



INSTYTUT TECHNIKI BUDOWLANEJ

PL 00-611 WARSZAWA

ul. Filtrowa 1

tel.: (+48 22) 825-04-71

(+48 22) 579-62-94

eta@itb.pl

www.itb.pl



Member of



www.eota.eu

European Technical Assessment

**ETA-13/0203
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General part

Technical Assessment Body issuing the European Technical Assessment

Instytut Techniki Budowlanej

Trade name of the construction product

OC, OCW, ON, ONP, OD, ODX, ODG, OCF

Product family to which the construction product belongs

Fastening screws for metal members and sheeting

Manufacturer

RAWLPLUG S.A.
Kwidzyńska 6
51-416 Wrocław, Poland

Manufacturing plant(s)

Manufacturing Plant no. 2
Manufacturing Plant no. 21
Manufacturing Plant no. 22
Manufacturing Plant no. 24
Manufacturing Plant no. 25

This European Technical Assessment contains

18 pages including 14 Annexes which form an integral part of this Assessment

This European Technical Assessment is issued in accordance with regulation (EU) No 305/2011, on the basis of

European Assessment Document (EAD)
330046-01-0602 "Fastening screws for metal members and sheeting"

This version replaces

ETA-13/0203 issued on 26/06/2019

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Specific Part

1. Technical description of the product

The fastening screws OC, OCW, ON, ONP, OD, ODX, ODG and OCF 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 13.

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
10	OCF 6,0 x L	stainless steel	10 – 13

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 13. The component to be fastened is component I and the supporting structure is component II. The sheeting can either be used as wall or roof cladding or as load bearing wall and roof element. The fastening screws can also be used for the fastening of any other thin gauge steel members.

The intended use comprises fastening screws and connections for indoor and outdoor applications. Fastening screws which are intended to be used in external environments with $\geq \text{C2}$ 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 fastening screws 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 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 with the fasteners are given in Annex 1 to 13. The values were determined by tests according to EAD 330046-01-0602.

The design values shall be determined according to Annex 14 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.

3.1.2. 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.

3.2. Methods used for the assessment

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

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

According to Decision 1998/214/EC, amended by 2001/596/EC, of the European Commission the system 2+ of 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

	<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</p> <p>no performance assessed</p>

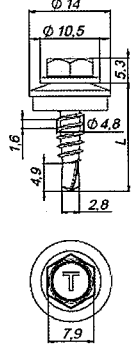
$t_{N,II}$ [mm]	0,75	0,88	1,00	1,13	1,25	1,50	2,00	2,50	Wood class \geq C24	
$M_{t,nom}$	3 Nm									
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	1,50	
	0,96	0,96	1,02	1,07	—	1,58	—	—	—	
	0,96	0,96	1,02	1,07	—	1,58	—	—	—	
	1,02	1,02	1,07	1,07	—	1,58	—	—	—	
	1,07	1,07	1,07	1,07	—	1,58	—	—	—	
	—	—	1,58	1,58	—	2,11	—	—	—	
	—	—	—	—	—	2,11	—	—	—	
	—	—	—	—	—	2,48	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,40	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	1,50
	0,61	0,61	0,61	0,61	0,61	—	—	—	—	—
	0,61	0,61	0,61	0,61	0,61	—	—	—	—	—
	0,61	0,61	0,61	0,61	0,61	—	—	—	—	—
	0,61	0,61	0,61	0,61	0,61	—	—	—	—	—
	—	0,61	0,87	0,87	—	—	—	—	—	—
	—	—	0,87	0,87	—	—	—	—	—	—
	—	—	0,87	0,87	—	—	—	—	—	—
	—	—	0,87	0,87	—	—	—	—	—	—
	—	—	0,87	0,87	—	—	—	—	—	—
	—	—	—	0,87	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—

<p>OC, OCW, ON, ONP, OD, ODX, ODG, OCF fastening screws for metal members and sheeting</p>	<p>Annex 1 of European Technical Assessment ETA-13/0203</p>
<p>OC 4,8 × L with hexagon head and sealing washer Ø14 mm</p>	

