# KELEDANG



Family: MORACEAE (angiosperm)
Scientific name(s): Artocarpus spp.* (voir note)
Commercial restriction: no commercial restriction
Note: * Artocarpus spp.: origins Asia-Oceania.
KELEDANG is the commercial name for heavy Artocarpus; TERAP is used for light Artocarpus.

## WOOD DESCRIPTION

Color: brown
Sapwood: clearly demarcated
Texture: coarse
Grain: straight or interlocked
Interlocked grain: marked
Note: Wood orangey yellow brown darkening to golden brown. Lustrous and ribbon like aspect. Frequent white deposits in the pores.

## LOG DESCRIPTION

Diameter: from 60 to 100 cm
Thickness of sapwood: from 5 to 7 cm
Floats: no
Log durability: moderate (treatment recommended)

## 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 *: | 0,80 | |
| Monnin hardness *: | | |
| Coeff. of volumetric shrinkage: | 0,45 % | |
| Total tangential shrinkage (TS): | 5,5 % | |
| Total radial shrinkage (RS): | 3,0 % | |
| TS/RS ratio: | 1,8 | |
| Fiber saturation point: | 30 % | |

Stability: moderately stable to stable
Note: Medium hardness.

## MECHANICAL AND ACOUSTIC PROPERTIES

| | Mean | Std dev. |
|---|---|---|
| Crushing strength *: | 55 MPa | |
| Static bending strength *: | 90 MPa | |
| Modulus of elasticity *: | 14000 MPa | |

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

## 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 3 - moderately durable
Dry wood borers: durable - sapwood demarcated (risk limited to sapwood)
Termites (according to E.N. standards): class D - durable
Treatability (according to E.N. standards): class 3 - poorly permeable
Use class ensured by natural durability: class 2 - inside or under cover (dampness possible)
Species covering the use class 5: No

## REQUIREMENT OF A PRESERVATIVE TREATMENT

Against dry wood borer attacks: does not require any 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: high risk
Risk of casehardening: no
Risk of checking: slight risk
Risk of collapse: no

Possible drying schedule: 4

| M.C. (%) | Temperature (°C) dry-bulb | wet-bulb | Air humidity (%) |
|---|---|---|---|
| Green | 42 | 39 | 82 |
| 50 | 48 | 43 | 74 |
| 40 | 48 | 43 | 74 |
| 30 | 48 | 43 | 74 |
| 15 | 54 | 46 | 63 |

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: good
Slicing: not recommended or without interest
Note: Difficulties during sawing due to hard deposits in the pores, interlocked grain and tension wood. Fibrous surface. Filling recommended.

