



HSSIP Group Project: CCC

Compact Curved C bracket

By NOKiA
(Niklas Otto Kauri Anna-Mari)

You don't break it – it breaks you



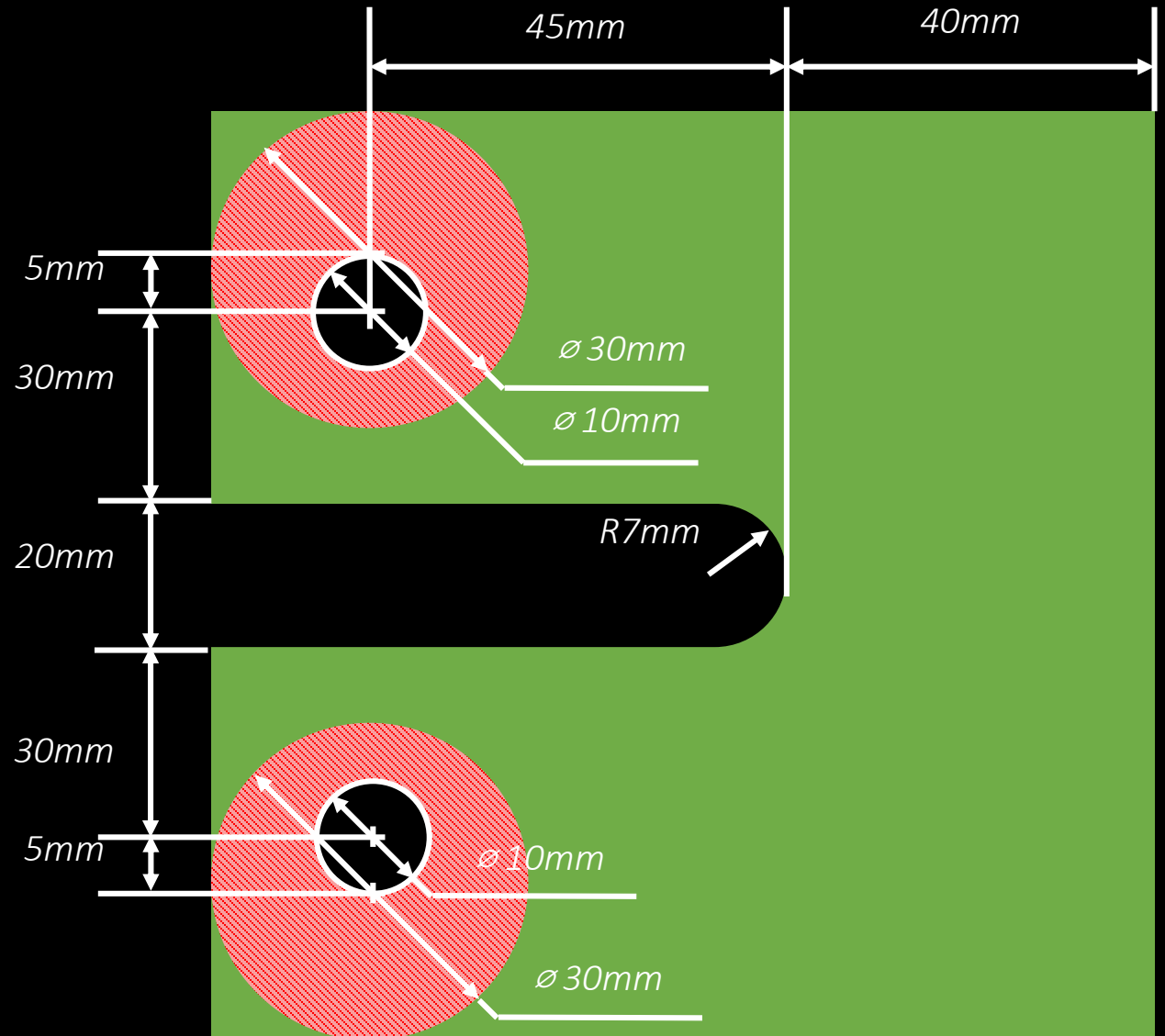
What is CLIC?

- Compact Linear Collider – accelerating particles in a straight line
- Electron-positron collider
- Nanometer-scale beam
- Future project (2035)
- High acceleration gradient of 100 MV/m - LHC 5MV/m
- 50km : (22+3)km*2

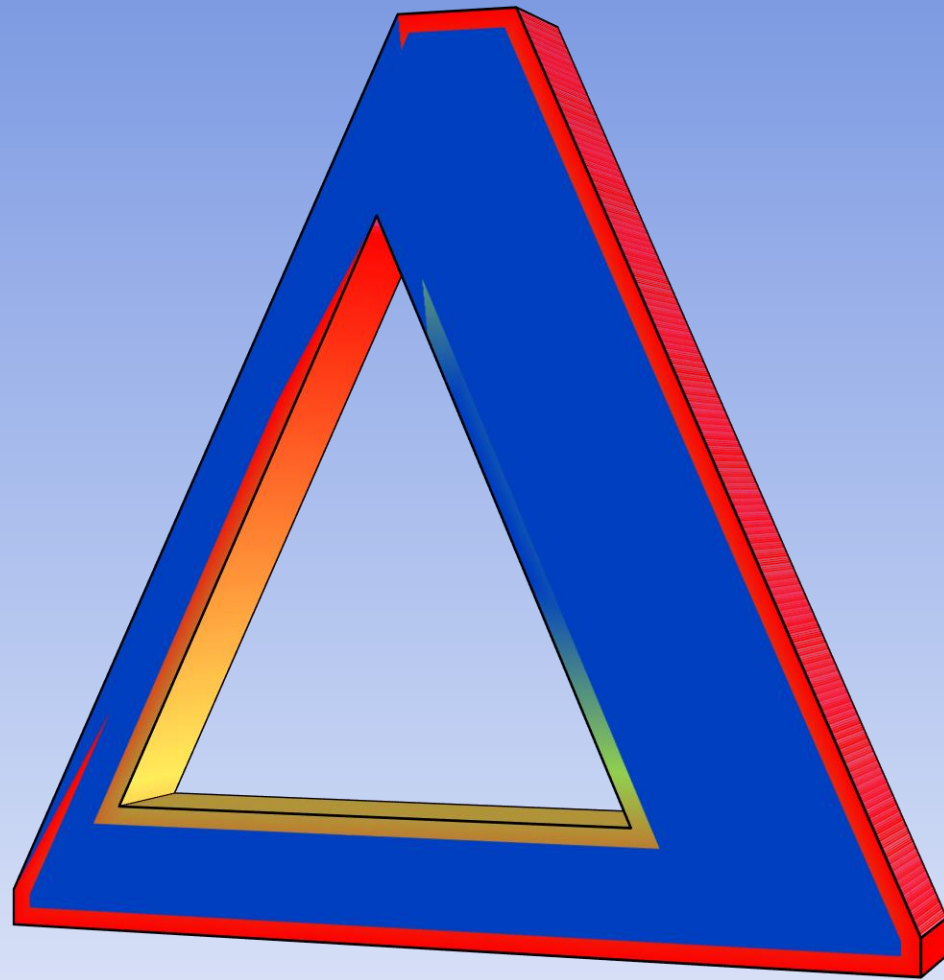


Our Task

- Designing and optimising a 'C' lifting bracket without automatic topology optimisation tools
- Goals:
 - Maximise stiffness
 - Volume under 42 cm³
- Two designs in two pairs (Δ , Ω)
- Modelling SpaceClaim
- Intermediate testing and failure point estimation with Ansys FEA software
- 3D printing the final parts for physical testing



