

SK

VYHLÁSENIE O PARAMETROCH

podľa prílohy III k nariadeniu (EÚ) č. 305/2011 (nariadenie o stavebných výrobkoch)

Hilti skrutky do sendvičových panelov S-CD S, S-CDW S
č. Hilti-SF-DoP-009

- Jedinečný identifikačný kód typu výrobku:** Hilti upevňovacie skrutky do sendvičových panelov S-CD S, S-CDW S
- Typ, číslo výrobnej dávky alebo sériové číslo, alebo akýkoľvek iný prvok umožňujúci identifikáciu stavebného výrobku, ako sa vyžaduje podľa článku 11 ods. 4:** Typ a číslo výrobnej dávky sú uvedené na balení
- Zamýšľané použitia stavebného výrobku, ktoré uvádza výrobca, v súlade s uplatniteľnou harmonizovanou technickou špecifikáciou:**

| | |
|------------------------------|---|
| Generický typ a použitie | Samorezné upevňovacie skrutky do sendvičových panelov |
| Zahrnutá veľkosť výrobku | Priemer skrutky 5,5 a 6,5 |
| Základný a upevnený materiál | Oceľ podľa EN 10025-1 a EN 10346, Drevená konštrukcia podľa EN 14081 |
| Materiál upevňovacieho prvku | Nehrdzavejúca oceľ (1.4301, 1.4401 alebo 1.4571) podľa EN 10088 |
| Zaťaženie | Statické a kvázistatické (zaťaženie vetrom) |

- Meno, registrované obchodné meno alebo registrovaná ochranná známka a kontaktná adresa výrobcu, ako sa vyžaduje podľa článku 11 ods. 5:** Hilti Aktiengesellschaft, Business Unit Direct Fastening, 9494 Schaan, Fürstentum Liechtenstein

- V prípade potreby meno a kontaktná adresa splnomocneného zástupcu, ktorého splnomocnenie zahŕňa úlohy vymedzené v článku 12 ods.:** nevzťahuje sa

- Systém alebo systémy posudzovania a overovania nemennosti parametrov stavebného výrobku, ako sa uvádzajú v prílohe V:** systém 2+

- V prípade vyhlásenie o parametroch týkajúceho sa stavebného výrobku, na ktorý sa vzťahuje harmonizovaná norma:** nevzťahuje sa

- V prípade vyhlásenia o parametroch týkajúceho sa stavebného výrobku, na ktorý bolo vypracované európske technické posúdenie:** Deutsches Institut für Bautechnik (DIBt) (Nemecký inštitút pre stavebnú techniku) vydal európske technické posúdenie ETA-13/0179 na základe EAD 330047-01-0602. Notifikovaná osoba MPA-Karlsruhe 0769 vykonala úlohy tretej strany v systéme 2+ a vydala certifikát zhody systému riadenia výroby 0769-CPR-VAS-00705.

9. Deklarované parametre:

| Základná charakteristika | Parametre | Harmonizovaná technická špecifikácia |
|---|---|--------------------------------------|
| Charakteristická únosnosť v ťahu $N_{R,k}$ | Príloha 1 – 16 ETA-13/0179 (príloha 8 – 11, 16 – 27) | ETA 13/0179 EAD 330047-01-0602 |
| Charakteristická únosnosť v šmyku $V_{R,k}$ | | |
| Max. povolený posun hlavy skrutky u | | |
| Aplikačné limity | | |
| Reakcia na oheň | A1 | |

- Parametre výrobku uvedené v bodoch 1 a 2 sú v zhode s deklarovateľnými parametrami v bode 9. Toto vyhlásenie o parametroch sa vydáva na výhradnú zodpovednosť výrobcu uvedeného v bode 4.**

Podpísal(-a) za a v mene výrobcu:

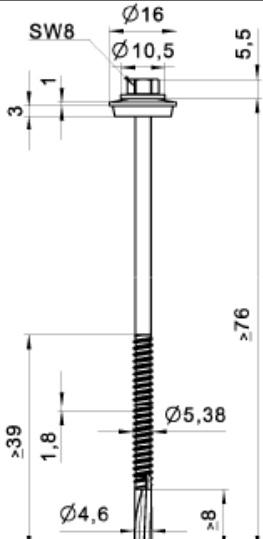
Lars Taenzer
Head of Business Unit Direct Fastening

Pierre Hohmeier
Head of Quality Screw Fastening

Hilti Aktiengesellschaft, Schaan, 01.05.2019

Annex 1:

Annex 1:
ETA-13/0179, Annex 8



Material:
 Fastener: stainless Steel (1.4301, 1.4401, 1.4571) - EN 10088
 Washer: stainless Steel (1.4301) - EN 10088
 Component I: S280GD, S320GD, S350GD, S390GD, S420GD, S450GD - EN 10346
 Component II: S235, S275, S355, S420 - EN 10025-1, S280GD, S320GD, S350GD, S390GD, S420GD, S450GD - EN 10346

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

Timber substructures:
no performance determined

| t_{N1}, t_{N2}, d, D [mm] | t_{ii} [mm] | | | | | | | | | |
|--------------------------------|---------------|------|------|------|------|------|------|------|--------|---|
| | 1,50 | 2,00 | 2,50 | 3,00 | 4,00 | 5,00 | 6,00 | 8,00 | ≥ 10,0 | |
| $V_{R,k}$ [kN] | 0,40 | 0,65 | 0,65 | 0,65 | 0,65 | 0,65 | 0,65 | — | — | — |
| | 0,50 | 1,17 | 1,17 | 1,17 | 1,17 | 1,17 | 1,17 | — | — | — |
| | 0,55 | 1,36 | 1,36 | 1,36 | 1,36 | 1,36 | 1,36 | — | — | — |
| | 0,60 | 1,54 | 1,54 | 1,54 | 1,54 | 1,54 | 1,54 | — | — | — |
| | 0,63 | 1,65 | 1,65 | 1,65 | 1,65 | 1,65 | 1,65 | — | — | — |
| | 0,75 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | — | — | — |
| | 0,88 | 2,40 | 2,40 | 2,40 | 2,40 | 2,40 | 2,40 | — | — | — |
| | 1,00 | 2,68 | 2,68 | 2,68 | 2,68 | 2,68 | 2,68 | — | — | — |
| $N_{R,k}$ [kN] | 0,40 | — | — | — | — | — | — | — | — | — |
| | 0,50 | 1,80 | 1,92 | 1,92 | 1,92 | 1,92 | 1,92 | — | — | — |
| | 0,55 | 1,80 | 2,19 | 2,19 | 2,19 | 2,19 | 2,19 | — | — | — |
| | 0,60 | 1,80 | 2,48 | 2,48 | 2,48 | 2,48 | 2,48 | — | — | — |
| | 0,63 | 1,80 | 2,65 | 2,65 | 2,65 | 2,65 | 2,65 | — | — | — |
| | 0,75 | 1,80 | 2,80 | 3,57 | 3,57 | 3,57 | 3,57 | — | — | — |
| | 0,88 | 1,80 | 2,80 | 3,57 | 3,57 | 3,57 | 3,57 | — | — | — |
| | 1,00 | 1,80 | 2,80 | 3,57 | 3,57 | 3,57 | 3,57 | — | — | — |
| u [mm] | 40 | 18,0 | 8,0 | 7,0 | 6,0 | 5,0 | 3,0 | — | — | — |
| | 50 | 22,0 | 10,5 | 9,0 | 7,5 | 6,5 | 4,3 | — | — | — |
| | 60 | 26,0 | 13,0 | 11,0 | 9,0 | 8,0 | 5,5 | — | — | — |
| | 70 | 29,5 | 16,5 | 14,0 | 12,0 | 11,5 | 6,8 | — | — | — |
| | 80 | 33,0 | 20,0 | 17,5 | 15,0 | 14,0 | 8,0 | — | — | — |
| | 100 | 33,0 | 20,0 | 17,5 | 15,0 | 14,0 | 10,0 | — | — | — |
| | 120 | 33,0 | 20,0 | 17,5 | 15,0 | 14,0 | 12,0 | — | — | — |
| | ≥ 140 | 33,0 | 20,0 | 17,5 | 15,0 | 14,0 | 14,0 | — | — | — |
| $N_{R,k,II}$ [kN] | 1,94 | 2,84 | 3,83 | 4,89 | 7,18 | 7,18 | — | — | — | |

If component t_{N1} resp. t_{N2} is made of steel grade higher than S280GD the grey highlighted values may be increased by 8,3%. If both components t_{N1} resp. t_{N2} and t_{ii} are made of steel grade higher than S280GD all values $V_{R,k}$ and $N_{R,k}$ may be increased by 8,3%. If component t_{ii} is made of steel grade higher than S235 or S280GD the values $N_{R,k,II}$ may be increased by 8,3%.

| | |
|--|---------|
| Self drilling screw | Annex 8 |
| Hilti S-CDH 53 S 5,5 x L Hilti S-CDH 53 SS 5,5 x L with hexagon head and sealing washer Ø16 mm | |

Annex 2:
ETA-13/0179, Annex 9

Material:
 Fastener: stainless Steel (1.4301, 1.4401, 1.4571) - EN 10088
 Washer: stainless Steel (1.4301) - EN 10088
 Component I: S280GD, S320GD, S350GD, S390GD, S420GD, S450GD - EN 10346
 Component II: S235, S275, S355, S420 - EN 10025-1, S280GD, S320GD, S350GD, S390GD, S420GD, S450GD - EN 10346

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

Timber substructures:
no performance determined

| t_{N1}, t_{N2}, d, D [mm] | t_i [mm] | | | | | | | | | |
|--------------------------------|------------|------|------|------|------|------|------|------|--------|---|
| | 1,50 | 2,00 | 2,50 | 3,00 | 4,00 | 5,00 | 6,00 | 8,00 | ≥ 10,0 | |
| $V_{R,k}$ [kN] | 0,40 | 0,65 | 0,65 | 0,65 | 0,65 | 0,65 | 0,65 | — | — | — |
| | 0,50 | 1,17 | 1,17 | 1,17 | 1,17 | 1,17 | 1,17 | — | — | — |
| | 0,55 | 1,36 | 1,36 | 1,36 | 1,36 | 1,36 | 1,36 | — | — | — |
| | 0,60 | 1,54 | 1,54 | 1,54 | 1,54 | 1,54 | 1,54 | — | — | — |
| | 0,63 | 1,65 | 1,65 | 1,65 | 1,65 | 1,65 | 1,65 | — | — | — |
| | 0,75 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | — | — | — |
| | 0,88 | 2,40 | 2,40 | 2,40 | 2,40 | 2,40 | 2,40 | — | — | — |
| | 1,00 | 2,68 | 2,68 | 2,68 | 2,68 | 2,68 | 2,68 | — | — | — |
| $N_{R,k}$ [kN] | 0,40 | — | — | — | — | — | — | — | — | — |
| | 0,50 | 1,80 | 2,60 | 2,60 | 2,60 | 2,60 | 2,60 | — | — | — |
| | 0,55 | 1,80 | 2,80 | 3,00 | 3,00 | 3,00 | 3,00 | — | — | — |
| | 0,60 | 1,80 | 2,80 | 3,25 | 3,25 | 3,25 | 3,25 | — | — | — |
| | 0,63 | 1,80 | 2,80 | 3,40 | 3,40 | 3,40 | 3,40 | — | — | — |
| | 0,75 | 1,80 | 2,80 | 3,80 | 4,20 | 4,20 | 4,20 | — | — | — |
| | 0,88 | 1,80 | 2,80 | 3,80 | 4,50 | 4,50 | 4,50 | — | — | — |
| | 1,00 | 1,80 | 2,80 | 3,80 | 4,50 | 4,50 | 4,50 | — | — | — |
| u [mm] | 40 | 18,0 | 8,0 | 7,0 | 6,0 | 5,0 | 3,0 | — | — | — |
| | 50 | 22,0 | 10,5 | 9,0 | 7,5 | 6,5 | 4,3 | — | — | — |
| | 60 | 26,0 | 13,0 | 11,0 | 9,0 | 8,0 | 5,5 | — | — | — |
| | 70 | 29,5 | 16,5 | 14,0 | 12,0 | 11,5 | 6,8 | — | — | — |
| | 80 | 33,0 | 20,0 | 17,5 | 15,0 | 14,0 | 8,0 | — | — | — |
| | 100 | 33,0 | 20,0 | 17,5 | 15,0 | 14,0 | 10,0 | — | — | — |
| | 120 | 33,0 | 20,0 | 17,5 | 15,0 | 14,0 | 12,0 | — | — | — |
| ≥ 140 | 33,0 | 20,0 | 17,5 | 15,0 | 14,0 | 14,0 | — | — | — | |
| $N_{R,k,II}$ [kN] | 1,94 | 2,84 | 3,83 | 4,89 | 7,18 | 7,18 | — | — | — | |

If component t_{N1} resp. t_{N2} is made of steel grade higher than S280GD the grey highlighted values may be increased by 8,3%. If both components t_{N1} resp. t_{N2} and t_i are made of steel grade higher than S280GD all values $V_{R,k}$ and $N_{R,k}$ may be increased by 8,3%. If component t_i is made of steel grade higher than S235 or S280GD the values $N_{R,k,II}$ may be increased by 8,3%.

| | |
|---|---------|
| Self drilling screw | Annex 9 |
| Hilti S-CDH 63 S 5,5 x L Hilti S-CDH 63 SS 5,5 x L Hilti S-CDH 73 S 5,5 x L Hilti S-CDH 73 SS 5,5 x L with hexagon head and sealing washer $\geq \text{Ø}19$ mm | |

