



INSTYTUT TECHNIKI BUDOWLANEJ



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European Technical Assessment

**ETA-13/0199
of 05/08/2025**



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

Simpson Strong-Tie Etanco P.S.A.
Al. Jana Pawła II 1,
81-345 Gdynia, Poland

Manufacturing plants

1. Simpson Strong-Tie Etanco P.S.A.
ul. Olsztyńska 30
11-130 Orneta, Poland
2. Plant 1
3. Plant 2
4. Plant 3
5. Plant 4
6. Plant 5
7. Plant 6

This European Technical Assessment contains

81 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)
330047-01-0602 "Fastening screws for sandwich panels"

This version replaces

ETA-13/0199 issued on 27/06/2023



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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 \geq C2 corrosion according to 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 Performance of the product and references to the methods used for its 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 Annexes 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. Fastening screw which are made of stainless steel are intended to be used in external environments \geq C2 corrosion according to the standard EN ISO 12944-2.

3.1.2 Safety in case of fire (BWR 2)

The fastening screws are considered to satisfy the requirements of performance class A1 of reaction to fire, in accordance with the provisions of the EC Decision 96/603/EC (as amended) without the need for testing.

3.2 Methods used for the assessment

The assessment 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 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 in 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.

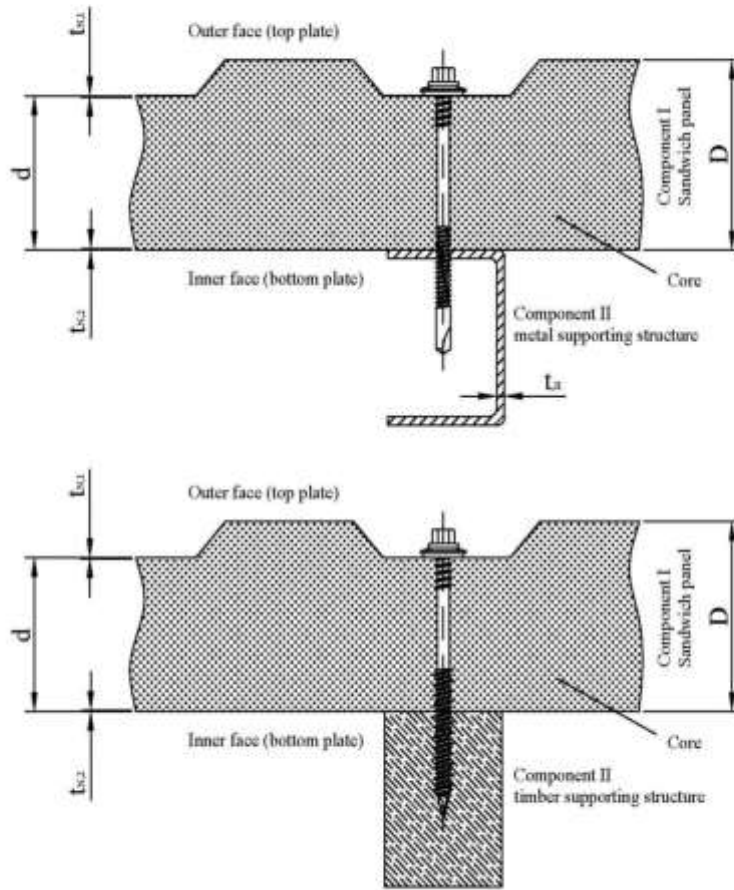
Issued in Warsaw on 05/08/2025 by Instytut Techniki Budowlanej



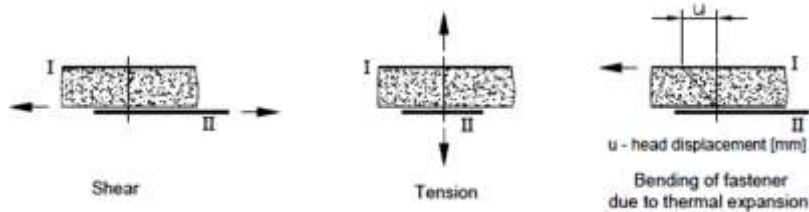
Anna Panek, MSc

Deputy Director of ITB

Examples of execution of a connections



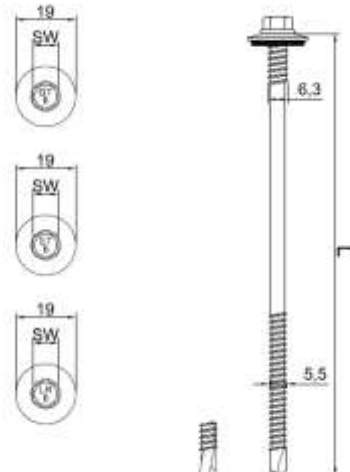
Loading conditions



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

Example of execution of a connections. Loading conditions

Annex 1
of European
Technical Assessment
ETA-13/0199

<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered and galvanized (12 µm)</p> <p>Washer: metallic washer made of coated carbon steel with EPDM sealing ring</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346</p>	
Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 6$ mm	
<p>Timber substructures</p> <p>no performance assessed</p>	

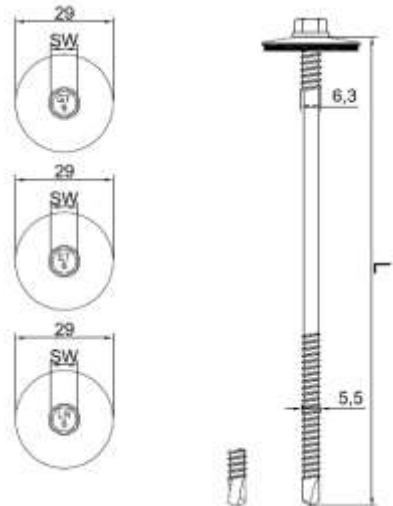
Component II: t_{II} in [mm]		1,00	1,50	2,00	2,50	3,00	4,00	$\geq 5,00$	
Component I: $t_{N1,1}$ or $t_{N1,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,55	1,40	1,40	1,40	1,40	1,40	1,40	1,40
		0,63	1,60	1,60	1,60	1,60	1,60	1,60	1,60
		0,75	2,10	2,10	2,10	2,10	2,10	2,10	2,10
		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		

<p>Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP</p>	<p>Annex 2</p> <p>of European Technical Assessment ETA-13/0199</p>
<p>Self-drilling screw GT6SP Z19 5,5/6,3 x L with hexagon head and carbon steel sealing washer $\geq \text{Ø}19$</p>	

<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered and galvanized (12 µm)</p> <p>Washer: metallic washer made of coated carbon steel with EPDM sealing ring</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346</p> <p>Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 6 \text{ mm}$</p> <p>Timber substructures no performance assessed</p>	
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Component II: t_{II} in [mm]		1,00	1,50	2,00	2,50	3,00	4,00	≥ 5,00
Component I: t_{N1} or t_{N2} in [mm]	$V_{R,k}$ in [kN]	0,50	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
		0,63	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
		0,88	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
Component I: t_{N1} or t_{N2} in [mm]	$N_{R,k}$ in [kN]	0,50	1,10	1,93	2,56	3,43	3,43	3,43
		0,55	1,10	1,93	2,56	3,43	3,43	3,43
		0,63	1,10	1,93	2,56	4,32	4,32	4,32
		0,75	1,10	1,93	2,56	6,10	6,10	6,10
		0,88	1,10	1,93	2,56	6,10	6,10	6,10
		1,00	1,10	1,93	2,56	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
	≥ 140	23	23	23	10	10	10	10

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP	Annex 3 of European Technical Assessment ETA-13/0199
Self-drilling screw GT6SP Z22 5,5/6,3 x L with hexagon head and carbon steel sealing washer ≥ Ø22	

<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered and galvanized (12 µm)</p> <p>Washer: metallic washer made of coated carbon steel with EPDM sealing ring</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346</p>	
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	$\geq 5,00$	
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**

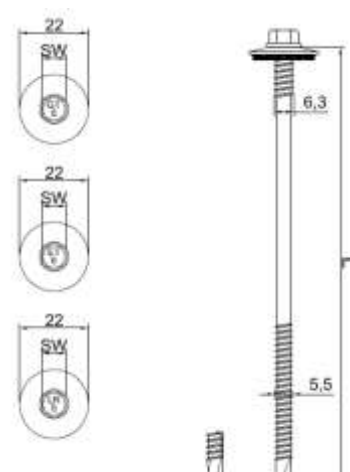
Self-drilling screw GT6SP Z29 5,5/6,3 x L
with hexagon head and carbon steel sealing washer $\geq \text{Ø}29$

Annex 4
of European
Technical Assessment
ETA-13/0199

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

Component II: t_{II} in [mm]		1,00	1,50	2,00	2,50	3,00	4,00	$\geq 5,00$	
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	
		0,55	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	
		0,75	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	
		1,00	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	Annex 5 of European Technical Assessment ETA-13/0199
Self-drilling screw GTR6SP A19 5,5/6,3 x L with hexagon head and aluminum sealing washer $\geq \text{Ø}19$	

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

Component II: t_{II} in [mm]		1,00	1,50	2,00	2,50	3,00	4,00	$\geq 5,00$	
Component I: t_{N1} or t_{N2} 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 $\geq \text{Ø}22$

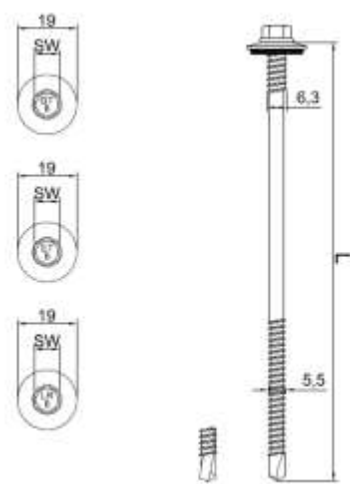
Annex 6

of European
Technical Assessment
ETA-13/0199

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

Component II: t_{II} in [mm]		1,00	1,50	2,00	2,50	3,00	4,00	$\geq 5,00$	
Component I: t_{N1} or t_{N2} 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		

