

## Thermo Pine (Thermally Modified Pine)



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