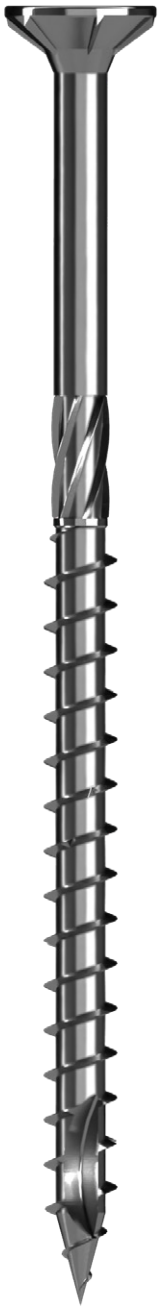
PRODUCT DATA SHEET

PANELTWISTEC 1000, COUNTERSUNK HEAD



PRODUCT DESCRIPTION

Made of a **specially coated** and **hardened carbon steel**, Paneltwistec 1000 is a fastener for load-bearing timber constructions between components made of solid timber (softwood), laminated timber, laminated veneer timber or similar bonded wood-based materials. The screw has a **mill slot** at the end of the thread and **self-milling ribs** above the thread. Its special geometry **reduces the splitting effect** during screwing, and the special coating **reduces the screwing resistance**; i.e. the friction between the screw body and the wood is significantly reduced.

APPLICATIONS

- Suitable for usage classes 1 and 2 according to DIN EN 1995 –Eurocode 5
- Withstands up to 1,000 hours of salt spray testing according to DIN EN ISO 9227 NSS
- Corrosivity category C4 long/C5-M long according to DIN EN ISO 12944-6
- Not suitable for tannin-containing woods

MATERIAL

- Hardened **carbon steel**, special „1000" coating
- Resistant to mechanical stress

CERTIFICATION

- European Technical Approval ETA-11/0024 Self-tapping screws for use in timber structures
- General building authority approval Z-9.1-661 Paneltwistec 1000 screws for use in timber structures
  → Dimensions: Ø 8.0 x 80 mm to Ø 10.0 x 400 mm

ETA
Europ. Techn. Bewertung
European Technical Assessment
ETA-11/0024

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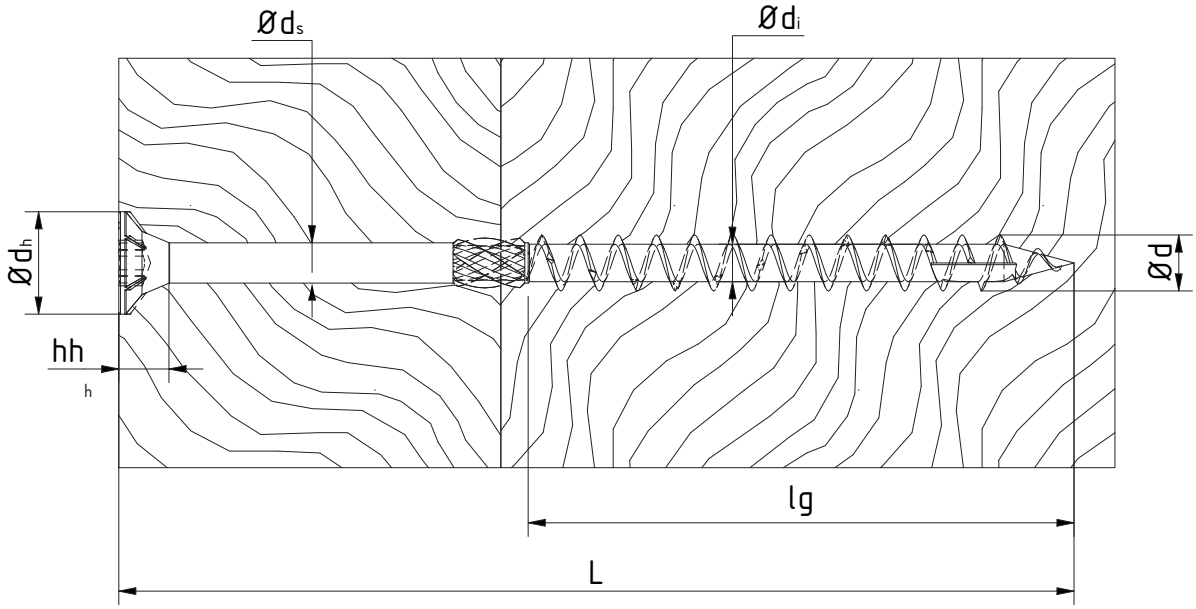
TECHNICAL INFORMATION



