup>1)</sup>	ac	1.70 <sup>1)</sup>	ac
	0.63	1.87 <sup>1)</sup>	ac	<b>1.87</b> <sup>1)</sup>	ac	1.87 <sup>1)</sup>	ac	1.87 <sup>1)</sup>	ac	1.87 <sup>1)</sup>	ac	1.871)	ac
N <sub>R,k</sub> [kN]	0.75	2.12 <sup>1)</sup>	ac	2.12 <sup>1)</sup>	ac	2.12 <sup>1)</sup>	ac	2.12 <sup>1)</sup>	ac	2.12 <sup>1)</sup>	ac	2.12 <sup>1)</sup>	ac
t <sub>i</sub> [mm]	0.88	2.67 <sup>1)</sup>	ac	2.67 <sup>1)</sup>	ac	2.67 <sup>1)</sup>	ac	2.671)	ac	2.671)	ac	2.671)	ac
	1.00	3.17 <sup>1)</sup>	ac	3.17 <sup>1)</sup>	ac	3.17 <sup>1)</sup>	ac	3.17 <sup>1)</sup>	ac	3.17 <sup>1)</sup>	ac	3.17 <sup>1)</sup>	ac
	1.25	<b>4.27</b> <sup>1)</sup>	ac	4.27 <sup>1)</sup>	ac	<b>4.27</b> <sup>1)</sup>	ac	4.271)	ac	<b>4.27</b> <sup>1)</sup>	ac	4.27 <sup>1)</sup>	ac
	1.50	4.88 <sup>1)</sup>	ac	4.88 <sup>1)</sup>	ac	4.88 <sup>1)</sup>	ac	4.881)	ac	4.88 <sup>1)</sup>	ac	4.88 <sup>1)</sup>	ac
N <sub>R,II,k</sub> [kN]		7.10		10.90		10.90		10.90		10.90		10.90	

Additional definitions

Index <sup>1</sup>): For component I made of S320GD to S450GD the resistance value may be increased by 8.3%.

### Self-drilling screw with sealing washer $\ge \emptyset$ 11 mm

Annex 29

SX14-A11-5,5xL, SX14-L12-A11-5,5xL, SX14-D10-A11-5,5xL

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English translation prepared by DIBt



$ \begin{array}{c}                                     $	<u>Materials:</u> Fastener: Washer: Component I: Component II:	Stainless steel A2 or A4 - EN ISO 3506 Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal S280GD to S450GD - EN 10346 S235 to S355 - EN 10025 S280GD to S450GD - EN 10346
	Drilling-capacity:	Σ(t <sub>i</sub> + t <sub>ii</sub> ) ≤ 14.00 mm

							t⊫[r	nm]					
		4.0	0	5.0	0	6.0	0	8.0	0	10.0	0	12.0	0
	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
V <sub>R,k</sub> [kN]	0.75	3.40	ac	3.40	ac	3.40	ac	3.40	ac	3.40	ac	3.40	ac
t <sub>i</sub> [mm]	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
	0.50	1.73 <sup>1)</sup>	ac	<b>1.73</b> <sup>1)</sup>	ac	1.73 <sup>1)</sup>	ac	1.73 <sup>1)</sup>	ac	1.73 <sup>1)</sup>	ac	1.73 <sup>1)</sup>	ac
	0.55	<b>1.85</b> <sup>1)</sup>	ac	<b>1.85</b> <sup>1)</sup>	ac	1.85 <sup>1)</sup>	ac	1.85 <sup>1)</sup>	ac	<b>1</b> .85 <sup>1)</sup>	ac	<b>1.85</b> <sup>1)</sup>	ac
	0.63	2.031)	ac	2.03 <sup>1)</sup>	ac	2.03 <sup>1)</sup>	ac	2.031)	ac	2.031)	ac	2.031)	ac
N <sub>R,k</sub> [kN]	0.75	2.31 <sup>1)</sup>	ac	<b>2.31</b> <sup>1)</sup>	ac	2.31 <sup>1)</sup>	ac	2.31 <sup>1)</sup>	ac	2.31 <sup>1)</sup>	ac	2.31 <sup>1)</sup>	ac
t <sub>i</sub> [mm]	0.88	2.90 <sup>1)</sup>	ac	2.90 <sup>1)</sup>	ac	2.90 <sup>1)</sup>	ac	2.901)	ac	2.90 <sup>1)</sup>	ac	2.90 <sup>1)</sup>	ac
	1.00	3.44 <sup>1)</sup>	ac	3.44 <sup>1)</sup>	ac	3.44 <sup>1)</sup>	ac	3.44 <sup>1)</sup>	ac	3.44 <sup>1)</sup>	ac	3.44 <sup>1)</sup>	ac
	1.25	4.64 <sup>1)</sup>	ac	<b>4.64</b> <sup>1)</sup>	ac	4.64 <sup>1)</sup>	ac	4.641)	ac	4.641)	ac	4.64 <sup>1)</sup>	ac
	1.50	5.31 <sup>1)</sup>	ac	5.31 <sup>1)</sup>	ac	5.31 <sup>1)</sup>	ac	5.31 <sup>1)</sup>	ac	5.31 <sup>1)</sup>	ac	5.31 <sup>1)</sup>	ac
N <sub>R,II,k</sub> [kN]		7.10	0	10.9	0	10.9	0	10.9	90	10.9	0	10.9	00

Additional definitions

Index <sup>1</sup>): For component I made of S320GD to S450GD the resistance value may be increased by 8.3%.

### Self-drilling screw with sealing washer $\ge \emptyset$ 14 mm

Annex 30

SX14-S14-5,5xL, SX14-L12-S14-5,5xL, SX14-D10-S14-5,5xL

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English translation prepared by DIBt



≥ø16	<u>Materials:</u> Fastener:	Stainless steel A2 or A4 - EN ISO 3506
Ø10,5 SW8 Ø12 L12	Washer:	Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal
5,3 3,3	Component I:	S280GD to S450GD - EN 10346
2 <u>ø5.5</u> 1,8 <u>ø10</u> D10 3,3	Component II:	S235 to S355 - EN 10025 S280GD to S450GD - EN 10346
<u>↓</u> <u>↓</u> <u>Ø</u> 5,0	Drilling-capacity:	Σ(t <sub>i</sub> + t <sub>ii</sub> ) ≤ 14.00 mm

							t⊫[r	[mm]					
		4.0	00	5.0	0	6.0	0	8.0	0	10.0	00	12.0	00
	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
V <sub>R,k</sub> [kN]	0.75	3.40	ac	3.40	ac	3.40	ac	3.40	ac	3.40	ac	3.40	ac
t <sub>l</sub> [mm]	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
	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
N <sub>R,k</sub> [kN]	0.75	3.00	ac	3.00	ac	3.00	ac	3.00	ac	3.00	ac	3.00	ac
t <sub>l</sub> [mm]	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 <sub>R,II,k</sub> [kN]							90	10.9	90	10.9	90	10.9	90

Additional definitions

Self-drilling screw with sealing washer  $\ge \emptyset$  16 mm

Annex 31

SX14-S16-5,5xL, SX14-L12-S16-5,5xL, SX14-D12-S16-5,5xL, SX14-D10-S16-5,5xL

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English translation prepared by DIBt



ø16	Materials:	
<u>Ø10,5</u> SW8	Fastener:	Stainless steel A2 or A4 - EN ISO 3506
5,3	Washer:	Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal
2 1,8	Component I:	S280GD to S450GD - EN 10346
Ø 5,5	Component II:	S235 to S355 - EN 10025 S280GD to S450GD - EN 10346
	Drilling-capacity:	Σ(t <sub>I</sub> + t <sub>II</sub> ) ≤ 20.00 mm

					tıı [r	nm]			
		3.00	4.00	5.00	6.00	8.00	10.00	12.00	18.00
	0.50	1.08 <sup>1)</sup> -	<b>1.08</b> <sup>1)</sup> -	1.43 <sup>1)</sup> -	1.43 <sup>1)</sup> -	1.43 <sup>1)</sup> -	<b>1.43</b> <sup>1)</sup> -	<b>1.43</b> <sup>1)</sup> -	1.43 <sup>1)</sup> -
	0.55	1.21 <sup>1)</sup> -	1.21 <sup>1)</sup> -	1.60 <sup>1)</sup> -	1.60 <sup>1)</sup> -	1.60 <sup>1)</sup> -	<b>1.60</b> <sup>1)</sup> -	<b>1.60</b> <sup>1)</sup> -	1.60 <sup>1)</sup> -
	0.63	1.42 <sup>1)</sup> -	1.42 <sup>1)</sup> -	1.88 <sup>1)</sup> -	1.88 <sup>1)</sup> -	1.88 <sup>1)</sup> -	1.88 <sup>1)</sup> -	1.88 <sup>1)</sup> -	1.88 <sup>1)</sup> -
V <sub>Rk</sub> [kN]	0.75	<b>1</b> .74 <sup>1)</sup> -	<b>1</b> .74 <sup>1)</sup> -	2.30 <sup>1)</sup> -	2.30 <sup>1)</sup> -	2.301) -	2.30 <sup>1)</sup> -	2.30 <sup>1)</sup> -	2.30 <sup>1)</sup> -
	0.88	2.22 <sup>1)</sup> -	2.22 <sup>1)</sup> -	2.94 <sup>1)</sup> -	2.941) -	2.94 <sup>1)</sup> -	2.94 <sup>1)</sup> -	<b>2.94</b> <sup>1)</sup> -	2.94 <sup>1)</sup> -
tı [mm]	1.00	2.66 <sup>1)</sup> -	2.66 <sup>1)</sup> -	3.52 <sup>1)</sup> -	3.52 <sup>1)</sup> -	3.52 <sup>1)</sup> -	3.52 <sup>1)</sup> -	3.52 <sup>1)</sup> -	3.52 <sup>1)</sup> -
	1.25	3.23 <sup>1)</sup> -	3.23 <sup>1)</sup> -	<b>4.28</b> <sup>1)</sup> -	<b>1.28</b> <sup>1)</sup> -	4.28 <sup>1)</sup> -	4.28 <sup>1)</sup> -	4.28 <sup>1)</sup> -	4.28 <sup>1)</sup> -
	1.50	3.80 <sup>1)</sup> -	3.80 <sup>1)</sup> -	5.03 <sup>1)</sup> -	5.03 <sup>1)</sup> -	5.03 <sup>1)</sup> -	5.03 <sup>1)</sup> -	5.03 <sup>1)</sup> -	5.03 <sup>1)</sup> -
	2.00	4.81 <sup>1)</sup> -	4.81 <sup>1)</sup> -	6.37 <sup>1)</sup> -	6.37 <sup>1)</sup> -	6.37 <sup>1)</sup> -	6.37 <sup>1)</sup> -	6.37 <sup>1)</sup> -	6.37 <sup>1)</sup> -
	0.50	<b>1.60</b> <sup>1)</sup> -	<b>1.60</b> <sup>1)</sup> -	<b>1.62</b> <sup>1)</sup> -	<b>1.62</b> <sup>1)</sup> -	<b>1.62</b> <sup>1)</sup> -	<b>1.62</b> <sup>1)</sup> -	<b>1.62</b> <sup>1)</sup> -	<b>1.62</b> <sup>1)</sup> -
	0.55	1.82 <sup>1)</sup> -	1.82 <sup>1)</sup> -	1.87 <sup>1)</sup> -	1.87 <sup>1)</sup> -	1.87 <sup>1)</sup> -	<b>1.87</b> <sup>1)</sup> -	<b>1.87</b> <sup>1)</sup> -	1.87 <sup>1)</sup> -
	0.63	2.18 <sup>1)</sup> -	2.18 <sup>1)</sup> -	2.261) -	2.261) -	2.261) -	2.26 <sup>1)</sup> -	<b>2.26</b> <sup>1)</sup> -	2.261) -
N <sub>Rk</sub> [kN]	0.75	2.721) -	2.721) -	2.85 <sup>1)</sup> -	2.851) -	2.85 <sup>1)</sup> -	2.85 <sup>1)</sup> -	2.85 <sup>1)</sup> -	2.851) -
	0.88	3.24 <sup>1)</sup> -	3.24 <sup>1)</sup> -	3.57 <sup>1)</sup> -	3.57 <sup>1)</sup> -	3.57 <sup>1)</sup> -	3.57 <sup>1)</sup> -	3.57 <sup>1)</sup> -	3.57 <sup>1)</sup> -
t <sub>i</sub> [mm]	1.00	3.65 -	4.23 -	4.23 <sup>1)</sup> -	4.23 <sup>1)</sup> -	4.23 <sup>1)</sup> -	4.23 <sup>1)</sup> -	4.23 <sup>1)</sup> -	4.23 <sup>1)</sup> -
	1.25	3.65 -	5.08 -	5.30 <sup>1)</sup> -	5.30 <sup>1)</sup> -	5.30 <sup>1)</sup> -	5.30 <sup>1)</sup> -	5.30 <sup>1)</sup> -	5.30 <sup>1)</sup> -
	1.50	3.65 -	5.08 -	6.08 -	6.38 -	6.38 <sup>1)</sup> -	6.38 <sup>1)</sup> -	6.38 <sup>1)</sup> -	6.38 <sup>1)</sup> -
	2.00	3.65 -	5.08 -	6.08 -	6.38 -	6.38 <sup>1)</sup> -	6.38 <sup>1)</sup> -	6.38 <sup>1)</sup> -	6.38 <sup>1)</sup> -
N <sub>R,II,k</sub> [kN]		3.65 <sup>2)</sup>	5.08 <sup>2)</sup>	6.08 <sup>2)</sup>	6.62 <sup>2)</sup>	7.17 <sup>2)</sup>	7.72 <sup>2)</sup>	7.72 <sup>2)</sup>	7.72 <sup>2)</sup>

#### Additional definitions

Index <sup>1</sup>): For component I made of S320GD the resistance value may be increased by 8.3% and for component I made of S350GD to S450GD the resistance value may be increased by 16.6%.

Index <sup>2</sup>): For component II made of S320GD to S450GD the resistance value may be increased by 8.3%.

Self-drilling screw with sealing washer  $\ge \emptyset$  16 mm

Annex 32

SX20-S16-5.5xL

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English translation prepared by DIBt



				N	laterials:												
≥ø10 			L12	F	astener:	Stainless s	steel A2 or A4	- EN ISO 350	6								
												lasher:	Stainless s with EPDM	steel A2 or A4 1-seal	- EN ISO 350	6	
12			<b>₽</b> ↑	С	omponent I:	S280GD to	5450GD - EN	N 10346									
B	2,2			С	omponent II:	Coniferous	s timber ≥ C24	- EN 14081									
Ø6,0 7						2(t) < 2 (t)											
′• V	•				rilling-capacity:	$\Sigma(t_1) \leq 2.00$	mm										
- <b>-</b>  - -	ø3,5			С	haracteristics:	$M_{y,Rk} = 7.9$ $f_{ax,k} = 13.2$	Nm N/mm² (l <sub>ef</sub> = 2	5 mm, ρ <sub>a</sub> = 35	50 kg/m³)								
										1							
		05	20		l <sub>ef</sub> [mm]	40	45	Failure									
	0.50	25	30		35	40	45	compor									
	0.50	1.02	1.02		1.02	1.02	1.02	1.02	4								
	0.55	1.02	1.10		1.10	1.10	1.10	1.10	4								
V <sub>R,k</sub> [kN]	0.63	1.02	1.21		1.21	1.21	1.21	1.21	v								
,	0.75	1.02	1.23		1.40	1.40	1.40	1.40	V <sub>R,I,k</sub>	L							

V <sub>R,k</sub> [kN]	0.63	1.02	1.21	1.21	1.21	1.21	1.21	
- iijk []	0.75	1.02	1.23	1.40	1.40	1.40	1.40	V <sub>R,I,k</sub>
tı [mm]	0.88	1.02	1.23	1.40	1.40	1.40	1.40	[kN]
	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	
	0.50	1.59	1.59	1.59	1.59	1.59	1.59	
	0.55	1.93	1.93	1.93	1.93	1.93	1.93	
N <sub>R,k</sub> [kN]	0.63	1.98	2.38	2.44	2.44	2.44	2.44	
<b>- - -</b>	0.75	1.98	2.38	2.77	3.17	3.28	3.28	N <sub>R,I,k</sub>
tı [mm]	0.88	1.98	2.38	2.77	3.17	3.28	3.28	[kN]
	1.00	1.98	2.38	2.77	3.17	3.28	3.28	
	1.25	1.98	2.38	2.77	3.17	3.28	3.28	
	1.50	1.98	2.38	2.77	3.17	3.28	3.28	
N <sub>R,II,k</sub> [kN]		1.98	2.38	2.77	3.17	3.56	-	

