



FAMU-FSU
College of
Engineering

Design Review 5

Team 509 - Corning



Team Introductions



Anthony Arroyo
*Manufacturing
Engineer*



Austin Cramer
*Control Systems
Engineer*



Khanh Nguyen
Material Specialist



William Shuman
Testing Specialist



Nathan Thompson
Design Engineer



Sponsor and Advisor



Project Sponsor
Jeffery Roche
Project Manager



Project Sponsor
Trent Brush
*Additive Manufacturing
Engineer*



Project Sponsor
Justin Barber
*Additive Manufacturing
Engineer*



Project Advisor
Dr. McConomy, Ph.D.
Professor

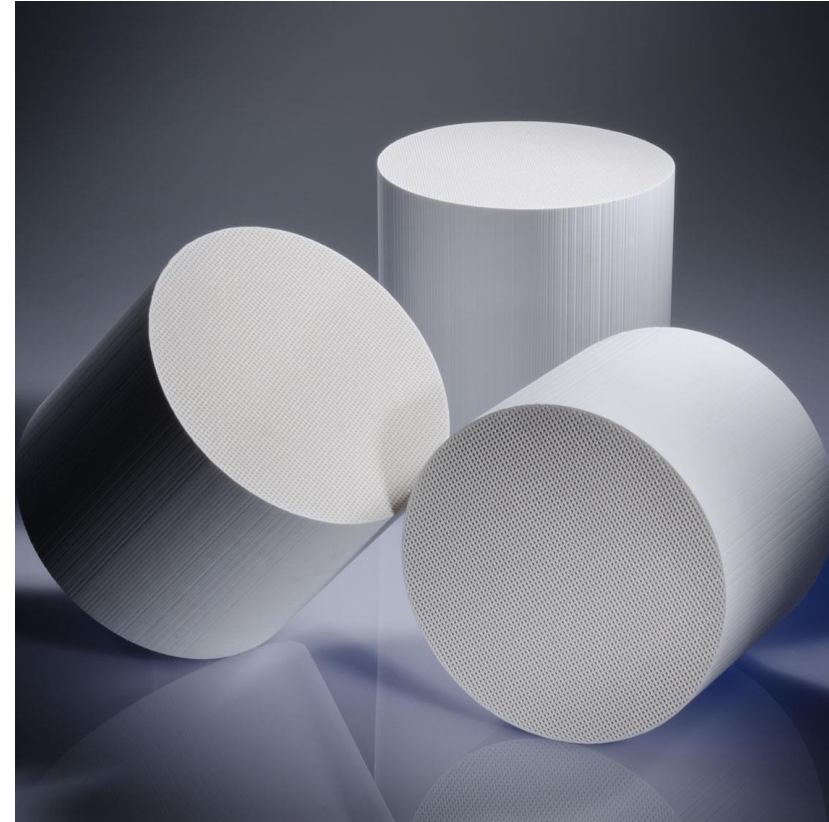


Objective

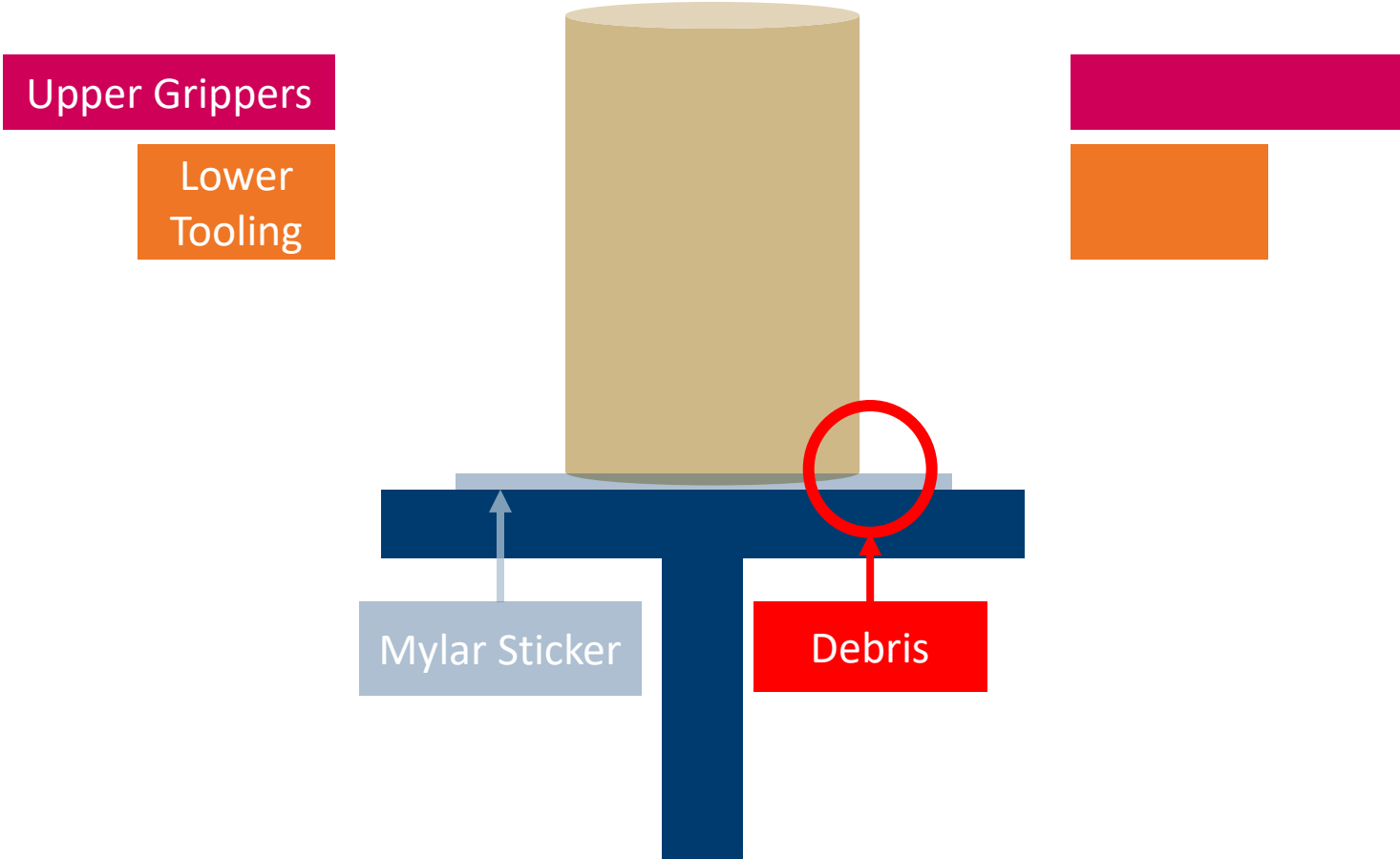
The objective of this project is to mitigate debris on the mylar sheet during the justification process.

