

European Technical Approval ETA-10/0200

English translation prepared by DIBt - Original version in German language

Handelsbezeichnung
Trade name

Befestigungsschrauben JA, JB, JT, JZ und JF
Fastening screws JA, JB, JT, JZ and JF

Zulassungsinhaber
Holder of approval

EJOT Baubefestigungen GmbH
In der Stockwiese 35
57334 Bad Laasphe
DEUTSCHLAND

Zulassungsgegenstand
und Verwendungszweck
*Generic type and use
of construction product*

Befestigungsschrauben für Bauteile und Bleche aus Metall
Fastening screws for metal members and sheeting

Geltungsdauer:
Validity: vom
from
bis
to

27 June 2013
27 June 2018

Herstellwerk
Manufacturing plant

EJOT Baubefestigungen GmbH
In der Stockwiese 35
57334 Bad Laasphe
DEUTSCHLAND

Diese Zulassung umfasst
This Approval contains

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Diese Zulassung ersetzt
This Approval replaces

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ETA-10/0200 with validity from 03.04.2012 to 17.08.2015

I LEGAL BASES AND GENERAL CONDITIONS

- 1 This European technical approval is issued by Deutsches Institut für Bautechnik in accordance with:
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 - *Gesetz über das In-Verkehr-Bringen von und den freien Warenverkehr mit Bauprodukten zur Umsetzung der Richtlinie 89/106/EWG des Rates vom 21. Dezember 1988 zur Angleichung der Rechts- und Verwaltungsvorschriften der Mitgliedstaaten über Bauprodukte und anderer Rechtsakte der Europäischen Gemeinschaften (Bauproduktengesetz - BauPG) vom 28. April 1998⁴, as amended by Article 2 of the law of 8 November 2011⁵;*
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¹ Official Journal of the European Communities L 40, 11 February 1989, p. 12
² Official Journal of the European Communities L 220, 30 August 1993, p. 1
³ Official Journal of the European Union L 284, 31 October 2003, p. 25
⁴ *Bundesgesetzblatt Teil I 1998*, p. 812
⁵ *Bundesgesetzblatt Teil I 2011*, p. 2178
⁶ Official Journal of the European Communities L 17, 20 January 1994, p. 34

II SPECIFIC CONDITIONS OF THE EUROPEAN TECHNICAL APPROVAL

1 Definition of product/ products and intended use

1.1 Definition of the construction product

The EJOT fastening screws are self drilling and self tapping screws listed in Table 1. The fastening screws are made of case hardened carbon steel or stainless steel. They are partly completed with metallic washers and EPDM sealing rings. For details see the appropriate Annexes.

Screws or washers for which the stainless steel grade A2 according to EN ISO 3506-1 is given in the respective Annexes (e. g. 1.4301 or 1.4567) may be made of stainless steel grade A4 (e. g. 1.4401 or 1.4578) as well.

Examples of fastening screws and the corresponding connections are shown in Annex 1.

The fastening screws and the corresponding connections are subject to tension and shear forces.

Table 1 Different types of fastening screws

Annex	Fastening screw	Comp. I	Comp. I	Description
Annex 6	JT2-2-4,2 x L JT2-3-4,8 x L	steel	steel	with hexagon head or round head with Phillips®, Pozidriv® or Torx® drive system
Annex 7	JT2-2H-3-4,8 x L	steel	steel	with undercut, hexagon head and sealing washer $\geq \varnothing 14$ mm
Annex 8	JT2-2H-4,8 x L	steel	steel	with undercut and hexagon head
Annex 9	JT2-T-2H-4,8 x L	steel	steel	with undercut and round head with Torx® drive system
Annex 10	JT2-2H-5,5 x L	steel	steel	with undercut, hexagon head and sealing washer $\geq \varnothing 16$ mm
Annex 11	JT2-3H-5,5 x L	steel	steel	with undercut, hexagon head and sealing washer $\geq \varnothing 16$ mm
Annex 12	JT2-3H-5,5 x L	steel	steel	with undercut, hexagon head and sealing washer $\geq \varnothing 16$ mm
Annex 13	JT2-3-5,5 x L	steel	steel	with hexagon head
Annex 14	JT2-3-5,5 x L	steel	steel	with hexagon head and sealing washer $\geq \varnothing 16$ mm
Annex 15	JT2-6-5,5 x L	steel	steel	with hexagon head
Annex 16	JT2-6-5,5 x L	steel	steel	with hexagon head and sealing washer $\geq \varnothing 16$ mm
Annex 17	JT2-8-5,5 x L	steel	steel	with hexagon head
Annex 18	JT2-8-5,5 x L	steel	steel	with hexagon head and sealing washer $\geq \varnothing 16$ mm
Annex 19	JT2-6-6,3 x L	steel	steel	with hexagon head
Annex 20	JT2-6-6,3 x L	steel	steel	with hexagon head and sealing washer $\geq \varnothing 16$ mm
Annex 21	JT2-12-5,5 x L	steel	steel	with hexagon head and sealing washer $\geq \varnothing 16$ mm
Annex 22	JT2-12-5,5 x L	steel	steel	with hexagon head and sealing washer $\geq \varnothing 16$ mm
Annex 23	JT3-2H-4,8 x L JT6-2H-4,8 x L	steel	steel	with undercut and hexagon head and sealing washer $\geq \varnothing 14$ mm

Annex	Fastening screw	Comp. I	Comp. II	Description
Annex 24	JT3-3H-4,8 x L JT6-3H-4,8 x L	steel	steel	with undercut, hexagon head and sealing washer ≥ Ø14 mm
Annex 25	JT3-FR-2H-4,8 x L JT6-FR-2H-4,8 x L	steel	steel	with undercut, round head with Torx® drive system and sealing washer ≥ Ø11 mm
Annex 26 ^{*)}	JT3- (FR-)2-4,9xL JT4- (FR-)2-4,9xL JT9- (FR-)2-4,9xL	alu 165 1)	timber	hexagon head or round head with Torx® drive system and sealing washer ≥ Ø11 mm
Annex 27 ^{*)}	JT3- (FR-)2-4,9xL JT4- (FR-)2-4,9xL JT9- (FR-)2-4,9xL	Alu 215 2)	timber	hexagon head or round head with Torx® drive system and sealing washer ≥ Ø11 mm
Annex 28	JT3-2H-5,5 x L JT6-2H-5,5 x L	steel	steel	with undercut, hexagon head and sealing washer ≥ Ø16 mm
Annex 29	JT3-2-6,0 x L JT3-FR-2-6,0 x L JT6-2-6,0 x L JT6-FR-2-6,0 x L	alu 165	alu 165	with hexagon or round head and sealing washer ≥ Ø14 mm
Annex 30	JT3-2-6,0 x L JT3-FR-2-6,0 x L JT6-2-6,0 x L JT6-FR-2-6,0 x L	alu 215	alu 215	with hexagon or round head and sealing washer ≥ Ø14 mm
Annex 31	JT3-2-6,0 x L JT3-FR-2-6,0 x L JT6-2-6,0 x L JT6-FR-2-6,0 x L	alu 165	steel	with hexagon or round head and sealing washer ≥ Ø14 mm
Annex 32	JT3-2-6,0 x L JT3-FR-2-6,0 x L JT6-2-6,0 x L JT6-FR-2-6,0 x L	alu 215	steel	with hexagon or round head and sealing washer ≥ Ø14 mm
Annex 33 ^{*)}	JT3-2-6,0 x L JT3-FR-2-6,0 x L JT6-2-6,0 x L JT6-FR-2-6,0 x L	alu 165	timber	with hexagon or round head and sealing washer ≥ Ø14 mm
Annex 34 ^{*)}	JT3-2-6,0 x L JT3-FR-2-6,0 x L JT6-2-6,0 x L JT6-FR-2-6,0 x L	alu 215	timber	with hexagon or round head and sealing washer ≥ Ø14 mm
Annex 35	JT3-2H Plus - 5,5 x L JT6-2H Plus - 5,5 x L JT3-FR-2H Plus - 5,5 x L JT6-FR-2H Plus - 5,5 x L	steel	steel	with undercut, hexagon head or round head with Torx® drive system and sealing washer ≥ Ø16 mm
Annex 36	JT3-2H Plus - 5,5 x L JT6-2H Plus - 5,5 x L JT3-FR-2H Plus - 5,5 x L JT6-FR-2H Plus - 5,5 x L	steel	steel	with undercut, hexagon head or round head with Torx® drive system and sealing washer ≥ Ø16 mm
Annex 37	JT3-FR-2H Plus-5,5 x L JT6-FR-2H Plus-5,5 x L	steel	steel	with undercut, round head with Torx® drive system and sealing washer ≥ Ø11 mm
Annex 38	JT3-FR-2H Plus-5,5 x L JT6-FR-2H Plus-5,5 x L	steel	steel	with undercut, round head with Torx® drive system and sealing washer ≥ Ø11 mm
Annex 39	JT3-2H Plus - 5,5 x L JT6-2H Plus - 5,5 x L JT3-FR-2H Plus - 5,5 x L JT6-FR-2H Plus - 5,5 x L	alu 165	alu 165	with undercut, hexagon head or round head with Torx® drive system and sealing washer ≥ Ø11 mm

Annex	Fastening screw	Comp. I	Comp. II	Description
Annex 40	JT3-2H Plus - 5,5 x L JT6-2H Plus - 5,5 x L JT3-FR-2H Plus - 5,5 x L JT6-FR-2H Plus - 5,5 x L	alu 215	alu 215	with undercut, hexagon head or round head with Torx® drive system and sealing washer $\geq \varnothing 11$ mm
Annex 41	JT3-2H Plus - 5,5 x L JT6-2H Plus - 5,5 x L JT3-FR-2H Plus - 5,5 x L JT6-FR-2H Plus - 5,5 x L	alu 165	steel	with undercut, hexagon head or round head with Torx® drive system and sealing washer $\geq \varnothing 11$ mm
Annex 42	JT3-2H Plus - 5,5 x L JT6-2H Plus - 5,5 x L JT3-FR-2H Plus - 5,5 x L JT6-FR-2H Plus - 5,5 x L	alu 165	steel	with undercut, hexagon head or round head with Torx® drive system and sealing washer $\geq \varnothing 11$ mm
Annex 43	JT3-2H Plus - 5,5 x L JT6-2H Plus - 5,5 x L JT3-FR-2H Plus - 5,5 x L JT6-FR-2H Plus - 5,5 x L	alu 215	steel	with undercut, hexagon head or round head with Torx® drive system and sealing washer $\geq \varnothing 11$ mm
Annex 44	JT3-2H Plus - 5,5 x L JT6-2H Plus - 5,5 x L JT3-FR-2H Plus - 5,5 x L JT6-FR-2H Plus - 5,5 x L	alu 215	steel	with undercut, hexagon head or round head with Torx® drive system and sealing washer $\geq \varnothing 11$ mm
Annex 45	JT3-3-5,5xL JT3-FR-3-5,5xL JT6-3-5,5xL JT6-FR-3-5,5 x L	alu 165	alu 165	with hexagon head or round head with Torx® drive system and sealing washer $\geq \varnothing 16$ mm
Annex 46	JT3-3-5,5xL JT3-FR-3-5,5xL JT6-3-5,5xL JT6-FR-3-5,5 x L	alu 215	alu 215	with hexagon head or round head with Torx® drive system and sealing washer $\geq \varnothing 16$ mm
Annex 47	JT3-3-5,5xL JT3-FR-3-5,5xL JT6-3-5,5xL JT6-FR-3-5,5 x L	alu 165	steel	with hexagon head or round head with Torx® drive system and sealing washer $\geq \varnothing 16$ mm
Annex 48	JT3-3-5,5xL JT3-FR-3-5,5xL JT6-3-5,5xL JT6-FR-3-5,5 x L	alu 215	steel	with hexagon head or round head with Torx® drive system and sealing washer $\geq \varnothing 16$ mm
Annex 49	JT3-3H-5,5 x L JT6-3H-5,5 x L JT3-FR-3H-5,5 x L JT6-FR-3H-5,5 x L	steel	steel	with undercut, hexagon head or round head with Torx® drive system and sealing washer $\geq \varnothing 16$ mm
Annex 50	JT3-3H-5,5 x L JT6-3H-5,5 x L JT3-FR-3H-5,5 x L JT6-FR-3H-5,5 x L	steel	steel	with undercut, hexagon head or round head with Torx® drive system and sealing washer $\geq \varnothing 16$ mm
Annex 51	JT3-3-5,5 x L JT6-3-5,5 x L JT3-FR-3-5,5 x L JT6-FR-3-5,5 x L	steel	steel	with hexagon head or round head with Torx® drive system and sealing washer $\geq \varnothing 16$ mm
Annex 52	JT3-6-5,5 x L JT6-6-5,5 x L JT3-FR-6-5,5 x L JT6-FR-6-5,5 x L	steel	steel	with hexagon head or round head with Torx® drive system and sealing washer $\geq \varnothing 16$ mm

Annex	Fastening screw	Comp. I	Comp. II	Description
Annex 53	JT3-6-5,5 x L JT6-6-5,5 x L JT3-FR-6-5,5 x L JT6-FR-6-5,5 x L	alu 165	alu 165	with hexagon head or round head with Torx® drive system and sealing washer $\geq \varnothing 11$ mm
Annex 54	JT3-6-5,5 x L JT6-6-5,5 x L JT3-FR-6-5,5 x L JT6-FR-6-5,5 x L	alu 215	alu 215	with hexagon head or round head with Torx® drive system and sealing washer $\geq \varnothing 11$ mm
Annex 55	JT3-6-5,5 x L JT6-6-5,5 x L JT3-FR-6-5,5 x L JT6-FR-6-5,5 x L	alu 165	steel	with hexagon head or round head with Torx® drive system and sealing washer $\geq \varnothing 11$ mm
Annex 56	JT3-6-5,5 x L JT6-6-5,5 x L JT3-FR-6-5,5 x L JT6-FR-6-5,5 x L	alu 215	steel	with hexagon head or round head with Torx® drive system and sealing washer $\geq \varnothing 11$ mm
Annex 57	JT3-12-5,5 x L JT6-12-5,5 x L JT3-FR-12-5,5 x L JT6-FR-12-5,5 x L	steel	steel	with hexagon head or round head with Torx® drive system and sealing washer $\geq \varnothing 16$ mm
Annex 58	JT3-12-5,5 x L JT6-12-5,5 x L JT3-FR-12-5,5 x L JT6-FR-12-5,5 x L	steel	steel	with hexagon head or round head with Torx® drive system and sealing washer $\geq \varnothing 16$ mm
Annex 59	JT3-12-5,5 x L JT6-12-5,5 x L JT3-FR-12-5,5 x L JT6-FR-12-5,5 x L	alu 165	alu 165	with hexagon head or round head with Torx® drive system and sealing washer $\geq \varnothing 11$ mm
Annex 60	JT3-12-5,5 x L JT6-12-5,5 x L JT3-FR-12-5,5 x L JT6-FR-12-5,5 x L	alu 215	alu 215	with hexagon head or round head with Torx® drive system and sealing washer $\geq \varnothing 11$ mm
Annex 61	JT3-12-5,5 x L JT6-12-5,5 x L JT3-FR-12-5,5 x L JT6-FR-12-5,5 x L	alu 165	steel	with hexagon head or round head with Torx® drive system and sealing washer $\geq \varnothing 11$ mm
Annex 62	JT3-12-5,5 x L JT6-12-5,5 x L JT3-FR-12-5,5 x L JT6-FR-12-5,5 x L	alu 215	steel	with hexagon head or round head with Torx® drive system and sealing washer $\geq \varnothing 11$ mm
Annex 63	JT3-6-6,3 x L JT6-6-6,3 x L	steel	steel	with hexagon head and sealing washer $\geq \varnothing 16$ mm
Annex 64	JT3-2-6,5 x L JT6-2-6,5 x L	steel	steel	with hexagon head and sealing washer $\geq \varnothing 16$ mm
Annex 65 ^{*)}	JT3-2-6,5 x L JT6-2-6,5 x L	steel	timber	with hexagon head and sealing washer $\geq \varnothing 16$ mm
Annex 66 ^{*)}	JT3-2-6,5 x L JT6-2-6,5 x L	alu 165	timber	with hexagon head and sealing washer $\geq \varnothing 16$ mm
Annex 67 ^{*)}	JT3-2-6,5 x L JT6-2-6,5 x L	alu 215	timber	with hexagon head and sealing washer $\geq \varnothing 16$ mm
Annex 68 ^{*)}	JT3-2-6,5 x L JT6-2-6,5 x L	steel	timber	with hexagon head and sealing washer $\geq \varnothing 16$ mm

Annex	Fastening screw	Comp. I	Comp. II	Description
Annex 69 ^{*)}	JT3-2-6,5 x L JT6-2-6,5 x L	steel	timber	with hexagon head and sealing washer ≥ Ø16 mm
Annex 70	JA1-6,5 x L	steel	steel	with hexagon head and sealing washer ≥ Ø16 mm
Annex 71 ^{*)}	JA1-6,5 x L	steel	timber	with hexagon head and sealing washer ≥ Ø16 mm
Annex 72	JZ1-6,3 x L JB1-6,3 x L	steel	steel	with hexagon head and sealing washer ≥ Ø16 mm
Annex 73	JZ1-6,3 x L	steel	steel	with hexagon head and sealing washer ≥ Ø22 mm
Annex 74	JA3-6,5 x L	steel	steel	with hexagon head and sealing washer ≥ Ø16 mm
Annex 75 ^{*)}	JA3-6,5 x L	steel	timber	with hexagon head and sealing washer ≥ Ø16 mm
Annex 76	JA3-6,5 x L	alu 165	alu 165	with hexagon head and sealing washer ≥ Ø16 mm
Annex 77	JA3-6,5 x L	alu 215	alu 215	with hexagon head and sealing washer ≥ Ø16 mm
Annex 78	JA3-6,5 x L	alu 165	steel	with hexagon head and sealing washer ≥ Ø16 mm
Annex 79	JA3-6,5 x L	alu 215	steel	with hexagon head and sealing washer ≥ Ø16 mm
Annex 80	JZ3-6,3 x L JB3-6,3 x L	steel	steel	with hexagon head and sealing washer ≥ Ø16 mm
Annex 81	JZ3-6,3 x L	steel	steel	with hexagon head and sealing washer ≥ Ø22 mm
Annex 82	JZ3-6,3 x L JB3-6,3 x L	alu 165	alu 165	with hexagon head and sealing washer ≥ Ø16 mm
Annex 83	JZ3-6,3 x L JB3-6,3 x L	alu 215	alu 215	with hexagon head and sealing washer ≥ Ø16 mm
Annex 84	JZ3-6,3 x L JB3-6,3 x L	alu 165	steel	with hexagon head and sealing washer ≥ Ø16 mm
Annex 85	JZ3-6,3 x L JB3-6,3 x L	alu 215	steel	with hexagon head and sealing washer ≥ Ø16 mm
Annex 86	JZ3-8,0 x L	steel	steel	with hexagon head and sealing washer ≥ Ø22 mm
Annex 87	JZ7-6,3 x L JB7-6,3 x L	steel	steel	with hexagon head and sealing washer ≥ Ø16 mm
Annex 88	JZ7-6,3 x L JB7-6,3 x L	steel	steel	with hexagon head and sealing washer ≥ Ø22 mm
Annex 89	JF3-2H-4,8 x L JF6-2H-4,8 x L JF3-FR-2H-4,8 x L JF6-FR-2H-4,8 x L	steel	steel	with hexagon head or round head with Torx® drive system and sealing washer ≥ Ø14 mm
Annex 90	JF3-2H-4,8 x L JF6-2H-4,8 x L JF3-FR-2H-4,8 x L JF6-FR-2H-4,8 x L	alu 165	alu 165	with hexagon head or round head with Torx® drive system and sealing washer ≥ Ø14 mm
Annex 91	JF3-2H-4,8 x L JF6-2H-4,8 x L JF3-FR-2H-4,8 x L JF6-FR-2H-4,8 x L	alu 215	alu 215	with hexagon head or round head with Torx® drive system and sealing washer ≥ Ø14 mm

Annex	Fastening screw	Comp. I	Comp. II	Description
Annex 92	JF3-2H-4,8 x L JF6-2H-4,8 x L JF3-FR-2H-4,8 x L JF6-FR-2H-4,8 x L	alu 165	steel	with hexagon head or round head with Torx® drive system and sealing washer $\geq \varnothing 14$ mm
Annex 93	JF3-2H-4,8 x L JF6-2H-4,8 x L JF3-FR-2H-4,8 x L JF6-FR-2H-4,8 x L	alu 215	steel	with hexagon head or round head with Torx® drive system and sealing washer $\geq \varnothing 14$ mm
Annex 94	JF2-2H-4,8 x L	steel	steel	with hexagon head
Annex 95	JF3-2-5,5xL JF6-2-5,5xL JF3-FR-2-5,5xL JF6-FR-2-5,5xL	steel	steel	with hexagon head or round head with Torx® drive system and sealing washer $\geq \varnothing 11$ mm
Annex 96	JF3-2-5,5xL JF6-2-5,5xL JF3-FR-2-5,5xL JF6-FR-2-5,5xL	steel	steel	with hexagon head or round head with Torx® drive system and sealing washer $\geq \varnothing 14$ mm
Annex 97	JF3-2-5,5xL JF6-2-5,5xL JF3-FR-2-5,5xL JF6-FR-2-5,5xL	alu 165	alu 165	with hexagon head or round head with Torx® drive system and sealing washer $\geq \varnothing 14$ mm
Annex 98	JF3-2-5,5xL JF6-2-5,5xL JF3-FR-2-5,5xL JF6-FR-2-5,5xL	alu 215	alu 215	with hexagon head or round head with Torx® drive system and sealing washer $\geq \varnothing 14$ mm
Annex 99	JT3-LT-3-5,5xL JT6-LT-3-5,5xL	steel	steel	round head with Torx® drive system
Annex 100	JT3-LT-3-5,5xL JT6-LT-3-5,5xL	steel	steel	round head with Torx® drive system and sealing washer $\geq \varnothing 11$ mm
Annex 101	JT4-4-4,8xL JT9-4-4,8xL	alu 165	alu 165	with hexagon head
Annex 102	JT4-4-4,8xL JT9-4-4,8xL	alu 215	alu 215	with hexagon head
Annex 103	JT4-6-5,5xL JT9-6-5,5xL	alu 165	alu 165	with hexagon head
Annex 104	JT4-6-5,5xL JT9-6-5,5xL	alu 215	alu 215	with hexagon head

*) These fastening screws are applicable for fastening to timber substructures

¹⁾ Aluminum alloy with $R_{m,min}$ of 165 N/mm²

²⁾ Aluminum alloy with $R_{m,min}$ of 215 N/mm²

1.2 Intended use

The fastening screws are intended to be used for fastening steel sheeting to steel substructures and as far as stated in Table 1 to timber substructures. The sheeting can either be used as wall or roof cladding or as load bearing wall and roof element.

The fastening screws can also be used for the fastening of other thin gauge steel members.

The component to be fastened is component I and the substructure is component II.

The intended use comprises fastening screws and connections for indoor and outdoor applications. Fastening screws which are made of stainless steel are intended to be used in external environments with a high or very high corrosion category.

The intended use comprises connections with predominantly static loads (e.g. wind loads, dead loads).

The provisions made in this European technical approval are based on an assumed working life of the fastening screws of 25 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

2 Characteristics of product and methods of verification

2.1 Characteristics of product

The fastening screws shall correspond to the drawings given in the appropriate Annexes (see Table 1).

The characteristic material values, dimensions and tolerances of the fastening screws neither indicated in this section nor in the Annexes shall correspond to the respective values laid down in the technical documentation⁷ to this European technical approval.

The characteristic values of the shear and tension resistance of the connections made with the fastening screws are given in the appropriate Annexes or in section 4.2.

The fastening screws are considered to satisfy the requirements of performance class A1 of the characteristic reaction to fire.

2.2 Methods of verification

The assessment of the fitness of the fastening screws for the intended use in relation to the Essential Requirements ER 1 (Mechanical resistance and stability), ER 2 (Safety in case of fire), ER 4 (Safety in use) and additional aspects of durability has been made in accordance with section 3.2 of the Common Procedural Rules for Requesting, Preparing and the Granting of European technical approvals set out in the Annex to Commission Decision 94/23/EC⁶.

The assessment of the resistance to fire performance is only relevant to the assembled system (fastening screws, sheeting, substructure) which is not part of the ETA.

The fastening screws are considered to satisfy the requirements of performance class A 1 of the characteristic reaction to fire, in accordance with the provisions of the EC Decision 96/603/EC (as amended) without the need for testing on the basis of its listing in that decision.

Concerning Essential Requirements No. 1 (Mechanical resistance and stability) and No. 4 (Safety in use) the following applies:

The characteristic values of resistance given in the Annexes were determined by shear and tension tests.

The formulas to calculate the design resistance are given in clause 4.2.1.

⁷

The technical documentation to this European technical approval is deposited at Deutsches Institut für Bautechnik and, as far as relevant for the tasks of the approved bodies involved in the attestation of conformity procedure is handed over to the approved bodies.

3 Evaluation and attestation of conformity and CE marking

3.1 System of attestation of conformity

According to the Decision 99/92 of the European Commission⁸ system 3 of the attestation of conformity applies.

This system of attestation of conformity is defined as follows:

System 3: Declaration of conformity of the product by the manufacturer on the basis of:

- (a) Tasks for the manufacturer:
 - (1) factory production control;
- (b) Tasks for the approved body:
 - (2) initial type-testing of the product.

Note: Approved bodies are also referred to as "notified bodies".

3.2 Responsibilities

3.2.1 Tasks for the manufacturer

3.2.1.1 Factory production control

The manufacturer shall exercise permanent internal control of production. All the elements, requirements and provisions adopted by the manufacturer shall be documented in a systematic manner in the form of written policies and procedures, including records of results performed. This production control system shall insure that the product is in conformity with this European technical approval.

The manufacturer may only use initial materials stated in the technical documentation of this European technical approval.

The factory production control shall be in accordance with the "control plan relating to this European technical approval" which is part of the technical documentation of this European technical approval. The control plan is laid down in the context of the factory production control system operated by the manufacturer and deposited with Deutsches Institut für Bautechnik.⁹

The results of factory production control shall be recorded and evaluated in accordance with the provisions of the control plan.

3.2.1.2 Other tasks for the manufacturer

The manufacturer shall, on the basis of a contract, involve a body which is approved for the tasks referred to in section 3.1 in the field of fastening screws in order to undertake the actions laid down in section 3.2.2. For this purpose, the control plan referred to in sections 3.2.1.1 and 3.2.2 shall be handed over by the manufacturer to the approved body involved.

The manufacturer shall make a declaration of conformity, stating that the construction product is in conformity with the provisions of this European technical approval.

3.2.2 Tasks for the approved bodies

The approved body shall perform the

- initial type-testing of the product,

in accordance with the provisions laid down in the control plan.

The approved body shall retain the essential points of its actions referred to above and state the results obtained and conclusions drawn in written reports.

⁸ Official Journal of the European Communities L 80 of 18.03.1998.

⁹ The "control plan" is a confidential part of the European technical approval and only handed over to the approved body involved in the procedure of attestation of conformity. See section 3.2.2.

3.3 CE marking

The CE marking shall be affixed on each packaging of fastening screws. The letters "CE" shall be followed by the identification number of the approved certification body, where relevant, and be accompanied by the following additional information:

- the name and address of the producer (legal entity responsible for the manufacture),
- the last two digits of the year in which the CE marking was affixed,
- the number of the European technical approval,
- the name of the product.

4 Assumptions under which the fitness of the product for the intended use was favourably assessed

4.1 Manufacturing

The fastening screws are manufactured in accordance with the provisions of the European technical approval using the manufacturing process as laid down in the technical documentation.

The European technical approval is issued for the product on the basis of agreed data/information, deposited with Deutsches Institut für Bautechnik, which identifies the product that has been assessed and judged. Changes to the product or production process, which could result in this deposited data/information being incorrect, should be notified to Deutsches Institut für Bautechnik before the changes are introduced. Deutsches Institut für Bautechnik will decide whether or not such changes affect the approval and consequently the validity of the CE marking on the basis of the approval and if so whether further assessment or alterations to the approval shall be necessary.

4.2 Design

4.2.1 General

Fastening screws completely or partly exposed to external weather or similar conditions are made of stainless steel or are protected against corrosion. For the corrosion protection the rules given in EN 1090-2:2008 + A1:2011, EN 1993-1-3:2006 + AC:2009 and EN 1993-1-4:2006 are taken into account.

For the types of connection (a, b, c, d) listed in the Annexes it is not necessary to take into account the effect of constraints due to temperature. For other types of connection it shall be considered for design as long as constraining forces due to temperature do not occur or are not significant (e. g. sufficient flexibility of the structure).

The loading is predominantly static. (Remark: Wind loads are regarded as predominantly static.)

Dimensions, material properties, torque moments $M_{t,norm}$, minimum effective screw-in length l_{ef} and nominal material thicknesses t_N as stated in the ETA or in the Annexes are observed.

The verification concept stated in EN 1990:2002 + A1:2005 + A1:2005/AC:2010 is used for the design of the connections made with the fastening screws. The characteristic values (shear and tension resistance) stated in the Annexes are used for the design of the entire connections.

The following formulas are used to calculate the values of design resistance:

$$N_{Rd} = \frac{N_{Rk}}{\gamma_M}$$

$$V_{Rd} = \frac{V_{Rk}}{\gamma_M}$$

The recommended partial safety factor $\gamma_M = 1.33$ is used in order to determine the corresponding design resistances, provided no values are given in national regulations of the member state in which the fastening screws are used or in the respective National Annex to Eurocode 3.

In case of combined tension and shear forces the linear interaction formula according to EN 1993-1-3:2006 + AC:2009, section 8.3 (8) is taken into account.

$$\frac{N_{Sd}}{N_{Rd}} + \frac{V_{Sd}}{V_{Rd}} \leq 1.0$$

The possibly required reduction of the tension resistance (pull-through resistance) due to the position of the fastener is taken into account:

- in accordance with EN 1993 1 3:2006+ AC:2009, section 8.3 (7) and Fig. 8.2 (component I is made of steel) or EN 1999-1-4:2007 + A1:2011, section 8.1 (6) and Table 8.3 (component I is made of aluminium),
- of 0.7 if the supporting structure is an asymmetric profile (e.g. Z-profile) with $t_{II} < 5$ mm

4.2.2 Additional rules for connections with timber substructures

As far as no other provisions are made in the following EN 1995-1-1:2004 + A1:2008 applies.

Drill points of self drilling screws are not taken into account for the effective screw-in length.

The following terms are used:

l_g - Screw-in length - part of thread screwed into component II including drill point.

l_b - Length of unthreaded part of the drill-point.

l_{ef} - effective screw-in length $l_{ef} = l_g - l_b$

$N_{R,k} = F_{ax,Rk} \cdot k_{mod}$

$V_{R,k} = F_{v,Rk} \cdot k_{mod}$

$F_{ax,Rk}$ according to EN 1995-1-1:2004 + A1:2008, equation (8.40a)

Remark: $F_{ax,Rk} = F_{ax,\alpha,Rk}$ with $\alpha = 90^\circ$

$F_{v,Rk}$ according to EN 1995-1-1:2004 + A1:2008, clause 8.2.3

k_{mod} according to EN 1995-1-1:2004 + A1:2008, Table 3.1

$M_{y,Rk}$ in equation (8.9) of EN 1995-1-1:2004 + A1:2008 and $f_{ax,k}$ in equation (8.40a) of EN 1995-1-1:2004 + A1:2008 are given in the Annexes of this ETA.

The characteristic values for pullout and bearing resistance (timber substructure) calculated according to EN 1995-1-1:2004 + A1:2008 are compared with the characteristic values for component I (pull over and bearing resistance) stated in the right column of the table in the appropriate Annexes. The lower value is used for further calculations.

4.2.3 Additional rules for fastening of perforated sheets

For the fastening of perforated sheets (structural part I) only fastening screws with diameters given in Annexes 2, 3, 4 or 5 are used for which characteristic values are given in the following Annexes for unperforated sheets of same thickness and strength class as for the perforated sheets.

For the calculation of the connection the characteristic values for the connection of unperforated sheets according to the relevant Annex and the characteristic values for the connection of perforated sheets according to Annex 2, 3, 4 or 5 are determined. The lower values are used for further calculations.

The fastening to perforated sheets (structural part II) is not ruled in this ETA.

4.3 Installation

The installation is only carried out according to the manufacturer's instructions. The manufacturer hands over the assembly instructions to the assembler.

It is guaranteed by the execution that no bimetallic corrosion will occur.

For regular shear forces the components I and II are directly connected to each other so that the fastening screws do not get additional bending. The use of compression resistant thermal insulation strips up to a thickness of 3 mm is allowed.

The fastening screws are fixed rectangular to the surface of the components to guarantee a correct load bearing and if necessary rain-proof connection.

Fastening screws for steel substructures are screwed in with the cylindrical part of the thread at least 6 mm if the substructure has a thickness over 6 mm unless otherwise declared in the manufacturer's instruction. Welded drill points are not taken into account for the screw-in length.

The conformity of the installed fasteners with the provisions of the ETA is attested by the executing company.

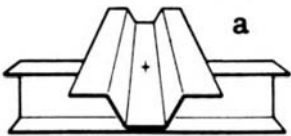
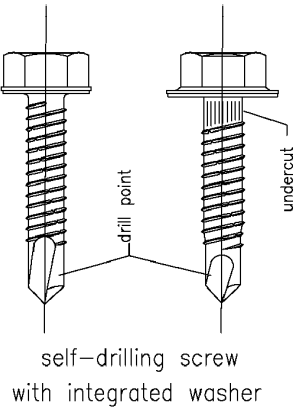
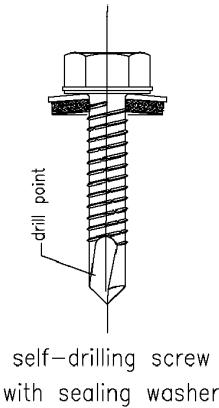
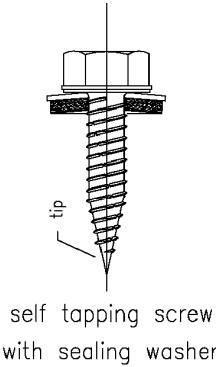
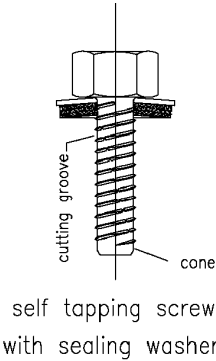
5 Indications to the manufacturer

It is in the responsibility of the manufacturer to ensure that the information on the specific conditions according to 1, 2, 4.2 and 4.3 (including Annexes referred to) is given to those who are concerned. This information may be given by reproduction of the respective parts of the European technical approval.

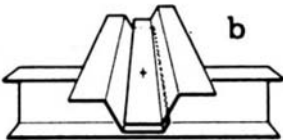
In addition all installation data (predrill diameter, torque moment, application limits) shall be shown clearly on the package and/or on an enclosed instruction sheet, preferably using illustration(s).

Andreas Kummerow
p. p. Head of Department

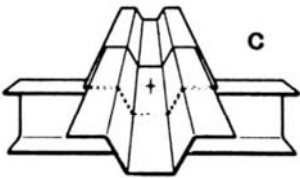
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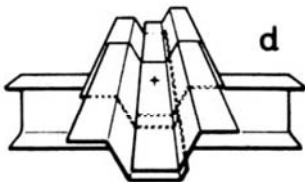
Single connection



Side lap connection

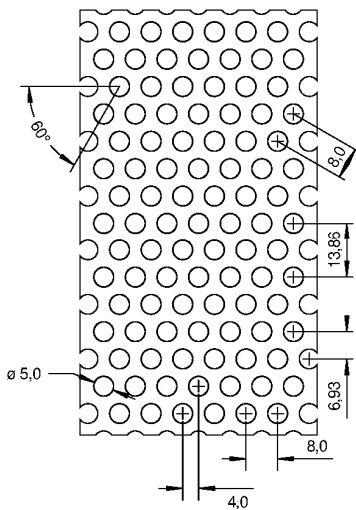


End overlap connection



Side lap + end overlap connection

Screws		Annex 1
Examples for screws Types of connection		



Hole pattern I

Type of Fastener

self tapping screw $\varnothing 6,3$ mm and $\varnothing 6,5$ mm
and
self drilling screw from $\varnothing 5,5$ mm to $\varnothing 6,3$ mm

Materials

Fastener: stainless steel - EN 10088 or similar

Washer: stainless steel - EN 10088
EPDM sealing washer

Component I: S280GD, S320GD or S350GD - EN 10346

Component II: at least S235 - EN 10025-1 or
at least S280GD - EN 10346 or
structural timber at least strength grade C24

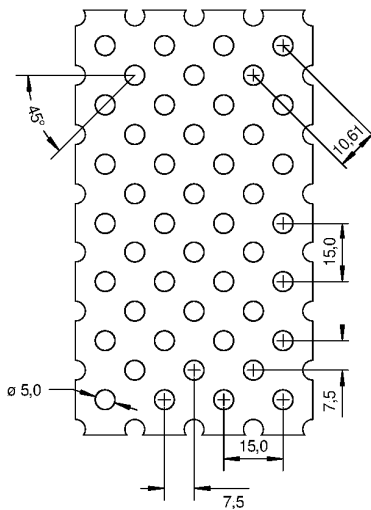
sheet / Ø washer	perforated sheets made of S280GD with R _{m,min} = 360 N/mm²				perforated sheets made of S320GD with R _{m,min} = 390 N/mm²				perforated sheets made of S350GD with R _{m,min} = 420 N/mm²				
	16 mm	19 mm	22 mm	25 mm	16 mm	19 mm	22 mm	25 mm	16 mm	19 mm	22 mm	25 mm	
	M _{t,nom} 5 Nm												
V _{R,k} [kN] for t _{N,I} [mm]	0,50	—	—	—	—	—	—	—	—	—	—	—	
	0,55	—	—	—	—	—	—	—	—	—	—	—	
	0,63	—	—	—	—	—	—	—	—	—	—	—	
	0,75	2,16	2,22	2,24	2,38	2,34	2,40	2,44	2,58	2,54	2,60	2,62	2,78
	0,88	2,56	2,64	2,64	2,78	2,78	2,86	2,86	3,02	3,00	3,10	3,10	3,26
	1,00	2,92	3,04	3,02	3,16	3,16	3,30	3,26	3,42	3,42	3,56	3,52	3,68
	1,13	3,32	3,48	3,42	3,56	3,60	3,76	3,70	3,86	3,88	4,10	4,00	4,16
N _{R,k} [kN] for t _{N,I} [mm]	1,25	3,70	3,88	3,80	3,94	4,00	4,20	4,10	4,26	4,32	4,54	4,42	4,60
	1,50	4,46	4,74	4,56	4,72	4,84	5,12	4,96	5,10	5,22	5,54	5,34	5,50
	0,50	—	—	—	—	—	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—	—	—	—	—	—
	0,63	—	—	—	—	—	—	—	—	—	—	—	—
	0,75	1,40	1,94	2,14	2,22	1,52	2,08	3,32	2,42	1,64	2,26	2,50	2,60
	0,88	1,82	2,34	2,62	2,70	1,96	2,54	2,82	2,92	2,12	2,74	3,04	3,14
	1,00	2,24	2,74	3,06	3,14	2,44	2,96	3,32	3,42	2,62	3,20	3,58	3,68
	1,13	2,74	3,18	3,58	3,64	2,98	3,44	3,88	3,96	3,20	3,70	4,18	4,26
	1,25	3,24	3,58	4,08	4,12	3,52	3,88	4,40	4,46	3,78	4,18	4,76	4,80
	1,50	4,36	4,46	5,12	5,12	4,74	4,84	5,56	5,56	5,10	5,22	5,98	5,98

The thickness of the perforated sheets which are exposed to wind loads shall be at least 1,00 mm.

For intermediate values of the washer diameter the characteristic values for the washer with the smaller diameter shall be used.

Fastening of perforated sheets

Annex 2



Hole pattern II

**Type of
Fastener**

self tapping screw $\varnothing 6,3$ mm and $\varnothing 6,5$ mm
and
self drilling screw from $\varnothing 5,5$ mm to $\varnothing 6,3$ mm

Materials

Fastener: stainless steel - EN 10088 or similar

Washer: stainless steel - EN 10088
EPDM sealing washer

Component I: S280GD - EN 10346

Component II: at least S235 - EN 10025-1 or
at least S280GD - EN 10346 or
structural timber at least strength grade C24

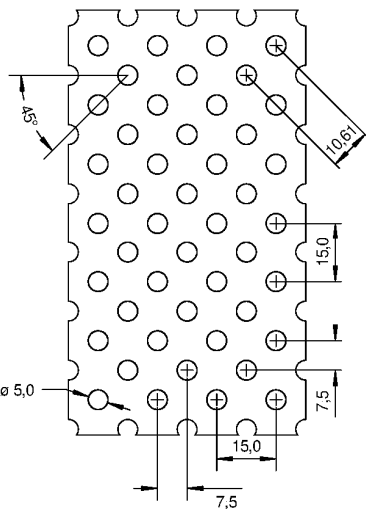
screw / \varnothing washer	self drilling screws $\varnothing 5,5$ mm and $\varnothing 6,0$ mm				self tapping screws and self drilling screws $\varnothing 6,3$ mm and $\varnothing 6,5$ mm			
	16 mm	19 mm	22 mm	25 mm	16 mm	19 mm	22 mm	25 mm
$M_{t,nom}$	5 Nm							
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—
	0,63	—	—	—	—	—	—	—
	0,75	2,48	2,52	2,84	2,76	2,38	2,64	3,16
	0,88	3,04	3,12	3,42	3,32	3,02	3,28	3,78
	1,00	3,56	3,70	3,84	3,84	3,64	3,96	4,36
	1,13	4,14	4,26	4,40	4,40	4,36	4,70	5,00
	1,25	4,68	4,84	4,92	4,94	5,06	5,40	5,60
	1,50	5,76	6,04	5,90	6,10	6,62	6,94	6,88
	1,50	5,76	6,04	5,90	6,10	6,62	6,94	6,88
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—
	0,63	—	—	—	—	—	—	—
	0,75	2,88	3,16	3,24	3,14	2,86	3,46	3,72
	0,88	3,42	3,72	3,76	3,70	3,40	4,02	4,30
	1,00	3,92	4,28	4,28	4,20	3,90	4,56	4,82
	1,13	4,46	4,86	4,88	4,72	4,44	5,12	5,38
	1,25	4,96	5,42	5,42	5,26	4,94	5,66	5,88
	1,50	6,04	6,60	6,60	6,38	6,00	6,74	6,92

The thickness of the perforated sheets which are exposed to wind loads shall be at least 1,00 mm.

For intermediate values of the washer diameter the characteristic values for the washer with the smaller diameter shall be used.

Fastening of perforated sheets

Annex 3



Hole pattern II

Type of Fastener

self tapping screw $\varnothing 6,3$ mm and $\varnothing 6,5$ mm
and
self drilling screw from $\varnothing 5,5$ mm to $\varnothing 6,3$ mm

Materials

Fastener: stainless steel - EN 10088 or similar

Washer: stainless steel - EN 10088
EPDM sealing washer

Component I: S320GD - EN 10346

Component II: at least S235 - EN 10025-1 or
at least S280GD - EN 10346 or
structural timber at least strength grade C24

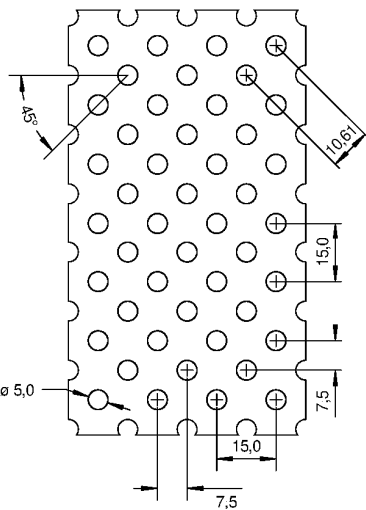
screw / \varnothing washer	self drilling screws $\varnothing 5,5$ mm and $\varnothing 6,0$ mm				self tapping screws and self drilling screws $\varnothing 6,3$ mm and $\varnothing 6,5$ mm			
	16 mm	19 mm	22 mm	25 mm	16 mm	19 mm	22 mm	25 mm
$M_{t,nom}$	5 Nm							
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—
	0,63	—	—	—	—	—	—	—
	0,75	2,68	2,74	3,08	3,00	2,68	2,88	3,42
	0,88	3,30	3,38	3,70	3,60	3,36	3,60	4,10
	1,00	3,86	4,00	4,16	4,16	4,02	4,30	4,72
	1,13	4,48	4,62	4,76	4,76	4,76	5,08	5,42
	1,25	5,06	5,24	5,32	5,36	5,50	5,84	6,08
	1,50	6,24	6,54	6,40	6,60	7,10	7,52	7,46
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—
	0,63	—	—	—	—	—	—	—
	0,75	3,12	3,42	3,50	3,40	3,12	3,68	4,06
	0,88	3,70	4,04	4,08	4,00	3,70	4,32	4,68
	1,00	4,24	4,64	4,64	4,54	4,24	4,92	5,24
	1,13	4,84	5,26	5,28	5,12	4,84	5,54	5,86
	1,25	5,38	5,88	5,88	5,70	5,38	6,14	6,40
	1,50	6,54	7,16	7,16	6,92	6,54	7,38	7,54

The thickness of the perforated sheets which are exposed to wind loads shall be at least 1,00 mm.

For intermediate values of the washer diameter the characteristic values for the washer with the smaller diameter shall be used.

Fastening of perforated sheets

Annex 4



Hole pattern II

**Type of
Fastener**

self tapping screw $\varnothing 6,3$ mm and $\varnothing 6,5$ mm
and
self drilling screw from $\varnothing 5,5$ mm to $\varnothing 6,3$ mm

Materials

Fastener: stainless steel - EN 10088 or similar

Washer: stainless steel - EN 10088
EPDM sealing washer

Component I: S350GD - EN 10346

Component II: at least S235 - EN 10025-1 or
at least S280GD - EN 10346 or
structural timber at least strength grade C24

screw / \varnothing washer	self drilling screws $\varnothing 5,5$ mm and $\varnothing 6,0$ mm				self tapping screws and self drilling screws $\varnothing 6,3$ mm and $\varnothing 6,5$ mm			
	16 mm	19 mm	22 mm	25 mm	16 mm	19 mm	22 mm	25 mm
$M_{t,nom}$	5 Nm							
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—
	0,63	—	—	—	—	—	—	—
	0,75	2,88	2,92	3,30	3,20	2,98	3,20	3,72
	0,88	3,54	3,62	3,96	3,86	3,62	3,88	4,42
	1,00	4,14	4,28	4,46	4,46	4,24	4,52	5,08
	1,13	4,80	4,94	5,10	5,10	4,92	5,24	5,78
	1,25	5,44	5,62	5,70	5,72	5,56	5,92	6,46
	1,50	6,24	6,54	6,40	7,02	6,94	7,36	7,86
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—
	0,63	—	—	—	—	—	—	—
	0,75	3,34	3,66	3,76	3,64	3,52	4,16	4,52
	0,88	3,96	4,36	4,38	4,28	3,98	4,74	5,04
	1,00	4,54	4,98	4,96	4,86	4,40	5,24	5,50
	1,13	5,16	5,64	5,64	5,48	4,86	5,76	5,96
	1,25	5,80	6,28	6,28	6,14	5,38	6,24	6,40
	1,50	6,54	7,16	7,16	7,46	6,54	7,38	7,54

The thickness of the perforated sheets which are exposed to wind loads shall be at least 1,00 mm.

