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European Technical Assessment

ETA-22/0605 of 27/03/2023

General part

Technical Assessment Body issuing the European Technical Assessment	Instytut Techniki Budowlanej
Trade name of the construction product	CDM, CDL, SD2, SD6, SD14, SD20, SDL2, SDL3, SDM2, SDM3, SDW, DD2, DD4, DD5, DD12, MDW
Product family to which the construction product belongs	Fastening screws for metal members and sheeting
Manufacturer	SFS Group Schweiz AG Rosenbergsaustrasse 10 9435 Heerbrugg Switzerland
Manufacturing plant(s)	Factories of SFS Group Schweiz AG
This European Technical Assessment contains	33 pages including 28 Annexes which form an integral part of this Assessment
This European Technical Assessment is issued in accordance with regulation (EU) No 305/2011, on the basis of	European Assessment Document (EAD) 330046-01-0602 “Fastening screws for metal members and sheeting”
This version replaces	ETA-22/0605 issued on 29/09/2022

Specific part

1 Technical description of the product

The fastening screws, listed in Table 1, are self-drilling or self-tapping screws made of carbon steel with anticorrosion coating, with sealing washers made of steel and EPDM seal. For details see the Annexes.

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

Table 1

No.	Screw	Description [1)]	Application	Annex
1	CDM-4,8xL	Self-drilling screw	Steel	3
2	CDL-T14-4,8xL, CDL-L12-T14-4,8xL CDL-D10-T14-4,8xL / SLG-T-T14-4,8xL	Self-drilling screw with sealing washer ≥ Ø 14 mm	Steel	4
3	SD2-T16-6,3xL	Self-drilling screw with sealing washer ≥ Ø 16 mm	Steel	5
4	SD6-T16-5,5xL, SD6-L12-T16-5,5xL, SD6-D10-T16-5,5xL	Self-drilling screw with sealing washer ≥ Ø 16 mm	Steel	6
5	SD6-H15-E11-5,5xL, SD6-H15-5,5xL	Self-drilling screw	Steel	7
6	SD14-T16-5,5xL, SD14-L12-T16-5,5xL, SD14-D10-T16-5,5xL	Self-drilling screw with sealing washer ≥ Ø 16 mm	Steel	8
7	SD14-H15-E11-5,5xL, SD14-H15-5,5xL	Self-drilling screw	Steel	9
8	SD20-T16-5,5xL	Self-drilling screw with sealing washer ≥ Ø 16 mm	Steel	10
9	SD20-H15-E11-5,5xL, SD20-H15-5,5xL	Self-drilling screw	Steel	11
10	SDL2-T14-4,8xL, SDL2-L12-T14-4,8xL, SDL2-D10-T14-4,8xL / SL2-T-T14-4,8xL	Self-drilling screw with sealing washer ≥ Ø 14 mm	Steel	12
11	SDL3-T16-5,5xL, SDL3-L12-T16-5,5xL, SDL3-D10-T16-5,5xL	Self-drilling screw with sealing washer ≥ Ø 16 mm	Steel	13
12	SDM2-4,8xL / SL2-4,8xL	Self-drilling screw	Steel	14
13	SDM2-H15-6,3xL / SL2-H15-6,3xL	Self-drilling screw	Steel	15
14	SDM3-H15-6,3xL / SL3-H15-6,3xL	Self-drilling screw	Steel	16
15	SDW-T14-4,8xL / SW-T-A14-4,8xL	Self-drilling screw with sealing washer ≥ Ø 14 mm	Timber	17
16	SDW-T16-6,5xL, SDW-L12-T16-6,5xL, SDW-D10-T16-6,5xL / SW3-T-T16-6,5xL	Self-drilling screw with sealing washer ≥ Ø 16 mm	Timber	18
17	SDW-H15-E11-6,5xL, SDW-H15-6,5xL / SW3-H15-6,5xL	Self-drilling screw	Timber	19
18	DD2-T14-4,8xL	Self-drilling screw with sealing washer ≥ Ø 14 mm	Steel	20
19	DD4-T16-4,8xL	Self-drilling screw with sealing washer ≥ Ø 16 mm	Steel	21
			Timber	22
20	DD5-T16-5,5xL	Self-drilling screw with sealing washer ≥ Ø 16 mm	Steel	23
21	DD12-T16-5,5xL	Self-drilling screw with sealing washer ≥ Ø 16 mm	Steel	24
22	MDW-T16-6,3xL	Self-tapping screw with sealing washer ≥ Ø 16 mm	Steel	25
			Timber	26
23	MDW-T19-6,3xL	Self-drilling screw with sealing washer ≥ Ø 19 mm	Steel	27
			Timber	28

[1)] for materials see Annexes 3 to 28

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

The fastening screws are intended to be used for fastening metal sheeting to metal or timber supporting substructures. For details see the Annexes. The component to be fastened is component I and the supporting structure is component II. The sheeting can either be used as wall or roof cladding or as load bearing wall and roof element. The fastening screws can also be used for the fastening of any other thin gauge steel members.

The intended use comprises fastening screws and connections for C1 applications, according to the standard EN ISO 12944-2.

Furthermore the intended use comprises connections with predominantly static loads (e.g. wind loads, dead loads). The fastening screws are not intended for re-use.

An exemplary execution of a connection is given in Annex 1.

The provisions made in this European Technical Assessment are based on an assumed working life of the fastening screws of 25 years. The indications given on the working life cannot be interpreted as a guarantee given by the manufacturer or 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 Performances of the product and references to the methods used for their assessment

3.1 Performance of the product

3.1.1 Mechanical resistance and stability (BWR 1)

Essential characteristic	Performance
Shear resistance of the connection	See Annexes to this ETA
Tension resistance of the connection	See Annexes to this ETA
Design resistance in case of combined tension and shear forces (interaction)	See Annexes to this ETA
Check of deformation capacity in case of constraining forces due to temperature	No performance assessed
Durability	No performance assessed

3.1.2 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	Class A1

3.2 Methods used for the assessment

The assessment has been made in accordance with EAD 330046-01-0602.

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

According to Decision 1998/214/EC, amended by 2001/596/EC, of the European Commission the system 2+ of AVCP applies (see Annex V to regulation (EU) No 305/2011).

5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable European Assessment Document (EAD)

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at the Instytut Techniki Budowlanej.

For type testing the results of the tests performed as part of the assessment for the European Technical Assessment shall be used unless there are changes in the production line or plant. In such cases the necessary type testing has to be agreed between Instytut Techniki Budowlanej and the notified body.

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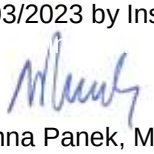
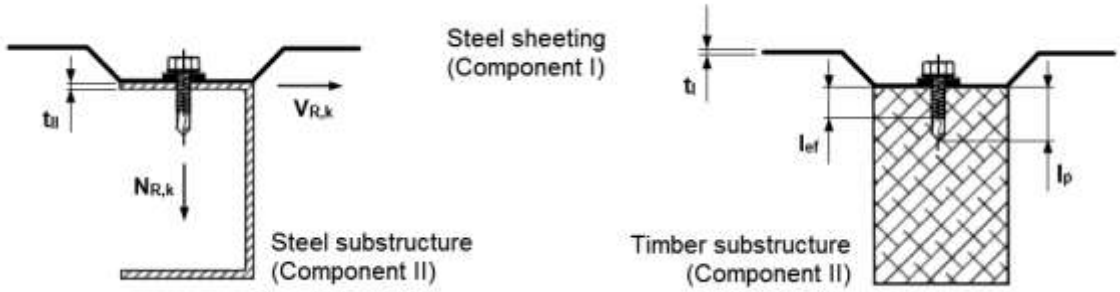


Anna Panek, MSc
Deputy Director of ITB

Examples of connections with fastening screws



Description of the components

Component I	Metal member or sheeting made of steel
Component II	Substructure made of steel or timber

Dimensions of the components

t_I	Thickness of metal member or sheeting
t_{II}	Thickness of steel substructure
l_{ef}	Effective screw-in length in timber substructure (without drill or thread point)
l_p	Screw-in length in timber substructure (including thread point)
d_{dp}	Pre-drill diameter for component I and II

Performance characteristics

$N_{R,k}$	Characteristic value of tension resistance of the connection
$V_{R,k}$	Characteristic value of shear resistance of the connection
$N_{R,I,k}$	Characteristic value of pull-through resistance through the metal member or sheeting
$N_{R,II,k}$	Characteristic value of pull-out resistance out of the substructure (component II)
$M_{y,Rk}$	Characteristic value of yield moment of the fastening screw (timber structure)
$f_{ax,k}$	Characteristic value of withdrawal strength (timber structure)

Fastening screws for metal members and sheeting	**Annex 1**
Basics	of European Technical Assessment ETA-22/0605

Assessment basics

The characteristic value of tension resistance of a connection ($N_{R,k}$) corresponds to the maximum load of the fastening screw concerning tension stress and to the minimum value between pull-through resistance through the metal member or sheeting ($N_{R,I,k}$) and pull-out resistance out of the substructure ($N_{R,II,k}$). A reduction factor 2/3 has been applied at pull-through resistance ($N_{R,I,k}$) to take into account the influence of repeated wind loads.

The characteristic value of shear resistance of a connection ($V_{R,k}$) corresponds to the maximum shear load of the fastening screw in connection between metal member or sheeting and substructure.

The characteristic values ($N_{R,k}$, $N_{R,I,k}$, $N_{R,II,k}$, $V_{R,k}$) have been statistically evaluated to 5% fractile values and determined for minimum thickness (t_I, t_{II}) and minimum tensile strength of steel material resp. screw-in length (l_{ef}, l_p) and characteristic density of timber material. In case of failure of the fastening screw, the minimum tension or shear load capacity of the fastening screw has been taken into account.

Use of performance characteristics

The characteristic values of tension and shear resistance of a connection ($N_{R,k}$, $V_{R,k}$) are intended to be used for the design of a connection. The characteristic values have to be divided by a partial safety factor (γ_M). Recommended is γ_M = 1.33 unless otherwise stated in national regulations.

