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European Technical Assessment ETA-13/0199 of 12/10/2018

General part

Technical Assessment Body issuing the European Technical Assessment	Instytut Techniki Budowlanej
Trade name of the construction product	GTSP, GTRSP, GTRWSP, GTXSP
Product family to which the construction product belongs	Fastening screws for sandwich panels
Manufacturer	ETANCO Sp. z o.o. Al. Jana Pawła II 1 PL 81-345 Gdynia, Poland
Manufacturing plants	1. ETANCO Sp. z o.o. ul. Olsztyńska 30 PL 11-130 Orneta, Poland 2. Plant 2 3. Plant 3 4. Plant 4 5. Plant 5 6. Plant 6 7 Plant 7
This European Technical Assessment contains	82 pages including 77 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) EAD 330047-01-0602 "Fastening screws for sandwich panels"
This version replaces	ETA-13/0199 issued on 28/05/2013

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Specific part

1. Technical description of the product

The fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP are a self-drilling and self-tapping screws listed in Table 1. Screws are completed with washer and an EPDM sealing ring. For details see the Annexes 2 to 74. All screws can be completed with additional linear washer GSPW or saddle washer (Annexes 75 and 76).

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

Table 1

No.	Screw	Material	Annex
1	GT6SP	galvanized carbon steel	2 – 4, 59, 67
2	GTR6SP	galvanized carbon steel with additional coating gRey.coat	5 – 10
3	GT12SP	galvanized carbon steel	11 – 13, 60, 68
4	GTR12SP	galvanized carbon steel with additional coating gRey.coat	14 – 19
5	GT16SP	galvanized carbon steel	20 – 22, 61, 69
6	GTR16SP	galvanized carbon steel with additional coating gRey.coat	23 – 28
7	GT20SP	galvanized carbon steel	29 – 31, 62, 70
8	GTR20SP	galvanized carbon steel with additional coating gRey.coat	32 – 37
9	GT25SP	galvanized carbon steel	38 – 40, 63, 71
10	GTR25SP	galvanized carbon steel with additional coating gRey.coat	41 – 46
11	GTRWSP	galvanized carbon steel with additional coating gRey.coat	47 – 52, 64, 72
12	GTX6SP	stainless steel	53 – 55, 65, 73
13	GTX12SP		56 – 58, 66, 74

2. Specification of the intended use in accordance with the applicable European Assessment Document (EAD)

The fastening screws for sandwich panels are intended to be used for fastening sandwich panels to steel or timber substructures. For details see the Annexes 2 to 76. The component to be fastened is component I and the supporting structure is component II. The sandwich panel can either be used as wall or roof cladding or as load bearing wall and roof element.

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).

Example of execution of a connections are given in Annex 1.

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 as well as the maximum head displacement are given in Annex 2 to 74. The values were determined by tests according to EAD 330047-01-0602.

The design values shall be determined according to Annex 77 and EAD 330047-01-0602.

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 steel 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 fastening screws has been made in accordance with EAD 330047-01-0602.

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)

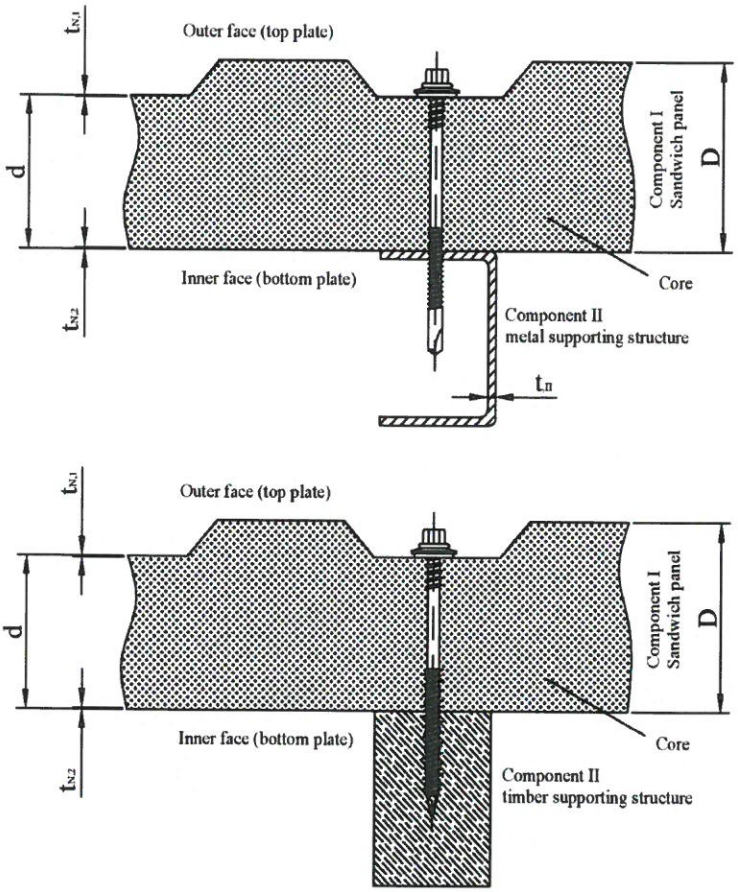
Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at the Instytut Techniki Budowlanej.

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.

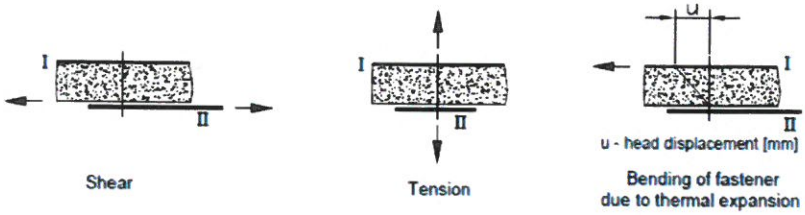
Issued in Warsaw on 12/10/2018 by Instytut Techniki Budowlanej

Anna Panek, MSc
Deputy Director of ITB

Examples of execution of a connections



Loading conditions



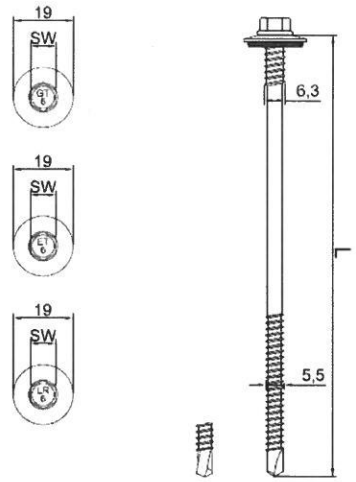
Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP, GTXSP	Annex 1 of European Technical Assessment ETA-13/0199
Example of execution of a connections. Loading conditions	

Materials

Fastener:	carbon steel – SAE 1022, quenched, tempered and galvanized (12 µm)
Washer:	metallic washer made of coated carbon steel with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 6$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			1,00	1,50	2,00	2,50	3,00	4,00	≥ 5,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,55	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,63	1,60	1,60	1,60	1,60	1,60	1,60	1,60
		0,75	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		0,88	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		1,00	2,10	2,10	2,10	2,10	2,10	2,10	2,10
	$N_{R,k}$ in [kN]	0,50	1,10	1,93	3,45	3,45	3,45	3,45	3,45
		0,55	1,10	1,93	3,45	3,45	3,45	3,45	3,45
		0,63	1,10	1,93	3,45	3,45	3,45	3,45	3,45
		0,75	1,10	1,93	3,45	3,45	3,45	3,45	3,45
		0,88	1,10	1,93	3,45	3,45	3,45	3,45	3,45
		1,00	1,10	1,93	3,45	3,45	3,45	3,45	3,45
max. head displacement u depending on the sandwich panel thickness in [mm]		30	12	12	12	12	1,5	1,5	1,5
		40	12	12	12	12	1,5	1,5	1,5
		50	12	12	12	12	1,5	1,5	1,5
		60	18	18	18	18	4	4	4
		70	18	18	18	18	4	4	4
		80	18	18	18	18	4	4	4
		90	23	23	23	23	10	10	10
		100	23	23	23	23	10	10	10
		120	23	23	23	23	10	10	10
		≥ 140	23	23	23	23	10	10	10

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GT6SP Z19 5,5/6,3 x L
with hexagon head and carbon steel sealing washer Ø19 mm

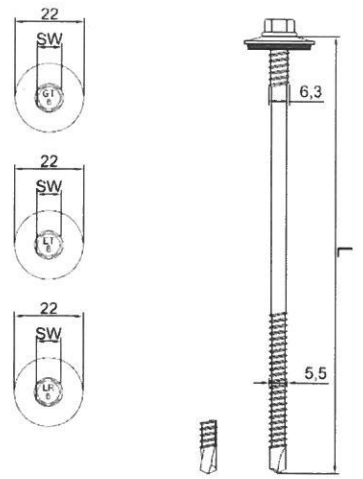
Annex 2

of European Technical Assessment ETA-13/0199

Materials

Fastener:	carbon steel – SAE 1022, quenched, tempered and galvanized (12 µm)
Washer:	metallic washer made of coated carbon steel with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	$\Sigma(t_{N2} + t_{II}) \leq 6$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			1,00	1,50	2,00	2,50	3,00	4,00	≥ 5,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,55	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,63	1,60	1,60	1,60	1,60	1,60	1,60	1,60
		0,75	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		0,88	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		1,00	2,10	2,10	2,10	2,10	2,10	2,10	2,10
	$N_{R,k}$ in [kN]	0,50	1,10	1,93	2,56	3,43	3,43	3,43	3,43
		0,55	1,10	1,93	2,56	3,43	3,43	3,43	3,43
		0,63	1,10	1,93	2,56	4,32	4,32	4,32	4,32
		0,75	1,10	1,93	2,56	6,10	6,10	6,10	6,10
		0,88	1,10	1,93	2,56	6,10	6,10	6,10	6,10
		1,00	1,10	1,93	2,56	6,10	6,10	6,10	6,10
max. head displacement u depending on the sandwich panel thickness in [mm]		30	12	12	12	1,5	1,5	1,5	1,5
		40	12	12	12	1,5	1,5	1,5	1,5
		50	12	12	12	1,5	1,5	1,5	1,5
		60	18	18	18	4	4	4	4
		70	18	18	18	4	4	4	4
		80	18	18	18	4	4	4	4
		90	23	23	23	10	10	10	10
		100	23	23	23	10	10	10	10
		120	23	23	23	10	10	10	10
		≥ 140	23	23	23	10	10	10	10

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GT6SP Z22 5,5/6,3 x L
with hexagon head and carbon steel sealing washer Ø22 mm

Annex 3

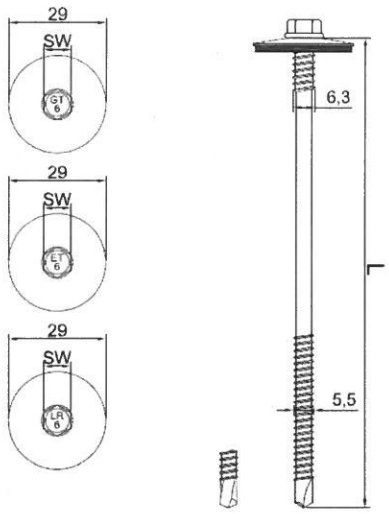
of European Technical Assessment ETA-13/0199

Materials

Fastener:	carbon steel – SAE 1022, quenched, tempered and galvanized (12 µm)
Washer:	metallic washer made of coated carbon steel with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 6$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			1,00	1,50	2,00	2,50	3,00	4,00	≥ 5,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,55	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,63	1,60	1,60	1,60	1,60	1,60	1,60	1,60
		0,75	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		0,88	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		1,00	2,10	2,10	2,10	2,10	2,10	2,10	2,10
	$N_{R,k}$ in [kN]	0,50	1,10	1,93	2,56	2,56	2,56	4,23	4,23
		0,55	1,10	1,93	2,56	2,56	2,56	4,23	4,23
		0,63	1,10	1,93	2,56	2,56	2,56	5,82	5,82
		0,75	1,10	1,93	2,56	2,56	2,56	6,35	6,35
		0,88	1,10	1,93	2,56	2,56	2,56	6,35	6,35
		1,00	1,10	1,93	2,56	2,56	2,56	6,35	6,35
max. head displacement u depending on the sandwich panel thickness in [mm]		30	12	12	12	12	1,5	1,5	1,5
		40	12	12	12	12	1,5	1,5	1,5
		50	12	12	12	12	1,5	1,5	1,5
		60	18	18	18	18	4	4	4
		70	18	18	18	18	4	4	4
		80	18	18	18	18	4	4	4
		90	23	23	23	23	10	10	10
		100	23	23	23	23	10	10	10
		120	23	23	23	23	10	10	10
		≥ 140	23	23	23	23	10	10	10

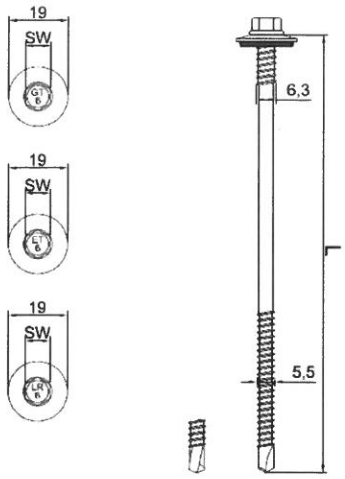
Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GT6SP Z29 5,5/6,3 x L
with hexagon head and carbon steel sealing washer Ø29 mm

Annex 4

of European Technical Assessment ETA-13/0199

Materials	
Fastener:	carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating
Washer:	metallic washer made of aluminum with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	$\Sigma(t_{N2} + t_{II}) \leq 6$ mm
Timber substructures no performance assessed	



Component II: t_{II} in [mm]		1,00	1,50	2,00	2,50	3,00	4,00	≥ 5,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]							
0,50		1,40	1,40	1,40	1,40	1,40	1,40	1,40
0,55		1,40	1,40	1,40	1,40	1,40	1,40	1,40
0,63		1,60	1,60	1,60	1,60	1,60	1,60	1,60
0,75		2,10	2,10	2,10	2,10	2,10	2,10	2,10
0,88		2,10	2,10	2,10	2,10	2,10	2,10	2,10
1,00		2,10	2,10	2,10	2,10	2,10	2,10	2,10
	$N_{R,k}$ in [kN]							
0,50		1,10	1,93	3,45	3,45	3,45	3,45	3,45
0,55		1,10	1,93	3,45	3,45	3,45	3,45	3,45
0,63		1,10	1,93	3,45	3,45	3,45	3,45	3,45
0,75		1,10	1,93	3,45	3,45	3,45	3,45	3,45
0,88		1,10	1,93	3,45	3,45	3,45	3,45	3,45
1,00		1,10	1,93	3,45	3,45	3,45	3,45	3,45
max. head displacement u depending on the sandwich panel thickness in [mm]								
30		12	12	12	12	1,5	1,5	1,5
40		12	12	12	12	1,5	1,5	1,5
50		12	12	12	12	1,5	1,5	1,5
60		18	18	18	18	4	4	4
70		18	18	18	18	4	4	4
80		18	18	18	18	4	4	4
90		23	23	23	23	10	10	10
100		23	23	23	23	10	10	10
120		23	23	23	23	10	10	10
≥ 140		23	23	23	23	10	10	10

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GTR6SP A19 5,5/6,3 x L
with hexagon head and aluminum sealing washer Ø19 mm

Annex 5

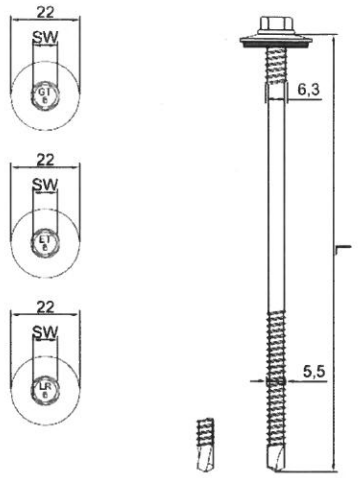
of European Technical Assessment ETA-13/0199

Materials

Fastener:	carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating
Washer:	metallic washer made of aluminum with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 6$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			1,00	1,50	2,00	2,50	3,00	4,00	≥ 5,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,55	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,63	1,60	1,60	1,60	1,60	1,60	1,60	1,60
		0,75	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		0,88	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		1,00	2,10	2,10	2,10	2,10	2,10	2,10	2,10
	$N_{R,k}$ in [kN]	0,50	1,10	1,93	3,45	3,45	3,45	3,45	3,45
		0,55	1,10	1,93	3,45	3,45	3,45	3,45	3,45
		0,63	1,10	1,93	3,45	3,45	3,45	3,45	3,45
		0,75	1,10	1,93	3,45	3,45	3,45	3,45	3,45
		0,88	1,10	1,93	3,45	3,45	3,45	3,45	3,45
		1,00	1,10	1,93	3,45	3,45	3,45	3,45	3,45
max. head displacement u depending on the sandwich panel thickness in [mm]		30	12	12	12	12	1,5	1,5	1,5
		40	12	12	12	12	1,5	1,5	1,5
		50	12	12	12	12	1,5	1,5	1,5
		60	18	18	18	18	4	4	4
		70	18	18	18	18	4	4	4
		80	18	18	18	18	4	4	4
		90	23	23	23	23	10	10	10
		100	23	23	23	23	10	10	10
		120	23	23	23	23	10	10	10
		≥ 140	23	23	23	23	10	10	10

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GTR6SP A22 5,5/6,3 x L
with hexagon head and aluminum sealing washer Ø22 mm

Annex 6

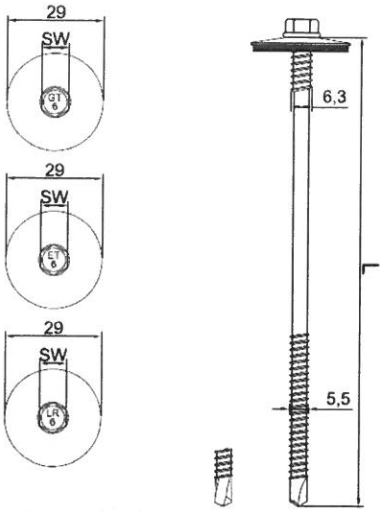
of European Technical Assessment ETA-13/0199

Materials

Fastener:	carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating
Washer:	metallic washer made of aluminum with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 6$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]		1,00	1,50	2,00	2,50	3,00	4,00	≥ 5,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]							
	0,50	1,40	1,40	1,40	1,40	1,40	1,40	1,40
	0,55	1,40	1,40	1,40	1,40	1,40	1,40	1,40
	0,63	1,60	1,60	1,60	1,60	1,60	1,60	1,60
	0,75	2,10	2,10	2,10	2,10	2,10	2,10	2,10
	0,88	2,10	2,10	2,10	2,10	2,10	2,10	2,10
	1,00	2,10	2,10	2,10	2,10	2,10	2,10	2,10
	$N_{R,k}$ in [kN]							
	0,50	1,10	1,93	3,45	3,45	3,45	3,45	3,45
	0,55	1,10	1,93	3,45	3,45	3,45	3,45	3,45
	0,63	1,10	1,93	3,45	3,45	3,45	3,45	3,45
	0,75	1,10	1,93	3,45	3,45	3,45	3,45	3,45
	0,88	1,10	1,93	3,45	3,45	3,45	3,45	3,45
	1,00	1,10	1,93	3,45	3,45	3,45	3,45	3,45
max. head displacement u depending on the sandwich panel thickness in [mm]	30	12	12	12	12	1,5	1,5	1,5
	40	12	12	12	12	1,5	1,5	1,5
	50	12	12	12	12	1,5	1,5	1,5
	60	18	18	18	18	4	4	4
	70	18	18	18	18	4	4	4
	80	18	18	18	18	4	4	4
	90	23	23	23	23	10	10	10
	100	23	23	23	23	10	10	10
	120	23	23	23	23	10	10	10
	≥ 140	23	23	23	23	10	10	10

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GTR6SP A29 5,5/6,3 x L
with hexagon head and aluminum sealing washer Ø29 mm

Annex 7

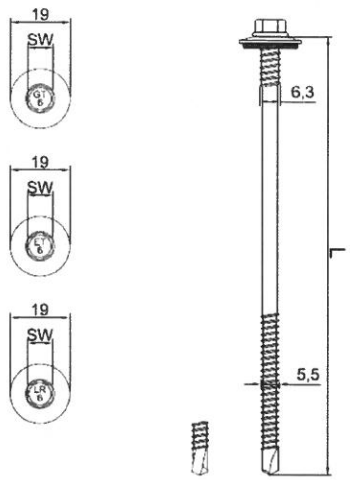
of European Technical Assessment ETA-13/0199

