

Leistungserklärung

Nr. DOP-003

1.

Eindeutiger Kenncode des Produkttyps

[illegible]

Leistungserklärung Nr. DOP-003

2.	Verwendungszweck(e)	Befestigungsschrauben für Sandwichelemente
3.	Hersteller	Reisser Schraubentechnik GmbH Fritz-Müller-Straße 10 74653 Ingelfingen-Criesbach Deutschland
4.	Bevollmächtigter	-
5.	System zur Bewertung und Überprüfung der Leistungsbeständigkeit	System 2+
6a.	Harmonisierte Norm	-
6b.	Europäisches Bewertungsdokument	EAD 330047-01-0602
Europäische Technische Bewertung ETA-18/1136 vom 13. November 2023		
Technische Bewertungsstelle Deutsches Institut für Bautechnik, Kolonnenstraße 30 B, 10829 Berlin, Deutschland		
Notifizierte Stelle(N) 0769-CPR-VAS-00935		

7.	Erklärte Leistung(en)	
	Wesentliches Merkmal	Produktleistung
	Charakteristische Längszugtragfähigkeit $N_{R,k}$	Siehe Anhang 1-38 (Siehe ETA-18/1136 Anhang 4-47)
	Charakteristische Querkzugtragfähigkeit $V_{R,k}$	Siehe Anhang 1-38 (Siehe ETA-18/1136 Anhang 4-47)
	Max. zul. Schraubenkopfauslenkung u	Siehe Anhang 1-38 (Siehe ETA-18/1136 Anhang 4-47)
	Anwendungsgrenzen	Siehe Anhang 1-38 (Siehe ETA-18/1136 Anhang 4-47)
	Brandverhalten	Klasse A1

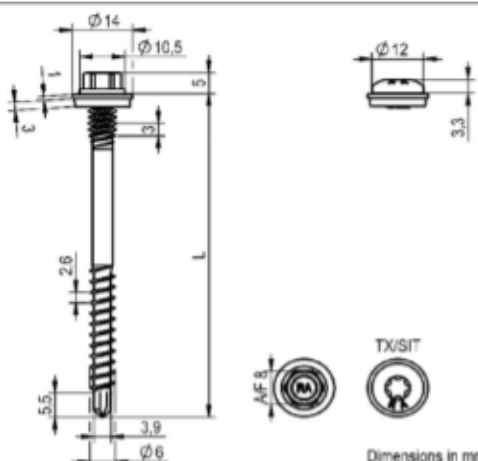
Die Leistung des vorstehenden Produkts entspricht der erklärten Leistung/ den erklärten Leistungen. Für die Erstellung der Leistungserklärung im Einklang mit der Verordnung (EU) Nr. 305/2011 ist allein der oben genannte Hersteller verantwortlich.

Unterzeichnet für den Hersteller und im Namen des Herstellers von:

Criesbach, den 05.09.2024 Ort/Datum	Thomas Benz Name	Prokurist / Bereichsleiter Produktentwicklung & Produktmanagement Stellung	 Unterschrift
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Leistungserklärung Nr. DOP-003

Anhang 1
ETA-18/1136 Anhang 4

 Dimensions in mm	Fastener: stainless steel – EN 10088 steel grade 1.4301, 1.4401, 1.4567, 1.4578 Washer: stainless steel – EN 10088 steel grade 1.4301 or 1.4401 Component I: S280GD to S550GD – EN 10346 Component II: S235 to S275 – EN 10025-1 S280GD to S350GD – EN 10346
	<u>Drilling performance:</u> $\Sigma t_i \leq 3.0 \text{ mm}$
	<u>Timber substructure:</u> Performance not assessed

t_i [mm]	1.25	1.50	1.75	2.00	2.50	3.00	4.00	5.00	6.00	-	-
$V_{R,k}$ [kN] t_{w2} [mm]	0.40	-	0.64	0.64	0.64	-	-	-	-	-	-
	0.50	-	0.93	0.93	0.93	-	-	-	-	-	-
	0.55	-	1.09	1.09	1.09	-	-	-	-	-	-
	0.63	-	1.35	1.35	1.35	-	-	-	-	-	-
	0.75	-	1.91	1.91	1.91	-	-	-	-	-	-
	0.88	-	2.30	2.30	2.30	-	-	-	-	-	-
	1.00	-	2.81	2.81	2.81	-	-	-	-	-	-
$N_{R,k}$ [kN] t_{w1} [mm]	0.40	-	1.00	1.00	1.00	-	-	-	-	-	-
	0.45	-	1.12	1.12	1.12	-	-	-	-	-	-
	0.50	-	1.23	1.23	1.23	-	-	-	-	-	-
	0.55	-	1.57	1.57	1.57	-	-	-	-	-	-
	0.60	-	1.91	1.91	1.91	-	-	-	-	-	-
	0.63	-	2.11	2.11	2.11	-	-	-	-	-	-
	0.70	-	2.66	2.66	2.66	-	-	-	-	-	-
	0.75	-	2.84	2.84	2.84	-	-	-	-	-	-
	0.88	-	2.84	2.84	2.84	-	-	-	-	-	-
1.00	-	2.84	2.84	2.84	-	-	-	-	-	-	
$N_{R,k,II}$ [kN]	-	2.84	2.84	2.84	-	-	-	-	-	-	-
max. U [mm] d, D [mm]	30	-	6.2	5.3	4.6	-	-	-	-	-	-
	40	-	8.2	7.0	6.1	-	-	-	-	-	-
	50	-	10.3	8.8	7.7	-	-	-	-	-	-
	60	-	12.3	10.5	9.2	-	-	-	-	-	-
	70	-	14.4	12.3	10.7	-	-	-	-	-	-
	80	-	16.4	14.0	12.2	-	-	-	-	-	-
	100	-	20.5	17.5	15.3	-	-	-	-	-	-
	120	-	24.7	21.1	18.4	-	-	-	-	-	-
	≥140	-	28.8	24.6	21.4	-	-	-	-	-	-

Thread-forming screws for connecting sandwich panels with steel or timber supporting structures	Annex 4
RP-r-(FK-)(P-)6,0xL with sealing washer $\geq \varnothing 14 \text{ mm}$	

Leistungserklärung Nr. DOP-003

Anhang 2
ETA-18/1136 Anhang 5

Fastener: stainless steel – EN 10088
steel grade 1.4301, 1.4401, 1.4567, 1.4578

Washer: stainless steel – EN 10088
steel grade 1.4301 or 1.4401

Component I: S280GD to S550GD – EN 10346

Component II: S235 to S275 – EN 10025-1
S280GD to S350GD – EN 10346

Drilling performance: $\Sigma t_i \leq 3.0$ mm

Timber substructure: Performance not assessed

t_{bl} [mm]	1.25	1.50	1.75	2.00	2.50	3.00	4.00	5.00	6.00	-	-
$V_{R,k}$ [kN] t_{bl} [mm]	0.40	-	0.64	0.64	0.64	-	-	-	-	-	-
	0.50	-	0.93	0.93	0.93	-	-	-	-	-	-
	0.55	-	1.09	1.09	1.09	-	-	-	-	-	-
	0.63	-	1.35	1.35	1.35	-	-	-	-	-	-
	0.75	-	1.91	1.91	1.91	-	-	-	-	-	-
	0.88	-	2.30	2.30	2.30	-	-	-	-	-	-
	1.00	-	2.81	2.81	2.81	-	-	-	-	-	-
$N_{R,k}$ [kN] t_{bl} [mm]	0.40	-	1.24 ^{a)}	1.24 ^{a)}	1.24 ^{a)}	-	-	-	-	-	-
	0.45	-	1.37 ^{a)}	1.37 ^{a)}	1.37 ^{a)}	-	-	-	-	-	-
	0.50	-	1.49 ^{a)}	1.49 ^{a)}	1.49 ^{a)}	-	-	-	-	-	-
	0.55	-	1.85 ^{a)}	1.85 ^{a)}	1.85 ^{a)}	-	-	-	-	-	-
	0.60	-	2.21 ^{a)}	2.21 ^{a)}	2.21 ^{a)}	-	-	-	-	-	-
	0.63	-	2.43 ^{a)}	2.43 ^{a)}	2.43 ^{a)}	-	-	-	-	-	-
	0.70	-	2.84	2.84	2.84	-	-	-	-	-	-
	0.75	-	2.84	2.84	2.84	-	-	-	-	-	-
	0.88	-	2.84	2.84	2.84	-	-	-	-	-	-
1.00	-	2.84	2.84	2.84	-	-	-	-	-	-	
$N_{R,k,II}$ [kN]		-	2.84	2.84	2.84	-	-	-	-	-	-
max. U [mm] d, D [mm]	30	-	6.2	5.3	4.6	-	-	-	-	-	-
	40	-	8.2	7.0	6.1	-	-	-	-	-	-
	50	-	10.3	8.8	7.7	-	-	-	-	-	-
	60	-	12.3	10.5	9.2	-	-	-	-	-	-
	70	-	14.4	12.3	10.7	-	-	-	-	-	-
	80	-	16.4	14.0	12.2	-	-	-	-	-	-
	100	-	20.5	17.5	15.3	-	-	-	-	-	-
	120	-	24.7	21.1	18.4	-	-	-	-	-	-
	≥140	-	28.8	24.6	21.4	-	-	-	-	-	-

Index ^{a)}: For t_{bl} of least S320GD the indicated values of $N_{R,k}$ can be increased by 6,3%

Thread-forming screws for connecting sandwich panels with steel or timber supporting structures

RP-r-(FK-)(P-)6,0xL
with sealing washer $\geq \varnothing 16$ mm

Annex 5

Leistungserklärung Nr. DOP-003

Anhang 3
ETA-18/1136 Anhang 6

Fastener: stainless steel – EN 10088
steel grade 1.4301, 1.4401, 1.4567, 1.4578

Washer: stainless steel – EN 10088
steel grade 1.4301 or 1.4401

Component I: S280GD to S550GD – EN 10346

Component II: S235 to S275 – EN 10025-1
S280GD to S350GD – EN 10346

Drilling performance: $\Sigma t_i \leq 3.0 \text{ mm}$

Timber substructure: Performance not assessed

t_i [mm]		1.25	1.50	1.75	2.00	2.50	3.00	4.00	5.00	6.00	-	-
$V_{R,k}$ [kN] t_{02} [mm]	0.40	-	0.64	0.64	0.64	-	-	-	-	-	-	-
	0.50	-	0.93	0.93	0.93	-	-	-	-	-	-	-
	0.55	-	1.09	1.09	1.09	-	-	-	-	-	-	-
	0.63	-	1.35	1.35	1.35	-	-	-	-	-	-	-
	0.75	-	1.91	1.91	1.91	-	-	-	-	-	-	-
	0.88	-	2.30	2.30	2.30	-	-	-	-	-	-	-
	1.00	-	2.81	2.81	2.81	-	-	-	-	-	-	-
$N_{R,k}$ [kN] t_{01} [mm]	0.40	-	1.59	1.59	1.59	-	-	-	-	-	-	-
	0.45	-	1.79	1.79	1.79	-	-	-	-	-	-	-
	0.50	-	1.98	1.98	1.98	-	-	-	-	-	-	-
	0.55	-	2.18	2.18	2.18	-	-	-	-	-	-	-
	0.60	-	2.39	2.39	2.39	-	-	-	-	-	-	-
	0.63	-	2.51	2.51	2.51	-	-	-	-	-	-	-
	0.70	-	2.84	2.84	2.84	-	-	-	-	-	-	-
	0.75	-	2.84	2.84	2.84	-	-	-	-	-	-	-
	0.88	-	2.84	2.84	2.84	-	-	-	-	-	-	-
	1.00	-	2.84	2.84	2.84	-	-	-	-	-	-	-
$N_{R,k,II}$ [kN]		-	2.84	2.84	2.84	-	-	-	-	-	-	-
max. U [mm] d, D [mm]	30	-	6.2	5.3	4.6	-	-	-	-	-	-	-
	40	-	8.2	7.0	6.1	-	-	-	-	-	-	-
	50	-	10.3	8.8	7.7	-	-	-	-	-	-	-
	60	-	12.3	10.5	9.2	-	-	-	-	-	-	-
	70	-	14.4	12.3	10.7	-	-	-	-	-	-	-
	80	-	16.4	14.0	12.2	-	-	-	-	-	-	-
	100	-	20.5	17.5	15.3	-	-	-	-	-	-	-
	120	-	24.7	21.1	18.4	-	-	-	-	-	-	-
	≥140	-	28.8	24.6	21.4	-	-	-	-	-	-	-

Thread-forming screws for connecting sandwich panels with steel or timber supporting structures

RP-r-(FK-)(P-)6,0xL
with sealing washer $\geq \varnothing 19 \text{ mm}$

Annex 6

Leistungserklärung Nr. DOP-003

Anhang 4
ETA-18/1136 Anhang 7

Fastener: stainless steel – EN 10088
steel grade 1.4301, 1.4401, 1.4567, 1.4578

Washer: stainless steel – EN 10088
steel grade 1.4301 or 1.4401

Component I: S280GD to S550GD – EN 10346

Component II: S235 to S275 – EN 10025-1
S280GD to S350GD – EN 10346

Drilling performance: $\Sigma t_i \leq 3.0 \text{ mm}$

Timber substructure: Performance not assessed

t_i [mm]	1.25	1.50	1.75	2.00	2.50	3.00	4.00	5.00	6.00	-	-
$V_{R,k}$ [kN] t_{02} [mm]	0.40	-	0.64	0.64	0.64	-	-	-	-	-	-
	0.50	-	0.93	0.93	0.93	-	-	-	-	-	-
	0.55	-	1.09	1.09	1.09	-	-	-	-	-	-
	0.63	-	1.35	1.35	1.35	-	-	-	-	-	-
	0.75	-	1.91	1.91	1.91	-	-	-	-	-	-
	0.88	-	2.30	2.30	2.30	-	-	-	-	-	-
	1.00	-	2.81	2.81	2.81	-	-	-	-	-	-
$N_{R,k}$ [kN] t_{01} [mm]	0.40	-	1.70	1.70	1.70	-	-	-	-	-	-
	0.45	-	1.84	1.84	1.84	-	-	-	-	-	-
	0.50	-	1.98	1.98	1.98	-	-	-	-	-	-
	0.55	-	2.33	2.33	2.33	-	-	-	-	-	-
	0.60	-	2.82	2.82	2.82	-	-	-	-	-	-
	0.63	-	2.84	2.84	2.84	-	-	-	-	-	-
	0.70	-	2.84	2.84	2.84	-	-	-	-	-	-
	0.75	-	2.84	2.84	2.84	-	-	-	-	-	-
	0.88	-	2.84	2.84	2.84	-	-	-	-	-	-
	1.00	-	2.84	2.84	2.84	-	-	-	-	-	-
$N_{R,k,II}$ [kN]	-	2.84	2.84	2.84	-	-	-	-	-	-	-
max. U [mm] d, D [mm]	30	-	6.2	5.3	4.6	-	-	-	-	-	-
	40	-	8.2	7.0	6.1	-	-	-	-	-	-
	50	-	10.3	8.8	7.7	-	-	-	-	-	-
	60	-	12.3	10.5	9.2	-	-	-	-	-	-
	70	-	14.4	12.3	10.7	-	-	-	-	-	-
	80	-	16.4	14.0	12.2	-	-	-	-	-	-
	100	-	20.5	17.5	15.3	-	-	-	-	-	-
	120	-	24.7	21.1	18.4	-	-	-	-	-	-
	≥140	-	28.8	24.6	21.4	-	-	-	-	-	-

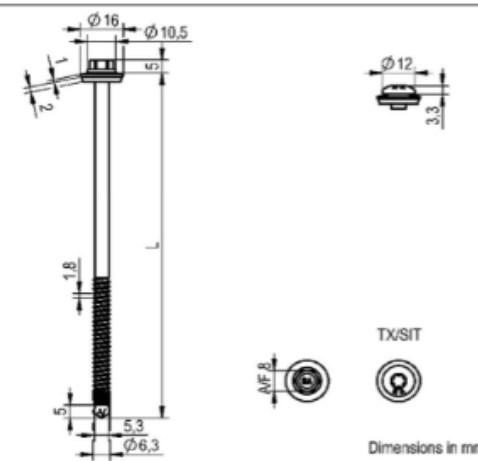
Thread-forming screws for connecting sandwich panels with steel or timber supporting structures

RP-r-(FK-)(P-)6,0xL
with sealing washer $\geq \varnothing 22 \text{ mm}$

Annex 7

Leistungserklärung Nr. DOP-003

Anhang 5
ETA-18/1136 Anhang 8

 TX/SIT Dimensions in mm		Fastener: stainless steel – EN 10088 steel grade 1.4301, 1.4401, 1.4567, 1.4578																																																																																																																																																																																																																																																																																																	
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Drilling performance: $\Sigma t \leq 4.0$ mm																																																																																																																																																																																																																																																																																																			
Timber substructure: Performance not assessed																																																																																																																																																																																																																																																																																																			
<table><tr><th>t_{II} [mm]</th><th>1.25</th><th>1.50</th><th>2.00</th><th>2.50</th><th>3.00</th><th>4.00</th><th>6.00</th><th>-</th><th>-</th><th>-</th><th>-</th></tr><tr><td rowspan="7">$V_{R,k}$ [kN] t_{R2} [mm]</td><td>0.40</td><td>-</td><td>-</td><td>0.86</td><td>0.86</td><td>0.86</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>0.50</td><td>-</td><td>-</td><td>1.35</td><td>1.35</td><td>1.35</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>0.55</td><td>-</td><td>-</td><td>1.60</td><td>1.60</td><td>1.60</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>0.63</td><td>-</td><td>-</td><td>2.00</td><td>2.00</td><td>2.00</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>0.75</td><td>-</td><td>-</td><td>2.60</td><td>2.60</td><td>2.60</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>0.88</td><td>-</td><td>-</td><td>3.50</td><td>3.50</td><td>3.50</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>1.00</td><td>-</td><td>-</td><td>3.50</td><td>3.50</td><td>3.50</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td rowspan="10">$N_{R,k}$ [kN] t_{R1} [mm]</td><td>0.40</td><td>-</td><td>-</td><td>1.59</td><td>1.59</td><td>1.59</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>0.45</td><td>-</td><td>-</td><td>1.79</td><td>1.79</td><td>1.79</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>0.50</td><td>-</td><td>-</td><td>1.88</td><td>1.88</td><td>1.88</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>0.55</td><td>-</td><td>-</td><td>2.00</td><td>2.00</td><td>2.00</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>0.60</td><td>-</td><td>-</td><td>2.50</td><td>2.50</td><td>2.50</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>0.63</td><td>-</td><td>-</td><td>2.80</td><td>2.80</td><td>2.80</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>0.70</td><td>-</td><td>-</td><td>3.26</td><td>3.26</td><td>3.26</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>0.75</td><td>-</td><td>-</td><td>3.60</td><td>3.60</td><td>3.60</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>0.88</td><td>-</td><td>-</td><td>3.60</td><td>3.60</td><td>3.60</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>1.00</td><td>-</td><td>-</td><td>3.60</td><td>3.60</td><td>3.60</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td colspan="2">$N_{R,k,II}$ [kN]</td><td>-</td><td>-</td><td>3.60</td><td>3.60</td><td>3.60</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td rowspan="6">max. U [mm] d, D [mm]</td><td>30</td><td>-</td><td>-</td><td>8.0</td><td>8.0</td><td>8.0</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>40</td><td>-</td><td>-</td><td>11.0</td><td>11.0</td><td>11.0</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>50</td><td>-</td><td>-</td><td>15.0</td><td>15.0</td><td>15.0</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>60</td><td>-</td><td>-</td><td>17.5</td><td>17.5</td><td>17.5</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>70</td><td>-</td><td>-</td><td>20.0</td><td>20.0</td><td>20.0</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>≥80</td><td>-</td><td>-</td><td>23.0</td><td>23.0</td><td>23.0</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr></table>												t_{II} [mm]	1.25	1.50	2.00	2.50	3.00	4.00	6.00	-	-	-	-	$V_{R,k}$ [kN] t_{R2} [mm]	0.40	-	-	0.86	0.86	0.86	-	-	-	-	-	0.50	-	-	1.35	1.35	1.35	-	-	-	-	-	0.55	-	-	1.60	1.60	1.60	-	-	-	-	-	0.63	-	-	2.00	2.00	2.00	-	-	-	-	-	0.75	-	-	2.60	2.60	2.60	-	-	-	-	-	0.88	-	-	3.50	3.50	3.50	-	-	-	-	-	1.00	-	-	3.50	3.50	3.50	-	-	-	-	-	$N_{R,k}$ [kN] t_{R1} [mm]	0.40	-	-	1.59	1.59	1.59	-	-	-	-	-	0.45	-	-	1.79	1.79	1.79	-	-	-	-	-	0.50	-	-	1.88	1.88	1.88	-	-	-	-	-	0.55	-	-	2.00	2.00	2.00	-	-	-	-	-	0.60	-	-	2.50	2.50	2.50	-	-	-	-	-	0.63	-	-	2.80	2.80	2.80	-	-	-	-	-	0.70	-	-	3.26	3.26	3.26	-	-	-	-	-	0.75	-	-	3.60	3.60	3.60	-	-	-	-	-	0.88	-	-	3.60	3.60	3.60	-	-	-	-	-	1.00	-	-	3.60	3.60	3.60	-	-	-	-	-	$N_{R,k,II}$ [kN]		-	-	3.60	3.60	3.60	-	-	-	-	-	max. U [mm] d, D [mm]	30	-	-	8.0	8.0	8.0	-	-	-	-	-	40	-	-	11.0	11.0	11.0	-	-	-	-	-	50	-	-	15.0	15.0	15.0	-	-	-	-	-	60	-	-	17.5	17.5	17.5	-	-	-	-	-	70	-	-	20.0	20.0	20.0	-	-	-	-	-	≥80	-	-	23.0	23.0	23.0	-	-	-	-	-
t_{II} [mm]	1.25	1.50	2.00	2.50	3.00	4.00	6.00	-	-	-	-																																																																																																																																																																																																																																																																																								
$V_{R,k}$ [kN] t_{R2} [mm]	0.40	-	-	0.86	0.86	0.86	-	-	-	-	-																																																																																																																																																																																																																																																																																								
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	0.55	-	-	1.60	1.60	1.60	-	-	-	-	-																																																																																																																																																																																																																																																																																								
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	0.75	-	-	2.60	2.60	2.60	-	-	-	-	-																																																																																																																																																																																																																																																																																								
	0.88	-	-	3.50	3.50	3.50	-	-	-	-	-																																																																																																																																																																																																																																																																																								
	1.00	-	-	3.50	3.50	3.50	-	-	-	-	-																																																																																																																																																																																																																																																																																								
$N_{R,k}$ [kN] t_{R1} [mm]	0.40	-	-	1.59	1.59	1.59	-	-	-	-	-																																																																																																																																																																																																																																																																																								
	0.45	-	-	1.79	1.79	1.79	-	-	-	-	-																																																																																																																																																																																																																																																																																								
	0.50	-	-	1.88	1.88	1.88	-	-	-	-	-																																																																																																																																																																																																																																																																																								
	0.55	-	-	2.00	2.00	2.00	-	-	-	-	-																																																																																																																																																																																																																																																																																								
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	0.63	-	-	2.80	2.80	2.80	-	-	-	-	-																																																																																																																																																																																																																																																																																								
	0.70	-	-	3.26	3.26	3.26	-	-	-	-	-																																																																																																																																																																																																																																																																																								
	0.75	-	-	3.60	3.60	3.60	-	-	-	-	-																																																																																																																																																																																																																																																																																								
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	1.00	-	-	3.60	3.60	3.60	-	-	-	-	-																																																																																																																																																																																																																																																																																								
$N_{R,k,II}$ [kN]		-	-	3.60	3.60	3.60	-	-	-	-	-																																																																																																																																																																																																																																																																																								
max. U [mm] d, D [mm]	30	-	-	8.0	8.0	8.0	-	-	-	-	-																																																																																																																																																																																																																																																																																								
	40	-	-	11.0	11.0	11.0	-	-	-	-	-																																																																																																																																																																																																																																																																																								
	50	-	-	15.0	15.0	15.0	-	-	-	-	-																																																																																																																																																																																																																																																																																								
	60	-	-	17.5	17.5	17.5	-	-	-	-	-																																																																																																																																																																																																																																																																																								
	70	-	-	20.0	20.0	20.0	-	-	-	-	-																																																																																																																																																																																																																																																																																								
	≥80	-	-	23.0	23.0	23.0	-	-	-	-	-																																																																																																																																																																																																																																																																																								
Thread-forming screws for connecting sandwich panels with steel or timber supporting structures										Annex 8																																																																																																																																																																																																																																																																																									
RP-C3-(FK)-J6,3 with sealing washer ≥ ∅ 16 mm																																																																																																																																																																																																																																																																																																			

