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European Technical Assessment

ETA-13/0644
of 01.04.2019

General part

Technical Assessment Body issuing the European Technical Assessment

Österreichisches Institut für Bautechnik (OIB)
Austrian Institute of Construction Engineering

Trade name of the construction product

Festigkeitssortiertes keilgezinktes Vollholz GLT®

Product family to which the construction product belongs

Tension proof loaded structural finger jointed solid timber which may be processed to glued laminated timber and glued solid timber

Manufacturer

Hasslacher Holding GmbH
Feistritz 1
9751 Sachsenburg
Austria

Manufacturing plants

Holzindustrie Preding GbmH
Wohlsdorfer Straße 1
8504 Preding
Austria

This European Technical Assessment contains

13 Seiten, einschließlich 3 Anhängen die fester Bestandteil dieser Bewertung sind.

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

European Assessment Document
EAD 130484-00-0304, "Tension proof loaded structural finger jointed solid timber which may be processed to glued laminated timber and glued solid timber".

This European Technical Assessment replaces

European technical approval ETA-13/0644 with validity from 28.06.2013 to 27.06.2018.

Remarks

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

1.1 General

This European Technical Assessment (ETA)¹ applies to the tension proof loaded structural finger jointed solid timber of softwood which may be processed to glued laminated timber or glued solid timber "Festigkeitssortiertes keilgezinktes Vollholz GLT®". GLT® is either a strength graded structural finger jointed solid timber beam and tension proof loaded (GLT®_{MONO}) or processed to glued laminated timber or glued solid timber made of 2 to 4 laminations (GLT®_{DUO}, GLT®_{TRIO} and GLT®_{QUATTRO}). Surfaces are planed.

During tension proof loading the specimens, with a free span $l \geq 9 \times$ the biggest cross section dimension are subjected to a defined short-term mechanical loading, see Figure 1, up to a certain stress below its characteristic strength. Parameters for tension proof loading are given in Annex 1, Table 2. Damage at the clamping unit (e.g. through high lateral pressure or sliding) shall be avoided. All pieces not reaching a pre-set proof level due to premature failure are eliminated.

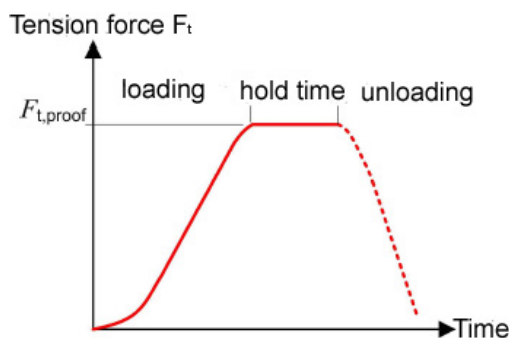


Figure 1: Qualitative force-time-plot for tension proof loading

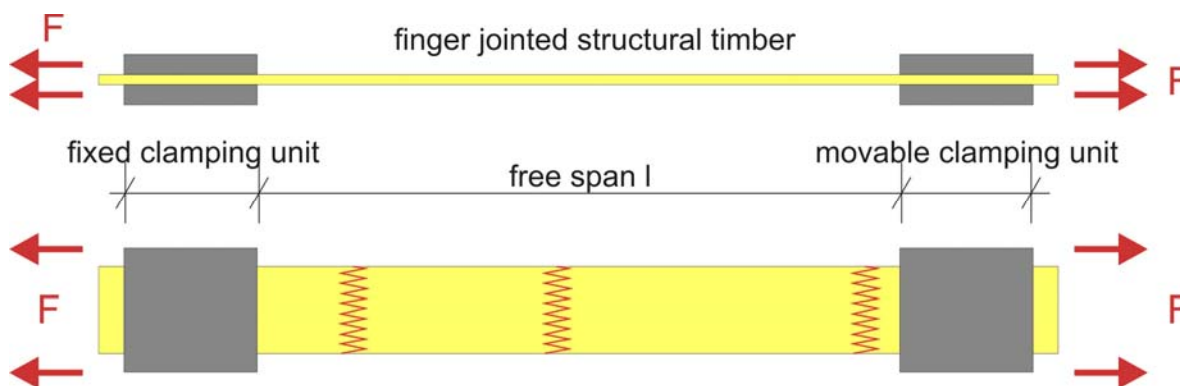


Figure 2: System sketch of a tensile proof loading device for industrial application

¹ The ETA-13/0644 was firstly issued in 2013 as European technical approval with validity from 28.06.2013 and amended and converted in 2019 to the European Technical Assessment ETA-13/0644 of 01.04.2019.