Background

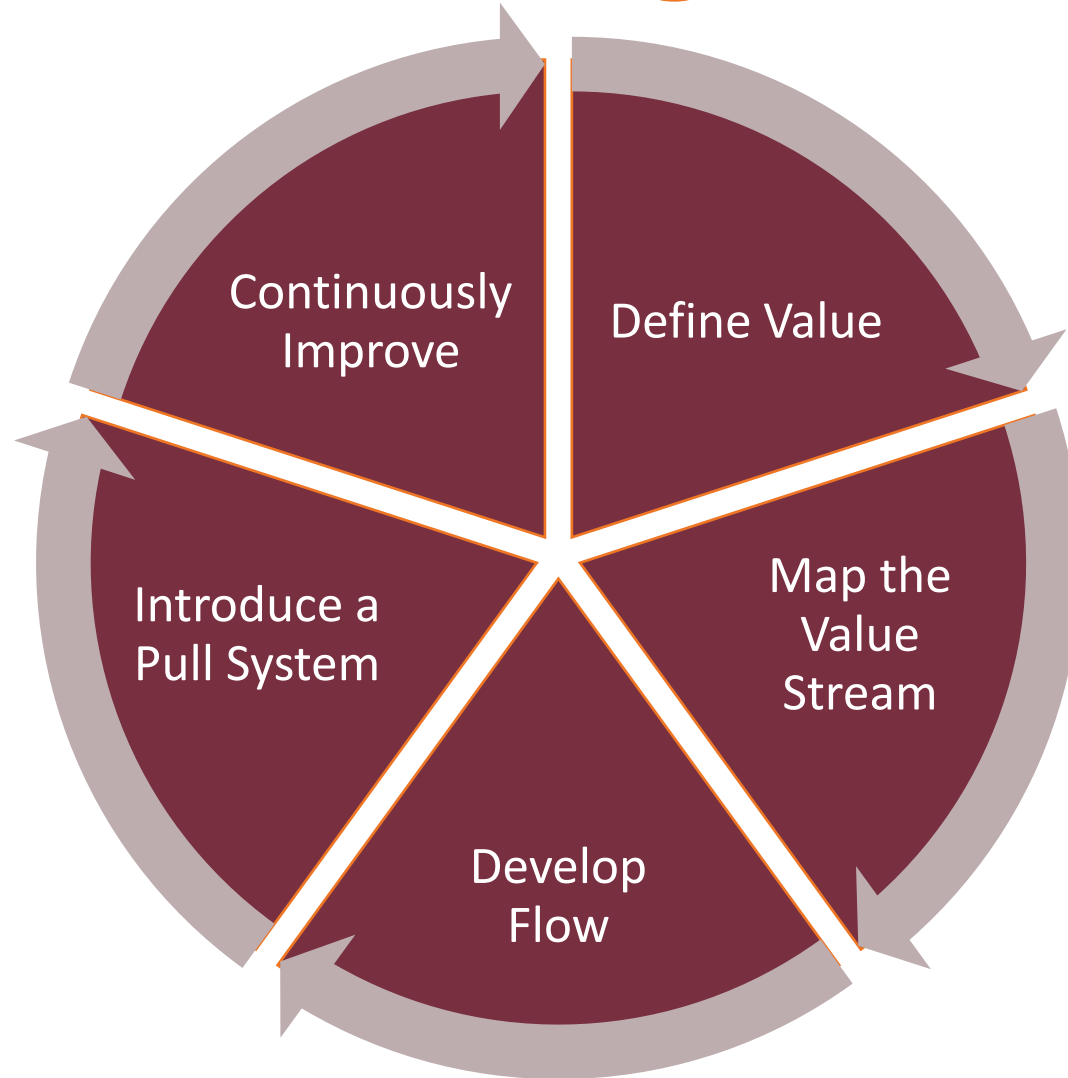
- Diesel Particulate Filters(DPFs) are used to filter diesel exhaust gasses.
- Made of an extruded cellular ceramic material.
- Cement is pumped in from both sides to plug alternating holes and create forced airflow through the porous ceramic

