



**NATIONAL DECLARATION OF PERFORMANCE NO:
KDWU-2017/0022 SPS**

Version: V-1.2018 EN

1. Name and trade name of construction product:

Fasteners GT6SP, GTR6SP, GTX6SP, GT12SP, GTR12SP, GTX12SP, GT16SP, GTR16SP, GT20SP, GTR20SP, GT25SP, GTR25SP, GTWSP i GTRWSP for mounting sandwich panels

2. Type of the construction product:

GT6SP 5,5/6,3xL, GTR6SP 5,5/6,3xL, GTX6SP 5,5/6,3xL, GT12SP 5,5/6,3xL, GTR12SP 5,5/6,3xL, GTX12SP 5,5/6,3xL, GT16SP 6,3/7,0xL, GTR16SP 6,3/7,0xL, GT20SP 6,3/7,0xL, GTR20SP 6,3/7,0xL, GT25SP 6,3/7,0xL, GTR25SP 6,3/7,0xL, GTWSP 6,4/7,0xL, GTRWSP 6,4/7,0xL

3. Intended uses or uses:

The fasteners GT6SP, GTX6SP, GTR6SP, GT12SP, GTX12SP, GTR12SP, GT16SP, GTR16SP, GT20SP, GTR20SP, GT25SP and GTR25SP are designed for mounting sandwich panels to the elements of steel structures made of S280GD, S320GD or S350GD steel grade according PN-EN 10346:2015 or of S235JR steel grade according to PN EN 10025-1:2007

The fasteners GTWSP and GTRWSP are designed for mounting sandwich panels to substrates made from:

- normal concrete, class \geq C20/25 according to PN-EN 206+A1:2016,
- wood, grade \geq C24 according to PN-EN 338:2016,

The fasteners GTWSP and GTRWSP, used in complete with plastic expansion sleeves MN or ULTRA, are designed for mounting sandwich panels to substrates made from:

- normal concrete, class \geq C20/25 according to PN-EN 206+A1:2016,
- wood, class \geq C24 according to PN-EN 338:2011,
- clay solid brick, class \geq 15 according to PN-EN 771-1+A1:2015,
- clay cellular brick, class \geq 15 according to PN-EN 771-1+A1:2015 (minimum brick wall thickness 12 mm),
- calcium silicate cored brick, class \geq 15 according to PN-EN 771-2+A1:2015 (minimum brick wall thickness 50 mm),

Because of the aggressiveness of the corrosive environment:

- Fasteners made of plain carbon steel coated with a zinc coating of 12 μ m or 20 μ m thickness, without a pad or with an aluminum pad, of galvanized steel or stainless steel, should be used in environments with atmospheric corrosion in accordance with Table 1 of PN- EN ISO 2081: 2011,
- Connectors made of plain carbon steel, zinc plated and additional gRey.coat, without a pad or with aluminum or stainless steel pads, should be used in environments with atmospheric corrosivity categories C1, C2, C3 and C4 according to PN-EN ISO 12944-2: 2001,
- Connectors made of plain carbon steel coated with zinc coating and an additional powder-coated polyester powder coating, without a pad or with an aluminum pad, of galvanized steel or stainless steel, should be used in atmospheres of C1, C2 and C3 corrosivity categories according to Standard PN-EN ISO 12944-2: 2001,
- Stainless steel fasteners, without additional coating or polyester paint coating with a thickness of no less than 50 μ m, together with a stainless steel washer, should be used in atmospheres of C1, C2, C3, C4 atmospheric corrosivity categories, according to PN standards. -EN ISO 12944-2: 2001, excluding chlorine-rich environments (eg marine and coastal areas, pool halls),

- BIMETAL stainless steel fasteners, coated with gRey.coat or polyester paint coatings of thickness not less than 50 μm , including stainless steel washers, should be used in atmospheres of atmospheric corrosivity category C1, C2, C3, C4, C5. -I and C5-M according to PN-EN ISO 12944-2: 2001 standard.