Overall Dimensions:
100mm x 120mm x 10mm



C: Static Structural

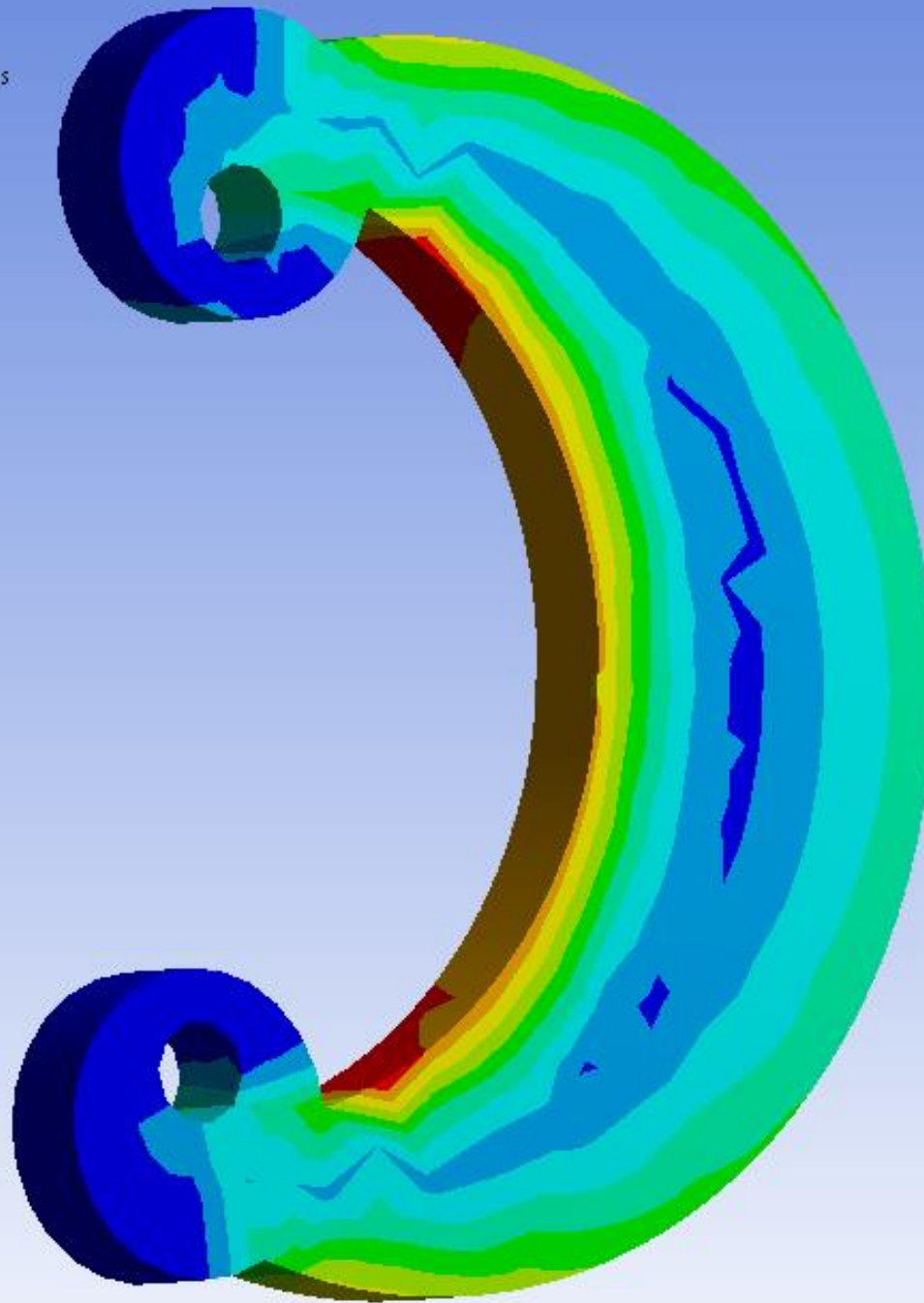
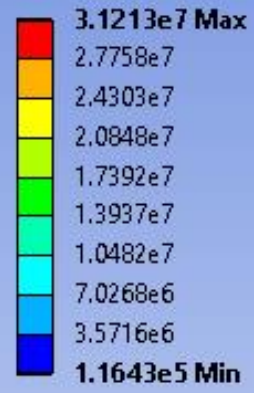
Equivalent Stress

