

# Topduo Roofing screw

The wood-construction screw for all over-rafter insulation systems



## Topduo Roofing screw

flanged button-head, special coated



Art. no.	Dimensions (mm)	Length (mm)*	Drive	PU
945870	8,0 x 165	60/ 80	TX 40 ●	50
945871	8,0 x 195	60/100	TX 40 ●	50
945813	8,0 x 225	60/100	TX 40 ●	50
945814	8,0 x 235	60/100	TX 40 ●	50
945815	8,0 x 255	60/100	TX 40 ●	50
945816	8,0 x 275	60/100	TX 40 ●	50
945817	8,0 x 302	60/100	TX 40 ●	50
945818	8,0 x 335	60/100	TX 40 ●	50
945819	8,0 x 365	60/100	TX 40 ●	50
945820	8,0 x 397	60/100	TX 40 ●	50
945821	8,0 x 435	60/100	TX 40 ●	50
945843	8,0 x 472	60/100	TX 40 ●	50

\* Under-head thread/drive thread

- For fastening over-rafter insulation
- Can also be used for many other applications in timber-frame construction thanks to its high extraction resistance

## Topduo Roofing screw

cylinder-head, special coated



Art. no.	Dimensions (mm)	Length (mm)*	Drive	PU
945956	8,0 x 225	60/100	TX 40 ●	50
945965	8,0 x 235	60/100	TX 40 ●	50
945957	8,0 x 255	60/100	TX 40 ●	50
945958	8,0 x 275	60/100	TX 40 ●	50
945960	8,0 x 302	60/100	TX 40 ●	50
945961	8,0 x 335	60/100	TX 40 ●	50
945962	8,0 x 365	60/100	TX 40 ●	50
945963	8,0 x 397	60/100	TX 40 ●	50
945964	8,0 x 435	60/100	TX 40 ●	50

\* Under-head thread/drive thread

- For fastening over-rafter insulation
- Can also be used for many other applications in timber-frame construction thanks to its high extraction resistance



# Calculating quantities for Topduo roof-construction screw

## Non-pressure-resistant insulating materials with $\sigma_{10\%} < 50 \text{ kPa}$

### Example calculation

Number of Topduo screws/m<sup>2 a)</sup> - Counter batten: 40 x 60 mm<sup>2</sup>

Insulation thickness	40	60	80	100	120	140	160	180	200	220	240	260	280	
Boarding thickness	-	-	24	24	24	24	24	24	24	24	24	24	-	
Screwing depth <sup>b)</sup>	77	58	66	74	72	77	88	66	106	84	62	78	82	
Dimensions	8 x 165	8 x 195	8 x 225	8 x 255	8 x 275	8 x 302	8 x 335	8 x 335	8 x 397	8 x 397	8 x 397	8 x 435	8 x 435	
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	
Roof pitch	20°	1,25	1,25	1,25	1,32	1,59	1,94	2,43	2,91	3,22	3,64	4,11	4,83	4,83
	25°	1,36	1,36	1,36	1,45	1,81	2,21	2,60	3,18	3,59	4,14	4,76	5,71	5,71
	30°	1,51	1,51	1,51	1,51	1,93	2,41	2,89	3,20	4,15	4,79	5,74	5,74	5,74
	35°	1,61	1,61	1,61	1,61	2,05	2,61	2,89	3,61	4,15	4,78	5,74	7,18	7,18
	40°	1,60	1,70	1,60	1,70	2,21	2,60	3,18	3,59	4,14	4,76	5,83	7,29	7,29
	45°	1,69	1,69	1,69	1,69	2,24	2,63	3,22	3,64	4,83	5,78	5,78	7,22	7,22
	50°	1,69	1,69	1,69	1,79	2,24	2,63	3,22	4,11	4,83	5,78	5,78	7,22	7,22
	55°	1,71	1,71	1,71	1,71	2,23	2,62	3,20	3,62	4,79	5,76	5,76	7,18	7,18
60°	1,60	1,70	1,60	1,70	2,21	2,60	3,18	3,59	4,76	4,76	5,71	7,29	7,29	

<sup>a)</sup> With screw spacing A = B; screwing angle 65°. <sup>b)</sup> Screwing depth in the rafter.  
 Example conversion for screws/m<sup>2</sup> → max. screw spacing =  $\frac{1}{(1,51 \times 0,7)} = 0,95 \text{ m}$ .

