Designated according to The Construction Products (Amendment etc.) (EU Exit) Regulations 2020 (as amended 2022)

UK Technical Assessment	UKTA-0836-21/0004 of 23/12/2021
Technical Assessment Body issuing the UK Technical Assessment:	British Board of Agrément
Trade name of the construction product:	ESDS, EFS, EVFS, ESTS
Product family to which the construction product belongs:	Fastening screws for metal members and sheeting
Manufacturer:	Van Roij Fasteners Europe B.V. Indumastraat 18 5753 RJ Deurne Netherlands
Manufacturing plant(s):	Van Roij Fasteners Europe B.V. plants
This UK Technical Assessment contains:	138 pages including 131 Annexes which form an integral part of this assessment
This UK Technical Assessment is issued in accordance with The Construction Products (Amendment etc.) (EU Exit) Regulations 2020 (as amended 2022) on the basis of:	UKAD 330046-01-0602 “Fastening screws for metal members and sheeting”

1. Technical description of the product

The fastening screws ESDS, EFS, EVFS and ESTS are self-drilling and self-tapping screws, as listed in Table 1. The fastening screws may be supplied with a metallic washer and an EPDM sealing ring. Some screws can be completed with saddle washers ESW. For details, see the Annexes 1 to 130.

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

Table 1

No.	Screw	Material	Annex
1	ESDS-0-Z 4.8xL	galvanized carbon steel with ≥ 12 µm zinc coating	1, 4
2	ESDS-0-P 4.8xL	galvanized carbon steel with PREMIUM coating	2, 5
3	ESDS-0-SP 4.8xL	galvanized carbon steel with SUPER PREMIUM coating	3, 6
4	ESDS-0-B 4.8xL	stainless steel(1)	7, 8
5	ESDS-PH-0-Z 4.8xL	galvanized carbon steel with ≥ 12 µm zinc coating	9
6	ESDS-PH-0-P 4.8xL	galvanized carbon steel with PREMIUM coating	10
7	ESDS-PH-0-B 4.8xL	stainless steel(1)	11, 12
8	ESDS-PH-0-B 5.5xL	stainless steel(1)	13
9	ESDS-0-B 6.3xL	stainless steel(1)	14
10	EFS-2-Z 4.8xL	galvanized carbon steel with ≥ 12 µm zinc coating	15
11	EFS-2-P 4.8xL	galvanized carbon steel with PREMIUM coating	16
12	EFS-2-SP 4.8xL	galvanized carbon steel with SUPER PREMIUM coating	17
13	EFS-2-B 4.8xL	stainless steel(1)	18
14	EFS-PH-2-Z 4.8xL	galvanized carbon steel with ≥ 12 µm zinc coating	19
15	EFS-PH-2-P 4.8xL	galvanized carbon steel with PREMIUM coating	20
16	ESDS-3-Z 4.8xL	galvanized carbon steel with ≥ 12 µm zinc coating	21, 24, 27, 30
17	ESDS-3-P 4.8xL	galvanized carbon steel with PREMIUM coating	22, 25, 28, 31
18	ESDS-3-SP 4.8xL	galvanized carbon steel with SUPER PREMIUM coating	23, 26, 29, 32
19	ESDS-3-B 4.8xL	stainless steel(1)	33, 34, 35, 36
20	ESDS-3-B 5.5xL	stainless steel(1)	37, 38, 39, 40, 41
21	EVFS-3-B 5.5xL	stainless steel(1)	42, 43
22	ESDS-PH-3-Z 4.8xL	galvanized carbon steel with ≥ 12 µm zinc coating	44
23	ESDS-PH-3-P 4.8xL	galvanized carbon steel with PREMIUM coating	45
24	ESDS-5-Z 5.5xL	galvanized carbon steel with ≥ 12 µm zinc coating	46, 49, 52, 55
25	ESDS-5-P 5.5xL	galvanized carbon steel with PREMIUM coating	47, 50, 53, 56
26	ESDS-5-SP 5.5xL	galvanized carbon steel with SUPER PREMIUM coating	48, 51, 54, 57
27	ESDS-5-B 5.5xL	stainless steel(1)	58, 59, 60, 61
28	ESDS-PH-5-B 5.5xL	stainless steel(1)	62
29	ESDS-PH-5-Z 5.5xL	galvanized carbon steel with ≥ 12 µm zinc coating	63
30	ESDS-PH-5-P 5.5xL	galvanized carbon steel with PREMIUM coating	64
31	ESDS-6-Z 6.3xL	galvanized carbon steel with ≥ 12 µm of zinc coating	65, 68, 71

32	ESDS-6-P 6.3xL	galvanized carbon steel with PREMIUM coating	66, 69, 72
33	ESDS-6-SP 6.3xL	galvanized carbon steel with SUPER PREMIUM coating	67, 70, 73
34	ESDS-PH-6-B 6.3xL	stainless steel(1)	74
35	ESDS-8-Z 5.5xL	galvanized carbon steel with ≥ 12 µm zinc coating	75, 78, 81, 84
36	ESDS-8-P 5.5xL	galvanized carbon steel with PREMIUM coating	76, 79, 82, 85
37	ESDS-8-SP 5.5xL	galvanized carbon steel with SUPER PREMIUM coating	77, 80, 83, 86
38	ESDS-12-Z 5.5xL	galvanized carbon steel with ≥ 12 µm zinc coating	87, 90, 93, 96
39	ESDS-12-P 5.5xL	galvanized carbon steel with PREMIUM coating	88, 91, 94, 97
40	ESDS-12-SP 5.5xL	galvanized carbon steel with SUPER PREMIUM coating	89, 92, 95, 98
41	ESDS-12-B 5.5xL	stainless steel(1)	99, 100, 101, 102
42	ESDS-20-Z 5.5xL	galvanized carbon steel with ≥ 12 µm zinc coating	103, 106, 109, 112
43	ESDS-20-P 5.5xL	galvanized carbon steel with PREMIUM coating	104, 107, 110, 113
44	ESDS-20-SP 5.5xL	galvanized carbon steel with SUPER PREMIUM coating	105, 108, 111, 114
45	ESTS-0A-Z 6.5xL	galvanized carbon steel with ≥ 12 µm zinc coating	115, 116, 117, 118
46	ESTS-0A-S 6.5xL	galvanized stainless steel	119, 120, 121, 122
47	ESTS-0B-Z 6.3xL	galvanized carbon steel with ≥ 12 µm zinc coating	123, 125
48	ESTS-0B-P 6.3xL	galvanized carbon steel with PREMIUM coating	124, 126
49	ESTS-WH-0-Z 4.2xL	galvanized carbon steel with ≥ 8 µm zinc coating	127
50	ESTS-WH-0-P 4.2xL	galvanized carbon steel with PREMIUM coating	128
51	ESDS-WH-2-Z 4.2xL	galvanized carbon steel with ≥ 8 µm zinc coating	129
52	ESDS-WH-2-P 4.2xL	galvanized carbon steel with PREMIUM coating	130

(1) 'Stainless steel' fasteners as used in this UKTA and its annexes refer to carbon steel and stainless steel (bi-metal) used particularly for the self-drilling screws.

2. Specification of the intended use(s) in accordance with the applicable UK Assessment Document (hereinafter UKAD)

The fastening screws are intended to be used for fastening steel sheeting to steel, aluminium or timber supporting substructures. For details, see Annexes 1 to 130. The component to be fastened is component I and the supporting structure is component II. The sheeting can be used as cladding or roofing, or as a 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 includes fastening screws and connections for indoor and outdoor applications. Fastening screws which are intended to be used in external environments with ≥ C2 corrosion according to EN ISO 12944-2, are made of stainless steel.

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

The provisions made in this UK Technical Assessment are based on an assumed working life of the fasteners of 25 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer or UK Technical Assessment Body, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

3. Performance of the product and references to the methods used for its assessment

3.1. Mechanical resistance and stability (BWR 1)

The characteristic values of the shear resistance of connections and tension resistance of connections with the fasteners are given in Annexes 1 to 130. The values were determined by tests according to UKAD 330046-01-0602.

The design values shall be determined according to Annex 131 and UKAD 330046-01-0602.

For the corrosion protection, the information given in EN 1993-1-3, EN 1993-1-4 and EN 1999-1-4 shall be considered. Fastening screws which are made of stainless steel are intended to be used in external environments ≥ C2 corrosion according to EN ISO 12944-2.

3.2. Safety in case of fire (BWR 2)

The fastening screws are considered to satisfy the requirements of performance class A1 for reaction to fire, in accordance with the provisions of the EC Decision 96/603/EC (as brought into UK law and amended) without the need for testing.

3.2.1. Methods used for the assessment

The assessment of the products has been carried out in accordance with UKAD 330046-01-0602.

3.3. Health, hygiene and the environment (BWR 3)

Not relevant

3.4. Safety and accessibility in use (BWR 4)

Not relevant

3.5. Protection against noise (BWR 5)

Not relevant.

3.6. Energy economy and heat retention (BWR 6)

Not relevant.

3.7. Sustainable use of natural resources (BWR 7)

No Performance assessed

4. Assessment and verification of constancy of performance (hereinafter AVCP) system applied

According to UKAD No. 330046-01-0602 and Annex V of the Construction Products (Amendment etc.) (EU Exit) Regulations 2020 (as amended 2022) 305/2011 as brought into UK law and amended, the system of assessment and verification of constancy of performance (AVCP) 2+ applies.

5. Technical details necessary for the implementation of the AVCP system, as provided for in the applicable UKAD

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited with the British Board of Agrément and made available to the UK Approved Bodies involved in the conformity attestation process.

5.1. UKCA marking for the product/ system must contain the following information:

- Identification number of the Approved Body
- Name/ registered address of the manufacturer of the product/ system
- Marking including date of Marking and the intended use as stated in the Designated technical specification
- Unique identification code of the product type
- The reference number of the Declaration of Performance
- The level or class of the performance declared
- The reference to the Designated technical specification applied
- UKTA number

On behalf of the British Board of Agrément 	
Date of Issue: 23 December 2021	**Hardy Giesler** Chief Executive

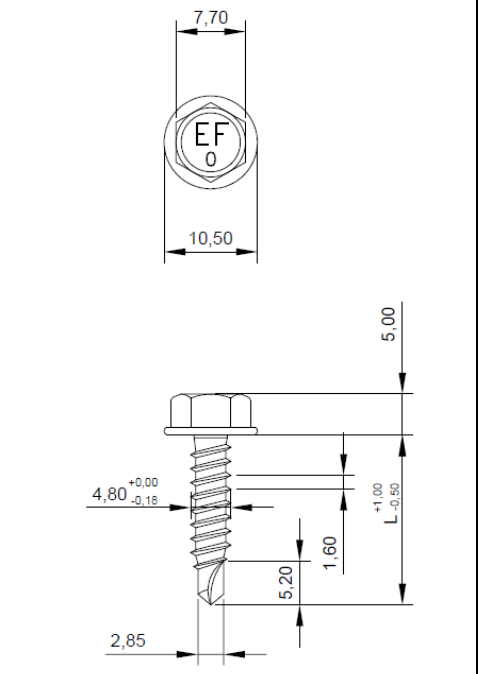
Certificate amended on 8 March 2024 to update certificate holder address and section 5.1.

British Board of Agrément,
1st Floor Building 3,
Hatters Lane,
Croxley Park,
Watford,
WD18 8YG

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized (12 µm)
Washer:	-
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326
Drilling capacity:	Σti ≤ 2 x 1,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		0,50	0,55	0,60	0,63	0,70	0,75	0,80	0,88	1,00	Timber class ≥ C24
$M_{t,nom}$		4 Nm									
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	
	0,55	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	
	0,60	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	
	0,63	1,28	1,28	1,28	1,47	1,47	1,47	1,47	1,47	1,47	
	0,70	1,28	1,28	1,28	1,47	1,47	1,47	1,47	1,47	1,47	
	0,75	1,28	1,28	1,28	1,47	1,47	2,41	2,41	2,41	2,41	
	0,80	1,28	1,28	1,28	1,47	1,47	2,41	2,41	2,41	2,41	
	0,88	1,28	1,28	1,28	1,47	1,47	2,41	2,41	2,41	2,41	
	1,00	1,28	1,28	1,28	1,47	1,47	2,41	2,41	2,41	2,58	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,61	0,61	0,61	0,61	0,61	0,61	0,61	0,61	0,61	
	0,55	0,61	0,61	0,61	0,61	0,61	0,61	0,61	0,61	0,61	
	0,60	0,61	0,61	0,61	0,61	0,61	0,61	0,61	0,61	0,61	
	0,63	0,66	0,66	0,66	0,80	0,80	0,80	0,80	0,80	0,80	
	0,70	0,66	0,66	0,66	0,80	0,80	0,80	0,80	0,80	0,80	
	0,75	0,66	0,66	0,66	0,94	0,94	0,96	0,96	0,96	0,96	
	0,80	0,66	0,66	0,66	0,94	0,94	0,96	0,96	0,96	0,96	
	0,88	0,66	0,66	0,66	0,94	0,94	0,96	0,96	0,96	0,96	
	1,00	0,66	0,66	0,66	0,94	0,94	0,96	0,96	0,96	0,97	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-0-Z 4.8xL
with hexagon head

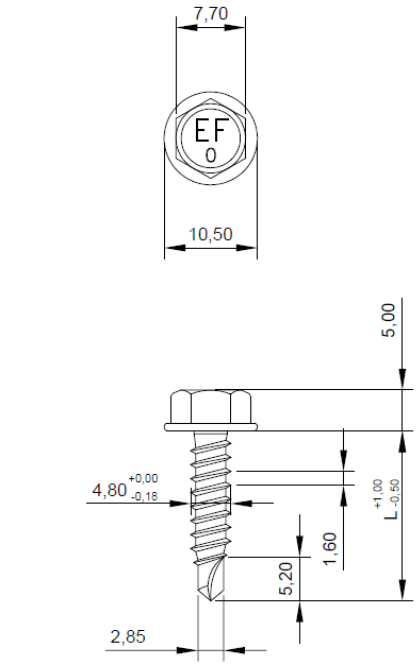
Annex 1

Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with PREMIUM coating
Washer:	-
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326
Drilling capacity:	Σti ≤ 2 x 1,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		0,50	0,55	0,60	0,63	0,70	0,75	0,80	0,88	1,00	Timber class ≥ C24
$M_{t,nom}$		4 Nm									
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	
	0,55	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	
	0,60	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	
	0,63	1,28	1,28	1,28	1,47	1,47	1,47	1,47	1,47	1,47	
	0,70	1,28	1,28	1,28	1,47	1,47	1,47	1,47	1,47	1,47	
	0,75	1,28	1,28	1,28	1,47	1,47	2,41	2,41	2,41	2,41	
	0,80	1,28	1,28	1,28	1,47	1,47	2,41	2,41	2,41	2,41	
	0,88	1,28	1,28	1,28	1,47	1,47	2,41	2,41	2,41	2,41	
	1,00	1,28	1,28	1,28	1,47	1,47	2,41	2,41	2,41	2,58	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,61	0,61	0,61	0,61	0,61	0,61	0,61	0,61	0,61	
	0,55	0,61	0,61	0,61	0,61	0,61	0,61	0,61	0,61	0,61	
	0,60	0,61	0,61	0,61	0,61	0,61	0,61	0,61	0,61	0,61	
	0,63	0,66	0,66	0,66	0,80	0,80	0,80	0,80	0,80	0,80	
	0,70	0,66	0,66	0,66	0,80	0,80	0,80	0,80	0,80	0,80	
	0,75	0,66	0,66	0,66	0,94	0,94	0,96	0,96	0,96	0,96	
	0,80	0,66	0,66	0,66	0,94	0,94	0,96	0,96	0,96	0,96	
	0,88	0,66	0,66	0,66	0,94	0,94	0,96	0,96	0,96	0,96	
	1,00	0,66	0,66	0,66	0,94	0,94	0,96	0,96	0,96	0,97	

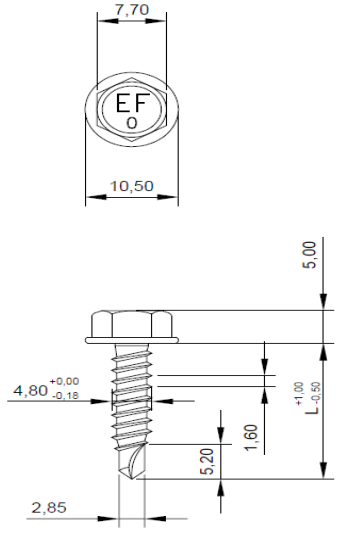
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-0-P 4.8xL
with hexagon head

Annex 2

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with SUPER PREMIUM coating
Washer:	-
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326
Drilling capacity:	Σti ≤ 2 x 1,00 mm
Timber substructures	
No performance assessed	



$t_{N,II}$ [mm]		0,50	0,55	0,60	0,63	0,70	0,75	0,80	0,88	1,00	Timber class ≥ C24
$M_{t,nom}$		4 Nm									
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	
	0,55	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	
	0,60	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	
	0,63	1,28	1,28	1,28	1,47	1,47	1,47	1,47	1,47	1,47	
	0,70	1,28	1,28	1,28	1,47	1,47	1,47	1,47	1,47	1,47	
	0,75	1,28	1,28	1,28	1,47	1,47	2,41	2,41	2,41	2,41	
	0,80	1,28	1,28	1,28	1,47	1,47	2,41	2,41	2,41	2,41	
	0,88	1,28	1,28	1,28	1,47	1,47	2,41	2,41	2,41	2,41	
	1,00	1,28	1,28	1,28	1,47	1,47	2,41	2,41	2,41	2,58	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,61	0,61	0,61	0,61	0,61	0,61	0,61	0,61	0,61	
	0,55	0,61	0,61	0,61	0,61	0,61	0,61	0,61	0,61	0,61	
	0,60	0,61	0,61	0,61	0,61	0,61	0,61	0,61	0,61	0,61	
	0,63	0,66	0,66	0,66	0,80	0,80	0,80	0,80	0,80	0,80	
	0,70	0,66	0,66	0,66	0,80	0,80	0,80	0,80	0,80	0,80	
	0,75	0,66	0,66	0,66	0,94	0,94	0,96	0,96	0,96	0,96	
	0,80	0,66	0,66	0,66	0,94	0,94	0,96	0,96	0,96	0,96	
	0,88	0,66	0,66	0,66	0,94	0,94	0,96	0,96	0,96	0,96	
	1,00	0,66	0,66	0,66	0,94	0,94	0,96	0,96	0,96	0,97	

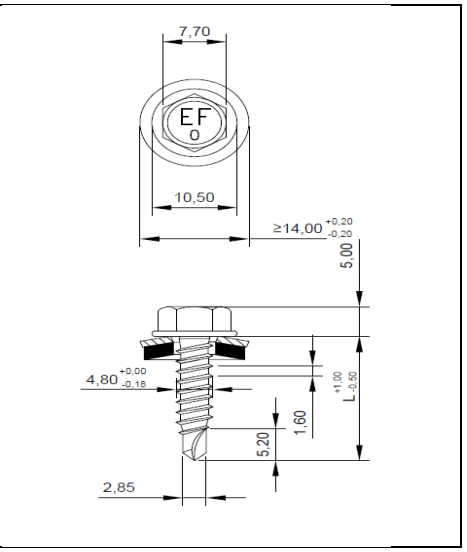
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-0-SP 4.8xL
with hexagon head

Annex 3

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized (12 µm)
Washer:	Z14 – carbon steel galvanized washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326
Drilling capacity:	Σti ≤ 2 x 1,00 mm
Timber substructures	
No performance assessed	



$t_{N,II}$ [mm]		0,50	0,55	0,60	0,63	0,70	0,75	0,80	0,88	1,00	Timber class ≥ C24
$M_{t,nom}$		4 Nm									
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	
	0,55	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	
	0,60	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	
	0,63	1,28	1,28	1,28	1,47	1,47	1,47	1,47	1,47	1,47	
	0,70	1,28	1,28	1,28	1,47	1,47	1,47	1,47	1,47	1,47	
	0,75	1,28	1,28	1,28	1,47	1,47	2,41	2,41	2,41	2,41	
	0,80	1,28	1,28	1,28	1,47	1,47	2,41	2,41	2,41	2,41	
	0,88	1,28	1,28	1,28	1,47	1,47	2,41	2,41	2,41	2,41	
	1,00	1,28	1,28	1,28	1,47	1,47	2,41	2,41	2,41	2,58	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,66	0,66	0,66	0,94	0,94	1,09	1,09	1,09	1,61	
	0,55	0,66	0,66	0,66	0,94	0,94	1,09	1,09	1,09	1,61	
	0,60	0,66	0,66	0,66	0,94	0,94	1,09	1,09	1,09	1,61	
	0,63	0,66	0,66	0,66	0,94	0,94	1,09	1,09	1,09	1,61	
	0,70	0,66	0,66	0,66	0,94	0,94	1,09	1,09	1,09	1,61	
	0,75	0,66	0,66	0,66	0,94	0,94	1,09	1,09	1,09	1,61	
	0,80	0,66	0,66	0,66	0,94	0,94	1,09	1,09	1,09	1,61	
	0,88	0,66	0,66	0,66	0,94	0,94	1,09	1,09	1,09	1,61	
	1,00	0,66	0,66	0,66	0,94	0,94	1,09	1,09	1,09	1,61	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-0-Z 4.8xL
with hexagon head and washer Z14

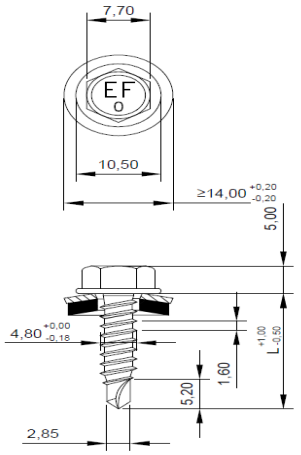
Annex 4

Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with PREMIUM coating
Washer:	A14 – aluminium washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326
Drilling capacity:	Σti ≤ 2 x 1,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		0,50	0,55	0,60	0,63	0,70	0,75	0,80	0,88	1,00	Timber class ≥ C24
$M_{t,nom}$		4 Nm									
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	
	0,55	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	
	0,60	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	
	0,63	1,28	1,28	1,28	1,47	1,47	1,47	1,47	1,47	1,47	
	0,70	1,28	1,28	1,28	1,47	1,47	1,47	1,47	1,47	1,47	
	0,75	1,28	1,28	1,28	1,47	1,47	2,41	2,41	2,41	2,41	
	0,80	1,28	1,28	1,28	1,47	1,47	2,41	2,41	2,41	2,41	
	0,88	1,28	1,28	1,28	1,47	1,47	2,41	2,41	2,41	2,41	
	1,00	1,28	1,28	1,28	1,47	1,47	2,41	2,41	2,41	2,58	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,66	0,66	0,66	0,94	0,94	1,09	1,09	1,09	1,61	
	0,55	0,66	0,66	0,66	0,94	0,94	1,09	1,09	1,09	1,61	
	0,60	0,66	0,66	0,66	0,94	0,94	1,09	1,09	1,09	1,61	
	0,63	0,66	0,66	0,66	0,94	0,94	1,09	1,09	1,09	1,61	
	0,70	0,66	0,66	0,66	0,94	0,94	1,09	1,09	1,09	1,61	
	0,75	0,66	0,66	0,66	0,94	0,94	1,09	1,09	1,09	1,61	
	0,80	0,66	0,66	0,66	0,94	0,94	1,09	1,09	1,09	1,61	
	0,88	0,66	0,66	0,66	0,94	0,94	1,09	1,09	1,09	1,61	
	1,00	0,66	0,66	0,66	0,94	0,94	1,09	1,09	1,09	1,61	

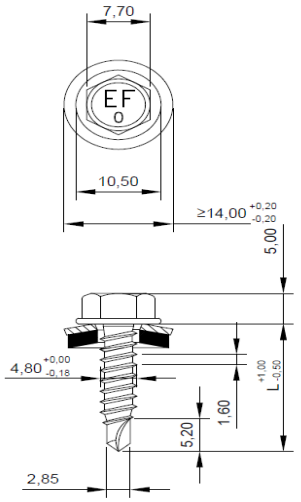
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-0-P 4.8xL
with hexagon head and washer A14

Annex 5

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with SUPER PREMIUM coating
Washer:	S14 – stainless steel washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326
Drilling capacity:	Σti ≤ 2 x 1,00 mm
Timber substructures	
No performance assessed	



$t_{N,II}$ [mm]		0,50	0,55	0,60	0,63	0,70	0,75	0,80	0,88	1,00	Timber class ≥ C24
$M_{t,nom}$		4 Nm									
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	
	0,55	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	
	0,60	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	
	0,63	1,28	1,28	1,28	1,47	1,47	1,47	1,47	1,47	1,47	
	0,70	1,28	1,28	1,28	1,47	1,47	1,47	1,47	1,47	1,47	
	0,75	1,28	1,28	1,28	1,47	1,47	2,41	2,41	2,41	2,41	
	0,80	1,28	1,28	1,28	1,47	1,47	2,41	2,41	2,41	2,41	
	0,88	1,28	1,28	1,28	1,47	1,47	2,41	2,41	2,41	2,41	
	1,00	1,28	1,28	1,28	1,47	1,47	2,41	2,41	2,41	2,58	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,66	0,66	0,66	0,94	0,94	1,09	1,09	1,09	1,61	
	0,55	0,66	0,66	0,66	0,94	0,94	1,09	1,09	1,09	1,61	
	0,60	0,66	0,66	0,66	0,94	0,94	1,09	1,09	1,09	1,61	
	0,63	0,66	0,66	0,66	0,94	0,94	1,09	1,09	1,09	1,61	
	0,70	0,66	0,66	0,66	0,94	0,94	1,09	1,09	1,09	1,61	
	0,75	0,66	0,66	0,66	0,94	0,94	1,09	1,09	1,09	1,61	
	0,80	0,66	0,66	0,66	0,94	0,94	1,09	1,09	1,09	1,61	
	0,88	0,66	0,66	0,66	0,94	0,94	1,09	1,09	1,09	1,61	
	1,00	0,66	0,66	0,66	0,94	0,94	1,09	1,09	1,09	1,61	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-0-SP 4.8xL
with hexagon head and washer S14

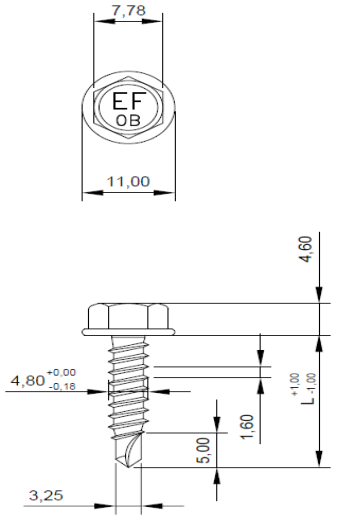
Annex 6

Materials

Fastener:	stainless steel – SAE304
Washer:	-
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326
Drilling capacity:	Σti ≤ 2 x 1,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		0,50	0,55	0,60	0,63	0,70	0,75	0,80	0,88	1,00	Timber class ≥ C24
$M_{t,nom}$		4 Nm									
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,20	1,20	1,20	1,20	1,20	1,20	1,20	1,20	1,20	
	0,55	1,20	1,20	1,20	1,20	1,20	1,20	1,20	1,20	1,20	
	0,60	1,20	1,20	1,20	1,20	1,20	1,20	1,20	1,20	1,20	
	0,63	1,20	1,20	1,20	1,57	1,57	1,57	1,57	1,57	1,57	
	0,70	1,20	1,20	1,20	1,57	1,57	1,57	1,57	1,57	1,57	
	0,75	1,20	1,20	1,20	1,57	1,57	2,31	2,31	2,31	2,31	
	0,80	1,20	1,20	1,20	1,57	1,57	2,31	2,31	2,31	2,31	
	0,88	1,20	1,20	1,20	1,57	1,57	2,31	2,31	2,31	2,31	
	1,00	1,20	1,20	1,20	1,57	1,57	2,31	2,31	2,31	2,75	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,61	0,61	0,61	0,61	0,61	0,61	0,61	0,61	0,61	
	0,55	0,61	0,61	0,61	0,61	0,61	0,61	0,61	0,61	0,61	
	0,60	0,61	0,61	0,61	0,61	0,61	0,61	0,61	0,61	0,61	
	0,63	0,62	0,62	0,62	0,81	0,81	0,87	0,87	0,87	0,87	
	0,70	0,62	0,62	0,62	0,81	0,81	0,87	0,87	0,87	0,87	
	0,75	0,62	0,62	0,62	0,81	0,81	0,92	0,92	0,92	0,97	
	0,80	0,62	0,62	0,62	0,81	0,81	0,92	0,92	0,92	0,97	
	0,88	0,62	0,62	0,62	0,81	0,81	0,92	0,92	0,92	0,97	
	1,00	0,62	0,62	0,62	0,81	0,81	0,92	0,92	0,92	0,97	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-0-B 4.8xL
with hexagon head

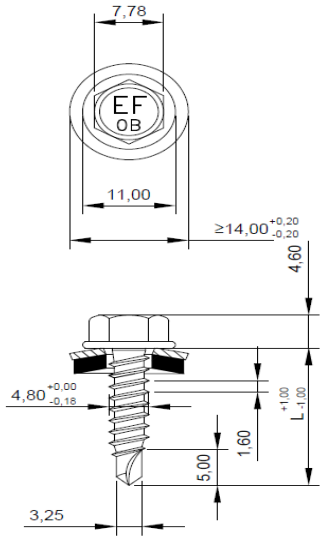
Annex 7

Materials

Fastener:	stainless steel – SAE304
Washer:	S14 – stainless steel washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326
Drilling capacity:	Σti ≤ 2 x 1,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		0,50	0,55	0,60	0,63	0,70	0,75	0,80	0,88	1,00	Timber class ≥ C24
$M_{t,nom}$		4 Nm									
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,20	1,20	1,20	1,20	1,20	1,20	1,20	1,20	1,20	
	0,55	1,20	1,20	1,20	1,20	1,20	1,20	1,20	1,20	1,20	
	0,60	1,20	1,20	1,20	1,20	1,20	1,20	1,20	1,20	1,20	
	0,63	1,20	1,20	1,20	1,57	1,57	1,57	1,57	1,57	1,57	
	0,70	1,20	1,20	1,20	1,57	1,57	1,57	1,57	1,57	1,57	
	0,75	1,20	1,20	1,20	1,57	1,57	2,31	2,31	2,31	2,31	
	0,80	1,20	1,20	1,20	1,57	1,57	2,31	2,31	2,31	2,31	
	0,88	1,20	1,20	1,20	1,57	1,57	2,31	2,31	2,31	2,31	
	1,00	1,20	1,20	1,20	1,57	1,57	2,31	2,31	2,31	2,75	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,62	0,62	0,62	0,81	0,81	0,92	0,92	0,92	1,67	
	0,55	0,62	0,62	0,62	0,81	0,81	0,92	0,92	0,92	1,67	
	0,60	0,62	0,62	0,62	0,81	0,81	0,92	0,92	0,92	1,67	
	0,63	0,62	0,62	0,62	0,81	0,81	0,92	0,92	0,92	1,67	
	0,70	0,62	0,62	0,62	0,81	0,81	0,92	0,92	0,92	1,67	
	0,75	0,62	0,62	0,62	0,81	0,81	0,92	0,92	0,92	1,67	
	0,80	0,62	0,62	0,62	0,81	0,81	0,92	0,92	0,92	1,67	
	0,88	0,62	0,62	0,62	0,81	0,81	0,92	0,92	0,92	1,67	
	1,00	0,62	0,62	0,62	0,81	0,81	0,92	0,92	0,92	1,67	

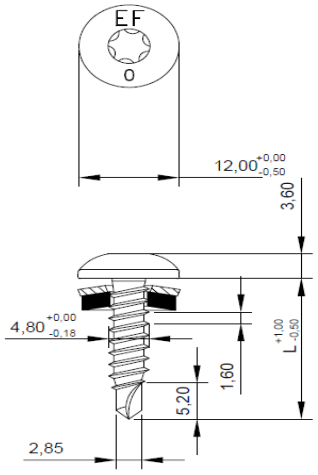
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-0-B 4.8xL
with hexagon head and washer S14

Annex 8

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized (12 µm)
Washer:	Z11 – carbon steel galvanized washer with EPDM ring Z12 – carbon steel galvanized washer with EPDM ring A11 – aluminium washer with EPDM ring A12 – aluminium washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326
Drilling capacity:	Σti ≤ 2 x 1,00 mm
Timber substructures	
No performance assessed	



$t_{N,II}$ [mm]		0,50	0,55	0,60	0,63	0,70	0,75	0,80	0,88	1,00	Timber class ≥ C24
$M_{t,nom}$		4 Nm									
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	
	0,55	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	
	0,60	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	
	0,63	1,28	1,28	1,28	1,56	1,56	1,56	1,56	1,56	1,56	
	0,70	1,28	1,28	1,28	1,56	1,56	1,56	1,56	1,56	1,56	
	0,75	1,28	1,28	1,28	1,56	1,56	2,30	2,30	2,30	2,30	
	0,80	1,28	1,28	1,28	1,56	1,56	2,30	2,30	2,30	2,30	
	0,88	1,28	1,28	1,28	1,56	1,56	2,30	2,30	2,30	2,30	
	1,00	1,28	1,28	1,28	1,56	1,56	2,30	2,30	2,30	2,95	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,66	0,66	0,66	0,70	0,70	0,70	0,70	0,70	0,70	
	0,55	0,66	0,66	0,66	0,70	0,70	0,70	0,70	0,70	0,70	
	0,60	0,66	0,66	0,66	0,70	0,70	0,70	0,70	0,70	0,70	
	0,63	0,66	0,66	0,66	0,79	0,79	0,79	0,79	0,79	0,79	
	0,70	0,66	0,66	0,66	0,79	0,79	0,79	0,79	0,79	0,79	
	0,75	0,66	0,66	0,66	0,94	0,94	1,05	1,05	1,05	1,05	
	0,80	0,66	0,66	0,66	0,94	0,94	1,05	1,05	1,05	1,05	
	0,88	0,66	0,66	0,66	0,94	0,94	1,05	1,05	1,05	1,05	
	1,00	0,66	0,66	0,66	0,94	0,94	1,09	1,09	1,09	1,40	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-PH-0-Z 4.8xL
with pan head and washer A11, A12, Z11 or Z12

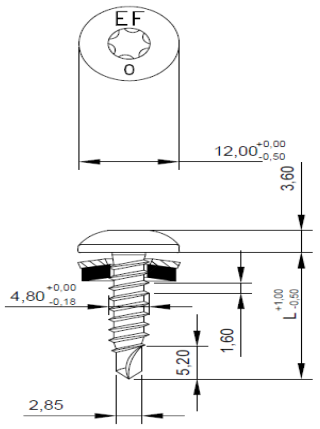
Annex 9

Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with PREMIUM coating
Washer:	A11 – aluminium washer with EPDM ring
	A12 – aluminium washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326
Drilling capacity:	Σti ≤ 2 x 1,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		0,50	0,55	0,60	0,63	0,70	0,75	0,80	0,88	1,00	Timber class ≥ C24
$M_{t,nom}$		4 Nm									
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	
	0,55	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	
	0,60	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	
	0,63	1,28	1,28	1,28	1,56	1,56	1,56	1,56	1,56	1,56	
	0,70	1,28	1,28	1,28	1,56	1,56	1,56	1,56	1,56	1,56	
	0,75	1,28	1,28	1,28	1,56	1,56	2,30	2,30	2,30	2,30	
	0,80	1,28	1,28	1,28	1,56	1,56	2,30	2,30	2,30	2,30	
	0,88	1,28	1,28	1,28	1,56	1,56	2,30	2,30	2,30	2,30	
	1,00	1,28	1,28	1,28	1,56	1,56	2,30	2,30	2,30	2,95	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,66	0,66	0,66	0,70	0,70	0,70	0,70	0,70	0,70	
	0,55	0,66	0,66	0,66	0,70	0,70	0,70	0,70	0,70	0,70	
	0,60	0,66	0,66	0,66	0,70	0,70	0,70	0,70	0,70	0,70	
	0,63	0,66	0,66	0,66	0,79	0,79	0,79	0,79	0,79	0,79	
	0,70	0,66	0,66	0,66	0,79	0,79	0,79	0,79	0,79	0,79	
	0,75	0,66	0,66	0,66	0,94	0,94	1,05	1,05	1,05	1,05	
	0,80	0,66	0,66	0,66	0,94	0,94	1,05	1,05	1,05	1,05	
	0,88	0,66	0,66	0,66	0,94	0,94	1,05	1,05	1,05	1,05	
	1,00	0,66	0,66	0,66	0,94	0,94	1,09	1,09	1,09	1,40	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Annex 10

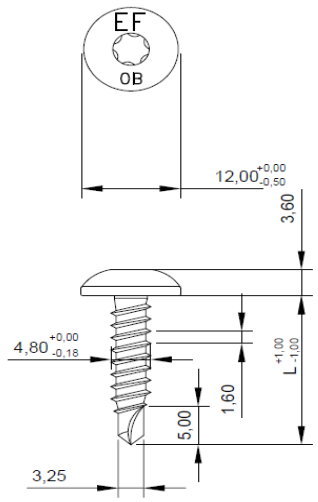
Self-drilling screws ESDS-PH-0-P 4.8xL
with pan head and washer A11 or A12

Materials

Fastener:	stainless steel – SAE302HQ
Washer:	-
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326
Drilling capacity:	Σti ≤ 2 x 1,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		0,50	0,55	0,60	0,63	0,70	0,75	0,80	0,88	1,00	Timber class ≥ C24
$M_{t,nom}$		4 Nm									
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,20	1,20	1,20	1,20	1,20	1,20	1,20	1,20	1,20	
	0,55	1,20	1,20	1,20	1,20	1,20	1,20	1,20	1,20	1,20	
	0,60	1,20	1,20	1,20	1,20	1,20	1,20	1,20	1,20	1,20	
	0,63	1,20	1,20	1,20	1,57	1,57	1,57	1,57	1,57	1,57	
	0,70	1,20	1,20	1,20	1,57	1,57	1,57	1,57	1,57	1,57	
	0,75	1,20	1,20	1,20	1,57	1,57	2,31	2,31	2,31	2,31	
	0,80	1,20	1,20	1,20	1,57	1,57	2,31	2,31	2,31	2,31	
	0,88	1,20	1,20	1,20	1,57	1,57	2,31	2,31	2,31	2,31	
	1,00	1,20	1,20	1,20	1,57	1,57	2,31	2,31	2,31	2,75	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,50	0,50	0,50	0,62	0,62	0,76	0,76	0,76	0,97	
	0,55	0,50	0,50	0,50	0,62	0,62	0,76	0,76	0,76	0,97	
	0,60	0,50	0,50	0,50	0,62	0,62	0,76	0,76	0,76	0,97	
	0,63	0,50	0,50	0,50	0,62	0,62	0,76	0,76	0,76	1,17	
	0,70	0,50	0,50	0,50	0,62	0,62	0,76	0,76	0,76	1,17	
	0,75	0,50	0,50	0,50	0,62	0,62	0,76	0,76	0,76	1,35	
	0,80	0,50	0,50	0,50	0,62	0,62	0,76	0,76	0,76	1,35	
	0,88	0,50	0,50	0,50	0,62	0,62	0,76	0,76	0,76	1,35	
	1,00	0,50	0,50	0,50	0,62	0,62	0,76	0,76	0,76	1,38	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Annex 11

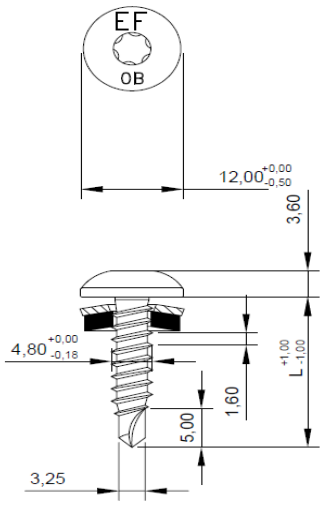
Self-drilling screws ESDS-PH-0-B 4.8xL
with pan head

Materials

Fastener:	stainless steel – SAE302HQ
Washer:	S11 – stainless steel washer with EPDM ring
	S12 – stainless steel washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326
Drilling capacity:	Σti ≤ 2 x 1,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		0,50	0,55	0,60	0,63	0,70	0,75	0,80	0,88	1,00	Timber class ≥ C24
$M_{t,nom}$		4 Nm									
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,20	1,20	1,20	1,20	1,20	1,20	1,20	1,20	1,20	
	0,55	1,20	1,20	1,20	1,20	1,20	1,20	1,20	1,20	1,20	
	0,60	1,20	1,20	1,20	1,20	1,20	1,20	1,20	1,20	1,20	
	0,63	1,20	1,20	1,20	1,57	1,57	1,57	1,57	1,57	1,57	
	0,70	1,20	1,20	1,20	1,57	1,57	1,57	1,57	1,57	1,57	
	0,75	1,20	1,20	1,20	1,57	1,57	2,31	2,31	2,31	2,31	
	0,80	1,20	1,20	1,20	1,57	1,57	2,31	2,31	2,31	2,31	
	0,88	1,20	1,20	1,20	1,57	1,57	2,31	2,31	2,31	2,31	
	1,00	1,20	1,20	1,20	1,57	1,57	2,31	2,31	2,31	2,75	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,50	0,50	0,50	0,62	0,62	0,76	0,76	0,76	0,97	
	0,55	0,50	0,50	0,50	0,62	0,62	0,76	0,76	0,76	0,97	
	0,60	0,50	0,50	0,50	0,62	0,62	0,76	0,76	0,76	0,97	
	0,63	0,50	0,50	0,50	0,62	0,62	0,76	0,76	0,76	1,17	
	0,70	0,50	0,50	0,50	0,62	0,62	0,76	0,76	0,76	1,17	
	0,75	0,50	0,50	0,50	0,62	0,62	0,76	0,76	0,76	1,35	
	0,80	0,50	0,50	0,50	0,62	0,62	0,76	0,76	0,76	1,35	
	0,88	0,50	0,50	0,50	0,62	0,62	0,76	0,76	0,76	1,35	
	1,00	0,50	0,50	0,50	0,62	0,62	0,76	0,76	0,76	1,38	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Annex 12