For intermediate values of the washer diameter the characteristic values for the washer with the smaller diameter shall be used.

Fastening of perforated sheets

Annex 5

	<p>Materials</p> <p>Fastener: carbon steel case hardened and galvanized</p> <p>Washer: none</p> <p>Component I: S280GD, S320GD or S350GD - EN 10346</p> <p>Component II: S235 - EN 10025-1 S280GD, S320GD or S350GD - EN 10346</p> <p>Drilling capacity see remark below</p> <p>Timber substructures no performance determined</p>
--	---

$t_{N,II}$ [mm]	0,63		0,75		0,88		1,00		1,13		1,25		1,50		2,00	
$M_{t,nom}$	JT2-4,2 x L: 4 Nm												—			
	JT2-4,8 x L: 4 Nm						JT2-4,8 x L: 5 Nm									
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,63	1,50	—	1,90	—	1,90	—	1,90	—	1,90	—	1,90	ac	1,90	ac	1,90
	0,75	1,50	—	1,90	—	2,00	—	2,00	—	2,00	—	2,00	ac	2,00	ac	2,00
	0,88	1,50	—	1,90	—	2,30	—	2,30	—	2,30	—	2,30	a	2,30	a	2,30
	1,00	1,50	—	1,90	—	2,30	—	2,60	—	2,60	—	2,60	—	2,60	a	2,60
	1,13	1,50	—	1,90	—	2,30	—	2,80	—	2,90	—	2,90	—	2,90	—	2,90
	1,25	1,50	—	1,90	—	2,30	—	2,80	—	2,90	—	3,20	—	3,20	—	3,20
	1,50	1,50	—	1,90	—	2,30	—	2,80	—	2,90	—	3,20	—	3,70	—	3,70
1,75	1,50	—	1,90	—	2,30	—	2,80	—	2,90	—	3,20	—	3,70	—	3,70	
2,00	1,50	—	1,90	—	2,30	—	2,80	—	2,90	—	3,20	—	3,70	—	3,70	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,63	0,50	—	0,70	—	1,00	—	1,30	—	1,40	—	1,40	ac	1,40	ac	1,40
	0,75	0,50	—	0,70	—	1,00	—	1,30	—	1,50	—	1,50	ac	1,50	ac	1,50
	0,88	0,50	—	0,70	—	1,00	—	1,30	—	1,50	—	1,60	a	1,60	a	1,60
	1,00	0,50	—	0,70	—	1,00	—	1,30	—	1,50	—	1,70	—	1,80	a	1,80
	1,13	0,50	—	0,70	—	1,00	—	1,30	—	1,50	—	1,70	—	1,90	—	1,90
	1,25	0,50	—	0,70	—	1,00	—	1,30	—	1,50	—	1,70	—	2,00	—	2,00
	1,50	0,50	—	0,70	—	1,00	—	1,30	—	1,50	—	1,70	—	2,20	—	2,20
	1,75	0,50	—	0,70	—	1,00	—	1,30	—	1,50	—	1,70	—	2,20	—	2,20
	2,00	0,50	—	0,70	—	1,00	—	1,30	—	1,50	—	1,70	—	2,20	—	2,20

Grey highlighted values only for the fastener JT2-4,8 x L

JT2-2-4,2 x L: drilling capacity $\Sigma t_i \leq 2,5$ mm

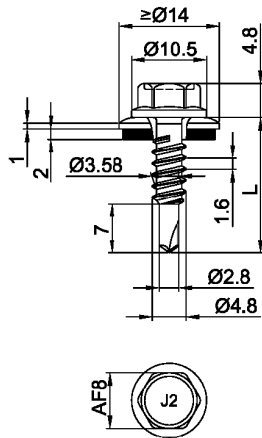
JT2-3-4,8 x L: drilling capacity $\Sigma t_i \leq 4,0$ mm

Self drilling screw

JT2-2-4,2 x L
JT2-3-4,8 x L

with hexagon head or round head with Phillips®, Pozidriv® or Torx® drive system

Annex 6



Materials

Fastener: carbon steel
case hardened and galvanized

Washer: carbon steel, galvanized

Component I: S280GD, S320GD or S350GD - EN 10346

Component II: S235 - EN 10025-1
S280GD, S320GD or S350GD - EN 10346

Drilling capacity $\Sigma t_i \leq 2,20 \text{ mm}$

Timber substructures

no performance determined

$t_{N,II}$ [mm]	0,40	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	1,50	1,75
$M_{t,nom}$	—										
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,40	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,71
	0,50	0,71	1,18	1,18	1,18	1,18	1,18	1,18	1,18	1,18	—
	0,55	0,71	1,18	1,42	1,42	1,42	1,42	1,42	1,42	1,42	—
	0,63	0,71	1,18	1,42	1,71	1,71	1,71	1,71	1,71	1,71	—
	0,75	0,71	1,18	1,42	1,71	2,14	2,14	2,14	2,14	—	—
	0,88	0,71	1,18	1,42	1,71	2,14	2,52	2,52	2,52	—	—
	1,00	0,71	1,18	1,42	1,71	2,14	2,52	2,86	2,86	—	—
	1,13	0,71	1,18	1,42	1,71	2,14	2,52	2,86	—	—	—
	1,25	0,71	1,18	1,42	1,71	2,14	2,52	—	—	—	—
	1,50	0,71	1,18	1,42	1,71	—	—	—	—	—	—
	1,75	0,71	—	—	—	—	—	—	—	—	—
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,40	0,42	0,62	0,72	0,88	1,08	1,08	1,08	1,08	1,08	1,08
	0,50	0,42	0,62	0,72	0,88	1,12	1,38	1,54	1,54	1,54	—
	0,55	0,42	0,62	0,72	0,88	1,12	1,38	1,62	1,62	1,62	—
	0,63	0,42	0,62	0,72	0,88	1,12	1,38	1,62	1,62	1,62	—
	0,75	0,42	0,62	0,72	0,88	1,12	1,38	1,62	1,62	—	—
	0,88	0,42	0,62	0,72	0,88	1,12	1,38	1,62	1,62	—	—
	1,00	0,42	0,62	0,72	0,88	1,12	1,38	1,62	—	—	—
	1,13	0,42	0,62	0,72	0,88	1,12	1,38	1,62	—	—	—
	1,25	0,42	0,62	0,72	0,88	1,12	1,38	—	—	—	—
	1,50	0,42	0,62	0,72	0,88	—	—	—	—	—	—
	1,75	0,42	—	—	—	—	—	—	—	—	—

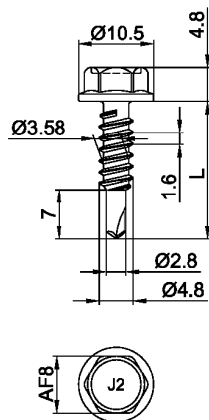
If both components I and II are made of S320GD or S350GD the values may be increased by 8,3%.

Self drilling screw

JT2-2H/3-4,8 x L

with undercut, hexagon head and sealing washer $\geq \text{Ø}14 \text{ mm}$

Annex 7



Materials

Fastener: carbon steel
case hardened and galvanized

Washer: none

Component I: S280GD, S320GD or S350GD - EN 10346

Component II: S235 - EN 10025-1
S280GD, S320GD or S350GD - EN 10346

Drilling capacity $\Sigma t_i \leq 2,20 \text{ mm}$

Timber substructures

no performance determined

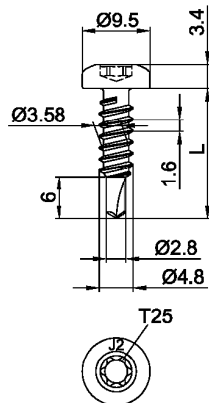
$t_{N,II}$ [mm]	0,40	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	1,50	1,75
$M_{t,nom}$	—										
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,40	0,92	0,92	0,92	0,92	0,92	0,92	0,92	0,92	0,92	0,92
	0,50	0,92	1,42	1,42	1,42	1,42	1,42	1,42	1,42	1,42	—
	0,55	0,92	1,42	1,67	1,67	1,67	1,67	1,67	1,67	1,67	—
	0,63	0,92	1,42	1,67	1,87	1,87	1,87	1,87	1,87	1,87	—
	0,75	0,92	1,42	1,67	1,87	2,16	2,16	2,16	2,16	—	—
	0,88	0,92	1,42	1,67	1,87	2,16	2,75	2,75	2,75	—	—
	1,00	0,92	1,42	1,67	1,87	2,16	2,75	3,30	3,30	—	—
	1,13	0,92	1,42	1,67	1,87	2,16	2,75	3,30	—	—	—
	1,25	0,92	1,42	1,67	1,87	2,16	2,75	—	—	—	—
	1,50	0,92	1,42	1,67	1,87	—	—	—	—	—	—
	1,75	0,92	—	—	—	—	—	—	—	—	—
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,40	0,42	0,62	0,72	0,81	0,81	0,81	0,81	0,81	0,81	0,81
	0,50	0,42	0,62	0,72	0,88	1,12	1,27	1,27	1,27	1,27	—
	0,55	0,42	0,62	0,72	0,88	1,12	1,38	1,50	1,50	1,50	—
	0,63	0,42	0,62	0,72	0,88	1,12	1,38	1,50	1,50	1,50	—
	0,75	0,42	0,62	0,72	0,88	1,12	1,38	1,50	1,50	—	—
	0,88	0,42	0,62	0,72	0,88	1,12	1,38	1,50	1,50	—	—
	1,00	0,42	0,62	0,72	0,88	1,12	1,38	1,50	—	—	—
	1,13	0,42	0,62	0,72	0,88	1,12	1,38	1,50	—	—	—
	1,25	0,42	0,62	0,72	0,88	1,12	1,38	—	—	—	—
	1,50	0,42	0,62	0,72	0,88	—	—	—	—	—	—
	1,75	0,42	—	—	—	—	—	—	—	—	—

If both components I and II are made of S320GD or S350GD the values may be increased by 8,3%.

Self drilling screw

JT2-2H-4,8 x L
with undercut and hexagon head

Annex 8



Materials

Fastener: carbon steel
case hardened and galvanized

Washer: none

Component I: S280GD, S320GD or S350GD - EN 10346

Component II: S235 - EN 10025-1
S280GD, S320GD or S350GD - EN 10346

Drilling capacity $\Sigma t_i \leq 2,20 \text{ mm}$

Timber substructures

no performance determined

$t_{N,II}$ [mm]	0,40	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	1,50	1,75
$M_{t,nom}$	—										
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,40	0,69	0,69	0,69	0,69	0,69	0,69	0,69	0,69	0,69	0,69
	0,50	0,69	1,37	1,37	1,37	1,37	1,37	1,37	1,37	1,37	—
	0,55	0,69	1,37	1,70	1,70	1,70	1,70	1,70	1,70	1,70	—
	0,63	0,69	1,37	1,70	1,96	1,96	1,96	1,96	1,96	1,96	—
	0,75	0,69	1,37	1,70	1,96	2,35	2,35	2,35	2,35	2,35	—
	0,88	0,69	1,37	1,70	1,96	2,35	2,70	2,70	2,70	2,70	—
	1,00	0,69	1,37	1,70	1,96	2,35	2,70	3,02	3,02	—	—
	1,13	0,69	1,37	1,70	1,96	2,35	2,70	3,02	—	—	—
	1,25	0,69	1,37	1,70	1,96	2,35	2,70	—	—	—	—
	1,50	0,69	1,37	1,70	1,96	—	—	—	—	—	—
	1,75	0,69	—	—	—	—	—	—	—	—	—
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,40	0,42	0,62	0,72	0,85	0,85	0,85	0,85	0,85	0,85	0,85
	0,50	0,42	0,62	0,72	0,88	1,12	1,38	1,38	1,38	1,38	—
	0,55	0,42	0,62	0,72	0,88	1,12	1,38	1,62	1,62	1,62	—
	0,63	0,42	0,62	0,72	0,88	1,12	1,38	1,62	1,62	1,62	—
	0,75	0,42	0,62	0,72	0,88	1,12	1,38	1,62	1,62	1,62	—
	0,88	0,42	0,62	0,72	0,88	1,12	1,38	1,62	1,62	1,62	—
	1,00	0,42	0,62	0,72	0,88	1,12	1,38	1,62	1,62	—	—
	1,13	0,42	0,62	0,72	0,88	1,12	1,38	1,62	—	—	—
	1,25	0,42	0,62	0,72	0,88	1,12	1,38	—	—	—	—
	1,50	0,42	0,62	0,72	0,88	—	—	—	—	—	—
	1,75	0,42	—	—	—	—	—	—	—	—	—

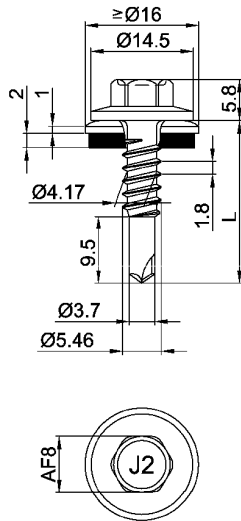
If both components I and II are made of S320GD or S350GD the values may be increased by 8,3%.

Self drilling screw

JT2-T-2H-4,8 x L

with undercut and round head with Torx® drive system

Annex 9



Materials

Fastener: carbon steel
case hardened and galvanized

Washer: carbon steel, galvanized
stainless Steel (1.4301) - EN 10088

Component I: S280GD, S320GD or S350GD - EN 10346

Component II: S235 - EN 10025-1
S280GD, S320GD or S350GD - EN 10346

Drilling capacity $\Sigma t_i \leq 2,50 \text{ mm}$

Timber substructures

no performance determined

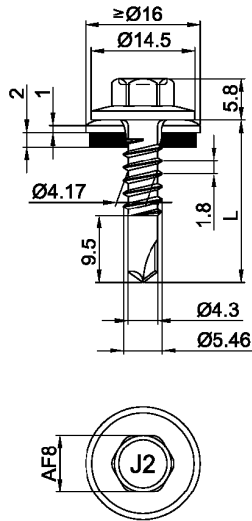
$t_{N,II}$ [mm]	0,63	0,75	0,88	1,00	1,13	1,25	1,50	2,00
$M_{t,nom}$	5 Nm							
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—	—
0,55	—	—	—	—	—	—	—	—
0,63	1,00	—	1,00	—	1,00	—	1,00	ac
0,75	1,00	—	2,00	—	2,00	—	2,00	—
0,88	1,00	—	2,00	—	2,00	—	2,00	—
1,00	1,00	—	2,00	—	2,00	—	2,00	—
1,13	1,00	—	2,00	—	2,00	—	—	—
1,25	1,00	—	2,00	—	2,00	—	—	—
1,50	1,00	—	2,00	—	—	—	—	—
1,75	1,00	—	—	—	—	—	—	—
2,00	—	—	—	—	—	—	—	—
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,38	0,49	0,59	0,70	0,86	0,97	1,24
0,55	0,48	—	0,61	—	0,89	—	1,09	1,23
0,63	0,70	—	0,90	—	1,30	—	1,60	1,80
0,75	0,70	—	0,90	—	1,30	—	1,60	1,80
0,88	0,70	—	0,90	—	1,30	—	1,60	1,80
1,00	0,70	—	0,90	—	1,30	—	1,60	1,80
1,13	0,70	—	0,90	—	1,30	—	1,60	1,80
1,25	0,70	—	0,90	—	1,30	—	1,60	1,80
1,50	0,70	—	0,90	—	1,30	—	—	—
1,75	0,70	—	—	—	—	—	—	—
2,00	—	—	—	—	—	—	—	—

Self drilling screw

JT2-2H-5,5 x L

with undercut, hexagon head and sealing washer $\geq \text{Ø}16 \text{ mm}$

Annex 10



Materials

Fastener: carbon steel
case hardened and galvanized

Washer: carbon steel, galvanized
stainless Steel (1.4301) - EN 10088

Component I: S280GD, S320GD or S350GD - EN 10346

Component II: S235 - EN 10025-1
S280GD, S320GD or S350GD - EN 10346

Drilling capacity $\Sigma t_i \leq 3,50 \text{ mm}$

Timber substructures

no performance determined

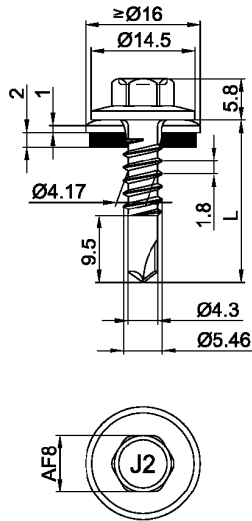
$t_{N,II}$ [mm]	1,00		1,13		1,25		1,50		2,00		2,50		3,00		4,00	
$M_{t,nom}$	5 Nm														—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,63	1,40	—	1,50	—	1,60	ac	1,90	ac	2,30	ac	2,50	ac	—	—	—
	0,75	1,80	—	1,90	—	2,00	ac	2,20	ac	2,70	ac	3,20	a	—	—	—
	0,88	2,20	—	2,30	—	2,50	—	2,80	—	3,40	—	3,90	a	—	—	—
	1,00	2,60	—	2,80	—	3,00	—	3,40	—	4,20	—	4,60	a	—	—	—
	1,13	3,00	—	3,10	—	3,20	—	4,00	—	4,60	—	—	—	—	—	—
	1,25	3,50	—	3,70	—	3,90	—	4,40	—	5,20	—	—	—	—	—	—
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	1,50	4,30	—	4,60	—	4,90	—	5,50	—	6,00	—	—	—	—	—	—
	1,75	4,30	—	4,60	—	4,90	—	5,50	—	—	—	—	—	—	—	—
	2,00	4,30	—	4,60	—	4,90	—	5,50	—	—	—	—	—	—	—	—
	0,50	0,70	—	0,81	—	0,97	ac	1,24	ac	1,62	ac	1,62	ac	1,62	ac	—
	0,55	0,89	—	1,02	—	1,23	ac	1,57	ac	2,05	ac	2,05	ac	—	—	—
	0,63	1,30	—	1,50	—	1,80	ac	2,30	ac	3,00	ac	3,00	ac	—	—	—
	0,75	1,30	—	1,50	—	1,80	ac	2,30	ac	3,40	ac	4,00	a	—	—	—
	0,88	1,30	—	1,50	—	1,80	—	2,30	—	3,40	—	4,60	a	—	—	—
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	1,00	1,30	—	1,50	—	1,80	—	2,30	—	3,40	—	4,60	a	—	—	—
	1,13	1,30	—	1,50	—	1,80	—	2,30	—	3,40	—	—	—	—	—	—
	1,25	1,30	—	1,50	—	1,80	—	2,30	—	3,40	—	—	—	—	—	—
	1,50	1,30	—	1,50	—	1,80	—	2,30	—	3,40	—	—	—	—	—	—
	1,75	1,30	—	1,50	—	1,80	—	2,30	—	—	—	—	—	—	—	—
	2,00	1,30	—	1,50	—	1,80	—	2,30	—	—	—	—	—	—	—	—
	0,50	0,70	—	0,81	—	0,97	ac	1,24	ac	1,62	ac	1,62	ac	1,62	ac	—
	0,55	0,89	—	1,02	—	1,23	ac	1,57	ac	2,05	ac	2,05	ac	—	—	—
0,63	1,30	—	1,50	—	1,80	ac	2,30	ac	3,00	ac	3,00	ac	—	—	—	
0,75	1,30	—	1,50	—	1,80	ac	2,30	ac	3,40	ac	4,00	a	—	—	—	
0,88	1,30	—	1,50	—	1,80	—	2,30	—	3,40	—	4,60	a	—	—	—	
1,00	1,30	—	1,50	—	1,80	—	2,30	—	3,40	—	4,60	a	—	—	—	
1,13	1,30	—	1,50	—	1,80	—	2,30	—	3,40	—	—	—	—	—	—	
1,25	1,30	—	1,50	—	1,80	—	2,30	—	3,40	—	—	—	—	—	—	
1,50	1,30	—	1,50	—	1,80	—	2,30	—	3,40	—	—	—	—	—	—	
1,75	1,30	—	1,50	—	1,80	—	2,30	—	—	—	—	—	—	—	—	
2,00	1,30	—	1,50	—	1,80	—	2,30	—	—	—	—	—	—	—	—	

Self drilling screw

JT2-3H-5,5 x L

with undercut, hexagon head and sealing washer $\geq \text{Ø}16 \text{ mm}$

Annex 11



Materials

Fastener: carbon steel
case hardened and galvanized

Washer: carbon steel, galvanized
stainless Steel (1.4301) - EN 10088

Component I: S280GD, S320GD or S350GD - EN 10346

Component II: S280GD, S320GD or S350GD - EN 10346

Drilling capacity $\Sigma t_i \leq 3,50 \text{ mm}$

Timber substructures

no performance determined

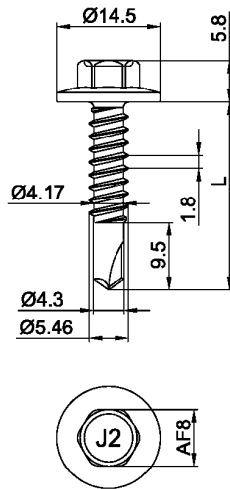
$t_{N,II}$ [mm]	2 x 0,63	2 x 0,75	2 x 0,88	2 x 1,00	2 x 1,13	2 x 1,25	2 x 1,50	2 x 1,75
$M_{t,nom}$	—	5 Nm						—
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50 — —	— —	— —	— —	— —	— —	— —	— —
0,55	— —	— —	— —	— —	— —	— —	— —	— —
0,63	— —	1,60 —	1,60 —	1,60 —	1,60 —	1,60 —	— —	— —
0,75	— —	1,90 —	1,90 —	1,90 —	1,90 —	1,90 —	— —	— —
0,88	— —	2,20 —	2,20 —	2,20 —	2,20 —	2,20 —	— —	— —
1,00	— —	2,60 —	2,60 —	2,60 —	2,60 —	2,60 —	— —	— —
1,13	— —	2,60 —	2,60 —	2,60 —	2,60 —	— —	— —	— —
1,25	— —	2,60 —	2,60 —	2,60 —	2,60 —	— —	— —	— —
1,50	— —	2,60 —	2,60 —	2,60 —	— —	— —	— —	— —
1,75	— —	2,60 —	— —	— —	— —	— —	— —	— —
2,00	— —	2,60 —	— —	— —	— —	— —	— —	— —
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50 — —	0,97 —	1,24 —	1,51 —	1,62 —	1,62 —	1,62 —	— —
0,55	— —	1,23 —	1,57 —	1,91 —	2,05 —	2,05 —	— —	— —
0,63	— —	1,80 —	2,30 —	2,80 —	3,00 —	3,00 —	— —	— —
0,75	— —	1,80 —	2,30 —	2,80 —	3,30 —	3,80 —	— —	— —
0,88	— —	1,80 —	2,30 —	2,80 —	3,30 —	3,80 —	— —	— —
1,00	— —	1,80 —	2,30 —	2,80 —	3,30 —	3,80 —	— —	— —
1,13	— —	1,80 —	2,30 —	2,80 —	3,30 —	— —	— —	— —
1,25	— —	1,80 —	2,30 —	2,80 —	3,30 —	— —	— —	— —
1,50	— —	1,80 —	2,30 —	2,80 —	— —	— —	— —	— —
1,75	— —	1,80 —	— —	— —	— —	— —	— —	— —
2,00	— —	1,80 —	— —	— —	— —	— —	— —	— —

Self drilling screw

JT2-3H-5,5 x L

with undercut, hexagon head and sealing washer $\geq \text{Ø}16 \text{ mm}$

Annex 12



Materials

Fastener: carbon steel
case hardened and galvanized

Washer: none

Component I: S280GD, S320GD or S350GD - EN 10346

Component II: S235 - EN 10025-1
S280GD, S320GD or S350GD - EN 10346

Drilling capacity

$\Sigma t_i \leq 3,50$ mm

Timber substructures

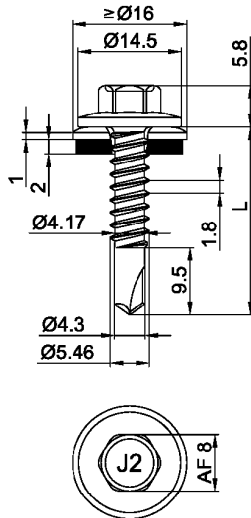
no performance determined

$t_{N,II}$ [mm]	1,00	1,13	1,25	1,50	2,00	2,50	3,00	4,00
$M_{t,nom}$	7 Nm							—
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—	—
0,55	—	—	—	—	—	—	—	—
0,63	1,80	—	1,80	—	2,00	—	2,80	ac
0,75	2,20	—	2,20	—	2,60	—	3,30	ac
0,88	2,60	—	2,60	—	3,00	—	3,70	a
1,00	3,00	—	3,00	—	3,40	—	4,30	a
1,13	3,50	—	3,50	—	3,80	—	4,90	a
1,25	4,00	—	4,00	—	4,40	—	—	—
1,50	4,80	—	4,80	—	5,40	—	—	—
1,75	4,80	—	4,80	—	5,40	—	—	—
2,00	4,80	—	4,80	—	5,40	—	—	—
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—	—
0,55	—	—	—	—	—	—	—	—
0,63	1,30	—	1,30	—	1,80	—	2,10	ac
0,75	1,30	—	1,30	—	2,10	—	2,90	ac
0,88	1,30	—	1,30	—	2,30	—	2,90	a
1,00	1,30	—	1,30	—	2,30	—	3,40	a
1,13	1,30	—	1,30	—	2,30	—	3,80	a
1,25	1,30	—	1,30	—	2,30	—	4,60	a
1,50	1,30	—	1,30	—	2,30	—	—	—
1,75	1,30	—	1,30	—	2,30	—	—	—
2,00	1,30	—	1,30	—	2,30	—	—	—

Self drilling screw

JT2-3-5,5 x L
with hexagon head

Annex 13



Materials

Fastener: carbon steel
case hardened and galvanized

Washer: carbon steel, galvanized
stainless Steel (1.4301) - EN 10088

Component I: S280GD, S320GD or S350GD - EN 10346

Component II: S235 - EN 10025-1
S280GD, S320GD or S350GD - EN 10346

Drilling capacity $\Sigma t_i \leq 3,50 \text{ mm}$

Timber substructures

no performance determined

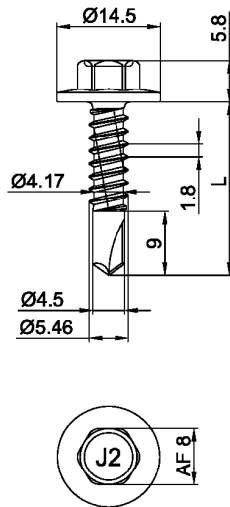
$t_{N,II}$ [mm]	1,00		1,13		1,25		1,50		2,00		2,50		3,00		4,00			
$M_{t,nom}$	7 Nm																—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	0,55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	0,63	1,40	—	1,40	—	1,70	—	2,00	—	2,50	ac	2,70	ac	—	—	—	—	
	0,75	1,80	—	1,80	—	2,20	—	2,40	—	3,00	ac	3,50	a	—	—	—	—	
	0,88	2,20	—	2,20	—	2,60	—	2,90	—	3,40	—	4,10	a	—	—	—	—	
	1,00	2,60	—	2,60	—	3,00	—	3,40	—	4,20	—	4,60	a	—	—	—	—	
	1,13	3,00	—	3,00	—	3,20	—	4,00	—	4,60	—	—	—	—	—	—	—	
	1,25	3,50	—	3,50	—	3,90	—	4,40	—	5,20	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	1,50	4,30	—	4,30	—	4,90	—	5,50	—	6,00	—	—	—	—	—	—	—	
	1,75	4,30	—	4,30	—	4,90	—	5,50	—	—	—	—	—	—	—	—	—	
	2,00	4,30	—	4,30	—	4,90	—	5,50	—	—	—	—	—	—	—	—	—	
	0,50	0,70	—	0,70	—	0,97	—	1,24	—	1,62	ac	1,62	ac	1,62	ac	—	—	
	0,55	0,89	—	0,89	—	1,23	—	1,57	—	2,05	ac	2,05	ac	—	—	—	—	
	0,63	1,30	—	1,30	—	1,80	—	2,30	—	3,00	ac	3,00	ac	—	—	—	—	
	0,75	1,30	—	1,30	—	1,80	—	2,30	—	3,40	ac	4,20	a	—	—	—	—	
	0,88	1,30	—	1,30	—	1,80	—	2,30	—	3,40	—	4,60	a	—	—	—	—	
1,00	1,30	—	1,30	—	1,80	—	2,30	—	3,40	—	4,60	a	—	—	—	—		
1,13	1,30	—	1,30	—	1,80	—	2,30	—	3,40	—	—	—	—	—	—	—		
1,25	1,30	—	1,30	—	1,80	—	2,30	—	3,40	—	—	—	—	—	—	—		
1,50	1,30	—	1,30	—	1,80	—	2,30	—	3,40	—	—	—	—	—	—	—		
1,75	1,30	—	1,30	—	1,80	—	2,30	—	—	—	—	—	—	—	—	—		
2,00	1,30	—	1,30	—	1,80	—	2,30	—	—	—	—	—	—	—	—	—		

Self drilling screw

JT2-3-5,5 x L

with hexagon head and sealing washer $\geq \text{Ø}16 \text{ mm}$

Annex 14



Materials

Fastener: carbon steel
case hardened and galvanized

Washer: none

Component I: S280GD, S320GD or S350GD - EN 10346

Component II: S235, S275 or S355 - EN 10025-1
S280GD, S320GD or S350GD - EN 10346

Drilling capacity

$\Sigma t_i \leq 6,00$ mm

Timber substructures

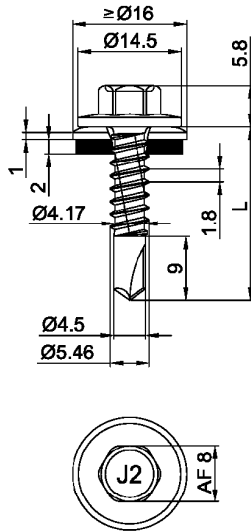
no performance determined

$t_{N,II}$ [mm]	—	—	1,50	2,00	2,50	3,00	4,00	5,00
$M_{t,nom}$	7 Nm							
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—
	0,63	—	—	2,60	2,80	2,80	3,80	3,80
	0,75	—	—	3,00	3,50	3,50	4,60	4,60
	0,88	—	—	3,40	4,20	4,20	5,30	5,30
	1,00	—	—	3,80	4,50	4,50	6,00	6,00
	1,13	—	—	4,20	4,90	4,90	6,70	—
	1,25	—	—	4,60	5,30	5,30	7,30	—
	1,50	—	—	5,30	6,00	6,00	8,10	—
	1,75	—	—	5,30	6,00	6,00	8,10	—
	2,00	—	—	5,30	6,00	6,00	8,10	—
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—
	0,63	—	—	1,60	2,20	2,20	2,20	2,20
	0,75	—	—	1,60	2,50	2,90	2,90	2,90
	0,88	—	—	1,60	2,50	3,60	3,80	3,80
	1,00	—	—	1,60	2,50	3,60	4,70	4,70
	1,13	—	—	1,60	2,50	3,60	4,80	—
	1,25	—	—	1,60	2,50	3,60	4,80	—
	1,50	—	—	1,60	2,50	3,60	4,80	—
	1,75	—	—	1,60	2,50	3,60	4,80	—
	2,00	—	—	1,60	2,50	3,60	4,80	—

Self drilling screw

JT2-6-5,5 x L
with hexagon head

Annex 15



Materials

Fastener: carbon steel
case hardened and galvanized

Washer: carbon steel, galvanized
stainless Steel (1.4301) - EN 10088

Component I: S280GD, S320GD or S350GD - EN 10346

Component II: S235, S275 or S355 - EN 10025-1
S280GD, S320GD or S350GD - EN 10346

Drilling capacity $\Sigma t_i \leq 6,00$ mm

Timber substructures

no performance determined

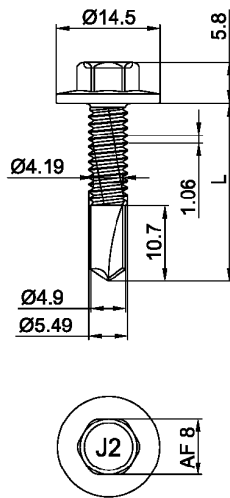
$t_{N,II}$ [mm]	—	—	1,50	2,00	2,50	3,00	4,00	5,00
$M_{t,nom}$	7 Nm							
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—	—
0,55	—	—	—	—	—	—	—	—
0,63	—	—	2,40	ac	2,50	ac	2,50	abcd
0,75	—	—	2,70	—	3,10	ac	3,10	ac
0,88	—	—	3,10	—	3,80	—	3,80	ac
1,00	—	—	3,40	—	4,00	—	4,00	ac
1,13	—	—	3,80	—	4,40	—	4,40	—
1,25	—	—	4,10	—	4,80	—	4,80	—
1,50	—	—	5,00	—	5,40	—	5,40	—
1,75	—	—	5,00	—	5,40	—	5,40	—
2,00	—	—	5,00	—	5,40	—	5,40	—
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	0,86	ac	1,35	ac	1,62	abcd
0,55	—	—	1,09	ac	1,71	ac	2,05	abcd
0,63	—	—	1,60	ac	2,50	ac	3,00	abcd
0,75	—	—	1,60	—	2,50	ac	3,60	ac
0,88	—	—	1,60	—	2,50	—	3,60	ac
1,00	—	—	1,60	—	2,50	—	3,60	ac
1,13	—	—	1,60	—	2,50	—	3,60	—
1,25	—	—	1,60	—	2,50	—	3,60	—
1,50	—	—	1,60	—	2,50	—	3,60	—
1,75	—	—	1,60	—	2,50	—	3,60	—
2,00	—	—	1,60	—	2,50	—	3,60	—

Self drilling screw

JT2-6-5,5 x L

with hexagon head and sealing washer $\geq \varnothing 16$ mm

Annex 16



Materials

Fastener: carbon steel
case hardened and galvanized

Washer: none

Component I: S280GD, S320GD or S350GD - EN 10346

Component II: S235, S275 or S355 - EN 10025-1

Drilling capacity

$\Sigma t_i \leq 9,50 \text{ mm}$

Timber substructures

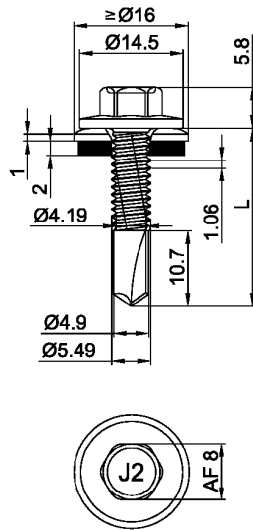
no performance determined

$t_{N,II}$ [mm]	4,00	5,00	6,00	8,00	10,0	12,0	13,0	14,0
$M_{t,nom}$	7 Nm				—			
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]								
0,50	—	—	—	—	—	—	—	—
0,55	—	—	—	—	—	—	—	—
0,63	3,80 abcd	3,80 ac	3,80 ac	3,80 ac	—	—	—	—
0,75	4,60 ac	4,60 ac	4,60 ac	4,60 ac	—	—	—	—
0,88	5,30 ac	5,30 ac	5,30 ac	5,30 a	—	—	—	—
1,00	6,00 ac	6,00 ac	6,00 ac	6,00 a	—	—	—	—
1,13	6,70 ac	6,70 ac	6,70 ac	6,70 a	—	—	—	—
1,25	7,30 ac	7,30 ac	7,30 ac	7,30 —	—	—	—	—
1,50	8,10 —	8,10 —	8,10 —	8,10 —	—	—	—	—
1,75	8,10 —	8,10 —	8,10 —	—	—	—	—	—
2,00	8,10 —	8,10 —	8,10 —	—	—	—	—	—
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]								
0,50	—	—	—	—	—	—	—	—
0,55	—	—	—	—	—	—	—	—
0,63	2,20 abcd	2,20 ac	2,20 ac	2,20 ac	—	—	—	—
0,75	2,90 ac	2,90 ac	2,90 ac	2,90 ac	—	—	—	—
0,88	3,80 ac	3,80 ac	3,80 ac	3,80 a	—	—	—	—
1,00	4,70 ac	4,70 ac	4,70 ac	4,70 a	—	—	—	—
1,13	5,70 ac	5,70 ac	5,70 ac	5,70 a	—	—	—	—
1,25	5,80 ac	6,30 ac	6,80 ac	6,80 —	—	—	—	—
1,50	5,80 —	6,30 —	6,80 —	6,80 —	—	—	—	—
1,75	5,80 —	6,30 —	6,80 —	—	—	—	—	—
2,00	5,80 —	6,30 —	6,80 —	—	—	—	—	—

Self drilling screw

JT2-8-5,5 x L
with hexagon head

Annex 17



Materials

Fastener: carbon steel
case hardened and galvanized

Washer: carbon steel, galvanized
stainless Steel (1.4301) - EN 10088

Component I: S280GD, S320GD or S350GD - EN 10346

Component II: S235, S275 or S355 - EN 10025-1

Drilling capacity

$\Sigma t_i \leq 9,50 \text{ mm}$

Timber substructures

no performance determined

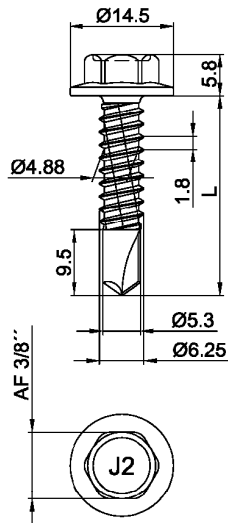
$t_{N,II}$ [mm]	4,00	5,00	6,00	8,00	10,0	12,0	13,0	14,0
$M_{t,nom}$	7 Nm				—			
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—	—
0,55	—	—	—	—	—	—	—	—
0,63	3,00 abcd	3,00 abcd	3,00 abcd	3,00 abcd	—	—	—	—
0,75	3,70 ac	3,70 ac	3,70 ac	3,70 ac	—	—	—	—
0,88	4,20 ac	4,20 ac	4,20 ac	4,20 a	—	—	—	—
1,00	4,80 ac	4,80 ac	4,80 ac	4,80 a	—	—	—	—
1,13	5,40 ac	5,40 ac	5,40 ac	5,40 a	—	—	—	—
1,25	5,80 ac	5,80 ac	5,80 ac	5,80 a	—	—	—	—
1,50	6,70 —	6,70 —	6,70 —	6,70 —	—	—	—	—
1,75	6,70 —	6,70 —	6,70 —	—	—	—	—	—
2,00	6,70 —	6,70 —	6,70 —	—	—	—	—	—
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,73 abcd	1,73 abcd	1,73 abcd	—	—	—	—
0,55	2,18 abcd	2,18 abcd	2,18 abcd	2,18 abcd	—	—	—	—
0,63	3,20 abcd	3,20 abcd	3,20 abcd	3,20 abcd	—	—	—	—
0,75	4,10 ac	4,10 ac	4,10 ac	4,10 ac	—	—	—	—
0,88	5,00 ac	5,00 ac	5,00 ac	5,00 a	—	—	—	—
1,00	5,80 ac	5,80 ac	5,80 ac	5,80 a	—	—	—	—
1,13	5,80 ac	6,80 ac	6,80 ac	6,80 a	—	—	—	—
1,25	5,80 ac	6,80 ac	7,60 ac	7,60 a	—	—	—	—
1,50	5,80 —	6,80 —	9,30 —	9,30 —	—	—	—	—
1,75	5,80 —	6,80 —	9,30 —	—	—	—	—	—
2,00	5,80 —	6,80 —	9,30 —	—	—	—	—	—

Self drilling screw

JT2-8-5,5 x L

with hexagon head and sealing washer $\geq \text{Ø}16 \text{ mm}$

Annex 18



Materials

Fastener: carbon steel
case hardened and galvanized

Washer: none

Component I: S280GD, S320GD or S350GD - EN 10346

Component II: S235, S275 or S355 - EN 10025-1
S280GD, S320GD or S350GD - EN 10346

Drilling capacity $\Sigma t_i \leq 6,50 \text{ mm}$

Timber substructures

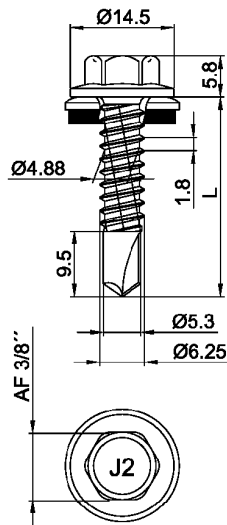
no performance determined

$t_{N,II}$ [mm]	1,50	2,00	2,50	3,00	4,00	5,00	6,00	7,00
$M_{t,nom}$	7 Nm							—
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—	—
0,55	—	—	—	—	—	—	—	—
0,63	—	2,40 abcd	2,40 abcd	2,40 abcd	2,40 abcd	2,40 ac	—	—
0,75	—	2,90 ac	3,10 ac	3,10 ac	3,10 ac	3,10 ac	—	—
0,88	—	3,50 ac	3,80 ac	3,80 ac	3,80 ac	3,80 a	—	—
1,00	—	4,00 ac	4,60 ac	4,60 ac	4,60 ac	4,60 a	—	—
1,13	—	4,60 ac	5,20 ac	5,20 ac	5,20 ac	5,20 a	—	—
1,25	—	5,20 —	5,80 ac	5,80 ac	5,80 ac	5,80 a	—	—
1,50	—	6,40 —	7,20 —	7,20 —	7,20 —	7,20 —	—	—
1,75	—	6,40 —	7,20 —	7,20 —	7,20 —	—	—	—
2,00	—	6,40 —	7,20 —	7,20 —	7,20 —	—	—	—
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—	—
0,55	—	—	—	—	—	—	—	—
0,63	—	2,10 abcd	2,10 abcd	2,10 abcd	2,10 abcd	2,10 ac	—	—
0,75	—	2,80 ac	2,80 ac	2,80 ac	2,80 ac	2,80 ac	—	—
0,88	—	3,40 ac	3,60 ac	3,60 ac	3,60 ac	3,60 a	—	—
1,00	—	3,40 ac	4,30 ac	4,30 ac	4,30 ac	4,30 a	—	—
1,13	—	3,40 ac	4,70 ac	5,50 ac	5,50 ac	5,50 a	—	—
1,25	—	3,40 —	4,70 ac	6,20 ac	6,60 ac	6,60 a	—	—
1,50	—	3,40 —	4,70 —	6,20 —	8,70 —	8,70 —	—	—
1,75	—	3,40 —	4,70 —	6,20 —	8,70 —	—	—	—
2,00	—	3,40 —	4,70 —	6,20 —	8,70 —	—	—	—

Self drilling screw

JT2-6-6,3 x L
with hexagon head

Annex 19



Materials

Fastener: carbon steel
case hardened and galvanized

Washer: carbon steel, galvanized
stainless Steel (1.4301) - EN 10088

Component I: S280GD, S320GD or S350GD - EN 10346

Component II: S235, S275 or S355 - EN 10025-1
S280GD, S320GD or S350GD - EN 10346

Drilling capacity $\Sigma t_i \leq 6,50 \text{ mm}$

Timber substructures

no performance determined

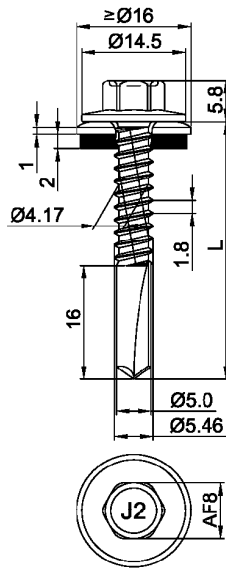
$t_{N,II}$ [mm]	1,50	2,00	2,50	3,00	4,00	5,00	6,00	7,00
$M_{t,nom}$	—	7 Nm						—
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—	—
0,55	—	—	—	—	—	—	—	—
0,63	—	2,40 abcd	2,40 abcd	2,40 abcd	2,40 abcd	2,40 ac	—	—
0,75	—	2,90 ac	3,10 ac	3,10 ac	3,10 ac	3,10 ac	—	—
0,88	—	3,50 ac	3,80 ac	3,80 ac	3,80 ac	3,80 a	—	—
1,00	—	4,00 ac	4,60 ac	4,60 ac	4,60 ac	4,60 a	—	—
1,13	—	4,60 ac	5,20 ac	5,20 ac	5,20 ac	5,20 a	—	—
1,25	—	5,20 —	5,80 ac	5,80 ac	5,80 ac	5,80 a	—	—
1,50	—	6,40 —	7,20 —	7,20 —	7,20 —	7,20 a	—	—
1,75	—	6,40 —	7,20 —	7,20 —	7,20 —	—	—	—
2,00	—	6,40 —	7,20 —	7,20 —	7,20 —	—	—	—
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,13 abcd	1,13 abcd	1,13 abcd	1,13 abcd	1,13 ac	1,13 ac	—
0,55	—	1,43 abcd	1,43 abcd	1,43 abcd	1,43 abcd	1,43 ac	—	—
0,63	—	2,10 abcd	2,10 abcd	2,10 abcd	2,10 abcd	2,10 ac	—	—
0,75	—	2,80 ac	2,80 ac	2,80 ac	2,80 ac	2,80 ac	—	—
0,88	—	3,40 ac	3,60 ac	3,60 ac	3,60 ac	3,60 a	—	—
1,00	—	3,40 ac	4,30 ac	4,30 ac	4,30 ac	4,30 a	—	—
1,13	—	3,40 ac	4,70 ac	5,50 ac	5,50 ac	5,50 a	—	—
1,25	—	3,40 —	4,70 ac	6,20 ac	6,60 ac	6,60 a	—	—
1,50	—	3,40 —	4,70 —	6,20 —	8,70 —	8,70 a	—	—
1,75	—	3,40 —	4,70 —	6,20 —	8,70 —	—	—	—
2,00	—	3,40 —	4,70 —	6,20 —	8,70 —	—	—	—

