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

UK Technical Assessment	UKTA-0836-22/6336 of 22/11/2022
Technical Assessment Body issuing the UK Technical Assessment:	British Board of Agrément
Trade name of the construction product:	OCWS 4,8 x L, OCWS 5,5 x L, OCS 5,5 x L, ONS 5,5 x L, ODWS 6,5 x L
Product family to which the construction product belongs:	Area Code 33, Fastening screws for metal members and sheeting
Manufacturer:	RAWLPLUG S.A. Kwidzynska 6 51-416 WROCLAW POLEN
Manufacturing plants:	Manufacturing Plant 2 Manufacturing Plant 22
This UK Technical Assessment contains:	16 pages including 11 annexes which form an integral part of this assessment
This UK Technical Assessment is issued in accordance with The Construction Products (Amendment etc.) (EU Exit) Regulations 2020 on the basis of:	UKAD 330046-01-0602 *Fastening screws for metal members and sheeting*

1 Technical description of the product

The fastening screws are self-drilling or self-tapping screws manufactured from austenitic stainless steel or carbon steel with anti-corrosion coating (listed in Table 1).

The fastening screws are normally completed with sealing washers consisting of metal washer and EPDM-seal.

Table 1 Fastening screws for metal members and sheeting

No.	Self-Drilling Screw	Description	Annex
1	OCWS-4,8	with hexagon head and sealing washer ≥ Ø14 mm	Annex 4
2	OCWS-5,5	with hexagon head and sealing washer ≥ Ø16 mm	Annex 5
3	OCWS-5,5	with hexagon head and sealing washer ≥ Ø16 mm	Annex 6
4*	ODWS-6,5	with hexagon head and sealing washer ≥ Ø16 mm	Annex 7
5*	OCS-5,5	with hexagon head and sealing washer ≥ Ø16 mm	Annex 8
6*	OCS-5,5	with hexagon head and sealing washer ≥ Ø16 mm	Annex 9
7	ONS-5,5	with hexagon head and sealing washer ≥ Ø16 mm	Annex 10
8	ONS-5,5	with hexagon head	Annex 11

* These self-drilling screws are applicable for fastening to timber substructure.

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

The fastening screws are intended to be used for fastening metal sheeting to metal or timber substructures. The sheeting can either be used as wall or roof cladding or as load bearing wall and roof element. The fastening screws can also be used for the fastening of any other thin gauge metal members. The intended use comprises fastening screws and connections for indoor and outdoor applications. Fastening screws which are intended to be used in external environments with ≥C2 corrosion according to the standard EN ISO 12944-2 are made of stainless steel. Furthermore, the intended use comprises connections with predominantly static loads (e. g. wind loads, dead loads). The fastening screws are not intended for re-use.

The performances given in Section 3 are only valid if the fastening screws are used in compliance with the specifications and conditions given in Annexes (1-11).

The verification and assessment methods on which this UK Technical Assessment is based lead to the assumption of a working life of the fastening screws of at least 25 years. The indications given on the working life cannot be interpreted as a guarantee given by the manufacturer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

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

3.1 Mechanical resistance and stability (BWR 1)

Essential Characteristic	Performance
Shear Resistance of the Connection	see Annexes to this UKTA
Tension Resistance of the Connection	see Annexes to this UKTA
Design Resistance in case of combined Tension and Shear Forces (interaction)	see Annexes to this UKTA
Check of Deformation Capacity in case of constraining forces due to temperature	No performance assessed
Durability	No performance assessed

3.2 Safety in case of fire (BWR 2)

Essential Characteristic	Performance
Reaction to fire	Performance Class A1

3.3 Health, hygiene and the environment (BWR 3)

Not relevant.

3.4 Safety and accessibility in use (BWR 4)

Not relevant.

3.5 Protection against noise (BWR 5)

Not relevant.

3.6 Energy economy and heat retention (BWR 6)

Not relevant.

3.7 Sustainable use of natural resources (BWR 7)

No performance assessed.

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

4.1 System of assessment and verification of constancy of performance

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

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

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

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

- Identification number of the Approved Body
- Name/address of the manufacturer of the product/ system
- Marking with intention of clarification of intended use
- Date of marking
- Number of certificate of constancy of performance
- UKTA number.

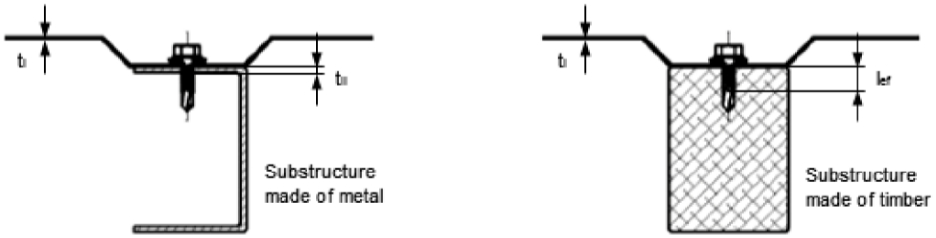
On behalf of the British Board of Agrément 	
Date of Issue: 22 November 2022	**Hardy Giesler** Chief Executive Officer

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

ANNEXES

This annex applies to the product described in the main body of the UK Technical Assessment.

Examples of execution of a connection



Materials and dimensions

Design relevant materials and dimensions are indicated in the Annexes of the fastening screws:

Fastener	Material of the fastening screw
Washer	Material of the sealing washer
Component I	Material of the metal member or sheeting
Component II	Material of the substructure

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

The thickness t_{II} corresponds to the load-bearing screw-in length of the fastening screw in component II, if the load-bearing screw-in length does not cover the entire component thickness.

