



# High Speed Motor Test Stand

## Team 05

2017 - 2018



**Team Members:** David Balbuena • McLaren Beckwith • Charles Daher • Jacob Quigley • Emily Simmons  
**Sponsor:** Danfoss • **Instructors:** Dr. Shayne McConomy and Dr. Chiang Shih • **Faculty Advisor:** Dr. Pat Hollis

### Project Scope

The objective of this project is to design a test stand that can measure the motor efficiency of various Danfoss compressors at standard operating speeds. Team 05 is tasked with selecting a torque transducer, flexible couplings and designing a safety shield. Finally, they will integrate each component into the test stand.

### Background

This is the third year of working on this project.

#### The 2015-2016 team:

- Created the mounted frame
- Aligned compressor with shims

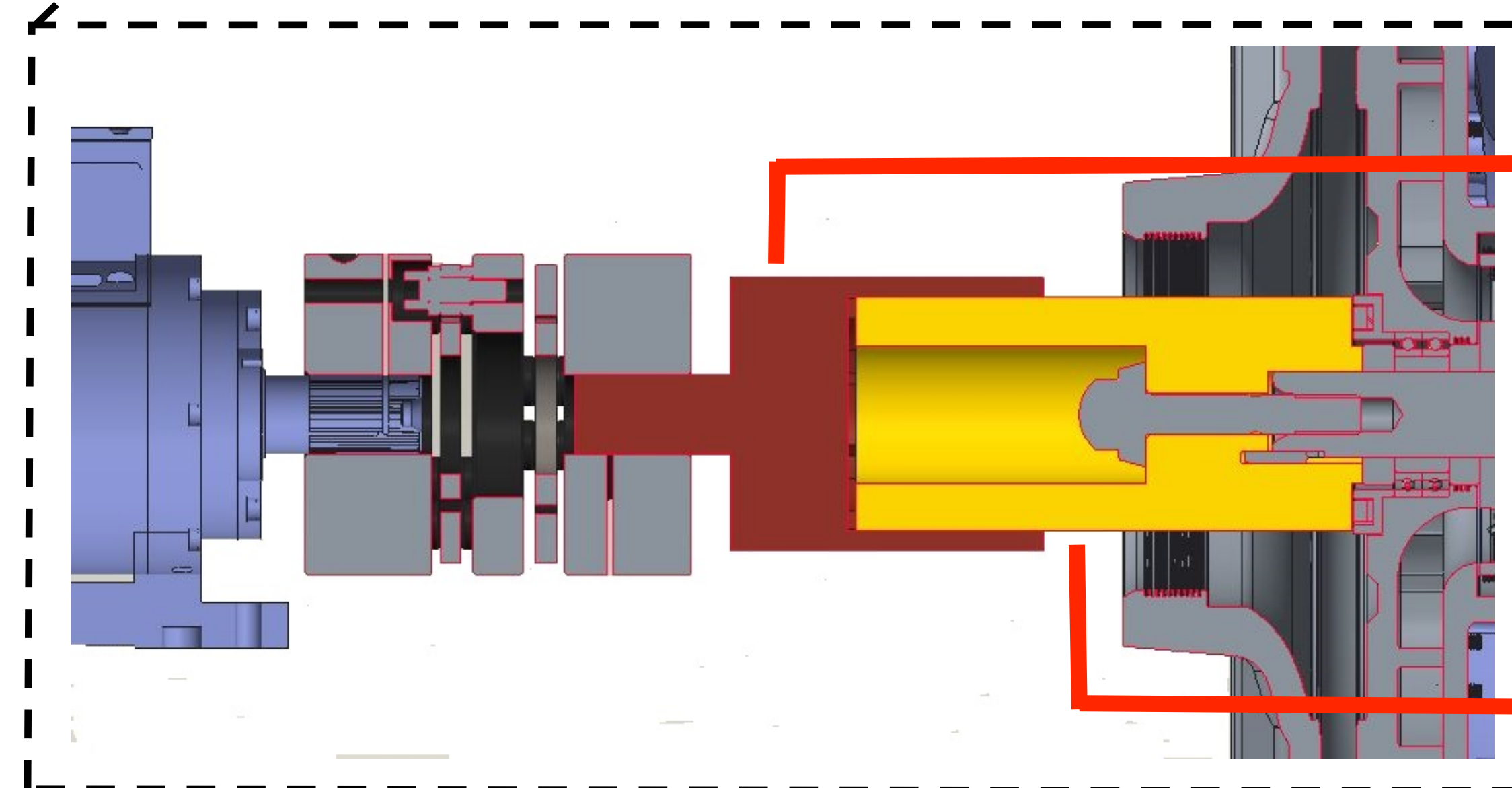
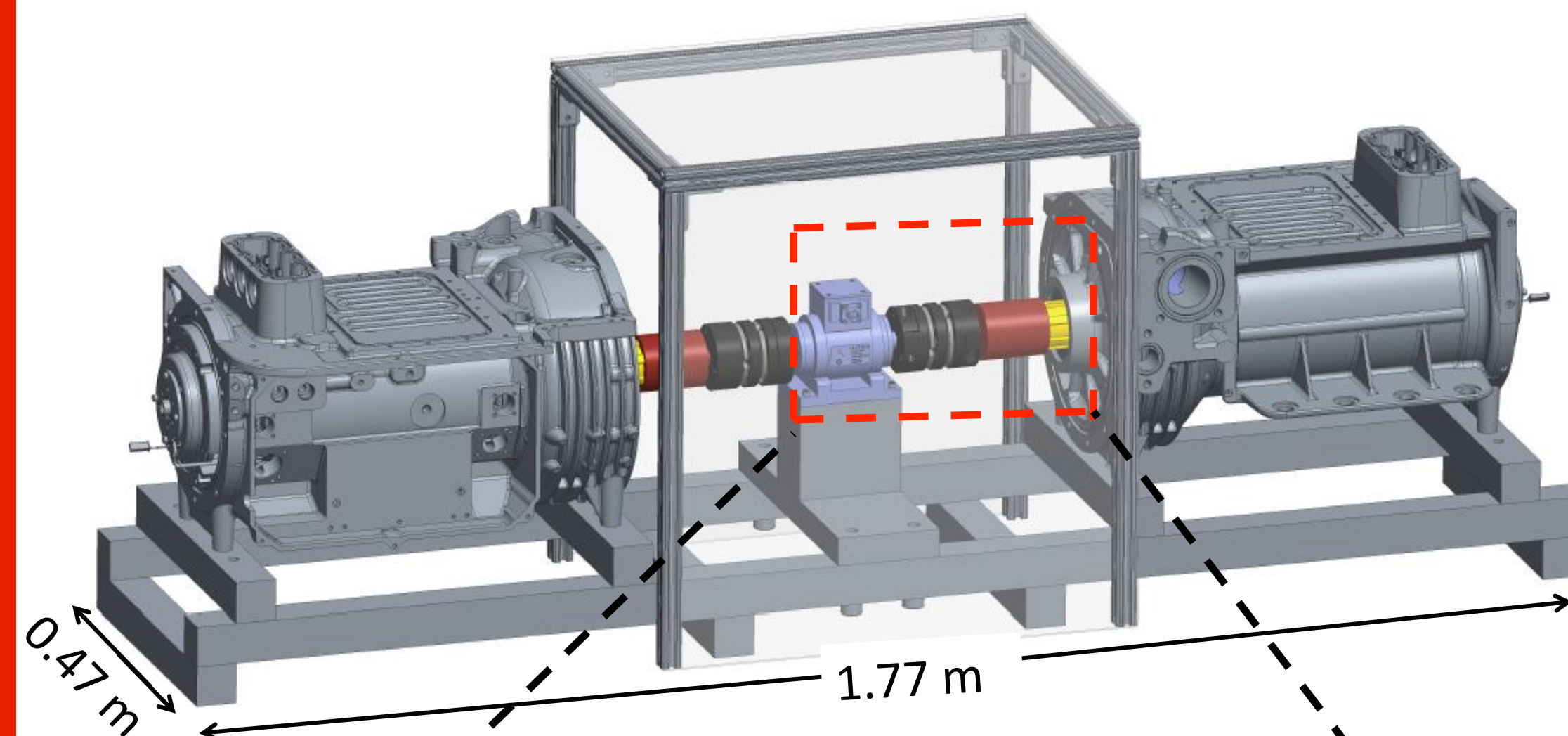
#### The 2016-2017 team:

- Improved upon coupling
- Implemented laser alignment tool
- Created a safety shield prototype

### Challenges

- The two compressor shafts experience an axial force in opposite directions
- Re-evaluation of coupling specifications
- Design method to extend compressor shaft

### Design



### Future Work

- Implementation of the extended compressor shaft, coupling system and torque transducer.
- Begin research and design of compressor cooling system

### Acknowledgements

The High Speed Motor Test Stand Team would like to thank our sponsor Danfoss for allowing us to participate in this ongoing project. We would also like to thank our instructors Dr. McConomy and Dr. Shih for guiding us through the design process. Finally, we would like to thank our advisor Dr. Hollis for providing his input on our design ideas.

