



INSTYTUT TECHNIKI BUDOWLANEJ
PL 00-611 WARSZAWA
ul. Filtrowa 1
tel.: (+48 22) 825-04-71
(+48 22) 825-76-55
fax: (+48 22) 825-52-86
www.itb.pl



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European Technical Assessment

ETA-18/0789
of 28/09/2018

General part

Technical Assessment Body issuing the European Technical Assessment

Instytut Techniki Budowlanej

Trade name of the construction product

AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W, AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W, MA W, MB W, MC 0, BH W, ARW 0

Product family to which the construction product belongs

Fastening screws for metal members and sheeting

Manufacturer

Info-GLOBAL sp. j.
ul. Długa 67,
63-400 Ostrów Wielkopolski
Poland

Manufacturing plant

1. Info-GLOBAL sp. j.
ul. Długa 67,
63-400 Ostrów Wielkopolski, Poland
2. Manufacturing Plant 2
3. Manufacturing Plant 3

This European Technical Assessment contains

71 pages including 65 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"

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Specific Part

1. Technical description of the product

The fastening screws AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W, AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W, MA W, MB W, MC 0, BH W and ARW 0 are the self-drilling and self-tapping screws listed in Table 1. All screws can be painted. The fastening screws are partly completed with a metallic washer and an EPDM sealing ring. For details see the Annexes 1 to 64.

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

Table 1

No.	Self-drilling screw	Material	Annex
1	AR 0 CS 4,8xL	galvanized carbon steel ($\geq 12 \mu\text{m}$)	1, 2
2	AR 0 CSG 4,8xL	carbon steel with Eco-GrePert coating	1, 2
3	AR 0 CSE 4,8xL	carbon steel with EsC coating	1, 2, 3
4	AR0 W CS 4,8xL	galvanized carbon steel ($\geq 12 \mu\text{m}$)	4, 5
5	AR0 W CSG 4,8xL	carbon steel with Eco-GrePert coating	4, 5
6	AR0 W CSE 4,8xL	carbon steel with EsC coating	4, 5
7	AR0 W CS 4,8xL UFO	galvanized carbon steel ($\geq 12 \mu\text{m}$)	6
8	AR0 W CSG 4,8xL UFO	carbon steel with Eco-GrePert coating	6
9	AR0 W CSE 4,8xL UFO	carbon steel with EsC coating	6
10	AR0 PZ W CS 6,3xL	galvanized carbon steel ($\geq 12 \mu\text{m}$)	7
11	AR0 PZ W CSG 6,3xL	carbon steel with Eco-GrePert coating	7
12	AR0 PZ W CSE 6,3xL	carbon steel with EsC coating	7
13	AR2 W CS 4,8xL	galvanized carbon steel ($\geq 12 \mu\text{m}$)	8, 9
14	AR2 W CSG 4,8xL	carbon steel with Eco-GrePert coating	8, 9
15	AR2 W CSE 4,8xL	carbon steel with EsC coating	8, 9, 10
16	AR2 W CS 4,8xL UFO	galvanized carbon steel ($\geq 12 \mu\text{m}$)	11
17	AR2 W CSG 4,8xL UFO	carbon steel with Eco-GrePert coating	11
18	AR2 W CSE 4,8xL UFO	carbon steel with EsC coating	11, 12
19	AR2 W SS 4,8xL	stainless steel (bi-metal)	13
20	AR2 W SS-3 4,8xL	stainless steel	14
21	AR2 W SS-4 4,8xL	stainless steel	15
22	AR3 W CS 4,8xL	galvanized carbon steel ($\geq 12 \mu\text{m}$)	16 - 18
23	AR3 W CSG 4,8xL	carbon steel with Eco-GrePert coating	16 - 18
24	AR3 W CSE 4,8xL	carbon steel with EsC coating	16 - 18
25	AR3 W SS 4,8xL	stainless steel (bi-metal)	19 - 21
26	AR5 W CS 5,5xL	galvanized carbon steel ($\geq 12 \mu\text{m}$)	22, 23
27	AR5 W CSG 5,5xL	carbon steel with Eco-GrePert coating	22, 23
28	AR5 W CSE 5,5xL	carbon steel with EsC coating	22, 23
29	AR5 W SS 5,5xL	stainless steel (bi-metal)	24 - 28
30	AR5 PZ W CS 5,5xL	galvanized carbon steel ($\geq 12 \mu\text{m}$)	29
31	AR5 PZ W CSG 5,5xL	carbon steel with Eco-GrePert coating	29
32	AR5 PZ W CSE 5,5xL	carbon steel with EsC coating	29

Table 1

No.	Self-drilling screw	Material	Annex
33	AR6 W CS 6,3xL	galvanized carbon steel ($\geq 12 \mu\text{m}$)	30 – 32
34	AR6 W CSG 6,3xL	carbon steel with Eco-GrePert coating	30 – 32
35	AR6 W CSE 6,3xL	carbon steel with EsC coating	30 – 32
36	AR8 W CS 5,5xL	galvanized carbon steel ($\geq 12 \mu\text{m}$)	33 – 37
37	AR8 W CSG 5,5xL	carbon steel with Eco-GrePert coating	33 – 37
38	AR8 W CSE 5,5xL	carbon steel with EsC coating	33 – 37
39	AR12 W CS 5,5xL	galvanized carbon steel ($\geq 12 \mu\text{m}$)	38, 39
40	AR12 W CSG 5,5xL	carbon steel with Eco-GrePert coating	38, 39
41	AR12 W CSE 5,5xL	carbon steel with EsC coating	38, 39
42	AR12 W SS 5,5xL	stainless steel (bi-metal)	40 – 44
43	AR12 PZ W CS 5,5xL	galvanized carbon steel ($\geq 12 \mu\text{m}$)	45
44	AR12 PZ W CSG 5,5xL	carbon steel with Eco-GrePert coating	45
45	AR12 PZ W CSE 5,5xL	carbon steel with EsC coating	45
46	AR16 W CS 6,3xL	galvanized carbon steel ($\geq 12 \mu\text{m}$)	46 – 48
47	AR16 W CSG 6,3xL	carbon steel with Eco-GrePert coating	46 – 48
48	AR16 W CSE 6,3xL	carbon steel with EsC coating	46 – 48
49	MA W CS 4,2xL	galvanized carbon steel ($\geq 5 \mu\text{m}$)	49
50	MA W CSG 4,2xL	carbon steel with Eco-GrePert coating	49
51	MA W CSE 4,2xL	carbon steel with EsC coating	49
52	MB W CS 4,2xL	galvanized carbon steel ($\geq 5 \mu\text{m}$)	50
53	MB W CSG 4,2xL	carbon steel with Eco-GrePert coating	50
54	MB W CSE 4,2xL	carbon steel with EsC coating	50
55	MC 0 CS 4,2xL	galvanized carbon steel ($\geq 5 \mu\text{m}$)	51
56	MC 0 CSG 4,2xL	carbon steel with Eco-GrePert coating	51
57	MC 0 CSE 4,2xL	carbon steel with EsC coating	51
58	MC 0 SS-3 4,2xL	stainless steel	52
59	MC 0 SS-4 4,2xL	stainless steel	53
60	AR3+ W CS 5,5xL	galvanized carbon steel ($\geq 12 \mu\text{m}$)	54, 55
61	AR3+ W CSG 5,5xL	carbon steel with Eco-GrePert coating	54, 55
62	AR3+ W CSE 5,5xL	carbon steel with EsC coating	54 – 58
63	BH W CS 4,8xL	galvanized carbon steel ($\geq 5 \mu\text{m}$)	59, 60
64	BH W CSG 4,8xL	carbon steel with Eco-GrePert coating	59, 60
65	BH W CSE 4,8xL	carbon steel with EsC coating	59, 60, 61
66	ARW 0 CS 6,4xL	galvanized carbon steel ($\geq 12 \mu\text{m}$)	62, 63, 64
67	ARW 0 CSG 6,4xL	carbon steel with Eco-GrePert coating	62, 63, 64
68	ARW 0 CSE 6,4xL	carbon steel with EsC coating	62, 63, 64

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 1 to 64. 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 metal members.

The intended use comprises fastening screws and connections for indoor and outdoor applications. Fastening screws which are intended to be used in external environments with $\geq$ C2 corrosion according to the standard EN ISO 12944-2 are made of stainless steel.

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

The provisions made in this European 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 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)

The characteristic values of the shear resistance of connections and tension resistance of connections are given in Annex 1 to 64. The values were determined by tests according to EAD 330046-01-0602.

The design values shall be determined according to Annex 65 and EAD 330046-01-0602.

For the corrosion protection the rules given in EN 1993-1-3, EN 1993-1-4 and EN 1999-1-4 shall be taken into account. Fastening screw which are made of stainless steel are intended to be used in external environments $\geq$ C2 corrosion according to the standard EN ISO 12944-2.

3.1.2. Safety in case of fire (BWR 2)

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

3.1.3. Hygiene, health and the environment (BWR 3)

Regarding the dangerous substances clauses contained in this European Technical Assessment, there may be requirements applicable to the products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the Construction Products Regulation, these requirements need also to be complied with, when and where they apply.

3.2. Methods used for the assessment

The assessment of the mechanical fasteners has been made in accordance with the 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 assessment and verification of constancy of performance 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)

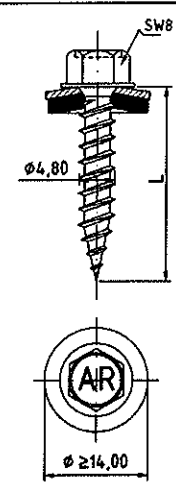
Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at the Instytut Techniki Budowlanej.

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

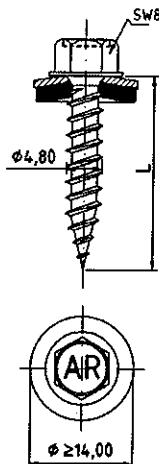
Materials Fastener: carbon steel – SAE 1022, quenched, tempered and coated Washer: EPDM sealing washer with metal top made of coated carbon steel Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S280GD, S320GD or S350GD – EN 10346 or structural timber – EN 14081 Drilling capacity: $\Sigma t_i \leq 2 \times 0,50 \text{ mm}$ Timber substructures For timber substructures performance assessed with: $M_{y,Rk} = 4,39 \text{ Nm}$ $f_{ax,k} = 17,813 \text{ N/mm}^2$ for $l_{ef} \geq 20 \text{ mm}$	
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$t_{N,II} [\text{mm}]$	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood; class $\geq$ C24
$M_{t,nom}$	3 Nm								—
$V_{R,k} [\text{kN}]$ for $t_{N,I} [\text{mm}]$	0,50	0,81	0,81	0,81	0,81	—	—	—	1,43
	0,55	0,81	0,81	0,81	0,81	—	—	—	1,43
	0,63	0,81	0,81	1,41	1,41	—	—	—	1,43
	0,75	0,81	0,81	1,41	1,41	—	—	—	1,43
	0,88	—	—	—	—	—	—	—	1,43
	1,00	—	—	—	—	—	—	—	—
	1,13	—	—	—	—	—	—	—	—
	1,25	—	—	—	—	—	—	—	—
	1,50	—	—	—	—	—	—	—	—
	1,75	—	—	—	—	—	—	—	—
2,00	—	—	—	—	—	—	—	—	
$N_{R,k} [\text{kN}]$ for $t_{N,I} [\text{mm}]$	0,50	0,58	0,58	0,58	0,58	—	—	—	1,71
	0,55	0,58	0,58	0,58	0,58	—	—	—	1,71
	0,63	0,58	0,58	0,73	0,73	—	—	—	1,71
	0,75	0,58	0,58	0,73	0,97	—	—	—	1,71
	0,88	—	—	—	—	—	—	—	1,71
	1,00	—	—	—	—	—	—	—	—
	1,13	—	—	—	—	—	—	—	—
	1,25	—	—	—	—	—	—	—	—
	1,50	—	—	—	—	—	—	—	—
	1,75	—	—	—	—	—	—	—	—
2,00	—	—	—	—	—	—	—	—	

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 sheetings AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W, AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W, MA W, MB W, MC 0, BH W, ARW 0	Annex 1 of European Technical Assessment ETA-18/0789
AR 0 CS 4,8xL, AR 0 CSG 4,8xL and AR 0 CSE 4,8xL and sealing washer $\geq \text{Ø}14 \text{ mm}$	

Materials Fastener: carbon steel – SAE 1022, quenched, tempered and coated Washer: EPDM sealing washer with metal top made of aluminum Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S280GD, S320GD or S350GD – EN 10346 or structural timber – EN 14081 Drilling capacity: $\Sigma t_i \leq 2 \times 0,50 \text{ mm}$	
Timber substructures For timber substructures performance assessed with: $M_{y,Rk} = 4,39 \text{ Nm}$ $f_{ax,k} = 17,813 \text{ N/mm}^2$ for $l_{ef} \geq 20 \text{ mm}$	

$t_{N,II} [\text{mm}]$	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood; class $\geq \text{C24}$
$M_{t,nom}$	3 Nm								—
$V_{R,k} [\text{kN}]$ for $t_{N,I} [\text{mm}]$	0,50	0,81	0,81	0,81	0,81	—	—	—	0,81
	0,55	0,81	0,81	0,81	0,81	—	—	—	0,81
	0,63	0,81	0,81	1,41	1,41	—	—	—	1,06
	0,75	0,81	0,81	1,41	1,41	—	—	—	1,06
	0,88	—	—	—	—	—	—	—	—
	1,00	—	—	—	—	—	—	—	—
	1,13	—	—	—	—	—	—	—	—
	1,25	—	—	—	—	—	—	—	—
	1,50	—	—	—	—	—	—	—	—
	1,75	—	—	—	—	—	—	—	—
	2,00	—	—	—	—	—	—	—	—
$N_{R,k} [\text{kN}]$ for $t_{N,I} [\text{mm}]$	0,50	0,58	0,58	0,58	0,58	—	—	—	0,96
	0,55	0,58	0,58	0,58	0,58	—	—	—	0,96
	0,63	0,58	0,58	0,73	0,73	—	—	—	0,96
	0,75	0,58	0,58	0,73	0,97	—	—	—	0,96
	0,88	—	—	—	—	—	—	—	—
	1,00	—	—	—	—	—	—	—	—
	1,13	—	—	—	—	—	—	—	—
	1,25	—	—	—	—	—	—	—	—
	1,50	—	—	—	—	—	—	—	—
	1,75	—	—	—	—	—	—	—	—
	2,00	—	—	—	—	—	—	—	—

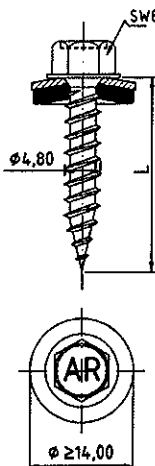
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%

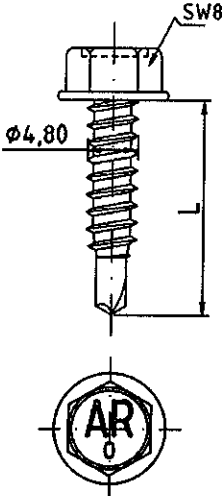
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheetings
AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W,
AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W,
MA W, MB W, MC 0, BH W, ARW 0

AR 0 CS 4,8xL, AR 0 CSG 4,8xL and AR 0 CSE 4,8xL
and sealing washer $\geq \varnothing 14 \text{ mm}$

Annex 2
of European
Technical Assessment
ETA-18/0789

Materials Fastener: carbon steel – SAE 1022, quenched, tempered and coated Washer: EPDM sealing washer with metal top made of aluminum Component I: 1050A – EN 573-3 Component II: structural timber – EN 14081 Drilling capacity: $\Sigma t_i \leq 2,00$ mm Timber substructures For timber substructures performance assessed with: $M_{y,Rk} = 4,39$ Nm $f_{ax,k} = 17,813$ N/mm² for $l_{ef} \geq 20$ mm																																																																																																																																																																																																																															
<table><tr><th>$t_{N,II}$ [mm]</th><th>0,50</th><th>0,55</th><th>0,63</th><th>0,75</th><th>0,88</th><th>1,00</th><th>1,13</th><th>1,25</th><th>Wood; class $\geq$ C24</th></tr><tr><td>$M_{t,nom}$</td><td colspan="8">3 Nm</td><td>—</td></tr><tr><td rowspan="11">$V_{R,k}$ [kN] for $t_{N,I}$ [mm]</td><td>0,50</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>0,62</td></tr><tr><td>0,55</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>0,62</td></tr><tr><td>0,63</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>0,62</td></tr><tr><td>0,75</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>0,62</td></tr><tr><td>0,88</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>0,62</td></tr><tr><td>1,00</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>0,62</td></tr><tr><td>1,13</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>0,62</td></tr><tr><td>1,25</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>0,62</td></tr><tr><td>1,50</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>0,62</td></tr><tr><td>1,75</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>0,62</td></tr><tr><td>2,00</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>0,62</td></tr><tr><td rowspan="11">$N_{R,k}$ [kN] for $t_{N,I}$ [mm]</td><td>0,50</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>0,80</td></tr><tr><td>0,55</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>0,80</td></tr><tr><td>0,63</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>0,80</td></tr><tr><td>0,75</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>0,80</td></tr><tr><td>0,88</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>0,80</td></tr><tr><td>1,00</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>0,80</td></tr><tr><td>1,13</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>0,80</td></tr><tr><td>1,25</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>0,80</td></tr><tr><td>1,50</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>0,80</td></tr><tr><td>1,75</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>0,80</td></tr><tr><td>2,00</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>0,80</td></tr></table>			$t_{N,II}$ [mm]	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood; class $\geq$ C24	$M_{t,nom}$	3 Nm								—	$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—	—	0,62	0,55	—	—	—	—	—	—	—	0,62	0,63	—	—	—	—	—	—	—	0,62	0,75	—	—	—	—	—	—	—	0,62	0,88	—	—	—	—	—	—	—	0,62	1,00	—	—	—	—	—	—	—	0,62	1,13	—	—	—	—	—	—	—	0,62	1,25	—	—	—	—	—	—	—	0,62	1,50	—	—	—	—	—	—	—	0,62	1,75	—	—	—	—	—	—	—	0,62	2,00	—	—	—	—	—	—	—	0,62	$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—	—	0,80	0,55	—	—	—	—	—	—	—	0,80	0,63	—	—	—	—	—	—	—	0,80	0,75	—	—	—	—	—	—	—	0,80	0,88	—	—	—	—	—	—	—	0,80	1,00	—	—	—	—	—	—	—	0,80	1,13	—	—	—	—	—	—	—	0,80	1,25	—	—	—	—	—	—	—	0,80	1,50	—	—	—	—	—	—	—	0,80	1,75	—	—	—	—	—	—	—	0,80	2,00	—	—	—	—	—	—	—	0,80	
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Fastening screws for metal members and sheetings AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W, AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W, MA W, MB W, MC 0, BH W, ARW 0 AR 0 CSE 4,8xL and sealing washer $\geq \varnothing 14$ mm		Annex 3 of European Technical Assessment ETA-18/0789																																																																																																																																																																																																																													

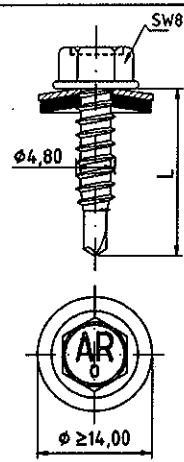
Materials Fastener: carbon steel – SAE 1022, quenched, tempered and coated Washer: – Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S280GD, S320GD or S350GD – EN 10346 Drilling capacity: $\Sigma t_i \leq 2 \times 1,00 \text{ mm}$	
Timber substructures no performance assessed	

$t_{N,II} [\text{mm}]$	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood; class $\geq$ C24
$M_{t,nom}$	3 Nm							—	
$V_{R,k} [\text{kN}]$ for $t_{N,I}$ [mm]	0,50	1,03	1,03	1,03	1,03	1,03	1,03	—	
	0,55	1,03	1,03	1,03	1,03	1,03	1,03	—	
	0,63	1,03	1,03	1,27	1,27	1,27	1,27	—	
	0,75	1,03	1,03	1,27	1,97	1,97	1,97	—	
	0,88	1,03	1,03	1,27	1,97	2,14	2,14	—	
	1,00	1,03	1,03	1,27	1,97	2,14	2,47	—	
	1,13	—	—	—	—	—	—	—	
	1,25	—	—	—	—	—	—	—	
	1,50	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	
$N_{R,k} [\text{kN}]$ for $t_{N,I}$ [mm]	0,50	0,51	0,51	0,51	0,51	0,51	0,51	—	
	0,55	0,51	0,51	0,51	0,51	0,51	0,51	—	
	0,63	0,51	0,51	0,73	0,73	0,73	0,73	—	
	0,75	0,51	0,51	0,73	0,80	0,80	0,80	—	
	0,88	0,51	0,51	0,73	0,80	0,80	0,80	—	
	1,00	0,51	0,51	0,73	0,80	0,80	0,94	—	
	1,13	—	—	—	—	—	—	—	
	1,25	—	—	—	—	—	—	—	
	1,50	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	

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 sheetings AR 0, AR 0 W, AR 0 PZ W, AR 2 W, AR 3 W, AR 3+ W, AR 5 W, AR 5 PZ W, AR 6 W, AR 8 W, AR 12 W, AR 12 PZ W, AR 16 W, MA W, MB W, MC 0, BH W, ARW 0	Annex 4 of European Technical Assessment ETA-18/0789
AR 0 W CS 4,8xL, AR 0 W CSG 4,8xL and AR 0 W CSE 4,8xL	

Materials Fastener: carbon steel – SAE 1022, quenched, tempered and coated Washer: EPDM sealing washer with metal top made of coated carbon steel or aluminum Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S280GD, S320GD or S350GD – EN 10346 Drilling capacity: $\Sigma t_i \leq 2 \times 1,00 \text{ mm}$		
Timber substructures no performance assessed		

$t_{N,II}$ [mm]	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood; class $\geq$ C24
$M_{t,nom}$	3 Nm								—
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,03	1,03	1,03	1,03	1,03	1,03	—	
	0,55	1,03	1,03	1,03	1,03	1,03	1,03	—	
	0,63	1,03	1,03	1,27	1,27	1,27	1,27	—	
	0,75	1,03	1,03	1,27	1,97	1,97	1,97	—	
	0,88	1,03	1,03	1,27	1,97	2,14	2,14	—	
	1,00	1,03	1,03	1,27	1,97	2,14	2,47	—	
	1,13	—	—	—	—	—	—	—	
	1,25	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,62	0,62	0,62	0,62	0,62	0,62	—	
	0,55	0,62	0,62	0,62	0,62	0,62	0,62	—	
	0,63	0,62	0,62	0,73	0,73	0,73	0,73	—	
	0,75	0,62	0,62	0,73	0,80	0,80	0,80	—	
	0,88	0,62	0,62	0,73	0,80	0,93	0,93	—	
	1,00	0,62	0,62	0,73	0,80	0,93	1,46	—	
	1,13	—	—	—	—	—	—	—	
	1,25	—	—	—	—	—	—	—	
1,50	—	—	—	—	—	—	—		
1,75	—	—	—	—	—	—	—		
2,00	—	—	—	—	—	—	—		