Leistungserklärung Nr. DOP-003

Anhang 6
ETA-18/1136 Anhang 12

Fastener: stainless steel – EN 10088
steel grade 1.4301, 1.4401, 1.4567, 1.4578

Washer: stainless steel – EN 10088
steel grade 1.4301 or 1.4401

Component I: S280GD to S350GD – EN 10346

Component II: S235 to S275 – EN 10025-1
S280GD to S350GD – EN 10346

Drilling performance: $\Sigma t \leq 5.0$ mm

Timber substructure: Performance not assessed

t_{II} [mm]	1.25	1.50	1.75	2.00	2.50	3.00	3.50	4.00	5.00	-	-	
$V_{R,k}$ [kN] t_{II} [mm]	0.40	-	0.64	0.64	0.64	0.64	0.64	0.64	0.64	-	-	
	0.50	-	0.93	0.93	0.93	0.93	0.93	0.93	0.93	-	-	
	0.55	-	1.09	1.09	1.09	1.09	1.09	1.09	1.09	-	-	
	0.63	-	1.35	1.35	1.35	1.35	1.35	1.35	1.35	-	-	
	0.75	-	1.91	1.91	1.91	1.91	1.91	1.91	1.91	-	-	
	0.88	-	2.30	2.30	2.30	2.30	2.30	2.30	2.30	-	-	
	1.00	-	2.81	2.81	2.81	2.81	2.81	2.81	2.81	-	-	
$N_{R,k}$ [kN] t_{II} [mm]	0.40	-	1.11	1.11	1.11	1.11	1.11	1.11	1.11	-	-	
	0.45	-	1.15	1.15	1.15	1.15	1.15	1.15	1.15	-	-	
	0.50	-	1.18 ^{a)}	1.18 ^{a)}	1.18 ^{a)}	1.18 ^{a)}	1.18 ^{a)}	1.18 ^{a)}	1.18 ^{a)}	-	-	
	0.55	-	1.55 ^{a)}	1.55 ^{a)}	1.55 ^{a)}	1.55 ^{a)}	1.55 ^{a)}	1.55 ^{a)}	1.55 ^{a)}	-	-	
	0.60	-	1.80	1.92 ^{a)}	1.92 ^{a)}	1.92 ^{a)}	1.92 ^{a)}	1.92 ^{a)}	1.92 ^{a)}	-	-	
	0.63	-	1.80	2.14 ^{a)}	2.14 ^{a)}	2.14 ^{a)}	2.14 ^{a)}	2.14 ^{a)}	2.14 ^{a)}	-	-	
	0.70	-	1.80	2.49 ^{a)}	2.65 ^{a)}	2.65 ^{a)}	2.65 ^{a)}	2.65 ^{a)}	2.65 ^{a)}	-	-	
	0.75	-	1.80	2.49 ^{a)}	3.02 ^{a)}	3.02 ^{a)}	3.02 ^{a)}	3.02 ^{a)}	3.02 ^{a)}	-	-	
	0.88	-	1.80	2.49 ^{a)}	3.17 ^{a)}	3.53 ^{a)}	3.53 ^{a)}	3.53 ^{a)}	3.53 ^{a)}	-	-	
1.00	-	1.80	2.49 ^{a)}	3.17 ^{a)}	4.01 ^{a)}	4.01 ^{a)}	4.01 ^{a)}	4.01 ^{a)}	-	-		
$N_{R,k,II}$ [kN]	-	1.80	2.49 ^{c)}	3.17 ^{c)}	4.52 ^{c)}	5.86 ^{c)}	6.54 ^{c)}	7.21 ^{c)}	8.17 ^{c)}	-	-	
max. U [mm] d, D [mm]	30	-	6.0	5.1	4.5	3.6	3.0	2.6	2.3	2.1	-	-
	40	-	8.0	6.9	6.0	4.8	4.0	3.4	3.0	2.8	-	-
	50	-	10.0	8.6	7.5	6.0	5.0	4.3	3.8	3.5	-	-
	60	-	12.0	10.3	9.0	7.2	6.0	5.1	4.5	4.2	-	-
	70	-	14.0	12.0	10.5	8.4	7.0	6.0	5.3	4.9	-	-
	80	-	16.0	13.7	12.0	9.6	8.0	6.9	6.0	5.6	-	-
	100	-	20.0	17.1	15.0	12.0	10.0	8.6	7.5	7.0	-	-
	120	-	24.0	20.6	18.0	14.4	12.0	10.3	9.0	8.4	-	-
	≥140	-	28.0	24.0	21.0	16.8	14.0	12.0	10.5	9.8	-	-

Index ^{a)}: For t_{II} of least S320GD the indicated values of $N_{R,k}$ can be increased by 8,3%
Index ^{c)}: For t_{II} of least S320GD the indicated values of $N_{R,k,II}$ can be increased by 8,3%

Thread-forming screws for connecting sandwich panels with steel or timber supporting structures

RP-WS-(FK)-(P)-6,5xL
with sealing washer $\geq \varnothing 16$ mm

Annex 12

Leistungserklärung Nr. DOP-003

Anhang 7
ETA-18/1136 Anhang 13

Fastener: stainless steel – EN 10088
steel grade 1.4301, 1.4401, 1.4567, 1.4578

Washer: stainless steel – EN 10088
steel grade 1.4301 or 1.4401

Component I: S280GD to S350GD – EN 10346

Component II: S235 to S275 – EN 10025-1
S280GD to S350GD – EN 10346

Drilling performance: $\Sigma t_i \leq 5.0 \text{ mm}$

Timber substructure: Performance not assessed

t_{II} [mm]	1.25	1.50	1.75	2.00	2.50	3.00	3.50	4.00	5.00	-	-
$V_{R,k}$ [kN] t_{R2} [mm]	0.40	-	0.64	0.64	0.64	0.64	0.64	0.64	0.64	-	-
	0.50	-	0.93	0.93	0.93	0.93	0.93	0.93	0.93	-	-
	0.55	-	1.09	1.09	1.09	1.09	1.09	1.09	1.09	-	-
	0.63	-	1.35	1.35	1.35	1.35	1.35	1.35	1.35	-	-
	0.75	-	1.91	1.91	1.91	1.91	1.91	1.91	1.91	-	-
	0.88	-	2.30	2.30	2.30	2.30	2.30	2.30	2.30	-	-
	1.00	-	2.81	2.81	2.81	2.81	2.81	2.81	2.81	-	-
$N_{R,k}$ [kN] t_{R1} [mm]	0.40	-	1.40	1.40	1.40	1.40	1.40	1.40	1.40	-	-
	0.45	-	1.45	1.45	1.45	1.45	1.45	1.45	1.45	-	-
	0.50	-	1.51 ^{a)}	1.51 ^{a)}	1.51 ^{a)}	1.51 ^{a)}	1.51 ^{a)}	1.51 ^{a)}	1.51 ^{a)}	-	-
	0.55	-	1.80	1.94 ^{a)}	1.94 ^{a)}	1.94 ^{a)}	1.94 ^{a)}	1.94 ^{a)}	1.94 ^{a)}	-	-
	0.60	-	1.80	2.37 ^{a)}	2.37 ^{a)}	2.37 ^{a)}	2.37 ^{a)}	2.37 ^{a)}	2.37 ^{a)}	-	-
	0.63	-	1.80	2.49 ^{a)}	2.63 ^{a)}	2.63 ^{a)}	2.63 ^{a)}	2.63 ^{a)}	2.63 ^{a)}	-	-
	0.70	-	1.80	2.49 ^{a)}	3.17 ^{a)}	3.23 ^{a)}	3.23 ^{a)}	3.23 ^{a)}	3.23 ^{a)}	-	-
	0.75	-	1.80	2.49 ^{a)}	3.17 ^{a)}	3.66 ^{a)}	3.66 ^{a)}	3.66 ^{a)}	3.66 ^{a)}	-	-
	0.88	-	1.80	2.49 ^{a)}	3.17 ^{a)}	4.08 ^{a)}	4.08 ^{a)}	4.08 ^{a)}	4.08 ^{a)}	-	-
	1.00	-	1.80	2.49 ^{a)}	3.17 ^{a)}	4.47 ^{a)}	4.47 ^{a)}	4.47 ^{a)}	4.47 ^{a)}	-	-
$N_{R,k,II}$ [kN]	-	1.80	2.49 ^{c)}	3.17 ^{c)}	4.52 ^{c)}	5.86 ^{c)}	6.54 ^{c)}	7.21 ^{c)}	8.17 ^{c)}	-	-
max. U [mm] d, D [mm]	30	-	6.0	5.1	4.5	3.6	3.0	2.6	2.3	-	-
	40	-	8.0	6.9	6.0	4.8	4.0	3.4	3.0	-	-
	50	-	10.0	8.6	7.5	6.0	5.0	4.3	3.8	-	-
	60	-	12.0	10.3	9.0	7.2	6.0	5.1	4.5	-	-
	70	-	14.0	12.0	10.5	8.4	7.0	6.0	5.3	-	-
	80	-	16.0	13.7	12.0	9.6	8.0	6.9	6.0	-	-
	100	-	20.0	17.1	15.0	12.0	10.0	8.6	7.5	-	-
	120	-	24.0	20.6	18.0	14.4	12.0	10.3	9.0	-	-
≥ 140	-	28.0	24.0	21.0	16.8	14.0	12.0	10.5	9.8	-	-

Index ^{a)}: For t_{R1} of least S320GD the indicated values of $N_{R,k}$ can be increased by 8,3%
Index ^{c)}: For t_{II} of least S320GD the indicated values of $N_{R,k,k}$ can be increased by 8,3%

Thread-forming screws for connecting sandwich panels with steel or timber supporting structures	Annex 13
RP-WS-(FK)-(P)-6,5xL with sealing washer $\geq \varnothing 19 \text{ mm}$	

Leistungserklärung Nr. DOP-003

Anhang 8
ETA-18/1136 Anhang 14

Fastener: stainless steel – EN 10088
steel grade 1.4301, 1.4401, 1.4567, 1.4578

Washer: stainless steel – EN 10088
steel grade 1.4301 or 1.4401

Component I: S280GD to S350GD – EN 10346

Component II: S235 to S275 – EN 10025-1
S280GD to S350GD – EN 10346

Drilling performance: $\Sigma t_i \leq 5.0 \text{ mm}$

Timber substructure: Performance not assessed

t_{ti} [mm]	1.25	1.50	1.75	2.00	2.50	3.00	3.50	4.00	5.00	-	-
$V_{R,k}$ [kN] t_{R2} [mm]	0.40	-	0.64	0.64	0.64	0.64	0.64	0.64	0.64	-	-
	0.50	-	0.93	0.93	0.93	0.93	0.93	0.93	0.93	-	-
	0.55	-	1.09	1.09	1.09	1.09	1.09	1.09	1.09	-	-
	0.63	-	1.35	1.35	1.35	1.35	1.35	1.35	1.35	-	-
	0.75	-	1.91	1.91	1.91	1.91	1.91	1.91	1.91	-	-
	0.88	-	2.30	2.30	2.30	2.30	2.30	2.30	2.30	-	-
	1.00	-	2.81	2.81	2.81	2.81	2.81	2.81	2.81	-	-
$N_{R,k}$ [kN] t_{R1} [mm]	0.40	-	1.70	1.70	1.70	1.70	1.70	1.70	1.70	-	-
	0.45	-	1.76	1.76	1.76	1.76	1.76	1.76	1.76	-	-
	0.50	-	1.80	1.83 ^{a)}	1.83 ^{a)}	1.83 ^{a)}	1.83 ^{a)}	1.83 ^{a)}	1.83 ^{a)}	-	-
	0.55	-	1.80	2.33 ^{a)}	2.33 ^{a)}	2.33 ^{a)}	2.33 ^{a)}	2.33 ^{a)}	2.33 ^{a)}	-	-
	0.60	-	1.80	2.49 ^{a)}	2.82 ^{a)}	2.82 ^{a)}	2.82 ^{a)}	2.82 ^{a)}	2.82 ^{a)}	-	-
	0.63	-	1.80	2.49 ^{a)}	3.12 ^{a)}	3.12 ^{a)}	3.12 ^{a)}	3.12 ^{a)}	3.12 ^{a)}	-	-
	0.70	-	1.80	2.49 ^{a)}	3.17 ^{a)}	3.81 ^{a)}	3.81 ^{a)}	3.81 ^{a)}	3.81 ^{a)}	-	-
	0.75	-	1.80	2.49 ^{a)}	3.17 ^{a)}	4.31 ^{a)}	4.31 ^{a)}	4.31 ^{a)}	4.31 ^{a)}	-	-
	0.88	-	1.80	2.49 ^{a)}	3.17 ^{a)}	4.52 ^{a)}	4.64 ^{a)}	4.64 ^{a)}	4.64 ^{a)}	-	-
	1.00	-	1.80	2.49 ^{a)}	3.17 ^{a)}	4.52 ^{a)}	4.94 ^{a)}	4.94 ^{a)}	4.94 ^{a)}	-	-
$N_{R,k,II}$ [kN]		-	1.80	2.49 ^{c)}	3.17 ^{c)}	4.52 ^{c)}	5.86 ^{c)}	6.54 ^{c)}	7.21 ^{c)}	8.17 ^{c)}	-
max. U [mm] d, D [mm]	30	-	6.0	5.1	4.5	3.6	3.0	2.6	2.3	2.1	-
	40	-	8.0	6.9	6.0	4.8	4.0	3.4	3.0	2.8	-
	50	-	10.0	8.6	7.5	6.0	5.0	4.3	3.8	3.5	-
	60	-	12.0	10.3	9.0	7.2	6.0	5.1	4.5	4.2	-
	70	-	14.0	12.0	10.5	8.4	7.0	6.0	5.3	4.9	-
	80	-	16.0	13.7	12.0	9.6	8.0	6.9	6.0	5.6	-
	100	-	20.0	17.1	15.0	12.0	10.0	8.6	7.5	7.0	-
	120	-	24.0	20.6	18.0	14.4	12.0	10.3	9.0	8.4	-
≥140	-	28.0	24.0	21.0	16.8	14.0	12.0	10.5	9.8	-	

Index ^{a)}: For t_{R1} of least S320GD the indicated values of $N_{R,k}$ can be increased by 8,3%
Index ^{c)}: For t_{ti} of least S320GD the indicated values of $N_{R,k,II}$ can be increased by 8,3%

Thread-forming screws for connecting sandwich panels with steel or timber supporting structures

