Winsol Energy Systems is a leading global brand of manufacturing and exporting wide range of Wood Seasoning equipments and plants since 1985. Through considerable 'Research and Development' drills, we have developed Timber Impregnation Plants and Timber Seasoning Kilns with state of the art mechanisms. We offer customized range on various parameters such as material of construction, oxygen transfer efficiency, media migration capability and speed as per clients’ needs.

**INFRASTRUCTURE**

At WES, we have determinedly established highly equipped and eco-friendly infrastructural facilities to cope up with our aim to create machineries with unmatchable identity. Our manufacturing unit conceives the most advanced machines such as container, lathe, cutting & material handling machines.

**QUALITY**

We are an ISO certified company, manufacturing wood treatment plants and machines for decades. We are also registered with DUNS- the mark that makes us different in the field.

We believe “Quality is never an accident; it is always a result of high intension, sincere efforts, intellectual direction, and skill full execution”. And to achieve what we believe in, we have established a separated quality control unit where stringent standards are applied to make sure that the Timber Seasoning Plant and Kiln & Wood Treatment Plant are in accordance with international quality norms.

The quality unit is headed by senior professionals who assess the quality of the plants on various parameters including efficiency, performance and fuel consumption. Following the company’s Quality Manual, they supervise each stage of production: right from procurement of raw material, manufacturing of plants and machines, till the final dispatch of products to ensure durability and long operational life.

**CLIENTELE**

After a corporate journey of more than three decades, we can now claim to be the most preferred choice among clients. Our clientele includes many renowned companies from India like Chandan Industries, Mankuva Mankuva, Sankarda, Jayant Packing Ind., Mumbai and Lokhandwala Constrn. Ind. Spreading the wings of qualitative success, we have also extended our domain across the Indian Subcontinent, East/Middle Africa, North Africa and South/West Africa.
What is ISPM-15?
International Standard for Phyto-sanitary Measures is an International Phyto-sanitary Measure developed by the International Plant Protection Convention (IPPC) that directly addresses the need to treat wood materials of a thickness greater than 6mm, used to ship products between countries.

What does FHAT mean?
Forced Hot Air Treatment plant for wooden packaging material as per ISPM-15 Norms.

Why HT is necessary in wooden packaging material?
Its main purpose is to prevent the international transport and spread of disease and insects that could negatively affect plants or ecosystems. ISPM-15 affects all wood packaging material (pallets, crates, dunnages, etc.) requiring to be debarked and then heat treated and stamped.

Who issues HT certificate?
Ministry of Agriculture, Plant Protection Quarantine and Storage, Faridabad-1.

The beneficial features of WPS heat treatment plant run by wood fired system.
1. No need of steam or Thermic Fluid Boiler, as well as steam or oil pipe lines.
2. No heating transmission loss as there is no circulation of steam or heated oil.
3. The consumption of waste firewood is in small quantity to maintain 45 to 90°C temperature.
4. Capital investment is too less and installation is easy and speedy.
5. There is less maintenance work than the conventional pressurized steam heated kiln with boiler, as in our system firewood is burning by natural thermal system without any pressure.
6. Temperature controlling, humidification, exhaust ducts etc. can be automated.
7. Furnace for burning waste-wood is installed inside the chamber and above the plinth level. Two doors are provided in the furnace, one is for feeding the waste wood and the other is for getting fresh air as well as throwing out the ashes. Both these doors are opened outside the chamber. Since this furnace is manufactured as per modern scientific technology, firing of waste wood is perfect and no smoke or fire can be seen outside the doors. Height of chimney is comparatively less.
8. The direct heat of furnace is not effecting the timbers stacked because heat is increased in the chamber by means of latest designed heating system indirectly, which is installed on the furnace inside the chamber. Propeller fans are also installed inside the chamber for forward & reverse circulation of air.
9. Packing woods and wooden sizes for block-boards can be treated in 2-3hrs.
10. During monsoon season this HT plant can also season the timber faster than conventional kiln, because this kiln achieves high temperature, so that wet air with moisture of chamber can be venting out of chamber continuously, at that venting time the temperature of chamber can be maintained upto 45 – 90°C. So the drying process will be faster in monsoon also.
11. This kiln can clean out the ash easily from inside of the furnace junction, and from inside of whole heating system. Entire machinery is made up of fireproof material.
12. There is an automated heat by-pass technique to solve overheating problem.
13. This kiln is duly equipped with all relevant machinery & instruments as per IS code.
14. 2-3rs per pallet cost
15. Our wide range of clientele in all major states of India and in many others countries are satisfied and get benefitted with our successful installation of Timber Heat Treatment Plant for years.