Self drilling screw

JT2-6-6,3 x L

with hexagon head and sealing washer $\geq \varnothing 16 \text{ mm}$

Annex 20



Materials

Fastener: carbon steel
case hardened and galvanized

Washer: carbon steel, galvanized
stainless Steel (1.4301) - EN 10088

Component I: S280GD - EN 10346

Component II: S235, S275 or S355 - EN 10025-1

Drilling capacity

$\Sigma t_i \leq 13,00$ mm

Timber substructures

no performance determined

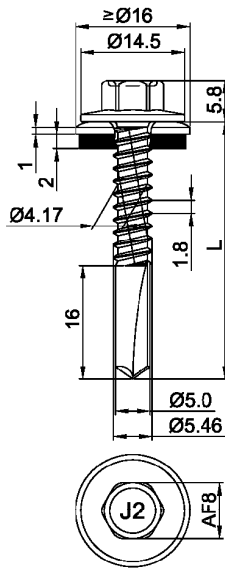
$t_{N,II}$ [mm]	4,00		5,00		6,00		8,00		10,0		12,0		13,0		14,0			
$M_{t,nom}$	7 Nm														—		—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
	0,55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
	0,63	2,20	ac	2,20	ac	2,20	ac	2,20	ac	2,20	ac	2,20	ac	—	—	—		
	0,75	2,80	ac	2,80	ac	2,80	ac	2,80	ac	2,80	ac	2,80	ac	—	—	—		
	0,88	3,50	ac	3,50	ac	3,50	ac	3,50	ac	3,50	ac	3,50	a	—	—	—		
	1,00	4,20	—	4,20	ac	4,20	ac	4,20	ac	4,20	ac	4,20	a	—	—	—		
	1,13	4,20	—	4,90	—	4,90	—	4,90	—	4,90	—	—	—	—	—	—		
	1,25	4,20	—	5,60	—	5,60	—	5,60	—	5,60	—	—	—	—	—	—		
	1,50	4,20	—	6,40	—	7,20	—	7,20	—	7,20	—	—	—	—	—	—		
1,75	4,20	—	6,40	—	7,20	—	7,20	—	7,20	—	—	—	—	—	—			
2,00	4,20	—	6,40	—	7,20	—	7,20	—	7,20	—	—	—	—	—	—			
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,30	ac	1,30	ac	1,30	ac	1,30	ac	1,30	ac	1,30	ac	—	—	—		
	0,55	1,64	ac	1,64	ac	1,64	ac	1,64	ac	1,64	ac	1,64	ac	—	—	—		
	0,63	2,40	ac	2,40	ac	2,40	ac	2,40	ac	2,40	ac	2,40	ac	—	—	—		
	0,75	3,10	ac	3,10	ac	3,10	ac	3,10	ac	3,10	ac	3,10	ac	—	—	—		
	0,88	3,90	ac	3,90	ac	3,90	ac	3,90	ac	3,90	ac	3,90	a	—	—	—		
	1,00	4,70	—	4,70	ac	4,70	ac	4,70	ac	4,70	ac	4,70	a	—	—	—		
	1,13	4,70	—	5,60	—	5,60	—	5,60	—	5,60	—	—	—	—	—	—		
	1,25	4,70	—	6,40	—	6,40	—	6,40	—	6,40	—	—	—	—	—	—		
	1,50	4,70	—	6,40	—	6,40	—	6,40	—	6,40	—	—	—	—	—	—		
1,75	4,70	—	6,40	—	6,40	—	6,40	—	6,40	—	—	—	—	—	—			
2,00	4,70	—	6,40	—	6,40	—	6,40	—	6,40	—	—	—	—	—	—			

Self drilling screw

JT2-12-5,5 x L

with hexagon head and sealing washer $\geq \text{Ø}16$ mm

Annex 21



Materials

Fastener: carbon steel
case hardened and galvanized

Washer: carbon steel, galvanized
stainless Steel (1.4301) - EN 10088

Component I: S320GD or S350GD - EN 10346

Component II: S235, S275 or S355 - EN 10025-1

Drilling capacity

$\Sigma t_i \leq 13,00 \text{ mm}$

Timber substructures

no performance determined

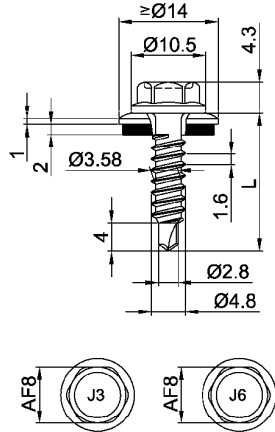
$t_{N,II}$ [mm]	4,00		5,00		6,00		8,00		10,0		12,0		13,0		14,0			
$M_{t,nom}$	7 Nm														—		—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
	0,55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
	0,63	2,50	ac	2,50	ac	2,50	ac	2,50	ac	2,50	ac	2,50	ac	—	—	—		
	0,75	3,20	ac	3,20	ac	3,20	ac	3,20	ac	3,20	ac	3,20	ac	—	—	—		
	0,88	3,90	ac	3,90	ac	3,90	ac	3,90	ac	3,90	ac	3,90	a	—	—	—		
	1,00	4,20	—	4,60	ac	4,60	ac	4,60	ac	4,60	ac	4,60	a	—	—	—		
	1,13	4,20	—	5,30	—	5,30	—	5,30	—	5,30	—	—	—	—	—	—		
	1,25	4,20	—	6,00	—	6,00	—	6,00	—	6,00	—	—	—	—	—	—		
	1,50	4,20	—	6,40	—	7,20	—	7,60	—	7,60	—	—	—	—	—	—		
1,75	4,20	—	6,40	—	7,20	—	7,60	—	7,60	—	—	—	—	—	—			
2,00	4,20	—	6,40	—	7,20	—	7,60	—	7,60	—	—	—	—	—	—			
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	1,40	ac	1,40	ac	1,40	ac	1,40	ac	1,40	ac	1,40	ac	—	—	—		
	0,55	1,77	ac	1,77	ac	1,77	ac	1,77	ac	1,77	ac	1,77	ac	—	—	—		
	0,63	2,60	ac	2,60	ac	2,60	ac	2,60	ac	2,60	ac	2,60	ac	—	—	—		
	0,75	3,30	ac	3,30	ac	3,30	ac	3,30	ac	3,30	ac	3,30	ac	—	—	—		
	0,88	4,20	ac	4,20	ac	4,20	ac	4,20	ac	4,20	ac	4,20	a	—	—	—		
	1,00	4,70	—	5,00	ac	5,00	ac	5,00	ac	5,00	ac	5,00	a	—	—	—		
	1,13	4,70	—	6,00	—	6,00	—	6,00	—	6,00	—	—	—	—	—	—		
	1,25	4,70	—	6,90	—	6,90	—	6,90	—	6,90	—	—	—	—	—	—		
	1,50	4,70	—	6,90	—	6,90	—	6,90	—	6,90	—	—	—	—	—	—		
1,75	4,70	—	6,90	—	6,90	—	6,90	—	6,90	—	—	—	—	—	—			
2,00	4,70	—	6,90	—	6,90	—	6,90	—	6,90	—	—	—	—	—	—			

Self drilling screw

JT2-12-5,5 x L

with hexagon head and sealing washer $\geq \text{Ø}16 \text{ mm}$

Annex 22



Materials

Fastener: stainless steel (1.4301) - EN 10088,
stainless steel (1.4404) - EN 10088

Washer: stainless steel (1.4301) - EN 10088

Component I: S280GD, S320GD or S350GD - EN 10346

Component II: S235 - EN 10025-1
S280GD, S320GD or S350GD - EN 10346

Drilling capacity

$\Sigma t_i \leq 2,20 \text{ mm}$

Timber substructures

no performance determined

$t_{N,II} [\text{mm}]$	0,40	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	1,50	1,75
$M_{t,nom}$	—										
$V_{R,k} [\text{kN}]$ for $t_{N,I} [\text{mm}]$	0,40	0,55	0,55	0,55	0,55	0,55	0,55	0,55	0,55	0,55	0,55
0,50	0,55	0,89	0,89	0,89	0,89	0,89	0,89	0,89	0,89	0,89	—
0,55	0,55	0,89	1,06	1,06	1,06	1,06	1,06	1,06	1,06	1,06	—
0,63	0,55	0,89	1,06	1,28	1,28	1,28	1,28	1,28	1,28	1,28	—
0,75	0,55	0,89	1,06	1,28	1,61	1,61	1,61	1,61	1,61	—	—
0,88	0,55	0,89	1,06	1,28	1,61	1,86	1,86	1,86	1,86	—	—
1,00	0,55	0,89	1,06	1,28	1,61	1,86	2,09	2,09	—	—	—
1,13	0,55	0,89	1,06	1,28	1,61	1,86	2,09	—	—	—	—
1,25	0,55	0,89	1,06	1,28	1,61	1,86	—	—	—	—	—
1,50	0,55	0,89	1,06	1,28	—	—	—	—	—	—	—
1,75	0,55	—	—	—	—	—	—	—	—	—	—
$N_{R,k} [\text{kN}]$ for $t_{N,I} [\text{mm}]$	0,40	0,42	0,62	0,72	0,88	0,97	0,97	0,97	0,97	0,97	0,97
0,50	0,42	0,62	0,72	0,88	1,12	1,38	1,39	1,39	1,39	1,39	—
0,55	0,42	0,62	0,72	0,88	1,12	1,38	1,60	1,60	1,60	1,60	—
0,63	0,42	0,62	0,72	0,88	1,12	1,38	1,60	1,60	1,60	1,60	—
0,75	0,42	0,62	0,72	0,88	1,12	1,38	1,60	1,60	1,60	—	—
0,88	0,42	0,62	0,72	0,88	1,12	1,38	1,60	1,60	1,60	—	—
1,00	0,42	0,62	0,72	0,88	1,12	1,38	1,60	1,60	—	—	—
1,13	0,42	0,62	0,72	0,88	1,12	1,38	1,60	—	—	—	—
1,25	0,42	0,62	0,72	0,88	1,12	1,38	—	—	—	—	—
1,50	0,42	0,62	0,72	0,88	—	—	—	—	—	—	—
1,75	0,42	—	—	—	—	—	—	—	—	—	—

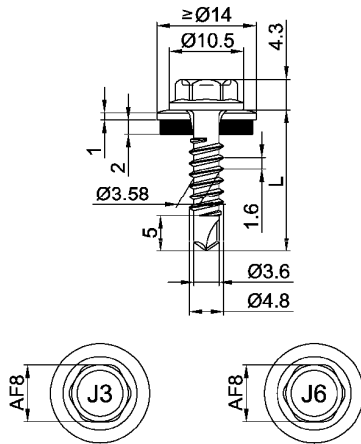
If both components I and II are made of S320GD or S350GD the values may be increased by 8,3%.

Self drilling screw

JT3-2H-4,8 x L
JT6-2H-4,8 x L

with undercut and hexagon head and sealing washer $\geq \text{Ø}14 \text{ mm}$

Annex 23



Materials

Fastener: stainless steel (1.4301) - EN 10088,
stainless steel (1.4404) - EN 10088

Washer: stainless steel (1.4301) - EN 10088

Component I: S280GD, S320GD or S350GD - EN 10346

Component II: S235 - EN 10025-1
S280GD, S320GD or S350GD - EN 10346

Drilling capacity

$\Sigma t_i \leq 3,25 \text{ mm}$

Timber substructures

no performance determined

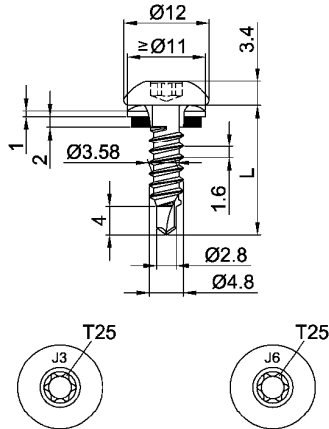
$t_{N,II}$ [mm]	0,63		0,75		0,88		1,00		1,13		1,25		1,50		2,00		
$M_{t,nom}$	—		3 Nm														
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	1,00	ac	1,10	ac	1,20	ac	1,20	ac	1,20	abcd	1,20	abc	1,20	abc
	0,55	—	—	1,15	—	1,25	—	1,40	ac	1,40	ac	1,45	ac	1,45	ac	1,45	ac
	0,63	—	—	1,30	—	1,40	—	1,60	ac	1,60	ac	1,70	ac	1,70	ac	1,70	ac
	0,75	—	—	1,60	—	1,80	—	1,90	ac	2,00	ac	2,10	ac	2,10	ac	2,10	a
	0,88	—	—	1,60	—	1,90	—	2,30	—	2,50	—	2,70	—	2,70	—	2,70	a
	1,00	—	—	1,60	—	2,10	—	2,60	—	2,90	—	3,10	—	3,10	—	3,10	a
	1,13	—	—	1,60	—	2,10	—	2,60	—	2,90	—	3,40	—	3,40	—	3,50	—
	1,25	—	—	1,60	—	2,10	—	2,60	—	2,90	—	3,70	—	3,70	—	3,80	—
	1,50	—	—	1,60	—	2,10	—	2,60	—	2,90	—	3,70	—	3,70	—	—	—
1,75	—	—	1,60	—	2,10	—	2,60	—	2,90	—	3,70	—	3,70	—	—	—	
2,00	—	—	1,60	—	2,10	—	2,60	—	2,90	—	3,70	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	0,80	ac	1,10	ac	1,20	ac	1,50	ac	1,60	abcd	1,60	abc	1,60	abc
	0,55	—	—	0,80	—	1,10	—	1,20	ac	1,50	ac	1,65	ac	2,00	ac	2,05	ac
	0,63	—	—	0,80	—	1,10	—	1,20	ac	1,50	ac	1,70	ac	2,40	ac	2,50	ac
	0,75	—	—	0,80	—	1,10	—	1,20	ac	1,50	ac	1,70	ac	2,40	ac	3,40	a
	0,88	—	—	0,80	—	1,10	—	1,20	—	1,50	—	1,70	—	2,40	—	3,40	a
	1,00	—	—	0,80	—	1,10	—	1,20	—	1,50	—	1,70	—	2,40	—	3,40	a
	1,13	—	—	0,80	—	1,10	—	1,20	—	1,50	—	1,70	—	2,40	—	3,40	—
	1,25	—	—	0,80	—	1,10	—	1,20	—	1,50	—	1,70	—	2,40	—	3,40	—
	1,50	—	—	0,80	—	1,10	—	1,20	—	1,50	—	1,70	—	2,40	—	—	—
	1,75	—	—	0,80	—	1,10	—	1,20	—	1,50	—	1,70	—	2,40	—	—	—
	2,00	—	—	0,80	—	1,10	—	1,20	—	1,50	—	1,70	—	—	—	—	—

Self drilling screw

JT3-3H-4,8 x L
JT6-3H-4,8 x L

with undercut, hexagon head and sealing washer $\geq \text{Ø}14 \text{ mm}$

Annex 24



Materials

Fastener: stainless steel (1.4301) - EN 10088,
stainless steel (1.4404) - EN 10088

Washer: stainless steel (1.4301) - EN 10088

Component I: S280GD, S320GD or S350GD - EN 10346

Component II: S235 - EN 10025-1
S280GD, S320GD or S350GD - EN 10346

Drilling capacity

$\Sigma t_i \leq 2,20 \text{ mm}$

Timber substructures

no performance determined

$t_{N,II} [\text{mm}]$	0,40	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	1,50	1,75
$M_{t,nom}$	—										
$V_{R,k} [\text{kN}]$ for $t_{N,I} [\text{mm}]$	0,40	0,49	0,49	0,49	0,49	0,49	0,49	0,49	0,49	0,49	0,49
0,50	0,49	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	—
0,55	0,49	0,80	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	—
0,63	0,49	0,80	0,95	1,15	1,15	1,15	1,15	1,15	1,15	1,15	—
0,75	0,49	0,80	0,95	1,15	1,45	1,45	1,45	1,45	1,45	—	—
0,88	0,49	0,80	0,95	1,15	1,45	1,68	1,68	1,68	1,68	—	—
1,00	0,49	0,80	0,95	1,15	1,45	1,68	1,88	1,88	—	—	—
1,13	0,49	0,80	0,95	1,15	1,45	1,68	1,88	—	—	—	—
1,25	0,49	0,80	0,95	1,15	1,45	1,68	—	—	—	—	—
1,50	0,49	0,80	0,95	1,15	—	—	—	—	—	—	—
1,75	0,49	—	—	—	—	—	—	—	—	—	—
$N_{R,k} [\text{kN}]$ for $t_{N,I} [\text{mm}]$	0,40	0,42	0,62	0,72	0,85	0,85	0,85	0,85	0,85	0,85	0,85
0,50	0,42	0,62	0,72	0,88	1,12	1,38	1,38	1,38	1,38	1,38	—
0,55	0,42	0,62	0,72	0,88	1,12	1,38	1,62	1,62	1,62	1,62	—
0,63	0,42	0,62	0,72	0,88	1,12	1,38	1,62	1,62	1,62	1,62	—
0,75	0,42	0,62	0,72	0,88	1,12	1,38	1,62	1,62	1,62	—	—
0,88	0,42	0,62	0,72	0,88	1,12	1,38	1,62	1,62	1,62	—	—
1,00	0,42	0,62	0,72	0,88	1,12	1,38	1,62	1,62	—	—	—
1,13	0,42	0,62	0,72	0,88	1,12	1,38	1,62	—	—	—	—
1,25	0,42	0,62	0,72	0,88	1,12	1,38	—	—	—	—	—
1,50	0,42	0,62	0,72	0,88	—	—	—	—	—	—	—
1,75	0,42	—	—	—	—	—	—	—	—	—	—

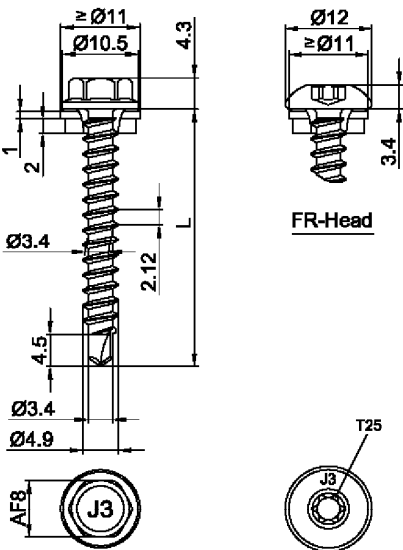
If both components I and II are made of S320GD or S350GD the values may be increased by 8,3%.

Self drilling screw

JT3-FR-2H-4,8 x L
JT6-FR-2H-4,8 x L

with undercut, round head with Torx® drive system and sealing washer $\geq \text{Ø}11 \text{ mm}$

Annex 25

	Materials Fastener: JT3-(FR-)2-4,9xL and JT4-(FR-)2-4,9xL stainless steel (1.4301 / 1.4567) – EN 10088 JT9-(FR-)2-4,9xL stainless steel (1.4401 / 1.4578) – EN 10088 Washer: stainless steel (1.4301) – EN 10088 with vulcanised EPDM seal Component I: aluminium alloy with $R_{m,min} = 165 \text{ N/mm}^2$ – EN 573 Component II: timber – EN 14081
	Drilling capacity $\Sigma t_i \leq 2,00 \text{ mm}$
	Timber substructures for timber substructures following performance were determined $M_{y,k} = 4,672 \text{ Nm}$ $f_{ax,k} = 8,575 \text{ N/mm}^2$ for $l_{eff} \geq 24,5 \text{ mm}$

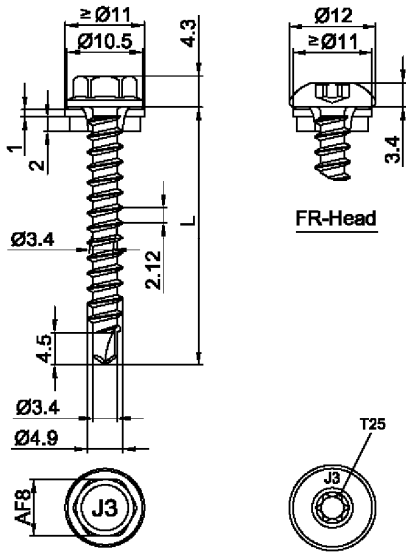
$l_g =$	25,00	27,00	29,00	31,00	33,00	35,00	37,00	39,00	41,00		
$M_{t,nom} =$	—										
$V_{R,k} \text{ for } t_{N,I} =$	0,50	0,50	-	0,50	-	0,50	-	0,50	-	0,50	0,50
	0,60	0,66	-	0,66	-	0,66	-	0,66	-	0,66	0,66
	0,70	0,73	-	0,81	-	0,82	-	0,82	-	0,82	0,82
	0,80	0,73	-	0,81	-	0,88	-	0,95	-	0,98	0,98
	0,90	0,73	-	0,81	-	0,88	-	0,95	-	0,99	0,99
	1,00	0,73	-	0,81	-	0,88	-	0,95	-	1,00	1,00
	1,20	0,73	-	0,81	-	0,88	-	0,95	-	1,00	1,00
	1,50	0,73	-	0,81	-	0,88	-	0,95	-	1,00	1,00
	2,00	0,73	-	0,81	-	0,88	-	0,95	-	1,00	1,00
$N_{R,II,k} =$	0,86	0,95	1,04	1,12	1,21	1,30	1,38	1,47	1,56	failure of component II see chapter 4.2.2	

Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.

The values indicated above, depending on the screw depth l_g , shall apply to $k_{mod} = 0,90$ and the timber strength class C24 ($\rho_k = 350 \text{ kg / m}^3$). For other values of k_{mod} and strength classes see chapter 4.2.2

For $k_{mod} < 0,90$: failure of component I see right column and failure of component II see chapter 4.2.2 with $f_{1,k} = 80 \cdot 10^{-6} \cdot \rho_k^2$ (load carrying class 3, ρ_k in kg/m^3 , max. 500 kg/m^3) and yield moment $M_{y,k} = 5990 \text{ Nmm}$.

Self-drilling screw	Annex 26
JT3-(FR-)2-4,9xL	
JT4-(FR-)2-4,9xL	
JT9-(FR-)2-4,9xL	
With hexagon head or FR-head and seal washer $\geq \text{Ø } 11,0 \text{ mm}$	

	<p>Materials</p> <p>Fastener: JT3-(FR-)2-4,9xL and JT4-(FR-)2-4,9xL stainless steel (1.4301 / 1.4567) – EN 10088 JT9-(FR-)2-4,9xL stainless steel (1.4401 / 1.4578) – EN 10088</p> <p>Washer: stainless steel (1.4301) – EN 10088 with vulcanised EPDM seal</p> <p>Component I: aluminium alloy with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573</p> <p>Component II: timber – EN 14081</p>
	<p>Drilling capacity $\Sigma t_i \leq 2,00 \text{ mm}$</p>
	<p>Timber substructures</p> <p>for timber substructures following performance were determined</p> <p>$M_{y,k} = 4,672 \text{ Nm}$ $f_{ax,k} = 8,575 \text{ N/mm}^2$ for $l_{eff} \geq 24,5 \text{ mm}$</p>

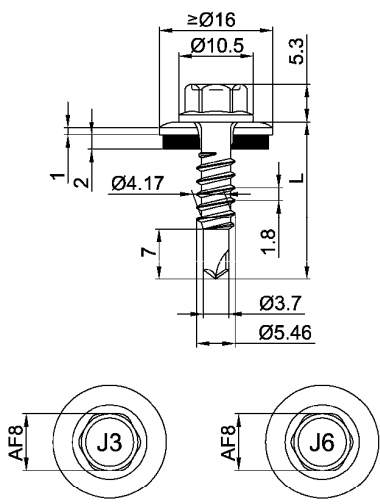
$l_g =$	25,00	27,00	29,00	31,00	33,00	35,00	37,00	39,00	41,00		
$M_{t,nom} =$	—										
$V_{R,k} \text{ for } t_{N,I} =$	0,50	0,66	-	0,66	-	0,66	-	0,66	-	0,66	0,66
	0,60	0,73	-	0,81	-	0,87	-	0,87	-	0,87	0,87
	0,70	0,73	-	0,81	-	0,88	-	0,95	-	1,03	1,07
	0,80	0,73	-	0,81	-	0,88	-	0,95	-	1,03	1,07
	0,90	0,73	-	0,81	-	0,88	-	0,95	-	1,03	1,07
	1,00	0,73	-	0,81	-	0,88	-	0,95	-	1,03	1,07
	1,20	0,73	-	0,81	-	0,88	-	0,95	-	1,03	1,07
	1,50	0,73	-	0,81	-	0,88	-	0,95	-	1,03	1,07
	2,00	0,73	-	0,81	-	0,88	-	0,95	-	1,03	1,07
$N_{R,II,k} =$	0,86	0,95	1,04	1,12	1,21	1,30	1,38	1,47	1,56	failure of component II see chapter 4.2.2	

Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.

The values indicated above, depending on the screw depth l_g , shall apply to $k_{mod} = 0,90$ and the timber strength class C24 ($\rho_k = 350 \text{ kg / m}^3$). For other values of k_{mod} and strength classes see chapter 4.2.2

For $k_{mod} < 0,90$: failure of component I see right column and failure of component II see chapter 4.2.2 with $f_{1,k} = 80 \cdot 10^{-6} \cdot \rho_k^2$ (load carrying class 3, ρ_k in kg/m^3 , max. 500 kg/m^3) and yield moment $M_{y,k} = 5990 \text{ Nmm}$.

Self-drilling screw	Annex 27
JT3-(FR-)2-4,9xL	
JT4-(FR-)2-4,9xL	
JT9-(FR-)2-4,9xL	
With hexagon head or FR-head and seal washer $\geq \text{Ø } 11,0 \text{ mm}$	

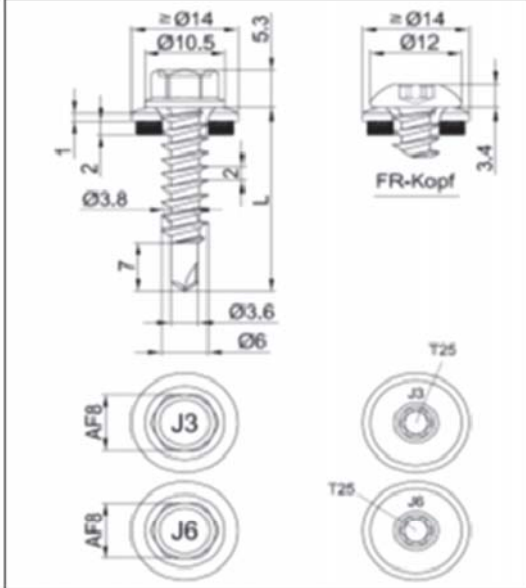
	<p>Materials</p> <p>Fastener: stainless steel (1.4301) - EN 10088, stainless steel (1.4404) - EN 10088</p> <p>Washer: stainless steel (1.4301) - EN 10088</p> <p>Component I: S280GD, S320GD or S350GD - EN 10346</p> <p>Component II: S235 - EN 10025-1 S280GD, S320GD or S350GD - EN 10346</p> <p>Drilling capacity $\Sigma t_i \leq 2,50 \text{ mm}$</p> <p>Timber substructures no performance determined</p>																																																																																																																																																																																																																																										
<table><tr><th>$t_{N,II}$ [mm]</th><th>0,63</th><th>0,75</th><th>0,88</th><th>1,00</th><th>1,13</th><th>1,25</th><th>1,50</th><th>2,00</th></tr><tr><td>$M_{t,nom}$</td><td colspan="8">5 Nm</td></tr><tr><td>$V_{R,k}$ [kN] for $t_{N,I}$ [mm]</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>0,50</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td></tr><tr><td>0,55</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td></tr><tr><td>0,63</td><td>1,00</td><td>1,00</td><td>1,00</td><td>1,00</td><td>1,00</td><td>1,00</td><td>1,00 ac</td><td>—</td></tr><tr><td>0,75</td><td>1,00</td><td>1,70</td><td>1,70</td><td>1,70</td><td>1,70</td><td>1,70</td><td>1,70</td><td>—</td></tr><tr><td>0,88</td><td>1,00</td><td>1,70</td><td>1,70</td><td>1,70</td><td>1,70</td><td>1,70</td><td>1,70</td><td>—</td></tr><tr><td>1,00</td><td>1,00</td><td>1,70</td><td>1,70</td><td>1,70</td><td>1,70</td><td>1,70</td><td>1,70</td><td>—</td></tr><tr><td>1,13</td><td>1,00</td><td>1,70</td><td>1,70</td><td>1,70</td><td>1,70</td><td>1,70</td><td>—</td><td>—</td></tr><tr><td>1,25</td><td>1,00</td><td>1,70</td><td>1,70</td><td>1,70</td><td>1,70</td><td>1,70</td><td>—</td><td>—</td></tr><tr><td>1,50</td><td>1,00</td><td>1,70</td><td>1,70</td><td>1,70</td><td>—</td><td>—</td><td>—</td><td>—</td></tr><tr><td>1,75</td><td>1,00</td><td>1,70</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td></tr><tr><td>2,00</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td></tr><tr><td>$N_{R,k}$ [kN] for $t_{N,I}$ [mm]</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>0,50</td><td>0,32</td><td>0,43</td><td>0,49</td><td>0,59</td><td>0,76</td><td>0,81</td><td>1,08 ac</td><td>1,08 ac</td></tr><tr><td>0,55</td><td>0,41</td><td>0,55</td><td>0,61</td><td>0,75</td><td>0,95</td><td>1,02</td><td>1,36 ac</td><td>—</td></tr><tr><td>0,63</td><td>0,60</td><td>0,80</td><td>0,90</td><td>1,10</td><td>1,40</td><td>1,50</td><td>2,00 ac</td><td>—</td></tr><tr><td>0,75</td><td>0,60</td><td>0,80</td><td>0,90</td><td>1,10</td><td>1,40</td><td>1,50</td><td>2,00</td><td>—</td></tr><tr><td>0,88</td><td>0,60</td><td>0,80</td><td>0,90</td><td>1,10</td><td>1,40</td><td>1,50</td><td>2,00</td><td>—</td></tr><tr><td>1,00</td><td>0,60</td><td>0,80</td><td>0,90</td><td>1,10</td><td>1,40</td><td>1,50</td><td>2,00</td><td>—</td></tr><tr><td>1,13</td><td>0,60</td><td>0,80</td><td>0,90</td><td>1,10</td><td>1,40</td><td>1,50</td><td>—</td><td>—</td></tr><tr><td>1,25</td><td>0,60</td><td>0,80</td><td>0,90</td><td>1,10</td><td>1,40</td><td>1,50</td><td>—</td><td>—</td></tr><tr><td>1,50</td><td>0,60</td><td>0,80</td><td>0,90</td><td>1,10</td><td>—</td><td>—</td><td>—</td><td>—</td></tr><tr><td>1,75</td><td>0,60</td><td>0,80</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td></tr><tr><td>2,00</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td></tr></table>		$t_{N,II}$ [mm]	0,63	0,75	0,88	1,00	1,13	1,25	1,50	2,00	$M_{t,nom}$	5 Nm								$V_{R,k}$ [kN] for $t_{N,I}$ [mm]									0,50	—	—	—	—	—	—	—	—	0,55	—	—	—	—	—	—	—	—	0,63	1,00	1,00	1,00	1,00	1,00	1,00	1,00 ac	—	0,75	1,00	1,70	1,70	1,70	1,70	1,70	1,70	—	0,88	1,00	1,70	1,70	1,70	1,70	1,70	1,70	—	1,00	1,00	1,70	1,70	1,70	1,70	1,70	1,70	—	1,13	1,00	1,70	1,70	1,70	1,70	1,70	—	—	1,25	1,00	1,70	1,70	1,70	1,70	1,70	—	—	1,50	1,00	1,70	1,70	1,70	—	—	—	—	1,75	1,00	1,70	—	—	—	—	—	—	2,00	—	—	—	—	—	—	—	—	$N_{R,k}$ [kN] for $t_{N,I}$ [mm]									0,50	0,32	0,43	0,49	0,59	0,76	0,81	1,08 ac	1,08 ac	0,55	0,41	0,55	0,61	0,75	0,95	1,02	1,36 ac	—	0,63	0,60	0,80	0,90	1,10	1,40	1,50	2,00 ac	—	0,75	0,60	0,80	0,90	1,10	1,40	1,50	2,00	—	0,88	0,60	0,80	0,90	1,10	1,40	1,50	2,00	—	1,00	0,60	0,80	0,90	1,10	1,40	1,50	2,00	—	1,13	0,60	0,80	0,90	1,10	1,40	1,50	—	—	1,25	0,60	0,80	0,90	1,10	1,40	1,50	—	—	1,50	0,60	0,80	0,90	1,10	—	—	—	—	1,75	0,60	0,80	—	—	—	—	—	—	2,00	—	—	—	—	—	—	—	—
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<table><tr><td>Self drilling screw</td><td rowspan="2">Annex 28</td></tr><tr><td>JT3-2H-5,5 x L JT6-2H-5,5 x L with undercut, hexagon head and sealing washer $\geq \text{Ø}16 \text{ mm}$</td></tr></table>		Self drilling screw	Annex 28	JT3-2H-5,5 x L JT6-2H-5,5 x L with undercut, hexagon head and sealing washer $\geq \text{Ø}16 \text{ mm}$																																																																																																																																																																																																																																							
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	Materials Fastener: stainless steel (1.4301 / 1.4567) – EN 10088 stainless steel (1.4401 / 1.4578) – EN 10088 Washer: stainless steel (1.4301) – EN 10088 with vulcanised EPDM seal Component I: aluminium alloy with $R_{m,min} = 165 \text{ N/mm}^2$ – EN 573 Component II: aluminium alloy with $R_{m,min} = 165 \text{ N/mm}^2$ – EN 573 Timber – EN 14081
	Drilling capacity $\Sigma t_i \leq 2,00 \text{ mm}$
	Timber substructures for timber substructures following performance were determined $M_{y,k} = 7,911 \text{ Nm}$ $f_{ax,k} = 8,575 \text{ N/mm}^2$ for $l_{eff} \geq 26,0 \text{ mm}$

$t_{N,II} =$	0,40	0,50	0,60	0,70	0,80	0,90	1,00	1,20	1,50	
$M_{t,nom} =$	—									
$V_{R,k} \text{ for } t_{N,I} =$	0,40	0,29 -	0,29 -	0,29 -	0,29 -	0,29 -	0,29 -	0,29 -	0,29 -	0,29
	0,50	0,29 -	0,42 -	0,51 -	0,60 -	0,69 -	0,75 -	0,81 -	0,81 -	0,81
	0,60	0,29 -	0,42 -	0,53 -	0,63 -	0,71 -	0,78 -	0,85 -	0,85 -	0,85
	0,70	0,29 -	0,42 -	0,53 -	0,65 -	0,74 -	0,82 -	0,89 -	0,89 -	0,89
	0,80	0,29 -	0,42 -	0,53 -	0,65 -	0,76 -	0,85 -	0,92 -	0,92 -	0,92
	0,90	0,29 -	0,42 -	0,55 -	0,68 -	0,81 -	0,88 -	0,97 -	0,97 -	0,97
	1,00	0,29 -	0,42 -	0,56 -	0,71 -	0,85 -	0,93 -	1,00 -	-	1,00
	1,20	0,29 -	0,42 -	0,59 -	0,77 -	0,94 -	-	-	-	1,24
	1,50	0,29 -	0,42 -	-	-	-	-	-	-	1,59
$N_{R,II,k} =$	0,22	0,28	0,35	0,43	0,50	0,58	0,68	0,86	1,18	failure of component II see chapter 4.2.2

Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.
For other areas of application see allgemeine bauaufsichtliche Zulassung Z-14.4-426.
The values indicated above, depending on the screw depth l_g , shall apply to $k_{mod} = 0,90$ and the timber strength class C24 ($\rho_k = 350 \text{ kg / m}^3$). For other values of k_{mod} and strength classes see chapter 4.2.2

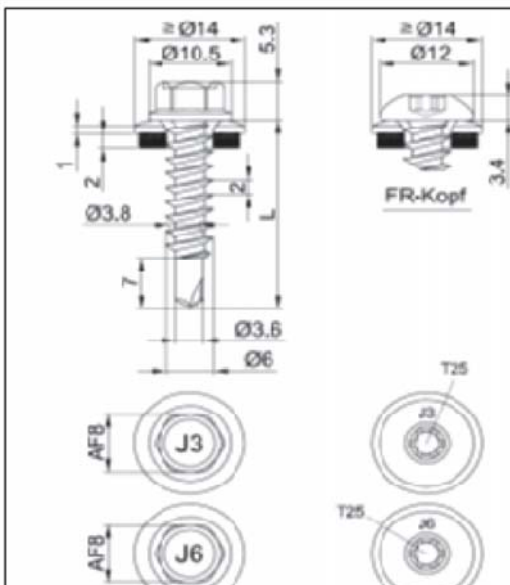
Self-drilling screw	Annex 29
JT3-2-6,0xL JT6-2-6,0xL JT3-FR-2-6,0xL JT6-FR-2-6,0xL	
With hexagon head and seal washer $\geq \varnothing 14,0 \text{ mm}$	

	Materials Fastener: stainless steel (1.4301 / 1.4567) – EN 10088 stainless steel (1.4401 / 1.4578) – EN 10088 Washer: stainless steel (1.4301) – EN 10088 with vulcanised EPDM seal Component I: aluminium alloy with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573 Component II: aluminium alloy with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573 Timber – EN 14081
Drilling capacity $\Sigma t_i \leq 2,00 \text{ mm}$	
Timber substructures for timber substructures following performance were determined $M_{y,k} = 7,911 \text{ Nm}$ $f_{ax,k} = 8,575 \text{ N/mm}^2$ for $l_{eff} \geq 26,0 \text{ mm}$	

$t_{N,II} =$	0,40	0,50	0,60	0,70	0,80	0,90	1,00	1,20	1,50		
$M_{t,nom} =$	—										
$V_{R,k} \text{ for } t_{N,I} =$	0,40	0,38 -	0,38 -	0,38 -	0,38 -	0,38 -	0,38 -	0,38 -	0,38 -	0,38 -	0,38
	0,50	0,38 -	0,55 -	0,67 -	0,78 -	0,90 -	0,98 -	1,05 -	1,05 -	1,05 -	1,05
	0,60	0,38 -	0,55 -	0,70 -	0,81 -	0,93 -	1,02 -	1,10 -	1,10 -	- -	1,10
	0,70	0,38 -	0,55 -	0,70 -	0,84 -	0,96 -	1,07 -	1,15 -	1,15 -	- -	1,15
	0,80	0,38 -	0,55 -	0,70 -	0,84 -	0,99 -	1,11 -	1,20 -	1,20 -	- -	1,20
	0,90	0,38 -	0,55 -	0,72 -	0,88 -	1,05 -	1,15 -	1,25 -	1,25 -	- -	1,25
	1,00	0,38 -	0,55 -	0,74 -	0,92 -	1,11 -	1,21 -	1,30 -	- -	- -	1,30
	1,20	0,38 -	0,55 -	0,78 -	1,00 -	1,23 -	- -	- -	- -	- -	1,61
	1,50	0,38 -	0,55 -	- -	- -	- -	- -	- -	- -	- -	2,08
$N_{R,II,k} =$	0,29	0,37	0,46	0,55	0,64	0,75	0,87	1,12	1,53	failure of component II see chapter 4.2.2	

Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.
For other areas of application see allgemeine bauaufsichtliche Zulassung Z-14.4-426.
The values indicated above, depending on the screw depth l_g , shall apply to $k_{mod} = 0,90$ and the timber strength class C24 ($\rho_k = 350 \text{ kg / m}^3$). For other values of k_{mod} and strength classes see chapter 4.2.2

Self-drilling screw	Annex 30
JT3-2-6,0xL JT6-2-6,0xL JT3-FR-2-6,0xL JT6-FR-2-6,0xL With hexagon head and seal washer $\geq \varnothing 14,0 \text{ mm}$	

	Materials Fastener: stainless steel (1.4301 / 1.4567) – EN 10088 stainless steel (1.4401 / 1.4578) – EN 10088 Washer: stainless steel (1.4301) – EN 10088 with vulcanised EPDM seal Component I: aluminium alloy with $R_{m,min} = 165 \text{ N/mm}^2$ – EN 573 Component II: S235 – EN 10025-1 S280GD, S320GD – EN 10346 timber – EN14081
	Drilling capacity $\Sigma t_i \leq 2,00 \text{ mm}$
	Timber substructures for timber substructures following performance were determined $M_{y,k} = 7,911 \text{ Nm}$ $f_{ax,k} = 8,575 \text{ N/mm}^2$ for $l_{eff} \geq 26,0 \text{ mm}$

$t_{N,II} =$	0,40	0,50	0,63	0,75	0,88	1,00	1,25	1,50	
$M_{t,nom} =$	—								
$V_{R,k}$ for $t_{N,I} =$	0,40	0,50	0,60	0,70	0,80	0,90	1,00	1,20	1,50
	0,29	0,29	0,29	0,29	0,29	0,29	0,29	0,29	0,29
	0,40	0,40	0,40	0,65	0,73	0,81	0,81	0,81	0,81
	0,60	0,40	0,50	0,50	0,67	0,76	0,85	0,85	0,85
	0,70	0,40	0,50	0,61	0,70	0,80	0,89	0,89	0,89
	0,80	0,40	0,50	0,61	0,71	0,82	0,92	0,92	0,92
	0,90	0,40	0,50	0,61	0,75	0,86	0,97	-	0,97
	1,00	0,40	0,50	0,61	0,78	0,89	1,00	-	1,00
	1,20	0,40	0,50	0,61	0,86	0,93	-	-	1,24
	1,50	0,40	0,50	0,61	-	-	-	-	1,59
$N_{R,II,k} =$	0,53	0,75	0,80	1,05	1,35	1,63	2,26	3,02	failure of component II see chapter 4.2.2

Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.
Component II of steel S320GD or S350GD: the indicated values of the pull-out resistance $N_{R,II,k}$ can be increased by 8,0%.
For other areas of application see allgemeine bauaufsichtliche Zulassung Z-14.4-426.
The values indicated above, depending on the screw depth l_g , shall apply to $k_{mod} = 0,90$ and the timber strength class C24 ($\rho_k = 350 \text{ kg / m}^3$). For other values of k_{mod} and strength classes see chapter 4.2.2

Self-drilling screw	Annex 31
JT3-2-6,0xL JT6-2-6,0xL JT3-FR-2-6,0xL JT6-FR-2-6,0xL	
With hexagon head or FR-head and seal washer $\geq \varnothing 14,0 \text{ mm}$	

Materials

Fastener: stainless steel (1.4301 / 1.4567) – EN 10088
stainless steel (1.4401 / 1.4578) – EN 10088

Washer: stainless steel (1.4301) – EN 10088
with vulcanised EPDM seal

Component I: aluminium alloy
with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573

Component II: S235 – EN 10025-1
S280GD, S320GD – EN 10346
timber – EN14081

Drilling capacity $\Sigma t_i \leq 2,00 \text{ mm}$

Timber substructures

for timber substructures following performance were determined

$M_{y,k} = 7,911 \text{ Nm}$
 $f_{ax,k} = 8,575 \text{ N/mm}^2$ for $l_{eff} \geq 26,0 \text{ mm}$

$t_{N,II} =$	0,40	0,50	0,63	0,75	0,88	1,00	1,25	1,50	
$M_{t,nom} =$	—								
$V_{R,k}$ for $t_{N,I} =$	0,40	0,38 -	0,38 -	0,38 -	0,38 -	0,38 -	0,38 -	0,38 -	failure of component I (bearing)
0,50	0,52 -	0,52 -	0,52 -	0,84 -	0,95 -	1,05 -	1,05 -	1,05 -	
0,60	0,52 -	0,65 -	0,65 -	0,87 -	0,99 -	1,10 -	1,10 -	- -	
0,70	0,52 -	0,65 -	0,79 -	0,90 -	1,03 -	1,15 -	1,15 -	- -	
0,80	0,52 -	0,65 -	0,79 -	0,92 -	1,06 -	1,20 -	1,20 -	- -	
0,90	0,52 -	0,65 -	0,79 -	0,97 -	1,11 -	1,25 -	- -	- -	
1,00	0,52 -	0,65 -	0,79 -	1,02 -	1,16 -	1,30 -	- -	- -	
1,20	0,52 -	0,65 -	0,79 -	1,12 -	1,21 -	- -	- -	- -	
1,50	0,52 -	0,65 -	0,79 -	- -	- -	- -	- -	- -	
$N_{R,II,k} =$	0,53	0,75	0,80	1,05	1,35	1,63	2,26	3,02	failure of component II see chapter 4.2.2

Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.

Component II of steel S320GD or S350GD: the indicated values of the pull-out resistance $N_{R,II,k}$ can be increased by 8,0%.

For other areas of application see allgemeine bauaufsichtliche Zulassung Z-14.4-426.

The values indicated above, depending on the screw depth l_g , shall apply to $k_{mod} = 0,90$ and the timber strength class C24 ($\rho_k = 350 \text{ kg / m}^3$). For other values of k_{mod} and strength classes see chapter 4.2.2

Self-drilling screw	Annex 32
JT3-2-6,0xL JT6-2-6,0xL JT3-FR-2-6,0xL JT6-FR-2-6,0xL	
With hexagon head or FR-head and seal washer $\geq \text{Ø } 14,0 \text{ mm}$	

	<p>Materials</p> <p>Fastener: stainless steel (1.4301 / 1.4567) – EN 10088 stainless steel (1.4401 / 1.4578) – EN 10088</p> <p>Washer: stainless steel (1.4301) – EN 10088 with vulcanised EPDM seal</p> <p>Component I: aluminium alloy with $R_{m,min} = 165 \text{ N/mm}^2$ – EN 573</p> <p>Component II: timber – EN14081</p>
	<p>Drilling capacity $\Sigma t_i \leq 2,00 \text{ mm}$</p>
	<p>Timber substructures</p> <p>for timber substructures following performance were determined</p> <p>$M_{y,k} = 7,911 \text{ Nm}$ $f_{ax,k} = 8,575 \text{ N/mm}^2$ for $l_{eff} \geq 26,0 \text{ mm}$</p>

$l_g =$	31,00	32,00	33,00	34,00	35,00	36,00	$\geq 37,00$	
$M_{t,nom} =$	—							
$V_{R,k}$ for $t_{N,I} =$	0,50	0,81 -	0,81 -	0,81 -	0,81 -	0,81 -	0,81 -	0,81
	0,60	0,85 -	0,85 -	0,85 -	0,85 -	0,85 -	0,85 -	0,85
	0,70	0,89 -	0,89 -	0,89 -	0,89 -	0,89 -	0,89 -	0,89
	0,80	0,92 -	0,92 -	0,92 -	0,92 -	0,92 -	0,92 -	0,92
	0,90	0,96 -	0,97 -	0,97 -	0,97 -	0,97 -	0,97 -	0,97
	1,00	0,96 -	1,00 -	1,00 -	1,00 -	1,00 -	1,00 -	1,00
	1,20	0,96 -	1,00 -	1,04 -	1,08 -	1,12 -	1,16 -	1,24
	1,50	0,96 -	1,00 -	1,04 -	1,08 -	1,12 -	1,16 -	1,59
	2,00	0,96 -	1,00 -	1,04 -	1,08 -	1,12 -	1,16 -	1,59
$N_{R,II,k} =$	1,27	1,32	1,38	1,43	1,48	1,53	1,59	failure of component II see chapter 4.2.2

For timber substructures the indicated values of the shear force resistance $V_{R,k}$ shall apply with and without washer. For other areas of application see allgemeine bauaufsichtliche Zulassung Z-14.4-426. The values indicated above, depending on the screw depth l_g , shall apply to $k_{mod} = 0,90$ and the timber strength class C24 ($\rho_k = 350 \text{ kg / m}^3$). For other values of k_{mod} and strength classes see chapter 4.2.2. For $k_{mod} < 0,90$: failure of component I see right column and failure of component II see chapter 4.2.2 with $f_{1,k} = 80 \cdot 10^{-6} \cdot \rho_k^2$ (load carrying class 3, ρ_k in kg/m^3 , max. 500 kg/m^3) and yield moment $M_{y,k} = 7.911 \text{ Nmm}$.

