**Datasheet**

TUS
**Beugel met inkepingen type TU**

*Deze beugels met insteekblad maken een volledig onzichtbare verbinding mogelijk. De montage ter plaatse wordt vereenvoudigd door de inkeping in de kop. De in de fabriek geplooide modellen TUS zijn geschikt voor hoekverbindingen.*



# Kenmerken

## Materiaal

- Staal S250GD + Z275 overeenkomstig NF EN 10346.
- Dikte 3 mm.
- Brandwerendheid van 30 minuten mits bijzondere plaatsingsvoorschriften nageleefd worden.

## Voordelen

- Invisible assembly
- Optimized implementation complies with Eurocodes
- Half-hour fire resistance subject to a special installation.

# Toepassingen

## Ondergrond

- **Drager :** massief hout, gelijmd gelamineerd hout, composiethout.
- **Gedragen bouwdeel :** massief hout, gelijmd gelamineerd hout, composiethout.

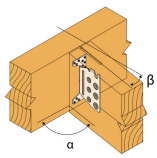
## Toepassingsgebieden

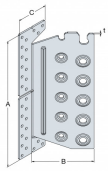
- Dwarsbalken.
- Gordingen.
- Draagbalken.

**Datasheet**

TUS
**Beugel met inkepingen type TU**

# Technische gegevens



## Afmetingen en karakteristieke waarden

| Referentie | Afmetingen gedragen bouwdeel [mm] | | | | | | Afmetingen drager [mm] | Afmetingen en karakteristieke waarden [mm] | | | | | | Drager Boorgaten | Gedragen boorgaten | | Box Quantity | Gewicht [kg] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Breedte | | | Hoogte | | | Lengte van de pennen [mm] | B | C | C | t | α [°] | | Ø5 | Ø8,5 | Ø12,5 | | |
| | Min. | Min | Max. | Min β=0 | Min β≠0 | Max. | Min. | | | | | Min. | Max. | | | | | |
| TU/S12 | 40 | 60 | 120 | 120 | 160 | 200 | 68 | 96 | 97.5 | 40 | 3 | 30 | 89 | 6 | 4 | - | - | 0.4 |
| TU/S16 | 60 | 60 | 160 | 160 | 190 | 240 | 88 | 134 | 104.5 | 60 | 3 | 30 | 89 | 18 | - | 3 | - | 0.45 |
| TU/S20 | 60 | 60 | 160 | 200 | 225 | 280 | 88 | 174 | 104.5 | 60 | 3 | 30 | 89 | 22 | - | 4 | - | 0.5 |
| TU/S24 | 60 | 60 | 160 | 240 | 260 | 300 | 88 | 214 | 104.5 | 60 | 3 | 30 | 89 | 26 | - | 5 | - | 0.64 |
| TU/S28 | 60 | 60 | 160 | 280 | 295 | 340 | 88 | 254 | 104.5 | 60 | 3 | 30 | 89 | 30 | - | 6 | - | 0.77 |

## Model en vouwbereik

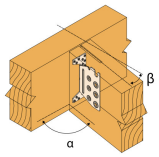
| Referentie | Links model | Rechts model | Afmetingen en karakteristieke waarden [mm] | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | B | C | C | t | α [°] | |
| | | | | | | | Min. | Max. |
| TU/SL12 | X | - | 96 | 97.5 | 40 | 3 | 30 | 89 |
| TU/SL16 | X | - | 134 | 104.5 | 60 | 3 | 30 | 89 |
| TU/SL20 | X | - | 174 | 104.5 | 60 | 3 | 30 | 89 |
| TU/SL24 | X | - | 214 | 104.5 | 60 | 3 | 30 | 89 |
| TU/SL28 | X | - | 254 | 104.5 | 60 | 3 | 30 | 89 |
| TU/SR12 | - | X | 96 | 97.5 | 40 | 3 | 30 | 89 |
| TU/SR16 | - | X | 134 | 104.5 | 60 | 3 | 30 | 89 |
| TU/SR20 | - | X | 174 | 104.5 | 60 | 3 | 30 | 89 |
| TU/SR24 | - | X | 214 | 104.5 | 60 | 3 | 30 | 89 |
| TU/SR28 | - | X | 254 | 104.5 | 60 | 3 | 30 | 89 |