GLT® and the boards/baulks for its manufacturing corresponds to the specifications given in Annex 1. The material characteristics, dimensions and tolerances of GLT®, not indicated in these Annexes, are given in the technical file² of the European Technical Assessment.

The application of wood preservatives and flame retardants is not subject of the European Technical Assessment.

1.2 Components

1.2.1 Boards or baulks

The specifications of the boards and baulks are given in Annex 1, Table 2. They are visually or machine strength graded. Only technically dried wood is used.

Wood species is European spruce (*Picea abies*). Source is CNE Europe.

1.2.2 Adhesive

The adhesive for bonding the GLT®_{DUO}, GLT®_{TRIO} and GLT®_{QUATTRO} and the finger joints of the individual boards/baulks GLT®_{MONO} conforms to EN 15425, Type I.

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

2.1 Intended use

GLT® is intended to be used as a structural or non-structural element in buildings and timber structures.

GLT® shall be subjected to static and quasi static actions only.

GLT® is intended to be used in service classes 1 and 2 according to EN 1995-1-1³.

2.2 General assumptions

GLT® is manufactured in accordance with the provisions of the European Technical Assessment using the manufacturing process as identified in the inspection of the manufacturing plants by Österreichisches Institut für Bautechnik and laid down in the technical file.

The manufacturer shall ensure that the requirements in accordance with the Clauses 1, 2 and 3 as well as with the Annexes of the European Technical Assessment are made known to those who are concerned with design and execution of the works.

For GLT®_{DUO}, GLT®_{TRIO} and GLT®_{QUATTRO}, layers of planed boards/baulks are bonded together to the required thickness of the GLT® according to EN 14080. The individual boards/baulks of GLT® are jointed in longitudinal direction by means of finger joints according to EN 15497, there are no butt joints. Adhesive is applied on one face of each board.

Design

The European Technical Assessment only applies to the manufacture and use of GLT®. Verification of stability of the works including application of loads on GLT® is not subject to the European Technical Assessment.

The following conditions shall be observed:

- Design of GLT® is carried out under the responsibility of an engineer experienced in timber elements.
- Design of the works shall account for the protection of GLT®.

² The technical file of the European Technical Assessment is deposited at Österreichisches Institut für Bautechnik and, in so far as is relevant to the tasks of the notified product certification body involved in the assessment and verification of constancy of performance procedure, is handed over to the notified product certification body.

³ Reference documents are listed in Annex 3.

- GLT® is installed correctly.

Design of GLT® can be according to EN 1995-1-1 and EN 1995-1-2, taking into account of Annex 1 and Annex 2 of the European Technical Assessment.

Standards and regulations in force at the place of use shall be considered.

Packaging, transport, storage, maintenance, replacement and repair

Concerning product packaging, transport, storage, maintenance, replacement and repair it is the responsibility of the manufacturer to undertake the appropriate measures and to advise his clients on the transport, storage, maintenance, replacement and repair of the product as he considers necessary.

Installation

It is assumed that the product will be installed according to the manufacturer's instructions or (in absence of such instructions) according to the usual practice of the building professionals.

2.3 Assumed working life

The provisions made in the European Technical Assessment (ETA) are based on an assumed intended working life of GLT® of 50 years, when installed in the works, provided that the GLT® elements are subject to appropriate installation, use and maintenance (see Clause 2.2). These provisions are based upon the current state of the art and the available knowledge and experience⁴.

The indications given as to the working life of the construction product cannot be interpreted as a guarantee neither given by the product manufacturer or his representative nor by EOTA nor by the Technical Assessment Body, but are regarded only as a means for choosing the appropriate products in relation to the expected economically reasonable working life of the works.

