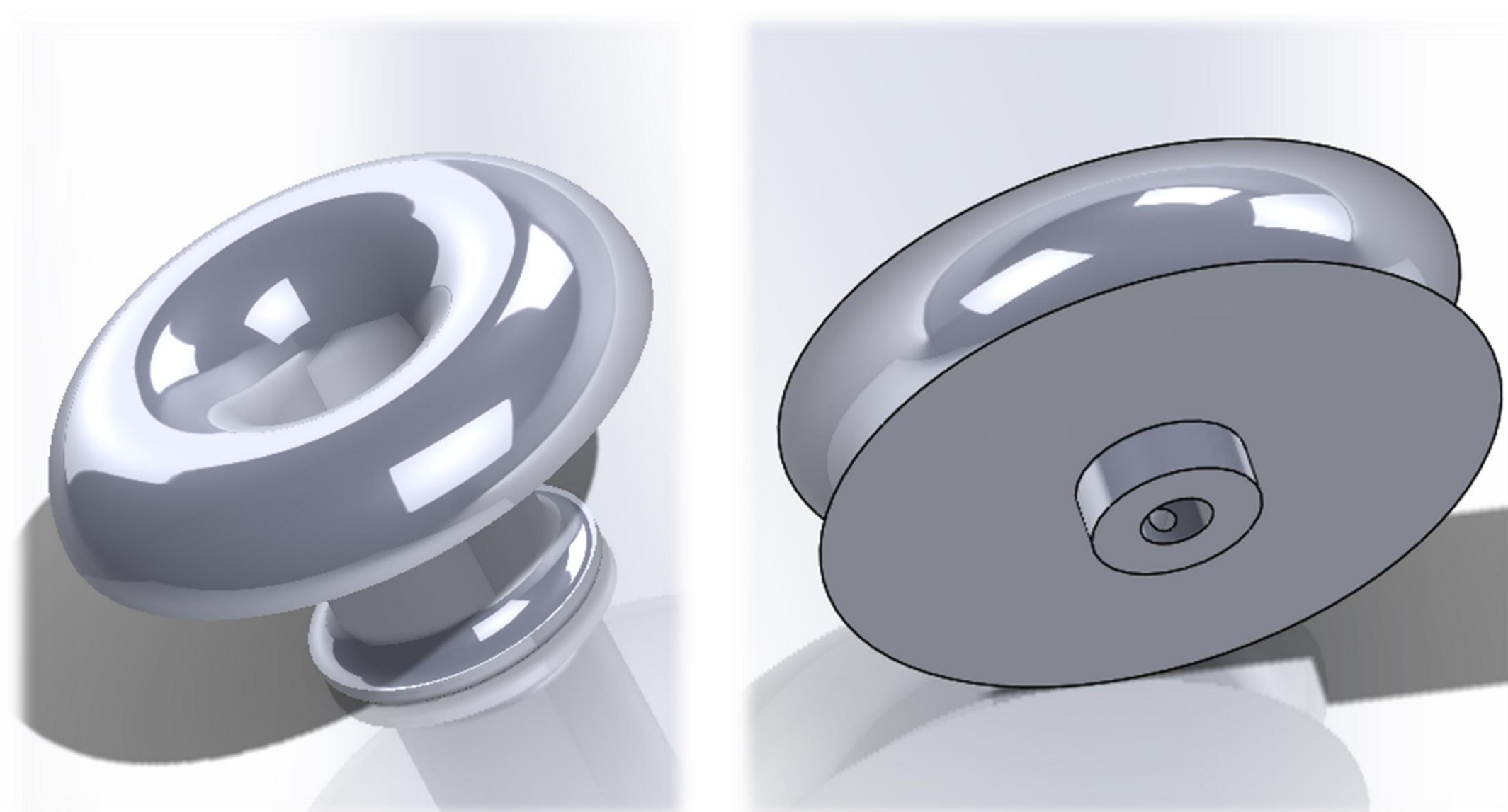
