otds

HIGH VOLTAGE
DISTRIBUTION POLES

OTDS was founded in 1978 specializing in the design, manufacture and supply of all types of Overhead Line Materials from Rural Electrification up to 500kv systems.

OTDS have considerable experience in the design and manufacture of all types of Overhead Line systems and are able to offer complete package projects working with client's requirements and specifications.

OTDS provides the most progressive electrical engineering and a complete range of products, and systems for every voltage requirement. Turnkey Rural and Sub transmission Electrification, Industrial Electrical Installations and Electrical Equipment for the Oil Industry.

Within our industry wooden poles are a vital means of electrical distribution, and has been for over a century. OTDS has been supplying wooden poles for over 20 years to our clients, and we offer quality workmanship with support you would expect from a UK company. We supply a large range of poles for various applications, bellow are some of the most typical we supply;

UTILITY POLES

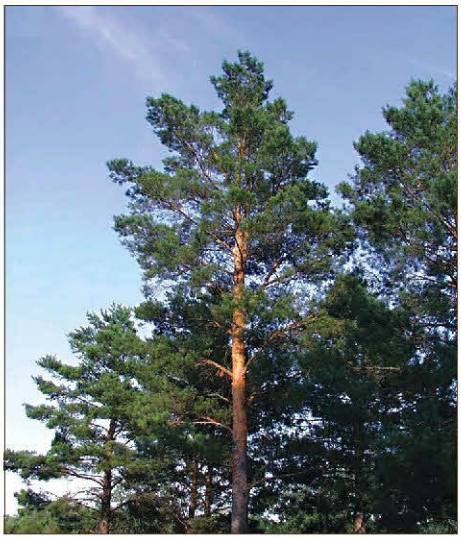
This product category covers two main uses of poles namely: Telephone poles for overhead telecommunication lines and,Transmission poles for overhead power lines.

TELEPHONE POLES

Telephone poles are made according to BS 1990 unless otherwise specified. Normally poles of 6.0 m to 9.0 m in length, of lighter diameter in size are used and are prepared to customer requirements prior to treatment. Poles can be pre-drilled gained and labeled as required.

TRANSMISSION POLES

Transmission poles are prepared according to BS 1990 or any other specification as required by the customer. Poles of up to 22 m can be produced. Diameters are determined by strength class required. In Europe this is determined by the top diameter, but when compared with international specifications the Theoretical Ground Line usually determines the strength class, and top diameters are adjusted depending on the average taper of the pole. OTDS's clients have the assurance that poles are manufactured according to their exacting specifications.



RAW MATERIAL

Pinus Sylvestris is the principal species of wood used by OTDS. This species can be found in the Northern regions of Europe, such as the Scandinavian regions and Russia in light and sandy soils at low or moderate elevations. Now believed to have been native to Scotland and Ireland only at time of separation of England from the main continent. It is found from Spain to Siberia.

HARVESTING AND TRANSPORT

Trees are felled in the plantation by harvesting contractors. Tree lengths are slipped to the roadside where they are cut into pole lengths, initial quality control takes place by excluding portions of the tree which will give sub-standard poles. Heavy transport vehicles load the poles and transport the poles to the production plants, where they are off-loaded.

Selection of trees for poles starts in the forest. The growing trees accepted for poles are individually hand picked by forestry experts. The basis of their selectionis quality and size. Only straight trees with few branches and a uniform trunk are accepted. Pine trees grow slowly in northern lands. For them to reach the thickness required for telecommunication poles takes about 50 years, and trees suitable for medium voltage poles are generally as much as 80 years of age or even older. This slow growth results in stronger wood. On average 8 to 12 annual rings are counted for 25 mm of wood - the more the better!

DEBARKING AND PEELING

The poles are then debarked and go through a visual selection and grading process. The poles are then peeled, which removes any unsightly protrusions and any remaining bark or cambium.

GRADING

At every stage of production poles are visually graded, checked for defects and classed into different size categories. Defective poles are continually eliminated by a process of rejection and re-processing. A final grading takes place before seasoning so that poles of similar size are stacked together.

SEASONING

Poles are stacked in open stacks for air-drying or in kilns for kiln drying. The moisture content is monitored throughout, and when poles are sufficiently dry (less than 25% moisture content, or as required by the customer) they are ready for treatment.

DRESSING

Prior to treatment poles are processed to meet specific customer requirements, such as labeling end cuts drilling and slab gaining.

