

THERMOWOOD PINE

Botanical name:

Pinus sylvestris

Trade names:

ThermoWood Pine, Nordic pine thermally treated

Location:

Predominantly in Europe in Scandinavia and Scotland, the Iberian Peninsula and throughout Siberia.

General description of wood:

Dimensionally stable, durable and completely environmentally friendly wood.

The twiggy wood has a slightly resinous heartwood of light reddish-brown colour. The leaflets are very well defined, resin channels visible on all sections (transverse and longitudinal). The heat treatment produces a darker shade of wood. (The thermal modification process is described below).

Thermowood pine supplied by us is manufactured using the WTT method, which uses heat treatment of the wood at 212°C.

- No chemicals at all are used in the heat treatment. Only a small amount of water is needed to start the process. The rest takes place by gradually increasing the temperature inside the pressurized chamber (using a pressure of 7 to 9 bar). Gradual heating of the wood releases moisture and creates a steam-filled environment that ensures even colouring and finish. Thanks to this process, the wood is completely environmentally friendly and poses no threat to the surrounding fauna and flora.
- An important part of the WTT process is that the wood is never dried to 0% but to 6-8% during the treatment. The residual moisture level remains at 10-12%. This wood moisture content is the final moisture content for Thermo wood.
- State-of-the-art technology controls the entire production process and an even finish throughout the entire cross-section is guaranteed. This treatment turns the pine from its original natural light yellow shade to a natural, slightly dark colour.

- The wood gains significantly improved dimensional stability and thus reduces the susceptibility of the wood to deformation or swelling and subsequent shrinkage of the wood. Dimensional changes are eliminated by up to 60%.
- The wood has increased resistance to rot and mould as well as improved insulation properties.

NATURAL DURABILITY INDEX						
1	2	3	4	5	6	7
1 = VERY HIGH LIFESPAN				7 = LOW LIFESPAN		

Wood properties:

Density (at 20/65 (kg/m ³) DIN 52182)	362-404 kg/m ³
light to medium weight wood	
Shrinkage in radial direction	1,79 %
Shrinkage in tangential direction	3,62 %
Modulus of elasticity, (perpendicular to the fibres) (MPa-N/mm ²) DIN EN 408, TS 2478	7411
Burst Module (MPa) DIN EN 408, TS 2474	31-42
Strength in motion on impact (perpendicular to the fibres) (MPa) TS 2477	0,16
Compressive strength (MPa) TS 2595	44

Physical, biological and technological properties:

Equilibrium moisture content at 20/65 (%) EN 13183-1	4 (4-6)
Biological resistance to fungal attack	Grade 2
Strength of screws and bolts (stainless steel bolts and plastic clips only)	Grade 2
Hardness of JANKA (at W=12%, radial direction)	29 MPa
Group	MPa
Soft	<40
Medium hard	≥40
Hard	≥80
Resistance to fire EN 13823	Grade A2/B
Formation of smoke	S1
Degree of burnout	d0

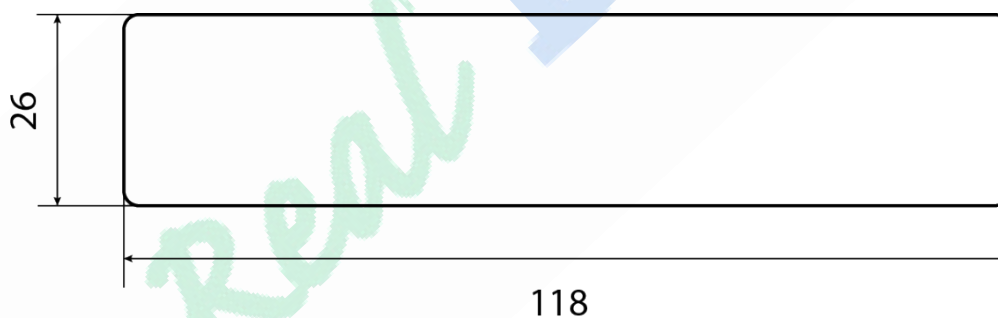
Terrace planks made of wood THERMOWOOD PINE