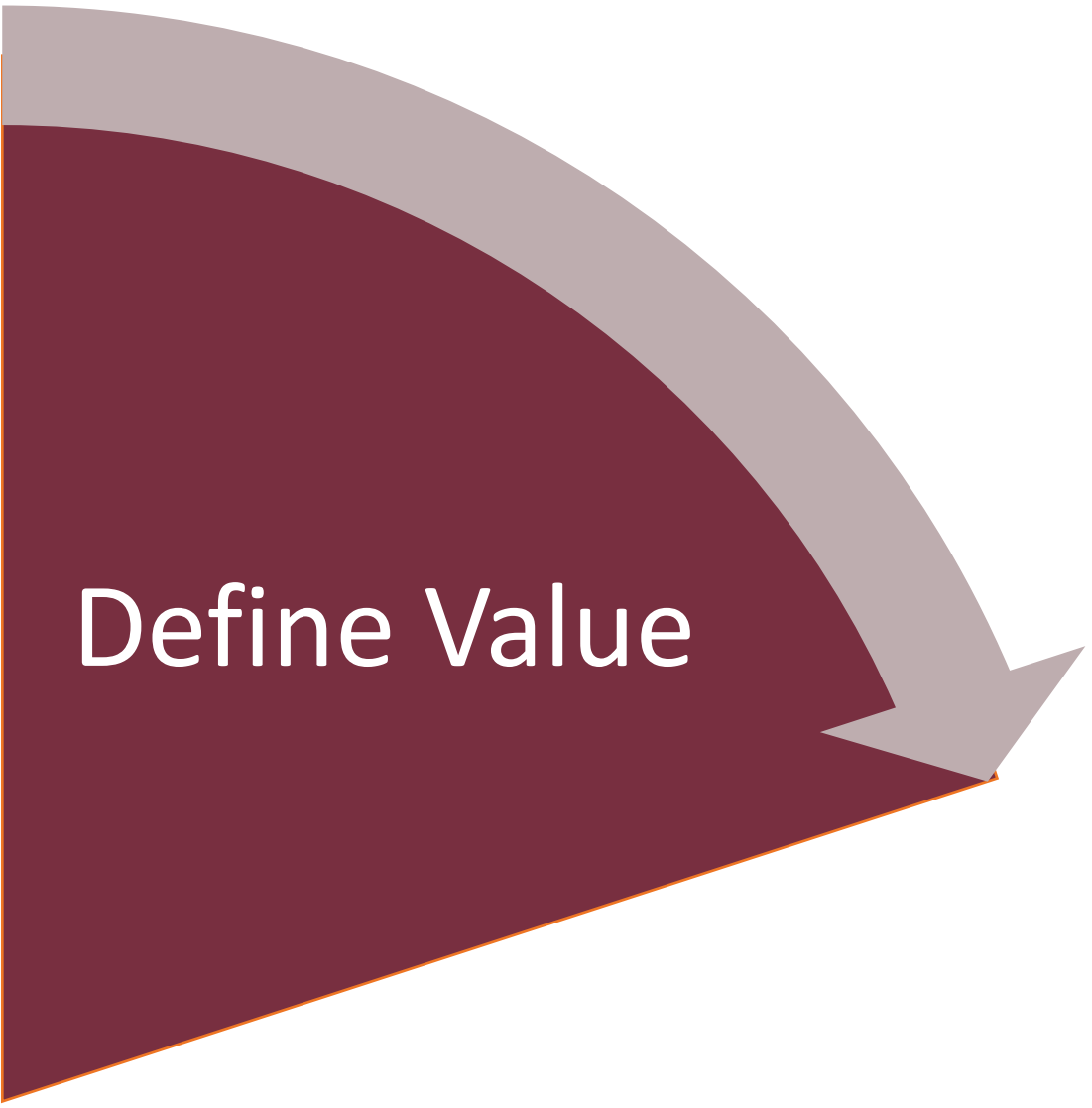


Project Summary



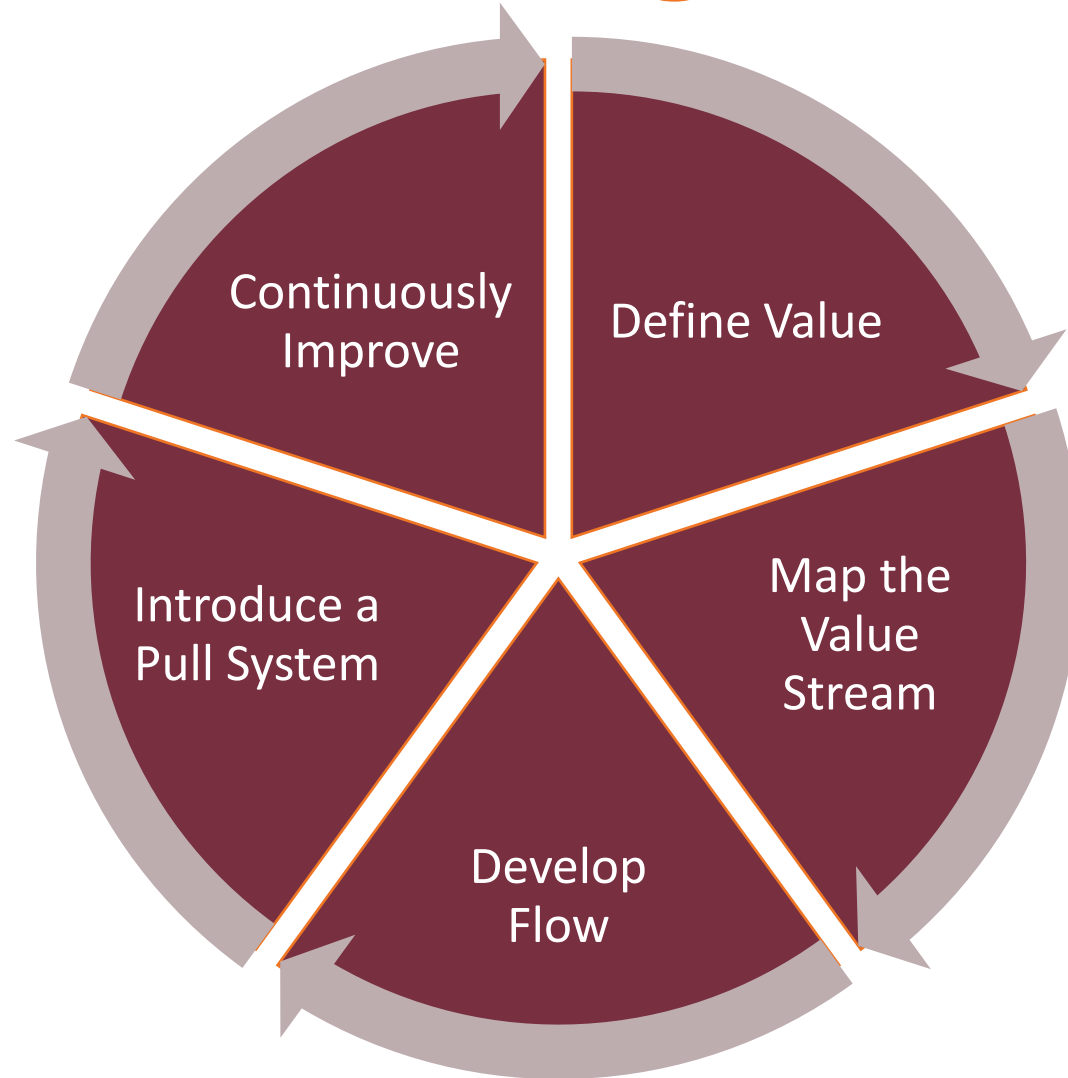
Lean Manufacturing





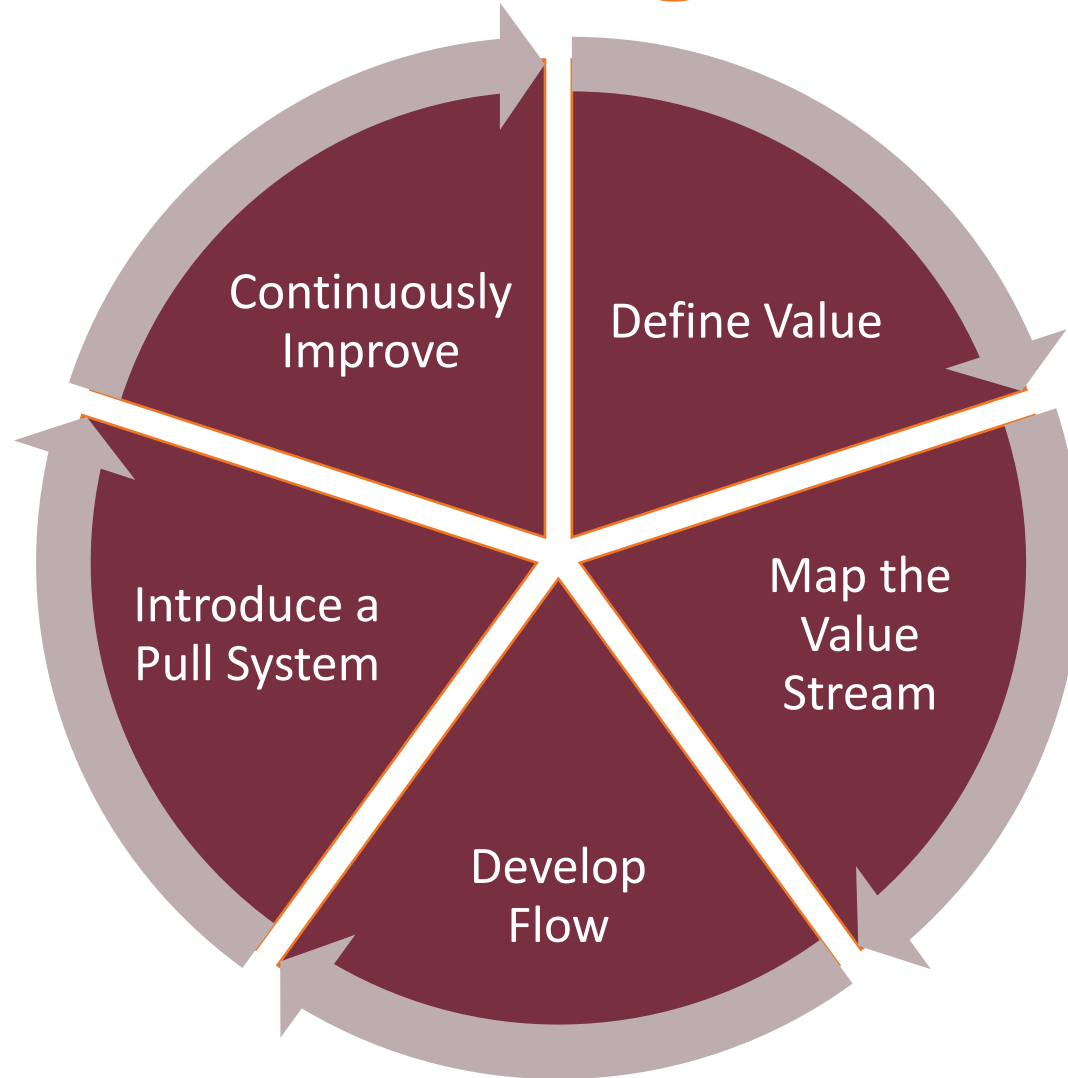
Define Value

