

ETA-Danmark A/S  
Göteborg Plads 1  
DK-2150 Nordhavn  
Tel. +45 72 24 59 00  
Fax +45 72 24 59 04  
Internet www.etadanmark.dk



Authorised and notified according to  
Article 29 of the Regulation (EU)  
No 305/2011 of the European Parlia-  
ment and of the Council of 9 March  
2011

MEMBER OF EOTA

## European Technical Assessment ETA-22/0333 of 2022/06/08

### I General Part

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

**Trade name of the construction product:**

Farrat TBK and Farrat TBL Structural Thermal Breaks

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

Thermal insulation elements of fibre-reinforced polymer which form a thermal break between structural elements

**Manufacturer:**

Farrat Isolevel Ltd  
Balmoral Road  
Altrincham  
Cheshire WA15 8HJ  
United Kingdom  
Tel: +44 (0)161 924 1600  
Internet www.farrat.com

**Manufacturing plant:**

Farrat Isolevel Ltd  
Balmoral Road  
Altrincham  
Cheshire WA15 8HJ  
United Kingdom

**This European Technical Assessment contains:**

9 pages including 1 annex which form an integral part of the document

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

European Assessment Document – EAD 041877-00-0301 for Thermal insulation elements of fibre-reinforced polymer which form a thermal break between structural elements

**This version replaces:**

-

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

Communication of this European Technical Assessment, including transmission by electronic means, shall be in full (excepted the confidential Annex(es) referred to above). However, partial reproduction may be made, with the written consent of the issuing Technical Assessment Body. Any partial reproduction has to be identified as such.

## **II SPECIFIC PART OF THE EUROPEAN TECHNICAL ASSESSMENT**

### **1 Technical description of product and intended use**

#### **Technical description of the product**

The thermal insulation elements are made from fibre-reinforced polymer which form a thermal break between structural elements (in the following referred to as “the element”) is a structural thermal break plate made from fibre-reinforced polymer.

The thermal insulation elements are bolted, through fixed or clamped between flanged connections of internal and external steelwork, or internal concrete and external steelwork.

Farrat TBK and Farrat TBL Structural Thermal Breaks are synthetic, structural thermal break plates as follows:

- Farrat TBK: a glass-fibre laminate, bound with a high-temperature polymer resin laminate
- Farrat TBL: modified polyamide thermoplastic.

The products’ characteristics and the available thicknesses are shown in annex A

The following accessories are to be used with the products but outside the scope of this ETA:

- Structural supporting elements — steelwork, concrete etc
- Stainless steel bolts.

Dimensions, hole positions and typical installations are shown in Annex A and B.

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

The intended use of the load-bearing thermal insulation elements of fibre-reinforced polymer is to reduce the thermal bridging between flanged connections of internal and external steelwork or internal concrete and external steelwork. The load-bearing thermal insulation elements of fibre-reinforced polymer transmits compressive forces arising from the structural action of the connection.

The element is intended to be subjected to static or quasi-static loads only and is not intended to resist shear or tensile force.

The element is not intended to be subjected to exposure from weathering/humidity.

The products are used in the construction of new-build and refurbishment projects such balconies, façade system connections, Brise-soleil and canopies, external access systems (staircases, balustrading, etc), roof plant room super-structure (columns), connections between new and existing construction, Building Maintenance Units (BMU)

The provisions made in this European Technical Assessment are based on an assumed intended working life of the hold-downs of 50 years.

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

#### Characteristic

#### Assessment of characteristic

#### 3.1 Mechanical resistance and stability (BWR 1)

Compressive strength and modulus of elasticity

Product Type	Characteristic compressive strength, $f_{ck}^{(1)}$ (N/mm <sup>2</sup> )	Modulus of elasticity (N/mm <sup>2</sup> )
Farrat TBK	312	5178
Farrat TBL	89	2586

Creep

Product Type	Long term creep deformation %
Farrat TBK	20
Farrat TBL	30

#### 3.2 Safety in case of fire (BWR2)

Reaction to fire

**Product type TBK and TBL** are classified as **class E** in accordance with EN 13501-1 and Commission Delegated Regulation 2016/364. The classification applies for construction applications mechanically fixed over any substrate having a minimum thickness of 0,6 mm, a minimum density of 5850 kg/m<sup>3</sup> and a fire performance of A1. The classification applies to all thicknesses covered by the ETA, but not other deviations.

