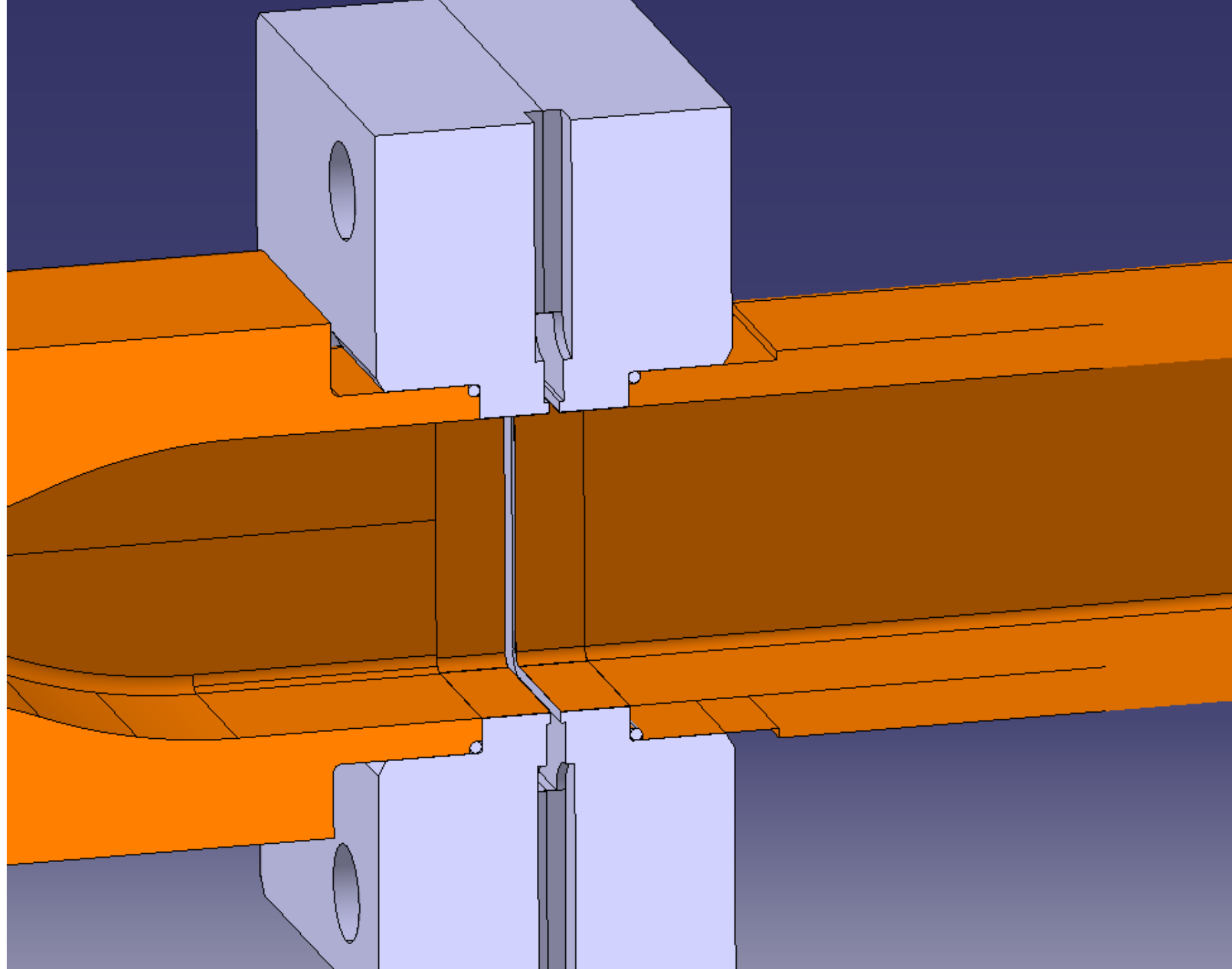
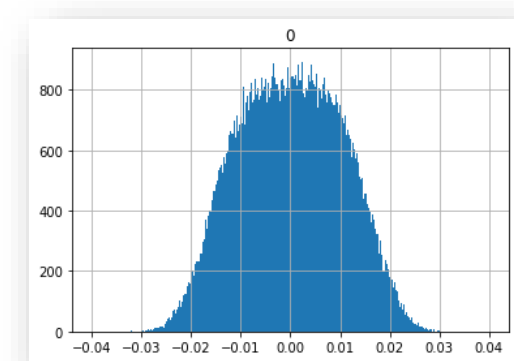
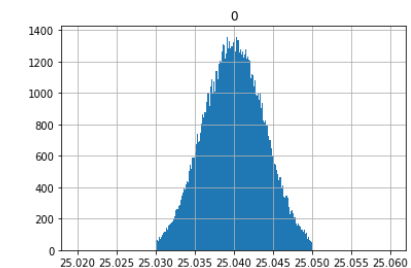
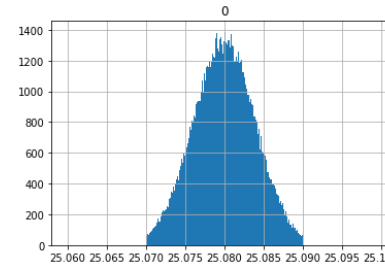
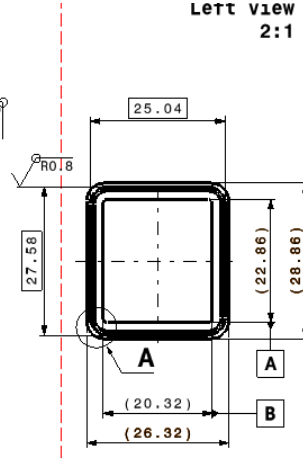
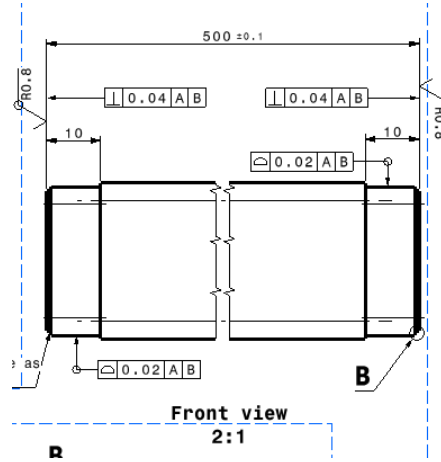
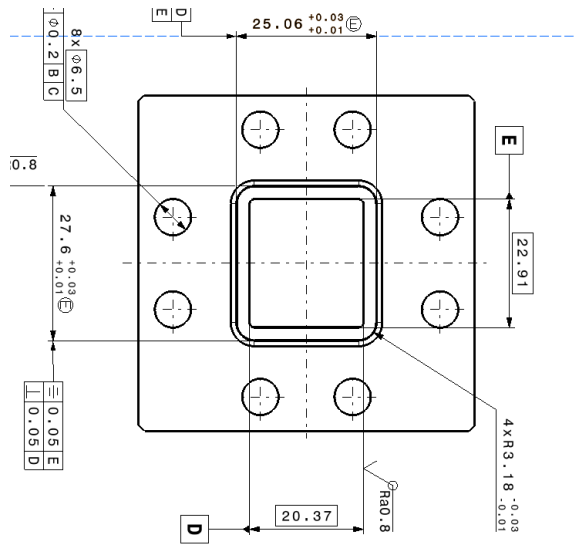