The beneficial features of WPS heat treatment plant run by diesel fired system.
1. Easy operation
2. No need of civil construction
3. Complete nut-bolt based plant that can be moved easily from one place to another place
4. Less maintenance plant comparative from others
5. Sox, NOx, Pollution free
6. Available in various sizes, from 50 pallets to 1000 pallets
7. Beneficial for pallet manufacturer who have small quantity to treat
8. Automation systems, designed to be operated easily by any one
9. Automatic maintenance of all data, graphs, records as per ISPM-15 norms
10. Separate and easy operational parts in Automation System
11. 4-6rs per pallet cost
Specification for Forced Hot Air Treatment plant.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Particulars</th>
<th>WPS-250 Pallets Wood Waste Fired (Box Panel Type)</th>
<th>WPS-225 Pallets Wood Waste Fired (Box Panel Type)</th>
<th>WPS-200 Pallets Wood Waste Fired (Box Panel Type)</th>
<th>WPS-125 Pallets Wood Fired (Box Panel Type)</th>
<th>WPS-100 Pallets Wood Fired (Box Panel Type)</th>
<th>WPS-50 Pallets Wood Fired (Box Panel Type)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Electricity Power - 3 Phase</td>
<td>8.00 HP</td>
<td>8.00 HP</td>
<td>7.00 HP</td>
<td>6.00 HP</td>
<td>3.00 HP</td>
<td>3.00 HP</td>
</tr>
<tr>
<td>2</td>
<td>Size of Plant</td>
<td>27'-0” Long x 17'-0” W x 10'-0” Ht. (civil construction)</td>
<td>24'-0” Long x 17'-0” W x 10'-3” Ht. (civil construction)</td>
<td>20'-6” Long x 18'-0” W x 10'-0” Ht.O/O (Box Panel Type GI Sheet)</td>
<td>17'-0” Long x 17'-0” W x 10'-0” Ht. (MS Steel Container)</td>
<td>18'-0” Long x 10'-0” W x 10'-0” Ht. (MS Steel Container)</td>
<td>14'-0” Long x 10'-0” W x 10'-0” Ht. (MS Steel Container)</td>
</tr>
<tr>
<td>3</td>
<td>Approx. Wood fire consumption per hour</td>
<td>15 – 20 kg/hr</td>
<td>15 – 20 kg/hr</td>
<td>15 – 20 kg/hr</td>
<td>10 – 15 kg/hr</td>
<td>10-15 Kg/hr</td>
<td>10-15 Kg/hr</td>
</tr>
<tr>
<td></td>
<td>Approx. Diesel consumption per hour</td>
<td>10-12Ltr./Hr</td>
<td>9-10Ltr./Hr</td>
<td>9-10 Ltr./Hr</td>
<td>8-10 Ltr./Hr</td>
<td>6-8 Ltr./Hr</td>
<td>6-8 Ltr./Hr</td>
</tr>
</tbody>
</table>

A) Computer System with Led Monitor, UPS Backup and HP Colour Inkjet Printer
B) Digital Moisture Meter and Mercury Glass Thermometer of 1/10th Deviation are supplied with FHAT Plant.

