

APPLICATION CENTER

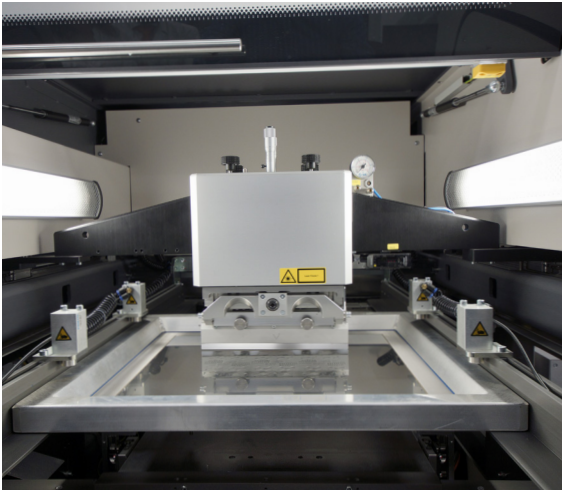


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YOUR PARTNER FOR OPTIMIZING PRINTING PROCESSES

"HIGH-TECH" FOR YOU

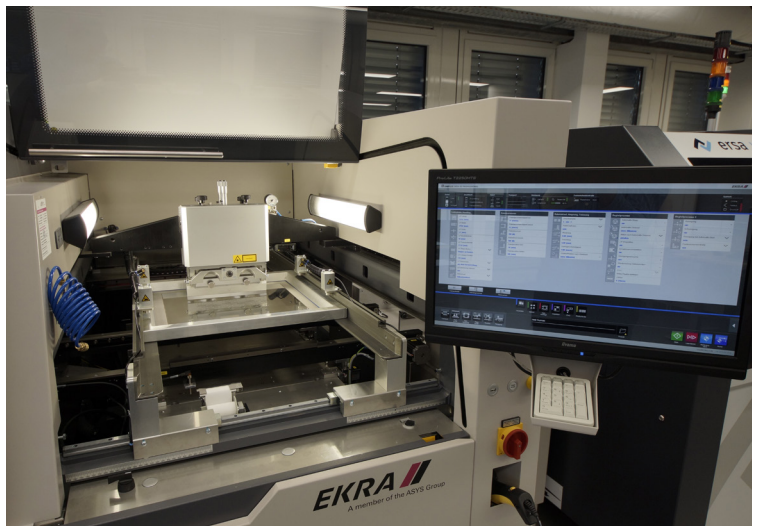
The **Christian Koenen** Application Center in Ottobrunn offers state-of-the-art infrastructure for the analysis, optimization, and development of printing processes – entirely aligned with your production requirements. Whether it's prototypes, series-oriented production, or customized training: here, precision, efficiency, and know-how come together.



The strong demand for our Application Center services required us to define an improved concept. Key areas such as error cause analysis, customer-specific process development focusing on cost reduction for increased quality, process training, and the further development of new printing technologies require a new approach to the structure of the Application Center.



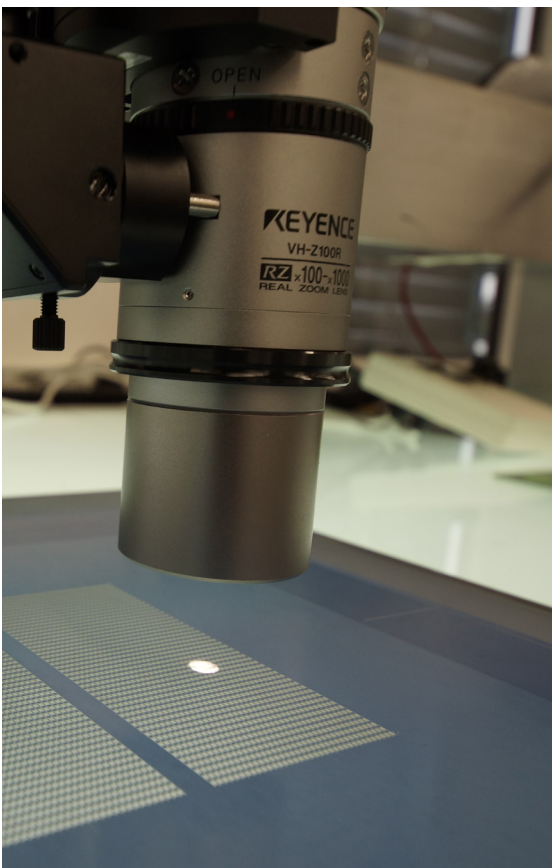
To ensure our process development remains comparable to your production environment, we have defined a new inline concept: The line integrates modern screen and stencil printing systems from EKRA (SERIO 5000), a solder paste inspection system from Koh Young (Meister S), a REHM NEXUS oven, and smart board-handling systems from ASYS. This linear setup provides customers with a realistic testing sequence, enabling the direct application of results to their own production. In addition, the line structure offers the option of processing large volumes fully automatically and thus producing results that are secured in the long term also under statistical aspects.



