SCOTS PINE

Family: Pinaceae (gymnosperm)
Scientific name(s): Pinus sylvestris
Commercial restriction: no commercial restriction
Note: European species from temperate to very cold areas. In France, when using the name "Sapin rouge du Nord", one designates woods with a slow growth coming from Scandinavia and Russia (after latitude 57° north).

WOOD DESCRIPTION

Color: pinkish brown
Sapwood: clearly demarcated
Texture: medium
Grain: straight
Interlocked grain: absent

LOG DESCRIPTION

Diameter: from 30 to 80 cm
Thickness of sapwood: from 5 to 10 cm
Floats: pointless
Log durability: moderate (treatment recommended)

Note: From pinkish to reddish brown. Rings form contrasting veins. Sapwood is large, yellowish and shows lesser contrasting veins. Texture is fine for slow growing trees.

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 *:	0.55	
Monnin hardness *:	2.6	
Coeff. of volumetric shrinkage:	0.45 %	
Total tangential shrinkage (TS):	8.3 %	
Total radial shrinkage (RS):	5.2 %	
TS/RS ratio:	1.6	
Fiber saturation point:	30 %	

Stability: moderately stable

MECHANICAL AND ACOUSTIC PROPERTIES

	Mean	Std dev.
Crushing strength *:	50 MPa	
Static bending strength *:	97 MPa	
Modulus of elasticity *:	12900 MPa	

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

Musical quality factor: 99 measured at 2604 Hz

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

Fungi (according to E.N. standards): class 3-4 - moderately to poorly durable
Dry wood borers: class D - durable (sapwood demarcated, risk limited to sapwood)
Termites (according to E.N. standards): class S - susceptible
Treatability (according to E.N. standards): class 3-4 - poorly or not permeable
Use class ensured by natural durability: class 2 - inside or under cover (dampness possible)
Species covering the use class 5: no
Note: This species is mentionned in the standard NF EN 350 (2016).
SCOT PINE heartwood is associated with a durability class 3-4 (moderately to slightly durable) towards fungal attack and a treatability class 3-4 (difficult to extremely difficult to treat).
Given the statements relative to use classes without preservative treatment recommended for wood of durability class 3 or 4 in the standard NF EN 460 (1994) and the damages regularly observed on SCOTS PINE structures in use class 3, this species was allocated to use class 2 in this technical data sheet from May 2022.
The service life can be modified by the situation of exposure (as described in the standard EN 335 (2013)).
SCOT PINE sapwood is easily treated.

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: rapid to normal
Risk of distortion: slight risk
Risk of casehardening: no known specific risk
Risk of checking: slight risk
Risk of collapse: no known specific risk

POSSIBLE DRYING SCHEDULE

M.C. (%)	Temperature (°C) dry-bulb	wet-bulb	Air humidity (%)
Green	40	37	82
40	44	38	68
30	44	36	59
20	46	36	52
15	49	37	46

This drying 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: normal
Sawteeth recommended: ordinary or alloy steel
Cutting tools: ordinary
Peeling: good
Slicing: good

ASSEMBLING

Nailing / screwing: good
Gluing: correct
Note: Sometimes resin exudations: to be taken into account when gluing.

COMMERCIAL GRADING

Appearance grading for sawn timbers: According to European standard EN 1611-1 (October 1999)
Possible grading (on 2 sides): G2-0, G2-1, G2-2, G2-3, G2-4
Possible grading (on 4 sides): G4-0, G4-1, G4-2, G4-3, G4-4

Visual grading for structural applications: According to European standard EN 1912 (2012) and associated national standards (see explanatory note), strength classes C14, C16, C18, C22, C24 or C30 can be provided by visual grading. Strength classes C14, C18, C24 or C30 can be provided by visual grading according to French standard NF B 52-001-1 (2011).

FIRE SAFETY

Conventional French grading: Thickness > 18 mm : M3 (moderately inflammable)
Thickness < 18 mm : M4 (easily inflammable)

Euroclasses grading: D-s2, d0
Default grading for solid wood, according to requirements of European standard EN 14081-1 (April 2016).
It concerns structural graded timber in vertical uses and ceiling with mean density upper 0.35 and thickness upper 22 mm.

END-USES

Interior panelling
Moulding
Current furniture or furniture components
Wood frame house
Light carpentry
Exterior joinery
Pit props
Flooring
Interior joinery
Exterior panelling
Heavy carpentry
Shingles
Boxes and crates
Poles

This list presents main known end-uses; they must be implemented according to the code of practice.
Important remark: some end-uses are mentioned for information (traditional, regional or ancient end-uses).

MAIN LOCAL NAMES

Country	Local name
Germany (temperate timber)	FOHRE
Spain (temperate timber)	LAPLAND PINE
France (temperate timber)	PIN DU NORD
United Kingdom (temperate timber)	NORTHERN PINE
United Kingdom (temperate timber)	SCOTS PINE
Germany (temperate timber)	KIEFER
France (temperate timber)	PIN DE RIGA
France (temperate timber)	PIN SYLVESTRE
United Kingdom (temperate timber)	RED PINE