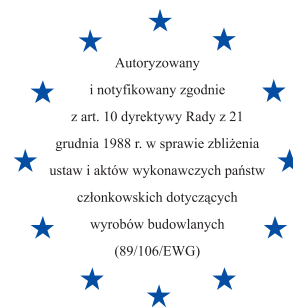




Instytut Techniki Budowlanej

Member of EOTA



European Technical Approval

ETA-11/0361

THERMOMUR TH-7

Roof insulation supporting roof tiles

Izolacyjne elementy dachowe pełniące funkcję nośną pod dachówki



Europejska Organizacja ds. Aprobatach Technicznych
European Organisation for Technical Approvals

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w Zakładzie Aprobatach Technicznych
przez mgr inż. Annę PANEK

Projekt okładki: Ewa Kossakowska

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Członek EOTA

European Technical Approval

ETA-11/0361

(English translation – the original version is in Polish language)

Nazwa handlowa

Trade name

THERMOMUR TH-7

THERMOMUR TH-7

Właściciel aprobaty

Holder of approval

Przedsiębiorstwo Produkcyjno-Usługowo-Handlowe THERMODOM Sp. z o.o.

**ul. Boczna 6
PL 44-240 Żory**

Rodzaj i przeznaczenie wyrobu

*Generic type and use
of construction product*

**Izolacyjne elementy dachowe pełniące funkcję
nośną pod dachówki**

Roof insulation supporting roof tiles

Termin ważności

Valid

od

from

do

to

28. 11. 2011

28. 11. 2016

Zakład produkcyjny

Manufacturing plant

Przedsiębiorstwo Produkcyjno-Usługowo-Handlowe THERMODOM Sp. z o.o.

**ul. Boczna 6
PL 44-240 Żory**

Niniejsza Europejska

Aprobata Techniczna zawiera

*This European Technical
Approval contains*

12 stron, w tym 3 Załączniki

12 pages including 3 Annexes



Europejska Organizacja ds. Aprobatach Technicznych

European Organisation for Technical Approvals

I LEGAL BASES AND GENERAL CONDITIONS

1. This European Technical Approval is issued by Instytut Techniki Budowlanej in accordance with:
 - Council Directive 89/106/EEC of 21 December 1988 on the approximation of laws, regulations and administrative provisions of Member States relating to construction products¹, modified by the Council Directive 93/68/EEC² and Regulation (EC) no. 1882/2003 of the European Parliament and of the Council³;
 - ustawa z dnia 16 kwietnia 2004 r. o wyrobach budowlanych (law on construction products of 16 April 2004)⁴;
 - rozporządzenie Ministra Infrastruktury z dnia 14 października 2004 r. w sprawie europejskich aprobat technicznych oraz polskich jednostek organizacyjnych upoważnionych do ich wydawania (ordinance of Ministry of Infrastructure of 14 October 2004 on the European Technical Approvals and Polish bodies entitled to issue them)⁵;
 - Common Procedural Rules for Requesting, Preparing and the Granting of European Technical Approvals set out in the Annex to Commission Decision 94/23/EC⁶.
2. Instytut Techniki Budowlanej is authorized to check whether the provisions of this European Technical Approval are met. Checking may take place in the manufacturing plant. Nevertheless, the responsibility for the conformity of the products to the European Technical Approval and for their fitness for the intended use remains with the holder of the European Technical Approval.
3. This European Technical Approval is not to be transferred to manufacturers or agents of manufacturers other than those indicated on page 1; or manufacturing plants other than those laid down in the context of this European Technical Approval.
4. This European Technical Approval may be withdrawn by Instytut Techniki Budowlanej, in particular pursuant to information by the Commission according to Article 5 (1) of Council Directive 89/106/EEC.
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6. The European Technical Approval is issued by the approval body in its official language. This version corresponds to the version circulated within EOTA. Translations into other languages have to be designated as such.

¹ Official Journal of the European Communities no. L 40, 11.2.1989, p. 12

² Official Journal of the European Communities no. L 220, 30.8.1993, p. 1

³ Official Journal of the European Union no. L 284, 31.10.2003, p.1

⁴ Official Journal of the Polish Republic no. 92/2004, pos. 881

⁵ Official Journal of the Polish Republic no. 237/2004, pos. 2375

⁶ Official Journal of the European Communities no. L 17, 20.1.1994, p. 34

II SPECIFIC CONDITIONS OF THE EUROPEAN TECHNICAL APPROVAL

1 Definition of product and intended use

1.1 Definition of product

The roof insulation supporting roof tiles THERMOMUR TH-7 are the elements made of expanded polystyrene (EPS) according to EN 13163. Shape and dimensions of polystyrene elements covered by the ETA are shown in Annex 1.

