



NATIONAL DECLARATION OF PERFORMANCE NO: KDWU-2018/0680 SDS

Version: V-1.2025 EN

1. Name and trade name of construction product:

Fasteners G / LR, GTF02, GTF02P, GTF2, GTF5, GTXFO2, GTXF2, GTZF, GTF HD, GTFP, GTO2, GTRO2, GTO3 FH, GT3, GTR3, GTX3, GTX3 AL, GT3 HD, GT5, GTR5, GT5 FH, GTX5, GT6, GT8, GTR8, GT12, GTR12, GT12 FH, GTX12, GT16, GTR16, GT20, GTR20, GT25, GTR25, GTZFO2, GM-S, GMR-S, GMZ-S, GM-B, GMR-B, GM-K, GTS-STAR, GT6L i GTZ5AGF for fastening sheets and metal elements

2. Type of the construction product:

G / LR, GTF02, GTF02P, GTF2, GTF5, GTXFO2, GTXF2, GTZF, GTF HD, GTFP, GTO2, GTRO2, GTO3 FH, GT3, GTR3, GTX3, GTX3 AL, GT3 HD, GT5, GTR5, GT5 FH, GTX5, GT6, GT8, GTR8, GT12, GTR12, GT12 FH, GTX12, GT16, GTR16, GT20, GTR20, GT25, GTR25, GTZFO2, GM-S, GMR-S, GMZ-S, GM-B, GMR-B, GM-K, GTS-STAR, GT6L, GTZ5AGF

3. Intended uses or uses:

G / LR, GTF02, GTF02P, GTF2, GTF5, GTXFO2, GTXF2, GTZF, GTF HD, GTFP, GTO2, GTRO2, GTO3 FH, GT3, GTR3, GTX3, GTX3 AL, GT3 HD, GT5, GTR5, GT5 FH, GTX5, GT6, GT8, GTR8, GT12, GTR12, GT12 FH, GTX12, GT16, GTR16, GT20, GTR20, GT25, GTR25, GTZFO2, GM-S, GMR-S, GMZ-S, GM-B, GMR-B, GM-K, GTS-STAR, GT6L and GTZ5AGF fasteners are intended for fastening sheets and metal elements to substrates:

- made of steel grade S280GD, S320GD or S350GD according to the standard PN-EN 10346:2015,
- made of steel grade S235JR according to the PN-EN 10025-1:2007 standard,
- made of aluminum alloy 1050A according to the PN-EN 573-3+A2:2024 standard, condition H42 according to the PN-EN 485-2+A1:2018 standard,
- made of structural timber, class no lower than C24 according to the PN-EN 338:2016 standard.

GT6L fasteners are intended to connect sheets with thermal insulation between them.

The fasteners covered by the National Technical Assessment may be used to fasten GMF aluminum flange bases protecting roof claddings around ventilation shafts, vents, antenna masts, etc., against direct penetration of atmospheric precipitation.

Due to the aggressiveness of the corrosive environment:

- fasteners made of plain carbon steel, coated with zinc with a thickness of not less than 5 μm (with or without a washer), should be used in an environment with corrosivity category C1 according to the PN-EN ISO 12944-2:2018 standard,
- fasteners made of plain carbon steel, coated with zinc with a thickness of not less than 12 μm (with a galvanized carbon steel washer, aluminum washer or without a washer), should be used in environments with corrosivity category and durability period C1 and C2 VH according to the PN-EN ISO 12944-1:2018 and PN-EN ISO 12944-2:2018 standards,
- fasteners made of plain carbon steel, coated with zinc and additional gRey.coat coating (with aluminum washer, stainless steel or without washer), should be used in environments with corrosivity category and durability period C1, C2 VH, C3 VH and C4 H according to the PN-EN ISO 12944-1:2018 and PN-EN ISO 12944-2:2018 standards,

- fasteners made of plain carbon steel, coated with zinc and additional polyester powder.coat paint with a thickness of not less than 50 µm (with a washer of galvanized carbon steel, aluminum, stainless steel or without a washer), can be used in environments with corrosivity category and durability period C1, C2 VH and C3 H according to the PN-EN ISO 12944-1:2018 and PN-EN ISO 12944-2:2018 standards,
- fasteners made of BIMETAL stainless steel, grade A2 according to PN-EN ISO 3506-4:2025 (with or without a stainless steel washer), should be used in environments with a corrosiveness category and durability period of C1, C2 VH, C3 VH and C4 H according to PN-EN ISO 12944-1:2018 and PN-EN ISO 12944-2:2018, excluding environments with increased chloride content, e.g. marine and coastal areas, swimming pool halls,
- fasteners made of BIMETAL stainless steel, grade A2 according to PN-EN ISO 3506-4:2025, covered with a gRey.coat coating and/or a polyester powder.coat coating with a thickness of not less than 50 µm (with or without a stainless steel washer), should be used in environments with atmospheric corrosivity categories C1, C2 VH, C3 VH, C4 H and C5 H according to PN-EN ISO 12944-1:2018 and PN-EN ISO 12944-2:2018.

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

Simpson Strong-Tie Etanco P.S.A., 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 Standard of the product: **N/A**

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

7b. National Technical Assessment: **ITB-KOT-2018/0680 Issue 4**

Technical Assessment Body / National Technical Assessment Body: **Instytut Techniki Budowlanej**

Name of accredited certification body and certificate number:

Zakład Certyfikacji ITB Warszawa AC 020

Certyfikat Zakładowej Kontroli Produkcji nr: 020-UWB-0740/Z

8. Declared performance properties

Essential characteristics of the construction product for the intended use or uses	Declared performances	Comments
Characteristic load capacity of fasteners: <ul style="list-style-type: none"> – pull-out $N_{R,k}$ [kN] – shear $V_{R,k}$ [kN] 	According to tables C1÷C58 of the assessment	ITB-KOT-2018/0680 Issue 4
Protective coating / Corrosion protection	According to point 2 of the assessment	ITB-KOT-2018/0680 Issue 4 PN-EN ISO 12944-1:2018 PN-EN ISO 12944-2:2018
Reaction to fire	Class A1 according to point 2 of the assessment	PN-EN 13501-1+A1:2010

Table C1

Characteristic bearing capacity of fasteners G / LR 4,8 x 20 i G / LR 4,8 x 20 powder.coat, with hexagon head and sealing washer Ø14 mm made of aluminum – steel substrate									
Thickness of substrate ¹⁾ [mm]		0,50	0,55	0,63	0,75	0,88	1,00	Wood class ≥ C24	
M _{t,nom}		3 Nm							
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	1,11	1,11	1,11	1,11	1,11	1,11	
		0,55	1,11	1,11	1,11	1,11	1,11	1,11	
		0,63	1,11	1,11	1,45	1,45	1,45	1,45	
		0,75	1,11	1,11	1,45	1,49	1,49	1,49	
		0,88	1,11	1,11	1,45	1,49	1,49	1,49	
		1,00	1,11	1,11	1,45	1,49	1,49	1,49	
	Characteristic bearing capacity for pull-out [kN]	0,50	0,48	0,48	0,48	0,48	0,48	0,48	
		0,55	0,48	0,48	0,48	0,48	0,48	0,48	
		0,63	0,48	0,48	0,78	0,78	0,78	0,78	
		0,75	0,48	0,48	0,78	0,91	0,91	0,91	
		0,88	0,48	0,48	0,78	0,91	1,30	1,30	
		1,00	0,48	0,48	0,78	0,91	1,30	1,61	

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015
²⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

If both components I and II are made of S320GD the values V_{R,k} may be increased by 8,3%
If both components I and II are made of S350GD the values V_{R,k} may be increased by 16,6%

Table C2

Characteristic bearing capacity of fasteners G / LR 4,8 x L i G / LR 4,8 x L powder.coat, with hexagon head and sealing washer Ø14 mm made of aluminum – timber substrate										
Thickness of substrate ¹⁾ [mm]		0,50	0,55	0,63	0,75	0,88	1,00	Wood class ≥ C24 h _{ef} = 20 mm		
M _{t,nom}		3 Nm								
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	-	-	-	-	-	1,11	Load capacity of the fixed sheet due to screw shank pressure	
		0,55	-	-	-	-	-	1,11		
		0,63	-	-	-	-	-	1,45		
		0,75	-	-	-	-	-	1,49		
		0,88	-	-	-	-	-	1,49		
		1,00	-	-	-	-	-	1,49		
	Characteristic bearing capacity for pull-out [kN]	0,50	-	-	-	-	-	2,78		Load capacity of the fixed sheet due to pulling the screw head
		0,55	-	-	-	-	-	2,78		
		0,63	-	-	-	-	-	4,51		
		0,75	-	-	-	-	-	4,51		
		0,88	-	-	-	-	-	4,51		
		1,00	-	-	-	-	-	4,51		

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015
²⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

Table C3

Characteristic bearing capacity of fasteners GTF02 4,8 x 20 i GTF02 4,8 x 20 powder.coat, with hexagon head and sealing washer Ø14 mm made of carbon steel – steel substrate									
Thickness of substrate ¹⁾ [mm]		0,50	0,55	0,63	0,75	0,88	1,00	Wood class ≥ C24	
M _{t,nom}		3 Nm							
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	1,11	1,11	1,11	1,11	1,11	1,11	/
		0,55	1,11	1,11	1,11	1,11	1,11	1,11	
		0,63	1,11	1,11	1,45	1,45	1,45	1,45	
		0,75	1,11	1,11	1,45	1,49	1,49	1,49	
		0,88	1,11	1,11	1,45	1,49	1,49	1,49	
		1,00	1,11	1,11	1,45	1,49	1,49	1,49	
	Characteristic bearing capacity for pull-out [kN]	0,50	0,48	0,48	0,48	0,48	0,48	0,48	
		0,55	0,48	0,48	0,48	0,48	0,48	0,48	
		0,63	0,48	0,48	0,78	0,78	0,78	0,78	
		0,75	0,48	0,48	0,78	0,91	0,91	0,91	
		0,88	0,48	0,48	0,78	0,91	1,30	1,30	
		1,00	0,48	0,48	0,78	0,91	1,30	1,61	

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015
²⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

If both components I and II are made of S320GD the values V_{R,k} may be increased by 8,3%
If both components I and II are made of S350GD the values V_{R,k} may be increased by 16,6%

Table C4

Characteristic bearing capacity of fasteners GTF02P 4,8 x 20 i GTF02P 4,8 x 20 powder.coat, z łbem owalnym and sealing washer Ø14 mm made of aluminum – steel substrate									
Thickness of substrate ¹⁾ [mm]		0,50	0,55	0,63	0,75	0,88	1,00	Wood class ≥ C24	
M _{t,nom}		3 Nm							
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	1,11	1,11	1,11	1,11	1,11	1,11	/
		0,55	1,11	1,11	1,11	1,11	1,11	1,11	
		0,63	1,11	1,11	1,45	1,45	1,45	1,45	
		0,75	1,11	1,11	1,45	1,49	1,49	1,49	
		0,88	1,11	1,11	1,45	1,49	1,49	1,49	
		1,00	1,11	1,11	1,45	1,49	1,49	1,49	
	Characteristic bearing capacity for pull-out [kN]	0,50	0,48	0,48	0,48	0,48	0,48	0,48	
		0,55	0,48	0,48	0,48	0,48	0,48	0,48	
		0,63	0,48	0,48	0,78	0,78	0,78	0,78	
		0,75	0,48	0,48	0,78	0,91	0,91	0,91	
		0,88	0,48	0,48	0,78	0,91	1,30	1,30	
		1,00	0,48	0,48	0,78	0,91	1,30	1,61	

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015
²⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

If both components I and II are made of S320GD the values V_{R,k} may be increased by 8,3%
If both components I and II are made of S350GD the values V_{R,k} may be increased by 16,6%

Table C5

Characteristic bearing capacity of fasteners GTF2 4,8 x L i GTF2 4,8 x L powder.coat, with hexagon head and sealing washer Ø14 mm made of carbon steel – timber substrate										
Thickness of substrate ¹⁾ [mm]		0,50	0,55	0,63	0,75	0,88	1,00	Wood class ≥ C24 h _{ef} = 20 mm		
M _{t,nom}		3 Nm								
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	-	-	-	-	-	-	1,11	Load capacity of the fixed sheet due to screw shank pressure
		0,55	-	-	-	-	-	-	1,11	
		0,63	-	-	-	-	-	-	1,45	
		0,75	-	-	-	-	-	-	1,49	
		0,88	-	-	-	-	-	-	1,49	
		1,00	-	-	-	-	-	-	1,49	
	Characteristic bearing capacity for pull-out [kN]	0,50	-	-	-	-	-	-	2,78	Load capacity of the fixed sheet due to pulling the screw head
		0,55	-	-	-	-	-	-	2,78	
		0,63	-	-	-	-	-	-	4,51	
		0,75	-	-	-	-	-	-	4,51	
		0,88	-	-	-	-	-	-	4,51	
		1,00	-	-	-	-	-	-	4,51	