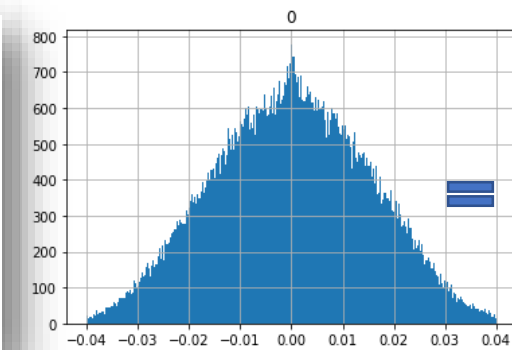
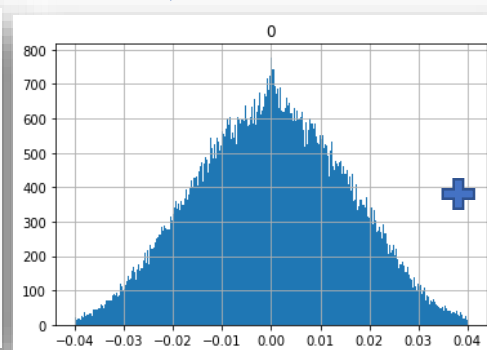
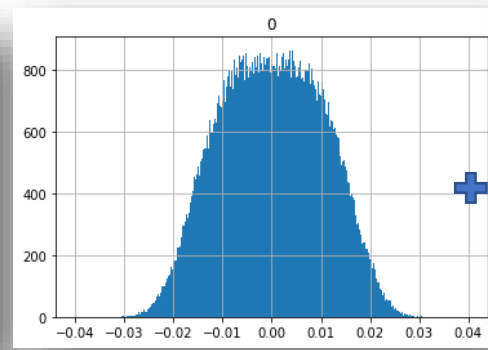
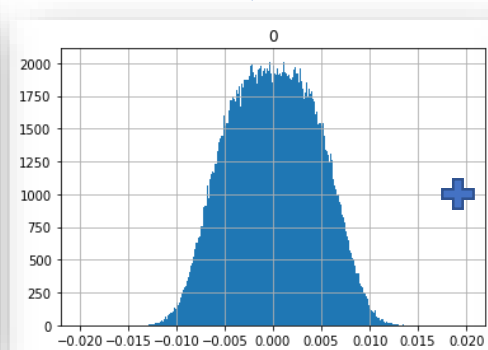
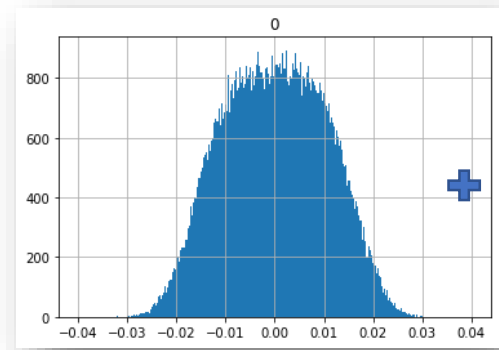
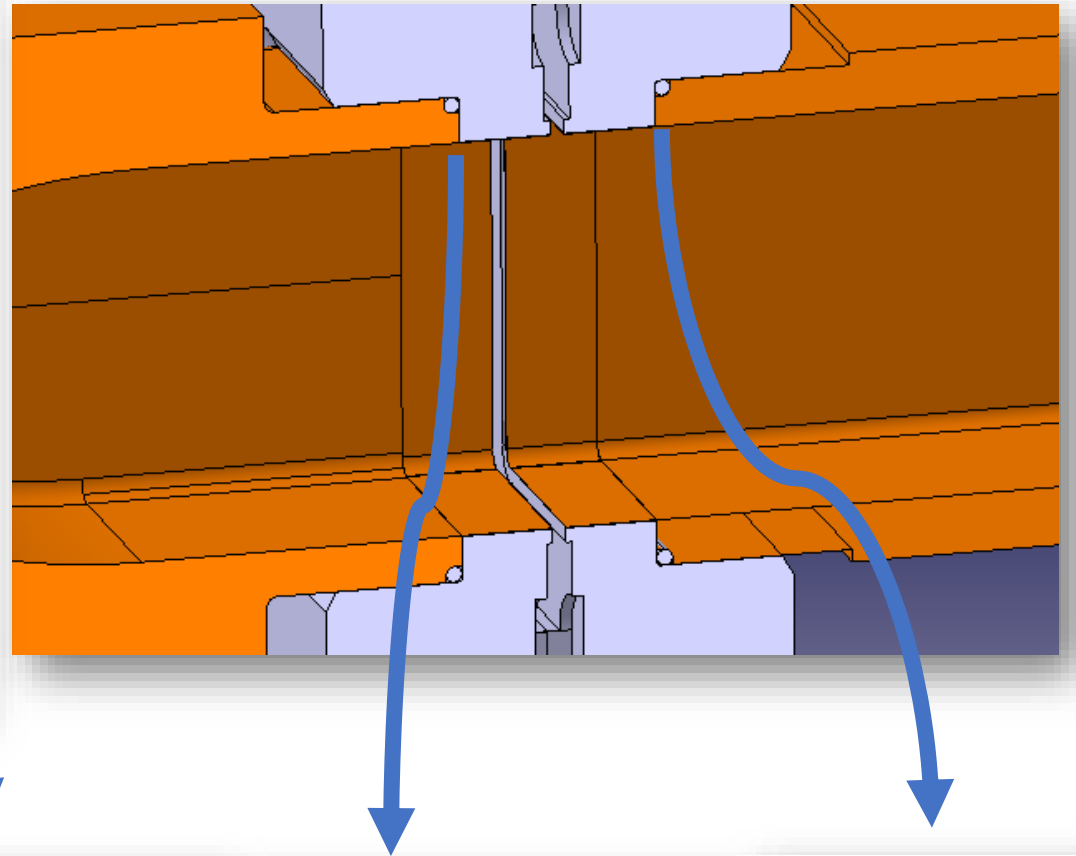
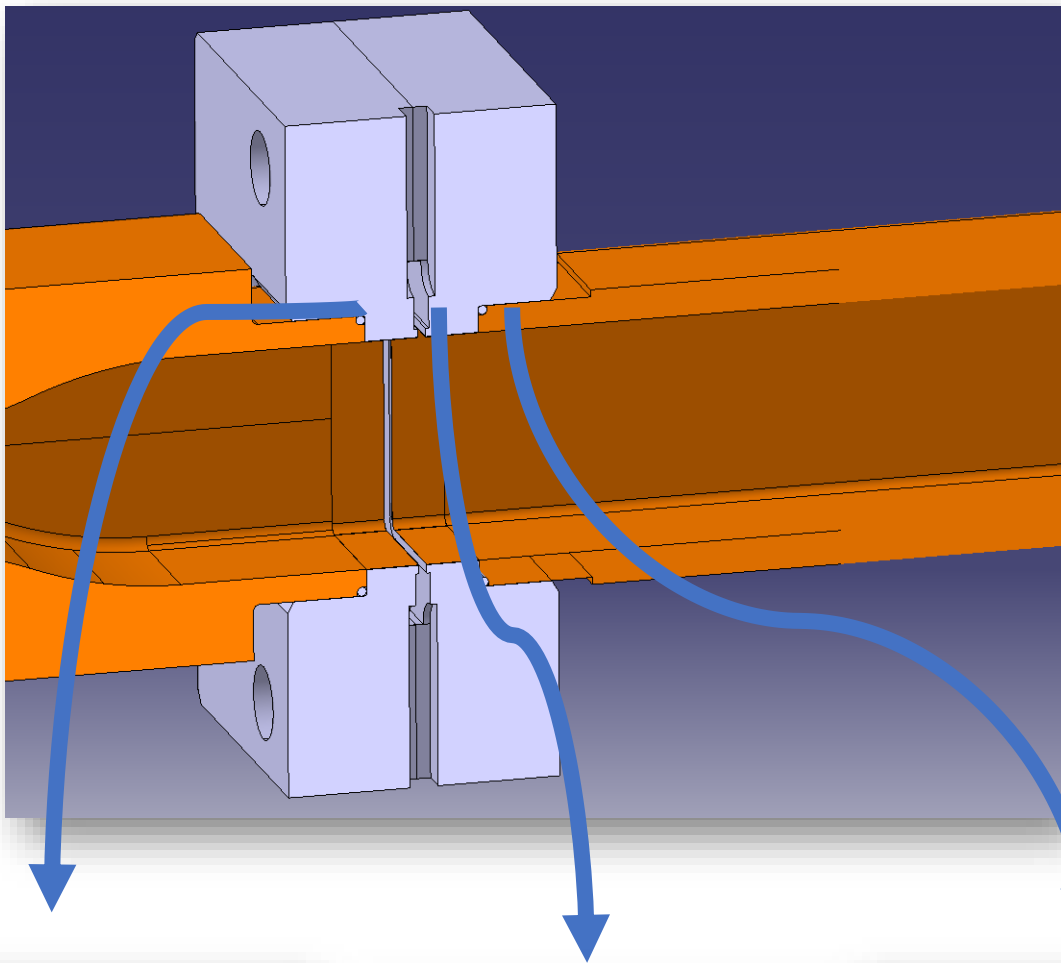
Combined Tolerance Errors



