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European Technical Assessment **ETA-12/0495** of 02/07/2015

I General Part

Technical Assessment Body issuing the ETA and designated according to Article 29 of the Regulation (EU) No 305/2011:

VTT Expert Services Ltd

Trade name of the construction product

Croco A-110, Croco B-110 ja Croco-512 kiinnikkeet

Croco A-110, Croco B-110 and Croco-512 fasteners

Product family to which the construction product belongs

Fasteners for mechanically fastened flexible waterproofing systems

Manufacturer

SK Tuote Oy
Kauppatie 9
FI-65610 Mustasaari
Finland

Manufacturing plant

SK Tuote Oy
Kauppatie 9
FI-65610 Mustasaari
Finland

This European Technical Assessment contains

8 pages including 1 Annex which forms an integral part of this assessment.

This European Technical Assessment is issued in accordance with regulation (EU) No 305/2011, on the basis of

ETAG 006, Edition March 2000, Amended November 2012, used as European Assessment Document (EAD)

This version replaces

The previous ETA with the same number and validity from 10.12.2012 to 9.12.2017

Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and should be identified as such.

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II SPECIFIC PART OF THE EUROPEAN TECHNICAL ASSESSMENT

1 Technical description of the product

Croco fasteners are composed of coloured polypropylene plastic washers and VILPE® KLA NO-1, KLA NO-3, steel screws , VILPE® concrete screws TX25 or VILPE® concrete nails depending into which substrate they will be fastened. Steel Screws, Concrete nails and Concrete screw have zinc and Tufcote / Ruspert coating. The dimensions of the fastener and screw or nail are chosen depending on the thickness on roof insulation. The length of the fastener can vary between 20 – 660 mm. Figures and dimensions of the products are in the annex 1.

The fastening system is introduced to the market separately from other components of roof waterproofing membrane kit, and this ETA covers only performance characteristics of the fastening systems. A separate ETA according to ETAG 006 is necessary to cover an entire kit for mechanically fastened roof waterproofing membranes.

2 Specification of the intended use in accordance with the applicable European Assessment Document, EAD

2.1 Intended use

The products are intended to be used for fastening of mechanically fastened flexible roof waterproofing and roof insulation to the load bearing roof substrate. The fasteners may be used for bituminous, rubber and plastic membranes.

2.2 Working life

The provisions made in this European Technical Assessment are based on an assumed intended working life of the mechanical fastenings of 10 years, provided that they are subject to appropriate installation, use and maintenance.

The indications given on the working life cannot be interpreted as a guarantee given by the producer or assessment body, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

3 Performance of the product and references to the methods used for its assessment

Basic requirement Essential characteristics	ETAG/ EAD Clause No.	Assessment of characteristic
BWR 1. Mechanical resistance and stability	5.3.1	Not relevant
BWR 2. Safety in case of fire	5.3.2	
Reaction to fire		Not assessed
BWR 3. Hygiene, health and the environment	5.3.3	
Release of dangerous substances		No dangerous substances*
BWR 4. Safety and accessibility in use	5.3.4	
Axial loading resistance**	Annex D. 2.1	<p>Croco A and Croco B fasteners:</p> <ul style="list-style-type: none"> • Steel substrate, 0,72 mm VILPE® KLA NO-1 steel screw 1,68 kN • Steel substrate 1,25 mm VILPE® KLA NO-3 steel screw 1,55 kN • Plywood substrate, 18 mm VILPE® KLA NO-1 steel screw Installation depth 15 mm to substrate 1,59 kN • Concrete substrate, C 25/30 VILPE® Concrete nail Installation depth 20 mm to substrate, drill 5 mm 1,20 kN • Concrete substrate, C 25/30 VILPE® Concrete screw TX25 Installation depth 20 mm to substrate, drill 5 mm 1,45 kN <p>Croco 512 fasteners</p> <ul style="list-style-type: none"> • Aerated concrete, 500/4,0 0,61 kN Installation depth 50 mm, drill 12 mm
Unwinding resistance	Annex D. 2.2	Based on the field experience of the manufacturer the fasteners are not susceptible for unwinding
Mechanical resistance/brittleness of the plastic fastener	Annex D. 2.3	Drop height 1,7 m