Side view

Paneltwistec 1000, countersunk head, special coated steel												
Nominal-Ø	Head-Ø	Root-Ø	Shank-Ø	Head height	Head shape	Upper head angle	Lower head angle	char. tensile capacity	char. yield moment	char. withdrawal parameter	char. head pull-through parameter	char. torsional strength
d [mm]	d_h [mm]	d_i [mm]	d_s [mm]	h_h [mm]	–	[Degree °]	[Degree °]	$f_{tens,k}$ [kN]	$M_{y,k}$ [Nm]	$f_{ax,k}$ [N/mm²]	$f_{head,k}$ [N/mm²]	$f_{tor,k}$ [Nm]
3,0	5,6	1,9	2,1	2,8	SK	90	60	2,6	1,2	11,8	12,0	1,2
3,5	7.0	2.25	2.3	3.45	SK	90	60	3,8	2.3	13.3	12.0	2.0
4	8.0	2.65	2.68	3.97	SK	90	60	5.0	3.3	12.9	12.0	3.0
4,5	9.0	3.3	2.80	4.03	SK	90	60	6.4	4.5	12.5	12.0	2.1
5	10.0	3.68	3.45	4.78	SK	90	60	7.9	5.9	12.1	12.0	3.1
6	12.0	4.4	3.98	5.65	SK	90	60	11.0	9.5	11.4	12.0	2.2

[1] The values have been taken from ETA 11/0024 and DoP-ETA110024-05-2017. We cannot guarantee that there are no typographical or printing errors and therefore recommend that you check the documents mentioned above.

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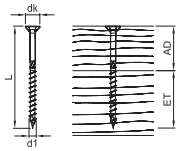
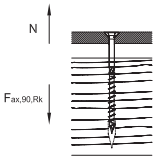
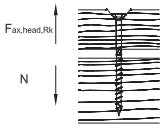
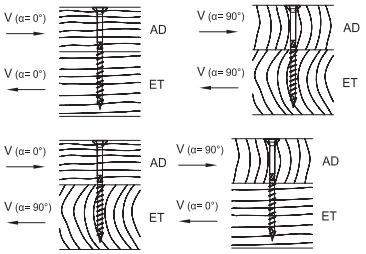
PANELTWISTEC 1000, COUNTERSUNK HEAD

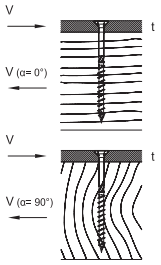
Dimensions	Extraction resistance	Head pull-through resistance	Wood-Wood shearing	Steel-Wood shearing











