

Materials:

Fastener: carbon steel
case hardened and corrosion-resistant

Washer: carbon steel, corrosion-resistant,
stainless steel (A2) – EN ISO 3506
with vulcanised EPDM seal

Component I: S280GD - EN 10346

Component II: S235 to S355 - EN 10025-1

Drilling capacity: $\Sigma t \leq 13,00$ mm

Timber substructures:

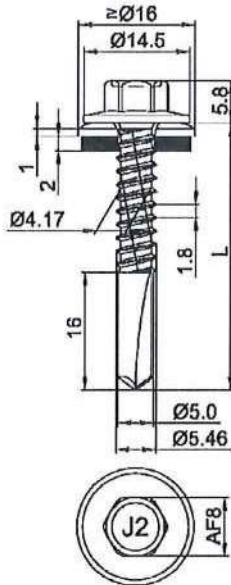
no performance determined

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

Fastening screws JA, JB, JT, JZ and JF

Self-drilling screw JT2-12-5,5xL
with hexagon head and sealing washer $\geq \text{Ø}16$ mm

Annex 28



Materials:

Fastener: carbon steel
case hardened and corrosion-resistant

Washer: carbon steel, corrosion-resistant,
stainless steel (A2) – EN ISO 3506
with vulcanised EPDM seal

Component I: S320GD or S350GD - EN 10346

Component II: S235 to S355 - EN 10025-1

Drilling capacity: $\Sigma t_i \leq 13,00$ mm

Timber substructures

no performance determined

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

Fastening screws JA, JB, JT, JZ and JF

Self-drilling screw JT2-12-5,5xL
with hexagon head and sealing washer $\geq \varnothing 16$ mm

Annex 29

	<p>Materials:</p> <p>Fastener: carbon steel case hardened and corrosion-resistant</p> <p>Washer: carbon steel, corrosion-resistant stainless steel (A2) – EN ISO 3506 with vulcanised EPDM seal</p> <p>Component I: S280GD to S350GD - EN 10346 Component II: S235 to S355 - EN 10025-1</p>
	<p>Drilling capacity: $\Sigma t \leq 18,00$ mm</p>
	<p>Timber substructures</p> <p>no performance determined</p>

$t_{N,II}$ [mm]	4,00	5,00	6,00	8,00	10,00	12,00	14,00	16,00
$M_{t,nom}$	5 Nm							
$V_{R,k}$ [kN] for $t_{N,I} =$	0,50	1,91 — 1,91	1,91 — 1,91	1,91 — 1,91	1,91 — 1,91	1,91 — 1,91	1,91 — 1,91	1,91 — 1,91
	0,55	2,12 — 2,12	2,12 — 2,12	2,12 — 2,12	2,12 — 2,12	2,12 — 2,12	2,12 — 2,12	2,12 — 2,12
	0,63	2,20 — 2,20	2,20 — 2,20	2,20 — 2,20	2,20 — 2,20	2,20 — 2,20	2,20 — 2,20	2,20 — 2,20
	0,75	2,80 — 2,80	2,80 — 2,80	2,80 — 2,80	2,80 — 2,80	2,80 — 2,80	2,80 — 2,80	2,80 — 2,80
	0,88	3,50 — 3,50	3,50 — 3,50	3,50 — 3,50	3,50 — 3,50	3,50 — 3,50	3,50 — 3,50	3,50 — 3,50
	1,00	4,20 — 4,20	4,20 — 4,20	4,20 — 4,20	4,20 — 4,20	4,20 — 4,20	4,20 — 4,20	4,20 — 4,20
	1,13	4,20 — 4,90	4,90 — 4,90	4,90 — 4,90	4,90 — 4,90	4,90 — 4,90	4,90 — 4,90	4,90 — 4,90
	1,25	4,20 — 5,60	5,60 — 5,60	5,60 — 5,60	5,60 — 5,60	5,60 — 5,60	5,60 — 5,60	5,60 — 5,60
	1,50	4,20 — 6,40	6,40 — 7,20	7,20 — 7,20	7,20 — 7,20	7,20 — 7,20	7,20 — 7,20	7,20 — 7,20
	1,75	4,20 — 6,40	6,40 — 7,20	7,20 — 7,20	7,20 — 7,20	7,20 — 7,20	7,20 — 7,20	7,20 — 7,20
	2,00	4,20 — 6,40	6,40 — 7,20	7,20 — 7,20	7,20 — 7,20	7,20 — 7,20	7,20 — 7,20	7,20 — 7,20
$N_{R,k}$ [kN] for $t_{N,I} =$	0,50	1,77 — 1,77	1,77 — 1,77	1,77 — 1,77	1,77 — 1,77	1,77 — 1,77	1,77 — 1,77	1,77 — 1,77
	0,55	1,96 — 1,96	1,96 — 1,96	1,96 — 1,96	1,96 — 1,96	1,96 — 1,96	1,96 — 1,96	1,96 — 1,96
	0,63	2,27 — 2,27	2,27 — 2,27	2,27 — 2,27	2,27 — 2,27	2,27 — 2,27	2,27 — 2,27	2,27 — 2,27
	0,75	2,73 — 2,73	2,73 — 2,73	2,73 — 2,73	2,73 — 2,73	2,73 — 2,73	2,73 — 2,73	2,73 — 2,73
	0,88	3,23 — 3,23	3,23 — 3,23	3,23 — 3,23	3,23 — 3,23	3,23 — 3,23	3,23 — 3,23	3,23 — 3,23
	1,00	3,69 — 3,69	3,69 — 3,69	3,69 — 3,69	3,69 — 3,69	3,69 — 3,69	3,69 — 3,69	3,69 — 3,69
	1,13	4,19 — 4,19	4,19 — 4,19	4,19 — 4,19	4,19 — 4,19	4,19 — 4,19	4,19 — 4,19	4,19 — 4,19
	1,25	4,65 — 4,65	4,65 — 4,65	4,65 — 4,65	4,65 — 4,65	4,65 — 4,65	4,65 — 4,65	4,65 — 4,65
	1,50	4,70 — 5,61	5,61 — 5,61	5,61 — 5,61	5,61 — 5,61	5,61 — 5,61	5,61 — 5,61	5,61 — 5,61
	1,75	4,70 — 5,61	5,61 — 5,61	5,61 — 5,61	5,61 — 5,61	5,61 — 5,61	5,61 — 5,61	5,61 — 5,61
	2,00	4,70 — 5,61	5,61 — 5,61	5,61 — 5,61	5,61 — 5,61	5,61 — 5,61	5,61 — 5,61	5,61 — 5,61

Fastening screws JA, JB, JT, JZ and JF

Self-drilling screw JT2-18-5,5xL
with hexagon head and sealing washer $\geq \varnothing 16$ mm

Annex 30

	<p>Materials:</p> <p>Fastener: carbon steel case hardened and corrosion-resistant</p> <p>Washer: carbon steel, corrosion-resistant, stainless steel (A2) – EN ISO 3506 with vulcanised EPDM seal</p> <p>Component I: S280GD to S350GD - EN 10346 Component II: S235 to S355 - EN 10025-1</p>
	<p>Drilling capacity: $\Sigma t_i \leq 18,00$ mm</p>
	<p>Timber substructures:</p> <p>No performance determined</p>

$t_{N,II}$ [mm]	4,00	5,00	6,00	8,00	10,00	12,00	14,00	16,00
$M_{t,nom}$	5 Nm							
$V_{R,k}$ [kN] for $t_{N,j} =$	0,50	1,91	1,91	1,91	1,91	1,91	1,91	1,91
	0,55	2,12	2,12	2,12	2,12	2,12	2,12	2,12
	0,63	2,20	2,20	2,20	2,20	2,20	2,20	2,20
	0,75	2,80	2,80	2,80	2,80	2,80	2,80	2,80
	0,88	3,50	3,50	3,50	3,50	3,50	3,50	3,50
	1,00	4,20	4,20	4,20	4,20	4,20	4,20	4,20
	1,13	4,20	4,90	4,90	4,90	4,90	4,90	4,90
	1,25	4,20	5,60	5,60	5,60	5,60	5,60	5,60
	1,50	4,20	6,40	7,20	7,20	7,20	7,20	7,20
	1,75	4,20	6,40	7,20	7,20	7,20	7,20	7,20
2,00	4,20	6,40	7,20	7,20	7,20	7,20	7,20	
$N_{R,k}$ [kN] for $t_{N,j} =$	0,50	2,10	2,10	2,10	2,10	2,10	2,10	2,10
	0,55	2,33	2,33	2,33	2,33	2,33	2,33	2,33
	0,63	2,69	2,69	2,69	2,69	2,69	2,69	2,69
	0,75	3,24	3,24	3,24	3,24	3,24	3,24	3,24
	0,88	3,83	3,83	3,83	3,83	3,83	3,83	3,83
	1,00	4,38	4,38	4,38	4,38	4,38	4,38	4,38
	1,13	4,70	4,97	4,97	4,97	4,97	4,97	4,97
	1,25	4,70	5,52	5,52	5,52	5,52	5,52	5,52
	1,50	4,70	6,40	6,40	6,40	6,40	6,40	6,40
	1,75	4,70	6,40	6,40	6,40	6,40	6,40	6,40
2,00	4,70	6,40	6,40	6,40	6,40	6,40	6,40	

Fastening screws JA, JB, JT, JZ and JF

Self-drilling screw JT2-18-5,5xL
with hexagon head and sealing washer $\geq \varnothing 19$ mm

Annex 31

	<p>Materials:</p> <p>Fastener: carbon steel case hardened and corrosion-resistant</p> <p>Washer: carbon steel, corrosion-resistant, stainless steel (A2) – EN ISO 3506 with vulcanised EPDM seal</p> <p>Component I: S280GD to S350GD - EN 10346 Component II: S235 to S355 - EN 10025-1</p>
	<p>Drilling capacity: $\Sigma t_i \leq 18,00$ mm</p>
	<p>Timber substructures:</p> <p>No performance determined</p>