4. Name and address of the manufacturer and place of manufacture of the product:

Etanco Sp. z o. o., Al. Jana Pawła II 1, 81-345 Gdynia,

Address of production plant : ul. Olsztyńska 30 , 11-130 Orneta

5. Name and address of the authorized representative, if established:

N/A

6. National system used for assessment and verification of constancy of performance:

System 2+

7. National technical specification:

7a. Polish Product standard : N/A

Name of accredited certification body, accreditation number and national certificate number or name of accredited laboratory / laboratory and accreditation number: N/A

7b. National technical assessment : KOT-2017/0022

Technical Assessment Unit / National Technical Assessment Unit :

Instytut Techniki Budowlanej w Warszawie nr 1488

Name of accredited certification body and certificate number:

Zakład Certyfikacji ITB Warszawa AC 020

Certyfikat Zakładowej Kontroli Produkcji nr: 020-UWB-0768/Z

8. Declared performance properties

Essential characteristics of the construction product for the intended use or uses	Declared usable features	Comments
Characteristic characteristics of connectors: - pull-out $N_{R,k}$ [kN] - shear $V_{R,k}$ [kN] Pulling-through saddle washers	according to tables C1÷C13 according to point 2	 KOT-2017/0022
Protective coating / Corrosion protection	according to point 2	KOT-2017/0022 PN-EN ISO 12944-2:2001
Reaction to fire	class A1 according to point 2	PN-EN 13501-1+A1:2010

Table C1.

Characteristic resistances of installed fasteners GT6SP, GT6SP powder.coat and GTR6SP with washer Z or A – steel substrate

Substrate thickness ¹⁾ [mm]		1.00	1.50	2.00	2.50	3.00	4.00	≥ 5.00	
Sandwich panel cladding thickness ²⁾ [mm]	Characteristic resistance	shear [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
	pull-out [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 ³⁾ depending on sandwich panel thickness [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	
¹⁾ steel grade S280GD, S320GD or S350GD acc. to PN-EN 10346:2015 at substrate thickness <2 mm or S235JR acc. to PN-EN 10025-1:2007 at substrate thickness ≥ 2 mm ²⁾ steel grade S280GD, S320GD or S350GD acc. to PN-EN 10346:2015 ³⁾ fastener head displacement, measured from fastener axis, resulting from the displacement of exterior sandwich panel cladding, due to thermal expansion									

Table C2.

Characteristic resistances of installed fasteners GTX6SP, GTX6SP powder.coat with washer S – steel substrate.

Substrate thickness ¹⁾ [mm]		1.00	1.50	2.00	2.50	3.00	4.00	≥ 5.00													
Sandwich panel cladding thickness ²⁾ [mm]	Characteristic resistance	shear [kN]	0.50	0.55	0.63	0.75	0.88	1.00	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	
		pull-out [kN]	0.50	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92
			0.55	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92
			0.63	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92
			0.75	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92
			0.88	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92
	1.00		1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	
	max head displacement ³⁾ depending on sandwich panel thickness [mm]	30	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	
		40	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	
		50	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	
		60	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	
		70	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	
80		18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	
90		23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	
100		23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	
120		23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	
≥ 140	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23		

¹⁾ steel grade S280GD, S320GD or S350GD acc. to PN-EN 10346:2015 at substrate thickness <2 mm or S235JR acc. to PN-EN 10025-1:2007 at substrate thickness ≥ 2 mm

²⁾ steel grade S280GD, S320GD or S350GD acc. to PN-EN 10346:2015

³⁾ fastener head displacement, measured from fastener axis, resulting from the displacement of exterior sandwich panel cladding, due to thermal expansion

Table C3.

Characteristic resistances of installed fasteners GT12SP, GT12SP powder.coat and GTR12SP with washer Z – steel substrate

Substrate thickness ¹⁾ [mm]		1.00	1.50	2.00	2.50	3.00	4.00	≥ 5.00													
Sandwich panel cladding thickness ²⁾ [mm]	Characteristic resistance	shear [kN]	0.50	0.55	0.63	0.75	0.88	1.00	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	
		pull-out [kN]	0.50	3.65	3.65	3.65	3.65	3.65	3.65	3.65	3.65	3.65	3.65	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	3.65	3.65	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	4.60	4.60	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	5.45	5.45	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	5.45	5.45	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	5.45	5.45	5.45	5.45	5.45	5.45	5.45	5.45	5.45	5.45	5.45
	max head displacement ³⁾ depending on sandwich panel thickness [mm]	30	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	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	1.5	1.5	1.5	1.5	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	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	
		60	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
		70	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
80		4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
90		6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	
100		6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	
120		6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	
≥ 140	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6		

¹⁾ steel grade S235JR acc. to PN-EN 10025-1:2007
²⁾ steel grade S280GD, S320GD or S350GD acc. to PN-EN 10346:2015
³⁾ fastener head displacement, measured from fastener axis, resulting from the displacement of exterior sandwich panel cladding, due to thermal expansion

Table C4.