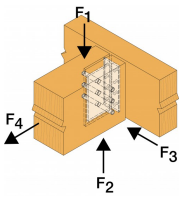
L = model naar links gevouwen
R = model naar rechts gevouwen

# Datasheet

TUS
**Beugel met inkepingen type TU**

## Karakteristieke waarden - Dwarsbalk op balk - volledige vernageling - met helling en hoek α=30°

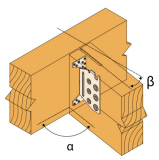


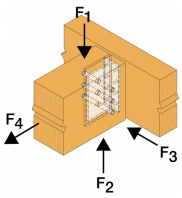




| Referentie | Karakteristieke waarden - Dwarsbalk op balk - volledige vernageling - met helling en hoek α=30° | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Bevestigingen | | | | Karakteristieke waarden - Hout C24 [kN] | | | | | | | | | | | | | | | | | |
| | Drager | | Spanwijdte | | $R_{1,k}$ - Helling β=0° | | | | | | $R_{1,k}$ - Helling β=15° | | | | | | $R_{1,k}$ - Helling β=30° | | | | | |
| | Aantal | Typ | Aantal | Typ | Lengte van de pennen [mm] [mm] | | | | | | Lengte van de pennen [mm] [mm] | | | | | | Lengte van de pennen [mm] [mm] | | | | | |
| | | | | | 60 | 80 | 100 | 120 | 140 | 160 | 60 | 80 | 100 | 120 | 140 | 160 | 60 | 80 | 100 | 120 | 140 | 1 |
| TU/S12 | 6 | CNA4,0x50 | 4 | STD8 | 7.4 | 8.1 | 9 | 9.5 | 9.5 | 9.5 | 7.1 | 7.8 | 8.6 | 9.3 | 9.3 | 9.3 | 6.8 | 7.4 | 8.2 | 8.9 | 9 | |
| TU/S16 | 18 | CNA4,0x50 | 3 | STD12 | 16.4 | 16.9 | 17.8 | 18.8 | 20 | 21.3 | 15.9 | 16.3 | 17 | 18 | 19 | 20.2 | 15.5 | 15.8 | 16.4 | 17.2 | 18.1 | 1 |
| TU/S20 | 22 | CNA4,0x50 | 4 | STD12 | 24.9 | 25.6 | 26.9 | 28.6 | 30.3 | 32.2 | 24.2 | 24.7 | 25.8 | 27.2 | 28.8 | 30.5 | 23.6 | 24 | 24.9 | 26.1 | 27.5 | 2 |
| TU/S24 | 26 | CNA4,0x50 | 5 | STD12 | 34.2 | 35.1 | 36.9 | 39.1 | 41.5 | 43.9 | 33.2 | 33.9 | 35.3 | 37.2 | 39.4 | 41.6 | 32.3 | 32.9 | 34.1 | 35.8 | 37.6 | 3 |
| TU/S28 | 30 | CNA4,0x50 | 6 | STD12 | 43.9 | 45.1 | 47.3 | 50.1 | 53 | 56 | 42.7 | 43.5 | 45.4 | 47.7 | 50.4 | 53.2 | 41.5 | 42.4 | 44 | 46 | 48.3 | 5 |

$R_{2,k}$ capacities can be calculated as $R_{2,k} = R_{1,k}$ x (nb of dowels - 1) / (nb of dowels).
The top dowel is not considered for the uplift capacities as it is placed in an open hole.