RP-WS-(FK)-(P-)6,5xL
with sealing washer $\geq \varnothing 22 \text{ mm}$

Annex 14

Leistungserklärung Nr. DOP-003

Anhang 9
ETA-18/1136 Anhang 15

		Fastener: stainless steel – EN 10088 steel grade 1.4301, 1.4401, 1.4567, 1.4578 Washer: stainless steel – EN 10088 steel grade 1.4301 or 1.4401 Component I: S280GD to S550GD – EN 10346 Component II: S235 to S275 – EN 10025-1 S280GD to S350GD – EN 10346 S450GD ≤ 3.0 mm – EN 10346																																																																																																																																																																																																																																																																																																											
Drilling performance: $\Sigma t_i \leq 5.25$ mm		Timber substructure: Performance not assessed																																																																																																																																																																																																																																																																																																											
<table> <tr> <th>t_{li} [mm]</th><th>1.50</th><th>1.75</th><th>2.00</th><th>2.50</th><th>3.00</th><th>3.50</th><th>4.00</th><th>5.00</th><th>≥6.00</th><th>-</th><th>-</th></tr> <tr> <td>$V_{R,k}$ [kN]</td><td>0.40</td><td>0.63</td><td>0.63</td><td>0.63</td><td>0.63</td><td>0.63</td><td>0.63</td><td>0.63</td><td>-</td><td>-</td><td>-</td></tr> <tr> <td>t_{li2} [mm]</td><td>0.50</td><td>1.08</td><td>1.08</td><td>1.08</td><td>1.08</td><td>1.08</td><td>1.08</td><td>1.08</td><td>-</td><td>-</td><td>-</td></tr> <tr> <td></td><td>0.55</td><td>1.30</td><td>1.30</td><td>1.30</td><td>1.40</td><td>1.40</td><td>1.40</td><td>1.40</td><td>-</td><td>-</td><td>-</td></tr> <tr> <td></td><td>0.63</td><td>1.52</td><td>1.52</td><td>1.60</td><td>1.70</td><td>1.80</td><td>1.80</td><td>2.00</td><td>-</td><td>-</td><td>-</td></tr> <tr> <td></td><td>0.75</td><td>1.84</td><td>1.84</td><td>1.90</td><td>2.10</td><td>2.30</td><td>2.30</td><td>2.60</td><td>-</td><td>-</td><td>-</td></tr> <tr> <td></td><td>0.88</td><td>2.52</td><td>2.52</td><td>2.70</td><td>2.90</td><td>3.10</td><td>3.10</td><td>3.40</td><td>-</td><td>-</td><td>-</td></tr> <tr> <td></td><td>1.00</td><td>3.20</td><td>3.20</td><td>3.50</td><td>3.70</td><td>3.90</td><td>3.90</td><td>4.20</td><td>-</td><td>-</td><td>-</td></tr> <tr> <td>$N_{R,k}$ [kN]</td><td>0.40</td><td>1.05</td><td>1.05</td><td>1.05</td><td>1.05</td><td>1.05</td><td>1.05</td><td>1.05</td><td>-</td><td>-</td><td>-</td></tr> <tr> <td>t_{li1} [mm]</td><td>0.45</td><td>1.34</td><td>1.34</td><td>1.34</td><td>1.34</td><td>1.34</td><td>1.34</td><td>1.34</td><td>-</td><td>-</td><td>-</td></tr> <tr> <td></td><td>0.50</td><td>1.63</td><td>1.63</td><td>1.63</td><td>1.63</td><td>1.63</td><td>1.63</td><td>1.63</td><td>-</td><td>-</td><td>-</td></tr> <tr> <td></td><td>0.55</td><td>1.68</td><td>1.82</td><td>1.82</td><td>1.82</td><td>1.82</td><td>1.82</td><td>1.82</td><td>-</td><td>-</td><td>-</td></tr> <tr> <td></td><td>0.60</td><td>1.68</td><td>1.94</td><td>2.00</td><td>2.00</td><td>2.00</td><td>2.00</td><td>2.00</td><td>-</td><td>-</td><td>-</td></tr> <tr> <td></td><td>0.63</td><td>1.68</td><td>1.94</td><td>2.11</td><td>2.11</td><td>2.11</td><td>2.11</td><td>2.11</td><td>-</td><td>-</td><td>-</td></tr> <tr> <td></td><td>0.70</td><td>1.68</td><td>1.94</td><td>2.20</td><td>2.38</td><td>2.38</td><td>2.38</td><td>2.38</td><td>-</td><td>-</td><td>-</td></tr> <tr> <td></td><td>0.75</td><td>1.68</td><td>1.94</td><td>2.20</td><td>2.57</td><td>2.57</td><td>2.57</td><td>2.57</td><td>-</td><td>-</td><td>-</td></tr> <tr> <td></td><td>0.88</td><td>1.68</td><td>1.94</td><td>2.20</td><td>3.05</td><td>3.05</td><td>3.05</td><td>3.05</td><td>-</td><td>-</td><td>-</td></tr> <tr> <td></td><td>1.00</td><td>1.68</td><td>1.94</td><td>2.20</td><td>3.25</td><td>3.51</td><td>3.51</td><td>3.51</td><td>-</td><td>-</td><td>-</td></tr> <tr> <td>$N_{R,k,II}$ [kN]</td><td></td><td>1.68</td><td>1.94</td><td>2.20</td><td>3.25</td><td>4.30</td><td>5.63</td><td>6.95^{c)}</td><td>-</td><td>-</td><td>-</td></tr> <tr> <td>max. U [mm]</td><td>30</td><td>14.0</td><td>12.0</td><td>12.0</td><td>8.4</td><td>7.2</td><td>6.4</td><td>6.4</td><td>-</td><td>-</td><td>-</td></tr> <tr> <td>d, D [mm]</td><td>40</td><td>17.5</td><td>15.0</td><td>15.0</td><td>10.4</td><td>9.2</td><td>7.6</td><td>7.6</td><td>-</td><td>-</td><td>-</td></tr> <tr> <td></td><td>50</td><td>21.0</td><td>18.0</td><td>18.0</td><td>12.4</td><td>11.2</td><td>8.8</td><td>8.8</td><td>-</td><td>-</td><td>-</td></tr> <tr> <td></td><td>60</td><td>24.5</td><td>21.0</td><td>21.0</td><td>13.6</td><td>12.8</td><td>10.8</td><td>10.8</td><td>-</td><td>-</td><td>-</td></tr> <tr> <td></td><td>70</td><td>28.0</td><td>24.0</td><td>24.0</td><td>19.0</td><td>18.0</td><td>16.0</td><td>16.0</td><td>-</td><td>-</td><td>-</td></tr> <tr> <td></td><td>≥80</td><td>28.0</td><td>24.0</td><td>24.0</td><td>19.0</td><td>18.0</td><td>16.0</td><td>16.0</td><td>-</td><td>-</td><td>-</td></tr> </table>		t_{li} [mm]	1.50	1.75	2.00	2.50	3.00	3.50	4.00	5.00	≥6.00	-	-	$V_{R,k}$ [kN]	0.40	0.63	0.63	0.63	0.63	0.63	0.63	0.63	-	-	-	t_{li2} [mm]	0.50	1.08	1.08	1.08	1.08	1.08	1.08	1.08	-	-	-		0.55	1.30	1.30	1.30	1.40	1.40	1.40	1.40	-	-	-		0.63	1.52	1.52	1.60	1.70	1.80	1.80	2.00	-	-	-		0.75	1.84	1.84	1.90	2.10	2.30	2.30	2.60	-	-	-		0.88	2.52	2.52	2.70	2.90	3.10	3.10	3.40	-	-	-		1.00	3.20	3.20	3.50	3.70	3.90	3.90	4.20	-	-	-	$N_{R,k}$ [kN]	0.40	1.05	1.05	1.05	1.05	1.05	1.05	1.05	-	-	-	t_{li1} [mm]	0.45	1.34	1.34	1.34	1.34	1.34	1.34	1.34	-	-	-		0.50	1.63	1.63	1.63	1.63	1.63	1.63	1.63	-	-	-		0.55	1.68	1.82	1.82	1.82	1.82	1.82	1.82	-	-	-		0.60	1.68	1.94	2.00	2.00	2.00	2.00	2.00	-	-	-		0.63	1.68	1.94	2.11	2.11	2.11	2.11	2.11	-	-	-		0.70	1.68	1.94	2.20	2.38	2.38	2.38	2.38	-	-	-		0.75	1.68	1.94	2.20	2.57	2.57	2.57	2.57	-	-	-		0.88	1.68	1.94	2.20	3.05	3.05	3.05	3.05	-	-	-		1.00	1.68	1.94	2.20	3.25	3.51	3.51	3.51	-	-	-	$N_{R,k,II}$ [kN]		1.68	1.94	2.20	3.25	4.30	5.63	6.95 ^{c)}	-	-	-	max. U [mm]	30	14.0	12.0	12.0	8.4	7.2	6.4	6.4	-	-	-	d, D [mm]	40	17.5	15.0	15.0	10.4	9.2	7.6	7.6	-	-	-		50	21.0	18.0	18.0	12.4	11.2	8.8	8.8	-	-	-		60	24.5	21.0	21.0	13.6	12.8	10.8	10.8	-	-	-		70	28.0	24.0	24.0	19.0	18.0	16.0	16.0	-	-	-		≥80	28.0	24.0	24.0	19.0	18.0	16.0	16.0	-	-	-
t_{li} [mm]	1.50	1.75	2.00	2.50	3.00	3.50	4.00	5.00	≥6.00	-	-																																																																																																																																																																																																																																																																																																		
$V_{R,k}$ [kN]	0.40	0.63	0.63	0.63	0.63	0.63	0.63	0.63	-	-	-																																																																																																																																																																																																																																																																																																		
t_{li2} [mm]	0.50	1.08	1.08	1.08	1.08	1.08	1.08	1.08	-	-	-																																																																																																																																																																																																																																																																																																		
	0.55	1.30	1.30	1.30	1.40	1.40	1.40	1.40	-	-	-																																																																																																																																																																																																																																																																																																		
	0.63	1.52	1.52	1.60	1.70	1.80	1.80	2.00	-	-	-																																																																																																																																																																																																																																																																																																		
	0.75	1.84	1.84	1.90	2.10	2.30	2.30	2.60	-	-	-																																																																																																																																																																																																																																																																																																		
	0.88	2.52	2.52	2.70	2.90	3.10	3.10	3.40	-	-	-																																																																																																																																																																																																																																																																																																		
	1.00	3.20	3.20	3.50	3.70	3.90	3.90	4.20	-	-	-																																																																																																																																																																																																																																																																																																		
$N_{R,k}$ [kN]	0.40	1.05	1.05	1.05	1.05	1.05	1.05	1.05	-	-	-																																																																																																																																																																																																																																																																																																		
t_{li1} [mm]	0.45	1.34	1.34	1.34	1.34	1.34	1.34	1.34	-	-	-																																																																																																																																																																																																																																																																																																		
	0.50	1.63	1.63	1.63	1.63	1.63	1.63	1.63	-	-	-																																																																																																																																																																																																																																																																																																		
	0.55	1.68	1.82	1.82	1.82	1.82	1.82	1.82	-	-	-																																																																																																																																																																																																																																																																																																		
	0.60	1.68	1.94	2.00	2.00	2.00	2.00	2.00	-	-	-																																																																																																																																																																																																																																																																																																		
	0.63	1.68	1.94	2.11	2.11	2.11	2.11	2.11	-	-	-																																																																																																																																																																																																																																																																																																		
	0.70	1.68	1.94	2.20	2.38	2.38	2.38	2.38	-	-	-																																																																																																																																																																																																																																																																																																		
	0.75	1.68	1.94	2.20	2.57	2.57	2.57	2.57	-	-	-																																																																																																																																																																																																																																																																																																		
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	1.00	1.68	1.94	2.20	3.25	3.51	3.51	3.51	-	-	-																																																																																																																																																																																																																																																																																																		
$N_{R,k,II}$ [kN]		1.68	1.94	2.20	3.25	4.30	5.63	6.95 ^{c)}	-	-	-																																																																																																																																																																																																																																																																																																		
max. U [mm]	30	14.0	12.0	12.0	8.4	7.2	6.4	6.4	-	-	-																																																																																																																																																																																																																																																																																																		
d, D [mm]	40	17.5	15.0	15.0	10.4	9.2	7.6	7.6	-	-	-																																																																																																																																																																																																																																																																																																		
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	70	28.0	24.0	24.0	19.0	18.0	16.0	16.0	-	-	-																																																																																																																																																																																																																																																																																																		
	≥80	28.0	24.0	24.0	19.0	18.0	16.0	16.0	-	-	-																																																																																																																																																																																																																																																																																																		
Index ^{c)} For t_{li} of least S320GD the indicated values of $N_{R,k,II}$ can be increased by 8,3%																																																																																																																																																																																																																																																																																																													
Thread-forming screws for connecting sandwich panels with steel or timber supporting structures		Annex 15																																																																																																																																																																																																																																																																																																											
RP-(7)K-(FK-)(P-)-5,5xL with sealing washer ≥ 16 mm																																																																																																																																																																																																																																																																																																													

Leistungserklärung Nr. DOP-003

Anhang 10
ETA-18/1136 Anhang 16

Fastener: stainless steel – EN 10088
steel grade 1.4301, 1.4401, 1.4567, 1.4578

Washer: stainless steel – EN 10088
steel grade 1.4301 or 1.4401

Component I: S280GD to S550GD – EN 10346

Component II: S235 to S275 – EN 10025-1
S280GD to S350GD – EN 10346
S450GD ≤ 3.0 mm – EN 10346

Drilling performance: $\Sigma t \leq 5.25$ mm

Timber substructure: Performance not assessed

t_{II} [mm]	1.50	1.75	2.00	2.50	3.00	3.50	4.00	5.00	≥6.00	-	-
$V_{R,k}$ [kN] t_{R2} [mm]	0.40	0.63	0.63	0.63	0.63	0.63	0.63	-	-	-	-
	0.50	1.08	1.08	1.08	1.08	1.08	1.08	-	-	-	-
	0.55	1.30	1.30	1.30	1.40	1.40	1.40	-	-	-	-
	0.63	1.52	1.52	1.60	1.70	1.80	1.80	2.00	-	-	-
	0.75	1.84	1.84	1.90	2.10	2.30	2.30	2.60	-	-	-
	0.88	2.52	2.52	2.70	2.90	3.10	3.10	3.40	-	-	-
	1.00	3.20	3.20	3.50	3.70	3.90	3.90	4.20	-	-	-
$N_{R,k}$ [kN] t_{R1} [mm]	0.40	1.59 ^{a)}	1.59 ^{a)}	1.59 ^{a)}	1.59 ^{a)}	1.59 ^{a)}	1.59 ^{a)}	-	-	-	-
	0.45	1.68	1.79 ^{a)}	1.79 ^{a)}	1.79 ^{a)}	1.79 ^{a)}	1.79 ^{a)}	-	-	-	-
	0.50	1.68	1.94	1.98 ^{a)}	1.98 ^{a)}	1.98 ^{a)}	1.98 ^{a)}	-	-	-	-
	0.55	1.68	1.94	2.18	2.18 ^{a)}	2.18 ^{a)}	2.18 ^{a)}	-	-	-	-
	0.60	1.68	1.94	2.20	2.39 ^{a)}	2.39 ^{a)}	2.39 ^{a)}	-	-	-	-
	0.63	1.68	1.94	2.20	2.51 ^{a)}	2.51 ^{a)}	2.51 ^{a)}	-	-	-	-
	0.70	1.68	1.94	2.20	3.25	3.37 ^{a)}	3.37 ^{a)}	-	-	-	-
	0.75	1.68	1.94	2.20	3.25	3.98 ^{a)}	3.98 ^{a)}	-	-	-	-
	0.88	1.68	1.94	2.20	3.25	4.30	4.62 ^{a)}	-	-	-	-
1.00	1.68	1.94	2.20	3.25	4.30	5.25 ^{a)}	5.25 ^{a)}	-	-	-	
$N_{R,k,II}$ [kN]		1.68	1.94	2.20	3.25	4.30	5.63	6.95 ^{c)}	-	-	-
max. U [mm] d, D [mm]	30	14.0	12.0	12.0	8.4	7.2	6.4	6.4	-	-	-
	40	17.5	15.0	15.0	10.4	9.2	7.6	7.6	-	-	-
	50	21.0	18.0	18.0	12.4	11.2	8.8	8.8	-	-	-
	60	24.5	21.0	21.0	13.6	12.8	10.8	10.8	-	-	-
	70	28.0	24.0	24.0	19.0	18.0	16.0	16.0	-	-	-
	≥80	28.0	24.0	24.0	19.0	18.0	16.0	16.0	-	-	-

Index ^{a)}: For t_{R1} of least S320GD the indicated values of $N_{R,k}$ can be increased by 8,3%
Index ^{c)}: For t_{II} of least S320GD the indicated values of $N_{R,k,II}$ can be increased by 8,3%

Thread-forming screws for connecting sandwich panels with steel or timber supporting structures

RP-(7)K-(FK)-(P-)5,5xL
with sealing washer ≥ 19 mm

Annex 16

Leistungserklärung Nr. DOP-003

Anhang 11
ETA-18/1136 Anhang 17

Fastener:	stainless steel – EN 10088 steel grade 1.4301, 1.4401, 1.4567, 1.4578
Washer:	stainless steel – EN 10088 steel grade 1.4301 or 1.4401
Component I:	S280GD to S550GD – EN 10346
Component II:	S235 to S275 – EN 10025-1 S280GD to S350GD – EN 10346 S450GD ≤ 3.0 mm – EN 10346

Drilling performance: $\Sigma t \leq 5.25$ mm

Timber substructure: Performance not assessed

t_{ti} [mm]		1.50	1.75	2.00	2.50	3.00	3.50	4.00	5.00	≥6.00	-	-
$V_{R,k}$ [kN] t_{ti2} [mm]	0.40	0.63	0.63	0.63	0.63	0.63	0.63	0.63	-	-	-	-
	0.50	1.08	1.08	1.08	1.08	1.08	1.08	1.08	-	-	-	-
	0.55	1.30	1.30	1.30	1.40	1.40	1.40	1.40	-	-	-	-
	0.63	1.52	1.52	1.60	1.70	1.80	1.80	2.00	-	-	-	-
	0.75	1.84	1.84	1.90	2.10	2.30	2.30	2.60	-	-	-	-
	0.88	2.52	2.52	2.70	2.90	3.10	3.10	3.40	-	-	-	-
	1.00	3.20	3.20	3.50	3.70	3.90	3.90	4.20	-	-	-	-
$N_{R,k}$ [kN] t_{ti1} [mm]	0.40	1.68	1.70	1.70	1.70	1.70	1.70	1.70	-	-	-	-
	0.45	1.68	1.84	1.84	1.84	1.84	1.84	1.84	-	-	-	-
	0.50	1.68	1.94	1.98 ^{a)}	1.98 ^{a)}	1.98 ^{a)}	1.98 ^{a)}	1.98 ^{a)}	-	-	-	-
	0.55	1.68	1.94	2.20	2.33 ^{a)}	2.33 ^{a)}	2.33 ^{a)}	2.33 ^{a)}	-	-	-	-
	0.60	1.68	1.94	2.20	2.82 ^{a)}	2.82 ^{a)}	2.82 ^{a)}	2.82 ^{a)}	-	-	-	-
	0.63	1.68	1.94	2.20	3.12	3.12 ^{a)}	3.12 ^{a)}	3.12 ^{a)}	-	-	-	-
	0.70	1.68	1.94	2.20	3.25	3.81 ^{a)}	3.81 ^{a)}	3.81 ^{a)}	-	-	-	-
	0.75	1.68	1.94	2.20	3.25	4.30	4.31 ^{a)}	4.31 ^{a)}	-	-	-	-
	0.88	1.68	1.94	2.20	3.25	4.30	4.64 ^{a)}	4.64 ^{a)}	-	-	-	-
1.00	1.68	1.94	2.20	3.25	4.30	4.94 ^{a)}	4.94 ^{a)}	-	-	-	-	
$N_{R,k,II}$ [kN]		1.68	1.94	2.20	3.25	4.30	5.63	6.95 ^{c)}				
max. U [mm] d, D [mm]	30	14.0	12.0	12.0	8.4	7.2	6.4	6.4	-	-	-	-
	40	17.5	15.0	15.0	10.4	9.2	7.6	7.6	-	-	-	-
	50	21.0	18.0	18.0	12.4	11.2	8.8	8.8	-	-	-	-
	60	24.5	21.0	21.0	13.6	12.8	10.8	10.8	-	-	-	-
	70	28.0	24.0	24.0	19.0	18.0	16.0	16.0	-	-	-	-
	≥80	28.0	24.0	24.0	19.0	18.0	16.0	16.0	-	-	-	-

Index ^{a)}: For t_{ti1} of least S320GD the indicated values of $N_{R,k}$ can be increased by 8,3%

Index ^{c)}: For t_{ti} of least S320GD the indicated values of $N_{R,k,II}$ can be increased by 8,3%

Thread-forming screws for connecting sandwich panels with steel or timber supporting structures

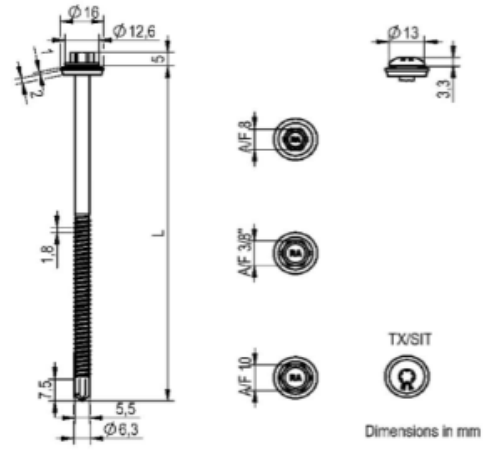
RP-(7)K-(FK)-(P)-5,5xL

with sealing washer ≥ ø 22 mm

Annex 17

Leistungserklärung Nr. DOP-003

Anhang 12
ETA-18/1136 Anhang 18

		Fastener: stainless steel – EN 10088 steel grade 1.4301, 1.4401, 1.4567, 1.4578 Washer: stainless steel – EN 10088 steel grade 1.4301 or 1.4401 Component I: S280GD to S550GD – EN 10346 Component II: S235 to S275 – EN 10025-1 S280GD to S350GD – EN 10346 S450GD ≤ 3.0 mm – EN 10346											
		<u>Drilling performance:</u> $\Sigma t_i \leq 6.0$ mm											
		<u>Timber substructure:</u> Performance not assessed											
		t_i [mm]	1.50	2.00	2.50	3.00	4.00	5.00	-	-	-	-	-
$V_{R,k}$ [kN]	t_{i2} [mm]	0.40	0.86 ^{b)}	0.86 ^{b)}	0.86 ^{b)}	0.86 ^{b)}	0.86 ^{b)}	0.86 ^{b)}	-	-	-	-	-
	0.50	1.35	1.35	1.35	1.35	1.35	1.35	1.35	-	-	-	-	-
	0.55	1.60	1.60	1.60	1.60	1.60	1.60	1.60	-	-	-	-	-
	0.63	2.00	2.00	2.00	2.00	2.00	2.00	2.00	-	-	-	-	-
	0.75	2.60	2.60	2.60	2.60	2.60	2.60	2.60	-	-	-	-	-
	0.88	3.20	3.50	3.50	3.50	3.50	3.50	3.50	-	-	-	-	-
	1.00	3.20	3.50	3.50	3.50	3.50	3.50	3.50	-	-	-	-	-
$N_{R,k}$ [kN]	t_{i1} [mm]	0.40	1.59 ^{a)}	1.59 ^{a)}	1.59 ^{a)}	1.59 ^{a)}	1.59 ^{a)}	1.59 ^{a)}	-	-	-	-	-
	0.45	1.70	1.74 ^{a)}	1.74 ^{a)}	1.74 ^{a)}	1.74 ^{a)}	1.74 ^{a)}	1.74 ^{a)}	-	-	-	-	-
	0.50	1.70	1.88 ^{a)}	1.88 ^{a)}	1.88 ^{a)}	1.88 ^{a)}	1.88 ^{a)}	1.88 ^{a)}	-	-	-	-	-
	0.55	1.70	2.00	2.00	2.00	2.00	2.00	2.00	-	-	-	-	-
	0.60	1.70	2.10	2.97	2.97	2.97	2.97	2.97	-	-	-	-	-
	0.63	1.70	2.10	3.30	3.30	3.30	3.30	3.30	-	-	-	-	-
	0.70	1.70	2.10	3.35	3.59	3.59	3.59	3.59	-	-	-	-	-
	0.75	1.70	2.10	3.35	3.80	3.80	3.80	3.80	-	-	-	-	-
	0.88	1.70	2.10	3.35	4.40	4.40	4.40	4.40	-	-	-	-	-
	1.00	1.70	2.10	3.35	4.60	4.90	4.90	4.90	-	-	-	-	-
$N_{R,k,II}$ [kN]			1.70	2.10	3.35	4.60	6.60	6.60	-	-	-	-	-
max. U [mm]	d, D [mm]	30	12.0	8.0	8.0	8.0	5.0	5.0	-	-	-	-	-
	40	13.5	11.0	11.0	11.0	11.0	7.0	7.0	-	-	-	-	-
	50	15.0	15.0	15.0	15.0	15.0	11.0	9.0	-	-	-	-	-
	60	17.5	17.5	17.5	17.5	17.5	13.0	10.0	-	-	-	-	-
	70	20.0	20.0	20.0	20.0	20.0	15.0	10.5	-	-	-	-	-
	80	23.0	23.0	23.0	23.0	23.0	17.0	12.0	-	-	-	-	-
	≥100	23.0	23.0	23.0	23.0	23.0	17.0	13.5	-	-	-	-	-
Index ^{a)} : For t_{i1} of least S320GD the indicated values of $N_{R,k}$ can be increased by 8,3%													
Index ^{b)} : For t_{i2} of least S320GD the indicated values of $V_{R,k}$ can be increased by 8,3%													
Thread-forming screws for connecting sandwich panels with steel or timber supporting structures										Annex 18			
RP-K-(FK-)(P-)6,3xL with sealing washer ≥ ∅ 16 mm													