Performance characteristics

The design relevant performance characteristics of a connection are indicated in the Annexes of the fastening screws.

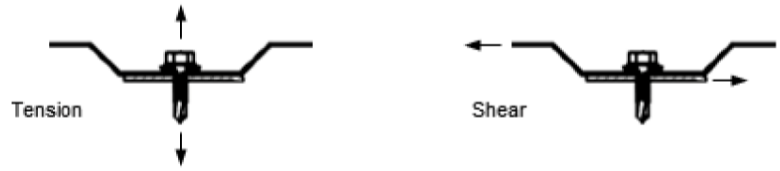
$N_{R,k}$	Characteristic value of tension resistance
$V_{R,k}$	Characteristic value of shear resistance

In some cases component-specific performance characteristics are indicated for an individual calculation of the design relevant performance characteristics of a connection:

$N_{R,I,k}$	Characteristic value of pull-through resistance for component I
$N_{R,II,k}$	Characteristic value of pull-out resistance for component II
$V_{R,I,k}$	Characteristic value of hole bearing resistance for component I
$V_{R,II,k}$	Characteristic value of hole bearing resistance for component II
$M_{y,Rk}$	Characteristic value of yield moment of the fastening screw (for component II made of timber)
$f_{ax,k}$	Characteristic value of withdrawal strength for component II made of timber
$f_{h,k}$	Characteristic value of embedding strength for component II made of timber

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

Occurred loadings of a connection



Design values

The design values of tension and shear resistance of a connection have to be determined as follows:

$$N_{R,d} = \frac{N_{R,k}}{\gamma_M} \qquad V_{R,d} = \frac{V_{R,k}}{\gamma_M}$$

$N_{R,d}$	Design value of tension resistance
$V_{R,d}$	Design value of shear resistance
γ_M	Partial safety factor

The recommended partial safety factor γ_M is 1.33, provided no partial safety factor is given in national regulations or national Annexes to Eurocode 3.

Special conditions

If the component thickness t_I or t_{II} lies in between two indicated component thicknesses, the characteristic value may be calculated by linear interpolation.

For asymmetric components II made of metal (e.g. Z- or C-shaped profiles) with component thickness $t_{II} < 5$ mm, the characteristic value $N_{R,k}$ has to be reduced to 70%.

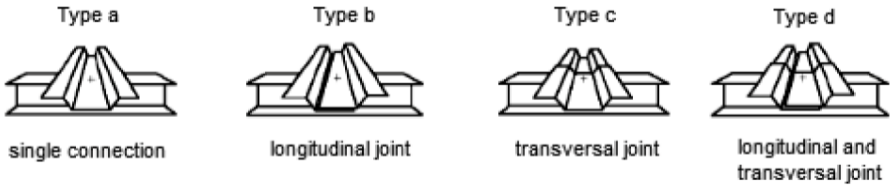
In case of combined loading by tension and shear forces the following interaction equation has to be taken into account:

$$\frac{N_{S,d}}{N_{R,d}} + \frac{V_{S,d}}{V_{R,d}} \leq 1{,}0$$

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

Types of connection

For the types of connection (a, b, c, d) given in the Annexes of the fastening screws, it is not necessary to take into account the effect of constraints due to temperature. For other types of connection the effect of constraints have to be taken into account, unless they do not occur or are not significant (e.g. sufficient flexibility of the substructure).



Installation conditions

The installation is carried out according to manufacturer's instruction.

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

The fastening screws have to be processed with suitable drill driver (e.g. cordless drill driver with depth stop). The use of impact wrench is not allowed.

The fastening screws have to be fixed rectangular to the surface of the component.

Component I and component II have to be in direct contact to each other. The use of compression resistant thermal insulation strips up to a thickness of 3 mm is allowed.

Design and installation	
Fastening screws for metals members and sheeting	**Annex 2**

Component I made of perforated sheeting

The characteristic values of tension and shear resistance are determined as follows:

$$N_{R,k} = \min \begin{cases} N_{R,I,k} \\ N_{R,II,k} \end{cases} \qquad V_{R,k} = \min \begin{cases} V_{R,I,k} \\ V_{R,k} \end{cases}$$

$N_{R,I,k}$ and $V_{R,I,k}$ are given in Annex 4 and 5.

$N_{R,II,k}$ and $V_{R,k}$ are given in the Annex of the fastening screw.

Component I made of aluminium alloy

The characteristic value of tension resistance is determined as follows:

$$N_{R,k} = \min \begin{cases} N_{R,I,k} \\ N_{R,II,k} \end{cases}$$

$N_{R,I,k}$ is determined according to EN 1999-1-4:2007 + AC:2009, equation (8.13).

$N_{R,II,k}$ is given in the Annex of the fastening screw.

Component II made of timber

The characteristic values of tension and shear resistance for other k_{mod} or ρ_k as indicated in the Annex of the fastening screw can be determined as follows:

$$N_{R,k} = \min \begin{cases} N_{R,I,k} \\ N_{R,II,k} * k_{mod} \end{cases} \qquad V_{R,k} = \min \begin{cases} V_{R,I,k} \\ V_{R,II,k} * k_{mod} \end{cases}$$

$N_{R,I,k}$ and $V_{R,I,k}$ are given in the Annex of the fastening screw.