Materials

Fastener:	carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating
Washer:	metallic washer made of stainless steel with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 6$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			1,00	1,50	2,00	2,50	3,00	4,00	≥ 5,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	**0,50**	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,55	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,63	1,60	1,60	1,60	1,60	1,60	1,60	1,60
		0,75	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		0,88	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		1,00	2,10	2,10	2,10	2,10	2,10	2,10	2,10
	$N_{R,k}$ in [kN]	**0,50**	1,10	1,93	3,45	3,45	3,45	3,45	3,45
		0,55	1,10	1,93	3,45	3,45	3,45	3,45	3,45
		0,63	1,10	1,93	3,45	3,45	3,45	3,45	3,45
		0,75	1,10	1,93	3,45	3,45	3,45	3,45	3,45
		0,88	1,10	1,93	3,45	3,45	3,45	3,45	3,45
		1,00	1,10	1,93	3,45	3,45	3,45	3,45	3,45
max. head displacement u depending on the sandwich panel thickness in [mm]		**30**	12	12	12	12	1,5	1,5	1,5
		40	12	12	12	12	1,5	1,5	1,5
		50	12	12	12	12	1,5	1,5	1,5
		60	18	18	18	18	4	4	4
		70	18	18	18	18	4	4	4
		80	18	18	18	18	4	4	4
		90	23	23	23	23	10	10	10
		100	23	23	23	23	10	10	10
		120	23	23	23	23	10	10	10
		≥ 140	23	23	23	23	10	10	10

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GTR6SP S19 5,5/6,3 x L
with hexagon head and stainless steel sealing washer ≥ Ø19 mm

Annex 8

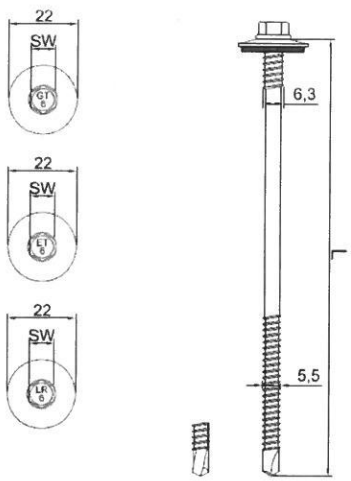
of European Technical Assessment ETA-13/0199

Materials

Fastener:	carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating
Washer:	metallic washer made of stainless steel with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 6$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]		1,00	1,50	2,00	2,50	3,00	4,00	≥ 5,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]							
	0,50	1,40	1,40	1,40	1,40	1,40	1,40	1,40
	0,55	1,40	1,40	1,40	1,40	1,40	1,40	1,40
	0,63	1,60	1,60	1,60	1,60	1,60	1,60	1,60
	0,75	2,10	2,10	2,10	2,10	2,10	2,10	2,10
	0,88	2,10	2,10	2,10	2,10	2,10	2,10	2,10
	1,00	2,10	2,10	2,10	2,10	2,10	2,10	2,10
	$N_{R,k}$ in [kN]							
	0,50	1,10	1,93	2,56	3,43	3,43	3,43	3,43
	0,55	1,10	1,93	2,56	3,43	3,43	3,43	3,43
	0,63	1,10	1,93	2,56	4,32	4,32	4,32	4,32
	0,75	1,10	1,93	2,56	6,10	6,10	6,10	6,10
	0,88	1,10	1,93	2,56	6,10	6,10	6,10	6,10
	1,00	1,10	1,93	2,56	6,10	6,10	6,10	6,10
max. head displacement u depending on the sandwich panel thickness in [mm]	30	12	12	12	12	1,5	1,5	1,5
	40	12	12	12	12	1,5	1,5	1,5
	50	12	12	12	12	1,5	1,5	1,5
	60	18	18	18	18	4	4	4
	70	18	18	18	18	4	4	4
	80	18	18	18	18	4	4	4
	90	23	23	23	23	10	10	10
	100	23	23	23	23	10	10	10
	120	23	23	23	23	10	10	10
	≥ 140	23	23	23	23	10	10	10

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GTR6SP S22 5,5/6,3 x L
with hexagon head and stainless steel sealing washer Ø22 mm

Annex 9

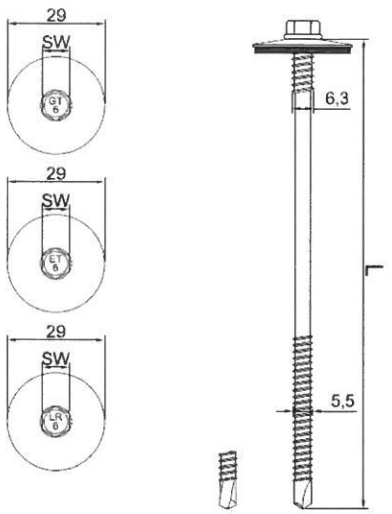
of European Technical Assessment ETA-13/0199

Materials

Fastener:	carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating
Washer:	metallic washer made of stainless steel with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 6$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			1,00	1,50	2,00	2,50	3,00	4,00	≥ 5,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,55	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,63	1,60	1,60	1,60	1,60	1,60	1,60	1,60
		0,75	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		0,88	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		1,00	2,10	2,10	2,10	2,10	2,10	2,10	2,10
	$N_{R,k}$ in [kN]	0,50	1,10	1,93	2,56	2,56	2,56	4,23	4,23
		0,55	1,10	1,93	2,56	2,56	2,56	4,23	4,23
		0,63	1,10	1,93	2,56	2,56	2,56	5,82	5,82
		0,75	1,10	1,93	2,56	2,56	2,56	6,35	6,35
		0,88	1,10	1,93	2,56	2,56	2,56	6,35	6,35
		1,00	1,10	1,93	2,56	2,56	2,56	6,35	6,35
max. head displacement u depending on the sandwich panel thickness in [mm]		30	12	12	12	12	1,5	1,5	1,5
		40	12	12	12	12	1,5	1,5	1,5
		50	12	12	12	12	1,5	1,5	1,5
		60	18	18	18	18	4	4	4
		70	18	18	18	18	4	4	4
		80	18	18	18	18	4	4	4
		90	23	23	23	23	10	10	10
		100	23	23	23	23	10	10	10
		120	23	23	23	23	10	10	10
		≥ 140	23	23	23	23	10	10	10

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GTR6SP S29 5,5/6,3 x L
with hexagon head and stainless steel sealing washer Ø29 mm

Annex 10

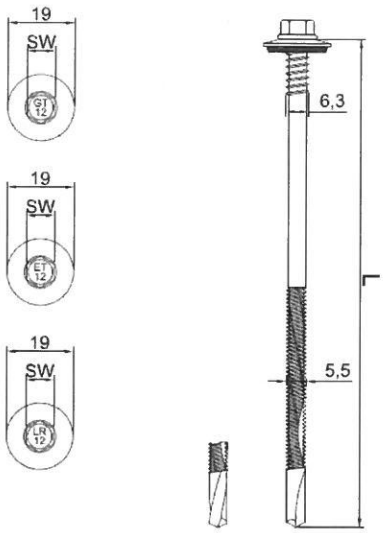
of European Technical Assessment ETA-13/0199

Materials

Fastener:	carbon steel – SAE 1022, quenched, tempered and galvanized (12 µm)
Washer:	metallic washer made of coated carbon steel with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 12$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]		3,00	4,00	5,00	6,00	8,00	10,00	≥ 11,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]							
	0,50	1,40	1,40	1,40	1,40	1,40	1,40	1,40
	0,55	1,40	1,40	1,40	1,40	1,40	1,40	1,40
	0,63	1,60	1,60	1,60	1,60	1,60	1,60	1,60
	0,75	2,10	2,10	2,10	2,10	2,10	2,10	2,10
	0,88	2,10	2,10	2,10	2,10	2,10	2,10	2,10
	1,00	2,10	2,10	2,10	2,10	2,10	2,10	2,10
	$N_{R,k}$ in [kN]							
	0,50	3,65	3,65	3,65	3,65	3,65	3,65	3,65
	0,55	3,65	3,65	3,65	3,65	3,65	3,65	3,65
	0,63	4,60	4,60	4,60	4,60	4,60	4,60	4,60
	0,75	5,45	5,45	5,45	5,45	5,45	5,45	5,45
	0,88	5,45	5,45	5,45	5,45	5,45	5,45	5,45
	1,00	5,45	5,45	5,45	5,45	5,45	5,45	5,45
max. head displacement u depending on the sandwich panel thickness in [mm]								
	30	1,5	1,5	1,5	1,5	1,5	1,5	1,5
	40	1,5	1,5	1,5	1,5	1,5	1,5	1,5
	50	1,5	1,5	1,5	1,5	1,5	1,5	1,5
	60	4	4	4	4	4	4	4
	70	4	4	4	4	4	4	4
	80	4	4	4	4	4	4	4
	90	6	6	6	6	6	6	6
	100	6	6	6	6	6	6	6
	120	6	6	6	6	6	6	6
	≥ 140	6	6	6	6	6	6	6

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GT12SP Z19 5,5/6,3 x L
with hexagon head and carbon steel sealing washer Ø19 mm

Annex 11

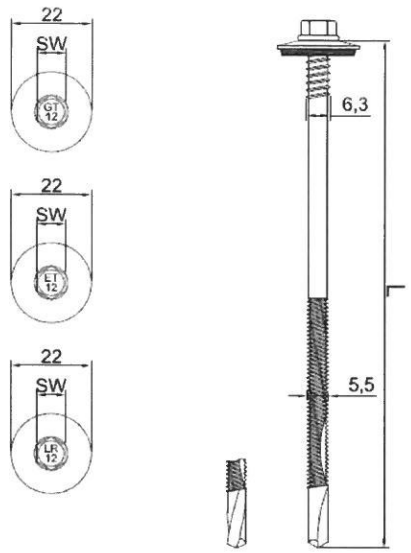
of European Technical Assessment ETA-13/0199

Materials

Fastener:	carbon steel – SAE 1022, quenched, tempered and galvanized (12 µm)
Washer:	metallic washer made of coated carbon steel with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 12$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			3,00	4,00	5,00	6,00	8,00	10,00	≥ 11,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,55	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,63	1,60	1,60	1,60	1,60	1,60	1,60	1,60
		0,75	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		0,88	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		1,00	2,10	2,10	2,10	2,10	2,10	2,10	2,10
	$N_{R,k}$ in [kN]	0,50	3,43	3,43	3,43	3,43	3,43	3,43	3,43
		0,55	3,43	3,43	3,43	3,43	3,43	3,43	3,43
		0,63	4,32	4,32	4,32	4,32	4,32	4,32	4,32
		0,75	6,10	6,10	6,10	6,10	6,10	6,10	6,10
		0,88	6,10	6,10	6,10	6,10	6,10	6,10	6,10
		1,00	6,10	6,10	6,10	6,10	6,10	6,10	6,10
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		40	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		50	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		60	4	4	4	4	4	4	4
		70	4	4	4	4	4	4	4
		80	4	4	4	4	4	4	4
		90	6	6	6	6	6	6	6
		100	6	6	6	6	6	6	6
		120	6	6	6	6	6	6	6
		≥ 140	6	6	6	6	6	6	6

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GT12SP Z22 5,5/6,3 x L
with hexagon head and carbon steel sealing washer Ø22 mm

Annex 12

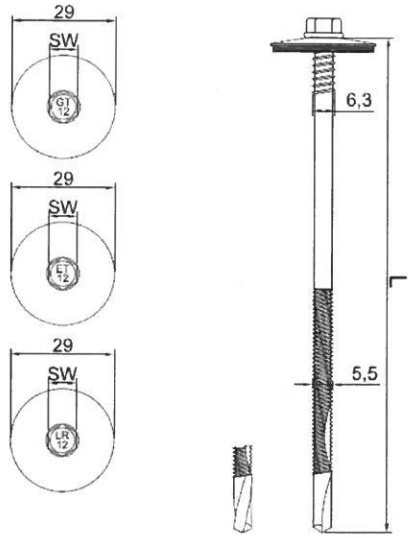
of European Technical Assessment ETA-13/0199

Materials

Fastener:	carbon steel – SAE 1022, quenched, tempered and galvanized (12 µm)
Washer:	metallic washer made of coated carbon steel with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 12$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			3,00	4,00	5,00	6,00	8,00	10,00	≥ 11,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,55	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,63	1,60	1,60	1,60	1,60	1,60	1,60	1,60
		0,75	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		0,88	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		1,00	2,10	2,10	2,10	2,10	2,10	2,10	2,10
	$N_{R,k}$ in [kN]	0,50	4,23	4,23	4,23	4,23	4,23	4,23	4,23
		0,55	4,23	4,23	4,23	4,23	4,23	4,23	4,23
		0,63	5,82	5,82	5,82	5,82	5,82	5,82	5,82
		0,75	6,35	6,35	6,35	6,35	6,35	6,35	6,35
		0,88	6,35	6,35	6,35	6,35	6,35	6,35	6,35
		1,00	6,35	6,35	6,35	6,35	6,35	6,35	6,35
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		40	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		50	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		60	4	4	4	4	4	4	4
		70	4	4	4	4	4	4	4
		80	4	4	4	4	4	4	4
		90	6	6	6	6	6	6	6
		100	6	6	6	6	6	6	6
		120	6	6	6	6	6	6	6
		≥ 140	6	6	6	6	6	6	6

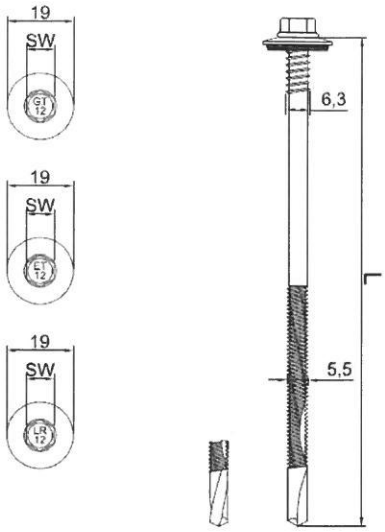
Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GT12SP Z29 5,5/6,3 x L
with hexagon head and carbon steel sealing washer Ø29 mm

Annex 13

of European Technical Assessment ETA-13/0199

Materials	
Fastener:	carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating
Washer:	metallic washer made of aluminum with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	$\Sigma(t_{N2} + t_{II}) \leq 12$ mm
Timber substructures no performance assessed	



Component II: t_{II} in [mm]			3,00	4,00	5,00	6,00	8,00	10,00	≥ 11,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,55	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,63	1,60	1,60	1,60	1,60	1,60	1,60	1,60
		0,75	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		0,88	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		1,00	2,10	2,10	2,10	2,10	2,10	2,10	2,10
	$N_{R,k}$ in [kN]	0,50	3,67	3,67	3,67	3,67	3,67	3,67	3,67
		0,55	3,67	3,67	3,67	3,67	3,67	3,67	3,67
		0,63	4,11	4,11	4,11	4,11	4,11	4,11	4,11
		0,75	5,28	5,28	5,28	5,28	5,28	5,28	5,28
		0,88	5,28	5,28	5,28	5,28	5,28	5,28	5,28
		1,00	5,28	5,28	5,28	5,28	5,28	5,28	5,28
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		40	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		50	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		60	4	4	4	4	4	4	4
		70	4	4	4	4	4	4	4
		80	4	4	4	4	4	4	4
		90	6	6	6	6	6	6	6
		100	6	6	6	6	6	6	6
		120	6	6	6	6	6	6	6
		≥ 140	6	6	6	6	6	6	6

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GTR12SP A19 5,5/6,3 x L
with hexagon head and aluminum sealing washer Ø19 mm

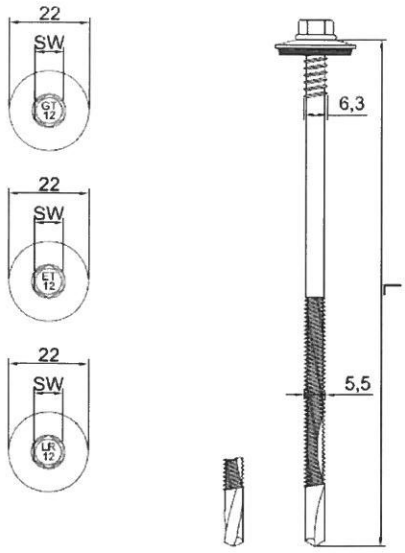
Annex 14

of European Technical Assessment ETA-13/0199

Materials

Fastener:	carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating
Washer:	metallic washer made of aluminum with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	$\Sigma(t_{N2} + t_{II}) \leq 12$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			3,00	4,00	5,00	6,00	8,00	10,00	≥ 11,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,55	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,63	1,60	1,60	1,60	1,60	1,60	1,60	1,60
		0,75	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		0,88	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		1,00	2,10	2,10	2,10	2,10	2,10	2,10	2,10
	$N_{R,k}$ in [kN]	0,50	3,67	3,67	3,67	3,67	3,67	3,67	3,67
		0,55	3,67	3,67	3,67	3,67	3,67	3,67	3,67
		0,63	4,11	4,11	4,11	4,11	4,11	4,11	4,11
		0,75	5,28	5,28	5,28	5,28	5,28	5,28	5,28
		0,88	5,28	5,28	5,28	5,28	5,28	5,28	5,28
		1,00	5,28	5,28	5,28	5,28	5,28	5,28	5,28
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		40	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		50	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		60	4	4	4	4	4	4	4
		70	4	4	4	4	4	4	4
		80	4	4	4	4	4	4	4
		90	6	6	6	6	6	6	6
		100	6	6	6	6	6	6	6
		120	6	6	6	6	6	6	6
		≥ 140	6	6	6	6	6	6	6

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

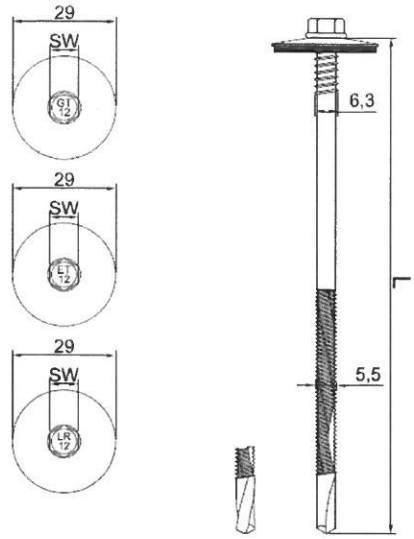
Self-drilling screw GTR12SP A22 5,5/6,3 x L
with hexagon head and aluminum sealing washer Ø22 mm

Annex 15

of European Technical Assessment ETA-13/0199

Materials	
Fastener:	carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating
Washer:	metallic washer made of aluminum with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	$\Sigma(t_{N2} + t_{II}) \leq 12$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			3,00	4,00	5,00	6,00	8,00	10,00	≥ 11,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,55	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,63	1,60	1,60	1,60	1,60	1,60	1,60	1,60
		0,75	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		0,88	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		1,00	2,10	2,10	2,10	2,10	2,10	2,10	2,10
	$N_{R,k}$ in [kN]	0,50	3,67	3,67	3,67	3,67	3,67	3,67	3,67
		0,55	3,67	3,67	3,67	3,67	3,67	3,67	3,67
		0,63	4,11	4,11	4,11	4,11	4,11	4,11	4,11
		0,75	5,28	5,28	5,28	5,28	5,28	5,28	5,28
		0,88	5,28	5,28	5,28	5,28	5,28	5,28	5,28
		1,00	5,28	5,28	5,28	5,28	5,28	5,28	5,28
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		40	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		50	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		60	4	4	4	4	4	4	4
		70	4	4	4	4	4	4	4
		80	4	4	4	4	4	4	4
		90	6	6	6	6	6	6	6
		100	6	6	6	6	6	6	6
		120	6	6	6	6	6	6	6
		≥ 140	6	6	6	6	6	6	6

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

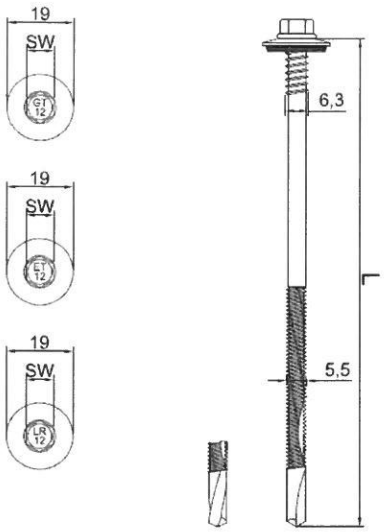
Self-drilling screw GTR12SP A29 5,5/6,3 x L
with hexagon head and aluminum sealing washer Ø29 mm

Annex 16

of European Technical Assessment ETA-13/0199

Materials	
Fastener:	carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating
Washer:	metallic washer made of stainless steel with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	$\Sigma(t_{N2} + t_{II}) \leq 12$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			3,00	4,00	5,00	6,00	8,00	10,00	≥ 11,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,55	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,63	1,60	1,60	1,60	1,60	1,60	1,60	1,60
		0,75	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		0,88	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		1,00	2,10	2,10	2,10	2,10	2,10	2,10	2,10
	$N_{R,k}$ in [kN]	0,50	3,67	3,67	3,67	3,67	3,67	3,67	3,67
		0,55	3,67	3,67	3,67	3,67	3,67	3,67	3,67
		0,63	4,11	4,11	4,11	4,11	4,11	4,11	4,11
		0,75	5,28	5,28	5,28	5,28	5,28	5,28	5,28
		0,88	5,28	5,28	5,28	5,28	5,28	5,28	5,28
		1,00	5,28	5,28	5,28	5,28	5,28	5,28	5,28
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		40	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		50	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		60	4	4	4	4	4	4	4
		70	4	4	4	4	4	4	4
		80	4	4	4	4	4	4	4
		90	6	6	6	6	6	6	6
		100	6	6	6	6	6	6	6
		120	6	6	6	6	6	6	6
		≥ 140	6	6	6	6	6	6	6

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GTR12SP S19 5,5/6,3 x L
with hexagon head and stainless steel sealing washer Ø19 mm