### Self-drilling screw with sealing washer $\ge \emptyset$ 16 mm

SXW-S16-6,0xL, SXW-L12-S16-6,0xL SW2-S-S16-6,0xL, SW2-S-L12-S16-6,0xL

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English translation prepared by DIBt



				Materials:				
≥ø10				Fastener:	Stainless s	steel A2 or A4	- EN ISO 3506	6
ø 10,		<sup>/8</sup> 5,3	L12	Washer:	Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal			
12				Component I:	Aluminum	alloy - EN 573		
ø6,0	2,2			Component II:	Coniferous	timber ≥ C24	- EN 14081	
7	ø3,5		-	Drilling-capacity: Characteristics:	$\Sigma(t_i) \le 2.00$ $M_{y,Bk} = 7.9$			
						$N/mm^2$ (l <sub>ef</sub> = 2	5 mm, ρ <sub>a</sub> = 35	0 kg/m³)
Compon	ent l			l <sub>ef</sub> [mm]			Failure	of
R <sub>m</sub> ≥ 165 I		25	30	35	40	45	compon	
	0.50	0.59	0.59	0.59	0.59	0.59	0.59	
	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	
V <sub>R,k</sub> [kN]	0.80	1.02	1.14	1.14	1.14	1.14	1.14	V <sub>R,I,k</sub>
	0.90	1.02	1.23	1.26	1.06	1.26	1.26	[kN]
t. [m.m.]		1.02			1.26	1.20	1.20	
t <sub>I</sub> [mm]								1
tı [mm]	1.00	1.02	1.23	1.26	1.26	1.26	1.26	
ti [mm]	1.00	1.02	1.23	1.26	1.26	1.26	1.26	
t <sub>i</sub> [mm] N <sub>R,II,k</sub> [kN]	1.00 1.20	1.02 1.02	1.23 1.23	1.26 1.26	1.26 1.26	1.26 1.26	1.26 1.26	
N <sub>R,II,k</sub> [kN]	1.00 1.20 1.50	1.02 1.02 1.02	1.23 1.23 1.23	1.26 1.26 1.26 2.77	1.26 1.26 1.26	1.26 1.26 1.26	1.26 1.26 1.26 -	
	1.00 1.20 1.50	1.02 1.02 1.02	1.23 1.23 1.23 2.38	1.26 1.26 1.26	1.26 1.26 1.26	1.26 1.26 1.26	1.26 1.26 1.26 - Failure	e of
N <sub>R,II,k</sub> [kN] Compon	1.00 1.20 1.50 nent I N/mm <sup>2</sup>	1.02 1.02 1.02 1.98 25	1.23 1.23 1.23 2.38 30	1.26 1.26 1.26 2.77 I <sub>ef</sub> [mm] 35	1.26 1.26 1.26 3.17	1.26 1.26 1.26 3.28 45	1.26 1.26 1.26 -	e of
N <sub>R,II,k</sub> [kN] Compon	1.00 1.20 1.50 ment I N/mm <sup>2</sup> 0.50	1.02 1.02 1.02 1.98 25 0.70	1.23 1.23 1.23 2.38 30 0.70	1.26 1.26 1.26 2.77 I <sub>ef</sub> [mm] 35 0.70	1.26 1.26 1.26 3.17 40 0.70	1.26 1.26 1.26 3.28 45 0.70	1.26 1.26 1.26 - Failure compon 0.70	e of
<b>N</b> <sub>R,II,k</sub> [ <b>kN</b> ] Compon R <sub>m</sub> ≥ 215 I	1.00 1.20 1.50 nent I N/mm <sup>2</sup> 0.50 0.60	1.02 1.02 1.02 1.98 25 0.70 0.93	1.23 1.23 1.23 2.38 30 0.70 0.93	1.26 1.26 1.26 2.77 I <sub>ef</sub> [mm] 35 0.70 0.93	1.26 1.26 1.26 3.17 40 0.70 0.93	1.26 1.26 3.28 45 0.70 0.93	1.26 1.26 1.26 - Failure compon 0.70 0.93	e of
N <sub>R,II,k</sub> [kN] Compon	1.00 1.20 1.50 ment I N/mm <sup>2</sup> 0.50	1.02 1.02 1.02 1.98 25 0.70	1.23 1.23 1.23 2.38 30 0.70	1.26 1.26 1.26 2.77 lef [mm] 35 0.70 0.93 1.16	1.26 1.26 3.17 40 0.70 0.93 1.16	1.26 1.26 1.26 3.28 45 0.70	1.26 1.26 1.26 - Failure compon 0.70 0.93 1.16	e of ent l
N <sub>R,II,k</sub> [kN] Compon R <sub>m</sub> ≥ 215 I V <sub>R,k</sub> [kN]	1.00 1.20 1.50 N/mm <sup>2</sup> 0.50 0.60 0.70 0.80	1.02 1.02 1.02 1.98 25 0.70 0.93 1.02 1.02	1.23 1.23 1.23 2.38 30 0.70 0.93 1.16 1.23	1.26           1.26           1.26           2.77           lef [mm]           35           0.70           0.93           1.16           1.34	1.26 1.26 3.17 40 0.70 0.93 1.16 1.34	1.26 1.26 3.28 45 0.70 0.93 1.16 1.34	1.26 1.26 1.26 Failure compon 0.70 0.93 1.16 1.34	e of ent I
<b>N</b> <sub>R,II,k</sub> [ <b>kN</b> ] Compon R <sub>m</sub> ≥ 215 I	1.00 1.20 1.50 ent I N/mm <sup>2</sup> 0.50 0.60 0.70 0.80 0.90	1.02 1.02 1.02 1.98 25 0.70 0.93 1.02 1.02 1.02	1.23 1.23 1.23 2.38 30 0.70 0.93 1.16	1.26 1.26 1.26 2.77 I <sub>ef</sub> [mm] 35 0.70 0.93 1.16 1.34 1.43	1.26 1.26 3.17 40 0.70 0.93 1.16 1.34 1.52	1.26 1.26 3.28 45 0.70 0.93 1.16 1.34 1.52	1.26 1.26 1.26 Failure compon 0.70 0.93 1.16 1.34 1.52	e of ent l
N <sub>R,II,k</sub> [kN] Compon R <sub>m</sub> ≥ 215 I V <sub>R,k</sub> [kN]	1.00 1.20 1.50 nent I N/mm <sup>2</sup> 0.50 0.60 0.70 0.80 0.90 1.00	1.02 1.02 1.02 1.98 25 0.70 0.93 1.02 1.02 1.02 1.02	1.23 1.23 1.23 2.38 30 0.70 0.93 1.16 1.23 1.23	1.26 1.26 1.26 2.77 I <sub>ef</sub> [mm] 35 0.70 0.93 1.16 1.34 1.43 1.43	1.26 1.26 3.17 40 0.70 0.93 1.16 1.34 1.52 1.52	1.26 1.26 3.28 45 0.70 0.93 1.16 1.34 1.52 1.52	1.26 1.26 1.26 - Failure compon 0.70 0.93 1.16 1.34 1.52 1.52	e of ent I
N <sub>R,II,k</sub> [kN] Compon R <sub>m</sub> ≥ 215 I V <sub>R,k</sub> [kN]	1.00 1.20 1.50 ent I N/mm <sup>2</sup> 0.50 0.60 0.70 0.80 0.90	1.02 1.02 1.02 1.98 25 0.70 0.93 1.02 1.02 1.02	1.23 1.23 1.23 2.38 30 0.70 0.93 1.16 1.23 1.23 1.23	1.26 1.26 1.26 2.77 I <sub>ef</sub> [mm] 35 0.70 0.93 1.16 1.34 1.43	1.26 1.26 3.17 40 0.70 0.93 1.16 1.34 1.52	1.26 1.26 3.28 45 0.70 0.93 1.16 1.34 1.52	1.26 1.26 1.26 Failure compon 0.70 0.93 1.16 1.34 1.52	e of ent I

Additional definitions

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

### Self-drilling screw with sealing washer $\ge \emptyset$ 16 mm

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

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English translation prepared by DIBt



≥ø1 ø10, 12 ø6,5	5 SW8		L12	F W C C	laterials: astener: Vasher: component I: component II:	Stainless s with EPDM S280GD to Coniferous $\Sigma(t_1) \le 2.00$	steel A2 or A4 4-seal 5 S450GD - EN 5 timber ≥ C24	
	ø 3,9			С	haracteristics:	$M_{y,Rk} = 12.$ $f_{ax,k} = 13.2$		5 mm, ρ <sub>a</sub> = 350 kg/m <sup>3</sup> )
					[ [magen]			
			45		l <sub>ef</sub> [mm] │ 55 │	65	75	Failure of component I
					1 22	n5	/ 5	
	0.50	35	45					
	0.50	35 1.55 1.71	45 1.55 1.71		1.55 1.71	1.55 1.71	1.55 1.71	1.55 1.71

	0.50	1.55	1.55	1.55	1.55	1.55	1.55	
	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	
V <sub>R,k</sub> [kN]	0.75	1.73	2.23	2.73	3.14	3.34	3.50	V <sub>R,I,k</sub>
tı [mm]	0.88	1.73	2.23	2.73	3.14	3.34	4.00	[kN]
	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	
	0.50	1.68	1.68	1.68	1.68	1.68	1.68	
	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	
N <sub>R,k</sub> [kN]	0.75	3.00	3.40	3.40	3.40	3.40	3.40	N <sub>R,I,k</sub>
tı [mm]	0.88	3.00	3.86	4.10	4.10	4.10	4.10	[kN]
	1.00	3.00	3.86	4.72	4.80	4.80	4.80	
	1.25	3.00	3.86	4.72	5.58	5.60	5.60	
	1.50	3.00	3.86	4.72	5.58	5.60	5.60	
N <sub>R,II,k</sub> [kN]		3.00	3.86	4.72	5.58	6.44	-	

Self-drilling screw with sealing washer  $\ge \emptyset$  16 mm

Annex 35

SXW-S16-6,5xL, SXW-L12-S16-6,5xL

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English translation prepared by DIBt



				Materials:				
≥ø16	-			Fastener:	Stainless	steel A2 or A4	- EN ISO 350	3
ø10,5	SW	8 ø12	L12					
		5,3	3,3	Washer:	stainless with EPDN	steel A2 or A4 M-seal	- EN ISO 3506	Ó
12				Component I:	Aluminum	alloy - EN 573	ł	
ø6,5	2,5 L			Component II:	Coniferou	s timber ≥ C24	- EN 14081	
7			ľ	Drilling-capacit	y: $\Sigma(t_i) \le 2.00$	 ) mm		
	ø 3,9			Characteristics	,,		<b>-</b>	0 1
					$T_{ax,k} = 13.2$	N/mm² (l <sub>ef</sub> = 3	5 mm, ρ <sub>a</sub> = 35	0 кg/m³)
Compon	onti			l <sub>ef</sub> [mm]			Failure	of
	Component I R <sub>m</sub> ≥ 165 N/mm <sup>2</sup> 35		45	55	65	75	compon	
	0.50	0.86	0.86	0.86	0.86	0.86	0.86	
	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	1
V <sub>R,k</sub> [kN]	0.80	1.37	1.37	1.37	1.37	1.37	1.37	V <sub>R,I,k</sub>
	0.90	1.54	1.54	1.54	1.54	1.54	1.54	[kN]
tı [mm]	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 <sub>R,II,k</sub> [kN]		3.00	3.86	4.72	5.58	6.44	-	
Compon	ent I			l <sub>ef</sub> [mm]			Failure	e of
Compon R <sub>m</sub> ≥ 215 I		35	45	l <sub>ef</sub> [mm] 55	65	75	Failure compon	
		35 1.12	45 1.12			75		
	N/mm²			55	65		compon	
R <sub>m</sub> ≥ 215 I	V/mm <sup>2</sup> 0.50	1.12	1.12	55	65 1.12 1.34	1.12	compon 1.12	
	V/mm <sup>2</sup> 0.50 0.60	1.12 1.34	1.12 1.34	55 1.12 1.34	65 1.12	1.12 1.34	compon 1.12 1.34	ent I
R <sub>m</sub> ≥ 215 ľ V <sub>R,k</sub> [kN]	N/mm <sup>2</sup> 0.50 0.60 0.70	1.12 1.34 1.57	1.12 1.34 1.57	55 1.12 1.34 1.57	65 1.12 1.34 1.57	1.12 1.34 1.57	compon 1.12 1.34 1.57	
R <sub>m</sub> ≥ 215 I	N/mm <sup>2</sup> 0.50 0.60 0.70 0.80	1.12 1.34 1.57 1.73	1.12 1.34 1.57 1.79	55 1.12 1.34 1.57 1.79	65 1.12 1.34 1.57 1.79	1.12 1.34 1.57 1.79	compon 1.12 1.34 1.57 1.79	ent I V <sub>R,I,k</sub>
R <sub>m</sub> ≥ 215 ľ V <sub>R,k</sub> [kN]	N/mm <sup>2</sup> 0.50 0.60 0.70 0.80 0.90	1.12 1.34 1.57 1.73 1.73	1.12 1.34 1.57 1.79 2.01	55 1.12 1.34 1.57 1.79 2.01	65 1.12 1.34 1.57 1.79 2.01	1.12 1.34 1.57 1.79 2.01	compon 1.12 1.34 1.57 1.79 2.01	ent I V <sub>R,I,k</sub>
R <sub>m</sub> ≥ 215 ľ V <sub>R,k</sub> [kN]	N/mm <sup>2</sup> 0.50 0.60 0.70 0.80 0.90 1.00	1.12         1.34         1.57         1.73         1.73         1.73	1.12 1.34 1.57 1.79 2.01 2.23	55 1.12 1.34 1.57 1.79 2.01 2.24	65 1.12 1.34 1.57 1.79 2.01 2.24	1.12 1.34 1.57 1.79 2.01 2.24	compon 1.12 1.34 1.57 1.79 2.01 2.24	ent I V <sub>R,I,k</sub>

Additional definitions

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

### Self-drilling screw with sealing washer $\ge \emptyset$ 16 mm

SXW-S16-6,5xL, SXW-L12-S16-6,5xL

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English translation prepared by DIBt



	Materials:	
≥ø16	Fastener:	Stainless steel A2 or A4 - EN ISO 3506 Stainless steel 1.4547 - EN 10088-1
ø10,5 SW8	Washer:	Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal
5,3	Component I:	S280GD to S450GD - EN 10346
2 Ø6,5	Component II:	S280GD to S450GD - EN 10346
	Predrill-diameter:	d <sub>pd</sub> = see table

									tıı [n	nm]							
		0.6	3	0.7	5	0.8	3	1.00	)	1.25	5	1.50	)	2.00	)	3.00	)
d <sub>pd</sub> [mm]		3.5	5	4.0	)			4.5						5.0			
	0.50	0.82	-	1.07 <sup>1)</sup>	-	1.35 <sup>1)</sup>	-	1.60 <sup>1)</sup>	ac	1.60 <sup>1)</sup>	ac	1.60 <sup>1)</sup>	ac	1.60 <sup>1)</sup>	ac	1.60 <sup>1)</sup>	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
V <sub>Rk</sub> [kN]	0.75	1.40	-	1.60	-	1.90	-	2.20	ac	2.70	ac	3.10	ac	3.40	ac	3.50	ac
t <sub>i</sub> [mm] _	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	-	1.10	-	1.50	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	-
	0.50	1.00	-	1.20	-	1.40	-	1.50	ac	1.68 <sup>1)</sup>	ac	<b>1.68</b> <sup>1)</sup>	ac	1.68 <sup>1)</sup>	ac	<b>1.68</b> <sup>1)</sup>	ac
	0.55	1.00	-	1.20	-	1.40	-	1.50	ac	1.88 <sup>1)</sup>	ac	1.88 <sup>1)</sup>	ac	1.88 <sup>1)</sup>	ac	1.88 <sup>1)</sup>	ac
	0.63	1.00	-	1.20	-	1.40	-	1.50	ac	1.90	ac	2.30	ac	2.70	ac	2.70	ac
N <sub>Rk</sub> [kN]	0.75	1.00	-	1.20	-	1.40	-	1.50	ac	1.90	ac	2.30	ac	3.40	ac	3.40	ac
tı[mm] -	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 <sub>R,II,k</sub> [kN]		1.0	0	1.2	0	1.40	)	1.50	)	1.90	)	2.30	)	3.80	)	5.60	)

### Additional definitions

Index <sup>1</sup>): For component I made of S320GD to S450GD the resistance value may be increased by 8.3%.

