

CATALOGUE OF REQUIREMENTS

rettenmeier® is your professional partner for quality products in the fields of specialist trade, wood construction and roofing. The benefits for our market partners range from comprehensive advice and information on all product-related issues about creating ideal solutions through to the professional follow-up by our after-sales service.

Requirements for KVH®-1plus®

	REQUIREMENTS FOR SELECT	REQUIREMENTS FOR N-VIS	COMMENTS
SORTING CLASS IN ACCORDANCE WITH DIN 4074-1	Minimum S10 TS or S10K TS; C24 or C24M in accordance with DIN EN 338	At least S10 TS or S10K TS; C24 or C24M in accordance with DIN EN 338	The code K stands for a board or plank sorted as squared timber
WOOD MOISTURE CONTENT	approx.15% ± 3%	approx.15% ± 3%	The specified wood moisture content is a prerequisite for a far-reaching waiving of preventive wood protection
CUT TYPE	Heartwood-separated	Heartwood-separated	Since the pith does not necessarily run through the centre of a tree, "heartwood-separated" is defined as follows: for a tree with an ideal growth form, the pith would be cut through in two-strand cutting.
WANE	Not permitted	≤ 10% of the side with the smaller cross-section	Wane measured diagonally
DIMENSIONAL ACCURACY	DIN EN 336 dimensional accuracy class 2 b ≤ 100 mm ± 1 mm, b ≥ 100 mm ± 1.5 mm	DIN EN 336 dimensional accuracy class 2 b ≤ 100 mm ± 1 mm, b ≥ 100 mm ± 1.5 mm	The dimensional accuracy for the length dimension must be agreed between the Purchaser and the supplier.
BRANCH CONDITION	DIN 4074-1 sorting class S 10	DIN 4074-1 sorting class S 10	
KNOTTINESS	S10: A ≤ 2/5 not over 70 mm	In the event of automatic sorting, the branch sizes are not taken into account; otherwise, the following applies: S10: A ≤ 2/5	Knottiness A is determined according to DIN 4074-1
BARK INCLUSION	Not permitted	DIN 4074-1	
CRACKS, RADIAL SHRINKAGE CRACKS (DRY CRACKS)	Crack width of b ≤ 3% of the respective cross-section width	DIN 4074-1	With SELECT, increased requirements compared with sorting class S10 in accordance with DIN 4074-1
RESIN POCKETS	Width b ≤ 5 mm	-	Additional criterion
DISCOLOURATIONS	Not permitted	DIN 4074-1	With SELECT, increased requirements compared with sorting class S10 in accordance with DIN 4074-1
INSECT INFESTATION	Not permitted	DIN 4074-1	With SELECT, increased requirements compared with sorting class S10 in accordance with DIN 4074-1
DISTORTION	-	-	According to DIN EN 4074-1
LONGITUDINAL CURVATURE	With heart-separated cut ≤ 8 mm/2 m	With heart-separated cut ≤ 8 mm/2 m	
PROCESSING OF THE ENDS	Capped at right angles	Capped at right angles	
SURFACE QUALITY	Planed and chamfered	Equalised and chamfered	
FINGER JOINT	DIN EN 15497		

Requirements for QLH-Duo-plus®/QLH-Trio-plus®

	REQUIREMENTS FOR VIS	REQUIREMENTS FOR N-VIS	COMMENTS
TECHNICAL RULES	DIN EN 14080	DIN EN 14080	
SORTING CLASS IN ACCORDANCE WITH DIN 4074-1	At least S10K TS, C24 in accordance with DIN EN 338	At least S10K TS C24 in accordance with DIN EN 338	
WOOD MOISTURE CONTENT	Max. approx. 15%	Max. approx. 15%	Prerequisite for the bonding
DIMENSIONAL ACCURACY	DIN EN 336 dimensional accuracy class 2 b ≤ 100 mm ± 1 mm, b ≥ 100 mm ± 1.5 mm	DIN EN 336 dimensional accuracy class 2 b ≤ 100 mm ± 1 mm, b ≥ 100 mm ± 1.5 mm	The dimension tolerances for lengths must be agreed between the purchaser and the supplier.
DISTORTION	≤ 4 mm/2 m	≤ 4 mm/2 m	For comparison: DIN 4074-1: S10 ≤ 8 mm/2 m
LONGITUDINAL CURVATURE	≤ 4 mm/2 m	≤ 4 mm/2 m	For comparison: DIN 4074-1: S10 ≤ 8 mm/2 m
SURFACE QUALITY	Planed and chamfered	Equalised and chamfered	The right sides (sides close to the core) must be facing outwards.
PROCESSING OF THE ENDS	Capped on at least 1 side	Capped on at least 1 side	
BONDING THE TIMBER	DIN EN 14080	DIN EN 14080	Adhesive type I in accordance with DIN EN 301, characteristics of use in accordance with DIN 68141

STRUCTURAL PHYSICAL CHARACTERISTICS FOR KVH®-1PLUS® AND QLH-DUO-PLUS®/QLH-TRIO-PLUS®

Swelling and shrinkage dimensions

DIMENSIONAL CHANGES/DIFFERENTIAL SWELLING AND SHRINKAGE GIVEN A CHANGE IN THE WOOD MOISTURE CONTENT, PER 1%	0.24%
SWELLING AND SHRINKAGE ISOTROPY RATIO TANGENTIAL TO RADIAL	2