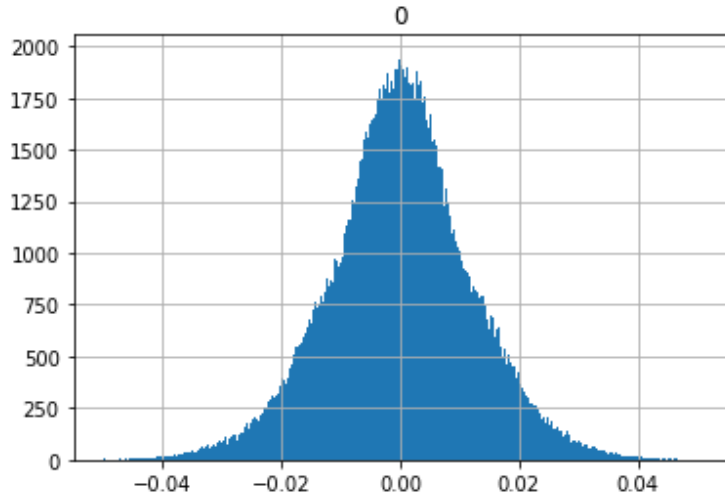


Example part

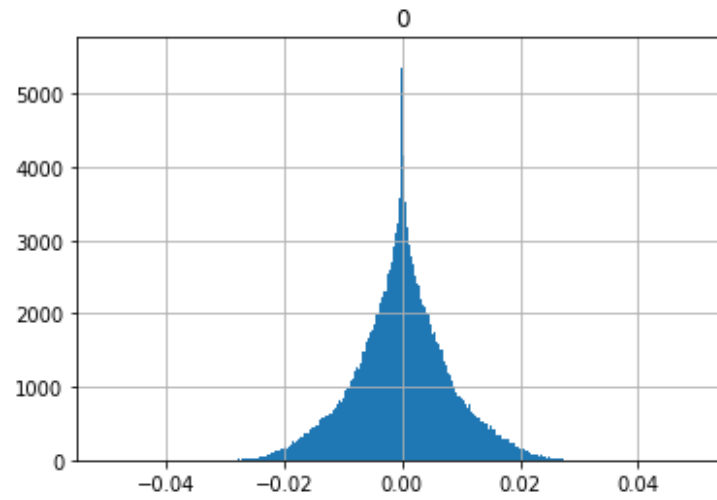
- Tolerance of 25.06 +0.01/+0.03
- Level of optimism in manufacturing assumed
- Taper component dimension subtracted to find a possible error range