Self-tapping screw with sealing washer  $\ge \emptyset$  16 mm

TDA-S-S16-6,5 x L, TDA-S16-6,5 x L

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English translation prepared by DIBt



	Materials:	
≥ø16	Fastener:	Stainless steel A2 or A4 - EN ISO 3506 Stainless steel 1.4547 - EN 10088-1
ø10,5 SW8	Washer:	Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal
5,3	Component I:	S280GD to S450GD - EN 10346
12	Component II:	S280GD to S450GD - EN 10346
ø6,5		
¥	Predrill-diameter:	d <sub>pd</sub> = see table

						tii [mr	n]				
		2 x 0.	75	2 x 0.	.88	2 x 1.	.00	2 x 1.	25	2 x 1.	50
d <sub>pd</sub> [mm]				4.0	)				4	.5	
	0.50	<b>1.36</b> <sup>1)</sup>	ac	<b>1.48</b> <sup>1)</sup>	ac	<b>1.60</b> <sup>1)</sup>	ac	<b>1.60</b> <sup>1)</sup>	ac	1.60 <sup>1)</sup>	ac
V <sub>R,k</sub> [kN]	0.55	1.54 <sup>1)</sup>	ac	1.72 <sup>1)</sup>	ac	1.90 <sup>1)</sup>	ac	1.90 <sup>1)</sup>	ac	1.90 <sup>1)</sup>	ac
	0.63	<b>1.83</b> <sup>1)</sup>	ac	2.10 <sup>1)</sup>	ac	2.37 <sup>1)</sup>	ac	2.37 <sup>1)</sup>	ac	2.37 <sup>1)</sup>	ac
	0.75	2.30 <sup>1)</sup>	ac	2.72 <sup>1)</sup>	ac	3.14 <sup>1)</sup>	ac	3.14 <sup>1)</sup>	ac	3.14 <sup>1)</sup>	ac
	0.88	2.49 <sup>1)</sup>	-	2.94 <sup>1)</sup>	-	3.40 <sup>1)</sup>	ac	3.40 <sup>1)</sup>	ac	3.40 <sup>1)</sup>	ac
tı[mm]	1.00	2.67 <sup>1)</sup>	-	3.16 <sup>1)</sup>	-	3.65	ac	3.65	ac	3.65	ac
	1.25	2.67 <sup>1)</sup>	-	3.17 <sup>1)</sup>	-	3.67	-	3.67	-	3.67	-
	1.50	2.67 <sup>1)</sup>	-	3.18 <sup>1)</sup>	-	3.68	-	3.68	-	3.68	-
	0.50	<b>1.68</b> <sup>1)</sup>	ac	<b>1.68</b> <sup>1)</sup>	ac	<b>1.68</b> <sup>1)</sup>	ac	<b>1.68</b> <sup>1)</sup>	ac	<b>1.68</b> <sup>1)</sup>	ac
N <sub>R,k</sub> [kN]	0.55	<b>1.88</b> <sup>1)</sup>	ac	<b>1.88</b> <sup>1)</sup>	ac	<b>1.88</b> <sup>1)</sup>	ac	<b>1.88</b> <sup>1)</sup>	ac	<b>1.88</b> <sup>1)</sup>	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
t <sub>i</sub> [mm]	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 <sub>R,II,k</sub> [kN]		2.18	3	2.7	7	3.3	6	3.36	6	3.36	6

### Additional definitions

Index <sup>1</sup>): For component I made of S320GD to S450GD the resistance value may be increased by 8.3%.

Self-tapping screw with sealing washer  $\ge \emptyset$  16 mm

TDA-S-S16-6,5xL, TDA-S16-6,5xL

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English translation prepared by DIBt



1	2,5	8 5,3	Material Fastene Washer Compor Compor	r: : nent I:	Stainless ste Stainless ste Stainless ste with EPDM- Aluminum al	eel 1.4547- l eel A2 or A4 seal	EN 10088- - EN ISO (	1				
1	Ø10,5 SW		Compor	nent I:	with EPDM-	seal		3506				
1	2,5	5,3			Aluminum a	lloy - EN 57	3					
1			Compor									
ø6,5				ient II:	S280GD to S	S450GD - E	N 10346					
			Predrill-	diameter:	d <sub>pd</sub> = see tab	ble						
Component	1			tu f	[mm]							
R <sub>m</sub> ≥ 165 N/mr		0.75	0.88	1.00	1.25	1.50	2.00	3.00				
d <sub>pd</sub> [mm]	3.5	4.0		4.5			5.0					
0.5	.50 0.35 -	0.44 -	0.55 -	0.65 -	0.86 -	0.86 -	0.86 -	0.86 -				
	.60 0.35 -	0.44 -	0.55 -	0.65 -	0.86 -	1.03 -	1.03 -	1.03 -				
	.70 0.35 -	0.44 -	0.55 -	0.65 -	0.86 -	1.03 -	1.20 -	1.20 -				
	.80 0.35 -	0.44 -	0.55 -	0.65 -	0.86 -	1.03 -	1.37 -	1.37 -				
I UIIIIII	90 0.35 -	0.44 -	0.56 -	0.65 -	0.86 -	1.03 -	1.37 -	1.54 -				

	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 <sub>R,II,k</sub> [kN]		1.0	0	1.2	0	1.4	0	1.5	0	1.9	0	2.3	0	3.8	0	5.6	0
Compon	ent I								tıı [r	nm]							
R <sub>m</sub> ≥ 215 ľ		0.6	3	0.7	5	0.8	8	1.0	-	1.2	5	1.5	0	2.0	0	3.0	0
d <sub>pd</sub> [mm]		3.5	5	4.0	)			4.	5					5.0	)		
	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	-
V 1.517	0.70	0.45	-	0.58	-	0.72	-	0.85	-	1.12	-	1.34	-	1.57	-	1.57	-
V <sub>R,k</sub> [kN]	0.80	0.45	-	0.58	-	0.72	-	0.85	-	1.12	-	1.34	-	1.79	-	1.79	-
t <sub>i</sub> [mm]	0.90	0.45	-	0.58	-	0.72	-	0.85	-	1.12	-	1.34	-	1.78	-	2.01	-
a fund	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 <sub>R,II,k</sub> [kN]		1.0	0	1.2	0	1.4	0	1.5	0	1.9	0	2.3	0	3.8	0	5.6	0

0.56

-

0.67

-

0.86

-

1.03

-

1.37

1.72

-

### Additional definitions

1.00

0.35

-

0.44

-

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

Self-tapping screw with sealing washer  $\ge \emptyset$  16 mm

TDA-S-S16-6,5xL, TDA-S16-6,5xL

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English translation prepared by DIBt



					Mate	erials:								
	≥ø1	6			Fast	ener:		Stainless Stainless						
	ø10	-	/8		Was	her:		Stainless with EPDI		2 or A4 -	EN IS	O 3506		
1		<u> </u>	5,3		Com	ponent I:		Aluminum	alloy -	EN 573				
1-2-		2.5			Com	ponent II	•	Aluminum	alloy -	EN 573				
		Ì	-		Prec	Irill-diame	Predrill-diameter: d <sub>pd</sub> = see table							
Componen														
							tıı [	[mm]						
R <sub>m</sub> ≥ 165		1.0	0	1.2		1.5	-	[mm] 2.0		2.5	0	3.0		
R <sub>m</sub> ≥ 165 d <sub>pd</sub> [mm]	N/mm <sup>2</sup>	1.0	)	4.			-	2.0		.0	0	3.0		
	N/mm <sup>2</sup>	1.00 0.65	0	4. 0.82		0.86	-			.0 0.86	0	5.3 0.86		
	N/mm <sup>2</sup> 0.50 0.60	1.00 0.65 0.65		4. 0.82 0.82	5	0.86 1.03	0	2.0 0.86 1.03	5	.0 0.86 1.03		5.3 0.86 1.03	3	
d <sub>pd</sub> [mm]	N/mm <sup>2</sup> 0.50 0.60 0.70	1.00 0.65 0.65 0.65	-	4. 0.82 0.82 0.82	5 -	0.86 1.03 1.03	0	2.0 0.86 1.03 1.20	- 5	.0 0.86 1.03 1.20	-	5.3 0.86 1.03 1.20	}	
	N/mm <sup>2</sup> 0.50 0.60 0.70 0.80	1.00 0.65 0.65 0.65 0.65	-	4. 0.82 0.82 0.82 0.82	5 - -	0.86 1.03 1.03 1.03	-	2.0 0.86 1.03 1.20 1.37	- -	.0 0.86 1.03 1.20 1.37	-	5.3 0.86 1.03 1.20 1.37	} 	
d <sub>pd</sub> [mm] V <sub>R,k</sub> [kN]	N/mm <sup>2</sup> 0.50 0.60 0.70 0.80 0.90	1.00 0.65 0.65 0.65 0.65 0.65		4. 0.82 0.82 0.82 0.82 0.82	5 - - -	0.86 1.03 1.03 1.03 1.03		2.0 0.86 1.03 1.20 1.37 1.37	- - -	.0 0.86 1.03 1.20 1.37 1.46	- - -	5.3 0.86 1.03 1.20 1.37 1.54	- - -	
d <sub>pd</sub> [mm]	N/mm <sup>2</sup> 0.50 0.60 0.70 0.80	1.00 0.65 0.65 0.65 0.65		4. 0.82 0.82 0.82 0.82	5 - - - -	0.86 1.03 1.03 1.03	0 - - - -	2.0 0.86 1.03 1.20 1.37	- - - -	.0 0.86 1.03 1.20 1.37	- - -	5.3 0.86 1.03 1.20 1.37	- - - -	

N <sub>R,II,k</sub> [kN]		0.4	2	0.5	5	0.7	7	1.1	9	1.6	9	2.1	9
Component	I and II						tıı (r	nm]					
R <sub>m</sub> ≥ 215 I	N/mm <sup>2</sup>	1.0	0	1.2	0	1.5	0	2.0	0	2.5	0	3.0	0
d <sub>pd</sub> [mm]				4.5	5				5	.0		5.3	3
	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	-
V <sub>R,k</sub> [kN]	0.80	0.85	-	1.06	-	1.34	-	1.79	-	1.79	-	1.79	-
tı[mm]	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 <sub>R,II,k</sub> [kN]		0.5	5	0.7	1	1.0	1	1.5	5	2.2	20	2.8	5

1.24

-

1.53

-

1.83

### Additional definitions

1.50

0.67

0.88

-

-

The resistance value N<sub>R,k</sub> can be determined as follows: N<sub>R,k</sub> = min { N<sub>R,l,k</sub> | N<sub>R,l,k</sub> }. N<sub>R,l,k</sub> has to be calculated according to EN 1999-1-4:2007, equation (8.13).

Self-tapping screw with sealing washer  $\ge \emptyset$  16 mm

TDA-S-S16-6,5xL, TDA-S16-6,5xL

Annex 40

2.13

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English translation prepared by DIBt



≥ø16 ø10,5 5,3 2 ø6,5 ↓ 2,5 ↓	<u>Materials:</u> Fastener: Washer: Component I: Component II:	Stainless steel A2 or A4 - EN ISO 3506 Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal S280GD to S450GD - EN 10346 Coniferous timber ≥ C24 - EN 14081
	Predrill-diameter: Characteristics:	$\label{eq:masses} \begin{split} d_{pd} &= see \ table \\ M_{y,\text{Rk}} &= 13.9 \ \text{Nm} \\ f_{ax,\text{k}} &= 13.2 \ \text{N/mm}^2 \ (\text{I}_{ef} = 29 \ \text{mm}, \ \rho_a = 350 \ \text{kg/m}^3) \end{split}$

				l <sub>ef</sub> [ <b>r</b>	nm]			Failure	e of
		29	35	45	55	65	75	compon	ent I
d <sub>pd</sub> [mm]				4	.0			4.0	
	0.50	1.55	1.55	1.55	1.55	1.55	1.55	1.55	
	0.55	1.71	1.71	1.71	1.71	1.71	1.71	1.71	
	0.63	1.73	1.73	2.23	2.73	2.90	2.90	2.90	
V <sub>R,k</sub> [kN]	0.75	1.73	1.73	2.23	2.73	3.14	3.34	3.50	V <sub>R,I,k</sub>
tı [mm]	0.88	1.73	1.73	2.23	2.73	3.14	3.34	4.00	[kN]
	1.00	1.73	1.73	2.23	2.73	3.14	3.34	4.50	
	1.25	1.73	1.73	2.23	2.73	3.14	3.34	5.40	
	1.50	1.73	1.73	2.23	2.73	3.14	3.34	5.70	
	0.50	1.68	1.68	1.68	1.68	1.68	1.68	1.68	
	0.55	1.88	1.88	1.88	1.88	1.88	1.88	1.88	
	0.63	2.49	2.70	2.70	2.70	2.70	2.70	2.70	
N <sub>R,k</sub> [kN]	0.75	2.49	3.00	3.40	3.40	3.40	3.40	3.40	N <sub>R,I,k</sub>
tı [mm]	0.88	2.49	3.00	3.86	4.10	4.10	4.10	4.10	[kN]
	1.00	2.49	3.00	3.86	4.72	4.80	4.80	4.80	
	1.25	2.49	3.00	3.86	4.72	5.58	5.60	5.60	
	1.50	2.49	3.00	3.86	4.72	5.58	5.60	5.60	
N <sub>R,II,k</sub> [kN]		2.49	3.00	3.86	4.72	5.58	6.44	-	

### Self-tapping screw with sealing washer $\ge \emptyset$ 16 mm

TDA-S-S16-6,5xL, TDA-S16-6,5xL

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English translation prepared by DIBt



				-					
				Materials	<u>s:</u>				
	≥ø1	6		Fastener	r:	Stainless ste Stainless ste	resources of the second second	EN ISO 3506 N 10088-1	
	ø10.	-		Washer:		Stainless ste with EPDM-s		- EN ISO 350	6
1		5,3		Compon	ent I:	Aluminum al	loy - EN 573		
1				Compon		Coniferous ti	-		
5	26,5	2,5 L							
	V	•		Predrill-c	diameter:	$d_{pd} = 4.0 \text{ mm}$	n		
				Characte	eristics.	M <sub>y,Rk</sub> = 13.9	Nm		
						$f_{ax,k} = 13.2 \text{ N}$		$9 \text{ mm}, \rho_a = 35$	50 kg/m <sup>3</sup>
Compon	ent I			l <sub>ef</sub> [1	nm]			Failur	e of
R <sub>m</sub> ≥ 165 I		29	35	45	55	65	75	compor	nent I
	0.50	0.86	0.86	0.86	0.86	0.86	0.86	0.86	
	0.60	1.03	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	1.20	
V <sub>R,k</sub> [kN]	0.80	1.37	1.37	1.37	1.37	1.37	1.37	1.37	V <sub>R,I,k</sub>
t <sub>I</sub> [mm]	0.90	1.54	1.54	1.54	1.54	1.54	1.54	1.54	[kN]
a fuund	1.00	1.72	1.72	1.72	1.72	1.72	1.72	1.72	
	1.20	1.73	1.73	2.06	2.06	2.06	2.06	2.06	
	1.50	1.73	1.73	2.23	2.57	2.57	2.57	2.57	
N <sub>R,II,k</sub> [kN]		2.49	3.00	3.86	4.72	5.58	6.44	-	
Compon	ent I			l <sub>ef</sub> [ľ	nm]			Failur	e of
R <sub>m</sub> ≥ 215 I		29	35	45	55	65	75	compor	
	0.50	1.12	1.12	1.12	1.12	1.12	1.12	1.12	
	0.60	1.34	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	1.57	
V <sub>R,k</sub> [kN]	0.80	1.73	1.73	1.79	1.79	1.79	1.79	1.79	V <sub>R,I,k</sub>
t. [mm]	0.90	1.73	1.73	2.01	2.01	2.01	2.01	2.01	[kN]
tı [mm]	1.00	1.73	1.73	2.23	2 24	2.24	2.24	2.24	

N<sub>R,II,k</sub> [kN] Additional definitions

1.00

1.20

1.50

1.73

1.73

1.73

2.49

1.73

1.73

1.73

3.00

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

2.24

2.68

2.73

4.72

2.24

2.68

3.22

5.58

2.24

2.68

3.35

6.44

2.23

2.23

2.23

3.86

### Self-tapping screw with sealing washer $\ge \emptyset$ 16 mm

TDA-S-S16-6,5xL, TDA-S16-6,5xL

Annex 42

2.24

2.68

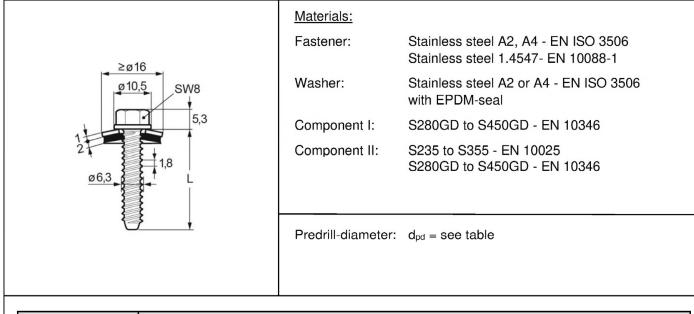
3.35

\_

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										tıı [mr	n]								
		1.2	5	1.5	0	2.0	0	3.0	0	4.0	0	6.0	0	8.0	0	10.0	0	> 10.0	<b>)0</b> <sup>2)</sup>
d <sub>pd</sub> [mm] <sup>3)</sup>			5	.0				5.3	}	_		5.5	i		5	.7		5.8	}
_	0.50	1.84 <sup>1)</sup>	ac	1.84 <sup>1</sup>	ac	1.841)	ac	1.841)	ac										
V <sub>R,k</sub> [kN] -	0.55	2.06 <sup>1)</sup>	ac	2.06 <sup>1)</sup>	ac	2.06 <sup>1)</sup>	ac	2.061)	ac	2.061)	ac	2.061)	ac	2.061	ac	2.061)	ac	2.061)	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
tı[mm]	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	-
	0.50	1.84 <sup>1)</sup>	ac	1.84 <sup>1</sup>	ac	<b>1.84</b> <sup>1)</sup>	ac	<b>1.84</b> <sup>1)</sup>	ac										
N <sub>R,k</sub> [kN] -	0.55	2.00	ac	2.051)	ac	2.05 <sup>1</sup>	ac	2.051)	ac	2.051)	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
t <sub>i</sub> [mm]	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 <sub>R,II,k</sub> [kN]		2.0	0	2.7	0	3.6	0	6.48	8	9.19	9	12.2	2	15.2	.4	15.2	4	15.2	4

#### Additional definitions

Index <sup>1</sup>): For component I made of S320GD to S450GD the resistance value may be increased by 8.3%.