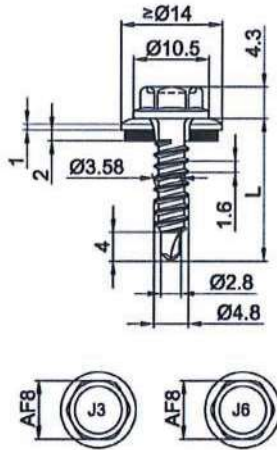
$t_{N,II}$ [mm]	4,00	5,00	6,00	8,00	10,00	12,00	14,00	16,00
$M_{t,nom}$	5 Nm							
$V_{R,k}$ [kN] for $t_{N,I} =$	0,50	1,91 — 1,91	2,12 — 2,12	2,20 — 2,20	2,80 — 2,80	3,50 — 3,50	4,20 — 4,20	4,20 — 4,20
	0,55	2,12 — 2,12	2,20 — 2,20	2,80 — 2,80	3,50 — 3,50	4,20 — 4,20	4,20 — 4,20	4,20 — 4,20
	0,63	2,20 — 2,20	2,80 — 2,80	3,50 — 3,50	4,20 — 4,20	4,20 — 4,20	4,20 — 4,20	4,20 — 4,20
	0,75	2,80 — 2,80	3,50 — 3,50	4,20 — 4,20	4,20 — 4,20	4,20 — 4,20	4,20 — 4,20	4,20 — 4,20
	0,88	3,50 — 3,50	4,20 — 4,20	4,20 — 4,20	4,20 — 4,20	4,20 — 4,20	4,20 — 4,20	4,20 — 4,20
	1,00	4,20 — 4,20	4,90 — 4,90	4,90 — 4,90	4,90 — 4,90	4,90 — 4,90	4,90 — 4,90	4,90 — 4,90
	1,13	4,20 — 4,20	4,90 — 4,90	5,60 — 5,60	5,60 — 5,60	5,60 — 5,60	5,60 — 5,60	5,60 — 5,60
	1,25	4,20 — 4,20	5,60 — 5,60	7,20 — 7,20	7,20 — 7,20	7,20 — 7,20	7,20 — 7,20	7,20 — 7,20
	1,50	4,20 — 4,20	6,40 — 6,40	7,20 — 7,20	7,20 — 7,20	7,20 — 7,20	7,20 — 7,20	7,20 — 7,20
	1,75	4,20 — 4,20	6,40 — 6,40	7,20 — 7,20	7,20 — 7,20	7,20 — 7,20	7,20 — 7,20	7,20 — 7,20
	2,00	4,20 — 4,20	6,40 — 6,40	7,20 — 7,20	7,20 — 7,20	7,20 — 7,20	7,20 — 7,20	7,20 — 7,20
$N_{R,k}$ [kN] for $t_{N,I} =$	0,50	2,43 — 2,43	2,69 — 2,69	3,12 — 3,12	3,75 — 3,75	4,44 — 4,44	4,44 — 4,44	4,44 — 4,44
	0,55	2,69 — 2,69	3,12 — 3,12	3,75 — 3,75	4,44 — 4,44	4,44 — 4,44	4,44 — 4,44	4,44 — 4,44
	0,63	3,12 — 3,12	3,75 — 3,75	4,44 — 4,44	5,07 — 5,07	5,07 — 5,07	5,07 — 5,07	5,07 — 5,07
	0,75	3,75 — 3,75	4,44 — 4,44	5,07 — 5,07	5,76 — 5,76	5,76 — 5,76	5,76 — 5,76	5,76 — 5,76
	0,88	4,44 — 4,44	5,07 — 5,07	5,76 — 5,76	6,39 — 6,39	6,39 — 6,39	6,39 — 6,39	6,39 — 6,39
	1,00	4,70 — 4,70	5,76 — 5,76	6,39 — 6,39	6,40 — 6,40	6,40 — 6,40	6,40 — 6,40	6,40 — 6,40
	1,13	4,70 — 4,70	6,39 — 6,39	6,40 — 6,40	6,40 — 6,40	6,40 — 6,40	6,40 — 6,40	6,40 — 6,40
	1,25	4,70 — 4,70	6,40 — 6,40	6,40 — 6,40	6,40 — 6,40	6,40 — 6,40	6,40 — 6,40	6,40 — 6,40
	1,50	4,70 — 4,70	6,40 — 6,40	6,40 — 6,40	6,40 — 6,40	6,40 — 6,40	6,40 — 6,40	6,40 — 6,40
	1,75	4,70 — 4,70	6,40 — 6,40	6,40 — 6,40	6,40 — 6,40	6,40 — 6,40	6,40 — 6,40	6,40 — 6,40
	2,00	4,70 — 4,70	6,40 — 6,40	6,40 — 6,40	6,40 — 6,40	6,40 — 6,40	6,40 — 6,40	6,40 — 6,40

Fastening screws JA, JB, JT, JZ and JF

Self-drilling screw JT2-18-5,5xL
with hexagon head and sealing washer $\geq \phi 22$ mm

Annex 32

English translation prepared by DIBt



Materials:

Fastener: stainless steel (A2) – EN ISO 3506
stainless steel (A4) – EN ISO 3506

Washer: stainless steel (A2/A4) – EN ISO 3506
with vulcanised EPDM seal

Component I: S280GD to S350GD – EN 10346

Component II: S235 to S275 – EN 10025-1
S280GD to S450GD – EN 10346
HX300LAD to HX460LAD – EN 10346

Drilling capacity: $\Sigma t \leq 2,20$ mm

Timber substructures:

no performance determined

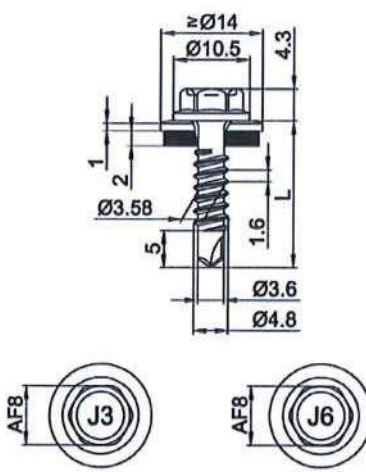
$t_{N,II}$ [mm]	0,40	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	1,50	1,75
$M_{t,nom}$	—										
$V_{R,k}$ [kN] for $t_{N,I} =$	0,40	0,55	0,55	0,55	0,55	0,55	0,55	0,55	0,55	0,55	0,55
	0,50	0,55	0,89	0,89	0,89	0,89	0,89	0,89	0,89	0,89	—
	0,55	0,55	0,89	1,06	1,06	1,06	1,06	1,06	1,06	1,06	—
	0,63	0,55	0,89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

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

Fastening screws JA, JB, JT, JZ and JF

Self-drilling screw JT3-2H-4,8xL, JT6-2H-4,8xL
with undercut and hexagon head and sealing washer $\geq \varnothing 14$ mm

Annex 33

	<p>Materials:</p> <p>Fastener: stainless steel (A2) – EN ISO 3506 stainless steel (A4) – EN ISO 3506</p> <p>Washer: stainless steel (A2/A4) – EN ISO 3506 with vulcanised EPDM seal</p> <p>Component I: S280GD to S350GD – EN 10346</p> <p>Component II: S235 – EN 10025-1 S280GD to S350GD – EN 10346</p>
	<p>Drilling capacity: $\Sigma t_i \leq 3,25$ mm</p>
	<p>Timber substructures:</p> <p>no performance determined</p>

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

Fastening screws JA, JB, JT, JZ and JF	Annex 34
Self-drilling screw JT3-3H-4,8xL, JT6-3H-4,8xL with undercut, hexagon head and sealing washer $\geq \varnothing 14$ mm	

English translation prepared by DIBt

	<p>Materials:</p> <p>Fastener: stainless steel (A2) – EN ISO 3506 stainless steel (A4) – EN ISO 3506</p> <p>Washer: stainless steel (A2/A4) – EN ISO 3506 with vulcanised EPDM seal</p> <p>Component I: S280GD to S350GD – EN 10346</p> <p>Component II: S235 to S275 – EN 10025-1 S280GD to S450GD – EN 10346 HX300LAD to HX460LAD – EN 10346</p>
	<p>Drilling capacity: $\Sigma t_i \leq 2,20$ mm</p>
	<p>Timber substructures: no performance determined</p>

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

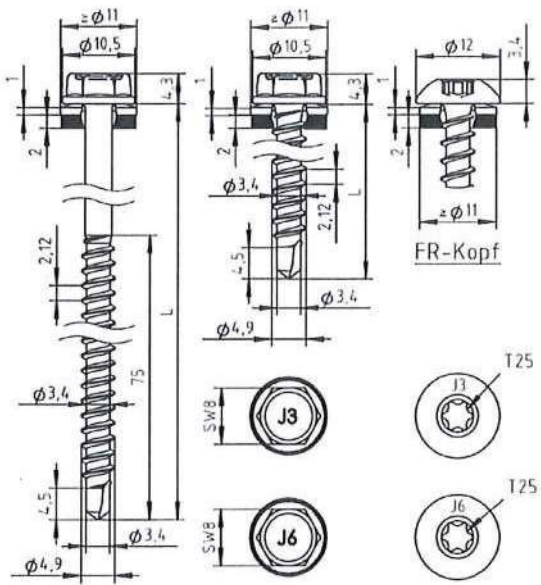
– If both components I and II are made of S320GD or S350GD the values may be increased by 8,3%.

Fastening screws JA, JB, JT, JZ and JF

Annex 35

Self-drilling screw JT3-FR-2H-4,8xL, JT6-FR-2H-4,8xL

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



Materials:
 Fastener: stainless steel (A2) – EN ISO 3506
 stainless steel (A4) – EN ISO 3506
 Washer: stainless steel (A2/A4) – EN ISO 3506
 Component I: S280GD to S350GD – EN 10346
 Component II: timber – EN 14081

Drilling capacity: $\Sigma t_i \leq 2 \times 1,00 \text{ mm}$

Timber substructures:
 performance determined with
 $M_{y,Rk} = 5,990 \text{ Nm}$
 $f_{ax,k} = 9,800 \text{ N/mm}^2$ for $l_{ef} \geq 20 \text{ mm}$

$t_{N,i}$ [mm]	l_g [mm]												
	25	27	30	32	35	37	40	42	45	47	50		
$V_{R,k}$ [kN] for $t_{N,i} =$	0,40	1,33	1,33	1,33	1,33	1,33	1,33	1,33	1,33	1,33	1,33	1,33	1,33
	0,50	1,36	1,39	1,42	1,44	1,47	1,50	1,53	1,55	1,58	1,61	1,63	1,70
	0,55	1,36	1,39	1,42	1,44	1,47	1,50	1,53	1,55	1,58	1,61	1,63	1,89
	0,63	1,36	1,39	1,42	1,44	1,47	1,50	1,53	1,55	1,58	1,61	1,63	2,19
	0,75	1,36	1,39	1,42	1,44	1,47	1,50	1,53	1,55	1,58	1,61	1,63	2,63
	0,88	1,36	1,39	1,42	1,44	1,47	1,50	1,53	1,55	1,58	1,61	1,63	3,11
	1,00	1,36	1,39	1,42	1,44	1,47	1,50	1,53	1,55	1,58	1,61	1,63	3,56
	1,13	—	—	—	—	—	—	—	—	—	—	—	—
	1,25	—	—	—	—	—	—	—	—	—	—	—	—
	1,50	—	—	—	—	—	—	—	—	—	—	—	—
1,75	—	—	—	—	—	—	—	—	—	—	—	—	
2,00	—	—	—	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,i} =$	0,40	0,85	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95
	0,50	0,85	0,96	1,06	1,17	1,21	1,21	1,21	1,21	1,21	1,21	1,21	1,21
	0,55	0,85	0,96	1,06	1,17	1,28	1,35	1,35	1,35	1,35	1,35	1,35	1,35
	0,63	0,85	0,96	1,06	1,17	1,28	1,39	1,50	1,56	1,56	1,56	1,56	1,56
	0,75	0,85	0,96	1,06	1,17	1,28	1,39	1,50	1,60	1,71	1,82	1,87	1,87
	0,88	0,85	0,96	1,06	1,17	1,28	1,39	1,50	1,60	1,71	1,82	1,93	2,22
	1,00	0,85	0,96	1,06	1,17	1,28	1,39	1,50	1,60	1,71	1,82	1,93	2,53
	1,13	—	—	—	—	—	—	—	—	—	—	—	—
	1,25	—	—	—	—	—	—	—	—	—	—	—	—
	1,50	—	—	—	—	—	—	—	—	—	—	—	—
1,75	—	—	—	—	—	—	—	—	—	—	—	—	
2,00	—	—	—	—	—	—	—	—	—	—	—	—	