DIMENSIONS (mm)	LENGTHS (m)	GRADE	DRYING	VIEW SIDE
26 x 118	2,10 – 5,1*	A/B	16–18 %	smooth
26 x 138	2,10 – 5,1 *	A/B	16–18 %	smooth
26 x 140	2,10 – 5,1 *	A/B	16–18 %	smooth
26 x 138	2,10 – 5,1 *	A/B	16–18 %	fine groove
26 x 140	2,10 – 5,1 *	A/B	16–18 %	fine groove
26 x 118 Clip*	2,10 – 5,1*	A/B	16–18 %	rough groove

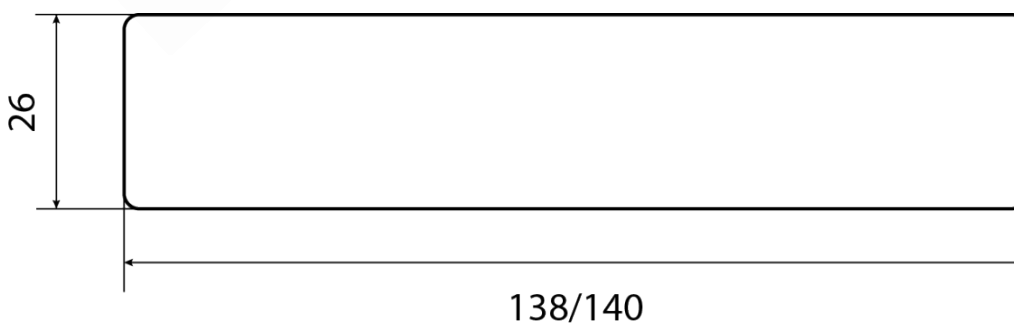
*stock lengths are multiples of 30 cm = 0.9 m, 1 m, 1.1 m, 1.2 m, 1.3 m, 1.4 m, 1.5 m, 1.6 m, 1.7 m, 1.8 m, 1.9 m, 2.0 m, 2.1 m, 2.2 m