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015
²⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

Table C6

Characteristic bearing capacity of fasteners GTFS 4,8 x L i GTFS 4,8 x L powder.coat, with hexagon head and sealing washer Ø14 mm made of carbon steel – wood substrate										
Thickness of substrate ¹⁾ [mm]		0,50	0,55	0,63	0,75	0,88	1,00	Wood class ≥ C24 h _{ef} = 20 mm		
M _{t,nom}		3 Nm								
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	-	-	-	-	-	-	0,80	Load capacity of the fixed sheet due to screw shank pressure
		0,55	-	-	-	-	-	-	1,40	
		0,63	-	-	-	-	-	-	1,40	
		0,75	-	-	-	-	-	-	1,40	
		0,88	-	-	-	-	-	-	-	
		1,00	-	-	-	-	-	-	-	
	Characteristic bearing capacity for pull-out [kN]	0,50	-	-	-	-	-	-	2,78	Load capacity of the fixed sheet due to pulling the screw head
		0,55	-	-	-	-	-	-	2,78	
		0,63	-	-	-	-	-	-	4,51	
		0,75	-	-	-	-	-	-	4,51	
		0,88	-	-	-	-	-	-	-	
		1,00	-	-	-	-	-	-	-	

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015
²⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

Table C7

Characteristic bearing capacity of fasteners GTXFO2 4,8 x 20 i GTXFO2 4,8 x 20 powder.coat, with hexagon head and sealing washer Ø14 mm made of stainless steel – steel substrate									
Thickness of substrate ¹⁾ [mm]		0,50	0,55	0,63	0,75	0,88	1,00	Wood class ≥ C24	
M _{t,nom}		3 Nm							
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	0,62	0,62	0,62	0,62	0,62	0,62	
		0,55	0,62	0,62	0,62	0,62	0,62	0,62	
		0,63	0,62	0,62	1,13	1,13	1,13	1,13	
		0,75	0,62	0,62	1,13	1,46	1,46	1,46	
		0,88	0,62	0,62	1,13	1,46	1,46	1,46	
		1,00	0,62	0,62	1,13	1,46	1,46	1,46	
	Characteristic bearing capacity for pull-out [kN]	0,50	0,49	0,49	0,49	0,49	0,49	0,49	
		0,55	0,49	0,49	0,49	0,49	0,49	0,49	
		0,63	0,49	0,49	0,77	0,77	0,77	0,77	
		0,75	0,49	0,49	0,77	0,89	0,89	0,89	
		0,88	0,49	0,49	0,77	0,89	1,01	1,01	
		1,00	0,49	0,49	0,77	0,89	1,01	1,44	

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015
²⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

If both components I and II are made of S320GD the values V_{R,k} may be increased by 8,3%
If both components I and II are made of S350GD the values V_{R,k} may be increased by 16,6%

Table C8

Characteristic bearing capacity of fasteners GTXF2 4,8 x L i GTXF2 4,8 x L powder.coat, with hexagon head and sealing washer Ø14 mm made of stainless steel – timber substrate											
Thickness of substrate ¹⁾ [mm]		0,50	0,55	0,63	0,75	0,88	1,00	Wood class ≥ C24 h _{ef} = 20 mm			
M _{t,nom}		3 Nm									
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	-	-	-	-	-	-	0,62	Load capacity of the fixed sheet due to screw shank pressure	
		0,55	-	-	-	-	-	-	0,62		
		0,63	-	-	-	-	-	-	1,13		
		0,75	-	-	-	-	-	-	1,46		
		0,88	-	-	-	-	-	-	1,46		
		1,00	-	-	-	-	-	-	1,46		
	Characteristic bearing capacity for pull-out [kN]	0,50	-	-	-	-	-	-	2,78		Load capacity of the fixed sheet due to pulling the screw head
		0,55	-	-	-	-	-	-	2,78		
		0,63	-	-	-	-	-	-	4,51		
		0,75	-	-	-	-	-	-	4,51		
		0,88	-	-	-	-	-	-	4,51		
		1,00	-	-	-	-	-	-	4,51		

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015
²⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

Table C9

Characteristic bearing capacity of fasteners GTZF 4,8 x L i GTZF 4,8 x L, powder.coat, with hexagon head and sealing washer Ø14 mm made of stainless steel – wood substrate										
Thickness of substrate ¹⁾ [mm]		0,50	0,55	0,63	0,75	0,88	1,00	Wood class ≥ C24 h _{ef} = 16,8 mm		
M _{t,nom}		3 Nm								
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	—	—	—	—	—	—	0,62	Load capacity of the fixed sheet due to screw shank pressure
		0,55	—	—	—	—	—	—	0,62	
		0,63	—	—	—	—	—	—	1,13	
		0,75	—	—	—	—	—	—	1,46	
		0,88	—	—	—	—	—	—	1,46	
		1,00	—	—	—	—	—	—	1,46	
	Characteristic bearing capacity for pull-out [kN]	0,50	—	—	—	—	—	—	2,78	Load capacity of the fixed sheet due to pulling the screw head
		0,55	—	—	—	—	—	—	2,78	
		0,63	—	—	—	—	—	—	4,51	
		0,75	—	—	—	—	—	—	4,51	
		0,88	—	—	—	—	—	—	4,51	
		1,00	—	—	—	—	—	—	4,51	

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015
²⁾ aluminium gatunku 1050A według PN-EN 573-3:20102015

Table 10

Characteristic bearing capacity of fasteners GTF HD 6,4 x L i GTF HD 6,4 x L powder.coat, with hexagon head and sealing washer Ø16 mm made of carbon steel – timber substrate										
Thickness of substrate ¹⁾ [mm]		0,50	0,55	0,63	0,75	0,88	1,00	Wood class ≥ C24 h _{ef} = 20 mm		
M _{t,nom}		8 Nm								
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	—	—	—	—	—	—	1,30	Load capacity of the fixed sheet due to screw shank pressure
		0,55	—	—	—	—	—	—	1,30	
		0,63	—	—	—	—	—	—	1,30	
		0,75	—	—	—	—	—	—	1,30	
		0,88	—	—	—	—	—	—	1,30	
		1,00	—	—	—	—	—	—	1,30	
	Characteristic bearing capacity for pull-out [kN]	0,50	—	—	—	—	—	—	3,75	Load capacity of the fixed sheet due to pulling the screw head
		0,55	—	—	—	—	—	—	3,75	
		0,63	—	—	—	—	—	—	4,04	
		0,75	—	—	—	—	—	—	5,63	
		0,88	—	—	—	—	—	—	5,63	
		1,00	—	—	—	—	—	—	5,63	

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015
²⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

Table C11

Characteristic bearing capacity of fasteners GTF P 4,8 x L i GTF P 4,8 x L powder.coat, with pan head and sealing washer Ø14 mm made of aluminum – steel and timber substrate										
Thickness of substrate ¹⁾ [mm]		0,50	0,55	0,63	0,75	0,88	1,00	Wood class ≥ C24 h _{ef} = 20 mm		
M _{t,nom}		8 Nm								
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	1,21	1,21	1,21	1,21	1,21	1,21	1,08	Load capacity of the fixed sheet due to screw shank pressure
		0,55	1,21	1,21	1,21	1,21	1,21	1,21	1,08	
		0,63	1,21	1,21	1,42	1,42	1,42	1,42	1,08	
		0,75	1,21	1,21	1,42	2,27	2,27	2,27	1,08	
		0,88	1,21	1,21	1,42	2,27	2,67	2,67	1,08	
		1,00	1,21	1,21	1,42	2,27	2,67	2,69	1,08	
	Characteristic bearing capacity for pull-out [kN]	0,50	0,62	0,62	0,62	0,62	0,62	0,62	2,97	Load capacity of the fixed sheet due to pulling the screw head
		0,55	0,62	0,62	0,62	0,62	0,62	0,62	2,97	
		0,63	0,62	0,62	0,80	0,80	0,80	0,80	3,93	
		0,75	0,62	0,62	0,80	0,91	0,91	0,91	4,73	
		0,88	0,62	0,62	0,80	0,91	1,23	1,23	4,73	
		1,00	0,62	0,62	0,80	0,91	1,23	1,48	4,73	

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015
²⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

Table C12

Characteristic bearing capacity of fasteners GTO2 4,8 x 20, GTO2 4,8 x 20 powder.coat, GTO2 4,8 x 20 i GTRO2 4,8 x 20 powder.coat, with hexagon head – steel substrate									
Thickness of substrate ¹⁾ [mm]		0,50	0,55	0,63	0,75	0,88	1,00	Wood class ≥ C24	
M _{t,nom}		3 Nm							
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	1,05	1,05	1,05	1,05	1,05	1,05	
		0,55	1,05	1,05	1,05	1,05	1,05	1,05	
		0,63	1,05	1,05	1,42	1,42	1,42	1,42	
		0,75	1,05	1,05	1,42	2,02	2,02	2,02	
		0,88	1,05	1,05	1,42	2,02	2,21	2,21	
		1,00	1,05	1,05	1,42	2,02	2,21	2,53	
	Characteristic bearing capacity for pull-out [kN]	0,50	0,55	0,55	0,73	0,86	1,04	1,59	
		0,55	0,55	0,55	0,73	0,86	1,04	1,59	
		0,63	0,55	0,55	0,73	0,86	1,04	1,59	
		0,75	0,55	0,55	0,73	0,86	1,04	1,59	
		0,88	0,55	0,55	0,73	0,86	1,04	1,59	
		1,00	0,55	0,55	0,73	0,86	1,04	1,59	

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015
²⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

If both components I and II are made of S320GD the values V_{R,k} may be increased by 8,3%
If both components I and II are made of S350GD the values V_{R,k} may be increased by 16,6%

Table C13

Characteristic bearing capacity of fasteners GTO2 4,8 x 20, GTO2 4,8 x 20 powder.coat, GTR02 4,8 x 20 i GTR02 4,8 x 20 powder.coat, with hexagon head and sealing washer Ø14 mm made of carbon steel, stainless steel or aluminum – steel substrate									
Thickness of substrate ¹⁾ [mm]		0,50	0,55	0,63	0,75	0,88	1,00	Wood class ≥ C24	
M _{t,nom}		3 Nm							
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	1,05	1,05	1,05	1,05	1,05	1,05	/
		0,55	1,05	1,05	1,05	1,05	1,05	1,05	
		0,63	1,05	1,05	1,42	1,42	1,42	1,42	
		0,75	1,05	1,05	1,42	2,02	2,02	2,02	
		0,88	1,05	1,05	1,42	2,02	2,21	2,21	
		1,00	1,05	1,05	1,42	2,02	2,21	2,53	
	Characteristic bearing capacity for pull-out [kN]	0,50	0,55	0,55	0,73	0,86	1,04	1,59	
		0,55	0,55	0,55	0,73	0,86	1,04	1,59	
		0,63	0,55	0,55	0,73	0,86	1,04	1,59	
		0,75	0,55	0,55	0,73	0,86	1,04	1,59	
		0,88	0,55	0,55	0,73	0,86	1,04	1,59	
		1,00	0,55	0,55	0,73	0,86	1,04	1,59	

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015
²⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

If both components I and II are made of S320GD the values V_{R,k} may be increased by 8,3%
If both components I and II are made of S350GD the values V_{R,k} may be increased by 16,6%

Table C14

Characteristic bearing capacity of fasteners GTO3 FH 6,3 x L GTO3 FH 6,3 x L powder.coat, with hexagon head – steel substrate											
Thickness of substrate ¹⁾ [mm]		0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood class ≥ C24	
M _{t,nom}		8 Nm									
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	1,53	1,53	1,53	1,53	1,53	1,53	1,53	1,53	/
		0,55	1,53	1,53	1,53	1,53	1,53	1,53	1,53	1,53	
		0,63	1,53	1,53	1,88	1,88	1,88	1,88	1,88	1,88	
		0,75	1,53	1,53	1,88	2,92	2,92	2,92	2,92	2,92	
		0,88	1,53	1,53	1,88	2,92	3,21	3,21	3,21	3,21	
		1,00	1,53	1,53	1,88	2,92	3,21	3,66	3,66	3,66	
		1,13	1,53	1,53	1,88	2,92	3,21	3,66	3,66	3,66	
		1,25	1,53	1,53	1,88	2,92	3,21	3,66	3,66	3,69	
	Characteristic bearing capacity for pull-out [kN]	0,50	0,53	0,53	0,69	0,84	1,02	1,77	1,77	2,01	
		0,55	0,53	0,53	0,69	0,84	1,02	1,77	1,77	2,01	
		0,63	0,53	0,53	0,69	0,84	1,02	1,77	1,77	2,01	
		0,75	0,53	0,53	0,69	0,84	1,02	1,77	1,77	2,01	
		0,88	0,53	0,53	0,69	0,84	1,02	1,77	1,77	2,01	
		1,00	0,53	0,53	0,69	0,84	1,02	1,77	1,77	2,01	
1,13	0,53	0,53	0,69	0,84	1,02	1,77	1,77	2,01			
1,25	0,53	0,53	0,69	0,84	1,02	1,77	1,77	2,01			