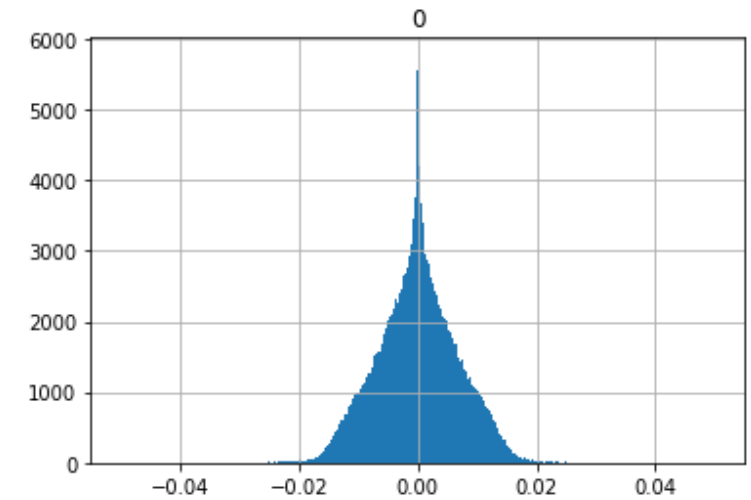
Overall misalignment from central axis



- All original specification
- No copper coating



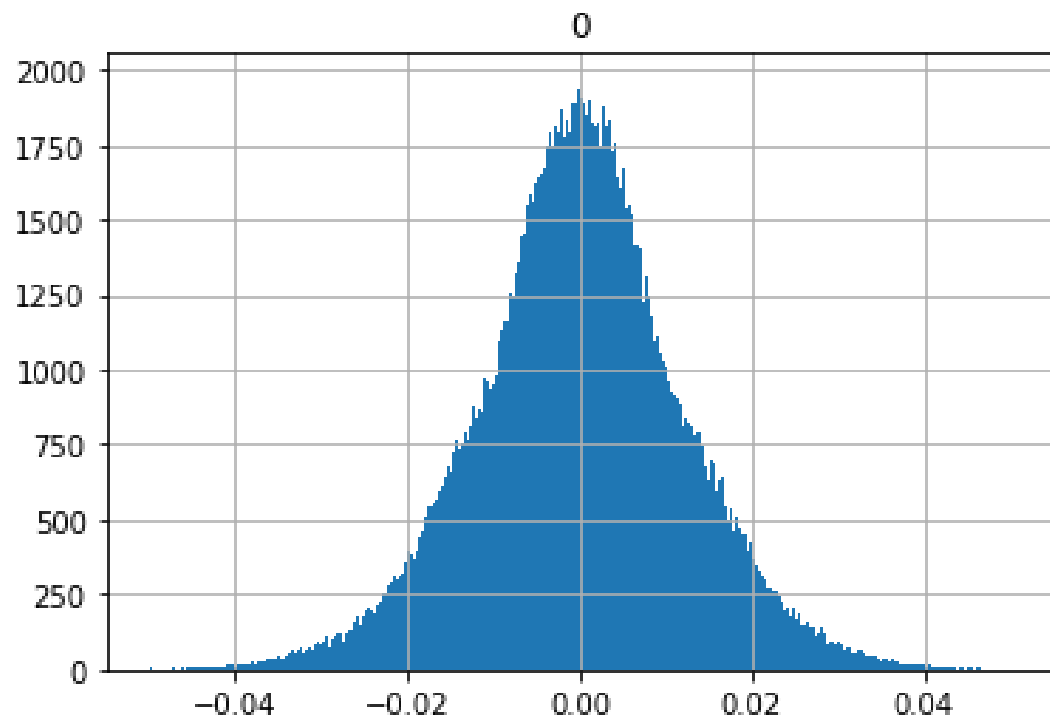
- All original specification
- Includes copper coating



- Includes improved specification with tighter clearances and tolerances
- Includes copper coating