Leistungserklärung

Nr. DOP-003

Anhang 13
ETA-18/1136 Anhang 19

Fastener:	stainless steel – EN 10088 steel grade 1.4301, 1.4401, 1.4567, 1.4578
Washer:	stainless steel – EN 10088 steel grade 1.4301 or 1.4401
Component I:	S280GD to S550GD – EN 10346
Component II:	S235 to S275 – EN 10025-1 S280GD to S350GD – EN 10346 S450GD ≤ 3.0 mm – EN 10346

Drilling performance: $\Sigma t \leq 6.0$ mm

Timber substructure: Performance not assessed

t_{II} [mm]	1.50	2.00	2.50	3.00	4.00	5.00	-	-	-	-	-
$V_{R,k}$ [kN] t_{W2} [mm]	0.40	0.86 ^{b)}	0.86 ^{b)}	0.86 ^{b)}	0.86 ^{b)}	0.86 ^{b)}	-	-	-	-	-
	0.50	1.35	1.35	1.35	1.35	1.35	-	-	-	-	-
	0.55	1.60	1.60	1.60	1.60	1.60	-	-	-	-	-
	0.63	2.00	2.00	2.00	2.00	2.00	-	-	-	-	-
	0.75	2.60	2.60	2.60	2.60	2.60	-	-	-	-	-
	0.88	3.20	3.50	3.50	3.50	3.50	-	-	-	-	-
	1.00	3.20	3.50	3.50	3.50	3.50	-	-	-	-	-
$N_{R,k}$ [kN] t_{W1} [mm]	0.40	1.70	1.83	1.83	1.83	1.83	-	-	-	-	-
	0.45	1.70	1.91	1.91	1.91	1.91	-	-	-	-	-
	0.50	1.70	1.99 ^{a)}	1.99 ^{a)}	1.99 ^{a)}	1.99 ^{a)}	-	-	-	-	-
	0.55	1.70	2.10	2.31 ^{a)}	2.31 ^{a)}	2.31 ^{a)}	-	-	-	-	-
	0.60	1.70	2.10	3.06 ^{a)}	3.06 ^{a)}	3.06 ^{a)}	-	-	-	-	-
	0.63	1.70	2.10	3.35	3.38 ^{a)}	3.38 ^{a)}	-	-	-	-	-
	0.70	1.70	2.10	3.35	3.89 ^{a)}	3.89 ^{a)}	-	-	-	-	-
	0.75	1.70	2.10	3.35	4.26 ^{a)}	4.26 ^{a)}	-	-	-	-	-
	0.88	1.70	2.10	3.35	4.60	4.79 ^{a)}	-	-	-	-	-
1.00	1.70	2.10	3.35	4.60	5.25 ^{a)}	5.25 ^{a)}	-	-	-	-	-
$N_{R,k,II}$ [kN]	1.70	2.10	3.35	4.60	6.60	6.60					
max. U [mm] d, D [mm]	30	12.0	8.0	8.0	8.0	5.0	-	-	-	-	-
	40	13.5	11.0	11.0	11.0	7.0	-	-	-	-	-
	50	15.0	15.0	15.0	15.0	11.0	-	-	-	-	-
	60	17.5	17.5	17.5	17.5	13.0	-	-	-	-	-
	70	20.0	20.0	20.0	20.0	15.0	-	-	-	-	-
	80	23.0	23.0	23.0	23.0	17.0	-	-	-	-	-
	≥100	23.0	23.0	23.0	23.0	17.0	13.5	-	-	-	-

Index ^{a)}: For t_{II} of least S320GD the indicated values of $N_{R,k}$ can be increased by 8,3%

Index ^{b)}: For t_{W2} of least S320GD the indicated values of $V_{R,k}$ can be increased by 8,3%

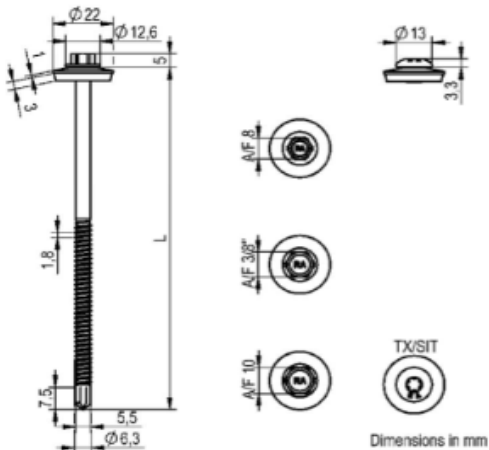
Thread-forming screws for connecting sandwich panels with steel or timber supporting structures

RP-K-(FK-)(P)-6,3xL
with sealing washer $\geq \varnothing 19$ mm

Annex 19

Leistungserklärung Nr. DOP-003

Anhang 14
ETA-18/1136 Anhang 20

		Fastener: stainless steel – EN 10088 steel grade 1.4301, 1.4401, 1.4567, 1.4578	
		Washer: stainless steel – EN 10088 steel grade 1.4301 or 1.4401	
		Component I: S280GD to S550GD – EN 10346	
		Component II: S235 to S275 – EN 10025-1 S280GD to S350GD – EN 10346 S450GD ≤ 3.0 mm – EN 10346	
		Drilling performance: $\Sigma t \leq 6.0$ mm	
		Timber substructure: Performance not assessed	

t _h [mm]	1.50	2.00	2.50	3.00	4.00	5.00	-	-	-	-	-
V _{R,k} [kN] t _{R2} [mm]	0.40	0.86 ^{b)}	0.86 ^{b)}	0.86 ^{b)}	0.86 ^{b)}	0.86 ^{b)}	0.86 ^{b)}	-	-	-	-
	0.50	1.35	1.35	1.35	1.35	1.35	1.35	-	-	-	-
	0.55	1.60	1.60	1.60	1.60	1.60	1.60	-	-	-	-
	0.63	2.00	2.00	2.00	2.00	2.00	2.00	-	-	-	-
	0.75	2.60	2.60	2.60	2.60	2.60	2.60	-	-	-	-
	0.88	3.20	3.50	3.50	3.50	3.50	3.50	-	-	-	-
	1.00	3.20	3.50	3.50	3.50	3.50	3.50	-	-	-	-
N _{R,k} [kN] t _{N1} [mm]	0.40	1.70	2.07	2.07	2.07	2.07	2.07	-	-	-	-
	0.45	1.70	2.09	2.09	2.09	2.09	2.09	-	-	-	-
	0.50	1.70	2.10	2.11 ^{a)}	2.11 ^{a)}	2.11 ^{a)}	2.11 ^{a)}	-	-	-	-
	0.55	1.70	2.10	2.63 ^{a)}	2.63 ^{a)}	2.63 ^{a)}	2.63 ^{a)}	-	-	-	-
	0.60	1.70	2.10	3.15	3.15 ^{a)}	3.15 ^{a)}	3.15 ^{a)}	-	-	-	-
	0.63	1.70	2.10	3.35	3.46 ^{a)}	3.46 ^{a)}	3.46 ^{a)}	-	-	-	-
	0.70	1.70	2.10	3.35	4.20 ^{a)}	4.20 ^{a)}	4.20 ^{a)}	-	-	-	-
	0.75	1.70	2.10	3.35	4.60	4.72 ^{a)}	4.72 ^{a)}	-	-	-	-
	0.88	1.70	2.10	3.35	4.60	5.18 ^{a)}	5.18 ^{a)}	-	-	-	-
	1.00	1.70	2.10	3.35	4.60	5.60 ^{a)}	5.60 ^{a)}	-	-	-	-
N _{R,k,II} [kN]		1.70	2.10	3.35	4.60	6.60	6.60				
max. U [mm] d, D [mm]	30	12.0	8.0	8.0	8.0	5.0	5.0	-	-	-	-
	40	13.5	11.0	11.0	11.0	7.0	7.0	-	-	-	-
	50	15.0	15.0	15.0	15.0	11.0	9.0	-	-	-	-
	60	17.5	17.5	17.5	17.5	13.0	10.0	-	-	-	-
	70	20.0	20.0	20.0	20.0	15.0	10.5	-	-	-	-
	80	23.0	23.0	23.0	23.0	17.0	12.0	-	-	-	-
	≥100	23.0	23.0	23.0	23.0	17.0	13.5	-	-	-	-

Index ^{a)}: For t_{N1} of least S320GD the indicated values of N_{R,k} can be increased by 8,3%
Index ^{b)}: For t_{R2} of least S320GD the indicated values of V_{R,k} can be increased by 8,3%

Thread-forming screws for connecting sandwich panels with steel or timber supporting structures		Annex 20
RP-K-(FK-)(P-)6,3xL with sealing washer ≥ ∅ 22 mm		

Leistungserklärung Nr. DOP-003

Anhang 15
ETA-18/1136 Anhang 21

Fastener: stainless steel – EN 10088
steel grade 1.4301, 1.4401, 1.4567, 1.4578

Washer: stainless steel – EN 10088
steel grade 1.4301 or 1.4401

Component I: S280GD to S550GD – EN 10346

Component II: S235 to S275 – EN 10025-1
S280GD to S350GD – EN 10346

Drilling performance: $\Sigma t_i \leq 11.25 \text{ mm}$

Timber substructure: Performance not assessed

$t_{li} \text{ [mm]}$		3.00	4.00	5.00	6.00	8.00	10.00	12.00	14.00	≥ 16.00	-	-
$V_{R,k} \text{ [kN]}$ $t_{R2} \text{ [mm]}$	0.40	-	0.77	0.77	0.77	0.77	0.77	-	-	-	-	-
	0.50	-	1.19	1.19	1.19	1.19	1.19	-	-	-	-	-
	0.55	-	1.40	1.40	1.40	1.40	1.40	-	-	-	-	-
	0.63	-	1.80	1.80	1.80	1.80	1.80	-	-	-	-	-
	0.75	-	2.40	2.40	2.40	2.40	2.40	-	-	-	-	-
	0.88	-	3.20	3.20	3.20	3.20	3.20	-	-	-	-	-
	1.00	-	4.00	4.00	4.00	4.00	4.00	-	-	-	-	-
$N_{R,k} \text{ [kN]}$ $t_{R1} \text{ [mm]}$	0.40	-	1.05	1.05	1.05	1.05	1.05	-	-	-	-	-
	0.45	-	1.34	1.34	1.34	1.34	1.34	-	-	-	-	-
	0.50	-	1.63	1.63	1.63	1.63	1.63	-	-	-	-	-
	0.55	-	1.82	1.82	1.82	1.82	1.82	-	-	-	-	-
	0.60	-	2.00	2.00	2.00	2.00	2.00	-	-	-	-	-
	0.63	-	2.11	2.11	2.11	2.11	2.11	-	-	-	-	-
	0.70	-	2.38	2.38	2.38	2.38	2.38	-	-	-	-	-
	0.75	-	2.57	2.57	2.57	2.57	2.57	-	-	-	-	-
	0.88	-	3.05	3.05	3.05	3.05	3.05	-	-	-	-	-
1.00	-	3.51	3.51	3.51	3.51	3.51	-	-	-	-	-	
$N_{R,k,II} \text{ [kN]}$	-	5.19	5.84	6.49 ^{c)}	6.49 ^{c)}	6.49 ^{c)}	-	-	-	-	-	-
$\text{max. } U \text{ [mm]}$ $d, D \text{ [mm]}$	30	-	6.4	4.8	4.8	4.0	3.0	-	-	-	-	-
	40	-	7.6	5.6	5.6	4.8	4.0	-	-	-	-	-
	50	-	8.8	6.8	6.8	5.6	4.8	-	-	-	-	-
	60	-	10.8	8.8	8.8	7.2	5.6	-	-	-	-	-
	70	-	16.0	13.0	13.0	10.5	8.0	-	-	-	-	-
	≥ 80	-	16.0	13.0	13.0	10.5	8.0	-	-	-	-	-

Index ^{c)}: For t_{li} of least S320GD the indicated values of $N_{R,k,II}$ can be increased by 8,3%

Thread-forming screws for connecting sandwich panels with steel or timber supporting structures	Annex 21
RP-K12-(FK)-(P-)5,5xL with sealing washer $\geq \varnothing 16 \text{ mm}$	

Leistungserklärung Nr. DOP-003

Anhang 16
ETA-18/1136 Anhang 22

Fastener: stainless steel – EN 10088
steel grade 1.4301, 1.4401, 1.4567, 1.4578

Washer: stainless steel – EN 10088
steel grade 1.4301 or 1.4401

Component I: S280GD to S550GD – EN 10346

Component II: S235 to S275 – EN 10025-1
S280GD to S350GD – EN 10346

Drilling performance: $\Sigma t \leq 11.25$ mm

Timber substructure: Performance not assessed

t_{li} [mm]	3.00	4.00	5.00	6.00	8.00	10.00	12.00	14.00	≥ 16.00	-	-
$V_{R,k}$ [kN] t_{li2} [mm]	0.40	-	0.77	0.77	0.77	0.77	-	-	-	-	-
	0.50	-	1.19	1.19	1.19	1.19	-	-	-	-	-
	0.55	-	1.40	1.40	1.40	1.40	-	-	-	-	-
	0.63	-	1.80	1.80	1.80	1.80	-	-	-	-	-
	0.75	-	2.40	2.40	2.40	2.40	-	-	-	-	-
	0.88	-	3.20	3.20	3.20	3.20	-	-	-	-	-
	1.00	-	4.00	4.00	4.00	4.00	-	-	-	-	-
$N_{R,k}$ [kN] t_{li1} [mm]	0.40	-	1.59 ^{a)}	1.59 ^{a)}	1.59 ^{a)}	1.59 ^{a)}	-	-	-	-	-
	0.45	-	1.79 ^{a)}	1.79 ^{a)}	1.79 ^{a)}	1.79 ^{a)}	-	-	-	-	-
	0.50	-	1.98 ^{a)}	1.98 ^{a)}	1.98 ^{a)}	1.98 ^{a)}	-	-	-	-	-
	0.55	-	2.18 ^{a)}	2.18 ^{a)}	2.18 ^{a)}	2.18 ^{a)}	-	-	-	-	-
	0.60	-	2.39 ^{a)}	2.39 ^{a)}	2.39 ^{a)}	2.39 ^{a)}	-	-	-	-	-
	0.63	-	2.51 ^{a)}	2.51 ^{a)}	2.51 ^{a)}	2.51 ^{a)}	-	-	-	-	-
	0.70	-	3.37 ^{a)}	3.37 ^{a)}	3.37 ^{a)}	3.37 ^{a)}	-	-	-	-	-
	0.75	-	3.98 ^{a)}	3.98 ^{a)}	3.98 ^{a)}	3.98 ^{a)}	-	-	-	-	-
	0.88	-	4.62 ^{a)}	4.62 ^{a)}	4.62 ^{a)}	4.62 ^{a)}	-	-	-	-	-
1.00	-	5.19	5.25 ^{a)}	5.25 ^{a)}	5.25 ^{a)}	-	-	-	-	-	
$N_{R,k,II}$ [kN]	-	5.19	5.84	6.49 ^{c)}	6.49 ^{c)}	6.49 ^{c)}	-	-	-	-	-
max. U [mm] d, D [mm]	30	-	6.4	4.8	4.8	4.0	3.0	-	-	-	-
	40	-	7.6	5.6	5.6	4.8	4.0	-	-	-	-
	50	-	8.8	6.8	6.8	5.6	4.8	-	-	-	-
	60	-	10.8	8.8	8.8	7.2	5.6	-	-	-	-
	70	-	16.0	13.0	13.0	10.5	8.0	-	-	-	-
	≥ 80	-	16.0	13.0	13.0	10.5	8.0	-	-	-	-

Index ^{a)}: For t_{li} of least S320GD the indicated values of $N_{R,k}$ can be increased by 8,3%

Index ^{c)}: For t_{li} of least S320GD the indicated values of $N_{R,k,II}$ can be increased by 8,3%

Thread-forming screws for connecting sandwich panels with steel or timber supporting structures

RP-K12-(FK)-(P)-5,5xL
with sealing washer $\geq \varnothing 19$ mm

Annex 22

Leistungserklärung Nr. DOP-003

Anhang 17
ETA-18/1136 Anhang 23

		Fastener: stainless steel – EN 10088 steel grade 1.4301, 1.4401, 1.4567, 1.4578 Washer: stainless steel – EN 10088 steel grade 1.4301 or 1.4401 Component I: S280GD to S550GD – EN 10346 Component II: S235 to S275 – EN 10025-1 S280GD to S350GD – EN 10346	
		Drilling performance: $\Sigma t \leq 11.25 \text{ mm}$	
		Timber substructure: Performance not assessed	

t_{II} [mm]	3.00	4.00	5.00	6.00	8.00	10.00	12.00	14.00	≥ 16.00	-	-
$V_{R,k}$ [kN] t_{II} [mm]	0.40	-	0.77	0.77	0.77	0.77	-	-	-	-	-
	0.50	-	1.19	1.19	1.19	1.19	-	-	-	-	-
	0.55	-	1.40	1.40	1.40	1.40	-	-	-	-	-
	0.63	-	1.80	1.80	1.80	1.80	-	-	-	-	-
	0.75	-	2.40	2.40	2.40	2.40	-	-	-	-	-
	0.88	-	3.20	3.20	3.20	3.20	-	-	-	-	-
	1.00	-	4.00	4.00	4.00	4.00	-	-	-	-	-
$N_{R,k}$ [kN] t_{II} [mm]	0.40	-	1.70	1.70	1.70	1.70	-	-	-	-	-
	0.45	-	1.84	1.84	1.84	1.84	-	-	-	-	-
	0.50	-	1.98 ^{a)}	1.98 ^{a)}	1.98 ^{a)}	1.98 ^{a)}	-	-	-	-	-
	0.55	-	2.33 ^{a)}	2.33 ^{a)}	2.33 ^{a)}	2.33 ^{a)}	-	-	-	-	-
	0.60	-	2.82 ^{a)}	2.82 ^{a)}	2.82 ^{a)}	2.82 ^{a)}	-	-	-	-	-
	0.63	-	3.12 ^{a)}	3.12 ^{a)}	3.12 ^{a)}	3.12 ^{a)}	-	-	-	-	-
	0.70	-	3.81 ^{a)}	3.81 ^{a)}	3.81 ^{a)}	3.81 ^{a)}	-	-	-	-	-
	0.75	-	4.31 ^{a)}	4.31 ^{a)}	4.31 ^{a)}	4.31 ^{a)}	-	-	-	-	-
	0.88	-	4.64 ^{a)}	4.64 ^{a)}	4.64 ^{a)}	4.64 ^{a)}	-	-	-	-	-
	1.00	-	4.94 ^{a)}	5.25 ^{a)}	5.25 ^{a)}	5.25 ^{a)}	-	-	-	-	-
$N_{R,k,II}$ [kN]	-	5.19	5.84	6.49 ^{c)}	6.49 ^{c)}	6.49 ^{c)}	-	-	-	-	-
max. U [mm] d, D [mm]	30	-	6.4	4.8	4.8	4.0	3.0	-	-	-	-
	40	-	7.6	5.6	5.6	4.8	4.0	-	-	-	-
	50	-	8.8	6.8	6.8	5.6	4.8	-	-	-	-
	60	-	10.8	8.8	8.8	7.2	5.6	-	-	-	-
	70	-	16.0	13.0	13.0	10.5	8.0	-	-	-	-
≥ 80	-	16.0	13.0	13.0	10.5	8.0	-	-	-	-	-

Index ^{a)}: For t_{II} of least S320GD the indicated values of $N_{R,k}$ can be increased by 8,3%
 Index ^{c)}: For t_{II} of least S320GD the indicated values of $N_{R,k,II}$ can be increased by 8,3%

Thread-forming screws for connecting sandwich panels with steel or timber supporting structures RP-K12-(FK)-(P)-5,5xL with sealing washer $\geq \varnothing 22 \text{ mm}$		Annex 23
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Leistungserklärung Nr. DOP-003