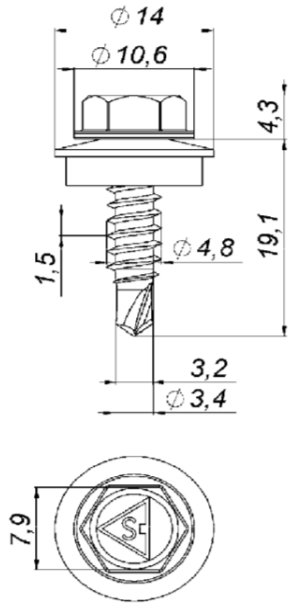
$N_{R,II,k}$ is determined according to EN 1995-1-1:2004 + A1:2008, equation (8.40a), with $f_{ax,k}$ given in the Annex of the fastening screw.

$V_{R,II,k}$ is determined according to EN 1995-1-1:2004 + A1:2008, equation (8.9), with $M_{y,Rk}$ and $f_{h,k}$ given in the Annex of the fastening screw.

Additional provisions

Fastening screws for metals members and sheeting

Annex 3



Materials

Fastener: stainless steel (1.4301) - EN 10088
Bi-metal

Washer: stainless steel (1.4301) - EN 10088

Component I: S280GD, S320GD or S350GD - EN 10346

Component II: S280GD, S320GD or S350GD - EN 10346

Drilling capacity $\Sigma t_i \leq 2{,}00$ mm

Timber substructures

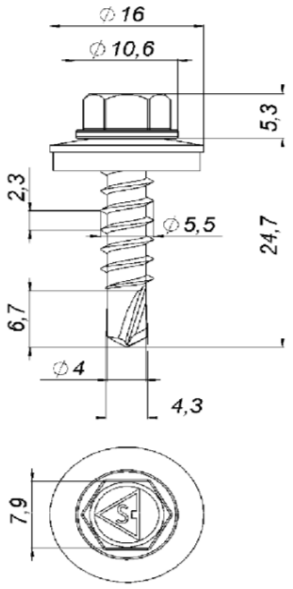
no performance determined

$t_{N,II}$ [mm]		0,40	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	1,50
$M_{t,nom}$		3 Nm							3,5 Nm		
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,40	0,57	0,71	0,77	0,86	1,05	1,05	1,05	1,05	1,05	1,05
	0,50	0,57	0,88	0,94	1,07	1,05	1,05	1,05	1,05	1,05	1,05
	0,55	0,57	0,88	1,11	1,17	1,20	1,20	1,20	1,20	1,20	—
	0,63	0,57	0,88	1,11	1,34	1,34	1,34	1,34	1,34	1,34	—
	0,75	0,57	0,88	1,11	1,34	1,61	1,61	1,61	1,61	1,61	—
	0,88	0,57	0,88	1,11	1,34	1,61	2,01	2,01	—	—	—
	1,00	0,57	0,88	1,11	1,34	1,61	2,01	2,40	—	—	—
	1,13	0,57	0,88	1,11	1,34	1,61	—	—	—	—	—
	1,25	0,57	0,88	1,11	1,34	1,61	—	—	—	—	—
	1,50	0,57	0,88	—	—	—	—	—	—	—	—
	1,75	—	—	—	—	—	—	—	—	—	—
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,40	0,35	0,45	0,51	0,62	0,81	1,04	1,29	1,49	1,49	1,49
	0,50	0,35	0,45	0,51	0,62	0,81	1,04	1,29	1,49	1,49	1,49
	0,55	0,35	0,45	0,51	0,62	0,81	1,04	1,29	1,49	1,49	—
	0,63	0,35	0,45	0,51	0,62	0,81	1,04	1,29	1,49	1,49	—
	0,75	0,35	0,45	0,51	0,62	0,81	1,04	1,29	1,49	1,49	—
	0,88	0,35	0,45	0,51	0,62	0,81	1,04	1,29	—	—	—
	1,00	0,35	0,45	0,51	0,62	0,81	1,04	1,29	—	—	—
	1,13	0,35	0,45	0,51	0,62	0,81	—	—	—	—	—
	1,25	0,35	0,45	0,51	0,62	0,81	—	—	—	—	—
	1,50	0,35	0,45	—	—	—	—	—	—	—	—
	1,75	—	—	—	—	—	—	—	—	—	—

