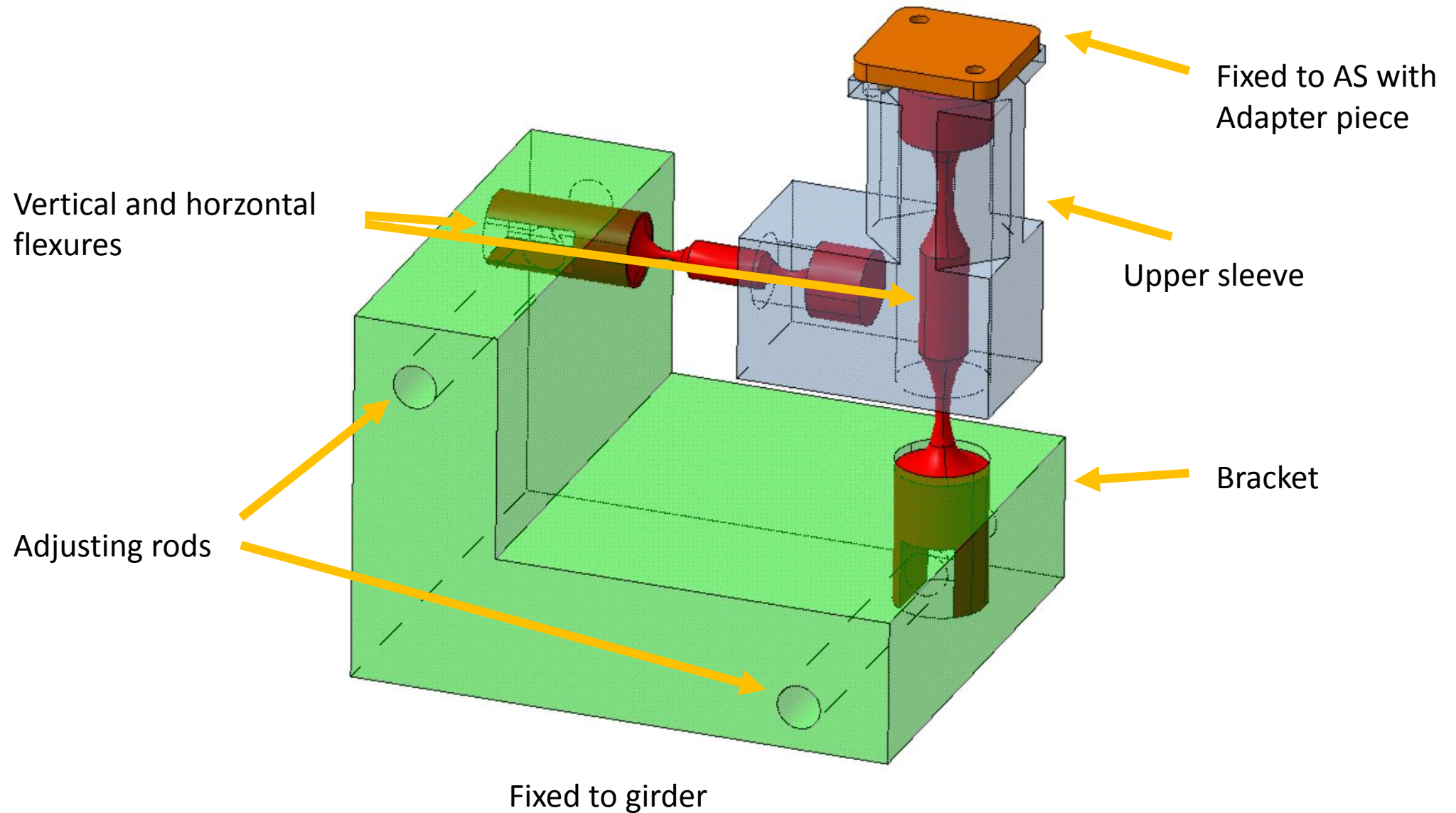


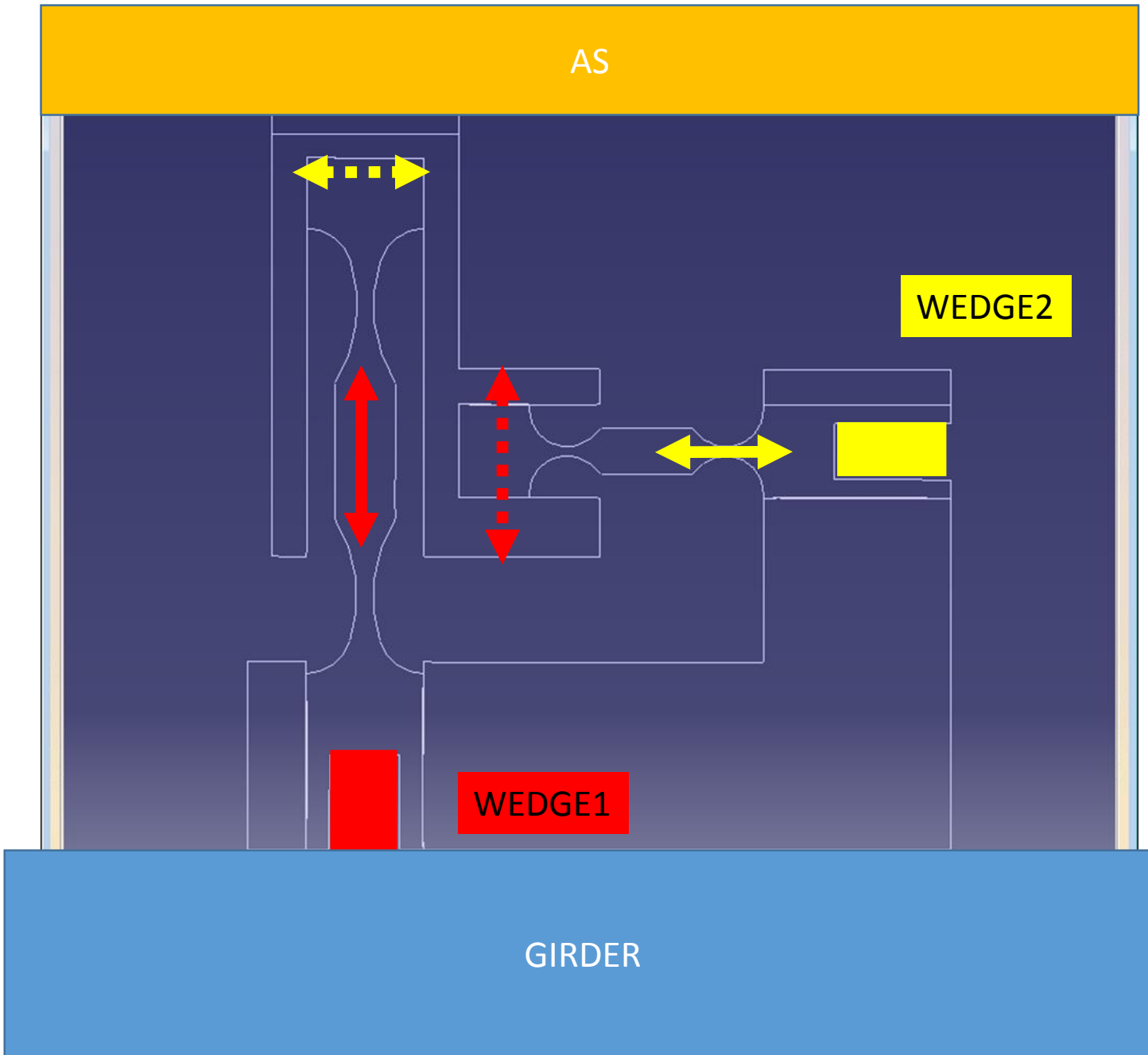
Adjustable support design

