



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

UK Technical Assessment	UKTA-0836-22/6370 of 11/11/2022
Technical Assessment Body issuing the UK Technical Assessment:	British Board of Agrément
Trade name of the construction product:	OC, OCW, ON, ONP, OD, ODX, ODG
Product family to which the construction product belongs:	Area Code 33, Fastening screws for metal members and sheeting
Manufacturer:	RAWLPLUG S.A. ul. Kwidzyńska 6 PL 51-416 Wrocław Poland
Manufacturing plant(s):	Manufacturing Plant No. 2 Manufacturing Plant No. 21 Manufacturing Plant No. 25
This UK Technical Assessment contains:	15 pages including 10 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 <i>Fastening screws for metal members and sheeting</i>

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1 Technical description of the product

The fastening screws OC, OCW, ON, ONP, OD, ODX and ODG are the self-drilling screws listed in Table 1. The fastening screws are supplied with a metallic washer and an EPDM sealing ring. For details see the Annexes 1 to 9.

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

Table 1

No.	Screw	Material	Annex
1	OC 4.8 x L	galvanized carbon steel with $\geq 12 \mu\text{m}$ of zinc coating	1
2	OC 5.5 x L	galvanized carbon steel with $\geq 12 \mu\text{m}$ of zinc coating	2
3	OC 6.3 x L	galvanized carbon steel with $\geq 12 \mu\text{m}$ of zinc coating	3
4	OCW 4.8 x L	galvanized carbon steel with $\geq 12 \mu\text{m}$ of zinc coating	4
5	ON 5.5 x L	galvanized carbon steel with $\geq 12 \mu\text{m}$ of zinc coating	5
6	ONP 5.5 x L	galvanized carbon steel with $\geq 12 \mu\text{m}$ of zinc coating	6
7	OD 4.8 x L	galvanized carbon steel with $\geq 12 \mu\text{m}$ of zinc coating	7
8	ODX 4.8 x L	galvanized carbon steel with $\geq 12 \mu\text{m}$ of zinc coating	8
9	ODG 4.8 x L	galvanized carbon steel with $\geq 12 \mu\text{m}$ of zinc coating with additional zinc flake coating	9

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

The fastening screws are intended to be used for fastening steel sheeting to steel or timber supporting substructures. For details see the Annexes 1 to 9. The component to be fastened is component I and the supporting structure is component II. The sheeting can either be used as wall or roof cladding or as load bearing wall and roof element. The fastening screws can also be used for the fastening of any other thin gauge steel members.

Fastening screws for metal members and sheeting are intended to be used in internal environments with corrosion category class C1 in accordance with EN ISO 12944-2.

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

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

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

3.1 Mechanical resistance and stability (BWR 1)

The characteristic values of the shear resistance of connections and tension resistance of connections with the fasteners are given in Annex 1 to 9. The values were determined by tests according to UKAD 330046-01-0602.

The design values shall be determined according to Annex 10 and UKAD 330046-00-0602. For the corrosion protection the rules given in EN 1993-1-3 and EN 1993-1-4 shall be taken into account.

3.2 Safety in case of fire (BWR 2)

The 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 on the basis of its listing in that decision.

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. 330046-00-0602 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: 11 November 2022

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Chief Executive Officer



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ANNEXES

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

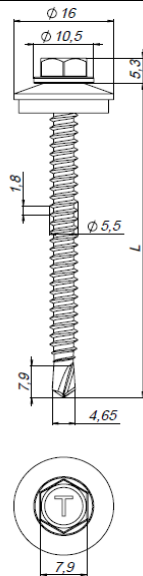
	<p>Materials</p> <p>Fastener: carbon steel – SAE1022 quenched, tempered and galvanized ($\geq 12 \mu\text{m}$)</p> <p>Washer: metallic washer made of zinc-coated carbon steel with EPDM sealing ring</p> <p>Component I: S280GD – EN 10346</p> <p>Component II: S235GD or S280GD – EN 10346</p>
<p>Drilling capacity: $\Sigma t_i \leq 3 \text{ mm}$</p>	
<p>Timber substructures no performance assessed</p>	

