



Automation Solution Increases the Efficiency of an Electrical Outlet Assembly Process

Situation:

A manufacturing engineer in the electrical components industry wanted to increase the efficiency of automatically assembling 110 volt wall outlets.

- The client needed an efficient use of floor space and the ability to run the entire product line on one line, allowing more flexibility in meeting marketing needs.
- However, the more critical issue was that there were 15 assembly varieties, 15 parts, screw insertion, torque specifications, screw back-out distance, cold forming, shearing, code stamping, and hot stamping requirements.
- The new line was required to increase production capacity.

PROJECT SNAPSHOT

- ❖ *Efficiency increase needed in automatically assembling 110 volt wall outlets.*
- ❖ *Designed over 30 assembly stations.*
- ❖ *An increased speed line and line performance efficiency.*

Sterling Solution:

Sterling Engineering Inc. designed the required 30 plus assembly, part modifying, inspection, transfer, and reject stations in addition to all required fixtures and tooling.

- Sterling supplied kinematic, stress, and deflection calculations in conjunction with timing diagrams, assembly drawings, detail drawings, and bill of materials. Commercial machine specifications and quotes were also obtained by Sterling Engineering Inc.
- Sterling integrated standard customer modules, commercially available servo pick and place units, hot stamp machines, bowl feeders, screw insertion machines, and conveyors wherever possible.
- Many of the stations required completely custom designed forming, staking, transferring, shearing, inspecting, and rejecting stations.

Results:

The line speed was increased to 50 units per minute. The assembly of the wall outlets improved the current assembly line performance from approximately 85% to 95% efficiency.

SEI PROJECT #: 7989, 7992 & 7993 ((129-DOC-009-(VIR1-CASE STUDY Wall Outlet Assembly Machine))