Jukka Väinölä

13/9/2017

Initial design of 2 DOF support

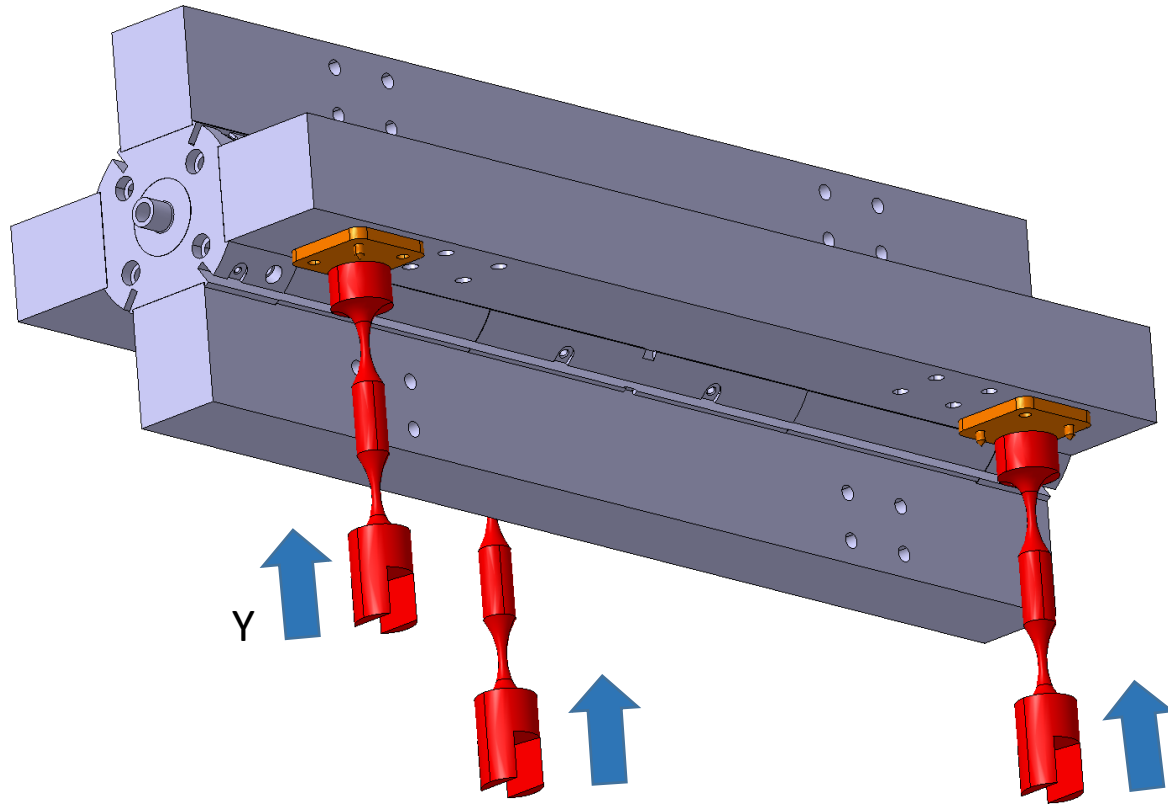