Index <sup>2</sup>): Only valid for component II made of S235 or S280GD

Index <sup>3)</sup>: The pre-drill diameter d<sub>pd</sub> for not indicated thicknesses t<sub>II</sub> is defined as follows: d<sub>pd</sub> = 5.3 mm for t<sub>II</sub> = 1.6 to 4.0 mm, d<sub>pd</sub> = 5.5 mm for t<sub>II</sub> = 4.1 to 6.0 mm, d<sub>pd</sub> = 5.7 mm for t<sub>II</sub> = 6.1 to 10.0 mm

Self-tapping screw with sealing washer  $\ge \emptyset$  16 mm

TDB-S-S16-6,3xL, TDB-S16-6,3xL

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English translation prepared by DIBt



$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$											
$V_{R,k} [kN] = \frac{2 \times 16}{0.90} - \frac{1}{1.25} + \frac{1}{1.25} + \frac{1}{1.50} + \frac{2}{1.50} + \frac{1}{1.6} + 1$					Mate	erials:					
$V_{R,k} [kN] = \frac{1.25}{1.00} = \frac{1.25}{1.00} = \frac{1.22}{1.50} = \frac{1.33}{1.30} = \frac{1.33}{1.30}$		201	16		Fast	tener:					606
$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$		-		3	Was	sher:					
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	7	ſ	<u> 1</u> 5	i,3	Con	Component I: Alum			- EN 573		
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	11				Con	nonont II:	C025	to \$255	EN 10025		
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	L					iponent n.				10346	
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $		Ę			Prec	drill-diamet	er: d <sub>pd</sub> = :	see table			
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Compon	ent l					tu [mm]				
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $			1.25	1.50	2.00	3.00		6.00	8.00	10.00	> 10.001)
$ \mathbf{V_{R,k}} [\mathbf{kN}] = \begin{array}{c ccccccccccccccccccccccccccccccccccc$	d <sub>pd</sub> [mm] <sup>2)</sup>		5			5.3	1	5.5			
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		0.50	0.83 -	0.83 -	0.83 -	0.83 -	0.83 -	0.83 -	0.83 -	0.83 -	0.83 -
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		0.60	0.83 -	1.00 -	1.00 -	1.00 -	1.00 -	1.00 -	1.00 -	1.00 -	1.00 -
$ t_{1}[mm] = \frac{0.60}{0.83} - \frac{1.00}{1.00} - \frac{1.33}{1.33} - \frac{1.33}{1.50} - \frac{1.50}{1.50} - \frac{1.66}{1.66} - \frac{1.66}{1.50} - \frac{1.52}{1.52} -$		0.70	0.83 -	1.00 -	1.16 -	1.16 -	1.16 -	1.16 -	1.16 -	1.16 -	1.16 -
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	V <sub>R,k</sub> [KN]	0.80	0.83 -	1.00 -	1.33 -	1.33 -	1.33 -	1.33 -	1.33 -	1.33 -	1.33 -
$ \frac{1.00}{1.20} = 0.83 - 1.00 - 1.33 - 1.66$	t [mm]	0.90	0.83 -	1.00 -	1.33 -	1.50 -	1.50 -	1.50 -	1.50 -	1.50 -	1.50 -
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	afund										
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $											
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $		1.50									
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	N <sub>R,II,k</sub> [kN]		2.00	2.70	3.60	6.00	9.19	12.22	15.24	15.24	15.24
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Compon	ent I					tıı [mm]				
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $			1.25	1.50	2.00	3.00		6.00	8.00	10.00	> 10.001)
0.50         1.08         -											
0.60         1.08         -         1.30         -		0.50		-	1.08 -		1.08 -			1	_
0.70 1.08 - 1.30 - 1.52											
	0.70 1.08 - 1.30										

Additional definitions

t<sub>l</sub>[mm]

N<sub>R,II,k</sub> [kN]

0.90

1.00

1.20

1.50

1.08

1.08

1.18

1.21

2.00

-

-

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The resistance value N<sub>R,k</sub> can be determined as follows: N<sub>R,k</sub> = min { N<sub>R,l,k</sub> | N<sub>R,l,k</sub> }. N<sub>R,l,k</sub> has to be calculated according to EN 1999-1-4:2007, equation (8.13).

6.00

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-

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1.95

2.17

2.60

2.70

-

-

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9.19

1.95

2.17

2.60

3.25

-

-

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12.22

1.95

2.17

2.60

3.25

-

-

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1.95

2.17

2.60

3.25

15.24

Index <sup>1)</sup>: Only valid for component II made of S235 or S280GD.

Index <sup>2)</sup>:

The pre-drill diameter dpd for not indicated thicknesses tu is defined as follows:

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2.70

1.30

1.30

1.38

1.59

-

-

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1.73

1.73

1.79

1.96

3.60

 $d_{pd} = 5.3 \text{ mm}$  for  $t_{II} = 1.6$  to 4.0 mm,  $d_{pd} = 5.5 \text{ mm}$  for  $t_{II} = 4.1$  to 6.0 mm,  $d_{pd} = 5.7 \text{ mm}$  for  $t_{II} = 6.1$  to 10.0 mm

Self-tapping screw with sealing washer  $\ge \emptyset$  16 mm

TDB-S-S16-6,3xL, TDB-S16-6,3xL

Annex 44

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1.95

2.17

2.60

3.25

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15.24

1.95

2.17

2.60

3.25

15.24

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English translation prepared by DIBt



					Mate	erials:							
	≥ø1	6			Fast	ener:		Stainless Stainless					
	ø10		8		Washer:			Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal					
7			5,3		Component I: Aluminum alloy			n alloy -	- EN 573				
1+					Con	nponent I	ı.	Aluminun	n allov	EN 573			
	Ø6,3				Prec	drill-diamo	eter:	d <sub>pd</sub> = see	table				
Component							tıı (	mm]					
Component R <sub>m</sub> ≥ 165 I		1.50	)	2.0	)0	2.5	50	mm]   3.0	0	4.0		≥ 6.	
	N/mm <sup>2</sup>	1.50 4.5	)		)0	5.	50	3.0	0	5.3		5.	
R <sub>m</sub> ≥ 165 I	N/mm <sup>2</sup>	1.50 4.5 0.83	)	0.83	00	5.0 0.83	50	0.83	-	5.3 0.83		5. 0.83	
R <sub>m</sub> ≥ 165 I	N/mm <sup>2</sup> 0.50 0.60	1.50 4.5 0.83 1.00	-	0.83	-	5.0 0.83 1.00	50 0 - -	0.83 1.00	-	5.3 0.83 1.00	3	5. 0.83 1.00	
R <sub>m</sub> ≥ 165 I d <sub>pd</sub> [mm]	N/mm <sup>2</sup> 0.50 0.60 0.70	1.50 4.5 0.83 1.00 1.00	-	0.83 1.00 1.16	-	5.0 0.83 1.00 1.16	50 0 - - -	0.83 1.00 1.16	-	5.3 0.83 1.00 1.16	3	5. 0.83 1.00 1.16	
R <sub>m</sub> ≥ 165 I	N/mm <sup>2</sup> 0.50 0.60 0.70 0.80	1.50 4.5 0.83 1.00 1.00 1.00	-	0.83 1.00 1.16 1.33	-	5.0 0.83 1.00 1.16 1.33	50 0 - -	0.83 1.00 1.16 1.33	-	5.3 0.83 1.00 1.16 1.33	3	5. 0.83 1.00 1.16 1.33	5 - -
R <sub>m</sub> ≥ 165 ľ d <sub>pd</sub> [mm] V <sub>R,k</sub> [kN]	N/mm <sup>2</sup> 0.50 0.60 0.70 0.80 0.90	1.50 4.5 0.83 1.00 1.00 1.00 1.00	-	0.83 1.00 1.16 1.33 1.33	-	5.0 0.83 1.00 1.16 1.33 1.50	50 0 - - -	3.0 0.83 1.00 1.16 1.33 1.50	- -	5.3 0.83 1.00 1.16 1.33 1.50	3 - - -	5. 0.83 1.00 1.16 1.33 1.50	5 - - -
R <sub>m</sub> ≥ 165 I d <sub>pd</sub> [mm]	N/mm <sup>2</sup> 0.50 0.60 0.70 0.80 0.90 1.00	1.50 4.5 0.83 1.00 1.00 1.00 1.00 1.00	- - - - -	0.83 1.00 1.16 1.33 1.33 1.33	- - - - - -	5.0 0.83 1.00 1.16 1.33 1.50 1.66	50 0 - - - - - - - - - -	3.0 0.83 1.00 1.16 1.33 1.50 1.66	- - - - - -	5.3 0.83 1.00 1.16 1.33 1.50 1.66	3 - - - - - -	5. 0.83 1.00 1.16 1.33 1.50 1.66	5 - - - -
R <sub>m</sub> ≥ 165 ľ d <sub>pd</sub> [mm] V <sub>R,k</sub> [kN]	N/mm <sup>2</sup> 0.50 0.60 0.70 0.80 0.90 1.00 1.20	1.50 4.5 0.83 1.00 1.00 1.00 1.00 1.00 1.06	- - - - - - - -	0.83 1.00 1.16 1.33 1.33 1.33 1.33	- - - - - - - - - -	5.0 0.83 1.00 1.16 1.33 1.50 1.66 1.68	50 0 - - - - - - - - - -	3.0           0.83           1.00           1.16           1.33           1.50           1.66           2.00		5.3 0.83 1.00 1.16 1.33 1.50 1.66 2.00	3 - - - - - - - - - - -	5. 0.83 1.00 1.16 1.33 1.50 1.66 2.00	5 - - - - -
R <sub>m</sub> ≥ 165 ľ d <sub>pd</sub> [mm] V <sub>R,k</sub> [kN] ti [mm]	N/mm <sup>2</sup> 0.50 0.60 0.70 0.80 0.90 1.00	1.50 4.5 0.83 1.00 1.00 1.00 1.00 1.00 1.06 1.22		0.83 1.00 1.16 1.33 1.33 1.33 1.33 1.37 1.50	- - - - - - - - - -	5.0 0.83 1.00 1.16 1.33 1.50 1.66 1.68 1.79	50 - - - - - - - - - - - - -	3.0 0.83 1.00 1.16 1.33 1.50 1.66 2.00 2.07	- - - - - - - - -	5.3 0.83 1.00 1.16 1.33 1.50 1.66 2.00 2.49	3 - - - - - - - - - -	5. 0.83 1.00 1.16 1.33 1.50 1.66 2.00 2.49	5 - - - - - - - - - - -
R <sub>m</sub> ≥ 165 ľ d <sub>pd</sub> [mm] V <sub>R,k</sub> [kN]	N/mm <sup>2</sup> 0.50 0.60 0.70 0.80 0.90 1.00 1.20	1.50 4.5 0.83 1.00 1.00 1.00 1.00 1.00 1.06		0.83 1.00 1.16 1.33 1.33 1.33 1.33	- - - - - - - - - -	5.0 0.83 1.00 1.16 1.33 1.50 1.66 1.68	50 - - - - - - - - - - - - -	3.0           0.83           1.00           1.16           1.33           1.50           1.66           2.00	- - - - - - - - -	5.3 0.83 1.00 1.16 1.33 1.50 1.66 2.00	3 - - - - - - - - - -	5. 0.83 1.00 1.16 1.33 1.50 1.66 2.00	5 - - - - - - - - - - -
R <sub>m</sub> ≥ 165 ľ d <sub>pd</sub> [mm] V <sub>R,k</sub> [kN] tı [mm] N <sub>R,II,k</sub> [kN] Component	N/mm <sup>2</sup> 0.50 0.60 0.70 0.80 0.90 1.00 1.20 1.50	1.50 4.5 0.83 1.00 1.00 1.00 1.00 1.00 1.06 1.22		0.83 1.00 1.16 1.33 1.33 1.33 1.33 1.37 1.50	- - - - - - - - - -	5.0 0.83 1.00 1.16 1.33 1.50 1.66 1.68 1.79	50 - - - - - - - - - - - - -	3.0 0.83 1.00 1.16 1.33 1.50 1.66 2.00 2.07	- - - - - - - - -	5.3 0.83 1.00 1.16 1.33 1.50 1.66 2.00 2.49	3 - - - - - - - - - -	5. 0.83 1.00 1.16 1.33 1.50 1.66 2.00 2.49	5 - - - - - - - - - - -
R <sub>m</sub> ≥ 165 ľ d <sub>pd</sub> [mm] V <sub>R,k</sub> [kN] tı [mm] N <sub>R,II,k</sub> [kN]	N/mm <sup>2</sup> 0.50 0.60 0.70 0.80 0.90 1.00 1.20 1.50	1.50 4.5 0.83 1.00 1.00 1.00 1.00 1.00 1.06 1.22	- - - - - - -	0.83 1.00 1.16 1.33 1.33 1.33 1.33 1.37 1.50	- - - - - - 7	5.0 0.83 1.00 1.16 1.33 1.50 1.66 1.68 1.79	50 - - - - - - - - - - - - -	3.0 0.83 1.00 1.16 1.33 1.50 1.66 2.00 2.07 2.1	- - - - - - 5	5.3 0.83 1.00 1.16 1.33 1.50 1.66 2.00 2.49	3 - - - - - - 2 1	5. 0.83 1.00 1.16 1.33 1.50 1.66 2.00 2.49	5 - - - - - - - - - - - - - - - - - - -
R <sub>m</sub> ≥ 165 ľ d <sub>pd</sub> [mm] V <sub>R,k</sub> [kN] tı [mm] N <sub>R,II,k</sub> [kN] Component	N/mm <sup>2</sup> 0.50 0.60 0.70 0.80 0.90 1.00 1.20 1.50	1.50 4.5 0.83 1.00 1.00 1.00 1.00 1.00 1.06 1.22 0.76	- - - - - - -	0.83 1.00 1.16 1.33 1.33 1.33 1.37 1.50 1.1	- - - - - - 7	5.0 0.83 1.00 1.16 1.33 1.50 1.66 1.68 1.79 1.6	50 - - - - - - - - - - - - -	3.0 0.83 1.00 1.16 1.33 1.50 1.66 2.00 2.07 2.1 mm]	- - - - - - 5	5.3 0.83 1.00 1.16 1.33 1.50 1.66 2.00 2.49 4.2	3 - - - - - 2 - - - 2 1 - - - 2 1 - - - -	5. 0.83 1.00 1.16 1.33 1.50 1.66 2.00 2.49 6.0	5 - - - - - - - - - - - - - - - - - - -
R <sub>m</sub> ≥ 165 ľ d <sub>pd</sub> [mm] V <sub>R,k</sub> [kN] ti [mm] N <sub>R,II,k</sub> [kN] Component R <sub>m</sub> ≥ 215 ľ	N/mm <sup>2</sup> 0.50 0.60 0.70 0.80 0.90 1.00 1.20 1.50	1.50 4.5 0.83 1.00 1.00 1.00 1.00 1.00 1.06 1.22 0.76	- - - - - - -	0.83 1.00 1.16 1.33 1.33 1.33 1.37 1.50 1.1	- - - - - - 7	5.0 0.83 1.00 1.16 1.33 1.50 1.66 1.68 1.79 1.6	50 - - - - - - - - - - - - -	3.0 0.83 1.00 1.16 1.33 1.50 1.66 2.00 2.07 2.1 mm]	- - - - - - 5	5.3 0.83 1.00 1.16 1.33 1.50 1.66 2.00 2.49 4.2 2.5	3 - - - - - 2 - - - 2 1 - - - 2 1 - - - -	5. 0.83 1.00 1.16 1.33 1.50 1.66 2.00 2.49 6.0 3.0	5 - - - - - - - - - - - - - - - - - - -
R <sub>m</sub> ≥ 165 ľ d <sub>pd</sub> [mm] V <sub>R,k</sub> [kN] ti [mm] N <sub>R,II,k</sub> [kN] Component R <sub>m</sub> ≥ 215 ľ	V/mm <sup>2</sup> 0.50 0.60 0.70 0.80 0.90 1.00 1.20 1.50	1.50 4.5 0.83 1.00 1.00 1.00 1.00 1.00 1.06 1.22 0.76 1.00 4.5	- - - - - - - - - - - - - - -	0.83 1.00 1.16 1.33 1.33 1.33 1.37 1.50 1.1	- - - - - - 7 20	5.0 0.83 1.00 1.16 1.33 1.50 1.66 1.68 1.79 1.6 1.5 1.5	50 - - - - - - - - - - - - -	3.0 0.83 1.00 1.16 1.33 1.50 1.66 2.00 2.07 2.1 mm] 2.0	- - - - - 5 0	5.3 0.83 1.00 1.16 1.33 1.50 1.66 2.00 2.49 4.2 2.5 5.3	3 - - - - - - - - - - - - - - - - - - -	5. 0.83 1.00 1.16 1.33 1.50 1.66 2.00 2.49 6.0 3.0 5.	5 - - - - - - - - - - - - - - - - - - -

