Plastic Bending

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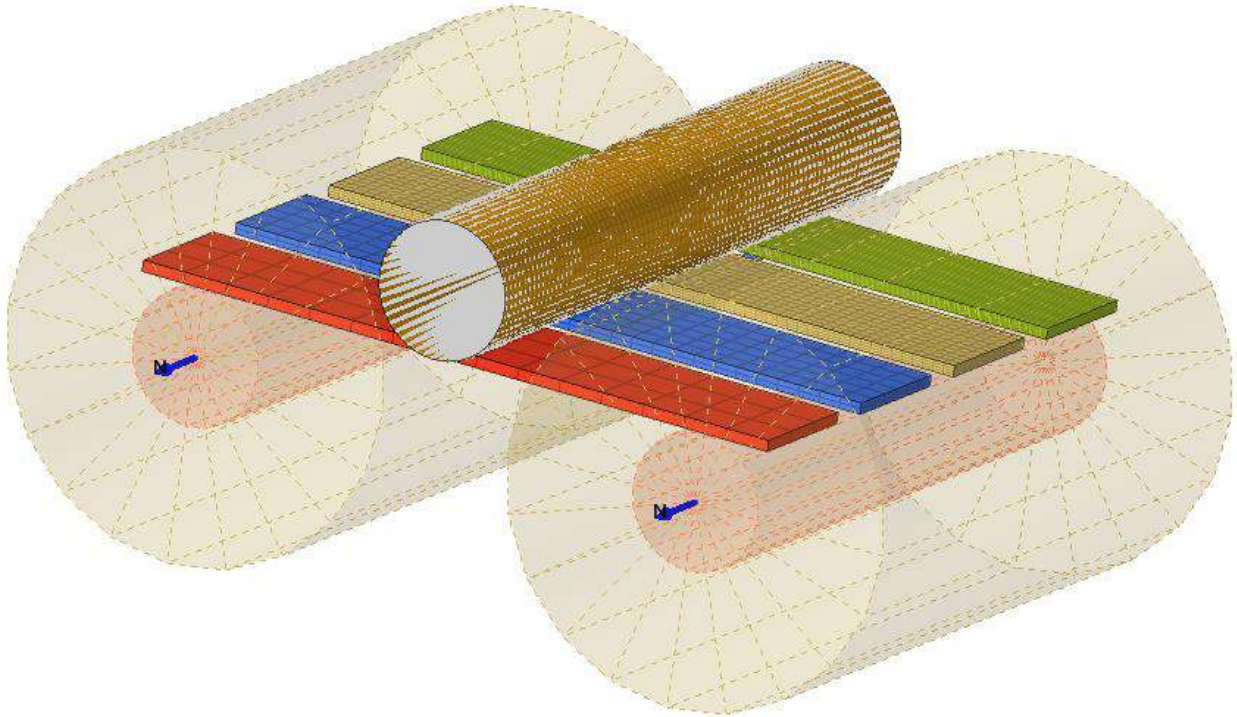
Simplifying FEA

Model Description

- Plastic bending of a metal plate was performed to show the dependence of convergence on number of elements and element formulations
- Aspect ratio kept constant.
- Explicit Analysis