Characteristics and key indicators

BULK DENSITY ρ (AT APPROX. 15% WOOD MOISTURE CONTENT) ON AVERAGE	450-480 kg/m³
WATER VAPOUR DIFFUSION RESISTANCE COEFFICIENT μ (DIN 4108)	40
THERMAL CONDUCTIVITY λ_R (DIN 4108)	0.13 W/(m*K)
DIMENSIONAL AND FORM STABILITY	Good
BUILDING MATERIAL CLASS (DIN EN 13501-1)	D-s2, d0
BUILDING MATERIAL CLASS (DIN 4102)	B2 (normally flammable)
BURNING RATE ON AVERAGE	0.65-0.70 mm/min.

LABELLING

KVH®-1plus® and QLH-Duo-plus®/QLH-Trio-plus®

PRODUCT	PRODUCT RULE	LABELLING
NOT FINGER-JOINTED KVH®-1PLUS®	DIN EN 14081-1 with DIN 20000-5	CE mark
FINGER-JOINTED KVH®-1PLUS®	DIN EN 15497 with DIN 20000-7	CE mark
QLH-DUO-PLUS®/QLH-TRIO-PLUS®	DIN EN 14080 with DIN 20000-3	CE mark

USE CLASSES OF WOOD AND WOOD PRODUCTS

The service life of wooden components used outdoors can be significantly increased if the issue of wood preservation is considered at the design stage. Otherwise, a component's useful life may be greatly affected by local conditions (high level of ambient moisture, permanent or occasional contact with water, lack of rear ventilation, etc.). On the other hand, favourable installation conditions can also considerably increase service life by, for example, preventing contact with soil or providing cover.

Use classes in accordance with DIN EN 335-1

UC	WMC/EXPOSURE	DESCRIPTION	INSECTS	FUNGUS	WOOD ROT	WOOD PESTS IN THE SEA	LEACHING	DURABILITY CLASS REQUIRED
	Dry (constantly < approx. 20%) mean relative air humidity up to approx. 85%	Wood or wood product under roof, not exposed to weathering or moisture. Insect hazard can be excluded in accordance with 5.2.1.	No	No	No	No	No	1 - 5
1	Dry (constantly < approx. 20%) mean relative air humidity up to approx. 85%	Wood or wood product under roof, not exposed to weathering or moisture.	Yes	No	No	No	No	1 - 4
2	Occasionally moist > approx. 20% mean relative air humidity > approx. 85% or temporary humidification due to condensate	Wood or wood product under roof, not exposed to weathering, a high ambient humidity can lead to occasional, but not permanent moistening.	Yes	Yes	No	No	No	1 - 3
3.1	Occasionally moist > approx. 20%	Wood or wood product not under roof, with weathering, but with no permanent contact with the ground or water. Accumulation of water in the wood not to be expected, even within spatially limited areas.	Yes	Yes	No	No	Yes	1 - 3
3.2	Frequently moist > approx. 20%	Wood or wood product not under roof, with weathering, but with no constant contact with ground or water, accumulation of water in the wood to be expected, including in spatially limited areas.	Yes	Yes	No	No	Yes	1; 2

Note: Glued products from the KVH / glued laminated timber and glulam sectors are not suitable for the service classes 1 and 2 in accordance with DIN EN 1995-1-1.

STRUCTURAL TIMBER PROTECTION

Besides the individual species of wood selected and its natural durability, the service life of timber can be significantly influenced by structural timber protection.

If wood is exposed to high levels of moisture for lengthy periods, it will be damaged by fungal decay. This can be prevented by the proper planning of structural measures to protect the wood at the execution stage.

Where possible, upright, load-bearing timber components should never come into direct contact with the ground in external areas. To protect them from splashing, it is advisable to maintain a minimum gap of approx. 15 cm (mounting on supports).

Horizontal wooden structures should likewise avoid any direct contact with the ground and be kept a sufficient distance from the subsoil. To prevent water from

collecting, horizontal areas should always have a slight gradient.

MEASURES TO EXTEND THE DURABILITY AND SERVICE LIFE OF WOODEN STRUCTURES

- construct timber components so that water can always run off
- prevent waterlogging
- ensure adequate ventilation
- avoid contact with the ground
- use stainless steel screws that will not rust
- clean and maintain timber components at regular intervals
- manual protection is possible, e.g. by dipping, painting or spraying

CE MARK

By applying the CE mark, a manufacturer confirms that the product on sale complies with the applicable, product-specific European directives. The CE mark is not a quality seal, but merely indicates compliance with the minimum statutory requirements. If a four-digit number is applied after the CE symbol, it refers to the involvement of a Notified Body in the conformity assessment procedure. The CE mark was developed to provide the end consumer with an indication of safe products (on the basis of compliance with the "fundamental (safety) requirements") within the European Economic Area. If one or several EU

directives are fulfilled with a product, the product must bear the CE mark. Other markings or quality seals are not permissible next to the CE mark. The CE mark is a prerequisite for placing any products on the market for the first time for which a CE mark is required in accordance with EU directives, i.e. in all member states of the European Economic Area.



DECLARATIONS OF
PERFORMANCE