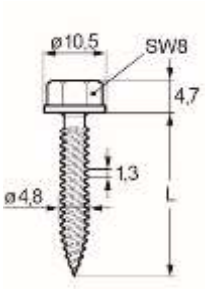
In case of a timber substructure, a modification factor (k_{mod}) according to EN 1995-1-1 table 3.1 has to be applied at pull-out resistance ($N_{R,II,k}$). According to EAD 330046-01-0602 a modification factor 1.0 is recommended unless otherwise stated in national regulations. According to manufacturer instruction a modification factor 0.9 is recommended.

In case of combined tension and shear load of a connection the condition according to EN 1993-1-3 equation 8.2 has to be fulfilled.

Reduction of the pull-through resistance ($N_{R,I,k}$) due to the position of the fastener shall be taken into account according to EN 1993-1-3, section 8.3 (7) and Figure 8.2 or EN 1999-1-4, Table 8.3.

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

Fastening screws for metal members and sheeting	**Annex 2** of European Technical Assessment ETA-22/0605
Basics	



Materials

Fastener:	Carbon steel with anticorrosion coating (Durocoat® 480)
Washer:	-
Component I:	S280GD to S450GD - EN 10346
Component II:	S280GD to S450GD - EN 10346

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

		t_{II} [mm] 0.63	0.75	0.88	1.00	1.25	**$N_{R,I,k}$ [kN]** Pull-through	
$V_{R,k}$ [kN]	0.63	1.48	1.48					
	0.75	1.48	2.90	2.90				
	0.88	1.48	2.90	3.78	3.78			
t_I [mm]	1.00	1.48	2.90	3.78	4.59	4.59		
	1.25	1.48	2.90	3.78	4.59	4.59		
$N_{R,k}$ [kN]	0.63	1.16	1.34	1.65	1.88		1.88	2.82[1]
	0.75	1.16	1.34	1.65	1.94	2.35	2.35	3.53[1]
	0.88	1.16	1.34	1.65	1.94	2.35	2.35	3.53[1]
t_I [mm]	1.00	1.16	1.34	1.65	1.94	2.35	2.35	3.53[1]
	1.25	1.16	1.34	1.65	1.94	2.35	2.35	3.53[1]
$N_{R,II,k}$ [kN] Pull-out		1.16	1.34	1.65	1.94	2.62		

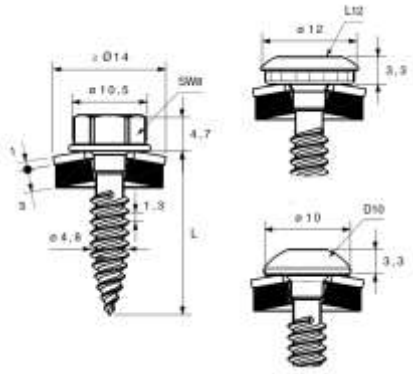
$N_{R,I,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD to S450GD.

$N_{R,II,k}$ may be increased by 8.3% for component II made of steel S320GD and by 16.6% for component II made of steel S350GD to S450GD.

$V_{R,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD to S450GD.

Index[1]: Without reduction factor 2/3 for repeated wind loads.

Fastening screws for metal members and sheeting	**Annex 3**
Self-drilling screw CDM-4,8xL	of European Technical Assessment ETA-22/0605



Materials

Fastener:	Carbon steel with anticorrosion coating (Durocoat® 480)
Washer:	Carbon steel with anticorrosion coating (galvanized) and with EPDM-seal
Component I:	S280GD to S450GD - EN 10346
Component II:	S280GD to S450GD - EN 10346

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

		t_{II} [mm]							$N_{R,I,k}$ [kN] Pull-through	
		0.40	0.50	0.55	0.63	0.75	0.88	1.00		
$V_{R,k}$ [kN]	0.40	0.74	0.74							
	0.50	0.74	0.94	0.94						
	0.55	0.74	0.94	1.06	1.06					
	0.63	0.74	0.94	1.06	1.25	1.25				
t_I [mm]	0.75	0.74	0.94	1.06	1.25	2.29	2.29			
	0.88	0.74	0.94	1.06	1.25	2.29	2.98	2.98		
	1.00	0.74	0.94	1.06	1.25	2.29	2.98	3.61		
$N_{R,k}$ [kN]	0.40	0.69	0.89	1.00	1.16	1.34	1.58		1.58	2.37[1]
	0.50	0.69	0.89	1.00	1.16	1.34	1.65	1.77	1.77	2.66[1]
	0.55	0.69	0.89	1.00	1.16	1.34	1.65	1.94	2.05	3.08[1]
	0.63	0.69	0.89	1.00	1.16	1.34	1.65	1.94	2.50	3.75[1]
t_I [mm]	0.75	0.69	0.89	1.00	1.16	1.34	1.65	1.94	2.50	3.75[1]
	0.88	0.69	0.89	1.00	1.16	1.34	1.65	1.94	2.50	3.75[1]
	1.00	0.69	0.89	1.00	1.16	1.34	1.65	1.94	2.50	3.75[1]
$N_{R,II,k}$ [kN]	Pull-out	0.69	0.89	1.00	1.16	1.34	1.65	1.94		

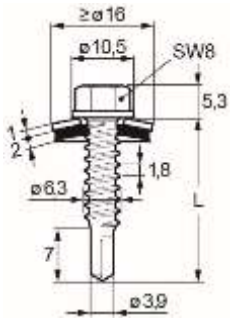
$N_{R,I,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD to S450GD.

$N_{R,II,k}$ may be increased by 8.3% for component II made of steel S320GD and by 16.6% for component II made of steel S350GD to S450GD.

$V_{R,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD to S450GD.

Index[1]: Without reduction factor 2/3 for repeated wind loads.

Fastening screws for metal members and sheeting	**Annex 4**
Self-drilling screws CDL-T14-4,8xL, CDL-L12-T14-4,8xL, CDL-D10-T14-4,8xL / SLG-T-T14-4,8xL with sealing washer ≥ Ø 14 mm	of European Technical Assessment ETA-22/0605



Materials

Fastener:	Carbon steel with anticorrosion coating (Durocoat® 480)
Washer:	Carbon steel with anticorrosion coating (galvanized) and with EPDM-seal
Component I:	S280GD to S450GD - EN 10346
Component II:	S280GD to S450GD - EN 10346

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

		t_{II} [mm]								$N_{R,I,k}$ [kN] Pull-through	
		0.50	0.55	0.63	0.75	0.88	1.00	1.25	1.50		
$V_{R,k}$ [kN]	0.50	0.97	0.97								
	0.55	0.97	1.08	1.08							
	0.63	0.97	1.08	1.26	1.26						
	0.75	0.97	1.08	1.26	1.54	1.54					
t_I [mm]	0.88	0.97	1.08	1.26	1.54	2.39	2.39				
	1.00	0.97	1.08	1.26	1.54	2.39	2.39	2.39			
	1.25	0.97	1.08	1.26	1.54	2.39	2.39	2.39	-		
	1.50	0.97	1.08	1.26	1.54	2.39	2.39	-	-		
$N_{R,k}$ [kN]	0.50	0.48	0.64	0.89	1.14	1.39	1.61	2.02		2.02	3.02[1]
	0.55	0.48	0.64	0.89	1.14	1.39	1.61	2.21	2.37	2.37	3.56[1]
	0.63	0.48	0.64	0.89	1.14	1.39	1.61	2.21	2.62	2.95	4.42[1]
	0.75	0.48	0.64	0.89	1.14	1.39	1.61	2.21	2.62	3.32	4.98[1]
t_I [mm]	0.88	0.48	0.64	0.89	1.14	1.39	1.61	2.21	2.62	3.69	5.54[1]
	1.00	0.48	0.64	0.89	1.14	1.39	1.61	2.21	2.62	4.04	6.06[1]
	1.25	0.48	0.64	0.89	1.14	1.39	1.61	2.21	-	4.78	7.18[1]
	1.50	0.48	0.64	0.89	1.14	1.39	1.61	-	-	4.92	7.38[1]
$N_{R,II,k}$ [kN]	Pull-out	0.48	0.64	0.89	1.14	1.39	1.61	2.21	2.62		

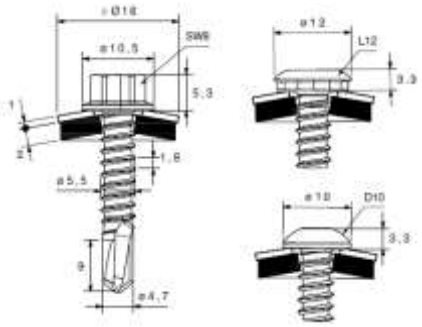
$N_{R,I,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD to S450GD.

$N_{R,II,k}$ may be increased by 16.6% for component II made of steel S275 and S355.

$V_{R,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD to S450GD.

Index[1]: Without reduction factor 2/3 for repeated wind loads.

