SENIOR DESIGN CAPSTONE PROJECT PROPOSAL: 2023-2034

Automated Ring/Mount Assembly Machine

Background:

Nightforce currently utilizes a labor-intensive process to assemble all riflescope rings/mounts. The current process requires technicians to individually assemble each component in a time-consuming, multi-step process utilizing numerous tools, fixtures, and great attention to detail.

Goal:

The capstone design team will be tasked with developing a machine and process to automate ring/mount assembly. The end-product will ideally have the capability of pressing in an interference fit cross-bolt, installing a clamp and nut, and deforming the crossbolt's lead-in thread.

Deliverables:

The capstone design team will deliver a *design* for a fully automated machine, as well as a fully functional device capable of accomplishing as many steps of the assembly process as possible within the allotted timeline. The assembly steps are outlined as follows:

1. Precisely fixturing the ring/mount body.
2. Aligning, then pressing in the crossbolt to the correct depth.
3. Installing clamp and nut.
4. Deforming crossbolt thread to prevent removal of nut.
5. Installing ring/mount cap and screws.