

Original Objectives

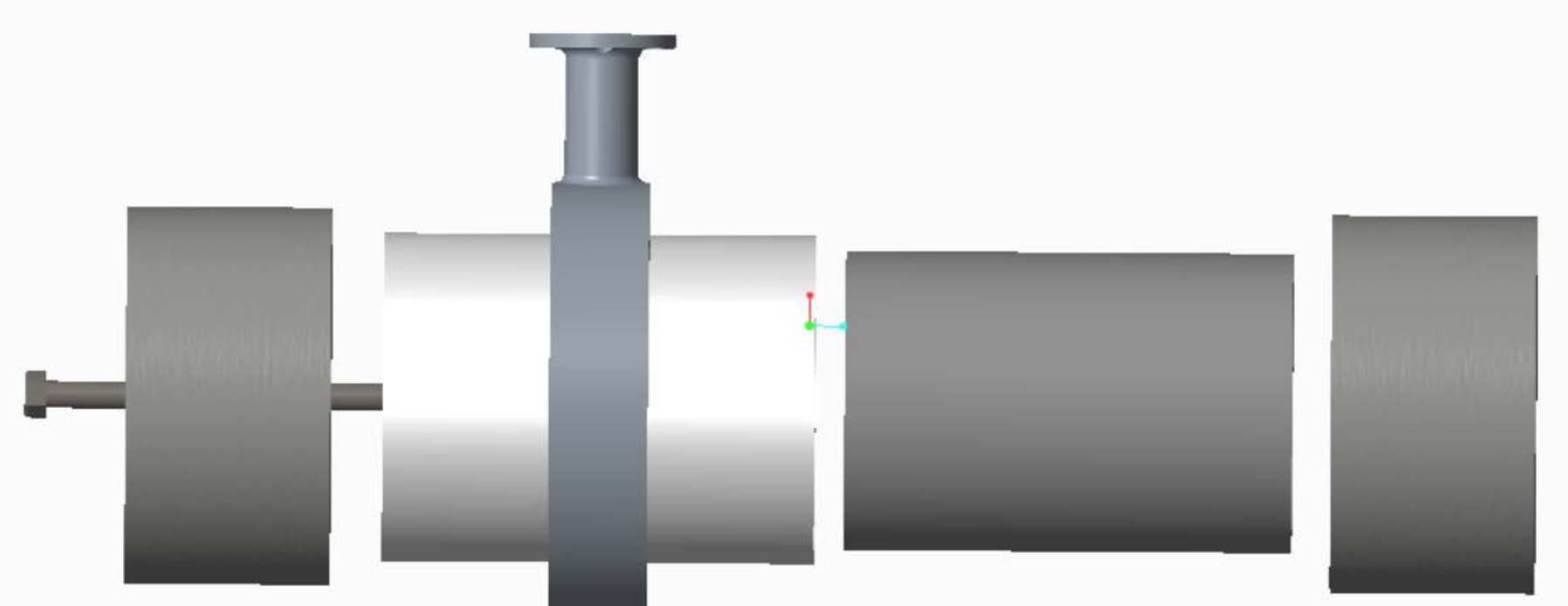
- Reduce handling time of product
- Increase fixture durability
- Provide a smooth liner (no bumps, seams, or marks)
- Completely remove salt from the process
- Create Reusable fixture
- Maintain the original quality of product

Requirements

- Method must be safe
- Process must be highly repeatable
- Materials must be reusable
- Process should be simple
- Material should be low cost
- Smooth finish
- Contaminant free
- Meet standards

Concepts

- Replace salt with an aluminum core and fitted end-caps.



Problem Statement

- Our team set out to derive an alternative support material to insert into instrument T's undergoing the sintering process.
- Crane specializes in lining pipes. The t shaped pipes lined with Teflon often sag during the sintering process. To avoid the sagging, Crane packs the pipes with table salt. Our mission was to create an alternative to the salt that would provide the same quality, reduce insertion time, and provide a lasting endurance.

Final Design/Results *

- Final concept was a hollow aluminum core centered between two aluminum end-caps.
- The end-caps were designed to cradle the aluminum core, this will keep the weight of the core from deforming the Teflon sleeve
- This Created a metal "jacket" that completely encased the Teflon sleeve and should insure the material will be supported in the next stages of production.



* On March 16, 2020 classes and labs were closed to students due to the COVID-19 Pandemic. Without access to fabrication and testing equipment, Objectives and Deliverables were modified accordingly.

Modified Objectives*

- Reduce handling time of product
 - Increase fixture durability
 - Provide a smooth liner (no bumps, seams, or marks)
 - Completely remove salt from the process
 - Create Reusable fixture
 - Maintain the original quality of product
- Note: Team 5 was ahead of schedule and therefore did not have to modify their objectives.

Summary

- We were able to machine all parts in-house prior to transitioning to online classes.
- All part were shipped to Crane before the end of gate four.

Team & Acknowledgements

- Dan Lapp - Crane Resistoflex
- Dr. Fahmy – Mentor
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- Bethany Chappell – Mechanical Engineering
- Chase Robinson – Mechanical Engineering
- Matthew Snuggs – Engineering Technology