#### 3.3 Energy economy and heat retention (BW82)

Thermal conductivity

Product	Thermal conductivity $\lambda$ (W/mK)
Farrat TBK	0,187
Farrat TBL	0,292

#### 3.4 Related aspects of serviceability

Flexural strength

No performance assessed

Water absorption

Product	Water absorption, %
Farrat TBK	0,14
Farrat TBL	0,48

### **3.5 General aspects related to the performance of the product**

The thermal break plate does not contribute to shear resistance but introduces bending on the bolts by virtue of the gap created. Therefore, a thermal break plate in a connection must be considered as a 'pack' in terms of connection design. Where packs are used in connections, and depending on the thickness of the packs, it may be necessary to reduce the shear resistance of the bolts within the connection in accordance with EN 1993-1-8.

Assessment of structural performance for individual installations of connections that include thermal break plates should be carried out by a suitably experienced and qualified engineer and designed in accordance with EN 1993-1-8, taking into account the following aspects:

- the thermal break plate can resist the applied compression forces
- any additional rotation due to the compression of the thermal break plate (including allowance for long term creep) is adequate
- the shear resistance of the bolts is acceptable given that there may be a reduction in resistance due to packs and large grip lengths
- for non pre-loaded bolt systems, the shear resistance of the bolts is adequate.

## **4 Attestation and verification of constancy of performance (AVCP)**

### **4.1 AVCP system**

According to the decision 98/214/EC of the European Commission, as amended, the system(s) of assessment and verification of constancy of performance (see Annex V to Regulation (EU) No 305/2011) is 2+.

## **5 Technical details necessary for the implementation of the AVCP system, as foreseen in the applicable EAD**

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at ETA-Danmark prior to CE marking.

Issued in Copenhagen on 2022-06-08 by



Thomas Bruun  
Manager, ETA-Danmark

**Annex A**  
**Product details definitions**

The products' characteristics and the available thicknesses are shown in Table 1.

Table 1 Product characteristics

Product	Thickness (mm)	Material Density (kg/m <sup>3</sup> )	Colour
Farrat TBK	5, 10, 15, 20, 25	1355-1500	Amber
Farrat TBL	5, 10, 15, 20, 25	1100-1175	Black

A typical detail of a TBK thermal break plate is shown in Figure 1.

Figure 1 Farrat TBK plate – steel to steel connection

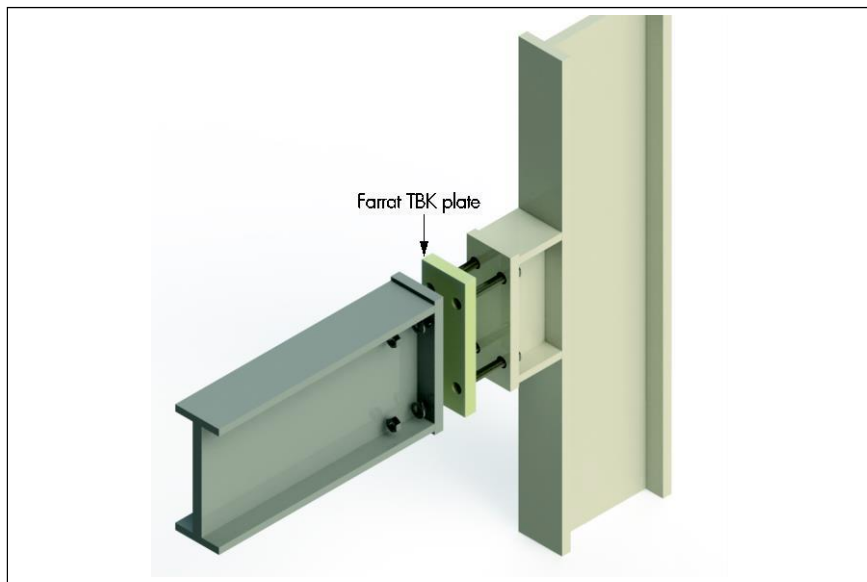


Figure 2. Typical example applications of Farrat TBK and Farrat TBL Structural Thermal Breaks

