



Eberl

Trocknungsanlagen
GmbH

The system for saving energy

The energy saving dryer



**Vacuum and heat pump
- the optimal combination**

only some no water supply
no heat supply
electrical energy



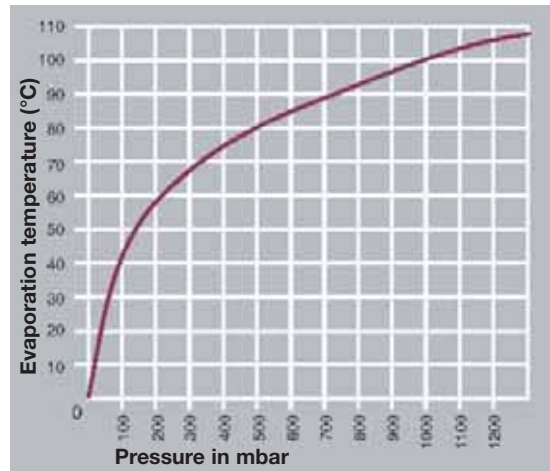
Vacuum dryer for timber from 10 to 75 m³

As is generally well known vacuum drying offers you numerous advantages. Lowering the evaporation temperature yields:

- **less energy consumption,**
- **mild and higher quality drying,**
- **less time for drying thus leading to more flexibility**

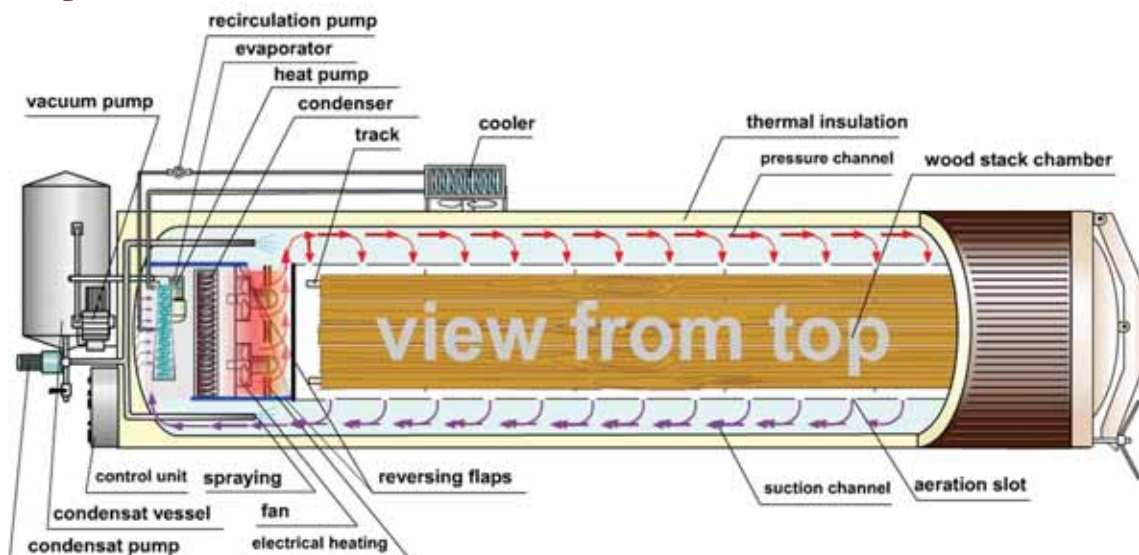
Using an Eberl-Vacuum dryer you only need a fraction of energy compared to all other wood drying kilns. The loss of energy in the form of heat is caused by the removal of humid air from the drying chamber. Therefore the air has to be exchanged, sucked off or cooled by air resp. water and consequently condensing humidity. In every of these process steps energy esp. heat is lost.

Here you can profit from using the "Eberl principle". A heat pump is used for condensing and for simultaneous heat recovery to heat the dryer. This heat recovery plant works in such an effective way that excess heat is even absorbed by refrigeration cycle. You get the best benefit from a combination of heat pump and vacuum drying. Exactly for this purpose we developed our patented drying system.