THERMOWOOD PINE 26 x 118 mm – profile detail

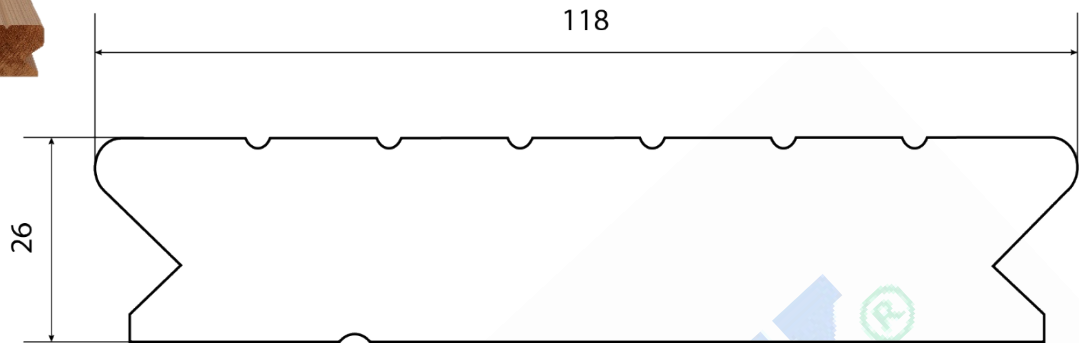


THERMOWOOD PINE 26 x 138/140 mm – profile detail

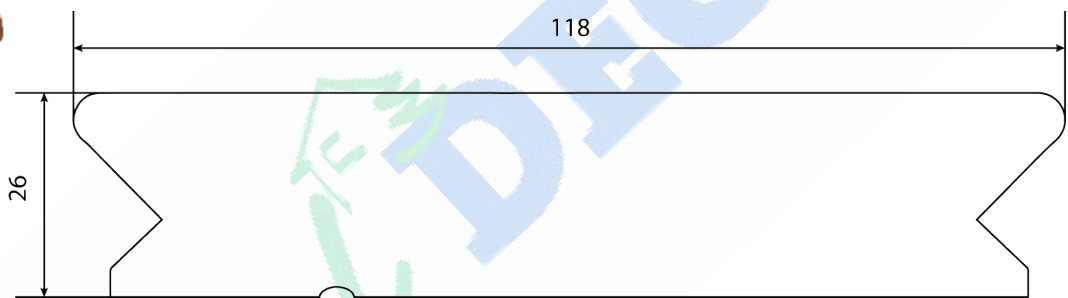




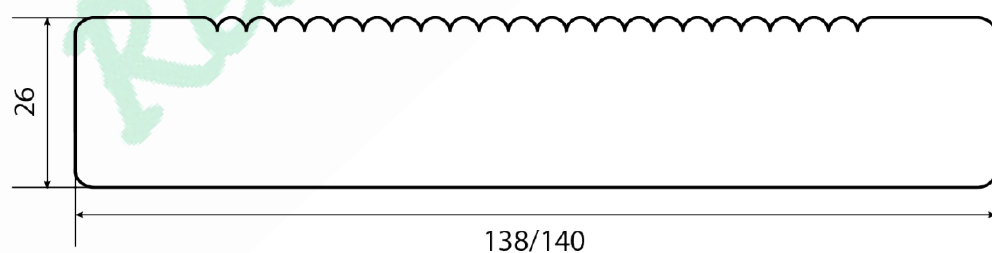
THERMOWOOD PINE 26 x 118 mm Clip– profile detail



THERMOWOOD PINE 26 x 118 mm Clip – profile detail –



THERMOWOOD PINE 26 x 138/140 mm fine groove – profile detail



GRADE

Terrace boards made of Thermowood pine wood are supplied in A/B grading in a 60:40 ratio. In practice, this means that sixty percent of the delivered material is free from defects of a serious nature on the face of the terrace boards at the time of delivery and, in general, the part can be divided into a maximum of two usable parts during assembly. The remaining forty percent of the supply may exhibit the sorting described in detail below.

QUALITY GRADING SPECIFICATIONS FOR THERMO PINE

QUALITY:

Pine (*Pinus sylvestris*) contains larger amounts of resin and bark. An unlimited amount and size of healthy bunches and resin is allowed. Sides smoothly planed, edges finely bevelled.

MATERIAL:

From centre sawn wood graded A/B.

THERMAL MODIFICATIONS:

Thermo-D (212° C), resistance grade 2

THICKNESSES SUPPLIED:

19/20/26 mm

ROLLED PRISMS:

42x68 mm, 42x92 mm

UNFINISHED SURFACE



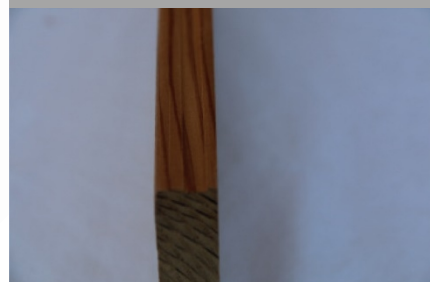
VIEW SIDE not allowed
BACK SIDE max up to ½ board widths

UNROUNDED EDGES



VIEW SIDE max 0,5 mm
BACK SIDE up to 20% of the board length

TRACES OF THE SLIDING CYLINDER



VIEW SIDE not allowed
BACK SIDE allowed without restrictions

HEALTHY, HEALTHY AND MODERATELY BEAUTIFUL KNOTS



VIEW SIDE allowed without restrictions
BACK SIDE

DEAD KNOTS



VIEW SIDE 1 knot per 1 piece
BACK SIDE allowed without restrictions

KNOTS WITH OVERGROWN BARK



VIEW SIDE 1 penetrating knot per
BACK SIDE board allowed without restrictions

BLACK DEAD KNOTS



VIEW SIDE within a reasonable range
BACK SIDE allowed without restrictions

**OBLIQUE LONG BARK
BOUNDED KNOTS**



VIEW SIDE 1 knot per 1 piece allowed
BACK SIDE allowed without restrictions

**FACING EACH OTHER
WINGED KNOTS**



VIEW SIDE not allowed
BACK SIDE allowed without restrictions

BLACK DEAD KNOTS



VIEW SIDE within a reasonable range
BACK SIDE allowed without restrictions

**OBLIQUE LONG BARK
BOUNDED KNOTS**



VIEW SIDE within a reasonable range
BACK SIDE allowed without restrictions

**FACING EACH OTHER
WINGED KNOTS**



VIEW SIDE max. up to 5% of the board length
BACK SIDE allowed without restrictions

