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European Technical Assessment

ETA-19/0031
of 12.08.2021

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

HASSLACHER GLT Birch

Product family to which the construction product belongs

Glued laminated timber (GLT) made of solid hardwood

Manufacturer

HASSLACHER Holding GmbH
Feistritz 1
9751 Sachsenburg
Austria

Manufacturing plant

NORITEC Holzindustrie GmbH
Feistritz 1
9751 Sachsenburg
Austria

This European Technical Assessment contains

14 pages including 3 Annexes which form an integral part of this assessment.

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

European Assessment Document (EAD)
130320-00-0304 "Glued laminated timber made of solid hardwood".

Remarks

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. However, partial reproduction may be made with the written consent of Österreichisches Institut für Bautechnik. Any partial reproduction has to be identified as such.

Specific parts

1 Technical description of the product

1.1 General

This European Technical Assessment (ETA) applies to the glued laminated timber (GLT) made of solid hardwood "HASSLACHER GLT Birch". HASSLACHER GLT Birch is made of hardwood boards which are bonded together in order to form glued laminated timber.

HASSLACHER GLT Birch consist of at least six adjacent layers which are bonded at the faces. Surfaces are planed.

HASSLACHER GLT Birch and the boards for its manufacturing correspond to the specifications given in the Annexes 1 and 2. The material characteristics, dimensions and tolerances of HASSLACHER GLT Birch, not indicated in these Annexes, are given in the technical file¹ of the European Technical Assessment.

Holes and large finger joints in HASSLACHER GLT Birch are not subject 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

The specification of the boards is given in Annex 2, Table 3 and Table 4. Boards are visually graded according to Annex 1 of the European Technical Assessment. Only technically dried wood shall be used.

Surfaces are planed at the earliest 6 hours before bonding.

Wood species is European birch or equivalent hardwood.

1.2.2 Adhesive

The adhesive for bonding of the glued laminated timber and the finger joints of the individual boards shall conform to EN 301 and is tested according to EN 302-6.

Adhesives with tested adhesive-hardener-ratio are given in the technical file of the European Technical Assessment.

¹ 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.

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

2.1 Intended use

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

HASSLACHER GLT Birch shall be subjected to static and quasi static actions only.

HASSLACHER GLT Birch is intended to be used in service classes 1 and 2 according to EN 1995-1-1².

2.2 General assumptions

HASSLACHER GLT Birch 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.

Layers of planed boards shall be bonded together to the required thickness of the HASSLACHER GLT Birch. The waiting periods according to the technical file as well a minimum temperature according to EN 14080 in the manufacturing room must be met.

Adhesive shall be applied minimum on one face of the boards per glue joint. The applied quantity of adhesive is given in the technical file of the European Technical Assessment. The minimum bonding pressure is 0.8 N/mm². Further requirements for bonding of the boards as well as the adhesive-joint-temperature and the minimum pressing time are given in the technical file of the European Technical Assessment.

The individual boards shall be jointed in longitudinal direction by means of finger joints according to EN 14080 with minimum profile 15/3.8 mm, there shall be no butt joints. Hardening of finger joints takes place at a temperature of and humidity according to EN 14080 for minimum 2 hours.

Mechanical loading during minimum pressure and hardening time is not permitted, except insignificant loading during transport.

Design

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

The following conditions shall be observed:

- Design of HASSLACHER GLT Birch is carried out under the responsibility of an engineer experienced in such products.
- Design of the works shall account for the protection of the HASSLACHER GLT Birch.
- HASSLACHER GLT Birch is installed correctly.

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

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

² Reference documents are listed in Annex 3.

