Deutsches Institut für Bautechnik

Zulassungsstelle für Bauprodukte und Bauarten

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Authorised and notified according to Article 10 of the Council Directive of 21 December 1988 on the approximation of laws, regulations and administrative provisions of Member States relating to construction products (89/106/EEC)

Deutsches Institut für Bautechnik

DIBt

Mitglied der EOTA
Member of EOTA

European Technical Approval ETA-11/0011

English translation prepared by DIBt - Original version in German language

Handelsbezeichnung *Trade name*		TLX Gold
Zulassungsinhaber *Holder of approval*		Web Dynamics Limited Moss Lane Blackrod Bolton, Lancashire BL6 5JB GROSSBRITANNIEN
Zulassungsgegenstand und Verwendungszweck *Generic type and use of construction product*		Mehrlagige reflektierende Verbundbahn als Wärmedämmung *Multilayer reflective composite mat as thermal insulation*
Geltungsdauer: *Validity:*	vom *from* bis *to*	27 January 2011 27 January 2016
Herstellwerk *Manufacturing plant*		Web Dynamics Limited Moss Lane Blackrod Bolton, Lancashire BL6 5JB GROSSBRITANNIEN

Diese Zulassung umfasst *This Approval contains*	8 Seiten *8 pages*

I LEGAL BASES AND GENERAL CONDITIONS

1 This European technical approval is issued by Deutsches Institut für Bautechnik 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 products[1], modified by Council Directive 93/68/EEC[2] and Regulation (EC) N° 1882/2003 of the European Parliament and of the Council[3];
- Gesetz über das In-Verkehr-Bringen von und den freien Warenverkehr mit Bauprodukten zur Umsetzung der Richtlinie 89/106/EWG des Rates vom 21. Dezember 1988 zur Angleichung der Rechts- und Verwaltungsvorschriften der Mitgliedstaaten über Bauprodukte und anderer Rechtsakte der Europäischen Gemeinschaften (Bauproduktengesetz - BauPG) vom 28. April 1998[4], as amended by law of 31 October 2006[5];
- Common Procedural Rules for Requesting, Preparing and the Granting of European technical approvals set out in the Annex to Commission Decision 94/23/EC[6].

2 Deutsches Institut für Bautechnik 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 indicated on page 1 of this European technical approval.

4 This European technical approval may be withdrawn by Deutsches Institut für Bautechnik, in particular pursuant to information by the Commission according to Article 5(1) of Council Directive 89/106/EEC.

5 Reproduction of this European technical approval including transmission by electronic means shall be in full. However, partial reproduction can be made with the written consent of Deutsches Institut für Bautechnik. In this case partial reproduction has to be designated as such. Texts and drawings of advertising brochures shall not contradict or misuse the European technical approval.

6 The European technical approval is issued by the approval body in its official language. This version corresponds fully to the version circulated within EOTA. Translations into other languages have to be designated as such.

1 Official Journal of the European Communities L 40, 11 February 1989, p. 12
2 Official Journal of the European Communities L 220, 30 August 1993, p. 1
3 Official Journal of the European Union L 284, 31 October 2003, p. 25
4 *Bundesgesetzblatt Teil I 1998*, p. 812
5 *Bundesgesetzblatt Teil I 2006*, p. 2407, 2416
6 Official Journal of the European Communities L 17, 20 January 1994, p. 34

II SPECIFIC CONDITIONS OF THE EUROPEAN TECHNICAL APPROVAL

1 Definition of the product and intended use

1.1 Definition of the construction product

The European technical approval applies to the multilayer, reflective composite mat "TLX Gold" as thermal insulation, hereinafter referred to as composite mat.

The composite mat consists of the following layers (from outside to inside):

- 0,6 mm top layer made of polypropylene composite material (black)
- approx. 11 mm polyester wadding
- 0,2 mm polypropylene composite material, aluminised
- approx. 11 mm polyester wadding
- 0,2 mm polypropylene composite material, aluminised
- approx. 11 mm polyester wadding
- 0,3 mm bottom layer made of polypropylene composite material with polyurethane coating (golden)

The composite mat is made with the following dimensions:

Nominal thickness:	33 mm
Nominal length:	10 m
Nominal width:	1.2 m

The top layer has a width of 1.35 m including overlap.

1.2 Intended use

The composite mat is intended for use as a thermal insulation for roofs. It contributes to an increase in the thermal resistance as one component of a thermal insulation system.

The composite mat is installed above rafters, additional insulation is placed between or below the rafters.

The composite mat is generally applied in conjunction with an additional thermal insulation product. This European technical approval does not cover the complete system of insulation.

The composite mat shall only be installed in structures where it is protected from rain, wetting and weathering.