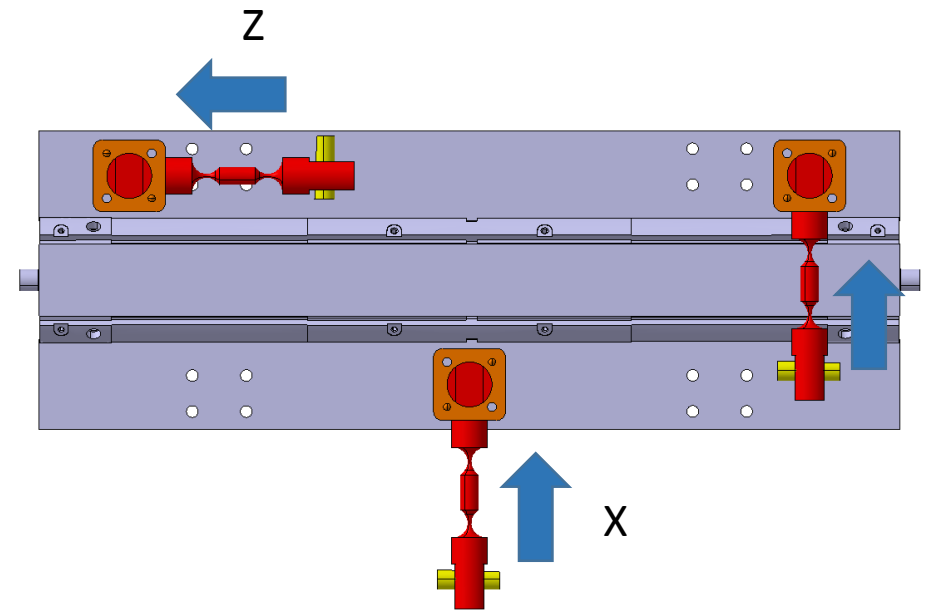
2DOF flexure
based support

Cross section

Support and adjustment with 3 flexure supports