With 1,51 = number of screws/m<sup>2</sup>; 0,7 = rafter clearance in m. According to the Z-9.1-630 approval, the screw spacing should not exceed 1,75 m. Calculation according to Z-9.1-630, DIN 1055-4:2005-03 and DIN 1055-5:2005. All listed values should be viewed as subject to the assumptions that have been made. They therefore represent example calculations and are subject to typographical and printing errors.

### Further assumptions:

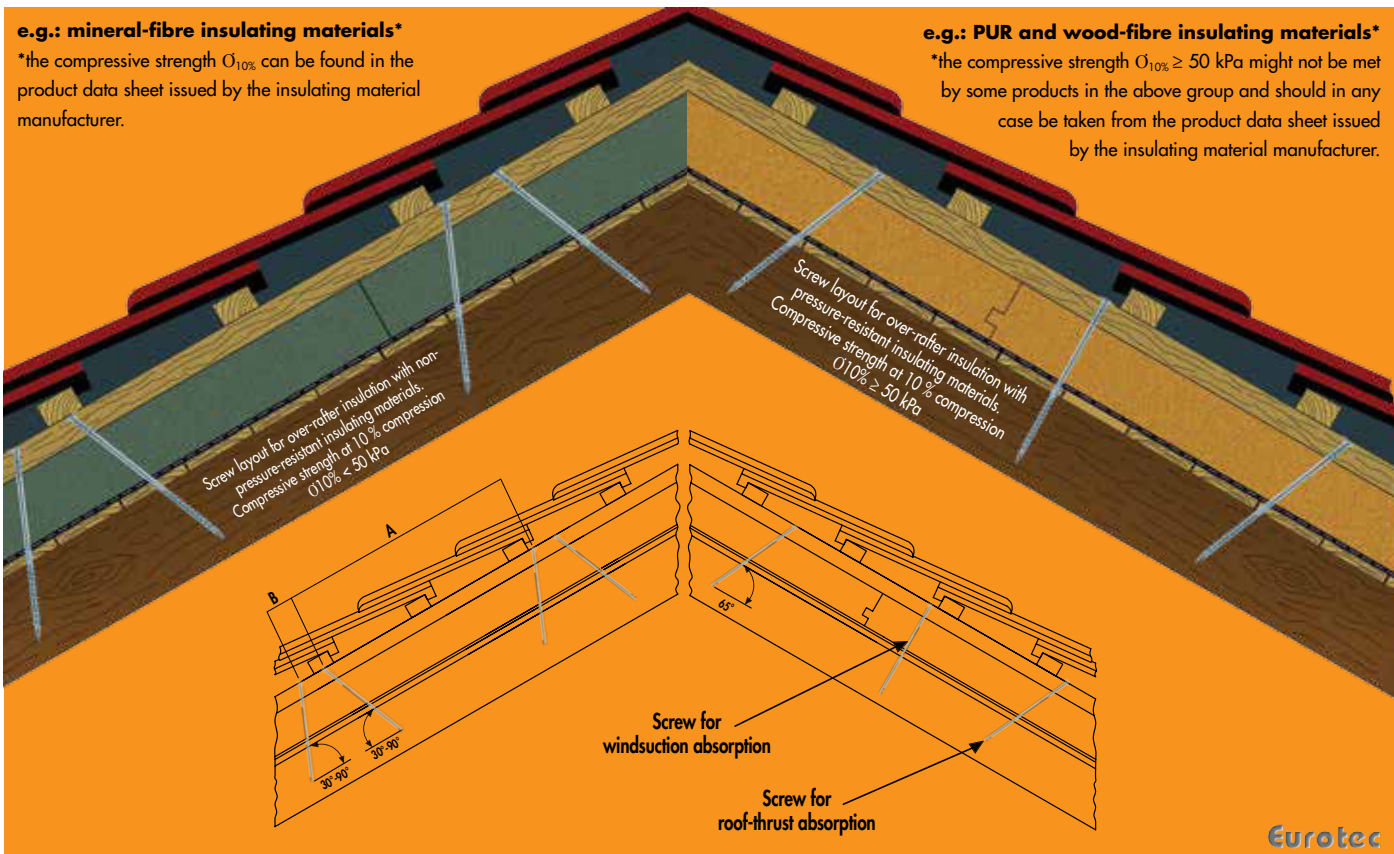
Gable roof; ridge height max. 18 m; site elevation max. 285 m above sea level; wind load zone 1 (only wind-pressure values for roof area „H“ are taken into account); snow load zone 2 (snow guard present); unladen weight of roofing 0,55 kN/m<sup>2</sup>; usage class (NKL) 2; rafters C24 8/≥12 cm; rafter length 8 m; rafter spacing 70 cm; counter batten C24 4/6 x 4 m.

