

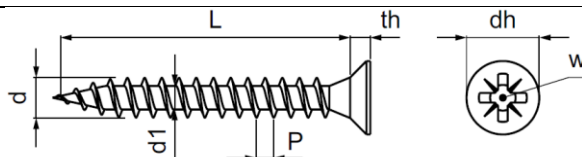
SCHEDA TECNICA - TECHNICAL SHEET

VBU Vite TPS truciolare
Countersunk head chipboard screw

Rev: 08
Pag. 1/9

GEOMETRIA PRODOTTO - PRODUCT GEOMETRY

VBU cod. 07101b / 07101d / 07101i
Vite TPS truciolare – interamente filettata
Countersunk head chipboard screw – fully threaded



| Vite Screw d x L | P [mm] | d1 | w | dh [mm] | th [mm] | Cod. Zincato bianco White zinc plated | Cod. Zincato giallo Yellow passivated | Cod. Bronzato Bronzed |
|------------------|-------------|-------------|-------------|---------|---------|--|--|--------------------------|
| 2,5x10 | 1,2 | 1,5 | PZ1 | 5 | 1,7 | 07101b25010 | 07101d25010 | 07101i25010 |
| 2,5x12 | | | | | | 07101b25012 | 07101d25012 | 07101i25012 |
| 2,5x16 | | | | | | 07101b25016 | 07101d25016 | 07101i25016 |
| 2,5x20 | | | | | | 07101b25020 | 07101d25020 | 07101i25020 |
| 2,5x25 | | | | | | 07101b25025 | 07101d25025 | 07101i25025 |
| 3x10 | 1,2 | 1,9 | PZ1 | 5,8 | 2,0 | 07101b30010 | 07101d30010 | 07101i30010 |
| 3x12 | | | | | | 07101b30012 | 07101d30012 | 07101i30012 |
| 3x16 | | | | | | 07101b30016 | 07101d30016 | 07101i30016 |
| 3x18 | | | | | | 07101b30018 | 07101d30018 | 07101i30018 |
| 3x20 | | | | | | 07101b30020 | 07101d30020 | 07101i30020 |
| 3x25 | | | | | | 07101b30025 | 07101d30025 | 07101i30025 |
| 3x30 | | | | | | 07101b30030 | 07101d30030 | 07101i30030 |
| 3x35 | | | | | | 07101b30035 | 07101d30035 | 07101i30035 |
| 3x40 | | | | | | 07101b30040 | 07101d30040 | 07101i30040 |
| 3x45 | | | | | | 07101b30045 | 07101d30045 | 07101i30045 |
| 3,5x12 | 1,5 | 2,2 | PZ2 | 6,7 | 2,5 | 07101b35012 | 07101d35012 | 07101i35012 |
| 3,5x16 | | | | | | 07101b35016 | 07101d35016 | 07101i35016 |
| 3,5x18 | | | | | | 07101b35018 | 07101d35018 | 07101i35018 |
| 3,5x20 | | | | | | 07101b35020 | 07101d35020 | 07101i35020 |
| 3,5x25 | | | | | | 07101b35025 | 07101d35025 | 07101i35025 |
| 3,5x30 | | | | | | 07101b35030 | 07101d35030 | 07101i35030 |
| 3,5x35 | | | | | | 07101b35035 | 07101d35035 | 07101i35035 |
| 3,5x40 | | | | | | 07101b35040 | 07101d35040 | 07101i35040 |
| 3,5x45 | | | | | | 07101b35045 | 07101d35045 | 07101i35045 |
| 3,5x50 | | | | | | 07101b35050 | 07101d35050 | 07101i35050 |
| 4x16 | 1,8 | 2,5 | PZ2 | 7,7 | 2,9 | 07101b40016 | 07101d40016 | 07101i40016 |
| 4x18 | | | | | | 07101b40018 | 07101d40018 | 07101i40018 |
| 4x20 | | | | | | 07101b40020 | 07101d40020 | 07101i40020 |
| 4x25 | | | | | | 07101b40025 | 07101d40025 | 07101i40025 |
| 4x30 | | | | | | 07101b40030 | 07101d40030 | 07101i40030 |
| 4x35 | | | | | | 07101b40035 | 07101d40035 | 07101i40035 |
| 4x40 | | | | | | 07101b40040 | 07101d40040 | 07101i40040 |
| 4x45 | | | | | | 07101b40045 | 07101d40045 | 07101i40045 |
| 4x50 | | | | | | 07101b40050 | 07101d40050 | 07101i40050 |
| 4x60 | | | | | | 07101b40060 | 07101d40060 | 07101i40060 |
| 4x70 | 07101b40070 | 07101d40070 | 07101i40070 | | | | | |
| 4,5x20 | 2,0 | 2,7 | PZ2 | 8,6 | 3,4 | 07101b45020 | 07101d45020 | 07101i45020 |
| 4,5x25 | | | | | | 07101b45025 | 07101d45025 | 07101i45025 |
| 4,5x30 | | | | | | 07101b45030 | 07101d45030 | 07101i45030 |
| 4,5x35 | | | | | | 07101b45035 | 07101d45035 | 07101i45035 |
| 4,5x40 | | | | | | 07101b45040 | 07101d45040 | 07101i45040 |
| 4,5x45 | | | | | | 07101b45045 | 07101d45045 | 07101i45045 |
| 4,5x50 | | | | | | 07101b45050 | 07101d45050 | 07101i45050 |
| 4,5x60 | | | | | | 07101b45060 | 07101d45060 | 07101i45060 |
| 4,5x70 | | | | | | 07101b45070 | 07101d45070 | 07101i45070 |
| 5x20 | | | | | | 2,2 | 3 | PZ2 |
| 5x25 | 07101b50025 | 07101d50025 | 07101i50025 | | | | | |
| 5x30 | 07101b50030 | 07101d50030 | 07101i50030 | | | | | |
| 5x35 | 07101b50035 | 07101d50035 | 07101i50035 | | | | | |
| 5x40 | 07101b50040 | 07101d50040 | 07101i50040 | | | | | |
| 5x45 | 07101b50045 | 07101d50045 | 07101i50045 | | | | | |
| 5x50 | 07101b50050 | 07101d50050 | 07101i50050 | | | | | |
| 5x60 | 07101b50060 | 07101d50060 | 07101i50060 | | | | | |
| 5x70 | 07101b50070 | 07101d50070 | 07101i50070 | | | | | |
| 6x30 | 3,1 | 3,7 | PZ3 | 11,4 | 3,8 | | | |
| 6x40 | | | | | | 07101b60040 | 07101d60040 | 07101i60040 |
| 6x50 | | | | | | 07101b60050 | 07101d60050 | 07101i60050 |
| 6x60 | | | | | | 07101b60060 | 07101d60060 | 07101i60060 |
| 6x70 | | | | | | 07101b60070 | 07101d60070 | 07101i60070 |