⁴ The real working life of a product incorporated in a specific works depends on the environmental conditions to which that works is subject, as well as on the particular conditions of the design, execution, use and maintenance of that works. Therefore, it cannot be excluded that in certain cases the real working life of the product can also be shorter than the assumed working life.

3 Performance of the product and reference to the methods used for its assessment

3.1 Essential characteristics of the product

Table 1: Essential characteristics of the product and assessment methods

No	Essential characteristic	Product performance
Basic requirement for construction works 1: Mechanical resistance and stability		
1	Mechanical strength, stiffness and density	Annex 1
2	Mechanical TIME-resistance of finger joint	Annex 1
3	Mechanical resistance against PRE-damaging due to first and second proof loading	Annex 1
4	Proof load factor k_{pl}	Annex 2
5	Bending strength and stiffness – system effect k_{sys} for timber elements stressed on edge	Annex 1
6	Bond line integrity	Annex 1
7	Creep and duration of the load	Annex 1
8	Dimensional stability	Annex 1
Basic requirement for construction works 2: Safety in case of fire		
9	Reaction to fire	Annex 1
10	Resistance to fire (Charring rate)	Annex 1
Basic requirement for construction works 3: Hygiene, health and the environment		
11	Content, emission and/or release of dangerous substances	3.1.1
Additional assessment		
12	Natural durability	Annex 1

3.1.1 Hygiene, health and the environment

The release of dangerous substances is determined according to EAD 130484-00-0304, “Tension proof loaded structural finger jointed solid timber which may be processed to glued laminated timber and glued solid timber”. No dangerous substances is the performance of GLT® in this respect.

NOTE In addition to the specific clauses relating to dangerous substances contained in the European Technical Assessment, 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 Regulation, these requirements need also to be complied with, when and where they apply.

3.2 Assessment methods

3.2.1 General

The assessment of the essential characteristics in Clause 3.1 of GLT® for the intended use, and in relation to the requirements for mechanical resistance and stability, for safety in case of fire and for hygiene, health and the environment in the sense of the basic requirements for construction works № 1, 2 and 3 of Regulation (EU) № 305/2011 as well as additional assessment has been made in accordance with the European Assessment Document EAD 130484-00-0304, Tension proof loaded structural finger jointed solid timber which may be processed to glued laminated timber and glued solid timber.

3.2.2 Identification

The European Technical Assessment for GLT® is issued on the basis of agreed data that identify the assessed product. Changes to materials, to composition, to characteristics of the product, or to the production process could result in these deposited data being incorrect. Österreichisches Institut für Bautechnik should be notified before the changes are implemented, as an amendment of the European Technical Assessment is possibly necessary.

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

4.1 System of assessment and verification of constancy of performance

According to Commission Decision 97/176/EC the system of assessment and verification of constancy of performance to be applied to GLT® is System 1. System 1 is detailed in Commission Delegated Regulation (EU) № 568/2014 of 18 February 2014, Annex, 1.2., and provides for the following items:

- (a) The manufacturer shall carry out
 - (i) factory production control;
 - (ii) further testing of samples taken at the manufacturing plant by the manufacturer in accordance with a prescribed test plan⁵;
- (b) The notified product certification body shall decide on the issuing, restriction, suspension or withdrawal of the certificate of constancy of performance of the construction product on the basis of the outcome of the following assessments and verifications carried out by that body:
 - (i) an assessment of the performance of the construction product carried out on the basis of testing (including sampling), calculation, tabulated values or descriptive documentation of the product;
 - (ii) initial inspection of the manufacturing plant and of factory production control;
 - (iii) continuous surveillance, assessment and evaluation of factory production control.

4.2 AVCP for construction products for which a European Technical Assessment has been issued

Notified bodies undertaking tasks under System 1 shall consider the European Technical Assessment issued for the construction product in question as the assessment of the performance of that product. Notified bodies shall therefore not undertake the tasks referred to in point 4.1 (b)(i).

⁵ The prescribed test plan has been deposited with Österreichisches Institut für Bautechnik and is handed over only to the notified product certification body involved in the procedure for the assessment and verification of constancy of performance. The prescribed test plan is also referred to as control plan.