THERMOMUR TH-7 polystyrene elements are nailed on rafters with the suitable anchors which are not covered by the ETA. The axial distance between rafters is 600 mm. The roof tiles are fixed on polystyrene elements with the steel clamps made of a wire of the diameter of $\Phi 3$ mm shown in Annex 3.

1.2 Intended use

The roof insulation supporting roof tiles THERMOMUR TH-7 is intended to be used in new or renovated timber structure roofs designed according to EN 1992-1-1 or according to the applicable national rules. The pitch of the roof shall be from 30° to 45° . THERMOMUR TH-7 polystyrene elements are to be used as thermal insulation and also as supporting elements for roof tiles.

The product covered by the ETA is not intended to provide lateral restraint.

The roof section with the roof insulation supporting roof tiles THERMOMUR TH-7 is shown in Annex 2.

The provisions made in this European Technical Approval are based on an assumed working life of the roof insulation supporting roof tiles of at least 50 years, provided that the product is subjected to appropriate installation, use and maintenance. The indications given on the working life cannot be interpreted as a guarantee given by the manufacturer or the Approval Body, but should only be regarded as means for choosing the right products in relation to the expected economically reasonable working life of the works.

2 Characteristics of product and methods of verification

2.1 Characteristics of product

The roof insulation supporting roof tiles THERMOMUR TH-7 corresponds to the drawings given in Annex 1. The dimensions and tolerances of the elements not indicated in Annex 1 are given in the technical documentation of this ETA⁷.

Dimensional and shape tolerances of the polystyrene elements shall be as follows:

- thickness ± 2 mm,
- length $\pm 0,6\%$,
- width ± 2 mm,
- squareness ± 5 mm/1000 mm,

⁷ The technical documentation of this European Technical Approval is deposited at Instytut Techniki Budowlanej and, as far as relevant for the tasks of the approved body involved in the attestation of conformity procedure, may be handed over only to the approved body involved.

- flatness ± 5 mm.

For the THERMOMUR TH-7 elements expanded polystyrene (EPS) with the density not less than 24 kg/m^3 shall be used.

2.2 Methods of verification

2.2.1 General

The assessment of the fitness of the roof insulation supporting roof tiles THERMOMUR TH-7 for the intended use has been made in compliance with the CUAP 04.01/10 “*Roof insulation supporting roof tiles*”, April 2009.

2.2.2 ER 1 Mechanical resistance and stability

Not relevant

2.2.3 ER 2 Safety in case of fire

2.2.3.1 Reaction to fire

The roof insulation supporting roof tiles THERMOMUR TH-7 is a product of the reaction to fire class E according to EN 13501-1.

2.2.3.2 External fire performance

No performance determined.

2.2.4 ER 3 Hygiene, health and the environment

2.2.4.1 Content and/or release of dangerous substances

According to the manufacturers declaration the roof insulation supporting roof tiles THERMOMUR TH-7 contain no substances other than HBCDD (hexabromocyclododecane) which is less than 0,5%, that have to be classified as dangerous according to Directive 67/548/EEC and Regulation (EC) No 1272/2008.

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

2.2.4.2 Long term water absorption by immersion

The long term water absorption by immersion, determined according to EN 12087, shall not exceed 3,0% (EPS-EN 13163-WL(T)3).

2.2.4.3 Long term water absorption by diffusion

No performance determined.

2.2.4.4 Water vapour transmission

Results of the tests according to EN 12086 indicate the water vapour diffusion resistance factor of expanded polystyrene $\mu = 51,4$.

2.2.4.5 Resistance to wind-driven rain

No performance determined.

2.2.5 ER 4 Safety in use

2.2.5.1 Loadbearing capacity

The characteristic loadbearing capacity of the roof insulation supporting roof tiles THERMOMUR TH-7 under the vertical concentrated load is 2,46 kN.

2.2.5.2 Pull over resistance of fixing clamps

The characteristic pull over resistance of single fixing clamp is 0,046 kN.

2.2.5.3 Dimensional stability under constant normal laboratory conditions

The relative changes in length and width under constant normal laboratory conditions (23°C, 50% relative humidity), determined according to EN 1603, shall not exceed 0,2% (EPS-EN 13163-DS(N)2).