Characteristic resistances of installed fasteners GT12SP, GT12SP powder.coat and GTR12SP with washer A – steel substrate.

Substrate thickness ¹⁾ [mm]		3,00	4,00	5,00	6,00	7,00	8,00	≥ 9,00	
Sandwich panel cladding thickness ²⁾ [mm]	Characteristic resistance	shear [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
	pull-out [kN]	0.50	3.67	3.67	3.67	3.67	3.67	3.67	3.67
		0.55	3.67	3.67	3.67	3.67	3.67	3.67	3.67
		0.63	4.11	4.11	4.11	4.11	4.11	4.11	4.11
		0.75	5.28	5.28	5.28	5.28	5.28	5.28	5.28
		0.88	5.28	5.28	5.28	5.28	5.28	5.28	5.28
		1.00	5.28	5.28	5.28	5.28	5.28	5.28	5.28
max head displacement ³⁾ depending on sandwich panel thickness [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	

¹⁾ steel grade S235JR acc. to PN-EN 10025-1:2007
²⁾ steel grade S280GD, S320GD or S350GD acc. to PN-EN 10346:2015
³⁾ fastener head displacement, measured from fastener axis, resulting from the displacement of exterior sandwich panel cladding, due to thermal expansion

Table C5.

Characteristic resistances of installed fasteners GT12SP, GT12SP powder.coat and GTR12SP with washer A – steel substrate.

Substrate thickness ¹⁾ [mm]		3,00	4,00	5,00	6,00	7,00	8,00	≥ 9,00	
Sandwich panel cladding thickness ²⁾ [mm]	Characteristic resistance	shear [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	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
	pull-out [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 ³⁾ depending on sandwich panel thickness [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	
¹⁾ steel grade S235JR acc. to PN-EN 10025-1:2007									
²⁾ steel grade S280GD, S320GD or S350GD acc. to PN-EN 10346:2015									
³⁾ fastener head displacement, measured from fastener axis, resulting from the displacement of exterior sandwich panel cladding, due to thermal expansion									

Table C6.

Characteristic resistances of installed fasteners GT16SP, GT16SP powder.coat and GTR16SP with washer Z – steel substrate.

Substrate thickness ¹⁾ [mm]		4,00	5,00	6,00	7,00	8,00	9,00	≥ 10,00	
Sandwich panel cladding thickness ²⁾ [mm]	Characteristic resistance	shear [kN]	0.50	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
			0.63	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
			0.88	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
	pull-out [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 ³⁾ depending on sandwich panel thickness [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		

¹⁾ steel grade S235JR acc. to PN-EN 10025-1:2007
²⁾ steel grade S280GD, S320GD or S350GD acc. to PN-EN 10346:2015
³⁾ fastener head displacement, measured from fastener axis, resulting from the displacement of exterior sandwich panel cladding, due to thermal expansion

Table C7.

Characteristic resistances of installed fasteners GT16SP, GT16SP powder.coat and GTR16SP with washer A – steel substrate.