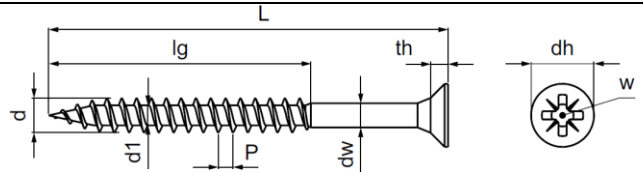
SCHEDA TECNICA - TECHNICAL SHEET

VBU

Vite TPS truciolare
Countersunk head chipboard screw

Rev: 08
Pag. 2/9

VBU cod. 07001b / 07001d / 07001i
Vite TPS truciolare – parzialmente filettata
Countersunk head chipboard screw – partially threaded



| Vite Screw d x L | lg [mm] | P [mm] | d1 [mm] | dw [mm] | w | dh [mm] | th [mm] | Cod. Zincato bianco White zinc plated | Cod. Zincato giallo Yellow passivated | Cod. Bronzato Bronzed |
|------------------|---------|-------------|-------------|-------------|-----|---------|---------|---------------------------------------|---------------------------------------|-----------------------|
| 3,5x30 | 18 | 1,5 | 2,2 | 2,5 | PZ2 | 6,7 | 2,5 | 07001b35030 | 07001d35030 | 07001i35030 |
| 3,5x35 | 21 | | | | | | | 07001b35035 | 07001d35035 | 07001i35035 |
| 3,5x40 | 25 | | | | | | | 07001b35040 | 07001d35040 | 07001i35040 |
| 3,5x45 | 28 | | | | | | | 07001b35045 | 07001d35045 | 07001i35045 |
| 3,5x50 | 30 | | | | | | | 07001b35050 | 07001d35050 | 07001i35050 |
| 4x30 | 18 | 1,8 | 2,5 | 2,8 | PZ2 | 7,7 | 2,9 | 07001b40030 | 07001d40030 | 07001i40030 |
| 4x35 | 21 | | | | | | | 07001b40035 | 07001d40035 | 07001i40035 |
| 4x40 | 25 | | | | | | | 07001b40040 | 07001d40040 | 07001i40040 |
| 4x45 | 28 | | | | | | | 07001b40045 | 07001d40045 | 07001i40045 |
| 4x50 | 30 | | | | | | | 07001b40050 | 07001d40050 | 07001i40050 |
| 4x60 | 35 | | | | | | | 07001b40060 | 07001d40060 | 07001i40060 |
| 4x70 | 45 | | | | | | | 07001b40070 | 07001d40070 | 07001i40070 |
| 4x80 | 48 | | | | | | | 07001b40080 | 07001d40080 | 07001i40080 |
| 4,5x35 | 21 | 2,0 | 2,7 | 3,1 | PZ2 | 8,5 | 3,4 | 07001b45035 | 07001d45035 | 07001i45035 |
| 4,5x40 | 25 | | | | | | | 07001b45040 | 07001d45040 | 07001i45040 |
| 4,5x45 | 28 | | | | | | | 07001b45045 | 07001d45045 | 07001i45045 |
| 4,5x50 | 30 | | | | | | | 07001b45050 | 07001d45050 | 07001i45050 |
| 4,5x60 | 35 | | | | | | | 07001b45060 | 07001d45060 | 07001i45060 |
| 4,5x70 | 45 | | | | | | | 07001b45070 | 07001d45070 | 07001i45070 |
| 4,5x80 | 48 | | | | | | | 07001b45080 | 07001d45080 | 07001i45080 |
| 4,5x100 | 64 | | | | | | | 07001b45100 | 07001d45100 | 07001i45100 |
| 4,5x120 | 70 | 07001b45120 | 07001d45120 | 07001i45120 | | | | | | |
| 5x40 | 25 | 2,2 | 3 | 3,5 | PZ2 | 9,5 | 3,4 | 07001b50040 | 07001d50040 | 07001i50040 |
| 5x45 | 28 | | | | | | | 07001b50045 | 07001d50045 | 07001i50045 |
| 5x50 | 30 | | | | | | | 07001b50050 | 07001d50050 | 07001i50050 |
| 5x60 | 35 | | | | | | | 07001b50060 | 07001d50060 | 07001i50060 |
| 5x70 | 45 | | | | | | | 07001b50070 | 07001d50070 | 07001i50070 |
| 5x80 | 48 | | | | | | | 07001b50080 | 07001d50080 | 07001i50080 |
| 5x90 | 54 | | | | | | | 07001b50090 | 07001d50090 | 07001i50090 |
| 5x100 | 64 | | | | | | | 07001b50100 | 07001d50100 | 07001i50100 |
| 5x120 | 70 | 07001b50120 | 07001d50120 | 07001i50120 | | | | | | |
| 6x50 | 30 | 3,1 | 3,7 | 4,2 | PZ3 | 11,4 | 3,8 | 07001b60050 | 07001d60050 | 07001i60050 |
| 6x60 | 35 | | | | | | | 07001b60060 | 07001d60060 | 07001i60060 |
| 6x70 | 45 | | | | | | | 07001b60070 | 07001d60070 | 07001i60070 |
| 6x80 | 48 | | | | | | | 07001b60080 | 07001d60080 | 07001i60080 |
| 6x90 | 54 | | | | | | | 07001b60090 | 07001d60090 | 07001i60090 |
| 6x100 | 64 | | | | | | | 07001b60100 | 07001d60100 | 07001i60100 |
| 6x110 | 70 | | | | | | | 07001b60110 | 07101d60110* | 07101i60110* |
| 6x120 | 70 | | | | | | | 07001b60120 | 07101d60120* | 07101i60120* |
| 6x130 | 70 | | | | | | | 07001b60130 | 07001d60130 | 07001i60130 |
| 6x140 | 70 | | | | | | | 07001b60140 | 07101d60140* | 07101i60140* |
| 6x150 | 70 | | | | | | | 07001b60150 | 07001d60150 | 07001i60150 |
| 6x160 | 70 | | | | | | | 07001b60160 | 07101d60160* | 07101i60160* |
| 6x180 | 70 | | | | | | | 07001b60180 | 07101d60180* | 07101i60180* |
| 6x200 | 70 | | | | | | | 07001b60200 | 07101d60200* | 07101i60200* |

