

Thermo Pine (Thermally Modified Pine)



Common Name(s):	Thermo Pine, Thermally Modified Pine
Scientific Name:	<i>Usually Pinus sylvestris (modified)</i>
Distribution:	Northern Europe
Tree Size:	100-115 ft (30-35 m) tall, 2-4 ft (0.6-1.2 m) trunk diameter
Average Dried Weight:	26-29 lbs/ft ³ (420-460 kg/m ³)
Specific Gravity: (Basic, 12% MC)	~0.35, 0.46 (Varies by treatment)
Janka Hardness:	~400–500 lbf (1,800–2,200 N)
Modulus of Rupture:	~7,000–9,000 lbf/in ² (48–62 MPa)
Elastic Modulus:	~1,200,000-1,400,000 lbf/in ² (8–9.5 GPa)
Crushing Strength:	Reduced compared to untreated pine
Shrinkage:	Radial: 2-3%, Tangential: 4-5%, Volumetric: 6-8%, T/R Ratio: 1.5

Colour/Appearance: Medium to dark brown throughout, similar to tropical hardwoods. Colour is uniform and caused by heat treatment, not stain.

Grain/Texture: Grain remains similar to pine (generally straight), but the texture is slightly more brittle and dry due to the thermal process.

Rot Resistance: Highly durable. Thermal modification significantly improves resistance to decay, fungi, and insects—comparable to some tropical hardwoods.

Workability: Machines cleanly but is more brittle than untreated pine. Can splinter or crack if mishandled. Gluing can be more difficult; pre-drilling recommended for fasteners.

Pricing/Availability: More expensive than untreated pine but cheaper than most hardwoods. Increasingly available in cladding, decking, and exterior joinery products.

Sustainability: Typically sourced from sustainably managed European forests. No chemicals used in modification—only heat and steam—making it environmentally friendly.

Comments: Thermal modification improves dimensional stability and durability but reduces strength. Commonly used for cladding, decking, and sauna interiors. Not ideal for high structural load applications.