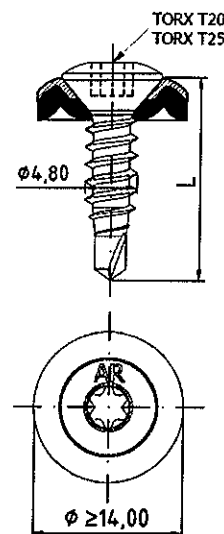
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheetings AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W, AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W, MA W, MB W, MC 0, BH W, ARW 0	Annex 5 of European Technical Assessment ETA-18/0789
AR0 W CS 4,8xL, AR0 W CSG 4,8xL and AR0 W CSE 4,8xL and sealing washer $\geq \varnothing 14 \text{ mm}$	

<u>Materials</u>	
Fastener:	carbon steel – SAE 1022, quenched, tempered and coated
Washer:	EPDM sealing washer with metal top made of aluminum
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	$\Sigma t_i \leq 2 \times 1,00 \text{ mm}$

Timber substructures

no performance assessed



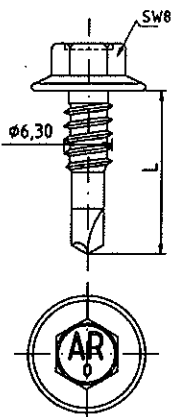
$t_{N,II}$ [mm]	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood; class $\geq$ C24
$M_{t,nom}$	3 Nm						—	—	
$V_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,50	1,03	1,03	1,03	1,03	1,03	—	—	
	0,55	1,03	1,03	1,03	1,03	1,03	—	—	
	0,63	1,03	1,03	1,27	1,27	1,27	—	—	
	0,75	1,03	1,03	1,27	1,97	1,97	—	—	
	0,88	1,03	1,03	1,27	1,97	2,14	—	—	
	1,00	1,03	1,03	1,27	1,97	2,14	—	—	
	1,13	—	—	—	—	—	—	—	
	1,25	—	—	—	—	—	—	—	
	1,50	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	
2,00	—	—	—	—	—	—	—		
$N_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,50	0,62	0,62	0,62	0,62	0,62	—	—	
	0,55	0,62	0,62	0,62	0,62	0,62	—	—	
	0,63	0,62	0,62	0,73	0,73	0,73	—	—	
	0,75	0,62	0,62	0,73	0,80	0,80	—	—	
	0,88	0,62	0,62	0,73	0,80	0,93	—	—	
	1,00	0,62	0,62	0,73	0,80	0,93	1,46	—	
	1,13	—	—	—	—	—	—	—	
	1,25	—	—	—	—	—	—	—	
	1,50	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	
2,00	—	—	—	—	—	—	—		

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 sheetings
AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W,
AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W,
MA W, MB W, MC 0, BH W, ARW 0

AR0 W CS 4,8xL UFO, AR0 W CSG 4,8xL UFO
and AR0 W CSE 4,8xL UFO
and sealing washer $\geq \varnothing 14 \text{ mm}$

Annex 6
of European
Technical Assessment
ETA-18/0789

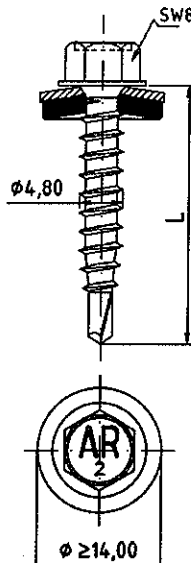
<u>Materials</u>		
Fastener:	carbon steel – SAE 1022, quenched, tempered and coated	
Washer:	-	
Component I:	S280GD, S320GD or S350GD – EN 10346	
Component II:	S280GD, S320GD or S350GD – EN 10346	
Drilling capacity: $\Sigma t_i \leq 2 \times 1,25 \text{ mm}$		
<u>Timber substructures</u>		
no performance assessed		

$t_{N,II} [\text{mm}]$	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood; class $\geq$ C24
$M_{t,nom}$	6 Nm								
$V_{R,k} [\text{kN}]$ for $t_{N,II} [\text{mm}]$	0,50	1,50	1,50	1,50	1,50	1,50	1,50	1,50	
	0,55	1,50	1,50	1,50	1,50	1,50	1,50	1,50	
	0,63	1,50	1,50	1,84	1,84	1,84	1,84	1,84	
	0,75	1,50	1,50	1,84	2,86	2,86	2,86	2,86	
	0,88	1,50	1,50	1,84	2,86	3,11	3,11	3,11	
	1,00	1,50	1,50	1,84	2,86	3,11	3,58	3,58	
	1,13	1,50	1,50	1,84	2,86	3,11	3,58	3,58	
	1,25	1,50	1,50	1,84	2,86	3,11	3,58	3,58	
	1,50	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	
$N_{R,k} [\text{kN}]$ for $t_{N,II} [\text{mm}]$	0,50	0,51	0,51	0,67	0,81	0,99	1,75	1,75	1,96
	0,55	0,51	0,51	0,67	0,81	0,99	1,75	1,75	1,96
	0,63	0,51	0,51	0,67	0,81	0,99	1,75	1,75	1,96
	0,75	0,51	0,51	0,67	0,81	0,99	1,75	1,75	1,96
	0,88	0,51	0,51	0,67	0,81	0,99	1,75	1,75	1,96
	1,00	0,51	0,51	0,67	0,81	0,99	1,75	1,75	1,96
	1,13	0,51	0,51	0,67	0,81	0,99	1,75	1,75	1,96
	1,25	0,51	0,51	0,67	0,81	0,99	1,75	1,75	1,96
	1,50	—	—	—	—	—	—	—	—
	1,75	—	—	—	—	—	—	—	—
	2,00	—	—	—	—	—	—	—	—

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 sheetings AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W, AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W, MA W, MB W, MC 0, BH W, ARW 0	Annex 7 of European Technical Assessment ETA-18/0789
AR0 PZ W CS 6,3xL, AR0 PZ W CSG 6,3xL and AR0 PZ W CSE 6,3xL	

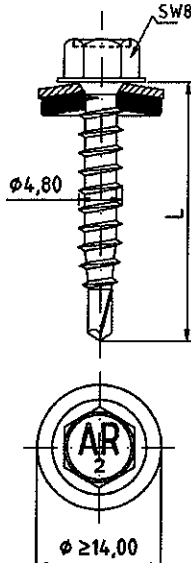
Materials Fastener: carbon steel – SAE 1022, quenched, tempered and coated Washer: EPDM sealing washer with metal top made of coated carbon steel Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S280GD, S320GD or S350GD – EN 10346 or structural timber – EN 14081 Drilling capacity: $\Sigma t_i \leq 2 \times 1,00 \text{ mm}$	
Timber substructures For timber substructures performance assessed with: $M_{y,Rk} = 4,39 \text{ Nm}$ $f_{ax,k} = 17,396 \text{ N/mm}^2$ for $l_{ef} \geq 20 \text{ mm}$	

$t_{N,II} [\text{mm}]$	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood; class $\geq$ C24
$M_{t,nom}$	3 Nm								—
$V_{R,k} [\text{kN}]$ for $t_{N,I} [\text{mm}]$	0,50	1,12	1,12	1,12	1,12	1,12	1,12	—	1,43
	0,55	1,12	1,12	1,12	1,12	1,12	1,12	—	1,43
	0,63	1,12	1,12	1,47	1,47	1,47	1,47	—	1,43
	0,75	1,12	1,12	1,47	1,72	1,72	1,72	—	1,43
	0,88	1,12	1,12	1,47	1,72	1,72	1,72	—	1,43
	1,00	1,12	1,12	1,47	1,72	1,72	1,72	—	1,43
	1,13	—	—	—	—	—	—	—	1,43
	1,25	—	—	—	—	—	—	—	1,43
	1,50	—	—	—	—	—	—	—	1,43
	1,75	—	—	—	—	—	—	—	1,43
	2,00	—	—	—	—	—	—	—	1,43
$N_{R,k} [\text{kN}]$ for $t_{N,I} [\text{mm}]$	0,50	0,55	0,55	0,55	0,55	0,55	—	—	1,67
	0,55	0,55	0,55	0,55	0,55	0,55	—	—	1,67
	0,63	0,55	0,55	0,71	0,71	0,71	—	—	1,67
	0,75	0,55	0,55	0,71	0,81	0,81	—	—	1,67
	0,88	0,55	0,55	0,71	0,81	1,19	1,19	—	1,67
	1,00	0,55	0,55	0,71	0,81	1,19	1,56	—	1,67
	1,13	—	—	—	—	—	—	—	1,67
	1,25	—	—	—	—	—	—	—	1,67
	1,50	—	—	—	—	—	—	—	1,67
	1,75	—	—	—	—	—	—	—	1,67
	2,00	—	—	—	—	—	—	—	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 sheetings AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W, AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W, MA W, MB W, MC 0, BH W, ARW 0	Annex 8 of European Technical Assessment ETA-18/0789
AR2 W CS 4,8xL, AR2 W CSG 4,8xL and AR2 W CSE 4,8xL and sealing washer $\geq \varnothing 14 \text{ mm}$	

Materials Fastener: carbon steel – SAE 1022, quenched, tempered and coated Washer: EPDM sealing washer with metal top made of aluminum Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S280GD, S320GD or S350GD – EN 10346 or structural timber – EN 14081	
Drilling capacity: $\Sigma t_i \leq 2 \times 1,00 \text{ mm}$	
Timber substructures For timber substructures performance assessed with: $M_{y,Rk} = 4,39 \text{ Nm}$ $f_{ax,k} = 17,396 \text{ N/mm}^2$ for $l_{ef} \geq 20 \text{ mm}$	

$t_{N,II} [\text{mm}]$	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood; class $\geq$ C24
$M_{t,nom}$	3 Nm								—
$V_{R,k} [\text{kN}]$ for $t_{N,I} [\text{mm}]$	0,50	1,12	1,12	1,12	1,12	1,12	—	—	0,75
	0,55	1,12	1,12	1,12	1,12	1,12	—	—	0,75
	0,63	1,12	1,12	1,47	1,47	1,47	—	—	0,75
	0,75	1,12	1,12	1,47	1,72	1,72	—	—	0,75
	0,88	1,12	1,12	1,47	1,72	1,72	—	—	0,75
	1,00	1,12	1,12	1,47	1,72	1,72	—	—	0,75
	1,13	—	—	—	—	—	—	—	0,75
	1,25	—	—	—	—	—	—	—	0,75
	1,50	—	—	—	—	—	—	—	0,75
	1,75	—	—	—	—	—	—	—	0,75
	2,00	—	—	—	—	—	—	—	0,75
$N_{R,k} [\text{kN}]$ for $t_{N,I} [\text{mm}]$	0,50	0,55	0,55	0,55	0,55	0,55	—	—	1,10
	0,55	0,55	0,55	0,55	0,55	0,55	—	—	1,10
	0,63	0,55	0,55	0,71	0,71	0,71	—	—	1,10
	0,75	0,55	0,55	0,71	0,81	0,81	—	—	1,10
	0,88	0,55	0,55	0,71	0,81	1,19	—	—	1,10
	1,00	0,55	0,55	0,71	0,81	1,19	—	—	1,10
	1,13	—	—	—	—	—	—	—	1,10
	1,25	—	—	—	—	—	—	—	1,10
	1,50	—	—	—	—	—	—	—	1,10
	1,75	—	—	—	—	—	—	—	1,10
	2,00	—	—	—	—	—	—	—	1,10

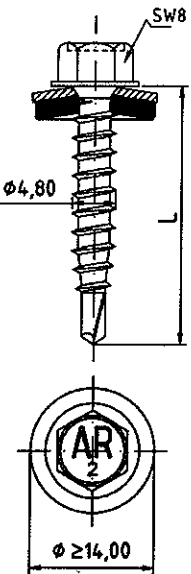
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%

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 sheetings
AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W,
AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W,
MA W, MB W, MC 0, BH W, ARW 0

AR2 W CS 4,8xL, AR2 W CSG 4,8xL and AR2 W CSE 4,8xL
and sealing washer $\geq \varnothing 14 \text{ mm}$

Annex 9
of European
Technical Assessment
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Materials Fastener: carbon steel – SAE 1022, quenched, tempered and coated Washer: EPDM sealing washer with metal top made of aluminum Component I: 1050A – EN 573-3 Component II: structural timber – EN 14081 Drilling capacity: $\Sigma t_i \leq 2 \text{ mm}$	
Timber substructures For timber substructures performance assessed with: $M_{y,Rk} = 4,39 \text{ Nm}$ $f_{ax,k} = 17,396 \text{ N/mm}^2$ for $l_{ef} \geq 20 \text{ mm}$	

$t_{N,II} [\text{mm}]$	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood; class $\geq \text{C24}$
$M_{t, \text{nom}}$	3 Nm								—
$V_{Rk} [\text{kN}]$ for $t_{N,II} [\text{mm}]$	0,50	—	—	—	—	—	—	—	0,62
	0,55	—	—	—	—	—	—	—	0,62
	0,63	—	—	—	—	—	—	—	0,62
	0,75	—	—	—	—	—	—	—	0,62
	0,88	—	—	—	—	—	—	—	0,62
	1,00	—	—	—	—	—	—	—	0,62
	1,13	—	—	—	—	—	—	—	0,62
	1,25	—	—	—	—	—	—	—	0,62
	1,50	—	—	—	—	—	—	—	0,62
	1,75	—	—	—	—	—	—	—	0,62
	2,00	—	—	—	—	—	—	—	0,62
$N_{Rk} [\text{kN}]$ for $t_{N,II} [\text{mm}]$	0,50	—	—	—	—	—	—	—	0,80
	0,55	—	—	—	—	—	—	—	0,80
	0,63	—	—	—	—	—	—	—	0,80
	0,75	—	—	—	—	—	—	—	0,80
	0,88	—	—	—	—	—	—	—	0,80
	1,00	—	—	—	—	—	—	—	0,80
	1,13	—	—	—	—	—	—	—	0,80
	1,25	—	—	—	—	—	—	—	0,80
	1,50	—	—	—	—	—	—	—	0,80
	1,75	—	—	—	—	—	—	—	0,80
	2,00	—	—	—	—	—	—	—	0,80

Fastening screws for metal members and sheetings AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W, AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W, MA W, MB W, MC 0, BH W, ARW 0	Annex 10 of European Technical Assessment ETA-18/0789
AR2 W CSE 4,8xL and sealing washer $\geq \text{Ø}14 \text{ mm}$	

Materials Fastener: carbon steel – SAE 1022, quenched, tempered and coated Washer: EPDM sealing washer with metal top made of aluminum Component I: S280GD, S320GD or S350GD – EN 10346 Component II: structural timber – EN 14081 Drilling capacity: $\sum t_i \leq 2,00$ mm Timber substructures For timber substructures performance assessed with: $M_{y,Rk} = 4,39$ Nm $f_{ax,k} = 17,396$ N/mm² for $l_{ef} \geq 20$ mm	
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$t_{N,II}$ [mm]	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood; class $\geq$ C24
$M_{t,norm}$	3 Nm								—
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—	—	1,43
	0,55	—	—	—	—	—	—	—	1,43
	0,63	—	—	—	—	—	—	—	1,43
	0,75	—	—	—	—	—	—	—	1,43
	0,88	—	—	—	—	—	—	—	1,43
	1,00	—	—	—	—	—	—	—	1,43
	1,13	—	—	—	—	—	—	—	1,43
	1,25	—	—	—	—	—	—	—	1,43
	1,50	—	—	—	—	—	—	—	1,43
	1,75	—	—	—	—	—	—	—	1,43
	2,00	—	—	—	—	—	—	—	1,43
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—	—	1,67
	0,55	—	—	—	—	—	—	—	1,67
	0,63	—	—	—	—	—	—	—	1,67
	0,75	—	—	—	—	—	—	—	1,67
	0,88	—	—	—	—	—	—	—	1,67
	1,00	—	—	—	—	—	—	—	1,67
	1,13	—	—	—	—	—	—	—	1,67
	1,25	—	—	—	—	—	—	—	1,67
	1,50	—	—	—	—	—	—	—	1,67
	1,75	—	—	—	—	—	—	—	1,67
	2,00	—	—	—	—	—	—	—	1,67

Fastening screws for metal members and sheetings AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W, AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W, MA W, MB W, MC 0, BH W, ARW 0 AR2 W CS 4,8xL UFO, AR2 W CSG 4,8xL UFO and AR2 W CSE 4,8xL UFO and sealing washer $\geq \varnothing 14$ mm	Annex 11 of European Technical Assessment ETA-18/0789
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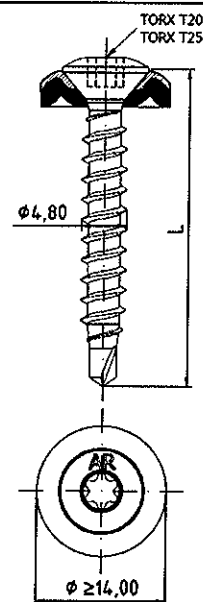
<u>Materials</u>	
Fastener:	carbon steel – SAE 1022, quenched, tempered and coated
Washer:	EPDM sealing washer with metal top made of aluminum
Component I:	1050A – EN 573-3
Component II:	structural timber – EN 14081
Drilling capacity:	$\Sigma t_i \leq 2,00$ mm

Timber substructures

For timber substructures performance assessed with:

$$M_{y,Rk} = 4,39 \text{ Nm}$$

$$f_{ax,k} = 17,396 \text{ N/mm}^2 \text{ for } l_{ef} \geq 20 \text{ mm}$$

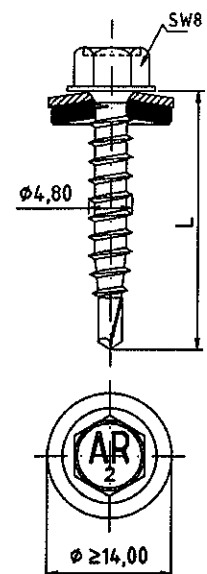


$t_{N,II}$ [mm]	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood; class $\geq$ C24
$M_{t,nom}$	3 Nm								—
V_{Rk} [kN] for $t_{N,II}$ [mm]	0,50	—	—	—	—	—	—	—	0,62
	0,55	—	—	—	—	—	—	—	0,62
	0,63	—	—	—	—	—	—	—	0,62
	0,75	—	—	—	—	—	—	—	0,62
	0,88	—	—	—	—	—	—	—	0,62
	1,00	—	—	—	—	—	—	—	0,62
	1,13	—	—	—	—	—	—	—	0,62
	1,25	—	—	—	—	—	—	—	0,62
	1,50	—	—	—	—	—	—	—	0,62
	1,75	—	—	—	—	—	—	—	0,62
	2,00	—	—	—	—	—	—	—	0,62
N_{Rk} [kN] for $t_{N,II}$ [mm]	0,50	—	—	—	—	—	—	—	0,80
	0,55	—	—	—	—	—	—	—	0,80
	0,63	—	—	—	—	—	—	—	0,80
	0,75	—	—	—	—	—	—	—	0,80
	0,88	—	—	—	—	—	—	—	0,80
	1,00	—	—	—	—	—	—	—	0,80
	1,13	—	—	—	—	—	—	—	0,80
	1,25	—	—	—	—	—	—	—	0,80
	1,50	—	—	—	—	—	—	—	0,80
	1,75	—	—	—	—	—	—	—	0,80
	2,00	—	—	—	—	—	—	—	0,80

Fastening screws for metal members and sheetings
AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W,
AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W,
MA W, MB W, MC 0, BH W, ARW 0

AR2 W CSE 4,8xL UFO
and sealing washer $\geq \varnothing 14$ mm

Annex 12
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Materials Fastener: stainless steel – SAE 304 (bi-metal) Washer: EPDM sealing washer with metal top made of stainless steel or aluminum Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S280GD, S320GD or S350GD – EN 10346 or structural timber – EN 14081 Drilling capacity: $\Sigma t_i \leq 2,00$ mm	
Timber substructures For timber substructures performance assessed with: $M_{y,Rk} = 3,37$ Nm $f_{ax,k} = 14,375$ N/mm² for $l_{ef} \geq 20$ mm	

$t_{N,II}$ [mm]	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood; class $\geq$ C24
$M_{t,nom}$	3 Nm								—
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,12	1,12	1,12	1,12	1,12	1,12	—	1,18
	0,55	1,12	1,12	1,12	1,12	1,12	1,12	—	1,18
	0,63	1,12	1,12	1,47	1,47	1,47	1,47	—	1,18
	0,75	1,12	1,12	1,47	1,72	1,72	1,72	—	1,18
	0,88	1,12	1,12	1,47	1,72	1,72	1,72	—	1,18
	1,00	1,12	1,12	1,47	1,72	1,72	1,72	—	1,18
	1,13	—	—	—	—	—	—	—	1,18
	1,25	—	—	—	—	—	—	—	1,18
	1,50	—	—	—	—	—	—	—	1,18
	1,75	—	—	—	—	—	—	—	1,18
	2,00	—	—	—	—	—	—	—	1,18
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,55	0,55	0,55	0,55	0,55	0,55	—	1,38
	0,55	0,55	0,55	0,55	0,55	0,55	0,55	—	1,38
	0,63	0,55	0,55	0,71	0,71	0,71	0,71	—	1,38
	0,75	0,55	0,55	0,71	0,81	0,81	0,81	—	1,38
	0,88	0,55	0,55	0,71	0,81	1,19	1,19	—	1,38
	1,00	0,55	0,55	0,71	0,81	1,19	1,56	—	1,38
	1,13	—	—	—	—	—	—	—	1,38
	1,25	—	—	—	—	—	—	—	1,38
	1,50	—	—	—	—	—	—	—	1,38
	1,75	—	—	—	—	—	—	—	1,38
	2,00	—	—	—	—	—	—	—	1,38

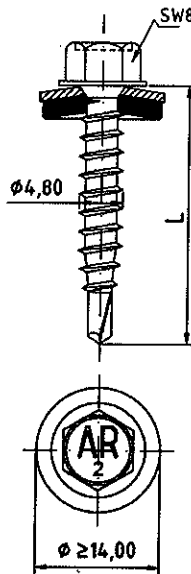
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%

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 sheetings
AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W,
AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W,
MA W, MB W, MC 0, BH W, ARW 0

AR2 W SS 4,8xL
and sealing washer $\geq \varnothing 14$ mm

Annex 13
of European
Technical Assessment
ETA-18/0789

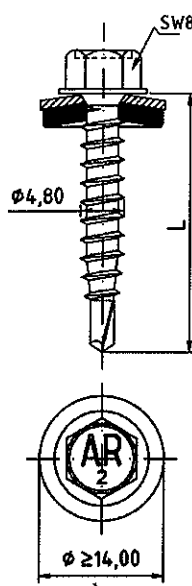
Materials Fastener: stainless steel – SAE 304 Washer: EPDM sealing washer with metal top made of stainless steel or aluminum Component I: S280GD, S320GD or S350GD – EN 10346 Component II: structural timber – EN 14081 Drilling capacity: $\Sigma t_i \leq 0,50$ mm	
Timber substructures For timber substructures performance assessed with: $M_{y,Rk} = 3,37$ Nm $f_{ax,k} = 14,375$ N/mm ² for $l_{ef} \geq 20$ mm	