* Attenzione: codici 07101 (non 07001). / Note: codes 07101 (not 07001).

SCHEDA TECNICA - TECHNICAL SHEET

VBU Vite TPS truciolare
Countersunk head chipboard screw

Rev: 08
Pag. 3/9

CARATTERISTICHE PRODOTTO - PRODUCT FEATURES

| Tipo / Type | Materiale / Material | Rivestimento / Coating |
|---------------------------------|---|---|
| Vite - acciaio Screw - steel | acciaio cementato (cl.9.8~*) cemented steel (gr.9.8~*) | zincatura bianca-gialla $\geq 5\mu\text{m}$ ISO 4042 / white-yellow zinc plated $\geq 5\mu\text{m}$ EN ISO 4042 bronzato / bronzed |

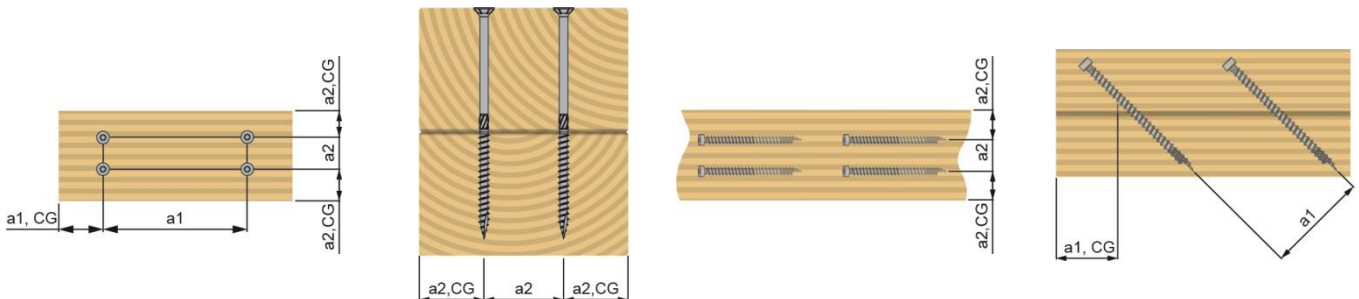
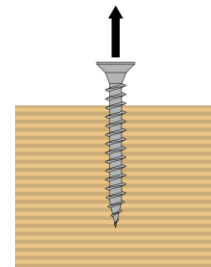
*Caratteristiche meccaniche secondo tabella sotto / For mechanical characteristics, see table below.

Prestazioni - Performances EN14592:2008+A1:2012

| | | d | 2,5 | 3 | 3,5 | 4 | 4,5 | 5 | 6 |
|--|--|---|---|-------|-------|-------|-------|-------|-------|
| Momento di snervamento caratteristico Characteristic yield moment | $M_{y,k}$ [Nmm] | | 1044 | 2195 | 2918 | 3506 | 5215 | 7111 | 11585 |
| Resistenza caratteristica a Trazione Characteristic tensile capacity | $f_{\text{tens},k}$ [kN] | | 2,16 | 3,83 | 4,34 | 5,88 | 7,19 | 8,84 | 13,32 |
| Resistenza caratteristica a Torsione Characteristic strenght in torsion capacity | $f_{\text{tor},k}$ [Nm] | | 0,66 | 1,89 | 2,18 | 3,09 | 4,43 | 6,59 | 11,81 |
| Parametro caratteristico a estrazione Characteristic withdrawal parameter | $f_{\text{ax},k}$ [N/mm ²] | | 18,27 | 18,12 | 17,21 | 16,90 | 16,76 | 15,79 | 15,01 |
| Densità caratteristica legno associata ad $f_{\text{ax},k}$ Associated wood density for $f_{\text{ax},k}$ | $\rho_{a,\text{fax},k}$ [kg/m ³] | | 350 | | | | | | |
| Parametro caratteristico all'attraversamento della testa Characteristic head pull-through parameter | $f_{\text{head},k}$ [N/mm ²] | | 29,32 | 28,68 | 26,74 | 24,62 | 23,78 | 21,72 | 20,39 |
| Densità caratteristica legno associata ad $f_{\text{head},k}$ Associated wood density for $f_{\text{head},k}$ | $\rho_{a,\text{fhead},k}$ [kg/m ³] | | 350 | | | | | | |
| Durabilità Durability EN1995:2014 [EC5] | | | Classe di servizio 1 e 2 Corrosion protection class1 and 2 | | | | | | |

DISTANZE MINIME DI INSTALLAZIONE PER VITI SOLLECITATE A TRAZIONE MINIMUM INSTALLATION DISTANCES FOR AXIALLY LOADED SCREWS

| d | 2,5 | 3 | 3,5 | 4 | 4,5 | 5 | 6 |
|------------------------|-----|----|-----|----|-----|----|----|
| a_1 [mm] | 21 | 21 | 25 | 28 | 32 | 35 | 42 |
| a_2 [mm] | 15 | 15 | 18 | 20 | 23 | 25 | 30 |
| $a_{1,\text{CG}}$ [mm] | 30 | 30 | 35 | 40 | 45 | 50 | 60 |
| $a_{2,\text{CG}}$ [mm] | 12 | 12 | 14 | 16 | 18 | 20 | 24 |



NOTE: Le distanze minime per le viti caricate a trazione sono determinate secondo EN 1995-1-1 :2014, e sono indipendenti dall'angolo di inserimento della vite rispetto alle fibre.

