

Walnut

Family. Juglandaceae

Botanical Name(s).

Juglans regia

Continent. Europe

CITES. This species is not listed in the CITES Appendices (Washington Convention 2023).

Description of logs

Diameter. From 30 to 80 cm

Thickness of sapwood. From 2 to 5 cm

Floats. Pointless

Log durability. Low (treatment necessary)

Description of wood

Colour reference. Brown

Sapwood. Not clearly demarcated

Texture. Medium

Grain. Straight

Interlocked grain. Absent

Notes. Brown heartwood more or less yellow brown or pinkish brown, sometimes greyish, often with darker veins. Straight to wavy grain.

Physics and mechanics

The properties indicated are for mature wood. These properties may vary significantly depending on the origin and growing conditions of the wood.

Property	Average value
Specific gravity ¹	0.66
Monnin hardness ¹	3.2
Coefficient of volumetric shrinkage	0.37 % per %
Total tangential shrinkage (St)	7.5 %
Total radial shrinkage (Sr)	5.5 %
Ratio St/Sr	1.4
Fibre saturation point	27 %
Thermal conductivity (λ)	0.22 W/(m.K)
Lower heating value	19,500 kJ/kg
Crushing strength ¹	64 MPa
Static bending strength ¹	117 MPa
Modulus of elasticity ¹	11,800 MPa

¹ At 12 % moisture content, with 1 MPa = 1 N/mm

Natural durability and preservation

Resistance to fungi. Class 3 - moderately durable



Flat sawn



Quarter sawn

Resistance to dry wood borers. Class D - durable (heartw. durable but sapw. not clearly demarcated)

Resistance to termites. Class S - susceptible

Treatability. Class 3 - poorly permeable

Use class ensured by natural durability.

Class 2 - inside or under cover (dampness possible)

Notes. This species is listed in the European standard NF EN 350 (2016). Walnut sapwood is permeable to preservative products.

Requirement of a preservative treatment

Against dry wood borer. Does not require any preservative treatment

In case of temporary humidification. Requires appropriate preservative treatment

In case of permanent humidification. Use not recommended

Drying

Drying rate. Normal to slow

Risk of distorsion. Slight risk

Risk of casehardening. No known specific risk

Risk of checking. Slight risk

Risk of collapse. Yes

Suggested drying program.

Phases	Duration (H)	MC (%) probes	T (°C)	Rh (%)	UGL (%)
Prewarm 1		> 50	50	86	16.5
Prewarm 2	3	> 50	52	85	16.0
Drying		> 50	55	82	14.7
		50 - 40	55	80.0	13.8
		40 - 35	55	75.0	12.6
		35 - 30	56	73.0	12.0
		30 - 27	58	67.0	10.5
		27 - 24	60	58.0	8.9
		24 - 21	62	50.0	7.5
		21 - 18	64	45.0	6.8
		18 - 15	65	37.0	5.7
		15 - 12	65	34.0	5.3
		12 - 9	65	28.0	4.5
		9 - 6	65	24.0	4.0
Conditioning	6		58	(3)	(2)
Cooling	(1)		Stop	(3)	(2)

(1)) Cooling: until the temperature inside the kiln no longer exceeds external temperature by more than 30 °C.

(2) UGL = final H% x 0,8 to 0,9.

(3) Subtract RH from the UGL determined in (2) and temperature, using the Hailwood-Horrobin equation.

Sawing and machining

Blunting effect. Normal

Sawteeth recommended. Ordinary or alloy steel

Cutting tools. Ordinary

Peeling. Good

Slicing. Good

Assembling

Nailing and screwing. Good

Commercial grading

Appearance grading for sawn timbers.

No conventional grading rules. Sawn products are graded according to final uses.

Visual grading for structural applications

No visual grading for structural applications

Fire safety

Conventional French grading.

Thickness > 14 mm: M3 (moderately inflammable)

Thickness < 14 mm: M4 (easily inflammable)

Euroclasses grading. D-s2, d0

Default grading for solid wood, according to requirements of European standard EN 14081-1+A1 (August 2019). It concerns structural graded timber in vertical uses and ceiling with mean density upper 0.35 and thickness upper 22 mm.

End-uses

- Cabinetwork (high class furniture)
- Interior joinery
- Sculpture
- Sliced veneer
- Turned goods
- Wood-ware

Notes. WILD NUT is characterised by a good dimensional stability and a great transverse cohesion. It is much sought-after for the manufacturing of top-of-the-range hunting gun butt.



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Main local names

Country	Local name
France (temperate timber)	Noyer
Germany (temperate timber)	Nussbaum
Germany (temperate timber)	Walnuss
Italia (temperate timber)	Noce commune
Spain (temperate timber)	Nogal
United Kingdom (temperate timber)	European walnut
United Kingdom (temperate timber)	Walnut