

Surface qualities best wood CLT, CLT BOX

Criteria	Local industrial quality	Local visual industrial quality	Scandinavian visual quality
1 Lamella width	≤ 160 mm	≤ 250 mm	≤ 160 mm
2 Wood moisture	12 % ± 2 %	12 % ± 2 %	12 % ± 2 %
3 Wood species mixture	spruce/fir	spruce/fir	not permissible
4 Bonding	occasional open joints up to max. 2 mm width permissible	occasional open joints up to max. 4 mm width permissible	occasional open joints up to max. 1 mm width permissible
5 Blue stain	permissible	slight discolouration permissible	not permissible
6 Discolouration (brownness etc.)	permissible	slight discolouration permissible	not permissible
7 Resin pockets	permissible	permissible	no clusters, max. 3 x 50 mm
8 Bark ingrowths	permissible	permissible	not permissible
9 Drying cracks	permissible	permissible	permissible ≤ 1.5 mm
10 Core – pith	permissible	permissible	allowed if occasional
11 Insect infestation	burrows up to 2 mm allowed	not permissible	not permissible
12 Branches – healthy	permissible	permissible	permissible
13 Branches – black	permissible	permissible	Ø max. 10 cm
14 Branches – hole	permissible	permissible up to max. 30 mm	not permissible
15 Wane	max. 2 x 500 cm	not permissible	not permissible
16 Surface	planed	sanded	sanded
17 Quality of the gluing of the narrow sides and of the end faces	occasional imperfections permissible	occasional imperfections permissible	occasional imperfections permissible
18 Surface cosmetics with correction of knotholes, Lamello, strips, ...	permissible	permissible	permissible

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

Criteria	Local industrial quality	Local visual quality	Scandinavian visual quality
1 Firm knots	permissible ^{2,3,4}	permissible ^{2,3,4}	permissible ^{2,3,4}
2 Knots that have fallen out	permissible ^{2,3,4}	Ø ≤ 35 mm are permissible ^{2,3,4} Ø > 35 mm are not permissible ^{2,3,4}	Ø ≤ 35 mm are permissible ^{2,3,4} Ø > 35 mm are not permissible ^{2,3,4}
3 Resin pockets	permissible ³	permissible ³	permissible up to a width of 5 mm ³
4 Knots and imperfections improved by means of knot hole plugs or "ships"	permissible ³	permissible ³	permissible ³
5 Knots, edges, and resin pockets improved using filler compounds	permissible ^{3,6}	permissible ^{3,6}	permissible ^{3,6}
6 Insect infestation	burrows up to 2 mm are permissible ³	burrows up to 2 mm are permissible ³	not permissible
7 Pith	permissible ³	permissible ³	permissible if occasional
8 Width of shrinkage cracks ^{3,5,7}	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 ⁵	not permissible ⁵	not permissible ⁵
11 Soiling	not permissible ⁵	not permissible ⁵	not permissible ⁵
12 Wane	up to 10 mm depth and 10 mm width ³	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

¹ 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/m² visible surface for the visual quality, maximum one deviation/m² visible surface for the Scandinavian quality.

² Permissible knot size according to DIN 4074.

³ No limit on the number.

⁴ Measurement of the knot diameter analogous to the measurement of the diameters of individual knots with scantlings according to DIN 4074-1: 2021-06

⁵ As-delivered condition

⁶ Filler compounds that can be painted over are to be explicitly requested.

⁷ 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 Sort criterion	Demands on solid structural timber for industrial purposes (KVH NSI)	Comments
Wane	measured diagonally a max. of 10 % minor dimension 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 (= seasoning cracks)	permissible	increased demands compared to DIN 4074-1 for KVH-SI
Lightning/frost cracks, ring peeling	not permissible	Equal to sorting class S10 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 dimension 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 dimension or 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, twist)	Split-heart cutting max. 8 mm/2 m	increased demands compared to DIN 4074-1 for 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 dimension	± 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.