## Karakteristieke waarden - Dwarsbalk op balk - volledige vernageling - met helling en hoek α=45°



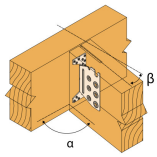

| Referentie | Karakteristieke waarden - Dwarsbalk op balk - volledige vernageling - met helling en hoek α=45° | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Bevestigingen | | | | Karakteristieke waarden - Hout C24 [kN] | | | | | | | | | | | | | | | | | |
| | Drager | | Spanwijdte | | $R_{1,k}$ - Helling β=0° | | | | | | $R_{1,k}$ - Helling β=15° | | | | | | $R_{1,k}$ - Helling β=30° | | | | | |
| | Aantal | Typ | Aantal | Typ | Lengte van de pennen [mm] [mm] | | | | | | Lengte van de pennen [mm] [mm] | | | | | | Lengte van de pennen [mm] [mm] | | | | | |
| | | | | | 60 | 80 | 100 | 120 | 140 | 160 | 60 | 80 | 100 | 120 | 140 | 160 | 60 | 80 | 100 | 120 | 140 | 1 |
| TU/S12 | 6 | CNA4,0x50 | 4 | STD8 | 7.4 | 8.2 | 8.9 | 9.5 | 9.5 | 9.5 | 7.1 | 7.8 | 8.6 | 9.3 | 9.3 | 9.3 | 6.8 | 7.4 | 8.2 | 9 | 9 | |
| TU/S16 | 18 | CNA4,0x50 | 3 | STD12 | 16.3 | 16.9 | 17.9 | 18.9 | 20.2 | 21.4 | 15.9 | 16.3 | 17 | 18 | 19.1 | 20.2 | 15.4 | 15.7 | 16.3 | 17.2 | 18.1 | 1 |
| TU/S20 | 22 | CNA4,0x50 | 4 | STD12 | 24.9 | 25.6 | 27.2 | 28.7 | 30.5 | 32.3 | 24.1 | 24.7 | 25.8 | 27.3 | 28.9 | 30.6 | 23.5 | 23.9 | 24.9 | 26.1 | 27.5 | 2 |
| TU/S24 | 26 | CNA4,0x50 | 5 | STD12 | 34.2 | 35.2 | 37.2 | 39.2 | 41.7 | 44.1 | 33.2 | 33.9 | 35.4 | 37.4 | 39.5 | 41.8 | 32.3 | 32.9 | 34.2 | 35.9 | 37.8 | 3 |
| TU/S28 | 30 | CNA4,0x50 | 6 | STD12 | 44 | 45.2 | 47.8 | 50.3 | 53.2 | 56.1 | 42.7 | 43.6 | 45.5 | 47.9 | 50.6 | 53.4 | 41.5 | 42.5 | 44.1 | 46.2 | 48.5 | 5 |

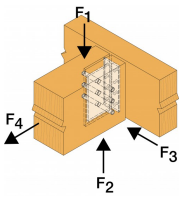
$R_{2,k}$ capacities can be calculated as $R_{2,k} = R_{1,k}$ x (nb of dowels - 1) / (nb of dowels).
The top dowel is not considered for the uplift capacities as it is placed in an open hole.