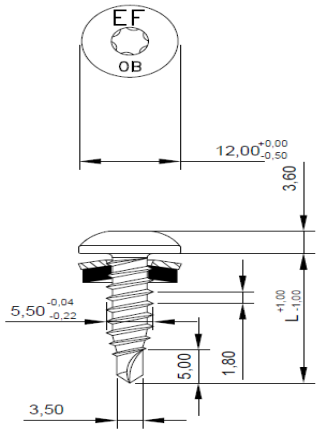
Self-drilling screws ESDS-PH-0-B 4.8xL
with pan head and washer S11 or S12

Materials

Fastener:	stainless steel – SAE302HQ
Washer:	S11 – stainless steel washer with EPDM ring
	S12 – stainless steel washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326
Drilling capacity:	Σti ≤ 2 x 1,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		0,50	0,55	0,60	0,63	0,70	0,75	0,80	0,88	1,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm									
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,49	1,49	1,49	1,49	1,49	1,49	1,49	1,49	1,49	
	0,55	1,49	1,49	1,49	1,49	1,49	1,49	1,49	1,49	1,49	
	0,60	1,49	1,49	1,49	1,49	1,49	1,49	1,49	1,49	1,49	
	0,63	1,49	1,49	1,49	1,84	1,84	1,84	1,84	1,84	1,84	
	0,70	1,49	1,49	1,49	1,84	1,84	1,84	1,84	1,84	1,84	
	0,75	1,49	1,49	1,49	1,84	1,84	2,42	2,42	2,42	2,42	
	0,80	1,49	1,49	1,49	1,84	1,84	2,42	2,42	2,42	2,42	
	0,88	1,49	1,49	1,49	1,84	1,84	2,42	2,42	2,42	2,42	
	1,00	1,49	1,49	1,49	1,84	1,84	2,42	2,42	2,42	2,82	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,61	0,61	0,61	0,75	0,75	0,97	0,97	0,97	0,97	
	0,55	0,61	0,61	0,61	0,75	0,75	0,97	0,97	0,97	0,97	
	0,60	0,61	0,61	0,61	0,75	0,75	0,97	0,97	0,97	0,97	
	0,63	0,61	0,61	0,61	0,75	0,75	1,11	1,11	1,11	1,17	
	0,70	0,61	0,61	0,61	0,75	0,75	1,11	1,11	1,11	1,17	
	0,75	0,61	0,61	0,61	0,75	0,75	1,11	1,11	1,11	1,35	
	0,80	0,61	0,61	0,61	0,75	0,75	1,11	1,11	1,11	1,35	
	0,88	0,61	0,61	0,61	0,75	0,75	1,11	1,11	1,11	1,35	
	1,00	0,61	0,61	0,61	0,75	0,75	1,11	1,11	1,11	1,43	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Annex 13

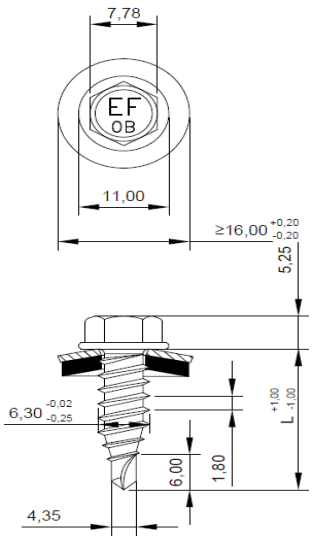
Self-drilling screws ESDS-PH-0-B 5.5xL
with pan head and washer S11 or S12

Materials

Fastener:	stainless steel – SAE304
Washer:	S16 – stainless steel washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326
Drilling capacity:	Σti ≤ 2 x 1,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		0,50	0,55	0,60	0,63	0,70	0,75	0,80	0,88	1,00	Timber class ≥ C24
$M_{t,nom}$		7 Nm									
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,72	1,72	1,72	1,72	1,72	1,72	1,72	1,72	1,72	
	0,55	1,72	1,72	1,72	1,72	1,72	1,72	1,72	1,72	1,72	
	0,60	1,72	1,72	1,72	1,72	1,72	1,72	1,72	1,72	1,72	
	0,63	1,72	1,72	1,72	1,90	1,90	1,90	1,90	1,90	1,90	
	0,70	1,72	1,72	1,72	1,90	1,90	1,90	1,90	1,90	1,90	
	0,75	1,72	1,72	1,72	1,90	1,90	2,69	2,69	2,69	2,69	
	0,80	1,72	1,72	1,72	1,90	1,90	2,69	2,69	2,69	2,69	
	0,88	1,72	1,72	1,72	1,90	1,90	2,69	2,69	2,69	2,69	
	1,00	1,72	1,72	1,72	1,90	1,90	2,69	2,69	2,69	3,10	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,61	0,61	0,61	0,77	0,77	1,11	1,11	1,11	1,50	
	0,55	0,61	0,61	0,61	0,77	0,77	1,11	1,11	1,11	1,50	
	0,60	0,61	0,61	0,61	0,77	0,77	1,11	1,11	1,11	1,50	
	0,63	0,61	0,61	0,61	0,77	0,77	1,11	1,11	1,11	1,50	
	0,70	0,61	0,61	0,61	0,77	0,77	1,11	1,11	1,11	1,50	
	0,75	0,61	0,61	0,61	0,77	0,77	1,11	1,11	1,11	1,50	
	0,80	0,61	0,61	0,61	0,77	0,77	1,11	1,11	1,11	1,50	
	0,88	0,61	0,61	0,61	0,77	0,77	1,11	1,11	1,11	1,50	
	1,00	0,61	0,61	0,61	0,77	0,77	1,11	1,11	1,11	1,50	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-0-B 6.3xL
with hexagon head and washer S16

Annex 14

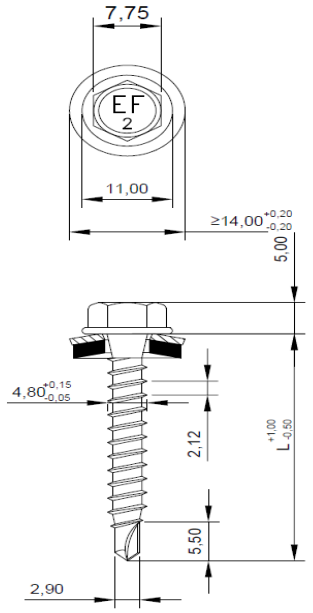
Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized (12 µm)
Washer:	Z14 – carbon steel galvanized washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326 or structural timber C24 – EN 14081
Drilling capacity:	Σti ≤ 2 x 1,00 mm

Timber substructures

For timber structures performance assessed with:

$M_{y,Rk}$ = 4,39 Nm
$f_{ax,k}$ = 13,346 N/mm² for l_{ef} ≥ 19,2 mm



$t_{N,II}$ [mm]		0,50	0,55	0,60	0,63	0,70	0,75	0,80	0,88	1,00	Timber class ≥ C24
$M_{t,nom}$		4 Nm									
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,92	1,92	1,92	1,92	1,92	1,92	1,92	1,92	1,92	1,92
	0,55	1,92	1,92	1,92	1,92	1,92	1,92	1,92	1,92	1,92	1,92
	0,60	1,92	1,92	1,92	1,92	1,92	1,92	1,92	1,92	1,92	1,92
	0,63	1,92	1,92	1,92	2,15	2,15	2,15	2,15	2,15	2,15	2,15
	0,70	1,92	1,92	1,92	2,15	2,15	2,15	2,15	2,15	2,15	2,15
	0,75	1,92	1,92	1,92	2,15	2,15	3,52	3,52	3,52	3,52	3,52
	0,80	1,92	1,92	1,92	2,15	2,15	3,52	3,52	3,52	3,52	3,52
	0,88	1,92	1,92	1,92	2,15	2,15	3,52	3,52	3,52	3,52	3,52
	1,00	1,92	1,92	1,92	2,15	2,15	3,52	3,52	3,52	3,52	3,52
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,61	0,61	0,61	0,80	0,80	0,98	0,98	0,98	1,59	1,13
	0,55	0,61	0,61	0,61	0,80	0,80	0,98	0,98	0,98	1,59	1,13
	0,60	0,61	0,61	0,61	0,80	0,80	0,98	0,98	0,98	1,59	1,13
	0,63	0,61	0,61	0,61	0,80	0,80	0,98	0,98	0,98	1,59	1,13
	0,70	0,61	0,61	0,61	0,80	0,80	0,98	0,98	0,98	1,59	1,13
	0,75	0,61	0,61	0,61	0,80	0,80	0,98	0,98	0,98	1,59	1,13
	0,80	0,61	0,61	0,61	0,80	0,80	0,98	0,98	0,98	1,59	1,13
	0,88	0,61	0,61	0,61	0,80	0,80	0,98	0,98	0,98	1,59	1,13
	1,00	0,61	0,61	0,61	0,80	0,80	0,98	0,98	0,98	1,59	1,13

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Annex 15

Self-drilling screws EFS-2-Z 4.8xL
with hexagon head and washer Z14

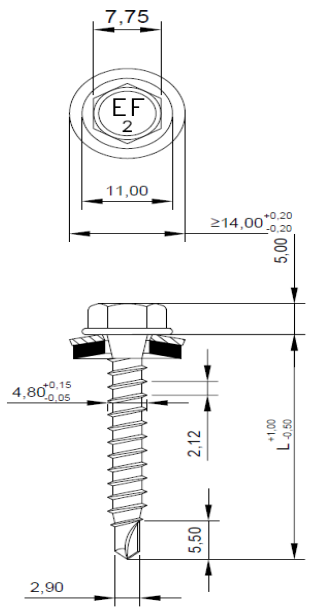
Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with PREMIUM coating
Washer:	A14 – aluminium washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326 or structural timber C24 – EN 14081
Drilling capacity:	Σti ≤ 2 x 1,00 mm

Timber substructures

For timber structures performance assessed with:

$M_{y,Rk}$ = 4,39 Nm
$f_{ax,k}$ = 13,346 N/mm² for l_{ef} ≥ 19,2 mm



$t_{N,II}$ [mm]		0,50	0,55	0,60	0,63	0,70	0,75	0,80	0,88	1,00	Timber class ≥ C24
$M_{t,nom}$		4 Nm									
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,92	1,92	1,92	1,92	1,92	1,92	1,92	1,92	1,92	1,92
	0,55	1,92	1,92	1,92	1,92	1,92	1,92	1,92	1,92	1,92	1,92
	0,60	1,92	1,92	1,92	1,92	1,92	1,92	1,92	1,92	1,92	1,92
	0,63	1,92	1,92	1,92	2,15	2,15	2,15	2,15	2,15	2,15	2,15
	0,70	1,92	1,92	1,92	2,15	2,15	2,15	2,15	2,15	2,15	2,15
	0,75	1,92	1,92	1,92	2,15	2,15	3,52	3,52	3,52	3,52	3,52
	0,80	1,92	1,92	1,92	2,15	2,15	3,52	3,52	3,52	3,52	3,52
	0,88	1,92	1,92	1,92	2,15	2,15	3,52	3,52	3,52	3,52	3,52
	1,00	1,92	1,92	1,92	2,15	2,15	3,52	3,52	3,52	3,52	3,52
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,61	0,61	0,61	0,80	0,80	0,98	0,98	0,98	1,59	1,13
	0,55	0,61	0,61	0,61	0,80	0,80	0,98	0,98	0,98	1,59	1,13
	0,60	0,61	0,61	0,61	0,80	0,80	0,98	0,98	0,98	1,59	1,13
	0,63	0,61	0,61	0,61	0,80	0,80	0,98	0,98	0,98	1,59	1,13
	0,70	0,61	0,61	0,61	0,80	0,80	0,98	0,98	0,98	1,59	1,13
	0,75	0,61	0,61	0,61	0,80	0,80	0,98	0,98	0,98	1,59	1,13
	0,80	0,61	0,61	0,61	0,80	0,80	0,98	0,98	0,98	1,59	1,13
	0,88	0,61	0,61	0,61	0,80	0,80	0,98	0,98	0,98	1,59	1,13
	1,00	0,61	0,61	0,61	0,80	0,80	0,98	0,98	0,98	1,59	1,13

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws EFS-2-P 4.8xL
with hexagon head and washer A14

Annex 16

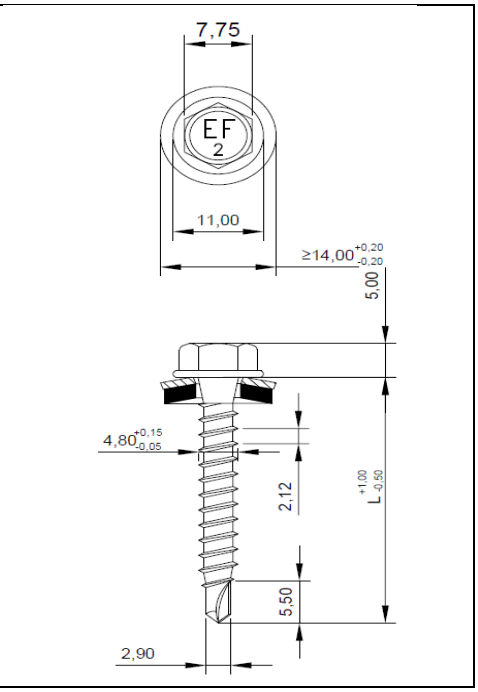
Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with SUPER PREMIUM coating
Washer:	S14 – stainless steel washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326 or structural timber C24 – EN 14081
Drilling capacity:	Σti ≤ 2 x 1,00 mm

Timber substructures

For timber structures performance assessed with:

$M_{y,Rk}$ = 4,39 Nm
$f_{ax,k}$ = 13,346 N/mm² for l_{ef} ≥ 19,2 mm



$t_{N,II}$ [mm]		0,50	0,55	0,60	0,63	0,70	0,75	0,80	0,88	1,00	Timber class ≥ C24
$M_{t,nom}$		4 Nm									
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,92	1,92	1,92	1,92	1,92	1,92	1,92	1,92	1,92	1,92
	0,55	1,92	1,92	1,92	1,92	1,92	1,92	1,92	1,92	1,92	1,92
	0,60	1,92	1,92	1,92	1,92	1,92	1,92	1,92	1,92	1,92	1,92
	0,63	1,92	1,92	1,92	2,15	2,15	2,15	2,15	2,15	2,15	2,15
	0,70	1,92	1,92	1,92	2,15	2,15	2,15	2,15	2,15	2,15	2,15
	0,75	1,92	1,92	1,92	2,15	2,15	3,52	3,52	3,52	3,52	3,52
	0,80	1,92	1,92	1,92	2,15	2,15	3,52	3,52	3,52	3,52	3,52
	0,88	1,92	1,92	1,92	2,15	2,15	3,52	3,52	3,52	3,52	3,52
	1,00	1,92	1,92	1,92	2,15	2,15	3,52	3,52	3,52	3,52	3,52
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,61	0,61	0,61	0,80	0,80	0,98	0,98	0,98	1,59	1,13
	0,55	0,61	0,61	0,61	0,80	0,80	0,98	0,98	0,98	1,59	1,13
	0,60	0,61	0,61	0,61	0,80	0,80	0,98	0,98	0,98	1,59	1,13
	0,63	0,61	0,61	0,61	0,80	0,80	0,98	0,98	0,98	1,59	1,13
	0,70	0,61	0,61	0,61	0,80	0,80	0,98	0,98	0,98	1,59	1,13
	0,75	0,61	0,61	0,61	0,80	0,80	0,98	0,98	0,98	1,59	1,13
	0,80	0,61	0,61	0,61	0,80	0,80	0,98	0,98	0,98	1,59	1,13
	0,88	0,61	0,61	0,61	0,80	0,80	0,98	0,98	0,98	1,59	1,13
	1,00	0,61	0,61	0,61	0,80	0,80	0,98	0,98	0,98	1,59	1,13

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws EFS-2-SP 4.8xL
with hexagon head and washer S14

Annex 17

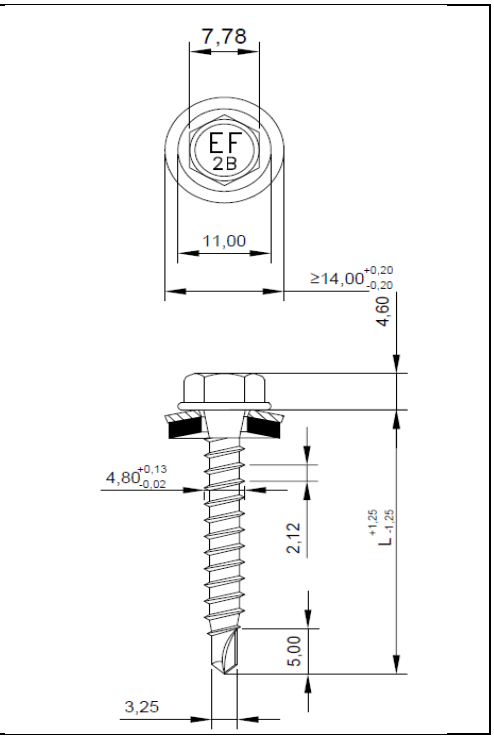
Materials

Fastener:	stainless steel – SAE304
Washer:	S14 – stainless steel washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326 or structural timber C24 – EN 14081
Drilling capacity:	Σti ≤ 2 x 1,00 mm

Timber substructures

For timber structures performance assessed with:

$M_{y,Rk}$ = 4,39 Nm
$f_{ax,k}$ = 13,346 N/mm² for l_{ef} ≥ 19,2 mm



$t_{N,II}$ [mm]		0,50	0,55	0,60	0,63	0,70	0,75	0,80	0,88	1,00	Timber class ≥ C24
$M_{t,nom}$		4 Nm									
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,92	1,92	1,92	1,92	1,92	1,92	1,92	1,92	1,92	1,92
	0,55	1,92	1,92	1,92	1,92	1,92	1,92	1,92	1,92	1,92	1,92
	0,60	1,92	1,92	1,92	1,92	1,92	1,92	1,92	1,92	1,92	1,92
	0,63	1,92	1,92	1,92	2,15	2,15	2,15	2,15	2,15	2,15	2,15
	0,70	1,92	1,92	1,92	2,15	2,15	2,15	2,15	2,15	2,15	2,15
	0,75	1,92	1,92	1,92	2,15	2,15	3,52	3,52	3,52	3,52	3,52
	0,80	1,92	1,92	1,92	2,15	2,15	3,52	3,52	3,52	3,52	3,52
	0,88	1,92	1,92	1,92	2,15	2,15	3,52	3,52	3,52	3,52	3,52
	1,00	1,92	1,92	1,92	2,15	2,15	3,52	3,52	3,52	3,52	3,52
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,62	0,62	0,62	0,81	0,81	0,92	0,92	0,92	1,67	1,35
	0,55	0,62	0,62	0,62	0,81	0,81	0,92	0,92	0,92	1,67	1,35
	0,60	0,62	0,62	0,62	0,81	0,81	0,92	0,92	0,92	1,67	1,35
	0,63	0,62	0,62	0,62	0,81	0,81	0,92	0,92	0,92	1,67	1,35
	0,70	0,62	0,62	0,62	0,81	0,81	0,92	0,92	0,92	1,67	1,35
	0,75	0,62	0,62	0,62	0,81	0,81	0,92	0,92	0,92	1,67	1,35
	0,80	0,62	0,62	0,62	0,81	0,81	0,92	0,92	0,92	1,67	1,35
	0,88	0,62	0,62	0,62	0,81	0,81	0,92	0,92	0,92	1,67	1,35
	1,00	0,62	0,62	0,62	0,81	0,81	0,92	0,92	0,92	1,67	1,35

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Annex 18

Self-drilling screws EFS-2-B 4.8xL
with hexagon head and washer S14

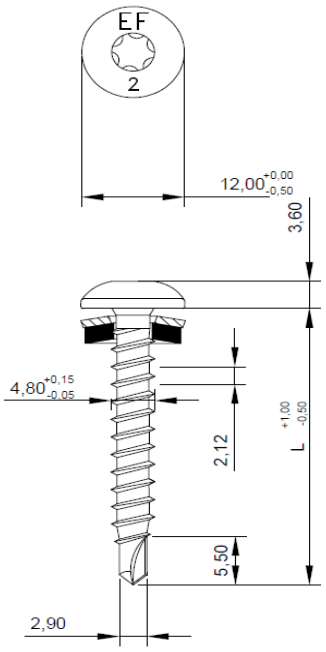
Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized (12 µm)
Washer:	Z11 – carbon steel galvanized washer with EPDM ring
	Z12 – carbon steel galvanized washer with EPDM ring
	A11 – aluminium washer with EPDM ring
	A12 – aluminium washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326 or structural timber C24 – EN 14081
Drilling capacity:	Σti ≤ 2 x 1,00 mm

Timber substructures

For timber structures performance assessed with:

$M_{y,Rk}$ = 4,39 Nm
$f_{ax,k}$ = 13,346 N/mm² for l_{ef} ≥ 19,2 mm



$t_{N,II}$ [mm]		0,50	0,55	0,60	0,63	0,70	0,75	0,80	0,88	1,00	Timber class ≥ C24
$M_{t,nom}$		4 Nm									
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28
	0,55	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28
	0,60	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28
	0,63	1,28	1,28	1,28	1,56	1,56	1,56	1,56	1,56	1,56	1,56
	0,70	1,28	1,28	1,28	1,56	1,56	1,56	1,56	1,56	1,56	1,56
	0,75	1,28	1,28	1,28	1,56	1,56	2,30	2,30	2,30	2,30	2,30
	0,80	1,28	1,28	1,28	1,56	1,56	2,30	2,30	2,30	2,30	2,30
	0,88	1,28	1,28	1,28	1,56	1,56	2,30	2,30	2,30	2,30	2,30
	1,00	1,28	1,28	1,28	1,56	1,56	2,30	2,30	2,30	2,95	2,95
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,70	0,70	0,70	0,70	0,70	0,70	0,70	0,70	0,70	1,23
	0,55	0,70	0,70	0,70	0,70	0,70	0,70	0,70	0,70	0,70	1,23
	0,60	0,70	0,70	0,70	0,70	0,70	0,70	0,70	0,70	0,70	1,23
	0,63	0,75	0,75	0,75	0,79	0,79	0,79	0,79	0,79	0,79	1,23
	0,70	0,75	0,75	0,75	0,79	0,79	0,79	0,79	0,79	0,79	1,23
	0,75	0,75	0,75	0,75	0,92	0,92	1,05	1,05	1,05	1,05	1,23
	0,80	0,75	0,75	0,75	0,92	0,92	1,05	1,05	1,05	1,05	1,23
	0,88	0,75	0,75	0,75	0,92	0,92	1,05	1,05	1,05	1,05	1,23
	1,00	0,75	0,75	0,75	0,92	0,92	1,27	1,27	1,27	1,40	1,23

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws EFS-PH-2-Z 4.8xL
with pan head and washer A11, A12, Z11 or Z12

Annex 19

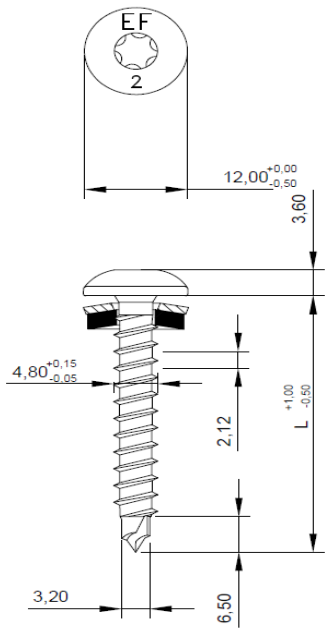
Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with PREMIUM coating
Washer:	A11 – aluminium washer with EPDM ring
	A12 – aluminium washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326 or structural timber C24 – EN 14081
Drilling capacity:	$\Sigma t_i \leq 2 \times 1{,}00$ mm

Timber substructures

For timber structures performance assessed with:

$M_{y,Rk}$ = 4,39 Nm
$f_{ax,k}$ = 13,346 N/mm² for $l_{ef} \geq$ 19,2 mm



$t_{N,II}$ [mm]		0,50	0,55	0,60	0,63	0,70	0,75	0,80	0,88	1,00	Timber class ≥ C24
$M_{t,nom}$		4 Nm									
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28
	0,55	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28
	0,60	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28	1,28
	0,63	1,28	1,28	1,28	1,56	1,56	1,56	1,56	1,56	1,56	1,56
	0,70	1,28	1,28	1,28	1,56	1,56	1,56	1,56	1,56	1,56	1,56
	0,75	1,28	1,28	1,28	1,56	1,56	2,30	2,30	2,30	2,30	2,30
	0,80	1,28	1,28	1,28	1,56	1,56	2,30	2,30	2,30	2,30	2,30
	0,88	1,28	1,28	1,28	1,56	1,56	2,30	2,30	2,30	2,30	2,30
	1,00	1,28	1,28	1,28	1,56	1,56	2,30	2,30	2,30	2,95	2,95
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,70	0,70	0,70	0,70	0,70	0,70	0,70	0,70	0,70	1,23
	0,55	0,70	0,70	0,70	0,70	0,70	0,70	0,70	0,70	0,70	1,23
	0,60	0,70	0,70	0,70	0,70	0,70	0,70	0,70	0,70	0,70	1,23
	0,63	0,75	0,75	0,75	0,79	0,79	0,79	0,79	0,79	0,79	1,23
	0,70	0,75	0,75	0,75	0,79	0,79	0,79	0,79	0,79	0,79	1,23
	0,75	0,75	0,75	0,75	0,92	0,92	1,05	1,05	1,05	1,05	1,23
	0,80	0,75	0,75	0,75	0,92	0,92	1,05	1,05	1,05	1,05	1,23
	0,88	0,75	0,75	0,75	0,92	0,92	1,05	1,05	1,05	1,05	1,23
	1,00	0,75	0,75	0,75	0,92	0,92	1,27	1,27	1,27	1,40	1,23

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheathing

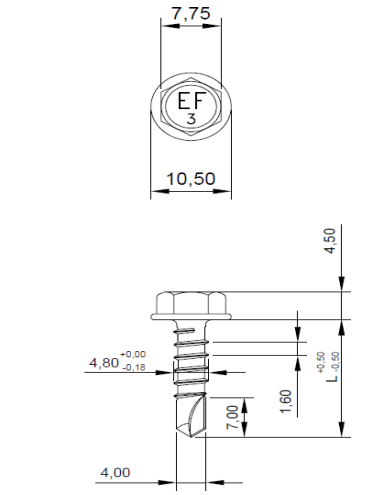
Annex 20

Self-drilling screws EFS-PH-2-P 4.8xL
with pan head and washer A11 or A12

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized (12 µm)
Washer:	-
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326
Drilling capacity:	Σti ≤ 3,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		1,00	1,25	1,50	2,00	Timber class ≥ C24
$M_{t,nom}$		4 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,17	1,17	1,17	1,17	
	0,55	1,17	1,17	1,17	1,17	
	0,60	1,17	1,17	1,17	1,17	
	0,63	1,44	1,44	1,44	1,44	
	0,70	1,44	1,44	1,44	1,44	
	0,75	2,27	2,27	2,27	2,27	
	0,80	2,27	2,27	2,27	2,27	
	0,88	2,27	2,27	2,27	2,27	
	1,00	2,64	2,64	2,64	2,64	
	1,13	2,64	2,64	2,64	—	
	1,15	2,64	2,64	2,64	—	
	1,25	2,64	2,64	2,64	—	
	1,50	2,64	2,64	2,64	—	
	1,75	2,64	2,64	—	—	
	2,00	2,64	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,61	0,61	0,61	0,61	
	0,55	0,61	0,61	0,61	0,61	
	0,60	0,61	0,61	0,61	0,61	
	0,63	0,80	0,80	0,80	0,80	
	0,70	0,80	0,80	0,80	0,80	
	0,75	0,96	0,96	0,96	0,96	
	0,80	0,96	0,96	0,96	0,96	
	0,88	0,96	0,96	0,96	0,96	
	1,00	0,97	0,97	0,97	0,97	
	1,13	0,97	0,97	0,97	—	
	1,15	0,97	0,97	0,97	—	
	1,25	0,97	0,97	0,97	—	
	1,50	0,97	0,97	0,97	—	
	1,75	0,97	0,97	—	—	
	2,00	0,97	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-3-Z 4.8xL
with hexagon head

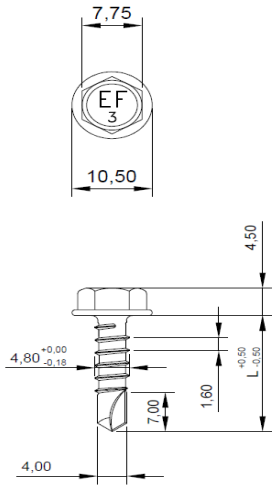
Annex 21

Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with PREMIUM coating
Washer:	-
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326
Drilling capacity:	Σti ≤ 3,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		1,00	1,25	1,50	2,00	Timber class ≥ C24
$M_{t,nom}$		4 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,17	1,17	1,17	1,17	
	0,55	1,17	1,17	1,17	1,17	
	0,60	1,17	1,17	1,17	1,17	
	0,63	1,44	1,44	1,44	1,44	
	0,70	1,44	1,44	1,44	1,44	
	0,75	2,27	2,27	2,27	2,27	
	0,80	2,27	2,27	2,27	2,27	
	0,88	2,27	2,27	2,27	2,27	
	1,00	2,64	2,64	2,64	2,64	
	1,13	2,64	2,64	2,64	—	
	1,15	2,64	2,64	2,64	—	
	1,25	2,64	2,64	2,64	—	
	1,50	2,64	2,64	2,64	—	
	1,75	2,64	2,64	—	—	
	2,00	2,64	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,61	0,61	0,61	0,61	
	0,55	0,61	0,61	0,61	0,61	
	0,60	0,61	0,61	0,61	0,61	
	0,63	0,80	0,80	0,80	0,80	
	0,70	0,80	0,80	0,80	0,80	
	0,75	0,96	0,96	0,96	0,96	
	0,80	0,96	0,96	0,96	0,96	
	0,88	0,96	0,96	0,96	0,96	
	1,00	0,97	0,97	0,97	0,97	
	1,13	0,97	0,97	0,97	—	
	1,15	0,97	0,97	0,97	—	
	1,25	0,97	0,97	0,97	—	
	1,50	0,97	0,97	0,97	—	
	1,75	0,97	0,97	—	—	
	2,00	0,97	—	—	—	

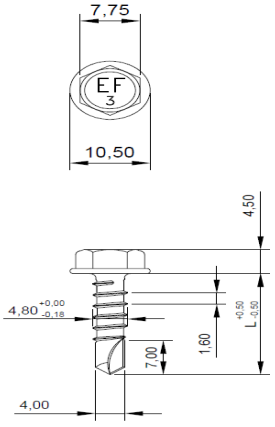
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-3-P 4.8xL
with hexagon head

Annex 22

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with SUPER PREMIUM coating
Washer:	-
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326
Drilling capacity:	Σti ≤ 3,00 mm
Timber substructures	
No performance assessed	

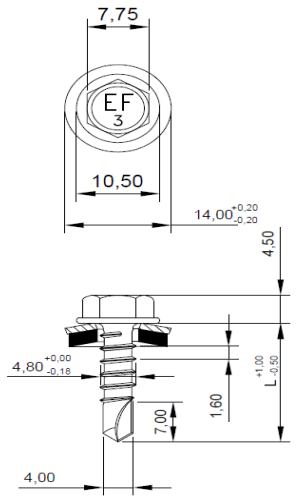


$t_{N,II}$ [mm]		1,00	1,25	1,50	2,00	Timber class ≥ C24
$M_{t,nom}$		4 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,17	1,17	1,17	1,17	
	0,55	1,17	1,17	1,17	1,17	
	0,60	1,17	1,17	1,17	1,17	
	0,63	1,44	1,44	1,44	1,44	
	0,70	1,44	1,44	1,44	1,44	
	0,75	2,27	2,27	2,27	2,27	
	0,80	2,27	2,27	2,27	2,27	
	0,88	2,27	2,27	2,27	2,27	
	1,00	2,64	2,64	2,64	2,64	
	1,13	2,64	2,64	2,64	—	
	1,15	2,64	2,64	2,64	—	
	1,25	2,64	2,64	2,64	—	
	1,50	2,64	2,64	2,64	—	
	1,75	2,64	2,64	—	—	
	2,00	2,64	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,61	0,61	0,61	0,61	
	0,55	0,61	0,61	0,61	0,61	
	0,60	0,61	0,61	0,61	0,61	
	0,63	0,80	0,80	0,80	0,80	
	0,70	0,80	0,80	0,80	0,80	
	0,75	0,96	0,96	0,96	0,96	
	0,80	0,96	0,96	0,96	0,96	
	0,88	0,96	0,96	0,96	0,96	
	1,00	0,97	0,97	0,97	0,97	
	1,13	0,97	0,97	0,97	—	
	1,15	0,97	0,97	0,97	—	
	1,25	0,97	0,97	0,97	—	
	1,50	0,97	0,97	0,97	—	
	1,75	0,97	0,97	—	—	
	2,00	0,97	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting	**Annex 23**
Self-drilling screws ESDS-3-SP 4.8xL with hexagon head	

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized (12 µm)
Washer:	Z14 – carbon steel galvanized washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326
Drilling capacity:	Σti ≤ 3,00 mm
Timber substructures	
No performance assessed	



$t_{N,II}$ [mm]		1,00	1,25	1,50	2,00	Timber class ≥ C24
$M_{t,nom}$		4 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,17	1,17	1,17	1,17	
	0,55	1,17	1,17	1,17	1,17	
	0,60	1,17	1,17	1,17	1,17	
	0,63	1,44	1,44	1,44	1,44	
	0,70	1,44	1,44	1,44	1,44	
	0,75	2,27	2,27	2,27	2,27	
	0,80	2,27	2,27	2,27	2,27	
	0,88	2,27	2,27	2,27	2,27	
	1,00	2,64	2,64	2,64	2,64	
	1,13	2,64	2,64	2,64	—	
	1,15	2,64	2,64	2,64	—	
	1,25	2,64	2,64	2,64	—	
	1,50	2,64	2,64	2,64	—	
	1,75	2,64	2,64	—	—	
	2,00	2,64	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,16	1,16	2,03	2,54	
	0,55	1,16	1,16	2,03	2,54	
	0,60	1,16	1,16	2,03	2,54	
	0,63	1,16	1,16	2,03	3,10	
	0,70	1,16	1,16	2,03	3,10	
	0,75	1,16	1,16	2,03	3,10	
	0,80	1,16	1,16	2,03	3,10	
	0,88	1,16	1,16	2,03	3,10	
	1,00	1,16	1,16	2,03	3,10	
	1,13	1,16	1,16	2,03	—	
	1,15	1,16	1,16	2,03	—	
	1,25	1,16	1,16	2,03	—	
	1,50	1,16	1,16	2,03	—	
	1,75	1,16	1,16	—	—	
	2,00	1,16	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-3-Z 4.8xL
with hexagon head and washer Z14

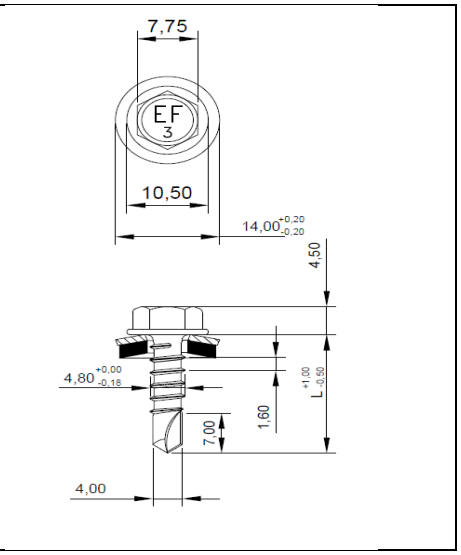
Annex 24

Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with PREMIUM coating
Washer:	A14 – aluminium washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326
Drilling capacity:	Σti ≤ 3,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		1,00	1,25	1,50	2,00	Timber class ≥ C24
$M_{t,nom}$		4 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,17	1,17	1,17	1,17	
	0,55	1,17	1,17	1,17	1,17	
	0,60	1,17	1,17	1,17	1,17	
	0,63	1,44	1,44	1,44	1,44	
	0,70	1,44	1,44	1,44	1,44	
	0,75	2,27	2,27	2,27	2,27	
	0,80	2,27	2,27	2,27	2,27	
	0,88	2,27	2,27	2,27	2,27	
	1,00	2,64	2,64	2,64	2,64	
	1,13	2,64	2,64	2,64	—	
	1,15	2,64	2,64	2,64	—	
	1,25	2,64	2,64	2,64	—	
	1,50	2,64	2,64	2,64	—	
	1,75	2,64	2,64	—	—	
	2,00	2,64	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,16	1,16	2,03	2,54	
	0,55	1,16	1,16	2,03	2,54	
	0,60	1,16	1,16	2,03	2,54	
	0,63	1,16	1,16	2,03	3,10	
	0,70	1,16	1,16	2,03	3,10	
	0,75	1,16	1,16	2,03	3,10	
	0,80	1,16	1,16	2,03	3,10	
	0,88	1,16	1,16	2,03	3,10	
	1,00	1,16	1,16	2,03	3,10	
	1,13	1,16	1,16	2,03	—	
	1,15	1,16	1,16	2,03	—	
	1,25	1,16	1,16	2,03	—	
	1,50	1,16	1,16	2,03	—	
	1,75	1,16	1,16	—	—	
	2,00	1,16	—	—	—	

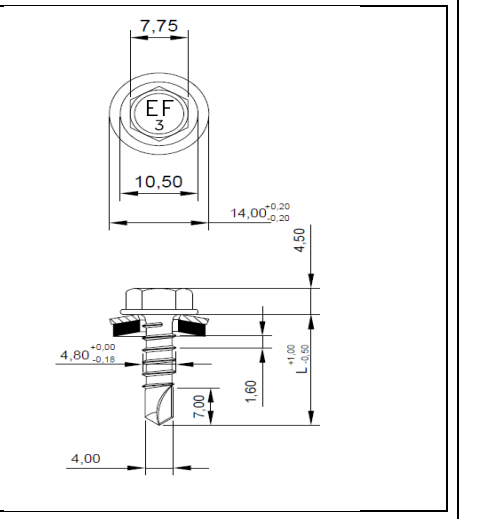
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-3-P 4.8xL
with hexagon head and washer A14

Annex 25

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with SUPER PREMIUM coating
Washer:	S14 – stainless steel washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326
Drilling capacity:	Σti ≤ 3,00 mm
Timber substructures	
No performance assessed	



$t_{N,II}$ [mm]		1,00	1,25	1,50	2,00	Timber class ≥ C24
$M_{t,nom}$		4 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,17	1,17	1,17	1,17	
	0,55	1,17	1,17	1,17	1,17	
	0,60	1,17	1,17	1,17	1,17	
	0,63	1,44	1,44	1,44	1,44	
	0,70	1,44	1,44	1,44	1,44	
	0,75	2,27	2,27	2,27	2,27	
	0,80	2,27	2,27	2,27	2,27	
	0,88	2,27	2,27	2,27	2,27	
	1,00	2,64	2,64	2,64	2,64	
	1,13	2,64	2,64	2,64	—	
	1,15	2,64	2,64	2,64	—	
	1,25	2,64	2,64	2,64	—	
	1,50	2,64	2,64	2,64	—	
	1,75	2,64	2,64	—	—	
	2,00	2,64	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,16	1,16	2,03	2,54	
	0,55	1,16	1,16	2,03	2,54	
	0,60	1,16	1,16	2,03	2,54	
	0,63	1,16	1,16	2,03	3,10	
	0,70	1,16	1,16	2,03	3,10	
	0,75	1,16	1,16	2,03	3,10	
	0,80	1,16	1,16	2,03	3,10	
	0,88	1,16	1,16	2,03	3,10	
	1,00	1,16	1,16	2,03	3,10	
	1,13	1,16	1,16	2,03	—	
	1,15	1,16	1,16	2,03	—	
	1,25	1,16	1,16	2,03	—	
	1,50	1,16	1,16	2,03	—	
	1,75	1,16	1,16	—	—	
	2,00	1,16	—	—	—	

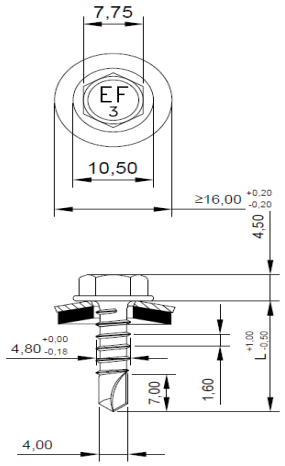
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-3-SP 4.8xL
with hexagon head and washer S14

Annex 26

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized (12 µm)
Washer:	Z16 – carbon steel galvanized washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326
Drilling capacity:	Σti ≤ 3,00 mm
Timber substructures	
No performance assessed	



