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Authorised and notified according to Article 10 of the 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

LABORATÓRIO NACIONAL
DE ENGENHARIA CIVIL

Member of EOTA

European Technical Approval ETA 13/0438

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Trade name *Designação comercial*	**CDeck – Composite Decking**
Holder of approval *Detentor da aprovação*	IHT, Lda Zona Industrial de Soure, Rua E Lote 15 3130 - 551, Soure PORTUGAL
Generic type and use of construction product *Tipo e utilização do produto de construção*	Terrace decking kit *Kit para revestimentos de piso exteriores*
Validity *Validade*	from / *de* 2013-06-18 to / *até* 2018-06-18
Manufacturing plant *Instalações de fabrico*	IHT, Lda Zona Industrial de Soure, Rua E Lote 15, 3130 - 551, Soure PORTUGAL
This European Technical Approval contains *Esta Aprovação Técnica Europeia contém*	8 pages, including 3 annexes which form an integral part of the document *8 páginas, incluindo 3 anexos que fazem parte deste documento*

I. Legal bases and general conditions

1. This European Technical Approval is issued by LNEC in accordance with:
   - Council Directive 89/106/EEC of 21 December 1988 on the approximation of laws, regulations and administrative provisions of Members States relating to construction products[1], modified by the Council Directive 93/68/EEC[2] and Regulation (EC) no. 1882/2003 of the European Parliament and of the Council[3];
   - Decree-Law no. 113/1993 of 10 April 1993[4], amended and republished by Decree-Law no. 4/2007 of 8 January 2007[5] , implementing in Portugal the Council Directive 89/106/EEC of 21 December 1988;
   - 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. LNEC 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 LNEC, 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 LNEC. 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. Subject to the application introduced, the European Technical Approval is issued by the approval body in its official language. This version corresponds fully to the English version circulated in EOTA. Translations into other languages have to be designated as such.

II. Specific conditions of the European Technical Approval (ETA)

1. Definition of the product and intended use

1.1 Definition of the product

The terrace decking kit consists of decking profiles, support rail profiles, cover strip profiles and fastening devices. The decking and cover strip profiles are made of composite material made of wood fibres and plastic. Two types of decking profiles are available: hollow profile and solid profile. Support rail profiles are made of poly(vinyl chloride) (PVC). Fastening clamps are made of glass fibre reinforced polyamide.

The matrix of composite profiles is made of PVC. Fibres are mainly wood fibres. The production does not include the use of recycled plastic materials. The product includes also additives and processing agents such as colorants, fillers, compatibilizers, slip agents, and UV-stabilizers.

The cross section dimensions of decking profiles and corresponding dimensional tolerances are indicated respectively in figure I.1 (Annex I) and Table 1. The nominal weight and weight's tolerances for decking profiles are indicated in Table 2. The density and density tolerance for WPC of decking profiles is indicated in Table 3. The cross section of support rail profiles is ≥ 45mm × 27mm.

1 Official Journal of the European Communities, L 40, 1989-02-11, p. 12-26
2 Official Journal of the European Communities, L 220, 1993-08-30, p. 1-22
3 Official Journal of the European Union, L 284, 2003-10-31, p. 1-53
4 Diário da República, Series I-A, no. 84, 1993-04-11, p. 1803-1806
5 Diário da República, Series I, no. 5, 2007-01-08, p. 116-126
6 Official Journal of the European Communities, L 17, 1994-01-20, p. 34-40

TABLE 1
Dimensional tolerances

Component	Dimensions	Tolerances
Decking profiles		
Hollow and Solid	Length	– 0 / + 10 mm
	Width	+ /– 1 mm
	Thickness	+ /– 0.5 mm
Support rail profiles	Length	– 0 / + 10 mm
	Width	+ /– 1 mm
	Thickness	+ /– 0.5 mm

TABLE 2
Mass per meter and tolerances for decking profiles

Component	Mass/m	Tolerances
Decking profiles		
Hollow	2.4 kg/m	+ / – 0.4 kg/m
Solid	4.1 kg/m	+ / – 0.5 kg/m

TABLE 3
Density and tolerances for WPC of decking profiles

Component	Density	Tolerances
Decking profiles		
Hollow and solid	1.392 g/cm^3	+ / – 0.1 g/cm^3

The decking profiles are installed onto support rail profiles with hidden fastening using fastening clamps of two types ("Clip Quick-fix intermédio" and "Clip Quick-fix Pró intermédio"). The fastening clamps do not require the use of screws.