OCWS 4,8 x L, OCWS 5,5 x L, OCS 5,5 x L, ONS 5,5 x L, ODWS 6,5 x L

OCWS-4,8
with hexagon head and sealing washer ≥ Ø14 mm

Annex 4



Materials

Fastener: stainless steel (1.4301) - EN 10088
Bi-metal

Washer: stainless steel (1.4301) - EN 10088

Component I: S280GD, S320GD or S350GD - EN 10346

Component II: S235 or S275 - EN 10025-1
S280GD, S320GD or S350GD - EN 10346

Drilling capacity $\Sigma t_i \leq 6{,}00$ mm

Timber substructures

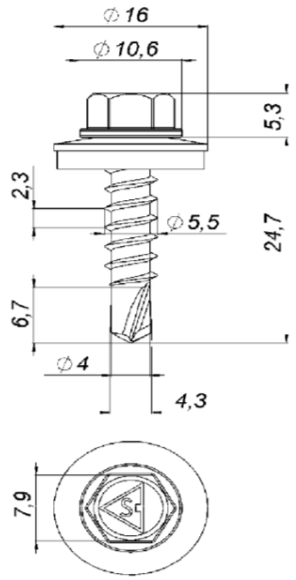
no performance determined

$t_{N,II}$ [mm]		1,00		1,13		1,25		1,50		1,75		2,00		2,50		3,00	
$M_{t,nom}$		3 Nm				4 Nm										4,5 Nm	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,30	—	1,30	—	1,30	—	1,30	—	1,30	—	1,30	—	1,30	—	1,30	—
	0,55	1,36	—	1,36	—	1,36	—	1,36	—	1,36	—	1,36	—	1,36	—	1,36	—
	0,63	1,45	—	1,68	—	1,91	—	1,91	—	1,91	—	1,91	—	1,91	—	1,91	—
	0,75	1,69	—	1,88	—	2,08	—	2,13	—	2,18	—	2,18	—	2,18	—	2,18	—
	0,88	1,90	—	2,08	—	2,26	—	2,36	—	2,47	—	2,63	—	2,87	—	3,13	—
	1,00	2,11	—	2,24	—	2,42	—	2,59	—	2,74	—	3,08	—	3,57	—	4,08	—
	1,13	2,11	—	2,24	—	2,42	—	2,71	—	2,99	—	3,40	—	4,13	—	4,88	—
	1,25	2,11	—	2,24	—	2,42	—	2,83	—	3,23	—	3,72	—	4,70	—	5,68	—
	1,50	2,11	—	2,24	—	2,42	—	2,83	—	3,23	—	3,72	—	4,70	—	5,68	—
	1,75	2,11	—	2,24	—	2,42	—	2,83	—	3,23	—	3,72	—	4,70	—	5,68	—
	2,00	2,11	—	2,24	—	2,42	—	2,83	—	3,23	—	3,72	—	4,70	—	5,68	—
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,80	—	1,06	—	1,29	—	1,67	—	1,67	—	1,67	—	1,67	—	1,67	—
	0,55	0,80	—	1,06	—	1,29	—	1,79	—	1,92	—	1,92	—	1,92	—	1,92	—
	0,63	0,80	—	1,06	—	1,29	—	1,79	—	2,30	—	2,32	—	2,32	—	2,32	—
	0,75	0,80	—	1,06	—	1,29	—	1,79	—	2,30	—	2,81	—	2,93	—	2,93	—
	0,88	0,80	—	1,06	—	1,29	—	1,79	—	2,30	—	2,81	—	3,61	—	3,61	—
	1,00	0,80	—	1,06	—	1,29	—	1,79	—	2,30	—	2,81	—	3,85	—	4,25	—
	1,13	0,80	—	1,06	—	1,29	—	1,79	—	2,30	—	2,81	—	3,85	—	4,25	—
	1,25	0,80	—	1,06	—	1,29	—	1,79	—	2,30	—	2,81	—	3,85	—	4,25	—
	1,50	0,80	—	1,06	—	1,29	—	1,79	—	2,30	—	2,81	—	3,85	—	4,25	—
	1,75	0,80	—	1,06	—	1,29	—	1,79	—	2,30	—	2,81	—	3,85	—	4,25	—
	2,00	0,80	—	1,06	—	1,29	—	1,79	—	2,30	—	2,81	—	3,85	—	4,25	—

OCWS 4,8 x L, OCWS 5,5 x L, OCS 5,5 x L, ONS 5,5 x L, ODWS 6,5 x L

OCWS-5,5
with hexagon head and sealing washer ≥ Ø16 mm

Annex 5



Materials

Fastener: stainless steel (1.4301) - EN 10088
Bi-metal

Washer: stainless steel (1.4301) - EN 10088

Component I: 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

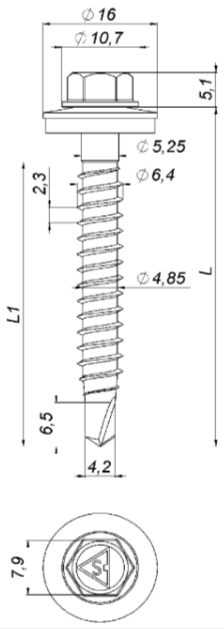
no performance determined

$t_{N,II}$ [mm]		2 x 0,63	2 x 0,75	2 x 0,88	2 x 1,00	—	—	—	—
$M_{t,nom}$		5 Nm				—			
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,17 —	1,17 —	1,17 —	1,17 —	— —	— —	— —	— —
	0,55	1,17 —	1,17 —	1,17 —	1,17 —	— —	— —	— —	— —
	0,63	1,17 —	1,47 —	1,47 —	1,47 —	— —	— —	— —	— —
	0,75	1,17 —	1,47 —	1,60 —	1,74 —	— —	— —	— —	— —
	0,88	1,17 —	1,47 —	1,60 —	1,74 —	— —	— —	— —	— —
	1,00	1,17 —	1,47 —	1,60 —	1,74 —	— —	— —	— —	— —
	1,13	1,17 —	1,47 —	1,60 —	1,74 —	— —	— —	— —	— —
	1,25	1,17 —	1,47 —	1,60 —	1,74 —	— —	— —	— —	— —
	1,50	1,17 —	1,47 —	1,60 —	1,74 —	— —	— —	— —	— —
	1,75	1,17 —	1,47 —	1,60 —	1,74 —	— —	— —	— —	— —
	2,00	1,17 —	1,47 —	1,60 —	1,74 —	— —	— —	— —	— —
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,03 —	1,41 —	1,67 —	1,67 —	— —	— —	— —	— —
	0,55	1,03 —	1,41 —	1,90 —	1,92 —	— —	— —	— —	— —
	0,63	1,03 —	1,41 —	1,90 —	2,32 —	— —	— —	— —	— —
	0,75	1,03 —	1,41 —	1,90 —	2,42 —	— —	— —	— —	— —
	0,88	1,03 —	1,41 —	1,90 —	2,42 —	— —	— —	— —	— —
	1,00	1,03 —	1,41 —	1,90 —	2,42 —	— —	— —	— —	— —
	1,13	1,03 —	1,41 —	1,90 —	2,42 —	— —	— —	— —	— —
	1,25	1,03 —	1,41 —	1,90 —	2,42 —	— —	— —	— —	— —
	1,50	1,03 —	1,41 —	1,90 —	2,42 —	— —	— —	— —	— —
	1,75	1,03 —	1,41 —	1,90 —	2,42 —	— —	— —	— —	— —
	2,00	1,03 —	1,41 —	1,90 —	2,42 —	— —	— —	— —	— —

