

PRODUCT DATA SHEET

PANELTWISTEC AG, FLANGE BUTTON HEAD

PRODUCT DESCRIPTION

Paneltwistec AG flange button head screw made of blue galvanised and hardened carbon steel is a **wood construction screw** with a special screw tip and **milling ribs** above the thread. The special geometry of the screw tip reduces the torque needed to drive it in and **minimises the risk of the timber splitting**.

The **larger head diameter** allows for considerably higher torque and head pull-through capacity. This makes for better use of the **screw's tensile load-bearing strength**.

APPLICATIONS

- Conditionally corrosion-resistant and suitable for use in service classes 1 and 2 according to DIN EN 1995 (Eurocode 5)
- Paneltwistec wood construction screws from Ø 6.0 also suitable for fastening above-rafter insulation systems (Ø 8.0 is used as standard)
- Not suitable for use with woods containing tanning agents

MATERIAL

- Hardened carbon steel + blue galvanised
- Free of chromium (VI) oxide
- Good resistance to mechanical stresses

CERTIFICATION

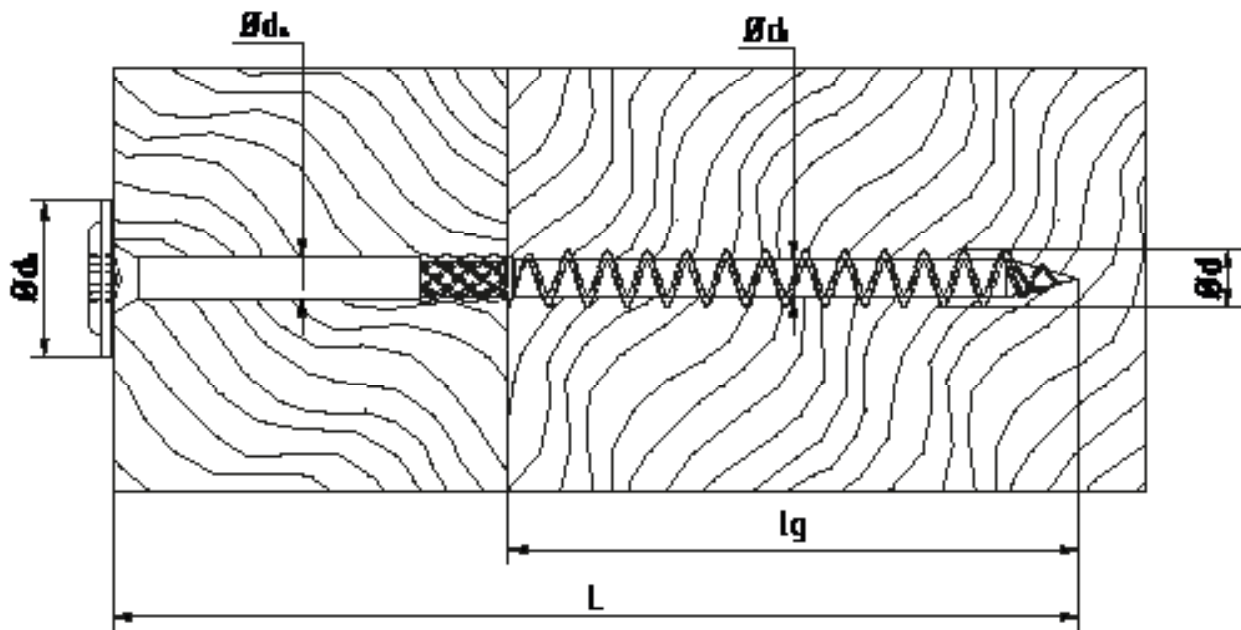
- European Technical Assessment ETA-11/0024 Self-tapping screws as wood connectors



