



Panel De-bonder System

Challenge

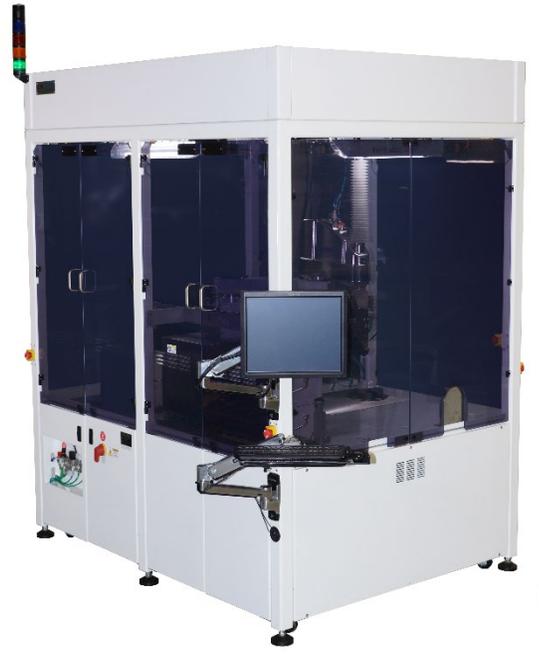
A semiconductor manufacturer needed a system pilot system to de-bond a thermal film and wafer carrier from a prior process.

Solution

The system combined recipe-controlled temperature and pressure to heat the thermal release tape on a molded panel assembly before a robot removes the carrier panel and tape.

Operators load full input magazines of molded panel assemblies and empty output magazines for the molded and carrier panels. Vision algorithms locate the position of the panel and the hot plate before a robot with a custom end effector removes the panel assemblies from the magazine and places them on the heated plate at the heated press. After separating the carrier panel and the thermal release tape, the robot places the panels in the empty magazines and the tape in a waste bin for disposal.

The heated press station has top and bottom heated plates that heat the panel assemblies until the tape reaches the release temperature. The bottom plate moves up and down to apply pressure to the panel, and the top plate moves to the side so the robot can access the panels. The system layout and functionality optimizes the robot's reach as well as the large panel movements through the different stations without obstructions.



Result

The flexible system achieved the desired takt time of 18 panels per hour, while allowing the operator to define and select system recipes with different process parameters, including top/bottom chuck temperatures, heating time, carrier separation speed, and tape peel angle and speed.

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.