# Datasheet

TUS
**Beugel met inkepingen type TU**

## Karakteristieke waarden - Dwarsbalk op balk - volledige vernageling - met helling en hoek α=60°

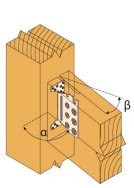


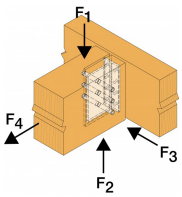




| Referentie | Karakteristieke waarden - Dwarsbalk op balk - volledige vernageling - met helling en hoek α=6 | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Bevestigingen | | | | | Karakteristieke waarden - Hout C24 [kN] | | | | | | | | | | | | | | | |
| | Drager | | | Spanwijdte | | $R_{1,k}$ - Helling β=0° | | | | | | $R_{1,k}$ - Helling β=15° | | | | | | $R_{1,k}$ - Helling | | | |
| | Aantal | Typ | Typ | Aantal | Typ | Lengte van de pennen [mm] [mm] | | | | | | Lengte van de pennen [mm] [mm] | | | | | | Lengte van de penn | | | |
| | | | | | | 60 | 80 | 100 | 120 | 140 | 160 | 60 | 80 | 100 | 120 | 140 | 160 | 60 | 80 | 100 | 1 |
| TU/S12 | 6 | CNA4,0x50 | CSA5,0x40 | 4 | STD8 | 7.4 | 8.2 | 9.1 | 9.6 | 9.6 | 9.6 | 7.2 | 7.9 | 8.7 | 9.3 | 9.3 | 9.3 | 6.9 | 7.5 | 8.2 | |
| TU/S16 | 18 | CNA4,0x50 | CSA5,0x40 | 3 | STD12 | 16.4 | 16.9 | 17.8 | 19 | 20.2 | 21.5 | 15.9 | 16.3 | 17.1 | 18.1 | 19.2 | 20.4 | 15.4 | 15.7 | 16.4 | 1 |
| TU/S20 | 22 | CNA4,0x50 | CSA5,0x40 | 4 | STD12 | 25 | 25.8 | 27.2 | 28.9 | 30.7 | 32.6 | 24.2 | 24.8 | 25.9 | 27.4 | 29.1 | 30.9 | 23.6 | 24 | 25 | 2 |
| TU/S24 | 26 | CNA4,0x50 | CSA5,0x40 | 5 | STD12 | 34.4 | 35.4 | 37.3 | 39.5 | 42 | 44.4 | 33.3 | 34.1 | 35.6 | 37.6 | 39.8 | 42.1 | 32.4 | 33.1 | 34.4 | 3 |
| TU/S28 | 30 | CNA4,0x50 | CSA5,0x40 | 6 | STD12 | 44.3 | 45.5 | 47.8 | 50.6 | 53.6 | 56.4 | 43 | 43.8 | 45.8 | 48.2 | 51 | 53.7 | 41.7 | 42.7 | 44.3 | 4 |

$R_{2,k}$ capacities can be calculated as $R_{2,k} = R_{1,k}$ x (nb of dowels - 1) / (nb of dowels).
The top dowel is not considered for the uplift capacities as it is placed in an open hole.

## Karakteristieke waarden - Dwarsbalk op kolom - volledige vernageling - met helling en hoek α=30°



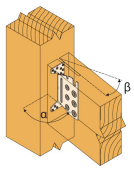

| Referentie | Karakteristieke waarden - Dwarsbalk op kolom - volledige vernageling - met helling en hoek α=30° | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Bevestigingen | | | | Karakteristieke waarden - Hout C24 [kN] | | | | | | | | | | | | | | | | |
| | Drager | | Spanwijdte | | $R_{1,k}$ - Helling β=0° | | | | | | $R_{1,k}$ - Helling β=15° | | | | | | $R_{1,k}$ - Helling β=30° | | | | |
| | Aantal | Typ | Aantal | Typ | Lengte van de pennen [mm] [mm] | | | | | | Lengte van de pennen [mm] [mm] | | | | | | Lengte van de pennen [mm] [mm] | | | | |
| | | | | | 60 | 80 | 100 | 120 | 140 | 160 | 60 | 80 | 100 | 120 | 140 | 160 | 60 | 80 | 100 | 120 | 140 | 1 |
| TU/S12 | 5 | CNA4,0x50 | 4 | STD8 | 7.4 | 8.1 | 9 | 9.5 | 9.5 | 9.5 | 7.1 | 7.8 | 8.6 | 9.3 | 9.3 | 9.3 | 6.8 | 7.4 | 8.2 | 8.9 | 9 | |
| TU/S16 | 13 | CNA4,0x50 | 3 | STD12 | 15 | 15.5 | 16.3 | 17.3 | 18.5 | 19.6 | 14.5 | 14.9 | 15.6 | 16.5 | 17.6 | 18.6 | 14.1 | 14.4 | 15 | 15.8 | 16.7 | 1 |
| TU/S20 | 14 | CNA4,0x50 | 4 | STD12 | 21.2 | 21.9 | 23 | 24.4 | 25.8 | 26.1 | 20.6 | 21.1 | 22.1 | 23.3 | 24.6 | 26 | 20.1 | 20.4 | 21.3 | 22.3 | 23.5 | 2 |
| TU/S24 | 17 | CNA4,0x50 | 5 | STD12 | 29.4 | 30.3 | 31.9 | 33.6 | 34.4 | 34.4 | 28.6 | 29.2 | 30.6 | 32.2 | 33.9 | 34.4 | 27.8 | 28.3 | 29.4 | 30.8 | 32.4 | |
| TU/S28 | 18 | CNA4,0x50 | 6 | STD12 | 35.2 | 36.1 | 36.1 | 36.1 | 36.1 | 36.1 | 34.3 | 35 | 36.1 | 36.1 | 36.1 | 36.1 | 33.5 | 34 | 35.2 | 36.1 | 36.1 | 3 |