Substrate thickness ¹⁾ [mm]		4,00	5,00	6,00	7,00	8,00	9,00	≥ 10,00	
Sandwich panel cladding thickness ²⁾ [mm]	Characteristic resistance	shear [kN]	0.50	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
			0.63	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
			0.88	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
	pull-out [kN]	0.50	3.67	3.67	3.67	3.67	3.67	3.67	3.67
		0.55	3.67	3.67	3.67	3.67	3.67	3.67	3.67
		0.63	4.11	4.11	4.11	4.11	4.11	4.11	4.11
		0.75	5.28	5.28	5.28	5.28	5.28	5.28	5.28
		0.88	5.28	5.28	5.28	5.28	5.28	5.28	5.28
		1.00	5.28	5.28	5.28	5.28	5.28	5.28	5.28
max head displacement ³⁾ depending on sandwich panel thickness [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		
¹⁾ steel grade S235JR acc. to PN-EN 10025-1:2007 ²⁾ steel grade S280GD, S320GD or S350GD acc. to PN-EN 10346:2015 ³⁾ fastener head displacement, measured from fastener axis, resulting from the displacement of exterior sandwich panel cladding, due to thermal expansion									

Table C8.

Characteristic resistances of installed fasteners GT20SP, GT20SP powder.coat and GTR20SP with washer Z – steel substrate.

Substrate thickness ¹⁾ [mm]		4,00	5,00	6,00	7,00	8,00	9,00	≥ 10,00	
Sandwich panel cladding thickness ²⁾ [mm]	Characteristic resistance	shear [kN]	0.50	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
			0.63	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
			0.88	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
	pull-out [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 ³⁾ depending on sandwich panel thickness [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		

¹⁾ steel grade S235JR acc. to PN-EN 10025-1:2007
²⁾ steel grade S280GD, S320GD or S350GD acc. to PN-EN 10346:2015
³⁾ fastener head displacement, measured from fastener axis, resulting from the displacement of exterior sandwich panel cladding, due to thermal expansion

Table C9.

Characteristic resistances of installed fasteners GT20SP, GT20SP powder.coat and GTR20SP with washer A – steel substrate.

Substrate thickness ¹⁾ [mm]		4,00	5,00	6,00	7,00	8,00	9,00	≥ 10,00	
Sandwich panel cladding thickness ²⁾ [mm]	Characteristic resistance	shear [kN]	0.50	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
	pull-out [kN]	0.50	3.67	3.67	3.67	3.67	3.67	3.67	3.67
		0.55	3.67	3.67	3.67	3.67	3.67	3.67	3.67
		0.63	4.11	4.11	4.11	4.11	4.11	4.11	4.11
		0.75	5.28	5.28	5.28	5.28	5.28	5.28	5.28
		0.88	5.28	5.28	5.28	5.28	5.28	5.28	5.28
		1.00	5.28	5.28	5.28	5.28	5.28	5.28	5.28
max head displacement ³⁾ depending on sandwich panel thickness [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		
¹⁾ steel grade S235JR acc. to PN-EN 10025-1:2007									
²⁾ steel grade S280GD, S320GD or S350GD acc. to PN-EN 10346:2015									
³⁾ fastener head displacement, measured from fastener axis, resulting from the displacement of exterior sandwich panel cladding, due to thermal expansion									

Table C10.

Characteristic resistances of installed fasteners GT25SP, GT25SP powder.coat and GTR25SP with washer Z – steel substrate.

Substrate thickness ¹⁾ [mm]		4,00	5,00	6,00	7,00	8,00	9,00	≥ 10,00	
Sandwich panel cladding thickness ²⁾ [mm]	Characteristic resistance	shear [kN]	0.50	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
			0.63	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
			0.88	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
	pull-out [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 ³⁾ depending on sandwich panel thickness [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	
¹⁾ steel grade S235JR acc. to PN-EN 10025-1:2007 ²⁾ steel grade S280GD, S320GD or S350GD acc. to PN-EN 10346:2015 ³⁾ fastener head displacement, measured from fastener axis, resulting from the displacement of exterior sandwich panel cladding, due to thermal expansion									

Table C11.

Characteristic resistances of installed fasteners GT25SP, GT25SP powder.coat and GTR25SP with washer A – steel substrate.