Cover strip profiles are used to cover the ends of the decking profiles. The sizes of cover strip profiles can vary.

1.2 Intended use of the product

The terrace decking kit is intended to be used as flooring construction of terraces connected to the buildings.

The support rail profiles are installed on completely flat and stable surfaces (e.g. 10 to 15 cm thick solid concrete slab) and fixed to it using steel screws or anchors. The spacing between the support profiles is 400 mm or less, dependent on the flooring pattern and/or end-use.

The provisions made in this ETA are based on an assumed working life of 10 years of the terrace decking provided that the conditions laid down in this section and sections 4.2/5.1/5.2 for installation, packaging, transport, storage, use, maintenance and repair are met.

The indications given as to the working life of the construction product cannot be interpreted as a guarantee given by the product manufacturer or his representative or the approval body issuing the ETA, but are regarded only as means for choosing the appropriate products in relation to the expected economically reasonable working life of the works. The real working life may be, in normal use conditions, considerably longer without major degradation affecting the Essential Requirements.

2. Characteristics of the product and methods of verification

The assessment of fitness according to the Essential Requirements for use of the terrace decking kit was carried out in compliance with the methods of verification of the characteristics laid down in Table 4, where the corresponding declared values and classes are also presented.

TABLE 4

Methods of verification and characteristics of the terrace decking kit

No.	Characteristics	Declared values and classes	
		Hollow profile	Solid profile
	ER 1 Mechanical resistance and stability	Not relevant	
	ER 2 Safety in case of fire		
1	Reaction to fire	NPD	
	ER 3 Hygiene, health and environment		
2	Content and release of dangerous substances	No dangerous substances*	
3	Influence of moisture, EN 317		
	Swelling thickness	0.4 %	0.3 %
	Water absorption	1.1 %	0.6 %
	ER 4 Safety in use		
4	Bending strength, EN 310	48 N/mm²	57 N/mm²
5	Modulus of elasticity in bending, EN 310 (Distance between supports 500 mm)	6600 N/mm²	5500 N/mm²
6	Bending strength (characteristic value), EN 789	40 N/mm²	46 N/mm²
7	Modulus of elasticity in bending, EN 789 (Distance between supports 1080 mm)	7300 N/mm²	7000 N/mm²
8	Impact strength, EN 477		
	+ 23 °C / 1 kg	80 cm (7.8 J) (no rupture)	200 cm (19.6 J) (no rupture)
	– 10 °C / 1 kg	100 cm (9.8 J) (no rupture)	200 cm (19.6 J) (no rupture)
9	Point load, EN 789	see 6 and 7 above	
10	Point load capacity (characteristic value), EN 1533	6810 N	8780 N
11	Duration of load and creep, ENV 1156	NPD	
12	Slipperiness, Annex C of EN 13845	NPD	
13	Mechanical fastener holding capacity (characteristic value)	1330 N (Clip Quick-fix intermédio) 1040 N (Clip Quick-fix Pró intermédio)	
	ER 5 Protection against noise	Not relevant	
	ER 6 Energy economy and heat retention		
14	Thermal conductivity, EN 12667	NPD	
	General aspects relating to fitness for use		
15	UV-radiation resistance, EN ISO 4892-2, 1000 h Charpy impact strength, EN ISO 179-1:		
	Before ageing	3,95 kJ/m²	
	After ageing	4,99 kJ/m²	
16	Thermal expansion coefficient [–40 °C, 80 °C], ASTM E228 / EN 821-1 (see Figure II.1 in Annex II)	$(21.3 \pm 0.1) \times 10^{-6}\ K^{-1}$ (x direction) $(50.6 \pm 0.8) \times 10^{-6}\ K^{-1}$ (y direction)	
17	Resistance against termites, EN 117 and Annex C of CEN/TS 15534-1	NPD	
18	Surface hardness, EN 1534	NPD	
19	Density, EN ISO 1183-1	1.392 g/cm³	
20	Influence of moisture, EN 317-EN 1534:		
	Surface hardness	94 N/mm²	101 N/mm²
	Swelling thickness and water absorption	see 3 above	

* In addition of 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.