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015
²⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

If both components I and II are made of S320GD the values V_{R,k} may be increased by 8,3%
If both components I and II are made of S350GD the values V_{R,k} may be increased by 16,6%

Table C15

Characteristic bearing capacity of fasteners GT3 4,8 x L, GT3 4,8 x L powder.coat, GTR3 4,8 x L GTR3 4,8 x L powder.coat, with hexagon head – steel substrate								
Thickness of substrate ¹⁾ [mm]		1,00	1,25	1,50	2,00	2,50	3,00	Wood class ≥ C24
M _{t,nom}		3 Nm						
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	1,08	1,08	1,08	1,08	—	—
		0,55	1,08	1,08	1,08	1,08	—	—
		0,63	1,38	1,38	1,38	1,38	—	—
		0,75	2,11	2,11	2,11	2,11	—	—
		0,88	2,29	2,29	2,29	2,29	—	—
		1,00	2,59	2,59	2,59	2,59	—	—
		1,13	2,59	2,59	2,59	—	—	—
		1,25	2,59	2,74	2,74	—	—	—
		1,50	2,59	2,74	3,41	—	—	—
		1,75	2,59	2,74	—	—	—	—
	2,00	2,59	—	—	—	—	—	
	Characteristic bearing capacity for pull-out [kN]	0,50	0,51	0,51	0,51	0,51	—	—
		0,55	0,51	0,51	0,51	0,51	—	—
		0,63	0,76	0,76	0,76	0,76	—	—
		0,75	0,84	0,84	0,84	0,84	—	—
		0,88	0,78	0,78	0,78	0,78	—	—
		1,00	0,94	0,94	0,94	0,94	—	—
		1,13	0,94	0,94	0,94	—	—	—
		1,25	0,94	0,94	0,94	—	—	—
		1,50	0,94	0,94	0,94	—	—	—
1,75		0,94	0,94	—	—	—	—	
2,00	0,94	—	—	—	—	—		

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015
²⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

If both components I and II are made of S320GD the values V_{R,k} may be increased by 8,3%
If both components I and II are made of S350GD the values V_{R,k} may be increased by 16,6%

Table C16

Characteristic bearing capacity of fasteners GT3 4,8 x L, GT3 4,8 x L powder.coat, GTR3 4,8 x L i GTR3 4,8 x L powder.coat, with hexagon head and sealing washer Ø14 mm made of carbon steel , stainless steel or aluminum – steel substrate										
Thickness of substrate ¹⁾ [mm]		0,75	1,00	1,25	1,50	2,00	2,50	3,00	Wood class ≥ C24	
M _{t,nom}		3 Nm								
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	-	1,08	1,08	1,08	1,08	—	—	
		0,55	-	1,08	1,08	1,08	1,08	—	—	
		0,63	-	1,38	1,38	1,38	1,38	—	—	
		0,75	2,11	2,11	2,11	2,11	2,11	—	—	
		0,88	2,11	2,29	2,29	2,29	2,29	—	—	
		1,00	2,11	2,59	2,59	2,59	2,59	—	—	
		1,13	2,11	2,59	2,59	2,59	—	—	—	
		1,25	2,11	2,59	2,74	2,74	—	—	—	
		1,50	2,11	2,59	2,74	3,41	—	—	—	
		1,75	2,11	2,59	2,74	—	—	—	—	
		2,00	2,11	2,59	—	—	—	—	—	
	Characteristic bearing capacity for pull-out [kN]	0,50	-	0,97	1,43	1,69	2,19	—	—	
		0,55	-	0,97	1,43	1,69	2,19	—	—	
		0,63	-	0,97	1,43	1,69	2,76	—	—	
		0,75	0,75	0,97	1,43	1,69	2,76	—	—	
		0,88	0,75	0,97	1,43	1,69	2,76	—	—	
		1,00	0,75	0,97	1,43	1,69	2,76	—	—	
		1,13	0,75	0,97	1,43	1,69	—	—	—	
		1,25	0,75	0,97	1,43	1,69	—	—	—	
		1,50	0,75	0,97	1,43	1,69	—	—	—	
		1,75	0,75	0,97	1,43	—	—	—	—	
		2,00	0,75	0,97	—	—	—	—	—	

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015
²⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Table C17

Characteristic bearing capacity of fasteners GTX3 4,8 x L i GTX3 4,8 x L powder.coat, with hexagon head– steel substrate									
Thickness of substrate ¹⁾ [mm]		1,00	1,25	1,50	2,00	2,50	3,00	Wood class \geq C24	
$M_{t,nom}$		3 Nm							
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	1,08	1,08	1,08	1,08	—	—	/
		0,55	1,08	1,08	1,08	1,08	—	—	
		0,63	1,38	1,38	1,38	1,38	—	—	
		0,75	2,11	2,11	2,11	2,11	—	—	
		0,88	2,29	2,29	2,29	2,29	—	—	
		1,00	2,59	2,59	2,59	2,59	—	—	
		1,13	2,59	2,59	2,59	—	—	—	
		1,25	2,59	2,74	2,74	—	—	—	
		1,50	2,59	2,74	3,41	—	—	—	
		1,75	2,59	2,74	—	—	—	—	
	2,00	2,59	—	—	—	—	—		
	Characteristic bearing capacity for pull-out [kN]	0,50	0,51	0,51	0,51	0,51	—	—	
		0,55	0,51	0,51	0,51	0,51	—	—	
		0,63	0,76	0,76	0,76	0,76	—	—	
		0,75	0,84	0,84	0,84	0,84	—	—	
		0,88	0,78	0,78	0,78	0,78	—	—	
		1,00	0,94	0,94	0,94	0,94	—	—	
		1,13	0,94	0,94	0,94	—	—	—	
		1,25	0,94	0,94	0,94	—	—	—	
		1,50	0,94	0,94	0,94	—	—	—	
1,75		0,94	0,94	—	—	—	—		
2,00	0,94	—	—	—	—	—			

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015
²⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Table C18

Characteristic bearing capacity of fasteners GTX3 4,8 x L i GTX3 4,8 x L powder.coat, with hexagon head and sealing washer Ø14 mm made of stainless steel – steel substrate										
Thickness of substrate ¹⁾ [mm]		0,75	1,00	1,25	1,50	2,00	2,50	3,00	Wood class ≥ C24	
M _{t,nom}		3 Nm								
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	-	1,08	1,08	1,08	1,08	—	—	
		0,55	-	1,08	1,08	1,08	1,08	—	—	
		0,63	-	1,38	1,38	1,38	1,38	—	—	
		0,75	2,11	2,11	2,11	2,11	2,11	—	—	
		0,88	2,11	2,29	2,29	2,29	2,29	—	—	
		1,00	2,11	2,59	2,59	2,59	2,59	—	—	
		1,13	2,11	2,59	2,59	2,59	—	—	—	
		1,25	2,11	2,59	2,74	2,74	—	—	—	
		1,50	2,11	2,59	2,74	3,41	—	—	—	
		1,75	2,11	2,59	2,74	—	—	—	—	
		2,00	2,11	2,59	—	—	—	—	—	
	Characteristic bearing capacity for pull-out [kN]	0,50	-	1,02	1,24	1,69	2,19	—	—	
		0,55	-	1,02	1,24	1,69	2,19	—	—	
		0,63	-	1,02	1,24	1,69	2,52	—	—	
		0,75	0,75	1,02	1,24	1,69	2,52	—	—	
		0,88	0,75	1,02	1,24	1,69	2,52	—	—	
		1,00	0,75	1,02	1,24	1,69	2,52	—	—	
		1,13	0,75	1,02	1,24	1,69	—	—	—	
		1,25	0,75	1,02	1,24	1,69	—	—	—	
		1,50	0,75	1,02	1,24	1,69	—	—	—	
		1,75	0,75	1,02	1,24	—	—	—	—	
		2,00	0,75	1,02	—	—	—	—	—	

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015
²⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

If both components I and II are made of S320GD the values V_{R,k} may be increased by 8,3%
If both components I and II are made of S350GD the values V_{R,k} may be increased by 16,6%

Table C19

Characteristic bearing capacity of fasteners GTX3 AL 5,5 x L i GTX3 AL 5,5 x L powder.coat, with hexagon head – steel substrate										
Thickness of substrate ¹⁾ [mm]		0,75	1,00	1,25	1,50	2,00	2,50	3,00	Wood class ≥ C24	
M _{t,nom}		6 Nm								
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	—	1,08	1,08	1,08	1,08	—	—	
		0,55	—	1,08	1,08	1,08	1,08	—	—	
		0,63	—	1,38	1,38	1,38	1,38	—	—	
		0,75	0,95	2,11	2,11	2,11	2,11	—	—	
		0,88	0,95	2,29	2,29	2,29	2,29	—	—	
		1,00	0,95	2,59	2,59	2,59	2,59	—	—	
		1,13	0,95	2,59	2,59	2,59	—	—	—	
		1,25	0,95	2,59	2,74	2,74	—	—	—	
		1,50	0,95	2,59	2,74	3,41	—	—	—	
		1,75	0,95	2,59	2,74	—	—	—	—	
	2,00	0,95	2,59	—	—	—	—	—		
	Characteristic bearing capacity for pull-out [kN]	0,50	—	0,61	0,61	0,61	0,61	—	—	
		0,55	—	0,61	0,61	0,61	0,61	—	—	
		0,63	—	0,90	0,90	0,90	0,90	—	—	
		0,75	0,86	0,96	0,99	0,99	0,99	—	—	
		0,88	0,86	0,96	0,99	0,99	0,99	—	—	
		1,00	0,86	0,96	1,13	1,13	1,13	—	—	
		1,13	0,86	0,96	1,13	1,13	—	—	—	
		1,25	0,86	0,96	1,13	1,13	—	—	—	
		1,50	0,86	0,96	1,13	1,13	—	—	—	
1,75		0,86	0,96	1,13	—	—	—	—		
2,00	0,86	0,96	—	—	—	—	—			

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015
²⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

If both components I and II are made of S320GD the values V_{R,k} may be increased by 8,3%
If both components I and II are made of S350GD the values V_{R,k} may be increased by 16,6%

Table C20

Characteristic bearing capacity of fasteners GTX3 AL 5,5 x L i GTX3 AL 5,5 x L powder.coat, with hexagon head and sealing washer $\varnothing 14$ mm made of stainless steel – steel substrate										
Thickness of substrate ¹⁾ [mm]		0,75	1,00	1,25	1,50	2,00	2,50	3,00	Wood class \geq C24	
$M_{t,nom}$		6 Nm								
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	—	1,08	1,08	1,08	1,08	—	—	
		0,55	—	1,08	1,08	1,08	1,08	—	—	
		0,63	—	1,38	1,38	1,38	1,38	—	—	
		0,75	0,95	2,11	2,11	2,11	2,11	—	—	
		0,88	0,95	2,29	2,29	2,29	2,29	—	—	
		1,00	0,95	2,59	2,59	2,59	2,59	—	—	
		1,13	0,95	2,59	2,59	2,59	—	—	—	
		1,25	0,95	2,59	2,74	2,74	—	—	—	
		1,50	0,95	2,59	2,74	3,41	—	—	—	
		1,75	0,95	2,59	2,74	—	—	—	—	
		2,00	0,95	2,59	—	—	—	—	—	
	Characteristic bearing capacity for pull-out [kN]	0,50	—	0,96	1,42	1,85	2,63	—	—	
		0,55	—	0,96	1,42	1,85	2,63	—	—	
		0,63	—	0,96	1,42	1,85	2,78	—	—	
		0,75	0,95	0,96	1,42	1,85	2,78	—	—	
		0,88	0,95	0,96	1,42	1,85	2,78	—	—	
		1,00	0,95	0,96	1,42	1,85	2,78	—	—	
		1,13	0,95	0,96	1,42	1,85	—	—	—	
		1,25	0,95	0,96	1,42	1,85	—	—	—	
		1,50	0,95	0,96	1,42	1,85	—	—	—	
		1,75	0,95	0,96	1,42	—	—	—	—	
		2,00	0,95	0,96	—	—	—	—	—	

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015
²⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Table C21