Fastening screws for metal members and sheeting	**Annex 5**
Self-drilling screw SD2-T16-6,3xL with sealing washer ≥ Ø 16 mm	of European Technical Assessment ETA-22/0605



Materials

Fastener:	Carbon steel with anticorrosion coating (Durocoat® 480)
Washer:	Carbon steel with anticorrosion coating (galvanized) and with EPDM-seal
Component I:	S280GD to S450GD - EN 10346
Component II:	S235 to S355 - EN 10025 S280GD to S450GD - EN 10346

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

		t_{II} [mm]								$N_{R,I,k}$ [kN] Pull-through	
		1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00		
$V_{R,k}$ [kN]	0.50	0.97	1.27	1.57	1.76						
	0.55	1.21	1.46	1.71	1.86						
	0.63	1.58	1.76	1.94	2.03						
	0.75	1.75	2.01	2.28	2.28						
t_I [mm]	0.88	1.82	2.34	2.86	2.86	3.04	3.27				
	1.00	1.88	2.65	3.43	3.43	3.74	4.18				
	1.25	1.88	2.65	3.43	4.31	5.20	6.08	6.08	-		
	1.50	1.88	2.65	3.43	4.31	5.20	6.08	6.08	-		
$N_{R,k}$ [kN]	0.50	0.73	1.32	1.88						1.88	2.83[1]
	0.55	0.73	1.32	2.08						2.08	3.13[1]
	0.63	0.73	1.32	2.20	2.40					2.40	3.61[1]
	0.75	0.73	1.32	2.20	3.15					3.15	4.73[1]
t_I [mm]	0.88	0.73	1.32	2.20	3.20	3.61				3.61	5.42[1]
	1.00	0.73	1.32	2.20	3.20	4.04				4.04	6.06[1]
	1.25	0.73	1.32	2.20	3.20	4.30	4.78		-	4.78	7.18[1]
	1.50	0.73	1.32	2.20	3.20	4.30	4.92		-	4.92	7.38[1]
$N_{R,II,k}$ [kN]	Pull-out	0.73	1.32	2.20	3.20	4.30	5.40	7.55	8.05		

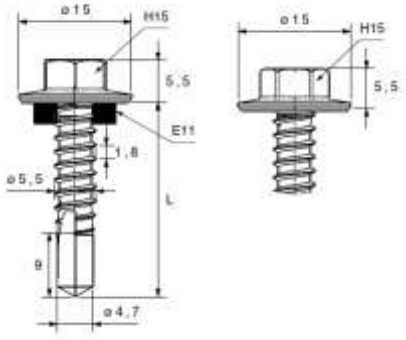
$N_{R,I,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD.

$N_{R,II,k}$ may be increased by 8.3% for component II made of steel S320GD and by 16.6% for component II made of steel S350GD and S275.

$V_{R,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD.

Index[1]: Without reduction factor 2/3 for repeated wind loads.

Fastening screws for metal members and sheeting	**Annex 6**
Self-drilling screws SD6-T16-5,5xL, SD6-L12-T16-5,5xL, SD6-D10-T16-5,5xL with sealing washer ≥ Ø 16 mm	of European Technical Assessment ETA-22/0605



Materials

Fastener:	Carbon steel with anticorrosion coating (Durocoat® 1000)
Washer:	-
Component I:	S280GD to S450GD - EN 10346
Component II:	S235 to S355 - EN 10025 S280GD to S450GD - EN 10346

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

		t_{II} [mm]								$N_{R,I,k}$ [kN] Pull-through	
		1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00		
$V_{R,k}$ [kN]	0.50	0.97	1.27	1.57	1.76						
	0.55	1.21	1.46	1.71	1.86						
	0.63	1.58	1.76	2.32	3.05	3.78					
	0.75	1.75	2.01	2.38	3.24	4.10					
t_I [mm]	0.88	1.82	2.34	2.79	3.61	4.44					
	1.00	1.88	2.65	3.17	3.97	4.77					
	1.25	1.88	2.65	3.94	4.56	5.19	6.08		-		
	1.50	1.88	2.65	4.72	5.16	5.62	6.08		-		
$N_{R,k}$ [kN]	0.50	0.73	1.32	2.01						2.01	3.01[1]
	0.55	0.73	1.32	2.20	2.32					2.32	3.49[1]
	0.63	0.73	1.32	2.20	2.83					2.83	4.25[1]
	0.75	0.73	1.32	2.20	3.20	3.59				3.59	5.39[1]
t_I [mm]	0.88	0.73	1.32	2.20	3.20	4.01				4.01	6.01[1]
	1.00	0.73	1.32	2.20	3.20	4.30	4.39			4.39	6.59[1]
	1.25	0.73	1.32	2.20	3.20	4.30	4.96		-	4.96	7.43[1]
	1.50	0.73	1.32	2.20	3.20	4.30	5.40	5.52	-	5.52	8.27[1]
$N_{R,II,k}$ [kN]	Pull-out	0.73	1.32	2.20	3.20	4.30	5.40	7.55	8.05		

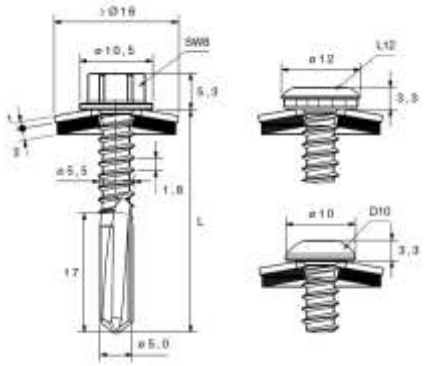
$N_{R,I,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD.

$N_{R,II,k}$ may be increased by 8.3% for component II made of steel S320GD and by 16.6% for component II made of steel S350GD and S275.

$V_{R,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD.

Index[1]: Without reduction factor 2/3 for repeated wind loads.

Fastening screws for metal members and sheeting	**Annex 7**
Self-drilling screws SD6-E11-H15-5,5xL, SD6-H15-5,5xL	of European Technical Assessment ETA-22/0605



Materials

Fastener:	Carbon steel with anticorrosion coating (Durocoat® 480)
Washer:	Carbon steel with anticorrosion coating (galvanized) and with EPDM-seal
Component I:	S280GD to S450GD - EN 10346
Component II:	S235 to S355 - EN 10025 S280GD to S450GD - EN 10346

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

		t_{II} [mm]							$N_{R,I,k}$ [kN] Pull-through	
		3.00	4.00	5.00	6.00	8.00	10.00	12.00		
$V_{R,k}$ [kN]	0.50	1.14	1.14							
	0.55	1.27	1.27							
	0.63	1.47	2.63	2.63						
	0.75	1.84	5.25	5.25						
t_I [mm]	0.88	1.90	6.22	6.35	6.49	6.49				
	1.00	1.96	7.19	7.46	7.72	7.72				
	1.25	2.71	7.19	7.46	7.72	8.22	8.22			
	1.50	3.00	7.19	7.46	7.72	8.72	8.72			
$N_{R,k}$ [kN]	0.50	1.88							1.88	2.83[1]
	0.55	2.08							2.08	3.13[1]
	0.63	2.40							2.40	3.61[1]
	0.75	3.15							3.15	4.73[1]
t_I [mm]	0.88	3.61							3.61	5.42[1]
	1.00	3.89	4.04						4.04	6.06[1]
	1.25	3.89	4.78						4.78	7.18[1]
	1.50	3.89	4.92						4.92	7.38[1]
$N_{R,II,k}$ [kN] Pull-out		3.89	6.02	7.03	7.24	7.67	7.67	7.67		

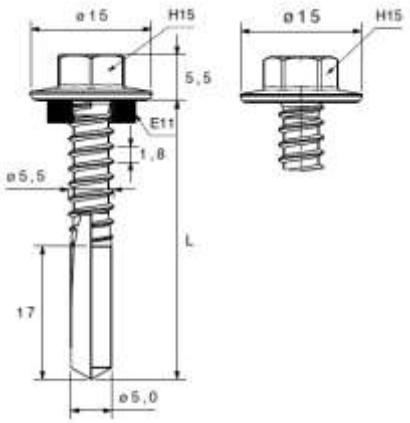
$N_{R,I,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD.

$N_{R,II,k}$ may be increased by 8.3% for component II made of steel S320GD and by 16.6% for component II made of steel S350GD and S275.

$V_{R,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD.

Index[1]: Without reduction factor 2/3 for repeated wind loads.

Fastening screws for metal members and sheeting	**Annex 8**
Self-drilling screws SD14-T16-5,5xL, SD14-L12-T16-5,5xL, SD14-D10-T16-5,5xL with sealing washer ≥ Ø 16 mm	of European Technical Assessment ETA-22/0605



Materials

Fastener:	Carbon steel with anticorrosion coating (Durocoat® 1000)
Washer:	-
Component I:	S280GD to S450GD - EN 10346
Component II:	S235 to S355 - EN 10025 S280GD to S450GD - EN 10346

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

		t_{II} [mm]							$N_{R,I,k}$ [kN] Pull-through	
		3.00	4.00	5.00	6.00	8.00	10.00	12.00		
$V_{R,k}$ [kN] t_I [mm]	0.50	2.27	2.55	2.82						
	0.55	2.56	2.98	3.39						
	0.63	3.02	3.31	3.59						
	0.75	3.71	4.00	4.29						
	0.88	4.28	4.66	5.04						
	1.00	4.81	5.28	5.74						
	1.25	6.33	6.65	6.97						
	1.50	6.33	6.65	6.97						
$N_{R,k}$ [kN] t_I [mm]	0.50	2.01							2.01	3.01[1]
	0.55	2.32							2.32	3.49[1]
	0.63	2.83							2.83	4.25[1]
	0.75	3.59							3.59	5.39[1]
	0.88	3.87	4.01						4.01	6.01[1]
	1.00	3.87	4.39						4.39	6.59[1]
	1.25	3.87	4.96						4.96	7.43[1]
	1.50	3.87	5.52						5.52	8.27[1]
$N_{R,II,k}$ [kN]	Pull-out	3.87	6.04	7.04	7.37	7.70	7.70	7.70		

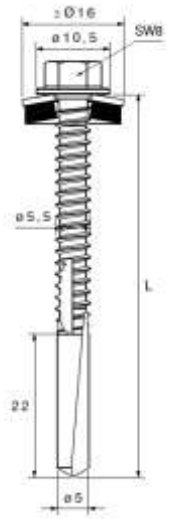
$N_{R,I,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD.

$N_{R,II,k}$ may be increased by 8.3% for component II made of steel S320GD and by 16.6% for component II made of steel S350GD and S275.

$V_{R,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD.

Index[1]: Without reduction factor 2/3 for repeated wind loads.