BWR 5. Protection against noise	5.3.5	Not relevant
BWR 6. Energy economy and heat retention	5.3.6	Not relevant
BWR 7. Sustainable use of natural resources		Not relevant
General aspects relating to the performances of the construction product	5.3.7	
Aspects of Durability:		
Corrosion resistance	Annex D. 3.1	Meets the requirements for 15 cycles (<15 % surface corrosion)
Mechanical resistance of the plastic fastener after heat ageing	Annex D. 3.2	Drop height 1,7 m

*In addition to the specific clauses relating to dangerous substances contained in this European Technical Assessment, there may be other requirements applicable to the products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the Construction Products Regulation, these requirements need also to be complied with, when and where they apply.

** Values counted using $\alpha=1$, $k= 1,92$ (acc. Table D1 in EN 1990-2002) and 10 test results and the formula $X_m = \alpha(X_n - k \times s)$

Fasteners are tested with bitumen membranes according to ETAG 006. The wind uplift performance is mainly determined by roofing membranes. The results of specific kits are not included in the ETA and may be obtained from the ETA holder.

Aspects related to the performance of the product

The performance of the mechanical fasteners results from the characteristic values and categories. The supplementing statements of the manufacturer stated in the MTD for design and application of the mechanical fasteners for fastening of flexible roof waterproofing and roof insulation into the load bearing roof substrate shall be considered.

It is the manufacturer's responsibility to make sure that all those who utilize the mechanic fasteners will be appropriately informed about the specific conditions according to this ETA and the not confidential parts of the MDT deposited to this ETA.

If there is doubt about the suitability of the substrate, e.g. on a construction site, a pull-out test on site should be performed to verify the performance of the fastener (see ETAG 006 Annex C). Furthermore, care should be taken during design to ensure that bimetallic corrosion, between metal parts, especially between substrate and screw, does not occur. Also insulation materials, containing substances which can affect the performance of the fasteners must be avoided.

4 Assessment and verification of constancy of performance (hereinafter AVCP)

According to the Decision 98/143/EC of the European Commission, the system of assessment and verification of constancy of performance (see Annex V to the regulation (EU) No 305/2011) is 2+.

There is no declared fire performance, and hence the decision 2003/655/EC of the European Commission with regard to reaction to fire is not relevant.

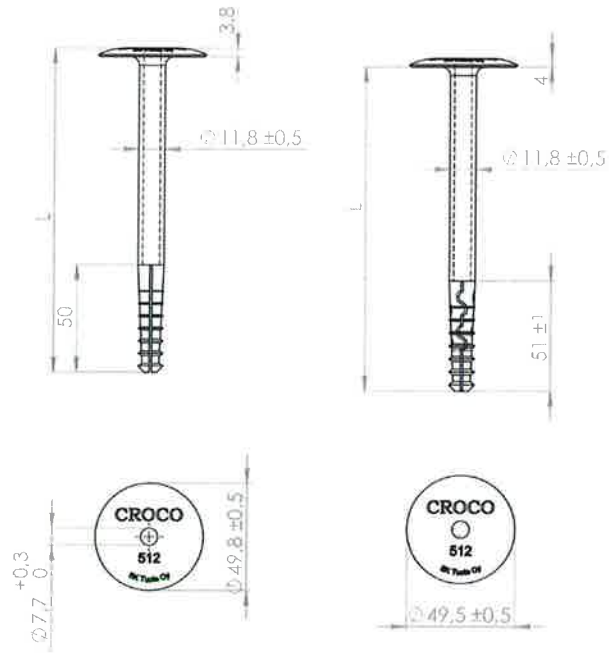
5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at VTT Expert Services Ltd.