V<sub>R,k</sub> [kN]

t<sub>l</sub> [mm]

N<sub>R,II,k</sub> [kN]

0.80

0.90

1.00

1.20

1.50

1.30

1.30

1.30

1.38

1.59

0.99

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-

-

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-

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

1.73

1.95

2.17

2.19

2.33

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-

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-

2.13

1.73

1.95

2.17

2.60

2.70

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-

-

-

-

2.80

1.73

1.95

2.17

2.60

3.25

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-

-

-

-

5.48

Self-tapping screw with sealing washer  $\ge \emptyset$  16 mm

1.73

1.73

1.73

1.79

1.96

1.53

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-

-

-

-

TDB-S-S16-6,3xL, TDB-S16-6,3xL

Annex 45

1.73

1.95

2.17

2.60

3.25

7.93

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-

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English translation prepared by DIBt



≥ø16 ø10,5 \$W8 5,3 06,3	<u>Materials:</u> Fastener: Washer: Component I: Component II:	Stainless steel A2 or A4 - EN ISO 3506 Stainless steel 1.4547 – EN 10088 Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal S280GD to S450GD - EN 10346 S235 to S355 - EN 10025 S280GD to S450GD - EN 10346
	Predrill-diameter:	d <sub>pd</sub> = see table

						tıı [m	m]				
		1.2	5	1.5	0	2.0	00	3.0	0	4.0	0
d <sub>pd</sub> [mm]			5	.0				5.3	3		
	0.50	<b>1.84</b> <sup>1)</sup>	ac	<b>1.84</b> <sup>1)</sup>	ac	1.84 <sup>1)</sup>	ac	1.84 <sup>1)</sup>	ac	<b>1.84</b> <sup>1)</sup>	ac
V <sub>R,k</sub> [kN]	0.55	2.06 <sup>1)</sup>	ac	2.061)	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
ti[mm]	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	-
	0.50	<b>1.84</b> <sup>1)</sup>	ac								
N <sub>R,k</sub> [kN]	0.55	2.00	ac	2.05 <sup>1)</sup>	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
t <sub>i</sub> [mm]	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 <sub>R,II,k</sub> [kN]		2.0	0	2.7	0	3.6	60	6.4	8	9.1	9

### Additional definitions

Index <sup>1</sup>): For component I made of S320GD to S450GD the resistance value may be increased by 8.3%.

Self-tapping screw with sealing washer  $\ge \emptyset$  16 mm

TDC-S-S16-6,3xL, TDC-S16-6,3xL

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English translation prepared by DIBt



	<u>Materials:</u> Fastener:	Stainless steel A2 or A4 - EN ISO 3506
Ø11 Ø10,5 D10	Washer:	Aluminum alloy – EN 573 with EPDM-seal
	Component I:	S280GD to S450GD - EN 10346
3,3 2 04,8 2,1	Component II:	S280GD to S450GD - EN 10346
<u>₹</u>	Drilling-capacity:	$\Sigma(t_1 + t_{11}) \le 2.50 \text{ mm}$

			t <sub>II</sub> [mm]														
		0.40	0	0.5	0	0.5	5	0.6	3	0.7	5	0.8	8	1.0	)	1.25	5
	0.40	0.34	-	0.34	-	0.34	-	0.34	-	0.34	-	0.34	-	0.34	-	0.34	-
	0.50	0.34	-	0.66	-	0.66	-	0.66	-	0.66	-	0.66	-	0.66	-	0.66	-
	0.55	0.34	-	0.66	-	0.77	-	0.77	-	0.77	-	0.77	-	0.77	-	0.77	-
V <sub>Rk</sub> [kN]	0.63	0.34	-	0.66	-	0.77	-	0.96	-	0.96	-	0.96	-	0.96	-	0.96	-
t <sub>l</sub> [mm]	0.75	0.34	-	0.66	-	0.77	-	0.96	-	1.25	-	1.25	-	1.25	-	1.25	-
. []	0.88	0.34	-	0.66	-	0.77	-	0.96	-	1.25	-	1.66	-	1.66	-	1.66	-
	1.00	0.34	-	0.66	-	0.77	-	0.96	-	1.25	-	1.66	-	2.04	-	2.04	-
	1.25	0.34	-	0.66	-	0.77	-	0.96	-	1.25	-	1.66	-	2.04	-	3.06	-
	0.40	0.43	-	0.70	-	0.82	-	1.03	-	1.04	-	1.04	-	1.04	-	1.04	-
	0.50	0.43	-	0.70	-	0.82	-	1.03	-	1.33	-	1.35	-	1.35	-	1.35	-
	0.55	0.43	-	0.70	-	0.82	-	1.03	-	1.33	-	1.52	-	1.54	-	1.54	-
N <sub>Rk</sub> [kN]	0.63	0.43	-	0.70	-	0.82	-	1.03	-	1.33	-	1.52	-	1.70	-	1.83	-
t <sub>i</sub> [mm]	0.75	0.43	-	0.70	-	0.82	-	1.03	-	1.33	-	1.52	-	1.70	-	2.28	-
	0.88	0.43	-	0.70	-	0.82	-	1.03	-	1.33	-	1.52	-	1.70	-	2.61	-
	1.00	0.43	-	0.70	-	0.82	-	1.03	-	1.33	-	1.52	-	1.70	-	2.71	-
	1.25	0.43	-	0.70	-	0.82	-	1.03	-	1.33	-	1.52	-	1.70	-	2.71	-
N <sub>R,II,k</sub> [kN]			0.8	2	1.0	3	1.3	3	1.5	2	1.7	0	2.71				

Additional definitions

For component I and component II made of S320GD to S450GD the resistance value may be increased by 8.3%.

Self-tapping screw with sealing washer  $\ge \emptyset$  11 mm

CXLW-D10-A11-4,8xL

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English translation prepared by DIBt



				Mate	erials:						
					ener:	Stainle	ess steel A	2 or A4 - F	EN ISO 35	06	
				0							
	ø11 ø10,	-		Was	her:		Aluminum alloy – EN 573 with EPDM-seal				
		+		Com	ponent I:	Alumir	num alloy ·	- EN 573			
1-2	24,8	2,1	,3		nponent II:		num alloy ·				
	8	¥		Drilli	ng-capacit	y: Σ(t <sub>i</sub> + t	ıı) ≤ 4.00 n	nm			
Component	t Lond II					t. [mm]					
Component R <sub>m</sub> ≥ 165			0.60	0.70	0.80	tıı [mm]	1.00	1.20	1.50	2.00	
	N/mm <sup>2</sup>	0.50	0.60	0.70	0.80	0.90	1.00	1.20 0.24	1.50 0.24	2.00 0.24	
			0.60 0.24 0.30	0.70 0.24 0.30	0.80 0.24 0.30		1.00 0.24 0.30	1.20 0.24 0.30	1.50 0.24 0.30	2.00 0.24 0.30	
	N/mm <sup>2</sup> 0.50	0.50 0.24	0.24	0.24	0.24	0.90 0.24	0.24	0.24	0.24	0.24	
R <sub>m</sub> ≥ 165	N/mm <sup>2</sup> 0.50 0.60	0.50 0.24 0.24	0.24 0.30	0.24 0.30	0.24 0.30	0.90 0.24 0.30	0.24 0.30	0.24 0.30	0.24 0.30	0.24 0.30	
	N/mm <sup>2</sup> 0.50 0.60 0.70	0.50 0.24 0.24 0.24	0.24 0.30 0.30	0.24 0.30 0.37	0.24 0.30 0.37	0.90 0.24 0.30 0.37	0.24 0.30 0.37	0.24 0.30 0.37	0.24 0.30 0.37	0.24 0.30 0.37	
R <sub>m</sub> ≥ 165	N/mm <sup>2</sup> 0.50 0.60 0.70 0.80	0.50 0.24 0.24 0.24 0.24	0.24 0.30 0.30 0.30	0.24 0.30 0.37 0.37	0.24 0.30 0.37 0.43	0.90 0.24 0.30 0.37 0.43	0.24 0.30 0.37 0.43	0.24 0.30 0.37 0.43	0.24 0.30 0.37 0.43	0.24 0.30 0.37 0.43	
R <sub>m</sub> ≥ 165   V <sub>R,k</sub> [kN]	N/mm <sup>2</sup> 0.50 0.60 0.70 0.80 0.90	0.50 0.24 0.24 0.24 0.24 0.24	0.24 0.30 0.30 0.30 0.30	0.24 0.30 0.37 0.37 0.37	0.24 0.30 0.37 0.43 0.43	0.90 0.24 0.30 0.37 0.43 0.57	0.24 0.30 0.37 0.43 0.57	0.24 0.30 0.37 0.43 0.57	0.24 0.30 0.37 0.43 0.57	0.24 0.30 0.37 0.43 0.57	
R <sub>m</sub> ≥ 165 V <sub>R,k</sub> [kN]	N/mm <sup>2</sup> 0.50 0.60 0.70 0.80 0.90 1.00	0.50 0.24 0.24 0.24 0.24 0.24 0.24	0.24 0.30 0.30 0.30 0.30 0.30	0.24 0.30 0.37 0.37 0.37 0.37	0.24 0.30 0.37 0.43 0.43 0.43	0.90 0.24 0.30 0.37 0.43 0.57 0.57	0.24 0.30 0.37 0.43 0.57 0.72	0.24 0.30 0.37 0.43 0.57 0.72	0.24 0.30 0.37 0.43 0.57 0.72	0.24 0.30 0.37 0.43 0.57 0.72	
R <sub>m</sub> ≥ 165 V <sub>R,k</sub> [kN]	N/mm <sup>2</sup> 0.50 0.60 0.70 0.80 0.90 1.00 1.20	0.50 0.24 0.24 0.24 0.24 0.24 0.24 0.24 0.2	0.24 0.30 0.30 0.30 0.30 0.30 0.30	0.24 0.30 0.37 0.37 0.37 0.37 0.37	0.24 0.30 0.37 0.43 0.43 0.43 0.43	0.90 0.24 0.30 0.37 0.43 0.57 0.57 0.57	0.24 0.30 0.37 0.43 0.57 0.72 0.72	0.24 0.30 0.37 0.43 0.57 0.72 0.99	0.24 0.30 0.37 0.43 0.57 0.72 0.99	0.24 0.30 0.37 0.43 0.57 0.72 0.99	
R <sub>m</sub> ≥ 165 V <sub>R,k</sub> [kN]	N/mm <sup>2</sup> 0.50 0.60 0.70 0.80 0.90 1.00 1.20 1.50	0.50 0.24 0.24 0.24 0.24 0.24 0.24 0.24 0.2	0.24 0.30 0.30 0.30 0.30 0.30 0.30 0.30	0.24 0.30 0.37 0.37 0.37 0.37 0.37 0.37	0.24 0.30 0.37 0.43 0.43 0.43 0.43 0.43 0.43	0.90 0.24 0.30 0.37 0.43 0.57 0.57 0.57 0.57	0.24 0.30 0.37 0.43 0.57 0.72 0.72 0.72	0.24 0.30 0.37 0.43 0.57 0.72 0.99 0.99	0.24 0.30 0.37 0.43 0.57 0.72 0.99 1.40	0.24 0.30 0.37 0.43 0.57 0.72 0.99 1.40	
R <sub>m</sub> ≥ 165   V <sub>R,k</sub> [kN] t <sub>i</sub> [mm]	N/mm <sup>2</sup> 0.50 0.60 0.70 0.80 0.90 1.00 1.20 1.50 2.00	0.50 0.24 0.24 0.24 0.24 0.24 0.24 0.24 0.2	0.24 0.30 0.30 0.30 0.30 0.30 0.30 0.30 0.3	0.24 0.30 0.37 0.37 0.37 0.37 0.37 0.37 0.37	0.24 0.30 0.37 0.43 0.43 0.43 0.43 0.43 0.43 0.43	0.90 0.24 0.30 0.37 0.43 0.57 0.57 0.57 0.57 0.57	0.24 0.30 0.37 0.43 0.57 0.72 0.72 0.72 0.72 0.72	0.24 0.30 0.37 0.43 0.57 0.72 0.99 0.99 0.99	0.24 0.30 0.37 0.43 0.57 0.72 0.99 1.40 1.40	0.24 0.30 0.37 0.43 0.57 0.72 0.99 1.40 2.22	

11m 2 210	1 N/111111	0.50	0.00	0.70	0.00	0.90	1.00	1.20	1.50	2.00
	0.50	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
	0.60	0.32	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
	0.70	0.32	0.40	0.48	0.48	0.48	0.48	0.48	0.48	0.48
V <sub>R,k</sub> [kN]	0.80	0.32	0.40	0.48	0.56	0.56	0.56	0.56	0.56	0.56
	0.90	0.32	0.40	0.48	0.56	0.75	0.75	0.75	0.75	0.75
ti [mm]	1.00	0.32	0.40	0.48	0.56	0.75	0.94	0.94	0.94	0.94
	1.20	0.32	0.40	0.48	0.56	0.75	0.94	1.29	1.29	1.29
	1.50	0.32	0.40	0.48	0.56	0.75	0.94	1.29	1.83	1.83
	2.00	0.32	0.40	0.48	0.56	0.75	0.94	1.29	1.83	2.89
N <sub>R,II,k</sub> [kN]		0.39	0.48	0.58	0.67	0.87	1.07	1.31	1.67	2.42

### Additional definitions

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

Self-tapping screw with sealing washer  $\ge \emptyset$  11 mm

Annex 48

CXLW-D10-A11-4,8xL

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English translation prepared by DIBt



Ø11 Ø10,5 D10 3,3 2 2,1	<u>Materials:</u> Fastener: Washer: Component I: Component II:	Stainless steel A2 or A4 - EN ISO 3506 Aluminum alloy – EN 573 with EPDM-seal S280GD to S450GD - EN 10346 OSB3 ( $\rho \ge 550$ kg/m2) – EN 300 Particle board ( $\rho \ge 500$ kg/m2) - EN 312 Coniferous timber ( $\ge C24$ , $\rho \ge 350$ kg/m2) - EN
<u>Ø4,8</u>	Drilling-capacity:	Coniferous timber ( $\geq$ C24, $\rho \geq$ 350 kg/m2) - EN 14081 $\Sigma(t_1 + t_1) \leq 1.50 \text{ mm}$
OSB3	Component II Particle board	Timber $\geq$ C24 Failure of