<p>Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP</p>	<p>Annex 7 of European Technical Assessment ETA-13/0199</p>
<p>Self-drilling screw GTR6SP A29 5,5/6,3 x L with hexagon head and aluminum sealing washer $\geq \text{Ø}29$</p>	

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

Component II: t_{II} in [mm]		1,00	1,50	2,00	2,50	3,00	4,00	$\geq 5,00$	
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**

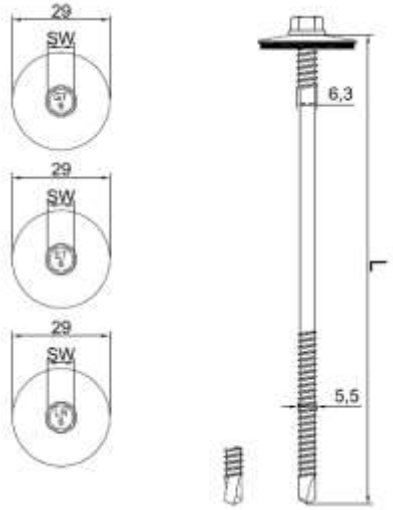
Self-drilling screw GTR6SP S19 5,5/6,3 x L
with hexagon head and stainless steel sealing washer $\geq \text{Ø}19$

Annex 8
of European
Technical Assessment
ETA-13/0199

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

Component II: t_{II} in [mm]		1,00	1,50	2,00	2,50	3,00	4,00	$\geq 5,00$	
Component I: t_{N1} or t_{N2} 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	

<p>Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP</p>	<p>Annex 9 of European Technical Assessment ETA-13/0199</p>
<p>Self-drilling screw GTR6SP S22 5,5/6,3 x L with hexagon head and stainless steel sealing washer $\geq \text{Ø}22$</p>	

<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating</p> <p>Washer: metallic washer made of stainless steel with EPDM sealing ring</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346</p>	
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	$\geq 5,00$	
Component I: t_{N1} or t_{N2} 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**

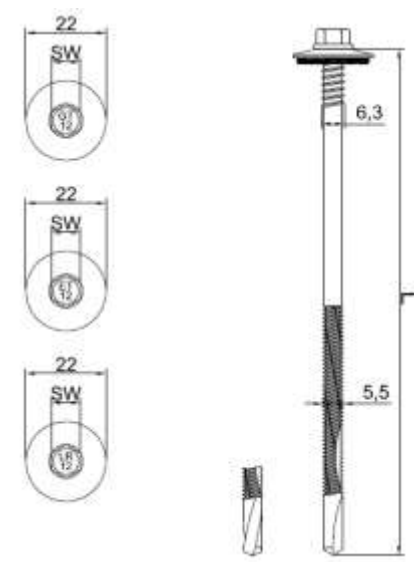
Self-drilling screw GTR6SP S29 5,5/6,3 x L
with hexagon head and stainless steel sealing washer $\geq \varnothing 29$

Annex 10
of European
Technical Assessment
ETA-13/0199

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

Component II: t_{II} in [mm]		3,00	4,00	5,00	6,00	8,00	10,00	≥ 11,00
Component I: t_{N1} or t_{N2} in [mm]	$V_{R,k}$ in [kN]	0,50	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
		0,63	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
		0,88	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
	$N_{R,k}$ in [kN]	0,50	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
		0,63	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
		0,88	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
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

<p>Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP</p>	<p>Annex 11 of European Technical Assessment ETA-13/0199</p>
<p>Self-drilling screw GT12SP Z19 5,5/6,3 x L with hexagon head and carbon steel sealing washer ≥ Ø19</p>	

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

Component II: t_{II} in [mm]		3,00	4,00	5,00	6,00	8,00	10,00	$\geq 11,00$
Component I: t_{N1} or t_{N2} in [mm]	$V_{R,k}$ in [kN]	0,50	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
		0,63	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
		0,88	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
	$N_{R,k}$ in [kN]	0,50	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
		0,63	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
		0,88	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
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	
	40	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	
	60	4	4	4	4	4	4	
	70	4	4	4	4	4	4	
	80	4	4	4	4	4	4	
	90	6	6	6	6	6	6	
	100	6	6	6	6	6	6	
	120	6	6	6	6	6	6	
	≥ 140	6	6	6	6	6	6	

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

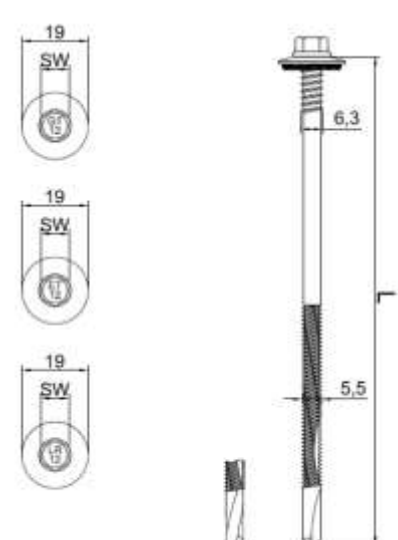
Self-drilling screw GT12SP Z22 5,5/6,3 x L
with hexagon head and carbon steel sealing washer $\geq \text{Ø}22$

Annex 12
of European
Technical Assessment
ETA-13/0199

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

Component II: t_{II} in [mm]		3,00	4,00	5,00	6,00	8,00	10,00	$\geq 11,00$
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
		0,55	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
		0,75	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
		1,00	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
		0,55	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
		0,75	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
		1,00	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	
	40	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	
	60	4	4	4	4	4	4	
	70	4	4	4	4	4	4	
	80	4	4	4	4	4	4	
	90	6	6	6	6	6	6	
	100	6	6	6	6	6	6	
	120	6	6	6	6	6	6	
	≥ 140	6	6	6	6	6	6	

<p>Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP</p>	<p>Annex 13 of European Technical Assessment ETA-13/0199</p>
<p>Self-drilling screw GT12SP Z29 5,5/6,3 x L with hexagon head and carbon steel sealing washer $\geq \text{Ø}29$</p>	

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

Component II: t_{II} in [mm]		3,00	4,00	5,00	6,00	8,00	10,00	$\geq 11,00$
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
		0,55	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
		0,75	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
		1,00	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
		0,55	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
		0,75	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	
	40	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	
	60	4	4	4	4	4	4	
	70	4	4	4	4	4	4	
	80	4	4	4	4	4	4	
	90	6	6	6	6	6	6	
	100	6	6	6	6	6	6	
	120	6	6	6	6	6	6	
	≥ 140	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 $\geq \text{Ø}19$

Annex 14
of European
Technical Assessment
ETA-13/0199

<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating</p> <p>Washer: metallic washer made of aluminum with EPDM sealing ring</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346</p> <hr/> <p>Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 12$ mm</p> <hr/> <p>Timber substructures no performance assessed</p>	
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Component II: t_{II} in [mm]		3,00	4,00	5,00	6,00	8,00	10,00	$\geq 11,00$
Component I: t_{N1} or t_{N2} in [mm]	$V_{R,k}$ in [kN]	0,50	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
		0,63	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
		0,88	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
	$N_{R,k}$ in [kN]	0,50	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
		0,63	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
		0,88	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
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	
	40	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	
	60	4	4	4	4	4	4	
	70	4	4	4	4	4	4	
	80	4	4	4	4	4	4	
	90	6	6	6	6	6	6	
	100	6	6	6	6	6	6	
	120	6	6	6	6	6	6	
	≥ 140	6	6	6	6	6	6	

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP	Annex 15 of European Technical Assessment ETA-13/0199
Self-drilling screw GTR12SP A22 5,5/6,3 x L with hexagon head and aluminum sealing washer $\geq \text{Ø}22$	

<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating</p> <p>Washer: metallic washer made of aluminum with EPDM sealing ring</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346</p> <hr/> <p>Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 12$ mm</p> <hr/> <p>Timber substructures no performance assessed</p>	
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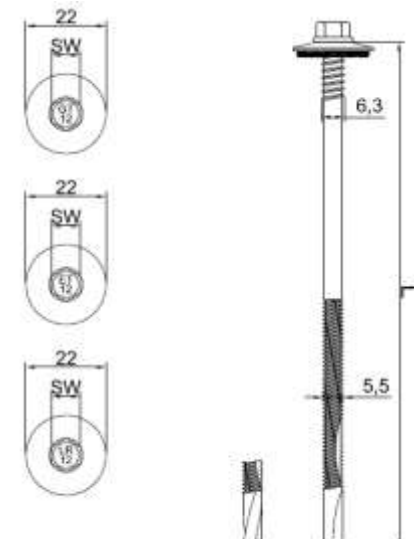
Component II: t_{II} in [mm]		3,00	4,00	5,00	6,00	8,00	10,00	$\geq 11,00$
Component I: t_{N1} or t_{N2} in [mm]	V _{R,k} in [kN]	0,50	1,40	1,40	1,40	1,40	1,40	1,40
		0,55	1,40	1,40	1,40	1,40	1,40	1,40
		0,63	1,60	1,60	1,60	1,60	1,60	1,60
		0,75	2,10	2,10	2,10	2,10	2,10	2,10
		0,88	2,10	2,10	2,10	2,10	2,10	2,10
		1,00	2,10	2,10	2,10	2,10	2,10	2,10
	N _{R,k} in [kN]	0,50	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
		0,63	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
		0,88	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
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	
	40	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	
	60	4	4	4	4	4	4	
	70	4	4	4	4	4	4	
	80	4	4	4	4	4	4	
	90	6	6	6	6	6	6	
	100	6	6	6	6	6	6	
	120	6	6	6	6	6	6	
	≥ 140	6	6	6	6	6	6	

<p>Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP</p>	<p>Annex 16 of European Technical Assessment ETA-13/0199</p>
<p>Self-drilling screw GTR12SP A29 5,5/6,3 x L with hexagon head and aluminum sealing washer $\geq \text{Ø}29$</p>	