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TECHNICAL INFORMATION



Side view

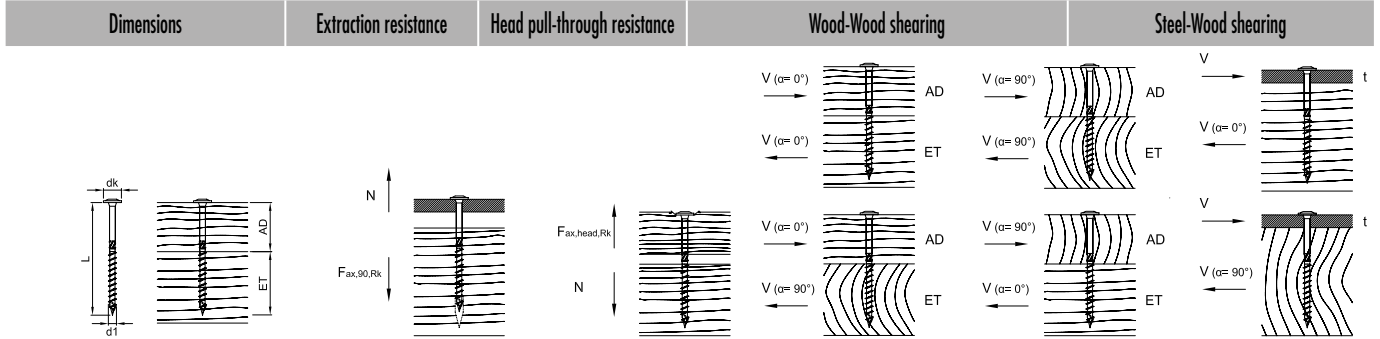
Paneltwistec AG, flange button head, steel blue galvanized

Nominal-Ø	Head-Ø	Root-Ø	Shank-Ø	Head shape	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 _r [mm]	d _s [mm]	–	[Degree °]	f _{tens,k} [kN]	M _{y,k} [Nm]	f _{ax,k} [N/mm ²]	f _{head,k} [N/mm ²]	f _{tor,k} [Nm]
3,5	8,0	2,1	2,3	TK	60	3,8	2,3	13,3	12	2,0
4	10,0	2,5	2,8	TK	60	5,0	3,3	12,9	12	3,0
4,5	11,0	2,7	3,0	TK	60	6,4	4,5	12,5	12	4,2
5	12,0	3,3	3,6	TK	60	7,9	5,9	12,1	12	5,6
6	14,0	4,0	4,3	TK	60	11,0	9,5	11,4	12	9,5
8	22,0	5,3	5,7	TK	60	20,0	20,0	11,1	12	22,0
10	25,0	6,3	6,9	TK	60	28,0	35,8	10,8	12	40,0