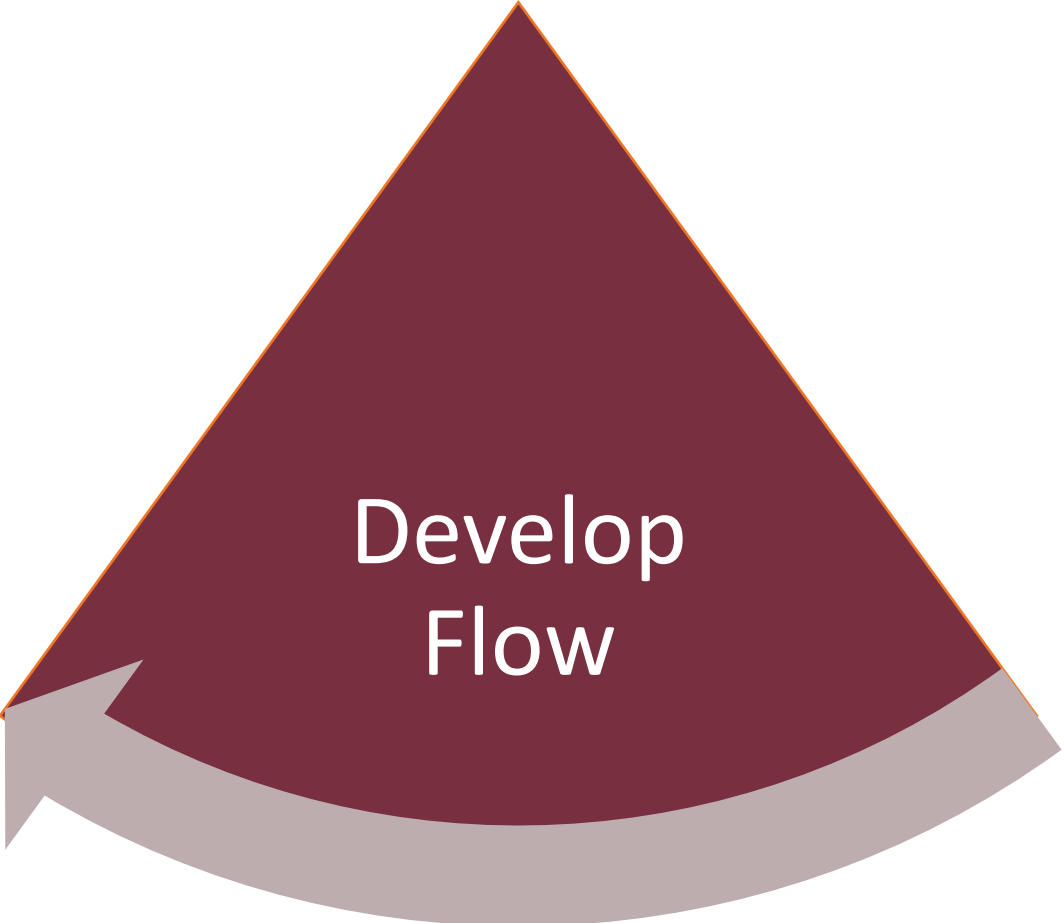
Lean Manufacturing



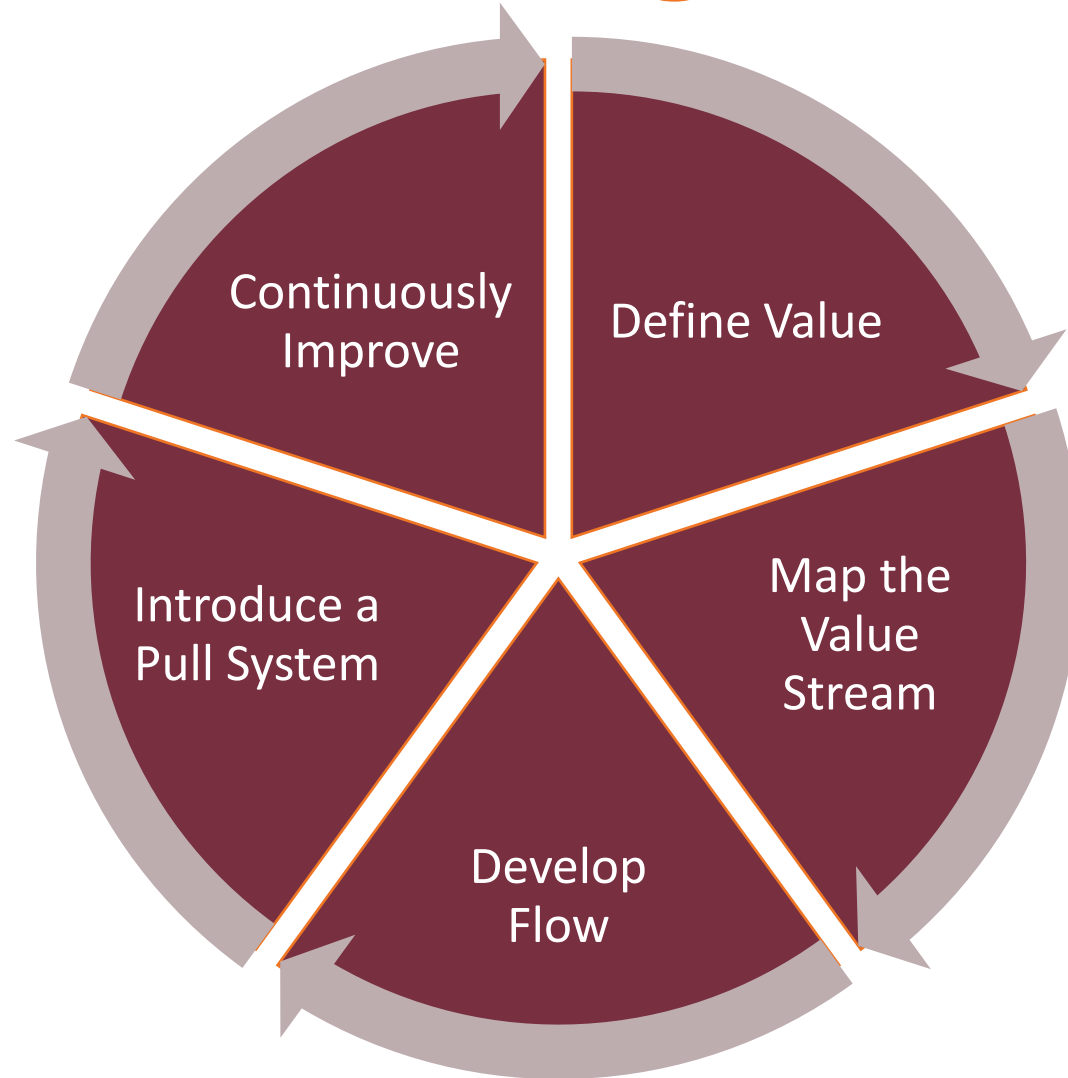


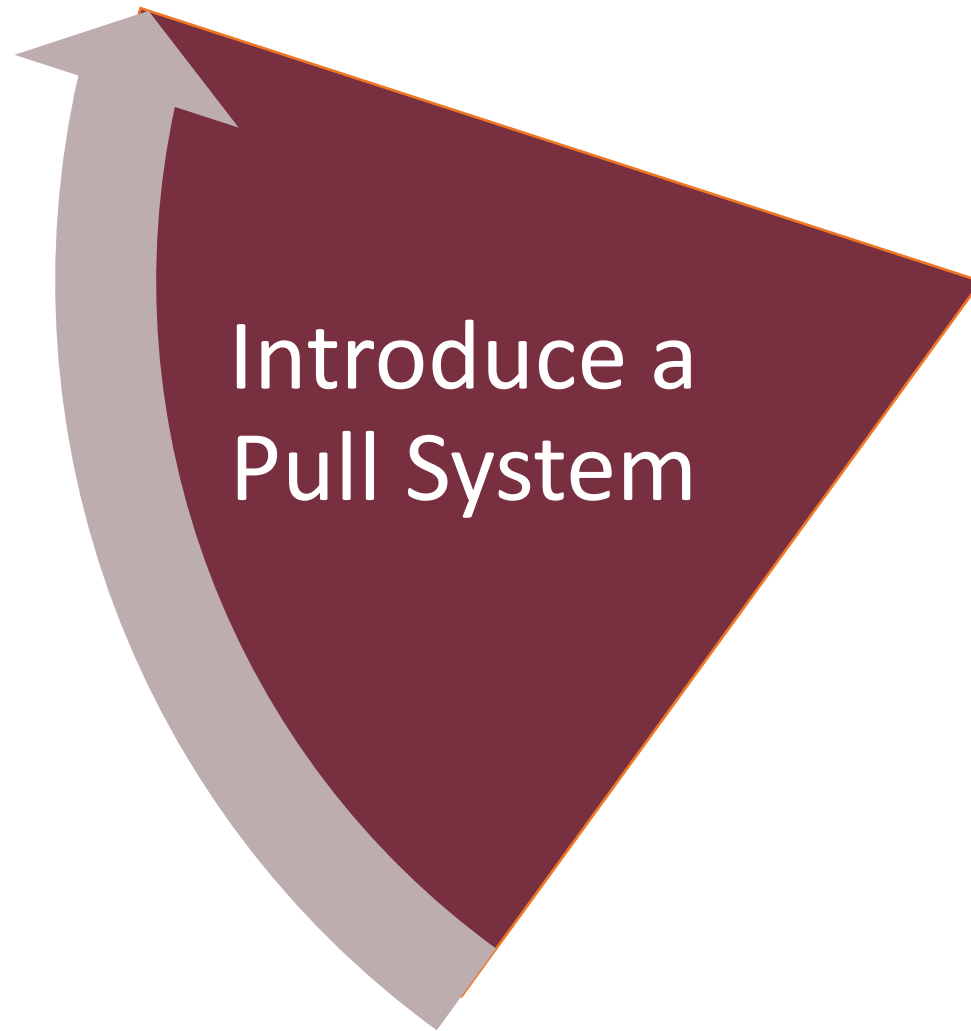
Lean Manufacturing



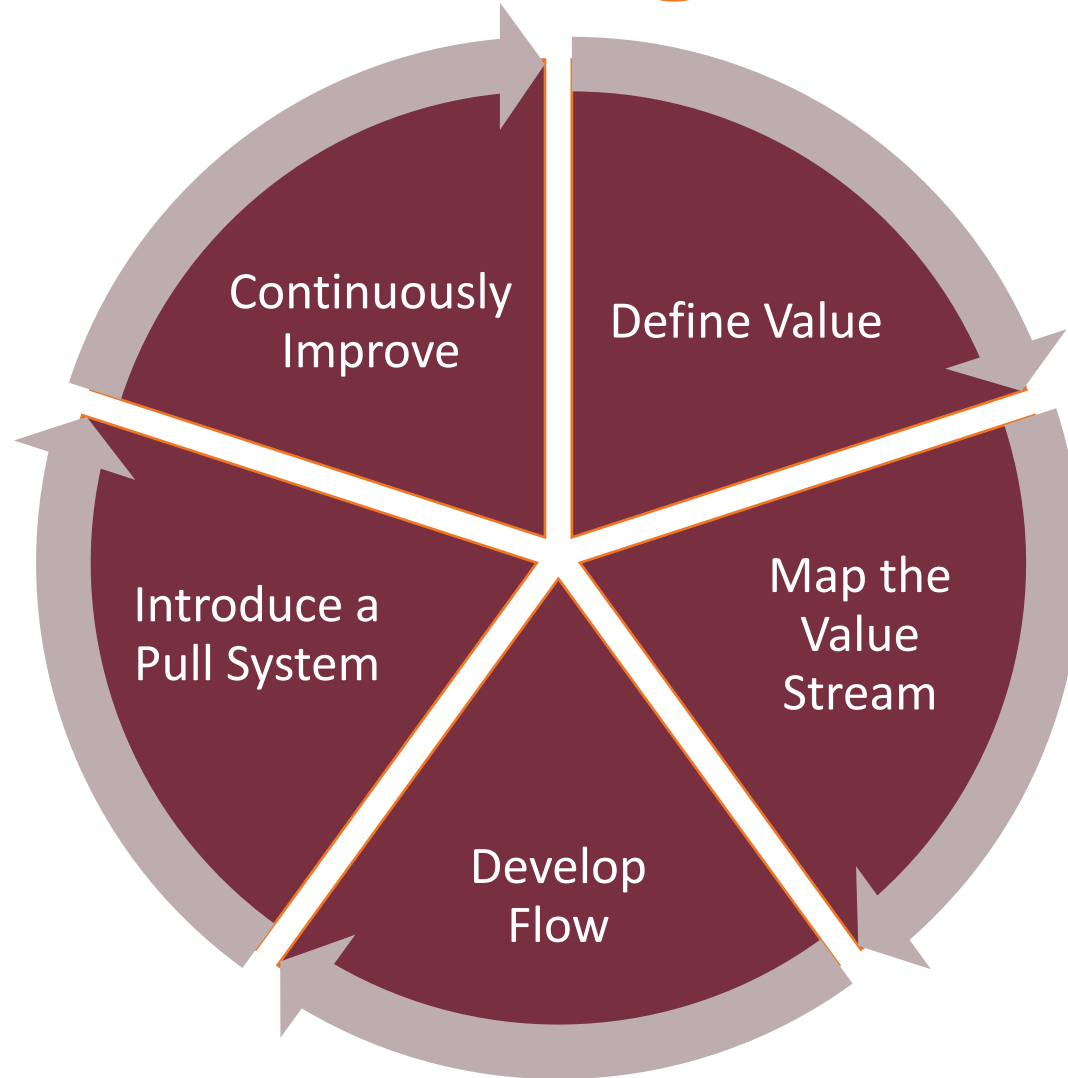


