RAMIN

Family: GONYSTYLACEAE (angiosperm)

Scientific name(s): Gonystylus spp.

Commercial restriction: species mentioned in Appendix II (see note)

Note: The Gonystylus bancanus species is the most commonly marketed.
All RAMIN species are listed in CITES (Convention on International Trade in Endangered Species of wild fauna and flora), appendix 2 and in the European Union Regulation, appendix B. Parts of wood and wood-made products which are regulated are defined by a note: all parts and products. To trade these parts and products, the exporting or re-exporting country must emit a CITES permit or certificate and an importation permit is compulsory to import within the EU.

WOOD DESCRIPTION

Color: light yellow

Sapwood: not demarcated

Texture: fine

Grain: straight or interlocked

Interlocked grain: slight

Note: Heart shakes in some logs.
Wood cream white to light yellow. Unpleasant odour when green. Presence of tension wood.

LOG DESCRIPTION

Diameter: from 50 to 70 cm

Thickness of sapwood:

Floats: yes

Log durability: low (must be treated)

PHYSICAL PROPERTIES

MECHANICAL AND ACOUSTIC PROPERTIES

Physical and mechanical properties are based on mature heartwood specimens. These properties can vary greatly depending on origin and growth conditions.

	Mean	Std dev.
Specific gravity *:	0,66	0,04
Monnin hardness *:	3,2	0,2
Coeff. of volumetric shrinkage:	0,60 %	0,06 %
Total tangential shrinkage (TS):	9,1 %	0,8 %
Total radial shrinkage (RS):	4,9 %	0,6 %
TS/RS ratio:	1,9	
Fiber saturation point:	28 %	

Stability: moderately stable to poorly stable

	Mean	Std dev.
Crushing strength *:	67 MPa	6 MPa
Static bending strength *:	112 MPa	6 MPa
Modulus of elasticity *:	19020 MPa	2200 MPa

(*: at 12% moisture content, with 1 MPa = 1 N/mm²)

Musical quality factor: 108,5 measured at 3052 Hz

NATURAL DURABILITY AND TREATABILITY

Fungi and termite resistance refers to end-uses under temperate climate. Except for special comments on sapwood, natural durability is based on mature heartwood. Sapwood must always be considered as non-durable against wood degrading agents.
E.N. = Euro Norm

Funghi (according to E.N. standards): class 5 - not durable

Dry wood borers: susceptible - sapwood not or slightly demarcated (risk in all the wood)

Termites (according to E.N. standards): class S - susceptible

Treatability (according to E.N. standards): class 1 - easily permeable

Use class ensured by natural durability: class 1 - inside (no dampness)

Species covering the use class 5: No

Note: This species is listed in the European standard NF EN 350-2.
Very prone to blue stain.

REQUIREMENT OF A PRESERVATIVE TREATMENT

Against dry wood borer attacks: requires appropriate preservative treatment

In case of risk of temporary humidification: requires appropriate preservative treatment

In case of risk of permanent humidification: use not recommended

DRYING

Drying rate: normal to slow
Risk of distortion: slight risk
Risk of casehardening: no
Risk of checking: high risk
Risk of collapse: no
Note: Risks of checks, end checks and blue stain with thick material.

Possible drying schedule: 3

	Temperature (°C)		
M.C. (%)	dry-bulb	wet-bulb	Air humidity (%)
Green	60	56	81
30	68	58	61
20	74	60	51
15	80	61	41

This schedule is given for information only and is applicable to thickness lower or equal to 38 mm.
It must be used in compliance with the code of practice.
For thickness from 38 to 75 mm, the air relative humidity should be increased by 5 % at each step.
For thickness over 75 mm, a 10 % increase should be considered.

SAWING AND MACHINING

Blunting effect: normal
Sawteeth recommended: ordinary or alloy steel
Cutting tools: ordinary
Peeling: good
Slicing: nood
Note: Risks of splinters in cross cutting.

ASSEMBLING

Nailing / screwing: good but pre-boring necessary
Gluing: correct
Note: Tends to split when nailing.

COMMERCIAL GRADING

Appearance grading for sawn timbers: According to MGR grading rules (2009)
Possible grading: Prime, Select, Standard, Serviceable, Utility

FIRE SAFETY

Conventional French grading: Thickness > 14 mm : M.3 (moderately inflammable)
Thickness < 14 mm : M.4 (easily inflammable)