			Component II			
		OSB3	Particle board	Timber ≥ C24	Failu	
		l <sub>ef</sub> [mm]	l <sub>ef</sub> [mm]	l <sub>ef</sub> [mm]	compo	nent I
		≥ 18	≥ 18	≥ 25		
	0.40	0.63	0.63	0.63	0.63	
	0.50	0.63	0.63	0.63	0.63	
	0.55	0.70	0.70	0.70	0.70	
V <sub>R,k</sub> [kN]	0.63	0.81	0.81	0.81	0.81	
tı [mm]	0.75	0.97	0.90	0.97	0.97	V <sub>R,I,k</sub> [kN]
. []	0.88	1.02	0.90	1.02	1.02	
	1.00	1.05	0.90	1.05	1.05	
	1.25	1.30	0.90	1.05	1.30	
	1.50	1.30	0.90	1.05	1.30	
	0.40	0.88	0.70	1.04	1.04	
	0.50	0.88	0.70	1.35	1.35	
	0.55	0.88	0.70	1.37	1.54	
N <sub>R,k</sub> [kN]	0.63	0.88	0.70	1.37	1.83	
tı [mm]	0.75	0.88	0.70	1.37	2.28	N <sub>R,I,k</sub> [kN]
(, [,,,,,]	0.88	0.88	0.70	1.37	2.61	
	1.00	0.88	0.70	1.37	2.92	
	1.25	0.88	0.70	1.37	4.54	
	1.50	0.88	0.70	1.37	4.54	
N <sub>R,II,k</sub> [kN]		0.88	0.70	1.37	-	

## Self-tapping screw with sealing washer $\ge \emptyset$ 11 mm

Annex 49

CXLW-D10-A11-4,8xL

# Page 57 of European Technical Assessment ETA-10/0198 of 7 September 2023

English translation prepared by DIBt



	<u>Materials:</u> Fastener:	Stainless steel A2 or A4 - EN ISO 3506
≥ø14 ø10,5 SW8	Washer:	Aluminum alloy – EN 573 or Stainless steel A4 - EN ISO 3506 with EPDM-seal
5,3	Component I:	S280GD to S450GD - EN 10346
2 2 2,1 <u>Ø4,8</u> 2,1	Component II:	S280GD to S450GD - EN 10346
	Drilling-capacity:	Σ(t <sub>i</sub> + t <sub>ii</sub> ) ≤ 2.50 mm

					t <sub>ii</sub> [n	nm]			
		0.40	0.50	0.55	0.63	0.75 0.88		1.00	1.25
	0.40	0.43 -	0.43 -	0.43 -	0.43 -	0.43 -	0.43 -	0.43 -	0.43 -
	0.50	0.43 -	0.71 -	0.71 -	0.71 -	0.71 -	0.71 -	0.71 -	0.71 -
	0.55	0.43 -	0.71 -	0.87 -	0.87 -	0.87 -	0.87 -	0.87 -	0.87 -
V <sub>Rk</sub> [kN]	0.63	0.43 -	0.71 -	0.87 -	1.12 -	1.12 -	1.12 -	1.12 -	1.12 -
t <sub>i</sub> [mm]	0.75	0.43 -	0.71 -	0.87 -	1.12 -	1.51 -	1.51 -	1.51 -	1.51 -
	0.88	0.43 -	0.71 -	0.87 -	1.12 -	1.51 -	1.94 -	1.94 -	1.94 -
-	1.00	0.43 -	0.71 -	0.87 -	1.12 -	1.51 -	1.94 -	2.34 -	2.34 -
-	1.25	0.43 -	0.71 -	0.87 -	1.12 -	1.51 -	1.94 -	2.34 -	3.10 -
	0.40	0.43 -	0.70 -	0.82 -	1.03 -	1.22 -	1.22 -	1.22 -	1.22 -
-	0.50	0.43 -	0.70 -	0.82 -	1.03 -	1.33 -	1.52 -	1.70 -	1.72 -
	0.55	0.43 -	0.70 -	0.82 -	1.03 -	1.33 -	1.52 -	1.70 -	1.93 -
N <sub>Rk</sub> [kN]	0.63	0.43 -	0.70 -	0.82 -	1.03 -	1.33 -	1.52 -	1.70 -	2.26 -
t <sub>i</sub> [mm]	0.75	0.43 -	0.70 -	0.82 -	1.03 -	1.33 -	1.52 -	1.70 -	2.71 -
	0.88	0.43 -	0.70 -	0.82 -	1.03 -	1.33 -	1.52 -	1.70 -	2.71 -
-	1.00	0.43 -	0.70 -	0.82 -	1.03 -	1.33 -	1.52 -	1.70 -	2.71 -
	1.25	0.43 -	0.70 -	0.82 -	1.03 -	1.33 -	1.52 -	1.70 -	2.71 -
N <sub>R,II,k</sub> [kN]			0.70	0.82	1.03	1.33	1.52	1.70	2.71

Additional definitions

For component I and component II made of S320GD to S450GD the resistance value may be increased by 8.3%.

### Self-tapping screw with sealing washer $\ge \emptyset$ 14 mm

CXLW-AV14-4,8xL

# Page 58 of European Technical Assessment ETA-10/0198 of 7 September 2023

English translation prepared by DIBt



				Mate	erials:							
				Fast	ener:	Stainle	ess steel A	2 or A4 - I	EN ISO 35	06		
	≥ø1 ø10	-	3	Was	her:	Stainle		– EN 573 ( 4 - EN IS(				
,			i,3	Corr	ponent I:							
1					Component I: Aluminum alloy - EN 573 Component II: Aluminum alloy - EN 573							
			Drilli	ng-capacit	y: Σ(t <sub>i</sub> + t	) ≤ 4.00 r	nm					
Component		1	1	1	1	tıı [mm]	I	1	1	1		
R <sub>m</sub> ≥ 165 I		0.50	0.60	0.70	0.80	0.90	1.00	1.20	1.50	2.00		
	0.50	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28		
	0.60	0.28	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41		
	0.70	0.28	0.41	0.54	0.54	0.54	0.54	0.54	0.54	0.54		
V <sub>R,k</sub> [kN]	0.80	0.28	0.41	0.54	0.67	0.67	0.67	0.67	0.67	0.67		
4 [m]	0.90	0.28	0.41	0.54	0.67	0.79	0.79	0.79	0.79	0.79		
tı [mm]	1.00	0.28	0.41	0.54	0.67	0.79	0.92	0.92	0.92	0.92		
	1.20	0.28	0.41	0.54	0.67	0.79	0.92	1.23	1.23	1.23		
	1.50	0.28	0.41	0.54	0.67	0.79	0.92	1.23	1.68	1.68		
	2.00	0.28	0.41	0.54	0.67	0.79	0.92	1.23	1.68	2.67		
N <sub>R,II,k</sub> [kN]		0.30	0.37	0.44	0.51	0.67	0.82	1.01	1.28	1.86		
Component	I and II					tıı [mm]						
R <sub>m</sub> ≥ 215 I		0.50	0.60	0.70	0.80	0.90	1.00	1.20	1.50	2.00		
	0.50	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37		
	0.60	0.37	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51		
	0.70	0.37	0.51	0.64	0.64	0.64	0.64	0.64	0.64	0.64		
V <sub>R,k</sub> [KN]	0.80	0.37	0.51	0.64	0.78	0.78	0.78	0.78	0.78	0.78		
	0.00	0.07	0.54	0.04	0.70	0.00	0.00	0.00	0.00	0.00		

#### Additional definitions

t<sub>l</sub>[mm]

N<sub>R,II,k</sub> [kN]

0.90

1.00

1.20

1.50

2.00

0.37

0.37

0.37

0.37

0.37

0.39

0.51

0.51

0.51

0.51

0.51

0.48

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

0.78

0.78

0.78

0.78

0.78

0.67

0.99

0.99

0.99

0.99

0.99

0.87

0.99

1.20

1.20

1.20

1.20

1.07

0.99

1.20

1.60

1.60

1.60

1.31

Self-tapping screw with sealing washer  $\ge \emptyset$  14 mm

0.64

0.64

0.64

0.64

0.64

0.58

Annex 51

CXLW-AV14-4,8xL

0.99

1.20

1.60

2.19

2.19

1.67

0.99

1.20

1.60

2.19

3.48

2.42

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English translation prepared by DIBt



	<u>Materials:</u> Fastener:	Stainless steel A2 or A4 - EN ISO 3506
≥ø14 ø10,5 SW8	Washer:	Aluminum alloy – EN 573 or Stainless steel A4 - EN ISO 3506 with EPDM-seal
5,3	Component I:	S280GD to S450GD - EN 10346
2,1 Ø4,8	Component II:	OSB3 (ρ ≥ 550 kg/m2) – EN 300 Particle board (ρ ≥ 500 kg/m2) - EN 312 Coniferous timber (≥ C24, ρ ≥ 350 kg/m2) - EN 14081
	Drilling-capacity:	$Σ(t_i + t_{ii}) ≤ 1.50 mm$

			Component II			
		OSB3	Particle board	Timber ≥ C24	Failure	
		l <sub>ef</sub> [mm]	l <sub>ef</sub> [mm]	l <sub>ef</sub> [mm]	compor	ient I
		≥ 18	≥ 18	≥ 25		
	0.40	0.63	0.63	0.63	0.63	-
	0.50	0.63	0.63	0.63	0.63	
	0.55	0.70	0.70	0.70	0.70	
V <sub>R,k</sub> [kN]	0.63	0.81	0.81	0.81	0.81	
tı [mm]	0.75	0.97	0.90	0.97	0.97	V <sub>R,I,k</sub> [kN]
	0.88	1.02	0.90	1.02	1.02	
	1.00	1.05	0.90	1.05	1.05	
	1.25	1.30	0.90	1.05	1.30	
	1.50	1.30	0.90	1.05	1.30	
	0.40	0.88	0.70	1.04	1.22	
	0.50	0.88	0.70	1.35	1.72	
	0.55	0.88	0.70	1.37	1.93	
N <sub>R,k</sub> [kN]	0.63	0.88	0.70	1.37	2.26	
tı [mm]	0.75	0.88	0.70	1.37	2.76	N <sub>R,I,K</sub> [kN]
	0.88	0.88	0.70	1.37	3.35	
	1.00	0.88	0.70	1.37	3.88	
	1.25	0.88	0.70	1.37	4.49	
	1.50	0.88	0.70	1.37	4.49	
N <sub>R,II,k</sub> [kN]		0.88	0.70	1.37	-	

### Self-tapping screw with sealing washer $\ge \emptyset$ 14 mm

Annex 52

CXLW-AV14-4,8xL

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English translation prepared by DIBt



	Materials:	
	Fastener:	Stainless steel A2 or A4 - EN ISO 3506
	Washer:	-
3,2	Component I:	S280GD to S450GD - EN 10346
	Component II:	S280GD to S450GD - EN 10346
ø3,2	Drilling-capacity:	Σ(t <sub>l</sub> + t <sub>ll</sub> ) ≤ 2.00 mm

								tıı [mm	[ו						
		0.40		0.50		0.55		0.63		0.75		0.88		1.00	
	0.40	0.62	1	0.62	-	0.62	I	0.62	-	0.62	-	0.62	-	0.62	-
	0.50	0.62	-	1.06	-	1.06	I	1.06	-	1.06	-	1.06	-	1.06	-
V <sub>R,k</sub> [kN]	0.55	0.62	-	1.06	-	1.14	1	1.14	-	1.14	-	1.14	-	1.14	-
	0.63	0.62	-	1.06	-	1.14	-	1.26	-	1.26	-	1.26	-	1.26	-
t <sub>i</sub> [mm]	0.75	0.62	-	1.06	-	1.14	I	1.26	-	1.45	-	1.45	-	1.45	-
	0.88	0.62	-	1.06	-	1.14	-	1.26	-	1.45	-	1.99	-	1.99	-
	1.00	0.62	-	1.06	-	1.14	-	1.26	-	1.45	-	1.99	-	2.48	-
	0.40	0.28	-	0.50	-	0.53	1	0.53	-	0.53	-	0.53	-	0.53	-
	0.50	0.28	-	0.50	-	0.58	-	0.69	-	0.87	-	0.93	-	0.93	-
N <sub>R,k</sub> [kN]	0.55	0.28	-	0.50	-	0.58	-	0.69	-	0.87	-	1.02	-	1.02	-
,	0.63	0.28	-	0.50	-	0.58	-	0.69	-	0.87	-	1.11	-	1.16	-
t <sub>i</sub> [mm]	0.75	0.28	-	0.50	-	0.58	-	0.69	-	0.87	-	1.11	-	1.34	-
	0.88	0.28	1	0.50	-	0.58	I	0.69	-	0.87	-	1.11	-	1.34	-
	1.00	0.28	-	0.50	-	0.58	-	0.69	-	0.87	-	1.11	-	1.34	-
N <sub>R,II,k</sub> [kN]		0.28		0.50		0.58		0.69		0.87		1.11		1.34	

#### Additional definitions

For component I and component II made of S320GD to S450GD the resistance values may be increased by 8.3%.

### Self-drilling screw

SD1-D7-4,8xL SX2-D7-4,8xL

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English translation prepared by DIBt



	Materials:	
	Fastener:	Stainless steel A2 or A4 - EN ISO 3506
Ø11 Ø10,5 D10	Washer:	Aluminum alloy – EN 573 with EPDM-seal
3,3	Component I:	S280GD to S450GD - EN 10346
	Component II:	S280GD to S450GD - EN 10346
6.5		
	Drilling-capacity:	$\Sigma(t_{1} + t_{11}) \le 2.50 \text{ mm}$

						tıı [mm]	_			
		0.40	0.50	0.55	0.63	0.75	0.88	1.00	1.25	1.50
	0.40	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34
	0.50	0.34	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66
	0.55	0.34	0.66	0.77	0.77	0.77	0.77	0.77	0.77	0.77
V <sub>R,k</sub> [kN]	0.63	0.34	0.66	0.77	0.96	0.96	0.96	0.96	0.96	0.96
	0.75	0.34	0.66	0.77	0.96	1.25	1.25	1.25	1.25	1.25
t <sub>i</sub> [mm]	0.88	0.34	0.66	0.77	0.96	1.25	1.66	1.66	1.66	1.66
	1.00	0.34	0.66	0.77	0.96	1.25	1.66	2.04	2.04	2.04
	1.25	0.34	0.66	0.77	0.96	1.25	1.66	2.04	2.35	-
	1.50	0.34	0.66	0.77	0.96	1.25	1.66	2.04	-	-
	0.40	0.30	0.42	0.49	0.59	0.76	0.96	1.04	1.04	1.04
	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
N <sub>R,k</sub> [kN]	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
tı [mm]	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 <sub>R,II,k</sub> [kN]		0.30	0.42	0.49	0.59	0.76	0.96	1.16	1.16	1.16

## Self-drilling screw with sealing washer $\ge \emptyset$ 11 mm

SDL1-D10-A11-4,8xL

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English translation prepared by DIBt



	Materials:	
	Fastener:	Stainless steel A2 or A4 - EN ISO 3506
≥ø14 ø10,5 \$,3	Washer:	Aluminum alloy – EN 573 or Stainless steel A4 - EN ISO 3506 with EPDM-seal
2 16	Component I:	S280GD to S450GD - EN 10346
	Component II:	S280GD to S450GD - EN 10346
→ <u>ø3,2</u>	Drilling-capacity:	Σ(t <sub>I</sub> + t <sub>II</sub> ) ≤ 2.50 mm

						tıı [mm]				
		0.40	0.50	0.55	0.63	0.75	0.88	1.00	1.25	1.50
	0.40	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52
	0.50	0.52	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
	0.55	0.52	0.71	0.84	0.84	0.84	0.84	0.84	0.84	0.84
V <sub>R,k</sub> [kN]	0.63	0.52	0.71	0.84	1.05	1.05	1.05	1.05	1.05	1.05
	0.75	0.52	0.71	0.84	1.05	1.36	1.36	1.36	1.36	1.36
t <sub>l</sub> [mm]	0.88	0.52	0.71	0.84	1.05	1.36	1.77	1.77	1.77	1.77
	1.00	0.52	0.71	0.84	1.05	1.36	1.77	2.15	2.15	2.15
	1.25	0.52	0.71	0.84	1.05	1.36	1.77	2.15	3.16	-
	1.50	0.52	0.71	0.84	1.05	1.36	1.77	2.15	-	-
	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
N <sub>R,k</sub> [kN]	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
ti [mm]	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 <sub>R,II,k</sub> [kN]		0.30	0.42	0.49	0.59	0.76	0.96	1.16	1.16	1.16

### Self-drilling screw with sealing washer $\ge \emptyset$ 14 mm

Annex 55

SDL1-AV14-4,8xL

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English translation prepared by DIBt