$t_{n,II}$ [mm]	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood; class $\geq$ C24
$M_{t,nom}$	3 Nm								
V_{Rk} [kN] for $t_{n,I}$ [mm]	0,50	—	—	—	—	—	—	—	1,18
	0,55	—	—	—	—	—	—	—	1,18
	0,63	—	—	—	—	—	—	—	1,18
	0,75	—	—	—	—	—	—	—	1,18
	0,88	—	—	—	—	—	—	—	1,18
	1,00	—	—	—	—	—	—	—	1,18
	1,13	—	—	—	—	—	—	—	1,18
	1,25	—	—	—	—	—	—	—	1,18
	1,50	—	—	—	—	—	—	—	1,18
	1,75	—	—	—	—	—	—	—	1,18
	2,00	—	—	—	—	—	—	—	1,18
N_{Rk} [kN] for $t_{n,I}$ [mm]	0,50	—	—	—	—	—	—	—	1,38
	0,55	—	—	—	—	—	—	—	1,38
	0,63	—	—	—	—	—	—	—	1,38
	0,75	—	—	—	—	—	—	—	1,38
	0,88	—	—	—	—	—	—	—	1,38
	1,00	—	—	—	—	—	—	—	1,38
	1,13	—	—	—	—	—	—	—	1,38
	1,25	—	—	—	—	—	—	—	1,38
	1,50	—	—	—	—	—	—	—	1,38
	1,75	—	—	—	—	—	—	—	1,38
	2,00	—	—	—	—	—	—	—	1,38

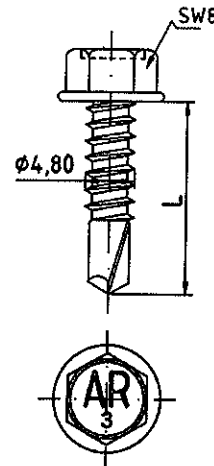
Fastening screws for metal members and sheetings
AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W,
AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W,
MA W, MB W, MC 0, BH W, ARW 0

AR2 W SS-3 4,8xL
and sealing washer $\geq \text{Ø}14$ mm

Annex 14
of European
Technical Assessment
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Materials Fastener: stainless steel – SAE 410 Washer: EPDM sealing washer with metal top made of stainless steel or aluminum Component I: S280GD, S320GD or S350GD – EN 10346 Component II: structural timber – EN 14081 Drilling capacity: $\Sigma t_i \leq 1,50$ mm Timber substructures For timber substructures performance assessed with: $M_{y,Rk} = 3,37$ Nm $f_{ax,k} = 17,396$ N/mm² for $l_{ef} \geq 20$ mm																																																																																																																																																																																																																															
<table><tr><th>$t_{N,II}$ [mm]</th><th>0,50</th><th>0,55</th><th>0,63</th><th>0,75</th><th>0,88</th><th>1,00</th><th>1,13</th><th>1,25</th><th>Wood; class $\geq$ C24</th></tr><tr><td>$M_{t,nom}$</td><td colspan="8">3 Nm</td><td>—</td></tr><tr><td rowspan="11">$V_{R,k}$ [kN] for $t_{N,I}$ [mm]</td><td>0,50</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>1,18</td></tr><tr><td>0,55</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>1,18</td></tr><tr><td>0,63</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>1,18</td></tr><tr><td>0,75</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>1,18</td></tr><tr><td>0,88</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>1,18</td></tr><tr><td>1,00</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>1,18</td></tr><tr><td>1,13</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>1,18</td></tr><tr><td>1,25</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>1,18</td></tr><tr><td>1,50</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>1,18</td></tr><tr><td>1,75</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>1,18</td></tr><tr><td>2,00</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>1,18</td></tr><tr><td rowspan="11">$N_{R,k}$ [kN] for $t_{N,I}$ [mm]</td><td>0,50</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>1,67</td></tr><tr><td>0,55</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>1,67</td></tr><tr><td>0,63</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>1,67</td></tr><tr><td>0,75</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>1,67</td></tr><tr><td>0,88</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>1,67</td></tr><tr><td>1,00</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>1,67</td></tr><tr><td>1,13</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>1,67</td></tr><tr><td>1,25</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>1,67</td></tr><tr><td>1,50</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>1,67</td></tr><tr><td>1,75</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>1,67</td></tr><tr><td>2,00</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>1,67</td></tr></table>			$t_{N,II}$ [mm]	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood; class $\geq$ C24	$M_{t,nom}$	3 Nm								—	$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—	—	1,18	0,55	—	—	—	—	—	—	—	1,18	0,63	—	—	—	—	—	—	—	1,18	0,75	—	—	—	—	—	—	—	1,18	0,88	—	—	—	—	—	—	—	1,18	1,00	—	—	—	—	—	—	—	1,18	1,13	—	—	—	—	—	—	—	1,18	1,25	—	—	—	—	—	—	—	1,18	1,50	—	—	—	—	—	—	—	1,18	1,75	—	—	—	—	—	—	—	1,18	2,00	—	—	—	—	—	—	—	1,18	$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—	—	1,67	0,55	—	—	—	—	—	—	—	1,67	0,63	—	—	—	—	—	—	—	1,67	0,75	—	—	—	—	—	—	—	1,67	0,88	—	—	—	—	—	—	—	1,67	1,00	—	—	—	—	—	—	—	1,67	1,13	—	—	—	—	—	—	—	1,67	1,25	—	—	—	—	—	—	—	1,67	1,50	—	—	—	—	—	—	—	1,67	1,75	—	—	—	—	—	—	—	1,67	2,00	—	—	—	—	—	—	—	1,67	
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Fastening screws for metal members and sheetings AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W, AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W, MA W, MB W, MC 0, BH W, ARW 0 AR2 W SS-4 4,8xL and sealing washer $\geq \varnothing 14$ mm		Annex 15 of European Technical Assessment ETA-18/0789																																																																																																																																																																																																																													

<u>Materials</u>	
Fastener:	carbon steel – SAE 1022, quenched, tempered and coated
Washer:	-
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	$\Sigma t_i \leq 3,00$ mm
<u>Timber substructures</u>	
no performance assessed	



$t_{N,II}$ [mm]	1,00	1,25	1,50	2,00	3,00	4,00	5,00	6,00	Wood; class $\geq$ C24
$M_{t, nom}$	3 Nm						—	—	
$V_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,50	1,05	1,05	1,05	1,05	—	—	—	
	0,55	1,05	1,05	1,05	1,05	—	—	—	
	0,63	1,35	1,35	1,35	1,35	—	—	—	
	0,75	2,06	2,06	2,06	2,06	—	—	—	
	0,88	2,22	2,22	2,22	2,22	—	—	—	
	1,00	2,53	2,53	2,53	2,53	—	—	—	
	1,13	2,53	2,53	2,53	—	—	—	—	
	1,25	2,53	2,66	2,66	—	—	—	—	
	1,50	2,53	2,66	3,32	—	—	—	—	
	1,75	2,53	2,66	—	—	—	—	—	
2,00	2,53	—	—	—	—	—	—		
$N_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,50	0,51	0,51	0,51	0,51	—	—	—	
	0,55	0,51	0,51	0,51	0,51	—	—	—	
	0,63	0,75	0,75	0,75	0,75	—	—	—	
	0,75	0,83	0,83	0,83	0,83	—	—	—	
	0,88	0,78	0,78	0,78	0,78	—	—	—	
	1,00	0,94	0,94	0,94	0,94	—	—	—	
	1,13	0,94	0,94	0,94	—	—	—	—	
	1,25	0,94	0,94	0,94	—	—	—	—	
	1,50	0,94	0,94	0,94	—	—	—	—	
	1,75	0,94	0,94	—	—	—	—	—	
2,00	0,94	—	—	—	—	—	—		

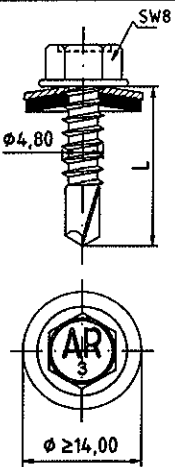
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%

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 sheetings
 AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W,
 AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W,
 MA W, MB W, MC 0, BH W, ARW 0

AR3 W CS 4,8xL, AR3 W CSG 4,8xL and AR3 W CSE 4,8xL

Annex 16
 of European
 Technical Assessment
 ETA-18/0789

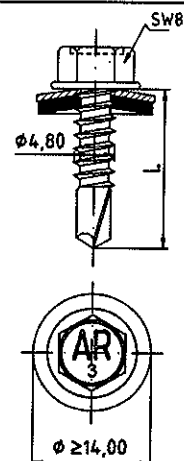
Materials Fastener: carbon steel – SAE 1022, quenched, tempered and coated Washer: EPDM sealing washer with metal top made of aluminum Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S280GD, S320GD or S350GD – EN 10346 Drilling capacity: $\Sigma t_i \leq 3,00$ mm	
Timber substructures no performance assessed	

$t_{N,II}$ [mm]	1,00	1,25	1,50	2,00	3,00	4,00	5,00	6,00	Wood; class $\geq$ C24
$M_{t,nom}$	3 Nm								
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,05	1,05	1,05	—	—	—	—	
	0,55	1,05	1,05	1,05	—	—	—	—	
	0,63	1,35	1,35	1,35	—	—	—	—	
	0,75	2,06	2,06	2,06	—	—	—	—	
	0,88	2,22	2,22	2,22	—	—	—	—	
	1,00	2,53	2,53	2,53	—	—	—	—	
	1,13	2,53	2,53	—	—	—	—	—	
	1,25	2,53	2,66	2,66	—	—	—	—	
	1,50	2,53	2,66	3,32	—	—	—	—	
	1,75	2,53	2,66	—	—	—	—	—	
	2,00	2,53	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,96	1,40	1,76	2,14	—	—	—	
	0,55	0,96	1,40	1,76	2,14	—	—	—	
	0,63	0,96	1,40	1,76	2,70	—	—	—	
	0,75	0,96	1,40	1,76	2,70	—	—	—	
	0,88	0,96	1,40	1,76	2,70	—	—	—	
	1,00	0,96	1,40	1,76	2,70	—	—	—	
	1,13	0,96	1,40	1,76	—	—	—	—	
	1,25	0,96	1,40	1,76	—	—	—	—	
	1,50	0,96	1,40	1,76	—	—	—	—	
	1,75	0,96	1,40	—	—	—	—	—	
	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 sheetings AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W, AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W, MA W, MB W, MC 0, BH W, ARW 0	Annex 17 of European Technical Assessment ETA-18/0789
AR3 W CS 4,8xL, AR3 W CSG 4,8xL and AR3 W CSE 4,8xL and sealing washer $\geq \varnothing 14$ mm	

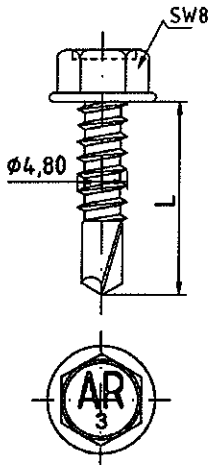
<u>Materials</u> Fastener: carbon steel – SAE 1022, quenched, tempered and coated Washer: EPDM sealing washer with metal top made of coated carbon steel Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S280GD, S320GD or S350GD – EN 10346 Drilling capacity: $\Sigma t_i \leq 3,00$ mm		
<u>Timber substructures</u> no performance assessed		

$t_{N,II}$ [mm]	1,00	1,25	1,50	2,00	3,00	4,00	5,00	6,00	Wood; class $\geq$ C24
$M_{t,nom}$	3 Nm								—
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,05	1,05	1,05	1,05	—	—	—	
	0,55	1,05	1,05	1,05	1,05	—	—	—	
	0,63	1,35	1,35	1,35	1,35	—	—	—	
	0,75	2,06	2,06	2,06	2,06	—	—	—	
	0,88	2,22	2,22	2,22	2,22	—	—	—	
	1,00	2,53	2,53	2,53	2,53	—	—	—	
	1,13	2,53	2,53	2,53	—	—	—	—	
	1,25	2,53	2,66	2,66	—	—	—	—	
	1,50	2,53	2,66	3,32	—	—	—	—	
	1,75	2,53	2,66	—	—	—	—	—	
2,00	2,53	—	—	—	—	—	—		
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,96	1,40	1,76	2,56	—	—	—	
	0,55	0,96	1,40	1,76	2,56	—	—	—	
	0,63	0,96	1,40	1,76	2,70	—	—	—	
	0,75	0,96	1,40	1,76	2,70	—	—	—	
	0,88	0,96	1,40	1,76	2,70	—	—	—	
	1,00	0,96	1,40	1,76	2,70	—	—	—	
	1,13	0,96	1,40	1,76	—	—	—	—	
	1,25	0,96	1,40	1,76	—	—	—	—	
	1,50	0,96	1,40	1,76	—	—	—	—	
	1,75	0,96	1,40	—	—	—	—	—	
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 sheetings AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W, AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W, MA W, MB W, MC 0, BH W, ARW 0	Annex 18 of European Technical Assessment ETA-18/0789
AR3 W CS 4,8xL, AR3 W CSG 4,8xL and AR3 W CSE 4,8xL and sealing washer ≥ Ø14 mm	

Materials Fastener: stainless steel – SAE 304 (bi-metal) Washer: - Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S280GD, S320GD or S350GD – EN 10346 Drilling capacity: $\Sigma t_i \leq 3,00$ mm			
Timber substructures no performance assessed			

$t_{N,II}$ [mm]	1,00	1,25	1,50	2,00	3,00	4,00	5,00	6,00	Wood; class $\geq$ C24
$M_{t,nom}$	3 Nm								—
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,05	1,05	1,05	—	—	—	—	
	0,55	1,05	1,05	1,05	—	—	—	—	
	0,63	1,34	1,34	1,34	—	—	—	—	
	0,75	2,04	2,04	2,04	—	—	—	—	
	0,88	2,20	2,20	2,20	—	—	—	—	
	1,00	2,51	2,51	2,51	—	—	—	—	
	1,13	2,51	2,51	—	—	—	—	—	
	1,25	2,51	2,65	—	—	—	—	—	
	1,50	2,51	2,65	3,29	—	—	—	—	
	1,75	2,51	2,65	—	—	—	—	—	
2,00	2,51	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,51	0,51	0,51	—	—	—	—	
	0,55	0,51	0,51	0,51	—	—	—	—	
	0,63	0,75	0,75	0,75	—	—	—	—	
	0,75	0,83	0,83	0,83	—	—	—	—	
	0,88	0,78	0,78	0,78	—	—	—	—	
	1,00	0,94	0,94	0,94	—	—	—	—	
	1,13	0,94	0,94	—	—	—	—	—	
	1,25	0,94	0,94	—	—	—	—	—	
	1,50	0,94	0,94	—	—	—	—	—	
	1,75	0,94	0,94	—	—	—	—	—	
2,00	0,94	—	—	—	—	—	—	—	

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%

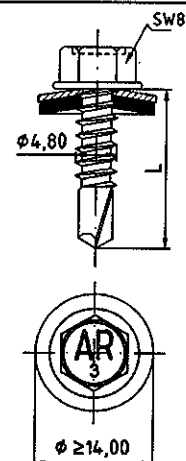
Fastening screws for metal members and sheetings AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W, AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W, MA W, MB W, MC 0, BH W, ARW 0	Annex 19 of European Technical Assessment ETA-18/0789
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AR3 W SS 4,8xL

<u>Materials</u>	
Fastener:	stainless steel – SAE 304 (bi-metal)
Washer:	EPDM sealing washer with metal top made of aluminum
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	$\Sigma t_i \leq 3,00$ mm

Timber substructures

no performance assessed



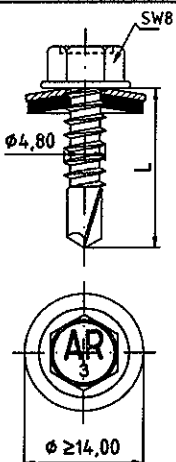
$t_{N,II}$ [mm]	1,00	1,25	1,50	2,00	3,00	4,00	5,00	6,00	Wood; class $\geq$ C24
$M_{I,nom}$	3 Nm								
$V_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,50	1,05	1,05	1,05	1,05	—	—	—	
	0,55	1,05	1,05	1,05	1,05	—	—	—	
	0,63	1,34	1,34	1,34	1,34	—	—	—	
	0,75	2,04	2,04	2,04	2,04	—	—	—	
	0,88	2,20	2,20	2,20	2,20	—	—	—	
	1,00	2,51	2,51	2,51	2,51	—	—	—	
	1,13	2,51	2,51	2,51	—	—	—	—	
	1,25	2,51	2,65	2,65	—	—	—	—	
	1,50	2,51	2,65	3,29	—	—	—	—	
	1,75	2,51	2,65	—	—	—	—	—	
2,00	2,51	—	—	—	—	—	—		
$N_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,50	1,00	1,23	1,65	2,14	—	—	—	
	0,55	1,00	1,23	1,65	2,44	—	—	—	
	0,63	1,00	1,23	1,65	2,44	—	—	—	
	0,75	1,00	1,23	1,65	2,44	—	—	—	
	0,88	1,00	1,23	1,65	2,44	—	—	—	
	1,00	1,00	1,23	1,65	2,44	—	—	—	
	1,13	1,00	1,23	1,65	—	—	—	—	
	1,25	1,00	1,23	1,65	—	—	—	—	
	1,50	1,00	1,23	1,65	—	—	—	—	
	1,75	1,00	1,23	—	—	—	—	—	
2,00	1,00	—	—	—	—	—	—		

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 sheetings
AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W,
AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W,
MA W, MB W, MC 0, BH W, ARW 0

AR3 W SS 4,8xL
 and sealing washer $\geq \varnothing 14$ mm

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Materials Fastener: stainless steel – SAE 304 (bi-metal) Washer: EPDM sealing washer with metal top made of stainless steel Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S280GD, S320GD or S350GD – EN 10346 Drilling capacity: $\Sigma t_i \leq 3,00$ mm		
Timber substructures no performance assessed		

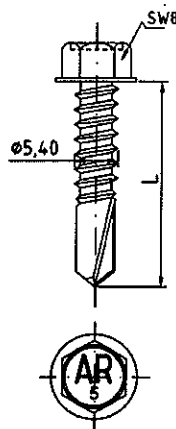
$t_{N,II}$ [mm]	1,00	1,25	1,50	2,00	3,00	4,00	5,00	6,00	Wood; class $\geq$ C24	
$M_{t,nom}$	3 Nm								—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,05	1,05	1,05	—	—	—	—		
	0,55	1,05	1,05	1,05	—	—	—	—		
	0,63	1,34	1,34	1,34	—	—	—	—		
	0,75	2,04	2,04	2,04	—	—	—	—		
	0,88	2,20	2,20	2,20	—	—	—	—		
	1,00	2,51	2,51	2,51	—	—	—	—		
	1,13	2,51	2,51	2,51	—	—	—	—		
	1,25	2,51	2,65	2,65	—	—	—	—		
	1,50	2,51	2,65	3,29	—	—	—	—		
	1,75	2,51	2,65	—	—	—	—	—		
	2,00	2,51	—	—	—	—	—	—		
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,00	1,23	1,65	2,44	—	—	—		
	0,55	1,00	1,23	1,65	2,44	—	—	—		
	0,63	1,00	1,23	1,65	2,44	—	—	—		
	0,75	1,00	1,23	1,65	2,44	—	—	—		
	0,88	1,00	1,23	1,65	2,44	—	—	—		
	1,00	1,00	1,23	1,65	2,44	—	—	—		
	1,13	1,00	1,23	1,65	—	—	—	—		
	1,25	1,00	1,23	1,65	—	—	—	—		
	1,50	1,00	1,23	1,65	—	—	—	—		
	1,75	1,00	1,23	—	—	—	—	—		
		2,00	1,00	—	—	—	—	—		—

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 sheetings AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W, AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W, MA W, MB W, MC 0, BH W, ARW 0 AR3 W SS 4,8xL and sealing washer $\geq \varnothing 14$ mm	Annex 21 of European Technical Assessment ETA-18/0789
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<u>Materials</u>	
Fastener:	carbon steel – SAE 1022, quenched, tempered and coated
Washer:	~
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235JR – EN 10025-1 for $t_{N,II} \geq 3$ mm or S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	$\Sigma t_i \leq 5,00$ mm
<u>Timber substructures</u>	
no performance assessed	



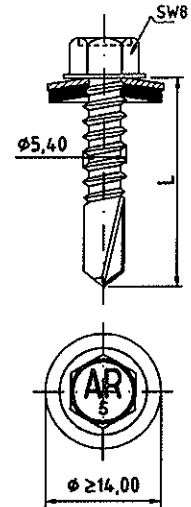
Technical drawing of a fastener assembly. The drawing shows a side view of a screw with a washer and a conical base. The diameter of the screw is labeled as $\phi 5,40$. The length of the screw is labeled as 5.40. The washer is labeled as SW8. The conical base is shown in a cross-section view at the bottom, with the text 'AR 5' inside a circle.