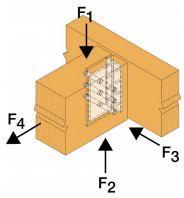
$R_{2,k}$ capacities can be calculated as $R_{2,k} = R_{1,k}$ x (nb of dowels - 1) / (nb of dowels).
The top dowel is not considered for the uplift capacities as it is placed in an open hole.

# Datasheet

TUS
**Beugel met inkepingen type TU**

## Karakteristieke waarden - Dwarsbalk op kolom - volledige vernageling - met helling en hoek α=45°

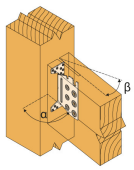


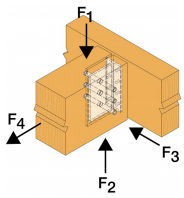




| Referentie | Karakteristieke waarden - Dwarsbalk op kolom - volledige vernageling - met helling en hoek α=45° | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Bevestigingen | | | | Karakteristieke waarden - Hout C24 [kN] | | | | | | | | | | | | | | | | | |
| | Drager | | Spanwijdte | | $R_{1,k}$ - Helling β=0° | | | | | | $R_{1,k}$ - Helling β=15° | | | | | | $R_{1,k}$ - Helling β=30° | | | | | |
| | Aantal | Typ | Aantal | Typ | Lengte van de pennen [mm] [mm] | | | | | | Lengte van de pennen [mm] [mm] | | | | | | Lengte van de pennen [mm] [mm] | | | | | |
| | | | | | 60 | 80 | 100 | 120 | 140 | 160 | 60 | 80 | 100 | 120 | 140 | 160 | 60 | 80 | 100 | 120 | 140 | 1 |
| TU/S12 | 5 | CNA4,0x50 | 4 | STD8 | 7.4 | 8.2 | 9 | 9.5 | 9.5 | 9.5 | 7.1 | 7.8 | 8.6 | 9.3 | 9.3 | 9.3 | 6.8 | 7.4 | 8.2 | 9 | 9 | |
| TU/S16 | 13 | CNA4,0x50 | 3 | STD12 | 15 | 15.5 | 16.3 | 17.4 | 18.5 | 19.7 | 14.5 | 14.9 | 15.6 | 16.6 | 17.6 | 18.7 | 14.1 | 14.4 | 15 | 15.8 | 16.7 | 1 |
| TU/S20 | 14 | CNA4,0x50 | 4 | STD12 | 21.3 | 22 | 23.1 | 24.5 | 25.8 | 26.1 | 20.6 | 21.2 | 22.2 | 23.4 | 24.7 | 26 | 20.1 | 20.4 | 21.3 | 22.4 | 23.6 | 2 |
| TU/S24 | 17 | CNA4,0x50 | 5 | STD12 | 29.5 | 30.4 | 32 | 33.7 | 34.4 | 34.4 | 28.7 | 29.3 | 30.7 | 32.3 | 34 | 34.4 | 27.9 | 28.4 | 29.5 | 31 | 32.5 | 3 |
| TU/S28 | 18 | CNA4,0x50 | 6 | STD12 | 35.3 | 36.1 | 36.1 | 36.1 | 36.1 | 36.1 | 34.4 | 35.1 | 36.1 | 36.1 | 36.1 | 36.1 | 33.6 | 34.1 | 35.2 | 36.1 | 36.1 | 3 |

$R_{2,k}$ capacities can be calculated as $R_{2,k} = R_{1,k}$ x (nb of dowels - 1) / (nb of dowels).
The top dowel is not considered for the uplift capacities as it is placed in an open hole.