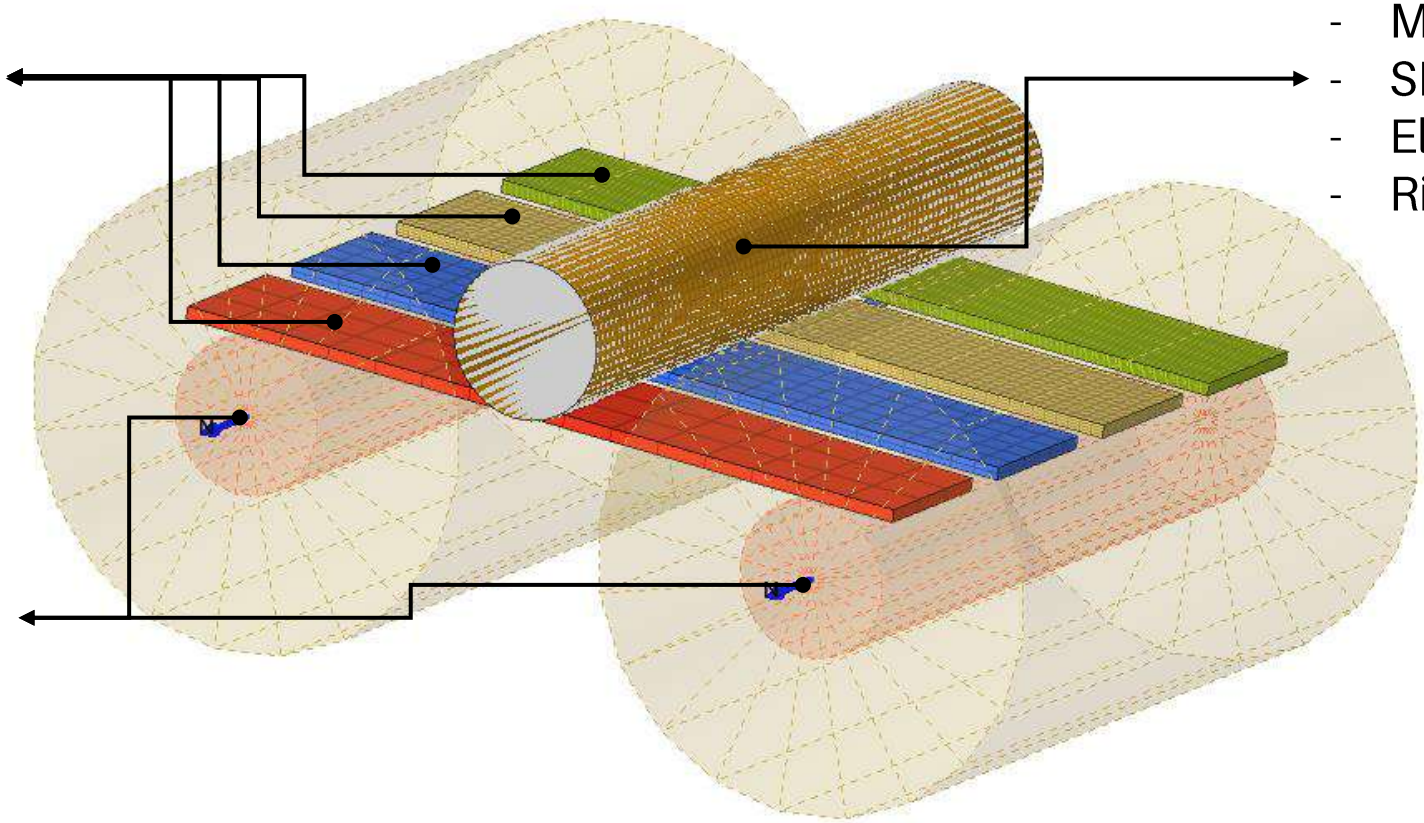
Model Parameters

Entity	Type
Solver	Altair Radioss
Version	2022.1
Processors	2
Threads	2
CPU	Intel(R) Core(TM) i7-9750H CPU @ 2.60GHz
Total run time	

FEA Entities	Type
Analysis Type	Dynamic Explicit
Unit System	kg, mm, ms
Element Type	P14_SOLID
Material Type	M36_PLAS_TAB