$t_{N,II}$ [mm]	1,50	2,00	3,00	4,00	5,00	6,00	8,00	10,00	Wood; class $\geq$ C24
$M_{t,nom}$	5 Nm								
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,23	1,23	1,23	—	—	—	—	
	0,55	1,23	1,23	1,23	—	—	—	—	
	0,63	1,56	1,56	1,56	—	—	—	—	
	0,75	1,66	1,66	1,66	—	—	—	—	
	0,88	2,01	2,01	2,01	—	—	—	—	
	1,00	2,30	2,30	2,30	—	—	—	—	
	1,13	2,30	2,30	2,30	—	—	—	—	
	1,25	3,30	3,30	3,30	—	—	—	—	
	1,50	3,30	3,30	3,30	—	—	—	—	
	1,75	3,30	3,30	3,30	—	—	—	—	
	2,00	3,30	3,30	3,30	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,61	0,61	0,61	—	—	—	—	
	0,55	0,61	0,61	0,61	—	—	—	—	
	0,63	0,89	0,89	0,89	—	—	—	—	
	0,75	0,99	0,99	0,99	—	—	—	—	
	0,88	0,99	0,99	0,99	—	—	—	—	
	1,00	1,12	1,12	1,12	—	—	—	—	
	1,13	1,12	1,12	1,12	—	—	—	—	
	1,25	1,12	1,12	1,12	—	—	—	—	
	1,50	1,12	1,12	1,12	—	—	—	—	
	1,75	1,12	1,12	—	—	—	—	—	
	2,00	1,12	—	—	—	—	—	—	

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 sheetings AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W, AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W, MA W, MB W, MC 0, BH W, ARW 0	Annex 22 of European Technical Assessment ETA-18/0789
AR5 W CS 5,5xL, AR5 W CSG 5,5xL and AR5 W CSE 5,5xL	

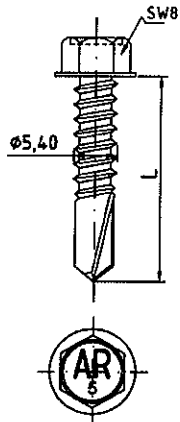
Materials Fastener: carbon steel – SAE 1022, quenched, tempered and coated Washer: EPDM sealing washer with metal top made of coated carbon steel or aluminum Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S235JR – EN 10025-1 for $t_{N,II} \geq 3$ mm or S280GD, S320GD or S350GD – EN 10346 Drilling capacity: $\Sigma t_i \leq 5,00$ mm	
Timber substructures no performance assessed	

$t_{N,II}$ [mm]	1,00	1,13	1,25	1,50	2,00	2,50	3,00	4,00	Wood; class $\geq$ C24
$M_{t,nom}$	5 Nm								
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,92	0,92	0,92	0,92	0,92	0,92	0,92	
	0,55	0,92	0,92	0,92	0,92	0,92	0,92	0,92	
	0,63	1,08	1,08	1,08	1,08	1,08	1,08	1,08	
	0,75	1,15	1,15	1,15	1,15	1,15	1,15	1,15	
	0,88	1,40	1,40	1,40	1,40	1,40	1,40	1,40	
	1,00	1,68	1,68	1,68	1,68	1,68	1,68	1,68	
	1,13	—	1,68	1,68	1,68	1,68	1,68	—	
	1,25	—	—	2,26	2,26	2,26	2,26	—	
	1,50	—	—	—	2,88	2,88	2,88	—	
	2,00	—	—	—	—	3,65	3,65	—	
2,50	—	—	—	—	—	3,65	—		
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,96	0,96	1,37	1,49	2,33	2,33	2,53	
	0,55	0,96	0,96	1,37	1,49	2,33	2,33	2,53	
	0,63	0,96	0,96	1,37	1,49	2,33	2,33	3,56	
	0,75	0,96	0,96	1,37	1,49	2,33	2,33	4,09	
	0,88	0,96	0,96	1,37	1,49	2,33	2,33	4,10	
	1,00	0,96	0,96	1,37	1,49	2,33	2,33	4,66	
	1,13	—	0,96	1,37	1,49	2,33	2,33	4,66	
	1,25	—	—	1,37	1,49	2,33	2,33	4,66	
	1,50	—	—	—	1,49	2,33	2,33	4,66	
	2,00	—	—	—	—	2,33	2,33	5,49	
	2,50	—	—	—	—	—	2,33	—	
	2,50	—	—	—	—	—	—	—	

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 sheetings AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W, AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W, MA W, MB W, MC 0, BH W, ARW 0	Annex 23 of European Technical Assessment ETA-18/0789
AR5 W CS 5,5xL, AR5 W CSG 5,5xL and AR5 W CSE 5,5xL and sealing washer $\geq \varnothing 14$ mm	

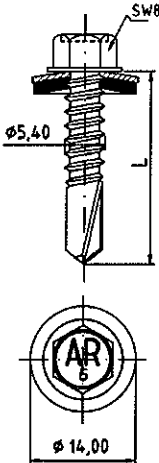
Materials Fastener: stainless steel – SAE 304 (bi-metal) Washer: - Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S235JR – EN 10025-1 for $t_{N,II} \geq 3$ mm or S280GD, S320GD or S350GD – EN 10346 Drilling capacity: $\Sigma t_i \leq 5,00$ mm	
Timber substructures no performance assessed	

$t_{N,II}$ [mm]	1,50	2,00	3,00	4,00	5,00	6,00	8,00	10,00	Wood; class $\geq$ C24
$M_{t,nom}$	3 Nm								
$V_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,50	1,23	1,23	1,23	1,23	—	—	—	
	0,55	1,23	1,23	1,23	1,23	—	—	—	
	0,63	1,56	1,56	1,56	1,56	—	—	—	
	0,75	1,66	1,66	1,66	1,66	—	—	—	
	0,88	2,01	2,01	2,01	2,01	—	—	—	
	1,00	2,30	2,30	2,30	2,30	—	—	—	
	1,13	2,30	2,30	2,30	—	—	—	—	
	1,25	3,30	3,30	3,30	—	—	—	—	
	1,50	3,30	3,30	3,30	—	—	—	—	
	1,75	3,30	3,30	3,30	—	—	—	—	
	2,00	3,30	3,30	3,30	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,50	0,61	0,61	0,61	0,61	—	—	—	
	0,55	0,61	0,61	0,61	0,61	—	—	—	
	0,63	0,89	0,89	0,89	0,89	—	—	—	
	0,75	0,99	0,99	0,99	0,99	—	—	—	
	0,88	0,99	0,99	0,99	0,99	—	—	—	
	1,00	1,12	1,12	1,12	1,12	—	—	—	
	1,13	1,12	1,12	1,12	—	—	—	—	
	1,25	1,12	1,12	1,12	—	—	—	—	
	1,50	1,12	1,12	1,12	—	—	—	—	
	1,75	1,12	1,12	1,12	—	—	—	—	
	2,00	1,12	1,12	1,12	—	—	—	—	

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 sheetings AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W, AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W, MA W, MB W, MC 0, BH W, ARW 0	Annex 24 of European Technical Assessment ETA-18/0789
AR5 W SS 5,5xL	

Materials Fastener: stainless steel – SAE 304 (bi-metal) Washer: EPDM sealing washer with metal top made of aluminum Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S235JR – EN 10025-1 for $t_{N,II} \geq 3$ mm or S280GD, S320GD or S350GD – EN 10346 Drilling capacity: $\Sigma t_i \leq 5,00$ mm	
Timber substructures no performance assessed	

$t_{N,II}$ [mm]	1,50	2,00	3,00	4,00	5,00	6,00	8,00	10,00	: Wood; class $\geq$ C24
$M_{t,nom}$	3 Nm								
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,23	1,23	1,23	—	—	—	—	
	0,55	1,23	1,23	1,23	—	—	—	—	
	0,63	1,56	1,56	1,56	—	—	—	—	
	0,75	1,66	1,66	1,66	—	—	—	—	
	0,88	2,01	2,01	2,01	—	—	—	—	
	1,00	2,30	2,30	2,30	—	—	—	—	
	1,13	2,30	2,30	2,30	—	—	—	—	
	1,25	3,30	3,30	3,30	—	—	—	—	
	1,50	3,30	3,30	3,30	—	—	—	—	
	1,75	3,30	3,30	3,30	—	—	—	—	
2,00	3,30	3,30	3,30	—	—	—	—		
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,68	2,14	2,14	—	—	—	—	
	0,55	1,68	2,48	2,14	—	—	—	—	
	0,63	1,68	2,48	2,86	—	—	—	—	
	0,75	1,68	2,48	3,35	—	—	—	—	
	0,88	1,68	2,48	3,46	—	—	—	—	
	1,00	1,68	2,48	3,97	—	—	—	—	
	1,13	1,68	2,48	3,97	—	—	—	—	
	1,25	1,68	2,48	3,97	—	—	—	—	
	1,50	1,68	2,48	3,97	—	—	—	—	
	1,75	1,68	2,48	3,97	—	—	—	—	
2,00	1,68	2,48	3,97	—	—	—	—		

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

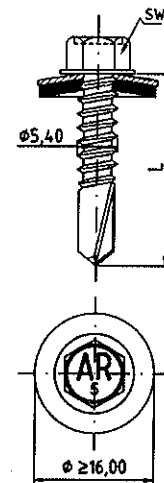
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Fastening screws for metal members and sheetings AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W, AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W, MA W, MB W, MC 0, BH W, ARW 0	Annex 25 of European Technical Assessment ETA-18/0789
AR5 W SS 5,5xL and sealing washer $\varnothing 14$ mm	

Materials	
Fastener:	stainless steel – SAE 304 (bi-metal)
Washer:	EPDM sealing washer with metal top made of aluminum
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235JR – EN 10025-1 for $t_{N,II} \geq 3$ mm or S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	$\Sigma t_i \leq 5,00$ mm

Timber substructures

no performance assessed



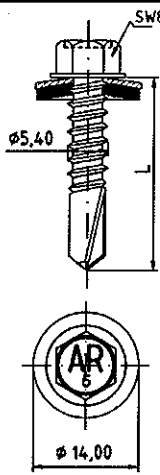
$t_{N,II}$ [mm]	1,50	2,00	3,00	4,00	5,00	6,00	8,00	10,00	Wood; class $\geq$ C24	
$M_{t,nom}$	3 Nm									
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,23	1,23	1,23	—	—	—	—		
	0,55	1,23	1,23	1,23	—	—	—	—		
	0,63	1,56	1,56	1,56	—	—	—	—		
	0,75	1,66	1,66	1,66	—	—	—	—		
	0,88	2,01	2,01	2,01	—	—	—	—		
	1,00	2,30	2,30	2,30	—	—	—	—		
	1,13	2,30	2,30	2,30	—	—	—	—		
	1,25	3,30	3,30	3,30	—	—	—	—		
	1,50	3,30	3,30	3,30	—	—	—	—		
	1,75	3,30	3,30	3,30	—	—	—	—		
2,00	3,30	3,30	3,30	—	—	—	—			
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,68	2,48	3,08	3,08	—	—	—	—	
	0,55	1,68	2,48	3,08	3,08	—	—	—	—	
	0,63	1,68	2,48	3,52	3,52	—	—	—	—	
	0,75	1,68	2,48	4,06	4,06	—	—	—	—	
	0,88	1,68	2,48	4,07	4,07	—	—	—	—	
	1,00	1,68	2,48	4,63	4,63	—	—	—	—	
	1,13	1,68	2,48	4,63	—	—	—	—	—	
	1,25	1,68	2,48	4,63	—	—	—	—	—	
	1,50	1,68	2,48	4,63	—	—	—	—	—	
	1,75	1,68	2,48	4,63	—	—	—	—	—	
	2,00	1,68	2,48	4,63	—	—	—	—	—	

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 sheetings
AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W,
AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W,
MA W, MB W, MC 0, BH W, ARW 0

AR5 W SS 5,5xL
 and sealing washer $\geq \varnothing 16$ mm

Annex 26
 of European
 Technical Assessment
 ETA-18/0789

Materials Fastener: stainless steel – SAE 304 (bi-metal) Washer: EPDM sealing washer with metal top made of stainless steel Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S235JR – EN 10025-1 for $t_{N,II} \geq 3$ mm or S280GD, S320GD or S350GD – EN 10346 Drilling capacity: $\Sigma t_i \leq 5,00$ mm			
Timber substructures no performance assessed			

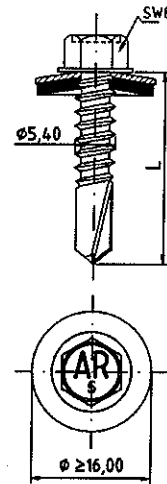
$t_{N,II}$ [mm]	1,50	2,00	3,00	4,00	5,00	6,00	8,00	10,00	Wood; class $\geq$ C24
$M_{t,nom}$	3 Nm								
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,23	1,23	1,23	—	—	—	—	
	0,55	1,23	1,23	1,23	—	—	—	—	
	0,63	1,56	1,56	1,56	—	—	—	—	
	0,75	1,66	1,66	1,66	—	—	—	—	
	0,88	2,01	2,01	2,01	—	—	—	—	
	1,00	2,30	2,30	2,30	—	—	—	—	
	1,13	2,30	2,30	—	—	—	—	—	
	1,25	3,30	3,30	—	—	—	—	—	
	1,50	3,30	3,30	—	—	—	—	—	
	1,75	3,30	3,30	—	—	—	—	—	
2,00	3,30	3,30	—	—	—	—	—		
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,68	2,48	2,56	—	—	—	—	
	0,55	1,68	2,48	2,56	—	—	—	—	
	0,63	1,68	2,48	3,49	—	—	—	—	
	0,75	1,68	2,48	4,02	—	—	—	—	
	0,88	1,68	2,48	4,03	—	—	—	—	
	1,00	1,68	2,48	4,58	—	—	—	—	
	1,13	1,68	2,48	4,58	—	—	—	—	
	1,25	1,68	2,48	4,58	—	—	—	—	
	1,50	1,68	2,48	4,58	—	—	—	—	
	1,75	1,68	2,48	4,58	—	—	—	—	
	2,00	1,68	2,48	4,58	—	—	—	—	

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 sheetings AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W, AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W, MA W, MB W, MC 0, BH W, ARW 0	Annex 27 of European Technical Assessment ETA-18/0789
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AR5 W SS 5,5xL and sealing washer Ø14 mm

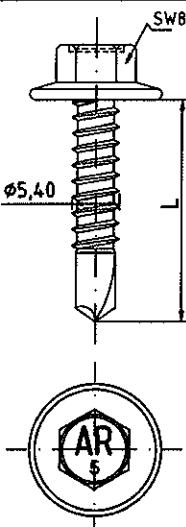
Materials Fastener: stainless steel – SAE 304 (bi-metal) Washer: EPDM sealing washer with metal top made of stainless steel Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S235JR – EN 10025-1 for $t_{N,II} \geq 3$ mm or S280GD, S320GD or S350GD – EN 10346 Drilling capacity: $\sum t_i \leq 5,00$ mm	
Timber substructures no performance assessed	

$t_{N,II}$ [mm]	1,50	2,00	3,00	4,00	5,00	6,00	8,00	10,00	Wood; class $\geq$ C24
$M_{t,nom}$	3 Nm								—
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,23	1,23	1,23	—	—	—	—	
	0,55	1,23	1,23	1,23	—	—	—	—	
	0,63	1,56	1,56	1,56	—	—	—	—	
	0,75	1,66	1,66	1,66	—	—	—	—	
	0,88	2,01	2,01	2,01	—	—	—	—	
	1,00	2,30	2,30	2,30	—	—	—	—	
	1,13	2,30	2,30	—	—	—	—	—	
	1,25	3,30	3,30	—	—	—	—	—	
	1,50	3,30	3,30	—	—	—	—	—	
	1,75	3,30	3,30	—	—	—	—	—	
	2,00	3,30	3,30	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,68	2,48	3,23	—	—	—	—	
	0,55	1,68	2,48	3,23	—	—	—	—	
	0,63	1,68	2,48	3,64	—	—	—	—	
	0,75	1,68	2,48	4,70	—	—	—	—	
	0,88	1,68	2,48	5,07	—	—	—	—	
	1,00	1,68	2,48	5,07	—	—	—	—	
	1,13	1,68	2,48	5,07	—	—	—	—	
	1,25	1,68	2,48	5,07	—	—	—	—	
	1,50	1,68	2,48	5,07	—	—	—	—	
	1,75	1,68	2,48	5,07	—	—	—	—	
	2,00	1,68	2,48	5,07	—	—	—	—	

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 sheetings AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W, AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W, MA W, MB W, MC 0, BH W, ARW 0	Annex 28 of European Technical Assessment ETA-18/0789
AR5 W SS 5,5xL and sealing washer $\geq \varnothing 16$ mm	

Materials Fastener: carbon steel – SAE 1022, quenched, tempered and coated Washer: - Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S235JR – EN 10025-1 for $t_{N,II} \geq 3$ mm or S280GD, S320GD or S350GD – EN 10346	
Drilling capacity: $\Sigma t_i \leq 5,00$ mm	
Timber substructures no performance assessed	

$t_{N,II}$ [mm]	1,50	2,00	3,00	4,00	5,00	6,00	8,00	10,00	Wood; class $\geq$ C24
$M_{t,nom}$	5 Nm							—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,23	1,23	1,23	—	—	—	—	
	0,55	1,23	1,23	1,23	—	—	—	—	
	0,63	1,56	1,56	1,56	—	—	—	—	
	0,75	1,66	1,66	1,66	—	—	—	—	
	0,88	2,01	2,01	2,01	—	—	—	—	
	1,00	2,30	2,30	2,30	—	—	—	—	
	1,13	2,30	2,30	—	—	—	—	—	
	1,25	3,30	3,30	—	—	—	—	—	
	1,50	3,30	3,30	—	—	—	—	—	
	1,75	3,30	3,30	—	—	—	—	—	
2,00	3,30	3,30	—	—	—	—	—		
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,25	1,80	2,69	—	—	—	—	
	0,55	1,25	1,80	2,69	—	—	—	—	
	0,63	1,25	1,80	3,33	—	—	—	—	
	0,75	1,25	1,80	3,33	—	—	—	—	
	0,88	1,25	1,80	3,33	—	—	—	—	
	1,00	1,25	1,80	3,33	—	—	—	—	
	1,13	1,25	1,80	3,33	—	—	—	—	
	1,25	1,25	1,80	3,33	—	—	—	—	
	1,50	1,25	1,80	3,33	—	—	—	—	
	1,75	1,25	1,80	—	—	—	—	—	
2,00	1,25	—	—	—	—	—	—		

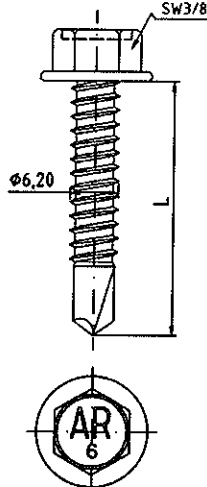
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%

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 sheetings
AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W,
AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W,
MA W, MB W, MC 0, BH W, ARW 0

AR5 PZ W CS 5,5xL, AR5 PZ W CSG 5,5xL
and AR5 PZ W CSE 5,5xL

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of European
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Materials Fastener: carbon steel – SAE 1022, quenched, tempered and coated Washer: – Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S235JR – EN 10025-1 or S280GD, S320GD or S350GD – EN 10346 Drilling capacity: $\Sigma t_i \leq 6,00$ mm	
Timber substructures no performance assessed	

$t_{N,II}$ [mm]	3,00	4,00	5,00	6,00	8,00	10,00	12,00	14,00	Wood; class $\geq$ C24
$M_{t,nom}$	6 Nm								
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,30	1,30	1,30	—	—	—	—	
	0,55	1,30	1,30	1,30	—	—	—	—	
	0,63	1,44	1,44	1,44	—	—	—	—	
	0,75	2,01	2,01	2,01	—	—	—	—	
	0,88	2,40	2,40	2,40	—	—	—	—	
	1,00	2,91	2,91	2,91	—	—	—	—	
	1,13	2,91	2,91	—	—	—	—	—	
	1,25	2,91	2,91	—	—	—	—	—	
	1,50	2,91	2,91	—	—	—	—	—	
	1,75	2,91	2,91	—	—	—	—	—	
	2,00	2,91	2,91	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,72	0,72	0,72	—	—	—	—	
	0,55	0,72	0,72	0,72	—	—	—	—	
	0,63	1,05	1,05	1,05	—	—	—	—	
	0,75	1,15	1,15	1,15	—	—	—	—	
	0,88	1,16	1,16	1,16	—	—	—	—	
	1,00	1,32	1,32	1,32	—	—	—	—	
	1,13	1,32	1,32	—	—	—	—	—	
	1,25	1,32	1,32	—	—	—	—	—	
	1,50	1,32	1,32	—	—	—	—	—	
	1,75	1,32	1,32	—	—	—	—	—	
	2,00	1,32	1,32	—	—	—	—	—	

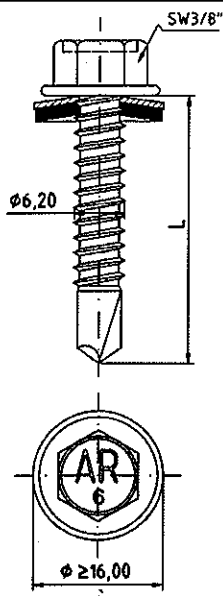
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%

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 sheetings
AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W,
AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W,
MA W, MB W, MC 0, BH W, ARW 0

AR6 W CS 6,3xL, AR6 W CSG 6,3xL and AR6 W CSE 6,3xL

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Materials Fastener: carbon steel – SAE 1022, quenched, tempered and coated Washer: EPDM sealing washer with metal top made of aluminum Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S235JR – EN 10025-1 or S280GD, S320GD or S350GD – EN 10346 Drilling capacity: $\Sigma t_i \leq 6,00$ mm	
Timber substructures no performance assessed	

$t_{n,II}$ [mm]	3,00	4,00	5,00	6,00	8,00	10,00	12,00	14,00	Wood; class $\geq$ C24
$M_{t,nom}$	6 Nm								
$V_{R,k}$ [kN] for $t_{n,I}$ [mm]	0,50	1,30	1,30	1,30	—	—	—	—	
	0,55	1,30	1,30	1,30	—	—	—	—	
	0,63	1,44	1,44	1,44	—	—	—	—	
	0,75	2,01	2,01	2,01	—	—	—	—	
	0,88	2,40	2,40	2,40	—	—	—	—	
	1,00	2,91	2,91	2,91	—	—	—	—	
	1,13	2,91	2,91	—	—	—	—	—	
	1,25	2,91	2,91	—	—	—	—	—	
	1,50	2,91	2,91	—	—	—	—	—	
	1,75	2,91	2,91	—	—	—	—	—	
	2,00	2,91	2,91	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{n,I}$ [mm]	0,50	3,08	3,08	3,08	—	—	—	—	
	0,55	3,08	3,08	3,08	—	—	—	—	
	0,63	3,52	3,52	3,52	—	—	—	—	
	0,75	4,06	4,06	4,06	—	—	—	—	
	0,88	4,07	4,07	4,07	—	—	—	—	
	1,00	4,63	4,63	4,63	—	—	—	—	
	1,13	4,63	4,63	—	—	—	—	—	
	1,25	4,63	4,63	—	—	—	—	—	
	1,50	4,63	4,63	—	—	—	—	—	
	1,75	4,63	4,63	—	—	—	—	—	
	2,00	4,63	4,63	—	—	—	—	—	

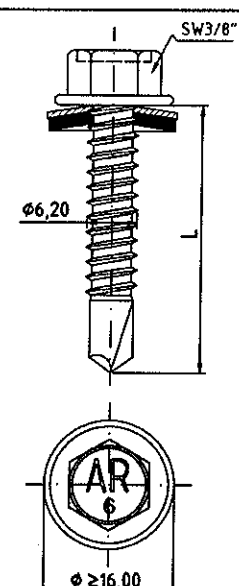
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%

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 sheetings
AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W,
AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W,
MA W, MB W, MC 0, BH W, ARW 0

AR6 W CS 6,3xL, AR6 W CSG 6,3xL and AR6 W CSE 6,3xL
 and sealing washer $\geq \varnothing 16$ mm

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Materials Fastener: carbon steel – SAE 1022, quenched, tempered and coated Washer: EPDM sealing washer with metal top made of coated carbon steel Component I: S235JR – EN 10025-1 or S280GD, S320GD or S350GD – EN 10346 Component II: S280GD, S320GD or S350GD – EN 10346 Drilling capacity: $\Sigma t_i \leq 6,00$ mm Timber substructures no performance assessed	
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$t_{N,II}$ [mm]	3,00	4,00	5,00	6,00	8,00	10,00	12,00	14,00	Wood; class $\geq$ C24
$M_{t, nom}$	6 Nm								
$V_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,50	1,30	1,30	1,30	—	—	—	—	
	0,55	1,30	1,30	1,30	—	—	—	—	
	0,63	1,44	1,44	1,44	—	—	—	—	
	0,75	2,01	2,01	2,01	—	—	—	—	
	0,88	2,40	2,40	2,40	—	—	—	—	
	1,00	2,91	2,91	2,91	—	—	—	—	
	1,13	2,91	2,91	—	—	—	—	—	
	1,25	2,91	2,91	—	—	—	—	—	
	1,50	2,91	2,91	—	—	—	—	—	
	1,75	2,91	2,91	—	—	—	—	—	
	2,00	2,91	2,91	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,50	3,23	3,23	3,23	—	—	—	—	
	0,55	3,23	3,23	3,23	—	—	—	—	
	0,63	3,64	3,64	3,64	—	—	—	—	
	0,75	4,70	4,70	4,70	—	—	—	—	
	0,88	4,74	5,35	5,35	—	—	—	—	
	1,00	4,74	6,48	6,48	—	—	—	—	
	1,13	4,74	6,48	—	—	—	—	—	
	1,25	4,74	6,48	—	—	—	—	—	
	1,50	4,74	6,48	—	—	—	—	—	
	1,75	4,74	6,48	—	—	—	—	—	
	2,00	4,74	6,48	—	—	—	—	—	

