SURFACE TEMPERATURE CHECK WHEN GLUING LAMINATE

Gluing laminate on chipboard under high pressure and at the stated temperature is an example of using **ThermoInspector**. Chipboard panels are machined with a high-pressure laminate that increases the resistance of the work boards to wear, moisture and heat. During this process the laminate is heated together with the glue to the required temperature so that the laminate adheres better in contact with the board.

1. **Task specification**

In the company Xxxxx (ask for more details), which is an important world manufacturer of kitchen work boards and other furniture, **the stability of the temperature had to be monitored throughout the process of gluing laminate** on the chipboard. The temperature must be monitored mainly for the quality of the glued joint. If the temperature is not the same everywhere during the whole gluing process, defects may occur or later the laminate may separate from the chipboard.
Solution

The ThermoInspector thermal imaging system was used to solve this application, which is the system for checking manufacturing processes, monitoring the stability and homogeneity of the temperature during processes, input - output thermal checking, etc. where up to 4 WIC thermal imaging cameras can be connected at the same time.

In this particular case, one camera connected to the ThermoInspector control unit computer by an Ethernet cable was enough. The system was configured to the non-trigger mode, i.e. the camera monitors the area non-stop and if the thermal limit is exceeded an alarm is displayed on the screen to inform the operator and a record is saved in the control computer. The mode with a trigger signal could also be used in this application which would automatically inform the ThermoInspector of moved board and automatically check that the temperature does not exceed the limit and, if necessary, activate the digital output.

Because only the side edge of the board was monitored, which continuously passes in front of the camera, the whole image need not be analysed just part of it. In the displayed area the ROI option was used in which the camera evaluates the measured data in real time. Three lines that cover the width of the board were selected as the ideal ROI. The measured values on these lines are continuously evaluated for maximum temperature, minimum temperature and standard deviation of values. The values of these lines are compared with the set limits in real time to ensure the required homogeneous temperature. The visualization of the whole process was displayed on the ThermoInspector touch control computer.