2.2.5.4 Dimensional stability under specified temperature and humidity conditions

The relative changes in length and width under specified temperature and humidity conditions (48 h at 70°C), determined according to EN 1604, shall not exceed 1,0% (EPS-EN 13163-DS(70,-)1).

2.2.5.5 Deformation under specified compressive load and temperature conditions

Deformation under specified compressive load and temperature conditions (load 20 kPa, temperature 80 ± 1 °C, time 48 ± 1 h), determined according EN 1605, shall not exceed 5,0% (EPS-EN 13163-DLT(1)5).

2.2.5.6 Compressive stress at 10% deformation

The minimum value of the compressive stress at 10% deformation is 150 kPa (EPS-EN 13163-CS(10)150). The lowest value of all measured values according to EN 826 shall not be less than the minimum value.

2.2.5.7 Tensile strength perpendicular to faces

The minimum value of the tensile strength perpendicular to faces is 150 kPa (EPS-EN 13163-TR150). The lowest value of all measured values according to EN 1607 shall not be less than the minimum value.

2.2.5.8 Bending strength and modulus of elasticity

The minimum value of the bending strength is 200 kPa (EPS-EN 13163-BS200) and of the modulus of elasticity is 5,5 MPa. The lowest value of all measured values according to EN 12089 shall not be less than the minimum value.

2.2.5.9 Freeze-thaw resistance

After 300 freeze-thaw cycles according to EN 12091 the reduction of compressive stress at 10% deformation, σ_{10} , shall be less than 10%.

2.2.6 ER 5 Protection against noise

Not relevant.

2.2.7 ER 6 Energy economy and heat retention

2.2.7.1 Thermal conductivity

The fractile value of thermal conductivity, representing at least 90% of the production with a confidence level of 90%, determined according to EN 12667, is $\lambda_{10, dry, 90, 90} = 0,0336 \text{ W/(m}\cdot\text{K)}$.

The declared value of thermal conductivity, calculated according to EN 13163, is $\lambda_D = 0,034 \text{ W/(m}\cdot\text{K)}$.

2.2.7.2 Thermal resistance

The value of thermal resistance of the insulation layer, determined according to EN 10211, is $R = 3,98 \text{ m}^2\cdot\text{K/W}$.

2.2.8 Aspects of durability and serviceability

It can be assumed that the roof insulation supporting roof tiles THERMOMUR TH-7 will have an adequate resistance to:

- physical agents (effects of temperature, radiation of sun and variations of relative humidity), provided that the THERMOMUR TH-7 elements installed on the roof are covered by tiles in six weeks time,
- chemical agents (effects of cleaning agents, water, carbon dioxide, oxygen and naturally occurring corrosives and pollution agents),
- biological agents (effects of fungi, bacteria, algae and insects).

3 Evaluation and attestation of conformity and CE marking

3.1 System of attestation of conformity

According to the decision 1999/91/EC of the European Commission amended by 2001/596/EC the system 3 attestation of conformity applies.

The system 3 of attestation of conformity provides:

Declaration of conformity of the product by the manufacturer on the basis of:

a) Tasks of the manufacturer:

- (1) factory production control.

b) Tasks of the notified body:

- (2) initial type-testing of the product.

3.2 Responsibilities

3.2.1 Tasks of the manufacturer; factory production control

The manufacturer shall exercise permanent internal control of production. All the elements, requirements and provisions adopted by the manufacturer shall be documented in a systematic manner in the form of written policies and procedures, including records of results performed. This production control system shall ensure that the products are in conformity with this European Technical Approval.

The manufacturer shall only use raw materials stated in the technical documentation of this ETA.

The factory production control shall be in accordance with the control plan⁸ which is a part of the technical documentation of this ETA. The control plan has been agreed between the manufacturer and Instytut Techniki Budowlanej and is laid down in the context of the factory production control system operated by the manufacturer and deposited with Instytut Techniki Budowlanej.

The results of factory production control shall be recorded and evaluated in accordance with the provisions of the control plan.

The manufacturer shall make a declaration of conformity, stating that the roof insulation supporting roof tiles THERMOMUR TH-7 is in conformity with the provisions of the ETA-11/0361.

3.2.2 Tasks of the notified body

The notified body shall perform the initial type-testing of the product.