$t_{N,II}$ [mm]	0.75	0.88	1.00	1.13	1.25	1.50	2.00	2.50	
$M_{t,nom}$	3 Nm								Wood class \geq C24
$V_{R,k}$ [kN] for $t_{N,i}$ [mm]	0.50	0.96	0.96	0.96	0.96	0.96	0.96	0.96	/
	0.55	0.96	0.96	0.96	0.96	0.96	0.96	—	
	0.63	1.02	1.02	1.02	1.02	1.02	1.02	—	
	0.75	1.07	1.07	1.07	1.07	1.07	1.07	—	
	0.88	—	—	1.07	1.07	1.07	1.07	—	
	1.00	—	—	1.58	1.58	1.58	1.58	—	
	1.13	—	—	—	—	1.58	1.58	—	
	1.25	—	—	—	—	2.11	2.11	—	
	1.50	—	—	—	—	—	2.48	—	
$N_{R,k}$ [kN] for $t_{N,i}$ [mm]	0.40	0.61	0.61	0.87	0.87	1.27	1.30	1.30	/
	0.50	0.61	0.61	0.87	0.87	1.27	2.08	2.08	
	0.55	0.61	0.61	0.87	0.87	1.27	2.08	2.08	
	0.63	0.61	0.61	0.87	0.87	1.27	2.08	2.93	
	0.75	0.61	0.61	0.87	0.87	1.27	2.08	2.93	
	0.88	—	0.61	0.87	0.87	1.27	2.08	2.93	
	1.00	—	—	0.87	0.87	1.27	2.08	2.93	
	1.13	—	—	—	0.87	1.27	2.08	—	
	1.25	—	—	—	—	1.27	2.08	—	
1.50	—	—	—	—	—	2.08	—		

OC, OCW, ON, ONP, OD, ODX, ODG fastening screws for metal members and sheeting

Product description
OC 4.8 × L with hexagon head and sealing washer Ø14 mm

Annex 1



Materials

Fastener: carbon steel – SAE1022
quenched, tempered and galvanized ($\geq 12 \mu\text{m}$)
Washer: metallic washer made of zinc-coated carbon steel with EPDM sealing ring
Component I: S280GD – EN 10346
Component II: S235GD or S280GD – EN 10346

Drilling capacity: $\Sigma t_i \leq 6 \text{ mm}$

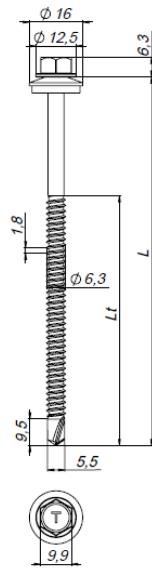
Timber substructures
no performance assessed

$t_{N,II}$ [mm]	1.00	1.13	1.25	1.50	2.00	2.50	3.00	4.00	Wood class \geq C24
$M_{t,nom}$	6 Nm								
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0.50	0.94	0.94	0.94	0.94	0.94	0.94	0.94	
	0.55	0.94	0.94	0.94	0.94	0.94	0.94	0.94	
	0.63	1.05	1.05	1.05	1.05	1.05	1.05	1.05	
	0.75	1.20	1.20	1.20	1.20	1.20	1.20	1.20	
	0.88	1.20	1.20	1.20	1.20	1.20	1.20	1.20	
	1.00	1.66	1.66	1.66	1.66	1.66	1.66	1.66	
	1.13	—	—	2.18	2.18	2.18	2.18	2.18	
	1.25	—	—	2.18	2.18	2.18	2.18	2.18	
	1.50	—	—	—	2.18	2.18	2.18	2.18	
	1.75	—	—	—	—	2.18	2.18	2.18	
2.00	—	—	—	—	2.18	2.18	2.18		
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0.40	0.77	0.77	1.07	1.04	1.62	1.62	1.62	
	0.50	0.77	0.77	1.07	1.04	2.64	2.64	2.64	
	0.55	0.77	0.77	1.07	1.04	2.64	2.64	2.64	
	0.63	0.77	0.77	1.07	1.04	2.84	2.84	3.56	
	0.75	0.77	0.77	1.07	1.04	2.84	2.84	4.27	
	0.88	0.77	0.77	1.07	1.04	2.84	2.84	4.27	
	1.00	0.77	0.77	1.07	1.04	2.84	2.84	4.75	
	1.13	—	0.77	1.07	1.04	2.84	2.84	4.75	
	1.25	—	—	1.07	1.04	2.84	2.84	6.33	
	1.50	—	—	—	1.04	2.84	2.84	6.33	
	1.75	—	—	—	—	2.84	2.84	6.33	
	2.00	—	—	—	—	2.84	2.84	6.33	
	2.50	—	—	—	—	—	2.84	—	