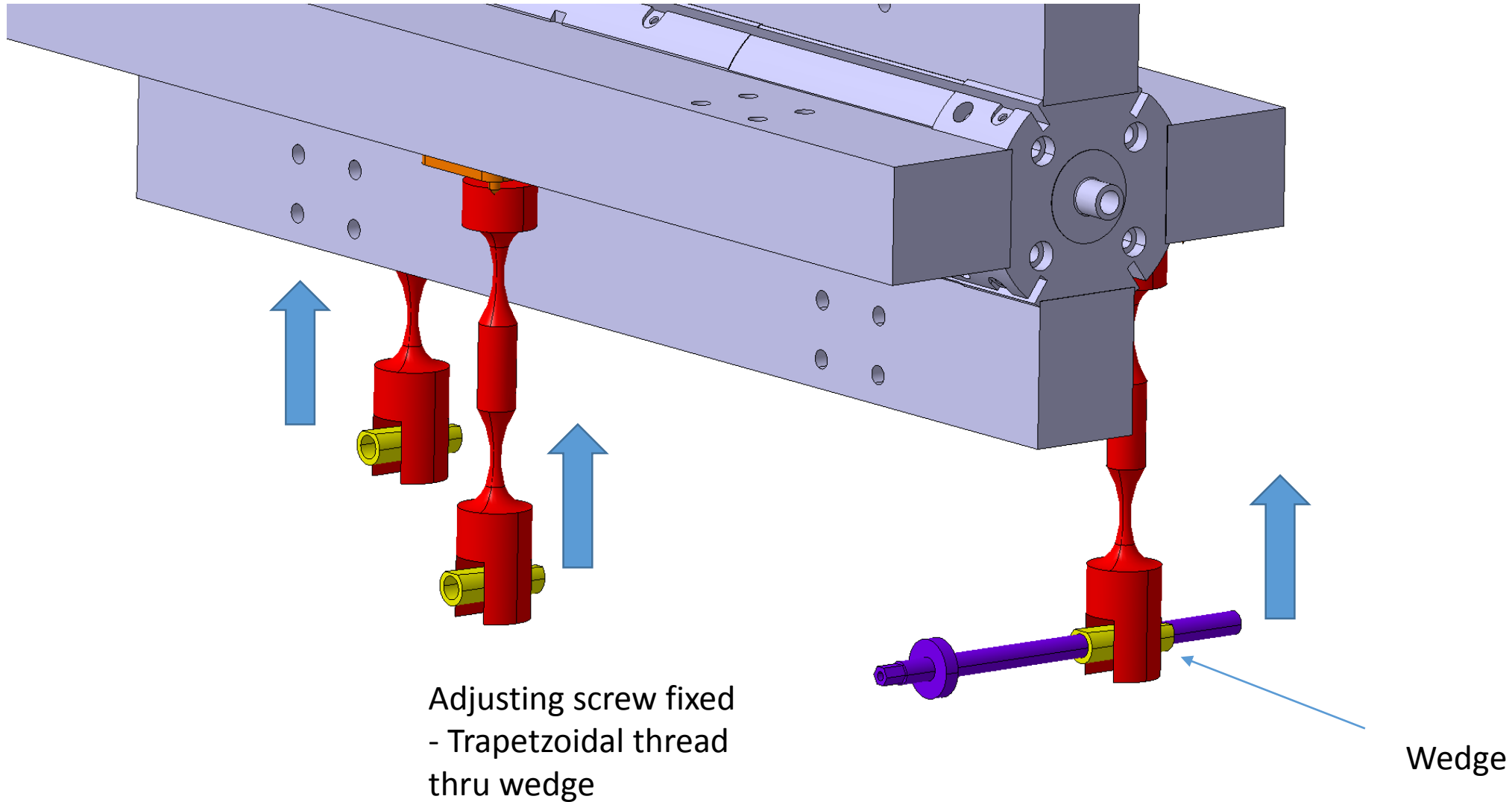


Y, pitch and roll

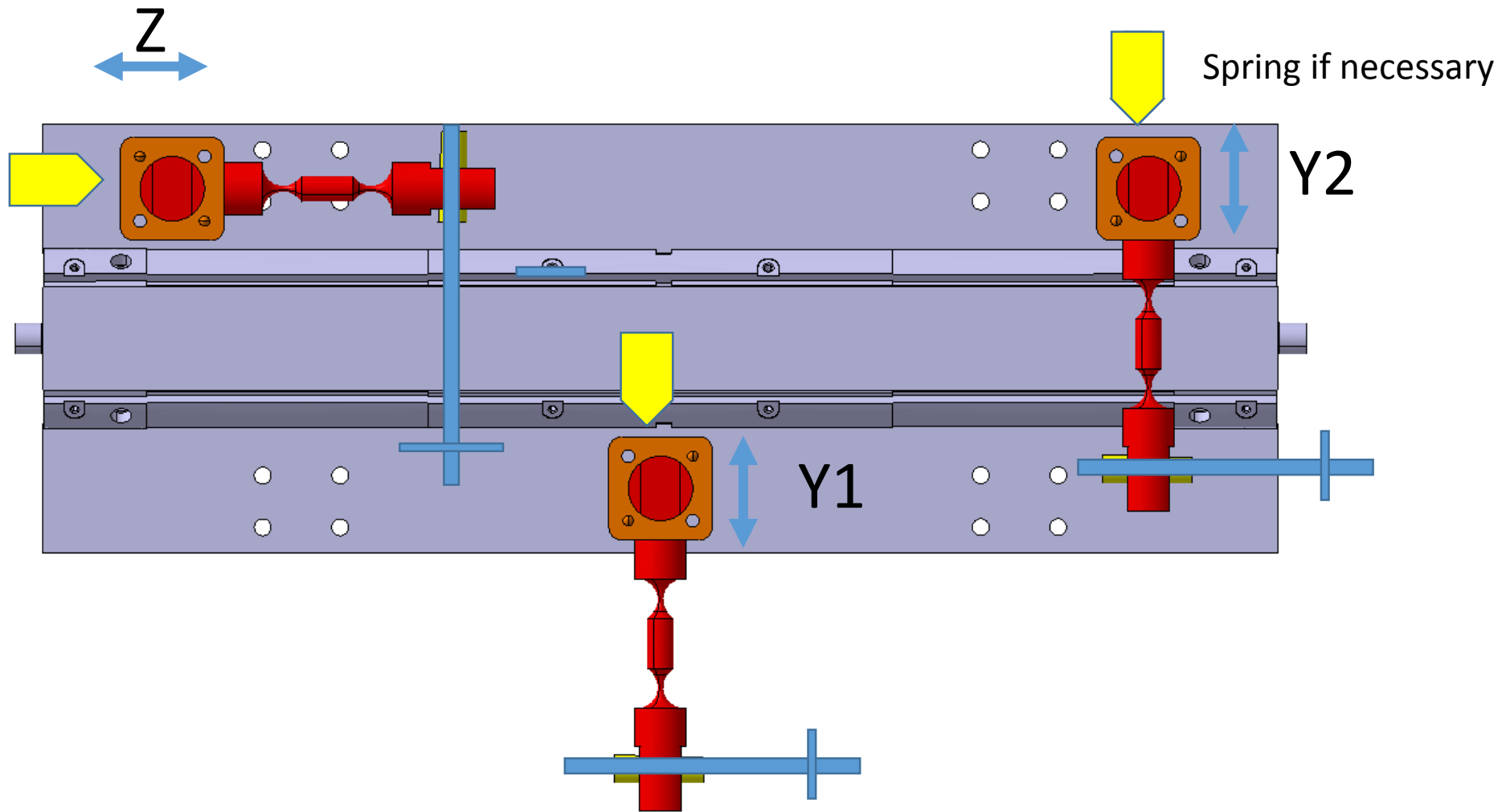


