



## European Technical Assessment

**ETA-23/0814  
of 23.07.2024**

### General Part

**Technical Assessment Body issuing the European Technical Assessment:**  
LUXEMBOURG INSTITUTE FOR BUILDING AND TECHNOLOGY

**Trade name of the construction product**

**Roof hook RH1**

**Product family to which the construction product belongs**

Three-dimensional nailing plate to mount solar substructures to timber substructures.

**Manufacturer**

Renusol Europe GmbH  
Piccoloministr. 2  
51063 Köln/Cologne  
Germany

**Manufacturing plant(s)**

Plant 1

**This European Technical Assessment contains**

7 pages including 4 annexes which form an integral part of this assessment

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

EAD 130186-00-0603  
THREE-DIMENSIONAL NAILING PLATES

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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## Specific parts

### 1. Technical description of the product

The product is a three-dimensional nailing plate used as roof hook RH1 mainly used for solar installations from Renusol Europe GmbH. The hook is made of two piece of aluminum EN AW 6082 T6 according to DIN EN 755-2:2016 (bracket) and aluminum EN AW 6063 T66 according to DIN EN 755-2:2016 (base plate). The connection between the bracket and the base plate is made by using a flat round head screw M8x35/35 according to ISO 7380 A2 Hex. The screw is made of stainless steel 1.4301. The applicable tightening torque of the screw is 15 Nm.

The roof hook is always fastened to the supporting substructure of the roof, made of timber C24 according to EN 14081, with at least 3 timber-construction screws "Reisser Sparibo 6.0x80" according to ETA-11/0106 dated February 1, 2019. At least two of the screws are screwed into the thick part of the base plate.

A drawing of the product is shown in Annex 1.

### 2. Specification of the intended use(s) in accordance with the applicable European Assessment Document (hereinafter EAD)

The product is used as connection to load bearing timber structures.

The intended use comprises connections with predominantly static loads (e.g. wind loads, dead loads). The product is not intended for re-use.

The performances given in Section 3 are only valid if the nailing plate is used in compliance with the specifications and conditions given in the Annexes.

The verification and assessment methods on which this European Technical Assessment is based (EAD) lead to the assumption of a working life of the nailing plate of 50 years. The indications given on the working life cannot be interpreted as a guarantee neither given by the product manufacturer or his representative nor by EOTA when drafting the corresponding EAD nor by LUXIB, but are regarded only as a means for expressing the expected economically reasonable working life of the product.

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

<b>Mechanical resistance and stability (BWR1)</b>		
<b>No.</b>	<b>Essential characteristic</b>	<b>Performance</b>
1	Joint strength	See Annex 4
2	Joint stiffness	No performance determined (NPD)
3	Joint ductility	No performance determined (NPD)
4	Resistance to seismic actions	No performance determined (NPD)
5	Resistance to corrosion and deterioration	No performance determined (NPD)
<b>Mechanical resistance and stability (BWR2)</b>		
<b>No.</b>	<b>Essential characteristic</b>	<b>Performance</b>
6	Reaction to fire	Performance Class A1 in accordance with EC decision 96/603/EC (as amended)
7	Resistance to fire	No performance determined (NPD)

**4. Assessment and verification of constancy of performance (hereinafter AVCP) system applied, with reference to its legal base**

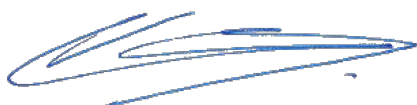
In accordance with EAD 130186-00-0603, the applicable European legal act is:  
Commission Decision 97/638/EC.

