

# Surface qualities best wood CLT

| Criteria  | Industrial quality                                       | Scandinavian visual quality                              |
|---|--|--|
| 1 Lamella width   | ≤ 160 mm   | ≤ 160 mm   |
| 2 Wood moisture   | 12 % ±2 %  | 12 % ±2 %  |
| 3 Wood species mixture  | spruce/fir   | not permissible  |
| 4 Bonding   | occasional open joints up to max. 2 mm width permissible | occasional open joints up to max. 1 mm width permissible |
| 5 Blue stain  | permissible  | not permissible  |
| 6 Discolouration (brownness etc.)                                       | permissible  | not permissible  |
| 7 Resin pockets   | permissible  | no clusters, max. 3 x 50 mm                              |
| 8 Bark ingrowths  | permissible  | not permissible  |
| 9 Drying cracks   | permissible  | permissible ≤ 1.5 mm                                     |
| 10 Core – pith  | permissible  | allowed if occasional                                    |
| 11 Insect infestation   | burrows up to 2 mm allowed                               | not permissible  |
| 12 Branches – healthy   | permissible  | permissible  |
| 13 Branches – black   | permissible  | Ø max. 1 cm  |
| 14 Branches – hole  | permissible  | not permissible  |
| 15 Wane   | max. 2 x 50 cm   | not permissible  |
| 16 Surface  | not sanded   | 100 % sanded   |
| 17 Quality of the gluing of the narrow sides and of the end faces       | occasional imperfections permissible                     | occasional imperfections permissible                     |
| 18 Surface cosmetics with correction of knotholes, Lamello, strips, ... | permissible  | permissible  |

# Surface qualities best wood GLULAM, DUO, TRIO, CEILING PLANKS and PLANKS FOR LOG HOUSES

| Criteria  | Industrial quality   | Local visual quality   | Scandinavian visual quality  |
|---|--|--|--|
| 1 Firm knots  | permissible <sup>2,3,4</sup>   | permissible <sup>2,3,4</sup>   | permissible <sup>2,3,4</sup>   |
| 2 Knots that have fallen out  | permissible <sup>2,3,4</sup>   | Ø ≤ 35 mm are permissible <sup>2,3,4</sup><br>Ø > 35 mm are not permissible <sup>2,3,4</sup> | Ø ≤ 35 mm are permissible <sup>2,3,4</sup><br>Ø > 35 mm are not permissible <sup>2,3,4</sup> |
| 3 Resin pockets   | permissible <sup>3</sup>   | permissible <sup>3</sup>   | permissible up to a width of 5 mm <sup>3</sup>   |
| 4 Knots and imperfections improved by means of knot hole plugs or "ships"       | permissible <sup>3</sup>   | permissible <sup>3</sup>   | permissible <sup>3</sup>   |
| 5 Knots, edges, and resin pockets improved using filler compounds               | permissible <sup>3,6</sup>   | permissible <sup>3,6</sup>   | permissible <sup>3,6</sup>   |
| 6 Insect infestation  | burrows up to 2 mm are permissible <sup>3</sup>  | burrows up to 2 mm are permissible <sup>3</sup>  | not permissible  |
| 7 Pith  | permissible <sup>3</sup>   | permissible <sup>3</sup>   | permissible if occasional  |
| 8 Width of shrinkage cracks <sup>3,5,7</sup>                                    | no limit   | up to 5 mm   | up to 4 mm   |
| 9 Discolouration as a result of blue stain and red/brown nail-resistant streaks | permissible  | permissible if occasional  | permissible if occasional  |
| 10 Mould infestation  | not permissible <sup>5</sup>   | not permissible <sup>5</sup>   | not permissible <sup>5</sup>   |
| 11 Soiling  | not permissible <sup>5</sup>   | not permissible <sup>5</sup>   | not permissible <sup>5</sup>   |
| 12 Wane   | up to 10 mm depth and 10 mm width <sup>3</sup>   | not permissible  | not permissible  |
| 13 Lamellae partially not planed  | isolated lamellae, depth up to 10 mm permissible   | not permissible  | not permissible  |
| 14 Processing of the surface  | planed and chamfered, plane knocks up to 1 mm in depth permissible, places not planed up to 2 mm permissible | planed and chamfered, plane knocks up to 1 mm in depth permissible                           | planed and chamfered, plane knocks up to 0.5 mm in depth permissible                         |

<sup>1</sup> Deviations from the limits defined below in the lines 2,3,6–9,13 are to be tolerated in the following scope: Maximum three deviations/m<sup>2</sup> visible surface for the visual quality, maximum one deviation/m<sup>2</sup> visible surface for the Scandinavian quality.

<sup>2</sup> Permissible knot size according to DIN 4074.

<sup>3</sup> No limit on the number.