Annex 3:
ETA-13/0179, Annex 10

| | |
|---|--|
| | Material: Fastener: stainless Steel (1.4301, 1.4401, 1.4571) - EN 10088 Washer: stainless Steel (1.4301) - EN 10088 Component I: S280GD, S320GD, S350GD, S390GD, S420GD, S450GD - EN 10346 Component II: S235, S275, S355, S420 - EN 10025-1, S280GD, S320GD, S350GD, S390GD, S420GD, S450GD - EN 10346 |
| | Drilling capacity: $\Sigma t_i \leq 6,00$ mm |
| Timber substructures: no performance determined | |

| t_{N1}, t_{N2}, d, D [mm] | t_{II} [mm] | | | | | | | | | |
|--------------------------------|---------------|------|------|------|------|------|------|------|--------|---|
| | 1,50 | 2,00 | 2,50 | 3,00 | 4,00 | 5,00 | 6,00 | 8,00 | ≥ 10,0 | |
| $V_{R,k}$ [kN] | 0,40 | 0,65 | 0,65 | 0,65 | 0,65 | 0,65 | 0,65 | — | — | — |
| | 0,50 | 1,17 | 1,17 | 1,17 | 1,17 | 1,17 | 1,17 | — | — | — |
| | 0,55 | 1,36 | 1,36 | 1,36 | 1,36 | 1,36 | 1,36 | — | — | — |
| | 0,60 | 1,54 | 1,54 | 1,54 | 1,54 | 1,54 | 1,54 | — | — | — |
| | 0,63 | 1,65 | 1,65 | 1,65 | 1,65 | 1,65 | 1,65 | — | — | — |
| | 0,75 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | — | — | — |
| | 0,88 | 2,40 | 2,40 | 2,40 | 2,40 | 2,40 | 2,40 | — | — | — |
| | 1,00 | 2,68 | 2,68 | 2,68 | 2,68 | 2,68 | 2,68 | — | — | — |
| $N_{R,k}$ [kN] | 0,40 | — | — | — | — | — | — | — | — | — |
| | 0,50 | 1,80 | 1,92 | 1,92 | 1,92 | 1,92 | 1,92 | — | — | — |
| | 0,55 | 1,80 | 2,19 | 2,19 | 2,19 | 2,19 | 2,19 | — | — | — |
| | 0,60 | 1,80 | 2,48 | 2,48 | 2,48 | 2,48 | 2,48 | — | — | — |
| | 0,63 | 1,80 | 2,65 | 2,65 | 2,65 | 2,65 | 2,65 | — | — | — |
| | 0,75 | 1,80 | 2,80 | 3,57 | 3,57 | 3,57 | 3,57 | — | — | — |
| | 0,88 | 1,80 | 2,80 | 3,57 | 3,57 | 3,57 | 3,57 | — | — | — |
| | 1,00 | 1,80 | 2,80 | 3,57 | 3,57 | 3,57 | 3,57 | — | — | — |
| u [mm] | 40 | 18,0 | 8,0 | 7,0 | 6,0 | 5,0 | 3,0 | — | — | — |
| | 50 | 22,0 | 10,5 | 9,0 | 7,5 | 6,5 | 4,3 | — | — | — |
| | 60 | 26,0 | 13,0 | 11,0 | 9,0 | 8,0 | 5,5 | — | — | — |
| | 70 | 29,5 | 16,5 | 14,0 | 12,0 | 11,5 | 6,8 | — | — | — |
| | 80 | 33,0 | 20,0 | 17,5 | 15,0 | 14,0 | 8,0 | — | — | — |
| | 100 | 33,0 | 20,0 | 17,5 | 15,0 | 14,0 | 10,0 | — | — | — |
| | 120 | 33,0 | 20,0 | 17,5 | 15,0 | 14,0 | 12,0 | — | — | — |
| ≥ 140 | 33,0 | 20,0 | 17,5 | 15,0 | 14,0 | 14,0 | — | — | — | |
| $N_{R,k,II}$ [kN] | 1,94 | 2,84 | 3,83 | 4,89 | 7,18 | 7,18 | — | — | — | |

If component t_{N1} resp. t_{N2} is made of steel grade higher than S280GD the grey highlighted values may be increased by 8,3%. If both components t_{N1} resp. t_{N2} and t_{II} are made of steel grade higher than S280GD all values $V_{R,k}$ and $N_{R,k}$ may be increased by 8,3%. If component t_{II} is made of steel grade higher than S235 or S280GD the values $N_{R,k,II}$ may be increased by 8,3%.

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| Self drilling screw | Annex 10 |
| Hilti S-CD 53 S 5,5 x L Hilti S-CD 53 SS 5,5 x L with hexagon head and sealing washer Ø16 mm | |

Annex 4:
ETA-13/0179, Annex 11

Material:
 Fastener: stainless Steel (1.4301, 1.4401, 1.4571) - EN 10088
 Washer: stainless Steel (1.4301) - EN 10088
 Component I: S280GD, S320GD, S350GD, S390GD, S420GD, S450GD - EN 10346
 Component II: S235, S275, S355, S420 - EN 10025-1, S280GD, S320GD, S350GD, S390GD, S420GD, S450GD - EN 10346

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

Timber substructures:
no performance determined

| t_{N1}, t_{N2}, d, D [mm] | t_i [mm] | | | | | | | | | |
|--------------------------------|------------|------|------|------|------|------|------|------|-------------|---|
| | 1,50 | 2,00 | 2,50 | 3,00 | 4,00 | 5,00 | 6,00 | 8,00 | $\geq 10,0$ | |
| $V_{R,k}$ [kN] | 0,40 | 0,65 | 0,65 | 0,65 | 0,65 | 0,65 | 0,65 | — | — | — |
| | 0,50 | 1,17 | 1,17 | 1,17 | 1,17 | 1,17 | 1,17 | — | — | — |
| | 0,55 | 1,36 | 1,36 | 1,36 | 1,36 | 1,36 | 1,36 | — | — | — |
| | 0,60 | 1,54 | 1,54 | 1,54 | 1,54 | 1,54 | 1,54 | — | — | — |
| | 0,63 | 1,65 | 1,65 | 1,65 | 1,65 | 1,65 | 1,65 | — | — | — |
| | 0,75 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | 2,03 | — | — | — |
| | 0,88 | 2,40 | 2,40 | 2,40 | 2,40 | 2,40 | 2,40 | — | — | — |
| | 1,00 | 2,68 | 2,68 | 2,68 | 2,68 | 2,68 | 2,68 | — | — | — |
| $N_{R,k}$ [kN] | 0,40 | — | — | — | — | — | — | — | — | — |
| | 0,50 | 1,80 | 2,60 | 2,60 | 2,60 | 2,60 | 2,60 | — | — | — |
| | 0,55 | 1,80 | 2,80 | 3,00 | 3,00 | 3,00 | 3,00 | — | — | — |
| | 0,60 | 1,80 | 2,80 | 3,25 | 3,25 | 3,25 | 3,25 | — | — | — |
| | 0,63 | 1,80 | 2,80 | 3,40 | 3,40 | 3,40 | 3,40 | — | — | — |
| | 0,75 | 1,80 | 2,80 | 3,80 | 4,20 | 4,20 | 4,20 | — | — | — |
| | 0,88 | 1,80 | 2,80 | 3,80 | 4,50 | 4,50 | 4,50 | — | — | — |
| | 1,00 | 1,80 | 2,80 | 3,80 | 4,50 | 4,50 | 4,50 | — | — | — |
| u [mm] | 40 | 18,0 | 8,0 | 7,0 | 6,0 | 5,0 | 3,0 | — | — | — |
| | 50 | 22,0 | 10,5 | 9,0 | 7,5 | 6,5 | 4,3 | — | — | — |
| | 60 | 26,0 | 13,0 | 11,0 | 9,0 | 8,0 | 5,5 | — | — | — |
| | 70 | 29,5 | 16,5 | 14,0 | 12,0 | 11,5 | 6,8 | — | — | — |
| | 80 | 33,0 | 20,0 | 17,5 | 15,0 | 14,0 | 8,0 | — | — | — |
| | 100 | 33,0 | 20,0 | 17,5 | 15,0 | 14,0 | 10,0 | — | — | — |
| | 120 | 33,0 | 20,0 | 17,5 | 15,0 | 14,0 | 12,0 | — | — | — |
| | ≥ 140 | 33,0 | 20,0 | 17,5 | 15,0 | 14,0 | 14,0 | — | — | — |
| $N_{R,k,II}$ [kN] | 1,94 | 2,84 | 3,83 | 4,89 | 7,18 | 7,18 | — | — | — | |

If component t_{N1} resp. t_{N2} is made of steel grade higher than S280GD the grey highlighted values may be increased by 8,3%. If both components t_{N1} resp. t_{N2} and t_i are made of steel grade higher than S280GD all values $V_{R,k}$ and $N_{R,k}$ may be increased by 8,3%. If component t_i is made of steel grade higher than S235 or S280GD the values $N_{R,k,II}$ may be increased by 8,3%.

| | |
|---|----------|
| Self drilling screw | Annex 11 |
| Hilti S-CD 63 S 5,5 x L Hilti S-CD 63 SS 5,5 x L Hilti S-CD 73 S 5,5 x L Hilti S-CD 73 SS 5,5 x L with hexagon head and sealing washer $\geq \varnothing 19$ mm | |

Annex 5:
ETA-13/0179, Annex 16

Material:
 Fastener: stainless Steel (1.4301, 1.4401, 1.4571) - EN 10088
 Washer: stainless Steel (1.4301) - EN 10088
 Component I: S280GD, S320GD, S350GD - EN 10346
 Component II: S235 - EN 10025-1
 S280GD, S320GD - EN 10346

Drilling capacity: $\Sigma t_i \leq 12,00$ mm

Timber substructures:
no performance determined

| t_{N1}, t_{N2}, d, D [mm] | t_{II} [mm] | | | | | | | | | |
|--------------------------------|---------------|------|------|------|------|------|------|------|-------------|---|
| | 3,00 | 4,00 | 5,00 | 6,00 | 8,00 | 9,00 | 10,0 | 11,0 | $\geq 12,0$ | |
| $V_{R,k}$ [kN] | 0,40 | 0,99 | 0,99 | 0,99 | 0,99 | 0,99 | 0,99 | 0,99 | 0,99 | — |
| | 0,50 | 1,46 | 1,46 | 1,46 | 1,46 | 1,46 | 1,46 | 1,46 | 1,46 | — |
| | 0,55 | 1,62 | 1,62 | 1,62 | 1,62 | 1,62 | 1,62 | 1,62 | 1,62 | — |
| | 0,60 | 1,80 | 1,80 | 1,80 | 1,80 | 1,80 | 1,80 | 1,80 | 1,80 | — |
| | 0,63 | 1,90 | 1,90 | 1,90 | 1,90 | 1,90 | 1,90 | 1,90 | 1,90 | — |
| | 0,75 | 2,37 | 2,37 | 2,37 | 2,37 | 2,37 | 2,37 | 2,37 | 2,37 | — |
| | 0,88 | 2,94 | 2,94 | 2,94 | 2,94 | 2,94 | 2,94 | 2,94 | 2,94 | — |
| | 1,00 | 3,52 | 3,52 | 3,52 | 3,52 | 3,52 | 3,52 | 3,52 | 3,52 | — |
| $N_{R,k}$ [kN] | 0,40 | — | — | — | — | — | — | — | — | — |
| | 0,50 | 1,96 | 1,96 | 1,96 | 1,96 | 1,96 | 1,96 | 1,96 | 1,96 | — |
| | 0,55 | 2,25 | 2,25 | 2,25 | 2,25 | 2,25 | 2,25 | 2,25 | 2,25 | — |
| | 0,60 | 2,57 | 2,57 | 2,57 | 2,57 | 2,57 | 2,57 | 2,57 | 2,57 | — |
| | 0,63 | 2,76 | 2,76 | 2,76 | 2,76 | 2,76 | 2,76 | 2,76 | 2,76 | — |
| | 0,75 | 3,49 | 3,49 | 3,49 | 3,49 | 3,49 | 3,49 | 3,49 | 3,49 | — |
| | 0,88 | 3,49 | 3,49 | 3,49 | 3,49 | 3,49 | 3,49 | 3,49 | 3,49 | — |
| | 1,00 | 3,49 | 3,49 | 3,49 | 3,49 | 3,49 | 3,49 | 3,49 | 3,49 | — |
| u [mm] | 40 | 6,0 | 5,5 | 5,0 | 4,0 | 4,0 | 4,0 | 4,0 | 4,0 | — |
| | 50 | 8,0 | 7,5 | 7,0 | 6,0 | 6,0 | 6,0 | 6,0 | 6,0 | — |
| | 60 | 10,0 | 9,5 | 9,0 | 8,0 | 8,0 | 8,0 | 8,0 | 8,0 | — |
| | 70 | 12,5 | 11,5 | 11,0 | 9,5 | 9,5 | 9,5 | 9,5 | 9,5 | — |
| | 80 | 15,0 | 14,0 | 13,0 | 11,0 | 11,0 | 11,0 | 11,0 | 11,0 | — |
| | 100 | 15,0 | 14,0 | 13,0 | 11,0 | 11,0 | 11,0 | 11,0 | 11,0 | — |
| | 120 | 15,0 | 14,0 | 13,0 | 11,0 | 11,0 | 11,0 | 11,0 | 11,0 | — |
| $N_{R,k,II}$ [kN] | 4,65 | 6,40 | 7,74 | 8,36 | 8,36 | 8,36 | 8,36 | 8,36 | — | |

If component t_{N1} resp. t_{N2} is made of S320GD or S350GD the grey highlighted values may be increased by 8,3%.
 If component t_{II} is made of S320GD the values $N_{R,k,II}$ may be increased by 8,3%.

| | |
|---|----------|
| Self drilling screw | Annex 16 |
| Hilti S-CDH 55 S 5,5 x L Hilti S-CDH 55 SS 5,5 x L with hexagon head and sealing washer $\varnothing 16$ mm | |

Annex 6:
ETA-13/0179, Annex 17

Material:
 Fastener: stainless Steel (1.4301, 1.4401, 1.4571) - EN 10088
 Washer: stainless Steel (1.4301) - EN 10088
 Component I: S280GD, S320GD, S350GD - EN 10346
 Component II: S235 - EN 10025-1
 S280GD, S320GD - EN 10346