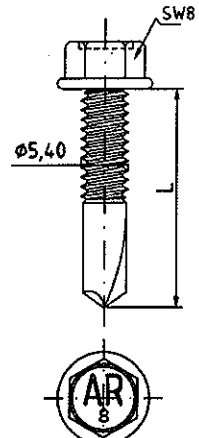
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%

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 sheetings
AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W,
AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W,
MA W, MB W, MC 0, BH W, ARW 0

AR6 W CS 6,3xL, AR6 W CSG 6,3xL and AR6 W CSE 6,3xL
 and sealing washer $\geq \varnothing 16$ mm

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 of European
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Materials Fastener: carbon steel – SAE 1022, quenched, tempered and coated Washer: - Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S235JR – EN 10025-1 for $t_{N,II} \geq 3$ mm or S280GD, S320GD or S350GD – EN 10346 Drilling capacity: $\Sigma t_i \leq 8,00$ mm	
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	Wood; class $\geq$ C24
$M_{t,nom}$	5 Nm								
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,27	1,27	1,27	1,27	—	—	—	
	0,55	1,27	1,27	1,27	1,27	—	—	—	
	0,63	1,61	1,61	1,61	1,61	—	—	—	
	0,75	1,71	1,71	1,71	1,71	—	—	—	
	0,88	2,07	2,07	2,07	2,07	—	—	—	
	1,00	2,37	2,37	2,37	2,37	—	—	—	
	1,13	2,37	2,37	2,37	2,37	—	—	—	
	1,25	2,37	2,37	2,37	2,37	—	—	—	
	1,50	2,37	2,37	2,37	2,37	—	—	—	
	1,75	2,37	2,37	2,37	2,37	—	—	—	
	2,00	2,37	2,37	2,37	2,37	—	—	—	
$N_{R,k}$ [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	—	—	—	
	0,63	0,89	0,89	0,89	0,89	—	—	—	
	0,75	0,99	0,99	0,99	0,99	—	—	—	
	0,88	0,99	0,99	0,99	0,99	—	—	—	
	1,00	1,12	1,12	1,12	1,12	—	—	—	
	1,13	1,12	1,12	1,12	1,12	—	—	—	
	1,25	1,12	1,12	1,12	1,12	—	—	—	
	1,50	1,12	1,12	1,12	1,12	—	—	—	
	1,75	1,12	1,12	1,12	1,12	—	—	—	
	2,00	1,12	1,12	1,12	1,12	—	—	—	

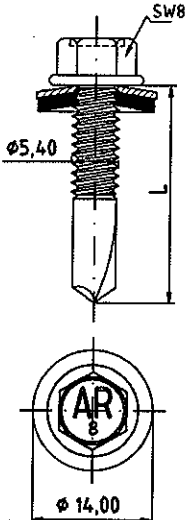
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%

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 sheetings
AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W,
AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W,
MA W, MB W, MC 0, BH W, ARW 0

AR8 W CS 5,5xL, AR8 W CSG 5,5xL and AR8 W CSE 5,5xL

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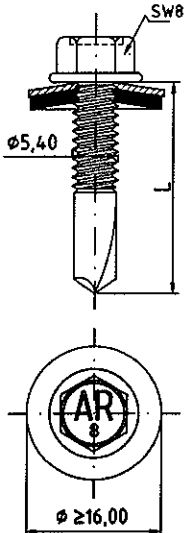
Materials Fastener: carbon steel – SAE 1022, quenched, tempered and coated Washer: EPDM sealing washer with metal top made of aluminum Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S235JR – EN 10025-1 for $t_{N,II} \geq 3$ mm or S280GD, S320GD or S350GD – EN 10346 Drilling capacity: $\Sigma t_i \leq 8,00$ mm Timber substructures no performance assessed	
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$t_{N,II}$ [mm]	2,00	3,00	4,00	5,00	6,00	8,00	10,00	12,00	Wood; class $\geq$ C24
$M_{t,nom}$	5 Nm								
$V_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,50	1,27	1,27	1,27	1,27	—	—	—	
	0,55	1,27	1,27	1,27	1,27	—	—	—	
	0,63	1,61	1,61	1,61	1,61	—	—	—	
	0,75	1,71	1,71	1,71	1,71	—	—	—	
	0,88	2,07	2,07	2,07	2,07	—	—	—	
	1,00	2,37	2,37	2,37	2,37	—	—	—	
	1,13	2,37	2,37	2,37	2,37	—	—	—	
	1,25	2,37	2,37	2,37	2,37	—	—	—	
	1,50	2,37	2,37	2,37	2,37	—	—	—	
	1,75	2,37	2,37	2,37	2,37	—	—	—	
	2,00	2,37	2,37	2,37	2,37	—	—	—	
$N_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,50	1,64	2,14	2,14	2,14	—	—	—	
	0,55	1,64	2,14	2,14	2,14	—	—	—	
	0,63	1,64	2,86	2,86	2,86	—	—	—	
	0,75	1,64	2,87	3,35	3,35	—	—	—	
	0,88	1,64	2,87	3,46	3,46	—	—	—	
	1,00	1,64	2,87	3,97	3,97	—	—	—	
	1,13	1,64	2,87	3,97	3,97	—	—	—	
	1,25	1,64	2,87	3,97	3,97	—	—	—	
	1,50	1,64	2,87	3,97	3,97	—	—	—	
	1,75	1,64	2,87	3,97	3,97	—	—	—	
	2,00	1,64	2,87	3,97	3,97	—	—	—	

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 sheetings AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W, AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W, MA W, MB W, MC 0, BH W, ARW 0	Annex 34 of European Technical Assessment ETA-18/0789
AR8 W CS 5,5xL, AR8 W CSG 5,5xL and AR8 W CSE 5,5xL and sealing washer $\varnothing 14$ mm	

Materials Fastener: carbon steel – SAE 1022, quenched, tempered and coated Washer: EPDM sealing washer with metal top made of aluminum Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S235JR – EN 10025-1 for $t_{N,II} \geq 3$ mm or S280GD, S320GD or S350GD – EN 10346 Drilling capacity: $\sum t_i \leq 8,00$ mm Timber substructures no performance assessed	
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$t_{N,II}$ [mm]	2,00	3,00	4,00	5,00	6,00	8,00	10,00	12,00	Wood; class $\geq$ C24
$M_{t,nom}$	5 Nm								
$V_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,50	1,27	1,27	1,27	1,27	1,27	—	—	
	0,55	1,27	1,27	1,27	1,27	1,27	—	—	
	0,63	1,61	1,61	1,61	1,61	1,61	—	—	
	0,75	1,71	1,71	1,71	1,71	1,71	—	—	
	0,88	2,07	2,07	2,07	2,07	2,07	—	—	
	1,00	2,37	2,37	2,37	2,37	2,37	—	—	
	1,13	2,37	2,37	2,37	2,37	2,37	—	—	
	1,25	2,37	2,37	2,37	2,37	2,37	—	—	
	1,50	2,37	2,37	2,37	2,37	2,37	—	—	
	1,75	2,37	2,37	2,37	2,37	2,37	—	—	
	2,00	2,37	2,37	2,37	2,37	2,37	—	—	
$N_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,50	1,64	2,87	3,08	3,08	3,08	—	—	
	0,55	1,64	2,87	3,08	3,08	3,08	—	—	
	0,63	1,64	2,87	3,52	3,52	3,52	—	—	
	0,75	1,64	2,87	4,06	4,06	4,06	—	—	
	0,88	1,64	2,87	4,07	4,07	4,07	—	—	
	1,00	1,64	2,87	4,63	4,63	4,63	—	—	
	1,13	1,64	2,87	4,63	4,63	4,63	—	—	
	1,25	1,64	2,87	4,63	4,63	4,63	—	—	
	1,50	1,64	2,87	4,63	4,63	4,63	—	—	
	1,75	1,64	2,87	4,63	4,63	4,63	—	—	
	2,00	1,64	2,87	4,63	4,63	4,63	—	—	

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 sheetings
AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W,
AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W,
MA W, MB W, MC 0, BH W, ARW 0

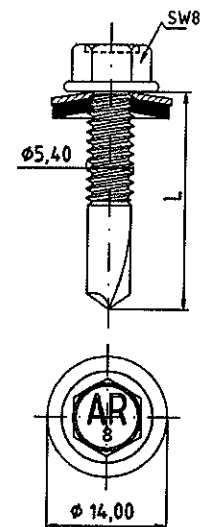
AR8 W CS 5,5xL, AR8 W CSG 5,5xL and AR8 W CSE 5,5xL
 and sealing washer $\geq \varnothing 16$ mm

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<u>Materials</u>	
Fastener:	carbon steel – SAE 1022, quenched, tempered and coated
Washer:	EPDM sealing washer with metal top made of coated carbon steel
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235JR – EN 10025-1 for $t_{N,II} \geq 3$ mm or S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	$\Sigma t_i \leq 8,00$ mm

Timber substructures

no performance assessed



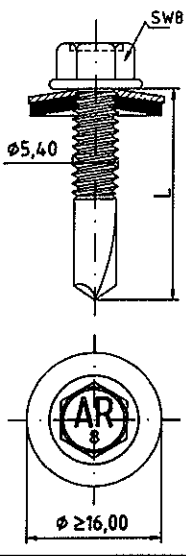
$t_{N,II}$ [mm]	2,00	3,00	4,00	5,00	6,00	8,00	10,00	12,00	Wood; class $\geq$ C24
$M_{t,nom}$	5 Nm								
$V_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,50	1,27	1,27	1,27	1,27	—	—	—	
	0,55	1,27	1,27	1,27	1,27	—	—	—	
	0,63	1,61	1,61	1,61	1,61	—	—	—	
	0,75	1,71	1,71	1,71	1,71	—	—	—	
	0,88	2,07	2,07	2,07	2,07	—	—	—	
	1,00	2,37	2,37	2,37	2,37	—	—	—	
	1,13	2,37	2,37	2,37	2,37	—	—	—	
	1,25	2,37	2,37	2,37	2,37	—	—	—	
	1,50	2,37	2,37	2,37	2,37	—	—	—	
	1,75	2,37	2,37	2,37	2,37	—	—	—	
2,00	2,37	2,37	2,37	2,37	—	—	—		
$N_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,50	1,64	2,56	2,56	2,56	—	—	—	
	0,55	1,64	2,56	2,56	2,56	—	—	—	
	0,63	1,64	2,87	3,49	3,49	—	—	—	
	0,75	1,64	2,87	4,02	4,02	—	—	—	
	0,88	1,64	2,87	4,03	4,03	—	—	—	
	1,00	1,64	2,87	4,58	4,58	—	—	—	
	1,13	1,64	2,87	4,58	4,58	—	—	—	
	1,25	1,64	2,87	4,58	4,58	—	—	—	
	1,50	1,64	2,87	4,58	4,58	—	—	—	
	1,75	1,64	2,87	4,58	4,58	—	—	—	
2,00	1,64	2,87	4,58	4,58	—	—	—		

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 sheetings
AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W,
AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W,
MA W, MB W, MC 0, BH W, ARW 0

AR8 W CS 5,5xL, AR8 W CSG 5,5xL and AR8 W CSE 5,5xL
 and sealing washer $\varnothing 14$ mm

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Materials Fastener: carbon steel – SAE 1022, quenched, tempered and coated Washer: EPDM sealing washer with metal top made of coated carbon steel Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S235JR – EN 10025-1 for $t_{N,II} \geq 3$ mm or S280GD, S320GD or S350GD – EN 10346 Drilling capacity: $\Sigma t_i \leq 8,00$ mm	
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	Wood; class $\geq$ C24
$M_{t,nom}$	5 Nm								
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,27	1,27	1,27	1,27	1,27	—	—	
	0,55	1,27	1,27	1,27	1,27	1,27	—	—	
	0,63	1,61	1,61	1,61	1,61	1,61	—	—	
	0,75	1,71	1,71	1,71	1,71	1,71	—	—	
	0,88	2,07	2,07	2,07	2,07	2,07	—	—	
	1,00	2,37	2,37	2,37	2,37	2,37	—	—	
	1,13	2,37	2,37	2,37	2,37	2,37	—	—	
	1,25	2,37	2,37	2,37	2,37	2,37	—	—	
	1,50	2,37	2,37	2,37	2,37	2,37	—	—	
	1,75	2,37	2,37	2,37	2,37	2,37	—	—	
	2,00	2,37	2,37	2,37	2,37	2,37	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,64	2,87	3,23	3,23	3,23	—	—	
	0,55	1,64	2,87	3,23	3,23	3,23	—	—	
	0,63	1,64	2,87	3,64	3,64	3,64	—	—	
	0,75	1,64	2,87	4,70	4,70	4,70	—	—	
	0,88	1,64	2,87	5,35	5,35	5,35	—	—	
	1,00	1,64	2,87	5,51	5,39	5,39	—	—	
	1,13	1,64	2,87	5,51	5,39	5,39	—	—	
	1,25	1,64	2,87	5,51	5,39	5,39	—	—	
	1,50	1,64	2,87	5,51	5,39	5,39	—	—	
	1,75	1,64	2,87	5,51	5,39	5,39	—	—	
	2,00	1,64	2,87	5,51	5,39	5,39	—	—	

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%

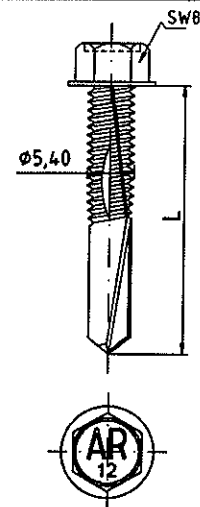
Fastening screws for metal members and sheetings AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W, AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W, MA W, MB W, MC 0, BH W, ARW 0	Annex 37 of European Technical Assessment ETA-18/0789
AR8 W CS 5,5xL, AR8 W CSG 5,5xL and AR8 W CSE 5,5xL and sealing washer $\geq \varnothing 16$ mm	

Materials	
Fastener:	carbon steel – SAE 1022, quenched, tempered and coated
Washer:	-
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235JR – EN 10025-1 or S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma t_i \leq 12,00$ mm

Timber substructures

no performance assessed



$t_{w,II}$ [mm]	4,00	5,00	6,00	8,00	10,00	12,00	14,00	16,00	Wood; class $\geq$ C24
$M_{t,nom}$	5 Nm								
$V_{R,k}$ [kN] for $t_{w,I}$ [mm]	0,50	1,32	1,32	1,32	1,32	—	—	—	
	0,55	1,32	1,32	1,32	1,32	—	—	—	
	0,63	1,45	1,45	1,45	1,45	—	—	—	
	0,75	1,88	1,88	1,88	1,88	—	—	—	
	0,88	2,28	2,28	2,28	2,28	—	—	—	
	1,00	2,74	2,74	2,74	2,74	—	—	—	
	1,13	2,74	2,74	2,74	2,74	—	—	—	
	1,25	2,74	2,74	2,74	2,74	—	—	—	
	1,50	2,74	2,74	2,74	2,74	—	—	—	
	1,75	2,74	2,74	2,74	2,74	—	—	—	
2,00	2,74	2,74	2,74	2,74	—	—	—		
$N_{R,k}$ [kN] for $t_{w,I}$ [mm]	0,50	0,61	0,61	0,61	0,61	—	—	—	
	0,55	0,61	0,61	0,61	0,61	—	—	—	
	0,63	0,89	0,89	0,89	0,89	—	—	—	
	0,75	0,99	0,99	0,99	0,99	—	—	—	
	0,88	0,99	0,99	0,99	0,99	—	—	—	
	1,00	1,12	1,12	1,12	1,12	—	—	—	
	1,13	1,12	1,12	1,12	1,12	—	—	—	
	1,25	1,12	1,12	1,12	1,12	—	—	—	
	1,50	1,12	1,12	1,12	1,12	—	—	—	
	1,75	1,12	1,12	1,12	1,12	—	—	—	
2,00	1,12	1,12	1,12	1,12	—	—	—		

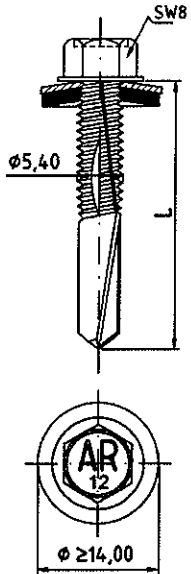
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%

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 sheetings
AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W,
AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W,
MA W, MB W, MC 0, BH W, ARW 0

AR12 W CS 5,5xL, AR12 W CSG 5,5xL and AR12 W CSE 5,5xL

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Materials Fastener: carbon steel – SAE 1022, quenched, tempered and coated Washer: EPDM sealing washer with metal top made of coated carbon steel or aluminum Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S235JR – EN 10025-1 or S280GD, S320GD or S350GD – EN 10346	
Drilling capacity: $\Sigma t_i \leq 12,00$ mm Timber substructures no performance assessed	

$t_{N,II}$ [mm]	4,00	5,00	6,00	8,00	10,00	12,00	14,00	16,00	Wood; class $\geq$ C24
$M_{t,nom}$	5 Nm								
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,18	1,18	1,18	1,18	1,18	—	—	
	0,55	1,18	1,18	1,18	1,18	1,18	—	—	
	0,63	1,26	1,26	1,26	1,26	1,26	—	—	
	0,75	1,26	1,26	1,26	1,26	1,26	—	—	
	0,88	1,48	1,48	1,48	1,48	1,48	—	—	
	1,00	1,80	1,80	1,80	1,80	1,80	—	—	
	1,13	1,80	1,80	1,80	1,80	1,80	—	—	
	1,25	2,66	2,66	2,66	2,66	2,66	—	—	
	1,50	3,46	3,46	3,46	3,46	3,46	—	—	
	2,00	4,02	4,02	4,02	4,02	4,02	—	—	
$N_{R,k}$ [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	—	—	
	0,63	3,56	3,56	3,56	3,56	3,56	—	—	
	0,75	4,09	4,09	4,09	4,09	4,09	—	—	
	0,88	4,10	4,10	4,10	4,10	4,10	—	—	
	1,00	4,66	4,66	4,66	4,66	4,66	—	—	
	1,13	4,66	4,66	4,66	4,66	4,66	—	—	
	1,25	4,66	4,66	4,66	4,66	4,66	—	—	
	1,50	4,69	4,69	4,69	4,69	4,69	—	—	
	2,00	4,69	4,69	4,69	4,69	4,69	—	—	

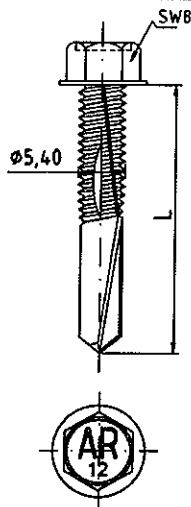
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%

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 sheetings
AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W,
AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W,
MA W, MB W, MC 0, BH W, ARW 0

AR12 W CS 5,5xL, AR12 W CSG 5,5xL and AR12 W CSE 5,5xL
 and sealing washer $\geq \varnothing 14$ mm

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Materials Fastener: stainless steel – SAE 304 (bi-metal) Washer: - Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S235JR – EN 10025-1 or S280GD, S320GD or S350GD – EN 10346 Drilling capacity: $\Sigma t_i \leq 12,00$ mm	
Timber substructures no performance assessed	

$t_{N,II}$ [mm]	4,00	5,00	6,00	8,00	10,00	12,00	14,00	16,00	: Wood; class $\geq$ C24
$M_{t,nom}$	5 Nm								
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,32	1,32	1,32	1,32	—	—	—	
	0,55	1,32	1,32	1,32	1,32	—	—	—	
	0,63	1,45	1,45	1,45	1,45	—	—	—	
	0,75	1,88	1,88	1,88	1,88	—	—	—	
	0,88	2,28	2,28	2,28	2,28	—	—	—	
	1,00	2,74	2,74	2,74	2,74	—	—	—	
	1,13	2,74	2,74	2,74	2,74	—	—	—	
	1,25	2,74	2,74	2,74	2,74	—	—	—	
	1,50	2,74	2,74	2,74	2,74	—	—	—	
	1,75	2,74	2,74	2,74	2,74	—	—	—	
2,00	2,74	2,74	2,74	2,74	—	—	—		
$N_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,50	0,61	0,61	0,61	0,61	—	—	—	
	0,55	0,61	0,61	0,61	0,61	—	—	—	
	0,63	0,89	0,89	0,89	0,89	—	—	—	
	0,75	0,99	0,99	0,99	0,99	—	—	—	
	0,88	0,99	0,99	0,99	0,99	—	—	—	
	1,00	1,12	1,12	1,12	1,12	—	—	—	
	1,13	1,12	1,12	1,12	1,12	—	—	—	
	1,25	1,12	1,12	1,12	1,12	—	—	—	
	1,50	1,12	1,12	1,12	1,12	—	—	—	
	1,75	1,12	1,12	1,12	1,12	—	—	—	
2,00	1,12	1,12	1,12	1,12	—	—	—		

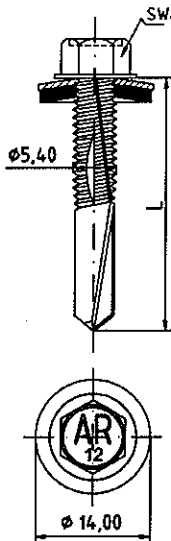
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%

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 sheetings
AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W,
AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W,
MA W, MB W, MC 0, BH W, ARW 0

AR12 W SS 5,5xL

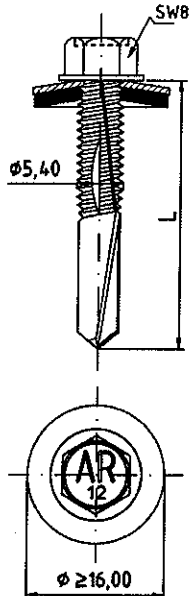
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Materials Fastener: stainless steel – SAE 304 (bi-metal) Washer: EPDM sealing washer with metal top made of aluminum Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S235JR – EN 10025-1 or S280GD, S320GD or S350GD – EN 10346 Drilling capacity: $\Sigma t_i \leq 12,00$ mm			
Timber substructures no performance assessed			

$t_{N,II}$ [mm]	4,00	5,00	6,00	8,00	10,00	12,00	14,00	16,00	Wood; class $\geq$ C24
$M_{t,nom}$	5 Nm								
$V_{R,k}$ [kN] for $t_{N,i}$ [mm]	0,50	1,32	1,32	1,32	1,32	—	—	—	
	0,55	1,32	1,32	1,32	1,32	—	—	—	
	0,63	1,45	1,45	1,45	1,45	—	—	—	
	0,75	1,88	1,88	1,88	1,88	—	—	—	
	0,88	2,28	2,28	2,28	2,28	—	—	—	
	1,00	2,74	2,74	2,74	2,74	—	—	—	
	1,13	2,74	2,74	2,74	2,74	—	—	—	
	1,25	2,74	2,74	2,74	2,74	—	—	—	
	1,50	2,74	2,74	2,74	2,74	—	—	—	
	1,75	2,74	2,74	2,74	2,74	—	—	—	
	2,00	2,74	2,74	2,74	2,74	—	—	—	
$N_{R,k}$ [kN] for $t_{N,i}$ [mm]	0,50	2,14	2,14	2,14	2,14	—	—	—	
	0,55	2,14	2,14	2,14	2,14	—	—	—	
	0,63	2,86	2,86	2,86	2,86	—	—	—	
	0,75	3,35	3,35	3,35	3,35	—	—	—	
	0,88	3,46	3,46	3,46	3,46	—	—	—	
	1,00	3,97	3,97	3,97	3,97	—	—	—	
	1,13	3,97	3,97	3,97	3,97	—	—	—	
	1,25	3,97	3,97	3,97	3,97	—	—	—	
	1,50	3,97	3,97	3,97	3,97	—	—	—	
	1,75	3,97	3,97	3,97	3,97	—	—	—	
	2,00	3,97	3,97	3,97	3,97	—	—	—	