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

Component II: t_{II} in [mm]		3,00	4,00	5,00	6,00	8,00	10,00	$\geq 11,00$
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
		0,55	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
		0,75	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
		1,00	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
		0,55	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
		0,75	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
		1,00	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	
	40	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	
	60	4	4	4	4	4	4	
	70	4	4	4	4	4	4	
	80	4	4	4	4	4	4	
	90	6	6	6	6	6	6	
	100	6	6	6	6	6	6	
	120	6	6	6	6	6	6	
	≥ 140	6	6	6	6	6	6	

<p>Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP</p>	<p>Annex 17 of European Technical Assessment ETA-13/0199</p>
<p>Self-drilling screw GTR12SP S19 5,5/6,3 x L with hexagon head and stainless steel sealing washer $\geq \text{Ø}19$</p>	

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

Component II: t_{II} in [mm]		3,00	4,00	5,00	6,00	8,00	10,00	$\geq 11,00$	
Component I: t_{N1} or t_{N2} 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 $\geq \text{Ø}22$

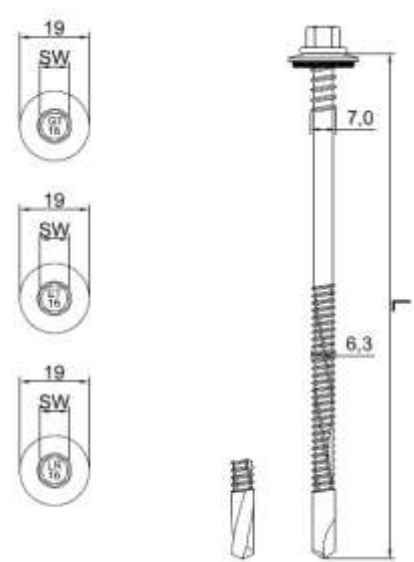
Annex 18

of European
Technical Assessment
ETA-13/0199

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

Component II: t_{II} in [mm]		3,00	4,00	5,00	6,00	8,00	10,00	$\geq 11,00$
Component I: t_{N1} or t_{N2} in [mm]	$V_{R,K}$ in [kN]	0,50	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
		0,63	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
		0,88	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
	$N_{R,K}$ in [kN]	0,50	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
		0,63	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
max. head displacement u depending on the sandwich panel thickness in [mm]		0,88	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
		30	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
		50	1,5	1,5	1,5	1,5	1,5	1,5
		60	4	4	4	4	4	4
		70	4	4	4	4	4	4
		80	4	4	4	4	4	4
		90	6	6	6	6	6	6
		100	6	6	6	6	6	6
120	6	6	6	6	6	6		
≥ 140	6	6	6	6	6	6		

<p>Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP</p>	<p>Annex 19 of European Technical Assessment ETA-13/0199</p>
<p>Self-drilling screw GTR12SP S29 5,5/6,3 x L with hexagon head and stainless steel sealing washer $\geq \varnothing 29$</p>	

<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered and galvanized (12 µm)</p> <p>Washer: metallic washer made of coated carbon steel with EPDM sealing ring</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346</p>	
Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 16$ mm	
<p>Timber substructures</p> <p>no performance assessed</p>	

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_{N1} or t_{N2} in [mm]	$V_{R,k}$ in [kN]	0,50	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
		0,63	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
		0,88	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
	$N_{R,k}$ 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	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**

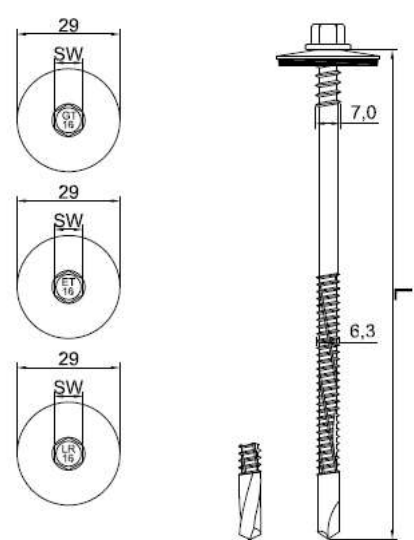
Self-drilling screw GT16SP Z19 6,3/7,0 x L
with hexagon head and carbon steel sealing washer ≥ Ø19

Annex 20
of European
Technical Assessment
ETA-13/0199

<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered and galvanized (12 µm)</p> <p>Washer: metallic washer made of coated carbon steel with EPDM sealing ring</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346</p>	
<p>Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 16$ mm</p>	
<p>Timber substructures no performance assessed</p>	

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_{N1} or t_{N2} in [mm]	$V_{R,k}$ in [kN]	0,50	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
		0,63	2,35	2,35	2,35	1,69	1,69	1,69	1,69
		0,75	2,50	2,50	2,50	1,96	1,96	1,96	1,96
		0,88	2,50	2,50	2,50	1,96	1,96	1,96	1,96
		1,00	2,50	2,50	2,50	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
		0,55	3,65	3,65	3,65	3,43	3,43	3,43	3,43
		0,63	4,60	4,60	4,60	4,32	4,32	4,32	4,32
		0,75	5,45	5,45	5,45	6,10	6,10	6,10	6,10
		0,88	5,45	5,45	5,45	6,10	6,10	6,10	6,10
		1,00	5,45	5,45	5,45	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	
	40	1	1	1	1	1	1	1	
	50	1	1	1	1	1	1	1	
	60	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	
	80	2,5	2,5	2,5	2,5	2,5	2,5	2,5	
	90	4	4	4	4	4	4	4	
	100	4	4	4	4	4	4	4	
	120	4	4	4	4	4	4	4	
	≥ 140	4	4	4	4	4	4	4	

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP	Annex 21 of European Technical Assessment ETA-13/0199
Self-drilling screw GT16SP Z22 6,3/7,0 x L with hexagon head and carbon steel sealing washer ≥ Ø22	

<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered and galvanized (12 µm)</p> <p>Washer: metallic washer made of coated carbon steel with EPDM sealing ring</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346</p>	
Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 16$ mm	
<p>Timber substructures</p> <p>no performance assessed</p>	

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
		0,55	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
		0,75	2,50	2,50	2,50	1,96	1,96	1,96	1,96
		0,88	2,50	2,50	2,50	1,96	1,96	1,96	1,96
		1,00	2,50	2,50	2,50	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
		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	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**

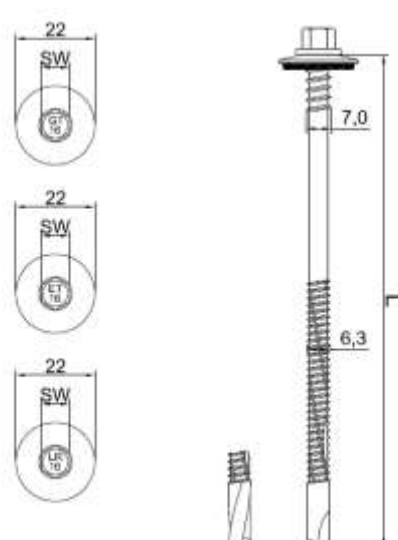
Self-drilling screw GT16SP Z29 6,3/7,0 x L
with hexagon head and carbon steel sealing washer $\geq \text{Ø}29$

Annex 22
of European
Technical Assessment
ETA-13/0199

<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating</p> <p>Washer: metallic washer made of aluminum with EPDM sealing ring</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346</p>	
<p>Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 16$ mm</p>	
<p>Timber substructures no performance assessed</p>	

Component II: t_{II} in [mm]		4,00	5,00	6,00	8,00	10,00	12,00	14,00	$\geq 15,00$	
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		

<p>Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP</p>	<p>Annex 23 of European Technical Assessment ETA-13/0199</p>
<p>Self-drilling screw GTR16SP A19 6,3/7,0 x L with hexagon head and aluminum sealing washer $\geq \varnothing 19$</p>	

<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating</p> <p>Washer: metallic washer made of aluminum with EPDM sealing ring</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346</p>	
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	$\geq 15,00$	
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 $\geq \text{Ø}22$

Annex 24
of European
Technical Assessment
ETA-13/0199

<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating</p> <p>Washer: metallic washer made of aluminum with EPDM sealing ring</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346</p>	
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	$\geq 15,00$	
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 $\geq \text{Ø}29$

Annex 25
of European
Technical Assessment
ETA-13/0199

<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating</p> <p>Washer: metallic washer made of stainless steel with EPDM sealing ring</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346</p>	
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	
		0,55	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	
		0,75	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	
		1,00	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	

<p>Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP</p>	<p>Annex 26 of European Technical Assessment ETA-13/0199</p>
<p>Self-drilling screw GTR16SP S19 6,3/7,0 x L with hexagon head and stainless steel sealing washer ≥ Ø19</p>	

<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating</p> <p>Washer: metallic washer made of stainless steel with EPDM sealing ring</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346</p>	
<p>Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 16$ mm</p>	
<p>Timber substructures no performance assessed</p>	

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
		0,55	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
		0,75	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
		1,00	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
		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	1	1	1	1	1	1	
	40	1	1	1	1	1	1	1	
	50	1	1	1	1	1	1	1	
	60	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	
	80	2,5	2,5	2,5	2,5	2,5	2,5	2,5	
	90	4	4	4	4	4	4	4	
	100	4	4	4	4	4	4	4	
	120	4	4	4	4	4	4	4	
	≥ 140	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

Annex 27
of European
Technical Assessment
ETA-13/0199

<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating</p> <p>Washer: metallic washer made of stainless steel with EPDM sealing ring</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346</p>	
Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 16$ mm	
Timber substructures no performance assessed	