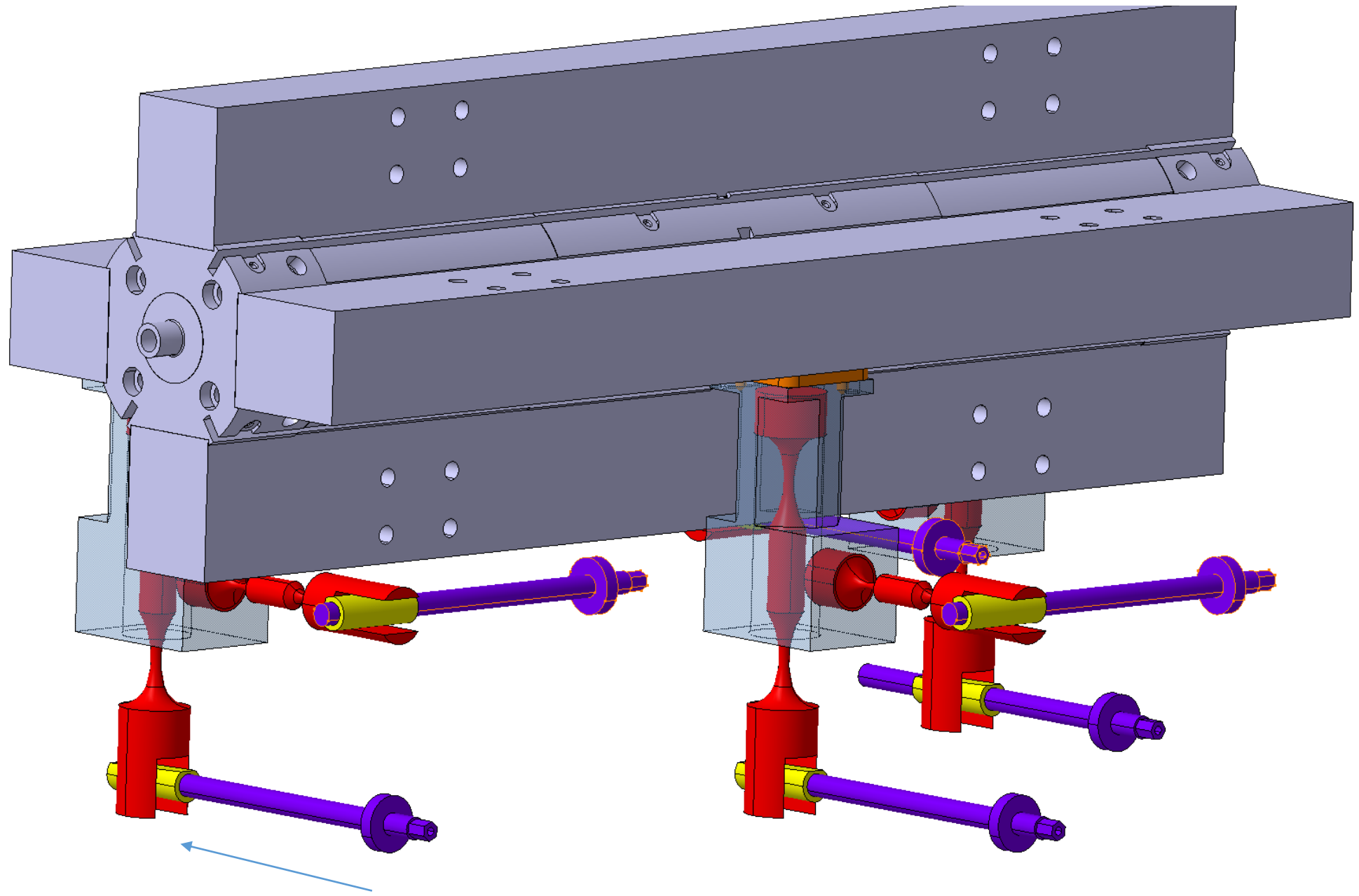
X, Z, yaw

Vertical adjustment with wedges

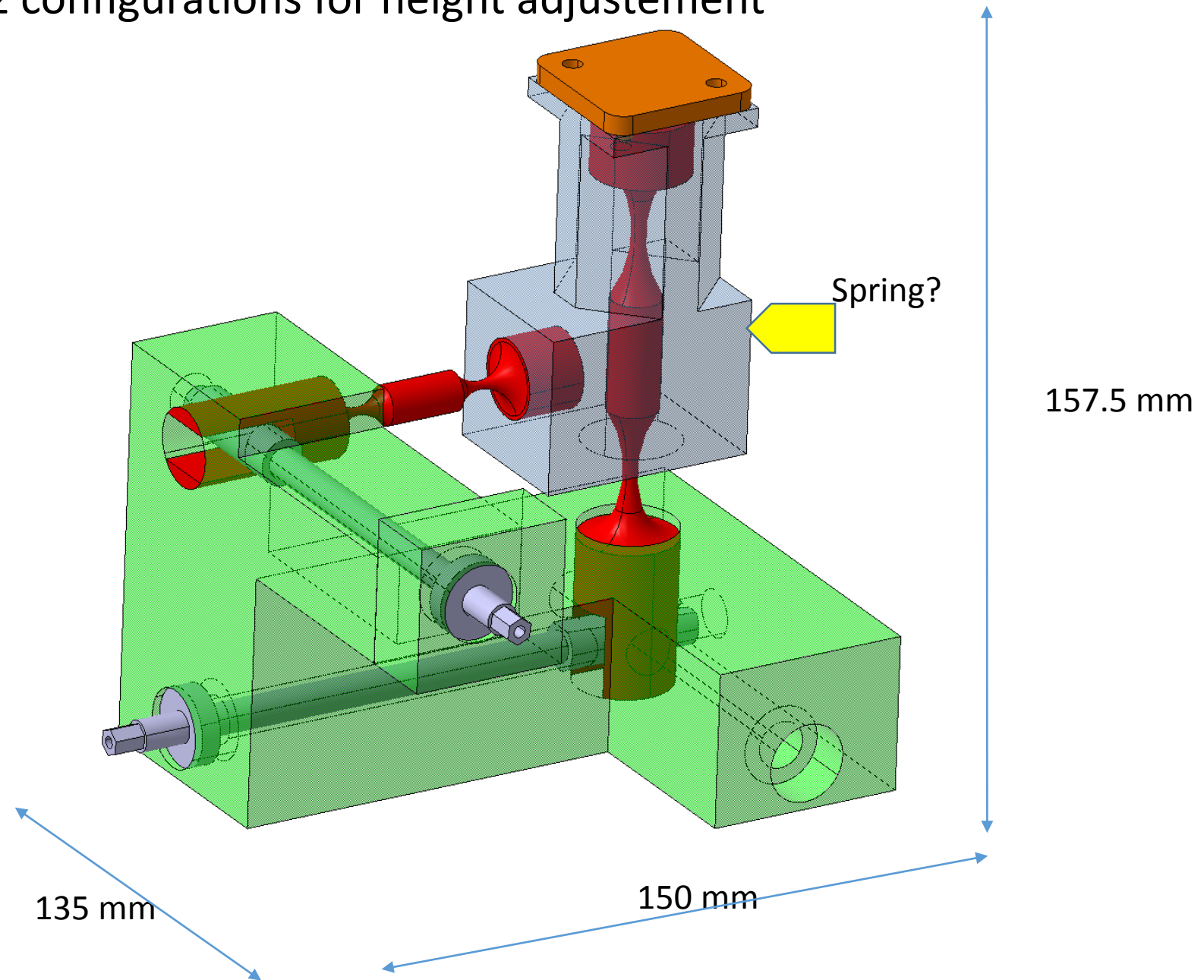