Minimum distances for axially loaded screws are determined according to EN 1995-1-1 :2014, and they are independent from the angle between the screw and the fibre.

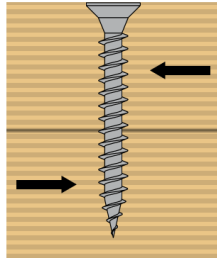
SCHEDA TECNICA - TECHNICAL SHEET

VBU

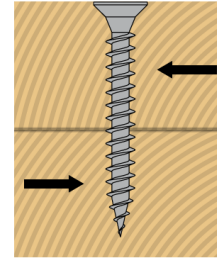
Vite TPS truciolare
Countersunk head chipboard screw

Rev: 08
Pag. 4/9

DISTANZE MINIME INSTALLAZIONE PER VITI SOLLECITATE A TAGLIO MINIMUM INSTALLATION DISTANCES FOR LATERALLY LOADED SCREWS



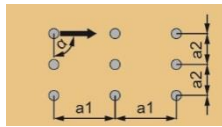
Angolo tra forza e fibre del legno
Angle between force and the wood fibres
 $\alpha=0^\circ$



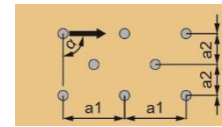
Angolo tra forza e fibre del legno
Angle between force and the wood fibres
 $\alpha=90^\circ$

| d | Senza preforo Without pilot hole | | | | | | | | | | | | Con preforo With pilot hole | | | | | | | | | | | | | | | |
|------------|-------------------------------------|----|-----|----|-----|----|-------------------|-----|----|-----|----|-----|--------------------------------|----|-----|----|-----|-----|-------------------|----|----|-----|----|-----|-----|-----|----|----|
| | $\alpha=0^\circ$ | | | | | | $\alpha=90^\circ$ | | | | | | $\alpha=0^\circ$ | | | | | | $\alpha=90^\circ$ | | | | | | | | | |
| | 2,5 | 3 | 3,5 | 4 | 4,5 | 5 | 6 | 2,5 | 3 | 3,5 | 4 | 4,5 | 5 | 6 | 2,5 | 3 | 3,5 | 4 | 4,5 | 5 | 6 | 2,5 | 3 | 3,5 | 4 | 4,5 | 5 | 6 |
| a_1 [mm] | 30 | 30 | 35 | 40 | 45 | 60 | 72 | 15 | 15 | 18 | 20 | 23 | 25 | 30 | 15 | 15 | 18 | 20 | 23 | 25 | 30 | 12 | 12 | 14 | 16 | 18 | 20 | 24 |
| a_2 [mm] | 15 | 15 | 18 | 20 | 23 | 25 | 30 | 15 | 15 | 18 | 20 | 23 | 25 | 30 | 9 | 9 | 11 | 12 | 14 | 15 | 18 | 12 | 12 | 14 | 16 | 18 | 20 | 24 |
| d_p [mm] | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 2 | 2 | 2 | 2,5 | 3 | 3 | 4 | 2 | 2 | 2 | 2,5 | 3 | 3 | 4 |

d_p = diametro preforo - pilot hole diameter



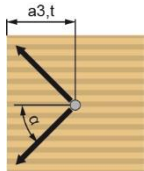
$0^\circ \leq \alpha \leq 90^\circ$



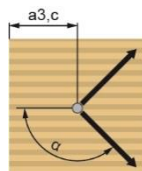
$0^\circ \leq \alpha \leq 90^\circ$

| d | Senza preforo Without pilot hole | | | | | | | | | | | | Con preforo With pilot hole | | | | | | | | | | | | | | | |
|----------------|-------------------------------------|----|-----|----|-----|----|-------------------|-----|----|-----|----|-----|--------------------------------|----|-----|----|-----|-----|-------------------|----|----|-----|----|-----|-----|-----|----|----|
| | $\alpha=0^\circ$ | | | | | | $\alpha=90^\circ$ | | | | | | $\alpha=0^\circ$ | | | | | | $\alpha=90^\circ$ | | | | | | | | | |
| | 2,5 | 3 | 3,5 | 4 | 4,5 | 5 | 6 | 2,5 | 3 | 3,5 | 4 | 4,5 | 5 | 6 | 2,5 | 3 | 3,5 | 4 | 4,5 | 5 | 6 | 2,5 | 3 | 3,5 | 4 | 4,5 | 5 | 6 |
| $a_{3,t}$ [mm] | 45 | 45 | 53 | 60 | 68 | 75 | 90 | 30 | 30 | 35 | 40 | 45 | 50 | 60 | 36 | 36 | 42 | 48 | 54 | 60 | 72 | 21 | 21 | 25 | 28 | 32 | 35 | 42 |
| $a_{3,c}$ [mm] | 30 | 30 | 35 | 40 | 45 | 50 | 60 | 30 | 30 | 35 | 40 | 45 | 50 | 60 | 21 | 21 | 25 | 28 | 32 | 35 | 42 | 21 | 21 | 25 | 28 | 32 | 35 | 42 |
| $a_{4,t}$ [mm] | 15 | 15 | 18 | 20 | 23 | 25 | 30 | 21 | 21 | 25 | 28 | 32 | 50 | 60 | 9 | 9 | 11 | 12 | 14 | 15 | 18 | 15 | 15 | 18 | 20 | 23 | 35 | 42 |
| $a_{4,c}$ [mm] | 15 | 15 | 18 | 20 | 23 | 25 | 30 | 15 | 15 | 18 | 20 | 23 | 25 | 30 | 9 | 9 | 11 | 12 | 14 | 15 | 18 | 9 | 9 | 11 | 12 | 14 | 15 | 18 |
| d_p [mm] | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 2 | 2 | 2 | 2,5 | 3 | 3 | 4 | 2 | 2 | 2 | 2,5 | 3 | 3 | 4 |