OCWS 4,8 x L, OCWS 5,5 x L, OCS 5,5 x L, ONS 5,5 x L, ODWS 6,5 x L

OCWS-5,5
with hexagon head and sealing washer ≥ Ø16 mm

Annex 6



Materials

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Bi-metal

Washer: stainless steel (1.4301) - EN 10088

Component I: S280GD, S320GD or S350GD - EN 10346

Component II: S235 or S275 - EN 10025-1
S280GD, S320GD or S350GD - EN 10346

Drilling capacity $\Sigma t_i \leq 6{,}00$ mm

Timber substructures

performance determined with

$M_{y,Rk}$ = 9,742 Nm
$f_{ax,k}$ = 11,070 N/mm² for $l_{ef} \geq 25{,}0$ mm

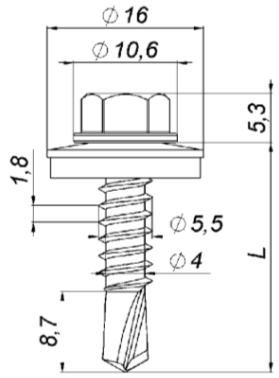
	$t_{N,II}$ [mm]	1,50		2,00		2,50		3,00		4,00		5,00		—		
	$M_{t,nom}$	5 Nm												—		
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,40	1,02	—	1,02	—	1,02	—	1,02	—	1,02	—	1,02	—	—	—	1,02
	0,50	1,34	—	1,34	—	1,34	—	1,34	—	1,34	—	1,34	—	—	—	1,34
	0,55	1,47	—	1,47	—	1,47	—	1,47	—	1,47	—	1,47	—	—	—	1,47
	0,63	1,71	—	1,71	—	1,71	—	1,71	—	1,71	—	1,71	—	—	—	1,71
	0,75	2,23	—	2,23	—	2,23	—	2,23	—	2,23	—	2,23	—	—	—	2,23
	0,88	2,86	—	2,86	—	2,86	—	2,86	—	2,86	—	2,86	—	—	—	2,86
	1,00	3,52	—	3,52	—	3,52	—	3,52	—	3,52	—	3,52	—	—	—	3,52
	1,13	3,52	—	3,52	—	3,52	—	3,52	—	3,52	—	—	—	—	—	3,52
	1,25	3,52	—	3,52	—	3,52	—	3,52	—	3,52	—	—	—	—	—	3,52
	1,50	3,52	—	3,52	—	3,52	—	3,52	—	3,52	—	—	—	—	—	3,52
	1,75	3,52	—	3,52	—	3,52	—	3,52	—	3,52	—	—	—	—	—	3,52
																bearing resistance of component I
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,40	1,18	—	1,18	—	1,18	—	1,18	—	1,18	—	1,18	—	—	—	1,18
	0,50	1,67	—	1,67	—	1,67	—	1,67	—	1,67	—	1,67	—	—	—	1,67
	0,55	1,92	—	1,92	—	1,92	—	1,92	—	1,92	—	1,92	—	—	—	1,92
	0,63	2,32	—	2,32	—	2,32	—	2,32	—	2,32	—	2,32	—	—	—	2,32
	0,75	2,80	—	2,80	—	2,80	—	2,80	—	2,80	—	2,80	—	—	—	2,93
	0,88	2,80	—	2,80	—	2,80	—	2,80	—	2,80	—	2,80	—	—	—	3,61
	1,00	2,80	—	2,80	—	2,80	—	2,80	—	2,80	—	2,80	—	—	—	4,25
	1,13	2,80	—	2,80	—	2,80	—	2,80	—	2,80	—	—	—	—	—	4,25
	1,25	2,80	—	2,80	—	2,80	—	2,80	—	2,80	—	—	—	—	—	4,25
	1,50	2,80	—	2,80	—	2,80	—	2,80	—	2,80	—	—	—	—	—	4,25
	1,75	2,80	—	2,80	—	2,80	—	2,80	—	2,80	—	—	—	—	—	4,25
																pull-through resistance of component I

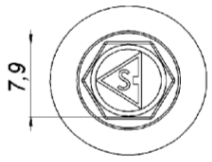
The values listed above in dependence on the screw-in length l_{ef} are valid for k_{mod} = 0,90 and timber strength grade C24 (ρ_a = 350 kg/m³). For other combinations of k_{mod} and timber strength grades see Annex 3 (Component II made of timber).