Fastening screws for metal members and sheeting	**Annex 9**
Self-drilling screws SD14-H15-E11-5,5xL, SD14-H15-5,5xL	of European Technical Assessment ETA-22/0605



Materials

Fastener:	Carbon steel with anticorrosion coating (Durocoat® 480)
Washer:	Carbon steel with anticorrosion coating (galvanized) and with EPDM-seal
Component I:	S280GD to S450GD - EN 10346
Component II:	S235 to S275 - EN 10025

Drilling capacity: $\Sigma(t_I + t_{II}) \leq 20.00$ mm

		t_{II} [mm]							**$N_{R,I,k}$ [kN]** Pull-through	
		3.00	4.00	5.00	6.00	8.00	10.00	≥ 12.00		
$V_{R,k}$ [kN] t_I [mm]	0.50	2.27	2.55	2.82						
	0.55	2.56	2.98	3.39						
	0.63	3.02	3.31	3.59						
	0.75	3.71	4.00	4.29						
	0.88	4.28	4.66	5.04						
	1.00	4.81	5.28	5.74						
	1.25	6.33	6.65	6.97						
	1.50	7.85	8.03	8.21						
$N_{R,k}$ [kN] t_I [mm]	0.50	1.88							1.88	2.83[1]
	0.55	2.08							2.08	3.13[1]
	0.63	2.40							2.40	3.61[1]
	0.75	3.15							3.15	4.73[1]
	0.88	3.61							3.61	5.42[1]
	1.00	3.87	4.04						4.04	6.06[1]
	1.25	3.87	4.78						4.78	7.18[1]
	1.50	3.87	4.92						4.92	7.38[1]
$N_{R,II,k}$ [kN] Pull-out		3.87	6.04	7.04	7.37	7.70	7.70	7.70		

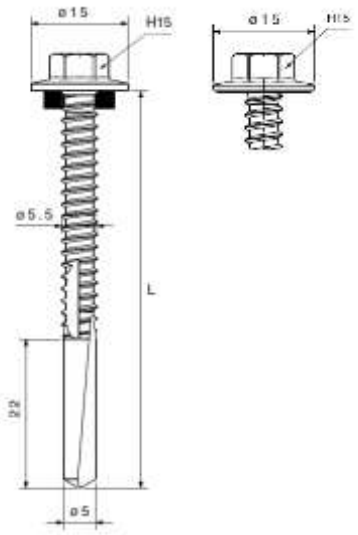
$N_{R,I,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD to S450GD.

$N_{R,II,k}$ may be increased by 16.6% for component II made of steel S275 and S355.

$V_{R,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD to S450GD.

Index[1]: Without reduction factor 2/3 for repeated wind loads.

Fastening screws for metal members and sheeting	**Annex 10**
Self-drilling screw SD20-T16-5,5xL with sealing washer ≥ Ø 16 mm	of European Technical Assessment ETA-22/0605



Materials

Fastener:	Carbon steel with anticorrosion coating (Durocoat® 480)
Washer:	-
Component I:	S280GD to S450GD - EN 10346
Component II:	S235 to S355 - EN 10025

Drilling capacity: $\Sigma(t_I + t_{II}) \leq 20.00$ mm

		t_{II} [mm]							$N_{R,I,k}$ [kN] Pull-through	
		3.00	4.00	5.00	6.00	8.00	10.00	≥ 12.00		
$V_{R,k}$ [kN] / t_I [mm]	0.50	2.27	2.55	2.82						
	0.55	2.56	2.98	3.39						
	0.63	3.02	3.31	3.59						
	0.75	3.71	4.00	4.29						
	0.88	4.28	4.66	5.04						
	1.00	4.81	5.28	5.74						
	1.25	6.33	6.65	6.97						
	1.50	6.33	6.65	6.97						
$N_{R,k}$ [kN] / t_I [mm]	0.50	2.01							2.01	3.01[1]
	0.55	2.32							2.32	3.49[1]
	0.63	2.83							2.83	4.25[1]
	0.75	3.59							3.59	5.39[1]
	0.88	3.87	4.01						4.01	6.01[1]
	1.00	3.87	4.39						4.39	6.59[1]
	1.25	3.87	4.96						4.96	7.43[1]
	1.50	3.87	5.52						5.52	8.27[1]
$N_{R,II,k}$ [kN]	Pull-out	3.87	6.04	7.04	7.37	7.70	7.70	7.70		

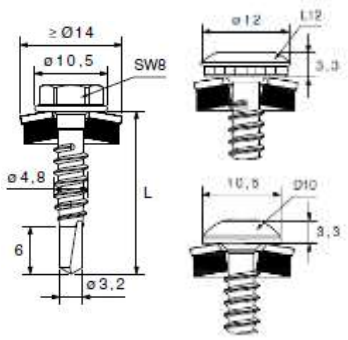
$N_{R,I,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD to S450GD.

$N_{R,II,k}$ may be increased by 16.6% for component II made of steel S275 and S355.

$V_{R,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD to S450GD.

Index[1]: Without reduction factor 2/3 for repeated wind loads.

Fastening screws for metal members and sheeting	**Annex 11**
Self-drilling screws SD20-H15-E11-5,5xL, SD20-H15-5,5xL	of European Technical Assessment ETA-22/0605



Materials

Fastener:	Carbon steel with anticorrosion coating (Durocoat® 480)
Washer:	Carbon steel with anticorrosion coating (galvanized) and with EPDM-seal
Component I:	S280GD to S450GD - EN 10346
Component II:	S280GD to S450GD - EN 10346

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

		t_{II} [mm]									**$N_{R,I,k}$ [kN]** Pull-through	
		0.40	0.50	0.55	0.63	0.75	0.88	1.00	1.25	1.50		
$V_{R,k}$ [kN] t_I [mm]	0.40	0.72	0.72									
	0.50	0.72	0.97	0.97								
	0.55	0.72	0.97	1.21	1.21							
	0.63	0.72	0.97	1.21	1.58	1.58						
	0.75	0.72	0.97	1.21	1.58	1.75	1.75					
	0.88	0.72	0.97	1.21	1.58	1.75	1.82	1.82				
	1.00	0.72	0.97	1.21	1.58	1.75	1.82	1.88	1.88			
	1.25	0.72	0.97	1.21	1.58	1.75	1.82	1.88	1.97	-		
	1.50	0.72	0.97	1.21	1.58	1.75	1.82	1.88	-			
$N_{R,k}$ [kN] t_I [mm]	0.40	0.51	0.61	0.71	0.88	0.93	0.97	1.58			1.58	2.37[1]
	0.50	0.51	0.61	0.71	0.88	0.93	0.97	1.65	1.78	1.92	2.22	3.33[1]
	0.55	0.51	0.61	0.71	0.88	0.93	0.97	1.65	1.78	1.92	2.27	3.41[1]
	0.63	0.51	0.61	0.71	0.88	0.93	0.97	1.65	1.78	1.92	2.36	3.53[1]
	0.75	0.51	0.61	0.71	0.88	0.93	0.97	1.65	1.78	1.92	2.48	3.72[1]
	0.88	0.51	0.61	0.71	0.88	0.93	0.97	1.65	1.78	1.92	2.48	3.72[1]
	1.00	0.51	0.61	0.71	0.88	0.93	0.97	1.65	1.78	1.92	2.48	3.72[1]
	1.25	0.51	0.61	0.71	0.88	0.93	0.97	1.65	1.78	1.92	2.48	3.72[1]
	1.50	0.51	0.61	0.71	0.88	0.93	0.97	1.65	1.78	1.92	2.48	3.72[1]
$N_{R,II,k}$ [kN] Pull-out		0.51	0.61	0.71	0.88	0.93	0.97	1.65	1.78	1.92		

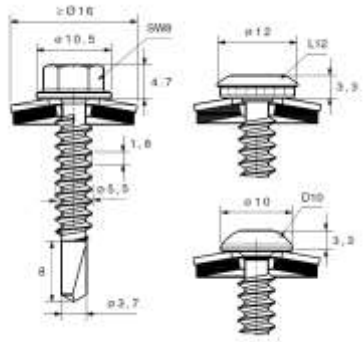
$N_{R,I,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD to S450GD.

$N_{R,II,k}$ may be increased by 8.3% for component II made of steel S320GD and by 16.6% for component II made of steel S350GD to S450GD.

$V_{R,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD to S450GD.

Index[1]: Without reduction factor 2/3 for repeated wind loads.

Fastening screws for metal members and sheeting	**Annex 12**
Self-drilling screws SDL2-T14-4,8xL, SDL2-L12-T14-4,8xL, SDL2-D10-T14-4,8xL / SL2-T-T14-4,8xL with sealing washer ≥ Ø 14 mm	of European Technical Assessment ETA-22/0605



Materials

Fastener:	Carbon steel with anticorrosion coating (Durocoat® 480)
Washer:	Carbon steel with anticorrosion coating (galvanized) and with EPDM-seal
Component I:	S280GD to S450GD - EN 10346
Component II:	S280GD to S450GD - EN 10346

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

		t_{II} [mm]						$N_{R,I,k}$ [kN] Pull-through	
		1.00	1.25	1.50	1.75	2.00	2.50		
$V_{R,k}$ [kN] t_I [mm]	0.50	0.97	1.79	1.79					
	0.55	1.21	1.92	1.92			-		
	0.63	1.58	2.13	2.13			-		
	0.75	1.75	2.44	2.44			-		
	0.88	1.82	2.57	2.57			-		
	1.00	1.88	3.11	3.11			-		
	1.25	1.88	3.72	3.72		-	-		
	1.50	1.88	4.33	4.33	-	-	-		
$N_{R,k}$ [kN] t_I [mm]	0.50	0.89	1.88					1.88	2.83[1]
	0.55	0.89	2.08				-	2.08	3.13[1]
	0.63	0.89	2.18	2.40			-	2.40	3.61[1]
	0.75	0.89	2.18	2.93	3.15		-	3.15	4.73[1]
	0.88	0.89	2.18	2.93	3.49	3.61	-	3.61	5.42[1]
	1.00	0.89	2.18	2.93	3.49	4.04	-	4.04	6.06[1]
	1.25	0.89	2.18	2.93	3.49	-	-	4.78	7.18[1]
	1.50	0.89	2.18	2.93	-	-	-	4.92	7.38[1]
$N_{R,II,k}$ [kN]	Pull-out	0.89	2.18	2.93	3.49	4.06	4.06		

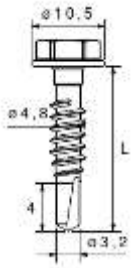
$N_{R,I,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD to S450GD.

