# LENO® Cross-Laminated Timber Product Data Sheet

## Approval

- ETA 10-0241
- General type approval Z.-9.1-501

## Dimensions

- Length up to 14.80 m (up to 19.80 m on request)
- Width up to 4.80 m
- Thickness from 60 mm to 300 mm
- All elements are individually made to measure. The grain direction of the outer layers can run along either the length or the width of the panels.
- The minimum size of a LENO® CLT raw panel is 10m².
- The minimum length as well as the minimum width of a raw panel is 1.60m.
  For further information about cost calculation, see page 4: Methods of Cost Calculation

## Timber species

- spruce/fir/pine, sorted by quality, PEFC-certified

## Surfaces

- Industrial Quality
- Industrial Visual Quality
- Nordic Visual Quality
- Cladding with gypsum fibre board or other panels
- Additional wall / ceiling structures on request
- NOTE
  - The description of the surfaces refers explicitly to the top surface only; narrow sides are not form part of the description
  - occasional punctures from moisture sensors may be visible
- For further information see document LENO® Surfaces available at www.zueblin-timber.com

## Gluing

- Surface gluing with formaldehyde-free polyurethane adhesive.

# LENO® CLT Product Data Sheet General

## Moisture content

- 12 ± 2%

## Movement & Tolerance

- Along the panel ~ 0.01 % per % moisture content change
- Perpendicular to the panel ~ 0.2 % per % moisture content change

## Weight

- Characteristic density ρK = 350 kg/m³ (for connection design)
- Specific weight approx. 5 kN/m³ (for design load)

# LENO® CLT Product Data Sheet CNC Machining

## CNC Machining

LENO® Cross-Laminated Timber is a structural component with corresponding markings (e.g. stamps, labels, etc.), dimensional deviations and machining quality. If higher visual grade is required, this must be achieved by additional works on site.

**Standard CNC-machining**

- Wall components:
  Rectangular cut to size machining incl. openings for windows and doors.
- Floor/roof panels:
  Rectangular cut to size machining.
- Machining only from the top side of the panels.
- All cut outs show routed round corners (radius of router typically 20 mm)
- Exception: window/door openings are executed with sharp edge corners)

**Special CNC-machining (only included if expressly stated in our offer)**

In addition to standard CNC-machining:

- Machining of panel joints, drillings, cable grooves, socket holes, sharp edge corners in cut-outs, etc.
- Machining of narrow surfaces, panel edges
- Machining of panels with size of ≤ 1 m²

**Machining quality**

- Small defects on the panel surface may occur during transverse machining and/or drilling total panel section.
- If machining with a CNC-chain saw is necessary oil splashes may occur on the surface of industrial and industrial visual quality panels.
- CNC machining tolerances in accordance with DIN 18203 part 3 for wall, floor, ceiling and roof panels.
- By CNC machining of ‘halflap’ rabbets, machining tolerances of +/- 2 mm may apply (both in plane and perpendicular to the panel surface).

# LENO® CLT Product Data Sheet Methods of Cost Calculation

## Material

Costs are calculated on the basis of the smallest rectangular shape of the raw LENO® CLT panels and not on the basis of standard panel sizes. A raw LENO® CLT panel can consist of several individual components nested within each other.

**Nesting**

Due to possible raw panel dimensions (4.80 m x 14.80 m up to 4.80 m x 19.80 m on request), individual components can be nested efficiently (nesting).
In comparison with the pricing of standard panel sizes, nesting offers direct advantage for the client.

The LENO® CLT raw panels necessary for the production of the individual components are manufactured with centimetre precision following the nesting of the individual components. The minimum size of a LENO® CLT raw panel is 10m². The minimum length as well as the minimum width of a raw panel is 1.60m.

Different cross sections and/or composition of layers, nor different surface qualities cannot be combined in the same raw panel.

For orders with a delivery volume >1 truck (approx. 40 m³ components), only individual components that are delivered together on the same truck can be nested with each other.

The costs are calculated on the basis of the smallest rectangular shape of the LENO® CLT raw panels plus approx. 20mm circumferential edge for production purpose; openings are not deducted.

## Standard CNC-machining

All panels are CNC-machined (Standard CNC-machining, see page 3).
Machining costs are based on panel surface area described in above section Material/Nesting.

The processing of smaller components represents an increased effort and is charged accordingly. For a component area of $1 \leq A < 6$ m², a surcharge for small component is charged per piece / for each component. For components with $A < 1.0$m² a special review is mandatory.

## Procedure following contract agreement

After receipt of the drawings/data from the client, the individual components are nested in accordance to nesting rules mentioned in above section Material/Nesting.
Before the start of production, the nesting including single component drawings will be submitted for clients attention/notice. This will form the basis for all settlements and final account.

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