

# Wood Tech Solution

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## 1. TECHNICAL SPECIFICATION

### 1.1 Kiln dimensions & capacity:

Kiln external dimensions	: Width	4800 mm
	: Depth	7700 mm
	: Height	5900 mm
Kiln internal dimensions	: Width	4400 mm
	: Depth	7500 mm
	: Height	4500 mm
Door opening	: Width	4400 mm
	: Height	4500 mm
Kiln capacity:	Approx. Net50m <sup>3</sup> (1750 C.F.T, 30mm of thickness@20mm stickers)	
Stacks dimension	: Width	2 x 2000 mm
	: Depth	5 x 1000 mm
	: Height	3 x 1400 mm
Type of door:	Lift-sliding door	
Way of loading:	Frontal, forklift	

### 1.2 PERFORMANCE DATA:

Bearing structure	Aluminum alloy
Heating medium	Steam
Humidification medium	Steam
Type of automatic control system	HOLZMEISTER M800B (DELHPI)
Number of fans	3units
Diameter	800mm
Volume of circulating air	27,000 m <sup>3</sup> /h
Motor	3kw, class IP55, ambient temperature + 85 °C
Electricity demand	9kw
Voltage & Frequency	380v, 50Hz
Inspection doors	Back walls
Snow Loading	150 Kg/m <sup>2</sup>
Wind loading	120 km/h

## 2. PARTICULAR DETAILS

### 2.1. BEARING STRUCTURE

The structure of the kiln is made completely of special aluminum alloy AW6063. All the beams, profiles, and roof holding structure as well as wind-bracing have high resistance to corrosion, which are of I, U, L & C.

The complete structure is self-supporting and is mounted on to a base concrete foundation using stainless- steel heavy-duty dowels.

The connecting materials, bolts, nuts & washer are made of



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stainless steel. The offered bearing structure can bear stress of 150kg/m<sup>2</sup> of snow load and wind load of 120km/h.

## 2.2. KILN CASSETTES SHEETING AND INSULATION SYSTEM

The heat insulation system is made of aluminum cassette-panels of alloy with high density non-flammable rock wool thermal insulation of 85mm thickness, the density of rock wool is 55kg/m<sup>3</sup>, which is higher than that of fiberglass. There is a slope on the roof, avoiding accumulation of rain or snow on the roof. The kiln wall is externally and internally faced with corrugate embossed aluminum sheets with a granulated finish of 1.1 mm. The Cassettes themselves are specially mounted with the supported of aluminum plate between columns of bearing structure. High-temperature caulking between cassettes protects the walls from heat transfer. The caulking is applied at any cassettes joints.

The thermal constant of the jacket penetrability is  $k=0.45w/m^2.k-1$ . This is due to the particular construction characteristics of the walls. They are completely fire resistant; they do not absorb moisture, guaranteeing constant operation.

## 2.3. KILN DOOR

The lifting –sliding sturdy aluminum door structure profile. The special groove where the strong rubber seal is installed provides optimum tightening alongside the door frame. The kiln door wall is of the same construction as the kiln and roof walls using rock wool insulation of 85mm. The closing system is equipped with adjustable counterparts which enable the precise adhesion of the door to the kiln structure. The bottom mullions feature nylon rollers on heavy duty stainless pins



## 2.4. KILN DOOR CARRIER AND LIFTING DEVICE

The TECH I' beams monorail carriage design realizes unrestricted movement of the door which hangs vertically in its raised position. Carriage wheels are sealed ball bearing to in any weather conditions.



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## 2.5. INSPECTION DOOR

The inspection door is included and is of opening 1500×600 mm with rock wool insulation of 85mm.

It is equipped with a safety handle, easy to open and close.

The inspection door will be placed in rear wall.



## 2.6. FALSE CEILING

The chamber is divided by aluminum intermediate ceiling into a technology section where all the technical elements are located and a drying section where the timber to be dried is placed. The intermediate ceiling is mounted on the lower part of the chamber beams and is made of corrugated profile sheets of thickness 1.1 mm ensuring the smooth air flow.



## 2.7 FANS & MOTORS

The air ventilation is provided by reversible medium pressure fans with high performance level installed in each chamber above false ceiling of the chamber. The fans can perform with the same efficiency and capacity in both direction and at any revolution rate. Each fan has 6 aluminum swinging blades with perfectly symmetrical shape. The aluminum fan  $\phi$  800 mm impellers are fixed directly on to the shaft of the specially designed motors. The motors are tropically insulated to resist high temperature (IP55) and to work without any problems in environments reaching 100% of moisture content.



