

Press Brake Sheet Follower

Mechanical Engineering

Students: Michael Grover, Connor Luallen, Justin Northern

Advisors: Dr. The Nguyen, Brian Walker, Jesse Gonzalez

Sponsor: EVAPCO WEST

FRESNO STATE

Lyles College of Engineering

Abstract

This project was to design and build a sheet follower system for a press brake sheet metal forming machine. A press brake naturally lifts the sheet metal it is forming and an operator is required to hold the piece and return it to level position after the press brake has released. Multiple operators are required for large sheet metal parts. The designed system follows the sheet metal as it is lifted, holds it at the top position as the press brake releases and returns it safely to level position. The sheet follower system utilizes pneumatic cylinders along with a PLC and linear position sensor to allow for varying bending angles and can safely lift a four hundred pound sheet. A durable plastic was used to minimize scratching to the formed parts.

Design

- 2 Followers work together for large parts
- Combined possible lifting weight of 600lbs, however Evapco's biggest sheet that they form is 400lbs.
- Match the speed and profile of the hydraulic ram.
- Attachable Extended table tops to help with larger sheets.

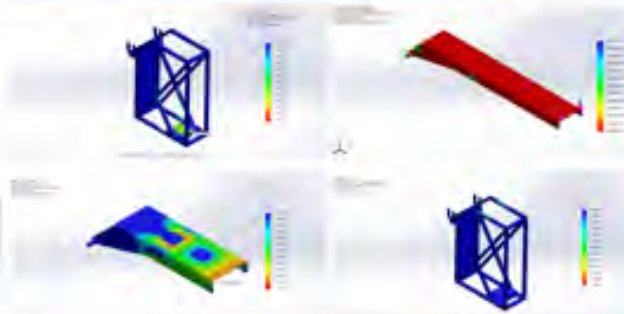
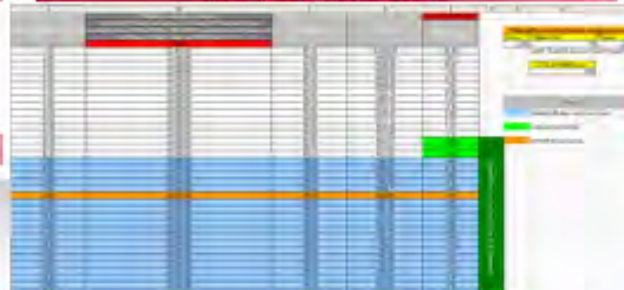
Cad Renderings of two followers



Cad Renderings of Components



Analysis/Calculations



Sponsors/Conclusion



Currently integrating our followers to the Durma at Evapco. We are working on finishing the automatic mode using the laser, and putting the finishing touches such as side skirts, and housing; the project is a work in Progress.

Controls



Fabricated Design and Implementation



2016