Annex 17

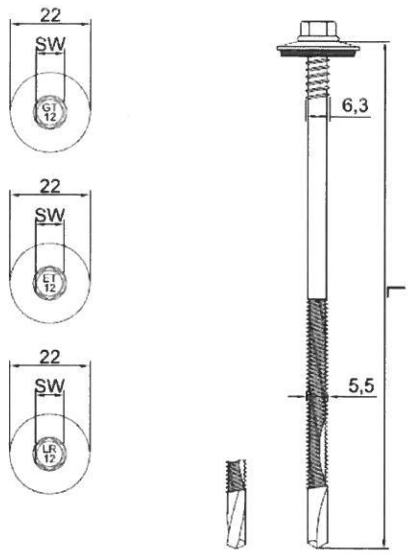
of European Technical Assessment ETA-13/0199

Materials

Fastener:	carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating
Washer:	metallic washer made of stainless steel with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 12$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			3,00	4,00	5,00	6,00	8,00	10,00	≥ 11,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,55	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,63	1,60	1,60	1,60	1,60	1,60	1,60	1,60
		0,75	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		0,88	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		1,00	2,10	2,10	2,10	2,10	2,10	2,10	2,10
	$N_{R,k}$ in [kN]	0,50	3,43	3,43	3,43	3,43	3,43	3,43	3,43
		0,55	3,43	3,43	3,43	3,43	3,43	3,43	3,43
		0,63	4,32	4,32	4,32	4,32	4,32	4,32	4,32
		0,75	6,10	6,10	6,10	6,10	6,10	6,10	6,10
		0,88	6,10	6,10	6,10	6,10	6,10	6,10	6,10
		1,00	6,10	6,10	6,10	6,10	6,10	6,10	6,10
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		40	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		50	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		60	4	4	4	4	4	4	4
		70	4	4	4	4	4	4	4
		80	4	4	4	4	4	4	4
		90	6	6	6	6	6	6	6
		100	6	6	6	6	6	6	6
		120	6	6	6	6	6	6	6
		≥ 140	6	6	6	6	6	6	6

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GTR12SP S22 5,5/6,3 x L
with hexagon head and stainless steel sealing washer Ø22 mm

Annex 18

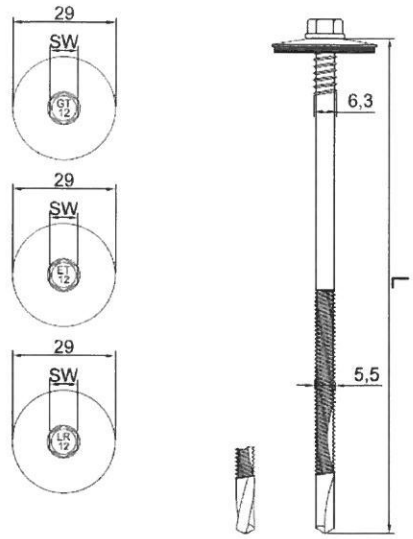
of European Technical Assessment ETA-13/0199

Materials

Fastener:	carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating
Washer:	metallic washer made of stainless steel with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 12$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			3,00	4,00	5,00	6,00	8,00	10,00	≥ 11,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,55	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,63	1,60	1,60	1,60	1,60	1,60	1,60	1,60
		0,75	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		0,88	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		1,00	2,10	2,10	2,10	2,10	2,10	2,10	2,10
	$N_{R,k}$ in [kN]	0,50	4,23	4,23	4,23	4,23	4,23	4,23	4,23
		0,55	4,23	4,23	4,23	4,23	4,23	4,23	4,23
		0,63	5,82	5,82	5,82	5,82	5,82	5,82	5,82
		0,75	6,35	6,35	6,35	6,35	6,35	6,35	6,35
		0,88	6,35	6,35	6,35	6,35	6,35	6,35	6,35
		1,00	6,35	6,35	6,35	6,35	6,35	6,35	6,35
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		40	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		50	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		60	4	4	4	4	4	4	4
		70	4	4	4	4	4	4	4
		80	4	4	4	4	4	4	4
		90	6	6	6	6	6	6	6
		100	6	6	6	6	6	6	6
		120	6	6	6	6	6	6	6
		≥ 140	6	6	6	6	6	6	6

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GTR12SP S29 5,5/6,3 x L
with hexagon head and stainless steel sealing washer Ø29 mm

Annex 19

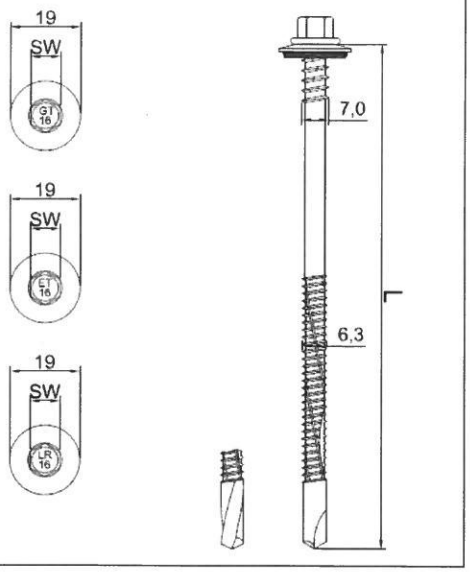
of European Technical Assessment ETA-13/0199

Materials

Fastener:	carbon steel – SAE 1022, quenched, tempered and galvanized (12 µm)
Washer:	metallic washer made of coated carbon steel with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 16$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			4,00	5,00	6,00	8,00	10,00	12,00	14,00	≥ 15,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,55	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,63	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35
		0,75	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		0,88	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		1,00	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
	$N_{R,k}$ in [kN]	0,50	3,65	3,65	3,65	3,65	3,65	3,65	3,65	3,65
		0,55	3,65	3,65	3,65	3,65	3,65	3,65	3,65	3,65
		0,63	4,60	4,60	4,60	4,60	4,60	4,60	4,60	4,60
		0,75	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
		0,88	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
		1,00	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1	1	1	1	1	1	1	1
		40	1	1	1	1	1	1	1	1
		50	1	1	1	1	1	1	1	1
		60	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		70	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		80	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		90	4	4	4	4	4	4	4	4
		100	4	4	4	4	4	4	4	4
		120	4	4	4	4	4	4	4	4
		≥ 140	4	4	4	4	4	4	4	4

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GT16SP Z19 6,3/7,0 x L
with hexagon head and carbon steel sealing washer Ø19 mm

Annex 20

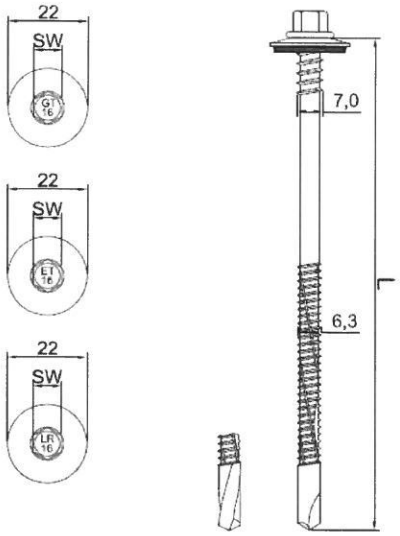
of European Technical Assessment ETA-13/0199

Materials

Fastener:	carbon steel – SAE 1022, quenched, tempered and galvanized (12 µm)
Washer:	metallic washer made of coated carbon steel with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 16$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			4,00	5,00	6,00	8,00	10,00	12,00	14,00	≥ 15,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,55	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,63	2,35	2,35	2,35	1,69	1,69	1,69	1,69	1,69
		0,75	2,50	2,50	2,50	1,96	1,96	1,96	1,96	1,96
		0,88	2,50	2,50	2,50	1,96	1,96	1,96	1,96	1,96
		1,00	2,50	2,50	2,50	1,96	1,96	1,96	1,96	1,96
	$N_{R,k}$ in [kN]	0,50	3,65	3,65	3,65	3,43	3,43	3,43	3,43	3,43
		0,55	3,65	3,65	3,65	3,43	3,43	3,43	3,43	3,43
		0,63	4,60	4,60	4,60	4,32	4,32	4,32	4,32	4,32
		0,75	5,45	5,45	5,45	6,10	6,10	6,10	6,10	6,10
		0,88	5,45	5,45	5,45	6,10	6,10	6,10	6,10	6,10
		1,00	5,45	5,45	5,45	6,10	6,10	6,10	6,10	6,10
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1	1	1	1	1	1	1	1
		40	1	1	1	1	1	1	1	1
		50	1	1	1	1	1	1	1	1
		60	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		70	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		80	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		90	4	4	4	4	4	4	4	4
		100	4	4	4	4	4	4	4	4
		120	4	4	4	4	4	4	4	4
		≥ 140	4	4	4	4	4	4	4	4

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GT16SP Z22 6,3/7,0 x L
with hexagon head and carbon steel sealing washer Ø22 mm

Annex 21

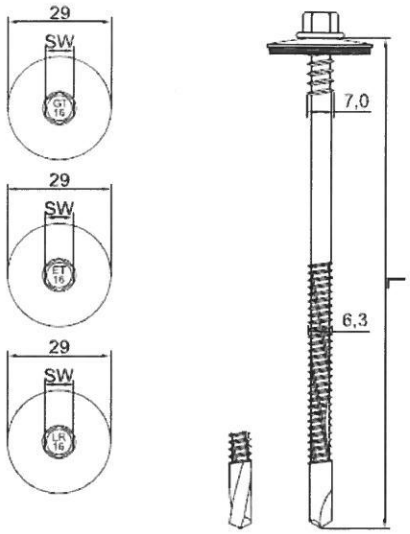
of European Technical Assessment ETA-13/0199

Materials

Fastener:	carbon steel – SAE 1022, quenched, tempered and galvanized (12 µm)
Washer:	metallic washer made of coated carbon steel with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 16$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			4,00	5,00	6,00	8,00	10,00	12,00	14,00	≥ 15,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,55	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,63	2,35	2,35	2,35	1,69	1,69	1,69	1,69	1,69
		0,75	2,50	2,50	2,50	1,96	1,96	1,96	1,96	1,96
		0,88	2,50	2,50	2,50	1,96	1,96	1,96	1,96	1,96
		1,00	2,50	2,50	2,50	1,96	1,96	1,96	1,96	1,96
	$N_{R,k}$ in [kN]	0,50	4,23	4,23	4,23	4,23	4,23	4,23	4,23	4,23
		0,55	4,23	4,23	4,23	4,23	4,23	4,23	4,23	4,23
		0,63	5,82	5,82	5,82	5,82	5,82	5,82	5,82	5,82
		0,75	6,35	6,35	6,35	6,35	6,35	6,35	6,35	6,35
		0,88	6,35	6,35	6,35	6,35	6,35	6,35	6,35	6,35
		1,00	6,35	6,35	6,35	6,35	6,35	6,35	6,35	6,35
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1	1	1	1	1	1	1	1
		40	1	1	1	1	1	1	1	1
		50	1	1	1	1	1	1	1	1
		60	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		70	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		80	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		90	4	4	4	4	4	4	4	4
		100	4	4	4	4	4	4	4	4
		120	4	4	4	4	4	4	4	4
		≥ 140	4	4	4	4	4	4	4	4

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GT16SP Z29 6,3/7,0 x L
with hexagon head and carbon steel sealing washer Ø29 mm

Annex 22

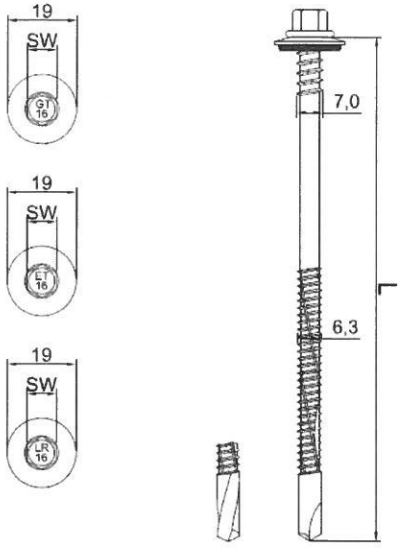
of European Technical Assessment ETA-13/0199

Materials

Fastener:	carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating
Washer:	metallic washer made of aluminum with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 16$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			4,00	5,00	6,00	8,00	10,00	12,00	14,00	≥ 15,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,55	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,63	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35
		0,75	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		0,88	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		1,00	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
	$N_{R,k}$ in [kN]	0,50	3,65	3,65	3,65	3,65	3,65	3,65	3,65	3,65
		0,55	3,65	3,65	3,65	3,65	3,65	3,65	3,65	3,65
		0,63	4,60	4,60	4,60	4,60	4,60	4,60	4,60	4,60
		0,75	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
		0,88	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
		1,00	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1	1	1	1	1	1	1	1
		40	1	1	1	1	1	1	1	1
		50	1	1	1	1	1	1	1	1
		60	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		70	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		80	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		90	4	4	4	4	4	4	4	4
		100	4	4	4	4	4	4	4	4
		120	4	4	4	4	4	4	4	4
		≥ 140	4	4	4	4	4	4	4	4

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GTR16SP A19 6,3/7,0 x L
with hexagon head and aluminum sealing washer Ø19 mm

Annex 23

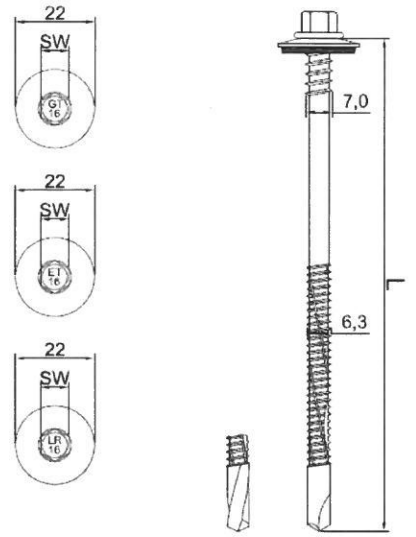
of European Technical Assessment ETA-13/0199

Materials

Fastener:	carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating
Washer:	metallic washer made of aluminum with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 16$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			4,00	5,00	6,00	8,00	10,00	12,00	14,00	≥ 15,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,55	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,63	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35
		0,75	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		0,88	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		1,00	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
	$N_{R,k}$ in [kN]	0,50	3,65	3,65	3,65	3,65	3,65	3,65	3,65	3,65
		0,55	3,65	3,65	3,65	3,65	3,65	3,65	3,65	3,65
		0,63	4,60	4,60	4,60	4,60	4,60	4,60	4,60	4,60
		0,75	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
		0,88	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
		1,00	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1	1	1	1	1	1	1	1
		40	1	1	1	1	1	1	1	1
		50	1	1	1	1	1	1	1	1
		60	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		70	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		80	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		90	4	4	4	4	4	4	4	4
		100	4	4	4	4	4	4	4	4
		120	4	4	4	4	4	4	4	4
		≥ 140	4	4	4	4	4	4	4	4

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GTR16SP A22 6,3/7,0 x L
with hexagon head and aluminum sealing washer Ø22 mm

Annex 24

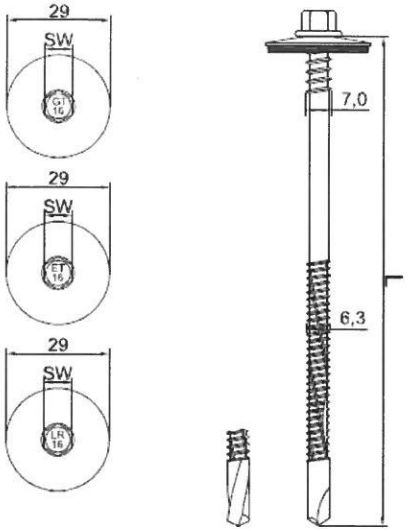
of European Technical Assessment ETA-13/0199

Materials

Fastener:	carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating
Washer:	metallic washer made of aluminum with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 16$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			4,00	5,00	6,00	8,00	10,00	12,00	14,00	≥ 15,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,55	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,63	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35
		0,75	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		0,88	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		1,00	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
	$N_{R,k}$ in [kN]	0,50	3,65	3,65	3,65	3,65	3,65	3,65	3,65	3,65
		0,55	3,65	3,65	3,65	3,65	3,65	3,65	3,65	3,65
		0,63	4,60	4,60	4,60	4,60	4,60	4,60	4,60	4,60
		0,75	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
		0,88	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
		1,00	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1	1	1	1	1	1	1	1
		40	1	1	1	1	1	1	1	1
		50	1	1	1	1	1	1	1	1
		60	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		70	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		80	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		90	4	4	4	4	4	4	4	4
		100	4	4	4	4	4	4	4	4
		120	4	4	4	4	4	4	4	4
		≥ 140	4	4	4	4	4	4	4	4

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GTR16SP A29 6,3/7,0 x L
with hexagon head and aluminum sealing washer Ø29 mm

Annex 25

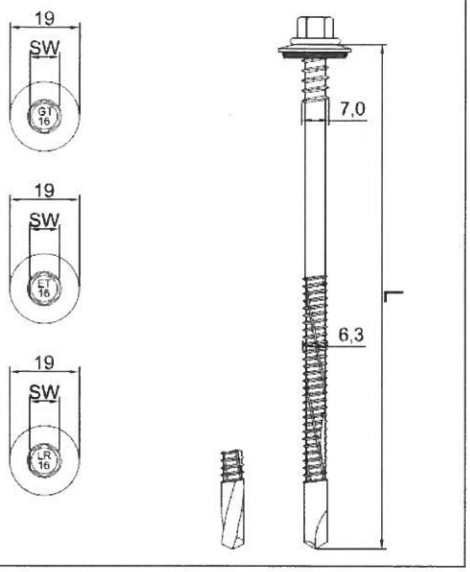
of European Technical Assessment ETA-13/0199

Materials

Fastener:	carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating
Washer:	metallic washer made of stainless steel with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 16$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			4,00	5,00	6,00	8,00	10,00	12,00	14,00	≥ 15,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,55	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,63	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35
		0,75	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		0,88	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		1,00	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
	$N_{R,k}$ in [kN]	0,50	3,65	3,65	3,65	3,65	3,65	3,65	3,65	3,65
		0,55	3,65	3,65	3,65	3,65	3,65	3,65	3,65	3,65
		0,63	4,60	4,60	4,60	4,60	4,60	4,60	4,60	4,60
		0,75	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
		0,88	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
		1,00	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1	1	1	1	1	1	1	1
		40	1	1	1	1	1	1	1	1
		50	1	1	1	1	1	1	1	1
		60	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		70	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		80	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		90	4	4	4	4	4	4	4	4
		100	4	4	4	4	4	4	4	4
		120	4	4	4	4	4	4	4	4
		≥ 140	4	4	4	4	4	4	4	4

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GTR16SP S19 6,3/7,0 x L
with hexagon head and stainless steel sealing washer Ø19 mm

Annex 26

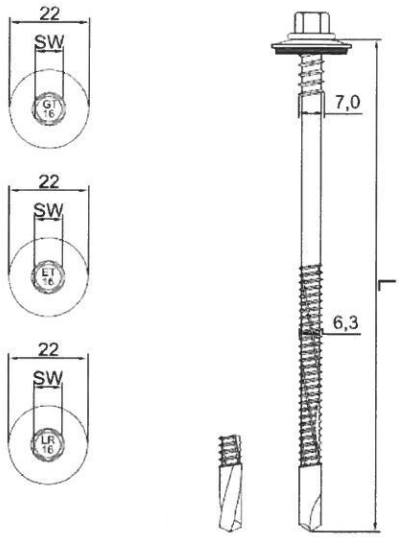
of European Technical Assessment ETA-13/0199

Materials

Fastener:	carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating
Washer:	metallic washer made of stainless steel with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 16$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			4,00	5,00	6,00	8,00	10,00	12,00	14,00	≥ 15,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,55	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,63	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35
		0,75	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		0,88	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		1,00	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
	$N_{R,k}$ in [kN]	0,50	3,65	3,65	3,65	3,65	3,65	3,65	3,65	3,65
		0,55	3,65	3,65	3,65	3,65	3,65	3,65	3,65	3,65
		0,63	4,60	4,60	4,60	4,60	4,60	4,60	4,60	4,60
		0,75	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
		0,88	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
		1,00	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1	1	1	1	1	1	1	1
		40	1	1	1	1	1	1	1	1
		50	1	1	1	1	1	1	1	1
		60	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		70	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		80	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		90	4	4	4	4	4	4	4	4
		100	4	4	4	4	4	4	4	4
		120	4	4	4	4	4	4	4	4
		≥ 140	4	4	4	4	4	4	4	4

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GTR16SP S22 6,3/7,0 x L
with hexagon head and stainless steel sealing washer Ø22 mm

Annex 27

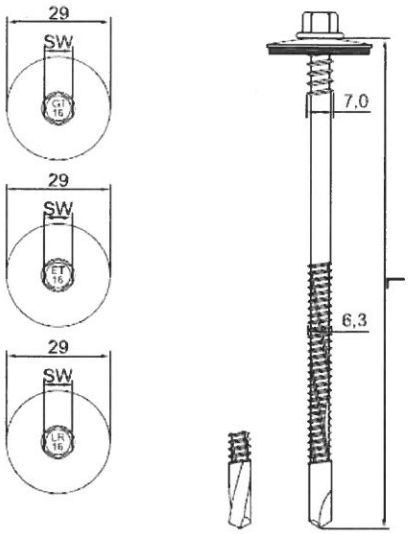
of European Technical Assessment ETA-13/0199