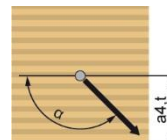
d_p = diametro preforo - pilot hole diameter



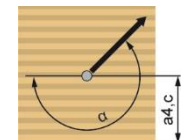
$-90^\circ \leq \alpha \leq 90^\circ$



$90^\circ \leq \alpha \leq 270^\circ$



$0^\circ \leq \alpha \leq 180^\circ$



$180^\circ \leq \alpha \leq 360^\circ$

NOTE: Le distanze minime per viti caricate a taglio sono determinate secondo EN 1995-1-1:2014 con densità caratt. del legno $\rho_k \leq 420 \text{ kg/m}^3$
The minimum distances for laterally loaded screws are calculated according to EN 1995-1-1:2014 with wood characteristic density $\rho_k \leq 420 \text{ kg/m}^3$.

SCHEDA TECNICA - TECHNICAL SHEET

VBU Vite TPS truciolare
Countersunk head chipboard screw

Rev: 08
Pag. 5/9

RESISTENZE CARATTERISTICHE - CHARACTERISTIC RESISTANCES Metodo di calcolo - Design Method EN1995-1-1:2014

Vite TPS truciolare interamente filettata - Chipboard screw fully threaded

| Dati di posa - Installation data | | | | TAGLIO - SHEAR | TRAZIONE - TENSILE | | |
|----------------------------------|-----------|-------------------------|-------------------------|--|--|--|---|
| | | | | Legno - Legno Timber - Timber | Estrazione parziale filetto Partial thread pull-out | Estrazione totale filetto Total thread pull-out | Penetrazione testa Head pull-through |
| | | | | | | | |
| d [mm] | L [mm] | l _{ef} [mm] | h _{w1} [mm] | $F_{V,Rk}^{(1)}$ [kN] $\alpha=0^\circ - 0^\circ / 90^\circ - 90^\circ$ | $F_{ax,Rk}$ [kN] | $F_{ax,Rk}$ [kN] | $F_{head,Rk}$ [kN] |
| 2,5 | 10 | 5 | 5 | 0,25 _a / 0,18 _a | 0,24 | 0,40 | 0,78 |
| | 12 | 6 | 6 | 0,30 _a / 0,22 _a | 0,29 | 0,50 | |
| | 16 | 8 | 8 | 0,35 _d / 0,29 _a | 0,39 | 0,70 | |
| | 20 | 10 | 10 | 0,40 _d / 0,34 _d | 0,49 | 0,89 | |
| | 25 | 15 | 10 | 0,46 _d / 0,37 _a | 0,73 | 1,14 | |
| 3 | 10 | 5 | 5 | 0,30 _a / 0,22 _a | 0,29 | 0,46 | 1,03 |
| | 12 | 6 | 6 | 0,36 _a / 0,26 _a | 0,35 | 0,58 | |
| | 16 | 8 | 8 | 0,48 _a / 0,35 _a | 0,46 | 0,81 | |
| | 18 | 9 | 9 | 0,52 _d / 0,39 _a | 0,52 | 0,93 | |
| | 20 | 10 | 10 | 0,55 _d / 0,44 _a | 0,58 | 1,05 | |
| | 25 | 15 | 10 | 0,60 _a / 0,44 _a | 0,87 | 1,34 | |
| | 30 | 15 | 15 | 0,67 _d / 0,58 _d | 0,87 | 1,63 | |
| | 35 | 20 | 15 | 0,75 _d / 0,65 _d | 1,16 | 1,92 | |
| | 40 | 20 | 20 | 0,82 _d / 0,70 _d | 1,16 | 2,21 | |
| 3,5 | 12 | 6 | 6 | 0,42 _a / 0,30 _a | 0,39 | 0,61 | 1,28 |
| | 16 | 8 | 8 | 0,56 _a / 0,41 _a | 0,51 | 0,87 | |
| | 18 | 9 | 9 | 0,63 _d / 0,46 _a | 0,58 | 1,00 | |
| | 20 | 10 | 10 | 0,65 _d / 0,51 _a | 0,64 | 1,13 | |
| | 25 | 15 | 10 | 0,70 _a / 0,51 _a | 0,96 | 1,45 | |
| | 30 | 15 | 15 | 0,79 _d / 0,68 _d | 0,96 | 1,77 | |
| | 35 | 20 | 15 | 0,87 _d / 0,76 _a | 1,29 | 2,09 | |
| | 40 | 20 | 20 | 0,96 _d / 0,82 _d | 1,29 | 2,41 | |
| | 45 | 25 | 20 | 1,04 _d / 0,90 _d | 1,61 | 2,73 | |
| 4 | 16 | 8 | 8 | 0,64 _a / 0,46 _a | 0,58 | 0,97 | 1,56 |
| | 18 | 9 | 9 | 0,72 _a / 0,52 _a | 0,65 | 1,09 | |
| | 20 | 10 | 10 | 0,75 _d / 0,58 _a | 0,72 | 1,23 | |
| | 25 | 15 | 10 | 0,80 _d / 0,58 _a | 1,60 | 1,08 | |
| | 30 | 15 | 15 | 0,91 _d / 0,78 _d | 1,08 | 1,96 | |
| | 35 | 20 | 15 | 1,00 _d / 0,86 _a | 1,44 | 2,32 | |
| | 40 | 20 | 20 | 1,09 _d / 0,93 _d | 1,44 | 2,68 | |
| | 45 | 25 | 20 | 1,18 _d / 1,02 _d | 1,80 | 3,04 | |
| | 50 | 25 | 25 | 1,29 _d / 1,09 _d | 1,80 | 3,40 | |
| 4 | 60 | 30 | 30 | 1,40 _f / 1,26 _d | 2,17 | 4,12 | 1,56 |
| | 70 | 35 | 35 | 1,49 _f / 1,36 _f | 2,53 | 4,84 | |

