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

Designated according to Article 29 of Regulation (EU) No 305/2011 and member of EOTA (European Organization for Technical Assessment)

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European Technical Assessment

ETA-13/0203 of 27/01/2017

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
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
This European Technical Assessment contains	14 pages including 10 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 26/06/2013

This European Technical Assessment is issued by the Technical Assessment Body in its official language. Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and shall be identified as such.

Specific Part

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 ≥ 12 µm of zinc coating	1
2	OC 5,5 x L	galvanized carbon steel with ≥ 12 µm of zinc coating	2
3	OC 6,3 x L	galvanized carbon steel with ≥ 12 µm of zinc coating	3
4	OCW 4,8 x L	galvanized carbon steel with ≥ 12 µm of zinc coating	4
5	ON 5,5 x L	galvanized carbon steel with ≥ 12 µm of zinc coating	5
6	ONP 5,5 x L	galvanized carbon steel with ≥ 12 µm of zinc coating	6
7	OD 4,8 x L	galvanized carbon steel with ≥ 12 µm of zinc coating	7
8	ODX 4,8 x L	galvanized carbon steel with ≥ 12 µm of zinc coating	8
9	ODG 4,8 x L	galvanized carbon steel with ≥ 12 µm of zinc coating with additional zinc flake coating	9

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 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 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 with the fasteners are given in Annex 1 to 9. The values were determined by tests according to EAD 330046-01-0602.

The design values shall be determined according to Annex 10 and EAD 330046-01-0602.

For the corrosion protection the rules given in EN 1993-1-3 and EN 1993-1-4 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.

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

Regarding the dangerous substances 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 for the declared intended use 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).

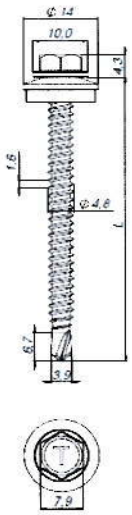
5. Technical details necessary for the implementation of the AVCP system, as provided for in the applicable European Assessment Document (EAD)

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.

Issued in Warsaw on 27/01/2017 by Instytut Techniki Budowlanej

Marcin M. Kruk, PhD
Director of ITB



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: $\Sigma t_i \leq 3$ 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 ≥ C24
$M_{t,nom}$		3 Nm								
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,96	0,96	0,96	0,96	0,96	0,96	0,96	0,96	
	0,55	0,96	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	1,02	—	
	0,75	1,07	1,07	1,07	1,07	1,07	1,07	1,07	—	
	0,88	—	—	1,07	1,07	1,07	1,07	1,07	—	
	1,00	—	—	1,58	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	1,30	
	0,50	0,61	0,61	0,87	0,87	1,27	2,08	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	—	—	

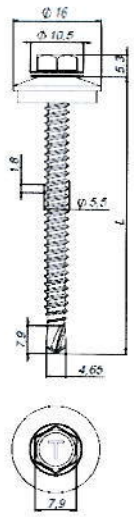
OC, OCW, ON, ONP, OD, ODX, ODG
fastening screws for metal members and sheeting

OC 4,8 × L

with hexagon head and sealing washer Ø14 mm

Annex 1

of European Technical Assessment ETA-13/0203



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 ≥ 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	0,94	
	0,55	0,94	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	1,05	
	0,75	1,20	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	1,20	
	1,00	1,66	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	—	—	

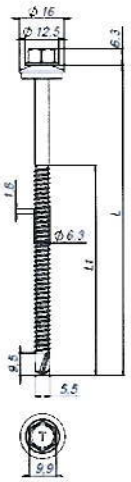
OC, OCW, ON, ONP, OD, ODX, ODG
fastening screws for metal members and sheeting

OC 5,5 × L

with hexagon head and sealing washer Ø16 mm

Annex 2

of European Technical Assessment ETA-13/0203



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 ≥ 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	—	
	3,00	—	—	—	—	—	—	6,06	—	