$t_{N,II}$ [mm]		1,00	1,25	1,50	2,00	Timber class ≥ C24
$M_{t,nom}$		4 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,17	1,17	1,17	1,17	
	0,55	1,17	1,17	1,17	1,17	
	0,60	1,17	1,17	1,17	1,17	
	0,63	1,44	1,44	1,44	1,44	
	0,70	1,44	1,44	1,44	1,44	
	0,75	2,27	2,27	2,27	2,27	
	0,80	2,27	2,27	2,27	2,27	
	0,88	2,27	2,27	2,27	2,27	
	1,00	2,64	2,64	2,64	2,64	
	1,13	2,64	2,64	2,64	—	
	1,15	2,64	2,64	2,64	—	
	1,25	2,64	2,64	2,64	—	
	1,50	2,64	2,64	2,64	—	
	1,75	2,64	2,64	—	—	
	2,00	2,64	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,16	1,16	2,03	2,53	
	0,55	1,16	1,16	2,03	2,53	
	0,60	1,16	1,16	2,03	2,77	
	0,63	1,16	1,16	2,03	2,77	
	0,70	1,16	1,16	2,03	2,89	
	0,75	1,16	1,16	2,03	2,89	
	0,80	1,16	1,16	2,03	2,89	
	0,88	1,16	1,16	2,03	2,89	
	1,00	1,16	1,16	2,03	3,10	
	1,13	1,16	1,16	2,03	—	
	1,15	1,16	1,16	2,03	—	
	1,25	1,16	1,16	2,03	—	
	1,50	1,16	1,16	2,03	—	
	1,75	1,16	1,16	—	—	
	2,00	1,16	—	—	—	

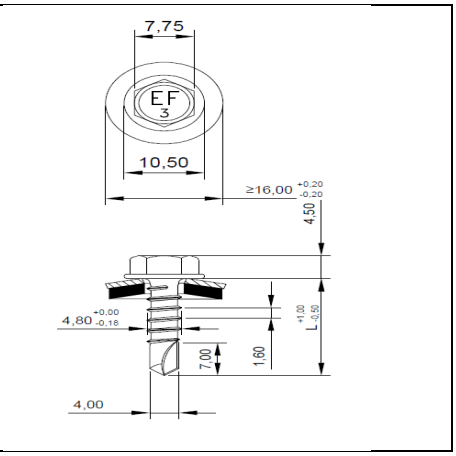
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-3-Z 4.8xL
with hexagon head and washer Z16

Annex 27

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with PREMIUM coating
Washer:	A16 – aluminium washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326
Drilling capacity:	Σti ≤ 3,00 mm
Timber substructures	
No performance assessed	



$t_{N,II}$ [mm]		1,00	1,25	1,50	2,00	Timber class ≥ C24
$M_{t,nom}$		4 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,17	1,17	1,17	1,17	
	0,55	1,17	1,17	1,17	1,17	
	0,60	1,17	1,17	1,17	1,17	
	0,63	1,44	1,44	1,44	1,44	
	0,70	1,44	1,44	1,44	1,44	
	0,75	2,27	2,27	2,27	2,27	
	0,80	2,27	2,27	2,27	2,27	
	0,88	2,27	2,27	2,27	2,27	
	1,00	2,64	2,64	2,64	2,64	
	1,13	2,64	2,64	2,64	—	
	1,15	2,64	2,64	2,64	—	
	1,25	2,64	2,64	2,64	—	
	1,50	2,64	2,64	2,64	—	
	1,75	2,64	2,64	—	—	
	2,00	2,64	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,16	1,16	2,03	2,53	
	0,55	1,16	1,16	2,03	2,53	
	0,60	1,16	1,16	2,03	2,77	
	0,63	1,16	1,16	2,03	2,77	
	0,70	1,16	1,16	2,03	2,89	
	0,75	1,16	1,16	2,03	2,89	
	0,80	1,16	1,16	2,03	2,89	
	0,88	1,16	1,16	2,03	2,89	
	1,00	1,16	1,16	2,03	3,10	
	1,13	1,16	1,16	2,03	—	
	1,15	1,16	1,16	2,03	—	
	1,25	1,16	1,16	2,03	—	
	1,50	1,16	1,16	2,03	—	
	1,75	1,16	1,16	—	—	
	2,00	1,16	—	—	—	

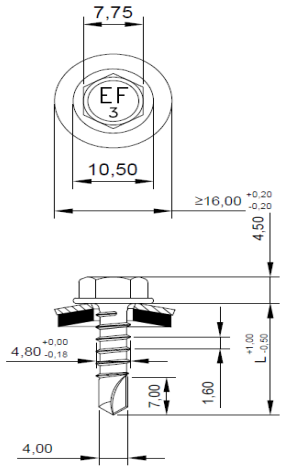
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-3-P 4.8xL
with hexagon head and washer A16

Annex 28

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with SUPER PREMIUM coating
Washer:	S16 – stainless steel washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326
Drilling capacity:	Σti ≤ 3,00 mm
Timber substructures	
No performance assessed	



$t_{N,II}$ [mm]		1,00	1,25	1,50	2,00	Timber class ≥ C24
$M_{t,nom}$		4 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,17	1,17	1,17	1,17	
	0,55	1,17	1,17	1,17	1,17	
	0,60	1,17	1,17	1,17	1,17	
	0,63	1,44	1,44	1,44	1,44	
	0,70	1,44	1,44	1,44	1,44	
	0,75	2,27	2,27	2,27	2,27	
	0,80	2,27	2,27	2,27	2,27	
	0,88	2,27	2,27	2,27	2,27	
	1,00	2,64	2,64	2,64	2,64	
	1,13	2,64	2,64	2,64	—	
	1,15	2,64	2,64	2,64	—	
	1,25	2,64	2,64	2,64	—	
	1,50	2,64	2,64	2,64	—	
	1,75	2,64	2,64	—	—	
	2,00	2,64	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,16	1,16	2,03	2,53	
	0,55	1,16	1,16	2,03	2,53	
	0,60	1,16	1,16	2,03	2,77	
	0,63	1,16	1,16	2,03	2,77	
	0,70	1,16	1,16	2,03	2,89	
	0,75	1,16	1,16	2,03	2,89	
	0,80	1,16	1,16	2,03	2,89	
	0,88	1,16	1,16	2,03	2,89	
	1,00	1,16	1,16	2,03	3,10	
	1,13	1,16	1,16	2,03	—	
	1,15	1,16	1,16	2,03	—	
	1,25	1,16	1,16	2,03	—	
	1,50	1,16	1,16	2,03	—	
	1,75	1,16	1,16	—	—	
	2,00	1,16	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-3-SP 4.8xL
with hexagon head and washer S16

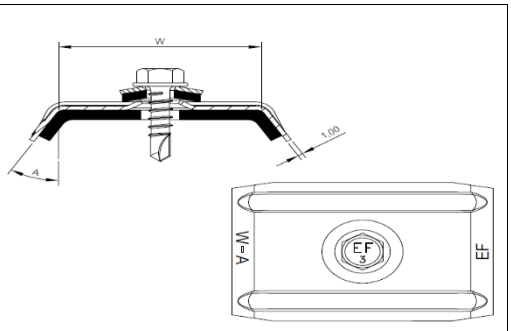
Annex 29

Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized (12 µm)
Washer:	Z16 – carbon steel galvanized washer with EPDM ring
Saddle washer:	ESW made of aluminium
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326
Drilling capacity:	Σti ≤ 3,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		1,00	1,25	1,50	2,00	Timber class ≥ C24
$M_{t,nom}$		4 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,17	1,17	1,17	1,17	
	0,55	1,17	1,17	1,17	1,17	
	0,60	1,17	1,17	1,17	1,17	
	0,63	1,44	1,44	1,44	1,44	
	0,70	1,44	1,44	1,44	1,44	
	0,75	2,27	2,27	2,27	2,27	
	0,80	2,27	2,27	2,27	2,27	
	0,88	2,27	2,27	2,27	2,27	
	1,00	2,64	2,64	2,64	2,64	
	1,13	2,64	2,64	2,64	—	
	1,15	2,64	2,64	2,64	—	
	1,25	2,64	2,64	2,64	—	
	1,50	2,64	2,64	2,64	—	
	1,75	2,64	2,64	—	—	
	2,00	2,64	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,16	1,16	2,03	3,10	
	0,55	1,16	1,16	2,03	3,10	
	0,60	1,16	1,16	2,03	3,10	
	0,63	1,16	1,16	2,03	3,10	
	0,70	1,16	1,16	2,03	3,10	
	0,75	1,16	1,16	2,03	3,10	
	0,80	1,16	1,16	2,03	3,10	
	0,88	1,16	1,16	2,03	3,10	
	1,00	1,16	1,16	2,03	3,10	
	1,13	1,16	1,16	2,03	—	
	1,15	1,16	1,16	2,03	—	
	1,25	1,16	1,16	2,03	—	
	1,50	1,16	1,16	2,03	—	
	1,75	1,16	1,16	—	—	
	2,00	1,16	—	—	—	

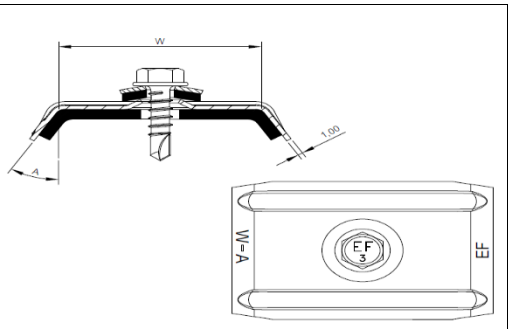
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-3-Z 4.8xL
with hexagon head and washer Z16 and saddle washer ESW

Annex 30

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with PREMIUM coating
Washer: Saddle washer:	A16 – aluminium washer with EPDM ring ESW made of aluminium
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326
Drilling capacity:	Σti ≤ 3,00 mm
Timber substructures	
No performance assessed	



$t_{N,II}$ [mm]		1,00	1,25	1,50	2,00	Timber class ≥ C24
$M_{t,nom}$		4 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,17	1,17	1,17	1,17	
	0,55	1,17	1,17	1,17	1,17	
	0,60	1,17	1,17	1,17	1,17	
	0,63	1,44	1,44	1,44	1,44	
	0,70	1,44	1,44	1,44	1,44	
	0,75	2,27	2,27	2,27	2,27	
	0,80	2,27	2,27	2,27	2,27	
	0,88	2,27	2,27	2,27	2,27	
	1,00	2,64	2,64	2,64	2,64	
	1,13	2,64	2,64	2,64	—	
	1,15	2,64	2,64	2,64	—	
	1,25	2,64	2,64	2,64	—	
	1,50	2,64	2,64	2,64	—	
	1,75	2,64	2,64	—	—	
	2,00	2,64	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,16	1,16	2,03	3,10	
	0,55	1,16	1,16	2,03	3,10	
	0,60	1,16	1,16	2,03	3,10	
	0,63	1,16	1,16	2,03	3,10	
	0,70	1,16	1,16	2,03	3,10	
	0,75	1,16	1,16	2,03	3,10	
	0,80	1,16	1,16	2,03	3,10	
	0,88	1,16	1,16	2,03	3,10	
	1,00	1,16	1,16	2,03	3,10	
	1,13	1,16	1,16	2,03	—	
	1,15	1,16	1,16	2,03	—	
	1,25	1,16	1,16	2,03	—	
	1,50	1,16	1,16	2,03	—	
	1,75	1,16	1,16	—	—	
	2,00	1,16	—	—	—	

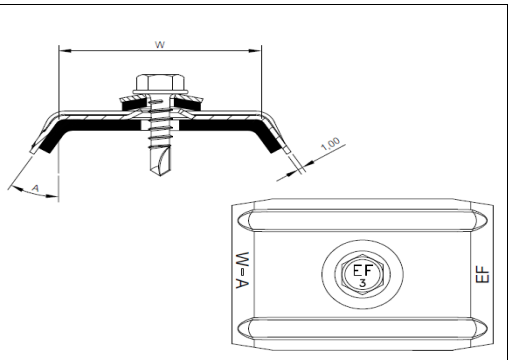
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Annex 31

Self-drilling screws ESDS-3-P 4.8xL
with hexagon head and washer A16 and saddle washer ESW

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with SUPER PREMIUM coating
Washer: Saddle washer:	S16 – stainless steel washer with EPDM ring ESW made of aluminium
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326
Drilling capacity:	Σti ≤ 3,00 mm
Timber substructures	
No performance assessed	



$t_{N,II}$ [mm]		1,00	1,25	1,50	2,00	Timber class ≥ C24
$M_{t,nom}$		4 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,17	1,17	1,17	1,17	
	0,55	1,17	1,17	1,17	1,17	
	0,60	1,17	1,17	1,17	1,17	
	0,63	1,44	1,44	1,44	1,44	
	0,70	1,44	1,44	1,44	1,44	
	0,75	2,27	2,27	2,27	2,27	
	0,80	2,27	2,27	2,27	2,27	
	0,88	2,27	2,27	2,27	2,27	
	1,00	2,64	2,64	2,64	2,64	
	1,13	2,64	2,64	2,64	—	
	1,15	2,64	2,64	2,64	—	
	1,25	2,64	2,64	2,64	—	
	1,50	2,64	2,64	2,64	—	
	1,75	2,64	2,64	—	—	
	2,00	2,64	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,16	1,16	2,03	3,10	
	0,55	1,16	1,16	2,03	3,10	
	0,60	1,16	1,16	2,03	3,10	
	0,63	1,16	1,16	2,03	3,10	
	0,70	1,16	1,16	2,03	3,10	
	0,75	1,16	1,16	2,03	3,10	
	0,80	1,16	1,16	2,03	3,10	
	0,88	1,16	1,16	2,03	3,10	
	1,00	1,16	1,16	2,03	3,10	
	1,13	1,16	1,16	2,03	—	
	1,15	1,16	1,16	2,03	—	
	1,25	1,16	1,16	2,03	—	
	1,50	1,16	1,16	2,03	—	
	1,75	1,16	1,16	—	—	
	2,00	1,16	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-3-SP 4.8xL
with hexagon head and washer S16 and saddle washer ESW

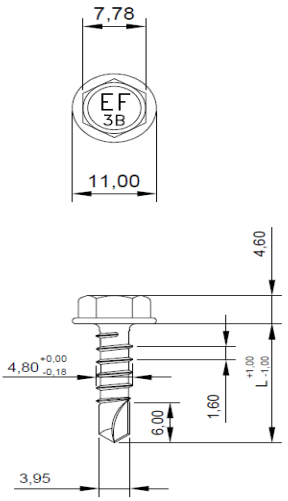
Annex 32

Materials

Fastener:	stainless steel – SAE304
Washer:	-
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326
Drilling capacity:	Σti ≤ 3,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		1,00	1,25	1,50	2,00	Timber class ≥ C24
$M_{t,nom}$		4 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,20	1,20	1,20	1,20	
	0,55	1,20	1,20	1,20	1,20	
	0,60	1,20	1,20	1,20	1,20	
	0,63	1,57	1,57	1,57	1,57	
	0,70	1,57	1,57	1,57	1,57	
	0,75	2,31	2,31	2,31	2,31	
	0,80	2,31	2,31	2,31	2,31	
	0,88	2,31	2,31	2,31	2,31	
	1,00	2,75	2,75	2,75	2,75	
	1,13	2,75	2,75	2,75	—	
	1,15	2,75	2,75	2,75	—	
	1,25	2,75	2,75	2,75	—	
	1,50	2,75	2,75	2,75	—	
	1,75	2,75	2,75	—	—	
	2,00	2,75	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,61	0,61	0,61	0,61	
	0,55	0,61	0,61	0,61	0,61	
	0,60	0,61	0,61	0,61	0,61	
	0,63	0,87	0,87	0,87	0,87	
	0,70	0,87	0,87	0,87	0,87	
	0,75	0,96	0,96	0,97	0,97	
	0,80	0,96	0,96	0,97	0,97	
	0,88	0,97	0,97	0,97	0,97	
	1,00	0,97	0,97	0,97	0,97	
	1,13	0,97	0,97	0,97	—	
	1,15	0,97	0,97	0,97	—	
	1,25	0,97	0,97	0,97	—	
	1,50	0,97	0,97	0,97	—	
	1,75	0,97	0,97	—	—	
	2,00	0,97	—	—	—	

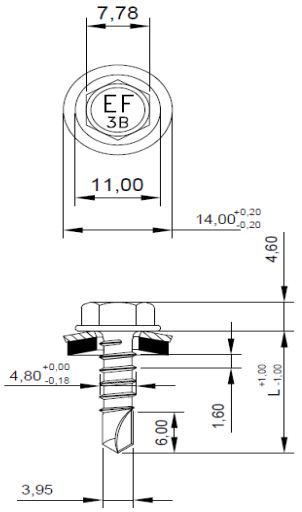
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-3-B 4.8xL
with hexagon head

Annex 33

Materials	
Fastener:	stainless steel – SAE304
Washer:	S14 – stainless steel washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326
Drilling capacity:	Σti ≤ 3,00 mm
Timber substructures	
No performance assessed	



$t_{N,II}$ [mm]		1,00	1,25	1,50	2,00	Timber class ≥ C24
$M_{t,nom}$		4 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,20	1,20	1,20	1,20	
	0,55	1,20	1,20	1,20	1,20	
	0,60	1,20	1,20	1,20	1,20	
	0,63	1,57	1,57	1,57	1,57	
	0,70	1,57	1,57	1,57	1,57	
	0,75	2,31	2,31	2,31	2,31	
	0,80	2,31	2,31	2,31	2,31	
	0,88	2,31	2,31	2,31	2,31	
	1,00	2,75	2,75	2,75	2,75	
	1,13	2,75	2,75	2,75	—	
	1,15	2,75	2,75	2,75	—	
	1,25	2,75	2,75	2,75	—	
	1,50	2,75	2,75	2,75	—	
	1,75	2,75	2,75	—	—	
	2,00	2,75	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,96	0,96	1,80	2,62	
	0,55	0,96	0,96	1,80	2,62	
	0,60	0,96	0,96	1,80	2,62	
	0,63	0,96	0,96	1,80	2,76	
	0,70	0,96	0,96	1,80	2,76	
	0,75	0,96	0,96	1,80	2,76	
	0,80	0,96	0,96	1,80	2,76	
	0,88	0,96	0,96	1,80	2,76	
	1,00	0,96	0,96	1,80	2,76	
	1,13	0,96	0,96	1,80	—	
	1,15	0,96	0,96	1,80	—	
	1,25	0,96	0,96	1,80	—	
	1,50	0,96	0,96	1,80	—	
	1,75	0,96	0,96	—	—	
	2,00	0,96	—	—	—	

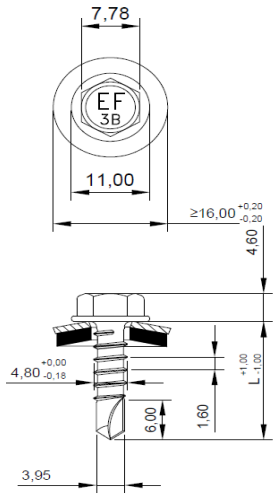
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-3-B 4.8xL
with hexagon head and washer S14

Annex 34

Materials	
Fastener:	stainless steel – SAE304
Washer:	S16 – stainless steel washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326
Drilling capacity:	Σti ≤ 3,00 mm
Timber substructures	
No performance assessed	



$t_{N,II}$ [mm]		1,00	1,25	1,50	2,00	Timber class ≥ C24
$M_{t,nom}$		4 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,20	1,20	1,20	1,20	
	0,55	1,20	1,20	1,20	1,20	
	0,60	1,20	1,20	1,20	1,20	
	0,63	1,57	1,57	1,57	1,57	
	0,70	1,57	1,57	1,57	1,57	
	0,75	2,31	2,31	2,31	2,31	
	0,80	2,31	2,31	2,31	2,31	
	0,88	2,31	2,31	2,31	2,31	
	1,00	2,75	2,75	2,75	2,75	
	1,13	2,75	2,75	2,75	—	
	1,15	2,75	2,75	2,75	—	
	1,25	2,75	2,75	2,75	—	
	1,50	2,75	2,75	2,75	—	
	1,75	2,75	2,75	—	—	
	2,00	2,75	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,96	0,96	1,80	2,76	
	0,55	0,96	0,96	1,80	2,76	
	0,60	0,96	0,96	1,80	2,76	
	0,63	0,96	0,96	1,80	2,76	
	0,70	0,96	0,96	1,80	2,76	
	0,75	0,96	0,96	1,80	2,76	
	0,80	0,96	0,96	1,80	2,76	
	0,88	0,96	0,96	1,80	2,76	
	1,00	0,96	0,96	1,80	2,76	
	1,13	0,96	0,96	1,80	—	
	1,15	0,96	0,96	1,80	—	
	1,25	0,96	0,96	1,80	—	
	1,50	0,96	0,96	1,80	—	
	1,75	0,96	0,96	—	—	
	2,00	0,96	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-3-B 4.8xL
with hexagon head and washer S16

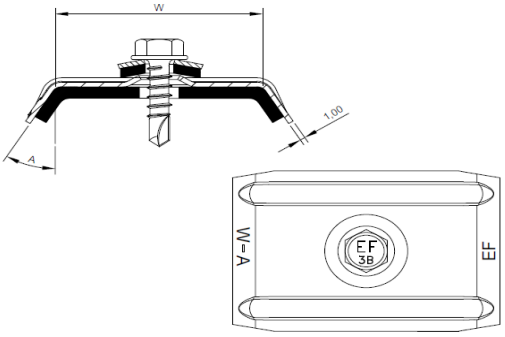
Annex 35

Materials

Fastener:	stainless steel – SAE304
Washer:	S16 – stainless steel washer with EPDM ring
Saddle washer:	ESW made of aluminium
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326
Drilling capacity:	Σti ≤ 3,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		1,00	1,25	1,50	2,00	Timber class ≥ C24
$M_{t,nom}$		4 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,20	1,20	1,20	1,20	
	0,55	1,20	1,20	1,20	1,20	
	0,60	1,20	1,20	1,20	1,20	
	0,63	1,57	1,57	1,57	1,57	
	0,70	1,57	1,57	1,57	1,57	
	0,75	2,31	2,31	2,31	2,31	
	0,80	2,31	2,31	2,31	2,31	
	0,88	2,31	2,31	2,31	2,31	
	1,00	2,75	2,75	2,75	2,75	
	1,13	2,75	2,75	2,75	—	
	1,15	2,75	2,75	2,75	—	
	1,25	2,75	2,75	2,75	—	
	1,50	2,75	2,75	2,75	—	
	1,75	2,75	2,75	—	—	
	2,00	2,75	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,96	0,96	1,80	2,76	
	0,55	0,96	0,96	1,80	2,76	
	0,60	0,96	0,96	1,80	2,76	
	0,63	0,96	0,96	1,80	2,76	
	0,70	0,96	0,96	1,80	2,76	
	0,75	0,96	0,96	1,80	2,76	
	0,80	0,96	0,96	1,80	2,76	
	0,88	0,96	0,96	1,80	2,76	
	1,00	0,96	0,96	1,80	2,76	
	1,13	0,96	0,96	1,80	—	
	1,15	0,96	0,96	1,80	—	
	1,25	0,96	0,96	1,80	—	
	1,50	0,96	0,96	1,80	—	
	1,75	0,96	0,96	—	—	
	2,00	0,96	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-3-B 4.8xL
with hexagon head and washer S16 and saddle washer ESW

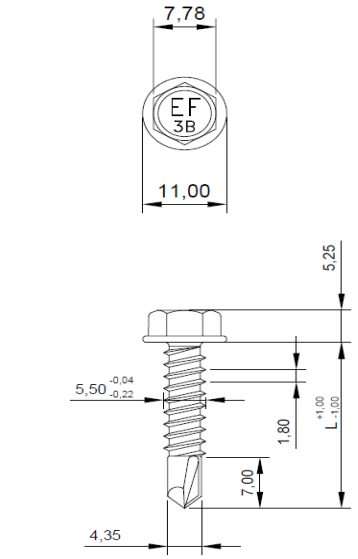
Annex 36

Materials

Fastener:	stainless steel – SAE304
Washer:	-
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326
Drilling capacity:	Σti ≤ 3,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		1,00	1,25	1,50	2,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,49	1,49	1,49	1,49	
	0,55	1,49	1,49	1,49	1,49	
	0,60	1,49	1,49	1,49	1,49	
	0,63	1,84	1,84	1,84	1,84	
	0,70	1,84	1,84	1,84	1,84	
	0,75	2,42	2,42	2,42	2,42	
	0,80	2,42	2,42	2,42	2,42	
	0,88	2,42	2,42	2,42	2,42	
	1,00	2,82	2,82	2,82	2,82	
	1,13	2,82	2,82	2,82	—	
	1,15	2,82	2,82	2,82	—	
	1,25	2,82	2,82	2,82	—	
	1,50	2,82	2,82	2,82	—	
	1,75	2,82	2,82	2,82	—	
	2,00	2,82	2,82	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,61	0,61	0,61	0,61	
	0,55	0,61	0,61	0,61	0,61	
	0,60	0,61	0,61	0,61	0,61	
	0,63	0,87	0,87	0,87	0,87	
	0,70	0,87	0,87	0,87	0,87	
	0,75	0,97	0,97	0,97	0,97	
	0,80	0,97	0,97	0,97	0,97	
	0,88	0,97	0,97	0,97	0,97	
	1,00	0,97	0,97	0,97	0,97	
	1,13	0,97	0,97	0,97	—	
	1,15	0,97	0,97	0,97	—	
	1,25	0,97	0,97	0,97	—	
	1,50	0,97	0,97	0,97	—	
	1,75	0,97	0,97	—	—	
	2,00	0,97	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-3-B 5.5xL
with hexagon head

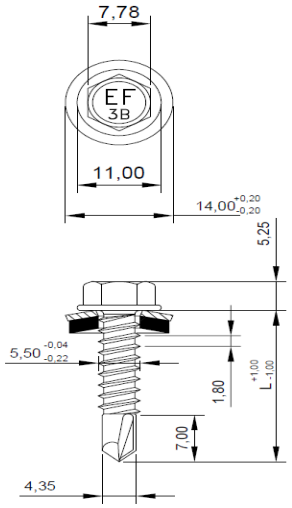
Annex 37

Materials

Fastener:	stainless steel – SAE304
Washer:	S14 – stainless steel washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326
Drilling capacity:	Σti ≤ 3,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		1,00	1,25	1,50	2,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,49	1,49	1,49	1,49	
	0,55	1,49	1,49	1,49	1,49	
	0,60	1,49	1,49	1,49	1,49	
	0,63	1,84	1,84	1,84	1,84	
	0,70	1,84	1,84	1,84	1,84	
	0,75	2,42	2,42	2,42	2,42	
	0,80	2,42	2,42	2,42	2,42	
	0,88	2,42	2,42	2,42	2,42	
	1,00	2,82	2,82	2,82	2,82	
	1,13	2,82	2,82	2,82	—	
	1,15	2,82	2,82	2,82	—	
	1,25	2,82	2,82	2,82	—	
	1,50	2,82	2,82	2,82	—	
	1,75	2,82	2,82	—	—	
	2,00	2,82	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,99	0,99	1,82	2,62	
	0,55	0,99	0,99	1,82	2,62	
	0,60	0,99	0,99	1,82	2,62	
	0,63	0,99	0,99	1,82	2,77	
	0,70	0,99	0,99	1,82	2,77	
	0,75	0,99	0,99	1,82	2,77	
	0,80	0,99	0,99	1,82	2,77	
	0,88	0,99	0,99	1,82	2,77	
	1,00	0,99	0,99	1,82	2,77	
	1,13	0,99	0,99	1,82	—	
	1,15	0,99	0,99	1,82	—	
	1,25	0,99	0,99	1,82	—	
	1,50	0,99	0,99	1,82	—	
	1,75	0,99	0,99	—	—	
	2,00	0,99	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-3-B 5.5xL
with hexagon head and washer S14

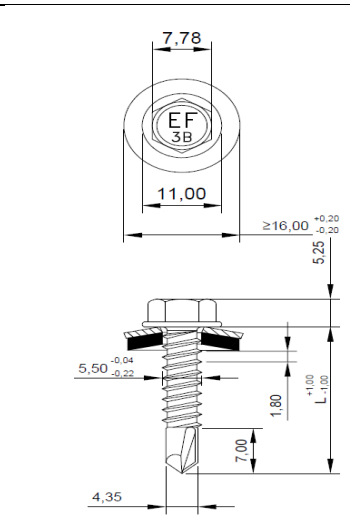
Annex 38

Materials

Fastener:	stainless steel – SAE304
Washer:	S16 – stainless steel washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326
Drilling capacity:	Σti ≤ 3,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		1,00	1,25	1,50	2,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,49	1,49	1,49	1,49	
	0,55	1,49	1,49	1,49	1,49	
	0,60	1,49	1,49	1,49	1,49	
	0,63	1,84	1,84	1,84	1,84	
	0,70	1,84	1,84	1,84	1,84	
	0,75	2,42	2,42	2,42	2,42	
	0,80	2,42	2,42	2,42	2,42	
	0,88	2,42	2,42	2,42	2,42	
	1,00	2,82	2,82	2,82	2,82	
	1,13	2,82	2,82	2,82	—	
	1,15	2,82	2,82	2,82	—	
	1,25	2,82	2,82	2,82	—	
	1,50	2,82	2,82	2,82	—	
	1,75	2,82	2,82	—	—	
	2,00	2,82	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,99	0,99	1,82	2,77	
	0,55	0,99	0,99	1,82	2,77	
	0,60	0,99	0,99	1,82	2,77	
	0,63	0,99	0,99	1,82	2,77	
	0,70	0,99	0,99	1,82	2,77	
	0,75	0,99	0,99	1,82	2,77	
	0,80	0,99	0,99	1,82	2,77	
	0,88	0,99	0,99	1,82	2,77	
	1,00	0,99	0,99	1,82	2,77	
	1,13	0,99	0,99	1,82	—	
	1,15	0,99	0,99	1,82	—	
	1,25	0,99	0,99	1,82	—	
	1,50	0,99	0,99	1,82	—	
	1,75	0,99	0,99	—	—	
	2,00	0,99	—	—	—	

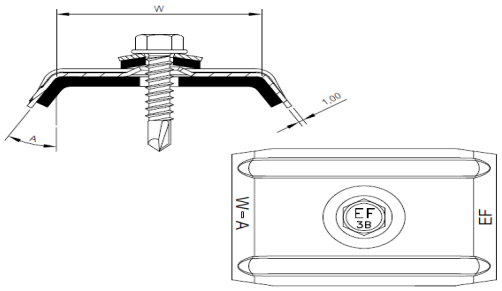
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-3-B 5.5xL
with hexagon head and washer S16

Annex 39

Materials	
Fastener:	stainless steel – SAE304
Washer:	S16 – stainless steel washer with EPDM ring
Saddle washer:	ESW made of aluminium
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326
Drilling capacity:	Σti ≤ 3,00 mm
Timber substructures	
No performance assessed	



$t_{N,II}$ [mm]		1,00	1,25	1,50	2,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,49	1,49	1,49	1,49	
	0,55	1,49	1,49	1,49	1,49	
	0,60	1,49	1,49	1,49	1,49	
	0,63	1,84	1,84	1,84	1,84	
	0,70	1,84	1,84	1,84	1,84	
	0,75	2,42	2,42	2,42	2,42	
	0,80	2,42	2,42	2,42	2,42	
	0,88	2,42	2,42	2,42	2,42	
	1,00	2,82	2,82	2,82	2,82	
	1,13	2,82	2,82	2,82	—	
	1,15	2,82	2,82	2,82	—	
	1,25	2,82	2,82	2,82	—	
	1,50	2,82	2,82	2,82	—	
	1,75	2,82	2,82	—	—	
	2,00	2,82	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,99	0,99	1,82	2,77	
	0,55	0,99	0,99	1,82	2,77	
	0,60	0,99	0,99	1,82	2,77	
	0,63	0,99	0,99	1,82	2,77	
	0,70	0,99	0,99	1,82	2,77	
	0,75	0,99	0,99	1,82	2,77	
	0,80	0,99	0,99	1,82	2,77	
	0,88	0,99	0,99	1,82	2,77	
	1,00	0,99	0,99	1,82	2,77	
	1,13	0,99	0,99	1,82	—	
	1,15	0,99	0,99	1,82	—	
	1,25	0,99	0,99	1,82	—	
	1,50	0,99	0,99	1,82	—	
	1,75	0,99	0,99	—	—	
	2,00	0,99	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-3-B 5.5xL
with hexagon head and washer S16 and saddle washer ESW

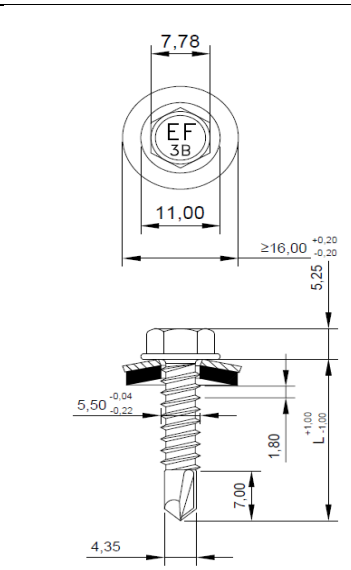
Annex 40

Materials

Fastener:	stainless steel – SAE304
Washer:	S16 – stainless steel washer with EPDM ring
Component I:	EN AW-1050A – EN 573-3, H14 – EN 485-2
Component II:	EN AW-1050A – EN 573-3, H14 – EN 485-2
Drilling capacity:	Σti ≤ 5,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		1,50	2,00	2,50	3,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	1,50	1,18	1,87	1,87	3,64	
	2,00	1,18	1,87	1,87	3,64	
	2,50	1,18	1,87	1,87	-	
	3,00	1,18	1,87	-	-	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	1,50	1,18	1,87	1,87	3,64	
	2,00	1,18	1,87	1,87	3,64	
	2,50	1,18	1,87	1,87	-	
	3,00	1,18	1,87	-	-	

Both components I and II are made of aluminium $R_m \geq 165$ N/mm^2

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-3-B 5.5xL
with hexagon head and washer S16

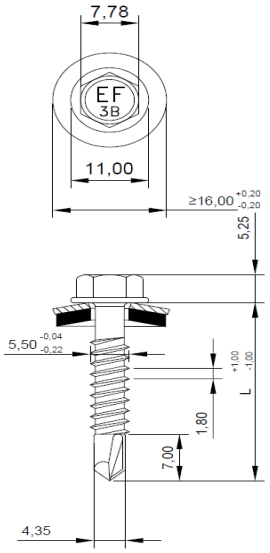
Annex 41

Materials

Fastener:	stainless steel – SAE304
Washer:	S16 – stainless steel washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326
Drilling capacity:	Σti ≤ 3,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		1,00	1,25	1,50	2,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,49	1,49	1,49	1,49	
	0,55	1,49	1,49	1,49	1,49	
	0,60	1,49	1,49	1,49	1,49	
	0,63	1,84	1,84	1,84	1,84	
	0,70	1,84	1,84	1,84	1,84	
	0,75	2,42	2,42	2,42	2,42	
	0,80	2,42	2,42	2,42	2,42	
	0,88	2,42	2,42	2,42	2,42	
	1,00	2,82	2,82	2,82	2,82	
	1,13	2,82	2,82	2,82	—	
	1,15	2,82	2,82	2,82	—	
	1,25	2,82	2,82	2,82	—	
	1,50	2,82	2,82	2,82	—	
	1,75	2,82	2,82	—	—	
	2,00	2,82	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,99	0,99	1,82	2,77	
	0,55	0,99	0,99	1,82	2,77	
	0,60	0,99	0,99	1,82	2,77	
	0,63	0,99	0,99	1,82	2,77	
	0,70	0,99	0,99	1,82	2,77	
	0,75	0,99	0,99	1,82	2,77	
	0,80	0,99	0,99	1,82	2,77	
	0,88	0,99	0,99	1,82	2,77	
	1,00	0,99	0,99	1,82	2,77	
	1,13	0,99	0,99	1,82	—	
	1,15	0,99	0,99	1,82	—	
	1,25	0,99	0,99	1,82	—	
	1,50	0,99	0,99	1,82	—	
	1,75	0,99	0,99	—	—	
	2,00	0,99	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws EVFS-3-B 5.5xL
with hexagon head and washer S16

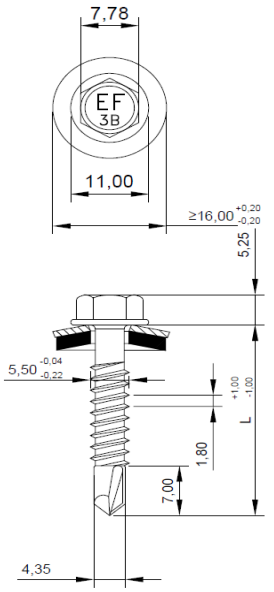
Annex 42

Materials

Fastener:	stainless steel – SAE304
Washer:	S16 – stainless steel washer with EPDM ring
Component I:	EN AW-1050A – EN 573-3, H14 – EN 485-2
Component II:	EN AW-1050A – EN 573-3, H14 – EN 485-2
Drilling capacity:	Σti ≤ 5,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		1,50	2,00	2,50	3,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	1,50	1,18	1,87	1,87	3,64	
	2,00	1,18	1,87	1,87	3,64	
	2,50	1,18	1,87	1,87	-	
	3,00	1,18	1,87	-	-	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	1,50	1,18	1,87	1,87	3,64	
	2,00	1,18	1,87	1,87	3,64	
	2,50	1,18	1,87	1,87	-	
	3,00	1,18	1,87	-	-	

Both components I and II are made of aluminium Rm ≥ 165 N/mm²

Fastening screws for metal members and sheeting

Self-drilling screws EVFS-3-B 5.5xL
with hexagon head and washer S16

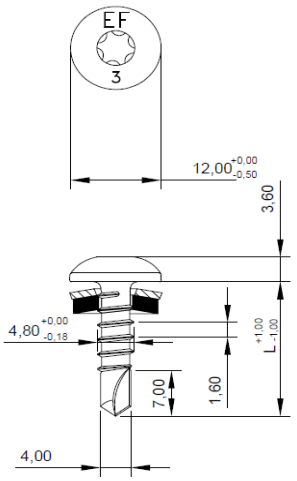
Annex 43

Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized (12 µm)
Washer:	Z11 – carbon steel galvanized washer with EPDM ring
	Z12 – carbon steel galvanized washer with EPDM ring
	A11 – aluminium washer with EPDM ring
	A12 – aluminium washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326
Drilling capacity:	Σti ≤ 3,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		1,00	1,25	1,50	2,00	Timber class ≥ C24
$M_{t,nom}$		4 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,17	1,17	1,17	1,17	
	0,55	1,17	1,17	1,17	1,17	
	0,60	1,17	1,17	1,17	1,17	
	0,63	1,44	1,44	1,44	1,44	
	0,70	1,44	1,44	1,44	1,44	
	0,75	2,27	2,27	2,27	2,27	
	0,80	2,27	2,27	2,27	2,27	
	0,88	2,27	2,27	2,27	2,27	
	1,00	2,64	2,64	2,64	2,64	
	1,13	2,64	2,64	2,64	—	
	1,15	2,64	2,64	2,64	—	
	1,25	2,64	2,64	2,64	—	
	1,50	2,64	2,64	2,64	—	
	1,75	2,64	2,64	—	—	
	2,00	2,64	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,70	0,70	0,70	0,70	
	0,55	0,70	0,70	0,70	0,70	
	0,60	0,70	0,70	0,70	0,70	
	0,63	0,79	0,79	0,79	0,79	
	0,70	0,79	0,79	0,79	0,79	
	0,75	1,05	1,05	1,05	1,05	
	0,80	1,05	1,05	1,05	1,05	
	0,88	1,05	1,05	1,05	1,05	
	1,00	1,16	1,16	1,40	1,40	
	1,13	1,16	1,16	1,40	—	
	1,15	1,16	1,16	1,40	—	
	1,25	1,16	1,16	1,40	—	
	1,50	1,16	1,16	1,40	—	
	1,75	1,16	1,16	—	—	
	2,00	1,16	—	—	—	

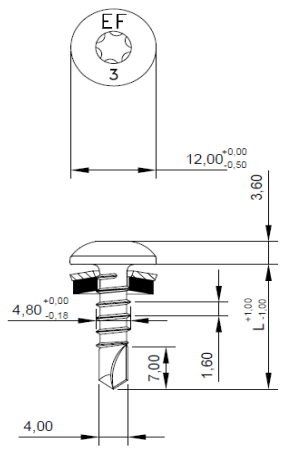
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-PH-3-Z 4.8xL
with pan head and washer Z11, Z12, A11 or A12

Annex 44

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with PREMIUM coating
Washer:	A11 – aluminium washer with EPDM ring A12 – aluminium washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326
Drilling capacity:	Σti ≤ 3,00 mm
Timber substructures	
No performance assessed	



$t_{N,II}$ [mm]		1,00	1,25	1,50	2,00	Timber class ≥ C24
$M_{t,nom}$		4 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,17	1,17	1,17	1,17	
	0,55	1,17	1,17	1,17	1,17	
	0,60	1,17	1,17	1,17	1,17	
	0,63	1,44	1,44	1,44	1,44	
	0,70	1,44	1,44	1,44	1,44	
	0,75	2,27	2,27	2,27	2,27	
	0,80	2,27	2,27	2,27	2,27	
	0,88	2,27	2,27	2,27	2,27	
	1,00	2,64	2,64	2,64	2,64	
	1,13	2,64	2,64	2,64	—	
	1,15	2,64	2,64	2,64	—	
	1,25	2,64	2,64	2,64	—	
	1,50	2,64	2,64	2,64	—	
	1,75	2,64	2,64	—	—	
	2,00	2,64	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,70	0,70	0,70	0,70	
	0,55	0,70	0,70	0,70	0,70	
	0,60	0,70	0,70	0,70	0,70	
	0,63	0,79	0,79	0,79	0,79	
	0,70	0,79	0,79	0,79	0,79	
	0,75	1,05	1,05	1,05	1,05	
	0,80	1,05	1,05	1,05	1,05	
	0,88	1,05	1,05	1,05	1,05	
	1,00	1,16	1,16	1,40	1,40	
	1,13	1,16	1,16	1,40	—	
	1,15	1,16	1,16	1,40	—	
	1,25	1,16	1,16	1,40	—	
	1,50	1,16	1,16	1,40	—	
	1,75	1,16	1,16	—	—	
	2,00	1,16	—	—	—	

