1. Application of High frequency vacuum dryer

It is suitable for all kinds of wood (Soft wood, middle hard wood and hard wood) and thickness wood drying, especially for large section beam, hard wood, rare and expensive wood. High frequency vacuum dryer has a good solution for easy cracking and bending wood which need to dry in low temperature.

2. High frequency vacuum dryer composition

It include High frequency generator, vacuum tank, vacuum system, hydraulic system, cooling system, pneumatic system and electric control system etc.

3. Features of High frequency vacuum dryer

1. High speed drying: More than ten times faster than conventional steam dryer.
2. Good quality. High outturn rate of wood material and less defect
3. Stress removing

See the below picture. The first row is dried by traditional steam drying, the second row is dried by our HF vacuum dryer.
5. Simple technology process and easy to operate.
6. HF power can kill the worm and bacteria in the wood.
8. High comprehensive benefits.
9. Take up less money, capital turnover is fast.

4. Theory of High frequency vacuum dryer

1). High frequency heating principle and vacuum function

The wet wood medium located in the electrical field. The polarized water molecules become dipole. With millions of times direction change of electrical field per second, the molecules bring in very high temperature due to friction. Inside temperature is higher than wood surface because heat distributed on the surface. At the same time, the tank inside is negative pressure. Due to the function of temperature and pressure difference, the moisture in the wood core transfer from inside to surface rapidly. It is the main reason which causes high speed drying. Under vacuum condition, the water is easy to be boiling. For example, at \(-0.09\)Mpa, the water will boil at 50 ℃. It not only saves power but also dry the wood in low temperature.

2). Difference between HF vacuum dryer and other drying method

(1). High frequency drying is internal heating method. It makes water heat themselves.
Totally different with conventional external heating method (conductive drying method).

(2). High frequency drying can make wood inside temperature higher than surface. Together with pressure difference, it increases the transfer speed of wood moisture from inside to outside. Much better and conductive heating method.

(3). During high frequency wood drying, the distance between two layers of electrodes should be 150-200mm. The large distance can reach to 500mm. Other drying method cannot reach to such thickness. It is very good at thick wood and hard wood drying.

(4). High frequency heating makes wood temperature gradient less than normal heating method. So the inner stress is much less than others. The wood will not easy to crack.

(5). HF vacuum dryer equips with hydraulic press. During the drying process, it will give pressure on wood. After drying, it can keep wood straight and correct the wood slightly.

(6). Under vacuum condition, vaporization temperature is low. It makes low temperature wood drying come true. High frequency plus vacuum, can protect wood from cracking, bending and color changing problems.

5. Touching Screens -Easy Operation

System Start Screen
Working Menu

Automatic Timber Loading
Timber Weight

CONNECT ANODE AND GRID COPPER LEADS

CONNECT TEMP SENSOR PROBES

Fiber Temperature Sensor Probes Connection
Close Chamber Door

Parameters Settings
Operation Mode

Drying Schedules

- Drying stage 0
- Input wood weight manually 6000
- Initial Moisture Content % 36.0
- Final Moisture Content % 13.0
- Vacuum deviation 0.9100
- Vacuum temperature 30.0
## Drying Schedules Settings

### Parameter Settings

<table>
<thead>
<tr>
<th>NO</th>
<th>Anode current base value</th>
<th>Anode current deviation</th>
<th>Maximum temp</th>
<th>Temperature deviation</th>
<th>Tank vacuum</th>
<th>Temp gradient</th>
<th>Temperature Interval Gradient h/min</th>
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### Drying Schedules Setted Parameters List

- **Vacuum sensor detection**
- **Sensor weighing**
- **Vacuum sensor detection mode**
- **Weight selection mode**

**Drying stage**: 0  
**Date**: 2015-09-20 14:14:07
System Status Monitor

6. Radiation Protect

1) Aluminum Box Isolation

The main HF generator parts are assembled in the aluminum box for isolation.

2) Hatch & Door Isolation

All hatches & door are protected with wire mesh.
3) Door Check Protection

After system start & before filament heating, system will detect whether generator doors are closed correctly. If not, filament will not be heated. It can also protect people safety.

7. Wireless Control Beta (Optional)

Features: WIFI, 4G(FD-LTD) supported

Functions: monitor dryer system data, remote control, system update (OTA)

Operation Screen
Drying Plan Setting

<table>
<thead>
<tr>
<th>Parameter Setting</th>
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<tbody>
<tr>
<td>Anode Current</td>
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<td>Anode Current Limit</td>
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<td>Storage tank water weight</td>
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<tr>
<td>Vacuum Pump Start Temperature</td>
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<tr>
<td>Timber Weight</td>
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<tr>
<td>Initial MC</td>
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<tr>
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<tr>
<td>Weight Sensor Scale</td>
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<td>Feeding Cart Weight</td>
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Data Report

Operation Curves
## Alarm History

### Table

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## Live Alarms

### Table

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