$N_{R,II,k}$ may be increased by 8.3% for component II made of steel S320GD and by 16.6% for component II made of steel S350GD to S450GD.

$V_{R,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD to S450GD.

Index[1]: Without reduction factor 2/3 for repeated wind loads.

Fastening screws for metal members and sheeting	**Annex 13**
Self-drilling screws SDL3-T16-5,5xL, SDL3-L12-T16-5,5xL, SDL3-D10-T16-5,5xL with sealing washer ≥ Ø 16 mm	of European Technical Assessment ETA-22/0605



Materials

Fastener:	Carbon steel with anticorrosion coating (Durocoat® 480)
Washer:	-
Component I:	S280GD to S450GD - EN 10346
Component II:	S280GD to S450GD - EN 10346

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

		t_{II} [mm]						$N_{R,I,k}$ [kN] Pull-through	
		0.63	0.75	0.88	1.00	1.25	1.50		
$V_{R,k}$ [kN] / t_I [mm]	0.63	1.60	1.60						
	0.75	1.71	1.82	1.82					
	0.88	1.82	1.99	2.16	2.16				
	1.00	2.06	2.17	2.34	2.51	2.51			
	1.25	2.14	2.25	2.42	2.59	2.67	-		
	1.50	2.22	2.33	2.50	2.67	-			
$N_{R,k}$ [kN] / t_I [mm]	0.63	0.92	1.09	1.37	1.68			1.68	2.82[1]
	0.75	0.92	1.09	1.37	1.90	2.12	2.35	2.41	3.53[1]
	0.88	0.92	1.09	1.37	1.90	2.12	2.35	2.41	3.53[1]
	1.00	0.92	1.09	1.37	1.90	2.12	2.35	2.41	3.53[1]
	1.25	0.92	1.09	1.37	1.90	2.12	-	2.41	3.53[1]
	1.50	0.92	1.09	1.37	1.90	-		2.41	3.53[1]
$N_{R,II,k}$ [kN] Pull-out		0.92	1.09	1.37	1.90	2.12	2.35		

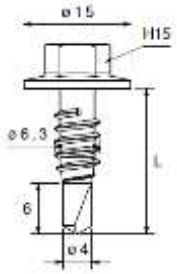
$N_{R,I,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD to S450GD.

$N_{R,II,k}$ may be increased by 8.3% for component II made of steel S320GD and by 16.6% for component II made of steel S350GD to S450GD.

$V_{R,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD to S450GD.

Index[1]: Without reduction factor 2/3 for repeated wind loads.

Fastening screws for metal members and sheeting	**Annex 14**
Self-drilling screw SDM2-4,8xL / SL2-4,8xL	of European Technical Assessment ETA-22/0605



Materials

Fastener:	Carbon steel with anticorrosion coating (Durocoat® 480)
Washer:	-
Component I:	S280GD to S450GD - EN 10346
Component II:	S280GD to S450GD - EN 10346

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

		t_{II} [mm]						$N_{R,I,k}$ [kN] Pull-through	
		0.63	0.75	0.88	1.00	1.25	1.50		
$V_{R,k}$ [kN] t_I [mm]	0.63	1.60	1.60						
	0.75	1.80	1.99	1.99					
	0.88	2.10	2.30	2.60	2.60				
	1.00	2.10	2.54	2.84	3.08	3.08			
	1.25	2.10	2.54	2.84	3.08	3.10	-		
	1.50	2.10	2.54	2.84	3.08	-			
$N_{R,k}$ [kN] t_I [mm]	0.63	1.05	1.29	1.55	1.79	2.22	2.64	2.90	4.35[1]
	0.75	1.05	1.29	1.55	1.79	2.22	2.64	3.72	5.58[1]
	0.88	1.05	1.29	1.55	1.79	2.22	2.64	4.07	6.11[1]
	1.00	1.05	1.29	1.55	1.79	2.22	2.64	4.39	6.59[1]
	1.25	1.05	1.29	1.55	1.79	2.22	-	4.96	7.43[1]
	1.50	1.05	1.29	1.55	1.79	-		5.52	8.27[1]
$N_{R,II,k}$ [kN] Pull-out		1.05	1.29	1.55	1.79	2.22	2.64		

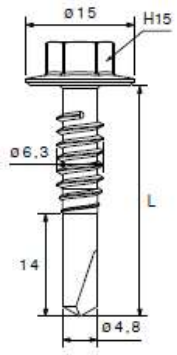
$N_{R,I,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD to S450GD.

$N_{R,II,k}$ may be increased by 8.3% for component II made of steel S320GD and by 16.6% for component II made of steel S350GD to S450GD.

$V_{R,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD to S450GD.

Index[1]: Without reduction factor 2/3 for repeated wind loads.

Fastening screws for metal members and sheeting	**Annex 15**
Self-drilling screw SDM2-H15-6,3xL / SL2-H15-6,3xL	of European Technical Assessment ETA-22/0605



Materials

Fastener:	Carbon steel with anticorrosion coating (Durocoat® 480)
Washer:	-
Component I:	S280GD to S450GD - EN 10346
Component II:	S280GD to S450GD - EN 10346

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

		t_{II} [mm]								$N_{R,I,k}$ [kN] Pull-through	
		0.63	0.75	0.88	1.00	1.25	1.50	1.75	2.00		
$V_{R,k}$ [kN] t_I [mm]	0.63	1.28	1.28								
	0.75	1.49	1.69	1.69							
	0.88	1.81	2.02	2.34	2.34						
	1.00	1.81	2.31	2.64	2.93	2.93					
	1.25	1.81	2.31	2.64	3.10	3.26	3.26				
	1.50	1.81	2.31	2.64	3.10	3.43	3.59	3.59			
	1.75	1.81	2.31	2.64	3.10	3.59	3.76	3.92	-		
	2.00	1.81	2.31	2.64	3.10	3.76	3.92	-			
$N_{R,k}$ [kN] t_I [mm]	0.63	0.45	0.66	0.98	1.22	1.93	2.64	2.90		2.90	4.35[1]
	0.75	0.45	0.66	0.98	1.22	1.93	2.64	3.31	3.72	3.72	5.58[1]
	0.88	0.45	0.66	0.98	1.22	1.93	2.64	3.31	3.99	4.07	6.11[1]
	1.00	0.45	0.66	0.98	1.22	1.93	2.64	3.31	3.99	4.39	6.59[1]
	1.25	0.45	0.66	0.98	1.22	1.93	2.64	3.31	3.99	4.96	7.43[1]
	1.50	0.45	0.66	0.98	1.22	1.93	2.64	3.31	3.99	5.52	8.27[1]
	1.75	0.45	0.66	0.98	1.22	1.93	2.64	3.31	-	5.52	8.27[1]
	2.00	0.45	0.66	0.98	1.22	1.93	2.64	-		5.52	8.27[1]
$N_{R,II,k}$ [kN]	Pull-out	0.45	0.66	0.98	1.22	1.93	2.64	3.31	3.99		

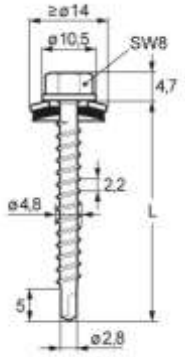
$N_{R,I,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD to S450GD.

$N_{R,II,k}$ may be increased by 8.3% for component II made of steel S320GD and by 16.6% for component II made of steel S350GD to S450GD.

$V_{R,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD to S450GD.

Index[1]: Without reduction factor 2/3 for repeated wind loads.

Fastening screws for metal members and sheeting	**Annex 16**
Self-drilling screw SDM3-H15-6,3xL / SL3-H15-6,3xL	of European Technical Assessment ETA-22/0605



Materials

Fastener:	Carbon steel with anticorrosion coating (Durocoat® 480)
Washer:	Carbon steel with anticorrosion coating (galvanized) and with EPDM-seal
Component I:	S280GD to S450GD - EN 10346
Component II:	Coniferous timber ≥ C24 - EN 14081

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

Timber substructure

$M_{y,Rk} = 7.37$ Nm

$f_{ax,k} = 9.67$ N/mm² for $l_{ef} \geq 20$ mm, $\rho_a = 350$ kg/m³

		l_{ef} [mm]						$N_{R,I,k}$ [kN] Pull-through	
		20	25	30	35	40	45		
$V_{R,k}$ [kN]	0.50	0.43	0.90	1.08	1.19				
	0.55	0.53	0.90	1.08	1.26	1.28			
	0.63	0.72	0.90	1.08	1.26	1.42			
	0.75	0.72	0.90	1.08	1.26	1.44	1.62		
t_I [mm]	0.88	0.72	0.90	1.08	1.26	1.44	1.62		
	1.00	0.72	0.90	1.08	1.26	1.44	1.62		
	1.25	0.72	0.90	1.08	1.26	1.44	1.62		
	1.50	0.72	0.90	1.08	1.26	1.44	1.62		
$N_{R,k}$ [kN]	0.50	1.33	1.67	1.88				1.88	2.83[1]
	0.55	1.33	1.67	2.08				2.08	3.13[1]
	0.63	1.33	1.67	2.32	2.40			2.40	3.61[1]
	0.75	1.33	1.67	2.32	2.71	3.09	3.15	3.15	4.73[1]
t_I [mm]	0.88	1.33	1.67	2.32	2.71	3.09	3.48	3.61	5.42[1]
	1.00	1.33	1.67	2.32	2.71	3.09	3.48	4.04	6.06[1]
	1.25	1.33	1.67	2.32	2.71	3.09	3.48	4.78	7.18[1]
	1.50	1.33	1.67	2.32	2.71	3.09	3.48	4.92	7.38[1]
$N_{R,II,k}$ [kN]	Pull-out	1.33	1.67	2.32	2.71	3.09	3.48		

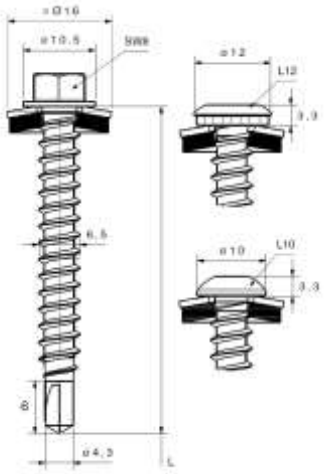
$N_{R,I,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD to S450GD.

