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Development of Testing Method for Puncture and Cut Resistant Gloves

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Client: American Packaging, Story City, IA

Problem Statement

- Certain situations while working at American Packaging require employees to handle extremely sharp Doctor Blades.
- The handling of these objects poses a threat to the workers safety, and a possible financial problem for American Packaging.

Objectives

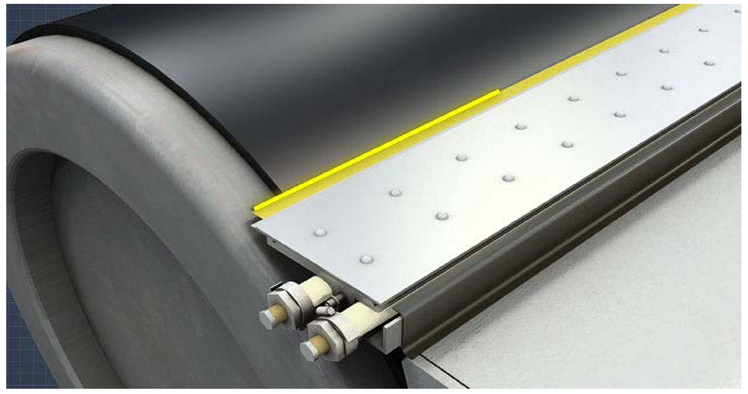
- Develop a method to test existing gloves.
- Create a rating system based off puncture and cut resistance for gloves.
- Determine the glove that best meets safety and financial requirements.

Constraints

- Budget: $600
- Timeline: Research on existing cut and puncture standards to be completed by December 15, 2017.
- Testing to be completed by March 21, 2018.
- Criteria to be met: Testing procedure must be repeatable and results visible.

Scope

- Develop a testing rig to analyze puncture and cut resistance on gloves



Above: Graphical representation of how the Doctor Blade is fixed on the machine.

Below: A variety of cut resistant gloves.

Methods

- Gloves will be tested using blades that have been used in American Packaging's production.
- Force used on each glove will be recorded as another testing measurement.

Proposed Solutions

- Creating a testing rig to test the puncture resistance of each glove.
- Specializing the tasks that higher ranked gloves are used for to save on cost per pair.

Major Outcomes

- Design and build a testing rig that can simulate cut and puncture scenarios with Doctor Blades.
- Providing a puncture rating that can rank the gloves.
- Creating a ranking system for the gloves based on cut and puncture resistance.

Benefit to Client

- Reduces workplace injuries and financial losses.
- Standardizes equipment between different work sites.

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