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 sheetings AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W, AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W, MA W, MB W, MC 0, BH W, ARW 0	Annex 41 of European Technical Assessment ETA-18/0789
AR12 W SS 5,5xL and sealing washer Ø14 mm	

Materials Fastener: stainless steel – SAE 304 (bi-metal) Washer: EPDM sealing washer with metal top made of aluminum Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S235JR – EN 10025-1 or S280GD, S320GD or S350GD – EN 10346 Drilling capacity: $\Sigma t_i \leq 12,00$ mm	
Timber substructures no performance assessed	

$t_{N,II}$ [mm]	4,00	5,00	6,00	8,00	10,00	12,00	14,00	16,00	Wood; class $\geq$ C24
$M_{t,nom}$	5 Nm								
$V_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,50	1,32	1,32	1,32	1,32	—	—	—	
	0,55	1,32	1,32	1,32	1,32	—	—	—	
	0,63	1,45	1,45	1,45	1,45	—	—	—	
	0,75	1,88	1,88	1,88	1,88	—	—	—	
	0,88	2,28	2,28	2,28	2,28	—	—	—	
	1,00	2,74	2,74	2,74	2,74	—	—	—	
	1,13	2,74	2,74	2,74	2,74	—	—	—	
	1,25	2,74	2,74	2,74	2,74	—	—	—	
	1,50	2,74	2,74	2,74	2,74	—	—	—	
	1,75	2,74	2,74	2,74	2,74	—	—	—	
	2,00	2,74	2,74	2,74	2,74	—	—	—	
$N_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,50	3,08	3,08	3,08	3,08	—	—	—	
	0,55	3,08	3,08	3,08	3,08	—	—	—	
	0,63	3,52	3,52	3,52	3,52	—	—	—	
	0,75	4,06	4,06	4,06	4,06	—	—	—	
	0,88	4,07	4,07	4,07	4,07	—	—	—	
	1,00	4,63	4,63	4,63	4,63	—	—	—	
	1,13	4,63	4,63	4,63	4,63	—	—	—	
	1,25	4,63	4,63	4,63	4,63	—	—	—	
	1,50	4,63	4,63	4,63	4,63	—	—	—	
	1,75	4,63	4,63	4,63	4,63	—	—	—	
	2,00	4,63	4,63	4,63	4,63	—	—	—	

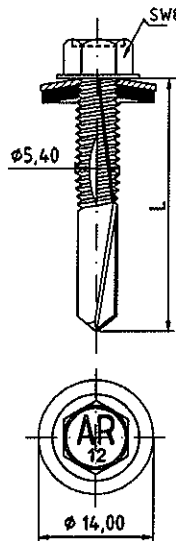
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%

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 sheetings
AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W,
AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W,
MA W, MB W, MC 0, BH W, ARW 0

AR12 W SS 5,5xL
and sealing washer $\geq \varnothing 16$ mm

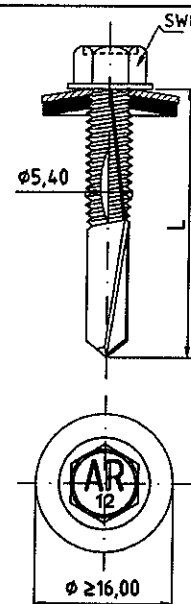
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Technical Assessment
ETA-18/0789

Materials Fastener: stainless steel – SAE 304 (bi-metal) Washer: EPDM sealing washer with metal top made of stainless steel Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S235JR – EN 10025-1 or S280GD, S320GD or S350GD – EN 10346 Drilling capacity: $\Sigma t_i \leq 12,00$ mm Timber substructures no performance assessed																																																																																																																																																																																																																											
<table><tr><th>$t_{N,II}$ [mm]</th><th>4,00</th><th>5,00</th><th>6,00</th><th>8,00</th><th>10,00</th><th>12,00</th><th>14,00</th><th>16,00</th><th>Wood; class $\geq$ C24</th></tr><tr><td>$M_{t,nom}$</td><td colspan="8">5 Nm</td><td></td></tr><tr><td rowspan="11">$V_{R,k}$ [kN] for $t_{N,II}$ [mm]</td><td>0,50</td><td>1,32</td><td>1,32</td><td>1,32</td><td>1,32</td><td>1,32</td><td>—</td><td>—</td><td rowspan="11"></td></tr><tr><td>0,55</td><td>1,32</td><td>1,32</td><td>1,32</td><td>1,32</td><td>1,32</td><td>—</td><td>—</td></tr><tr><td>0,63</td><td>1,45</td><td>1,45</td><td>1,45</td><td>1,45</td><td>1,45</td><td>—</td><td>—</td></tr><tr><td>0,75</td><td>1,88</td><td>1,88</td><td>1,88</td><td>1,88</td><td>1,88</td><td>—</td><td>—</td></tr><tr><td>0,88</td><td>2,28</td><td>2,28</td><td>2,28</td><td>2,28</td><td>2,28</td><td>—</td><td>—</td></tr><tr><td>1,00</td><td>2,74</td><td>2,74</td><td>2,74</td><td>2,74</td><td>2,74</td><td>—</td><td>—</td></tr><tr><td>1,13</td><td>2,74</td><td>2,74</td><td>2,74</td><td>2,74</td><td>2,74</td><td>—</td><td>—</td></tr><tr><td>1,25</td><td>2,74</td><td>2,74</td><td>2,74</td><td>2,74</td><td>2,74</td><td>—</td><td>—</td></tr><tr><td>1,50</td><td>2,74</td><td>2,74</td><td>2,74</td><td>2,74</td><td>2,74</td><td>—</td><td>—</td></tr><tr><td>1,75</td><td>2,74</td><td>2,74</td><td>2,74</td><td>2,74</td><td>2,74</td><td>—</td><td>—</td></tr><tr><td>2,00</td><td>2,74</td><td>2,74</td><td>2,74</td><td>2,74</td><td>2,74</td><td>—</td><td>—</td></tr><tr><td rowspan="11">$N_{R,k}$ [kN] for $t_{N,II}$ [mm]</td><td>0,50</td><td>2,56</td><td>2,56</td><td>2,56</td><td>2,56</td><td>2,56</td><td>—</td><td>—</td><td rowspan="11"></td></tr><tr><td>0,55</td><td>2,56</td><td>2,56</td><td>2,56</td><td>2,56</td><td>2,56</td><td>—</td><td>—</td></tr><tr><td>0,63</td><td>3,49</td><td>3,49</td><td>3,49</td><td>3,49</td><td>3,49</td><td>—</td><td>—</td></tr><tr><td>0,75</td><td>4,02</td><td>4,02</td><td>4,02</td><td>4,02</td><td>4,02</td><td>—</td><td>—</td></tr><tr><td>0,88</td><td>4,03</td><td>4,03</td><td>4,03</td><td>4,03</td><td>4,03</td><td>—</td><td>—</td></tr><tr><td>1,00</td><td>4,58</td><td>4,58</td><td>4,58</td><td>4,58</td><td>4,58</td><td>—</td><td>—</td></tr><tr><td>1,13</td><td>4,58</td><td>4,58</td><td>4,58</td><td>4,58</td><td>4,58</td><td>—</td><td>—</td></tr><tr><td>1,25</td><td>4,58</td><td>4,58</td><td>4,58</td><td>4,58</td><td>4,58</td><td>—</td><td>—</td></tr><tr><td>1,50</td><td>4,58</td><td>4,58</td><td>4,58</td><td>4,58</td><td>4,58</td><td>—</td><td>—</td></tr><tr><td>1,75</td><td>4,58</td><td>4,58</td><td>4,58</td><td>4,58</td><td>4,58</td><td>—</td><td>—</td></tr><tr><td>2,00</td><td>4,58</td><td>4,58</td><td>4,58</td><td>4,58</td><td>4,58</td><td>—</td><td>—</td></tr></table>										$t_{N,II}$ [mm]	4,00	5,00	6,00	8,00	10,00	12,00	14,00	16,00	Wood; class $\geq$ C24	$M_{t,nom}$	5 Nm									$V_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,50	1,32	1,32	1,32	1,32	1,32	—	—		0,55	1,32	1,32	1,32	1,32	1,32	—	—	0,63	1,45	1,45	1,45	1,45	1,45	—	—	0,75	1,88	1,88	1,88	1,88	1,88	—	—	0,88	2,28	2,28	2,28	2,28	2,28	—	—	1,00	2,74	2,74	2,74	2,74	2,74	—	—	1,13	2,74	2,74	2,74	2,74	2,74	—	—	1,25	2,74	2,74	2,74	2,74	2,74	—	—	1,50	2,74	2,74	2,74	2,74	2,74	—	—	1,75	2,74	2,74	2,74	2,74	2,74	—	—	2,00	2,74	2,74	2,74	2,74	2,74	—	—	$N_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,50	2,56	2,56	2,56	2,56	2,56	—	—		0,55	2,56	2,56	2,56	2,56	2,56	—	—	0,63	3,49	3,49	3,49	3,49	3,49	—	—	0,75	4,02	4,02	4,02	4,02	4,02	—	—	0,88	4,03	4,03	4,03	4,03	4,03	—	—	1,00	4,58	4,58	4,58	4,58	4,58	—	—	1,13	4,58	4,58	4,58	4,58	4,58	—	—	1,25	4,58	4,58	4,58	4,58	4,58	—	—	1,50	4,58	4,58	4,58	4,58	4,58	—	—	1,75	4,58	4,58	4,58	4,58	4,58	—	—	2,00	4,58	4,58	4,58	4,58	4,58	—	—	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%									
$t_{N,II}$ [mm]	4,00	5,00	6,00	8,00	10,00	12,00	14,00	16,00	Wood; class $\geq$ C24																																																																																																																																																																																																																		
$M_{t,nom}$	5 Nm																																																																																																																																																																																																																										
$V_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,50	1,32	1,32	1,32	1,32	1,32	—	—																																																																																																																																																																																																																			
	0,55	1,32	1,32	1,32	1,32	1,32	—	—																																																																																																																																																																																																																			
	0,63	1,45	1,45	1,45	1,45	1,45	—	—																																																																																																																																																																																																																			
	0,75	1,88	1,88	1,88	1,88	1,88	—	—																																																																																																																																																																																																																			
	0,88	2,28	2,28	2,28	2,28	2,28	—	—																																																																																																																																																																																																																			
	1,00	2,74	2,74	2,74	2,74	2,74	—	—																																																																																																																																																																																																																			
	1,13	2,74	2,74	2,74	2,74	2,74	—	—																																																																																																																																																																																																																			
	1,25	2,74	2,74	2,74	2,74	2,74	—	—																																																																																																																																																																																																																			
	1,50	2,74	2,74	2,74	2,74	2,74	—	—																																																																																																																																																																																																																			
	1,75	2,74	2,74	2,74	2,74	2,74	—	—																																																																																																																																																																																																																			
	2,00	2,74	2,74	2,74	2,74	2,74	—	—																																																																																																																																																																																																																			
$N_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,50	2,56	2,56	2,56	2,56	2,56	—	—																																																																																																																																																																																																																			
	0,55	2,56	2,56	2,56	2,56	2,56	—	—																																																																																																																																																																																																																			
	0,63	3,49	3,49	3,49	3,49	3,49	—	—																																																																																																																																																																																																																			
	0,75	4,02	4,02	4,02	4,02	4,02	—	—																																																																																																																																																																																																																			
	0,88	4,03	4,03	4,03	4,03	4,03	—	—																																																																																																																																																																																																																			
	1,00	4,58	4,58	4,58	4,58	4,58	—	—																																																																																																																																																																																																																			
	1,13	4,58	4,58	4,58	4,58	4,58	—	—																																																																																																																																																																																																																			
	1,25	4,58	4,58	4,58	4,58	4,58	—	—																																																																																																																																																																																																																			
	1,50	4,58	4,58	4,58	4,58	4,58	—	—																																																																																																																																																																																																																			
	1,75	4,58	4,58	4,58	4,58	4,58	—	—																																																																																																																																																																																																																			
	2,00	4,58	4,58	4,58	4,58	4,58	—	—																																																																																																																																																																																																																			
Fastening screws for metal members and sheetings AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W, AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W, MA W, MB W, MC 0, BH W, ARW 0										Annex 43 of European Technical Assessment ETA-18/0789																																																																																																																																																																																																																	
AR12 W SS 5,5xL and sealing washer Ø14 mm																																																																																																																																																																																																																											

<u>Materials</u>	
Fastener:	stainless steel – SAE 304 (bi-metal)
Washer:	EPDM sealing washer with metal top made of stainless steel
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235JR – EN 10025-1 or S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	$\Sigma t_i \leq 12,00$ mm

Timber substructures

no performance assessed



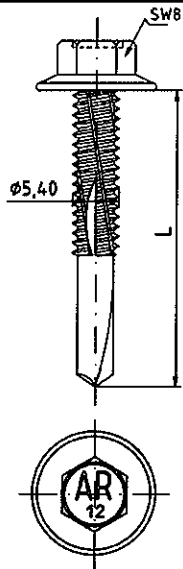
$t_{N,II}$ [mm]	4,00	5,00	6,00	8,00	10,00	12,00	14,00	16,00	Wood; class $\geq$ C24
$M_{t,nom}$	5 Nm								
$V_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,50	1,32	1,32	1,32	1,32	—	—	—	
	0,55	1,32	1,32	1,32	1,32	—	—	—	
	0,63	1,45	1,45	1,45	1,45	—	—	—	
	0,75	1,88	1,88	1,88	1,88	—	—	—	
	0,88	2,28	2,28	2,28	2,28	—	—	—	
	1,00	2,74	2,74	2,74	2,74	—	—	—	
	1,13	2,74	2,74	2,74	2,74	—	—	—	
	1,25	2,74	2,74	2,74	2,74	—	—	—	
	1,50	2,74	2,74	2,74	2,74	—	—	—	
	1,75	2,74	2,74	2,74	2,74	—	—	—	
2,00	2,74	2,74	2,74	2,74	—	—	—		
$N_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,50	3,23	3,23	3,23	3,23	—	—	—	
	0,55	3,23	3,23	3,23	3,23	—	—	—	
	0,63	3,64	3,64	3,64	3,64	—	—	—	
	0,75	4,70	4,70	4,70	4,70	—	—	—	
	0,88	5,35	5,35	5,35	5,35	—	—	—	
	1,00	6,48	6,48	6,48	6,48	—	—	—	
	1,13	6,48	6,48	6,48	6,48	—	—	—	
	1,25	6,48	6,48	6,48	6,48	—	—	—	
	1,50	6,48	6,48	6,48	6,48	—	—	—	
	1,75	6,48	6,48	6,48	6,48	—	—	—	
2,00	6,48	6,48	6,48	6,48	—	—	—		

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 sheetings
AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W,
AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W,
MA W, MB W, MC 0, BH W, ARW 0

AR12 W SS 5,5xL
 and sealing washer $\geq \varnothing 16$ mm

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 of European
 Technical Assessment
 ETA-18/0789

Materials Fastener: carbon steel – SAE 1022, quenched, tempered and coated Washer: - Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S235JR – EN 10025-1 or S280GD, S320GD or S350GD – EN 10346 Drilling capacity: $\Sigma t_i \leq 12,00$ mm	
Timber substructures no performance assessed	

$t_{N,II}$ [mm]	4,00	5,00	6,00	8,00	10,00	12,00	14,00	16,00	Wood; class $\geq$ C24
$M_{t,nom}$	5 Nm								
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,32	1,32	1,32	1,32	—	—	—	
	0,55	1,32	1,32	1,32	1,32	—	—	—	
	0,63	1,45	1,45	1,45	1,45	—	—	—	
	0,75	1,88	1,88	1,88	1,88	—	—	—	
	0,88	2,28	2,28	2,28	2,28	—	—	—	
	1,00	2,74	2,74	2,74	2,74	—	—	—	
	1,13	2,74	2,74	2,74	2,74	—	—	—	
	1,25	2,74	2,74	2,74	2,74	—	—	—	
	1,50	2,74	2,74	2,74	2,74	—	—	—	
	1,75	2,74	2,74	2,74	2,74	—	—	—	
2,00	2,74	2,74	2,74	2,74	—	—	—		
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	2,69	2,69	2,69	2,69	—	—	—	
	0,55	2,69	2,69	2,69	2,69	—	—	—	
	0,63	3,66	3,66	3,66	3,66	—	—	—	
	0,75	4,23	4,23	4,23	4,23	—	—	—	
	0,88	4,23	4,23	4,23	4,23	—	—	—	
	1,00	4,81	4,81	4,81	4,81	—	—	—	
	1,13	4,81	4,81	4,81	4,81	—	—	—	
	1,25	4,81	4,81	4,81	4,81	—	—	—	
	1,50	4,81	4,81	4,81	4,81	—	—	—	
	1,75	4,81	4,81	4,81	4,81	—	—	—	
2,00	4,81	4,81	4,81	4,81	—	—	—		

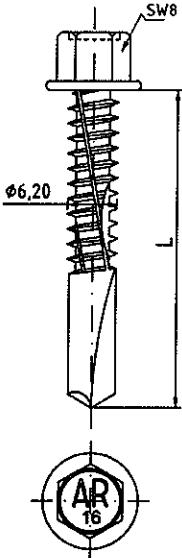
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%

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 sheetings
AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W,
AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W,
MA W, MB W, MC 0, BH W, ARW 0

AR12 PZ W CS 5,5xL, AR12 PZ W CSG 5,5xL
 and AR12 PZ W CSE 5,5xL

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<u>Materials</u> Fastener: carbon steel – SAE 1022, quenched, tempered and coated Washer: - Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S235JR – EN 10025-1 or S280GD, S320GD or S350GD – EN 10346 Drilling capacity: $\Sigma t_i \leq 16,00$ mm		
<u>Timber substructures</u> no performance assessed		

$t_{w,II}$ [mm]	5,00	6,00	8,00	10,00	12,00	14,00	16,00	20,00	Wood; class $\geq$ C24
$M_{t,nom}$	6 Nm								
$V_{R,k}$ [kN] for $t_{w,I}$ [mm]	0,50	1,39	1,39	1,39	1,39	1,39	—	—	
	0,55	1,39	1,39	1,39	1,39	1,39	—	—	
	0,63	1,50	1,50	1,50	1,50	1,50	—	—	
	0,75	2,07	2,07	2,07	2,07	2,07	—	—	
	0,88	2,45	2,45	2,45	2,45	2,45	—	—	
	1,00	2,94	2,94	2,94	2,94	2,94	—	—	
	1,13	2,94	2,94	2,94	2,94	2,94	—	—	
	1,25	2,94	2,94	2,94	2,94	2,94	—	—	
	1,50	2,94	2,94	2,94	2,94	2,94	—	—	
	1,75	2,94	2,94	2,94	2,94	2,94	—	—	
2,00	2,94	2,94	2,94	2,94	2,94	—	—		
$N_{R,k}$ [kN] for $t_{w,I}$ [mm]	0,50	0,72	0,72	0,72	0,72	0,72	—	—	
	0,55	0,72	0,72	0,72	0,72	0,72	—	—	
	0,63	1,05	1,05	1,05	1,05	1,05	—	—	
	0,75	1,15	1,15	1,15	1,15	1,15	—	—	
	0,88	1,16	1,16	1,16	1,16	1,16	—	—	
	1,00	1,32	1,32	1,32	1,32	1,32	—	—	
	1,13	1,32	1,32	1,32	1,32	1,32	—	—	
	1,25	1,32	1,32	1,32	1,32	1,32	—	—	
	1,50	1,32	1,32	1,32	1,32	1,32	—	—	
	1,75	1,32	1,32	1,32	1,32	1,32	—	—	
2,00	1,32	1,32	1,32	1,32	1,32	—	—		

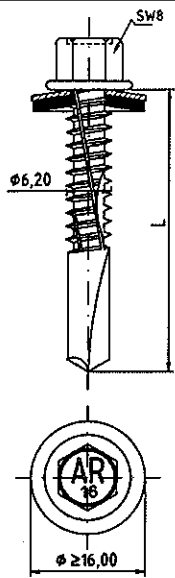
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%

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 sheetings
AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W,
AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W,
MA W, MB W, MC 0, BH W, ARW 0

AR16 W CS 6,3xL, AR16 W CSG 6,3xL and AR16 W CSE 6,3xL

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Materials Fastener: carbon steel – SAE 1022, quenched, tempered and coated Washer: EPDM sealing washer with metal top made of aluminum Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S235JR – EN 10025-1 or S280GD, S320GD or S350GD – EN 10346 Drilling capacity: $\Sigma t_i \leq 16,00$ mm	
Timber substructures no performance assessed	

$t_{N,II}$ [mm]	5,00	6,00	8,00	10,00	12,00	14,00	16,00	20,00	Wood; class $\geq$ C24
$M_{t,nom}$	6 Nm								
$V_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,50	1,39	1,39	1,39	1,39	1,39	—	—	
	0,55	1,39	1,39	1,39	1,39	1,39	—	—	
	0,63	1,50	1,50	1,50	1,50	1,50	—	—	
	0,75	2,07	2,07	2,07	2,07	2,07	—	—	
	0,88	2,45	2,45	2,45	2,45	2,45	—	—	
	1,00	2,94	2,94	2,94	2,94	2,94	—	—	
	1,13	2,94	2,94	2,94	2,94	2,94	—	—	
	1,25	2,94	2,94	2,94	2,94	2,94	—	—	
	1,50	2,94	2,94	2,94	2,94	2,94	—	—	
	1,75	2,94	2,94	2,94	2,94	2,94	—	—	
	2,00	2,94	2,94	2,94	2,94	2,94	—	—	
$N_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,50	3,08	3,08	3,08	3,08	3,08	—	—	
	0,55	3,08	3,08	3,08	3,08	3,08	—	—	
	0,63	3,52	3,52	3,52	3,52	3,52	—	—	
	0,75	4,06	4,06	4,06	4,06	4,06	—	—	
	0,88	4,07	4,07	4,07	4,07	4,07	—	—	
	1,00	4,12	4,12	4,63	4,63	4,63	—	—	
	1,13	4,12	4,12	4,63	4,63	4,63	—	—	
	1,25	4,12	4,12	4,63	4,63	4,63	—	—	
	1,50	4,12	4,12	4,63	4,63	4,63	—	—	
	1,75	4,12	4,12	4,63	4,63	4,63	—	—	
	2,00	4,12	4,12	4,63	4,63	4,63	—	—	