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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d1 x L [mm]	dk [mm]	AD [mm]	ET [mm]	$F_{ax,90,Rk}$ [kN]	$F_{ax,head,Rk}$ [kN]	$F_{lo,Rk}$ [kN]	$F_{lo,Rk}$ [kN]	$F_{lo,Rk}$ [kN]	$F_{lo,Rk}$ [kN]	t [mm]	$F_{lo,Rk}$ [kN]	$F_{lo,Rk}$ [kN]
						$\alpha = 0^\circ$	$\alpha = 90^\circ$	$\alpha_{ET} = 90^\circ$	$\alpha_{AD} = 90^\circ$		$\alpha = 0^\circ$	$\alpha = 90^\circ$
4,0 x 40	10,0	16	24	1,24	1,20		0,95			2		1,15
4,0 x 50	10,0	20	30	1,55	1,20		1,03			2		1,23
4,0 x 60	10,0	24	36	1,86	1,20		1,12			2		1,31
4,5 x 50	11,0	20	30	1,69	1,45		1,20			2		1,44
4,5 x 60	11,0	24	36	2,03	1,45		1,29			2		1,53
4,5 x 70	11,0	28	42	2,36	1,45		1,38			2		1,61
5,0 x 50	12,0	20	30	1,82	1,73		1,37			2		1,67
5,0 x 60	12,0	24	36	2,18	1,73		1,47			2		1,76
5,0 x 70	12,0	28	42	2,54	1,73		1,57			2		1,85
5,0 x 80	12,0	32	48	2,90	1,73		1,65			2		1,94
5,0 x 100	12,0	40	60	3,63	1,73		1,65			2		2,12
6,0 x 30	14,0	6	24	1,64	2,35		0,65			2		1,20
6,0 x 40	14,0	16	24	1,64	2,35		1,33			2		1,63
6,0 x 50	14,0	20	30	2,05	2,35		1,66			2		2,06
6,0 x 60	14,0	24	36	2,46	2,35		1,87			2		2,26
6,0 x 70	14,0	28	42	2,87	2,35		1,97			2		2,36
6,0 x 80	14,0	32	48	3,28	2,35		2,09			2		2,46
6,0 x 90	14,0	36	54	3,69	2,35		2,21			2		2,57
6,0 x 100	14,0	40	60	4,10	2,35		2,23			2		2,67
6,0 x 110	14,0	44	66	4,79	2,35		2,23			2		2,77
6,0 x 120	14,0	50	70	4,79	2,35		2,23			2		2,84
6,0 x 130	14,0	60	70	4,79	2,35		2,23			2		2,84
6,0 x 140	14,0	70	70	4,79	2,35		2,23			2		2,84
6,0 x 150	14,0	80	70	4,79	2,35		2,23			2		2,84
6,0 x 160	14,0	90	70	4,79	2,35		2,23			2		2,84
6,0 x 180	14,0	110	70	4,79	2,35		2,23			2		2,84
6,0 x 200	14,0	130	70	4,79	2,35		2,23			2		2,84
6,0 x 220	14,0	150	70	4,79	2,35		2,23			2		2,84
6,0 x 240	14,0	170	70	4,79	2,35		2,23			2		2,84
6,0 x 260	14,0	190	70	4,79	2,35		2,23			2		2,84
6,0 x 280	14,0	210	70	4,79	2,35		2,23			2		2,84
6,0 x 300	14,0	230	70	4,79	2,35		2,23			2		2,84
6,0 x 320	12,0	250	70	4,79	2,35		2,23			2		2,84
6,0 x 340	12,0	270	70	4,79	2,35		2,23			2		2,84
6,0 x 360	12,0	290	70	4,79	2,35		2,23			2		2,84
6,0 x 380	12,0	310	70	4,79	2,35		2,23			2		2,84
6,0 x 400	12,0	330	70	4,79	2,35		2,23			2		2,84

Calculation according to ETA-11/0024. Wood density $\rho_k = 350 \text{ kg/m}^3$. 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 ($R_d \geq E_d$).

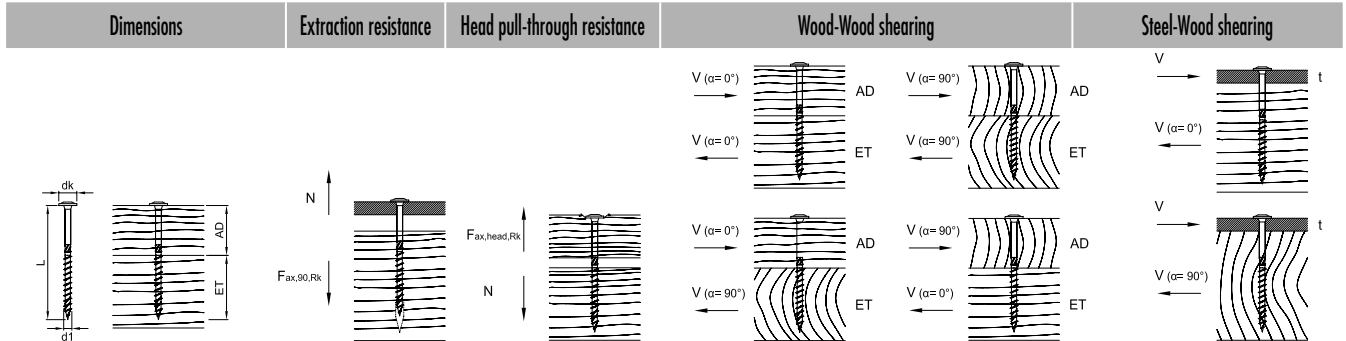
Example:

