



Industry: Wood
**Surface and finishing inspection of coated panels
at Swedwood**

Ängelholm/Waldkirch, Tour Stop No. 14 2010 - Ten complete PAX wardrobes from IKEA are produced every minute. An inline inspection solution was installed by the systems integrator OptoNova in the production line using the Ranger E 3D measuring systems from SICK as central components.

Challenge: Quality Control

The main force behind automated quality inspections is mass production which demands a high production speed with increasing cost optimization. At this high speed, a manual inspection of product quality with regard to surfaces, edges and drill holes is no longer possible. In addition to that, it is important to stop defective products going through the entire production process all the way to packaging. By sorting out these defective products at an early stage, considerable process costs are avoided.

Solution: 3D camera system uses different 2D and 3D measuring methods thus reduces inspection time and additional sensor costs, and ensures the quality of the panels

Swedwood has equipped the inline inspection stations with powerful and easy-to-integrate Ranger E 3D camera systems. They can produce high-precision 2D and 3D measurement results. This achieves an extremely high level of precision in recording the finest of details; the smallest defects are detected reliably and the highest possible quality is guaranteed. Since the camera systems can measure and evaluate several object properties, e.g. gray value, surface shine and light scattering (laser scatter), simultaneously, they proved to be particularly economic because the integration of additional, separate 2D camera systems was no longer necessary. Each camera is connected to an encoder that records the feed



speed as part of the 3D measurement of contours. The Gigabit Ethernet interface ensures the transfer of the measuring results in real time to the machine controller as well as into a documentation software.

Customer Benefits:

- **Defect boards are sorted out in an earlier stage of production process**
- **Increased process efficiency and productivity**
- **Ensuring product quality**
- **Reduction of return shipments**

With the help of 3D camera systems, Swedwood can guarantee that the smallest of defects are reliably detected and only panels of perfect quality are produced for IKEA PAX. "With human visual inspection, it is not possible to achieve the same inspection volume and the same zero-defect quality reliability", Carl-Henrik Stenermark states from experience as Swedwood's expert in image processing. "Moreover, only inspection by camera can also offer the possibility of recording quality data automatically." Swedwood was able to increase efficiency and cost-effectiveness in their panel production because defective parts were sorted out at an early stage. On top of that, Swedwood benefits from the direct coupling of inspection systems to the production process. When defects occur frequently, e.g. on two or three boards in succession, the production line is stopped automatically and the cause analyzed thereby avoiding unnecessary waste of material.