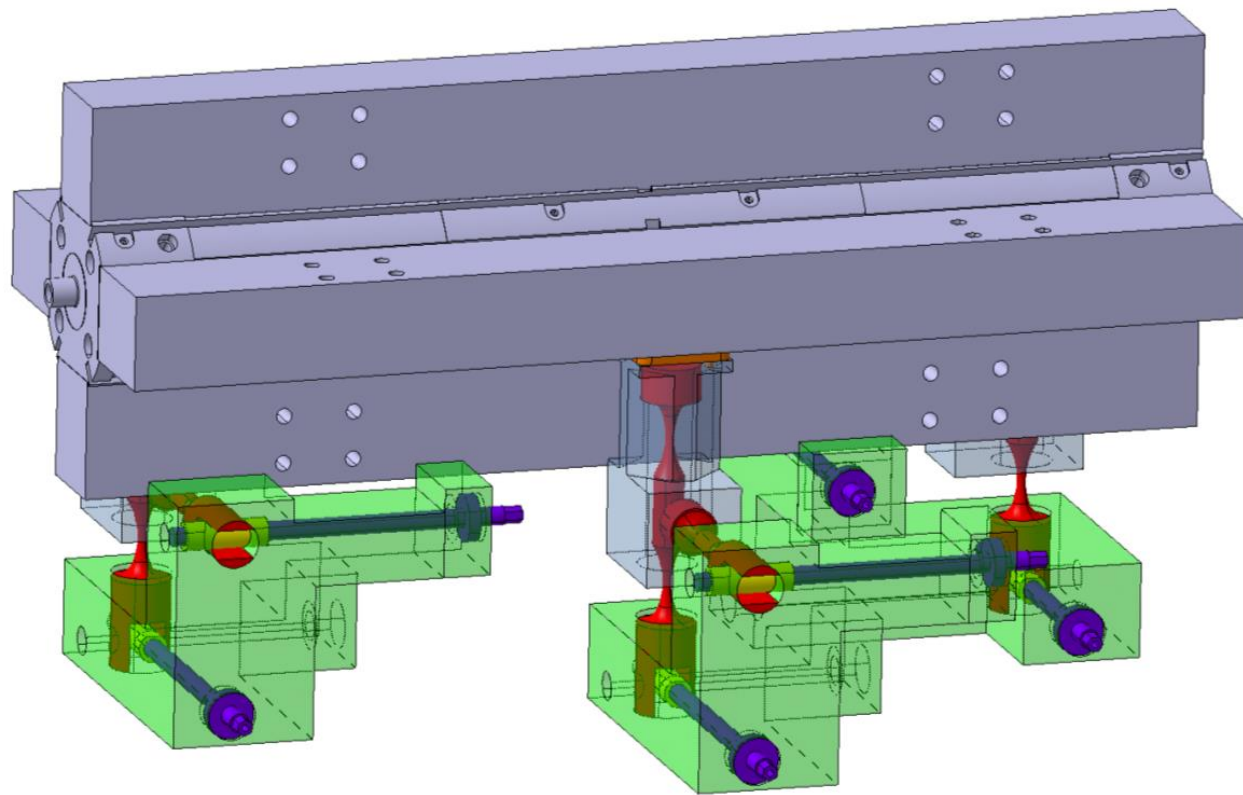
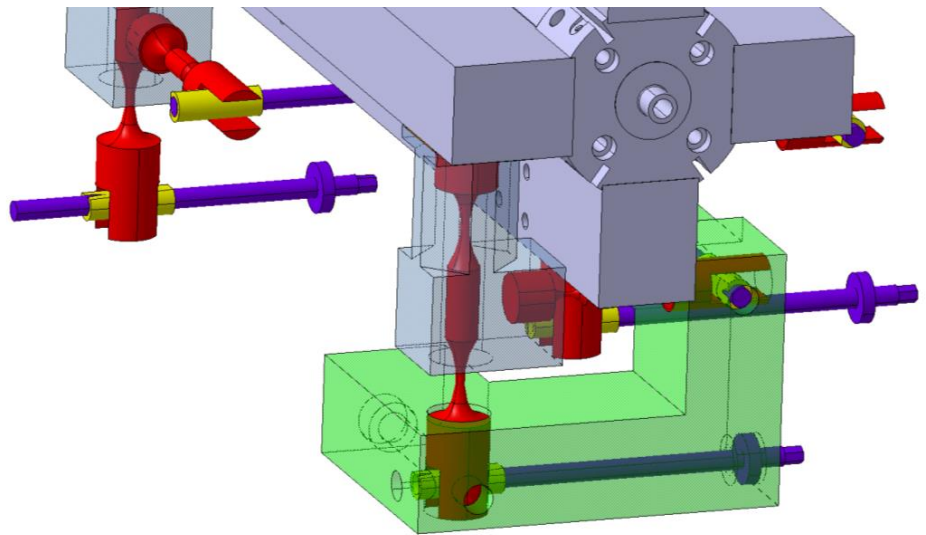
Horizontal adjustment, z and y