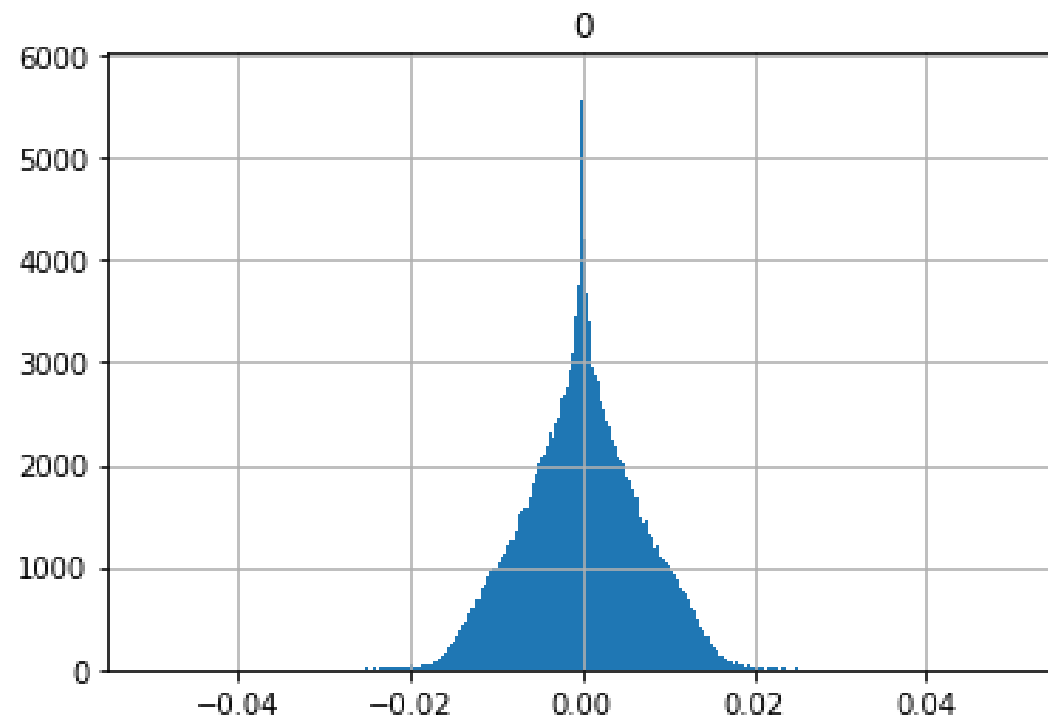
Sample size = 100 000

Current



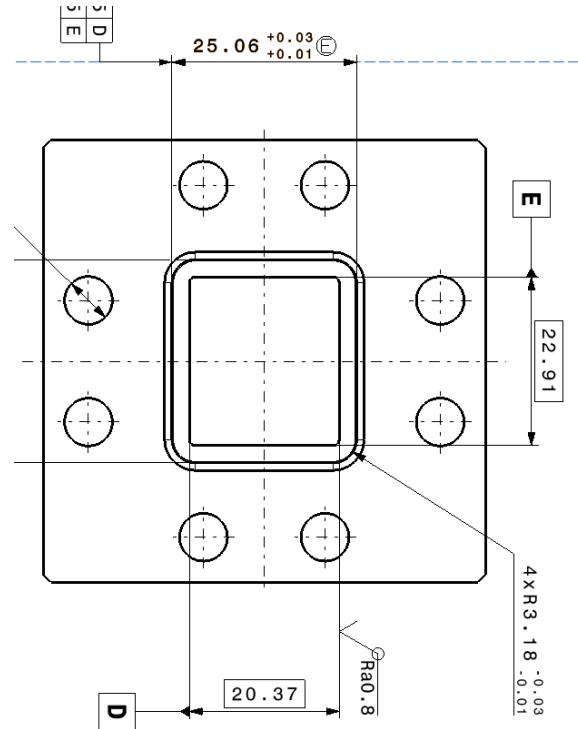
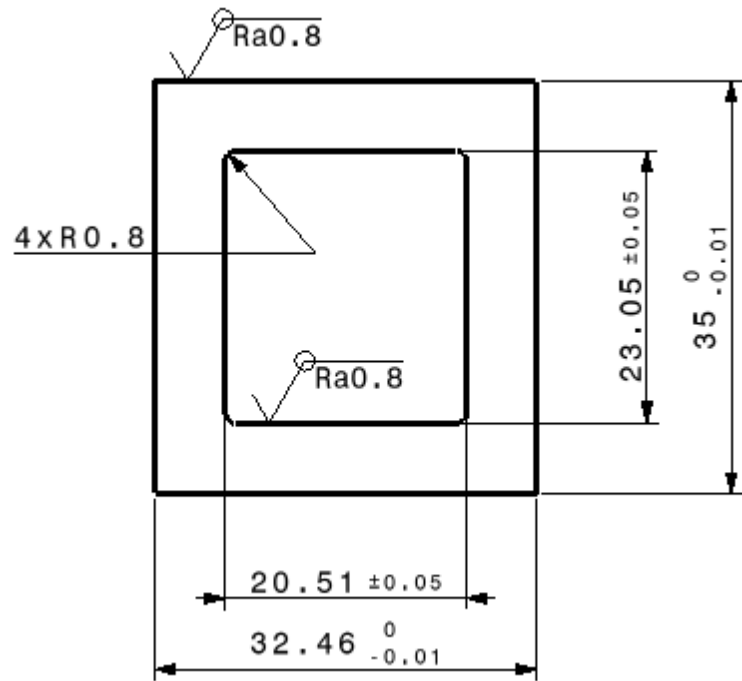
Misalignment
in microns