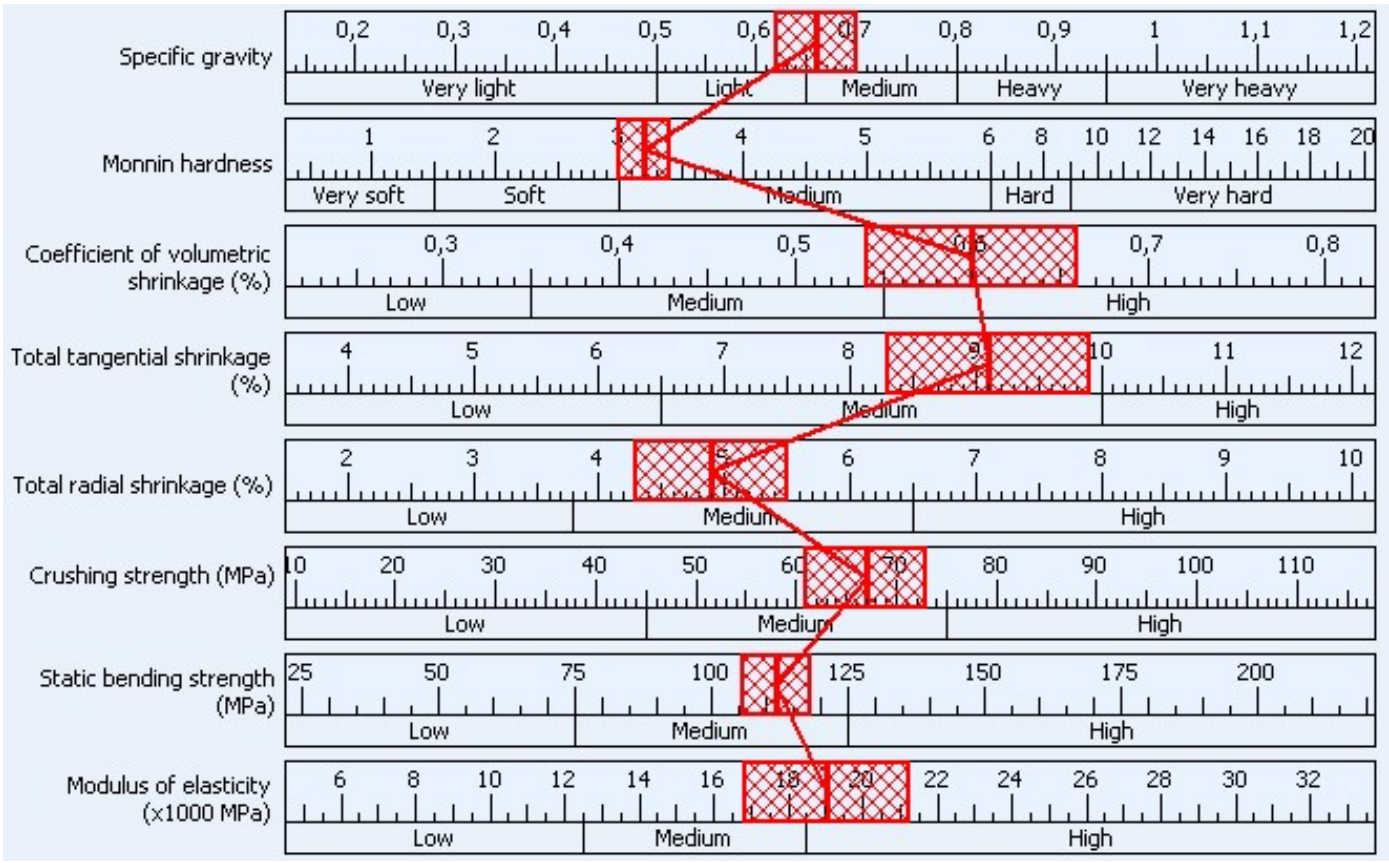
Euroclasses grading: D s2 d0
Default grading for solid wood, according to requirements of European standard EN 14081-1 annex C (April 2009). It concerns structural graded timber in vertical uses with mean density upper 0.35 and thickness upper 22 mm.

