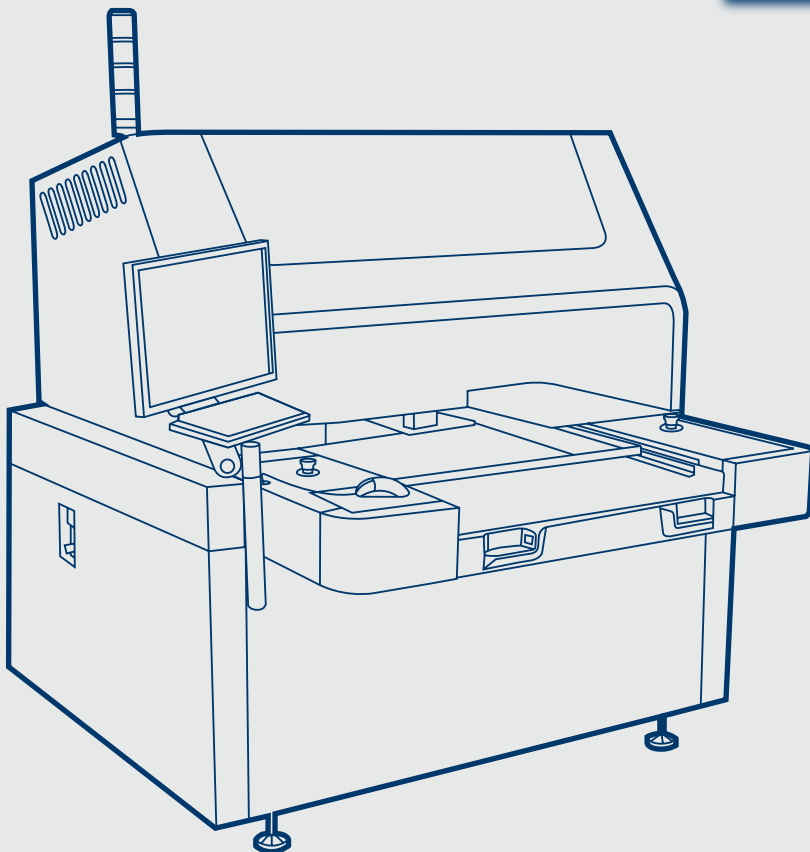


ULTRA PERFIX[™] 500

Automated Optical Shaping (AOS) System



ULTRA PERFIX™ 500

Make it Perfect.

Ultra PerFix™ 500 automatically shapes excess copper defects on very fine lines, enabling manufacturers to cut operational costs, reduce scrap, improve yields and achieve a competitive ROI. Designed for mass production of complex fine-line IC substrates, the Ultra PerFix 500 achieves high quality, accurate results with minimum peripheral damage for even the most challenging high aspect ratio lines.



Benefits

Maximum Scrap Saving

- Perfect shaping of shorts and excess copper defects, supporting lines and spaces down to 5 µm
- Major yield improvement on the most advanced fine line applications
- High quality results on CSP, FC-CSP, BGA and FC-BGA designs and high aspect ratio lines (conductive lines where the height is approximately twice the size of the width)

Superior Quality

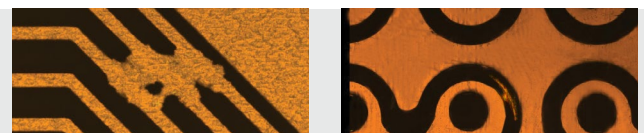
- Automated, iterative and controlled shaping process enabled by Closed Loop Shaping Technology™ (CLS)
- Minimum penetration and damage to laminate
- Edge Treatment technology with 3D understanding

Robust Performance

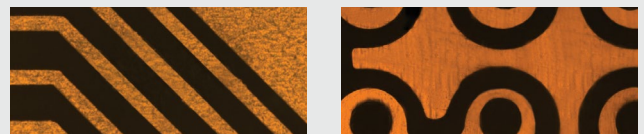
- Utilizes Orbotech's high performance, patented laser technologies for optimal shaping
- Fast setup for easy job switching and improved workflow
- Push to Shape (P2S) enabling automated defect handling for consistent results and significant operational cost savings
- Large field of view (FOV) both for alignment and shaping