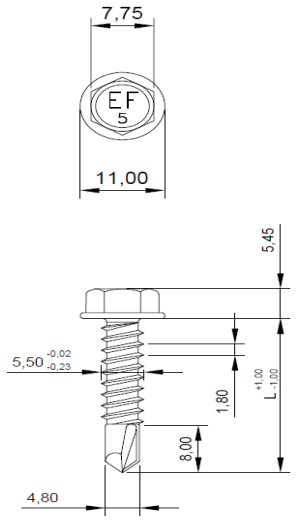
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-PH-3-P 4.8xL
with pan head and washer A11 or A12

Annex 45

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized (12 µm)
Washer:	-
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	Σti ≤ 5,00 mm
Timber substructures	
No performance assessed	



$t_{N,II}$ [mm]		1,50	2,00	3,00	4,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,53	1,53	1,53	1,53	
	0,55	1,53	1,53	1,53	1,53	
	0,60	1,53	1,53	1,53	1,53	
	0,63	1,84	1,84	1,84	1,84	
	0,70	1,84	1,84	1,84	1,84	
	0,75	2,34	2,34	2,34	2,34	
	0,80	2,34	2,34	2,34	2,34	
	0,88	2,34	2,34	2,34	2,34	
	1,00	2,38	2,38	2,38	2,38	
	1,13	2,38	2,38	2,38	—	
	1,15	2,38	2,38	2,38	—	
	1,25	2,87	2,87	2,87	—	
	1,50	2,87	2,87	2,87	—	
	1,75	2,87	2,87	2,87	—	
	2,00	2,87	2,87	2,87	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,80	0,80	0,80	0,80	
	0,55	0,80	0,80	0,80	0,80	
	0,60	0,80	0,80	0,80	0,80	
	0,63	1,00	1,00	1,00	1,00	
	0,70	1,00	1,00	1,00	1,00	
	0,75	1,31	1,31	1,31	1,31	
	0,80	1,31	1,31	1,31	1,31	
	0,88	1,31	1,31	1,31	1,31	
	1,00	1,31	1,31	1,31	1,31	
	1,13	1,31	1,31	1,31	—	
	1,15	1,31	1,31	1,31	—	
	1,25	1,31	1,31	1,31	—	
	1,50	1,31	1,31	1,31	—	
	1,75	1,31	1,31	1,31	—	
	2,00	1,31	1,31	1,31	—	

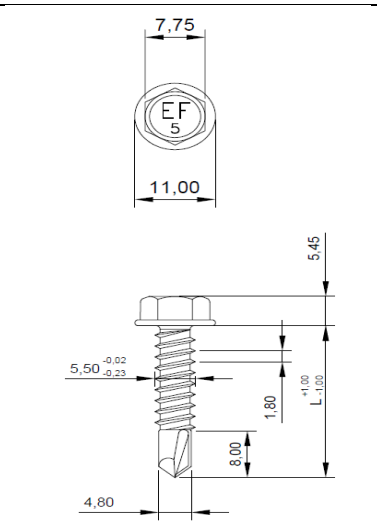
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-5-Z 5.5xL
with hexagon head

Annex 46

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with PREMIUM coating
Washer:	-
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	Σti ≤ 5,00 mm
Timber substructures	
No performance assessed	



$t_{N,II}$ [mm]		1,50	2,00	3,00	4,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,53	1,53	1,53	1,53	
	0,55	1,53	1,53	1,53	1,53	
	0,60	1,53	1,53	1,53	1,53	
	0,63	1,84	1,84	1,84	1,84	
	0,70	1,84	1,84	1,84	1,84	
	0,75	2,34	2,34	2,34	2,34	
	0,80	2,34	2,34	2,34	2,34	
	0,88	2,34	2,34	2,34	2,34	
	1,00	2,38	2,38	2,38	2,38	
	1,13	2,38	2,38	2,38	—	
	1,15	2,38	2,38	2,38	—	
	1,25	2,87	2,87	2,87	—	
	1,50	2,87	2,87	2,87	—	
	1,75	2,87	2,87	2,87	—	
	2,00	2,87	2,87	2,87	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,80	0,80	0,80	0,80	
	0,55	0,80	0,80	0,80	0,80	
	0,60	0,80	0,80	0,80	0,80	
	0,63	1,00	1,00	1,00	1,00	
	0,70	1,00	1,00	1,00	1,00	
	0,75	1,31	1,31	1,31	1,31	
	0,80	1,31	1,31	1,31	1,31	
	0,88	1,31	1,31	1,31	1,31	
	1,00	1,31	1,31	1,31	1,31	
	1,13	1,31	1,31	1,31	—	
	1,15	1,31	1,31	1,31	—	
	1,25	1,31	1,31	1,31	—	
	1,50	1,31	1,31	1,31	—	
	1,75	1,31	1,31	1,31	—	
	2,00	1,31	1,31	1,31	—	

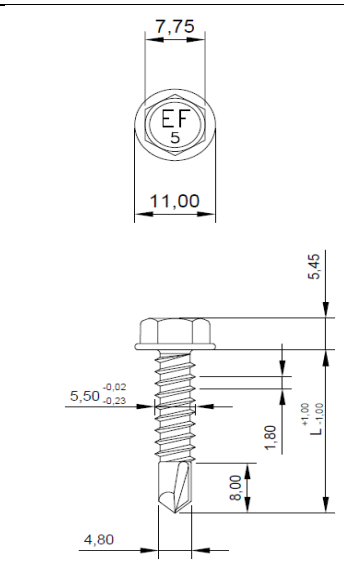
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-5-P 5.5xL
with hexagon head

Annex 47

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with SUPER PREMIUM coating
Washer:	-
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	Σti ≤ 5,00 mm
Timber substructures No performance assessed	



$t_{N,II}$ [mm]		1,50	2,00	3,00	4,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,53	1,53	1,53	1,53	
	0,55	1,53	1,53	1,53	1,53	
	0,60	1,53	1,53	1,53	1,53	
	0,63	1,84	1,84	1,84	1,84	
	0,70	1,84	1,84	1,84	1,84	
	0,75	2,34	2,34	2,34	2,34	
	0,80	2,34	2,34	2,34	2,34	
	0,88	2,34	2,34	2,34	2,34	
	1,00	2,38	2,38	2,38	2,38	
	1,13	2,38	2,38	2,38	—	
	1,15	2,38	2,38	2,38	—	
	1,25	2,87	2,87	2,87	—	
	1,50	2,87	2,87	2,87	—	
	1,75	2,87	2,87	2,87	—	
	2,00	2,87	2,87	2,87	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,80	0,80	0,80	0,80	
	0,55	0,80	0,80	0,80	0,80	
	0,60	0,80	0,80	0,80	0,80	
	0,63	1,00	1,00	1,00	1,00	
	0,70	1,00	1,00	1,00	1,00	
	0,75	1,31	1,31	1,31	1,31	
	0,80	1,31	1,31	1,31	1,31	
	0,88	1,31	1,31	1,31	1,31	
	1,00	1,31	1,31	1,31	1,31	
	1,13	1,31	1,31	1,31	—	
	1,15	1,31	1,31	1,31	—	
	1,25	1,31	1,31	1,31	—	
	1,50	1,31	1,31	1,31	—	
	1,75	1,31	1,31	1,31	—	
	2,00	1,31	1,31	1,31	—	

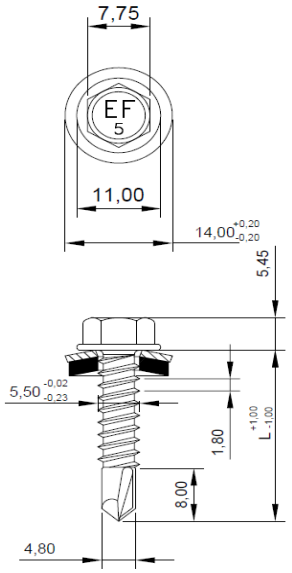
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Annex 48

Self-drilling screws ESDS-5-SP 5.5xL with hexagon head

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized (12 µm)
Washer:	Z14 – carbon steel galvanized washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	Σti ≤ 5,00 mm
Timber substructures No performance assessed	



$t_{N,II}$ [mm]		1,50	2,00	3,00	4,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,53	1,53	1,53	1,53	
	0,55	1,53	1,53	1,53	1,53	
	0,60	1,53	1,53	1,53	1,53	
	0,63	1,84	1,84	1,84	1,84	
	0,70	1,84	1,84	1,84	1,84	
	0,75	2,34	2,34	2,34	2,34	
	0,80	2,34	2,34	2,34	2,34	
	0,88	2,34	2,34	2,34	2,34	
	1,00	2,38	2,38	2,38	2,38	
	1,13	2,38	2,38	2,38	—	
	1,15	2,38	2,38	2,38	—	
	1,25	2,87	2,87	2,87	—	
	1,50	2,87	2,87	2,87	—	
	1,75	2,87	2,87	2,87	—	
	2,00	2,87	2,87	2,87	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,90	2,43	2,54	2,54	
	0,55	1,90	2,43	2,54	2,54	
	0,60	1,90	2,43	2,54	2,54	
	0,63	1,90	2,43	3,41	3,41	
	0,70	1,90	2,43	3,41	3,41	
	0,75	1,90	2,43	4,10	4,10	
	0,80	1,90	2,43	4,10	4,10	
	0,88	1,90	2,43	4,10	4,10	
	1,00	1,90	2,43	4,10	4,10	
	1,13	1,90	2,43	4,10	—	
	1,15	1,90	2,43	4,10	—	
	1,25	1,90	2,43	4,10	—	
	1,50	1,90	2,43	4,10	—	
	1,75	1,90	2,43	4,10	—	
	2,00	1,90	2,43	4,10	—	

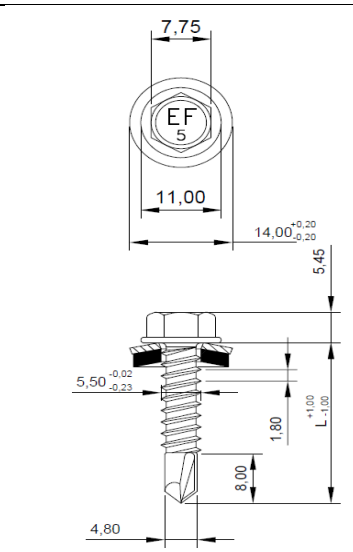
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-5-Z 5.5xL
with hexagon head and washer Z14

Annex 49

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with PREMIUM coating
Washer:	A14 – aluminium washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	Σti ≤ 5,00 mm
Timber substructures	
No performance assessed	



$t_{N,II}$ [mm]		1,50	2,00	3,00	4,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,53	1,53	1,53	1,53	
	0,55	1,53	1,53	1,53	1,53	
	0,60	1,53	1,53	1,53	1,53	
	0,63	1,84	1,84	1,84	1,84	
	0,70	1,84	1,84	1,84	1,84	
	0,75	2,34	2,34	2,34	2,34	
	0,80	2,34	2,34	2,34	2,34	
	0,88	2,34	2,34	2,34	2,34	
	1,00	2,38	2,38	2,38	2,38	
	1,13	2,38	2,38	2,38	—	
	1,15	2,38	2,38	2,38	—	
	1,25	2,87	2,87	2,87	—	
	1,50	2,87	2,87	2,87	—	
	1,75	2,87	2,87	2,87	—	
	2,00	2,87	2,87	2,87	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,90	2,43	2,54	2,54	
	0,55	1,90	2,43	2,54	2,54	
	0,60	1,90	2,43	2,54	2,54	
	0,63	1,90	2,43	3,41	3,41	
	0,70	1,90	2,43	3,41	3,41	
	0,75	1,90	2,43	4,10	4,10	
	0,80	1,90	2,43	4,10	4,10	
	0,88	1,90	2,43	4,10	4,10	
	1,00	1,90	2,43	4,10	4,10	
	1,13	1,90	2,43	4,10	—	
	1,15	1,90	2,43	4,10	—	
	1,25	1,90	2,43	4,10	—	
	1,50	1,90	2,43	4,10	—	
	1,75	1,90	2,43	4,10	—	
	2,00	1,90	2,43	4,10	—	

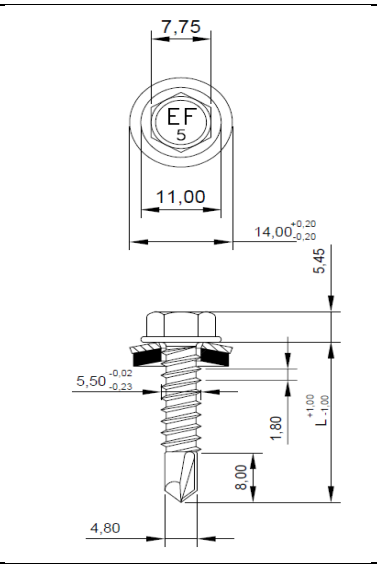
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-5-P 5.5xL
with hexagon head and washer A14

Annex 50

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with SUPER PREMIUM coating
Washer:	S14 – stainless steel washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	Σti ≤ 5,00 mm
Timber substructures No performance assessed	



$t_{N,II}$ [mm]		1,50	2,00	3,00	4,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,53	1,53	1,53	1,53	
	0,55	1,53	1,53	1,53	1,53	
	0,60	1,53	1,53	1,53	1,53	
	0,63	1,84	1,84	1,84	1,84	
	0,70	1,84	1,84	1,84	1,84	
	0,75	2,34	2,34	2,34	2,34	
	0,80	2,34	2,34	2,34	2,34	
	0,88	2,34	2,34	2,34	2,34	
	1,00	2,38	2,38	2,38	2,38	
	1,13	2,38	2,38	2,38	—	
	1,15	2,38	2,38	2,38	—	
	1,25	2,87	2,87	2,87	—	
	1,50	2,87	2,87	2,87	—	
	1,75	2,87	2,87	2,87	—	
	2,00	2,87	2,87	2,87	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,90	2,43	2,54	2,54	
	0,55	1,90	2,43	2,54	2,54	
	0,60	1,90	2,43	2,54	2,54	
	0,63	1,90	2,43	3,41	3,41	
	0,70	1,90	2,43	3,41	3,41	
	0,75	1,90	2,43	4,10	4,10	
	0,80	1,90	2,43	4,10	4,10	
	0,88	1,90	2,43	4,10	4,10	
	1,00	1,90	2,43	4,10	4,10	
	1,13	1,90	2,43	4,10	—	
	1,15	1,90	2,43	4,10	—	
	1,25	1,90	2,43	4,10	—	
	1,50	1,90	2,43	4,10	—	
	1,75	1,90	2,43	4,10	—	
	2,00	1,90	2,43	4,10	—	

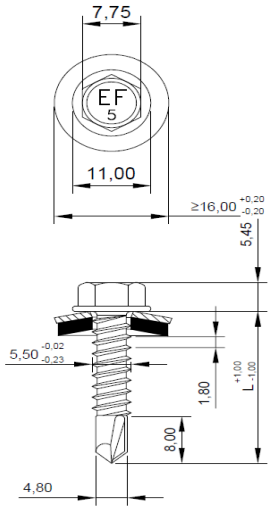
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-5-SP 5.5xL with hexagon head and washer S14

Annex 51

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized (12 µm)
Washer:	Z16 – carbon steel galvanized washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	Σti ≤ 5,00 mm
Timber substructures No performance assessed	



$t_{N,II}$ [mm]		1,50	2,00	3,00	4,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,53	1,53	1,53	1,53	
	0,55	1,53	1,53	1,53	1,53	
	0,60	1,53	1,53	1,53	1,53	
	0,63	1,84	1,84	1,84	1,84	
	0,70	1,84	1,84	1,84	1,84	
	0,75	2,34	2,34	2,34	2,34	
	0,80	2,34	2,34	2,34	2,34	
	0,88	2,34	2,34	2,34	2,34	
	1,00	2,38	2,38	2,38	2,38	
	1,13	2,38	2,38	2,38	—	
	1,15	2,38	2,38	2,38	—	
	1,25	2,87	2,87	2,87	—	
	1,50	2,87	2,87	2,87	—	
	1,75	2,87	2,87	2,87	—	
	2,00	2,87	2,87	2,87	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,90	2,43	2,53	2,53	
	0,55	1,90	2,43	2,53	2,53	
	0,60	1,90	2,43	2,77	2,77	
	0,63	1,90	2,43	2,77	2,77	
	0,70	1,90	2,43	2,89	2,89	
	0,75	1,90	2,43	2,89	2,89	
	0,80	1,90	2,43	2,89	2,89	
	0,88	1,90	2,43	2,89	2,89	
	1,00	1,90	2,43	4,17	4,17	
	1,13	1,90	2,43	4,17	—	
	1,15	1,90	2,43	4,17	—	
	1,25	1,90	2,43	4,17	—	
	1,50	1,90	2,43	4,17	—	
	1,75	1,90	2,43	4,17	—	
	2,00	1,90	2,43	4,17	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-5-Z 5.5xL
with hexagon head and washer Z16

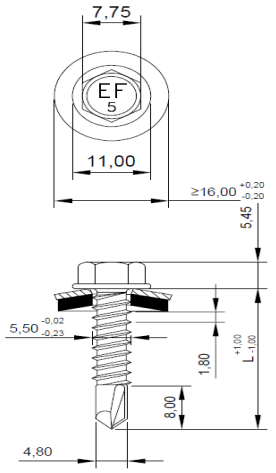
Annex 52

Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with PREMIUM coating
Washer:	A16 – aluminium washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	Σti ≤ 5,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		1,50	2,00	3,00	4,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,53	1,53	1,53	1,53	
	0,55	1,53	1,53	1,53	1,53	
	0,60	1,53	1,53	1,53	1,53	
	0,63	1,84	1,84	1,84	1,84	
	0,70	1,84	1,84	1,84	1,84	
	0,75	2,34	2,34	2,34	2,34	
	0,80	2,34	2,34	2,34	2,34	
	0,88	2,34	2,34	2,34	2,34	
	1,00	2,38	2,38	2,38	2,38	
	1,13	2,38	2,38	2,38	—	
	1,15	2,38	2,38	2,38	—	
	1,25	2,87	2,87	2,87	—	
	1,50	2,87	2,87	2,87	—	
	1,75	2,87	2,87	2,87	—	
	2,00	2,87	2,87	2,87	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,90	2,43	2,53	2,53	
	0,55	1,90	2,43	2,53	2,53	
	0,60	1,90	2,43	2,77	2,77	
	0,63	1,90	2,43	2,77	2,77	
	0,70	1,90	2,43	2,89	2,89	
	0,75	1,90	2,43	2,89	2,89	
	0,80	1,90	2,43	2,89	2,89	
	0,88	1,90	2,43	2,89	2,89	
	1,00	1,90	2,43	4,17	4,17	
	1,13	1,90	2,43	4,17	—	
	1,15	1,90	2,43	4,17	—	
	1,25	1,90	2,43	4,17	—	
	1,50	1,90	2,43	4,17	—	
	1,75	1,90	2,43	4,17	—	
	2,00	1,90	2,43	4,17	—	

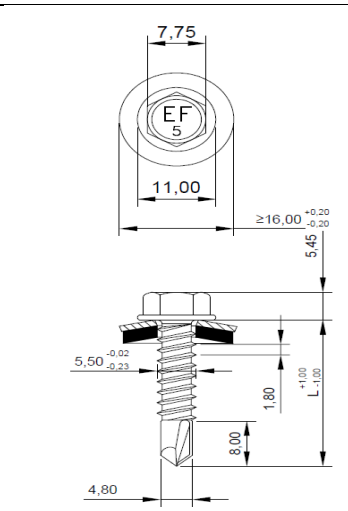
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-5-P 5.5xL
with hexagon head and washer A16

Annex 53

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with SUPER PREMIUM coating
Washer:	S16 – stainless steel washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	Σti ≤ 5,00 mm
Timber substructures No performance assessed	



$t_{N,II}$ [mm]		1,50	2,00	3,00	4,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,53	1,53	1,53	1,53	
	0,55	1,53	1,53	1,53	1,53	
	0,60	1,53	1,53	1,53	1,53	
	0,63	1,84	1,84	1,84	1,84	
	0,70	1,84	1,84	1,84	1,84	
	0,75	2,34	2,34	2,34	2,34	
	0,80	2,34	2,34	2,34	2,34	
	0,88	2,34	2,34	2,34	2,34	
	1,00	2,38	2,38	2,38	2,38	
	1,13	2,38	2,38	2,38	—	
	1,15	2,38	2,38	2,38	—	
	1,25	2,87	2,87	2,87	—	
	1,50	2,87	2,87	2,87	—	
	1,75	2,87	2,87	2,87	—	
	2,00	2,87	2,87	2,87	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,90	2,43	2,53	2,53	
	0,55	1,90	2,43	2,53	2,53	
	0,60	1,90	2,43	2,77	2,77	
	0,63	1,90	2,43	2,77	2,77	
	0,70	1,90	2,43	2,89	2,89	
	0,75	1,90	2,43	2,89	2,89	
	0,80	1,90	2,43	2,89	2,89	
	0,88	1,90	2,43	2,89	2,89	
	1,00	1,90	2,43	4,17	4,17	
	1,13	1,90	2,43	4,17	—	
	1,15	1,90	2,43	4,17	—	
	1,25	1,90	2,43	4,17	—	
	1,50	1,90	2,43	4,17	—	
	1,75	1,90	2,43	4,17	—	
	2,00	1,90	2,43	4,17	—	

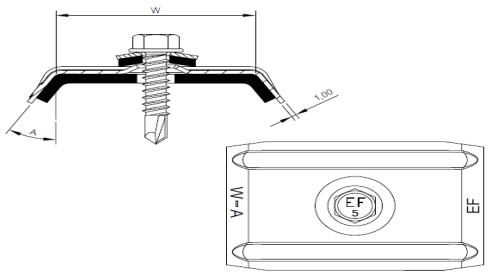
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-5-SP 5.5xL with hexagon head and washer S16

Annex 54

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized (12 µm)
Washer:	Z16 – carbon steel galvanized washer with EPDM ring
Saddle washer:	ESW made of aluminium
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	Σti ≤ 5,00 mm
Timber substructures	
No performance assessed	



$t_{N,II}$ [mm]		1,50	2,00	3,00	4,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,53	1,53	1,53	1,53	
	0,55	1,53	1,53	1,53	1,53	
	0,60	1,53	1,53	1,53	1,53	
	0,63	1,84	1,84	1,84	1,84	
	0,70	1,84	1,84	1,84	1,84	
	0,75	2,34	2,34	2,34	2,34	
	0,80	2,34	2,34	2,34	2,34	
	0,88	2,34	2,34	2,34	2,34	
	1,00	2,38	2,38	2,38	2,38	
	1,13	2,38	2,38	2,38	—	
	1,15	2,38	2,38	2,38	—	
	1,25	2,87	2,87	2,87	—	
	1,50	2,87	2,87	2,87	—	
	1,75	2,87	2,87	2,87	—	
	2,00	2,87	2,87	2,87	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,90	2,43	4,17	4,17	
	0,55	1,90	2,43	4,17	4,17	
	0,60	1,90	2,43	4,17	4,17	
	0,63	1,90	2,43	4,17	4,17	
	0,70	1,90	2,43	4,17	4,17	
	0,75	1,90	2,43	4,17	4,17	
	0,80	1,90	2,43	4,17	4,17	
	0,88	1,90	2,43	4,17	4,17	
	1,00	1,90	2,43	4,17	4,17	
	1,13	1,90	2,43	4,17	—	
	1,15	1,90	2,43	4,17	—	
	1,25	1,90	2,43	4,17	—	
	1,50	1,90	2,43	4,17	—	
	1,75	1,90	2,43	4,17	—	
	2,00	1,90	2,43	4,17	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Annex 55

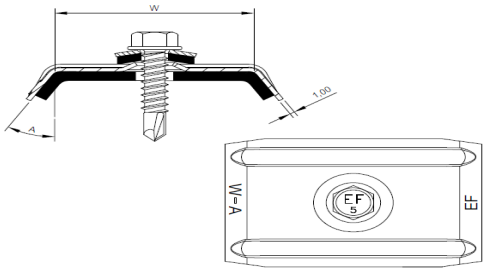
Self-drilling screws ESDS-5-Z 5.5xL
with hexagon head and washer Z16 and saddle washer ESW

Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with PREMIUM coating
Washer:	A16 – aluminium washer with EPDM ring ESW made of aluminium
Saddle washer:	
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	Σti ≤ 5,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		1,50	2,00	3,00	4,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,53	1,53	1,53	1,53	
	0,55	1,53	1,53	1,53	1,53	
	0,60	1,53	1,53	1,53	1,53	
	0,63	1,84	1,84	1,84	1,84	
	0,70	1,84	1,84	1,84	1,84	
	0,75	2,34	2,34	2,34	2,34	
	0,80	2,34	2,34	2,34	2,34	
	0,88	2,34	2,34	2,34	2,34	
	1,00	2,38	2,38	2,38	2,38	
	1,13	2,38	2,38	2,38	—	
	1,15	2,38	2,38	2,38	—	
	1,25	2,87	2,87	2,87	—	
	1,50	2,87	2,87	2,87	—	
	1,75	2,87	2,87	2,87	—	
	2,00	2,87	2,87	2,87	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,90	2,43	4,17	4,17	
	0,55	1,90	2,43	4,17	4,17	
	0,60	1,90	2,43	4,17	4,17	
	0,63	1,90	2,43	4,17	4,17	
	0,70	1,90	2,43	4,17	4,17	
	0,75	1,90	2,43	4,17	4,17	
	0,80	1,90	2,43	4,17	4,17	
	0,88	1,90	2,43	4,17	4,17	
	1,00	1,90	2,43	4,17	4,17	
	1,13	1,90	2,43	4,17	—	
	1,15	1,90	2,43	4,17	—	
	1,25	1,90	2,43	4,17	—	
	1,50	1,90	2,43	4,17	—	
	1,75	1,90	2,43	4,17	—	
	2,00	1,90	2,43	4,17	—	

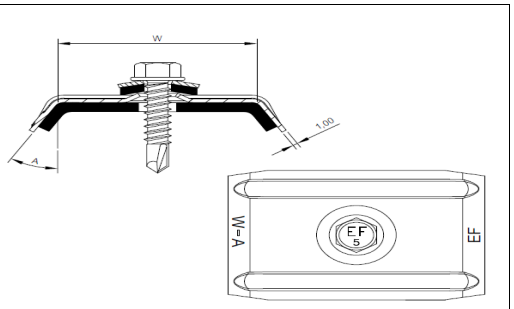
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-5-P 5.5xL
with hexagon head and washer A16 and saddle washer ESW

Annex 56

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with SUPER PREMIUM coating
Washer:	S16 – stainless steel washer with EPDM ring
Saddle washer:	ESW made of aluminium
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	Σti ≤ 5,00 mm
Timber substructures	
No performance assessed	



$t_{N,II}$ [mm]		1,50	2,00	3,00	4,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,53	1,53	1,53	1,53	
	0,55	1,53	1,53	1,53	1,53	
	0,60	1,53	1,53	1,53	1,53	
	0,63	1,84	1,84	1,84	1,84	
	0,70	1,84	1,84	1,84	1,84	
	0,75	2,34	2,34	2,34	2,34	
	0,80	2,34	2,34	2,34	2,34	
	0,88	2,34	2,34	2,34	2,34	
	1,00	2,38	2,38	2,38	2,38	
	1,13	2,38	2,38	2,38	—	
	1,15	2,38	2,38	2,38	—	
	1,25	2,87	2,87	2,87	—	
	1,50	2,87	2,87	2,87	—	
	1,75	2,87	2,87	2,87	—	
	2,00	2,87	2,87	2,87	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,90	2,43	4,17	4,17	
	0,55	1,90	2,43	4,17	4,17	
	0,60	1,90	2,43	4,17	4,17	
	0,63	1,90	2,43	4,17	4,17	
	0,70	1,90	2,43	4,17	4,17	
	0,75	1,90	2,43	4,17	4,17	
	0,80	1,90	2,43	4,17	4,17	
	0,88	1,90	2,43	4,17	4,17	
	1,00	1,90	2,43	4,17	4,17	
	1,13	1,90	2,43	4,17	—	
	1,15	1,90	2,43	4,17	—	
	1,25	1,90	2,43	4,17	—	
	1,50	1,90	2,43	4,17	—	
	1,75	1,90	2,43	4,17	—	
	2,00	1,90	2,43	4,17	—	

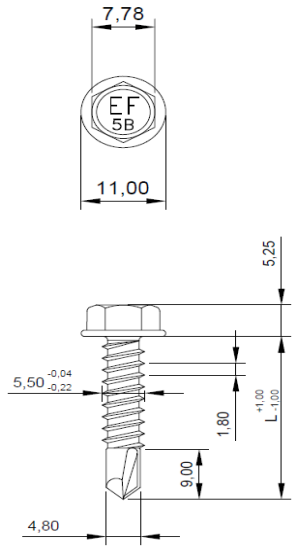
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Annex 57

Self-drilling screws ESDS-5-SP 5.5xL with
hexagon head and washer S16 and saddle washer ESW

Materials	
Fastener:	stainless steel – SAE304
Washer:	-
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	Σti ≤ 5,00 mm
Timber substructures	
No performance assessed	



$t_{N,II}$ [mm]		1,50	2,00	3,00	4,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,49	1,49	1,49	1,49	
	0,55	1,49	1,49	1,49	1,49	
	0,60	1,49	1,49	1,49	1,49	
	0,63	1,84	1,84	1,84	1,84	
	0,70	1,84	1,84	1,84	1,84	
	0,75	2,42	2,42	2,42	2,42	
	0,80	2,42	2,42	2,42	2,42	
	0,88	2,42	2,42	2,42	2,42	
	1,00	2,82	2,82	2,82	2,82	
	1,13	2,82	2,82	2,82	—	
	1,15	2,82	2,82	2,82	—	
	1,25	2,82	2,82	2,82	—	
	1,50	2,82	2,82	2,82	—	
	1,75	2,82	2,82	2,82	—	
	2,00	2,82	2,82	2,82	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,61	0,61	0,61	0,61	
	0,55	0,61	0,61	0,61	0,61	
	0,60	0,61	0,61	0,61	0,61	
	0,63	0,87	0,87	0,87	0,87	
	0,70	0,87	0,87	0,87	0,87	
	0,75	0,97	0,97	0,97	0,97	
	0,80	0,97	0,97	0,97	0,97	
	0,88	0,97	0,97	0,97	0,97	
	1,00	0,97	0,97	0,97	0,97	
	1,13	0,97	0,97	0,97	—	
	1,15	0,97	0,97	0,97	—	
	1,25	0,97	0,97	0,97	—	
	1,50	0,97	0,97	0,97	—	
	1,75	0,97	0,97	0,97	—	
	2,00	0,97	0,97	0,97	—	

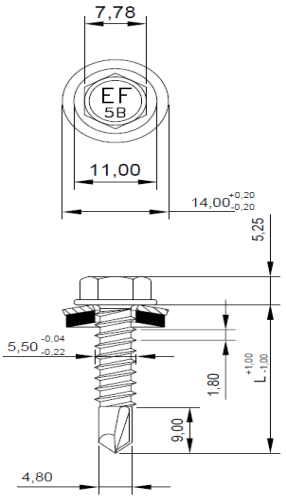
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-5-B 5.5xL
with hexagon head

Annex 58

Materials	
Fastener:	stainless steel – SAE304
Washer:	S14 – stainless steel washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	Σti ≤ 5,00 mm
Timber substructures	
No performance assessed	



$t_{N,II}$ [mm]		1,50	2,00	3,00	4,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,49	1,49	1,49	1,49	
	0,55	1,49	1,49	1,49	1,49	
	0,60	1,49	1,49	1,49	1,49	
	0,63	1,84	1,84	1,84	1,84	
	0,70	1,84	1,84	1,84	1,84	
	0,75	2,42	2,42	2,42	2,42	
	0,80	2,42	2,42	2,42	2,42	
	0,88	2,42	2,42	2,42	2,42	
	1,00	2,82	2,82	2,82	2,82	
	1,13	2,82	2,82	2,82	—	
	1,15	2,82	2,82	2,82	—	
	1,25	2,82	2,82	2,82	—	
	1,50	2,82	2,82	2,82	—	
	1,75	2,82	2,82	2,82	—	
	2,00	2,82	2,82	2,82	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,52	2,41	2,62	2,62	
	0,55	1,52	2,41	2,62	2,62	
	0,60	1,52	2,41	2,62	2,62	
	0,63	1,52	2,41	3,45	3,45	
	0,70	1,52	2,41	3,45	3,45	
	0,75	1,52	2,41	3,45	3,45	
	0,80	1,52	2,41	3,45	3,45	
	0,88	1,52	2,41	3,45	3,45	
	1,00	1,52	2,41	3,45	3,45	
	1,13	1,52	2,41	3,45	—	
	1,15	1,52	2,41	3,45	—	
	1,25	1,52	2,41	3,45	—	
	1,50	1,52	2,41	3,45	—	
	1,75	1,52	2,41	3,45	—	
	2,00	1,52	2,41	3,45	—	

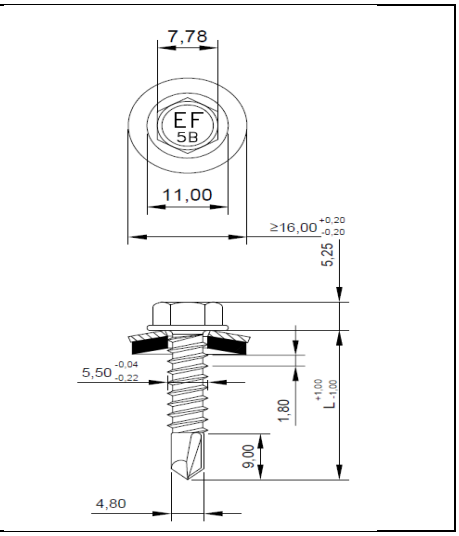
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Annex 59

Self-drilling screws ESDS-5-B 5.5xL
with hexagon head and washer S14

Materials	
Fastener:	stainless steel – SAE304
Washer:	S16 – stainless steel washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	Σti ≤ 5,00 mm
Timber substructures	
No performance assessed	



$t_{N,II}$ [mm]		1,50	2,00	3,00	4,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,49	1,49	1,49	1,49	
	0,55	1,49	1,49	1,49	1,49	
	0,60	1,49	1,49	1,49	1,49	
	0,63	1,84	1,84	1,84	1,84	
	0,70	1,84	1,84	1,84	1,84	
	0,75	2,42	2,42	2,42	2,42	
	0,80	2,42	2,42	2,42	2,42	
	0,88	2,42	2,42	2,42	2,42	
	1,00	2,82	2,82	2,82	2,82	
	1,13	2,82	2,82	2,82	—	
	1,15	2,82	2,82	2,82	—	
	1,25	2,82	2,82	2,82	—	
	1,50	2,82	2,82	2,82	—	
	1,75	2,82	2,82	2,82	—	
	2,00	2,82	2,82	2,82	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,52	2,41	2,53	2,53	
	0,55	1,52	2,41	2,53	2,53	
	0,60	1,52	2,41	2,77	2,77	
	0,63	1,52	2,41	2,77	2,77	
	0,70	1,52	2,41	2,89	2,89	
	0,75	1,52	2,41	2,89	2,89	
	0,80	1,52	2,41	2,89	2,89	
	0,88	1,52	2,41	2,89	2,89	
	1,00	1,52	2,41	3,45	3,45	
	1,13	1,52	2,41	3,45	—	
	1,15	1,52	2,41	3,45	—	
	1,25	1,52	2,41	3,45	—	
	1,50	1,52	2,41	3,45	—	
	1,75	1,52	2,41	3,45	—	
	2,00	1,52	2,41	3,45	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

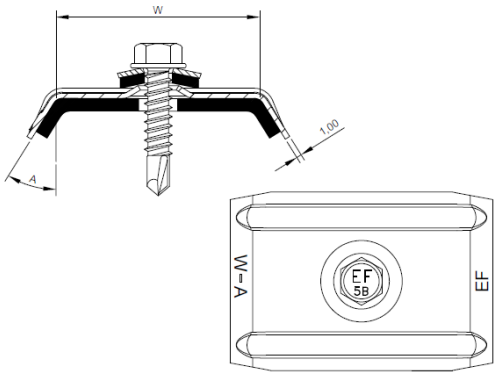
Fastening screws for metal members and sheeting	**Annex 60**
Self-drilling screws ESDS-5-B 5.5xL with hexagon head and washer S16	

Materials

Fastener:	stainless steel – SAE304
Washer:	S16 – stainless steel washer with EPDM ring
Saddle washer:	ESW made of aluminium
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	Σti ≤ 5,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		1,50	2,00	3,00	4,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,49	1,49	1,49	1,49	
	0,55	1,49	1,49	1,49	1,49	
	0,60	1,49	1,49	1,49	1,49	
	0,63	1,84	1,84	1,84	1,84	
	0,70	1,84	1,84	1,84	1,84	
	0,75	2,42	2,42	2,42	2,42	
	0,80	2,42	2,42	2,42	2,42	
	0,88	2,42	2,42	2,42	2,42	
	1,00	2,82	2,82	2,82	2,82	
	1,13	2,82	2,82	2,82	—	
	1,15	2,82	2,82	2,82	—	
	1,25	2,82	2,82	2,82	—	
	1,50	2,82	2,82	2,82	—	
	1,75	2,82	2,82	2,82	—	
	2,00	2,82	2,82	2,82	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,52	2,41	3,45	3,45	
	0,55	1,52	2,41	3,45	3,45	
	0,60	1,52	2,41	3,45	3,45	
	0,63	1,52	2,41	3,45	3,45	
	0,70	1,52	2,41	3,45	3,45	
	0,75	1,52	2,41	3,45	3,45	
	0,80	1,52	2,41	3,45	3,45	
	0,88	1,52	2,41	3,45	3,45	
	1,00	1,52	2,41	3,45	3,45	
	1,13	1,52	2,41	3,45	—	
	1,15	1,52	2,41	3,45	—	
	1,25	1,52	2,41	3,45	—	
	1,50	1,52	2,41	3,45	—	
	1,75	1,52	2,41	3,45	—	
	2,00	1,52	2,41	3,45	—	

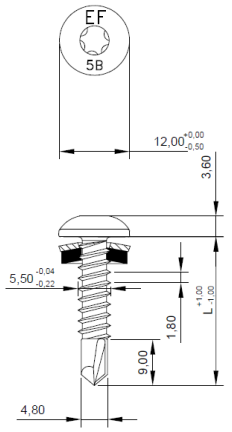
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-5-B 5.5xL
with hexagon head and washer S16 and saddle washer ESW

Annex 61

Materials	
Fastener:	stainless steel – SAE302HQ
Washer:	S11 – stainless steel washer with EPDM ring S12 – stainless steel washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	Σti ≤ 5,00 mm
Timber substructures	
No performance assessed	



$t_{N,II}$ [mm]		1,50	2,00	3,00	4,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,49	1,49	1,49	1,49	
	0,55	1,49	1,49	1,49	1,49	
	0,60	1,49	1,49	1,49	1,49	
	0,63	1,84	1,84	1,84	1,84	
	0,70	1,84	1,84	1,84	1,84	
	0,75	2,42	2,42	2,42	2,42	
	0,80	2,42	2,42	2,42	2,42	
	0,88	2,42	2,42	2,42	2,42	
	1,00	2,82	2,82	2,82	2,82	
	1,13	2,82	2,82	2,82	—	
	1,15	2,82	2,82	2,82	—	
	1,25	2,82	2,82	2,82	—	
	1,50	2,82	2,82	2,82	—	
	1,75	2,82	2,82	2,82	—	
	2,00	2,82	2,82	2,82	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,97	0,97	0,97	0,97	
	0,55	0,97	0,97	0,97	0,97	
	0,60	0,97	0,97	0,97	0,97	
	0,63	1,17	1,17	1,17	1,17	
	0,70	1,17	1,17	1,17	1,17	
	0,75	1,35	1,35	1,35	1,35	
	0,80	1,35	1,35	1,35	1,35	
	0,88	1,35	1,35	1,35	1,35	
	1,00	1,43	1,43	1,43	1,43	
	1,13	1,43	1,43	1,43	—	
	1,15	1,43	1,43	1,43	—	
	1,25	1,43	1,43	1,43	—	
	1,50	1,43	1,43	1,43	—	
	1,75	1,43	1,43	1,43	—	
	2,00	1,43	1,43	1,43	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-PH-5-B 5.5xL
with pan head and washer S11 or S12

Annex 62

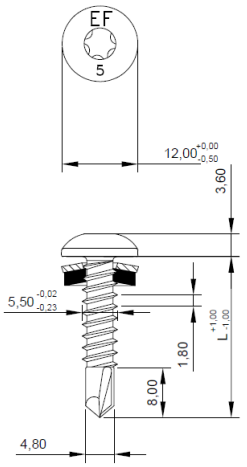
Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized (12 µm)
Washer:	Z11 – carbon steel galvanized washer with EPDM ring
	Z12 – carbon steel galvanized washer with EPDM ring
	A11 – aluminium washer with EPDM ring
	A12 – aluminium washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1
	S280GD, S320GD or S350GD – EN 10346