The composite mat shall not exposed to compression loads (except fastening areas on the rafters).

The top layer of the composite mat serves as a roofing underlay. But this function is not covered by this European technical approval.

The layer neighbouring to the internal side of the composite mat can be an unventilated air layer.

The composite mats are connected using the adhesive tape "Indasol 666 tape".

As to the application of the composite mat, the respective national regulations shall in addition be observed.

The provisions made in this European technical approval are based on an assumed working life of the composite mat of 25 years, provided that the conditions laid down in sections 4.2 and 5.1 for packaging, transport, storage and installation are met. The indications given on the working life cannot be interpreted as a guarantee given by the producer, 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.

2 Characteristics of product and methods of verification

2.1 Composition and production methods

With regard to composition the composite mat shall correspond to that which was the basis for the approval tests. The composition is deposited with Deutsches Institut für Bautechnik. See also clause 4.1.

2.2 Dimensions

The thickness is determined according to the standard EN 823:1994-07. The test is performed with a load of 50 Pa.

The deviation from the nominal thickness does not amount to more than:

-3 % or[7] –3 mm or +5 % or[8] +5 mm.

On the basis of the standard EN 13162:2008-11, Table 1, the class for thickness tolerances T4 is met.

Length and width are determined according to the standard EN 822:1994-07.

The deviation from the nominal length is not more than - 2 % / + 5 %. The deviation from the nominal width does not exceed the value of ± 2 %.

2.3 Mass per unit area

The mass per unit area is determined following the standard EN 1602:1996-11. It amounts to 0.9 kg/m^2 ± 7 %.

2.4 Water vapour transmission

The water vapour transmission properties of the composite mat are determined according to the standard EN 12086:1997-06.

The water vapour diffusion resistance factor amounts to μ = 9 for test condition A and μ = 3 for test condition C.

The diffusion equivalent air layer thickness amounts to s_d = 0.29 m for test condition A and s_d = 0.10 m for test condition C.

2.5 Core thermal resistance

The core thermal resistance is determined according to the standard EN 12667:2001-01. The declared value of thermal resistance, determined according to the standard EN ISO 10456:2007-12 for a moisture content of the composite mat at 23 °C/50 % relative air humidity, amounts to

R_D = 0.85 m^{2}K/W

The declared value is representative for at least 90 % of the production with a confidence level of 90 %.

For the admissible deviation of an individual value of the thermal resistance from the declared value the method described in EN 13172:2008, Annex F applies.

7 Whichever gives the greatest numerical tolerance
8 Whichever gives the smallest numerical tolerance

2.6 Emissivity

The emissivity of the bottom surface of the composite mat is measured according to the EOTA testing procedure[9] taking into account accelerated ageing.

The declared value of emissivity is ε_D = 0.18. The declared value is representative for at least 90 % of the production with a confidence level of 90 %.

2.7 Tensile strength

The tensile strength is determined according to the standard EN 1608:1996-11, taking into account the ageing procedure according to the EOTA testing procedure[9].

The tensile strength of the composite mat (before and after ageing) is at least 120 kPa.

The tensile strength in case of the mats connected using the adhesive tape is at least 30 kPa before ageing and 0.4 kPa after ageing.

2.8 Resistance to tearing

The resistance to tearing is determined according to the standard EN 12310-1:1999, taking into account the ageing procedure according to the EOTA testing procedure[9].

The tearing resistance (before and after ageing) amounts to at least 350 N.

2.9 Peel strength

The peel strength of the adhesive tape on the top layer of the composite mat is tested according to the standard EN ISO 11339:2010, taking into account the ageing procedure according to the EOTA testing procedure[9].

The mean peel strength is 1030 N/m (before ageing) and 50 N/m (after ageing).

2.10 Reaction to fire

The reaction to fire of the composite mat is tested according to the standard EN ISO 11925-2:2002-02 and classified according to the standard EN 13501-1:2007+A1:2009-09. The composite mat meets the requirements of class E according to EN 13501-1.

The reaction to fire of the adhesive tape is not covered by this European technical approval.

2.11 Corrosion developing capacity

The test is performed according to EN ISO 9227 – NSS. After a test period of 480 h the bottom, reflective layer of the composite mat show no significant loss of mass. No visual change of the surface is determined after 96 h.

2.12 Emission of dangerous substances or radiation

Note: In addition to the specific clauses relating to dangerous substances contained in this European technical approval, 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 Directive, these requirements need also to be complied with, when and where they apply.

3 Evaluation and attestation of conformity and CE marking

3.1 System of attestation of conformity

According to the communication of the European Commission[10] system 3 of the attestation of conformity applies.

[9] "Products with radiant heat reflective component for use in thermal insulation systems of building envelopes" edition February 2007, deposited with Deutsches Institut für Bautechnik.