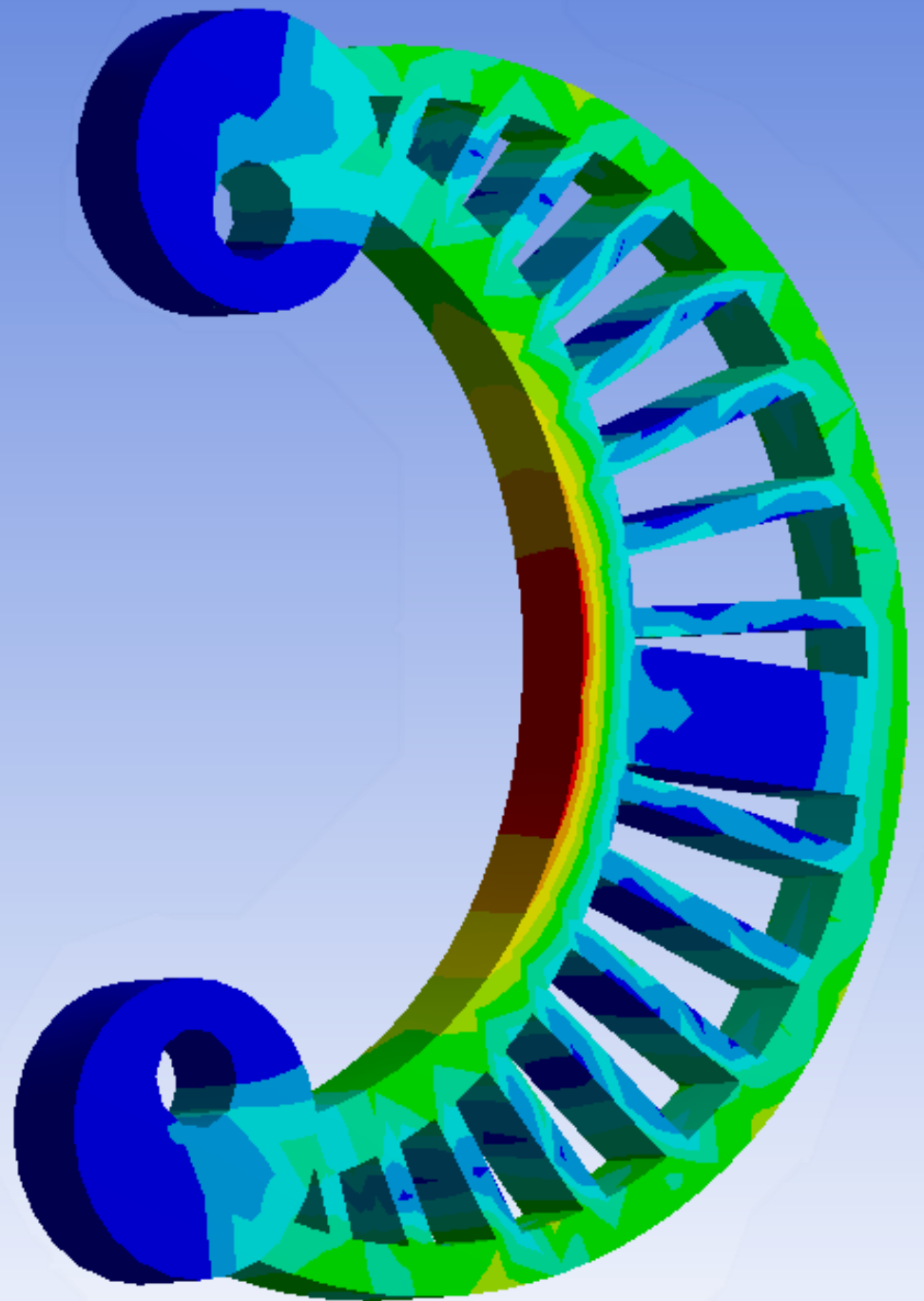
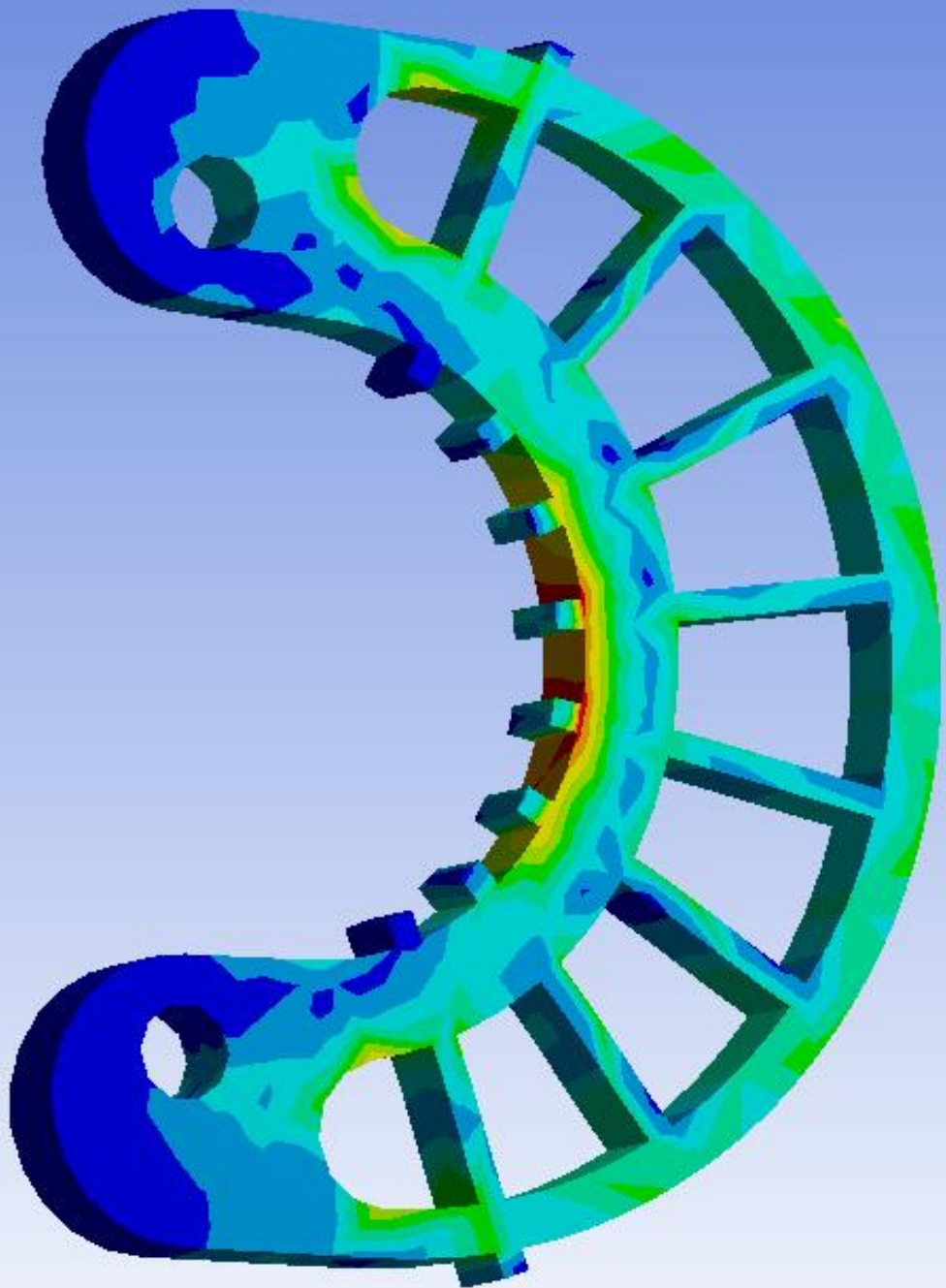
Type: Equivalent (von-Mises) Stress