FINAL INSPECTION

After treatment, a final quality control inspection is done where poles are checked for adequate preservation penetration and any other defects before being awarded SGS compliance labels. The poles are now finally ready for dispatch and transportation to the customer's premises.

DELIVERY

OTDS either makes use of road transport contractors to collect and deliver poles to clients stores or sites, or poles are loaded directly onto clients vehicles upon collection, or poles can be dispatched by rail where required.

For export OTDS ships poles either in open top containers or break bulk, and can be dispatched to any destination worldwide.

The main objective of pole treatment at the OTDS plants is full penetration of the sapwood, no matter how thick it is.

To achieve this, our company's internal guidelines exceed those of many international standards.

Only full penetration of the sapwood ensures the maximal protection of wood.

Thirty year's of experience in timber treatment and an unwavering commitment to high standards in the industry are an assurance to OTDS customers that our treated timber products will provide lifetime service, whether they are treated with Creosote or CCA (Tanalised). The amount of preservative chemical that is impregnated into the timber is determined by the required specification and Hazard class, or according to the clients own specific requirement or specification.

CREOSOTE TREATMENT

Creosoting is done using the Rueping (Empty Cell) process in pressure vessels. Creosote retention levels are set to exceed minimum requirements of the relevant specification, and additional creosote can be retained in the pole should customers require. Mostly complete penetration of the sapwood is achieved and will always exceed minimum depth requirements.
Creosote treated poles could last in excess of 40 years.

CCA TREATMENT

CCA is a waterborne chemical that is used to impregnate poles using the Liquivac process. The entire sapwood is penetrated ensuring a life long service free from insect and fungal attack. CCA (Tanalith) is enhanced with "Weatherwood" a waxy additive that improves the weathering ability of the poles. CCA treated poles can be painted or sealed for aesthetic purposes.

HAZARD CLASS

When ordering treated poles the customer should ensure that the correct treatment has been requested to ensure adequate protection against the degree of hazard that the product will be exposed to when in service. This will ensure maximum service life of the product. The different hazard classes are:

H2 – Interior use eg. Roof trusses and beams
H3 – Exterior above ground eg. fencing rails and droppers
H4 – Exterior in ground eg. Fencing and Transmission lines
H5 – Fresh water contact eg. In flood irrigation or marshland
H6 – Marine water contact eg. Jetties and boardwalks

FINAL INSPECTION

After treatment a final quality control is done where poles are checked for adequate preservative penetration, and other defects before getting SGS compliance labels. The poles are now ready for dispatch.

OTDS has a total commitment to quality, which is manifested in its ISO 9001:2000 certification. This total quality management system ensures that the following quality objectives are achieved:

- Providing a prospective customer with a high level of confidence that goods and services supplied to an order will conform to an agreed upon specification;
- Ensuring that a contract is carried out within the predetermined time-scales;
- Contributing to the profit objectives of the company by optimising the direct costs of quality assurance against the cost of potential losses, defects and wastage;
- Contributing to the implicit value of perceived value and goodwill;
- Improving communications between all departments and functions;
- Improving managerial and technical skills, and instilling the need for self-discipline and attention to detail in all personnel;
- Quality objectives set periodically in all crucial areas of operations and production;
- Striving to maintain and improve the quality of products and the efficiencies of the related Quality Management Systems.

For the export market, OTDS manufactures poles in accordance with any client's specifications, which includes the following international specifications:

- British Standard Specification 1990
- Norme Francaise C 67-100
- German Standard DIN 48 350
- National Standard of Canada CAN3-015
- American National Standard ANSI 05.1
- European EN 351, as well as many others.

During all phases of production, OTDS' s poles are selected, graded and inspected to ensure that all our products conform to the relevant specifications and customer requirements on a continuous basis, ensuring consistent quality of products.