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

Fastening screws JA, JB, JT, JZ and JF	Annex 36
Self-drilling screw JT3-(FR)-2-4,9xL, JT6-(FR)-2-4,9xL with hexagon head or round head with Torx® drive system and sealing washer $\geq \varnothing 11 \text{ mm}$	

Materials:

Fastener: stainless steel (A2) – EN ISO 3506
stainless steel (A4) – EN ISO 3506

Washer: stainless steel (A2/A4) – EN ISO 3506
with vulcanised EPDM seal

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

Component II: timber – EN 14081

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

Timber substructures:
performance determined with

$M_{y,Rk} = 5,990 \text{ Nm}$
 $f_{ax,k} = 9,800 \text{ N/mm}^2$ for $l_{ef} \geq 20 \text{ mm}$

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

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

Fastening screws JA, JB, JT, JZ and JF

Self-drilling screw JT3-(FR)-2-4,9xL, JT6-(FR)-2-4,9xL, JT4-(FR)-2-4,9xL,
JT9-(FR)-2-4,9xL
with hexagon head or round head with Torx® drive system and sealing washer $\geq \phi 11 \text{ mm}$

Annex 37

English translation prepared by DIBt

Materials:

Fastener: stainless steel (A2) – EN ISO 3506
stainless steel (A4) – EN ISO 3506

Washer: stainless steel (A2/A4) – EN ISO 3506
with vulcanised EPDM seal

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

Component II: timber – EN 14081

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

Timber substructures:
performance determined with

$M_{y,Rk} = 5,990 \text{ Nm}$
 $f_{ax,k} = 9,800 \text{ N/mm}^2$ for $l_{ef} \geq 20 \text{ mm}$

$t_{N,I}$ [mm]	L_g [mm]										
	25	27	29	31	33	35	37	39	41		
$V_{R,k}$ [kN] for $t_{N,I} =$	0,66	0,66	0,66	0,66	0,66	0,66	0,66	0,66	0,66	0,66	bearing resistance of component I
0,60	0,73	0,81	0,87	0,87	0,87	0,87	0,87	0,87	0,87	0,87	
0,70	0,73	0,81	0,88	0,95	1,03	1,07	1,07	1,07	1,07	1,07	
0,80	0,73	0,81	0,88	0,95	1,03	1,10	1,17	1,25	1,28	1,28	
0,90	0,73	0,81	0,88	0,95	1,03	1,10	1,17	1,25	1,29	1,29	
1,00	0,73	0,81	0,88	0,95	1,03	1,10	1,17	1,25	1,30	1,30	
1,20	0,73	0,81	0,88	0,95	1,03	1,10	1,17	1,25	1,30	1,30	
1,50	0,73	0,81	0,88	0,95	1,03	1,10	1,17	1,25	1,30	1,30	
2,00	0,73	0,81	0,88	0,95	1,03	1,10	1,17	1,25	1,30	1,30	
$N_{R,II,k}$ [kN] =	0,86	0,95	1,04	1,12	1,21	1,30	1,38	1,47	1,56	failure of component II see chapter 4.2.2	

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

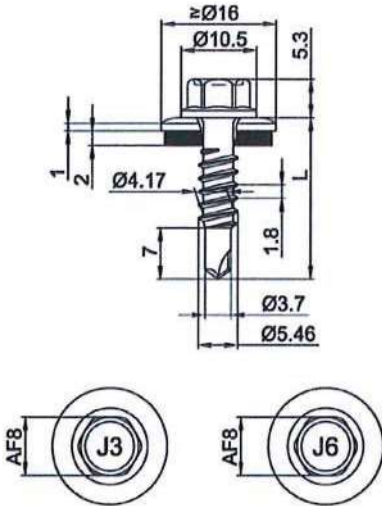
Fastening screws JA, JB, JT, JZ and JF

Self-drilling screw JT3-(FR-)2-4,9xL, JT6-(FR-)2-4,9xL, JT4-(FR-)2-4,9xL,
JT9-(FR-)2-4,9xL

with hexagon head or round head with Torx® drive system and sealing washer $\geq \phi 11 \text{ mm}$

Annex 38

English translation prepared by DIBt

	<p>Materials:</p> <p>Fastener: stainless steel (A2) – EN ISO 3506 stainless steel (A4) – EN ISO 3506</p> <p>Washer: stainless steel (A2/A4) – EN ISO 3506 with vulcanised EPDM seal</p> <p>Component I: S280GD to S350GD – EN 10346</p> <p>Component II: S235 – EN 10025-1 S280GD to S350GD – EN 10346</p>
	<p>Drilling capacity: $\Sigma t_i \leq 2,50$ mm</p>
	<p>Timber substructures: no performance determined</p>

$t_{N,II}$ [mm]	0,63	0,75	0,88	1,00	1,13	1,25	1,50	2,00			
$M_{t,nom}$	5 Nm										
$V_{R,k}$ [kN] for $t_{N,I} =$	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	1,50	1,75	2,00
	—	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—
	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	ac	—
	1,00	1,70	1,70	1,70	1,70	1,70	1,70	1,70	1,70	—	—
	1,00	1,70	1,70	1,70	1,70	1,70	1,70	1,70	1,70	—	—
	1,00	1,70	1,70	1,70	1,70	1,70	1,70	1,70	—	—	—
	1,00	1,70	1,70	1,70	1,70	1,70	1,70	1,70	—	—	—
	1,00	1,70	1,70	1,70	1,70	1,70	—	—	—	—	—
	1,00	1,70	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—
$N_{R,k}$ [kN] for $t_{N,I} =$	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	1,50	1,75	2,00
	0,32	0,41	0,60	0,60	0,60	0,60	0,60	0,60	0,60	0,60	—
	—	—	—	—	—	—	—	—	—	—	—
	0,43	0,55	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	—
	—	—	—	—	—	—	—	—	—	—	—
	0,49	0,61	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	—
	—	—	—	—	—	—	—	—	—	—	—
	0,59	0,75	1,10	1,10	1,10	1,10	1,10	1,10	1,10	1,10	—
	—	—	—	—	—	—	—	—	—	—	—
	0,76	0,95	1,40	1,40	1,40	1,40	1,40	1,40	1,40	1,40	—
	—	—	—	—	—	—	—	—	—	—	—
	0,81	1,02	1,50	1,50	1,50	1,50	1,50	1,50	1,50	1,50	—
	—	—	—	—	—	—	—	—	—	—	—
	1,08	1,36	2,00	2,00	2,00	2,00	2,00	2,00	2,00	2,00	—
	ac	ac	ac	—	—	—	—	—	—	—	—
	1,08	—	—	—	—	—	—	—	—	—	—
	ac	—	—	—	—	—	—	—	—	—	—

Fastening screws JA, JB, JT, JZ and JF

Self-drilling screw JT3-2H-5,5xL, JT6-2H-5,5xL
with undercut, hexagon head and sealing washer $\geq \varnothing 16$ mm

Annex 39

	<p>Materials:</p> <p>Fastener: stainless steel (A2) – EN ISO 3506 stainless steel (A4) – EN ISO 3506</p> <p>Washer: stainless steel (A2/A4) – EN ISO 3506 with vulcanised EPDM seal</p> <p>Component I: aluminium alloy with $R_{m,min} = 165 \text{ N/mm}^2$ – EN 573</p> <p>Component II: aluminium alloy with $R_{m,min} = 165 \text{ N/mm}^2$ – EN 573</p>
	<p>Drilling capacity: $\Sigma t_i \leq 2,00 \text{ mm}$</p> <p>Timber substructures: performance determined with $M_{y,Rk} = 7,911 \text{ Nm}$ $f_{ax,k} = 8,575 \text{ N/mm}^2$ for $l_{ef} \geq 24 \text{ mm}$ $f_{ax,k} = 9,800 \text{ N/mm}^2$ for $l_{ef} \geq 28 \text{ mm}$</p>

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

- Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.
- For other areas of application see national technical approval Z-14.4-426.

Fastening screws JA, JB, JT, JZ and JF

Self-drilling screw JT3-(FR)-2-6,0xL, JT6-(FR)-2-6,0xL

with hexagon head or round head with Torx® drive system and sealing washer $\geq \phi 14 \text{ mm}$

Annex 40

	<p>Materials:</p> <p>Fastener: stainless steel (A2) – EN ISO 3506 stainless steel (A4) – EN ISO 3506</p> <p>Washer: stainless steel (A2/A4) – EN ISO 3506 with vulcanised EPDM seal</p> <p>Component I: aluminium alloy with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573</p> <p>Component II: aluminium alloy with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573 timber – EN 14081</p>
	<p>Drilling capacity: $\Sigma t_i \leq 2,00 \text{ mm}$</p> <p>Timber substructures: performance determined with $M_{y,Rk} = 7,911 \text{ Nm}$ $f_{ax,k} = 8,575 \text{ N/mm}^2$ for $l_{ef} \geq 24 \text{ mm}$ $f_{ax,k} = 9,800 \text{ N/mm}^2$ for $l_{ef} \geq 28 \text{ mm}$</p>

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

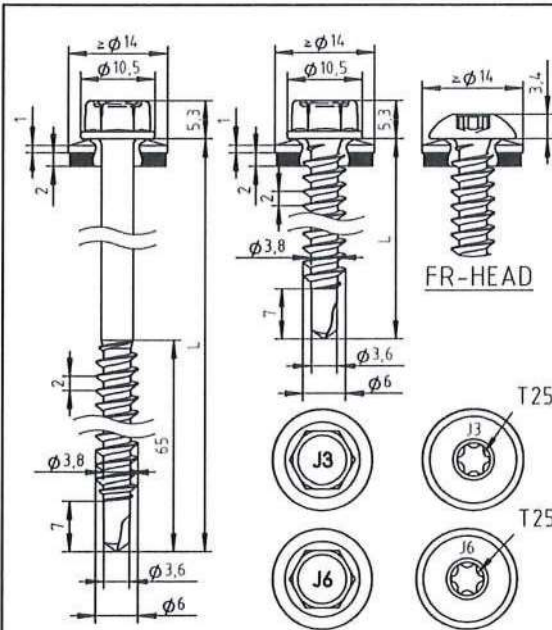
- Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.
- For other areas of application see national technical approval Z-14.4-426.

