



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.
- CRITICAL ISSUE:** The client needed to 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.
- REASONS:** The assembly of the pen had been improved from 40 per minute to 60 per minute.
- VISION:** The client needed a de-coupled print test system that could incorporate two 40 per minute print test systems. This would allow maintenance of full 60 per minute production coupled with periodic redundant pen testing to take place.
- PROVIDED:** Sterling Engineering Inc. designed a decoupled servo driven rotary index feed system that could present the pens consistently to within $\pm .002$ 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 $\pm .000044$ inch at the pen. Two of these systems were installed.
- RESULT:** The machines are in production and qualified to run at 62 parts per minute.
- SEI PROJECT #:** 4876, 5045-5047 (129-DOC-010-(V1R1-CASE STUDY Printer Cartridge Testing Automation))