• PB • OSB • MDF

AUTOMATIC CONTINUOUS PRESS CONTROL

DYNAPRESS

TO CONTROL THE PRESS CYCLE ON A WOOD-BASED PANEL PRODUCTION LINE WITH
CONTINUOUS PRESS (I.E. WITH DOUBLE ROTATING STEEL BELTS)

The programmes for the various press cycles, which have been optimised for each production (pressure and thickness) are stored in the Server PC, along with all the configurations for the hydraulic control, temperature, speed control, belt displacement and so on relating to a continuous press.
It is possible to retrieve data whenever the thickness and production cycle need to be changed. It is of course possible to correct the working data at any time, and enter the parameters while the work process is in progress to maximize the work cycle.

The Scada PC has, for each production stored, all the parameters it needs for press control, (e.g. levels, pressures, speed, temperature...), furthermore some pressure and level graphs are also stored which provide a visual comprehension of the production in progress and enable comparison with the current setpoints in order to highlight any differences which could emerge. Press opening is controlled by high precision position transducers which keep the system updated on the position of the press opening in relation to each regulator equipped frame. The electronic system conducts a direct control on board thickness, by regulating the pressure of each cylinder, making it possible to gradually press the board through the cycle and through all the various intermediate thicknesses/pressures, frame by frame, until it reaches all the desired mechanical and physical properties. Through the indication of the levels it is possible to control cylinder pressure as well as to have an immediate indication of any thickness anomaly. The association between cylinder and level sensor may be re-programmed via the Scada PC to achieve efficient performance in any working condition, even in the event of a sensor failure.
For this purpose, the system has its own error identification programme which is able to provide immediate notification of any anomalies in the data acquired and to signal an alarm if a sensor supplies a signal which is not valid.
The alarms generated by the system may be programmed into priority categories which ranks them in order of importance. A major alarm will therefore stop the press immediately and an operator will be required to reinstate operation, thus ensuring full operating safety. Some alarms will of course stop the cycle even though they have not been programmed as blocks, ensuring further safety and protection for both the equipment itself and for the operators using it.

All standard operations like printing data and graphs for pressure, level, temperature, speed are of course possible as well as other details related to the production which is running, work process times, and any other statistical or numerical information which may be available.

The system may be networked with other supervision and data collection systems such as the thickness gauging system located at press outlet (WINTHICK), by means of which it is possible to make further parameter corrections automatically, in order to produce a flat board of ideal thickness.
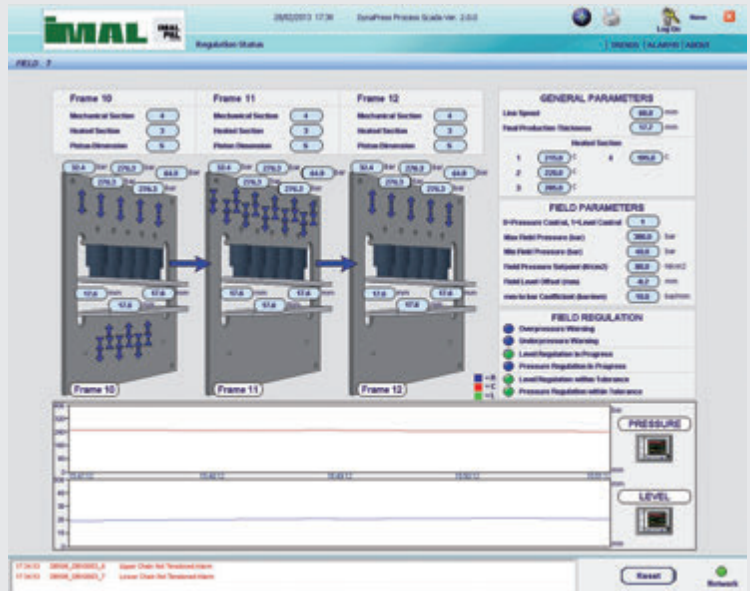
WORKING PRINCIPLE

The system consists of electric cabinets, housing PLCs equipped with remotely controlled digital and analogue inputs and outputs and special cards for reading the magnetostrictive level sensors.
These sensors will be supplied in a suitable quantity and of a suitable length for the press in relation to the range of thicknesses that will be produced.

Furthermore, the pressure of each cylinder is obtained through the use of pressure sensors with analogue output.
The Scada PCs act as an interface between the operator and the PLC system and are used to enter data and display the process which is being monitored, cylinder pressure, levels read by the sensors, the graphs for these physical quantities, the state of the system and the position of the limit switches, valves and any other useful signal.
The PLC system controls the press independently of the Scada PCs, which are normally used to display data and the alarms.

The programming of the production cycle consists in specifying a sequence of checks for each frame equipped with regulators, within each of which an operation is performed.
It is therefore possible to check the specific pressure, the level, to perform combined controls, etc in order to obtain a sequence in terms of space (frame by frame) of slow pressure, rapid high pressure, time a pressure is maintained, switching to single piston regulation, cure, thickness control, decompression, etc..

The parameters associated with a production are amply sufficient to control any kind of press cycle required.
The software has been programmed in high-level language in Windows, while the PLC system rapidly and efficiently executes a specially designed programme for the sophisticated control which needs to be carried out, to ensure extremely rapid response times.
The appropriate algorithms applied minimize the need for calibration and maintenance on the electronic system.

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