Fastening screws JA, JB, JT, JZ and JF

Self-drilling screw JT3-(FR)-2-6,0xL, JT6-(FR)-2-6,0xL

with hexagon head or round head with Torx® drive system and sealing washer $\geq \varnothing 14 \text{ mm}$

Annex 41



Materials:

Fastener: stainless steel (A2) – EN ISO 3506
stainless steel (A4) – EN ISO 3506
Washer: stainless steel (A2/A4) – EN ISO 3506
with vulcanised EPDM seal
Component I: aluminium alloy
with $R_{m,min} = 165 \text{ N/mm}^2$ – EN 573
Component II: S235 – EN 10025-1
S280GD, S320GD – EN 10346
timber – EN 14081

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

Timber substructures:

performance determined with
 $M_{y,Rk} = 7,911 \text{ Nm}$
 $f_{ax,k} = 8,575 \text{ N/mm}^2$ for $l_{ef} \geq 24 \text{ mm}$
 $f_{ax,k} = 9,800 \text{ N/mm}^2$ for $l_{ef} \geq 28 \text{ mm}$

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

- Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.
- Component II of steel S320GD or S350GD: the indicated values of the pull out resistance $N_{R,II,k}$ can be increased by 8,0%.
- For other areas of application see national technical approval Z-14.4-426.

Fastening screws JA, JB, JT, JZ and JF

Self-drilling screw JT3-(FR-)2-6,0xL, JT6-(FR-)2-6,0xL

with hexagon head or round head with Torx® drive system and sealing washer $\geq \text{Ø}14 \text{ mm}$

Annex 42

English translation prepared by DIBt

	Materials: Fastener: stainless steel (A2) – EN ISO 3506 stainless steel (A4) – EN ISO 3506 Washer: stainless steel (A2/A4) – EN ISO 3506 with vulcanised EPDM seal Component I: aluminium alloy with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573 Component II: S235 – EN 10025-1 S280GD, S320GD – EN 10346 timber – EN 14081
	Drilling capacity: $\Sigma t_i \leq 2,00 \text{ mm}$
Timber substructures: performance determined with $M_{y,Rk} = 7,911 \text{ Nm}$ $f_{ax,k} = 8,575 \text{ N/mm}^2$ for $l_{ef} \geq 24 \text{ mm}$ $f_{ax,k} = 9,800 \text{ N/mm}^2$ for $l_{ef} \geq 28 \text{ mm}$	

$t_{N,II}$ [mm]	0,40	0,50	0,63	0,75	0,88	1,00	1,25	1,50	
$M_{t,nom}$	—								
$V_{R,k}$ [kN] for $t_{N,I} =$	0,40	0,50	0,63	0,75	0,88	1,00	1,25	1,50	bearing resistance of component I
	0,38	0,38	0,38	0,38	0,38	0,38	0,38	0,38	0,38
	0,52	0,52	0,52	0,84	0,95	1,05	1,05	1,05	1,05
	0,52	0,65	0,65	0,87	0,99	1,10	1,10	—	1,10
	0,52	0,65	0,79	0,90	1,03	1,15	1,15	—	1,15
	0,52	0,65	0,79	0,92	1,06	1,20	1,20	—	1,20
	0,52	0,65	0,79	0,97	1,11	1,25	—	—	1,25
	0,52	0,65	0,79	1,02	1,16	1,30	—	—	1,30
	0,52	0,65	0,79	1,12	1,21	—	—	—	1,61
	0,52	0,65	0,79	—	—	—	—	—	2,08
$N_{R,II,k}$ [kN]	0,53	0,75	0,80	1,05	1,35	1,63	2,26	3,02	failure of component II see chapter 4.2.2

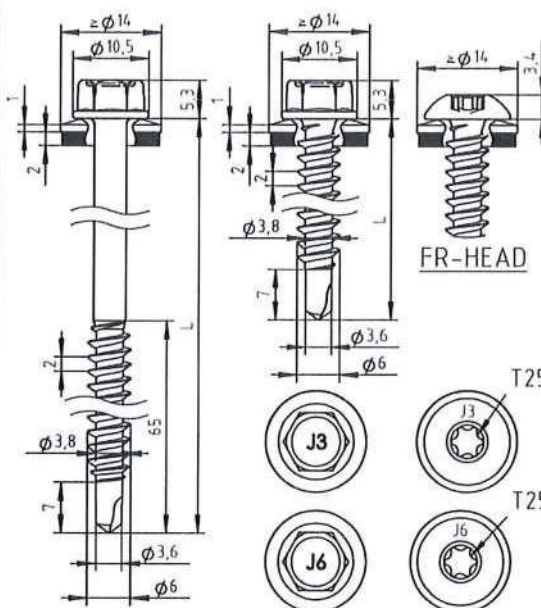
- Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.
- Component II of steel S320GD or S350GD: the indicated values of the pull out resistance $N_{R,II,k}$ can be increased by 8,0%.
- For other areas of application see national technical approval Z-14.4-426.

Fastening screws JA, JB, JT, JZ and JF

Self-drilling screw JT3-(FR)-2-6,0xL, JT6-(FR)-2-6,0xL

with hexagon head or round head with Torx® drive system and sealing washer $\geq \phi 14 \text{ mm}$

Annex 43



Materials:

Fastener: stainless steel (A2) – EN ISO 3506
stainless steel (A4) – EN ISO 3506

Washer: stainless steel (A2/A4) – EN ISO 3506
with vulcanised EPDM seal

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

Component II: timber – EN 14081

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

Timber substructures:

performance determined with

$M_{y,Rk} = 7,911 \text{ Nm}$

$f_{ax,k} = 8,575 \text{ N/mm}^2$ for $l_{ef} \geq 24 \text{ mm}$

$f_{ax,k} = 9,800 \text{ N/mm}^2$ for $l_{ef} \geq 28 \text{ mm}$

$t_{N,I}$ [mm]	l_g [mm]								
	31	36	41	46	51	56	≥ 61		
$V_{R,k}$ [kN] for $t_{N,I} =$	0,29	0,29	0,29	0,29	0,29	0,29	0,29	0,29	bearing resistance of component I
0,50	0,81	0,81	0,81	0,81	0,81	0,81	0,81	0,81	
0,60	0,85	0,85	0,85	0,85	0,85	0,85	0,85	0,85	
0,70	0,89	0,89	0,89	0,89	0,89	0,89	0,89	0,89	
0,80	0,92	0,92	0,92	0,92	0,92	0,92	0,92	0,92	
0,90	0,97	0,97	0,97	0,97	0,97	0,97	0,97	0,97	
1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	
1,20	1,24	1,24	1,24	1,24	1,24	1,24	1,24	1,24	
1,50	1,59	1,59	1,59	1,59	1,59	1,59	1,59	1,59	
2,00	1,59	1,59	1,59	1,59	1,59	1,59	1,59	1,59	
$N_{R,II,k}$ [kN] =	1,11	1,34	1,80	2,06	2,33	2,59	2,86	failure of component II see chapter 4.2.2	

- Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.
- For timber substructures the indicated values of the shear force resistance $V_{R,k}$ shall apply with and without washer.
- For other areas of application see national technical approval Zulassung Z-14.4-426.
- The values indicated above, depending on the screw depth l_g shall apply to $k_{mod} = 0,90$ and the timber strength class C24 ($\rho_k = 350 \text{ kg/m}^3$). For other values of k_{mod} and strength classes see chapter 4.2.2.

Fastening screws JA, JB, JT, JZ and JF

Annex 44

Self-drilling screw JT3-(FR)-2-6,0xL, JT6-(FR)-2-6,0xL

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

English translation prepared by DIBt

	<p>Materials:</p> <p>Fastener: stainless steel (A2) – EN ISO 3506 stainless steel (A4) – EN ISO 3506</p> <p>Washer: stainless steel (A2/A4) – EN ISO 3506 with vulcanised EPDM seal</p> <p>Component I: aluminium alloy with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573</p> <p>Component II: timber – EN 14081</p>
	<p>Drilling capacity: $\Sigma t_i \leq 2,00 \text{ mm}$</p> <p>Timber substructures: performance determined with $M_{y,Rk} = 7,911 \text{ Nm}$ $f_{ax,k} = 8,575 \text{ N/mm}^2$ for $l_{ef} \geq 24 \text{ mm}$ $f_{ax,k} = 9,800 \text{ N/mm}^2$ for $l_{ef} \geq 28 \text{ mm}$</p>

$t_{N,i}$ [mm]	l_g [mm]								
	31	36	41	46	51	56	≥ 61		
$V_{R,k}$ [kN] for $t_{N,i} =$	0,38	0,38	0,38	0,38	0,38	0,38	0,38	0,38	bearing resistance of component I
0,50	1,05	1,05	1,05	1,05	1,05	1,05	1,05	1,05	
0,60	1,10	1,10	1,10	1,10	1,10	1,10	1,10	1,10	
0,70	1,15	1,15	1,15	1,15	1,15	1,15	1,15	1,15	
0,80	1,20	1,20	1,20	1,20	1,20	1,20	1,20	1,20	
0,90	1,25	1,25	1,25	1,25	1,25	1,25	1,25	1,25	
1,00	1,30	1,30	1,30	1,30	1,30	1,30	1,30	1,30	
1,20	1,61	1,61	1,61	1,61	1,61	1,61	1,61	1,61	
1,50	1,67	1,73	1,85	1,91	1,98	2,04	2,08	2,08	
2,00	1,67	1,73	1,85	1,91	1,98	2,04	2,08	2,08	
$N_{R,II,k}$ [kN] =	1,11	1,34	1,80	2,06	2,33	2,59	2,86	failure of component II see chapter 4.2.2	

- Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.
- For timber substructures the indicated values of the shear force resistance $V_{R,k}$ shall apply with and without washer.
- For other areas of application see national technical approval Z-14.4-426.
- The values indicated above, depending on the screw depth l_g shall apply to $k_{mod} = 0,90$ and the timber strength class C24 ($\rho_k = 350 \text{ kg/m}^3$). For other values of k_{mod} and strength classes see chapter 4.2.2.

Fastening screws JA, JB, JT, JZ and JF

Self-drilling screw JT3-(FR)-2-6,0xL, JT6-(FR)-2-6,0xL

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

Annex 45

English translation prepared by DIBt

	<p>Materials:</p> <p>Fastener: stainless steel (A2) – EN ISO 3506 stainless steel (A4) – EN ISO 3506</p> <p>Washer: stainless steel (A2/A4) – EN ISO 3506 with vulcanised EPDM seal</p> <p>Component I: S280GD to S350GD – EN 10346</p> <p>Component II: S235 to S275 – EN 10025-1 S280GD to S450GD – EN 10346 HX300LAD to HX460LAD – EN 10346</p>
	<p>Drilling capacity: $\Sigma t_i \leq 3,50$ mm</p> <p>Timber substructures: no performance determined</p>

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

– If both component I is made of S320GD or S350GD and component II is made of S320GD to S450GD respectively HX340LAD to HX460LAD the values may be increased by 8,3%.