Materials

Fastener:	carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating
Washer:	metallic washer made of stainless steel with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 16$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			4,00	5,00	6,00	8,00	10,00	12,00	14,00	≥ 15,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,55	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,63	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35
		0,75	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		0,88	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		1,00	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
	$N_{R,k}$ in [kN]	0,50	3,65	3,65	3,65	3,65	3,65	3,65	3,65	3,65
		0,55	3,65	3,65	3,65	3,65	3,65	3,65	3,65	3,65
		0,63	4,60	4,60	4,60	4,60	4,60	4,60	4,60	4,60
		0,75	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
		0,88	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
		1,00	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1	1	1	1	1	1	1	1
		40	1	1	1	1	1	1	1	1
		50	1	1	1	1	1	1	1	1
		60	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		70	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		80	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		90	4	4	4	4	4	4	4	4
		100	4	4	4	4	4	4	4	4
		120	4	4	4	4	4	4	4	4
		≥ 140	4	4	4	4	4	4	4	4

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GTR16SP S29 6,3/7,0 x L
with hexagon head and stainless steel sealing washer Ø29 mm

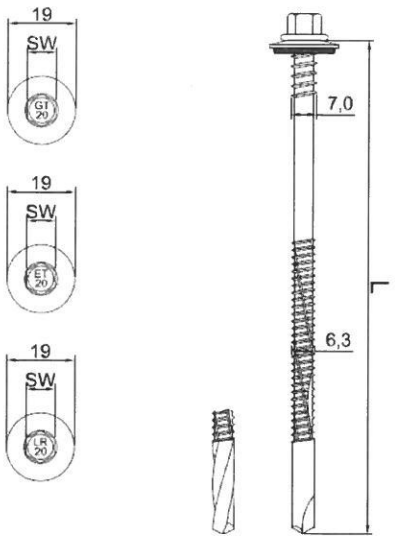
Annex 28

of European Technical Assessment ETA-13/0199

Materials

Fastener:	carbon steel – SAE 1022, quenched, tempered and galvanized (12 µm)
Washer:	metallic washer made of coated carbon steel with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	$\Sigma(t_{N2} + t_{II}) \leq 20$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			4,00	5,00	6,00	8,00	10,00	12,00	14,00	≥ 15,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,55	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,63	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35
		0,75	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		0,88	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		1,00	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
	$N_{R,k}$ in [kN]	0,50	3,65	3,65	3,65	3,65	3,65	3,65	3,65	3,65
		0,55	3,65	3,65	3,65	3,65	3,65	3,65	3,65	3,65
		0,63	4,60	4,60	4,60	4,60	4,60	4,60	4,60	4,60
		0,75	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
		0,88	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
		1,00	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1	1	1	1	1	1	1	1
		40	1	1	1	1	1	1	1	1
		50	1	1	1	1	1	1	1	1
		60	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		70	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		80	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		90	4	4	4	4	4	4	4	4
		100	4	4	4	4	4	4	4	4
		120	4	4	4	4	4	4	4	4
		≥ 140	4	4	4	4	4	4	4	4

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GT20SP Z19 6,3/7,0 x L
with hexagon head and carbon steel sealing washer ≥ Ø19 mm

Annex 29

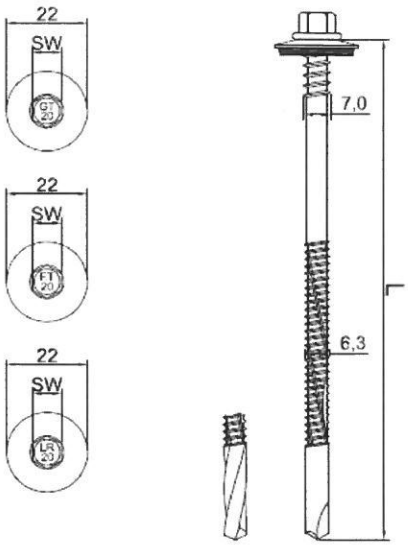
of European Technical Assessment ETA-13/0199

Materials

Fastener:	carbon steel – SAE 1022, quenched, tempered and galvanized (12 µm)
Washer:	metallic washer made of coated carbon steel with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 20$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			4,00	5,00	6,00	8,00	10,00	12,00	14,00	≥ 15,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,55	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,63	2,35	2,35	2,35	1,69	1,69	1,69	1,69	1,69
		0,75	2,50	2,50	2,50	1,96	1,96	1,96	1,96	1,96
		0,88	2,50	2,50	2,50	1,96	1,96	1,96	1,96	1,96
		1,00	2,50	2,50	2,50	1,96	1,96	1,96	1,96	1,96
	$N_{R,k}$ in [kN]	0,50	3,65	3,65	3,65	3,43	3,43	3,43	3,43	3,43
		0,55	3,65	3,65	3,65	3,43	3,43	3,43	3,43	3,43
		0,63	4,60	4,60	4,60	4,32	4,32	4,32	4,32	4,32
		0,75	5,45	5,45	5,45	6,10	6,10	6,10	6,10	6,10
		0,88	5,45	5,45	5,45	6,10	6,10	6,10	6,10	6,10
		1,00	5,45	5,45	5,45	6,10	6,10	6,10	6,10	6,10
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1	1	1	1	1	1	1	1
		40	1	1	1	1	1	1	1	1
		50	1	1	1	1	1	1	1	1
		60	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		70	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		80	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		90	4	4	4	4	4	4	4	4
		100	4	4	4	4	4	4	4	4
		120	4	4	4	4	4	4	4	4
		≥ 140	4	4	4	4	4	4	4	4

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GT20SP Z22 6,3/7,0 x L
with hexagon head and carbon steel sealing washer ≥ Ø22 mm

Annex 30

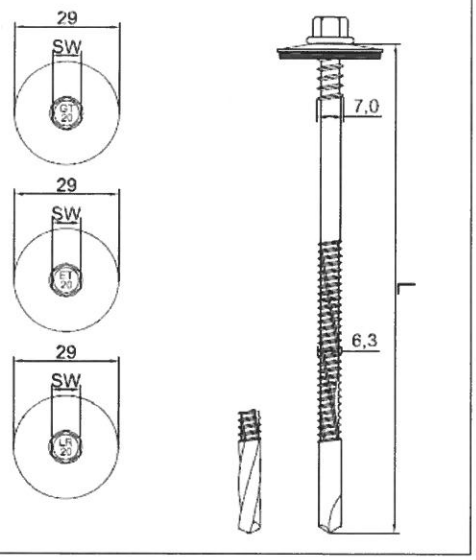
of European Technical Assessment ETA-13/0199

Materials

Fastener:	carbon steel – SAE 1022, quenched, tempered and galvanized (12 µm)
Washer:	metallic washer made of coated carbon steel with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 20$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			4,00	5,00	6,00	8,00	10,00	12,00	14,00	≥ 15,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,55	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,63	2,35	2,35	2,35	1,69	1,69	1,69	1,69	1,69
		0,75	2,50	2,50	2,50	1,96	1,96	1,96	1,96	1,96
		0,88	2,50	2,50	2,50	1,96	1,96	1,96	1,96	1,96
		1,00	2,50	2,50	2,50	1,96	1,96	1,96	1,96	1,96
	$N_{R,k}$ in [kN]	0,50	4,23	4,23	4,23	4,23	4,23	4,23	4,23	4,23
		0,55	4,23	4,23	4,23	4,23	4,23	4,23	4,23	4,23
		0,63	5,82	5,82	5,82	5,82	5,82	5,82	5,82	5,82
		0,75	6,35	6,35	6,35	6,35	6,35	6,35	6,35	6,35
		0,88	6,35	6,35	6,35	6,35	6,35	6,35	6,35	6,35
		1,00	6,35	6,35	6,35	6,35	6,35	6,35	6,35	6,35
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1	1	1	1	1	1	1	1
		40	1	1	1	1	1	1	1	1
		50	1	1	1	1	1	1	1	1
		60	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		70	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		80	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		90	4	4	4	4	4	4	4	4
		100	4	4	4	4	4	4	4	4
		120	4	4	4	4	4	4	4	4
		≥ 140	4	4	4	4	4	4	4	4

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GT20SP Z29 6,3/7,0 x L
with hexagon head and carbon steel sealing washer ≥ Ø29 mm

Annex 31

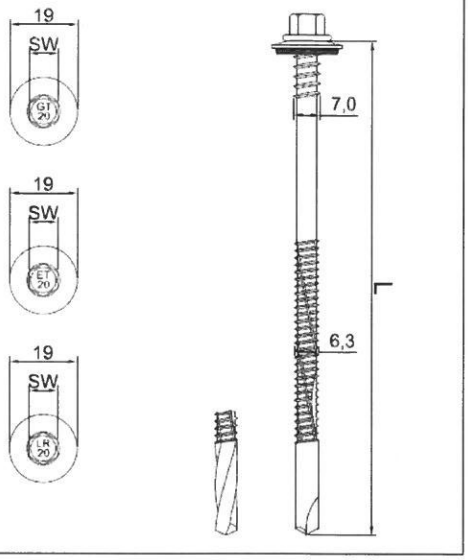
of European Technical Assessment ETA-13/0199

Materials

Fastener:	carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating
Washer:	metallic washer made of aluminum with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 20$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			4,00	5,00	6,00	8,00	10,00	12,00	14,00	≥ 15,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,55	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,63	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35
		0,75	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		0,88	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		1,00	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
	$N_{R,k}$ in [kN]	0,50	3,65	3,65	3,65	3,65	3,65	3,65	3,65	3,65
		0,55	3,65	3,65	3,65	3,65	3,65	3,65	3,65	3,65
		0,63	4,60	4,60	4,60	4,60	4,60	4,60	4,60	4,60
		0,75	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
		0,88	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
		1,00	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1	1	1	1	1	1	1	1
		40	1	1	1	1	1	1	1	1
		50	1	1	1	1	1	1	1	1
		60	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		70	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		80	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		90	4	4	4	4	4	4	4	4
		100	4	4	4	4	4	4	4	4
		120	4	4	4	4	4	4	4	4
		≥ 140	4	4	4	4	4	4	4	4

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GTR20SP A19 6,3/7,0 x L
with hexagon head and aluminum sealing washer ≥ Ø19 mm

Annex 32

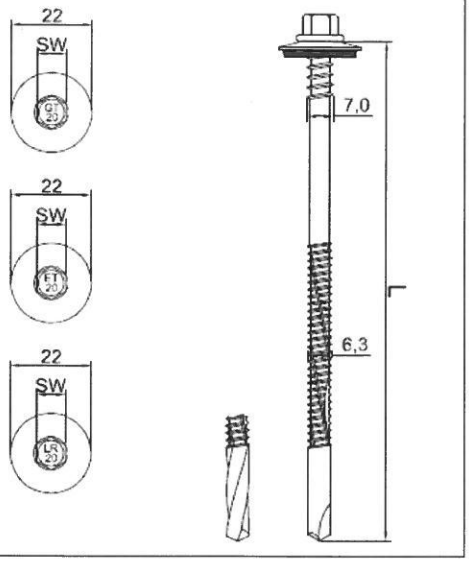
of European Technical Assessment ETA-13/0199

Materials

Fastener:	carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating
Washer:	metallic washer made of aluminum with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 20$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			4,00	5,00	6,00	8,00	10,00	12,00	14,00	≥ 15,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,55	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,63	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35
		0,75	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		0,88	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		1,00	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
	$N_{R,k}$ in [kN]	0,50	3,65	3,65	3,65	3,65	3,65	3,65	3,65	3,65
		0,55	3,65	3,65	3,65	3,65	3,65	3,65	3,65	3,65
		0,63	4,60	4,60	4,60	4,60	4,60	4,60	4,60	4,60
		0,75	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
		0,88	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
		1,00	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1	1	1	1	1	1	1	1
		40	1	1	1	1	1	1	1	1
		50	1	1	1	1	1	1	1	1
		60	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		70	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		80	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		90	4	4	4	4	4	4	4	4
		100	4	4	4	4	4	4	4	4
		120	4	4	4	4	4	4	4	4
		≥ 140	4	4	4	4	4	4	4	4

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GTR20SP A22 6,3/7,0 x L
with hexagon head and aluminum sealing washer ≥ Ø22 mm

Annex 33

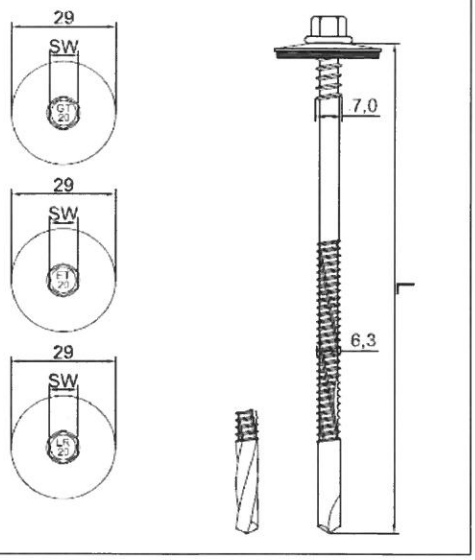
of European Technical Assessment ETA-13/0199

Materials

Fastener:	carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating
Washer:	metallic washer made of aluminum with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 20$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			4,00	5,00	6,00	8,00	10,00	12,00	14,00	≥ 15,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,55	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,63	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35
		0,75	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		0,88	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		1,00	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
	$N_{R,k}$ in [kN]	0,50	3,65	3,65	3,65	3,65	3,65	3,65	3,65	3,65
		0,55	3,65	3,65	3,65	3,65	3,65	3,65	3,65	3,65
		0,63	4,60	4,60	4,60	4,60	4,60	4,60	4,60	4,60
		0,75	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
		0,88	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
		1,00	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1	1	1	1	1	1	1	1
		40	1	1	1	1	1	1	1	1
		50	1	1	1	1	1	1	1	1
		60	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		70	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		80	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		90	4	4	4	4	4	4	4	4
		100	4	4	4	4	4	4	4	4
		120	4	4	4	4	4	4	4	4
		≥ 140	4	4	4	4	4	4	4	4

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GTR20SP A29 6,3/7,0 x L
with hexagon head and aluminum sealing washer ≥ Ø29 mm

Annex 34

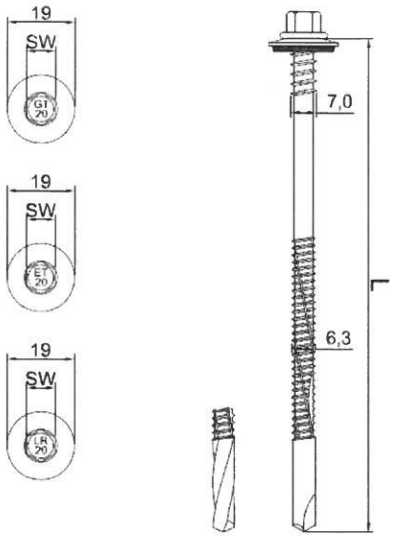
of European Technical Assessment ETA-13/0199

Materials

Fastener:	carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating
Washer:	metallic washer made of stainless steel with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 20$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			4,00	5,00	6,00	8,00	10,00	12,00	14,00	≥ 15,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,55	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,63	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35
		0,75	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		0,88	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		1,00	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
	$N_{R,k}$ in [kN]	0,50	3,65	3,65	3,65	3,65	3,65	3,65	3,65	3,65
		0,55	3,65	3,65	3,65	3,65	3,65	3,65	3,65	3,65
		0,63	4,60	4,60	4,60	4,60	4,60	4,60	4,60	4,60
		0,75	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
		0,88	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
		1,00	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1	1	1	1	1	1	1	1
		40	1	1	1	1	1	1	1	1
		50	1	1	1	1	1	1	1	1
		60	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		70	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		80	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		90	4	4	4	4	4	4	4	4
		100	4	4	4	4	4	4	4	4
		120	4	4	4	4	4	4	4	4
		≥ 140	4	4	4	4	4	4	4	4

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GTR20SP S19 6,3/7,0 x L
with hexagon head and stainless steel sealing washer ≥ Ø19 mm

Annex 35

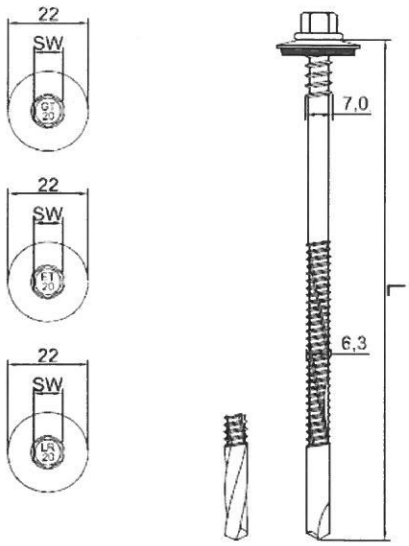
of European Technical Assessment ETA-13/0199

Materials

Fastener:	carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating
Washer:	metallic washer made of stainless steel with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 20$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			4,00	5,00	6,00	8,00	10,00	12,00	14,00	≥ 15,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,55	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,63	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35
		0,75	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		0,88	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		1,00	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
	$N_{R,k}$ in [kN]	0,50	3,65	3,65	3,65	3,65	3,65	3,65	3,65	3,65
		0,55	3,65	3,65	3,65	3,65	3,65	3,65	3,65	3,65
		0,63	4,60	4,60	4,60	4,60	4,60	4,60	4,60	4,60
		0,75	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
		0,88	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
		1,00	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1	1	1	1	1	1	1	1
		40	1	1	1	1	1	1	1	1
		50	1	1	1	1	1	1	1	1
		60	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		70	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		80	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		90	4	4	4	4	4	4	4	4
		100	4	4	4	4	4	4	4	4
		120	4	4	4	4	4	4	4	4
		≥ 140	4	4	4	4	4	4	4	4

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GTR20SP S22 6,3/7,0 x L
with hexagon head and stainless steel sealing washer ≥ Ø22 mm

Annex 36

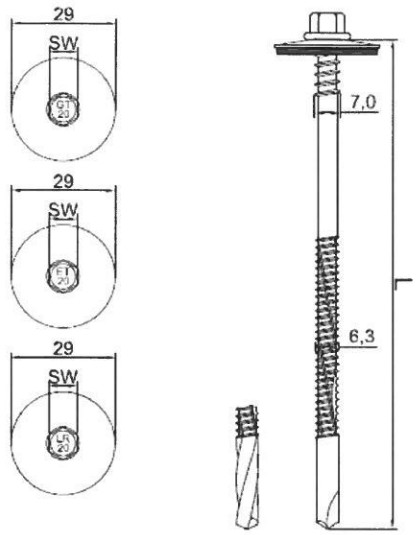
of European Technical Assessment ETA-13/0199

Materials

Fastener:	carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating
Washer:	metallic washer made of stainless steel with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 20$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			4,00	5,00	6,00	8,00	10,00	12,00	14,00	≥ 15,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,55	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,63	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35
		0,75	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		0,88	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		1,00	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
	$N_{R,k}$ in [kN]	0,50	3,65	3,65	3,65	3,65	3,65	3,65	3,65	3,65
		0,55	3,65	3,65	3,65	3,65	3,65	3,65	3,65	3,65
		0,63	4,60	4,60	4,60	4,60	4,60	4,60	4,60	4,60
		0,75	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
		0,88	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
		1,00	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1	1	1	1	1	1	1	1
		40	1	1	1	1	1	1	1	1
		50	1	1	1	1	1	1	1	1
		60	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		70	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		80	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		90	4	4	4	4	4	4	4	4
		100	4	4	4	4	4	4	4	4
		120	4	4	4	4	4	4	4	4
		≥ 140	4	4	4	4	4	4	4	4

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GTR20SP S29 6,3/7,0 x L
with hexagon head and stainless steel sealing washer ≥ Ø29 mm

Annex 37

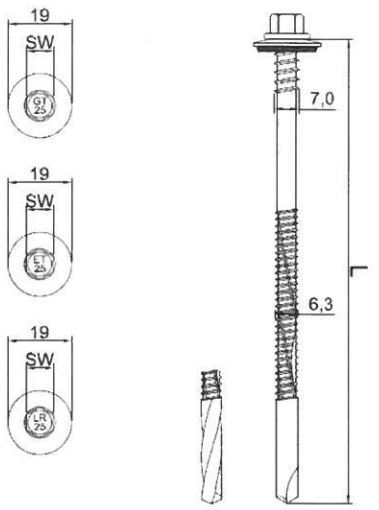
of European Technical Assessment ETA-13/0199

Materials

Fastener:	carbon steel – SAE 1022, quenched, tempered, galvanized (12 µm)
Washer:	metallic washer made of carbon steel with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 25$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			4,00	5,00	6,00	8,00	10,00	12,00	14,00	≥ 15,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,55	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,63	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35
		0,75	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		0,88	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		1,00	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
	$N_{R,k}$ in [kN]	0,50	3,65	3,65	3,65	3,65	3,65	3,65	3,65	3,65
		0,55	3,65	3,65	3,65	3,65	3,65	3,65	3,65	3,65
		0,63	4,60	4,60	4,60	4,60	4,60	4,60	4,60	4,60
		0,75	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
		0,88	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
		1,00	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1	1	1	1	1	1	1	1
		40	1	1	1	1	1	1	1	1
		50	1	1	1	1	1	1	1	1
		60	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		70	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		80	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		90	4	4	4	4	4	4	4	4
		100	4	4	4	4	4	4	4	4
		120	4	4	4	4	4	4	4	4
		≥ 140	4	4	4	4	4	4	4	4