Characteristic value for constant load (dead weight) $G_k = 2,00 \text{ kN}$ and variable load (e. g. snow load) $Q_k = 3,00 \text{ kN}$. $k_{mod} = 0,9$. $\gamma_M = 1,3$. → Dimensioning value of the load $E_d = 2,00 \cdot 1,35 + 3,00 \cdot 1,5 = 7,20 \text{ kN}$. 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: $\min R_k = R_d \cdot \gamma_M / k_{mod} \rightarrow R_k = 7,20 \text{ kN} \cdot 1,3 / 0,9 = 10,40 \text{ kN}$ → comparison with table values.

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d1 x L [mm]	dk [mm]	AD [mm]	ET [mm]	Fax,90,Rk [kN]	Fax,head,Rk [kN]	Wood-Wood shearing				Steel-Wood shearing			
						F1a,Rk [kN]	F1a,Rk [kN]	F1a,Rk [kN]	F1a,Rk [kN]	t [mm]	F1a,Rk [kN]	F1a,Rk [kN]	
						alpha = 0°		alpha = 90°					
						alpha = 0°		alpha = 90°		alpha = 0°		alpha = 90°	
8,0 x 80	22,0	30	50	4,26	5,81	4,14	3,34	4,14	3,34	3	4,56	3,94	
8,0 x 100	22,0	40	60	5,33	5,81	4,83	4,01	4,83	4,01	3	4,83	4,20	
8,0 x 120	22,0	50	70	5,86	5,81	4,95	4,32	4,95	4,32	3	4,96	4,34	
8,0 x 140	22,0	40	100	8,44	5,81	4,95	4,13	4,95	4,13	3	5,60	4,98	
8,0 x 160	22,0	60	100	8,44	5,81	4,95	4,32	4,95	4,32	3	5,60	4,98	
8,0 x 180	22,0	80	100	8,44	5,81	4,95	4,32	4,95	4,32	3	5,60	4,98	
8,0 x 200	22,0	100	100	8,44	5,81	4,95	4,32	4,32	4,95	3	5,60	4,98	
8,0 x 220	22,0	120	100	8,44	5,81	4,95	4,32	4,32	4,95	3	5,60	4,98	
8,0 x 240	22,0	140	100	8,44	5,81	4,95	4,32	4,32	4,95	3	5,60	4,98	
8,0 x 260	22,0	160	100	8,44	5,81	4,95	4,32	4,32	4,95	3	5,60	4,98	
8,0 x 280	22,0	180	100	8,44	5,81	4,95	4,32	4,32	4,95	3	5,60	4,98	
8,0 x 300	22,0	200	100	8,44	5,81	4,95	4,32	4,32	4,95	3	5,60	4,98	
8,0 x 320	22,0	220	100	8,44	5,81	4,95	4,32	4,32	4,95	3	5,60	4,98	
8,0 x 340	22,0	240	100	8,44	5,81	4,95	4,32	4,32	4,95	3	5,60	4,98	
8,0 x 360	22,0	260	100	8,44	5,81	4,95	4,32	4,32	4,95	3	5,60	4,98	
8,0 x 380	22,0	280	100	8,44	5,81	4,95	4,32	4,32	4,95	3	5,60	4,98	
8,0 x 400	22,0	300	100	8,44	5,81	4,95	4,32	4,32	4,95	3	5,60	4,98	
8,0 x 420	22,0	300	100	8,44	5,81	4,95	4,32	4,32	4,95	3	5,60	4,98	
8,0 x 440	22,0	300	100	8,44	5,81	4,95	4,32	4,32	4,95	3	5,60	4,98	
8,0 x 460	22,0	300	100	8,44	5,81	4,95	4,32	4,32	4,95	3	5,60	4,98	
8,0 x 480	22,0	300	100	8,44	5,81	4,95	4,32	4,32	4,95	3	5,60	4,98	
8,0 x 500	22,0	300	100	8,44	5,81	4,95	4,32	4,32	4,95	3	5,60	4,98	
8,0 x 550	22,0	300	100	8,44	5,81	4,95	4,32	4,32	4,95	3	5,60	4,98	
8,0 x 600	22,0	300	100	8,44	5,81	4,95	4,32	4,32	4,95	3	5,60	4,98	