Fastening screws JA, JB, JT, JZ and JF

Self-drilling screw JT3-(FR-)2H-Plus-5,5xL, JT6-(FR-)2H-Plus-5,5xL

with undercut, hexagon head or round head with Torx® drive system and sealing washer $\geq \varnothing 16$ mm

Annex 46

English translation prepared by DIBt

Materials:
 Fastener: stainless steel (A2) – EN ISO 3506
 stainless steel (A4) – EN ISO 3506
 Washer: stainless steel (A2/A4) – EN ISO 3506
 with vulcanised EPDM seal
 Component I: S280GD, S320GD or S350GD – EN 10346
 Component II: S280GD to S350GD – EN 10346

Drilling capacity: $\Sigma t_i \leq 3,50$ mm

Timber substructures:
 no performance determined

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

– If both component I is made of S320GD or S350GD and component II is made of S320GD to S450GD respectively HX340LAD to HX460LAD the values may be increased by 8,3%.

Fastening screws JA, JB, JT, JZ and JF	Annex 47
Self-drilling screw JT3-(FR-)2H-Plus-5,5xL, JT6-(FR-)2H-Plus-5,5xL with undercut, hexagon head or round head with Torx® drive system and sealing washer $\geq \varnothing 16$ mm	

	<p>Materials:</p> <p>Fastener: stainless steel (A2) – EN ISO 3506 stainless steel (A4) – EN ISO 3506</p> <p>Washer: stainless steel (A2/A4) – EN ISO 3506 with vulcanised EPDM seal</p> <p>Component I: S280GD to S350GD – EN 10346</p> <p>Component II: S235 to S275 – EN 10025-1 S280GD to S450GD – EN 10346 HX300LAD to HX460LAD – EN 10346</p>
	<p>Drilling capacity: $\Sigma t \leq 3,50$ mm</p>
	<p>Timber substructures:</p> <p>no performance determined</p>

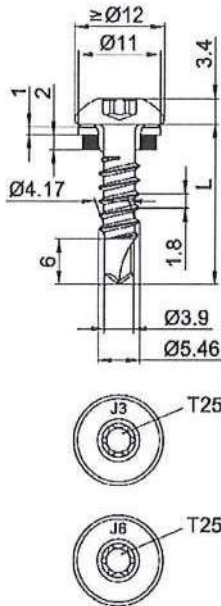
$t_{N,II}$ [mm]	0,40	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	1,50	2,00
$M_{t,nom}$	1 Nm			2 Nm			2,5 Nm				
$V_{R,k}$ [kN] for $t_{N,I} =$	0,50	0,56	0,60	0,64	0,68	0,83	0,98	1,13	1,13	1,13	1,13
	0,55	0,58	0,67	0,73	0,78	0,94	1,09	1,25	1,25	1,25	1,25
	0,63	0,60	0,71	0,82	0,87	1,04	1,21	1,38	1,38	1,38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

– If both component I is made of S320GD or S350GD and component II is made of S320GD to S450GD respectively HX340LAD to HX460LAD the values may be increased by 8,3%.

Fastening screws JA, JB, JT, JZ and JF

Self-drilling screw JT3-FR-2H-Plus-5,5xL, JT6-FR-2H-Plus-5,5xL
with undercut, hexagon head or round head with Torx® drive system and sealing washer $\geq \varnothing 11$ mm

Annex 48



Materials:

Fastener: stainless steel (A2) – EN ISO 3506
stainless steel (A4) – EN ISO 3506

Washer: stainless steel (A2/A4) – EN ISO 3506
with vulcanised EPDM seal

Component I: S280GD to S350GD – EN 10346

Component II: S280GD to S350GD – EN 10346

Drilling capacity: $\Sigma t_i \leq 3,50$ mm

Timber substructures:

no performance determined

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

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

Fastening screws JA, JB, JT, JZ and JF

Self-drilling screw JT3-FR-2H-Plus-5,5xL, JT6-FR-2H-Plus-5,5xL

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

Annex 49

	<p>Materials:</p> <p>Fastener: stainless steel (A2) – EN ISO 3506 stainless steel (A4) – EN ISO 3506</p> <p>Washer: stainless steel (A2/A4) – EN ISO 3506 with vulcanised EPDM seal</p> <p>Component I: aluminium alloy with $R_{m,min} = 165 \text{ N/mm}^2$ – EN 573</p> <p>Component II: aluminium alloy with $R_{m,min} = 165 \text{ N/mm}^2$ – EN 573</p> <hr/> <p>Drilling capacity: $\Sigma t \leq 3,50 \text{ mm}$</p> <hr/> <p>Timber substructures: no performance determined</p>
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$t_{N,II}$ [mm]	0,40	0,50	0,60	0,70	0,80	0,90	1,00	1,20	1,50	
$M_{t,nom}$	—									
$V_{R,k}$ [kN] for $t_{N,j} =$	0,40	0,50	0,60	0,70	0,80	0,90	1,00	1,20	1,50	
	0,19 —	0,19 —	0,19 —	0,19 —	0,19 —	0,19 —	0,19 ac	0,19 ac	0,19 ac	
	0,19 —	0,27 —	0,32 —	0,37 —	0,43 —	0,48 —	0,53 ac	0,53 ac	0,53 ac	
	0,19 —	0,27 —	0,38 —	0,44 —	0,49 —	0,55 —	0,61 —	0,63 —	0,76 ac	
	0,19 —	0,27 —	0,38 —	0,50 —	0,55 —	0,62 —	0,68 —	0,74 —	0,99 ac	
	0,19 —	0,27 —	0,38 —	0,50 —	0,61 —	0,69 —	0,76 —	0,84 —	1,22 ac	
	0,19 —	0,27 —	0,38 —	0,50 —	0,61 —	0,76 —	0,83 —	0,95 —	1,34 —	
	0,19 —	0,27 —	0,38 —	0,50 —	0,61 —	0,76 —	0,91 —	1,05 —	1,47 —	
	0,19 —	0,27 —	0,38 —	0,50 —	0,61 —	0,76 —	0,91 —	1,26 —	1,71 —	
	0,19 —	0,27 —	0,38 —	0,50 —	0,61 —	0,76 —	0,91 —	1,26 —	2,08 —	
$N_{R,II,k}$ [kN] =	0,14	0,21	0,28	0,36	0,43	0,50	0,56	0,73	0,91	

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

Fastening screws JA, JB, JT, JZ and JF

Self-drilling screw JT3-(FR)-2H-Plus-5,5xL, JT6-(FR)-2H-Plus-5,5xL

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

Annex 50

	<p>Materials:</p> <p>Fastener: stainless steel (A2) – EN ISO 3506 stainless steel (A4) – EN ISO 3506</p> <p>Washer: stainless steel (A2/A4) – EN ISO 3506 with vulcanised EPDM seal</p> <p>Component I: aluminium alloy with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573</p> <p>Component II: aluminium alloy with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573</p> <hr/> <p>Drilling capacity: $\Sigma t_i \leq 3,50 \text{ mm}$</p> <hr/> <p>Timber substructures: no performance determined</p>
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$t_{N,II}$ [mm]	0,40	0,50	0,60	0,70	0,80	0,90	1,00	1,20	1,50	
$M_{t,nom}$	—									
$V_{R,k}$ [kN] for $t_{N,II} =$	0,40	0,24 —	0,24 —	0,24 —	0,24 —	0,24 —	0,24 —	0,24 ac	0,24 ac	0,24 ac
	0,50	0,24 —	0,35 —	0,42 —	0,49 —	0,55 —	0,62 —	0,69 ac	0,69 ac	0,69 ac
	0,60	0,24 —	0,35 —	0,50 —	0,57 —	0,63 —	0,71 —	0,79 —	0,83 —	0,99 ac
	0,70	0,24 —	0,35 —	0,50 —	0,65 —	0,72 —	0,81 —	0,86 —	0,96 —	1,29 ac
	0,80	0,24 —	0,38 —	0,50 —	0,65 —	0,80 —	0,90 —	0,93 —	1,08 —	1,59 ac
	0,90	0,24 —	0,38 —	0,50 —	0,65 —	0,80 —	0,99 —	1,00 —	1,23 —	1,75 —
	1,00	0,24 —	0,38 —	0,50 —	0,65 —	0,80 —	0,99 —	1,18 —	1,37 —	1,91 —
	1,20	0,24 —	0,38 —	0,50 —	0,65 —	0,80 —	0,99 —	1,18 —	1,64 —	2,23 —
1,50	0,24 —	0,38 —	0,50 —	0,65 —	0,80 —	0,99 —	1,18 —	1,64 —	2,71 —	
$N_{R,II,k}$ [kN] =	0,19	0,28	0,37	0,47	0,56	0,65	0,73	0,95	1,19	

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

Fastening screws JA, JB, JT, JZ and JF

Self-drilling screw JT3-(FR-)2H-Plus-5,5xL, JT6-(FR-)2H-Plus-5,5xL

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

Annex 51

	<p>Materials:</p> <p>Fastener: stainless steel (A2) – EN ISO 3506 stainless steel (A4) – EN ISO 3506</p> <p>Washer: stainless steel (A2/A4) – EN ISO 3506 with vulcanised EPDM seal</p> <p>Component I: aluminium alloy with $R_{m,min} = 165 \text{ N/mm}^2$ – EN 573</p> <p>Component II: S235 to S275 – EN 10025-1 S280GD to S450GD – EN 10346 HX300LAD to HX460LAD – EN 10346</p>
	<p>Drilling capacity: $\Sigma t_i \leq 3,50 \text{ mm}$</p>
<p>Timber substructures: no performance determined</p>	

$t_{n,II}$ [mm]	0,40	0,50	0,63	0,75	0,88	1,00	1,25	1,50	2,00
$M_{t,nom}$	—								
$V_{R,k}$ [kN] for $t_{n,I} =$	0,40	0,50	0,60	0,70	0,80	0,90	1,00	1,20	1,50
	0,19 —	0,19 —	0,19 —	0,19 —	0,19 —	0,19 —	0,19 ac	0,19 ac	0,19 ac
	0,35 —	0,35 —	0,35 —	0,40 —	0,47 —	0,53 —	0,53 ac	0,53 ac	0,53 ac
	0,35 —	0,42 —	0,42 —	0,47 —	0,54 —	0,61 —	0,69 —	0,76 —	0,76 ac
	0,35 —	0,42 —	0,49 —	0,53 —	0,61 —	0,68 —	0,84 —	0,99 —	0,99 ac
	0,35 —	0,42 —	0,49 —	0,56 —	0,66 —	0,76 —	0,99 —	1,22 —	1,22 ac
	0,35 —	0,42 —	0,49 —	0,56 —	0,70 —	0,83 —	1,03 —	1,34 —	1,34 —
	0,35 —	0,42 —	0,49 —	0,56 —	0,74 —	0,91 —	0,19 —	1,47 —	1,47 —
	0,35 —	0,42 —	0,49 —	0,56 —	0,74 —	0,91 —	1,31 —	1,71 —	1,71 —
	0,35 —	0,42 —	0,49 —	0,56 —	0,74 —	0,91 —	1,50 —	2,08 —	2,08 —
$N_{R,II,k}$ [kN] =	0,30	0,41	0,56	0,73	1,06	1,40	0,73	2,59	2,59

- Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.
- Component II of steel S320GD the indicated values of the pull-out resistance $N_{R,II,k}$ can be increased by 8,0%.