<u>→ ≥ø14</u>			Fast	erials: ener:				EN ISO 35	06		
Ø10,5 SW8	,3	12 L12 3,3	-0.94TL-6626204	Washer: Aluminum alloy – EN 573 or Stainless steel A4 - EN ISO 3506 with EPDM-seal							
ø6,3 2 2	1	I	Com	ponent I:	S2800	GD to S450	)GD - EN	10346			
			Com	Component II: S280GD to S450GD - EN 10346							
6 2											
ø3,9			Drilling-capacity: $\Sigma(t_1 + t_{11}) \le 2.50 \text{ mm}$								
					tıı [mm]						
	0.40	0.50	0.55	0.63	0.75	0.88	1.00	1.25	1.50		
0.40	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57		
0.50	0 5 7		0.00	0.00	0.00		0.00			1 /	

		0.40	0.50	0.55	0.63	0.75	0.88	1.00	1.25	1.50
	0.40	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57
	0.50	0.57	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
	0.55	0.57	0.69	0.81	0.81	0.81	0.81	0.81	0.81	0.81
V <sub>R,k</sub> [kN]	0.63	0.57	0.69	0.81	0.99	0.99	0.99	0.99	0.99	0.99
	0.75	0.57	0.69	0.81	0.99	1.27	1.27	1.27	1.27	1.27
t <sub>i</sub> [mm]	0.88	0.57	0.69	0.81	0.99	1.27	1.69	1.69	1.69	1.69
	1.00	0.57	0.69	0.81	0.99	1.27	1.69	2.07	2.07	2.07
	1.25	0.57	0.69	0.81	0.99	1.27	1.69	2.07	3.21	-
	1.50	0.57	0.69	0.81	0.99	1.27	1.69	2.07	-	-
	0.40	0.57	0.74	0.84	0.99	1.22	1.22	1.22	1.22	1.22
	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
N <sub>R,k</sub> [kN]	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
tı [mm]	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 <sub>R,II,k</sub> [kN]		0.57	0.74	0.84	0.99	1.23	1.61	1.98	1.98	1.98

### Self-drilling screw with sealing washer $\ge \emptyset$ 14 mm

SXL2-AV14-6,3xL, SXL2-L12-AV14-6,3xL

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English translation prepared by DIBt



				Material	_	Otoialaaa ata			500		
_ ≥ø14	4			Fastene	r.	Stainless ste	el AZ or A4	- EN 150 3	506		
Ø10,5		8 ø12 5,3	L12 3,3	Washer:		Aluminum al Stainless ste with EPDM-	el A4 - EN				
ø6,3		1		Compon	Component I: Aluminum alloy - EN 573						
9,5	'† L 			Compon	Component II: Aluminum alloy - EN 573						
ø <u>3,9</u>				Drilling-c	Drilling-capacity: $\Sigma(t_1 + t_{11}) \le 2.50 \text{ mm}$						
						[]					
Component R <sub>m</sub> ≥ 165					1	[mm]		1 00	1 1 50		
nm ≥ 105 1		0.50	0.60	0.70	0.80	0.90	1.00	1.20	1.50		
	0.50	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25		
	0.60	0.25	0.42	0.42	0.42	0.42	0.42	0.42	0.42		
V <sub>R,k</sub> [kN]	0.70	0.25	0.42	0.59	0.59	0.59	0.59	0.59	0.59		
	0.80	0.25	0.42	0.59	0.76	0.76	0.76	0.76	0.76		
tı [mm]	0.90	0.25	0.42	0.59	0.76	0.85	0.85	0.85	0.85		
	1.00	0.25	0.42	0.59	0.76	0.85	0.94	0.94	0.94		
	1.20	0.25	0.42	0.59	0.76	0.85	0.94	1.28	-		
	1.50	0.25	0.42	0.59 0.54	0.76	0.85	0.94	-	-		
	R,II,k <b>[KN]</b> 0.35 0.44				0.63	0.75	0.87	0.87	0.87		

Component	I and II	tıı [mm]								
R <sub>m</sub> ≥ 215 I	N/mm²	0.50	0.60	0.70	0.80	0.90	1.00	1.20	1.50	
	0.50	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	
	0.60	0.32	0.51	0.51	0.51	0.51	0.51	0.51	0.51	
	0.70	0.32	0.51	0.70	0.70	0.70	0.70	0.70	0.70	
V <sub>R,k</sub> [kN]	0.80	0.32	0.51	0.70	0.88	0.88	0.88	0.88	0.88	
tı[mm]	0.90	0.32	0.51	0.70	0.88	1.06	1.06	1.06	1.06	
. []	1.00	0.32	0.51	0.70	0.88	1.06	1.23	1.23	1.23	
	1.20	0.32	0.51	0.70	0.88	1.06	1.23	1.66	1.66	
1.50		0.32	0.51	0.70	0.88	1.06	1.23	1.66	2.31	
N <sub>R,II,k</sub> [kN]		0.46	0.58	0.70	0.82	0.98	1.14	1.14	1.14	

#### Additional definitions

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

Self-drilling screw with sealing washer  $\ge \emptyset$  14 mm

SXL2-AV14-6,3xL, SXL2-L12-AV14-6,3xL

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English translation prepared by DIBt



	Materials:	
	Fastener:	Stainless steel A2 or A4 - EN ISO 3506
Ø12,5 SW8	Washer:	-
5,3	Component I:	S235 to S355 - EN 10025 S280GD to S450GD - EN 10346
Ø6,5	Component II:	S280GD to S450GD - EN 10346
VV	Drilling-capacity:	$\Sigma(t_{II}) \leq 1.25 \text{ mm}$
	t, ti	ո [mm]

		tıı [mm]									
		0.6	3	0.7	5	0.8	8	1.0	0	1.2	5
d <sub>pd,I</sub> [m	ım]	Ø 6.50 - 7.20 mm									
	1.00	0.91	-	0.91	-	0.91	-	0.91	-	0.91	-
	1.25	0.91	-	0.91	-	0.91	-	0.91	-	0.91	-
	1.50	1.10	-	1.37	-	1.66	-	1.73		1.81	-
V <sub>R,k</sub> [kN]	2.00	1.49	-	2.29	-	3.16	-	3.38	-	3.62	-
t <sub>i</sub> [mm]	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	-	-	-
	1.00	1.07	-	1.48	-	1.93	-	2.19	-	2.47	-
	1.25	1.07	-	1.48	-	1.93	-	2.19	-	2.47	-
	1.50	1.07	-	1.48	-	1.93	-	2.19	-	2.47	-
N <sub>R,k</sub> [kN]	2.00	1.07	-	1.48	-	1.93	-	2.19	-	2.47	-
t <sub>i</sub> [mm]	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 <sub>R,II,k</sub> [kN]		1.0	7	1.4	8	1.9	3	2.1	9	2.4	7

Additional definitions

Self-drilling screw

SLG-S-6,5xL

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English translation prepared by DIBt



	ø12,5	SW8			Fas	terials: stener: sher:	1	Stainless -	steel A2 c	or A4 - EN	N ISO 3506	
5,3					Component I:		nt I:	Aluminum alloy - EN 573				
ø6,5						mponer	nt II:	S280GD t	o S450GI	D - EN 10	0346	
	¥	•			Dri	lling-ca	pacity:	Σ(t <sub>ll</sub> ) ≤ 1.2	5 mm			
Compon	ent I						tu f	mm]				
R <sub>m</sub> ≥ 165 I		0.6	3		0.75	5	-	.88	1.	00	1.2	5
d <sub>pd,I</sub> [m	ım]						Ø 6.50 -	7.20 mm				
	1.00	0.74	-	0.74	<b>1</b> <sup>1)</sup>	-	0.741)	-	0.741)	-	0.741)	-
	1.50	0.74 <sup>1)</sup>	-	0.96	5 <sup>1)</sup>	-	0.961)	-	0.961)	-	0.96 <sup>1)</sup>	-
V <sub>R,k</sub> [kN]	2.00	0.741)	-	0.96	5 <sup>1)</sup>	-	1.48 <sup>1)</sup>	-	<b>1.96</b> <sup>1)</sup>	-	1.96 <sup>1)</sup>	-
	2.50	0.74 <sup>1)</sup>	-	0.96		-	<b>1.48</b> <sup>1)</sup>	-	<b>1.96</b> <sup>1)</sup>	-	<b>1.96</b> <sup>1)</sup>	-
tı [mm]	3.00	0.74 <sup>1)</sup>	-	0.96		-	<b>1.48</b> <sup>1)</sup>	-	<b>1.96</b> <sup>1)</sup>	-	<b>1.96</b> <sup>1)</sup>	-
	3.50	0.741)	-	0.96	51)	-	1.48 <sup>1)</sup>	-	1.96 <sup>1)</sup>	-	1.96 <sup>1)</sup>	-

1.48<sup>1)</sup>

1.79

1.93

1.93

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1.96<sup>1)</sup>

1.79

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#### Additional definitions

N<sub>R,k</sub> [kN]

t<sub>l</sub>[mm]

N<sub>R,II,k</sub> [kN]

4.00

1.00

1.50

2.00

2.50

3.00

3.50

4.00

0.74<sup>1)</sup>

1.07

1.07

1.07

1.07

1.07

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1.07

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Index<sup>1</sup>): For component I made of aluminium alloy with  $R_m \ge 215 \text{ N/mm}^2$  the resistance value may be increased by 30.3%.

Self-drilling screw

0.96<sup>1)</sup>

1.48

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SLG-S-6,5xL

Annex 59

1.96<sup>1)</sup>

1.79<sup>1)</sup>

2.32

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English translation prepared by DIBt



	Materials:	
	Fastener:	Stainless steel A2 or A4 - EN ISO 3506
SV 16x13 Ø 10,5 SW8	Washer:	Stainless steel A2 or A4 - EN ISO 3506
5,3	Component I:	S280GD to S450GD - EN 10346
1,8	Component II:	S280GD to S450GD - EN 10346
ø 3,7	Drilling-capacity:	$\Sigma(t_{i} + t_{ii}) \leq 3.00 \text{ mm}$

					tii (n	nm]			
		0.40	0.50	0.63	0.75	0.88	1.00	1.25	1.50
	1.00	-	-	-	-	1.88	1.88	2.01	2.01
V <sub>R,k</sub> [kN]	1.25	-	-	1.03	1.46	1.88	2.22	2.97	2.97
	1.50	0.44 <sup>1)</sup>	0.82 <sup>1)</sup>	1.03	1.46	1.88	2.22	2.97	2.97
tı [mm]	1.75	0.44 <sup>1)</sup>	0.82 <sup>1)</sup>	1.03	1.46	1.88	2.22	2.97	-
	2.00	0.44 <sup>1)</sup>	0.82 <sup>1)</sup>	1.03	1.46	1.88	2.22	-	-
	1.00	-	-	-	-	1.49	1.82	2.51	3.21
N <sub>R,k</sub> [kN]	1.25	-	-	0.82	1.15	1.49	1.82	2.51	3.21
·	1.50	0.34 <sup>1)</sup>	0.51 <sup>1)</sup>	0.82	1.15	1.49	1.82	2.51	3.21
tı [mm]	1.75	0.34 <sup>1)</sup>	0.51 <sup>1)</sup>	0.82	1.15	1.49	1.82	2.51	-
	2.00	0.34 <sup>1)</sup>	0.51 <sup>1)</sup>	0.82	1.15	1.49	1.82	-	-
N <sub>R,II,k</sub> [kN]		0.34 <sup>1)</sup>	0.51 <sup>1)</sup>	0.82	1.15	1.49	1.82	2.51	3.21

Additional definitions

Index <sup>1</sup>): For component I made of S320GD to S450GD the resistance value may be increased by 8.3%.

Self-drilling screw with SV-washer 13x16 mm

SL3/2-5-S-SV16-6,0xL, SXL3-SV16-6,0xL

# Page 68 of European Technical Assessment ETA-10/0198 of 7 September 2023

English translation prepared by DIBt



	Materials:	
	Fastener:	Stainless steel A2 or A4 - EN ISO 3506
SV 16x13 Ø 10,5 SW8	Washer:	Stainless steel A2 or A4 - EN ISO 3506
5,3	Component I:	S280GD to S450GD - EN 10346
1,8	Component II:	S280GD to S450GD - EN 10346
→ Ø3,7	Drilling-capacity:	$\Sigma(t_i + t_{ii}) \leq 3.00 \text{ mm}$

			t <sub>II</sub> [n	nm]	
		2 x 0.75	2 x 0.88	2 x 1.00	2 x 1.25
	1.00	2.10	2.23	2.35	3.23
V <sub>R,k</sub> [kN]	1.25	2.60	2.92	3.24	4.01
	1.50	3.09	3.61	4.12	4.12
tı [mm]	1.75	3.09	3.61	4.12	-
	2.00	3.09	3.61	4.12	-
	1.00	2.43	2.94	3.45	3.69
N <sub>в,к</sub> [kN]	1.25	2.43	2.94	3.45	4.38
	1.50	2.43	2.94	3.45	4.38
t <sub>I</sub> [mm]	1.75	2.43	2.94	3.45	-
	2.00	2.43	2.94	3.45	-
N <sub>R,II,k</sub> [kN]		2.43	2.94	3.45	4.38

#### Self-drilling screw with SV-washer 13x16 mm

SL3/2-5-S-SV16-6,0xL, SXL3-SV16-6,0xL

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English translation prepared by DIBt



	Materials:	
	Fastener:	Stainless steel A2 or A4 - EN ISO 3506
SV 16x13 Ø 10,5 SW8	Washer:	Stainless steel A2 or A4 - EN ISO 3506
5,3	Component I:	Aluminum alloy - EN 573
1,8	Component II:	S280GD to S450GD - EN 10346
<u>Ø6,0</u> 7		
ø 3,7	Drilling-capacity:	$\Sigma(t_1 + t_{11}) \le 4.00 \text{ mm}$

Compon	ent I				tıı (r	nm]			
R <sub>m</sub> ≥ 165 N/mm <sup>2</sup>		0.40	0.50	0.63	0.75	0.88	1.00	1.25	1.50
	1.50	0.62	0.85	1.20	1.40	1.57	1.74	1.77	1.77
V <sub>R,k</sub> [kN]	2.00	0.62	0.85	1.20	1.83	2.04	2.25	2.57	2.88
t <sub>i</sub> [mm]	2.50	0.62	0.85	1.20	1.83	2.43	2.43	2.57	2.88
	3.00	0.62	0.85	1.20	2.01	2.81	2.81	-	-
N <sub>R,II,k</sub> [kN]		0.341)	0.51 <sup>1)</sup>	0.82	1.15	1.49	1.82	2.51	3.21
		tu [mm]							
Compon	ient I				tıı [r	nm]			
Compon R <sub>m</sub> ≥ 215 I		0.40	0.50	0.63	tıı [r 0.75	nm] 0.88	1.00	1.25	1.50
R <sub>m</sub> ≥ 215 I		0.40	0.50 0.85	0.63	-		1.00 2.26	1.25 2.30	1.50 2.30
	N/mm <sup>2</sup>				0.75	0.88			
R <sub>m</sub> ≥ 215 I V <sub>R,k</sub> [kN]	N/mm <sup>2</sup> 1.50	0.62	0.85	1.20	0.75	0.88 1.93	2.26	2.30	2.30
R <sub>m</sub> ≥ 215 I	N/mm <sup>2</sup> 1.50 2.00	0.62 0.62	0.85 0.85	1.20 1.20	0.75 1.60 1.83	0.88 1.93 2.35	2.26 2.87	2.30 3.31	2.30 3.75

#### Additional definitions

Index <sup>1</sup>): For component I made of S320GD to S450GD the resistance value may be increased by 8.3%.