OC, OCW, ON, ONP, OD, ODX, ODG fastening screws for metal members and sheeting

Product description
OC 5.5 × L with hexagon head and sealing washer Ø16 mm

Annex 2



Materials

Fastener: carbon steel – SAE1022
quenched, tempered and galvanized (≥ 12 μm)

Washer: metallic washer made of zinc-coated carbon steel with EPDM sealing ring

Component I: S280GD – EN 10346

Component II: S235GD or S280GD – EN 10346

Drilling capacity: $\Sigma t_i \leq 6$ mm

Timber substructures
no performance assessed

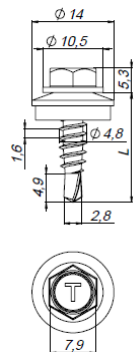
$t_{N,II}$ [mm]	1.00	1.13	1.25	1.50	2.00	2.50	3.00	4.00	Wood class \geq C24
$M_{t,nom}$	8 Nm								
$V_{R,k}$ [kN] for $t_{N,i}$ [mm]	0.50	0.93	0.93	0.93	0.93	0.93	0.93	0.93	—
	0.55	0.93	0.93	0.93	0.93	0.93	0.93	0.93	—
	0.63	0.95	0.95	0.95	0.95	0.95	0.95	0.95	—
	0.75	1.01	1.01	1.01	1.01	1.01	1.01	1.01	—
	0.88	1.01	1.01	1.01	1.01	1.01	1.01	1.01	—
	1.00	1.13	1.13	1.13	1.13	1.13	1.13	1.13	—
	1.13	—	—	1.13	1.13	1.13	1.13	1.13	—
	1.25	—	—	2.07	2.07	2.07	2.07	2.07	—
	1.50	—	—	—	2.07	2.07	2.07	2.07	—
	1.75	—	—	—	—	2.07	2.07	2.07	—
	2.00	—	—	—	—	2.07	2.07	2.07	—
$N_{R,k}$ [kN] for $t_{N,i}$ [mm]	0.40	0.97	0.97	1.09	1.62	1.62	1.62	1.62	1.62
	0.50	0.97	0.97	1.09	1.79	2.64	2.64	2.64	2.64
	0.55	0.97	0.97	1.09	1.79	2.64	2.68	2.64	2.64
	0.63	0.97	0.97	1.09	1.79	2.66	2.66	3.56	3.56
	0.75	0.97	0.97	1.09	1.79	2.66	2.66	4.27	4.27
	0.88	0.97	0.97	1.09	1.79	2.66	2.66	4.27	4.27
	1.00	0.97	0.97	1.09	1.79	2.66	2.66	4.75	4.75
	1.13	—	0.97	1.09	1.79	2.66	2.66	6.06	6.06
	1.25	—	—	1.09	1.79	2.66	2.66	6.06	6.06
	1.50	—	—	—	1.79	2.66	2.66	6.06	6.06
	1.75	—	—	—	—	2.66	2.66	6.06	6.06
2.00	—	—	—	—	2.66	2.66	6.06	6.06	
2.50	—	—	—	—	—	2.66	6.06	6.06	
3.00	—	—	—	—	—	—	6.06	—	