Fastening screws JA, JB, JT, JZ and JF

Self-drilling screw JT3-(FR-)2H-Plus-5,5xL, JT6-(FR-)2H-Plus-5,5xL
with undercut, round head with Torx® drive system and sealing washer $\geq \text{Ø}11 \text{ mm}$

Annex 52

English translation prepared by DIBt

	<p>Materials:</p> <p>Fastener: stainless steel (A2) – EN ISO 3506 stainless steel (A4) – EN ISO 3506</p> <p>Washer: stainless steel (A2/A4) – EN ISO 3506 with vulcanised EPDM seal</p> <p>Component I: aluminium alloy with $R_{m,min} = 165 \text{ N/mm}^2$ – EN 573</p> <p>Component II: S280GD to S350GD – EN 10346</p> <hr/> <p>Drilling capacity: $\Sigma t \leq 3,50 \text{ mm}$</p> <hr/> <p>Timber substructures: no performance determined</p>
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$t_{n,II} [\text{mm}]$	2x0,63	2x0,75	2x0,88	3x1,00	2x1,13	2x1,25
$M_{t,nom}$	—					
$V_{R,k} [\text{kN}]$ for $t_{n,I} =$	0,40	0,58 —	0,58 ac	0,58 ac	0,58 ac	0,58 ac
	0,50	0,73 —	0,73 ac	0,74 ac	0,77 ac	0,77 ac
	0,60	0,80 —	0,80 ac	0,87 ac	0,94 ac	0,94 ac
	0,70	0,87 —	0,87 ac	0,99 ac	1,12 ac	1,12 ac
	0,80	0,94 —	0,94 ac	1,12 ac	1,29 a	1,29 a
	0,90	1,12 —	1,19 —	1,36 —	1,51 a	1,51 a
	1,00	1,29 —	1,44 —	1,60 —	1,75 a	1,75 a
	1,20	1,29 —	1,51 —	1,74 —	1,96 a	1,96 a
	1,50	1,29 —	1,62 —	1,94 —	2,27 a	— —
$N_{R,II,k} [\text{kN}] =$	1,01	1,78	2,31	2,84	2,84	2,84

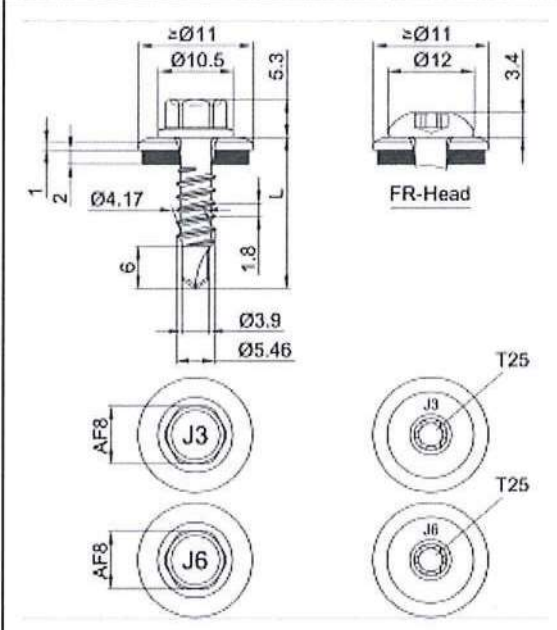
- Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.
- Component II of steel S320GD the indicated values of the pull-out resistance $N_{R,II,k}$ can be increased by 8,0%.

Fastening screws JA, JB, JT, JZ and JF

Annex 53

Self-drilling screw JT3-(FR-)2H-Plus-5,5xL, JT6-(FR-)2H-Plus-5,5xL

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

	<p>Materials:</p> <p>Fastener: stainless steel (A2) – EN ISO 3506 stainless steel (A4) – EN ISO 3506</p> <p>Washer: stainless steel (A2/A4) – EN ISO 3506 with vulcanised EPDM seal</p> <p>Component I: aluminium alloy with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573</p> <p>Component II: S235 to S275 – EN 10025-1 S280GD to S350GD – EN 10346 HX300LAD to HX460LAD – EN 10346</p> <hr/> <p>Drilling capacity: $\Sigma t_i \leq 3,50 \text{ mm}$</p> <hr/> <p>Timber substructures: no performance determined</p>
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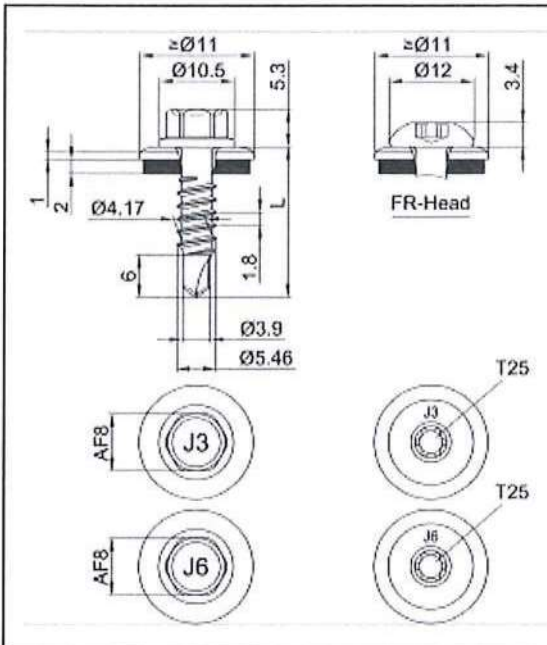
$t_{N,II}$ [mm]	0,40	0,50	0,63	0,75	0,88	1,00	1,25	1,50	2,00	
$M_{t,nom}$	—									
$V_{R,k}$ [kN] for $t_{N,I} =$	0,40	0,24 —	0,24 —	0,24 —	0,24 —	0,24 —	0,24 ac	0,24 ac	0,24 ac	0,24 ac
	0,50	0,46 —	0,46 —	0,46 —	0,53 —	0,61 —	0,69 ac	0,69 ac	0,69 ac	0,69 ac
	0,60	0,46 —	0,55 —	0,55 —	0,60 —	0,70 —	0,79 —	0,89 a	0,99 ac	0,99 ac
	0,70	0,46 —	0,55 —	0,64 —	0,69 —	0,78 —	0,86 —	1,08 a	1,29 ac	1,29 ac
	0,80	0,46 —	0,55 —	0,64 —	0,73 —	0,83 —	0,93 —	1,26 a	1,59 ac	1,59 a
	0,90	0,46 —	0,55 —	0,64 —	0,73 —	0,87 —	1,00 —	1,38 a	1,75 —	1,75 —
	1,00	0,46 —	0,55 —	0,64 —	0,73 —	0,96 —	1,18 —	1,55 a	1,91 —	1,91 —
	1,20	0,46 —	0,55 —	0,64 —	0,73 —	0,96 —	1,18 —	1,71 —	2,23 —	2,23 —
1,50	0,46 —	0,55 —	0,64 —	0,73 —	0,96 —	1,18 —	1,95 —	2,71 —	2,71 —	
$N_{R,II,k}$ [kN] =	0,30	0,41	0,56	0,73	1,06	1,40	1,99	2,59	2,59	

- Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.
- Component II of steel S320GD the indicated values of the pull-out resistance $N_{R,II,k}$ can be increased by 8,0%.

Fastening screws JA, JB, JT, JZ and JF

Self-drilling screw JT3-(FR)-2H-Plus-5,5xL, JT6-(FR)-2H-Plus-5,5xL
with undercut, round head with Torx® drive system and sealing washer $\geq \text{Ø}11 \text{ mm}$

Annex 54



Materials:

Fastener: stainless steel (A2) – EN ISO 3506
stainless steel (A4) – EN ISO 3506

Washer: stainless steel (A2/A4) – EN ISO 3506
with vulcanised EPDM seal

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

Component II: S280GD to S350GD – EN 10346

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

Timber substructures:

no performance determined

$t_{N,II}$ [mm]	2x0,63	2x0,75	2x0,88	2x1,00	2x1,13	2x1,25			
$M_{t,nom}$	—								
$V_{R,k}$ [kN] for $t_{N,I} =$	0,40	0,50	0,60	0,70	0,80	0,90	1,00	1,20	1,50
	0,77	0,96	1,05	1,14	1,23	1,46	1,68	1,68	1,68
	—	—	—	—	—	—	—	—	—
	0,77	0,97	1,06	1,14	1,23	1,56	1,88	1,97	2,11
	ac	ac	ac	ac	ac	—	—	—	—
	0,77	0,99	1,15	1,30	1,46	1,77	2,08	2,26	2,53
	ac	ac	ac	ac	ac	—	—	—	—
	0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,55	2,96
	ac	ac	ac	ac	a	a	a	a	a
	0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,55	—
	ac	ac	ac	a	a	a	a	a	—
	0,77	1,00	1,23	1,46	1,68	1,98	2,28	2,55	—
	ac	ac	ac	a	a	a	a	a	—
$N_{R,II,k}$ [kN] =	1,01	1,78	2,31	2,84	2,84	2,84	—	—	—

- Pull-through resistance of component I according to EN 1999-1-4, chapter 8.3.3.1 or specifications of the manufacturer of the aluminium structural sheeting.
- Component II of steel S320GD the indicated values of the pull-out resistance $N_{R,II,k}$ can be increased by 8,0%.

Fastening screws JA, JB, JT, JZ and JF

Self-drilling screw JT3-(FR-)2H-Plus-5,5xL, JT6-(FR-)2H-Plus-5,5xL
with undercut, round head with Torx® drive system and sealing washer $\geq \varnothing 11 \text{ mm}$

Annex 55

	<p>Materials:</p> <p>Fastener: stainless steel (A2) – EN ISO 3506 stainless steel (A4) – EN ISO 3506</p> <p>Washer: stainless steel (A2/A4) – EN ISO 3506 with vulcanised EPDM seal</p> <p>Component I: aluminium alloy with $R_{m,min} = 165 \text{ N/mm}^2$ – EN 573</p> <p>Component II: aluminium alloy with $R_{m,min} = 165 \text{ N/mm}^2$ – EN 573</p> <hr/> <p>Drilling capacity: $\Sigma t \leq 4,20 \text{ mm}$</p> <hr/> <p>Timber substructures: no performance determined</p>
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$t_{N,II}$ [mm]	1,50	2,00	2,50	3,00
$M_{t,nom}$	—			
$V_{R,k}$ [kN] for $t_{N,I} =$	0,50	0,60	0,70	0,80
	0,77 ac	0,84 —	0,92 —	1,07 —
	0,77 ac	0,96 ac	1,15 —	1,23 —
	0,77 abcd	0,96 ac	1,15 ac	1,30 —
	0,77 abcd	0,96 ac	1,15 a	1,30 a
	0,90	1,00	1,20	1,50
	1,19 —	1,30 —	1,46 —	1,69 —
	1,19 —	1,46 —	1,61 —	1,69 —
	1,20	1,53	1,84	2,00
	1,53 —	1,69 —	1,84 —	2,00 —
	1,50	2,15	2,30	—
	2,15 —	2,23 —	2,30 —	—
	2,15 —	2,23 —	—	—
$N_{R,II,k}$ [kN] =	0,69	1,07	1,61	2,15