Self-drilling screw	Annex 33
JT3-2-6,0xL JT6-2-6,0xL JT3-FR-2-6,0xL JT6-FR-2-6,0xL	
With hexagon head or FR-head and seal washer $\geq \text{Ø } 14,0 \text{ mm}$	

	<p>Materials</p> <p>Fastener: stainless steel (1.4301 / 1.4567) – EN 10088 stainless steel (1.4401 / 1.4578) – EN 10088</p> <p>Washer: stainless steel (1.4301) – EN 10088 with vulcanised EPDM seal</p> <p>Component I: aluminium alloy with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573</p> <p>Component II: timber – EN 14081</p> <p>Drilling capacity $\Sigma t_i \leq 2,00 \text{ mm}$</p> <p>Timber substructures for timber substructures following performance were determined</p> <p>$M_{y,k} = 7,911 \text{ Nm}$ $f_{ax,k} = 8,575 \text{ N/mm}^2$ for $l_{eff} \geq 26,0 \text{ mm}$</p>																																																																																																												
<table><tr><th>$l_g =$</th><th>31,00</th><th>32,00</th><th>33,00</th><th>34,00</th><th>35,00</th><th>36,00</th><th>$\geq 37,00$</th><th></th></tr><tr><th>$M_{t,nom} =$</th><th colspan="7">—</th><th></th></tr><tr><td>$V_{R,k}$ for $t_{N,I} =$</td><td>0,50</td><td>0,96 -</td><td>1,00 -</td><td>1,04 -</td><td>1,05 -</td><td>1,05 -</td><td>1,05 -</td><td>1,05</td></tr><tr><td></td><td>0,60</td><td>0,96 -</td><td>1,00 -</td><td>1,04 -</td><td>1,08 -</td><td>1,10 -</td><td>1,10 -</td><td>1,10</td></tr><tr><td></td><td>0,70</td><td>0,96 -</td><td>1,00 -</td><td>1,04 -</td><td>1,08 -</td><td>1,12 -</td><td>1,15 -</td><td>1,15</td></tr><tr><td></td><td>0,80</td><td>0,96 -</td><td>1,00 -</td><td>1,04 -</td><td>1,08 -</td><td>1,12 -</td><td>1,16 -</td><td>1,20</td></tr><tr><td></td><td>0,90</td><td>0,96 -</td><td>1,00 -</td><td>1,04 -</td><td>1,08 -</td><td>1,12 -</td><td>1,16 -</td><td>1,20</td></tr><tr><td></td><td>1,00</td><td>0,96 -</td><td>1,00 -</td><td>1,04 -</td><td>1,08 -</td><td>1,12 -</td><td>1,16 -</td><td>1,20</td></tr><tr><td></td><td>1,20</td><td>0,96 -</td><td>1,00 -</td><td>1,04 -</td><td>1,08 -</td><td>1,12 -</td><td>1,16 -</td><td>1,20</td></tr><tr><td></td><td>1,50</td><td>0,96 -</td><td>1,00 -</td><td>1,04 -</td><td>1,08 -</td><td>1,12 -</td><td>1,16 -</td><td>1,20</td></tr><tr><td></td><td>2,00</td><td>0,96 -</td><td>1,00 -</td><td>1,04 -</td><td>1,08 -</td><td>1,12 -</td><td>1,16 -</td><td>1,20</td></tr><tr><td>$N_{R,II,k} =$</td><td>1,27</td><td>1,32</td><td>1,38</td><td>1,43</td><td>1,48</td><td>1,53</td><td>1,59</td><td>failure of component II see chapter 4.2.2</td></tr></table>		$l_g =$	31,00	32,00	33,00	34,00	35,00	36,00	$\geq 37,00$		$M_{t,nom} =$	—								$V_{R,k}$ for $t_{N,I} =$	0,50	0,96 -	1,00 -	1,04 -	1,05 -	1,05 -	1,05 -	1,05		0,60	0,96 -	1,00 -	1,04 -	1,08 -	1,10 -	1,10 -	1,10		0,70	0,96 -	1,00 -	1,04 -	1,08 -	1,12 -	1,15 -	1,15		0,80	0,96 -	1,00 -	1,04 -	1,08 -	1,12 -	1,16 -	1,20		0,90	0,96 -	1,00 -	1,04 -	1,08 -	1,12 -	1,16 -	1,20		1,00	0,96 -	1,00 -	1,04 -	1,08 -	1,12 -	1,16 -	1,20		1,20	0,96 -	1,00 -	1,04 -	1,08 -	1,12 -	1,16 -	1,20		1,50	0,96 -	1,00 -	1,04 -	1,08 -	1,12 -	1,16 -	1,20		2,00	0,96 -	1,00 -	1,04 -	1,08 -	1,12 -	1,16 -	1,20	$N_{R,II,k} =$	1,27	1,32	1,38	1,43	1,48	1,53	1,59	failure of component II see chapter 4.2.2
$l_g =$	31,00	32,00	33,00	34,00	35,00	36,00	$\geq 37,00$																																																																																																						
$M_{t,nom} =$	—																																																																																																												
$V_{R,k}$ for $t_{N,I} =$	0,50	0,96 -	1,00 -	1,04 -	1,05 -	1,05 -	1,05 -	1,05																																																																																																					
	0,60	0,96 -	1,00 -	1,04 -	1,08 -	1,10 -	1,10 -	1,10																																																																																																					
	0,70	0,96 -	1,00 -	1,04 -	1,08 -	1,12 -	1,15 -	1,15																																																																																																					
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	1,50	0,96 -	1,00 -	1,04 -	1,08 -	1,12 -	1,16 -	1,20																																																																																																					
	2,00	0,96 -	1,00 -	1,04 -	1,08 -	1,12 -	1,16 -	1,20																																																																																																					
$N_{R,II,k} =$	1,27	1,32	1,38	1,43	1,48	1,53	1,59	failure of component II see chapter 4.2.2																																																																																																					
<p>For timber substructures the indicated values of the shear force resistance $V_{R,k}$ shall apply with and without washer. For other areas of application see allgemeine bauaufsichtliche Zulassung Z-14.4-426. The values indicated above, depending on the screw depth l_g, shall apply to $k_{mod} = 0,90$ and the timber strength class C24 ($\rho_k = 350 \text{ kg / m}^3$). For other values of k_{mod} and strength classes see chapter 4.2.2. For $k_{mod} < 0,90$: failure of component I see right column and failure of component II see chapter 4.2.2 with $f_{1,k} = 80 \cdot 10^{-6} \cdot \rho_k^2$ (load carrying class 3, ρ_k in kg/m^3, max. 500 kg/m^3) and yield moment $M_{y,k} = 7.911 \text{ Nmm}$.</p>																																																																																																													
<p>Self-drilling screw</p> <p>JT3-2-6,0xL JT6-2-6,0xL JT3-FR-2-6,0xL JT6-FR-2-6,0xL With hexagon head or FR-head and seal washer $\geq \text{Ø } 14,0 \text{ mm}$</p>						<p>Annex 34</p>																																																																																																							

	<p>Materials</p> <p>Fastener: stainless steel (1.4301) - EN 10088, stainless steel (1.4404) - EN 10088</p> <p>Washer: stainless steel (1.4301) - EN 10088</p> <p>Component I: S280GD, S320GD or S350GD - EN 10346</p> <p>Component II: S235 - EN 10025-1 S280GD, S320GD or S350GD - EN 10346</p>
	<p>Drilling capacity $\Sigma t_i \leq 3,50 \text{ mm}$</p>
	<p>Timber substructures</p> <p>no performance determined</p>

$t_{N,II} [\text{mm}]$	0,40	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	1,50	2,00
$M_{t,nom}$	1 Nm			2 Nm			2,5 Nm				
$V_{R,k} [\text{kN}]$ for $t_{N,I} [\text{mm}]$	0,50	0,56	0,60	0,64	0,68	0,83	0,98	1,13	1,13	1,13	1,13
	0,55	0,58	0,67	0,73	0,78	0,94	1,09	1,25	1,25	1,25	1,25
	0,63	0,60	0,71	0,82	0,87	1,04	1,21	1,38	1,38	1,38	1,38
	0,75	0,62	0,74	0,86	0,97	1,15	1,33	1,51	1,51	1,51	1,51
	0,88	0,62	0,74	0,86	1,02	1,42	2,04	2,67	2,67	2,67	2,67
	1,00	0,62	0,74	0,86	1,06	1,56	2,15	2,77	2,77	2,77	2,77
	1,13	0,62	0,74	0,86	1,11	1,70	2,28	2,87	3,22	3,57	3,92
	1,25	0,62	0,74	0,86	1,11	1,70	2,28	2,87	3,22	3,57	3,92
	1,50	0,62	0,74	0,86	1,11	1,70	2,28	2,87	3,22	3,57	3,92
	1,75	0,62	0,74	0,86	1,11	1,70	2,28	2,87	3,22	3,57	—
	2,00	0,62	0,74	0,86	1,11	1,70	2,28	2,87	3,22	3,57	—
$N_{R,k} [\text{kN}]$ for $t_{N,I} [\text{mm}]$	0,50	0,30	0,41	0,47	0,56	0,73	1,06	1,40	1,48	1,48	1,48
	0,55	0,30	0,41	0,47	0,56	0,73	1,06	1,40	1,65	1,65	1,65
	0,63	0,30	0,41	0,47	0,56	0,73	1,06	1,40	1,71	1,83	1,83
	0,75	0,30	0,41	0,47	0,56	0,73	1,06	1,40	1,71	1,99	2,23
	0,88	0,30	0,41	0,47	0,56	0,73	1,06	1,40	1,71	1,99	2,59
	1,00	0,30	0,41	0,47	0,56	0,73	1,06	1,40	1,71	1,99	2,59
	1,13	0,30	0,41	0,47	0,56	0,73	1,06	1,40	1,71	1,99	2,59
	1,25	0,30	0,41	0,47	0,56	0,73	1,06	1,40	1,71	1,99	2,59
	1,50	0,30	0,41	0,47	0,56	0,73	1,06	1,40	1,71	1,99	2,59
	1,75	0,30	0,41	0,47	0,56	0,73	1,06	1,40	1,71	1,99	—
	2,00	0,30	0,41	0,47	0,56	0,73	1,06	1,40	1,71	1,99	—

If both components I and II are made of S320GD or S350GD the values may be increased by 8,3%.

Self drilling screw	Annex 35
<p>JT3-2H Plus - 5,5 x L JT6-2H Plus - 5,5 x L JT3-FR-2H Plus - 5,5 x L JT6-FR-2H Plus - 5,5 x L</p> <p>with undercut, hexagon head or round head with Torx® drive system and sealing washer $\geq \text{Ø}16 \text{ mm}$</p>	

	<p>Materials</p> <p>Fastener: stainless steel (1.4301) - EN 10088, stainless steel (1.4404) - EN 10088</p> <p>Washer: stainless steel (1.4301) - EN 10088</p> <p>Component I: S280GD, S320GD or S350GD - EN 10346</p> <p>Component II: S235 - EN 10025-1 S280GD, S320GD or S350GD - EN 10346</p>
	<p>Drilling capacity $\Sigma t_i \leq 3,50 \text{ mm}$</p>
	<p>Timber substructures</p> <p>no performance determined</p>

$t_{N,II}$ [mm]	2 x 0,63	2 x 0,75	2 x 0,88	2 x 1,00	2 x 1,13	2 x 1,25
$M_{t,nom}$	2 Nm	3 Nm		4 Nm		
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]						
0,40	—	—	—	—	—	—
0,50	—	—	—	—	—	—
0,55	—	—	—	—	—	—
0,63	1,65	1,78	1,91	2,04	2,04	2,04
0,75	1,65	2,60	2,76	2,92	2,92	2,92
0,88	1,65	2,60	3,39	3,55	3,55	3,55
1,00	1,65	2,60	3,39	4,17	4,17	4,17
1,13	1,65	2,60	3,39	4,17	4,17	—
1,25	1,65	2,60	3,39	4,17	—	—
1,50	1,65	2,60	3,39	4,17	—	—
1,75	1,65	2,60	—	—	—	—
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]						
0,40	1,01	1,48	1,48	1,48	1,48	1,48
0,50	1,01	1,65	1,65	1,65	1,65	1,65
0,55	1,01	1,78	1,83	1,83	1,83	1,83
0,63	1,01	1,78	2,23	2,23	2,23	2,23
0,75	1,01	1,78	2,31	2,84	2,84	2,84
0,88	1,01	1,78	2,31	2,84	2,84	2,84
1,00	1,01	1,78	2,31	2,84	2,84	2,84
1,13	1,01	1,78	2,31	2,84	2,84	—
1,25	1,01	1,78	2,31	2,84	—	—
1,50	1,01	1,78	2,31	2,84	—	—
1,75	1,01	1,78	—	—	—	—

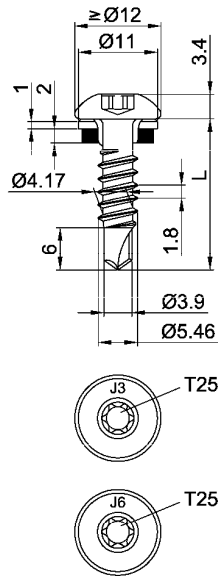
If both components I and II are made of S320GD or S350GD the values may be increased by 8,3%.

Self drilling screw

JT3-2H Plus - 5,5 x L
JT6-2H Plus - 5,5 x L
JT3-FR-2H Plus - 5,5 x L
JT6-FR-2H Plus - 5,5 x L

with undercut, hexagon head or round head with Torx® drive system and sealing washer $\geq \text{Ø}16 \text{ mm}$

Annex 36



Materials

Fastener: stainless steel (1.4301) - EN 10088,
stainless steel (1.4404) - EN 10088

Washer: stainless steel (1.4301) - EN 10088

Component I: S280GD, S320GD or S350GD - EN 10346

Component II: S235 - EN 10025-1
S280GD, S320GD or S350GD - EN 10346

Drilling capacity

$\Sigma t_i \leq 3,50 \text{ mm}$

Timber substructures

no performance determined

$t_{N,II} [\text{mm}]$	0,40	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	1,50	2,00
$M_{t, \text{nom}}$	1 Nm			2 Nm			2,5 Nm				
$V_{R,k} [\text{kN}]$ for $t_{N,I} [\text{mm}]$	0,50	0,56	0,60	0,64	0,68	0,83	0,98	1,13	1,13	1,13	1,13
	0,55	0,58	0,67	0,73	0,78	0,94	1,09	1,25	1,25	1,25	1,25
	0,63	0,60	0,71	0,82	0,87	1,04	1,21	1,38	1,38	1,38	1,38
	0,75	0,62	0,74	0,86	0,97	1,15	1,33	1,51	1,51	1,51	1,51
	0,88	0,62	0,74	0,86	1,02	1,42	2,04	2,67	2,67	2,67	2,67
	1,00	0,62	0,74	0,86	1,06	1,56	2,15	2,77	2,77	2,77	2,77
	1,13	0,62	0,74	0,86	1,11	1,70	2,28	2,87	3,22	3,57	3,92
	1,25	0,62	0,74	0,86	1,11	1,70	2,28	2,87	3,22	3,57	3,92
	1,50	0,62	0,74	0,86	1,11	1,70	2,28	2,87	3,22	3,57	3,92
	1,75	0,62	0,74	0,86	1,11	1,70	2,28	2,87	3,22	3,57	—
	2,00	0,62	0,74	0,86	1,11	1,70	2,28	2,87	3,22	3,57	—
$N_{R,k} [\text{kN}]$ for $t_{N,I} [\text{mm}]$	0,50	0,30	0,41	0,47	0,56	0,73	0,86	0,86	0,86	0,86	0,86
	0,55	0,30	0,41	0,47	0,56	0,73	1,04	1,04	1,04	1,04	1,04
	0,63	0,30	0,41	0,47	0,56	0,73	1,06	1,20	1,20	1,20	1,20
	0,75	0,30	0,41	0,47	0,56	0,73	1,06	1,40	1,56	1,56	1,56
	0,88	0,30	0,41	0,47	0,56	0,73	1,06	1,40	1,71	1,99	2,32
	1,00	0,30	0,41	0,47	0,56	0,73	1,06	1,40	1,71	1,99	2,32
	1,13	0,30	0,41	0,47	0,56	0,73	1,06	1,40	1,71	1,99	2,32
	1,25	0,30	0,41	0,47	0,56	0,73	1,06	1,40	1,71	1,99	2,32
	1,50	0,30	0,41	0,47	0,56	0,73	1,06	1,40	1,71	1,99	2,32
	1,75	0,30	0,41	0,47	0,56	0,73	1,06	1,40	1,71	1,99	—
	2,00	0,30	0,41	0,47	0,56	0,73	1,06	1,40	1,71	1,99	—

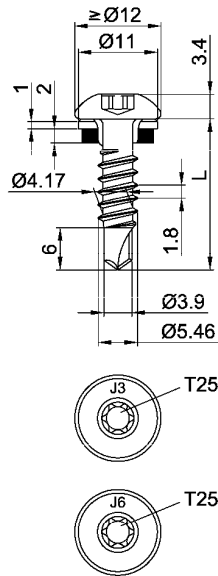
If both components I and II are made of S320GD or S350GD the values may be increased by 8,3%.

Self drilling screw

JT3-FR-2H Plus-5,5 x L
JT6-FR-2H Plus-5,5 x L

with undercut, round head with Torx® drive system and sealing washer $\geq \text{Ø}11 \text{ mm}$

Annex 37



Materials

Fastener: stainless steel (1.4301) - EN 10088,
stainless steel (1.4404) - EN 10088

Washer: stainless steel (1.4301) - EN 10088

Component I: S280GD, S320GD or S350GD - EN 10346

Component II: S235 - EN 10025-1
S280GD, S320GD or S350GD - EN 10346

Drilling capacity

$\Sigma t_i \leq 3,50 \text{ mm}$

Timber substructures

no performance determined

$t_{N,II}$ [mm]	2 x 0,63	2 x 0,75	2 x 0,88	2 x 1,00	2 x 1,13	2 x 1,25
$M_{t,nom}$	2 Nm	3 Nm		4 Nm		
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]						
0,40	—	—	—	—	—	—
0,50	—	—	—	—	—	—
0,55	—	—	—	—	—	—
0,63	1,65	1,78	1,91	2,04	2,04	2,04
0,75	1,65	2,60	2,76	2,92	2,92	2,92
0,88	1,65	2,60	3,39	3,55	3,55	3,55
1,00	1,65	2,60	3,39	4,17	4,17	4,17
1,13	1,65	2,60	3,39	4,17	4,17	—
1,25	1,65	2,60	3,39	4,17	—	—
1,50	1,65	2,60	3,39	4,17	—	—
1,75	1,65	2,60	—	—	—	—
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]						
0,40	0,86	0,86	0,86	0,86	0,86	0,86
0,50	1,01	1,04	1,04	1,04	1,04	1,04
0,55	1,01	1,20	1,20	1,20	1,20	1,20
0,63	1,01	1,56	1,56	1,56	1,56	1,56
0,75	1,01	1,78	2,31	2,32	2,32	2,32
0,88	1,01	1,78	2,31	2,32	2,32	2,32
1,00	1,01	1,78	2,31	2,32	2,32	2,32
1,13	1,01	1,78	2,31	2,32	2,32	—
1,25	1,01	1,78	2,31	2,32	—	—
1,50	1,01	1,78	2,31	2,32	—	—
1,75	1,01	1,78	—	—	—	—

If both components I and II are made of S320GD or S350GD the values may be increased by 8,3%.

Self drilling screw

JT3-FR-2H Plus-5,5 x L
JT6-FR-2H Plus-5,5 x L

with undercut, round head with Torx® drive system and sealing washer $\geq \text{Ø}11 \text{ mm}$

Annex 38

Materials

Fastener: stainless steel (1.4301 / 1.4567) – EN 10088
stainless steel (1.4401 / 1.4578) – EN 10088

Washer: stainless steel (1.4301) – EN 10088
with vulcanised EPDM seal

Component I: aluminium alloy
with $R_{m,min} = 165 \text{ N/mm}^2$ – EN 573

Component II: aluminium alloy
with $R_{m,min} = 165 \text{ N/mm}^2$ – EN 573

Drilling capacity $\Sigma t_i \leq 3,50 \text{ mm}$

Timber substructures
for timber substructures no performance determined

$t_{N,II} =$	0,40	0,50	0,60	0,70	0,80	0,90	1,00	1,20	1,50	
$M_{t,nom} =$	—									
$V_{R,k} \text{ for } t_{N,II} =$	0,40	0,19 -	0,19 -	0,19 -	0,19 -	0,19 -	0,19 -	0,19 ac	0,19 ac	0,19 ac
	0,50	0,19 -	0,27 -	0,32 -	0,37 -	0,43 -	0,48 -	0,53 ac	0,53 ac	0,53 ac
	0,60	0,19 -	0,27 -	0,38 -	0,44 -	0,49 -	0,55 -	0,61 -	0,63 -	0,76 ac
	0,70	0,19 -	0,27 -	0,38 -	0,50 -	0,55 -	0,62 -	0,68 -	0,74 -	0,99 ac
	0,80	0,19 -	0,27 -	0,38 -	0,50 -	0,61 -	0,69 -	0,76 -	0,84 -	1,22 ac
	0,90	0,19 -	0,27 -	0,38 -	0,50 -	0,61 -	0,76 -	0,83 -	0,95 -	1,34 -
	1,00	0,19 -	0,27 -	0,38 -	0,50 -	0,61 -	0,76 -	0,91 -	1,05 -	1,47 -
	1,20	0,19 -	0,27 -	0,38 -	0,50 -	0,61 -	0,76 -	0,91 -	1,26 -	1,71 -
	1,50	0,19 -	0,27 -	0,38 -	0,50 -	0,61 -	0,76 -	0,91 -	1,26 -	2,08 -
$N_{R,II,k} =$	0,14	0,21	0,28	0,36	0,43	0,50	0,56	0,73	0,91	

Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.

Self-drilling screw	Annex 39
JT3-2H Plus 5,5xL JT6-2H Plus 5,5xL JT3-FR-2H Plus 5,5xL JT6-FR-2H Plus 5,5xL With hexagon head or FR-head and seal washer $\geq \varnothing 11,0 \text{ mm}$	

Materials

Fastener: stainless steel (1.4301 / 1.4567) – EN 10088
stainless steel (1.4401 / 1.4578) – EN 10088

Washer: stainless steel (1.4301) – EN 10088
with vulcanised EPDM seal

Component I: aluminium alloy
with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573

Component II: aluminium alloy
with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573

Drilling capacity $\Sigma t_i \leq 3,50 \text{ mm}$

Timber substructures
for timber substructures no performance determined

$t_{N,II} =$	0,40	0,50	0,60	0,70	0,80	0,90	1,00	1,20	1,50	
$M_{t,nom} =$	—									
$V_{R,k} \text{ for } t_{N,I} =$	0,40	0,24 -	0,24 -	0,24 -	0,24 -	0,24 -	0,24 -	0,24 ac	0,24 ac	0,24 ac
	0,50	0,24 -	0,35 -	0,42 -	0,49 -	0,55 -	0,62 -	0,69 ac	0,69 ac	0,69 ac
	0,60	0,24 -	0,35 -	0,50 -	0,57 -	0,63 -	0,71 -	0,79 -	0,83 -	0,99 ac
	0,70	0,24 -	0,35 -	0,50 -	0,65 -	0,72 -	0,81 -	0,86 -	0,96 -	1,29 ac
	0,80	0,24 -	0,38 -	0,50 -	0,65 -	0,80 -	0,90 -	0,93 -	1,08 -	1,59 ac
	0,90	0,24 -	0,38 -	0,50 -	0,65 -	0,80 -	0,99 -	1,00 -	1,23 -	1,75 -
	1,00	0,24 -	0,38 -	0,50 -	0,65 -	0,80 -	0,99 -	1,18 -	1,37 -	1,91 -
	1,20	0,24 -	0,38 -	0,50 -	0,65 -	0,80 -	0,99 -	1,18 -	1,64 -	2,23 -
$N_{R,II,k} =$	0,19	0,28	0,37	0,47	0,56	0,65	0,73	0,95	1,19	

Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.

Self-drilling screw	Annex 40
JT3-2H Plus 5,5xL JT6-2H Plus 5,5xL JT3-FR-2H Plus 5,5xL JT6-FR-2H Plus 5,5xL With hexagon head or FR-head and seal washer $\geq \text{Ø } 11,0 \text{ mm}$	

Materials

Fastener: stainless steel (1.4301 / 1.4567) – EN 10088
stainless steel (1.4401 / 1.4578) – EN 10088

Washer: stainless steel (1.4301) – EN 10088
with vulcanised EPDM seal

Component I: aluminium alloy
with $R_{m,min} = 165 \text{ N/mm}^2$ – EN 573

Component II: S235 – EN 10025-1
S280GD, S320GD – EN 10346

Drilling capacity $\Sigma t_i \leq 3,50 \text{ mm}$

Timber substructures

for timber substructures no performance determined

$t_{N,II} =$	0,40	0,50	0,63	0,75	0,88	1,00	1,25	1,50	2,00	
$M_{t, nom} =$	—									
$V_{R,k}$ for $t_{N,I} =$	0,40	0,19 -	0,19 -	0,19 -	0,19 -	0,19 -	0,19 ac	0,19 ac	0,19 ac	0,19 ac
	0,50	0,35 -	0,35 -	0,35 -	0,40 -	0,47 -	0,53 ac	0,53 ac	0,53 ac	0,53 ac
	0,60	0,35 -	0,42 -	0,42 -	0,47 -	0,54 -	0,61 -	0,69 -	0,76 ac	0,76 ac
	0,70	0,35 -	0,42 -	0,49 -	0,53 -	0,61 -	0,68 -	0,84 -	0,99 ac	0,99 ac
	0,80	0,35 -	0,42 -	0,49 -	0,56 -	0,66 -	0,76 -	0,99 -	1,22 ac	1,22 a
	0,90	0,35 -	0,42 -	0,49 -	0,56 -	0,70 -	0,83 -	1,03 -	1,34 -	1,34 -
	1,00	0,35 -	0,42 -	0,49 -	0,56 -	0,74 -	0,91 -	1,19 -	1,47 -	1,47 -
	1,20	0,35 -	0,42 -	0,49 -	0,56 -	0,74 -	0,91 -	1,31 -	1,71 -	1,71 -
$N_{R,II,k} =$	0,30	0,41	0,56	0,73	1,06	1,40	1,99	2,59	2,59	

Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.

Component II of steel S320GD or S350GD: the indicated values of the pull-out resistance $N_{R,II,k}$ can be increased by 8,0%.

Self-drilling screw	Annex 41
JT3-2H Plus 5,5xL JT6-2H Plus 5,5xL JT3-FR-2H Plus 5,5xL JT6-FR-2H Plus 5,5xL With hexagon head or FR-head and seal washer $\geq \varnothing 11,0 \text{ mm}$	

	<p>Materials</p> <p>Fastener: stainless steel (1.4301 / 1.4567) – EN 10088 stainless steel (1.4401 / 1.4578) – EN 10088</p> <p>Washer: stainless steel (1.4301) – EN 10088 with vulcanised EPDM seal</p> <p>Component I: aluminium alloy with $R_{m,min} = 165 \text{ N/mm}^2$ – EN 573</p> <p>Component II: S235 – EN 10025-1 S280GD, S320GD – EN 10346</p> <p>Drilling capacity $\Sigma t_i \leq 3,50 \text{ mm}$</p> <p>Timber substructures for timber substructures no performance determined</p>																																																																													
<table><tr><td>$t_{N,II} =$</td><td>2x0,63</td><td>2x0,75</td><td>2x0,88</td><td>2x1,00</td><td>2x1,13</td><td>2x1,25</td></tr><tr><td>$M_{t,nom} =$</td><td colspan="6">—</td></tr><tr><td rowspan="8">$V_{R,k}$ for $t_{N,I} =$</td><td>0,40</td><td>0,58 -</td><td>0,58 ac</td><td>0,58 ac</td><td>0,58 ac</td><td>0,58 ac</td></tr><tr><td>0,50</td><td>0,73 -</td><td>0,73 ac</td><td>0,74 ac</td><td>0,77 ac</td><td>0,77 ac</td></tr><tr><td>0,60</td><td>0,80 -</td><td>0,80 ac</td><td>0,87 ac</td><td>0,94 ac</td><td>0,94 a</td></tr><tr><td>0,70</td><td>0,87 -</td><td>0,87 ac</td><td>0,99 ac</td><td>1,12 ac</td><td>1,12 a</td></tr><tr><td>0,80</td><td>0,94 -</td><td>0,94 ac</td><td>1,12 ac</td><td>1,29 a</td><td>1,29 a</td></tr><tr><td>0,90</td><td>1,12 -</td><td>1,19 -</td><td>1,36 -</td><td>1,51 a</td><td>1,51 a</td></tr><tr><td>1,00</td><td>1,29 -</td><td>1,44 -</td><td>1,60 -</td><td>1,75 a</td><td>1,75 a</td></tr><tr><td>1,20</td><td>1,29 -</td><td>1,51 -</td><td>1,74 -</td><td>1,96 a</td><td>- -</td></tr><tr><td></td><td>1,50</td><td>1,29 -</td><td>1,62 -</td><td>1,94 -</td><td>2,27 a</td><td>- -</td></tr><tr><td>$N_{R,II,k} =$</td><td>1,01</td><td>1,78</td><td>2,31</td><td>2,84</td><td>2,84</td><td>2,84</td></tr></table>		$t_{N,II} =$	2x0,63	2x0,75	2x0,88	2x1,00	2x1,13	2x1,25	$M_{t,nom} =$	—						$V_{R,k}$ for $t_{N,I} =$	0,40	0,58 -	0,58 ac	0,58 ac	0,58 ac	0,58 ac	0,50	0,73 -	0,73 ac	0,74 ac	0,77 ac	0,77 ac	0,60	0,80 -	0,80 ac	0,87 ac	0,94 ac	0,94 a	0,70	0,87 -	0,87 ac	0,99 ac	1,12 ac	1,12 a	0,80	0,94 -	0,94 ac	1,12 ac	1,29 a	1,29 a	0,90	1,12 -	1,19 -	1,36 -	1,51 a	1,51 a	1,00	1,29 -	1,44 -	1,60 -	1,75 a	1,75 a	1,20	1,29 -	1,51 -	1,74 -	1,96 a	- -		1,50	1,29 -	1,62 -	1,94 -	2,27 a	- -	$N_{R,II,k} =$	1,01	1,78	2,31	2,84	2,84	2,84
$t_{N,II} =$	2x0,63	2x0,75	2x0,88	2x1,00	2x1,13	2x1,25																																																																								
$M_{t,nom} =$	—																																																																													
$V_{R,k}$ for $t_{N,I} =$	0,40	0,58 -	0,58 ac	0,58 ac	0,58 ac	0,58 ac																																																																								
	0,50	0,73 -	0,73 ac	0,74 ac	0,77 ac	0,77 ac																																																																								
	0,60	0,80 -	0,80 ac	0,87 ac	0,94 ac	0,94 a																																																																								
	0,70	0,87 -	0,87 ac	0,99 ac	1,12 ac	1,12 a																																																																								
	0,80	0,94 -	0,94 ac	1,12 ac	1,29 a	1,29 a																																																																								
	0,90	1,12 -	1,19 -	1,36 -	1,51 a	1,51 a																																																																								
	1,00	1,29 -	1,44 -	1,60 -	1,75 a	1,75 a																																																																								
	1,20	1,29 -	1,51 -	1,74 -	1,96 a	- -																																																																								
	1,50	1,29 -	1,62 -	1,94 -	2,27 a	- -																																																																								
$N_{R,II,k} =$	1,01	1,78	2,31	2,84	2,84	2,84																																																																								
<p>Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.</p> <p>Component II of steel S320GD or S350GD: the indicated values of the pull-out resistance $N_{R,II,k}$ can be increased by 8,0%.</p>																																																																														
<p>Self-drilling screw</p> <p>JT3-2H Plus 5,5xL JT6-2H Plus 5,5xL JT3-FR-2H Plus 5,5xL JT6-FR-2H Plus 5,5xL With hexagon head or FR-head and seal washer $\geq \varnothing 11,0 \text{ mm}$</p>	<p>Annex 42</p>																																																																													

	Materials Fastener: stainless steel (1.4301 / 1.4567) – EN 10088 stainless steel (1.4401 / 1.4578) – EN 10088 Washer: stainless steel (1.4301) – EN 10088 with vulcanised EPDM seal Component I: aluminium alloy with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573 Component II: S235 – EN 10025-1 S280GD, S320GD – EN 10346
	Drilling capacity $\Sigma t_i \leq 3,50 \text{ mm}$
	Timber substructures for timber substructures no performance determined

$t_{N,II} =$	0,40	0,50	0,63	0,75	0,88	1,00	1,25	1,50	2,00	
$M_{t, nom} =$	—									
$V_{R,k} \text{ for } t_{N,I} =$	0,40	0,24 -	0,24 -	0,24 -	0,24 -	0,24 ac	0,24 ac	0,24 ac	0,24 ac	
	0,50	0,46 -	0,46 -	0,46 -	0,53 -	0,61 -	0,69 ac	0,69 ac	0,69 ac	
	0,60	0,46 -	0,55 -	0,55 -	0,60 -	0,70 -	0,79 -	0,89 -	0,99 ac	
	0,70	0,46 -	0,55 -	0,64 -	0,69 -	0,78 -	0,86 -	1,08 -	1,29 ac	
	0,80	0,46 -	0,55 -	0,64 -	0,73 -	0,83 -	0,93 -	1,26 -	1,59 ac	
	0,90	0,46 -	0,55 -	0,64 -	0,73 -	0,87 -	1,00 -	1,38 -	1,75 -	
	1,00	0,46 -	0,55 -	0,64 -	0,73 -	0,96 -	1,18 -	1,55 -	1,91 -	
	1,20	0,46 -	0,55 -	0,64 -	0,73 -	0,96 -	1,18 -	1,71 -	2,23 -	
	1,50	0,46 -	0,55 -	0,64 -	0,73 -	0,96 -	1,18 -	1,95 -	2,71 -	
$N_{R,II,k} =$	0,30	0,41	0,56	0,73	1,06	1,40	1,99	2,59	2,59	

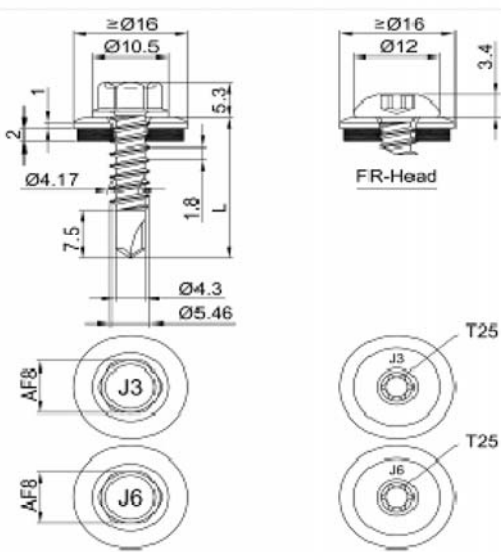
Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.

Component II of steel S320GD or S350GD: the indicated values of the pull-out resistance $N_{R,II,k}$ can be increased by 8,0%.

Self-drilling screw	Annex 43
JT3-2H Plus 5,5xL JT6-2H Plus 5,5xL JT3-FR-2H Plus 5,5xL JT6-FR-2H Plus 5,5xL With hexagon head or FR-head and seal washer $\geq \varnothing 11,0 \text{ mm}$	

	<p>Materials</p> <p>Fastener: stainless steel (1.4301 / 1.4567) – EN 10088 stainless steel (1.4401 / 1.4578) – EN 10088</p> <p>Washer: stainless steel (1.4301) – EN 10088 with vulcanised EPDM seal</p> <p>Component I: aluminium alloy with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573</p> <p>Component II: S235 – EN 10025-1 S280GD, S320GD – EN 10346</p>																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
	<p>Drilling capacity $\Sigma t_i \leq 3,50 \text{ mm}$</p>																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
	<p>Timber substructures</p> <p>for timber substructures no performance determined</p>																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
<table border="1"> <tr> <td>$t_{N,II} =$</td><td>2x0,63</td><td>2x0,75</td><td>2x0,88</td><td>2x1,00</td><td>2x1,13</td><td>2x1,25</td></tr> <tr> <td>$M_{t,nom} =$</td><td colspan="6">—</td></tr> <tr> <td>$V_{R,k}$ for $t_{N,I} =$</td><td>0,40</td><td>0,50</td><td>0,60</td><td>0,70</td><td>0,80</td><td>0,90</td><td>1,00</td><td>1,20</td><td>1,50</td></tr> <tr> <td></td><td>0,77</td><td>0,96</td><td>1,05</td><td>1,14</td><td>1,23</td><td>1,46</td><td>1,68</td><td>1,68</td><td>1,68</td></tr> <tr> <td></td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr> <tr> <td></td><td>ac</td><td>ac</td><td>ac</td><td>ac</td><td>ac</td><td>a</td><td>a</td><td>a</td><td>a</td></tr> <tr> <td></td><td>0,77</td><td>0,97</td><td>1,06</td><td>1,14</td><td>1,23</td><td>1,46</td><td>1,68</td><td>1,68</td><td>1,68</td></tr> <tr> <td></td><td>ac</td><td>ac</td><td>ac</td><td>ac</td><td>ac</td><td>a</td><td>a</td><td>a</td><td>a</td></tr> <tr> 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=$	0,40	0,50	0,60	0,70	0,80	0,90	1,00	1,20	1,50		0,77	0,96	1,05	1,14	1,23	1,46	1,68	1,68	1,68		-	-	-	-	-	-	-	-	-		ac	ac	ac	ac	ac	a	a	a	a		0,77	0,97	1,06	1,14	1,23	1,46	1,68	1,68	1,68		ac	ac	ac	ac	ac	a	a	a	a		0,77	0,99	1,15	1,30	1,46	1,68	1,98	1,98	1,98		ac	ac	ac	ac	ac	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,28	2,28		ac	ac	ac	ac	a	a	a	a	a		0,77	1,00	1,23	1,46	1,68	1,98	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<table><tr><td>$t_{N,II} =$</td><td>1,50</td><td>2,00</td><td>2,50</td><td>3,00</td></tr><tr><td>$M_{t,nom} =$</td><td colspan="4">—</td></tr><tr><td>$V_{R,k}$ for $t_{N,I} =$</td><td>0,50</td><td>0,77 ac</td><td>0,77 abcd</td><td>0,77 abcd</td></tr><tr><td></td><td>0,60</td><td>0,84 -</td><td>0,96 ac</td><td>0,96 ac</td></tr><tr><td></td><td>0,70</td><td>0,92 -</td><td>1,15 -</td><td>1,15 a</td></tr><tr><td></td><td>0,80</td><td>1,07 -</td><td>1,23 -</td><td>1,30 a</td></tr><tr><td></td><td>0,90</td><td>1,19 -</td><td>1,34 -</td><td>1,46 -</td></tr><tr><td></td><td>1,00</td><td>1,30 -</td><td>1,46 -</td><td>1,61 -</td></tr><tr><td></td><td>1,20</td><td>1,53 -</td><td>1,69 -</td><td>1,84 -</td></tr><tr><td></td><td>1,50</td><td>2,15 -</td><td>2,23 -</td><td>-</td></tr><tr><td></td><td>2,00</td><td>2,15 -</td><td>2,23 -</td><td>-</td></tr><tr><td>$N_{R,II,k} =$</td><td>0,69</td><td>1,07</td><td>1,61</td><td>2,15</td></tr></table>		$t_{N,II} =$	1,50	2,00	2,50	3,00	$M_{t,nom} =$	—				$V_{R,k}$ for $t_{N,I} =$	0,50	0,77 ac	0,77 abcd	0,77 abcd		0,60	0,84 -	0,96 ac	0,96 ac		0,70	0,92 -	1,15 -	1,15 a		0,80	1,07 -	1,23 -	1,30 a		0,90	1,19 -	1,34 -	1,46 -		1,00	1,30 -	1,46 -	1,61 -		1,20	1,53 -	1,69 -	1,84 -		1,50	2,15 -	2,23 -	-		2,00	2,15 -	2,23 -	-	$N_{R,II,k} =$	0,69	1,07	1,61	2,15
$t_{N,II} =$	1,50	2,00	2,50	3,00																																																									
$M_{t,nom} =$	—																																																												
$V_{R,k}$ for $t_{N,I} =$	0,50	0,77 ac	0,77 abcd	0,77 abcd																																																									
	0,60	0,84 -	0,96 ac	0,96 ac																																																									
	0,70	0,92 -	1,15 -	1,15 a																																																									
	0,80	1,07 -	1,23 -	1,30 a																																																									
	0,90	1,19 -	1,34 -	1,46 -																																																									
	1,00	1,30 -	1,46 -	1,61 -																																																									
	1,20	1,53 -	1,69 -	1,84 -																																																									
	1,50	2,15 -	2,23 -	-																																																									
	2,00	2,15 -	2,23 -	-																																																									
$N_{R,II,k} =$	0,69	1,07	1,61	2,15																																																									
<p>Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.</p>																																																													
<p>Self-drilling screw</p> <p>JT3-3-5,5xL JT6-3-5,5xL JT3-FR-3-5,5xL JT6-FR-3-5,5xL With hexagon head or FR-head and seal washer $\geq \text{Ø } 16 \text{ mm}$</p>	<p>Annex 45</p>																																																												

	<p>Materials</p> <p>Fastener: stainless steel (1.4301 / 1.4567) – EN 10088 stainless steel (1.4401 / 1.4578) – EN 10088</p> <p>Washer: stainless steel (1.4301) – EN 10088 with vulcanised EPDM seal</p> <p>Component I: aluminium alloy with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573</p> <p>Component II: aluminium alloy with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573</p> <p>Drilling capacity $\Sigma t_i \leq 4,20 \text{ mm}$</p> <p>Timber substructures for timber substructures no performance determined</p>																																																																						
<table><tr><td>$t_{N,II} =$</td><td>1,50</td><td>2,00</td><td>2,50</td><td>3,00</td></tr><tr><td>$M_{t,nom} =$</td><td colspan="4">—</td></tr><tr><td>$V_{R,k}$ for $t_{N,I} =$</td><td>0,50</td><td>1,00 ac</td><td>1,00 ac</td><td>1,00 abcd</td><td>1,00 abcd</td></tr><tr><td></td><td>0,60</td><td>1,10 -</td><td>1,25 ac</td><td>1,25 ac</td><td>1,25 ac</td></tr><tr><td></td><td>0,70</td><td>1,20 -</td><td>1,50 -</td><td>1,50 ac</td><td>1,50 a</td></tr><tr><td></td><td>0,80</td><td>1,40 -</td><td>1,60 -</td><td>1,70 -</td><td>1,70 a</td></tr><tr><td></td><td>0,90</td><td>1,55 -</td><td>1,75 -</td><td>1,90 -</td><td>1,95 -</td></tr><tr><td></td><td>1,00</td><td>1,70 -</td><td>1,90 -</td><td>2,10 -</td><td>2,20 -</td></tr><tr><td></td><td>1,20</td><td>2,00 -</td><td>2,20 -</td><td>2,40 -</td><td>2,60 -</td></tr><tr><td></td><td>1,50</td><td>2,80 -</td><td>2,90 -</td><td>3,00 -</td><td>- -</td></tr><tr><td></td><td>2,00</td><td>2,80 -</td><td>2,90 -</td><td>- -</td><td>- -</td></tr><tr><td>$N_{R,II,k} =$</td><td>0,90</td><td>1,40</td><td>2,10</td><td>2,80</td><td></td></tr></table>		$t_{N,II} =$	1,50	2,00	2,50	3,00	$M_{t,nom} =$	—				$V_{R,k}$ for $t_{N,I} =$	0,50	1,00 ac	1,00 ac	1,00 abcd	1,00 abcd		0,60	1,10 -	1,25 ac	1,25 ac	1,25 ac		0,70	1,20 -	1,50 -	1,50 ac	1,50 a		0,80	1,40 -	1,60 -	1,70 -	1,70 a		0,90	1,55 -	1,75 -	1,90 -	1,95 -		1,00	1,70 -	1,90 -	2,10 -	2,20 -		1,20	2,00 -	2,20 -	2,40 -	2,60 -		1,50	2,80 -	2,90 -	3,00 -	- -		2,00	2,80 -	2,90 -	- -	- -	$N_{R,II,k} =$	0,90	1,40	2,10	2,80	
$t_{N,II} =$	1,50	2,00	2,50	3,00																																																																			
$M_{t,nom} =$	—																																																																						
$V_{R,k}$ for $t_{N,I} =$	0,50	1,00 ac	1,00 ac	1,00 abcd	1,00 abcd																																																																		
	0,60	1,10 -	1,25 ac	1,25 ac	1,25 ac																																																																		
	0,70	1,20 -	1,50 -	1,50 ac	1,50 a																																																																		
	0,80	1,40 -	1,60 -	1,70 -	1,70 a																																																																		
	0,90	1,55 -	1,75 -	1,90 -	1,95 -																																																																		
	1,00	1,70 -	1,90 -	2,10 -	2,20 -																																																																		
	1,20	2,00 -	2,20 -	2,40 -	2,60 -																																																																		
	1,50	2,80 -	2,90 -	3,00 -	- -																																																																		
	2,00	2,80 -	2,90 -	- -	- -																																																																		
$N_{R,II,k} =$	0,90	1,40	2,10	2,80																																																																			
<p align="center">Self-drilling screw</p> <p align="center">JT3-3-5,5xL JT6-3-5,5xL JT3-FR-3-5,5xL JT6-FR-3-5,5xL With hexagon head or FR-head and seal washer $\geq \varnothing 16 \text{ mm}$</p>	<p align="center">Annex 46</p>																																																																						