Drilling capacity: $\Sigma t_i \leq 12,00$ mm

Timber substructures:
no performance determined

| t_{N1}, t_{N2}, d, D [mm] | t_i [mm] | | | | | | | | | |
|--------------------------------|------------|------|------|------|------|------|------|------|-------------|---|
| | 3,00 | 4,00 | 5,00 | 6,00 | 8,00 | 9,00 | 10,0 | 11,0 | $\geq 12,0$ | |
| $V_{R,k}$ [kN] | 0,40 | 0,99 | 0,99 | 0,99 | 0,99 | 0,99 | 0,99 | 0,99 | 0,99 | — |
| | 0,50 | 1,46 | 1,46 | 1,46 | 1,46 | 1,46 | 1,46 | 1,46 | 1,46 | — |
| | 0,55 | 1,62 | 1,62 | 1,62 | 1,62 | 1,62 | 1,62 | 1,62 | 1,62 | — |
| | 0,60 | 1,80 | 1,80 | 1,80 | 1,80 | 1,80 | 1,80 | 1,80 | 1,80 | — |
| | 0,63 | 1,90 | 1,90 | 1,90 | 1,90 | 1,90 | 1,90 | 1,90 | 1,90 | — |
| | 0,75 | 2,37 | 2,37 | 2,37 | 2,37 | 2,37 | 2,37 | 2,37 | 2,37 | — |
| | 0,88 | 2,94 | 2,94 | 2,94 | 2,94 | 2,94 | 2,94 | 2,94 | 2,94 | — |
| | 1,00 | 3,52 | 3,52 | 3,52 | 3,52 | 3,52 | 3,52 | 3,52 | 3,52 | — |
| $N_{R,k}$ [kN] | 0,40 | — | — | — | — | — | — | — | — | — |
| | 0,50 | 2,10 | 2,10 | 2,10 | 2,10 | 2,10 | 2,10 | 2,10 | 2,10 | — |
| | 0,55 | 2,50 | 2,50 | 2,50 | 2,50 | 2,50 | 2,50 | 2,50 | 2,50 | — |
| | 0,60 | 2,75 | 2,75 | 2,75 | 2,75 | 2,75 | 2,75 | 2,75 | 2,75 | — |
| | 0,63 | 2,90 | 2,90 | 2,90 | 2,90 | 2,90 | 2,90 | 2,90 | 2,90 | — |
| | 0,75 | 3,70 | 3,70 | 3,70 | 3,70 | 3,70 | 3,70 | 3,70 | 3,70 | — |
| | 0,88 | 4,50 | 4,60 | 4,60 | 4,60 | 4,60 | 4,60 | 4,60 | 4,60 | — |
| | 1,00 | 4,50 | 5,20 | 5,20 | 5,20 | 5,20 | 5,20 | 5,20 | 5,20 | — |
| u [mm] | 40 | 6,0 | 5,5 | 5,0 | 4,0 | 4,0 | 4,0 | 4,0 | 4,0 | — |
| | 50 | 8,0 | 7,5 | 7,0 | 6,0 | 6,0 | 6,0 | 6,0 | 6,0 | — |
| | 60 | 10,0 | 9,5 | 9,0 | 8,0 | 8,0 | 8,0 | 8,0 | 8,0 | — |
| | 70 | 12,5 | 11,5 | 11,0 | 9,5 | 9,5 | 9,5 | 9,5 | 9,5 | — |
| | 80 | 15,0 | 14,0 | 13,0 | 11,0 | 11,0 | 11,0 | 11,0 | 11,0 | — |
| | 100 | 15,0 | 14,0 | 13,0 | 11,0 | 11,0 | 11,0 | 11,0 | 11,0 | — |
| | 120 | 15,0 | 14,0 | 13,0 | 11,0 | 11,0 | 11,0 | 11,0 | 11,0 | — |
| ≥ 140 | 15,0 | 14,0 | 13,0 | 11,0 | 11,0 | 11,0 | 11,0 | 11,0 | — | |
| $N_{R,k,II}$ [kN] | 4,65 | 6,40 | 7,74 | 8,36 | 8,36 | 8,36 | 8,36 | 8,36 | — | |

If component t_{N1} resp. t_{N2} is made of S320GD or S350GD the grey highlighted values may be increased by 8,3%. If both components t_{N1} and t_i are made of S320GD or S350GD the values $N_{R,k}$ may be increased by 8,3%. If component t_i is made of S320GD the values $N_{R,k,II}$ may be increased by 8,3%.

| | |
|---|----------|
| Self drilling screw | Annex 17 |
| Hilti S-CDH 65 S 5,5 x L Hilti S-CDH 65 SS 5,5 x L Hilti S-CDH 75 S 5,5 x L Hilti S-CDH 75 SS 5,5 x L with hexagon head and sealing washer $\geq \varnothing 19$ mm | |

Annex 7:
ETA-13/0179, Annex 18

Material:
 Fastener: stainless Steel (1.4301, 1.4401, 1.4571) - EN 10088
 Washer: stainless Steel (1.4301) - EN 10088
 Component I: S280GD, S320GD, S350GD - EN 10346
 Component II: S235 - EN 10025-1
 S280GD, S320GD - EN 10346

Drilling capacity: $\Sigma t_i \leq 12,00$ mm

Timber substructures:
no performance determined

| t_{N1}, t_{N2}, d, D [mm] | t_i [mm] | | | | | | | | | |
|--------------------------------|------------|------|------|------|------|------|------|------|-------------|---|
| | 3,00 | 4,00 | 5,00 | 6,00 | 8,00 | 9,00 | 10,0 | 11,0 | $\geq 12,0$ | |
| $V_{R,k}$ [kN] | 0,40 | 0,99 | 0,99 | 0,99 | 0,99 | 0,99 | 0,99 | 0,99 | 0,99 | — |
| | 0,50 | 1,46 | 1,46 | 1,46 | 1,46 | 1,46 | 1,46 | 1,46 | 1,46 | — |
| | 0,55 | 1,62 | 1,62 | 1,62 | 1,62 | 1,62 | 1,62 | 1,62 | 1,62 | — |
| | 0,60 | 1,80 | 1,80 | 1,80 | 1,80 | 1,80 | 1,80 | 1,80 | 1,80 | — |
| | 0,63 | 1,90 | 1,90 | 1,90 | 1,90 | 1,90 | 1,90 | 1,90 | 1,90 | — |
| | 0,75 | 2,37 | 2,37 | 2,37 | 2,37 | 2,37 | 2,37 | 2,37 | 2,37 | — |
| | 0,88 | 2,94 | 2,94 | 2,94 | 2,94 | 2,94 | 2,94 | 2,94 | 2,94 | — |
| | 1,00 | 3,52 | 3,52 | 3,52 | 3,52 | 3,52 | 3,52 | 3,52 | 3,52 | — |
| $N_{R,k}$ [kN] | 0,40 | — | — | — | — | — | — | — | — | — |
| | 0,50 | 1,96 | 1,96 | 1,96 | 1,96 | 1,96 | 1,96 | 1,96 | 1,96 | — |
| | 0,55 | 2,25 | 2,25 | 2,25 | 2,25 | 2,25 | 2,25 | 2,25 | 2,25 | — |
| | 0,60 | 2,57 | 2,57 | 2,57 | 2,57 | 2,57 | 2,57 | 2,57 | 2,57 | — |
| | 0,63 | 2,76 | 2,76 | 2,76 | 2,76 | 2,76 | 2,76 | 2,76 | 2,76 | — |
| | 0,75 | 3,49 | 3,49 | 3,49 | 3,49 | 3,49 | 3,49 | 3,49 | 3,49 | — |
| | 0,88 | 3,49 | 3,49 | 3,49 | 3,49 | 3,49 | 3,49 | 3,49 | 3,49 | — |
| | 1,00 | 3,49 | 3,49 | 3,49 | 3,49 | 3,49 | 3,49 | 3,49 | 3,49 | — |
| u [mm] | 40 | 6,0 | 5,5 | 5,0 | 4,0 | 4,0 | 4,0 | 4,0 | 4,0 | — |
| | 50 | 8,0 | 7,5 | 7,0 | 6,0 | 6,0 | 6,0 | 6,0 | 6,0 | — |
| | 60 | 10,0 | 9,5 | 9,0 | 8,0 | 8,0 | 8,0 | 8,0 | 8,0 | — |
| | 70 | 12,5 | 11,5 | 11,0 | 9,5 | 9,5 | 9,5 | 9,5 | 9,5 | — |
| | 80 | 15,0 | 14,0 | 13,0 | 11,0 | 11,0 | 11,0 | 11,0 | 11,0 | — |
| | 100 | 15,0 | 14,0 | 13,0 | 11,0 | 11,0 | 11,0 | 11,0 | 11,0 | — |
| | 120 | 15,0 | 14,0 | 13,0 | 11,0 | 11,0 | 11,0 | 11,0 | 11,0 | — |
| ≥ 140 | 15,0 | 14,0 | 13,0 | 11,0 | 11,0 | 11,0 | 11,0 | 11,0 | — | |
| $N_{R,k,II}$ [kN] | 4,65 | 6,40 | 7,74 | 8,36 | 8,36 | 8,36 | 8,36 | 8,36 | 8,36 | — |

If component t_{N1} resp. t_{N2} is made of S320GD or S350GD the grey highlighted values may be increased by 8,3%.
 If component t_i is made of S320GD the values $N_{R,k,II}$ may be increased by 8,3%.

| | |
|---|----------|
| Self drilling screw | Annex 18 |
| Hilti S-CD 55 S 5,5 x L Hilti S-CD 55 SS 5,5 x L with hexagon head and sealing washer $\varnothing 16$ mm | |

Annex 8:
ETA-13/0179, Annex 19

Material:
 Fastener: stainless Steel (1.4301, 1.4401, 1.4571) - EN 10088
 Washer: stainless Steel (1.4301) - EN 10088
 Component I: S280GD, S320GD, S350GD - EN 10346
 Component II: S235 - EN 10025-1
 S280GD, S320GD - EN 10346

Drilling capacity: $\Sigma t_i \leq 12,00$ mm

Timber substructures:
no performance determined

| t_{N1}, t_{N2}, d, D [mm] | t_{II} [mm] | | | | | | | | | |
|--------------------------------|---------------|------|------|------|------|------|------|------|-------------|---|
| | 3,00 | 4,00 | 5,00 | 6,00 | 8,00 | 9,00 | 10,0 | 11,0 | $\geq 12,0$ | |
| $V_{R,k}$ [kN] | 0,40 | 0,99 | 0,99 | 0,99 | 0,99 | 0,99 | 0,99 | 0,99 | 0,99 | — |
| | 0,50 | 1,46 | 1,46 | 1,46 | 1,46 | 1,46 | 1,46 | 1,46 | 1,46 | — |
| | 0,55 | 1,62 | 1,62 | 1,62 | 1,62 | 1,62 | 1,62 | 1,62 | 1,62 | — |
| | 0,60 | 1,80 | 1,80 | 1,80 | 1,80 | 1,80 | 1,80 | 1,80 | 1,80 | — |
| | 0,63 | 1,90 | 1,90 | 1,90 | 1,90 | 1,90 | 1,90 | 1,90 | 1,90 | — |
| | 0,75 | 2,37 | 2,37 | 2,37 | 2,37 | 2,37 | 2,37 | 2,37 | 2,37 | — |
| | 0,88 | 2,94 | 2,94 | 2,94 | 2,94 | 2,94 | 2,94 | 2,94 | 2,94 | — |
| | 1,00 | 3,52 | 3,52 | 3,52 | 3,52 | 3,52 | 3,52 | 3,52 | 3,52 | — |
| $N_{R,k}$ [kN] | 0,40 | — | — | — | — | — | — | — | — | — |
| | 0,50 | 2,10 | 2,10 | 2,10 | 2,10 | 2,10 | 2,10 | 2,10 | 2,10 | — |
| | 0,55 | 2,50 | 2,50 | 2,50 | 2,50 | 2,50 | 2,50 | 2,50 | 2,50 | — |
| | 0,60 | 2,75 | 2,75 | 2,75 | 2,75 | 2,75 | 2,75 | 2,75 | 2,75 | — |
| | 0,63 | 2,90 | 2,90 | 2,90 | 2,90 | 2,90 | 2,90 | 2,90 | 2,90 | — |
| | 0,75 | 3,70 | 3,70 | 3,70 | 3,70 | 3,70 | 3,70 | 3,70 | 3,70 | — |
| | 0,88 | 4,50 | 4,60 | 4,60 | 4,60 | 4,60 | 4,60 | 4,60 | 4,60 | — |
| | 1,00 | 4,50 | 5,20 | 5,20 | 5,20 | 5,20 | 5,20 | 5,20 | 5,20 | — |
| u [mm] | 40 | 6,0 | 5,5 | 5,0 | 4,0 | 4,0 | 4,0 | 4,0 | 4,0 | — |
| | 50 | 8,0 | 7,5 | 7,0 | 6,0 | 6,0 | 6,0 | 6,0 | 6,0 | — |
| | 60 | 10,0 | 9,5 | 9,0 | 8,0 | 8,0 | 8,0 | 8,0 | 8,0 | — |
| | 70 | 12,5 | 11,5 | 11,0 | 9,5 | 9,5 | 9,5 | 9,5 | 9,5 | — |
| | 80 | 15,0 | 14,0 | 13,0 | 11,0 | 11,0 | 11,0 | 11,0 | 11,0 | — |
| | 100 | 15,0 | 14,0 | 13,0 | 11,0 | 11,0 | 11,0 | 11,0 | 11,0 | — |
| | 120 | 15,0 | 14,0 | 13,0 | 11,0 | 11,0 | 11,0 | 11,0 | 11,0 | — |
| ≥ 140 | 15,0 | 14,0 | 13,0 | 11,0 | 11,0 | 11,0 | 11,0 | 11,0 | — | |
| $N_{R,k,II}$ [kN] | 4,65 | 6,40 | 7,74 | 8,36 | 8,36 | 8,36 | 8,36 | 8,36 | — | |

If component t_{N1} resp. t_{N2} is made of S320GD or S350GD the grey highlighted values may be increased by 8,3%. If both components t_{N1} and t_{II} are made of S320GD or S350GD the values $N_{R,k}$ may be increased by 8,3%.
 If component t_{II} is made of S320GD the values $N_{R,k,II}$ may be increased by 8,3%.

| | |
|---|----------|
| Self drilling screw | Annex 19 |
| Hilti S-CD 65 S 5,5 x L Hilti S-CD 65 SS 5,5 x L Hilti S-CD 75 S 5,5 x L Hilti S-CD 75 SS 5,5 x L with hexagon head and sealing washer $\geq \varnothing 19$ mm | |