Anhang 18
ETA-18/1136 Anhang 24

Fastener: stainless steel – EN 10088
steel grade 1.4301, 1.4401, 1.4567, 1.4578

Washer: stainless steel – EN 10088
steel grade 1.4301 or 1.4401

Component I: S280GD to S550GD – EN 10346

Component II: S235 to S275 – EN 10025-1
S280GD to S350GD – EN 10346

Drilling performance: $\Sigma t \leq 15.00$ mm

Timber substructure: Performance not assessed

$t_{R,k}$ [mm]	4.00	5.00	6.00	7.00	8.00	10.00	12.00	≥ 15.00	-	-
$V_{R,k}$ [kN]										
t_{R2} [mm]										
0.40	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	-	-
0.50	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	-	-
0.55	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	-	-
0.63	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	-	-
0.75	2.40	2.40	2.40	2.40	2.40	2.40	2.40	2.40	-	-
0.88	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	-	-
1.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	-	-
$N_{R,k}$ [kN]										
t_{R1} [mm]										
0.40	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	-	-
0.45	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	-	-
0.50	1.18 ^{a)}	1.18 ^{a)}	1.18 ^{a)}	1.18 ^{a)}	1.18 ^{a)}	1.18 ^{a)}	1.18 ^{a)}	1.18 ^{a)}	-	-
0.55	1.55 ^{a)}	1.55 ^{a)}	1.55 ^{a)}	1.55 ^{a)}	1.55 ^{a)}	1.55 ^{a)}	1.55 ^{a)}	1.55 ^{a)}	-	-
0.60	1.92 ^{a)}	1.92 ^{a)}	1.92 ^{a)}	1.92 ^{a)}	1.92 ^{a)}	1.92 ^{a)}	1.92 ^{a)}	1.92 ^{a)}	-	-
0.63	2.14 ^{a)}	2.14 ^{a)}	2.14 ^{a)}	2.14 ^{a)}	2.14 ^{a)}	2.14 ^{a)}	2.14 ^{a)}	2.14 ^{a)}	-	-
0.70	2.65 ^{a)}	2.65 ^{a)}	2.65 ^{a)}	2.65 ^{a)}	2.65 ^{a)}	2.65 ^{a)}	2.65 ^{a)}	2.65 ^{a)}	-	-
0.75	3.02 ^{a)}	3.02 ^{a)}	3.02 ^{a)}	3.02 ^{a)}	3.02 ^{a)}	3.02 ^{a)}	3.02 ^{a)}	3.02 ^{a)}	-	-
0.88	3.53 ^{a)}	3.53 ^{a)}	3.53 ^{a)}	3.53 ^{a)}	3.53 ^{a)}	3.53 ^{a)}	3.53 ^{a)}	3.53 ^{a)}	-	-
1.00	4.01 ^{a)}	4.01 ^{a)}	4.01 ^{a)}	4.01 ^{a)}	4.01 ^{a)}	4.01 ^{a)}	4.01 ^{a)}	4.01 ^{a)}	-	-
$N_{R,k,II}$ [kN]	4.78 ^{c)}	6.75 ^{c)}	8.72 ^{c)}	8.90 ^{c)}	8.90 ^{c)}	8.90 ^{c)}	8.90 ^{c)}	8.90 ^{c)}	-	-
max. U [mm]										
d, D [mm]										
30	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	-	-
40	6.4	4.8	4.8	4.4	4.0	3.0	3.0	3.0	-	-
50	7.6	5.6	5.6	5.2	4.8	4.0	4.0	4.0	-	-
60	8.8	6.8	6.8	6.2	5.6	4.8	4.8	4.8	-	-
70	10.8	8.8	8.8	8.0	7.2	5.6	5.6	5.6	-	-
≥ 80	16.0	13.0	13.0	11.7	10.5	8.0	8.0	8.0	-	-

Index ^{a)}: For t_{R1} of least S320GD the indicated values of $N_{R,k}$ can be increased by 8,3%

Index ^{c)}: For t_{R1} of least S320GD the indicated values of $N_{R,k,II}$ can be increased by 8,3%

Thread-forming screws for connecting sandwich panels with steel or timber supporting structures

RP-K15-(FK)-(P-)5,8xL

with sealing washer $\geq \varnothing 16$ mm

Annex 24

Leistungserklärung Nr. DOP-003

Anhang 19
ETA-18/1136 Anhang 25

Fastener: stainless steel – EN 10088
steel grade 1.4301, 1.4401, 1.4567, 1.4578

Washer: stainless steel – EN 10088
steel grade 1.4301 or 1.4401

Component I: S280GD to S550GD – EN 10346

Component II: S235 to S275 – EN 10025-1
S280GD to S350GD – EN 10346

Drilling performance: $\Sigma t \leq 15.00 \text{ mm}$

Timber substructure: Performance not assessed

t_b [mm]	4.00	5.00	6.00	7.00	8.00	10.00	12.00	≥ 15.00	-	-
$V_{R,k}$ [kN] t_{b2} [mm]	0.40	0.77	0.77	0.77	0.77	0.77	0.77	0.77	-	-
	0.50	1.19	1.19	1.19	1.19	1.19	1.19	1.19	-	-
	0.55	1.40	1.40	1.40	1.40	1.40	1.40	1.40	-	-
	0.63	1.80	1.80	1.80	1.80	1.80	1.80	1.80	-	-
	0.75	2.40	2.40	2.40	2.40	2.40	2.40	2.40	-	-
	0.88	3.20	3.20	3.20	3.20	3.20	3.20	3.20	-	-
	1.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	-	-
$N_{R,k}$ [kN] t_{b1} [mm]	0.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	-	-
	0.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	-	-
	0.50	1.51 ^{a)}	1.51 ^{a)}	1.51 ^{a)}	1.51 ^{a)}	1.51 ^{a)}	1.51 ^{a)}	1.51 ^{a)}	-	-
	0.55	1.94 ^{a)}	1.94 ^{a)}	1.94 ^{a)}	1.94 ^{a)}	1.94 ^{a)}	1.94 ^{a)}	1.94 ^{a)}	-	-
	0.60	2.37 ^{a)}	2.37 ^{a)}	2.37 ^{a)}	2.37 ^{a)}	2.37 ^{a)}	2.37 ^{a)}	2.37 ^{a)}	-	-
	0.63	2.63 ^{a)}	2.63 ^{a)}	2.63 ^{a)}	2.63 ^{a)}	2.63 ^{a)}	2.63 ^{a)}	2.63 ^{a)}	-	-
	0.70	3.23 ^{a)}	3.23 ^{a)}	3.23 ^{a)}	3.23 ^{a)}	3.23 ^{a)}	3.23 ^{a)}	3.23 ^{a)}	-	-
	0.75	3.66 ^{a)}	3.66 ^{a)}	3.66 ^{a)}	3.66 ^{a)}	3.66 ^{a)}	3.66 ^{a)}	3.66 ^{a)}	-	-
	0.88	4.08 ^{a)}	4.08 ^{a)}	4.08 ^{a)}	4.08 ^{a)}	4.08 ^{a)}	4.08 ^{a)}	4.08 ^{a)}	-	-
	1.00	4.47 ^{a)}	4.47 ^{a)}	4.47 ^{a)}	4.47 ^{a)}	4.47 ^{a)}	4.47 ^{a)}	4.47 ^{a)}	-	-
$N_{R,k,II}$ [kN]	4.78 ^{c)}	6.75 ^{c)}	8.72 ^{c)}	8.90 ^{c)}	8.90 ^{c)}	8.90 ^{c)}	8.90 ^{c)}	8.90 ^{c)}	-	-
max. U [mm] d, D [mm]	30	2.3	2.1	2.1	2.1	2.1	2.1	2.1	-	-
	40	6.4	4.8	4.8	4.4	4.0	3.0	3.0	-	-
	50	7.6	5.6	5.6	5.2	4.8	4.0	4.0	-	-
	60	8.8	6.8	6.8	6.2	5.6	4.8	4.8	-	-
	70	10.8	8.8	8.8	8.0	7.2	5.6	5.6	-	-
	≥ 80	16.0	13.0	13.0	11.7	10.5	8.0	8.0	8.0	-

Index ^{a)}: For t_{b1} of least S320GD the indicated values of $N_{R,k}$ can be increased by 8,3%
Index ^{c)}: For t_b of least S320GD the indicated values of $N_{R,k,k}$ can be increased by 8,3%

Thread-forming screws for connecting sandwich panels with steel or timber supporting structures

RP-K15-(FK)-(P)-5,8xL
with sealing washer $\geq \varnothing 19 \text{ mm}$

Annex 25

Leistungserklärung Nr. DOP-003

Anhang 20
ETA-18/1136 Anhang 26

Fastener: stainless steel – EN 10088
steel grade 1.4301, 1.4401, 1.4567, 1.4578

Washer: stainless steel – EN 10088
steel grade 1.4301 or 1.4401

Component I: S280GD to S550GD – EN 10346

Component II: S235 to S275 – EN 10025-1
S280GD to S350GD – EN 10346

Drilling performance: $\Sigma t_i \leq 15.00 \text{ mm}$

Timber substructure: Performance not assessed

t_{li} [mm]	4.00	5.00	6.00	7.00	8.00	10.00	12.00	≥ 15.00	-	-
$V_{R,k}$ [kN] t_{R2} [mm]	0.40	0.77	0.77	0.77	0.77	0.77	0.77	0.77	-	-
	0.50	1.19	1.19	1.19	1.19	1.19	1.19	1.19	-	-
	0.55	1.40	1.40	1.40	1.40	1.40	1.40	1.40	-	-
	0.63	1.80	1.80	1.80	1.80	1.80	1.80	1.80	-	-
	0.75	2.40	2.40	2.40	2.40	2.40	2.40	2.40	-	-
	0.88	3.20	3.20	3.20	3.20	3.20	3.20	3.20	-	-
	1.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	-	-
$N_{R,k}$ [kN] t_{R1} [mm]	0.40	1.70	1.70	1.70	1.70	1.70	1.70	1.70	-	-
	0.45	1.76	1.76	1.76	1.76	1.76	1.76	1.76	-	-
	0.50	1.83 ^{a)}	1.83 ^{a)}	1.83 ^{a)}	1.83 ^{a)}	1.83 ^{a)}	1.83 ^{a)}	1.83 ^{a)}	-	-
	0.55	2.33 ^{a)}	2.33 ^{a)}	2.33 ^{a)}	2.33 ^{a)}	2.33 ^{a)}	2.33 ^{a)}	2.33 ^{a)}	-	-
	0.60	2.82 ^{a)}	2.82 ^{a)}	2.82 ^{a)}	2.82 ^{a)}	2.82 ^{a)}	2.82 ^{a)}	2.82 ^{a)}	-	-
	0.63	3.12 ^{a)}	3.12 ^{a)}	3.12 ^{a)}	3.12 ^{a)}	3.12 ^{a)}	3.12 ^{a)}	3.12 ^{a)}	-	-
	0.70	3.81 ^{a)}	3.81 ^{a)}	3.81 ^{a)}	3.81 ^{a)}	3.81 ^{a)}	3.81 ^{a)}	3.81 ^{a)}	-	-
	0.75	4.31 ^{a)}	4.31 ^{a)}	4.31 ^{a)}	4.31 ^{a)}	4.31 ^{a)}	4.31 ^{a)}	4.31 ^{a)}	-	-
	0.88	4.64 ^{a)}	4.64 ^{a)}	4.64 ^{a)}	4.64 ^{a)}	4.64 ^{a)}	4.64 ^{a)}	4.64 ^{a)}	-	-
1.00	4.94 ^{a)}	4.94 ^{a)}	4.94 ^{a)}	4.94 ^{a)}	4.94 ^{a)}	4.94 ^{a)}	4.94 ^{a)}	-	-	
$N_{R,k,II}$ [kN]	4.78 ^{c)}	6.75 ^{c)}	8.72 ^{c)}	8.90 ^{c)}	8.90 ^{c)}	8.90 ^{c)}	8.90 ^{c)}	8.90 ^{c)}	-	-
max. U [mm] d, D [mm]	30	2.3	2.1	2.1	2.1	2.1	2.1	2.1	-	-
	40	6.4	4.8	4.8	4.4	4.0	3.0	3.0	-	-
	50	7.6	5.6	5.6	5.2	4.8	4.0	4.0	-	-
	60	8.8	6.8	6.8	6.2	5.6	4.8	4.8	-	-
	70	10.8	8.8	8.8	8.0	7.2	5.6	5.6	-	-
	≥ 80	16.0	13.0	13.0	11.7	10.5	8.0	8.0	-	-

Index ^{a)}: For t_{li} of least S320GD the indicated values of $N_{R,k}$ can be increased by 8,3%
Index ^{b)}: For t_{li} of least S320GD the indicated values of $N_{R,k,II}$ can be increased by 8,3%

Thread-forming screws for connecting sandwich panels with steel or timber supporting structures

RP-K15-(FK-)(P-)5,8xL
with sealing washer $\geq \varnothing 22 \text{ mm}$

Annex 26

Leistungserklärung Nr. DOP-003

Anhang 21
ETA-18/1136 Anhang 27

Fastener: stainless steel – EN 10088
steel grade 1.4301, 1.4401, 1.4567, 1.4578

Washer: stainless steel – EN 10088
steel grade 1.4301 or 1.4401

Component I: S280GD to S550GD – EN 10346

Component II: S235 to S275 – EN 10025-1
S280GD to S350GD – EN 10346

Drilling performance: Performance not assessed

Timber substructure: Performance not assessed

t _{ti} [mm]		1.50	2.00	2.50	3.00	4.00	5.00	6.00	8.00	≥10.00	-	-
d _{pd} [mm]		ø 5.0	ø 5.3					ø 5.5 (ø 5.7 bei t _{ti} ≥ 7.00)				
V _{R,k} [kN] t _{b2} [mm]	0.40	0.86 ^{b)}	0.86 ^{b)}	0.86 ^{b)}	0.86 ^{b)}	0.86 ^{b)}	0.86 ^{b)}	0.86 ^{b)}	0.86 ^{b)}	0.86 ^{b)}	-	-
	0.50	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	-	-
	0.55	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	-	-
	0.63	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	-	-
	0.75	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	-	-
	0.88	3.20	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	-	-
	1.00	3.20	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	-	-
N _{R,k} [kN] t _{b1} [mm]	0.40	1.59 ^{a)}	1.59 ^{a)}	1.59 ^{a)}	1.59 ^{a)}	1.59 ^{a)}	1.59 ^{a)}	1.59 ^{a)}	1.59 ^{a)}	1.59 ^{a)}	-	-
	0.45	1.73 ^{a)}	1.73 ^{a)}	1.73 ^{a)}	1.73 ^{a)}	1.73 ^{a)}	1.73 ^{a)}	1.73 ^{a)}	1.73 ^{a)}	1.73 ^{a)}	-	-
	0.50	1.88 ^{a)}	1.88 ^{a)}	1.88 ^{a)}	1.88 ^{a)}	1.88 ^{a)}	1.88 ^{a)}	1.88 ^{a)}	1.88 ^{a)}	1.88 ^{a)}	-	-
	0.55	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	-	-
	0.60	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	-	-
	0.63	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	-	-
	0.70	3.26	3.26	3.26	3.26	3.26	3.26	3.26	3.26	3.26	-	-
	0.75	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	-	-
	0.88	3.60	4.10	4.40	4.40	4.40	4.40	4.40	4.40	4.40	-	-
	1.00	3.60	4.10	4.45	4.80	4.90	4.90	4.90	4.90	4.90	-	-
N _{R,k,II} [kN]		3.60	4.10	4.45	4.80	4.90	4.90	4.90	4.90	4.90	-	-
max. U [mm] d, D [mm]	30	12.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0	4.0	-	-
	40	13.5	7.0	7.0	7.0	5.0	5.0	5.0	4.5	4.5	-	-
	50	15.0	9.0	9.0	9.0	6.0	6.0	6.0	6.0	6.0	-	-
	60	17.5	11.0	11.0	11.0	7.0	7.0	7.0	7.0	7.0	-	-
	70	20.0	13.0	13.0	13.0	8.0	8.0	8.0	8.0	8.0	-	-
	≥80	22.5	14.5	14.5	14.5	9.0	9.0	9.0	9.0	9.0	-	-

Index ^{a)}: For t_{b1} of least S320GD the indicated values of N_{R,k} can be increased by 8,3%

Index ^{b)}: For t_{b2} of least S320GD the indicated values of V_{R,k} can be increased by 8,3%

Thread-forming screws for connecting sandwich panels with steel or timber supporting structures

FABA-BZ-(FK-)6,3xL
with sealing washer ≥ ø 16 mm

Annex 27

Index ^{a)}: For t_{b1} of least S320GD the indicated values of N_{R,k} can be increased by 8,3%
 Index ^{b)}: For t_{b2} of least S320GD the indicated values of V_{R,k} can be increased by 8,3%

Leistungserklärung Nr. DOP-003

Anhang 22
ETA-18/1136 Anhang 28

Dimensions in mm

Fastener: stainless steel – EN 10088
steel grade 1.4301, 1.4401, 1.4567, 1.4578

Washer: stainless steel – EN 10088
steel grade 1.4301 or 1.4401

Component I: S280GD to S550GD – EN 10346

Component II: S235 to S275 – EN 10025-1
S280GD to S350GD – EN 10346

Drilling performance: Performance not assessed

Timber substructure: Performance not assessed

t_{li} [mm]	1.50	2.00	2.50	3.00	4.00	5.00	6.00	8.00	≥10.00	-	-
d_{pd} [mm]	ø6.8					ø7.0		ø7.2	ø7.4		
$V_{R,k}$ [kN] t_{b2} [mm]	0.40	0.92 ^{b)}	0.92 ^{b)}	0.92 ^{b)}	0.92 ^{b)}	0.92 ^{b)}	0.92 ^{b)}	0.92 ^{b)}	0.92 ^{b)}	-	-
	0.50	1.30 ^{b)}	1.44 ^{b)}	1.44 ^{b)}	1.44 ^{b)}	1.44 ^{b)}	1.44 ^{b)}	1.44 ^{b)}	1.44 ^{b)}	-	-
	0.55	1.52 ^{b)}	1.56 ^{b)}	1.58 ^{b)}	1.60 ^{b)}	1.62 ^{b)}	1.64 ^{b)}	1.65 ^{b)}	1.65 ^{b)}	-	-
	0.63	1.86 ^{b)}	2.04 ^{b)}	2.14 ^{b)}	2.25 ^{b)}	2.33 ^{b)}	2.42 ^{b)}	2.50 ^{b)}	2.50 ^{b)}	-	-
	0.75	2.41 ^{b)}	2.63 ^{b)}	2.84 ^{b)}	3.06 ^{b)}	3.22 ^{b)}	3.39 ^{b)}	3.55 ^{b)}	3.55 ^{b)}	-	-
	0.88	2.41 ^{b)}	2.63 ^{b)}	2.84 ^{b)}	3.06 ^{b)}	3.22 ^{b)}	3.39 ^{b)}	3.55 ^{b)}	3.55 ^{b)}	-	-
	1.00	2.41 ^{b)}	2.63 ^{b)}	2.84 ^{b)}	3.06 ^{b)}	3.22 ^{b)}	3.39 ^{b)}	3.55 ^{b)}	3.55 ^{b)}	-	-
$N_{R,k}$ [kN] t_{b1} [mm]	0.40	1.78 ^{a)}	1.78 ^{a)}	1.78 ^{a)}	1.78 ^{a)}	1.78 ^{a)}	1.78 ^{a)}	1.78 ^{a)}	1.78 ^{a)}	-	-
	0.45	2.04 ^{a)}	2.04 ^{a)}	2.04 ^{a)}	2.04 ^{a)}	2.04 ^{a)}	2.04 ^{a)}	2.04 ^{a)}	2.04 ^{a)}	-	-
	0.50	2.31 ^{a)}	2.31 ^{a)}	2.31 ^{a)}	2.31 ^{a)}	2.31 ^{a)}	2.31 ^{a)}	2.31 ^{a)}	2.31 ^{a)}	-	-
	0.55	2.61	3.10	3.10	3.10	3.10	3.10	3.10	3.10	-	-
	0.60	2.61	3.83	3.91	3.91	3.91	3.91	3.91	3.91	-	-
	0.63	2.61	4.26	4.40	4.40	4.40	4.40	4.40	4.40	-	-
	0.70	2.61	4.26	4.92	4.92	4.92	4.92	4.92	4.92	-	-
	0.75	2.61	4.26	5.30	5.30	5.30	5.30	5.30	5.30	-	-
	0.88	2.61	4.26	5.70	5.70	5.70	5.70	5.70	5.70	-	-
$N_{R,k,II}$ [kN]		2.61	4.26	5.79	6.20	6.20	6.20	6.20	6.20	-	-
max. U [mm] d, D [mm]	30	18.0	15.0	10.0	10.0	-	-	-	-	-	-
	40	22.0	17.0	13.0	13.0	4.0	4.0	4.0	4.0	-	-
	50	26.0	20.0	16.0	16.0	5.0	5.0	5.0	5.0	-	-
	60	31.0	22.0	19.0	19.0	6.0	6.0	6.0	6.0	-	-
	70	35.0	25.0	22.0	22.0	7.0	7.0	7.0	7.0	-	-
	≥80	40.0	28.0	25.0	25.0	9.0	9.0	9.0	9.0	-	-

Index ^{a)}: For t_{b1} of least S320GD the indicated values of $N_{R,k}$ can be increased by 8,3%

Index ^{b)}: For t_{b2} of least S320GD the indicated values of $V_{R,k}$ can be increased by 8,3%

Thread-forming screws for connecting sandwich panels with steel or timber supporting structures

FABA-BZ-(FK-)8,0xL
with sealing washer ≥ ø 22 mm

Annex 28

Leistungserklärung Nr. DOP-003

Anhang 23
ETA-18/1136 Anhang 29

		Fastener: stainless steel – EN 10088 steel grade 1.4301, 1.4401, 1.4567, 1.4578 Washer: stainless steel – EN 10088 steel grade 1.4301 or 1.4401 Component I: S280GD to S550GD – EN 10346 Component II: structural timber – EN 14081, ≥ C24 BauBuche – ETA-14/0354 with $l_{ef} \leq 43$ mm
		Drilling performance: $\Sigma t \leq 2.00$ mm
		Timber substructure: Performance determined with $M_{y,Rk} = 7.68$ Nm $f_{ax,k} = 9.80$ N/mm ² for $l_{ef} \geq 30.00$ mm

$l_g = l_{ef} + 11$ mm		Effective screw-in length l_{ef} [mm]									
		30	35	40	45	50	55	60	65	70	75
$V_{R,k}$ [kN] t_{02} [mm]	0.40	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}
	0.50	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}
	0.55	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}
	0.63	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}
	0.75	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}
	0.88	1.75	2.04	2.16	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}
	1.00	1.75	2.04	2.16	2.23	2.29	2.36	2.43	2.43	2.43	2.43
$N_{R,k}$ [kN] t_{01} [mm]	0.40	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	0.45	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12
	0.50	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23
	0.55	1.57	1.57	1.57	1.57	1.57	1.57	1.57	1.57	1.57	1.57
	0.60	1.59	1.85	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91
	0.63	1.59	1.85	2.12	2.11	2.11	2.11	2.11	2.11	2.11	2.11
	0.70	1.59	1.85	2.12	2.38	2.65	2.66	2.66	2.66	2.66	2.66
	0.75	1.59	1.85	2.12	2.38	2.65	2.91	3.05	3.05	3.05	3.05
	0.88	1.59	1.85	2.12	2.38	2.65	2.91	3.18	3.44	3.66	3.66
	1.00	1.59	1.85	2.12	2.38	2.65	2.91	3.18	3.44	3.70	3.97
$N_{R,k,II}$ [kN]		1.59	1.85	2.12	2.38	2.65	2.91	3.18	3.44	3.70	3.97
		Sandwich panel thickness, d, D [mm]									
		30	40	50	60	70	≥80	-	-	-	-
max. U [mm]		4.0	5.0	8.0	9.3	10.7	12.0	-	-	-	-

Index ^{a)}: For t_{01} of least S320GD the indicated values of $N_{R,k}$ can be increased by 8,3%
Index ^{b)}: For t_{02} of least S320GD the indicated values of $V_{R,k}$ can be increased by 8,3%
The values indicated above depending on the screw depth l_{ef} shall apply for $k_{red} = 0.90$ and the timber strength class C24 ($\rho_k = 350$ kg/m³).
For other values of k_{red} and timber strength classes see Annex 3.