Possible



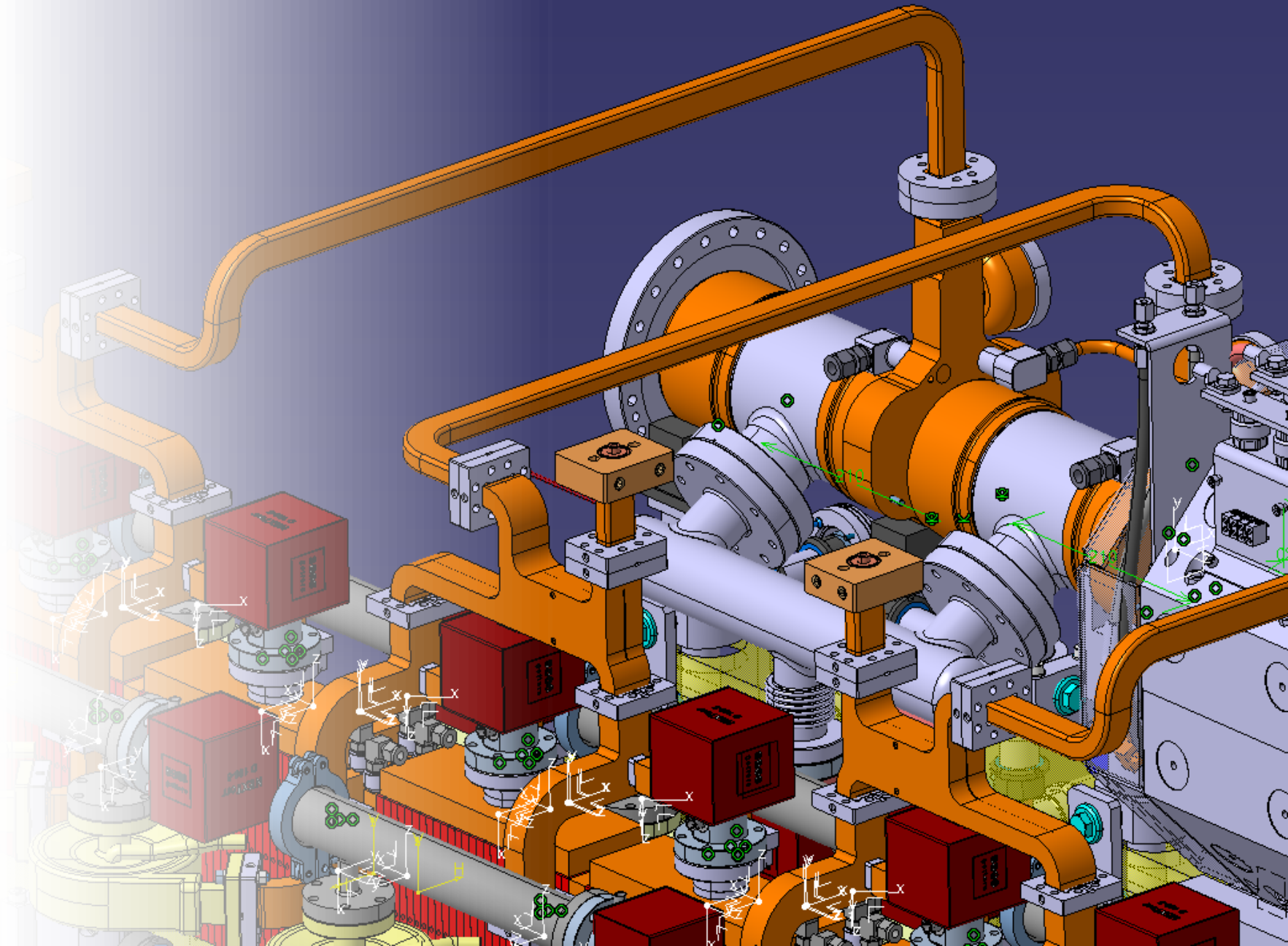
Misalignment
in microns

Possible origin of further error



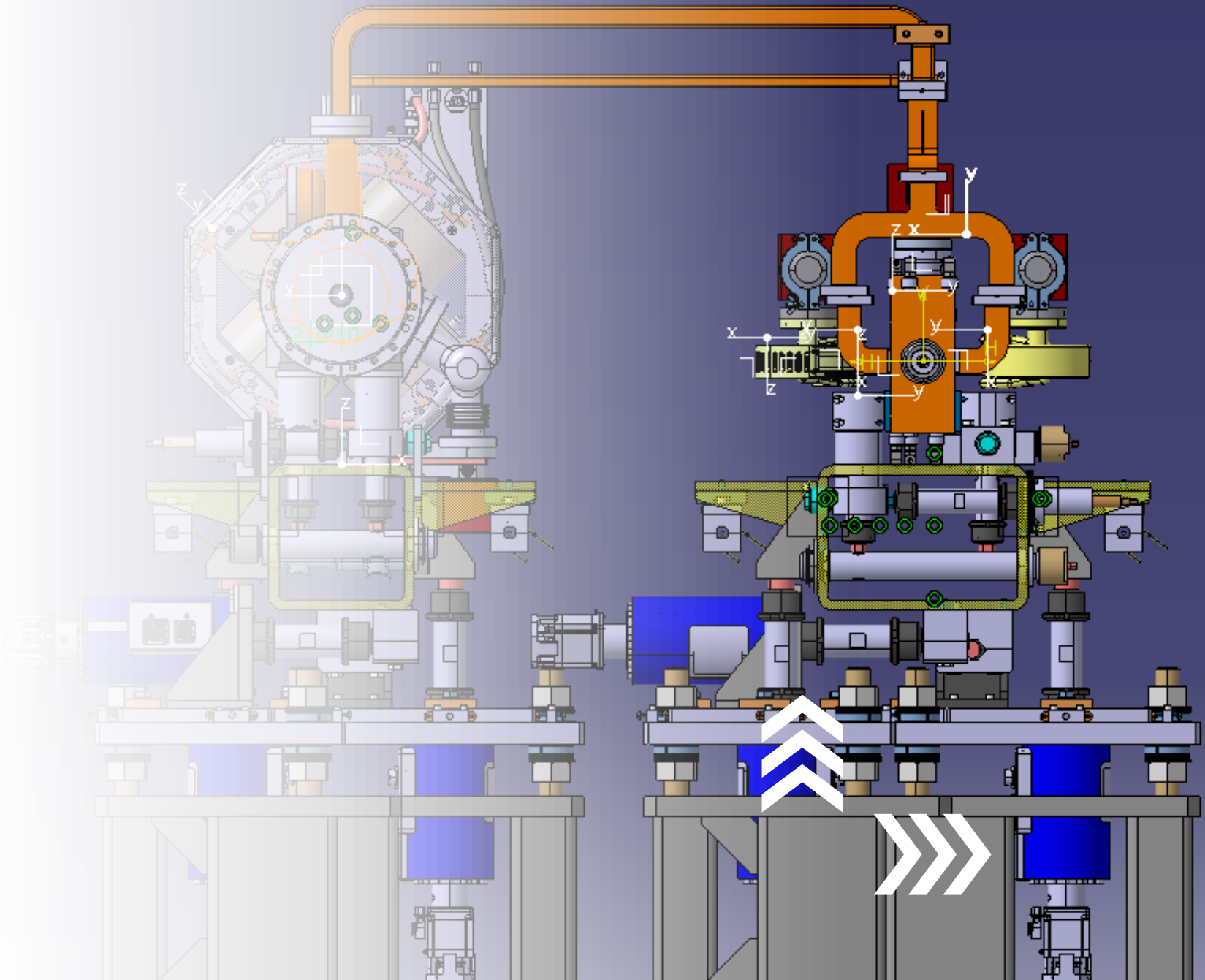
- Large source of error possible from the gasket
- Internal height of taper with 2.5mm copper coating approximately 20.32mm while the gasket is 20.51mm with +/- 50-micron error
- Actual error unknown unless measured