SCHEDA TECNICA - TECHNICAL SHEET

VBU Vite TPS truciolare
Countersunk head chipboard screw

Rev: 08
Pag. 6/9

1kN \cong 100 kgf

| Dati di posa - Installation data | | | | TAGLIO - SHEAR | TRAZIONE - TENSILE | | |
|----------------------------------|-----------|-------------------------|-------------------------|---|--|--|---|
| | | | | Legno - Legno Timber - Timber | Estrazione parziale filetto Partial thread pull-out | Estrazione totale filetto Total thread pull-out | Penetrazione testa Head pull-through |
| | | | | | | | |
| d [mm] | L [mm] | l _{ef} [mm] | h _{w1} [mm] | F _{v,Rk} ¹⁾ [kN] $\alpha=0^\circ - 0^\circ / 90^\circ - 90^\circ$ | F _{ax,Rk} [kN] | F _{ax,Rk} [kN] | F _{head,Rk} [kN] |
| 4,5 | 20 | 10 | 10 | 0,87 _a / 0,62 _a | 0,81 | 1,34 | 1,88 |
| | 25 | 15 | 10 | 0,87 _a / 0,62 _a | 1,21 | 1,74 | |
| | 30 | 15 | 15 | 1,07 _d / 0,93 _d | 1,21 | 2,14 | |
| | 35 | 20 | 15 | 1,17 _d / 0,93 _a | 1,61 | 2,55 | |
| | 40 | 20 | 20 | 1,26 _d / 1,08 _d | 1,61 | 2,95 | |
| | 45 | 25 | 20 | 1,36 _d / 1,18 _d | 2,01 | 3,35 | |
| | 50 | 25 | 25 | 1,47 _d / 1,25 _d | 2,01 | 3,75 | |
| | 60 | 30 | 30 | 1,69 _d / 1,43 _d | 2,42 | 4,56 | |
| 5 | 20 | 10 | 10 | 0,96 _a / 0,69 _a | 0,84 | 1,40 | 2,18 |
| | 25 | 15 | 10 | 0,96 _a / 0,69 _a | 1,26 | 1,82 | |
| | 30 | 15 | 15 | 1,23 _d / 1,03 _a | 1,26 | 2,24 | |
| | 35 | 20 | 15 | 1,34 _a / 1,03 _a | 1,69 | 2,66 | |
| | 40 | 20 | 20 | 1,43 _d / 1,22 _d | 1,69 | 3,09 | |
| | 45 | 25 | 20 | 1,53 _d / 1,33 _d | 2,11 | 3,51 | |
| | 50 | 25 | 25 | 1,65 _d / 1,40 _d | 2,11 | 3,93 | |
| | 60 | 30 | 30 | 1,88 _d / 1,59 _d | 2,53 | 4,77 | |
| 6 | 30 | 15 | 15 | 1,63 _d / 1,26 _a | 1,44 | 2,52 | 2,83 |
| | 40 | 20 | 20 | 1,84 _d / 1,57 _d | 1,92 | 3,48 | |
| | 50 | 25 | 25 | 2,08 _d / 1,76 _d | 2,40 | 4,44 | |
| | 60 | 30 | 30 | 2,34 _d / 1,97 _d | 2,89 | 5,41 | |
| | 70 | 35 | 35 | 2,62 _d / 2,19 _d | 3,37 | 6,37 | |

1kN \cong 100 kgf

SCHEDA TECNICA - TECHNICAL SHEET

VBU Vite TPS truciolare
Countersunk head chipboard screw

Rev: 08
Pag. 7/9

Vite TPS truciolare parzialmente filettata - Chipboard screw partially threaded

| Dati di posa - Installation data | | | | TAGLIO - SHEAR | | TRAZIONE - TENSILE | | | |
|----------------------------------|-----------|--|---------------------------------------|--|-----------------------------------|--|--|----------------------------|------------------------------|
| | | | | Legno - Legno Timber - Timber | Acciaio - Legno Steel - Timber | Estrazione filetto Thread pull-out | Penetrazione testa / estrazione filetto Head pull-through / pull-out | | |
| | | | | | | | | | |
| d [mm] | L [mm] | l _{ef} = l _g [mm] | h _{w1} [mm] | F _{V,RK} ⁽¹⁾ [kN] | | F _{V,RK} ⁽²⁾ [kN] | | F _{ax,Rk} [kN] | F _{head,Rk} [kN] |
| | | | | α=0° - 0° / 90° - 90° | | ts | α=0° / 90° | | |
| 3,5 | 30 | 18 | 12 | 0,80 _d / 0,61 _a | | 2 [mm] | 0,89 _b / 0,78 _b | 1,16 | 1,28 |
| | 35 | 21 | 14 | 0,86 _d / 0,71 _a | | | | 1,35 | |
| | 40 | 25 | 15 | 0,87 _d / 0,76 _a | | | | 1,61 | |
| | 45 | 28 | 17 | 0,90 _d / 0,78 _d | | | | 1,80 | |
| | 50 | 30 | 20 | 0,96 _d / 0,82 _d | | | | 1,93 | |
| 4 | 30 | 18 | 12 | 0,92 _d / 0,69 _a | | 2 [mm] | 1,05 _b / 0,92 _b | 1,30 | 1,56 |
| | 35 | 21 | 14 | 1,00 _d / 0,81 _a | | | | 1,52 | |
| | 40 | 25 | 15 | 1,03 _d / 0,86 _a | | | | 1,80 | |
| | 45 | 28 | 17 | 1,06 _d / 0,92 _d | | | | 2,02 | |
| | 50 | 30 | 20 | 1,12 _d / 0,96 _d | | | | 2,17 | |
| | 60 | 35 | 25 | 1,23 _d / 1,03 _d | | | | 2,53 | |
| | 70 | 45 | 25 | 1,25 _f / 1,12 _f | | | | 3,25 | |
| 4,5 | 35 | 21 | 14 | 1,17 _d / 0,87 _a | | 2,5 [mm] | 1,32 _b / 1,16 _b | 1,69 | 1,88 |
| | 40 | 25 | 15 | 1,24 _d / 0,93 _a | | | | 2,01 | |
| | 45 | 28 | 17 | 1,27 _d / 1,06 _a | | | | 2,26 | |
| | 50 | 30 | 20 | 1,32 _d / 1,15 _d | | | | 2,42 | |
| | 60 | 35 | 25 | 1,43 _d / 1,21 _d | | | | 2,82 | |
| | 70 | 45 | 25 | 1,56 _f / 1,33 _d | | | | 3,62 | |
| | 80 | 48 | 32 | 1,56 _f / 1,40 _f | | | | 3,87 | |
| | 100 | 64 | 36 | 1,56 _f / 1,40 _f | | | | 5,16 | |
| 5 | 40 | 25 | 15 | 1,44 _a / 1,03 _a | | 2,5 [mm] | 1,64 _b / 1,43 _b | 2,11 | 2,18 |
| | 45 | 28 | 17 | 1,50 _d / 1,17 _a | | | | 2,36 | |
| | 50 | 30 | 20 | 1,55 _d / 1,35 _d | | | | 2,53 | |
| | 60 | 35 | 25 | 1,66 _d / 1,42 _d | | | | 2,95 | |
| | 70 | 45 | 25 | 1,66 _d / 1,42 _d | | | | 3,79 | |
| | 80 | 48 | 32 | 1,85 _d / 1,53 _d | | | | 4,05 | |
| | 90 | 54 | 36 | 1,89 _f / 1,61 _d | | | | 4,55 | |
| | 100 | 64 | 36 | 1,89 _f / 1,61 _d | | | | 5,40 | |
| 120 | 70 | 50 | 1,89 _f / 1,68 _f | | 5,90 | | | | |