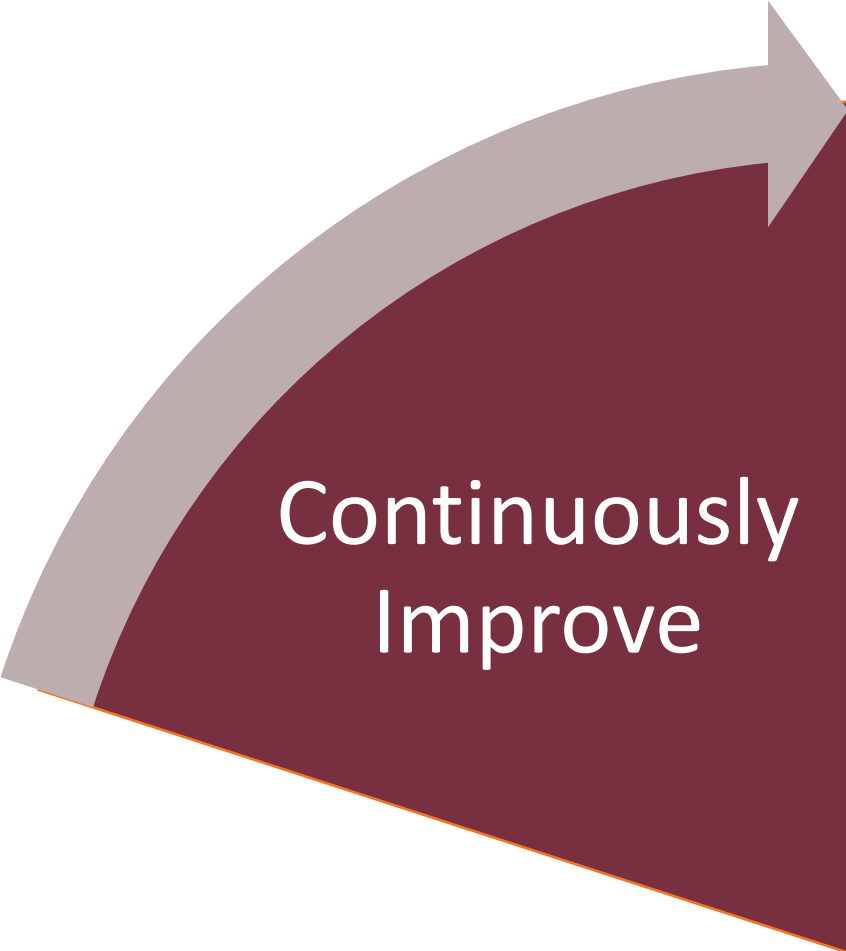
Lean Manufacturing



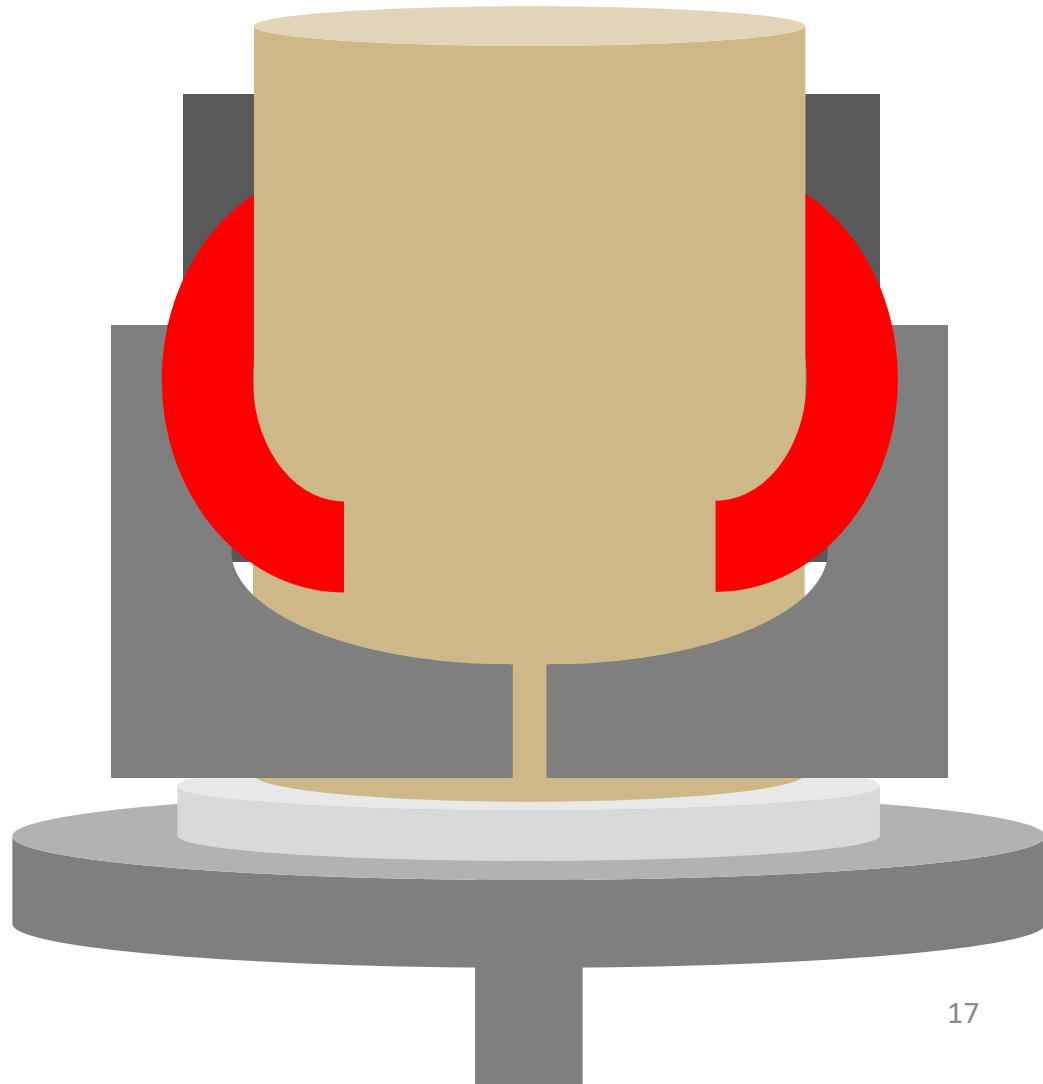


Lean Manufacturing





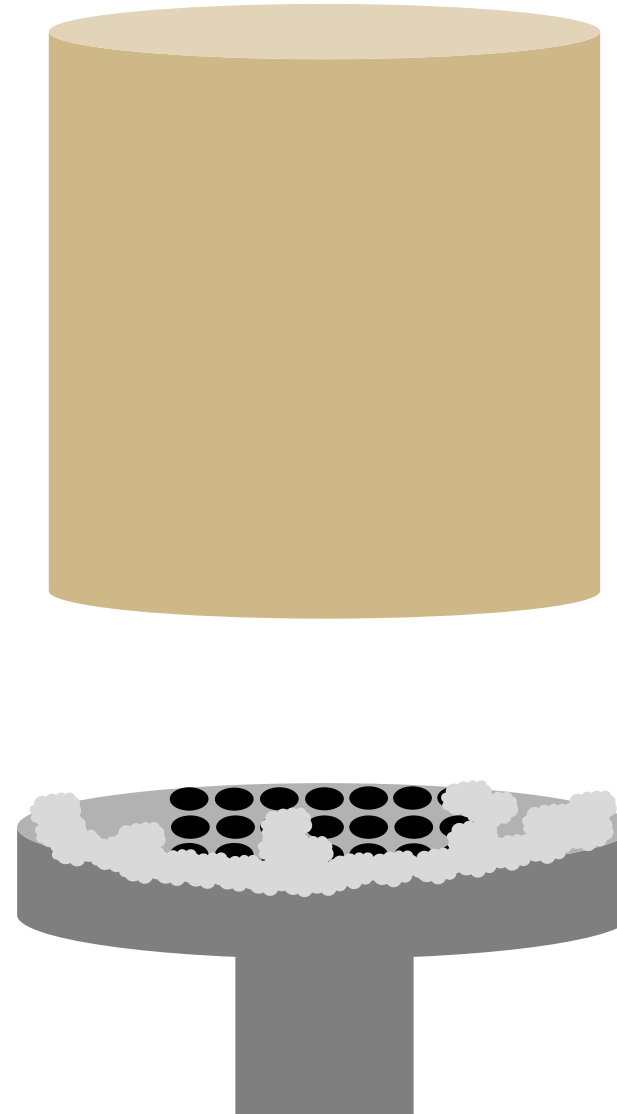
Prevent Debris on Mylar