The notified body shall retain the essential points of its actions referred to above and state the results obtained and conclusion drawn in written report.

3.3 CE marking

The CE marking shall be affixed on the product itself, the attached label, or the accompanying commercial documents. The letters „CE” shall be followed by the following additional information:

- the name and address of the ETA-holder,
- the last two digits of the year in which the CE marking was affixed,
- the number of the ETA,
- the trade name of the product,
- reaction to fire class,
- declared value of thermal conductivity.

4 Assumptions under which the fitness of the product for the intended use was favourably assessed

4.1 Manufacturing

The ETA is issued on the basis of agreed data/information, deposited with Instytut Techniki Budowlanej, which identifies the product that has been assessed and judged. Changes to the product or production process, which could result in this deposited data/information being incorrect, should be notified to Instytut Techniki Budowlanej before the changes are introduced. Instytut Techniki Budowlanej will decide whether or not such changes affect the ETA and consequently the validity of the CE marking on the basis of the ETA and if so whether further assessment or alterations to the ETA shall be necessary.

⁸ The control plan has been deposited with Instytut Techniki Budowlanej and may be handed over only to the notified body involved in the procedure of attestation of conformity.

4.2 Design and installation

4.2.1 Design

The design of the building work in which roof insulation supporting roof tiles THERMOMUR TH-7 are to be used shall be made in accordance with EN 1992-1-1 or with the applicable national rules.

The THERMOMUR TH-7 elements shall be installed by appropriately qualified personnel, following an installation plan and relevant construction details worked out for each individual building project. The installation plan shall be based on the manufacturer's guide and provisions for installing the THERMOMUR TH-7 elements.

4.2.2 Installation of the elements

The roof insulation supporting roof tiles THERMOMUR TH-7 shall be installed on the building according to the manufacturer's installation instruction.

The polystyrene elements are to be nailed on rafters with the suitable anchors. The roof tiles are to be fixed on polystyrene elements with the steel clamps made of wire of the diameter of $\Phi 3$ mm shown in Annex 3. The alternative method of roof tiles fixing is mechanical fixing by means of wooden batten like in traditional roofs (see Annex 3).

In order to protect a surface of THERMOMUR TH-7 polystyrene elements from stepping during the building phase the special protective, metal elements shall be installed according to manufacturer's installation instruction. The roof should be covered by tiles in six weeks time in order to avoid UV radiation.

As to the application of the roof insulation supporting roof tiles, the respective national regulations shall be observed in addition.

4.3 Responsibility of the manufacturer

It is manufacturer's responsibility to ensure that all persons involved will be appropriately informed about the specific conditions according to 1, 2, 4.2.1 and 4.2.2 including the Annexes to which reference is being made as well as the non-confidential parts of the technical documentation submitted this European Technical Approval.

All the data concerning the execution shall be indicated clearly in the manufacturer's installation instruction.

5 Recommendations for the manufacturer

5.1 Packaging, transport and storage

Packaging of the polystyrene elements has to be such that the products are protected against damage, soiling and intensive action of water during transport and storage, unless other measures are foreseen by the manufacturer for this purpose.