OCWS 4,8 x L, OCWS 5,5 x L, OCS 5,5 x L, ONS 5,5 x L, ODWS 6,5 x L

ODWS-6,5
with hexagon head and sealing washer ≥ Ø16 mm

Annex 7





Materials

Fastener: stainless steel (1.4301) - EN 10088
Bi-metal

Washer: stainless steel (1.4301) - EN 10088

Component I: S280GD, S320GD or S350GD - EN 10346

Component II: S235 or S275 - EN 10025-1
S280GD, S320GD or S350GD - EN 10346

Drilling capacity $\Sigma t_i \leq 6{,}00$ mm

Timber substructures

performance determined with

$M_{y,Rk}$ = 6,310 Nm
$f_{ax,k}$ = 10,860 N/mm² for $l_{ef} \geq 25{,}0$ mm

$t_{N,II}$ [mm]		1,00	1,13	1,25	1,50	1,75	2,00	2,50	3,00	
$M_{t,nom}$		4 Nm			4,5 Nm			5 Nm		
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,21 —	1,21 —	1,21 —	1,21 —	1,21 —	1,21 —	1,21 —	1,21 —	1,23
	0,55	1,29 —	1,29 —	1,29 —	1,29 —	1,29 —	1,29 —	1,29 —	1,29 —	1,29
	0,63	1,42 —	1,42 —	1,42 —	1,50 —	1,57 —	1,57 —	1,57 —	1,57 —	1,57
	0,75	1,60 —	1,60 —	1,60 —	1,75 —	1,90 —	1,90 —	1,90 —	1,90 —	2,15
	0,88	1,76 —	1,76 —	1,76 —	2,01 —	2,26 —	2,26 —	2,26 —	2,26 —	2,26
	1,00	1,88 —	1,88 —	1,88 —	2,24 —	2,59 —	2,59 —	2,70 —	2,81 —	2,81
	1,13	1,88 —	1,88 —	1,88 —	2,43 —	2,98 —	2,98 —	3,20 —	3,42 —	3,42
	1,25	1,88 —	1,88 —	1,88 —	2,62 —	3,37 —	3,37 —	3,70 —	4,03 —	4,03
	1,50	1,88 —	1,88 —	1,88 —	2,62 —	3,37 —	3,37 —	3,70 —	4,03 —	4,03
	1,75	1,88 —	1,88 —	1,88 —	2,62 —	3,37 —	3,37 —	3,70 —	4,03 —	4,03
	2,00	1,88 —	1,88 —	1,88 —	2,62 —	3,37 —	3,37 —	3,70 —	4,03 —	4,03
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,00 —	1,17 —	1,34 —	1,67 —	1,67 —	1,67 —	1,67 —	1,67 —	1,67
	0,55	1,00 —	1,17 —	1,34 —	1,71 —	1,92 —	1,92 —	1,92 —	1,92 —	1,92
	0,63	1,00 —	1,17 —	1,34 —	1,71 —	2,14 —	2,32 —	2,32 —	2,32 —	2,32
	0,75	1,00 —	1,17 —	1,34 —	1,71 —	2,14 —	2,60 —	2,93 —	2,93 —	2,93
	0,88	1,00 —	1,17 —	1,34 —	1,71 —	2,14 —	2,60 —	3,61 —	3,61 —	3,61
	1,00	1,00 —	1,17 —	1,34 —	1,71 —	2,14 —	2,60 —	3,68 —	4,25 —	4,25
	1,13	1,00 —	1,17 —	1,34 —	1,71 —	2,14 —	2,60 —	3,68 —	4,25 —	4,25
	1,25	1,00 —	1,17 —	1,34 —	1,71 —	2,14 —	2,60 —	3,68 —	4,25 —	4,25
	1,50	1,00 —	1,17 —	1,34 —	1,71 —	2,14 —	2,60 —	3,68 —	4,25 —	4,25
	1,75	1,00 —	1,17 —	1,34 —	1,71 —	2,14 —	2,60 —	3,68 —	4,25 —	4,25
	2,00	1,00 —	1,17 —	1,34 —	1,71 —	2,14 —	2,60 —	3,68 —	4,25 —	4,25

bearing resistance of component I

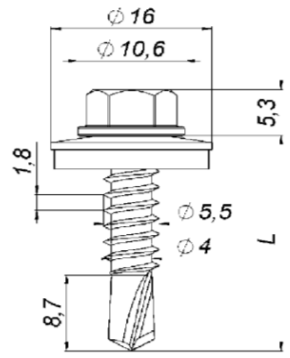
pull-through resistance of component I

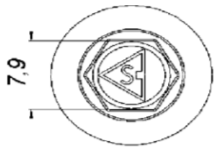
The values listed above in dependence on the screw-in length l_{ef} are valid for k_{mod} = 0,90 and timber strength grade C24 (ρ_a = 350 kg/m³). For other combinations of k_{mod} and timber strength grades see Annex 3 (Component II made of timber).