Characteristic bearing capacity of fasteners GTX3 AL 5,5 x L i GTX3 AL 5,5 x L powder.coat, with hexagon head – aluminum substrate								
Thickness of substrate ¹⁾ [mm]		1,00	1,25	1,50	2,00	2,50	3,00	Wood class ≥ C24
M _{t,nom}		6 Nm						
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	—	—	—	—	—	—
		0,55	—	—	—	—	—	—
		0,63	—	—	—	—	—	—
		0,75	—	—	—	—	—	—
		0,88	—	—	—	—	—	—
		1,00	—	—	—	—	—	—
		1,13	—	—	—	—	—	—
		1,25	—	—	—	—	—	—
		1,50	—	—	0,76	0,76	—	—
		1,75	—	—	0,76	2,21	—	—
		2,00	—	—	0,76	2,21	—	—
		Characteristic bearing capacity for pull-out [kN]	0,50	—	—	—	—	—
	0,55		—	—	—	—	—	—
	0,63		—	—	—	—	—	—
	0,75		—	—	—	—	—	—
	0,88		—	—	—	—	—	—
	1,00		—	—	—	—	—	—
	1,13		—	—	—	—	—	—
	1,25		—	—	—	—	—	—
	1,50		—	—	0,76	0,76	—	—
	1,75		—	—	0,76	2,21	—	—
	2,00		—	—	0,76	2,21	—	—

¹⁾ aluminium gatunku 1050A według PN-EN 573-3:2010

²⁾ aluminium gatunku 1050A według PN-EN 573-3:2010

Table C22

Characteristic bearing capacity of fasteners GTX3 AL 5,5 x L i GTX3 AL 5,5 x L powder.coat, with hexagon head and sealing washer $\varnothing 14$ mm made of stainless steel – aluminum substrate								
Thickness of substrate ¹⁾ [mm]		1,00	1,25	1,50	2,00	2,50	3,00	Wood class \geq C24
$M_{t,nom}$		6 Nm						
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	—	—	—	—	—	
		0,55	—	—	—	—	—	
		0,63	—	—	—	—	—	
		0,75	—	—	—	—	—	
		0,88	—	—	—	—	—	
		1,00	—	—	—	—	—	
		1,13	—	—	—	—	—	
		1,25	—	—	—	—	—	
		1,50	—	—	0,76	0,76	—	
		1,75	—	—	0,76	2,21	—	
		2,00	—	—	0,76	2,21	—	
	Characteristic bearing capacity for pull-out [kN]	0,50	—	—	—	—	—	
		0,55	—	—	—	—	—	
		0,63	—	—	—	—	—	
		0,75	—	—	—	—	—	
		0,88	—	—	—	—	—	
		1,00	—	—	—	—	—	
		1,13	—	—	—	—	—	
		1,25	—	—	—	—	—	
		1,50	—	—	0,76	0,76	—	
		1,75	—	—	0,76	2,21	—	
		2,00	—	—	0,76	2,21	—	

¹⁾ aluminium gatunku 1050A według PN-EN 573-3:2010

²⁾ aluminium gatunku 1050A według PN-EN 573-3:2010

Table C23

Characteristic bearing capacity of fasteners GT3 HD 5,5 x L i GT3 HD 5,5 x L powder.coat, with hexagon head – steel substrate								
Thickness of substrate ¹⁾ [mm]		0,75	0,88	1,00	1,25	1,50		Wood class ≥ C24
$M_{t,nom}$		5 Nm						
Thickness of fastened metal sheet ²⁾	Characteristic bearing capacity for shear [kN]	0,75	1,90	1,90	1,90	1,90	1,90	
		0,88	1,90	1,90	1,90	1,90	1,90	
		1,00	3,20	3,20	3,20	3,20	3,20	
		1,25	3,20	3,20	3,20	3,20	3,20	
		1,50	3,20	3,20	3,20	3,20	3,20	
	Characteristic bearing capacity for pull-out [kN]	0,75	0,95	0,95	0,95	0,95	0,95	
		0,88	0,95	0,95	0,95	0,95	0,95	
		1,00	0,95	0,95	1,66	1,66	1,66	
		1,25	0,95	0,95	1,66	1,88	1,88	
		1,50	0,95	0,95	1,66	1,88	2,77	

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015
²⁾ stal gatunku S23JR+N według PN-EN 10025-1:2007 lub gatunku S280GD, S320GD lub S350GD według PN-EN 10346:2015

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Table C24

Characteristic bearing capacity of fasteners GT3 HD 5,5 x L i GT3 HD 5,5 x L powder.coat, with hexagon head and sealing washer Ø14 mm made of carbon steel – steel substrate								
Thickness of substrate ¹⁾ [mm]		0,75	0,88	1,00	1,25	1,50		Wood class ≥ C24
$M_{t,nom}$		5 Nm						
Thickness of fastened metal sheet ²⁾	Characteristic bearing capacity for shear [kN]	0,75	1,90	1,90	1,90	1,90	1,90	
		0,88	1,90	1,90	1,90	1,90	1,90	
		1,00	3,20	3,20	3,20	3,20	3,20	
		1,25	3,20	3,20	3,20	3,20	3,20	
		1,50	3,20	3,20	3,20	3,20	3,20	
	Characteristic bearing capacity for pull-out [kN]	0,75	0,95	0,95	0,95	0,95	0,95	
		0,88	0,95	0,95	0,95	0,95	0,95	
		1,00	0,95	0,95	1,66	1,66	1,66	
		1,25	0,95	0,95	1,66	1,88	1,88	
		1,50	0,95	0,95	1,66	1,88	2,77	

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015
²⁾ stal gatunku S23JR+N według PN-EN 10025-1:2007 lub gatunku S280GD, S320GD lub S350GD według PN-EN 10346:2015

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Table 25

Characteristic bearing capacity of fasteners GT5 5,5 x L, GT5 5,5 x L powder.coat, GTR5 5,5 x L i GTR5 5,5 x L powder.coat, with hexagon head– steel substrate									
Thickness of substrate ¹⁾ [mm]		1,50	2,00	3,00	4,00	5,00	6,00	Wood class ≥ C24	
M _{t,nom}		6 Nm							
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	1,25	1,25	1,25	1,25	—	—	
		0,55	1,25	1,25	1,25	1,25	—	—	
		0,63	1,18	1,18	1,18	1,18	—	—	
		0,75	1,70	1,70	1,70	1,70	—	—	
		0,88	2,07	2,07	2,07	2,07	—	—	
		1,00	2,32	2,32	2,32	2,32	—	—	
		1,13	2,32	2,32	2,32	—	—	—	
		1,25	3,41	3,41	3,41	—	—	—	
		1,50	3,41	3,41	3,41	—	—	—	
		1,75	3,41	3,41	3,41	—	—	—	
	2,00	3,41	3,41	3,41	—	—	—		
	Characteristic bearing capacity for pull-out [kN]	0,50	0,61	0,61	0,61	0,61	—	—	
		0,55	0,61	0,61	0,61	0,61	—	—	
		0,63	0,90	0,90	0,90	0,90	—	—	
		0,75	0,99	0,99	0,99	0,99	—	—	
		0,88	0,99	0,99	0,99	0,99	—	—	
		1,00	1,13	1,13	1,13	1,13	—	—	
		1,13	1,13	1,13	1,13	—	—	—	
		1,25	1,13	1,13	1,13	—	—	—	
		1,50	1,13	1,13	1,13	—	—	—	
1,75		1,13	1,13	1,13	—	—	—		
2,00	1,13	1,13	1,13	—	—	—			

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

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

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%

If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Table C26

Characteristic bearing capacity of fasteners GT5 5,5 x L, GT5 5,5 x L powder.coat, GTR5 5,5 x L i GTR5 5,5 x L powder.coat, with hexagon head and sealing washer Ø14 mm made of carbon steel , stainless steel or aluminum – steel substrate									
Thickness of substrate ¹⁾ [mm]		1,50	2,00	3,00	4,00	5,00	6,00	Wood class ≥ C24	
M _{t,nom}		6 Nm							
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	1,25	1,25	1,25	1,25	—	—	/
		0,55	1,25	1,25	1,25	1,25	—	—	
		0,63	1,18	1,18	1,18	1,18	—	—	
		0,75	1,70	1,70	1,70	1,70	—	—	
		0,88	2,07	2,07	2,07	2,07	—	—	
		1,00	2,32	2,32	2,32	2,32	—	—	
		1,13	2,32	2,32	2,32	—	—	—	
		1,25	3,41	3,41	3,41	—	—	—	
		1,50	3,41	3,41	3,41	—	—	—	
		1,75	3,41	3,41	3,41	—	—	—	
	2,00	3,41	3,41	3,41	—	—	—		
	Characteristic bearing capacity for pull-out [kN]	0,50	1,78	2,55	2,63	2,63	—	—	
		0,55	1,78	2,55	2,63	2,63	—	—	
		0,63	1,78	2,55	3,59	3,59	—	—	
		0,75	1,78	2,55	4,13	4,13	—	—	
		0,88	1,78	2,55	4,14	4,14	—	—	
		1,00	1,78	2,55	4,71	4,71	—	—	
		1,13	1,78	2,55	4,71	—	—	—	
		1,25	1,78	2,55	4,71	—	—	—	
		1,50	1,78	2,55	4,71	—	—	—	
1,75		1,78	2,55	4,71	—	—	—		
2,00	1,78	2,55	4,71	—	—	—			

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

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

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%

If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Table C27

Nośności charakterystyczne zamocowań GT5 5,5 x L, GT5 5,5 x L powder.coat, GTR5 5,5 x L i GTR5 5,5 x L powder.coat, with hexagon head or oval head and sealing washer Ø16 mm made of carbon steel , stainless steel or aluminum – steel substrate									
Thickness of substrate ¹⁾ [mm]		1,50	2,00	3,00	4,00	5,00	6,00	Wood class ≥ C24	
M _{t,nom}		6 Nm							
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	1,25	1,25	1,25	1,25	—	—	
		0,55	1,25	1,25	1,25	1,25	—	—	
		0,63	1,18	1,18	1,18	1,18	—	—	
		0,75	1,70	1,70	1,70	1,70	—	—	
		0,88	2,07	2,07	2,07	2,07	—	—	
		1,00	2,32	2,32	2,32	2,32	—	—	
		1,13	2,32	2,32	2,32	—	—	—	
		1,25	3,41	3,41	3,41	—	—	—	
		1,50	3,41	3,41	3,41	—	—	—	
		1,75	3,41	3,41	3,41	—	—	—	
	2,00	3,41	3,41	3,41	—	—	—		
	Characteristic bearing capacity for pull-out [kN]	0,50	1,78	2,55	3,16	3,16	—	—	
		0,55	1,78	2,55	3,16	3,16	—	—	
		0,63	1,78	2,55	3,63	3,63	—	—	
		0,75	1,78	2,55	4,17	4,17	—	—	
		0,88	1,78	2,55	4,18	4,18	—	—	
		1,00	1,78	2,55	4,75	4,75	—	—	
		1,13	1,78	2,55	4,75	—	—	—	
		1,25	1,78	2,55	4,75	—	—	—	
		1,50	1,78	2,55	4,75	—	—	—	
1,75		1,78	2,55	4,75	—	—	—		
2,00	1,78	2,55	4,75	—	—	—			

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

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

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%

If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Table C28

Characteristic bearing capacity of fasteners GT5 FH 5,5 x L i GT5 FH 5,5 x L powder.coat, with hexagon head-steel substrate									
Thickness of substrate ¹⁾ [mm]		1,50	2,00	3,00	4,00	5,00	6,00	Wood class \geq C24	
$M_{t,nom}$		6 Nm							
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	1,25	1,25	1,25	1,25	—	—	
		0,55	1,25	1,25	1,25	1,25	—	—	
		0,63	1,18	1,18	1,18	1,18	—	—	
		0,75	1,70	1,70	1,70	1,70	—	—	
		0,88	2,07	2,07	2,07	2,07	—	—	
		1,00	2,32	2,32	2,32	2,32	—	—	
		1,13	2,32	2,32	2,32	—	—	—	
		1,25	3,41	3,41	3,41	—	—	—	
		1,50	3,41	3,41	3,41	—	—	—	
		1,75	3,41	3,41	3,41	—	—	—	
	2,00	3,41	3,41	3,41	—	—	—		
	Characteristic bearing capacity for pull-out [kN]	0,50	1,78	2,55	2,76	2,76	—	—	
		0,55	1,78	2,55	2,76	2,76	—	—	
		0,63	1,78	2,55	3,77	3,77	—	—	
		0,75	1,78	2,55	4,34	4,34	—	—	
		0,88	1,78	2,55	4,35	4,35	—	—	
		1,00	1,78	2,55	4,94	4,94	—	—	
		1,13	1,78	2,55	4,94	—	—	—	
		1,25	1,78	2,55	4,94	—	—	—	
		1,50	1,78	2,55	4,94	—	—	—	
1,75		1,78	2,55	4,94	—	—	—		
2,00	1,78	2,55	4,94	—	—	—			

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015
²⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Table C29