### e.g.: mineral-fibre insulating materials\*

\*the compressive strength  $\sigma_{10\%}$  can be found in the product data sheet issued by the insulating material manufacturer.

### e.g.: PUR and wood-fibre insulating materials\*

\*the compressive strength  $\sigma_{10\%} \geq 50 \text{ kPa}$  might not be met by some products in the above group and should in any case be taken from the product data sheet issued by the insulating material manufacturer.



## Calculating quantities for Topduo roofing screw Pressure-resistant insulating materials with $\sigma_{10\%} \geq 50 \text{ kPa}$

### Example calculation: Screws for roof-thrust absorption

#### Number of Topduo screws/m<sup>2</sup> - 100 kPa/50 kPa<sup>a)</sup> - Counter batten: 40 x 60 mm<sup>2</sup>

Insulation thickness	40	60	80	100	120	140	160	180	200	220	240	260	280	
Boarding thickness	-	-	24	24	24	24	24	24	24	24	24	24	-	
Screwing depth <sup>b)</sup>	77	58	66	74	72	77	88	66	106	84	62	78	82	
Dimensions	8 x 165	8 x 195	8 x 225	8 x 255	8 x 275	8 x 302	8 x 335	8 x 335	8 x 397	8 x 397	8 x 397	8 x 435	8 x 435	
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	
Roof pitch	20°	0,58/0,97	0,57/1,00	0,57/0,97	0,57/0,97	0,57/0,97	0,57/1,02	0,57/1,13	0,57/1,24	0,57/1,33	0,57/1,44	0,57/1,53	0,57/1,62	0,62/1,72
	25°	0,69/1,18	0,62/1,22	0,59/1,18	0,59/1,18	0,59/1,18	0,59/1,24	0,59/1,37	0,59/1,50	0,59/1,62	0,59/1,74	0,64/1,85	0,70/1,98	0,75/2,10
	30°	0,79/1,36	0,72/1,41	0,68/1,36	0,68/1,36	0,68/1,36	0,68/1,42	0,68/1,58	0,68/1,72	0,68/1,87	0,68/2,01	0,74/2,13	0,80/2,26	0,87/2,42
	35°	0,88/1,51	0,79/1,56	0,75/1,51	0,75/1,51	0,75/1,51	0,75/1,58	0,75/1,76	0,75/1,93	0,75/2,07	0,75/2,23	0,83/2,38	0,89/2,55	0,96/2,69
	40°	0,93/1,64	0,85/1,70	0,82/1,64	0,82/1,64	0,82/1,64	0,82/1,72	0,82/1,90	0,82/2,07	0,82/2,26	0,82/2,42	0,89/2,59	0,97/2,74	1,04/2,91
	45°	0,98/1,74	0,89/1,78	0,87/1,74	0,87/1,74	0,87/1,74	0,87/1,83	0,87/2,01	0,87/2,19	0,87/2,38	0,87/2,55	0,94/2,74	1,02/2,91	1,10/3,03
	50°	1,00/1,80	0,92/1,85	0,89/1,80	0,89/1,80	0,89/1,80	0,89/1,87	0,89/2,07	0,89/2,26	0,89/2,46	0,89/2,64	0,97/2,80	1,06/2,97	1,14/3,17
	55°	1,00/1,83	0,93/1,87	0,91/1,83	0,91/1,83	0,91/1,83	0,91/1,90	0,91/2,13	0,91/2,30	0,91/2,50	0,91/2,69	0,99/2,85	1,08/3,03	1,16/3,24
	60°	0,98/1,83	0,93/1,87	0,90/1,83	0,90/1,83	0,90/1,83	0,90/1,90	0,90/2,10	0,90/2,30	0,90/2,50	0,90/2,69	0,99/2,85	1,07/3,03	1,16/3,24

<sup>a)</sup> Number of screws/m<sup>2</sup>, differentiated for compressive strength of the insulation: 100 kPa or 50 kPa.