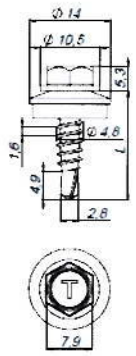
OC, OCW, ON, ONP, OD, ODX, ODG
fastening screws for metal members and sheeting

OC 6,3 × L

with hexagon head and sealing washer Ø16 mm or Ø19

Annex 3

of European Technical Assessment ETA-13/0203



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	0,37	
	0,50	—	0,38	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	1,30	
	0,50	—	0,48	0,48	0,78	0,91	0,91	1,45	1,45	1,81	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	—	—	—	—	—	—	—	—	—	—	

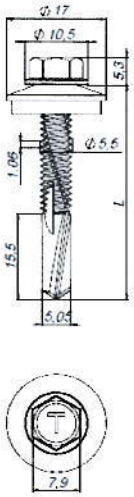
OC, OCW, ON, ONP, OD, ODX, ODG
fastening screws for metal members and sheeting

OCW 4,8 × L

with hexagon head and sealing washer Ø14 mm

Annex 4

of European Technical Assessment ETA-13/0203



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 ≥ 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	—	—	—	

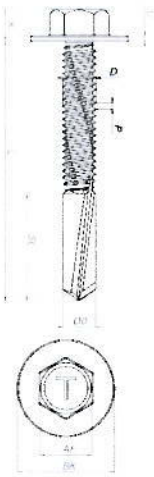
OC, OCW, ON, ONP, OD, ODX, ODG
fastening screws for metal members and sheeting

ON 5,5 × L

with hexagon head and sealing washer Ø16 mm

Annex 5

of European Technical Assessment ETA-13/0203



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 ≥ 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	—	—	—	

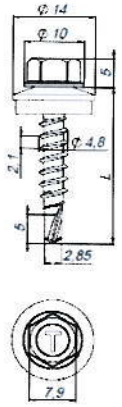
OC, OCW, ON, ONP, OD, ODX, ODG
fastening screws for metal members and sheeting

ONP 5,5 × L

with hexagon head and sealing washer Ø16 mm

Annex 6

of European Technical Assessment ETA-13/0203



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 ≥ C24	
$M_{t,nom}$		3 Nm											
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,76	0,76	—	—	—	—	—	—	—	—	0,74	bearing resistance of component II
	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	pull-through resistance of component I
	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	

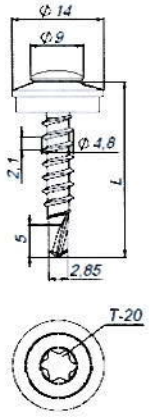
OC, OCW, ON, ONP, OD, ODX, ODG
fastening screws for metal members and sheeting

OD 4,8 × L

with hexagon head and sealing washer Ø14 mm

Annex 7

of European Technical Assessment ETA-13/0203



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 ≥ C24	
$M_{t,nom}$		3 Nm											
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,76	0,76	—	—	—	—	—	—	—	—	0,74	bearing resistance of component II
	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	pull-through resistance of component I
	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	

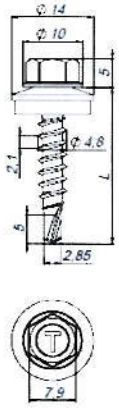
OC, OCW, ON, ONP, OD, ODX, ODG
fastening screws for metal members and sheeting

ODX 4,8 × L

with hexagon head and sealing washer Ø14 mm

Annex 8

of European Technical Assessment ETA-13/0203



Materials

Fastener:	carbon steel – SAE1022 quenched, tempered and galvanized (≥ 12 µm) 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: $\Sigma t_i \leq 2{,}5$ 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 ≥ C24	
$M_{t,nom}$		3 Nm											
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,76	0,76	—	—	—	—	—	—	—	—	0,74	bearing resistance of component II
	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	pull-through resistance of component I
	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

ODG 4,8 × L

with hexagon head and sealing washer Ø14 mm

Annex 9

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 γ_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 γ_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 γ_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 γ_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 γ_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.