## Karakteristieke waarden - Dwarsbalk op kolom - volledige vernageling - met helling en hoek α=60°



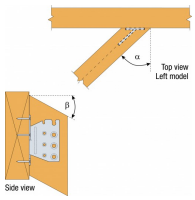




| Referentie | Karakteristieke waarden - Dwarsbalk op kolom - volledige vernageling - met helling en hoek α=60° | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Bevestigingen | | | | Karakteristieke waarden - Hout C24 [kN] | | | | | | | | | | | | | | | | | |
| | Drager | | Spanwijdte | | $R_{1,k}$ - Helling β=0° | | | | | | $R_{1,k}$ - Helling β=15° | | | | | | $R_{1,k}$ - Helling β=30° | | | | | |
| | Aantal | Typ | Aantal | Typ | Lengte van de pennen [mm] [mm] | | | | | | Lengte van de pennen [mm] [mm] | | | | | | Lengte van de pennen [mm] [mm] | | | | | |
| | | | | | 60 | 80 | 100 | 120 | 140 | 160 | 60 | 80 | 100 | 120 | 140 | 160 | 60 | 80 | 100 | 120 | 140 | 1 |
| TU/S12 | 5 | CNA4,0x50 | 4 | STD8 | 7.4 | 8.2 | 9.1 | 9.6 | 9.6 | 9.6 | 7.2 | 7.9 | 8.7 | 9.3 | 9.3 | 9.3 | 6.9 | 7.5 | 8.2 | 9 | 9 | |
| TU/S16 | 13 | CNA4,0x50 | 3 | STD12 | 15 | 15.5 | 16.4 | 17.5 | 18.7 | 19.9 | 14.5 | 14.9 | 15.7 | 16.7 | 17.7 | 18.9 | 14.1 | 14.4 | 15 | 15.8 | 16.8 | 1 |
| TU/S20 | 14 | CNA4,0x50 | 4 | STD12 | 21.4 | 22.1 | 23.3 | 24.6 | 25.8 | 26.1 | 20.7 | 21.3 | 22.3 | 23.5 | 24.8 | 26 | 20.1 | 20.5 | 21.4 | 22.5 | 23.7 | 2 |
| TU/S24 | 17 | CNA4,0x50 | 5 | STD12 | 29.7 | 30.6 | 32.2 | 33.8 | 34.4 | 34.4 | 28.8 | 29.5 | 30.9 | 32.5 | 34 | 34.4 | 28.1 | 28.6 | 29.7 | 31.2 | 32.7 | 3 |
| TU/S28 | 18 | CNA4,0x50 | 6 | STD12 | 35.4 | 36.1 | 36.1 | 36.1 | 36.1 | 36.1 | 34.6 | 35.2 | 36.1 | 36.1 | 36.1 | 36.1 | 33.8 | 34.3 | 35.4 | 36.1 | 36.1 | 3 |

$R_{2,k}$ capacities can be calculated as $R_{2,k} = R_{1,k}$ x (nb of dowels - 1) / (nb of dowels).
The top dowel is not considered for the uplift capacities as it is placed in an open hole.