Analysis Setup

Specimen
- Number of Elements vary
- Plastic material
- Solid elements

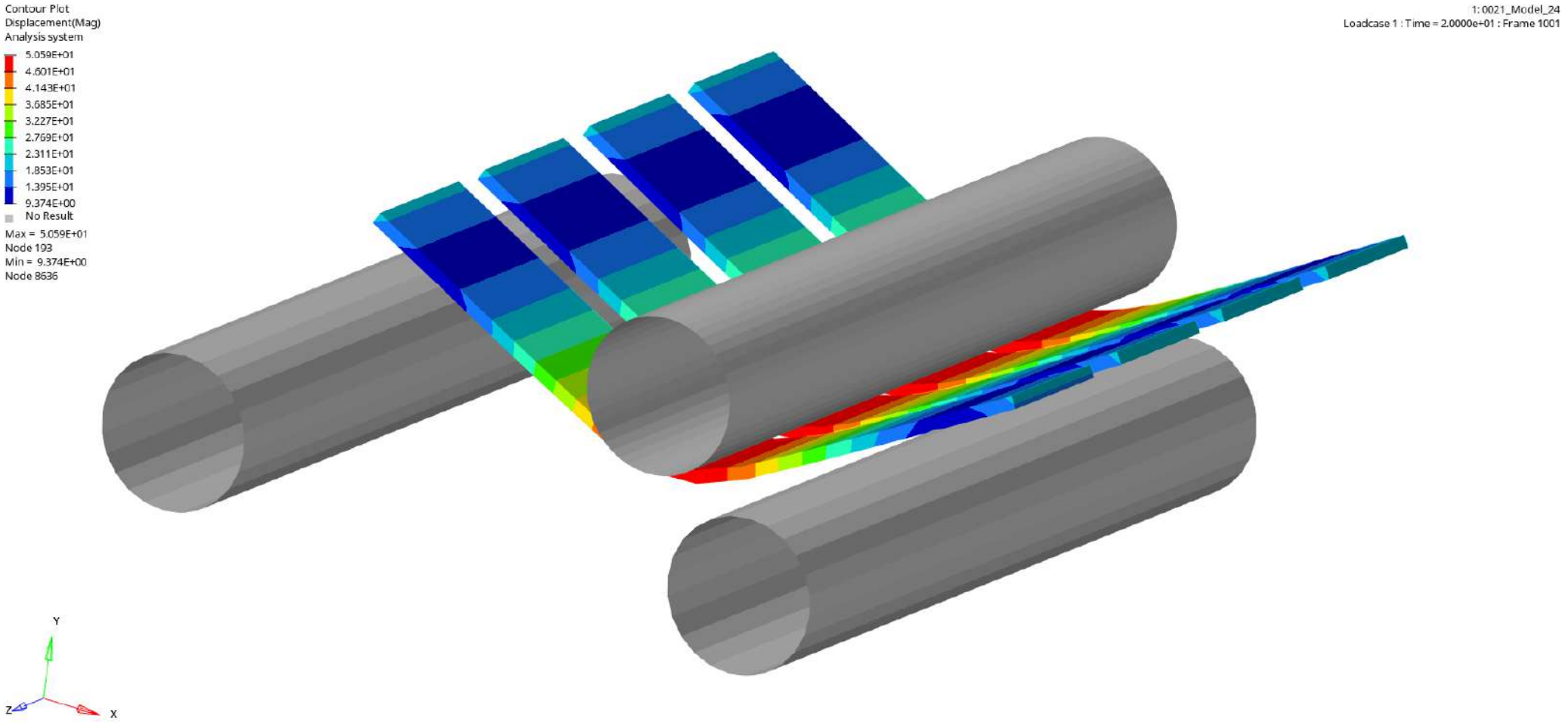


Indenter
- Moves downward
- SHELL Elements
- Elastic material
- Rigid body

Cylindrical supports
- Rigid walls

Analysis Assumptions and Limitations

Analysis Results



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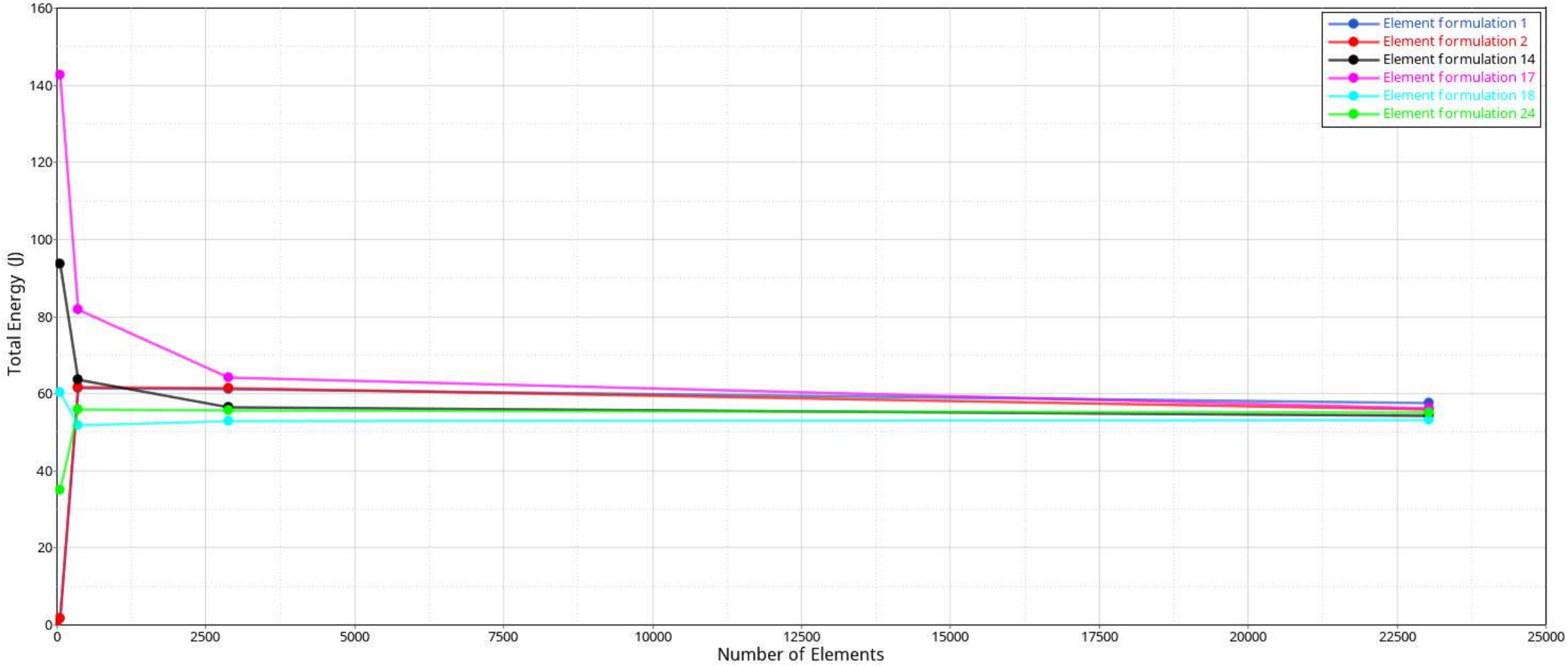
Analysis Results



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Conclusions

- Plastic bending analysis of a beam was conducted to show the dependance of convergence on number of elements and element formulations.