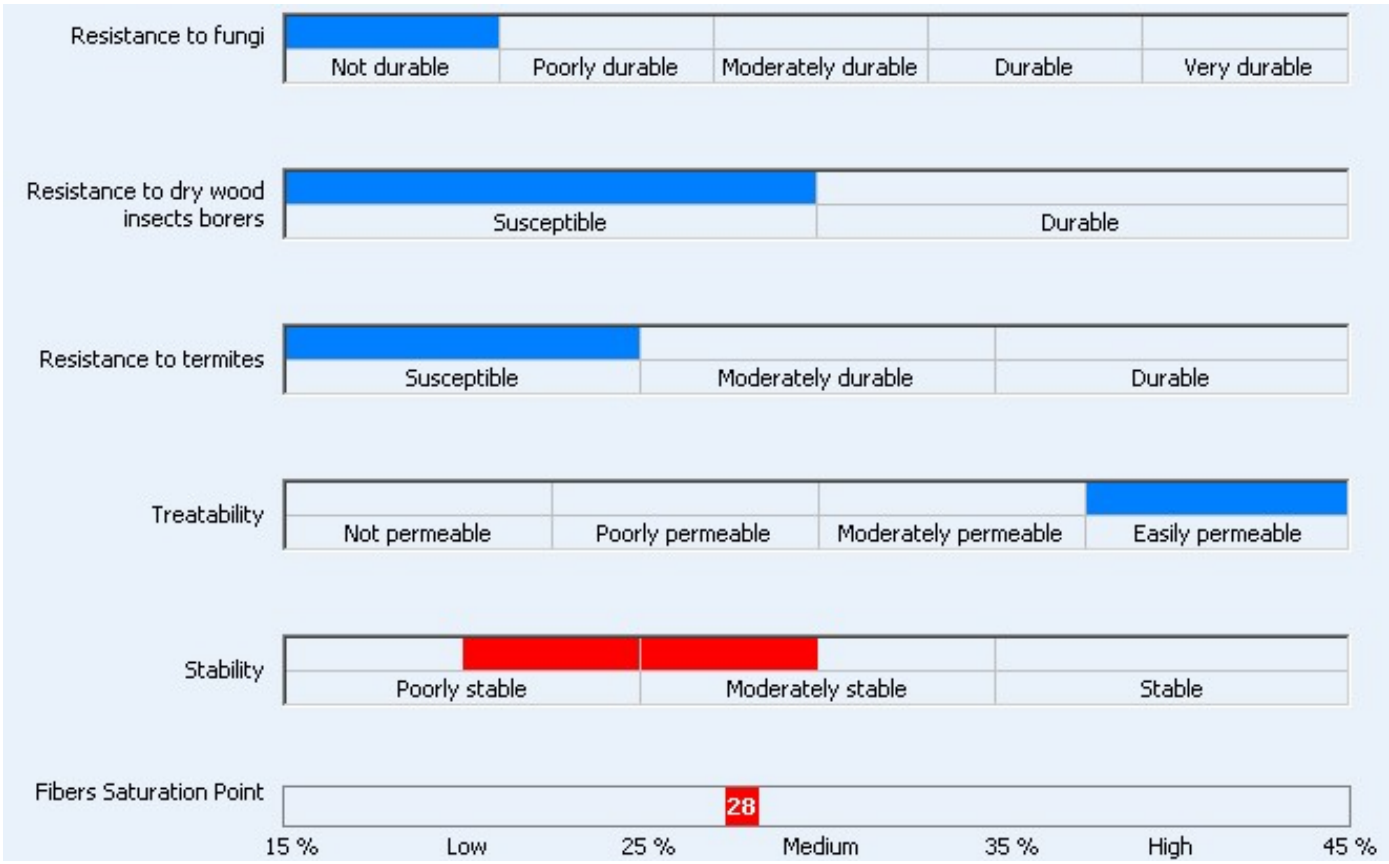
END-USES

Moulding
Current furniture or furniture components
Veneer for back or face of plywood
Flooring
Exterior panelling
Rolling shutters
Cabinetwork (high class furniture)
Veneer for interior of plywood
Sliced veneer
Interior joinery
Turned goods

MAIN LOCAL NAMES

Country	Local name	Country	Local name
Fiji	MAVOTA	Indonesia	AKENIA
Indonesia	GARU BUAJA	Indonesia	MEDANG KERAM
Indonesia	RAMIN	Peninsular Malaysia	AHMIN
Peninsular Malaysia	RAMIN	Peninsular Malaysia	RAMIN TELUR
Malaysia (islands)	MELAWIS	Malaysia (islands)	RAMIN BATU
Philippines	LANUTAN BAGIO	Solomon Islands	AINUNURA
Solomon Islands	FUNGUNIGALO	Solomon Islands	LATAREKO
Solomon Islands	PETATA	Germany	RAMIN
France	RAMIN	Italia	RAMIN


Specific gravity
0,2 0,3 0,4 0,5 0,6 0,7 0,8 0,9 1 1,1 1,2
Very light
Light
Medium
Heavy
Very heavy
Monnin hardness
1 2 3 4 5 6 8 10 12 14 16 18 20
Very soft
Soft
Medium
Hard
Very hard
Coefficient of volumetric shrinkage (%)
0,3 0,4 0,5 0,6 0,7 0,8
Low
Medium
High
Total tangential shrinkage (%)
4 5 6 7 8 9 10 11 12
Low
Medium
High
Total radial shrinkage (%)
2 3 4 5 6 7 8 9 10
Low
Medium
High
Crushing strength (MPa)
10 20 30 40 50 60 70 80 90 100 110
Low
Medium
High
Static bending strength (MPa)
25 50 75 100 125 150 175 200
Low
Medium
High
Modulus of elasticity (x1000 MPa)
6 8 10 12 14 16 18 20 22 24 26 28 30 32
Low
Medium
High


Resistance to fungi
Not durable
Poorly durable
Moderately durable
Durable
Very durable
Resistance to dry wood insects borers
Susceptible
Durable
Resistance to termites
Susceptible
Moderately durable
Durable
Treatability
Not permeable
Poorly permeable
Moderately permeable
Easily permeable
Stability
Poorly stable
Moderately stable
Stable
Fibers Saturation Point
28
15 %
Low
25 %
Medium
35 %
High
45 %