OC, OCW, ON, ONP, OD, ODX, ODG fastening screws for metal members and sheeting

Product description

OC 6.3 × L with hexagon head and sealing washer Ø16 mm or Ø19 mm

Annex 3



Materials

Fastener: carbon steel – SAE1022
quenched, tempered and galvanized

(≥ 12 μm)

Washer: metallic washer made of zinc-coated
carbon steel with EPDM sealing ring

Component I: S280GD – EN 10346

Component II: S280GD – EN 10346

Drilling capacity: $\Sigma t_i \leq 2.5$ mm

Timber substructures

no performance assessed

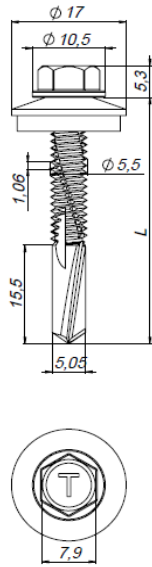
$t_{N,II}$ [mm]	0.40	0.50	0.55	0.63	0.75	0.88	1.00	1.13	1.25	1.50	Wood class ≥ C24
$M_{t,nom}$	3 Nm										
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0.40	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	/
	0.50	—	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	
	0.55	—	—	0.38	0.38	0.38	0.38	0.38	0.38	0.38	
	0.63	—	—	—	0.76	0.76	0.76	0.76	0.76	0.76	
	0.75	—	—	—	—	0.89	0.89	0.89	0.89	0.89	
	0.88	—	—	—	—	—	0.89	0.89	0.89	0.89	
	1.00	—	—	—	—	—	—	1.72	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0.40	0.42	0.48	0.48	0.78	0.91	0.91	1.30	1.30	1.30	/
	0.50	—	0.48	0.48	0.78	0.91	0.91	1.45	1.45	1.81	
	0.55	—	—	0.48	0.78	0.91	0.91	1.45	1.45	1.81	
	0.63	—	—	—	0.78	0.91	0.91	1.45	1.45	1.81	
	0.75	—	—	—	—	0.91	0.91	1.45	1.45	—	
	0.88	—	—	—	—	—	0.91	1.45	1.45	—	
	1.00	—	—	—	—	—	—	1.45	—	—	
	1.13	—	—	—	—	—	—	—	—	—	
1.25	—	—	—	—	—	—	—	—	—		

OC, OCW, ON, ONP, OD, ODX, ODG fastening screws for metal members and sheeting

Product description

OCW 4.8 × L with hexagon head and sealing washer Ø14 mm

Annex 4



Materials

Fastener: carbon steel – SAE1022
quenched, tempered and galvanized (≥ 12 μm)