OCWS 4,8 x L, OCWS 5,5 x L, OCS 5,5 x L, ONS 5,5 x L, ODWS 6,5 x L

OCS-5,5
with hexagon head and sealing washer ≥ Ø16 mm

Annex 8





Materials

Fastener:	stainless steel (1.4301) - EN 10088 Bi-metal
Washer:	stainless steel (1.4301) - EN 10088
Component I:	S280GD, S320GD or S350GD - EN 10346
Component II:	S235 or S275 - EN 10025-1 S280GD, S320GD or S350GD - EN 10346

Drilling capacity $\Sigma t_i \leq 6{,}00$ mm

Timber substructures

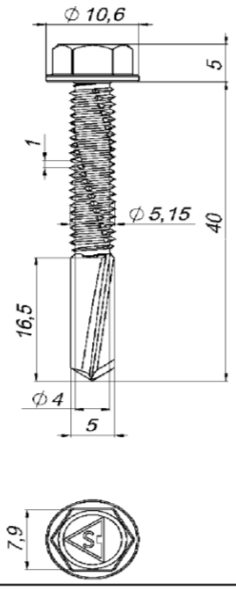
no performance determined

$t_{N,II}$ [mm]		2 x 0,63		2 x 0,75		2 x 0,88		2 x 1,00		—		—		—		—	
$M_{t,nom}$		4 Nm								—							
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,23	—	1,23	—	1,23	—	1,23	—	—	—	—	—	—	—	—	—
	0,55	1,23	—	1,23	—	1,23	—	1,23	—	—	—	—	—	—	—	—	—
	0,63	1,23	—	1,51	—	1,51	—	1,51	—	—	—	—	—	—	—	—	—
	0,75	1,23	—	1,51	—	1,83	—	2,15	—	—	—	—	—	—	—	—	—
	0,88	1,23	—	1,51	—	1,83	—	2,15	—	—	—	—	—	—	—	—	—
	1,00	1,23	—	1,51	—	1,83	—	2,15	—	—	—	—	—	—	—	—	—
	1,13	1,23	—	1,51	—	1,83	—	2,15	—	—	—	—	—	—	—	—	—
	1,25	1,23	—	1,51	—	1,83	—	2,15	—	—	—	—	—	—	—	—	—
	1,50	1,23	—	1,51	—	1,83	—	2,15	—	—	—	—	—	—	—	—	—
	1,75	1,23	—	1,51	—	1,83	—	2,15	—	—	—	—	—	—	—	—	—
	2,00	1,23	—	1,51	—	1,83	—	2,15	—	—	—	—	—	—	—	—	—
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,98	—	1,33	—	1,66	—	1,67	—	—	—	—	—	—	—	—	—
	0,55	0,98	—	1,33	—	1,66	—	1,92	—	—	—	—	—	—	—	—	—
	0,63	0,98	—	1,33	—	1,66	—	1,93	—	—	—	—	—	—	—	—	—
	0,75	0,98	—	1,33	—	1,66	—	1,93	—	—	—	—	—	—	—	—	—
	0,88	0,98	—	1,33	—	1,66	—	1,93	—	—	—	—	—	—	—	—	—
	1,00	0,98	—	1,33	—	1,66	—	1,93	—	—	—	—	—	—	—	—	—
	1,13	0,98	—	1,33	—	1,66	—	1,93	—	—	—	—	—	—	—	—	—
	1,25	0,98	—	1,33	—	1,66	—	1,93	—	—	—	—	—	—	—	—	—
	1,50	0,98	—	1,33	—	1,66	—	1,93	—	—	—	—	—	—	—	—	—
	1,75	0,98	—	1,33	—	1,66	—	1,93	—	—	—	—	—	—	—	—	—
	2,00	0,98	—	1,33	—	1,66	—	1,93	—	—	—	—	—	—	—	—	—

OCWS 4,8 x L, OCWS 5,5 x L, OCS 5,5 x L, ONS 5,5 x L, ODWS 6,5 x L

OCS-5,5
with hexagon head and sealing washer ≥ Ø16 mm

Annex 9



Materials

Fastener:	stainless steel (1.4301) - EN 10088 Bi-metal
Washer:	stainless steel (1.4301) - EN 10088
Component I:	S280GD, S320GD or S350GD - EN 10346
Component II:	S235 or S275 - EN 10025-1 S280GD, S320GD or S350GD - EN 10346