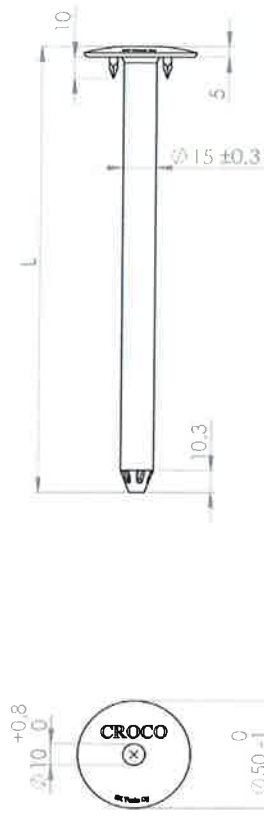
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Pertti Jokinen
Product Manager

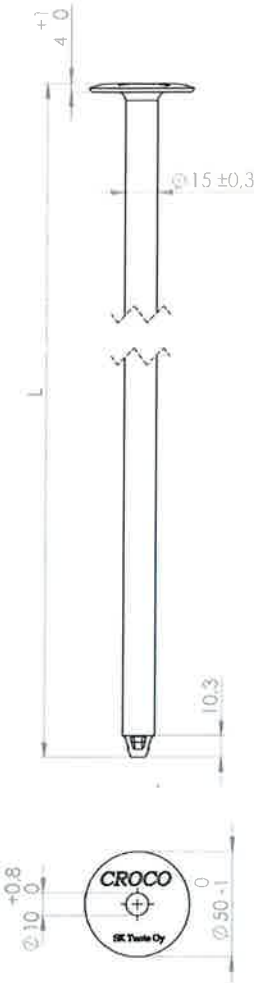

Lina Markelin-Rantala
Lead Assessor



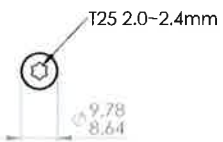
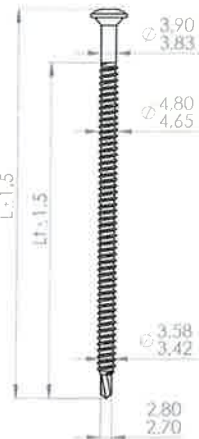
Picture 1 Croco 512 washer



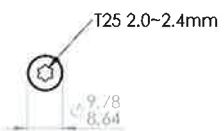
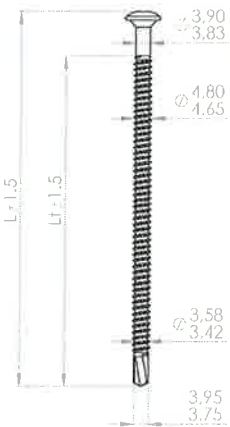
Picture 2. Croco A washer



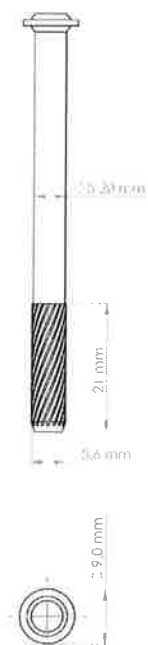
Picture 3. Croco B washer



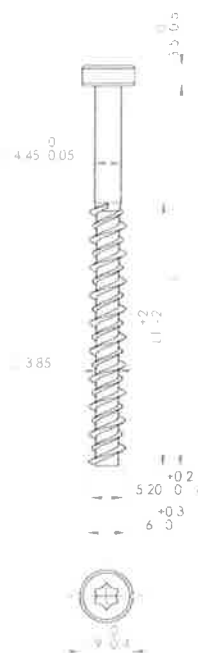
Picture 4. VILPE® KLA NO-1 screw



Picture 5. VILPE® KLA NO-3 screw



Picture 6. VILPE® Concrete nail TX25



Picture 7. VILPE® Concrete screw