

Manufacturer: ETANCO (FRANCE)

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Product name:

STARKING TX / 2C – Ø 7 SARKING

Application:

Sarking: Attaching the facing panels to the rafters without crushing the insulation, for flexible and solid insulation

Description:

Self-drilling screw Ø 7 mm with double thread
Countersink conical head, Torx 40 pattern and sharp point type 17

CE marking according to EN 14592:2009

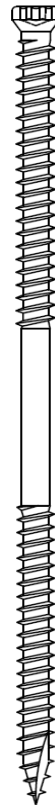
FCBA Technical Report n° 403/12/799/898 (Sarking)

Material:

Body: Cemented steel

Specifications:

Ø 7 mm : Lengths 210 to 500 mm – Threaded length 80 mm – Torx 40 pattern – Pitch 3,0 mm – Head Ø 10,5 mm



Material, coating and test of corrosion résistance:

- **2C: SUPRACOAT 2C** coated cemented steel (12 to 20 µm):

Corrosion résistance level determined by Kesternich test (sulfur dioxide corrosion with general dampness condensation) in compliance with NF EN 3231 (2 l)

Resisted to 15 cycles before the appearance of red rust

Salt spray test in compliance with NF ISO 9227 (March 2007):

No trace of red rust after 500 hours.

Detailed specifications:

Screw Ø (mm) – d	Ø 7
Head Ø (mm) – d _h	10,5
Tread under head Ø (mm)	7,65
Threaded length under head (mm)	70
Threaded length in tip (mm)	80
Root of a thread Ø (mm) – d _i	4,9
Screw body Ø (mm) – d _s	5,3
Head thickness – h _t	5,9
Torx pattern - TX	40
Pre-drilling Ø – d _v	5

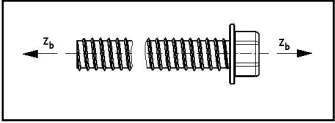
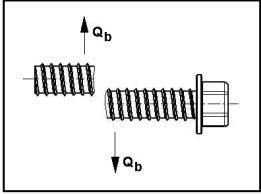
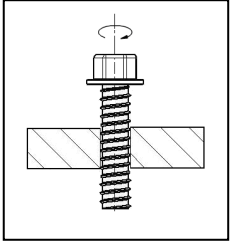
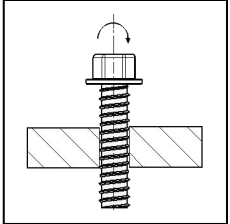
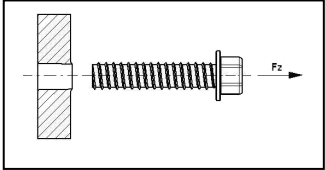
<p>Tensile steel failure: Characteristic resistance</p>	<p>$\text{Ø } 7 : f_{\text{tens,k}} = 1243 \text{ daN}$</p>	
<p>Shear steel failure: Characteristic resistance</p>	<p>$\text{Ø } 7 : f_{\text{shear,k}} = 1108 \text{ daN}$</p>	
<p>Torque steel failure: Characteristic resistance</p>	<p>$\text{Ø } 7 : f_{\text{tor,k}} = 11,86 \text{ N.m}$</p>	
<p>Flexural steel failure: Characteristic resistance</p>	<p>$\text{Ø } 7 : M_{y,k} = 15,38 \text{ N.m}$</p>	
<p>Pull-out failure in wood (fir 450 Kg/m³) According to NF P 30-310 The indicated values do not include safety factors</p>	<p>$\text{Ø } 7 : P_k = 875 \text{ daN}$ Embedment depth = 60 mm</p>	

Table of screw lengths – Sarking process – Installation screw at 60° and 120°

Thickness to fix (mm) (Counter batten + insulation + decking)	STARKING Ø 7 – L (mm)
100	210
120	210
140	230
160	250
180	270
200	300
220	330
240	360
260	360
280	400
300	440
320	440
340	480
360	480
380	500

Table of characteristics resistances –Sarking process – Installation screw at 60° and 120°
Wood class C24 – According to NF EN 1995-1-1

Length of screw (mm)	STARKING Ø 7 – F _{v,rk} (daN)
210	105
230	100
250	95
270	90
300	82
330	75
360	67
400	64
440	62
480	59
500	58

The values of the above table are given according to the following minimum configuration:

- Insulation: class of compressibility < 50 kPa
- Alternate fixing : 60° and 120° (0° being in the direction of the slope)
- Thickness of the Counter batten ≥ 27 mm
- Anchorage depth of the screw ≥ 60 mm

Determination of the number of fasteners per m² and the maximum spacing between the fixings:
(according to the rules of Eurocodes)

Calculation assumptions:

- Snow loads following Eurocode 1, part 1-3 "Actions on structures - Snow Action" and its national annex
- Altitude < 2000 m
- Not taking into account the reduction in snow load depending on the slope (with snow retention system)
- No snow accumulation phenomenon

Calculations:

The calculation value is obtained by applying coefficients: $F_{v,Rd} = \frac{F_{v,Rk} \times k_{mod}}{\gamma_M}$

The coefficient γ_M for wood (fir) is 1,3 (1,0 in accidental situation).
The coefficient k_{mod} to cover all altitudes is 0,8.