5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable European Assessment Document

5.1 Tasks for the manufacturer

5.1.1 Factory production control

In the manufacturing plant the manufacturer shall establish and continuously maintain a factory production control. All procedures and specification adopted by the manufacturer shall be documented in a systematic manner. The factory production control shall ensure the constancy of performances of GLT® with regard to the essential characteristics.

The manufacturer shall only use raw materials supplied with the relevant inspection documents as laid down in the control plan. The incoming raw materials shall be subject to controls by the manufacturer before acceptance. Check of incoming materials shall include control of inspection documents presented by the manufacturer of the raw materials.

The frequencies of controls conducted during manufacturing and on the assembled product are defined by taking account of the manufacturing process of the product and are laid down in the control plan.

The results of factory production control are recorded and evaluated. The records include at least the following data:

- Designation of the product, basic materials and components
- Type of control or test
- Date of manufacture of the product and date of testing of the product or basic materials or components
- Results of controls and tests and, if appropriate, comparison with requirements
- Name and signature of person responsible for factory production control

The records shall be kept at least for ten years time after the construction product has been placed on the market and shall be presented to the notified product certification body involved in continuous surveillance. On request they shall be presented to Österreichisches Institut für Bautechnik.

5.1.2 Declaration of performance

The manufacturer is responsible for preparing the declaration of performance. When all the criteria of the assessment and verification of constancy of performance are met, including the certificate of conformity issued by the notified product certification body, the manufacturer shall draw up a declaration of performance.

5.2 Tasks for the notified product certification body

5.2.1 Initial inspection of the manufacturing plant and of factory production control

The notified product certification body shall verify the ability of the manufacturer for a continuous and orderly manufacturing of GLT® according to the European Technical Assessment. In particular the following items shall be appropriately considered

- Personnel and equipment
- The suitability of the factory production control established by the manufacturer
- Full implementation of the control plan

5.2.2 Continuous surveillance, assessment and evaluation of factory production control

The notified product certification body shall visit the factory at least twice a year for routine inspection. In particular the following items shall be appropriately considered

- The manufacturing process including personnel and equipment
- The factory production control

- The implementation of the control plan

The results of continuous surveillance are made available on demand by the notified product certification body to Österreichisches Institut für Bautechnik. When the provisions of the European Technical Assessment and the control plan are no longer fulfilled, the certificate of constancy of performance is withdrawn by the notified product certification body.

Issued in Vienna on 01.04.2019
by Österreichisches Institut für Bautechnik

The original document is signed by:

Rainer Mikulits
Managing Director

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Table 3: Product characteristics of GLT®

BR	Essential characteristic	Method of verification	Class / Use category / Numeric value
1	Mechanical resistance and stability		
	Strength class of boards	EN 338	C24 to C40
	Mechanical strength properties – bending strength $f_{m,k}$ – tensile strength in direction of grain $f_{t,0,k}$ – tensile strength perpendicular to the grain $f_{t,90,k}$ – compression strength in direction of grain $f_{c,0,k}$ – compression strength perpendicular to the grain $f_{c,90,k}$ – shear strength $f_{v,k}$	EN 338	acc. to respective strength class ²⁾
	Stiffness Properties – Modulus of elasticity parallel to the grain $E_{m,0,mean}$ – Modulus of elasticity parallel to the grain $E_{m,0,k}$ – Modulus of elasticity perpendicular to the grain $E_{m,90,mean}$ – Modulus of elasticity perpendicular to the grain $E_{m,90,k}$ – shear modulus G_{mean} – shear modulus G_k	EN 338	acc. to respective strength class ^{1) 2)}
	Characteristic density – characteristic density ρ_k	EN 338	acc. to respective strength class ²⁾
	Proof load factor k_{pl}	EAD 130484-00-0304	Table 4, Annex 2

¹⁾ $E_{m,0,mean}$ for C24+ is 11 600 N/mm² and for C30+ is 12 600 N/mm²

²⁾ The lamination with the lowest strength class is decisive.

GLT®

Annex 1

Characteristic data of GLT®

of European Technical Assessment
ETA-13/0644 of 01.04.2019