**Note:** All Above Options are Available with Diesel Burner as well as Electric Heaters.

You may select your required capacity plant and extra equipments before the final quotation.
“WINSOL” Timber treatment plant is used for vacuum pressure impregnation of timber with water borne preservatives like CCA, ACC, Boron and others. Operating is easy and labourless. Treatment cycle process is obtained with records of solution strength, timing of vacuum & pressure with average absorption per CFT of preservatives. The plant can be operated for,

A) Pressure Process
B) Vacuum & Pressure or Full Cell or Bethel process
C) Lowry process
D) Reuping process.

Above process can be achieved with the help of operating manual & training.

The Beneficial Features

1) The horizontal pressure vessel placed above the underground constructed storage tank. By this no pump is required to transport the solution from vessel to the storage tank, as it will be done by gravity. It makes the plant very compact which minimizes the land area also.

2) The plant is supplied as a turn-key unit, which is ready for operation immediately after 3-stage installation process: a. leveling on the concrete foundation b. Assembling the ready-made pipings with valves and c. Connection to electricity and water. The installation is carried out within 4-5 hours. The plant can easily be shifted or re-located to another site as & when if required.

3) To minimize the maintenance costs, the plant is equipped with features like
   - All pumps, valves & components are of well-known standard brands
   - Main parts of valves and pumps are made of Stainless steel
   - In line, filters in front of all pumps
   - All pipings are with flange fitting type.

All these features allow the plant to be operated for decades without major repair works.

4) The plant is manufactured with latest and most suitable design of quick locking door i.e. taper wedge lock designed which is quick operated by rack & pinion and taper ring designed which is quick operated by heavy screw & wing nut. This design prevents to tightening & opening of number of bolts & nuts with spanners as per old Indian designs.

5) The underground RCC concrete tank is working as measuring tank as well as mixing tank. This tank is used for mixing the concentrated preservative chemicals with water by using pressurized air bubbling through numbers of nozzles at the bottom of the tank.

6) This mixes the chemicals with water when prepared new solution as well as per day before starting the process.

TIMBER TREATMENT (IMPREGNATION) PLANT
CAPACITY AND COST ANALYSIS

1) “WINSOL” Vacuum, Pressure Treatment (Impregnation) Plant having following sizes horizontal pressure vessels with one side openable taper wedge lock system, quick opening door for various capacity per charge, suitable for required vacuum and pressure with vacuum separator tank, exhaust silencer tank, vacuum pump, pressure pump, filling pump, piping with manually operated valves, NRV valves, strainers, safety valves, MS fabricated pumping station frame, lactometer, pressure gauge & vacuum gauge.

2) piping with manually operated valves, NRV valves, strainers, safety valves, MS fabricated pumping station frame, lactometer, pressure gauge & vacuum gauge.

3) Plant is suitable for process of pressure - vacuum pressure and alternative pressure cycles.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Model No.</th>
<th>Capacity W/o Traully</th>
<th>Size of Vessel (ID X Long)</th>
<th>Reqd. HP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>VPT-10</td>
<td>100CFT</td>
<td>36” X 20’-0”</td>
<td>8.25</td>
</tr>
<tr>
<td>2</td>
<td>VPT-12</td>
<td>120 CFT</td>
<td>50” X 12’-0”</td>
<td>8.25</td>
</tr>
<tr>
<td>3</td>
<td>VPT-15</td>
<td>150 CFT</td>
<td>50” X 15’-0”</td>
<td>8.25</td>
</tr>
<tr>
<td>4</td>
<td>VPT-20</td>
<td>200 CFT</td>
<td>50” X 20’-0”</td>
<td>8.25</td>
</tr>
<tr>
<td>5</td>
<td>VPT-25</td>
<td>225 CFT</td>
<td>63” X 12’-0”</td>
<td>10.50</td>
</tr>
<tr>
<td>6</td>
<td>VPT-28</td>
<td>280 CFT</td>
<td>63” X 15’-0”</td>
<td>10.50</td>
</tr>
<tr>
<td>7</td>
<td>VPT-30</td>
<td>325 CFT</td>
<td>63” X 20’-0”</td>
<td>13.00</td>
</tr>
</tbody>
</table>

Note: All these models are having Single openable door end, with quick openable, taper wedge locking system.