# Datasheet

TUS
**Beugel met inkepingen type TU**




*To view Left model*

## Product characteristic capacities - Safe working loads - skewed connection

| Referentie | Toelaatbare waarden - hoekverbinding | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Bevestigingen | | | | Installatie : hoek = 0° to 60°, helling = 0° | | | | Installatie : hoek = 0° to 60°, helling = 45° | | | |
| | Drager | | Spanwijdte | | $R_{1.SWL}$ [kN] | | | | $R_{1.SWL}$ [kN] | | | |
| | Aantal | Typ | Aantal | Typ | Lengte van de pennen [mm] [mm] | | | | Lengte van de pennen [mm] [mm] | | | |
| | | | | | 60 | 80 | 100 | 120 | 60 | 80 | 100 | 120 |
| TU/S12 | 6 | CSA5,0x40 | 4 | STD8 | 2.5 | 2.5 | 2.5 | - | 2.3 | 2.5 | 2.5 | - |
| TU/S16 | 18 | CSA5,0x40 | 3 | STD12 | 3.4 | 4.8 | 6.1 | 6.1 | 3 | 4.1 | 5.3 | 5.3 |
| TU/S20 | 22 | CSA5,0x40 | 4 | STD12 | 5.5 | 7.7 | 9.8 | 9.8 | 4.8 | 6.7 | 8.5 | 8.5 |
| TU/S24 | 26 | CSA5,0x40 | 5 | STD12 | 8 | 11.1 | 13.3 | 13.3 | 6.9 | 9.6 | 12.3 | 12.3 |
| TU/S28 | 30 | CSA5,0x40 | 6 | STD12 | 10.7 | 14.9 | 16.3 | 16.3 | 9.3 | 12.9 | 16.3 | 16.3 |

The skew may be precise when ordering the products

TUS
**Beugel met inkepingen type TU**

# Plaatsing

## Bevestigingen

**<u>Op houten drager :</u> TUS**

- Ringnagels CNA Ø 4,0 x 50 mm of schroeven CSA Ø 5,0 x 40 mm.

**<u>Op gedragen bouwdeel :</u> Stalen pen S235JR type STD12**

- TUS12: Ø 8 mm type STD 8.
- TUS16 tot 28: Ø 12 mm type STD 12.

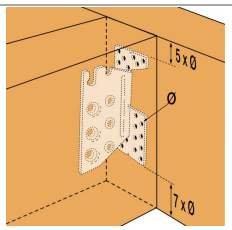
**De penlengte is kleiner dan of gelijk aan de breedte van de gedragen dwarsbalk.**
***TUS*** **: alleen bevestiging hout op hout met nagels/schroeven.**

## Montage

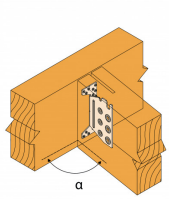
**1. Maak een verticale inkeping in de gedragen balk (6 mm breed voor de TUS12 en 9 mm breed voor de TUS16 tot TUS28).**
**2. Identificeer de positie van de pennen op de gedragen balk.**
**3. Boor dwars door de gedragen balk om de pennen erin te steken (boordiameter afhankelijk van de diameter van de pen).**
**4. Steek de 1ste bovenste pen in de gedragen balk.**
**5. Maak een vlakke inkeping van 6 mm diep in de ondergrond. Deze vlakke inkeping is niet verplicht maar verbetert de esthetiek van de verbinding.**
**6. Bevestig de beugel aan de ondergrond met behulp van nagels of schroeven.**
**7. Presenteer de gedragen balk zodanig dat de pen reeds in de inkeping van de beugel zit.**
**8. Breng de overige pennen aan.**

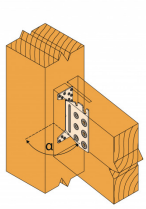
# Datasheet

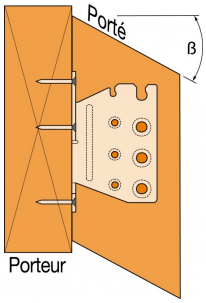
TUS
## Beugel met inkepingen type TU



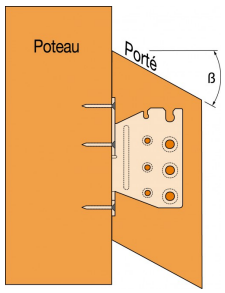

*Rechte verbinding op balk*



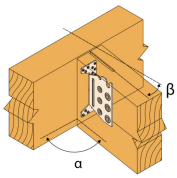



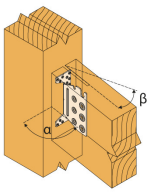



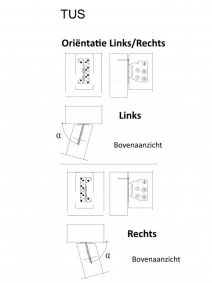

*Schuine verbinding op balk*




*Schuine verbinding op kolom*

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