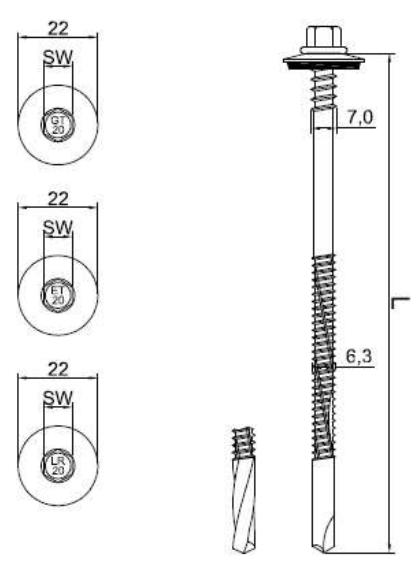
Component II: t_{II} in [mm]		4,00	5,00	6,00	8,00	10,00	12,00	14,00	$\geq 15,00$
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,55	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,63	2,35	2,35	2,35	2,35	2,35	2,35	2,35
		0,75	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		0,88	2,50	2,50	2,50	2,50	2,50	2,50	2,50
		1,00	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
		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	1	1	1	1	1	1	
	40	1	1	1	1	1	1	1	
	50	1	1	1	1	1	1	1	
	60	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	
	80	2,5	2,5	2,5	2,5	2,5	2,5	2,5	
	90	4	4	4	4	4	4	4	
	100	4	4	4	4	4	4	4	
	≥ 140	4	4	4	4	4	4	4	

<p>Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP</p>	<p>Annex 28 of European Technical Assessment ETA-13/0199</p>
<p>Self-drilling screw GTR16SP S29 6,3/7,0 x L with hexagon head and stainless steel sealing washer $\geq \varnothing 29$</p>	

<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered and galvanized (12 µm)</p> <p>Washer: metallic washer made of coated carbon steel with EPDM sealing ring</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346</p> <hr/> <p>Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 20$ mm</p> <hr/> <p>Timber substructures no performance assessed</p>	
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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_{N1} or t_{N2} in [mm]	V _{R,k} in [kN]	0,50	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
		0,63	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
		0,88	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
	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	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	Annex 29 of European Technical Assessment ETA-13/0199
Self-drilling screw GT20SP Z19 6,3/7,0 x L with hexagon head and carbon steel sealing washer ≥ Ø19	

<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered and galvanized (12 µm)</p> <p>Washer: metallic washer made of coated carbon steel with EPDM sealing ring</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346</p>	
Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 20$ mm	
<p>Timber substructures</p> <p>no performance assessed</p>	

Component II: t_{II} in [mm]		4,00	5,00	6,00	8,00	10,00	12,00	14,00	$\geq 15,00$
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
		0,55	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
		0,75	2,50	2,50	2,50	1,96	1,96	1,96	1,96
		0,88	2,50	2,50	2,50	1,96	1,96	1,96	1,96
		1,00	2,50	2,50	2,50	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
		0,55	3,65	3,65	3,65	3,43	3,43	3,43	3,43
		0,63	4,60	4,60	4,60	4,32	4,32	4,32	4,32
		0,75	5,45	5,45	5,45	6,10	6,10	6,10	6,10
		0,88	5,45	5,45	5,45	6,10	6,10	6,10	6,10
		1,00	5,45	5,45	5,45	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	
	40	1	1	1	1	1	1	1	
	50	1	1	1	1	1	1	1	
	60	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	
	80	2,5	2,5	2,5	2,5	2,5	2,5	2,5	
	90	4	4	4	4	4	4	4	
	100	4	4	4	4	4	4	4	
	120	4	4	4	4	4	4	4	
	≥ 140	4	4	4	4	4	4	4	

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

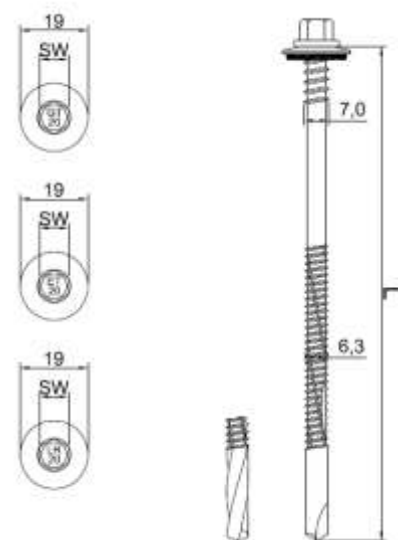
Self-drilling screw GT20SP Z22 6,3/7,0 x L
with hexagon head and carbon steel sealing washer $\geq \text{Ø}22$

Annex 30
of European
Technical Assessment
ETA-13/0199

<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered and galvanized (12 µm)</p> <p>Washer: metallic washer made of coated carbon steel with EPDM sealing ring</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346</p>	
<p>Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 20$ mm</p>	
<p>Timber substructures no performance assessed</p>	

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
		0,55	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
		0,75	2,50	2,50	2,50	1,96	1,96	1,96	1,96
		0,88	2,50	2,50	2,50	1,96	1,96	1,96	1,96
		1,00	2,50	2,50	2,50	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
		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	1	1	1	1	1	1	
	40	1	1	1	1	1	1	1	
	50	1	1	1	1	1	1	1	
	60	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	
	80	2,5	2,5	2,5	2,5	2,5	2,5	2,5	
	90	4	4	4	4	4	4	4	
	100	4	4	4	4	4	4	4	
	120	4	4	4	4	4	4	4	
	≥ 140	4	4	4	4	4	4	4	

<p>Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP</p>	<p>Annex 31 of European Technical Assessment ETA-13/0199</p>
<p>Self-drilling screw GT20SP Z29 6,3/7,0 x L with hexagon head and carbon steel sealing washer ≥ Ø29</p>	

<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating</p> <p>Washer: metallic washer made of aluminum with EPDM sealing ring</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346</p>	
Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 20$ mm	
<p>Timber substructures</p> <p>no performance assessed</p>	

Component II: t_{II} in [mm]		4,00	5,00	6,00	8,00	10,00	12,00	14,00	$\geq 15,00$	
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 $\geq \text{Ø}19$

Annex 32
of European
Technical Assessment
ETA-13/0199

<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating</p> <p>Washer: metallic washer made of aluminum with EPDM sealing ring</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346</p>	
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	$\geq 15,00$	
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	
		0,55	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	
		0,75	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	
	$N_{R,k}$ 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
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 $\geq \text{Ø}22$

Annex 33
of European
Technical Assessment
ETA-13/0199

<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating</p> <p>Washer: metallic washer made of aluminum with EPDM sealing ring</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346</p>	
<p>Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 20$ mm</p>	
<p>Timber substructures</p> <p>no performance assessed</p>	

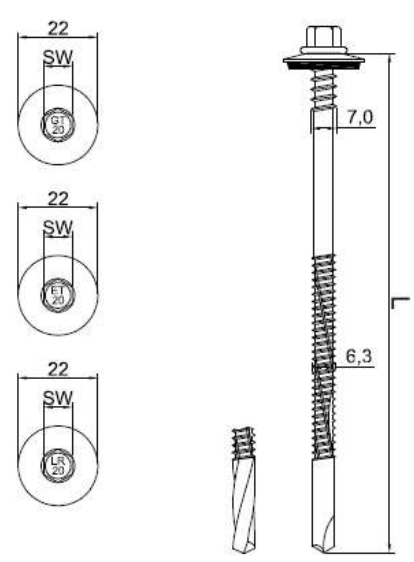
Component II: t_{II} in [mm]		4,00	5,00	6,00	8,00	10,00	12,00	14,00	$\geq 15,00$	
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	V _{R,k} in [kN]	0,50	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,55	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
		0,63	2,35	2,35	2,35	2,35	2,35	2,35	2,35	2,35
		0,75	2,50	2,50	2,50	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	

<p>Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP</p>	<p>Annex 34 of European Technical Assessment ETA-13/0199</p>
<p>Self-drilling screw GTR20SP A29 6,3/7,0 x L with hexagon head and aluminum sealing washer $\geq \varnothing 29$</p>	

<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating</p> <p>Washer: metallic washer made of stainless steel with EPDM sealing ring</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346</p>	
<p>Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 20$ mm</p>	
<p>Timber substructures no performance assessed</p>	

Component II: t_{II} in [mm]		4,00	5,00	6,00	8,00	10,00	12,00	14,00	$\geq 15,00$
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
		0,55	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
		0,75	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
		1,00	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
		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	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

<p>Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP</p>	<p>Annex 35 of European Technical Assessment ETA-13/0199</p>
<p>Self-drilling screw GTR20SP S19 6,3/7,0 x L with hexagon head and stainless steel sealing washer $\geq \text{Ø}19$</p>	

<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating</p> <p>Washer: metallic washer made of stainless steel with EPDM sealing ring</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346</p>	
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	$\geq 15,00$	
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	
		0,55	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	
		0,75	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	
		1,00	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
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**

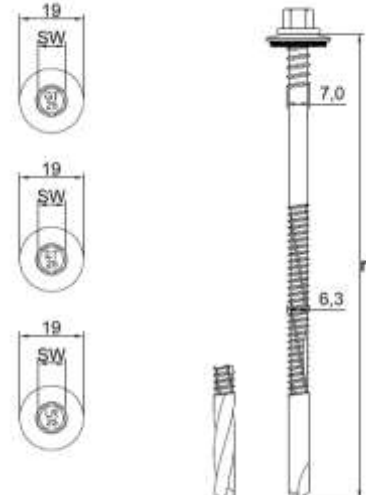
Self-drilling screw GTR20SP S22 6,3/7,0 x L
with hexagon head and stainless steel sealing washer $\geq \text{Ø}22$

Annex 36
of European
Technical Assessment
ETA-13/0199

<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating</p> <p>Washer: metallic washer made of stainless steel with EPDM sealing ring</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346</p>	
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	$\geq 15,00$	
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	
		0,55	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	
		0,75	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	
	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
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	Annex 37 of European Technical Assessment ETA-13/0199
Self-drilling screw GTR20SP S29 6,3/7,0 x L with hexagon head and stainless steel sealing washer $\geq \varnothing 29$	

<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered, galvanized (12 µm)</p> <p>Washer: metallic washer made of carbon steel with EPDM sealing ring</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346</p>	
Drilling capacity: $\Sigma(t_{N2} + t_I) \leq 25$ mm	
<p>Timber substructures</p> <p>no performance assessed</p>	