Drilling capacity $\Sigma t_i \leq 12{,}00$ mm

Timber substructures

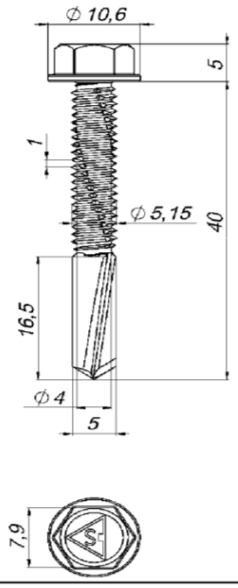
no performance determined

$t_{N,II}$ [mm]		4,00	5,00	6,00	7,00	8,00	9,00	10,0	11,0
$M_{t,nom}$		7 Nm							
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,38 —	1,38 —	1,38 —	1,38 —	1,38 —	1,38 —	1,38 —	1,38 —
	0,55	1,53 —	1,53 —	1,53 —	1,53 —	1,53 —	1,53 —	1,53 —	1,53 —
	0,63	1,85 —	1,85 —	1,85 —	1,85 —	1,85 —	1,85 —	1,85 —	1,85 —
	0,75	2,18 —	2,18 —	2,18 —	2,18 —	2,18 —	2,18 —	2,18 —	2,18 —
	0,88	2,76 —	2,76 —	2,76 —	2,76 —	2,76 —	2,76 —	2,76 —	2,76 —
	1,00	3,22 —	3,22 —	3,22 —	3,22 —	3,22 —	3,22 —	3,22 —	3,22 —
	1,13	3,55 —	3,55 —	3,55 —	3,55 —	3,55 —	3,55 —	3,55 —	— —
	1,25	3,90 —	5,87 —	5,87 —	5,87 —	5,87 —	5,87 —	5,87 —	— —
	1,50	4,53 —	6,63 —	6,63 —	6,63 —	6,63 —	6,63 —	6,63 —	— —
	1,75	5,05 —	7,39 —	7,39 —	7,39 —	7,39 —	7,39 —	7,39 —	— —
	2,00	5,45 —	8,16 —	8,16 —	8,16 —	8,16 —	8,16 —	8,16 —	— —
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,67 —	1,67 —	1,67 —	1,67 —	1,67 —	1,67 —	1,67 —	1,67 —
	0,55	1,92 —	1,92 —	1,92 —	1,92 —	1,92 —	1,92 —	1,92 —	1,92 —
	0,63	2,32 —	2,32 —	2,32 —	2,32 —	2,32 —	2,32 —	2,32 —	2,32 —
	0,75	2,93 —	2,93 —	2,93 —	2,93 —	2,93 —	2,93 —	2,93 —	2,93 —
	0,88	2,96 —	3,30 —	3,30 —	3,30 —	3,30 —	3,30 —	3,30 —	3,30 —
	1,00	2,96 —	3,30 —	3,30 —	3,30 —	3,30 —	3,30 —	3,30 —	3,30 —
	1,13	2,96 —	3,30 —	3,30 —	3,30 —	3,30 —	3,30 —	3,30 —	— —
	1,25	2,96 —	3,30 —	3,30 —	3,30 —	3,30 —	3,30 —	3,30 —	— —
	1,50	2,96 —	3,30 —	3,30 —	3,30 —	3,30 —	3,30 —	3,30 —	— —
	1,75	2,96 —	3,30 —	3,30 —	3,30 —	3,30 —	3,30 —	3,30 —	— —
	2,00	2,96 —	3,30 —	3,30 —	3,30 —	3,30 —	3,30 —	3,30 —	— —

OCWS 4,8 x L, OCWS 5,5 x L, OCS 5,5 x L, ONS 5,5 x L, ODWS 6,5 x L

ONS-5,5
with hexagon head and sealing washer ≥ Ø16 mm

Annex 10



Materials

Fastener: stainless steel (1.4301) - EN 10088
Bi-metal

Washer: none

Component I: S280GD, S320GD or S350GD - EN 10346

Component II: S235 or S275 - EN 10025-1
S280GD, S320GD or S350GD - EN 10346

Drilling capacity $\Sigma t_i \leq 12{,}00$ mm

Timber substructures

no performance determined

$t_{N,II}$ [mm]		4,00	5,00	6,00	7,00	8,00	9,00	10,0	11,0
$M_{t,nom}$		7 Nm							
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,38 —	1,38 —	1,38 —	1,38 —	1,38 —	1,38 —	1,38 —	1,38 —
	0,55	1,53 —	1,53 —	1,53 —	1,53 —	1,53 —	1,53 —	1,53 —	1,53 —
	0,63	1,85 —	1,85 —	1,85 —	1,85 —	1,85 —	1,85 —	1,85 —	1,85 —
	0,75	2,18 —	2,18 —	2,18 —	2,18 —	2,18 —	2,18 —	2,18 —	2,18 —
	0,88	2,76 —	2,76 —	2,76 —	2,76 —	2,76 —	2,76 —	2,76 —	2,76 —
	1,00	3,22 —	3,22 —	3,22 —	3,22 —	3,22 —	3,22 —	3,22 —	3,22 —
	1,13	3,55 —	3,55 —	3,55 —	3,55 —	3,55 —	3,55 —	3,55 —	— —
	1,25	3,90 —	5,87 —	5,87 —	5,87 —	5,87 —	5,87 —	5,87 —	— —
	1,50	4,53 —	6,63 —	6,63 —	6,63 —	6,63 —	6,63 —	6,63 —	— —
	1,75	5,05 —	7,39 —	7,39 —	7,39 —	7,39 —	7,39 —	7,39 —	— —
	2,00	5,45 —	8,16 —	8,16 —	8,16 —	8,16 —	8,16 —	8,16 —	— —
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,40 —	1,40 —	1,40 —	1,40 —	1,40 —	1,40 —	1,40 —	1,40 —
	0,55	1,57 —	1,57 —	1,57 —	1,57 —	1,57 —	1,57 —	1,57 —	1,57 —
	0,63	1,81 —	1,81 —	1,81 —	1,81 —	1,81 —	1,81 —	1,81 —	1,81 —
	0,75	2,09 —	2,09 —	2,09 —	2,09 —	2,09 —	2,09 —	2,09 —	2,09 —
	0,88	2,09 —	2,09 —	2,09 —	2,09 —	2,09 —	2,09 —	2,09 —	2,09 —
	1,00	2,09 —	2,09 —	2,09 —	2,09 —	2,09 —	2,09 —	2,09 —	2,09 —
	1,13	2,09 —	2,09 —	2,09 —	2,09 —	2,09 —	2,09 —	2,09 —	— —
	1,25	2,09 —	2,09 —	2,09 —	2,09 —	2,09 —	2,09 —	2,09 —	— —
	1,50	2,09 —	2,09 —	2,09 —	2,09 —	2,09 —	2,09 —	2,09 —	— —
	1,75	2,09 —	2,09 —	2,09 —	2,09 —	2,09 —	2,09 —	2,09 —	— —
	2,00	2,09 —	2,09 —	2,09 —	2,09 —	2,09 —	2,09 —	2,09 —	— —

OCWS 4,8 x L, OCWS 5,5 x L, OCS 5,5 x L, ONS 5,5 x L, ODWS 6,5 x L

ONS-5,5
with hexagon head

Annex 11

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