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

Fastening screws JA, JB, JT, JZ and JF

Self-drilling screw JT3-(FR-)3-5,5xL, JT6-(FR-)3-5,5xL

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

Annex 56

	<p>Materials:</p> <p>Fastener: stainless steel (A2) – EN ISO 3506 stainless steel (A4) – EN ISO 3506</p> <p>Washer: stainless steel (A2/A4) – EN ISO 3506 with vulcanised EPDM seal</p> <p>Component I: aluminium alloy with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573</p> <p>Component II: aluminium alloy with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573</p> <hr/> <p>Drilling capacity: $\Sigma t_i \leq 4,20 \text{ mm}$</p> <hr/> <p>Timber substructures: no performance determined</p>
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$t_{N,II}$ [mm]	1,50	2,00	2,50	3,00	
$M_{t,nom}$	—				
$V_{R,k}$ [kN] for $t_{N,I} =$	0,50	1,00 ac	1,00 ac	1,00 abcd	1,00 abcd
	0,60	1,10 —	1,25 ac	1,25 ac	1,25 ac
	0,70	1,20 —	1,50 —	1,50 ac	1,50 a
	0,80	1,40 —	1,60 —	1,70 —	1,70 a
	0,90	1,55 —	1,75 —	1,90 —	1,95 —
	1,00	1,70 —	1,90 —	2,10 —	2,20 —
	1,20	2,00 —	2,20 —	2,40 —	2,60 —
	1,50	2,80 —	2,90 —	3,00 —	—
	2,00	2,80 —	2,90 —	—	—
	$N_{R,II,k}$ [kN] =	0,90	1,40	2,10	2,80

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

Fastening screws JA, JB, JT, JZ and JF

Self-drilling screw JT3-(FR-)3-5,5xL, JT6-(FR-)3-5,5xL

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

Annex 57

	<p>Materials:</p> <p>Fastener: stainless steel (A2) – EN ISO 3506 stainless steel (A4) – EN ISO 3506</p> <p>Washer: stainless steel (A2/A4) – EN ISO 3506 with vulcanised EPDM seal</p> <p>Component I: aluminium alloy with $R_{m,min} = 165 \text{ N/mm}^2$ – EN 573</p> <p>Component II: S235 – EN 10025-1 S280GD to S350GD – EN 10346</p> <hr/> <p>Drilling capacity: $\Sigma t_i \leq 4,00 \text{ mm}$</p> <hr/> <p>Timber substructures: no performance determined</p>
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$t_{N,II}$ [mm]	1,50	2,00	2,50
$M_{t,nom}$	—		
$V_{R,k}$ [kN] for $t_{N,I} =$			
0,50	0,77 ac	0,77 ac	0,77 abcd
0,60	0,84 —	0,96 ac	0,96 a
0,70	0,92 —	1,15 —	1,15 a
0,80	1,07 —	1,23 —	1,30 —
0,90	1,19 —	1,34 —	1,46 —
1,00	1,30 —	1,46 —	1,61 —
1,20	1,53 —	1,69 —	1,84 —
1,50	2,15 —	2,23 —	2,30 —
2,00	2,15 —	2,23 —	—
$N_{R,II,k}$ [kN] =	2,00	2,90	3,90

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

Fastening screws JA, JB, JT, JZ and JF

Self-drilling screw JT3-(FR)-3-5,5xL, JT6-(FR)-3-5,5xL

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

Annex 58

	<p>Materials:</p> <p>Fastener: stainless steel (A2) – EN ISO 3506 stainless steel (A4) – EN ISO 3506</p> <p>Washer: stainless steel (A2/A4) – EN ISO 3506 with vulcanised EPDM seal</p> <p>Component I: aluminium alloy with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573</p> <p>Component II: S235 – EN 10025-1 S280GD to S350GD – EN 10346</p> <hr/> <p>Drilling capacity: $\Sigma t_i \leq 4,00 \text{ mm}$</p> <hr/> <p>Timber substructures: no performance determined</p>
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$t_{N,II}$ [mm]	1,50	2,00	2,50	
$M_{t,nom}$	—			
$V_{R,k}$ [kN] for $t_{N,j} =$	0,50	1,00 ac	1,00 ac	1,00 abcd
	0,60	1,10 —	1,25 ac	1,25 a
	0,70	1,20 —	1,50 —	1,50 a
	0,80	1,40 —	1,60 —	1,70 —
	0,90	1,55 —	1,75 —	1,90 —
	1,00	1,70 —	1,90 —	2,10 —
	1,20	2,00 —	2,20 —	2,40 —
	1,50	2,80 —	2,90 —	3,00 —
	2,00	2,80 —	2,90 —	— —
$N_{R,II,k}$ [kN] =	2,00	2,90	3,90	

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

Fastening screws JA, JB, JT, JZ and JF

Self-drilling screw JT3-(FR-)3-5,5xL, JT6-(FR-)3-5,5xL

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

Annex 59

Materials:
 Fastener: stainless steel (A2) – EN ISO 3506
 stainless steel (A4) – EN ISO 3506
 Washer: stainless steel (A2/A4) – EN ISO 3506
 with vulcanised EPDM seal
 Component I: S280GD to S350GD – EN 10346
 Component II: S280GD to S350GD – EN 10346

Drilling capacity: $\Sigma t \leq 3,50$ mm

Timber substructures:
 no performance determined

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

Fastening screws JA, JB, JT, JZ and JF

Self-drilling screw JT3-(FR)-3H-5,5xL, JT6-(FR)-3H-5,5xL
 with undercut, hexagon head or round head with Torx® drive system and sealing washer $\geq \text{Ø}16$ mm

Annex 60

	<p>Materials:</p> <p>Fastener: stainless steel (A2) – EN ISO 3506 stainless steel (A4) – EN ISO 3506</p> <p>Washer: stainless steel (A2/A4) – EN ISO 3506 with vulcanised EPDM seal</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: S235 to S355 – EN 10025-1 S280GD to S350GD – EN 10346</p> <hr/> <p>Drilling capacity: $\Sigma t \leq 3,50$ mm</p> <hr/> <p>Timber substructures:</p> <p>no performance determined</p>
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$t_{N,II}$ [mm]	1,00	1,13	1,25	1,50	2,00	2,50	3,00
$M_{t,nom}$	5Nm						
$V_{R,k}$ [kN] for $t_{N,I} =$	0,50	—	—	—	—	—	—
	0,55	—	—	—	—	—	—
	0,63	1,40	1,50	1,60 ac	1,90 ac	2,30 ac	2,50 ac
	0,75	1,80	1,90	2,00 ac	2,20 ac	2,70 ac	3,20 a
	0,88	2,20	2,30	2,50	2,70	3,30	3,70 a
	1,00	2,50	2,70	2,90	3,30	4,00	4,40 a
	1,13	2,90	3,00	3,10	3,80	4,40	—
	1,25	3,40	3,50	3,80	4,20	5,00	—
	1,50	4,10	4,40	4,70	5,30	5,80	—
	1,75	4,10	4,40	4,70	5,30	—	—
	2,00	4,10	4,40	4,70	5,30	—	—
$N_{R,k}$ [kN] for $t_{N,I} =$	0,50	0,59	0,76	0,81 ac	1,08 ac	1,57 ac	1,62 ac
	0,55	0,75	0,95	1,02 ac	1,36 ac	1,98 ac	2,05 ac
	0,63	1,10	1,40	1,50 ac	2,00 ac	2,90 ac	3,00 ac
	0,75	1,10	1,40	1,50 ac	2,00 ac	2,90 ac	3,90 a
	0,88	1,10	1,40	1,50	2,00	2,90	3,90 a
	1,00	1,10	1,40	1,50	2,00	2,90	3,90 a
	1,13	1,10	1,40	1,50	2,00	2,90	—
	1,25	1,10	1,40	1,50	2,00	2,90	—
	1,50	1,10	1,40	1,50	2,00	2,90	—
	1,75	1,10	1,40	1,50	2,00	—	—
	2,00	1,10	1,40	1,50	2,00	—	—

<p>Fastening screws JA, JB, JT, JZ and JF</p>	
<p>Self-drilling screw JT3-(FR-)3H-5,5xL, JT6-(FR-)3H-5,5xL with undercut, hexagon head or round head with Torx® drive system and sealing washer $\geq \text{Ø}16$ mm</p>	<p>Annex 61</p>

	<p>Materials:</p> <p>Fastener: stainless steel (A2) – EN ISO 3506 stainless steel (A4) – EN ISO 3506</p> <p>Washer: stainless steel (A2/A4) – EN ISO 3506 with vulcanised EPDM seal</p> <p>Component I: S280GD, S320GD or S350GD – EN 10346</p> <p>Component II: S235 – EN 10025-1 S280GD to S350GD – EN 10346</p>
	<p>Drilling capacity: $\Sigma t \leq 3,50$ mm</p>
	<p>Timber substratures:</p> <p>no performance determined</p>

$t_{N,II}$ [mm]	1,00	1,13	1,25	1,50	2,00	2,50	3,00
$M_{t,nom}$	5Nm						
$V_{R,k}$ [kN] for $t_{N,I} =$	0,50	—	—	—	—	—	—
	0,55	—	—	—	—	—	—
	0,63	1,40	1,40	1,70	2,00	2,50 ac	2,70 ac
	0,75	1,80	1,80	2,20	2,40	3,00	3,50 a
	0,88	2,10	2,10	2,50	2,90	3,30	3,60 a
	1,00	2,50	2,50	2,90	3,20	4,00	4,40 a
	1,13	2,90	2,90	3,10	3,80	4,40	—
	1,25	3,40	3,40	3,80	4,20	5,00	—
	1,50	4,10	4,10	4,70	5,30	5,80	—
	1,75	4,10	4,10	4,70	5,30	—	—
	2,00	4,10	4,10	4,70	5,30	—	—
$N_{R,k}$ [kN] for $t_{N,I} =$	0,50	0,59	0,59	0,81	1,08	1,57 ac	1,62 ac
	0,55	0,75	0,75	1,02	1,36	1,98 ac	2,05 ac
	0,63	1,10	1,10	1,50	2,00	2,90 ac	3,00 ac
	0,75	1,10	1,10	1,50	2,00	2,90	3,90 a
	0,88	1,10	1,10	1,50	2,00	2,90	3,90 a
	1,00	1,10	1,10	1,50	2,00	2,90	3,90 a
	1,13	1,10	1,10	1,50	2,00	2,90	—
	1,25	1,10	1,10	1,50	2,00	2,90	—
	1,50	1,10	1,10	1,50	2,00	2,90	—
	1,75	1,10	1,10	1,50	2,00	—	—
	2,00	1,10	1,10	1,50	2,00	—	—

Fastening screws JA, JB, JT, JZ and JF

Self-drilling screw JT3-(FR)-3-5,5xL, JT6-(FR)-3-5,5xL

with undercut, hexagon head or round head with Torx® drive system and sealing washer $\geq \varnothing 16$ mm