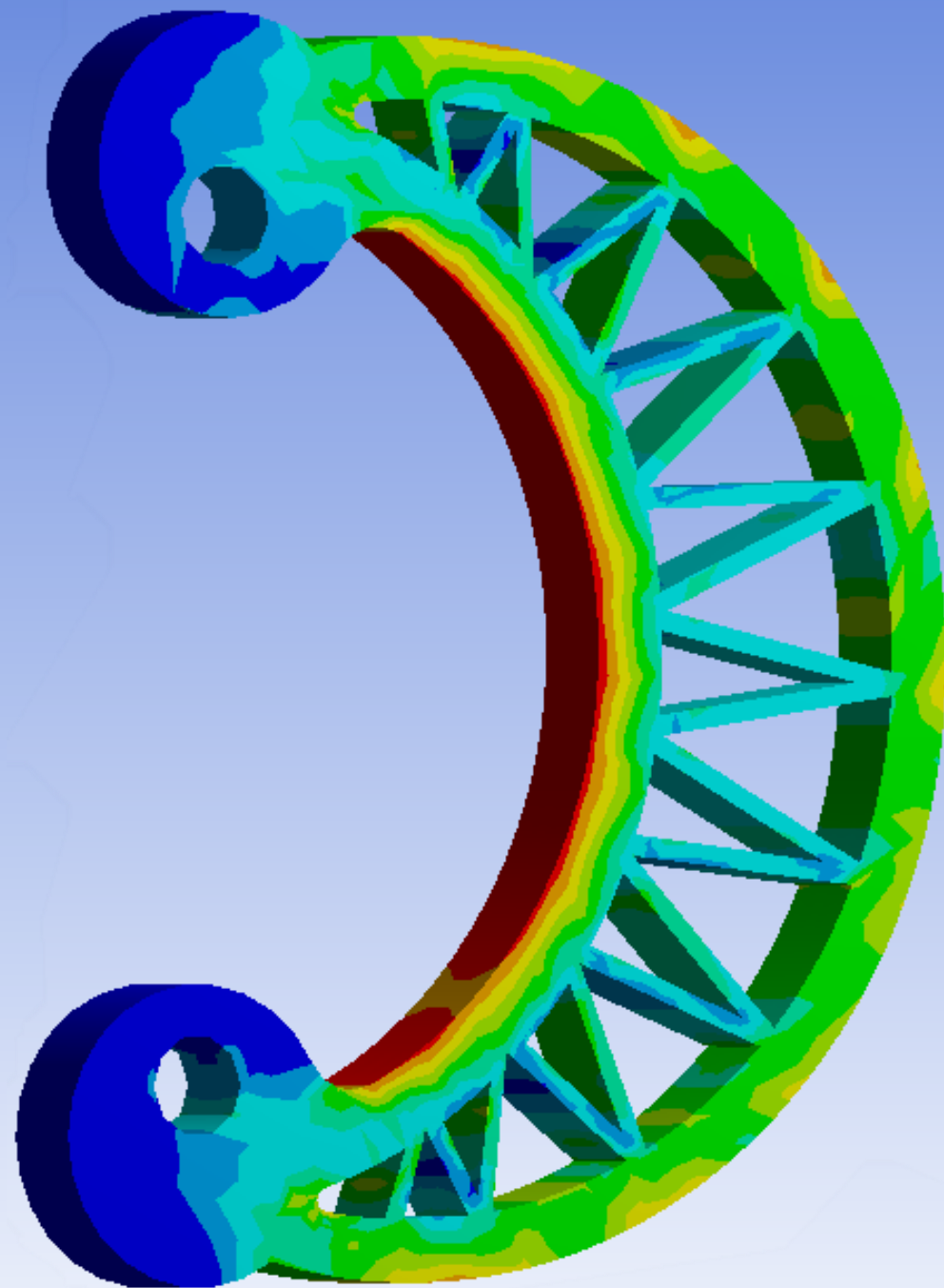
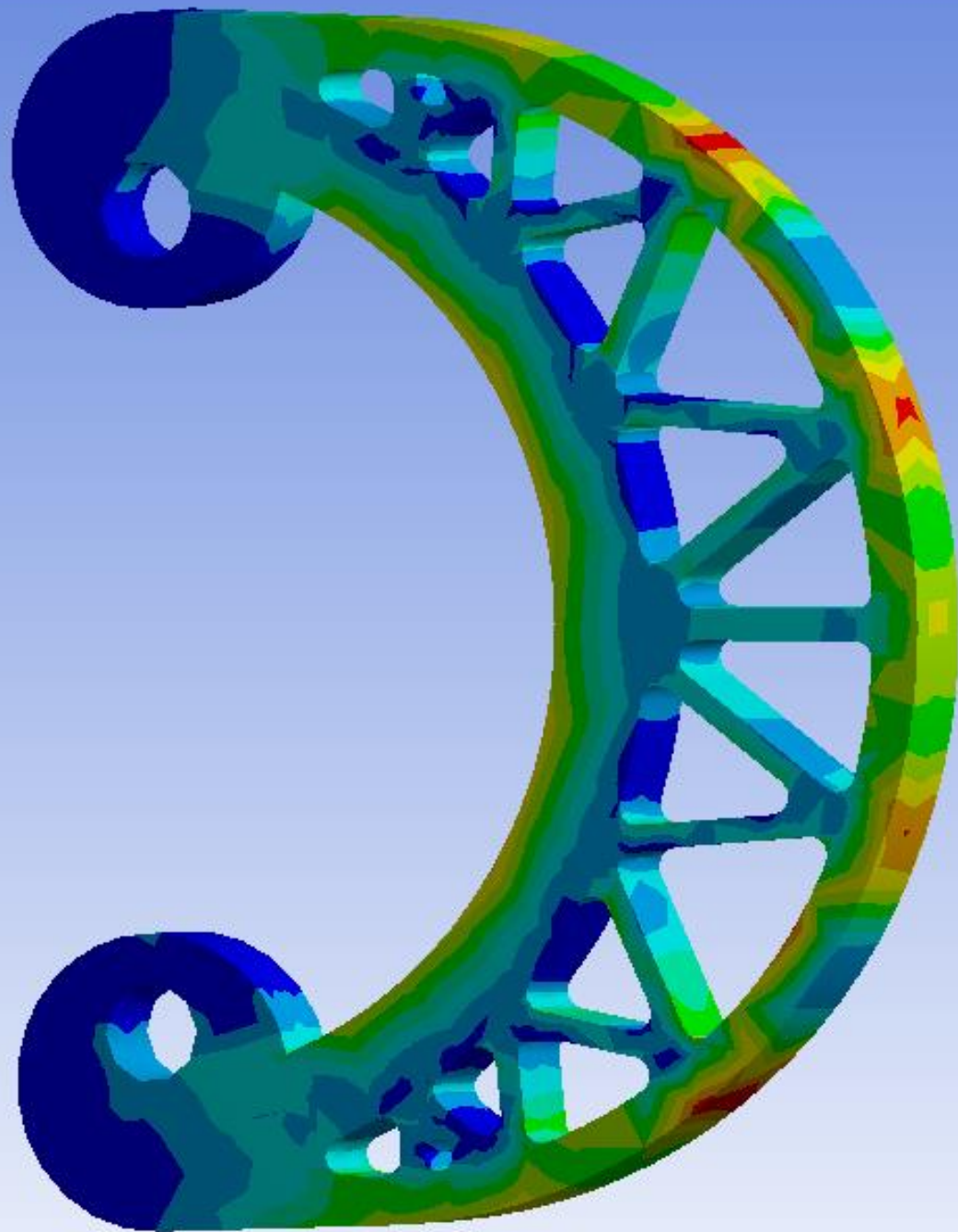
Unit: Pa