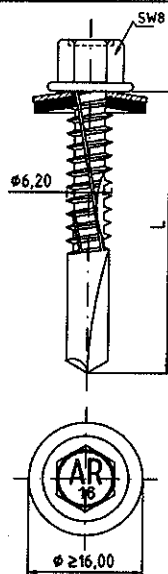
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%

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 sheetings
AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W,
AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W,
MA W, MB W, MC 0, BH W, ARW 0

AR16 W CS 6,3xL, AR16 W CSG 6,3xL | AR16 W CSE 6,3xL
 and sealing washer $\geq \varnothing 16$ mm

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<u>Materials</u> Fastener: carbon steel – SAE 1022, quenched, tempered and coated Washer: EPDM sealing washer with metal top made of coated carbon steel Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S235JR – EN 10025-1 or S280GD, S320GD or S350GD – EN 10346		
Drilling capacity: $\Sigma t_i \leq 16,00$ mm		
<u>Timber substructures</u> no performance assessed		

$t_{N,II}$ [mm]	5,00	6,00	8,00	10,00	12,00	14,00	16,00	20,00	Wood; class $\geq$ C24
$M_{t,nom}$	6 Nm								
$V_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,50	1,39	1,39	1,39	1,39	1,39	—	—	
	0,55	1,39	1,39	1,39	1,39	1,39	—	—	
	0,63	1,50	1,50	1,50	1,50	1,50	—	—	
	0,75	2,07	2,07	2,07	2,07	2,07	—	—	
	0,88	2,45	2,45	2,45	2,45	2,45	—	—	
	1,00	2,94	2,94	2,94	2,94	2,94	—	—	
	1,13	2,94	2,94	2,94	2,94	2,94	—	—	
	1,25	2,94	2,94	2,94	2,94	2,94	—	—	
	1,50	2,94	2,94	2,94	2,94	2,94	—	—	
	1,75	2,94	2,94	2,94	2,94	2,94	—	—	
2,00	2,94	2,94	2,94	2,94	2,94	—	—		
$N_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,50	3,23	3,23	3,23	3,23	3,23	—	—	
	0,55	3,23	3,23	3,23	3,23	3,23	—	—	
	0,63	3,64	3,64	3,64	3,64	3,64	—	—	
	0,75	4,12	4,12	4,70	4,70	4,70	—	—	
	0,88	4,12	4,12	5,35	5,35	5,35	—	—	
	1,00	4,12	4,12	6,18	6,18	6,18	—	—	
	1,13	4,12	4,12	6,18	6,18	6,18	—	—	
	1,25	4,12	4,12	6,18	6,18	6,18	—	—	
	1,50	4,12	4,12	6,18	6,18	6,18	—	—	
	1,75	4,12	4,12	6,18	6,18	6,18	—	—	
2,00	4,12	4,12	6,18	6,18	6,18	—	—		

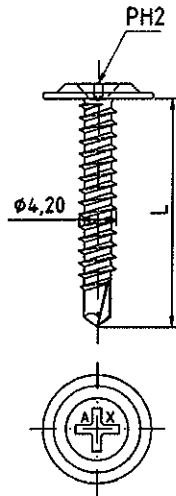
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%

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 sheetings
AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W,
AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W,
MA W, MB W, MC 0, BH W, ARW 0

AR16 W CS 6,3xL, AR16 W CSG 6,3xL i AR16 W CSE 6,3xL
and sealing washer $\geq \varnothing 16$ mm

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of European
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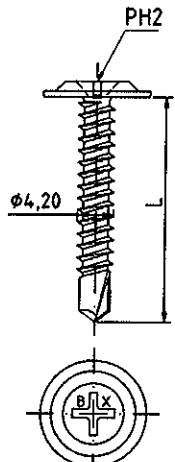
Materials Fastener: carbon steel – SAE 1022, quenched, tempered and coated Washer: EPDM sealing washer or none Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S280GD, S320GD or S350GD – EN 10346 Drilling capacity: $\Sigma t_i \leq 2 \times 0,65 \text{ mm}$		
Timber substructures no performance assessed		

$t_{N,II}$ [mm]	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood; class $\geq$ C24
$M_{t,nom}$	2 Nm								
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,81	0,81	1,04	1,63	1,92	2,13	—	
	0,55	—	0,81	1,04	1,63	1,92	2,13	—	
	0,63	—	—	1,04	1,63	1,92	2,13	—	
	0,75	—	—	—	1,63	1,92	2,13	—	
	0,88	—	—	—	—	1,92	2,13	—	
	1,00	—	—	—	—	—	2,13	—	
	1,13	—	—	—	—	—	—	—	
	1,25	—	—	—	—	—	—	—	
	1,50	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	
2,00	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,55	0,55	0,76	0,81	1,07	1,58	—	
	0,55	—	0,55	0,76	0,81	1,07	1,58	—	
	0,63	—	—	0,76	0,81	1,07	1,58	—	
	0,75	—	—	—	0,81	1,07	1,58	—	
	0,88	—	—	—	—	1,07	1,58	—	
	1,00	—	—	—	—	—	1,58	—	
	1,13	—	—	—	—	—	—	—	
	1,25	—	—	—	—	—	—	—	
	1,50	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	
2,00	—	—	—	—	—	—	—	—	

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 sheetings AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W, AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W, MA W, MB W, MC 0, BH W, ARW 0	Annex 49 of European Technical Assessment ETA-18/0789
MA W CS 4,2xL, MA W CSG 4,2xL and MA W CSE 4,2xL	

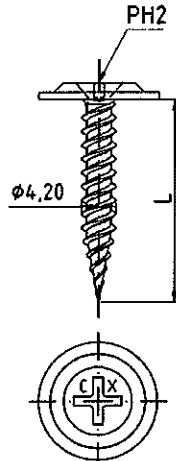
Materials Fastener: carbon steel – SAE 1022, quenched, tempered and coated Washer: EPDM sealing washer or none Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S280GD, S320GD or S350GD – EN 10346 Drilling capacity: $\Sigma t_i \leq 2,25$ mm	
Timber substructures no performance assessed	

$t_{N,II}$ [mm]	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood; class $\geq$ C24
$M_{t,nom}$	2 Nm								
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,70	0,70	0,70	0,70	0,70	0,70	0,70	
	0,55	—	0,70	0,70	0,70	0,70	0,70	0,70	
	0,63	—	—	0,70	0,70	0,70	0,70	0,70	
	0,75	—	—	—	1,63	1,92	1,93	2,22	
	0,88	—	—	—	—	1,92	1,93	2,22	
	1,00	—	—	—	—	1,93	1,93	2,22	
	1,13	—	—	—	—	—	—	2,22	
	1,25	—	—	—	—	—	—	2,22	
	1,50	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	
2,00	—	—	—	—	—	—	—		
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,40	0,40	0,40	0,40	0,40	0,40	0,40	
	0,55	—	0,40	0,40	0,40	0,40	0,40	0,40	
	0,63	—	—	0,40	0,40	0,40	0,40	0,40	
	0,75	—	—	—	0,81	1,09	1,73	1,82	
	0,88	—	—	—	—	1,09	1,73	1,82	
	1,00	—	—	—	—	1,73	1,73	1,82	
	1,13	—	—	—	—	—	1,73	1,82	
	1,25	—	—	—	—	—	—	1,82	
	1,50	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	
2,00	—	—	—	—	—	—	—		

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 sheetings AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W, AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W, MA W, MB W, MC 0, BH W, ARW 0	Annex 50 of European Technical Assessment ETA-18/0789
MB W CS 4,2xL, MB W CSG 4,2xL and MB W CSE 4,2xL	

Materials Fastener: carbon steel – SAE 1022, quenched, tempered and coated Washer: EPDM sealing washer or none Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S280GD, S320GD or S350GD – EN 10346 or structural timber – EN 14081 Drilling capacity: $\Sigma t_i \leq 0,88$ mm Timber substructures For timber substructures performance assessed with: $M_{y,Rk} = 3,10$ Nm $f_{ax,k} = 12,885$ N/mm² for $l_{ef} \geq 17$ mm	
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$t_{N,II}$ [mm]	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood; class $\geq$ C24
$M_{t,nom}$	2 Nm								—
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,32	0,32	0,32	0,32	0,32	—	—	0,82
	0,55	0,32	0,32	0,32	0,32	0,32	—	—	0,82
	0,63	0,32	0,32	0,32	0,32	0,32	—	—	0,82
	0,75	0,32	0,32	0,32	0,32	0,32	—	—	0,82
	0,88	0,32	0,32	0,32	0,32	0,32	—	—	0,82
	1,00	—	—	—	—	—	—	—	—
	1,13	—	—	—	—	—	—	—	—
	1,25	—	—	—	—	—	—	—	—
	1,50	—	—	—	—	—	—	—	—
	1,75	—	—	—	—	—	—	—	—
	2,00	—	—	—	—	—	—	—	—
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,32	0,32	0,32	0,32	0,32	—	—	0,92
	0,55	0,32	0,32	0,32	0,32	0,32	—	—	0,92
	0,63	0,32	0,32	0,32	0,32	0,32	—	—	0,92
	0,75	0,32	0,32	0,32	0,32	0,32	—	—	0,92
	0,88	0,32	0,32	0,32	0,32	0,32	—	—	0,92
	1,00	—	—	—	—	—	—	—	—
	1,13	—	—	—	—	—	—	—	—
	1,25	—	—	—	—	—	—	—	—
	1,50	—	—	—	—	—	—	—	—
	1,75	—	—	—	—	—	—	—	—
	2,00	—	—	—	—	—	—	—	—

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 sheetings AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W, AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W, MA W, MB W, MC 0, BH W, ARW 0	Annex 51 of European Technical Assessment ETA-18/0789
MC 0 CS 4,2xL, MC 0 CSG 4,2xL and MC 0 CSE 4,2xL	

<u>Materials</u>	
Fastener:	stainless steel – SAE 304
Washer:	EPDM sealing washer or none
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S280GD, S320GD or S350GD – EN 10346 or structural timber – EN 14081

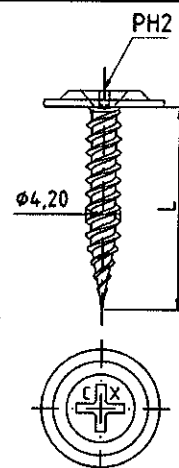
Drilling capacity: -

Timber substructures

For timber substructures performance assessed with:

$$M_{y,Rk} = 2,38 \text{ Nm}$$

$$f_{ax,k} = 12,045 \text{ N/mm}^2 \text{ for } l_{ef} \geq 17 \text{ mm}$$



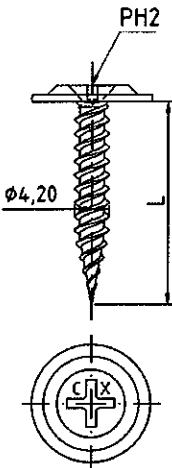
$t_{N,II}$ [mm]	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood; class $\geq$ C24
$M_{t,nom}$	2 Nm							—	—
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,32	0,32	0,32	0,32	0,32	—	—	0,71
	0,55	0,32	0,32	0,32	0,32	0,32	—	—	0,71
	0,63	0,32	0,32	0,32	0,32	0,32	—	—	0,71
	0,75	0,32	0,32	0,32	0,32	0,32	—	—	0,71
	0,88	0,32	0,32	0,32	0,32	0,32	—	—	0,71
	1,00	—	—	—	—	—	—	—	—
	1,13	—	—	—	—	—	—	—	—
	1,25	—	—	—	—	—	—	—	—
	1,50	—	—	—	—	—	—	—	—
	1,75	—	—	—	—	—	—	—	—
2,00	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,32	0,32	0,32	0,32	0,32	—	—	0,86
	0,55	0,32	0,32	0,32	0,32	0,32	—	—	0,86
	0,63	0,32	0,32	0,32	0,32	0,32	—	—	0,86
	0,75	0,32	0,32	0,32	0,32	0,32	—	—	0,86
	0,88	0,32	0,32	0,32	0,32	0,32	—	—	0,86
	1,00	—	—	—	—	—	—	—	—
	1,13	—	—	—	—	—	—	—	—
	1,25	—	—	—	—	—	—	—	—
	1,50	—	—	—	—	—	—	—	—
	1,75	—	—	—	—	—	—	—	—
2,00	—	—	—	—	—	—	—	—	

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 sheetings
AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W,
AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W,
MA W, MB W, MC 0, BH W, ARW 0

MC 0 SS-3 4,2xL

Annex 52
of European
Technical Assessment
ETA-18/0789

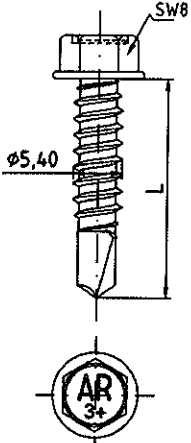
Materials Fastener: stainless steel – SAE 410 Washer: EPDM sealing washer or none Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S280GD, S320GD or S350GD – EN 10346 or structural timber – EN 14081 Drilling capacity: $\Sigma t_i \leq 0,88$ mm Timber substructures For timber substructures performance assessed with: $M_{y,Rk} = 2,38$ Nm $f_{ax,k} = 12,885$ N/mm² for $l_{ef} \geq 17$ mm	
--	--

$t_{N,II}$ [mm]	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood; class $\geq$ C24
$M_{t,nom}$	2 Nm								—
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,32	0,32	0,32	0,32	—	—	—	0,71
	0,55	0,32	0,32	0,32	0,32	—	—	—	0,71
	0,63	0,32	0,32	0,32	0,32	—	—	—	0,71
	0,75	0,32	0,32	0,32	0,32	—	—	—	0,71
	0,88	0,32	0,32	0,32	0,32	—	—	—	0,71
	1,00	—	—	—	—	—	—	—	—
	1,13	—	—	—	—	—	—	—	—
	1,25	—	—	—	—	—	—	—	—
	1,50	—	—	—	—	—	—	—	—
	1,75	—	—	—	—	—	—	—	—
	2,00	—	—	—	—	—	—	—	—
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,32	0,32	0,32	0,32	—	—	—	0,92
	0,55	0,32	0,32	0,32	0,32	—	—	—	0,92
	0,63	0,32	0,32	0,32	0,32	—	—	—	0,92
	0,75	0,32	0,32	0,32	0,32	—	—	—	0,92
	0,88	0,32	0,32	0,32	0,32	—	—	—	0,92
	1,00	—	—	—	—	—	—	—	—
	1,13	—	—	—	—	—	—	—	—
	1,25	—	—	—	—	—	—	—	—
	1,50	—	—	—	—	—	—	—	—
	1,75	—	—	—	—	—	—	—	—
	2,00	—	—	—	—	—	—	—	—

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 sheetings AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W, AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W, MA W, MB W, MC 0, BH W, ARW 0	Annex 53 of European Technical Assessment ETA-18/0789
MC 0 SS-4 4,2xL	

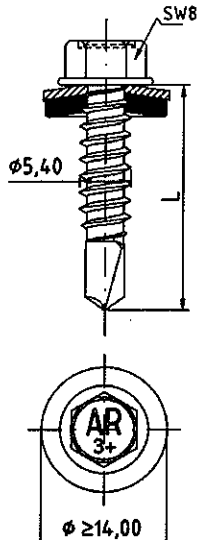
Materials Fastener: carbon steel – SAE 1022, quenched, tempered and coated Washer: - Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S280GD, S320GD or S350GD – EN 10346 Drilling capacity: $\Sigma t_i \leq 3,00$ mm	
Timber substructures no performance assessed	

$t_{N,II}$ [mm]	0,75	0,88	1,00	1,13	1,25	1,50	2,00	2,50	Wood; class $\geq$ C24
$M_{t,nom}$	5 Nm							—	
$V_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,50	—	—	—	—	—	—	—	
	0,55	—	—	—	—	—	—	—	
	0,63	—	—	—	—	—	—	—	
	0,75	2,20	2,62	3,23	3,23	3,60	3,68	—	
	0,88	—	2,62	3,23	3,23	3,60	3,68	—	
	1,00	—	—	3,23	3,23	3,60	3,68	—	
	1,13	—	—	—	3,23	3,60	3,68	—	
	1,25	—	—	—	—	3,60	3,68	—	
	1,50	—	—	—	—	—	3,68	—	
	1,75	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,50	—	—	—	—	—	—	—	
	0,55	—	—	—	—	—	—	—	
	0,63	—	—	—	—	—	—	—	
	0,75	0,72	0,88	1,21	1,21	1,75	2,13	—	
	0,88	—	0,88	1,21	1,21	1,75	2,13	—	
	1,00	—	—	1,21	1,21	1,75	2,13	—	
	1,13	—	—	—	1,21	1,75	2,13	—	
	1,25	—	—	—	—	1,75	2,13	—	
	1,50	—	—	—	—	—	2,13	—	
	1,75	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	

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 sheetings AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W, AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W, MA W, MB W, MC 0, BH W, ARW 0	Annex 54 of European Technical Assessment ETA-18/0789
AR3+ W CS 5,5xL, AR3+ W CSG 5,5xL and AR3+ W CSE 5,5xL	

Materials Fastener: carbon steel – SAE 1022, quenched, tempered and coated Washer: EPDM sealing washer with metal top made of coated carbon steel Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S280GD, S320GD or S350GD – EN 10346 Drilling capacity: $\Sigma t_i \leq 3,00$ mm	
Timber substructures no performance assessed	

$t_{N,II}$ [mm]	0,75	0,88	1,00	1,13	1,25	1,50	2,00	2,50	Wood; class $\geq$ C24
$M_{t,nom}$	5 Nm								—
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—	—	
	0,55	—	—	—	—	—	—	—	
	0,63	—	—	—	—	—	—	—	
	0,75	2,20	2,62	3,23	3,23	3,60	3,68	—	
	0,88	—	2,62	3,23	3,23	3,60	3,68	—	
	1,00	—	—	3,23	3,23	3,60	3,68	—	
	1,13	—	—	—	—	3,60	3,68	—	
	1,25	—	—	—	—	3,60	3,68	—	
	1,50	—	—	—	—	—	3,68	—	
	1,75	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—	—	
	0,55	—	—	—	—	—	—	—	
	0,63	—	—	—	—	—	—	—	
	0,75	0,72	0,88	1,21	1,21	1,75	2,13	—	
	0,88	—	0,88	1,21	1,21	1,75	2,13	—	
	1,00	—	—	1,21	1,21	1,75	2,13	—	
	1,13	—	—	—	—	1,75	2,13	—	
	1,25	—	—	—	—	1,75	2,13	—	
	1,50	—	—	—	—	—	2,13	—	
	1,75	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	

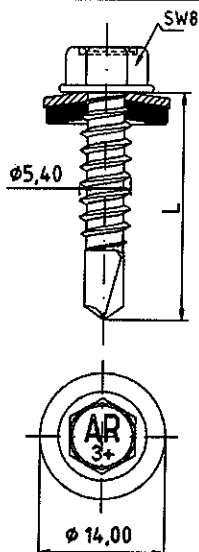
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%

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 sheetings
AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W,
AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W,
MA W, MB W, MC 0, BH W, ARW 0

AR3+ W CS 5,5xL, AR3+ W CSG 5,5xL and AR3+ W CSE 5,5xL
 and sealing washer $\geq \varnothing 14$ mm

Annex 55
 of European
 Technical Assessment
 ETA-18/0789

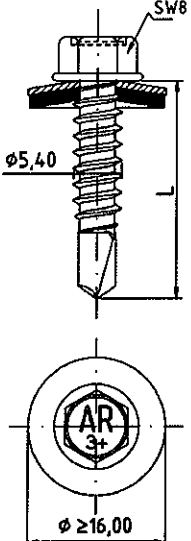
Materials Fastener: carbon steel – SAE 1022, quenched, tempered and coated Washer: EPDM sealing washer with metal top made of aluminum Component I: 1050A – EN 573-3 Component II: 1050A – EN 573-3 Drilling capacity: $\Sigma t_i \leq 4,00$ mm Timber substructures no performance assessed	
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$t_{N,II}$ [mm]	1,00	1,13	1,25	1,50	2,00	2,50	3,00	4,00	Wood; class $\geq$ C24
$M_{t,nom}$	5 Nm								
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—	—	
	0,55	—	—	—	—	—	—	—	
	0,63	—	—	—	—	—	—	—	
	0,75	—	—	—	—	—	—	—	
	0,88	—	—	—	—	—	—	—	
	1,00	1,71	1,71	1,71	1,71	—	—	—	
	1,13	—	—	1,71	1,71	—	—	—	
	1,25	—	—	1,71	1,71	—	—	—	
	1,50	—	—	2,19	2,19	—	—	—	
	1,75	—	—	—	2,19	—	—	—	
2,00	—	—	—	2,51	—	—	—		
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—	—	
	0,55	—	—	—	—	—	—	—	
	0,63	—	—	—	—	—	—	—	
	0,75	—	—	—	—	—	—	—	
	0,88	—	—	—	—	—	—	—	
	1,00	0,83	0,83	0,83	0,83	—	—	—	
	1,13	—	—	—	0,83	0,83	—	—	
	1,25	—	—	—	0,83	0,83	—	—	
	1,50	—	—	—	1,04	1,04	—	—	
	1,75	—	—	—	—	1,04	—	—	
2,00	—	—	—	—	1,60	—	—		

Fastening screws for metal members and sheetings
AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W,
AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W,
MA W, MB W, MC 0, BH W, ARW 0

AR3+ W CSE 5,5xL
and sealing washer Ø14 mm

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of European
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Materials Fastener: carbon steel – SAE 1022, quenched, tempered and coated Washer: EPDM sealing washer with metal top made of aluminum Component I: 1050A – EN 573-3 Component II: 1050A – EN 573-3 Drilling capacity: $\Sigma t_i \leq 4,00$ mm	
Timber substructures no performance assessed	

$t_{N,II}$ [mm]	1,00	1,13	1,25	1,50	2,00	2,50	3,00	4,00	: Wood; class $\geq$ C24
$M_{t,nom}$	5 Nm								
$V_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,50	—	—	—	—	—	—	—	
	0,55	—	—	—	—	—	—	—	
	0,63	—	—	—	—	—	—	—	
	0,75	—	—	—	—	—	—	—	
	0,88	—	—	—	—	—	—	—	
	1,00	1,71	1,71	1,71	1,71	—	—	—	
	1,13	—	—	—	1,71	1,71	—	—	
	1,25	—	—	—	1,71	1,71	—	—	
	1,50	—	—	—	2,19	2,19	—	—	
	1,75	—	—	—	—	2,19	—	—	
2,00	—	—	—	—	2,51	—	—		
$N_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,50	—	—	—	—	—	—	—	
	0,55	—	—	—	—	—	—	—	
	0,63	—	—	—	—	—	—	—	
	0,75	—	—	—	—	—	—	—	
	0,88	—	—	—	—	—	—	—	
	1,00	0,90	0,90	0,90	0,90	—	—	—	
	1,13	—	—	—	0,90	0,90	—	—	
	1,25	—	—	—	0,90	0,90	—	—	
	1,50	—	—	—	1,66	1,66	—	—	
	1,75	—	—	—	—	1,66	—	—	
2,00	—	—	—	—	1,83	—	—		

Fastening screws for metal members and sheetings
AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W,
AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W,
MA W, MB W, MC 0, BH W, ARW 0