...Where Nature is Nurtured...
EXTRA EQUIPMENTS AT EXTRA COST

1) Special Treatment (Impregnation) Plant for White Wood species i.e. Beech, Maple, Rubber, with alternative pressure system. These timbers must be treated immediately after cutting of tree with high moisture content.

2) Semi-Automatic controlled with pneumatically operated valves by soft tough sensors with timers.

3) The plant can be made of any specific length as demanded with the same diameter.

4) Internal & Outer tracks and trolley.

Vacuum Pressure Cylinder with Quick Wedge Lock System

Quick Wedge Lock System Door

Wood Without Treatment

Wood Treated with CCA

Multi Stage Pressure Pump

Vacuum Pump

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...Where Nature is Nurtured
WHAT IS SEASONING?
When a tree is newly felled, it contains about 55% or more of its own weight as water. This water is in the form of sap and moisture. The water is to be removed before the timber can be used for any engineering purpose. In other words, the process of removing this moisture is referred to as seasoning and constitutes one of the most important steps in converting raw wood into finished products. This process of drying of timber is known as the seasoning of timber.

ADVANTAGE OF TIMBER SEASONING
- Zero risk of fungal decay.
- Reduction in weight.
- Increase in Strength Properties.
- Improved capacity to hold nail and screw.
- High gluing capacity.
- Reduction in moisture content by 8 - 15%.
- Improved electrical and thermal insulation properties.

HOW TO SEASONING TIMBER?
Timber seasoning by most effective and economic process by:
- Wood waste fired furnace seasoning kiln
- Indirect heated internal heating system & fan furnace kiln.

The Beneficial Features of Timber Seasoning Kiln
1. No need of steam or Thermic Fluid Boiler, as well as steam or oil pipe lines.
2. No heating transmission loss as there is no circulation of steam or heated oil.
3. The consumption of waste firewood is in small quantity to maintain 45 to 90°C temperature.
4. Capital investment is too less and installation is easy and speedy.
5. There is less maintenance work than the conventional pressurized steam heated kiln with boiler, as in our system firewood is burning by natural thermal system without any pressure.
6. Temperature controlling, humidification, exhaust ducts etc. can be operated easily manually/automatically.
7. Furnace for burning waste-wood is installed inside the chamber and above the plinth level. Two doors are provided in the furnace, one is for feeding the waste wood and the other is for getting fresh air as well as throwing out the ashes. Both these doors are opened outside the chamber. Since this furnace is manufactured as per modern scientific technology, firing of waste wood is perfect and no smoke or fire can be seen outside of the doors.

The direct heat of furnace is not effecting the timbers stacked for seasoning because heat is increased in the chamber by means of latest designed heating system indirectly, which is installed on the furnace inside the chamber. Propeller fans also installed inside the chamber for forward & reverse circulation of air.
8. Packing woods and wooden sizes for block-boards can be seasoned within 70 – 100 hrs, whereas woods for doors & windows are seasoned within 150 to 200 hrs as described in Indian standard (depends upon local weather conditions).
9. During monsoon season, this kiln can season the timber faster than conventional kiln, because this kiln achieves high temperature, so that wet air with moisture of chamber can be venting out of chamber continuously, at that venting time the temperature of chamber can be maintained upto 45 – 90°C. So the drying process will be faster in monsoon also.
10. This kiln can clean out the ash easily from inside of the furnace junction, and from inside of whole heating system.
11. There is a heat by-pass technique to solve over-heating problem. Over-heat can be by-passed within a moment by operating a simple lever/automatic control.
12. This kiln is duly equipped with all relevant machinery & instruments as per IS code.
13. 16-20rs per CFT cost
14. Our wide range of clientele in all major states of India and in many others countries are satisfied and get benefitted with our successful installation of Timber Heat Treatment Plant for years.
### Wood waste fired furnace seasoning kiln - Capacity & cost analysis:

