KYDEX 2- Extrusion Embossing Roll Change Time Reduction

Overview
KYDEX experiences long and frequent downtimes during their changeover process of extrusion embossing rollers. These changeovers are due to their wide variety of products and customer demands. KYDEX averages 33 changeovers a month taking 131 minutes per changeover, resulting in approximately $648,450 in downtime per year. Our sponsor’s goal was to reduce their downtime by 50% by the end of the year.

Objectives
The objective of our team was to reduce the changeover time by 50% while maintaining a safe environment for employees.
- Develop three concepts for a plausible solution.
- Each concept was to be evaluated for feasibility and capability to meet the sponsor’s demands.

Approach
- Our team travelled to KYDEX LLC to observe the changeover process as well as discuss the objectives and deliverables that were to be met throughout the project.
- After meeting with the company it was decided that we would develop two concepts as solutions to their extensive downtime.
- After discussing our ideas, two solutions were developed and agreed to be feasible solutions.
- These two concepts were then modelled using SolidWorks to confirm their feasibility and make sure there was no interference with existing equipment.
- An assessment was conducted on the two concepts that were in development and it was determined, due to safety reasons, that the two concepts should be merged into one.
- The third and final concept was decided by the team and KYDEX to be fast and safe for operation.
- The reason for the third concept was due to unsafe changeover process resulted by the DRYLOK valves.
- The necessary dimensions needed for Solidworks was obtained through emails from Guy Boyer.
- Prototype was not necessary because the KYDEX wanted to implement the third concept right away. Analysis was also unnecessary because the design was simple. The only analysis was thermo-analysis to observe the temperature decrease during the circulation process.
- Testing is being conducted right now on one of the KYDEX extrusion lines.
- Downtime should be down almost 70% and although exact numbers are unknown at the moment, KYDEX confirmed that the future money saved should be close to $500,000 per year.

Outcomes
- The sponsor will save $400k to $500k per year.
- Changeover process time was reduced by 90 minutes as a result of this project.
- The project reduced changeover process time.