The terrace decking kit does not use screws to join the fastening clamps to the support rail profiles. Therefore the determination of the holding capacity of the connection between decking boards and support rails through the use only of fastener clamps was assessed by testing an assembly according to figure III.1 (Annex III).

3. Evaluation and attestation of conformity and CE marking

3.1 System of attestation of conformity

According to the communication of the European Commission in letter dated 05.02.2009 and the Decision 97/808/EC of 20.11.1997 for floorings as amended by decisions 1999/453/EC, 2001/596/EC and 2006/190/EC, the system of attestation of conformity 4 applies.

This system of attestation of conformity is defined as follows:

System 4: Declaration of conformity of the product by the manufacturer on the basis of:

(a) Tasks for the manufacturer:

(1) factory production control;

(2) testing of samples taken at the factory in accordance with a prescribed test plan;

(3) initial type-testing of the product.

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 including policies and procedures and records of test results. This production control system shall insure that the product is in conformity with this European Technical Approval.

The manufacturer shall only use components in accordance with the technical documentation of this ETA.

The factory production control shall be in accordance with the control plan defined by the manufacturer which is part of the technical documentation of this European Technical Approval and is deposited with LNEC.

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

Manufacturers having a factory production control which complies with EN ISO 9001 and addresses the requirements of an ETA are recognized as satisfying the factory production control requirements of the Construction Products Directive.

3.2.1.2 Initial Type Testing (ITT)

For initial type testing the results of the tests performed as part of the assessment for this European Technical Approval shall be used unless there are changes in the production line or plant. In this last case the necessary new ITT shall be established by LNEC.

3.2.1.3 Other tasks for the manufacturer

The manufacturer shall prepare a declaration of conformity stating that the product is in conformity with the provisions of this ETA. The initial type testing mentioned above could be taken over by the manufacturer for this declaration.

3.3 CE marking

The CE marking shall be affixed on each packaging or commercial documents accompanying the terrace decking kit. The symbol "CE" shall be accompanied by the following information:

- the name and address of the ETA holder (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;
- identification of the product: Trade name as indicated in this ETA;
- declared product characteristics.

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

4.1 Manufacturing

Manufacturing of the terrace decking kit is based on the defined production method, the use of defined raw materials and tolerances on the basis of agreed data/information deposited with LNEC which identifies the terrace decking kit that has been assessed and judged.

If changes take place the manufacturer is responsible to contact LNEC which will verify if the change has influence on the properties of the product tested before those changes are introduced. LNEC will decide whether or not such changes affect the ETA and consequently

the validity of the CE-marking on the basis of the present ETA and if so whether further assessments or alterations of the ETA shall be necessary.

The components of the terrace decking kit shall correspond to the products subjected to the approval tests.

4.2 Installation

It is the responsibility of the ETA holder to guarantee that the information about design and installation of the terrace decking kits is easily accessible to the concerned people.

The terrace decking kit is installed according to the instructions of the manufacturer. Manufacturer's instructions shall be followed concerning the way to fasten the kit and the amount of fastenings.

Special attention shall be paid to expansion gaps (usually 3 mm per meter, minimum 5 mm) that shall be left at both ends of every decking board, support rail and cover strip.

In any case, the end-user shall comply with the national laws, regulations and administrative provisions.

5. Indications to the manufacturers

5.1 Packaging, transport and storage

Products are transported to the building site packaged on pallets and protected from moisture and impacts during transport and storage. The pallets can be stored outside before installation.

It is the responsibility of the manufacturers to ensure that these provisions are easily accessible to the concerned people.

5.2 Use, maintenance and repair

In the information accompanying the CE marking the manufacturer shall specify that the product shall be installed following the installation instructions given by the manufacturer.

The installation instructions should give information of the extreme use conditions.

The manufacturer shall give guidance concerning installation of heavy objects on the terrace.

The terrace decking kit shall be maintained with periodic cleaning with water. Neutral cleaning agents can be used. Stains shall be removed before they cause permanent colour change. Manufacturer's maintenance instructions should be followed.