[10] Letter of the European Commission of 8 April 2005 to EOTA

According to the Decision 2001/596/EC of the European Commission[11] system 3 of the attestation of conformity also applies with regard to reaction to fire.

This system of attestation of conformity is defined as follows:

System 3: Declaration of conformity of the product by the manufacturer on the basis of:

(a) Tasks for the manufacturer:

(1) factory production control;

(b) Tasks for the approved body:

(2) initial type-testing of the product.

Note: Approved bodies are also referred to as "notified bodies".

3.2 Responsibilities

3.2.1 Tasks for the manufacturer

3.2.1.1 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 insure that the product is in conformity with this European technical approval.

The manufacturer may only use initial materials stated in the technical documentation of this European technical approval.

The factory production control shall be in accordance with the control plan which is part of the technical documentation of this European technical approval. The control plan is laid down in the context of the factory production control system operated by the manufacturer and deposited with Deutsches Institut für Bautechnik.[12]

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

3.2.1.2 Other tasks for the manufacturer

The manufacturer shall, on the basis of a contract, involve a body which is approved for the tasks referred to in section 3.1 for the construction product in order to undertake the actions laid down in section 3.2.2. For this purpose, the control plan referred to in sections 3.2.1.1 and 3.2.2 shall be handed over by the manufacturer to the approved body involved.

The manufacturer shall make a declaration of conformity, stating that the construction product is in conformity with the provisions of this European technical approval.

3.2.2 Tasks for the approved body

The approved body shall perform the

- initial type-testing of the product,

in accordance with the provisions laid down in the control plan.

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

[11] Official Journal of the European Communities L 209/33 of 2 August 2001

[12] The control plan is a confidential part of the documentation of this European technical approval and only handed over to the approved body involved in the procedure of attestation of conformity. See section 3.2.2.

3.3 CE marking

The CE marking shall be affixed on the product itself or on the label attached to it, on the packaging or the accompanying commercial document, e.g. the EC declaration of conformity. The letters ”CE” shall be accompanied by the following additional information:

- the name and address of the producer (legal entity responsible for the manufacture),
- the last two digits of the year in which the CE marking was affixed,
- the number of the European technical approval,
- nominal dimensions,
- mass per unit area,
- thermal resistance R_D,
- Emissivity ε_D,
- Reaction to fire: class E according to EN 13501-1.

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

4.1 Manufacturing

The European technical approval is issued for the product on the basis of agreed data/information, deposited with Deutsches Institut für Bautechnik, 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 Deutsches Institut für Bautechnik before the changes are introduced. Deutsches Institut für Bautechnik will decide whether or not such changes affect the approval and consequently the validity of the CE marking on the basis of the approval and if so whether further assessment or alterations to the approval shall be necessary.

4.2 Installation

The composite mat shall be installed with the reflective side down and connected using the adhesive tape "Indasol 666 tape". Counter battens are used to fasten the composite mat on the rafters.

The composite mat shall only be installed in structures where it is protected from rain, wetting and weathering. The composite mat shall not exposed to compression loads (except fastening areas on rafters).

The installation instructions given by the manufacturer shall be taken into account.

The product shall be protected from moisture and dust during transport and installation. The conditions according to clause 1.2 shall be taken into account.

As to the application of the composite mat, the respective national regulations shall be observed (e. g. concerning protection against moisture subject to climate / condensation).

4.2.1 Parameters for the design of construction works or parts of construction works

4.2.1.1 Design values of thermal resistance and emissivity

The design values of core thermal resistance and emissivity shall be laid down according to relevant national provisions.

4.2.1.2 Thermal resistance / thermal transmittance of the building component

The thermal resistance / thermal transmittance of the roof shall be determined according to EN ISO 6946 in accordance with the relevant national provisions. In areas where the composite mat will be compressed (e. g. fastening areas on rafters) the thermal resistance of the composite mat shall not be applied for calculation.

4.2.1.3 Water vapour transmission

For the determination of the hygrothermal performance of the roof the diffusion equivalent air layer thickness s_d = 0.10 and/or s_d = 0.29 or the water vapour diffusion resistance factor μ = 3 and/or μ =9 of the composite mat shall be used[13].

5 Indications to the manufacturer

5.1 Packaging, transport and storage

Packaging of the product shall be performed such that the composite mats are protected from moisture, dust and direct sunlight during transport and storage.

In the information accompanying the CE marking the manufacturer shall specify that the product is to be installed according to the installation instructions of the manufacturer and protected from moisture and dust during transport, storage and installation.

Uwe Bender
Head of Department

beglaubigt:
Iffländer

[13] The most unfavourable value for the construction work shall be applied each.