Annex 9:
ETA-13/0179, Annex 20

| | Material: Fastener: stainless Steel (1.4301, 1.4401, 1.4571) - EN 10088 Washer: stainless Steel (1.4301) - EN 10088 Component I: S280GD, S320GD, S350GD - EN 10346 Component II: S235, S275, S355 - EN 10025-1 S280GD, S320GD, S350GD - EN 10346 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--|---------------|------|------|------|-------------|------|---|---|----------|------|------|------|------|------|-------------|----------------|------|------|------|------|------|------|------|---|---|---|------|------|------|------|------|------|------|---|---|---|------|------|------|------|------|------|------|---|---|---|------|------|------|------|------|------|------|---|---|---|------|------|------|------|------|------|------|---|---|---|------|------|------|------|------|------|------|---|---|---|------|------|------|------|------|------|------|---|---|---|------|------|------|------|------|------|------|---|---|---|----------------|------|------|------|------|------|------|------|---|---|---|------|------|------|------|------|------|------|---|---|---|------|------|------|------|------|------|------|---|---|---|------|------|------|------|------|------|------|---|---|---|------|------|------|------|------|------|------|---|---|---|------|------|------|------|------|------|------|---|---|---|------|------|------|------|------|------|------|---|---|---|------|------|------|------|------|------|------|---|---|---|----------|----|-----|-----|-----|-----|-----|-----|---|---|---|----|-----|-----|-----|-----|-----|-----|---|---|---|----|-----|-----|-----|-----|-----|-----|---|---|---|----|-----|-----|-----|-----|-----|-----|---|---|---|----|-----|-----|-----|-----|-----|-----|---|---|---|----|------|------|------|------|------|------|---|---|---|------------|------|------|------|------|------|------|---|---|---|-------------------|------|------|------|------|------|------|---|---|---|----------------------------|--|--|--|--|--|--|--|--|--|
| | Drilling capacity: $\Sigma t_i \leq 15,00$ mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Timber substructures: no performance determined | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th rowspan="2">t_{N1}, t_{N2}, d, D [mm]</th> <th colspan="6">t_{II} [mm]</th> <th rowspan="2">—</th> <th rowspan="2">—</th> <th rowspan="2">—</th> </tr> <tr> <th>4,00</th> <th>5,00</th> <th>6,00</th> <th>7,00</th> <th>8,00</th> <th>$\geq 10,0$</th> </tr> </thead> <tbody> <tr> <td rowspan="8">$V_{R,k}$ [kN]</td> <td>0,40</td><td>0,82</td><td>0,82</td><td>0,82</td><td>0,82</td><td>0,82</td><td>0,82</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,50</td><td>0,93</td><td>0,93</td><td>0,93</td><td>0,93</td><td>0,93</td><td>0,93</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,55</td><td>1,12</td><td>1,12</td><td>1,12</td><td>1,12</td><td>1,12</td><td>1,12</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,60</td><td>1,31</td><td>1,31</td><td>1,31</td><td>1,31</td><td>1,31</td><td>1,31</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,63</td><td>1,42</td><td>1,42</td><td>1,42</td><td>1,42</td><td>1,42</td><td>1,42</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,75</td><td>1,88</td><td>1,88</td><td>1,88</td><td>1,88</td><td>1,88</td><td>1,88</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,88</td><td>2,33</td><td>2,33</td><td>2,33</td><td>2,33</td><td>2,33</td><td>2,33</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>1,00</td><td>2,74</td><td>2,74</td><td>2,74</td><td>2,74</td><td>2,74</td><td>2,74</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td rowspan="8">$N_{R,k}$ [kN]</td> <td>0,40</td><td>1,46</td><td>1,46</td><td>1,46</td><td>1,46</td><td>1,46</td><td>1,46</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,50</td><td>1,89</td><td>1,89</td><td>1,89</td><td>1,89</td><td>1,89</td><td>1,89</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,55</td><td>2,21</td><td>2,21</td><td>2,21</td><td>2,21</td><td>2,21</td><td>2,21</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,60</td><td>2,53</td><td>2,53</td><td>2,53</td><td>2,53</td><td>2,53</td><td>2,53</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,63</td><td>2,73</td><td>2,73</td><td>2,73</td><td>2,73</td><td>2,73</td><td>2,73</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,75</td><td>3,50</td><td>3,50</td><td>3,50</td><td>3,50</td><td>3,50</td><td>3,50</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,88</td><td>3,68</td><td>3,68</td><td>3,68</td><td>3,68</td><td>3,68</td><td>3,68</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>1,00</td><td>3,84</td><td>3,84</td><td>3,84</td><td>3,84</td><td>3,84</td><td>3,84</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td rowspan="6">u [mm]</td> <td>40</td><td>3,0</td><td>3,0</td><td>3,0</td><td>3,0</td><td>3,0</td><td>3,0</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>50</td><td>4,5</td><td>4,5</td><td>4,5</td><td>4,5</td><td>4,5</td><td>4,5</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>60</td><td>6,0</td><td>6,0</td><td>6,0</td><td>6,0</td><td>6,0</td><td>6,0</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>70</td><td>7,4</td><td>7,4</td><td>7,4</td><td>7,4</td><td>7,4</td><td>7,4</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>80</td><td>8,8</td><td>8,8</td><td>8,8</td><td>8,8</td><td>8,8</td><td>8,8</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>90</td><td>10,1</td><td>10,1</td><td>10,1</td><td>10,1</td><td>10,1</td><td>10,1</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>≥ 100</td><td>11,5</td><td>11,5</td><td>11,5</td><td>11,5</td><td>11,5</td><td>11,5</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>$N_{R,k,II}$ [kN]</td> <td>3,92</td><td>4,92</td><td>5,91</td><td>6,22</td><td>6,52</td><td>6,52</td><td>—</td><td>—</td><td>—</td> </tr> </tbody> </table> | t_{N1}, t_{N2}, d, D [mm] | t_{II} [mm] | | | | | | — | — | — | 4,00 | 5,00 | 6,00 | 7,00 | 8,00 | $\geq 10,0$ | $V_{R,k}$ [kN] | 0,40 | 0,82 | 0,82 | 0,82 | 0,82 | 0,82 | 0,82 | — | — | — | 0,50 | 0,93 | 0,93 | 0,93 | 0,93 | 0,93 | 0,93 | — | — | — | 0,55 | 1,12 | 1,12 | 1,12 | 1,12 | 1,12 | 1,12 | — | — | — | 0,60 | 1,31 | 1,31 | 1,31 | 1,31 | 1,31 | 1,31 | — | — | — | 0,63 | 1,42 | 1,42 | 1,42 | 1,42 | 1,42 | 1,42 | — | — | — | 0,75 | 1,88 | 1,88 | 1,88 | 1,88 | 1,88 | 1,88 | — | — | — | 0,88 | 2,33 | 2,33 | 2,33 | 2,33 | 2,33 | 2,33 | — | — | — | 1,00 | 2,74 | 2,74 | 2,74 | 2,74 | 2,74 | 2,74 | — | — | — | $N_{R,k}$ [kN] | 0,40 | 1,46 | 1,46 | 1,46 | 1,46 | 1,46 | 1,46 | — | — | — | 0,50 | 1,89 | 1,89 | 1,89 | 1,89 | 1,89 | 1,89 | — | — | — | 0,55 | 2,21 | 2,21 | 2,21 | 2,21 | 2,21 | 2,21 | — | — | — | 0,60 | 2,53 | 2,53 | 2,53 | 2,53 | 2,53 | 2,53 | — | — | — | 0,63 | 2,73 | 2,73 | 2,73 | 2,73 | 2,73 | 2,73 | — | — | — | 0,75 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 | — | — | — | 0,88 | 3,68 | 3,68 | 3,68 | 3,68 | 3,68 | 3,68 | — | — | — | 1,00 | 3,84 | 3,84 | 3,84 | 3,84 | 3,84 | 3,84 | — | — | — | u [mm] | 40 | 3,0 | 3,0 | 3,0 | 3,0 | 3,0 | 3,0 | — | — | — | 50 | 4,5 | 4,5 | 4,5 | 4,5 | 4,5 | 4,5 | — | — | — | 60 | 6,0 | 6,0 | 6,0 | 6,0 | 6,0 | 6,0 | — | — | — | 70 | 7,4 | 7,4 | 7,4 | 7,4 | 7,4 | 7,4 | — | — | — | 80 | 8,8 | 8,8 | 8,8 | 8,8 | 8,8 | 8,8 | — | — | — | 90 | 10,1 | 10,1 | 10,1 | 10,1 | 10,1 | 10,1 | — | — | — | ≥ 100 | 11,5 | 11,5 | 11,5 | 11,5 | 11,5 | 11,5 | — | — | — | $N_{R,k,II}$ [kN] | 3,92 | 4,92 | 5,91 | 6,22 | 6,52 | 6,52 | — | — | — | No additional regulations. | | | | | | | | | |
| t_{N1}, t_{N2}, d, D [mm] | | t_{II} [mm] | | | | | | | | | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 4,00 | 5,00 | 6,00 | 7,00 | 8,00 | $\geq 10,0$ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| $V_{R,k}$ [kN] | 0,40 | 0,82 | 0,82 | 0,82 | 0,82 | 0,82 | 0,82 | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,50 | 0,93 | 0,93 | 0,93 | 0,93 | 0,93 | 0,93 | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,55 | 1,12 | 1,12 | 1,12 | 1,12 | 1,12 | 1,12 | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,60 | 1,31 | 1,31 | 1,31 | 1,31 | 1,31 | 1,31 | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,63 | 1,42 | 1,42 | 1,42 | 1,42 | 1,42 | 1,42 | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,75 | 1,88 | 1,88 | 1,88 | 1,88 | 1,88 | 1,88 | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,88 | 2,33 | 2,33 | 2,33 | 2,33 | 2,33 | 2,33 | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1,00 | 2,74 | 2,74 | 2,74 | 2,74 | 2,74 | 2,74 | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| $N_{R,k}$ [kN] | 0,40 | 1,46 | 1,46 | 1,46 | 1,46 | 1,46 | 1,46 | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,50 | 1,89 | 1,89 | 1,89 | 1,89 | 1,89 | 1,89 | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,55 | 2,21 | 2,21 | 2,21 | 2,21 | 2,21 | 2,21 | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,60 | 2,53 | 2,53 | 2,53 | 2,53 | 2,53 | 2,53 | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,63 | 2,73 | 2,73 | 2,73 | 2,73 | 2,73 | 2,73 | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,75 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,88 | 3,68 | 3,68 | 3,68 | 3,68 | 3,68 | 3,68 | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1,00 | 3,84 | 3,84 | 3,84 | 3,84 | 3,84 | 3,84 | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| u [mm] | 40 | 3,0 | 3,0 | 3,0 | 3,0 | 3,0 | 3,0 | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 50 | 4,5 | 4,5 | 4,5 | 4,5 | 4,5 | 4,5 | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 60 | 6,0 | 6,0 | 6,0 | 6,0 | 6,0 | 6,0 | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 70 | 7,4 | 7,4 | 7,4 | 7,4 | 7,4 | 7,4 | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 80 | 8,8 | 8,8 | 8,8 | 8,8 | 8,8 | 8,8 | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 90 | 10,1 | 10,1 | 10,1 | 10,1 | 10,1 | 10,1 | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ≥ 100 | 11,5 | 11,5 | 11,5 | 11,5 | 11,5 | 11,5 | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| $N_{R,k,II}$ [kN] | 3,92 | 4,92 | 5,91 | 6,22 | 6,52 | 6,52 | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Self drilling screw | | | | | | | | | | Annex 20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hilti S-CDH 55 GS 5,5 x L Hilti S-CDH 55 GSS 5,5 x L with hexagon head and sealing washer $\varnothing 16$ mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Annex 10:
ETA-13/0179, Annex 21