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

Annex 38
of European
Technical Assessment
ETA-13/0199

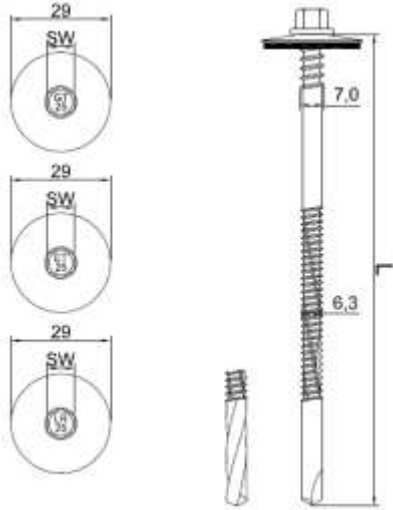
<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered, galvanized (12 µm)</p> <p>Washer: metallic washer made of carbon steel with EPDM sealing ring</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346</p>	
<p>Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 25$ mm</p>	
<p>Timber substructures no performance assessed</p>	

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_{N1} or t_{N2} in [mm]	$V_{R,k}$ in [kN]	0,50	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
		0,63	2,35	2,35	2,35	1,69	1,69	1,69	1,69
		0,75	2,50	2,50	2,50	1,96	1,96	1,96	1,96
		0,88	2,50	2,50	2,50	1,96	1,96	1,96	1,96
		1,00	2,50	2,50	2,50	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
		0,55	3,65	3,65	3,65	3,43	3,43	3,43	3,43
		0,63	4,60	4,60	4,60	4,32	4,32	4,32	4,32
		0,75	5,45	5,45	5,45	6,10	6,10	6,10	6,10
		0,88	5,45	5,45	5,45	6,10	6,10	6,10	6,10
		1,00	5,45	5,45	5,45	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	
	40	1	1	1	1	1	1	1	
	50	1	1	1	1	1	1	1	
	60	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	
	80	2,5	2,5	2,5	2,5	2,5	2,5	2,5	
	90	4	4	4	4	4	4	4	
	100	4	4	4	4	4	4	4	
	120	4	4	4	4	4	4	4	
	≥ 140	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

Annex 39
of European
Technical Assessment
ETA-13/0199

<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered, galvanized ($\geq 12 \mu\text{m}$)</p> <p>Washer: metallic washer made of carbon steel with EPDM sealing ring</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346</p>	
Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 25 \text{ mm}$	
<p>Timber substructures</p> <p>no performance assessed</p>	

Component II: t_{II} in [mm]		4,00	5,00	6,00	8,00	10,00	12,00	14,00	$\geq 15,00$
Component I: $t_{N1,1}$ or $t_{N1,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	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
		0,63	2,35	2,35	2,35	1,69	1,69	1,69	1,69
		0,75	2,50	2,50	2,50	1,96	1,96	1,96	1,96
		0,88	2,50	2,50	2,50	1,96	1,96	1,96	1,96
		1,00	2,50	2,50	2,50	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
		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	1	1	1	1	1	1	
	40	1	1	1	1	1	1	1	
	50	1	1	1	1	1	1	1	
	60	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	
	80	2,5	2,5	2,5	2,5	2,5	2,5	2,5	
	90	4	4	4	4	4	4	4	
	100	4	4	4	4	4	4	4	
	120	4	4	4	4	4	4	4	
≥ 140	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 $\geq \text{Ø}29$

Annex 40
of European
Technical Assessment
ETA-13/0199

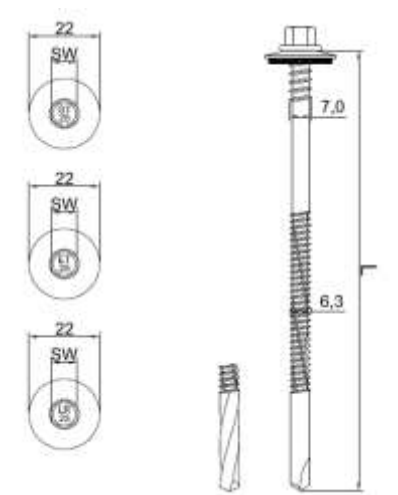
<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating</p> <p>Washer: metallic washer made of aluminum with EPDM sealing ring</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: S235 – EN 10025-1 S280GD, S320GD or S350GD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

Component II: t_{II} in [mm]		4,00	5,00	6,00	8,00	10,00	12,00	14,00	$\geq 15,00$	
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 $\geq \text{Ø}19$

Annex 41
of European
Technical Assessment
ETA-13/0199

<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating</p> <p>Washer: metallic washer made of aluminum with EPDM sealing ring</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346</p>	
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	$\geq 15,00$	
Component I: t_{N1} or t_{N2} 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 $\geq \text{Ø}22$

Annex 42
of European
Technical Assessment
ETA-13/0199

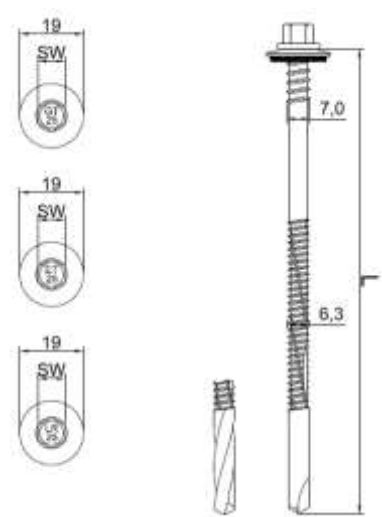
<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating</p> <p>Washer: metallic washer made of aluminum with EPDM sealing ring</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346</p>	
Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 25 \text{ mm}$	
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_{N1} or t_{N2} in [mm]	V _{R,k} in [kN]	0,50	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	
		0,63	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	
		0,88	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	
	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

Annex 43
of European
Technical Assessment
ETA-13/0199

<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating</p> <p>Washer: metallic washer made of stainless steel with EPDM sealing ring</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346</p>	
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	$\geq 15,00$	
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**

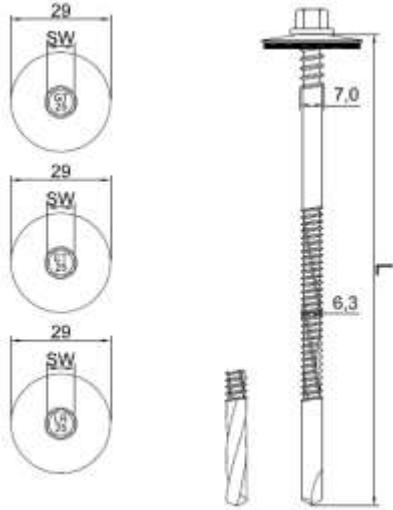
Self-drilling screw GTR25SP S19 6,3/7,0 x L
with hexagon head and stainless steel sealing washer $\geq \varnothing 19$

Annex 44
of European
Technical Assessment
ETA-13/0199

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

Component II: t_{II} in [mm]		4,00	5,00	6,00	8,00	10,00	12,00	14,00	$\geq 15,00$	
Component I: t_{N1} or t_{N2} 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	

<p>Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP</p>	<p>Annex 45 of European Technical Assessment ETA-13/0199</p>
<p>Self-drilling screw GTR25SP S22 6,3/7,0 x L with hexagon head and stainless steel sealing washer $\geq \text{Ø}22$</p>	

<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating</p> <p>Washer: metallic washer made of stainless steel with EPDM sealing ring</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346</p>	
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_{N1} or t_{N2} in [mm]	$V_{R,k}$ in [kN]	0,50	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
		0,63	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
		0,88	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
	$N_{R,k}$ 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	1	1	1	1	1	1	
	40	1	1	1	1	1	1	1	
	50	1	1	1	1	1	1	1	
	60	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	
	80	2,5	2,5	2,5	2,5	2,5	2,5	2,5	
	90	4	4	4	4	4	4	4	
	100	4	4	4	4	4	4	4	
	120	4	4	4	4	4	4	4	
	≥ 140	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 $\geq \varnothing 29$

Annex 46
of European
Technical Assessment
ETA-13/0199

<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating</p> <p>Washer: metallic washer made of aluminum with EPDM sealing ring</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: structural timber – EN 14081</p>	
Drilling capacity: -	
<p>Timber substructure</p> <p>For timber substructures performance assessed with:</p> <p>$M_{y,Rk} = 9,280 \text{ Nm}$</p> <p>$f_{ax,k} = 21,691 \text{ N/mm}^2$ for $l_{ef} \geq 30 \text{ mm}$</p> <p>$f_{ax,k} = 17,073 \text{ N/mm}^2$ for $l_{ef} \geq 40 \text{ mm}$</p>	

Component II: wood class \geq C24		Effective length l_{ef} [mm]			
		≥ 30	≥ 40		
Component I: $t_{N,1}$ or $t_{N,2}$ [mm]	$V_{R,k}$ in [kN]	0,50	1,74	Failure of component I	
		0,55	1,74		
		0,63	2,34		
		0,75	2,45		
		0,88	2,45		
		1,00	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	
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		
	≥ 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 $\geq \text{Ø}19$

Annex 47
of European
Technical Assessment
ETA-13/0199

<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating</p> <p>Washer: metallic washer made of aluminum with EPDM sealing ring</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: structural timber – EN 14081</p>	
Drilling capacity: -	
<p>Timber substructure</p> <p>For timber substructures performance assessed with:</p> <p>$M_{y,Rk} = 9,280 \text{ Nm}$</p> <p>$f_{ax,k} = 21,691 \text{ N/mm}^2$ for $l_{ef} \geq 30 \text{ mm}$</p> <p>$f_{ax,k} = 17,073 \text{ N/mm}^2$ for $l_{ef} \geq 40 \text{ mm}$</p>	

Component II: wood class \geq C24		Effective length 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	Failure of component I	
		0,55	1,74		
		0,63	2,34		
		0,75	2,45		
		0,88	2,45		
		1,00	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	
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			

<p>Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP</p>	<p>Annex 48 of European Technical Assessment ETA-13/0199</p>
<p>Self-tapping screw GTRWSP A22 6,4/7,0 x L with hexagon head and aluminum sealing washer $\geq \text{Ø}22$</p>	