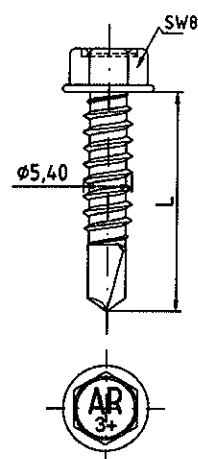
AR3+ W CSE 5,5xL
and sealing washer $\geq \varnothing 16$ mm

Annex 57
of European
Technical Assessment
ETA-18/0789

<u>Materials</u>	
Fastener:	carbon steel – SAE 1022, quenched, tempered and coated
Washer:	-
Component I:	1050A – EN 573-3
Component II:	1050A – EN 573-3
Drilling capacity:	$\Sigma t_i \leq 4,00$ mm

Timber substructures

no performance assessed

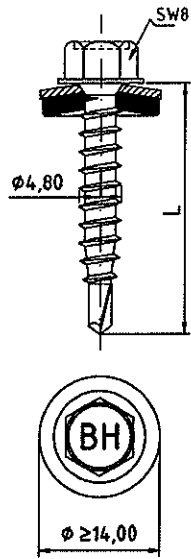


$t_{N,II}$ [mm]	1,00	1,13	1,25	1,50	2,00	2,50	3,00	4,00	Wood; class $\geq$ C24
$M_{t,nom}$	5 Nm								
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—	—	
	0,55	—	—	—	—	—	—	—	
	0,63	—	—	—	—	—	—	—	
	0,75	—	—	—	—	—	—	—	
	0,88	—	—	—	—	—	—	—	
	1,00	1,71	1,71	1,71	1,71	—	—	—	
	1,13	—	—	—	1,71	1,71	—	—	
	1,25	—	—	—	1,71	1,71	—	—	
	1,50	—	—	—	2,19	2,19	—	—	
	1,75	—	—	—	—	2,19	—	—	
2,00	—	—	—	—	2,51	—	—		
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—	—	
	0,55	—	—	—	—	—	—	—	
	0,63	—	—	—	—	—	—	—	
	0,75	—	—	—	—	—	—	—	
	0,88	—	—	—	—	—	—	—	
	1,00	0,13	0,13	0,13	0,13	0,13	—	—	
	1,13	—	—	—	0,13	0,13	—	—	
	1,25	—	—	—	0,13	0,13	—	—	
	1,50	—	—	—	0,34	0,34	—	—	
	1,75	—	—	—	—	0,34	—	—	
2,00	—	—	—	—	0,62	—	—		

Fastening screws for metal members and sheetings
AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W,
AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W,
MA W, MB W, MC 0, BH W, ARW 0

AR3+ W CSE 5,5xL

Annex 58
of European
Technical Assessment
ETA-18/0789

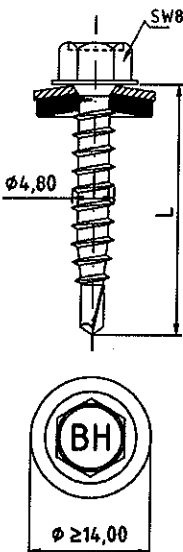
Materials Fastener: carbon steel – SAE 1022, quenched, tempered and coated Washer: EPDM sealing washer with metal top made of coated carbon steel Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S280GD, S320GD or S350GD – EN 10346 or structural timber – EN 14081	
Drilling capacity: $\Sigma ti \leq 2 \times 1,00 \text{ mm}$	
Timber substructures For timber substructures performance assessed with: $M_{y,Rk} = 4,39 \text{ Nm}$ $f_{ax,k} = 17,396 \text{ N/mm}^2$ for $l_{ef} \geq 20 \text{ mm}$	

$t_{N,II} [\text{mm}]$	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood; class $\geq$ C24
$M_{t,nom}$	3 Nm								—
$V_{R,k} [\text{kN}]$ for $t_{N,I} [\text{mm}]$	0,50	1,12	1,12	1,12	1,12	1,12	1,12	—	1,43
	0,55	1,12	1,12	1,12	1,12	1,12	1,12	—	1,43
	0,63	1,12	1,12	1,47	1,47	1,47	1,47	—	1,43
	0,75	1,12	1,12	1,47	1,72	1,72	1,72	—	1,43
	0,88	1,12	1,12	1,47	1,72	1,72	1,72	—	1,43
	1,00	1,12	1,12	1,47	1,72	1,72	1,72	—	1,43
	1,13	—	—	—	—	—	—	—	1,43
	1,25	—	—	—	—	—	—	—	1,43
	1,50	—	—	—	—	—	—	—	1,43
	1,75	—	—	—	—	—	—	—	1,43
	2,00	—	—	—	—	—	—	—	1,43
$N_{R,k} [\text{kN}]$ for $t_{N,I} [\text{mm}]$	0,50	0,55	0,55	0,55	0,55	0,55	0,55	—	1,67
	0,55	0,55	0,55	0,55	0,55	0,55	0,55	—	1,67
	0,63	0,55	0,55	0,71	0,71	0,71	0,71	—	1,67
	0,75	0,55	0,55	0,71	0,81	0,81	0,81	—	1,67
	0,88	0,55	0,55	0,71	0,81	1,19	1,19	—	1,67
	1,00	0,55	0,55	0,71	0,81	1,19	1,56	—	1,67
	1,13	—	—	—	—	—	—	—	1,67
	1,25	—	—	—	—	—	—	—	1,67
	1,50	—	—	—	—	—	—	—	1,67
	1,75	—	—	—	—	—	—	—	1,67
	2,00	—	—	—	—	—	—	—	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 sheetings AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W, AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W, MA W, MB W, MC 0, BH W, ARW 0	Annex 59 of European Technical Assessment ETA-18/0789
BH W CS 4,8xL, BH W CSG 4,8xL and BH W CSE 4,8xL and sealing washer $\geq \varnothing 14 \text{ mm}$	

Materials Fastener: carbon steel – SAE 1022, quenched, tempered and coated Washer: EPDM sealing washer with metal top made of aluminum Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S280GD, S320GD or S350GD – EN 10346 or structural timber – EN 14081 Drilling capacity: $\Sigma t_i \leq 2 \times 1,00 \text{ mm}$	
Timber substructures For timber substructures performance assessed with: $M_{y,Rk} = 4,39 \text{ Nm}$ $f_{ax,k} = 17,396 \text{ N/mm}^2$ for $l_{ef} \geq 20 \text{ mm}$	

$t_{N,II} [\text{mm}]$	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood; class $\geq$ C24
$M_{t, \text{nom}}$	3 Nm							—	—
$V_{R,k} [\text{kN}]$ for $t_{N,I} [\text{mm}]$	0,50	1,12	1,12	1,12	1,12	1,12	1,12	—	0,75
	0,55	1,12	1,12	1,12	1,12	1,12	1,12	—	0,75
	0,63	1,12	1,12	1,47	1,47	1,47	1,47	—	0,75
	0,75	1,12	1,12	1,47	1,72	1,72	1,72	—	0,75
	0,88	1,12	1,12	1,47	1,72	1,72	1,72	—	0,75
	1,00	1,12	1,12	1,47	1,72	1,72	1,72	—	0,75
	1,13	—	—	—	—	—	—	—	0,75
	1,25	—	—	—	—	—	—	—	0,75
	1,50	—	—	—	—	—	—	—	0,75
	1,75	—	—	—	—	—	—	—	0,75
	2,00	—	—	—	—	—	—	—	0,75
$N_{R,k} [\text{kN}]$ for $t_{N,I} [\text{mm}]$	0,50	0,55	0,55	0,55	0,55	0,55	0,55	—	1,10
	0,55	0,55	0,55	0,55	0,55	0,55	0,55	—	1,10
	0,63	0,55	0,55	0,71	0,71	0,71	0,71	—	1,10
	0,75	0,55	0,55	0,71	0,81	0,81	0,81	—	1,10
	0,88	0,55	0,55	0,71	0,81	1,19	1,19	—	1,10
	1,00	0,55	0,55	0,71	0,81	1,19	1,56	—	1,10
	1,13	—	—	—	—	—	—	—	1,10
	1,25	—	—	—	—	—	—	—	1,10
	1,50	—	—	—	—	—	—	—	1,10
	1,75	—	—	—	—	—	—	—	1,10
	2,00	—	—	—	—	—	—	—	1,10

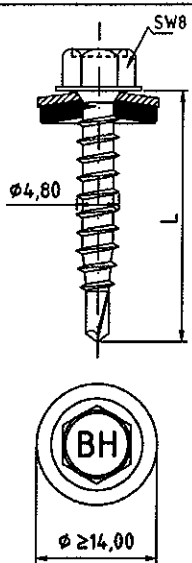
If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%

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 sheetings
AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W,
AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W,
MA W, MB W, MC 0, BH W, ARW 0

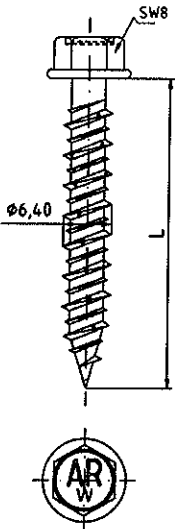
BH W CS 4,8xL, BH W CSG 4,8xL and BH W CSE 4,8xL
 and sealing washer $\geq \text{Ø}14 \text{ mm}$

Annex 60
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 Technical Assessment
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Materials Fastener: carbon steel – SAE 1022, quenched, tempered and coated Washer: EPDM sealing washer with metal top made of aluminum Component I: 1050A – EN 573-3 Component II: structural timber – EN 14081 Drilling capacity: $\sum t_i \leq 2 \text{ mm}$ Timber substructures For timber substructures performance assessed with: $M_{y,Rk} = 4,39 \text{ Nm}$ $f_{ax,k} = 17,396 \text{ N/mm}^2$ for $l_{ef} \geq 20 \text{ mm}$	
--	---

$t_{N,II} [\text{mm}]$	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood; class $\geq$ C24
$M_{t,nom}$	3 Nm								
$V_{R,k} [\text{kN}]$ for $t_{N,I} [\text{mm}]$	0,50	—	—	—	—	—	—	—	0,62
	0,55	—	—	—	—	—	—	—	0,62
	0,63	—	—	—	—	—	—	—	0,62
	0,75	—	—	—	—	—	—	—	0,62
	0,88	—	—	—	—	—	—	—	0,62
	1,00	—	—	—	—	—	—	—	0,62
	1,13	—	—	—	—	—	—	—	0,62
	1,25	—	—	—	—	—	—	—	0,62
	1,50	—	—	—	—	—	—	—	0,62
	1,75	—	—	—	—	—	—	—	0,62
2,00	—	—	—	—	—	—	—	0,62	
$N_{R,k} [\text{kN}]$ for $t_{N,I} [\text{mm}]$	0,50	—	—	—	—	—	—	—	0,80
	0,55	—	—	—	—	—	—	—	0,80
	0,63	—	—	—	—	—	—	—	0,80
	0,75	—	—	—	—	—	—	—	0,80
	0,88	—	—	—	—	—	—	—	0,80
	1,00	—	—	—	—	—	—	—	0,80
	1,13	—	—	—	—	—	—	—	0,80
	1,25	—	—	—	—	—	—	—	0,80
	1,50	—	—	—	—	—	—	—	0,80
	1,75	—	—	—	—	—	—	—	0,80
2,00	—	—	—	—	—	—	—	0,80	

Fastening screws for metal members and sheetings AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W, AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W, MA W, MB W, MC 0, BH W, ARW 0 BH W CSE 4,8xL and sealing washer $\geq \varnothing 14 \text{ mm}$	Annex 61 of European Technical Assessment ETA-18/0789
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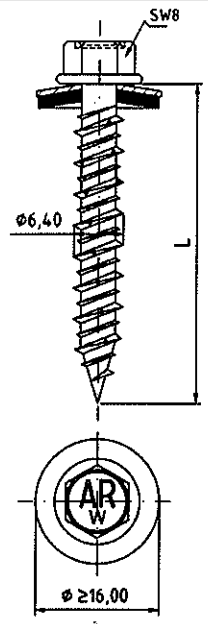
Materials Fastener: carbon steel – SAE 1022, quenched, tempered and coated Washer: - Component I: S280GD, S320GD or S350GD – EN 10346 Component II: structural timber – EN 14081 Drilling capacity: $\sum t_i \leq 1 \text{ mm}$	
Timber substructures For timber substructures performance assessed with: $M_{y,Rk} = 9,28 \text{ Nm}$ $f_{ax,k} = 14,808 \text{ N/mm}^2$ for $l_{ef} \geq 30 \text{ mm}$ $f_{ax,k} = 14,761 \text{ N/mm}^2$ for $l_{ef} \geq 40 \text{ mm}$	

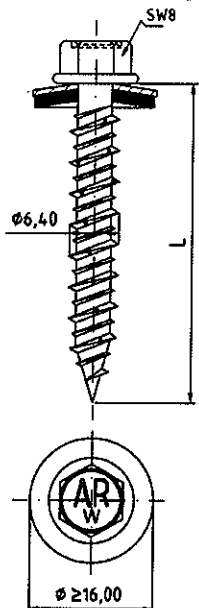
$t_{N,II}$ [mm]		0,50	0,55	0,63	0,75	0,88	1,00	Wood; class $\geq$ C24		
$M_{t,nom}$		6 Nm						$l_{ef} \geq 30 \text{ mm}$	$l_{ef} \geq 40 \text{ mm}$	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—	1,15	1,15	bearing resistance of component I
	0,55	—	—	—	—	—	—	1,15	1,15	
	0,63	—	—	—	—	—	—	1,52	1,52	
	0,75	—	—	—	—	—	—	1,74	1,74	
	0,88	—	—	—	—	—	—	1,74	1,74	
	1,00	—	—	—	—	—	—	1,74	1,74	
	1,13	—	—	—	—	—	—	—	—	
	1,25	—	—	—	—	—	—	—	—	
	1,50	—	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—	0,72	0,72	pull-through resistance of component I
	0,55	—	—	—	—	—	—	0,72	0,72	
	0,63	—	—	—	—	—	—	1,05	1,05	
	0,75	—	—	—	—	—	—	1,15	1,15	
	0,88	—	—	—	—	—	—	1,16	1,16	
	1,00	—	—	—	—	—	—	1,32	1,32	
	1,13	—	—	—	—	—	—	—	—	
	1,25	—	—	—	—	—	—	—	—	
	1,50	—	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	

Fastening screws for metal members and sheetings
AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W,
AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W,
MA W, MB W, MC 0, BH W, ARW 0

ARW 0 CS 6,4xL, ARW 0 CSG 6,4xL and ARW 0 CSE 6,4xL

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Materials Fastener: carbon steel – SAE 1022, quenched, tempered and coated Washer: EPDM sealing washer with metal top made of aluminum Component I: S280GD, S320GD or S350GD – EN 10346 Component II: structural timber – EN 14081 Drilling capacity: $\Sigma t_i \leq 1 \text{ mm}$ Timber substructures For timber substructures performance assessed with: $M_{y,Rk} = 9,28 \text{ Nm}$ $f_{ax,k} = 14,808 \text{ N/mm}^2$ for $l_{ef} \geq 30 \text{ mm}$ $f_{ax,k} = 14,761 \text{ N/mm}^2$ for $l_{ef} \geq 40 \text{ mm}$																																																																																																																																																																																																																	
<table><tr><th>$t_{N,II} [\text{mm}]$</th><th>0,50</th><th>0,55</th><th>0,63</th><th>0,75</th><th>0,88</th><th>1,00</th><th colspan="3">Wood; class $\geq \text{C24}$</th></tr><tr><th>$M_{t,nom}$</th><th colspan="6">6 Nm</th><th>$l_{ef} \geq 30 \text{ mm}$</th><th>$l_{ef} \geq 40 \text{ mm}$</th><th></th></tr><tr><td rowspan="11">$V_{R,k} [\text{kN}]$ for $t_{N,I} [\text{mm}]$</td><td>0,50</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>1,15</td><td>1,15</td><td rowspan="11">bearing resistance of component I</td></tr><tr><td>0,55</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>1,15</td><td>1,15</td></tr><tr><td>0,63</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>1,52</td><td>1,52</td></tr><tr><td>0,75</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>1,74</td><td>1,74</td></tr><tr><td>0,88</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>1,74</td><td>1,74</td></tr><tr><td>1,00</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>1,74</td><td>1,74</td></tr><tr><td>1,13</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td></tr><tr><td>1,25</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td></tr><tr><td>1,50</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td></tr><tr><td>1,75</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td></tr><tr><td>2,00</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td></tr><tr><td rowspan="11">$N_{R,k} [\text{kN}]$ for $t_{N,I} [\text{mm}]$</td><td>0,50</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>2,84*</td><td>3,08*</td><td rowspan="12">* pull-through resistance of component I ** pull-out of the fastener from the component II</td></tr><tr><td>0,55</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>2,84*</td><td>3,08*</td></tr><tr><td>0,63</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>2,84*</td><td>3,52*</td></tr><tr><td>0,75</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>2,84*</td><td>3,87**</td></tr><tr><td>0,88</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>2,84*</td><td>3,87**</td></tr><tr><td>1,00</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>2,84*</td><td>3,87**</td></tr><tr><td>1,13</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td></tr><tr><td>1,25</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td></tr><tr><td>1,50</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td></tr><tr><td>1,75</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td></tr><tr><td>2,00</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td></tr></table>										$t_{N,II} [\text{mm}]$	0,50	0,55	0,63	0,75	0,88	1,00	Wood; class $\geq \text{C24}$			$M_{t,nom}$	6 Nm						$l_{ef} \geq 30 \text{ mm}$	$l_{ef} \geq 40 \text{ mm}$		$V_{R,k} [\text{kN}]$ for $t_{N,I} [\text{mm}]$	0,50	—	—	—	—	—	1,15	1,15	bearing resistance of component I	0,55	—	—	—	—	—	1,15	1,15	0,63	—	—	—	—	—	1,52	1,52	0,75	—	—	—	—	—	1,74	1,74	0,88	—	—	—	—	—	1,74	1,74	1,00	—	—	—	—	—	1,74	1,74	1,13	—	—	—	—	—	—	—	1,25	—	—	—	—	—	—	—	1,50	—	—	—	—	—	—	—	1,75	—	—	—	—	—	—	—	2,00	—	—	—	—	—	—	—	$N_{R,k} [\text{kN}]$ for $t_{N,I} [\text{mm}]$	0,50	—	—	—	—	—	2,84*	3,08*	* pull-through resistance of component I ** pull-out of the fastener from the component II	0,55	—	—	—	—	—	2,84*	3,08*	0,63	—	—	—	—	—	2,84*	3,52*	0,75	—	—	—	—	—	2,84*	3,87**	0,88	—	—	—	—	—	2,84*	3,87**	1,00	—	—	—	—	—	2,84*	3,87**	1,13	—	—	—	—	—	—	—	1,25	—	—	—	—	—	—	—	1,50	—	—	—	—	—	—	—	1,75	—	—	—	—	—	—	—	2,00	—	—	—	—	—	—	—
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$V_{R,k} [\text{kN}]$ for $t_{N,I} [\text{mm}]$	0,50	—	—	—	—	—	1,15	1,15	bearing resistance of component I																																																																																																																																																																																																								
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$N_{R,k} [\text{kN}]$ for $t_{N,I} [\text{mm}]$	0,50	—	—	—	—	—	2,84*	3,08*	* pull-through resistance of component I ** pull-out of the fastener from the component II																																																																																																																																																																																																								
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Fastening screws for metal members and sheetings AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W, AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W, MA W, MB W, MC 0, BH W, ARW 0 ARW 0 CS 6,4xL, ARW 0 CSG 6,4xL and ARW 0 CSE 6,4xL and sealing washer $\geq \varnothing 16 \text{ mm}$							Annex 63 of European Technical Assessment ETA-18/0789																																																																																																																																																																																																										

Materials Fastener: carbon steel – SAE 1022, quenched, tempered and coated Washer: EPDM sealing washer with metal top made of coated carbon steel or stainless steel Component I: S280GD, S320GD or S350GD – EN 10346 Component II: structural timber – EN 14081 Drilling capacity: $\Sigma t_i \leq 1 \text{ mm}$	
Timber substructures For timber substructures performance assessed with: $M_{y,Rk} = 9,28 \text{ Nm}$ $f_{ax,k} = 14,808 \text{ N/mm}^2$ for $l_{ef} \geq 30 \text{ mm}$ $f_{ax,k} = 14,761 \text{ N/mm}^2$ for $l_{ef} \geq 40 \text{ mm}$	

$t_{u,i} [\text{mm}]$	0,50	0,55	0,63	0,75	0,88	1,00	Wood; class $\geq \text{C24}$		
$M_{t,nom}$	6 Nm						$l_{ef} \geq 30 \text{ mm}$	$l_{ef} \geq 40 \text{ mm}$	
$V_{R,k} [\text{kN}]$ for $t_{u,i} [\text{mm}]$	0,50	—	—	—	—	—	1,15	1,15	bearing resistance of component I
	0,55	—	—	—	—	—	1,15	1,15	
	0,63	—	—	—	—	—	1,52	1,52	
	0,75	—	—	—	—	—	1,74	1,74	
	0,88	—	—	—	—	—	1,74	1,74	
	1,00	—	—	—	—	—	1,74	1,74	
	1,13	—	—	—	—	—	—	—	
	1,25	—	—	—	—	—	—	—	
	1,50	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	
$N_{R,k} [\text{kN}]$ for $t_{u,i} [\text{mm}]$	0,50	—	—	—	—	—	2,84*	3,23*	pull-through resistance of component I ** pull-out of the fastener from the component II
	0,55	—	—	—	—	—	2,84*	3,23*	
	0,63	—	—	—	—	—	2,84*	3,64*	
	0,75	—	—	—	—	—	2,84*	3,87**	
	0,88	—	—	—	—	—	2,84*	3,87**	
	1,00	—	—	—	—	—	2,84*	3,87**	
	1,13	—	—	—	—	—	—	—	
	1,25	—	—	—	—	—	—	—	
	1,50	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	

Fastening screws for metal members and sheetings
AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W,
AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W,
MA W, MB W, MC 0, BH W, ARW 0

ARW 0 CS 6,4xL, ARW 0 CSG 6,4xL and ARW 0 CSE 6,4xL
and sealing washer $\geq \varnothing 16 \text{ mm}$

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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 $\gamma_M = 1,33$. The recommended partial safety factor γ_M should be used in cases where no value is given in 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 $\gamma_M = 1,33$. If failure of the metal component with the thickness t_f and not failure of the timber substructure is the relevant failure mode then $k_{mod} = 1.0$.

The recommended partial safety factor γ_M should be used in cases where no value is given in 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 $\gamma_M = 1,33$. The recommended partial safety factor γ_M should be used in cases where no value is given in 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 $\gamma_M = 1,33$. The recommended partial safety factor γ_M should be used in cases where no value is given in 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 $\gamma_M = 1,33$. The recommended partial safety factor γ_M should be used in cases where no value is given in 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 pull-through resistance or relevant pull-out resistance for the corresponding connection.

3. Design Resistance in case of combined Tension and Shear Forces (interaction)

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

Fastening screws for metal members and sheetings AR 0, AR0 W, AR0 PZ W, AR2 W, AR3 W, AR3+ W, AR5 W, AR5 PZ W, AR6 W, AR8 W, AR12 W, AR12 PZ W, AR16 W, MA W, MB W, MC 0, BH W, ARW 0	Annex 65 of European Technical Assessment ETA-18/0789
Determination of design values	