d x L [mm]	dk [mm]	AD [mm]	ET [mm]	$F_{ax,90,Rk}$ [kN]	$F_{ax,head,Rk}$ [kN]	$F_{la,Rk}$ [kN]	$F_{la,Rk}$ [kN]	$F_{la,Rk}$ [kN]	$F_{la,Rk}$ [kN]	t [mm]	$F_{la,Rk}$ [kN]	$F_{la,Rk}$ [kN]
								$\alpha_A = 0°$	$\alpha_A = 90°$			
						$\alpha = 0°$	$\alpha = 90°$	$\alpha_B = 90°$	$\alpha_B = 0°$		$\alpha = 0°$	$\alpha = 90°$
3,0 x 12	5,6	6	6	0,21	0,38	0,21				1	0,27	
3,0 x 16	5,6	8	8	0,28	0,38	0,28				1	0,37	
3,0 x 20	5,6	10	10	0,35	0,38	0,35				1	0,47	
3,0 x 25	5,6	10	15	0,53	0,38	0,42				1	0,60	
3,0 x 30	5,6	12	18	0,64	0,38	0,45				1	0,60	
3,0 x 35	5,6	14	21	0,74	0,38	0,48				1	0,63	
3,0 x 40	5,6	16	24	0,85	0,38	0,52				1	0,66	
3,5 x 12	7	6	6	0,28	0,59	0,24				1	0,30	
3,5 x 16	7	8	8	0,37	0,59	0,32				1	0,41	
3,5 x 20	7	10	10	0,47	0,59	0,40				1	0,52	
3,5 x 25	7	10	15	0,70	0,59	0,52				1	0,66	
3,5 x 30	7	12	18	0,84	0,59	0,62				1	0,86	
3,5 x 35	7	14	21	0,98	0,59	0,67				1	0,92	
3,5 x 40	7	16	24	1,12	0,59	0,70				1	0,95	
3,5 x 50	7	20	30	1,40	0,59	0,78				1	1,02	
4,0 x 16	8	8	8	0,41	0,77	0,35				2	0,42	
4,0 x 20	8	10	10	0,52	0,77	0,44				2	0,55	
4,0 x 25	8	10	15	0,77	0,77	0,60				2	0,70	
4,0 x 30	8	12	18	0,93	0,77	0,71				2	0,91	
4,0 x 35	8	14	21	1,08	0,77	0,80				2	1,07	
4,0 x 40	8	16	24	1,24	0,77	0,84				2	1,15	
4,0 x 45	8	18	27	1,39	0,77	0,88				2	1,19	
4,0 x 50	8	20	30	1,55	0,77	0,92				2	1,23	
4,0 x 60	8	24	36	1,86	0,77	1,01				2	1,31	
4,0 x 70	8	28	42	2,17	0,77	1,03				2	1,38	
4,0 x 80	8	32	48	2,48	0,77	1,03				2	1,46	
4,5 x 16	9	8	8	0,45	0,97	0,40				2	0,46	
4,5 x 25	9	10	15	0,84	0,97	0,65				2	0,76	
4,5 x 30	9	12	18	1,01	0,97	0,77				2	0,92	
4,5 x 35	9	14	21	1,18	0,97	0,86				2	1,09	
4,5 x 40	9	16	24	1,35	0,97	1,00				2	1,34	
4,5 x 50	9	20	30	1,69	0,97	1,08				2	1,44	
4,5 x 60	9	24	36	2,03	0,97	1,17				2	1,53	
4,5 x 70	9	28	42	2,36	0,97	1,23				2	1,61	
4,5 x 80	9	32	48	2,70	0,97	1,23				2	1,75	
4,5 x 90	9	36	54	3,04	0,97	1,23				2	1,75	

Calculation according to ETA-11/0024. Wood density ρ_k= 350 kg/m³. All mechanical values provided should be viewed as subject to the assumptions that have been made and represent example calculations.
All values are calculated minimum values and are subject to typographical and printing errors.
a) The characteristic values of the load-bearing capacity R_k cannot be treated as equivalent to the max. possible load (the max. force). Characteristic values of the load-bearing capacity R_k should be reduced to dimensioning values R_d with regard to the usage class and class of the load duration: $R_d = R_k \cdot k_{mod} / \gamma_M$. The dimensioning values of the load-bearing capacity R_d should be contrasted with the dimensioning values of the loads ($R_d \geq E_d$).

Example:

Characteristic value for constant load (dead weight) G_k= 2,00 kN and variable load (e. g. snow load) Q_k= 3,00 kN. k_{mod}= 0,9. γ_M= 1,3.
→ Dimensioning value of the load E_d = 2,00 · 1,35 + 3,00 · 1,5= 7,20 kN.
The load-bearing capacity of the joint is therefore considered to have been demonstrated if $R_d \geq E_d$. → min $R_k = R_d \cdot \gamma_M / k_{mod}$
I.e. the characteristic minimum value is calculated based on: min $R_k = R_d \cdot \gamma_M / k_{mod}$ → R_k = 7,20 kN · 1,3/0,9= 10,40 kN → comparison with table values.

Please note: These are planning aids. Projects must only be calculated by authorised persons.

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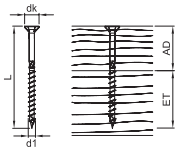
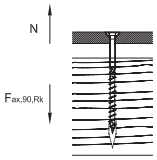
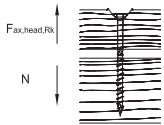
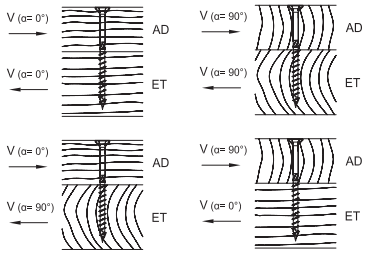
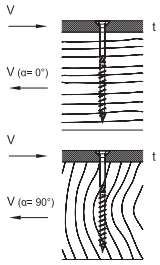
Dimensions	Extraction resistance	Head pull-through resistance	Wood-Wood shearing	Steel-Wood shearing











