

Family: OCHNACEAE (angiosperm)

Scientific name(s): Lophira alata

Lophira procera (synonymous)

Commercial restriction: no commercial restriction

WOOD DESCRIPTION

Color: dark red
 Sapwood: clearly demarcated
 Texture: coarse
 Grain: interlocked
 Interlocked grain: marked

LOG DESCRIPTION

Diameter: from 60 to 100 cm
 Thickness of sapwood: from 2 to 4 cm
 Floats: no
 Log durability: good

Note: Dark red to purple brown wood. Intermediate zone between sapwood and heartwood. White deposits in the pores.

PHYSICAL 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 *: | 1,06 | 0,04 |
| Monnin hardness *: | 10,7 | 2,7 |
| Coeff. of volumetric shrinkage: | 0,69 % | 0,01 % |
| Total tangential shrinkage (TS): | 10,3 % | 0,9 % |
| Total radial shrinkage (RS): | 7,3 % | 1,0 % |
| TS/RS ratio: | 1,4 | |
| Fiber saturation point: | 28 % | |
| Stability: | poorly stable | |

MECHANICAL AND ACOUSTIC PROPERTIES

| | Mean | Std. dev. |
|----------------------------|-----------|-----------|
| Crushing strength *: | 96 MPa | 9 MPa |
| Static bending strength *: | 162 MPa | 21 MPa |
| Modulus of elasticity *: | 21420 MPa | 3539 MPa |

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

Musical quality factor: 111,2 measured at 2569 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 2 - durable

Dry wood borers: class D - durable (sapwood demarcated, risk limited to sapwood)

Termites (according to E.N. standards): class D - durable

Treatability (according to E.N. standards): class 4 - not permeable

Use class ensured by natural durability: class 4 - in ground or fresh water contact

Species covering the use class 5: yes

Note: This species is listed in the European standard NF EN 350-2.

Transitional wood has a variable durability. Good resistance to marine borers in temperate water but moderate resistance in tropical water. This species is thus considered as "moderately durable" towards marine borers and covers the use class 5 only when used in temperate or cold marine environment.

According to the European standard NF EN 335, performance length might be modified by the intensity of end-use exposition.

REQUIREMENT OF A PRESERVATIVE TREATMENT

Against dry wood borer attacks: does not require any preservative treatment

In case of risk of temporary humidification: does not require any preservative treatment

In case of risk of permanent humidification: does not require any preservative treatment

DRYING

Drying rate: slow
 Risk of distortion: high risk
 Risk of casehardening: no
 Risk of checking: high risk
 Risk of collapse: no

Possible drying schedule: 1

Note: Surface drying period recommended (3 to 4 months) (under shelter) prior to kiln drying. Drying very difficult for thickness > 38 mm.

| M.C. (%) | Temperature (°C) | | Air humidity (%) |
|----------|------------------|----------|------------------|
| | dry-bulb | wet-bulb | |
| Green | 40 | 37 | 82 |
| 40 | 44 | 38 | 68 |
| 30 | 44 | 36 | 59 |
| 20 | 46 | 36 | 52 |
| 15 | 49 | 37 | 46 |

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: fairly high
 Sawteeth recommended: stellite-tipped
 Cutting tools: tungsten carbide
 Peeling: not recommended or without interest
 Slicing: not recommended or without interest

Note: Requires power. Log turning sawing recommended (internal stresses). Some difficulties in planing due to interlocked grain.

ASSEMBLING

Nailing / screwing: good but pre-boring necessary
 Gluing: correct (for interior only)

Note: Variable gluing properties. Gluing must be done carefully (dry wood and smooth surface) as the wood is very dense.

COMMERCIAL GRADING

Appearance grading for sawn timbers: According to SATA grading rules (1996)
 For the "General Purpose Market":
 Possible grading for square edged timbers: choix I, choix II, choix III, choix IV
 Possible grading for short length lumbers: choix I, choix II
 Possible grading for short length rafters: choix I, choix II, choix III
 For the "Special Market":
 Possible grading for strips and small boards (ou battens): choix I, choix II, choix III
 Possible grading for rafters: choix I, choix II, choix III

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 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

| | |
|---|---|
| Hydraulic works (fresh water) | Sleepers |
| Bridges (parts in contact with water or ground) | Industrial or heavy flooring |
| Vehicle or container flooring | Stairs (inside) |
| Heavy carpentry | Bridges (parts not in contact with water or ground) |
| Wood frame house | Cooperage |
| Poles | Stakes |
| Resistant to one or several acids | Hydraulic works (seawater) |

Note: For end-uses under permanent humidification, transition wood must be eliminated.

MAIN LOCAL NAMES

| <u>Country</u> | <u>Local name</u> | <u>Country</u> | <u>Local name</u> |
|--------------------------|-------------------|-------------------|-------------------|
| Benin | EKI | Cameroon | BONGOSI |
| Cameroon | OKOKA | Congo | BONKOLE |
| Ivory Coast | AZOBE | Gabon | AKOGA |
| Ghana | KAKU | Equatorial Guinea | AKOGA |
| Nigeria | EBA | Nigeria | EKKI |
| Central African Republic | KOFYO | Sierra Leone | HENDUI |
| Germany | BONGOSI | Germany | BONKOLE |
| United Kingdom | EKKI | | |