| | <p>Material: Fastener: stainless Steel (1.4301, 1.4401, 1.4571) - EN 10088 Washer: stainless Steel (1.4301) - EN 10088 Component I: S280GD, S320GD, S350GD - EN 10346 Component II: S235, S275, S355 - EN 10025-1 S280GD, S320GD, S350GD - EN 10346</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---------------|------|------|------|-------------|------|---|---|---|---|------|------|------|------|------|-------------|---|---|---|---|----------------|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|----------------|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|----------|----|-----|-----|-----|-----|-----|-----|---|---|---|---|----|-----|-----|-----|-----|-----|-----|---|---|---|---|----|-----|-----|-----|-----|-----|-----|---|---|---|---|----|-----|-----|-----|-----|-----|-----|---|---|---|---|----|-----|-----|-----|-----|-----|-----|---|---|---|---|----|------|------|------|------|------|------|---|---|---|---|------------|------|------|------|------|------|------|---|---|---|---|-------------------|------|------|------|------|------|------|---|---|---|---|-----------------------------------|
| <p>Drilling capacity: $\Sigma t_i \leq 15,00$ mm</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Timber substructures: no performance determined</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th rowspan="2">t_{N1}, t_{N2}, d, D [mm]</th> <th colspan="10">t_{II} [mm]</th> </tr> <tr> <th>4,00</th> <th>5,00</th> <th>6,00</th> <th>7,00</th> <th>8,00</th> <th>$\geq 10,0$</th> <th>—</th> <th>—</th> <th>—</th> <th>—</th> </tr> </thead> <tbody> <tr> <td rowspan="8">$V_{R,k}$ [kN]</td> <td>0,40</td><td>0,82</td><td>0,82</td><td>0,82</td><td>0,82</td><td>0,82</td><td>0,82</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,50</td><td>0,93</td><td>1,12</td><td>1,30</td><td>1,30</td><td>1,30</td><td>1,30</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,55</td><td>1,12</td><td>1,28</td><td>1,44</td><td>1,44</td><td>1,44</td><td>1,44</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,60</td><td>1,31</td><td>1,45</td><td>1,58</td><td>1,58</td><td>1,58</td><td>1,58</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,63</td><td>1,42</td><td>1,54</td><td>1,66</td><td>1,66</td><td>1,66</td><td>1,66</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,75</td><td>1,88</td><td>1,94</td><td>2,00</td><td>2,00</td><td>2,00</td><td>2,00</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,88</td><td>2,33</td><td>2,57</td><td>2,81</td><td>2,81</td><td>2,81</td><td>2,81</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>1,00</td><td>2,74</td><td>3,15</td><td>3,56</td><td>3,56</td><td>3,56</td><td>3,56</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td rowspan="8">$N_{R,k}$ [kN]</td> <td>0,40</td><td>1,46</td><td>1,46</td><td>1,46</td><td>1,46</td><td>1,46</td><td>1,46</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,50</td><td>1,89</td><td>1,89</td><td>1,89</td><td>1,89</td><td>1,89</td><td>1,89</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,55</td><td>2,21</td><td>2,21</td><td>2,21</td><td>2,21</td><td>2,21</td><td>2,21</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,60</td><td>2,53</td><td>2,53</td><td>2,53</td><td>2,53</td><td>2,53</td><td>2,53</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,63</td><td>2,73</td><td>2,73</td><td>2,73</td><td>2,73</td><td>2,73</td><td>2,73</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,75</td><td>3,50</td><td>3,50</td><td>3,50</td><td>3,50</td><td>3,50</td><td>3,50</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,88</td><td>3,68</td><td>3,68</td><td>3,68</td><td>3,68</td><td>3,68</td><td>3,68</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>1,00</td><td>3,84</td><td>3,84</td><td>3,84</td><td>3,84</td><td>3,84</td><td>3,84</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td rowspan="6">u [mm]</td> <td>40</td><td>3,0</td><td>3,0</td><td>3,0</td><td>3,0</td><td>3,0</td><td>3,0</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>50</td><td>4,5</td><td>4,5</td><td>4,5</td><td>4,5</td><td>4,5</td><td>4,5</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>60</td><td>6,0</td><td>6,0</td><td>6,0</td><td>6,0</td><td>6,0</td><td>6,0</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>70</td><td>7,4</td><td>7,4</td><td>7,4</td><td>7,4</td><td>7,4</td><td>7,4</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>80</td><td>8,8</td><td>8,8</td><td>8,8</td><td>8,8</td><td>8,8</td><td>8,8</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>90</td><td>10,1</td><td>10,1</td><td>10,1</td><td>10,1</td><td>10,1</td><td>10,1</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>≥ 100</td><td>11,5</td><td>11,5</td><td>11,5</td><td>11,5</td><td>11,5</td><td>11,5</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>$N_{R,k,II}$ [kN]</td> <td>3,92</td><td>4,92</td><td>5,91</td><td>6,22</td><td>6,52</td><td>6,52</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> </tbody> </table> | t_{N1}, t_{N2}, d, D [mm] | t_{II} [mm] | | | | | | | | | | 4,00 | 5,00 | 6,00 | 7,00 | 8,00 | $\geq 10,0$ | — | — | — | — | $V_{R,k}$ [kN] | 0,40 | 0,82 | 0,82 | 0,82 | 0,82 | 0,82 | 0,82 | — | — | — | — | 0,50 | 0,93 | 1,12 | 1,30 | 1,30 | 1,30 | 1,30 | — | — | — | — | 0,55 | 1,12 | 1,28 | 1,44 | 1,44 | 1,44 | 1,44 | — | — | — | — | 0,60 | 1,31 | 1,45 | 1,58 | 1,58 | 1,58 | 1,58 | — | — | — | — | 0,63 | 1,42 | 1,54 | 1,66 | 1,66 | 1,66 | 1,66 | — | — | — | — | 0,75 | 1,88 | 1,94 | 2,00 | 2,00 | 2,00 | 2,00 | — | — | — | — | 0,88 | 2,33 | 2,57 | 2,81 | 2,81 | 2,81 | 2,81 | — | — | — | — | 1,00 | 2,74 | 3,15 | 3,56 | 3,56 | 3,56 | 3,56 | — | — | — | — | $N_{R,k}$ [kN] | 0,40 | 1,46 | 1,46 | 1,46 | 1,46 | 1,46 | 1,46 | — | — | — | — | 0,50 | 1,89 | 1,89 | 1,89 | 1,89 | 1,89 | 1,89 | — | — | — | — | 0,55 | 2,21 | 2,21 | 2,21 | 2,21 | 2,21 | 2,21 | — | — | — | — | 0,60 | 2,53 | 2,53 | 2,53 | 2,53 | 2,53 | 2,53 | — | — | — | — | 0,63 | 2,73 | 2,73 | 2,73 | 2,73 | 2,73 | 2,73 | — | — | — | — | 0,75 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 | — | — | — | — | 0,88 | 3,68 | 3,68 | 3,68 | 3,68 | 3,68 | 3,68 | — | — | — | — | 1,00 | 3,84 | 3,84 | 3,84 | 3,84 | 3,84 | 3,84 | — | — | — | — | u [mm] | 40 | 3,0 | 3,0 | 3,0 | 3,0 | 3,0 | 3,0 | — | — | — | — | 50 | 4,5 | 4,5 | 4,5 | 4,5 | 4,5 | 4,5 | — | — | — | — | 60 | 6,0 | 6,0 | 6,0 | 6,0 | 6,0 | 6,0 | — | — | — | — | 70 | 7,4 | 7,4 | 7,4 | 7,4 | 7,4 | 7,4 | — | — | — | — | 80 | 8,8 | 8,8 | 8,8 | 8,8 | 8,8 | 8,8 | — | — | — | — | 90 | 10,1 | 10,1 | 10,1 | 10,1 | 10,1 | 10,1 | — | — | — | — | ≥ 100 | 11,5 | 11,5 | 11,5 | 11,5 | 11,5 | 11,5 | — | — | — | — | $N_{R,k,II}$ [kN] | 3,92 | 4,92 | 5,91 | 6,22 | 6,52 | 6,52 | — | — | — | — | <p>No additional regulations.</p> |
| t_{N1}, t_{N2}, d, D [mm] | | t_{II} [mm] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 4,00 | 5,00 | 6,00 | 7,00 | 8,00 | $\geq 10,0$ | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| $V_{R,k}$ [kN] | 0,40 | 0,82 | 0,82 | 0,82 | 0,82 | 0,82 | 0,82 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,50 | 0,93 | 1,12 | 1,30 | 1,30 | 1,30 | 1,30 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,55 | 1,12 | 1,28 | 1,44 | 1,44 | 1,44 | 1,44 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,60 | 1,31 | 1,45 | 1,58 | 1,58 | 1,58 | 1,58 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,63 | 1,42 | 1,54 | 1,66 | 1,66 | 1,66 | 1,66 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,75 | 1,88 | 1,94 | 2,00 | 2,00 | 2,00 | 2,00 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,88 | 2,33 | 2,57 | 2,81 | 2,81 | 2,81 | 2,81 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1,00 | 2,74 | 3,15 | 3,56 | 3,56 | 3,56 | 3,56 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| $N_{R,k}$ [kN] | 0,40 | 1,46 | 1,46 | 1,46 | 1,46 | 1,46 | 1,46 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,50 | 1,89 | 1,89 | 1,89 | 1,89 | 1,89 | 1,89 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,55 | 2,21 | 2,21 | 2,21 | 2,21 | 2,21 | 2,21 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,60 | 2,53 | 2,53 | 2,53 | 2,53 | 2,53 | 2,53 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,63 | 2,73 | 2,73 | 2,73 | 2,73 | 2,73 | 2,73 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,75 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,88 | 3,68 | 3,68 | 3,68 | 3,68 | 3,68 | 3,68 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1,00 | 3,84 | 3,84 | 3,84 | 3,84 | 3,84 | 3,84 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| u [mm] | 40 | 3,0 | 3,0 | 3,0 | 3,0 | 3,0 | 3,0 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 50 | 4,5 | 4,5 | 4,5 | 4,5 | 4,5 | 4,5 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 60 | 6,0 | 6,0 | 6,0 | 6,0 | 6,0 | 6,0 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 70 | 7,4 | 7,4 | 7,4 | 7,4 | 7,4 | 7,4 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 80 | 8,8 | 8,8 | 8,8 | 8,8 | 8,8 | 8,8 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 90 | 10,1 | 10,1 | 10,1 | 10,1 | 10,1 | 10,1 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ≥ 100 | 11,5 | 11,5 | 11,5 | 11,5 | 11,5 | 11,5 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| $N_{R,k,II}$ [kN] | 3,92 | 4,92 | 5,91 | 6,22 | 6,52 | 6,52 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Self drilling screw</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Hilti S-CDH 65 GS 5,5 x L Hilti S-CDH 65 GSS 5,5 x L with hexagon head and sealing washer $\varnothing 19$ mm</p> | <p>Annex 21</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Annex 11:
ETA-13/0179, Annex 22

Material:
 Fastener: stainless Steel (1.4301, 1.4401, 1.4571) - EN 10088
 Washer: stainless Steel (1.4301) - EN 10088
 Component I: S280GD, S320GD, S350GD - EN 10346
 Component II: S235, S275, S355 - EN 10025-1
 S280GD, S320GD, S350GD - EN 10346

Drilling capacity: $\Sigma t_i \leq 15,00$ mm

Timber substructures:
no performance determined

| t_{N1}, t_{N2}, d, D [mm] | t_{II} [mm] | | | | | | | — | — | — |
|--------------------------------|---------------|------|------|------|------|-------------|------|---|---|---|
| | 4,00 | 5,00 | 6,00 | 7,00 | 8,00 | $\geq 10,0$ | — | | | |
| $V_{R,k}$ [kN] | 0,40 | 0,82 | 0,82 | 0,82 | 0,82 | 0,82 | 0,82 | — | — | — |
| | 0,50 | 0,93 | 1,12 | 1,30 | 1,30 | 1,30 | 1,30 | — | — | — |
| | 0,55 | 1,12 | 1,28 | 1,44 | 1,44 | 1,44 | 1,44 | — | — | — |
| | 0,60 | 1,31 | 1,45 | 1,58 | 1,58 | 1,58 | 1,58 | — | — | — |
| | 0,63 | 1,42 | 1,54 | 1,66 | 1,66 | 1,66 | 1,66 | — | — | — |
| | 0,75 | 1,88 | 1,94 | 2,00 | 2,00 | 2,00 | 2,00 | — | — | — |
| | 0,88 | 2,33 | 2,57 | 2,81 | 2,81 | 2,81 | 2,81 | — | — | — |
| | 1,00 | 2,74 | 3,15 | 3,56 | 3,56 | 3,56 | 3,56 | — | — | — |
| $N_{R,k}$ [kN] | 0,40 | 1,65 | 1,65 | 1,65 | 1,65 | 1,65 | 1,65 | — | — | — |
| | 0,50 | 1,77 | 1,77 | 1,77 | 1,77 | 1,77 | 1,77 | — | — | — |
| | 0,55 | 2,26 | 2,26 | 2,26 | 2,26 | 2,26 | 2,26 | — | — | — |
| | 0,60 | 2,74 | 2,74 | 2,74 | 2,74 | 2,74 | 2,74 | — | — | — |
| | 0,63 | 3,03 | 3,03 | 3,03 | 3,03 | 3,03 | 3,03 | — | — | — |
| | 0,75 | 3,92 | 4,20 | 4,20 | 4,20 | 4,20 | 4,20 | — | — | — |
| | 0,88 | 3,92 | 4,32 | 4,32 | 4,32 | 4,32 | 4,32 | — | — | — |
| | 1,00 | 3,92 | 4,44 | 4,44 | 4,44 | 4,44 | 4,44 | — | — | — |
| u [mm] | 40 | 3,0 | 3,0 | 3,0 | 3,0 | 3,0 | 3,0 | — | — | — |
| | 50 | 4,5 | 4,5 | 4,5 | 4,5 | 4,5 | 4,5 | — | — | — |
| | 60 | 6,0 | 6,0 | 6,0 | 6,0 | 6,0 | 6,0 | — | — | — |
| | 70 | 7,4 | 7,4 | 7,4 | 7,4 | 7,4 | 7,4 | — | — | — |
| | 80 | 8,8 | 8,8 | 8,8 | 8,8 | 8,8 | 8,8 | — | — | — |
| | 90 | 10,1 | 10,1 | 10,1 | 10,1 | 10,1 | 10,1 | — | — | — |
| ≥ 100 | 11,5 | 11,5 | 11,5 | 11,5 | 11,5 | 11,5 | — | — | — | |
| $N_{R,k,II}$ [kN] | 3,92 | 4,92 | 5,91 | 6,22 | 6,52 | 6,52 | — | — | — | |

No additional regulations.

Self drilling screw

Hilti S-CDH 75 GS 5,5 x L
 Hilti S-CDH 75 GSS 5,5 x L
 with hexagon head and sealing washer $\varnothing 22$ mm