Calculation according to ETA-11/0024. Wood density rho_w = 350 kg/m³. All mechanical values provided should be viewed as subject to the assumptions that have been made and represent example calculations.

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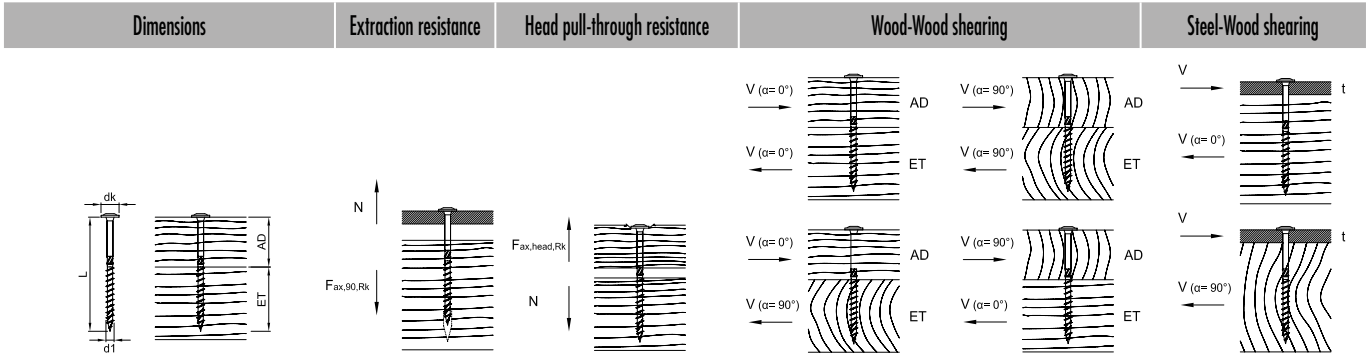
The load-bearing capacity of the joint is therefore considered to have been demonstrated if R_d ≥ E_d. → min R_k = R_d · gamma_M / k_mod i.e. the characteristic minimum value is calculated based on: min R_k = R_d · gamma_M / k_mod → R_k = 7,20 kN · 1,3/0,9 = 10,40 kN → comparison with table values.