$N_{R,II,k}$ may be increased by 8.3% for component II made of steel S320GD and by 16.6% for component II made of steel S350GD to S450GD.

$V_{R,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD to S450GD.

Index[1]: Without reduction factor 2/3 for repeated wind loads.

Fastening screws for metal members and sheeting	**Annex 17**
Self-drilling screw SDW-T14-4,8xL / SW-T-A14-4,8xL with sealing washer ≥ Ø 14 mm	of European Technical Assessment ETA-22/0605



Materials

Fastener:	Carbon steel with anticorrosion coating (Durocoat® 480)
Washer:	Carbon steel with anticorrosion coating (galvanized) and with EPDM-seal
Component I:	S280GD to S450GD - EN 10346
Component II:	Coniferous timber ≥ C24 - EN 14081

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

Timber substructure

$M_{y,Rk} = 14.9$ Nm

$f_{ax,k} = 13.2$ N/mm² for $l_{ef} \geq 25$ mm, $\rho_a = 350$ kg/m³

		l_{ef} [mm]						$N_{R,I,k}$ [kN] Pull-through	
		25	30	35	40	45	55		
$V_{R,k}$ [kN]	0.50	0.54	0.60	0.65					
	0.55	0.68	0.72	0.76					
	0.63	0.89	0.92	0.95					
	0.75	1.19	1.21	1.23					
t_I [mm]	0.88	1.39	1.43	1.45					
	1.00	1.57	1.62	1.66					
	1.25	1.59	1.63	1.67					
	1.50	1.62	1.65	1.68					
$N_{R,k}$ [kN]	0.50	1.33	1.67	2.02				2.02	3.02[1]
	0.55	1.33	1.67	2.37				2.37	3.56[1]
	0.63	1.33	1.67	2.82	2.95			2.95	4.42[1]
	0.75	1.33	1.67	2.82	3.32			3.32	4.98[1]
t_I [mm]	0.88	1.33	1.67	2.82	3.62	3.69		3.69	5.54[1]
	1.00	1.33	1.67	2.82	3.62	4.04		4.04	6.06[1]
	1.25	1.33	1.67	2.82	3.62	4.42	4.78	4.78	7.18[1]
	1.50	1.33	1.67	2.82	3.62	4.42	4.92	4.92	7.38[1]
$N_{R,II,k}$ [kN]	Pull-out	1.33	1.67	2.82	3.62	4.42	5.23		

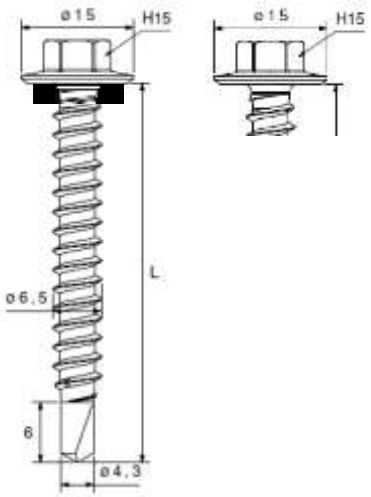
$N_{R,I,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD to S450GD.

$N_{R,II,k}$ may be increased by 8.3% for component II made of steel S320GD and by 16.6% for component II made of steel S350GD to S450GD.

$V_{R,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD to S450GD.

Index[1]: Without reduction factor 2/3 for repeated wind loads.

Fastening screws for metal members and sheeting	**Annex 18**
Self-drilling screws SDW-T16-6,5xL, SDW-L12-T16-6,5xL, SDW-D10-T16-6,5xL / SW3-T-T16-6,5xL with sealing washer ≥ Ø 16 mm	of European Technical Assessment ETA-22/0605



Materials

Fastener:	Carbon steel with anticorrosion coating (Durocoat® 1000)
Washer:	-
Component I:	S280GD to S450GD - EN 10346
Component II:	Coniferous timber ≥ C24 - EN 14081

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

Timber substructure

$M_{y,Rk} = 14.9$ Nm

$f_{ax,k} = 13.2$ N/mm² for $l_{ef} \geq 25$ mm, $\rho_a = 350$ kg/m³

		l_{ef} [mm]						$N_{R,I,k}$ [kN] Pull-through	
		25	30	35	40	45	55		
$V_{R,k}$ [kN]	0.50	0.54	0.60	0.65					
	0.55	0.68	0.72	0.76					
	0.63	0.89	0.92	0.95					
	0.75	1.19	1.21	1.23					
t_I [mm]	0.88	1.39	1.43	1.45					
	1.00	1.57	1.62	1.66					
	1.25	1.59	1.63	1.67					
	1.50	1.62	1.65	1.68					
$N_{R,k}$ [kN]	0.50	1.33	1.67	2.01				2.01	3.01[1]
	0.55	1.33	1.67	2.32				2.32	3.49[1]
	0.63	1.33	1.67	2.82	2.83			2.83	4.25[1]
	0.75	1.33	1.67	2.82	3.59			3.59	5.39[1]
t_I [mm]	0.88	1.33	1.67	2.82	3.62	4.01		4.01	6.01[1]
	1.00	1.33	1.67	2.82	3.62	4.39		4.39	6.59[1]
	1.25	1.33	1.67	2.82	3.62	4.42	4.96	4.96	7.43[1]
	1.50	1.33	1.67	2.82	3.62	4.42	5.23	5.52	8.27[1]
$N_{R,II,k}$ [kN]	Pull-out	1.33	1.67	2.82	3.62	4.42	5.23		

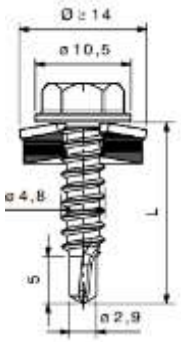
$N_{R,I,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD to S450GD.

$N_{R,II,k}$ may be increased by 8.3% for component II made of steel S320GD and by 16.6% for component II made of steel S350GD to S450GD.

$V_{R,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD to S450GD.

Index[1]: Without reduction factor 2/3 for repeated wind loads.

Fastening screws for metal members and sheeting	**Annex 19**
Self-drilling screws SDW-H15-E11-6,5xL, SDW-H15-6,5xL / SW3-T-H15-6,5xL	of European Technical Assessment ETA-22/0605



Materials

Fastener:	Carbon steel with anticorrosion coating (galvanized)
Washer:	Carbon steel with anticorrosion coating (galvanized) and with EPDM-seal
Component I:	S280GD to S350GD - EN 10346
Component II:	S280GD to S350GD - EN 10346

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

		t_{II} [mm]							$N_{R,I,k}$ [kN] Pull-through	
		0.50	0.55	0.63	0.75	0.88	1.00	1.25		
$V_{R,k}$ [kN] / t_I [mm]	0.50	0.97	0.97							
	0.55	0.97	1.21	1.21						
	0.63	0.97	1.21	1.58	1.58					
	0.75	0.97	1.21	1.58	1.75	1.75				
	0.88	0.97	1.21	1.58	1.75	1.82	1.82			
	1.00	0.97	1.21	1.58	1.75	1.82	1.88	1.88		
	1.25	0.97	1.21	1.58	1.75	1.82	1.88	1.97		
$N_{R,k}$ [kN] / t_I [mm]	0.50	0.63	0.76	0.98	1.16	1.42	1.66	1.82	2.22	3.33[1]
	0.55	0.63	0.76	0.98	1.16	1.42	1.66	1.82	2.27	3.41[1]
	0.63	0.63	0.76	0.98	1.16	1.42	1.66	1.82	2.36	3.53[1]
	0.75	0.63	0.76	0.98	1.16	1.42	1.66	1.82	2.48	3.72[1]
	0.88	0.63	0.76	0.98	1.16	1.42	1.66	1.82	2.48	3.72[1]
	1.00	0.63	0.76	0.98	1.16	1.42	1.66	1.82	2.48	3.72[1]
	1.25	0.63	0.76	0.98	1.16	1.42	1.66	1.82	2.48	3.72[1]
$N_{R,II,k}$ [kN]	Pull-out	0.63	0.76	0.98	1.16	1.42	1.66	1.82		

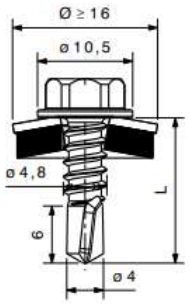
$N_{R,I,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD.

$N_{R,II,k}$ may be increased by 8.3% for component II made of steel S320GD and by 16.6% for component I made of steel S350GD.

$V_{R,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD.

Index[1]: Without reduction factor 2/3 for repeated wind loads.

