

**Senior Design Team 512: Danfoss Mini TT shaft bearing Press**

**Virtual Design Review 3**

Clark Cooley

Cassie Bentley

Brent Mynard

Colby Gullo

FAMU-FSU College of Engineering

EML 4551C: Senior Design 1

December 5, 2023

### **Current State of Design**

Danfoss team 512 is currently reviewing the bill of materials and processing a request for the purchasing of our project's key components. The current press is being dissected to get parts that are salvageable for our new press. Our current design is being processed with Danfoss and analyzed by our sponsor, Kevin Lohman. Upon overall design approval, we will be sending our dimensions for our steel wire cage to a recommended metal fabrication shop to have our safety shield built. The current improved design is a larger C frame bearing press that has an increased daylight opening for larger shafts and an increased stroke to press the shaft into the bearings. We are working on finding a way to increase the pressure of the actuator or add a handheld hydraulic press on the side to aid with breaking the seal of the bearing housing. The prototype we created simulates our new design with the steel cage, increased press height, and added controls. Winter break will be spent collecting the materials needed to start the assembly of our machine.

### **Forecast of Future Work**

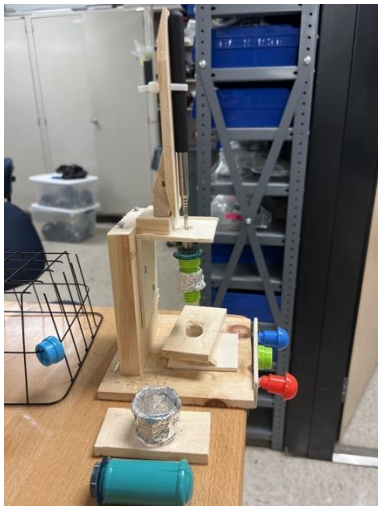
Our focus moving forward hinges on the arrival of the base structure. We intend to incorporate electrical components into the base press, tailoring them to meet Danfoss' specific requirements. Upon finalizing the mechanical components, we will introduce electrical elements to facilitate the electrical actuation of the press. The integration will leverage a PLC (Programmable Logic Controller) to effectively communicate and synchronize press functions with user input. The Ordering of our parts is the next step after the bill of materials gets approved. In the meantime, perfecting our prototype will help us get a better visual of our new press and will help Danfoss understand our team idea. The spring semester will be used to refine our ideas and assemble our new and improved bearing press.

## Problem Areas

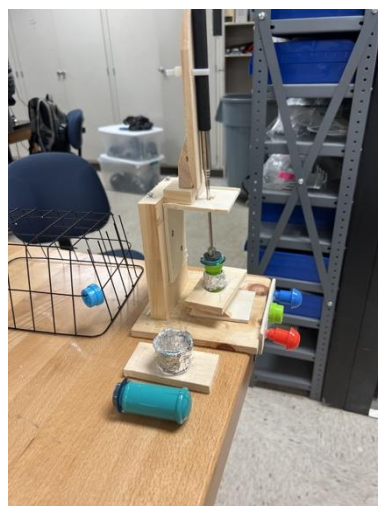
Currently, we've identified a challenge related to the height constraint required for the press, making it challenging to find a model with the desired stroke. The limited selection of designs that meet our sponsor's preferences and criteria poses a hurdle. As an alternative approach, we've considered constructing the press frame ourselves, although this undertaking will demand a significant time investment and might require guidance from Danfoss and other experts. Another potential obstacle is the timely delivery of parts. As we navigate the search for the press frame, time constraints emerge as a pressing concern for our group. As the holidays approach, we are ready to kick-start the process of swiftly ordering a frame that meets our sponsor's approval. This urgency is driven by the impending Christmas break during which our sponsor will be absent. However, through careful scheduling and organization, we anticipate meeting all our criteria in a timely manner.

## Prototype:

(1)



(2)



(3)