<p>FR-Head</p> <p>T25</p> <p>T25</p>	<p>Materials</p> <p>Fastener: stainless steel (1.4301 / 1.4567) – EN 10088 stainless steel (1.4401 / 1.4578) – EN 10088</p> <p>Washer: stainless steel (1.4301) – EN 10088 with vulcanised EPDM seal</p> <p>Component I: aluminium alloy with $R_{m,min} = 165 \text{ N/mm}^2$ – EN 573</p> <p>Component II: S235 – EN 10025-1 S280GD, S320GD – EN 10346</p> <p>Drilling capacity $\Sigma t_i \leq 3,50 \text{ mm}$</p> <p>Timber substructures for timber substructures no performance determined</p>																	
<table><tr><td>$t_{N,II} =$</td><td>1,50</td><td>2,00</td><td>2,50</td></tr><tr><td>$M_{t,nom} =$</td><td colspan="3">—</td></tr><tr><td>$V_{R,k}$ for $t_{N,I} =$</td><td>0,50 0,60 0,70 0,80 0,90 1,00 1,20 1,50 2,00</td><td>0,77 ac 0,84 - 0,92 - 1,07 - 1,19 - 1,30 - 1,53 - 2,15 - 2,15 -</td><td>0,77 ac 0,96 ac 1,15 - 1,23 - 1,34 - 1,46 - 1,69 - 2,23 - 2,23 -</td><td>0,77 abcd 0,96 a 1,15 a 1,30 - 1,46 - 1,61 - 1,84 - 2,30 - - -</td></tr><tr><td>$N_{R,II,k} =$</td><td>2,00</td><td>2,90</td><td>3,90</td></tr></table>		$t_{N,II} =$	1,50	2,00	2,50	$M_{t,nom} =$	—			$V_{R,k}$ for $t_{N,I} =$	0,50 0,60 0,70 0,80 0,90 1,00 1,20 1,50 2,00	0,77 ac 0,84 - 0,92 - 1,07 - 1,19 - 1,30 - 1,53 - 2,15 - 2,15 -	0,77 ac 0,96 ac 1,15 - 1,23 - 1,34 - 1,46 - 1,69 - 2,23 - 2,23 -	0,77 abcd 0,96 a 1,15 a 1,30 - 1,46 - 1,61 - 1,84 - 2,30 - - -	$N_{R,II,k} =$	2,00	2,90	3,90
$t_{N,II} =$	1,50	2,00	2,50															
$M_{t,nom} =$	—																	
$V_{R,k}$ for $t_{N,I} =$	0,50 0,60 0,70 0,80 0,90 1,00 1,20 1,50 2,00	0,77 ac 0,84 - 0,92 - 1,07 - 1,19 - 1,30 - 1,53 - 2,15 - 2,15 -	0,77 ac 0,96 ac 1,15 - 1,23 - 1,34 - 1,46 - 1,69 - 2,23 - 2,23 -	0,77 abcd 0,96 a 1,15 a 1,30 - 1,46 - 1,61 - 1,84 - 2,30 - - -														
$N_{R,II,k} =$	2,00	2,90	3,90															
<p>Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.</p>																		
<p>Self-drilling screw</p> <p>JT3-3-5,5xL JT6-3-5,5xL JT3-FR-3-5,5xL JT6-FR-3-5,5xL With hexagon head or FR-head and seal washer $\geq \varnothing 16,0 \text{ mm}$</p>	<p>Annex 47</p>																	

	<p>Materials</p> <p>Fastener: stainless steel (1.4301 / 1.4567) – EN 10088 stainless steel (1.4401 / 1.4578) – EN 10088</p> <p>Washer: stainless steel (1.4301) – EN 10088 with vulcanised EPDM seal</p> <p>Component I: aluminium alloy with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573</p> <p>Component II: S235 – EN 10025-1 S280GD, S320GD – EN 10346</p> <p>Drilling capacity $\Sigma t_i \leq 3,50 \text{ mm}$</p> <p>Timber substructures for timber substructures no performance determined</p>																	
<table><tr><th>$t_{N,II} =$</th><th>1,50</th><th>2,00</th><th>2,50</th></tr><tr><td>$M_{t,nom} =$</td><td colspan="3">—</td></tr><tr><td>$V_{R,k}$ for $t_{N,I} =$</td><td>0,50 0,60 0,70 0,80 0,90 1,00 1,20 1,50 2,00</td><td>1,00 ac 1,10 - 1,20 - 1,40 - 1,55 - 1,70 - 2,00 - 2,80 - 2,80 -</td><td>1,00 ac 1,25 ac 1,50 - 1,60 - 1,75 - 1,90 - 2,20 - 2,90 - 2,90 -</td><td>1,00 abcd 1,25 a 1,50 a 1,70 - 1,90 - 2,10 - 2,40 - 3,00 - - -</td></tr><tr><td>$N_{R,II,k} =$</td><td>2,00</td><td>2,90</td><td>3,90</td></tr></table>		$t_{N,II} =$	1,50	2,00	2,50	$M_{t,nom} =$	—			$V_{R,k}$ for $t_{N,I} =$	0,50 0,60 0,70 0,80 0,90 1,00 1,20 1,50 2,00	1,00 ac 1,10 - 1,20 - 1,40 - 1,55 - 1,70 - 2,00 - 2,80 - 2,80 -	1,00 ac 1,25 ac 1,50 - 1,60 - 1,75 - 1,90 - 2,20 - 2,90 - 2,90 -	1,00 abcd 1,25 a 1,50 a 1,70 - 1,90 - 2,10 - 2,40 - 3,00 - - -	$N_{R,II,k} =$	2,00	2,90	3,90
$t_{N,II} =$	1,50	2,00	2,50															
$M_{t,nom} =$	—																	
$V_{R,k}$ for $t_{N,I} =$	0,50 0,60 0,70 0,80 0,90 1,00 1,20 1,50 2,00	1,00 ac 1,10 - 1,20 - 1,40 - 1,55 - 1,70 - 2,00 - 2,80 - 2,80 -	1,00 ac 1,25 ac 1,50 - 1,60 - 1,75 - 1,90 - 2,20 - 2,90 - 2,90 -	1,00 abcd 1,25 a 1,50 a 1,70 - 1,90 - 2,10 - 2,40 - 3,00 - - -														
$N_{R,II,k} =$	2,00	2,90	3,90															
<p>Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.</p>																		
<p>Self-drilling screw</p> <p>JT3-3-5,5xL JT6-3-5,5xL JT3-FR-3-5,5xL JT6-FR-3-5,5xL With hexagon head or FR-head and seal washer $\geq \varnothing 16,0 \text{ mm}$</p>	<p>Annex 48</p>																	

	<p>Materials</p> <p>Fastener: stainless steel (1.4301) - EN 10088, stainless steel (1.4404) - EN 10088</p> <p>Washer: stainless steel (1.4301) - EN 10088</p> <p>Component I: S280GD, S320GD or S350GD - EN 10346</p> <p>Component II: S280GD, S320GD or S350GD - EN 10346</p>
	<p>Drilling capacity $\Sigma t_i \leq 3,50 \text{ mm}$</p>
	<p>Timber substructures</p> <p>no performance determined</p>

$t_{N,II} \text{ [mm]}$	2 x 0,63	2 x 0,75	2 x 0,88	2 x 1,00	2 x 1,13	2 x 1,25	2 x 1,50	2 x 1,75
$M_{t,nom}$	—	5 Nm						—
$V_{R,k} \text{ [kN]}$ for $t_{N,I} \text{ [mm]}$	0,50	— —	— —	— —	— —	— —	— —	— —
	0,55	— —	— —	— —	— —	— —	— —	— —
	0,63	— —	1,60 —	1,60 —	1,60 —	1,60 —	1,60 —	— —
	0,75	— —	1,90 —	1,90 —	1,90 —	1,90 —	1,90 —	— —
	0,88	— —	2,20 —	2,20 —	2,20 —	2,20 —	2,20 —	— —
	1,00	— —	2,50 —	2,50 —	2,50 —	2,50 —	2,50 —	— —
	1,13	— —	2,50 —	2,50 —	2,50 —	2,50 —	— —	— —
	1,25	— —	2,50 —	2,50 —	2,50 —	2,50 —	— —	— —
	1,50	— —	2,50 —	2,50 —	2,50 —	— —	— —	— —
	1,75	— —	2,50 —	— —	— —	— —	— —	— —
	2,00	— —	2,50 —	— —	— —	— —	— —	— —
$N_{R,k} \text{ [kN]}$ for $t_{N,I} \text{ [mm]}$	0,50	— —	0,81 —	0,97 —	1,19 —	1,51 —	1,62 —	1,62 —
	0,55	— —	1,02 —	1,23 —	1,50 —	1,91 —	2,05 —	— —
	0,63	— —	1,50 —	1,80 —	2,20 —	2,80 —	3,00 —	— —
	0,75	— —	1,50 —	1,80 —	2,20 —	2,80 —	3,20 —	— —
	0,88	— —	1,50 —	1,80 —	2,20 —	2,80 —	3,20 —	— —
	1,00	— —	1,50 —	1,80 —	2,20 —	2,80 —	3,20 —	— —
	1,13	— —	1,50 —	1,80 —	2,20 —	2,80 —	— —	— —
	1,25	— —	1,50 —	1,80 —	2,20 —	2,80 —	— —	— —
	1,50	— —	1,50 —	1,80 —	2,20 —	— —	— —	— —
	1,75	— —	1,50 —	— —	— —	— —	— —	— —
	2,00	— —	1,50 —	— —	— —	— —	— —	— —

Self drilling screw		Annex 49
JT3-3H-5,5 x L JT6-3H-5,5 x L JT3-FR-3H-5,5 x L JT6-FR-3H-5,5 x L		
with undercut, hexagon head or round head with Torx® drive system and sealing washer ≥ Ø16 mm		

	<p>Materials</p> <p>Fastener: stainless steel (1.4301) - EN 10088, stainless steel (1.4404) - EN 10088</p> <p>Washer: stainless steel (1.4301) - EN 10088</p> <p>Component I: S280GD, S320GD or S350GD - EN 10346</p> <p>Component II: S235, S275 or S355 - EN 10025-1 S280GD, S320GD or S350GD - EN 10346</p> <p>Drilling capacity $\Sigma t_i \leq 3,50 \text{ mm}$</p> <p>Timber substructures no performance determined</p>
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$t_{N,II}$ [mm]	1,00		1,13		1,25		1,50		2,00		2,50		3,00		4,00	
$M_{t,nom}$	5 Nm														—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	0,63	1,40	—	1,50	—	1,60	ac	1,90	ac	2,30	ac	2,50	ac	—	—	—
	0,75	1,80	—	1,90	—	2,00	ac	2,20	ac	2,70	ac	3,20	a	—	—	—
	0,88	2,20	—	2,30	—	2,50	—	2,70	—	3,30	—	3,70	a	—	—	—
	1,00	2,50	—	2,70	—	2,90	—	3,30	—	4,00	—	4,40	a	—	—	—
	1,13	2,90	—	3,00	—	3,10	—	3,80	—	4,40	—	—	—	—	—	—
	1,25	3,40	—	3,50	—	3,80	—	4,20	—	5,00	—	—	—	—	—	—
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	1,50	4,10	—	4,40	—	4,70	—	5,30	—	5,80	—	—	—	—	—	—
	1,75	4,10	—	4,40	—	4,70	—	5,30	—	—	—	—	—	—	—	—
	2,00	4,10	—	4,40	—	4,70	—	5,30	—	—	—	—	—	—	—	—
	0,50	0,59	—	0,76	—	0,81	ac	1,08	ac	1,57	ac	1,62	ac	1,62	ac	—
	0,55	0,75	—	0,95	—	1,02	ac	1,36	ac	1,98	ac	2,05	ac	—	—	—
	0,63	1,10	—	1,40	—	1,50	ac	2,00	ac	2,90	ac	3,00	ac	—	—	—
	0,75	1,10	—	1,40	—	1,50	ac	2,00	ac	2,90	ac	3,90	a	—	—	—
	0,88	1,10	—	1,40	—	1,50	—	2,00	—	2,90	—	3,90	a	—	—	—
1,00	1,10	—	1,40	—	1,50	—	2,00	—	2,90	—	3,90	a	—	—	—	
1,13	1,10	—	1,40	—	1,50	—	2,00	—	2,90	—	—	—	—	—	—	
1,25	1,10	—	1,40	—	1,50	—	2,00	—	2,90	—	—	—	—	—	—	
1,50	1,10	—	1,40	—	1,50	—	2,00	—	2,90	—	—	—	—	—	—	
1,75	1,10	—	1,40	—	1,50	—	2,00	—	—	—	—	—	—	—	—	
2,00	1,10	—	1,40	—	1,50	—	2,00	—	—	—	—	—	—	—	—	

Self drilling screw

JT3-3H-5,5 x L
JT6-3H-5,5 x L
JT3-FR-3H-5,5 x L
JT6-FR-3H-5,5 x L

with undercut, hexagon head or round head with Torx® drive system and sealing washer $\geq \text{Ø}16 \text{ mm}$

Annex 50

	<p>Materials</p> <p>Fastener: stainless steel (1.4301) - EN 10088, stainless steel (1.4404) - EN 10088</p> <p>Washer: stainless steel (1.4301) - EN 10088</p> <p>Component I: S280GD, S320GD or S350GD - EN 10346</p> <p>Component II: S235 - EN 10025-1 S280GD, S320GD or S350GD - EN 10346</p>
	<p>Drilling capacity $\Sigma t_i \leq 3,50 \text{ mm}$</p>
	<p>Timber substructures</p> <p>no performance determined</p>

$t_{N,II} \text{ [mm]}$	1,00	1,13	1,25	1,50	2,00	2,50	3,00	4,00
$M_{t,nom}$	7 Nm							
$V_{R,k} \text{ [kN]}$ for $t_{N,I} \text{ [mm]}$	0,50	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—
	0,63	1,40	—	1,40	—	2,50	ac	2,70
	0,75	1,80	—	1,80	—	3,00	—	3,50
	0,88	2,10	—	2,10	—	3,30	—	3,60
	1,00	2,50	—	2,50	—	4,00	—	4,40
	1,13	2,90	—	2,90	—	4,40	—	—
	1,25	3,40	—	3,40	—	5,00	—	—
	1,50	4,10	—	4,10	—	5,80	—	—
$N_{R,k} \text{ [kN]}$ for $t_{N,I} \text{ [mm]}$	0,50	0,59	—	0,81	—	1,57	ac	1,62
	0,55	0,75	—	1,02	—	1,98	ac	2,05
	0,63	1,10	—	1,50	—	2,90	ac	3,00
	0,75	1,10	—	1,50	—	2,90	—	3,90
	0,88	1,10	—	1,50	—	2,90	—	3,90
	1,00	1,10	—	1,50	—	2,90	—	3,90
	1,13	1,10	—	1,50	—	2,90	—	—
	1,25	1,10	—	1,50	—	2,90	—	—
	1,50	1,10	—	1,50	—	2,90	—	—
	1,75	1,10	—	1,50	—	—	—	—
	2,00	1,10	—	1,50	—	—	—	—

Self drilling screw		Annex 51
JT3-3-5,5 x L JT6-3-5,5 x L JT3-FR-3-5,5 x L JT6-FR-3-5,5 x L with hexagon head or round head with Torx® drive system and sealing washer ≥ Ø16 mm		

	<p>Materials</p> <p>Fastener: stainless steel (1.4301) - EN 10088, stainless steel (1.4404) - EN 10088</p> <p>Washer: stainless steel (1.4301) - EN 10088</p> <p>Component I: S280GD, S320GD or S350GD - EN 10346</p> <p>Component II: S235, S275 or S355 - EN 10025-1 S280GD, S320GD or S350GD - EN 10346</p> <p>Drilling capacity $\Sigma t_i \leq 6,00 \text{ mm}$</p> <p>Timber substructures no performance determined</p>
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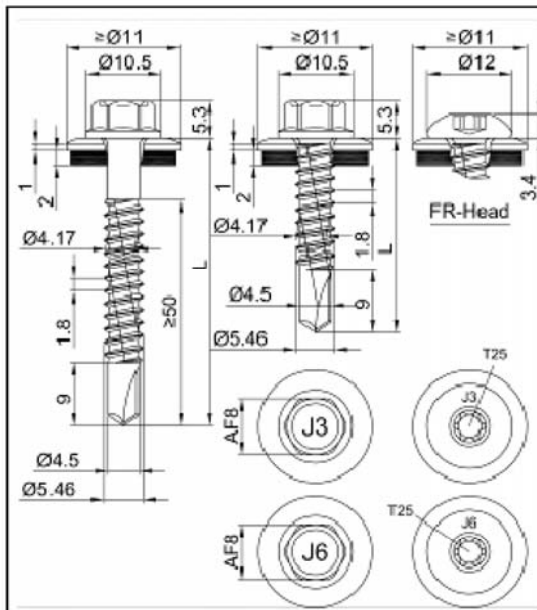
$t_{N,II} [\text{mm}]$	1,50	2,00	2,50	3,00	4,00	—	2 x 1,50	—
$M_{t,nom}$	5 Nm						5 Nm	—
$V_{R,k} [\text{kN}]$ for $t_{N,I} [\text{mm}]$								
0,50	—	—	—	—	—	—	—	—
0,55	—	—	—	—	—	—	—	—
0,63	2,10 ac	2,40 ac	2,60 ac	2,90 ac	2,90 ac	—	2,40 ac	—
0,75	2,50 —	2,80 ac	3,10 ac	3,30 ac	3,30 ac	—	3,10 ac	—
0,88	2,90 —	3,20 —	3,40 ac	3,70 ac	3,70 ac	—	3,70 ac	—
1,00	3,10 —	3,40 —	4,00 —	4,20 ac	4,20 ac	—	3,70 —	—
1,13	3,30 —	3,80 —	4,50 —	4,60 —	4,60 —	—	3,70 —	—
1,25	3,40 —	3,90 —	4,70 —	4,90 —	4,90 —	—	3,70 —	—
1,50	3,80 —	4,40 —	5,00 —	5,50 —	5,50 —	—	3,70 —	—
1,75	3,80 —	4,40 —	5,00 —	5,50 —	5,50 —	—	3,70 —	—
2,00	3,80 —	4,40 —	5,00 —	5,50 —	5,50 —	—	3,70 —	—
$N_{R,k} [\text{kN}]$ for $t_{N,I} [\text{mm}]$								
0,50	0,92 ac	1,30 ac	1,30 ac	1,30 ac	1,30 ac	—	1,30 ac	—
0,55	1,16 ac	1,64 ac	1,64 ac	1,64 ac	1,64 ac	—	1,64 ac	—
0,63	1,70 ac	2,40 ac	2,40 ac	2,40 ac	2,40 ac	—	2,40 ac	—
0,75	1,70 —	2,60 ac	2,90 ac	2,90 ac	2,90 ac	—	2,70 ac	—
0,88	1,70 —	2,60 —	3,50 ac	3,50 ac	3,50 ac	—	2,70 ac	—
1,00	1,70 —	2,60 —	3,50 —	4,10 ac	4,10 ac	—	2,70 —	—
1,13	1,70 —	2,60 —	3,50 —	4,10 —	4,10 —	—	2,70 —	—
1,25	1,70 —	2,60 —	3,50 —	4,10 —	4,10 —	—	2,70 —	—
1,50	1,70 —	2,60 —	3,50 —	4,50 —	4,50 —	—	2,70 —	—
1,75	1,70 —	2,60 —	3,50 —	4,50 —	4,50 —	—	2,70 —	—
2,00	1,70 —	2,60 —	3,50 —	4,50 —	4,50 —	—	2,70 —	—

Self drilling screw

JT3-6-5,5 x L
JT6-6-5,5 x L
JT3-FR-6-5,5 x L
JT6-FR-6-5,5 x L

with hexagon head or round head with Torx® drive system and sealing washer $\geq \varnothing 16 \text{ mm}$

Annex 52



Materials

Fastener: stainless steel (1.4301 / 1.4567) – EN 10088
stainless steel (1.4401 / 1.4578) – EN 10088

Washer: stainless steel (1.4301) – EN 10088
with vulcanised EPDM seal

Component I: aluminium alloy
with $R_{m,min} = 165 \text{ N/mm}^2$ – EN 573

Component II: aluminium alloy
with $R_{m,min} = 165 \text{ N/mm}^2$ – EN 573

Drilling capacity $\Sigma t_i \leq 6,50 \text{ mm}$

Timber substructures

for timber substructures no performance determined

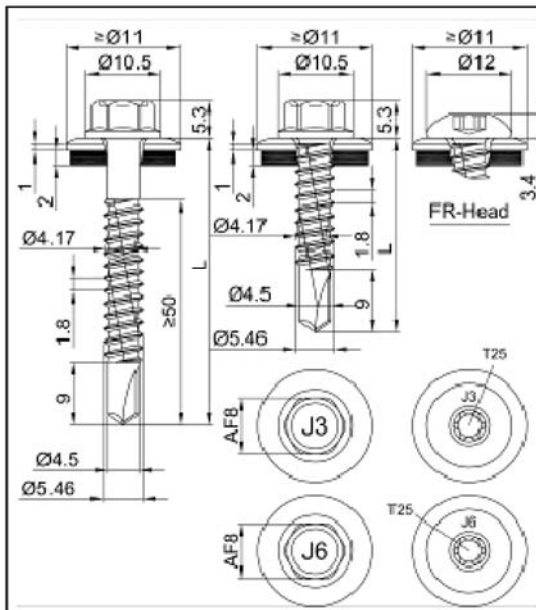
$t_{N,II} =$	2,00	2,50	3,00	4,00
$M_{t,nom} =$	—			
$V_{R,k}$ for $t_{N,I} =$	0,50	0,71 ac	0,71 ac	0,71 ac
	0,60	0,89 ac	0,91 ac	0,93 ac
	0,70	1,07 ac	1,11 ac	1,15 ac
	0,80	1,25 ac	1,31 ac	1,36 ac
	0,90	1,43 ac	1,51 ac	1,58 ac
	1,00	1,61 ac	1,71 ac	1,80 ac
	1,20	1,80 -	1,93 -	2,06 -
	1,50	2,09 -	2,27 -	2,45 -
	2,00	2,56 -	2,83 -	3,10 -
$N_{R,II,k} =$	1,03	1,68	2,33	3,63

Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.

Self-drilling screw

JT3-6-5,5xL JT6-6-5,5xL
JT3-FR-6-5,5xL JT6-FR-6-5,5xL
With hexagon head or FR-head and seal washer $\geq \varnothing 11,0 \text{ mm}$

Annex 53



Materials

Fastener: stainless steel (1.4301 / 1.4567) – EN 10088
stainless steel (1.4401 / 1.4578) – EN 10088

Washer: stainless steel (1.4301) – EN 10088
with vulcanised EPDM seal

Component I: aluminium alloy
with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573

Component II: aluminium alloy
with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573

Drilling capacity $\Sigma t_i \leq 6,50 \text{ mm}$

Timber substructures

for timber substructures no performance determined

$t_{N,II} =$	2,00	2,50	3,00	4,00
$M_{t,nom} =$	—			
$V_{R,k}$ for $t_{N,I} =$	0,50	0,60	0,70	0,80
	0,90	1,00	1,20	1,50
	2,00	3,33	-	-
$N_{R,I,k} =$	1,35	2,20	3,04	4,73

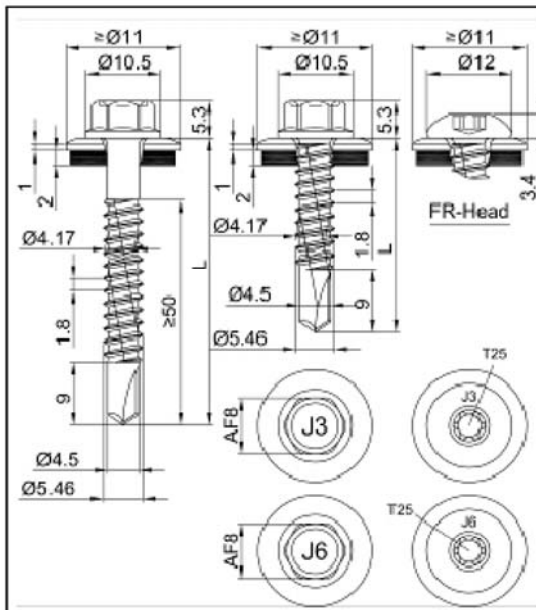
Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.

Self-drilling screw

JT3-6-5,5xL JT6-6-5,5xL
JT3-FR-6-5,5xL JT6-FR-6-5,5xL

With hexagon head or FR-head and seal washer $\geq \varnothing 11,0 \text{ mm}$

Annex 54



Materials

Fastener: stainless steel (1.4301 / 1.4567) – EN 10088
stainless steel (1.4401 / 1.4578) – EN 10088

Washer: stainless steel (1.4301) – EN 10088
with vulcanised EPDM seal

Component I: aluminium alloy
with $R_{m,min} = 165 \text{ N/mm}^2$ – EN 573

Component II: S235 – EN 10025-1
S280GD, S320GD – EN 10346

Drilling capacity $\Sigma t_i \leq 6,50 \text{ mm}$

Timber substructures

for timber substructures no performance determined

$t_{N,II} =$	1,50	1,75	2,00	2,50	3,00	4,00	-	2x1,50
$M_{t,nom} =$	—							
$V_{R,k}$ for $t_{N,I} =$	0,50	0,71 ac	0,71 ac	0,71 ac	0,71 ac	0,71 ac	- -	0,71 ac
	0,60	0,91 ac	0,91 ac	0,91 ac	0,92 ac	0,93 ac	- -	0,91 ac
	0,70	1,10 ac	1,11 ac	1,12 ac	1,13 ac	1,15 ac	- -	1,10 ac
	0,80	1,30 ac	1,31 ac	1,32 ac	1,34 ac	1,36 ac	- -	1,30 ac
	0,90	1,49 ac	1,51 ac	1,53 ac	1,55 ac	1,58 ac	- -	1,49 ac
	1,00	1,69 ac	1,71 ac	1,73 ac	1,76 ac	1,80 ac	- -	1,69 ac
	1,20	1,69 -	1,79 -	1,90 -	1,97 -	2,06 -	- -	1,69 -
	1,50	1,69 -	1,92 -	2,15 -	2,30 -	2,45 -	- -	1,69 -
	2,00	1,69 -	2,13 -	2,56 -	2,83 -	3,10 -	- -	1,69 -
$N_{R,II,k} =$	1,70	2,15	2,60	3,50	4,50	4,50	-	2,70

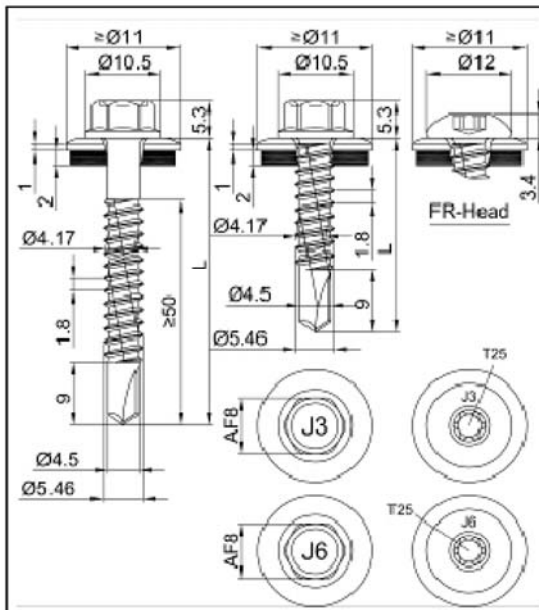
Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.

Self-drilling screw

JT3-6-5,5xL JT6-6-5,5xL
JT3-FR-6-5,5xL JT6-FR-6-5,5xL

With hexagon head or FR-head and seal washer $\geq \text{Ø } 11,0 \text{ mm}$

Annex 55



Materials

Fastener: stainless steel (1.4301 / 1.4567) – EN 10088
stainless steel (1.4401 / 1.4578) – EN 10088

Washer: stainless steel (1.4301) – EN 10088
with vulcanised EPDM seal

Component I: aluminium alloy
with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573

Component II: S235 – EN 10025-1
S280GD, S320GD – EN 10346

Drilling capacity $\Sigma t_i \leq 6,50 \text{ mm}$

Timber substructures

for timber substructures no performance determined

$t_{N,II} =$	1,50	1,75	2,00	2,50	3,00	4,00	-	2x1,50
$M_{t,nom} =$	—							
$V_{R,k}$ for $t_{N,I} =$	0,50	0,93 ac	0,93 ac	0,93 ac	0,93 ac	0,93 ac	0,93 ac	0,93 ac
	0,60	1,18 ac	1,19 ac	1,19 ac	1,20 ac	1,21 ac	1,21 ac	1,18 ac
	0,70	1,44 ac	1,45 ac	1,46 ac	1,48 ac	1,50 ac	1,50 ac	1,44 ac
	0,80	1,69 ac	1,71 ac	1,72 ac	1,75 ac	1,78 ac	1,78 ac	1,69 ac
	0,90	1,95 ac	1,97 ac	1,99 ac	2,03 ac	2,07 ac	2,07 ac	1,95 ac
	1,00	2,20 ac	2,23 ac	2,25 ac	2,30 ac	2,35 ac	2,35 ac	2,20 ac
	1,20	2,20 -	2,32 -	2,45 -	2,58 -	2,69 -	2,72 ac	2,20 -
	1,50	2,20 -	2,45 -	2,79 -	2,99 -	3,19 -	3,48 a	2,20 -
	2,00	2,20 -	2,67 -	3,33 -	3,68 -	4,03 -	4,73 a	2,20 -
$N_{R,II,k} =$	1,70	2,15	2,60	3,50	4,50	4,50	-	2,70

Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.

Self-drilling screw

JT3-6-5,5xL JT6-6-5,5xL
JT3-FR-6-5,5xL JT6-FR-6-5,5xL

With hexagon head or FR-head and seal washer $\geq \varnothing 11,0 \text{ mm}$

Annex 56

	<p>Materials</p> <p>Fastener: stainless steel (1.4301) - EN 10088, stainless steel (1.4404) - EN 10088</p> <p>Washer: stainless steel (1.4301) - EN 10088</p> <p>Component I: S280GD - EN 10346</p> <p>Component II: S235, S275 or S355 - EN 10025-1</p> <p>Drilling capacity $\Sigma t_i \leq 13,00 \text{ mm}$</p> <p>Timber substructures no performance determined</p>
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$t_{N,II} [\text{mm}]$	4,00	5,00	6,00	8,00	10,0	12,0	13,0	14,0
$M_{t,nom}$	7 Nm							—
$V_{R,k} [\text{kN}]$ for $t_{N,I} [\text{mm}]$								
0,50	—	—	—	—	—	—	—	—
0,55	—	—	—	—	—	—	—	—
0,63	2,20 ac	2,20 ac	2,20 ac	2,20 ac	2,20 ac	2,20 ac	—	—
0,75	2,80 ac	2,80 ac	2,80 ac	2,80 ac	2,80 ac	2,80 ac	—	—
0,88	3,50 ac	3,50 ac	3,50 ac	3,50 ac	3,50 ac	3,50 a	—	—
1,00	4,20 —	4,20 ac	4,20 ac	4,20 ac	4,20 ac	4,20 a	—	—
1,13	4,20 —	4,90 —	4,90 —	4,90 —	4,90 —	—	—	—
1,25	4,20 —	5,60 —	5,60 —	5,60 —	5,60 —	—	—	—
1,50	4,20 —	6,40 —	7,20 —	7,20 —	7,20 —	—	—	—
1,75	4,20 —	6,40 —	7,20 —	7,20 —	7,20 —	—	—	—
2,00	4,20 —	6,40 —	7,20 —	7,20 —	7,20 —	—	—	—
$N_{R,k} [\text{kN}]$ for $t_{N,I} [\text{mm}]$								
0,50	1,30 ac	1,30 ac	1,30 ac	1,30 ac	1,30 ac	1,30 ac	—	—
0,55	1,64 ac	1,64 ac	1,64 ac	1,64 ac	1,64 ac	1,64 ac	—	—
0,63	2,40 ac	2,40 ac	2,40 ac	2,40 ac	2,40 ac	2,40 ac	—	—
0,75	3,10 ac	3,10 ac	3,10 ac	3,10 ac	3,10 ac	3,10 ac	—	—
0,88	3,90 ac	3,90 ac	3,90 ac	3,90 ac	3,90 ac	3,90 a	—	—
1,00	4,70 —	4,70 ac	4,70 ac	4,70 ac	4,70 ac	4,70 a	—	—
1,13	4,70 —	5,60 —	5,60 —	5,60 —	5,60 —	—	—	—
1,25	4,70 —	6,40 —	6,40 —	6,40 —	6,40 —	—	—	—
1,50	4,70 —	6,40 —	6,40 —	6,40 —	6,40 —	—	—	—
1,75	4,70 —	6,40 —	6,40 —	6,40 —	6,40 —	—	—	—
2,00	4,70 —	6,40 —	6,40 —	6,40 —	6,40 —	—	—	—

Self drilling screw

JT3-12-5,5 x L
JT6-12-5,5 x L
JT3-FR-12-5,5 x L
JT6-FR-12-5,5 x L

with hexagon head or round head with Torx® drive system and sealing washer $\geq \text{Ø}16 \text{ mm}$

Annex 57

	<p>Materials</p> <p>Fastener: stainless steel (1.4301) - EN 10088, stainless steel (1.4404) - EN 10088</p> <p>Washer: stainless steel (1.4301) - EN 10088</p> <p>Component I: S320GD or S350GD - EN 10346</p> <p>Component II: S235, S275 or S355 - EN 10025-1</p> <p>Drilling capacity $\Sigma t_i \leq 13,00 \text{ mm}$</p> <p>Timber substructures no performance determined</p>
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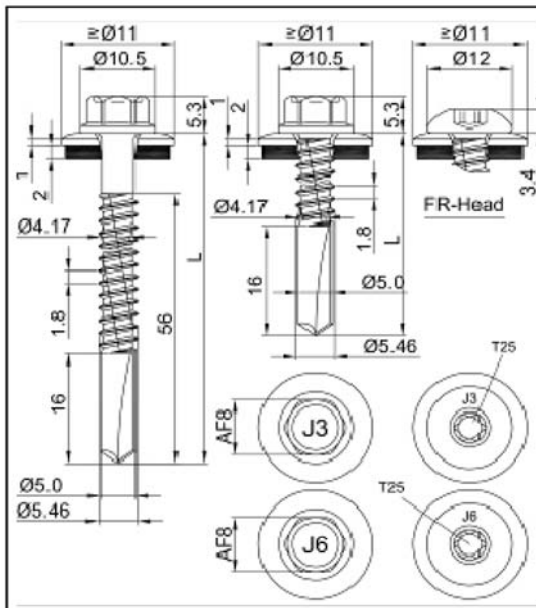
$t_{N,II} [\text{mm}]$	4,00	5,00	6,00	8,00	10,0	12,0	13,0	14,0
$M_{t,nom}$	7 Nm							—
$V_{R,k} [\text{kN}]$ for $t_{N,I} [\text{mm}]$	0,50	—	—	—	—	—	—	—
0,55	—	—	—	—	—	—	—	—
0,63	2,50	ac	2,50	ac	2,50	ac	2,50	—
0,75	3,20	ac	3,20	ac	3,20	ac	3,20	—
0,88	3,90	ac	3,90	ac	3,90	ac	3,90	—
1,00	4,20	—	4,60	ac	4,60	ac	4,60	—
1,13	4,20	—	5,30	—	5,30	—	—	—
1,25	4,20	—	6,00	—	6,00	—	—	—
1,50	4,20	—	6,40	—	7,20	—	—	—
1,75	4,20	—	6,40	—	7,20	—	—	—
2,00	4,20	—	6,40	—	7,20	—	—	—
$N_{R,k} [\text{kN}]$ for $t_{N,I} [\text{mm}]$	0,50	1,40	ac	1,40	ac	1,40	ac	1,40
0,55	1,77	ac	1,77	ac	1,77	ac	1,77	—
0,63	2,60	ac	2,60	ac	2,60	ac	2,60	—
0,75	3,30	ac	3,30	ac	3,30	ac	3,30	—
0,88	4,20	ac	4,20	ac	4,20	ac	4,20	—
1,00	4,70	—	5,00	ac	5,00	ac	5,00	—
1,13	4,70	—	6,00	—	6,00	—	—	—
1,25	4,70	—	6,90	—	6,90	—	—	—
1,50	4,70	—	6,90	—	6,90	—	—	—
1,75	4,70	—	6,90	—	6,90	—	—	—
2,00	4,70	—	6,90	—	6,90	—	—	—

Self drilling screw

JT3-12-5,5 x L
JT6-12-5,5 x L
JT3-FR-12-5,5 x L
JT6-FR-12-5,5 x L

with hexagon head or round head with Torx® drive system and sealing washer $\geq \text{Ø}16 \text{ mm}$

Annex 58



Materials

Fastener: stainless steel (1.4301 / 1.4567) – EN 10088
stainless steel (1.4401 / 1.4578) – EN 10088

Washer: stainless steel (1.4301) – EN 10088
with vulcanised EPDM seal

Component I: aluminium alloy
with $R_{m,min} = 165 \text{ N/mm}^2$ – EN 573

Component II: aluminium alloy
with $R_{m,min} = 165 \text{ N/mm}^2$ – EN 573

Drilling capacity $\Sigma t_i \leq 13,00 \text{ mm}$

Timber substructures

for timber substructures no performance determined

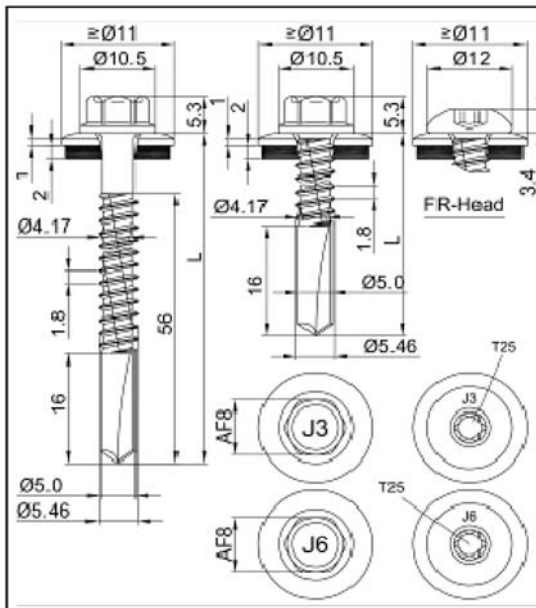
$t_{N,II} =$	4,00	5,00	6,00	8,00	10,00	12,00
$M_{t,nom} =$	—					
$V_{R,k}$ for $t_{N,I} =$						
0,50	0,77 ac	0,77 ac	0,77 ac	0,77 ac	0,77 ac	0,77 ac
0,60	0,94 ac	0,94 ac	0,94 ac	0,94 ac	0,94 ac	0,94 a
0,70	1,10 ac	1,10 ac	1,10 ac	1,10 ac	1,10 ac	1,10 a
0,80	1,27 ac	1,27 ac	1,27 ac	1,27 ac	1,27 ac	1,27 a
0,90	1,48 ac	1,48 ac	1,48 ac	1,48 ac	1,48 ac	1,48 a
1,00	1,69 ac	1,69 ac	1,69 ac	1,69 ac	1,69 ac	1,69 a
1,20	1,94 -	1,94 -	1,94 -	1,94 ac	1,94 ac	-
1,50	2,32 -	2,32 -	2,32 -	2,32 ac	2,32 ac	-
2,00	2,91 -	3,00 -	3,09 -	3,26 ac	3,26 a	-
$N_{R,II,k} =$	1,11	1,58	2,21	3,48	3,48	3,48

Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.

Self-drilling screw

JT3-12-5,5xL JT6-12-5,5xL
JT3-FR-12-5,5xL JT6-FR-12-5,5xL
With hexagon head or FR-head and seal washer $\geq \varnothing 11,0 \text{ mm}$

Annex 59



Materials

Fastener: stainless steel (1.4301 / 1.4567) – EN 10088
stainless steel (1.4401 / 1.4578) – EN 10088

Washer: stainless steel (1.4301) – EN 10088
with vulcanised EPDM seal

Component I: aluminium alloy
with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573

Component II: aluminium alloy
with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573

Drilling capacity

$\Sigma t_i \leq 13,00 \text{ mm}$

Timber substructures

for timber substructures no performance determined

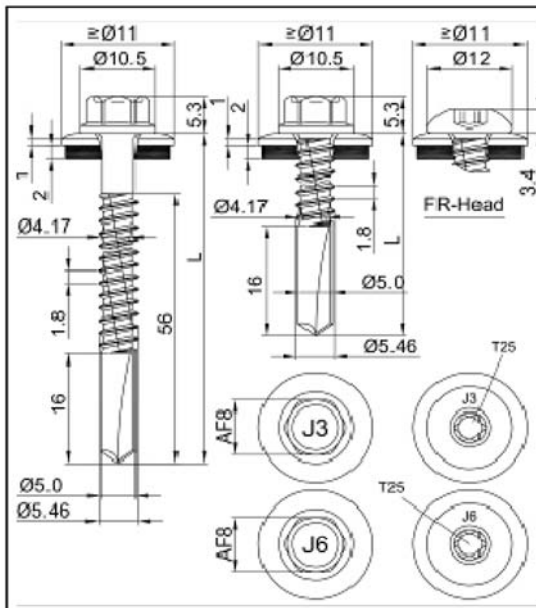
$t_{N,II} =$	4,00	5,00	6,00	8,00	10,00	12,00
$M_{t,nom} =$	—					
$V_{R,k}$ for $t_{N,I} =$						
0,50	1,00 ac	1,00 ac	1,00 ac	1,00 ac	1,00 ac	1,00 ac
0,60	1,22 ac	1,22 ac	1,22 ac	1,22 ac	1,22 ac	1,22 a
0,70	1,44 ac	1,44 ac	1,44 ac	1,44 ac	1,44 ac	1,44 a
0,80	1,66 ac	1,66 ac	1,66 ac	1,66 ac	1,66 ac	1,66 a
0,90	1,93 ac	1,93 ac	1,93 ac	1,93 ac	1,93 ac	1,93 a
1,00	2,20 ac	2,20 ac	2,20 ac	2,20 ac	2,20 ac	2,20 a
1,20	2,52 -	2,52 -	2,52 -	2,52 ac	2,52 ac	-
1,50	3,02 -	3,02 -	3,02 -	3,02 ac	3,02 ac	-
2,00	3,79 -	3,91 -	4,02 -	4,25 ac	4,25 a	-
$N_{R,II,k} =$	1,45	2,06	2,89	4,54	4,54	4,54

Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.

Self-drilling screw

JT3-12-5,5xL JT6-12-5,5xL
JT3-FR-12-5,5xL JT6-FR-12-5,5xL
With hexagon head or FR-head and seal washer $\geq \varnothing 11,0 \text{ mm}$

Annex 60



Materials

Fastener: stainless steel (1.4301 / 1.4567) – EN 10088
stainless steel (1.4401 / 1.4578) – EN 10088

Washer: stainless steel (1.4301) – EN 10088
with vulcanised EPDM seal

Component I: aluminium alloy
with $R_{m,min} = 165 \text{ N/mm}^2$ – EN 573

Component II: S235 – EN 10025-1
S280GD, S320GD – EN 10346

Drilling capacity $\Sigma t_i \leq 13,00 \text{ mm}$

Timber substructures

for timber substructures no performance determined

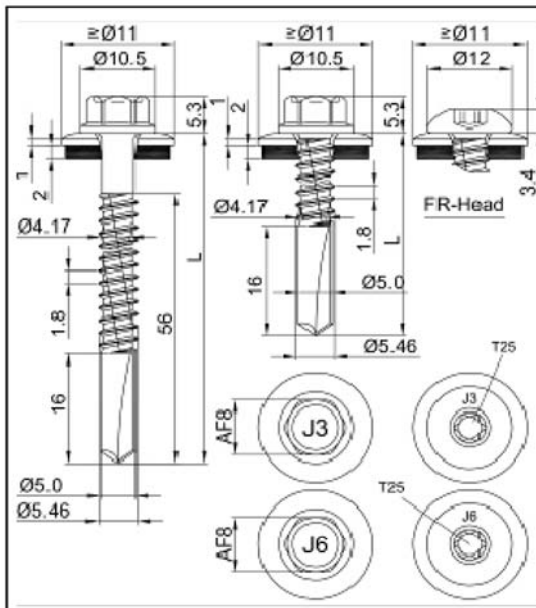
$t_{N,II} =$	4,00	5,00	6,00	8,00	10,00	12,00
$M_{t,nom} =$	—					
$V_{R,k}$ for $t_{N,I} =$	0,77 ac	0,77 ac	0,77 ac	0,77 ac	0,77 ac	0,77 ac
0,60	0,94 ac	0,94 ac	0,94 ac	0,94 ac	0,94 ac	0,94 a
0,70	1,10 ac	1,10 ac	1,10 ac	1,10 ac	1,10 ac	1,10 a
0,80	1,27 ac	1,27 ac	1,27 ac	1,27 ac	1,27 ac	1,27 a
0,90	1,48 ac	1,48 ac	1,48 ac	1,48 ac	1,48 ac	1,48 a
1,00	1,69 ac	1,69 ac	1,69 ac	1,69 ac	1,69 ac	1,69 a
1,20	1,94 -	1,94 -	1,94 -	1,94 ac	1,94 ac	- -
1,50	2,32 -	2,32 -	2,32 -	2,32 ac	2,32 ac	- -
2,00	2,91 -	3,00 -	3,09 -	3,26 ac	3,26 a	- -
$N_{R,k} =$	4,70	6,40	6,40	6,40	6,40	6,40

Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.

Self-drilling screw

JT3-12-5,5xL JT6-12-5,5xL
JT3-FR-12-5,5xL JT6-FR-12-5,5xL
With hexagon head or FR-head and seal washer $\geq \varnothing 11,0 \text{ mm}$

Annex 61



Materials

Fastener: stainless steel (1.4301 / 1.4567) – EN 10088
stainless steel (1.4401 / 1.4578) – EN 10088

Washer: stainless steel (1.4301) – EN 10088
with vulcanised EPDM seal

Component I: aluminium alloy
with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573

Component II: S235 – EN 10025-1
S280GD, S320GD – EN 10346

Drilling capacity $\Sigma t_i \leq 13,00 \text{ mm}$

Timber substructures

for timber substructures no performance determined

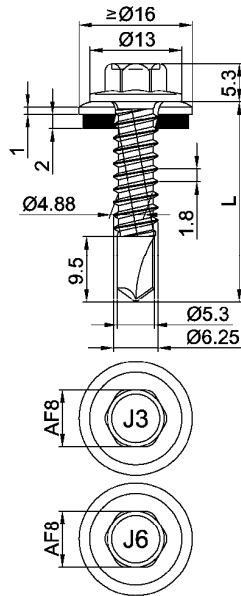
$t_{N,II} =$	4,00	5,00	6,00	8,00	10,00	12,00
$M_{t,nom} =$	—					
$V_{R,k}$ for $t_{N,I} =$	0,50	1,00 ac	1,00 ac	1,00 ac	1,00 ac	1,00 ac
	0,60	1,22 ac	1,22 ac	1,22 ac	1,22 ac	1,22 a
	0,70	1,44 ac	1,44 ac	1,44 ac	1,44 ac	1,44 a
	0,80	1,66 ac	1,66 ac	1,66 ac	1,66 ac	1,66 a
	0,90	1,93 ac	1,93 ac	1,93 ac	1,93 ac	1,93 a
	1,00	2,20 ac	2,20 ac	2,20 ac	2,20 ac	2,20 a
	1,20	2,52 -	2,52 -	2,52 -	2,52 ac	2,52 ac
	1,50	3,02 -	3,02 -	3,02 -	3,02 ac	3,02 ac
	2,00	3,79 -	3,91 -	4,02 -	4,25 ac	4,25 a
$N_{R,I,k} =$	4,70	6,40	6,40	6,40	6,40	6,40

Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.