Washer: metallic washer made of zinc-coated carbon steel with EPDM sealing ring

Component I: S280GD – EN 10346

Component II: S235GD or S280GD – EN 10346

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

Timber substructures

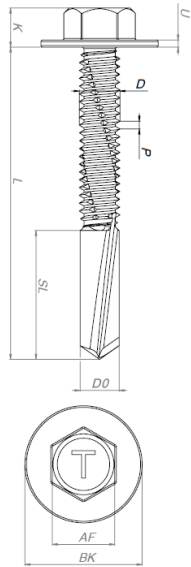
no performance assessed

$t_{n,II}$ [mm]	4.00	5.00	6.00	7.00	8.00	9.00	10.00	—	—	—	Wood class \geq C24	
$M_{t,nom}$	6 Nm											
$V_{R,k}$ [kN] for $t_{n,I}$ [mm]	0.50	1.23	1.23	1.23	1.23	1.23	1.23	1.23	—	—	—	
	0.55	1.28	1.28	1.28	1.28	1.28	1.28	1.28	—	—	—	
	0.63	1.28	1.28	1.28	1.28	1.28	1.28	1.28	—	—	—	
	0.75	1.35	1.35	1.35	1.35	1.35	1.35	1.35	—	—	—	
	0.88	1.35	1.35	1.35	1.35	1.35	1.35	1.35	—	—	—	
	1.00	1.59	1.59	1.59	1.59	1.59	1.59	1.59	—	—	—	
	1.13	1.59	1.59	1.59	1.59	1.59	1.59	1.59	—	—	—	
	1.25	2.65	2.65	2.65	2.65	2.65	2.65	2.65	—	—	—	
$N_{R,k}$ [kN] for $t_{n,I}$ [mm]	0.40	1.62	1.62	1.62	1.62	1.62	1.62	1.62	—	—	—	
	0.50	2.64	2.64	2.64	2.64	2.64	2.64	2.64	—	—	—	
	0.55	2.64	2.64	2.64	2.64	2.64	2.64	2.64	—	—	—	
	0.63	3.56	3.56	3.56	3.56	3.56	3.56	3.56	—	—	—	
	0.75	4.27	4.27	4.27	4.27	4.27	4.27	4.27	—	—	—	
	0.88	4.27	4.27	4.27	4.27	4.27	4.27	4.27	—	—	—	
	1.00	4.75	4.75	4.75	4.75	4.75	4.75	4.75	—	—	—	
	1.13	4.75	4.75	4.75	4.75	4.75	4.75	4.75	—	—	—	
1.25	5.70	5.70	5.70	5.70	5.70	5.70	5.70	—	—	—		

OC, OCW, ON, ONP, OD, ODX, ODG fastening screws for metal members and sheeting

Product description
ON 5.5 × L with hexagon head and sealing washer $\varnothing 16$ mm

Annex 5



Materials

Fastener: carbon steel – SAE1022
quenched, tempered and galvanized (≥ 12 μm)
Washer: metallic washer made of zinc-coated carbon steel with EPDM sealing ring
Component I: S280GD – EN 10346
Component II: S235GD or S280GD – EN 10346

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

Timber substructures

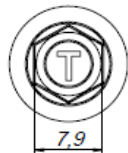
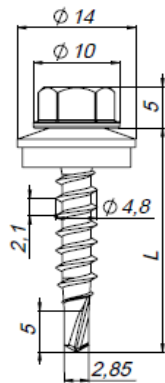
no performance assessed

$t_{N,II}$ [mm]	4.00	5.00	6.00	7.00	8.00	9.00	10.00	—	—	—	Wood class \geq C24		
$M_{t,nom}$	6 Nm												
V_{Rk} [kN] for $t_{N,I}$ [mm]	0.50	1.23	1.23	1.23	1.23	1.23	1.23	1.23	—	—	—	/	
	0.55	1.28	1.28	1.28	1.28	1.28	1.28	1.28	—	—	—		
	0.63	1.28	1.28	1.28	1.28	1.28	1.28	1.28	—	—	—		
	0.75	1.35	1.35	1.35	1.35	1.35	1.35	1.35	—	—	—		
	0.88	1.35	1.35	1.35	1.35	1.35	1.35	1.35	—	—	—		
	1.00	1.59	1.59	1.59	1.59	1.59	1.59	1.59	—	—	—		
	1.13	1.59	1.59	1.59	1.59	1.59	1.59	1.59	—	—	—		
	1.25	2.65	2.65	2.65	2.65	2.65	2.65	2.65	—	—	—		
N_{Rk} [kN] for $t_{N,I}$ [mm]	0.40	1.62	1.62	1.62	1.62	1.62	1.62	1.62	—	—	—		/
	0.50	2.64	2.64	2.64	2.64	2.64	2.64	2.64	—	—	—		
	0.55	2.64	2.64	2.64	2.64	2.64	2.64	2.64	—	—	—		
	0.63	3.56	3.56	3.56	3.56	3.56	3.56	3.56	—	—	—		
	0.75	4.27	4.27	4.27	4.27	4.27	4.27	4.27	—	—	—		
	0.88	4.27	4.27	4.27	4.27	4.27	4.27	4.27	—	—	—		
	1.00	4.75	4.75	4.75	4.75	4.75	4.75	4.75	—	—	—		
	1.13	4.75	4.75	4.75	4.75	4.75	4.75	4.75	—	—	—		
1.25	5.70	5.70	5.70	5.70	5.70	5.70	5.70	—	—	—			