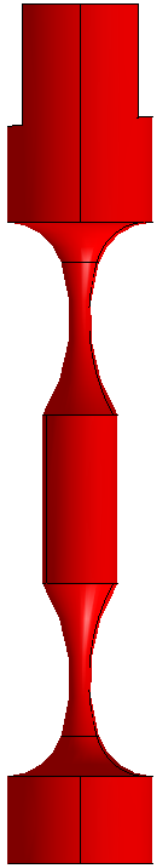
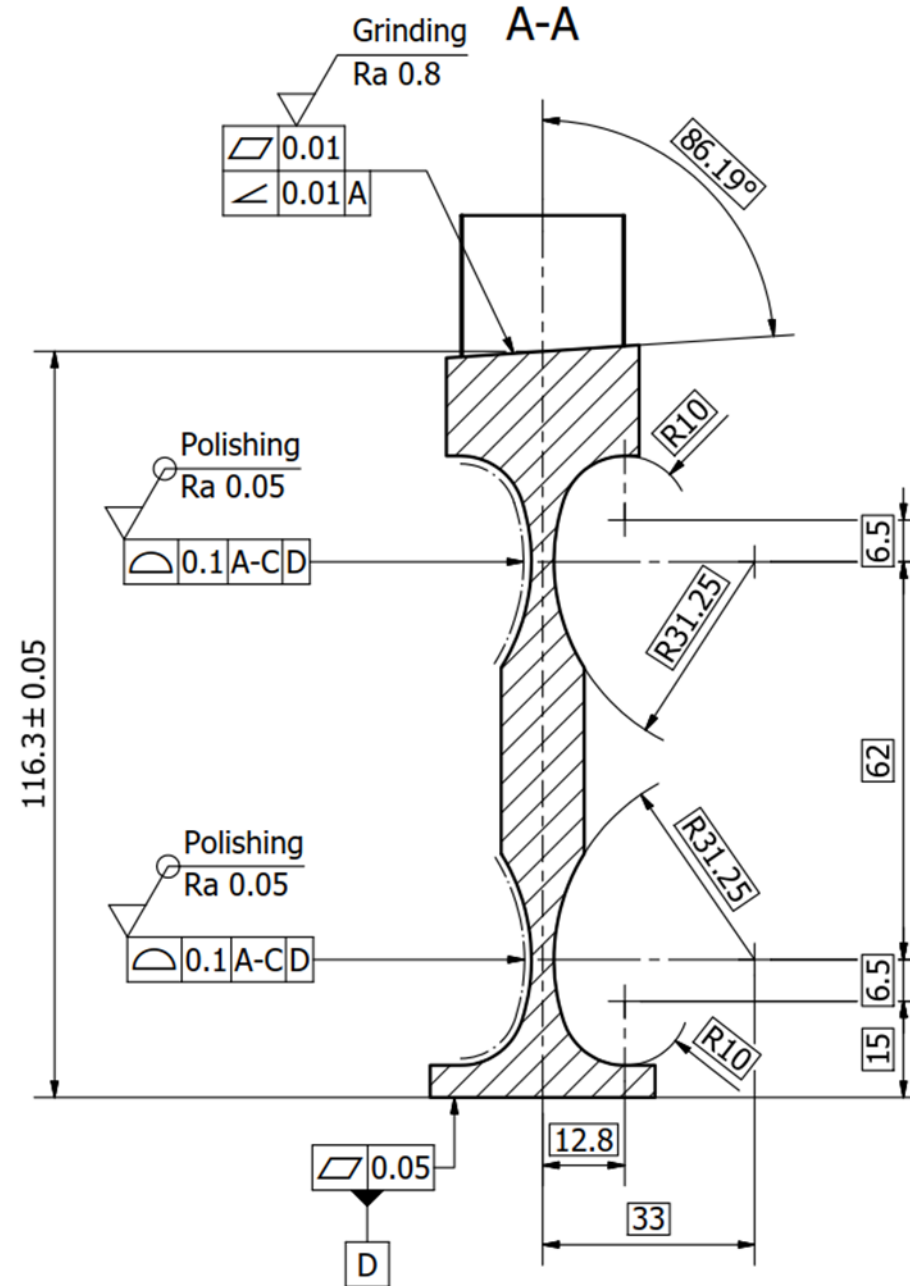
"2DOF BOX" with 2 configurations for height adjustment

