

Thermo kiln for thermal modification



Description

With the IHD thermo kiln (fig. 1), wood and wood based products can be thermally modified under defined conditions. The pilot-plant scale kiln of type MAHILD MH 2000 TMT allows the treatment under normal pressure (open system) at temperatures up to 250 °C. If requested, steam can be added during certain process steps. Serviceable batch size is up to 1200 mm length, 650 mm width (max. 900 mm) and 800 mm height.

The kiln can be used as well as a normal kiln dryer with control by supply/exhaust air valves.

By a special technology developed at IHD (pending patent DE 10 2009 047 137 A1), plane materials, like veneers or wood based panels, can be thermally treated with high quality.

The test thermo kiln is controlled by PC (fig. 2) and SPS with software MM 4000. Process steps and lots of parameters are free programmable; fig. 3 shows a typical process run. Control factor for thermal treatment is the chamber temperature, for normal drying the air humidity and wood moisture. Relative air humidity is measured by psychrometer method, the wood moisture by electrical resistance method. Water can be sprayed in for wetting and cooling. To ensure a consistent flow through the batch, the fan can be operated in a reverse modus by a frequency transformer.

Services

The thermo kiln test plant is available for services for drying and thermal modification, e. g. to investigate achievable modification effects or optimal treatment parameters. With up to 4 processes per week, an appreciable amount of material can be treated. Costs are depending firstly on the duration of treatment. Subsequent physical, mechanical, chemical or biological investigations and tests can be performed in test laboratories which are accredited according to EN ISO/IEC 17025:2005.

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Fig. 1: Thermo kiln of IHD

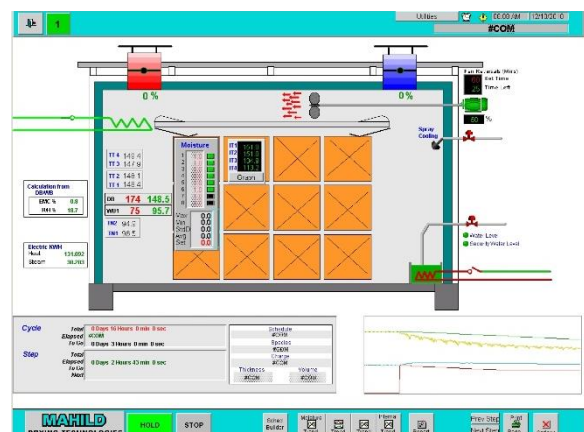


Fig. 2: Control screen

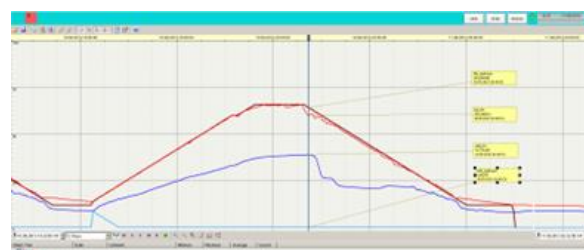


Fig. 3: Example of process run: (green = set temperature, yellow = actual temperature)