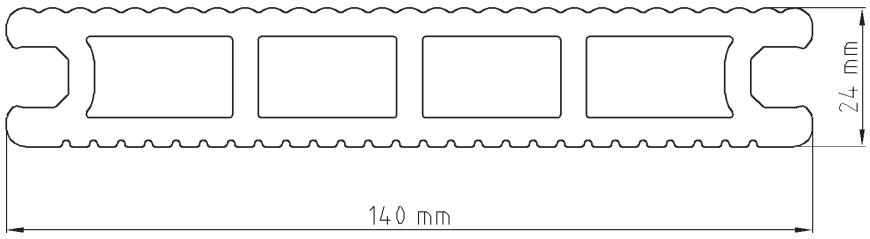
It is the responsibility of the manufacturers to ensure that provisions regarding use, maintenance and repair are easily accessible to the concerned people.

Lisbon, LNEC, 18 June 2013.

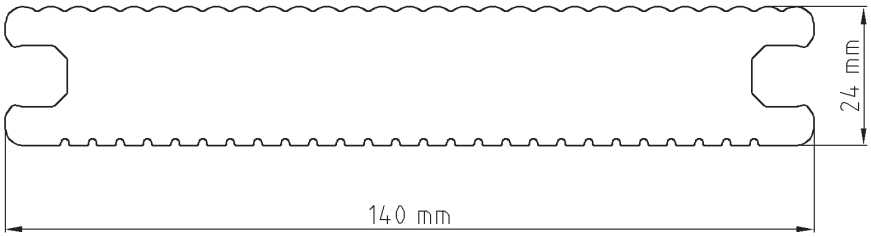
THE BOARD OF DIRECTORS

Carlos Pina
President

Annex I



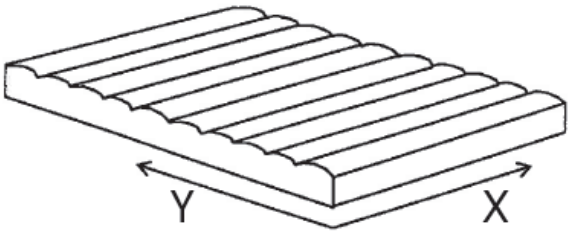
Hollow decking profile



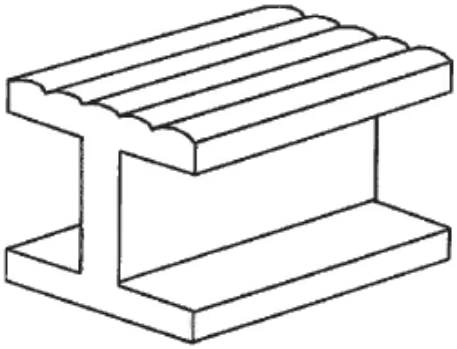
Solid decking profile

Figure I.1 – Cross section dimensions of decking profiles

Annex II



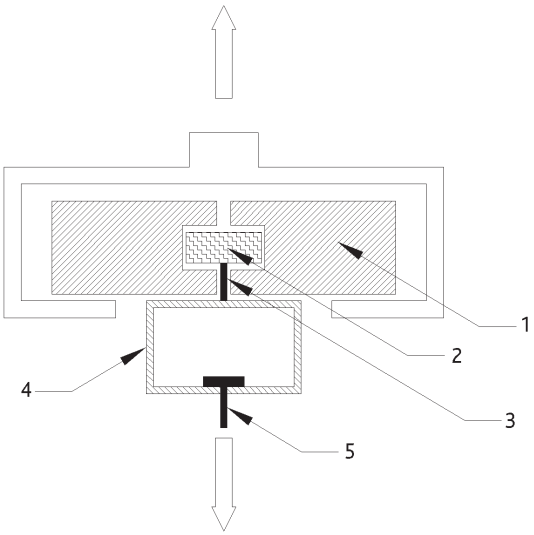
a) Decking profile coordinates



b) Scheme of the profile tested

Figure II.1 – Determination of the coefficient of thermal expansion of the decking profiles

Annex III



1. Decking profiles
2. Fastening clamp
3. Fastening clamp
4. Support rail profile
5. Fastener used for connecting the kit to the support surface

Figure III.1 – Test assembly for the determination of the mechanical fastener holding capacity

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