Drilling capacity: Σti ≤ 5,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		1,50	2,00	3,00	4,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,53	1,53	1,53	1,53	
	0,55	1,53	1,53	1,53	1,53	
	0,60	1,53	1,53	1,53	1,53	
	0,63	1,84	1,84	1,84	1,84	
	0,70	1,84	1,84	1,84	1,84	
	0,75	2,34	2,34	2,34	2,34	
	0,80	2,34	2,34	2,34	2,34	
	0,88	2,34	2,34	2,34	2,34	
	1,00	2,38	2,38	2,38	2,38	
	1,13	2,38	2,38	2,38	—	
	1,15	2,38	2,38	2,38	—	
	1,25	2,87	2,87	2,87	—	
	1,50	2,87	2,87	2,87	—	
	1,75	2,87	2,87	2,87	—	
	2,00	2,87	2,87	2,87	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,70	0,70	0,70	0,70	
	0,55	0,70	0,70	0,70	0,70	
	0,60	0,70	0,70	0,70	0,70	
	0,63	0,79	0,79	0,79	0,79	
	0,70	0,79	0,79	0,79	0,79	
	0,75	1,05	1,05	1,05	1,05	
	0,80	1,05	1,05	1,05	1,05	
	0,88	1,05	1,05	1,05	1,05	
	1,00	1,40	1,40	1,40	1,40	
	1,13	1,40	1,40	1,40	—	
	1,15	1,40	1,40	1,40	—	
	1,25	1,40	1,40	1,40	—	
	1,50	1,40	1,40	1,40	—	
	1,75	1,40	1,40	1,40	—	
	2,00	1,40	1,40	1,40	—	

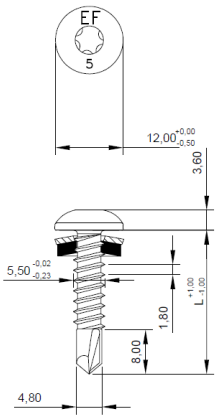
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-PH-5-Z 5.5xL
with pan head and washer Z11, Z12, A11 or A12

Annex 63

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with PREMIUM coating
Washer:	A11 – aluminium washer with EPDM ring A12 – aluminium washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	Σti ≤ 5,00 mm
Timber substructures	
No performance assessed	

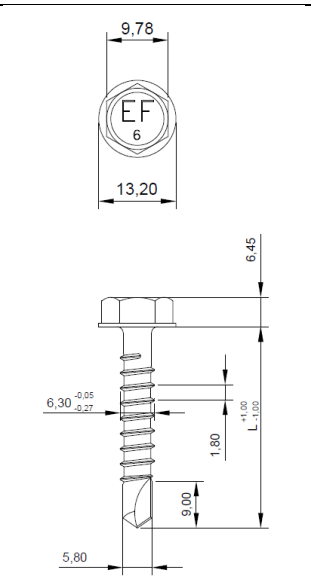


$t_{N,II}$ [mm]		1,50	2,00	3,00	4,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,53	1,53	1,53	1,53	
	0,55	1,53	1,53	1,53	1,53	
	0,60	1,53	1,53	1,53	1,53	
	0,63	1,84	1,84	1,84	1,84	
	0,70	1,84	1,84	1,84	1,84	
	0,75	2,34	2,34	2,34	2,34	
	0,80	2,34	2,34	2,34	2,34	
	0,88	2,34	2,34	2,34	2,34	
	1,00	2,38	2,38	2,38	2,38	
	1,13	2,38	2,38	2,38	—	
	1,15	2,38	2,38	2,38	—	
	1,25	2,87	2,87	2,87	—	
	1,50	2,87	2,87	2,87	—	
	1,75	2,87	2,87	2,87	—	
	2,00	2,87	2,87	2,87	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,70	0,70	0,70	0,70	
	0,55	0,70	0,70	0,70	0,70	
	0,60	0,70	0,70	0,70	0,70	
	0,63	0,79	0,79	0,79	0,79	
	0,70	0,79	0,79	0,79	0,79	
	0,75	1,05	1,05	1,05	1,05	
	0,80	1,05	1,05	1,05	1,05	
	0,88	1,05	1,05	1,05	1,05	
	1,00	1,40	1,40	1,40	1,40	
	1,13	1,40	1,40	1,40	—	
	1,15	1,40	1,40	1,40	—	
	1,25	1,40	1,40	1,40	—	
	1,50	1,40	1,40	1,40	—	
	1,75	1,40	1,40	1,40	—	
	2,00	1,40	1,40	1,40	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting	**Annex 64**
Self-drilling screws ESDS-PH-5-P 5.5xL with pan head and washer A11 or A12	

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized (12 µm)
Washer:	-
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	Σti ≤ 6,00 mm
Timber substructures	
No performance assessed	



$t_{N,II}$ [mm]		3,00	4,00	5,00	Timber class ≥ C24
$M_{t,nom}$		7 Nm			
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,72	1,72	1,72	
	0,55	1,72	1,72	1,72	
	0,60	1,72	1,72	1,72	
	0,63	1,90	1,90	1,90	
	0,70	1,90	1,90	1,90	
	0,75	2,69	2,69	2,69	
	0,80	2,69	2,69	2,69	
	0,88	2,69	2,69	2,69	
	1,00	3,10	3,10	3,10	
	1,13	3,10	3,10	—	
	1,15	3,10	3,10	—	
	1,25	3,10	3,10	—	
	1,50	3,10	3,10	—	
	1,75	3,10	3,10	—	
	2,00	3,10	3,10	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,80	0,80	0,80	
	0,55	0,80	0,80	0,80	
	0,60	0,80	0,80	0,80	
	0,63	1,00	1,00	1,00	
	0,70	1,00	1,00	1,00	
	0,75	1,31	1,31	1,31	
	0,80	1,31	1,31	1,31	
	0,88	1,31	1,31	1,31	
	1,00	1,31	1,31	1,31	
	1,13	1,31	1,31	—	
	1,15	1,31	1,31	—	
	1,25	1,31	1,31	—	
	1,50	1,31	1,31	—	
	1,75	1,31	1,31	—	
	2,00	1,31	1,31	—	

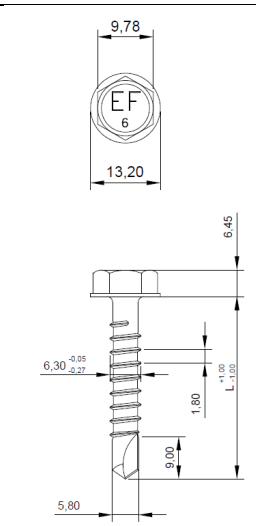
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-6-Z 6.3xL
with hexagon head

Annex 65

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with PREMIUM coating
Washer:	-
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	Σti ≤ 6,00 mm
Timber substructures	
No performance assessed	



$t_{N,II}$ [mm]		3,00	4,00	5,00	Timber class ≥ C24
$M_{t,nom}$		7 Nm			
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,72	1,72	1,72	
	0,55	1,72	1,72	1,72	
	0,60	1,72	1,72	1,72	
	0,63	1,90	1,90	1,90	
	0,70	1,90	1,90	1,90	
	0,75	2,69	2,69	2,69	
	0,80	2,69	2,69	2,69	
	0,88	2,69	2,69	2,69	
	1,00	3,10	3,10	3,10	
	1,13	3,10	3,10	—	
	1,15	3,10	3,10	—	
	1,25	3,10	3,10	—	
	1,50	3,10	3,10	—	
	1,75	3,10	3,10	—	
	2,00	3,10	3,10	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,80	0,80	0,80	
	0,55	0,80	0,80	0,80	
	0,60	0,80	0,80	0,80	
	0,63	1,00	1,00	1,00	
	0,70	1,00	1,00	1,00	
	0,75	1,31	1,31	1,31	
	0,80	1,31	1,31	1,31	
	0,88	1,31	1,31	1,31	
	1,00	1,31	1,31	1,31	
	1,13	1,31	1,31	—	
	1,15	1,31	1,31	—	
	1,25	1,31	1,31	—	
	1,50	1,31	1,31	—	
	1,75	1,31	1,31	—	
	2,00	1,31	1,31	—	

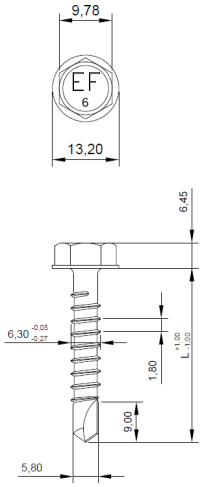
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-6-P 6.3xL
with hexagon head

Annex 66

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with SUPER PREMIUM coating
Washer:	-
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	Σti ≤ 6,00 mm
Timber substructures No performance assessed	



$t_{N,II}$ [mm]		3,00	4,00	5,00	Timber class ≥ C24
$M_{t,nom}$		7 Nm			
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,72	1,72	1,72	
	0,55	1,72	1,72	1,72	
	0,60	1,72	1,72	1,72	
	0,63	1,90	1,90	1,90	
	0,70	1,90	1,90	1,90	
	0,75	2,69	2,69	2,69	
	0,80	2,69	2,69	2,69	
	0,88	2,69	2,69	2,69	
	1,00	3,10	3,10	3,10	
	1,13	3,10	3,10	—	
	1,15	3,10	3,10	—	
	1,25	3,10	3,10	—	
	1,50	3,10	3,10	—	
	1,75	3,10	3,10	—	
	2,00	3,10	3,10	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,80	0,80	0,80	
	0,55	0,80	0,80	0,80	
	0,60	0,80	0,80	0,80	
	0,63	1,00	1,00	1,00	
	0,70	1,00	1,00	1,00	
	0,75	1,31	1,31	1,31	
	0,80	1,31	1,31	1,31	
	0,88	1,31	1,31	1,31	
	1,00	1,31	1,31	1,31	
	1,13	1,31	1,31	—	
	1,15	1,31	1,31	—	
	1,25	1,31	1,31	—	
	1,50	1,31	1,31	—	
	1,75	1,31	1,31	—	
	2,00	1,31	1,31	—	

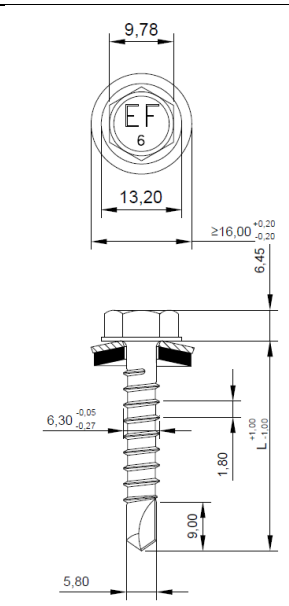
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-6-SP 6.3xL with hexagon head

Annex 67

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized (12 µm)
Washer:	Z16 – carbon steel galvanized washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	Σti ≤ 6,00 mm
Timber substructures No performance assessed	



$t_{N,II}$ [mm]		3,00	4,00	5,00	Timber class ≥ C24
$M_{t,nom}$		7 Nm			
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,72	1,72	1,72	
	0,55	1,72	1,72	1,72	
	0,60	1,72	1,72	1,72	
	0,63	1,90	1,90	1,90	
	0,70	1,90	1,90	1,90	
	0,75	2,69	2,69	2,69	
	0,80	2,69	2,69	2,69	
	0,88	2,69	2,69	2,69	
	1,00	3,10	3,10	3,10	
	1,13	3,10	3,10	—	
	1,15	3,10	3,10	—	
	1,25	3,10	3,10	—	
	1,50	3,10	3,10	—	
	1,75	3,10	3,10	—	
	2,00	3,10	3,10	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	2,65	2,65	2,65	
	0,55	2,65	2,65	2,65	
	0,60	2,65	2,65	2,65	
	0,63	3,63	3,63	3,63	
	0,70	3,63	3,63	3,63	
	0,75	3,98	3,98	4,27	
	0,80	3,98	3,98	4,27	
	0,88	3,98	3,98	4,27	
	1,00	3,98	3,98	4,75	
	1,13	3,98	3,98	—	
	1,15	3,98	3,98	—	
	1,25	3,98	3,98	—	
	1,50	3,98	3,98	—	
	1,75	3,98	3,98	—	
	2,00	3,98	3,98	—	

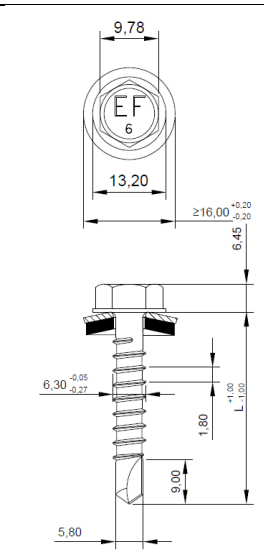
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-6-Z 6.3xL
with hexagon head and washer Z16

Annex 68

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with PREMIUM coating
Washer:	A16 – aluminium washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	Σti ≤ 6,00 mm
Timber substructures No performance assessed	



$t_{N,II}$ [mm]		3,00	4,00	5,00	Timber class ≥ C24
$M_{t,nom}$		7 Nm			
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,72	1,72	1,72	
	0,55	1,72	1,72	1,72	
	0,60	1,72	1,72	1,72	
	0,63	1,90	1,90	1,90	
	0,70	1,90	1,90	1,90	
	0,75	2,69	2,69	2,69	
	0,80	2,69	2,69	2,69	
	0,88	2,69	2,69	2,69	
	1,00	3,10	3,10	3,10	
	1,13	3,10	3,10	—	
	1,15	3,10	3,10	—	
	1,25	3,10	3,10	—	
	1,50	3,10	3,10	—	
	1,75	3,10	3,10	—	
	2,00	3,10	3,10	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	2,65	2,65	2,65	
	0,55	2,65	2,65	2,65	
	0,60	2,65	2,65	2,65	
	0,63	3,63	3,63	3,63	
	0,70	3,63	3,63	3,63	
	0,75	3,98	3,98	4,27	
	0,80	3,98	3,98	4,27	
	0,88	3,98	3,98	4,27	
	1,00	3,98	3,98	4,75	
	1,13	3,98	3,98	—	
	1,15	3,98	3,98	—	
	1,25	3,98	3,98	—	
	1,50	3,98	3,98	—	
	1,75	3,98	3,98	—	
	2,00	3,98	3,98	—	

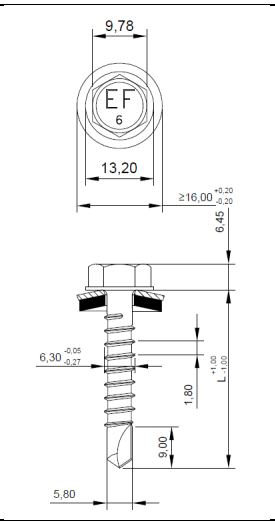
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-6-P 6.3xL
with hexagon head and washer A16

Annex 69

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with SUPER PREMIUM coating
Washer:	S16 – stainless steel washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	Σti ≤ 6,00 mm
Timber substructures	
No performance assessed	

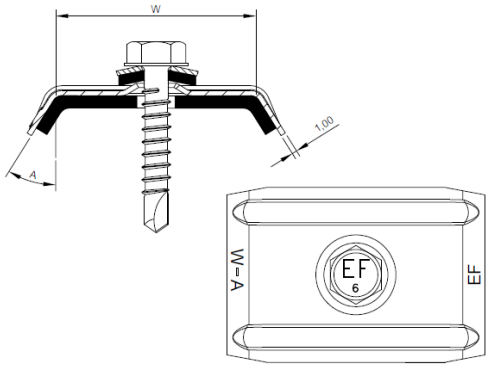


$t_{N,II}$ [mm]		3,00	4,00	5,00	Timber class ≥ C24
$M_{t,nom}$		7 Nm			
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,72	1,72	1,72	
	0,55	1,72	1,72	1,72	
	0,60	1,72	1,72	1,72	
	0,63	1,90	1,90	1,90	
	0,70	1,90	1,90	1,90	
	0,75	2,69	2,69	2,69	
	0,80	2,69	2,69	2,69	
	0,88	2,69	2,69	2,69	
	1,00	3,10	3,10	3,10	
	1,13	3,10	3,10	—	
	1,15	3,10	3,10	—	
	1,25	3,10	3,10	—	
	1,50	3,10	3,10	—	
	1,75	3,10	3,10	—	
	2,00	3,10	3,10	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	2,65	2,65	2,65	
	0,55	2,65	2,65	2,65	
	0,60	2,65	2,65	2,65	
	0,63	3,63	3,63	3,63	
	0,70	3,63	3,63	3,63	
	0,75	3,98	3,98	4,27	
	0,80	3,98	3,98	4,27	
	0,88	3,98	3,98	4,27	
	1,00	3,98	3,98	4,75	
	1,13	3,98	3,98	—	
	1,15	3,98	3,98	—	
	1,25	3,98	3,98	—	
	1,50	3,98	3,98	—	
	1,75	3,98	3,98	—	
	2,00	3,98	3,98	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting	**Annex 70**
Self-drilling screws ESDS-6-SP 6.3xL with hexagon head and washer S16	

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized (12 µm)
Washer:	Z16 – carbon steel galvanized washer with EPDM ring
Saddle washer:	ESW made of aluminium
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	Σti ≤ 6,00 mm
Timber substructures	
No performance assessed	

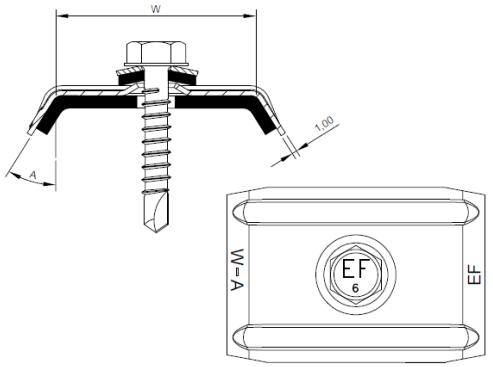


$t_{N,II}$ [mm]		3,00	4,00	5,00	Timber class ≥ C24
$M_{t,nom}$		7 Nm			
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,72	1,72	1,72	
	0,55	1,72	1,72	1,72	
	0,60	1,72	1,72	1,72	
	0,63	1,90	1,90	1,90	
	0,70	1,90	1,90	1,90	
	0,75	2,69	2,69	2,69	
	0,80	2,69	2,69	2,69	
	0,88	2,69	2,69	2,69	
	1,00	3,10	3,10	3,10	
	1,13	3,10	3,10	—	
	1,15	3,10	3,10	—	
	1,25	3,10	3,10	—	
	1,50	3,10	3,10	—	
	1,75	3,10	3,10	—	
	2,00	3,10	3,10	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	3,98	3,98	8,50	
	0,55	3,98	3,98	8,50	
	0,60	3,98	3,98	8,50	
	0,63	3,98	3,98	8,50	
	0,70	3,98	3,98	8,50	
	0,75	3,98	3,98	8,50	
	0,80	3,98	3,98	8,50	
	0,88	3,98	3,98	8,50	
	1,00	3,98	3,98	8,50	
	1,13	3,98	3,98	—	
	1,15	3,98	3,98	—	
	1,25	3,98	3,98	—	
	1,50	3,98	3,98	—	
	1,75	3,98	3,98	—	
	2,00	3,98	3,98	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting	**Annex 71**
Self-drilling screws ESDS-6-Z 6.3xL with hexagon head and washer Z16 and saddle washer ESW	

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with SUPER PREMIUM coating
Washer:	S16 – stainless steel washer with EPDM ring
Saddle washer:	ESW made of aluminium
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	Σti ≤ 6,00 mm
Timber substructures	
No performance assessed	

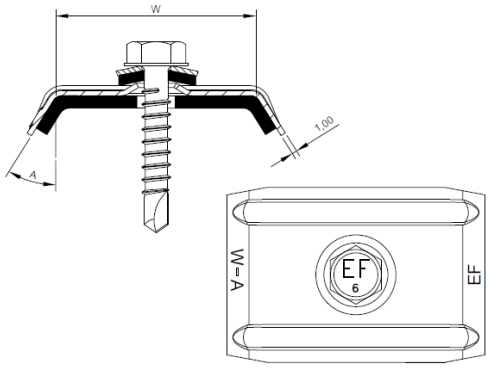


$t_{N,II}$ [mm]		3,00	4,00	5,00	Timber class ≥ C24
$M_{t,nom}$		7 Nm			
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,72	1,72	1,72	
	0,55	1,72	1,72	1,72	
	0,60	1,72	1,72	1,72	
	0,63	1,90	1,90	1,90	
	0,70	1,90	1,90	1,90	
	0,75	2,69	2,69	2,69	
	0,80	2,69	2,69	2,69	
	0,88	2,69	2,69	2,69	
	1,00	3,10	3,10	3,10	
	1,13	3,10	3,10	—	
	1,15	3,10	3,10	—	
	1,25	3,10	3,10	—	
	1,50	3,10	3,10	—	
	1,75	3,10	3,10	—	
	2,00	3,10	3,10	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	3,98	3,98	8,50	
	0,55	3,98	3,98	8,50	
	0,60	3,98	3,98	8,50	
	0,63	3,98	3,98	8,50	
	0,70	3,98	3,98	8,50	
	0,75	3,98	3,98	8,50	
	0,80	3,98	3,98	8,50	
	0,88	3,98	3,98	8,50	
	1,00	3,98	3,98	8,50	
	1,13	3,98	3,98	—	
	1,15	3,98	3,98	—	
	1,25	3,98	3,98	—	
	1,50	3,98	3,98	—	
	1,75	3,98	3,98	—	
	2,00	3,98	3,98	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting	**Annex 72**
Self-drilling screws ESDS-6-P 6.3xL with hexagon head and washer A16 and saddle washer ESW	

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with SUPER PREMIUM coating
Washer:	S16 – stainless steel washer with EPDM ring
Saddle washer:	ESW made of aluminium
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	Σti ≤ 6,00 mm
Timber substructures	
No performance assessed	

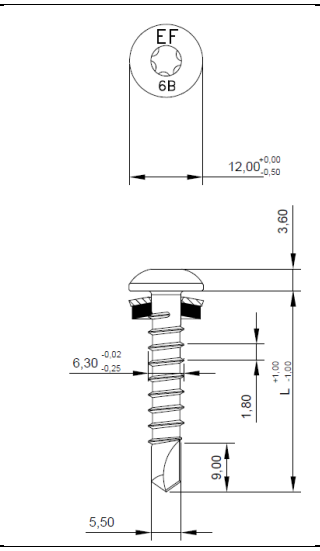


$t_{N,II}$ [mm]		3,00	4,00	5,00	Timber class ≥ C24
$M_{t,nom}$		7 Nm			
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,72	1,72	1,72	
	0,55	1,72	1,72	1,72	
	0,60	1,72	1,72	1,72	
	0,63	1,90	1,90	1,90	
	0,70	1,90	1,90	1,90	
	0,75	2,69	2,69	2,69	
	0,80	2,69	2,69	2,69	
	0,88	2,69	2,69	2,69	
	1,00	3,10	3,10	3,10	
	1,13	3,10	3,10	—	
	1,15	3,10	3,10	—	
	1,25	3,10	3,10	—	
	1,50	3,10	3,10	—	
	1,75	3,10	3,10	—	
	2,00	3,10	3,10	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	3,98	3,98	8,50	
	0,55	3,98	3,98	8,50	
	0,60	3,98	3,98	8,50	
	0,63	3,98	3,98	8,50	
	0,70	3,98	3,98	8,50	
	0,75	3,98	3,98	8,50	
	0,80	3,98	3,98	8,50	
	0,88	3,98	3,98	8,50	
	1,00	3,98	3,98	8,50	
	1,13	3,98	3,98	—	
	1,15	3,98	3,98	—	
	1,25	3,98	3,98	—	
	1,50	3,98	3,98	—	
	1,75	3,98	3,98	—	
	2,00	3,98	3,98	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting	**Annex 73**
Self-drilling screws ESDS-6-SP 6.3xL with hexagon head and washer S16 and saddle washer ESW	

Materials	
Fastener:	stainless steel – SAE302HQ
Washer:	S11 – stainless steel washer with EPDM ring
	S12 – stainless steel washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1
	S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	Σti ≤ 6,00 mm
Timber substructures	
No performance assessed	



$t_{N,II}$ [mm]		2,50	3,00	4,00	5,00	Timber class ≥ C24
$M_{t,nom}$		7 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,72	1,72	1,72	1,72	
	0,55	1,72	1,72	1,72	1,72	
	0,60	1,72	1,72	1,72	1,72	
	0,63	1,90	1,90	1,90	1,90	
	0,70	1,90	1,90	1,90	1,90	
	0,75	2,69	2,69	2,69	2,69	
	0,80	2,69	2,69	2,69	2,69	
	0,88	2,69	2,69	2,69	2,69	
	1,00	3,10	3,10	3,10	3,10	
	1,13	3,10	3,10	3,10	—	
	1,15	3,10	3,10	3,10	—	
	1,25	3,10	3,10	3,10	—	
	1,50	3,10	3,10	3,10	—	
	1,75	3,10	3,10	3,10	—	
	2,00	3,10	3,10	3,10	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,97	0,97	0,97	0,97	
	0,55	0,97	0,97	0,97	0,97	
	0,60	0,97	0,97	0,97	0,97	
	0,63	1,17	1,17	1,17	1,17	
	0,70	1,17	1,17	1,17	1,17	
	0,75	1,35	1,35	1,35	1,35	
	0,80	1,35	1,35	1,35	1,35	
	0,88	1,35	1,35	1,35	1,35	
	1,00	1,43	1,43	1,43	1,43	
	1,13	1,43	1,43	1,43	—	
	1,15	1,43	1,43	1,43	—	
	1,25	1,43	1,43	1,43	—	
	1,50	1,43	1,43	1,43	—	
	1,75	1,43	1,43	1,43	—	
	2,00	1,43	1,43	1,43	—	

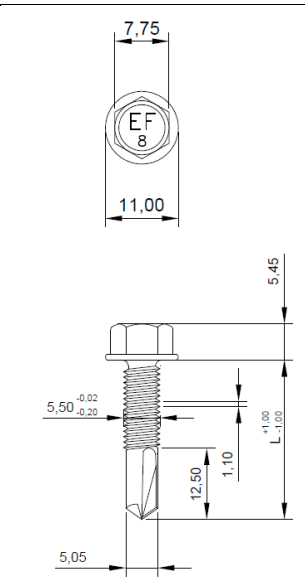
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-PH-6-B 6.3xL
with pan head and washer S11 or S12

Annex 74

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized (12 µm)
Washer:	-
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	Σti ≤ 8,00 mm
Timber substructures	
No performance assessed	



$t_{N,II}$ [mm]		2,00	3,00	4,00	5,00	6,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm					
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,41	1,41	1,41	1,41	1,41	
	0,55	1,41	1,41	1,41	1,41	1,41	
	0,60	1,41	1,41	1,41	1,41	1,41	
	0,63	1,77	1,77	1,77	1,77	1,77	
	0,70	1,77	1,77	1,77	1,77	1,77	
	0,75	2,35	2,35	2,35	2,35	2,35	
	0,80	2,35	2,35	2,35	2,35	2,35	
	0,88	2,35	2,35	2,35	2,35	2,35	
	1,00	2,50	2,50	2,50	2,50	2,50	
	1,13	2,50	2,50	2,50	2,50	2,50	
	1,15	2,50	2,50	2,50	2,50	2,50	
	1,25	2,50	2,50	2,50	2,50	2,50	
	1,50	2,50	2,50	2,50	2,50	2,50	
	1,75	2,50	2,50	2,50	2,50	2,50	
	2,00	2,50	2,50	2,50	2,50	2,50	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,80	0,80	0,80	0,80	0,80	
	0,55	0,80	0,80	0,80	0,80	0,80	
	0,60	0,80	0,80	0,80	0,80	0,80	
	0,63	1,00	1,00	1,00	1,00	1,00	
	0,70	1,00	1,00	1,00	1,00	1,00	
	0,75	1,31	1,31	1,31	1,31	1,31	
	0,80	1,31	1,31	1,31	1,31	1,31	
	0,88	1,31	1,31	1,31	1,31	1,31	
	1,00	1,31	1,31	1,31	1,31	1,31	
	1,13	1,31	1,31	1,31	1,31	1,31	
	1,15	1,31	1,31	1,31	1,31	1,31	
	1,25	1,31	1,31	1,31	1,31	1,31	
	1,50	1,31	1,31	1,31	1,31	1,31	
	1,75	1,31	1,31	1,31	1,31	1,31	
	2,00	1,31	1,31	1,31	1,31	1,31	

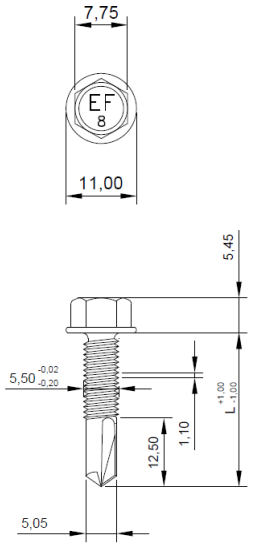
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-8-Z 5.5xL with hexagon head

Annex 75

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with PREMIUM coating
Washer:	-
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	Σti ≤ 8,00 mm
Timber substructures	
No performance assessed	



$t_{N,II}$ [mm]		2,00	3,00	4,00	5,00	6,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm					
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,41	1,41	1,41	1,41	1,41	
	0,55	1,41	1,41	1,41	1,41	1,41	
	0,60	1,41	1,41	1,41	1,41	1,41	
	0,63	1,77	1,77	1,77	1,77	1,77	
	0,70	1,77	1,77	1,77	1,77	1,77	
	0,75	2,35	2,35	2,35	2,35	2,35	
	0,80	2,35	2,35	2,35	2,35	2,35	
	0,88	2,35	2,35	2,35	2,35	2,35	
	1,00	2,50	2,50	2,50	2,50	2,50	
	1,13	2,50	2,50	2,50	2,50	2,50	
	1,15	2,50	2,50	2,50	2,50	2,50	
	1,25	2,50	2,50	2,50	2,50	2,50	
	1,50	2,50	2,50	2,50	2,50	2,50	
	1,75	2,50	2,50	2,50	2,50	2,50	
	2,00	2,50	2,50	2,50	2,50	2,50	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,80	0,80	0,80	0,80	0,80	
	0,55	0,80	0,80	0,80	0,80	0,80	
	0,60	0,80	0,80	0,80	0,80	0,80	
	0,63	1,00	1,00	1,00	1,00	1,00	
	0,70	1,00	1,00	1,00	1,00	1,00	
	0,75	1,31	1,31	1,31	1,31	1,31	
	0,80	1,31	1,31	1,31	1,31	1,31	
	0,88	1,31	1,31	1,31	1,31	1,31	
	1,00	1,31	1,31	1,31	1,31	1,31	
	1,13	1,31	1,31	1,31	1,31	1,31	
	1,15	1,31	1,31	1,31	1,31	1,31	
	1,25	1,31	1,31	1,31	1,31	1,31	
	1,50	1,31	1,31	1,31	1,31	1,31	
	1,75	1,31	1,31	1,31	1,31	1,31	
	2,00	1,31	1,31	1,31	1,31	1,31	

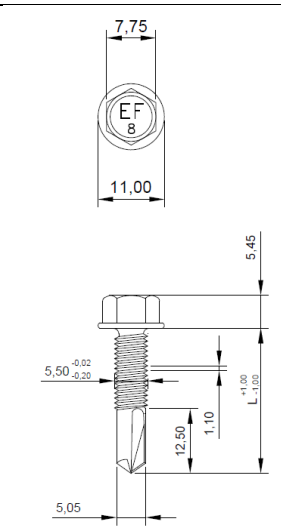
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-8-P 5.5xL with hexagon head

Annex 76

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with PREMIUM coating
Washer:	A16 - aluminium washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	Σti ≤ 8,00 mm
Timber substructures No performance assessed	

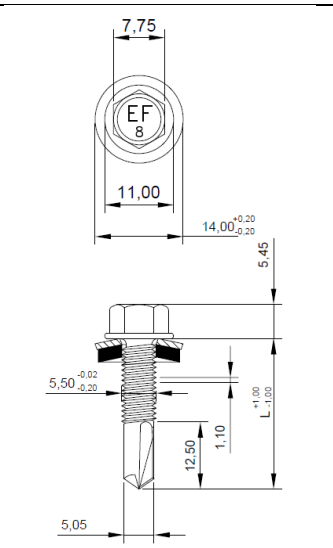


$t_{N,II}$ [mm]		2,00	3,00	4,00	5,00	6,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm					
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,41	1,41	1,41	1,41	1,41	
	0,55	1,41	1,41	1,41	1,41	1,41	
	0,60	1,41	1,41	1,41	1,41	1,41	
	0,63	1,77	1,77	1,77	1,77	1,77	
	0,70	1,77	1,77	1,77	1,77	1,77	
	0,75	2,35	2,35	2,35	2,35	2,35	
	0,80	2,35	2,35	2,35	2,35	2,35	
	0,88	2,35	2,35	2,35	2,35	2,35	
	1,00	2,50	2,50	2,50	2,50	2,50	
	1,13	2,50	2,50	2,50	2,50	2,50	
	1,15	2,50	2,50	2,50	2,50	2,50	
	1,25	2,50	2,50	2,50	2,50	2,50	
	1,50	2,50	2,50	2,50	2,50	2,50	
	1,75	2,50	2,50	2,50	2,50	2,50	
	2,00	2,50	2,50	2,50	2,50	2,50	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,80	0,80	0,80	0,80	0,80	
	0,55	0,80	0,80	0,80	0,80	0,80	
	0,60	0,80	0,80	0,80	0,80	0,80	
	0,63	1,00	1,00	1,00	1,00	1,00	
	0,70	1,00	1,00	1,00	1,00	1,00	
	0,75	1,31	1,31	1,31	1,31	1,31	
	0,80	1,31	1,31	1,31	1,31	1,31	
	0,88	1,31	1,31	1,31	1,31	1,31	
	1,00	1,31	1,31	1,31	1,31	1,31	
	1,13	1,31	1,31	1,31	1,31	1,31	
	1,15	1,31	1,31	1,31	1,31	1,31	
	1,25	1,31	1,31	1,31	1,31	1,31	
	1,50	1,31	1,31	1,31	1,31	1,31	
	1,75	1,31	1,31	1,31	1,31	1,31	
	2,00	1,31	1,31	1,31	1,31	1,31	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting	**Annex 77**
Self-drilling screws ESDS-8-SP 5.5xL with hexagon head	

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized (12 µm)
Washer:	Z14 – carbon steel galvanized washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	Σti ≤ 8,00 mm
Timber substructures No performance assessed	



$t_{N,II}$ [mm]		2,00	3,00	4,00	5,00	6,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm					
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,41	1,41	1,41	1,41	1,41	
	0,55	1,41	1,41	1,41	1,41	1,41	
	0,60	1,41	1,41	1,41	1,41	1,41	
	0,63	1,77	1,77	1,77	1,77	1,77	
	0,70	1,77	1,77	1,77	1,77	1,77	
	0,75	2,35	2,35	2,35	2,35	2,35	
	0,80	2,35	2,35	2,35	2,35	2,35	
	0,88	2,35	2,35	2,35	2,35	2,35	
	1,00	2,50	2,50	2,50	2,50	2,50	
	1,13	2,50	2,50	2,50	2,50	2,50	
	1,15	2,50	2,50	2,50	2,50	2,50	
	1,25	2,50	2,50	2,50	2,50	2,50	
	1,50	2,50	2,50	2,50	2,50	2,50	
	1,75	2,50	2,50	2,50	2,50	2,50	
	2,00	2,50	2,50	2,50	2,50	2,50	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,90	2,54	2,54	2,54	2,54	
	0,55	1,90	2,54	2,54	2,54	2,54	
	0,60	1,90	2,54	2,54	2,54	2,54	
	0,63	1,90	3,41	3,41	3,41	3,41	
	0,70	1,90	3,41	3,41	3,41	3,41	
	0,75	1,90	3,92	3,92	4,10	4,10	
	0,80	1,90	3,92	3,92	4,10	4,10	
	0,88	1,90	3,92	3,92	4,10	4,10	
	1,00	1,90	3,92	3,92	4,05	4,05	
	1,13	1,90	3,92	3,92	4,05	4,05	
	1,15	1,90	3,92	3,92	4,05	4,05	
	1,25	1,90	3,92	3,92	4,05	4,05	
	1,50	1,90	3,92	3,92	4,05	4,05	
	1,75	1,90	3,92	3,92	4,05	4,05	
	2,00	1,90	3,92	3,92	4,05	4,05	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-8-Z 5.5xL
with hexagon head and washer Z14

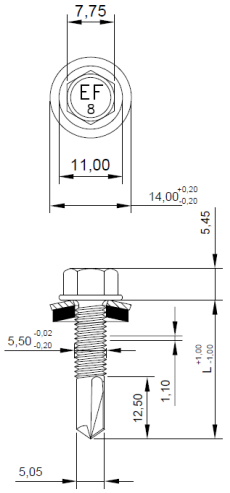
Annex 78

Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with PREMIUM coating
Washer:	A14 – aluminium washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	Σti ≤ 8,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		2,00	3,00	4,00	5,00	6,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm					
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,41	1,41	1,41	1,41	1,41	
	0,55	1,41	1,41	1,41	1,41	1,41	
	0,60	1,41	1,41	1,41	1,41	1,41	
	0,63	1,77	1,77	1,77	1,77	1,77	
	0,70	1,77	1,77	1,77	1,77	1,77	
	0,75	2,35	2,35	2,35	2,35	2,35	
	0,80	2,35	2,35	2,35	2,35	2,35	
	0,88	2,35	2,35	2,35	2,35	2,35	
	1,00	2,50	2,50	2,50	2,50	2,50	
	1,13	2,50	2,50	2,50	2,50	2,50	
	1,15	2,50	2,50	2,50	2,50	2,50	
	1,25	2,50	2,50	2,50	2,50	2,50	
	1,50	2,50	2,50	2,50	2,50	2,50	
	1,75	2,50	2,50	2,50	2,50	2,50	
	2,00	2,50	2,50	2,50	2,50	2,50	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,90	2,54	2,54	2,54	2,54	
	0,55	1,90	2,54	2,54	2,54	2,54	
	0,60	1,90	2,54	2,54	2,54	2,54	
	0,63	1,90	3,41	3,41	3,41	3,41	
	0,70	1,90	3,41	3,41	3,41	3,41	
	0,75	1,90	3,92	3,92	4,10	4,10	
	0,80	1,90	3,92	3,92	4,10	4,10	
	0,88	1,90	3,92	3,92	4,10	4,10	
	1,00	1,90	3,92	3,92	4,05	4,05	
	1,13	1,90	3,92	3,92	4,05	4,05	
	1,15	1,90	3,92	3,92	4,05	4,05	
	1,25	1,90	3,92	3,92	4,05	4,05	
	1,50	1,90	3,92	3,92	4,05	4,05	
	1,75	1,90	3,92	3,92	4,05	4,05	
	2,00	1,90	3,92	3,92	4,05	4,05	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-8-P 5.5xL
with hexagon head and washer A14

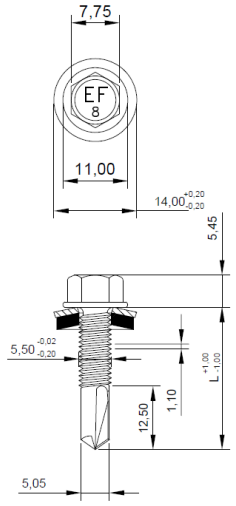
Annex 79

Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with SUPER PREMIUM coating
Washer:	S14 – stainless steel washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	Σti ≤ 8,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		2,00	3,00	4,00	5,00	6,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm					
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,41	1,41	1,41	1,41	1,41	
	0,55	1,41	1,41	1,41	1,41	1,41	
	0,60	1,41	1,41	1,41	1,41	1,41	
	0,63	1,77	1,77	1,77	1,77	1,77	
	0,70	1,77	1,77	1,77	1,77	1,77	
	0,75	2,35	2,35	2,35	2,35	2,35	
	0,80	2,35	2,35	2,35	2,35	2,35	
	0,88	2,35	2,35	2,35	2,35	2,35	
	1,00	2,50	2,50	2,50	2,50	2,50	
	1,13	2,50	2,50	2,50	2,50	2,50	
	1,15	2,50	2,50	2,50	2,50	2,50	
	1,25	2,50	2,50	2,50	2,50	2,50	
	1,50	2,50	2,50	2,50	2,50	2,50	
	1,75	2,50	2,50	2,50	2,50	2,50	
	2,00	2,50	2,50	2,50	2,50	2,50	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,90	2,54	2,54	2,54	2,54	
	0,55	1,90	2,54	2,54	2,54	2,54	
	0,60	1,90	2,54	2,54	2,54	2,54	
	0,63	1,90	3,41	3,41	3,41	3,41	
	0,70	1,90	3,41	3,41	3,41	3,41	
	0,75	1,90	3,92	3,92	4,10	4,10	
	0,80	1,90	3,92	3,92	4,10	4,10	
	0,88	1,90	3,92	3,92	4,10	4,10	
	1,00	1,90	3,92	3,92	4,05	4,05	
	1,13	1,90	3,92	3,92	4,05	4,05	
	1,15	1,90	3,92	3,92	4,05	4,05	
	1,25	1,90	3,92	3,92	4,05	4,05	
	1,50	1,90	3,92	3,92	4,05	4,05	
	1,75	1,90	3,92	3,92	4,05	4,05	
	2,00	1,90	3,92	3,92	4,05	4,05	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-8-SP 5.5xL
with hexagon head and washer S14