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

### Self-drilling screw with SV-washer 13x16 mm

SL3/2-5-S-SV16-6,0xL, SXL3-SV16-6,0xL

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English translation prepared by DIBt



	Materials:	
	Fastener:	Stainless steel A2 or A4 - EN ISO 3506
SV16x13 Ø10,5 SW8	Washer:	Stainless steel A2 or A4 - EN ISO 3506
5,3	Component I:	Aluminum alloy - EN 573
1,8	Component II:	S280GD to S450GD - EN 10346
<b>↓ ↓ ↓ ∞</b> 3,7	Drilling-capacity:	Σ(t <sub>I</sub> + t <sub>II</sub> ) ≤ 4.00 mm

Compon	ent I	tı [mm]							
R <sub>m</sub> ≥ 165 N/mm <sup>2</sup>		2 x 0.75	2 x 0.88	2 x 1.00	2 x 1.25				
	1.50	1.40	1.57	1.74	1.77				
V <sub>R,k</sub> [kN]	2.00	1.83	2.04	2.25	-				
t <sub>i</sub> [mm]	2.50	1.83	-	-	-				
	3.00	-	-	-	-				
N <sub>R,II,k</sub> [kN]		2.43	2.94	3.45	4.38				

Compon	ent I	tıı [mm]						
R <sub>m</sub> ≥ 215 N/mm <sup>2</sup>		2 x 0.75	2 x 0.88	2 x 1.00	2 x 1.25			
	1.50	1.60	1.93	2.26	2.30			
V <sub>R,k</sub> [kN]	2.00	1.83	2.35	2.87	-			
t <sub>l</sub> [mm]	2.50	1.83	-	-	-			
. []	3.00	-	-	-	-			
N <sub>R,II,k</sub> [kN]		2.43	2.94	3.45	4.38			

### Additional definitions

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

### Self-drilling screw with SV-washer 13x16 mm

SL3/2-5-S-SV16-6,0xL, SXL3-SV16-6,0xL

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English translation prepared by DIBt



	<u>Materials:</u>	Stainlass start 42 at 44 EN ISO 2506
≥ø14 ø10,5 \$W8 4,7	Fastener: Washer:	Stainless steel A2 or A4 - EN ISO 3506 Aluminum alloy – EN 573 with EPDM-seal
1 3 1,6 Ø4,8	Component I: Component II:	S280GD to S450GD - EN 10346 S280GD to S450GD - EN 10346
5 <b>,</b> <u>ø3,2</u>	Drilling-capacity:	Σ(t <sub>I</sub> + t <sub>II</sub> ) ≤ 2.50 mm

						tıı [mm]				
		0.40	0.50	0.55	0.63	0.75	0.88	1.00	1.25	1.50
	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
V <sub>R,k</sub> [kN]	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
tı [mm]	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	-	-
	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
N <sub>R,k</sub> [kN]	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
tı [mm]	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 <sub>R,II,k</sub> [kN]		0.30	0.42	0.49	0.59	0.76	0.96	1.16	1.16	1.16

### Self-drilling screw with sealing washer $\ge \emptyset$ 14 mm

SL2-S-S14-4,8xL

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English translation prepared by DIBt



	<u>Materials:</u>	Stainless steel A2 or A4 - EN ISO 3506
≥ø14 ø10,5 \$W8	Fastener: Washer:	Stainless steel A2 or A4 - EN ISO 3506 Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal
4,7 3 05,5 2,2 L	Component I: Component II:	S280GD to S450GD - EN 10346 S280GD to S450GD - EN 10346
7 ø2,8	Drilling-capacity:	Σ(t <sub>I</sub> + t <sub>II</sub> ) ≤ 2.50 mm

						t⊫[mm]				
		0.40	0.50	0.55	0.63	0.75	0.88	1.00	1.25	1.50
	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
V <sub>R,k</sub> [kN]	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 <sub>l</sub> [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	-	-
	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
N <sub>R,k</sub> [kN]	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
tı [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 <sub>R,II,k</sub> [kN]		0.43	0.57	0.65	0.79	1.03	1.32	1.61	1.61	1.61

## Self-drilling screw with sealing washer $\ge \emptyset$ 14 mm

Annex 65

SL2-S-S14-5,5xL

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English translation prepared by DIBt



	<u>Materials:</u> Fastener:	Stainless steel A2 or A4 - EN ISO 3506
≥ø14 ø10,5 \$W8 4,7	Washer:	Stainless steel A2 or A4 - EN ISO 3506 with EPDM-seal
	Component I:	Aluminum alloy - EN 573
	Component II:	Aluminum alloy - EN 573
∕ <b>↓</b> ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	Drilling-capacity:	Σ(t <sub>1</sub> + t <sub>11</sub> ) ≤ 2.50 mm

Component	I and II				tii (r	nm]			
R <sub>m</sub> ≥ 165 N	N/mm <sup>2</sup>	0.50	0.60	0.70	0.80	0.90	1.00	1.20	1.50
	0.50	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
	0.60	0.31	0.45	0.45	0.45	0.45	0.45	0.45	0.45
	0.70	0.31	0.45	0.59	0.59	0.59	0.59	0.59	0.59
V <sub>R,k</sub> [kN]	0.80	0.31	0.45	0.59	0.73	0.73	0.73	0.73	0.73
tı [mm]	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 <sub>R,II,k</sub> [kN]		0.26	0.36	0.47	0.57	0.67	0.77	0.77	0.77

Component	I and II				tii [n	nm]			
R <sub>m</sub> ≥ 215 ľ	N/mm <sup>2</sup>	0.50	0.60	0.70	0.80	0.90	1.00	1.20	1.50
	0.50	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
	0.60	0.40	0.58	0.58	0.58	0.58	0.58	0.58	0.58
	0.70	0.40	0.58	0.77	0.77	0.77	0.77	0.77	0.77
V <sub>R,k</sub> [kN]	0.80	0.40	0.58	0.77	0.95	0.95	0.95	0.95	0.95
t <sub>l</sub> [mm]	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 <sub>R,II,k</sub> [kN]		0.34	0.48	0.61	0.75	0.88	1.00	1.00	1.00

Additional definitions

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

Self-drilling screw with sealing washer  $\ge \emptyset$  14 mm

Annex 66

SL2-S-S14-5,5xL

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English translation prepared by DIBt



≥∞14 010,5 5,3 06,3 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0	L12 3,3 Corr	Materials:Fastener:Stainless steel A2 or A4 - EN ISO 3506Washer:Stainless steel A2 or A4 - EN ISO 3506 with EPDM-sealComponent I:S280GD to S450GD - EN 10346Component II:S280GD to S450GD - EN 10346							
g10.5 014/0	Was	her:	Stainle	ess steel A	2 or A4 - F	EN ISO 350	06		
	↓ ↓								
	Com	ponent I:	S2800	GD to S450	)GD - EN <sup>-</sup>	10346			
	Corr	ponent II:	S2800	GD to S450	GD - EN	10346			
Ø 3,9	Drilli	Drilling-capacity: $\Sigma(t_1 + t_{11}) \le 2.50 \text{ mm}$							
			tıı [mm]						
0.40 0	0.50 0.55	0.63	0.75	0.88	1.00	1.25	1.50		
0.40 0.57 0	0.57 0.57	0.57	0.57	0.57	0.57	0.57	0.57		
0.50 0.57 0	0.80 0.80	0.80	0.80	0.80	0.80	0.80	0.80		
			0.05	0.05	0.05	0.05			

		0.40	0.50	0.55	0.00	0.75	0.00	1.00	1.20	1.50
	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
V <sub>R,k</sub> [kN]	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
tı[mm]	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	-	-
	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
N <sub>R,k</sub> [kN]	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
tı [mm]	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 <sub>R,II,k</sub> [kN]		0.57	0.74	0.84	0.99	1.23	1.61	1.98	1.98	1.98

### Self-drilling screw with sealing washer $\ge Ø$ 14 mm

SL2-S-S14-6,3xL, SL2-S-L12-S14-6,3xL

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English translation prepared by DIBt



				Materials	s:				
				Fastener		Stainless ste	al A2 or A4		506
<u>≥</u> ø14									
Ø10,5 SW8 Ø12 L12 5,3 Ø12 J12 3,3						Stainless ste with EPDM-s		- EN ISO 3	506
				Compon	ent I:	Aluminum al	loy - EN 573	3	
ø6,3			Compon	Component II: Aluminum alloy - EN 573					
9	ø <u>3,9</u>			Drilling-c	apacity:	Σ(t <sub>I</sub> + t <sub>II</sub> ) ≤ 2.8	50 mm		
Component	Land II				tu fi	mml			
Component R <sub>m</sub> ≥ 165 I		0.50	0.60	0.70	tıı [i 0.80	mm]   0.90	1.00	1.20	1.50
		0.50 0.28	0.60	0.70 0.28	-		1.00 0.28	1.20 0.28	1.50 0.28
	N/mm <sup>2</sup>				0.80	0.90			
R <sub>m</sub> ≥ 165 I	V/mm <sup>2</sup> 0.50	0.28	0.28	0.28	0.80	0.90	0.28	0.28	0.28
	N/mm <sup>2</sup> 0.50 0.60	0.28 0.28	0.28 0.45	0.28 0.45	0.80 0.28 0.45	0.90 0.28 0.45	0.28 0.45	0.28 0.45	0.28 0.45
R <sub>m</sub> ≥ 165 ľ V <sub>R,k</sub> [kN]	N/mm <sup>2</sup> 0.50 0.60 0.70	0.28 0.28 0.28	0.28 0.45 0.45	0.28 0.45 0.62	0.80 0.28 0.45 0.62	0.90 0.28 0.45 0.62	0.28 0.45 0.62	0.28 0.45 0.62	0.28 0.45 0.62
R <sub>m</sub> ≥ 165 I	N/mm <sup>2</sup> 0.50 0.60 0.70 0.80	0.28 0.28 0.28 0.28	0.28 0.45 0.45 0.45	0.28 0.45 0.62 0.62	0.80 0.28 0.45 0.62 0.79	0.90 0.28 0.45 0.62 0.79	0.28 0.45 0.62 0.79	0.28 0.45 0.62 0.79	0.28 0.45 0.62 0.79
R <sub>m</sub> ≥ 165 ľ V <sub>R,k</sub> [kN]	V/mm <sup>2</sup> 0.50 0.60 0.70 0.80 0.90	0.28 0.28 0.28 0.28 0.28 0.28	0.28 0.45 0.45 0.45 0.45	0.28 0.45 0.62 0.62 0.62	0.80 0.28 0.45 0.62 0.79 0.79	0.90 0.28 0.45 0.62 0.79 0.97	0.28 0.45 0.62 0.79 0.97	0.28 0.45 0.62 0.79 0.97	0.28 0.45 0.62 0.79 0.97
R <sub>m</sub> ≥ 165 ľ V <sub>R,k</sub> [kN]	V/mm <sup>2</sup> 0.50 0.60 0.70 0.80 0.90 1.00	0.28 0.28 0.28 0.28 0.28 0.28 0.28	0.28 0.45 0.45 0.45 0.45 0.45	0.28 0.45 0.62 0.62 0.62 0.62	0.80 0.28 0.45 0.62 0.79 0.79 0.79	0.90 0.28 0.45 0.62 0.79 0.97 0.97	0.28 0.45 0.62 0.79 0.97 1.15	0.28 0.45 0.62 0.79 0.97 1.15	0.28 0.45 0.62 0.79 0.97
V <sub>R,k</sub> [kN]	V/mm <sup>2</sup> 0.50 0.60 0.70 0.80 0.90 1.00 1.20	0.28 0.28 0.28 0.28 0.28 0.28 0.28 0.28	0.28 0.45 0.45 0.45 0.45 0.45 0.45	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	0.28 0.45 0.62 0.79 0.97 1.15 1.15	0.28 0.45 0.62 0.79 0.97 1.15	0.28 0.45 0.62 0.79 0.97
R <sub>m</sub> ≥ 165 ľ V <sub>R,k</sub> [kN] ti [mm] N <sub>R,II,k</sub> [kN]	V/mm <sup>2</sup> 0.50 0.60 0.70 0.80 0.90 1.00 1.20 1.50	0.28 0.28 0.28 0.28 0.28 0.28 0.28 0.28	0.28 0.45 0.45 0.45 0.45 0.45 0.45 0.45	0.28 0.45 0.62 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 0.79 0.79	0.90 0.28 0.45 0.62 0.79 0.97 0.97 0.97 0.97	0.28 0.45 0.62 0.79 0.97 1.15 1.15 1.15	0.28 0.45 0.62 0.79 0.97 1.15 1.15 -	0.28 0.45 0.62 0.79 0.97 1.15 -
R <sub>m</sub> ≥ 165 ľ V <sub>R,k</sub> [kN] ti [mm] N <sub>R,II,k</sub> [kN]	V/mm <sup>2</sup> 0.50 0.60 0.70 0.80 0.90 1.00 1.20 1.50	0.28 0.28 0.28 0.28 0.28 0.28 0.28 0.28	0.28 0.45 0.45 0.45 0.45 0.45 0.45 0.45	0.28 0.45 0.62 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 0.79 0.79	0.90 0.28 0.45 0.62 0.79 0.97 0.97 0.97 0.97 0.97 0.97	0.28 0.45 0.62 0.79 0.97 1.15 1.15 1.15	0.28 0.45 0.62 0.79 0.97 1.15 1.15 -	0.28 0.45 0.62 0.79 0.97 1.15 - -
R <sub>m</sub> ≥ 165 ľ V <sub>R,k</sub> [kN] ti [mm] N <sub>R,II,k</sub> [kN] Component	V/mm <sup>2</sup> 0.50 0.60 0.70 0.80 0.90 1.00 1.20 1.50	0.28 0.28 0.28 0.28 0.28 0.28 0.28 0.28	0.28 0.45 0.45 0.45 0.45 0.45 0.45 0.45 0.45	0.28 0.45 0.62 0.62 0.62 0.62 0.62 0.62 0.62 0.54	0.80 0.28 0.45 0.62 0.79 0.79 0.79 0.79 0.79 0.79 0.63	0.90 0.28 0.45 0.62 0.79 0.97 0.97 0.97 0.97 0.97 0.97	0.28 0.45 0.62 0.79 0.97 1.15 1.15 1.15 0.87	0.28 0.45 0.62 0.79 0.97 1.15 1.15 - 0.87	0.28 0.45 0.62 0.79 0.97 1.15 - - 0.87
R <sub>m</sub> ≥ 165 ľ V <sub>R,k</sub> [kN] ti [mm] N <sub>R,II,k</sub> [kN] Component	V/mm <sup>2</sup> 0.50 0.60 0.70 0.80 0.90 1.00 1.20 1.50	0.28 0.28 0.28 0.28 0.28 0.28 0.28 0.28	0.28 0.45 0.45 0.45 0.45 0.45 0.45 0.45 0.45	0.28 0.45 0.62 0.62 0.62 0.62 0.62 0.62 0.62 0.54	0.80 0.28 0.45 0.62 0.79 0.79 0.79 0.79 0.79 0.79 0.63	0.90 0.28 0.45 0.62 0.79 0.97 0.97 0.97 0.97 0.97 0.97 0.97	0.28 0.45 0.62 0.79 0.97 1.15 1.15 1.15 0.87 1.00	0.28 0.45 0.62 0.79 0.97 1.15 1.15 - 0.87 1.20	0.28 0.45 0.62 0.79 0.97 1.15 - - 0.87 1.50
R <sub>m</sub> ≥ 165 ľ V <sub>R,k</sub> [kN] tı [mm] N <sub>R,II,k</sub> [kN] Component	V/mm <sup>2</sup> 0.50 0.60 0.70 0.80 0.90 1.00 1.20 1.50 I and II V/mm <sup>2</sup> 0.50	0.28 0.28 0.28 0.28 0.28 0.28 0.28 0.28	0.28 0.45 0.45 0.45 0.45 0.45 0.45 0.45 0.45	0.28 0.45 0.62 0.62 0.62 0.62 0.62 0.62 0.62 0.54	0.80 0.28 0.45 0.62 0.79 0.79 0.79 0.79 0.79 0.79 0.63 t <sub>ll</sub> [ 0.80 0.36	0.90 0.28 0.45 0.62 0.79 0.97 0.97 0.97 0.97 0.97 0.75	0.28 0.45 0.62 0.79 0.97 1.15 1.15 1.15 0.87 1.00 0.36	0.28 0.45 0.62 0.79 0.97 1.15 1.15 - 0.87 1.20 0.36	0.28 0.45 0.62 0.79 0.97 1.15 - - 0.87 1.50 0.36

## Additional definitions

t<sub>I</sub>[mm]

N<sub>R,II,k</sub> [kN]

0.90

1.00

1.20

1.50

0.36

0.36

0.36

0.36

0.46

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

1.03

1.03

1.03

1.03

0.82

1.26

1.49

1.49

1.49

1.14

1.26

1.49

1.49

-

1.14

1.26

1.26

1.26

1.26

0.98

Self-drilling screw with sealing washer  $\ge \emptyset$  14 mm

0.58

0.58

0.58

0.58

0.58

0.81

0.81

0.81

0.81

0.70

SL2-S-S14-6,3xL, SL2-S-L12-S14-6,3xL

Annex 68

1.26

1.49

-

-

1.14

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English translation prepared by DIBt



	Materials:	
	Fastener:	Stainless steel A2 or A4 - EN ISO 3506
≥ø14 ø10,5 \$W8	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
	Drilling-capacity:	Σ(t <sub>I</sub> + t <sub>II</sub> ) ≤ 2.00 mm

		t⊪ [mm]						
		0.40	0.50	0.55	0.63	0.75	0.88	1.00
	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
V <sub>R,k</sub> [kN]	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
tı [mm]	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
	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
N <sub>R,k</sub> [kN]	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
tı [mm]	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 <sub>R,II,k</sub> [kN]		0.52	0.73	0.82	0.97	1.20	1.20	1.20

### Self-drilling screw with sealing washer $\ge \emptyset$ 14 mm

Annex 69

SLG-S-S14-4,8xL