<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating</p> <p>Washer: metallic washer made of aluminum with EPDM sealing ring</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: structural timber – EN 14081</p>	
Drilling capacity: -	
<p>Timber substructure</p> <p>For timber substructures performance assessed with:</p> <p>$M_{y,Rk} = 9,280 \text{ Nm}$</p> <p>$f_{ax,k} = 21,691 \text{ N/mm}^2$ for $l_{ef} \geq 30 \text{ mm}$</p> <p>$f_{ax,k} = 17,073 \text{ N/mm}^2$ for $l_{ef} \geq 40 \text{ mm}$</p>	

Component II: wood class \geq C24		Effective length l_{ef} [mm]		
		≥ 30	≥ 40	
Component I: $t_{N,1}$ or $t_{N,2}$ [mm]	$V_{R,k}$ in [kN]	0,50	1,74	Failure of component I
		0,55	1,74	
		0,63	2,34	
		0,75	2,45	
		0,88	2,45	
		1,00	2,45	
	$N_{R,k}$ in [kN]	0,50	2,45	Failure of component I
		0,55	2,45	
		0,63	2,45	
		0,75	2,45	
		0,88	2,45	
		1,00	2,45	
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	

<p>Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP</p>	<p>Annex 49 of European Technical Assessment ETA-13/0199</p>
<p>Self-tapping screw GTRWSP A29 6,4/7,0 x L with hexagon head and aluminum sealing washer $\geq \text{Ø}29$</p>	

<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating</p> <p>Washer: metallic washer made of stainless steel with EPDM sealing ring</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: structural timber – EN 14081</p>	
Drilling capacity: -	
<p>Timber substructure</p> <p>For timber substructures performance assessed with:</p> <p>$M_{y,Rk} = 9,280 \text{ Nm}$ $f_{ax,k} = 21,691 \text{ N/mm}^2$ for $l_{ef} \geq 30 \text{ mm}$ $f_{ax,k} = 17,073 \text{ N/mm}^2$ for $l_{ef} \geq 40 \text{ mm}$</p>	

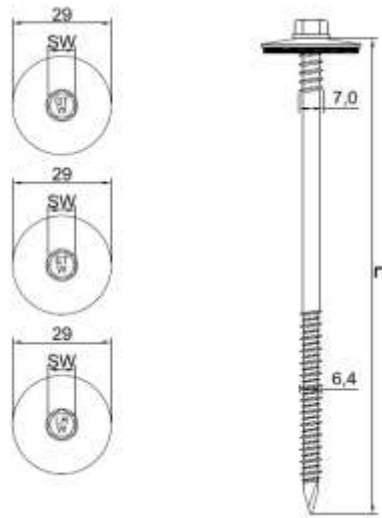
Component II: wood class \geq C24		Effective length l_{ef} [mm]			
		≥ 30	≥ 40		
Component I: $t_{N,1}$ or $t_{N,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,23	Failure of component I	
		0,55	1,23		
		0,63	1,63		
		0,75	1,87		
		0,88	1,87		
		1,00	1,87		
	$N_{R,k}$ in [kN]	0,50	3,43*	3,43*	* Failure of component I ** Failure of component II
		0,55	3,43*	3,43*	
		0,63	4,16**	4,32*	
		0,75	4,16**	4,37**	
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		

<p>Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP</p>	<p>Annex 50 of European Technical Assessment ETA-13/0199</p>
<p>Self-tapping screw GTRWSP S19 6,4/7,0 x L with hexagon head and stainless steel sealing washer $\geq \text{Ø}19$</p>	

<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating</p> <p>Washer: metallic washer made of stainless steel with EPDM sealing ring</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: structural timber – EN 14081</p>	
<p>Drilling capacity: -</p>	
<p>Timber substructure</p> <p>For timber substructures performance assessed with:</p> <p>$M_{y,Rk} = 9,280 \text{ Nm}$</p> <p>$f_{ax,k} = 21,691 \text{ N/mm}^2$ for $l_{ef} \geq 30 \text{ mm}$</p> <p>$f_{ax,k} = 17,073 \text{ N/mm}^2$ for $l_{ef} \geq 40 \text{ mm}$</p>	

Component II: wood class \geq C24		Effective length 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	Failure of component I	
		0,55	1,23		
		0,63	1,63		
		0,75	1,87		
		0,88	1,87		
		1,00	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**	
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		

<p>Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP</p>	<p>Annex 51 of European Technical Assessment ETA-13/0199</p>
<p>Self-tapping screw GTRWSP S22 6,4/7,0 x L with hexagon head and stainless steel sealing washer $\geq \text{Ø}22$</p>	

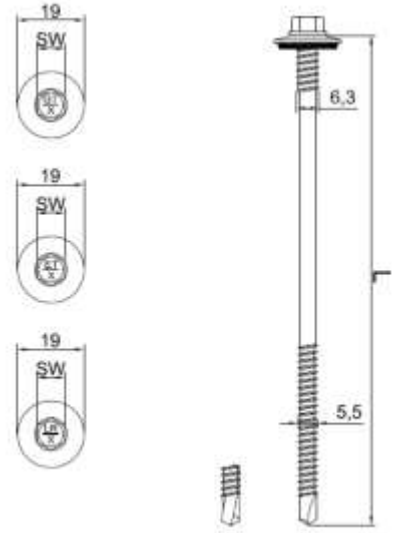
<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating</p> <p>Washer: metallic washer made of stainless steel with EPDM sealing ring</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: structural timber – EN 14081</p>	
Drilling capacity: -	
<p>Timber substructure</p> <p>For timber substructures performance assessed with:</p> <p>$M_{y,Rk} = 9,280 \text{ Nm}$</p> <p>$f_{ax,k} = 21,691 \text{ N/mm}^2$ for $l_{ef} \geq 30 \text{ mm}$</p> <p>$f_{ax,k} = 17,073 \text{ N/mm}^2$ for $l_{ef} \geq 40 \text{ mm}$</p>	

Component II: wood class \geq C24		Effective length 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	Failure of component I	
		0,55	1,23		
		0,63	1,63		
		0,75	1,87		
		0,88	1,87		
		1,00	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**

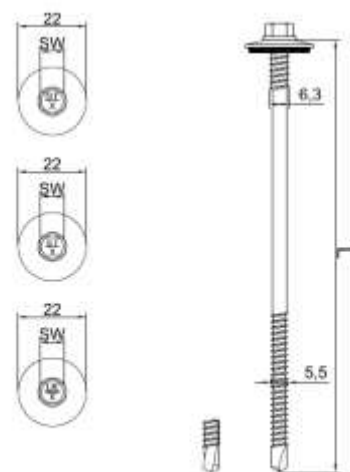
Self-tapping screw GTRWSP S29 6,4/7,0 x L
with hexagon head and stainless steel sealing washer $\geq \text{Ø}29$

Annex 52
of European
Technical Assessment
ETA-13/0199

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

Component II: t_{II} in [mm]		1,00	1,50	2,00	2,50	3,00	4,00	$\geq 5,00$	
Component I: t_{N1} or t_{N2} in [mm]	$V_{R,k}$ in [kN]	0,50	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	
		0,63	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	
		0,88	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	
	$N_{R,k}$ 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	

<p>Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP</p>	<p>Annex 53</p> <p>of European Technical Assessment ETA-13/0199</p>
<p>Self-drilling screw GTX6SP S19 5,5/6,3 x L with hexagon head and stainless steel sealing washer $\geq \text{Ø}19$</p>	

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

Component II: t_{II} in [mm]		1,00	1,50	2,00	2,50	3,00	4,00	$\geq 5,00$	
Component I: $t_{N1,1}$ or t_{N2} 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**

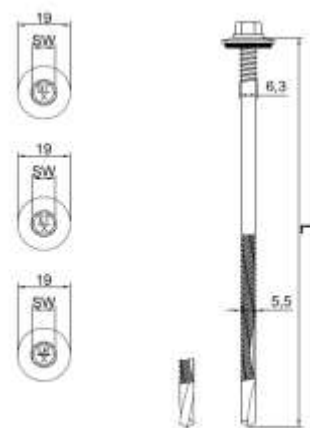
Self-drilling screw GTX6SP S22 5,5/6,3 x L
with hexagon head and stainless steel sealing washer $\geq \text{Ø}22$

Annex 54
of European
Technical Assessment
ETA-13/0199

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

Component II: t_{II} in [mm]		1,00	1,50	2,00	2,50	3,00	4,00	$\geq 5,00$	
Component I: t_{N1} or t_{N2} in [mm]	V _{R,k} in [kN]	0,50	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	
		0,63	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	
		0,88	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	
	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	

<p>Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP</p>	<p>Annex 55</p> <p>of European Technical Assessment ETA-13/0199</p>
<p>Self-drilling screw GTX6SP S29 5,5/6,3 x L with hexagon head and stainless steel sealing washer $\geq \text{Ø}29$</p>	

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

Component II: t_{II} in [mm]		3,00	4,00	5,00	6,00	8,00	10,00	$\geq 11,00$	
Component I: t_{N1} or t_{N2} 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
max. head displacement u depending on the sandwich panel thickness in [mm]	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	
	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**

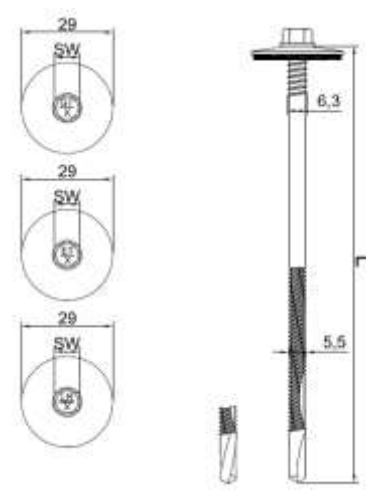
Self-drilling screw GTX12SP S19 5,5/6,3 x L
with hexagon head and stainless steel sealing washer $\geq \text{Ø}19$

