

WOOD QUALITY MANUAL

M&T Displays uses beech wood from the Europe's largest hardwood producer and world market leader for beech timber. Highly automated, efficient industry production designed to meet the most stringent quality requirements of the display industry indoor and outdoor. Optimised drying process guarantees low-stress wood and uniform colouring. Beech wood is a hard, strong and heavy wood. It has a fine, tight grain and even texture. It is very light in colour and has a high shock resistance. It is a popular wood for furniture due to high shock resistance. With its smooth finish it is a great wood to polish. Beech wood has good processing properties. See physical and mechanical properties of European Beech wood.

Physical properties of European Beech

Property	Min	Avg	Max	Unit
Oven-dry density (0%)	490	680	880	kg/m³
Gross density	540	720	910	kg/m³
Gross density (wet)	820	1070	1270	kg/m³
Proportion of pores (c)	about 55 %			
Shrinkage				
Longitudinally	about 0,3 %			
Radially about	about 5,8 %			
Tangentially	about 11,8 %			
Volume	14,0	17,9	21,0	
Per 1% decrease of moisture content				
Longitudinally	0,46 ... 0,60 % volume			
Radially	0,20 % radially			
Tangentially	0,40 % tangentially			
Other	Coefficient of thermal conductivity: 0,16 W/(m*K)			

Mechanical properties of European Beech

Property	Min	Avg	Max	Unit
Compressive strength	41	62	99	N/mm ²
Bending strength	74	123	210	N/mm ²
Tensile strength (parallel)	57	135	180	N/mm ²
Tensile strength (perpendicular)	7,0	...	10,7	N/mm ²
Shearing strength	6,5	8,0	19,0	N/mm ²
Impact resistance	3	10	19	J/cm ²
Hardness (Brinell parallel)	about 72 N/mm ²			
Hardness (Brinell perpendicular)	about 34 N/mm ²			
Modulus of elasticity	10000	16000	18000	N/mm ²
Torsional strength	15	...	19	N/mm ²
Cleavability	0,4	...	0,5	N/mm ²

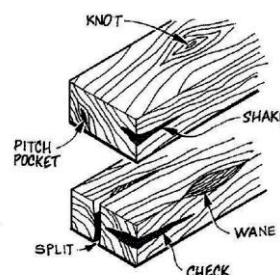
M&T Displays' beech wood is treated only with heat, water and water vapour during the entire production process. So it is free of any chemical additions.

M&T Displays uses natural wood. Each type of wood has its own unique characteristics and aesthetics. The colour of wood is still natural wood effect after lacquered or dyed. Where wane is in the wood, the appearance is darker. This is not a defect, but nature of the wood. M&T Displays uses even colour in the products as much as possible. When it is not possible, it is not considered as defect or second grade, but natural wood.

The grade of wood can be specified using a number of parameters such as knots, pitch pockets, wane, shake, split and check. The parameters are assessed in visual sorting, known as appearance grading by M&T Displays quality control team. Dead knots, decayed knots, horn knots, splits or pitch pockets are strictly avoided by M&T Displays wood quality standards.

It is phytosanitary certificated to avoid any fungal attack, harmful pests and plant diseases. Insect damage is not possible in beech wood due its heat treatment.

The beech wood M&T Displays fulfils strict European environmental regulations. It is PEFC certified from sustainable managed forests. It is based on standard PEFC ST 2002:2013.

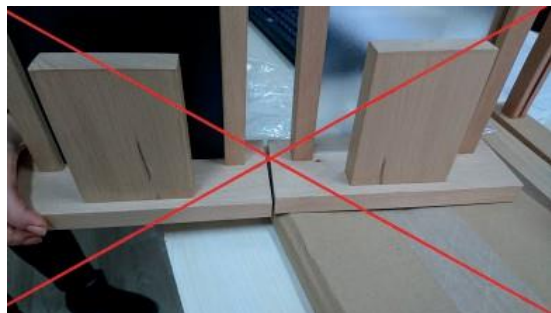




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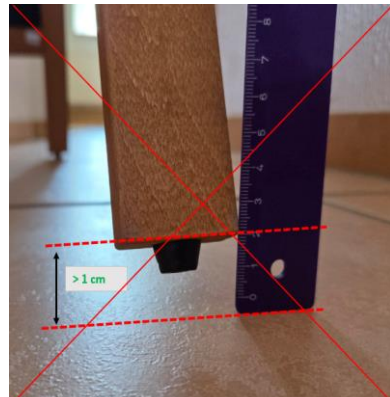
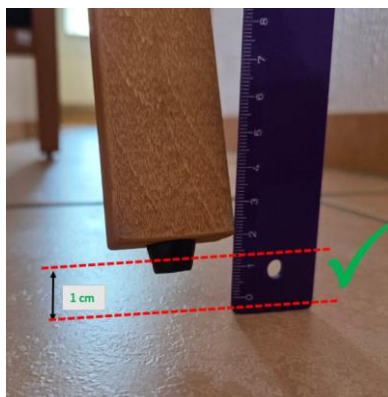
Acceptance and Rejection Criteria

As M&T Displays, we have standardized what we accept and what we do not accept from the differences that occur due to the nature of the wood. We have stated our rejection and acceptance criteria on the images below."



Dimensional Stability / Leg Levelness

Wood is a natural material that is sensitive to changes in humidity and temperature. As a result, changes in environmental conditions may cause the wood to expand or contract, which can lead to height differences of up to 1 cm between the product legs and the ground.





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This is considered a natural characteristic of wood. When the product is used on sloped, uneven, or irregular surfaces, differences in contact between the product legs and the ground may cause the product to wobble. This is a natural result of the slope and surface conditions of the ground rather than a characteristic or defect of the product itself.



Storage Conditions

Wood-made products should be stored in below conditions:

- Stack of the ground
- A way from rain
- Out of direct sun light
- Cool and dry climate conditions