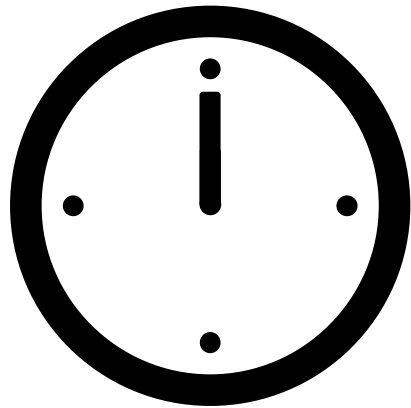
0.4 g of
debris

Reduce Filler Waste

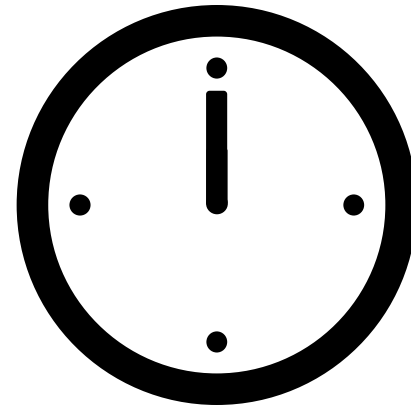
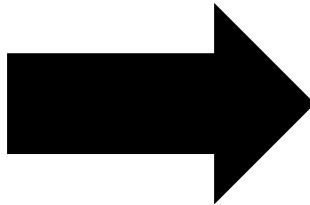
Fix 50 Parts
per Day