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GT25SP Z19 6,3/7,0 x L
with hexagon head and carbon steel sealing washer Ø19 mm

Annex 38

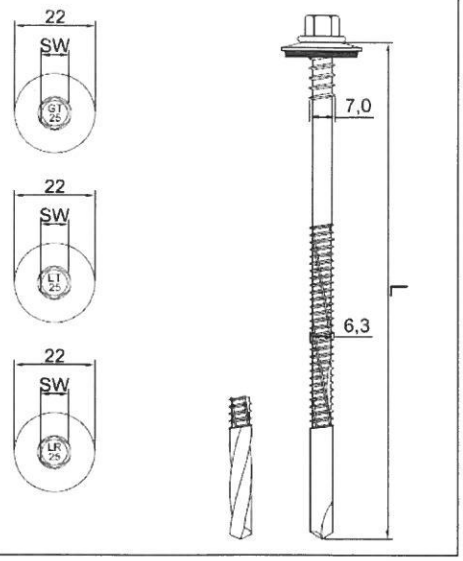
of European Technical Assessment ETA-13/0199

Materials

Fastener:	carbon steel – SAE 1022, quenched, tempered, galvanized (12 µm)
Washer:	metallic washer made of carbon steel with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 25$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			4,00	5,00	6,00	8,00	10,00	12,00	14,00	≥ 15,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,55	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,63	2,35	2,35	2,35	1,69	1,69	1,69	1,69	1,69
		0,75	2,50	2,50	2,50	1,96	1,96	1,96	1,96	1,96
		0,88	2,50	2,50	2,50	1,96	1,96	1,96	1,96	1,96
		1,00	2,50	2,50	2,50	1,96	1,96	1,96	1,96	1,96
	$N_{R,k}$ in [kN]	0,50	3,65	3,65	3,65	3,43	3,43	3,43	3,43	3,43
		0,55	3,65	3,65	3,65	3,43	3,43	3,43	3,43	3,43
		0,63	4,60	4,60	4,60	4,32	4,32	4,32	4,32	4,32
		0,75	5,45	5,45	5,45	6,10	6,10	6,10	6,10	6,10
		0,88	5,45	5,45	5,45	6,10	6,10	6,10	6,10	6,10
		1,00	5,45	5,45	5,45	6,10	6,10	6,10	6,10	6,10
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1	1	1	1	1	1	1	1
		40	1	1	1	1	1	1	1	1
		50	1	1	1	1	1	1	1	1
		60	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		70	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		80	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		90	4	4	4	4	4	4	4	4
		100	4	4	4	4	4	4	4	4
		120	4	4	4	4	4	4	4	4
		≥ 140	4	4	4	4	4	4	4	4

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GT25SP Z22 6,3/7,0 x L
with hexagon head and carbon steel sealing washer Ø22 mm

Annex 39

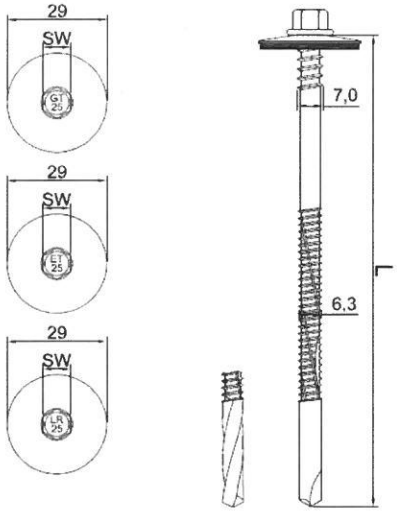
of European Technical Assessment ETA-13/0199

Materials

Fastener:	carbon steel – SAE 1022, quenched, tempered, galvanized (≥ 12 µm)
Washer:	metallic washer made of carbon steel with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 25$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			4,00	5,00	6,00	8,00	10,00	12,00	14,00	≥ 15,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,55	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,63	2,35	2,35	2,35	1,69	1,69	1,69	1,69	1,69
		0,75	2,50	2,50	2,50	1,96	1,96	1,96	1,96	1,96
		0,88	2,50	2,50	2,50	1,96	1,96	1,96	1,96	1,96
		1,00	2,50	2,50	2,50	1,96	1,96	1,96	1,96	1,96
	$N_{R,k}$ in [kN]	0,50	4,23	4,23	4,23	4,23	4,23	4,23	4,23	4,23
		0,55	4,23	4,23	4,23	4,23	4,23	4,23	4,23	4,23
		0,63	5,82	5,82	5,82	5,82	5,82	5,82	5,82	5,82
		0,75	6,35	6,35	6,35	6,35	6,35	6,35	6,35	6,35
		0,88	6,35	6,35	6,35	6,35	6,35	6,35	6,35	6,35
		1,00	6,35	6,35	6,35	6,35	6,35	6,35	6,35	6,35
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1	1	1	1	1	1	1	1
		40	1	1	1	1	1	1	1	1
		50	1	1	1	1	1	1	1	1
		60	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		70	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		80	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		90	4	4	4	4	4	4	4	4
		100	4	4	4	4	4	4	4	4
		120	4	4	4	4	4	4	4	4
		≥ 140	4	4	4	4	4	4	4	4

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GT25SP Z29 6,3/7,0 x L
with hexagon head and carbon steel sealing washer Ø29 mm

Annex 40

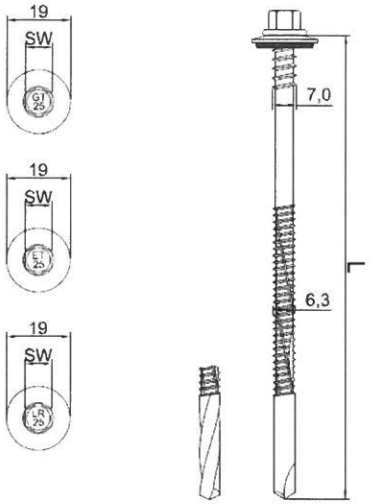
of European Technical Assessment ETA-13/0199

Materials

Fastener:	carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating
Washer:	metallic washer made of aluminum with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 25$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			4,00	5,00	6,00	8,00	10,00	12,00	14,00	≥ 15,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,55	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,63	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35
		0,75	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		0,88	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		1,00	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
	$N_{R,k}$ in [kN]	0,50	3,65	3,65	3,65	3,65	3,65	3,65	3,65	3,65
		0,55	3,65	3,65	3,65	3,65	3,65	3,65	3,65	3,65
		0,63	4,60	4,60	4,60	4,60	4,60	4,60	4,60	4,60
		0,75	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
		0,88	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
		1,00	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1	1	1	1	1	1	1	1
		40	1	1	1	1	1	1	1	1
		50	1	1	1	1	1	1	1	1
		60	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		70	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		80	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		90	4	4	4	4	4	4	4	4
		100	4	4	4	4	4	4	4	4
		120	4	4	4	4	4	4	4	4
		≥ 140	4	4	4	4	4	4	4	4

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GTR25SP A19 6,3/7,0 x L
with hexagon head and aluminum sealing washer Ø19 mm

Annex 41

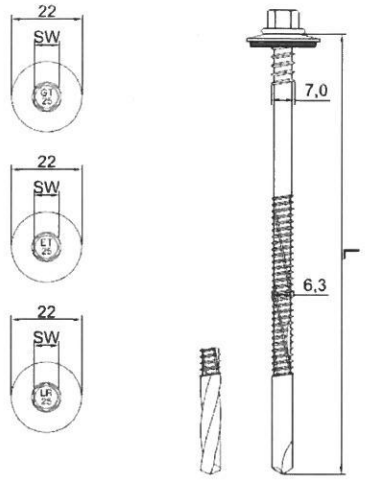
of European Technical Assessment ETA-13/0199

Materials

Fastener:	carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating
Washer:	metallic washer made of aluminum with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 25$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			4,00	5,00	6,00	8,00	10,00	12,00	14,00	≥ 15,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,55	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,63	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35
		0,75	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		0,88	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		1,00	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
	$N_{R,k}$ in [kN]	0,50	3,65	3,65	3,65	3,65	3,65	3,65	3,65	3,65
		0,55	3,65	3,65	3,65	3,65	3,65	3,65	3,65	3,65
		0,63	4,60	4,60	4,60	4,60	4,60	4,60	4,60	4,60
		0,75	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
		0,88	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
		1,00	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1	1	1	1	1	1	1	1
		40	1	1	1	1	1	1	1	1
		50	1	1	1	1	1	1	1	1
		60	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		70	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		80	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		90	4	4	4	4	4	4	4	4
		100	4	4	4	4	4	4	4	4
		120	4	4	4	4	4	4	4	4
		≥ 140	4	4	4	4	4	4	4	4

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GTR25SP A22 6,3/7,0 x L
with hexagon head and aluminum sealing washer Ø22 mm

Annex 42

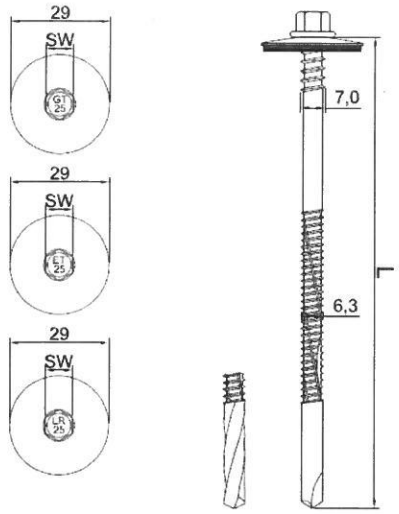
of European Technical Assessment ETA-13/0199

Materials

Fastener:	carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating
Washer:	metallic washer made of aluminum with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 25$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			4,00	5,00	6,00	8,00	10,00	12,00	14,00	≥ 15,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,55	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,63	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35
		0,75	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		0,88	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		1,00	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
	$N_{R,k}$ in [kN]	0,50	3,65	3,65	3,65	3,65	3,65	3,65	3,65	3,65
		0,55	3,65	3,65	3,65	3,65	3,65	3,65	3,65	3,65
		0,63	4,60	4,60	4,60	4,60	4,60	4,60	4,60	4,60
		0,75	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
		0,88	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
		1,00	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1	1	1	1	1	1	1	1
		40	1	1	1	1	1	1	1	1
		50	1	1	1	1	1	1	1	1
		60	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		70	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		80	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		90	4	4	4	4	4	4	4	4
		100	4	4	4	4	4	4	4	4
		120	4	4	4	4	4	4	4	4
		≥ 140	4	4	4	4	4	4	4	4

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GTR25SP A29 6,3/7,0 x L
with hexagon head and aluminum sealing washer Ø29 mm

Annex 43

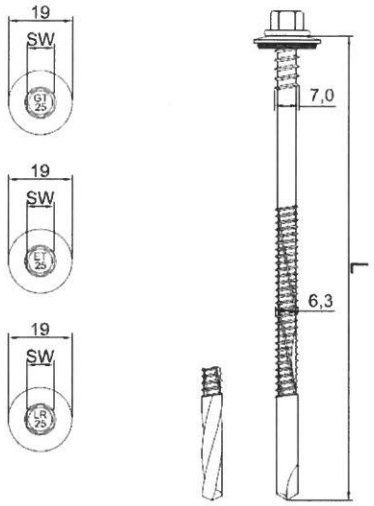
of European Technical Assessment ETA-13/0199

Materials

Fastener:	carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating
Washer:	metallic washer made of stainless steel with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 25$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			4,00	5,00	6,00	8,00	10,00	12,00	14,00	≥ 15,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,55	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,63	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35
		0,75	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		0,88	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		1,00	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
	$N_{R,k}$ in [kN]	0,50	3,65	3,65	3,65	3,65	3,65	3,65	3,65	3,65
		0,55	3,65	3,65	3,65	3,65	3,65	3,65	3,65	3,65
		0,63	4,60	4,60	4,60	4,60	4,60	4,60	4,60	4,60
		0,75	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
		0,88	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
		1,00	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1	1	1	1	1	1	1	1
		40	1	1	1	1	1	1	1	1
		50	1	1	1	1	1	1	1	1
		60	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		70	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		80	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		90	4	4	4	4	4	4	4	4
		100	4	4	4	4	4	4	4	4
		120	4	4	4	4	4	4	4	4
		≥ 140	4	4	4	4	4	4	4	4

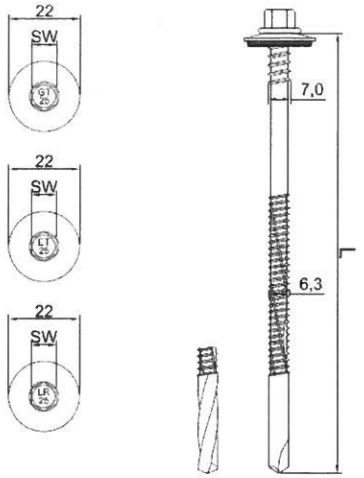
Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GTR25SP S19 6,3/7,0 x L
with hexagon head and stainless steel sealing washer Ø19 mm

Annex 44

of European Technical Assessment ETA-13/0199

Materials	
Fastener:	carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating
Washer:	metallic washer made of stainless steel with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	$\Sigma(t_{N2} + t_{II}) \leq 25$ mm
Timber substructures no performance assessed	



Component II: t_{II} in [mm]			4,00	5,00	6,00	8,00	10,00	12,00	14,00	≥ 15,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,55	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,63	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35
		0,75	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		0,88	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		1,00	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
	$N_{R,k}$ in [kN]	0,50	3,65	3,65	3,65	3,65	3,65	3,65	3,65	3,65
		0,55	3,65	3,65	3,65	3,65	3,65	3,65	3,65	3,65
		0,63	4,60	4,60	4,60	4,60	4,60	4,60	4,60	4,60
		0,75	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
		0,88	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
		1,00	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1	1	1	1	1	1	1	1
		40	1	1	1	1	1	1	1	1
		50	1	1	1	1	1	1	1	1
		60	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		70	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		80	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		90	4	4	4	4	4	4	4	4
		100	4	4	4	4	4	4	4	4
		120	4	4	4	4	4	4	4	4
		≥ 140	4	4	4	4	4	4	4	4

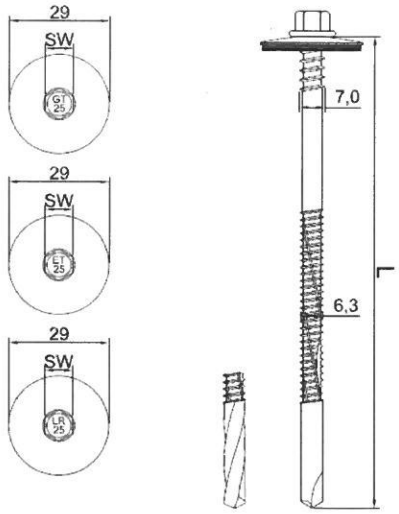
Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GTR25SP S22 6,3/7,0 x L
with hexagon head and stainless steel sealing washer Ø22 mm

Annex 45

of European Technical Assessment ETA-13/0199

Materials	
Fastener:	carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating
Washer:	metallic washer made of stainless steel with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	$\Sigma(t_{N2} + t_{II}) \leq 25$ mm
Timber substructures no performance assessed	



Component II: t_{II} in [mm]			4,00	5,00	6,00	8,00	10,00	12,00	14,00	≥ 15,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,55	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,63	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35
		0,75	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		0,88	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		1,00	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
	$N_{R,k}$ in [kN]	0,50	3,65	3,65	3,65	3,65	3,65	3,65	3,65	3,65
		0,55	3,65	3,65	3,65	3,65	3,65	3,65	3,65	3,65
		0,63	4,60	4,60	4,60	4,60	4,60	4,60	4,60	4,60
		0,75	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
		0,88	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
		1,00	5,45	5,45	5,45	5,45	5,45	5,45	5,45	5,45
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1	1	1	1	1	1	1	1
		40	1	1	1	1	1	1	1	1
		50	1	1	1	1	1	1	1	1
		60	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		70	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		80	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		90	4	4	4	4	4	4	4	4
		100	4	4	4	4	4	4	4	4
		120	4	4	4	4	4	4	4	4
		≥ 140	4	4	4	4	4	4	4	4

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GTR25SP S29 6,3/7,0 x L
with hexagon head and stainless steel sealing washer Ø29 mm

Annex 46

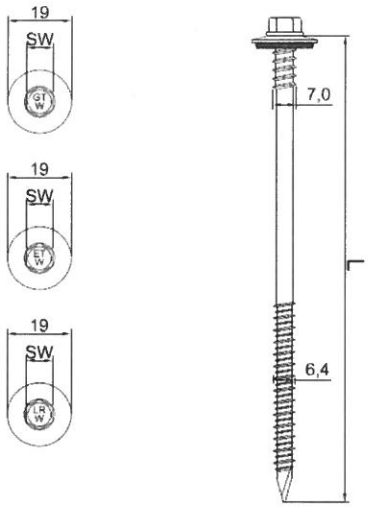
of European Technical Assessment ETA-13/0199

Materials	
Fastener:	carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating
Washer:	metallic washer made of aluminum with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	structural timber – EN 14081
Drilling capacity:	-

Timber substructure

For timber substructures performance assessed with:

$M_{y,Rk}$ = 9,280 Nm
$f_{ax,k}$ = 21,691 N/mm² for $l_{ef} \geq 30$ mm
$f_{ax,k}$ = 17,073 N/mm² for $l_{ef} \geq 40$ mm



Component II: wood class ≥ C24		Effective lenght l_{ef} [mm]		
		≥ 30	≥ 40	
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]			
	0,50	1,74	1,74	Failure of component I
	0,55	1,74	1,74	
	0,63	2,34	2,34	
	0,75	2,45	2,45	
	0,88	2,45	2,45	
	1,00	2,45	2,45	
	$N_{R,k}$ in [kN]			
	0,50	2,45	3,65	Failure of component I
	0,55	2,45	3,65	
	0,63	2,45	4,15	
	0,75	2,45	4,15	
	0,88	2,45	4,15	
	1,00	2,45	4,15	
max. head displacement "u" depending on sandwich panel thickness [mm]				
	30	1,0	1,0	
	40	1,0	1,0	
	50	1,0	1,0	
	60	1,5	1,5	
	70	1,5	1,5	
	80	1,5	1,5	
	90	2,0	2,0	
	100	2,0	2,0	
	120	2,0	2,0	
	≥ 140	2,0	2,0	

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-tapping screw GTRWSP A19 6,4/7,0 x L
with hexagon head and aluminum sealing washer Ø19 mm

Annex 47

of European Technical Assessment ETA-13/0199

Materials

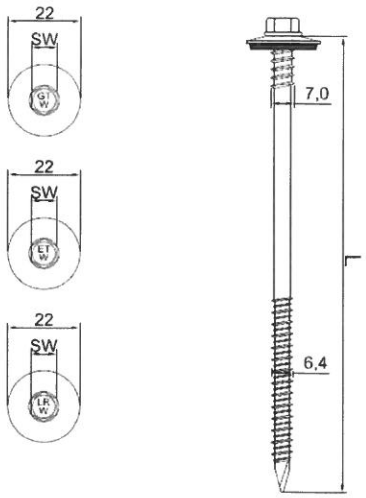
Fastener:	carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating
Washer:	metallic washer made of aluminum with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	structural timber – EN 14081

Drilling capacity: -

Timber substructure

For timber substructures performance assessed with:

$M_{y,Rk}$ = 9,280 Nm
$f_{ax,k}$ = 21,691 N/mm² for $l_{ef} \geq 30$ mm
$f_{ax,k}$ = 17,073 N/mm² for $l_{ef} \geq 40$ mm



Component II: wood class ≥ C24			Effective lenght l_{ef} [mm]		
			≥ 30	≥ 40	
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,74	1,74	Failure of component I
		0,55	1,74	1,74	
		0,63	2,34	2,34	
		0,75	2,45	2,45	
		0,88	2,45	2,45	
		1,00	2,45	2,45	
	$N_{R,k}$ in [kN]	0,50	2,45	3,65	Failure of component I
		0,55	2,45	3,65	
		0,63	2,45	4,15	
		0,75	2,45	4,15	
		0,88	2,45	4,15	
		1,00	2,45	4,15	
max. head displacement "u" depending on sandwich panel thickness [mm]		30	1,0	1,0	
		40	1,0	1,0	
		50	1,0	1,0	
		60	1,5	1,5	
		70	1,5	1,5	
		80	1,5	1,5	
		90	2,0	2,0	
		100	2,0	2,0	
		120	2,0	2,0	
		≥ 140	2,0	2,0	

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-tapping screw GTRWSP A22 6,4/7,0 x L
with hexagon head and aluminum sealing washer Ø22 mm

Annex 48

of European Technical Assessment ETA-13/0199

Materials

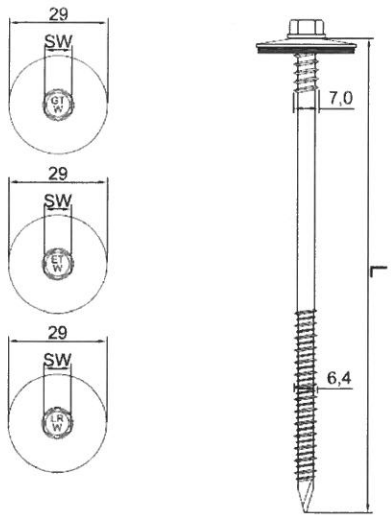
Fastener:	carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating
Washer:	metallic washer made of aluminum with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	structural timber – EN 14081

