



## AUTOMATION SOLUTION ENABLES A PRINTER INK CARTRIDGE PEN TO BE TESTED AT 60 PPM

### SITUATION:

A Manufacturing Manager in the laser printing industry wanted to automate the testing process of an ink cartridge.

- The client needed to de-couple a print test system that could incorporate two 40-per minute print test systems. This would allow for optimal maintenance of a full 60-per minute production system to be coupled with periodic redundant pen testing.
- It was critical that the client take the pen from the process flow, prepare the pen, purge fire the pen, test fire the pen, clean the pen, and place the pen back into the process flow at 60 per minute.

### STERLING SOLUTION:

Sterling Engineering Inc. designed a decoupled servo driven rotary index feed system that could present the pens consistently to within +/- .002 inch at up to 45 pens per minute.

- The system was loaded and unloaded by a 3-axis servo system that was also designed by Sterling Engineering Inc. The maximum permissible pen acceleration was 1.5 g's. The dither of the system is +/- .000044 inch at the pen.

### RESULTS:

Sterling Engineering was successful in installing two of servo systems for the client.

- The machines are currently in production and qualified to run at 62 parts per minute.
- The assembly of the pen had been improved from 40 per minute to 60 per minute.

## PROJECT SNAPSHOT

❖ *An automatic testing process was needed to increase assembly production.*

❖ *A decoupled servo driven rotary index feed system was implemented.*

❖ *The assembly time of the pen improved from 40 per minute to 60 per minute.*