Reduce Downtime

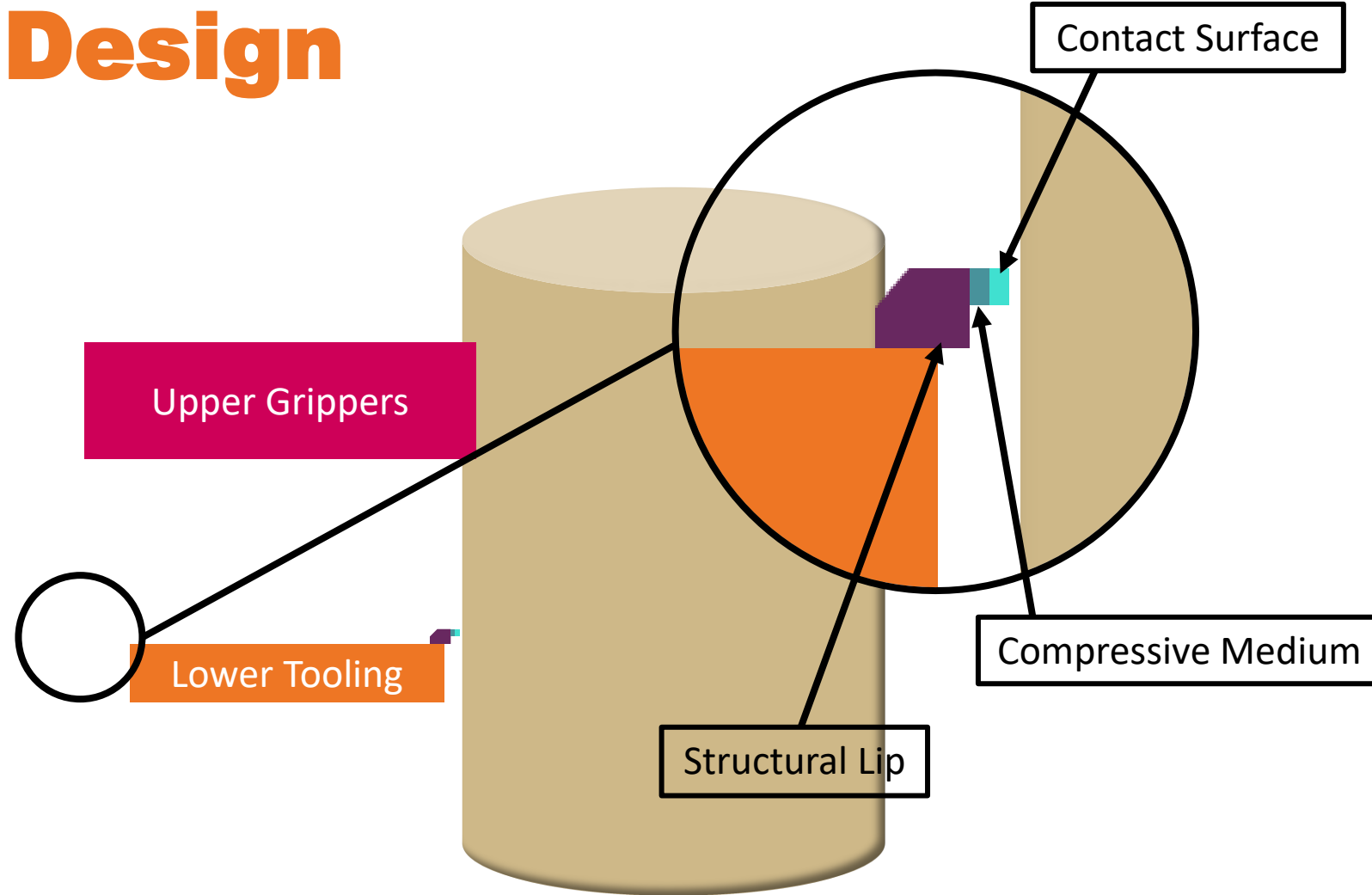


27 Hours

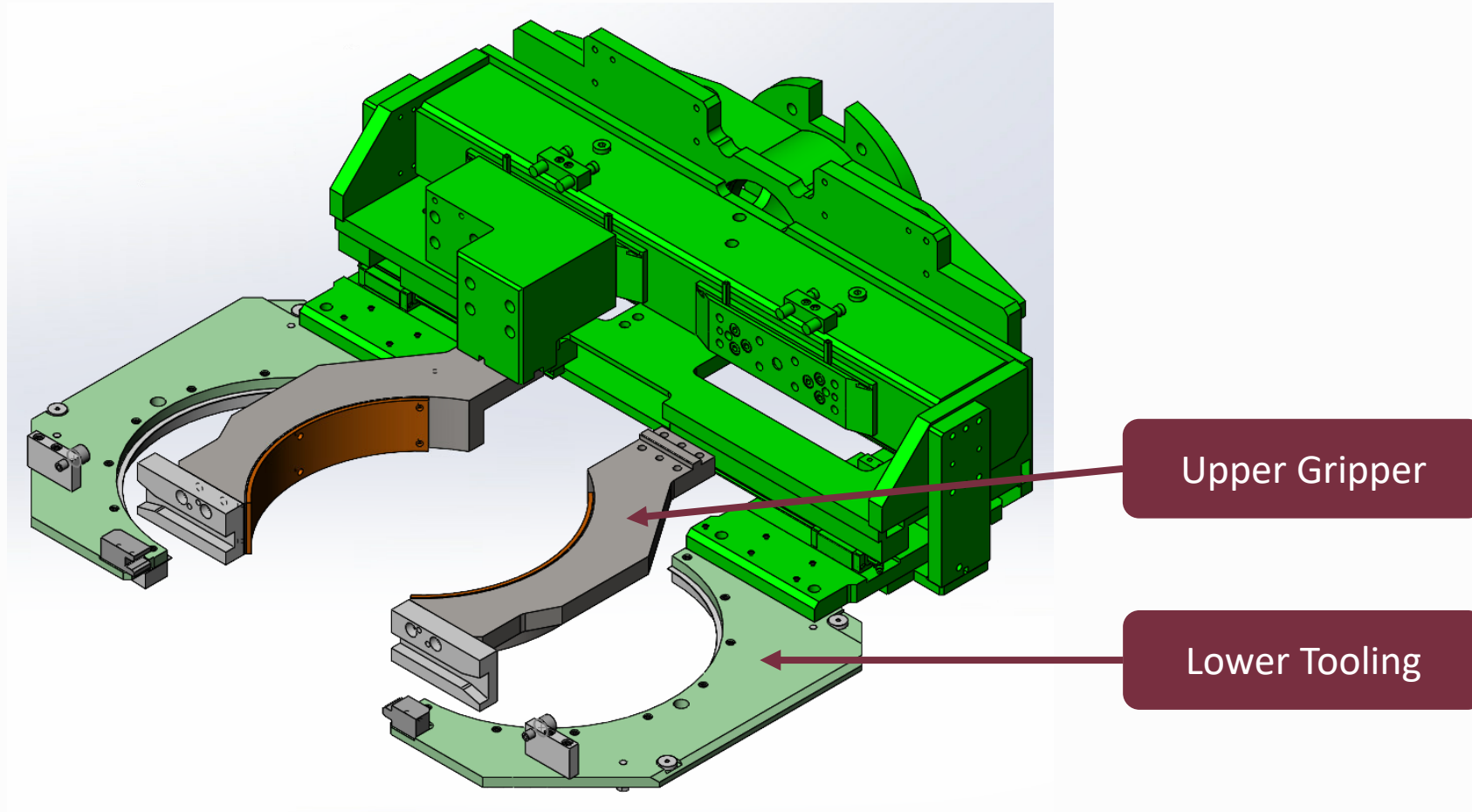


9 Hours

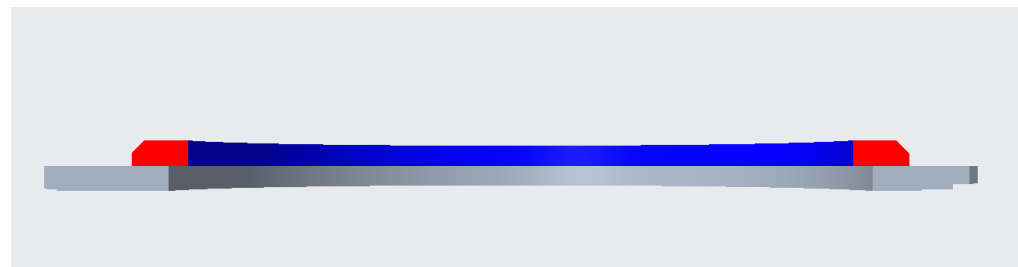
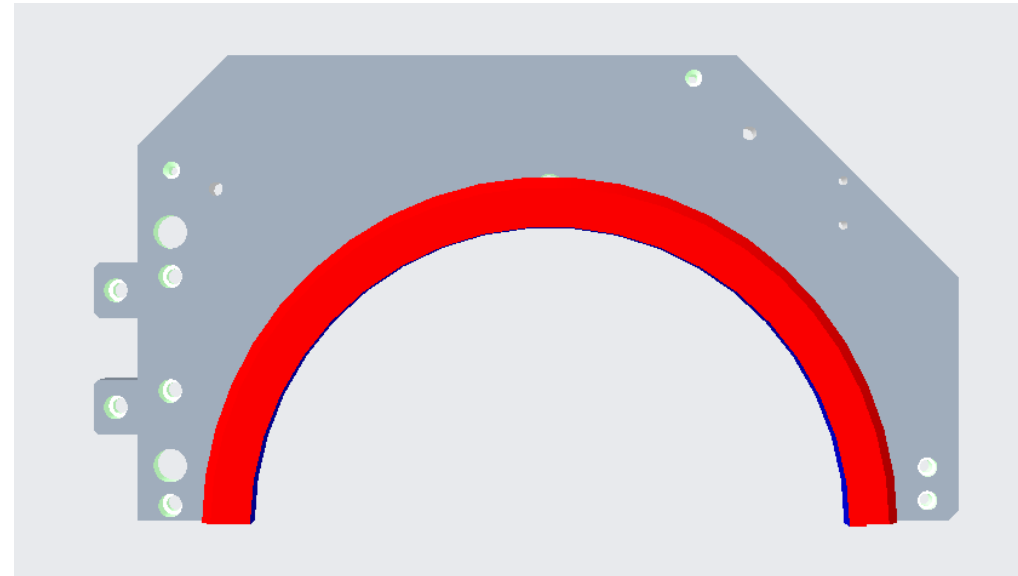
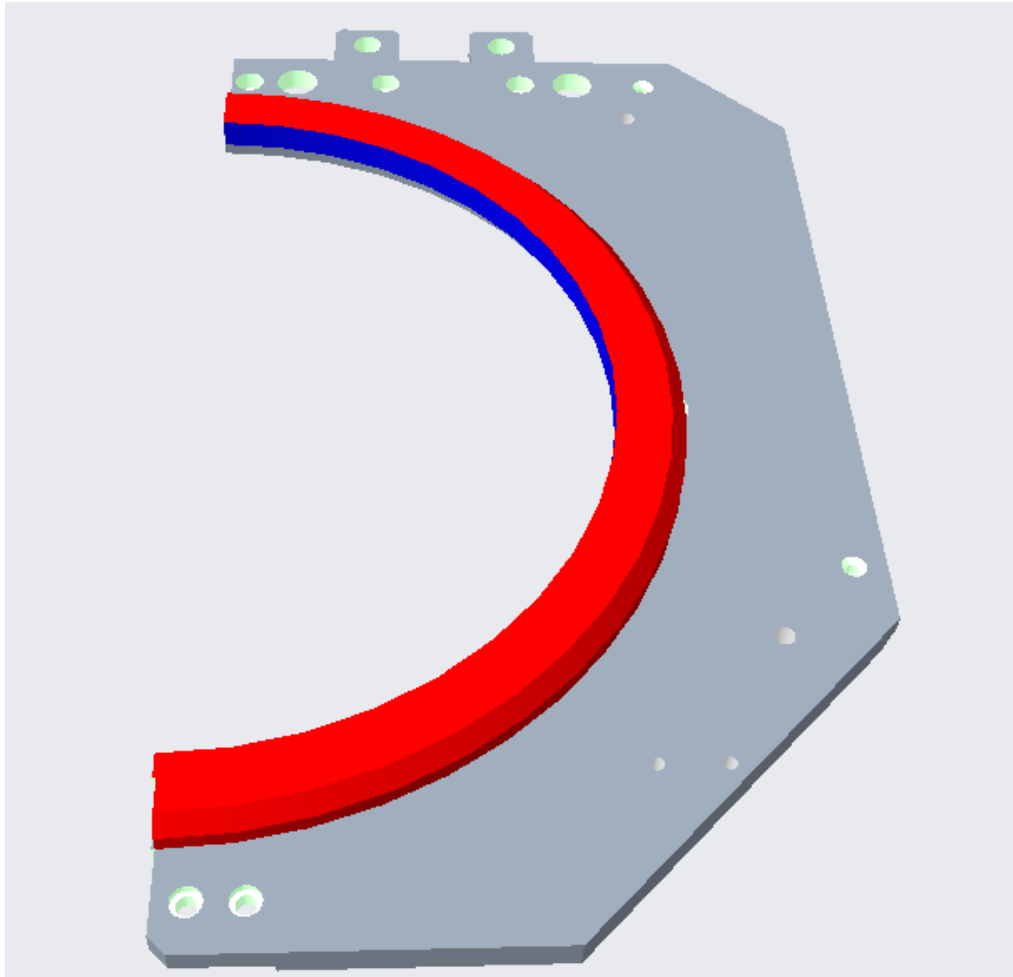
Current Design



Tooling CAD



Prototype



Material Selection

6061 Al

- Ease of Machining
- Low Cost
- Lightweight



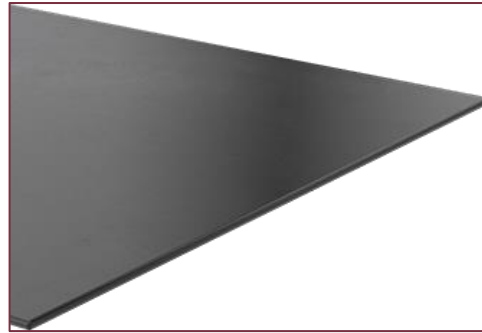
UHMW

- Low Friction
- Abrasion Resistant