Drilling capacity: -

Timber substructure

For timber substructures performance assessed with:

$M_{y,Rk}$ = 9,280 Nm
$f_{ax,k}$ = 21,691 N/mm² for $l_{ef} \geq 30$ mm
$f_{ax,k}$ = 17,073 N/mm² for $l_{ef} \geq 40$ mm



Component II: wood class ≥ C24		Effective lenght l_{ef} [mm]		
		≥ 30	≥ 40	
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]			
	0,50	1,74	1,74	Failure of component I
	0,55	1,74	1,74	
	0,63	2,34	2,34	
	0,75	2,45	2,45	
	0,88	2,45	2,45	
	1,00	2,45	2,45	
	$N_{R,k}$ in [kN]			
	0,50	2,45	3,65	Failure of component I
	0,55	2,45	3,65	
	0,63	2,45	4,15	
	0,75	2,45	4,15	
	0,88	2,45	4,15	
	1,00	2,45	4,15	
max. head displacement "u" depending on sandwich panel thickness [mm]				
	30	1,0	1,0	
	40	1,0	1,0	
	50	1,0	1,0	
	60	1,5	1,5	
	70	1,5	1,5	
	80	1,5	1,5	
	90	2,0	2,0	
	100	2,0	2,0	
	120	2,0	2,0	
	≥ 140	2,0	2,0	

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-tapping screw GTRWSP A29 6,4/7,0 x L
with hexagon head and aluminum sealing washer Ø29 mm

Annex 49

of European Technical Assessment ETA-13/0199

Materials

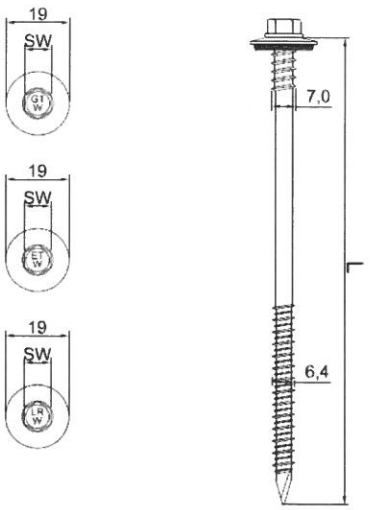
Fastener:	carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating
Washer:	metallic washer made of stainless steel with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	structural timber – EN 14081

Drilling capacity: -

Timber substructure

For timber substructures performance assessed with:

$M_{y,Rk}$ = 9,280 Nm
fax,k = 21,691 N/mm2 for lef ≥ 30 mm
fax,k = 17,073 N/mm^2 for l_{ef} ≥ 40 mm



Component II: wood class ≥ C24			Effective lenght l_{ef} [mm]		
			≥ 30	≥ 40	
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,23	1,23	Failure of component I
		0,55	1,23	1,23	
		0,63	1,63	1,63	
		0,75	1,87	1,87	
		0,88	1,87	1,87	
		1,00	1,87	1,87	
	$N_{R,k}$ in [kN]	0,50	3,43*	3,43*	* Failure of component I ** Failure of component II
		0,55	3,43*	3,43*	
		0,63	4,16**	4,32*	
		0,75	4,16**	4,37**	
		0,88	4,16**	4,37**	
		1,00	4,16**	4,37**	
max. head displacement "u" depending on sandwich panel thickness [mm]		30	1,0	1,0	
		40	1,0	1,0	
		50	1,0	1,0	
		60	1,5	1,5	
		70	1,5	1,5	
		80	1,5	1,5	
		90	2,0	2,0	
		100	2,0	2,0	
		120	2,0	2,0	
		≥ 140	2,0	2,0	

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-tapping screw GTRWSP S19 6,4/7,0 x L
with hexagon head and stainless steel sealing washer Ø19 mm

Annex 50

of European Technical Assessment ETA-13/0199

Materials

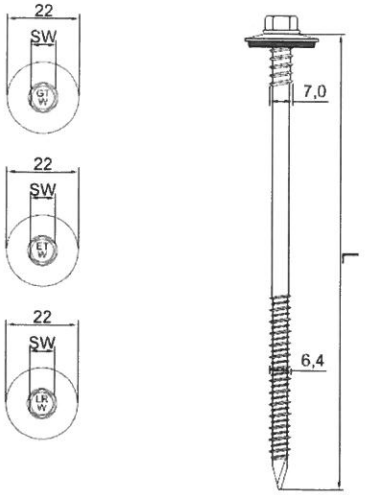
Fastener:	carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating
Washer:	metallic washer made of stainless steel with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	structural timber – EN 14081

Drilling capacity: -

Timber substructure

For timber substructures performance assessed with:

$M_{y,Rk}$ = 9,280 Nm
$f_{ax,k}$ = 21,691 N/mm² for $l_{ef} \geq 30$ mm
$f_{ax,k}$ = 17,073 N/mm² for $l_{ef} \geq 40$ mm



Component II: wood class ≥ C24			Effective lenght l_{ef} [mm]		
			≥ 30	≥ 40	
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,23	1,23	Failure of component I
		0,55	1,23	1,23	
		0,63	1,63	1,63	
		0,75	1,87	1,87	
		0,88	1,87	1,87	
		1,00	1,87	1,87	
	$N_{R,k}$ in [kN]	0,50	3,43*	3,43*	* Failure of component I ** Failure of component II
		0,55	3,43*	3,43*	
		0,63	4,16**	4,32*	
		0,75	4,16**	4,37**	
		0,88	4,16**	4,37**	
		1,00	4,16**	4,37**	
max. head displacement "u" depending on sandwich panel thickness [mm]		30	1,0	1,0	
		40	1,0	1,0	
		50	1,0	1,0	
		60	1,5	1,5	
		70	1,5	1,5	
		80	1,5	1,5	
		90	2,0	2,0	
		100	2,0	2,0	
		120	2,0	2,0	
		≥ 140	2,0	2,0	

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-tapping screw GTRWSP S22 6,4/7,0 x L
with hexagon head and stainless steel sealing washer Ø22 mm

Annex 51

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Materials

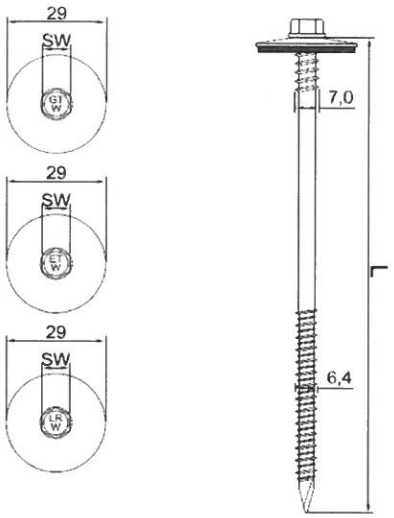
Fastener:	carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating
Washer:	metallic washer made of stainless steel with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	structural timber – EN 14081

Drilling capacity: -

Timber substructure

For timber substructures performance assessed with:

$M_{y,Rk}$ = 9,280 Nm
$f_{ax,k}$ = 21,691 N/mm² for $l_{ef} \geq 30$ mm
$f_{ax,k}$ = 17,073 N/mm² for $l_{ef} \geq 40$ mm



Component II: wood class ≥ C24			Effective lenght l_{ef} [mm]		
			≥ 30	≥ 40	
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,23	1,23	Failure of component I
		0,55	1,23	1,23	
		0,63	1,63	1,63	
		0,75	1,87	1,87	
		0,88	1,87	1,87	
		1,00	1,87	1,87	
	$N_{R,k}$ in [kN]	0,50	3,43*	3,43*	* Failure of component I ** Failure of component II
		0,55	3,43*	3,43*	
		0,63	4,16**	4,32*	
		0,75	4,16**	4,37**	
		0,88	4,16**	4,37**	
		1,00	4,16**	4,37**	
max. head displacement "u" depending on sandwich panel thickness [mm]		30	1,0	1,0	
		40	1,0	1,0	
		50	1,0	1,0	
		60	1,5	1,5	
		70	1,5	1,5	
		80	1,5	1,5	
		90	2,0	2,0	
		100	2,0	2,0	
		120	2,0	2,0	
		≥ 140	2,0	2,0	

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-tapping screw GTRWSP S29 6,4/7,0 x L
with hexagon head and stainless steel sealing washer Ø29 mm

Annex 52

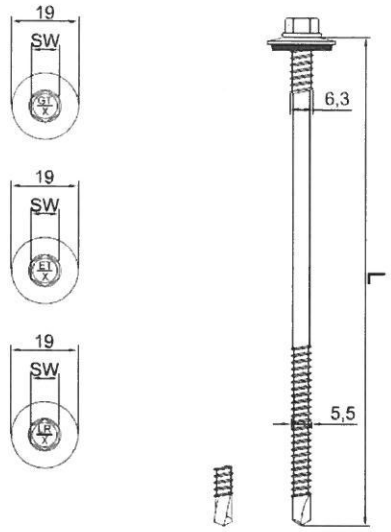
of European Technical Assessment ETA-13/0199

Materials

Fastener:	stainless steel – SAE 304, Bi-metal
Washer:	metallic washer made of stainless steel with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 6$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			1,00	1,50	2,00	2,50	3,00	4,00	≥ 5,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,55	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,63	1,60	1,60	1,60	1,60	1,60	1,60	1,60
		0,75	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		0,88	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		1,00	2,10	2,10	2,10	2,10	2,10	2,10	2,10
	$N_{R,k}$ in [kN]	0,50	1,04	1,92	2,56	2,56	2,56	3,06	3,06
		0,55	1,04	1,92	2,56	2,56	2,56	3,06	3,06
		0,63	1,04	1,92	2,56	2,56	2,56	3,86	3,86
		0,75	1,04	1,92	2,56	2,56	2,56	5,39	5,39
		0,88	1,04	1,92	2,56	2,56	2,56	5,39	5,39
		1,00	1,04	1,92	2,56	2,56	2,56	5,39	5,39
max. head displacement u depending on the sandwich panel thickness in [mm]		30	12	12	12	12	1,5	1,5	1,5
		40	12	12	12	12	1,5	1,5	1,5
		50	12	12	12	12	1,5	1,5	1,5
		60	18	18	18	18	4	4	4
		70	18	18	18	18	4	4	4
		80	18	18	18	18	4	4	4
		90	23	23	23	23	10	10	10
		100	23	23	23	23	10	10	10
		120	23	23	23	23	10	10	10
		≥ 140	23	23	23	23	10	10	10

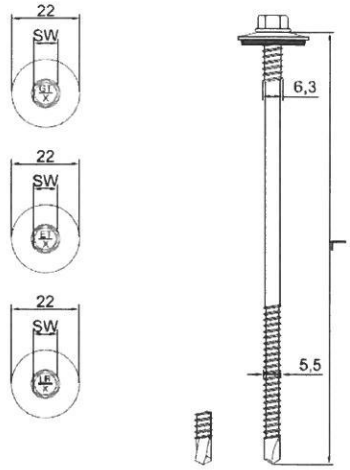
Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GTX6SP S19 5,5/6,3 x L
with hexagon head and stainless steel sealing washer Ø19 mm

Annex 53

of European Technical Assessment ETA-13/0199

Materials	
Fastener:	stainless steel – SAE 304, Bi-metal
Washer:	metallic washer made of stainless steel with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	$\Sigma(t_{N2} + t_{II}) \leq 6$ mm
Timber substructures no performance assessed	



Component II: t_{II} in [mm]			1,00	1,50	2,00	2,50	3,00	4,00	≥ 5,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,55	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,63	1,60	1,60	1,60	1,60	1,60	1,60	1,60
		0,75	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		0,88	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		1,00	2,10	2,10	2,10	2,10	2,10	2,10	2,10
	$N_{R,k}$ in [kN]	0,50	1,04	1,92	2,56	2,56	2,56	3,43	3,43
		0,55	1,04	1,92	2,56	2,56	2,56	3,43	3,43
		0,63	1,04	1,92	2,56	2,56	2,56	4,32	4,32
		0,75	1,04	1,92	2,56	2,56	2,56	6,10	6,10
		0,88	1,04	1,92	2,56	2,56	2,56	6,10	6,10
		1,00	1,04	1,92	2,56	2,56	2,56	6,10	6,10
max. head displacement u depending on the sandwich panel thickness in [mm]		30	12	12	12	12	1,5	1,5	1,5
		40	12	12	12	12	1,5	1,5	1,5
		50	12	12	12	12	1,5	1,5	1,5
		60	18	18	18	18	4	4	4
		70	18	18	18	18	4	4	4
		80	18	18	18	18	4	4	4
		90	23	23	23	23	10	10	10
		100	23	23	23	23	10	10	10
		120	23	23	23	23	10	10	10
		≥ 140	23	23	23	23	10	10	10

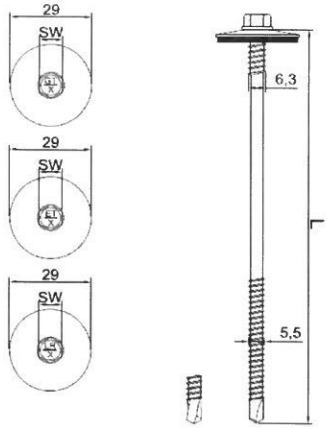
Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GTX6SP S22 5,5/6,3 x L
with hexagon head and stainless steel sealing washer Ø22 mm

Annex 54

of European Technical Assessment ETA-13/0199

Materials	
Fastener:	stainless steel – SAE 304, Bi-metal
Washer:	metallic washer made of stainless steel with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	$\Sigma(t_{N2} + t_{II}) \leq 6$ mm
Timber substructures no performance assessed	



Component II: t_{II} in [mm]			1,00	1,50	2,00	2,50	3,00	4,00	≥ 5,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,55	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,63	1,60	1,60	1,60	1,60	1,60	1,60	1,60
		0,75	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		0,88	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		1,00	2,10	2,10	2,10	2,10	2,10	2,10	2,10
	$N_{R,k}$ in [kN]	0,50	1,04	1,92	2,56	2,56	2,56	4,23	4,23
		0,55	1,04	1,92	2,56	2,56	2,56	4,23	4,23
		0,63	1,04	1,92	2,56	2,56	2,56	5,82	5,82
		0,75	1,04	1,92	2,56	2,56	2,56	6,35	6,35
		0,88	1,04	1,92	2,56	2,56	2,56	6,35	6,35
		1,00	1,04	1,92	2,56	2,56	2,56	6,35	6,35
max. head displacement u depending on the sandwich panel thickness in [mm]		30	12	12	12	12	1,5	1,5	1,5
		40	12	12	12	12	1,5	1,5	1,5
		50	12	12	12	12	1,5	1,5	1,5
		60	18	18	18	18	4	4	4
		70	18	18	18	18	4	4	4
		80	18	18	18	18	4	4	4
		90	23	23	23	23	10	10	10
		100	23	23	23	23	10	10	10
		120	23	23	23	23	10	10	10
		≥ 140	23	23	23	23	10	10	10

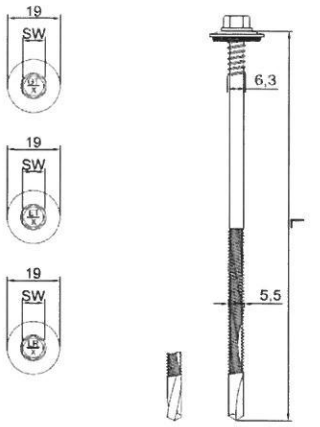
Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GTX6SP S29 5,5/6,3 x L
with hexagon head and stainless steel sealing washer Ø29 mm

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of European Technical Assessment ETA-13/0199

Materials	
Fastener:	stainless steel – SAE 304, Bi-metal
Washer:	metallic washer made of stainless steel with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	$\Sigma(t_{N2} + t_{II}) \leq 12$ mm
Timber substructures no performance assessed	



Component II: t_{II} in [mm]			3,00	4,00	5,00	6,00	8,00	10,00	≥ 11,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,55	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,63	1,60	1,60	1,60	1,60	1,60	1,60	1,60
		0,75	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		0,88	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		1,00	2,10	2,10	2,10	2,10	2,10	2,10	2,10
	$N_{R,k}$ in [kN]	0,50	3,06	3,06	3,06	3,06	3,06	3,06	3,06
		0,55	3,06	3,06	3,06	3,06	3,06	3,06	3,06
		0,63	3,86	3,86	3,86	3,86	3,86	3,86	3,86
		0,75	5,39	5,39	5,39	5,39	5,39	5,39	5,39
		0,88	5,39	5,39	5,39	5,39	5,39	5,39	5,39
		1,00	5,39	5,39	5,39	5,39	5,39	5,39	5,39
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		40	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		50	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		60	4	4	4	4	4	4	4
		70	4	4	4	4	4	4	4
		80	4	4	4	4	4	4	4
		90	6	6	6	6	6	6	6
		100	6	6	6	6	6	6	6
		120	6	6	6	6	6	6	6
		≥ 140	6	6	6	6	6	6	6

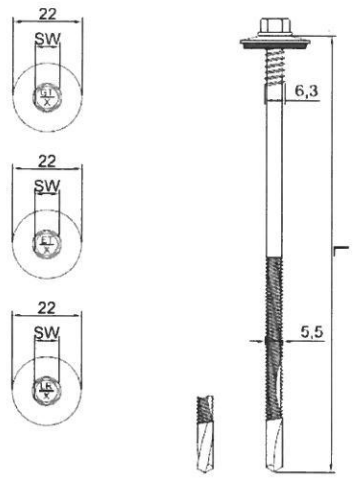
Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GTX12SP S19 5,5/6,3 x L
with hexagon head and stainless steel sealing washer Ø19 mm

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of European Technical Assessment ETA-13/0199

Materials	
Fastener:	stainless steel – SAE 304, Bi-metal
Washer:	metallic washer made of stainless steel with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	$\Sigma(t_{N2} + t_{II}) \leq 12$ mm
Timber substructures no performance assessed	



Component II: t_{II} in [mm]			3,00	4,00	5,00	6,00	8,00	10,00	≥ 11,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,55	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,63	1,60	1,60	1,60	1,60	1,60	1,60	1,60
		0,75	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		0,88	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		1,00	2,10	2,10	2,10	2,10	2,10	2,10	2,10
	$N_{R,k}$ in [kN]	0,50	3,43	3,43	3,43	3,43	3,43	3,43	3,43
		0,55	3,43	3,43	3,43	3,43	3,43	3,43	3,43
		0,63	4,32	4,32	4,32	4,32	4,32	4,32	4,32
		0,75	6,10	6,10	6,10	6,10	6,10	6,10	6,10
		0,88	6,10	6,10	6,10	6,10	6,10	6,10	6,10
		1,00	6,10	6,10	6,10	6,10	6,10	6,10	6,10
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		40	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		50	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		60	4	4	4	4	4	4	4
		70	4	4	4	4	4	4	4
		80	4	4	4	4	4	4	4
		90	6	6	6	6	6	6	6
		100	6	6	6	6	6	6	6
		120	6	6	6	6	6	6	6
		≥ 140	6	6	6	6	6	6	6

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screw GTX12SP S22 5,5/6,3 x L
with hexagon head and stainless steel sealing washer Ø22 mm

Annex 57

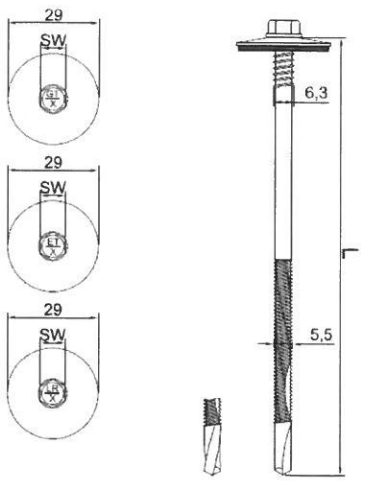
of European Technical Assessment ETA-13/0199

Materials

Fastener:	stainless steel – SAE 304, Bi-metal
Washer:	metallic washer made of stainless steel with EPDM sealing ring
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 12$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			3,00	4,00	5,00	6,00	8,00	10,00	≥ 11,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,55	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,63	1,60	1,60	1,60	1,60	1,60	1,60	1,60
		0,75	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		0,88	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		1,00	2,10	2,10	2,10	2,10	2,10	2,10	2,10
	$N_{R,k}$ in [kN]	0,50	4,23	4,23	4,23	4,23	4,23	4,23	4,23
		0,55	4,23	4,23	4,23	4,23	4,23	4,23	4,23
		0,63	5,82	5,82	5,82	5,82	5,82	5,82	5,82
		0,75	6,35	6,35	6,35	6,35	6,35	6,35	6,35
		0,88	6,35	6,35	6,35	6,35	6,35	6,35	6,35
		1,00	6,35	6,35	6,35	6,35	6,35	6,35	6,35
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		40	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		50	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		60	4	4	4	4	4	4	4
		70	4	4	4	4	4	4	4
		80	4	4	4	4	4	4	4
		90	6	6	6	6	6	6	6
		100	6	6	6	6	6	6	6
		120	6	6	6	6	6	6	6
		≥ 140	6	6	6	6	6	6	6