Connectivity

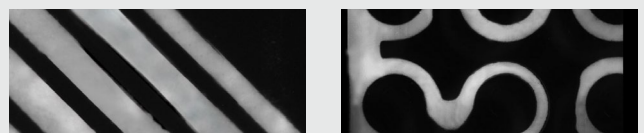
- Seamless connectivity with Orbotech's AOI, Remote Multi-Image Verification (RMIV) and verification systems
- Connectivity with 3rd party solutions



Before shaping



After shaping - White light image



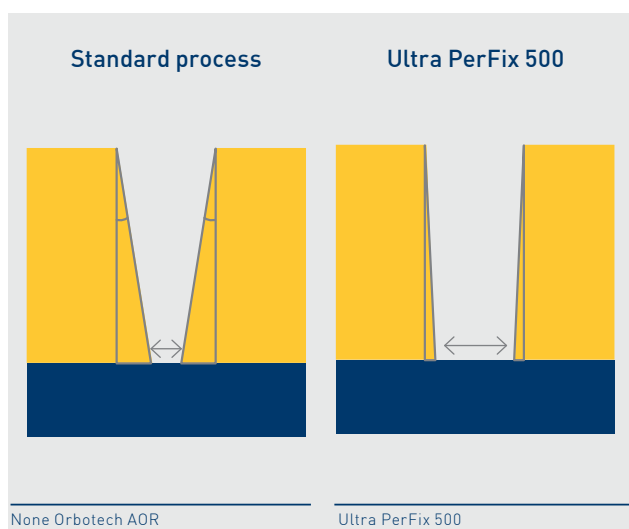
After shaping - UV light image

Maximum Scrap Saving

Increasing production yields on CSP, FC-CSP, BGA and FC-BGA and fine line jobs, Ultra PerFix 500 saves IC substrates that would otherwise have to be scrapped. Utilizing state-of-the-art technologies, Ultra PerFix 500 shapes any type of short or excess copper defect, including those on corners, ball areas, multiple lines and high aspect ratio lines, without damaging the shaping area. By comparing the defect to the CAM data in real-time, the Ultra PerFix 500 shapes the panel according to its original design and functionality. Thoroughly tested to meet the highest industry standards, the Ultra PerFix 500 meets strict manufacturing specifications including electrical characteristics and durability.

Superior quality

One of the keys to Ultra PerFix 500's exceptional accuracy and speed is CLS (Closed-Loop Shaping) Technology™. The full, 3-step cycle of image acquisition, image analysis and laser ablation is repeated until the shaping is perfect, with no damage to conductors and minimum penetration of the laminate. Based on innovative mechanics, optics and algorithms Orbotech's new shaping technology prevents undesired penetration (typically less than 3 µm) and damage to the laminate. This technology enables shaping between high aspect ratio lines to bring the lines and space back to their intended dimensions and design with near-perpendicular walls.



Significant Operation and Cost Savings with Push to Shape

P2S (Push to Shape) technology enables a fully automated shaping process at a single press of a button. With P2S, the operator only needs to load/unload the panel and press "Shape". As a result, one operator can manage several systems simultaneously thereby saving manpower, enhancing productivity and reducing operational costs and TCO (total cost of ownership). P2S is also an enabler for a fully automated production environment with no human intervention. P2S utilizes CLS technology, enabling repeatable and consistently high quality results every time.

Robust Performance

Ultra PerFix 500 can typically shape more than 100 fine line defects per hour*. The advanced laser system design emits high-frequency pulses combined with patented, ultra-fast moving mirrors for optimal control. An innovative optical mechanism maximizes laser intensity and accuracy to ensure superior laser performance on a variety of materials. Ultra PerFix 500's fast setup enables easy switching between jobs. The Ultra PerFix 500 has a new smart chassis providing great stability and vibration control with minimum weight penalty. This new platform, together with the new shaping process and improved HW, enables both TP and quality.

Connectivity

Connecting with all Orbotech solutions, Ultra PerFix 500 is able to shape all excess copper defects detected along the IC substrate production line. Orbotech AOI or verification stations are able to automatically send defect coordinates to the Ultra PerFix 500, simplifying the process and maximizing the shaping time. Orbotech can also receive defect coordinates from third party AOI systems.