- Chemical Resistant

Material Selection

40 00 Rubber

- Desired durometer for application
- Low Cost



Acrylate Adhesive

- Used by Corning
- Bonds aluminum and rubber well

What's Next?



Machining and Assembling



Assembled



6061 Al Offset Lip

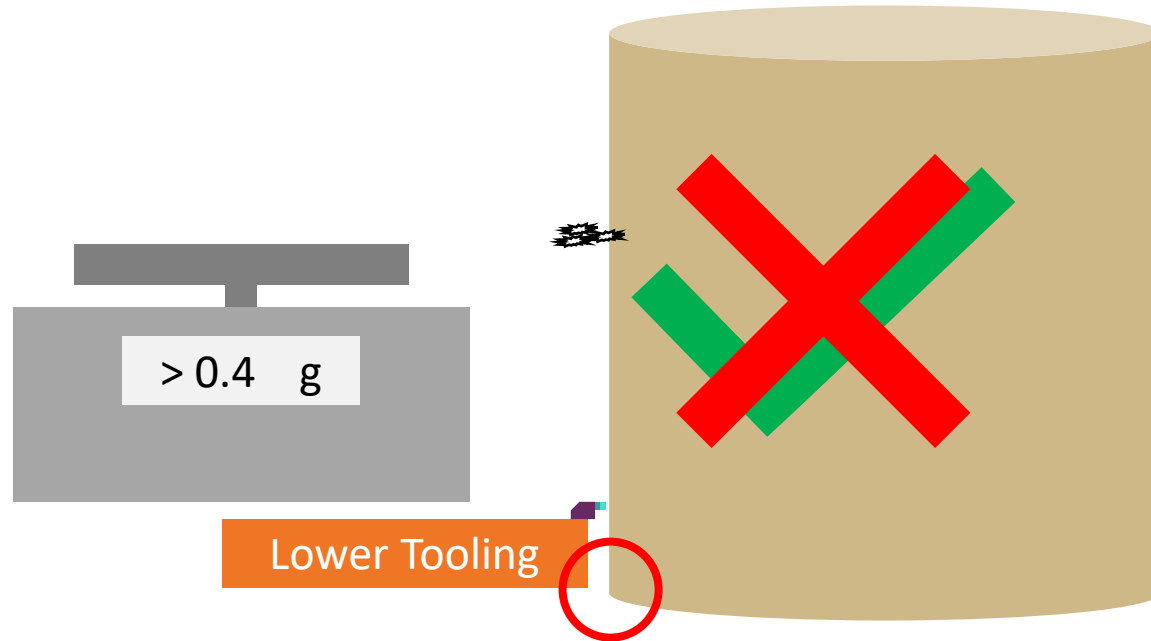


40 O O



UHMW

Debris Test



Friction Test



Testing at Corning

Lower Tooling



Thank You

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Backup Slides