BLACK DEAD KNOTS



VIEW SIDE within a reasonable range
BACK SIDE allowed without restrictions

**OBLIQUE LONG BARK
BOUNDED KNOTS**



VIEW SIDE within a reasonable range
BACK SIDE allowed without restrictions

**FACING EACH OTHER
WINGED KNOTS**



VIEW SIDE max. up to 5% of the board length
BACK SIDE allowed without restrictions

**FACING EACH OTHER
WINGED KNOTS**

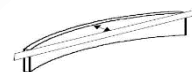


VIEW SIDE max. up to 5% of the
BACK SIDE board length
 allowed without
 restrictions

TECHNICAL INFORMATION

FEATURES	VIEW SIDE	BACK SIDE
Thickness tolerance		0,5 mm
Width tolerance		±1 mm
Length tolerance		-10 mm +20 mm
Colour diversity		There may be colour differences due to the natural structure of pine
Gut	max. up to 20% of the board length	without restrictions
Oblina	not allowed	max up to 5% of the length and max up to 20% of the width of the board
Fungus infestation		not allowed
Insect damage	not allowed	without restrictions
Small black knots	within a reasonable range	without restrictions
Deflection in transverse direction		max 2 mm
Deflection in longitudinal direction		max 5 mm
Convex deflection of the board		max up to 1% of board width
Screw curvature		max 5% per 1 bm
Colour		Thermo - D = 45-65
Humidity		%6 ± 2

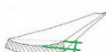
DEFLECTION IN TRANSVERSE DIRECTION



DEFLECTION IN LONGITUDINAL DIRECTION



Convex deflection of the board



SCREW CURVATURE



DRYING

Wood is a hygroscopic material that changes its moisture content according to its surroundings through absorption, in an attempt to reach a state of moisture equilibrium. Terrace boards made of Thermowood pine are kiln dried to a moisture content of 16-18%, which minimizes the risk of undesirable shape changes, significantly increases its mechanical properties with greatly improved resistance to bio attack. Shape changes caused by slumping and swelling can never be completely prevented. As a result of the anisotropic nature of slumping and swelling with simultaneous internal stresses in the wood, transverse and longitudinal buckling and the formation of drying cracks can occur.

VIEW SIDE

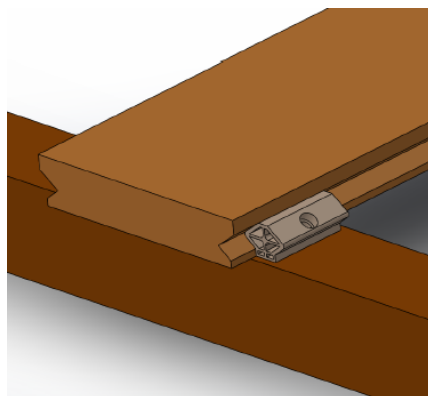
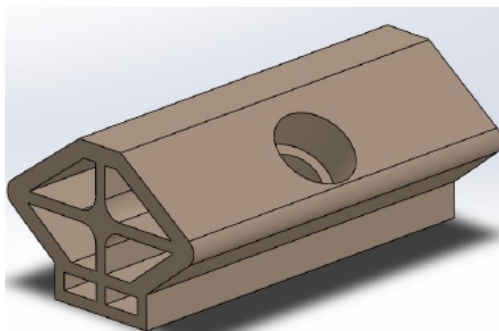
Each terrace board profile has a predefined face to which the grading applies. Quality claims using any other side as a view side will not be taken to consideration.

26 x 118/138/140 mm view side-smooth

26 x 138/140 mm view side - fine groove

26 x 118 mm clip – rough groove

26 x 118 mm clip – smooth view side



Board deflections and expansion joints:

Due to the hygroscopicity and anisotropy of the wood, there can always be a slight deformation of the terrace boards in the longitudinal direction (curvature). These shape changes are not a defect in the material and do not prevent the installation of the terrace boards. To minimize the formation of shape changes, it is necessary to store the material tightly jointed until the time of installation. For easier assembly of curved boards, it is possible to use clamps designed for this purpose. Due to swelling and shrinking of wood due to weathering, it is necessary to leave a minimum of 5 mm of expansion between the individual terrace boards. The dimension of the expansion joint will change throughout the year as the dimensions of the terrace boards change due to weather changes. The main function of the expansion joint is the free movement of the terrace boards without the risk of damage.

