

HIGH FREQUENCY VACUUM WOOD DRYER (HFVWD)

General information

- The High Frequency Vacuum Wood Dryer (HFVWD) is a new generation wood drying equipment, based on high frequency electric field.
- Specifically designed for the fast and quality drying of hardwood species, especially eucalyptus.
- This equipment adopts PLC programming control. The drying chamber is equipped with 80 mm thick thermal insulating layer and two sets stainless steel condensation system, of which one is inside and one outside.
- The water absorption of vacuum accelerates water discharge, which makes HFVWD a relatively fast and small drying equipment – compared to traditional steam heating lumber drying kiln HFVWD is about 10 times faster. Traditional methods require at least 40 days drying time for soft wood and can result in a high percentage of drying defects, while HFVWD reduce the drying time to 7 days and avoids most drying defects.
- HFVWD saves power and improves product quality and work efficiency.
- HFVWD is an ideal dryer for thick hard woods, typically used in the furniture and flooring industry. The dryer shortens the drying cycle, using less power than traditional kilns, making this technology more efficient and environmental friendly.



Main points

- 1: Short drying cycle: the vapor pressure difference caused by the contrast of the surface and interior temperatures makes the interior moisture in the sawn timber move towards the surface, from where it evaporates. This shortens the drying time significantly (compared to traditional ways).
- 2: Good drying result and quality due to the fact that the temperature never reaches above 50 degrees Celsius. This enables a drying process free from cracks & distortions that retains colour.
- 3: Easy Operation— HF kiln dryer is fully automatic. You just push the cart loaded with wood into the tank, close the tank, and press the start button. Operation is automatically performed in accordance to a pre-set program that is controlled by an operating system.
- 4: Energy saving: the input power is much lower than with other drying machine.
- 5: Cost-effective: High output with low input, no need for boiler, needs only electricity.

Specifications and maintenance information

- Kiln dimensions 5,40*1,72*1,81 m (length-width-height on the outside), 4,60*1,50*1,50 m (inside).
- The FWITC kiln has 4 m³ loading capacity. The maximum loading capacity is 4,0*1,4*1,1 m (length-width-height).
- Power requirement: 11 kWh.
- Material: all kinds of solid wood.
- Weight 5000 kgs.
- The average running time for a full load is 2–3 days for soft wood and 7 days for hard wood.
- As the main control valve adopts pneumatic valve technology, this technology have advantages like steady, long serve life and low failure rate.



Purchase information

- This machine has been purchased from China.
- The following costs incurred while procuring the machine:
 - Purchase price (incl. freight and insurance) 28,000 EUR
 - Import tax 27 %
 - VAT on purchase and import: 18 %
 - Clearing and port charges: 4,000 EUR
 - National transportation cost: 800 EUR
- The issues to be considered when buying the machine:
 - Capacity of the kiln
 - Availability of spare parts (electrical coils, wires, switches)
 - Availability of skilled operators
 - Warranty
 - Maintenance routine for the machine

Cost-profit estimates

Description	Size 4 m ³	Size 10 m ³
Suitability	Sawn wood and small-scale furniture and joinery production	Large-scale furniture and joinery production
Investment cost	40,000 EUR	90,000 EUR
Number of operators	1	2
Electricity (machine running 24/7)	11 kWh (250 kWh per cycle)	25 kWh (600 kWh per cycle)
Electricity costs per cycle	87,500 TSH	210,000 TSH
Maintenance	Daily (before switching machine on): reading and calibrating meters (spare parts: none) Between cycles: cleaning of water spillage and pipes (spare parts: electrical coils) Monthly: electrical connection and fluctuation check (spare parts: meter reading equipment)	
Maintenance costs per month	10,000 TSH (labour), 12,500 (parts)	10,000 TSH (labour), 12,500 (parts)
Max annual production	180 m ³	450 m ³

Services related to this machine at FWITC

- Testing client's timber samples
- Demonstration services for potential buyers and other stakeholders
- Advisory services for potential buyers and other stakeholders
- Training SME owners, managers and operators on the use of the machine
- Training on value adding on timber dried with the high frequency vacuum wood drying kiln

Contact and how to get there

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Driving instructions: Junction of CF Madibira Rd., drive straight about 1,5 km. The junction to FWITC is opposite to the briquetting factory, on the left side of the road.

About the Private Forestry Programme (PFP)

The Private Forestry Programme (PFP) supports private forest ownership, particularly the establishment and management of plantations by smallholders, as well as the wood industry and the development of mature timber markets that would benefit all stakeholders. The programme operates in four regions: Iringa, Njombe, Morogoro and Ruvuma.

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