	<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: $\Sigma t_i \leq 6 \text{ mm}$</p>
	<p>Timber substructures no performance assessed</p>

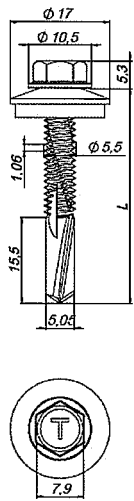
$t_{N,II}$ [mm]	1,00	1,13	1,25	1,50	2,00	2,50	3,00	4,00	Wood class \geq C24
$M_{t,nom}$	6 Nm								
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,94	0,94	0,94	0,94	0,94	0,94	0,94	
	0,55	0,94	0,94	0,94	0,94	0,94	0,94	0,94	
	0,63	1,05	1,05	1,05	1,05	1,05	1,05	1,05	
	0,75	1,20	1,20	1,20	1,20	1,20	1,20	1,20	
	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	1,62
	0,50	0,77	0,77	1,07	1,04	2,64	2,64	2,64	2,64
	0,55	0,77	0,77	1,07	1,04	2,64	2,64	2,64	2,64
	0,63	0,77	0,77	1,07	1,04	2,84	2,84	3,56	3,56
	0,75	0,77	0,77	1,07	1,04	2,84	2,84	4,27	4,27
	0,88	0,77	0,77	1,07	1,04	2,84	2,84	4,27	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	—	—	

<p>OC, OCW, ON, ONP, OD, ODX, ODG, OCF fastening screws for metal members and sheeting</p>	<p>Annex 2 of European Technical Assessment ETA-13/0203</p>
<p>OC 5,5 × L with hexagon head and sealing washer $\varnothing 16 \text{ mm}$</p>	

	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: S280GD – EN 10346
	Drilling capacity: $\Sigma t_i \leq 2,5 \text{ mm}$ 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 \geq 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	—	
	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	—	—	—	—	—	—	—	—	—	

<p align="center">OC, OCW, ON, ONP, OD, ODX, ODG, OCF fastening screws for metal members and sheeting</p>	<p align="center">Annex 4 of European Technical Assessment ETA-13/0203</p>
<p align="center">OCW 4,8 × L with hexagon head and sealing washer $\varnothing 14 \text{ mm}$</p>	



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: $\Sigma t_i \leq 12 \text{ mm}$

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, OCF
 fastening screws for metal members and sheeting

ON 5,5 × L
 with hexagon head and sealing washer $\varnothing 16 \text{ mm}$

Annex 5
 of European
 Technical Assessment
 ETA-13/0203

	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: $\Sigma t_i \leq 12 \text{ mm}$
	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, OCF fastening screws for metal members and sheeting	Annex 6 of European Technical Assessment ETA-13/0203
ONP 5,5 × L with hexagon head and sealing washer $\varnothing 16 \text{ mm}$	

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: 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 $l_{ef} \geq 20 \text{ mm}$

$t_{N,II}$ [mm]	1,50	2,00	—	—	—	—	—	—	—	—	—	Wood class $\geq \text{C24}$
$M_{t,nom}$	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, OCF fastening screws for metal members and sheeting	Annex 7 of European Technical Assessment ETA-13/0203
OD 4,8 × L with hexagon head and sealing washer Ø14 mm	

	<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: S280GD – EN 10346 or structural timber – EN 14081</p>
	<p>Drilling capacity: $\Sigma t_i \leq 2,5 \text{ mm}$</p>
	<p>Timber substructures</p> <p>For timber substructures performance determined with:</p> <p>$M_{y,Rk} = 4,390 \text{ Nm}$ $f_{ax,k} = 16,204 \text{ N/mm}^2$ for $l_{ef} \geq 20 \text{ mm}$</p>