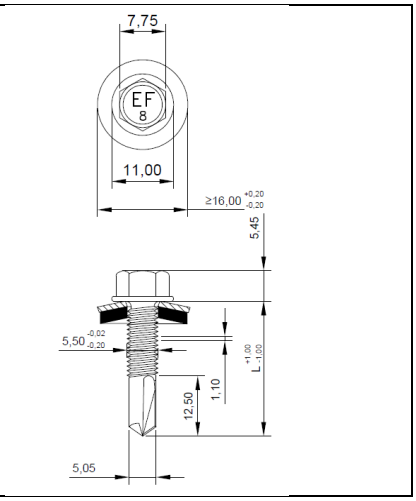
Annex 80

Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized (12 µm)
Washer:	Z16 – carbon steel galvanized washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	Σti ≤ 8,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		2,00	3,00	4,00	5,00	6,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm					
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,41	1,41	1,41	1,41	1,41	
	0,55	1,41	1,41	1,41	1,41	1,41	
	0,60	1,41	1,41	1,41	1,41	1,41	
	0,63	1,77	1,77	1,77	1,77	1,77	
	0,70	1,77	1,77	1,77	1,77	1,77	
	0,75	2,35	2,35	2,35	2,35	2,35	
	0,80	2,35	2,35	2,35	2,35	2,35	
	0,88	2,35	2,35	2,35	2,35	2,35	
	1,00	2,50	2,50	2,50	2,50	2,50	
	1,13	2,50	2,50	2,50	2,50	2,50	
	1,15	2,50	2,50	2,50	2,50	2,50	
	1,25	2,50	2,50	2,50	2,50	2,50	
	1,50	2,50	2,50	2,50	2,50	2,50	
	1,75	2,50	2,50	2,50	2,50	2,50	
	2,00	2,50	2,50	2,50	2,50	2,50	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,90	2,53	2,53	2,53	2,53	
	0,55	1,90	2,53	2,53	2,53	2,53	
	0,60	1,90	2,77	2,77	2,77	2,77	
	0,63	1,90	2,77	2,77	2,77	2,77	
	0,70	1,90	2,89	2,89	2,89	2,89	
	0,75	1,90	2,89	2,89	2,89	2,89	
	0,80	1,90	2,89	2,89	2,89	2,89	
	0,88	1,90	2,89	2,89	2,89	2,89	
	1,00	1,90	3,92	3,92	4,27	4,27	
	1,13	1,90	3,92	3,92	4,27	4,27	
	1,15	1,90	3,92	3,92	4,27	4,27	
	1,25	1,90	3,92	3,92	4,27	4,27	
	1,50	1,90	3,92	3,92	4,27	4,27	
	1,75	1,90	3,92	3,92	4,27	4,27	
	2,00	1,90	3,92	3,92	4,27	4,27	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-8-Z 5.5xL
with hexagon head and washer Z16

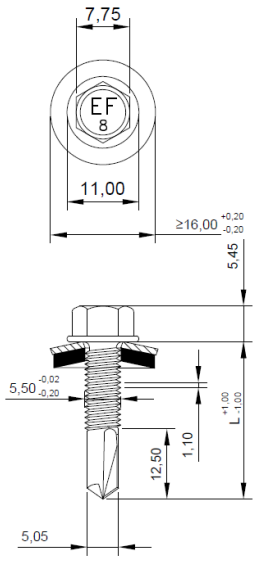
Annex 81

Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with PREMIUM coating
Washer:	A16 – aluminium washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	Σti ≤ 8,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		2,00	3,00	4,00	5,00	6,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm					
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,41	1,41	1,41	1,41	1,41	
	0,55	1,41	1,41	1,41	1,41	1,41	
	0,60	1,41	1,41	1,41	1,41	1,41	
	0,63	1,77	1,77	1,77	1,77	1,77	
	0,70	1,77	1,77	1,77	1,77	1,77	
	0,75	2,35	2,35	2,35	2,35	2,35	
	0,80	2,35	2,35	2,35	2,35	2,35	
	0,88	2,35	2,35	2,35	2,35	2,35	
	1,00	2,50	2,50	2,50	2,50	2,50	
	1,13	2,50	2,50	2,50	2,50	2,50	
	1,15	2,50	2,50	2,50	2,50	2,50	
	1,25	2,50	2,50	2,50	2,50	2,50	
	1,50	2,50	2,50	2,50	2,50	2,50	
	1,75	2,50	2,50	2,50	2,50	2,50	
	2,00	2,50	2,50	2,50	2,50	2,50	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,90	2,53	2,53	2,53	2,53	
	0,55	1,90	2,53	2,53	2,53	2,53	
	0,60	1,90	2,77	2,77	2,77	2,77	
	0,63	1,90	2,77	2,77	2,77	2,77	
	0,70	1,90	2,89	2,89	2,89	2,89	
	0,75	1,90	2,89	2,89	2,89	2,89	
	0,80	1,90	2,89	2,89	2,89	2,89	
	0,88	1,90	2,89	2,89	2,89	2,89	
	1,00	1,90	3,92	3,92	4,27	4,27	
	1,13	1,90	3,92	3,92	4,27	4,27	
	1,15	1,90	3,92	3,92	4,27	4,27	
	1,25	1,90	3,92	3,92	4,27	4,27	
	1,50	1,90	3,92	3,92	4,27	4,27	
	1,75	1,90	3,92	3,92	4,27	4,27	
	2,00	1,90	3,92	3,92	4,27	4,27	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-8-P 5.5xL
with hexagon head and washer A16

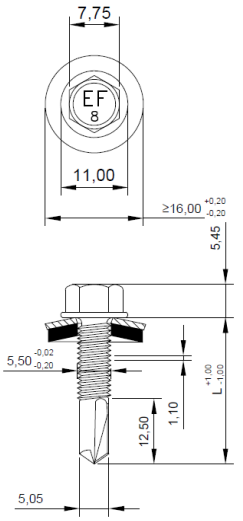
Annex 82

Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with SUPER PREMIUM coating
Washer:	S16 – stainless steel washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	Σti ≤ 8,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		2,00	3,00	4,00	5,00	6,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm					
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,41	1,41	1,41	1,41	1,41	
	0,55	1,41	1,41	1,41	1,41	1,41	
	0,60	1,41	1,41	1,41	1,41	1,41	
	0,63	1,77	1,77	1,77	1,77	1,77	
	0,70	1,77	1,77	1,77	1,77	1,77	
	0,75	2,35	2,35	2,35	2,35	2,35	
	0,80	2,35	2,35	2,35	2,35	2,35	
	0,88	2,35	2,35	2,35	2,35	2,35	
	1,00	2,50	2,50	2,50	2,50	2,50	
	1,13	2,50	2,50	2,50	2,50	2,50	
	1,15	2,50	2,50	2,50	2,50	2,50	
	1,25	2,50	2,50	2,50	2,50	2,50	
	1,50	2,50	2,50	2,50	2,50	2,50	
	1,75	2,50	2,50	2,50	2,50	2,50	
	2,00	2,50	2,50	2,50	2,50	2,50	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,90	2,53	2,53	2,53	2,53	
	0,55	1,90	2,53	2,53	2,53	2,53	
	0,60	1,90	2,77	2,77	2,77	2,77	
	0,63	1,90	2,77	2,77	2,77	2,77	
	0,70	1,90	2,89	2,89	2,89	2,89	
	0,75	1,90	2,89	2,89	2,89	2,89	
	0,80	1,90	2,89	2,89	2,89	2,89	
	0,88	1,90	2,89	2,89	2,89	2,89	
	1,00	1,90	3,92	3,92	4,27	4,27	
	1,13	1,90	3,92	3,92	4,27	4,27	
	1,15	1,90	3,92	3,92	4,27	4,27	
	1,25	1,90	3,92	3,92	4,27	4,27	
	1,50	1,90	3,92	3,92	4,27	4,27	
	1,75	1,90	3,92	3,92	4,27	4,27	
	2,00	1,90	3,92	3,92	4,27	4,27	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-8-SP 5.5xL
with hexagon head and washer S16

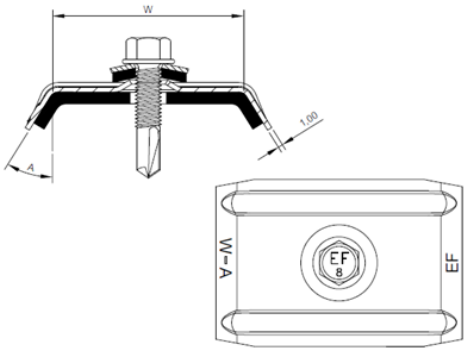
Annex 83

Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized (12 µm)
Washer:	Z16 – carbon steel galvanized washer with EPDM ring
Saddle washer:	ESW made of aluminium
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	Σti ≤ 8,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		2,00	3,00	4,00	5,00	6,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm					
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,41	1,41	1,41	1,41	1,41	
	0,55	1,41	1,41	1,41	1,41	1,41	
	0,60	1,41	1,41	1,41	1,41	1,41	
	0,63	1,77	1,77	1,77	1,77	1,77	
	0,70	1,77	1,77	1,77	1,77	1,77	
	0,75	2,35	2,35	2,35	2,35	2,35	
	0,80	2,35	2,35	2,35	2,35	2,35	
	0,88	2,35	2,35	2,35	2,35	2,35	
	1,00	2,50	2,50	2,50	2,50	2,50	
	1,13	2,50	2,50	2,50	2,50	2,50	
	1,15	2,50	2,50	2,50	2,50	2,50	
	1,25	2,50	2,50	2,50	2,50	2,50	
	1,50	2,50	2,50	2,50	2,50	2,50	
	1,75	2,50	2,50	2,50	2,50	2,50	
	2,00	2,50	2,50	2,50	2,50	2,50	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,90	3,92	3,92	7,85	7,85	
	0,55	1,90	3,92	3,92	7,85	7,85	
	0,60	1,90	3,92	3,92	7,85	7,85	
	0,63	1,90	3,92	3,92	7,85	7,85	
	0,70	1,90	3,92	3,92	7,85	7,85	
	0,75	1,90	3,92	3,92	7,85	7,85	
	0,80	1,90	3,92	3,92	7,85	7,85	
	0,88	1,90	3,92	3,92	7,85	7,85	
	1,00	1,90	3,92	3,92	7,85	7,85	
	1,13	1,90	3,92	3,92	7,85	7,85	
	1,15	1,90	3,92	3,92	7,85	7,85	
	1,25	1,90	3,92	3,92	7,85	7,85	
	1,50	1,90	3,92	3,92	7,85	7,85	
	1,75	1,90	3,92	3,92	7,85	7,85	
	2,00	1,90	3,92	3,92	7,85	7,85	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-8-Z 5.5xL
with hexagon head and washer Z16 and saddle washer ESW

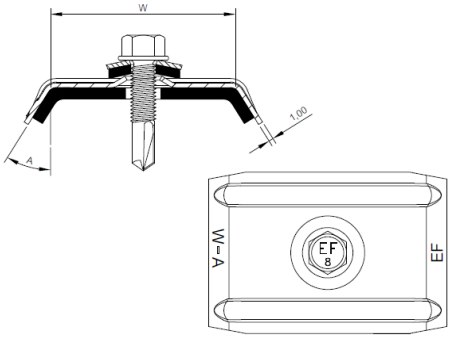
Annex 84

Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with PREMIUM coating
Washer:	A16 – aluminium washer with EPDM ring
Saddle washer:	ESW made of aluminium
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	Σti ≤ 8,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		2,00	3,00	4,00	5,00	6,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm					
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,41	1,41	1,41	1,41	1,41	
	0,55	1,41	1,41	1,41	1,41	1,41	
	0,60	1,41	1,41	1,41	1,41	1,41	
	0,63	1,77	1,77	1,77	1,77	1,77	
	0,70	1,77	1,77	1,77	1,77	1,77	
	0,75	2,35	2,35	2,35	2,35	2,35	
	0,80	2,35	2,35	2,35	2,35	2,35	
	0,88	2,35	2,35	2,35	2,35	2,35	
	1,00	2,50	2,50	2,50	2,50	2,50	
	1,13	2,50	2,50	2,50	2,50	2,50	
	1,15	2,50	2,50	2,50	2,50	2,50	
	1,25	2,50	2,50	2,50	2,50	2,50	
	1,50	2,50	2,50	2,50	2,50	2,50	
	1,75	2,50	2,50	2,50	2,50	2,50	
	2,00	2,50	2,50	2,50	2,50	2,50	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,90	3,92	3,92	7,85	7,85	
	0,55	1,90	3,92	3,92	7,85	7,85	
	0,60	1,90	3,92	3,92	7,85	7,85	
	0,63	1,90	3,92	3,92	7,85	7,85	
	0,70	1,90	3,92	3,92	7,85	7,85	
	0,75	1,90	3,92	3,92	7,85	7,85	
	0,80	1,90	3,92	3,92	7,85	7,85	
	0,88	1,90	3,92	3,92	7,85	7,85	
	1,00	1,90	3,92	3,92	7,85	7,85	
	1,13	1,90	3,92	3,92	7,85	7,85	
	1,15	1,90	3,92	3,92	7,85	7,85	
	1,25	1,90	3,92	3,92	7,85	7,85	
	1,50	1,90	3,92	3,92	7,85	7,85	
	1,75	1,90	3,92	3,92	7,85	7,85	
	2,00	1,90	3,92	3,92	7,85	7,85	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-8-P 5.5xL
with hexagon head and washer A16 and saddle washer ESW

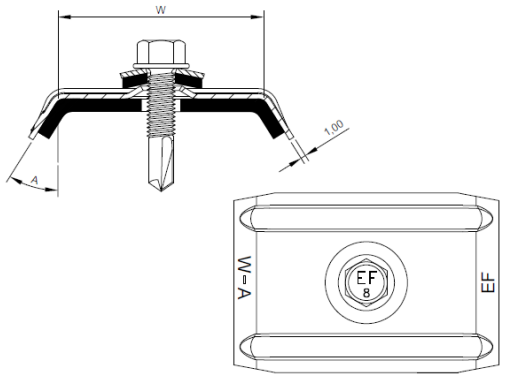
Annex 85

Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with SUPER PREMIUM coating
Washer:	S16 – stainless steel washer with EPDM ring
Saddle washer:	ESW made of aluminium
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	Σti ≤ 8,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		2,00	3,00	4,00	5,00	6,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm					
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,41	1,41	1,41	1,41	1,41	
	0,55	1,41	1,41	1,41	1,41	1,41	
	0,60	1,41	1,41	1,41	1,41	1,41	
	0,63	1,77	1,77	1,77	1,77	1,77	
	0,70	1,77	1,77	1,77	1,77	1,77	
	0,75	2,35	2,35	2,35	2,35	2,35	
	0,80	2,35	2,35	2,35	2,35	2,35	
	0,88	2,35	2,35	2,35	2,35	2,35	
	1,00	2,50	2,50	2,50	2,50	2,50	
	1,13	2,50	2,50	2,50	2,50	2,50	
	1,15	2,50	2,50	2,50	2,50	2,50	
	1,25	2,50	2,50	2,50	2,50	2,50	
	1,50	2,50	2,50	2,50	2,50	2,50	
	1,75	2,50	2,50	2,50	2,50	2,50	
	2,00	2,50	2,50	2,50	2,50	2,50	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,90	3,92	3,92	7,85	7,85	
	0,55	1,90	3,92	3,92	7,85	7,85	
	0,60	1,90	3,92	3,92	7,85	7,85	
	0,63	1,90	3,92	3,92	7,85	7,85	
	0,70	1,90	3,92	3,92	7,85	7,85	
	0,75	1,90	3,92	3,92	7,85	7,85	
	0,80	1,90	3,92	3,92	7,85	7,85	
	0,88	1,90	3,92	3,92	7,85	7,85	
	1,00	1,90	3,92	3,92	7,85	7,85	
	1,13	1,90	3,92	3,92	7,85	7,85	
	1,15	1,90	3,92	3,92	7,85	7,85	
	1,25	1,90	3,92	3,92	7,85	7,85	
	1,50	1,90	3,92	3,92	7,85	7,85	
	1,75	1,90	3,92	3,92	7,85	7,85	
	2,00	1,90	3,92	3,92	7,85	7,85	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-8-SP 5.5xL
with hexagon head and washer S16 and saddle washer ESW

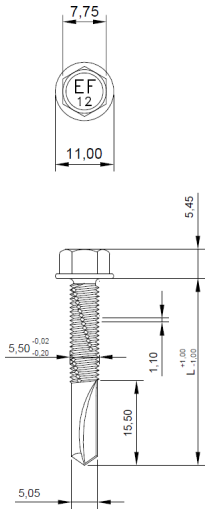
Annex 86

Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized (12 µm)
Washer:	-
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – S355 EN 10025-1
Drilling capacity:	Σti ≤ 12,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		4,00	5,00	6,00	8,00	10,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm					
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,66	1,66	1,66	1,66	1,66	
	0,55	1,66	1,66	1,66	1,66	1,66	
	0,60	1,66	1,66	1,66	1,66	1,66	
	0,63	1,76	1,76	1,76	1,76	1,76	
	0,70	1,76	1,76	1,76	1,76	1,76	
	0,75	2,60	2,60	2,60	2,60	2,60	
	0,80	2,60	2,60	2,60	2,60	2,60	
	0,88	2,60	2,60	2,60	2,60	2,60	
	1,00	3,37	3,37	3,37	3,37	3,37	
	1,13	3,37	3,37	3,37	3,37	3,37	
	1,15	3,37	3,37	3,37	3,37	3,37	
	1,25	3,37	3,37	3,37	3,37	3,37	
	1,50	3,37	3,37	3,37	3,37	3,37	
	1,75	3,37	3,37	3,37	3,37	3,37	
	2,00	3,37	3,37	3,37	3,37	3,37	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,80	0,80	0,80	0,80	0,80	
	0,55	0,80	0,80	0,80	0,80	0,80	
	0,60	0,80	0,80	0,80	0,80	0,80	
	0,63	1,00	1,00	1,00	1,00	1,00	
	0,70	1,00	1,00	1,00	1,00	1,00	
	0,75	1,31	1,31	1,31	1,31	1,31	
	0,80	1,31	1,31	1,31	1,31	1,31	
	0,88	1,31	1,31	1,31	1,31	1,31	
	1,00	1,31	1,31	1,31	1,31	1,31	
	1,13	1,31	1,31	1,31	1,31	1,31	
	1,15	1,31	1,31	1,31	1,31	1,31	
	1,25	1,31	1,31	1,31	1,31	1,31	
	1,50	1,31	1,31	1,31	1,31	1,31	
	1,75	1,31	1,31	1,31	1,31	1,31	
	2,00	1,31	1,31	1,31	1,31	1,31	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-12-Z 5.5xL with hexagon head

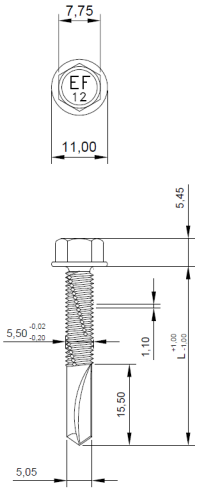
Annex 87

Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with PREMIUM coating
Washer:	-
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – S355 EN 10025-1
Drilling capacity:	Σti ≤ 12,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		4,00	5,00	6,00	8,00	10,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm					
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,66	1,66	1,66	1,66	1,66	
	0,55	1,66	1,66	1,66	1,66	1,66	
	0,60	1,66	1,66	1,66	1,66	1,66	
	0,63	1,76	1,76	1,76	1,76	1,76	
	0,70	1,76	1,76	1,76	1,76	1,76	
	0,75	2,60	2,60	2,60	2,60	2,60	
	0,80	2,60	2,60	2,60	2,60	2,60	
	0,88	2,60	2,60	2,60	2,60	2,60	
	1,00	3,37	3,37	3,37	3,37	3,37	
	1,13	3,37	3,37	3,37	3,37	3,37	
	1,15	3,37	3,37	3,37	3,37	3,37	
	1,25	3,37	3,37	3,37	3,37	3,37	
	1,50	3,37	3,37	3,37	3,37	3,37	
	1,75	3,37	3,37	3,37	3,37	3,37	
	2,00	3,37	3,37	3,37	3,37	3,37	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,80	0,80	0,80	0,80	0,80	
	0,55	0,80	0,80	0,80	0,80	0,80	
	0,60	0,80	0,80	0,80	0,80	0,80	
	0,63	1,00	1,00	1,00	1,00	1,00	
	0,70	1,00	1,00	1,00	1,00	1,00	
	0,75	1,31	1,31	1,31	1,31	1,31	
	0,80	1,31	1,31	1,31	1,31	1,31	
	0,88	1,31	1,31	1,31	1,31	1,31	
	1,00	1,31	1,31	1,31	1,31	1,31	
	1,13	1,31	1,31	1,31	1,31	1,31	
	1,15	1,31	1,31	1,31	1,31	1,31	
	1,25	1,31	1,31	1,31	1,31	1,31	
	1,50	1,31	1,31	1,31	1,31	1,31	
	1,75	1,31	1,31	1,31	1,31	1,31	
	2,00	1,31	1,31	1,31	1,31	1,31	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-12-P 5.5xL with hexagon head

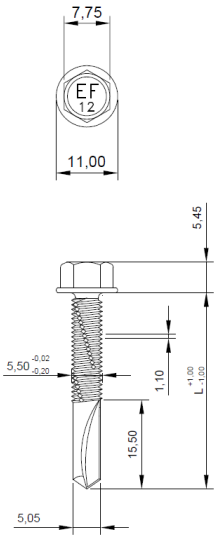
Annex 88

Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with SUPER PREMIUM coating
Washer:	-
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – S355 EN 10025-1
Drilling capacity:	Σti ≤ 12,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		4,00	5,00	6,00	8,00	10,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm					
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,66	1,66	1,66	1,66	1,66	
	0,55	1,66	1,66	1,66	1,66	1,66	
	0,60	1,66	1,66	1,66	1,66	1,66	
	0,63	1,76	1,76	1,76	1,76	1,76	
	0,70	1,76	1,76	1,76	1,76	1,76	
	0,75	2,60	2,60	2,60	2,60	2,60	
	0,80	2,60	2,60	2,60	2,60	2,60	
	0,88	2,60	2,60	2,60	2,60	2,60	
	1,00	3,37	3,37	3,37	3,37	3,37	
	1,13	3,37	3,37	3,37	3,37	3,37	
	1,15	3,37	3,37	3,37	3,37	3,37	
	1,25	3,37	3,37	3,37	3,37	3,37	
	1,50	3,37	3,37	3,37	3,37	3,37	
	1,75	3,37	3,37	3,37	3,37	3,37	
	2,00	3,37	3,37	3,37	3,37	3,37	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,80	0,80	0,80	0,80	0,80	
	0,55	0,80	0,80	0,80	0,80	0,80	
	0,60	0,80	0,80	0,80	0,80	0,80	
	0,63	1,00	1,00	1,00	1,00	1,00	
	0,70	1,00	1,00	1,00	1,00	1,00	
	0,75	1,31	1,31	1,31	1,31	1,31	
	0,80	1,31	1,31	1,31	1,31	1,31	
	0,88	1,31	1,31	1,31	1,31	1,31	
	1,00	1,31	1,31	1,31	1,31	1,31	
	1,13	1,31	1,31	1,31	1,31	1,31	
	1,15	1,31	1,31	1,31	1,31	1,31	
	1,25	1,31	1,31	1,31	1,31	1,31	
	1,50	1,31	1,31	1,31	1,31	1,31	
	1,75	1,31	1,31	1,31	1,31	1,31	
	2,00	1,31	1,31	1,31	1,31	1,31	

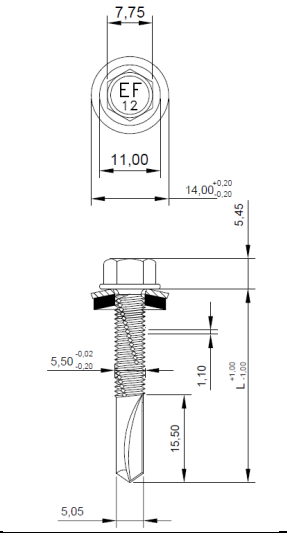
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-12-SP 5.5xL with hexagon head

Annex 89

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized (12 µm)
Washer:	Z14 – carbon steel galvanized washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – S355 EN 10025-1
Drilling capacity:	Σti ≤ 12,00 mm
Timber substructures	
No performance assessed	



$t_{N,II}$ [mm]		4,00	5,00	6,00	8,00	10,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm					
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,66	1,66	1,66	1,66	1,66	
	0,55	1,66	1,66	1,66	1,66	1,66	
	0,60	1,66	1,66	1,66	1,66	1,66	
	0,63	1,76	1,76	1,76	1,76	1,76	
	0,70	1,76	1,76	1,76	1,76	1,76	
	0,75	2,60	2,60	2,60	2,60	2,60	
	0,80	2,60	2,60	2,60	2,60	2,60	
	0,88	2,60	2,60	2,60	2,60	2,60	
	1,00	3,37	3,37	3,37	3,37	3,37	
	1,13	3,37	3,37	3,37	3,37	3,37	
	1,15	3,37	3,37	3,37	3,37	3,37	
	1,25	3,37	3,37	3,37	3,37	3,37	
	1,50	3,37	3,37	3,37	3,37	3,37	
	1,75	3,37	3,37	3,37	3,37	3,37	
	2,00	3,37	3,37	3,37	3,37	3,37	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	2,54	2,54	2,54	2,54	2,54	
	0,55	2,54	2,54	2,54	2,54	2,54	
	0,60	2,54	2,54	2,54	2,54	2,54	
	0,63	3,41	3,41	3,41	3,41	3,41	
	0,70	3,41	3,41	3,41	3,41	3,41	
	0,75	4,10	4,10	4,10	4,10	4,10	
	0,80	4,10	4,10	4,10	4,10	4,10	
	0,88	4,10	4,10	4,10	4,10	4,10	
	1,00	4,10	4,10	4,10	4,10	4,10	
	1,13	4,10	4,10	4,10	4,10	4,10	
	1,15	4,10	4,10	4,10	4,10	4,10	
	1,25	4,10	4,10	4,10	4,10	4,10	
	1,50	4,10	4,10	4,10	4,10	4,10	
	1,75	4,10	4,10	4,10	4,10	4,10	
	2,00	4,10	4,10	4,10	4,10	4,10	

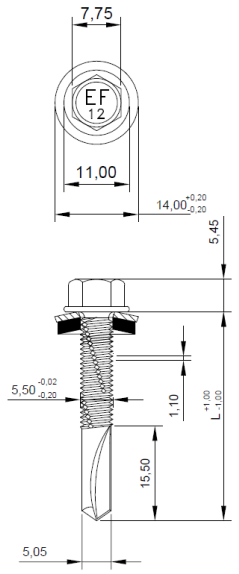
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-12-Z 5.5xL
with hexagon head and washer Z14

Annex 90

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with PREMIUM coating
Washer:	A14 – aluminium washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – S355 EN 10025-1
Drilling capacity:	Σti ≤ 12,00 mm
Timber substructures	
No performance assessed	



$t_{N,II}$ [mm]		4,00	5,00	6,00	8,00	10,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm					
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,66	1,66	1,66	1,66	1,66	
	0,55	1,66	1,66	1,66	1,66	1,66	
	0,60	1,66	1,66	1,66	1,66	1,66	
	0,63	1,76	1,76	1,76	1,76	1,76	
	0,70	1,76	1,76	1,76	1,76	1,76	
	0,75	2,60	2,60	2,60	2,60	2,60	
	0,80	2,60	2,60	2,60	2,60	2,60	
	0,88	2,60	2,60	2,60	2,60	2,60	
	1,00	3,37	3,37	3,37	3,37	3,37	
	1,13	3,37	3,37	3,37	3,37	3,37	
	1,15	3,37	3,37	3,37	3,37	3,37	
	1,25	3,37	3,37	3,37	3,37	3,37	
	1,50	3,37	3,37	3,37	3,37	3,37	
	1,75	3,37	3,37	3,37	3,37	3,37	
	2,00	3,37	3,37	3,37	3,37	3,37	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	2,54	2,54	2,54	2,54	2,54	
	0,55	2,54	2,54	2,54	2,54	2,54	
	0,60	2,54	2,54	2,54	2,54	2,54	
	0,63	3,41	3,41	3,41	3,41	3,41	
	0,70	3,41	3,41	3,41	3,41	3,41	
	0,75	4,10	4,10	4,10	4,10	4,10	
	0,80	4,10	4,10	4,10	4,10	4,10	
	0,88	4,10	4,10	4,10	4,10	4,10	
	1,00	4,10	4,10	4,10	4,10	4,10	
	1,13	4,10	4,10	4,10	4,10	4,10	
	1,15	4,10	4,10	4,10	4,10	4,10	
	1,25	4,10	4,10	4,10	4,10	4,10	
	1,50	4,10	4,10	4,10	4,10	4,10	
	1,75	4,10	4,10	4,10	4,10	4,10	
	2,00	4,10	4,10	4,10	4,10	4,10	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-12-P 5.5xL
with hexagon head and washer A14

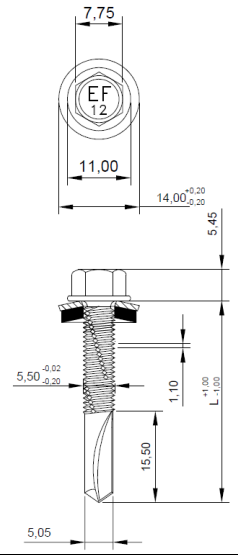
Annex 91

Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with SUPER PREMIUM coating
Washer:	S14 – stainless steel washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – S355 EN 10025-1
Drilling capacity:	Σti ≤ 12,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		4,00	5,00	6,00	8,00	10,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm					
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,66	1,66	1,66	1,66	1,66	
	0,55	1,66	1,66	1,66	1,66	1,66	
	0,60	1,66	1,66	1,66	1,66	1,66	
	0,63	1,76	1,76	1,76	1,76	1,76	
	0,70	1,76	1,76	1,76	1,76	1,76	
	0,75	2,60	2,60	2,60	2,60	2,60	
	0,80	2,60	2,60	2,60	2,60	2,60	
	0,88	2,60	2,60	2,60	2,60	2,60	
	1,00	3,37	3,37	3,37	3,37	3,37	
	1,13	3,37	3,37	3,37	3,37	3,37	
	1,15	3,37	3,37	3,37	3,37	3,37	
	1,25	3,37	3,37	3,37	3,37	3,37	
	1,50	3,37	3,37	3,37	3,37	3,37	
	1,75	3,37	3,37	3,37	3,37	3,37	
	2,00	3,37	3,37	3,37	3,37	3,37	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	2,54	2,54	2,54	2,54	2,54	
	0,55	2,54	2,54	2,54	2,54	2,54	
	0,60	2,54	2,54	2,54	2,54	2,54	
	0,63	3,41	3,41	3,41	3,41	3,41	
	0,70	3,41	3,41	3,41	3,41	3,41	
	0,75	4,10	4,10	4,10	4,10	4,10	
	0,80	4,10	4,10	4,10	4,10	4,10	
	0,88	4,10	4,10	4,10	4,10	4,10	
	1,00	4,10	4,10	4,10	4,10	4,10	
	1,13	4,10	4,10	4,10	4,10	4,10	
	1,15	4,10	4,10	4,10	4,10	4,10	
	1,25	4,10	4,10	4,10	4,10	4,10	
	1,50	4,10	4,10	4,10	4,10	4,10	
	1,75	4,10	4,10	4,10	4,10	4,10	
	2,00	4,10	4,10	4,10	4,10	4,10	

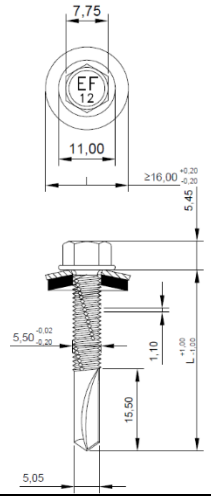
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-12-SP 5.5xL
with hexagon head and washer S14

Annex 92

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized (12 µm)
Washer:	Z16 – carbon steel galvanized washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – S355 EN 10025-1
Drilling capacity:	Σti ≤ 12,00 mm
Timber substructures	
No performance assessed	



$t_{N,II}$ [mm]		4,00	5,00	6,00	8,00	10,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm					
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,66	1,66	1,66	1,66	1,66	
	0,55	1,66	1,66	1,66	1,66	1,66	
	0,60	1,66	1,66	1,66	1,66	1,66	
	0,63	1,76	1,76	1,76	1,76	1,76	
	0,70	1,76	1,76	1,76	1,76	1,76	
	0,75	2,60	2,60	2,60	2,60	2,60	
	0,80	2,60	2,60	2,60	2,60	2,60	
	0,88	2,60	2,60	2,60	2,60	2,60	
	1,00	3,37	3,37	3,37	3,37	3,37	
	1,13	3,37	3,37	3,37	3,37	3,37	
	1,15	3,37	3,37	3,37	3,37	3,37	
	1,25	3,37	3,37	3,37	3,37	3,37	
	1,50	3,37	3,37	3,37	3,37	3,37	
	1,75	3,37	3,37	3,37	3,37	3,37	
	2,00	3,37	3,37	3,37	3,37	3,37	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	2,53	2,53	2,53	2,53	2,53	
	0,55	2,53	2,53	2,53	2,53	2,53	
	0,60	2,77	2,77	2,77	2,77	2,77	
	0,63	2,77	2,77	2,77	2,77	2,77	
	0,70	2,89	2,89	2,89	2,89	2,89	
	0,75	2,89	2,89	2,89	2,89	2,89	
	0,80	2,89	2,89	2,89	2,89	2,89	
	0,88	2,89	2,89	2,89	2,89	2,89	
	1,00	4,27	4,27	4,27	4,27	4,27	
	1,13	4,27	4,27	4,27	4,27	4,27	
	1,15	4,27	4,27	4,27	4,27	4,27	
	1,25	4,27	4,27	4,27	4,27	4,27	
	1,50	4,27	4,27	4,27	4,27	4,27	
	1,75	4,27	4,27	4,27	4,27	4,27	
	2,00	4,27	4,27	4,27	4,27	4,27	

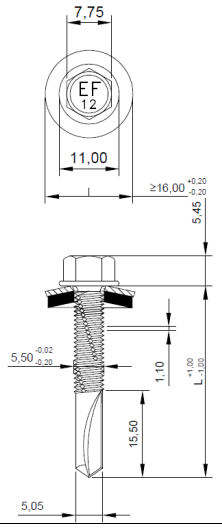
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-12-Z 5.5xL
with hexagon head and washer Z16

Annex 93

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with PREMIUM coating
Washer:	A16 – aluminium washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – S355 EN 10025-1
Drilling capacity:	Σti ≤ 12,00 mm
Timber substructures	
No performance assessed	



$t_{N,II}$ [mm]		4,00	5,00	6,00	8,00	10,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm					
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,66	1,66	1,66	1,66	1,66	
	0,55	1,66	1,66	1,66	1,66	1,66	
	0,60	1,66	1,66	1,66	1,66	1,66	
	0,63	1,76	1,76	1,76	1,76	1,76	
	0,70	1,76	1,76	1,76	1,76	1,76	
	0,75	2,60	2,60	2,60	2,60	2,60	
	0,80	2,60	2,60	2,60	2,60	2,60	
	0,88	2,60	2,60	2,60	2,60	2,60	
	1,00	3,37	3,37	3,37	3,37	3,37	
	1,13	3,37	3,37	3,37	3,37	3,37	
	1,15	3,37	3,37	3,37	3,37	3,37	
	1,25	3,37	3,37	3,37	3,37	3,37	
	1,50	3,37	3,37	3,37	3,37	3,37	
	1,75	3,37	3,37	3,37	3,37	3,37	
	2,00	3,37	3,37	3,37	3,37	3,37	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	2,53	2,53	2,53	2,53	2,53	
	0,55	2,53	2,53	2,53	2,53	2,53	
	0,60	2,77	2,77	2,77	2,77	2,77	
	0,63	2,77	2,77	2,77	2,77	2,77	
	0,70	2,89	2,89	2,89	2,89	2,89	
	0,75	2,89	2,89	2,89	2,89	2,89	
	0,80	2,89	2,89	2,89	2,89	2,89	
	0,88	2,89	2,89	2,89	2,89	2,89	
	1,00	4,27	4,27	4,27	4,27	4,27	
	1,13	4,27	4,27	4,27	4,27	4,27	
	1,15	4,27	4,27	4,27	4,27	4,27	
	1,25	4,27	4,27	4,27	4,27	4,27	
	1,50	4,27	4,27	4,27	4,27	4,27	
	1,75	4,27	4,27	4,27	4,27	4,27	
	2,00	4,27	4,27	4,27	4,27	4,27	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-12-P 5.5xL
with hexagon head and washer A16

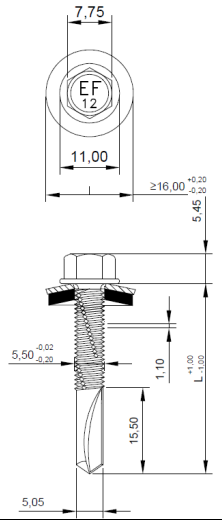
Annex 94

Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with SUPER PREMIUM coating
Washer:	S16 – stainless steel washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – S355 EN 10025-1
Drilling capacity:	Σti ≤ 12,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		4,00	5,00	6,00	8,00	10,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm					
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,66	1,66	1,66	1,66	1,66	
	0,55	1,66	1,66	1,66	1,66	1,66	
	0,60	1,66	1,66	1,66	1,66	1,66	
	0,63	1,76	1,76	1,76	1,76	1,76	
	0,70	1,76	1,76	1,76	1,76	1,76	
	0,75	2,60	2,60	2,60	2,60	2,60	
	0,80	2,60	2,60	2,60	2,60	2,60	
	0,88	2,60	2,60	2,60	2,60	2,60	
	1,00	3,37	3,37	3,37	3,37	3,37	
	1,13	3,37	3,37	3,37	3,37	3,37	
	1,15	3,37	3,37	3,37	3,37	3,37	
	1,25	3,37	3,37	3,37	3,37	3,37	
	1,50	3,37	3,37	3,37	3,37	3,37	
	1,75	3,37	3,37	3,37	3,37	3,37	
	2,00	3,37	3,37	3,37	3,37	3,37	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	2,53	2,53	2,53	2,53	2,53	
	0,55	2,53	2,53	2,53	2,53	2,53	
	0,60	2,77	2,77	2,77	2,77	2,77	
	0,63	2,77	2,77	2,77	2,77	2,77	
	0,70	2,89	2,89	2,89	2,89	2,89	
	0,75	2,89	2,89	2,89	2,89	2,89	
	0,80	2,89	2,89	2,89	2,89	2,89	
	0,88	2,89	2,89	2,89	2,89	2,89	
	1,00	4,27	4,27	4,27	4,27	4,27	
	1,13	4,27	4,27	4,27	4,27	4,27	
	1,15	4,27	4,27	4,27	4,27	4,27	
	1,25	4,27	4,27	4,27	4,27	4,27	
	1,50	4,27	4,27	4,27	4,27	4,27	
	1,75	4,27	4,27	4,27	4,27	4,27	
	2,00	4,27	4,27	4,27	4,27	4,27	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-12-SP 5.5xL
with hexagon head and washer S16

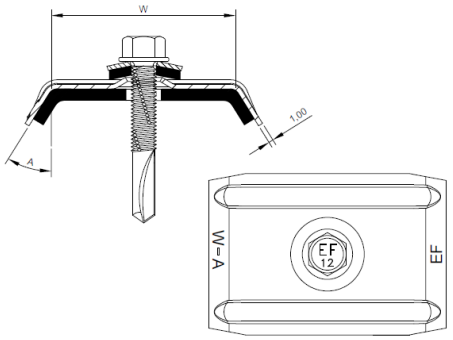
Annex 95

Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized (12 µm)
Washer:	Z16 – carbon steel galvanized washer with EPDM ring
Saddle washer:	ESW made of aluminium
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – S355 EN 10025-1
Drilling capacity:	Σti ≤ 12,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		4,00	5,00	6,00	8,00	10,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm					
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,66	1,66	1,66	1,66	1,66	
	0,55	1,66	1,66	1,66	1,66	1,66	
	0,60	1,66	1,66	1,66	1,66	1,66	
	0,63	1,76	1,76	1,76	1,76	1,76	
	0,70	1,76	1,76	1,76	1,76	1,76	
	0,75	2,60	2,60	2,60	2,60	2,60	
	0,80	2,60	2,60	2,60	2,60	2,60	
	0,88	2,60	2,60	2,60	2,60	2,60	
	1,00	3,37	3,37	3,37	3,37	3,37	
	1,13	3,37	3,37	3,37	3,37	3,37	
	1,15	3,37	3,37	3,37	3,37	3,37	
	1,25	3,37	3,37	3,37	3,37	3,37	
	1,50	3,37	3,37	3,37	3,37	3,37	
	1,75	3,37	3,37	3,37	3,37	3,37	
	2,00	3,37	3,37	3,37	3,37	3,37	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	6,24	7,96	7,96	7,96	7,96	
	0,55	6,24	7,96	7,96	7,96	7,96	
	0,60	6,24	7,96	7,96	7,96	7,96	
	0,63	6,24	7,96	7,96	7,96	7,96	
	0,70	6,24	7,96	7,96	7,96	7,96	
	0,75	6,24	7,96	7,96	7,96	7,96	
	0,80	6,24	7,96	7,96	7,96	7,96	
	0,88	6,24	7,96	7,96	7,96	7,96	
	1,00	6,24	7,96	7,96	7,96	7,96	
	1,13	6,24	7,96	7,96	7,96	7,96	
	1,15	6,24	7,96	7,96	7,96	7,96	
	1,25	6,24	7,96	7,96	7,96	7,96	
	1,50	6,24	7,96	7,96	7,96	7,96	
	1,75	6,24	7,96	7,96	7,96	7,96	
	2,00	6,24	7,96	7,96	7,96	7,96	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Annex 96

Self-drilling screws ESDS-12-Z 5.5xL
with hexagon head and washer Z16 and saddle washer ESW

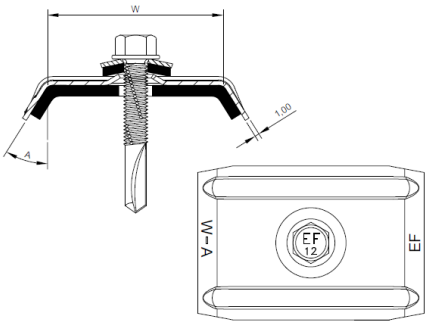
Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with PREMIUM coating
Washer:	A16 – aluminium washer with EPDM ring
Saddle washer:	ESW made of aluminium
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – S355 EN 10025-1