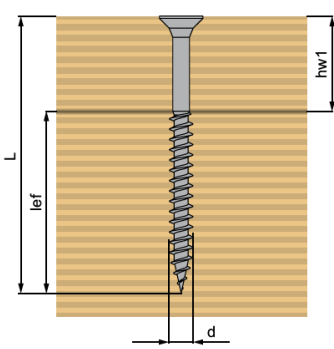
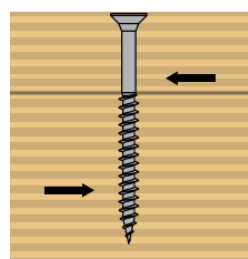
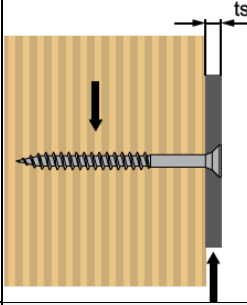
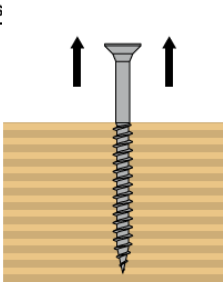
1kN ≅ 100 kgf

SCHEDA TECNICA - TECHNICAL SHEET

VBU

Vite TPS truciolare
Countersunk head chipboard screw

Rev: 08
Pag. 8/9

| Dati di posa - Installation data | | | | TAGLIO - SHEAR | | TRAZIONE - TENSILE | | |
|--|--------|---------------------------------------|----------------------|---|--|--|---------------------------|---|
|  | | | | Legno - Legno Timber - Timber | | Acciaio - Legno Steel - Timber | | |
| | | | |  | |  | |  |
| d [mm] | L [mm] | l _{ef} = l _g [mm] | h _{w1} [mm] | F _{V,Rk} ⁽¹⁾ [kN] α=0° - 0° / 90° - 90° | F _{V,Rk} ⁽²⁾ [kN] ts α=0° / 90° | F _{ax,Rk} [kN] | F _{head,Rk} [kN] | |
| 6 | 50 | 30 | 20 | 2,06d / 1,68a | 3 [mm] | 2,89 | 2,83 | |
| | 60 | 35 | 25 | 2,18d / 1,87d | | 2,33b / 2,03b | 3,37 | 2,83 |
| | 70 | 45 | 25 | 2,18d / 1,87d | | 4,33 | 2,83 | |
| | 80 | 48 | 32 | 2,39d / 2,00d | | 4,62 | 2,83 | |
| | 90 | 54 | 36 | 2,52d / 2,08d | | 5,19 | 2,83 | |
| | 100 | 64 | 36 | 2,52d / 2,08d | | 6,16 | 2,83 | |
| | 110 | 70 | 40 | 2,61f / 2,17d | | 6,73 | 2,83 | |
| | 120 | 70 | 50 | 2,61f / 2,31f | | 6,73 | 2,83 | |
| | 130 | 70 | 60 | 2,61f / 2,31f | | 6,73 | 2,83 | |
| | 140 | 70 | 70 | 2,61f / 2,31f | | 6,73 | 2,83 | |
| | 150 | 70 | 80 | 2,61f / 2,31f | | 6,73 | 2,83 | |
| | 160 | 70 | 90 | 2,61f / 2,31f | | 6,73 | 2,83 | |
| | 180 | 70 | 110 | 2,61f / 2,31f | | 6,73 | 2,83 | |
| 200 | 70 | 130 | 2,61f / 2,31f | 2,33b / 2,03b | 6,73 | 2,83 | | |

1kN ≅ 100 kgf

¹⁾ La lettera pedice dopo il valore numerico indica il modo di rottura con riferimento al §8.2.2 della norma EN1995:2014;
The subscript letter after the numerical value indicates the breaking mode with reference to §8.2.2 of the EN1995: 2014 standard;

²⁾ La lettera pedice dopo il valore numerico indica il modo di rottura con riferimento al §8.2.3 della norma EN1995:2014.
The subscript letter after the numerical value indicates the breaking mode with reference to §8.2.3 of the EN1995: 2014 standard.