Self-drilling screw

JT3-12-5,5xL JT6-12-5,5xL
JT3-FR-12-5,5xL JT6-FR-12-5,5xL
With hexagon head or FR-head and seal washer $\geq \varnothing 11,0 \text{ mm}$

Annex 62



Materials

Fastener: stainless steel (1.4301) - EN 10088,
stainless steel (1.4404) - EN 10088

Washer: stainless steel (1.4301) - EN 10088

Component I: S280GD, S320GD or S350GD - EN 10346

Component II: S235, S275 or S355 - EN 10025-1
S280GD, S320GD or S350GD - EN 10346

Drilling capacity

$\Sigma t_i \leq 6,50$ mm

Timber substructures

no performance determined

$t_{N,II}$ [mm]	1,50	2,00	2,50	3,00	4,00	5,00	6,00	7,00
$M_{t,nom}$	7 Nm							—
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	— —	1,80 abcd	1,80 abcd	1,80 abcd	1,80 abcd	1,80 abc	1,80 a
	0,55	— —	2,20 abcd	2,20 abcd	2,20 abcd	2,20 abcd	2,20 abc	— —
	0,63	— —	2,60 abcd	2,60 abcd	2,60 abcd	2,60 abcd	2,60 abc	— —
	0,75	— —	3,40 ac	3,40 ac	3,40 ac	3,40 ac	3,40 ac	— —
	0,88	— —	3,80 ac	3,90 ac	4,10 ac	4,10 ac	4,10 a	— —
	1,00	— —	4,20 ac	4,40 ac	4,70 ac	4,70 ac	4,70 a	— —
	1,13	— —	4,70 ac	5,00 ac	5,40 ac	5,70 ac	5,70 a	— —
	1,25	— —	5,10 ac	5,50 ac	6,00 ac	6,60 ac	6,60 a	— —
	1,50	— —	5,70 ac	6,40 ac	7,00 ac	7,50 a	7,90 a	— —
	1,75	— —	5,70 ac	6,40 ac	7,00 ac	7,50 —	— —	— —
	2,00	— —	5,70 ac	6,40 ac	7,00 ac	7,50 —	— —	— —
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	— —	1,50 abcd	1,50 abcd	1,50 abcd	1,50 abcd	1,50 abc	1,50 a
	0,55	— —	2,10 abcd	2,10 abcd	2,10 abcd	2,10 abcd	2,10 abc	— —
	0,63	— —	2,70 abcd	2,70 abcd	2,70 abcd	2,70 abcd	2,70 abc	— —
	0,75	— —	3,00 ac	3,70 ac	3,70 ac	3,70 ac	3,70 ac	— —
	0,88	— —	3,00 ac	4,20 ac	4,20 ac	4,20 ac	4,20 a	— —
	1,00	— —	3,00 ac	4,20 ac	4,70 ac	4,70 ac	4,70 a	— —
	1,13	— —	3,00 ac	4,20 ac	4,80 ac	5,60 ac	5,60 a	— —
	1,25	— —	3,00 ac	4,20 ac	4,80 ac	6,40 ac	6,40 a	— —
	1,50	— —	3,00 ac	4,20 ac	4,80 ac	8,30 a	8,30 a	— —
	1,75	— —	3,00 ac	4,20 ac	4,80 ac	8,30 —	— —	— —
	2,00	— —	3,00 ac	4,20 ac	4,80 ac	8,30 —	— —	— —

Self drilling screw

JT3-6-6,3 x L
JT6-6-6,3 x L

with hexagon head and sealing washer $\geq \varnothing 16$ mm

Annex 63

	<p>Materials</p> <p>Fastener: stainless steel (1.4301 / 1.4567) - EN 10088, stainless steel (1.4404 / 1.4578) - EN 10088</p> <p>Washer: stainless steel (1.4301) - EN 10088</p> <p>Component I: S280GD - EN 10346</p> <p>Component II: S235 - EN 10025-1 S280GD, S320GD or S350GD - EN 10346</p>
	<p>Drilling capacity $\Sigma t_i \leq 2,00 \text{ mm}$</p>
	<p>Timber substructures</p> <p>performance determined with</p> <p>$M_{y,Rk} = 9,742 \text{ Nm}$ $f_{ax,k} = 8,575 \text{ N/mm}^2 \quad \text{for} \quad l_{ef} \geq 26,0 \text{ mm}$</p>

$t_{N,II} [\text{mm}]$	0,63	0,75	0,88	1,00	1,13	1,25	1,50	2,00	
$M_{t,nom}$	3 Nm								
$V_{R,k} [\text{kN}] \text{ for } t_{N,I} [\text{mm}]$									
0,50	—	—	—	—	—	—	—	—	—
0,55	—	—	—	—	—	—	—	—	—
0,63	1,30	—	1,30	—	1,30	—	1,30	—	1,30
0,75	1,30	—	1,80	—	1,80	—	1,80	—	1,80
0,88	1,30	—	1,80	—	2,60	—	2,60	—	2,60
1,00	1,30	—	1,80	—	2,60	—	3,30	—	3,30
1,13	1,30	—	1,80	—	2,60	—	—	—	3,30
1,25	1,30	—	1,80	—	—	—	—	—	3,30
1,50	1,30	—	1,80	—	—	—	—	—	3,30
1,75	—	—	—	—	—	—	—	—	—
2,00	—	—	—	—	—	—	—	—	—
$N_{R,k} [\text{kN}] \text{ for } t_{N,I} [\text{mm}]$									
0,50	0,43	—	0,54	—	0,70	—	0,86	—	1,19
0,55	0,55	—	0,68	—	0,89	—	1,09	—	1,50
0,63	0,80	—	1,00	—	1,30	—	1,60	—	2,20
0,75	0,80	—	1,00	—	1,30	—	1,60	—	2,80
0,88	0,80	—	1,00	—	1,30	—	1,60	—	3,50
1,00	0,80	—	1,00	—	1,30	—	—	—	4,20
1,13	0,80	—	1,00	—	1,30	—	—	—	5,00
1,25	0,80	—	1,00	—	—	—	—	—	5,90
1,50	0,80	—	—	—	—	—	—	—	5,90
1,75	—	—	—	—	—	—	—	—	—
2,00	—	—	—	—	—	—	—	—	—

The values listed above in dependence on the screw-in length l_{ef} are valid for $k_{mod} = 0,90$ and timber strength grade C24 ($\rho_a = 350 \text{ kg/m}^3$). For other combinations of k_{mod} and timber strength grades see section 4.2.2.

Self drilling screw	Annex 64
JT3-2-6,5 x L JT6-2-6,5 x L with hexagon head and sealing washer $\geq \text{Ø}16 \text{ mm}$	

Materials

Fastener: stainless steel (1.4301 / 1.4567) – EN 10088
stainless steel (1.4401 / 1.4578) – EN 10088

Washer: stainless steel (1.4301) - EN 10088

Component I: S280GD – EN 10346

Component II: structural timber – EN 14081

Drilling capacity

$\Sigma t_i \leq 2,00 \text{ mm}$

Timber substructures

performance determined with

$M_{y,Rk} = 9,742 \text{ Nm}$
 $f_{ax,k} = 8,575 \text{ N/mm}^2 \text{ for } l_{ef} \geq 26 \text{ mm}$

$l_g =$	32	38	42	48	52	58	62	68	72	78	82	
$M_{t,nom} =$	—											
$V_{R,k} \text{ for } t_{N,I} =$	0,50	—	—	—	—	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—	—	—	—	—
	0,63	1,30	1,30	1,30	1,30	1,30	1,30	1,30	1,30	1,30	1,30	1,30
	0,75	1,80	1,80	1,80	1,80	1,80	1,80	1,80	1,80	1,80	1,80	1,80
	0,88	2,04	2,10	2,17	2,23	2,29	2,35	2,42	2,48	2,54	2,60	2,60
	1,00	2,04	2,10	2,17	2,23	2,29	2,35	2,42	2,48	2,54	2,60	2,67
	1,13	2,04	2,10	2,17	2,23	2,29	2,35	2,42	2,48	2,54	2,60	2,67
	1,25	2,04	2,10	2,17	2,23	2,29	2,35	2,42	2,48	2,54	2,60	2,67
	1,50	2,04	2,10	2,17	2,23	2,29	2,35	2,42	2,48	2,54	2,60	2,67
	1,75	—	—	—	—	—	—	—	—	—	—	—
	2,00	—	—	—	—	—	—	—	—	—	—	—
$N_{R,k} \text{ for } t_{N,I} =$	0,50	1,19	1,19	1,19	1,19	1,19	1,19	1,19	1,19	1,19	1,19	1,19
	0,55	1,30	1,50	1,50	1,50	1,50	1,50	1,50	1,50	1,50	1,50	1,50
	0,63	1,30	1,56	1,81	2,06	2,20	2,20	2,20	2,20	2,20	2,20	2,20
	0,75	1,30	1,56	1,81	2,06	2,31	2,56	2,80	2,80	2,80	2,80	2,80
	0,88	1,30	1,56	1,81	2,06	2,31	2,56	2,81	3,06	3,31	3,50	3,50
	1,00	1,30	1,56	1,81	2,06	2,31	2,56	2,81	3,06	3,31	3,56	3,81
	1,13	1,30	1,56	1,81	2,06	2,31	2,56	2,81	3,06	3,31	3,56	3,81
	1,25	1,30	1,56	1,81	2,06	2,31	2,56	2,81	3,06	3,31	3,56	3,81
	1,50	1,30	1,56	1,81	2,06	2,31	2,56	2,81	3,06	3,31	3,56	3,81
	1,75	—	—	—	—	—	—	—	—	—	—	—
	2,00	—	—	—	—	—	—	—	—	—	—	—

The values listed above in dependence on the screw-in length l_g are valid for $k_{mod} = 0,90$ and timber strength grade C24 ($\rho_k = 350 \text{ kg/m}^3$). For other values of k_{mod} and timber strength grades see section 4.2.2.

Self drilling screw

JT3-2-6,5 x L

JT6-2-6,5 x L

with hexagon head and sealing washer $\geq \varnothing 16 \text{ mm}$

Annex 65

		Materials Fastener: stainless steel (1.4301 / 1.4567) – EN 10088 stainless steel (1.4401 / 1.4578) – EN 10088 Washer: stainless steel (1.4301) – EN 10088 with vulcanised EPDM seal Component I: aluminium alloy with $R_{m,min} = 165 \text{ N/mm}^2$ – EN 573 Component II: timber – EN 14081
Drilling capacity $\Sigma t_i \leq 2,00 \text{ mm}$		
Timber substructures for timber substructures following performance were determined $M_{y,k} = 9,742 \text{ Nm}$ $f_{ax,k} = 8,575 \text{ N/mm}^2$ for $l_{eff} \geq 32,5 \text{ mm}$		

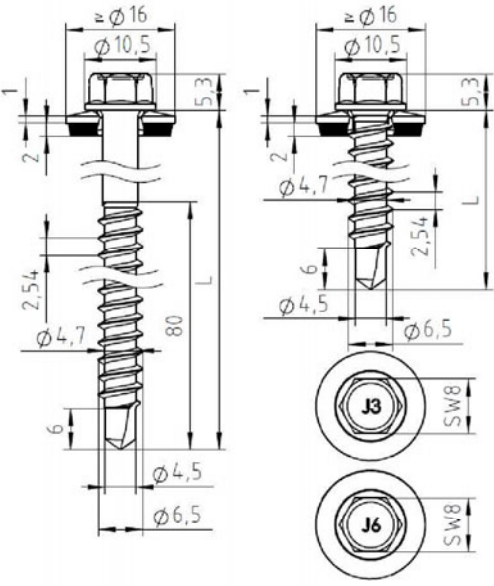
$l_g =$	33,00	36,00	39,00	42,00	45,00	48,00	51,00	54,00	60,00	
$M_{t,nom} =$	—									
$V_{R,k}$ for $t_{N,i} =$	0,50	0,54 -	0,54 -	0,54 -	0,54 -	0,54 -	0,54 -	0,54 -	0,54 -	0,54
	0,60	0,74 -	0,74 -	0,74 -	0,74 -	0,74 -	0,74 -	0,74 -	0,74 -	0,74
	0,70	0,93 -	0,93 -	0,93 -	0,93 -	0,93 -	0,93 -	0,93 -	0,93 -	0,93
	0,80	1,13 -	1,13 -	1,13 -	1,13 -	1,13 -	1,13 -	1,13 -	1,13 -	1,13
	0,90	1,25 -	1,25 -	1,25 -	1,25 -	1,25 -	1,25 -	1,25 -	1,25 -	1,25
	1,00	1,30 -	1,37 -	1,37 -	1,37 -	1,37 -	1,37 -	1,37 -	1,37 -	1,37
	1,20	1,30 -	1,45 -	1,60 -	1,70 -	1,70 -	1,70 -	1,70 -	1,70 -	1,70
	1,50	1,30 -	1,45 -	1,60 -	1,70 -	1,70 -	1,70 -	1,70 -	1,70 -	1,70
2,00	1,30 -	1,45 -	1,60 -	1,70 -	1,70 -	1,70 -	1,70 -	1,70 -	1,70	
$N_{R,II,k} =$	1,12	1,25	1,38	1,51	1,64	1,77	1,90	2,03	2,16	failure of component II see chapter 4.2.2

Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.

The values indicated above, depending on the screw depth l_g , shall apply to $k_{mod} = 0,90$ and the timber strength class C24 ($\rho_k = 350 \text{ kg / m}^3$). For other values of k_{mod} and strength classes see chapter 4.2.2

For $k_{mod} < 0,90$: failure of component I see right column and failure of component II see chapter 4.2.2 with $f_{t,k} = 80 \cdot 10^{-6} \cdot \rho_k^2$ (load carrying class 3, ρ_k in kg/m^3 , max. 500 kg/m^3) and yield moment $M_{y,k} = 13830 \text{ Nmm}$.

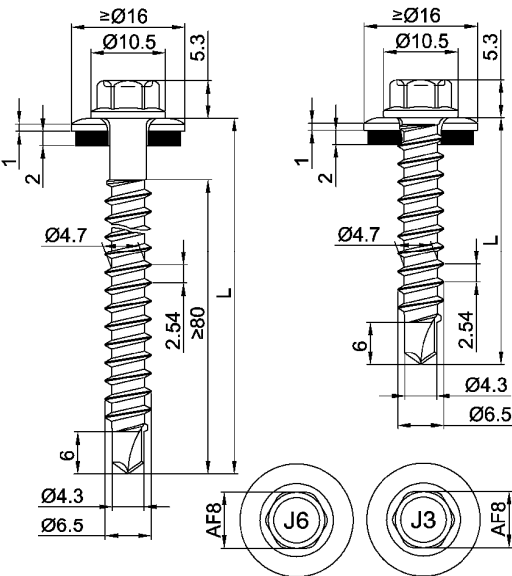
Self-drilling screw		Annex 66
JT3-2-6,5xL JT6-2-6,5xL With hexagon head and seal washer $\geq \varnothing 16,0 \text{ mm}$		

	Materials Fastener: stainless steel (1.4301 / 1.4567) – EN 10088 stainless steel (1.4401 / 1.4578) – EN 10088 Washer: stainless steel (1.4301) – EN 10088 with vulcanised EPDM seal Component I: aluminium alloy with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573 Component II: timber – EN 14081
	Drilling capacity $\Sigma t_i \leq 2,00 \text{ mm}$
	Timber substructures for timber substructures following performance were determined $M_{y,k} = 9,742 \text{ Nm}$ $f_{ax,k} = 8,575 \text{ N/mm}^2$ for $l_{eff} \geq 32,5 \text{ mm}$

$l_g =$	33,00	36,00	39,00	42,00	45,00	48,00	51,00	54,00	60,00		
$M_{t,nom} =$	—										
$V_{R,k} \text{ for } t_{N,I} =$	0,50	0,70	-	0,70	-	0,70	-	0,70	-	0,70	0,70
	0,60	0,96	-	0,96	-	0,96	-	0,96	-	0,96	0,96
	0,70	1,21	-	1,21	-	1,21	-	1,21	-	1,21	1,21
	0,80	1,30	-	1,45	-	1,47	-	1,47	-	1,47	1,47
	0,90	1,30	-	1,45	-	1,60	-	1,63	-	1,63	1,63
	1,00	1,30	-	1,45	-	1,60	-	1,75	-	1,78	1,78
	1,20	1,30	-	1,45	-	1,60	-	1,75	-	1,90	2,05
	1,50	1,30	-	1,45	-	1,60	-	1,75	-	1,90	2,05
	2,00	1,30	-	1,45	-	1,60	-	1,75	-	1,90	2,05
$N_{R,I,k} =$	1,12	1,25	1,38	1,51	1,64	1,77	1,90	2,03	2,16	failure of component II see chapter 4.2.2	

Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.
The values indicated above, depending on the screw depth l_g , shall apply to $k_{mod} = 0,90$ and the timber strength class C24 ($\rho_k = 350 \text{ kg / m}^3$). For other values of k_{mod} and strength classes see chapter 4.2.2
For $k_{mod} < 0,90$: failure of component I see right column and failure of component II see chapter 4.2.2 with $f_{1,k} = 80 \cdot 10^{-6} \cdot \rho_k^2$ (load carrying class 3, ρ_k in kg/m^3 , max. 500 kg/m^3) and yield moment $M_{y,k} = 13830 \text{ Nmm}$.

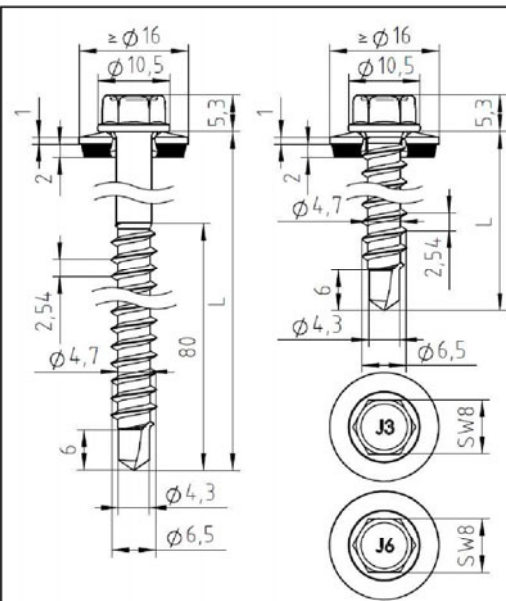
Self-drilling screw	Annex 67
JT3-2-6,5xL JT6-2-6,5xL With hexagon head and seal washer $\geq \varnothing 16,0 \text{ mm}$	

		<p>Materials</p> <p>Fastener: stainless steel (1.4301 / 1.4567) - EN 10088, stainless steel (1.4404 / 1.4578) - EN 10088</p> <p>Washer: stainless steel (1.4301) - EN 10088</p> <p>Component I: S320GD or S350GD - EN 10346</p> <p>Component II: S235 - EN 10025-1 S280GD, S320GD or S350GD - EN 10346</p>
		<p>Drilling capacity $\Sigma t_i \leq 2,00 \text{ mm}$</p>
		<p>Timber substructures</p> <p>performance determined with</p> <p>$M_{y,Rk} = 9,742 \text{ Nm}$ $f_{ax,k} = 8,575 \text{ N/mm}^2 \text{ for } l_{ef} \geq 26,0 \text{ mm}$</p>

$t_{N,II} [\text{mm}]$	0,63	0,75	0,88	1,00	1,13	1,25	1,50	2,00	
$M_{t,nom}$	3 Nm								
$V_{R,k} [\text{kN}] \text{ for } t_{N,I} [\text{mm}]$	0,50	—	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—	—
	0,63	1,30	—	1,40	—	1,40	—	—	1,40
	0,75	1,30	—	1,80	—	2,00	—	—	2,00
	0,88	1,30	—	1,80	—	2,60	—	—	2,80
	1,00	1,30	—	1,80	—	2,60	—	—	3,30
	1,13	1,30	—	1,80	—	2,60	—	—	3,30
	1,25	1,30	—	1,80	—	—	—	—	3,30
	1,50	1,30	—	—	—	—	—	—	3,30
	1,75	—	—	—	—	—	—	—	—
	2,00	—	—	—	—	—	—	—	—
$N_{R,k} [\text{kN}] \text{ for } t_{N,I} [\text{mm}]$	0,50	0,43	—	0,54	—	0,70	—	0,86	1,30
	0,55	0,55	—	0,68	—	0,89	—	1,09	1,64
	0,63	0,80	—	1,00	—	1,30	—	1,60	2,40
	0,75	0,80	—	1,00	—	1,30	—	1,60	3,10
	0,88	0,80	—	1,00	—	1,30	—	1,60	3,80
	1,00	0,80	—	1,00	—	1,30	—	1,60	4,60
	1,13	0,80	—	1,00	—	1,30	—	—	5,50
	1,25	0,80	—	1,00	—	—	—	—	6,30
	1,50	0,80	—	—	—	—	—	—	6,30
	1,75	—	—	—	—	—	—	—	—
	2,00	—	—	—	—	—	—	—	—

The values listed above in dependence on the screw-in length l_{ef} are valid for $k_{mod} = 0,90$ and timber strength grade C24 ($\rho_a = 350 \text{ kg/m}^3$). For other combinations of k_{mod} and timber strength grades see section 4.2.2.

Self drilling screw	Annex 68
JT3-2-6,5 x L JT6-2-6,5 x L with hexagon head and sealing washer $\geq \varnothing 16 \text{ mm}$	



Materials

Fastener: stainless steel (1.4301 / 1.4567) – EN 10088
stainless steel (1.4401 / 1.4578) – EN 10088
Washer: stainless steel (1.4301) - EN 10088
Component I: S320GD or S350GD – EN 10346
Component II: structural timber – EN 14081

Drilling capacity $\Sigma t_i \leq 2,00 \text{ mm}$

Timber substructures

performance determined with

$M_{y,Rk} = 9,742 \text{ Nm}$
 $f_{ax,k} = 8,575 \text{ N/mm}^2$ for $l_{ef} \geq 26 \text{ mm}$

$l_g =$	32	38	42	48	52	58	62	68	72	78	82	
$M_{t,nom} =$	—											
$V_{R,k}$ for $t_{N,I} =$	0,50	—	—	—	—	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—	—	—	—	—
	0,63	1,40	1,40	1,40	1,40	1,40	1,40	1,40	1,40	1,40	1,40	1,40
	0,75	2,00	2,00	2,00	2,00	2,00	2,00	2,00	2,00	2,00	2,00	2,00
	0,88	2,04	2,10	2,17	2,23	2,29	2,35	2,42	2,48	2,54	2,60	2,67
	1,00	2,04	2,10	2,17	2,23	2,29	2,35	2,42	2,48	2,54	2,60	2,67
	1,13	2,04	2,10	2,17	2,23	2,29	2,35	2,42	2,48	2,54	2,60	2,67
	1,25	2,04	2,10	2,17	2,23	2,29	2,35	2,42	2,48	2,54	2,60	2,67
	1,50	2,04	2,10	2,17	2,23	2,29	2,35	2,42	2,48	2,54	2,60	2,67
	1,75	—	—	—	—	—	—	—	—	—	—	—
	2,00	—	—	—	—	—	—	—	—	—	—	—
$N_{R,k}$ for $t_{N,I} =$	0,50	1,30	1,30	1,30	1,30	1,30	1,30	1,30	1,30	1,30	1,30	1,30
	0,55	1,30	1,56	1,64	1,64	1,64	1,64	1,64	1,64	1,64	1,64	1,64
	0,63	1,30	1,56	1,81	2,06	2,31	2,40	2,40	2,40	2,40	2,40	2,40
	0,75	1,30	1,56	1,81	2,06	2,31	2,56	2,81	3,06	3,10	3,10	3,10
	0,88	1,30	1,56	1,81	2,06	2,31	2,56	2,81	3,06	3,31	3,56	3,80
	1,00	1,30	1,56	1,81	2,06	2,31	2,56	2,81	3,06	3,31	3,56	3,81
	1,13	1,30	1,56	1,81	2,06	2,31	2,56	2,81	3,06	3,31	3,56	3,81
	1,25	1,30	1,56	1,81	2,06	2,31	2,56	2,81	3,06	3,31	3,56	3,81
	1,50	1,30	1,56	1,81	2,06	2,31	2,56	2,81	3,06	3,31	3,56	3,81
	1,75	—	—	—	—	—	—	—	—	—	—	—
	2,00	—	—	—	—	—	—	—	—	—	—	—

The values listed above in dependence on the screw-in length l_g are valid for $k_{mod} = 0,90$ and timber strength grade C24 ($\rho_k = 350 \text{ kg/m}^3$). For other values of k_{mod} and timber strength grades see section 4.2.2.

Self drilling screw

JT3-2-6,5 x L

JT6-2-6,5 x L

with hexagon head and sealing washer $\geq \varnothing 16 \text{ mm}$

Annex 69

		<p>Materials</p> <p>Fastener: stainless steel (1.4529) - EN 10088 Washer: stainless steel (1.4301) - EN 10088 Component I: S280GD, S320GD or S350GD - EN 10346 Component II: S235 - EN 10025-1 S280GD, S320GD or S350GD - EN 10346</p>
		<p>Predrill diameter see table below</p>
		<p>Timber substructures performance determined with</p> <p>$M_{y,Rk} = 9,742 \text{ Nm}$ $f_{ax,k} = 8,575 \text{ N/mm}^2$ for $l_{ef} \geq 26,0 \text{ mm}$</p>

$t_{N,II}$ [mm]	0,63	0,75	0,88	1,00	1,13	1,25	1,50	2,00	
d_{pd} [mm]	Ø 3,5	Ø 4,0	Ø 4,5				Ø 5,0	Ø 5,3	
$M_{t,nom}$	3 Nm					5 Nm			
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—	—
	0,63	1,30	—	1,50	—	1,80	—	2,00	ac
	0,75	1,40	—	1,60	—	1,90	—	2,20	ac
	0,88	1,50	—	1,70	—	2,00	—	2,30	—
	1,00	1,50	—	1,80	—	2,10	—	2,50	—
	1,13	1,60	—	1,80	—	2,20	—	2,60	—
	1,25	1,60	—	1,90	—	2,30	—	2,70	ac
	1,50	1,60	—	1,90	—	2,40	—	2,80	ac
	1,75	1,60	—	1,90	—	2,40	—	2,80	ac
2,00	1,60	—	1,90	—	2,40	—	2,80	ac	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,49	—	0,59	—	0,70	—	0,76	ac
	0,55	0,61	—	0,75	—	0,89	—	0,95	ac
	0,63	0,90	—	1,10	—	1,30	—	1,40	ac
	0,75	0,90	—	1,10	—	1,30	—	1,40	ac
	0,88	0,90	—	1,10	—	1,30	—	1,40	—
	1,00	0,90	—	1,10	—	1,30	—	1,40	—
	1,13	1,00	—	1,20	—	1,40	—	1,50	—
	1,25	1,00	—	1,20	—	1,40	—	1,50	—
	1,50	1,00	—	1,20	—	1,40	—	1,50	—
	1,75	1,00	—	1,20	—	1,40	—	1,50	—
	2,00	1,00	—	1,20	—	1,40	—	1,50	—

The values listed above in dependence on the screw-in length l_{ef} are valid for $k_{mod} = 0,90$ and timber strength grade C24 ($\rho_a = 350 \text{ kg/m}^3$). For other combinations of k_{mod} and timber strength grades see section 4.2.2.

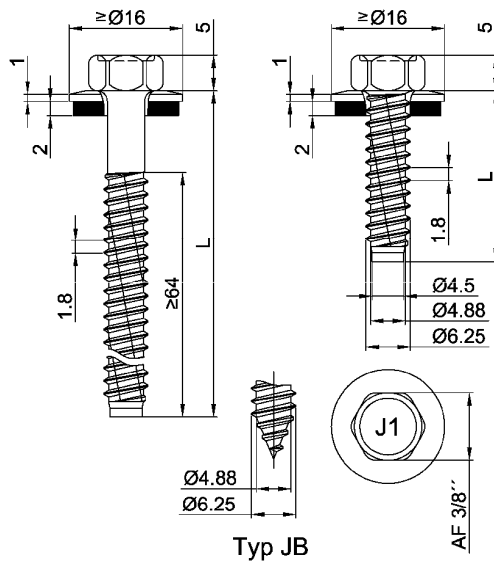
Self tapping screw	Annex 70
JA1-6,5 x L with hexagon head and sealing washer $\geq \text{Ø}16 \text{ mm}$	

	<p>Materials</p> <p>Fastener: stainless steel (1.4529) - EN 10088</p> <p>Washer: stainless steel (1.4304) - EN 10088</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: structural timber – EN 14081</p>
	<p>Predrill diameter see table below</p>
	<p>Timber substructures</p> <p>performance determined with</p> <p>$M_{y,Rk} = 9,742 \text{ Nm}$</p> <p>$f_{ax,k} = 8,575 \text{ N/mm}^2$ for $l_{ef} \geq 26 \text{ mm}$</p>

$l_g =$	26	31	36	41	46	51	56	61	66	71	76			
$d_{pd} [\text{mm}]$	$\varnothing 4,5 \text{ mm}$													
$M_{t,nom} =$	—													
$V_{R,k}$ for $t_{N,I} =$	0,50	—	—	—	—	—	—	—	—	—	—	—	bearing resistance of component I	
	0,55	—	—	—	—	—	—	—	—	—	—	—		
	0,63	2,04	2,10	2,17	2,23	2,29	2,35	2,42	2,48	2,54	2,60	2,67		2,90
	0,75	2,04	2,10	2,17	2,23	2,29	2,35	2,42	2,48	2,54	2,60	2,67		3,10
	0,88	2,04	2,10	2,17	2,23	2,29	2,35	2,42	2,48	2,54	2,60	2,67		3,20
	1,00	2,04	2,10	2,17	2,23	2,29	2,35	2,42	2,48	2,54	2,60	2,67		3,60
	1,13	2,04	2,10	2,17	2,23	2,29	2,35	2,42	2,48	2,54	2,60	2,67		3,80
	1,25	2,04	2,10	2,17	2,23	2,29	2,35	2,42	2,48	2,54	2,60	2,67		4,00
	1,50	2,04	2,10	2,17	2,23	2,29	2,35	2,42	2,48	2,54	2,60	2,67		4,00
	1,75	2,04	2,10	2,17	2,23	2,29	2,35	2,42	2,48	2,54	2,60	2,67		4,00
	2,00	2,04	2,10	2,17	2,23	2,29	2,35	2,42	2,48	2,54	2,60	2,67		4,00
$N_{R,k}$ for $t_{N,I} =$	0,50	1,19	1,19	1,19	1,19	1,19	1,19	1,19	1,19	1,19	1,19	1,19	pull-trough resistance of component I	
	0,55	1,30	1,50	1,50	1,50	1,50	1,50	1,50	1,50	1,50	1,50	1,50		
	0,63	1,30	1,56	1,81	2,06	2,20	2,20	2,20	2,20	2,20	2,20	2,20		
	0,75	1,30	1,56	1,81	2,06	2,31	2,56	2,80	2,80	2,80	2,80	2,80		
	0,88	1,30	1,56	1,81	2,06	2,31	2,56	2,81	3,06	3,31	3,50	3,50		
	1,00	1,30	1,56	1,81	2,06	2,31	2,56	2,81	3,06	3,31	3,56	3,81		
	1,13	1,30	1,56	1,81	2,06	2,31	2,56	2,81	3,06	3,31	3,56	3,81		
	1,25	1,30	1,56	1,81	2,06	2,31	2,56	2,81	3,06	3,31	3,56	3,81		
	1,50	1,30	1,56	1,81	2,06	2,31	2,56	2,81	3,06	3,31	3,56	3,81		
	1,75	1,30	1,56	1,81	2,06	2,31	2,56	2,81	3,06	3,31	3,56	3,81		
	2,00	1,30	1,56	1,81	2,06	2,31	2,56	2,81	3,06	3,31	3,56	3,81		

The values listed above in dependence on the screw-in length l_g are valid for $k_{mod} = 0,90$ and timber strength grade C24 ($\rho_k = 350 \text{ kg/m}^3$). For other values of k_{mod} and timber strength grades see section 4.2.2.

Self tapping screw	Annex 71
JA1-6,5 x L with hexagon head and sealing washer $\geq \varnothing 16 \text{ mm}$	

	<p>Materials</p> <p>Fastener: stainless steel (1.4529) - EN 10088</p> <p>Washer: stainless steel (1.4301) - EN 10088</p> <p>Component I: S280GD, S320GD or S350GD - EN 10346</p> <p>Component II: S235 - EN 10025-1 S280GD, S320GD or S350GD - EN 10346</p>
	<p>Predrill diameter see table below</p>
	<p>Timber substructures</p> <p>no performance determined</p>

$t_{N,II}$ [mm]	1,25	1,50	2,00	3,00	4,00	6,00	$\geq 7,00$	—
d_{pd} [mm]	$\varnothing 5,0$		$\varnothing 5,3$			$\varnothing 5,5$	$\varnothing 5,7$	—
$M_{t,nom}$	5 Nm							—
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—
	0,63	2,50 ac	2,70 ac	2,90 abcd	3,00 abcd	3,10 abcd	3,10 abcd	—
	0,75	2,60 ac	3,10 ac	3,30 abcd	3,60 abcd	3,70 abcd	3,70 abcd	—
	0,88	2,80 ac	3,20 ac	3,80 ac	4,10 abcd	4,30 abcd	4,40 abcd	—
	1,00	3,20 ac	3,60 ac	4,10 ac	4,80 ac	4,90 ac	5,10 ac	—
	1,13	3,40 ac	4,00 ac	4,60 ac	5,40 ac	5,60 ac	5,80 ac	—
	1,25	3,60 ac	4,20 ac	5,00 ac	6,10 ac	6,30 ac	6,50 ac	—
	1,50	3,70 ac	4,40 ac	5,70 ac	6,80 ac	7,10 ac	7,30 ac	—
	1,75	3,70 ac	4,70 ac	6,20 ac	7,60 ac	7,70 ac	8,10 ac	—
	2,00	5,00 —	6,50 —	8,80 —	10,3 —	10,6 —	11,3 —	—
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,97 ac	1,35 ac	1,51 abcd	1,51 abcd	1,51 abcd	1,51 abcd	—
	0,55	1,23 ac	1,71 ac	1,91 abcd	1,91 abcd	1,91 abcd	1,91 abcd	—
	0,63	1,80 ac	2,50 ac	2,80 abcd	2,80 abcd	2,80 abcd	2,80 abcd	—
	0,75	2,00 ac	2,60 ac	3,10 abcd	3,60 abcd	3,60 abcd	3,60 abcd	—
	0,88	2,00 ac	2,70 ac	3,30 ac	3,80 abcd	3,80 abcd	3,80 abcd	—
	1,00	2,00 ac	2,70 ac	3,40 ac	4,00 ac	4,00 ac	4,00 ac	—
	1,13	2,00 ac	2,70 ac	3,60 ac	4,40 ac	4,40 ac	4,40 ac	—
	1,25	2,00 ac	2,70 ac	3,60 ac	4,80 ac	4,90 ac	4,90 ac	—
	1,50	2,00 ac	2,70 ac	3,60 ac	5,60 ac	5,90 ac	5,90 ac	—
	1,75	2,00 ac	2,70 ac	3,60 ac	5,80 ac	6,90 ac	7,10 ac	—
	2,00	2,00 —	2,70 —	3,60 —	6,00 —	7,30 —	7,60 —	—

JZ1 - 6,3 x L for components II with $t_{II} \geq 1,25$ mm

JB1 - 6,3 x L for components II with $t_{II} \leq 2,00$ mm

Self tapping screw	Annex 72
JZ1-6,3 x L JB1-6,3 x L with hexagon head and sealing washer $\geq \varnothing 16$ mm	

	<p>Materials</p> <p>Fastener: stainless steel (1.4529) - EN 10088 Washer: stainless steel (1.4301) - EN 10088 Component I: S280GD, S320GD or S350GD - EN 10346 Component II: S235 - EN 10025-1 S280GD, S320GD or S350GD - EN 10346</p> <p>Predrill diameter see table below</p> <p>Timber substructures no performance determined</p>
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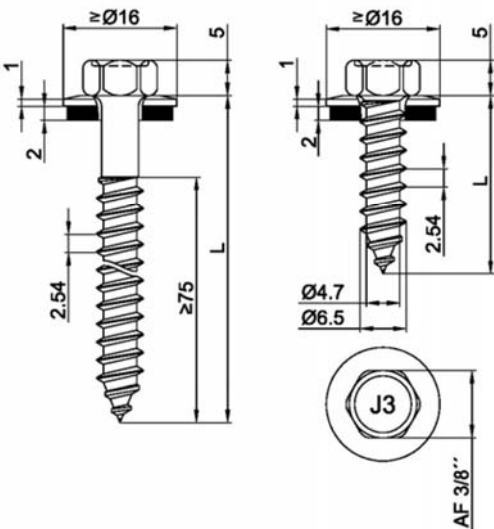
$t_{N,II}$ [mm]	1,50	2,00	3,00	4,00	5,00	6,00	$\geq 7,00$	—
d_{pd} [mm]	—			$\varnothing 5,3$		$\varnothing 5,5$	$\varnothing 5,7$	—
$M_{t,nom}$	—			5 Nm				—
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—
	0,63	—	—	3,40 abcd	3,40 abcd	3,40 abcd	3,40 abcd	—
	0,75	—	—	4,20 ac	4,20 ac	4,20 ac	4,20 ac	—
	0,88	—	—	4,70 ac	4,70 ac	4,70 ac	4,70 ac	—
	1,00	—	—	5,00 ac	5,00 ac	5,10 ac	5,10 ac	—
	1,13	—	—	5,60 ac	5,60 ac	5,80 ac	5,80 ac	—
	1,25	—	—	6,30 —	6,40 —	6,50 ac	6,50 ac	—
	1,50	—	—	7,10 —	7,20 —	7,30 —	7,30 —	—
	1,75	—	—	7,70 —	7,90 —	8,10 —	8,10 —	—
	2,00	—	—	7,70 —	7,90 —	8,10 —	8,10 —	—
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	1,67 abcd	1,67 abcd	1,67 abcd	1,67 abcd	—
	0,55	—	—	2,11 abcd	2,11 abcd	2,11 abcd	2,11 abcd	—
	0,63	—	—	3,10 abcd	3,10 abcd	3,10 abcd	3,10 abcd	—
	0,75	—	—	4,00 ac	4,00 ac	4,00 ac	4,00 ac	—
	0,88	—	—	4,40 ac	4,40 ac	4,40 ac	4,40 ac	—
	1,00	—	—	4,60 ac	4,60 ac	4,60 ac	4,60 ac	—
	1,13	—	—	5,10 ac	5,10 ac	5,10 ac	5,10 ac	—
	1,25	—	—	5,10 —	5,10 —	5,10 ac	5,10 ac	—
	1,50	—	—	5,90 —	5,90 —	5,90 —	5,90 —	—
	1,75	—	—	6,90 —	6,90 —	7,10 —	7,10 —	—
	2,00	—	—	8,80 —	11,6 —	13,4 —	13,4 —	—

Self tapping screw

JZ1-6,3 x L

with hexagon head and sealing washer $\geq \varnothing 22$ mm

Annex 73

		Materials Fastener: stainless steel (1.4301) - EN 10088 Washer: stainless steel (1.4301) - EN 10088 Component I: S280GD, S320GD or S350GD - EN 10346 Component II: S235 - EN 10025-1 S280GD, S320GD or S350GD - EN 10346	
		Predrill diameter	see table below
		Timber substructures performance determined with $M_{y,Rk} = 9,742 \text{ Nm}$ $f_{ax,k} = 8,575 \text{ N/mm}^2$ for $l_{ef} \geq 26,0 \text{ mm}$	

$t_{N,II}$ [mm]	0,63	0,75	0,88	1,00	1,13	1,25	1,50	2,00								
d_{pd} [mm]	Ø 3,5	Ø 4,0	Ø 4,5				Ø 5,0	Ø 5,3								
$M_{t,nom}$	3 Nm						5 Nm									
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—	—	—	bearing resistance of component I						
	0,55	—	—	—	—	—	—	—	—							
	0,63	1,30	—	1,50	—	1,80	—	2,00	ac							
	0,75	1,40	—	1,60	—	1,90	—	2,20	ac							
	0,88	1,50	—	1,70	—	2,00	—	2,30	—							
	1,00	1,50	—	1,80	—	2,10	—	2,50	—							
	1,13	1,60	—	1,80	—	2,20	—	2,60	—							
	1,25	1,60	—	1,90	—	2,30	—	2,70	ac							
	1,50	1,60	—	1,90	—	2,40	—	2,80	ac							
	1,75	1,60	—	1,90	—	2,40	—	2,80	ac							
2,00	1,60	—	1,90	—	2,40	—	2,80	ac								
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,49	—	0,59	—	0,76	ac	0,86	ac	0,97	ac	1,13	ac	1,13	ac	1,19
	0,55	0,61	—	0,75	—	0,89	—	0,95	ac	1,09	ac	1,23	ac	1,43	ac	1,50
	0,63	0,90	—	1,10	—	1,30	—	1,40	ac	1,60	ac	1,80	ac	2,10	ac	2,20
	0,75	0,90	—	1,10	—	1,30	—	1,40	ac	1,60	ac	1,80	ac	2,10	ac	2,80
	0,88	0,90	—	1,10	—	1,30	—	1,40	—	1,60	—	1,80	ac	2,10	ac	3,50
	1,00	0,90	—	1,10	—	1,30	—	1,40	—	1,60	—	1,80	—	2,20	—	4,20
	1,13	1,00	—	1,20	—	1,40	—	1,50	—	1,70	—	1,90	—	2,30	—	5,00
	1,25	1,00	—	1,20	—	1,40	—	1,50	—	1,70	—	1,90	—	2,30	—	5,90
	1,50	1,00	—	1,20	—	1,40	—	1,50	—	1,70	—	1,90	—	2,30	—	5,90
	1,75	1,00	—	1,20	—	1,40	—	1,50	—	1,70	—	1,90	—	2,30	—	5,90
2,00	1,00	—	1,20	—	1,40	—	1,50	—	1,70	—	1,90	—	2,30	—	5,90	

The values listed above in dependence on the screw-in length l_{ef} are valid for $k_{mod} = 0,90$ and timber strength grade C24 ($\rho_a = 350 \text{ kg/m}^3$). For other combinations of k_{mod} and timber strength grades see section 4.2.2.

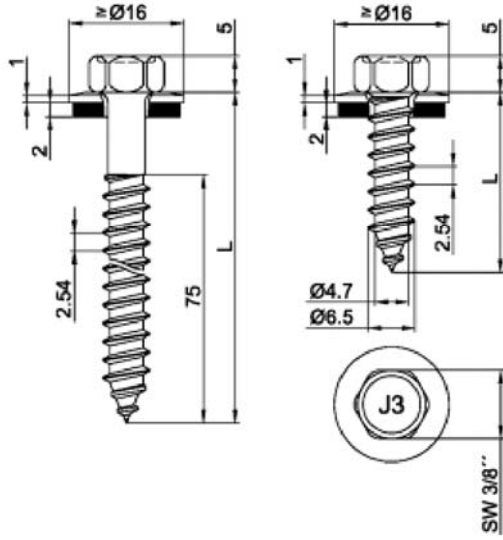
Self tapping screw	Annex 74
JA3-6,5 x L with hexagon head and sealing washer $\geq \text{Ø}16 \text{ mm}$	

		Materials Fastener: stainless steel (1.4301 / 1.4567) - EN 10088 Washer: stainless steel (1.4301) - EN 10088 Component I: S280GD, S320GD or S350GD – EN 10346 Component II: structural timber – EN 14081	
		Predrill diameter see table below	
		Timber substructures performance determined with $M_{y,Rk} = 9,742 \text{ Nm}$ $f_{ax,k} = 8,575 \text{ N/mm}^2$ for $l_{ef} \geq 26 \text{ mm}$	

$l_g =$	26	31	36	41	46	51	56	61	66	71	76			
$d_{pd} [\text{mm}]$	$\varnothing 4,5 \text{ mm}$													
$M_{t,nom} =$	—													
$V_{R,k}$ for $t_{N,I} =$	0,50	—	—	—	—	—	—	—	—	—	—	—	bearing resistance of component I	
	0,55	—	—	—	—	—	—	—	—	—	—	—		
	0,63	2,04	2,10	2,17	2,23	2,29	2,35	2,42	2,48	2,54	2,60	2,67		2,90
	0,75	2,04	2,10	2,17	2,23	2,29	2,35	2,42	2,48	2,54	2,60	2,67		3,10
	0,88	2,04	2,10	2,17	2,23	2,29	2,35	2,42	2,48	2,54	2,60	2,67		3,20
	1,00	2,04	2,10	2,17	2,23	2,29	2,35	2,42	2,48	2,54	2,60	2,67		3,60
	1,13	2,04	2,10	2,17	2,23	2,29	2,35	2,42	2,48	2,54	2,60	2,67		3,80
	1,25	2,04	2,10	2,17	2,23	2,29	2,35	2,42	2,48	2,54	2,60	2,67		4,00
	1,50	2,04	2,10	2,17	2,23	2,29	2,35	2,42	2,48	2,54	2,60	2,67		4,00
	1,75	2,04	2,10	2,17	2,23	2,29	2,35	2,42	2,48	2,54	2,60	2,67		4,00
	2,00	2,04	2,10	2,17	2,23	2,29	2,35	2,42	2,48	2,54	2,60	2,67		4,00
$N_{R,k}$ for $t_{N,I} =$	0,50	1,19	1,19	1,19	1,19	1,19	1,19	1,19	1,19	1,19	1,19	1,19	pull-trough resistance of component I	
	0,55	1,30	1,50	1,50	1,50	1,50	1,50	1,50	1,50	1,50	1,50	1,50		
	0,63	1,30	1,56	1,81	2,06	2,20	2,20	2,20	2,20	2,20	2,20	2,20		
	0,75	1,30	1,56	1,81	2,06	2,31	2,56	2,80	2,80	2,80	2,80	2,80		
	0,88	1,30	1,56	1,81	2,06	2,31	2,56	2,81	3,06	3,31	3,50	3,50		
	1,00	1,30	1,56	1,81	2,06	2,31	2,56	2,81	3,06	3,31	3,56	3,81		
	1,13	1,30	1,56	1,81	2,06	2,31	2,56	2,81	3,06	3,31	3,56	3,81		
	1,25	1,30	1,56	1,81	2,06	2,31	2,56	2,81	3,06	3,31	3,56	3,81		
	1,50	1,30	1,56	1,81	2,06	2,31	2,56	2,81	3,06	3,31	3,56	3,81		
	1,75	1,30	1,56	1,81	2,06	2,31	2,56	2,81	3,06	3,31	3,56	3,81		
	2,00	1,30	1,56	1,81	2,06	2,31	2,56	2,81	3,06	3,31	3,56	3,81		

The values listed above in dependence on the screw-in length l_g are valid for $k_{mod} = 0,90$ and timber strength grade C24 ($\rho_k = 350 \text{ kg/m}^3$). For other values of k_{mod} and timber strength grades see section 4.2.2.

