

High-Speed Sorting System



Challenge

A semiconductor manufacturer needed a high-speed, automated system to identify and sort bulk quantities of inkjet pens into containers based on pen family and/or color.

Solution

The operator loads a bin of unsorted parts at an automated hydraulic dumper, which automatically maintains level by emptying parts into the bulk-feed conveyor. Parts are then distributed into chutes that feed the variable frequency fourlane separation conveyor, where parts are accelerated and singulated.



Singulated parts pass through laser height-detection sensors before entering one of four vision stations where four high-speed digital cameras using custom pattern matching software identify parts by a combination of height and machine vision using both pattern recognition and color.

The identified part is tracked as it moves along the sorting conveyor. As the part approaches its designated bin, a timed blast of air knocks the part into the appropriate bin. Unidentified and erroneous parts move to the end of the sorting conveyor and into a reject bin for eventual resorting.

Parts are sorted and binned via custom recipe software. During processing, operators are only required to load and unload parts bins, and respond to errors generated during machine operation.

Result

This high-speed sorting system combines machine vision and height sensors to **identify and sort components at nearly six parts per second.**

About DWFritz Automation

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

