



Chengal (*Balanocarpus Heimii*)

Botanical Name:	<i>Balanocarpus heimii</i>
Other Common Names:	Chengal, Karakong, Kong, Mindanao narek, Narek, Penak, Takien chan
Common Uses:	Boat building, Building construction, Canoes, Casks, Construction, Crossties, Dockwork, Factory construction, Flooring, Harbor work, Heavy construction, Joinery, Lifeboats, Railroad ties, Shipbuilding, Stakes, Utility poles, Vats, Vehicle parts
Region:	Oceania and S.E. Asia
Country:	Indonesia, Malaysia, Thailand
Distribution:	The species is reported to be widely distributed in the Malay Peninsula, including Thailand south of Pattani.

Numerical Values for: *Balanocarpus heimii*

<u>Category</u>	<u>Green</u>	<u>Dry</u>	<u>Unit</u>
Bending Strength	16307	22235	psi
Max. Crushing Strength	8770	11322	psi
Static Bending (FSPL)	11310	12400	psi
Impact Strength	48	51	inches
Stiffness	2497	2776	1000 psi
Work to Maximum Load	18	20	in-lbs/in ³
Hardness		2130	lbs
Shearing Strength		2015	psi
Specific Gravity	0.76	0.88	
Weight	74	58	lbs/cu.ft.
Density (Air-dry)		58	lbs/cu.ft.
Radial Shrinkage (G->OD)		3	%
Tangential Shrink. (G->OD)		8	%
Volumetric Shrink. (G->OD)		11	%

Tree & Wood Descriptions for: *Balanocarpus heimii*

Product Sources	It is not known at present whether timber from this species is obtainable from sustainably managed or other environmentally responsible sources.
Tree Data	The tree is reported to be large, with boles that are typically well-shaped and clear for about 100 feet (30 m) or more. Trunk diameter is usually about 36 to 60 inches (90 and 150 cm), but a diameter of 13 feet (4 m) has been reported.
Sapwood Color	The sapwood is pale yellow or white in color and is clearly distinct from the heartwood.
Heartwood Color	The heartwood is initially pale yellow brown with a distinct green tinge. Exposure changes it to dark brown or dark reddish- or purplish-brown.
Grain	The grain is usually slightly interlocked or wavy.
Texture	The texture is fine to medium and even.
Luster	Surface of wood is reported to be slightly lustrous.
Odor	There is typically no characteristic odor or taste.
Movement in Service	The wood is reported to have good dimensional stability, and retains its shape well after seasoning.
Natural Durability	<p>The heartwood is reported to be very resistant to decay and attack by termites. It is susceptible to attack by marine borers. The living tree is usually attacked by pin-borers which leave small holes in the wood. The strength properties of the wood are, however, seldom affected by the holes.</p> <p>Resistance to Impregnation The heartwood is reported to be extremely resistant to preservative treatment. The sapwood is moderately resistant.</p>
Natural Growth Defects	Cores of large trees are often reported to be rotten, and often contain a gallery of a large wood boring insect.
Abrasion Resistance	Chengal is reported to have very good wearing qualities, and is highly suited for

	industrial flooring.
Weathering	The material is reported to have excellent natural resistance to the destructive effects of the weather.
Resin Content	The wood has resin canals, arranged in tangential series, which are often filled with white resin and plugged with tyloses.
Strength Properties	The species has exceptionally high bending strength properties in the air-dry condition (about 12 percent moisture content). It is far stronger, for example, than Hard maple, White oak, or Teak. Strength qualities in compression parallel to grain are exceptionally high. It is hard and superior to Teak and probably Mahogany. It is a very heavy wood. The density of the wood is very high.

Working Properties for: Balanocarpus heimii

Cutting Resistance	Cutting resistance is reported to be low although saws may become gummy from resin in the wood.
Blunting Effect	The wood may have slight blunting effect on cutting tools.
Planing	The wood is reported to plane to a smooth surface. A 20 degree angle is recommended to minimize torn grain in quartersawn stock containing interlocked material. Resin may adhere to tools.
Boring	Boring properties are reported to be generally good.
Gluing	Gluing characteristics are rated as good.
Nailing	The wood is reported to nail well, but requires pre-boring.
Sanding	Sanded surfaces are reported to be clean and smooth.
Polishing	The timber is reported to take a high polish.
Staining	The wood can be stained effectively.
Varnishing	Varnishing requires care especially when resin is present.
Response to Hand Tools	The wood responds well to hand tools.

Drying for: *Balanocarpus heimii*

Ease of Drying	The wood is reported to dry slowly with low shrinkage. Air-drying has been recommended to precede kiln drying.
Drying Defects	A common drying degrade is reported to be surface checking.
Kiln Schedules	T2 - C2 (4/4) US
T/R Ratio	2.67 This indicator is more meaningful if it is used together with actual shrinkage data in the tangential and radial directions. (Refer to the Numerical Values window).

*Credits for information:
Woodworkersource.com*