



MADE FOR BUILDING
BUILT FOR LIVING

Declaration of Performance

No.: DOP_KLH_K_2021_v01_en

1. Unique identification code of the product type:

KLH® - CLT

2. Intended use:

Solid wood slab elements to be used as load bearing or non-load bearing structural elements in buildings.

3. Name, registered trade name or registered trademark and contact address of the manufacturer:

**KLH Massivholz GmbH
8842 Teufenbach-Katsch, Gewerbestraße 4
Austria**

4. Authorised representative:

**KLH Massivholz GmbH
8842 Teufenbach-Katsch, Gewerbestraße 4
Austria**

5. System of assessment and verification of constancy of performance:

System 1

| | |
|----------------------------------|---|
| 6. European Assessment Document: | EAD 130005-00-0304 |
| European Technical Assessment: | ETA-06/0138 issued on 18.01.2021 |
| Technical assessment body: | Austrian Institute of Construction Engineering (OIB) |
| Notified body: | Holzforschung Austria Nr. 1359 |

7. Declared properties:

| Product dimensions | |
|---|--------------|
| Widths to | 2 980 mm |
| Lengths to | 16 500 mm |
| Thicknesses from | 60 to 360 mm |
| The actual product dimensions can be obtained from the accompanying documents | |

KLH MASSIVHOLZ GMBH

A-8842 Teufenbach-Katsch | Gewerbestraße 4 | Tel +43 (0)3588 8835 0 | Fax +43 (0)3588 8835 415 | office@klh.at | www.klh.at

| Essential Characteristics | Performance |
|---|---------------------------|
| 1. Mechanical resistance and stability | |
| Plate actions | |
| Modulus of elasticity parallel to the grain of the boards $E_{0,mean}$ normal to the grain of the boards $E_{90,mean}$ | 12 000 MPa 450 MPa |
| Shear modulus parallel to the grain of the boards $G_{0,mean}$ normal to the grain of the boards, rolling shear modulus $G_{90,mean}$ | 690 MPa 50 MPa |
| Bending strength parallel to the grain of the boards $f_{m,k}$ | 24 MPa |
| Tensile strength normal to the grain of the boards $f_{t,90,k}$ | 0,12 MPa |
| Compressive strength normal to the grain of the boards $f_{c,90,k}$ | 2,7 MPa |
| Shear strength parallel to the grain of the boards $f_{v,k}$ normal to the grain of the board (rolling shear strength) $f_{v,R,k}$ | 2,7 MPa 1,2 MPa |
| Membrane actions | |
| Modulus of elasticity parallel to the grain of the boards $E_{0,mean}$ | 12 000 MPa |
| Shear modulus parallel to the grain of the boards $G_{0,mean}$ | 500 MPa |
| Bending strength parallel to the grain of the boards $f_{m,k}$ | 24 MPa |
| Tensile strength parallel to the grain of the boards $f_{t,0,k}$ | 16,5 MPa |
| Compressive strength global, parallel to the grain of the boards $f_{c,0,k}$ | 24 MPa |
| Shear strength regardless of loading direction, per glue line $f_{v,k,k}$ (Shear flow) parallel to the grain of the boards $f_{v,k}$ (Shear stress) | 90 N/mm 3,9 to 8,4 MPa |

| Essential Characteristics | Performance |
|---|---|
| Other mechanical actions | |
| Embedment strength | According to EN 1995-1-1 |
| Creep and duration of the load | k_{mod} and k_{def} according to EN 1995-1-1 for glued laminated timber |
| Dimensional stability as tolerances based on EN 336 for thickness and width | For elements with a length > 1 m \pm 2 mm related to standard cutting and wood moisture content 12 % |
| Dimensional stability as wood moisture content after production | $u = 12 \pm 2$ % |
| Coefficient of thermal expansion according to EN 1995-1-1 | $a = 5 \times 10^{-6}/K$ |
| In-service environment as use classes according to EN 1995-1-1 | 1 and 2 |
| Bond integrity according to EAD 130005-00-0304 Adhesives used for surface bonding and finger jointing Glue line integrity as delamination test according to EN 14080, annex C, method B | Passed According to EN 15425 Delamination fulfilled |

| Essential Characteristics | Performance |
|--|---|
| 2. Safety in case of fire | |
| Reaction to fire | D-s2, d0 |
| Resistance to fire | Parameters for fire design according to annex 5, table 6 of ETA-06/0138 Fire resistance duration from REI 30 to REI 240 depending on the panel structure or possible fire protection claddings |
| 3. Hygiene, health and environment | |
| Content, emission and/or release of hazardous substances as formaldehyde emissions | Formaldehyde emission class E1 according to EN 14080, formaldehyde free adhesive |
| Other hazardous substances | NPD |
| Water vapour permeability as water vapour diffusion resistance factor μ (including joints) according to EN ISO 12572 | $\mu = 300$ (dry) to 46 (wet) |
| 4. Safety and accessibility in use | |
| Impact resistance with a soft body | Fulfilled |
| 5. Protection against noise | |
| Airborne sound insulation according to EN 10140-2 | ETA-06/0138, annex 6 |
| Impact sound insulation according to EN 10140-3 | ETA-06/0138, annex 6 |
| 6. Energy economy and heat retention | |
| Thermal conductivity according to EN ISO 10456 | $\lambda = 0,12$ W/(m K) |
| Air permeability according to EN 12114 | Class 4 (tight) according to EN 12207 |
| Thermal inertia as specific heat capacity c_p according to EN ISO 10456 | $c_p = 1\ 600$ J/(kg K) |

The performance of the product is in accordance with/conforms to the declared performance. This declaration of performance is coherent with the regulation (EU) No. 305/2011 and is issued under the sole responsibility of the manufacturer identified under item 3 above.

Signed for and on behalf of the manufacturer by:



KLH MASSIVHOLZ GMBH
Gewerbestraße 4 | 8842 Teufenbach-Katsch
Tel +43 (0)3588 8835 0 | Fax +43 (0)3588 8835 20
office@klh.at | www.klh.at

Mag. Marco Huter, Managing Director

DI Johannes Habenbacher, Managing Director

Teufenbach-Katsch, 18.01.2021



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8842 Teufenbach-Katsch, Gewerbestraße 4
Austria**

4. Authorised representative:

**KLH Massivholz Wiesenau GmbH
9462 Bad St. Leonhard, Wiesenau 2
Austria**

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Signed for and on behalf of the manufacturer by:




KLH MASSIVHOLZ WIESENAU GMBH
 9200 Wollzeile 1, Schwenbräun 7
 Tel +43 (0)4350 3810 0 / Fax +43 (0)4350 3810 603
 office@klh.at | www.klh.at

Mag. Marco Huter, Managing Director

DI Johannes Habenbacher, Managing Director

Bad St. Leonhard, 18.01.2021