



## Analysis options offered at the Application Center



Figure 1: Application Center

### General

The Application Center of Christian Koenen GmbH has all the equipment necessary for implementing and evaluating applications for screen and stencil printing. Reballing processes can also be implemented. A rework station is available for applications in that components are to be equipped and soldered. A fully automatic stencil and substrate washing system and a manual cleaning station cover the area of printing tool cleaning.



Figure 2: Application Center

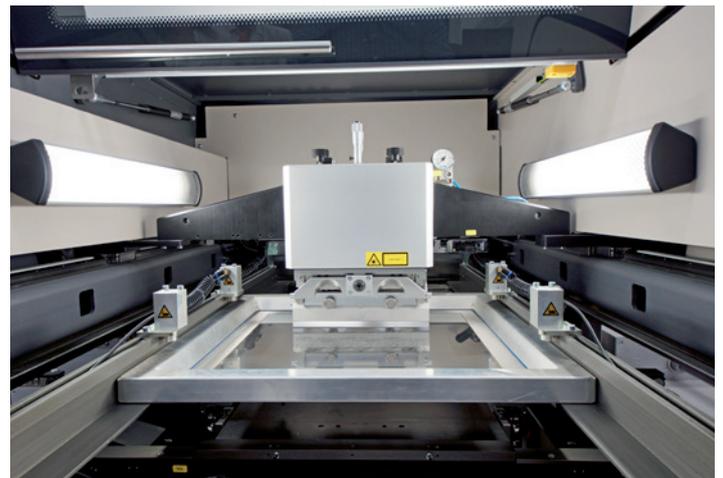


Figure 3: Application Center

# Measurement of printed circuit boards

## Position measurement on substrates

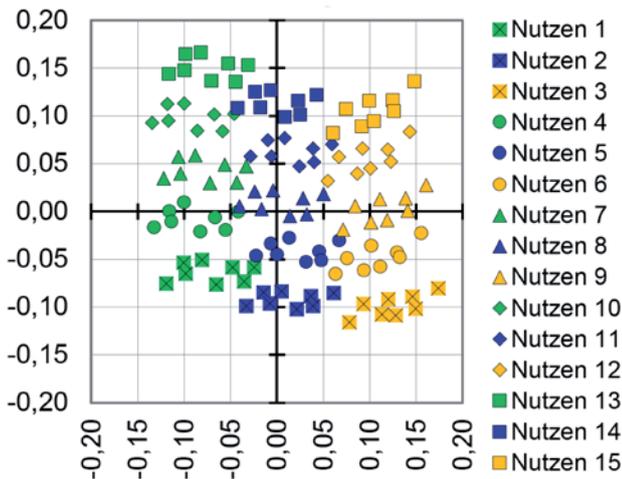
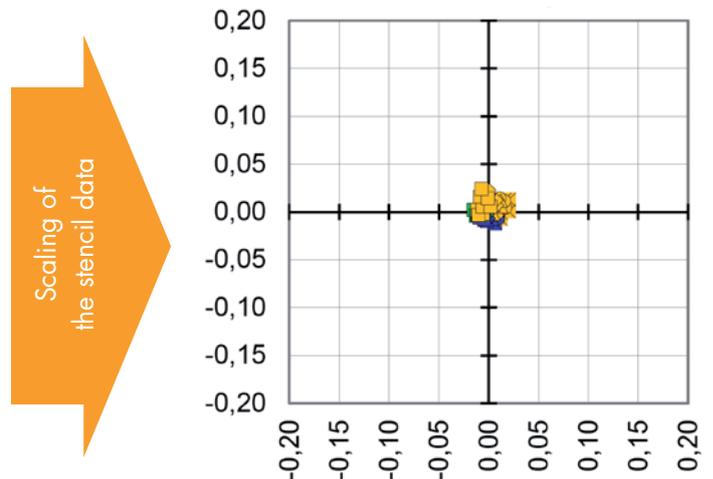


Figure 4: Deviations of the pad positions from target values of a printed circuit board. The arrangement of the printed panels suggests longitudinal scaling of the printed circuit board.



Scaling of the stencil data

Figure 5: Residual deviation after scaling (adaptation) of stencil data to actual values of pad positions. Optimal printing of the pads is possible again.

Identification of printed circuit board distortions or printed panel divisions with subsequent adaptation of CAD data for the stencil to ensure optimal printing on the pads. Print faults and variations in solder paste application are thus reduced to a minimum, the process is stabilised and the efficiency of the line is enhanced.

## Evenness measurement on substrates

Inspection of the substrates in terms of evenness of the surface in areas relevant for the printing process. For example, elevations, such as solder resist, vias, marking legend or labels, may result in massive printing problems. The elevations inhibit sealing between the pad and the stencil, causing additional bouncing during printing. This results in an increased cleaning requirement between printing cycles and an increased paste application.

By measuring the elevations, cavities that provide free space for the elevations can be integrated into the stencil to ensure bounce-free printing. The surface scanner has an operational range of (300 x 300) mm<sup>2</sup> and a resolution of 0.1 µm in height and 1 µm in x and y.



Figure 6: CYBER CT 300



## Documentation, measurement of pad and opening sizes

Pad and opening dimensions are determined with the microscope to identify any deviations in size from the CAD data and to consider these during data processing, if necessary.

In addition, pictures of substrates, components, printing and soldering results are created to illustrate fault mechanisms, approaches for solutions and printing processes. The microscope offers a magnification range of 100x to 1000x.

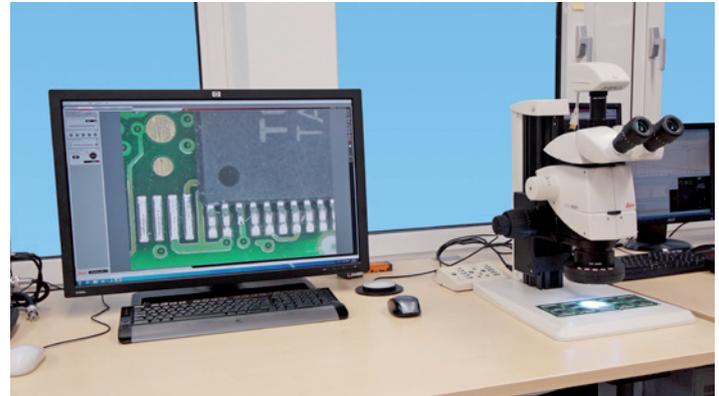


Figure 7: Microscope for measuring pad structures and for documenting test results

## 3-D measurement of printed deposits

Fast automatic and three-dimensional measurement of printed deposits using solder paste inspection systems from Koh Young allows for a statistical evaluation of the printing result. The effects of different parameters can thus be compared directly. The system supports the control of new component layouts and assists in the fault analysis of existing products.



Figure 8: KEYENCE VHX1000

## Printing tests for you at our company

Additionally, you have the option of using our Application Center for your own tests. We work according to your specifications and operate the systems and equipment for you. Printing tests conducted prior to product start-up are very important. Often, however, the own manufacturing facilities lack the capacities or simply the quiet required for analysing the problems in detail. We offer you both: Modern stencil and screen printing systems combined with the necessary measuring and documentation equipment and a professional air-conditioned manufacturing environment.



Figure 9: SMD Inline-Concept

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