$t_{N,II}$ [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	

<p>OC, OCW, ON, ONP, OD, ODX, ODG, OCF fastening screws for metal members and sheeting</p>	<p>Annex 8 of European Technical Assessment ETA-13/0203</p>
<p>ODX 4,8 × L with hexagon head and sealing washer Ø14 mm</p>	

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 $l_{ef} \geq 20 \text{ mm}$

$t_{N,II}$ [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	

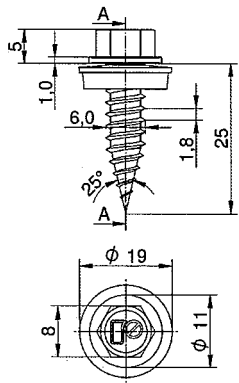
OC, OCW, ON, ONP, OD, ODX, ODG, OCF fastening screws for metal members and sheeting	Annex 9 of European Technical Assessment ETA-13/0203
ODG 4,8 × L with hexagon head and sealing washer Ø14 mm	

	Materials Fastener: stainless steel A2 Washer: stainless steel A2 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 determined

$t_{N,II}$ [mm]	0,40	0,50	0,55	0,63	0,75	0,88	1,00
$M_{t,nom}$	-						
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,40	0,50	0,55	0,63	0,75	0,88	1,00
0,40	0,82	0,82	0,82	0,82	0,82	0,82	0,82
0,50	0,82	1,43	1,43	1,43	1,43	1,43	1,43
0,55	0,82	1,43	1,43	1,43	1,43	1,43	1,43
0,63	0,82	1,43	1,43	1,43	1,58	1,58	1,58
0,75	0,82	1,43	1,43	1,43	1,58	2,01	2,01
0,88	0,82	1,43	1,43	1,43	1,58	2,01	3,13
1,00	0,82	1,43	1,43	1,43	1,58	2,01	3,21
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,40	0,50	0,55	0,63	0,75	0,88	1,00
0,40	0,71	0,88	0,88	1,19	1,69	1,70	2,10
0,50	0,71	0,88	0,88	1,19	1,69	1,70	2,10
0,55	0,71	0,88	0,88	1,19	1,69	1,70	2,10
0,63	0,71	0,88	0,88	1,19	1,69	1,70	2,10
0,75	0,71	0,88	0,88	1,19	1,69	1,70	2,10
0,88	0,71	0,88	0,88	1,19	1,69	1,70	2,10
1,00	0,71	0,88	0,88	1,19	1,69	1,70	2,10

If both components I and II are made of S320GD or S250GD the values may be increased by 8,3%

OC, OCW, ON, ONP, OD, ODX, ODG, OCF fastening screws for metal members and sheeting	Annex 10 of European Technical Assessment ETA-13/0203
OCF 6,0 × L with hexagon head and sealing washer $\phi 16 \text{ mm}$	



Materials
 Fastener: stainless steel A2
 Washer: stainless steel A2
 Component I: aluminium alloy $R_m \geq 165 \text{ N/mm}^2$ – EN 573
 Component II: aluminium alloy $R_m \geq 165 \text{ N/mm}^2$ – EN 573

Drilling capacity: $\Sigma t_i \leq 2 \times 1,50 \text{ mm}$

Timber substructures
 no performance assessed

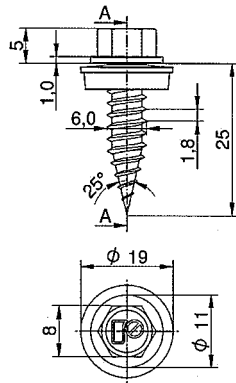
$t_{N,II}$ [mm]	0,40	0,50	0,60	0,70	1,00	1,20	1,50
$M_{t, nom}$	-						
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,40	0,28	0,28	0,28	0,28	0,28	0,28
	0,50	0,28	0,42	0,42	0,42	0,42	0,42
	0,60	0,28	0,42	0,47	0,47	0,47	0,47
	0,70	0,28	0,42	0,47	0,49	0,49	0,49
	1,00	0,28	0,42	0,47	0,49	1,52	1,52
	1,20	0,28	0,42	0,47	0,49	1,52	1,51
	1,50	0,28	0,42	0,47	0,49	1,52	1,92
$N_{R,k}$ [kN]	0,17	0,26	0,34	0,42	1,28	1,40	1,68
Pull-through resistance of component I acc. to EN 1999-1-4, chapter 8.3.3.1							