Thread-forming screws for connecting sandwich panels with steel or timber supporting structures RP-TD-(FK-)(P-)6,0xL with sealing washer $\geq \varnothing 14$ mm	Annex 29
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Leistungserklärung Nr. DOP-003

Anhang 24
ETA-18/1136 Anhang 30

Fastener:	stainless steel – EN 10088 steel grade 1.4301, 1.4401, 1.4567, 1.4578
Washer:	stainless steel – EN 10088 steel grade 1.4301 or 1.4401
Component I:	S280GD to S550GD – EN 10346
Component II:	structural timber – EN 14081, ≥ C24 BauBuche – ETA-14/0354 with $l_{ef} \leq 43$ mm
Drilling performance: $\sum t_i \leq 2.00$ mm	
Timber substructure: Performance determined with $M_{y,Rk} = 7.68$ Nm $f_{ax,k} = 9.80$ N/mm ² for $l_{ef} \geq 30.00$ mm	

$l_g = l_{ef} + 11$ mm		Effective screw-in length l_{ef} [mm]									
		30	35	40	45	50	55	60	65	70	75
$V_{R,k}$ [kN]	0.40	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}
t_{N2} [mm]	0.50	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}
	0.55	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}
	0.63	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}
	0.75	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}
	0.88	1.75	2.04	2.16	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}
	1.00	1.75	2.04	2.16	2.23	2.29	2.36	2.43	2.43	2.43	2.43
$N_{R,k}$ [kN]	0.40	1.24 ^{a)}	1.24 ^{a)}	1.24 ^{a)}	1.24 ^{a)}	1.24 ^{a)}	1.24 ^{a)}	1.24 ^{a)}	1.24 ^{a)}	1.24 ^{a)}	1.24 ^{a)}
t_{N1} [mm]	0.45	1.37 ^{a)}	1.37 ^{a)}	1.37 ^{a)}	1.37 ^{a)}	1.37 ^{a)}	1.37 ^{a)}	1.37 ^{a)}	1.37 ^{a)}	1.37 ^{a)}	1.37 ^{a)}
	0.50	1.49 ^{a)}	1.49 ^{a)}	1.49 ^{a)}	1.49 ^{a)}	1.49 ^{a)}	1.49 ^{a)}	1.49 ^{a)}	1.49 ^{a)}	1.49 ^{a)}	1.49 ^{a)}
	0.55	1.59	1.85	1.85 ^{a)}	1.85 ^{a)}	1.85 ^{a)}	1.85 ^{a)}	1.85 ^{a)}	1.85 ^{a)}	1.85 ^{a)}	1.85 ^{a)}
	0.60	1.59	1.85	2.12	2.21 ^{a)}	2.21 ^{a)}	2.21 ^{a)}	2.21 ^{a)}	2.21 ^{a)}	2.21 ^{a)}	2.21 ^{a)}
	0.63	1.59	1.85	2.12	2.38	2.43 ^{a)}	2.43 ^{a)}	2.43 ^{a)}	2.43 ^{a)}	2.43 ^{a)}	2.43 ^{a)}
	0.70	1.59	1.85	2.12	2.38	2.65	2.91	3.05	3.05 ^{a)}	3.05 ^{a)}	3.05 ^{a)}
	0.75	1.59	1.85	2.12	2.38	2.65	2.91	3.18	3.44	3.50	3.50 ^{a)}
	0.88	1.59	1.85	2.12	2.38	2.65	2.91	3.18	3.44	3.70	3.97
	1.00	1.59	1.85	2.12	2.38	2.65	2.91	3.18	3.44	3.70	3.97
$N_{R,k,II}$ [kN]		1.59	1.85	2.12	2.38	2.65	2.91	3.18	3.44	3.70	3.97
		Sandwich panel thickness, d, D [mm]									
		30	40	50	60	70	≥80	-	-	-	-
max. U [mm]		4.0	5.0	8.0	9.3	10.7	12.0	-	-	-	-

Index ^{a)}: For t_{N1} of least S320GD the indicated values of $N_{R,k}$ can be increased by 8,3%
Index ^{b)}: For t_{N2} of least S320GD the indicated values of $V_{R,k}$ can be increased by 8,3%

The values indicated above depending on the screw depth l_{ef} shall apply for $k_{red} = 0.90$ and the timber strength class C24 ($\rho_k = 350$ kg/m³).
For other values of k_{red} and timber strength classes see Annex 3.

Thread-forming screws for connecting sandwich panels with steel or timber supporting structures	Annex 30
RP-TD-(FK)-(P)-6,0xL with sealing washer $\geq \varnothing 16$ mm	

Leistungserklärung Nr. DOP-003

Anhang 25
ETA-18/1136 Anhang 31

Fastener:	stainless steel – EN 10088 steel grade 1.4301, 1.4401, 1.4567, 1.4578
Washer:	stainless steel – EN 10088 steel grade 1.4301 or 1.4401
Component I:	S280GD to S550GD – EN 10346
Component II:	structural timber – EN 14081, $\geq$ C24 BauBuche – ETA-14/0354 with $l_{ef} \leq 43$ mm

Drilling performance: $\sum t \leq 2.00$ mm

Timber substructure: Performance determined with
 $M_{y,Rk} = 7.68$ Nm
 $f_{ax,k} = 9.80$ N/mm² for $l_{ef} \geq 30.00$ mm

$l_g = l_{ef} + 11$ mm		Effective screw-in length l_{ef} [mm]									
		30	35	40	45	50	55	60	65	70	75
$V_{R,k}$ [kN] t_{R2} [mm]	0.40	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}
	0.50	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}
	0.55	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}
	0.63	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}
	0.75	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}
	0.88	1.75	2.04	2.16	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}
	1.00	1.75	2.04	2.16	2.23	2.29	2.36	2.43	2.43	2.43	2.43
$N_{R,k}$ [kN] t_{R1} [mm]	0.40	1.59	1.59 ^{a)}	1.59 ^{a)}	1.59 ^{a)}	1.59 ^{a)}	1.59 ^{a)}	1.59 ^{a)}	1.59 ^{a)}	1.59 ^{a)}	1.59 ^{a)}
	0.45	1.59	1.79 ^{a)}	1.79 ^{a)}	1.79 ^{a)}	1.79 ^{a)}	1.79 ^{a)}	1.79 ^{a)}	1.79 ^{a)}	1.79 ^{a)}	1.79 ^{a)}
	0.50	1.59	1.85	1.98 ^{a)}	1.98 ^{a)}	1.98 ^{a)}	1.98 ^{a)}	1.98 ^{a)}	1.98 ^{a)}	1.98 ^{a)}	1.98 ^{a)}
	0.55	1.59	1.85	2.12	2.18 ^{a)}	2.18 ^{a)}	2.18 ^{a)}	2.18 ^{a)}	2.18 ^{a)}	2.18 ^{a)}	2.18 ^{a)}
	0.60	1.59	1.85	2.12	2.38	2.39 ^{a)}	2.39 ^{a)}	2.39 ^{a)}	2.39 ^{a)}	2.39 ^{a)}	2.39 ^{a)}
	0.63	1.59	1.85	2.12	2.38	2.51	2.51 ^{a)}	2.51 ^{a)}	2.51 ^{a)}	2.51 ^{a)}	2.51 ^{a)}
	0.70	1.59	1.85	2.12	2.38	2.65	2.91	3.18	3.37	3.37	3.37
	0.75	1.59	1.85	2.12	2.38	2.65	2.91	3.18	3.44	3.70	3.97
	0.88	1.59	1.85	2.12	2.38	2.65	2.91	3.18	3.44	3.70	3.97
$N_{R,k,II}$ [kN]		1.59	1.85	2.12	2.38	2.65	2.91	3.18	3.44	3.70	3.97
		Sandwich panel thickness, d, D [mm]									
		30	40	50	60	70	≥ 80	-	-	-	-
max. U [mm]		4.0	5.0	8.0	9.3	10.7	12.0	-	-	-	-

Index ^{a)}: For t_{R1} of least S320GD the indicated values of $N_{R,k}$ can be increased by 8,3%

Index ^{b)}: For t_{R2} of least S320GD the indicated values of $V_{R,k}$ can be increased by 8,3%

The values indicated above depending on the screw depth l_{ef} shall apply for $k_{mod} = 0.90$ and the timber strength class C24 ($\rho_k = 350$ kg/m³).

For other values of k_{mod} and timber strength classes see Annex 3.

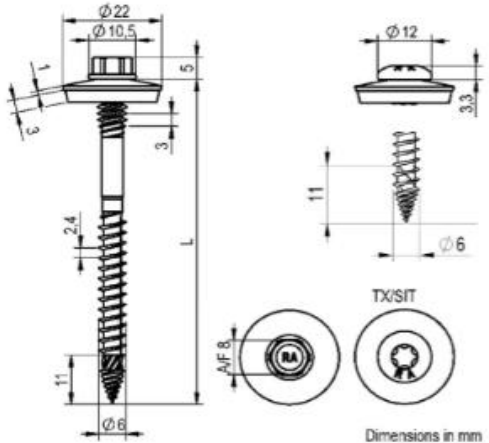
Thread-forming screws for connecting sandwich panels with steel or timber supporting structures

RP-TD-(FK)-(P)-6,0xL
with sealing washer $\geq \varnothing 19$ mm

Annex 31

Leistungserklärung Nr. DOP-003

Anhang 26
ETA-18/1136 Anhang 32

 Dimensions in mm		Fastener: stainless steel – EN 10088 steel grade 1.4301, 1.4401, 1.4567, 1.4578 Washer: stainless steel – EN 10088 steel grade 1.4301 or 1.4401 Component I: S280GD to S550GD – EN 10346 Component II: structural timber – EN 14081, ≥ C24 BauBuche – ETA-14/0354 with $l_{ef} \leq 43$ mm
		Drilling performance: $\Sigma t \leq 2.00$ mm
		Timber substructure: Performance determined with $M_{y,Rk} = 7.68$ Nm $f_{ax,k} = 9.80$ N/mm² for $l_{ef} \geq 30.00$ mm

$l_0 = l_{ef} + 11$ mm		Effective screw-in length l_{ef} [mm]									
		30	35	40	45	50	55	60	65	70	75
$V_{R,k}$ [kN] t_{02} [mm]	0.40	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}
	0.50	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}
	0.55	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}
	0.63	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}
	0.75	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}
	0.88	1.75	2.04	2.16	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}
	1.00	1.75	2.04	2.16	2.23	2.29	2.36	2.43	2.43	2.43	2.43
$N_{R,k}$ [kN] t_{01} [mm]	0.40	1.59	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
	0.45	1.59	1.79 ^{a)}	1.79 ^{a)}	1.79 ^{a)}	1.79 ^{a)}	1.79 ^{a)}	1.79 ^{a)}	1.79 ^{a)}	1.79 ^{a)}	1.79 ^{a)}
	0.50	1.59	1.98 ^{a)}	1.98 ^{a)}	1.98 ^{a)}	1.98 ^{a)}	1.98 ^{a)}	1.98 ^{a)}	1.98 ^{a)}	1.98 ^{a)}	1.98 ^{a)}
	0.55	1.59	1.85	2.12	2.33	2.33 ^{a)}	2.33 ^{a)}	2.33 ^{a)}	2.33 ^{a)}	2.33 ^{a)}	2.33 ^{a)}
	0.60	1.59	1.85	2.12	2.38	2.65	2.82	2.82 ^{a)}	2.82 ^{a)}	2.82 ^{a)}	2.82 ^{a)}
	0.63	1.59	1.85	2.12	2.38	2.65	2.91	3.12	3.12 ^{a)}	3.12 ^{a)}	3.12 ^{a)}
	0.70	1.59	1.85	2.12	2.38	2.65	2.91	3.18	3.44	3.70	3.81 ^{a)}
	0.75	1.59	1.85	2.12	2.38	2.65	2.91	3.18	3.44	3.70	3.97
	0.88	1.59	1.85	2.12	2.38	2.65	2.91	3.18	3.44	3.70	3.97
	1.00	1.59	1.85	2.12	2.38	2.65	2.91	3.18	3.44	3.70	3.97
$N_{R,k,II}$ [kN]		1.59	1.85	2.12	2.38	2.65	2.91	3.18	3.44	3.70	3.97
		Sandwich panel thickness, d, D [mm]									
		30	40	50	60	70	≥80	-	-	-	-
max. U [mm]		4.0	5.0	8.0	9.3	10.7	12.0	-	-	-	-

Index ^{a)}: For t_{01} of least S320GD the indicated values of $N_{R,k}$ can be increased by 8,3%
Index ^{b)}: For t_{02} of least S320GD the indicated values of $V_{R,k}$ can be increased by 8,3%

The values indicated above depending on the screw depth l_{ef} shall apply for $k_{fsc} = 0.90$ and the timber strength class C24 ($\rho_k = 350$ kg/m³).
For other values of k_{fsc} and timber strength classes see Annex 3.

Thread-forming screws for connecting sandwich panels with steel or timber supporting structures RP-TD-(FK-)(P-)J6,0xL with sealing washer $\geq \varnothing 22$ mm		Annex 32
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Leistungserklärung Nr. DOP-003

Anhang 27
ETA-18/1136 Anhang 33

		Fastener: stainless steel – EN 10088 steel grade 1.4301, 1.4401, 1.4567, 1.4578 Washer: stainless steel – EN 10088 steel grade 1.4301 or 1.4401 Component I: S280GD to S350GD – EN 10346 Component II: structural timber – EN 14081, ≥ C24
		Drilling performance: $\Sigma t_i \leq 2.00$ mm
		Timber substructure: Performance determined with $M_{y,Rk} = 9.9$ Nm $f_{ax,k} = 14.00$ N/mm ² for $l_{ef} \geq 30.00$ mm

$l_g = l_{ef} + 7$ mm		Effective screw-in length l_{ef} [mm]									
		30	35	40	45	50	55	60	65	70	75
$V_{R,k}$ [kN] t_{n2} [mm]	0.40	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}
	0.50	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}
	0.55	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}
	0.63	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}
	0.75	1.39	1.61	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}
	0.88	1.39	1.63	1.85	2.09	2.19	2.19 ^{a)}	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}
	1.00	1.39	1.63	1.85	2.09	2.32	2.43	2.43	2.43	2.43	2.43
$N_{R,k}$ [kN] t_{n1} [mm]	0.40	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46
	0.45	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59
	0.50	1.72 ^{a)}	1.72 ^{a)}	1.72 ^{a)}	1.72 ^{a)}	1.72 ^{a)}	1.72 ^{a)}	1.72 ^{a)}	1.72 ^{a)}	1.72 ^{a)}	1.72 ^{a)}
	0.55	2.06 ^{a)}	2.06 ^{a)}	2.06 ^{a)}	2.06 ^{a)}	2.06 ^{a)}	2.06 ^{a)}	2.06 ^{a)}	2.06 ^{a)}	2.06 ^{a)}	2.06 ^{a)}
	0.60	2.40	2.40 ^{a)}	2.40 ^{a)}	2.40 ^{a)}	2.40 ^{a)}	2.40 ^{a)}	2.40 ^{a)}	2.40 ^{a)}	2.40 ^{a)}	2.40 ^{a)}
	0.63	2.46	2.60 ^{a)}	2.60 ^{a)}	2.60 ^{a)}	2.60 ^{a)}	2.60 ^{a)}	2.60 ^{a)}	2.60 ^{a)}	2.60 ^{a)}	2.60 ^{a)}
	0.70	2.46	2.87	3.08	3.08 ^{a)}	3.08 ^{a)}	3.08 ^{a)}	3.08 ^{a)}	3.08 ^{a)}	3.08 ^{a)}	3.08 ^{a)}
	0.75	2.46	2.87	3.28	3.42	3.42 ^{a)}	3.42 ^{a)}	3.42 ^{a)}	3.42 ^{a)}	3.42 ^{a)}	3.42 ^{a)}
	0.88	2.46	2.87	3.28	3.40	3.42 ^{a)}	3.42 ^{a)}	3.42 ^{a)}	3.42 ^{a)}	3.42 ^{a)}	3.42 ^{a)}
	1.00	2.46	2.87	3.28	3.40	3.42 ^{a)}	3.42 ^{a)}	3.42 ^{a)}	3.42 ^{a)}	3.42 ^{a)}	3.42 ^{a)}
$N_{R,k,II}$ [kN]		2.46	2.87	3.28	3.69	4.10	4.50	4.91	5.32	5.73	6.14
		Sandwich panel thickness, d, D [mm]									
		30	40	50	60	70	≥80	-	-	-	-
max. U [mm]		2.1	5.0	5.5	7.0	11.0	15.0	-	-	-	-

Index ^{a)}: For t_{n1} of least S320GD the indicated values of $N_{R,k}$ can be increased by 8,3%
Index ^{b)}: For t_{n2} of least S320GD the indicated values of $V_{R,k}$ can be increased by 8,3%

The values indicated above depending on the screw depth l_{ef} shall apply for $k_{red} = 0.90$ and the timber strength class C24 ($\rho_k = 350$ kg/m³).
For other values of k_{red} and timber strength classes see Annex 3.