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP, GTXSP

Self-drilling screw GTX12SP S29 5,5/6,3 x L
with hexagon head and stainless steel sealing washer Ø29 mm

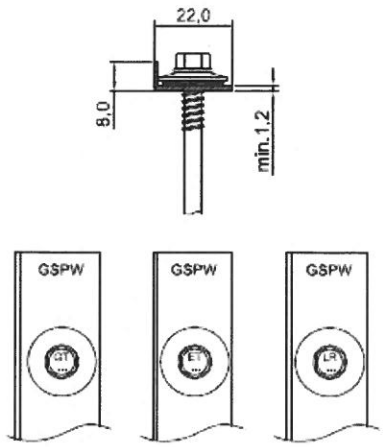
Annex 58

of European Technical Assessment ETA-13/0199

Materials

Fastener:	carbon steel – SAE 1022, quenched, tempered and galvanized (12 µm), with or without additional ceramic coating
Washer:	metallic washer made of coated carbon steel, aluminum or stainless steel, with EPDM sealing ring
Linear washer:	made of coated carbon steel, or stainless steel
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	$\Sigma(t_{N2} + t_{II}) \leq 6$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			1,00	1,50	2,00	2,50	3,00	4,00	≥ 5,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,55	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,63	1,60	1,60	1,60	1,60	1,60	1,60	1,60
		0,75	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		0,88	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		1,00	2,10	2,10	2,10	2,10	2,10	2,10	2,10
	$N_{R,k}$ in [kN]	0,50	1,10	1,93	2,56	2,56	2,56	4,45	4,45
		0,55	1,10	1,93	2,56	2,56	2,56	4,45	4,45
		0,63	1,10	1,93	2,56	2,56	2,56	4,45	4,45
		0,75	1,10	1,93	2,56	2,56	2,56	4,45	4,45
		0,88	1,10	1,93	2,56	2,56	2,56	4,45	4,45
		1,00	1,10	1,93	2,56	2,56	2,56	4,45	4,45
max. head displacement u depending on the sandwich panel thickness in [mm]		30	12	12	12	12	1,5	1,5	1,5
		40	12	12	12	12	1,5	1,5	1,5
		50	12	12	12	12	1,5	1,5	1,5
		60	18	18	18	18	4	4	4
		70	18	18	18	18	4	4	4
		80	18	18	18	18	4	4	4
		90	23	23	23	23	10	10	10
		100	23	23	23	23	10	10	10
		120	23	23	23	23	10	10	10
		≥ 140	23	23	23	23	10	10	10

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

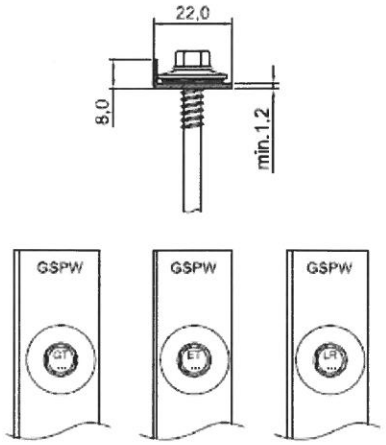
Self-drilling screws GT6SP Z19 5,5/6,3 x L, GT6SP A19 5,5/6,3 x L and GT6SP S19 5,5/6,3 x L, with hexagon head and carbon steel or stainless steel sealing washer ≥ Ø19 mm and with GSPW washer

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Materials	
Fastener:	carbon steel – SAE 1022, quenched, tempered and galvanized (12 µm), with or without additional ceramic coating
Washer:	metallic washer made of coated carbon steel, aluminum or stainless steel, with EPDM sealing ring
Linear washer:	made of coated carbon steel or stainless steel
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	$\Sigma(t_{N2} + t_{II}) \leq 12$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			3,00	4,00	5,00	6,00	8,00	10,00	≥ 11,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,55	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,63	1,60	1,60	1,60	1,60	1,60	1,60	1,60
		0,75	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		0,88	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		1,00	2,10	2,10	2,10	2,10	2,10	2,10	2,10
	$N_{R,k}$ in [kN]	0,50	4,45	4,45	4,45	4,45	4,45	4,45	4,45
		0,55	4,45	4,45	4,45	4,45	4,45	4,45	4,45
		0,63	4,45	4,45	4,45	4,45	4,45	4,45	4,45
		0,75	4,45	4,45	4,45	4,45	4,45	4,45	4,45
		0,88	4,45	4,45	4,45	4,45	4,45	4,45	4,45
		1,00	4,45	4,45	4,45	4,45	4,45	4,45	4,45
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		40	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		50	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		60	4	4	4	4	4	4	4
		70	4	4	4	4	4	4	4
		80	4	4	4	4	4	4	4
		90	6	6	6	6	6	6	6
		100	6	6	6	6	6	6	6
		120	6	6	6	6	6	6	6
		≥ 140	6	6	6	6	6	6	6

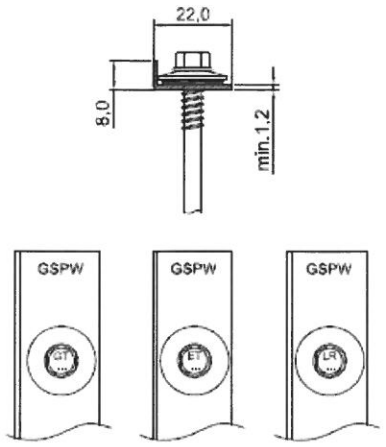
Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screws GT12SP Z19 5,5/6,3 x L, GT12SP A19 5,5/6,3 x L and GT12SP S19 5,5/6,3 x L, with hexagon head and carbon steel or stainless steel sealing washer ≥ Ø19 mm and with GSPW washer

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of European Technical Assessment ETA-13/0199

Materials	
Fastener:	carbon steel – SAE 1022, quenched, tempered and galvanized (12 µm), with or without additional ceramic coating
Washer:	metallic washer made of coated carbon steel, aluminum or stainless steel, with EPDM sealing ring
Linear washer:	made of coated carbon steel or stainless steel
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	$\Sigma(t_{N2} + t_{II}) \leq 16$ mm
Timber substructures no performance assessed	



Component II: t_{II} in [mm]			4,00	5,00	6,00	8,00	10,00	12,00	14,00	≥ 15,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,55	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,63	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35
		0,75	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		0,88	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		1,00	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
	$N_{R,k}$ in [kN]	0,50	4,45	4,45	4,45	4,45	4,45	4,45	4,45	4,45
		0,55	4,45	4,45	4,45	4,45	4,45	4,45	4,45	4,45
		0,63	4,45	4,45	4,45	4,45	4,45	4,45	4,45	4,45
		0,75	4,45	4,45	4,45	4,45	4,45	4,45	4,45	4,45
		0,88	4,45	4,45	4,45	4,45	4,45	4,45	4,45	4,45
		1,00	4,45	4,45	4,45	4,45	4,45	4,45	4,45	4,45
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1	1	1	1	1	1	1	1
		40	1	1	1	1	1	1	1	1
		50	1	1	1	1	1	1	1	1
		60	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		70	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		80	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		90	4	4	4	4	4	4	4	4
		100	4	4	4	4	4	4	4	4
		120	4	4	4	4	4	4	4	4
		≥ 140	4	4	4	4	4	4	4	4

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

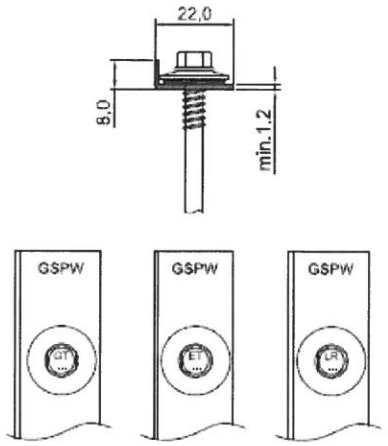
Self-drilling screws GT16SP Z19 5,5/6,3 x L, GT16SP A19 5,5/6,3 x L and GT16SP S19 5,5/6,3 x L, with hexagon head and carbon steel, aluminum or stainless steel sealing washer ≥ Ø19 mm and with GSPW washer

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Materials	
Fastener:	carbon steel – SAE 1022, quenched, tempered and galvanized (12 µm), with or without additional ceramic coating
Washer:	metallic washer made of coated carbon steel, aluminum or stainless steel, with EPDM sealing ring
Linear washer:	made of coated carbon steel or stainless steel
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	$\Sigma(t_{N2} + t_{II}) \leq 20$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			4,00	5,00	6,00	8,00	10,00	12,00	14,00	≥ 15,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,55	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,63	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35
		0,75	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		0,88	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		1,00	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
	$N_{R,k}$ in [kN]	0,50	4,45	4,45	4,45	4,45	4,45	4,45	4,45	4,45
		0,55	4,45	4,45	4,45	4,45	4,45	4,45	4,45	4,45
		0,63	4,45	4,45	4,45	4,45	4,45	4,45	4,45	4,45
		0,75	4,45	4,45	4,45	4,45	4,45	4,45	4,45	4,45
		0,88	4,45	4,45	4,45	4,45	4,45	4,45	4,45	4,45
		1,00	4,45	4,45	4,45	4,45	4,45	4,45	4,45	4,45
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1	1	1	1	1	1	1	1
		40	1	1	1	1	1	1	1	1
		50	1	1	1	1	1	1	1	1
		60	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		70	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		80	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		90	4	4	4	4	4	4	4	4
		100	4	4	4	4	4	4	4	4
		120	4	4	4	4	4	4	4	4
		≥ 140	4	4	4	4	4	4	4	4

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

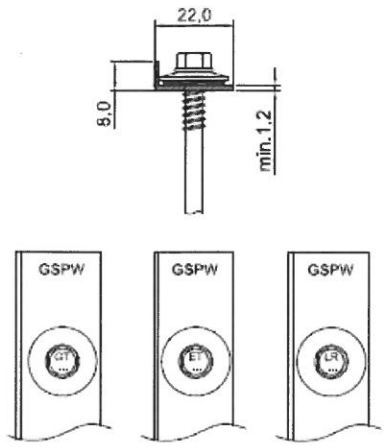
Self-drilling screws GT20SP Z19 5,5/6,3 x L, GT20SP A19 5,5/6,3 x L and GT20SP S19 5,5/6,3 x L, with hexagon head and carbon steel or stainless steel sealing washer ≥ Ø19 mm and with GSPW washer

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Materials	
Fastener:	carbon steel – SAE 1022, quenched, tempered and galvanized (12 µm), with or without additional ceramic coating
Washer:	metallic washer made of coated carbon steel, aluminum or stainless steel, with EPDM sealing ring
Linear washer:	made of coated carbon steel or stainless steel
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	$\Sigma(t_{N2} + t_{II}) \leq 25$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			4,00	5,00	6,00	8,00	10,00	12,00	14,00	≥ 15,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,55	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,63	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35
		0,75	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		0,88	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		1,00	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
	$N_{R,k}$ in [kN]	0,50	4,45	4,45	4,45	4,45	4,45	4,45	4,45	4,45
		0,55	4,45	4,45	4,45	4,45	4,45	4,45	4,45	4,45
		0,63	4,45	4,45	4,45	4,45	4,45	4,45	4,45	4,45
		0,75	4,45	4,45	4,45	4,45	4,45	4,45	4,45	4,45
		0,88	4,45	4,45	4,45	4,45	4,45	4,45	4,45	4,45
		1,00	4,45	4,45	4,45	4,45	4,45	4,45	4,45	4,45
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1	1	1	1	1	1	1	1
		40	1	1	1	1	1	1	1	1
		50	1	1	1	1	1	1	1	1
		60	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		70	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		80	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		90	4	4	4	4	4	4	4	4
		100	4	4	4	4	4	4	4	4
		120	4	4	4	4	4	4	4	4
		≥ 140	4	4	4	4	4	4	4	4

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screws GT25SP Z19 5,5/6,3 x L, GT25SP A19 5,5/6,3 x L and GT25SP S19 5,5/6,3 x L, with hexagon head and carbon steel or stainless steel sealing washer ≥ Ø19 mm and with GSPW washer

Annex 63

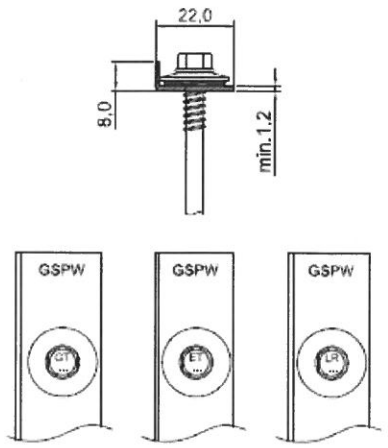
of European Technical Assessment ETA-13/0199

Materials	
Fastener:	carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating
Washer:	metallic washer made of aluminum or stainless steel, with EPDM sealing ring
Linear washer:	made of coated carbon steel or stainless steel
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	structural timber – EN 14081
Drilling capacity:	-

Timber substructure

For timber substructures performance assessed with:

$M_{y,Rk}$ = 9,280 Nm
$f_{ax,k}$ = 21,691 N/mm² for $l_{ef} \geq 30$ mm
$f_{ax,k}$ = 17,073 N/mm² for $l_{ef} \geq 40$ mm



Component II: wood class ≥ C24		Effective lenght l_{ef} [mm]		
		≥ 30	≥ 40	
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]			
	0,50	1,23	1,23	Failure of component I
	0,55	1,23	1,23	
	0,63	1,63	1,63	
	0,75	1,87	1,87	
	0,88	1,87	1,87	
	1,00	1,87	1,87	
	$N_{R,k}$ in [kN]			
	0,50	4,16	4,37	Failure of component II
	0,55	4,16	4,37	
	0,63	4,16	4,37	
	0,75	4,16	4,37	
	0,88	4,16	4,37	
	1,00	4,16	4,37	
max. head displacement "u" depending on sandwich panel thickness [mm]				
	30	1,0	1,0	
	40	1,0	1,0	
	50	1,0	1,0	
	60	1,5	1,5	
	70	1,5	1,5	
	80	1,5	1,5	
	90	2,0	2,0	
	100	2,0	2,0	
	120	2,0	2,0	
	≥ 140	2,0	2,0	

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screws GTRWSP A19 6,4/7,0 x L and GTRWSP S19 6,4/7,0 x L, with hexagon head and aluminum or stainless steel sealing washer ≥ Ø19 mm and with GSPW washer

Annex 64

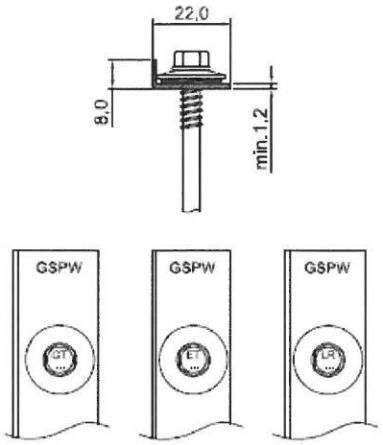
of European Technical Assessment ETA-13/0199

Materials

Fastener:	stainless steel – SAE 304, Bi-metal
Washer:	metallic washer made of stainless steel, with EPDM sealing ring
Linear washer:	made of coated carbon steel or stainless steel
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 6$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			1,00	1,50	2,00	2,50	3,00	4,00	≥ 5,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,55	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,63	1,60	1,60	1,60	1,60	1,60	1,60	1,60
		0,75	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		0,88	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		1,00	2,10	2,10	2,10	2,10	2,10	2,10	2,10
	$N_{R,k}$ in [kN]	0,50	1,04	1,92	2,56	2,56	2,56	4,45	4,45
		0,55	1,04	1,92	2,56	2,56	2,56	4,45	4,45
		0,63	1,04	1,92	2,56	2,56	2,56	4,45	4,45
		0,75	1,04	1,92	2,56	2,56	2,56	4,45	4,45
		0,88	1,04	1,92	2,56	2,56	2,56	4,45	4,45
		1,00	1,04	1,92	2,56	2,56	2,56	4,45	4,45
max. head displacement u depending on the sandwich panel thickness in [mm]		30	12	12	12	12	1,5	1,5	1,5
		40	12	12	12	12	1,5	1,5	1,5
		50	12	12	12	12	1,5	1,5	1,5
		60	18	18	18	18	4	4	4
		70	18	18	18	18	4	4	4
		80	18	18	18	18	4	4	4
		90	23	23	23	23	10	10	10
		100	23	23	23	23	10	10	10
		120	23	23	23	23	10	10	10
		≥ 140	23	23	23	23	10	10	10

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screws GTX6SP S19 5,5/6,3 x L, with hexagon head and aluminum or stainless steel sealing washer ≥ Ø19 mm and with GSPW washer

Annex 65

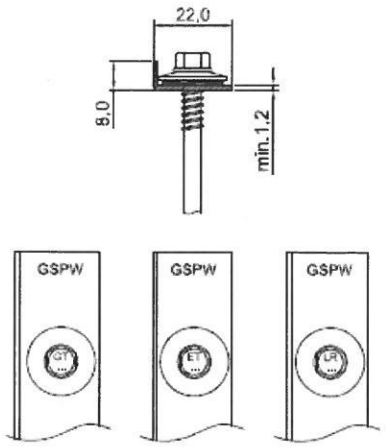
of European Technical Assessment ETA-13/0199

Materials

Fastener:	stainless steel – SAE 304, Bi-metal
Washer:	metallic washer made of stainless steel, with EPDM sealing ring
Linear washer:	made of coated carbon steel or stainless steel
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 6$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			3,00	4,00	5,00	6,00	8,00	10,00	≥ 11,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,55	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,63	1,60	1,60	1,60	1,60	1,60	1,60	1,60
		0,75	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		0,88	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		1,00	2,10	2,10	2,10	2,10	2,10	2,10	2,10
	$N_{R,k}$ in [kN]	0,50	4,45	4,45	4,45	4,45	4,45	4,45	4,45
		0,55	4,45	4,45	4,45	4,45	4,45	4,45	4,45
		0,63	4,45	4,45	4,45	4,45	4,45	4,45	4,45
		0,75	4,45	4,45	4,45	4,45	4,45	4,45	4,45
		0,88	4,45	4,45	4,45	4,45	4,45	4,45	4,45
		1,00	4,45	4,45	4,45	4,45	4,45	4,45	4,45
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		40	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		50	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		60	4	4	4	4	4	4	4
		70	4	4	4	4	4	4	4
		80	4	4	4	4	4	4	4
		90	6	6	6	6	6	6	6
		100	6	6	6	6	6	6	6
		120	6	6	6	6	6	6	6
		≥ 140	6	6	6	6	6	6	6

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screws GTX12SP S19 5,5/6,3 x L, with hexagon head and aluminum or stainless steel sealing washer ≥ Ø19 mm and with GSPW washer

Annex 66

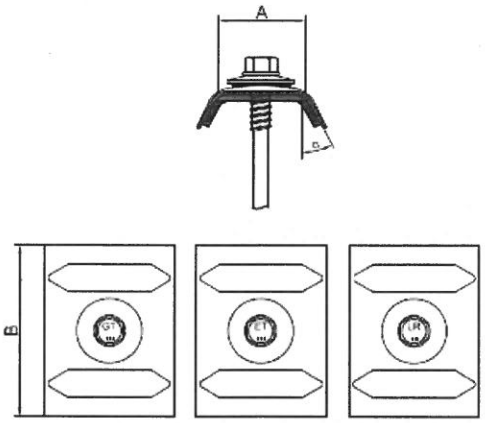
of European Technical Assessment ETA-13/0199

Materials

Fastener:	carbon steel – SAE 1022, quenched, tempered and galvanized (12 µm), with or without additional ceramic coating
Washer:	metallic washer made of coated carbon steel, aluminum or stainless steel, with EPDM sealing ring
Saddle washer:	made of coated carbon steel, aluminum or stainless steel
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 6$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]		1,00	1,50	2,00	2,50	3,00	4,00	≥ 5,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]							
	0,50	1,40	1,40	1,40	1,40	1,40	1,40	1,40
	0,55	1,40	1,40	1,40	1,40	1,40	1,40	1,40
	0,63	1,60	1,60	1,60	1,60	1,60	1,60	1,60
	0,75	2,10	2,10	2,10	2,10	2,10	2,10	2,10
	0,88	2,10	2,10	2,10	2,10	2,10	2,10	2,10
	1,00	2,10	2,10	2,10	2,10	2,10	2,10	2,10
	$N_{R,k}$ in [kN]							
	0,50	1,10	1,93	2,56	2,56	2,56	6,54	6,54
	0,55	1,10	1,93	2,56	2,56	2,56	6,54	6,54
	0,63	1,10	1,93	2,56	2,56	2,56	6,54	6,54
	0,75	1,10	1,93	2,56	2,56	2,56	6,54	6,54
	0,88	1,10	1,93	2,56	2,56	2,56	6,54	6,54
	1,00	1,10	1,93	2,56	2,56	2,56	6,54	6,54
max. head displacement u depending on the sandwich panel thickness in [mm]	30	12	12	12	12	1,5	1,5	1,5
	40	12	12	12	12	1,5	1,5	1,5
	50	12	12	12	12	1,5	1,5	1,5
	60	18	18	18	18	4	4	4
	70	18	18	18	18	4	4	4
	80	18	18	18	18	4	4	4
	90	23	23	23	23	10	10	10
	100	23	23	23	23	10	10	10
	120	23	23	23	23	10	10	10
	≥ 140	23	23	23	23	10	10	10