Characteristic bearing capacity of fasteners GTX5 5,5 x L i GTX5 5,5 x L powder.coat, with hexagon head – steel substrate									
Thickness of substrate ¹⁾ [mm]		1,50	2,00	3,00	4,00	5,00	6,00	Wood class \geq C24	
$M_{t,nom}$		6 Nm							
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	1,25	1,25	1,25	1,25	—	—	/
		0,55	1,25	1,25	1,25	1,25	—	—	
		0,63	1,18	1,18	1,18	1,18	—	—	
		0,75	1,70	1,70	1,70	1,70	—	—	
		0,88	2,07	2,07	2,07	2,07	—	—	
		1,00	2,32	2,32	2,32	2,32	—	—	
		1,13	2,32	2,32	2,32	—	—	—	
		1,25	3,41	3,41	3,41	—	—	—	
		1,50	3,41	3,41	3,41	—	—	—	
		1,75	3,41	3,41	3,41	—	—	—	
	2,00	3,41	3,41	3,41	—	—	—		
	Characteristic bearing capacity for pull-out [kN]	0,50	0,61	0,61	0,61	0,61	—	—	
		0,55	0,61	0,61	0,61	0,61	—	—	
		0,63	0,90	0,90	0,90	0,90	—	—	
		0,75	0,99	0,99	0,99	0,99	—	—	
		0,88	0,99	0,99	0,99	0,99	—	—	
		1,00	1,13	1,13	1,13	1,13	—	—	
		1,13	1,13	1,13	1,13	—	—	—	
		1,25	1,13	1,13	1,13	—	—	—	
		1,50	1,13	1,13	1,13	—	—	—	
1,75		1,13	1,13	1,13	—	—	—		
2,00	1,13	1,13	1,13	—	—	—			

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015
²⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Table C30

Characteristic bearing capacity of fasteners GTX5 5,5 x L i GTX5 5,5 x L powder.coat,, with hexagon head and sealing washer Ø14 mm made of stainless steel – steel substrate									
Thickness of substrate ¹⁾ [mm]		1,50	2,00	3,00	4,00	5,00	6,00	Wood class ≥ C24	
M _{t,nom}		6 Nm							
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	1,25	1,25	1,25	1,25	—	—	
		0,55	1,25	1,25	1,25	1,25	—	—	
		0,63	1,18	1,18	1,18	1,18	—	—	
		0,75	1,70	1,70	1,70	1,70	—	—	
		0,88	2,07	2,07	2,07	2,07	—	—	
		1,00	2,32	2,32	2,32	2,32	—	—	
		1,13	2,32	2,32	2,32	—	—	—	
		1,25	3,41	3,41	3,41	—	—	—	
		1,50	3,41	3,41	3,41	—	—	—	
		1,75	3,41	3,41	3,41	—	—	—	
	2,00	3,41	3,41	3,41	—	—	—		
	Characteristic bearing capacity for pull-out [kN]	0,50	1,44	1,96	1,96	2,63	—	—	
		0,55	1,44	1,96	1,96	2,63	—	—	
		0,63	1,44	1,96	1,96	3,59	—	—	
		0,75	1,44	1,96	1,96	4,13	—	—	
		0,88	1,44	1,96	1,96	4,14	—	—	
		1,00	1,44	1,96	1,96	4,71	—	—	
		1,13	1,44	1,96	1,96	—	—	—	
		1,25	1,44	1,96	1,96	—	—	—	
		1,50	1,44	1,96	1,96	—	—	—	
1,75		1,44	1,96	1,96	—	—	—		
2,00	1,44	1,96	1,96	—	—	—			

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

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

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%

If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Table C31

Characteristic bearing capacity of fasteners GT6 6,3 x L, i GT6 6,3 x L powder.coat, with hexagon head– steel substrate								
Thickness of substrate ¹⁾ [mm]		4,00	5,00	—	—	—	—	Wood class \geq C24
$M_{t,nom}$		8 Nm						
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	1,33	1,33	—	—	—	—
		0,55	1,33	1,33	—	—	—	—
		0,63	1,48	1,48	—	—	—	—
		0,75	2,03	2,03	—	—	—	—
		0,88	2,44	2,44	—	—	—	—
		1,00	2,97	2,97	—	—	—	—
		1,13	2,97	—	—	—	—	—
		1,25	2,97	—	—	—	—	—
		1,50	2,97	—	—	—	—	—
		1,75	2,97	—	—	—	—	—
	2,00	2,97	—	—	—	—	—	
	Characteristic bearing capacity for pull-out [kN]	0,50	0,72	0,72	—	—	—	—
		0,55	0,72	0,72	—	—	—	—
		0,63	1,05	1,05	—	—	—	—
		0,75	1,16	1,16	—	—	—	—
		0,88	1,16	1,16	—	—	—	—
		1,00	1,32	1,32	—	—	—	—
		1,13	1,32	—	—	—	—	—
		1,25	1,32	—	—	—	—	—
		1,50	1,32	—	—	—	—	—
1,75		1,32	—	—	—	—	—	
2,00	1,32	—	—	—	—	—		

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015
²⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Table C32

Characteristic bearing capacity of fasteners GT6 6,3 x L,i GT6 6,3 x L powder.coat, with hexagon head and sealing washer $\varnothing 16$ mm made of carbon steel – steel substrate								
Thickness of substrate ¹⁾ [mm]		4,00	5,00	—	—	—	—	Wood class \geq C24
$M_{t,nom}$		8 Nm						
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	1,33	1,33	—	—	—	—
		0,55	1,33	1,33	—	—	—	—
		0,63	1,48	1,48	—	—	—	—
		0,75	2,03	2,03	—	—	—	—
		0,88	2,44	2,44	—	—	—	—
		1,00	2,97	2,97	—	—	—	—
		1,13	2,97	—	—	—	—	—
		1,25	2,97	—	—	—	—	—
		1,50	2,97	—	—	—	—	—
		1,75	2,97	—	—	—	—	—
	2,00	2,97	—	—	—	—	—	
	Characteristic bearing capacity for pull-out [kN]	0,50	3,31	3,31	—	—	—	—
		0,55	3,31	3,31	—	—	—	—
		0,63	3,74	3,74	—	—	—	—
		0,75	4,85	4,85	—	—	—	—
		0,88	5,49	5,49	—	—	—	—
		1,00	6,66	6,66	—	—	—	—
		1,13	6,66	—	—	—	—	—
		1,25	6,66	—	—	—	—	—
		1,50	6,66	—	—	—	—	—
1,75		6,66	—	—	—	—	—	
2,00	6,66	—	—	—	—	—		

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015
²⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Table C33

Characteristic bearing capacity of fasteners GT8 5,5 x L, GT8 5,5 x L powder.coat, GTR8 5,5 x L i GTR8 5,5 x L powder.coat, with hexagon head – steel substrate								
Thickness of substrate ¹⁾ [mm]		2,00	3,00	4,00	5,00	6,00	8,00	Wood class ≥ C24
M _{t,nom}		6 Nm						
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	1,29	1,29	1,29	1,29	1,29	—
		0,55	1,29	1,29	1,29	1,29	1,29	—
		0,63	1,63	1,63	1,63	1,63	1,63	—
		0,75	1,75	1,75	1,75	1,75	1,75	—
		0,88	2,14	2,14	2,14	2,14	2,14	—
		1,00	2,29	2,29	2,29	2,29	2,29	—
		1,13	2,29	2,29	2,29	2,29	2,29	—
		1,25	2,29	2,29	2,29	2,29	2,29	—
		1,50	2,29	2,29	2,29	2,29	2,29	—
		1,75	2,29	2,29	2,29	2,29	2,29	—
	2,00	2,29	2,29	2,29	2,29	2,29	—	
	Characteristic bearing capacity for pull-out [kN]	0,50	0,61	0,61	0,61	0,61	0,61	—
		0,55	0,61	0,61	0,61	0,61	0,61	—
		0,63	0,90	0,90	0,90	0,90	0,90	—
		0,75	0,99	0,99	0,99	0,99	0,99	—
		0,88	0,99	0,99	0,99	0,99	0,99	—
		1,00	1,13	1,13	1,13	1,13	1,13	—
		1,13	1,13	1,13	1,13	1,13	1,13	—
		1,25	1,13	1,13	1,13	1,13	1,13	—
		1,50	1,13	1,13	1,13	1,13	1,13	—
1,75		1,13	1,13	1,13	1,13	1,13	—	
2,00	1,13	1,13	1,13	1,13	1,13	—		

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015
²⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

If both components I and II are made of S320GD the values V_{R,k} may be increased by 8,3%
If both components I and II are made of S350GD the values V_{R,k} may be increased by 16,6%

Table C34

Characteristic bearing capacity of fasteners GT8 5,5 x L, GT8 5,5 x L powder.coat, GTR8 5,5 x L i GTR8 5,5 x L powder.coat, with hexagon head and sealing washer Ø14 mm made of carbon steel , stainless steel or aluminum – steel substrate								
Thickness of substrate ¹⁾ [mm]		2,00	3,00	4,00	5,00	6,00	8,00	Wood class ≥ C24
M _{t,nom}		6 Nm						
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	1,29	1,29	1,29	1,29	1,29	—
		0,55	1,29	1,29	1,29	1,29	1,29	—
		0,63	1,63	1,63	1,63	1,63	1,63	—
		0,75	1,75	1,75	1,75	1,75	1,75	—
		0,88	2,14	2,14	2,14	2,14	2,14	—
		1,00	2,29	2,29	2,29	2,29	2,29	—
		1,13	2,29	2,29	2,29	2,29	2,29	—
		1,25	2,29	2,29	2,29	2,29	2,29	—
		1,50	2,29	2,29	2,29	2,29	2,29	—
		1,75	2,29	2,29	2,29	2,29	2,29	—
	2,00	2,29	2,29	2,29	2,29	2,29	—	
	Characteristic bearing capacity for pull-out [kN]	0,50	2,57	2,63	2,63	2,63	2,63	—
		0,55	2,57	2,63	2,63	2,63	2,63	—
		0,63	2,57	3,59	3,59	3,59	3,59	—
		0,75	2,57	4,13	4,13	4,13	4,13	—
		0,88	2,57	4,14	4,14	4,14	4,14	—
		1,00	2,57	4,71	4,71	4,71	4,71	—
		1,13	2,57	4,71	4,71	4,71	4,71	—
		1,25	2,57	4,71	4,71	4,71	4,71	—
		1,50	2,57	4,71	4,71	4,71	4,71	—
1,75		2,57	4,71	4,71	4,71	4,71	—	
2,00	2,57	4,71	4,71	4,71	4,71	—		

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015
²⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

If both components I and II are made of S320GD the values V_{R,k} may be increased by 8,3%
If both components I and II are made of S350GD the values V_{R,k} may be increased by 16,6%

Table C35

Characteristic bearing capacity of fasteners GT8 5,5 x L, GT8 5,5 x L powder.coat, GTR8 5,5 x L i GTR8 5,5 x L powder.coat, with hexagon head and sealing washer Ø16 mm made of carbon steel , stainless steel or aluminum – steel substrate								
Thickness of substrate ¹⁾ [mm]		2,00	3,00	4,00	5,00	6,00	8,00	Wood class ≥ C24
M _{t,nom}		6 Nm						
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	1,29	1,29	1,29	1,29	1,29	—
		0,55	1,29	1,29	1,29	1,29	1,29	—
		0,63	1,63	1,63	1,63	1,63	1,63	—
		0,75	1,75	1,75	1,75	1,75	1,75	—
		0,88	2,14	2,14	2,14	2,14	2,14	—
		1,00	2,29	2,29	2,29	2,29	2,29	—
		1,13	2,29	2,29	2,29	2,29	2,29	—
		1,25	2,29	2,29	2,29	2,29	2,29	—
		1,50	2,29	2,29	2,29	2,29	2,29	—
		1,75	2,29	2,29	2,29	2,29	2,29	—
	2,00	2,29	2,29	2,29	2,29	2,29	—	
	Characteristic bearing capacity for pull-out [kN]	0,50	2,57	2,63	2,63	2,63	2,63	—
		0,55	2,57	2,63	2,63	2,63	2,63	—
		0,63	2,57	3,59	3,59	3,59	3,59	—
		0,75	2,57	4,13	4,13	4,13	4,13	—
		0,88	2,57	4,14	4,14	4,14	4,14	—
		1,00	2,57	4,71	4,71	4,71	4,71	—
		1,13	2,57	4,71	4,71	4,71	4,71	—
		1,25	2,57	4,71	4,71	4,71	4,71	—
		1,50	2,57	4,71	4,71	4,71	4,71	—
1,75		2,57	4,71	4,71	4,71	4,71	—	
2,00	2,57	4,71	4,71	4,71	4,71	—		

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015
²⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

If both components I and II are made of S320GD the values V_{R,k} may be increased by 8,3%
If both components I and II are made of S350GD the values V_{R,k} may be increased by 16,6%