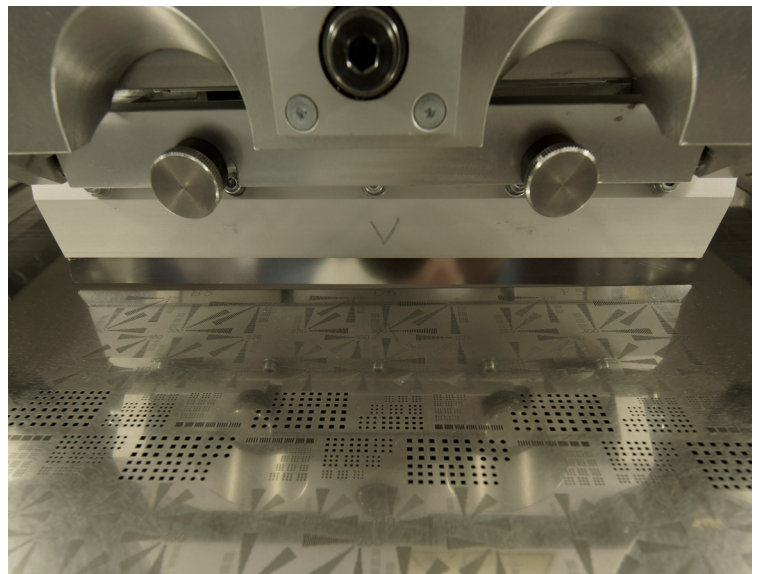
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In addition, we offer you the use of the Application Center for process training that comprises a theoretical and a practical part. Here, you have the opportunity to address specific issues in theory and in practice without obstructing the production process, while still experiencing the impact on the entire line.

Additional island concepts for screen printing (EKRA XH STS), drying ovens (Heraeus), measurement (Keyence VHX, Leica M205C, cyberTECHNOLOGIES CT300), and an ERSA Hybrid Rework System HR 550 ensure flexibility for special processes or unique measurement tasks. The Application Center's production area is designed as a clean zone and fully climate-controlled, allowing year-round, unrestricted use of printing and measuring equipment.



A dedicated cleaning section for screens, stencils, and substrates has also been added. As miniaturization in printing increases, so does the importance of cleaning within the overall process. This area is intentionally separated from the production zone and includes two fully automatic cleaning systems (Kolb CB300 and GMS MC5000) and two manual ultrasonic-supported workstations (Gensonic).



Use the Application Center for Printing Trials

Customers can also book the Application Center for their own trials. Our experts operate the machines according to customer specifications. Printing trials prior to production start are crucial. Often, internal manufacturing lacks capacity or the calm environment needed for thorough problem analysis.

THE APPLICATION CENTER OFFERS THE FOLLOWING SERVICES

1. Measurement of PCBs: Position Measurement on Substrates

Identification of PCB distortions or usage breakdowns with subsequent adaptation of the CAD data for the metal stencil to ensure optimal printing on the pads. Printing faults and variation in solder paste application are thus minimised, while the process is more stable and the efficiency of the line is enhanced.

2. Eveness Measurement of Substrates

Inspection of the substrates for surface evenness in the areas relevant for the printing process. For example, elevations such as solder resist, vias, marking print or labels may cause massive printing problems. Such elevations will prevent proper sealing between the pad and the metal stencil, causing additional detachment during printing. This will increase the cleaning requirement in between printing cycles and also increase paste application. Measurement of the elevations allows for the integration of cavities in the metal stencil so that elevations are accounted for by free spaces and printing can be implemented without detachment. The surface scanner features a working range of (300 x 300) mm² and a dissolution of 0.1 µm in height and 1 µm in x and y.

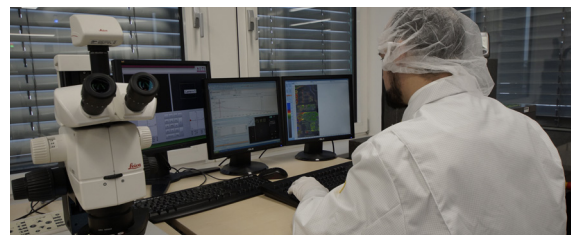
3. Documentation, Measurement of Pad and Opening Sizes

Pad and opening dimensions are measured by microscopes to detect any possible deviations from the sizes specified in the CAD data and to account for these during data processing, if necessary. In addition, images of substrates, modules, print and solder results are generated to illustrate fault mechanisms, solution approaches and printing processes. The microscopes have a magnification range of 16x to 160x.



4. 3D Measurement of Printed Deposits

Fast automatic and three-dimensional measurement of printed deposits using the solder paste inspection systems from Koh Young allows for statistical assessment of the print results. A direct comparison of the effects resulting from different parameters is thus possible. The system supports the verification of new module layouts with regard to the printing process and helps with the fault analysis of existing products.



Customers of Christian Koenen Group benefit from expert process consulting: Adjustments are made based on customer parameters and materials. Continuous product development secures long-term competitive advantages.

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