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d1 x L [mm]	dk [mm]	AD [mm]	ET [mm]	F _{ax,90,Rk} [kN]	F _{ax,head,Rk} [kN]	Wood-Wood shearing				Steel-Wood shearing		
						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]
						α _{AD} = 0°		α _{AD} = 90°				
						α = 0°	α = 90°	α _{ET} = 90°	α _{ET} = 0°		α = 0°	α = 90°
10,0 x 100	25,0	40	60	6,48	7,50	6,44	5,08	6,44	5,08	3	6,78	5,81
10,0 x 120	25,0	50	70	7,13	7,50	6,94	5,74	6,94	5,74	3	6,94	5,97
10,0 x 140	25,0	40	100	10,26	7,50	6,70	5,34	6,70	5,34	3	7,72	6,76
10,0 x 160	25,0	60	100	10,26	7,50	7,03	6,07	7,03	6,07	3	7,72	6,76
10,0 x 180	25,0	80	100	10,26	7,50	7,03	6,07	7,03	6,07	3	7,72	6,76
10,0 x 200	25,0	100	100	10,26	7,50	7,03	6,07	7,03	6,07	3	7,72	6,76
10,0 x 220	25,0	120	100	10,26	7,50	7,03	6,07	7,03	6,07	3	7,72	6,76
10,0 x 240	25,0	140	100	10,26	7,50	7,03	6,07	7,03	6,07	3	7,72	6,76
10,0 x 260	25,0	160	100	10,26	7,50	7,03	6,07	7,03	6,07	3	7,72	6,76
10,0 x 280	25,0	180	100	10,26	7,50	7,03	6,07	7,03	6,07	3	7,72	6,76
10,0 x 300	25,0	200	100	10,26	7,50	7,03	6,07	7,03	6,07	3	7,72	6,76
10,0 x 320	25,0	220	100	10,26	7,50	7,03	6,07	7,03	6,07	3	7,72	6,76
10,0 x 340	25,0	240	100	10,26	7,50	7,03	6,07	7,03	6,07	3	7,72	6,76
10,0 x 360	25,0	260	100	10,26	7,50	7,03	6,07	7,03	6,07	3	7,72	6,76
10,0 x 380	25,0	280	100	10,26	7,50	7,03	6,07	7,03	6,07	3	7,72	6,76
10,0 x 400	25,0	300	100	10,26	7,50	7,03	6,07	7,03	6,07	3	7,72	6,76
10,0 x 420	17,8	320	100	10,26	7,50	7,03	6,07	7,03	6,07	3	7,72	6,76
10,0 x 440	17,8	340	100	10,26	7,50	7,03	6,07	7,03	6,07	3	7,72	6,76
10,0 x 460	17,8	360	100	10,26	7,50	7,03	6,07	7,03	6,07	3	7,72	6,76
10,0 x 480	17,8	380	100	10,26	7,50	7,03	6,07	7,03	6,07	3	7,72	6,76
10,0 x 500	17,8	400	100	10,26	7,50	7,03	6,07	7,03	6,07	3	7,72	6,76
10,0 x 550	17,8	450	100	10,26	7,50	7,03	6,07	7,03	6,07	3	7,72	6,76
10,0 x 600	17,8	500	100	10,26	7,50	7,03	6,07	7,03	6,07	3	7,72	6,76

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The load-bearing capacity of the joint is therefore considered to have been demonstrated if R_d ≥ E_d. → min R_d = R_k · γ_M / k_{mod}. I.e. the characteristic minimum value is calculated based on: min R_k = R_d · γ_M / k_{mod} → R_k = 7,20 kN · 1,3/0,9 = 10,40 kN → comparison with table values.