## 2.8 HEATING ELEMENTS

The heating elements use aluminum fin built on stainless steel pipe. Heat exchanger coils are located vertically overhead. All the piping from collectors for the heat exchanger coils up to flanges out of kilns are made in stainless steel. The heat output is designed for the highest demand.



## 2.9 ELECTRIC HEATING VALVE

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Valve electric actuator has been of special design, beautiful appearance, strong function, operation endurance exceeding ten times as standard of the same kind it may be called to be durable as diamond. The rotation valve electric actuator series has a completely new appraisal of customers with its super performance and peerless advantage.

\* Power function: intelligently, switch type, proportionally type, all kinds of signal output type upon demand.

\* Small volume: just thirty five percent of the same kind products.

\* Be portable: just thirty percent of the same kind product.

\* Beautiful appearance: outer casing is formed by die-cast of aluminum alloy, fine and evenly, reducing electromagnetic disturbance.

\* Wear resistance: the design for worm-wheel output axle integration avoids the stitch closure in connection place of key and the transmission precision is high, forged with special copper alloy of high strength and super wear-resistance.

\* Safety assurance: has passed AC1500V voltage withstanding test. Class F insulated electric motor, which guarantees the operation.

\* Easily forming complete set: adopting single-phase power, and simple wire connection from outside; it also can be suitable to 380V.

\* Convenience: without additional oil and poont-check, and owns performance of waterproof and antirust, suitable to be installed at any angle.

\* Protection appliance: double limit, overheat and overload protection.

\* Antirust and anticorrosion: complete-machine support/ coupling and screw can be made of stainless steel.

Intelligently numerically-control, intelligently controlling module is integrated into electric actuator without additional localizer, numerically setting, numerically regulating, highly accurate, self-diagnosis, many functions on one machine.

## 2.10. THE AIR EXCHANG SYSTEM

The ventilation and suction system of vents are made of aluminum material. Vents make use of pressure and vacuum zones generated use of additional fans. The whole system of vents works simultaneously. In this offer the chimney are provided in the chamber ceiling. The vents are positive opening and closing.





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## 2.11. ELECTRIC BOARD

The board is the modular panel meeting the international standards relevant to protection class IP55. The operating drying components are placed in the electric board. (Switches, relays, fusing etc.)

## 2.12. AUTOMATIC CONTROL OF THE DRYING PROCESS HOLZMEISTER M800B (DELPHI)

**Every unit is equipped with:**

**6 pcs of probes to detect the wood moisture**

**2 pcs of EMC stations/ front and back / For climate controlling**

It is a LCD based automatic kiln controller. The kiln dryer controller DELPHI is based on the most advanced electronic technology today available and includes all the best solutions that LOGICA H&S has developed in over ten years of experience in timber drying control systems.

