Background & Research

IDC Spring – Piqua OH

- Manufactures garage door springs
- Custom spring lengths and wire diameters
- Different materials options

Spring Manufacturing Process

- Spring Winding
- Heat Treating
- Coating & Finishing
- Coning
- Heating & Bending

Current Problems

- Over-crimping
- Under-crimping
- Marrining springs
- Tool breakage
- Operator Ergonomics

Objective

For this project, the group is creating a repeatable and replaceable crimping tool for IDC Spring. The goal is to create a more efficient and operator friendly tool to replace the current tooling setup. Most importantly, the goal is to improve safety on the production line and minimize the stress on the operator.

Proposed Tool Design

Simulation & Cost Comparison

Crimp Height Testing

Required Crimp Height

Screwdriver:
- $7.14 each
- QTY 30 = $214.20 (each month)
- Yearly Total: $2,570

Proposed Tool:
- $1,160 each
- QTY 6 = $6,960 (spent one time)
- QTY 6 Replacement Tips = $1,860
- 6 Year Total: $8,820

Cost Savings:
- Profitable after 3.5 years
  (including first replacement tips)
- Estimated tip lifetime of 6 or more years due to fatigue analysis