OC, OCW, ON, ONP, OD, ODX, ODG fastening screws for metal members and sheeting

Product description
ONP 5.5 × L with hexagon head and sealing washer $\varnothing 16$ mm

Annex 6



Materials

Fastener: carbon steel – SAE1022
quenched, tempered and galvanized (≥ 12

μm)

Washer: metallic washer made of zinc-coated
carbon steel with EPDM sealing ring

Component I: S280GD – EN 10346

Component II: S280GD – EN 10346
or structural timber – EN 14081

Drilling capacity: $\Sigma t_i \leq 2.5$ mm

Timber substructures

For timber substructures performance determined with:

$M_{y,Rk} = 4.390$ Nm

$f_{ax,k} = 16.204$ N/mm² for $l_{ef} \geq 20$ mm

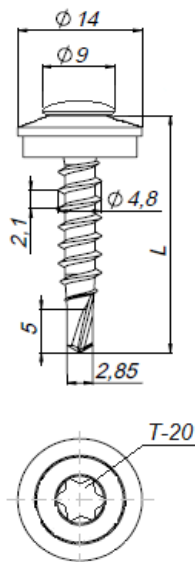
$t_{N,II}$ [mm]	1.50	2.00	—	—	—	—	—	—	—	—	Wood class \geq C24
$M_{t,nom}$	3 Nm										
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0.50	0.76	0.76	—	—	—	—	—	—	—	bearing resistance of component II
	0.55	0.76	—	—	—	—	—	—	—	—	
	0.63	1.34	—	—	—	—	—	—	—	—	
	0.75	1.42	—	—	—	—	—	—	—	—	
	0.88	1.42	—	—	—	—	—	—	—	—	
	1.00	1.51	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0.40	1.30	1.30	—	—	—	—	—	—	—	pull-through resistance of component I
	0.50	1.80	1.80	—	—	—	—	—	—	—	
	0.55	1.80	1.80	—	—	—	—	—	—	—	
	0.63	3.05	3.05	—	—	—	—	—	—	—	
	0.75	3.05	3.05	—	—	—	—	—	—	—	
	0.88	3.05	3.05	—	—	—	—	—	—	—	
	1.00	3.05	3.05	—	—	—	—	—	—	—	
	1.13	3.05	3.05	—	—	—	—	—	—	—	
	1.25	3.05	3.05	—	—	—	—	—	—	—	
	1.50	3.05	3.05	—	—	—	—	—	—	—	

OC, OCW, ON, ONP, OD, ODX, ODG fastening screws for metal members and sheeting

Product description

OD 4.8 × L with hexagon head and sealing washer Ø14 mm

Annex 7



Materials

Fastener: carbon steel – SAE1022
quenched, tempered and galvanized (≥ 12 μm)
Washer: metallic washer made of zinc-coated carbon steel with EPDM sealing ring
Component I: S280GD – EN 10346
Component II: S280GD – EN 10346
or structural timber – EN 14081

Drilling capacity: $\Sigma t_i \leq 2.5$ mm

Timber substructures

For timber substructures performance determined with:

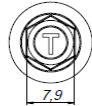
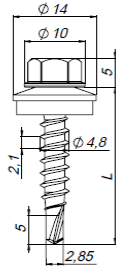
$M_{y,Rk} = 4.390$ Nm
 $f_{ax,k} = 16.204$ N/mm² for $l_{ef} \geq 20$ mm