Thread-forming screws for connecting sandwich panels with steel or timber supporting structures RP-TD-(FK-)(P-)6,5xL with sealing washer $\geq \varnothing 16$ mm	Annex 33
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Leistungserklärung Nr. DOP-003

Anhang 28
ETA-18/1136 Anhang 34

		Fastener: stainless steel – EN 10088 steel grade 1.4301, 1.4401, 1.4567, 1.4578 Washer: stainless steel – EN 10088 steel grade 1.4301 or 1.4401 Component I: S280GD to S350GD – EN 10346 Component II: structural timber – EN 14081, ≥ C24
		Drilling performance: $\sum t \leq 2.00 \text{ mm}$
		Timber substructure: Performance determined with $M_{y,Rk} = 9.9 \text{ Nm}$ $f_{ax,k} = 14.00 \text{ N/mm}^2$ for $l_{ef} \geq 30.00 \text{ mm}$

$l_0 = l_{ef} + 7 \text{ mm}$		Effective screw-in length l_{ef} [mm]									
		30	35	40	45	50	55	60	65	70	75
$V_{R,k}$ [kN]	t_{b1} [mm]	0.40	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}
		0.50	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}
		0.55	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}
		0.63	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}
		0.75	1.39	1.61	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}
		0.88	1.39	1.63	1.85	2.09	2.19	2.19 ^{a)}	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}
		1.00	1.39	1.63	1.85	2.09	2.32	2.43	2.43	2.43	2.43
$N_{R,k}$ [kN]	t_{b1} [mm]	0.40	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85
		0.45	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92
		0.50	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98
		0.55	2.27	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37
		0.60	2.46	2.77	2.77	2.77	2.77	2.77	2.77	2.77	2.77
		0.63	2.46	2.87	3.00	3.00	3.00	3.00	3.00	3.00	3.00
		0.70	2.46	2.87	3.28	3.55	3.55	3.55	3.55	3.55	3.55
		0.75	2.46	2.87	3.28	3.69	3.95	3.95 ^{a)}	3.95 ^{a)}	3.95 ^{a)}	3.95 ^{a)}
		0.88	2.46	2.87	3.28	3.69	4.00	4.00 ^{a)}	4.00 ^{a)}	4.00 ^{a)}	4.00 ^{a)}
		1.00	2.46	2.87	3.28	3.69	4.05	4.05 ^{a)}	4.05 ^{a)}	4.05 ^{a)}	4.05 ^{a)}
$N_{R,k,II}$ [kN]			2.46	2.87	3.28	3.69	4.10	4.50	4.91	5.32	6.14
		Sandwich panel thickness, d, D [mm]									
		30	40	50	60	70	≥80	-	-	-	-
max. U [mm]		2.1	5.0	5.5	7.0	11.0	15.0	-	-	-	-

Index ^{a)}: For t_{b1} of least S320GD the indicated values of $N_{R,k}$ can be increased by 8,3%
Index ^{b)}: For t_{b2} of least S320GD the indicated values of $V_{R,k}$ can be increased by 8,3%

The values indicated above depending on the screw depth l_{ef} shall apply for $k_{res} = 0.90$ and the timber strength class C24 ($\rho_k = 350 \text{ kg/m}^3$).
For other values of k_{res} and timber strength classes see Annex 3.

Thread-forming screws for connecting sandwich panels with steel or timber supporting structures RP-TD-(FK-)(P-)6,5xL with sealing washer $\geq \varnothing 19 \text{ mm}$	Annex 34
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Leistungserklärung Nr. DOP-003

Anhang 29
ETA-18/1136 Anhang 35

Dimensions in mm		Fastener: stainless steel – EN 10088 steel grade 1.4301, 1.4401, 1.4567, 1.4578 Washer: stainless steel – EN 10088 steel grade 1.4301 or 1.4401 Component I: S280GD to S350GD – EN 10346 Component II: structural timber – EN 14081, ≥ C24
		Drilling performance: $\sum t \leq 2.00 \text{ mm}$
		Timber substructure: Performance determined with $M_{y,Rk} = 9.9 \text{ Nm}$ $f_{ax,k} = 14.00 \text{ N/mm}^2$ for $l_{ef} \geq 30.00 \text{ mm}$

$l_g = l_{ef} + 7 \text{ mm}$		Effective screw-in length l_{ef} [mm]									
		30	35	40	45	50	55	60	65	70	75
$V_{R,k}$ [kN] t_{w2} [mm]	0.40	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}
	0.50	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}
	0.55	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}
	0.63	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}
	0.75	1.39	1.61	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}
	0.88	1.39	1.63	1.85	2.09	2.19	2.19 ^{a)}	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}
	1.00	1.39	1.63	1.85	2.09	2.32	2.43	2.43	2.43	2.43	2.43
$N_{R,k}$ [kN] t_{w1} [mm]	0.40	2.24	2.24	2.24	2.24	2.24	2.24	2.24	2.24	2.24	2.24
	0.45	2.24	2.24	2.24	2.24	2.24	2.24	2.24	2.24	2.24	2.24
	0.50	2.24	2.24	2.24	2.24	2.24	2.24	2.24	2.24	2.24	2.24
	0.55	2.46	2.65	2.69	2.69	2.69	2.69	2.69	2.69	2.69	2.69
	0.60	2.46	2.65	3.02	3.13	3.13	3.13	3.13	3.13	3.13	3.13
	0.63	2.46	2.87	3.28	3.40	3.40	3.40	3.40	3.40	3.40	3.40
	0.70	2.46	2.87	3.28	3.69	4.02	4.16	4.02	4.02	4.02	4.02
	0.75	2.46	2.87	3.28	3.69	4.10	4.47	4.47 ^{a)}	4.47 ^{a)}	4.47 ^{a)}	4.47 ^{a)}
	0.88	2.46	2.87	3.28	3.69	4.10	4.50	4.58	4.58 ^{a)}	4.58 ^{a)}	4.58 ^{a)}
	1.00	2.46	2.87	3.28	3.69	4.10	4.50	4.69	4.69 ^{a)}	4.69 ^{a)}	4.69 ^{a)}
$N_{R,k,II}$ [kN]		2.46	2.87	3.28	3.69	4.10	4.50	4.91	5.32	5.73	6.14
		Sandwich panel thickness, d, D [mm]									
		30	40	50	60	70	≥80	-	-	-	-
max. U [mm]		2.1	5.0	5.5	7.0	11.0	15.0	-	-	-	-

Index ^{a)}: For t_{w1} of least S320GD the indicated values of $N_{R,k}$ can be increased by 8,3%
Index ^{b)}: For t_{w2} of least S320GD the indicated values of $V_{R,k}$ can be increased by 8,3%

The values indicated above depending on the screw depth l_{ef} shall apply for $k_{res} = 0.90$ and the timber strength class C24 ($\rho_k = 350 \text{ kg/m}^3$).
For other values of k_{res} and timber strength classes see Annex 3.

Thread-forming screws for connecting sandwich panels with steel or timber supporting structures RP-TD-(FK-)(P-)6,5xL with sealing washer $\geq \varnothing 22 \text{ mm}$	Annex 35
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Leistungserklärung Nr. DOP-003

Anhang 30
ETA-18/1136 Anhang 36

		Fastener: stainless steel – EN 10088 steel grade 1.4301, 1.4401, 1.4567, 1.4578 Washer: stainless steel – EN 10088 steel grade 1.4301 or 1.4401 Component I: S280GD to S550GD – EN 10346 Component II: structural timber – EN 14081, ≥ C24 BauBuche – ETA-14/0354 with $l_{ef} \leq 43$ mm
		Drilling performance: $\sum t_i \leq 3.00$ mm
		Timber substructure: Performance determined with $M_{y,Rk} = 9.90$ Nm $f_{ax,k} = 12.00$ N/mm ² for $l_{ef} \geq 30.00$ mm

$l_0 = l_{ef} + 5$ mm		Effective screw-in length l_{ef} [mm]									
		30	35	40	45	50	55	60	65	70	75
$V_{R,k}$ [kN] t_{W2} [mm]	0.40	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}
	0.50	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}
	0.55	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}
	0.63	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}
	0.75	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}
	0.88	1.75	2.04	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}
	1.00	1.75	2.04	2.33	2.58	2.66	2.74	2.77	2.77	2.77	2.77
$N_{R,k}$ [kN] t_{W1} [mm]	0.40	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	0.45	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12
	0.50	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23
	0.55	1.57	1.57	1.57	1.57	1.57	1.57	1.57	1.57	1.57	1.57
	0.60	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91
	0.63	1.94	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11
	0.70	1.94	2.27	2.59	2.66	2.66	2.66	2.66	2.66	2.66	2.66
	0.75	1.94	1.85	2.12	2.92	3.05	2.91	3.05	3.05	3.05	3.05
	0.88	1.94	1.85	2.12	2.92	3.24	3.56	3.66	3.66	3.66	3.66
	1.00	1.94	1.85	2.12	2.92	3.24	3.56	3.89	3.97	3.97	3.97
$N_{R,k,II}$ [kN]		1.94	2.27	2.59	2.92	3.24	3.56	3.89	4.21	4.54	4.86
		Sandwich panel thickness, d, D [mm]									
		30	40	50	60	70	≥80	-	-	-	-
max. U [mm]		4.0	5.0	8.0	9.3	10.7	12.0	-	-	-	-

Index ^{b)}: For t_{W2} of least S320GD the indicated values of $V_{R,k}$ can be increased by 8,3%

The values indicated above depending on the screw depth l_{ef} shall apply for $k_{red} = 0.90$ and the timber strength class C24 ($p_k = 350$ kg/m³).
For other values of k_{red} and timber strength classes see Annex 3.

Thread-forming screws for connecting sandwich panels with steel or timber supporting structures RP-r-(FK-)(P)-6,0xL with sealing washer $\geq \varnothing 14$ mm		Annex 36
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Leistungserklärung Nr. DOP-003

Anhang 31
ETA-18/1136 Anhang 37

		Fastener: stainless steel – EN 10088 steel grade 1.4301, 1.4401, 1.4567, 1.4578 Washer: stainless steel – EN 10088 steel grade 1.4301 or 1.4401 Component I: S280GD to S550GD – EN 10346 Component II: structural timber – EN 14081, ≥ C24 BauBuche – ETA-14/0354 with $l_{ef} \leq 43$ mm
		Drilling performance: $\Sigma t \leq 3.00$ mm
		Timber substructure: Performance determined with $M_{y,Rk} = 9.90$ Nm $f_{ax,k} = 12.00$ N/mm ² for $l_{ef} \geq 30.00$ mm

$l_0 = l_{ef} + 5$ mm		Effective screw-in length l_{ef} [mm]									
		30	35	40	45	50	55	60	65	70	75
$V_{R,k}$ [kN] t_{N2} [mm]	0.40	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}
	0.50	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}
	0.55	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}
	0.63	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}
	0.75	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}
	0.88	1.75	2.04	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}
	1.00	1.75	2.04	2.33	2.58	2.66	2.74	2.77	2.77	2.77	2.77
$N_{R,k}$ [kN] t_{N1} [mm]	0.40	1.24 ^{a)}	1.24 ^{a)}	1.24 ^{a)}	1.24 ^{a)}	1.24 ^{a)}	1.24 ^{a)}	1.24 ^{a)}	1.24 ^{a)}	1.24 ^{a)}	1.24 ^{a)}
	0.45	1.37 ^{a)}	1.37 ^{a)}	1.37 ^{a)}	1.37 ^{a)}	1.37 ^{a)}	1.37 ^{a)}	1.37 ^{a)}	1.37 ^{a)}	1.37 ^{a)}	1.37 ^{a)}
	0.50	1.49 ^{a)}	1.49 ^{a)}	1.49 ^{a)}	1.49 ^{a)}	1.49 ^{a)}	1.49 ^{a)}	1.49 ^{a)}	1.49 ^{a)}	1.49 ^{a)}	1.49 ^{a)}
	0.55	1.85	1.85 ^{a)}	1.85 ^{a)}	1.85 ^{a)}	1.85 ^{a)}	1.85 ^{a)}	1.85 ^{a)}	1.85 ^{a)}	1.85 ^{a)}	1.85 ^{a)}
	0.60	1.94	2.21	2.21 ^{a)}	2.21 ^{a)}	2.21 ^{a)}	2.21 ^{a)}	2.21 ^{a)}	2.21 ^{a)}	2.21 ^{a)}	2.21 ^{a)}
	0.63	1.94	2.27	2.43	2.43 ^{a)}	2.43 ^{a)}	2.43 ^{a)}	2.43 ^{a)}	2.43 ^{a)}	2.43 ^{a)}	2.43 ^{a)}
	0.70	1.94	2.27	2.59	2.92	3.05	3.05 ^{a)}	3.05 ^{a)}	3.05 ^{a)}	3.05 ^{a)}	3.05 ^{a)}
	0.75	1.94	2.27	2.59	2.92	3.24	3.50	3.50 ^{a)}	3.50 ^{a)}	3.50 ^{a)}	3.50 ^{a)}
	0.88	1.94	2.27	2.59	2.92	3.24	3.56	3.89	4.21	4.54	4.57 ^{a)}
	1.00	1.94	2.27	2.59	2.92	3.24	3.56	3.89	4.21	4.54	4.86
$N_{R,k,II}$ [kN]		1.94	2.27	2.59	2.92	3.24	3.56	3.89	4.21	4.54	4.86
		Sandwich panel thickness, d, D [mm]									
		30	40	50	60	70	≥80	-	-	-	-
max. U [mm]		4.0	5.0	8.0	9.3	10.7	12.0	-	-	-	-

Index ^{a)}: For t_{N1} of least S320GD the indicated values of $N_{R,k}$ can be increased by 8,3%
Index ^{b)}: For t_{N2} of least S320GD the indicated values of $V_{R,k}$ can be increased by 8,3%

The values indicated above depending on the screw depth l_{ef} shall apply for $k_{red} = 0.90$ and the timber strength class C24 ($\rho_k = 350$ kg/m³).
For other values of k_{red} and timber strength classes see Annex 3.

Thread-forming screws for connecting sandwich panels with steel or timber supporting structures RP-r-(FK-)(P-)6,0xL with sealing washer $\geq \varnothing 16$ mm	Annex 37
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Leistungserklärung Nr. DOP-003

Anhang 32
ETA-18/1136 Anhang 38

		Fastener: stainless steel – EN 10088 steel grade 1.4301, 1.4401, 1.4567, 1.4578 Washer: stainless steel – EN 10088 steel grade 1.4301 or 1.4401 Component I: S280GD to S550GD – EN 10346 Component II: structural timber – EN 14081, ≥ C24 BauBuche – ETA-14/0354 with $l_{ef} \leq 43$ mm
		Drilling performance: $\Sigma t \leq 3.00$ mm
		Timber substructure: Performance determined with $M_{y,Rk} = 9.90$ Nm $f_{ax,k} = 12.00$ N/mm² for $l_{ef} \geq 30.00$ mm

$l_0 = l_{ef} + 5$ mm		Effective screw-in length l_{ef} [mm]									
$V_{R,k}$ [kN] t_{02} [mm]	0.40	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}
	0.50	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}
	0.55	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}
	0.63	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}
	0.75	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}
	0.88	1.75	2.04	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}
	1.00	1.75	2.04	2.33	2.58	2.66	2.74	2.77	2.77	2.77	2.77
$N_{R,k}$ [kN] t_{01} [mm]	0.40	1.59 ^{a)}	1.59 ^{a)}	1.59 ^{a)}	1.59 ^{a)}	1.59 ^{a)}	1.59 ^{a)}	1.59 ^{a)}	1.59 ^{a)}	1.59 ^{a)}	1.59 ^{a)}
	0.45	1.79 ^{a)}	1.79 ^{a)}	1.79 ^{a)}	1.79 ^{a)}	1.79 ^{a)}	1.79 ^{a)}	1.79 ^{a)}	1.79 ^{a)}	1.79 ^{a)}	1.79 ^{a)}
	0.50	1.94	1.98 ^{a)}	1.98 ^{a)}	1.98 ^{a)}	1.98 ^{a)}	1.98 ^{a)}	1.98 ^{a)}	1.98 ^{a)}	1.98 ^{a)}	1.98 ^{a)}
	0.55	1.94	2.18	2.18 ^{a)}	2.18 ^{a)}	2.18 ^{a)}	2.18 ^{a)}	2.18 ^{a)}	2.18 ^{a)}	2.18 ^{a)}	2.18 ^{a)}
	0.60	1.94	2.27	2.39 ^{a)}	2.39 ^{a)}	2.39 ^{a)}	2.39 ^{a)}	2.39 ^{a)}	2.39 ^{a)}	2.39 ^{a)}	2.39 ^{a)}
	0.63	1.94	2.27	2.51	2.51 ^{a)}	2.51 ^{a)}	2.51 ^{a)}	2.51 ^{a)}	2.51 ^{a)}	2.51 ^{a)}	2.51 ^{a)}
	0.70	1.94	2.27	2.59	2.92	3.24	3.37	3.37 ^{a)}	3.37 ^{a)}	3.37 ^{a)}	3.37 ^{a)}
	0.75	1.94	2.27	2.59	2.92	3.24	3.56	3.89	3.98 ^{a)}	3.98 ^{a)}	3.98 ^{a)}
	0.88	1.94	2.27	2.59	2.92	3.24	3.56	3.89	4.21	4.54	4.62 ^{a)}
	1.00	1.94	2.27	2.59	2.92	3.24	3.56	3.89	4.21	4.54	4.86
$N_{R,k,II}$ [kN]		1.94	2.27	2.59	2.92	3.24	3.56	3.89	4.21	4.54	4.86
		Sandwich panel thickness, d, D [mm]									
		30	40	50	60	70	≥80	-	-	-	-
max. U [mm]		4.0	5.0	8.0	9.3	10.7	12.0	-	-	-	-

Index ^{a)}: For t_{01} of least S320GD the indicated values of $N_{R,k}$ can be increased by 8,3%
Index ^{b)}: For t_{02} of least S320GD the indicated values of $V_{R,k}$ can be increased by 8,3%

The values indicated above depending on the screw depth l_{ef} shall apply for $k_{red} = 0.90$ and the timber strength class C24 ($\rho_k = 350$ kg/m³).
For other values of k_{red} and timber strength classes see Annex 3.

Thread-forming screws for connecting sandwich panels with steel or timber supporting structures RP-r-(FK-)(P)-6,0xL with sealing washer $\geq \varnothing 19$ mm		Annex 38
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Leistungserklärung Nr. DOP-003

Anhang 33
ETA-18/1136 Anhang 39

		Fastener: stainless steel – EN 10088 steel grade 1.4301, 1.4401, 1.4567, 1.4578 Washer: stainless steel – EN 10088 steel grade 1.4301 or 1.4401 Component I: S280GD to S550GD – EN 10346 Component II: structural timber – EN 14081, ≥ C24 BauBuche – ETA-14/0354 with $l_{ef} \leq 43$ mm
		Drilling performance: $\Sigma t \leq 3.00$ mm
		Timber substructure: Performance determined with $M_{y,Rk} = 9.90$ Nm $f_{ax,k} = 12.00$ N/mm ² for $l_{ef} \geq 30.00$ mm

$l_g = l_{ef} + 5$ mm		Effective screw-in length l_{ef} [mm]									
		30	35	40	45	50	55	60	65	70	75
$V_{R,k}$ [kN]	t_{N2} [mm]	0.40	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}	0.65 ^{b)}
	0.50	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}	1.00 ^{b)}
	0.55	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}	1.07 ^{b)}
	0.63	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}	1.19 ^{b)}
	0.75	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}	1.61 ^{b)}
	0.88	1.75	2.04	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}	2.19 ^{b)}
	1.00	1.75	2.04	2.33	2.58	2.66	2.74	2.77	2.77	2.77	2.77
$N_{R,k}$ [kN]	t_{N1} [mm]	0.40	1.70 ^{a)}	1.70 ^{a)}	1.70 ^{a)}	1.70 ^{a)}	1.70 ^{a)}	1.70 ^{a)}	1.70 ^{a)}	1.70 ^{a)}	1.70 ^{a)}
	0.45	1.84	1.84 ^{a)}	1.84 ^{a)}	1.84 ^{a)}	1.84 ^{a)}	1.84 ^{a)}	1.84 ^{a)}	1.84 ^{a)}	1.84 ^{a)}	1.84 ^{a)}
	0.50	1.94	1.98 ^{a)}	1.98 ^{a)}	1.98 ^{a)}	1.98 ^{a)}	1.98 ^{a)}	1.98 ^{a)}	1.98 ^{a)}	1.98 ^{a)}	1.98 ^{a)}
	0.55	1.94	2.27	2.33 ^{a)}	2.33 ^{a)}	2.33 ^{a)}	2.33 ^{a)}	2.33 ^{a)}	2.33 ^{a)}	2.33 ^{a)}	2.33 ^{a)}
	0.60	1.94	2.27	2.59	2.82	2.82 ^{a)}	2.82 ^{a)}	2.82 ^{a)}	2.82 ^{a)}	2.82 ^{a)}	2.82 ^{a)}
	0.63	1.94	2.27	2.59	2.92	3.12	3.12 ^{a)}	3.12 ^{a)}	3.12 ^{a)}	3.12 ^{a)}	3.12 ^{a)}
	0.70	1.94	2.27	2.59	2.92	3.24	3.56	3.81	3.81 ^{a)}	3.81 ^{a)}	3.81 ^{a)}
	0.75	1.94	2.27	2.59	2.92	3.24	3.56	3.89	4.21	4.31	4.31 ^{a)}
	0.88	1.94	2.27	2.59	2.92	3.24	3.56	3.89	4.21	4.54	4.64
	1.00	1.94	2.27	2.59	2.92	3.24	3.56	3.89	4.21	4.54	4.86
$N_{R,k,II}$ [kN]		1.94	2.27	2.59	2.92	3.24	3.56	3.89	4.21	4.54	4.86
		Sandwich panel thickness, d, D [mm]									
		30	40	50	60	70	≥80	-	-	-	-
max. U [mm]		4.0	5.0	8.0	9.3	10.7	12.0	-	-	-	-

Index ^{a)}: For t_{N1} of least S320GD the indicated values of $N_{R,k}$ can be increased by 8,3%
Index ^{b)}: For t_{N2} of least S320GD the indicated values of $V_{R,k}$ can be increased by 8,3%

The values indicated above depending on the screw depth l_{ef} shall apply for $k_{mod} = 0.90$ and the timber strength class C24 ($\rho_k = 350$ kg/m³).
For other values of k_{mod} and timber strength classes see Annex 3.