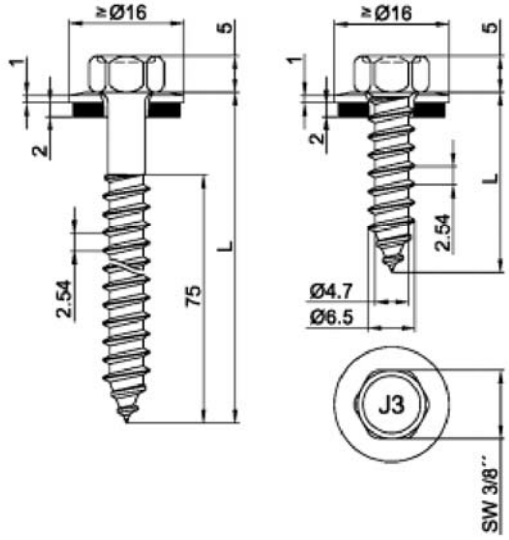
Self tapping screw		Annex 75
JA3-6,5 x L with hexagon head and sealing washer $\geq \varnothing 16 \text{ mm}$		

		Materials Fastener: stainless steel (1.4301 / 1.4567) – EN 10088 Washer: stainless steel (1.4301) – EN 10088 with vulcanised EPDM seal Component I: aluminium alloy with $R_{m,min} = 165 \text{ N/mm}^2$ – EN 573 Component II: aluminium alloy with $R_{m,min} = 165 \text{ N/mm}^2$ – EN 573 timber – EN 14081	
		Pre-drill diameter see table	
		Timber substructures for timber substructures following performance were determined $M_{y,k} = 9,742 \text{ Nm}$ $f_{ax,k} = 8,575 \text{ N/mm}^2$ for $l_{eff} \geq 32,5 \text{ mm}$	

$t_{N,II} =$	0,50	0,70	0,90	1,00	1,20	1,50	2,00	2,50	3,00		
$d_{pd} =$	Ø 4,0			Ø 4,5							Ø 5,0
$M_{t,nom} =$	—										
$V_{R,k} \text{ for } t_{N,I} =$	0,50	0,24 -	0,40 -	0,57 -	0,65 -	0,82 -	0,92 ac	0,92 ac	0,92 abcd	0,92 abcd	0,92
	0,60	0,24 -	0,40 -	0,57 -	0,65 -	0,82 -	1,00 -	1,15 ac	1,15 ac	1,15 ac	1,15
	0,70	0,24 -	0,40 -	0,57 -	0,65 -	0,82 -	1,07 -	1,38 -	1,38 ac	1,38 ac	1,38
	0,80	0,24 -	0,40 -	0,57 -	0,65 -	0,82 -	1,15 -	1,46 -	1,61 -	1,61 ac	1,61
	0,90	0,24 -	0,40 -	0,57 -	0,65 -	0,82 -	1,27 -	1,61 -	1,77 -	1,84 -	1,84
	1,00	0,24 -	0,40 -	0,57 -	0,67 -	0,82 -	1,38 -	1,77 -	1,92 -	2,07 -	2,07
	1,20	0,24 -	0,40 -	0,57 -	0,67 -	0,88 -	1,61 -	1,84 -	2,15 -	2,38 -	2,38
	1,50	0,24 -	0,40 -	0,57 -	0,67 -	0,88 -	2,15 -	2,30 -	2,53 -	2,76 -	2,76
2,00	0,24 -	0,40 -	0,57 -	0,67 -	0,88 -	2,15 -	2,30 -	2,53 -	2,76 -	2,76	
$N_{R,II,k} =$	-	-	0,36	0,42	0,55	0,77	1,23	1,77	2,38	failure of component II see chapter 4.2.2	

Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.
The values indicated above, depending on the screw depth l_g , shall apply to $k_{mod} = 0,90$ and the timber strength class C24 ($\rho_k = 350 \text{ kg / m}^3$). For other values of k_{mod} and strength classes see chapter 4.2.2
Timber substructures (component II): predrilling the holes with Ø 4,80 mm is necessary.

Self-tapping screw	Annex 76
JA3-6,5xL-E16 With hexagon head and seal washer $\geq \text{Ø } 16,0 \text{ mm}$	

		Materials Fastener: stainless steel (1.4301 / 1.4567) – EN 10088 Washer: stainless steel (1.4301) – EN 10088 with vulcanised EPDM seal Component I: aluminium alloy with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573 Component II: aluminium alloy with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573 timber – EN 14081	
		Pre-drill diameter	see table
		Timber substructures for timber substructures following performance were determined $M_{y,k} = 9,742 \text{ Nm}$ $f_{ax,k} = 8,575 \text{ N/mm}^2$ for $l_{eff} \geq 32,5 \text{ mm}$	

$t_{N,II} =$	0,50	0,70	0,90	1,00	1,20	1,50	2,00	2,50	3,00		
$d_{pd} =$	Ø 4,0		Ø 4,5								Ø 5,0
$M_{t,nom} =$	—										
$V_{R,k} \text{ for } t_{N,I} =$	0,50	0,31 -	0,53 -	0,74 -	0,85 -	1,06 -	1,20 ac	1,20 ac	1,20 abcd	1,20 abcd	1,20
	0,60	0,31 -	0,53 -	0,74 -	0,85 -	1,06 -	1,30 -	1,50 ac	1,50 ac	1,50 ac	1,50
	0,70	0,31 -	0,53 -	0,74 -	0,85 -	1,06 -	1,40 -	1,80 -	1,80 ac	1,80 ac	1,80
	0,80	0,31 -	0,53 -	0,74 -	0,85 -	1,06 -	1,50 -	1,90 -	2,10 -	2,10 ac	2,10
	0,90	0,31 -	0,53 -	0,75 -	0,85 -	1,06 -	1,65 -	2,10 -	2,30 -	2,40 -	2,40
	1,00	0,31 -	0,53 -	0,75 -	0,88 -	1,06 -	1,80 -	2,30 -	2,50 -	2,70 -	2,70
	1,20	0,31 -	0,53 -	0,75 -	0,88 -	1,15 -	2,10 -	2,40 -	2,80 -	3,10 -	3,10
	1,50	0,31 -	0,53 -	0,75 -	0,88 -	1,15 -	2,80 -	3,00 -	3,30 -	3,60 -	3,60
	2,00	0,31 -	0,53 -	0,75 -	0,88 -	1,15 -	2,80 -	3,00 -	3,30 -	3,60 -	3,60
$N_{R,II,k} =$	-	-	0,47	0,55	0,71	1,00	1,60	2,30	3,10	failure of component II see chapter 4.2.2	

Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.
The values indicated above, depending on the screw depth l_g , shall apply to $k_{mod} = 0,90$ and the timber strength class C24 ($\rho_k = 350 \text{ kg / m}^3$). For other values of k_{mod} and strength classes see chapter 4.2.2
Timber substructures (component II): predrilling the holes with Ø 4,80 mm is necessary.

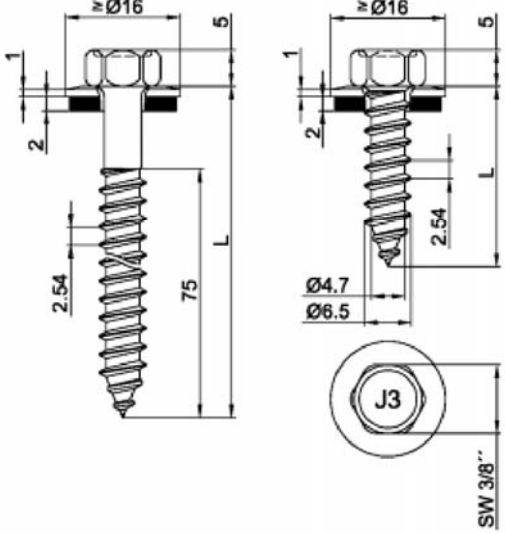
Self-tapping screw	Annex 77
JA3-6,5xL-E16 With hexagon head and seal washer $\geq \text{Ø } 16,0 \text{ mm}$	

		Materials Fastener: stainless steel (1.4301 7 1.4567) – EN 10088 Washer: stainless steel (1.4301) – EN 10088 with vulcanised EPDM seal Component I: aluminium alloy with $R_{m,min} = 165 \text{ N/mm}^2$ – EN 573 Component II: S235 – EN 10025-1 S280GD, S320GD – EN 10346 timber – EN 14081	
		Pre-drill diameter see table	
		Timber substructures for timber substructures following performance were determined $M_{y,k} = 9,742 \text{ Nm}$ $f_{ax,k} = 8,575 \text{ N/mm}^2$ for $l_{eff} \geq 32,5 \text{ mm}$	

$t_{N,II} =$	0,63	0,75	0,88	1,00	1,25	1,50	2,00	2,50	3,00		
$d_{pd} =$	Ø 3,5	Ø 4,0	Ø 4,5			Ø 5,0	Ø 5,3				
$M_{t,nom} =$	—										
$V_{R,k}$ for $t_{N,I} =$	0,50	0,35 -	0,44 -	0,55 -	0,65 -	0,86 -	0,92 ac	0,92 ac	0,92 abcd	0,92 abcd	0,92
	0,60	0,35 -	0,44 -	0,55 -	0,65 -	0,86 -	1,00 -	1,15 ac	1,15 ac	1,15 ac	1,15
	0,70	0,35 -	0,44 -	0,55 -	0,65 -	0,86 -	1,07 -	1,38 -	1,38 ac	1,38 ac	1,38
	0,80	0,35 -	0,44 -	0,55 -	0,65 -	0,86 -	1,15 -	1,46 -	1,61 -	1,61 ac	1,61
	0,90	0,35 -	0,44 -	0,56 -	0,65 -	0,86 -	1,27 -	1,61 -	1,77 -	1,84 -	1,84
	1,00	0,35 -	0,44 -	0,56 -	0,67 -	0,86 -	1,38 -	1,77 -	1,92 -	2,07 -	2,07
	1,20	0,35 -	0,44 -	0,56 -	0,67 -	0,92 -	1,61 -	1,84 -	2,15 -	2,38 -	2,38
	1,50	0,35 -	0,44 -	0,56 -	0,67 -	0,94 -	2,15 -	2,30 -	2,53 -	2,76 -	2,76
	2,00	0,35 -	0,44 -	0,56 -	0,67 -	0,94 -	2,15 -	2,30 -	2,53 -	2,76 -	2,76
$N_{R,II,k} =$	1,00	1,20	1,40	1,50	1,90	2,30	2,30	2,30	2,30	failure of component II see chapter 4.2.2	

Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.
The values indicated above, depending on the screw depth l_g , shall apply to $k_{mod} = 0,90$ and the timber strength class C24 ($\rho_k = 350 \text{ kg / m}^3$). For other values of k_{mod} and strength classes see chapter 4.2.2
Timber substructures (component II): predrilling the holes with Ø 4,80 mm is necessary.

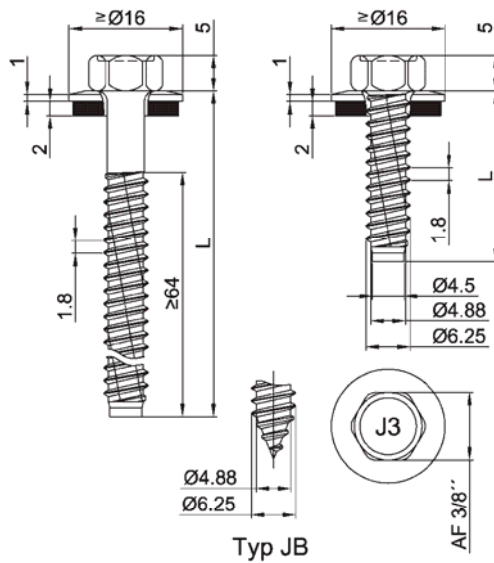
Self-tapping screw		Annex 78
JA3-6,5xL-E16 With hexagon head and seal washer $\geq \text{Ø } 16,0 \text{ mm}$		

		Materials Fastener: stainless steel (1.4301 / 1.4567) – EN 10088 Washer: stainless steel (1.4301) – EN 10088 with vulcanised EPDM seal Component I: aluminium alloy with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573 Component II: S235 – EN 10025-1 S280GD, S320GD – EN 10346 timber – EN 14081	
		Pre-drill diameter see table	
		Timber substructures for timber substructures following performance were determined $M_{y,k} = 9,742 \text{ Nm}$ $f_{ax,k} = 8,575 \text{ N/mm}^2$ for $l_{eff} \geq 32,5 \text{ mm}$	

$t_{N,II} =$	0,63	0,75	0,88	1,00	1,25	1,50	2,00	2,50	3,00		
$d_{pd} =$	Ø 3,5	Ø 4,0	Ø 4,5			Ø 5,0	Ø 5,3				
$M_{t,nom} =$	—										
$V_{R,k}$ for $t_{N,I} =$	0,50	0,45 -	0,58 -	0,72 -	0,85 -	1,12 -	1,20 ac	1,20 ac	1,20 abcd	1,20 abcd	1,20
	0,60	0,45 -	0,58 -	0,72 -	0,85 -	1,12 -	1,30 -	1,50 ac	1,50 ac	1,50 ac	1,50
	0,70	0,45 -	0,58 -	0,72 -	0,85 -	1,12 -	1,40 -	1,80 -	1,80 ac	1,80 ac	1,80
	0,80	0,45 -	0,58 -	0,72 -	0,85 -	1,12 -	1,50 -	1,90 -	2,10 -	2,10 ac	2,10
	0,90	0,45 -	0,58 -	0,72 -	0,85 -	1,12 -	1,65 -	2,10 -	2,30 -	2,40 -	2,40
	1,00	0,45 -	0,58 -	0,72 -	0,88 -	1,12 -	1,80 -	2,30 -	2,50 -	2,70 -	2,70
	1,20	0,45 -	0,58 -	0,72 -	0,88 -	1,20 -	2,10 -	2,40 -	2,80 -	3,10 -	3,10
	1,50	0,45 -	0,58 -	0,72 -	0,88 -	1,23 -	2,80 -	3,00 -	3,30 -	3,60 -	3,60
	2,00	0,45 -	0,58 -	0,72 -	0,88 -	1,23 -	2,80 -	3,00 -	3,30 -	3,60 -	3,60
$N_{R,II,k} =$	1,00	1,20	1,40	1,50	1,90	2,30	2,30	2,30	2,30	failure of component II see chapter 4.2.2	

Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.
The values indicated above, depending on the screw depth l_g , shall apply to $k_{mod} = 0,90$ and the timber strength class C24 ($\rho_k = 350 \text{ kg / m}^3$). For other values of k_{mod} and strength classes see chapter 4.2.2
Timber substructures (component II): predrilling the holes with Ø 4,80 mm is necessary.

Self-tapping screw		Annex 79
JA3-6,5xL-E16 With hexagon head and seal washer $\geq \text{Ø } 16,0 \text{ mm}$		

	<p>Materials</p> <p>Fastener: stainless steel (1.4301) - EN 10088 Washer: stainless steel (1.4301) - EN 10088 Component I: S280GD, S320GD or S350GD - EN 10346 Component II: S235, S275, S355 - EN 10025-1 S280GD, S320GD or S350GD - EN 10346</p>
	<p>Predrill diameter see table below</p>
	<p>Timber substructures no performance determined</p>

$t_{N,II}$ [mm]	1,25		1,50		2,00		3,00		4,00		6,00		$\geq 7,00$		—			
d_{pd} [mm]	$\varnothing 5,0$				$\varnothing 5,3$				$\varnothing 5,5$				$\varnothing 5,7$				—	
$M_{t,nom}$	5 Nm														—			
$V_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
	0,55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
	0,63	2,50	ac	2,70	ac	2,90	abcd	3,00	abcd	3,10	abcd	3,10	abcd	3,10	abcd	—		
	0,75	2,60	ac	3,10	ac	3,30	abcd	3,60	abcd	3,70	abcd	3,70	abcd	3,70	abcd	—		
	0,88	2,80	ac	3,20	ac	3,80	ac	4,10	abcd	4,30	abcd	4,40	abcd	4,40	abcd	—		
	1,00	3,20	ac	3,60	ac	4,10	ac	4,80	ac	4,90	ac	5,10	ac	5,10	ac	—		
	1,13	3,40	ac	4,00	ac	4,60	ac	5,40	ac	5,60	ac	5,80	ac	5,80	ac	—		
	1,25	3,60	ac	4,20	ac	5,00	ac	6,10	ac	6,30	ac	6,50	ac	6,50	ac	—		
	1,50	3,70	ac	4,40	ac	5,70	ac	6,80	ac	7,10	ac	7,30	ac	7,30	ac	—		
	1,75	3,70	ac	4,70	ac	6,20	ac	7,60	ac	7,70	ac	8,10	ac	8,10	ac	—		
2,00	5,00	—	6,50	—	8,80	—	10,3	—	10,6	—	11,3	—	11,3	—	—			
$N_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,50	0,97	ac	1,35	ac	1,51	abcd	1,51	abcd	1,51	abcd	1,51	abcd	1,51	abcd	—		
	0,55	1,23	ac	1,71	ac	1,91	abcd	1,91	abcd	1,91	abcd	1,91	abcd	1,91	abcd	—		
	0,63	1,80	ac	2,50	ac	2,80	abcd	2,80	abcd	2,80	abcd	2,80	abcd	2,80	abcd	—		
	0,75	2,00	ac	2,60	ac	3,10	abcd	3,60	abcd	3,60	abcd	3,60	abcd	3,60	abcd	—		
	0,88	2,00	ac	2,70	ac	3,30	ac	3,80	abcd	3,80	abcd	3,80	abcd	3,80	abcd	—		
	1,00	2,00	ac	2,70	ac	3,40	ac	4,00	ac	4,00	ac	4,00	ac	4,00	ac	—		
	1,13	2,00	ac	2,70	ac	3,60	ac	4,40	ac	4,40	ac	4,40	ac	4,40	ac	—		
	1,25	2,00	ac	2,70	ac	3,60	ac	4,80	ac	4,90	ac	4,90	ac	4,90	ac	—		
	1,50	2,00	ac	2,70	ac	3,60	ac	5,60	ac	5,90	ac	5,90	ac	5,90	ac	—		
	1,75	2,00	ac	2,70	ac	3,60	ac	5,80	ac	6,90	ac	7,10	ac	7,10	ac	—		
2,00	2,00	—	2,70	—	3,60	—	6,00	—	7,30	—	7,60	—	7,60	—	—			

JZ3 - 6,3 x L for components II with $t_{II} \geq 1,25$ mm
JB3 - 6,3 x L for components II with $t_{II} \leq 2,00$ mm

Self tapping screw

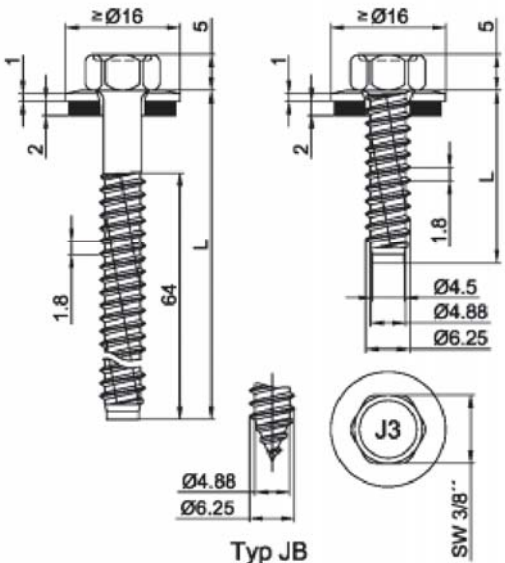
JZ3-6,3 x L
JB3-6,3 x L
with hexagon head and sealing washer $\geq \varnothing 16$ mm

Annex 80

		Materials Fastener: stainless steel (1.4301) - EN 10088 Washer: stainless steel (1.4301) - EN 10088 Component I: S280GD, S320GD or S350GD - EN 10346 Component II: S235, S275, S355 - EN 10025-1 S280GD, S320GD or S350GD - EN 10346	
		Predrill diameter	see table below
		Timber substructures	no performance determined

$t_{N,II}$ [mm]	1,50	2,00	3,00	4,00	5,00	6,00	$\geq 7,00$	—
d_{pd} [mm]	—			$\varnothing 5,3$		$\varnothing 5,5$	$\varnothing 5,7$	—
$M_{t,nom}$	—			5 Nm				—
$V_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,50	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—
	0,63	—	—	—	3,40 abcd	3,40 abcd	3,40 abcd	3,40 abcd
	0,75	—	—	—	4,20 ac	4,20 ac	4,20 ac	4,20 ac
	0,88	—	—	—	4,70 ac	4,70 ac	4,70 ac	4,70 ac
	1,00	—	—	—	5,00 ac	5,00 ac	5,10 ac	5,10 ac
	1,13	—	—	—	5,60 ac	5,60 ac	5,80 ac	5,80 ac
	1,25	—	—	—	6,30 —	6,40 —	6,50 ac	6,50 ac
	1,50	—	—	—	7,10 —	7,20 —	7,30 —	7,30 —
	1,75	—	—	—	7,70 —	7,90 —	8,10 —	8,10 —
	2,00	—	—	—	7,70 —	7,90 —	8,10 —	8,10 —
$N_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,50	—	—	—	1,67 abcd	1,67 abcd	1,67 abcd	1,67 abcd
	0,55	—	—	—	2,11 abcd	2,11 abcd	2,11 abcd	2,11 abcd
	0,63	—	—	—	3,10 abcd	3,10 abcd	3,10 abcd	3,10 abcd
	0,75	—	—	—	4,00 ac	4,00 ac	4,00 ac	4,00 ac
	0,88	—	—	—	4,40 ac	4,40 ac	4,40 ac	4,40 ac
	1,00	—	—	—	4,60 ac	4,60 ac	4,60 ac	4,60 ac
	1,13	—	—	—	5,10 ac	5,10 ac	5,10 ac	5,10 ac
	1,25	—	—	—	5,10 —	5,10 —	5,10 ac	5,10 ac
	1,50	—	—	—	5,90 —	5,90 —	5,90 —	5,90 —
	1,75	—	—	—	6,90 —	6,90 —	7,10 —	7,10 —
	2,00	—	—	—	8,80 —	11,6 —	13,4 —	13,4 —

Self tapping screw		Annex 81
JZ3-6,3 x L with hexagon head and sealing washer $\geq \varnothing 22$ mm		

	<p>Materials</p> <p>Fastener: stainless steel (1.4301) – EN 10088</p> <p>Washer: stainless steel (1.4301) – EN 10088 with vulcanised EPDM seal</p> <p>Component I: aluminium alloy with $R_{m,min} = 165 \text{ N/mm}^2$ – EN 573</p> <p>Component II: aluminium alloy with $R_{m,min} = 165 \text{ N/mm}^2$ – EN 573</p>
	<p>Pre-drill diameter see table</p>
	<p>Timber substructures</p> <p>for timber substructures no performance determined</p>

$t_{N,II} =$	1,20	1,50	2,00	2,50	3,00	4,00	5,00	6,00	$\geq 7,00$				
$d_{pd} =$	$\varnothing 4,5$				$\varnothing 5,0$	$\varnothing 5,3$			$\varnothing 5,5$				
$M_{t,nom} =$	—												
$V_{R,k} \text{ for } t_{N,I} =$	0,50	0,79	-	0,84	ac	0,84	ac	0,84	abcd	0,84	abcd	0,84	abcd
	0,60	0,79	-	0,96	-	1,07	ac	1,07	ac	1,07	abcd	1,07	abcd
	0,70	0,79	-	1,07	-	1,30	-	1,30	ac	1,30	abcd	1,30	abcd
	0,80	0,79	-	1,15	-	1,46	-	1,53	-	1,53	ac	1,53	abcd
	0,90	0,79	-	1,27	-	1,53	-	1,73	-	1,77	ac	1,77	abcd
	1,00	0,80	-	1,38	-	1,61	-	1,92	-	2,00	ac	2,00	abcd
	1,20	0,87	-	1,61	-	1,84	-	2,07	-	2,30	ac	2,38	abcd
	1,50	0,87	-	2,15	-	2,30	-	2,53	-	2,69	ac	3,07	ac
	2,00	0,87	-	2,15	-	2,30	-	2,53	-	2,69	-	3,07	-
$N_{R,II,k} =$	0,54	0,77	1,23	1,77	2,38	3,68	5,30	7,06	7,06				

Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.

Self-tapping screw	Annex 82
JZ3-6,3xL-E16 JB3-6,3xL-E16 With hexagon head and seal washer $\geq \varnothing 16,0 \text{ mm}$	

<p>Typ JB</p>	<p>Materials</p> <p>Fastener: stainless steel (1.4301) – EN 10088</p> <p>Washer: stainless steel (1.4301) – EN 10088 with vulcanised EPDM seal</p> <p>Component I: aluminium alloy with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573</p> <p>Component II: aluminium alloy with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573</p> <p>Pre-drill diameter see table</p> <p>Timber substructures</p> <p>for timber substructures no performance determined</p>																																																																																																																																																						
<table><tr><td>$t_{N,II} =$</td><td>1,20</td><td>1,50</td><td>2,00</td><td>2,50</td><td>3,00</td><td>4,00</td><td>5,00</td><td>6,00</td><td>$\geq 7,00$</td></tr><tr><td>$d_{pd} =$</td><td colspan="4">$\varnothing 4,5$</td><td>$\varnothing 5,0$</td><td colspan="3">$\varnothing 5,3$</td><td>$\varnothing 5,5$</td></tr><tr><td>$M_{t,nom} =$</td><td colspan="9">—</td></tr><tr><td rowspan="8">$V_{R,k} \text{ for } t_{N,I} =$</td><td>0,50</td><td>1,03</td><td>-</td><td>1,10</td><td>ac</td><td>1,10</td><td>abcd</td><td>1,10</td><td>abcd</td><td>1,10</td><td>abcd</td></tr><tr><td>0,60</td><td>1,03</td><td>-</td><td>1,25</td><td>ac</td><td>1,40</td><td>ac</td><td>1,40</td><td>abcd</td><td>1,40</td><td>abcd</td></tr><tr><td>0,70</td><td>1,03</td><td>-</td><td>1,40</td><td>-</td><td>1,70</td><td>-</td><td>1,70</td><td>ac</td><td>1,70</td><td>abcd</td></tr><tr><td>0,80</td><td>1,03</td><td>-</td><td>1,50</td><td>-</td><td>1,90</td><td>-</td><td>2,00</td><td>-</td><td>2,00</td><td>ac</td></tr><tr><td>0,90</td><td>1,03</td><td>-</td><td>1,65</td><td>-</td><td>2,00</td><td>-</td><td>2,25</td><td>-</td><td>2,30</td><td>-</td></tr><tr><td>1,00</td><td>1,04</td><td>-</td><td>1,80</td><td>-</td><td>2,10</td><td>-</td><td>2,50</td><td>-</td><td>2,60</td><td>-</td></tr><tr><td>1,20</td><td>1,14</td><td>-</td><td>2,10</td><td>-</td><td>2,40</td><td>-</td><td>2,70</td><td>-</td><td>3,00</td><td>-</td></tr><tr><td>1,50</td><td>1,14</td><td>-</td><td>2,80</td><td>-</td><td>3,00</td><td>-</td><td>3,30</td><td>-</td><td>3,50</td><td>-</td></tr><tr><td rowspan="2">$N_{R,II,k} =$</td><td>2,00</td><td>1,14</td><td>-</td><td>2,80</td><td>-</td><td>3,00</td><td>-</td><td>3,30</td><td>-</td><td>3,50</td><td>-</td></tr><tr><td></td><td>0,71</td><td></td><td>1,00</td><td></td><td>1,60</td><td></td><td>2,30</td><td></td><td>3,10</td><td></td></tr></table>										$t_{N,II} =$	1,20	1,50	2,00	2,50	3,00	4,00	5,00	6,00	$\geq 7,00$	$d_{pd} =$	$\varnothing 4,5$				$\varnothing 5,0$	$\varnothing 5,3$			$\varnothing 5,5$	$M_{t,nom} =$	—									$V_{R,k} \text{ for } t_{N,I} =$	0,50	1,03	-	1,10	ac	1,10	abcd	1,10	abcd	1,10	abcd	0,60	1,03	-	1,25	ac	1,40	ac	1,40	abcd	1,40	abcd	0,70	1,03	-	1,40	-	1,70	-	1,70	ac	1,70	abcd	0,80	1,03	-	1,50	-	1,90	-	2,00	-	2,00	ac	0,90	1,03	-	1,65	-	2,00	-	2,25	-	2,30	-	1,00	1,04	-	1,80	-	2,10	-	2,50	-	2,60	-	1,20	1,14	-	2,10	-	2,40	-	2,70	-	3,00	-	1,50	1,14	-	2,80	-	3,00	-	3,30	-	3,50	-	$N_{R,II,k} =$	2,00	1,14	-	2,80	-	3,00	-	3,30	-	3,50	-		0,71		1,00		1,60		2,30		3,10	
$t_{N,II} =$	1,20	1,50	2,00	2,50	3,00	4,00	5,00	6,00	$\geq 7,00$																																																																																																																																														
$d_{pd} =$	$\varnothing 4,5$				$\varnothing 5,0$	$\varnothing 5,3$			$\varnothing 5,5$																																																																																																																																														
$M_{t,nom} =$	—																																																																																																																																																						
$V_{R,k} \text{ for } t_{N,I} =$	0,50	1,03	-	1,10	ac	1,10	abcd	1,10	abcd	1,10	abcd																																																																																																																																												
	0,60	1,03	-	1,25	ac	1,40	ac	1,40	abcd	1,40	abcd																																																																																																																																												
	0,70	1,03	-	1,40	-	1,70	-	1,70	ac	1,70	abcd																																																																																																																																												
	0,80	1,03	-	1,50	-	1,90	-	2,00	-	2,00	ac																																																																																																																																												
	0,90	1,03	-	1,65	-	2,00	-	2,25	-	2,30	-																																																																																																																																												
	1,00	1,04	-	1,80	-	2,10	-	2,50	-	2,60	-																																																																																																																																												
	1,20	1,14	-	2,10	-	2,40	-	2,70	-	3,00	-																																																																																																																																												
	1,50	1,14	-	2,80	-	3,00	-	3,30	-	3,50	-																																																																																																																																												
$N_{R,II,k} =$	2,00	1,14	-	2,80	-	3,00	-	3,30	-	3,50	-																																																																																																																																												
		0,71		1,00		1,60		2,30		3,10																																																																																																																																													
<p>Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.</p>																																																																																																																																																							
<p>Self-tapping screw</p> <p>JZ3-6,3xL-E16</p> <p>JB3-6,3xL-E16</p> <p>With hexagon head and seal washer $\geq \varnothing 16,0 \text{ mm}$</p>					<p>Annex 83</p>																																																																																																																																																		

	<p>Materials</p> <p>Fastener: stainless steel (1.4301) – EN 10088</p> <p>Washer: stainless steel (1.4301) – EN 10088 with vulcanised EPDM seal</p> <p>Component I: aluminium alloy with $R_{m,min} = 165 \text{ N/mm}^2$ – EN 573</p> <p>Component II: S235 – EN 10025-1 S280GD, S320GD – EN 10346</p>
	<p>Pre-drill diameter see table</p>
	<p>Timber substructures</p> <p>for timber substructures no performance determined</p>

$t_{N,II} =$	1,25	1,50	2,00	2,50	3,00	4,00	5,00	6,00	$\geq 7,00$	
$d_{pd} =$	$\varnothing 5,0$		$\varnothing 5,3$					$\varnothing 5,5$	$\varnothing 5,7$	
$M_{t,nom} =$	—									
$V_{R,k} \text{ for } t_{N,I} =$	0,50	0,83 -	0,84 ac	0,84 ac	0,84 abcd	0,84 abcd	0,84 abcd	0,84 abcd	0,84 abcd	0,84 -
	0,60	0,83 -	0,96 -	1,07 ac	1,07 ac	1,07 ac	1,07 abcd	1,07 abcd	1,07 abcd	1,07 -
	0,70	0,83 -	1,07 -	1,30 -	1,30 ac	1,30 ac	1,30 abcd	1,30 abcd	1,30 abcd	1,30 -
	0,80	0,83 -	1,15 -	1,46 -	1,53 -	1,53 -	1,53 ac	1,53 abcd	1,53 abcd	1,53 -
	0,90	0,83 -	1,27 -	1,53 -	1,73 -	1,77 -	1,77 ac	1,77 ac	1,77 abcd	1,77 -
	1,00	0,83 -	1,38 -	1,61 -	1,92 -	2,00 -	2,00 ac	2,00 ac	2,00 abcd	2,00 -
	1,20	0,90 -	1,61 -	1,84 -	2,07 -	2,30 -	2,38 ac	2,38 ac	2,38 abcd	2,38 -
	1,50	0,93 -	2,15 -	2,30 -	2,53 -	2,69 -	3,07 ac	3,07 ac	3,07 ac	3,07 -
2,00	0,93 -	2,15 -	2,30 -	2,53 -	2,69 -	3,07 -	3,07 -	3,07 -	3,33 -	
$N_{R,II,k} =$	2,00	2,70	3,60	3,60	6,00	7,30	7,45	7,60	7,60	

Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.

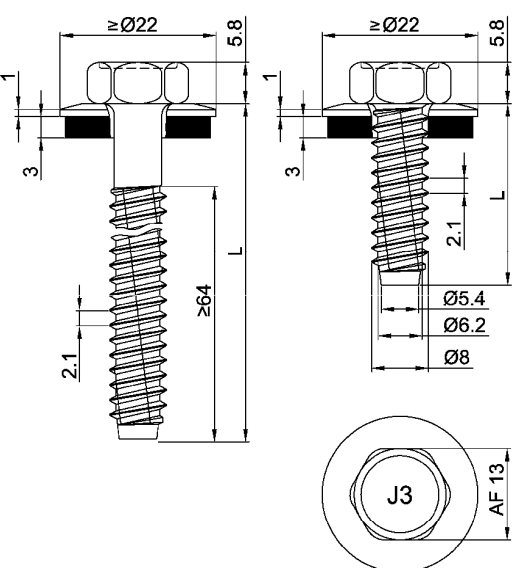
Self-tapping screw	Annex 84
JZ3-6,3xL-E16 JB3-6,3xL-E16	
With hexagon head and seal washer $\geq \varnothing 16,0 \text{ mm}$	

<p>Typ JB</p>	<p>Materials</p> <p>Fastener: stainless steel (1.4301) – EN 10088</p> <p>Washer: stainless steel (1.4301) – EN 10088 with vulcanised EPDM seal</p> <p>Component I: aluminium alloy with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573</p> <p>Component II: S235 – EN 10025-1 S280GD, S320GD – EN 10346</p>
	<p>Pre-drill diameter see table</p>
	<p>Timber substructures</p> <p>for timber substructures no performance determined</p>

$t_{N,II} =$	1,25	1,50	2,00	2,50	3,00	4,00	5,00	6,00	$\geq 7,00$	
$d_{pd} =$	Ø 5,0		Ø 5,3					Ø 5,5	Ø 5,7	
$M_{t,nom} =$	—									
$V_{R,k} \text{ for } t_{N,I} =$	0,50	1,08 -	1,10 ac	1,10 ac	1,10 abcd	1,10 abcd	1,10 abcd	1,10 abcd	1,10 abcd	1,10 -
	0,60	1,08 -	1,25 -	1,40 ac	1,40 ac	1,40 ac	1,40 abcd	1,40 abcd	1,40 abcd	1,40 -
	0,70	1,08 -	1,40 -	1,70 -	1,70 ac	1,70 ac	1,70 abcd	1,70 abcd	1,70 abcd	1,70 -
	0,80	1,08 -	1,50 -	1,90 -	2,00 -	2,00 -	2,00 ac	2,00 abcd	2,00 abcd	2,00 -
	0,90	1,08 -	1,65 -	2,00 -	2,25 -	2,30 -	2,30 ac	2,30 ac	2,30 abcd	2,30 -
	1,00	1,08 -	1,80 -	2,10 -	2,50 -	2,60 -	2,60 ac	2,60 ac	2,60 abcd	2,60 -
	1,20	1,18 -	2,10 -	2,40 -	2,70 -	3,00 -	3,10 ac	3,10 ac	3,10 abcd	3,10 -
	1,50	1,21 -	2,80 -	3,00 -	3,30 -	3,50 -	4,00 ac	4,00 ac	4,00 ac	4,00 -
2,00	1,21 -	2,80 -	3,00 -	3,30 -	3,50 -	4,00 -	4,00 -	4,00 -	4,33 -	
$N_{R,II,k} =$	2,00	2,70	3,60	3,60	6,00	7,30	7,45	7,60	7,60	

Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.

Self-tapping screw	Annex 85
JZ3-6,3xL-E16 JB3-6,3xL-E16	
With hexagon head and seal washer $\geq \varnothing 16,0 \text{ mm}$	

	<p>Materials</p> <p>Fastener: stainless steel (1.4301) - EN 10088</p> <p>Washer: stainless steel (1.4301) - EN 10088</p> <p>Component I: S280GD, S320GD or S350GD - EN 10346</p> <p>Component II: S235 - EN 10025-1</p> <p>S280GD, S320GD or S350GD - EN 10346</p>
	<p>Predrill diameter see table below</p>
	<p>Timber substructures</p> <p>no performance determined</p>

$t_{N,II}$ [mm]	1,50	2,00	3,00	4,00	6,00	8,00	$\geq 10,0$	—
d_{pd} [mm]	$\varnothing 6,8$				$\varnothing 7,0$	$\varnothing 7,2$	$\varnothing 7,4$	—
$M_{t,nom}$	10 Nm							—
$V_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,50	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—
	0,63	3,80 ac	3,80 ac	3,80 ac	3,80 abcd	3,80 abcd	3,80 abcd	3,80 abcd
	0,75	4,70 ac	4,70 ac	4,70 ac	4,70 ac	4,70 abcd	4,70 abcd	4,70 abcd
	0,88	5,30 —	5,30 ac	5,30 ac	5,30 ac	5,30 ac	5,30 ac	5,30 ac
	1,00	5,90 —	5,90 —	5,90 —	5,90 ac	5,90 ac	5,90 ac	5,90 ac
	1,13	6,40 —	6,60 —	6,60 —	6,60 —	6,60 —	6,60 —	6,60 —
	1,25	6,40 —	6,60 —	6,60 —	6,60 —	6,60 —	6,60 —	6,60 —
	1,50	6,40 —	7,00 —	7,00 —	7,00 —	7,00 —	7,00 —	7,00 —
	1,75	6,40 —	7,00 —	7,00 —	7,00 —	7,00 —	7,00 —	7,00 —
	2,00	6,40 —	7,00 —	7,00 —	7,00 —	7,00 —	7,00 —	7,00 —
$N_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,50	1,19 ac	1,84 ac	2,38 ac	2,38 abcd	2,38 abcd	2,38 abcd	2,38 abcd
	0,55	1,50 ac	2,32 ac	3,00 ac	3,00 abcd	3,00 abcd	3,00 abcd	3,00 abcd
	0,63	2,20 ac	3,40 ac	4,40 ac	4,40 abcd	4,40 abcd	4,40 abcd	4,40 abcd
	0,75	2,20 ac	3,40 ac	5,10 ac	5,30 ac	5,30 abcd	5,30 abcd	5,30 abcd
	0,88	2,20 —	3,40 ac	5,40 ac	5,70 ac	5,70 ac	5,70 ac	5,70 ac
	1,00	2,20 —	3,40 —	5,80 —	6,20 ac	6,20 ac	6,20 ac	6,20 ac
	1,13	2,20 —	3,40 —	5,80 —	6,70 —	6,70 —	6,70 —	6,70 —
	1,25	2,20 —	3,40 —	5,80 —	6,80 —	6,80 —	6,80 —	6,80 —
	1,50	2,20 —	3,40 —	5,80 —	6,80 —	6,80 —	6,80 —	6,80 —
	1,75	2,20 —	3,40 —	5,80 —	6,80 —	6,80 —	6,80 —	6,80 —
	2,00	2,20 —	3,40 —	5,80 —	6,80 —	6,80 —	6,80 —	6,80 —

Self tapping screw	Annex 86
JZ3-8,0 x L with hexagon head and sealing washer $\geq \varnothing 22$ mm	

<p>Typ JB</p>	<p>Materials</p> <p>Fastener: stainless steel CRONIMAKS® similar to stainless steel (1.4301) - EN 10088</p> <p>Washer: stainless steel (1.4301) - EN 10088</p> <p>Component I: S280GD, S320GD or S350GD - EN 10346</p> <p>Component II: S235, S275 or S355 - EN 10025-1 S280GD, S320GD or S350GD - EN 10346</p> <p>Predrill diameter see table below</p> <p>Timber substructures no performance determined</p>
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$t_{N,II}$ [mm]	1,25		1,50		2,00		3,00		4,00		6,00		$\geq 7,00$		—			
d_{pd} [mm]	$\varnothing 5,0$				$\varnothing 5,3$				$\varnothing 5,5$				$\varnothing 5,7$				—	
$M_{t,nom}$	5 Nm														—			
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—		—		—		—		—		—		—		—		
	0,55	—		—		—		—		—		—		—		—		
	0,63	2,50	ac	2,70	ac	2,80	abcd	3,00	abcd	3,10	abcd	3,10	abcd	3,10	abcd	—	—	
	0,75	2,60	ac	3,10	ac	3,30	abcd	3,60	abcd	3,70	abcd	3,70	abcd	3,70	abcd	—	—	
	0,88	2,80	ac	3,20	ac	3,80	ac	4,10	abcd	4,30	abcd	4,40	abcd	4,40	abcd	—	—	
	1,00	3,20	ac	3,60	ac	4,10	ac	4,80	ac	4,90	ac	5,10	ac	5,10	ac	—	—	
	1,13	3,40	ac	4,00	ac	4,60	ac	5,40	ac	5,60	ac	5,80	ac	5,80	ac	—	—	
	1,25	3,60	ac	4,20	ac	5,00	ac	6,10	ac	6,30	ac	6,50	ac	6,50	ac	—	—	
	1,50	3,70	ac	4,40	ac	5,70	ac	6,80	ac	7,10	ac	7,30	ac	7,30	ac	—	—	
	1,75	3,70	ac	4,70	ac	6,20	ac	7,60	ac	7,70	ac	8,10	ac	8,10	ac	—	—	
2,00	5,00	—	6,50	—	8,80	—	10,3	—	10,6	—	11,3	—	11,3	—	—	—		
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,97	ac	1,35	ac	1,51	abcd	1,51	abcd	1,51	abcd	1,51	abcd	1,51	abcd	—	—	
	0,55	1,23	ac	1,71	ac	1,91	abcd	1,91	abcd	1,91	abcd	1,91	abcd	1,91	abcd	—	—	
	0,63	1,80	ac	2,50	ac	2,80	abcd	2,80	abcd	2,80	abcd	2,80	abcd	2,80	abcd	—	—	
	0,75	2,00	ac	2,70	ac	3,10	abcd	3,60	abcd	3,60	abcd	3,60	abcd	3,60	abcd	—	—	
	0,88	2,00	ac	2,70	ac	3,30	ac	3,80	abcd	3,80	abcd	3,80	abcd	3,80	abcd	—	—	
	1,00	2,00	ac	2,70	ac	3,40	ac	4,00	ac	4,00	ac	4,00	ac	4,00	ac	—	—	
	1,13	2,00	ac	2,70	ac	3,60	ac	4,40	ac	4,40	ac	4,40	ac	4,40	ac	—	—	
	1,25	2,00	ac	2,70	ac	3,60	ac	4,80	ac	4,90	ac	4,90	ac	4,90	ac	—	—	
	1,50	2,00	ac	2,70	ac	3,60	ac	5,60	ac	5,90	ac	5,90	ac	5,90	ac	—	—	
	1,75	2,00	ac	2,70	ac	3,60	ac	5,80	ac	6,90	ac	7,10	ac	7,10	ac	—	—	
	2,00	2,00	—	2,70	—	3,60	—	6,00	—	7,30	—	7,60	—	7,60	—	—	—	

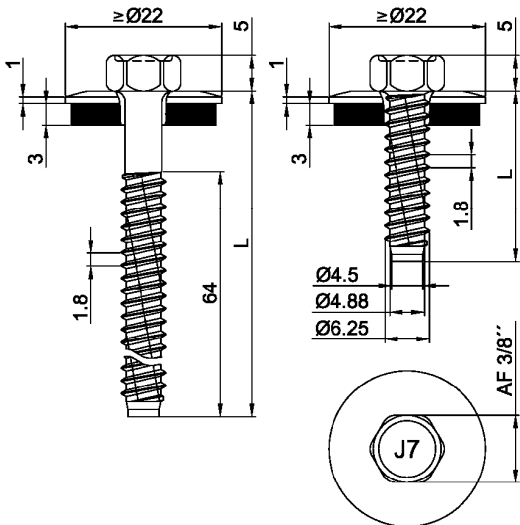
JZ7 - 6,3 x L for components II with $t_{II} \geq 1,25$ mm
JB7 - 6,3 x L for components II with $t_{II} \leq 2,00$ mm

Self tapping screw

JZ7-6,3 x L
JB7-6,3 x L

with hexagon head and sealing washer $\geq \varnothing 16$ mm

Annex 87

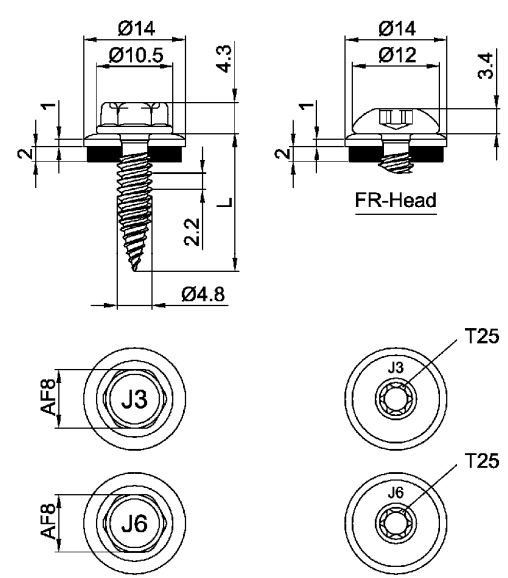
		<p>Materials</p> <p>Fastener: stainless steel CRONIMAKS® similar to stainless steel (1.4301) - EN 10088</p> <p>Washer: stainless steel (1.4301) - EN 10088</p> <p>Component I: S280GD, S320GD or S350GD - EN 10346</p> <p>Component II: S235, S275 or S355 - EN 10025-1 S280GD, S320GD or S350GD - EN 10346</p>	
		<p>Predrill diameter see table below</p>	
		<p>Timber substructures</p> <p>no performance determined</p>	

t _{N,II} [mm]	1,50	2,00	3,00	4,00	5,00	6,00	≥ 7,00	—
d _{pd} [mm]	—			ø 5,3		ø 5,5	ø 5,7	—
M _{t,nom}	5 Nm							—
V _{R,k} [kN] for t _{N,I} [mm]	0,50	—	—	—	—	—	—	—
	0,55	—	—	—	—	—	—	—
	0,63	—	—	—	3,40 abcd	3,40 abcd	3,40 abcd	—
	0,75	—	—	—	4,20 ac	4,20 ac	4,20 ac	—
	0,88	—	—	—	4,70 ac	4,70 ac	4,70 ac	—
	1,00	—	—	—	5,00 ac	5,00 ac	5,10 ac	—
	1,13	—	—	—	5,60 ac	5,60 ac	5,80 ac	—
	1,25	—	—	—	6,30 —	6,40 —	6,50 ac	—
	1,50	—	—	—	7,10 —	7,20 —	7,30 —	—
	1,75	—	—	—	7,70 —	7,90 —	8,10 —	—
2,00	—	—	—	7,70 —	7,90 —	8,10 —	—	
N _{R,k} [kN] for t _{N,I} [mm]	0,50	—	—	—	1,67 abcd	1,67 abcd	1,67 abcd	—
	0,55	—	—	—	2,11 abcd	2,11 abcd	2,11 abcd	—
	0,63	—	—	—	3,10 abcd	3,10 abcd	3,10 abcd	—
	0,75	—	—	—	4,00 ac	4,00 ac	4,00 ac	—
	0,88	—	—	—	4,40 ac	4,40 ac	4,40 ac	—
	1,00	—	—	—	4,60 ac	4,60 ac	4,60 ac	—
	1,13	—	—	—	5,10 ac	5,10 ac	5,10 ac	—
	1,25	—	—	—	5,10 —	5,10 —	5,10 ac	—
	1,50	—	—	—	5,90 —	5,90 —	5,90 —	—
	1,75	—	—	—	6,90 —	6,90 —	7,10 —	—
	2,00	—	—	—	8,80 —	11,6 —	13,4 —	—

JZ7 - 6,3 x L for components II with t_{II} ≥ 1,25 mm

JB7 - 6,3 x L for components II with t_{II} ≤ 2,00 mm

Self tapping screw	Annex 88
JZ7-6,3 x L JB7-6,3 x L with hexagon head and sealing washer ≥ Ø22 mm	

	<p>Materials</p> <p>Fastener: stainless steel (1.4301) – EN 10088 stainless steel (1.4404) – EN 10088</p> <p>Washer: stainless steel (1.4301) – EN 10088</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: S280GD, S320GD or S350GD – EN 10346</p>
	<p>Drilling capacity $\Sigma t_i \leq 2,00 \text{ mm}$</p>
	<p>Timber substructures</p> <p>for timber substructures no performance determined</p>

	$t_{N,II} =$	0,40	0,50	0,55	0,63	0,75	0,88
	$M_{t,nom} =$	—					
$V_{R,k} \text{ für } t_{N,I} =$	0,40	0,65	0,65	0,65	0,65	0,65	0,65
	0,50	0,65	0,81	0,81	0,81	0,81	0,81
	0,55	0,65	0,81	0,99	0,99	0,99	0,99
	0,63	0,65	0,81	0,99	1,26	1,26	1,26
	0,75	0,65	0,81	0,99	1,26	1,71	1,71
	0,88	0,65	0,81	0,99	1,26	1,71	2,46
	1,00	—	—	—	—	—	—
	1,13	—	—	—	—	—	—
	1,25	—	—	—	—	—	—
	1,50	—	—	—	—	—	—
	2,00	—	—	—	—	—	—
$N_{R,k} \text{ für } t_{N,I} =$	0,40	0,45	0,67	0,78	0,94	1,21	1,46
	0,50	0,45	0,67	0,78	0,94	1,21	1,50
	0,55	0,45	0,67	0,78	0,94	1,21	1,50
	0,63	0,45	0,67	0,78	0,94	1,21	1,50
	0,75	0,45	0,67	0,78	0,94	1,21	1,50
	0,88	0,45	0,67	0,78	0,94	1,21	1,50
	1,00	—	—	—	—	—	—
	1,13	—	—	—	—	—	—
	1,25	—	—	—	—	—	—
	1,50	—	—	—	—	—	—
	2,00	—	—	—	—	—	—

If both components I and II are made of S320GD or S350GD all values may be increased by 8,3%.