Table C36

Characteristic bearing capacity of fasteners GT12 5,5 x L, GT12 5,5 x L powder.coat, GTR12 5,5 x L i GTR12 5,5 x L powder.coat, with hexagon head– steel substrate								
Thickness of substrate ¹⁾ [mm]	4,00	5,00	6,00	8,00	10,00	12,00	Wood class \geq C24	
$M_{t,nom}$	6 Nm							
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	1,34	1,34	1,34	1,34	1,34	—
		0,55	1,34	1,34	1,34	1,34	1,34	—
		0,63	1,46	1,46	1,46	1,46	1,46	—
		0,75	1,93	1,93	1,93	1,93	1,93	—
		0,88	2,35	2,35	2,35	2,35	2,35	—
		1,00	2,82	2,82	2,82	2,82	2,82	—
		1,13	2,82	2,82	2,82	2,82	2,82	—
		1,25	2,82	2,82	2,82	2,82	2,82	—
		1,50	2,82	2,82	2,82	2,82	2,82	—
		1,75	2,82	2,82	2,82	2,82	2,82	—
	2,00	2,82	2,82	2,82	2,82	2,82	—	
	Characteristic bearing capacity for pull-out [kN]	0,50	0,61	0,61	0,61	0,61	0,61	—
		0,55	0,61	0,61	0,61	0,61	0,61	—
		0,63	0,90	0,90	0,90	0,90	0,90	—
		0,75	0,99	0,99	0,99	0,99	0,99	—
		0,88	0,99	0,99	0,99	0,99	0,99	—
		1,00	1,13	1,13	1,13	1,13	1,13	—
		1,13	1,13	1,13	1,13	1,13	1,13	—
		1,25	1,13	1,13	1,13	1,13	1,13	—
		1,50	1,13	1,13	1,13	1,13	1,13	—
1,75		1,13	1,13	1,13	1,13	1,13	—	
2,00	1,13	1,13	1,13	1,13	1,13	—		

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015
²⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Table C37

Characteristic bearing capacity of fasteners GT12 5,5 x L, GT12 5,5 x L powder.coat, GTR12 5,5 x L i GTR12 5,5 x L powder.coat, with hexagon head and sealing washer Ø14 mm made of carbon steel , stainless steel or aluminum – steel substrate									
Thickness of substrate ¹⁾ [mm]		4,00	5,00	6,00	8,00	10,00	12,00	Wood class ≥ C24	
M _{t,nom}		6 Nm							
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	1,34	1,34	1,34	1,34	1,34	—	
		0,55	1,34	1,34	1,34	1,34	1,34	—	
		0,63	1,46	1,46	1,46	1,46	1,46	—	
		0,75	1,93	1,93	1,93	1,93	1,93	—	
		0,88	2,35	2,35	2,35	2,35	2,35	—	
		1,00	2,82	2,82	2,82	2,82	2,82	—	
		1,13	2,82	2,82	2,82	2,82	2,82	—	
		1,25	2,82	2,82	2,82	2,82	2,82	—	
		1,50	2,82	2,82	2,82	2,82	2,82	—	
		1,75	2,82	2,82	2,82	2,82	2,82	—	
	2,00	2,82	2,82	2,82	2,82	2,82	—		
	Characteristic bearing capacity for pull-out [kN]	0,50	2,63	2,63	2,63	2,63	2,63	—	
		0,55	2,63	2,63	2,63	2,63	2,63	—	
		0,63	3,59	3,59	3,59	3,59	3,59	—	
		0,75	4,13	4,13	4,13	4,13	4,13	—	
		0,88	4,14	4,14	4,14	4,14	4,14	—	
		1,00	4,71	4,71	4,71	4,71	4,71	—	
		1,13	4,71	4,71	4,71	4,71	4,71	—	
		1,25	4,71	4,71	4,71	4,71	4,71	—	
		1,50	4,71	4,71	4,71	4,71	4,71	—	
1,75		4,71	4,71	4,71	4,71	4,71	—		
2,00	4,71	4,71	4,71	4,71	4,71	—			

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015
²⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

If both components I and II are made of S320GD the values V_{R,k} may be increased by 8,3%
If both components I and II are made of S350GD the values V_{R,k} may be increased by 16,6%

Table C38

Characteristic bearing capacity of fasteners GT12 5,5 x L, GT12 5,5 x L powder.coat, GTR12 5,5 x L i GTR12 5,5 x L powder.coat, with hexagon head and sealing washer Ø16 mm made of carbon steel , stainless steel or aluminum – steel substrate								
Thickness of substrate ¹⁾ [mm]		4,00	5,00	6,00	8,00	10,00	12,00	Wood class ≥ C24
M _{t,nom}		6 Nm						
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	1,34	1,34	1,34	1,34	1,34	—
		0,55	1,34	1,34	1,34	1,34	1,34	—
		0,63	1,46	1,46	1,46	1,46	1,46	—
		0,75	1,93	1,93	1,93	1,93	1,93	—
		0,88	2,35	2,35	2,35	2,35	2,35	—
		1,00	2,82	2,82	2,82	2,82	2,82	—
		1,13	2,82	2,82	2,82	2,82	2,82	—
		1,25	2,82	2,82	2,82	2,82	2,82	—
		1,50	2,82	2,82	2,82	2,82	2,82	—
		1,75	2,82	2,82	2,82	2,82	2,82	—
	2,00	2,82	2,82	2,82	2,82	2,82	—	
	Characteristic bearing capacity for pull-out [kN]	0,50	3,16	3,16	3,16	3,16	3,16	—
		0,55	3,16	3,16	3,16	3,16	3,16	—
		0,63	3,63	3,63	3,63	3,63	3,63	—
		0,75	4,17	4,17	4,17	4,17	4,17	—
		0,88	4,18	4,18	4,18	4,18	4,18	—
		1,00	4,75	4,75	4,75	4,75	4,75	—
		1,13	4,75	4,75	4,75	4,75	4,75	—
		1,25	4,75	4,75	4,75	4,75	4,75	—
		1,50	4,75	4,75	4,75	4,75	4,75	—
1,75		4,75	4,75	4,75	4,75	4,75	—	
2,00	4,75	4,75	4,75	4,75	4,75	—		

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015
²⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

If both components I and II are made of S320GD the values V_{R,k} may be increased by 8,3%
If both components I and II are made of S350GD the values V_{R,k} may be increased by 16,6%

Table C39

Characteristic bearing capacity of fasteners GT12 FH 5,5 x L i GT12 FH 5,5 x L powder.coat, with hexagon head – steel substrate								
Thickness of substrate ¹⁾ [mm]	4,00	5,00	6,00	8,00	10,00	12,00	Wood class ≥ C24	
$M_{t,nom}$	6 Nm							
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	1,34	1,34	1,34	1,34	1,34	—
		0,55	1,34	1,34	1,34	1,34	1,34	—
		0,63	1,46	1,46	1,46	1,46	1,46	—
		0,75	1,93	1,93	1,93	1,93	1,93	—
		0,88	2,35	2,35	2,35	2,35	2,35	—
		1,00	2,82	2,82	2,82	2,82	2,82	—
		1,13	2,82	2,82	2,82	2,82	2,82	—
		1,25	2,82	2,82	2,82	2,82	2,82	—
		1,50	2,82	2,82	2,82	2,82	2,82	—
		1,75	2,82	2,82	2,82	2,82	2,82	—
	2,00	2,82	2,82	2,82	2,82	2,82	—	
	Characteristic bearing capacity for pull-out [kN]	0,50	3,08	3,08	3,08	3,08	3,08	—
		0,55	3,08	3,08	3,08	3,08	3,08	—
		0,63	4,20	4,20	4,20	4,20	4,20	—
		0,75	4,84	4,84	4,84	4,84	4,84	—
		0,88	4,84	4,84	4,84	4,84	4,84	—
		1,00	5,51	5,51	5,51	5,51	5,51	—
		1,13	5,51	5,51	5,51	5,51	5,51	—
		1,25	5,51	5,51	5,51	5,51	5,51	—
		1,50	5,51	5,51	5,51	5,51	5,51	—
1,75		5,51	5,51	5,51	5,51	5,51	—	
2,00	5,51	5,51	5,51	5,51	5,51	—		

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015
²⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Table C40

Characteristic bearing capacity of fasteners GTX 12 5,5 x L i GTX12 5,5 x L powder.coat, with hexagon head – steel substrate								
Thickness of substrate ¹⁾ [mm]		4,00	5,00	6,00	8,00	10,00	12,00	Wood class ≥ C24
M _{t,nom}		6 Nm						
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	1,34	1,34	1,34	1,34	1,34	—
		0,55	1,34	1,34	1,34	1,34	1,34	—
		0,63	1,46	1,46	1,46	1,46	1,46	—
		0,75	1,93	1,93	1,93	1,93	1,93	—
		0,88	2,35	2,35	2,35	2,35	2,35	—
		1,00	2,82	2,82	2,82	2,82	2,82	—
		1,13	2,82	2,82	2,82	2,82	2,82	—
		1,25	2,82	2,82	2,82	2,82	2,82	—
		1,50	2,82	2,82	2,82	2,82	2,82	—
		1,75	2,82	2,82	2,82	2,82	2,82	—
	2,00	2,82	2,82	2,82	2,82	2,82	—	
	Characteristic bearing capacity for pull-out [kN]	0,50	0,61	0,61	0,61	0,61	0,61	—
		0,55	0,61	0,61	0,61	0,61	0,61	—
		0,63	0,90	0,90	0,90	0,90	0,90	—
		0,75	0,99	0,99	0,99	0,99	0,99	—
		0,88	0,99	0,99	0,99	0,99	0,99	—
		1,00	1,13	1,13	1,13	1,13	1,13	—
		1,13	1,13	1,13	1,13	1,13	1,13	—
		1,25	1,13	1,13	1,13	1,13	1,13	—
		1,50	1,13	1,13	1,13	1,13	1,13	—
1,75		1,13	1,13	1,13	1,13	1,13	—	
2,00	1,13	1,13	1,13	1,13	1,13	—		

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015
²⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

If both components I and II are made of S320GD the values V_{R,k} may be increased by 8,3%
If both components I and II are made of S350GD the values V_{R,k} may be increased by 16,6%

Table C41

Characteristic bearing capacity of fasteners GTX 12 5,5 x L i GTX12 5,5 x L powder.coat, with hexagon head and sealing washer Ø14 mm made of stainless steel – steel substrate								
Thickness of substrate ¹⁾ [mm]		4,00	5,00	6,00	8,00	10,00	12,00	Wood class ≥ C24
M _{t,nom}		6 Nm						
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	1,34	1,34	1,34	1,34	1,34	—
		0,55	1,34	1,34	1,34	1,34	1,34	—
		0,63	1,46	1,46	1,46	1,46	1,46	—
		0,75	1,93	1,93	1,93	1,93	1,93	—
		0,88	2,35	2,35	2,35	2,35	2,35	—
		1,00	2,82	2,82	2,82	2,82	2,82	—
		1,13	2,82	2,82	2,82	2,82	2,82	—
		1,25	2,82	2,82	2,82	2,82	2,82	—
		1,50	2,82	2,82	2,82	2,82	2,82	—
		1,75	2,82	2,82	2,82	2,82	2,82	—
	2,00	2,82	2,82	2,82	2,82	2,82	—	
	Characteristic bearing capacity for pull-out [kN]	0,50	2,63	2,63	2,63	2,63	2,63	—
		0,55	2,63	2,63	2,63	2,63	2,63	—
		0,63	3,59	3,59	3,59	3,59	3,59	—
		0,75	4,13	4,13	4,13	4,13	4,13	—
		0,88	4,14	4,14	4,14	4,14	4,14	—
		1,00	4,71	4,71	4,71	4,71	4,71	—
		1,13	4,71	4,71	4,71	4,71	4,71	—
		1,25	4,71	4,71	4,71	4,71	4,71	—
		1,50	4,71	4,71	4,71	4,71	4,71	—
1,75		4,71	4,71	4,71	4,71	4,71	—	
2,00	4,71	4,71	4,71	4,71	4,71	—		

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015
²⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

If both components I and II are made of S320GD the values V_{R,k} may be increased by 8,3%
If both components I and II are made of S350GD the values V_{R,k} may be increased by 16,6%