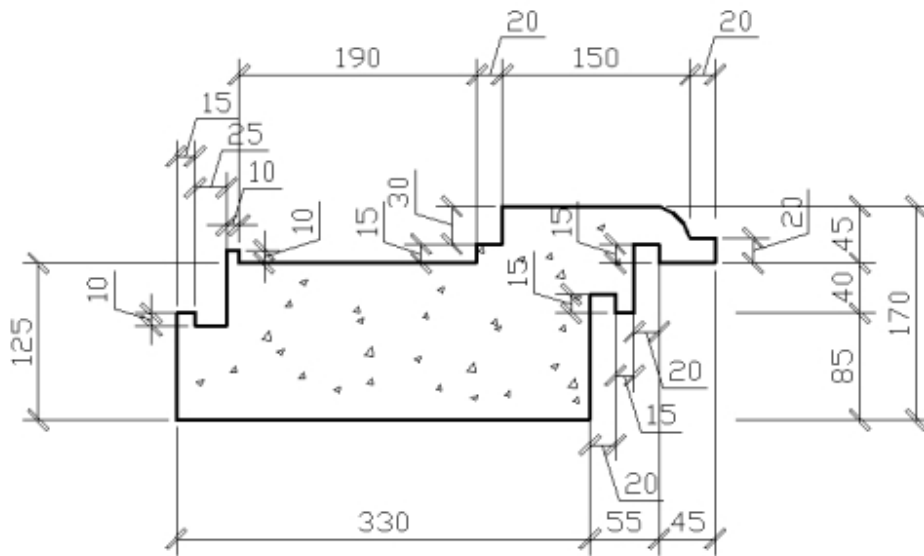
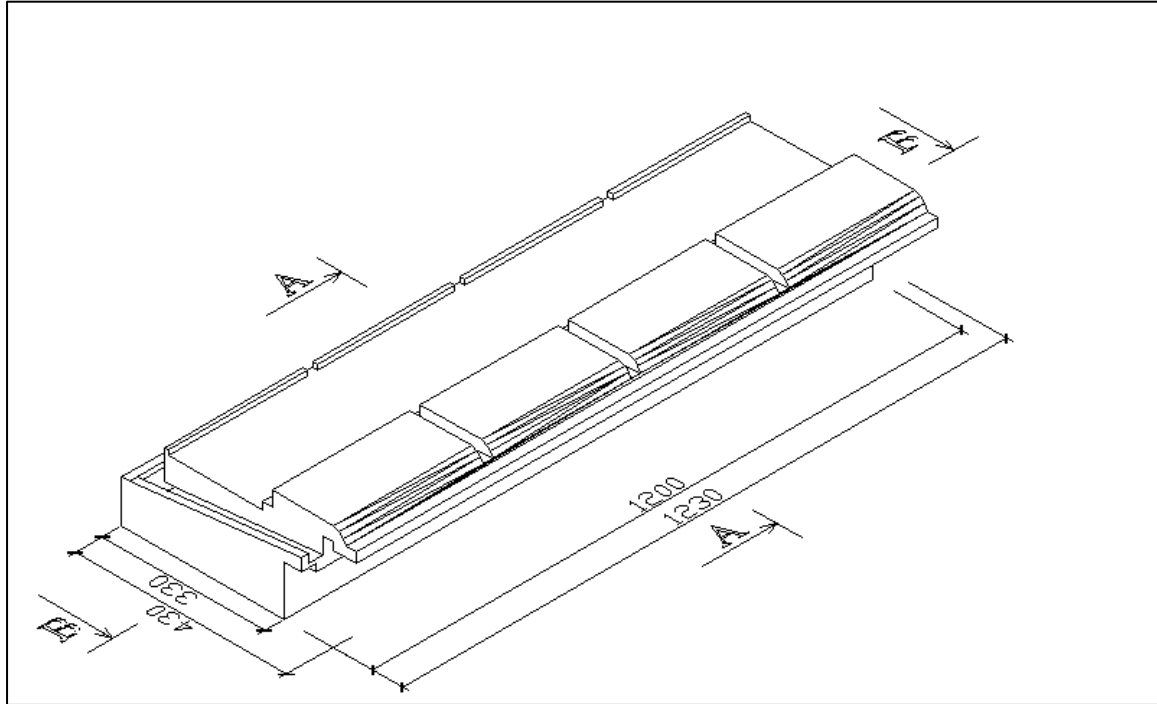
5.2 Use, maintenance, repair

To the indication on use, maintenance and repair the manufacturer's installation instruction applies.

On behalf of Instytut Techniki Budowlanej

A handwritten signature in blue ink, appearing to read 'M. Kaproń', is written over the printed name.