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	Bending strength of the glued laminated timber – with flatwise bending of the laminations	Annex 2
2	Bending strength of the glued laminated timber – with edgewise bending of the laminations	Annex 2
3	Tensile strength parallel to the grain of the glued laminated timber	Annex 2
4	Tensile strength perpendicular to the grain of the glued laminated timber	Annex 2
5	Compression strength parallel to the grain of the glued laminated timber	Annex 2
6	Compression strength perpendicular to the grain of the glued laminated timber	Annex 2
7	Shear strength of the glued laminated timber	Annex 2
8	Rolling shear strength of the glued laminated timber	Annex 2
9	Modulus of elasticity parallel to the grain of the glued laminated timber	Annex 2
10	Modulus of elasticity perpendicular to the grain of the glued laminated timber	Annex 2
11	Shear modulus of the glued laminated timber	Annex 2
12	Rolling shear modulus of the glued laminated timber	Annex 2
13	Density of the glued laminated timber	Annex 2
14	PH-value	No performance assessed.
15	Dimensional stability	Annex 2
Basic requirement for construction works 2: Safety in case of fire		
16	Reaction to fire	No performance assessed.
17	Charring rate	Annex 2
Basic requirement for construction works 3: Hygiene, health and the environment		
18	Content, emission and/or release of dangerous substances	3.1.1
19	Formaldehyde emission	No performance assessed.
Durability aspects		
20	Durability of bonding strength of the glued laminated timber/ Durability of bonding strength of finger joints of the lamination	Annex 2
21	Mechanical durability of the glued laminated timber	Annex 2
22	Durability against biological attack	Annex 2

3.1.1 Hygiene, health and the environment

The release of dangerous substances is determined according to EAD 130320-00-0304, “Glued laminated timber made of solid hardwood”. No dangerous substances is the performance of HASSLACHER GLT Birch 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 HASSLACHER GLT Birch for the intended use, and in relation to the requirements for mechanical resistance and stability, for safety in case of fire, for hygiene, health and the environment and durability aspects in use in the sense of the basic requirements for construction works № 1, 2 and 3 of Regulation (EU) № 305/2011 has been made in accordance with the European Assessment Document EAD 130320-00-0304, Glued laminated timber made of solid hardwood.

3.2.2 Identification

The European Technical Assessment for HASSLACHER GLT Birch 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 HASSLACHER GLT Birch 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 plan⁴;
- (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 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.

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 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 HASSLACHER GLT Birch 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.

Table 2: Visual strength grading – Grading requirements for boards

Grading criteria	Grading classes
	LS10+
1. Knots	
Single knot	≤ 1/3
Group of knots	≤ 1/2
2. Slope of grain	≤ 12 %
3. Pith	Permitted
4. Rate of growth	-
5. Fissures	
Shrinkage fissures	Permitted
Fissures caused by a flash, frost, ring-shake	Not permitted
6. Wane	≤ 1/4
7. Sweep	
Bow	≤ 8 mm
Twist	≤ 1 mm / 25 mm width
Cupling	≤ 1/30
8. Stain, rot	
Nail-strong brown and red stripes	≤ 2/5
Rot	Not permitted
9. Degrade by greenwood insects	Not permitted
10. Other characteristics	$E_{dyn,EF} \geq 11\ 000\ \text{MPa}$

HASSLACHER GLT Birch

Annex 1

Visual grading rules

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Table 3: Dimensions and specifications

Characteristic		Dimension / Specification
HASSLACHER GLT Birch		
Height h	mm	240 to 1 200
Width b	mm	$80 \leq b \leq 240$
Length l	m	≤ 45
Number of layers n	—	minimum 6
Boards		
Surface	—	planed ¹⁾
Thickness t (planed dimension)	mm	20 to 40
Width b	mm	80 to 240
Boards shall be graded with visual procedure according to Annex 1.	—	LS 10+
Moisture of wood according to EN 13183-2	%	11 ± 2
Finger joints	—	EN 14080
Profile of finger joints	mm	minimum 15/3.8

¹⁾ Surfaces are planed at the earliest 6 hours before bonding.

HASSLACHER GLT Birch

Annex 2

Characteristic data

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Table 4: Product characteristics of the boards

BR	Essential characteristic	Method of verification	Class / Use category / Numeric value
1	Mechanical resistance and stability		
	Strength class of boards	Annex 1	LS10+
	Tensile strength – parallel to the grain $f_{t,0,l,k}$	EAD130320-00-0304 2.2.1	24 MPa
	Tensile modulus of elasticity – parallel to the grain $E_{t,0,l,mean}$	EAD130320-00-0304 2.2.1	14 300 MPa
	Edgewise bending strength – parallel to the grain $f_{m,k,edge}$	EAD130320-00-0304 2.2.1	40 MPa
	Edgewise bending modulus of elasticity – parallel to the grain $E_{m,0,mean}$	EAD130320-00-0304 2.2.1	16 600 MPa
	Tensile strength of finger joint – parallel to the grain $f_{t,0,j,k}$	EAD130320-00-0304 2.2.1	30 MPa
	Flatwise bending strength of finger joint – parallel to the grain $f_{m,j,k,flat}$	EAD130320-00-0304 2.2.1	50 MPa
	Density – characteristic density $\rho_{l,k}$ – mean density $\rho_{l,m}$	EAD130320-00-0304 2.2.13	545 kg/m ³ 600 kg/m ³

