

LCM Alignment and Press System



Challenge

A semiconductor manufacturer needed a system to assist final cable connections and routing between a liquid crystal module (LCM) subassembly and display housing.

Solution

The system performs precision alignment and assembly of the glass subassembly into and with the display housing. Each subassembly is manually placed into an alignment carrier fixture. The glass subassembly is connected and tested for functionality before the loaded carrier fixture is transferred into the alignment press.

In the alignment press, an X/Y/Z Theta Stage positioning stage automatically aligns the glass subassembly to the display housing. The two subassemblies are aligned around three 5MP cameras, concentric to within 50 microns of the camera. A secondary alignment clocks the glass relative to the display housing such that any angular gap along the lower edge is balanced within 20 microns.

Following the alignment adjustments, the two subassemblies are automatically pressed using a Z-axis press to tack the adhesive tape on the glass subassembly to the display housing.



Result

The system performs a primary and secondary alignment of subassemblies. The primary alignment of camera lens to camera mask opening is concentric to within 50 microns and the secondary alignment of the glass to the case is within 20 microns along the lower edge.

About DWFritz Automation

Established in 1973, DWFritz Automation designs, builds, and supports engineer-to-order automation systems and high-speed, non-contact metrology platforms, as well as provides world-class build-to-print manufacturing capabilities to clients.