$t_{N,II}$ [mm]	1.50	2.00	—	—	—	—	—	—	—	—	—	Wood class \geq C24
$M_{t,nom}$	3 Nm											
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0.50	0.76	0.76	—	—	—	—	—	—	—	—	0.74
	0.55	0.76	—	—	—	—	—	—	—	—	—	0.74
	0.63	1.34	—	—	—	—	—	—	—	—	—	1.22
	0.75	1.42	—	—	—	—	—	—	—	—	—	1.22
	0.88	1.42	—	—	—	—	—	—	—	—	—	1.22
	1.00	1.51	—	—	—	—	—	—	—	—	—	1.22
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0.40	1.30	1.30	—	—	—	—	—	—	—	—	1.30
	0.50	1.80	1.80	—	—	—	—	—	—	—	—	1.80
	0.55	1.80	1.80	—	—	—	—	—	—	—	—	1.80
	0.63	3.05	3.05	—	—	—	—	—	—	—	—	1.80
	0.75	3.05	3.05	—	—	—	—	—	—	—	—	1.80
	0.88	3.05	3.05	—	—	—	—	—	—	—	—	1.80
	1.00	3.05	3.05	—	—	—	—	—	—	—	—	1.80
	1.13	3.05	3.05	—	—	—	—	—	—	—	—	1.80
	1.25	3.05	3.05	—	—	—	—	—	—	—	—	1.80
	1.50	3.05	3.05	—	—	—	—	—	—	—	—	1.80

OC, OCW, ON, ONP, OD, ODX, ODG fastening screws for metal members and sheeting

Product description
ODX 4.8 × L with hexagon head and sealing washer Ø14 mm

Annex 8



Materials

Fastener: carbon steel – SAE1022 quenched, tempered and galvanized ($\geq 12 \mu\text{m}$) with additional zinc flake coating
 Washer: metallic washer made of zinc-coated carbon steel with EPDM sealing ring
 Component I: S280GD – EN 10346
 Component II: S280GD – EN 10346 or structural timber – EN 14081

Drilling capacity: $\Sigma t_i \leq 2.5 \text{ mm}$

Timber substructures

For timber substructures performance determined with:

$M_{y,Rk} = 4.390 \text{ Nm}$
 $f_{ax,k} = 16.204 \text{ N/mm}^2$ for $l_{ef} \geq 20 \text{ mm}$

$t_{N,II} [\text{mm}]$	1.50	2.00	—	—	—	—	—	—	—	—	—	Wood class $\geq \text{C24}$
$M_{t,nom}$	3 Nm											
$V_{R,k} [\text{kN}]$ for $t_{N,I} [\text{mm}]$	0.50	0.76	0.76	—	—	—	—	—	—	—	—	0.74
	0.55	0.76	—	—	—	—	—	—	—	—	—	0.74
	0.63	1.34	—	—	—	—	—	—	—	—	—	1.22
	0.75	1.42	—	—	—	—	—	—	—	—	—	1.22
	0.88	1.42	—	—	—	—	—	—	—	—	—	1.22
	1.00	1.51	—	—	—	—	—	—	—	—	—	1.22
$N_{R,k} [\text{kN}]$ for $t_{N,I} [\text{mm}]$	0.40	1.30	1.30	—	—	—	—	—	—	—	—	1.30
	0.50	1.80	1.80	—	—	—	—	—	—	—	—	1.80
	0.55	1.80	1.80	—	—	—	—	—	—	—	—	1.80
	0.63	3.05	3.05	—	—	—	—	—	—	—	—	1.80
	0.75	3.05	3.05	—	—	—	—	—	—	—	—	1.80
	0.88	3.05	3.05	—	—	—	—	—	—	—	—	1.80
	1.00	3.05	3.05	—	—	—	—	—	—	—	—	1.80
	1.13	3.05	3.05	—	—	—	—	—	—	—	—	1.80
	1.25	3.05	3.05	—	—	—	—	—	—	—	—	1.80
	1.50	3.05	3.05	—	—	—	—	—	—	—	—	1.80

OC, OCW, ON, ONP, OD, ODX, ODG fastening screws for metal members and sheeting

Product description
 ODG 4.8 × L with hexagon head and sealing washer Ø14 mm

Annex 9

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_i 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) should be taken into account.

OC, OCW, ON, ONP, OD, ODX, ODG fastening screws for metal members and sheeting

Specification
Determination of design values

Annex 10



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