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screws GT6SP Z19 5,5/6,3 x L, GT6SP A19 5,5/6,3 x L and GT6SP S19 5,5/6,3 x L, with hexagon head and carbon steel, aluminum or stainless steel sealing washer ≥ Ø19 mm and with saddle washer

Annex 67

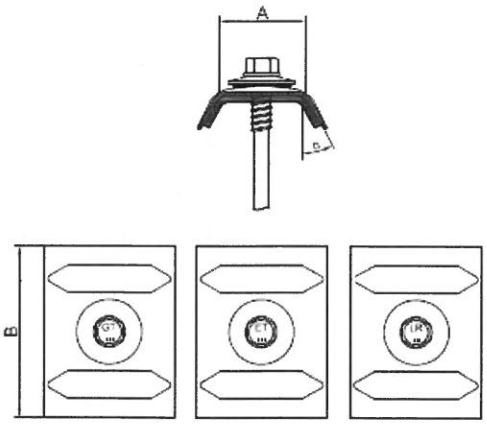
of European Technical Assessment ETA-13/0199

Materials

Fastener:	carbon steel – SAE 1022, quenched, tempered and galvanized (12 µm), with or without additional ceramic coating
Washer:	metallic washer made of coated carbon steel, aluminum or stainless steel, with EPDM sealing ring
Saddle washer	made of coated carbon steel, aluminum or stainless steel
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 12$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			3,00	4,00	5,00	6,00	8,00	10,00	≥ 11,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,55	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,63	1,60	1,60	1,60	1,60	1,60	1,60	1,60
		0,75	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		0,88	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		1,00	2,10	2,10	2,10	2,10	2,10	2,10	2,10
	$N_{R,k}$ in [kN]	0,50	3,65	6,64	6,64	6,64	6,64	6,64	6,64
		0,55	3,65	6,64	6,64	6,64	6,64	6,64	6,64
		0,63	4,60	6,64	6,64	6,64	6,64	6,64	6,64
		0,75	5,45	6,64	6,64	6,64	6,64	6,64	6,64
		0,88	5,45	6,64	6,64	6,64	6,64	6,64	6,64
		1,00	5,45	6,64	6,64	6,64	6,64	6,64	6,64
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		40	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		50	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		60	4	4	4	4	4	4	4
		70	4	4	4	4	4	4	4
		80	4	4	4	4	4	4	4
		90	6	6	6	6	6	6	6
		100	6	6	6	6	6	6	6
		120	6	6	6	6	6	6	6
		≥ 140	6	6	6	6	6	6	6

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

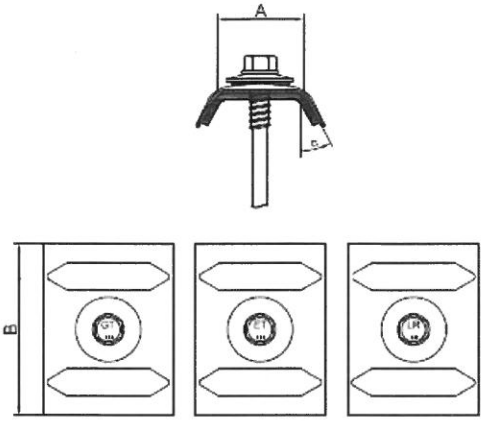
Self-drilling screws GT12SP Z19 5,5/6,3 x L, GT12SP A19 5,5/6,3 x L and GT12SP S19 5,5/6,3 x L, with hexagon head and carbon steel, aluminum or stainless steel sealing washer ≥ Ø19 mm and with saddle washer

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of European Technical Assessment ETA-13/0199

Materials	
Fastener:	carbon steel – SAE 1022, quenched, tempered and galvanized (12 µm), with or without additional ceramic coating
Washer:	metallic washer made of coated carbon steel, aluminum or stainless steel, with EPDM sealing ring
Saddle washer	made of coated carbon steel, aluminum or stainless steel
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346
Drilling capacity:	$\Sigma(t_{N2} + t_{II}) \leq 16$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			4,00	5,00	6,00	8,00	10,00	12,00	14,00	≥ 15,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,55	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,63	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35
		0,75	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		0,88	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		1,00	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
	$N_{R,k}$ in [kN]	0,50	3,65	3,65	3,65	7,76	7,76	7,76	7,76	7,76
		0,55	3,65	3,65	3,65	7,76	7,76	7,76	7,76	7,76
		0,63	4,60	4,60	4,60	7,76	7,76	7,76	7,76	7,76
		0,75	5,45	5,45	5,45	7,76	7,76	7,76	7,76	7,76
		0,88	5,45	5,45	5,45	7,76	7,76	7,76	7,76	7,76
		1,00	5,45	5,45	5,45	7,76	7,76	7,76	7,76	7,76
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1	1	1	1	1	1	1	1
		40	1	1	1	1	1	1	1	1
		50	1	1	1	1	1	1	1	1
		60	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		70	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		80	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		90	4	4	4	4	4	4	4	4
		100	4	4	4	4	4	4	4	4
		120	4	4	4	4	4	4	4	4
		≥ 140	4	4	4	4	4	4	4	4

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screws GT16SP Z19 5,5/6,3 x L, GT16SP A19 5,5/6,3 x L and GT16SP S19 5,5/6,3 x L, with hexagon head and carbon steel, aluminum or stainless steel sealing washer ≥ Ø19 mm and with saddle washer

Annex 69

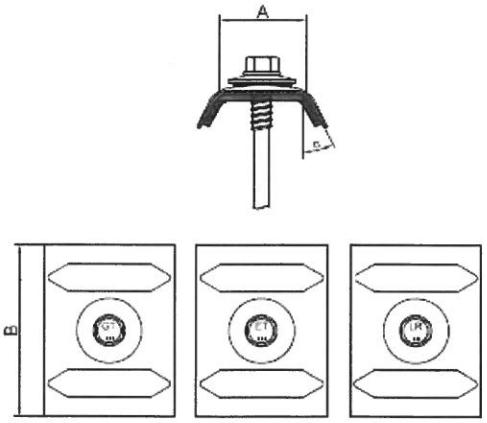
of European Technical Assessment ETA-13/0199

Materials

Fastener:	carbon steel – SAE 1022, quenched, tempered and galvanized (12 µm), with or without additional ceramic coating
Washer:	metallic washer made of coated carbon steel, aluminum or stainless steel, with EPDM sealing ring
Saddle washer	made of coated carbon steel, aluminum or stainless steel
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 20$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			4,00	5,00	6,00	8,00	10,00	12,00	14,00	≥ 15,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,55	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,63	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35
		0,75	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		0,88	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		1,00	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
	$N_{R,k}$ in [kN]	0,50	3,65	3,65	3,65	7,76	7,76	7,76	7,76	7,76
		0,55	3,65	3,65	3,65	7,76	7,76	7,76	7,76	7,76
		0,63	4,60	4,60	4,60	7,76	7,76	7,76	7,76	7,76
		0,75	5,45	5,45	5,45	7,76	7,76	7,76	7,76	7,76
		0,88	5,45	5,45	5,45	7,76	7,76	7,76	7,76	7,76
		1,00	5,45	5,45	5,45	7,76	7,76	7,76	7,76	7,76
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1	1	1	1	1	1	1	1
		40	1	1	1	1	1	1	1	1
		50	1	1	1	1	1	1	1	1
		60	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		70	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		80	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		90	4	4	4	4	4	4	4	4
		100	4	4	4	4	4	4	4	4
		120	4	4	4	4	4	4	4	4
		≥ 140	4	4	4	4	4	4	4	4

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screws GT20SP Z19 5,5/6,3 x L, GT20SP A19 5,5/6,3 x L and GT20SP S19 5,5/6,3 x L, with hexagon head and carbon steel, aluminum or stainless steel sealing washer ≥ Ø19 mm and with saddle washer

Annex 70

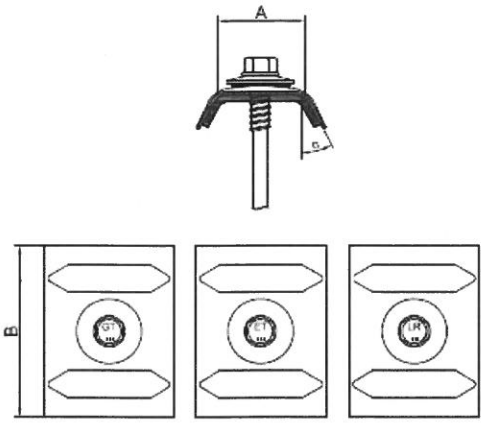
of European Technical Assessment ETA-13/0199

Materials

Fastener:	carbon steel – SAE 1022, quenched, tempered and galvanized (12 µm), with or without additional ceramic coating
Washer:	metallic washer made of coated carbon steel, aluminum or stainless steel, with EPDM sealing ring
Saddle washer:	made of coated carbon steel, aluminum or stainless steel
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 25$ mm

Timber substructures
no performance assessed



Component II: t_{II} in [mm]			4,00	5,00	6,00	8,00	10,00	12,00	14,00	≥ 15,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,55	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,63	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35
		0,75	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		0,88	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		1,00	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
	$N_{R,k}$ in [kN]	0,50	3,65	3,65	3,65	7,76	7,76	7,76	7,76	7,76
		0,55	3,65	3,65	3,65	7,76	7,76	7,76	7,76	7,76
		0,63	4,60	4,60	4,60	7,76	7,76	7,76	7,76	7,76
		0,75	5,45	5,45	5,45	7,76	7,76	7,76	7,76	7,76
		0,88	5,45	5,45	5,45	7,76	7,76	7,76	7,76	7,76
		1,00	5,45	5,45	5,45	7,76	7,76	7,76	7,76	7,76
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1	1	1	1	1	1	1	1
		40	1	1	1	1	1	1	1	1
		50	1	1	1	1	1	1	1	1
		60	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		70	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		80	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
		90	4	4	4	4	4	4	4	4
		100	4	4	4	4	4	4	4	4
		120	4	4	4	4	4	4	4	4
		≥ 140	4	4	4	4	4	4	4	4

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screws GT25SP Z19 5,5/6,3 x L, GT25SP A19 5,5/6,3 x L and GT25SP S19 5,5/6,3 x L, with hexagon head and carbon steel, aluminum or stainless steel sealing washer ≥ Ø19 mm and with saddle washer

Annex 71

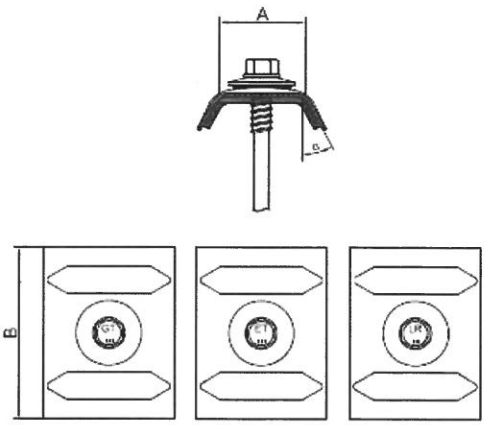
of European Technical Assessment ETA-13/0199

Materials	
Fastener:	carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating
Washer:	metallic washer made of aluminum or stainless steel, with EPDM sealing ring
Saddle washer	made of coated carbon steel, aluminum or stainless steel
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	structural timber – EN 14081
Drilling capacity:	-

Timber substructure

For timber substructures performance assessed with:

$M_{y,Rk}$ = 9,280 Nm
$f_{ax,k}$ = 21,691 N/mm² for $l_{ef} \geq 30$ mm
$f_{ax,k}$ = 17,073 N/mm² for $l_{ef} \geq 40$ mm



Component II: wood class ≥ C24			Effective lenght l_{ef} [mm]		
			≥ 30	≥ 40	
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,23	1,23	Failure of component I
		0,55	1,23	1,23	
		0,63	1,63	1,63	
		0,75	1,87	1,87	
		0,88	1,87	1,87	
		1,00	1,87	1,87	
	$N_{R,k}$ in [kN]	0,50	4,16	4,37	Failure of component II
		0,55	4,16	4,37	
		0,63	4,16	4,37	
		0,75	4,16	4,37	
		0,88	4,16	4,37	
		1,00	4,16	4,37	
max. head displacement "u" depending on sandwich panel thickness [mm]		**30**	1,0	1,0	
		40	1,0	1,0	
		50	1,0	1,0	
		60	1,5	1,5	
		70	1,5	1,5	
		80	1,5	1,5	
		90	2,0	2,0	
		100	2,0	2,0	
		120	2,0	2,0	
		≥ 140	2,0	2,0	

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

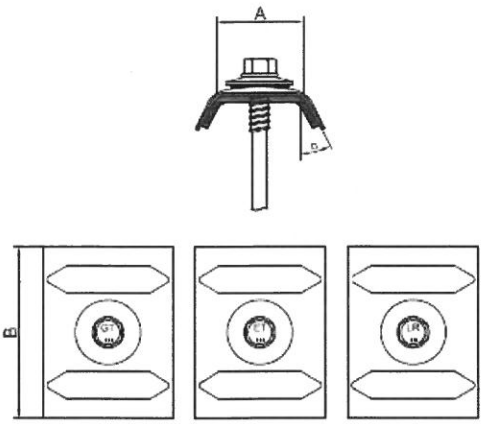
Self-drilling screws GTRWSP A19 6,4/7,0 x L
and GTRWSP S19 6,4/7,0 x L, with hexagon head
and aluminum or stainless steel sealing wash washer ≥ Ø19 mm
and with saddle washer

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of European Technical Assessment ETA-13/0199

Materials

Fastener:	stainless steel – SAE 304, Bi-metal
Washer:	metallic washer made of stainless steel, with EPDM sealing ring
Saddle washer	made of coated carbon steel, aluminum or stainless steel
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346



Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 6$ mm

Timber substructures
no performance assessed

Component II: t_{II} in [mm]			1,00	1,50	2,00	2,50	3,00	4,00	≥ 5,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,55	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,63	1,60	1,60	1,60	1,60	1,60	1,60	1,60
		0,75	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		0,88	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		1,00	2,10	2,10	2,10	2,10	2,10	2,10	2,10
	$N_{R,k}$ in [kN]	0,50	1,04	1,92	2,56	2,56	2,56	6,50	6,50
		0,55	1,04	1,92	2,56	2,56	2,56	6,50	6,50
		0,63	1,04	1,92	2,56	2,56	2,56	6,50	6,50
		0,75	1,04	1,92	2,56	2,56	2,56	6,50	6,50
		0,88	1,04	1,92	2,56	2,56	2,56	6,50	6,50
		1,00	1,04	1,92	2,56	2,56	2,56	6,50	6,50
max. head displacement u depending on the sandwich panel thickness in [mm]		30	12	12	12	12	1,5	1,5	1,5
		40	12	12	12	12	1,5	1,5	1,5
		50	12	12	12	12	1,5	1,5	1,5
		60	18	18	18	18	4	4	4
		70	18	18	18	18	4	4	4
		80	18	18	18	18	4	4	4
		90	23	23	23	23	10	10	10
		100	23	23	23	23	10	10	10
		120	23	23	23	23	10	10	10
		≥ 140	23	23	23	23	10	10	10

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

Self-drilling screws GTX6SP S19 5,5/6,3 x L, with hexagon head and aluminum or stainless steel sealing washer ≥ Ø19 mm and with saddle washer

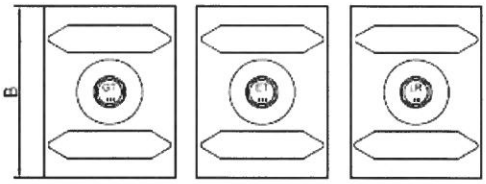
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Materials

Fastener:	stainless steel – SAE 304, Bi-metal
Washer:	metallic washer made of stainless steel, with EPDM sealing ring
Saddle washer	made of coated carbon steel, aluminum or stainless steel
Component I:	S280GD, S320GD or S350GD – EN 10346
Component II:	S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346





Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 12$ mm

Timber substructures
no performance assessed

Component II: t_{II} in [mm]			3,00	4,00	5,00	6,00	8,00	10,00	≥ 11,00
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,55	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,63	1,60	1,60	1,60	1,60	1,60	1,60	1,60
		0,75	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		0,88	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		1,00	2,10	2,10	2,10	2,10	2,10	2,10	2,10
	$N_{R,k}$ in [kN]	0,50	3,65	6,47	6,47	7,88	7,88	7,88	7,88
		0,55	3,65	6,47	6,47	7,88	7,88	7,88	7,88
		0,63	3,86	6,47	6,47	7,88	7,88	7,88	7,88
		0,75	5,39	6,47	6,47	7,88	7,88	7,88	7,88
		0,88	5,39	6,47	6,47	7,88	7,88	7,88	7,88
		1,00	5,39	6,47	6,47	7,88	7,88	7,88	7,88
max. head displacement u depending on the sandwich panel thickness in [mm]		30	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		40	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		50	1,5	1,5	1,5	1,5	1,5	1,5	1,5
		60	4	4	4	4	4	4	4
		70	4	4	4	4	4	4	4
		80	4	4	4	4	4	4	4
		90	6	6	6	6	6	6	6
		100	6	6	6	6	6	6	6
		120	6	6	6	6	6	6	6
		≥ 140	6	6	6	6	6	6	6

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP

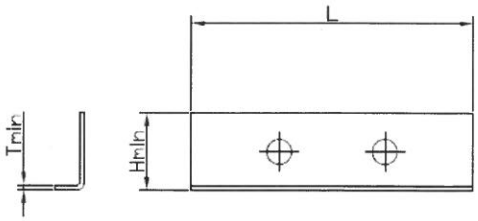
Self-drilling screws GTX12SP S19 5,5/6,3 x L, with hexagon head and aluminum or stainless steel sealing washer ≥ Ø19 mm and with saddle washer

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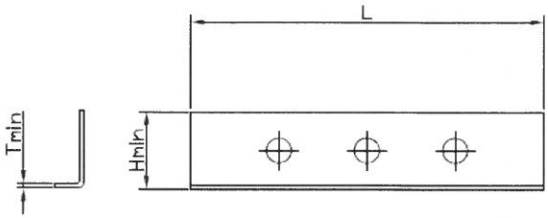
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Washer GSPW

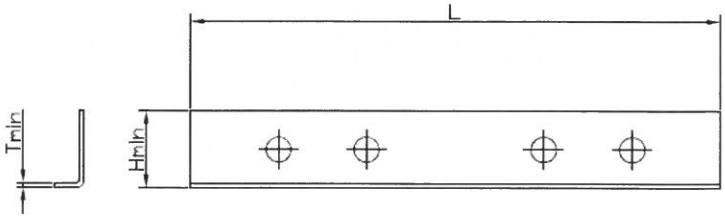
GSPW 80/30



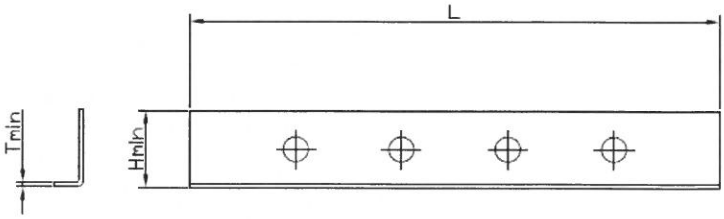
GSPW 100/25



GSPW 150/25



GSPW 150/30

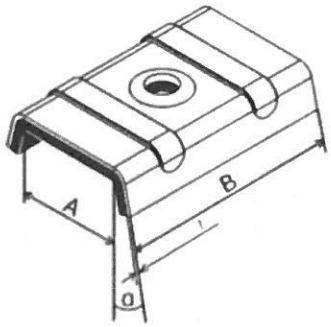


	H_{min}	L	T_{min}
	[mm]	[mm]	[mm]
GSPW 80/30	22	80	1,20
GSPW 100/25	22	100	1,20
GSPW 150/25	22	150	1,20
GSPW 150/30	22	150	1,20

Materials:
carbon steel $R_m \geq 360$ MPa, galvanized (≥ 200 g/m^2), with or without additional coating gRey.coat or stainless steel 1,4301 acc. to EN 10088 (with or without powder coating)

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP, GTXSP	**Annex 75** of European Technical Assessment ETA-13/0421
Linear washer GSPW	

Saddle Washer



	A	B	t	α
	[mm]	[mm]	[mm]	[°]
Saddle washer	≥ 26	≥ 41,5	≥ 1,0	≥ 25

Materials:
carbon steel R_m ≥ 360 MPa, galvanized (≥ 200 g/m^2), with or without additional coating gRey.coat
or aluminum R_m ≥ 360 MPa (with or without powder coating)
or stainless steel 1,4301 acc. to EN 10088 (with or without powder coating)

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP, GTXSP	**Annex 76** of European Technical Assessment ETA-13/0421
Saddle washer	

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 substructure.

For Metal Supporting 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 Supporting 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 Section 8.7 (Screwed connections), Table 3.1, and divided by the recommended partial safety factor γ_M = 1,33. If failure of the inner face with the thickness t_{N2} 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 Supporting 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 Supporting 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 Section 8.7 (Screwed connections), 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) or EN 1999-1-4, section 8.1 (7) should be taken into account.

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP, GTXSP	**Annex 77** of European Technical Assessment ETA-13/0199
Determination of design values	