Evaporation temperature pressure relationship of water

The system



The drying process

Wood to be dried is stacked on a track car using wooden strips, equipped with sensors and then driven into the dryer. Fans transport air into the pressure channel passing a electrical heater or optionally hot water heater. The warmed up air is led by aeration slots cross the wood stack and then flows back through a suction channel.

Due to this air circulation a steady cross aeration is achieved even in the case of a not totally filled stack chamber. The batch is alternately ventilated from the left side or the right side.

After heating the wood the plant is evacuated and the drying process can start. Depending on species and moisture of the wood pressure, temperature and humidity of the air are automatically controlled. Humidity is condensed from the air passing a heat exchanger cooled by a refrigerant.

The separated condensate is collected in a condensate vessel. The heat absorbed by the refrigerant during condensation can be used for the heating of the plant. Therefore a heat pump and a further heat exchanger are installed. The regenerated air can be loaded with moisture from the wood until the desired moisture is reached.

The batch is driven out of the plant after cooling. The drying process is PLC-controlled. It can be adjusted for several species of wood, e.g. steaming of beech as well as heat treatment.

You can have a record of the drying process or control one or more dryers in a control center by PC.

The advantages ...

... of an **EBERL-Energy saving dryer**

● Energy saving

A low energy consuming heat pump condenses the humidity and subsequently provides all heating.

● High-Quality drying

You get a high quality drying by vacuum, steady aeration and exact climatisation fitting to your wood.

● Easy installation

The drying plant can be installed outside on a foundation. Only electrical supply is required for working.

● No heating supply

An electrical heating only heats one batch once.

● No water supply

The water for spraying purpose is taken from the condensate vessel.

● Steady reversing aeration

The air circulation occurs due to exact air distribution with aeration slots cross the wood stack passing a pressure and a suction channel.



■ Dryer



■ Heat pump



■ Condensate vessel



■ Control panel



■ Chamber for wood stack

Technical data	Type	20/65	20/125	23/125	23/150	25/125	25/150	27/150	29/150	30/150	30/205
Vessel diameter	m	2,0	2,0	2,3	2,3	2,5	2,5	2,7	2,9	3,0	3,0
Stack chamber (length)	m	6,5	12,5	12,5	15	12,5	15	15	15	12,5	20,5
Stack chamber (width)	m	1,2	1,2	1,25	1,25	1,25	1,25	1,4	1,25	1,4	1,4
Stack chamber (height)	m	1,5	1,5	1,85	1,85	2,1	2,1	2,2	2,5	2,6	2,6
Stack chamber	m ³	11,7	22,5	28,9	34,7	32,8	39,4	46,2	46,9	54,6	74,6
Overall Volume	m	10,0	16,0	16,5	19	16,5	19	19	19	19,5	25,0
Length of the plant	m	11,0	17,0	17,5	20	17,5	20	20	20	20,5	26,0
Width of the plant	m	2,4	2,4	2,6	2,6	2,85	2,85	3	3	3,4	3,4
Height of the plant	m	2,6	2,6	2,9	2,9	3,12	3,12	3,3	3,3	3,7	3,7
Electrical power supply	kW	12	21	33	38	38	42	50	50	58	73
Average electricity consumption	kW	2,4	5,5	8	9	9	10	12	12	14	19,4

Special equipment and dimensions are available on request. Changes are reserved.



Company residence in Bodenkirchen (Bavaria / Germany)



Control chamber



Transport



Working on site

You are invited to visit us to view the energy saving dryer. Use our test service to take your own wood for test drying. So you can convince of the drying result and watch drying course, drying quality and energy consumption.

There are many reasons, that argue in favour of our development.

We would like to present you further information. Please contact us, e.g. if you have questions about suitability for your product, technical details, drying quality or energy consumption. You can reach us by telephone, mail or e-mail. We would be happy to consult you personally.



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