## ASSEMBLING

Nailing / screwing: poor
Gluing: correct

## 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

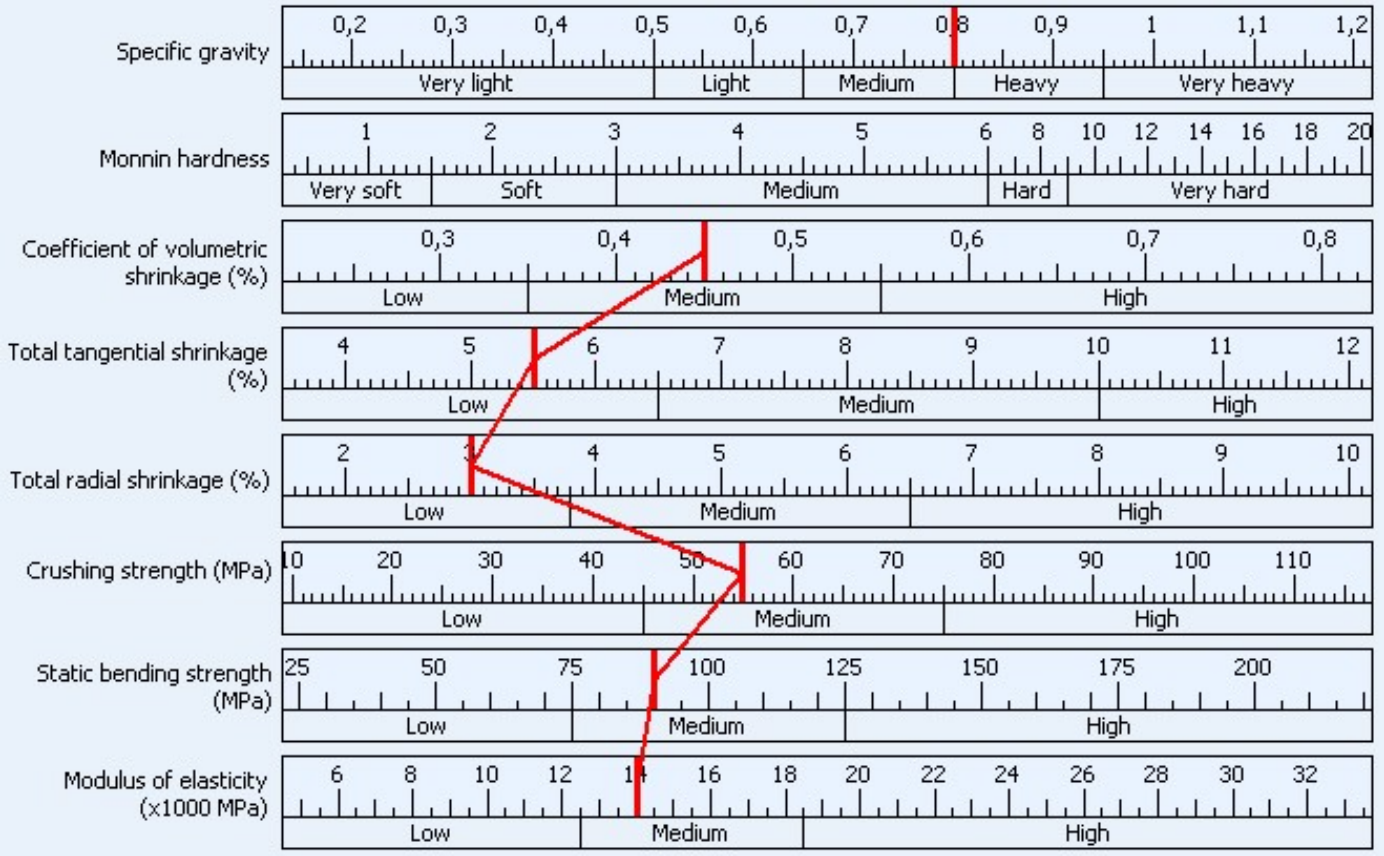
Interior joinery
Flooring
Turned goods
Matches
Vehicle or container flooring
Veneer for back or face of plywood
Note: High class coffins (Malaysia).
Interior panelling
Current furniture or furniture components
Stairs (inside)
Light carpentry
Veneer for interior of plywood
Boxes and crates