Spectrum of colours:

Heartwood colour variable (reddish yellow, darkening to brownish red), sapwood yellowish or reddish white. The thermo-treatment results in a slightly darker colour, but not a completely uniform shade. Colour is not subject to grading.

The greying of the wood:

As soon as the terrace boards are exposed to the weather, they are degraded by the action of so-called inanimate nature. Several interacting influences (water, radiation, flow, temperature changes, smog, emissions, etc.) cause the lignin to decompose by photochemical reactions in the first phase. This decomposition does not cause any observable darkening of the wood under outdoor conditions, because the disturbed lignin is subsequently washed away by rainwater, producing a lighter shade due to the light colour of the unremoved cellulose. In practice, however, the light shade is disturbed by the deposition of dust particles and impurities from the air into the porous structure of the wood surface, or by the co-growth of microscopic fungi, resulting in the well-known greying of the wood.

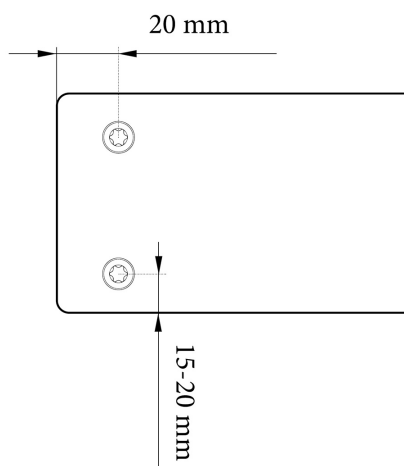
TECHNICAL INFORMATION

Choice of fasteners:

Thermowood pine terrace boards are moderately stable and can be installed with both visible and invisible anchoring systems. Only material that does not cause a chemical reaction with the wood must always be used to prevent deterioration. This involves the use of steel grade at least A4 for visible bolted connections, or composite materials meeting the strength requirements for EURO Tec invisible anchoring.

Recommended fasteners:

TERRACE BOARD	STEEL GRADE	DIMENSION OF THE ROLL	
TH PINE 26 x 118 mm	A4	5 x 60 mm	YES
TH PINE 26 x 138 mm	A4	5 x 60 mm	YES



Screw Positioning:

Position the screws as close as possible to the edges of the board to minimise the risk of cupping. The recommended distance is 15–20 mm from the edge of the decking boards.

At butt joints, position the screws at least 20 mm from the end of the board.

Substructure:

The installation of the terrace boards can only be carried out on a substructure made of wood of the same or higher biological resistance with a minimum profile of 42 x 68 mm (*thermowood pine wood*). Substructures made of laminated and glued together slats of the same or higher bio-resistance wood species can be used exclusively for the construction of covered terraces without permanent weathering. The aluminium profile substructure is shape stable, weatherproof, UV-resistant, insect and mould resistant and suitable for the construction of any terrace, regardless of the type of wood. The minimum axial spacing of the substructure for individual thicknesses of terrace boards is given in the following table:

Minimum permitted axial spacing:

TERRACE BOARD	MAXIMUM AXIAL SPACING OF THE UNDERLYING PRISMS
THERMO PINE 26 x 118 mm	500 mm
THERMO PINE 26 x 138 mm	500 mm

Surface treatment

To increase protection against biotic and abiotic degradation, a terrace made of Thermowood pine wood should be coated with one of OSMO's pigmented terrace oils (*colourless coating is not recommended*). Because heat-treated wood is susceptible to very early graying after exposure to weather conditions, we recommend treating this wood within the first two weeks after processing. In order to maintain the best possible hydrophobic properties, it is advisable to carry out the renovation coating at an interval of about six months. To reduce the risk of face cracking, it is recommended that all transverse cuts are coated with OSMO 5735 cutting edge wax.

Remark:

The Technical Data Sheet serves as a supplement to the "Technical and Warranty Conditions of Real DECK"

Elaborated: 01/2021



Please note that our recommendations for the processing of boards for terraces are not binding installation guidelines, but recommendations. Each terrace is characterised by different parameters and the correct installation method and use of materials is always the responsibility of the installation company.

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