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Art. no.	Dimensions Ød x L [mm]	Drive	Thread length [mm]	PU
946158	4,0 x 40	TX20 ●	24	500
946159	4,0 x 50	TX20 ●	30	500
946160	4,0 x 60	TX20 ●	36	500
946161	4,5 x 50	TX20 ●	30	200
946162	4,5 x 60	TX20 ●	36	200
946163	4,5 x 70	TX20 ●	42	200
946037	5,0 x 50	TX25 ●	30	200
946038	5,0 x 60	TX25 ●	36	200
946039	5,0 x 70	TX25 ●	42	200
946040	5,0 x 80	TX25 ●	48	200
946042	5,0 x 100	TX25 ●	60	200
945947	6,0 x 30	TX30 ●	24	100
945948	6,0 x 40	TX30 ●	24	100
945712	6,0 x 50	TX30 ●	30	100
945713	6,0 x 60	TX30 ●	36	100
945716	6,0 x 70	TX30 ●	42	100
945717	6,0 x 80	TX30 ●	48	100
945718	6,0 x 90	TX30 ●	54	100
945719	6,0 x 100	TX30 ●	60	100
945720	6,0 x 110	TX30 ●	66	100
945721	6,0 x 120	TX30 ●	70	100
945722	6,0 x 130	TX30 ●	70	100
945723	6,0 x 140	TX30 ●	70	100
945724	6,0 x 150	TX30 ●	70	100
945725	6,0 x 160	TX30 ●	70	100
945726	6,0 x 180	TX30 ●	70	100
945727	6,0 x 200	TX30 ●	70	100
945728	6,0 x 220	TX30 ●	70	100
945729	6,0 x 240	TX30 ●	70	100
945730	6,0 x 260	TX30 ●	70	100
945731	6,0 x 280	TX30 ●	70	100
945732	6,0 x 300	TX30 ●	70	100
945733	6,0 x 320	TX40 ●	70	100
945734	6,0 x 340	TX40 ●	70	100
945735	6,0 x 360	TX40 ●	70	100
945736	6,0 x 380	TX40 ●	70	100
945737	6,0 x 400	TX40 ●	70	100
945806	8,0 x 60	TX40 ●	36	50
944588	8,0 x 80	TX40 ●	50	50
944589	8,0 x 100	TX40 ●	60	50
944590	8,0 x 120	TX40 ●	70	50
944591	8,0 x 140	TX40 ●	100	50
944592	8,0 x 160	TX40 ●	100	50
944593	8,0 x 180	TX40 ●	100	50
944594	8,0 x 200	TX40 ●	100	50
944595	8,0 x 220	TX40 ●	100	50
944596	8,0 x 240	TX40 ●	100	50

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Paneltwistec AG, flange button head, steel blue galvanized				
Art. no.	Dimensions Ød x L [mm]	Drive	Thread length [mm]	PU
944597	8,0 x 260	TX40 •	100	50
944598	8,0 x 280	TX40 •	100	50
944599	8,0 x 300	TX40 •	100	50
944600	8,0 x 320	TX40 •	100	50
944601	8,0 x 340	TX40 •	100	50
944602	8,0 x 360	TX40 •	100	50
944603	8,0 x 380	TX40 •	100	50
944604	8,0 x 400	TX40 •	100	50
944605	8,0 x 420	TX40 •	100	25
944606	8,0 x 440	TX40 •	100	25
944607	8,0 x 460	TX40 •	100	25
944608	8,0 x 480	TX40 •	100	25
944609	8,0 x 500	TX40 •	100	25
944610	8,0 x 550	TX40 •	100	25
944611	8,0 x 600	TX40 •	100	25
945750	10,0 x 80	TX50 •	48	50
945751	10,0 x 100	TX50 •	60	50
945752	10,0 x 120	TX50 •	70	50
945753	10,0 x 140	TX50 •	100	50
945754	10,0 x 160	TX50 •	100	50
945755	10,0 x 180	TX50 •	100	50
945756	10,0 x 200	TX50 •	100	50
945757	10,0 x 220	TX50 •	100	50
945758	10,0 x 240	TX50 •	100	50
945759	10,0 x 260	TX50 •	100	50
945760	10,0 x 280	TX50 •	100	50
945761	10,0 x 300	TX50 •	100	50
945762	10,0 x 320	TX50 •	100	50
945763	10,0 x 340	TX50 •	100	50
945764	10,0 x 360	TX50 •	100	25
945765	10,0 x 380	TX50 •	100	25
945766	10,0 x 400	TX50 •	100	25
100019	10,0 x 420	TX50 •	100	25
100020	10,0 x 440	TX50 •	100	25
100021	10,0 x 460	TX50 •	100	25
100022	10,0 x 480	TX50 •	100	25
100023	10,0 x 500	TX50 •	100	25
100024	10,0 x 550	TX50 •	100	25
100025	10,0 x 600	TX50 •	100	25

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).