HASSLACHER GLT Birch

Annex 2

Characteristic data

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Table 5: Product characteristics of HASSLACHER GLT Birch

BR	Essential characteristic	Method of verification	Class / Use category / Numeric value
1	Mechanical resistance and stability		
	Strength class of boards	Annex 1	LS10+
	Mechanical strength properties		
	– flatwise bending strength $f_{m,g,flat,k}$	EAD130320-00-0304 2.2.1	32 MPa ¹⁾
	– edgewise bending strength $f_{m,g,edge,k}$	EAD130320-00-0304 2.2.2	$k_{sys} \cdot 36$ MPa ²⁾
	– tensile strength parallel to the grain $f_{t,0,g,k}$	EAD130320-00-0304 2.2.3	24 MPa
	– tensile strength perpendicular to the grain $f_{t,90,g,k}$	EAD130320-00-0304 2.2.4	0.6 MPa
	– compression strength parallel to the grain $f_{c,0,g,k}$	EAD130320-00-0304 2.2.5	30 MPa ³⁾
	– compression strength perpendicular to the grain $f_{c,90,g,k}$	EAD130320-00-0304 2.2.6	4.5 MPa ²⁾
	– shear strength $f_{v,g,k}$	EAD130320-00-0304 2.2.7	4.9 MPa
	– rolling shear strength $f_{r,g,k}$	EAD130320-00-0304 2.2.8	1.8 MPa
Stiffness Properties			
– Modulus of elasticity parallel to the grain $E_{0,g,mean}$	EAD130320-00-0304 2.2.9	15 000 MPa	
– Modulus of elasticity parallel to the grain $E_{0,g,05}$	EAD130320-00-0304 2.2.9	12 600 MPa	

NOTE

¹⁾ 1 MPa = 1 N/mm²²⁾ k_{sys} is the system factor acc. to EN 1995-1-1, Figure 6.12 depending on the number of laminations.³⁾ For service class 2 the characteristic value of compression strength shall be decreased by the factor 0.8.**HASSLACHER GLT Birch**

Annex 2

Characteristic data

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BR	Essential characteristic	Method of verification	Class / Use category / Numeric value
	– Modulus of elasticity perpendicular to the grain $E_{90,g,mean}$	EAD130320-00-0304 2.2.10	650 MPa
	– Modulus of elasticity perpendicular to the grain $E_{90,g,05}$	EAD130320-00-0304 2.2.10	540 MPa
	– shear modulus $G_{g,mean}$	EAD130320-00-0304 2.2.11	850 MPa
	– shear modulus $G_{g,0.05}$	EAD130320-00-0304 2.2.11	710 MPa
	– rolling shear modulus $G_{r,g,mean}$	EAD130320-00-0304 2.2.12	65 MPa
	– rolling shear modulus $G_{r,g,0.05}$	EAD130320-00-0304 2.2.12	54 MPa
	Density		
	– characteristic density $\rho_{g,k}$	EAD130320-00-0304 2.2.13	600 kg/m ³
	Dimensional stability Moisture content during service shall not change to such an extent that adverse deformation will occur. Dimensional changes in thickness and width of hardwood according to EN 336: <ul style="list-style-type: none"> - increase of 0.35 % per 1 % moisture increase for a moisture content $20\% \leq u \leq 30\%$ - decrease of 0.35 % per 1 % moisture decrease for a moisture $u < 20\%$ 		
2	Safety in case of fire		
	Charring rate	EN 1995-1-2	$\beta_0 = 0.50$ mm/min $\beta_n = 0.55$ mm/min
–	Aspects of durability		
	Durability of bonding strength of the glued laminated timber/ Durability of bonding strength of finger joints of the lamination	EAD130320-00-0304 2.2.18	Pass
	Mechanical durability of the glued laminated timber	k_{mod} and k_{def} according to EN 1995-1-1 for glued laminated timber	
	Durability against biological attack	Natural durability acc. to EN 350	
HASSLACHER GLT Birch		Annex 2	
Characteristic data		of European Technical Assessment ETA-19/0031 of 12.08.2021	