Thread-forming screws for connecting sandwich panels with steel or timber supporting structures RP-r-(FK-)(P-)6,0xL with sealing washer $\geq \varnothing 22$ mm	Annex 39
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Leistungserklärung Nr. DOP-003

Anhang 34
ETA-18/1136 Anhang 43

		Fastener: stainless steel – EN 10088 steel grade 1.4301, 1.4401, 1.4567, 1.4578 Washer: stainless steel – EN 10088 steel grade 1.4301 or 1.4401 Component I: S280GD to S350GD – EN 10346 Component II: structural timber – EN 14081, ≥ C24
		Drilling performance: $\sum t \leq 5.00 \text{ mm}$
		Timber substructure: Performance determined with $M_{ly,Rk} = 9.9 \text{ Nm}$ $f_{ax,k} = 14.00 \text{ N/mm}^2$ for $l_{ef} \geq 30.00 \text{ mm}$

$l_0 = l_{ef} + 18 \text{ mm}$		Effective screw-in length l_{ef} [mm]									
$V_{R,k}$ [kN] t_{02} [mm]	0.40	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64
	0.50	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
	0.55	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
	0.63	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
	0.75	1.39	1.63	1.85	1.91	1.91	1.91	1.91	1.91	1.91	1.91
	0.88	1.39	1.63	1.85	2.09	2.30	2.30	2.30	2.30	2.30	2.30
	1.00	1.39	1.63	1.85	2.09	2.32	2.81	2.81	2.81	2.81	2.81
	1.00	1.39	1.63	1.85	2.09	2.32	2.81	2.81	2.81	2.81	2.81
$N_{R,k}$ [kN] t_{01} [mm]	0.40	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
	0.45	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
	0.50	1.18 ^{a)}	1.18 ^{a)}	1.18 ^{a)}	1.18 ^{a)}	1.18 ^{a)}	1.18 ^{a)}	1.18 ^{a)}	1.18 ^{a)}	1.18 ^{a)}	1.18 ^{a)}
	0.55	1.55 ^{a)}	1.55 ^{a)}	1.55 ^{a)}	1.55 ^{a)}	1.55 ^{a)}	1.55 ^{a)}	1.55 ^{a)}	1.55 ^{a)}	1.55 ^{a)}	1.55 ^{a)}
	0.60	1.92 ^{a)}	1.92 ^{a)}	1.92 ^{a)}	1.92 ^{a)}	1.92 ^{a)}	1.92 ^{a)}	1.92 ^{a)}	1.92 ^{a)}	1.92 ^{a)}	1.92 ^{a)}
	0.63	2.14 ^{a)}	2.14 ^{a)}	2.14 ^{a)}	2.14 ^{a)}	2.14 ^{a)}	2.14 ^{a)}	2.14 ^{a)}	2.14 ^{a)}	2.14 ^{a)}	2.14 ^{a)}
	0.70	2.46	2.65	2.65 ^{a)}	2.65 ^{a)}	2.65 ^{a)}	2.65 ^{a)}	2.65 ^{a)}	2.65 ^{a)}	2.65 ^{a)}	2.65 ^{a)}
	0.75	2.46	2.65	3.02 ^{a)}	3.02 ^{a)}	3.02 ^{a)}	3.02 ^{a)}	3.02 ^{a)}	3.02 ^{a)}	3.02 ^{a)}	3.02 ^{a)}
$N_{R,k,II}$ [kN]	0.88	2.46	2.65	3.02 ^{a)}	3.53	3.53 ^{a)}	3.53 ^{a)}	3.53 ^{a)}	3.53 ^{a)}	3.53 ^{a)}	3.53 ^{a)}
	1.00	2.46	2.65	3.02 ^{a)}	3.69	4.01	4.01 ^{a)}	4.01 ^{a)}	4.01 ^{a)}	4.01 ^{a)}	4.01 ^{a)}
		2.46	2.87	3.28	3.69	4.10	4.50	4.91	5.32	5.73	6.14
		Sandwich panel thickness, d, D [mm]									
		30	40	50	60	70	80	100	120	≥140	-
max. U [mm]		2.1	2.8	3.5	4.2	4.9	5.6	7.0	8.4	9.8	-

Index ^{a)}: For t_{01} of least S320GD the indicated values of $N_{R,k}$ can be increased by 8,3%

The values indicated above depending on the screw depth l_{ef} shall apply for $k_{R05} = 0.90$ and the timber strength class C24 ($\rho_k = 350 \text{ kg/m}^3$).
For other values of k_{R05} and timber strength classes see Annex 3.

Thread-forming screws for connecting sandwich panels with steel or timber supporting structures RP-WS-(FK)-(P)-6,5xL with sealing washer $\geq \varnothing 16 \text{ mm}$	Annex 43
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Leistungserklärung Nr. DOP-003

Anhang 35
ETA-18/1136 Anhang 44

		Fastener: stainless steel – EN 10088 steel grade 1.4301, 1.4401, 1.4567, 1.4578 Washer: stainless steel – EN 10088 steel grade 1.4301 or 1.4401 Component I: S280GD to S350GD – EN 10346 Component II: structural timber – EN 14081, ≥ C24
		Drilling performance: $\Sigma t \leq 5.00$ mm
		Timber substructure: Performance determined with $M_{y,Rk} = 9.9$ Nm $f_{ax,k} = 14.00$ N/mm ² for $l_{ef} \geq 30.00$ mm

$l_g = l_{ef} + 18$ mm		Effective screw-in length l_{ef} [mm]									
		30	35	40	45	50	55	60	65	70	75
$V_{R,k}$ [kN]	0.40	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64
	0.50	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
	0.55	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
	0.63	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
	0.75	1.39	1.63	1.85	1.91	1.91	1.91	1.91	1.91	1.91	1.91
	0.88	1.39	1.63	1.85	2.09	2.30	2.30	2.30	2.30	2.30	2.30
	1.00	1.39	1.63	1.85	2.09	2.32	2.81	2.81	2.81	2.81	2.81
$N_{R,k}$ [kN]	0.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
	0.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45
	0.50	1.51 ^{a)}	1.51 ^{a)}	1.51 ^{a)}	1.51 ^{a)}	1.51 ^{a)}	1.51 ^{a)}	1.51 ^{a)}	1.51 ^{a)}	1.51 ^{a)}	1.51 ^{a)}
	0.55	1.94 ^{a)}	1.94 ^{a)}	1.94 ^{a)}	1.94 ^{a)}	1.94 ^{a)}	1.94 ^{a)}	1.94 ^{a)}	1.94 ^{a)}	1.94 ^{a)}	1.94 ^{a)}
	0.60	2.37	2.37 ^{a)}	2.37 ^{a)}	2.37 ^{a)}	2.37 ^{a)}	2.37 ^{a)}	2.37 ^{a)}	2.37 ^{a)}	2.37 ^{a)}	2.37 ^{a)}
	0.63	2.46	2.63 ^{a)}	2.63 ^{a)}	2.63 ^{a)}	2.63 ^{a)}	2.63 ^{a)}	2.63 ^{a)}	2.63 ^{a)}	2.63 ^{a)}	2.63 ^{a)}
	0.70	2.46	2.87	3.23	3.23 ^{a)}	3.23 ^{a)}	3.23 ^{a)}	3.23 ^{a)}	3.23 ^{a)}	3.23 ^{a)}	3.23 ^{a)}
	0.75	2.46	2.87	3.28	3.66	3.66 ^{a)}	3.66 ^{a)}	3.66 ^{a)}	3.66 ^{a)}	3.66 ^{a)}	3.66 ^{a)}
	0.88	2.46	2.87	3.28	3.69	4.08	4.08 ^{a)}	4.08 ^{a)}	4.08 ^{a)}	4.08 ^{a)}	4.08 ^{a)}
	1.00	2.46	2.87	3.28	3.69	4.10	4.47	4.47 ^{a)}	4.47 ^{a)}	4.47 ^{a)}	4.47 ^{a)}
$N_{R,k,II}$ [kN]		2.46	2.87	3.28	3.69	4.10	4.50	4.91	5.32	5.73	6.14
		Sandwich panel thickness, d, D [mm]									
		30	40	50	60	70	80	100	120	≥140	-
max. U [mm]		2.1	2.8	3.5	4.2	4.9	5.6	7.0	8.4	9.8	-

Index ^{a)}: For t_{01} of least S320GD the indicated values of $N_{R,k}$ can be increased by 8.3%

The values indicated above depending on the screw depth l_{ef} shall apply for $k_{red} = 0.90$ and the timber strength class C24 ($\rho_k = 350$ kg/m³).
For other values of k_{red} and timber strength classes see Annex 3.

Thread-forming screws for connecting sandwich panels with steel or timber supporting structures RP-WS-(FK-)(P-)6,5xL with sealing washer $\geq \varnothing 19$ mm		Annex 44
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Leistungserklärung Nr. DOP-003

Anhang 36
ETA-18/1136 Anhang 45

		Fastener: stainless steel – EN 10088 steel grade 1.4301, 1.4401, 1.4567, 1.4578 Washer: stainless steel – EN 10088 steel grade 1.4301 or 1.4401 Component I: S280GD to S350GD – EN 10346 Component II: structural timber – EN 14081, ≥ C24
		Drilling performance: $\Sigma t \leq 5.00$ mm
		Timber substructure: Performance determined with $M_{y,Rk} = 9.9$ Nm $f_{ax,k} = 14.00$ N/mm ² for $l_{ef} \geq 30.00$ mm

$l_g = l_{ef} + 18$ mm		Effective screw-in length l_{ef} [mm]									
		30	35	40	45	50	55	60	65	70	75
$V_{R,k}$ [kN] t_{w2} [mm]	0.40	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64
	0.50	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
	0.55	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
	0.63	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
	0.75	1.39	1.63	1.85	1.91	1.91	1.91	1.91	1.91	1.91	1.91
	0.88	1.39	1.63	1.85	2.09	2.30	2.30	2.30	2.30	2.30	2.30
	1.00	1.39	1.63	1.85	2.09	2.32	2.81	2.81	2.81	2.81	2.81
$N_{R,k}$ [kN] t_{w1} [mm]	0.40	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
	0.45	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.76
	0.50	1.83 ^{a)}	1.83 ^{a)}	1.83 ^{a)}	1.83 ^{a)}	1.83 ^{a)}	1.83 ^{a)}	1.83 ^{a)}	1.83 ^{a)}	1.83 ^{a)}	1.83 ^{a)}
	0.55	2.33	2.33 ^{a)}	2.33 ^{a)}	2.33 ^{a)}	2.33 ^{a)}	2.33 ^{a)}	2.33 ^{a)}	2.33 ^{a)}	2.33 ^{a)}	2.33 ^{a)}
	0.60	2.46	2.82	2.82 ^{a)}	2.82 ^{a)}	2.82 ^{a)}	2.82 ^{a)}	2.82 ^{a)}	2.82 ^{a)}	2.82 ^{a)}	2.82 ^{a)}
	0.63	2.46	2.87	3.12	3.12 ^{a)}	3.12 ^{a)}	3.12 ^{a)}	3.12 ^{a)}	3.12 ^{a)}	3.12 ^{a)}	3.12 ^{a)}
	0.70	2.46	2.87	3.28	3.69	3.81	3.81 ^{a)}	3.81 ^{a)}	3.81 ^{a)}	3.81 ^{a)}	3.81 ^{a)}
	0.75	2.46	2.87	3.28	3.69	4.10	4.31	4.31 ^{a)}	4.31 ^{a)}	4.31 ^{a)}	4.31 ^{a)}
	0.88	2.46	2.87	3.28	3.69	4.10	4.50	4.64	4.64 ^{a)}	4.64 ^{a)}	4.64 ^{a)}
	1.00	2.46	2.87	3.28	3.69	4.10	4.50	4.91	4.94	4.94 ^{a)}	4.94 ^{a)}
$N_{R,k,II}$ [kN]		2.46	2.87	3.28	3.69	4.10	4.50	4.91	5.32	5.73	6.14
		Sandwich panel thickness, d, D [mm]									
		30	40	50	60	70	80	100	120	≥140	-
max. U [mm]		2.1	2.8	3.5	4.2	4.9	5.6	7.0	8.4	9.8	-

Index ^{a)}: For t_{w1} of least S320GD the indicated values of $N_{R,k}$ can be increased by 8,3%.

The values indicated above depending on the screw depth l_{ef} shall apply for $k_{R_{ref}} = 0.90$ and the timber strength class C24 ($\rho_k = 350$ kg/m³).
For other values of $k_{R_{ref}}$ and timber strength classes see Annex 3.

Thread-forming screws for connecting sandwich panels with steel or timber supporting structures RP-WS-(FK-)(P-)6,5xL with sealing washer $\geq \varnothing 22$ mm	Annex 45
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Leistungserklärung Nr. DOP-003

Anhang 37
ETA-18/1136 Anhang 46

Fastener: stainless steel – EN 10088
steel grade 1.4301, 1.4401, 1.4567, 1.4578

Washer: stainless steel – EN 10088
steel grade 1.4301 or 1.4401

Component I: S280GD to S550GD – EN 10346

Component II: structural timber – EN 14081, ≥ C24

Drilling performance: Performance not assessed

Timber substructure: Performance determined with

$M_{y,Rk} = 20.0 \text{ Nm}$
 $f_{ax,k} = 13.40 \text{ N/mm}^2$ for $l_{ef} \geq 26.00 \text{ mm}$

$l_0 = l_{ef} + 6 \text{ mm}$		Effective screw-in length l_{ef} [mm]										
		26	32	38	44	50	56	62	≥ 68	-	-	-
dp[mm]		ø 4,8										
$V_{R,k}$ [kN] t_{W2} [mm]	0.40	0.77 ^{b)}	0.77 ^{b)}	0.77 ^{b)}	0.77 ^{b)}	0.77 ^{b)}	0.77 ^{b)}	0.77 ^{b)}	0.77 ^{b)}	-	-	-
	0.50	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	-	-	-
	0.55	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	-	-	-
	0.63	1.63	2.00	2.00	2.00	2.00	2.00	2.00	2.00	-	-	-
	0.75	1.63	2.01	2.39	2.40	2.40	2.40	2.40	2.40	-	-	-
	0.88	1.63	2.01	2.39	2.40	2.40	2.40	2.40	2.40	-	-	-
	1.00	1.63	2.01	2.39	2.40	2.40	2.40	2.40	2.40	-	-	-
$N_{R,k}$ [kN] t_{W1} [mm]	0.40	1.59 ^{a)}	1.59 ^{a)}	1.59 ^{a)}	1.59 ^{a)}	1.59 ^{a)}	1.59 ^{a)}	1.59 ^{a)}	1.59 ^{a)}	-	-	-
	0.45	1.73 ^{a)}	1.73 ^{a)}	1.73 ^{a)}	1.73 ^{a)}	1.73 ^{a)}	1.73 ^{a)}	1.73 ^{a)}	1.73 ^{a)}	-	-	-
	0.50	1.88 ^{a)}	1.88 ^{a)}	1.88 ^{a)}	1.88 ^{a)}	1.88 ^{a)}	1.88 ^{a)}	1.88 ^{a)}	1.88 ^{a)}	-	-	-
	0.55	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	-	-	-
	0.60	2.04	2.12	2.12	2.12	2.12	2.12	2.12	2.12	-	-	-
	0.63	2.04	2.20	2.20	2.20	2.20	2.20	2.20	2.20	-	-	-
	0.70	2.04	2.51	2.55	2.55	2.55	2.55	2.55	2.55	-	-	-
	0.75	2.04	2.51	2.80	2.80	2.80	2.80	2.80	2.80	-	-	-
	0.88	2.04	2.51	2.80	2.80	2.80	2.80	2.80	2.80	-	-	-
	1.00	2.04	2.51	2.80	2.80	2.80	2.80	2.80	2.80	-	-	-
$N_{R,k,II}$ [kN]		2.04	2.51	2.98	3.45	3.92	4.39	4.86	5.33	-	-	-
		Sandwich panel thickness, d, D [mm]										
		30	40	50	60	70	≥ 80	-	-	-	-	-
max. U [mm]		-	5.0	5.5	7.0	11.0	15.0	-	-	-	-	-

Index ^{a)}: For t_{W1} of least S320GD the indicated values of $N_{R,k}$ can be increased by 8,3%
Index ^{b)}: For t_{W2} of least S320GD the indicated values of $V_{R,k}$ can be increased by 8,3%

The values indicated above depending on the screw depth l_{ef} shall apply for $k_{red} = 0.90$ and the timber strength class C24 ($\rho_k = 350 \text{ kg/m}^3$).
For other values of k_{red} and timber strength classes see Annex 3.

Thread-forming screws for connecting sandwich panels with steel or timber supporting structures

FABA-A-(FK-)6,5xL
with sealing washer ≥ ø16 mm

Annex 46

Leistungserklärung Nr. DOP-003

Anhang 38
ETA-18/1136 Anhang 47

Fastener: stainless steel – EN 10088
steel grade 1.4301, 1.4401, 1.4567, 1.4578

Washer: stainless steel – EN 10088
steel grade 1.4301 or 1.4401

Component I: S280GD to S550GD – EN 10346

Component II: structural timber – EN 14081, ≥ C24

Drilling performance: Performance not assessed

Timber substructure: Performance determined with

$M_{y,Rk} = 26.35 \text{ Nm}$
 $f_{ax,k} = 9.80 \text{ N/mm}^2$ for $l_{ef} \geq 34.00 \text{ mm}$

$l_0 = l_{ef} + 8 \text{ mm}$		Effective screw-in length l_{ef} [mm]										
		34	42	50	58	66	74	82	≥ 90	-	-	-
dp[mm]		ø6.0										
$V_{R,k}$ [kN] t_{R2} [mm]	0.40	1.15 ^{b)}	1.15 ^{b)}	1.15 ^{b)}	1.15 ^{b)}	1.15 ^{b)}	1.15 ^{b)}	1.15 ^{b)}	1.15 ^{b)}	-	-	-
	0.50	1.58 ^{b)}	1.58 ^{b)}	1.58 ^{b)}	1.58 ^{b)}	1.58 ^{b)}	1.58 ^{b)}	1.58 ^{b)}	1.58 ^{b)}	-	-	-
	0.55	1.77 ^{b)}	1.77 ^{b)}	1.77 ^{b)}	1.77 ^{b)}	1.77 ^{b)}	1.77 ^{b)}	1.77 ^{b)}	1.77 ^{b)}	-	-	-
	0.63	2.06 ^{b)}	2.06 ^{b)}	2.06 ^{b)}	2.06 ^{b)}	2.06 ^{b)}	2.06 ^{b)}	2.06 ^{b)}	2.06 ^{b)}	-	-	-
	0.75	2.54 ^{b)}	2.54 ^{b)}	2.54 ^{b)}	2.54 ^{b)}	2.54 ^{b)}	2.54 ^{b)}	2.54 ^{b)}	2.54 ^{b)}	-	-	-
	0.88	2.54 ^{b)}	2.54 ^{b)}	2.54 ^{b)}	2.54 ^{b)}	2.54 ^{b)}	2.54 ^{b)}	2.54 ^{b)}	2.54 ^{b)}	-	-	-
	1.00	2.54 ^{b)}	2.54 ^{b)}	2.54 ^{b)}	2.54 ^{b)}	2.54 ^{b)}	2.54 ^{b)}	2.54 ^{b)}	2.54 ^{b)}	-	-	-
$N_{R,k}$ [kN] t_{R1} [mm]	0.40	1.78 ^{a)}	1.78 ^{a)}	1.78 ^{a)}	1.78 ^{a)}	1.78 ^{a)}	1.78 ^{a)}	1.78 ^{a)}	1.78 ^{a)}	-	-	-
	0.45	2.04 ^{a)}	2.04 ^{a)}	2.04 ^{a)}	2.04 ^{a)}	2.04 ^{a)}	2.04 ^{a)}	2.04 ^{a)}	2.04 ^{a)}	-	-	-
	0.50	2.31 ^{a)}	2.31 ^{a)}	2.31 ^{a)}	2.31 ^{a)}	2.31 ^{a)}	2.31 ^{a)}	2.31 ^{a)}	2.31 ^{a)}	-	-	-
	0.55	2.52	3.10	3.10	3.10	3.10	3.10	3.10	3.10	-	-	-
	0.60	2.52	3.11	3.70	3.91	3.91	3.91	3.91	3.91	-	-	-
	0.63	2.52	3.11	3.70	4.30	4.40	4.40	4.40	4.40	-	-	-
	0.70	2.52	3.11	3.70	4.30	4.89	4.95	4.95	4.95	-	-	-
	0.75	2.52	3.11	3.70	4.30	4.89	5.30	5.30	5.30	-	-	-
	0.88	2.52	3.11	3.70	4.30	4.89	5.48	5.70	5.70	-	-	-
	1.00	2.52	3.11	3.70	4.30	4.89	5.48	6.08	6.20	-	-	-
$N_{R,k,II}$ [kN]		2.52	3.11	3.70	4.30	4.89	5.48	6.08	6.67	-	-	-
		Sandwich panel thickness, d, D [mm]										
		30	40	50	60	≥70	-	-	-	-	-	-
max. U [mm]		3.0	4.0	5.0	6.0	8.0	-	-	-	-	-	-

Index ^{a)}: For t_{R1} of least S320GD the indicated values of $N_{R,k}$ can be increased by 8,3%

Index ^{b)}: For t_{R2} of least S320GD the indicated values of $V_{R,k}$ can be increased by 8,3%

The values indicated above depending on the screw depth l_{ef} shall apply for $k_{res} = 0.90$ and the timber strength class C24 ($\rho_k = 350 \text{ kg/m}^3$).
For other values of k_{res} and timber strength classes see Annex 3.

Thread-forming screws for connecting sandwich panels with steel or timber supporting structures

FABA-A-(FK-)8,4xL
with sealing washer $\geq \varnothing 22 \text{ mm}$

Annex 47