

Drill Transmission Assembly Tool

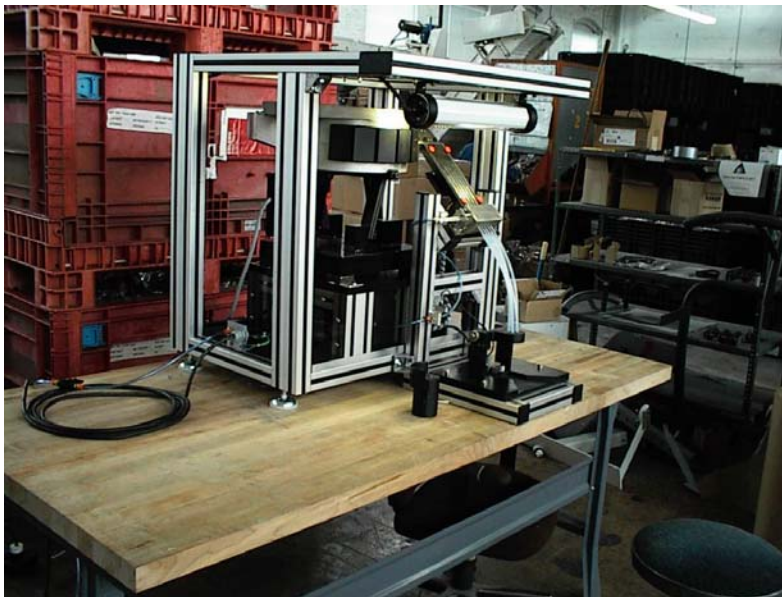
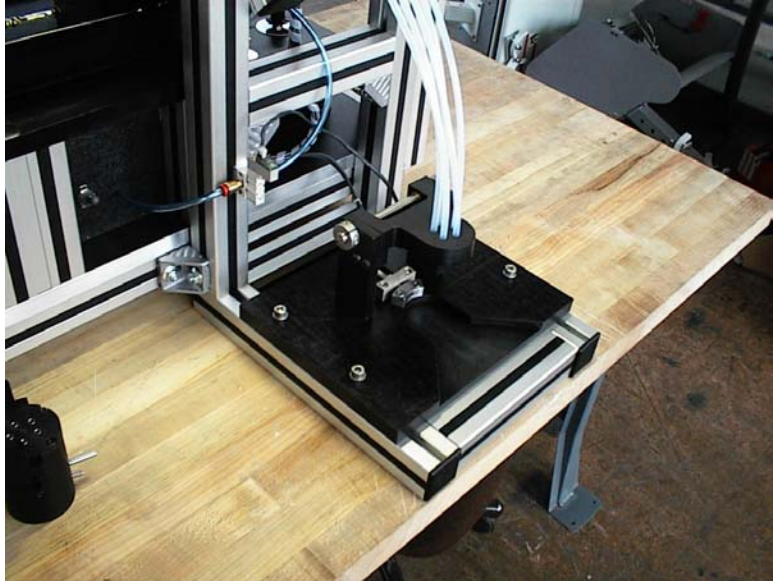
Background

The transmission used in this cordless drill required inserting five identical pins into small cavities. Done manually, this required 1 1/2 operators in the assembly workcell. In order to improve the efficiency and quality of this operation, Advent's client asked for an assembly tool to address this issue.

System Description

Advent designed, built, and installed a custom tool that fit in the existing workcell to semi-automatically insert these five pins. The time consuming step in this process was picking each pin, and manually positioning it into the appropriate cavity. Advent proposed using a vibratory feeder bowl to feed and position the pins into a "speed loader". The speed loader, once filled with a compliment of pins, was manually removed from the tool nest, positioned over the transmission, and manually triggered to eject the pins into the cavities.

This tool dramatically increased the productivity of the workcell. In addition, the five pins were detected as they fell into the speed loader, ensuring that five pins were correctly inserted into the transmission.



Impact

The combination of automatic and manual elements in this tool allowed for a solution that was easy to implement into the existing assembly workcell. Its implementation allowed for a reduction in workcell staffing from 4 to 3, and since this product runs 2 shifts, resulted in a payback of well under one year.

