

COMPANY STANDARD

DESCRIBES QUALITY STANDARDS OF OUR PRODUCTS

Wood is one of the most popular renewable natural materials. It owes popularity to its low density (lightness) and sufficient mechanical properties. Wood is not homogeneous material. It has many drawbacks, anomalies, damages and other natural or acquired features. However not all of those defects disqualify wood from being useful material. Some of them even add natural beauty to wooden products (e.g. tight knots). Such features cannot be considered as defects and cannot be a basis to make a complaint. This document describes what defects and in what range are allowed in our products.

Doors and windows produced in our factory are mainly made from pine scantling. Natural feature of pinewood is resin canals. They may expose on the surface as resin leaks under weather conditions. Resin leaks do not affect durability and strength of wood.

According to non-homogeneous nature of woods it is almost impossible to find two identical wooden parts. That applies not only to wood itself but also to location and amount of knots. Tight knots do not reduce timber strength, but accentuate its natural and unique look.

Wood as a natural material has not specified homogenous colour, but it is a mix of various hues. One piece of wood may have different hue from all sides. Therefore pigment saturation may vary locally what leads to different coating hues.

Type and amount of allowed defects depends on product surface. We distinguish three types of surfaces: visible, partly visible and covered.

By visible surface we mean surface which is not permanently or partly covered after window or door fitting. Partly visible surface is visible while door or window is open. It is not visible when door or window is closed. Covered surface is permanently covered after door or window fitting.

For our products we use pine and oak scantlings. Below tables specify what defects and in what range are allowed in our products.

Table 1 Oak scantling defects.

Defect	Description
Sapwood	Not allowed;
Blue stain	Not allowed;
Insect damage	Not allowed;
Tight knots	Details in table 3;
Loose knots	Not allowed;
Colours	Allowed different hues of oakwood;
Cracks	On visible surfaces: microcracks allowed; On surfaces exposed to weather conditions: microcracks allowed; On covered surfaces: allowed cracks of max. length 200 mm and 2 mm width and 300 mm length and 1,5 mm width; Lasur finishes: no cracks allowed; Maximum total length of cracks on covered surface: 25%
Twist	Maximum do 2 mm/dm/m

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Table 2 Pine scantling defects.

Defect	Description
Blue stain	Not allowed;
Insect damage	Not allowed;
Tight knots	Details in table 3;
Loose knots	Not allowed;
Colours	Allowed different hues of pinewood;
Cracks	On visible surfaces: microcracks allowed; On surfaces exposed to weather conditions: microcracks allowed; On covered surfaces: allowed cracks of max. length 200 mm and 2 mm width and 300 mm length and 1,5 mm width; Lasur finishes: no cracks allowed; Maximum total length of cracks on covered surface: 25%;
Resin pockets	On visible and partly visible surfaces: not allowed; pockets of width not exceeding 3 mm and length 30 mm can be repaired with wooden plugs; Maximum 2 plugs per 1 timber profile meter; On covered surfaces: allowed if not weaken construction; Minimal distance from edge: 10 mm;
Cross grain	Max. 10% of cross grain allowed; Impalpable but visible cross grain allowed; Lasur finishes: no cross grain allowed;
Twist	Max. 2 mm/dm/m
Rate of growth	Allowed up to 4 mm between next growths; Up to 5 mm for middle lamella;

Table 3 Requirements regarding tight knots.

Feature	Description
Allowed number of knots [max. diameter/allowed amount]	20 mm / 2 [per 1 m] pin knots / unlimited
Distance between knots	Min. 2x diameter of largest knot;
Distance from edge	Min. 10 mm;

Table 4 Physical parameters and structure.

Feature	Oak scantling	Pine scantling
Moisture content	12 ± 3%	12 ± 3%
Density	>650 kg/m ³	>500 kg/m ³
Finger joints	For parts up to 2500 mm – scantling without finger joints; For parts over 2500 mm – min. lamella length 800 mm (distance between finger joints); Finger joints cannot overlap (joints of lamellas cannot occur in one line – see drawings).	min. lamella length 210 mm (distance between finger joints); Possibility to order scantling without finger joints for parts up to 2500 mm length; For parts over 2500 mm, there is possibility to order scantling with min. distance between finger joints 800 mm; Finger joints cannot overlap (joints of lamellas cannot occur in one line – see drawings).

COMMENTS:

All types of wood contain natural organic compounds – tannins – which increase their resistance to bugs and decay factors.

Tannins contained in oak wood are known to react with iron and iron compounds (contained also in rainwater) what may result in black stains. To prevent that from happening, you should avoid contact of oak with iron objects (e.g. metal waste) and take care of proper maintenance. To keep oak in good shape it should be oiled at least twice a year (depending on operating conditions). Oil designated for hardwood preservation should be used.

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Aluminum cladding parts

Timber – aluminum windows and doors combine aluminum durability with wood esthetic qualities. External aluminum cladding increase window resistance to tough weather conditions and makes external surfaces maintenance easier.

Aluminum cladding profiles used in our products are usually powder coated in purpose of achieving sufficient corrosion protection and esthetic finish. Coating visual inspection should be carried out in diffuse daylight, from at least 3 m distance.

Below table describes aluminum coating defects and its range allowed in our products.

Table 4 Defects and its range in aluminum cladding profiles coating.

Defect	Description
Craters and bubbling	Allowed on visible surfaces; maximum 8 defects on 1 m of profile; maximum defect diameter 0,5 mm; Defect clusters which are visible in diffuse daylight, from at least 3 m distance are not allowed;
Contaminations	Allowed on visible surfaces; maximum 4 defects on 1 m of profile; maximum defect diameter 0,5 mm; Defect clusters which are visible in diffuse daylight, from at least 3 m distance are not allowed;
Chips	Not allowed on visible surfaces;
Drip developments	Not allowed on visible surfaces;
Orange peel	Fine structure allowed on visible surface; thicker structure allowed on coatings thicker than 120 µm;
Gloss differences	Allowed on visible surfaces if not highly noticeable (in diffuse daylight, from at least 3 m distance);
Color differences	Allowed on visible surfaces if not highly noticeable (in diffuse daylight, from at least 3 m distance);

Minor mechanical damages resulting from production process (cavities, bumps)	Allowed on visible surfaces if not highly noticeable (in diffuse daylight, from at least 3 m distance);
Scratches	Allowed surface scratches of width up to 0,1 mm and total length 150 mm;

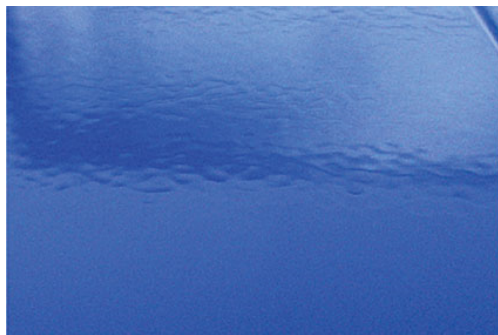
Attention! Leaving protection tapes on powder coated surfaces for too long may lead to chemical reactions which result in junction of foil with coating (especially in solar exposure and high temperature). After that it may be impossible to remove the tape without harming the coating.

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DEFECTS EXAMPLES:

A) 'Orange peel' effect



B) Contaminations / craters