<sup>b)</sup> Screwing depth in the rafter.

Example conversion for screws/m<sup>2</sup> → max. screw spacing =  $\frac{1}{(1,36 \times 0,7)} = 1,05 \text{ m}$ .

With 1,36 = number of screws/m<sup>2</sup>; 0,7 = rafter clearance in m. According to the Z-9.1-630 approval, the screw spacing should not exceed 1.75 m. Calculation according to Z-9.1-630, DIN 1055-4:2005-03 and DIN 1055-5:2005. All listed values should be viewed as subject to the assumptions that have been made. They therefore represent example calculations and are subject to typographical and printing errors.

#### Further assumptions:

Gable roof; ridge height max. 18 m; site elevation max. 285 m above sea level; wind load zone 1 (only wind-pressure values for roof area „H“ are taken into account); snow load zone 2 (snow guard present); unladen weight of roofing 0,55 kN/m<sup>2</sup>; usage class (NKL) 2; rafters C24 8/≥12 cm; rafter length 8 m; rafter spacing 70 cm; counter batten C24 4/6 x 4 m.

### Example calculation: Screws for wind-suction absorption

#### Number of Topduo screws/m<sup>2</sup> - max. screw spacing in m

Insulation thickness	40	60	80	100	120	140	160	180	200	220	240	260	280
Boarding thickness	-	-	24	24	24	24	24	24	24	24	24	24	-
Screwing depth <sup>d)</sup>	85	65	51	61	71	51	51	58	71	51	93	73	77
Dimensions	8 x 165	8 x 165	8 x 195	8 x 225	8 x 255	8 x 255	8 x 275	8 x 302	8 x 335	8 x 335	8 x 397	8 x 397	8 x 397
Roof pitch	20° - 25°	0,77 screws/m <sup>2</sup> ; screw spacing = 1,85 m											
	>25° bis 35°	0,79 screws/m <sup>2</sup> ; screw spacing = 1,80 m											
	>35° bis 40°	0,81 screws/m <sup>2</sup> ; screw spacing = 1,76 m											
	>40° bis 50°	0,84 screws/m <sup>2</sup> ; screw spacing = 1,70 m											
	>50° bis 60°	0,88 screws/m <sup>2</sup> ; screw spacing = 1,63 m											

<sup>d)</sup> Screwing depth in the rafter.

The following apply in addition to the assumptions made above: least favourable wind-suction values for the roof areas „H“ and „I“; load-duration class (KLED) = short.

## Roof hooks

Fastening for over-rafter insulation

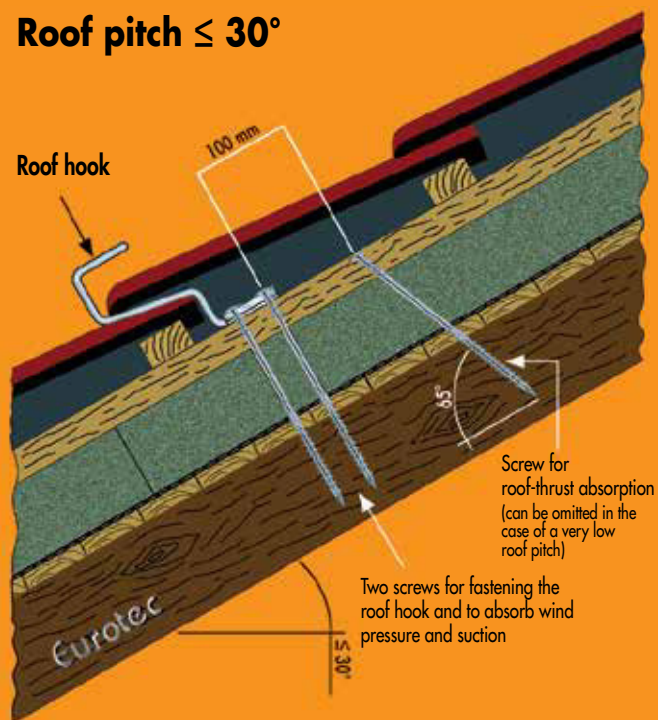


With the Topduo double-threaded screw, the additional point loads arising due to a photovoltaic or solar-thermal system are safely transferred to the rafter. The roof hooks are fastened to the rafter by means of two screws that pass through the entire assembly height of the over-rafter insulation.