d x L [mm]	dk [mm]	AD [mm]	ET [mm]	$F_{ax,90,Rk}$ [kN]	$F_{ax,head,Rk}$ [kN]	$F_{la,Rk}$ [kN]	$F_{la,Rk}$ [kN]	$F_{la,Rk}$ [kN]	$F_{la,Rk}$ [kN]	t [mm]	$F_{la,Rk}$ [kN]	$F_{la,Rk}$ [kN]
								$\alpha_A = 0°$	$\alpha_A = 90°$			
						$\alpha = 0°$	$\alpha = 90°$	$\alpha_B = 90°$	$\alpha_B = 0°$		$\alpha = 0°$	$\alpha = 90°$
4,5 x 100	9	40	60	3,38	0,97	1,23				2	1,75	
5,0 x 25	10,0	10	15	0,91	1,20	0,70				2	0,81	
5,0 x 30	10,0	10	20	1,21	1,20	0,90				2	1,00	
5,0 x 35	10,0	14	21	1,27	1,20	0,96				2	1,17	
5,0 x 40	10,0	16	24	1,45	1,20	1,11				2	1,44	
5,0 x 45	10,0	18	27	1,63	1,20	1,20				2	1,62	
5,0 x 50	10,0	20	30	1,82	1,20	1,24				2	1,67	
5,0 x 60	10,0	24	36	2,18	1,20	1,34				2	1,76	
5,0 x 70	10,0	28	42	2,54	1,20	1,44				2	1,85	
5,0 x 80	10,0	32	48	2,90	1,20	1,52				2	1,94	
5,0 x 90	10,0	36	54	3,27	1,20	1,52				2	2,03	
5,0 x 100	10,0	40	60	3,63	1,20	1,52				2	2,12	
5,0 x 120	10,0	50	70	4,24	1,20	1,52				2	2,27	
6,0 x 40	12,0	16	24	1,64	1,73	1,27				2	1,53	
6,0 x 50	12,0	20	30	2,05	1,73	1,51				2	1,90	
6,0 x 60	12,0	24	36	2,46	1,73	1,65				2	2,21	
6,0 x 70	12,0	28	42	2,87	1,73	1,75				2	2,31	
6,0 x 80	12,0	32	48	3,28	1,73	1,85				2	2,41	
6,0 x 90	12,0	36	54	3,69	1,73	1,96				2	2,51	
6,0 x 100	12,0	40	60	4,10	1,73	2,02				2	2,62	
6,0 x 120	12,0	50	70	4,79	1,73	2,02				2	2,80	
6,0 x 130	12,0	60	70	4,79	1,73	2,02				2	2,80	
6,0 x 140	12,0	70	70	4,79	1,73	2,02				2	2,80	
6,0 x 160	12,0	90	70	4,79	1,73	2,02				2	2,80	
6,0 x 180	12,0	110	70	4,79	1,73	2,02				2	2,80	
6,0 x 200	12,0	130	70	4,79	1,73	2,02				2	2,80	
6,0 x 220	12,0	150	70	4,79	1,73	2,02				2	2,80	
6,0 x 240	12,0	170	70	4,79	1,73	2,02				2	2,80	
6,0 x 260	12,0	190	70	4,79	1,73	2,02				2	2,80	
6,0 x 280	12,0	210	70	4,79	1,73	2,02				2	2,80	
6,0 x 300	12,0	230	70	4,79	1,73	2,02				2	2,80	