Annex 56
of European
Technical Assessment
ETA-13/0199

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

Component II: t_{II} in [mm]		3,00	4,00	5,00	6,00	8,00	10,00	$\geq 11,00$
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
		0,55	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
		0,75	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
		1,00	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
		0,55	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
		0,75	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
		1,00	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	
	40	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	
	60	4	4	4	4	4	4	
	70	4	4	4	4	4	4	
	80	4	4	4	4	4	4	
	90	6	6	6	6	6	6	
	100	6	6	6	6	6	6	
	120	6	6	6	6	6	6	
	≥ 140	6	6	6	6	6	6	

<p>Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP</p>	<p>Annex 57 of European Technical Assessment ETA-13/0199</p>
<p>Self-drilling screw GTX12SP S22 5,5/6,3 x L with hexagon head and stainless steel sealing washer $\geq \varnothing 22$</p>	

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

Component II: t_{II} in [mm]		3,00	4,00	5,00	6,00	8,00	10,00	$\geq 11,00$	
Component I: t_{N1} or t_{N2} 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
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**

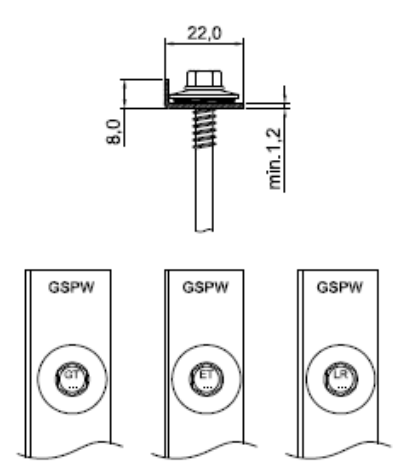
Self-drilling screw GTX12SP S29 5,5/6,3 x L
with hexagon head and stainless steel sealing washer $\geq \varnothing 29$

Annex 58
of European
Technical Assessment
ETA-13/0199

<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered and galvanized (12 µm), with or without additional ceramic coating</p> <p>Washer: metallic washer made of coated carbon steel, aluminum or stainless steel, with EPDM sealing ring</p> <p>Linear washer: coated carbon steel, or stainless steel</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346</p>	
Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 6$ mm	
<p>Timber substructures</p> <p>no performance assessed</p>	

Component II: t_{II} in [mm]		1,00	1,50	2,00	2,50	3,00	4,00	$\geq 5,00$	
Component I: t_{N1} or t_{N2} in [mm]	$V_{R,K}$ in [kN]	0,50	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	
		0,63	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	
		0,88	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	
	$N_{R,K}$ 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	
	≥ 140	23	23	23	23	10	10	10	

Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP	Annex 59 of European Technical Assessment ETA-13/0199
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 $\geq \text{Ø}19$ and with GSPW washer	

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: 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	$\geq 11,00$
Component I: t_{N1} or t_{N2} in [mm]	$V_{R,k}$ in [kN]	0,50	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
		0,63	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
		0,88	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
	$N_{R,k}$ in [kN]	0,50	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
		0,63	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
		0,88	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
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	
	40	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	
	60	4	4	4	4	4	4	
	70	4	4	4	4	4	4	
	80	4	4	4	4	4	4	
	90	6	6	6	6	6	6	
	100	6	6	6	6	6	6	
	120	6	6	6	6	6	6	
	≥ 140	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 $\geq \text{Ø}19$ and with GSPW washer

Annex 60

of European
Technical Assessment
ETA-13/0199

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

Component II: t_{II} in [mm]		4,00	5,00	6,00	8,00	10,00	12,00	14,00	$\geq 15,00$	
Component I: t_{N1} or t_{N2} 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	

<p>Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP</p>	<p>Annex 61 of European Technical Assessment ETA-13/0199</p>
<p>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 $\geq \text{Ø}19$ and with GSPW washer</p>	

<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered and galvanized (12 µm), with or without additional ceramic coating</p> <p>Washer: metallic washer made of coated carbon steel, aluminum or stainless steel, with EPDM sealing ring</p> <p>Linear washer: coated carbon steel or stainless steel</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346</p>	
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	
		0,55	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	
		0,75	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	
		1,00	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	

<p>Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP</p>	<p>Annex 62 of European Technical Assessment ETA-13/0199</p>
<p>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 and with GSPW washer</p>	

<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered and galvanized (12 µm), with or without additional ceramic coating</p> <p>Washer: metallic washer made of coated carbon steel, aluminum or stainless steel, with EPDM sealing ring</p> <p>Linear washer: coated carbon steel or stainless steel</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346</p> <p>Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 25$ mm</p> <p>Timber substructures no performance assessed</p>	
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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	
		0,55	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	
		0,75	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	
		1,00	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	Annex 63 of European Technical Assessment ETA-13/0199
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 $\geq \varnothing 19$ and with GSPW washer	

<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating</p> <p>Washer: metallic washer made of aluminum or stainless steel, with EPDM sealing ring</p> <p>Linear washer: coated carbon steel or stainless steel</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: structural timber – EN 14081</p> <p>Drilling capacity: -</p> <p>Timber substructure</p> <p>For timber substructures performance assessed with:</p> <p>$M_{y,Rk} = 9,280 \text{ Nm}$</p> <p>$f_{ax,k} = 21,691 \text{ N/mm}^2$ for $l_{ef} \geq 30 \text{ mm}$</p> <p>$f_{ax,k} = 17,073 \text{ N/mm}^2$ for $l_{ef} \geq 40 \text{ mm}$</p>	
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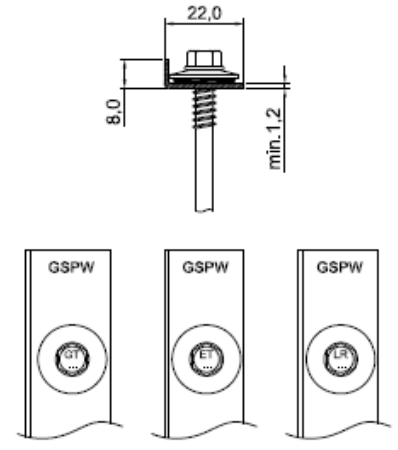
Component II: wood class \geq C24		Effective length l_{ef} [mm]		
		≥ 30	≥ 40	
Component I: $t_{N,1}$ or $t_{N,2}$ [mm]	$V_{R,k}$ in [kN]	0,50	1,23	Failure of component I
		0,55	1,23	
		0,63	1,63	
		0,75	1,87	
		0,88	1,87	
		1,00	1,87	
	$N_{R,k}$ in [kN]	0,50	4,16	Failure of component II
		0,55	4,16	
		0,63	4,16	
		0,75	4,16	
max. head displacement u depending on sandwich panel thickness [mm]	30	1,0		
	40	1,0		
	50	1,0		
	60	1,5		
	70	1,5		
	80	1,5		
	90	2,0		
	100	2,0		
	120	2,0		
	≥ 140	2,0		

<p>Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP</p>	<p>Annex 64 of European Technical Assessment ETA-13/0199</p>
<p>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 $\geq \text{Ø}19$ and with GSPW washer</p>	

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

Component II: t_{II} in [mm]		1,00	1,50	2,00	2,50	3,00	4,00	$\geq 5,00$	
Component I: t_{N1} or t_{N2} in [mm]	$V_{R,k}$ in [kN]	0,50	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	
		0,63	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	
		0,88	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	
	$N_{R,k}$ 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	

<p>Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP</p>	<p>Annex 65</p> <p>of European Technical Assessment ETA-13/0199</p>
<p>Self-drilling screws GTX6SP S19 5,5/6,3 x L, with hexagon head and aluminum or stainless steel sealing washer $\geq \varnothing 19$ and with GSPW washer</p>	

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

Component II: t_{II} in [mm]		3,00	4,00	5,00	6,00	8,00	10,00	$\geq 11,00$	
Component I: t_{N1} or t_{N2} 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**

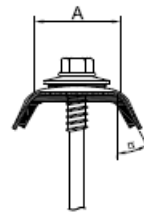
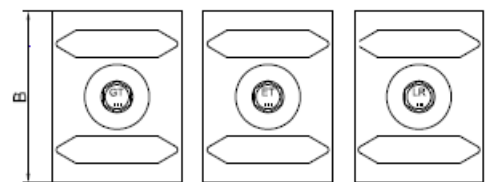
Self-drilling screws GTX12SP S19 5,5/6,3 x L, with hexagon head and aluminum or stainless steel sealing washer $\geq \text{Ø}19$ and with GSPW washer

Annex 66
of European
Technical Assessment
ETA-13/0199

<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered and galvanized (12 µm), with or without additional ceramic coating</p> <p>Washer: metallic washer made of coated carbon steel, aluminum or stainless steel, with EPDM sealing ring</p> <p>Saddle washer: coated carbon steel, aluminum or stainless steel</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346</p>	
<p>Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 6 \text{ mm}$</p>	
<p>Timber substructures no performance assessed</p>	

Component II: t_{II} in [mm]		1,00	1,50	2,00	2,50	3,00	4,00	$\geq 5,00$	
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		

<p>Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP</p>	<p>Annex 67</p>
<p>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 $\geq \text{Ø}19$ and with saddle washer</p>	<p>of European Technical Assessment ETA-13/0199</p>

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

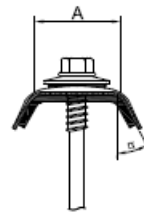
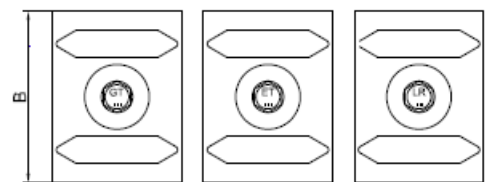
Component II: t_{II} in [mm]		3,00	4,00	5,00	6,00	8,00	10,00	≥ 11,00	
Component I: t_{N1} or t_{N2} in [mm]	V _{R,k} in [kN]	0,50	1,40	1,40	1,40	1,40	1,40	1,40	
		0,55	1,40	1,40	1,40	1,40	1,40	1,40	
		0,63	1,60	1,60	1,60	1,60	1,60	1,60	
		0,75	2,10	2,10	2,10	2,10	2,10	2,10	
		0,88	2,10	2,10	2,10	2,10	2,10	2,10	
		1,00	2,10	2,10	2,10	2,10	2,10	2,10	
	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	

