July 2020

SEHO PowerVision: Cost-Efficient Quality Assurance in THT Processes

SEHO Systems GmbH, a worldwide leading manufacturer of complete solutions for soldering processes and automated production lines, is the right partner when innovative ideas are required. With the PowerVision, SEHO focuses on two key points in the manufacturing of THT assemblies: Continuous quality assurance and cost-efficient production processes.

The SEHO PowerVision stands for fast, automated optical inspection, and it is particularly designed for THT processes. The system can be configured depending on the manufacturing requirements: For component placement inspection in front of a wave or a selective soldering machine, or for solder joint inspection after wave or selective soldering processes, or as a combination of both inspection tasks, integrated into the same module to save space.

The system reliably detects typical placement defects such as presence of components or polarity, and soldering defects like incomplete solder joints, solder bridges or solder balls, for instance. Additionally, the system is capable of reading and processing product IDs.

The stand-alone variant of the SEHO PowerVision can be flexibly integrated into each fully automated production line. Moreover, the system can be directly integrated in many of SEHO’s selective soldering systems, thus providing additional benefits, particularly in terms of floor space and board handling costs.

Generation of test plans is performed easily and comfortably at any PC using an offline teach program. Basic data can be taken from Gerber data, DXF files or from any digital image file (camera or scan). A simple wizard leads the operator through the programming procedure. Moreover, the comprehensive and individually expandable component library includes component-specific test elements, as well as an automatic inspection search to simplify programming.

Even optimization of a test plan that usually requires temporary interruption of the production to adjust parameters can be made offline. Thus, the AOI system will be permanently available for production.

For fast and effective optimization of the entire process, the standard version of the database-supported PowerVision software provides analyzing tools that can draw conclusions on the current production. These tools include a heatmap that visualizes error frequencies based on their geometrical location on the PCB and
a trend analysis that effectively supports optimization of the test program. The detected defects can easily and quickly be classified using the intuitive interface of the SEHOverify software.

Based on this classification of the test results, the software module SEHOSpc calculates and graphically displays different statistical key figures such as first pass yield, false calls rates or defect rates (FCPMO/DPMO).

The benefits are obvious: Early identification of defects allows a fast increase of the overall manufacturing quality. Simultaneously, production costs can be sustainably reduced due to automated inspection and computer-assisted rework.