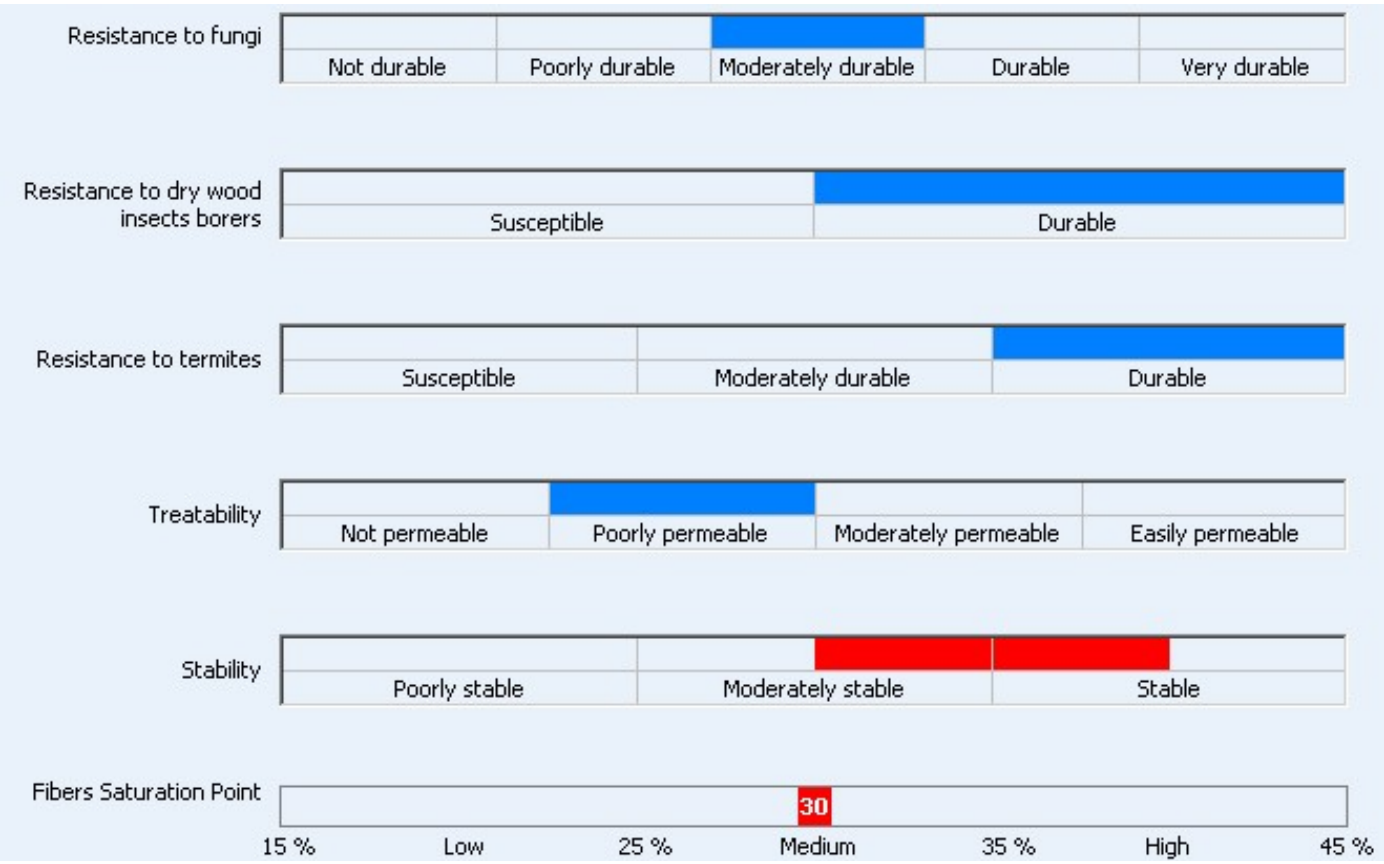
## MAIN LOCAL NAMES

| Country | Local name | Country | Local name |
|---|---|---|---|
| India | AINI | India | TERAP |
| Indonesia | BSANG | Indonesia | KELEDANG BABI |
| Indonesia | SELANGKING | Indonesia | TAMGANG |
| Indonesia | TERAP | Peninsular Malaysia | SELANGKING |
| Malaysia (islands) | KELEDANG | Malaysia (islands) | LAKUCH |
| Myanmar | MYAUKLOK | Papua New Guinea | KAPIAG |
| Philippines | ANUBING | Philippines | KALULOT |
| Philippines | MALAKUBI | Thailand | HAD |
| Vietnam | MIT-NAI | United Kingdom | JACKWOOD |

# KELEDANG


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
30
15 %
Low
25 %
Medium
35 %
High
45 %