Annex 22

Annex 12:
ETA-13/0179, Annex 23

| | <p>Material: Fastener: stainless Steel (1.4301, 1.4401, 1.4571) - EN 10088 Washer: stainless Steel (1.4301) - EN 10088 Component I: S280GD, S320GD, S350GD - EN 10346 Component II: S235, S275, S355 - EN 10025-1 S280GD, S320GD, S350GD - EN 10346</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---------------------|----------|---|------|-------------|------|---|---|---|---|------|------|------|------|------|-------------|---|---|---|---|----------------|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|----------------|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|----------|----|-----|-----|-----|-----|-----|-----|---|---|---|---|----|-----|-----|-----|-----|-----|-----|---|---|---|---|----|-----|-----|-----|-----|-----|-----|---|---|---|---|----|-----|-----|-----|-----|-----|-----|---|---|---|---|----|-----|-----|-----|-----|-----|-----|---|---|---|---|----|------|------|------|------|------|------|---|---|---|---|------------|------|------|------|------|------|------|---|---|---|---|-------------------|------|------|------|------|------|------|---|---|---|---|-----------------------------------|
| <p>Drilling capacity: $\Sigma t_i \leq 15,00$ mm</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Timber substructures: no performance determined</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th rowspan="2">t_{N1}, t_{N2}, d, D [mm]</th> <th colspan="10">t_{II} [mm]</th> </tr> <tr> <th>4,00</th> <th>5,00</th> <th>6,00</th> <th>7,00</th> <th>8,00</th> <th>$\geq 10,0$</th> <th>—</th> <th>—</th> <th>—</th> <th>—</th> </tr> </thead> <tbody> <tr> <td rowspan="8">$V_{R,k}$ [kN]</td> <td>0,40</td><td>0,82</td><td>0,82</td><td>0,82</td><td>0,82</td><td>0,82</td><td>0,82</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,50</td><td>0,93</td><td>0,93</td><td>0,93</td><td>0,93</td><td>0,93</td><td>0,93</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,55</td><td>1,12</td><td>1,12</td><td>1,12</td><td>1,12</td><td>1,12</td><td>1,12</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,60</td><td>1,31</td><td>1,31</td><td>1,31</td><td>1,31</td><td>1,31</td><td>1,31</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,63</td><td>1,42</td><td>1,42</td><td>1,42</td><td>1,42</td><td>1,42</td><td>1,42</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,75</td><td>1,88</td><td>1,88</td><td>1,88</td><td>1,88</td><td>1,88</td><td>1,88</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,88</td><td>2,33</td><td>2,33</td><td>2,33</td><td>2,33</td><td>2,33</td><td>2,33</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>1,00</td><td>2,74</td><td>2,74</td><td>2,74</td><td>2,74</td><td>2,74</td><td>2,74</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td rowspan="8">$N_{R,k}$ [kN]</td> <td>0,40</td><td>1,46</td><td>1,46</td><td>1,46</td><td>1,46</td><td>1,46</td><td>1,46</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,50</td><td>1,89</td><td>1,89</td><td>1,89</td><td>1,89</td><td>1,89</td><td>1,89</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,55</td><td>2,21</td><td>2,21</td><td>2,21</td><td>2,21</td><td>2,21</td><td>2,21</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,60</td><td>2,53</td><td>2,53</td><td>2,53</td><td>2,53</td><td>2,53</td><td>2,53</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,63</td><td>2,73</td><td>2,73</td><td>2,73</td><td>2,73</td><td>2,73</td><td>2,73</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,75</td><td>3,50</td><td>3,50</td><td>3,50</td><td>3,50</td><td>3,50</td><td>3,50</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,88</td><td>3,68</td><td>3,68</td><td>3,68</td><td>3,68</td><td>3,68</td><td>3,68</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>1,00</td><td>3,84</td><td>3,84</td><td>3,84</td><td>3,84</td><td>3,84</td><td>3,84</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td rowspan="6">u [mm]</td> <td>40</td><td>3,0</td><td>3,0</td><td>3,0</td><td>3,0</td><td>3,0</td><td>3,0</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>50</td><td>4,5</td><td>4,5</td><td>4,5</td><td>4,5</td><td>4,5</td><td>4,5</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>60</td><td>6,0</td><td>6,0</td><td>6,0</td><td>6,0</td><td>6,0</td><td>6,0</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>70</td><td>7,4</td><td>7,4</td><td>7,4</td><td>7,4</td><td>7,4</td><td>7,4</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>80</td><td>8,8</td><td>8,8</td><td>8,8</td><td>8,8</td><td>8,8</td><td>8,8</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>90</td><td>10,1</td><td>10,1</td><td>10,1</td><td>10,1</td><td>10,1</td><td>10,1</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>≥ 100</td><td>11,5</td><td>11,5</td><td>11,5</td><td>11,5</td><td>11,5</td><td>11,5</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>$N_{R,k,II}$ [kN]</td> <td>3,92</td><td>4,92</td><td>5,91</td><td>6,22</td><td>6,52</td><td>6,52</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> </tbody> </table> | t_{N1}, t_{N2}, d, D [mm] | t_{II} [mm] | | | | | | | | | | 4,00 | 5,00 | 6,00 | 7,00 | 8,00 | $\geq 10,0$ | — | — | — | — | $V_{R,k}$ [kN] | 0,40 | 0,82 | 0,82 | 0,82 | 0,82 | 0,82 | 0,82 | — | — | — | — | 0,50 | 0,93 | 0,93 | 0,93 | 0,93 | 0,93 | 0,93 | — | — | — | — | 0,55 | 1,12 | 1,12 | 1,12 | 1,12 | 1,12 | 1,12 | — | — | — | — | 0,60 | 1,31 | 1,31 | 1,31 | 1,31 | 1,31 | 1,31 | — | — | — | — | 0,63 | 1,42 | 1,42 | 1,42 | 1,42 | 1,42 | 1,42 | — | — | — | — | 0,75 | 1,88 | 1,88 | 1,88 | 1,88 | 1,88 | 1,88 | — | — | — | — | 0,88 | 2,33 | 2,33 | 2,33 | 2,33 | 2,33 | 2,33 | — | — | — | — | 1,00 | 2,74 | 2,74 | 2,74 | 2,74 | 2,74 | 2,74 | — | — | — | — | $N_{R,k}$ [kN] | 0,40 | 1,46 | 1,46 | 1,46 | 1,46 | 1,46 | 1,46 | — | — | — | — | 0,50 | 1,89 | 1,89 | 1,89 | 1,89 | 1,89 | 1,89 | — | — | — | — | 0,55 | 2,21 | 2,21 | 2,21 | 2,21 | 2,21 | 2,21 | — | — | — | — | 0,60 | 2,53 | 2,53 | 2,53 | 2,53 | 2,53 | 2,53 | — | — | — | — | 0,63 | 2,73 | 2,73 | 2,73 | 2,73 | 2,73 | 2,73 | — | — | — | — | 0,75 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 | — | — | — | — | 0,88 | 3,68 | 3,68 | 3,68 | 3,68 | 3,68 | 3,68 | — | — | — | — | 1,00 | 3,84 | 3,84 | 3,84 | 3,84 | 3,84 | 3,84 | — | — | — | — | u [mm] | 40 | 3,0 | 3,0 | 3,0 | 3,0 | 3,0 | 3,0 | — | — | — | — | 50 | 4,5 | 4,5 | 4,5 | 4,5 | 4,5 | 4,5 | — | — | — | — | 60 | 6,0 | 6,0 | 6,0 | 6,0 | 6,0 | 6,0 | — | — | — | — | 70 | 7,4 | 7,4 | 7,4 | 7,4 | 7,4 | 7,4 | — | — | — | — | 80 | 8,8 | 8,8 | 8,8 | 8,8 | 8,8 | 8,8 | — | — | — | — | 90 | 10,1 | 10,1 | 10,1 | 10,1 | 10,1 | 10,1 | — | — | — | — | ≥ 100 | 11,5 | 11,5 | 11,5 | 11,5 | 11,5 | 11,5 | — | — | — | — | $N_{R,k,II}$ [kN] | 3,92 | 4,92 | 5,91 | 6,22 | 6,52 | 6,52 | — | — | — | — | <p>No additional regulations.</p> |
| t_{N1}, t_{N2}, d, D [mm] | | t_{II} [mm] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 4,00 | 5,00 | 6,00 | 7,00 | 8,00 | $\geq 10,0$ | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| $V_{R,k}$ [kN] | 0,40 | 0,82 | 0,82 | 0,82 | 0,82 | 0,82 | 0,82 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,50 | 0,93 | 0,93 | 0,93 | 0,93 | 0,93 | 0,93 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,55 | 1,12 | 1,12 | 1,12 | 1,12 | 1,12 | 1,12 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,60 | 1,31 | 1,31 | 1,31 | 1,31 | 1,31 | 1,31 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,63 | 1,42 | 1,42 | 1,42 | 1,42 | 1,42 | 1,42 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,75 | 1,88 | 1,88 | 1,88 | 1,88 | 1,88 | 1,88 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,88 | 2,33 | 2,33 | 2,33 | 2,33 | 2,33 | 2,33 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1,00 | 2,74 | 2,74 | 2,74 | 2,74 | 2,74 | 2,74 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| $N_{R,k}$ [kN] | 0,40 | 1,46 | 1,46 | 1,46 | 1,46 | 1,46 | 1,46 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,50 | 1,89 | 1,89 | 1,89 | 1,89 | 1,89 | 1,89 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,55 | 2,21 | 2,21 | 2,21 | 2,21 | 2,21 | 2,21 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,60 | 2,53 | 2,53 | 2,53 | 2,53 | 2,53 | 2,53 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,63 | 2,73 | 2,73 | 2,73 | 2,73 | 2,73 | 2,73 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,75 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,88 | 3,68 | 3,68 | 3,68 | 3,68 | 3,68 | 3,68 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1,00 | 3,84 | 3,84 | 3,84 | 3,84 | 3,84 | 3,84 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| u [mm] | 40 | 3,0 | 3,0 | 3,0 | 3,0 | 3,0 | 3,0 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 50 | 4,5 | 4,5 | 4,5 | 4,5 | 4,5 | 4,5 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 60 | 6,0 | 6,0 | 6,0 | 6,0 | 6,0 | 6,0 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 70 | 7,4 | 7,4 | 7,4 | 7,4 | 7,4 | 7,4 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 80 | 8,8 | 8,8 | 8,8 | 8,8 | 8,8 | 8,8 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 90 | 10,1 | 10,1 | 10,1 | 10,1 | 10,1 | 10,1 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ≥ 100 | 11,5 | 11,5 | 11,5 | 11,5 | 11,5 | 11,5 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| $N_{R,k,II}$ [kN] | 3,92 | 4,92 | 5,91 | 6,22 | 6,52 | 6,52 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <tr> <td style="text-align: center;">Self drilling screw</td> <td rowspan="2" style="text-align: center; vertical-align: middle;">Annex 23</td> </tr> <tr> <td style="text-align: center;"> Hilti S-CD 55 GS 5,5 x L Hilti S-CD 55 GSS 5,5 x L with hexagon head and sealing washer $\varnothing 16$ mm </td> </tr> </table> | | Self drilling screw | Annex 23 | Hilti S-CD 55 GS 5,5 x L Hilti S-CD 55 GSS 5,5 x L with hexagon head and sealing washer $\varnothing 16$ mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Self drilling screw | Annex 23 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hilti S-CD 55 GS 5,5 x L Hilti S-CD 55 GSS 5,5 x L with hexagon head and sealing washer $\varnothing 16$ mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Annex 13:
ETA-13/0179, Annex 24

| | <p>Material:</p> <p>Fastener: stainless Steel (1.4301, 1.4401, 1.4571) - EN 10088</p> <p>Washer: stainless Steel (1.4301) - EN 10088</p> <p>Component I: S280GD, S320GD, S350GD - EN 10346</p> <p>Component II: S235, S275, S355 - EN 10025-1 S280GD, S320GD, S350GD - EN 10346</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--|---------------|------|------|------|-------------|------|---|---|---|----------|------|------|------|------|------|-------------|---|---|---|---|----------------|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|----------------|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|----------|----|-----|-----|-----|-----|-----|-----|---|---|---|---|----|-----|-----|-----|-----|-----|-----|---|---|---|---|----|-----|-----|-----|-----|-----|-----|---|---|---|---|----|-----|-----|-----|-----|-----|-----|---|---|---|---|----|-----|-----|-----|-----|-----|-----|---|---|---|---|----|------|------|------|------|------|------|---|---|---|---|------------|------|------|------|------|------|------|---|---|---|---|-------------------|------|------|------|------|------|------|---|---|---|---|--|
| | <p>Drilling capacity: $\Sigma t_i \leq 15,00$ mm</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Timber substructures: no performance determined</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th rowspan="2">t_{N1}, t_{N2}, d, D [mm]</th> <th colspan="10">t_{II} [mm]</th> </tr> <tr> <th>4,00</th> <th>5,00</th> <th>6,00</th> <th>7,00</th> <th>8,00</th> <th>$\geq 10,0$</th> <th>—</th> <th>—</th> <th>—</th> <th>—</th> </tr> </thead> <tbody> <tr> <td rowspan="8">$V_{R,k}$ [kN]</td> <td>0,40</td><td>0,82</td><td>0,82</td><td>0,82</td><td>0,82</td><td>0,82</td><td>0,82</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,50</td><td>0,93</td><td>1,12</td><td>1,30</td><td>1,30</td><td>1,30</td><td>1,30</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,55</td><td>1,12</td><td>1,28</td><td>1,44</td><td>1,44</td><td>1,44</td><td>1,44</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,60</td><td>1,31</td><td>1,45</td><td>1,58</td><td>1,58</td><td>1,58</td><td>1,58</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,63</td><td>1,42</td><td>1,54</td><td>1,66</td><td>1,66</td><td>1,66</td><td>1,66</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,75</td><td>1,88</td><td>1,94</td><td>2,00</td><td>2,00</td><td>2,00</td><td>2,00</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,88</td><td>2,33</td><td>2,57</td><td>2,81</td><td>2,81</td><td>2,81</td><td>2,81</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>1,00</td><td>2,74</td><td>3,15</td><td>3,56</td><td>3,56</td><td>3,56</td><td>3,56</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td rowspan="8">$N_{R,k}$ [kN]</td> <td>0,40</td><td>1,46</td><td>1,46</td><td>1,46</td><td>1,46</td><td>1,46</td><td>1,46</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,50</td><td>1,89</td><td>1,89</td><td>1,89</td><td>1,89</td><td>1,89</td><td>1,89</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,55</td><td>2,21</td><td>2,21</td><td>2,21</td><td>2,21</td><td>2,21</td><td>2,21</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,60</td><td>2,53</td><td>2,53</td><td>2,53</td><td>2,53</td><td>2,53</td><td>2,53</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,63</td><td>2,73</td><td>2,73</td><td>2,73</td><td>2,73</td><td>2,73</td><td>2,73</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,75</td><td>3,50</td><td>3,50</td><td>3,50</td><td>3,50</td><td>3,50</td><td>3,50</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,88</td><td>3,68</td><td>3,68</td><td>3,68</td><td>3,68</td><td>3,68</td><td>3,68</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>1,00</td><td>3,84</td><td>3,84</td><td>3,84</td><td>3,84</td><td>3,84</td><td>3,84</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td rowspan="6">u [mm]</td> <td>40</td><td>3,0</td><td>3,0</td><td>3,0</td><td>3,0</td><td>3,0</td><td>3,0</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>50</td><td>4,5</td><td>4,5</td><td>4,5</td><td>4,5</td><td>4,5</td><td>4,5</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>60</td><td>6,0</td><td>6,0</td><td>6,0</td><td>6,0</td><td>6,0</td><td>6,0</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>70</td><td>7,4</td><td>7,4</td><td>7,4</td><td>7,4</td><td>7,4</td><td>7,4</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>80</td><td>8,8</td><td>8,8</td><td>8,8</td><td>8,8</td><td>8,8</td><td>8,8</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>90</td><td>10,1</td><td>10,1</td><td>10,1</td><td>10,1</td><td>10,1</td><td>10,1</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>≥ 100</td><td>11,5</td><td>11,5</td><td>11,5</td><td>11,5</td><td>11,5</td><td>11,5</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>$N_{R,k,II}$ [kN]</td> <td>3,92</td><td>4,92</td><td>5,91</td><td>6,22</td><td>6,52</td><td>6,52</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> </tbody> </table> | t_{N1}, t_{N2}, d, D [mm] | t_{II} [mm] | | | | | | | | | | 4,00 | 5,00 | 6,00 | 7,00 | 8,00 | $\geq 10,0$ | — | — | — | — | $V_{R,k}$ [kN] | 0,40 | 0,82 | 0,82 | 0,82 | 0,82 | 0,82 | 0,82 | — | — | — | — | 0,50 | 0,93 | 1,12 | 1,30 | 1,30 | 1,30 | 1,30 | — | — | — | — | 0,55 | 1,12 | 1,28 | 1,44 | 1,44 | 1,44 | 1,44 | — | — | — | — | 0,60 | 1,31 | 1,45 | 1,58 | 1,58 | 1,58 | 1,58 | — | — | — | — | 0,63 | 1,42 | 1,54 | 1,66 | 1,66 | 1,66 | 1,66 | — | — | — | — | 0,75 | 1,88 | 1,94 | 2,00 | 2,00 | 2,00 | 2,00 | — | — | — | — | 0,88 | 2,33 | 2,57 | 2,81 | 2,81 | 2,81 | 2,81 | — | — | — | — | 1,00 | 2,74 | 3,15 | 3,56 | 3,56 | 3,56 | 3,56 | — | — | — | — | $N_{R,k}$ [kN] | 0,40 | 1,46 | 1,46 | 1,46 | 1,46 | 1,46 | 1,46 | — | — | — | — | 0,50 | 1,89 | 1,89 | 1,89 | 1,89 | 1,89 | 1,89 | — | — | — | — | 0,55 | 2,21 | 2,21 | 2,21 | 2,21 | 2,21 | 2,21 | — | — | — | — | 0,60 | 2,53 | 2,53 | 2,53 | 2,53 | 2,53 | 2,53 | — | — | — | — | 0,63 | 2,73 | 2,73 | 2,73 | 2,73 | 2,73 | 2,73 | — | — | — | — | 0,75 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 | — | — | — | — | 0,88 | 3,68 | 3,68 | 3,68 | 3,68 | 3,68 | 3,68 | — | — | — | — | 1,00 | 3,84 | 3,84 | 3,84 | 3,84 | 3,84 | 3,84 | — | — | — | — | u [mm] | 40 | 3,0 | 3,0 | 3,0 | 3,0 | 3,0 | 3,0 | — | — | — | — | 50 | 4,5 | 4,5 | 4,5 | 4,5 | 4,5 | 4,5 | — | — | — | — | 60 | 6,0 | 6,0 | 6,0 | 6,0 | 6,0 | 6,0 | — | — | — | — | 70 | 7,4 | 7,4 | 7,4 | 7,4 | 7,4 | 7,4 | — | — | — | — | 80 | 8,8 | 8,8 | 8,8 | 8,8 | 8,8 | 8,8 | — | — | — | — | 90 | 10,1 | 10,1 | 10,1 | 10,1 | 10,1 | 10,1 | — | — | — | — | ≥ 100 | 11,5 | 11,5 | 11,5 | 11,5 | 11,5 | 11,5 | — | — | — | — | $N_{R,k,II}$ [kN] | 3,92 | 4,92 | 5,91 | 6,22 | 6,52 | 6,52 | — | — | — | — | |
| t_{N1}, t_{N2}, d, D [mm] | | t_{II} [mm] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 4,00 | 5,00 | 6,00 | 7,00 | 8,00 | $\geq 10,0$ | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| $V_{R,k}$ [kN] | 0,40 | 0,82 | 0,82 | 0,82 | 0,82 | 0,82 | 0,82 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,50 | 0,93 | 1,12 | 1,30 | 1,30 | 1,30 | 1,30 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,55 | 1,12 | 1,28 | 1,44 | 1,44 | 1,44 | 1,44 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,60 | 1,31 | 1,45 | 1,58 | 1,58 | 1,58 | 1,58 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,63 | 1,42 | 1,54 | 1,66 | 1,66 | 1,66 | 1,66 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,75 | 1,88 | 1,94 | 2,00 | 2,00 | 2,00 | 2,00 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,88 | 2,33 | 2,57 | 2,81 | 2,81 | 2,81 | 2,81 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1,00 | 2,74 | 3,15 | 3,56 | 3,56 | 3,56 | 3,56 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| $N_{R,k}$ [kN] | 0,40 | 1,46 | 1,46 | 1,46 | 1,46 | 1,46 | 1,46 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,50 | 1,89 | 1,89 | 1,89 | 1,89 | 1,89 | 1,89 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,55 | 2,21 | 2,21 | 2,21 | 2,21 | 2,21 | 2,21 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,60 | 2,53 | 2,53 | 2,53 | 2,53 | 2,53 | 2,53 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,63 | 2,73 | 2,73 | 2,73 | 2,73 | 2,73 | 2,73 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,75 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,88 | 3,68 | 3,68 | 3,68 | 3,68 | 3,68 | 3,68 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1,00 | 3,84 | 3,84 | 3,84 | 3,84 | 3,84 | 3,84 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| u [mm] | 40 | 3,0 | 3,0 | 3,0 | 3,0 | 3,0 | 3,0 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 50 | 4,5 | 4,5 | 4,5 | 4,5 | 4,5 | 4,5 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 60 | 6,0 | 6,0 | 6,0 | 6,0 | 6,0 | 6,0 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 70 | 7,4 | 7,4 | 7,4 | 7,4 | 7,4 | 7,4 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 80 | 8,8 | 8,8 | 8,8 | 8,8 | 8,8 | 8,8 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 90 | 10,1 | 10,1 | 10,1 | 10,1 | 10,1 | 10,1 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ≥ 100 | 11,5 | 11,5 | 11,5 | 11,5 | 11,5 | 11,5 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| $N_{R,k,II}$ [kN] | 3,92 | 4,92 | 5,91 | 6,22 | 6,52 | 6,52 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| No additional regulations. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Self drilling screw | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Hilti S-CD 65 GS 5,5 x L Hilti S-CD 65 GSS 5,5 x L with hexagon head and sealing washer $\varnothing 19$ mm</p> | | | | | | | | | | | Annex 24 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Annex 14:
ETA-13/0179, Annex 25