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Stacking Capacity of timber species at different thickness in same Kiln Chamber: a) 1” thk. with 0.75” thk. crosser.</td>
<td>300 F³</td>
<td>500 F³</td>
<td>700 F³</td>
<td>1200 F³</td>
</tr>
<tr>
<td>2</td>
<td>Electricity Power – 3 Phase</td>
<td>6.0 HP</td>
<td>6.0 HP</td>
<td>6.0 HP</td>
<td>12.0 HP</td>
</tr>
<tr>
<td>3</td>
<td>Water Connection</td>
<td>0.5” Pipe</td>
<td>0.5” Pipe</td>
<td>0.5” Pipe</td>
<td>0.5” Pipe</td>
</tr>
<tr>
<td>4</td>
<td>Civil Constructed chamber with RCC slab, Insulated doors &amp; windows – Overall dimension of 14” thk wall.</td>
<td>16’-6” Long x 15’-3” W x 11’-3” Ht.</td>
<td>19’-6” Long x 17’-3” W x 11’-3” Ht.</td>
<td>25’-6” Long x 17’-3” W x 11’-3” Ht.</td>
<td>36’-6” Long x 17’-3” W x 11’-3” Ht.</td>
</tr>
<tr>
<td>5</td>
<td>Approx. Fire-wood consumption per hour.</td>
<td>8 – 10 kg</td>
<td>8 – 10 kg</td>
<td>10 – 15 kg</td>
<td>15 – 20 kg</td>
</tr>
</tbody>
</table>

### Insulated panel type wood waste fired timber seasoning kiln

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<tr>
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<td>100 F³</td>
<td>200 F³</td>
<td>300 F³</td>
<td>500 F³</td>
</tr>
<tr>
<td>2</td>
<td>Electricity Power – 3 Phase</td>
<td>3.0 HP</td>
<td>3.0 HP</td>
<td>5.0 HP</td>
<td>5.0 HP</td>
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<tr>
<td>3</td>
<td>Water Connection</td>
<td>0.5” Pipe</td>
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<td>0.5” Pipe</td>
<td>0.5” Pipe</td>
</tr>
<tr>
<td>4</td>
<td>Civil Constructed chamber with RCC slab, Insulated doors &amp; windows – Overall dimension of 14” thk wall.</td>
<td>10’-0” Long x 8’-0” W x 10’-0” Ht.</td>
<td>12’-0” Long x 8’-0” W x 10’-0” Ht.</td>
<td>14’-0” Long x 8’-0” W x 10’-0” Ht.</td>
<td>16’-0” Long x 8’-0” W x 10’-0” Ht.</td>
</tr>
<tr>
<td>5</td>
<td>Approx. Fire-wood consumption per hour.</td>
<td>5 – 8 kg</td>
<td>5 – 10 kg</td>
<td>10 – 12 kg</td>
<td>12 – 15 kg</td>
</tr>
</tbody>
</table>

Furnace-Junction | Blower Housing | Blower Balancing Machine | Aluminum Blower | Heat Exchanger | Fan Guard

<table>
<thead>
<tr>
<th>Contact Information</th>
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<tr>
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<td>+91 9327934773</td>
</tr>
</tbody>
</table>

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www.winsolenergy.co.in

...Where Nature is Nurtured
Total Supplied Machinery in INDIA
Seasoning Kiln More than 500 Nos.
Impregnation Plant More than 100 Nos.
FHAT Plant as per ISPM-15 Norms More than 150 Nos.

Total Supplied Machinery in Abroad
Seasoning Kiln
Kenya More than 10 Nos.
DR Congo More than 3 Nos.
Tanzania More than 5 Nos.
Uganda More than 5 Nos.
Angola 1 Nos.

Impregnation Plant
Kenya More than 20 Nos.

Timber Treatment Plant
Kenya More than 4 Nos.
PNG 1 Nos.

Up to Dec 2016

Import Export Code : 3410004351
D-U-N-S-Number : 86-420-4178
ISO-9001:2008