Substrate thickness ¹⁾ [mm]		4,00	5,00	6,00	7,00	8,00	9,00	≥ 10,00	
Sandwich panel cladding thickness ²⁾ [mm]	Characteristic resistance	shear [kN]	0.50	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
	pull-out [kN]	0.50	3.67	3.67	3.67	3.67	3.67	3.67	3.67
		0.55	3.67	3.67	3.67	3.67	3.67	3.67	3.67
		0.63	4.11	4.11	4.11	4.11	4.11	4.11	4.11
		0.75	5.28	5.28	5.28	5.28	5.28	5.28	5.28
		0.88	5.28	5.28	5.28	5.28	5.28	5.28	5.28
		1.00	5.28	5.28	5.28	5.28	5.28	5.28	5.28
max head displacement ³⁾ depending on sandwich panel thickness [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		
¹⁾ steel grade S235JR acc. to PN-EN 10025-1:2007									
²⁾ steel grade S280GD, S320GD or S350GD acc. to PN-EN 10346:2015									
³⁾ fastener head displacement, measured from fastener axis, resulting from the displacement of exterior sandwich panel cladding, due to thermal expansion									

Table C12.

Characteristic resistances of installed fasteners GTWSP, GTWSP powder.coat, GTRWSP and GTRWSP powder.coat with washer Z or A – normal concrete or wooden substrate.

Substrate				Normal concrete ¹⁾		Wood ²⁾	
Fastener age depth [mm]				30	40	25.6	40
Sandwich panel cladding thickness ³⁾ [mm]	Characteristic resistance	shear [kN]	0.50	1.74	1.74	1.74	1.74
			0.55	1.74	1.74	1.74	1.74
			0.63	2.34	2.34	2.34	2.34
			0.75	2.45	2.45	2.45	2.45
			0.88	2.45	2.45	2.45	2.45
			1.00	2.45	2.45	2.45	2.45
	pull-out [kN]	0.50	2.45	3.65	2.45	3.65	
		0.55	2.45	3.65	2.45	3.65	
		0.63	2.45	4.15	2.45	4.15	
		0.75	2.45	4.15	2.45	4.15	
		0.88	2.45	4.15	2.45	4.15	
		1.00	2.45	4.15	2.45	4.15	
max head displacement ⁴⁾ depending on sandwich panel thickness [mm]	30	1.0	1.0	1.0	1.0		
	40	1.0	1.0	1.0	1.0		
	50	1.0	1.0	1.0	1.0		
	60	1.5	1.5	1.5	1.5		
	70	1.5	1.5	1.5	1.5		
	80	1.5	1.5	1.5	1.5		
	90	2.0	2.0	2.0	2.0		
	100	2.0	2.0	2.0	2.0		
	≥ 140	2.0	2.0	2.0	2.0		

1) normal concrete, class ≥ C20/25 acc. to PN-EN 206+A1:2016
2) wood, class ≥ C24 acc. to PN-EN 338:2016
3) steel grade S280GD, S320GD or S350GD acc. to PN-EN 10346:2015
4) fastener head displacement, measured from fastener axis, resulting from the displacement of exterior sandwich panel cladding, due to thermal expansion

Table C13.

Characteristic resistances of installed fasteners GTWSP, GTRWSP, GTWSP powder.coat and GTRWSP powder.coat, with sleeve MN or ULTRA, washer Z or A – substrate from normal concrete, clay solid brick, clay cellular brick, calcium silicate brick or autoclaved aerated concrete.

Substrate				Normal concrete ¹⁾	Solid brick ²⁾	Cellular brick ³⁾	Calcium silicates ⁴⁾	Aerated concrete ⁵⁾
Fastener age depth [mm]				50	50	50	50	50
Sandwich panel cladding thickness ⁶⁾ [mm]	Characteristic resistance	shear [kN]	0.50	1.74	1.74	1.74	1.74	1.74
			0.55	1.74	1.74	1.74	1.74	1.74
			0.63	2.34	2.34	2.34	2.34	2.34
			0.75	2.45	2.45	2.45	2.45	2.45
			0.88	2.45	2.45	2.45	2.45	2.45
			1.00	2.45	2.45	2.45	2.45	2.45
	pull-out [kN]	0.50	2.05	1.90	1.55	1.00	1.00	
		0.55	2.05	1.90	1.55	1.00	1.00	
		0.63	2.05	1.90	1.55	1.00	1.00	
		0.75	2.05	1.90	1.55	1.00	1.00	
		0.88	2.05	1.90	1.55	1.00	1.00	
		1.00	2.05	1.90	1.55	1.00	1.00	
max head displacement ⁷⁾ depending on sandwich panel thickness [mm]	30	1.0	1.0	1.0	1.0	1.0		
	40	1.0	1.0	1.0	1.0	1.0		
	50	1.0	1.0	1.0	1.0	1.0		
	60	1.5	1.5	1.5	1.5	1.5		
	70	1.5	1.5	1.5	1.5	1.5		
	80	1.5	1.5	1.5	1.5	1.5		
	90	2.0	2.0	2.0	2.0	2.0		
	100	2.0	2.0	2.0	2.0	2.0		
	120	2.0	2.0	2.0	2.0	2.0		
	≥ 140	2.0	2.0	2.0	2.0	2.0		