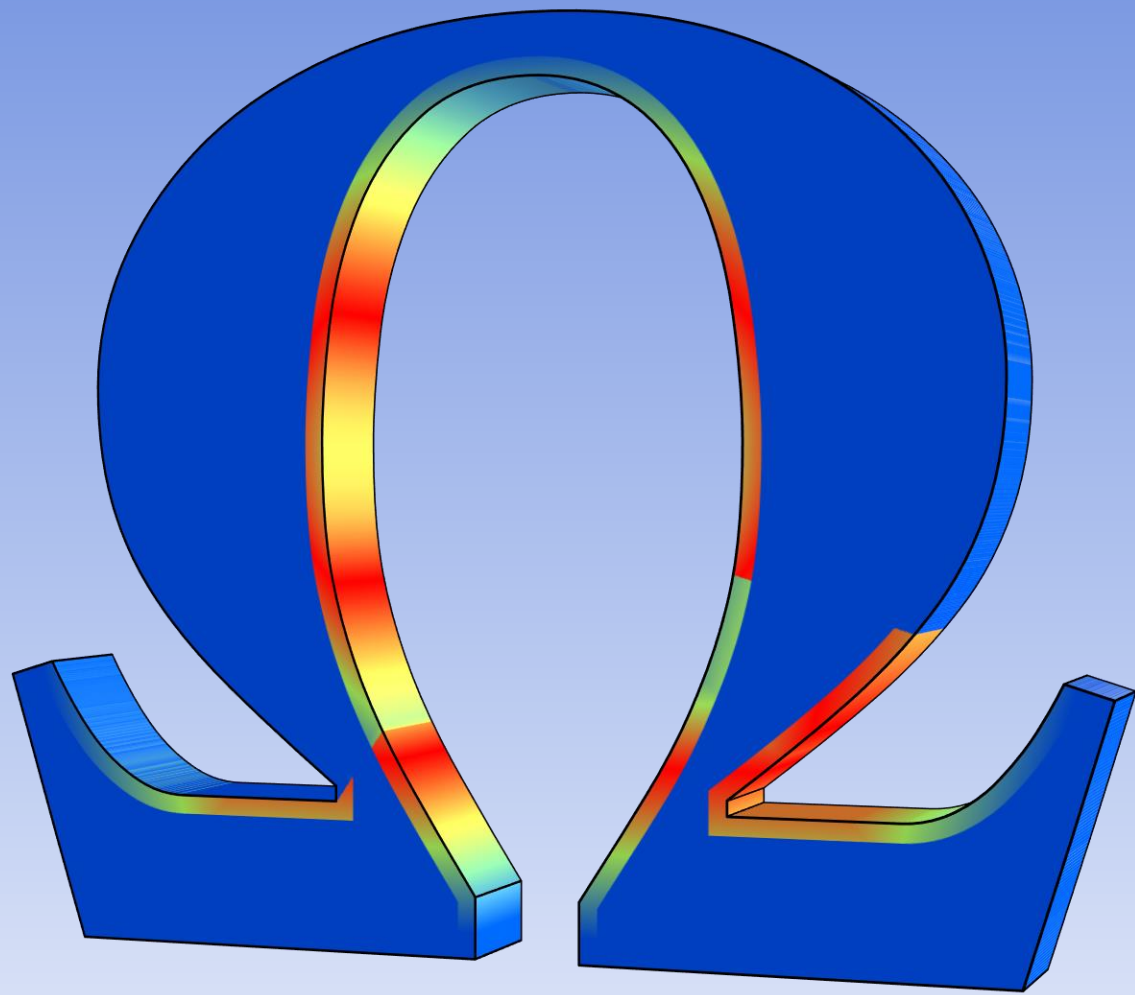
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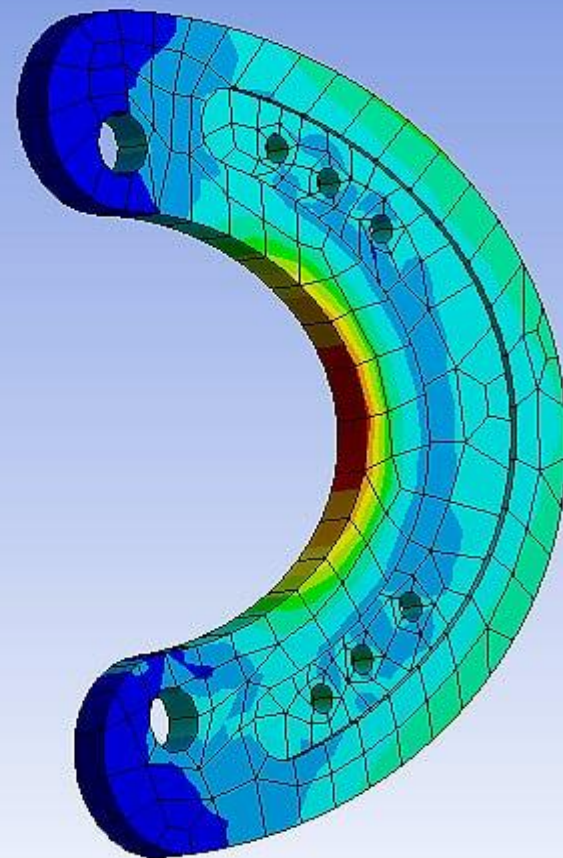
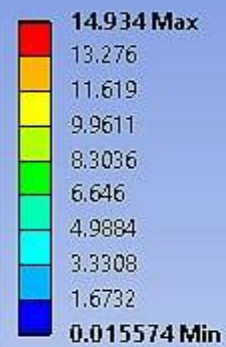
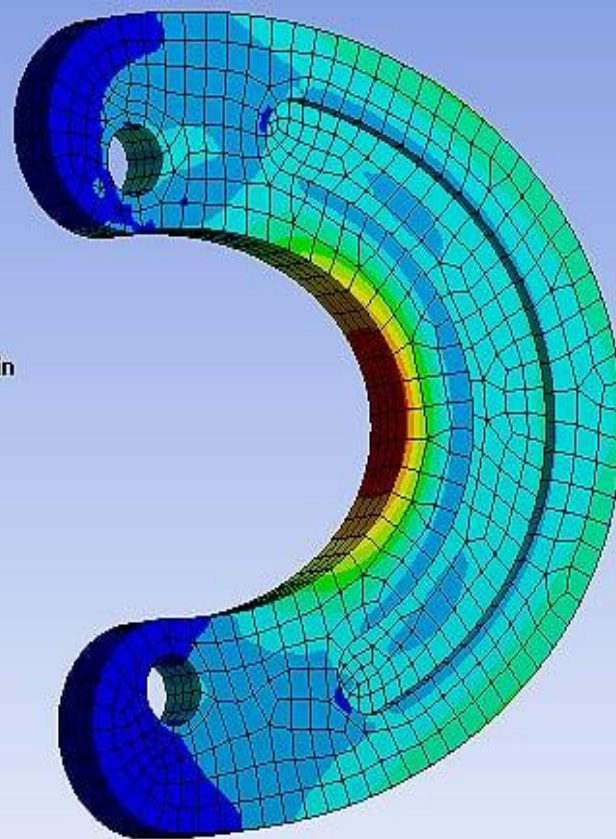
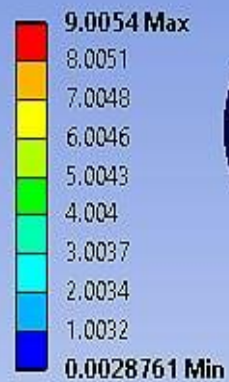
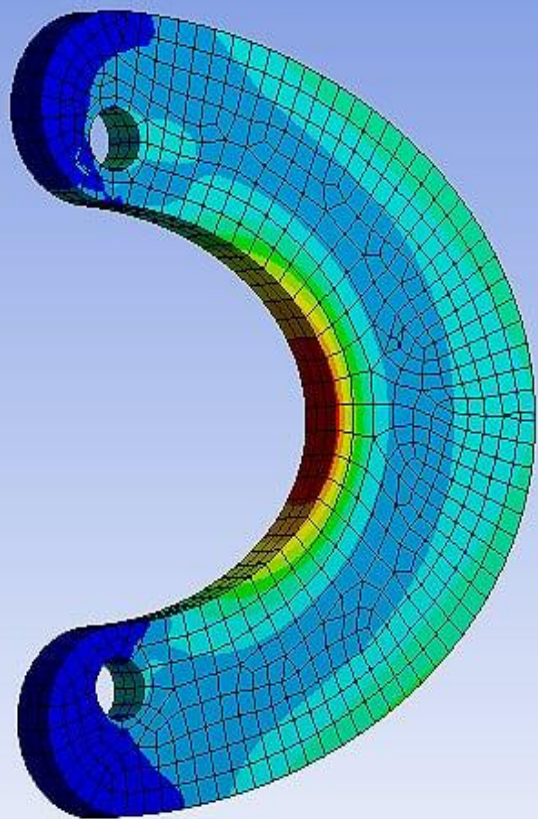
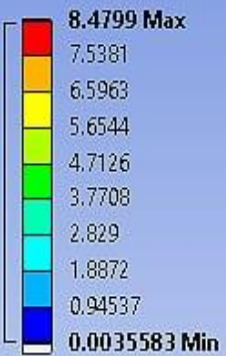
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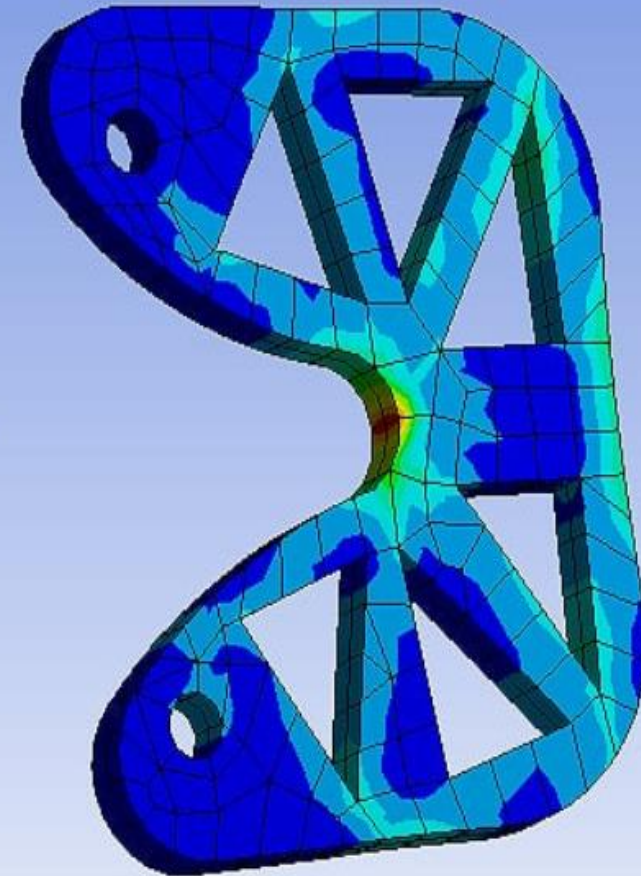
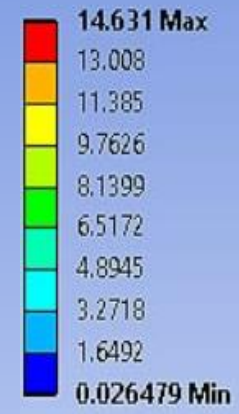
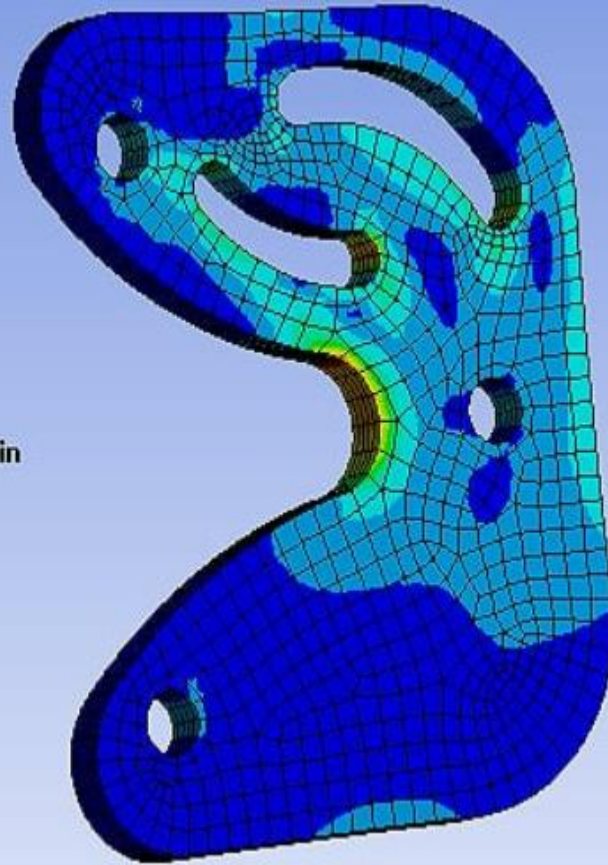
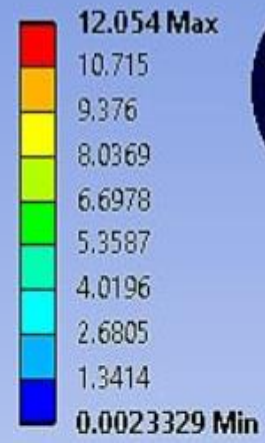
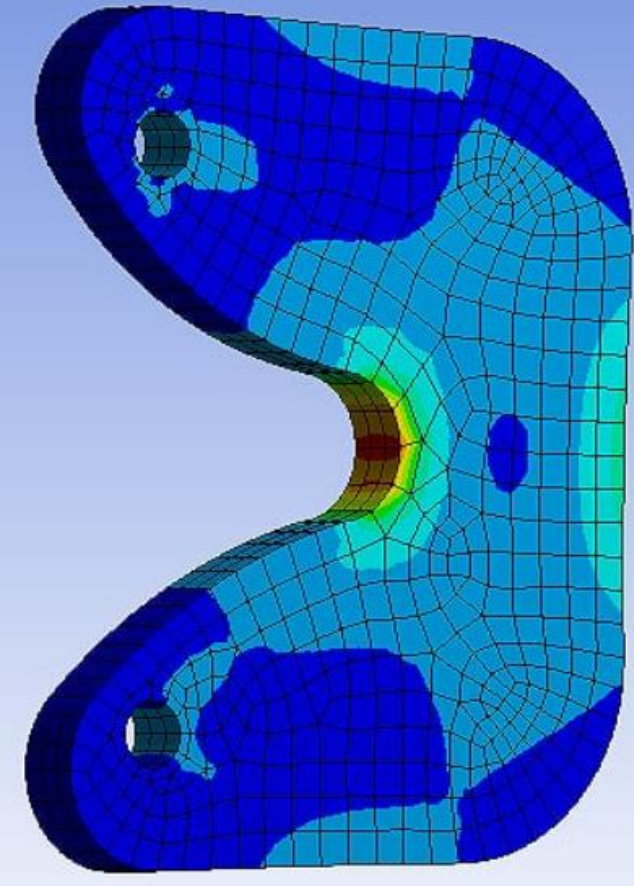