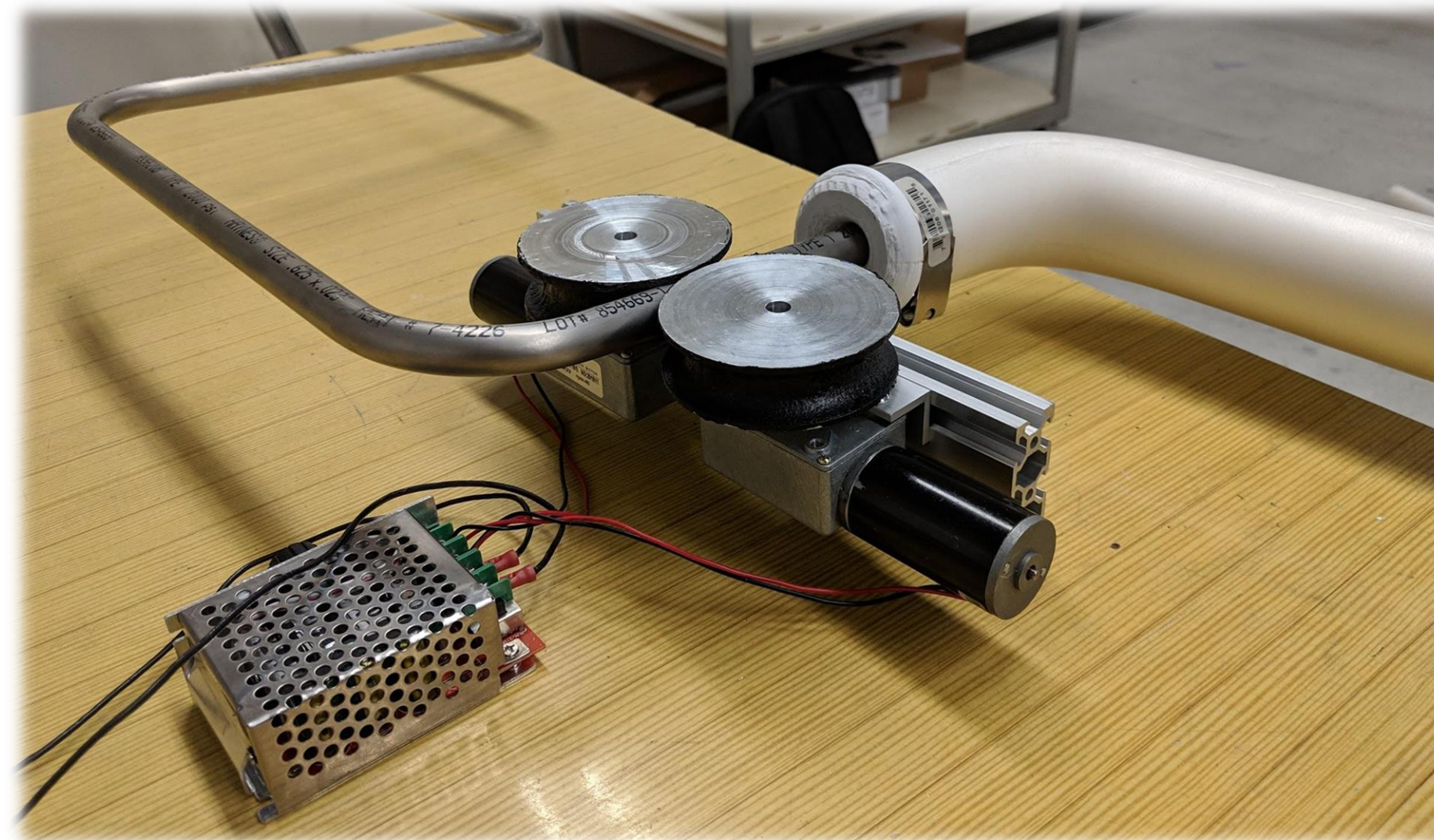