| | <p>Material: Fastener: stainless Steel (1.4301, 1.4401, 1.4571) - EN 10088 Washer: stainless Steel (1.4301) - EN 10088 Component I: S280GD, S320GD, S350GD - EN 10346 Component II: S235, S275, S355 - EN 10025-1 S280GD, S320GD, S350GD - EN 10346</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---------------|------|------|------|-------------|------|---|---|---|---|------|------|------|------|------|-------------|---|---|---|---|----------------|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|----------------|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|------|------|------|------|------|------|------|---|---|---|---|----------|----|-----|-----|-----|-----|-----|-----|---|---|---|---|----|-----|-----|-----|-----|-----|-----|---|---|---|---|----|-----|-----|-----|-----|-----|-----|---|---|---|---|----|-----|-----|-----|-----|-----|-----|---|---|---|---|----|-----|-----|-----|-----|-----|-----|---|---|---|---|----|------|------|------|------|------|------|---|---|---|---|------------|------|------|------|------|------|------|---|---|---|---|-------------------|------|------|------|------|------|------|---|---|---|---|-----------------------------------|
| <p>Drilling capacity: $\Sigma t_i \leq 15,00$ mm</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Timber substructures: no performance determined</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th rowspan="2">t_{N1}, t_{N2}, d, D [mm]</th> <th colspan="10">t_{II} [mm]</th> </tr> <tr> <th>4,00</th> <th>5,00</th> <th>6,00</th> <th>7,00</th> <th>8,00</th> <th>$\geq 10,0$</th> <th>—</th> <th>—</th> <th>—</th> <th>—</th> </tr> </thead> <tbody> <tr> <td rowspan="8">$V_{R,k}$ [kN]</td> <td>0,40</td><td>0,82</td><td>0,82</td><td>0,82</td><td>0,82</td><td>0,82</td><td>0,82</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,50</td><td>0,93</td><td>1,12</td><td>1,30</td><td>1,30</td><td>1,30</td><td>1,30</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,55</td><td>1,12</td><td>1,28</td><td>1,44</td><td>1,44</td><td>1,44</td><td>1,44</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,60</td><td>1,31</td><td>1,45</td><td>1,58</td><td>1,58</td><td>1,58</td><td>1,58</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,63</td><td>1,42</td><td>1,54</td><td>1,66</td><td>1,66</td><td>1,66</td><td>1,66</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,75</td><td>1,88</td><td>1,94</td><td>2,00</td><td>2,00</td><td>2,00</td><td>2,00</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,88</td><td>2,33</td><td>2,57</td><td>2,81</td><td>2,81</td><td>2,81</td><td>2,81</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>1,00</td><td>2,74</td><td>3,15</td><td>3,56</td><td>3,56</td><td>3,56</td><td>3,56</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td rowspan="8">$N_{R,k}$ [kN]</td> <td>0,40</td><td>1,65</td><td>1,65</td><td>1,65</td><td>1,65</td><td>1,65</td><td>1,65</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,50</td><td>1,77</td><td>1,77</td><td>1,77</td><td>1,77</td><td>1,77</td><td>1,77</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,55</td><td>2,26</td><td>2,26</td><td>2,26</td><td>2,26</td><td>2,26</td><td>2,26</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,60</td><td>2,74</td><td>2,74</td><td>2,74</td><td>2,74</td><td>2,74</td><td>2,74</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,63</td><td>3,03</td><td>3,03</td><td>3,03</td><td>3,03</td><td>3,03</td><td>3,03</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,75</td><td>3,92</td><td>4,20</td><td>4,20</td><td>4,20</td><td>4,20</td><td>4,20</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>0,88</td><td>3,92</td><td>4,32</td><td>4,32</td><td>4,32</td><td>4,32</td><td>4,32</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>1,00</td><td>3,92</td><td>4,44</td><td>4,44</td><td>4,44</td><td>4,44</td><td>4,44</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td rowspan="7">u [mm]</td> <td>40</td><td>3,0</td><td>3,0</td><td>3,0</td><td>3,0</td><td>3,0</td><td>3,0</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>50</td><td>4,5</td><td>4,5</td><td>4,5</td><td>4,5</td><td>4,5</td><td>4,5</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>60</td><td>6,0</td><td>6,0</td><td>6,0</td><td>6,0</td><td>6,0</td><td>6,0</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>70</td><td>7,4</td><td>7,4</td><td>7,4</td><td>7,4</td><td>7,4</td><td>7,4</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>80</td><td>8,8</td><td>8,8</td><td>8,8</td><td>8,8</td><td>8,8</td><td>8,8</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>90</td><td>10,1</td><td>10,1</td><td>10,1</td><td>10,1</td><td>10,1</td><td>10,1</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>≥ 100</td><td>11,5</td><td>11,5</td><td>11,5</td><td>11,5</td><td>11,5</td><td>11,5</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> <tr> <td>$N_{R,k,II}$ [kN]</td> <td>3,92</td><td>4,92</td><td>5,91</td><td>6,22</td><td>6,52</td><td>6,52</td><td>—</td><td>—</td><td>—</td><td>—</td> </tr> </tbody> </table> | t_{N1}, t_{N2}, d, D [mm] | t_{II} [mm] | | | | | | | | | | 4,00 | 5,00 | 6,00 | 7,00 | 8,00 | $\geq 10,0$ | — | — | — | — | $V_{R,k}$ [kN] | 0,40 | 0,82 | 0,82 | 0,82 | 0,82 | 0,82 | 0,82 | — | — | — | — | 0,50 | 0,93 | 1,12 | 1,30 | 1,30 | 1,30 | 1,30 | — | — | — | — | 0,55 | 1,12 | 1,28 | 1,44 | 1,44 | 1,44 | 1,44 | — | — | — | — | 0,60 | 1,31 | 1,45 | 1,58 | 1,58 | 1,58 | 1,58 | — | — | — | — | 0,63 | 1,42 | 1,54 | 1,66 | 1,66 | 1,66 | 1,66 | — | — | — | — | 0,75 | 1,88 | 1,94 | 2,00 | 2,00 | 2,00 | 2,00 | — | — | — | — | 0,88 | 2,33 | 2,57 | 2,81 | 2,81 | 2,81 | 2,81 | — | — | — | — | 1,00 | 2,74 | 3,15 | 3,56 | 3,56 | 3,56 | 3,56 | — | — | — | — | $N_{R,k}$ [kN] | 0,40 | 1,65 | 1,65 | 1,65 | 1,65 | 1,65 | 1,65 | — | — | — | — | 0,50 | 1,77 | 1,77 | 1,77 | 1,77 | 1,77 | 1,77 | — | — | — | — | 0,55 | 2,26 | 2,26 | 2,26 | 2,26 | 2,26 | 2,26 | — | — | — | — | 0,60 | 2,74 | 2,74 | 2,74 | 2,74 | 2,74 | 2,74 | — | — | — | — | 0,63 | 3,03 | 3,03 | 3,03 | 3,03 | 3,03 | 3,03 | — | — | — | — | 0,75 | 3,92 | 4,20 | 4,20 | 4,20 | 4,20 | 4,20 | — | — | — | — | 0,88 | 3,92 | 4,32 | 4,32 | 4,32 | 4,32 | 4,32 | — | — | — | — | 1,00 | 3,92 | 4,44 | 4,44 | 4,44 | 4,44 | 4,44 | — | — | — | — | u [mm] | 40 | 3,0 | 3,0 | 3,0 | 3,0 | 3,0 | 3,0 | — | — | — | — | 50 | 4,5 | 4,5 | 4,5 | 4,5 | 4,5 | 4,5 | — | — | — | — | 60 | 6,0 | 6,0 | 6,0 | 6,0 | 6,0 | 6,0 | — | — | — | — | 70 | 7,4 | 7,4 | 7,4 | 7,4 | 7,4 | 7,4 | — | — | — | — | 80 | 8,8 | 8,8 | 8,8 | 8,8 | 8,8 | 8,8 | — | — | — | — | 90 | 10,1 | 10,1 | 10,1 | 10,1 | 10,1 | 10,1 | — | — | — | — | ≥ 100 | 11,5 | 11,5 | 11,5 | 11,5 | 11,5 | 11,5 | — | — | — | — | $N_{R,k,II}$ [kN] | 3,92 | 4,92 | 5,91 | 6,22 | 6,52 | 6,52 | — | — | — | — | <p>No additional regulations.</p> |
| t_{N1}, t_{N2}, d, D [mm] | | t_{II} [mm] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 4,00 | 5,00 | 6,00 | 7,00 | 8,00 | $\geq 10,0$ | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| $V_{R,k}$ [kN] | 0,40 | 0,82 | 0,82 | 0,82 | 0,82 | 0,82 | 0,82 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,50 | 0,93 | 1,12 | 1,30 | 1,30 | 1,30 | 1,30 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,55 | 1,12 | 1,28 | 1,44 | 1,44 | 1,44 | 1,44 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,60 | 1,31 | 1,45 | 1,58 | 1,58 | 1,58 | 1,58 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,63 | 1,42 | 1,54 | 1,66 | 1,66 | 1,66 | 1,66 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,75 | 1,88 | 1,94 | 2,00 | 2,00 | 2,00 | 2,00 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,88 | 2,33 | 2,57 | 2,81 | 2,81 | 2,81 | 2,81 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1,00 | 2,74 | 3,15 | 3,56 | 3,56 | 3,56 | 3,56 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| $N_{R,k}$ [kN] | 0,40 | 1,65 | 1,65 | 1,65 | 1,65 | 1,65 | 1,65 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,50 | 1,77 | 1,77 | 1,77 | 1,77 | 1,77 | 1,77 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,55 | 2,26 | 2,26 | 2,26 | 2,26 | 2,26 | 2,26 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,60 | 2,74 | 2,74 | 2,74 | 2,74 | 2,74 | 2,74 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,63 | 3,03 | 3,03 | 3,03 | 3,03 | 3,03 | 3,03 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,75 | 3,92 | 4,20 | 4,20 | 4,20 | 4,20 | 4,20 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,88 | 3,92 | 4,32 | 4,32 | 4,32 | 4,32 | 4,32 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1,00 | 3,92 | 4,44 | 4,44 | 4,44 | 4,44 | 4,44 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| u [mm] | 40 | 3,0 | 3,0 | 3,0 | 3,0 | 3,0 | 3,0 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 50 | 4,5 | 4,5 | 4,5 | 4,5 | 4,5 | 4,5 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 60 | 6,0 | 6,0 | 6,0 | 6,0 | 6,0 | 6,0 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 70 | 7,4 | 7,4 | 7,4 | 7,4 | 7,4 | 7,4 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 80 | 8,8 | 8,8 | 8,8 | 8,8 | 8,8 | 8,8 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 90 | 10,1 | 10,1 | 10,1 | 10,1 | 10,1 | 10,1 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | ≥ 100 | 11,5 | 11,5 | 11,5 | 11,5 | 11,5 | 11,5 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| $N_{R,k,II}$ [kN] | 3,92 | 4,92 | 5,91 | 6,22 | 6,52 | 6,52 | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p style="text-align: center;">Self drilling screw</p> <hr/> <p style="text-align: center;">Hilti S-CD 75 GS 5,5 x L Hilti S-CD 75 GSS 5,5 x L with hexagon head and sealing washer $\varnothing 22$ mm</p> <div style="float: right; text-align: right;">Annex 25</div> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Annex 15:
ETA-13/0179, Annex 26