Drilling capacity: Σti ≤ 12,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		4,00	5,00	6,00	8,00	10,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm					
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,66	1,66	1,66	1,66	1,66	
	0,55	1,66	1,66	1,66	1,66	1,66	
	0,60	1,66	1,66	1,66	1,66	1,66	
	0,63	1,76	1,76	1,76	1,76	1,76	
	0,70	1,76	1,76	1,76	1,76	1,76	
	0,75	2,60	2,60	2,60	2,60	2,60	
	0,80	2,60	2,60	2,60	2,60	2,60	
	0,88	2,60	2,60	2,60	2,60	2,60	
	1,00	3,37	3,37	3,37	3,37	3,37	
	1,13	3,37	3,37	3,37	3,37	3,37	
	1,15	3,37	3,37	3,37	3,37	3,37	
	1,25	3,37	3,37	3,37	3,37	3,37	
	1,50	3,37	3,37	3,37	3,37	3,37	
	1,75	3,37	3,37	3,37	3,37	3,37	
	2,00	3,37	3,37	3,37	3,37	3,37	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	6,24	7,96	7,96	7,96	7,96	
	0,55	6,24	7,96	7,96	7,96	7,96	
	0,60	6,24	7,96	7,96	7,96	7,96	
	0,63	6,24	7,96	7,96	7,96	7,96	
	0,70	6,24	7,96	7,96	7,96	7,96	
	0,75	6,24	7,96	7,96	7,96	7,96	
	0,80	6,24	7,96	7,96	7,96	7,96	
	0,88	6,24	7,96	7,96	7,96	7,96	
	1,00	6,24	7,96	7,96	7,96	7,96	
	1,13	6,24	7,96	7,96	7,96	7,96	
	1,15	6,24	7,96	7,96	7,96	7,96	
	1,25	6,24	7,96	7,96	7,96	7,96	
	1,50	6,24	7,96	7,96	7,96	7,96	
	1,75	6,24	7,96	7,96	7,96	7,96	
	2,00	6,24	7,96	7,96	7,96	7,96	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Annex 97

Self-drilling screws ESDS-12-P 5.5xL
with hexagon head and washer A16 and saddle washer ESW

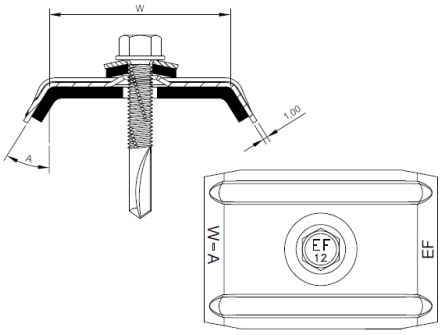
Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with SUPER PREMIUM coating
Washer:	S16 – stainless steel washer with EPDM ring
Saddle washer:	ESW made of aluminium
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – S355 EN 10025-1

Drilling capacity: Σti ≤ 12,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		4,00	5,00	6,00	8,00	10,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm					
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,66	1,66	1,66	1,66	1,66	
	0,55	1,66	1,66	1,66	1,66	1,66	
	0,60	1,66	1,66	1,66	1,66	1,66	
	0,63	1,76	1,76	1,76	1,76	1,76	
	0,70	1,76	1,76	1,76	1,76	1,76	
	0,75	2,60	2,60	2,60	2,60	2,60	
	0,80	2,60	2,60	2,60	2,60	2,60	
	0,88	2,60	2,60	2,60	2,60	2,60	
	1,00	3,37	3,37	3,37	3,37	3,37	
	1,13	3,37	3,37	3,37	3,37	3,37	
	1,15	3,37	3,37	3,37	3,37	3,37	
	1,25	3,37	3,37	3,37	3,37	3,37	
	1,50	3,37	3,37	3,37	3,37	3,37	
	1,75	3,37	3,37	3,37	3,37	3,37	
	2,00	3,37	3,37	3,37	3,37	3,37	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	6,24	7,96	7,96	7,96	7,96	
	0,55	6,24	7,96	7,96	7,96	7,96	
	0,60	6,24	7,96	7,96	7,96	7,96	
	0,63	6,24	7,96	7,96	7,96	7,96	
	0,70	6,24	7,96	7,96	7,96	7,96	
	0,75	6,24	7,96	7,96	7,96	7,96	
	0,80	6,24	7,96	7,96	7,96	7,96	
	0,88	6,24	7,96	7,96	7,96	7,96	
	1,00	6,24	7,96	7,96	7,96	7,96	
	1,13	6,24	7,96	7,96	7,96	7,96	
	1,15	6,24	7,96	7,96	7,96	7,96	
	1,25	6,24	7,96	7,96	7,96	7,96	
	1,50	6,24	7,96	7,96	7,96	7,96	
	1,75	6,24	7,96	7,96	7,96	7,96	
	2,00	6,24	7,96	7,96	7,96	7,96	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Annex 98

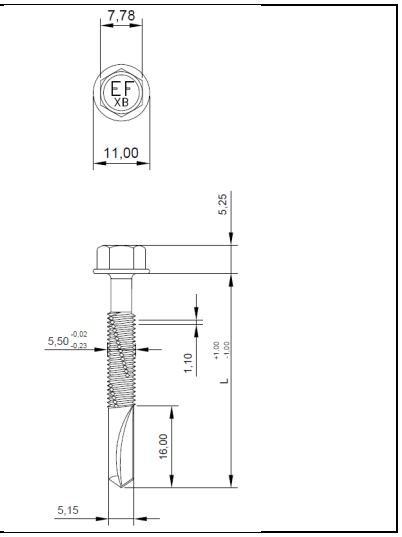
Self-drilling screws ESDS-12-SP 5.5xL
with hexagon head and washer S16 and saddle washer ESW

Materials

Fastener:	stainless steel – SAE304
Washer:	-
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – S355 EN 10025-1
Drilling capacity:	Σti ≤ 12,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		4,00	5,00	6,00	8,00	10,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm					
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,66	1,66	1,66	1,66	1,66	
	0,55	1,66	1,66	1,66	1,66	1,66	
	0,60	1,66	1,66	1,66	1,66	1,66	
	0,63	1,76	1,76	1,76	1,76	1,76	
	0,70	1,76	1,76	1,76	1,76	1,76	
	0,75	2,60	2,60	2,60	2,60	2,60	
	0,80	2,60	2,60	2,60	2,60	2,60	
	0,88	2,60	2,60	2,60	2,60	2,60	
	1,00	3,37	3,37	3,37	3,37	3,37	
	1,13	3,37	3,37	3,37	3,37	3,37	
	1,15	3,37	3,37	3,37	3,37	3,37	
	1,25	3,37	3,37	3,37	3,37	3,37	
	1,50	3,37	3,37	3,37	3,37	3,37	
	1,75	3,37	3,37	3,37	3,37	3,37	
	2,00	3,37	3,37	3,37	3,37	3,37	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,61	0,61	0,61	0,61	0,61	
	0,55	0,61	0,61	0,61	0,61	0,61	
	0,60	0,61	0,61	0,61	0,61	0,61	
	0,63	0,87	0,87	0,87	0,87	0,87	
	0,70	0,87	0,87	0,87	0,87	0,87	
	0,75	0,97	0,97	0,97	0,97	0,97	
	0,80	0,97	0,97	0,97	0,97	0,97	
	0,88	0,97	0,97	0,97	0,97	0,97	
	1,00	0,97	0,97	0,97	0,97	0,97	
	1,13	0,97	0,97	0,97	0,97	0,97	
	1,15	0,97	0,97	0,97	0,97	0,97	
	1,25	0,97	0,97	0,97	0,97	0,97	
	1,50	0,97	0,97	0,97	0,97	0,97	
	1,75	0,97	0,97	0,97	0,97	0,97	
	2,00	0,97	0,97	0,97	0,97	0,97	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-12-B 5.5xL
with hexagon head

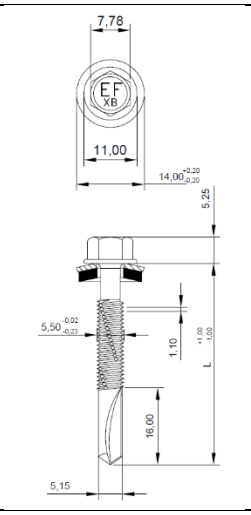
Annex 99

Materials

Fastener:	stainless steel – SAE304
Washer:	S14 – stainless steel washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – S355 EN 10025-1
Drilling capacity:	Σti ≤ 12,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		4,00	5,00	6,00	8,00	10,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm					
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,66	1,66	1,66	1,66	1,66	
	0,55	1,66	1,66	1,66	1,66	1,66	
	0,60	1,66	1,66	1,66	1,66	1,66	
	0,63	1,76	1,76	1,76	1,76	1,76	
	0,70	1,76	1,76	1,76	1,76	1,76	
	0,75	2,60	2,60	2,60	2,60	2,60	
	0,80	2,60	2,60	2,60	2,60	2,60	
	0,88	2,60	2,60	2,60	2,60	2,60	
	1,00	3,37	3,37	3,37	3,37	3,37	
	1,13	3,37	3,37	3,37	3,37	3,37	
	1,15	3,37	3,37	3,37	3,37	3,37	
	1,25	3,37	3,37	3,37	3,37	3,37	
	1,50	3,37	3,37	3,37	3,37	3,37	
	1,75	3,37	3,37	3,37	3,37	3,37	
	2,00	3,37	3,37	3,37	3,37	3,37	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	2,62	2,62	2,62	2,62	2,62	
	0,55	2,62	2,62	2,62	2,62	2,62	
	0,60	2,62	2,62	2,62	2,62	2,62	
	0,63	3,46	3,46	3,46	3,46	3,46	
	0,70	3,46	3,46	3,46	3,46	3,46	
	0,75	4,16	4,16	4,16	4,16	4,16	
	0,80	4,16	4,16	4,16	4,16	4,16	
	0,88	4,16	4,16	4,16	4,16	4,16	
	1,00	4,16	4,16	4,16	4,16	4,16	
	1,13	4,16	4,16	4,16	4,16	4,16	
	1,15	4,16	4,16	4,16	4,16	4,16	
	1,25	4,16	4,16	4,16	4,16	4,16	
	1,50	4,16	4,16	4,16	4,16	4,16	
	1,75	4,16	4,16	4,16	4,16	4,16	
	2,00	4,16	4,16	4,16	4,16	4,16	

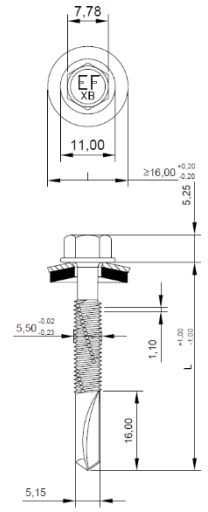
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-12-B 5.5xL
with hexagon head and washer S14

Annex 100

Materials	
Fastener:	stainless steel – SAE304
Washer:	S16 – stainless steel washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – S355 EN 10025-1
Drilling capacity:	Σti ≤ 12,00 mm
Timber substructures	
No performance assessed	



$t_{N,II}$ [mm]		4,00	5,00	6,00	8,00	10,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm					
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,66	1,66	1,66	1,66	1,66	
	0,55	1,66	1,66	1,66	1,66	1,66	
	0,60	1,66	1,66	1,66	1,66	1,66	
	0,63	1,76	1,76	1,76	1,76	1,76	
	0,70	1,76	1,76	1,76	1,76	1,76	
	0,75	2,60	2,60	2,60	2,60	2,60	
	0,80	2,60	2,60	2,60	2,60	2,60	
	0,88	2,60	2,60	2,60	2,60	2,60	
	1,00	3,37	3,37	3,37	3,37	3,37	
	1,13	3,37	3,37	3,37	3,37	3,37	
	1,15	3,37	3,37	3,37	3,37	3,37	
	1,25	3,37	3,37	3,37	3,37	3,37	
	1,50	3,37	3,37	3,37	3,37	3,37	
	1,75	3,37	3,37	3,37	3,37	3,37	
	2,00	3,37	3,37	3,37	3,37	3,37	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	2,53	2,53	2,53	2,53	2,53	
	0,55	2,53	2,53	2,53	2,53	2,53	
	0,60	2,77	2,77	2,77	2,77	2,77	
	0,63	2,77	2,77	2,77	2,77	2,77	
	0,70	2,89	2,89	2,89	2,89	2,89	
	0,75	2,89	2,89	2,89	2,89	2,89	
	0,80	2,89	2,89	2,89	2,89	2,89	
	0,88	2,89	2,89	2,89	2,89	2,89	
	1,00	4,27	4,27	4,27	4,27	4,27	
	1,13	4,27	4,27	4,27	4,27	4,27	
	1,15	4,27	4,27	4,27	4,27	4,27	
	1,25	4,27	4,27	4,27	4,27	4,27	
	1,50	4,27	4,27	4,27	4,27	4,27	
	1,75	4,27	4,27	4,27	4,27	4,27	
	2,00	4,27	4,27	4,27	4,27	4,27	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-12-B 5.5xL
with hexagon head and washer S16

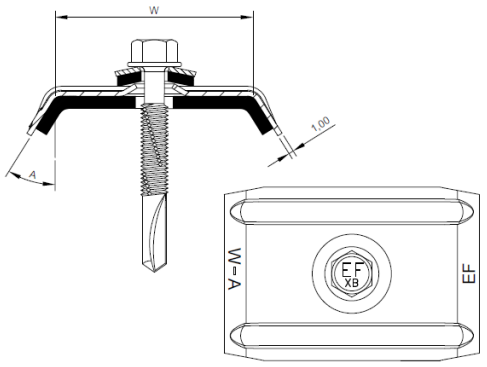
Annex 101

Materials

Fastener:	stainless steel – SAE304
Washer:	S16 – stainless steel washer with EPDM ring
Saddle washer:	ESW made of aluminium
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – S355 EN 10025-1
Drilling capacity:	Σti ≤ 12,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		4,00	5,00	6,00	8,00	10,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm					
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,66	1,66	1,66	1,66	1,66	
	0,55	1,66	1,66	1,66	1,66	1,66	
	0,60	1,66	1,66	1,66	1,66	1,66	
	0,63	1,76	1,76	1,76	1,76	1,76	
	0,70	1,76	1,76	1,76	1,76	1,76	
	0,75	2,60	2,60	2,60	2,60	2,60	
	0,80	2,60	2,60	2,60	2,60	2,60	
	0,88	2,60	2,60	2,60	2,60	2,60	
	1,00	3,37	3,37	3,37	3,37	3,37	
	1,13	3,37	3,37	3,37	3,37	3,37	
	1,15	3,37	3,37	3,37	3,37	3,37	
	1,25	3,37	3,37	3,37	3,37	3,37	
	1,50	3,37	3,37	3,37	3,37	3,37	
	1,75	3,37	3,37	3,37	3,37	3,37	
	2,00	3,37	3,37	3,37	3,37	3,37	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	5,17	5,17	7,45	7,45	7,45	
	0,55	5,17	5,17	7,45	7,45	7,45	
	0,60	5,17	5,17	7,45	7,45	7,45	
	0,63	5,17	5,17	7,45	7,45	7,45	
	0,70	5,17	5,17	7,45	7,45	7,45	
	0,75	5,17	5,17	7,45	7,45	7,45	
	0,80	5,17	5,17	7,45	7,45	7,45	
	0,88	5,17	5,17	7,45	7,45	7,45	
	1,00	5,17	5,17	7,45	7,45	7,45	
	1,13	5,17	5,17	7,45	7,45	7,45	
	1,15	5,17	5,17	7,45	7,45	7,45	
	1,25	5,17	5,17	7,45	7,45	7,45	
	1,50	5,17	5,17	7,45	7,45	7,45	
	1,75	5,17	5,17	7,45	7,45	7,45	
	2,00	5,17	5,17	7,45	7,45	7,45	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Annex 102

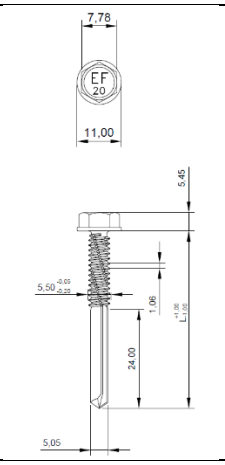
Self-drilling screws ESDS-12-B 5.5xL
with hexagon head and washer S16 and saddle washer ESW

Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized (12 µm)
Washer:	-
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – S355 EN 10025-1
Drilling capacity:	Σti ≤ 20,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		6,00	8,00	10,00	12,00	14,00	16,00	18,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm							
$V_{R,K}$ [kN] for $t_{N,I}$ [mm]	0,50	1,72	1,72	1,72	1,72	1,72	1,72	1,72	
	0,55	1,72	1,72	1,72	1,72	1,72	1,72	1,72	
	0,60	1,72	1,72	1,72	1,72	1,72	1,72	1,72	
	0,63	1,90	1,90	1,90	1,90	1,90	1,90	1,90	
	0,70	1,90	1,90	1,90	1,90	1,90	1,90	1,90	
	0,75	2,69	2,69	2,69	2,69	2,69	2,69	2,69	
	0,80	2,69	2,69	2,69	2,69	2,69	2,69	2,69	
	0,88	2,69	2,69	2,69	2,69	2,69	2,69	2,69	
	1,00	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,13	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,15	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,25	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,50	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,75	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	2,00	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
$N_{R,K}$ [kN] for $t_{N,I}$ [mm]	0,50	0,80	0,80	0,80	0,80	0,80	0,80	0,80	
	0,55	0,80	0,80	0,80	0,80	0,80	0,80	0,80	
	0,60	0,80	0,80	0,80	0,80	0,80	0,80	0,80	
	0,63	1,00	1,00	1,00	1,00	1,00	1,00	1,00	
	0,70	1,00	1,00	1,00	1,00	1,00	1,00	1,00	
	0,75	1,31	1,31	1,31	1,31	1,31	1,31	1,31	
	0,80	1,31	1,31	1,31	1,31	1,31	1,31	1,31	
	0,88	1,31	1,31	1,31	1,31	1,31	1,31	1,31	
	1,00	1,31	1,31	1,31	1,31	1,31	1,31	1,31	
	1,13	1,31	1,31	1,31	1,31	1,31	1,31	1,31	
	1,15	1,31	1,31	1,31	1,31	1,31	1,31	1,31	
	1,25	1,31	1,31	1,31	1,31	1,31	1,31	1,31	
	1,50	1,31	1,31	1,31	1,31	1,31	1,31	1,31	
	1,75	1,31	1,31	1,31	1,31	1,31	1,31	1,31	
	2,00	1,31	1,31	1,31	1,31	1,31	1,31	1,31	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-20-Z 5.5xL with hexagon head

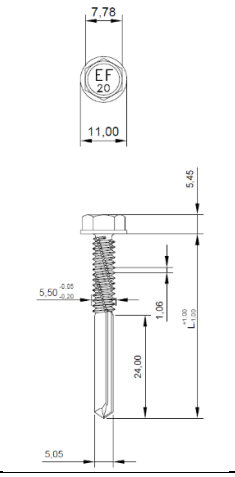
Annex 103

Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with PREMIUM coating
Washer:	-
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – S355 EN 10025-1
Drilling capacity:	Σti ≤ 20,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		6,00	8,00	10,00	12,00	14,00	16,00	18,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm							
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,72	1,72	1,72	1,72	1,72	1,72	1,72	
	0,55	1,72	1,72	1,72	1,72	1,72	1,72	1,72	
	0,60	1,72	1,72	1,72	1,72	1,72	1,72	1,72	
	0,63	1,90	1,90	1,90	1,90	1,90	1,90	1,90	
	0,70	1,90	1,90	1,90	1,90	1,90	1,90	1,90	
	0,75	2,69	2,69	2,69	2,69	2,69	2,69	2,69	
	0,80	2,69	2,69	2,69	2,69	2,69	2,69	2,69	
	0,88	2,69	2,69	2,69	2,69	2,69	2,69	2,69	
	1,00	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,13	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,15	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,25	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,50	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,75	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	2,00	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,80	0,80	0,80	0,80	0,80	0,80	0,80	
	0,55	0,80	0,80	0,80	0,80	0,80	0,80	0,80	
	0,60	0,80	0,80	0,80	0,80	0,80	0,80	0,80	
	0,63	1,00	1,00	1,00	1,00	1,00	1,00	1,00	
	0,70	1,00	1,00	1,00	1,00	1,00	1,00	1,00	
	0,75	1,31	1,31	1,31	1,31	1,31	1,31	1,31	
	0,80	1,31	1,31	1,31	1,31	1,31	1,31	1,31	
	0,88	1,31	1,31	1,31	1,31	1,31	1,31	1,31	
	1,00	1,31	1,31	1,31	1,31	1,31	1,31	1,31	
	1,13	1,31	1,31	1,31	1,31	1,31	1,31	1,31	
	1,15	1,31	1,31	1,31	1,31	1,31	1,31	1,31	
	1,25	1,31	1,31	1,31	1,31	1,31	1,31	1,31	
	1,50	1,31	1,31	1,31	1,31	1,31	1,31	1,31	
	1,75	1,31	1,31	1,31	1,31	1,31	1,31	1,31	
	2,00	1,31	1,31	1,31	1,31	1,31	1,31	1,31	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-20-P 5.5xL with hexagon head

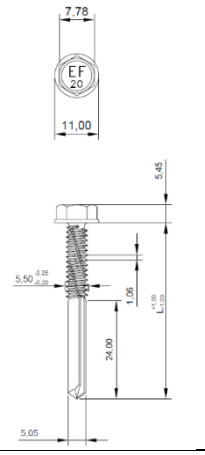
Annex 104

Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with SUPER PREMIUM coating
Washer:	-
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – S355 EN 10025-1
Drilling capacity:	Σti ≤ 20,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		6,00	8,00	10,00	12,00	14,00	16,00	18,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm							
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,72	1,72	1,72	1,72	1,72	1,72	1,72	
	0,55	1,72	1,72	1,72	1,72	1,72	1,72	1,72	
	0,60	1,72	1,72	1,72	1,72	1,72	1,72	1,72	
	0,63	1,90	1,90	1,90	1,90	1,90	1,90	1,90	
	0,70	1,90	1,90	1,90	1,90	1,90	1,90	1,90	
	0,75	2,69	2,69	2,69	2,69	2,69	2,69	2,69	
	0,80	2,69	2,69	2,69	2,69	2,69	2,69	2,69	
	0,88	2,69	2,69	2,69	2,69	2,69	2,69	2,69	
	1,00	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,13	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,15	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,25	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,50	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,75	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	2,00	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,80	0,80	0,80	0,80	0,80	0,80	0,80	
	0,55	0,80	0,80	0,80	0,80	0,80	0,80	0,80	
	0,60	0,80	0,80	0,80	0,80	0,80	0,80	0,80	
	0,63	1,00	1,00	1,00	1,00	1,00	1,00	1,00	
	0,70	1,00	1,00	1,00	1,00	1,00	1,00	1,00	
	0,75	1,31	1,31	1,31	1,31	1,31	1,31	1,31	
	0,80	1,31	1,31	1,31	1,31	1,31	1,31	1,31	
	0,88	1,31	1,31	1,31	1,31	1,31	1,31	1,31	
	1,00	1,31	1,31	1,31	1,31	1,31	1,31	1,31	
	1,13	1,31	1,31	1,31	1,31	1,31	1,31	1,31	
	1,15	1,31	1,31	1,31	1,31	1,31	1,31	1,31	
	1,25	1,31	1,31	1,31	1,31	1,31	1,31	1,31	
	1,50	1,31	1,31	1,31	1,31	1,31	1,31	1,31	
	1,75	1,31	1,31	1,31	1,31	1,31	1,31	1,31	
	2,00	1,31	1,31	1,31	1,31	1,31	1,31	1,31	

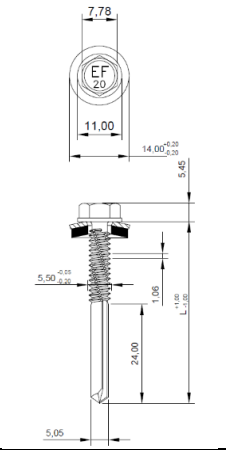
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-20-SP 5.5xL with hexagon head

Annex 105

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized (12 µm)
Washer:	Z14 – carbon steel galvanized washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – S355 EN 10025-1
Drilling capacity:	Σti ≤ 20,00 mm
Timber substructures	
No performance assessed	



$t_{N,II}$ [mm]		6,00	8,00	10,00	12,00	14,00	16,00	18,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm							
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,72	1,72	1,72	1,72	1,72	1,72	1,72	
	0,55	1,72	1,72	1,72	1,72	1,72	1,72	1,72	
	0,60	1,72	1,72	1,72	1,72	1,72	1,72	1,72	
	0,63	1,90	1,90	1,90	1,90	1,90	1,90	1,90	
	0,70	1,90	1,90	1,90	1,90	1,90	1,90	1,90	
	0,75	2,69	2,69	2,69	2,69	2,69	2,69	2,69	
	0,80	2,69	2,69	2,69	2,69	2,69	2,69	2,69	
	0,88	2,69	2,69	2,69	2,69	2,69	2,69	2,69	
	1,00	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,13	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,15	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,25	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,50	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,75	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	2,00	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	2,54	2,54	2,54	2,54	2,54	2,54	2,54	
	0,55	2,54	2,54	2,54	2,54	2,54	2,54	2,54	
	0,60	2,54	2,54	2,54	2,54	2,54	2,54	2,54	
	0,63	3,41	3,41	3,41	3,41	3,41	3,41	3,41	
	0,70	3,41	3,41	3,41	3,41	3,41	3,41	3,41	
	0,75	4,10	4,10	4,10	4,10	4,10	4,10	4,10	
	0,80	4,10	4,10	4,10	4,10	4,10	4,10	4,10	
	0,88	4,10	4,10	4,10	4,10	4,10	4,10	4,10	
	1,00	4,10	4,10	4,10	4,10	4,10	4,10	4,10	
	1,13	4,10	4,10	4,10	4,10	4,10	4,10	4,10	
	1,15	4,10	4,10	4,10	4,10	4,10	4,10	4,10	
	1,25	4,10	4,10	4,10	4,10	4,10	4,10	4,10	
	1,50	4,10	4,10	4,10	4,10	4,10	4,10	4,10	
	1,75	4,10	4,10	4,10	4,10	4,10	4,10	4,10	
	2,00	4,10	4,10	4,10	4,10	4,10	4,10	4,10	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-20-Z 5.5xL
with hexagon head and washer Z14

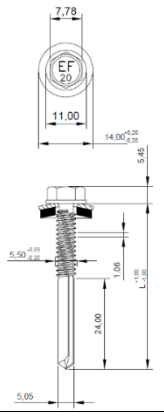
Annex 106

Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with PREMIUM coating
Washer:	A14 – aluminium washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – S355 EN 10025-1
Drilling capacity:	Σti ≤ 20,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		6,00	8,00	10,00	12,00	14,00	16,00	18,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm							
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,72	1,72	1,72	1,72	1,72	1,72	1,72	
	0,55	1,72	1,72	1,72	1,72	1,72	1,72	1,72	
	0,60	1,72	1,72	1,72	1,72	1,72	1,72	1,72	
	0,63	1,90	1,90	1,90	1,90	1,90	1,90	1,90	
	0,70	1,90	1,90	1,90	1,90	1,90	1,90	1,90	
	0,75	2,69	2,69	2,69	2,69	2,69	2,69	2,69	
	0,80	2,69	2,69	2,69	2,69	2,69	2,69	2,69	
	0,88	2,69	2,69	2,69	2,69	2,69	2,69	2,69	
	1,00	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,13	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,15	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,25	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,50	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,75	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	2,00	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	2,54	2,54	2,54	2,54	2,54	2,54	2,54	
	0,55	2,54	2,54	2,54	2,54	2,54	2,54	2,54	
	0,60	2,54	2,54	2,54	2,54	2,54	2,54	2,54	
	0,63	3,41	3,41	3,41	3,41	3,41	3,41	3,41	
	0,70	3,41	3,41	3,41	3,41	3,41	3,41	3,41	
	0,75	4,10	4,10	4,10	4,10	4,10	4,10	4,10	
	0,80	4,10	4,10	4,10	4,10	4,10	4,10	4,10	
	0,88	4,10	4,10	4,10	4,10	4,10	4,10	4,10	
	1,00	4,10	4,10	4,10	4,10	4,10	4,10	4,10	
	1,13	4,10	4,10	4,10	4,10	4,10	4,10	4,10	
	1,15	4,10	4,10	4,10	4,10	4,10	4,10	4,10	
	1,25	4,10	4,10	4,10	4,10	4,10	4,10	4,10	
	1,50	4,10	4,10	4,10	4,10	4,10	4,10	4,10	
	1,75	4,10	4,10	4,10	4,10	4,10	4,10	4,10	
	2,00	4,10	4,10	4,10	4,10	4,10	4,10	4,10	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-20-P 5.5xL
with hexagon head and washer A14

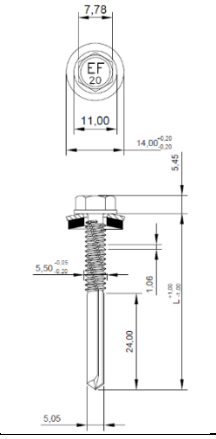
Annex 107

Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with SUPER PREMIUM coating
Washer:	S14 – stainless steel washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – S355 EN 10025-1
Drilling capacity:	Σti ≤ 20,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		6,00	8,00	10,00	12,00	14,00	16,00	18,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm							
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,72	1,72	1,72	1,72	1,72	1,72	1,72	
	0,55	1,72	1,72	1,72	1,72	1,72	1,72	1,72	
	0,60	1,72	1,72	1,72	1,72	1,72	1,72	1,72	
	0,63	1,90	1,90	1,90	1,90	1,90	1,90	1,90	
	0,70	1,90	1,90	1,90	1,90	1,90	1,90	1,90	
	0,75	2,69	2,69	2,69	2,69	2,69	2,69	2,69	
	0,80	2,69	2,69	2,69	2,69	2,69	2,69	2,69	
	0,88	2,69	2,69	2,69	2,69	2,69	2,69	2,69	
	1,00	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,13	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,15	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,25	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,50	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,75	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	2,00	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	2,54	2,54	2,54	2,54	2,54	2,54	2,54	
	0,55	2,54	2,54	2,54	2,54	2,54	2,54	2,54	
	0,60	2,54	2,54	2,54	2,54	2,54	2,54	2,54	
	0,63	3,41	3,41	3,41	3,41	3,41	3,41	3,41	
	0,70	3,41	3,41	3,41	3,41	3,41	3,41	3,41	
	0,75	4,10	4,10	4,10	4,10	4,10	4,10	4,10	
	0,80	4,10	4,10	4,10	4,10	4,10	4,10	4,10	
	0,88	4,10	4,10	4,10	4,10	4,10	4,10	4,10	
	1,00	4,10	4,10	4,10	4,10	4,10	4,10	4,10	
	1,13	4,10	4,10	4,10	4,10	4,10	4,10	4,10	
	1,15	4,10	4,10	4,10	4,10	4,10	4,10	4,10	
	1,25	4,10	4,10	4,10	4,10	4,10	4,10	4,10	
	1,50	4,10	4,10	4,10	4,10	4,10	4,10	4,10	
	1,75	4,10	4,10	4,10	4,10	4,10	4,10	4,10	
	2,00	4,10	4,10	4,10	4,10	4,10	4,10	4,10	

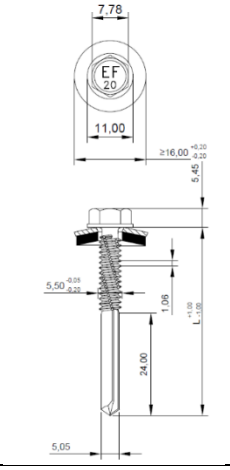
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-20-SP 5.5xL
with hexagon head and washer S14

Annex 108

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized (12 µm)
Washer:	Z16 – carbon steel galvanized washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – S355 EN 10025-1
Drilling capacity:	Σti ≤ 20,00 mm
Timber substructures	
No performance assessed	



$t_{N,II}$ [mm]		6,00	8,00	10,00	12,00	14,00	16,00	18,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm							
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,72	1,72	1,72	1,72	1,72	1,72	1,72	
	0,55	1,72	1,72	1,72	1,72	1,72	1,72	1,72	
	0,60	1,72	1,72	1,72	1,72	1,72	1,72	1,72	
	0,63	1,90	1,90	1,90	1,90	1,90	1,90	1,90	
	0,70	1,90	1,90	1,90	1,90	1,90	1,90	1,90	
	0,75	2,69	2,69	2,69	2,69	2,69	2,69	2,69	
	0,80	2,69	2,69	2,69	2,69	2,69	2,69	2,69	
	0,88	2,69	2,69	2,69	2,69	2,69	2,69	2,69	
	1,00	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,13	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,15	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,25	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,50	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,75	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	2,00	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	2,53	2,53	2,53	2,53	2,53	2,53	2,53	
	0,55	2,53	2,53	2,53	2,53	2,53	2,53	2,53	
	0,60	2,77	2,77	2,77	2,77	2,77	2,77	2,77	
	0,63	2,77	2,77	2,77	2,77	2,77	2,77	2,77	
	0,70	2,89	2,89	2,89	2,89	2,89	2,89	2,89	
	0,75	2,89	2,89	2,89	2,89	2,89	2,89	2,89	
	0,80	2,89	2,89	2,89	2,89	2,89	2,89	2,89	
	0,88	2,89	2,89	2,89	2,89	2,89	2,89	2,89	
	1,00	4,27	4,27	4,27	4,27	4,27	4,27	4,27	
	1,13	4,27	4,27	4,27	4,27	4,27	4,27	4,27	
	1,15	4,27	4,27	4,27	4,27	4,27	4,27	4,27	
	1,25	4,27	4,27	4,27	4,27	4,27	4,27	4,27	
	1,50	4,27	4,27	4,27	4,27	4,27	4,27	4,27	
	1,75	4,27	4,27	4,27	4,27	4,27	4,27	4,27	
	2,00	4,27	4,27	4,27	4,27	4,27	4,27	4,27	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-20-Z 5.5xL
with hexagon head and washer Z16

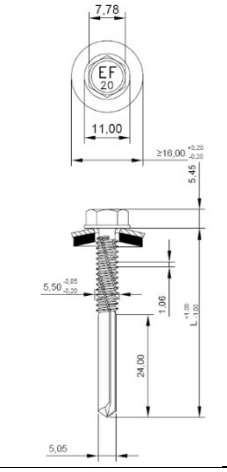
Annex 109

Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with PREMIUM coating
Washer:	A16 – aluminium washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – S355 EN 10025-1
Drilling capacity:	Σti ≤ 20,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		6,00	8,00	10,00	12,00	14,00	16,00	18,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm							
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,72	1,72	1,72	1,72	1,72	1,72	1,72	
	0,55	1,72	1,72	1,72	1,72	1,72	1,72	1,72	
	0,60	1,72	1,72	1,72	1,72	1,72	1,72	1,72	
	0,63	1,90	1,90	1,90	1,90	1,90	1,90	1,90	
	0,70	1,90	1,90	1,90	1,90	1,90	1,90	1,90	
	0,75	2,69	2,69	2,69	2,69	2,69	2,69	2,69	
	0,80	2,69	2,69	2,69	2,69	2,69	2,69	2,69	
	0,88	2,69	2,69	2,69	2,69	2,69	2,69	2,69	
	1,00	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,13	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,15	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,25	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,50	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,75	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	2,00	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	2,53	2,53	2,53	2,53	2,53	2,53	2,53	
	0,55	2,53	2,53	2,53	2,53	2,53	2,53	2,53	
	0,60	2,77	2,77	2,77	2,77	2,77	2,77	2,77	
	0,63	2,77	2,77	2,77	2,77	2,77	2,77	2,77	
	0,70	2,89	2,89	2,89	2,89	2,89	2,89	2,89	
	0,75	2,89	2,89	2,89	2,89	2,89	2,89	2,89	
	0,80	2,89	2,89	2,89	2,89	2,89	2,89	2,89	
	0,88	2,89	2,89	2,89	2,89	2,89	2,89	2,89	
	1,00	4,27	4,27	4,27	4,27	4,27	4,27	4,27	
	1,13	4,27	4,27	4,27	4,27	4,27	4,27	4,27	
	1,15	4,27	4,27	4,27	4,27	4,27	4,27	4,27	
	1,25	4,27	4,27	4,27	4,27	4,27	4,27	4,27	
	1,50	4,27	4,27	4,27	4,27	4,27	4,27	4,27	
	1,75	4,27	4,27	4,27	4,27	4,27	4,27	4,27	
	2,00	4,27	4,27	4,27	4,27	4,27	4,27	4,27	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-20-P 5.5xL
with hexagon head and washer A16

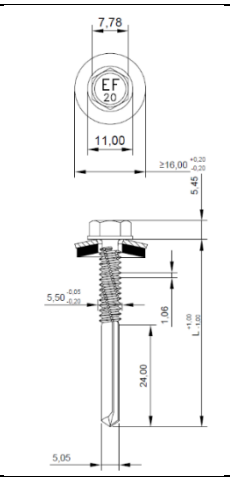
Annex 110

Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with SUPER PREMIUM coating
Washer:	S16 – stainless steel washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – S355 EN 10025-1
Drilling capacity:	Σti ≤ 20,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		6,00	8,00	10,00	12,00	14,00	16,00	18,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm							
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,72	1,72	1,72	1,72	1,72	1,72	1,72	
	0,55	1,72	1,72	1,72	1,72	1,72	1,72	1,72	
	0,60	1,72	1,72	1,72	1,72	1,72	1,72	1,72	
	0,63	1,90	1,90	1,90	1,90	1,90	1,90	1,90	
	0,70	1,90	1,90	1,90	1,90	1,90	1,90	1,90	
	0,75	2,69	2,69	2,69	2,69	2,69	2,69	2,69	
	0,80	2,69	2,69	2,69	2,69	2,69	2,69	2,69	
	0,88	2,69	2,69	2,69	2,69	2,69	2,69	2,69	
	1,00	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,13	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,15	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,25	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,50	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,75	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	2,00	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	2,53	2,53	2,53	2,53	2,53	2,53	2,53	
	0,55	2,53	2,53	2,53	2,53	2,53	2,53	2,53	
	0,60	2,77	2,77	2,77	2,77	2,77	2,77	2,77	
	0,63	2,77	2,77	2,77	2,77	2,77	2,77	2,77	
	0,70	2,89	2,89	2,89	2,89	2,89	2,89	2,89	
	0,75	2,89	2,89	2,89	2,89	2,89	2,89	2,89	
	0,80	2,89	2,89	2,89	2,89	2,89	2,89	2,89	
	0,88	2,89	2,89	2,89	2,89	2,89	2,89	2,89	
	1,00	4,27	4,27	4,27	4,27	4,27	4,27	4,27	
	1,13	4,27	4,27	4,27	4,27	4,27	4,27	4,27	
	1,15	4,27	4,27	4,27	4,27	4,27	4,27	4,27	
	1,25	4,27	4,27	4,27	4,27	4,27	4,27	4,27	
	1,50	4,27	4,27	4,27	4,27	4,27	4,27	4,27	
	1,75	4,27	4,27	4,27	4,27	4,27	4,27	4,27	
	2,00	4,27	4,27	4,27	4,27	4,27	4,27	4,27	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-20-SP 5.5xL
with hexagon head and washer S16

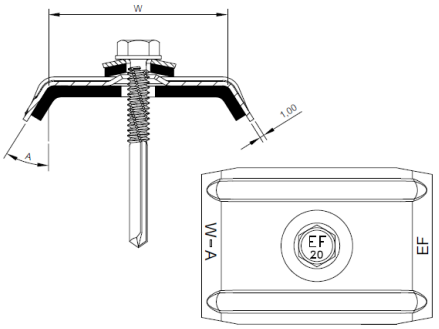
Annex 111

Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized (12 µm)
Washer:	Z16 – carbon steel galvanized washer with EPDM ring
Saddle washer:	ESW made of aluminium
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – S355 EN 10025-1
Drilling capacity:	Σti ≤ 20,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		6,00	8,00	10,00	12,00	14,00	16,00	18,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm							
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,72	1,72	1,72	1,72	1,72	1,72	1,72	
	0,55	1,72	1,72	1,72	1,72	1,72	1,72	1,72	
	0,60	1,72	1,72	1,72	1,72	1,72	1,72	1,72	
	0,63	1,90	1,90	1,90	1,90	1,90	1,90	1,90	
	0,70	1,90	1,90	1,90	1,90	1,90	1,90	1,90	
	0,75	2,69	2,69	2,69	2,69	2,69	2,69	2,69	
	0,80	2,69	2,69	2,69	2,69	2,69	2,69	2,69	
	0,88	2,69	2,69	2,69	2,69	2,69	2,69	2,69	
	1,00	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,13	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,15	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,25	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,50	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,75	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	2,00	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	10,92	10,92	10,92	10,92	10,92	10,92	10,92	
	0,55	10,92	10,92	10,92	10,92	10,92	10,92	10,92	
	0,60	10,92	10,92	10,92	10,92	10,92	10,92	10,92	
	0,63	10,92	10,92	10,92	10,92	10,92	10,92	10,92	
	0,70	10,92	10,92	10,92	10,92	10,92	10,92	10,92	
	0,75	10,92	10,92	10,92	10,92	10,92	10,92	10,92	
	0,80	10,92	10,92	10,92	10,92	10,92	10,92	10,92	
	0,88	10,92	10,92	10,92	10,92	10,92	10,92	10,92	
	1,00	10,92	10,92	10,92	10,92	10,92	10,92	10,92	
	1,13	10,92	10,92	10,92	10,92	10,92	10,92	10,92	
	1,15	10,92	10,92	10,92	10,92	10,92	10,92	10,92	
	1,25	10,92	10,92	10,92	10,92	10,92	10,92	10,92	
	1,50	10,92	10,92	10,92	10,92	10,92	10,92	10,92	
	1,75	10,92	10,92	10,92	10,92	10,92	10,92	10,92	
	2,00	10,92	10,92	10,92	10,92	10,92	10,92	10,92	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-20-Z 5.5xL
with hexagon head and washer Z16 and saddle washer ESW