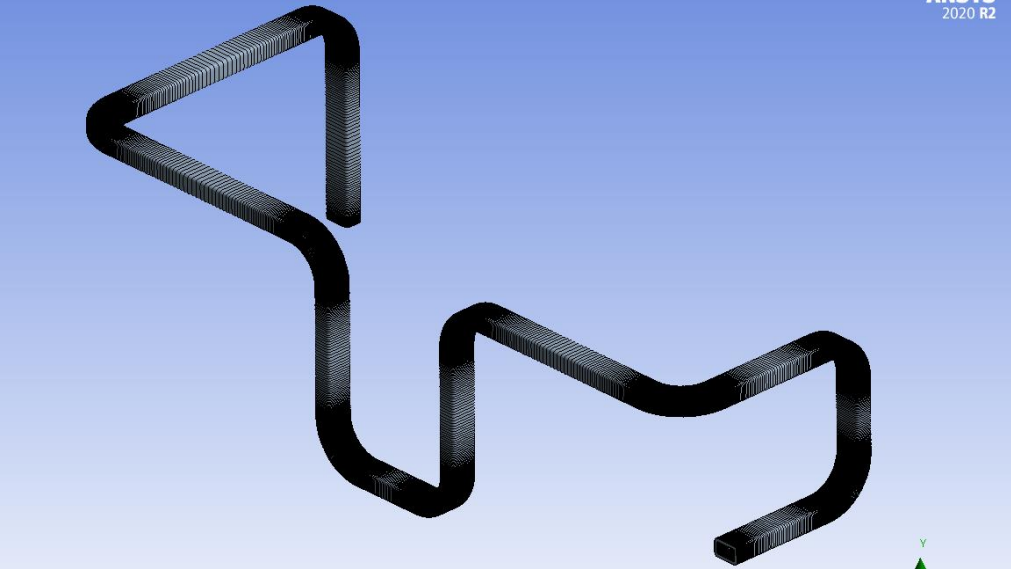
RF transfer guides
between main and
drive beam



• A Degree of flexibility is required between the main, and drive mean without the introduction of a large reaction force on either structure.

• Needs to allow for X / Y movement





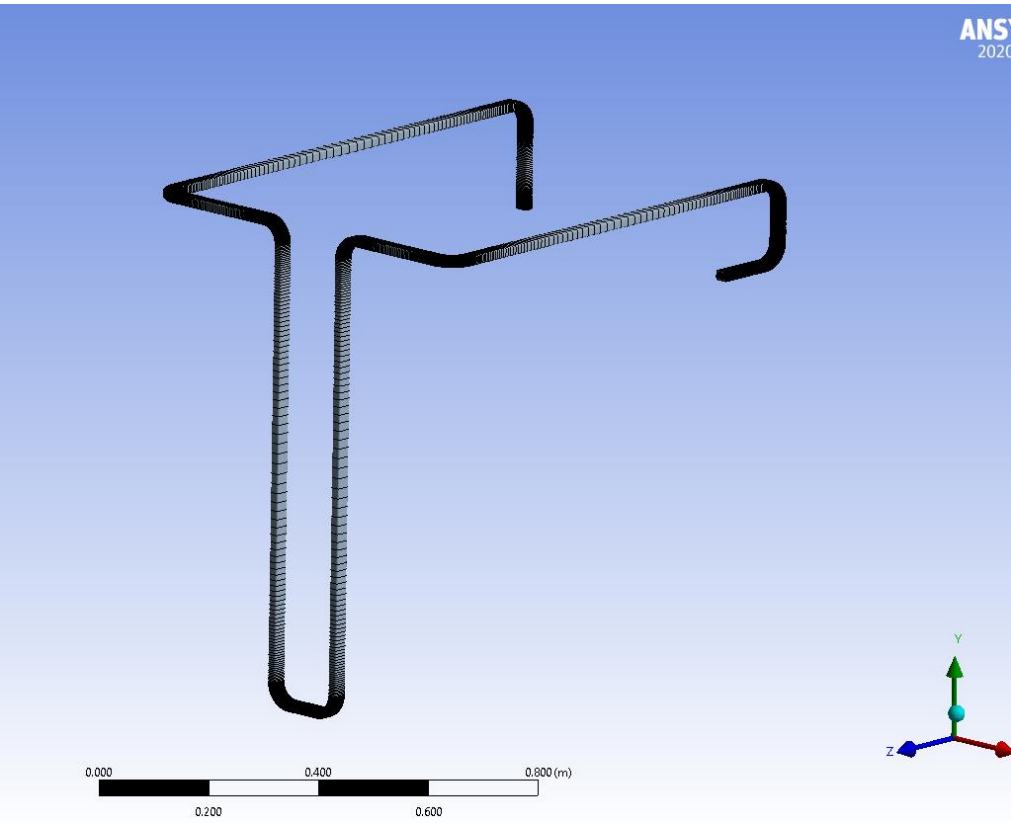
- Study conducted to show the effect of adding chicanes in order to reduce reaction forces

- Considerations include:

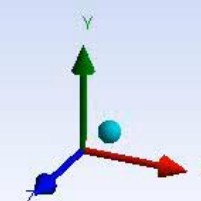
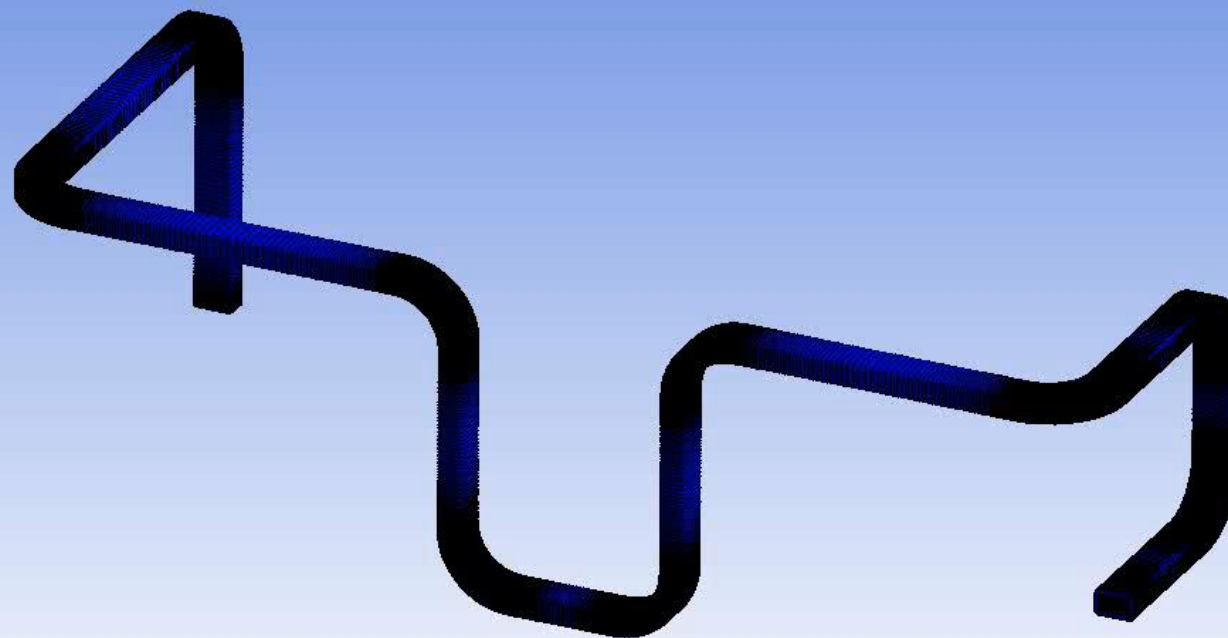
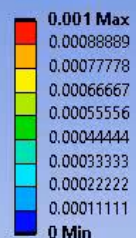
- Reducing the number of corners