| | Material: Fastener: stainless Steel (1.4301, 1.4401, 1.4571) - EN 10088 Washer: stainless Steel (1.4301) - EN 10088 Component I: S280GD, S320GD - EN 10346 Component II: Structural timber - EN 14081 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|-----------|------|------|------|------|------|----------|------|-------|--------------------------|-----------|--|--|--|--|--|--|--|----|----|----|----|----|----|-----|-----|-------|-------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------------------------------|------|---|---|---|---|---|---|---|---|---|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|---------------|---|-----|-----|-----|------|------|------|------|------|--------------------------------|---|------|------|------|------|------|------|------|------|
| | Drilling capacity: $\Sigma t_i \leq 2,00$ mm Timber substructures: performance determined with $M_{y,Rk} = 9,741$ Nm $f_{ax,k} = 10,769$ N/mm ² for $l_{ef} \geq 50,0$ mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th rowspan="2"></th> <th rowspan="2">t_{N1}, t_{N2} [mm]</th> <th colspan="8">d, D [mm]</th> </tr> <tr> <th>30</th> <th>40</th> <th>50</th> <th>60</th> <th>70</th> <th>80</th> <th>100</th> <th>120</th> <th>≥ 140</th> </tr> </thead> <tbody> <tr> <td rowspan="8">V_{R,I,k} [kN]</td> <td>0,40</td> <td>0,62</td> <td>0,62</td> <td>0,62</td> <td>0,62</td> <td>0,62</td> <td>0,62</td> <td>0,62</td> <td>0,62</td> <td>0,62</td> </tr> <tr> <td>0,50</td> <td>0,98</td> <td>0,98</td> <td>0,98</td> <td>0,98</td> <td>0,98</td> <td>0,98</td> <td>0,98</td> <td>0,98</td> <td>0,98</td> </tr> <tr> <td>0,55</td> <td>1,15</td> <td>1,15</td> <td>1,15</td> <td>1,15</td> <td>1,15</td> <td>1,15</td> <td>1,15</td> <td>1,15</td> <td>1,15</td> </tr> <tr> <td>0,60</td> <td>1,37</td> <td>1,37</td> <td>1,37</td> <td>1,37</td> <td>1,37</td> <td>1,37</td> <td>1,37</td> <td>1,37</td> <td>1,37</td> </tr> <tr> <td>0,63</td> <td>1,50</td> <td>1,50</td> <td>1,50</td> <td>1,50</td> <td>1,50</td> <td>1,50</td> <td>1,50</td> <td>1,50</td> <td>1,50</td> </tr> <tr> <td>0,75</td> <td>2,17</td> <td>2,17</td> <td>2,17</td> <td>2,17</td> <td>2,17</td> <td>2,17</td> <td>2,17</td> <td>2,17</td> <td>2,17</td> </tr> <tr> <td>0,88</td> <td>2,17</td> <td>2,17</td> <td>2,17</td> <td>2,17</td> <td>2,17</td> <td>2,17</td> <td>2,17</td> <td>2,17</td> <td>2,17</td> </tr> <tr> <td>1,00</td> <td>2,17</td> <td>2,17</td> <td>2,17</td> <td>2,17</td> <td>2,17</td> <td>2,17</td> <td>2,17</td> <td>2,17</td> <td>2,17</td> </tr> <tr> <td rowspan="8">N_{R,I,k} [kN]</td> <td>0,40</td> <td>—</td> <td>—</td> <td>—</td> <td>—</td> <td>—</td> <td>—</td> <td>—</td> <td>—</td> <td>—</td> </tr> <tr> <td>0,50</td> <td>1,72</td> <td>1,72</td> <td>1,72</td> <td>1,72</td> <td>1,72</td> <td>1,72</td> <td>1,72</td> <td>1,72</td> <td>1,72</td> </tr> <tr> <td>0,55</td> <td>1,96</td> <td>1,96</td> <td>1,96</td> <td>1,96</td> <td>1,96</td> <td>1,96</td> <td>1,96</td> <td>1,96</td> <td>1,96</td> </tr> <tr> <td>0,60</td> <td>2,12</td> <td>2,12</td> <td>2,12</td> <td>2,12</td> <td>2,12</td> <td>2,12</td> <td>2,12</td> <td>2,12</td> <td>2,12</td> </tr> <tr> <td>0,63</td> <td>2,21</td> <td>2,21</td> <td>2,21</td> <td>2,21</td> <td>2,21</td> <td>2,21</td> <td>2,21</td> <td>2,21</td> <td>2,21</td> </tr> <tr> <td>0,75</td> <td>2,73</td> <td>2,73</td> <td>2,73</td> <td>2,73</td> <td>2,73</td> <td>2,73</td> <td>2,73</td> <td>2,73</td> <td>2,73</td> </tr> <tr> <td>0,88</td> <td>3,32</td> <td>3,32</td> <td>3,32</td> <td>3,32</td> <td>3,32</td> <td>3,32</td> <td>3,32</td> <td>3,32</td> <td>3,32</td> </tr> <tr> <td>1,00</td> <td>3,50</td> <td>3,50</td> <td>3,50</td> <td>3,50</td> <td>3,50</td> <td>3,50</td> <td>3,50</td> <td>3,50</td> <td>3,50</td> </tr> <tr> <td>u [mm]</td> <td>—</td> <td>5,0</td> <td>7,0</td> <td>9,0</td> <td>11,0</td> <td>13,0</td> <td>18,0</td> <td>18,0</td> <td>18,0</td> </tr> <tr> <td>N_{R,k,II} [kN]</td> <td>—</td> <td>3,15</td> <td>3,15</td> <td>3,15</td> <td>3,15</td> <td>3,15</td> <td>3,15</td> <td>3,15</td> <td>3,15</td> </tr> </tbody> </table> | | | | | | | | | | | t_{N1}, t_{N2} [mm] | d, D [mm] | | | | | | | | 30 | 40 | 50 | 60 | 70 | 80 | 100 | 120 | ≥ 140 | V_{R,I,k} [kN] | 0,40 | 0,62 | 0,62 | 0,62 | 0,62 | 0,62 | 0,62 | 0,62 | 0,62 | 0,62 | 0,50 | 0,98 | 0,98 | 0,98 | 0,98 | 0,98 | 0,98 | 0,98 | 0,98 | 0,98 | 0,55 | 1,15 | 1,15 | 1,15 | 1,15 | 1,15 | 1,15 | 1,15 | 1,15 | 1,15 | 0,60 | 1,37 | 1,37 | 1,37 | 1,37 | 1,37 | 1,37 | 1,37 | 1,37 | 1,37 | 0,63 | 1,50 | 1,50 | 1,50 | 1,50 | 1,50 | 1,50 | 1,50 | 1,50 | 1,50 | 0,75 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 0,88 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 1,00 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | N_{R,I,k} [kN] | 0,40 | — | — | — | — | — | — | — | — | — | 0,50 | 1,72 | 1,72 | 1,72 | 1,72 | 1,72 | 1,72 | 1,72 | 1,72 | 1,72 | 0,55 | 1,96 | 1,96 | 1,96 | 1,96 | 1,96 | 1,96 | 1,96 | 1,96 | 1,96 | 0,60 | 2,12 | 2,12 | 2,12 | 2,12 | 2,12 | 2,12 | 2,12 | 2,12 | 2,12 | 0,63 | 2,21 | 2,21 | 2,21 | 2,21 | 2,21 | 2,21 | 2,21 | 2,21 | 2,21 | 0,75 | 2,73 | 2,73 | 2,73 | 2,73 | 2,73 | 2,73 | 2,73 | 2,73 | 2,73 | 0,88 | 3,32 | 3,32 | 3,32 | 3,32 | 3,32 | 3,32 | 3,32 | 3,32 | 3,32 | 1,00 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 | u [mm] | — | 5,0 | 7,0 | 9,0 | 11,0 | 13,0 | 18,0 | 18,0 | 18,0 | N_{R,k,II} [kN] | — | 3,15 | 3,15 | 3,15 | 3,15 | 3,15 | 3,15 | 3,15 | 3,15 |
| | t_{N1}, t_{N2} [mm] | d, D [mm] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 30 | 40 | 50 | 60 | 70 | 80 | 100 | 120 | ≥ 140 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| V_{R,I,k} [kN] | 0,40 | 0,62 | 0,62 | 0,62 | 0,62 | 0,62 | 0,62 | 0,62 | 0,62 | 0,62 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,50 | 0,98 | 0,98 | 0,98 | 0,98 | 0,98 | 0,98 | 0,98 | 0,98 | 0,98 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,55 | 1,15 | 1,15 | 1,15 | 1,15 | 1,15 | 1,15 | 1,15 | 1,15 | 1,15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,60 | 1,37 | 1,37 | 1,37 | 1,37 | 1,37 | 1,37 | 1,37 | 1,37 | 1,37 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,63 | 1,50 | 1,50 | 1,50 | 1,50 | 1,50 | 1,50 | 1,50 | 1,50 | 1,50 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,75 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,88 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1,00 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| N_{R,I,k} [kN] | 0,40 | — | — | — | — | — | — | — | — | — | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,50 | 1,72 | 1,72 | 1,72 | 1,72 | 1,72 | 1,72 | 1,72 | 1,72 | 1,72 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,55 | 1,96 | 1,96 | 1,96 | 1,96 | 1,96 | 1,96 | 1,96 | 1,96 | 1,96 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,60 | 2,12 | 2,12 | 2,12 | 2,12 | 2,12 | 2,12 | 2,12 | 2,12 | 2,12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,63 | 2,21 | 2,21 | 2,21 | 2,21 | 2,21 | 2,21 | 2,21 | 2,21 | 2,21 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,75 | 2,73 | 2,73 | 2,73 | 2,73 | 2,73 | 2,73 | 2,73 | 2,73 | 2,73 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0,88 | 3,32 | 3,32 | 3,32 | 3,32 | 3,32 | 3,32 | 3,32 | 3,32 | 3,32 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1,00 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| u [mm] | — | 5,0 | 7,0 | 9,0 | 11,0 | 13,0 | 18,0 | 18,0 | 18,0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| N_{R,k,II} [kN] | — | 3,15 | 3,15 | 3,15 | 3,15 | 3,15 | 3,15 | 3,15 | 3,15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| If component t_{N1} resp. t_{N2} is made of S320GD the grey highlighted values may be increased by 8,3%. The values listed above in dependence on the screw-in length l_{ef} and the values $N_{R,k,II}$ are valid for $k_{mod} = 0,90$ and timber strength grade C24 ($\rho_a = 350$ kg/m ³). For other combinations of k_{mod} and timber strength grades see Annex 3. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Self drilling screw | | | | | | | | Annex 26 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hilti S-CDW 51 S 6,5 x L Hilti S-CDW 51 SS 6,5 x L with hexagon head and sealing washer Ø16 mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Annex 16:
ETA-13/0179, Annex 27

Material:
 Fastener: stainless Steel (1.4301, 1.4401, 1.4571) - EN 10088
 Washer: stainless Steel (1.4301) - EN 10088
 Component I: S280GD, S320GD - EN 10346
 Component II: Structural timber - EN 14081

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

Timber substructures:
 performance determined with

$M_{y,Rk} = 9,741$ Nm
 $f_{ax,k} = 10,769$ N/mm² for $l_{ef} \geq 50,0$ mm

| t_{N1}, t_{N2} [mm] | d, D [mm] | | | | | | | | | |
|--------------------------|-----------|------|------|------|------|------|------|------|------------|------|
| | 30 | 40 | 50 | 60 | 70 | 80 | 100 | 120 | ≥ 140 | |
| $V_{R,I,k}$ [kN] | 0,40 | 0,62 | 0,62 | 0,62 | 0,62 | 0,62 | 0,62 | 0,62 | 0,62 | 0,62 |
| | 0,50 | 0,98 | 0,98 | 0,98 | 0,98 | 0,98 | 0,98 | 0,98 | 0,98 | 0,98 |
| | 0,55 | 1,15 | 1,15 | 1,15 | 1,15 | 1,15 | 1,15 | 1,15 | 1,15 | 1,15 |
| | 0,60 | 1,37 | 1,37 | 1,37 | 1,37 | 1,37 | 1,37 | 1,37 | 1,37 | 1,37 |
| | 0,63 | 1,50 | 1,50 | 1,50 | 1,50 | 1,50 | 1,50 | 1,50 | 1,50 | 1,50 |
| | 0,75 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 |
| | 0,88 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 |
| | 1,00 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 |
| $N_{R,I,k}$ [kN] | 0,40 | — | — | — | — | — | — | — | — | — |
| | 0,50 | 2,60 | 2,60 | 2,60 | 2,60 | 2,60 | 2,60 | 2,60 | 2,60 | 2,60 |
| | 0,55 | 3,10 | 3,10 | 3,10 | 3,10 | 3,10 | 3,10 | 3,10 | 3,10 | 3,10 |
| | 0,60 | 3,35 | 3,35 | 3,35 | 3,35 | 3,35 | 3,35 | 3,35 | 3,35 | 3,35 |
| | 0,63 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 |
| | 0,75 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 |
| | 0,88 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 |
| | 1,00 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 | 3,50 |
| u [mm] | — | 5,0 | 7,0 | 9,0 | 11,0 | 13,0 | 18,0 | 18,0 | 18,0 | |
| $N_{R,k,II}$ [kN] | 3,15 | 3,15 | 3,15 | 3,15 | 3,15 | 3,15 | 3,15 | 3,15 | 3,15 | |

If component t_{N1} resp. t_{N2} is made of S320GD the grey highlighted values may be increased by 8,3%.
 The values listed above in dependence on the screw-in length l_{ef} and the values $N_{R,k,II}$ are valid for $k_{mod} = 0,90$ and timber strength grade C24 ($\rho_a = 350$ kg/m³). For other combinations of k_{mod} and timber strength grades see Annex 3.

| | |
|---|----------|
| Self drilling screw | Annex 27 |
| Hilti S-CDW 61 S 6,5 x L Hilti S-CDW 61 SS 6,5 x L Hilti S-CDW 71 S 6,5 x L Hilti S-CDW 71 SS 6,5 x L with hexagon head and sealing washer $\geq \varnothing 19$ mm | |