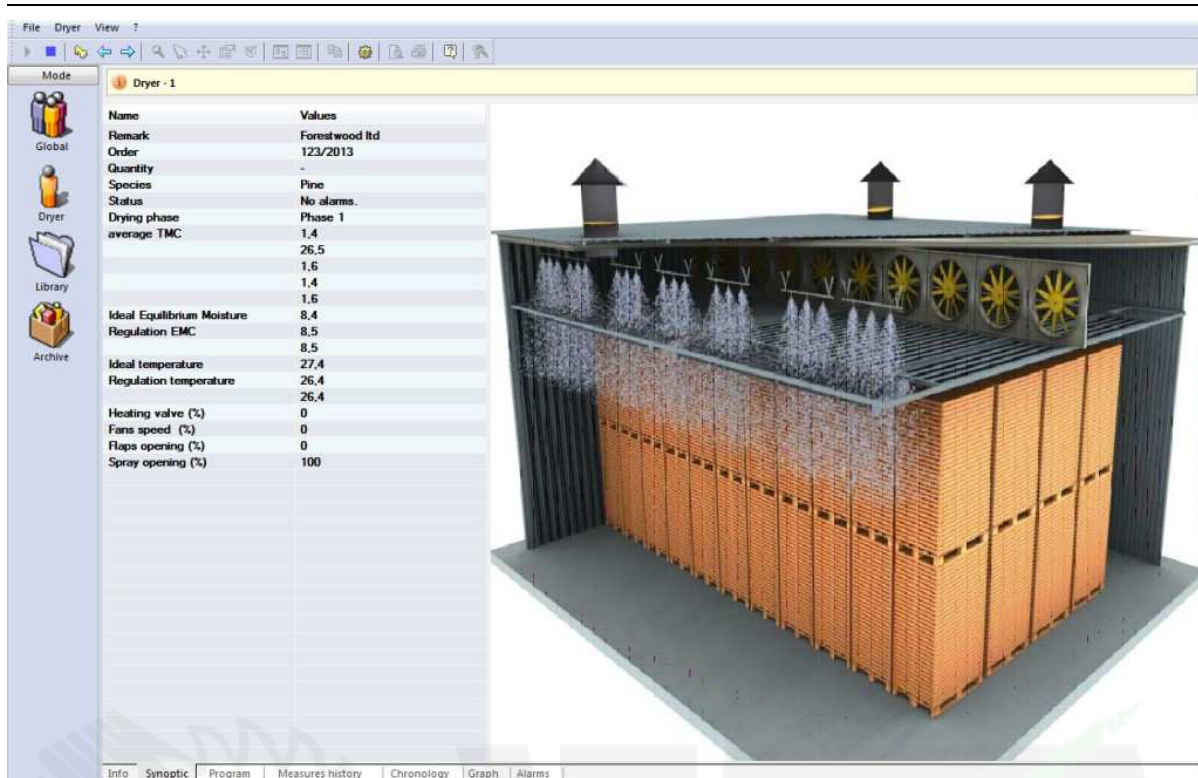
The new user interface, based on a LCD graphic display having a very good readability, allows an easy set-up also to not skilled users, because all settings are made through self-explaining menu and the access to most advanced menus divided from the ones most commonly used.

To further improve the friendly interface of DELPHI, also for this model it has been adopted the iButton system, a useful method, based on "intelligent buttons" that can be used to save and recall drying (in addition to internal memory), to protect the controller set-up against not authorized people and upgrade the controller software. Having a drying program

saved into an iButton, everybody can start a drying cycle, simply by laying the button on the addicted reader. The same solution can also be used to order to your assistance centre a drying program ready to use, without need to inputting it manually into the controller, or to transfer a program from a controller to another one. Obviously there are also many standard programs (over 80) ready to use for a lot of wood essences, recallable from an addicted menu, useful for users without particular needs or for beginners.

DELPHI is supplied with LG25, the new probe amplifier of Logica H&S. Thanks to a number of new





solutions (among them measures with alternate voltage variable(VAV) with timber moistures, digital filter for mains supply noise rejection (MNR), this device assures the maximum reliability together with the better external noise rejection. The amplifier comes in a sealed (IP65) aluminum case, and complete with wirings for the probes boxes inside the kiln made with shielded and Teflon insulated cables. The probes boxes are made using polycarbonate hermetic measures of many competitive systems.

DELPHI allows a very flexible management of the drying cycle, thanks to the drying phase that can be divided in up to 8 steps, with progressive transitions of the kiln climate from step to step. Every step can be defined by gradient, EMC value or duration.

DELPHI is based on kiln bus system that makes it compatible with all the sensors/actuators for kiln dryers today available and to be developed in the next future, so it is suitable for future upgrades. In addition it comes with a serial interface (double standard-RS232+RS485) useful to connect it to master PC (using the WoodWizard 2 software). In the panel version ("easy wiring") DELPHI controller is supplied split in two very small parts: the visualization module and the power module. With this solution the visualization module can be installed on the front panel of the switchboard while the power module can be installed directly inside it, for a very tidy wiring; the link between the modules is made with a single preassembled cable. But, if you prefer, the same solution could also be used to install the power module into the switchboard and the visualization module directly in your office, far up to 1, 2km.

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## 2.12. Steam boiler

It manufactures the safest and ideal steam boilers with the advanced, top security techno-logy with high performance. It is attached with water tank, high pressure pump, fully automatic high & low water level cut-off device, relief valve, pressure controller, the durable calorific wire for water level gauge, each boiler welding seam has passed X-ray check. It proves to have reliable quality after the examination and confirmation from Special Equipment Supervision & Inspection Dept.



**Rated output:** 0.5 ton/hr (300,000k.cal/hr)    **Working pressure:** 7 Bar

**Steam temperature:** 156 °C    **Fuel:** wood wastes, sawdust, solid wood pcs and coal