The induced shear force on fixings (daN/m²) is determined from 3 combinations:

$$V_{d1} = 1,35 \times G_k \times \sin \alpha$$

$$V_{d2} = 1,35 \times G_k \times \sin \alpha + 1,5 \times S_k \times \sin \alpha \times \cos \alpha$$

$$V_{d3} = G_k \times \sin \alpha + S_{Ad} \times \sin \alpha \times \cos \alpha$$

S_k : characteristic snow load on the ground in daN / m²

S_{ad} : exceptional snow load on the ground in daN / m²

G_k : self-weight of the roof in daN / m²

α : roof slope in °

The number of fixings per m² is determined from the following formula:

$$N = \max \left[\begin{array}{c} \frac{V_d}{F_{v,Rd}} \\ 2 \end{array} \right]$$

The maximum spacing between the fixings is determined by the following formula:

$$d_{max} = \min \left[\begin{array}{c} \frac{1}{N \times e} \\ 0,60 \end{array} \right]$$

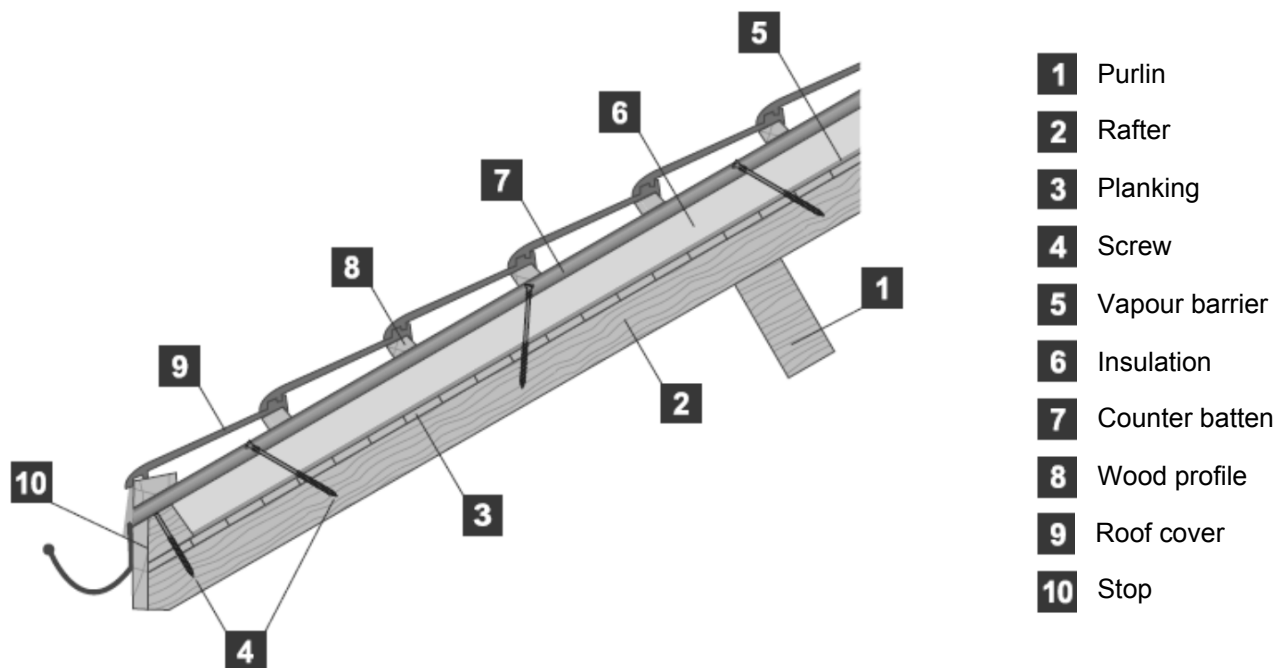
N: number of fixings per m²

d_{max} : maximum spacing between fixings in m

e: Spacing between wood frameworks in m

To determine the number of fixings per m² and the maximum spacing of fixings, you can contact the wood department ETANCO (Tel. : +33 (0)1.34.80.51.61 – Fax : +33 (0)1.34.80.52.84 – Email : bois@etanco.fr)

Principle of sarking:



- 1** Purlin
- 2** Rafter
- 3** Planking
- 4** Screw
- 5** Vapour barrier
- 6** Insulation
- 7** Counter batten
- 8** Wood profile
- 9** Roof cover
- 10** Stop

According to French standard:

DTU 31.1

DTU 31.2

Recommended tool:

Screwdriver FEIN SCS 6,3 -19X power consumption 400 W mini with torque limiter (depth stop)

Drive bit: Torx n° 40

Labelling:

On packaging: STARKING TX / 2C – Ø x L – code

Quality control:

Linear

These products are intended for professional installers landlords whose the related service includes supply and installation. In accordance with rules and normative regulation, it's their responsibility to check that the use of these products is in conformity to themselves needs and their customers. They have to insure as well the adequacy of this material with their real operating conditions. The company excludes any guarantee for the use that does not respect these conditions. His responsibility is limited to the strict compliance with the specifications stipulated on the customer's purchase order. The guarantee is limited to the replacement of defective parts acknowledged by the Company's technical service, without workforce costs and travel expenses. It excludes material damage or physical injury and others direct or indirect damages, material or immaterial, which may result from defective parts including installation that not complying with the use for which they are designed and produced.