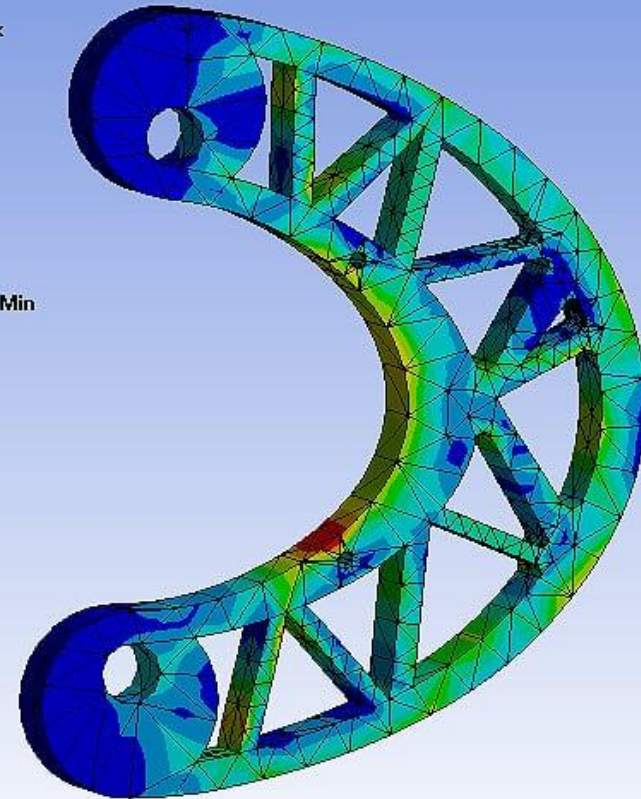
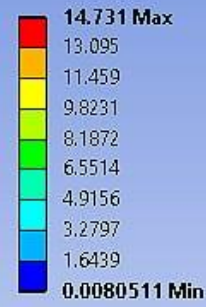
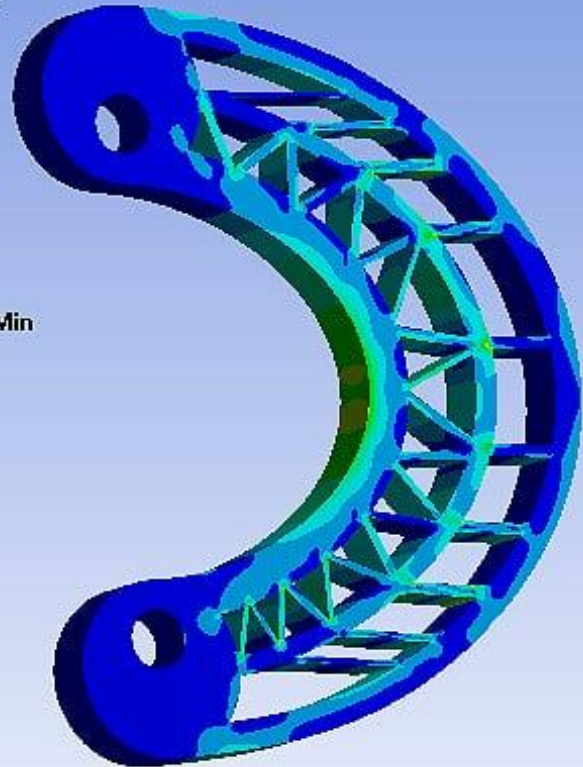
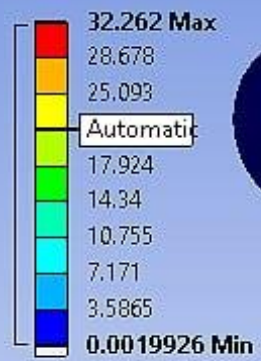