The system to be applied is: 2+

**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 with LUXIB.

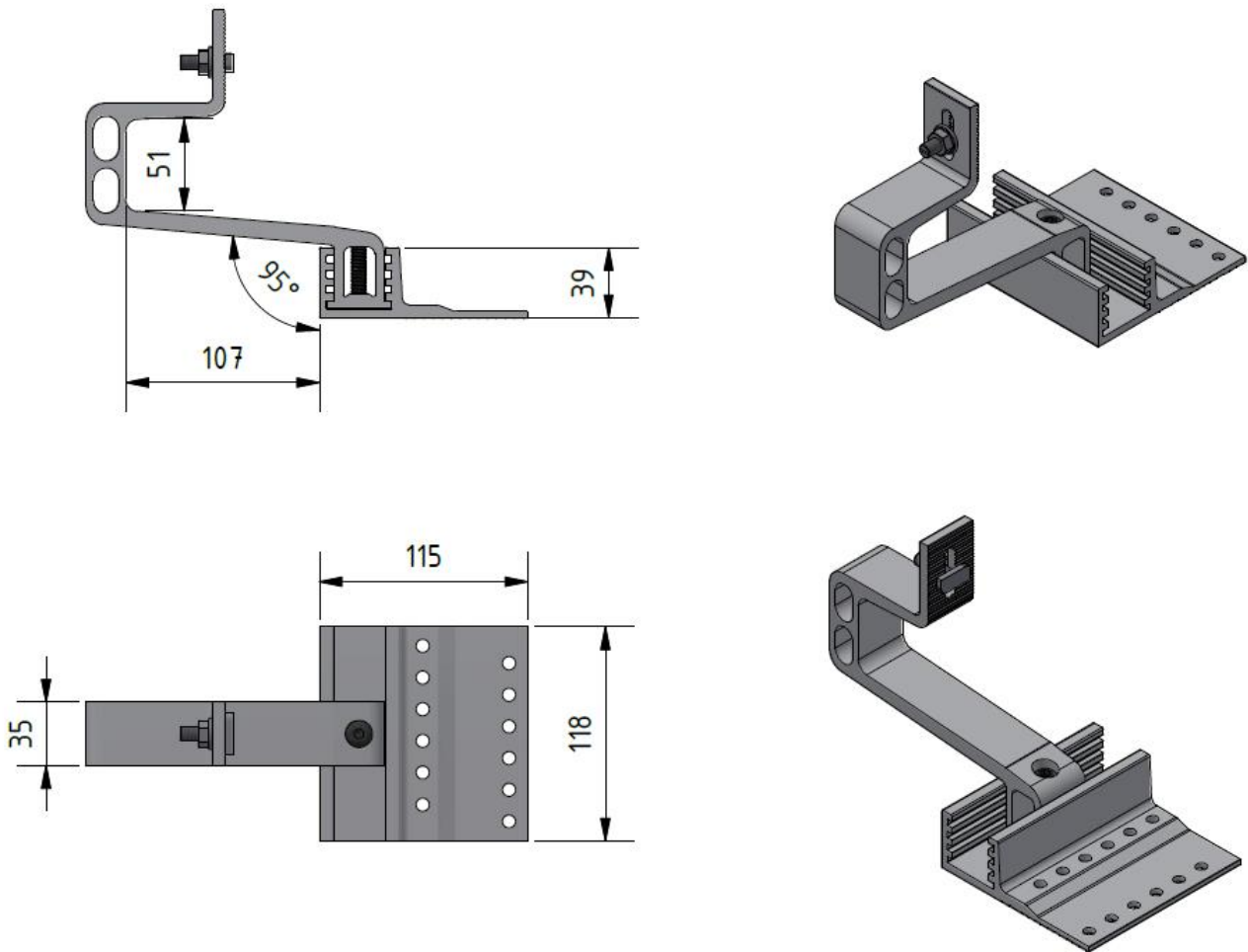
Issued in Luxembourg on 23.07.2024 by Luxembourg Institute for Building and Technology



Thierry Kohnen  
General Manager

**Description of the product**

The product is the roof hook “RH1”, fixed with at least 3 timber screws “Reisser Sparibo 6,0x80” according to ETA-11/0106 dated 01. February 2019 to substructures made of timber. At least two of the screws are screwed into the thick part of the base plate.  
 Alternative screws 6.0x80 are possible, if they are assessed within the scope of an ETA and the pull-out and pull-through resistance of the screws corresponds at least to the values of the screw “Reisser Sparibo 6,0x80”.