Kaleb Halen, Isaac Fisher, Michael Odell, Richard Baptista

Design I: Puller

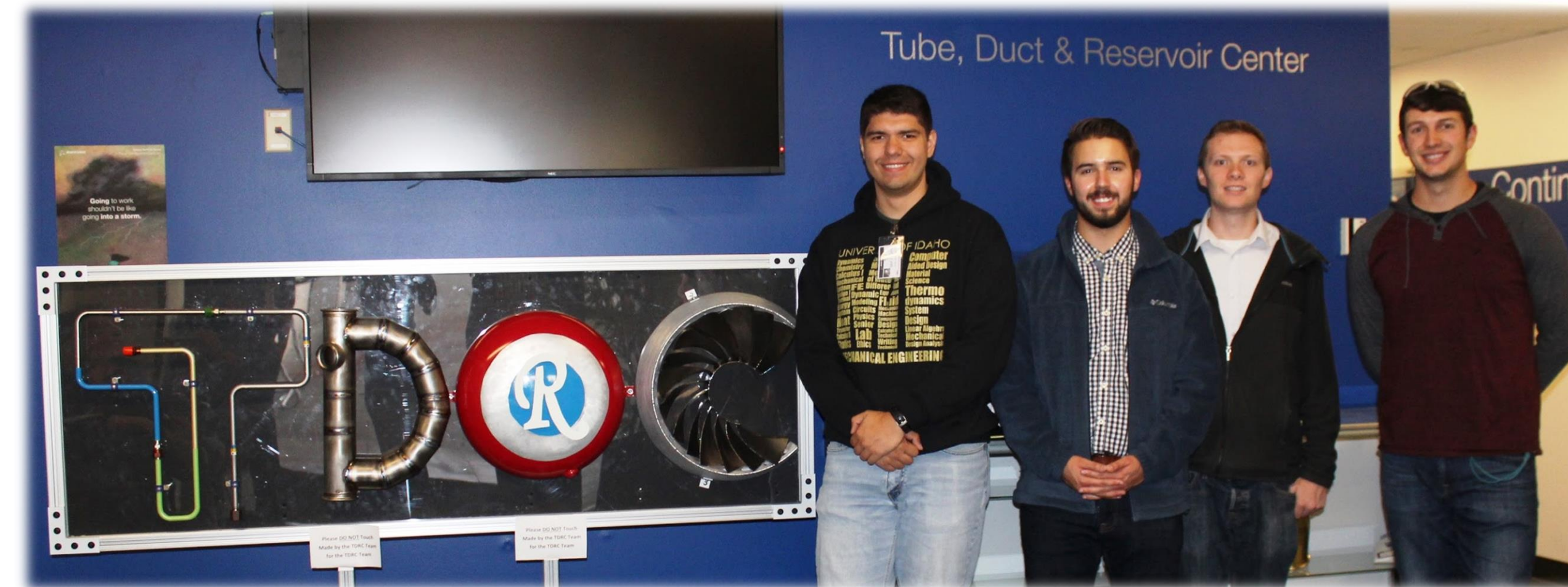
Operator-handled tooling that pulls insulation over static tubing.



Attachment device and rollers for the puller

Design Requirements

- Device shall insulate a tube in under three minutes
- Device shall be multipurpose and be compatible with various tubes
- Device shall reduce input from user