Table C42

Characteristic bearing capacity of fasteners GT16 6,3 x L, GT16 6,3 x L powder.coat, GTR16 6,3 x L i GTR16 6,3 x L powder.coat, with hexagon head– steel substrate								
Thickness of substrate ¹⁾ [mm]	5,00	6,00	8,00	10,00	12,00	14,00	Wood class ≥ C24	
M _{t,nom}	8 Nm							
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	1,42	1,42	1,42	1,42	1,42	—
		0,55	1,42	1,42	1,42	1,42	1,42	—
		0,63	1,54	1,54	1,54	1,54	1,54	—
		0,75	2,10	2,10	2,10	2,10	2,10	—
		0,88	2,49	2,49	2,49	2,49	2,49	—
		1,00	3,00	3,00	3,00	3,00	3,00	—
		1,13	3,00	3,00	3,00	3,00	3,00	—
		1,25	3,00	3,00	3,00	3,00	3,00	—
		1,50	3,00	3,00	3,00	3,00	3,00	—
		1,75	3,00	3,00	3,00	3,00	3,00	—
	2,00	3,00	3,00	3,00	3,00	3,00	—	
	Characteristic bearing capacity for pull-out [kN]	0,50	0,70	0,70	0,70	0,70	0,70	—
		0,55	0,70	0,70	0,70	0,70	0,70	—
		0,63	0,88	0,88	0,88	0,88	0,88	—
		0,75	1,21	1,21	1,21	1,21	1,21	—
		0,88	1,32	1,32	1,32	1,32	1,32	—
		1,00	1,60	1,60	1,60	1,60	1,60	—
		1,13	1,60	1,60	1,60	1,60	1,60	—
		1,25	1,60	1,60	1,60	1,60	1,60	—
		1,50	1,60	1,60	1,60	1,60	1,60	—
1,75		1,60	1,60	1,60	1,60	1,60	—	
2,00	1,60	1,60	1,60	1,60	1,60	—		

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015
²⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

If both components I and II are made of S320GD the values V_{R,k} may be increased by 8,3%
If both components I and II are made of S350GD the values V_{R,k} may be increased by 16,6%

Table C43

Characteristic bearing capacity of fasteners GT16 6,3 x L, GT16 6,3 x L powder.coat, GTR16 6,3 x L i GTR16 6,3 x L powder.coat, with hexagon head and sealing washer Ø16 mm made of carbon steel , stainless steel or aluminum – steel substrate

Thickness of substrate ¹⁾ [mm]		5,00	6,00	8,00	10,00	12,00	14,00	Wood class ≥ C24
M _{t,nom}		8 Nm						
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	1,42	1,42	1,42	1,42	1,42	—
		0,55	1,42	1,42	1,42	1,42	1,42	—
		0,63	1,54	1,54	1,54	1,54	1,54	—
		0,75	2,10	2,10	2,10	2,10	2,10	—
		0,88	2,49	2,49	2,49	2,49	2,49	—
		1,00	3,00	3,00	3,00	3,00	3,00	—
		1,13	3,00	3,00	3,00	3,00	3,00	—
		1,25	3,00	3,00	3,00	3,00	3,00	—
		1,50	3,00	3,00	3,00	3,00	3,00	—
		1,75	3,00	3,00	3,00	3,00	3,00	—
	2,00	3,00	3,00	3,00	3,00	3,00	—	
	Characteristic bearing capacity for pull-out [kN]	0,50	2,53	2,53	3,31	3,31	3,31	—
		0,55	2,53	2,53	3,31	3,31	3,31	—
		0,63	2,53	2,53	3,74	3,74	3,74	—
		0,75	2,53	2,53	4,85	4,85	4,85	—
		0,88	2,53	2,53	5,50	5,50	5,50	—
		1,00	2,53	2,53	6,37	6,37	6,37	—
		1,13	2,53	2,53	6,37	6,37	6,37	—
		1,25	2,53	2,53	6,37	6,37	6,37	—
		1,50	2,53	2,53	6,37	6,37	6,37	—
1,75		2,53	2,53	6,37	6,37	6,37	—	
2,00	2,53	2,53	6,37	6,37	6,37	—		

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

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

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%

If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Table C44

Characteristic bearing capacity of fasteners GT20 6,3 x L, GT20 6,3 x L powder.coat, GTR20 6,3 x L, GTR20 6,3 x L powder.coat, with hexagon head– steel substrate								
Thickness of substrate ¹⁾ [mm]	5,00	6,00	8,00	10,00	12,00	14,00	Wood class \geq C24	
$M_{t,nom}$	8 Nm							
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	1,42	1,42	1,42	1,42	1,42	—
		0,55	1,42	1,42	1,42	1,42	1,42	—
		0,63	1,54	1,54	1,54	1,54	1,54	—
		0,75	2,10	2,10	2,10	2,10	2,10	—
		0,88	2,49	2,49	2,49	2,49	2,49	—
		1,00	3,00	3,00	3,00	3,00	3,00	—
		1,13	3,00	3,00	3,00	3,00	3,00	—
		1,25	3,00	3,00	3,00	3,00	3,00	—
		1,50	3,00	3,00	3,00	3,00	3,00	—
		1,75	3,00	3,00	3,00	3,00	3,00	—
	2,00	3,00	3,00	3,00	3,00	3,00	—	
	Characteristic bearing capacity for pull-out [kN]	0,50	0,70	0,70	0,70	0,70	0,70	—
		0,55	0,70	0,70	0,70	0,70	0,70	—
		0,63	0,88	0,88	0,88	0,88	0,88	—
		0,75	1,21	1,21	1,21	1,21	1,21	—
		0,88	1,32	1,32	1,32	1,32	1,32	—
		1,00	1,60	1,60	1,60	1,60	1,60	—
		1,13	1,60	1,60	1,60	1,60	1,60	—
		1,25	1,60	1,60	1,60	1,60	1,60	—
		1,50	1,60	1,60	1,60	1,60	1,60	—
1,75		1,60	1,60	1,60	1,60	1,60	—	
2,00	1,60	1,60	1,60	1,60	1,60	—		

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

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

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%

If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Table C45

Characteristic bearing capacity of fasteners GT20 6,3 x L, GT20 6,3 x L powder.coat, GTR20 6,3 x L i GT20 6,3 x L powder.coat, with hexagon head and sealing washer Ø16 mm made of carbon steel , stainless steel or aluminum – steel substrate								
Thickness of substrate ¹⁾ [mm]		5,00	6,00	8,00	10,00	12,00	14,00	Wood class ≥ C24
M _{t,nom}		8 Nm						
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	1,42	1,42	1,42	1,42	1,42	—
		0,55	1,42	1,42	1,42	1,42	1,42	—
		0,63	1,54	1,54	1,54	1,54	1,54	—
		0,75	2,10	2,10	2,10	2,10	2,10	—
		0,88	2,49	2,49	2,49	2,49	2,49	—
		1,00	3,00	3,00	3,00	3,00	3,00	—
		1,13	3,00	3,00	3,00	3,00	3,00	—
		1,25	3,00	3,00	3,00	3,00	3,00	—
		1,50	3,00	3,00	3,00	3,00	3,00	—
		1,75	3,00	3,00	3,00	3,00	3,00	—
		2,00	3,00	3,00	3,00	3,00	3,00	—
	Characteristic bearing capacity for pull-out [kN]	0,50	2,53	2,53	3,31	3,31	3,31	—
		0,55	2,53	2,53	3,31	3,31	3,31	—
		0,63	2,53	2,53	3,74	3,74	3,74	—
		0,75	2,53	2,53	4,85	4,85	4,85	—
		0,88	2,53	2,53	5,50	5,50	5,50	—
		1,00	2,53	2,53	6,37	6,37	6,37	—
		1,13	2,53	2,53	6,37	6,37	6,37	—
		1,25	2,53	2,53	6,37	6,37	6,37	—
		1,50	2,53	2,53	6,37	6,37	6,37	—
		1,75	2,53	2,53	6,37	6,37	6,37	—
		2,00	2,53	2,53	6,37	6,37	6,37	—

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015
²⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

If both components I and II are made of S320GD the values V_{R,k} may be increased by 8,3%
If both components I and II are made of S350GD the values V_{R,k} may be increased by 16,6%

Table C46

Characteristic bearing capacity of fasteners GT25 6,3 x L, GT25 6,3 x L powder.coat, GTR25 6,3 x L i GTR25 6,3 x L powder.coat, with hexagon head – steel substrate								
Thickness of substrate ¹⁾ [mm]	5,00	6,00	8,00	10,00	12,00	14,00	Wood class ≥ C24	
$M_{t,nom}$	8 Nm							
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	1,42	1,42	1,42	1,42	1,42	—
		0,55	1,42	1,42	1,42	1,42	1,42	—
		0,63	1,54	1,54	1,54	1,54	1,54	—
		0,75	2,10	2,10	2,10	2,10	2,10	—
		0,88	2,49	2,49	2,49	2,49	2,49	—
		1,00	3,00	3,00	3,00	3,00	3,00	—
		1,13	3,00	3,00	3,00	3,00	3,00	—
		1,25	3,00	3,00	3,00	3,00	3,00	—
		1,50	3,00	3,00	3,00	3,00	3,00	—
		1,75	3,00	3,00	3,00	3,00	3,00	—
	2,00	3,00	3,00	3,00	3,00	3,00	—	
	Characteristic bearing capacity for pull-out [kN]	0,50	0,70	0,70	0,70	0,70	0,70	—
		0,55	0,70	0,70	0,70	0,70	0,70	—
		0,63	0,88	0,88	0,88	0,88	0,88	—
		0,75	1,21	1,21	1,21	1,21	1,21	—
		0,88	1,32	1,32	1,32	1,32	1,32	—
		1,00	1,60	1,60	1,60	1,60	1,60	—
		1,13	1,60	1,60	1,60	1,60	1,60	—
		1,25	1,60	1,60	1,60	1,60	1,60	—
		1,50	1,60	1,60	1,60	1,60	1,60	—
1,75		1,60	1,60	1,60	1,60	1,60	—	
2,00	1,60	1,60	1,60	1,60	1,60	—		

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

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

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%

If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Table C47

Characteristic bearing capacity of fasteners GT25 6,3 x L, GT25 6,3 x L powder.coat, GTR25 6,3 x L i GTR25 6,3 x L powder.coat, with hexagon head and sealing washer Ø16 mm made of carbon steel , stainless steel or aluminum – steel substrate								
Thickness of substrate ¹⁾ [mm]		5,00	6,00	8,00	10,00	12,00	14,00	Wood class ≥ C24
M _{t,nom}		8 Nm						
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	1,42	1,42	1,42	1,42	1,42	1,42
		0,55	1,42	1,42	1,42	1,42	1,42	1,42
		0,63	1,54	1,54	1,54	1,54	1,54	1,54
		0,75	2,10	2,10	2,10	2,10	2,10	2,10
		0,88	2,49	2,49	2,49	2,49	2,49	2,49
		1,00	3,00	3,00	3,00	3,00	3,00	3,00
		1,13	3,00	3,00	3,00	3,00	3,00	3,00
		1,25	3,00	3,00	3,00	3,00	3,00	3,00
		1,50	3,00	3,00	3,00	3,00	3,00	3,00
		1,75	3,00	3,00	3,00	3,00	3,00	3,00
		2,00	3,00	3,00	3,00	3,00	3,00	3,00
	Characteristic bearing capacity for pull-out [kN]	0,50	2,53	2,53	3,31	3,31	3,31	3,31
		0,55	2,53	2,53	3,31	3,31	3,31	3,31
		0,63	2,53	2,53	3,74	3,74	3,74	3,74
		0,75	2,53	2,53	4,85	4,85	4,85	4,85
		0,88	2,53	2,53	5,50	5,50	5,50	5,50
		1,00	2,53	2,53	6,37	6,37	6,37	6,37
		1,13	2,53	2,53	6,37	6,37	6,37	6,37
		1,25	2,53	2,53	6,37	6,37	6,37	6,37
		1,50	2,53	2,53	6,37	6,37	6,37	6,37
		1,75	2,53	2,53	6,37	6,37	6,37	6,37
		2,00	2,53	2,53	6,37	6,37	6,37	6,37

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015
²⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

If both components I and II are made of S320GD the values V_{R,k} may be increased by 8,3%
If both components I and II are made of S350GD the values V_{R,k} may be increased by 16,6%

Table C48

Characteristic bearing capacity of fasteners GTZ F02 4,8 x 20 i GTZ F02 4,8 x 20 powder.coat, with hexagon head– aluminum substrate									
Thickness of substrate ¹⁾ [mm]		0,50	0,55	0,63	0,75	0,88	1,00	Wood class \geq C24	
$M_{t,nom}$		8 Nm							
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	0,31	0,31	0,35	0,37	—	—	/
		0,55	—	—	0,35	0,37	—	—	
		0,63	—	—	0,35	0,37	—	—	
		0,75	—	—	—	0,37	—	—	
		0,88	—	—	—	—	—	—	
		1,00	—	—	—	—	—	—	
	Characteristic bearing capacity for pull-out [kN]	0,50	0,31	0,31	0,35	0,37	—	—	
		0,55	—	—	0,35	0,37	—	—	
		0,63	—	—	0,35	0,37	—	—	
		0,75	—	—	—	0,37	—	—	
		0,88	—	—	—	—	—	—	
		1,00	—	—	—	—	—	—	

¹⁾ aluminium gatunku 1050A według PN-EN 573-3:2010
²⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Table C49