<p>Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP</p>	<p>Annex 68</p>
<p>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 and with saddle washer</p>	<p>of European Technical Assessment ETA-13/0199</p>

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

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_{N1} or t_{N2} in [mm]	V _{R,k} in [kN]	0,50	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	
		0,63	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	
		0,88	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	
	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	

<p>Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP</p>	<p>Annex 69</p> <p>of European Technical Assessment ETA-13/0199</p>
<p>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 and with saddle washer</p>	

<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered and galvanized (12 µm), with or without additional ceramic coating</p> <p>Washer: metallic washer made of coated carbon steel, aluminum or stainless steel, with EPDM sealing ring</p> <p>Saddle washer: coated carbon steel, aluminum or stainless steel</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346</p>	
Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 20$ mm	
<p>Timber substructures</p> <p>no performance assessed</p>	

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_{N1} or t_{N2} in [mm]	V _{R,k} in [kN]	0,50	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	
		0,63	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	
		0,88	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	
	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 and with saddle washer

Annex 70
of European
Technical Assessment
ETA-13/0199

<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered and galvanized (12 µm), with or without additional ceramic coating</p> <p>Washer: metallic washer made of coated carbon steel, aluminum or stainless steel, with EPDM sealing ring</p> <p>Saddle washer: coated carbon steel, aluminum or stainless steel</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: S235 – EN 10025-1 S280GD, S320GD or S350GD – EN 10346</p> <p>Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 25$ mm</p> <p>Timber substructures no performance assessed</p>	
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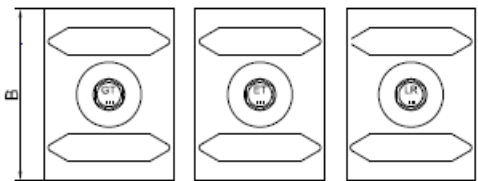
Component II: t_{II} in [mm]		4,00	5,00	6,00	8,00	10,00	12,00	14,00	≥ 15,00	
Component I: t_{N1} or t_{N2} in [mm]	V _{R,k} in [kN]	0,50	1,29	1,29	1,29	1,29	1,29	1,29	1,29	
		0,55	1,29	1,29	1,29	1,29	1,29	1,29	1,29	
		0,63	2,35	2,35	2,35	2,35	2,35	2,35	2,35	
		0,75	2,50	2,50	2,50	2,50	2,50	2,50	2,50	
		0,88	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	
	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	Annex 71 of European Technical Assessment ETA-13/0199
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 and with saddle washer	

<p>Materials</p> <p>Fastener: carbon steel – SAE 1022, quenched, tempered, galvanized, additional ceramic coating</p> <p>Washer: metallic washer made of aluminum or stainless steel, with EPDM sealing ring</p> <p>Saddle washer: coated carbon steel, aluminum or stainless steel</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: structural timber – EN 14081</p>	
Drilling capacity: -	
<p>Timber substructure</p> <p>For timber substructures performance assessed with:</p> <p>$M_{y,Rk} = 9,280 \text{ Nm}$</p> <p>$f_{ax,k} = 21,691 \text{ N/mm}^2$ for $l_{ef} \geq 30 \text{ mm}$</p> <p>$f_{ax,k} = 17,073 \text{ N/mm}^2$ for $l_{ef} \geq 40 \text{ mm}$</p>	


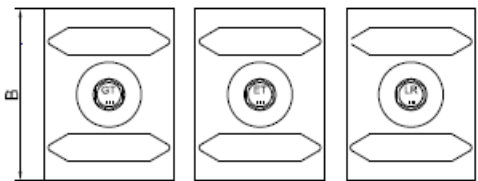
Component II: wood class $\geq \text{C24}$		Effective length l_{ef} [mm]		
		≥ 30	≥ 40	
Component I: $t_{n,1}$ or $t_{n,2}$ in [mm]	$V_{R,k}$ in [kN]	0,50	1,23	Failure of component I
		0,55	1,23	
		0,63	1,63	
		0,75	1,87	
		0,88	1,87	
		1,00	1,87	
	$N_{R,k}$ in [kN]	0,50	4,16	4,37
0,55		4,16	4,37	
0,63		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		

<p>Fastening screws for sandwich panels GTSP, GTRSP, GTRWSP and GTXSP</p>	<p>Annex 72 of European Technical Assessment ETA-13/0199</p>
<p>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 $\geq \text{Ø}19$ and with saddle washer</p>	

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

Component II: t_{II} in [mm]		1,00	1,50	2,00	2,50	3,00	4,00	$\geq 5,00$	
Component I: t_{N1} or t_{N2} 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	Annex 73 of European Technical Assessment ETA-13/0199
Self-drilling screws GTX6SP S19 5,5/6,3 x L, with hexagon head and aluminum or stainless steel sealing washer $\geq \text{Ø}19$ and with saddle washer	

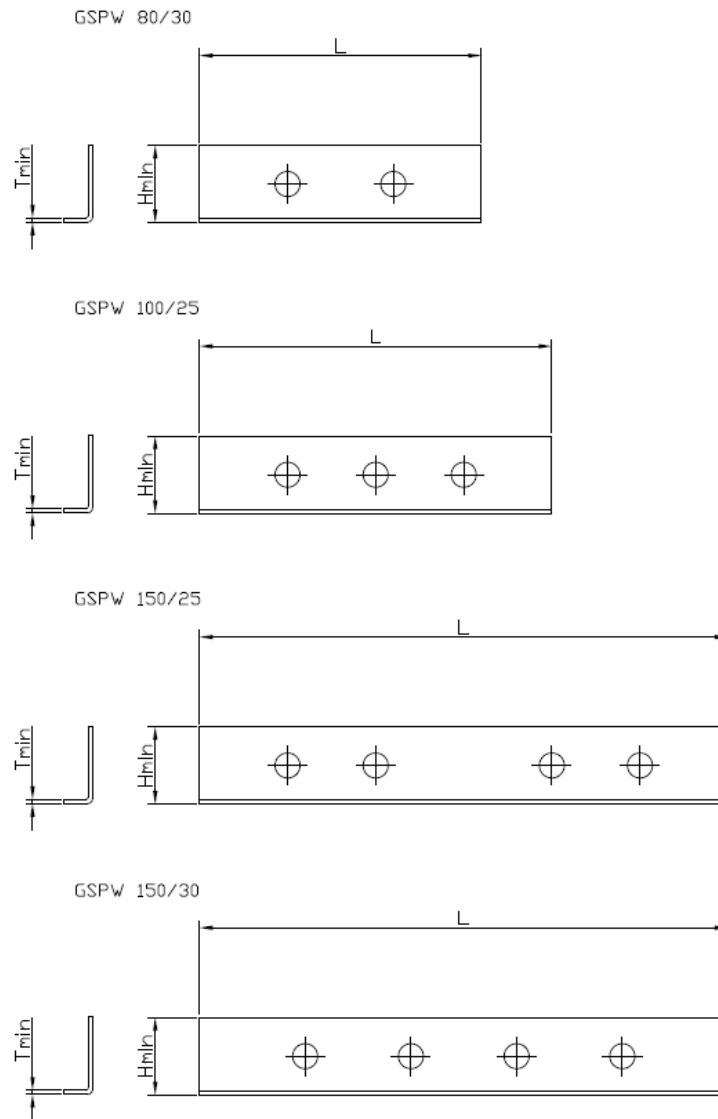
<p>Materials</p> <p>Fastener: stainless steel – SAE 304, Bi-metal</p> <p>Washer: metallic washer made of stainless steel, with EPDM sealing ring</p> <p>Saddle washer: coated carbon steel, aluminum or stainless steel</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: S235 – EN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

Component II: t_{II} in [mm]		3,00	4,00	5,00	6,00	8,00	10,00	$\geq 11,00$	
Component I: t_{N1} or t_{N2} in [mm]	$V_{R,k}$ in [kN]	0,50	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	
		0,63	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	
		0,88	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	
	$N_{R,k}$ 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 $\geq \text{Ø}19$ and with saddle washer

Annex 74
of European
Technical Assessment
ETA-13/0199



	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

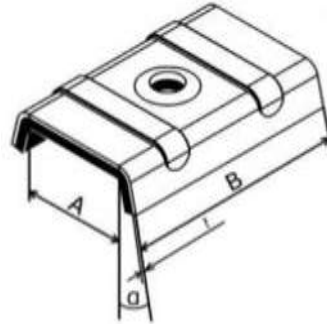
Materials:

carbon steel $R_m \geq 360$ MPa, galvanized (≥ 200 g/m²), 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 and GTXSP**

Linear washer GSPW

Annex 75
of European
Technical Assessment
ETA-13/0199



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

Materials:

carbon steel $R_m \geq 360$ MPa, galvanized (≥ 200 g/m²), with or without additional coating gRey.coat
or aluminum $R_m \geq 360$ 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 and GTXSP**

Saddle washer

Annex 76
of European
Technical Assessment
ETA-13/0199

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 $\gamma_M = 1,33$. The recommended partial safety factor γ_M should be used in cases where no value is given in national regulations of the Member State where the fastening screws are used.

For Timber 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 $\gamma_M = 1,33$. 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 $\gamma_M = 1,33$. The recommended partial safety factor γ_M should be used in cases where no value is given in national regulations of the Member State where the fastening screws are used.

The determination of the design values of the pull-out resistance depends on the type of substructure.

For Metal 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 $\gamma_M = 1,33$. The recommended partial safety factor γ_M should be used in cases where no value is given in national regulations of the Member State where the fastening screws are used.

For Timber 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 $\gamma_M = 1,33$. The recommended partial safety factor γ_M should be used in cases where no value is given in national regulations of the Member State where the fastening screws are used.

The design tension resistance $N_{R,d}$ is the minimum value of the design values of either pull-through resistance or relevant pull-out resistance for the corresponding connection.

3. Design Resistance in case of combined Tension and Shear Forces (interaction)

In case of combined tension and shear forces the linear interaction formula according to EN 1993-1-3, section 8.3 (8) or EN 1999-1-4, section 8.1 (7) should be taken into account.

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