Annex 62

	Materials: Fastener: stainless steel (A2) – EN ISO 3506 stainless steel (A4) – EN ISO 3506 Washer: stainless steel (A2/A4) – EN ISO 3506 with vulcanised EPDM seal Component I: S280GD to S350GD – EN 10346 Component II: S235 to S355 – EN 10025-1 S280GD to S450GD – EN 10346 HX300LAD to HX460LAD – EN 10346
	Drilling capacity: $\Sigma t \leq 6,00$ mm
	Timber substructures: no performance determined

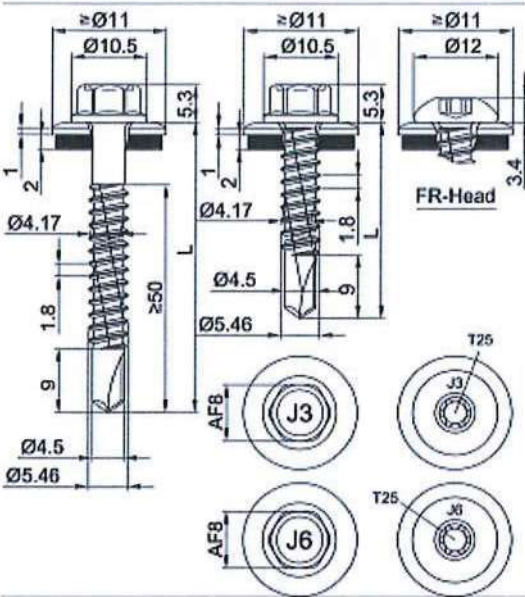
$t_{N,II}$ [mm]	1,00	2,00	2,50	3,00	4,00	2x1,50	
$M_{t,nom}$	5 Nm						
$V_{R,k}$ [kN] for $t_{N,I} =$	0,50	—	—	—	—	—	
	0,55	—	—	—	—	—	
	0,63	2,10	ac	2,40	ac	2,90	ac
	0,75	2,50	—	2,80	ac	3,10	ac
	0,88	2,90	—	3,20	—	3,40	ac
	1,00	3,10	—	3,40	—	4,00	—
	1,13	3,30	—	3,80	—	4,50	—
	1,25	3,40	—	3,90	—	4,70	—
	1,50	3,80	—	4,40	—	5,00	—
	1,75	3,80	—	4,40	—	5,00	—
2,00	3,80	—	4,40	—	5,00	—	
$N_{R,k}$ [kN] for $t_{N,I} =$	0,50	0,92	ac	1,30	ac	1,30	ac
	0,55	1,16	ac	1,64	ac	1,64	ac
	0,63	1,70	ac	2,40	ac	2,40	ac
	0,75	1,70	—	2,60	ac	2,90	ac
	0,88	1,70	—	2,60	ac	3,50	ac
	1,00	1,70	—	2,60	—	3,50	—
	1,13	1,70	—	2,60	—	3,50	—
	1,25	1,70	—	2,60	—	3,50	—
	1,50	1,70	—	2,60	—	4,50	—
	1,75	1,70	—	2,60	—	4,50	—
2,00	1,70	—	2,60	—	4,50	—	

Fastening screws JA, JB, JT, JZ and JF

Self-drilling screw JT3-(FR)-6-5,5xL, JT6-(FR)-6-5,5xL

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

Annex 63



Materials:

Fastener: stainless steel (A2) – EN ISO 3506
stainless steel (A4) – EN ISO 3506

Washer: stainless steel (A2/A4) – EN ISO 3506
with vulcanised EPDM seal

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

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

Drilling capacity: $\Sigma t \leq 6,00 \text{ mm}$

Timber substructures:
no performance determined

$t_{N,II}$ [mm]	2,00		2,50		3,00		4,00		
$M_{t,nom}$	—								
$V_{R,k}$ [kN] for $t_{N,I} =$	0,50	0,71	ac	0,71	ac	0,71	ac	0,71	ac
	0,60	0,89	ac	0,91	ac	0,93	ac	0,93	ac
	0,70	1,07	ac	1,11	ac	1,15	ac	1,15	ac
	0,80	1,25	ac	1,31	ac	1,36	ac	1,36	ac
	0,90	1,43	ac	1,51	ac	1,58	ac	1,58	ac
	1,00	1,61	ac	1,71	ac	1,80	ac	1,80	ac
	1,20	1,80	—	1,93	—	2,06	—	2,17	ac
	1,50	2,09	—	2,27	—	2,45	—	2,72	a
	2,00	2,56	—	2,83	—	3,10	—	3,63	a
$N_{R,II,k}$ [kN] =	1,03		1,68		2,33		3,63		

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

Fastening screws JA, JB, JT, JZ and JF

Self-drilling screw JT3-(FR)-6-5,5xL, JT6-(FR)-6-5,5xL

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

Annex 64

	<p>Materials:</p> <p>Fastener: stainless steel (A2) – EN ISO 3506 stainless steel (A4) – EN ISO 3506</p> <p>Washer: stainless steel (A2/A4) – EN ISO 3506 with vulcanised EPDM seal</p> <p>Component I: aluminium alloy with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573</p> <p>Component II: aluminium alloy with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573</p> <hr/> <p>Drilling capacity: $\Sigma t \leq 6,00 \text{ mm}$</p> <hr/> <p>Timber substructures: no performance determined</p>
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$t_{N,II}$ [mm]	2,00	2,50	3,00	4,00	
$M_{t,nom}$	—				
$V_{R,k}$ [kN] for $t_{N,I} =$	0,50	0,93 ac	0,93 ac	0,93 ac	0,93 ac
	0,60	1,16 ac	1,19 ac	1,21 ac	1,21 ac
	0,70	1,39 ac	1,45 ac	1,50 ac	1,50 ac
	0,80	1,63 ac	1,70 ac	1,78 ac	1,78 ac
	0,90	1,86 ac	1,96 ac	2,07 ac	2,07 ac
	1,00	2,09 ac	2,22 ac	2,35 ac	2,35 ac
	1,20	2,34 —	2,51 —	2,69 —	2,72 ac
	1,50	2,71 —	2,95 —	3,19 —	3,48 a
	2,00	3,33 —	3,68 —	4,03 —	4,73 a
$N_{R,II,k}$ [kN] =	1,35	2,20	3,04	4,73	

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

Fastening screws JA, JB, JT, JZ and JF

Self-drilling screw JT3-(FR)-6-5,5xL, JT6-(FR)-6-5,5xL

with hexagon head or round head with Torx® drive system and sealing washer $\geq \varnothing 11 \text{ mm}$

Annex 65

	<p>Materials:</p> <p>Fastener: stainless steel (A2) – EN ISO 3506 stainless steel (A4) – EN ISO 3506</p> <p>Washer: stainless steel (A2/A4) – EN ISO 3506 with vulcanised EPDM seal</p> <p>Component I: aluminium alloy with $R_{m,min} = 165 \text{ N/mm}^2$ – EN 573</p> <p>Component II: S235 to S355 – EN 10025-1 S280GD to S450GD – EN 10346 HX300LAD to Hx460LAD – EN 10346</p>
	<p>Drilling capacity: $\Sigma t \leq 6,00 \text{ mm}$</p>
	<p>Timber substructures: no performance determined</p>

$t_{N,II}$ [mm]	1,50	1,75	2,00	2,50	3,00	4,00	2x1,50	
$M_{t,nom}$	—							
$V_{R,k}$ [kN] for $t_{N,I} =$	0,50	0,71 ac	0,71 ac	0,71 ac	0,71 ac	0,71 ac	0,71 ac	0,71 ac
	0,60	0,91 ac	0,91 ac	0,91 ac	0,92 ac	0,93 ac	0,93 ac	0,91 ac
	0,70	1,10 ac	1,11 ac	1,12 ac	1,13 ac	1,15 ac	1,15 ac	1,10 ac
	0,80	1,30 ac	1,31 ac	1,32 ac	1,34 ac	1,36 ac	1,36 ac	1,30 ac
	0,90	1,49 ac	1,51 ac	1,53 ac	1,55 ac	1,58 ac	1,58 ac	1,49 ac
	1,00	1,69 ac	1,71 ac	1,73 ac	1,76 ac	1,80 ac	1,80 ac	1,69 ac
	1,20	1,69 —	1,79 —	1,90 —	1,97 —	2,06 —	2,17 ac	1,69 —
	1,50	1,69 —	1,92 —	2,15 —	2,30 —	2,45 —	2,72 a	1,69 —
	2,00	1,69 —	2,13 —	2,56 —	2,83 —	3,10 —	3,63 a	1,69 —
$N_{R,II,k}$ [kN] =	1,70	2,15	2,60	3,50	4,50	4,50	2,70	

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

Fastening screws JA, JB, JT, JZ and JF

Self-drilling screw JT3-(FR)-6-5,5xL, JT6-(FR)-6-5,5xL

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

Annex 66

	<p>Materials:</p> <p>Fastener: stainless steel (A2) – EN ISO 3506 stainless steel (A4) – EN ISO 3506</p> <p>Washer: stainless steel (A2/A4) – EN ISO 3506 with vulcanised EPDM seal</p> <p>Component I: aluminium alloy with $R_{m,min} = 215 \text{ N/mm}^2$ – EN 573</p> <p>Component II: S235 to S355 – EN 10025-1 S280GD to S450GD – EN 10346 HX300LAD to HX460LAD – EN 10346</p> <hr/> <p>Drilling capacity: $\Sigma t \leq 6,00 \text{ mm}$</p> <hr/> <p>Timber substructures: no performance determined</p>
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$t_{N,II}$ [mm]	1,50	1,75	2,00	2,50	3,00	4,00	2x1,50	
$M_{t,nom}$	—							
$V_{R,k}$ [kN] for $t_{N,I} =$	0,50	0,93 ac	0,93 ac	0,93 ac	0,93 ac	0,93 ac	0,93 ac	0,93 ac
	0,60	1,18 ac	1,19 ac	1,19 ac	1,20 ac	1,21 ac	1,21 ac	1,18 ac
	0,70	1,44 ac	1,45 ac	1,46 ac	1,48 ac	1,50 ac	1,50 ac	1,44 ac
	0,80	1,69 ac	1,71 ac	1,72 ac	1,75 ac	1,78 ac	1,78 ac	1,69 ac
	0,90	1,95 ac	1,97 ac	1,99 ac	2,03 ac	2,07 ac	2,07 ac	1,95 ac
	1,00	2,20 ac	2,23 ac	2,25 ac	2,30 ac	2,35 ac	2,35 ac	2,20 ac
	1,20	2,20 —	2,32 —	2,45 —	2,58 —	2,69 —	2,72 ac	2,20 —
	1,50	2,20 —	2,45 —	2,79 —	2,99 —	3,19 —	3,48 a	2,20 —
	2,00	2,20 —	2,67 —	3,33 —	3,68 —	4,03 —	4,73 a	2,20 —
$N_{R,II,k}$ [kN] =	1,70	2,15	2,60	3,50	4,50	4,50	2,70	

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

Fastening screws JA, JB, JT, JZ and JF

Self-drilling screw JT3-(FR-)6-5,5xL, JT6-(FR-)6-5,5xL

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

Annex 67