Mission Statement

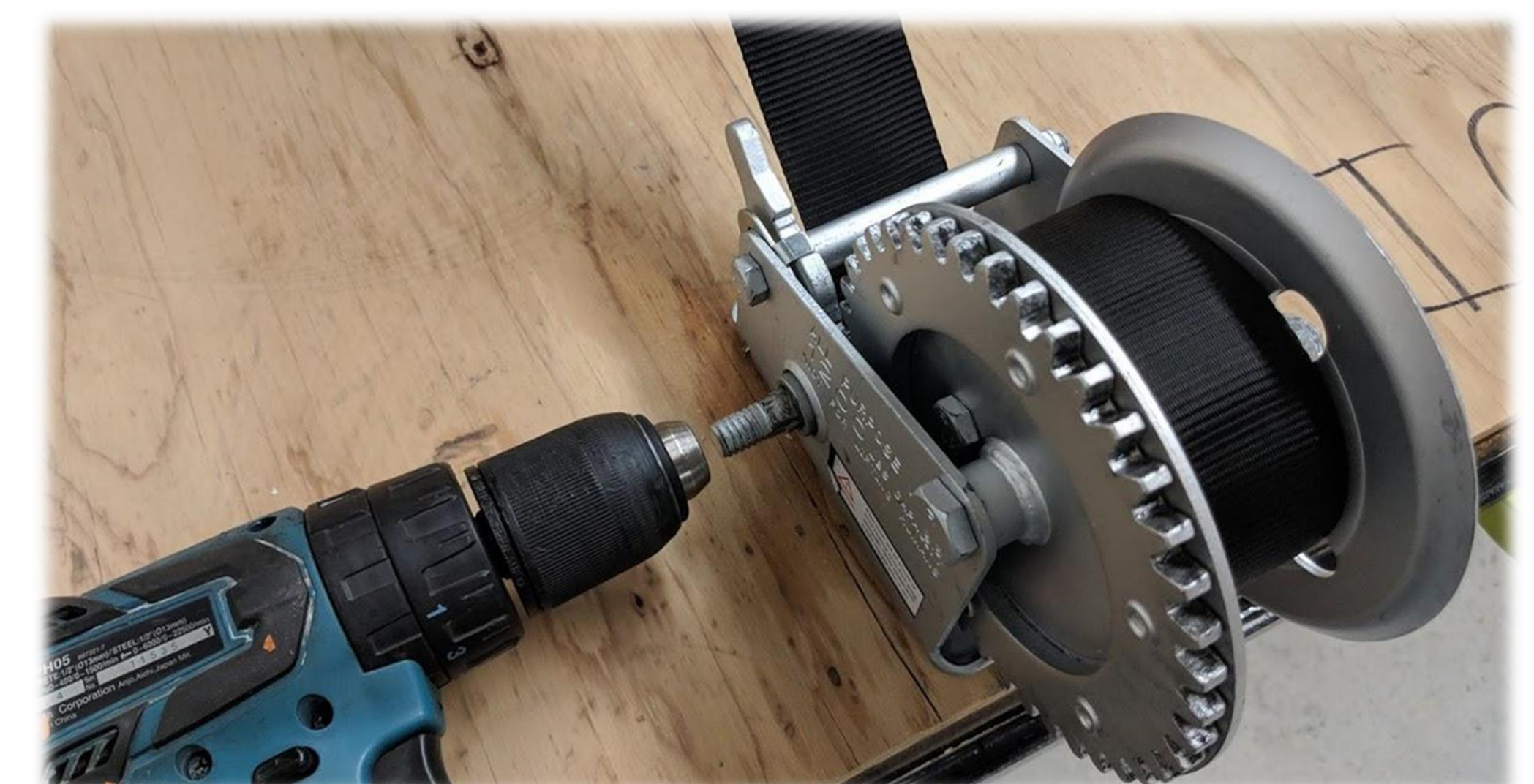
It is more prevalent than ever for commercial aircraft to use tubing with tight-fitting insulation to carry hydraulic fluid, compressed air, and fuel. Designed with stable and lightweight construction for manual handling, our team has prototyped novel tooling for installing insulation onto complex aerospace tubing. Our design reduces ergonomic risk to operators, reduces processing time, and improves production capacity.

Analysis

	Manual	Design I	Design II
Instillation Time	1 min 25 sec	46 sec	25 sec
Effort (Out of 10)	10	5	4

Design II: Pusher

Quasi-static system layout that pushes insulation over tubing.



Winch and drill to power pusher

Acknowledgements

We would like to thank The Boeing Company for their ongoing support and opportunity to work on this project. We also would like to thank Dr. Beyerlein, Bill Magnie, MESA, and the College of Engineering.