- Reducing the total length

- Not obstructing to structure itself

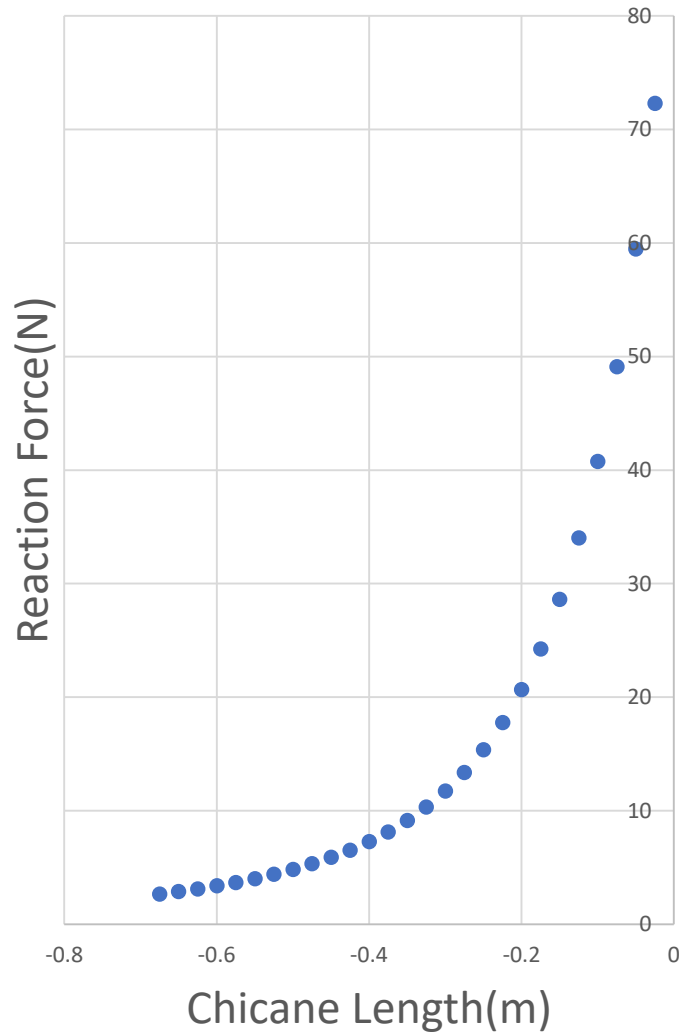


A: Static Structural
Total Deformation
Type: Total Deformation
Unit: m
Time: 0
25/10/2022 18:24

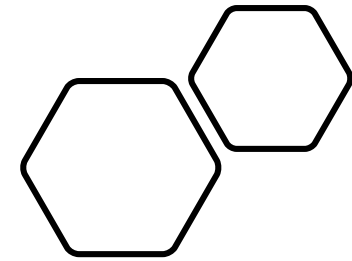
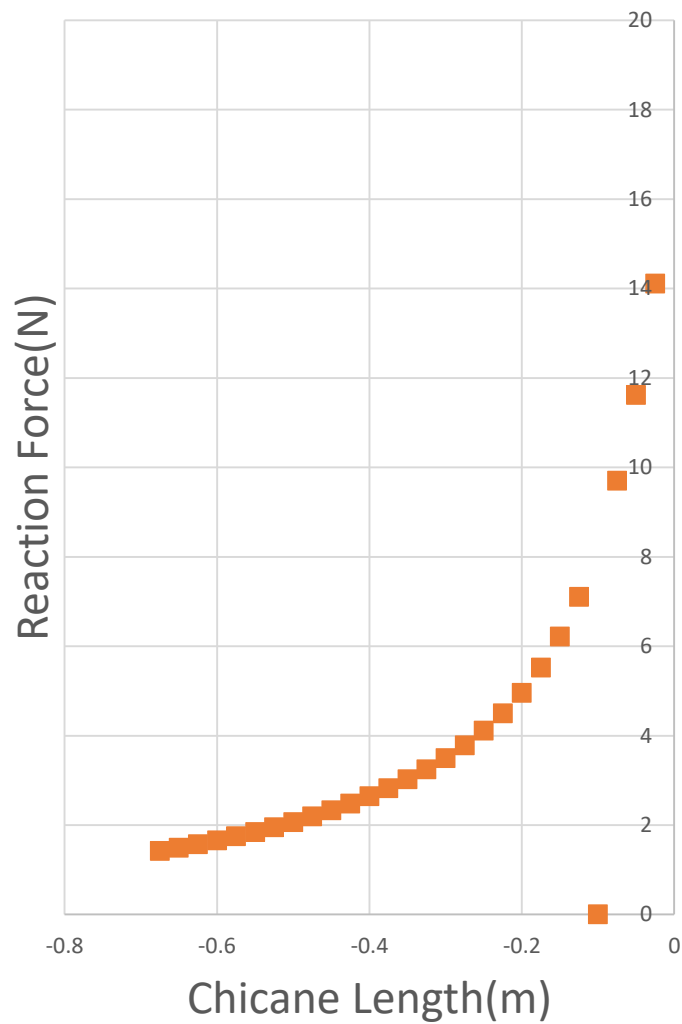


Demonstration Simulation

Maximum Reaction vs Chicane Length
in Horizontal Direcetion



Maximum Reaction vs Chicane Length
in Vertical Direcetion



- Results show reaction forces can be reduced significantly by extending the length of added chicanes
- Other meshing techniques to be used to validate results further