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PRODUCT DATA SHEET

PANELTWISTEC 1000, COUNTERSUNK HEAD

PRODUCT TABLE

Paneltwistec 1000, countersunk head, special coated steel					
Art. no.	Dimensions Ød x L [mm]	Thread length l_g [mm]	Head diameter $Ød_h$ [mm]	Drive	PU
r945035	3,0 x 16	Fully threaded	5,6	TX10 ○	1000
r903038	3,0 x 20	Fully threaded	5,6	TX10 ○	1000
r903039	3,0 x 25	Fully threaded	5,6	TX10 ○	1000
r903040	3,0 x 30	18	5,6	TX10 ○	1000
r903041	3,0 x 35	21	5,6	TX10 ○	1000
r903042	3,0 x 40	24	5,6	TX10 ○	1000
r945036	3,5 x 12	Fully threaded	7	TX20 ●	1000
r945037	3,5 x 16	Fully threaded	7	TX20 ●	1000
r903043	3,5 x 20	Fully threaded	7	TX20 ●	1000
r903044	3,5 x 25	Fully threaded	7	TX20 ●	1000
r903045	3,5 x 30	18	7	TX20 ●	1000
r903046	3,5 x 35	21	7	TX20 ●	1000
r903047	3,5 x 40	24	7	TX20 ●	1000
r903048	3,5 x 50	27	7	TX20 ●	500
r945038	4,0 x 16	Fully threaded	8	TX20 ●	1000
r903001	4,0 x 20	Fully threaded	8	TX20 ●	1000
r903002	4,0 x 25	Fully threaded	8	TX20 ●	1000
r903003	4,0 x 30	18	8	TX20 ●	1000
r903049	4,0 x 35	21	8	TX20 ●	1000
r903004	4,0 x 40	24	8	TX20 ●	1000
r903089	4,0 x 45	27	8	TX20 ●	500
r903005	4,0 x 50	30	8	TX20 ●	500
r903006	4,0 x 60	36	8	TX20 ●	200
r903007	4,0 x 70	42	8	TX20 ●	200
r903008	4,0 x 80	48	8	TX20 ●	200
r945039	4,5 x 16	Fully threaded	9	TX20 ●	1000
r903050	4,5 x 25	Fully threaded	9	TX20 ●	500
r903051	4,5 x 30	18	9	TX20 ●	500
r903052	4,5 x 35	21	9	TX20 ●	500
r903009	4,5 x 40	24	9	TX20 ●	500
r903010	4,5 x 50	30	9	TX20 ●	500
r903011	4,5 x 60	36	9	TX20 ●	200
r903012	4,5 x 70	42	9	TX20 ●	200
r903013	4,5 x 80	48	9	TX20 ●	200
r903468	4,5 x 90	54	9	TX20 ●	200
r903063	4,5 x 100	60	9	TX20 ●	200
r903053	5,0 x 25	Fully threaded	10	TX20 ●	500
r903054	5,0 x 30	20	10	TX20 ●	500
r903055	5,0 x 35	21	10	TX20 ●	500
r903014	5,0 x 40	24	10	TX20 ●	200
r903579	5,0 x 45	27	10	TX20 ●	200
r903015	5,0 x 50	30	10	TX20 ●	200
r903016	5,0 x 60	36	10	TX20 ●	200
r903017	5,0 x 70	42	10	TX20 ●	200
r903018	5,0 x 80	48	10	TX20 ●	200

ATTENTION: Screws with Ø = 3.0 mm are not regulated by ETA or building authority approval.

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Art. no.	Dimensions Ød x L [mm]	Thread length l_g [mm]	Head diameter $Ød_h$ [mm]	Drive	PU
r903578	5,0 x 90	54	10	TX20 ●	200
r903019	5,0 x 100	60	10	TX20 ●	200
r903020	5,0 x 120	70	10	TX20 ●	200
r903581	6,0 x 40	24	12	TX30 ●	200
r903582	6,0 x 50	30	12	TX30 ●	200
r903021	6,0 x 60	36	12	TX30 ●	200
r903022	6,0 x 70	42	12	TX30 ●	200
r903023	6,0 x 80	48	12	TX30 ●	200
r903163	6,0 x 90	54	12	TX30 ●	100
r903024	6,0 x 100	60	12	TX30 ●	100
r903025	6,0 x 120	70	12	TX30 ●	100
r903026	6,0 x 130	70	12	TX30 ●	100
r903027	6,0 x 140	70	12	TX30 ●	100
r903029	6,0 x 160	70	12	TX30 ●	100
r903031	6,0 x 180	70	12	TX30 ●	100
r903032	6,0 x 200	70	12	TX30 ●	100
r903033	6,0 x 220	70	12	TX30 ●	100
r903034	6,0 x 240	70	12	TX30 ●	100
r903035	6,0 x 260	70	12	TX30 ●	100
r903036	6,0 x 280	70	12	TX30 ●	100
r903037	6,0 x 300	70	12	TX30 ●	100

If you are not familiar with this product's application, and particularly with the product's intended use, please contact our Application Technology department (technik@eurotec.team).

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