Country of growth							Europe / Russia*						
Grade		LIGHT	MEDIUM	STOUT	LIGHT	MEDIUM	STOUT	LIGHT	MEDIUM	STOUT	LIGHT	MEDIUM	STOUT
Length	m	8	8	8	9	9	9	10	10	10	11	11	11
Minimum diameter at 1.5m from butt end	mm	170	215	265	180	242	275	185	230	285	195	240	295
Minimum diameter of top	mm	125	150	190	125	150	190	125	150	190	125	150	190
Species of timber		Pine	Pine	Pine	Pine	Pine	Pine	Pine	Pine	Pine	Pine	Pine	Pine
Age of Tree													
Full Botanical name							Pinus Sylvestris						
Altitude of plantation Area	m						60' parallel						
Average ultimate fibre stress	N. mm^2												
Average radial thickness of sapwood	mm												
Modules of elasticity	N. mm^2												
Details of Inspection Authority							SGS						
Average moisture													
At Felling	%												
After 100 days	%												
Just Prior to Treatment	%												
Method proposed to determine moisture							Electronic Testing						
Maximum poles available / yr													
Creosote													
National Standard used							BS144 / BS913						
Type of creosote used							Coal Tar Oil to BS Spec						
Treatment													
Type of plant							Semi Atomatic						
Length of pressure cylinder	m						24						
Details of Vacuum Pressure Pump							Electric Piston Type						
Method of heating used							Fuel Cell						
Age of plant in years							12 Yrs						
Type of pressure recording							Mechanical Barometer						
Type of temperature recording instruments							Electronic Sensor						

*** Some sizes & quantities are only available from Russian forests**

Country of growth							Europe / Russia*					
Grade		LIGHT	MEDIUM	STOUT	MEDIUM	STOUT	MEDIUM	STOUT	MEDIUM	STOUT	MEDIUM	STOUT
Length	m	12	12	12	13	13	14	14	15	15	16	16
Minimum diameter at 1.5m from butt end	mm	200	250	305	260	320	275	335	290	350	305	365
Minimum diameter of top	mm	125	150	190	160	195	160	195	165	195	170	200
Species of timber		Pine	Pine	Pine	Pine	Pine	Pine	Pine	Pine	Pine	Pine	Pine
Age of Tree												
Full Botanical name							Pinus Sylvestris					
Altitude of plantation Area	m						60' parallel					
Average ultimate fibre stress	N. mm^2		46.6 kN	111.7 kN			44.4 kN	97.8 kN				
Average radial thickness of sapwood	mm		30	30			30	30				
Modules of elasticity	N. mm^2		3,5	3,5			3,5	3,5				
Details of Inspection Authority							SGS					
Average moisture			44	44			44	44				
At Felling	%		27	27			27	27				
After 100 days	%		24	24			24	24				
Just Prior to Treatment	%											
Method proposed to determine moisture							Electronic Testing					
Maximum poles available / yr			15000	15000			4000	4000				
Creosote												
National Standard used							BS144 / BS913					
Type of creosote used							Coal Tar Oil to BS Spec					
Treatment												
Type of plant							Semi Atomatic					
Length of pressure cylinder	m						24					
Details of Vacuum Pressure Pump							Electric Piston Type					
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POLE DIMENSIONS BY GRADES

Poles are given grades according to the dimensions, please see Table 1

Light grade	-	7 meters to 13 meters
Medium Grade	-	8 meters to 14 meters
Stout Grade	-	8 meters to 15 meters

The diameters are measured by diameter type within 100 mm from the top & 1.5 m from the butt of the sample. Such diameter measurements shall have a tolerance of 15 mm, minus 0 mm.

	POLE LENGTH	DIAMETER AT THE TOP		DIAMETER 1.5 m FROM THE BUTT	
	METERS	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM
LIGHT	7,5	125	150	175	190
	8	125	150	175	190
	8,5	"	"	180	198
	9	"	"	"	200
	9,5	"	160	185	203
	10	"	"	"	205
	10,5	"	"	190	209
	11	"	"	195	214
	11,5	"	165	200	220
	12	"	"	205	225
	13	130	160	215	231
MEDIUM	8,5	150	180	215	236
	9	"	"	220	242
	9,5	"	"	225	247
	10	"	185	230	253
	10,5	155	190	235	259
	11		"	240	264
	11,5	"	195	245	269
	13	"	200	260	286
	14	170	205	276	302
STOUT	8,5	190	240	265	291
	9	"	"	275	302
	9,5	"	245	280	308
	10	195	"	285	313
	10,5	"	250	290	319
	11	"	"	295	324
	11,5	"	"	300	330
	12	"	"	305	335
	13	200	255	320	352
	14	"	"	335	368
	15	"	260	350	385

The final length of poles shall not exceed the specified length by more than 25 mm for each 3 m of pole. The poles shall not be shorter than the specified length by more than 25 mm for any poles.

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