Fastening screws for metal members and sheeting	**Annex 20**
Self-drilling screw DD2-T14-4,8xL with sealing washer ≥ Ø 14 mm	of European Technical Assessment ETA-22/0605



Materials

Fastener:	Carbon steel with anticorrosion coating (galvanized)
Washer:	Carbon steel with anticorrosion coating (galvanized) and with EPDM-seal
Component I:	S280GD to S350GD - EN 10346
Component II:	S235 to S275 - EN 10025 S280GD to S350GD - EN 10346

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

		t_{II} [mm]							$N_{R,I,k}$ [kN] Pull-through	
		1.00	1.25	1.50	1.75	2.00	2.50	3.00		
$V_{R,k}$ [kN]	0.50	0.97								
	0.55	1.21								
	0.63	1.58								
	0.75	1.75								
t_I [mm]	0.88	1.82								
	1.00	1.88	1.88							
	1.25	1.88	1.97	1.97				-		
	1.50	1.88	1.97	2.25	2.25			-		
$N_{R,k}$ [kN]	0.50	0.89	1.17	1.49	1.88				1.88	2.83[1]
	0.55	0.89	1.17	1.49	1.89	2.08			2.08	3.13[1]
	0.63	0.89	1.17	1.49	1.89	2.28	2.40		2.40	3.61[1]
t_I [mm]	0.75	0.89	1.17	1.49	1.89	2.28	2.73	3.15	3.15	4.73[1]
	0.88	0.89	1.17	1.49	1.89	2.28	2.73	3.19	3.61	5.42[1]
	1.00	0.89	1.17	1.49	1.89	2.28	2.73	3.19	4.04	6.06[1]
	1.25	0.89	1.17	1.49	1.89	2.28	2.73	-	4.78	7.18[1]
	1.50	0.89	1.17	1.49	1.89	2.28	2.73	-	4.92	7.38[1]
$N_{R,II,k}$ [kN]	Pull-out	0.89	1.17	1.49	1.89	2.28	2.73	3.19		

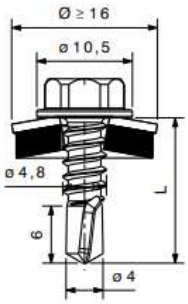
$N_{R,I,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD.

$N_{R,II,k}$ may be increased by 8.3% for component II made of steel S320GD and by 16.6% for component II made of steel S350GD and S275.

$V_{R,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD.

Index[1]: Without reduction factor 2/3 for repeated wind loads.

Fastening screws for metal members and sheeting	**Annex 21**
Self-drilling screw DD4-T16-4,8xL with sealing washer ≥ Ø 16 mm	of European Technical Assessment ETA-22/0605



Materials

Fastener:	Carbon steel with anticorrosion coating (galvanized)
Washer:	Carbon steel with anticorrosion coating (galvanized) and with EPDM-seal
Component I:	S280GD to S350GD - EN 10346
Component II:	Coniferous timber ≥ C24 - EN 14081

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

$M_{y,Rk} = 7.37$ Nm

$f_{ax,k} = 9.67$ N/mm² for $l_{ef} \geq 20$ mm, $\rho_a = 350$ kg/m³

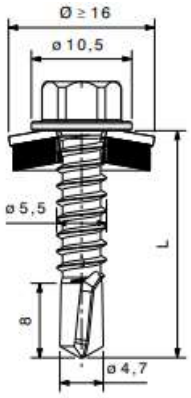
		l_{ef} [mm]			$N_{R,I,k}$ [kN] Pull-through	
		20	25	30		
$V_{R,k}$ [kN] t_I [mm]	0.50		0.43			
	0.55		0.53			
	0.63		0.70			
	0.75		0.95			
	0.88		0.95			
	1.00		0.95			
	1.25		0.95			
	1.50		0.95			
$N_{R,k}$ [kN] t_I [mm]	0.50	0.93	1.16	1.39	1.88	2.83[1]
	0.55	0.93	1.16	1.39	2.08	3.13[1]
	0.63	0.93	1.16	1.39	2.40	3.61[1]
	0.75	0.93	1.16	1.39	3.15	4.73[1]
	0.88	0.93	1.16	1.39	3.61	5.42[1]
	1.00	0.93	1.16	1.39	4.04	6.06[1]
	1.25	0.93	1.16	1.39	4.78	7.18[1]
	1.50	0.93	1.16	1.39	4.92	7.38[1]
$N_{R,II,k}$ [kN] Pull-out		0.93	1.16	1.39		

$N_{R,I,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD.

$V_{R,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component II made of steel S350GD.

Index[1]: Without reduction factor 2/3 for repeated wind loads.

Fastening screws for metal members and sheeting	**Annex 22**
Self-drilling screw DD4-T16-4,8xL with sealing washer ≥ Ø 16 mm	of European Technical Assessment ETA-22/0605



Materials

Fastener:	Carbon steel with anticorrosion coating (galvanized)
Washer:	Carbon steel with anticorrosion coating (galvanized) and with EPDM-seal
Component I:	S280GD to S350GD - EN 10346
Component II:	S235 to S275 - EN 10025 S280GD to S350GD - EN 10346

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

		t_{II} [mm]							**$N_{R,I,k}$ [kN]** Pull-through	
		1.25	1.50	1.75	2.00	2.50	3.00	4.00		
$V_{R,k}$ [kN] t_I [mm]	0.50	1.14								
	0.55	1.27								
	0.63	1.47								
	0.75	1.84								
	0.88	1.90								
	1.00	1.96								
	1.25	2.71	2.71					-		
	1.50	2.71	3.00	3.00				-		
$N_{R,k}$ [kN] t_I [mm]	0.50	1.32	1.71	1.88					1.88	2.83[1]
	0.55	1.32	1.71	2.08					2.08	3.13[1]
	0.63	1.32	1.71	2.34	2.40				2.40	3.61[1]
	0.75	1.32	1.71	2.34	2.97	3.15			3.15	4.73[1]
	0.88	1.32	1.71	2.34	2.97	3.61	3.61		3.61	5.42[1]
	1.00	1.32	1.71	2.34	2.97	4.04	4.04		4.04	6.06[1]
	1.25	1.32	1.71	2.34	2.97	4.11	4.78	-	4.78	7.18[1]
	1.50	1.32	1.71	2.34	2.97	4.11	4.92	-	4.92	7.38[1]
$N_{R,II,k}$ [kN]	Pull-out	1.32	1.71	2.34	2.97	4.11	5.25	7.19		

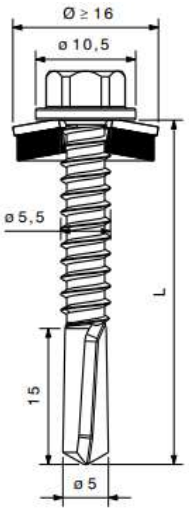
$N_{R,I,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD.

$N_{R,II,k}$ may be increased by 8.3% for component II made of steel S320GD and by 16.6% for component II made of steel S350GD and S275.

$V_{R,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD.

Index[1]: Without reduction factor 2/3 for repeated wind loads.

Fastening screws for metal members and sheeting	**Annex 23**
Self-drilling screw DD5-T16-5,5xL with sealing washer ≥ Ø 16 mm	of European Technical Assessment ETA-22/0605



Materials

Fastener:	Carbon steel with anticorrosion coating (galvanized)
Washer:	Carbon steel with anticorrosion coating (galvanized) and with EPDM-seal
Component I:	S280GD to S350GD - EN 10346
Component II:	S235 to S275 - EN 10025

Drilling capacity $\Sigma(t_I + t_{II}) \leq 12.00$ mm

		t_{II} [mm]							$N_{R,I,k}$ [kN] Pull-through	
		3.00	3.50	4.00	5.00	6.00	8.00	10.00		
$V_{R,k}$ [kN] t_I [mm]	0.50	1.14								
	0.55	1.27								
	0.63	1.47								
	0.75	1.84								
	0.88	1.90								
	1.00	1.96								
	1.25	2.71								
	1.50	3.00								
$N_{R,k}$ [kN] t_I [mm]	0.50	1.88							1.88	2.83[1]
	0.55	2.08							2.08	3.13[1]
	0.63	2.40							2.40	3.61[1]
	0.75	3.15							3.15	4.73[1]
	0.88	3.61							3.61	5.42[1]
	1.00	3.61	4.04						4.04	6.06[1]
	1.25	3.61	4.19	4.78					4.78	7.18[1]
	1.50	3.61	4.19	4.78	4.92				4.92	7.38[1]
$N_{R,II,k}$ [kN] Pull-out		3.61	4.19	4.78	5.55	6.32	6.95	7.59		

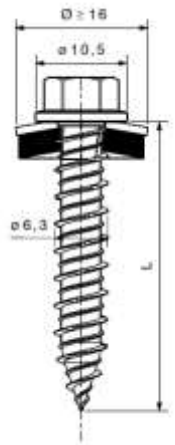
$N_{R,I,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD.

$N_{R,II,k}$ may be increased by 16.6% for component II made of steel S275.

$V_{R,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD.

Index[1]: Without reduction factor 2/3 for repeated wind loads.