Self tapping screw	Annex 89
JF3-2H-4,8 x L JF3-FR-2H-4,8 x L JF6-2H-4,8 x L JF6-FR-2H-4,8 x L	
with hexagon head or round head with Torx® drive system and sealing washer $\geq \varnothing 14 \text{ mm}$	

	<p>Materials</p> <p>Fastener: stainless steel (1.4301 / 1.4567) – EN 10088 stainless steel (1.4401 / 1.4578) – EN 10088</p> <p>Washer: stainless steel (1.4301) – EN 10088</p> <p>Component I: aluminium-Alloy with $R_{m,min} = 165 \text{ N/mm}^2$ – EN 573</p> <p>Component II: aluminium-Alloy with $R_{m,min} = 165 \text{ N/mm}^2$ – EN 573</p>
	<p>Drilling capacity $\Sigma t_i \leq 2,00 \text{ mm}$</p>
	<p>Timber substructures</p> <p>for timber substructures no performance determined</p>
<p>Pull-through resistance of component I according to EN 1999-1-4, section 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.</p>	
<p>self-tapping screw</p> <p>JF3-2H-4,8xL JF6-2H-4,8xL JF3-FR-2H-4,8xL JF6-FR-2H-4,8xL with hexagon head or FR head and seal washer $\geq \varnothing 14 \text{ mm}$</p>	<p>Annex 90</p>

<p>Technical drawings of the fastener assembly. Top left: Side view of the fastener with dimensions: Ø14, Ø10.5, 4.3, 2, 1, 2.2, L, Ø4.8. Top right: Side view of the FR-Head with dimensions: Ø14, Ø12, 3.4, 2, 1. Bottom left: Top view of the J3 washer with AF8. Bottom right: Top view of the J6 washer with AF8. Both washers are labeled T25.</p>	<p>Materials</p> <p>Fastener: stainless steel (1.4301) – EN 10088 stainless steel (1.4404) – EN 10088</p> <p>Washer: stainless steel (1.4301) – EN 10088</p> <p>Component I: aluminium-Alloy with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573</p> <p>Component II: aluminium-Alloy with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573</p> <p>Drilling capacity $\Sigma t_i \leq 2,00 \text{ mm}$</p> <p>Timber substructures for timber substructures no performance determined</p>																																																															
<table><tr><td>$t_{N,II} =$</td><td>0,50</td><td>0,60</td><td>0,70</td><td>0,80</td><td>0,90</td><td>1,00</td></tr><tr><td>$M_{t,nom} =$</td><td colspan="6">—</td></tr><tr><td>$V_{R,k}$ for $t_{N,I} =$</td><td>0,50</td><td>0,58 -</td><td>0,58 -</td><td>0,58 -</td><td>0,58 -</td><td>0,58 -</td></tr><tr><td></td><td>0,60</td><td>0,58 -</td><td>0,86 -</td><td>0,86 -</td><td>0,86 -</td><td>0,86 -</td></tr><tr><td></td><td>0,70</td><td>0,58 -</td><td>0,86 -</td><td>1,14 -</td><td>1,14 -</td><td>1,14 -</td></tr><tr><td></td><td>0,80</td><td>0,58 -</td><td>0,86 -</td><td>1,14 -</td><td>1,42 -</td><td>1,42 -</td></tr><tr><td></td><td>0,90</td><td>0,58 -</td><td>0,86 -</td><td>1,14 -</td><td>1,42 -</td><td>1,90 -</td></tr><tr><td></td><td>1,00</td><td>0,58 -</td><td>0,86 -</td><td>1,14 -</td><td>1,42 -</td><td>1,90 -</td></tr><tr><td>$N_{R,II,k} =$</td><td>0,42</td><td>0,54</td><td>0,67</td><td>0,79</td><td>0,92</td><td>1,04</td></tr></table>		$t_{N,II} =$	0,50	0,60	0,70	0,80	0,90	1,00	$M_{t,nom} =$	—						$V_{R,k}$ for $t_{N,I} =$	0,50	0,58 -	0,58 -	0,58 -	0,58 -	0,58 -		0,60	0,58 -	0,86 -	0,86 -	0,86 -	0,86 -		0,70	0,58 -	0,86 -	1,14 -	1,14 -	1,14 -		0,80	0,58 -	0,86 -	1,14 -	1,42 -	1,42 -		0,90	0,58 -	0,86 -	1,14 -	1,42 -	1,90 -		1,00	0,58 -	0,86 -	1,14 -	1,42 -	1,90 -	$N_{R,II,k} =$	0,42	0,54	0,67	0,79	0,92	1,04
$t_{N,II} =$	0,50	0,60	0,70	0,80	0,90	1,00																																																										
$M_{t,nom} =$	—																																																															
$V_{R,k}$ for $t_{N,I} =$	0,50	0,58 -	0,58 -	0,58 -	0,58 -	0,58 -																																																										
	0,60	0,58 -	0,86 -	0,86 -	0,86 -	0,86 -																																																										
	0,70	0,58 -	0,86 -	1,14 -	1,14 -	1,14 -																																																										
	0,80	0,58 -	0,86 -	1,14 -	1,42 -	1,42 -																																																										
	0,90	0,58 -	0,86 -	1,14 -	1,42 -	1,90 -																																																										
	1,00	0,58 -	0,86 -	1,14 -	1,42 -	1,90 -																																																										
$N_{R,II,k} =$	0,42	0,54	0,67	0,79	0,92	1,04																																																										
<p>Pull-through resistance of component I according to EN 1999-1-4, section 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.</p>																																																																
<p>self-tapping screw</p> <p>JF3-2H-4,8xL JF6-2H-4,8xL JF3-FR-2H-4,8xL JF6-FR-2H-4,8xL with hexagon head or FR head and seal washer $\geq \varnothing 14 \text{ mm}$</p>	<p>Annex 91</p>																																																															

	<p>Materials</p> <p>Fastener: stainless steel (1.4301 / 1.4567) – EN 10088 stainless steel (1.4401 / 1.4578) – EN 10088</p> <p>Washer: stainless steel (1.4301) – EN 10088</p> <p>Component I: aluminium-Alloy with $R_{m,min} = 165 \text{ N/mm}^2$ – EN 573</p> <p>Component II: S280GD, S320GD or S350GD – EN 10346</p>
	<p>Drilling capacity $\Sigma t_i \leq 2,00 \text{ mm}$</p>
	<p>Timber substructures</p> <p>for timber substructures no performance determined</p>

$t_{N,II} =$	0,50	0,55	0,63	0,75	0,88	1,00
$M_{t,nom} =$	—					
$V_{R,k}$ for $t_{N,I} =$	0,50	0,45 -	0,45 -	0,45 -	0,45 -	0,45 -
	0,60	0,45 -	0,45 -	0,66 -	0,66 -	0,66 -
	0,70	0,45 -	0,45 -	0,66 -	0,88 -	0,88 -
	0,80	0,45 -	0,45 -	0,66 -	0,88 -	1,09 -
	0,90	0,45 -	0,45 -	0,66 -	0,88 -	1,09 -
	1,00	0,45 -	0,45 -	0,66 -	0,88 -	1,09 -
$N_{R,II,k} =$	0,67	0,78	0,94	1,21	1,50	1,78

Pull-through resistance of component I according to EN 1999-1-4, section 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.

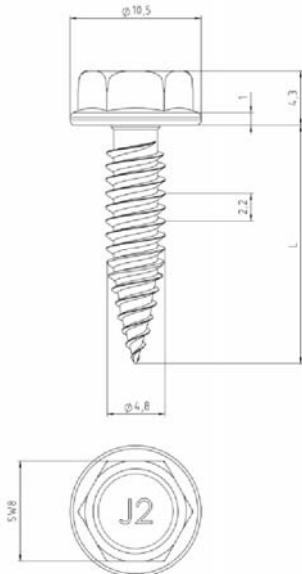
self-tapping screw	Annex 92
JF3-2H-4,8xL JF6-2H-4,8xL JF3-FR-2H-4,8xL JF6-FR-2H-4,8xL with hexagon head or FR head and seal washer $\geq \varnothing 14 \text{ mm}$	

<p>Technical drawings of the fastener assembly. Top left: Side view of the fastener with dimensions: Ø14, Ø10.5, 4.3, 2, 1, 2.2, L, Ø4.8. Top right: Side view of the FR-Head with dimensions: Ø14, Ø12, 3.4, 2, 1. Bottom left: Top view of the J3 washer with AF8. Bottom right: Top view of the J6 washer with AF8. Both washers are labeled T25.</p>	<p><u>Materials</u></p> <p>Fastener: stainless steel (1.4301) – EN 10088 stainless steel (1.4404) – EN 10088</p> <p>Washer: stainless steel (1.4301) – EN 10088</p> <p>Component I: aluminium-Alloy with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573</p> <p>Component II: S280GD, S320GD or S350GD – EN 10346</p>
	<p><u>Drilling capacity</u> $\Sigma t_i \leq 2,00 \text{ mm}$</p>
	<p><u>Timber substructures</u></p> <p>for timber substructures no performance determined</p>

$t_{N,II} =$	0,50	0,60	0,70	0,80	0,90	1,00
$M_{t,nom} =$	—					
$V_{R,k}$ for $t_{N,I} =$	0,50	0,58 -	0,58 -	0,58 -	0,58 -	0,58 -
	0,60	0,58 -	0,58 -	0,86 -	0,86 -	0,86 -
	0,70	0,58 -	0,58 -	0,86 -	1,14 -	1,14 -
	0,80	0,58 -	0,58 -	0,86 -	1,14 -	1,42 -
	0,90	0,58 -	0,58 -	0,86 -	1,14 -	1,90 -
	1,00	0,58 -	0,58 -	0,86 -	1,14 -	2,38 -
$N_{R,II,k} =$	0,67	0,78	0,94	1,21	1,50	1,78

Pull-through resistance of component I according to EN 1999-1-4, section 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.

self-tapping screw	Annex 93
JF3-2H-4,8xL JF6-2H-4,8xL JF3-FR-2H-4,8xL JF6-FR-2H-4,8xL with hexagon head or FR head and seal washer $\geq \varnothing 14 \text{ mm}$	

	<p>Materials</p> <p>Fastener: carbon steel case hardened and galvanized</p> <p>Washer: none</p> <p>Component I: S280GD, S320GD or S350 GD – EN 10346</p> <p>Component II: S280GD, S320GD or S350 GD – EN 10346</p>
	<p>Drilling capacity $\Sigma t_i \leq 2 \times 0,88 \text{ mm}$</p>
	<p>Timber substructures</p> <p>for timber substructures no performance determined</p>

$t_{N,II} =$	0,40	0,50	0,55	0,63	0,75	0,88
$M_{t, nom} =$	—					
$V_{R,k} \text{ for } t_{N,I} =$	0,40	0,79	0,79	0,79	0,79	0,79
	0,50	0,79	1,18	1,27	1,42	1,65
	0,55	0,79	1,18	1,41	1,56	1,79
	0,63	0,79	1,18	1,41	1,77	2,00
	0,75	0,79	1,18	1,41	1,77	2,35
	0,88	0,79	1,18	1,41	1,77	2,35
	1,00	—	—	—	—	—
	1,13	—	—	—	—	—
	1,25	—	—	—	—	—
	1,50	—	—	—	—	—
$N_{R,k} \text{ for } t_{N,I} =$	0,40	0,52	0,71	0,82	0,92	0,92
	0,50	0,52	0,71	0,82	1,01	1,30
	0,55	0,52	0,71	0,82	1,01	1,30
	0,63	0,52	0,71	0,82	1,01	1,30
	0,75	0,52	0,71	0,82	1,01	1,30
	0,88	0,52	0,71	0,82	1,01	1,30
	1,00	—	—	—	—	—
	1,13	—	—	—	—	—
	1,25	—	—	—	—	—
	1,50	—	—	—	—	—
1,75	—	—	—	—	—	
2,00	—	—	—	—	—	

If component I and component II are made of S320GD or S350GD, the values may be increased by 8,3%.

self drilling screw	Annex 94
JF2-2H-4,8 x L with hexagon head	

	<p>Materials</p> <p>Fastener: stainless steel (1.4301 / 1.4567) – EN 10088 stainless steel (1.4401 / 1.4578) – EN 10088</p> <p>Washer: stainless steel (1.4301) – EN 10088</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: S280GD, S320GD or S350GD – EN 10346</p> <p>Drilling capacity $\Sigma t_i \leq 2 \times 1,00 \text{ mm}$</p> <p>Timber substructures for timber substructures no performance determined</p>
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$t_{N,II} =$	0,40	0,50	0,55	0,63	0,75	0,88	1,00
$M_{t,nom} =$	—						
$V_{R,k}$ for $t_{N,I} =$	0,40	0,88 —	0,88 —	0,88 —	0,88 —	0,88 —	0,88 —
	0,50	0,88 —	1,56 —	1,56 —	1,56 —	1,56 —	1,56 —
	0,55	0,88 —	1,56 —	1,76 —	1,76 —	1,76 —	1,76 —
	0,63	0,88 —	1,56 —	1,76 —	2,09 —	2,09 —	2,09 —
	0,75	0,88 —	1,56 —	1,76 —	2,09 —	2,57 —	2,57 —
	0,88	0,88 —	1,56 —	1,76 —	2,09 —	2,57 —	3,11 —
	1,00	0,88 —	1,56 —	1,76 —	2,09 —	2,57 —	3,11 —
	1,13	— —	— —	— —	— —	— —	— —
	1,25	— —	— —	— —	— —	— —	— —
$N_{R,k}$ for $t_{N,I} =$	0,40	0,60 —	0,82 —	0,94 —	1,00 —	1,00 —	1,00 —
	0,50	0,60 —	0,82 —	0,94 —	1,14 —	1,44 —	1,67 —
	0,55	0,60 —	0,82 —	0,94 —	1,14 —	1,44 —	1,80 —
	0,63	0,60 —	0,82 —	0,94 —	1,14 —	1,44 —	1,80 —
	0,75	0,60 —	0,82 —	0,94 —	1,14 —	1,44 —	1,80 —
	0,88	0,60 —	0,82 —	0,94 —	1,14 —	1,44 —	1,80 —
	1,00	0,60 —	0,82 —	0,94 —	1,14 —	1,44 —	1,80 —
	1,13	— —	— —	— —	— —	— —	— —
	1,25	— —	— —	— —	— —	— —	— —

If both components I and II are made of S320GD or S350GD all values may be increased by 8,3%.

Self drilling screw	Annex 95
<p>JF3-2-5,5 x L JF6-2-5,5 x L</p> <p>JF3-FR-2-5,5 x L JF6-FR-2-5,5 x L</p> <p>with hexagon head or round head with Torx®-drive and sealing washer $\geq \varnothing 11 \text{ mm}$</p>	

	<p>Materials</p> <p>Fastener: stainless steel (1.4301 / 1.4567) – EN 10088 stainless steel (1.4401 / 1.4578) – EN 10088</p> <p>Washer: stainless steel (1.4301) – EN 10088</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: S280GD, S320GD or S350GD – EN 10346</p> <p>Drilling capacity $\Sigma t_i \leq 2 \times 1,00 \text{ mm}$</p> <p>Timber substructures for timber substructures no performance determined</p>
--	--

$t_{N,II} =$	0,40	0,50	0,55	0,63	0,75	0,88	1,00
$M_{t,nom} =$	—						
$V_{R,k}$ for $t_{N,I} =$	0,40	0,96 —	0,96 —	0,96 —	0,96 —	0,96 —	0,96 —
	0,50	0,96 —	1,56 —	1,56 —	1,56 —	1,56 —	1,56 —
	0,55	0,96 —	1,56 —	1,76 —	1,76 —	1,76 —	1,76 —
	0,63	0,96 —	1,56 —	1,76 —	2,09 —	2,09 —	2,09 —
	0,75	0,96 —	1,56 —	1,76 —	2,09 —	2,57 —	2,57 —
	0,88	0,96 —	1,56 —	1,76 —	2,09 —	2,57 —	3,11 —
	1,00	0,96 —	1,56 —	1,76 —	2,09 —	2,57 —	3,11 —
	1,13	—	—	—	—	—	—
	1,25	—	—	—	—	—	—
$N_{R,k}$ for $t_{N,I} =$	0,40	0,60 —	0,82 —	0,94 —	1,14 —	1,44 —	1,46 —
	0,50	0,60 —	0,82 —	0,94 —	1,14 —	1,44 —	1,76 —
	0,55	0,60 —	0,82 —	0,94 —	1,14 —	1,44 —	1,80 —
	0,63	0,60 —	0,82 —	0,94 —	1,14 —	1,44 —	1,80 —
	0,75	0,60 —	0,82 —	0,94 —	1,14 —	1,44 —	1,80 —
	0,88	0,60 —	0,82 —	0,94 —	1,14 —	1,44 —	1,80 —
	1,00	0,60 —	0,82 —	0,94 —	1,14 —	1,44 —	1,80 —
	1,13	—	—	—	—	—	—
	1,25	—	—	—	—	—	—

If both components I and II are made of S320GD or S350GD all values may be increased by 8,3%.

Self drilling screw	Annex 96
<p>JF3-2-5,5 x L JF6-2-5,5 x L</p> <p>JF3-FR-2-5,5 x L JF6-FR-2-5,5 x L</p> <p>with hexagon head or round head with Torx®-drive and sealing washer $\geq \varnothing 14 \text{ mm}$</p>	

	<p>Materials</p> <p>Fastener: stainless steel (1.4301 / 1.4567) – EN 10088 stainless steel (1.4401 / 1.4578) – EN 10088</p> <p>Washer: stainless steel (1.4301) – EN 10088</p> <p>Component I: aluminium-Alloy with $R_{m,min} = 165 \text{ N/mm}^2$ – EN 573</p> <p>Component II: aluminium-Alloy with $R_{m,min} = 165 \text{ N/mm}^2$ – EN 573</p>
	<p>Drilling capacity $\Sigma t_i \leq 2 \times 1,50 \text{ mm}$</p>
	<p>Timber substructures for timber substructures no performance determined</p>

$t_{N,II} =$	0,40	0,50	0,60	0,70	0,80	0,90	1,00	1,20	1,50
$M_{t,nom} =$	—								
$V_{R,k}$ for $t_{N,I} =$	0,40	0,43 —	0,43 —	0,43 —	0,43 —	0,43 —	0,43 —	0,43 —	0,43 —
	0,50	0,43 —	0,62 —	0,62 —	0,62 —	0,62 —	0,62 —	0,62 —	0,62 —
	0,60	0,43 —	0,62 —	0,71 —	0,71 —	0,71 —	0,71 —	0,71 —	0,71 —
	0,70	0,43 —	0,62 —	0,71 —	0,79 —	0,79 —	0,79 —	0,79 —	0,79 —
	0,80	0,43 —	0,62 —	0,71 —	0,79 —	0,88 —	0,88 —	0,88 —	0,88 —
	0,90	0,43 —	0,62 —	0,71 —	0,79 —	0,88 —	1,04 —	1,04 —	1,04 —
	1,00	0,43 —	0,62 —	0,71 —	0,79 —	0,88 —	1,04 —	1,19 —	1,19 —
	1,20	0,43 —	0,62 —	0,71 —	0,79 —	0,88 —	1,04 —	1,19 —	1,24 —
	1,50	0,43 —	0,62 —	0,71 —	0,79 —	0,88 —	1,04 —	1,19 —	1,87 —
$N_{R,III,k} =$	0,24	0,35	0,45	0,58	0,69	0,80	0,91	1,13	1,63

Pull-through resistance of component I according to EN 1999-1-4, section 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.

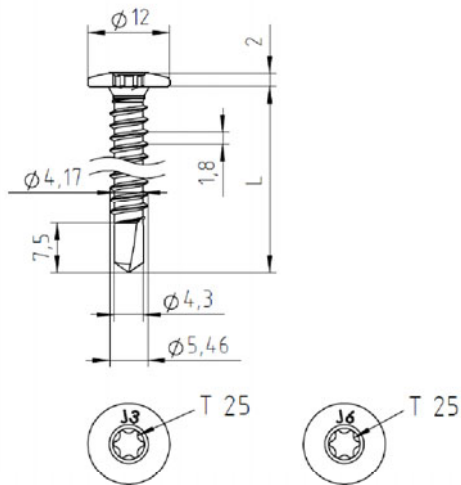
self drilling screw	Annex 97
JF3-2-5,5 x L JF6-2-5,5 x L JF3-FR-2-5,5 x L JF6-FR-2-5,5 x L	
with hexagon head or round head with Torx®-drive and sealing washer $\geq \varnothing 11 \text{ mm}$	

<p>FR-Kopf</p>	<p>Materials</p> <p>Fastener: stainless steel (1.4301) – EN 10088 stainless steel (1.4404) – EN 10088</p> <p>Washer: stainless steel (1.4301) – EN 10088</p> <p>Component I: aluminium-Alloy with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573</p> <p>Component II: aluminium-Alloy with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573</p>
	<p>Drilling capacity $\Sigma t_i \leq 2 \times 1,50 \text{ mm}$</p>
	<p>Timber substructures for timber substructures no performance determined</p>

$t_{N,II} =$	0,40	0,50	0,60	0,70	0,80	0,90	1,00	1,20	1,50
$M_{t,nom} =$	—								
$V_{R,k} \text{ for } t_{N,I} =$	0,40	0,55 —	0,55 —	0,55 —	0,55 —	0,55 —	0,55 —	0,55 —	0,55 —
	0,50	0,55 —	0,79 —	0,79 —	0,79 —	0,79 —	0,79 —	0,79 —	0,79 —
	0,60	0,55 —	0,79 —	0,91 —	0,91 —	0,91 —	0,91 —	0,91 —	0,91 —
	0,70	0,55 —	0,79 —	0,91 —	1,03 —	1,03 —	1,03 —	1,03 —	1,03 —
	0,80	0,55 —	0,79 —	0,91 —	1,03 —	1,15 —	1,15 —	1,15 —	1,15 —
	0,90	0,55 —	0,79 —	0,91 —	1,03 —	1,15 —	1,35 —	1,35 —	1,35 —
	1,00	0,55 —	0,79 —	0,91 —	1,03 —	1,15 —	1,35 —	1,54 —	1,54 —
	1,20	0,55 —	0,79 —	0,91 —	1,03 —	1,15 —	1,35 —	1,54 —	1,62 —
	1,50	0,55 —	0,79 —	0,91 —	1,03 —	1,15 —	1,35 —	1,54 —	2,44 —
$N_{R,III,k} =$	0,31	0,46	0,60	0,75	0,89	1,04	1,18	1,47	2,12

Pull-through resistance of component I according to EN 1999-1-4, section 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.

self drilling screw	Annex 98
JF3-2-5,5 x L JF6-2-5,5 x L JF3-FR-2-5,5 x L JF6-FR-2-5,5 x L with hexagon head or round head with Torx®-drive and sealing washer $\geq \varnothing 11 \text{ mm}$	



Materials

Fastener: stainless steel (1.4301 / 1.4567) – EN 10088
stainless steel (1.4401 / 1.4578) – EN 10088

Washer: none

Component I: S280GD, S320GD or S350GD – EN 10346

Component II: S280GD, S320GD or S350GD – EN 10346

Drilling capacity

$\Sigma t_i \leq 3,50$ mm

Timber substructures

for timber substructures no performance determined

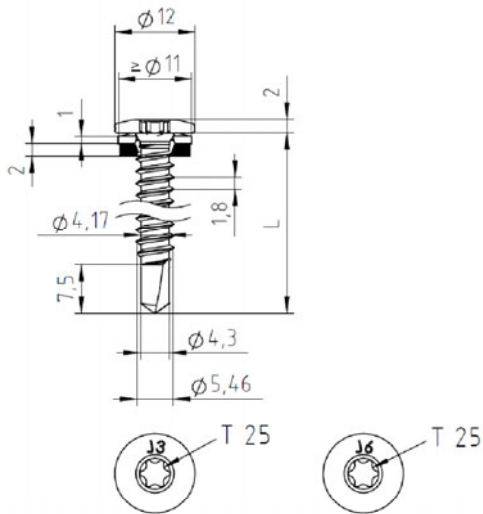
$t_{N,II} =$	1,00	1,13	1,25	1,50	1,75	2,00	2,50	3,00
$M_{t,nom} =$	—							
$V_{R,k}$ for $t_{N,I} =$	0,50	1,21 —	1,30 —	1,39 —	1,57 —	1,57 —	1,57 —	1,57 —
	0,55	1,32 —	1,42 —	1,52 —	1,71 —	1,74 —	1,78 —	1,84 —
	0,63	1,51 —	1,62 —	1,72 —	1,94 —	2,02 —	2,11 —	2,28 —
	0,75	1,78 —	1,91 —	2,03 —	2,28 —	2,44 —	2,61 —	2,93 —
	0,88	2,08 —	2,23 —	2,36 —	2,65 —	2,90 —	3,14 —	3,63 —
	1,00	2,35 —	2,52 —	2,67 —	3,00 —	3,32 —	3,64 —	4,29 —
	1,13	2,71 —	2,90 —	3,07 —	3,43 —	3,79 —	4,16 —	— —
	1,25	3,07 —	3,28 —	3,47 —	3,87 —	4,27 —	4,68 —	— —
	1,50	3,78 —	4,03 —	4,26 —	4,74 —	5,22 —	5,70 —	— —
	1,75	3,78 —	4,03 —	4,26 —	4,74 —	5,22 —	— —	— —
2,00	2,00 —	4,03 —	4,26 —	4,74 —	— —	— —	— —	
$N_{R,k}$ for $t_{N,I} =$	0,50	1,10 —	1,10 —	1,50 —	1,59 ^{a)} —	1,59 ^{a)} —	1,59 ^{a)} —	1,59 ^{a)} —
	0,55	1,10 —	1,10 —	1,50 —	1,82 ^{a)} —	1,82 ^{a)} —	1,82 ^{a)} —	1,82 ^{a)} —
	0,63	1,10 —	1,10 —	1,50 —	2,00 —	2,16 ^{a)} —	2,16 ^{a)} —	2,16 ^{a)} —
	0,75	1,10 —	1,10 —	1,50 —	2,00 —	2,45 —	2,72 ^{a)} —	2,72 ^{a)} —
	0,88	1,10 —	1,10 —	1,50 —	2,00 —	2,45 —	2,90 —	3,35 —
	1,00	1,10 —	1,10 —	1,50 —	2,00 —	2,45 —	2,90 —	3,40 —
	1,13	1,10 —	1,10 —	1,50 —	2,00 —	2,45 —	2,90 —	— —
	1,25	1,10 —	1,10 —	1,50 —	2,00 —	2,45 —	2,90 —	— —
	1,50	1,10 —	1,10 —	1,50 —	2,00 —	2,45 —	2,90 —	— —
	1,75	1,10 —	1,10 —	1,50 —	2,00 —	2,45 —	— —	— —
2,00	1,10 —	1,10 —	1,50 —	2,00 —	— —	— —	— —	

If component I is made of S320GD or S350GD, the values marked with ^{a)} may be increased by 8,3%.

Self drilling screw

JT3-LT-3-5,5 x L JT6-LT-3-5,5 x L
with pan head with Torx®-drive

Annex 99



Materials

Fastener: stainless steel (1.4301 / 1.4567) – EN 10088
stainless steel (1.4401 / 1.4578) – EN 10088
Washer: stainless steel (1.4301) – EN 10088
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S280GD, S320GD or S350GD – EN 10346

Drilling capacity

$\Sigma t_i \leq 3,50$ mm

Timber substructures

for timber substructures no performance determined

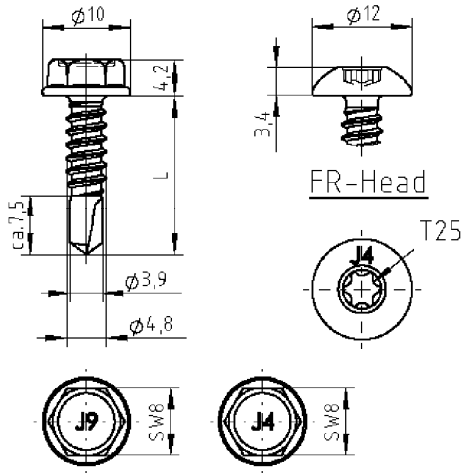
$t_{N,II} =$	1,00	1,13	1,25	1,50	1,75	2,00	2,50	3,00
$M_{t,nom} =$	—							
$V_{R,k}$ for $t_{N,I} =$	0,50	1,60 —	1,60 —	1,60 —	1,60 —	1,60 —	1,60 —	1,60 —
	0,55	1,68 —	1,69 —	1,71 —	1,82 —	1,84 —	1,86 —	1,89 —
	0,63	1,80 —	1,84 —	1,88 —	2,16 —	2,21 —	2,26 —	2,36 —
	0,75	1,98 —	2,06 —	2,14 —	2,68 —	2,78 —	2,88 —	3,07 —
	0,88	2,17 —	2,30 —	2,42 —	3,24 —	3,39 —	3,54 —	3,83 —
	1,00	2,35 —	2,52 —	2,67 —	3,76 —	3,96 —	4,15 —	4,54 —
	1,13	2,71 —	2,90 —	3,07 —	4,01 —	4,28 —	4,54 —	—
	1,25	3,07 —	3,28 —	3,47 —	4,25 —	4,59 —	4,93 —	—
	1,50	3,78 —	4,03 —	4,26 —	4,74 —	5,22 —	5,70 —	—
	1,75	3,78 —	4,03 —	4,26 —	4,74 —	5,22 —	—	—
	2,00	3,78 —	4,03 —	4,26 —	4,74 —	—	—	—
$N_{R,k}$ for $t_{N,I} =$	0,50	0,86 ^{a)} —	0,86 ^{a)} —	0,86 ^{a)} —	0,86 ^{a)} —	0,86 ^{a)} —	0,86 ^{a)} —	0,86 ^{a)} —
	0,55	1,04 —	1,04 —	1,04 ^{a)} —	1,04 ^{a)} —	1,04 ^{a)} —	1,04 ^{a)} —	1,04 ^{a)} —
	0,63	1,10 —	1,10 —	1,20 ^{a)} —	1,20 ^{a)} —	1,20 ^{a)} —	1,20 ^{a)} —	1,20 ^{a)} —
	0,75	1,10 —	1,10 —	1,50 —	1,56 ^{a)} —	1,56 ^{a)} —	1,56 ^{a)} —	1,56 ^{a)} —
	0,88	1,10 —	1,10 —	1,50 —	2,00 —	2,32 ^{a)} —	2,32 ^{a)} —	2,32 ^{a)} —
	1,00	1,10 —	1,10 —	1,50 —	2,00 —	2,32 ^{a)} —	2,32 ^{a)} —	2,32 ^{a)} —
	1,13	1,10 —	1,10 —	1,50 —	2,00 —	2,32 ^{a)} —	2,32 ^{a)} —	—
	1,25	1,10 —	1,10 —	1,50 —	2,00 —	2,32 ^{a)} —	2,32 ^{a)} —	—
	1,50	1,10 —	1,10 —	1,50 —	2,00 —	2,32 ^{a)} —	2,32 ^{a)} —	—
	1,75	1,10 —	1,10 —	1,50 —	2,00 —	2,32 ^{a)} —	—	—
	2,00	1,10 —	1,10 —	1,50 —	2,00 —	—	—	—

If component I is made of S320GD or S350GD, the values marked with ^{a)} may be increased by 8,3%.

Self drilling screw

JT3-LT-3-5,5 x L JT6-LT-3-5,5 x L
with pan head with Torx®-drive and sealing washer $\geq \varnothing 11$ mm

Annex 100



Materials

Fastener: JT4-4-4,8xL:
stainless steel (1.4301 / 14567) – EN 10088
JT9-4-4,8xL:
stainless steel (1.4401 / 1.4578) – EN 10088
Component I: aluminium alloy
with $R_{m,min} = 165 \text{ N/mm}^2$ – EN 573
Component II: aluminium alloy
with $R_{m,min} = 165 \text{ N/mm}^2$ – EN 573

Drilling capacity $\Sigma t_i \leq 4,50 \text{ mm}$

Timber substructures

for timber substructures no performance determined

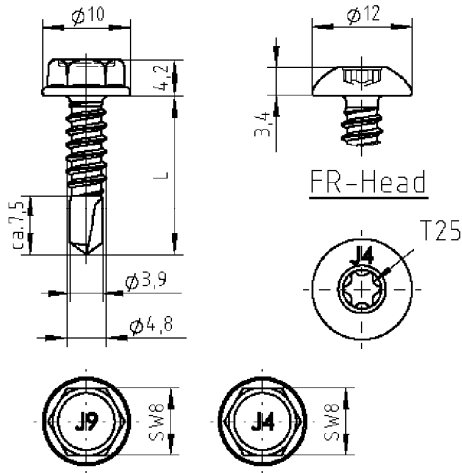
$t_{N,II} =$	2,00	2,50	3,00
$M_{t,nom} =$	—		
$V_{R,k}$ for $t_{N,I} =$			
0,50	0,67 ac	0,67 ac	0,67 ac
0,60	0,87 ac	0,87 ac	0,87 ac
0,70	1,06 ac	1,06 ac	1,06 ac
0,80	1,37 -	1,37 -	1,37 ac
0,90	1,67 -	1,67 -	1,67 a
1,00	1,98 -	1,98 -	1,98 a
1,20	2,21 -	2,41 -	2,60 a
1,50	2,56 -	3,04 -	3,52 a
2,00	- -	- -	- -
$N_{R,II,k} =$	1,40	1,90	2,39

Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.

Self-drilling screw

JT4-(FR-)4-4,8xL
JT9-(FR-)4-4,8xL
With hexagon head or FR-head

Annex 101



Materials

Fastener: JT4-4-4,8xL:
stainless steel (1.4301 / 1.4567) – EN 10088
JT9-4-4,8xL:
stainless steel (1.4401 / 1.4578) – EN 10088
Component I: aluminium alloy
with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573
Component II: aluminium alloy
with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573

Drilling capacity $\Sigma t_i \leq 4,50 \text{ mm}$

Timber substructures

for timber substructures no performance determined

$t_{N,II} =$	2,00	2,50	3,00
$M_{t,nom} =$	—		
$V_{R,k}$ for $t_{N,II} =$			
0,50	0,87 ac	0,87 ac	0,87 ac
0,60	1,13 ac	1,13 ac	1,13 ac
0,70	1,38 ac	1,38 ac	1,38 ac
0,80	1,78 -	1,78 -	1,78 ac
0,90	2,18 -	2,18 -	2,18 a
1,00	2,58 -	2,58 -	2,58 a
1,20	2,88 -	3,14 -	3,39 a
1,50	3,33 -	3,96 -	4,59 a
2,00	- -	- -	- -
$N_{R,II,k} =$	1,83	2,48	3,12

Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.

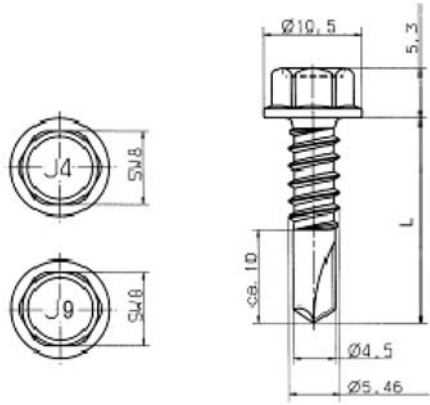
Further particulars:

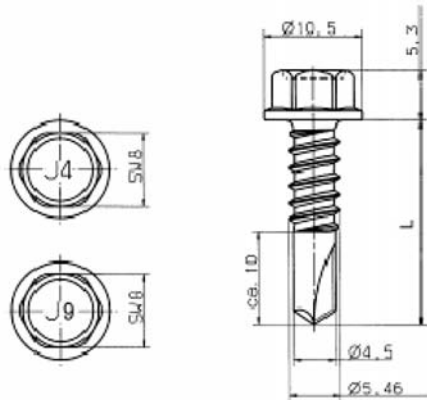
- Component I and II of aluminium with a tensile strength of $R_m \geq 245 \text{ N/mm}^2$: For $R_m \geq 215 \text{ N/mm}^2$ the indicated values of the shear force resistance $V_{R,k}$ can be increased by 14%.
- Component II of aluminium with a tensile strength of $R_m \geq 245 \text{ N/mm}^2$: For $R_m \geq 215 \text{ N/mm}^2$ the indicated values of the pull-out resistance $N_{R,II,k}$ can be increased by 14%.

Self-drilling screw

JT4-(FR-)4-4,8xL
JT9-(FR-)4-4,8xL
With hexagon head or FR-head

Annex 102

	<p><u>Materials</u></p> <p>Fastener: JT4-6-5,5xL stainless steel (1.4301 / 1.4567) – EN 10088 JT9-6-5,5xL stainless steel (1.4401 / 1.4578) – EN 10088</p> <p>Component I: aluminium alloy with $R_{m,min} = 165 \text{ N/mm}^2$ – EN 573</p> <p>Component II: aluminium alloy with $R_{m,min} = 165 \text{ N/mm}^2$ – EN 573</p> <p><u>Drilling capacity</u> $\Sigma t_i \leq 6,50 \text{ mm}$</p> <p><u>Timber substructures</u> for timber substructures no performance determined</p>																																																																								
<table><tr><td>$t_{N,II} =$</td><td>2,00</td><td>2,50</td><td>3,00</td><td>4,00</td><td>5,00</td></tr><tr><td>$M_{t,nom} =$</td><td colspan="5">—</td></tr><tr><td>$V_{R,k}$ for $t_{N,I} =$</td><td>0,50</td><td>0,71 ac</td><td>0,71 ac</td><td>0,71 ac</td><td>0,71 ac</td></tr><tr><td></td><td>0,60</td><td>0,94 ac</td><td>0,94 ac</td><td>0,94 ac</td><td>0,94 ac</td></tr><tr><td></td><td>0,70</td><td>1,17 ac</td><td>1,17 ac</td><td>1,17 ac</td><td>1,17 ac</td></tr><tr><td></td><td>0,80</td><td>1,40 -</td><td>1,40 -</td><td>1,40 ac</td><td>1,40 a</td></tr><tr><td></td><td>0,90</td><td>1,62 -</td><td>1,62 -</td><td>1,62 ac</td><td>1,62 a</td></tr><tr><td></td><td>1,00</td><td>1,84 -</td><td>1,84 -</td><td>1,84 ac</td><td>1,84 a</td></tr><tr><td></td><td>1,20</td><td>2,16 -</td><td>2,21 -</td><td>2,26 -</td><td>2,35 -</td></tr><tr><td></td><td>1,50</td><td>2,65 -</td><td>2,76 -</td><td>2,88 -</td><td>3,11 -</td></tr><tr><td></td><td>2,00</td><td>2,65 -</td><td>2,76 -</td><td>2,88 -</td><td>3,11 -</td></tr><tr><td>$N_{R,II,k} =$</td><td>1,36</td><td>1,77</td><td>2,16</td><td>3,43</td><td>4,70</td></tr></table>		$t_{N,II} =$	2,00	2,50	3,00	4,00	5,00	$M_{t,nom} =$	—					$V_{R,k}$ for $t_{N,I} =$	0,50	0,71 ac	0,71 ac	0,71 ac	0,71 ac		0,60	0,94 ac	0,94 ac	0,94 ac	0,94 ac		0,70	1,17 ac	1,17 ac	1,17 ac	1,17 ac		0,80	1,40 -	1,40 -	1,40 ac	1,40 a		0,90	1,62 -	1,62 -	1,62 ac	1,62 a		1,00	1,84 -	1,84 -	1,84 ac	1,84 a		1,20	2,16 -	2,21 -	2,26 -	2,35 -		1,50	2,65 -	2,76 -	2,88 -	3,11 -		2,00	2,65 -	2,76 -	2,88 -	3,11 -	$N_{R,II,k} =$	1,36	1,77	2,16	3,43	4,70
$t_{N,II} =$	2,00	2,50	3,00	4,00	5,00																																																																				
$M_{t,nom} =$	—																																																																								
$V_{R,k}$ for $t_{N,I} =$	0,50	0,71 ac	0,71 ac	0,71 ac	0,71 ac																																																																				
	0,60	0,94 ac	0,94 ac	0,94 ac	0,94 ac																																																																				
	0,70	1,17 ac	1,17 ac	1,17 ac	1,17 ac																																																																				
	0,80	1,40 -	1,40 -	1,40 ac	1,40 a																																																																				
	0,90	1,62 -	1,62 -	1,62 ac	1,62 a																																																																				
	1,00	1,84 -	1,84 -	1,84 ac	1,84 a																																																																				
	1,20	2,16 -	2,21 -	2,26 -	2,35 -																																																																				
	1,50	2,65 -	2,76 -	2,88 -	3,11 -																																																																				
	2,00	2,65 -	2,76 -	2,88 -	3,11 -																																																																				
$N_{R,II,k} =$	1,36	1,77	2,16	3,43	4,70																																																																				
<p>Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.</p>																																																																									
<p>Self-drilling screw</p> <p>JT4-6-5,5xL JT9-6-5,5xL With hexagon head</p>	<p>Annex 103</p>																																																																								



Materials

Fastener: JT4-6-5,5xL
stainless steel (1.4301 / 1.4567) – EN 10088
JT9-6-5,5xL
stainless steel (1.4401 / 1.4578) – EN 10088
Component I: aluminium alloy
with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573
Component II: aluminium alloy
with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573

Drilling capacity $\Sigma t_i \leq 6,50 \text{ mm}$

Timber substructures

for timber substructures no performance determined

$t_{N,II} =$	2,00	2,50	3,00	4,00	5,00
$M_{t,nom} =$	—				
$V_{R,k}$ for $t_{N,I} =$	0,50	0,93 ac	0,93 ac	0,93 ac	0,93 ac
	0,60	1,23 ac	1,23 ac	1,23 ac	1,23 ac
	0,70	1,53 ac	1,53 ac	1,53 ac	1,53 ac
	0,80	1,82 -	1,82 -	1,82 ac	1,82 a
	0,90	2,11 -	2,11 -	2,11 ac	2,11 a
	1,00	2,40 -	2,40 -	2,40 ac	2,40 a
	1,20	2,82 -	2,88 -	2,94 -	3,06 -
	1,50	3,45 -	3,60 -	3,75 -	4,05 -
	2,00	3,45 -	3,60 -	3,75 -	4,05 -
$N_{R,II,k} =$	1,77	2,30	2,82	4,47	6,12

Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.

Further particulars:

- Component I and II of aluminium with a tensile strength of $R_m \geq 245 \text{ N/mm}^2$: For $R_m \geq 215 \text{ N/mm}^2$ the indicated values of the shear force resistance $V_{R,k}$ can be increased by 14%.
- Component II of aluminium with a tensile strength of $R_m \geq 245 \text{ N/mm}^2$: For $R_m \geq 215 \text{ N/mm}^2$ the indicated values of the pull-out resistance $N_{R,II,k}$ can be increased by 14%.

Self-drilling screw

JT4-6-5,5xL
JT9-6-5,5xL
With hexagon head

Annex 104