OC, OCW, ON, ONP, OD, ODX, ODG, OCF fastening screws for metal members and sheeting	Annex 11 of European Technical Assessment ETA-13/0203
OCF 6,0 × L with hexagon head and sealing washer $\varnothing 16 \text{ mm}$	

	Materials Fastener: stainless steel A2 Washer: stainless steel A2 Component I: aluminium alloy $R_m \geq 215 \text{ N/mm}^2$ – EN 573 Component II: aluminium alloy $R_m \geq 215 \text{ N/mm}^2$ – EN 573
	Drilling capacity: $\Sigma t_i \leq 2 \times 1,50 \text{ mm}$
	Timber substructures no performance assessed

$t_{N,II}$ [mm]	0,40	0,50	0,60	0,70	1,00	1,20	1,50
$M_{t,nom}$	-						
$V_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,40	0,50	0,60	0,70	1,00	1,20	1,50
	0,34	0,34	0,34	0,34	0,34	0,34	0,34
	0,34	0,51	0,51	0,51	0,51	0,51	0,51
	0,34	0,51	0,53	0,53	0,53	0,53	0,53
	0,34	0,51	0,53	0,66	0,66	0,66	0,66
	0,34	0,51	0,53	0,66	1,82	1,82	1,82
	0,34	0,51	0,53	0,66	1,82	1,86	1,86
	0,34	0,51	0,53	0,66	1,82	1,86	2,12
$N_{R,k}$ [kN]	0,21	0,32	0,39	0,52	1,50	1,59	2,06
Pull-through resistance of component I acc. to EN 1999-1-4, chapter 8.3.3.1							

OC, OCW, ON, ONP, OD, ODX, ODG, OCF fastening screws for metal members and sheeting	Annex 12 of European Technical Assessment ETA-13/0203
OCF 6,0 × L with hexagon head and sealing washer $\phi 16 \text{ mm}$	



Materials

Fastener: stainless steel A2
 Washer: stainless steel A2
 Component I: aluminium alloy $R_m \geq 215 \text{ N/mm}^2$ – EN 573
 Component II: S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma t_i \leq 2 \times 1,50 \text{ mm}$

Timber substructures
 no performance assessed

$t_{N,II}$ [mm]	0,40	0,50	0,55	0,63	0,75	0,88	1,00
$M_{t,nom}$	-						
$V_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,34	0,34	0,34	0,34	0,34	0,34	0,34
0,40	0,34	0,51	0,51	0,51	0,51	0,51	0,51
0,50	0,34	0,51	0,53	0,53	0,53	0,53	0,53
0,60	0,34	0,51	0,53	0,66	0,66	0,66	0,66
0,70	0,34	0,51	0,53	0,66	1,82	1,82	1,82
1,00	0,34	0,51	0,53	0,66	1,82	1,86	1,86
1,20	0,34	0,51	0,53	0,66	1,82	1,86	2,12
1,50	0,34	0,51	0,53	0,66	1,82	1,86	2,12
$N_{R,k}$ [kN]	0,71	0,88	0,88	1,19	1,69	1,70	2,10
Pull-through resistance of component I acc. to EN 1999-1-4, chapter 8.3.3.1							

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

OCF 6,0 × L
 with hexagon head and sealing washer $\varnothing 16 \text{ mm}$

Annex 13
 of European
 Technical Assessment
 ETA-13/0203

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_1 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.

OC, OCW, ON, ONP, OD, ODX, ODG, OCF fastening screws for metal members and sheeting	Annex 14 of European Technical Assessment ETA-13/0203
Determination of design values	