Fastening screws for metal members and sheeting	**Annex 24**
Self-drilling screw DD12-T16-5,5xL with sealing washer ≥ Ø 16 mm	of European Technical Assessment ETA-22/0605



Materials

Fastener:	Carbon steel with anticorrosion coating (galvanized)
Washer:	Carbon steel with anticorrosion coating (galvanized) and with EPDM-seal
Component I:	S280GD to S320GD - EN 10346
Component II:	S235 to S275 - EN 10025 S280GD to S320GD - EN 10346

Predrill diameter: d_{pd} = see table

		t_{II} [mm]								$N_{R,I,k}$ [kN] Pull-through	
		0.63	0.75	0.88	1.00	1.25	1.50	2.00	3.00		
d_{pd} [mm]		3.50	4.0	4.50			5.0				
$V_{R,k}$ [kN] t_I [mm]	0.50	1.28									
	0.55	1.47									
	0.63	1.77	1.77								
	0.75	1.77	2.88	2.88							
	0.88	1.77	2.88	3.12	3.12						
	1.00	1.77	2.88	3.12	3.34	3.34					
	1.25	1.77	2.88	3.12	3.34	3.80	3.80				
	1.50	1.77	2.88	3.12	3.34	3.80	4.43	4.43			
$N_{R,k}$ [kN] t_I [mm]	0.50	0.90	0.96	1.02	1.09	1.50	1.94	2.02		2.02	3.02[1]
	0.55	0.90	0.96	1.02	1.09	1.50	1.94	2.37		2.37	3.56[1]
	0.63	0.90	0.96	1.02	1.09	1.50	1.94	2.57	2.95	2.95	4.42[1]
	0.75	0.90	0.96	1.02	1.09	1.50	1.94	2.57	3.32	3.32	4.98[1]
	0.88	0.90	0.96	1.02	1.09	1.50	1.94	2.57	3.69	3.69	5.54[1]
	1.00	0.90	0.96	1.02	1.09	1.50	1.94	2.57	4.04	4.04	6.06[1]
	1.25	0.90	0.96	1.02	1.09	1.50	1.94	2.57	4.16	4.78	7.18[1]
	1.50	0.90	0.96	1.02	1.09	1.50	1.94	2.57	4.16	4.92	7.38[1]
$N_{R,II,k}$ [kN] Pull-out		0.90	0.96	1.02	1.09	1.50	1.94	2.57	4.16		

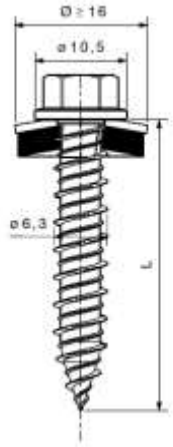
$N_{R,I,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD.

$N_{R,II,k}$ may be increased by 8.3% for component II made of steel S320GD and by 16.6% for component II made of steel S350GD and S275.

$V_{R,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD.

Index[1]: Without reduction factor 2/3 for repeated wind loads.

Fastening screws for metal members and sheeting	**Annex 25**
Self-tapping screw MDW-T16-6,3xL with sealing washer ≥ Ø 16 mm	of European Technical Assessment ETA-22/0605



Materials

Fastener:	Carbon steel with anticorrosion coating (galvanized)
Washer:	Carbon steel with anticorrosion coating (galvanized) and with EPDM-seal
Component I:	S280GD to S350GD - EN 10346
Component II:	Coniferous timber ≥ C24 - EN 14081

Predrill diameter: d_{pd} = see table

Timber substructure

$M_{y,Rk}$ = 20.53 Nm

$f_{ax,k}$ = 6.91 N/mm² for $l_p \geq 20$ mm, ρ_a = 350 kg/m³

7.95 N/mm² for $l_p \geq 30$ mm, ρ_a = 350 kg/m³

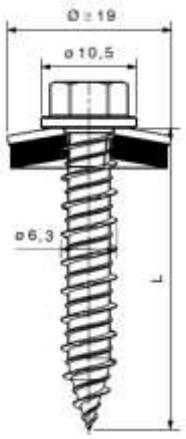
		l_p [mm] 20	25	30	35	40	45	50	**$N_{R,I,k}$ [kN]** Pull-through	
d_{pd} [mm]		4.0								
$V_{R,k}$ [kN] t_I [mm]	0.50	0.74								
	0.55	0.82								
	0.63	0.94								
	0.75	1.03								
	0.88	1.14								
	1.00	1.25								
	1.25	1.32								
	1.50	1.32								
$N_{R,k}$ [kN] t_I [mm]	0.50	0.87	1.19	1.50	1.75	2.00	2.02		2.02	3.02[1]
	0.55	0.87	1.19	1.50	1.75	2.00	2.25	2.37	2.37	3.56[1]
	0.63	0.87	1.19	1.50	1.75	2.00	2.25	2.50	2.95	4.42[1]
	0.75	0.87	1.19	1.50	1.75	2.00	2.25	2.50	3.32	4.98[1]
	0.88	0.87	1.19	1.50	1.75	2.00	2.25	2.50	3.69	5.54[1]
	1.00	0.87	1.19	1.50	1.75	2.00	2.25	2.50	4.04	6.06[1]
	1.25	0.87	1.19	1.50	1.75	2.00	2.25	2.50	4.78	7.18[1]
	1.50	0.87	1.19	1.50	1.75	2.00	2.25	2.50	4.92	7.38[1]
$N_{R,II,k}$ [kN] Pull-out		0.87	1.19	1.50	1.75	2.00	2.25	2.50		

$N_{R,I,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD.

$V_{R,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD.

Index[1]: Without reduction factor 2/3 for repeated wind loads.

Fastening screws for metal members and sheeting	**Annex 26**
Self-tapping screw MDW-T16-6,3xL with sealing washer ≥ Ø 16 mm	of European Technical Assessment ETA-22/0605



Materials

Fastener:	Carbon steel with anticorrosion coating (galvanized)
Washer:	Carbon steel with anticorrosion coating (galvanized) and with EPDM-seal
Component I:	S280GD to S350GD - EN 10346
Component II:	S235 to S275 - EN 10025 S280GD to S350GD - EN 10346

Predrill diameter: d_{pd} = see table

		t_{II} [mm]								$N_{R,I,k}$ [kN] Pull-through	
		0.63	0.75	0.88	1.00	1.25	1.50	2.00	3.00		
d_{pd} [mm]		3.50	4.0	4.50			5.0				
$V_{R,k}$ [kN]	0.50	1.28									
	0.55	1.47									
	0.63	1.77	1.77								
	0.75	1.77	2.88	2.88							
t_I [mm]	0.88	1.77	2.88	3.12	3.12						
	1.00	1.77	2.88	3.12	3.34	3.34					
	1.25	1.77	2.88	3.12	3.34	3.80	3.80				
	1.50	1.77	2.88	3.12	3.34	3.80	4.43	4.43			
$N_{R,k}$ [kN]	0.50	0.90	0.96	1.02	1.09	1.50	1.94	2.34		2.34	3.51[1]
	0.55	0.90	0.96	1.02	1.09	1.50	1.94	2.57	2.65	2.65	3.95[1]
	0.63	0.90	0.96	1.02	1.09	1.50	1.94	2.57	3.15	3.15	4.72[1]
	0.75	0.90	0.96	1.02	1.09	1.50	1.94	2.57	4.02	4.02	6.03[1]
t_I [mm]	0.88	0.90	0.96	1.02	1.09	1.50	1.94	2.57	4.16	4.40	6.60[1]
	1.00	0.90	0.96	1.02	1.09	1.50	1.94	2.57	4.16	4.74	7.11[1]
	1.25	0.90	0.96	1.02	1.09	1.50	1.94	2.57	4.16	5.74	8.62[1]
	1.50	0.90	0.96	1.02	1.09	1.50	1.94	2.57	4.16	7.27	10.90[1]
$N_{R,II,k}$ [kN]	Pull-out	0.90	0.96	1.02	1.09	1.50	1.94	2.57	4.16		

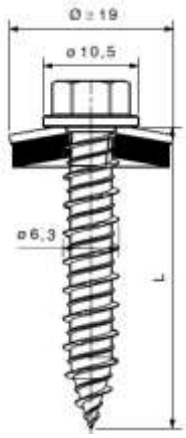
$N_{R,I,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component II made of steel S350GD.

$N_{R,II,k}$ may be increased by 8.3% for component II made of steel S320GD and by 16.6% for component II made of steeel S350GD and S275.

$V_{R,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component II made of steel S350GD.

Index[1]: Without reduction factor 2/3 for repeated wind loads.

Fastening screws for metal members and sheeting	**Annex 27**
Self-tapping screw MDW-T19-6,3xL with sealing washer ≥ Ø 19 mm	of European Technical Assessment ETA-22/0605



Materials

Fastener:	Carbon steel with anticorrosion coating (galvanized)
Washer:	Carbon steel with anticorrosion coating (galvanized) and with EPDM-seal
Component I:	S280GD to S350GD - EN 10346
Component II:	Coniferous timber ≥ C24 - EN 14081

Predrill diameter: d_{pd} = see table

Timber substructure

$M_{y,Rk}$ = 20.53 Nm

$f_{ax,k}$ = 6.91 N/mm² for $l_p \geq 20$ mm, ρ_a = 350 kg/m³

7.95 N/mm² for $l_p \geq 30$ mm, ρ_a = 350 kg/m³

		l_p [mm]							$N_{R,I,k}$ [kN] Pull-through	
		20	25	30	35	40	45	50		
d_{pd} [mm]		4.0								
$V_{R,k}$ [kN] t_I [mm]	0.50	0.74								
	0.55	0.82								
	0.63	0.94								
	0.75	1.03								
	0.88	1.14								
	1.00	1.25								
	1.25	1.32								
	1.50	1.32								
$N_{R,k}$ [kN] t_I [mm]	0.50	0.87	1.19	1.50	1.75	2.00	2.25	2.34	2.34	3.51[1]
	0.55	0.87	1.19	1.50	1.75	2.00	2.25	2.50	2.65	3.95[1]
	0.63	0.87	1.19	1.50	1.75	2.00	2.25	2.50	3.15	4.72[1]
	0.75	0.87	1.19	1.50	1.75	2.00	2.25	2.50	4.02	6.03[1]
	0.88	0.87	1.19	1.50	1.75	2.00	2.25	2.50	4.40	6.60[1]
	1.00	0.87	1.19	1.50	1.75	2.00	2.25	2.50	4.74	7.11[1]
	1.25	0.87	1.19	1.50	1.75	2.00	2.25	2.50	5.74	8.62[1]
	1.50	0.87	1.19	1.50	1.75	2.00	2.25	2.50	7.27	10.90[1]
$N_{R,II,k}$ [kN]	Pull-out	0.87	1.19	1.50	1.75	2.00	2.25	2.50		

$N_{R,I,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD.

$V_{R,k}$ may be increased by 8.3% for component I made of steel S320GD and by 16.6% for component I made of steel S350GD.

Index[1]: Without reduction factor 2/3 for repeated wind loads.

Fastening screws for metal members and sheeting	**Annex 28**
Self-tapping screw MDW-T19-6,3xL with sealing washer ≥ Ø 19 mm	of European Technical Assessment ETA-22/0605