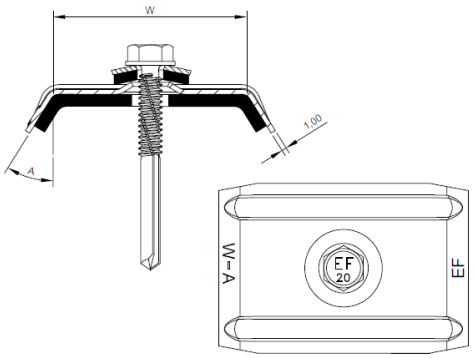
Annex 112

Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with PREMIUM coating
Washer:	A16 – aluminium washer with EPDM ring
Saddle washer:	ESW made of aluminium
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – S355 EN 10025-1
Drilling capacity:	Σti ≤ 20,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		6,00	8,00	10,00	12,00	14,00	16,00	18,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm							
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,72	1,72	1,72	1,72	1,72	1,72	1,72	
	0,55	1,72	1,72	1,72	1,72	1,72	1,72	1,72	
	0,60	1,72	1,72	1,72	1,72	1,72	1,72	1,72	
	0,63	1,90	1,90	1,90	1,90	1,90	1,90	1,90	
	0,70	1,90	1,90	1,90	1,90	1,90	1,90	1,90	
	0,75	2,69	2,69	2,69	2,69	2,69	2,69	2,69	
	0,80	2,69	2,69	2,69	2,69	2,69	2,69	2,69	
	0,88	2,69	2,69	2,69	2,69	2,69	2,69	2,69	
	1,00	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,13	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,15	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,25	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,50	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,75	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	2,00	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	10,92	10,92	10,92	10,92	10,92	10,92	10,92	
	0,55	10,92	10,92	10,92	10,92	10,92	10,92	10,92	
	0,60	10,92	10,92	10,92	10,92	10,92	10,92	10,92	
	0,63	10,92	10,92	10,92	10,92	10,92	10,92	10,92	
	0,70	10,92	10,92	10,92	10,92	10,92	10,92	10,92	
	0,75	10,92	10,92	10,92	10,92	10,92	10,92	10,92	
	0,80	10,92	10,92	10,92	10,92	10,92	10,92	10,92	
	0,88	10,92	10,92	10,92	10,92	10,92	10,92	10,92	
	1,00	10,92	10,92	10,92	10,92	10,92	10,92	10,92	
	1,13	10,92	10,92	10,92	10,92	10,92	10,92	10,92	
	1,15	10,92	10,92	10,92	10,92	10,92	10,92	10,92	
	1,25	10,92	10,92	10,92	10,92	10,92	10,92	10,92	
	1,50	10,92	10,92	10,92	10,92	10,92	10,92	10,92	
	1,75	10,92	10,92	10,92	10,92	10,92	10,92	10,92	
	2,00	10,92	10,92	10,92	10,92	10,92	10,92	10,92	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-20-P 5.5xL
with hexagon head and washer A16 and saddle washer ESW

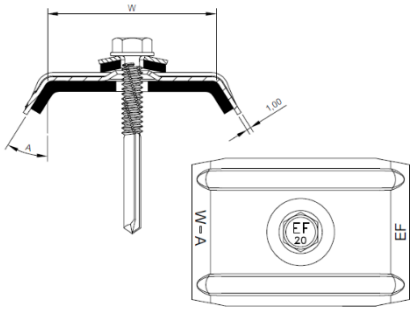
Annex 113

Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with SUPER PREMIUM coating
Washer:	S16 – stainless steel washer with EPDM ring
Saddle washer:	ESW made of aluminium
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – S355 EN 10025-1
Drilling capacity:	Σti ≤ 20,00 mm

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		6,00	8,00	10,00	12,00	14,00	16,00	18,00	Timber class ≥ C24
$M_{t,nom}$		5 Nm							
$V_{R,K}$ [kN] for $t_{N,I}$ [mm]	0,50	1,72	1,72	1,72	1,72	1,72	1,72	1,72	
	0,55	1,72	1,72	1,72	1,72	1,72	1,72	1,72	
	0,60	1,72	1,72	1,72	1,72	1,72	1,72	1,72	
	0,63	1,90	1,90	1,90	1,90	1,90	1,90	1,90	
	0,70	1,90	1,90	1,90	1,90	1,90	1,90	1,90	
	0,75	2,69	2,69	2,69	2,69	2,69	2,69	2,69	
	0,80	2,69	2,69	2,69	2,69	2,69	2,69	2,69	
	0,88	2,69	2,69	2,69	2,69	2,69	2,69	2,69	
	1,00	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,13	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,15	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,25	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,50	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	1,75	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
	2,00	3,10	3,10	3,10	3,10	3,10	3,10	3,10	
$N_{R,K}$ [kN] for $t_{N,I}$ [mm]	0,50	10,92	10,92	10,92	10,92	10,92	10,92	10,92	
	0,55	10,92	10,92	10,92	10,92	10,92	10,92	10,92	
	0,60	10,92	10,92	10,92	10,92	10,92	10,92	10,92	
	0,63	10,92	10,92	10,92	10,92	10,92	10,92	10,92	
	0,70	10,92	10,92	10,92	10,92	10,92	10,92	10,92	
	0,75	10,92	10,92	10,92	10,92	10,92	10,92	10,92	
	0,80	10,92	10,92	10,92	10,92	10,92	10,92	10,92	
	0,88	10,92	10,92	10,92	10,92	10,92	10,92	10,92	
	1,00	10,92	10,92	10,92	10,92	10,92	10,92	10,92	
	1,13	10,92	10,92	10,92	10,92	10,92	10,92	10,92	
	1,15	10,92	10,92	10,92	10,92	10,92	10,92	10,92	
	1,25	10,92	10,92	10,92	10,92	10,92	10,92	10,92	
	1,50	10,92	10,92	10,92	10,92	10,92	10,92	10,92	
	1,75	10,92	10,92	10,92	10,92	10,92	10,92	10,92	
	2,00	10,92	10,92	10,92	10,92	10,92	10,92	10,92	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-20-SP 5.5xL
with hexagon head and washer S16 and saddle washer ESW

Annex 114

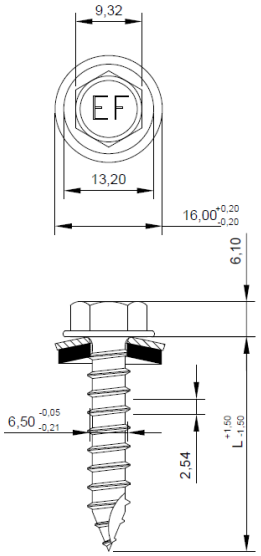
Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized (12 µm)
Washer:	Z16 – carbon steel galvanized washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326 or structural timber C24 – EN 14081
Drilling capacity:	-

Timber substructures

For timber structures performance assessed with:

$M_{y,Rk}$ = 9,66 Nm
$f_{ax,k}$ = 14,538 N/mm² dla l_{ef} ≥ 40 mm



$t_{N,II}$ [mm]		0,63	0,70	0,75	0,80	0,88	1,00	1,15	1,25	1,50	2,00	3,00	Timber class ≥ C24
Drill Ø		3,00		3,50		4,50				5,00	5,30		
$M_{t,nom}$		3 Nm							5 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52
	0,55	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52
	0,60	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	0,63	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	0,70	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	0,75	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	0,80	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	0,88	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	1,00	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,55	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,60	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,63	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,70	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,75	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,80	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,88	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	1,00	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-tapping screws ESTS-0A-Z 6.5xL
with hexagon head and washer Z16

Annex 115

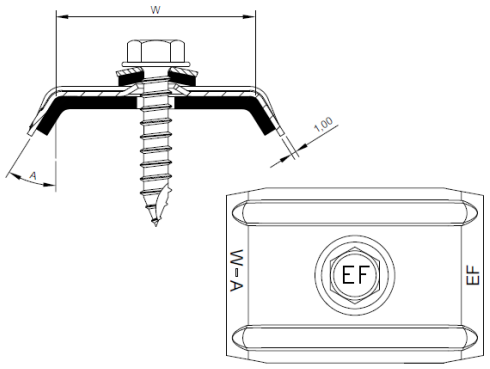
Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized (12 µm)
Washer:	Z16 – carbon steel galvanized washer with EPDM ring
Saddle washer:	ESW made of aluminium
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326 or structural timber C24 – EN 14081
Drilling capacity:	-

Timber substructures

For timber structures performance assessed with:

$M_{y,Rk}$ = 9,66 Nm
$f_{ax,k}$ = 14,538 N/mm^2 dla l_{ef} ≥ 40 mm



$t_{N,II}$ [mm]		0,63	0,70	0,75	0,80	0,88	1,00	1,15	1,25	1,50	2,00	3,00	Timber class ≥ C24
Drill Ø		3,00		3,50		4,50				5,00	5,30		
$M_{t,nom}$		3 Nm							5 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52
	0,55	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52
	0,60	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	0,63	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	0,70	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	0,75	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	0,80	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	0,88	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	1,00	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,55	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,60	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,63	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,70	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,75	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,80	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,88	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	1,00	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Annex 116

Self-tapping screws ESTS-0A-Z 6.5xL
with hexagon head and washer Z16 and saddle washer ESW

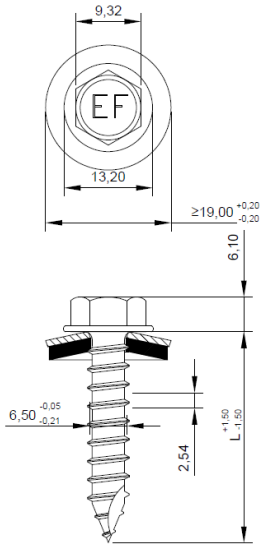
Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized (12 µm)
Washer:	Z19 – carbon steel galvanized washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326 or structural timber C24 – EN 14081
Drilling capacity:	-

Timber substructures

For timber structures performance assessed with:

$M_{y,Rk}$ = 9,66 Nm
$f_{ax,k}$ = 14,538 N/mm² dla l_{ef} ≥ 40 mm



$t_{N,II}$ [mm]		0,63	0,70	0,75	0,80	0,88	1,00	1,15	1,25	1,50	2,00	3,00	Timber class ≥ C24
Drill Ø		3,00		3,50		4,50				5,00	5,30		
$M_{t,nom}$		3 Nm							5 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52
	0,55	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52
	0,60	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	0,63	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	0,70	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	0,75	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	0,80	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	0,88	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	1,00	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,55	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,60	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,63	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,70	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,75	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,80	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,88	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	1,00	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Annex 117

Self-tapping screws ESTS-0A-Z 6.5xL
with hexagon head and washer Z19

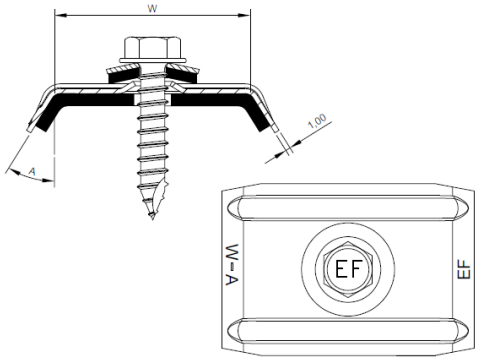
Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized (12 µm)
Washer:	Z19 – carbon steel galvanized washer with EPDM ring
Saddle washer:	ESW made of aluminium
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326 or structural timber C24 – EN 14081
Drilling capacity:	-

Timber substructures

For timber structures performance assessed with:

$M_{y,Rk}$ = 9,66 Nm
$f_{ax,k}$ = 14,538 N/mm^2 dla $l_{ef} \geq$ 40 mm



$t_{N,II}$ [mm]		0,63	0,70	0,75	0,80	0,88	1,00	1,15	1,25	1,50	2,00	3,00	Timber class ≥ C24
Drill Ø		3,00		3,50		4,50				5,00	5,30		
$M_{t,nom}$		3 Nm							5 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52
	0,55	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52
	0,60	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	0,63	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	0,70	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	0,75	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	0,80	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	0,88	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	1,00	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,55	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,60	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,63	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,70	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,75	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,80	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,88	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	1,00	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Annex 118

Self-tapping screws ESTS-0A-Z 6.5xL
with hexagon head and washer Z19 and saddle washer ESW

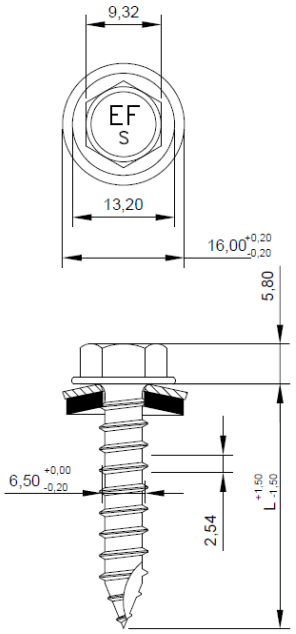
Materials

Fastener:	galvanized stainless steel
Washer:	S16 – stainless steel washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326 or structural timber C24 – EN 14081
Drilling capacity:	-

Timber substructures

For timber structures performance assessed with:

$M_{y,Rk}$ = 9,66 Nm
$f_{ax,k}$ = 14,538 N/mm^2 dla l_{ef} ≥ 40 mm



$t_{N,II}$ [mm]		0,63	0,70	0,75	0,80	0,88	1,00	1,15	1,25	1,50	2,00	3,00	Timber class ≥ C24
Drill Ø		3,00		3,50		4,50				5,00	5,30		
$M_{t,nom}$		3 Nm							5 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52
	0,55	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52
	0,60	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	0,63	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	0,70	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	0,75	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	0,80	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	0,88	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	1,00	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,55	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,60	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,63	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,70	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,75	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,80	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,88	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	1,00	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-tapping screws ESTS-0A-S 6.5xL
with hexagon head and washer S16

Annex 119

Materials

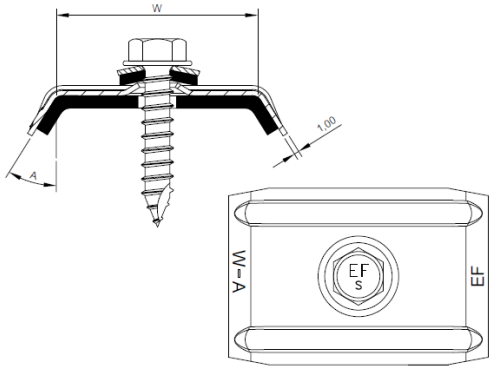
Fastener:	galvanized stainless steel
Washer:	S16 – stainless steel washer with EPDM ring
Saddle washer:	ESW made of aluminium
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326 or structural timber C24 – EN 14081

Drilling capacity: -

Timber substructures

For timber structures performance assessed with:

$M_{y,Rk}$ = 9,66 Nm
$f_{ax,k}$ = 14,538 N/mm^2 dla l_{ef} ≥ 40 mm



$t_{N,II}$ [mm]		0,63	0,70	0,75	0,80	0,88	1,00	1,15	1,25	1,50	2,00	3,00	Timber class ≥ C24
Drill Ø		3,00		3,50		4,50				5,00	5,30		
$M_{t,nom}$		3 Nm							5 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52
	0,55	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52
	0,60	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	0,63	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	0,70	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	0,75	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	0,80	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	0,88	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	1,00	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,55	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,60	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,63	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,70	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,75	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,80	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,88	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	1,00	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Annex 120

Self-tapping screws ESTS-0A-S 6.5xL
with hexagon head and washer S16 and saddle washer ESW

Materials

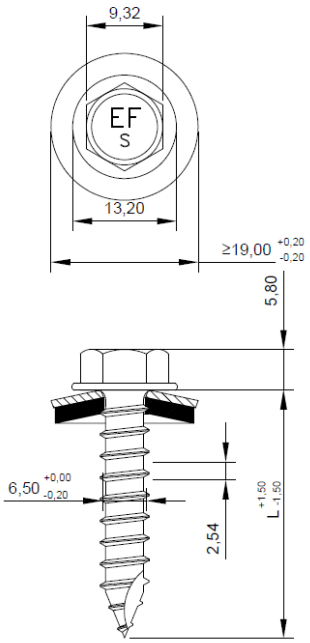
Fastener:	galvanized stainless steel
Washer:	S19 – stainless steel washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326 or structural timber C24 – EN 14081

Drilling capacity: -

Timber substructures

For timber structures performance assessed with:

$M_{y,Rk}$ = 9,66 Nm
$f_{ax,k}$ = 14,538 N/mm^2 dla l_{ef} ≥ 40 mm



$t_{N,II}$ [mm]		0,63	0,70	0,75	0,80	0,88	1,00	1,15	1,25	1,50	2,00	3,00	Timber class ≥ C24
Drill Ø		3,00		3,50		4,50				5,00	5,30		
$M_{t,nom}$		3 Nm							5 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52
	0,55	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52
	0,60	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	0,63	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	0,70	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	0,75	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	0,80	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	0,88	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	1,00	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,55	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,60	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,63	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,70	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,75	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,80	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,88	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	1,00	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Annex 121

Self-tapping screws ESTS-0A-S 6.5xL
with hexagon head and washer S19

Materials

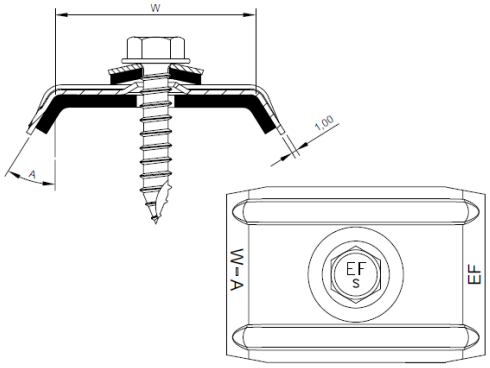
Fastener:	galvanized stainless steel
Washer:	S19 – stainless steel washer with EPDM ring
Saddle washer:	ESW made of aluminium
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326 or structural timber C24 – EN 14081

Drilling capacity: -

Timber substructures

For timber structures performance assessed with:

$M_{y,Rk}$ = 9,66 Nm
$f_{ax,k}$ = 14,538 N/mm^2 dla l_{ef} ≥ 40 mm



$t_{N,II}$ [mm]		0,63	0,70	0,75	0,80	0,88	1,00	1,15	1,25	1,50	2,00	3,00	Timber class ≥ C24
Drill Ø		3,00		3,50		4,50				5,00	5,30		
$M_{t,nom}$		3 Nm							5 Nm				
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52
	0,55	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52	2,52
	0,60	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	0,63	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	0,70	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	0,75	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	0,80	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	0,88	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
	1,00	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16	3,16
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,55	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,60	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,63	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,70	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,75	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,80	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	0,88	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61
	1,00	0,68	0,68	0,95	0,95	0,95	1,39	1,39	1,39	1,57	2,00	2,00	1,61

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Annex 122

Self-tapping screws ESTS-0A-S 6.5xL
with hexagon head and washer S19 and saddle washer ESW

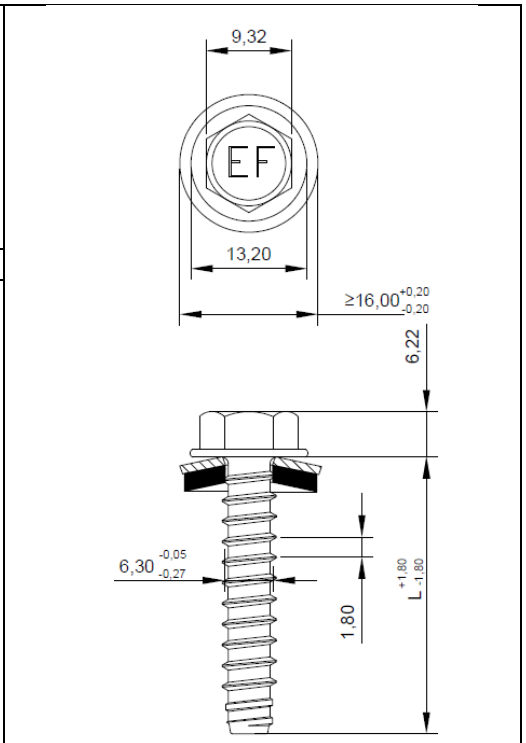
Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized (12 µm)
Washer:	Z16 – carbon steel galvanized washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: -

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		2,00	3,00	4,00	5,00	6,00	8,00	10,00	12,00	Timber class ≥ C24
Drill Ø		5,30			5,50		5,70			
$M_{t,nom}$		5 Nm								
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,28	1,28	1,28	1,46	1,46	1,46	1,46	1,46	
	0,55	1,28	1,28	1,28	1,46	1,46	1,46	1,46	1,46	
	0,60	1,28	1,28	1,28	1,46	1,46	1,46	1,46	1,46	
	0,63	1,28	1,28	1,28	1,46	1,46	1,46	1,46	1,46	
	0,70	1,28	1,28	1,28	1,46	1,46	1,46	1,46	1,46	
	0,75	1,91	1,91	1,91	2,15	2,15	2,15	2,15	2,15	
	0,80	1,91	1,91	1,91	2,15	2,15	2,15	2,15	2,15	
	0,88	1,91	1,91	1,91	2,15	2,15	2,15	2,15	2,15	
	1,00	2,76	2,76	2,76	3,04	3,04	3,04	3,04	3,04	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	2,18	2,18	2,18	2,18	2,18	2,18	2,18	2,18	
	0,55	2,18	2,18	2,18	2,18	2,18	2,18	2,18	2,18	
	0,60	2,18	2,18	2,18	2,18	2,18	2,18	2,18	2,18	
	0,63	3,47	3,47	3,47	3,47	3,47	3,47	3,47	3,47	
	0,70	3,47	3,47	3,47	3,47	3,47	3,47	3,47	3,47	
	0,75	3,72	3,72	3,72	3,72	3,72	3,72	3,72	3,72	
	0,80	3,72	3,72	3,72	3,72	3,72	3,72	3,72	3,72	
	0,88	3,72	3,72	3,72	3,72	3,72	3,72	3,72	3,72	
	1,00	4,25	4,64	4,64	4,64	4,64	4,64	4,64	4,64	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-tapping screws ESTS-0B-Z 6.3xL
with hexagon head and washer Z16

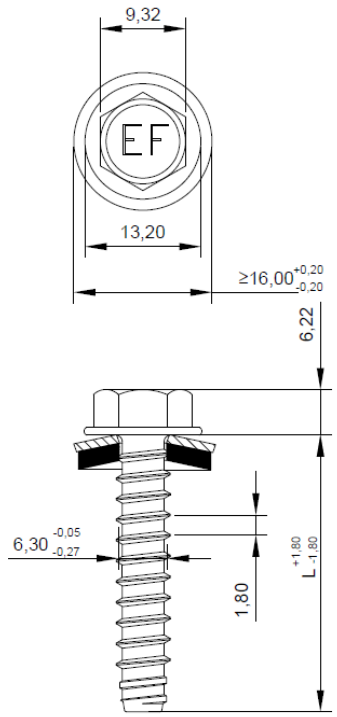
Annex 123

Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with PREMIUM coating
Washer:	A16 – aluminium washer with EPDM ring
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	-

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		2,00	3,00	4,00	5,00	6,00	8,00	10,00	12,00	Timber class ≥ C24
Drill Ø		5,30			5,50		5,70			
$M_{t,nom}$		5 Nm								
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,28	1,28	1,28	1,46	1,46	1,46	1,46	1,46	
	0,55	1,28	1,28	1,28	1,46	1,46	1,46	1,46	1,46	
	0,60	1,28	1,28	1,28	1,46	1,46	1,46	1,46	1,46	
	0,63	1,28	1,28	1,28	1,46	1,46	1,46	1,46	1,46	
	0,70	1,28	1,28	1,28	1,46	1,46	1,46	1,46	1,46	
	0,75	1,91	1,91	1,91	2,15	2,15	2,15	2,15	2,15	
	0,80	1,91	1,91	1,91	2,15	2,15	2,15	2,15	2,15	
	0,88	1,91	1,91	1,91	2,15	2,15	2,15	2,15	2,15	
	1,00	2,76	2,76	2,76	3,04	3,04	3,04	3,04	3,04	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	2,18	2,18	2,18	2,18	2,18	2,18	2,18	2,18	
	0,55	2,18	2,18	2,18	2,18	2,18	2,18	2,18	2,18	
	0,60	2,18	2,18	2,18	2,18	2,18	2,18	2,18	2,18	
	0,63	3,47	3,47	3,47	3,47	3,47	3,47	3,47	3,47	
	0,70	3,47	3,47	3,47	3,47	3,47	3,47	3,47	3,47	
	0,75	3,72	3,72	3,72	3,72	3,72	3,72	3,72	3,72	
	0,80	3,72	3,72	3,72	3,72	3,72	3,72	3,72	3,72	
	0,88	3,72	3,72	3,72	3,72	3,72	3,72	3,72	3,72	
	1,00	4,25	4,64	4,64	4,64	4,64	4,64	4,64	4,64	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Annex 124

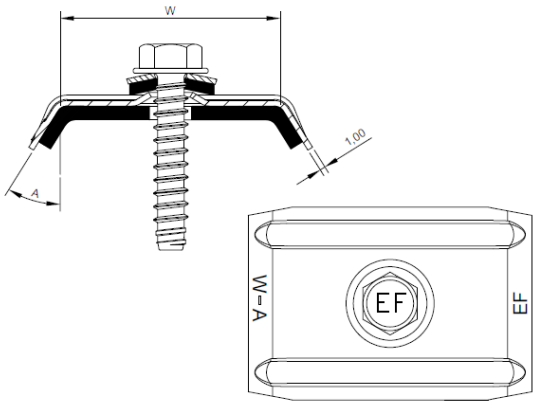
Self-tapping screws ESTS-0B-P 6.3xL
with hexagon head and washer A16

Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized (12 µm)
Washer:	Z16 – carbon steel galvanized washer with EPDM ring
Saddle washer:	ESW made of aluminium
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	-

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		2,00	3,00	4,00	5,00	6,00	8,00	10,00	12,00	Timber class ≥ C24
Drill Ø		5,30			5,50		5,70			
$M_{t,nom}$		5 Nm								
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,28	1,28	1,28	1,46	1,46	1,46	1,46	1,46	
	0,55	1,28	1,28	1,28	1,46	1,46	1,46	1,46	1,46	
	0,60	1,28	1,28	1,28	1,46	1,46	1,46	1,46	1,46	
	0,63	1,28	1,28	1,28	1,46	1,46	1,46	1,46	1,46	
	0,70	1,28	1,28	1,28	1,46	1,46	1,46	1,46	1,46	
	0,75	1,91	1,91	1,91	2,15	2,15	2,15	2,15	2,15	
	0,80	1,91	1,91	1,91	2,15	2,15	2,15	2,15	2,15	
	0,88	1,91	1,91	1,91	2,15	2,15	2,15	2,15	2,15	
	1,00	2,76	2,76	2,76	3,04	3,04	3,04	3,04	3,04	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	4,25	6,44	6,44	7,02	7,02	7,02	7,02	7,02	
	0,55	4,25	6,44	6,44	7,02	7,02	7,02	7,02	7,02	
	0,60	4,25	6,44	6,44	7,02	7,02	7,02	7,02	7,02	
	0,63	4,25	6,44	6,44	7,02	7,02	7,02	7,02	7,02	
	0,70	4,25	6,44	6,44	7,02	7,02	7,02	7,02	7,02	
	0,75	4,25	6,44	6,44	7,02	7,02	7,02	7,02	7,02	
	0,80	4,25	6,44	6,44	7,02	7,02	7,02	7,02	7,02	
	0,88	4,25	6,44	6,44	7,02	7,02	7,02	7,02	7,02	
	1,00	4,25	6,44	6,44	7,02	7,02	7,02	7,02	7,02	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-tapping screws ESTS-0B-Z 6.3xL
with hexagon head and washer Z16 and saddle washer ESW

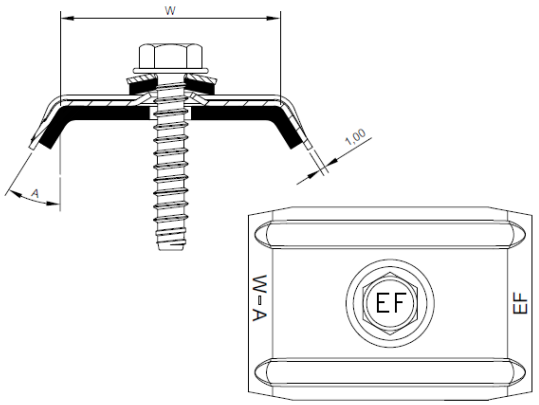
Annex 125

Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with PREMIUM coating
Washer:	A16 – aluminium washer with EPDM ring
Saddle washer:	ESW made of aluminium
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	-

Timber substructures

No performance assessed



$t_{N,II}$ [mm]		2,00	3,00	4,00	5,00	6,00	8,00	10,00	12,00	Timber class ≥ C24
Drill Ø		5,30			5,50		5,70			
$M_{t,nom}$		5 Nm								
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,28	1,28	1,28	1,46	1,46	1,46	1,46	1,46	
	0,55	1,28	1,28	1,28	1,46	1,46	1,46	1,46	1,46	
	0,60	1,28	1,28	1,28	1,46	1,46	1,46	1,46	1,46	
	0,63	1,28	1,28	1,28	1,46	1,46	1,46	1,46	1,46	
	0,70	1,28	1,28	1,28	1,46	1,46	1,46	1,46	1,46	
	0,75	1,91	1,91	1,91	2,15	2,15	2,15	2,15	2,15	
	0,80	1,91	1,91	1,91	2,15	2,15	2,15	2,15	2,15	
	0,88	1,91	1,91	1,91	2,15	2,15	2,15	2,15	2,15	
	1,00	2,76	2,76	2,76	3,04	3,04	3,04	3,04	3,04	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	4,25	6,44	6,44	7,02	7,02	7,02	7,02	7,02	
	0,55	4,25	6,44	6,44	7,02	7,02	7,02	7,02	7,02	
	0,60	4,25	6,44	6,44	7,02	7,02	7,02	7,02	7,02	
	0,63	4,25	6,44	6,44	7,02	7,02	7,02	7,02	7,02	
	0,70	4,25	6,44	6,44	7,02	7,02	7,02	7,02	7,02	
	0,75	4,25	6,44	6,44	7,02	7,02	7,02	7,02	7,02	
	0,80	4,25	6,44	6,44	7,02	7,02	7,02	7,02	7,02	
	0,88	4,25	6,44	6,44	7,02	7,02	7,02	7,02	7,02	
	1,00	4,25	6,44	6,44	7,02	7,02	7,02	7,02	7,02	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Annex 126

Self-tapping screws ESTS-0B-P 6.3xL
with hexagon head and washer A16 and saddle washer ESW

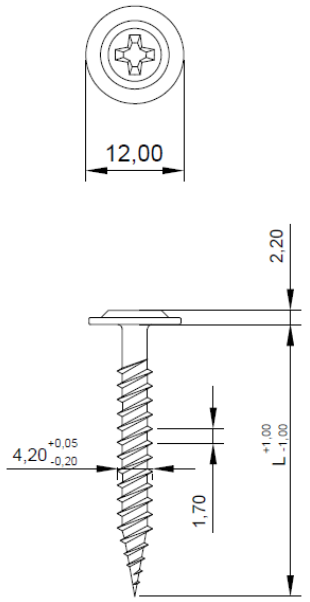
Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized (8 µm)
Washer:	-
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326 or structural timber C24 – EN 14081
Drilling capacity:	Σti ≤ 2 x 0,88 mm

Timber substructures

For timber structures performance assessed with:

$M_{y,Rk}$ = 3,10 Nm
$f_{ax,k}$ = 14,314 N/mm² for l_{ef} ≥ 16,8 mm



$t_{N,II}$ [mm]		0,50	0,55	0,60	0,63	0,70	0,75	0,80	0,88	Timber class ≥ C24
$M_{t,nom}$		3 Nm								
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,94	0,94	0,94	0,94	0,94	0,94	0,94	0,94	0,94
	0,55	0,94	0,94	0,94	0,94	0,94	0,94	0,94	0,94	0,94
	0,60	0,94	0,94	0,94	0,94	0,94	0,94	0,94	0,94	0,94
	0,63	0,94	0,94	0,94	0,94	0,94	0,94	0,94	0,94	0,94
	0,70	0,94	0,94	0,94	0,94	0,94	0,94	0,94	0,94	0,94
	0,75	0,94	0,94	0,94	0,94	0,94	0,94	0,94	0,94	0,94
	0,80	0,94	0,94	0,94	0,94	0,94	0,94	0,94	0,94	0,94
	0,88	0,94	0,94	0,94	0,94	0,94	0,94	0,94	0,94	0,94
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,95
	0,55	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,95
	0,60	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,95
	0,63	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,95
	0,70	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,95
	0,75	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,95
	0,80	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,95
	0,88	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,95

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-tapping screws ESTS-WH-0-Z 4.2xL with flat head

Annex 127

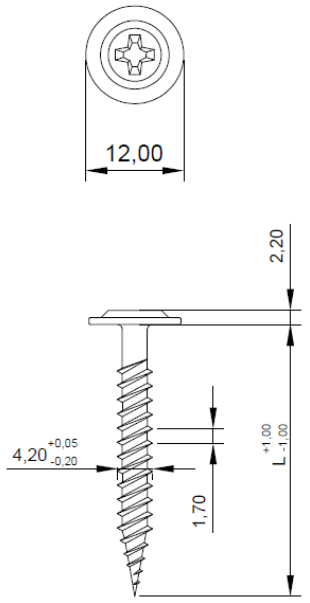
Materials

Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with PREMIUM coating
Washer:	-
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326 or structural timber C24 – EN 14081
Drilling capacity:	Σti ≤ 2 x 0,88 mm

Timber substructures

For timber structures performance assessed with:

$M_{y,Rk}$ = 3,10 Nm
$f_{ax,k}$ = 14,314 N/mm² for l_{ef} ≥ 16,8 mm



$t_{N,II}$ [mm]		0,50	0,55	0,60	0,63	0,70	0,75	0,80	0,88	Timber class ≥ C24
$M_{t,nom}$		3 Nm								
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,94	0,94	0,94	0,94	0,94	0,94	0,94	0,94	0,94
	0,55	0,94	0,94	0,94	0,94	0,94	0,94	0,94	0,94	0,94
	0,60	0,94	0,94	0,94	0,94	0,94	0,94	0,94	0,94	0,94
	0,63	0,94	0,94	0,94	0,94	0,94	0,94	0,94	0,94	0,94
	0,70	0,94	0,94	0,94	0,94	0,94	0,94	0,94	0,94	0,94
	0,75	0,94	0,94	0,94	0,94	0,94	0,94	0,94	0,94	0,94
	0,80	0,94	0,94	0,94	0,94	0,94	0,94	0,94	0,94	0,94
	0,88	0,94	0,94	0,94	0,94	0,94	0,94	0,94	0,94	0,94
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,95
	0,55	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,95
	0,60	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,95
	0,63	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,95
	0,70	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,95
	0,75	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,95
	0,80	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,95
	0,88	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,95

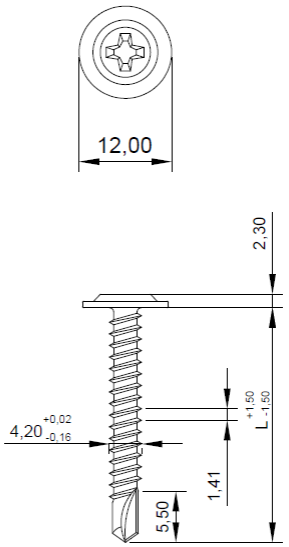
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Annex 128

Self-tapping screws ESTS-WH-0-P 4.2xL with flat head

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized (8 µm)
Washer:	-
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326
Drilling capacity:	Σti ≤ 2 x 1,25 mm
Timber substructures	
No performance assessed	



$t_{N,II}$ [mm]		0,75	0,80	0,88	1,00	1,13	1,25	Timber class ≥ C24
$M_{t,nom}$		3 Nm						
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,75	1,75	1,75	1,75	1,75	1,75	
	0,80	1,75	1,75	1,75	1,75	1,75	1,75	
	0,88	1,75	1,75	1,75	1,75	1,75	1,75	
	1,00	1,75	1,75	1,75	1,75	1,75	1,75	
	1,13	1,75	1,75	1,75	1,75	1,75	1,75	
	1,15	1,75	1,75	1,75	1,75	1,75	1,75	
	1,25	1,75	1,75	1,75	1,75	1,75	1,75	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	0,82	0,82	0,82	0,82	0,82	0,82	
	0,80	0,82	0,82	0,82	0,82	0,82	0,82	
	0,88	0,82	0,82	0,82	0,82	0,82	0,82	
	1,00	0,82	0,82	0,82	0,82	0,82	0,82	
	1,13	0,82	0,82	0,82	0,82	0,82	0,82	
	1,15	0,82	0,82	0,82	0,82	0,82	0,82	
	1,25	0,82	0,82	0,82	0,82	0,82	0,82	

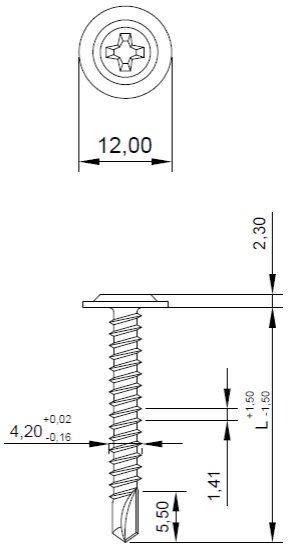
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-WH-2-Z 4.2xL with flat head

Annex 129

Materials	
Fastener:	carbon steel – SAE1022, quenched, tempered and coated: galvanized with PREMIUM coating
Washer:	-
Component I:	S280GD, S320GD or S350GD – EN 10326
Component II:	S280GD, S320GD or S350GD – EN 10326
Drilling capacity:	Σti ≤ 2 x 1,25 mm
Timber substructures	
No performance assessed	



$t_{N,II}$ [mm]		0,75	0,80	0,88	1,00	1,13	1,25	Timber class ≥ C24
$M_{t,nom}$		3 Nm						
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,75	1,75	1,75	1,75	1,75	1,75	
	0,80	1,75	1,75	1,75	1,75	1,75	1,75	
	0,88	1,75	1,75	1,75	1,75	1,75	1,75	
	1,00	1,75	1,75	1,75	1,75	1,75	1,75	
	1,13	1,75	1,75	1,75	1,75	1,75	1,75	
	1,15	1,75	1,75	1,75	1,75	1,75	1,75	
	1,25	1,75	1,75	1,75	1,75	1,75	1,75	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	0,82	0,82	0,82	0,82	0,82	0,82	
	0,80	0,82	0,82	0,82	0,82	0,82	0,82	
	0,88	0,82	0,82	0,82	0,82	0,82	0,82	
	1,00	0,82	0,82	0,82	0,82	0,82	0,82	
	1,13	0,82	0,82	0,82	0,82	0,82	0,82	
	1,15	0,82	0,82	0,82	0,82	0,82	0,82	
	1,25	0,82	0,82	0,82	0,82	0,82	0,82	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheeting

Self-drilling screws ESDS-WH-2-P 4.2xL with flat head

Annex 130

Determination of design values

1. Determination of design shear resistance

The determination of the design values of the shear resistance depends on the type of supporting substructure.

For metal substructures, the following applies:

The design values ($V_{R,d}$) of the shear resistance are the characteristic values of the shear resistance divided by the recommended partial safety factor (γ_M) of 1,33. The recommended partial safety factor should be used in cases where no value is given in the national regulations of the Member State where the fastening screws are used.

For timber substructures, the following applies:

The design values ($V_{R,d}$) of the shear resistance are the characteristic values of the shear resistance multiplied by k_{mod} according to EN 1995-1-1, Table 3.1, and divided by the recommended partial safety factor of 1,33. If failure of the metal component with the thickness t_I (and, not, failure of the timber substructure) is the relevant failure mode, then k_{mod} is 1,0. The recommended partial safety factor should be used in cases where no value is given in the national regulations of the Member State where the fastening screws are used.

2. Determination of design pull-through, pull-out and tension resistance

The design values of the pull-through resistance are the characteristic values of the pull-through resistance divided by the recommended partial safety factor of 1,33. The recommended partial safety factor should be used in cases where no value is given in the national regulations of the Member State where the fastening screws are used.

The determination of the design values of the pull-out resistance depends on the type of substructure.

For metal substructures, the following applies:

The design values of the pull-out resistance are the characteristic values of the pull-out resistance divided by the recommended partial safety factor of 1,33. The recommended partial safety factor should be used in cases where no value is given in the national regulations of the Member State where the fastening screws are used.

For timber substructures, the following applies:

The design values of the pull-out resistance are the characteristic values of the pull-out resistance multiplied by k_{mod} according to EN 1995-1-1, Table 3.1, and divided by the recommended partial safety factor of 1,33. The recommended partial safety factor should be used in cases where no value is given in the national regulations of the Member State where the fastening screws are used.

The design tension resistance ($N_{R,d}$) is the minimum value of the design values of either the pull-through resistance or relevant pull-out resistance for the corresponding connection.

3. Design resistance in cases of combined tension and shear forces (interaction)

In cases of combined tension and shear forces, the linear interaction formula according to EN 1993-1-3, section 8.3 (8) or 1999-1-4, section 8.1 (7) should be considered.

Fastening screws for metal members and sheeting	**Annex 131**
Determination of design values	

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