

Wooden telephone and energy poles



Teleenergetyczne
Konstrukcje Wsporcze Sp. z o.o.

Offer

Our basic product are wooden telecom and power poles sized between 6 and 10 meter (poles diameters in table below). Poles are made from pine or spruce wood. Wood is recruited in the winter period in the area of Lower Silesia from full value sawmill wood. Poles can be stack directly into ground. Against the negative influence of the environment poles are protected by pressure method with impregnating agents.

Basic parameters

Spiece of wood:

- Scots pine (*pinus sylvestris*)
- European spruce (*picea abies*)

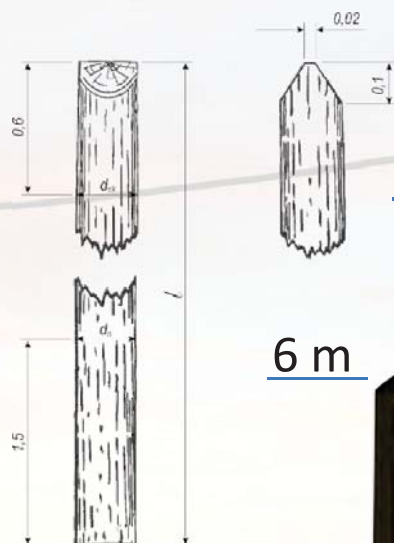
Class of wood WCO1, raised In northern Europe.

Sweep or crook are permitted to the extent that a straight line from the centre of the top to the centre of the pole 1,5 m from the butt remains within the pole.

Healthy knots to 4 cm.

Other parameters in accordance to **British Standard BS 1990-1:1984**

We also meet individual technical requirements of the Buyers.



Preferred poles dimensions:

Pole length ¹⁾ [m]	Diameter ²⁾ [mm]	Minimum diameter ³⁾ [mm]
6,0	125 - 150	150
7,0	125 - 150	160
7,0	140 - 170	200
8,0	125 - 150	170
8,0	145 - 180	210
8,5	125 - 150	180
8,5	150 - 180	215
9,0	125 - 150	180
9,0	150 - 180	220
9,5	125 - 160	185
9,5	150 - 180	225
10,0	125 - 160	185
10,0	150 - 185	230

¹⁾ Acceptable deviation ±1 %

²⁾ Rating diameter is measured at level 60 cm from pole top

³⁾ Minimum diameter is measured at level 150 cm from butt end

Technology of impregnation

Impregnation of wooden poles is carried out to obtain full sapwood penetration up to heartwood, which is not subjected to penetration with preservative.

For telecom poles is used IV class of wood impregnation, which is in permanent contact with the ground and/or water, thereby providing a protection against insects, fungi, leaching and decay for decades.

Impregnation process is carried out in autoclave using the **Bethell** or **Rüping** vacuum-pressure method.

Wooden poles moisture content prior to treatment < 25 %
Underpressure before impregnation (-) 0,02 MPa, time 0,5 hour
Pressure during impregnation 0,9 – 1,0 MPa. time 6 – 8 hour
Vacuum drying after impregnation (-) 0,02 MPa for 15 minutes

Applied preservatives :

Wolmanit CX-8 – water-soluble preservative based on copper and boron compounds, delivered by Dr. Wolman GmbH company (Germany).

Solution strength: 3,5 – 4,0 %

Retention of preservative in sapwood : min. 24 kg/m³.

Tanalith E – water-soluble mean based on copper compounds and derivatives of aliphatic amines (triazoles) Arch Timber Protection Company (England).

Solution strength: 3,5 – 4,0 %

Retention of preservative in sapwood : min. 24 kg/m³.

Creosote oil¹⁾ - obtained from oil fractions of the distillation of coal tar.

Retention of creosote oil: 115 - 120 l/m³ or different agreed individually with Buyer.



European spruce (Picea abies)
Wolmanit CX-8



Scots pine (Pinus sylvestris)
Creosote oil

Properly dressed, dried and impregnated wood guarantees to have highest quality poles with required strength reaching service life of 40 years and more.

¹⁾ European Community Directive WE 1907/2008 allows the use of creosote oil for impregnation of wooden poles.



Advantages of wooden poles

The basis for the construction of overhead lines are the supporting structures. In telecommunication and power constructions wooden poles are commonly used, because practice has shown that they are the ideal solution not only because of the cost, but also because of the ease of assembly and development, strength, aesthetics, quality and ecology.

Extensive overhead lines failures based on reinforced concrete structures caused by weather conditions such as storms and frost, which underwent damage of whole sections of the lines has increased interest in wood poles.

Analysis of material parameters used for supporting structures for telecommunication and power lines and also properties of structural components made of these materials as wooden poles or reinforced concrete columns clearly showed, that for this type of structures, wooden poles are more useful than the reinforced concrete columns. Mainly it follows the specific characteristics of wood as a building material. Important advantages of this building material of organic origin, such as:

- low volume weight
- high strength and elasticity
- low thermal expansion factor
- resistance to chemical means
- easy for dressing not depending on temperature or season
- biodegradability

allows the execution of final products in the form of wooden poles, which are in the process of construction and operation of the telecommunication and power lines, providing for the investor a direct and tangible benefits in relation to line construction technology based on reinforced concrete columns.

