

5-Blade Lubriplate Assembly System



Challenge

A consumer product manufacturer needed to automate the process of assembling, welding, inspecting, engraving, and packaging lubriplates onto razor cartridges.

Solution

Vibratory feeders and precision tracks input lubriplates in bulk, while a tray handling system inputs razor cartridges. Conveyors move trays full of razor cartridges into the machine, where the input tray is accurately positioned before a robot picks and places the parts for assembly. Razor cartridges are then ultrasonically welded to the lubriplates.



An inspection station confirms the weld quality, as well as quality characteristics of the blades in the cartridge. A laser engraver puts a microscopic bar code on each finished razor for product tracking, and the finished assemblies are placed either into output trays or into individual pods for bulk output.

To achieve 50 parts per minute throughput, the system uses a rotary table design for parallel processing. This architecture, along with ceiling mounted robots, helps reduce overall floor space. For inspection, the lighting intensity and camera exposure times were chosen based on the color of the parts to obtain best image contrast.

Result

Automating this process enabled the manufacturer to reduce the cost of manual labor, increase throughput to meet current and future demand, improve yields, and provide inspection for defects such as nicks, dents, and parallelism. Manufacturing quality yields improved from 70% with manual inspection to **99% using advanced machine vision** for 100% inspection. Return on investment was less than one year.

About DWFritz Automation

Established in 1973, DWFritz Automation provides world-class build-to-print manufacturing capabilities to clients, in addition to designing, building, and supporting engineered-to-order automation systems and high-speed, non-contact metrology products.