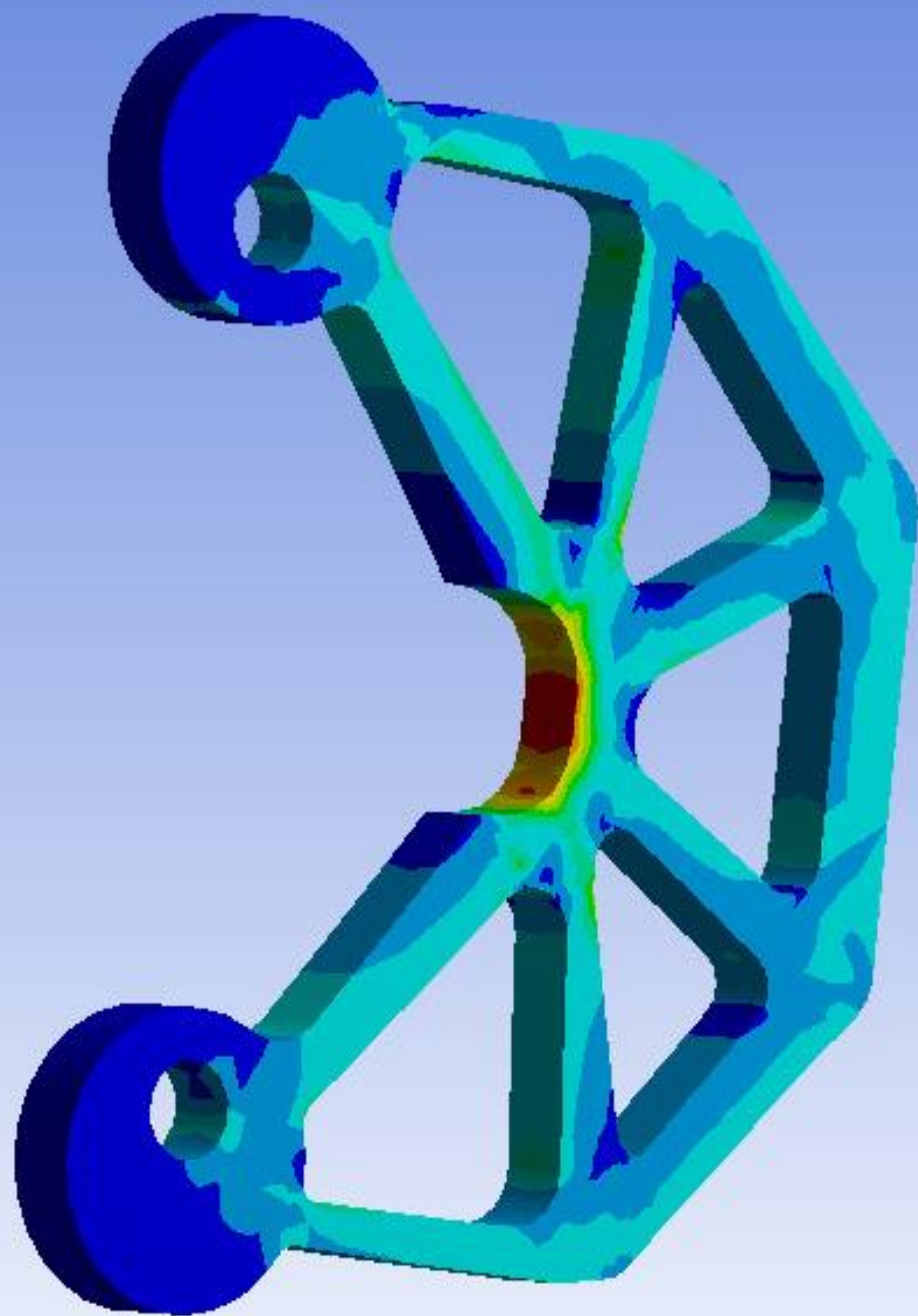
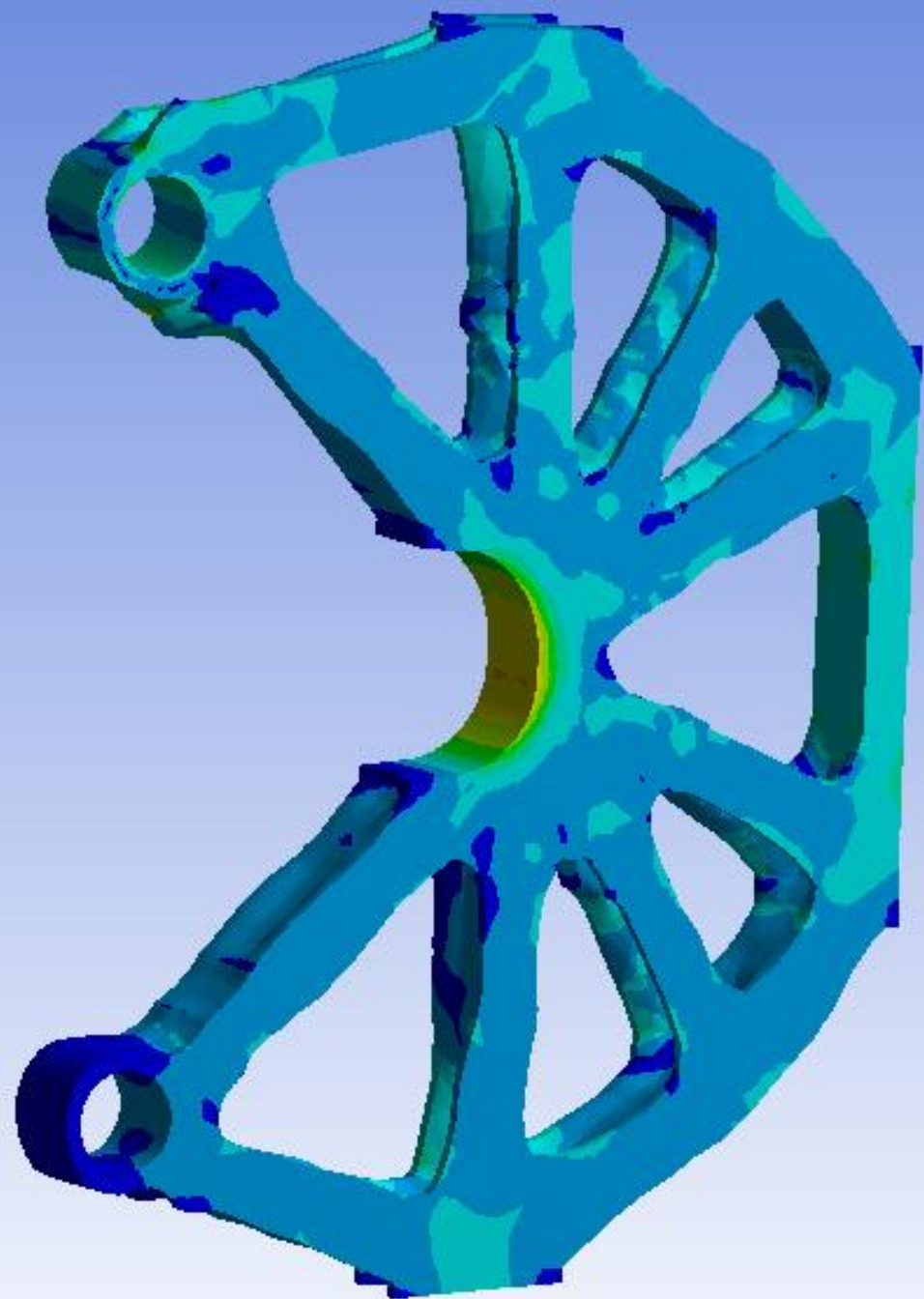