<sup>4</sup> Measurement of the knot diameter analogous to the measurement of the diameters of individual knots with scantlings according to DIN 4074-1: 2003-06, 5.1.2.1.

<sup>5</sup> As-delivered condition

<sup>6</sup> Filler compounds that can be painted over are to be explicitly requested.

<sup>7</sup> Regardless of the surface quality, the crack depth in elements not subjected to transverse stress may be up to 1/6 of the element width, and up to 1/8 of the element width of each side.

# Solid structural timber (KVH®)

## Sort keys

| Technical regulation: DIN EN 15497:2014<br>Sort criterion | Demands on solid structural timber<br>for industrial purposes (KVH NSI) | Comments   |
|---|---|--|
| Wane  | measured diagonally a max. of 10 % minor cross section side             | increased demands compared to DIN 4074-1                               |
| Knots   | A max. 2/5  | equal to sorting class S 10  |
| Condition of knots  | not exceeding 70 mm   | acc. to DIN 4074-1 permitted sorting characteristic for KVH            |
| Annual ring width   | up to 6 mm  | equal to sorting class S 10 according to DIN 4074-1                    |
| Slope of the grain  | up to 120 mm/m  | equal to sorting class S 10 according to DIN 4074-1                    |
| Radial shrinkage cracks<br>(= seasoning cracks)           | permissible   | increased demands compared to DIN 4074-1 for KVH-SI                    |
| Lightning/frost cracks,<br>ring peeling                   | not permissible   | Equal to sorting class S10<br>according to DIN 4074-1                  |
| Discolouration: Blue stain                                | permissible   | increased demands compared to DIN 4074-1 for KVH-SI                    |
| Nail-holding brown and red stripes                        | up to 2/5 of the cross section of the surface are permitted             | increased demands compared to DIN 4074-1 for KVH-SI                    |
| Red and white rot   | not permissible   |  |
| Compression wood  | up to 2/5 of the cross section or<br>the surface are permitted          | equal to sorting class S 10 according to DIN 4074-1                    |
| Insect damages  | burrows up to 2 mm Ø of fresh timber insects are permitted              | increased demands compared to DIN 4074-1 for KVH-SI                    |
| Mistletoe infestation                                     | not permissible   | equal to sorting class S 10 according to DIN 4074-1                    |
| Bending (longitudinal bending,<br>twist)                  | Split-heart cutting<br>max. 8 mm/2 m                                    | increased demands compared to DIN 4074-1 for<br>split-heart cut timber |
| Wood moisture   | max. 18 %   | additional sorting characteristic for KVH                              |
| Cutting class   | split-heart   | additional sorting characteristic for KVH                              |
| Dimensional stability of the cross section                | ± 1 mm  | additional sorting characteristic for KVH                              |
| Bark pocket   |   | additional sorting characteristic for KVH-SI                           |
| Resin pockets   |   | additional sorting characteristic for KVH-SI                           |
| Surface condition   | planed and chamfered  | additional sorting characteristic for KVH                              |
| Conditioning of the ends                                  | rectangular cross-cut   | additional sorting characteristic for KVH                              |

## Basic information on best wood SCHNEIDER® surface qualities

Elements are manufactured in different qualities and thus fulfil differing visual and design requirements. The desired surface qualities can be found in the above table. Deviations from this information are to be separately contractually agreed.

### Transportation and installation; constructional instructions

Elements are packed in wrapping foil at the factory, so they are protected during loading, transportation, and brief intermediate storage. The transport packing only provides short-term protection and should be removed as soon as possible due to the danger of condensation formation leading to blue stain and mould growth. The elements are then to be protected with suitable coverings against moisture penetration, direct sunlight and dirt.

The outer layers of the elements, in particular, absorb moisture in the state of construction. This building moisture must be gradually shifted to the equilibrium moisture content of later use. Careful heating and airing, and the consequent slow reduction of the relative air humidity and corresponding wood moisture, is conducive to this.

Depending on the environmental conditions, shrinkage cracks can occur on the surfaces of the elements – including along the glue line – because of the wood's natural swelling and shrinking behaviour. In elements without systemic transverse stress such shrinkage cracks can be tolerated up to a depth of 1/6 of the element width (each side), in elements with planned transverse stress up to 1/8 of the element width (per side). The tendency towards crack formation grows where there is direct weathering and strongly changing climatic stresses. At the planning stage, protective measures should already also be envisaged for the state of construction. These include, in particular, covers and unimpeded water drainage. It is recommended that coatings only be applied once the equilibrium moisture content has been achieved. Glue joints in elements made of larch sometimes tend to open up when exposed to direct weathering, because of intracellular substances. We therefore recommend that glulam made from larch be built exclusively into the use classes I and II.