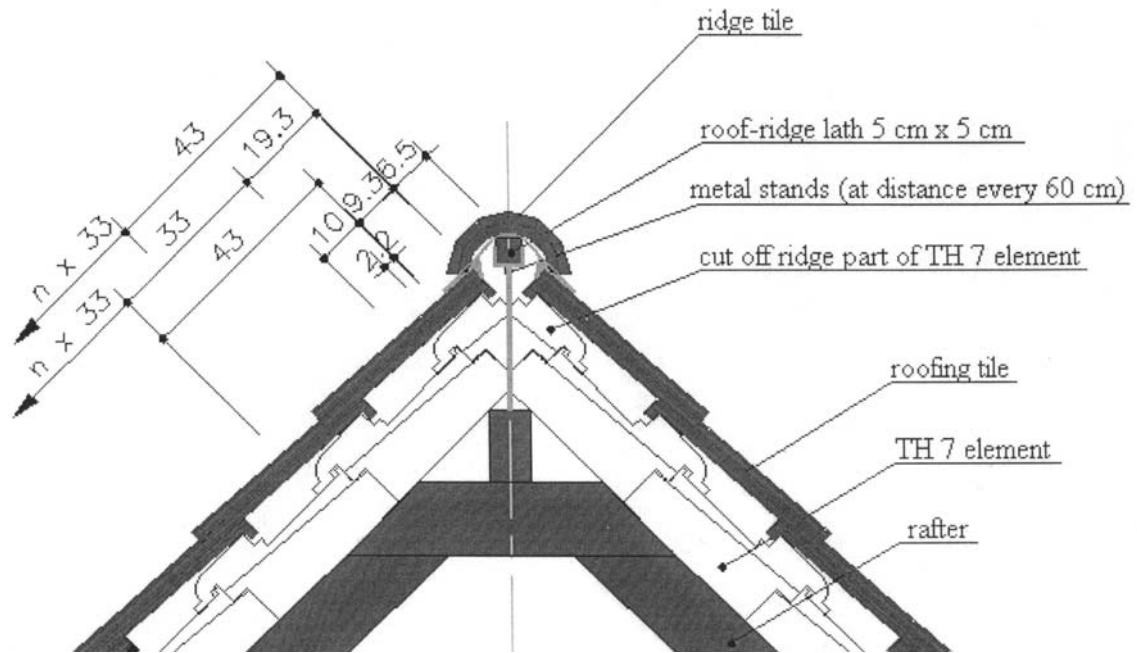
Marek Kaproń
Director of ITB



THERMOMUR TH-7

Shape and dimensions

Annex 1
of European
Technical Approval
ETA-11/0361

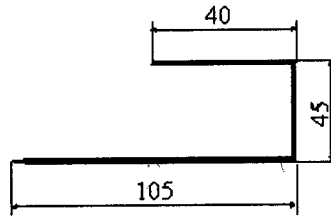


THERMOMUR TH-7

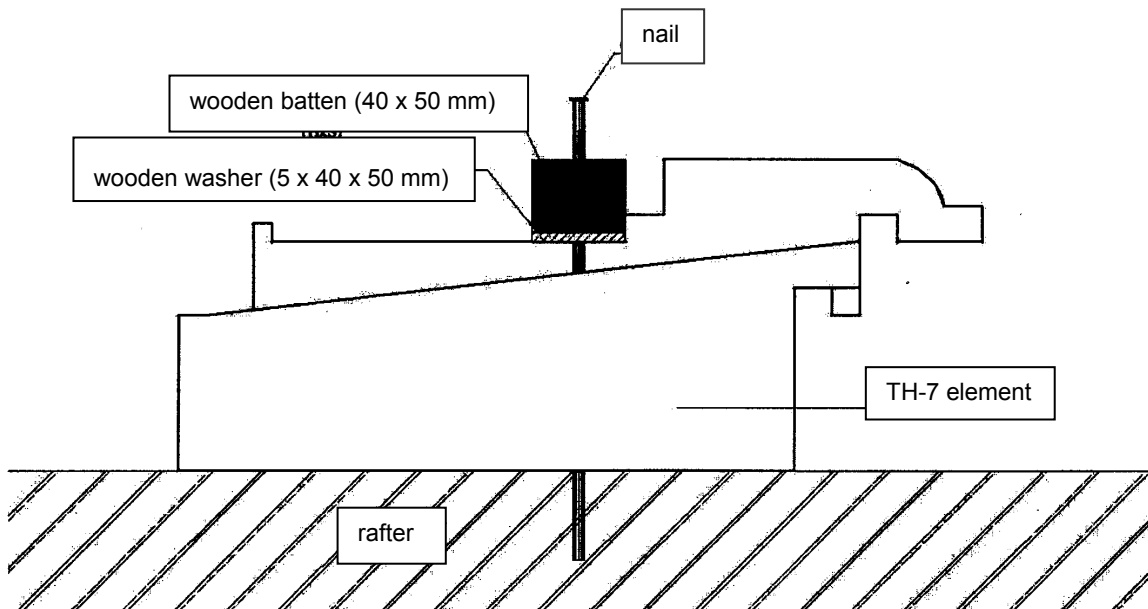
Roof section

Annex 2
of European
Technical Approval
ETA-11/0361

S - Ø 3mm
L-190mm



Steel clamp for the roof tiles fixing



The alternative method of roof tiles fixing

THERMOMUR TH-7

Installation

Annex 3
of European
Technical Approval
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Instytut Techniki Budowlanej

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