The base plate of the bracket is made of Aluminum EN AW 6063 T66  
 The upper part of the bracket is made of Aluminum EN AW 6082 T6.  
 Both parts of the bracket are connected by M8x35/35 according to ISO 7380 A2 Hex made of stainless steel 1.4301.

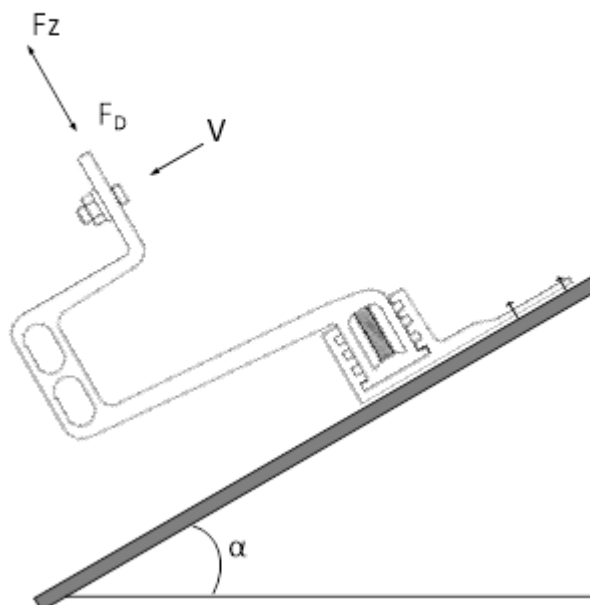
<b>Roof bracket “RH1”</b>	<b>Annex 1</b>
Description of the product	

### Terms and symbols used in this ETA

$F_{Z,Rk}$	Characteristic value of tension resistance
$F_{D,Rk}$	Characteristic value of pressure resistance
$V_{Rk}$	Characteristic value of shear resistance
$F_{Z,Ed}$	Design value of the applied tension force
$F_{D,Ed}$	Design value of the applied pressure force
$V_{Ed}$	Design value of the applied shear force
$\gamma_M$	Partial safety factor

### Load directions

The following figure shows the load directions used within this ETA.



**Roof bracket "RH1"**

Terms

**Annex 2**

**Recommendations for design**

The design values of tension, compression and shear resistance shall be determined by

$$V_{Rd} = \frac{V_{Rk}}{\gamma_M}$$

$$F_{D,Rd} = \frac{F_{D,Rk}}{\gamma_M}$$

$$F_{Z,Rd} = \frac{F_{Z,Rk}}{\gamma_M}$$

- $V_{Rk}$  Characteristic shear force resistance according to Annex 4.
- $F_{D,Rk}$  Characteristic pressure resistance according to Annex 4.
- $F_{Z,Rk}$  Characteristic tension resistance according to Annex 4.
- $\gamma_M$  partial safety factor for material

The characteristic values  $F_{Z,Rk}$ ,  $F_{D,Rk}$  and  $V_{R,k}$  are given in Annex 4.  
The recommended partial safety factor is  $\gamma_M = 1,25$ , if no partial safety factor is given in national regulations or national Annexes to Eurocode 3.

In case of combined compression and shear forces a linear interaction shall be taken into account:

The connection of the bracket to the connected structure (upper connection, for example to solar substructure) is not scope of this ETA.

**Installation conditions**

- The installation is carried out according to the manufacturer's instructions.
- The roof hook is fixed rectangular to the surface of the roof.
- The roof hook and the timber substructure are in contact to each other.
- The deformations of the roof hooks must be limited in such a way that no load transfer caused by a touchdown of the roof hook on building products, that are not intended for such a use (e.g. roof tiles) may occur.

<b>Roof bracket “RH1”</b>	<b>Annex 3</b>
Recommendation for design and Installation situation	

**Characteristic values (essential characteristics)**

<b>Joint strength according to EAD 130186-00-0603, section 2.2.1</b>			
<b>Bracket</b>	<b><math>F_{Z,Rk}</math> [kN]</b>	<b><math>F_{D,Rk}</math> [kN]</b>	<b><math>V_{Rk}</math> [kN]</b>
<b>RH1</b>	2.20	3.38	1.68

**Roof bracket "RH1"**

Characteristic values of resistance

**Annex 4**