Characteristic bearing capacity of fasteners GTZ F02 4,8 x 20 i GTZ F02 4,8 x 20 powder.coat, with hexagon head and sealing washer \varnothing 14 mm made of stainless steel lub aluminium – aluminum substrate									
Thickness of substrate ¹⁾ [mm]		0,50	0,55	0,63	0,75	0,88	1,00	Wood class \geq C24	
$M_{t,nom}$		8 Nm							
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	0,31	0,31	0,35	0,37	—	—	/
		0,55	—	—	0,35	0,37	—	—	
		0,63	—	—	0,35	0,37	—	—	
		0,75	—	—	—	0,37	—	—	
		0,88	—	—	—	—	—	—	
		1,00	—	—	—	—	—	—	
	Characteristic bearing capacity for pull-out [kN]	0,50	0,31	0,31	0,35	0,37	—	—	
		0,55	—	—	0,35	0,37	—	—	
		0,63	—	—	0,35	0,37	—	—	
		0,75	—	—	—	0,37	—	—	
		0,88	—	—	—	—	—	—	
		1,00	—	—	—	—	—	—	

¹⁾ aluminium gatunku 1050A według PN-EN 573-3:2010
²⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Table C50

Characteristic bearing capacity of fasteners GM-S 4,2 x L i GM-S 4,2 x L powder.coat, with flat head – steel and wood substrate									
Thickness of substrate ¹⁾ [mm]		0,50	0,55	0,63	0,75	0,88	1,00	Wood class \geq C24 $h_{ef} = 16,8$ mm	
$M_{t,nom}$		8 Nm							
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	0,92	0,92	0,92	—	—	—	0,92
		0,55	0,92	0,92	0,92	—	—	—	0,92
		0,63	1,32	1,32	1,32	—	—	—	1,32
		0,75	—	—	—	—	—	—	—
		0,88	—	—	—	—	—	—	—
		1,00	—	—	—	—	—	—	—
	Characteristic bearing capacity for pull-out [kN]	0,50	0,63	0,63	0,63	—	—	—	2,19
		0,55	0,63	0,63	0,63	—	—	—	2,19
		0,63	0,63	0,63	0,85	—	—	—	2,19
		0,75	—	—	—	—	—	—	—
		0,88	—	—	—	—	—	—	—
		1,00	—	—	—	—	—	—	—
¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015 ²⁾ stal gatunku S23JR+N według PN-EN 10025-1:2007 lub gatunku S280GD, S320GD lub S350GD według PN-EN 10346:2015 If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3% If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%									

Table C51

Characteristic bearing capacity of fasteners GMR-S 4,2 x L i GMR-S 4,2 x L powder.coat, with flat head – steel substrate									
Thickness of substrate ¹⁾ [mm]		0,50	0,55	0,63	0,75	0,88	1,00	Wood class \geq C24	
$M_{t,nom}$		8 Nm							
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	1,05	1,05	1,05	1,05	—	—	/
		0,55	1,05	1,05	1,05	1,05	—	—	
		0,63	1,24	1,24	1,24	1,24	—	—	
		0,75	1,24	1,24	1,24	1,24	—	—	
		0,88	—	—	—	—	—	—	
		1,00	—	—	—	—	—	—	
	Characteristic bearing capacity for pull-out [kN]	0,50	0,63	0,63	0,94	1,13	—	—	/
		0,55	0,63	0,63	0,94	1,13	—	—	
		0,63	0,63	0,63	0,94	1,13	—	—	
		0,75	0,63	0,63	0,94	1,13	—	—	
		0,88	—	—	—	—	—	—	
		1,00	—	—	—	—	—	—	
¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015 ²⁾ stal gatunku S23JR+N według PN-EN 10025-1:2007 lub gatunku S280GD, S320GD lub S350GD według PN-EN 10346:2015 If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3% If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%									

Table C52

Characteristic bearing capacity of fasteners GMZ-S 4,2 x L i GMZ-S 4,2 x L powder.coat, with flat head – wood substrate										
Thickness of substrate ¹⁾ [mm]		0,50	0,55	0,63	0,75	0,88	1,00	Wood class \geq C24 $h_{ef} = 16,8$ mm		
$M_{t,nom}$		3 Nm								
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	—	—	—	—	—	—	0,92	Nośność mocowanej blachy na docisk trzpienia wkręta
		0,55	—	—	—	—	—	—	0,92	
		0,63	—	—	—	—	—	—	1,32	
		0,75	—	—	—	—	—	—	—	
		0,88	—	—	—	—	—	—	—	
		1,00	—	—	—	—	—	—	—	
	Characteristic bearing capacity for pull-out [kN]	0,50	—	—	—	—	—	—	1,02	Nośność mocowanej blachy na przeciąganie tba wkręta
		0,55	—	—	—	—	—	—	1,02	
		0,63	—	—	—	—	—	—	1,29	
		0,75	—	—	—	—	—	—	1,29	
		0,88	—	—	—	—	—	—	1,29	
		1,00	—	—	—	—	—	—	1,29	

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015
²⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015

Table C53

Characteristic bearing capacity of fasteners GM-B 4,2 x L i GM-B 4,2 x L powder.coat, with flat head – steel substrate									
Thickness of substrate ¹⁾ [mm]		0,50	0,55	0,63	0,75	0,88	1,00	Wood class \geq C24	
$M_{t,nom}$		8 Nm							
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	0,92	0,92	0,92	—	—	—	/
		0,55	0,92	0,92	0,92	—	—	—	
		0,63	1,32	1,32	1,32	—	—	—	
		0,75	—	—	—	—	—	—	
		0,88	—	—	—	—	—	—	
		1,00	—	—	—	—	—	—	
	Characteristic bearing capacity for pull-out [kN]	0,50	0,63	0,63	0,63	—	—	—	
		0,55	0,63	0,63	0,63	—	—	—	
		0,63	0,63	0,63	0,85	—	—	—	
		0,75	—	—	—	—	—	—	
		0,88	—	—	—	—	—	—	
		1,00	—	—	—	—	—	—	

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015
²⁾ stal gatunku S23JR+N według PN-EN 10025-1:2007 lub gatunku S280GD, S320GD lub S350GD według PN-EN 10346:2015

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Table C54

Characteristic bearing capacity of fasteners GMR-B 4,2 x L i GMR-B 4,2 x L powder.coat, with flat head – steel substrate									
Thickness of substrate ¹⁾ [mm]	0,50	0,55	0,63	0,75	0,88	1,00	Wood class \geq C24		
$M_{t,nom}$	3 Nm								
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	1,05	1,05	1,05	1,05	1,05		
		0,55	1,05	1,05	1,05	1,05	1,05		
		0,63	1,24	1,24	1,24	1,24	1,24		
		0,75	1,95	1,95	1,95	1,95	1,95		
		0,88	1,95	1,95	1,95	1,95	1,95		
		1,00	2,46	2,46	2,46	2,46	2,46		
	Characteristic bearing capacity for pull-out [kN]	0,50	0,41	0,41	0,66	0,84	0,84		1,41
		0,55	0,41	0,41	0,66	0,84	0,84		1,41
		0,63	0,41	0,41	0,66	0,84	0,84		1,41
		0,75	0,41	0,41	0,66	0,84	0,84		1,41
		0,88	0,41	0,41	0,66	0,84	0,84		1,41
		1,00	0,41	0,41	0,66	0,84	0,84		1,41

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015
²⁾ stal gatunku S23JR+N według PN-EN 10025-1:2007 lub gatunku S280GD, S320GD lub S350GD według PN-EN 10346:2015

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Table C55

Characteristic bearing capacity of fasteners GM-K 4,2 x L i GM-K 4,2 x L powder.coat, with hexagon head– steel substrate									
Thickness of substrate ¹⁾ [mm]	0,50	0,55	0,63	0,75	0,88	1,00	Wood class \geq C24		
$M_{t,nom}$	8 Nm								
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	0,92	0,92	0,92	—	—		
		0,55	0,92	0,92	0,92	—	—		
		0,63	1,32	1,32	1,32	—	—		
		0,75	—	—	—	—	—		
		0,88	—	—	—	—	—		
		1,00	—	—	—	—	—		
	Characteristic bearing capacity for pull-out [kN]	0,50	0,57	0,57	0,57	—	—		—
		0,55	0,57	0,57	0,57	—	—		—
		0,63	0,57	0,57	0,63	—	—		—
		0,75	—	—	—	—	—		—
		0,88	—	—	—	—	—		—
		1,00	—	—	—	—	—		—

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015
²⁾ stal gatunku S23JR+N według PN-EN 10025-1:2007 lub gatunku S280GD, S320GD lub S350GD według PN-EN 10346:2015

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

Table C56

Characteristic bearing capacity of fasteners GTS-STAR 4,8 x L, with hexagon head– steel substrate								
Thickness of substrate ¹⁾ [mm]		0,75	0,88	1,00	1,25	1,50	Wood class ≥ C24	
M _{t,nom}		3 Nm						
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,50	—	—	—	—	/	
		0,55	—	—	—	—		
		0,63	—	—	—	—		
		0,75	1,56	1,56	1,56	1,56		1,56
		0,88	1,56	1,56	1,56	1,56		1,56
		1,00	2,10	2,10	2,10	2,10		2,10
	Characteristic bearing capacity for pull-out [kN]	0,50	—	—	—	—		—
		0,55	—	—	—	—		—
		0,63	—	—	—	—		—
		0,75	0,60	0,60	1,22	1,43		1,99
		0,88	0,60	0,60	1,22	1,43		1,99
		1,00	0,60	0,60	1,22	1,43		1,99

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015
²⁾ stal gatunku S23JR+N według PN-EN 10025-1:2007 lub gatunku S280GD, S320GD lub S350GD według PN-EN 10346:2015

If both components I and II are made of S320GD the values V_{R,k} may be increased by 8,3%
If both components I and II are made of S350GD the values V_{R,k} may be increased by 16,6%

Table C57

Characteristic bearing capacity of fasteners GT6L 6,3 x L i GT6L 6,3 x L powder.coat, with hexagon head and sealing washer Ø16 mm made of carbon steel – steel substrate								
Thickness of substrate ¹⁾ [mm]		2,50	3,00	4,00	5,00		Wood class ≥ C24	
M _{t,nom}		7 Nm						
Thickness of fastened metal sheet ²⁾ [mm]	Characteristic bearing capacity for shear [kN]	0,75	2,10	2,10	2,10	2,10	/	
		1,00	3,60	3,60	3,60	3,60		
		1,25	4,35	4,35	4,35	—		
		1,50	6,15	6,15	6,15	—		
		2,00	10,50	10,50	10,50	—		
		3,00	11,30	11,30	—	—		
	Characteristic bearing capacity for pull-out [kN]	0,75	5,10	5,10	5,10	5,10		—
		1,00	5,10	5,10	5,10	5,10		—
		1,25	5,10	5,10	5,10	—		—
		1,50	5,10	5,10	5,10	—		—
		2,00	5,10	5,10	5,10	—		—
		3,00	5,10	5,10	—	—		—

¹⁾ steel grade S280GD, S320GD or S350GD according to PN-EN 10346:2015
²⁾ stal gatunku S23JR+N według PN-EN 10025-1:2007 lub gatunku S280GD, S320GD lub S350GD według PN-EN 10346:2015

If both components I and II are made of S320GD the values V_{R,k} may be increased by 8,3%
If both components I and II are made of S350GD the values V_{R,k} may be increased by 16,6%

Table C58

Characteristic bearing capacity of fasteners GTZ5AGF 5,5 x L i GTZ5AGF 5,5 x L powder.coat, with hexagon head and sealing washer Ø16 mm made of stainless steel – aluminum substrate								
Thickness of substrate ¹⁾ [mm]		1,50	2,00	3,00	4,00	Wood class ≥ C24		
M _{t,nom}		7 Nm						
Characteristic bearing capacity	for pull-out [kN]	Thickness of fastened metal sheet ²⁾ [mm]	2,00	1,83	2,51	2,74	3,30	
		3,00	1,83	2,51	2,74	3,30		
Characteristic bearing capacity	for shear [kN]	Długość ramienia [mm]	25	0,15	0,16	0,17	0,17	
			30	0,13	0,13	0,14	0,14	
			34	0,11	0,12	0,12	0,13	
			38	0,10	0,11	0,11	0,11	
			42	0,09	0,10	0,10	0,10	
			46	0,08	0,09	0,09	0,09	
			50	0,08	0,08	0,08	0,08	
			54	0,07	0,08	0,08	0,08	

¹⁾ aluminium gatunku 1050A według PN-EN 573-3:2010
²⁾ aluminium gatunku 1050A według PN-EN 573-3:2010

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 23.07.2025

On behalf of the manufacturer signed

Sewer Malesiński
Product Manager
Singapore Strong-Tie Branco P.S.A.
Malez