Valori di resistenza caratteristica calcolati in base ai requisiti certificati EN14592, nelle seguenti condizioni:

- progettazione e metodo di calcolo norma EN1995-1-1:2014 [Eurocodice 5];
- densità del legno $\rho_k = 380 \text{ kg/m}^3$, esempio legno massiccio C30 norma EN338:2016 o Lamellare GL24h÷GL28c norma EN14080:2013 ⁽¹⁾;
- vite installata a 90° rispetto la direzione delle fibre del legno;
- vite installata senza preforo
- filetto totalmente inserito nel legno

The characteristic resistance values have been calculated based on EN14592 certified requirements, with the following conditions:

- design method according to EN1995-1-1:2014 [Eurocode 5];
- $\rho_k = 380 \text{ kg/m}^3$ timber density, solid timber quality C30 EN338:2016 std or GL24h÷GL28c glued laminated timber EN14080:2013 ⁽¹⁾ standard;
- screw installed at 90° to the direction of the wood fibres;
- application without pilot hole;
- thread completely inserted into the timber.

⁽¹⁾ Per connessioni in supporti X-LAM i valori di resistenza caratteristica possono differire in base alla conformazione del pannello, su richiesta si possono effettuare test in situ contattando la nostra Area Commerciale. - For connections in X-LAM timbers the reference values can vary according to the shape of the panel, on-site tests can be performed on request by contacting our Sales Area.

SCHEDA TECNICA - TECHNICAL SHEET

VBU

Vite TPS truciolare
Countersunk head chipboard screw

Rev: 08
Pag. 9/9

RESISTENZE di PROGETTO - DESIGN LOADS

Le resistenze di progetto si calcolano mediante i coefficienti parziali di sicurezza γ (ed il fattore k_{mod}) definiti dagli Eurocodici pertinenti o dalle normative nazionali-locali in vigore.

Il dimensionamento e la progettazione degli elementi lignei devono essere svolti a parte.

Il valore di progetto finale dell'intera connessione sarà il valore minore tra quelli calcolati come segue relativamente ai diversi componenti del sistema di fissaggio.

The design loads are calculated using the partial safety factors γ (and the factor k_{mod}) as reported on the relevant Eurocodes or on the national design codes in use.

The designing of the Timber elements must be carried out separately.

The final design load will be the minimum value among those calculated as follows with respect to the different components of the fixing system.

Taglio - Shear

$$F_{V,Rd} = \frac{F_{V,Rk}}{\gamma_{M(T)}} \cdot k_{mod}$$

Trazione - Tensile

$$F_{ax,Rd} = \min \left\{ \begin{array}{l} \frac{F_{ax,Rk}}{\gamma_{M(T)}} \cdot k_{mod} \\ \frac{F_{head,Rk}}{\gamma_{M(T)}} \cdot k_{mod} \\ \frac{f_{tens,k}}{\gamma_{M2}} \end{array} \right.$$

CODICI DI RIFERIMENTO PER LA PROGETTAZIONE DELLA CONNESSIONE DESIGN METHOD CODES FOR CONNECTION

| Progettazione - Design Method | LEGNO - TIMBER | | ACCIAIO - STEEL |
|---|-------------------------------|-----------------------|----------------------|
| STATICA - STATIC | EN1995-1-1 | [NTC] | EN1993-1-1 [NTC] |
| Coefficiente parziale di sicurezza Partial safety factor | $\gamma_{M(T)} = 1,3$ | $\gamma_{M(T)} = 1,5$ | $\gamma_{M2} = 1,25$ |
| Coefficiente di correzione Modification factor | $k_{mod} = 0,7$ ¹⁾ | | - |
| SISMICA - SEISMIC | EN1998-1-1 [NTC] | | EN1998-1-1 [NTC] |

¹⁾ Valore riferito ad azione di lunga durata e classe di servizio 1-2, per altri casi vedi norme EN1995-1-1 e [NTC] = Norme Tecniche Costruzioni.
Value refers to Long term action and Service class 1-2, for other cases see EN1995-1-1.

RESISTENZE AMMISSIBILI - RECOMMENDED LOADS

Tratto dal documento Norme Italiane per la progettazione, esecuzione e collaudo delle costruzioni in legno NICOLE.
Taken from the Italian Standards document for the design, execution and testing of NICOLE timber constructions.

I valori di resistenza ammissibili del singolo connettore possono essere calcolati nel seguente modo:
Recommended loads of singular connector can be calculated as follows:

Taglio - Shear

$$F_{V,amm} = \frac{F_{V,Rk}}{\gamma_{M(T)} \cdot \gamma_Q} \cdot k_{mod}$$

con - with $\gamma_Q = 1,5$

Trazione - Tensile

$$F_{ax,amm} = \min \left\{ \begin{array}{l} \frac{F_{ax,Rk}}{\gamma_{M(T)} \cdot \gamma_Q} \cdot k_{mod} \\ \frac{F_{head,Rk}}{\gamma_{M(T)} \cdot \gamma_Q} \cdot k_{mod} \\ \frac{f_{tens,k}}{\gamma_{M2} \cdot \gamma_Q} \end{array} \right.$$

I valori di carico riportati hanno valore solo se l'installazione è stata eseguita correttamente. Il progettista è responsabile del dimensionamento e del numero dei fissaggi. The load values are only valid if the installation has been carried out correctly. The design engineer is responsible for the designing and calculation of the fixing.

Acquistando il prodotto, l'utilizzatore è tenuto ad osservare scrupolosamente le istruzioni riportate sul packaging e sulla documentazione relativa al prodotto disponibile sul sito internet www.friulsider.com/download.html. Friulsider S.p.A. non risponderà ad alcun titolo di danni a persone o cose che dovessero essere conseguenza di una conservazione od uso diversi da quelli descritti.

By purchasing the product, the user is required to scrupulously observe the instructions on the packaging and on the documentation relating to the product available on the website www.friulsider.com/download.html. Friulsider S.p.A. will not be liable for any damage to persons or things that may be the consequence of a conservation or use other than those described.

Le schede tecniche (ultima revisione) dei prodotti Friulsider sono disponibili sul sito www.friulsider.com
The technical sheets (latest revision) of Friulsider products are available on the website www.friulsider.com

In caso di traduzioni, i documenti ufficiali di riferimento sono quelli in lingua italiana.
In the case of translations, the official reference documents are those in Italian.