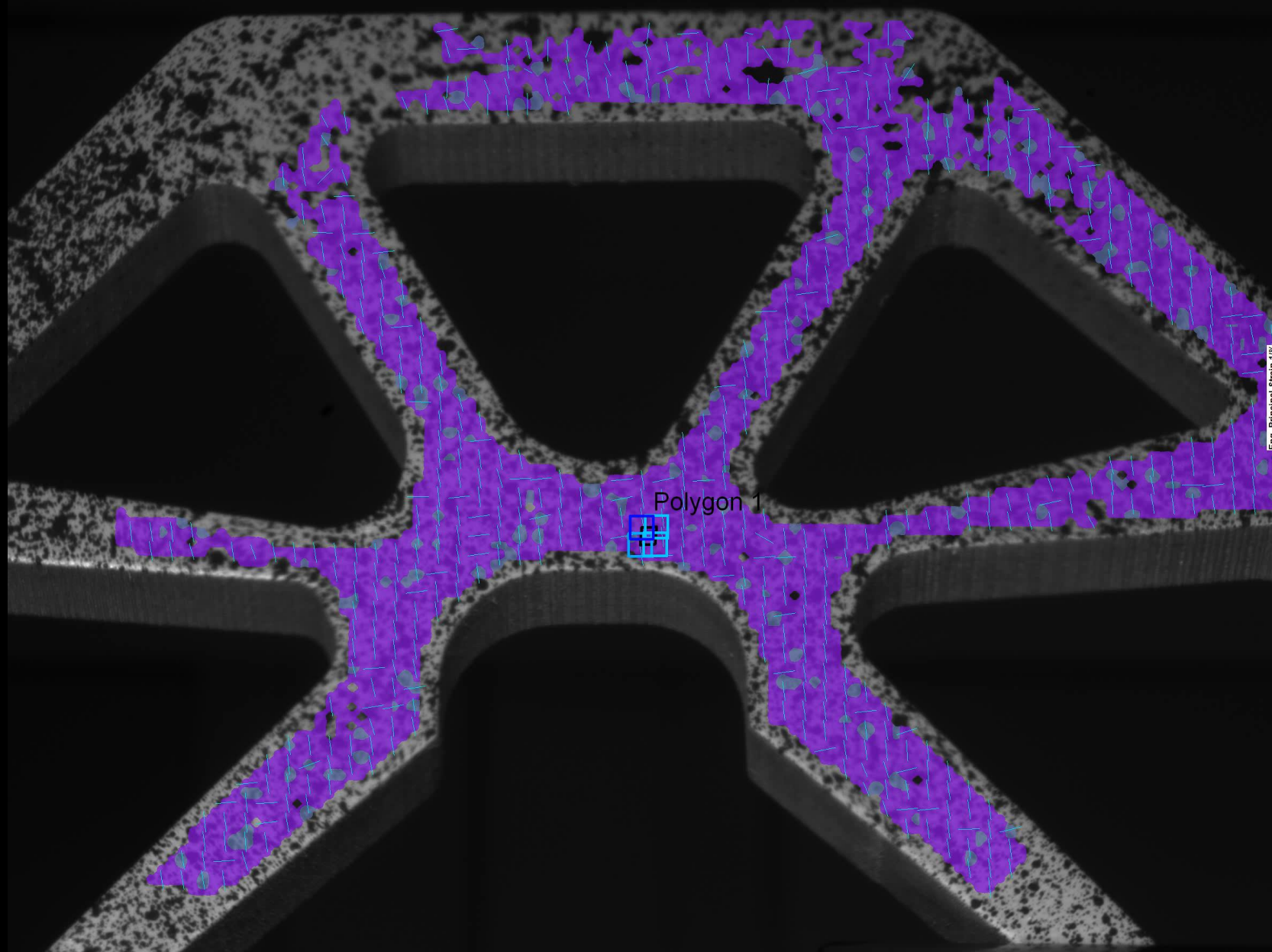


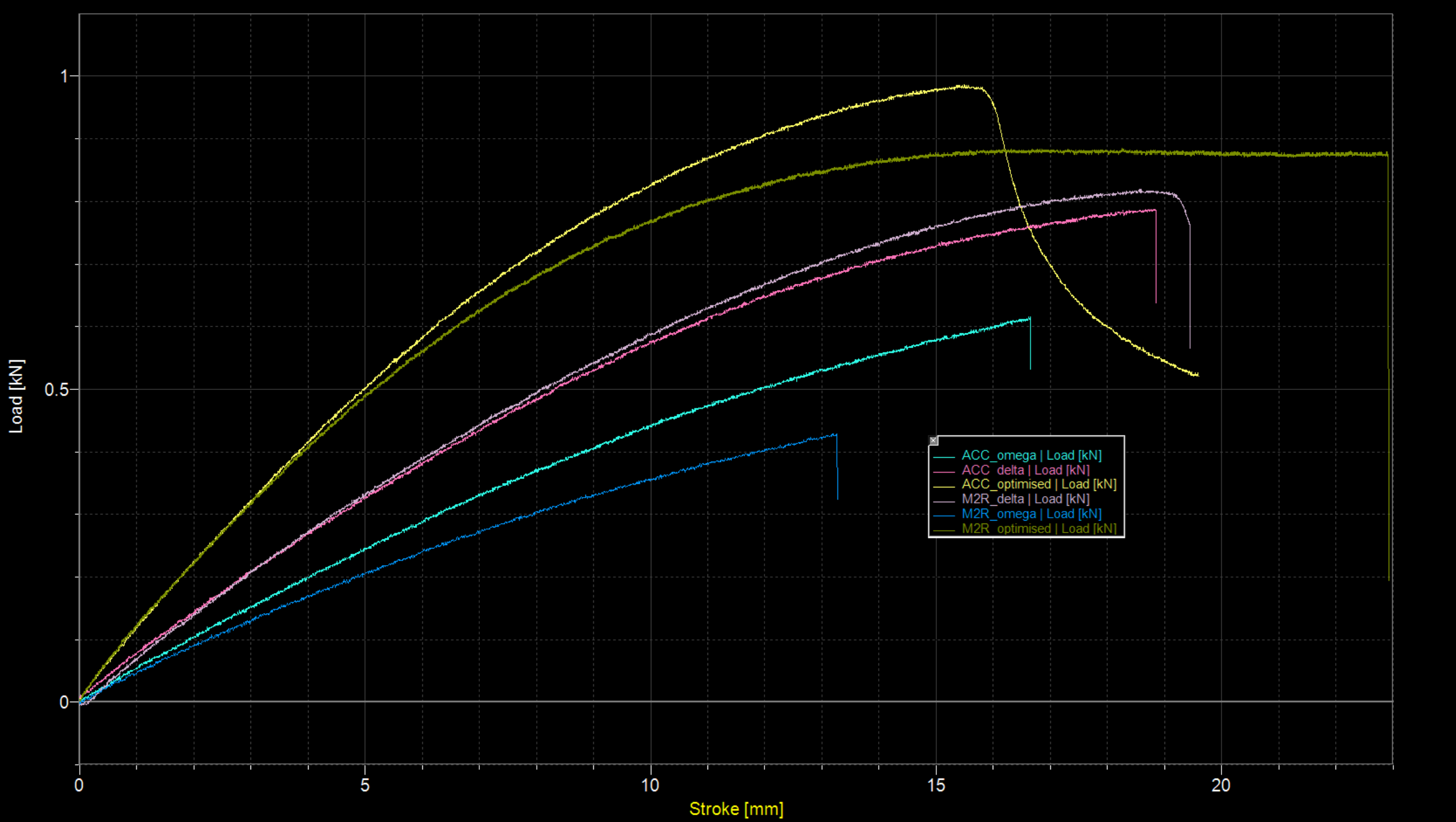












Questions?