¹⁾ normal concrete, class ≥ C20/25 acc. to PN-EN 206+A1:2016

²⁾ clay solid brick, class ≥ 15 acc. to PN-EN 771-1+A1:2015

³⁾ cellular brick, class ≥ 15 acc. to PN-EN 771-1+A1:2015

⁴⁾ calcium silicate cored brick, class ≥ 15 acc. to PN-EN 771-2+A1:2015

⁵⁾ autoclaved aerated concrete, density class ≥ 600 and strength class ≥ 7 acc. to PN-EN 771-4+A1:2015

⁶⁾ steel grade S280GD, S320GD or S350GD acc. to PN-EN 10346:2011

⁷⁾ fastener head displacement, measured from fastener axis, resulting from the displacement of exterior sandwich panel cladding, due to thermal expansion

Table B1.

Installation parameters of GT6SP, GTX6SP, GTR6SP, GT12SP, GTX12SP, GTR12SP, GT16SP, GTR16SP, GT20SP, GTR20SP, GT25SP and GTR25SP fasteners

No.	Type of fastener	Min thickness of steel substrate ¹⁾ , [mm]	Max substrate drilling capacity of fastener, [mm]
1	GT6SP GT6SP powder.coat GTR6SP	1.0	6
2	GTX6SP	1.0	6
3	GT12SP GT12SP powder.coat GTR12SP	3.0	12
4	GTX12SP	3.0	12
5	GT16SP GT16SP powder.coat GTR16SP	4.0	16
6	GT20SP GT20SP powder.coat GTR20SP	4.0	20
7	GT25SP GT25SP powder.coat GTR25SP	4.0	25

¹⁾ steel grade S280GD, S320GD or S350GD acc. to PN-EN 10346:2015 or S235JR acc. to PN-EN 10025-1:2007

Table B2.

Installation parameters of GTWSP and GTRWSP fasteners

No.	Type of fastener	Type of substrate	Min fastenerage depth, [mm]	Min hole depth, [mm]	Initial hole diameter, [mm]
1	GTWSP	normal concrete ¹⁾	30	35	5.0
2	GTWSP powder.coat GTRWSP	structural timber ²⁾	25.6	—	—
3	GTWSP GTWSP powder.coat GTRWSP + expansion sleeve MN or ULTRA	normal concrete ¹⁾ clay solid brick ³⁾ clay cellular brick ⁴⁾ calcium silicate brick ⁵⁾ aerated concrete ⁶⁾	50	55	10.0

¹⁾ normal concrete, class \geq C20/25 acc. to PN-EN 206+A1:2016
²⁾ wood, grade \geq C24 acc. to PN-EN 338:2011
³⁾ clay solid brick, class \geq 15 acc. to PN-EN 771-1+A1:2015
⁴⁾ cellular brick, class \geq 15 acc. to PN-EN 771-1+A1:2015
⁵⁾ calcium silicate cored brick, class \geq 15 acc. to PN-EN 771-2+A1:2015
⁶⁾ autoclaved aerated concrete, density class \geq 600 and strength class \geq 7 acc. to PN-EN 771-4+A1:2015

9. The performance properties of the product specified above are in accordance with all the declared performance characteristics listed in paragraph 8. This national declaration of performance is issued in accordance with the Act of 16 April 2004 on construction products, under the sole responsibility of the manufacturer.

Place and date of issue

Orneta 02.01.2018

On behalf of the manufacturer signed
(Name and position)

Product Manager:

Aleksander Stec
Product Manager
Etando Sp. z o.o.