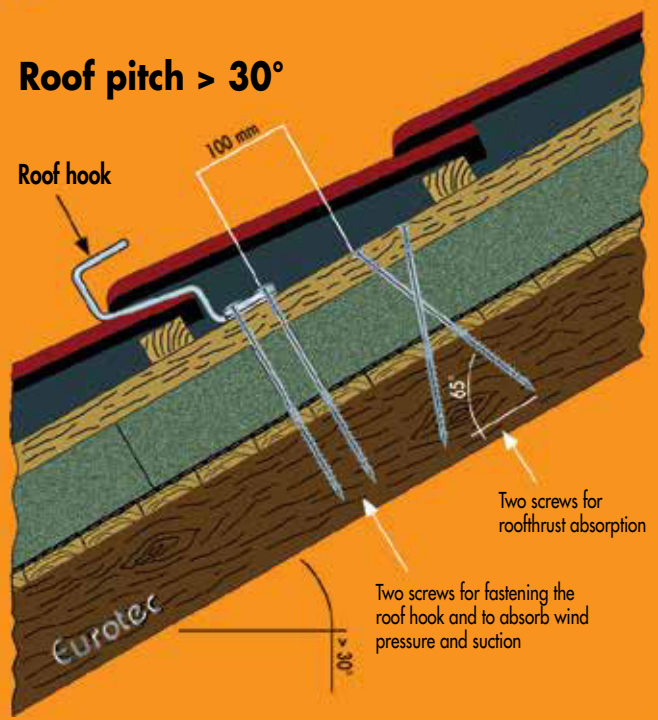
This connection must then be reinforced with max. two further screws, depending on the roof pitch and other factors.



### Roof pitch $\leq 30^\circ$



### Roof pitch $> 30^\circ$





**Calculation service On-roof insulation in accordance** with ETA-11/0024

By fax on +49 (0)2331 6245 200 or by email to [info@eurotec.team](mailto:info@eurotec.team)

Free preliminary calculation as a planning aid. Technical documentation at [www.eurotec.team](http://www.eurotec.team). Application technology team: 02331 - 6245 -108 / -109 / -110.

The software and inquiry form are available to download on the service page of our website: [www.eurotec.team](http://www.eurotec.team)

**Contact**

Traders:	Contractor:
Contact person:	Contact person:
E-Mail:	Tel.:
Construction project:	E-Mail:

**Details of the construction project**

<input type="checkbox"/> Lean-to roof <input type="checkbox"/> Gable roof <input type="checkbox"/> Hipped roof	
Building length on eaves side (m):	
Gable width (m):	Width of counter batten (mm): (at least 60 mm)
Rafter length (m): (optional information)	Height of counter batten (mm): (at least 40 mm)
Ridge height (m): (above site)	Length of counter batten (m): (Length of actually installed counter-batten pieces)
Roof overhang (m):    Eaves _____ / Verge _____ (quantity is determined for entire roof surface)	Load from roofing and battens:
Roof pitch (°):    Main roof _____ / hip _____	<input type="checkbox"/> Standing metal seam roof (0,35 kN/m <sup>2</sup> ) <input type="checkbox"/> Concrete roofing tile, roof tile (0,55 kN/m <sup>2</sup> ) <input type="checkbox"/> Flat-tile roof in double/crown formation (0,75 kN/m <sup>2</sup> ) <input type="checkbox"/> or _____ (kN/m <sup>2</sup> )
Insulation:	
Insulation thickness (mm):	
Rafter width (mm):	Post code of the construction project: (to allow determination of the wind/snow load zone)
Rafter height (mm):	Characteristic snow load on base $s_k$ (kN/m <sup>2</sup> ): (only for municipalities with special regulation)
Rafter centre spacing (mm):	Site elevation above sea level (m): (important for municipalities with strong relief)
Boarding thickness (mm):	Snow guard provided? <input type="checkbox"/> Yes <input type="checkbox"/> No

**Screw selection**

Paneltwistec countersunk-head screw\*   
  Paneltwistec flanged button-head screw\*   
  Topduo flanged button-head\*\*   
  Topduo ornamental head\*\*

\*only for pressure-resistant insulating materials with compressive strength  $\geq 50$  kPa

\*\*also for non-pressure-resistant insulating materials