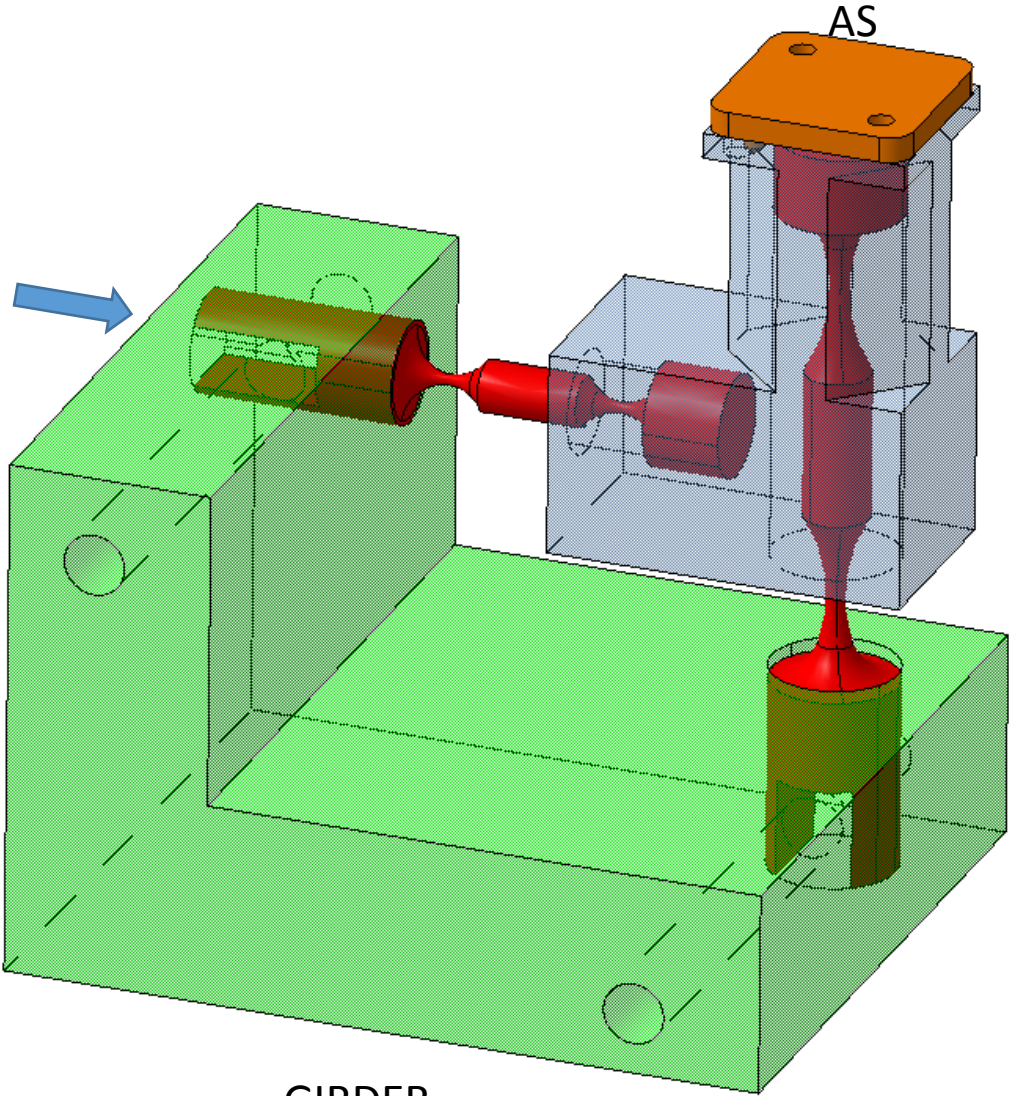




Vertical flexure

- Initial geometrical design from DBQ support
- Material 30CrNiMo8 (EN 10083-3-2006)
 - or 34CrNiMo6
 - Tensile strength R_m 1100 Mpa
 - Yield strength R_e 900 Mpa





GIRDER

3 SUPPORTS /AS

NEXT STEPS

Simulations (in progress)

- Range y, x
- Stress distribution

Geometrical optimisation

- Shape and length of the flexures
- Stress distribution
 - No plastic deformation allowed
- Needed spring forces (range, loads)
- Material selection, treatment
- Space optimisation for box

→ final design for prototyping

Thank you....